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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      2*STSTNM      ; INCREMENT THE TEST NUMBER
        CMP      #A,2*STSTNM ; COMPARE FOR THE RIGHT TEST
        BNE     TSTA+1-12    ; IF NOT CORRECT BRANCH TO A HALT
-----
CODE

```

IMPORTANT

\*\*\*\*\*

Vertical column of characters on the left margin, likely a scanning artifact or page marker.

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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 HAL'ED.  
////////////////////////////////////

5.2 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 "ENT"  
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 (DEJ03)  
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.  
.ENDP

?  
: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

:LISTING

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000210  
000210  
005037  
000167  
000262  
000300  
000046  
000052  
000000  
000300

.LIST ME  
.NLIST MC,MD,CND  
.ABS  
SP=%6  
TAB=%3  
LAST=%1  
FIRST=%5  
R2=%2  
HLT=HALT  
TRT=3  
ITRAP5=4  
RTRAP5=4  
RTRAP4=14  
RTRAP3=30  
RTRAP2=20  
RTRAP1=34  
TTCSR=177564  
TRCSR=177560  
TPS=177564  
TPB=177566  
BELL=240  
NOP=240  
STATUS=177776  
TRAPA=7  
RTRAP=10  
ILLA=004700  
ILLB=100  
CC=177776  
.MCALL .SAPTHDR  
.MCALL .SAPTBL  
.MCALL .SACT11  
.=200  
JMP BEGIN  
.=210  
CLR @SPASS  
JMP BEGIN  
.=300  
.SBTTL ACT11 HOOKS  
:\*\*\*\*\*  
:HOOKS REQUIRED BY ACT11  
\$SVPC=.  
.=46  
\$ENDAD  
.=52  
.WORD 0  
.\$SVPC  
.SBTTL APT MAILBOX-ETABLE  
:\*\*\*\*\*  
.EVEN

:RESERVED INST AND ILLEGAL ADDRESSES  
:FOR TRACE TRAP  
:FOR EMULATOR TRAP  
:FOR IOT TRAP  
:FOR TRAP INST

:SAVE PC  
:;1)SET LOC.46 TO ADDRESS OF \$ENDAD IN .SECP  
:;2)SET LOC.52 TO ZERO  
:; RESTORE PC



```

000350
000352
000354
000356
000360
000362
000300
000301
000302

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$HIBTS: .WORD
$MBADR: .WORD
$*STM: .WORD
$PASTM: .WORD
$UNITM: .WORD
$*STNM=$*STN
$ERROR=$FATAL

```

```

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

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321:
322:
323: 000500 000000          . =500
324: 000502 012737 177777 016102  BUFF: 0
      000502 012737 177777 016102  BEGIN: MOV #-1, @#PASSPT ;CLEAR THE ITERATION COUNTER
325: 000510 005067 177564          RESTR: CLR $MSGTY
326: 000514 012767 016270 177302  MOV #PWRDWN, 24 ;SET UP THE POWER DOWN VECTOR
327: 000522 012767 00034C 177275  MOV #340, 26 ;SET UP POWER DOWN PRIORITY
328: 000530 005067 177550          CLR $TSTNM
329: 000534 005067 177542          CLR $ERROR
330: 000540 012702 00030C          MOV # $MSGTY, R2

331:
332:
333:          ;SPECIAL CASE OF ODD; .EVEN .BYTE AND REGISTER 6
334:          HERE=0
335: 000544 000167 000024          JMP TST1
336: 000550 00000C
337: 000552 00000C
338: 000554 000000
339: 000556 000000
340: 000560 000000
341: 000562 000000
342: 000564 052525
343: 000566 052400
344: 000570 00000C
345: 000572 000000
      K1: 0
      K2: 0
      K3: 0
      K4: 0
      K5: 0
      K6: 0
      K7: 052525
      K10: 052400
      K11: 0
      K12: 0
346:
347:
348:          ;*****
349:          ;TEST 1 TEST AUTO INCREMENT AND DECREMENT OF R6 FOR .WORD AND .BYTES
350:          ;*****
351: 000574 005237 000304          TST1: INC @#$TESTN ;UPDATE TEST NUMBER
352: 000600 022737 000001 000304  CMP #1, @#$TESTN ;SEQUENCE ERROR
353: 000606 001137          BNE TST2-12 ;BR TO ERROR HALT ON SEQ ERROR
354: 000610 005006          CLR %6
355: 000612 112667 177162          MOV# (6)+ HERE ;SIX SHOULD INCREMENT BY TWO
356: 000616 020627 000002          CMP %6, #2
357: 000622 001405          BEQ BR1
358: 000624 012737 000001 000302  MOV #1, @#$FATAL ;MOVE TO MAILBOX # ***** 1 *****
359: 000632 005212          INC (R2) ;SET MSGTYP TO FATAL ERROR
360: 000634 000000          HALT ;R6 DID NOT AUTO INCREMENT BY TWO
      ; TO SCOPE REPLACE HALT W/ 240
      ; AND REPLACE NEXT INST W/ 764
361:
362: 000636 012706 001000          BR1: MOV #1000, %6
363: 000642 114627 000000          MOV# -(6), #HERE ;SHOULD DECREMENT BY TWO
364: 000646 020627 000776          CMP %6, #776
365: 000652 001405          BEQ BR2
366: 000654 012737 000002 000302  MOV #2, @#$FATAL ;MOVE TO MAILBOX # ***** 2 *****
367: 000662 005212          INC (R2) ;SET MSGTYP TO FATAL ERROR
368: 000664 000000          HALT ;R6 DID NOT AUTO DECREMENT BY 2
      ; TO SCOPE REPLACE HALT W/ 240
      ; AND REPLACE NEXT INST W/ 75C
369:
370:
371:
372: 000666 005006          BR2: CLR %6
373: 000670 112626          MOV# (6)+, (6)+ ;DOUBLES AUTO INCREMENT OF R6
374: 000672 020627 000004          CMP %6, #4
375: 000676 001405          BEQ BR3
376: 000700 012737 000003 000302  MOV #3, @#$FATAL ;MOVE TO MAILBOX # ***** 3 *****

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# K01

00-DEC-75 09:40 PAGE 10  
 EST AUTO INCREMENT AND DECREMENT OF R6 FOR .WORD AND .BYTES

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 EST AUTO INCREMENT AND DECREMENT OF R6 FOR .WORD AND .BYTES

377	000706	005212		INC	(R2)				:SET MSGTYP TO FATAL ERROR
378	000710	000000		HALT					:WRONG AUTO INCREMENT OF R6
379									: TO SCOPE REPLACE HALT W/ 240
380									: AND REPLACE NEXT INST W/ 73E
382	000712	005006		BR3:	CLR	%6			
383	000714	005004			CLR	%4			
384	000716	122624			CMPB	(6)+, (4)+			:TEST INCREMENT OF R6
385	000720	020627	000002		CMP	%6, #2			
386	000724	001405			BEG	BR4			
387	000726	012737	000004	000302	MOV	#4, @SFATAL			:MOVE TO MAILBOX # ***** 4 *****
388	000734	005212			INC	(R2)			:SET MSGTYP TO FATAL ERROR
389	000736	000000			HALT				:WRONG INCREMENT OF R6
390									: TO SCOPE REPLACE HALT W/ 240
391									: AND REPLACE NEXT INST W/ 72E
393	000740	005006		BR4:	CLR	%6			
394	000742	005004			CLR	%4			
395	000744	122426			CMPB	(4)+, (6)+			:TEST INCREMENT OF R6
396	000746	020627	000002		CMP	%6, #2			
397	000752	001405			BEG	BR5			
398	000754	012737	000005	000302	MOV	#5, @SFATAL			:MOVE TO MAILBOX # ***** 5 *****
399	000762	005212			INC	(R2)			:SET MSGTYP TO FATAL ERROR
400	000764	000000			HALT				:WRONG INCREMENT OF R6
401									: TO SCOPE REPLACE HALT W/ 240
402									: AND REPLACE NEXT INST W/ 71D
404	000766	005006		BR5:	CLR	%6			
405	000770	005004			CLR	%4			
406	000772	122624			CMPB	(6)+, (4)+			:TEST INCREMENT OF R4
407	000774	020427	000001		CMP	%4, #1			
408	001000	001405			BEG	BR6			
409	001002	012737	000006	000302	MOV	#6, @SFATAL			:MOVE TO MAILBOX # ***** 6 *****
410	001010	005212			INC	(R2)			:SET MSGTYP TO FATAL ERROR
411	001012	000000			HALT				:WRONG INCREMENT OF R4
412									: TO SCOPE REPLACE HALT W/ 240
413									: AND REPLACE NEXT INST W/ 67E
414	001014	005006		BR6:	CLR	%6			
415	001016	005004			CLR	%4			
416	001020	122426			CMPB	(4)+, (6)+			:TEST INCREMENT OF R6
417	001022	020627	000002		CMP	%6, #2			
418	001026	001405			BEG	BR7			
419	001030	012737	000007	000302	MOV	#7, @SFATAL			:MOVE TO MAILBOX # ***** 7 *****
420	001036	005212			INC	(R2)			:SET MSGTYP TO FATAL ERROR
421	001040	000000			HALT				:WRONG INCREMENT OF R6
422									: TO SCOPE REPLACE HALT W/ 240
423									: AND REPLACE NEXT INST W/ 66E
424									
425	001042	005006		BR7:	CLR	%6			
426	001044	005004			CLR	%4			
427	001046	122426			CMPB	(4)+, (6)+			:TEST INCREMENT OF R4
428	001050	020427	000001		CMP	%4, #1			
429	001054	001405			BEG	BR10			
430	001056	012737	000010	000302	MOV	#10, @SFATAL			:MOVE TO MAILBOX # ***** 10 *****
431	001064	005212			INC	(R2)			:SET MSGTYP TO FATAL ERROR
432	001066	000000			HALT				:WRONG INCREMENT OF R4

# L01

08-DEC-76 09:40 PAGE 11  
 EST AUTO INCREMENT AND DECREMENT OF R6 FOR .WORD AND .BYTES

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EST AUTO INCREMENT AND DECREMENT OF R6 FOR .WORD AND .BYTES

```

439 : TC SCOPE REPLACE HALT W/ 240
440 : AND REPLACE NEXT INST W/ 647
441 001070 012706 001000 BR10: MOV #1000,%6
442 001074 124627 000000 CMPB -(6),#HERE ;TEST DECREMENT OF R6
443 001100 022706 000776 CMP #776,%6
444 001104 001405 BEQ TST2
445 001106 012737 000011 000302 MOV #11,0#SFATAL ;MOVE TO MAILBOX # ***** 11 *****
446 001114 005212 INC (R2) ;SET MSGTYP TO FATAL ERROR
447 001116 000000 HALT ;WRONG DECREMENT OF R6 OR WRONG $TSTNM
; TO SCOPE REPLACE HALT W/ 240
; AND REPLACE NEXT INST W/ 633
*****
448 :TEST 2 TEST TRANSFER OF .BYTE USING R6
*****
449 001120 005237 000304 TST2: INC 0#STESTN ;UPDATE TEST NUMBER
450 001124 022737 000002 000304 CMP #2,0#STESTN ;SEQUENCE ERROR
451 001132 001137 BNE TST3-12 ;BR TO ERROR HALT ON SEG ERROR
452 001134 012767 123456 177416 MOV #123456,K5
453 001142 012767 050505 177400 MOV #050505,K1
454 001150 012705 000550 MOV #K1,%5 ;%5=(050505)K1
455 001154 012706 000560 MOV #K5,%6 ;%6=(123456)K5
456 001160 112625 MOVB (6)+,(5)+ ;LOW .BYTE OF R6 TO R5
457 001162 022767 050456 177360 CMP #050456,K1
458 001170 001405 BR11
459 001172 012737 000012 000302 MOV #12,0#SFATAL ;MOVE TO MAILBOX # ***** 12 *****
460 001200 005212 INC (R2) ;SET MSGTYP TO FATAL ERROR
461 001202 000000 HALT ;FALSE TRANSFER OF .BYTE
; TO SCOPE REPLACE HALT W/ 240
; AND REPLACE NEXT INST W/ 753
462
463
464 001204 012767 123456 177346 BR11: MOV #123456,K5
465 001212 012767 050505 177330 MOV #050505,K1
466 001220 012705 000550 MOV #K1,%5 ;%5(050505)K1
467 001224 012706 000562 MOV #K6,%6 ;%6(123456)K5
468 001230 114625 MOVB -(6)-(5)+ ;LOW .BYTE OF R6 TO R5 (DECREMENT)
469 001232 026727 177312 050456 CMP K1,#050456
470 001240 001405 BR12
471 001242 012737 000013 000302 MOV #13,0#SFATAL ;MOVE TO MAILBOX # ***** 13 *****
472 001250 005212 INC (R2) ;SET MSGTYP TO FATAL ERROR
473 001252 000000 HALT ;FALSE R6 .BYTE TRANSFER
; TO SCOPE REPLACE HALT W/ 240
; AND REPLACE NEXT INST W/ 727
474
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476
477 001254 012767 123456 177266 BR12: MOV #123456,K1
478 001262 012767 050505 177270 MOV #050505,K5
479 001270 012705 000550 MOV #K1,%5 ;(123456)
480 001274 012706 000560 MOV #K5,%6 ;(050505)
481 001300 112526 MOVB (5)+,(6)+ ;LOW OF R5 TO LOW OF R6
482 001302 022767 050456 177250 CMP #050456,K5
483 001310 001405 BR13
484 001312 012737 000014 000302 MOV #14,0#SFATAL ;MOVE TO MAILBOX # ***** 14 *****
485 001320 005212 INC (R2) ;SET MSGTYP TO FATAL ERROR
486 001322 000000 HALT ;FALSE R6 .BYTE TRANSFER
; TO SCOPE REPLACE HALT W/ 240
; AND REPLACE NEXT INST W/ 733
487
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1 001324 012767 123456 177216 BR13: MOV #123456,K1
2 001332 012767 050505 177220 MOV #050505,K5
3 001340 012705 000551 MOV #K1+1,%5 ;123456
4 001344 012706 000560 MOV #K5,%6 ;050505
5 001350 112526 MOVB (5)+(6)+ ;HIGH OF R5 TO LOW OF R6
6 001352 026727 177202 050647 CMP K5,#050647
7 001360 001405 BEQ BR14
8 001362 012737 000015 000302 MOV #15,#$FATAL ;MOVE TO MAILBOX # ***** 15 *****
9 001370 005212 INC (R2) ;SET MSGTYP TO FATAL ERROR
10 001372 000000 HALT ;FALSE R6 .BYTE TRANSFER
; TO SCOPE REPLACE HALT W/ 240
; AND REPLACE NEXT INST W/ 657

11 001374 012767 123456 177146 BR14: MOV #123456,K1
12 001402 012767 050505 177150 MOV #050505,K5
13 001410 012705 000551 MOV #K1+1,%5 ;R5-123456-ODD ADDRESS
14 001414 012706 000560 MOV #K5,%6 ;R6-050505-- .EVEN ADDRESS
15 001420 112625 MOVB (6)+(5)+ ;LOW OF R6 TO HIGH OF R5
16 001422 022767 042456 177120 CMP #042456,K1
17 001430 001405 BEQ TST3
18 001432 012737 000016 000302 MOV #16,#$FATAL ;MOVE TO MAILBOX # ***** 16 *****
19 001440 005212 INC (R2) ;SET MSGTYP TO FATAL ERROR
20 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
;*****

21 001444 005237 000304 TST3: INC #STESTN ;UPDATE TEST NUMBER
22 001450 022737 000003 000304 CMP #3,#STESTN ;SEQUENCE ERROR
23 001456 001103 BNE TST4-12 ;BR TO ERROR HALT ON SEQ ERROR
24 001460 126767 177100 177077 CMPB K7,K7+1 ;SAME .WORD LOW TO HIGH
25 001466 001405 BEQ BR15
26 001470 012737 000017 000302 MOV #17,#$FATAL ;MOVE TO MAILBOX # ***** 17 *****
27 001476 005212 INC (R2) ;SET MSGTYP TO FATAL ERROR
28 001500 000000 HALT ;SHOULD COMPARE LOW TO HIGH
; TO SCOPE REPLACE HALT W/ 240
; AND REPLACE NEXT INST W/ 756

29 001502 126767 177057 177054 BR15: CMPB K7+1,K7 ;COMPARE ODD TO .EVEN SAME .WORD
30 001510 001405 BEQ BR16
31 001512 012737 000020 000302 MOV #20,#$FATAL ;MOVE TO MAILBOX # ***** 20 *****
32 001520 005212 INC (R2) ;SET MSGTYP TO FATAL ERROR
33 001522 000000 HALT ;ODD TO .EVEN .BYTE FAILURE
; TO SCOPE REPLACE HALT W/ 240
; AND REPLACE NEXT INST W/ 755

34 001524 126767 177037 177032 BR16: CMPB K10+1,K7 ;SEQUENTIAL .BYTES
35 001532 001405 BEQ BR17
36 001534 012737 000021 000302 MOV #21,#$FATAL ;MOVE TO MAILBOX # ***** 21 *****
37 001542 005212 INC (R2) ;SET MSGTYP TO FATAL ERROR
38 001544 000000 HALT ;ODD TO .EVEN FAILED
; TO SCOPE REPLACE HALT W/ 240
; AND REPLACE NEXT INST W/ 744

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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		

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			BEG	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			BEG	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			BEG	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	



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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, @#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      TST6:  INC      @#STESTN ;UPDATE TEST NUMBER
728 002362 022737 000006 000304      CMP      #6, @#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
734 002406 012737 000046 000302      RETA:  MOV      #46, @#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      TST7:  INC      @#STESTN ;UPDATE TEST NUMBER
744 002424 022737 000007 000304      CMP      #7, @#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, @#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      TST10: INC      @#STESTN ;UPDATE TEST NUMBER
760 002474 022737 000010 000304      CMP      #10, @#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 00252C 175272      MOV      #RETC, RTRAP ;RETURN FROM TRAP POINTER
764 002516 000007      INSTC: 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, @#SFATAL ;MOVE TO MAILBOX # ***** 50 *****
768 002536 005212      INC      (R2)      ;SET MSGTYP TO FATAL ERROR

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981 003140 022706 000340      CMP      #340,SP
982 003144 001405      BEQ      STPPA
983 003146
984 003146 012737 000064 000302  STPP:  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 $TSTNM
987
988
989 003160 012767 000012 174622  STPPA: MOV      #12,10
990 003166 005067 174620      CLR      12
991
992
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
900 003224 012767 003246 174602      MOV      #RETB1,RTRAP1 ;RETURN LOCATION
901 003232 104400      TRAP    ;RESERVED INSTRUCTION, SHOULD TRAP
902 003234 012737 000065 000302      MOV      #65,0#SFATAL ;MOVE TO MAILBOX # ***** 65 *****
903 003242 005212      INC      (R2) ;SET MSGTYP TO FATAL ERROR
904 003244 000000      HALT    ;TRAP DIDN'T TRAP,OR WRONG $TSTNM
905
906
907 003246      RETA1: ; TO SCOPE REPLACE HALT W/ 240
908
909
910
911 003246 005237 000304      RETA1: ; AND REPLACE NEXT INST W/ 757
912 003252 022737 000014 000304      ST14:  INC      0#STESTN ;UPDATE TEST NUMBER
913 003260 001011      CMP      #14,0#STESTN ;SEQUENCE ERROR
914 003262 012706 000500      BNE     TST15-12 ;BR TO ERROR HALT ON SEQ ERROR
915 003266 012767 003276 174540      MOV      #BUFF,SP ;STACK POINTER SETUP
916 003274 104400      MOV      #RETB1,RTRAP1 ;RETURN POINTER
917 003276 020627 000474      TRAP    ;RESERVED INSTRUCTION
918 003302 001405      RETB1: CMP      SP,#BUFF-4 ;TEST DECREMENT OF SP
919 003304 012737 000066 000302      BEQ      TST15
920 003312 005212      MOV      #66,0#SFATAL ;MOVE TO MAILBOX # ***** 66 *****
921 003314 000000      INC      (R2) ;SET MSGTYP TO FATAL ERROR
922
923
924
925
926
927 003316 005237 000304      ; NOT DECREMENTED TWO WORDS,OR WRONG $TSTNM
928 003322 022737 000015 000304      ; TO SCOPE REPLACE HALT W/ 240
929 003330 001012      ; AND REPLACE NEXT INST W/ 761
930 003332 012706 000500      ST15:  INC      0#STESTN ;UPDATE TEST NUMBER
931 003336 012767 003346 174470      CMP      #15,0#STESTN ;SEQUENCE ERROR
932 003344 104400      BNE     TST16-12 ;BR TO ERROR HALT ON SEQ ERROR
933 003346 022767 003346 175120      MOV      #BUFF,SP ;STACK POINTER SETUP
934 003354 001405      MOV      #RETC1,RTRAP1 ;RETURN FROM TRAP POINTER
935 003356 012737 000067 000302      TRAP    ;TRAP ON THIS INSTRUCTION
936 003364 005212      RETC1: CMP      #,BUFF-4 ;CHECK INCREMENTED P.C.
          BEQ      TST16
          MOV      #67,0#SFATAL ;MOVE TO MAILBOX # ***** 67 *****
          INC      (R2) ;SET MSGTYP TO FATAL ERROR
    
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 "ES" "HA" "NEW" STATUS IS CORRECT

993	003600				2\$:				
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	
998								: TO SCOPE REPLACE HALT W/ 240	
999								: AND REPLACE NEXT INST W/ 745	
1000	003614				3\$:				
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	
1005								: TO SCOPE REPLACE HALT W/ 240	
1006								: AND REPLACE NEXT INST W/ 737	
1007	003630	032767	000340	174140	4\$:	BIT	#340, CC	: TEST PRIORITY	
1008	003636	001405				BEG	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	
1012								: TO SCOPE REPLACE HALT W/ 240	
1013								: AND REPLACE NEXT INST W/ 726	
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	
1023								: TO SCOPE REPLACE HALT W/ 240	
1024								: AND REPLACE NEXT INST W/ 707	
1025	003710				1\$:				
1026	003710	001405				BEG	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	
1030								: TO SCOPE REPLACE HALT W/ 240	
1031								: AND REPLACE NEXT INST W/ 701	
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	
1037								: TO SCOPE REPLACE HALT W/ 240	
1038								: AND REPLACE NEXT INST W/ 673	
1039	003740				3\$:				
1040	003740	103405				BCC	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	
1044								: TO SCOPE REPLACE HALT W/ 240	
1045								: AND REPLACE NEXT INST W/ 565	
1046	003754	016706	174016		4\$:	MOV	CC, SP		
1047	003760	042706	000017			BIC	#17, SP		
1048	003764	022706	000340			CMP	#340, SP		

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:049 003770 001405 BEQ TST20
:050 003772 012737 000103 000302 MOV #103,0#SFATAL ;MOVE TO MAILBOX # ***** 103 *****
:051 004000 005212 INC (R2) ;SET MSGTYP TO FATAL ERROR
:052 004002 000000 HALT ;PRIORITY WAS CHANGED,OR WRONG $STNM
:053 ; TO SCOPE REPLACE HALT W/ 240
:054 ; AND REPLACE NEXT INST W/ 651
:055 ;*****
:056 ;TEST 20 TEST THAT ALL COMBINATION OF "TRAP" WILL CAUSE A TRAP
:057 ;*****
:058 004004 005237 000304 INC 0#STESTN ;UPDATE TEST NUMBER
:059 004010 022737 000020 000304 CMP #20,0#STESTN ;SEQUENCE ERROR
:060 004016 001011 BNE BR45 ;BR TO ERROR HALT ON SEQ ERROR
:061 004020 012767 104400 000012 MOV #TRAP,RB1 ;INITIALIZE BASE TRAP INSTRUCTION
:062 004026 012767 004054 174000 MOV #RA1,34 ;RETURN FROM TRAP TO RA1
:063 004034 012706 000500 RC1: MOV #BUFF,SP ;SET UP STACK POINTER
:064 004040 104400 RB1: TRAP ;TRAP INST WILL BE MODIFIED TO TRAP+377
:065 004042 BR45:
:066 004042 012737 000104 000302 MOV #104,0#SFATAL ;MOVE TO MAILBOX # ***** 104 *****
:067 004050 005212 INC (R2) ;SET MSGTYP TO FATAL ERROR
:068 004052 000000 HALT ;PREVIOUS INST FAILED TO TRAP,OR WRONG $STNM
:069 ; TO SCOPE REPLACE HALT W/ 240
:070 ; AND REPLACE NEXT INST W/ 761
:071 004054 005267 177760 RA1: INC RB1 ;INCREMENT TRAP INSTRUCTION
:072 004060 022767 104777 177752 CMP #104777,RB1 ;TRAP+377 TO UPPER LIMIT
:073 004066 103362 BHIS RC1 ;HAVE WE TESTED ALL
:074 004070 012767 000036 173736 MOV #36,34
:075 004076 005067 173734 CLR 36
:076 ;*****
:077 ;TEST 21 TEST THAT A TRAP OCCURES ON AN "IOT" INSTRUCTION
:078 ;*****
:079 004102 005237 000304 TST21: INC 0#STESTN ;UPDATE TEST NUMBER
:080 004106 022737 000021 000304 CMP #21,0#STESTN ;SEQUENCE ERROR
:081 004114 001006 BNE TST22-12 ;BR TO ERROR HALT ON SEQ ERROR
:082 004116 012706 000500 MOV #BUFF,SP ;STACK POINTER SETUP
:083 004122 012767 004144 173670 MOV #RETA2,RTRAP2 ;RETURN LOCATION
:084 004130 000004 IOT ;RESERVE INSTRUCTION, SHOULD TRAP
:085 004132 012737 000105 000302 MOV #105,0#SFATAL ;MOVE TO MAILBOX # ***** 105 *****
:086 004140 005212 INC (R2) ;SET MSGTYP TO FATAL ERROR
:087 004142 000000 HALT ;IOT DIDN'T TRAP,OR WRONG $STNM
:088 ; TO SCOPE REPLACE HALT W/ 240
:089 ; AND REPLACE NEXT INST W/ 764
:090 004144 RETA2:
:091 ;*****
:092 ;TEST 22 TEST DECREMENT OF STACK POINTER ON A TRAP OPERATION
:093 ;*****
:094 004144 005237 000304 TST22: INC 0#STESTN ;UPDATE TEST NUMBER
:095 004150 022737 000022 000304 CMP #22,0#STESTN ;SEQUENCE ERROR
:096 004156 001011 BNE TST23-12 ;BR TO ERROR HALT ON SEQ ERROR
:097 004160 012706 000500 MOV #BUFF,SP ;STACK POINTER SETUP
:098 004164 012767 004174 173626 MOV #RETB2,RTRAP2 ;RETURN POINTER
:099 004172 000004 IOT ;RESERVED INSTRUCTION
:100 004174 020627 000474 RETB2: CMP SP,#BUFF-4 ;TEST DECREMENT OF SP
:101 004200 001405 BEQ TST23
:102 004202 012737 000106 000302 MOV #106,0#SFATAL ;MOVE TO MAILBOX # ***** 106 *****
:103 004210 005212 INC (R2) ;SET MSGTYP TO FATAL ERROR
:104 004212 000000 HALT ;NOT DECREMENTED TWO WORDS,OR WRONG $STNM

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1105 ; TO SCOPE REPLACE HALT W/ 240
1106 ; AND REPLACE NEXT INST W/ 761
1107 *****
1108 :TEST 23 TEST THAT PROPER P.C. IS SAVED
1109 *****
1110 004214 005237 000304 1ST23: INC 2#STESTN ;UPDATE TEST NUMBER
1111 004220 022737 000023 000304 CMP 23,2#STESTN ;SEQUENCE ERROR
1112 004226 001012 BNE TST24-12 ;BR TO ERROR HALT ON SEQ ERROR
1113 004230 012706 000500 MOV #BUFF,SP ;STACK POINTER SETUP
1114 004234 012767 004244 173556 MOV #RETC2,RTRAP2 ;RETURN FROM TRAP POINTER
1115 004242 000004 IOT ;TRAP ON THIS INSTRUCTION
1116 004244 022767 004244 174222 RETC2: CMP #.BUFF-4 ;CHECK FOR INCREMENTED P.C.
1117 004252 001405 BEQ TST24
1118 004254 012737 000107 000302 MOV #107,2#SFATAL ;MOVE TO MAILBOX # ***** 107 *****
1119 004262 005212 INC (R2) ;SET MSGTYP TO FATAL ERROR
1120 004264 000000 HALT ;INCORRECT P.C. OR WRONG $STNM
1121 ; TO SCOPE REPLACE HALT W/ 240
1122 ; AND REPLACE NEXT INST W/ 760
1123 *****
1124 :TEST 24 TEST THAT "OLD" CC AND PRIORITY ARE PLACED ON STACK
1125 *****
1126 004266 005237 000304 1ST24: INC 2#STESTN ;UPDATE TEST NUMBER
1127 004272 022737 000024 000304 CMP 24,2#STESTN ;SEQUENCE ERROR
1128 004300 001040 BNE TST25-12 ;BR TO ERROR HALT ON SEQ ERROR
1129 004302 012706 000500 MOV #BUFF,SP ;SET UP
1130 004306 012767 004324 173504 MOV #RETD2,RTRAP2 ;SET UP
1131 004314 005067 173456 CLR CC ;CLEAR CC AND PRIORITY
1132 004320 000257 CCC
1133 004322 000004 IOT ;TRAP
1134 004324 026727 174146 000000 RETD2: CMP BUFF-2,#0 ;TEST THAT OLD STATUS WENT TO STACK
1135 004332 001405 BEQ 1$
1136 004334 012737 000110 000302 MOV #110,2#SFATAL ;MOVE TO MAILBOX # ***** 110 *****
1137 004342 005212 INC (R2) ;SET MSGTYP TO FATAL ERROR
1138 004344 000000 HALT ;INCORRECT STATUS
1139 ; TO SCOPE REPLACE HALT W/ 240
1140 ; AND REPLACE NEXT INST W/ 755
1141 004346 012706 000500 1$: MOV #BUFF,SP ;SET UP
1142 004352 012767 004372 173440 MOV #RETE2,RTRAP2 ;SET UP
1143 004360 012767 000357 173410 MOV #357,CC ;SET PRIORITY
1144 004366 000277 SCC ;SET CC
1145 004370 000004 IOT ;TRAP
1146 004372 026727 174100 000357 RETE2: CMP BUFF-2,#357 ;COMPARES STATUS ON STACK
1147 004400 001405 BEQ TST25
1148 004402 012737 000111 000302 MOV #111,2#SFATAL ;MOVE TO MAILBOX # ***** 111 *****
1149 004410 005212 INC (R2) ;SET MSGTYP TO FATAL ERROR
1150 004412 000000 HALT ;INCORRECT STATUS ON STACK, OR WRONG $STNM
1151 ; TO SCOPE REPLACE HALT W/ 240
1152 ; AND REPLACE NEXT INST W/ 732
1153 *****
1154 :TEST 25 TEST THAT "NEW" STATUS IS CORRECT
1155 *****
1156 004414 005237 000304 1ST25: INC 2#STESTN ;UPDATE TEST NUMBER
1157 004420 022737 000025 000304 CMP 25,2#STESTN ;SEQUENCE ERROR
1158 004426 001121 BNE BR46 ;BR TO ERROR HALT ON SEQ ERROR
1159 004430 012706 000500 MOV #BUFF,SP
1160 004434 012767 004450 173356 MOV #RETF2,RTRAP2

```

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 YES THAT "NEW" STATUS IS CORRECT

1161	004442	005067	173354		CLR	RTRAP2+2		:CLEAR FUTURE PRIORITY AND CC
1162	004446	003004			IOT			
1163	004450				RETf2:			:TEST FOR "C" CLEARED
1164	004450	100005			BPL	1\$		
1165	004452	012737	000112	000302	MOV	#112,0#\$FATAL		:MOVE TO MAILBOX # ***** 112 *****
1166	004460	005212			INC	(R2)		:SET MSGTYP TO FATAL ERROR
1167	004462	000000			HALT			:N NOT CLEARED
1168								: TO SCOPE REPLACE HALT W/ 240
1169								: AND REPLACE NEXT INST W/ 761
1170	004464				1\$:			
1171	004464	001005			BNE	2\$		
1172	004466	012737	000113	000302	MOV	#113,0#\$FATAL		:MOVE TO MAILBOX # ***** 113 *****
1173	004474	005212			INC	(R2)		:SET MSGTYP TO FATAL ERROR
1174	004476	000000			HALT			:Z NOT CLEARED
1175								: TO SCOPE REPLACE HALT W/ 240
1176								: AND REPLACE NEXT INST W/ 753
1177	004500				2\$:			
1178	004500	102005			BVC	3\$		
1179	004502	012737	000114	000302	MOV	#114,0#\$FATAL		:MOVE TO MAILBOX # ***** 114 *****
1180	004510	005212			INC	(R2)		:SET MSGTYP TO FATAL ERROR
1181	004512	000000			HALT			:V NOT CLEARED
1182								: TO SCOPE REPLACE HALT W/ 240
1183								: AND REPLACE NEXT INST W/ 745
1184	004514				3\$:			
1185	004514	103005			BCC	4\$		
1186	004516	012737	000115	000302	MOV	#115,0#\$FATAL		:MOVE TO MAILBOX # ***** 115 *****
1187	004524	005212			INC	(R2)		:SET MSGTYP TO FATAL ERROR
1188	004526	000000			HALT			:C NOT CLEARED
1189								: TO SCOPE REPLACE HALT W/ 240
1190								: AND REPLACE NEXT INST W/ 737
1191	004530	032767	000340	173240	4\$:	#340.CC		:TEST PRIORITY
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\$:	#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:			
1203	004574	100405			BMI	1\$		
1204	004576	012737	000117	000302	MOV	#117,0#\$FATAL		:MOVE TO MAILBOX # ***** 117 *****
1205	004604	005212			INC	(R2)		:SET MSGTYP TO FATAL ERROR
1206	004606	000000			HALT			:N NOT SET
1207								: TO SCOPE REPLACE HALT W/ 240
1208								: AND REPLACE NEXT INST W/ 707
1209	004610				1\$:			
1210	004610	001405			BEQ	2\$		
1211	004612	012737	000120	000302	MOV	#120,0#\$FATAL		:MOVE TO MAILBOX # ***** 120 *****
1212	004620	005212			INC	(R2)		:SET MSGTYP TO FATAL ERROR
1213	004622	000000			HALT			:Z NOT SET
1214								: TO SCOPE REPLACE HALT W/ 240
1215								: AND REPLACE NEXT INST W/ 701
1216	004624				2\$:			



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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 000340 CMP #340, SP
1233 004670 001405 BEQ BR45A
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 $STNM
; TO SCOPE REPLACE HALT W/ 240
; AND REPLACE NEXT INST W/ 651
1239 004704 012767 000022 173106 BR46A: MOV #22, 20
1241 004712 005067 173104 CLR 22 ;HALT
;*****
;TEST 26 TEST THAT A TRAP OCCURS ON AN EMT INSTRUCTION
;*****
1245 004716 005237 000304 TST26: INC 0#$TESTN ;UPDATE TEST NUMBER
1246 004722 022737 000026 000304 CMP #26,0#$TESTN ;SEQUENCE ERROR
1247 004730 001006 BNE TST27-12 ;BR TO ERROR HALT ON SEQ ERROR
1248 004732 012706 000500 MOV #BUFF, SP ;STACK POINTER SETUP
1249 004736 012767 004760 173064 MOV #RETA3, RTRAP3 ;RETURN LOCATION
1250 004744 104000 EMT ;RESERVE INSTRUCTION, SHOULD TRAP
1251 004746 012737 000124 000302 MOV #124,0#$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 $STNM
; TO SCOPE REPLACE HALT W/ 240
; AND REPLACE NEXT INST W/ 764
1256 004760 RETA3:
;*****
;TEST 27 TEST DECREMENT OF STACK POINTER ON A TRAP OPERATION
;*****
1260 004760 005237 000304 TST27: INC 0#$TESTN ;UPDATE TEST NUMBER
1261 004764 022737 000027 000304 CMP #27,0#$TESTN ;SEQUENCE ERROR
1262 004772 001011 BNE TST30-12 ;BR TO ERROR HALT ON SEQ ERROR
1263 004774 012706 000500 MOV #BUFF, SP ;STACK POINTER SETUP
1264 005000 012767 005010 173022 MOV #RETB3, RTRAP3 ;RETURN POINTER
1265 005006 104000 EMT ;RESERVED INSTRUCTION
1266 005010 020627 000474 RETB3: CMP SP, #BUFF-4 ;TEST DECREMENT OF SP
1267 005014 001405 BEQ TST30
1268 005016 012737 000125 000302 MOV #125,0#$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
    
```



1329	005264				RETG3:				: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/ 761
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\$:	#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\$:	#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 *****

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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          3S:          BCS      4S
1390 005454 103405          MOV      #141,0#FATAL ;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          4S:          CCC
1397 005472 022767 000340 172275 CMP      #340,CC
1398 005500 001405          BEQ      TST33
1399 005502 012737 000142 000302 MOV      #142,0#FATAL ;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 ;*****
1407 005514 005237 000304          TST33: INC      0#TESTN ;UPDATE TEST NUMBER
1408 005520 022737 000033 000304 CMP      #33,0#TESTN ;SEQUENCE ERROR
1409 005526 001011          BNE      BR47 ;BR TO ERROR HALT ON SEQ ERROR
1410 005530 012767 104000 000012 MOV      #EMT, RB ;INITIALIZE BASE EMT INSTRUCTION
1411 005536 012767 005564 172264 MOV      #RA, 3C ;RETURN FROM TRAP TO RA
1412 005544 012706 000500          RC:      MOV      #BUFF, SP ;SET UP STACK POINTER
1413 005550 104000          RB:      EMT ;TRAP INST. WILL BE MODIFIED TO EMT+377
1414 005552
1415 005552 012737 000143 000302 BR47:   MOV      #143,0#FATAL ;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 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                                     ; / . +
1425 005600 012767 000032 172222 MOV      #32, 30 ;
1426 005606 005067 172220          CLR      32 ;HALT
1427
1428 ;*****
1429 ;TEST 34 TEST THAT A TRAP OCCURES ON AN "TRACE-TRY" INSTRUCTION
1430 ;*****
1429 005612 005237 000304          TST34: INC      0#TESTN ;UPDATE TEST NUMBER
1430 005616 022737 000034 000304 CMP      #34,0#TESTN ;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#FATAL ;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 RETA4:

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1441
1442
1443
1444 005654 005237 000304
1445 005660 022737 000035 000304
1446 005666 001011
1447 005670 012706 000500
1448 005674 012767 005704 172112
1449 005702 000003
1450 005704 020627 000474 RETB4: CMP SP,#BUFF-4
1451 005710 001405 TST36
1452 005712 012737 000145 000302 MOV #145,#SFATAL
1453 005720 005212 INC (R2)
1454 005722 000000 HALT
1455
1456
1457
1458
1459
1460 005724 005237 000304
1461 005730 022737 000036 000304
1462 005736 001012
1463 005740 012706 000500
1464 005744 012767 005754 172042
1465 005752 000003
1466 005754 022767 005754 172512 RETC4: CMP #. BUFF-4
1467 005762 001405 BEQ TST37
1468 005764 012737 000146 000302 MOV #146,#SFATAL
1469 005772 005212 INC (R2)
1470 005774 000000 HALT
1471
1472
1473
1474
1475
1476 005776 005237 000304
1477 006002 022737 000037 000304
1478 006010 001040
1479 006012 012706 000500
1480 006016 012767 006034 171770
1481 006024 005067 171746
1482 006030 000257
1483 006032 000003
1484 006034 026727 172436 000000 RETC4: CMP BUFF-2,#0
1485
1486 006042 001405 BEQ 1$
1487 006044 012737 000147 000302 MOV #147,#SFATAL
1488 006052 005212 INC (R2)
1489 006054 000000 HALT
1490
1491
1492 006056 012706 000500 1$: MOV #BUFF,SP
1493 006062 012767 006102 171724 MOV #RETE4,RTRAP4
1494 006070 012767 000357 171700 MOV #357,CC
1495 006076 000277
1496 006100 000003 TRT

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# E03

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 "ES" "HA" "OLD" CC AND PRIORITY ARE PLACED ON STACK

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1497 006102 026727 172370 000357 RETE4: CMP      BUFF-2,#357      ;COMPARES STATUS ON STACK
1498 006110 001405          BEQ      TST40
1499 006112 012737 000150 000302          MOV      #150,0#SFATAL ;MOVE TO MAILBOX # ***** 150 *****
1500 006120 005212          INC      (R2)          ;SET MSGTYP TO FATAL ERROR
1501 006122 000000          HALT                ;INCORRECT STATUS ON STACK,OR WRONG $TESTN
                            ; TO SCOPE REPLACE HALT W/ 210
                            ; AND REPLACE NEXT INST W/ 732
1502
1503 :*****
1504 :TEST 40          TEST THAT "NEW" STATUS IS CORRECT
1505 :*****
1506 *ST40: INC      0#STESTN ;UPDATE TEST NUMBER
1507          CMP      #40,0#STESTN ;SEQUENCE ERROR
1508          BNE     BR51      ;BR TO ERROR HALT ON SEQ ERROR
1509 006136 001121          BNE     BR51
1510 006140 012706 000500          MOV      #BUFF,SP
1511 006144 012767 006160 171642          MOV      #RETF4,RTRAP4
1512 006152 005067 171640          CLR     RTRAP4+2      ;CLEAR FUTURE PRIORITY AND CC
1513 006156 000000          TRT
1514 006160          RETF4:          ;TEST FOR "C" CLEARED
1515 006160 100005          BPL     1$
1516 006162 012737 000151 000302          MOV      #151,0#SFATAL ;MOVE TO MAILBOX # ***** 151 *****
1517 006170 005212          INC      (R2)          ;SET MSGTYP TO FATAL ERROR
1518 006172 000000          HALT                ;C NOT CLEARED
                            ; TO SCOPE REPLACE HALT W/ 240
                            ; AND REPLACE NEXT INST W/ 761
1519
1520 1$:
1521 006174          BNE     2$
1522 006174 001005          BNE     2$
1523 006176 012737 000152 000302          MOV      #152,0#SFATAL ;MOVE TO MAILBOX # ***** 152 *****
1524 006204 005212          INC      (R2)          ;SET MSGTYP TO FATAL ERROR
1525 006206 000000          HALT                ;Z NOT CLEARED
                            ; TO SCOPE REPLACE HALT W/ 240
                            ; AND REPLACE NEXT INST W/ 753
1526
1527 2$:
1528 006210          BVC     3$
1529 006210 102005          BVC     3$
1530 006212 012737 000153 000302          MOV      #153,0#SFATAL ;MOVE TO MAILBOX # ***** 153 *****
1531 006220 005212          INC      (R2)          ;SET MSGTYP TO FATAL ERROR
1532 006222 000000          HALT                ;V NOT CLEARED
                            ; TO SCOPE REPLACE HALT W/ 240
                            ; AND REPLACE NEXT INST W/ 745
1533
1534 3$:
1535 006224          BCC     4$
1536 006224 103005          BCC     4$
1537 006226 012737 000154 000302          MOV      #154,0#SFATAL ;MOVE TO MAILBOX # ***** 154 *****
1538 006234 005212          INC      (R2)          ;SET MSGTYP TO FATAL ERROR
1539 006236 000000          HALT                ;C NOT CLEARED
                            ; TO SCOPE REPLACE HALT W/ 240
                            ; AND REPLACE NEXT INST W/ 737
1540
1541 4$:
1542 006240 032767 000340 171530          BIT      #340,CC      ;TEST PRIORITY
1543 006246 001405          BEQ     5$
1544 006250 012737 000155 000302          MOV      #155,0#SFATAL ;MOVE TO MAILBOX # ***** 155 *****
1545 006256 005212          INC      (R2)          ;SET MSGTYP TO FATAL ERROR
1546 006260 000000          HALT                ;PRIORITY NOT ZERO
                            ; TO SCOPE REPLACE HALT W/ 240
                            ; AND REPLACE NEXT INST W/ 726
1547
1548 5$:
1549 006262 012706 000500          MOV      #BUFF,SP
1550 006266 012767 006304 171520          MOV      #RETF4,RTRAP4
1551 006274 012767 000357 171514          MOV      #357,RTRAP4+2 ;SET NEW "CC" AND PRIORITY
1552 006302 000000          TRT                ;TRAP HERE
  
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1553 006304          RETG4:
1554 006304 100405      BMI      1$
1555 006306 012737 000156 000302  MOV     #156,0#$FATAL ;MOVE TO MAILBOX # ***** 156 *****
1556 006314 005212      INC     (R2)          ;SET MSGTYP TO FATAL ERROR
1557 006316 000000      HALT                    ;N NOT SET
1558                                     ; TO SCOPE REPLACE HALT W/ 240
1559                                     ; AND REPLACE NEXT INST W/ 707
1560 006320          1$:
1561 006320 001405      BEQ     2$
1562 006322 012737 000157 000302  MOV     #157,0#$FATAL ;MOVE TO MAILBOX # ***** 157 *****
1563 006330 005212      INC     (R2)          ;SET MSGTYP TO FATAL ERROR
1564 006332 000000      HALT                    ;Z NOT SET
1565                                     ; TO SCOPE REPLACE HALT W/ 240
1566                                     ; AND REPLACE NEXT INST W/ 701
1567 006334          2$:
1568 006334 102405      BVS     3$
1569 006336 012737 000160 000302  MOV     #160,0#$FATAL ;MOVE TO MAILBOX # ***** 160 *****
1570 006344 005212      INC     (R2)          ;SET MSGTYP TO FATAL ERROR
1571 006346 000000      HALT                    ;V NOT SET
1572                                     ; TO SCOPE REPLACE HALT W/ 240
1573                                     ; AND REPLACE NEXT INST W/ 673
1574 006350          3$:
1575 006350 102405      BCS     4$
1576 006352 012737 000161 000302  MOV     #161,0#$FATAL ;MOVE TO MAILBOX # ***** 161 *****
1577 006360 005212      INC     (R2)          ;SET MSGTYP TO FATAL ERROR
1578 006362 000000      HALT                    ;C NOT SET
1579                                     ; TO SCOPE REPLACE HALT W/ 240
1580                                     ; AND REPLACE NEXT INST W/ 665
1581 006364 016706 171406 4$:      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#$FATAL ;MOVE TO MAILBOX # ***** 162 *****
1587 006410 005212      INC     (R2)          ;SET MSGTYP TO FATAL ERROR
1588 006412 000000      HALT                    ;PRIORITY WAS CHANGED, OR WRONG $TSTN$
1589                                     ; TO SCOPE REPLACE HALT W/ 240
1590                                     ; AND REPLACE NEXT INST W/ 651
1591 006414 012767 000016 171372 BR51A: MOV     #16,14
1592 006422 005067 17137C      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#$TESTN ;UPDATE TEST NUMBER
1604 006432 022737 000041 000304  CMP     #41,0#$TESTN ;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 00010C      JMP     %0 ;ILLEGAL INSTRUCTION. SHOULD TRAP
  
```





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744

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"ES" "HA" "OLD" CC AND PRIORITY ARE PLACED ON STACK

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1665 006672 012706 000500 1$: MOV #BUFF,SP ;SET UP
1666 006676 012767 006716 171100 MOV #RETF5,RTRAPS ;SET UP
1667 006704 012767 000357 171064 MOV #357,CC ;SET PRIORITY
1668 006712 000277 SCC ;SET CC
Z 1669 006714 000100 JMP %0 ;TRAP
1670 006716 026727 171554 000357 RETES: CMP BUFF-2,#357 ;COMPARES STATUS ON STACK
1671 006724 001405 BEQ TST45
1672 006726 012737 000167 000302 MOV #167,@#$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 $TSTN
1675 ; TO SCOPE REPLACE HALT W/ 240
1676 ; AND REPLACE NEXT INST W/ 732
1677 :*****
1678 :TEST 45 TEST THAT "NEW" STATUS IS CORRECT
1679 :*****
1680 006740 005237 000304 000045 000304 TST45: INC @#$TESTN ;UPDATE TEST NUMBER
1681 006744 022737 000045 000304 CMP #45,@#$TESTN ;SEQUENCE ERROR
1682 006752 001117 BNE TST46-12 ;BR TO ERROR HALT ON SEQ ERROR
1683 006754 012706 000500 MOV #BUFF,SP
1684 006760 012767 006774 171016 MOV #RETF5,RTRAPS
1685 006766 005067 171014 CLR RTRAPS+2 ;CLEAR FUTURE PRIORITY AND CC
Z 1686 006772 000100 JMP %0
1687 006774 RETF5: ;TEST FOR "C" CLEARED
1688 006774 100005 BPL 1$
1689 006776 012737 000170 000302 MOV #170,@#$FATAL ;MOVE TO MAILBOX # ***** 170 *****
1690 007004 005212 INC (R2) ;SET MSGTYP TO FATAL ERROR
1691 007006 000000 HALT ;C NOT CLEARED
1692 ; TO SCOPE REPLACE HALT W/ 240
1693 ; AND REPLACE NEXT INST W/ 761
1694 007010 1$:
1695 007010 001005 BNE 2$
1696 007012 012737 000171 000302 MOV #171,@#$FATAL ;MOVE TO MAILBOX # ***** 171 *****
1697 007020 005212 INC (R2) ;SET MSGTYP TO FATAL ERROR
1698 007022 000000 HALT ;Z NOT CLEARED
1699 ; TO SCOPE REPLACE HALT W/ 240
1700 ; AND REPLACE NEXT INST W/ 753
1701 007024 2$:
1702 007024 102005 BVC 3$
1703 007026 012737 000172 000302 MOV #172,@#$FATAL ;MOVE TO MAILBOX # ***** 172 *****
1704 007034 005212 INC (R2) ;SET MSGTYP TO FATAL ERROR
1705 007036 000000 HALT ;V NOT CLEARED
1706 ; TO SCOPE REPLACE HALT W/ 240
1707 ; AND REPLACE NEXT INST W/ 745
1708 007040 3$:
1709 007040 103005 BCC 4$
1710 007042 012737 000173 000302 MOV #173,@#$FATAL ;MOVE TO MAILBOX # ***** 173 *****
1711 007050 005212 INC (R2) ;SET MSGTYP TO FATAL ERROR
1712 007052 000000 HALT ;C NOT CLEARED
1713 ; TO SCOPE REPLACE HALT W/ 240
1714 ; AND REPLACE NEXT INST W/ 737
1715 007054 032767 000357 170714 4$: 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
1720 ; TO SCOPE REPLACE HALT W/ 240

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1721
1722 007076 012706 000500          5$:  MOV      #BUFF, SP          ; AND REPLACE NEXT INST W/ 726
1723 007102 012767 007120 170674  MOV      #RETC5, RTRAPS
1724 007110 012767 000357 170670  MOV      #357, RTRAPS+2    ; SET NEW "CC" AND PRIORITY
Z 1725 007116 000100          JMP      %0                ; TRAP HERE
1726 007120          RETGS:
1727 007120 100405          BMI      1$
1728 007122 012737 000175 000302  MOV      #175, @#$FATAL    ; MOVE TO MAILBOX # ***** 175 *****
1729 007130 005212          INC      (R2)              ; SET MSGTYP TO FATAL ERROR
1730 007132 000000          HALT                       ; N NOT SET
1731                                     ; TO SCOPE REPLACE HALT W/ 240
1732                                     ; AND REPLACE NEXT INST W/ 707
1733 007134          1$:
1734 007134 001405          BEQ      2$
1735 007136 012737 000176 000302  MOV      #176, @#$FATAL    ; MOVE TO MAILBOX # ***** 176 *****
1736 007144 005212          INC      (R2)              ; SET MSGTYP TO FATAL ERROR
1737 007146 000000          HALT                       ; Z NOT SET
1738                                     ; TO SCOPE REPLACE HALT W/ 240
1739                                     ; AND REPLACE NEXT INST W/ 701
1740 007150          2$:
1741 007150 102405          BVS      3$
1742 007152 012737 000177 000302  MOV      #177, @#$FATAL    ; MOVE TO MAILBOX # ***** 177 *****
1743 007160 005212          INC      (R2)              ; SET MSGTYP TO FATAL ERROR
1744 007162 000000          HALT                       ; V NOT SET
1745                                     ; TO SCOPE REPLACE HALT W/ 240
1746                                     ; AND REPLACE NEXT INST W/ 673
1747 007164          3$:
1748 007164 103405          BCS      4$
1749 007166 012737 000200 000302  MOV      #200, @#$FATAL    ; MOVE TO MAILBOX # ***** 200 *****
1750 007174 005212          INC      (R2)              ; SET MSGTYP TO FATAL ERROR
1751 007176 000000          HALT                       ; C NOT SET
1752                                     ; TO SCOPE REPLACE HALT W/ 240
1753                                     ; AND REPLACE NEXT INST W/ 665
1754 007200 016706 170572          4$:  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 $STNM
1760                                     ; TO SCOPE REPLACE HALT W/ 240
1761                                     ; AND REPLACE NEXT INST W/ 653
1762 ;*****
1763 ;TEST 46          TEST THAT A TRAP OCCURES ON ALL ILLEGAL INSTRUCTION
1764 ;*****
1765 007224 005237 000304          TST46: INC      @#$TESTN      ; UPDATE TEST NUMBER
1766 007230 022737 000046 000304  CMP      #46, @#$TESTN    ; SEQUENCE ERROR
1767 007236 001006          BNE      TST47-12        ; BR TO ERROR HALT ON SEQ ERROR
1768 007240 012706 000500          MOV      #BUFF, SP        ; STACK POINTER SETUP
1769 007244 012767 007266 170532  MOV      #RETH5, RTRAPS    ; RETURN LOCATION
Z 1770 007252 004000          JSR      %0, %0          ; RESERVED INSTRUCTION, SHOULD TRAP
1771 007254 012737 000202 000302  MOV      #202, @#$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:

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1777
1778
1779
1780 007266 005237 000304
1781 007272 022737 000047 000304
1782 007300 001011
1783 007302 012706 000500
1784 007306 012767 007316 170470
Z 1785 007314 004000
1786 007316 020627 000474 RETJ:
1787 007322 001405
1788 007324 012737 000203 000302
1789 007332 005212
1790 007334 000000
1791
1792
1793
1794
1795
1796 007336 005237 000304
1797 007342 022737 000050 000304
1798 007350 001012
1799 007352 012706 000500
Z 1800 007356 012767 007366 170420
1801 007364 004000 INSTK:
1802 007366 022767 007366 171100 RETK:
1803 007374 001405
1804 007376 012737 000204 000302
1805 007404 005212
1806 007406 000000
1807
1808
1809
1810
1811
1812
1813 007410 005237 000304
1814 007414 022737 000051 000304
1815 007422 001040
1816 007424 012706 000500
1817 007430 012767 007446 170346
1818 007436 005067 170334
Z 1819 007442 000257
1820 007444 004000
1821 007446 026727 171024 000000 RETL:
1822 007454 001405
1823 007456 012737 000205 000302
1824 007464 005212
1825 007466 000000
1826
1827
1828 007470 012706 000500
1829 007474 012767 007514 170302
1830 007502 012767 000357 170266
Z 1831 007510 000277
1832 007512 004000

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:*****
:TEST 47 TEST DECREMENT OF STACK POINTER ON A TRAP OPEATION
:*****
TST47: INC @#STESTN ;UPDATE TEST NUMBER
CMP #47,@#STESTN ;SEQUENCE ERROR
BNE TST50-12 ;BR TO ERROR HALT ON SEQ ERROR
MOV #BUFF,SP ;STACK POINTER SETUP
MOV #RETJ,RTRAPS ;RETURN POINTER
JSR %0,%0 ;RESERVED INSTRUCTION
RETJ: CMP SP,#BUFF-4 ;TEST DECREMENT OF SP
BEQ TST50
MOV #203,@#SFATAL ;MOVE TO MAILBOX # ***** 203 *****
INC (R2) ;SET MSGTYP TO FATAL ERROR
HALT ;NOT DECREMENTED TWO WORDS,OR WRONG $STNM
; TO SCOPE REPLACE HALT W/ 240
; AND REPLACE NEXT INST W/ 761
:*****
:TEST 50 TEST THAT PROPER P.C. IS SAVED
:*****
TST50: INC @#STESTN ;UPDATE TEST NUMBER
CMP #50,@#STESTN ;SEQUENCE ERROR
BNE TST51-12 ;BR TO ERROR HALT ON SEQ ERROR
MOV #BUFF,SP ;STACK POINTER SETUP
MOV #RETK,RTRAPS ;RETURN FROM TRAP POINTER
INSTK: JSR %0,%0 ;TRAP ON THIS INSTRUCTION
RETK: CMP #INSTK+2,BUFF-4 ;CHECK FOR INCREMEND P.C.
BEQ TST51
MOV #204,@#SFATAL ;MOVE TO MAILBOX # ***** 204 *****
INC (R2) ;SET MSGTYP TO FATAL ERROR
HALT ;INCORRECT P.C. OR WRONG $STNM
; TO SCOPE REPLACE HALT W/ 240
; AND REPLACE NEXT INST W/ 760
:*****
:TEST 51 TEST THAT "OLD" CC AND PRIORITY ARE PLACED ON STACK
:*****
TST51: INC @#STESTN ;UPDATE TEST NUMBER
CMP #51,@#STESTN ;SEQUENCE ERROR
BNE TST52-12 ;BR TO ERROR HALT ON SEQ ERROR
MOV #BUFF,SP ;SET UP
MOV #RETL,RTRAPS ;SET UP
CLR CC ;CLEAR CC AND PRIORITY
CCC
Z 1820 JSR %0,%0 ;TRAP
1821 CMP BUFF-2,#0 ;TEST THAT OLD STATUS WENT TO STACK
BEQ 1$
MOV #205,@#SFATAL ;MOVE TO MAILBOX # ***** 205 *****
INC (R2) ;SET MSGTYP TO FATPL ERROR
HALT ;INCORRECT STATUS
; TO SCOPE REPLACE HALT W/ 240
; AND REPLACE NEXT INST W/ 755
1$: MOV #BUFF,SP ;SET UP
MOV #RETM,RTRAPS ;SET UP
MOV #357,CC ;SET PRIORITY
SCC ;SET CC
Z 1832 JSR %0,%0 ;TRAP

```

# K03

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 "EST" "HA" "OLD" CC AND PRIORITY ARE PLACED ON STACK

1833	007514	026727	170756	000357	RETN:	CMP	BUFF-2, #357	: COMPARES STATUS ON STACK
1834	007522	001405				BEG	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 \$TSTYM
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	%0, %0	
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	001305				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	007652	016700	170120		4\$:	MOV	CC, %0	: TEMP STORAGE
1879	007656	001405				BEG	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

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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     TST53
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 $STNM
1923                                     ; TO SCOPE REPLACE HALT W/ 240
1924                                     ; AND REPLACE NEXT INST W/ 654
1925
1926 ;*****
1927 ;TEST 53      TEST THAT A TRAP OCCURES ON AN ILLEGAL ADDRESS
1928 ;*****
1929 010020 005237 000304 TST53: INC     @#$TESTN ;UPDATE TEST NUMBER
1930 010024 022737 000053 000304  CMP     #53,@#$TESTN ;SEQUENCE ERROR
1931 010032 001007      BNE     TST54-12 ;BR TO ERROR HALT ON SEQ ERROR
1932 010034 012706 000500      MOV     #BUFF,SP ;STACK POINTER SETUP
1933 010040 012767 010064 167736  MOV     #RETP,RTRAPS ;RETURN LOCATION
1934 010046 005767 167727      TST 1 ;ILLEGAL ADDRESS INSTRUCTION, SHOULD TRAP
1935 010052 012737 000221 000302  MOV     #221,0#$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 $STNM
1938                                     ; TO SCOPE REPLACE HALT W/ 240
1939                                     ; AND REPLACE NEXT INST W/ 763
1940 010064          RETP:
1941 ;*****
1942 ;TEST 54      TEST DECREMENT OF STACK POINTER ON A TRAP OPERATION
1943 ;*****
1944 010064 005237 000304 TST54: INC     @#$TESTN ;UPDATE TEST NUMBER

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1945 010070 022737 000354 000304      CMP      #54,0#$TESTN      ;SEQUENCE ERROR
1946 010076 001012                BNE      TST55-12         ;BR TO ERROR HALT ON SEQ ERROR
1947 010100 012706 000500                MOV      #BUFF,SP        ;STACK POINTER SETUP
1948 010104 012767 010116 167672      MOV      #RETR,RTRAPS    ;RETURN POINTER
1949 010112 005767 167663                TST     1                 ;RESERVED INSTRUCTION
1950 010116 020627 000474      RETQ:   CMP      SP,#BUFF-4 ;TEST DECREMENT OF SP
1951 010122 001405                BEQ      TST55
1952 010124 012737 000222 000302      MOV      #222,0#$FATAL   ;MOVE TO MAILBOX # ***** 222 *****
1953 010132 005213                INC      (R2)             ;SET MSGTYP TO FATAL ERROR
1954 010134 000000                HALT                    ;NOT DECREMENTED TWO WORDS,OR WRONG $*STNM
1955                                     ; TO SCOPE REPLACE HALT W/ 240
1956                                     ; AND REPLACE NEXT INST W/ 760
1957 :*****
1958 :TEST 55      TEST THAT PROPER P.C. IS SAVED
1959 :*****
1960 010136 005237 000304      TST55:  INC      0#$TESTN   ;UPDATE TEST NUMBER
1961 010142 022737 000055 000304      CMP      #55,0#$TESTN   ;SEQUENCE ERROR
1962 010150 001013                BNE      TST56-12         ;BR TO ERROR HALT ON SEQ ERROR
1963 010152 012706 000500                MOV      #BUFF,SP        ;STACK POINTER SETUP
1964 010156 012767 010170 167620      MOV      #RETR,RTRAPS    ;RETURN FROM TRAP POINTER
1965 010164 005767 167611                TST     1                 ;TRAP ON THIS INSTRUCTION
1966 010170 022767 010170 170276      RETR:   CMP      #,BUFF-4  ;CHECK FOR INCREMENTED P.C.
1967 010176 001405                BEQ      TST56
1968 010200 012737 000223 000302      MOV      #223,0#$FATAL   ;MOVE TO MAILBOX # ***** 223 *****
1969 010206 005212                INC      (R2)             ;SET MSGTYP TO FATAL ERROR
1970 010210 000300                HALT                    ;INCORRECT P.C. OR WRONG $*STNM
1971                                     ; TO SCOPE REPLACE HALT W/ 240
1972                                     ; AND REPLACE NEXT INST W/ 757
1973 :*****
1974 :TEST 56      TEST THAT "OLD" CC AND PRIORITY ARE PLACED ON STACK
1975 :*****
1976 010212 005237 000304      TST56:  INC      0#$TESTN   ;UPDATE TEST NUMBER
1977 010216 022737 000056 000304      CMP      #56,0#$TESTN   ;SEQUENCE ERROR
1978 010224 001042                BNE      TST57-12         ;BR TO ERROR HALT ON SEQ ERROR
1979 010226 012706 000500                MOV      #BUFF,SP        ;SET UP
1980 010232 012767 010252 167544      MOV      #RETS,RTRAPS    ;SET UP
1981 010240 005067 167532                CLR      CC               ;CLEAR CC AND PRIORITY
1982 010244 000257                CCC
1983 010246 005767 167527                TST     1                 ;TRAP
1984 010252 026727 170220 000000      RETS:   CMP      BUFF-2,#0  ;TEST THAT OLD STATUS WENT TO STACK
1985 010260 001405                BEQ      1$
1986 010262 012737 000224 000302      MOV      #224,0#$FATAL   ;MOVE TO MAILBOX # ***** 224 *****
1987 010270 005212                INC      (R2)             ;SET MSGTYP TO FATAL ERROR
1988 010272 000000                HALT                    ;INCORRECT STATUS
1989                                     ; TO SCOPE REPLACE HALT W/ 240
1990                                     ; AND REPLACE NEXT INST W/ 754
1991 010274 012706 000500      1$:    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                SCC
1995 010316 005767 167457                TST     1                 ;TRAP
1996 010322 026727 170150 000357      RETT:   CMP      BUFF-2,#357 ;COMPARES STATUS ON STACK
1997 010330 001405                BEQ      TST57
1998 010332 012737 000225 000302      MOV      #225,0#$FATAL   ;MOVE TO MAILBOX # ***** 225 *****
1999 010340 005212                INC      (R2)             ;SET MSGTYP TO FATAL ERROR
2000 010342 000000                HALT                    ;INCORRECT STATUS ON STACK,OR WRONG $*STNM
    
```

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2001 ; TO SCOPE REPLACE HALT W/ 240
2002 ; AND REPLACE NEXT INST W/ 73C
2003 ;*****
2004 ;TEST 57 TEST THAT "NEW" STATUS IS CORRECT
2005 ;*****
2006 010344 005237 000304 TST57: INC @#STESTN ;UPDATE TEST NUMBER
2007 010350 022737 000057 000304 CMP #57,@#STESTN ;SEQUENCE ERROR
2008 010356 001121 BNE TST60-12 ;BR TO ERROR HALT ON SEQ ERROR
2009 010360 012706 000500 MOV #BUFF,SP
2010 010364 012767 010402 167412 MOV #RETU,RTRAP5
2011 010372 005067 167410 CLR RTRAP5+2
2012 010376 005767 167377 TST 1 ;CLEAR FUTURE PRIORITY AND CC
2013 010402 RETU: ;TRAP HERE
2014 010402 100005 ;TEST FOR "C" CLEARED
2015 010404 012737 000226 000302 BPL 1$
2016 010412 005212 MOV #226,@#SFATAL ;MOVE TO MAILBOX # ***** 226 *****
2017 010414 000000 INC (R2) ;SET MSGTYP TO FATAL ERROR
2018 ;C NOT CLEARED
2019 ; TO SCOPE REPLACE HALT W/ 240
2020 ; AND REPLACE NEXT INST W/ 760
2021 010416 001005 1$: BNE 2$
2022 010420 012737 000227 000302 MOV #227,@#SFATAL ;MOVE TO MAILBOX # ***** 227 *****
2023 010426 005212 INC (R2) ;SET MSGTYP TO FATAL ERROR
2024 010430 000000 HALT ;Z NOT CLEARED
2025 ; TO SCOPE REPLACE HALT W/ 240
2026 ; AND REPLACE NEXT INST W/ 752
2027 010432 2$: BVC 3$
2028 010432 103005 3$: BVC 3$
2029 010434 012737 000230 000302 MOV #230,@#SFATAL ;MOVE TO MAILBOX # ***** 230 *****
2030 010442 005212 INC (R2) ;SET MSGTYP TO FATAL ERROR
2031 010444 000000 HALT ;V NOT CLEARED
2032 ; TO SCOPE REPLACE HALT W/ 240
2033 ; AND REPLACE NEXT INST W/ 744
2034 010446 3$: BCC 4$
2035 010446 103005 4$: BCC 4$
2036 010450 012737 000231 000302 MOV #231,@#SFATAL ;MOVE TO MAILBOX # ***** 231 *****
2037 010456 005212 INC (R2) ;SET MSGTYP TO FATAL ERROR
2038 010460 000000 HALT ;C NOT CLEARED
2039 ; TO SCOPE REPLACE HALT W/ 240
2040 ; AND REPLACE NEXT INST W/ 73E
2041 010462 032767 000357 167306 4$: BIT #357,CC
2042 010470 001405 BEQ 5$
2043 010472 012737 000232 000302 MOV #232,@#SFATAL ;MOVE TO MAILBOX # ***** 232 *****
2044 010500 005212 INC (R2) ;SET MSGTYP TO FATAL ERROR
2045 010502 000000 HALT ;PRIORITY NOT ZERO
2046 ; TO SCOPE REPLACE HALT W/ 240
2047 ; AND REPLACE NEXT INST W/ 725
2048 010504 012706 000500 5$: MOV #BUFF,SP
2049 010510 012767 010530 167266 MOV #RETU,RTRAP5
2050 010516 012767 000357 167262 MOV #357,RTRAP5+2 ;SET NEW "CC" AND PRIORITY
2051 010524 005767 167251 TST 1 ;TRACE HERE
2052 010530 RETV:
2053 010530 100405 BMI 1$
2054 010532 012737 000233 000302 MOV #233,@#SFATAL ;MOVE TO MAILBOX # ***** 233 *****
2055 010540 005212 INC (R2) ;SET MSGTYP TO FATAL ERROR
2056 010542 000000 HALT ;N NOT SET

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2057                                     : TC SCOPE REPLACE HALT W/ 240
2058                                     : AND REPLACE NEXT INST W/ 70E
2059 010544                               1$:
2060 010544 001405                       BEQ      2$
2061 010546 012737 000234 000302      MOV      #234,2#$FATAL ;MOVE TO MAILBOX # ***** 234 *****
2062 010554 005212                       INC      (R2)          ;SET MSGTYP TO FATAL ERROR
2063 010556 000000                       HALT
2064                                     : Z NOT SET
2065                                     : TO SCOPE REPLACE HALT W/ 240
2066                                     : AND REPLACE NEXT INST W/ 577
2066 010560                               2$:
2067 010560 102405                       BVS      3$
2068 010562 012737 000235 000302      MOV      #235,2#$FATAL ;MOVE TO MAILBOX # ***** 235 *****
2069 010570 005212                       INC      (R2)          ;SET MSGTYP TO FATAL ERROR
2070 010572 000000                       HALT
2071                                     : V NOT SET
2072                                     : TO SCOPE REPLACE HALT W/ 240
2073                                     : AND REPLACE NEXT INST W/ 671
2073 010574                               3$:
2074 010574 103405                       BCS      4$
2075 010576 012737 000236 000302      MOV      #236,2#$FATAL ;MOVE TO MAILBOX # ***** 236 *****
2076 010604 005212                       INC      (R2)          ;SET MSGTYP TO FATAL ERROR
2077 010606 000000                       HALT
2078                                     : C NOT SET
2079                                     : TO SCOPE REPLACE HALT W/ 240
2080                                     : AND REPLACE NEXT INST W/ 663
2080 010610 016700 167162                4$: MOV      CC,%0
2081 010614 027700 000357                CMP      #357,%0
2082 010620 001405                       BEQ
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
2086                                     : PRIORITY WAS CHANGED, OR WRONG $TSTNM
2087                                     : TO SCOPE REPLACE HALT W/ 240
2088                                     : AND REPLACE NEXT INST W/ 651
2088 :*****
2089 ;TEST 60 TEST THAT DECREMENT R6 TO A VALUE LESS THAN 400 TRAPS
2090 :*****
2091 010634 005237 000304                 †TST60: INC      2#$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
2100                                     : SHOULD HAVE TRAPPED, OR WRONG $TSTNM
2101                                     : TO SCOPE REPLACE HALT W/ 240
2102                                     : AND REPLACE NEXT INST W/ 764
2102 010676                               TDEC1:
2103
2104 :*****
2105 ;TEST 61 TEST FOR DECREMENT OF R6 ON OVERFLOW TRAP
2106 :*****
2107 010676 005237 000304                 †TST61: INC      2#$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

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TEST FOR DECREMENT OF R6 ON OVERFLOW TRAP

010726 020627  
010732 001405  
010734 012737  
010742 005212  
010744 000000

000142 TDEC2: CMP %6,#142  
BEQ TST62  
000241 000302 MOV #241,0#SFATAL  
INC (R2)  
HALT

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

M... .. 27 732  
... ..

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:*****
:TEST 62      TEST DIFFERENT TYPES OF OVERFLOW
:*****
2122          :
2123          :
2124 010746 005237 000304      :
2125 010752 022737 000062 000304  :
2126 010760 001043          :
2127 010762 012706 00015C          :
2128 010766 005067 167154          :
2129 010772 012767 011002 167004  :
2130 011000 005246          :
2131 011002 005767 16714C          :
2132 011006 001005          :
2133 011010 012737 000242 000302  :
2134 011016 005212          :
2135 011020 000000          :
2136          :
2137          :
2138 011022 012705 001000          :
2139 011026 012706 000400          :
2140 011032 012767 011054 166744  :
2141 011040 124645          :
2142 011042 012737 000243 000302  :
2143 011050 005212          :
2144 011052 000000          :
2145          :
2146          :
2147 011054 012706 000400          :
2148 011060 012767 011102 166716  :
2149 011066 134546          :
2150 011070          :
2151 011070 012737 000244 000302  :
2152 011076 005212          :
2153 011100 000000          :
2154          :
2155          :
2156 011102          :
2157          :
2158          :
2159          :
2160          :
:*****
:TEST 63      TEST THAT AN 7 CAUSES AN OVERFLOW TRAP
:*****
2161 011102 005237 000304      :
2162 011106 022737 000063 000304  :
2163 011114 001011          :
2164 011116 012706 000400          :
2165 011122 012767 011140 166660  :
2166 011130 012767 011152 166646  :
2167 011136 000007          :
2168 011140          :
2169 011140 012737 000245 000302  :
2170 011146 005212          :
2171 011150 000000          :
2172          :
2173          :
2174 011152 012767 000012 166630  :
2175          :
2176          :
:*****
:TEST 64      TEST THAT AN ICT CAUSES AN OVERFLOW TRAP
:*****

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2177
2178 011160 005237 000304          ;*****
2179 011164 022737 000064 000304  TST64: INC      2#STESTN      ;UPDATE TEST NUMBER
2180 011172 001011                    ;*****
2181 011174 012706 000400          ;*****
2182 011200 012767 011216 166612  MOV      #400,%6          ;SEQUENCE ERROR
2183 011206 012767 011230 166570  MOV      #VDEC4,20       ;BR TO ERROR HALT ON SEQ ERROR
2184 011214 000004                    ;*****
2185 011216                    ;*****
2186 011216 012737 000246 000302  VDEC4: MOV      #246,2#SFATAL ;MOVE TO MAILBOX # ***** 246 *****
2187 011224 005212                    ;*****
2188 011226 000000                    ;*****
2189                    ;*****
2190                    ;*****
2191 011230 012767 000022 166562  VDEC3: MOV      #20+2,20   ;*****
2192                    ;*****
2193                    ;*****
2194                    ;*****
2195 011236 005237 000304          ;*****
2196 011242 022737 000065 000304  TST65: INC      2#STESTN      ;UPDATE TEST NUMBER
2197 011250 001011                    ;*****
2198 011252 012706 000400          ;*****
2199 011256 012767 011274 166544  MOV      #65,2#STESTN     ;SEQUENCE ERROR
2200 011264 012767 011306 166512  BNE      VDEC6           ;BR TO ERROR HALT ON SEQ ERROR
2201 011272 104000                    ;*****
2202 011274                    ;*****
2203 011274 012737 000247 000302  MOV      #400,%6          ;SET UP STACK TO OVERFLOW
2204 011302 005212                    ;*****
2205 011304 000000                    ;*****
2206                    ;*****
2207                    ;*****
2208 011306 012767 000032 166514  VDEC6: MOV      #VDEC6,30   ;SET UP EMT VECTOR
2209                    ;*****
2210                    ;*****
2211                    ;*****
2212 011314 005237 000304          ;*****
2213 011320 022737 000066 000304  EMT      #VDEC5,4         ;SET UP OVERFLOW VECTOR
2214 011326 001011                    ;*****
2215 011330 012706 000400          ;*****
2216 011334 012767 011352 166472  MOV      #247,2#SFATAL    ;MOVE TO MAILBOX # ***** 247 *****
2217 011342 012767 011364 166434  INC      (R2)            ;SET MSGTYP TO FATAL ERROR
2218 011350 104400                    ;*****
2219 011352                    ;*****
2220 011352 012737 000250 000302  HALT     #250,2#SFATAL    ;TRAP FLAG OVERFLOW DID NOT OCCUR,OR WRONG $STNM
2221 011360 005212                    ;*****
2222 011362 000000                    ;*****
2223                    ;*****
2224                    ;*****
2225 011364 012767 000036 166442  VDEC7: MOV      #250,2#SFATAL ;MOVE TO MAILBOX # ***** 250 *****
2226                    ;*****
2227                    ;*****
2228                    ;*****
2229 011372 005237 000304          ;*****
2230 011376 022737 000067 000304  TST67: INC      2#STESTN      ;UPDATE TEST NUMBER
2231 011404 001011                    ;*****
2232 011406 012706 000400          ;*****
2233                    ;*****
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2240                    ;*****
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2233 011412 012767 011430 166374      MOV      #VDEC10,14      ;SET UP TRT VECTOR
2234 011420 012767 011442 166356      MOV      #VDEC9,4       ;SET JP OVERFLOW VECTOR
2235 011426 000003                          TRT                               ;THIS TRAP SHOULD CAUSE OVERFLOW
2236 011430                          VDEC10:
2237 011430 012737 000251 000302      MOV      #251,0#$FATAL ;MOVE TO MAILBOX # ***** 251 *****
2238 011436 005212                          INC      (R2)             ;SET MSGTYP TO FATAL ERROR
2239 011440 000000                          HALT                               ;TRAP FLAG OVERFLOW DID NOT OCCUR,OR WRONG $STNM
2240                                          ; TO SCOPE REPLACE HALT W/ 240
2241                                          ; AND REPLACE NEXT INST W/ 761
2242 011442 012767 000016 166344      VDEC9: MOV      #14+2,14
2243                                          ;*****
2244                                          ;TEST 70      TEST THAT AN ILLA CAUSES AN OVERFLOW TRAP
2245                                          ;*****
2246 011450 005237 000304                          TST70: INC      @#$TESTN ;UPDATE TEST NUMBER
2247 011454 022737 000070 000304      CMP      #70,@#$TESTN ;SEQUENCE ERROR
2248 011462 001011                          BNE     VDEC11           ;BR TO ERROR HALT ON SEQ ERROR
2249 011464 012706 000400                          MOV      #400,%6        ;SET UP STACK TO OVERFLOW
2250 011470 012767 011506 166306      MOV      #VDEC11,4     ;SET UP ILLA VECTOR
2251 011476 012767 011520 166300      MOV      #VDEC12,4     ;SET UP OVERFLOW VECTOR
2252 011504 004700                          ILLA                               ;THIS TRAP SHOULD CAUSE OVERFLOW
2253 011506                          VDEC11:
2254 011506 012737 000252 000302      MOV      #252,0#$FATAL ;MOVE TO MAILBOX # ***** 252 *****
2255 011514 005212                          INC      (R2)             ;SET MSGTYP TO FATAL ERROR
2256 011516 000000                          HALT                               ;TRAP FLAG OVERFLOW DID NOT OCCUR,OR WRONG $STNM
2257                                          ; TO SCOPE REPLACE HALT W/ 240
2258                                          ; AND REPLACE NEXT INST W/ 761
2259 011520 012767 000006 166256      VDEC12: MOV     #4+2,4
2260 011526 020627 000370                          CMP      %6,#370        ;STACK PUSHED FOUR WORDS?
2261 011532 001405                          BEQ     TST71
2262 011534 012737 000253 000302      MOV      #253,0#$FATAL ;MOVE TO MAILBOX # ***** 253 *****
2263 011542 005212                          INC      (R2)             ;SET MSGTYP TO FATAL ERROR
2264 011544 000000                          HALT                               ;TRAP OVERFLOW DID NOT OCCUR
2265                                          ; TO SCOPE REPLACE HALT W/ 240
2266                                          ; AND REPLACE NEXT INST W/ 746
2267                                          ;*****
2268                                          ;TEST 71      TEST THAT AN ILLB CAUSES AN OVERFLOW TRAP
2269                                          ;*****
2270 011546 005237 000304                          TST71: INC      @#$TESTN ;UPDATE TEST NUMBER
2271 011552 022737 000071 000304      CMP      #71,@#$TESTN ;SEQUENCE ERROR
2272 011560 001011                          BNE     VDEC13           ;BR TO ERROR HALT ON SEQ ERROR
2273 011562 012706 000400                          MOV      #400,%6        ;SET UP STACK TO OVERFLOW
2274 011566 012767 011604 166210      MOV      #VDEC13,4     ;SET UP ILLB VECTOR
2275 011574 012767 011616 166202      MOV      #VDEC14,4     ;SET UP OVERFLOW VECTOR
2276 011602 000100                          ILLB                               ;THIS TRAP SHOULD CAUSE OVERFLOW
2277 011604                          VDEC13:
2278 011604 012737 000254 000302      MOV      #254,0#$FATAL ;MOVE TO MAILBOX # ***** 254 *****
2279 011612 005212                          INC      (R2)             ;SET MSGTYP TO FATAL ERROR
2280 011614 000000                          HALT                               ;TRAP FLAG OVERFLOW DID NOT OCCUR,OR WRONG $STNM
2281                                          ; TO SCOPE REPLACE HALT W/ 240
2282                                          ; AND REPLACE NEXT INST W/ 761
2283 011616 012767 000006 166160      VDEC14: MOV     #4+2,4
2284                                          ;*****
2285                                          ;TEST 72      TEST FOR FALSE OVERFLOW TRAP
2286                                          ;*****
2287 011624 005237 000304                          TST72: INC      @#$TESTN ;UPDATE TEST NUMBER
    
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2269 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 $TSTNM
2308 ; TO SCOPE REPLACE HALT W/ 240
2309 ; AND REPLACE NEXT INST W/ 747
2310
2311 011720 012767 000006 166056 STP: MOV #6,4
2312 011726 005067 166054 CLR 6
2313 ;*****
2314 ;TEST 73 TEST THAT BIT 4 PSW WILL CAUSE A TRAP TO 14
2315 ;*****
2316 011732 005237 000304 TST73: INC 0#STESTN ;UPDATE TEST NUMBER
2317 011736 022737 000073 000304 CMP #73,0#STESTN ;SEQUENCE ERROR
2318 011744 001100 BNE STP1 ;BR TO ERROR HALT ON SEQ ERROR
2319 011746 005067 166044 CLR 16
2320 011752 012706 000500 MOV #BUFF,SP
2321 011756 012767 012006 166030 MOV #RETGT,RTRAP4
2322 011764 012767 000020 166004 MOV #20,STATUS
2323 011774 NOP
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
2330 012006 026727 165764 000000 RETGT: CMP STATUS,#0
2331 012014 001405 BEQ RETAT
2332 012016 012737 000257 000302 MOV #257,0#SFATAL ;MOVE TO MAILBOX # ***** 257 *****
2333 012024 005212 INC (R2) ;SET MSGTYP TO FATAL ERROR
2334 012026 000000 HALT ;NEW STATUS IS INCORRECT
2335 ; TO SCOPE REPLACE HALT W/ 240
2336 ; AND REPLACE NEXT INST W/ 746
2337
2338 012030 020627 000474 RETAT: CMP SP,#BUFF-4
2339 012034 001405 BEQ RETCT
2340 012036 012737 000260 000302 MOV #260,0#SFATAL ;MOVE TO MAILBOX # ***** 260 *****
2341 012044 005212 INC (R2) ;SET MSGTYP TO FATAL ERROR
2342 012046 000000 HALT ;STACK POINTER DID NOT DECREMENT
2343 ; TO SCOPE REPLACE HALT W/ 240
2344 ; AND REPLACE NEXT INST W/ 736
2345
2346 012050 022767 011774 166416 RETCT: CMP #RETBT,BUFF-4
2347 012056 001405 BEQ RETDT

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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
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 012767 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    0#STESTN      ;UPDATE TEST NUMBER
2379 012176 022737 000074 000304      CMP    #74,0#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

```

2401	012274	022767	000357	165474	RTIB:	CMP	#357, STATUS	
2402	012302	001405				BEQ	TST75	
2403	012304	012737	000266	000302		MOV	#266, @#SFATAL	: 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
2408								
2409								

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: T BIT CLEARED  
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: TEST 75 TEST THE RTI INSTRUCTION WITHOUT SETTING THE T BIT  
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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	000257	000302		MOV	#267, @#SFATAL	: MOVE TO MAILBOX # ***** 267 *****
2423	012354	005212				INC	(R2)	: SET MSGTYP TO FATAL ERROR
2424	012356	000000				HALT		: RTI DIDN'T TRAP
2425								: TO SCOPE REPLACE HALT W/ 240
2426								: AND REPLACE NEXT INST W/ 764

2427	012360	022767	000000	165410	RTTA:	CMP	#0, STATUS	
2428	012366	001405				BEQ	TST76	
2429	012370	012737	000270	000302		MOV	#270, @#SFATAL	: 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

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: T BIT CLEARED  
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: TEST 76 TEST THE RTI INSTRUCTION SETTING THE T BIT  
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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, @#SFATAL	: 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				BEQ	1\$	

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2457 012464 012737 000272 000302      MOV    #272,0#SFATAL      ;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#SFATAL      ;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#SFATAL      ;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#SFATAL      ;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 $TSTN
2481                                     ; TO SCOPE REPLACE HALT W/ 240
2482                                     ; AND REPLACE NEXT INST W/ 715
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2489
2490 012562 005237 000304      ST77: INC    0#STESTN      ;UPDATE TEST NUMBER
2491 012566 022737 000077 000304      CMP    #77,0#STESTN      ;SEQUENCE ERROR
2492 012574 001061      RNE    TST100-12         ;BR TO ERROR HALT ON SEQ ERROR
2493 012576 012767 000357 165212      MOV    #357,16
2494 012604 012706 000500      MOV    #BUFF,SP
2495 012610 012767 012644 165176      MOV    #RTTC,RTRAP4
2496 012616 012746 000020      MOV    #20,-(SP)
2497 012622 012746 012630      MOV    #RTID,-(SP)
2498 012626 000006      RTT
2499 012630 000240      RTTD: NOP
2500 012632 012737 000276 000302      MOV    #276,0#SFATAL      ;MOVE TO MAILBOX # ***** 276 *****
2501 012640 005212      INC    (R2)                ;SET MSGTYP TO FATAL ERROR
2502 012642 000000      HALT                       ;T BIT SHOULDN'T ALLOW PC TO COME HERE
2503                                     ; TO SCOPE REPLACE HALT W/ 240
2504                                     ; AND REPLACE NEXT INST W/ 754
2505 012644 026727 165126 000357 RTTC:  CMP    STATUS,#357
2506 012652 001405      BEQ    1$
2507 012654 012737 000277 000302      MOV    #277,0#SFATAL      ;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
    
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////////////////////////////////////  
 : T BIT CLEARED  
 :////////////////////////////////////

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 :TEST 77 TEST THE RTI INSTRUCTION SETTING THE T BIT  
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2513 012672 001405      BEQ      2$
2514 012674 012737*    00030C 000302    MOV      #300,0#$FATAL ;MOVE TO MAILBOX # ***** 300 *****
2515 012702 005212          INC      (R2)        ;SET MSGTYP TO FATAL ERROR
2516 012704 00000C          HALT              ;STACK POINTER DID NOT DECREMENT
; TO SCOPE REPLACE HALT W/ 240
; AND REPLACE NEXT INST W/ 733
2519 012706 022767    012632 165560 2$:    CMP      #RTD+2,BJFF-4
2520 012714 001405      BEQ      3$
2521 012716 012737    000301 000302    MOV      #301,0#$FATAL ;MOVE TO MAILBOX # ***** 301 *****
2522 012724 005212          INC      (R2)        ;SET MSGTYP TO FATAL ERROR
2523 012726 00000C          HALT              ;CORRECT PC WAS NOT SAVED
; TO SCOPE REPLACE HALT W/ 240
; AND REPLACE NEXT INST W/ 722
2524
2525 012730 022767    000020 165540 3$:    CMP      #20,BUFF-2
2527 012736 001405      BEQ      TST100
2528 01274C 012737    000302 000302    MOV      #302,0#$FATAL ;MOVE TO MAILBOX # ***** 302 *****
2529 012746 005212          INC      (R2)        ;SET MSGTYP TO FATAL ERROR
2530 01275C 00000C          HALT              ;CORRECT PC WAS NOT SAVED, OR WRONG $TSTYM
; TO SCOPE REPLACE HALT W/ 240
; AND REPLACE NEXT INST W/ 711
2531
2532
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2540 012752 005237    000304
2541 012756 022737    000100 000304
2542 012764 001050          BNE      TST101-12 ;BR TO ERROR HALT ON SEQ ERROR
2543 012766 005067    165024          CLR      16
2544 012772 012706    000500          MOV      #BUFF,SP
2545 012776 012767    013036 165010          MOV      #RTIE,RTRAP4
2546 013004 005046          CLR      -(SP)
2547 013006 012746    013022          MOV      #RTIF,-(SP)
2548 013012 052767    000020 164756          BIS      #20,STATUS
2549 013020 000002          RTI
2550 013022 000240          NOP
2551 013024 012737    000303 000302    RTIF:    MOV      #303,0#$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
2554
2555
2556 013036 005767    164734          RTIE:    TST      STATUS
2557 013042 001405      BEQ      1$
2558 013044 012737    000304 000302    MOV      #304,0#$FATAL ;MOVE TO MAILBOX # ***** 304 *****
2559 013052 005212          INC      (R2)        ;SET MSGTYP TO FATAL ERROR
2560 013054 00000C          HALT              ;NEW STATUS IS INCORRECT
; TO SCOPE REPLACE HALT W/ 240
; AND REPLACE NEXT INST W/ 743
2561
2562
2563 013056 020627    000474          1$:    CMP      SP,#BUFF-4
2564 013062 001405      BEQ      2$
2565 013064 012737    000305 000302    MOV      #305,0#$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

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2569
2570 013076 022767 013022 165370 25:  CMP      #RTIF,BUFF-4 ; AND REPLACE NEXT INST W/ 733
2571 013104 001405          BEQ      TST101
2572 013106 012737 000306 000302          MOV      #306,#$FATAL ; 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 $STNM
2575                                     ; TO SCOPE REPLACE HALT W/ 240
2576                                     ; AND REPLACE NEXT INST W/ 722
2577
2578
2579
2580
2581
2582
2583
2584 013120 005237 000304          TST101: INC      @#STESTN ; UPDATE TEST NUMBER
2585 013124 022737 000101 000304          CMP      #101,@#STESTN ; SEQUENCE ERROR
2586 013132 001035          BNE     TST102-12 ; BR TO ERROR HALT ON SEQ ERROR
2587 013134 012706 000500          MOV      #BUFF,SP
2588 013140 012767 013164 164646          MOV      #RTTM,RTRAP4
2589 013146 005046          CLR      -(SP)
2590 013150 012746 013200          MOV      #RTTL,-(SP)
2591 013154 052767 000020 164614          BIS      #20,STATUS
2592 013162 000006          RTT
2593 013164 000240          RTTM:  NOP
2594 013166 012737 000307 000302          MOV      #307,@#$FATAL ; 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
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2601
2602
2603
2604
2605
2606 013200 005767 164572          RTTL:  TST      STATUS
2607 013204 001405          BEQ      1$
2608 013206 012737 000310 000302          MOV      #310,@#$FATAL ; MOVE TO MAILBOX # ***** 310 *****
2609 013214 005212          INC      (R2)          ; SET MSGTYP TO FATAL ERROR
2610 013216 000000          HALT          ; NEW STATUS IS INCORRECT
2611                                     ; TO SCOPE REPLACE HALT W/ 240
2612                                     ; AND REPLACE NEXT INST W/ 745
2613
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2619
2620 013220 020627 000500          1$:    CMP      SP,#BUFF
2621 013224 001405          BEQ      TST102
2622 013226 012737 000311 000302          MOV      #311,@#$FATAL ; MOVE TO MAILBOX # ***** 311 *****
2623 013234 005212          INC      (R2)          ; SET MSGTYP TO FATAL ERROR
2624 013236 000000          HALT          ; STACK POINTER DID NOT DECREMENT,OR WRONG $STNM
2625                                     ; TO SCOPE REPLACE HALT W/ 240
2626                                     ; AND REPLACE NEXT INST W/ 735
2627
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2700

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2681
2682 013500 022767 013444 164766 2$: CMP #RTTI+2,BUFF-4 ; AND REPLACE NEXT INST W/ 742
2683 013506 001405 3$: BEQ 3$
2684 013510 012737 000317 000302 MOV #317,0#$FATAL ; MOVE TO MAILBOX # ***** 317 *****
2685 013516 005212 INC (R2) ; SET MSGTYP TO FATAL ERROR
2686 013520 000000 HALT ; CORRECT PC WAS NOT SAVED
; TO SCOPE REPLACE HALT W/ 240
; AND REPLACE NEXT INST W/ 73:
2687
2688
2689 013522 020027 000001 3$: 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 $TSYM
; TO SCOPE REPLACE HALT W/ 240
; AND REPLACE NEXT INST W/ 72:
2695
2696
2697 013542 012767 000016 164244 STP2C: MOV #16,14
2698 013550 005067 164242 CLR 16
2699
2700 :*****
2701 :TEST 104 DOES THE PROCESSOR TRAP WHEN %7 IS ODD?
2702 :*****
2703 013554 005237 000304 INC 0#$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
; TO SCOPE REPLACE HALT W/ 240
; AND REPLACE NEXT INST W/ 763
2712
2713
2714 013620 022767 000001 164646 R7TR1: CMP #1,BUFF-4
2715 013626 001405 BEQ 1$
2716 013630 012737 000322 000302 MOV #322,0#$FATAL ; MOVE TO MAILBOX # ***** 322 *****
2717 013636 005212 INC (R2) ; SET MSGTYP TO FATAL ERROR
2718 013640 000000 HALT ; CORRECT PC WAS NOT SAVED ON STACK
; TO SCOPE REPLACE HALT W/ 240
; AND REPLACE NEXT INST W/ 752
2719
2720
2721
2722 013642 012706 000500 1$: MOV #BUFF,%6 ; STACK POINTER
2723 013646 012767 013670 164130 MOV #R7TR2,4
2724 013654 005207 INC %7 ; PC BECOMES ODD
2725 013656 R7TR2A:
2726 013656 012737 000323 000302 MOV #323,0#$FATAL ; MOVE TO MAILBOX # ***** 323 *****
2727 013664 005212 INC (R2) ; SET MSGTYP TO FATAL ERROR
2728 013666 000000 HALT
; TO SCOPE REPLACE HALT W/ 240
; AND REPLACE NEXT INST W/ 737
2729
2730
2731 013670 022767 013657 164576 R7TR2: CMP #R7TR2A+1,BUFF-4
2732 013676 001405 BEQ 1$
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
; TO SCOPE REPLACE HALT W/ 240
2736
  
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2849          :RETURN HERE ON AN ADDRESS TRAP
2850 014336 010067 177730 ATRAP: MOV RO,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,RO ;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,SP
2855 014360 105740      TSTB -(RO) ;DOES IT EXIST?
2856 014362 005200      DTRAP: INC RO ;IF YES INCREMENT IT
2857 014364 020067 177702      CMP RO,CORH ;IS IT THE SAME LOCATION?
2858 014370 001426      BEQ TRAPB
2859 014372 012737 000335 000302 MOV #335,0#$FATAL ;MOVE TO MAILBOX # ***** 335 *****
2860 014400 005212      INC (R2) ;SET MSGTYP TO FATAL ERROR
2861 014402 000000      HALT ;CONTENTS OF RO AND CORH SHOULD HAVE BEEN EQUAL
2862          ; TO SCOPE REPLACE HALT W/ 240
2863          ; AND REPLACE NEXT INST W/ 730
2864          ; IF THIS COMPARISON FAILS IT MEANS
2865          ; THAT SOME LEGAL ADDRESS TRAPPED OR
2866          ; THAT AN ILLEGAL ADDRESS DID NOT TRAP
2867 014404 005767 163366      BTRAP: TST STATUS
2868 014410 001405      BEQ IS
2869 014412 012737 000336 000302 MOV #336,0#$FATAL ;MOVE TO MAILBOX # ***** 336 *****
2870 014420 005212      INC (R2) ;SET MSGTYP TO FATAL ERROR
2871 014422 000000      HALT ;NEW PSW SHOULD HAVE BEEN ZERO
2872          ; TO SCOPE REPLACE HALT W/ 240
2873          ; AND REPLACE NEXT INST W/ 720
2874 014424 026727 164044 014362 IS: CMP BUFF-4,#DTRAP
2875 014432 001745      BEQ CTRAP
2876 014434          AUTOJ:
2877 014434 012737 000337 000302 MOV #337,0#$FATAL ;MOVE TO MAILBOX # ***** 337 *****
2878 014442 005212      INC (R2) ;SET MSGTYP TO FATAL ERROR
2879 014444 000000      HALT ;OLD PC WAS NOT SAVED OR WRONG $TESTN
2880          ; TO SCOPE REPLACE HALT W/ 240
2881          ; AND REPLACE NEXT INST W/ 707
2882 014446 012767 000006 163330 TRAPB: MOV #6,4
2883 014454 005067 163326      CLR 6
2884
2885 ;*****
2886 ;TEST 110 TEST THAT A TTY INTERRUPT CAUSES AN OVERFLOW TRAP
2887 ;*****
2888 014460 005237 000304      TST110: INC 0#$TESTN ;UPDATE TEST NUMBER
2889 014464 022737 000110 000304 CMP #110,0#$TESTN ;SEQUENCE ERROR
2890 014472 001032      BNE TOECB ;BR TO ERROR HALT ON SEQ ERROR
2891 014474 032767 000001 163620 BIT #1,$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 #TOECB,4 ;SET UP OVERFLOW TRAP
2897 014526 012767 014560 163330 MOV #TOECB,64 ;SET UP INTERRUPT VECTOR
2898 014534 012767 000100 163022 MOV #100,$TCR ;SET INTERRUPT ENABLE
2899 014542 005067 163230      CLR STATUS ;ALLOW INTERRUPT TO OCCUR
2900 014546 012737 000340 000302 MOV #340,0#$FATAL ;MOVE TO MAILBOX # ***** 340 *****
2901 014554 005212      INC (R2) ;SET MSGTYP TO FATAL ERROR
2902 014556 000000      HALT ;NO INTERRUPT OCCURRED
2903          ; TO SCOPE REPLACE HALT W/ 240
2904          ; AND REPLACE NEXT INST W/ 745

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2905 014560
2906 014560 012737 000341 000302 TDEC8: MOV #341,0#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 $STNM
2909 ; TO SCOPE REPLACE HALT W/ 240
2910 ; AND REPLACE NEXT INST W/ 740
2911 014572 005067 162766 TDEC77: CLR TTCSR ;CLEAR INTERRUPT ENABLE
2912 014576 012767 000006 163200 MOV #6,4
2913 014604 005067 163176 CLR 6
2914 014610
2915
2916 ;*****
2917 ;TEST 111 TEST THAT A PENDING INTERRUPT OCCURS BEFORE TRAP
2918 ;*****
2919 014610 005237 000304 TST111: INC @#STESTN ;UPDATE TEST NUMBER
2920 014614 022737 000111 000304 CMP #111,@#STESTN ;SEQUENCE ERROR
2921 014624 032767 000001 163470 BNE BR71 ;BR TO ERROR HALT ON SEQ ERROR
2922 014632 001046 BIT #1,$SWREG
2923 014634 012706 000500 BNE NODL
2924 014640 012767 000340 163130 MOV #BUFF,%6
2925 014646 012767 014712 163210 MOV #340,$STATUS ;SET TO A HIGH PRIORITY LEVEL
2926 014654 012767 000100 162702 MOV #TR0,64
2927 014662 012767 014724 163144 MOV #BR71,34 ;INTERRUPT FOR TTY PUNCH/PRINTER
2928 014670 012767 014736 163166 MOV #TR2,64 ;TRAP VECTOR
2929 014676 012767 000340 163132 MOV #340,36 ;TTY VECTOR
2930 014704 005067 163066 CLR STATUS ;IF TRAP TRAPS, MOVE 340 TO PRIORITY
2931 014710 104400 TRAP ;SHOULD INTERRUPT AT END OF CLR INST
2932 014712
2933 014712 012737 000342 000302 TRO: MOV #342,0#SFATAL ;MOVE TO MAILBOX # ***** 342 *****
2934 014720 005212 INC (R2) ;SET MSGTYP TO FATAL ERROR
2935 014722 000000 HALT ;TTY SHOULDN'T HAVE INTERRUPTED
2936 ; TO SCOPE REPLACE HALT W/ 240
2937 ; AND REPLACE NEXT INST W/ 737
2938 014724
2939 014724 012737 000343 000302 BR71: MOV #343,0#SFATAL ;MOVE TO MAILBOX # ***** 343 *****
2940 014732 005212 INC (R2) ;SET MSGTYP TO FATAL ERROR
2941 014734 000000 HALT ;TRAP OCCURRED FIRST, OR WRONG $STNM
2942 ; TO SCOPE REPLACE HALT W/ 240
2943 ; AND REPLACE NEXT INST W/ 732
2944 014736 005067 163074 TR2: CLR 36
2945 014742 042767 000100 162614 BIC #100,TTCSR
2946 014750
2947
2948 ;*****
2949 ;TEST 112 TEST THAT A PENDING INTERRUPT, INTERRUPTS BETWEEN TRAPS
2950 ;*****
2951 014750 005237 000304 TST112: INC @#STESTN ;UPDATE TEST NUMBER
2952 014754 022737 000112 000304 CMP #112,@#STESTN ;SEQUENCE ERROR
2953 014762 001032 BNE TR5 ;BR TO ERROR HALT ON SEQ ERROR
2954 014764 032767 000001 163330 BIT #1,$SWREG
2955 014774 001046 BNE NODL
2956 015000 012706 000500 MOV #BUFF,%6
2957 015006 012767 000340 162770 MOV #340,$STATUS
2958 015014 012767 000100 162550 MOV #100,TTCSR
2959 015022 012767 015046 163012 MOV #TR3,34 ;TRAP
2960 015030 012767 015062 163034 MOV #TR4,64 ;TTY OUTPUT
2961 015050 162762 MOV #TR5,20 ;IOT

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# F05

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 EST THAT A PENDING INTERRUPT, INTERRUPTS BETWEEN TRAPS

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 EST THAT A PENDING INTERRUPT, INTERRUPTS BETWEEN TRAPS

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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      #344,0#SFATAL ;MOVE TO MAILBOX # ***** 344 *****
2966 015056 005212      INC      (R2)        ;SET MSGTYP TO FATAL ERROR
2967 015060 000003      HALT     ;NO INTERRUPT BETWEEN TRAPS, OR WRONG $STNM
2968      ; TO SCOPE REPLACE HALT W/ 240
2969      ; AND REPLACE NEXT INST W/ 740
2970 015062 005067 162734      TR4:    CLR      22      ;CLR IOT PRIORITY
2971 015066 012767 000036 162740      MOV      #36,34
2972 015074 012767 000066 162762      MOV      #66,64
2973 015102 012767 000022 162710      MOV      #22,20
2974 015110      NOCL1:
2975
2976      ;*****
2977      ;TEST 113      TEST THAT "RESET" GOES TO OUTSIDE WORLD
2978      ;*****
2979 015110 005237 000304      †ST113: INC      0#STESTN ;UPDATE TEST NUMBER
2980 015114 022737 000113 000304      CMP      #113,0#STESTN ;SEQUENCE ERROR
2981 015122 001030      BNE     TST114-12 ;BR TO ERROR HALT ON SEQ ERROR
2982 015124 032767 000001 163170      BIT      #1,$SWREG
2983 015132 001031      BNE     NOCL2
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      #345,0#SFATAL ;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      #346,0#SFATAL ;MOVE TO MAILBOX # ***** 346 *****
2997 015212 005212      INC      (R2)        ;SET MSGTYP TO FATAL ERROR
2998 015214 000003      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      NOCL2:
3002      ;*****
3003      ;TEST 114      TEST THAT RESET HAS NO EFFECT ON THE TRACE TRAP
3004      ;*****
3005 015216 005237 000304      †ST114: INC      0#STESTN ;UPDATE TEST NUMBER
3006 015222 022737 000114 000304      CMP      #114,0#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      #347,0#SFATAL ;MOVE TO MAILBOX # ***** 347 *****
3015 015264 005212      INC      (R2)        ;SET MSGTYP TO FATAL ERROR
3016 015266 000000      HALT     ;TRACE TRAP FAILED, OR WRONG $STNM
  
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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 015306 005237 000304 TST115: INC @#STESTN ;UPDATE TEST NUMBER
3028 015312 022737 000115 000304 CMP #115,@#STESTN ;SEQUENCE ERROR
3029 015320 001052 BNE TTY11 ;BR TO ERROR HALT ON SEQ ERROR
3030 015322 032767 000001 162772 BIT #1,$SWREG
3031 015330 001055 BNE NODL3
3032 015332 000005 RESET
3033 015334 012706 000500 MOV #BUFF,%6 ;SET UP STACK
3034 015340 012767 015364 162516 MOV #TTY3,%4 ;INTERRUPT VECTOR
3035 015346 005067 162424 CLR STATUS ;DROP PROCESSOR PRIORITY
3036 015352 012767 000357 162506 MOV #357,%6 ;HIGH PRIORITY ON INTERRUPT
3037 015360 005167 162200 COM TTCSR ;SHOULD SET INTERRUPT ENABLE & INTERRUPT
3038 015364 026727 162406 000357 TTY3: CMP STATUS,%357
3039 015372 001405 BEQ IS
3040 015374 012737 000350 000302 MOV #350,@#SFATAL ;MOVE TO MAILBOX # ***** 350 *****
3041 015402 005212 INC (R2) ;SET MSGTYP TO FATAL ERROR
3042 015404 000000 HALT ;INTERRUPT DID NOT POP CORRECT STATUS
3043                                     ; TO SCOPE REPLACE HALT W/ 240
3044                                     ; AND REPLACE NEXT INST W/ 745
3045                                     ; CLR INTERRUPT ENABLE
3046 015406 000005 IS: RESET
3047 015410 012706 000500 MOV #BUFF,%6 ;STACK SET UP
3048 015414 012767 015440 162442 MOV #TTY4,%4 ;INTERRUPT VECTOR
3049 015422 005067 162440 CLR 66 ;CLR NEW STATUS
3050 015426 012767 000157 162342 MOV #157,STATUS ;PROCESSOR STATUS
3051 015434 005167 162124 COM TTCSR ;SET INTERRUPT ENABLE
3052 015440 005767 162332 TTY4: TST STATUS
3053 015444 001405 BEQ TTT37
3054 015446 TTY11: MOV #351,@#SFATAL ;MOVE TO MAILBOX # ***** 351 *****
3055 015454 012737 000351 000302 INC (R2) ;SET MSGTYP TO FATAL ERROR
3056 015456 000000 HALT ;INCORRECT STATUS OR WRONG STSTNM
3057                                     ; TO SCOPE REPLACE HALT W/ 240
3058                                     ; AND REPLACE NEXT INST W/ 720
3059 015460 005067 162100 TTT37: CLR TTCSR
3060 015464 NODL3:
3061 :*****
3062 :TEST 116 TEST THE 'WAIT' INSTRUCTION
3063 :*****
3064 015464 005237 000304 TST116: INC @#STESTN ;UPDATE TEST NUMBER
3065 015470 022737 000116 000304 CMP #116,@#STESTN ;SEQUENCE ERROR
3066 015476 001061 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

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3073 015532 012767 000015 162026      MOV      #15,TPB      ;DO A CARRIAGE RETURN
3074 015540 105767 162020      WATE2:  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 000100 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      #352,2#FATAL ;MOVE TO MAILBOX # ***** 352 *****
3081 015576 005212      INC      (R2)        ;SET MSGTYP TO FATAL ERROR
3082 015600 000000      HALT     ;WAIT INSTRUCTION DID NOT LOOP
3083      ; TO SCOPE REPLACE HALT W/ 240
3084      ; AND REPLACE NEXT INST W/ 736
3085 015602 005767 162170      WATE:   TST      STATUS ;IS THE PSW CORRECT?
3086 015606 001405      BEQ     1$
3087 015610 012737 000353 000302      MOV      #353,2#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
3090      ; TO SCOPE REPLACE HALT W/ 240
3091      ; AND REPLACE NEXT INST W/ 726
3092 015622 026727 162646 015566 1$:      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      STP4:
3097 015642 012737 000354 000302      MOV      #354,2#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 $TESTN
3100      ; TO SCOPE REPLACE HALT W/ 240
3101      ; AND REPLACE NEXT INST W/ 711
3102 015654 012767 000066 162202      STP4E. MOV      #66,64
3103
3104 :*****
3105 ;TEST 117 TEST THAT ALL RESERVED INSTRUCTIONS TRAP
3106 :*****
3107 015662 005237 000304      †ST117: INC      2#$TESTN ;UPDATE TEST NUMBER
3108 015666 022737 000117 000304      CMP      #117,2#$TESTN ;SEQUENCE ERROR
3109 015674 001137      BNE     RET4 ;BR TO ERROR HALT ON SEQ ERROR
3110 015676 042767 000100 161660      BIC      #100,TPS
3111 015704 012703 016220      MOV      #TABLE,TAB ;TABLE POINTER
3112 015710 012305      GIN1:  MOV      (TAB)+,FIRST ;FIRST OR CURRENT INSTRUCTION
3113 015712 012301      MOV      (TAB)+,LAST ;LAST INSTRUCTION OR GROUP
3114 015714 020567 000334      CMP      FIRST,FINISH ;TESTED ALL
3115 015720 001415      BEQ     GIN3 ;YES BRANCH
3116 015722 010567 000330      MOV      FIRST,INST ;SET UP INST
3117 015726 005267 000324      GIN2:  INC      INST
3118 015732 012767 016124 162050      MOV      #RET,10 ;SET UP RETURN FROM TRAP
3119 015740 012706 000500      MOV      #BUFF,SP ;SET UP STACK POINTER
3120 015744 005067 162026      CLR      CC ;CLEAR PRIORITY
3121 015750 000167 000302      JMP     INST ;EXECUTE RESERVED INSTRUCTION
3122 015754 005237 000306      GIN3:  INC      2#$PASS
3123 015760 105267 000116      INCB   PASSPT ;SHOULD PRINT THIS PASS?
3124 015764 001027      BNE     ACT ;NO
3125 015766 132767 000040 162325      BITB   #40,$ENVM ;WILL APT ALLOW PRINTING?
3126 015774 001023      ACT ;NO
3127 015776 023727 000042 016054      CMP      2#42,$SENDAD
3128 016004 001417      BEQ     ACT

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000000  
000000

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ES\*TRAP ALL RESERVED INSTRUCTIONS TRAP

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3129 016006 012700 016104      MOV      #MSG,RO      ;GET MSG ADDR.
3130 016012 105737 177564      WAIT:   TSTB     @#TPS  ;TTY READY
3131 016016 100375      BPL     WAIT         ;NO WAIT
3132 016020 112037 177566      MOV     (RO)+,@#TPB  ;PRINT CHARACTER
3133 016024 001372      BNE     WAIT         ;NEXT IF NOT DONE.
3134 016026 105737 177564      WAIT1:  TSTB     @#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     @#42,RO ;CHECK ACT
3139 016050 001405      BEQ     GOAGIN       ;KEEP GOING
3140 016052 000005      RESET
3141 016054 004710      SENDAD: JSR     PC,(RO) ;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     RESTRT       ;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 01612C 041101 00004C
3152
3153      ;TRAPPING SHOULD SEND YOU HERE
3154 016124 020627 000474      RET:    CMP     SP,#BUFF-4 ;TEST DECREMENT OF SP
3155 016130 001405      BEQ     RET1
3156 016132 012737 000355 000302      MOV     #355,@#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      BEQ     RET2
3163 016154 012737 000356 000302      MOV     #356,@#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     BLFF-2
3169 016172 001405      BEQ     RET3
3170 016174
3171 016174 012737 000357 000302      RET4:   MOV     #357,@#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 $STNM
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      BEQ     GIN1
3178 016214 000167 177506      JMP     GIN2
3179
3180 016220 000006      TABLE: 6
3181 016222 000077      77
3182 016224 000207      207
3183 016226 000227      227
3184 016230 006777      6777
;RTS,RT1,JMF

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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: ;END FLAG
3195 016256 000000 INST: HALT ;WILL CONTINUE RESERVED INST
3196 016260 000000 HALT ;SHOULD TRAP TO LOC 10
3197 016262 000000 HALT ;LOC 10 SHOULD SEND YOU TO
3198 016264 000000 HALT ;RET
3199 016266 000000 HALT
3200 016270 012767 C16300 161526 PWRDWN: MOV #PWRUP.24
3201 016276 000000 HALT
3202
3203 016300 012767 016270 161516 PWRUP: MOV #PWRDWN.24
3204 016306 012706 000500 MOV #BUFF.SP
3205 016312 132767 000040 16200: BITB #40,SENV ;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 J*TPS ;TTY READY
3209 016332 100375 BPL PWAIT ;NO WAIT
3210 016334 112037 177566 MOV#B (RO)+,J*TPB ;PRINT CHARACTER
3211 016340 001372 BNE PWAIT ;NEXT IF NOT DONE.
3212 016342 105737 177564 PWAIT1: TSTB J*TPS
3213 016346 100375 BPL PWAIT1
3214 016350 000167 162134 PFRES: JMP RESTART
3215 016354 00501E 047520 042527 MSGPWF: .ASCIZ '15'12'.POWER FAILED!
3216 016362 020122 040506 046111
3217 01637C 042105 000041
3218 000001 .ENC

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ACDW2 =	000000	255		
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ADEVN =	000000	255		
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AFATAL =	000000	255	258	
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AMAMS3 =	000000	255	288	
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AMTYP4 =	000000	255	292	
APASS =	000000	255	260	
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ATESTN =	000000	255	259	
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AUSWR =	000000	255	269	
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BELL =	000240	225*		
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BR11	001204	457	464*												
BR12	001254	470	477*												
BR13	001324	483	490*												
BR14	001374	496	503*												
BR15	001502	522	529*												
BR16	001524	530	537*												
BR17	001546	538	545*												
BR2	000666	365	372*												
BR20	001570	546	552*												
BR21	001612	553	560*												
BR22	001634	561	568*												
BR23	001656	569	576*												
BR24	001744	594	600*												
BR25	001774	603	610*												
BR26	002024	613	619*												
BR27	002054	622	629*												
BR3	000712	375	382*												
BR30	002104	632	639*												
BR31	002134	642	648*												
BR33	002222	667	673*												
BR34	002236	674	680*												
BR35	002252	681	687*												
BR36	002266	688	694*												
BR37	002312	697	703*												
BR4	000740	386	393*												
BR40	002326	704	710*												
BR41	002342	711	717*												
BR45	004042	1060	1065*												
BR46	004672	1158	1234*												
BR46A	004704	1233	1240*												
BR47	005552	1409	1414*												
BR5	000766	397	404*												
BR51	006402	1509	1585*												
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BR6	001014	408	414*												
BR60	013724	2740*	2746*												
BR7	001042	418	425*												
BR70	014134	2777	2794*												
BR71	014724	2920	2927*	2938*											
BTRAP	014404	2853	2867*												
BUFF	000500	323*	730	746	749	762	765	778	783	790	795	808	847	899	
		914	917	930	933	946	951	958	962	975	1014	1063	1082	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	2452	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	2354	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	1918*	
		1930*	1878	1917	1981*	1993*	2041	2080	2811*	3120*					

CC = 17777E





RETA	002406	729	733#
RETAH	002420	731	735#
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#
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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#
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RETF6	006774	1684	1687#
RETG	003050	848	851#
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RETG2	003674	1015	1018#
RETG3	004574	1199	1202#
RETG4	005410	1365	1368#
RETG5	006304	1550	1553#
RETG6	007120	1723	1726#
RETH	007266	1769	1776#
RETH1	007316	1784	1786#
RETH2	007366	1800	1802#
RETH3	007446	1817	1821#
RETH4	007514	1829	1833#
RETH5	007572	1847	1850#





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 CROSS REFERENCE TABLE -- USER SYMBOLS

TST1	000574	336	349#	
TST1G	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	003248	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	2082	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#															
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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#															
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VDEC6	011274	2197	2199	2202#															
VDEC7	011364	2217	2225#																
VDEC8	011352	2214	2216	2219#															
VDEC9	011442	2234	2242#																
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WATE	015602	3069	3085#																
WATE1	015524	3071#	3072																
WATE2	015540	3074#	3075																
WATE3	015566	3079#	3092	3094															
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552*	563*	570	571*	578	579*	595	596*	604	605*	614	615*	620*
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*	984
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
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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
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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*	3080
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*
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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*
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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*	2464*	2471*	2478*	2500*	2507*	2514*	2521*
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*	2945*	2989*	2996*	3014*	3039*

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



3000360  
3000360  
3156764

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269*	500	513	521*	526	534	542	550	557	565	573	581	598
352*	607	617	626	636	646	655	665*	671	678	685	692	701*
487	715	722	730*	737	746*	754	762*	770	778*	788	800	808*
598	824	831	838	845	856	863	870	877	887	897*	905	914*
708	930*	938	946*	956	967	975*	984	991	998	1005	1012	1023*
917	1037	1044	1053	1061*	1069	1082*	1088	1097*	1105	1113*	1121	1129*
922	1151	1159*	1168	1175	1182	1189	1196	1207	1214	1221	1228	1238*
1030	1254	1263*	1271	1279*	1287	1295*	1305	1317	1325*	1334	1341	1348*
1139	1362	1373	1380	1387	1394	1402	1410*	1418	1432*	1438	1447*	1455*
1248*	1471	1479*	1490	1502	1510*	1519	1526	1533	1540	1547	1558	1565*
1355	1579	1589	1606*	1612	1621*	1629	1637*	1645	1653*	1663	1675	1683*
1463*	1699	1706	1713	1720	1731	1738	1745	1752	1760	1768*	1774	1783*
1572	1791	1799*	1807	1816*	1826	1838	1846*	1855	1862	1869	1876	1883*
1692	1901	1908	1915	1923	1932*	1938	1947*	1955	1963*	1971	1979*	1989*
1791	2009*	2018	2025	2032	2039	2046	2057	2064	2071	2078	2086	2094*
1901	2110*	2118	2127*	2136	2145	2154	2164*	2172	2181*	2189	2198*	2206
2009*	2223	2232*	2240	2249*	2257	2265	2273*	2281	2291*	2308	2318*	2327*
2110*	2341	2348	2355	2367	2381*	2388	2395	2406	2418*	2425	2432	2441*
2223	2460	2467	2474	2481	2493*	2503	2510	2517	2524	2531	2543*	2554*
2341	2568	2575	2587*	2597	2604	2611	2623*	2634	2642	2649	2661*	2672
2460	2687	2695	2706*	2712	2719	2729	2736	2744	2751	2762	2770	2778*
2568	2798	2808*	2818	2831*	2847	2862	2872	2880	2891*	2903	2909	2921*
2687	2942	2953*	2968	2982*	2992	2999	3008*	3017	3029*	3042	3056	3067*
2798	3090	3100*	3110*	3159	3166	3174						
2942	359*	369	379	390*	401*	412*	422*	433*	443*	461*	474*	487*
2992	513*	526*	534*	542*	550*	557*	565*	573*	581*	598*	607*	617*
3090	636*	646*	655*	671*	678*	685*	692*	701*	708*	715*	722*	737*
	770*	788*	800*	817*	824*	831*	838*	845*	856*	863*	870*	877*
	905*	922*	938*	956*	967*	984*	991*	998*	1005*	1012*	1023*	1030*
	1044*	1053*	1069*	1088*	1105*	1121*	1139*	1151*	1168*	1175*	1182*	1189*
	1207*	1214*	1221*	1228*	1238*	1254*	1271*	1287*	1305*	1317*	1334*	1341*
	1355*	1362*	1373*	1380*	1387*	1394*	1402*	1418*	1438*	1455*	1471*	1490*
	1519*	1526*	1533*	1540*	1547*	1558*	1565*	1572*	1579*	1589*	1612*	1629*
	1663*	1675*	1692*	1699*	1706*	1713*	1720*	1731*	1738*	1745*	1752*	1760*
	1791*	1807*	1826*	1838*	1855*	1862*	1869*	1876*	1883*	1894*	1901*	1908*
	1923*	1938*	1955*	1971*	1989*	2001*	2018*	2025*	2032*	2039*	2046*	2057*
	2071*	2078*	2086*	2100*	2118*	2136*	2145*	2154*	2172*	2189*	2206*	2223*
	2257*	2265*	2281*	2308*	2327*	2334*	2341*	2348*	2355*	2367*	2388*	2395*
	2425*	2432*	2453*	2460*	2467*	2474*	2481*	2503*	2510*	2517*	2524*	2531*
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	2712*	2719*	2729*	2736*	2744*	2751*	2762*	2770*	2792*	2798*	2818*	2847*
	2872*	2880*	2903*	2909*	2936*	2942*	2968*	2992*	2999*	3017*	3042*	3056*
	3090*	3100*	3159*	3166*	3174*							
	359*	369	379	390*	401*	412*	422*	433*	443*	461*	474*	487*
	513*	526*	534*	542*	550*	557*	565*	573*	581*	598*	607*	617*
	636*	646*	655*	671*	678*	685*	692*	701*	708*	715*	722*	737*
	770*	788*	800*	817*	824*	831*	838*	845*	856*	863*	870*	877*
	905*	922*	938*	956*	967*	984*	991*	998*	1005*	1012*	1023*	1030*
	1044*	1053*	1069*	1088*	1105*	1121*	1139*	1151*	1168*	1175*	1182*	1189*
	1207*	1214*	1221*	1228*	1238*	1254*	1271*	1287*	1305*	1317*	1334*	1341*
	1355*	1362*	1373*	1380*	1387*	1394*	1402*	1418*	1438*	1455*	1471*	1490*
	1519*	1526*	1533*	1540*	1547*	1558*	1565*	1572*	1579*	1589*	1612*	1629*
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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#
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2712#	2719#	2729#	2736#	2744#	2751#	2762#	2770#	2792#	2798#	2818#	2847#	2862#
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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
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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
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3194												
301#	306											

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	1928	1941	1943	1957	1959	1973	1975	2003	2005	2088	2090	2104	2106
	2158	2160	2175	2177	2192	2194	2209	2211	2226	2228	2243	2245	2247
	2287	2312	2314	2375	2377	2412	2414	2438	2440	2487	2489	2527	2529
	2617	2619	2655	2657	2700	2702	2772	2774	2802	2804	2825	2827	2829
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	668	675	682	689	698	705	712	719	734	751	767	785	797
	828	835	842	853	860	867	874	884	902	919	935	953	964
	995	1002	1009	1020	1027	1034	1041	1050	1066	1085	1102	1118	1136
	1172	1179	1186	1193	1204	1211	1218	1225	1235	1251	1268	1284	1302
	1338	1345	1352	1359	1370	1377	1384	1391	1399	1415	1435	1452	1468
	1516	1523	1530	1537	1544	1555	1562	1569	1576	1586	1609	1626	1642
	1689	1696	1703	1710	1717	1728	1735	1742	1749	1757	1771	1788	1804
	1852	1859	1866	1873	1880	1891	1898	1905	1912	1920	1935	1952	1968
	2015	2022	2029	2036	2043	2054	2061	2068	2075	2083	2097	2115	2133
	2169	2186	2203	2220	2237	2254	2262	2278	2305	2324	2331	2338	2345
	2385	2392	2403	2422	2429	2450	2457	2464	2471	2478	2500	2507	2514
	2551	2558	2565	2572	2594	2601	2608	2631	2639	2646	2669	2677	2684
	2716	2725	2733	2741	2748	2759	2767	2789	2795	2815	2844	2859	2869
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	668	675	682	689	698	705	712	719	734	751	767	785	797
	828	835	842	853	860	867	874	884	902	919	935	953	964
	995	1002	1009	1020	1027	1034	1041	1050	1066	1085	1102	1118	1136
	1172	1179	1186	1193	1204	1211	1218	1225	1235	1251	1268	1284	1302
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	1852	1859	1866	1873	1880	1891	1898	1905	1912	1920	1935	1952	1968
	2015	2022	2029	2036	2043	2054	2061	2068	2075	2083	2097	2115	2133
	2169	2186	2203	2220	2237	2254	2262	2278	2305	2324	2331	2338	2345
	2385	2392	2403	2422	2429	2450	2457	2464	2471	2478	2500	2507	2514
	2551	2558	2565	2572	2594	2601	2608	2631	2639	2646	2669	2677	2684
	2716	2725	2733	2741	2748	2759	2767	2789	2795	2815	2844	2859	2869
	2906	2933	2939	2965	2989	2996	3014	3039	3053	3080	3087	3097	3156
\$\$ERRC	195#	439	509	577	651	718	750	766	796	918	934	963	1049
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\$\$ESCA	1#												
\$\$LOOP	195#	359	369	379	390	401	412	422	433	443	461	474	487
	526	534	542	550	557	565	573	581	598	607	617	626	636
	671	678	685	692	701	708	715	722	737	754	770	788	800
	821	838	845	856	863	870	877	887	905	922	938	956	967



MAN MAC: 27.732: 08-DEC-76 29:40 PAGE 79  
CROSS REFERENCE TABLE -- MACRO NAMES

..:7C :\*

WBC	657	834	1001	1185	1351	1536	1709	1872	2035								
WBC	637	873	1040	1224	1390	1575	1748	1911	2074								
WBC	355	365	375	386	397	408	418	429	439	457	470	482	496	509	522		
WBC	530	538	546	553	569	632	642	651	711	750	766	784	796	841	852		
WBC	882	918	934	952	963	1008	1026	1049	1101	1117	1135	1147	1192	1211	1223		
WBC	1267	1283	1301	1313	1358	1376	1398	1451	1467	1486	1498	1543	1561	1584	1625		
WBC	1641	1659	1671	1716	1734	1756	1787	1803	1822	1834	1879	1897	1919	1951	1967		
WBC	1985	1997	2042	2060	2082	2114	2261	2330	2337	2344	2351	2362	2391	2402	2428		
WBC	2456	2463	2470	2477	2506	2513	2520	2527	2557	2564	2571	2600	2607	2638	2645		
WBC	2676	2683	2690	2715	2732	2747	2766	2858	2868	2875	2988	2995	3038	3051	3088		
WBC	3093	3095	3115	3128	3139	3155	3162	3169	3177								
BIT	1073	1422															
BIT	880	1047	1231	1582	2945	3067	3110										
BIT	695	2546	2591	2628	2666	3010	3077										
BIT	840	1007	1191	1357	1542	1715	2041	2812	2891	2921	2953	2982	2987	2994	3029		
BIT	2149	3125	3205														
BIT	2842																
BIT	718	852	1019	1203	1369	1554	1727	1890	2053								
BIT	351	477	520	561	577	589	594	603	613	622	664	681	729	745	761		
BIT	777		820	896	913	929	945	974	987	1060	1081	1096	1112	1128	1158		
BIT	1171		1262	1278	1294	1324	1337	1409	1431	1446	1462	1478	1509	1522	1605		
BIT	1620	1636	1652	1682	1695	1767	1782	1798	1815	1845	1858	1931	1946	1962	1978		
BIT	2008	2021	2093	2109	2126	2132	2163	2180	2197	2214	2231	2248	2272	2290	2317		
BIT	2380	2417	2443	2492	2542	2586	2622	2660	2705	2777	2807	2813	2830	2890	2892		
BIT	2920	2922	2952	2954	2981	2983	3007	3028	3030	3066	3109	3124	3126	3133	3206		
BIT	3211																
BIT	688	813	980	1164	1330	1515	1688	1851	2014	3072	3075	3131	3135	3209	3213		
BIT	2303	2833															
BIT	674	827	994	1178	1344	1529	1702	1865	2028								
BIT	704	866	1033	1217	1383	1568	1741	1904	2067								
BIT	694	781	949	1132	1298	1396	1482	1656	1819	1982							
BIT	239	325	328	329	352	372	382	393	393	394	404	405	414	415	425		
BIT	426	666	780	810	990	898	948	977	1075	1131	1161	1241	1297	1327	1425		
BIT	1481	1512	1592	1655	1685	1818	1848	1981	2011	2128	2311	2318	2370	2382	2419		
BIT	2543	2546	2589	2623	2661	2698	2781	2782	2810	2836	2837	2883	2899	2911	2913		
BIT	2930	2944	2970	3019	3020	3034	3047	3058	3070	3078	3120	3146					
BIT	350	354	364	374	385	396	407	417	428	438	449	456	469	482	495		
BIT	508	519	588	593	602	612	621	631	641	650	663	728	744	749	750		
BIT	765	776	783	795	806	881	895	912	917	928	933	944	951	962	973		
BIT	1048	1059	1072	1080	1095	1100	1111	1116	1127	1134	1146	1157	1232	1246	1261		
BIT	1266	1277	1282	1293	1300	1312	1323	1397	1408	1421	1430	1445	1450	1461	1466		
BIT	1477	1484	1497	1508	1583	1604	1619	1624	1635	1640	1651	1658	1670	1681	1755		
BIT	1766	1781	1786	1797	1802	1814	1821	1833	1844	1918	1930	1945	1950	1961	1966		
BIT	1977	1984	1996	2007	2081	2092	2108	2113	2125	2162	2179	2196	2213	2230	2247		
BIT	2260	2271	2289	2316	2329	2336	2343	2350	2361	2379	2390	2401	2416	2427	2442		
BIT	2462	2469	2476	2491	2505	2512	2519	2526	2541	2564	2570	2595	2606	2621	2637		
BIT	2644	2659	2675	2682	2689	2704	2714	2721	2746	2765	2775	2806	2825	2831	2857		
BIT	2874	2889	2919	2951	2990	3006	3027	3037	3065	3098	3098	3108	3114	3127	3154		
BIT	3161	3176															
BIT	384	395	406	416	427	437	521	525	537	545	553	553	553	576	574		
BIT	3036	3049															
BIT	2740																
BIT	1250	1265	1281	1299	1311	1328	1337	1344	1351	1358	1365	1372	1379	1386	1393		
BIT	213	236	358	368	376	382	387	393	398	404	410	416	422	428	434		
BIT	512	525	533	541	548	554	561	568	575	582	589	596	603	610	617		
BIT	654	670	677	684	691	698	705	712	719	726	733	740	747	754	761		

823	930	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
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3173	3195	3196	3197	3198	3199	3201								
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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
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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
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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
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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							
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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
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INC

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REF

MOV  
 NOP  
 RESET  
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 WAIT  
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 BYTE  
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 FNC  
 FNC

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1800	1804	1816	1817	1823	1828	1829	1830	1835	1846	1847	1852	1859	1866	1872
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
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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
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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	2528	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
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2959	2960	2961	2965	2971	2972	2973	2984	2985	2989	2996	2996	2996	2997	2998
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												
3533	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			
1934	1949	1965	1983	1995	2012	2051	2096	2112	2131	2294	2296	2298	2300	2302
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														
3213														
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
2423	2505	2512	2519	2526	2533	2556	2563	2570	2577	2599	2606	2613	2636	2644



EVERY

IFF

IFF

2674	2682	2689	2697	2714	2721	2731	2738	2746	2753	2764	2772	2784	2792
2849	2864	2874	2882	2905	2911	2938	2944	2970	2994	3001	3019	3044	3058
3092	3102	3161	3168	3176									
249	277	285	288	291	294	296	355	361	365	371	375	381	366
397	403	408	414	418	424	429	435	439	457	463	470	476	493
496	502	509	522	528	530	536	538	544	546	552	553	559	561
567	575	577	594	600	603	609	613	619	622	628	632	638	642
648	667	673	674	680	681	687	688	694	697	703	704	710	711
717	733	750	766	784	790	796	813	819	820	826	827	833	834
840	847	852	858	859	865	866	872	873	879	882	889	902	918
934	958	963	980	986	987	993	994	1000	1001	1007	1008	1014	1019
1025	1032	1033	1039	1040	1046	1049	1065	1085	1101	1117	1135	1141	1147
1164	1171	1177	1178	1184	1185	1191	1192	1198	1203	1209	1210	1216	1217
1223	1230	1233	1240	1251	1267	1283	1301	1307	1313	1330	1336	1337	1343
1344	1351	1357	1358	1364	1369	1375	1376	1382	1383	1389	1390	1396	1398
1414	1451	1467	1486	1492	1498	1515	1521	1528	1528	1529	1535	1536	1542
1543	1551	1560	1561	1567	1568	1574	1575	1581	1584	1591	1609	1625	1641
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1734	1740	1741	1747	1748	1754	1756	1771	1787	1803	1822	1828	1834	1851
1858	1864	1865	1871	1872	1878	1879	1885	1890	1896	1897	1903	1904	1911
1917	1919	1935	1951	1967	1985	1991	1997	2014	2020	2021	2027	2028	1911
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2138	2142	2150	2168	2185	2202	2219	2236	2253	2261	2277	2302	2310	2132
2336	2337	2343	2344	2350	2351	2357	2362	2369	2385	2391	2397	2402	2330
2450	2456	2462	2463	2469	2470	2476	2477	2500	2506	2512	2513	2519	2428
2527	2551	2557	2563	2564	2570	2571	2594	2600	2606	2607	2631	2638	2526
2669	2676	2682	2683	2689	2690	2697	2709	2715	2721	2725	2732	2738	2645
2753	2758	2766	2789	2794	2813	2820	2844	2858	2864	2868	2874	2875	2644
2905	2933	2938	2964	2988	2994	2995	3013	3038	3044	3051	3058	3080	2741
3095	3102	3156	3163	3169	3176								2747
249	251	361	371	381	392	403	414	424	435	439	445	463	489
502	509	515	528	536	544	552	559	567	575	577	583	600	619
628	638	648	651	657	673	680	687	694	703	710	717	718	733
750	756	766	772	790	796	802	819	826	833	840	847	858	872
879	889	902	918	924	934	940	958	963	969	986	993	1000	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	1273	1289
1307	1313	1319	1336	1343	1350	1357	1364	1375	1382	1389	1396	1398	1404
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1574	1581	1591	1609	1625	1631	1641	1647	1665	1671	1677	1694	1701	1567
1722	1733	1740	1747	1754	1756	1762	1771	1787	1793	1803	1809	1828	1715
1857	1864	1871	1878	1885	1896	1903	1910	1917	1919	1925	1935	1951	1840
1973	1991	1997	2003	2020	2027	2034	2041	2048	2059	2066	2073	2090	1967
2097	2114	2120	2138	2142	2150	2168	2185	2202	2219	2236	2253	2261	2088
2310	2324	2336	2343	2350	2357	2369	2385	2397	2402	2408	2422	2428	2277
2462	2469	2476	2477	2483	2500	2512	2519	2526	2527	2533	2551	2563	2450
2577	2594	2606	2607	2613	2631	2644	2645	2651	2669	2682	2689	2697	2571
2725	2738	2741	2753	2758	2766	2772	2789	2794	2820	2844	2864	2874	2721
2905	2933	2938	2964	2994	2995	3001	3013	3044	3058	3080	3092	3102	2900
3176													3163
355	361	365	371	381	386	392	397	403	408	414	419	424	429
435	439	457	463	476	483	489	496	502	509	522	528	530	536
538	544	546	552	559	561	567	569	575	577	594	600	603	609
613	619	622	628	632	638	642	648	651	667	673	674	681	687
688	694	697	703	704	710	711	717	733	750	766	784	790	796

813	819	820	826	827	833	834	840	841	847	852	858	859	865	866
873	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	1263
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	1523	1528	1529	1535	1536	1542	1543	1549	1554	1560	1561	1567	1568	1574
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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
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355	346	351	356	366	376	387	398	409	419	450	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	699
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
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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
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1652	1650	1672	1677	1682	1689	1696	1703	1710	1717	1728	1735	1742	1749	1757
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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
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3110	3156	3163	3170											
399	401	410	412	255	349	352	357	359	367	369	377	379	388	390
474	485	487	498	420	422	431	433	441	443	448	451	459	461	472
548	550	555	557	500	511	513	518	521	524	526	532	534	540	542
607	615	617	624	563	565	571	573	579	581	587	590	596	598	605
676	678	683	685	626	634	636	644	646	653	655	662	665	669	671
				690	692	699	701	706	708	713	715	720	722	727

LIST

733	736	737	743	745	752	754	759	762	768	770	775	778	785	788
933	833	935	808	815	817	822	824	829	831	836	838	843	845	858
936	836	937	868	870	875	877	885	887	894	897	903	905	911	914
984	989	991	930	936	938	943	946	954	956	965	967	972	975	982
1042	1044	1051	1053	1058	1061	1067	1069	1079	1082	1086	1088	1094	1097	1103
1105	1110	1113	1119	1121	1126	1129	1137	1139	1149	1151	1156	1159	1166	1168
1173	1175	1180	1182	1187	1189	1194	1196	1205	1207	1212	1214	1219	1221	1226
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1292	1295	1303	1305	1315	1317	1322	1325	1332	1334	1339	1341	1346	1348	1353
1355	1360	1362	1371	1373	1378	1380	1385	1387	1392	1394	1400	1402	1407	1411
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	1963	2030	1971	1976
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	2178	2178	2181	2187	2189	2195	2198	2204	2206	2212	2215	2221	2223	2229
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2441	2444	2451	2453	2458	2460	2465	2467	2472	2474	2479	2481	2490	2493	2501
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2566	2568	2573	2575	2584	2587	2595	2597	2602	2604	2609	2611	2620	2623	2632
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2921	2934	2936	2940	2942	2950	2953	2966	2968	2979	2982	2990	2992	2997	2999
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3090	3098	3100	3107	3110	3157	3159	3164	3166	3172	3174				
MACRO		2157												
MCALL	233	235												
MEXIT	295													
MLIST														
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474	401	410	412	420	422	431	433	441	443	448	451	459	461	472
548	485	487	498	500	511	513	518	521	524	526	532	534	540	542
607	550	555	557	563	565	571	573	579	581	587	590	596	598	605
676	615	617	624	626	634	636	644	646	653	655	662	665	669	671
730	678	683	685	690	692	699	701	706	708	713	715	720	722	727
798	735	737	743	746	752	754	759	762	768	770	775	778	786	788
856	800	805	808	815	817	822	824	829	831	836	838	843	845	854
920	861	863	868	870	875	877	885	887	894	897	903	905	911	914
984	922	927	930	936	938	943	946	954	956	965	967	972	975	982
1042	989	991	996	998	1003	1005	1010	1012	1021	1023	1028	1030	1035	1037
1105	1044	1051	1053	1058	1061	1067	1069	1079	1082	1086	1088	1094	1097	1103
1173	1110	1113	1119	1121	1126	1129	1137	1139	1149	1151	1156	1159	1166	1168
1228	1175	1180	1182	1187	1189	1194	1196	1205	1207	1212	1214	1219	1221	1226
1292	1236	1238	1245	1248	1252	1254	1260	1263	1269	1271	1276	1279	1285	1287
	1295	1303	1305	1315	1317	1322	1325	1332	1334	1339	1341	1346	1348	1353

	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	1482	1490	1500	1502	1507	1510	1517	1519	1524	1526	1531	1533	1538	1540
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	3090	3098	3100	3107	3110	3157	3159	3164	3166	3172	3174				
	321														
PERM	1														
REF	236														
CRF	242														
SEQ	927	252	296	349	448	518	587	662	727	743	759	775	805	894	911
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	1929	1944	1960	1976	2006	2091	2107	2124	2161	2178	2195	2212	2229	2246	2270
	2286	2315	2378	2415	2441	2490	2540	2584	2620	2658	2703	2775	2805	2828	2898
	2918	2950	2979	3005	3026	3064	3107								
WRC	250	257	258	259	260	261	262	263	264	268	269	270	293	297	290
	293	312	313	314	315	316	317								

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

\*DGKABC, DGKABC, SEQ/SOL/CRF/PAGNUM/NL: TOC=SYSMAC.SML(400,1066), DGKABC.P11(400,4571)  
RUN-TIME: 51 65 11 SECONDS  
RUN-TIME RATIO: 349/128=2.7  
CORE USED: 33K (66 PAGES)