

The image displays a grid of 12 columns and 12 rows of small, illegible text fragments. These fragments appear to be individual lines of code or data, possibly from a test run or a data dump, arranged in a structured format. The text is too small and faded to be read accurately, but the layout suggests a systematic organization of information.

BO1

0000000000

00000000

770000

PDP10 411

HDR:GGYABCSEJ

00000000

770000

.REPT 0 .REM 1

IDENTIFICATION

PRODUCT CODE: MAINDEC-11-DGKAB-0-D
 PRODUCT NAME: 11/04 TRAP TEST
 DATE: JANUARY 1977
 MAINTAINER: DIAGNOSTIC GROUP
 AUTHOR: AL LOSCHAK

COPYRIGHT (C) 1975, 1977 DIGITAL EQUIPMENT CORP., MAYNARD, MASS.

THIS SOFTWARE IS FURNISHED TO PURCHASER UNDER A LICENSE FOR USE ON A SINGLE COMPUTER SYSTEM AND CAN BE COPIED (WITH INCLUSION OF DEC'S COPYRIGHT NOTICE) ONLY FOR USE IN SUCH SYSTEM, EXCEPT AS MAY OTHERWISE BE PROVIDED IN WRITING BY DEC.

THE INFORMATION IN THIS DOCUMENT IS SUBJECT TO CHANGE WITHOUT NOTICE AND SHOULD NOT BE CONSTRUED AS A COMMITMENT BY DIGITAL EQUIPMENT CORPORATION.

DEC ASSUMES NO RESPONSIBILITY FOR THE USE OR RELIABILITY OF ITS SOFTWARE ON EQUIPMENT WHICH IS NOT SUPPLIED BY DEC.

11/04 TRAP TEST

No. 1

1. ABSTRACT

THIS IS A TEST OF ALL OPERATIONS AND INSTRUCTIONS THAT CAUSE TRAPS. ALSO TESTED ARE TRAP OVERFLOW CONDITIONS, ODDITIES OF REGISTER 5, INTERRUPTS. THE RESET AND WAIT INSTRUCTIONS.

2. REQUIREMENTS

2.1 EQUIPMENT

11/04 STANDARD COMPUTER .SERIAL LINE INTERFACE (SEE PARAGRAPH 5.1)

2.2 STORAGE

2.2.1 PROGRAM STORAGE - THE ROUTINE USES MEMORY FROM 0000 TO 17500.

3. LOADING PROCEDURE

3.1 METHOD

PROCEDURE FOR NORMAL ABSOLUTE TAPES SHOULD BE FOLLOWED.

4. STARTING PROCEDURE

THE PROGRAM STARTS AT 200.

IF IT IS DESIRED TO RESET THE PASS COUNT BACK TO ZERO ; THEN START THIS PROGRAM AT LOCATION 210

4.2 PROGRAM AND/OR OPERATOR ACTION

LOAD PROGRAM INTO MEMORY. (BOTTOM 4K)
LOAD ADDRESS.
START.

THE PROGRAM WILL LOOP.
IT WILL PRINT "END OF DGKAB" AFTER THE FIRST ITERATION
AND THEN PRINTS IT EVERY 15 TIMES (APPROXIMATELY A MINUTE)

5. OPERATION

5.1 SETTING BIT0 OF \$SWREG DISABLES TESTS REQUIRING A SERIAL LINE INTERFACE.
CAUTION: SETTING BIT0 DISABLES TESTING THE "WAIT" INSTRUCTION AND THE INTERRUPT OPERATION.

5.2 SUBROUTINE ABSTRACTS

5.2.1 BEGIN AT 200

5.2.2 SCOPE

IF A SCOPE LOOP IS NEEDED INSERT A BRANCH AS THE

COMMENT TO THE HALT EXPLAINS.

5.2.3 TRAPCATCHER

THIS IS A SERIES OF INSTRUCTIONS DESIGNED TO DETECT AND ISOLATE UNEXPECTED TRAPS AND INTERRUPTS, THAT OCCUR IN THE TRAP AND INTERRUPT VECTOR AREA OF MEMORY.

THE PRINCIPLE OF THIS ROUTINE IS: THE VECTOR ENTRANCE ADDRESS POINTS TO THE NEXT SEQUENTIAL WORD WHICH WILL CONTAIN A HALT (00000) (THIS LOCATION IS ALSO THE STATUS WORD FOR THAT VECTOR ENTRANCE. BUT THIS WILL HAVE NO EFFECT ON IT ALSO BEING THE NEXT INSTRUCTION).

IF A HALT OCCURS IN THE TRAP OR INTERRUPT VECTOR AREA, REGISTER SIX SHOULD BE EXAMINED TO DETERMINE ITS CONTENTS. THEN USE REGISTER SIX CONTENTS AS AN ADDRESS TO DETERMINE WHERE THE PROGRAM WAS. WHEN THE INTERRUPT OR TRAP OCCURRED, MEMORY AS SPECIFIED BY R6 CONTAINS THE PC OF THE INSTRUCTION FOLLOWING THE INSTRUCTION WHERE THE TRAP OCCURRED. THE CONTENTS OF LOCATION 'STSTN' (304) CONTAINS THE TEST NUMBER THAT IT WAS DOING BEFORE IT TRAPPED.

5.3 PROGRAM AND/OR OPERATOR ACTION

5.3.1 LOADING AND STARTING AT 200 STARTS THE TEST. IF AN ERROR IS DETECTED, THERE WILL BE A HALT. NOTE: IF A SCOPE LOOP IS NEEDED THE COMMENT SECTION OF THE HALT EXPLAINS HOW TO UTILIZE THIS LOOP.

6. ERRORS

6.1 ALL ERRORS WILL CAUSE A HALT.

6.1.1 THE PROGRAM CHECKS TO SEE THAT THE P.C. DOESN'T JUMP WITHIN THE TESTS, BY A SEQUENCE COUNT CALLED 'STSTN' THIS TEST IS A SEQUENTIAL INCREMENT AND COMPARE COUNT.

EXAMPLE

```

TSTA:  INC      @#STSTNM      ; INCREMENT THE TEST NUMBER
        CMP      #A,@#STSTNM  ; COMPARE FOR THE RIGHT TEST
        BNE     TSTA+1-12     ; IF NOT CORRECT BRACHN TO A HALT
        -----
        CODE

```

IMPORTANT

Vertical text on the left margin, likely a page number or document identifier.

IF AN ERROR IS DETECTED ;IT COULD BE BECAUSE OF TWO REASONS.
A) WRONG TEST NUMBER
B) ERROR IN THE PRESENT TEST.

////////////////////////////////////
THE TEST SEQUENCE LOCATION "TESTN" SHOULD BE CHECKED FIRST
TO SEE IF IT MATCHES THE PRESENT TEST.
IF IT DOESN'T MATCH ; THEN THE CONTENTS OF THIS LOCATION
TELL YOU WHICH TEST IT WAS DOING BEFORE IT HALTED.
////////////////////////////////////

6.2 ERROR RECOVERY

ON TRAP ERRORS - RESTART AT STARTING ADDRESS

7. RESTRICTIONS
7.1 STARTING RESTRICTION

NONE

7.2 OPERATIONAL RESTRICTION

NONE

8. MISCELLANEOUS

8.1 EXECUTION TIME

FOR ONE ITERATION ABOUT 5 SECONDS.
IT TYPES "END OF DGKAB" APPROXIMATELY EVERY MINUTE.

9. PROGRAM DESCRIPTION

THIS PROGRAM CHECKS THAT ON ALL TRAP OPERATIONS REGISTER
6 IS DECREMENTED THE CORRECT AMOUNT, THAT THE CORRECT
PC IS SAVED ON THE STACK, THAT THE OLD CONDITION CODES AND
PRIORITY ARE PLACED ON THE STACK AND THAT THE NEW STATUS AND
CONDITION CODES ARE CORRECT. BOTH THE "TRAP" AND "EMT"
TRAP INSTRUCTIONS ARE TESTED TO SEE THAT ALL COMBINATIONS WILL
TRAP. CHECKED ALSO IS THAT ALL RESERVED INSTRUCTIONS
WILL TRAP. VERIFICATION OF THE "TRT" INSTRUCTION (DCJ03)
WHICH IS USED FOR SOFTWARE DEBUG ROUTINES: ODT,DDT, IS DONE.
ALSO, THE TRACE BIT IS CHECKED TO SEE IF IT CAUSES A TRAP.
THE RTI AND RTT INSTRUCTIONS ARE CHECKED. STACK OVERFLOW IS
ALSO CHECKED FOR ALL THE TRAP INSTRUCTIONS.
SPECIAL CHECKS ARE MADE TO SEE IF BUS
ERROR TRAPS OCCUR ON NON-EXISTENT MEMORY.
.ENDR

?
:ALL INSTRUCTIONS THAT ARE RESERVED
:SHOULD TRAP TO LOCATION 10, AND THE
:PC THAT POINTS TO THE TRAPPING INSTRUCTION
:SHOULD BE PLACED ON THE STACK

164
165
166
167
168
169
170
171
172
173
174
175
176
177
178
179
180
181
182
183
184
185
186
187
188
189
190
191
192
193
194
195
196
197
198

256 000300
 257 000300 000000
 258 000302 000000
 259 000304 000000
 260 000306 000000
 261 000310 000000
 262 000312 000000
 263 000314 000000
 264 000316 000000
 265 000320
 266 000320 000
 267 000321 000
 268 000322 000000
 269 000324 000000
 270 000326 000000
 271
 272
 273
 274
 275
 276
 277 000330 000
 278 000331 000
 279
 280
 281
 282 000332 000000
 283
 284
 285 000334 000
 286 000335 000
 287 000336 000000
 288 000340 000
 289 000341 000
 290 000342 000000
 291 000344 000
 292 000345 000
 293 000346 000000
 294 000350
 295
 296
 297
 298
 299
 300
 301 000350
 302 000024
 303 000024 000200
 304 000044 000044
 305 000044 000350
 306 000350
 307
 308
 309
 310
 311 000350

```

$MAIL:      :: APT MAIL_BOX
$MSGTY: .WORD  AMMSGTY  :: MESSAGE TYPE CODE
$FATAL: .WORD  AFATAL   :: FATAL ERROR NUMBER
$TESTN: .WORD  ATESTN   :: TEST NUMBER
$PASS:   .WORD  APASS    :: PASS COUNT
$DEVCT:  .WORD  ADEVCT   :: DEVICE COUNT
$UNIT:   .WORD  AUNIT    :: I/O UNIT NUMBER
$MSGAD:  .WORD  AMSGAC   :: MESSAGE ADDRESS
$MSGLG:  .WORD  AMSGLG   :: MESSAGE LENGTH
$ETABLE:      :: APT ENVIRONMENT TABLE
$ENV:     .BYTE  AENV     :: ENVIRONMENT BYTE
$ENVM:    .BYTE  AENVM    :: ENVIRONMENT MODE BITS
$SWREG:   .WORD  ASWREG   :: APT SWITCH REGISTER
$USWR:    .WORD  AUSWR    :: USER SWITCHES
$CPUOP:   .WORD  ACPJOP   :: CPU TYPE, OPTIONS
:: BIT 15-11=CPU TYPE
:: 11/04=01, 11/05=02, 11/20=03, 11/40=04, 11/45=05
:: 11/70=06, PDQ=07, Q=10
BIT 10=REAL TIME CLOCK
BIT 9=FLOATING POINT PROCESSOR
BIT 8=MEMORY MANAGEMENT
$MAMS1: .BYTE  AMAMS1  :: HIGH ADDRESS, M.S. BYTE
$MTYP1: .BYTE  AMTYP1  :: MEM. TYPE, BLK#1
:: MEM. TYPE BYTE -- (HIGH BYTE):
:: 900 NSEC CORE=001
:: 300 NSEC BIPOLAR=002
:: 500 NSEC MOS=003
$MADR1: .WORD  AMADR1  :: HIGH ADDRESS, BLK#1
:: MEM. LAST ADDR.=3 BYTES, THIS WORD AND LOW OF "TYPE" ABOVE
$MAMS2: .BYTE  AMAMS2  :: HIGH ADDRESS, M.S. BYTE
$MTYP2: .BYTE  AMTYP2  :: MEM. TYPE, BLK#2
$MADR2: .WORD  AMADR2  :: MEM. LAST ADDRESS, BLK#2
$MAMS3: .BYTE  AMAMS3  :: HIGH ADDRESS, M.S. BYTE
$MTYP3: .BYTE  AMTYP3  :: MEM. TYPE, BLK#3
$MADR3: .WORD  AMADR3  :: MEM. LAST ADDRESS, BLK#3
$MAMS4: .BYTE  AMAMS4  :: HIGH ADDRESS, M.S. BYTE
$MTYP4: .BYTE  AMTYP4  :: MEM. TYPE, BLK#4
$MADR4: .WORD  AMADR4  :: MEM. LAST ADDRESS, BLK#4
$ETEND:
.MEXIT
.SBttl  APT PARAMETER BLOCK

*****
::SET LOCATIONS 24 AND 44 AS REQUIRED FOR APT
*****
.$X=      :: SAVE CURRENT LOCATION
.=24     :: SET POWER FAIL TO POINT TO START OF PROGRAM
200      :: FOR APT START UP
.=44     :: POINT TO APT INDIRECT ADDRESS PNTR.
$APTHDR  :: POINT TO APT HEADER BLOCK
.=.$X    :: RESET LOCATION COUNTER
*****
::SETUP APT PARAMETER BLOCK AS DEFINED IN THE APT-PDP11 DIAGNOSTIC
::INTERFACE SPEC.

$APTHC:
  
```


000350
000352
000354
000356
000360
000362
000364
000366
000368
000370
000372
000374

\$HIBTS: .WORD
\$MBADR: .WORD
\$STSM: .WORD
\$PASTM: .WORD
\$UNITM: .WORD
\$STSTM=\$STESTN
\$ERROR=\$FATAL

0
\$MAIL
0
0
0
\$ETEND-\$MAIL/2
:: TWO HIGH BITS OF 18 BIT MAILBOX ADDR.
:: ADDRESS OF APT MAILBOX (BITS 0-15)
:: RUN TIME OF LONGEST TEST
:: RUN TIME IN SECS. OF 1ST PASS ON 1 UNIT (QUICK VERIFY)
:: ADDITIONAL RUN TIME (SECS) OF A PASS FOR EACH ADDITIONAL UNIT
:: LENGTH MAILBOX-ETABLE (WORDS)

```

000500      000500      000000      . =500
000502      012737      177777      016102  BUFF: 0
000510      005067      177564      BEGIN: MOV      #-1, 0#PASSPT      :CLEAR THE ITERATION COUNTER
000514      012767      016270      177302  RESTR: CLR      $MSGTY      :
000522      012767      000340      177275  MOV      #PWRDWN, 24      :SET UP THE POWER DOWN VECTOR
000530      005067      177550      MOV      #340, 26      :SET UP POWER DOWN PRIORITY
000534      005067      177542      CLR      $TSTNM
000540      012702      000300      CLR      $ERROR
000540      012702      000300      MOV      #MSGTY, R2

;SPECIAL CASE OF ODD; .EVEN .BYTE AND REGISTER 6
HERE=0

000544      000167      000024      JMP      TST1
000550      000000      K1: 0
000552      000000      K2: 0
000554      000000      K3: 0
000556      000000      K4: 0
000560      000000      K5: 0
000562      000000      K6: 0
000564      052525      K7: 052525
000566      052400      K10: 052400
000570      000000      K11: 0
000572      000000      K12: 0

*****
:TEST 1 TEST AUTO INCREMENT AND DECREMENT OF R6 FOR .WORD AND .BYTES
*****
000574      005237      000304      TST1: INC      0#STESTN      :UPDATE TEST NUMBER
000600      022737      000001      000304  CMP      #1, 0#STESTN      :SEQUENCE ERROR
000606      001137      BNE      TST2-12 ;BR TO ERROR HALT ON SEQ ERROR
000610      005006      CLR      %6
000612      112667      177162      MOV      (6)+, HERE      ;SIX SHOULD INCREMENT BY TWO
000616      020627      000002      CMP      %6, #2
000622      001405      BEQ      BR1
000624      012737      000001      000302  MOV      #1, 0#$FATAL      :MOVE TO MAILBOX # ***** 1 *****
000632      005212      INC      (R2)      :SET MSGTYP TO FATAL ERROR
000634      000000      HALT      :R6 DID NOT AUTO INCREMENT BY TWO
: TO SCOPE REPLACE HALT W/ 240
: AND REPLACE NEXT INST W/ 764

000636      012706      001000      BR1: MOV      #1000, %6
000642      114627      000000      MOV      -(6), #HERE      ;SHOULD DECREMENT BY TWO
000646      020627      000776      CMP      %6, #776
000652      001405      BEQ      BR2
000654      012737      000002      000302  MOV      #2, 0#$FATAL      :MOVE TO MAILBOX # ***** 2 *****
000662      005212      INC      (R2)      :SET MSGTYP TO FATAL ERROR
000664      000000      HALT      :R6 DID NOT AUTO DECREMENT BY 2
: TO SCOPE REPLACE HALT W/ 240
: AND REPLACE NEXT INST W/ 750

000666      005006      BR2: CLR      %6
000670      112626      MOV      (6)+, (6)+      :DOUBLES AUTO INCREMENT OF R6
000672      020627      000004      CMP      %6, #4
000676      001405      BEQ      BR3
000700      012737      000002      000302  MOV      #3, 0#$FATAL      :MOVE TO MAILBOX # ***** 3 *****

```

K01

00 DEC 76 09:40 PAGE 10
 PSY AUTO INCREMENT AND DECREMENT OF R6 FOR .WORD AND .BYTES

377	000706	005212		INC	(R2)	:SET MSGTYP TO FATAL ERROR
	000710	000000		HALT		:WRONG AUTO INCREMENT OF R6
						: TO SCOPE REPLACE HALT W/ 240
						: AND REPLACE NEXT INST W/ 73E
382	000712	005006		BR3:	CLR	%6
383	000714	005004			CLR	%4
384	000716	122624			CMPB	(6)+ (4)+
385	000720	020627	000002		CMP	%6, #2
386	000724	001405			BEG	BR4
387	000726	012737	000004	000302	MOV	#4, @#SFATAL
388	000734	005212			INC	(R2)
389	000736	000000			HALT	
						:MOVE TO MAILBOX # ***** 4 *****
						:SET MSGTYP TO FATAL ERROR
						:WRONG INCREMENT OF R6
						: TO SCOPE REPLACE HALT W/ 240
						: AND REPLACE NEXT INST W/ 723
393	000740	005006		BR4:	CLR	%6
394	000742	005004			CLR	%4
395	000744	122426			CMPB	(4)+ (6)+
396	000746	020627	000002		CMP	%6, #2
397	000752	001405			BEG	BR5
398	000754	012737	000005	000302	MOV	#5, @#SFATAL
399	000762	005212			INC	(R2)
400	000764	000000			HALT	
						:MOVE TO MAILBOX # ***** 5 *****
						:SET MSGTYP TO FATAL ERROR
						:WRONG INCREMENT OF R6
						: TO SCOPE REPLACE HALT W/ 240
						: AND REPLACE NEXT INST W/ 710
404	000766	005006		BR5:	CLR	%6
405	000770	005004			CLR	%4
406	000772	122624			CMPB	(6)+ (4)+
407	000774	020427	000001		CMP	%4, #1
408	001000	001405			BEG	BR6
409	001002	012737	000006	000302	MOV	#6, @#SFATAL
410	001010	005212			INC	(R2)
411	001012	000000			HALT	
						:MOVE TO MAILBOX # ***** 6 *****
						:SET MSGTYP TO FATAL ERROR
						:WRONG INCREMENT OF R4
						: TO SCOPE REPLACE HALT W/ 240
						: AND REPLACE NEXT INST W/ 675
414	001014	005006		BR6:	CLR	%6
415	001016	005004			CLR	%4
416	001020	122426			CMPB	(4)+ (6)+
417	001022	020627	000002		CMP	%6, #2
418	001026	001405			BEG	BR7
419	001030	012737	000007	000302	MOV	#7, @#SFATAL
420	001036	005212			INC	(R2)
421	001040	000000			HALT	
						:MOVE TO MAILBOX # ***** 7 *****
						:SET MSGTYP TO FATAL ERROR
						:WRONG INCREMENT OF R6
						: TO SCOPE REPLACE HALT W/ 240
						: AND REPLACE NEXT INST W/ 662
424	001042	005006		BR7:	CLR	%6
425	001044	005004			CLR	%4
426	001046	122426			CMPB	(4)+ (6)+
427	001050	020427	000001		CMP	%4, #1
428	001054	001405			BEG	BR10
429	001056	012737	000010	000302	MOV	#10, @#SFATAL
430	001064	005212			INC	(R2)
431	001066	000000			HALT	
						:MOVE TO MAILBOX # ***** 10 *****
						:SET MSGTYP TO FATAL ERROR
						:WRONG INCREMENT OF R4

L01

```

433
434
435
436
437
438
439
440
441
442
443
444
445
446
447
448
449
450
451
452
453
454
455
456
457
458
459
460
461
462
463
464
465
466
467
468
469
470
471
472
473
474
475
476
477
478
479
480
481
482
483
484
485
486
487
488

```

001070	012706	001000			BR10:	MOV	#1000,%6			: TC SCOPE REPLACE HALT W/ 240
001074	124627	000000				CMPB	-(6),#HERE			: AND REPLACE NEXT INST W/ 647
001100	022706	000776				CMP	#776,%6			: TEST DECREMENT OF R6
001104	001405					BEQ	TST2			
001106	012737	000011	000302			MOV	#11,@\$FATAL			: MOVE TO MAILBOX # ***** 11 *****
001114	005212					INC	(R2)			: SET MSGTYP TO FATAL ERROR
001116	000000					HALT				: WRONG DECREMENT OF R6 OR WRONG \$TSTN
										: TO SCOPE REPLACE HALT W/ 240
										: AND REPLACE NEXT INST W/ 633
:*****										
:TEST 2 TEST TRANSFER OF .BYTE USING R6										
:*****										
001120	005237	000304			TST2:	INC	@\$TESTN			: UPDATE TEST NUMBER
001124	022737	000002	000304			CMP	#2,@\$TESTN			: SEQUENCE ERROR
001132	001137					BNE	TST3-12			: BR TO ERROR HALT ON SEQ ERROR
001134	012767	123456	177416			MOV	#123456,K5			
001142	012767	050505	177400			MOV	#050505,K1			
001150	012705	000550				MOV	#K1,%5			: %5=(050505)K1
001154	012706	000560				MOV	#K5,%6			: %6=(123456)K5
001160	112625					MOVB	(6)+,(5)+			: LOW .BYTE OF R6 TO R5
001162	022767	050456	177360			CMP	#050456,K1			
001170	001405					BEQ	BR11			
001172	012737	000012	000302			MOV	#12,@\$FATAL			: MOVE TO MAILBOX # ***** 12 *****
001200	005212					INC	(R2)			: SET MSGTYP TO FATAL ERROR
001202	000000					HALT				: FALSE TRANSFER OF .BYTE
										: TO SCOPE REPLACE HALT W/ 240
										: AND REPLACE NEXT INST W/ 753
001204	012767	123456	177346		BR11:	MOV	#123456,K5			
001212	012767	050505	177330			MOV	#050505,K1			
001220	012705	000550				MOV	#K1,%5			: %5(050505)K1
001224	012706	000562				MOV	#K6,%6			: %6(123456)K5
001230	114625					MOVB	-(6),(5)+			: LOW .BYTE OF R6 TO R5 (DECREMENT)
001232	026727	177312	050456			CMP	K1,#050456			
001240	001405					BEQ	BR12			
001242	012737	000013	000302			MOV	#13,@\$FATAL			: MOVE TO MAILBOX # ***** 13 *****
001250	005212					INC	(R2)			: SET MSGTYP TO FATAL ERROR
001252	000000					HALT				: FALSE R6 .BYTE TRANSFER
										: TO SCOPE REPLACE HALT W/ 240
										: AND REPLACE NEXT INST W/ 727
001254	012767	123456	177266		BR12:	MOV	#123456,K1			
001262	012767	050505	177270			MOV	#050505,K5			
001270	012705	000550				MOV	#K1,%5			: (123456)
001274	012706	000560				MOV	#K5,%6			: (050505)
001300	112526					MOVB	(5)+,(6)+			: LOW OF R5 TO LOW OF R6
001302	022767	050456	177250			CMP	#050456,K5			
001310	001405					BEQ	BR13			
001312	012737	000014	000302			MOV	#14,@\$FATAL			: MOVE TO MAILBOX # ***** 14 *****
001320	005212					INC	(R2)			: SET MSGTYP TO FATAL ERROR
001322	000000					HALT				: FALSE R6 .BYTE TRANSFER
										: TO SCOPE REPLACE HALT W/ 240
										: AND REPLACE NEXT INST W/ 733

```

001324 012767 123456 177216 BR13: MOV #123456,K1
001332 012767 050505 177220 MOV #050505,K5
001340 012705 000551 :123456
001344 012706 000560 :050505
001350 112526 :HIGH OF R5 TO LOW OF R6
001352 026727 177202 050547 CMP K5,#050647
001360 001405 BR14
001362 012737 000015 000302 MOV #15,#$FATAL :MOVE TO MAILBOX # ***** 15 *****
001370 005212 INC :SET MSGTYP TO FATAL ERROR
001372 000000 HALT :FALSE R6 .BYTE TRANSFER
: TO SCOPE REPLACE HALT W/ 240
: AND REPLACE NEXT INST W/ 657

001374 012767 123456 177146 BR14: MOV #123456,K1
001402 012767 050505 177150 MOV #050505,K5
001410 012705 000551 :R5-123456-ODD ADDRESS
001414 012706 000560 :R6-050505--.EVEN ADDRESS
001420 112625 :LOW OF R6 TO HIGH OF R5
001422 022767 042456 177120 CMP #042456,K1
001430 001405 BR14
001432 012737 000016 000302 MOV #16,#$FATAL :MOVE TO MAILBOX # ***** 16 *****
001440 005212 INC :SET MSGTYP TO FATAL ERROR
001442 000000 HALT :FAILED LOW OF 6 TO HIGH OF 5,OR WRONG $STNM
: TO SCOPE REPLACE HALT W/ 240
: AND REPLACE NEXT INST W/ 633

*****
:TEST 3 TEST BYTE OPERATION WITH SEQUENTIAL ODD-EVEN ADDRESS
*****
001444 005227 000304 :ST3: INC #STESTN :UPDATE TEST NUMBER
001450 022737 000003 000304 CMP #3,#STESTN :SEQUENCE ERROR
001456 001103 BNE TST4-12 :BR TO ERROR HALT ON SEQ ERROR
001460 126767 177100 177077 CMPB K7,K7+1 :SAME .WORD LOW TO HIGH
001466 001405 BR15
001470 012737 000017 000302 MOV #17,#$FATAL :MOVE TO MAILBOX # ***** 17 *****
001476 005212 INC :SET MSGTYP TO FATAL ERROR
001500 000000 HALT :SHOULD COMPARE LOW TO HIGH
: TO SCOPE REPLACE HALT W/ 240
: AND REPLACE NEXT INST W/ 756

001502 126767 177057 177054 BR15: CMPB K7+1,K7 :COMPARE ODD TO .EVEN SAME .WORD
001510 001405 BR16
001512 012737 000020 000302 MOV #20,#$FATAL :MOVE TO MAILBOX # ***** 20 *****
001520 005212 INC :SET MSGTYP TO FATAL ERROR
001522 000000 HALT :ODD TO .EVEN .BYTE FAILURE
: TO SCOPE REPLACE HALT W/ 240
: AND REPLACE NEXT INST W/ 755

001524 126767 177037 177032 BR16: CMPB K10+1,K7 :SEQUENTIAL .BYTES
001532 001405 BR17
001534 012737 000021 000302 MOV #21,#$FATAL :MOVE TO MAILBOX # ***** 21 *****
001542 005212 INC :SET MSGTYP TO FATAL ERROR
001544 000000 HALT :ODD TO .EVEN FAILED
: TO SCOPE REPLACE HALT W/ 240
: AND REPLACE NEXT INST W/ 744

```


NO1

001546	126767	177014	177006	BR17:	CMPB	K10,K6		
001554	001405				BEG	BR20		
001556	012737	000022	000302		MOV	#22, @#SFATAL	: MOVE TO MAILBOX # ***** 22 *****	
001564	005212				INC	(R2)	: SET MSGTYP TO FATAL ERROR	
001566	000000				HALT		: EVEN TO EVEN FAILED	
							: TO SCOPE REPLACE HALT W/ 240	
							: AND REPLACE NEXT INST W/ 732	
001570	126767	176771	176771	BR20:	CMPB	K7+1,K10+1		
001576	001405				BEG	BR21		
001600	012737	000023	000302		MOV	#23, @#SFATAL	: MOVE TO MAILBOX # ***** 23 *****	
001606	005212				INC	(R2)	: SET MSGTYP TO FATAL ERROR	
001610	000000				HALT		: ODD TO ODD FAILED	
							: TO SCOPE REPLACE HALT W/ 240	
							: AND REPLACE NEXT INST W/ 722	
001612	126767	176750	176747	BR21:	CMPB	K10,K10+1		
001620	001005				BNE	BR22		
001622	012737	000024	000302		MOV	#24, @#SFATAL	: MOVE TO MAILBOX # ***** 24 *****	
001630	005212				INC	(R2)	: SET MSGTYP TO FATAL ERROR	
001632	000000				HALT		: LOW TO HIGH IN SAME WORD FAILED	
							: TO SCOPE REPLACE HALT W/ 240	
							: AND REPLACE NEXT INST W/ 711	
001634	126767	176727	176725	BR22:	CMPB	K10+1,K10+1		
001642	001405				BEG	BR23		
001644	012737	000025	000302		MOV	#25, @#SFATAL	: MOVE TO MAILBOX # ***** 25 *****	
001652	005212				INC	(R2)	: SET MSGTYP TO FATAL ERROR	
001654	000000				HALT		: HIGH TO LOW IN SAME WORD FAILED	
							: TO SCOPE REPLACE HALT W/ 240	
							: AND REPLACE NEXT INST W/ 700	
001656	126767	176704	176701	BR23:	CMPB	K10,K7+1		
001664	001005				BNE	TST4		
001666	012737	000026	000302		MOV	#26, @#SFATAL	: MOVE TO MAILBOX # ***** 26 *****	
001674	005212				INC	(R2)	: SET MSGTYP TO FATAL ERROR	
001676	000000				HALT		: EVEN TO ODD FAILED OR WRONG SYSTEM	
							: TO SCOPE REPLACE HALT W/ 240	
							: AND REPLACE NEXT INST W/ 667	

: TEST 4 TEST SPECIAL CASE [R, (R)+]								

001700	005237	000304		TST4:	INC	@#STESTN	: UPDATE TEST NUMBER	
001704	022737	000004	000304		CMP	#4, @#STESTN	: SEQUENCE ERROR	
001712	001117				BNE	TST5-12	: BR TO ERROR HALT ON SEQ ERROR	
001714	012700	000570			MOV	#K11,%0	: SOURCE AND DESTINATION BOTH RC	
001720	010020				MOV	%0,(0)+	: SOURCE NO MEMORY REFERENCE	
001722	026727	176642	000572		CMP	K11, #K11+2	: DESTINATION IS MEMORY REFERENCE	
001730	001005				BNE	BR24		
001732	012737	000027	000302		MOV	#27, @#SFATAL	: MOVE TO MAILBOX # ***** 27 *****	
001740	005212				INC	(R2)	: SET MSGTYP TO FATAL ERROR	
001742	000000				HALT		: TO SCOPE REPLACE HALT W/ 240	
							: AND REPLACE NEXT INST W/ 763	
001744	012700	000570		BR24:	MOV	#K11,%0		

001750 001752 001760 001762 001770 001772

06-DEC-76 09:40 PAGE 14
 EST SPECIAL CASE (R, R, +)

601	001750	110020			MOVB	%0,(0)+		
602	001752	026727	176612	000571	CMP	K11,#K11+1		
603	001760	001005			BNE	BR25		
604	001762	012737	000030	000302	MOV	#30,@#SFATAL	: MOVE TO MAILBOX # ***** 30 *****	
605	001770	005212			INC	(R2)	: SET MSGTYP TO FATAL ERROR	
606	001772	000000			HALT		: FAILED MOV %0,(0)+	
607							: TO SCOPE REPLACE HALT W/ 240	
608							: AND REPLACE NEXT INST W/ 747	
609								
610	001774	012706	000570		BR25: MOV	#K11,%6		
611	002000	110626			MOVB	%6,(6)+		
612	002002	026727	176562	000572	CMP	K11,#K11+2		
613	002010	001005			BNE	BR26		
614	002012	012737	000031	000302	MOV	#31,@#SFATAL	: MOVE TO MAILBOX # ***** 31 *****	
615	002020	005212			INC	(R2)	: SET MSGTYP TO FATAL ERROR	
616	002022	000000			HALT		: FAILED MOV %6,(6)+	
617							: TO SCOPE REPLACE HALT W/ 240	
618							: AND REPLACE NEXT INST W/ 733	
619	002024	012706	000570		BR26: MOV	#K11,%6		
620	002030	010626			MOV	%6,(6)+		
621	002032	026727	176532	000572	CMP	K11,#K11+2		
622	002040	001005			BNE	BR27		
623	002042	012737	000032	000302	MOV	#32,@#SFATAL	: MOVE TO MAILBOX # ***** 32 *****	
624	002050	005212			INC	(R2)	: SET MSGTYP TO FATAL ERROR	
625	002052	000000			HALT		: FAILED MOV %6,(6)+	
626							: TO SCOPE REPLACE HALT W/ 240	
627							: AND REPLACE NEXT INST W/ 717	
628								
629	002054	012700	000570		BR27: MOV	#K11,%0	: SOURCE AND DESTINATION BOTH RC	
630	002060	010020			MOV	%0,(0)+	: SOURCE NO MEMORY REFERENCE	
631	002062	026727	176502	000570	CMP	K11,#K11	: DESTINATION IS MEMORY REFERENCE	
632	002070	001405			BEQ	BR30		
633	002072	012737	000033	000302	MOV	#33,@#SFATAL	: MOVE TO MAILBOX # ***** 33 *****	
634	002100	005212			INC	(R2)	: SET MSGTYP TO FATAL ERROR	
635	002102	000000			HALT		: FAILED %0,(0)+	
636							: TO SCOPE REPLACE HALT W/ 240	
637							: AND REPLACE NEXT INST W/ 703	
638								
639	002104	016700	176460		BR30: MOV	K11,%0		
640	002110	110020			MOVB	%0,(0)+		
641	002112	026727	176452	000570	CMP	K11,#K11		
642	002120	001405			BEQ	BR31		
643	002122	012737	000034	000302	MOV	#34,@#SFATAL	: MOVE TO MAILBOX # ***** 34 *****	
644	002130	005212			INC	(R2)	: SET MSGTYP TO FATAL ERROR	
645	002132	000000			HALT		: FAILED MOV %0,(0)+	
646							: TO SCOPE REPLACE HALT W/ 240	
647							: AND REPLACE NEXT INST W/ 667	
648	002134	012706	000570		BR31: MOV	#K11,%6		
649	002140	110626			MOVB	%6,(6)+		
650	002142	026727	176422	000570	CMP	K11,#K11		
651	002150	001405			BEQ	TST5		
652	002152	012737	000035	000302	MOV	#35,@#SFATAL	: MOVE TO MAILBOX # ***** 35 *****	
653	002160	005212			INC	(R2)	: SET MSGTYP TO FATAL ERROR	
654	002162	000000			HALT		: FAILED MOV %6,(6)+	
655							: TO SCOPE REPLACE HALT W/ 240	
656							: AND REPLACE NEXT INST W/ 653	

657
658
659
660
661
662
663
664
665
666
667
668
669
670
671
672
673
674
675
676
677
678
679
680
681
682
683
684
685
686
687
688
689
690
691
692
693
694
695
696
697
698
699
700
701
702
703
704
705
706
707
708
709
710
711
712

002164 005237 0003C4
002170 022737 000005 300304
002176 001062
002200 000277
002202 005067 17557C
002206 103005
002210 012737 000036 300302
002216 005212
002220 000000
002222
002222 102005
002224 012737 000037 300302
002232 005212
002234 000000
002236
002236 001005
002240 012737 000040 000302
002246 005212
002250 000000
002252
002252 100005
002254 012737 000041 000302
002262 005212
002264 000000
002266 000257
00227C 052767 000017 17550C
00227E 103405
002300 012737 000042 300302
002306 005212
002310 000000
002312
002312 102405
002314 012737 000043 000302
002322 005212
002324 000000
00232E
00232E 001405
00233C 012737 000044 000302

```
*****
:TEST 5 TEST THE CC BITS
*****
TSTS: INC      2#STESTN      ;UPDATE TEST NUMBER
      CMP      #5,2#STESTN  ;SEQUENCE ERROR
      BNE      TST6-12 ;BR TO ERROR HALT ON SEQ ERROR
      SCC
      CLR      STATUS      ;SET STATUS
      BCC      BR33        ;CLEAR STATUS
      MOV      #36,2#SFATAL ;MOVE TO MAILBOX # ***** 36 *****
      INC      (R2)        ;SET MSGTYP TO FATAL ERROR
      HALT
      ;C NOT CLEAR
      ; TO SCOPE REPLACE HALT W/ 240
      ; AND REPLACE NEXT INST W/ 766

BR33: BVC      BR34
      MOV      #37,2#SFATAL ;MOVE TO MAILBOX # ***** 37 *****
      INC      (R2)        ;SET MSGTYP TO FATAL ERROR
      HALT
      ;V NOT CLEAR
      ; TO SCOPE REPLACE HALT W/ 240
      ; AND REPLACE NEXT INST W/ 760

BR34: BNE      BR35
      MOV      #40,2#SFATAL ;MOVE TO MAILBOX # ***** 40 *****
      INC      (R2)        ;SET MSGTYP TO FATAL ERROR
      HALT
      ;Z NOT CLEAR
      ; TO SCOPE REPLACE HALT W/ 240
      ; AND REPLACE NEXT INST W/ 752

BR35: BPL      BR36
      MOV      #41,2#SFATAL ;MOVE TO MAILBOX # ***** 41 *****
      INC      (R2)        ;SET MSGTYP TO FATAL ERROR
      HALT
      ;N NOT CLEAR
      ; TO SCOPE REPLACE HALT W/ 240
      ; AND REPLACE NEXT INST W/ 744

BR36: CCC
      BIS      #17,STATUS   ;CLEAR CONDITION CODES
      ;SET STATUS TO ONES

BR37: BCS      BR37
      MOV      #42,2#SFATAL ;MOVE TO MAILBOX # ***** 42 *****
      INC      (R2)        ;SET MSGTYP TO FATAL ERROR
      HALT
      ;C NOT SET
      ; TO SCOPE REPLACE HALT W/ 240
      ; AND REPLACE NEXT INST W/ 732

BR37: BVS      BR40
      MOV      #43,2#SFATAL ;MOVE TO MAILBOX # ***** 43 *****
      INC      (R2)        ;SET MSGTYP TO FATAL ERROR
      HALT
      ;V NOT SET
      ; TO SCOPE REPLACE HALT W/ 240
      ; AND REPLACE NEXT INST W/ 724

BR40: BEQ      BR41
      MOV      #44,2#SFATAL ;MOVE TO MAILBOX # ***** 44 *****
```

```

713 002336 005212      INC      (R2)      ;SET MSGTYP TO FATAL ERROR
714 00234C 000000      HALT      ;Z NOT SET
715                                     ; TO SCOPE REPLACE HALT W/ 240
716                                     ; AND REPLACE NEXT INST W/ 716
717 002342                                     BR41:
718 002342 100405      BMI      TST6
719 002344 012737 000045 000302      MOV      #45,2#SFATAL ;MOVE TO MAILBOX # ***** 45 *****
720 002352 005212      INC      (R2)      ;SET MSGTYP TO FATAL ERROR
721 002354 000000      HALT      ;N NOT SET, OR WRONG $STNM
722                                     ; TO SCOPE REPLACE HALT W/ 240
723                                     ; AND REPLACE NEXT INST W/ 710
724                                     ;*****
725 :TEST 6 TEST THAT A TRAP OCCURS ON A RESERVED INSTRUCTION
726 :*****
727 002356 005237 000304 000304  TST6:  INC      2#STESTN ;UPDATE TEST NUMBER
728 002362 022737 000006 000304      CMP      #6,2#STESTN ;SEQUENCE ERROR
729 002370 001006      BNE      RETA      ;BR TO ERROR HALT ON SEQ ERROR
730 002372 012706 000500      MOV      #BUFF,SP ;STACK POINTER SETUP
731 002376 012767 002420 175404      MOV      #RETA,RTRAP ;RETURN LOCATION
732 002404 000007      TRAPA ;RESERVED INSTRUCTION. SHOULD TRAP
733 002406                                     RETA:
734 002406 012737 000045 000302      MOV      #46,2#SFATAL ;MOVE TO MAILBOX # ***** 46 *****
735 002414 005212      INC      (R2)      ;SET MSGTYP TO FATAL ERROR
736 002416 000000      HALT      ;RESERVE INSTRUCTION DIDN'T TRAP, OR WRONG $STNM
737                                     ; TO SCOPE REPLACE HALT W/ 240
738                                     ; AND REPLACE NEXT INST W/ 764
739 002420                                     RETAH:
740 :*****
741 :TEST 7 TEST DECREMENT OF STACK POINTER ON A TRAP OPERATION
742 :*****
743 002420 005237 000304 000304  TST7:  INC      2#STESTN ;UPDATE TEST NUMBER
744 002424 022737 000007 000304      CMP      #7,2#STESTN ;SEQUENCE ERROR
745 002432 001011      BNE      TST10-12 ;BR TO ERROR HALT ON SEQ ERROR
746 002434 012706 000500      MOV      #BUFF,SP ;STACK POINTER SETUP
747 002440 012767 002450 175342      MOV      #RETB,RTRAP ;RETURN POINTER
748 002446 000007      TRAPA ;RESERVED INSTRUCTION
749 002450 020627 000474      RETB:  CMP      SP,#BUFF-4 ;TEST DECREMENT OF SP
750 002454 001405      BEQ      TST10
751 002456 012737 000047 000302      MOV      #47,2#SFATAL ;MOVE TO MAILBOX # ***** 47 *****
752 002464 005212      INC      (R2)      ;SET MSGTYP TO FATAL ERROR
753 002466 000000      HALT      ;NOT DECREMENTED TWO WORDS, OR WRONG $STNM
754                                     ; TO SCOPE REPLACE HALT W/ 240
755                                     ; AND REPLACE NEXT INST W/ 761
756 :*****
757 :TEST 10 TEST THAT PROPER P.C. IS SAVED
758 :*****
759 002470 005237 000304 000304  TST10: INC      2#STESTN ;UPDATE TEST NUMBER
760 002474 022737 000010 000304      CMP      #10,2#STESTN ;SEQUENCE ERROR
761 002502 001012      BNE      TST11-12 ;BR TO ERROR HALT ON SEQ ERROR
762 002504 012706 000500      MOV      #BUFF,SP ;STACK POINTER SETUP
763 002510 012767 002520 175272      MOV      #RETC,RTRAP ;RETURN FROM TRAP POINTER
764 002516 000007      TRAPA ;TRAP ON THIS INSTRUCTION
765 002520 022767 002520 175746      RETC:  CMP      #,BUFF-4 ;CHECK FOR INCREMENTED P.C.
766 002526 001405      BEQ      TST11
767 002530 012737 000050 000302      MOV      #50,2#SFATAL ;MOVE TO MAILBOX # ***** 50 *****
768 002536 005212      INC      (R2)      ;SET MSGTYP TO FATAL ERROR

```

```

769 002540 000000 HALT ; INCORRECT P.C., OR WRONG INSTNM
; TO SCOPE REPLACE HALT W/ 240
; AND REPLACE NEXT INST W/ 760
;*****
;TEST 11 TEST THAT "OLD" CC AND PRIORITY ARE PLACED ON STACK
;*****
775 002542 005237 000304 ;ST11: INC @#STESTN ; UPDATE TEST NUMBER
776 002546 022737 000011 000304 CMP #11,@#STESTN ; SEQUENCE ERROR
777 002554 001040 BNE TST12-12 ; BR TO ERROR HALT ON SEQ ERROR
778 002556 012706 000500 MOV #BUFF,SP ; SET UP
779 002562 012767 002600 175220 MOV #RETD,RTRAP ; SET UP
780 002570 005067 175202 CLR CC ; CLEAR CC AND PRIORITY
781 002574 000257 CCC ;
782 002576 000007 TRAPA ; TRAP
783 002600 026727 175672 000000 RETD: CMP BUFF-2,#0 ; TEST THAT OLD STATUS WENT TO STACK
784 002606 001405 BEQ 1$ ;
785 002610 012737 000051 000302 MOV #51,@#SFATAL ; MOVE TO MAILBOX # ***** 51 *****
786 002616 005212 INC (R2) ; SET MSGTYP TO FATAL ERROR
787 002620 000000 HALT ; INCORRECT STATUS
; TO SCOPE REPLACE HALT W/ 240
; AND REPLACE NEXT INST W/ 755
788
789
790 002622 012706 000500 1$: MOV #BUFF,SP ; SET UP
791 002626 012767 002646 175154 MOV #RETE,RTRAP ; SET UP
792 002634 012767 000357 175134 MOV #357,CC ; SET PRIORITY
793 002642 000277 SCC ; SET CC
794 002644 000007 TRAPA ; TRAP
795 002646 026727 175624 000357 RETE: CMP BUFF-2,#357 ; COMPARES STATUS ON STACK
796 002654 001405 BEQ TST12 ;
797 002656 012737 000052 000302 MOV #52,@#SFATAL ; MOVE TO MAILBOX # ***** 52 *****
798 002664 005212 INC (R2) ; SET MSGTYP TO FATAL ERROR
799 002666 000000 HALT ; INCORRECT STATUS ON STACK, OR WRONG INSTNM
; TO SCOPE REPLACE HALT W/ 240
; AND REPLACE NEXT INST W/ 732
800
801
802
803 ;*****
;TEST 12 TEST THAT "NEW" STATUS IS CORRECT
;*****
804
805 002670 005237 000304 ;ST12: INC @#STESTN ; UPDATE TEST NUMBER
806 002674 022737 000012 000304 CMP #12,@#STESTN ; SEQUENCE ERROR
807 002702 001121 BNE STPP ; BR TO ERROR HALT ON SEQ ERROR
808 002704 012706 000500 MOV #BUFF,SP ;
809 002710 012767 002724 175072 MOV #RETF,RTRAP ;
810 002716 005067 175070 CLR RTRAP+2 ; CLEAR FUTURE PRIORITY AND CC
811 002722 000007 TRAPA ;
812 RETF: ; TEST FOR "C" CLEARED
813 002724 100005 BPL 1$ ;
814 002726 012737 000053 000302 MOV #53,@#SFATAL ; MOVE TO MAILBOX # ***** 53 *****
815 002734 005212 INC (R2) ; SET MSGTYP TO FATAL ERROR
816 002736 000000 HALT ; N NOT CLEARED
; TO SCOPE REPLACE HALT W/ 240
; AND REPLACE NEXT INST W/ 761
817
818
819 002740 1$: BNE 2$ ;
820 002740 001005 BNE 2$ ;
821 002742 012737 000054 000302 MOV #54,@#SFATAL ; MOVE TO MAILBOX # ***** 54 *****
822 002750 005212 INC (R2) ; SET MSGTYP TO FATAL ERROR
823 002752 000000 HALT ; Z NOT CLEARED
; TO SCOPE REPLACE HALT W/ 240
824

```


: AND REPLACE NEXT INST W/ 753

002754	102005	000055	000302	25:	BVC	35		
002754	012737				MOV	#55, @#\$FATAL	: MOVE TO MAILBOX # ***** 55 *****	
002756	005212				INC	(R2)	: SET MSGTYP TO FATAL ERROR	
002766	000000				HALT		: V NOT CLEARED	
							: TO SCOPE REPLACE HALT W/ 240	
							: AND REPLACE NEXT INST W/ 745	
002770	103005	000056	000302	35:	BCC	45		
002770	012737				MOV	#56, @#\$FATAL	: MOVE TO MAILBOX # ***** 56 *****	
002772	005212				INC	(R2)	: SET MSGTYP TO FATAL ERROR	
003000	000000				HALT		: C NOT CLEARED	
							: TO SCOPE REPLACE HALT W/ 240	
							: AND REPLACE NEXT INST W/ 737	
003004	032767	000340	174764	45:	BIT	#340, CC		
003012	001405				BEG	55		
003014	012737	000057	000302		MOV	#57, @#\$FATAL	: MOVE TO MAILBOX # ***** 57 *****	
003022	005212				INC	(R2)	: SET MSGTYP TO FATAL ERROR	
003024	000000				HALT		: PRIORITY NOT ZERO	
							: TO SCOPE REPLACE HALT W/ 240	
							: AND REPLACE NEXT INST W/ 726	
003026	012706	000500		55:	MOV	#BUFF, SP		
003032	012757	003050	174750		MOV	#RETG, RTRAP		
003040	012767	000357	174744		MOV	#357, RTRAP+2	: SET NEW "CC" AND PRIORITY	
003046	000007				TRAPA		: TRAP HERE	
003050				RETG:				
003050	100405	000060	000302		BMI	15		
003052	012737				MOV	#60, @#\$FATAL	: MOVE TO MAILBOX # ***** 60 *****	
003060	005212				INC	(R2)	: SET MSGTYP TO FATAL ERROR	
003062	000000				HALT		: N NOT SET	
							: TO SCOPE REPLACE HALT W/ 240	
							: AND REPLACE NEXT INST W/ 707	
003064				15:				
003064	001405				BEG	25		
003066	012737	000061	000302		MOV	#61, @#\$FATAL	: MOVE TO MAILBOX # ***** 61 *****	
003074	005212				INC	(R2)	: SET MSGTYP TO FATAL ERROR	
003076	000000				HALT		: Z NOT SET	
							: TO SCOPE REPLACE HALT W/ 240	
							: AND REPLACE NEXT INST W/ 701	
003100				25:				
003100	102405	000062	000302		BVS	35		
003102	012737				MOV	#62, @#\$FATAL	: MOVE TO MAILBOX # ***** 62 *****	
003110	005212				INC	(R2)	: SET MSGTYP TO FATAL ERROR	
003112	000000				HALT		: V NOT SET	
							: TO SCOPE REPLACE HALT W/ 240	
							: AND REPLACE NEXT INST W/ 673	
003114				35:				
003114	103405	000063	000302		BCC	45		
003116	012737				MOV	#63, @#\$FATAL	: MOVE TO MAILBOX # ***** 63 *****	
003124	005212				INC	(R2)	: SET MSGTYP TO FATAL ERROR	
003126	000000				HALT		: C NOT SET	
							: TO SCOPE REPLACE HALT W/ 240	
							: AND REPLACE NEXT INST W/ 665	
003130	016706	174642		45:	MOV	CC, SP		
003134	04270E	000017			BIC	#17, SP		

```

981 003140 022706 000340      CMP      #340,SP
982 003144 001405      BEQ      STPPA
983 003146          STPP:
984 003146 012737 000064 000302      MOV      #64,0#SFATAL ;MOVE TO MAILBOX # ***** 64 *****
985 003154 005212          INC      (R2) ;SET MSGTYP TO FATAL ERROR
986 003156 000000          HALT ;PRIORITY WAS CHANGED,OR WRONG $STNM
987 ; TO SCOPE REPLACE HALT W/ 240
988 ; AND REPLACE NEXT INST W/ 651
989 003160 012767 000012 174622 STPPA: MOV      #12,10
990 003166 005067 174620      CLR      12
991 ;*****
992 ;TEST 13 TEST THAT A TRAP OCCURS FOR A "TRAP" INSTRUCTION
993 ;*****
994 003172 005237 000304          †ST13: INC      0#STESTN ;UPDATE TEST NUMBER
995 003176 022737 000013 000304      CMP      #13,0#STESTN ;SEQUENCE ERROR
996 003204 001013          BNE      TST14-12 ;BR TO ERROR HALT ON SEQ ERROR
997 003206 012767 000012 174574      MOV      #12,10
998 003214 005067 174572      CLR      12
999 003220 012706 000500          MOV      #BUFF,SP ;STACK POINTER SETUP
1000 003224 012767 003246 174602      MOV      #RETA1,RTRAP1 ;RETURN LOCATION
1001 ;RESERVED INSTRUCTION, SHOULD TRAP
1002 003232 104400          TRAP
1003 003234 012737 000065 000302      MOV      #65,0#SFATAL ;MOVE TO MAILBOX # ***** 65 *****
1004 003242 005212          INC      (R2) ;SET MSGTYP TO FATAL ERROR
1005 003244 000000          HALT ;TRAP DIDN'T TRAP,OR WRONG $STNM
1006 ; TO SCOPE REPLACE HALT W/ 240
1007 ; AND REPLACE NEXT INST W/ 757
1008
1009 RETA1:
1010 ;*****
1011 ;TEST 14 TEST DECREMENT OF STACK POINTER ON A TRAP OPERATION
1012 ;*****
1013 003246 005237 000304          †ST14: INC      0#STESTN ;UPDATE TEST NUMBER
1014 003252 022737 000014 000304      CMP      #14,0#STESTN ;SEQUENCE ERROR
1015 003260 001011          BNE      TST15-12 ;BR TO ERROR HALT ON SEQ ERROR
1016 003262 012706 000500          MOV      #BUFF,SP ;STACK POINTER SETUP
1017 003266 012767 003276 174540      MOV      #RETB1,RTRAP1 ;RETURN POINTER
1018 ;RESERVED INSTRUCTION
1019 RETB1: CMP      SP,#BUFF-4 ;TEST DECREMENT OF SP
1020 BEQ      TST15
1021 003304 012737 000066 000302      MOV      #66,0#SFATAL ;MOVE TO MAILBOX # ***** 66 *****
1022 003312 005212          INC      (R2) ;SET MSGTYP TO FATAL ERROR
1023 003314 000000          HALT ;NOT DECREMENTED TWO WORDS,OR WRONG $STNM
1024 ; TO SCOPE REPLACE HALT W/ 240
1025 ; AND REPLACE NEXT INST W/ 761
1026 ;*****
1027 ;TEST 15 TEST THAT PROPER P.C. IS SAVED
1028 ;*****
1029 003316 005237 000304          †ST15: INC      0#STESTN ;UPDATE TEST NUMBER
1030 003322 022737 000015 000304      CMP      #15,0#STESTN ;SEQUENCE ERROR
1031 003330 001012          BNE      TST16-12 ;BR TO ERROR HALT ON SEQ ERROR
1032 003332 012706 000500          MOV      #BUFF,SP ;STACK POINTER SETUP
1033 003336 012767 003346 174470      MOV      #RETC1,RTRAP1 ;RETURN FROM TRAP POINTER
1034 ;TRAP ON THIS INSTRUCTION
1035 RETC1: CMP      #,BUFF-4 ;CHECK INCREMENTED P.C.
1036 BEQ      TST16
1037 003354 001405          MOV      #67,0#SFATAL ;MOVE TO MAILBOX # ***** 67 *****
1038 003356 012737 000067 000302      INC      (R2) ;SET MSGTYP TO FATAL ERROR
1039 003364 005212          HALT

```

```

939 003366 000000 HALT ; INCORRECT P.C. OR WRONG $STNM
940 ; TO SCOPE REPLACE HALT W/ 24C
941 ; AND REPLACE NEXT INST W/ 760
942 *****
943 : TEST 16 TEST THAT "OLD" CC AND PRIORITY ARE PLACED ON STACK
944 *****
945 003370 005237 000304 ST16: INC @ $TESTN ; UPDATE TEST NUMBER
946 003374 022737 000016 000304 CMP #16, @ $TESTN ; SEQUENCE ERROR
947 003402 001037 BNE TST17-12 ; BR TO ERROR HALT ON SEQ ERROR
948 003404 012706 000500 MOV #BUFF, SP ; SET UP
949 003410 012767 003426 174416 MOV #RETD1, RTRAP1 ; SET UP
950 003416 005067 174354 CLR CC ; CLEAR CC AND PRIORITY
951 003422 000257 CCC
952 003424 104400 TRAP ; TRAP
953 003426 026727 175044 000000 RETD1: CMP BUFF-2, #0 ; TEST THAT OLD STATUS WENT TO STACK
954 003434 001405 BEQ 1$
955 003436 012737 000070 000302 MOV #70, @ $FATAL ; MOVE TO MAILBOX # ***** 70 *****
956 003444 005212 INC (R2) ; SET MSGTYP TO FATAL ERROR
957 003446 000000 HALT ; INCORRECT STATUS
958 ; TO SCOPE REPLACE HALT W/ 240
959 ; AND REPLACE NEXT INST W/ 755
960 003450 012706 000500 1$: MOV #BUFF, SP ; SET UP
961 003454 012767 003472 174352 MOV #RETE1, RTRAP1 ; SET UP
962 003462 012767 000357 174306 MOV #357, CC ; SET PRIORITY
963 003470 104400 TRAP ; SET CC
964 003472 026727 175000 000357 RETE1: CMP BUFF-2, #357 ; COMPARES STATUS ON STACK
965 003500 001405 BEQ TST17
966 003502 012737 000071 000302 MOV #71, @ $FATAL ; MOVE TO MAILBOX # ***** 71 *****
967 003510 005212 INC (R2) ; SET MSGTYP TO FATAL ERROR
968 003512 000000 HALT ; INCORRECT STATUS ON STACK, OR WRONG $STNM
969 ; TO SCOPE REPLACE HALT W/ 240
970 ; AND REPLACE NEXT INST W/ 733
971 *****
972 : TEST 17 TEST THAT "NEW" STATUS IS CORRECT
973 *****
974 003514 005237 000304 ST17: INC @ $TESTN ; UPDATE TEST NUMBER
975 003520 022737 000017 000304 CMP #17, @ $TESTN ; SEQUENCE ERROR
976 003526 001121 BNE TST20-12 ; BR TO ERROR HALT ON SEQ ERROR
977 003530 012706 000500 MOV #BUFF, SP
978 003534 012767 003550 174272 MOV #RETF1, RTRAP1 ; CLEAR FUTURE PRIORITY AND CC
979 003542 005067 174270 CLR RTRAP1+2
980 003546 104400 TRAP ; TEST FOR "C" CLEARED
981 003550 RETF1: BPL 1$
982 003552 100005 BEQ #72, @ $FATAL ; MOVE TO MAILBOX # ***** 72 *****
983 003554 012737 000072 000302 MOV #72, @ $FATAL ; SET MSGTYP TO FATAL ERROR
984 003556 005212 INC (R2) ; C NOT CLEARED
985 ; TO SCOPE REPLACE HALT W/ 240
986 ; AND REPLACE NEXT INST W/ 761
987 003564 001005 1$: BNE 2$
988 003566 012737 000073 000302 MOV #73, @ $FATAL ; MOVE TO MAILBOX # ***** 73 *****
989 003574 005212 INC (R2) ; SET MSGTYP TO FATAL ERROR
990 003576 000000 HALT ; Z NOT CLEARED
991 ; TO SCOPE REPLACE HALT W/ 240
992 ; AND REPLACE NEXT INST W/ 753

```

```

993 003600 25:
994 003600 102005 BVC 3$
995 003602 012737 000074 000302 MOV #74, @#$FATAL ;MOVE TO MAILBOX # ***** 74 *****
996 003610 005212 INC (R2) ;SET MSGTYP TO FATAL ERROR
997 003612 000000 HALT ;V NOT CLEARED
; TO SCOPE REPLACE HALT W/ 240
; AND REPLACE NEXT INST W/ 745

998
999
1000 003614 35:
1001 003614 103005 BCC 4$
1002 003616 012737 000075 000302 MOV #75, @#$FATAL ;MOVE TO MAILBOX # ***** 75 *****
1003 003624 005212 INC (R2) ;SET MSGTYP TO FATAL ERROR
1004 003626 000000 HALT ;C NOT CLEARED
; TO SCOPE REPLACE HALT W/ 240
; AND REPLACE NEXT INST W/ 737

1005
1006
1007 003630 032767 000340 174140 4$: BIT #340, CC
1008 003636 001405 BEQ 5$
1009 003640 012737 000076 000302 MOV #76, @#$FATAL ;MOVE TO MAILBOX # ***** 76 *****
1010 003646 005212 INC (R2) ;SET MSGTYP TO FATAL ERROR
1011 003650 000000 HALT ;PRIORITY NOT ZERO
; TO SCOPE REPLACE HALT W/ 240
; AND REPLACE NEXT INST W/ 726

1012
1013
1014 003652 012706 000500 5$: MOV #BUFF, SP
1015 003656 012767 003674 174150 MOV #RETG1, RTRAP1
1016 003664 012767 000357 174144 MOV #357, RTRAP1+2 ;SET NEW "CC" AND PRIORITY
1017 003672 104400 TRAP ;TRAP HERE
1018 003674 RETG1:
1019 003674 100405 BMI 1$
1020 003676 012737 000077 000302 MOV #77, @#$FATAL ;MOVE TO MAILBOX # ***** 77 *****
1021 003704 005212 INC (R2) ;SET MSGTYP TO FATAL ERROR
1022 003706 000000 HALT ;N NOT SET
; TO SCOPE REPLACE HALT W/ 240
; AND REPLACE NEXT INST W/ 707

1023
1024
1025 003710 1$:
1026 003710 001405 BEQ 2$
1027 003712 012737 000100 000302 MOV #100, @#$FATAL ;MOVE TO MAILBOX # ***** 100 *****
1028 003720 005212 INC (R2) ;SET MSGTYP TO FATAL ERROR
1029 003722 000000 HALT ;Z NOT SET
; TO SCOPE REPLACE HALT W/ 240
; AND REPLACE NEXT INST W/ 701

1030
1031
1032 003724 2$:
1033 003724 102405 BVS 3$
1034 003726 012737 000101 000302 MOV #101, @#$FATAL ;MOVE TO MAILBOX # ***** 101 *****
1035 003734 005212 INC (R2) ;SET MSGTYP TO FATAL ERROR
1036 003736 000000 HALT ;V NOT SET
; TO SCOPE REPLACE HALT W/ 240
; AND REPLACE NEXT INST W/ 673

1037
1038
1039 003740 3$:
1040 003740 103405 BCS 4$
1041 003742 012737 000102 000302 MOV #102, @#$FATAL ;MOVE TO MAILBOX # ***** 102 *****
1042 003750 005212 INC (R2) ;SET MSGTYP TO FATAL ERROR
1043 003752 000000 HALT ;C NOT SET
; TO SCOPE REPLACE HALT W/ 240
; AND REPLACE NEXT INST W/ 565

1044
1045
1046 003754 4$: MOV CC, SP
1047 003760 042706 BIC #17, SP
1048 003764 022706 CMP #340, SP

```

```

1049 003770 001405          BEG      *ST20
1050 003772 012737 000103 000302      MOV      #103,0#SFATAL ;MOVE TO MAILBOX # ***** 103 *****
1051 004000 005212          INC      (R2)          ;SET MSGTYP TO FATAL ERROR
1052 004002 000000          HALT          ;PRIORITY WAS CHANGED,OR WRONG $STNM
; TO SCOPE REPLACE HALT W/ 240
; AND REPLACE NEXT INST W/ 651
;*****
;TEST 20          TEST THAT ALL COMBINATION OF "TRAP" WILL CAUSE A TRAP
;*****
1058 004004 005237 000304          *ST20: INC      0#STESTN ;UPDATE TEST NUMBER
1059 004010 022737 000020 000304      CMP      #20,0#STESTN ;SEQUENCE ERROR
1060 004016 001011          BNE      BR45          ;BR TO ERROR HALT ON SEQ ERROR
1061 004020 012767 104400 000012      MOV      #TRAP,RB1    ;INITIALIZE BASE TRAP INSTRUCTION
1062 004026 012767 004054 174000      MOV      #RA1,34      ;RETURN FROM TRAP TO RA1
1063 004034 012706 000500          RC1: MOV      #BUFF,SP ;SET UP STACK POINTER
1064 004040 104400          RB1: TRAP          ;TRAP INST WILL BE MODIFIED TO TRAP+377
1065 004042          BR45:
1066 004042 012737 000104 000302      MOV      #104,0#SFATAL ;MOVE TO MAILBOX # ***** 104 *****
1067 004050 005212          INC      (R2)          ;SET MSGTYP TO FATAL ERROR
1068 004052 000000          HALT          ;PREVIOUS INST FAILED TO TRAP,OR WRONG $STNM
; TO SCOPE REPLACE HALT W/ 240
; AND REPLACE NEXT INST W/ 761
; INCREMENT TRAP INSTRUCTION
; TRAP+377 TO UPPER LIMIT
; HAVE WE TESTED ALL
1071 004054 005267 177760          RA1: INC      RB1
1072 004060 022767 104777 177752      CMP      #104777,RB1
1073 004066 103362          BHIS    RC1
1074 004070 012767 000036 173736      MOV      #36,34
1075 004076 005067 173734          CLR     36
;*****
;TEST 21          TEST THAT A TRAP OCCURES ON AN "IOT" INSTRUCTION
;*****
1079 004102 005237 000304          *ST21: INC      0#STESTN ;UPDATE TEST NUMBER
1080 004106 022737 000021 000304      CMP      #21,0#STESTN ;SEQUENCE ERROR
1081 004114 001006          BNE      TST22-12     ;BR TO ERROR HALT ON SEQ ERROR
1082 004116 012706 000500          MOV      #BUFF,SP    ;STACK POINTER SETUP
1083 004122 012767 004144 173670      MOV      #RETA2,RTRAP2 ;RETURN LOCATION
1084 004130 000004          IOT          ;RESERVE INSTRUCTION, SHOULD TRAP
1085 004132 012737 000105 000302      MOV      #105,0#SFATAL ;MOVE TO MAILBOX # ***** 105 *****
1086 004140 005212          INC      (R2)          ;SET MSGTYP TO FATAL ERROR
1087 004142 000000          HALT          ;IOT DIDN'T TRAP,OR WRONG $STNM
; TO SCOPE REPLACE HALT W/ 240
; AND REPLACE NEXT INST W/ 754
1089          RETA2:
;*****
;TEST 22          TEST DECREMENT OF STACK POINTER ON A TRAP OPERATION
;*****
1094 004144 005237 000304          *ST22: INC      0#STESTN ;UPDATE TEST NUMBER
1095 004150 022737 000022 000304      CMP      #22,0#STESTN ;SEQUENCE ERROR
1096 004156 001011          BNE      TST23-12     ;BR TO ERROR HALT ON SEQ ERROR
1097 004160 012706 000500          MOV      #BUFF,SP    ;STACK POINTER SETUP
1098 004164 012767 004174 173626      MOV      #RETB2,RTRAP2 ;RETURN POINTER
1099 004172 000004          IOT          ;RESERVED INSTRUCTION
1100 004174 020627 000474          RETB2: CMP      SP,#BUFF-4 ;TEST DECREMENT OF SP
1101 004200 001405          BEG      TST23
1102 004202 012737 000106 000302      MOV      #106,0#SFATAL ;MOVE TO MAILBOX # ***** 106 *****
1103 004210 005212          INC      (R2)          ;SET MSGTYP TO FATAL ERROR
1104 004212 000000          HALT          ;NOT DECREMENTED TWO WORDS,OR WRONG $STNM

```


1100
1101
1102
1103
1104
1105
1106
1107
1108
1109
1110
1111
1112
1113
1114
1115
1116
1117
1118
1119
1120
1121
1122
1123
1124
1125
1126
1127
1128
1129
1130
1131
1132
1133
1134
1135
1136
1137
1138
1139
1140
1141
1142
1143
1144
1145
1146
1147
1148
1149
1150
1151
1152
1153
1154
1155
1156
1157
1158
1159
1160

004214 005237 000304
004220 022737 000023 000304
004226 001012
004230 012706 000500
004234 012767 004244 173556
004242 000004
004244 022767 004244 174222
004252 001405
004254 012737 000107 000302
004262 005212
004264 000000

004266 005237 000304
004272 022737 000024 000304
004300 001040
004302 012706 000500
004306 012767 004324 173504
004314 005067 173456
004320 000257
004322 000004
004324 026727 174146 000000
004332 001405
004334 012737 000110 000302
004342 005212
004344 000000

004346 012706 000500
004352 012767 004372 173440
004360 012767 000357 173410
004366 000277
004370 000004
004372 026727 174100 000357
004400 001405
004402 012737 000111 000302
004410 005212
004412 000000

004414 005237 000304
004420 022737 000025 000304
004426 001121
004430 012706 000500
004434 012767 004450 173356

TO SCOPE REPLACE HALT W/ 240
AND REPLACE NEXT INST W/ 761

:TEST 23 TEST THAT PROPER P.C. IS SAVED

†ST23: INC @#STESTN ;UPDATE TEST NUMBER
CMP #23,@#STESTN ;SEQUENCE ERROR
BNE TST24-12 ;BR TO ERROR HALT ON SEQ ERROR
MOV #BUFF,SP ;STACK POINTER SETUP
MOV #RETC2,RTRAP2 ;RETURN FROM TRAP POINTER
IOT ;TRAP ON THIS INSTRUCTION
RETC2: CMP #,BUFF-4 ;CHECK FOR INCREMENTED P.C.
BEQ TST24
MOV #107,@#SFATAL ;MOVE TO MAILBOX # ***** 107 *****
INC (R2) ;SET MSGTYP TO FATAL ERROR
HALT ;INCORRECT P.C. OR WRONG \$TSTNM
; TO SCOPE REPLACE HALT W/ 240
; AND REPLACE NEXT INST W/ 760

:TEST 24 TEST THAT "OLD" CC AND PRIORITY ARE PLACED ON STACK

†ST24: INC @#STESTN ;UPDATE TEST NUMBER
CMP #24,@#STESTN ;SEQUENCE ERROR
BNE TST25-12 ;BR TO ERROR HALT ON SEQ ERROR
MOV #BUFF,SP ;SET UP
MOV #RETD2,RTRAP2 ;SET UP
CLR CC ;CLEAR CC AND PRIORITY
CCC
IOT ;TRAP
RETD2: CMP BUFF-2,#0 ;TEST THAT OLD STATUS WENT TO STACK
BEQ 1\$
MOV #110,@#SFATAL ;MOVE TO MAILBOX # ***** 110 *****
INC (R2) ;SET MSGTYP TO FATAL ERROR
HALT ;INCORRECT STATUS
; TO SCOPE REPLACE HALT W/ 240
; AND REPLACE NEXT INST W/ 755
1\$: MOV #BUFF,SP ;SET UP
MOV #RETE2,RTRAP2 ;SET UP
MOV #357,CC ;SET PRIORITY
SCC ;SET CC
IOT ;TRAP
RETE2: CMP BUFF-2,#357 ;COMPARES STATUS ON STACK
BEQ TST25
MOV #111,@#SFATAL ;MOVE TO MAILBOX # ***** 111 *****
INC (R2) ;SET MSGTYP TO FATAL ERROR
HALT ;INCORRECT STATUS ON STACK, OR WRONG \$TSTNM
; TO SCOPE REPLACE HALT W/ 240
; AND REPLACE NEXT INST W/ 732

:TEST 25 TEST THAT "NEW" STATUS IS CORRECT

†ST25: INC @#STESTN ;UPDATE TEST NUMBER
CMP #25,@#STESTN ;SEQUENCE ERROR
BNE BR46 ;BR TO ERROR HALT ON SEQ ERROR
MOV #BUFF,SP
MOV #RETF2,RTRAP2

```

1161 004442 005067 173354 CLR RTRAP2+2 ;CLEAR FUTURE PRIORITY AND CC
1162 004446 000004 IOT ;TEST FOR "C" CLEARED
1163 004450 RETF2: BPL 1$
1164 004450 100005 MOV #112,0#$FATAL ;MOVE TO MAILBOX # ***** 112 *****
1165 004452 012737 000112 000302 INC (R2) ;SET MSGTYP TO FATAL ERROR
1166 004460 005212 HALT ;N NOT CLEARED
1167 004462 000000 ; TO SCOPE REPLACE HALT W/ 240
1168 ; AND REPLACE NEXT INST W/ 761
1169
1170 004464 1$: BNE 2$
1171 004464 001005 MOV #113,0#$FATAL ;MOVE TO MAILBOX # ***** 113 *****
1172 004466 012737 000113 000302 INC (R2) ;SET MSGTYP TO FATAL ERROR
1173 004474 005212 HALT ;Z NOT CLEARED
1174 004476 000000 ; TO SCOPE REPLACE HALT W/ 240
1175 ; AND REPLACE NEXT INST W/ 753
1176
1177 004500 2$: BVC 3$
1178 004500 102005 MOV #114,0#$FATAL ;MOVE TO MAILBOX # ***** 114 *****
1179 004502 012737 000114 000302 INC (R2) ;SET MSGTYP TO FATAL ERROR
1180 004510 005212 HALT ;V NOT CLEARED
1181 004512 000000 ; TO SCOPE REPLACE HALT W/ 240
1182 ; AND REPLACE NEXT INST W/ 745
1183
1184 004514 3$: BCC 4$
1185 004514 103005 MOV #115,0#$FATAL ;MOVE TO MAILBOX # ***** 115 *****
1186 004516 012737 000115 000302 INC (R2) ;SET MSGTYP TO FATAL ERROR
1187 004524 005212 HALT ;C NOT CLEARED
1188 004526 000000 ; TO SCOPE REPLACE HALT W/ 240
1189 ; AND REPLACE NEXT INST W/ 737
1190 ;TEST PRIORITY
1191 004530 032767 000340 173240 4$: BIT #340,CC
1192 004536 001405 BEQ 5$
1193 004540 012737 000116 000302 MOV #116,0#$FATAL ;MOVE TO MAILBOX # ***** 116 *****
1194 004546 005212 INC (R2) ;SET MSGTYP TO FATAL ERROR
1195 004550 000000 HALT ;PRIORITY NOT ZERO
1196 ; TO SCOPE REPLACE HALT W/ 240
1197 ; AND REPLACE NEXT INST W/ 726
1198 004552 012706 000500 5$: MOV #BUFF,SP
1199 004556 012767 004574 173234 MOV #RETG2,RTRAP2
1200 004564 012767 000357 173230 MOV #357,RTRAP2+2 ;SET NEW "CC" AND PRIORITY
1201 004572 000004 IOT ;TRAP HERE
1202 004574 RETG2: BMI 1$
1203 004574 100405 MOV #117,0#$FATAL ;MOVE TO MAILBOX # ***** 117 *****
1204 004576 012737 000117 000302 INC (R2) ;SET MSGTYP TO FATAL ERROR
1205 004604 005212 HALT ;N NOT SET
1206 004606 000000 ; TO SCOPE REPLACE HALT W/ 240
1207 ; AND REPLACE NEXT INST W/ 707
1208
1209 004610 1$: BEQ 2$
1210 004610 001405 MOV #120,0#$FATAL ;MOVE TO MAILBOX # ***** 120 *****
1211 004612 012737 000120 000302 INC (R2) ;SET MSGTYP TO FATAL ERROR
1212 004620 005212 HALT ;Z NOT SET
1213 004622 000000 ; TO SCOPE REPLACE HALT W/ 240
1214 ; AND REPLACE NEXT INST W/ 701
1215
1216 004624 2$:

```

```

1217 004624 102405 BVS 3$
1218 004626 012737 000121 000302 MOV #121,0#$FATAL ;MOVE TO MAILBOX # ***** 121 *****
1219 004634 005212 INC (R2) ;SET MSGTYP TO FATAL ERROR
1220 004636 000000 HALT ;V NOT SET
; TO SCOPE REPLACE HALT W/ 240
; AND REPLACE NEXT INST W/ 673
1223 004640 3$:
1224 004640 103405 BCS 4$
1225 004642 012737 000122 000302 MOV #122,0#$FATAL ;MOVE TO MAILBOX # ***** 122 *****
1226 004650 005212 INC (R2) ;SET MSGTYP TO FATAL ERROR
1227 004652 000000 HALT ;C NOT SET
; TO SCOPE REPLACE HALT W/ 240
; AND REPLACE NEXT INST W/ 665
1230 004654 016706 173116 4$: MOV CC,SP
1231 004660 042706 000017 BIC #17,SP
1232 004664 022706 00034C CMP #340,SP
1233 004670 001405 BEQ BR46A
1234 004672 BR46:
1235 004672 012737 000123 000302 MOV #123,0#$FATAL ;MOVE TO MAILBOX # ***** 123 *****
1236 004700 005212 INC (R2) ;SET MSGTYP TO FATAL ERROR
1237 004702 000000 HALT ;PRIORITY WAS CHANGED,OR WRONG $STNM
; TO SCOPE REPLACE HALT W/ 240
; AND REPLACE NEXT INST W/ 651
1240 004704 012767 000022 173106 BR46A: MOV #22,20
1241 004712 005067 173104 CLR 22 ;HALT
;*****
;TEST 26 TEST THAT A TRAP OCCURS ON AN EMT INSTRUCTION
;*****
1245 004716 005237 000304 TST26: INC @#$TESTN ;UPDATE TEST NUMBER
1246 004722 022737 000026 000304 CMP #26,@#$TESTN ;SEQUENCE ERROR
1247 004730 001006 BNE TST27-12 ;BR TO ERROR HALT ON SEQ ERROR
1248 004732 012706 000500 MOV #BUFF,SP ;STACK POINTER SETUP
1249 004736 012767 004760 173064 MOV #RETB3,RTRAP3 ;RETURN LOCATION
1250 004744 104000 EMT ;RESERVE INSTRUCTION, SHOULD TRAP
1251 004746 012737 000124 000302 MOV #124,0#$FATAL ;MOVE TO MAILBOX # ***** 124 *****
1252 004754 005212 INC (R2) ;SET MSGTYP TO FATAL ERROR
1253 004756 000000 HALT ;EMT DIDN'T TRAP,OR WRONG $STNM
; TO SCOPE REPLACE HALT W/ 240
; AND REPLACE NEXT INST W/ 764
1256 004760 RETA3:
;*****
;TEST 27 TEST DECREMENT OF STACK POINTER ON A TRAP OPERATION
;*****
1260 004760 005237 000304 TST27: INC @#$TESTN ;UPDATE TEST NUMBER
1261 004764 022737 000027 000304 CMP #27,@#$TESTN ;SEQUENCE ERROR
1262 004772 001011 BNE TST30-12 ;BR TO ERROR HALT ON SEQ ERROR
1263 004774 012706 000500 MOV #BUFF,SP ;STACK POINTER SETUP
1264 005000 012767 005010 173022 MOV #RETB3,RTRAP3 ;RETURN POINTER
1265 005006 104000 EMT ;RESERVED INSTRUCTION
1266 005010 020627 000474 RETB3: CMP SP,#BUFF-4 ;TEST DECREMENT OF SP
1267 005014 001405 BEQ TST30
1268 005016 012737 000125 000302 MOV #125,0#$FATAL ;MOVE TO MAILBOX # ***** 125 *****
1269 005024 005212 INC (R2) ;SET MSGTYP TO FATAL ERROR
1270 005026 000000 HALT ;NOT DECREMENTED TWO WORDS,OR WRONG $STNM
; TO SCOPE REPLACE HALT W/ 240
; AND REPLACE NEXT INST W/ 761
1271
1272

```

```

*****
:TEST 30      TEST THAT PROPER P.C. IS SAVED
*****
1320 005030 005237 000304      TS30:  INC      @#STESTN      :UPDATE TEST NUMBER
1321 005034 022737 000030 000304  :      CMP      #30,@#STESTN  :SEQUENCE ERROR
1322 005042 001012 000500      :      BNE     TST31-12      :BR TO ERROR HALT ON SEQ ERROR
1323 005044 012706 000500      :      MOV     #BUFF,SP      :STACK POINTER SETUP
1324 005050 012767 005060 172752  :      MOV     #RETC3,RTRAP3  :RETURN FROM TRAP POINTER
1325 005056 104000      :      EMT     :TRAP ON THIS INSTRUCTION
1326 005060 022767 005060 173406  RETC3:  CMP      #.BUFF-4      :CHECK FOR INCREMENTED P.C.
1327 005066 001405      :      BEQ     TST31        :
1328 005070 012737 000126 000302  :      MOV     #126,@#SFATAL  :MOVE TO MAILBOX # ***** 126 *****
1329 005076 005212      :      INC     (R2)          :SET MSGTYP TO FATAL ERROR
1330 005100 000000      :      HALT    :INCORRECT P.C., OR WRONG $STNM
:      : TO SCOPE REPLACE HALT W/ 240
:      : AND REPLACE NEXT INST W/ 760
*****
:TEST 31      TEST THAT "OLD" CC AND PRIORITY ARE PLACED ON STACK
*****
1331 005102 005237 000304      TST31:  INC      @#STESTN      :UPDATE TEST NUMBER
1332 005106 022737 000031 000304  :      CMP     #31,@#STESTN  :SEQUENCE ERROR
1333 005114 001040      :      BNE     TST32-12      :BR TO ERROR HALT ON SEQ ERROR
1334 005116 012706 000500      :      MOV     #BUFF,SP      :SET UP
1335 005122 012767 005140 172700  :      MOV     #RETD3,RTRAP3  :SET UP
1336 005130 005067 172642      :      CLR     CC            :CLEAR CC AND PRIORITY
1337 005134 000257      :      CCC     :
1338 005136 104000      :      EMT     :TRAP
1339 005140 026727 173332 000000  RETC3:  CMP     BUFF-2,#0      :TEST THAT OLD STATUS WENT TO STACK
1340 005146 001405      :      BEQ     15           :
1341 005150 012737 000127 000302  :      MOV     #127,@#SFATAL  :MOVE TO MAILBOX # ***** 127 *****
1342 005156 005212      :      INC     (R2)          :SET MSGTYP TO FATAL ERROR
1343 005160 000000      :      HALT    :INCORRECT STATUS
:      : TO SCOPE REPLACE HALT W. 240
:      : AND REPLACE NEXT INST W/ 755
*****
1344 005162 012706 000500      15:    MOV     #BUFF,SP      :SET UP
1345 005166 012767 005206 172634  :      MOV     #RETE3,RTRAP3  :SET UP
1346 005174 012767 000357 172574  :      MOV     #357,CC        :SET PRIORITY
1347 005202 000277      :      SCC     :SET CC
1348 005204 104000      :      EMT     :TRAP
1349 005206 026727 173264 000357  RETE3:  CMP     BUFF-2,#357    :COMPARES STATUS ON STACK
1350 005214 001405      :      BEQ     TST32        :
1351 005216 012737 000130 000302  :      MOV     #130,@#SFATAL  :MOVE TO MAILBOX # ***** 130 *****
1352 005224 005212      :      INC     (R2)          :SET MSGTYP TO FATAL ERROR
1353 005226 000000      :      HALT    :INCORRECT STATUS ON STACK, OR WRONG $STNM
:      : TO SCOPE REPLACE HALT W/ 240
:      : AND REPLACE NEXT INST W/ 732
*****
:TEST 32      TEST THAT "NEW" STATUS IS CORRECT
*****
1354 005230 005237 000304      TST32:  INC      @#STESTN      :UPDATE TEST NUMBER
1355 005234 022737 000032 000304  :      CMP     #32,@#STESTN  :SEQUENCE ERROR
1356 005242 001117      :      BNE     TST33-12      :BR TO ERROR HALT ON SEQ ERROR
1357 005244 012706 000500      :      MOV     #BUFF,SP      :
1358 005250 012767 005264 172552  :      MOV     #RETF3,RTRAP3  :
1359 005256 005067 172550      :      CLR     RTRAP3+2      :CLEAR FUTURE PRIORITY AND CC
1360 005262 104000      :      EMT     :

```

1329	005264				RETF3:				: TEST FOR "C" CLEARED
1330	005264	100005				BPL	1\$		
1331	005266	012737	000131	000302		MOV	#131, @#\$FATAL		: MOVE TO MAILBOX # ***** 131 *****
1332	005274	005212				INC	(R2)		: SET MSGTYP TO FATAL ERROR
1333	005276	000000				HALT			: C NOT CLEARED
1334									: TO SCOPE REPLACE HALT W/ 240
1335									: AND REPLACE NEXT INST W/ 76!
1336	005300				1\$:				
1337	005300	001005				BNE	2\$		
1338	005302	012737	000132	000302		MOV	#132, @#\$FATAL		: MOVE TO MAILBOX # ***** 132 *****
1339	005310	005212				INC	(R2)		: SET MSGTYP TO FATAL ERROR
1340	005312	000000				HALT			: Z NOT CLEARED
1341									: TO SCOPE REPLACE HALT W/ 240
1342									: AND REPLACE NEXT INST W/ 753
1343	005314				2\$:				
1344	005314	102005				BVC	3\$		
1345	005316	012737	000133	000302		MOV	#133, @#\$FATAL		: MOVE TO MAILBOX # ***** 133 *****
1346	005324	005212				INC	(R2)		: SET MSGTYP TO FATAL ERROR
1347	005326	000000				HALT			: V NOT CLEARED
1348									: TO SCOPE REPLACE HALT W/ 240
1349									: AND REPLACE NEXT INST W/ 745
1350	005330				3\$:				
1351	005330	103005				BCC	4\$		
1352	005332	012737	000134	000302		MOV	#134, @#\$FATAL		: MOVE TO MAILBOX # ***** 134 *****
1353	005340	005212				INC	(R2)		: SET MSGTYP TO FATAL ERROR
1354	005342	000000				HALT			: C NOT CLEARED
1355									: TO SCOPE REPLACE HALT W/ 240
1356									: AND REPLACE NEXT INST W/ 737
1357	005344	032767	000340	172424	4\$:	BIT	#340, CC		: TEST PRIORITY
1358	005352	001405				BEG	5\$		
1359	005354	012737	000135	000302		MOV	#135, @#\$FATAL		: MOVE TO MAILBOX # ***** 135 *****
1360	005362	005212				INC	(R2)		: SET MSGTYP TO FATAL ERROR
1361	005364	000000				HALT			: PRIORITY NOT ZERO
1362									: TO SCOPE REPLACE HALT W/ 240
1363									: AND REPLACE NEXT INST W/ 726
1364	005366	012706	000500		5\$:	MOV	#BUFF, SP		
1365	005372	012767	005410	172430		MOV	#RETG3, RTRAP3		
1366	005400	012767	000357	172424		MOV	#357, RTRAP3+2		: SET NEW "CC" AND PRIORITY
1367	005406	104000				EMT			: TRAP HERE
1368	005410				RETG3:				
1369	005410	100405				BMI	1\$		
1370	005412	012737	000136	000302		MOV	#136, @#\$FATAL		: MOVE TO MAILBOX # ***** 136 *****
1371	005420	005212				INC	(R2)		: SET MSGTYP TO FATAL ERROR
1372	005422	000000				HALT			: N NOT SET
1373									: TO SCOPE REPLACE HALT W/ 240
1374									: AND REPLACE NEXT INST W/ 707
1375	005424				1\$:				
1376	005424	001405				BEG	2\$		
1377	005426	012737	000137	000302		MOV	#137, @#\$FATAL		: MOVE TO MAILBOX # ***** 137 *****
1378	005434	005212				INC	(R2)		: SET MSGTYP TO FATAL ERROR
1379	005436	000000				HALT			: Z NOT SET
1380									: TO SCOPE REPLACE HALT W/ 240
1381									: AND REPLACE NEXT INST W/ 701
1382	005440				2\$:				
1383	005440	102405				BVS	3\$		
1384	005442	012737	000140	000302		MOV	#140, @#\$FATAL		: MOVE TO MAILBOX # ***** 140 *****

```

1385 005450 005212          INC      R2)          ;SET MSGTYP TO FATAL ERROR
1386 005452 000000          HALT                    ;V NOT SET
1387                                     ; TO SCOPE REPLACE HALT W/ 240
1388                                     ; AND REPLACE NEXT INST W/ 673
1389 005454          35:          BCS      45
1390 005454 103405          MOV      #141,0#SFATAL ;MOVE TO MAILBOX # ***** 141 *****
1391 005456 012737 000141 000302  INC      (R2)          ;SET MSGTYP TO FATAL ERROR
1392 005464 005212          HALT                    ;C NOT SET
1393 005466 000000          ; TO SCOPE REPLACE HALT W/ 240
1394                                     ; AND REPLACE NEXT INST W/ 665
1395
1396 005470 000257          CCC
1397 005472 022767 000340 172275  CMP      #340,CC
1398 005500 001405          BEQ      TST33
1399 005502 012737 000142 000302  MOV      #142,0#SFATAL ;MOVE TO MAILBOX # ***** 142 *****
1400 005510 005212          INC      (R2)          ;SET MSGTYP TO FATAL ERROR
1401 005512 000000          HALT                    ;PRIORITY WAS CHANGED, OR WRONG $STNM
1402                                     ; TO SCOPE REPLACE HALT W/ 240
1403                                     ; AND REPLACE NEXT INST W/ 653
1404
1405 *****
1406 :TEST 33          TEST THAT ALL COMBINATION OF EMT WILL CAUSE A TRAP
1407 *****
1408 005514 005237 000304          TST33: INC      0#STESTN ;UPDATE TEST NUMBER
1409 005520 022737 000033 000304  CMP      #33,0#STESTN ;SEQUENCE ERROR
1410 005526 001011          BNE      BR47          ;BR TO ERROR HALT ON SEQ ERROR
1411 005530 012767 104000 000012  MOV      #EMT, RB      ;INITIALIZE BASE EMT INSTRUCTION
1412 005536 012767 005564 172264  MOV      #RA, 30      ;RETURN FROM TRAP TO RA
1413 005544 012706 000500          RC:   MOV      #BUFF, SP ;SET UP STACK POINTER
1414 005550 104000          RB:   EMT          ;TRAP INST. WILL BE MODIFIED TO EMT+377
1415 005552 012737 000143 000302  BR47:  MOV      #143,0#SFATAL ;MOVE TO MAILBOX # ***** 143 *****
1416 005560 005212          INC      (R2)          ;SET MSGTYP TO FATAL ERROR
1417 005562 000000          HALT                    ;PREVIOUS INST FAILED TO TRAP OR WRONG $STNM
1418                                     ; TO SCOPE REPLACE HALT W/ 240
1419                                     ; AND REPLACE NEXT INST W/ 761
1420 005564 005267 177760          RA:   INC      RB      ;INCREMENT TRAP INSTRUCTION
1421 005570 022767 104377 177752  CMP      #104377, RB  ;EMT+377 TO EMT
1422 005576 103362          BHS      RC          ;HAVE WE TESTED ALL
1423                                     ; YES
1424 005600 012767 000032 172222  MOV      #32, 30
1425 005606 005067 172220          CLR      32          ;HALT
1426 *****
1427 :TEST 34          TEST THAT A TRAP OCCURES ON AN "TRACE-TRT" INSTRUCTION
1428 *****
1429 005612 005237 000304          TST34: INC      0#STESTN ;UPDATE TEST NUMBER
1430 005616 022737 000034 000304  CMP      #34,0#STESTN ;SEQUENCE ERROR
1431 005624 001006          BNE      TST35-12    ;BR TO ERROR HALT ON SEQ ERROR
1432 005626 012706 000500          MOV      #BUFF, SP   ;STACK POINTER SETUP
1433 005632 012767 005654 172154  MOV      #RETA4, RTRAP4 ;RETURN LOCATION
1434 005640 000003          TRT                    ;RESERVED INSTRUCTION, SHOULD TRAP
1435 005642 012737 000144 000302  MOV      #144,0#SFATAL ;MOVE TO MAILBOX # ***** 144 *****
1436 005650 005212          INC      (R2)          ;SET MSGTYP TO FATAL ERROR
1437 005652 000000          HALT                    ;TRT DIDN'T TRAP OR WRONG $STNM
1438                                     ; TO SCOPE REPLACE HALT W 240
1439                                     ; AND REPLACE NEXT INST W 764
1440 005654          RETA4:

```



```

:*****
:TEST 35      TEST DECREMENT OF STACK POINTER ON A TRAP OPERATION
:*****
1444 005654 005237 000304          TS35: INC      @#STESTN      ;UPDATE TEST NUMBER
1445 005660 022737 000035 000304  CMP      #35,@#STESTN    ;SEQUENCE ERROR
1446 005666 001011          BNE      TST36-12     ;BR TO ERROR HALT ON SEQ ERROR
1447 005670 012706 000500          MOV      #BUFF,SP    ;STACK POINTER SETUP
1448 005674 012767 005704 172112  MOV      #RETB4,RTRAP4 ;RETURN POINTER
1449 005702 000003          TRT                      ;RESERVED INSTRUCTION
1450 005704 020627 000474          RETB4: CMP      SP,#BUFF-4 ;TEST DECREMENT OF SP
1451 005710 001405          BEQ      TST36
1452 005712 012737 000145 000302  MOV      #145,@#SFATAL ;MOVE TO MAILBOX # ***** 145 *****
1453 005720 005212          INC                      ;SET MSGTYP TO FATAL ERROR
1454 005722 000000          HALT                    ;NOT DECREMENTED TWO WORDS,OR WRONG $STNM
:                ; TO SCOPE REPLACE HALT W/ 240
:                ; AND REPLACE NEXT INST W/ 761
:*****
:TEST 36      TEST THAT PROPER P.C. IS SAVED
:*****
1458 005724 005237 000304          TS36: INC      @#STESTN      ;UPDATE TEST NUMBER
1459 005730 022737 000036 000304  CMP      #36,@#STESTN    ;SEQUENCE ERROR
1460 005736 001012          BNE      TST37-12     ;BR TO ERROR HALT ON SEQ ERROR
1461 005740 012706 000500          MOV      #BUFF,SP    ;STACK POINTER SETUP
1462 005744 012767 005754 172042  MOV      #RETC4,RTRAP4 ;RETURN FROM TRAP POINTER
1463 005752 000003          TRT                      ;TRAP ON THIS INSTRUCTION
1464 005754 022767 005754 172512  RETC4: CMP      #, BUFF-4 ;CHECK FOR INCREMENTED P.C.
1465 005762 001405          BEQ      TST37
1466 005764 012737 000146 000302  MOV      #146,@#SFATAL ;MOVE TO MAILBOX # ***** 146 *****
1467 005772 005212          INC                      ;SET MSGTYP TO FATAL ERROR
1468 005774 000000          HALT                    ;INCORRECT P.C. OR WRONG $STNM
:                ; TO SCOPE REPLACE HALT W/ 240
:                ; AND REPLACE NEXT INST W/ 760
:*****
:TEST 37      TEST THAT "OLD" CC AND PRIORITY ARE PLACED ON STACK
:*****
1471 005776 005237 000304          TS37: INC      @#STESTN      ;UPDATE TEST NUMBER
1472 006002 022737 000037 000304  CMP      #37,@#STESTN    ;SEQUENCE ERROR
1473 006010 001040          BNE      TST40-12     ;BR TO ERROR HALT ON SEQ ERROR
1474 006012 012706 000500          MOV      #BUFF,SP    ;SET UP
1475 006016 012767 006034 171770  MOV      #RETD4,RTRAP4 ;SET UP
1476 006024 005067 171746          CLR      CC           ;CLEAR CC AND PRIORITY
1477 006030 000257          CCC
1478 006032 000003          TRT                      ;TRAP
1479 006034 026727 172436 000000  RETC4: CMP      BUFF-2,#0 ;TEST THAT OLD STATUS WENT TO STACK
1480 006042 001405          BEQ      1$          ;TEST FOR ALL ZEROS
1481 006044 012737 000147 000302  MOV      #147,@#SFATAL ;MOVE TO MAILBOX # ***** 147 *****
1482 006052 005212          INC                      ;SET MSGTYP TO FATAL ERROR
1483 006054 000000          HALT                    ;INCORRECT STATUS
:                ; TO SCOPE REPLACE HALT W. 240
:                ; AND REPLACE NEXT INST W 755
1484 006056 012706 000500          1$:  MOV      #BUFF,SP    ;SET UP
1485 006062 012767 006102 171724  MOV      #RETE4,RTRAP4 ;SET UP
1486 006070 012767 000357 171700  MOV      #357,CC      ;SET PRIORITY
1487 006076 000277          SCC                    ;SET-SET CC
1488 006100 000003          TRT                      ;TRAP

```

E03

```

1547 006102 026727 172370 000357 RETE4: CMP BUFF-2, #357 ; COMPARES STATUS ON STACK
1548 006110 001405 BEQ TST40
1549 006112 012737 000150 000302 MOV #150, @#SFATAL ; MOVE TO MAILBOX # ***** 150 *****
1550 006120 005212 INC (R2) ; SET MSGTYP TO FATAL ERROR
1551 006122 000000 HALT ; INCORRECT STATUS ON STACK, OR WRONG $TESTNM
; TO SCOPE REPLACE HALT W/ 240
; AND REPLACE NEXT INST W/ 732
;*****
;TEST 40 TEST THAT "NEW" STATUS IS CORRECT
;*****
1557 006124 005237 000304 ST40: INC @#STESTN ; UPDATE TEST NUMBER
1558 006130 022737 000040 000304 CMP #40, @#STESTN ; SEQUENCE ERROR
1559 006136 001121 BNE BR51 ; BR TO ERROR HALT ON SEQ ERROR
1560 006140 012706 000500 MOV #BUFF, SP
1561 006144 012767 006160 171642 MOV #RETF4, RTRAP4
1562 006152 005067 171640 CLR RTRAP4+2 ; CLEAR FUTURE PRIORITY AND CC
1563 006156 000000 TRT ; TEST FOR "C" CLEARED
1564 006160 RETF4:
1565 006160 100005 BPL 1$
1566 006162 012737 000151 000302 MOV #151, @#SFATAL ; MOVE TO MAILBOX # ***** 151 *****
1567 006170 005212 INC (R2) ; SET MSGTYP TO FATAL ERROR
1568 006172 000000 HALT ; C NOT CLEARED
; TO SCOPE REPLACE HALT W/ 240
; AND REPLACE NEXT INST W/ 761
1571 006174 1$:
1572 006174 001005 BNE 2$
1573 006176 012737 000152 000302 MOV #152, @#SFATAL ; MOVE TO MAILBOX # ***** 152 *****
1574 006204 005212 INC (R2) ; SET MSGTYP TO FATAL ERROR
1575 006206 000000 HALT ; Z NOT CLEARED
; TO SCOPE REPLACE HALT W/ 240
; AND REPLACE NEXT INST W/ 753
1578 006210 2$:
1579 006210 102005 BVC 3$
1580 006212 012737 000153 000302 MOV #153, @#SFATAL ; MOVE TO MAILBOX # ***** 153 *****
1581 006220 005212 INC (R2) ; SET MSGTYP TO FATAL ERROR
1582 006222 000000 HALT ; V NOT CLEARED
; TO SCOPE REPLACE HALT W/ 240
; AND REPLACE NEXT INST W/ 745
1585 006224 3$:
1586 006224 103005 BCC 4$
1587 006226 012737 000154 000302 MOV #154, @#SFATAL ; MOVE TO MAILBOX # ***** 154 *****
1588 006234 005212 INC (R2) ; SET MSGTYP TO FATAL ERROR
1589 006236 000000 HALT ; C NOT CLEARED
; TO SCOPE REPLACE HALT W/ 240
; AND REPLACE NEXT INST W/ 737
1592 006240 4$: BIT #340, CC ; TEST PRIORITY
1593 006246 001405 BEQ 5$
1594 006250 012737 000155 000302 MOV #155, @#SFATAL ; MOVE TO MAILBOX # ***** 155 *****
1595 006256 005212 INC (R2) ; SET MSGTYP TO FATAL ERROR
1596 006260 000000 HALT ; PRIORITY NOT ZERO
; TO SCOPE REPLACE HALT W/ 240
; AND REPLACE NEXT INST W/ 726
1599 006262 012706 000500 5$: MOV #BUFF, SP
1600 006266 012767 006304 171520 MOV #RETF4, RTRAP4
1601 006274 012767 000357 171514 MOV #357, RTRAP4+2 ; SET NEW "CC" AND PRIORITY
1602 006302 000000 TRT ; TRAP HERE

```

```

1553 006304 RETG4:
1554 006304 100405 BMI 15
1555 006306 012737 000156 000302 MOV #156,0#SFATAL ; MOVE TO MAILBOX # ***** 156 *****
1556 006314 005212 INC (R2) ; SET MSGTYP TO FATAL ERROR
1557 006316 000000 HALT ; N NOT SET
; TO SCOPE REPLACE HALT W/ 240
; AND REPLACE NEXT INST W/ 707
1560 006320 15:
1561 006320 001405 BEQ 25
1562 006322 012737 000157 000302 MOV #157,0#SFATAL ; MOVE TO MAILBOX # ***** 157 *****
1563 006330 005212 INC (R2) ; SET MSGTYP TO FATAL ERROR
1564 006332 000000 HALT ; Z NOT SET
; TO SCOPE REPLACE HALT W/ 240
; AND REPLACE NEXT INST W/ 701
1567 006334 25:
1568 006334 102405 BVS 35
1569 006336 012737 000160 000302 MOV #160,0#SFATAL ; MOVE TO MAILBOX # ***** 160 *****
1570 006344 005212 INC (R2) ; SET MSGTYP TO FATAL ERROR
1571 006346 000000 HALT ; V NOT SET
; TO SCOPE REPLACE HALT W/ 240
; AND REPLACE NEXT INST W/ 673
1574 006350 35:
1575 006350 103405 BCS 45
1576 006352 012737 000161 000302 MOV #161,0#SFATAL ; MOVE TO MAILBOX # ***** 161 *****
1577 006360 005212 INC (R2) ; SET MSGTYP TO FATAL ERROR
1578 006362 000000 HALT ; C NOT SET
; TO SCOPE REPLACE HALT W/ 240
; AND REPLACE NEXT INST W/ 665
1581 006364 016706 171406 45: MOV CC,SP
1582 006370 042706 000017 BIC #17,SP
1583 006374 022706 000340 CMP #340,SP
1584 006400 001405 BEQ BR51A
1585 006402 BR51:
1586 006402 012737 000162 000302 MOV #162,0#SFATAL ; MOVE TO MAILBOX # ***** 162 *****
1587 006410 005212 INC (R2) ; SET MSGTYP TO FATAL ERROR
1588 006412 000000 HALT ; PRIORITY WAS CHANGED, OR WRONG SYSTEM
; TO SCOPE REPLACE HALT W/ 240
; AND REPLACE NEXT INST W/ 651
1591 006414 012767 000016 171372 BR51A: MOV #16,14
1592 006422 005067 171370 CLR 16
1593
1594 ; PDP-11 ILLEGAL AND ADDRESS INSTRUCTION TEST
1595 ; ALL INSTRUCTIONS THAT ARE RESERVED
1596 ; SHOULD TRAP TO LOCATION 4, AND THE
1597 ; PC THAT POINTS TO THE TRAPPING INSTRUCTION
1598 ; SHOULD BE PLACED ON THE STACK
1599
1600 ; *****
1601 ; TEST 41 TEST THAT A TRAP OCCURS ON AN ILLEGAL INSTRUCTION
1602 ; *****
1603 006426 005237 000304 TST41: INC 0#STESTN ; UPDATE TEST NUMBER
1604 006432 022737 000041 000304 CMP #41,0#STESTN ; SEQUENCE ERROR
1605 006440 001006 BNE TST42-12 ; BR TO ERROR HALT ON SEQ ERROR
1606 006442 012706 000500 MOV #BUFF,SP ; STACK POINTER SETUP
1607 006446 012767 006470 171330 MOV #RETAS,RTRAPS ; RETURN LOCATION
1608 006454 000100 JMP %0 ; ILLEGAL INSTRUCTION. SHOULD TRAP

```



```

1665 006672 012706 000500 1$: MOV #BUFF,SP ;SET UP
1666 006676 012767 006716 171103 MOV #RETES,RTRAPS ;SET UP
1667 006704 012767 000357 171064 MOV #357,CC ;SET PRIORITY
1668 006712 000277 SCC ;SET CC
Z 1669 006714 000100 JMP %0 ;TRAP
1670 006716 026727 171554 000357 RETES: CMP BUFF-2,#357 ;COMPARES STATUS ON STACK
1671 006724 001405 BEQ TST45
1672 006726 012737 000167 000302 MOV #167,@#$FATAL ;MOVE TO MAILBOX # ***** 167 *****
1673 006734 005212 INC (R2) ;SET MSGTYP TO FATAL ERROR
1674 006736 000000 HALT ;INCORRECT STATUS ON STACK, OF WRONG $*STN*
; TO SCOPE REPLACE HALT W/ 240
; AND REPLACE NEXT INST W/ 732
1675
1676
1677 :*****
1678 :TEST 45 TEST THAT "NEW" STATUS IS CORRECT
1679 :*****
1680 006740 005237 000304 TST45: INC @#$TESTN ;UPDATE TEST NUMBER
1691 006744 022737 000045 000304 CMP #45,@#$TESTN ;SEQUENCE ERROR
1682 006752 001117 BNE TST46-12 ;BR TO ERROR HALT ON SEQ ERROR
1683 006754 012706 000500 MOV #BUFF,SP
1684 006760 012767 006774 171016 MOV #RETF5,RTRAPS
1685 006766 005067 171014 CLR RTRAPS+2 ;CLEAR FUTURE PRIORITY AND CC
Z 1686 006772 000100 JMP %0 ;TEST FOR "C" CLEARED
1687 006774
1688 006774 100005 BPL 1$
1689 006776 012737 000170 000302 MOV #170,@#$FATAL ;MOVE TO MAILBOX # ***** 170 *****
1690 007004 005212 INC (R2) ;SET MSGTYP TO FATAL ERROR
1691 007006 000000 HALT ;C NOT CLEARED
; TO SCOPE REPLACE HALT W/ 240
; AND REPLACE NEXT INST W/ 761
1692
1693
1694 007010 1$:
1695 007010 001005 BNE 2$
1696 007012 012737 000171 000302 MOV #171,@#$FATAL ;MOVE TO MAILBOX # ***** 171 *****
1697 007020 005212 INC (R2) ;SET MSGTYP TO FATAL ERROR
1698 007022 000000 HALT ;Z NOT CLEARED
; TO SCOPE REPLACE HALT W/ 240
; AND REPLACE NEXT INST W/ 753
1699
1700
1701 007024 2$:
1702 007024 102005 BVC 3$
1703 007026 012737 000172 000302 MOV #172,@#$FATAL ;MOVE TO MAILBOX # ***** 172 *****
1704 007034 005212 INC (R2) ;SET MSGTYP TO FATAL ERROR
1705 007036 000000 HALT ;V NOT CLEARED
; TO SCOPE REPLACE HALT W/ 240
; AND REPLACE NEXT INST W/ 745
1706
1707
1708 007040 3$:
1709 007040 103005 BCC 4$
1710 007042 012737 000173 000302 MOV #173,@#$FATAL ;MOVE TO MAILBOX # ***** 173 *****
1711 007050 005212 INC (R2) ;SET MSGTYP TO FATAL ERROR
1712 007052 000000 HALT ;C NOT CLEARED
; TO SCOPE REPLACE HALT W/ 240
; AND REPLACE NEXT INST W/ 737
1713
1714
1715 007054 4$: BIT #357,CC ;TEST PRIORITY
1716 007062 001405 BEQ 5$
1717 007064 012737 000174 000302 MOV #174,@#$FATAL ;MOVE TO MAILBOX # ***** 174 *****
1718 007072 005212 INC (R2) ;SET MSGTYP TO FATAL ERROR
1719 007074 000000 HALT ;PRIORITY NOT ZERO
; TO SCOPE REPLACE HALT W/ 240
1720

```

```

1721
1722 007076 012706 000500 5S: MOV #BUFF, SP ; AND REPLACE NEXT INST W/ 725
1723 007102 012767 007120 170674 MOV #RETC5, RTRAP5
1724 007110 012767 000357 170670 MOV #357, RTRAP5+2 ; SET NEW "CC" AND PRIORITY
Z 1725 007116 000100 JMP %0 ; TRAP HERE
1726 007120 RETGS: BMI 1$
1727 007120 100405 MOV #175, @#$FATAL ; MOVE TO MAILBOX # ***** 175 *****
1728 007122 012737 000175 000302 INC (R2) ; SET MSGTYP TO FATAL ERROR
1729 007130 005212 HALT ; N NOT SET
1730 007132 000000 ; TO SCOPE REPLACE HALT W/ 240
1731 ; AND REPLACE NEXT INST W/ 707
1732
1733 007134 1$: BEQ 2$
1734 007134 001405 MOV #176, @#$FATAL ; MOVE TO MAILBOX # ***** 176 *****
1735 007136 012737 000176 000302 INC (R2) ; SET MSGTYP TO FATAL ERROR
1736 007144 005212 HALT ; Z NOT SET
1737 007146 000000 ; TO SCOPE REPLACE HALT W/ 240
1738 ; AND REPLACE NEXT INST W/ 701
1739
1740 007150 2$: BVS 3$
1741 007150 102405 MOV #177, @#$FATAL ; MOVE TO MAILBOX # ***** 177 *****
1742 007152 012737 000177 000302 INC (R2) ; SET MSGTYP TO FATAL ERROR
1743 007160 005212 HALT ; V NOT SET
1744 007162 000000 ; TO SCOPE REPLACE HALT W/ 240
1745 ; AND REPLACE NEXT INST W/ 673
1746
1747 007164 3$: BCS 4$
1748 007164 103405 MOV #200, @#$FATAL ; MOVE TO MAILBOX # ***** 200 *****
1749 007166 012737 000200 000302 INC (R2) ; SET MSGTYP TO FATAL ERROR
1750 007174 005212 HALT ; C NOT SET
1751 007176 000000 ; TO SCOPE REPLACE HALT W/ 240
1752 ; AND REPLACE NEXT INST W/ 665
1753
1754 007200 4$: MOV CC, SP
1755 007204 022706 000357 CMP #357, SP
1756 007210 001405 BEQ TST46
1757 007212 012737 000201 000302 MOV #201, @#$FATAL ; MOVE TO MAILBOX # ***** 201 *****
1758 007220 005212 INC (R2) ; SET MSGTYP TO FATAL ERROR
1759 007222 000000 HALT ; PRIORITY WAS CHANGED, OR WRONG $STNM
1760 ; TO SCOPE REPLACE HALT W/ 240
1761 ; AND REPLACE NEXT INST W/ 653
1762
1763 ; *****
1764 ; TEST 46 TEST THAT A TRAP OCCURES ON ALL ILLEGAL INSTRUCTION
1765 ; *****
1765 007224 005237 000304 TST46: INC @#$TESTN ; UPDATE TEST NUMBER
1766 007230 022737 000046 000304 CMP #46, @#$TESTN ; SEQUENCE ERROR
1767 007236 001006 BNE TST47-12 ; BR TO ERROR HALT ON SEQ ERROR
1768 007240 012706 000500 MOV #BUFF, SP ; STACK POINTER SETUP
1769 007244 012767 007266 170532 MOV #RETH5, RTRAP5 ; RETURN LOCATION
Z 1770 007252 004000 JSR %0, %0 ; RESERVED INSTRUCTION, SHOULD TRAP
1771 007254 012737 000202 000302 MOV #202, @#$FATAL ; MOVE TO MAILBOX # ***** 202 *****
1772 007262 005212 INC (R2) ; SET MSGTYP TO FATAL ERROR
1773 007264 000000 HALT ; DIDN'T TRAP, OR WRONG $STNM
1774 ; TO SCOPE REPLACE HALT W/ 240
1775 ; AND REPLACE NEXT INST W/ 764
1776 007266 RETHS:

```



```

*****
:TEST 47      TEST DECREMENT OF STACK POINTER ON A TRAP OPEATION
*****
1777
1778
1779
1780 007266 005237 000304          TS*47: INC      @#$TESTN      :UPDATE TEST NUMBER
1781 007272 022737 000047 000304  :CMP      #47,@#$TESTN    :SEQUENCE ERROR
1782 007300 001011                :BNE     TST50-12        :BR TO ERROR HALT ON SEQ ERROR
1783 007302 012706 000500                :MOV     #BUFF,SP        :STACK POINTER SETUP
1784 007306 012767 007316 170470        :MOV     #RETJ,RTRAPS    :RETURN POINTER
1785 007314 004000                :JSR     %0,%0           :RESERVED INSTRUCTION
1786 007316 020627 000474          RETJ:  :CMP     SP,#BUFF-4      :TEST DECREMENT OF SP
1787 007322 001405                :BEQ     TST50           :
1788 007324 012737 000203 000302        :MOV     #203,@#$FATAL   :MOVE TO MAILBOX # ***** 203 *****
1789 007332 005212                :INC     (R2)            :SET MSGTYP TO FATAL ERROR
1790 007334 000000                :HALT                    :NOT DECREMENTED TWO WORDS,OR WRONG $STNM
1791
1792
1793
1794
1795
1796 007336 005237 000304          :*****
1797 007342 022737 000050 000304        :TEST 50      TEST THAT PROPER P.C. IS SAVED
1798 007350 001012                :*****
1799 007352 012706 000500                :TST50: INC     @#$TESTN      :UPDATE TEST NUMBER
1800 007356 012767 007366 170420        :CMP     #50,@#$TESTN    :SEQUENCE ERROR
1801 007364 004000                :BNE     TST51-12        :BR TO ERROR HALT ON SEQ ERROR
1802 007366 022767 007366 171100        :MOV     #BUFF,SP        :STACK POINTER SETUP
1803 007374 001405                :MOV     #RETK,RTRAPS    :RETURN FROM TRAP POINTER
1804 007376 012737 000204 000302        :JSR     %0,%0           :TRAP ON THIS INSTRUCTION
1805 007404 005212                :CMP     #INSTK+2,BUFF-4 :CHECK FOR INCREMENED P.C.
1806 007406 000000                :BEQ     TST51           :
1807
1808
1809
1810
1811
1812
1813 007410 005237 000304          :MOVE TO MAILBOX # ***** 204 *****
1814 007414 022737 000051 000304        :SET MSGTYP TO FATAL ERROR
1815 007422 001040                :INC     (R2)            :INCORRECT P.C.,OR WRONG $STNM
1816 007424 012706 000500                :HALT                    :TO SCOPE REPLACE HALT W/ 240
1817 007424 012767 007446 170346        :AND REPLACE NEXT INST W/ 760
1818 007436 005067 170334          :*****
1819 007442 000257                :TEST 51      TEST THAT "OLD" CC AND PRIORITY ARE PLACED ON STACK
1820 007444 004000                :*****
1821 007446 026727 171024 000000        :TST51: INC     @#$TESTN      :UPDATE TEST NUMBER
1822 007454 001405                :CMP     #51,@#$TESTN    :SEQUENCE ERROR
1823 007456 012737 000205 000302        :BNE     TST52-12        :BR TO ERROR HALT ON SEQ ERROR
1824 007464 005212                :MOV     #BUFF,SP        :SET UP
1825 007466 000000                :MOV     #RETL,RTRAPS    :SET UP
1826
1827
1828 007470 012706 000500          :CLR     CC              :CLEAR CC AND PRIORITY
1829 007474 012767 007514 170302        :CCC
1830 007502 012767 000357 170266        :JSR     %0,%0           :TRAP
1831 007510 000277                :CMP     BUFF-2,#0       :TEST THAT OLD STATUS WENT TO STACK
1832 007512 004000                :BEQ     1$              :
1833
1834
1835
1836
1837
1838
1839
1840
1841
1842
1843
1844
1845
1846
1847
1848
1849
1850
1851
1852
1853
1854
1855
1856
1857
1858
1859
1860
1861
1862
1863
1864
1865
1866
1867
1868
1869
1870
1871
1872
1873
1874
1875
1876
1877
1878
1879
1880
1881
1882
1883
1884
1885
1886
1887
1888
1889
1890
1891
1892
1893
1894
1895
1896
1897
1898
1899
1900
1901
1902
1903
1904
1905
1906
1907
1908
1909
1910
1911
1912
1913
1914
1915
1916
1917
1918
1919
1920
1921
1922
1923
1924
1925
1926
1927
1928
1929
1930
1931
1932
1933
1934
1935
1936
1937
1938
1939
1940
1941
1942
1943
1944
1945
1946
1947
1948
1949
1950
1951
1952
1953
1954
1955
1956
1957
1958
1959
1960
1961
1962
1963
1964
1965
1966
1967
1968
1969
1970
1971
1972
1973
1974
1975
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000

```

K03

```

1833 007514 026727 170756 000357 RETM:  CMP      BUFF-2, #357      ; COMPARES STATUS ON STACK
1834 007522 001405          BEQ      TST52
1835 007524 012737 000206 000302          MOV      #206, @#SFATAL ; MOVE TO MAILBOX # ***** 206 *****
1836 007532 005212          INC      (R2)           ; SET MSGTYP TO FATAL ERROR
1837 007534 000000          HALT                    ; INCORRECT STATUS ON STACK, OR WRONG $STYM
1838                                     ; TO SCOPE REPLACE HALT W/ 240
1839                                     ; AND REPLACE NEXT INST W/ 732
1840                                     ;*****
1841                                     ;TEST 52          TEST THAT "NEW" STATUS IS CORRECT
1842                                     ;*****
1843 007536 005237 000304          TST52: INC      @#STESTN ; UPDATE TEST NUMBER
1844 007542 022737 000052 000304          CMP      #52, @#STESTN ; SEQUENCE ERROR
1845 007550 001116          BNE     TST53-12        ; BR TO ERROR HALT ON SEQ ERROR
1846 007552 012706 000500          MOV      #BUFF, SP
1847 007556 012767 007572 170220          MOV      #RETN, RTRAPS
1848 007564 005067 170216          CLR     RTRAPS+2        ; CLEAR FUTURE PRIORITY AND CC
1849 007570 004000          JSR
1850 007572          RETN:              ; TEST FOR "C" CLEARED
1851 007572 100005          BPL     1$
1852 007574 012737 000207 000302          MOV      #207, @#SFATAL ; MOVE TO MAILBOX # ***** 207 *****
1853 007602 005212          INC      (R2)           ; SET MSGTYP TO FATAL ERROR
1854 007604 000000          HALT                    ; C NOT CLEARED
1855                                     ; TO SCOPE REPLACE HALT W/ 240
1856                                     ; AND REPLACE NEXT INST W/ 751
1857 007606          1$:
1858 007606 001005          BNE     2$
1859 007610 012737 000210 000302          MOV      #210, @#SFATAL ; MOVE TO MAILBOX # ***** 210 *****
1860 007616 005212          INC      (R2)           ; SET MSGTYP TO FATAL ERROR
1861 007620 000000          HALT                    ; Z NOT CLEARED
1862                                     ; TO SCOPE REPLACE HALT W/ 240
1863                                     ; AND REPLACE NEXT INST W/ 753
1864 007622          2$:
1865 007622 102005          BVC     3$
1866 007624 012737 000211 000302          MOV      #211, @#SFATAL ; MOVE TO MAILBOX # ***** 211 *****
1867 007632 005212          INC      (R2)           ; SET MSGTYP TO FATAL ERROR
1868 007634 000000          HALT                    ; V NOT CLEARED
1869                                     ; TO SCOPE REPLACE HALT W/ 240
1870                                     ; AND REPLACE NEXT INST W/ 745
1871 007636          3$:
1872 007636 103005          BCC     4$
1873 007640 012737 000212 000302          MOV      #212, @#SFATAL ; MOVE TO MAILBOX # ***** 212 *****
1874 007646 005212          INC      (R2)           ; SET MSGTYP TO FATAL ERROR
1875 007650 000000          HALT                    ; C NOT CLEARED
1876                                     ; TO SCOPE REPLACE HALT W/ 240
1877                                     ; AND REPLACE NEXT INST W/ 737
1878                                     ; TEMP STORAGE
1878 007652 016700 170120          4$:  MOV      CC, %0
1879 007656 001405          BEQ     5$
1880 007660 012737 000213 000302          MOV      #213, @#SFATAL ; MOVE TO MAILBOX # ***** 213 *****
1881 007666 005212          INC      (R2)           ; SET MSGTYP TO FATAL ERROR
1882 007670 000000          HALT                    ; PRIORITY NOT ZERO
1883                                     ; TO SCOPE REPLACE HALT W/ 240
1884                                     ; AND REPLACE NEXT INST W/ 727
1885 007672 012706 000500          5$:  MOV      #BUFF, SP
1886 007676 012767 007714 170100          MOV      #RET0, RTRAPS
1887 007704 012767 000357 170074          MOV      #357, RTRAPS+2 ; SET NEW "CC" AND PRIORITY
1888 007712 004000          JSR     %0, %0          ; TRAP HERE

```

Z

```

1889 007714          RETO:
1890 007714 100405    BMI      1$
1891 007716 012737    000214 000302  MOV     #214,0#$FATAL ; MOVE TO MAILBOX # ***** 214 *****
1892 007724 005212    INC     (R2)          ; SET MSGTYP TO FATAL ERROR
1893 007726 000000    HALT                    ; N NOT SET
1894                                ; TO SCOPE REPLACE HALT W/ 240
1895                                ; AND REPLACE NEXT INST W/ 710
1896 007730          1$:
1897 007730 001405    BEQ     2$
1898 007732 012737    000215 000302  MOV     #215,0#$FATAL ; MOVE TO MAILBOX # ***** 215 *****
1899 007740 005212    INC     (R2)          ; SET MSGTYP TO FATAL ERROR
1900 007742 000000    HALT                    ; Z NOT SET
1901                                ; TO SCOPE REPLACE HALT W/ 240
1902                                ; AND REPLACE NEXT INST W/ 702
1903 007744          2$:
1904 007744 102405    BVS     3$
1905 007746 012737    000216 000302  MOV     #216,0#$FATAL ; MOVE TO MAILBOX # ***** 216 *****
1906 007754 005212    INC     (R2)          ; SET MSGTYP TO FATAL ERROR
1907 007756 000000    HALT                    ; V NOT SET
1908                                ; TO SCOPE REPLACE HALT W/ 240
1909                                ; AND REPLACE NEXT INST W/ 674
1910 007760          3$:
1911 007760 103405    BCS     4$
1912 007762 012737    000217 000302  MOV     #217,0#$FATAL ; MOVE TO MAILBOX # ***** 217 *****
1913 007770 005212    INC     (R2)          ; SET MSGTYP TO FATAL ERROR
1914 007772 000000    HALT                    ; C NOT SET
1915                                ; TO SCOPE REPLACE HALT W/ 240
1916                                ; AND REPLACE NEXT INST W/ 666
1917 007774 016700 167776    4$:  MOV     CC,%0
1918 010000 022700 000357    CMP     #357,%0
1919 010004 001405    BEQ
1920 010006 012737    000220 000302  MOV     #220,0#$FATAL ; MOVE TO MAILBOX # ***** 220 *****
1921 010014 005212    INC     (R2)          ; SET MSGTYP TO FATAL ERROR
1922 010016 000000    HALT                    ; PRIORITY WAS CHANGED, OR WRONG $STNM
1923                                ; TO SCOPE REPLACE HALT W/ 240
1924                                ; AND REPLACE NEXT INST W/ 654
1925
1926 ;*****
1927 ;TEST 53      TEST THAT A TRAP OCCURES ON AN ILLEGAL ADDRESS
1928 ;*****
1929 010020 005237 000304  TST53: INC     0#$TESTN ; UPDATE TEST NUMBER
1930 010024 022737 000053 000304  CMP     #53,0#$TESTN ; SEQUENCE ERROR
1931 010032 001007    BNE     TST54-12      ; BR TO ERROR HALT ON SEQ ERROR
1932 010034 012706 000500    MOV     #BUFF,SP     ; STACK POINTER SETUP
1933 010040 012767 010064 167736  MOV     #RETP,RTNAPS ; RETURN LOCATION
1934 010046 005767 167727    TST 1 ; ILLEGAL ADDRESS INSTRUCTION, SHOULD TRAP
1935 010052 012737 000221 000302  MOV     #221,0#$FATAL ; MOVE TO MAILBOX # ***** 221 *****
1936 010060 005212    INC     (R2)          ; SET MSGTYP TO FATAL ERROR
1937 010062 000000    HALT                    ; ILLEGAL ADDRESS DID NOT TRAP, OR WRONG $STNM
1938                                ; TO SCOPE REPLACE HALT W/ 240
1939                                ; AND REPLACE NEXT INST W/ 763
1940 010064          RETP:
1941 ;*****
1942 ;TEST 54      TEST DECREMENT OF STACK POINTER ON A TRAP OPERATION
1943 ;*****
1944 010064 005237 000304  TST54: INC     0#$TESTN ; UPDATE TEST NUMBER

```

```

1945 010070 022737 000354 000304      CMP      #54,2#STESTN      ; SEQUENCE ERROR
1946 010076 001012 000000 000000      BNE      TST55-12        ; BR TO ERROR HALT ON SEQ ERROR
1947 010100 012706 000500 000000      MOV      #BUFF,SP       ; STACK POINTER SETUP
1948 010104 012767 010116 167672      MOV      #RETR,RTRAPS   ; RETURN POINTER
1949 010112 005767 167663 000000      TST     1                ; RESERVED INSTRUCTION
1950 010116 020627 000474 000000      RETQ:   CMP      SP,#BUFF-4 ; TEST DECREMENT OF SP
1951 010122 001405 000000 000000      BEQ      TST55
1952 010124 012737 000222 000302      MOV      #222,2#SFATAL  ; MOVE TO MAILBOX # ***** 222 *****
1953 010132 005212 000000 000000      INC      (R2)           ; SET MSGTYP TO FATAL ERROR
1954 010134 000000 000000 000000      HALT                    ; NOT DECREMENTED TWO WORDS, OR WRONG $TSTNM
1955                                     ; TO SCOPE REPLACE HALT W/ 240
1956                                     ; AND REPLACE NEXT INST W/ 760
1957                                     ;*****
1958                                     ;TEST 55      TEST THAT PROPER P.C. IS SAVED
1959                                     ;*****
1960 010136 005237 000304 000304      TST55: INC      2#STESTN  ; UPDATE TEST NUMBER
1961 010142 022737 000055 000304      CMP      #55,2#STESTN  ; SEQUENCE ERROR
1962 010150 001013 000000 000000      BNE      TST56-12      ; BR TO ERROR HALT ON SEQ ERROR
1963 010152 012706 000500 000000      MOV      #BUFF,SP       ; STACK POINTER SETUP
1964 010156 012767 010170 167620      MOV      #RETR,RTRAPS  ; RETURN FROM TRAP POINTER
1965 010164 005767 167611 000000      TST     1                ; TRAP ON THIS INSTRUCTION
1966 010170 022767 010170 170276      RETR:   CMP      #.BUFF-4 ; CHECK FOR INCREMENTED P.C.
1967 010176 001405 000000 000000      BEQ      TST56
1968 010200 012737 000223 000302      MOV      #223,2#SFATAL ; MOVE TO MAILBOX # ***** 223 *****
1969 010206 005212 000000 000000      INC      (R2)           ; SET MSGTYP TO FATAL ERROR
1970 010210 000000 000000 000000      HALT                    ; INCORRECT P.C. OR WRONG $TSTNM
1971                                     ; TO SCOPE REPLACE HALT W/ 240
1972                                     ; AND REPLACE NEXT INST W/ 757
1973                                     ;*****
1974                                     ;TEST 56      TEST THAT "OLD" CC AND PRIORITY ARE PLACED ON STACK
1975                                     ;*****
1976 010212 005237 000304 000304      TST56: INC      2#STESTN  ; UPDATE TEST NUMBER
1977 010216 022737 000056 000304      CMP      #56,2#STESTN  ; SEQUENCE ERROR
1978 010224 001042 000000 000000      BNE      TST57-12      ; BR TO ERROR HALT ON SEQ ERROR
1979 010226 012706 000500 000000      MOV      #BUFF,SP       ; SET UP
1980 010232 012767 010252 167544      MOV      #RETS,RTRAPS  ; SET UP
1981 010240 005067 167532 000000      CLR      CC              ; CLEAR CC AND PRIORITY
1982 010244 000257 000000 000000      CCC
1983 010246 005767 167527 000000      TST     1                ; TRAP
1984 010252 026727 170220 000000      RETS:   CMP      BUFF-2,#0 ; TEST THAT OLD STATUS WENT TO STACK
1985 010260 001405 000000 000000      BEQ      1$
1986 010262 012737 000224 000302      MOV      #224,2#SFATAL ; MOVE TO MAILBOX # ***** 224 *****
1987 010270 005212 000000 000000      INC      (R2)           ; SET MSGTYP TO FATAL ERROR
1988 010272 000000 000000 000000      HALT                    ; INCORRECT STATUS
1989                                     ; TO SCOPE REPLACE HALT W/ 240
1990                                     ; AND REPLACE NEXT INST W/ 754
1991 010274 012706 000500 000000      1$:    MOV      #BUFF,SP  ; SET UP
1992 010300 012767 010322 167476      MOV      #RETT,RTRAPS  ; SET UP
1993 010306 012767 000357 167462      MOV      #357,CC       ; SET PRIORITY
1994 010314 000277 000000 000000      SCC
1995 010316 005767 167457 000000      TST     1                ; SET CC
1996 010322 026727 170150 000357      RETT:   CMP      BUFF-2,#357 ; TRAP
1997 010330 001405 000000 000000      BEQ      TST57          ; COMPARES STATUS ON STACK
1998 010332 012737 000225 000302      MOV      #225,2#SFATAL ; MOVE TO MAILBOX # ***** 225 *****
1999 010340 005212 000000 000000      INC      (R2)           ; SET MSGTYP TO FATAL ERROR
2000 010342 000000 000000 000000      HALT                    ; INCORRECT STATUS ON STACK, OR WRONG $TSTNM

```

20001
20002
20003
20004
20005
20006
20007
20008
20009
20010
20011
20012
20013
20014
20015
20016
20017
20018
20019
20020
20021
20022
20023
20024
20025
20026
20027
20028
20029
20030
20031
20032
20033
20034
20035
20036
20037
20038
20039
20040
20041
20042
20043
20044
20045
20046
20047
20048
20049
20050
20051
20052
20053
20054
20055
20056

010344 005237 000304
010350 022737 000057 000304
010356 001121
010360 012706 000500
010364 012767 010402 167412
010372 005067 167410
010376 005767 167377
010402
010402 100005
010404 012737 000226 000302
010412 005212
010414 000000

010416
010416 001005
010420 012737 000227 000302
010426 005212
010430 000000

010432
010432 102005
010434 012737 000230 000302
010442 005212
010444 000000

010446
010446 103005
010450 012737 000231 000302
010456 005212
010460 000000

010462 032767 000357 167306
010470 001405
010472 012737 000232 000302
010500 005212
010502 000000

010504 012706 000500
010510 012767 010530 167266
010516 012767 000357 167262
010524 005767 167251
010530
010530 100405
010532 012737 000233 000302
010540 005212
010542 000000

TO SCOPE REPLACE HALT W/ 240
AND REPLACE NEXT INST W/ 73C

:TEST S7 TEST THAT "NEW" STATUS IS CORRECT

TST57: INC @#STESTN ;UPDATE TEST NUMBER
CMP #57,@#STESTN ;SEQUENCE ERROR
BNE TST60-12 ;BR TO ERROR HALT ON SEQ ERROR
MOV #BUFF,SP
MOV #RETU,RTRAP5
CLR RTRAP5+2 ;CLEAR FUTURE PRIORITY AND CC
TST 1 ;TRAP HERE
RETU: ;TEST FOR "C" CLEARED
BPL 1\$
MOV #226,@#SFATAL ;MOVE TO MAILBOX # ***** 226 *****
INC (R2) ;SET MSGTYP TO FATAL ERROR
HALT ;C NOT CLEARED
; TO SCOPE REPLACE HALT W/ 240
; AND REPLACE NEXT INST W/ 760

1\$: BNE 2\$
MOV #227,@#SFATAL ;MOVE TO MAILBOX # ***** 227 *****
INC (R2) ;SET MSGTYP TO FATAL ERROR
HALT ;Z NOT CLEARED
; TO SCOPE REPLACE HALT W/ 240
; AND REPLACE NEXT INST W/ 752

2\$: BVC 3\$
MOV #230,@#SFATAL ;MOVE TO MAILBOX # ***** 230 *****
INC (R2) ;SET MSGTYP TO FATAL ERROR
HALT ;V NOT CLEARED
; TO SCOPE REPLACE HALT W/ 240
; AND REPLACE NEXT INST W/ 744

3\$: BCC 4\$
MOV #231,@#SFATAL ;MOVE TO MAILBOX # ***** 231 *****
INC (R2) ;SET MSGTYP TO FATAL ERROR
HALT ;C NOT CLEARED
; TO SCOPE REPLACE HALT W/ 240
; AND REPLACE NEXT INST W/ 73E

4\$: BIT #357,CC ;TEST PRIORITY FOR ZERO
BEQ 5\$
MOV #232,@#SFATAL ;MOVE TO MAILBOX # ***** 232 *****
INC (R2) ;SET MSGTYP TO FATAL ERROR
HALT ;PRIORITY NOT ZERO
; TO SCOPE REPLACE HALT W/ 240
; AND REPLACE NEXT INST W/ 725

5\$: MOV #BUFF,SP
MOV #RETU,RTRAP5
MOV #357,RTRAP5+2 ;SET NEW "CC" AND PRIORITY
TST 1 ;TRACE HERE
RETU: BMI 1\$
MOV #233,@#SFATAL ;MOVE TO MAILBOX # ***** 233 *****
INC (R2) ;SET MSGTYP TO FATAL ERROR
HALT ;N NOT SET

```

2057                                     : TC SCOPE REPLACE HALT W/ 240
2058                                     : AND REPLACE NEXT INST W/ 705
2059 010544                               1$: BEQ      2$
2060 010544 001405                        MOV      #234,2#$FATAL ; MOVE TO MAILBOX # ***** 234 *****
2061 010546 012737 000234 000302        INC      (R2)      ; SET MSGTYP TO FATAL ERROR
2062 010554 005212                        HALT     ; Z NOT SET
2063 010556 000000                        ; TO SCOPE REPLACE HALT W/ 240
2064                                     ; AND REPLACE NEXT INST W/ 577
2065
2066 010560                               2$: BVS      3$
2067 010560 102405                        MOV      #235,2#$FATAL ; MOVE TO MAILBOX # ***** 235 *****
2068 010562 012737 000235 000302        INC      (R2)      ; SET MSGTYP TO FATAL ERROR
2069 010570 005212                        HALT     ; V NOT SET
2070 010572 000000                        ; TO SCOPE REPLACE HALT W/ 240
2071                                     ; AND REPLACE NEXT INST W/ 671
2072
2073 010574                               3$: BCS      4$
2074 010574 103405                        MOV      #236,2#$FATAL ; MOVE TO MAILBOX # ***** 236 *****
2075 010576 012737 000236 000302        INC      (R2)      ; SET MSGTYP TO FATAL ERROR
2076 010604 005212                        HALT     ; C NOT SET
2077 010606 000000                        ; TO SCOPE REPLACE HALT W/ 240
2078                                     ; AND REPLACE NEXT INST W/ 663
2079
2080 010610 016700 167162                4$: MOV      CC,%0
2081 010614 027700 000357                CMP      #357,%0
2082 010620 001405                        BEQ      TST60
2083 010622 012737 000237 000302        MOV      #237,2#$FATAL ; MOVE TO MAILBOX # ***** 237 *****
2084 010630 005212                        INC      (R2)      ; SET MSGTYP TO FATAL ERROR
2085 010632 000000                        HALT     ; PRIORITY WAS CHANGED, OR WRONG $TSTNM
2086                                     ; TO SCOPE REPLACE HALT W/ 240
2087                                     ; AND REPLACE NEXT INST W/ 651
2088 :*****
2089 :TEST 60 TEST THAT DECREMENT R6 TO A VALUE LESS THAN 4CC TRAPS
2090 :*****
2091 010634 005237 000304                †TST60: INC      2#$TESTN ; UPDATE TEST NUMBER
2092 010640 022737 000060 000304        CMP      #60,2#$TESTN ; SEQUENCE ERROR
2093 010646 001006                        BNE     TST61-12 ; BR TO ERROR HALT ON SEQ ERROR
2094 010650 012706 000150                MOV      #150,%6 ; R6 = 150
2095 010654 012767 01067E 167122        MOV      #TDEC1,4 ; STACK OVERFLOW TRAP POINTER
2096 010662 005746                        TST     -(6) ; WITH R6 = 150 SHOULD TRAP
2097 010664 012737 000240 000302        MOV      #240,2#$FATAL ; MOVE TO MAILBOX # ***** 240 *****
2098 010672 005212                        INC      (R2)      ; SET MSGTYP TO FATAL ERROR
2099 010674 000000                        HALT     ; SHOULD HAVE TRAPPED, OR WRONG $TSTNM
2100                                     ; TO SCOPE REPLACE HALT W/ 240
2101                                     ; AND REPLACE NEXT INST W/ 764
2102 010676                               TDEC1:
2103
2104 :*****
2105 :TEST 61 TEST FOR DECREMENT OF R6 ON OVERFLOW TRAP
2106 :*****
2107 010676 005237 000304                †TST61: INC      2#$TESTN ; UPDATE TEST NUMBER
2108 010702 022737 000061 000304        CMP      #61,2#$TESTN ; SEQUENCE ERROR
2109 010710 001011                        BNE     TST62-12 ; BR TO ERROR HALT ON SEQ ERROR
2110 010712 012706 000150                MOV      #150,%6 ; R6 = 150
2111 010716 012767 01072E 167060        MOV      #TDEC2,4 ; TRAP POINTER
2112 010724 005746                        TST     -(6) ; WITH R6 = 150 SHOULD TRAP

```


27.732
 T61
 010726 020627
 010732 001405
 010734 012737
 010742 005212
 010744 000000

00-DEC-76 09:40 PAGE 41
 *EST FOR DECREMENT OF R6 ON OVERFLOW TRAP

TOEC2: CMP
 BEQ
 MOV
 INC
 HALT

%6.#142
 TST62
 #241.0#SFATAL
 (R2)

:DID R6 DECREMENT
 :MOVE TO MAILBOX # ***** 24! *****
 :SET MSGTYP TO FATAL ERROR
 :R6 NOT = 142 OR WRONG \$STNM
 : TO SCOPE REPLACE HALT W/ 240
 : AND REPLACE NEXT INST W/ 76:

```

*****
:TEST 62      TEST DIFFERENT TYPES OF OVERFLOW
*****
2124 010746 005237 000304      TS62: INC      0#STESTN      ;UPDATE TEST NUMBER
2125 010752 022737 000062 000304  CMP      #62,0#STESTN      ;SEQUENCE ERROR
2126 010760 001043      BNE      TST63-12      ;BR TO ERROR HALT ON SEQ ERROR
2127 010762 012706 00015C      MOV      #150,%6
2128 010766 005067 167154      CLR      146      ;STATUS WORD OF LOC 10
2129 010772 012767 011002 167004  MOV      #TDEC3,4      ;RETURN TO LOC 4
2130 011000 005246      INC      -(6)
2131 011002 005767 16714C      TDEC3: TST      146
2132 011006 001005      BNE      1$
2133 011010 012737 000242 000302  MOV      #242,0#SFATAL ;MOVE TO MAILBOX # ***** 242 *****
2134 011016 005212      INC      (R2)      ;SET MSGTYP TO FATAL ERROR
2135 011020 000000      HALT      ;INCREMENT OPERATION NOT INHIBITED
                ; TO SCOPE REPLACE HALT W/ 240
                ; AND REPLACE NEXT INST W/ 757
2138 011022 012705 001000      1$: MOV      #1000,%5
2139 011026 012706 000400      MOV      #400,%6
2140 011032 012767 011054 166744  MOV      #TDEC4,4
2141 011040 124645      CMPB     -(6),-(5)
2142 011042 012737 000243 000302  MOV      #243,0#SFATAL ;MOVE TO MAILBOX # ***** 243 *****
2143 011050 005212      INC      (R2)      ;SET MSGTYP TO FATAL ERROR
2144 011052 000000      HALT      ;STACK = 400 AND DECREMENTED, SHOULD TRAP
                ; TO SCOPE REPLACE HALT W/ 240
                ; AND REPLACE NEXT INST W/ 742
2147 011054 012706 000400      TDEC4: MOV      #400,%6
2148 011060 012767 011102 166716  MOV      #TDEC7,4
2149 011066 134546      BITB     -(5),-(6)
2150 011070      TDEC6:
2151 011070 012737 000244 000302  MOV      #244,0#SFATAL ;MOVE TO MAILBOX # ***** 244 *****
2152 011076 005212      INC      (R2)      ;SET MSGTYP TO FATAL ERROR
2153 011100 000000      HALT      ;NO STACK OVERFLOW, OR WRONG $STSTM
                ; TO SCOPE REPLACE HALT W/ 240
                ; AND REPLACE NEXT INST W/ 727
2156 011102      TDEC7:
*****
:TEST 63      TEST THAT AN 7 CAUSES AN OVERFLOW TRAP
*****
2161 011102 005237 000304      TST63: INC      0#STESTN      ;UPDATE TEST NUMBER
2162 011106 022737 000063 000304  CMP      #63,0#STESTN      ;SEQUENCE ERROR
2163 011114 001011      BNE      VDEC2      ;BR TO ERROR HALT ON SEQ ERROR
2164 011116 012706 000400      MOV      #400,%6      ;SET UP STACK TO OVERFLOW
2165 011122 012767 011140 166660  MOV      #VDEC2,10      ;SET UP 7 VECTOR
2166 011130 012767 011152 166646  MOV      #VDEC1,4      ;SET UP OVERFLOW VECTOR
2167 011136 000007      7      ;THIS TRAP SHOULD CAUSE OVERFLOW
2168 011140      VDEC2:
2169 011140 012737 000245 000302  MOV      #245,0#SFATAL ;MOVE TO MAILBOX # ***** 245 *****
2170 011146 005212      INC      (R2)      ;SET MSGTYP TO FATAL ERROR
2171 011150 000000      HALT      ;TRAP FLAG OVERFLOW DID NOT OCCUR, OR WRONG $STSTM
                ; TO SCOPE REPLACE HALT W/ 240
                ; AND REPLACE NEXT INST W/ 761
2174 011152 012767 000012 166630  VDEC1: MOV      #10+2,10
*****
:TEST 64      TEST THAT AN ICT CAUSES AN OVERFLOW TRAP
*****

```

```

*****
178 011160 005237 000304 000304 †ST64: INC 0#STESTN ;UPDATE TEST NUMBER
179 011164 022737 000064 000304 CMP #64,0#STESTN ;SEQUENCE ERROR
180 011172 001011 BNE VDEC4 ;BR TO ERROR HALT ON SEQ ERROR
181 011174 012706 000400 MOV #400,%6 ;SET UP STACK TO OVERFLOW
182 011200 012767 011216 166612 MOV #VDEC4.20 ;SET UP IOT VECTOR
183 011206 012767 011230 166570 MOV #VDEC3.4 ;SET UP OVERFLOW VECTOR
184 011214 000004 IOT ;THIS TRAP SHOULD CAUSE OVERFLOW
185 011216 VDEC4:
186 011216 012737 000246 000302 MOV #246,0#SFATAL ;MOVE TO MAILBOX # ***** 246 *****
187 011224 005212 INC (R2) ;SET MSGTYP TO FATAL ERROR
188 011226 000000 HALT ;TRAP FLAG OVERFLOW DID NOT OCCUR,OR WRONG $STNM
; TO SCOPE REPLACE HALT W/ 240
; AND REPLACE NEXT INST W/ 761
191 011230 012767 000022 166562 VDEC3: MOV #20+2,20
192 *****
193 ;TEST 65 TEST THAT AN EMT CAUSES AN OVERFLOW TRAP
194 *****
195 011236 005237 000304 000304 †ST65: INC 0#STESTN ;UPDATE TEST NUMBER
196 011242 022737 000065 000304 CMP #65,0#STESTN ;SEQUENCE ERROR
197 011250 001011 BNE VDEC6 ;BR TO ERROR HALT ON SEQ ERROR
198 011252 012706 000400 MOV #400,%6 ;SET UP STACK TO OVERFLOW
199 011256 012767 011274 166544 MOV #VDEC6.30 ;SET UP EMT VECTOR
200 011264 012767 011306 166512 MOV #VDEC5.4 ;SET UP OVERFLOW VECTOR
201 011272 104000 EMT ;THIS TRAP SHOULD CAUSE OVERFLOW
202 011274 VDEC6:
203 011274 012737 000247 000302 MOV #247,0#SFATAL ;MOVE TO MAILBOX # ***** 247 *****
204 011302 005212 INC (R2) ;SET MSGTYP TO FATAL ERROR
205 011304 000000 HALT ;TRAP FLAG OVERFLOW DID NOT OCCUR,OR WRONG $STNM
; TO SCOPE REPLACE HALT W/ 240
; AND REPLACE NEXT INST W/ 761
208 011306 012767 000032 166514 VDEC5: MOV #30+2,30
209 *****
210 ;TEST 66 TEST THAT AN TRAP CAUSES AN OVERFLOW TRAP
211 *****
212 011314 005237 000304 000304 †ST66: INC 0#STESTN ;UPDATE TEST NUMBER
213 011320 022737 000066 000304 CMP #66,0#STESTN ;SEQUENCE ERROR
214 011326 001011 BNE VDEC8 ;BR TO ERROR HALT ON SEQ ERROR
215 011330 012706 000400 MOV #400,%6 ;SET UP STACK TO OVERFLOW
216 011334 012767 011352 166472 MOV #VDEC8,34 ;SET UP TRAP VECTOR
217 011342 012767 011364 166434 MOV #VDEC7.4 ;SET UP OVERFLOW VECTOR
218 011350 104400 TRAP ;THIS TRAP SHOULD CAUSE OVERFLOW
219 011352 VDEC8:
220 011352 012737 000250 000302 MOV #250,0#SFATAL ;MOVE TO MAILBOX # ***** 250 *****
221 011360 005212 INC (R2) ;SET MSGTYP TO FATAL ERROR
222 011362 000000 HALT ;TRAP FLAG OVERFLOW DID NOT OCCUR,OR WRONG $STNM
; TO SCOPE REPLACE HALT W/ 240
; AND REPLACE NEXT INST W/ 761
225 011364 012767 000036 166442 VDEC7: MOV #34+2,34
226 *****
227 ;TEST 67 TEST THAT AN TRT CAUSES AN OVERFLOW TRAP
228 *****
229 011372 005237 000304 000304 †ST67: INC 0#STESTN ;UPDATE TEST NUMBER
230 011376 022737 000067 000304 CMP #67,0#STESTN ;SEQUENCE ERROR
231 011404 001011 BNE VDEC10 ;BR TO ERROR HALT ON SEQ ERROR
232 011406 012706 000400 MOV #400,%6 ;SET UP STACK TO OVERFLOW

```

```

22333 011412 012767 011430 166374      MOV      #VDEC10,14      ;SET UP TRT VECTOR
22334 011420 012767 011442 166356      MOV      #VDEC9,4       ;SET UP OVERFLOW VECTOR
22335 011426 000003                      TRT                               ;THIS TRAP SHOULD CAUSE OVERFLOW
22336 011430                                VDEC10:
22337 011430 012737 000251 000302      MOV      #251,0#$FATAL  ;MOVE TO MAILBOX # ***** 251 *****
22338 011436 005212                      INC      (R2)             ;SET MSGTYP TO FATAL ERROR
22339 011440 000000                      HALT                          ;TRAP FLAG OVERFLOW DID NOT OCCUR,OR WRONG $TSTNM
22340                                ; TO SCOPE REPLACE HALT W/ 240
22341                                ; AND REPLACE NEXT INST W/ 761
22342 011442 012767 000016 166344      VDEC9:  MOV      #14+2,14
22343                                ;*****
22344                                ;TEST 70      TEST THAT AN ILLA CAUSES AN OVERFLOW TRAP
22345                                ;*****
22346 011450 005237 000304      TST70:  INC      0#$TESTN  ;UPDATE TEST NUMBER
22347 011454 022737 000070 000304      CMP      #70,0#$TESTN   ;SEQUENCE ERROR
22348 011462 001011                      BNE     VDEC11          ;BR TO ERROR HALT ON SEQ ERROR
22349 011464 012706 000400      MOV      #400,%6        ;SET UP STACK TO OVERFLOW
22350 011470 012767 011506 166306      MOV      #VDEC11,4     ;SET UP ILLA VECTOR
22351 011476 012767 011520 166300      MOV      #VDEC12,4     ;SET UP OVERFLOW VECTOR
22352 011504 004700                      ILLA                          ;THIS TRAP SHOULD CAUSE OVERFLOW
22353 011506                                VDEC11:
22354 011506 012737 000252 000302      MOV      #252,0#$FATAL  ;MOVE TO MAILBOX # ***** 252 *****
22355 011514 005212                      INC      (R2)             ;SET MSGTYP TO FATAL ERROR
22356 011516 000000                      HALT                          ;TRAP FLAG OVERFLOW DID NOT OCCUR,OR WRONG $TSTNM
22357                                ; TO SCOPE REPLACE HALT W/ 240
22358                                ; AND REPLACE NEXT INST W/ 761
22359 011520 012767 000006 166256      VDEC12: MOV      #4+2,4
22360 011526 020627 000370      CMP      %6,#370        ;STACK PUSHED FOUR WORDS?
22361 011532 001405                      BEQ     TST71
22362 011534 012737 000253 000302      MOV      #253,0#$FATAL  ;MOVE TO MAILBOX # ***** 253 *****
22363 011542 005212                      INC      (R2)             ;SET MSGTYP TO FATAL ERROR
22364 011544 000000                      HALT                          ;TRAP OVERFLOW DID NOT OCCUR
22365                                ; TO SCOPE REPLACE HALT W/ 240
22366                                ; AND REPLACE NEXT INST W/ 746
22367                                ;*****
22368                                ;TEST 71      TEST THAT AN ILLB CAUSES AN OVERFLOW TRAP
22369                                ;*****
22370 011546 005237 000304      TST71:  INC      0#$TESTN  ;UPDATE TEST NUMBER
22371 011552 022737 000071 000304      CMP      #71,0#$TESTN   ;SEQUENCE ERROR
22372 011560 001011                      BNE     VDEC13          ;BR TO ERROR HALT ON SEQ ERROR
22373 011562 012706 000400      MOV      #400,%6        ;SET UP STACK TO OVERFLOW
22374 011566 012767 011604 166210      MOV      #VDEC13,4     ;SET UP ILLB VECTOR
22375 011574 012767 011616 166202      MOV      #VDEC14,4     ;SET UP OVERFLOW VECTOR
22376 011602 000100                      ILLB                          ;THIS TRAP SHOULD CAUSE OVERFLOW
22377 011604                                VDEC13:
22378 011604 012737 000254 000302      MOV      #254,0#$FATAL  ;MOVE TO MAILBOX # ***** 254 *****
22379 011612 005212                      INC      (R2)             ;SET MSGTYP TO FATAL ERROR
22380 011614 000000                      HALT                          ;TRAP FLAG OVERFLOW DID NOT OCCUR,OR WRONG $TSTNM
22381                                ; TO SCOPE REPLACE HALT W/ 240
22382                                ; AND REPLACE NEXT INST W/ 761
22383 011616 012767 000006 166160      VDEC14: MOV      #4+2,4
22384                                ;*****
22385                                ;TEST 72      TEST FOR FALSE OVERFLOW TRAP
22386                                ;*****
22387 011624 005237 000304      TST72:  INC      0#$TESTN  ;UPDATE TEST NUMBER

```

```

2289 011630 022737 000072 000304    CMP    #72,0#STESTN    ;SEQUENCE ERROR
2290 011636 001023    BNE    FOVER          ;BR TO ERROR HALT ON SEQ ERROR
2291
2292 011640 012767 011706 166136    MOV    #FOVER,4        ;SET UP OVERFLOW POINTER
2293 011646 012706 001002    MOV    #1002,%6
2294 011652 005746    TST    -(6)           ;SHOULD NOT OVEPFLOW
2295 011654 012706 002002    MOV    #2002,%6
2296 011660 005746    TST    -(6)           ;SHOULD NOT OVERFLOW
2297 011662 012706 004002    MOV    #4002,%6
2298 011666 005746    TST    -(6)           ;SHOULD NOT OVERFLOW
2299 011670 012706 010002    MOV    #10002,%6
2300 011674 005746    TST    -(6)
2301 011676 012706 020000    MOV    #20000,%6    ;SHOULD NOT OVERFLOW
2302 011702 005746    TST    -(6)
2303 011704 000405    BR     STP
2304 011706
2305 011706 012737 000255 000302    FOVER: MOV    #255,0#SFATAL ;MOVE TO MAILBOX # ***** 255 *****
2306 011714 005212    INC    (R2)          ;SET MSGTYP TO FATAL ERROR
2307 011716 000000    HALT                ;IT OVERFLOWED, OR WRONG $STNM
2308                                     ; TO SCOPE REPLACE HALT W/ 240
2309                                     ; AND REPLACE NEXT INST W/ 747
2310 011720 012767 000006 166056    STP:  MOV    #6,4
2311 011726 005067 165054    CLR    6
2312                                     ;*****
2313                                     ;:TEST 73 TEST THAT BIT 4 PSW WILL CAUSE A TRAP TO 14
2314                                     ;*****
2315 011732 005237 000304    TST73: INC    0#STESTN ;UPDATE TEST NUMBER
2316 011736 022737 000073 000304    CMP    #73,0#STESTN ;SEQUENCE ERROR
2317 011744 001100    BNE    STP1          ;BR TO ERROR HALT ON SEQ ERROR
2318 011746 005067 166044    CLR    16
2319 011752 012706 000500    MOV    #BUFF,SP
2320 011756 012767 012006 166030    MOV    #RETGT,RTRAP4
2321 011764 012767 000020 166004    MOV    #20,STATUS
2322 011772 000240    NOP
2323 011774
2324 011774 012737 000256 000302    RETBT: MOV    #256,0#SFATAL ;MOVE TO MAILBOX # ***** 256 *****
2325 012002 005212    INC    (R2)          ;SET MSGTYP TO FATAL ERROR
2326 012004 000000    HALT                ;TRACE BIT DID NOT TRAP
2327                                     ; TO SCOPE REPLACE HALT W/ 240
2328                                     ; AND REPLACE NEXT INST W/ 757
2329 012006 026727 165764 000000    RETGT: CMP    STATUS,#0
2330 012014 001405    BEQ    RETAT
2331 012016 012737 000257 000302    MOV    #257,0#SFATAL ;MOVE TO MAILBOX # ***** 257 *****
2332 012024 005212    INC    (R2)          ;SET MSGTYP TO FATAL ERROR
2333 012026 000000    HALT                ;NEW STATUS IS INCORRECT
2334                                     ; TO SCOPE REPLACE HALT W/ 240
2335                                     ; AND REPLACE NEXT INST W/ 746
2336 012030 020627 000474    RETAT: CMP    SP,#BUFF-4
2337 012034 001405    BEQ    RETCT
2338 012036 012737 000260 000302    MOV    #260,0#SFATAL ;MOVE TO MAILBOX # ***** 260 *****
2339 012044 005212    INC    (R2)          ;SET MSGTYP TO FATAL ERROR
2340 012046 000000    HALT                ;STACK POINTER DID NOT DECREMENT
2341                                     ; TO SCOPE REPLACE HALT W/ 240
2342                                     ; AND REPLACE NEXT INST W/ 736
2343 012050 022767 011774 166416    RETCT: CMP    #RETBT,BUFF-4
2344 012056 001405    BEQ    RETDT

```

```

2345 012060 012737 000261 000302 MOV #261,0#SFATAL ;MOVE TO MAILBOX # ***** 261 *****
2346 012066 005212 INC (R2) ;SET MSGTYP TO FATAL ERROR
2347 012070 000000 HALT ;CORRECT PC WAS NOT SAVED
2348 ; TO SCOPE REPLACE HALT W/ 240
2349 ; AND REPLACE NEXT INST W/ 725
2350 012072 022767 000020 166376 RETDT: CMP #20,BUFF-2
2351 012100 001405 BEQ RETET
2352 012102 012737 000262 000302 MOV #262,0#SFATAL ;MOVE TO MAILBOX # ***** 262 *****
2353 012110 005212 INC (R2) ;SET MSGTYP TO FATAL ERROR
2354 012112 000000 HALT ;OLD CC AND PRIORITY WAS NOT SAVED
2355 ; TO SCOPE REPLACE HALT W/ 240
2356 ; AND REPLACE NEXT INST W/ 714
2357 012114 012706 000500 RETET: MOV #BUFF,SP ;STACK PTR SETUP
2358 012120 012767 012136 165566 MOV #RETFT,RTRAP4
2359 012126 012767 000377 165642 MOV #377,STATUS ;SET THE PSW AND THE T BIT
2360 012134 000240 NOP
2361 012136 022767 000377 166332 RETFT: CMP #377,BUFF-2
2362 012144 001405 BEQ STP1B
2363 012146 STP1:
2364 012146 012737 000263 000302 MOV #263,0#SFATAL ;MOVE TO MAILBOX # ***** 263 *****
2365 012154 005212 INC (R2) ;SET MSGTYP TO FATAL ERROR
2366 012156 000000 HALT ;OLD CC AND PRIORITY WERE NOT SAVED
2367 ; TO SCOPE REPLACE HALT W/ 240
2368 ; AND REPLACE NEXT INST W/ 672
2369 012160 012757 000016 165626 STP1B: MOV #16,14
2370 012166 005067 165624 CLR 16
2371
2372 ;////////////////////
2373 ;T BIT CLEARED
2374 ;////////////////////
2375 ;*****
2376 ;TEST 74 TEST THE RTI INSTRUCTION WITHOUT SETTING THE T BIT
2377 ;*****
2378 012172 005237 000304 TST74: INC #STESTN ;UPDATE TEST NUMBER
2379 012176 022737 000074 000304 CMP #74,#STESTN ;SEQUENCE ERROR
2380 012204 001037 BNE TST75-12 ;BR TO ERROR HALT ON SEQ ERROR
2381 012206 012706 000500 MOV #BUFF,SP
2382 012212 005046 CLR -(SP)
2383 012214 012746 012234 MOV #RTIA,-(SP)
2384 012220 000002 RTI
2385 012222 012737 000264 000302 MOV #264,0#SFATAL ;MOVE TO MAILBOX # ***** 264 *****
2386 012230 005212 INC (R2) ;SET MSGTYP TO FATAL ERROR
2387 012232 000000 HALT ;RTI DIDN'T TRAP
2388 ; TO SCOPE REPLACE HALT W/ 240
2389 ; AND REPLACE NEXT INST W/ 764
2390 012234 022767 000000 165534 RTIA: CMP #0,STATUS
2391 012242 001405 BEQ 15
2392 012244 012737 000265 000302 MOV #265,0#SFATAL ;MOVE TO MAILBOX # ***** 265 *****
2393 012252 005212 INC (R2) ;SET MSGTYP TO FATAL ERROR
2394 012254 000000 HALT ;NEW STATUS IS NOT CORRECT
2395 ; TO SCOPE REPLACE HALT W/ 240
2396 ; AND REPLACE NEXT INST W/ 753
2397 012256 012706 000500 15: MOV #BUFF,SP
2398 012262 012746 000357 MOV #357,-(SP)
2399 012266 012746 012274 MOV #RTIB,-(SP)
2400 012272 000002 RTI

```


08-DEC-76 09:40 PAGE 47
TEST THE RTI INSTRUCTION WITHOUT SETTING THE T BIT

08-DEC-76 09:40 PAGE 47
TEST THE RTI INSTRUCTION WITHOUT SETTING THE T BIT

2401	012274	022767	000357	165474	RTIB:	CMP	#357,STATUS		
2402	012302	001405				BEG	TST75		
2403	012304	012737	000266	000302		MOV	#266,@#FATAL	: MOVE TO MAILBOX # ***** 266 *****	
2404	012312	005212				INC	(R2)	: SET MSGTYP TO FATAL ERROR	
2405	012314	000000				HALT		: STATUS SHOULD HAVE BEEN 357, OR WRONG \$STNM	
2406								: TO SCOPE REPLACE HALT W/ 240	
2407								: AND REPLACE NEXT INST W/ 733	

////////////////////////////////////
: T BIT CLEARED
////////////////////////////////////

: TEST 75 TEST THE RTI INSTRUCTION WITHOUT SETTING THE T BIT

2415	012316	005237	000304		TST75:	INC	@#STESTN	: UPDATE TEST NUMBER	
2416	012322	022737	000075	000304		CMP	#75,@#STESTN	: SEQUENCE ERROR	
2417	012330	001017				BNE	TST76-12	: BR TO ERROR HALT ON SEQ ERROR	
2418	012332	012706	000500			MOV	#BUFF,SP		
2419	012336	005046				CLR	-(SP)		
2420	012340	012746	012360			MOV	#RTTA,-(SP)		
2421	012344	000006				RTT			
2422	012346	012737	000267	000302		MOV	#267,@#FATAL	: MOVE TO MAILBOX # ***** 267 *****	
2423	012354	005212				INC	(R2)	: SET MSGTYP TO FATAL ERROR	
2424	012356	000000				HALT		: RTT DIDN'T TRAP	
2425								: TO SCOPE REPLACE HALT W/ 240	
2426								: AND REPLACE NEXT INST W/ 764	

////////////////////////////////////
: T BIT CLEARED
////////////////////////////////////

: TEST 76 TEST THE RTI INSTRUCTION SETTING THE T BIT

2427	012360	022767	000000	165410	RTTA:	CMP	#0,STATUS		
2428	012366	001405				BEG	TST76		
2429	012370	012737	000270	000302		MOV	#270,@#FATAL	: MOVE TO MAILBOX # ***** 270 *****	
2430	012376	005212				INC	(R2)	: SET MSGTYP TO FATAL ERROR	
2431	012400	000000				HALT		: NEW STATUS IS NOT CORRECT, OR WRONG \$STNM	
2432								: TO SCOPE REPLACE HALT W/ 240	
2433								: AND REPLACE NEXT INST W/ 753	

////////////////////////////////////
: T BIT CLEARED
////////////////////////////////////

: TEST 76 TEST THE RTI INSTRUCTION SETTING THE T BIT

2441	012402	005237	000304		TST76:	INC	@#STESTN	: UPDATE TEST NUMBER	
2442	012406	022737	000076	000304		CMP	#76,@#STESTN	: SEQUENCE ERROR	
2443	012414	001055				BNE	TST77-12	: BR TO ERROR HALT ON SEQ ERROR	
2444	012416	012706	000500			MOV	#BUFF,SP		
2445	012422	012767	012456	165364		MOV	#RTIC,RTRAP4		
2446	012430	012746	000020			MOV	#20,-(SP)		
2447	012434	012746	012442			MOV	#RTID,-(SP)		
2448	012440	000002				RTI			
2449	012442	000240			RTID:	NOP			
2450	012444	012737	000271	000302		MOV	#271,@#FATAL	: MOVE TO MAILBOX # ***** 271 *****	
2451	012452	005212				INC	(R2)	: SET MSGTYP TO FATAL ERROR	
2452	012454	000000				HALT		: T BIT SHOULDN'T ALLOW PC TO COME HERE	
2453								: TO SCOPE REPLACE HALT W/ 240	
2454								: AND REPLACE NEXT INST W/ 757	

2455	012456	005767	165314		RTIC:	TST	STATUS		
2456	012462	001405				BEG	IS		

08-DEC-76 09:40 PAGE 48
TEST THE RTI INSTRUCTION SETTING THE T BIT

08-DEC-76 09:40 PAGE 48
TEST THE RTI INSTRUCTION SETTING THE T BIT

```

2457 012464 012737 000272 000302      MOV    #272,0#FATAL      :MOVE TO MAILBOX # ***** 272 *****
2458 012472 005212      INC    (R2)              :SET MSGTYP TO FATAL ERROR
2459 012474 000000      HALT                    :NEW STATUS IS INCORRECT
2460                                     : TO SCOPE REPLACE HALT W/ 240
2461                                     : AND REPLACE NEXT INST W/ 747
2462 012476 020627 000474      1$:  CMP    SP,#BLFF-4
2463 012502 001405      BEQ    2$
2464 012504 012737 000273 000302      MOV    #273,0#FATAL      :MOVE TO MAILBOX # ***** 273 *****
2465 012512 005212      INC    (R2)              :SET MSGTYP TO FATAL ERROR
2466 012514 000000      HALT                    :STACK POINTER DID NOT DECREMENT
2467                                     : TO SCOPE REPLACE HALT W/ 240
2468                                     : AND REPLACE NEXT INST W/ 737
2469 012516 022767 012444 165750 2$:  CMP    #RTID+2,BUFF-4
2470 012524 001405      BEQ    3$
2471 012526 012737 000274 000302      MOV    #274,0#FATAL      :MOVE TO MAILBOX # ***** 274 *****
2472 012534 005212      INC    (R2)              :SET MSGTYP TO FATAL ERROR
2473 012536 000000      HALT                    :CORRECT PC WAS NOT SAVED
2474                                     : TO SCOPE REPLACE HALT W/ 240
2475                                     : AND REPLACE NEXT INST W/ 726
2476 012540 022767 000020 165730 3$:  CMP    #20,BUFF-2
2477 012546 001405      BEQ    TST77
2478 012550 012737 000275 000302      MOV    #275,0#FATAL      :MOVE TO MAILBOX # ***** 275 *****
2479 012556 005212      INC    (R2)              :SET MSGTYP TO FATAL ERROR
2480 012560 000000      HALT                    :CORRECT PSW WAS NOT SAVED,OR ERONG $TSTNM
2481                                     : TO SCOPE REPLACE HALT W/ 240
2482                                     : AND REPLACE NEXT INST W/ 715
2483
2484 :////////////////////
2485 :T BIT CLEARED
2486 :////////////////////
2487 *****
2488 :TEST 77      TEST THE RTI INSTRUCTION SETTING THE T BIT
2489 *****
2490 ST77:  INC    0#STESTN      :UPDATE TEST NUMBER
2491      CMP    #77,0#STESTN  :SEQUENCE ERROR
2492      BNE   TST100-12     :BR TO ERROR HALT ON SEQ ERROR
2493      MOV    #357,16
2494      MOV    #BUFF,SP
2495      MOV    #RTTC,RTRAP4
2496      MOV    #20,-(SP)
2497      MOV    #RTTD,-(SP)
2498      RTT
2499      NOP
2500      MOV    #276,0#FATAL  :MOVE TO MAILBOX # ***** 276 *****
2501      INC    (R2)          :SET MSGTYP TO FATAL ERROR
2502      HALT                :T BIT SHOULDN'T ALLOW PC TO COME HERE
2503                                     : TO SCOPE REPLACE HALT W/ 240
2504                                     : AND REPLACE NEXT INST W/ 754
2505 012644 026727 165126 000357 RTTC:  CMP    STATUS,#357
2506 012652 001405      BEQ    1$
2507 012654 012737 000277 000302      MOV    #277,0#FATAL      :MOVE TO MAILBOX # ***** 277 *****
2508 012662 005212      INC    (R2)              :SET MSGTYP TO FATAL ERROR
2509 012664 000000      HALT                    :NEW STATUS IS INCORRECT
2510                                     : TO SCOPE REPLACE HALT W/ 240
2511                                     : AND REPLACE NEXT INST W/ 743
2512 012666 020627 000474      1$:  CMP    SP,#BUFF-4

```

K04

```

2513 012672 001405      BEQ      2$
2514 012674 012737 00030C 000302  MOV      #300,2#$FATAL ;MOVE TO MAILBOX # ***** 300 *****
2515 012702 005212      INC      (R2)          ;SET MSGTYP TO FATAL ERROR
2516 012704 00000C      HALT          ;STACK POINTER DID NOT DECREMENT
                ; TO SCOPE REPLACE HALT W/ 240
                ; AND REPLACE NEXT INST W/ 733
2519 012706 022767 012632 165550 2$:      CMP      #RTTD+2,BJFF-4
2520 012714 001405      BEQ      3$
2521 012716 012737 000301 000302  MOV      #301,2#$FATAL ;MOVE TO MAILBOX # ***** 301 *****
2522 012724 005212      INC      (R2)          ;SET MSGTYP TO FATAL ERROR
2523 012726 00000C      HALT          ;CORRECT PC WAS NOT SAVED
                ; TO SCOPE REPLACE HALT W/ 240
                ; AND REPLACE NEXT INST W/ 722
2526 012730 022767 000020 165540 3$:      CMP      #20,BUFF-2
2527 012736 001405      BEQ      TST100
2528 012740 012737 000302 000302  MOV      #302,2#$FATAL ;MOVE TO MAILBOX # ***** 302 *****
2529 012746 005212      INC      (R2)          ;SET MSGTYP TO FATAL ERROR
2530 012750 00000C      HALT          ;CORRECT PSW WAS NOT SAVED, OR WRONG $TSTYM
                ; TO SCOPE REPLACE HALT W/ 240
                ; AND REPLACE NEXT INST W/ 711
2531
2532
2533
2534
2535
2536
2537
2538
2539
2540 012752 005237 000304      *TST100: INC      2#$TESTN ;UPDATE TEST NUMBER
2541 012756 022737 000100 000304  CMP      #100,2#$TESTN ;SEQUENCE ERROR
2542 012764 001050      BNE      TST101-12    ;BR TO ERROR HALT ON SEQ ERROR
2543 012766 005067 165024      CLR      16
2544 012772 012706 000500      MOV      #BUFF,SP
2545 012776 012767 013036 165010  MOV      #RTIE,RTRAP4
2546 013004 005046      CLR      -(SP)
2547 013006 012746 013022      MOV      #RTIF,-(SP)
2548 013012 052767 000020 164756  BIS      #20,STATUS
2549 013020 000002      RTI
2550 013022 000240      RTIF:  NOP
2551 013024 012737 000303 000302  MOV      #303,2#$FATAL ;MOVE TO MAILBOX # ***** 303 *****
2552 013032 005212      INC      (R2)          ;SET MSGTYP TO FATAL ERROR
2553 013034 00000C      HALT          ;T BIT SHOULDN'T ALLOW THE PC TO COME HERE
                ; TO SCOPE REPLACE HALT W/ 240
                ; AND REPLACE NEXT INST W/ 753
2556 013036 005767 164734      RTIE:  TST      STATUS
2557 013042 001405      BEQ      1$
2558 013044 012737 000304 000302  MOV      #304,2#$FATAL ;MOVE TO MAILBOX # ***** 304 *****
2559 013052 005212      INC      (R2)          ;SET MSGTYP TO FATAL ERROR
2560 013054 00000C      HALT          ;NEW STATUS IS INCORRECT
                ; TO SCOPE REPLACE HALT W/ 240
                ; AND REPLACE NEXT INST W/ 743
2562
2563 013056 020627 000474      1$:      CMP      SP,#BUFF-4
2564 013062 001405      BEQ      2$
2565 013064 012737 000305 000302  MOV      #305,2#$FATAL ;MOVE TO MAILBOX # ***** 305 *****
2566 013072 005212      INC      (R2)          ;SET MSGTYP TO FATAL ERROR
2567 013074 00000C      HALT          ;STACK POINTER DID NOT DECREMENT
                ; TO SCOPE REPLACE HALT W/ 240
2568

```

:/:/:/:/:/:/:/:/:/:/

T BIT SET

:/:/:/:/:/:/:/:/:/:/

TEST 100 TEST THE RTI INSTRUCTION WITHOUT SETTING THE T BIT

; AND REPLACE NEXT INST W/ 733

2569										
2570	013076	022767	013022	165370	25:	CMP	#RTIF,BUFF-4			
2571	013104	001405				BEQ	TST101			
2572	013106	012737	000306	000302		MOV	#306,@#SFATAL	; MOVE TO MAILBOX # ***** 306 *****		
2573	013114	005212				INC	(R2)	; SET MSGTYP TO FATAL ERROR		
2574	013116	000000				HALT		; CORRECT PC WAS NOT SAVED, OR WRONG STSTNM		
2575								; TO SCOPE REPLACE HALT W/ 240		
2576								; AND REPLACE NEXT INST W/ 722		

////////////////////////////////////
T BIT SET
////////////////////////////////////

TEST 101 TEST THE RTI INSTRUCTION WITHOUT SETTING THE T BIT

2584	013120	005237	000304			TST101:	INC	@#STESTN	; UPDATE TEST NUMBER	
2585	013124	022737	000101	000304			CMP	#101,@#STESTN	; SEQUENCE ERROR	
2586	013132	001035					BNE	TST102-12	; BR TO ERROR HALT ON SEQ ERROR	
2587	013134	012706	000500				MOV	#BUFF,SP		
2588	013140	012767	013164	164646			MOV	#RTTM,RTRAP4		
2589	013146	005046					CLR	-(SP)		
2590	013150	012746	013200				MOV	#RTTL,-(SP)		
2591	013154	052767	000020	164614			BIS	#20,STATUS		
2592	013162	000006					RTT		; THIS RTT SHOULD CLEAR THE T BIT	
2593	013164	000240				RTTM:	NOP			
2594	013166	012737	000307	000302			MOV	#307,@#SFATAL	; MOVE TO MAILBOX # ***** 307 *****	
2595	013174	005212					INC	(R2)	; SET MSGTYP TO FATAL ERROR	
2596	013176	000000					HALT		; RTT SHOULDN'T ALLOW THE PC TO COME HERE	
2597									; TO SCOPE REPLACE HALT W/ 240	
2598									; AND REPLACE NEXT INST W/ 755	

2599	013200	005767	164572			RTTL:	TST	STATUS		
2600	013204	001405					BEQ	15		
2601	013206	012737	000310	000302			MOV	#310,@#SFATAL	; MOVE TO MAILBOX # ***** 310 *****	
2602	013214	005212					INC	(R2)	; SET MSGTYP TO FATAL ERROR	
2603	013216	000000					HALT		; NEW STATUS IS INCORRECT	
2604									; TO SCOPE REPLACE HALT W/ 240	
2605									; AND REPLACE NEXT INST W/ 745	

2606	013220	020627	000500		15:	CMP	SP,#BUFF			
2607	013224	001405				BEQ	TST102			
2608	013226	012737	000311	000302		MOV	#311,@#SFATAL	; MOVE TO MAILBOX # ***** 311 *****		
2609	013234	005212				INC	(R2)	; SET MSGTYP TO FATAL ERROR		
2610	013236	000000				HALT		; STACK POINTER DID NOT DECREMENT, OR WRONG STSTNM		
2611								; TO SCOPE REPLACE HALT W/ 240		
2612								; AND REPLACE NEXT INST W/ 735		

////////////////////////////////////
T BIT SET
////////////////////////////////////

TEST 102 TEST THE RTI INSTRUCTION SETTING THE T BIT

2620	013240	005237	000304			TST102:	INC	@#STESTN	; UPDATE TEST NUMBER	
2621	013244	022737	000102	000304			CMP	#102,@#STESTN	; SEQUENCE ERROR	
2622	013252	001042					BNE	TST103-12	; BR TO ERROR HALT ON SEQ ERROR	
2623	013254	005067	164536				CLR	16		
2624	013260	012706	000500				MOV	#BUFF,SP		


```

2681      ; AND REPLACE NEXT INST W/ 742
2682 013500 022767 013444 164766 2$:  CMP      #RTTI+2,BUFF-4
2683 013506 001405      BEQ      3$
2684 013510 012737 000317 000302      MOV      #317,0#$FATAL ; MOVE TO MAILBOX # ***** 317 *****
2685 013516 005212      INC      (R2) ; SET MSGTYP TO FATAL ERROR
2686 013520 000000      HALT    ; CORRECT PC WAS NOT SAVED
2687      ; TO SCOPE REPLACE HALT W/ 240
2688      ; AND REPLACE NEXT INST W/ 73:
2689 013522 020027 000001      3$:  CMP      %0,#1
2690 013526 001405      BEQ      STP2C
2691 013530      STP2:
2692 013530 012737 000320 000302      MOV      #320,0#$FATAL ; MOVE TO MAILBOX # ***** 320 *****
2693 013536 005212      INC      (R2) ; SET MSGTYP TO FATAL ERROR
2694 013540 000000      HALT    ; 0 SHOULD HAVE BEEN INCREMENTED OR WRONG $TSNM
2695      ; TO SCOPE REPLACE HALT W/ 240
2696      ; AND REPLACE NEXT INST W/ 721
2697 013542 012767 000016 164244 STP2C: MOV      #16,14
2698 013550 005067 164242      CLR      16
2699
2700      ;*****
2701      :TEST 104 DOES THE PROCESSOR TRAP WHEN %7 IS ODD?
2702      ;*****
2703 013554 005237 000304      TST104: INC      0#$TESTN ; UPDATE TEST NUMBER
2704 013560 022737 000104 000304      CMP      #104,0#$TESTN ; SEQUENCE ERROR
2705 013566 001120      BNE      TST105-12 ; BR TO ERROR HALT ON SEQ ERROR
2706 013570 012706 000500      MOV      #BUFF,%6 ; SET UP STACK POINTER
2707 013574 012767 013620 164202      MOV      #R7TR1,4 ; RETURN FROM TRAP
2708 013602 012707 000001      MOV      #1,%7 ; PC EQUALS ONE
2709 013606 012737 000321 000302      MOV      #321,0#$FATAL ; MOVE TO MAILBOX # ***** 321 *****
2710 013614 005212      INC      (R2) ; SET MSGTYP TO FATAL ERROR
2711 013616 000000      HALT    ; ODD ADDRESS SHOULD HAVE TRAPPED
2712      ; TO SCOPE REPLACE HALT W/ 240
2713      ; AND REPLACE NEXT INST W/ 763
2714 013620 022767 000001 164646 R7TR1: CMP      #1,BUFF-4
2715 013626 001405      BEQ      1$
2716 013630 012737 000322 000302      MOV      #322,0#$FATAL ; MOVE TO MAILBOX # ***** 322 *****
2717 013636 005212      INC      (R2) ; SET MSGTYP TO FATAL ERROR
2718 013640 000000      HALT    ; CORRECT PC WAS NOT SAVED ON STACK
2719      ; TO SCOPE REPLACE HALT W/ 240
2720      ; AND REPLACE NEXT INST W/ 752
2721
2722 013642 012706 000500      1$:  MOV      #BUFF,%6 ; STACK POINTER
2723 013646 012767 013670 164130      MOV      #R7TR2,4 ; PC BECOMES ODD
2724 013654 005207      INC      %7
2725 013656      R7TR2A:
2726 013656 012737 000323 000302      MOV      #323,0#$FATAL ; MOVE TO MAILBOX # ***** 323 *****
2727 013664 005212      INC      (R2) ; SET MSGTYP TO FATAL ERROR
2728 013666 000000      HALT    ;
2729      ; TO SCOPE REPLACE HALT W/ 240
2730      ; AND REPLACE NEXT INST W/ 737
2731 013670 022767 013657 164576 R7TR2: CMP      #R7TR2A+1,BUFF-4
2732 013676 001405      BEQ      1$
2733 013700 012737 000324 000302      MOV      #324,0#$FATAL ; MOVE TO MAILBOX # ***** 324 *****
2734 013706 005212      INC      (R2) ; SET MSGTYP TO FATAL ERROR
2735 013710 000000      HALT    ; CORRECT PC NOT ON STACK
2736      ; TO SCOPE REPLACE HALT W/ 240

```

```

2737
2738 013712 012706 000500 1S: MOV #BUFF,%6
2739 013716 012767 013740 164060 BR60: MOV #R7TR3,4
2740 013724 005307 DEC %7 ;MAKE PC ODD
2741 013726 012737 000325 000302 MOV #325,0#SFATAL ;MOVE TO MAILBOX # ***** 325 *****
2742 013734 005212 INC (R2) ;SET MSGTYP TO FATAL ERROR
2743 013736 000000 HALT ;SHOULD TRAP
2744 ; TO SCOPE REPLACE HALT W/ 240
2745 ; AND REPLACE NEXT INST W/ 713
2746 013740 022767 013725 164526 R7TR3: CMP #BR60+1,BUFF-4 ;CHECK VALUE OF PC ON STACK
2747 013746 001405 BEQ 1S
2748 013750 012737 000326 000302 MOV #326,0#SFATAL ;MOVE TO MAILBOX # ***** 326 *****
2749 013756 005212 INC (R2) ;SET MSGTYP TO FATAL ERROR
2750 013760 000000 HALT ;WRONG VALUE ON STACK
2751 ; TO SCOPE REPLACE HALT W/ 240
2752 ; AND REPLACE NEXT INST W/ 702
2753
2754 013762 012706 000500 1S: MOV #BUFF,%6
2755 013766 012767 014012 164010 BR60: MOV #R7TR3,4
2756 013774 000261 SEC ;CARRY EQUALS A 1
2757 013776 006107 ROL %7 ;PC BECOMES ODD
2758 014000 TR4A:
2759 014000 012737 000327 000302 MOV #327,0#SFATAL ;MOVE TO MAILBOX # ***** 327 *****
2760 014006 005212 INC (R2) ;SET MSGTYP TO FATAL ERROR
2761 014010 000000 HALT ;ODD ADDRESS DIDN'T TRAP
2762 ; TO SCOPE REPLACE HALT W/ 240
2763 ; AND REPLACE NEXT INST W/ 66E
2764 014012 012767 000006 163764 R7TR4: MOV #6,4 ;RESET UP A HALT FOR TRAP
2765 014020 022767 030001 164446 CMP #(<2*TR4A+1>),BUFF-4 ;CHECK FOR VALUE ON STACK
2766 014026 001405 BEQ TST105
2767 014030 012737 000330 000302 MOV #330,0#SFATAL ;MOVE TO MAILBOX # ***** 330 *****
2768 014036 005212 INC (R2) ;SET MSGTYP TO FATAL ERROR
2769 014040 000000 HALT ;WRONG VALUE ON STACK,OR WRONG $STNM
2770 ; TO SCOPE REPLACE HALT W/ 240
2771 ; AND REPLACE NEXT INST W/ 652
2772 ;*****
2773 ;TEST 105 TEST TRAP ON TRAP THAT TRACE BIT TRAPS ARE INHIBITED ON TRAP INST
2774 ;*****
2775 014042 005237 000304 TST105: INC 0#STESTN ;UPDATE TEST NUMBER
2776 014046 022737 000105 000304 CMP #105,0#STESTN ;SEQUENCE ERROR
2777 014054 001027 BNE BR70 ;BR TO ERROR HALT ON SEQ ERROR
2778
2779 014056 012706 000500 MOV #BUFF,%6
2780 014062 012767 014122 163724 MOV #TRACE,14 ;TRACE TRAP
2781 014070 005027 000016 CLR #16
2782 014074 005027 000022 CLR #22
2783 014100 012767 014146 163712 MOV #TONT1,20 ;IOT TRAP
2784 014106 012746 000020 MOV #20,-(SP) ;PUSH T BIT
2785 014112 012746 014120 MOV #.+6,-(SP) ;PUSH PC
2786 014116 000006 RTT
2787 014120 000004 IOT ;TRAP. NEW CC HAVE TRACE RESET
2788 014122 TRACE:
2789 014122 012737 000331 000302 MOV #331,0#SFATAL ;MOVE TO MAILBOX # ***** 331 *****
2790 014130 005212 INC (R2) ;SET MSGTYP TO FATAL ERROR
2791 014132 000000 HALT ;TRACE TRAP WAS NOT INHIBITED
2792 ; TO SCOPE REPLACE HALT W/ 240

```



```

2793                                     ; AND REPLACE NEXT INST W/ 750
2794 014134 BR70: MOV #332,2#SFATAL ;MOVE TO MAILBOX # ***** 332 *****
2795 014134 012737 000332 000302 INC (R2) ;SET MSGTYP TO FATAL ERROR
2796 014142 005212 ;WRONG TSTNM, OR WRONG $TSTNM
2797 014144 000000 HALT ; TO SCOPE REPLACE HALT W/ 240
2798 ; AND REPLACE NEXT INST W/ 743
2799
2800 014146 012767 000016 163640 TONT1: MOV #16,14
2801 014154 012767 000022 163636 MOV #22,20
2802 ;*****
2803 ;TEST 106 TEST THAT THE TRACE BIT IS SAVED IN THE STACK
2804 ;*****
2805 014162 005237 000304 ST106: INC 2#STESTN ;UPDATE TEST NUMBER
2806 014166 022737 000106 000304 CMP #106,2#STESTN ;SEQUENCE ERROR
2807 014174 001016 BNE STP3 ;BR TO ERROR HALT ON SEQ ERROR
2808 014176 012706 000500 MOV #BUFF,%6 ;SET UP STACK POINTER
2809 014202 012767 014222 163604 MOV #TRC1,14 ;TRACE TRAP RETURN
2810 014210 005067 163602 CLR 16
2811 014214 012767 000020 163554 MOV #20,CC ;SET THE T BIT
2812 014222 036727 164250 000020 TRC1: BIT BUFF-2,#20 ;CHECK FOR T BIT ON STACK
2813 014230 001005 BNE STP30
2814 014232
2815 014232 012737 000333 000302 STP3: MOV #333,2#SFATAL ;MOVE TO MAILBOX # ***** 333 *****
2816 014240 005212 INC (R2) ;SET MSGTYP TO FATAL ERROR
2817 014242 000000 HALT ;T BIT NOT SAVED ON THE STACK, OR WRONG $TSTNM
2818 ; TO SCOPE REPLACE HALT W/ 240
2819 ; AND REPLACE NEXT INST W/ 754
2820 014244 012767 000016 163542 STP30: MOV #16,14
2821
2822
2823 ;THIS ROUTINE TEST THAT NO LEGAL ADDRESS TRAPS.
2824 ;AND THAT AN ILLEGAL ADDRESS TRAPS TO LOCATION 4
2825 ;*****
2826 ;TEST 107 TEST NON-EXISTENT ADDRESS TRAPS
2827 ;*****
2828 014252 005237 000304 ST107: INC 2#STESTN ;UPDATE TEST NUMBER
2829 014256 022737 000107 000304 CMP #107,2#STESTN ;SEQUENCE ERROR
2830 014264 001063 BNE AUTO1 ;BR TO ERROR HALT ON SEQ ERROR
2831
2832 ;THIS ROUTINE TESTS MEMORY UNTIL IT DOES A NXM TRAP
2833 014266 000402 BR ADALL
2834 014270 000000 TSL: 0
2835 014272 000000 CORH: 0
2836 014274 005000 ADALL: CLR %0
2837 014276 005067 163504 CLR 6
2838 014302 012767 014336 163474 MOV #ATRAP,4 ;SET UP ADDRESS TRAP ENTRANCE
2839 014310 012706 000500 NOR: MOV #BUFF,$P
2840 014314 105720 TSTB (0)+ ;IF OUTSIDE OF CORE, TRAP TO 4
2841 014316 020027 160000 CMP %0,#160000 ;IS POINTER IN SIDE CORE
2842 014322 101772 BLOS NOR ;TEST THE REST OF CORE
2843 014324
2844 014324 012737 000334 000302 AUTO: MOV #334,2#SFATAL ;MOVE TO MAILBOX # ***** 334 *****
2845 014332 005212 INC (R2) ;SET MSGTYP TO FATAL ERROR
2846 014334 000000 HALT ;SHOULD HAVE TRAPED
2847 ; TO SCOPE REPLACE HALT W/ 240
2848 ; AND REPLACE NEXT INST W/ 753

```

```

2849          :RETURN HERE ON AN ADDRESS TRAP
2850 014336 010067 17773C   ATRAP: MOV      RD,CORH      :MOVE THE FIRST NXM LOCATION IN CORH
2851          :THIS ROUTINE DOES NXM TRAPS UNTIL IT FINDS AN EXISTANT MEMORY LOCATION
2852 014342 012700 160001   MOV      #160001,RD        :SET UP THE HIGHEST MEM LOCATION
2853 014346 012767 014404 163430 CTRAP: MOV      #BTRAP,4     :SET UP THE VECTOR
2854 014354 012706 000500   MOV      #BUFF,$P
2855 014360 105740   TSTB    -(RD)            :DOES IT EXIST?
2856 014362 005200   DTRAP: INC      RD          :IF YES INCREMENT IT
2857 014364 020067 177702   CMP      RD,CORH         :IS IT THE SAME LOCATION?
2858 014370 001426   BEQ     TRAPB
2859 014372 012737 000335 000302 MOV      #335,$FATAL      :MOVE TO MAILBOX # ***** 335 *****
2860 014400 005212   INC     (R2)             :SET MSGTYP TO FATAL ERROR
2861 014402 000000   HALT
2862          :CONTENTS OF RD AND CORH SHOULD HAVE BEEN EQUAL
2863          : TO SCOPE REPLACE HALT W/ 240
2864          : AND REPLACE NEXT INST W/ 730
2865          :IF THIS COMPARISON FAILS IT MEANS
2866          :THAT SOME LEGAL ADDRESS TRAPPED OR
2867          :THAT AN ILLEGAL ADDRESS DID NOT TRAP
2867 014404 005767 163366   BTRAP: TST      STATUS
2868 014410 001405   BEQ     1$
2869 014412 012737 000336 000302 MOV      #336,$FATAL      :MOVE TO MAILBOX # ***** 336 *****
2870 014420 005212   INC     (R2)             :SET MSGTYP TO FATAL ERROR
2871 014422 000000   HALT
2872          :NEW PSW SHOULD HAVE BEEN ZERO
2873          : TO SCOPE REPLACE HALT W/ 240
2874          : AND REPLACE NEXT INST W/ 720
2874 014424 026727 164044 014362 1$:  CMP      BUFF-4,#DTRAP
2875 014432 001745   BEQ     CTRAP
2876 014434          :
2877 014434 012737 000337 000302 AUTO1: MOV      #337,$FATAL      :MOVE TO MAILBOX # ***** 337 *****
2878 014442 005212   INC     (R2)             :SET MSGTYP TO FATAL ERROR
2879 014444 000000   HALT
2880          :OLD PC WAS NOT SAVED OR WRONG $TESTN
2881          : TO SCOPE REPLACE HALT W/ 240
2882          : AND REPLACE NEXT INST W/ 707
2882 014446 012767 000006 163330 TRAPB: MOV      #6,4
2883 014454 005067 163326   CLR     6
2884          :
2885          :*****
2886          :TEST 110 TEST THAT A TTY INTERRUPT CAUSES AN OVERFLOW TRAP
2887          :*****
2888 014460 005237 000304          tst110: INC      #1,$TESTN    :UPDATE TEST NUMBER
2889 014464 022737 000110 000304   CMP      #110,$TESTN     :SEQUENCE ERROR
2890 014472 001032          BNE     TDEC8            :BR TO ERROR HALT ON SEQ ERROR
2891 014474 032767 000001 163620   BIT     #1,$SWREG
2892 014502 001042          BNE     R7TRX
2893 014504 000005          RESET
2894 014506 012767 000340 163262   MOV      #340,STATUS     :LOCK OUT INTERRUPT
2895 014514 012706 000400          MOV      #400,%6        :SET UP STACK TO OVERFLOW
2896 014520 012767 014572 163256   MOV      #TDEC77,4      :SET UP OVERFLOW TRAP
2897 014526 012767 014560 163330   MOV      #TDEC8,64      :SET UP INTERRUPT VECTOR
2898 014534 012767 000100 163022   MOV      #100,TCSR      :SET INTERRUPT ENABLE
2899 014542 005067 163230          CLR     STATUS          :ALLOW INTERRUPT TO OCCUR
2900 014546 012737 000340 000302 MOV      #340,$FATAL      :MOVE TO MAILBOX # ***** 340 *****
2901 014554 005212   INC     (R2)             :SET MSGTYP TO FATAL ERROR
2902 014556 000000   HALT
2903          :NO INTERRUPT OCCURRED
2904          : TO SCOPE REPLACE HALT W/ 240
2905          : AND REPLACE NEXT INST W/ 745

```

E05

```

2905 014560
2906 014560 012737 000341 000302 TDEC8: MOV #341, @#SFATAL ; MOVE TO MAILBOX # ***** 341 *****
2907 014565 005212 INC (R2) ; SET MSGTYP TO FATAL ERROR
2908 014570 000000 HALT ; OVERFLOW TRAP DID NOT OCCUR OR WRONG $STNM
; TO SCOPE REPLACE HALT W/ 240
; AND REPLACE NEXT INST W/ 740
2909
2910
2911 014572 005067 162766 TDEC77: CLR TTCSR ; CLEAR INTERRUPT ENABLE
2912 014576 012767 000006 163200 MOV #6, 4
2913 014604 005067 163176 CLR 6

```

```

R7TRX:
;*****
;TEST 111 TEST THAT A PENDING INTERRUPT OCCURS BEFORE TRAP
;*****

```

```

2914 014610
2915
2916
2917
2918 014610 005237 000304 TST111: INC @#STESTN ; UPDATE TEST NUMBER
2919 014614 022737 000111 000304 CMP #111, @#STESTN ; SEQUENCE ERROR
2920 014622 001040 BNE BR71 ; BR TO ERROR HALT ON SEQ ERROR
2921 014624 032767 000001 163470 BIT #1, $SWREG
2922 014632 001046 BNE NODL
2923 014634 012706 000500 MOV #BUFF, %6
2924 014640 012767 000340 163130 MOV #340, STATUS ; SET TO A HIGH PRIORITY LEVEL
2925 014646 012767 014712 163210 MOV #TR0, 64
2926 014654 012767 000100 162702 MOV #100, TTCSR ; INTERRUPT FOR TTY PUNCH/PRINTER
2927 014662 012767 014724 163144 MOV #BR71, 34 ; TRAP VECTOR
2928 014670 012767 014736 163166 MOV #TR2, 64 ; TTY VECTOR
2929 014676 012767 000340 163132 MOV #340, 36 ; IF TRAP TRAPS, MOVE 340 TO PRIORITY
2930 014704 005067 163066 CLR TRAP ; SHOULD INTERRUPT AT END OF CLR INST
2931 014710 104400 TRAP ; TTY INTERRUPT SHOULD OVERRIDE TRAP

```

```

2932 014712
2933 014712 012737 000342 000302 TR0: MOV #342, @#SFATAL ; MOVE TO MAILBOX # ***** 342 *****
2934 014720 005212 INC (R2) ; SET MSGTYP TO FATAL ERROR
2935 014722 000000 HALT ; TTY SHOULDN'T HAVE INTERRUPTED
; TO SCOPE REPLACE HALT W/ 240
; AND REPLACE NEXT INST W/ 737

```

```

2936
2937
2938 014724
2939 014724 012737 000343 000302 BR71: MOV #343, @#SFATAL ; MOVE TO MAILBOX # ***** 343 *****
2940 014732 005212 INC (R2) ; SET MSGTYP TO FATAL ERROR
2941 014734 000000 HALT ; TRAP OCCURRED FIRST OR WRONG $STNM
; TO SCOPE REPLACE HALT W/ 240
; AND REPLACE NEXT INST W/ 732

```

```

2942
2943
2944 014736 005067 163074 TR2: CLR 36
2945 014742 042767 000100 162614 BIC #100, TTCSR
2946 014750

```

```

NODL:
;*****
;TEST 112 TEST THAT A PENDING INTERRUPT, INTERRUPTS BETWEEN TRAPS
;*****

```

```

2947
2948
2949
2950 014750 005237 000304 TST112: INC @#STESTN ; UPDATE TEST NUMBER
2951 014754 022737 000112 000304 CMP #112, @#STESTN ; SEQUENCE ERROR
2952 014762 001032 BNE TR5 ; BR TO ERROR HALT ON SEQ ERROR
2953 014764 032767 000001 163330 BIT #1, $SWREG
2954 014772 001046 BNE NODL1
2955 014774 012706 000500 MOV #BUFF, %6
2956 015000 012767 000340 162770 MOV #340, STATUS
2957 015006 012767 000100 162550 MOV #100, TTCSR
2958 015014 012767 015046 163012 MOV #TR3, 34 ; TRAP
2959 015022 012767 015062 163034 MOV #TR4, 64 ; TTY OUTPUT
2960 015030 012767 015050 162762 MOV #TR5, 20 ; IOT

```

F05

28-DEC-76 09:40 PAGE 57
 TEST THAT A PENDING INTERRUPT, INTERRUPTS BETWEEN TRAPS

```

2961 015036 012767 000340 162756      MOV      #340,22      ; IOT PRIORITY
2962 015044 104400      TRAP                      ; THE ACT OF TRAPPING LOWER PRIORITY
2963 015046 000004      TR3:   IOT              ; INTERRUPT SHOULD OCCUR IN PLACE OF IOT TRAP
2964 015050      TR5:
2965 015050 012737 000344 000302      MOV      #344,2#FATAL ; MOVE TO MAILBOX # ***** 344 *****
2966 015056 005212      INC      (R2)         ; SET MSGTYP TO FATAL ERROR
2967 015060 000000      HALT                    ; NO INTERRUPT BETWEEN TRAPS, OR WRONG $STNM
2968                                     ; TO SCOPE REPLACE HALT W/ 240
2969                                     ; AND REPLACE NEXT INST W/ 740
2970 015062 005067 162734      TR4:   CLR      22     ; CLR IOT PRIORITY
2971 015066 012767 000036 162740      MOV      #36,34
2972 015074 012767 000066 162762      MOV      #66,64
2973 015102 012767 000022 162710      MOV      #22,20
2974 015110      NOCL1:
2975
2976 :*****
2977 ;TEST 113      TEST THAT "RESET" GOES TO OUTSIDE WORLD
2978 :*****
2979 015110 005237 000304      †ST113: INC      2#STESTN ; UPDATE TEST NUMBER
2980 015114 022737 000113 000304      CMP      #113,2#STESTN ; SEQUENCE ERROR
2981 015122 001030      BNE     TST114-12      ; BR TO ERROR HALT ON SEQ ERROR
2982 015124 032767 000001 163170      BIT      #1,$SWREG
2983 015132 001031      BNE     NODL2
2984 015134 012767 000100 162422      MOV      #100,TTCSR   ; SET INTERRUPT ENABLE
2985 015142 012767 000100 162410      MOV      #100,TRCSR  ; SET INTERRUPT ENABLE
2986 015150 000005      RESET                    ; SHOULD CLEAR INTERRUPT ENABLE
2987 015152 032767 000100 162404      BIT      #100,TTCSR  ; TEST FOR CLEAR
2988 015160 001405      BEQ     1$
2989 015162 012737 000345 000302      MOV      #345,2#FATAL ; MOVE TO MAILBOX # ***** 345 *****
2990 015170 005212      INC      (R2)         ; SET MSGTYP TO FATAL ERROR
2991 015172 000000      HALT                    ; RESET FAILED TO CLEAR TTCSR
2992                                     ; TO SCOPE REPLACE HALT W/ 240
2993                                     ; AND REPLACE NEXT INST W/ 753
2994 015174 032767 000100 162356 1$:   BIT      #100,TRCSR  ; TEST FOR CLEAR
2995 015202 001405      BEQ     TST114
2996 015204 012737 000346 000302      MOV      #346,2#FATAL ; MOVE TO MAILBOX # ***** 346 *****
2997 015212 005212      INC      (R2)         ; SET MSGTYP TO FATAL ERROR
2998 015214 000000      HALT                    ; RESET FAILED TO CLEAR TRCSR, OR WRONG $STNM
2999                                     ; TO SCOPE REPLACE HALT W/ 240
3000                                     ; AND REPLACE NEXT INST W/ 742
3001 015216      NODL2:
3002 :*****
3003 ;TEST 114      TEST THAT RESET HAS NO EFFECT ON THE TRACE TRAP
3004 :*****
3005 015216 005237 000304      †ST114: INC      2#STESTN ; UPDATE TEST NUMBER
3006 015222 022737 000114 000304      CMP      #114,2#STESTN ; SEQUENCE ERROR
3007 015230 001012      BNE     RESET3        ; BR TO ERROR HALT ON SEQ ERROR
3008 015232 012706 000500      MOV      #BUFF,%6     ; SET STACK
3009 015236 012767 015270 162550      MOV      #RESET,14    ; SET UP TRACE VECTOR
3010 015244 052767 000020 162524      BIS     #20,STATUS    ; SET THE T BIT
3011 015252 000005      RESET                    ; SHOULD HAVE NO EFFECT
3012 015254 000005      RESET                    ; NO EFFECT
3013 015256      RESET3:
3014 015256 012737 000347 000302      MOV      #347,2#FATAL ; MOVE TO MAILBOX # ***** 347 *****
3015 015264 005212      INC      (R2)         ; SET MSGTYP TO FATAL ERROR
3016 015266 000000      HALT                    ; TRACE TRAP FAILED, OR WRONG $STNM
  
```

```

3017                                     ; TO SCOPE REPLACE HALT W/ 240
3018                                     ; AND REPLACE NEXT INST W/ 76C
3019 015270 005067 162502 RESET2: CLR STATUS
3020 015274 005067 162516 CLR 16
3021 015300 012767 000016 162506 MOV #16,14
3022                                     ; CLEAR TRACK
3023                                     ; TRACE STATUS
3024                                     ;*****
3025 :TEST 115 TEST THAT WHEN TTY INTERRUPTS IT POPS NEW STATUS
3026 :*****
3027 †ST115: INC @#STESTN ;UPDATE TEST NUMBER
3028 CMP #115,@#STESTN ;SEQUENCE ERROR
3029 BNE TTY11 ;BR TO ERROR HALT ON SEQ ERROR
3030 BIT #1,$SWREG
3031 BNE NODL3
3032 RESET
3033 MOV #BUFF,%6 ;SET UP STACK
3034 MOV #TTY3,%4 ;INTERRUPT VECTOR
3035 CLR STATUS ;DROP PROCESSOR PRIORITY
3036 MOV #357,%6 ;HIGH PRIORITY ON INTERRUPT
3037 COM TTCSR ;SHOULD SET INTERRUPT ENABLE & INTERRUPT
3038 TTY3: CMP STATUS,#357
3039 BEQ 1$
3040 MOV #350,@#SFATAL ;MOVE TO MAILBOX # ***** 350 *****
3041 INC (R2) ;SET MSGTYP TO FATAL ERROR
3042 HALT ;INTERRUPT DID NOT POP CORRECT STATUS
3043 ; TO SCOPE REPLACE HALT W/ 240
3044 ; AND REPLACE NEXT INST W/ 745
3045 015406 000005 000500 1$: RESET ;CLR INTERRUPT ENABLE
3046 015410 012706 000500 MOV #BUFF,%6 ;STACK SET UP
3047 015414 012767 015440 162442 MOV #TTY4,%4 ;INTERRUPT VECTOR
3048 015422 005067 162440 CLR 66 ;CLR NEW STATUS
3049 015426 012767 000157 162342 MOV #157,STATUS ;PROCESSOR STATUS
3050 015434 005167 162124 COM TTCSR ;SET INTERRUPT ENABLE
3051 015444 001405 TTY4: TST STATUS
3052 015446 001405 BEQ TTT37
3053 015446 012737 000351 000302 TTY11: MOV #351,@#SFATAL ;MOVE TO MAILBOX # ***** 351 *****
3054 015454 005212 INC (R2) ;SET MSGTYP TO FATAL ERROR
3055 015456 000000 HALT ;INCORRECT STATUS OR WRONG $STSTN
3056 ; TO SCOPE REPLACE HALT W/ 240
3057 ; AND REPLACE NEXT INST W/ 720
3058 015460 005067 162100 TTT37: CLR TTCSR
3059 015464 NODL3:
3060
3061 :*****
3062 :TEST 116 TEST THE 'WAIT' INSTRUCTION
3063 :*****
3064 †ST116: INC @#STESTN ;UPDATE TEST NUMBER
3065 CMP #116,@#STESTN ;SEQUENCE ERROR
3066 BNE STP4 ;BR TO ERROR HALT ON SEQ ERROR
3067 015500 042767 000100 162056 BIC #100,TPS ;CLEAR INTERRUPT ENABLE
3068 015506 012706 000500 MOV #BUFF,SP ;SET UP THE STACK
3069 015512 012767 015602 162344 MOV #WATE,%4 ;SET UP THE INTERRUPT VECTOR
3070 015520 005067 162342 CLR 66
3071 015524 105767 162034 WATE1: TSTB TPS ;WAIT FOR READY
3072 015530 100375 BPL WATE1 ;TO BE UP

```

```

3073 015532 012767 000015 162026 WATE2: MOV #15,TPB ;DO A CARRIAGE RETURN
3074 015540 105767 16202C TSTB TPS ;WAIT FOR READY TO COME UP
3075 015544 100375 BPL WATE2
3076 015546 012767 000015 162012 MOV #15,TPB ;DO ANOTHER CARRIAGE RETURN
3077 015554 052767 00010C 162002 BIS #100,TPS ;SET THE INTERRUPT ENABLE
3078 015562 005067 162210 CLR STATUS ;CLEAR THE PSW
3079 015566 000001 WATE3: WAIT ;WAIT FOR THE INTERRUPT
3080 015570 012737 000352 000302 MOV #352,0#$FATAL ;MOVE TO MAILBOX # ***** 352 *****
3081 015576 005212 INC (R2) ;SET MSGTYP TO FATAL ERROR
3082 015600 000000 HALT ;WAIT INSTRUCTION DID NOT LOOP
; TO SCOPE REPLACE HALT W/ 240
; AND REPLACE NEXT INST W/ 736
3083
3084
3085 015602 005767 162170 WATE: TST STATUS ;IS THE PSW CORRECT?
3086 015606 001405 BEQ IS
3087 015610 012737 000353 000302 MOV #353,0#$FATAL ;MOVE TO MAILBOX # ***** 353 *****
3088 015616 005212 INC (R2) ;SET MSGTYP TO FATAL ERROR
3089 015620 000000 HALT ;NEW PSW SHOULD HAVE BEEN ZERO
; TO SCOPE REPLACE HALT W/ 240
; AND REPLACE NEXT INST W/ 726
3090
3091
3092 015622 026727 162646 015566 IS: CMP BUFF-4,#WATE3
3093 015630 001411 BEQ STP4E
3094 015632 026727 162636 015570 CMP BUFF-4,#WATE3+2 ;IS THE OLD PC SAVED
3095 015640 001405 BEQ STP4E
3096 015642
3097 015642 012737 000354 000302 STP4: MOV #354,0#$FATAL ;MOVE TO MAILBOX # ***** 354 *****
3098 015650 005212 INC (R2) ;SET MSGTYP TO FATAL ERROR
3099 015652 000000 HALT ;OLD PC WAS NOT SAVED OR WRONG STESTN
; TO SCOPE REPLACE HALT W/ 240
; AND REPLACE NEXT INST W/ 711
3100
3101
3102 015654 012767 000066 162202 STP4E. MOV #66,64
3103
3104
3105
3106
3107 015662 005237 000304 ST117: INC 0$STESTN ;UPDATE TEST NUMBER
3108 015666 022737 000117 000304 CMP #117,0$STESTN ;SEQUENCE ERROR
3109 015674 001137 BNE RET4 ;BR TO ERROR HALT ON SEQ ERROR
3110 015676 042767 000100 161660 BIC #100,TPS
3111 015704 012703 016220 MOV #TABLE,TAB ;TABLE POINTER
3112 015710 012305 GIN1: MOV (TAB)+,FIRST ;FIRST OR CURRENT INSTRUCTION
3113 015712 012301 MOV (TAB)+,LAST ;LAST INSTRUCTION OR GROUP
3114 015714 020567 000334 CMP FIRST,FINISH ;TESTED ALL
3115 015720 001415 BEQ GIN3 ;YES BRANCH
3116 015722 010567 000330 MOV FIRST,INST ;SET UP INST
3117 015726 005267 000324 GIN2: INC INST
3118 015732 012767 016124 162050 MOV #RET,10 ;SET UP RETURN FROM TRAP
3119 015740 012706 000500 MOV #BUFF,SP ;SET UP STACK POINTER
3120 015744 005067 162026 CLR CC ;CLEAR PRIORITY
3121 015750 000167 000302 JMP INST ;EXECUTE RESERVED INSTRUCTION
3122 015754 005237 000306 GIN3: INC 0$SPASS
3123 015760 105267 000116 INCB PASSPT ;SHOULD PRINT THIS PASS?
3124 015764 001027 BNE ACT ;NO
3125 015766 132767 000040 162325 BITB #40,$ENVM ;WILL APT ALLOW PRINTING?
3126 015774 001023 BNE ACT ;NO
3127 015776 023727 000042 016054 CMP 0$42,$SENDAD
3128 016004 001417 BEQ ACT

```

```

:*****
:TEST 117 TEST THAT ALL RESERVED INSTRUCTIONS TRAP
:*****

```

3129	016006	012700	016104			MOV	#MSG,RO	:GET MSG ADDR.
3130	016012	105737	177564			TSTB	Q#TPS	:TTY READY
3131	016016	100375			WAIT:	BPL	WAIT	:NO WAIT
3132	016020	112037	177566			MOVB	(R0)+,Q#TPB	:PRINT CHARACTER
3133	016024	001372				BNE	WAIT	:NEXT IF NOT DONE.
3134	016026	105737	177564		WAIT1:	TSTB	Q#TPS	
3135	016032	100375				BPL	WAIT1	
3136	016034	000005				RESET		
3137	016036	012767	177761	000036		MOV	#177761,PASSPT	:DO IT ABOUT 15 DECIMAL TIMES
3138	016044	013700	000042		ACT:	MOV	Q#42,RO	:CHECK ACT
3139	016050	001405				BEG	GOAGIN	:KEEP GOING
3140	016052	000005				RESET		
3141	016054	004710			SENDAD:	JSR	PC,(R0)	:ACT HOOKS
3142	016056	000240				NOP		
3143	016060	000240				NOP		
3144	016062	000240				NOP		
3145	016064	012767	000012	161716	GOAGIN:	MOV	#12,10	
3146	016072	005067	161714			CLR	12	
3147	016076	000167	162406			JMP	RESTR	:DO NEXT PASS
3148	016102	177777			PASSPT:	-1		
3149	016104	005015	047105	020104	MSG:	.ASCIZ	<15><12>.END OF	DGKAB .
3150	016112	043117	042040	045507				
3151	016120	041101	000040					
3152								
3153								
3154	016124	020627	000474			RET:	CMP	SP,#BUFF-4
3155	016130	001405				BEG	RET1	:TEST DECREMENT OF SP
3156	016132	012737	000355	000302		MOV	#355,Q#SFATAL	:MOVE TO MAILBOX # ***** 355 *****
3157	016140	005212				INC	(R2)	:SET MSGTYP TO FATAL ERROR
3158	016142	000000				HALT		:WRONG DECREMENT
3159								: TO SCOPE REPLACE HALT W/ 240
3160								: AND REPLACE NEXT INST W/ 654
3161	016144	026727	162324	016260	RET1:	CMP	BUFF-4,#INST+2	:LOC OF INST UNINCREMENTED
3162	016152	001405				BEG	RET2	
3163	016154	012737	000356	000302		MOV	#356,Q#SFATAL	:MOVE TO MAILBOX # ***** 356 *****
3164	016162	005212				INC	(R2)	:SET MSGTYP TO FATAL ERROR
3165	016164	000000				HALT		:INST INC ON TRAP
3166								: TO SCOPE REPLACE HALT W/ 240
3167								: AND REPLACE NEXT INST W/ 643
3168	016166	005767	162304		RET2:	TST	BUFF-2	
3169	016172	001405				BEG	RET3	
3170	016174				RET4:			
3171	016174	012737	000357	000302		MOV	#357,Q#SFATAL	:MOVE TO MAILBOX # ***** 357 *****
3172	016202	005212				INC	(R2)	:SET MSGTYP TO FATAL ERROR
3173	016204	000000				HALT		:CONDITION CODES SET ON TRAP OR WRONG \$TSTNM
3174								: TO SCOPE REPLACE HALT W/ 240
3175								: AND REPLACE NEXT INST W/ 633
3176	016206	026701	000044		RET3:	CMP	INST, LAST	
3177	016212	001636				BEG	GIN1	:SET UP NEW GROUP
3178	016214	000167	177506			JMP	GIN2	:FINISH OLD GROUP
3179								:END OF INSTRUCTION GROUP
3180	016220	000006			TABLE:	6		:END OF OPERATE
3181	016222	000077				77		
3182	016224	000207				207		:RTS.RT1,JMF
3183	016226	000227				227		
3184	016230	006777				6777		

000000
000000
000000

```

3185 016232 007777 7777
3186 016234 075037 075037
3187 016236 076777 76777
3188 016240 106377 106377
3189 016242 106477 106477
3190 016244 106677 106677
3191 016246 107777 107777
3192 016250 167777 167777
3193 016252 177777 177777
3194 016254 016254 FINISH:
3195 016256 000000 INST: HALT
3196 016260 000000 HALT
3197 016262 000000 HALT
3198 016264 000000 HALT
3199 016266 000000 HALT
3200 016270 012767 016300 161526 PWRDOWN: MOV #PWRUP,24
3201 016276 000000 HALT
3202
3203 016300 012767 016270 161516 PWRUP: MOV #PWRDOWN,24
3204 016306 012706 000500 MOV #BUFF,SP
3205 016312 132767 000040 16200: BITB #40,$ENVM ;WILL APT ALLOW PRINTING?
3206 016320 001013 BNE PFRES ;NO
3207 016322 012700 016354 MOV #MSGPWF,RO ;GET MSG ADDR.
3208 016326 105737 177564 PWAIT: TSTB @*TPS ;TTY READY
3209 016332 100375 BPL PWAIT ;NO WAIT
3210 016334 112037 177566 MOVB (RO)+,@*TPB ;PRINT CHARACTER
3211 016340 001372 BNE PWAIT ;NEXT IF NOT DONE.
3212 016342 105737 177564 PWAIT1: TSTB @*TPS
3213 016346 100375 BPL PWAIT1
3214 016350 000167 162134 PFRES: JMP RESTRT
3215 016354 005015 047520 042527 MSGPWF: .ASCIZ '15'12'.POWER FAILED!
3216 016362 020122 040506 04611:
3217 016370 000000
3218 000000
3219 000000
3220 000000

```

```

;END FLAG
;WILL CONTINUE RESERVED INST
;SHOULD TRAP TO LOC 10
;LOC 10 SHOULD SEND YOU TO
;RET

```

```

;WILL APT ALLOW PRINTING?
;NO
;GET MSG ADDR.
;TTY READY
;NO WAIT
;PRINT CHARACTER
;NEXT IF NOT DONE.

```

.END

RBASE	=	000000			
ACDW1	=	000000			
ACDW2	=	000000			
ACPUOP	=	000000			
ACT	=	016044	270		
ADALL	=	014274	3126	3128	3138*
ADDW0	=	000000	2836*		
ADDW1	=	000000			
ADDW10	=	000000			
ADDW11	=	000000			
ADDW12	=	000000			
ADDW13	=	000000			
ADDW14	=	000000			
ADDW15	=	000000			
ADDW2	=	000000			
ADDW3	=	000000			
ADDW4	=	000000			
ADDW5	=	000000			
ADDW6	=	000000			
ADDW7	=	000000			
ADDW8	=	000000			
ADDW9	=	000000			
ADEVCT	=	000000	261		
ADEVM	=	000000			
RENV	=	000000	266		
REVM	=	000000	267		
AFATAL	=	000000	258		
AMADR1	=	000000	283		
AMADR2	=	000000	287		
AMADR3	=	000000	290		
AMADR4	=	000000	293		
AMAMS1	=	000000	277		
AMAMS2	=	000000	285		
AMAMS3	=	000000	288		
AMAMS4	=	000000	291		
AMSGAD	=	000000	263		
AMSLG	=	000000	264		
AMSGTY	=	000000	257		
AMTYP1	=	000000	278		
AMTYP2	=	000000	286		
AMTYP3	=	000000	289		
AMTYP4	=	000000	292		
APASS	=	000000	260		
APRIOR	=	000000			
ASWREG	=	000000	268		
ATESTN	=	000000	259		
ATRAP	=	014336	2838	2850*	
AUTIT	=	000000		262	
AUSWR	=	000000		269	
AUTO	=	014324	2843*		
AUTO1	=	014434	2830	2876*	
AVECT1	=	000000			
AVECT2	=	000000			
BEGIN	=	000502	237	240	324*
BELL	=	000240	225*		
BF1	=	000636	355	362*	

BR10 001070
BR11 001204
BR12 001254
BR13 001324
BR14 001374
BR15 001502
BR16 001524
BR17 001546
BR2 000666
BR20 001570
BR21 001612
BR22 001634
BR23 001656
BR24 001744
BR25 001774
BR26 002024
BR27 002054
BR3 000712
BR30 002104
BR31 002134
BR33 002222
BR34 002236
BR35 002252
BR36 002266
BR37 002312
BR4 000740
BR40 002326
BR41 002342
BR45 004042
BR46 004672
BR46A 004704
BR47 005552
BR5 000766
BR51 006402
BR51A 006414
BRE 001014
BR60 013724
BR7 001042
BR70 014134
BR71 014724
BTRAP 014404
BUFF 000500

429	436*													
457	464*													
477	477*													
483	490*													
496	503*													
522	529*													
530	537*													
538	545*													
365	372*													
546	552*													
553	560*													
561	568*													
569	576*													
594	600*													
603	610*													
613	619*													
622	629*													
375	382*													
632	639*													
642	648*													
667	673*													
674	680*													
581	687*													
588	694*													
697	703*													
386	393*													
704	710*													
711	717*													
1060	1065*													
1158	1234*													
1233	1240*													
1409	1414*													
397	404*													
1509	1585*													
1584	1591*													
408	414*													
2740*	2746*													
418	425*													
2777	2794*													
2920	2927	2938*												
2853	2867*													
323*	730	746	749	762	765	778	783	790	795	808	847	899		
914	917	930	933	946	951	958	962	975	1014	1063	1092	1097		
1100	1113	1116	1129	1134	1141	1146	1159	1198	1248	1263	1266	1279		
1282	1295	1300	1307	1312	1325	1364	1412	1432	1447	1450	1463	1466		
1479	1484	1492	1497	1510	1549	1606	1621	1624	1637	1640	1653	1659		
1665	1670	1683	1722	1768	1783	1786	1799	1802	1816	1821	1828	1833		
1846	1885	1932	1947	1950	1963	1966	1979	1984	1991	1996	2009	2048		
2319	2336	2343	2350	2357	2361	2381	2397	2419	2444	2462	2469	2476		
2494	2512	2519	2526	2544	2563	2570	2587	2606	2624	2637	2644	2662		
2675	2682	2706	2714	2722	2731	2738	2746	2754	2765	2779	2808	2812		
2839	2854	2874	2923	2955	3008	3032	3045	3068	3092	3094	3119	3154		
3161	3168	3204												
232*	780*	792*	840	879	948*	960*	1007	1046	1131*	1143*	1191	1230		
1297*	1309*	1357	1397	1481*	1494*	1542	1581	1655*	1667*	1715	1754	1818*		
1920*	1878	1917	1981*	1993*	2041	2080	2811*	3120*						

CC = 177776

RETA	002406	729	733#
RETAH	002420	731	739#
RETAT	012030	2330	2336#
RETA1	003246	900	907#
RETA2	004144	1083	1090#
RETA3	004760	1249	1256#
RETA4	005654	1433	1440#
RETA5	006470	1607	1614#
RETB	002450	747	749#
RETB1	011774	2323#	2343
RETB2	003276	915	917#
RETB3	004174	1098	1100#
RETB4	005010	1264	1266#
RETB5	005704	1448	1450#
RETB6	006520	1622	1624#
RETC	002520	763	765#
RETC1	012050	2337	2343#
RETC2	003346	931	933#
RETC3	004244	1114	1116#
RETC4	005060	1280	1282#
RETC5	005754	1464	1466#
RETC6	006570	1638	1640#
RETD	002600	779	783#
RETD1	012072	2344	2350#
RETD2	003426	947	951#
RETD3	004324	1130	1134#
RETD4	005140	1296	1300#
RETD5	006034	1480	1484#
RETD6	006650	1654	1658#
RETE	002646	791	795#
RETE1	012114	2351	2357#
RETE2	003472	959	962#
RETE3	004372	1142	1146#
RETE4	005206	1308	1312#
RETE5	006102	1493	1497#
RETE6	006716	1666	1670#
RETF	002724	809	812#
RETF1	012136	2358	2361#
RETF2	003550	976	979#
RETF3	004450	1160	1163#
RETF4	005264	1326	1329#
RETF5	006160	1511	1514#
RETF6	006774	1684	1687#
RETG	003050	848	851#
RETG1	012006	2320	2329#
RETG2	003674	1015	1018#
RETG3	004574	1199	1202#
RETG4	005410	1365	1368#
RETG5	006304	1550	1553#
RETH	007120	1723	1726#
RETH1	007266	1769	1776#
RETH2	007316	1784	1786#
RETH3	007366	1800	1802#
RETH4	007446	1817	1821#
RETH5	007514	1829	1833#
RETH6	007572	1847	1850#

TST	000574	335	349#	
TST10	002470	745	750	759#
TST100	012752	2492	2527	2540#
TST101	013120	2542	2571	2584#
TST102	013240	2586	2607	2620#
TST103	013372	2622	2645	2659#
TST104	013554	2703#		
TST105	014042	2705	2766	2775#
TST106	014162	2805#		
TST107	014252	2828#		
TST11	002542	761	766	775#
TST110	014460	2888#		
TST111	014610	2918#		
TST112	014750	2950#		
TST113	015110	2979#		
TST114	015216	2981	2995	3005#
TST115	015306	3026#		
TST116	015464	3064#		
TST117	015662	3107#		
TST12	002670	777	796	805#
TST13	003172	894#		
TST14	003245	896	911#	
TST15	003316	913	918	927#
TST16	003370	929	934	943#
TST17	003514	945	963	972#
TST2	001120	351	439	448#
TST20	004004	974	1049	1058#
TST21	004102	1079#		
TST22	004144	1081	1094#	
TST23	004214	1096	1101	1110#
TST24	004266	1112	1117	1126#
TST25	004414	1128	1147	1156#
TST26	004716	1245#		
TST27	004760	1247	1260#	
TST3	001444	450	509	518#
TST30	005030	1262	1267	1276#
TST31	005102	1278	1283	1292#
TST32	005230	1294	1313	1322#
TST33	005514	1324	1398	1407#
TST34	005612	1429#		
TST35	005654	1431	1444#	
TST36	005724	1446	1451	1460#
TST37	005776	1462	1467	1476#
TST4	001700	520	577	587#
TST40	006124	1478	1498	1507#
TST41	006426	1603#		
TST42	006470	1605	1618#	
TST43	006540	1620	1625	1634#
TST44	006612	1636	1641	1650#
TST45	006740	1652	1671	1680#
TST46	007224	1682	1756	1765#
TST47	007266	1767	1780#	
TST5	002164	589	651	662#
TST50	007336	1782	1787	1796#
TST51	007410	1798	1803	1813#
TST52	007536	1815	1834	1843#

TST53	010020	1845	1919	1929*																
TST54	010064	1931	1944*																	
TST55	010136	1946	1951	1960*																
TST56	010212	1962	1967	1976*																
TST57	010344	1978	1997	2006*																
TST6	002356	664	718	727*																
TST60	010634	2008	2092	2091*																
TST61	010676	2093	2107*																	
TST62	010746	2109	2114	2124*																
TST63	011102	2126	2161*																	
TST64	011160	2178*																		
TST65	011236	2195*																		
TST66	011314	2212*																		
TST67	011372	2229*																		
TST7	002420	743*																		
TST70	011450	2246*																		
TST71	011546	2261	2270*																	
TST72	011624	2288*																		
TST73	011732	2315*																		
TST74	012172	2378*																		
TST75	012316	2380	2402	2415*																
TST76	012402	2417	2428	2441*																
TST77	012562	2443	2477	2490*																
TTCSR =	177564	221*	2898*	2911*	2926*	2945*	2957*	2984*	2987	3036*	3049*	3058*								
TTT37	015460	3051	3058*																	
TTY11	015446	3028	3052*																	
TTY3	015364	3033	3037*																	
TTY4	015440	3046	3050*																	
VDEC1	011152	2166	2174*																	
VDEC10	011430	2231	2233	2236*																
VDEC11	011506	2248	2250	2253*																
VDEC12	011520	2251	2259*																	
VDEC13	011604	2272	2274	2277*																
VDEC14	011616	2275	2283*																	
VDEC2	011140	2163	2165	2168*																
VDEC3	011230	2183	2191*																	
VDEC4	011216	2180	2182	2185*																
VDEC5	011306	2200	2208*																	
VDEC6	011274	2197	2199	2202*																
VDEC7	011364	2217	2225*																	
VDEC8	011352	2214	2216	2219*																
VDEC9	011442	2234	2242*																	
WAIT	016012	3130*	3131	3133																
WAIT1	016026	3134*	3135																	
WATE	015602	3069	3085*																	
WATE1	015524	3071*	3072																	
WATE2	015540	3074*	3075																	
WATE3	015566	3079*	3092	3094																
SAPTHD	000350	305	311*																	
SCPUOP	000326	270*																		
SDEVCT	000310	261*																		
SENDAD	016054	248	3127	3141*																
SENV	000320	266*																		
SENVN	000321	267*	3125	3205																
SERN =	000360	195*	356	357*	366	367*	376	377*	387	388*	398	399*	409	410*						
		419	420*	430	431*	440	441*	458	459*	471	472*	484	485*	497						

498*	510	511*	523	524*	531	532*	539	540*	547	548*	554	555*
552*	563*	570	571*	578	579*	595	596*	604	605*	614	615*	623*
624*	633	634*	643	644*	652	653*	668	669*	675	676*	682	683*
689	690*	698	699*	705	706*	712	713*	719	720*	734	735*	751*
752*	767	768*	785	786*	797	798*	814	815*	821	822*	828	829*
835	836*	842	843*	853	854*	860	861*	867	868*	874	875*	884
885*	902	903*	919	920*	935	936*	953	954*	964	965*	981	982*
988	989*	995	996*	1002	1003*	1009	1010*	1020	1021*	1027	1028*	1034
1035*	1041	1042*	1050	1051*	1066	1067*	1085	1086*	1102	1103*	1118	1119*
1136	1137*	1148	1149*	1165	1166*	1172	1173*	1179	1180*	1186	1187*	1193
1194*	1204	1205*	1211	1212*	1218	1219*	1225	1226*	1235	1236*	1251	1252*
1268	1269*	1284	1285*	1302	1303*	1314	1315*	1331	1332*	1338	1339*	1345
1346*	1352	1353*	1359	1360*	1370	1371*	1377	1378*	1384	1385*	1391	1392*
1399	1403*	1415	1416*	1435	1436*	1452	1453*	1468	1469*	1487	1488*	1499
1500*	1516	1517*	1523	1524*	1530	1531*	1537	1538*	1544	1545*	1555	1556*
1562	1563*	1569	1570*	1576	1577*	1586	1587*	1609	1610*	1626	1627*	1642
1643*	1660	1661*	1672	1673*	1689	1690*	1696	1697*	1703	1704*	1710	1711*
1717	1718*	1728	1729*	1735	1736*	1742	1743*	1749	1750*	1757	1758*	1771
1772*	1788	1789*	1804	1805*	1823	1824*	1835	1836*	1852	1853*	1859	1860*
1866	1867*	1873	1874*	1880	1881*	1891	1892*	1898	1899*	1905	1906*	1912
1913*	1920	1921*	1935	1936*	1952	1953*	1968	1969*	1986	1987*	1998	1999*
2015	2016*	2022	2023*	2029	2030*	2036	2037*	2043	2044*	2054	2055*	2061
2062*	2068	2069*	2075	2076*	2083	2084*	2097	2098*	2115	2116*	2133	2134*
2142	2143*	2151	2152*	2169	2170*	2186	2187*	2203	2204*	2220	2221*	2237
2238*	2254	2255*	2262	2263*	2278	2279*	2305	2306*	2324	2325*	2331	2332*
2338	2339*	2345	2346*	2352	2353*	2364	2365*	2385	2386*	2392	2393*	2403
2404*	2422	2423*	2429	2430*	2450	2451*	2457	2458*	2464	2465*	2471	2472*
2478	2479*	2500	2501*	2507	2508*	2514	2515*	2521	2522*	2528	2529*	2551
2552*	2558	2559*	2565	2566*	2572	2573*	2594	2595*	2601	2602*	2608	2609*
2631	2632*	2639	2640*	2646	2647*	2669	2670*	2677	2678*	2684	2685*	2692
2693*	2709	2710*	2716	2717*	2726	2727*	2733	2734*	2741	2742*	2748	2749*
2759	2760*	2767	2768*	2789	2790*	2795	2796*	2815	2816*	2844	2845*	2859
2860*	2869	2870*	2877	2878*	2900	2901*	2906	2907*	2933	2934*	2939	2940*
2965	2966*	2989	2990*	2996	2997*	3014	3015*	3039	3040*	3053	3054*	308C
3081*	3087	3088*	3097	3098*	3156	3157*	3163	3164*	3171	3172*		
319*	329*											
265*												
294*	317											
258*	319	356*	366*	376*	387*	398*	409*	419*	430*	440*	458*	471*
484*	497*	510*	523*	531*	539*	547*	554*	562*	570*	578*	595*	604*
614*	623*	633*	643*	652*	668*	675*	682*	689*	698*	705*	712*	719*
734*	751*	767*	785*	797*	814*	821*	828*	835*	842*	853*	860*	867*
874*	884*	902*	919*	935*	953*	964*	981*	988*	995*	1002*	1009*	1020*
1027*	1034*	1041*	1050*	1066*	1085*	1102*	1118*	1136*	1148*	1165*	1172*	1175*
1186*	1193*	1204*	1211*	1218*	1225*	1235*	1251*	1268*	1284*	1302*	1314*	1331*
1338*	1345*	1352*	1359*	1370*	1377*	1384*	1391*	1399*	1415*	1435*	1452*	1469*
1487*	1499*	1516*	1523*	1530*	1537*	1544*	1555*	1562*	1569*	1576*	1586*	1609*
1626*	1642*	1660*	1672*	1689*	1696*	1703*	1710*	1717*	1728*	1735*	1742*	1749*
1757*	1771*	1788*	1804*	1823*	1835*	1852*	1859*	1866*	1873*	1880*	1891*	1898*
1905*	1912*	1920*	1935*	1952*	1968*	1986*	1998*	2015*	2022*	2029*	2036*	2043*
2054*	2061*	2068*	2075*	2083*	2097*	2115*	2133*	2142*	2151*	2169*	2186*	2203*
2220*	2237*	2254*	2262*	2278*	2305*	2324*	2331*	2338*	2345*	2352*	2364*	2385*
2392*	2403*	2422*	2429*	2450*	2457*	2471*	2478*	2500*	2507*	2514*	2521*	2528*
2528*	2551*	2558*	2565*	2572*	2594*	2601*	2608*	2631*	2639*	2646*	2669*	2677*
2684*	2692*	2709*	2716*	2726*	2733*	2741*	2748*	2759*	2767*	2789*	2795*	2815*
2844*	2859*	2869*	2877*	2900*	2906*	2933*	2939*	2965*	2989*	2996*	3014*	3039*

\$ERROR= 000302
 \$ETABL 000320
 \$ETENC 000350
 \$FATAL 000302

0000360
0000324
015676

316#													
359#	359	369	379	390	401	412	422	433	443	451#	461	474	
513#	500	517	521#	526	534	542	550	557	565	572	581	598#	500#
636#	607	617	626	636	646	655	665#	671	678	685	692	701#	626#
770#	715	722	730#	737	746#	754	762#	770	778#	788	800#	817#	754#
905#	824	831	838	845	856	863	870	877	887	897#	905	917#	887#
1044#	930#	938	946#	956	967	975#	984	991	998	1005	1012	1023	1030#
1207#	1037	1044	1053	1061#	1069	1082#	1088	1097#	1105	1113#	1121	1139#	1196#
1355#	1151	1159#	1168	1175	1182	1189	1196	1207	1214	1221	1228	1238#	1348#
1519#	1254	1263#	1271	1279#	1287	1295#	1305	1317	1325#	1334	1341	1348#	1502#
1663#	1362	1373	1380	1387	1394	1402	1410#	1418	1432#	1438	1447#	1455#	1645#
1791#	1471	1479#	1490	1502	1510#	1519	1526	1533	1540	1547	1558#	1565#	1774#
1923#	1579	1589	1606#	1612	1621#	1629	1637#	1645	1653#	1663	1675	1683#	1901#
2071#	1692	1706	1713	1720	1731	1738	1745	1752	1760	1768#	1774	1783#	1908#
2223#	1791	1799#	1807	1816#	1826	1838	1846#	1855	1862	1869	1876	1883	1915#
2341#	1901	1908	1915	1923	1932#	1938	1947#	1955	1963#	1971	1979#	1989	2001#
2460#	2009#	2018	2025	2032	2039	2046	2057	2064	2071	2078	2086	2094#	2064#
2561#	2110#	2118	2127#	2136	2145	2154	2164#	2172	2181#	2189	2198#	2206	2223#
2687#	2223	2232#	2240	2249#	2257	2265	2273#	2281	2291#	2308	2318#	2327	2406#
2792#	2341	2348	2355	2367	2381#	2388	2395#	2406	2418#	2425	2432	2444#	2554#
2942#	2460	2467	2474	2481	2493#	2503	2510	2517	2524	2531	2543#	2554	2561
3090#	2568	2575	2587#	2597	2604	2611	2623#	2634	2642	2649	2661#	2672	2680
	2687	2695	2706#	2712	2719	2729	2736	2744	2751	2762	2770#	2778#	2792
	2798	2808#	2818	2831#	2847	2862	2872	2880	2891#	2903	2909	2921#	2936
	2942	2953#	2968	2982#	2992	2999	3008#	3017	3029#	3042	3056	3067#	3083
	3090	3100	3110#	3159	3166	3174							

\$XX = 177634

359#	369#	379#	390#	401#	412#	422#	433#	443#	461#	474#	487#	500#	
513#	526#	534#	542#	550#	557#	565#	573#	581#	598#	607#	617#	626#	
636#	646#	655#	671#	678#	685#	692#	701#	708#	715#	722#	737#	754#	
770#	788#	800#	817#	824#	831#	838#	845#	856#	863#	870#	877#	887#	
905#	922#	938#	956#	967#	984#	991#	998#	1005#	1012#	1023#	1030#	1037#	
1044#	1053#	1069#	1088#	1105#	1121#	1139#	1151#	1168#	1175#	1182#	1189#	1196#	
1207#	1214#	1221#	1228#	1238#	1254#	1271#	1287#	1305#	1317#	1334#	1341#	1348#	
1355#	1362#	1373#	1380#	1387#	1394#	1402#	1418#	1438#	1455#	1471#	1490#	1502#	
1519#	1526#	1533#	1540#	1547#	1558#	1565#	1572#	1579#	1589#	1612#	1629#	1645#	
1663#	1675#	1692#	1699#	1706#	1713#	1720#	1731#	1738#	1745#	1752#	1760#	1774#	
1791#	1807#	1826#	1838#	1855#	1862#	1869#	1876#	1883#	1894#	1901#	1908#	1915#	
1923#	1938#	1955#	1971#	1989#	2001#	2018#	2025#	2032#	2039#	2046#	2057#	2064#	
2071#	2078#	2086#	2100#	2118#	2136#	2145#	2154#	2172#	2189#	2206#	2223#	2240#	
2257#	2265#	2281#	2308#	2327#	2334#	2341#	2348#	2355#	2367#	2388#	2395#	2406#	
2425#	2432#	2453#	2460#	2467#	2474#	2481#	2503#	2510#	2517#	2524#	2531#	2554#	
2561#	2568#	2575#	2597#	2604#	2611#	2634#	2642#	2649#	2672#	2680#	2687#	2695#	
2712#	2719#	2729#	2736#	2744#	2751#	2762#	2770#	2792#	2798#	2818#	2847#	2862#	
2872#	2880#	2903#	2909#	2936#	2942#	2968#	2992#	2999#	3017#	3042#	3056#	3083#	
3090#	3100#	3159#	3166#	3174#									

\$XXX = 000633

359#	369#	379#	390#	401#	412#	422#	433#	443#	461#	474#	487#	500#	
513#	526#	534#	542#	550#	557#	565#	573#	581#	598#	607#	617#	626#	
636#	646#	655#	671#	678#	685#	692#	701#	708#	715#	722#	737#	754#	
770#	788#	800#	817#	824#	831#	838#	845#	856#	863#	870#	877#	887#	
905#	922#	938#	956#	967#	984#	991#	998#	1005#	1012#	1023#	1030#	1037#	
1044#	1053#	1069#	1088#	1105#	1121#	1139#	1151#	1168#	1175#	1182#	1189#	1196#	
1207#	1214#	1221#	1228#	1238#	1254#	1271#	1287#	1305#	1317#	1334#	1341#	1348#	
1355#	1362#	1373#	1380#	1387#	1394#	1402#	1418#	1438#	1455#	1471#	1490#	1502#	
1519#	1526#	1533#	1540#	1547#	1558#	1565#	1572#	1579#	1589#	1612#	1629#	1645#	
1663#	1675#	1692#	1699#	1706#	1713#	1720#	1731#	1738#	1745#	1752#	1760#	1774#	

1791#	1807#	1826#	1838#	1855#	1862#	1869#	1876#	1883#	1894#	1901#	1908#	1915#
1923#	1938#	1955#	1971#	1989#	2001#	2018#	2025#	2032#	2039#	2046#	2057#	2064#
2071#	2078#	2086#	2100#	2118#	2136#	2145#	2154#	2172#	2189#	2206#	2223#	2240#
2257#	2265#	2281#	2308#	2327#	2334#	2341#	2348#	2355#	2367#	2388#	2395#	2406#
2425#	2432#	2453#	2460#	2467#	2474#	2481#	2503#	2510#	2517#	2524#	2531#	2554#
2561#	2568#	2575#	2597#	2604#	2611#	2634#	2642#	2649#	2672#	2680#	2687#	2695#
2712#	2719#	2729#	2736#	2744#	2751#	2762#	2770#	2792#	2798#	2818#	2847#	2862#
2872#	2880#	2903#	2909#	2936#	2942#	2968#	2992#	2999#	3017#	3042#	3056#	3083#
3090#	3100#	3159#	3166#	3174#								
236#	238#	241#	246#	247#	249#	251#	301#	302#	304#	306#	322#	352#
359#	369#	379#	390#	401#	412#	422#	433#	443#	451#	461#	474#	487#
500#	513#	521#	526#	534#	542#	550#	557#	565#	573#	581#	590#	598#
607#	617#	626#	636#	646#	655#	665#	671#	678#	685#	692#	701#	708#
715#	722#	730#	737#	746#	754#	762#	765#	770#	778#	788#	800#	808#
817#	824#	831#	838#	845#	856#	863#	870#	877#	887#	897#	905#	914#
922#	930#	933#	938#	946#	956#	967#	975#	984#	991#	998#	1005#	1012#
1023#	1030#	1037#	1044#	1053#	1061#	1069#	1082#	1088#	1097#	1105#	1113#	1116#
1121#	1129#	1139#	1151#	1159#	1168#	1175#	1182#	1189#	1196#	1207#	1214#	1221#
1228#	1238#	1248#	1254#	1263#	1271#	1279#	1282#	1287#	1295#	1305#	1317#	1325#
1334#	1341#	1348#	1355#	1362#	1373#	1380#	1387#	1394#	1402#	1410#	1418#	1432#
1438#	1447#	1455#	1463#	1466#	1471#	1479#	1490#	1502#	1510#	1519#	1526#	1533#
1540#	1547#	1558#	1565#	1572#	1579#	1589#	1606#	1612#	1621#	1629#	1637#	1640#
1645#	1653#	1663#	1675#	1683#	1692#	1699#	1706#	1713#	1720#	1731#	1738#	1745#
1752#	1760#	1768#	1774#	1783#	1791#	1799#	1807#	1816#	1826#	1838#	1846#	1855#
1862#	1869#	1876#	1883#	1894#	1901#	1908#	1915#	1923#	1932#	1938#	1947#	1955#
1963#	1966#	1971#	1979#	1989#	2001#	2009#	2018#	2025#	2032#	2039#	2046#	2057#
2064#	2071#	2078#	2086#	2094#	2100#	2110#	2118#	2127#	2136#	2145#	2154#	2164#
2172#	2181#	2189#	2198#	2206#	2215#	2223#	2232#	2240#	2249#	2257#	2265#	2273#
2281#	2291#	2308#	2318#	2327#	2334#	2341#	2348#	2355#	2367#	2381#	2388#	2395#
2406#	2418#	2425#	2432#	2444#	2453#	2460#	2467#	2474#	2481#	2493#	2503#	2510#
2517#	2524#	2531#	2543#	2554#	2561#	2568#	2575#	2587#	2597#	2604#	2611#	2623#
2634#	2642#	2649#	2661#	2672#	2690#	2687#	2695#	2706#	2712#	2719#	2729#	2736#
2744#	2751#	2762#	2770#	2778#	2785#	2792#	2798#	2808#	2818#	2831#	2847#	2862#
2872#	2880#	2891#	2903#	2909#	2921#	2936#	2942#	2953#	2968#	2982#	2992#	2999#
3008#	3017#	3029#	3042#	3056#	3067#	3083#	3090#	3100#	3110#	3159#	3166#	3174#
3194#												
301#	306#											

= 016374

.SX = 000353

MIN
MAX
RANGE
COR

1170	1177	1184	1192	1203	1209	1216	1223	1233	1251	1267	1282	1301	1312	1322
1336	1343	1350	1358	1369	1375	1382	1389	1398	1414	1435	1451	1467	1486	1496
1515	1521	1528	1535	1543	1554	1560	1567	1574	1584	1609	1625	1641	1659	1671
1688	1694	1701	1708	1716	1727	1733	1740	1747	1756	1771	1787	1803	1822	1834
1851	1857	1864	1871	1879	1890	1896	1903	1910	1919	1935	1951	1967	1985	1997
2014	2020	2027	2034	2042	2053	2059	2066	2073	2082	2097	2114	2132	2142	2150
2168	2185	2202	2219	2236	2253	2261	2277	2303	2324	2330	2337	2344	2351	2362
2385	2391	2402	2422	2428	2450	2456	2463	2470	2477	2500	2506	2513	2520	2527
2551	2557	2564	2571	2594	2600	2607	2631	2638	2645	2669	2676	2683	2690	2709
2715	2725	2732	2741	2747	2758	2766	2788	2794	2813	2843	2858	2868	2875	2900
2905	2932	2938	2964	2988	2995	3013	3038	3051	3080	3086	3095	3156	3163	3169

ESCAPE
GETPR
GETS
WR
LOOP

195	359	369	379	390	401	412	422	433	443	461	474	487	500	513
526	534	542	550	557	565	573	581	598	607	617	626	636	646	655
671	678	685	692	701	708	715	722	737	754	770	788	800	817	824
831	838	845	856	863	870	877	887	905	922	938	956	967	984	991
998	1005	1012	1023	1030	1037	1044	1053	1069	1088	1105	1121	1139	1151	1168
1175	1182	1189	1196	1207	1214	1221	1228	1238	1254	1271	1297	1305	1317	1334
1341	1348	1355	1362	1373	1380	1387	1394	1402	1418	1438	1455	1471	1490	1502
1519	1526	1533	1540	1547	1558	1565	1572	1579	1589	1612	1629	1645	1663	1675
1692	1699	1706	1713	1720	1731	1738	1745	1752	1760	1774	1791	1807	1826	1838
1855	1862	1869	1876	1883	1894	1901	1908	1915	1923	1938	1955	1971	1989	2001
2018	2025	2032	2039	2046	2057	2064	2071	2078	2086	2100	2118	2136	2145	2154
2172	2189	2206	2223	2240	2257	2265	2281	2308	2327	2334	2341	2348	2355	2367
2388	2395	2406	2425	2432	2453	2460	2467	2474	2481	2503	2510	2517	2524	2531
2554	2561	2568	2575	2597	2604	2611	2634	2642	2649	2672	2680	2687	2695	2712
2719	2725	2736	2744	2751	2762	2770	2792	2798	2818	2847	2862	2872	2880	2903
2909	2936	2942	2968	2992	2999	3017	3042	3056	3083	3090	3100	3159	3166	3174

MULT
NEWST

940	969	1055	1076	1091	1107	1123	1153	1242	1257	1273	1299	1319	1404	1426
1441	1457	1473	1504	1600	1615	1631	1647	1677	1762	1777	1793	1810	1840	1926
1941	1957	1973	2003	2088	2104	2121	2158	2175	2192	2209	2226	2243	2267	2285
2312	2375	2412	2438	2487	2527	2581	2617	2655	2700	2772	2902	2925	2885	2915
2947	2976	3002	3023	3061	3104									

POP
PUSH
REPORT
SETPRI
SETUP
SKIP
ASH
ARC

659	661	724	726	740	742	756	758	772	774	802	804	891	893	908
910	924	926	940	942	969	971	1055	1057	1076	1078	1091	1093	1107	1109
1122	1125	1153	1155	1242	1244	1257	1259	1273	1275	1289	1291	1319	1321	1404
1405	1426	1428	1441	1443	1457	1459	1473	1475	1504	1506	1603	1602	1615	1617

SWAS
TYPBIT
TYPDEF
TYPNAM
TYPNUM
TYPOCS
TYPOCT
TYPTXT
VTRP
SSERCC

SSERNL

SSERRC

SSESCO
SSLOCP

1647	1649	1677	1679	1762	1764	1777	1779	1793	1795	1810	1812	1814	1816
1938	1941	1943	1957	1959	1973	1975	2003	2005	2088	2090	2092	2094	2096
2157	2158	2175	2192	2209	2226	2243	2267	430	440	458	471	484	497
195	356	366	376	387	398	409	419	595	604	614	623	633	643
523	531	539	547	554	562	570	578	734	751	767	785	797	814
668	675	682	689	698	705	712	719	902	919	935	953	964	981
995	1002	1009	1020	1027	1034	1041	1050	1066	1085	1102	1118	1136	1148
1172	1179	1186	1193	1204	1211	1218	1225	1235	1251	1268	1284	1302	1314
1328	1345	1352	1359	1370	1377	1384	1391	1399	1415	1435	1452	1468	1487
1516	1523	1530	1537	1544	1555	1562	1569	1576	1586	1609	1626	1642	1660
1689	1696	1703	1710	1717	1728	1735	1742	1749	1757	1771	1788	1804	1823
1852	1859	1866	1873	1880	1891	1898	1905	1912	1920	1935	1952	1968	1986
2015	2022	2029	2036	2043	2054	2061	2068	2075	2083	2097	2115	2133	2142
2169	2186	2203	2220	2237	2254	2262	2278	2305	2324	2331	2338	2345	2352
2385	2392	2403	2422	2429	2450	2457	2464	2471	2478	2500	2507	2514	2521
2551	2558	2565	2572	2594	2601	2608	2631	2639	2646	2669	2677	2684	2692
2716	2726	2733	2741	2748	2759	2767	2789	2795	2815	2844	2859	2869	2877
2906	2933	2939	2965	2989	2996	3014	3039	3053	3080	3087	3097	3156	3163
195	356	366	376	387	398	409	419	430	440	458	471	484	497
523	531	539	547	554	562	570	578	595	604	614	623	633	643
668	675	682	689	698	705	712	719	734	751	767	785	797	814
995	1002	1009	1020	1027	1034	1041	1050	1066	1085	1102	1118	1136	1148
1172	1179	1186	1193	1204	1211	1218	1225	1235	1251	1268	1284	1302	1314
1328	1345	1352	1359	1370	1377	1384	1391	1399	1415	1435	1452	1468	1487
1516	1523	1530	1537	1544	1555	1562	1569	1576	1586	1609	1626	1642	1660
1689	1696	1703	1710	1717	1728	1735	1742	1749	1757	1771	1788	1804	1823
1852	1859	1866	1873	1880	1891	1898	1905	1912	1920	1935	1952	1968	1986
2015	2022	2029	2036	2043	2054	2061	2068	2075	2083	2097	2115	2133	2142
2169	2186	2203	2220	2237	2254	2262	2278	2305	2324	2331	2338	2345	2352
2385	2392	2403	2422	2429	2450	2457	2464	2471	2478	2500	2507	2514	2521
2551	2558	2565	2572	2594	2601	2608	2631	2639	2646	2669	2677	2684	2692
2716	2726	2733	2741	2748	2759	2767	2789	2795	2815	2844	2859	2869	2877
2906	2933	2939	2965	2989	2996	3014	3039	3053	3080	3087	3097	3156	3163
195	439	509	577	651	718	750	766	796	918	934	963	1049	1101
1147	1267	1283	1313	1398	1451	1467	1498	1625	1641	1671	1756	1787	1803
1919	1951	1967	1997	2082	2114	2261	2402	2428	2477	2527	2571	2607	2645
2995													
195	359	369	379	390	401	412	422	433	443	461	474	487	500
526	534	542	550	557	565	573	581	598	607	617	626	636	646
671	678	685	692	701	708	715	722	737	754	770	788	800	817
831	838	845	856	863	870	877	887	905	922	938	956	967	984

..:70 ..:

823	830	837	844	855	862	869	876	886	904	921	937	955	966	983
990	997	1004	1011	1022	1029	1036	1043	1052	1068	1087	1104	1120	1138	1150
1167	1174	1181	1188	1195	1206	1213	1220	1227	1237	1253	1270	1286	1304	1316
1333	1340	1347	1354	1361	1372	1379	1386	1393	1401	1417	1437	1454	1470	1489
1501	1518	1525	1532	1539	1546	1557	1564	1571	1578	1588	1511	1628	1644	1662
1674	1691	1698	1705	1712	1719	1730	1737	1744	1751	1759	1773	1790	1806	1825
1837	1854	1861	1868	1875	1882	1893	1900	1907	1914	1922	1937	1954	1970	1988
2000	2017	2024	2031	2038	2045	2056	2063	2070	2077	2085	2099	2117	2135	2144
2153	2171	2188	2205	2222	2239	2256	2264	2280	2307	2326	2333	2340	2347	2354
2366	2387	2394	2405	2424	2431	2452	2459	2466	2473	2480	2502	2509	2516	2523
2530	2553	2560	2567	2574	2596	2603	2610	2633	2641	2648	2671	2679	2686	2694
2711	2718	2728	2735	2743	2750	2761	2769	2791	2797	2817	2846	2861	2871	2879
2902	2908	2935	2941	2967	2991	2998	3016	3041	3055	3082	3089	3099	3158	3165
3173	3195	3196	3197	3198	3199	3201								
349	357	367	377	388	399	410	420	431	441	448	459	472	485	498
511	518	524	532	540	548	555	563	571	579	587	596	605	615	624
634	644	653	662	669	676	683	690	699	706	713	720	727	735	743
752	759	768	775	786	798	805	815	822	829	836	843	854	861	868
875	885	894	903	911	920	927	936	943	954	965	972	982	989	996
1003	1010	1021	1028	1035	1042	1051	1058	1067	1071	1079	1086	1094	1103	1110
1119	1126	1137	1149	1156	1166	1173	1180	1187	1194	1205	1212	1219	1226	1236
1245	1252	1260	1269	1276	1285	1292	1303	1315	1322	1332	1339	1346	1353	1360
1371	1378	1385	1392	1400	1407	1416	1420	1429	1436	1444	1453	1460	1469	1476
1488	1500	1507	1517	1524	1531	1538	1545	1556	1563	1570	1577	1587	1603	1610
1618	1627	1634	1643	1650	1661	1673	1680	1690	1697	1704	1711	1718	1729	1736
1743	1750	1758	1765	1772	1780	1789	1796	1805	1813	1824	1836	1843	1853	1860
1867	1874	1881	1892	1899	1906	1913	1921	1929	1936	1944	1953	1960	1969	1976
1987	1999	2006	2016	2023	2030	2037	2044	2055	2062	2069	2076	2084	2091	2098
2107	2116	2124	2130	2134	2143	2152	2161	2170	2178	2187	2195	2204	2212	2221
2229	2238	2246	2255	2263	2270	2279	2288	2306	2315	2325	2332	2339	2346	2353
2365	2378	2386	2393	2404	2415	2423	2430	2441	2451	2458	2465	2472	2479	2490
2501	2508	2515	2522	2529	2540	2552	2559	2566	2573	2584	2595	2602	2609	2620
2632	2640	2647	2658	2668	2670	2678	2685	2693	2703	2710	2717	2724	2727	2734
2742	2749	2760	2768	2775	2790	2796	2805	2816	2828	2845	2856	2860	2870	2878
2888	2901	2907	2918	2934	2940	2950	2966	2979	2990	2997	3005	3015	3026	3040
3054	3064	3081	3088	3098	3107	3117	3122	3157	3164	3172				
3123														
1084	1099	1115	1133	1145	1162	1201	2184	2787	2963					
237	240	335	1608	1623	1639	1657	1669	1686	1725	3121	3147	3178	3214	
1770	1785	1801	1820	1832	1849	1888	3141							
324	326	327	330	356	362	366	376	387	398	409	419	430	436	440
451	452	453	454	458	464	465	466	467	471	477	478	479	480	484
490	491	492	493	497	503	504	505	506	510	523	531	539	547	554
562	570	578	591	592	595	600	604	610	614	619	620	623	629	630
633	639	643	648	652	668	675	682	689	698	705	712	719	730	731
734	746	747	751	762	763	767	778	779	785	790	791	792	797	809
809	814	821	828	835	842	847	848	849	853	860	867	874	879	884
889	897	899	900	902	914	915	919	930	931	935	946	947	953	958
959	960	964	975	976	981	988	995	1002	1009	1014	1015	1016	1020	1027
1034	1041	1046	1050	1061	1062	1063	1066	1074	1082	1083	1085	1097	1098	1102
1113	1114	1118	1129	1130	1136	1141	1142	1143	1148	1159	1160	1165	1172	1179
1186	1193	1198	1199	1200	1204	1211	1218	1225	1230	1235	1240	1248	1249	1251
1263	1264	1268	1279	1280	1284	1295	1296	1302	1307	1308	1309	1314	1325	1326
1331	1338	1345	1352	1359	1364	1365	1366	1370	1377	1384	1391	1399	1410	1411
1412	1415	1424	1432	1433	1435	1447	1448	1452	1463	1464	1468	1479	1480	1487
1492	1493	1494	1499	1510	1511	1516	1523	1530	1537	1544	1549	1550	1551	1555

INC

INCB
1101
1102
1103
1104
1105
1106
1107
1108
1109
1110

MOV
MOP
RESET
POL
PRT
SEC
TRAP
TST
TSTE
WAT
ABS
ASCIZ
BYTE
ENABL
FNC
FNC

1562	1569	1576	1581	1586	1591	1606	1607	1609	1621	1622	1626	1637	1638	1642
1653	1654	1660	1665	1666	1667	1672	1683	1684	1689	1696	1703	1710	1717	1722
1723	1724	1728	1735	1742	1749	1754	1757	1768	1769	1771	1782	1784	1788	1799
1800	1804	1816	1817	1823	1828	1829	1830	1835	1846	1847	1852	1855	1866	1873
1878	1880	1885	1886	1887	1891	1898	1905	1912	1917	1920	1932	1933	1935	1947
1948	1952	1963	1964	1968	1979	1980	1986	1991	1992	1993	1998	2009	2010	2015
2022	2029	2036	2042	2048	2049	2050	2054	2061	2068	2075	2080	2083	2094	2095
2097	2110	2111	2115	2127	2129	2133	2138	2139	2140	2142	2147	2148	2151	2164
2165	2166	2169	2174	2181	2182	2183	2186	2191	2198	2199	2200	2203	2208	2215
2216	2217	2220	2225	2232	2233	2234	2237	2242	2249	2250	2251	2254	2259	2262
2273	2274	2275	2278	2283	2292	2293	2295	2297	2299	2301	2305	2310	2319	2320
2321	2324	2331	2338	2345	2352	2357	2358	2359	2364	2369	2381	2383	2385	2392
2397	2398	2399	2403	2418	2420	2422	2429	2444	2445	2446	2447	2450	2457	2464
2471	2478	2493	2494	2495	2496	2497	2500	2507	2514	2521	2529	2544	2545	2547
2551	2558	2565	2572	2587	2588	2590	2594	2601	2608	2624	2625	2626	2627	2631
2639	2646	2662	2663	2664	2665	2669	2677	2684	2692	2697	2706	2707	2708	2709
2716	2722	2723	2726	2733	2738	2739	2741	2748	2754	2755	2759	2764	2767	2779
2780	2783	2784	2785	2789	2795	2800	2801	2808	2809	2811	2815	2820	2838	2839
2844	2850	2852	2853	2854	2859	2869	2877	2882	2894	2895	2896	2897	2898	2900
2906	2912	2923	2924	2925	2926	2927	2928	2929	2933	2939	2955	2956	2957	2958
2959	2960	2961	2965	2971	2972	2973	2984	2985	2989	2996	3008	3009	3014	3021
3032	3033	3035	3039	3045	3046	3048	3053	3068	3069	3073	3076	3080	3087	3097
3102	3111	3112	3113	3116	3118	3119	3129	3137	3138	3145	3156	3163	3171	3200
3203	3204	3207												
353	363	373	455	468	481	494	507	601	611	640	649	3132	3210	
2322	2360	2449	2499	2550	2593	2630	2636	2674	3142	3143	3144			
2893	2986	3011	3012	3031	3044	3136	3140							
2757														
2384	2400	2448	2549	2629										
2421	2498	2592	2667	2786										
665	793	1144	1310	1495	1668	1831	1994							
2756														
901	916	932	950	961	978	1017	1061	1064	2218	2931	2962	2298	2300	2302
1934	1949	1965	1983	1995	2012	2051	2096	2112	2131	2294	2296			
2455	2556	2599	2867	3050	3085	3168								
2840	2855	3071	3074	3130	3134	3208	3212							
3079														
207														
3149	3215													
266	267	277	278	285	286	288	289	291	292					
1														
3218														
249	251	277	285	288	291	296	361	371	381	392	403	414	424	435
445	463	476	489	502	515	528	536	544	552	559	567	575	583	600
609	619	628	638	648	657	673	680	687	694	703	710	717	724	739
756	772	790	802	819	826	833	840	847	858	865	872	879	889	907
924	940	958	969	986	993	1000	1007	1014	1025	1032	1039	1046	1055	1071
1090	1107	1123	1141	1153	1170	1177	1184	1191	1198	1209	1216	1223	1230	1240
1256	1273	1289	1307	1319	1336	1343	1350	1357	1364	1375	1382	1389	1396	1404
1420	1440	1457	1473	1492	1504	1521	1528	1535	1542	1549	1560	1567	1574	1581
1591	1614	1631	1647	1665	1677	1694	1701	1708	1715	1722	1733	1740	1747	1754
1762	1776	1793	1809	1828	1840	1857	1864	1871	1878	1885	1896	1903	1910	1917
1925	1940	1957	1973	1991	2003	2020	2027	2034	2041	2048	2059	2066	2073	2080
2088	2102	2120	2138	2147	2156	2174	2191	2208	2225	2242	2259	2267	2283	2310
2329	2336	2343	2350	2357	2369	2390	2397	2408	2427	2434	2455	2462	2469	2476
2422	2505	2512	2519	2526	2533	2556	2563	2570	2577	2599	2606	2613	2636	2644

2674	2682	2689	2697	2714	2721	2731	2738	2746	2753	2764	2772	2794	2811
2849	2864	2874	2882	2905	2911	2938	2944	2970	2994	3001	3019	3044	3056
3092	3102	3161	3168	3176									
249	277	285	288	291	294	296	355	361	365	371	375	381	386
397	403	408	414	418	424	429	435	439	457	463	470	476	483
496	502	509	522	528	530	536	538	544	546	552	553	559	561
569	575	577	594	600	603	609	613	619	622	628	632	638	642
651	667	673	674	680	681	687	688	694	697	703	704	710	711
718	733	750	766	784	790	796	813	819	820	826	827	833	834
841	847	852	858	859	865	866	872	873	879	882	889	902	918
952	958	963	963	986	987	993	994	1000	1001	1007	1008	1014	1019
1026	1032	1033	1039	1040	1046	1049	1065	1085	1101	1117	1135	1141	1147
1170	1171	1177	1178	1184	1185	1191	1192	1198	1203	1209	1210	1216	1217
1224	1230	1233	1240	1251	1267	1283	1301	1307	1313	1330	1336	1337	1343
1344	1350	1351	1358	1364	1369	1375	1376	1382	1383	1389	1390	1396	1398
1414	1435	1451	1467	1492	1498	1515	1521	1522	1528	1529	1535	1536	1542
1543	1549	1554	1560	1567	1568	1574	1575	1581	1584	1591	1609	1625	1641
1659	1665	1671	1688	1694	1695	1701	1702	1708	1709	1715	1722	1727	1733
1734	1740	1741	1747	1754	1756	1771	1787	1787	1803	1822	1828	1834	1857
1858	1864	1865	1871	1872	1878	1885	1890	1896	1897	1903	1904	1910	1911
1917	1919	1935	1951	1967	1985	1991	2014	2020	2021	2027	2028	2034	2035
2041	2042	2048	2053	2059	2060	2066	2073	2074	2080	2082	2097	2114	2122
2138	2142	2168	2185	2202	2202	2219	2253	2261	2277	2303	2310	2324	2330
2336	2337	2344	2350	2351	2357	2362	2369	2385	2391	2397	2402	2422	2428
2450	2456	2463	2469	2470	2476	2477	2500	2506	2512	2513	2519	2520	2526
2527	2551	2563	2564	2570	2571	2594	2600	2606	2607	2631	2638	2644	2645
2669	2676	2682	2689	2690	2697	2709	2715	2721	2725	2732	2738	2741	2747
2753	2758	2789	2794	2813	2820	2844	2858	2864	2868	2874	2875	2882	2900
2905	2933	2964	2988	2994	2995	3013	3038	3044	3051	3058	3080	3086	3092
3095	3102	3163	3169	3176									
249	251	371	381	392	403	414	424	435	439	445	463	476	489
502	509	515	528	536	544	552	567	575	577	583	600	609	619
628	638	648	651	657	673	680	687	694	703	710	717	724	733
750	756	766	772	790	796	802	819	826	833	840	858	865	872
879	889	902	918	924	934	940	958	963	969	986	1000	1007	1014
1025	1032	1039	1046	1049	1055	1065	1085	1101	1107	1117	1123	1141	1153
1170	1177	1184	1191	1198	1209	1216	1223	1230	1240	1251	1267	1283	1289
1307	1313	1319	1336	1343	1350	1357	1364	1375	1382	1389	1396	1404	1414
1435	1451	1457	1467	1473	1492	1498	1504	1521	1528	1535	1542	1560	1567
1571	1581	1591	1609	1625	1631	1641	1647	1665	1671	1677	1694	1701	1715
1722	1733	1740	1747	1754	1756	1762	1771	1787	1793	1803	1809	1828	1840
1857	1864	1871	1878	1885	1896	1903	1910	1917	1919	1925	1935	1951	1967
1973	1991	1997	2003	2020	2027	2034	2041	2048	2059	2066	2073	2082	2088
2097	2114	2120	2138	2142	2150	2168	2185	2202	2219	2236	2253	2261	2277
2310	2324	2336	2343	2350	2357	2369	2385	2397	2402	2408	2422	2434	2450
2462	2469	2476	2477	2483	2500	2512	2519	2526	2527	2533	2551	2570	2571
2577	2594	2606	2607	2613	2631	2644	2645	2651	2669	2682	2689	2709	2721
2725	2738	2741	2753	2758	2766	2772	2789	2794	2820	2844	2864	2882	2900
2905	2933	2964	2994	2995	3001	3013	3044	3058	3060	3092	3102	3156	3163
3176													
355	361	371	375	381	386	392	397	403	408	414	419	424	429
435	439	463	470	476	483	489	496	502	509	522	528	530	536
538	544	552	553	559	561	567	569	575	577	594	600	603	609
613	619	622	628	638	642	648	651	667	673	674	680	681	687
688	694	697	703	704	710	711	717	733	750	766	784	790	796

FF

FF

FF

810	819	820	826	827	833	834	840	841	847	852	858	859	865	866
877	873	879	882	889	902	918	934	952	958	963	980	986	987	993
994	1000	1001	1007	1008	1014	1019	1025	1026	1032	1033	1039	1040	1046	1049
1065	1095	1101	1117	1135	1141	1147	1164	1170	1171	1177	1178	1184	1185	1191
1192	1198	1203	1209	1210	1216	1217	1223	1224	1230	1233	1240	1251	1267	1262
1301	1307	1313	1330	1336	1337	1343	1344	1350	1351	1357	1358	1364	1369	1375
1376	1382	1383	1389	1390	1396	1398	1414	1435	1451	1467	1486	1492	1498	1515
1521	1522	1528	1529	1535	1536	1542	1543	1549	1554	1560	1561	1567	1568	1574
1575	1581	1584	1591	1609	1625	1641	1659	1665	1671	1688	1694	1695	1701	1702
1708	1709	1715	1716	1722	1727	1733	1734	1740	1741	1747	1748	1754	1756	1771
1787	1803	1822	1828	1834	1851	1857	1858	1864	1865	1871	1872	1878	1879	1885
1890	1896	1897	1903	1904	1910	1911	1917	1919	1935	1951	1967	1985	1991	1997
2014	2020	2021	2027	2028	2034	2035	2041	2042	2048	2053	2059	2060	2066	2067
2073	2074	2080	2082	2097	2114	2132	2138	2142	2150	2168	2185	2202	2219	2236
2253	2261	2277	2303	2310	2324	2330	2336	2337	2343	2344	2350	2351	2357	2362
2369	2385	2391	2397	2402	2422	2428	2450	2456	2462	2463	2469	2470	2476	2477
2500	2506	2512	2513	2519	2520	2526	2527	2551	2557	2563	2564	2570	2571	2594
2600	2606	2607	2631	2638	2644	2645	2669	2676	2682	2683	2689	2690	2697	2709
2715	2721	2725	2732	2738	2741	2747	2753	2758	2766	2789	2794	2813	2820	2844
2858	2864	2868	2874	2875	2882	2900	2905	2933	2938	2964	2988	2994	2995	3013
3038	3044	3051	3058	3090	3086	3092	3095	3102	3156	3113	3169	3176	450	458
255	346	351	356	366	376	387	398	409	419	460	440	445	450	458
471	484	497	510	515	520	523	531	539	547	554	562	570	578	584
589	595	604	614	623	633	643	652	659	664	668	675	682	689	698
705	712	719	724	729	730	733	740	745	751	756	761	767	772	777
785	797	802	807	808	814	821	828	835	842	853	860	867	874	883
891	896	902	908	913	919	924	929	935	940	945	953	964	969	974
981	988	995	1002	1009	1020	1027	1034	1041	1050	1055	1060	1061	1065	1076
1081	1085	1091	1096	1102	1107	1112	1118	1123	1128	1136	1148	1153	1158	1159
1165	1172	1179	1186	1193	1204	1211	1218	1225	1234	1242	1247	1251	1257	1262
1268	1273	1278	1284	1289	1294	1302	1314	1319	1324	1331	1338	1345	1352	1359
1370	1377	1384	1391	1399	1404	1409	1410	1414	1426	1431	1435	1441	1446	1452
1457	1462	1468	1473	1478	1487	1499	1504	1509	1510	1516	1523	1530	1537	1544
1555	1562	1569	1576	1585	1600	1605	1609	1615	1620	1626	1631	1636	1642	1647
1652	1650	1672	1677	1682	1689	1696	1703	1710	1717	1728	1735	1742	1749	1757
1762	1767	1771	1777	1782	1788	1793	1798	1804	1810	1815	1823	1835	1840	1845
1852	1859	1866	1873	1880	1891	1898	1905	1912	1920	1926	1931	1935	1941	1946
1952	1957	1962	1968	1973	1978	1986	1998	2003	2008	2015	2022	2029	2036	2043
2054	2061	2068	2075	2083	2088	2093	2097	2104	2109	2115	2121	2126	2133	2142
2150	2158	2163	2164	2168	2175	2180	2181	2185	2192	2197	2198	2202	2209	2214
2215	2219	2226	2231	2232	2236	2243	2248	2249	2253	2262	2267	2272	2273	2277
2285	2290	2291	2304	2312	2317	2318	2324	2331	2338	2345	2352	2363	2375	2380
2385	2392	2403	2412	2417	2422	2429	2438	2443	2450	2457	2464	2471	2478	2487
2492	2500	2507	2514	2521	2528	2537	2542	2551	2558	2565	2572	2581	2586	2594
2601	2608	2617	2622	2631	2639	2646	2655	2660	2661	2669	2677	2684	2691	2700
2705	2709	2716	2725	2733	2741	2748	2758	2767	2772	2777	2778	2789	2794	2802
2807	2808	2814	2825	2830	2831	2844	2859	2869	2876	2885	2890	2891	2900	2905
2915	2920	2921	2933	2938	2947	2952	2953	2964	2976	2981	2989	2996	3002	3007
3008	3013	3023	3028	3029	3039	3052	3061	3066	3067	3080	3087	3096	3104	3109
3110	3156	3163	3170	255	349	352	357	359	367	369	377	379	388	390
1	195	205	236	420	422	431	433	441	443	448	451	459	461	472
399	401	410	412	500	511	513	518	521	524	526	532	534	540	542
474	485	487	498	563	565	571	573	579	581	587	590	596	598	605
548	550	555	557	626	634	636	644	646	653	655	662	665	669	671
607	615	617	624	690	692	699	701	706	708	713	715	720	722	727
676	678	683	685											

LIST

LIST

.MACRO
.MCALL
.MEXI
.NLIST

1042	1105	1228	1292	3090	3005	2921	2845	2765	2703	2634	2566	2503	2441	2378	2308	2238	2170	2107	2046	1987	1923	1867	1799	1743	1683	1618	1547	1488	1418	1360	1295	1236	1175	1110	1044	989	922	861	800	735	678	615	548	474	399	233	195	
1042	1105	1228	1292	3090	3005	2921	2845	2765	2703	2634	2566	2503	2441	2378	2308	2238	2170	2107	2046	1987	1923	1867	1799	1743	1683	1618	1547	1488	1418	1360	1295	1236	1175	1110	1044	989	922	861	800	735	678	615	548	474	399	233	195	
1051	1113	1238	1303	3100	3015	2936	2860	2770	2710	2642	2573	2510	2451	2381	2315	2240	2178	2110	2055	1989	1929	1869	1805	1745	1690	1621	1556	1490	1429	1362	1303	1238	1180	1113	1051	991	927	863	805	737	683	617	555	487	410	206	2157	235
1053	1119	1245	1305	3107	3017	2940	2862	2775	2712	2647	2575	2515	2453	2386	2318	2246	2181	2116	2057	1999	1932	1874	1807	1750	1692	1627	1558	1490	1432	1371	1305	1245	1182	1119	1053	996	930	868	808	743	685	624	557	498	412	236	2157	235
1058	1121	1248	1315	3110	3026	2942	2870	2778	2717	2649	2584	2522	2460	2393	2327	2255	2189	2124	2064	2006	1938	1881	1816	1758	1699	1634	1565	1502	1436	1373	1315	1248	1187	1121	1058	998	936	870	815	746	690	626	563	500	420	255	2157	235
1061	1126	1252	1317	3157	3029	2950	2872	2790	2719	2658	2587	2524	2465	2395	2332	2257	2195	2127	2069	2009	1944	1883	1824	1760	1704	1637	1570	1510	1444	1380	1322	1254	1194	1129	1067	1005	943	877	822	754	699	636	571	513	431	352	2157	235
1069	1137	1260	1325	3164	3042	2966	2880	2796	2729	2670	2597	2529	2467	2404	2334	2263	2198	2134	2071	2016	1947	1892	1826	1765	1706	1643	1572	1517	1447	1385	1325	1260	1196	1137	1069	1010	946	885	824	759	699	644	573	518	433	357	2157	235
1079	1139	1263	1332	3166	3054	2968	2888	2798	2734	2672	2602	2531	2472	2406	2339	2265	2204	2136	2076	2018	1953	1894	1836	1768	1711	1645	1577	1519	1453	1387	1332	1269	1205	1139	1079	1012	954	887	829	762	699	646	579	521	441	359	2157	235
1082	1149	1269	1334	3172	3056	2979	2891	2805	2736	2678	2604	2540	2474	2415	2341	2270	2206	2143	2078	2023	1955	1899	1838	1772	1713	1650	1579	1524	1455	1392	1334	1269	1207	1149	1082	1021	956	894	831	768	699	653	581	524	443	367	2157	235
1086	1151	1271	1339	3174	3064	2982	2901	2808	2742	2680	2609	2543	2479	2418	2346	2273	2212	2145	2084	2025	1960	1901	1846	1780	1720	1661	1589	1531	1463	1400	1341	1276	1214	1156	1088	1028	967	903	838	775	699	662	590	532	451	377	2157	235
1094	1159	1279	1346	3081	3081	2992	2907	2818	2749	2687	2620	2554	2490	2425	2353	2281	2221	2154	2091	2032	1969	1908	1853	1783	1729	1663	1603	1533	1469	1402	1346	1279	1219	1159	1094	1030	972	905	843	778	699	665	596	534	459	379	2157	235
1097	1166	1285	1348	3083	3083	2997	2909	2828	2751	2693	2623	2559	2493	2430	2355	2288	2222	2161	2094	2037	1971	1913	1855	1789	1731	1673	1606	1538	1471	1407	1348	1285	1221	1166	1097	1035	975	911	845	786	699	669	598	540	461	388	2157	235
1103	1168	1287	1353	3088	3088	2999	2918	2831	2760	2695	2632	2561	2501	2432	2365	2291	2229	2164	2098	2039	1976	1915	1860	1791	1736	1675	1610	1540	1476	1411	1350	1287	1226	1168	1103	1037	982	914	854	788	699	671	605	542	472	390	2157	235

1355	1360	1362	1371	1373	1378	1380	1385	1387	1392	1394	1400	1402	1407	1410
1416	1418	1429	1432	1436	1438	1444	1447	1453	1455	1460	1463	1469	1471	1476
1479	1488	1490	1500	1502	1507	1510	1517	1519	1524	1526	1531	1533	1538	1540
1545	1547	1556	1558	1563	1565	1570	1572	1577	1579	1587	1589	1603	1606	1610
1612	1618	1621	1627	1629	1634	1637	1643	1645	1650	1653	1661	1663	1673	1675
1680	1683	1690	1692	1697	1699	1704	1706	1711	1713	1718	1720	1729	1731	1736
1738	1743	1745	1750	1752	1758	1760	1765	1768	1772	1774	1780	1783	1789	1791
1796	1799	1805	1807	1813	1816	1824	1826	1836	1838	1843	1846	1853	1855	1860
1862	1867	1869	1874	1876	1881	1883	1892	1894	1899	1901	1906	1908	1913	1915
1921	1923	1929	1932	1936	1938	1944	1947	1953	1955	1960	1963	1969	1971	1976
1979	1987	1989	1999	2001	2006	2009	2016	2018	2023	2025	2030	2032	2037	2039
2044	2046	2055	2057	2062	2064	2069	2071	2076	2078	2084	2086	2091	2094	2098
2100	2107	2110	2116	2118	2124	2127	2134	2136	2143	2145	2152	2154	2161	2164
2170	2172	2178	2181	2187	2189	2195	2198	2204	2206	2212	2215	2221	2223	2229
2232	2238	2240	2246	2249	2255	2257	2263	2265	2270	2273	2279	2281	2288	2291
2306	2308	2315	2318	2325	2327	2332	2334	2339	2341	2346	2348	2353	2355	2365
2367	2378	2381	2386	2388	2393	2395	2404	2406	2415	2418	2423	2425	2430	2432
2441	2444	2451	2453	2458	2460	2465	2467	2472	2474	2479	2481	2490	2493	2501
2503	2508	2510	2515	2517	2522	2524	2529	2531	2540	2543	2552	2554	2559	2561
2566	2568	2573	2575	2584	2587	2595	2597	2602	2604	2609	2611	2620	2623	2632
2634	2640	2642	2647	2649	2658	2661	2670	2672	2678	2680	2685	2687	2693	2695
2703	2706	2710	2712	2717	2719	2727	2729	2734	2736	2742	2744	2743	2751	2760
2762	2768	2770	2775	2778	2790	2792	2796	2798	2805	2808	2816	2818	2828	2831
2845	2847	2860	2862	2870	2872	2878	2880	2888	2891	2901	2903	2907	2909	2918
2921	2934	2936	2940	2942	2950	2953	2966	2968	2979	2982	2990	2992	2997	2999
3005	3008	3015	3017	3026	3029	3040	3042	3054	3056	3064	3067	3081	3083	3089
3090	3098	3100	3107	3110	3157	3159	3164	3166	3172	3174				
.PAGE	321													
.REF	1													
.REFY	236													
.SML	242	252	296	349	448	518	587	662	727	743	759	775	805	894
	927	943	972	1058	1079	1094	1110	1126	1156	1245	1260	1276	1292	1322
	1429	1444	1460	1476	1507	1603	1618	1634	1650	1680	1765	1780	1796	1813
	1929	1944	1960	1976	2006	2091	2107	2124	2161	2178	2195	2212	2229	2246
	2288	2315	2378	2415	2441	2490	2540	2584	2620	2658	2703	2775	2805	2828
	2918	2950	2979	3005	3026	3064	3107							
.MARC	250	257	258	259	260	261	262	263	264	268	269	270	283	297
	293	312	313	314	315	316	317							290

ERRORS DETECTED: 0 HARD 21 SOFT
DEFAULT GLOBALS GENERATED: 0

*DGKABC.DGKABC.SEQ/SOL/CRF/PAGNUM/NL:TOC=SYSMAC.SML(400,1066),DGKABC.P11(400,457)
RUN-TIME: 51 65 11 SECONDS
RUN-TIME RATIO: 349/128=2.7
CORE USED: 33K (66 PAGES)