

The image displays a large grid of 100 small tables, arranged in 10 rows and 10 columns. Each small table contains data, likely test results or instructions, for the PDP11/34 system. The text is very small and difficult to read, but the layout is consistent across all cells. The tables appear to be organized into sections, with some larger tables in the top-left and bottom-right corners, and smaller ones in between. The overall appearance is that of a technical manual or test report page.

PDP11/34

EIS INSTRUCTION TESTS
AH-0018A-MC

11-DFKAC-A-DL-A

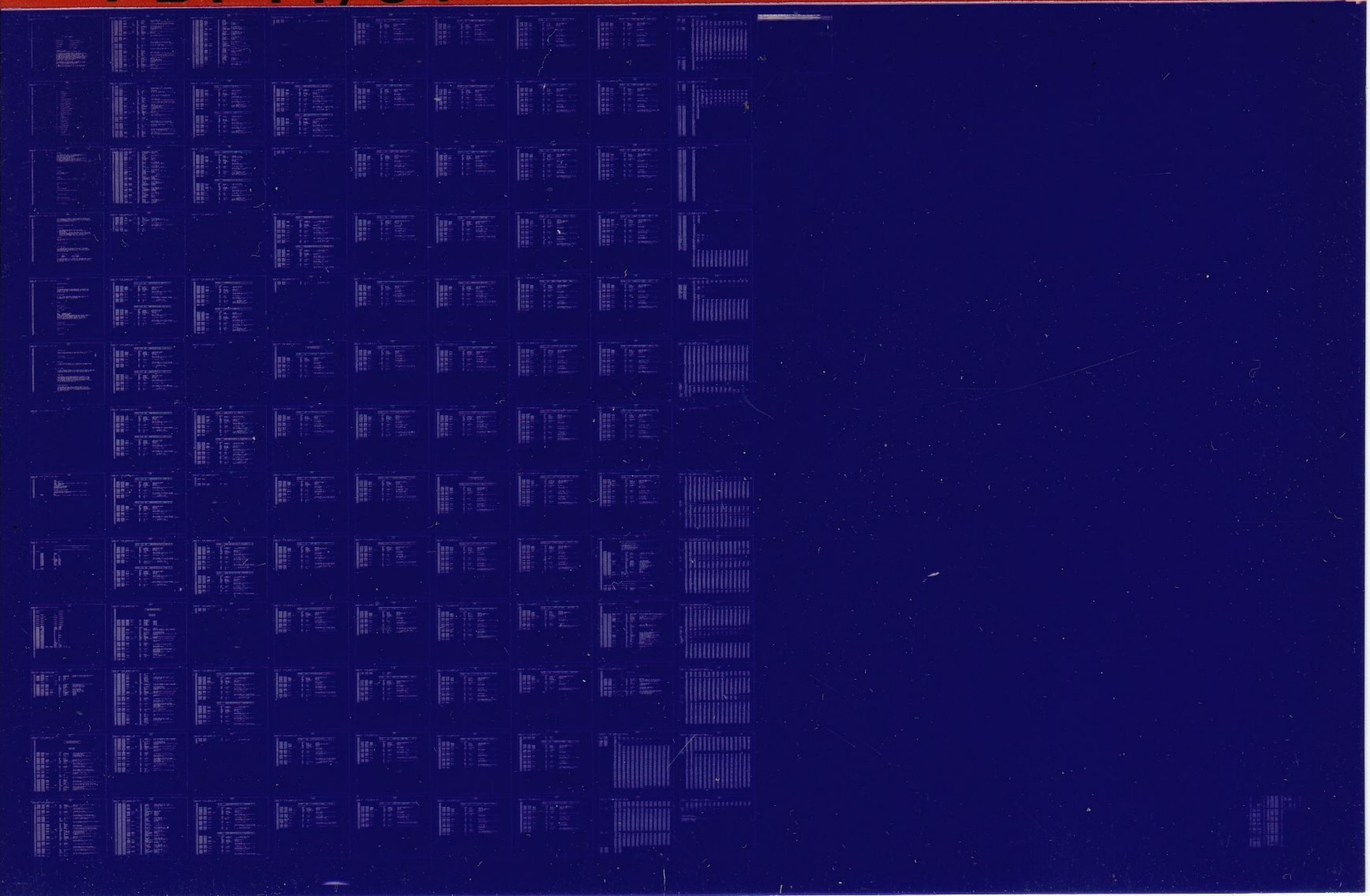
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IDENTIFICATION

PRODUCT CODE: MAINDEC-11-DFKAC-A-D
 PRODUCT NAME: 11/34 EIS INSTRUCTION TESTS
 DATE CREATED: DECEMBER 22, 1975
 MAINTAINER: DIAGNOSTIC GROUP
 AUTHOR: GLENN JOHNSON

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AFTER LOADING THE PROGRAM IT SHOULD ALWAYS BE STARTED AT 200.
IF IT IS DESIRED TO SAVE THE PASS COUNTER THEN THE PROGRAM
SHOULD BE RESTARTED AT LOCATION RFRSTRT (I.E. 222) OTHERWISE THE
PROGRAM CAN BE RESTARTED AT 200

4.3 PROGRAM AND/OR OPERATOR ACTION

4.3.1 STAND ALONE

- 1) LOAD PROGRAM INTO MEMORY USING ABS LOADER
- 2) SET SWITCHES (SEE SEC 5.1) ALL LOW FOR WORST CASE.
- 3) START AT 200.
- 4) THE PROGRAM WILL LOOP AND "END PASS" WILL BE TYPED AFTER COMPLETION OF FIRST PASS AND EVERY 4TH PASS. HOWEVER TYPE OUT WILL BE SUPPRESSED IF BIT 5 OF LOCATION SENVM IS HIGH
- 5) A MINIMUM OF TWO PASSES SHOULD ALWAYS BE RUN.

4.3.2 UNDER APT

LOAD THE PROGRAM AND START AFTER SETTING THE DESIRED SWITCHES (SEE SEC. 5.1).

5. OPERATING PROCEDURE

5.1 SWITCH SETTINGS

IF NO HARDWARE SWITCH REGISTER IS AVAILABLE, THE PROGRAM AUTOMATICALLY USES THE CONTENTS OF LOC. 176 AS THE SOFTWARE SWITCH REGISTER. THE USER SHOULD SET THIS LOCATION BEFORE STARTING THE PROGRAM.

BIT #	OCTAL VALUE	FUNCTION
15	100000.....	HALT ON ERROR
13	020000.....	INHIBIT PRINTOUT

AN 8 BIT BYTE SENVM (I.E. LOCATION 421) HAS BEEN USED TO DEFINE THE OPERATING MODE. ALL TYPEOUTS CAN BE SUPPRESSED BY MAKING BIT 5 OF BYTE SENVM HIGH. IN OTHER WORDS BY PLACING A 20000 IN LOCATION 420

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5.2 SUBROUTINE ABSTRACTS

5.2.1 HALT ROUTINE

THIS ROUTINE CALLED VIA JSR INSTRUCTION IS USED EACH TIME AN ERROR IS SEEN AND AN ERROR MESSAGE OF THE FORMAT GIVEN IN SEC. 6.1 IS TYPED OUT UNLESS SUPPRESSED BY THE SWITCHES DEFINED IN SEC. 5.1

5.2.2 TRAP CATCHER

A ".+2" - "HALT" SEQUENCE IS REPEATED FROM 0-776 TO CATCH ANY UNEXPECTED TRAPS. THUS ANY UNEXPECTED TRAPS OR INTERRUPTS WILL HALT AT THE VECTOR +2.

6. ERRORS

6.1 ERROR PRINTOUT

THE FORMAT IS AS FOLLOWS:

ADR ERRNM

WHERE:

ADR = ADDRESS OF ERROR
ERRNM = ERROR NUMBER

IN MOST CASES THE COMMENT BESIDE THE CALL FOR HALT SUBROUTINE TELLS WHAT WAS BEING CHECKED AND WHAT WAS EXPECTED. ALL PRINTOUTS WILL BE SUPPRESSED WHEN BIT 5 OF LOCATION SENVM IS HIGH. WHILE RUNNING UNDER APT THE DIAGNOSTIC WILL NOT SUPPORT SPOOLING OF CONSOLE OUTPUTS.

6.2 ERROR RECOVERY

RESTART AT 200 OR 222 (SEE SEC 4.2)

7. RESTRICTIONS

NONE

8. MISCELLANEOUS

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8.1 EXECUTION TIME

NORMALLY FIRST "END PASS" WILL BE TYPED WITHIN 1 SECOND AND WITHIN 10 SECONDS FOR EVERY CONSECUTIVE 400 PASSES

8.2 STACK POINTER

STACK IS INITIALLY SET TO 600

8.3 PASS COUNT

A 16 BIT LOCATION "\$PASS" (I.E. LOCATION 406) IS USED TO KEEP PASS COUNT. IT CAN BE CLEARED BY RESTARTING THE PROGRAM AT 200

8.4 TEST NUMBER

A 16 BIT LOCATION "\$TESTN" (I.E. LOCATION 404) IS USED TO KEEP TRACK OF THE TEST NUMBER. UPPER BYT2 OF THIS LOCATION GIVES THE ITERATION NUMBER AND THE LOWER BYTE THE TEST THAT WAS BEING EXECUTED

8.5 POWER FAIL

THE DIAGNOSTIC CAN BE POWER FAILED WITH NO ERRORS. TO USE, START THE TEST AS USUAL AND POWER DOWN THEN UP AT ANY TIME. THE PROGRAM SHOULD RESTART FROM TEST 0 AFTER TYPING "POWER" WITH NO ERRORS. HOWEVER IF THE PROGRAM IS STORED IN A MOS MEMORY THAT CAN NOT HOLD DATA WITH POWER DOWN THEN THE PROGRAM WILL NOT RECOVER FROM A POWER FAIL

9. PROGRAM DESCRIPTION

THIS PROGRAM TESTS ALL THE EIS INSTRUCTIONS OF THE 11.34 FOR ASH AND ASHC INSTRUCTIONS EVERY EVEN PASS IS EXECUTED WITH DESTINATION MODE 0 FOR ALL REGISTERS AND EVERY ODD PASS WITH DESTINATION MODE OF 67. THE DIAGNOSTIC DOES NOT MAKE A PASS WITH T BIT SET.

.ENCR

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DFKACA MACY11 27(732) 08-SEP-76 18:20 PAGE 7
DFKACA.P11

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000001
160000

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.ABS  
.NLIST MD,MC,CND  
.LIST ME  
.MCALL .SEOP,.$ACT11,.$APTBL5,.$APTHDR,.$HEADER,.$SETUP,PUSH,POP  
.MCALL STARS,SWRSU  
.TITLE DFKACA  
:*COPYRIGHT (C) DECEMBER 1975  
:*DIGITAL EQUIPMENT CORP.  
:*MAYNARD, MASS. 01754  
:*  
:*PROGRAM BY GLENN JOHNSON  
:*  
:*THIS PROGRAM WAS ASSEMBLED USING THE PDP-11 MAINDEC SYSMAC  
:*PACKAGE (MAINDEC-11-DZQAC-A2).  
:*  
$TN=1  
$SWR=160000 ::HALT ON ERROR, LOOP ON TEST, INHIBIT ERROR TYP0UT
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330
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333          000000
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337 0 001000          .SACT11
338
339          000000      DUMMY= 0
340          000001      ERRNM= 1
341          000051      F= 51
342          000176      N= 176
343          000007      PC= %7
344          000006      SP= %6
345          010701      SCOPE= 10701
346          010701      SCOPE1= 10701
347          010703      SCOPE3= 10703
348          001000      SW09= 1000
349          002000      SW10= 2000
350          004000      SW11= 4000
351          010000      SW12= 10000
352          000004      TYPE= IOT
353
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355          000020      .=20
356 000020 016572      $TYPE

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.=0 ;TRAP CATCHER 0 - 776

0	357								
	358	000400		.=400					
	359				.SAPTCLS			\$CPUOP	
0	360	000400			.SAPTHDR			3,5	
U	361								
	362		000000		.=\$APTHD				
	363	000000		COUNT:					
	364		000002		.=COUNT+2				
	365	000002		PSWORD:					
	366		000004		.=PSWORD+2				
	367	000004		TEMP1:					
	368		000006		.=TEMP1+2				
	369	000006		TEMP2:					
	370		000010		.=TEMP2+2				
	371	000010		TEMP3:					
	372		000012		.=TEMP3+2				
	373	000012		TEMP4:					
	374		000014		.=TEMP4+2				
	375	000014	000000	TEMPS:	.WORD				
	376	000016	000000	TEMP6:	.WORD				
	377	000020	000	TYPCNT:	.BYTE				
	378	000021	000	\$TPCNT:	.BYTE				
	379	000022	000007	S0:	7				
	380	000024	177771	S1:	-7				
	381	000026	000024	S2:	S1				
	382	000030	177772	S3:	-6				
	383	000032	177777	S4:	-1				
	384	000034	040000	S5:	40000				
	385	000036	000034	S6:	S5				
	386	000040	040000	S7:	40000				
	387	000042	177776	S8:	-2				
	388	000044	000002	S9:	2				
	389	000046	000044	S10:	S9				
	390	000050	000002	S11:	2				
	391	000052	177570	SWR:	177570				
	392	000054	177570	DISPLAY:		177570			
	393	000056	000064	TTYOUT:	64				
	394	000060	177566	\$TPB:	177566				
	395	000062	177564	\$TPS:	177564				
	396	000064	005015	\$CRLF:	.ASCIZ	<15><12>/ /			
	397	000072	006412	POWER:	.ASCIZ	<12><15>/POWER/			
	398	000100	000122						
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DFKACA MACY11 27(732) 08-SEP-76 18:20 PAGE 11
 DFKACA.P11 STARTING OF THE PROGRAM

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409          000200          . =200
U 410 000200 012737 016356 000024      MOV    #SPWRDN,2#24      ;PREPARE TO SERVICE POWER DOWN ROUTINE
U 411 000206 012700 000000              MOV    #SDEVCT,RO      ;PREPARE TO INITIALIZE THE STACK
U 412 000212 005040          2$:      CLR    -(RO)
U 413 000214 022700 000000              CMP    #SMAIL,RO
U 414 000220 001374          BNE    2$
U 415 000222 000167 000352      RESTART: JMP    BEGIN
U 416
U 417          000600          . =600
U 418
U 419 000600 012705 000000      BEGIN: MOV    #STESTN,R5      ;MAKE R5 POINT TO THE LOCATION $TESTN
U 420 000604 005037 000000              CLR    2#COUNT      ;CLEAR THE COUNTER
U 421 000610 012715 000001              MOV    #1,(R5)      ;INITIALIZE TEST NUMBER
U 422 000614 012706 000600              MOV    #BEGIN,SP      ;** STACK AT BEGIN **
C 423 000620          SWRSU    1$,3$
U 424 000620 106427 000000              MTPS  #0      ;PLACE #0 IN PSW
U 425 000624 132737 000001 000000      BITB  #1,2#SENV      ;ARE WE UNDER APT ?
U 426 000632 001403          SEQ    2$      ;IF NOT THEN GO TO 2$
U 427 000634 012767 000000 177210      MOV    #SSWREG,SWR      ;USE APT SWITCH REGISTER
U 428 000642 012737 000001 000004      2$:  MOV    #1,2#TEMP1      ;TEMP1=1
U 429 000650 005037 000006              CLR    2#TEMP2      ;TEMP2=0
U 430 000654 012737 000001 000010      MOV    #1,2#TEMP3      ;TEMP3=1
U 431 000662 005037 000012              CLR    2#TEMP4      ;TEMP4=0
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U 433

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;*****
; ASH INSTRUCTION TESTS
;*****
  
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;*****
; TESTS 1-36
;*****
  
```

000666	010701		START:	SCOPE1		
000670	013700	000004		MOV	2#TEMP1,%0	;LOAD R0 WITH THE CONTENTS OF TEMP1
000674	032737	000001	016336	BIT	#1,2#SPASS	;IS IT AN EVEN PASS ?
000702	001004			BNE	2\$;IF NOT THEN GO TO 2\$
000704	013701	000006		MOV	2#TEMP2,R1	;OTHERWISE EXECUTE THE INSTRUCTION
						;IN MODE 0 USING R1
000710	072001			ASH	R1,R0	
000712	000402			BR	4\$	
000714	072067	177066	2\$:	ASH	TEMP2,%0	;SHIFT R0 BY THE NUMBER SPECIFIED BY TEMP2
000720	106737	000002	4\$:	MFPS	2#PSWORD	;SAVE PS
000724	123737	000012	000002	CMPB	2#TEMP4,2#PSWORD	;IS THE PS = TEMP4 ?
000732	001403			BEQ	.+10	
000734	004767	015446		JSR	PC,\$HLT	;SEEN AN ERROR, GO TO TH HALT ROUTINE
						;THE PS IS NOT EQUAL TO 0
000740	000001			1		
000742	005237	000000		INC	2#COUNT	;INCREMENT THE COUNTER
000746	023700	000010		CMP	2#TEMP3,%0	;IS THE RESULT IN R0 EQUAL TO TEMP3?
000752	001403			BEQ	.+10	
000754			6\$:			
000754	004767	015426		JSR	PC,\$HLT	;SEEN AN ERROR, GO TO TH HALT ROUTINE
						;EITHER INCORRECT R0 OR INCORRECT SEQUENCE
000760	000002			2		
000762	021537	000000		CMP	(R5),2#COUNT	;IS THE TEST NUMBER EQUAL TO THE
						;COUNTER?
000766	001372			BNE	6\$;IF NOT GO TO THE HLT ABOVE
000770	005215			INC	(R5)	
000772	010701			SCOPE1		
000774	021527	000037		CMP	(R5),#37	;HAS THE CONTENTS OF REGISTERS BEEN SHIFTED LEFT
						;BY 14. AND RIGHT BY 14.?
001000	002011			BGE	8\$	
001002	005237	000006		INC	2#TEMP2	
001006	006367	176776		ASL	TEMP3	;SHIFT TEMP3 LEFT.
001012	021527	000020		CMP	(R5),#20	;HAS THE CONTENTS OF REGISTERS BEEN SHIFTED LEFT BY 14.?
001016	001004			BNE	REG1	
001020	000167	000764		JMP	NEGAT	;IF SO GO TO NEGAT AND INITIATE RIGHT SHIFT
001024	004767	001006	8\$:	JSR	PC,TST37	;IF SO GO AND CONTINUE THE REST OF THE PROGRAM
001030	010703		REG1:	SCOPE3		
001032	013701	000004		MOV	2#TEMP1,%1	;LOAD R1 WITH THE CONTENTS OF TEMP1
001036	032737	000001	016336	BIT	#1,2#SPASS	;IS IT AN EVEN PASS ?
001044	001004			BNE	2\$;IF NOT THEN GO TO 2\$
001046	013702	000006		MOV	2#TEMP2,R2	;OTHERWISE EXECUTE ASH INSTRUCTION IN MODE 0
001052	072102			ASH	R2,R1	;USING R1
001054	000402			BR	4\$	

NO1

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 DFKACA.P11 ASH INSTRUCTION TESTS

490	001056	072167	176724			2\$: ASH	TEMP2,%1	;SHIFT R1 BY THE NUMBER SPECIFIED BY TEMP2
491	001062	106737	000002			4\$: MFPS	@#PSWORD	;SAVE PS
492	001066	123737	000012	000002		CMPB	@#TEMP4,@#PSWORD;	IS THE PS = TEMP4 ?
493	001074	001403				BEQ	+.10	
494	001076	004767	015304			JSR	PC,\$HLT	;SEEN AN ERROR, GO TO TH HALT ROUTINE
495								;THE PS IS NOT EQUAL TO 0
496	001102	000003				3		
497	001104	005237	000000			INC	@#COUNT	;INCREMENT THE COUNTER
498	001110	023701	000010			CMP	@#TEMP3,%1	;IS THE RESULT IN R1 EQUAL TO TEMP3?
499	001114	001403				BEQ	+.10	
500	001116					6\$:		
501	001116	004767	015264			JSR	PC,\$HLT	;SEEN AN ERROR, GO TO TH HALT ROUTINE
502								;EITHER INCORRECT R1 OR INCORRECT SEQUENCE
503	001122	000004				4		
504	001124	021537	000000			CMP	(R5),@#COUNT	;IS THE TEST NUMBER EQUAL TO THE COUNTER?
505	001130	001372				BNE	6\$;IF NOT GO TO THE HLT ABOVE
506	001132	005215				INC	(R5)	
507	001134	010703				SCOPE3		
508	001136	021527	000037			CMP	(R5),#37	;HAS THE CONTENTS OF REGISTERS BEEN SHIFTED LEFT
509								;BY 14. AND RIGHT BY 14.?
510	001142	002011				BGE	8\$	
511	001144	005237	000006			INC	@#TEMP2	
512	001150	006367	176634			ASL	TEMP3	;SHIFT TEMP3 LEFT
513	001154	021527	000020			CMP	(R5),#20	;HAS THE CONTENTS OF REGISTERS BEEN SHIFTED LEFT BY 14.?
514	001160	001004				BNE	REG2	
515	001162	000167	000622			JMP	NEGAT	;IF SO GO TO NEGAT AND INITIATE RIGHT SHIFT
516	001166	004767	000644			JSR	PC,TST37	;IF SO GO AND CONTINUE THE REST OF THE PROGRAM
517	001172	010701				8\$: REG2:	SCOPE1	
518	001174	010702	000004			MOV	@#TEMP1,%2	;LOAD R2 WITH THE CONTENTS OF TEMP1
519	001200	032737	000001	016336		BIT	#1,@#SPASS	;IS IT AN EVEN PASS ?
520	001206	001004				BNE	2\$;IF NOT THEN GO TO 2\$
521	001210	013703	000006			MOV	@#TEMP2,R3	;OTHERWISE EXECUTE ASH INSTRUCTION IN MODE 0
522	001214	072203				ASH	R3,R2	;USING R2
523	001216	000402				BR	4\$	
524	001220	072267	176562			2\$: ASH	TEMP2,%2	;SHIFT R2 BY THE NUMBER SPECIFIED BY TEMP2
525	001224	106737	000002			4\$: MFPS	@#PSWORD	;SAVE PS
526	001230	123737	000012	000002		CMPB	@#TEMP4,@#PSWORD;	IS THE PS = TEMP4 ?
527	001236	001403				BEQ	+.10	
528	001240	004767	015142			JSR	PC,\$HLT	;SEEN AN ERROR, GO TO TH HALT ROUTINE
529								;THE PS IS NOT EQUAL TO 0
530	001244	000005				5		
531	001246	005237	000000			INC	@#COUNT	
532	001252	023702	000010			CMP	@#TEMP3,%2	;IS THE RESULT IN R2 EQUAL TO TEMP3?
533	001256	001403				BEQ	+.10	
534	001260					6\$:		
535	001260	004767	015122			JSR	PC,\$HLT	;SEEN AN ERROR, GO TO TH HALT ROUTINE
536								;EITHER INCORRECT R2 OR INCORRECT SEQUENCE
537	001264	000006				6		
538	001266	021537	000000			CMP	(R5),@#COUNT	;IS THE TEST NUMBER EQUAL TO THE COUNTER?
539	001272	001372				BNE	6\$;IF NOT GO TO THE HLT ABOVE
540	001274	005215				INC	(R5)	
541	001276	010701				SCOPE1		
542	001300	021527	000037			CMP	(R5),#37	;HAS THE CONTENTS OF REGISTERS BEEN SHIFTED
543								;LEFT BY 14, AND RIGHT BY 14.
544	001304	002011				BGE	8\$	
545	001306	005237	000006			INC	@#TEMP2	

546	001312	006367	176472		ASL	TEMP3	:SHIFTED TEMP3 LEFT
547	001316	021527	000020		CMP	(R5),#20	:HAS THE CONTENTS OF REGISTERS BEEN SHIFTED LEFT BY 14.?
548	001322	001004			BNE	REG3	
549	001324	000167	000460		JMP	NEGAT	:IF SO GO TO NEGAT AND INITIATE RIGHT SHIFT
550	001330	004767	000502	9\$:	JSR	PC,TST37	:IF SO GO AND CONTINUE THE REST OF THE PROGRAM
551	001334	010701		REG3:	SCOPE1		
552	001336	013703	000004		MOV	@TEMP1,%3	:LOAD R3 WITH THE CONTENTS OF TEMP1
553	001342	032737	000001	016336	BIT	#1,@\$PASS	:IS IT AN EVEN PASS ?
554	001350	001004			SNE	2\$:IF NOT THEN GO TO 2\$
555	001352	013704	000006		MOV	@TEMP2,R4	:OTHERWISE EXECUTE ASH INSTRUCTION IN MODE 3
556	001356	072304			ASH	R4,R3	:USING R3
557	001360	000402			BR	4\$	
558	001362	072367	176420	2\$:	ASH	TEMP2,%3	:SHIFT R3 BY THE NUMBER SPECIFIED BY TEMP2
559	001366	10 37	000002	4\$:	MFPS	@PSWORD	:SAVE PS
560	001372	123737	000012	000002	CMPB	@TEMP4,@PSWORD	:IS THE PS = TEMP4 ?
561	001400	001403			BEQ	+.10	
562	001402	004767	015000		JSR	PC,\$HLT	:SEEN AN ERROR, GO TO TH HALT ROUTINE
563							:THE PS IS NOT EQUAL TO 0.
564	001406	000007			7		
565	001410	005237	000000		INC	@COUNT	
566	001414	023703	000010		CMP	@TEMP3,%3	:IS THE RESULT IN R3 EQUAL TO TEMP3?
567	001420	001403			BEQ	+.10	
568	001422			6\$:			
569	001422	004767	014760		JSR	PC,\$HLT	:SEEN AN ERROR, GO TO TH HALT ROUTINE
570							:EITHER INCORRECT R3 OR INCORRECT SEQUENCE
571	001426	000010			10		
572	001430	021537	000000		CMP	(R5),@COUNT	:IS THE TEST NUMBER EQUAL TO THE COUNTER?
573	001434	001372			BNE	6\$:IF NOT GO TO THE HLT ABOVE
574	001436	005215			INC	(R5)	
575	001440	010701			SCOPE1		
576	001442	021527	000037		CMP	(R5),#37	:HAS THE CONTENTS OF REGISTERS BEEN SHIFTED
577							:LEFT BY 14, AND RIGHT BY 14.?
578	001446	002010			BGE	8\$	
579	001450	005237	000006		INC	@TEMP2	
580	001454	006367	176330		ASL	TEMP3	:SHIFT TEMP3 LEFT?
581	001460	021527	000020		CMP	(R5),#20	:HAS THE CONTENTS OF REGISTERS BEEN SHIFTED LEFT BY 14.?
582	001464	001003			BNE	REG4	
583	001466	000550			BR	NEGAT	:IF SO GO TO NEGAT AND INITIATE RIGHT SHIFT
584	001470	004767	000342	8\$:	JSR	PC,TST37	:IF SO GO AND CONTINUE THE REST OF THE PROGRAM
585	001474	010703		REG4:	SCOPE3		
586	001476	013704	000004		MOV	@TEMP1,%4	:LOAD R4 WITH THE CONTENTS OF TEMP1
587	001502	010501			MOV	R5,R1	:SAVE R5
588	001504	032737	000001	016336	BIT	#1,@\$PASS	:IS IT AN EVEN PASS ?
589	001512	001004			BNE	2\$:IF NOT THEN GO TO 2\$
590	001514	013705	000006		MOV	@TEMP2,R5	:OTHERWISE EXECUTE ASH INSTRUCTION IN MODE 0
591	001520	072405			ASH	R5,R4	:USING R4
592	001522	000402			BR	4\$	
593	001524	072467	176256	2\$:	ASH	TEMP2,%4	:SHIFT R4 BY THE NUMBER SPECIFIED BY TEMP2
594	001530	106737	000002	4\$:	MFPS	@PSWORD	:SAVE PS
595	001534	123737	000012	000002	CMPB	@TEMP4,@PSWORD	:IS PS = TEMP4 ?
596	001542	001403			BEQ	+.10	
597	001544	004767	014636		JSR	PC,\$HLT	:SEEN AN ERROR, GO TO TH HALT ROUTINE
598							:THE PS IS NOT EQUAL TO 0
599	001550	000011			11		
600	001552	005237	000000		INC	@COUNT	
601	001556	023704	000010		CMP	@TEMP3,%4	:IS THE RESULT IN R4 EQUAL TO TEMP3?

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602	001562	001403			BEQ	.+10	
603	001564			6S:			
604	001564	004767	014616		JSR	PC, \$HLT	: SEEN AN ERROR, GO TO TH HALT ROUTINE
605							: EITHER INCORRECT R4 OR INCORRECT SEQUENCE
606	001570	000012			12		
607	001572	010105			MOV	R1, R5	: RESTORE R5
608	001574	021537	000000		CMP	(R5), 2#COUNT	: IS THE TEST NUMBER EQUAL TO THE COUNTER?
609	001600	001371			BNE	6S	: IF NOT GO TO THE HLT ABOVE
610	001602	005215			INC	(R5)	
611	001604	010701			SCOPE1		
612	001606	021527	000037		CMP	(R5), #37	: HAS THE CONTENTS OF REGISTERS BEEN
613							: SHIFTED LEFT BY 14. AND RIGHT BY 14.?
614	001612	002010			BGE	8S	
615	001614	005237	000006		INC	2#TEMP2	
616	001620	006367	176164		ASL	TEMP3	: SHIFT TEMP3 LEFT
617	001624	021527	000020		CMP	(R5), #20	: HAS THE CONTENTS OF REGISTER BEEN SHIFTED BY 14.?
618	001630	001003			BNE	REGS	
619	001632	000466			BR	NEGAT	: IF SO GO TO NEGAT AND INITIATE RIGHT SHIFT
620	001634	004767	000176	8S:	JSR	PC, TST37	: IF SO GO AND CONTINUE THE REST OF THE PROGRAM
621	001640	010701		REGS:	SCOPE1		
622	001642	010501			MOV	R5, R1	: SAVE R5
623	001644	013705	000004		MOV	2#TEMP1, %5	: LOAD R5 WITH THE CONTENTS OF TEMP1
624	001650	032737	000001	016336	BIT	#1, 2#SPASS	: IS IT AN EVEN PASS ?
625	001656	001004			BNE	2S	: IF NOT THEN GO TO 2S
626	001660	013700	000006		MOV	2#TEMP2, R0	: OTHERWISE EXECUTE ASH INSTRUCTION IN MODE 0
627	001664	072500			ASH	R0, R5	: USING R5
628	001666	000402			BR	4S	
629	001670	072567	176112	2S:	ASH	TEMP2, %5	: SHIFT R5 BY THE NUMBER SPECIFIED BY TEMP2
630	001674	106737	000002	4S:	MFP5	2#PSWORD	: SAVE PS
631	001700	123737	000012	000002	CMPB	2#TEMP4, 2#PSWORD	: IS PS = TEMP4 ?
632	001706	001403			BEQ	.+10	
633	001710	004767	014472		JSR	PC, \$HLT	: SEEN AN ERROR, GO TO TH HALT ROUTINE
634							: THE PS IS NOT EQUAL TO 0.
635	001714	000013			13		
636	001716	005237	000000		INC	2#COUNT	
637	001722	023705	000010		CMP	2#TEMP3, %5	: IS THE RESULT IN R5 EQUAL TO TEMP3?
638	001726	001403			BEQ	.+10	
639	001730			6S:			
640	001730	004767	014452		JSR	PC, \$HLT	: SEEN AN ERROR, GO TO TH HALT ROUTINE
641							: EITHER INCORRECT R5 OR INCORRECT SEQUENCE
642	001734	000014			14		
643	001736	021137	000000		CMP	(R1), 2#COUNT	: IS THE TEST NUMBER EQUAL TO THE COUNTER?
644	001742	001372			BNE	6S	: IF NOT GO TO THE HLT ABOVE
645	001744	010105			MOV	R1, R5	: RESTORE R5
646	001746	005215			INC	(R5)	
647	001750	010701			SCOPE1		
648	001752	021527	000037		CMP	(R5), #37	: HAS THE CONTENTS OF REGISTERS BEEN SHIFTED
649							: LEFT BY 14. AND RIGHT BY 14.?
650	001756	002010			BGE	9S	: IF SO GO AND CONTINUE THE REST OF THE PROGRAM
651	001760	005237	000006		INC	2#TEMP2	
652	001764	006367	176020		ASL	TEMP3	: SHIFT TEMP3 LEFT
653	001770	021527	000020		CMP	(R5), #20	: HAS THE CONTENTS OF REGISTERS BEEN SHIFTED LEFT BY 14.?
654	001774	001405			BEQ	NEGAT	: IF SO GO TO NEGAT AND INITIATE RIGHT SHIFT
655	001776	000402			BR	10S	
656	002000	004767	000032	8S:	JSR	PC, TST37	
657	002004	000167	176656	10S:	JMP	START	: GO BACK TO START

658	002010	012737	040000	000004	NEGAT:	MOV	#40000, @TEMP1	:TEMP1=40000
659	002016	012737	177762	000006		MOV	#177762, @TEMP2	:TEMP2=177762
660	002024	012737	000001	000010		MOV	#1, @TEMP3	:TEMP3=1
661	002032	000167	176630			JMP	START	
662	002036	021527	000037		TST37:	CMP	(R5), #37	:IS IT TEST 37?
663	002042	001013				BNE	TST40	:IF NOT THEN TRY TEST 40
664	002044	005037	000004			CLR	@TEMP1	:0
665	002050	012737	000020	000006		MOV	#16, @TEMP2	:SHIFTED BY 16
666	002056	005037	000010			CLR	@TEMP3	:IS=0
667	002062	012737	000004	000012		MOV	#4, @TEMP4	:AND PS=4
668	002070	000207				RTS	PC	
669	002072	021527	000040		TST40:	CMP	(R5), #40	:IS IT TEST 40?
670	002076	001003				BNE	TST41	:IF NOT THEN TRY TEST 41
671	002100	005037	000006			CLR	@TEMP2	:0 SHIFTED BY 0=0 AND PS=4
672	002104	000207				RTS	PC	
673	002106	021527	000041		TST41:	CMP	(R5), #41	:IS IT TEST 41?
674	002112	001004				BNE	TST42	:IF NOT THEN TRY TEST 42
675	002114	012737	177760	000006		MOV	#-16, @TEMP2	:0 SHIFTED BY -16.=0 AND PS=4
676	002122	000207				RTS	PC	
677	002124	021527	000042		TST42:	CMP	(R5), #42	:IS IT TEST 42?
678	002130	001013				BNE	TST43	:IF NOT THEN TRY TEST 43
679	002132	012737	100000	000004		MOV	#100000, @TEMP1	:100000
680	002140	005237	000006			INC	@TEMP2	:SHIFTED BY -15
681	002144	005337	000010			DEC	@TEMP3	:IS=-1
682	002150	012737	000010	000012		MOV	#10, @TEMP4	:AND PS=10
683	002156	000207				RTS	PC	
684	002160	021527	000043		TST43:	CMP	(R5), #43	:IS IT TEST 43?
685	002164	001012				BNE	TST44	:IF NOT THEN IF NOT THEN TRY TEST 44
686	002166	012737	125252	000004		MOV	#125252, @TEMP1	:125252
687	002174	012737	177777	000006		MOV	#-1, @TEMP2	:SHIFTED BY -1
688	002202	012737	152525	000010		MOV	#152525, @TEMP3	:IS=152525 AND PS=10
689	002210	000207				RTS	PC	
690	002212	021527	000044		TST44:	CMP	(R5), #44	:IS IT TEST 44?
691	002216	001012				BNE	TST45	:IF NOT THEN TRY TEST 45
692	002220	012737	000001	000006		MOV	#1, @TEMP2	:125252 SHIFTED BY 1
693	002226	012737	052524	000010		MOV	#52524, @TEMP3	:IS=52524
694	002234	012737	000003	000012		MOV	#3, @TEMP4	:AND PS=3
695	002242	000207				RTS	PC	
696	002244	021527	000045		TST45:	CMP	(R5), #45	:IS IT TEST 45?
697	002250	001012				BNE	TST46	:IF NOT THEN TRY TEST 46
698	002252	012737	177776	000006		MOV	#-2, @TEMP2	:125252 SHIFTED BY -2
699	002260	012737	165252	000010		MOV	#165252, @TEMP3	:IS=165252
700	002266	012737	000011	000012		MOV	#11, @TEMP4	:AND PS=11
701	002274	000207				RTS	PC	
702	002276	021527	000046		TST46:	CMP	(R5), #46	:IS IT TEST 46?
703	002302	001014				BNE	TST47	:IF NOT THEN TRY TEST 47
704	002304	012737	177777	000004		MOV	#-1, @TEMP1	: -1
705	002312	012737	000020	000006		MOV	#16, @TEMP2	:SHIFTED BY 15.
706	002320	005037	000010			CLR	@TEMP3	:IS=0
707	002324	012737	000007	000012		MOV	#7, @TEMP4	:AND PS=7
708	002332	000207				RTS	PC	
709	002334	021527	000047		TST47:	CMP	(R5), #47	:IS IT TEST 47?
710	002340	001011				BNE	TST50	:IF NOT THEN TRY TEST 50
711	002342	005337	000006			DEC	@TEMP2	: -1 SHIFTED BY 15
712	002346	012737	100000	000010		MOV	#100000, @TEMP3	:IS=100000
713	002354	012737	000011	000012		MOV	#11, @TEMP4	:AND PS=11

002362	000207				RTS	PC	
002364	021527	000050			TST50: CMP	(R5), #50	; IS IT TEST 50
002370	001007				BNE	ENT51	; IF NOT THEN TRY TEST 51
002372	012737	137777	000004		MOV	#137777, @TEMP1	; 137777 SHIFTED BY 15. IS=100000
002400	012737	000013	000012		MOV	#13, @TEMP4	; AND PS=13
002406	000207				RTS	PC	
002410	021527	000051			ENT51: CMP	(R5), #51	; IS IT ENTERING TEST 51?
002414	001403				BEQ	.+10	
002416	004767	013764			JSR	PC, \$HLT	; SEEN AN ERROR, GO TO TH HALT ROUTINE
002422	000015				15		; TEST NUMBER GOOFED
002424	005726				TST	(SP)+	; RESTORE STACK POINTER
002426	012704	177771			MOV	#-7, %4	
002430	012702	000024			MOV	#51, %2	
002436	012703	000026			MOV	#52, %3	

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:TEST:51 11/34 ASH 125252 SHIFTED BY #5 = 52500 PS = 3

TST51: SCOPE1
MOV #125252,%1 ;LOAD R1 WITH 125252
ASH #5,%1 ;SHIFT R1 BY #5
MFPS @#PSWORD ;SAVE PS
CMPB #3,@#PSWORD ;IS THE PS 3?
BEQ .+10
JSR PC,\$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
;THE PS IS NOT EQUAL TO 3
16
CMP #52500,%1 ;IS THE RESULT 52500?
BEQ .+10
1\$:
JSR PC,\$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
;R1 IS NOT EQUAL TO 52500 OR INCORRECT SEQUENCE
17
CMP (R5),#51 ;IS \$TESTN = #51
BNE 1\$;IF NOT THEN GO TO HLT ABOVE
INC (R5)

:TEST:52 11/34 ASH 125252 SHIFTED BY #52 = 177525 PS = 10

TST52: SCOPE1
MOV #125252,%0 ;LOAD R0 WITH 125252
ASH #52,%0 ;SHIFT R0 BY #52
MFPS @#PSWORD ;SAVE PS
CMPB #10,@#PSWORD ;IS THE PS 10?
BEQ .+10
JSR PC,\$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
;THE PS IS NOT EQUAL TO 10
20
CMP #177525,%0 ;IS THE RESULT 177525?
BEQ .+10
1\$:
JSR PC,\$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
;R0 IS NOT EQUAL TO 177525 OR INCORRECT SEQUENCE
21
CMP (R5),#52 ;IS \$TESTN = #52
BNE 1\$;IF NOT THEN GO TO HLT ABOVE
INC (R5)

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784 002602 010701
785 002604 012700 125252
786 002610 072037 000024
787 002614 106737 000002
788 002620 122737 000010 000002
789 002626 001403
790 002630 004767 013552
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792 002634 000022
793 002636 022700 177525
794 002642 001403
795 002644
796 002644 004767 013536
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798 002650 000023
799 002652 021527 000053
800 002656 001372
801 002660 005215
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809 002662 010701
810 002664 012700 125252
811 002670 072012
812 002672 106737 000002
813 002676 122737 000010 000002
814 002704 001403
815 002706 004767 013474
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817 002712 000024
818 002714 022700 177525
819 002720 001403
820 002722
821 002722 004767 013460
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823 002726 000025
824 002730 021527 000054
825 002734 001372
826 002736 005215
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:*****
:TEST:53 11/34 ASH 125252 SHIFTED BY 2#51 = 177525 PS = 10
:*****
TST53: SCOPE1
MOV #125252,%0 ;LOAD RO WITH 125252
ASH 2#51,%0 ;SHIFT RO BY 2#51
MFPS 2#PSWORD ;SAVE PS
CMPB #10,2#PSWORD ;IS THE PS 10?
BEQ +10
JSR PC,$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
;THE PS IS NOT EQUAL TO 10
22
CMP #177525,%0 ;IS THE RESULT 177525?
BEQ +10
1S: JSR PC,$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
;RO IS NOT EQUAL TO 177525 OR INCORRECT SEQUENCE
23
CMP (R5),#53 ;IS $TESTN = #53
BNE 1S ;IF NOT THEN GO TO HLT ABOVE
INC (R5)

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809 002662 010701
810 002664 012700 125252
811 002670 072012
812 002672 106737 000002
813 002676 122737 000010 000002
814 002704 001403
815 002706 004767 013474
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817 002712 000024
818 002714 022700 177525
819 002720 001403
820 002722
821 002722 004767 013460
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823 002726 000025
824 002730 021527 000054
825 002734 001372
826 002736 005215
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:*****
:TEST:54 11/34 ASH 125252 SHIFTED BY (2) = 177525 PS = 10
:*****
TST54: SCOPE1
MOV #125252,%0 ;LOAD RO WITH 125252
ASH (2),%0 ;SHIFT RO BY (2)
MFPS 2#PSWORD ;SAVE PS
CMPB #10,2#PSWORD ;IS THE PS 10?
BEQ +10
JSR PC,$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
;THE PS IS NOT EQUAL TO 10
24
CMP #177525,%0 ;IS THE RESULT 177525?
BEQ +10
1S: JSR PC,$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
;RO IS NOT EQUAL TO 177525 OR INCORRECT SEQUENCE
25
CMP (R5),#54 ;IS $TESTN = #54
BNE 1S ;IF NOT THEN GO TO HLT ABOVE
INC (R5)

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834 002740 010701
835 002742 012700 125252
836 002746 072022
837 002750 106737 000002
838 002754 122737 000010 000002
839 002762 001403
840 002764 004767 013416
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842 002770 000026
843 002772 022700 177525
844 002776 001403
845 003000
846 003000 004767 013402
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848 003004 000027
849 003006 021527 000055
850 003012 001372
851 003014 005215
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859 003016 010701
860 003020 012700 125252
861 003024 072042
862 003026 106737 000002
863 003032 122737 000010 000002
864 003040 001403
865 003042 004767 013340
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867 003046 000030
868 003050 022700 177525
869 003054 001403
870 003056
871 003056 004767 013324
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873 003062 000031
874 003064 021527 000056
875 003070 001372
876 003072 005215
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:*****
:TEST:55 11/34 ASH 125252 SHIFTED BY (2)+ = 177525 PS = 10
:*****

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TST55: SCOPE1
MOV #125252,%0 ;LOAD RO WITH 125252
ASH (2)+,%0 ;SHIFT RO BY (2)+
MFPS @#PSWORD ;SAVE PS
CMPB #10,@#PSWORD ;IS THE PS 10?
BEQ .+10
JSR PC,$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
;THE PS IS NOT EQUAL TO 10
26
CMP #177525,%0 ;IS THE RESULT 177525?
BEQ .+10
1$: JSR PC,$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
;RO IS NOT EQUAL TO 177525 OR INCORRECT SEQUENCE
27
CMP (R5),#55 ;IS $TESTN = #55
BNE 1$ ;IF NOT THEN GO TO HLT ABOVE
INC (R5)

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:*****
:TEST:56 11/34 ASH 125252 SHIFTED BY -(2) = 177525 PS = 10
:*****

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TST56: SCOPE1
MOV #125252,%0 ;LOAD RO WITH 125252
ASH -(2),%0 ;SHIFT RO BY -(2)
MFPS @#PSWORD ;SAVE PS
CMPB #10,@#PSWORD ;IS THE PS 10?
BEQ .+10
JSR PC,$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
;THE PS IS NOT EQUAL TO 10
30
CMP #177525,%0 ;IS THE RESULT 177525?
BEQ .+10
1$: JSR PC,$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
;RO IS NOT EQUAL TO 177525 OR INCORRECT SEQUENCE
31
CMP (R5),#56 ;IS $TESTN = #56
BNE 1$ ;IF NOT THEN GO TO HLT ABOVE
INC (R5)

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880                                     :*****
881                                     :TEST:57  11/34  ASH    125252 SHIFTED BY 2(3) = 177252  PS = 11
882                                     :*****
883
884 003074 010701 TST57: SCOPE1
885 003076 012700 125252 MOV      #125252,%0      ;LOAD RO WITH 125252
886 003102 072063 000002 ASH      2(3),%0      ;SHIFT RO BY 2(3)
887 003106 106737 000002 MFPS    2#PSWORD     ;SAVE PS
888 003112 122737 000011 000002 CMPB    #11,2#PSWORD  ;IS THE PS 11?
889 003120 001403 BEQ      .+10
890 003122 004767 013260 JSR      PC,$HLT     ;SEEN AN ERROR, GO TO TH HALT ROUTINE
891                                     ;THE PS IS NOT EQUAL TO 11
892 003126 000032 32
893 003130 022700 177252 CMP      #177252,%0   ;IS THE RESULT 177252?
894 003134 001403 BEQ      .+10
895                                     IS:
896 003136 004767 013244 JSR      PC,$HLT     ;SEEN AN ERROR, GO TO TH HALT ROUTINE
897                                     ;RO IS NOT EQUAL TO 177252 OR INCORRECT SEQUENCE
898 003142 000033 33
899 003144 021527 000057 CMP      (R5),#57    ;IS $TESTN = #57
900 003150 001372 BNE     IS          ;IF NOT THEN GO TO HLT ABOVE
901 003152 005215 INC      (R5)
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906                                     :*****
907                                     :TEST:60  11/34  ASH    125252 SHIFTED BY 2(3) = 177525  PS = 10
908                                     :*****
909
910 003154 010701 TST60: SCOPE1
911 003156 012700 125252 MOV      #125252,%0      ;LOAD RO WITH 125252
912 003162 072073 000000 ASH      2(3),%0      ;SHIFT RO BY 2(3)
913 003166 106737 000002 MFPS    2#PSWORD     ;SAVE PS
914 003172 122737 000010 000002 CMPB    #10,2#PSWORD  ;IS THE PS 10?
915 003200 001403 BEQ      .+10
916 003202 004767 013200 JSR      PC,$HLT     ;SEEN AN ERROR, GO TO TH HALT ROUTINE
917                                     ;THE PS IS NOT EQUAL TO 10
918 003206 000034 34
919 003210 022700 177525 CMP      #177525,%0   ;IS THE RESULT 177525?
920 003214 001403 BEQ      .+10
921                                     IS:
922 003216 004767 013164 JSR      PC,$HLT     ;SEEN AN ERROR, GO TO TH HALT ROUTINE
923                                     ;RO IS NOT EQUAL TO 177525 OR INCORRECT SEQUENCE
924 003222 000035 35
925 003224 021527 000060 CMP      (R5),#60    ;IS $TESTN = #60
926 003230 001372 BNE     IS          ;IF NOT THEN GO TO HLT ABOVE
927 003232 005215 INC      (R5)
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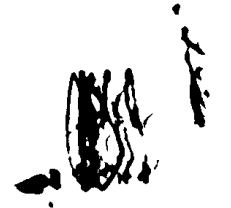
*****
;TEST:61 11/34 ASH 125252 SHIFTED BY 2(3)+ = 177525 PS = 10
*****
TST61: SCOPE1
MOV #125252,%0 ;LOAD RO WITH 125252
ASH 2(3)+,%0 ;SHIFT RO BY 2(3)+
MFPS 2*PSWORD ;SAVE PS
CMPB #10,2*PSWORD ;IS THE PS 10?
BEQ .+10
JSR PC,$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
;THE PS IS NOT EQUAL TO 10
36
CMP #177525,%0 ;IS THE RESULT 177525?
BEQ .+10
IS: JSR PC,$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
;RO IS NOT EQUAL TO 177525 OR INCORRECT SEQUENCE
37
CMP (R5),#61 ;IS $TESTN = #61
BNE IS ;IF NOT THEN GO TO HLT ABOVE
INC (R5)

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*****
;TEST:62 11/34 ASH 125252 SHIFTED BY 2-(3) = 177525 PS = 10
*****
TST62: SCOPE1
MOV #125252,%0 ;LOAD RO WITH 125252
ASH 2-(3),%0 ;SHIFT RO BY 2-(3)
MFPS 2*PSWORD ;SAVE PS
CMPB #10,2*PSWORD ;IS THE PS 10?
BEQ .+10
JSR PC,$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
;THE PS IS NOT EQUAL TO 10
40
CMP #177525,%0 ;IS THE RESULT 177525?
BEQ .+10
IS: JSR PC,$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
;RO IS NOT EQUAL TO 177525 OR INCORRECT SEQUENCE
41
CMP (R5),#62 ;IS $TESTN = #62
BNE IS ;IF NOT THEN GO TO HLT ABOVE
INC (R5)

```




```
*****
; ASHC INSTRUCTION TESTS
*****
```

```
*****
; TESTS 63-157
*****
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980
981
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988
989
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991
992 003370 012737 000062 000000      MOV      #62, @#COUNT
993 003376 005037 000004      CLR      @#TEMP1          ; TEMP1=0
994 003402 012737 000001 000006      MOV      #1, @#TEMP2      ; TEMP2=1
995 003410 005037 000010      CLR      @#TEMP3          ; TEMP3=0
996 003414 005037 000012      CLR      @#TEMP4          ; TEMP4=0
997 003420 012737 000001 000014      MOV      #1, @#TEMP5      ; TEMP5=1
998 003426 005037 000016      CLR      @#TEMP6          ; 0 1 SHIFTED BY 0=0 1, PS=0
999
1000 003432 010703      REG01: SCOPE3
1001 003434 010502      MOV      R5, R2          ; SAVE R5
1002 003436 013700 000004      MOV      @#TEMP1, %0      ; PLACE THE CONTENTS OF TEMP1 IN REGISTER 0
1003 003442 013701 000006      MOV      @#TEMP2, %0!1    ; PLACE THE CONTENTS OF TEMP2 IN REGISTER 1
1004 003446 000241      CLC
1005 003450 032737 000001 016336      BIT      #1, @#SPASS      ; IS IT AN EVEN PASS ?
1006 003456 001004      BNE      2$              ; IF NOT THEN GO TO 2$
1007 003460 013705 000010      MOV      @#TEMP3, R5      ; OTHERWISE EXECUTE ASHC INSTRUCTION IN MODE 0
1008 003464 073005      ASHC     R5, R0          ; USING R0
1009 003466 000402      BR
1010 003470 073067 174314      2$: ASHC     TEMP3, %0      ; ASHC REGISTER 0 BY THE CONTENTS OF TEMP3
1011 003474 106737 000002      4$: MFPS      @#PSWORD      ; SAVE PS
1012 003500 123737 000016 000002      CMPB     @#TEMP6, @#PSWORD; COMPARE PS WITH THE CONTENTS OF TEMP6
1013 003506 001403      BEQ      .+10
1014 003510 004767 012672      JSR      PC, $HLT        ; SEEN AN ERROR, GO TO TH HALT ROUTINE
1015                                     ; WRONG PS
1016 003514 000042      42
1017 003516 005237 000000      INC      @#COUNT
1018 003522 023700 000012      CMP      @#TEMP4, %0      ; IS THE RESULT IN R0 SAME AS TEMP4?
1019 003526 001403      BEQ      .+10
1020 003530 004767 012652      JSR      PC, $HLT        ; SEEN AN ERROR, GO TO TH HALT ROUTINE
1021                                     ; WRONG RESULT IN R0
1022 003534 000043      43
1023 003536 023701 000014      CMP      @#TEMP5, %1      ; IS THE RESULT IN R1 SAME AS TEMP5?
1024 003542 001403      BEQ      .+10            ; TEMP1 TEMP2 SHIFTED BY TEMP3=TEMP4 TEMP5
1025                                     ; AND PS=TEMP6
1026 003544 004767 012636      JSR      PC, $HLT        ; SEEN AN ERROR, GO TO TH HALT ROUTINE
1027                                     ; WRONG RESULT IN R1
1028 003550 000044      44
1029 003552 010205      MOV      R2, R5          ; RESTORE R5
1030 003554 021537 000000      CMP      (R5), @#COUNT   ; IS TEST NUMBER=COUNTER?
1031 003560 001403      BEQ      .+10
1032 003562 004767 012620      JSR      PC, $HLT        ; SEEN AN ERROR, GO TO TH HALT ROUTINE
1033                                     ; NO
1034 003566 000045      45
1035 003570 005215      INC      (R5)

```

1036	003572	021527	000160		CMP	(R5), #160	;HAVE THE FIRST 159 TEST BEEN EXECUTED?
1037	003576	002014			BGE	6\$;YES
1038	003600	005237	000010		INC	Q#TEMP3	
1039	003604	000241			CLC		
1040	003606	006137	000014		ROL	Q#TEMPS	;ROTATE TEMPS LEFT BY 1 PLACE
1041	003612	006137	000012		ROL	Q#TEMP4	;INTRODUCE CARRY FROM TEMP4 IN TEMPS
1042	003616	021527	000121		CMP	(R5), #121	;IS IT TEST 121?
1043	003622	001004			BNE	REG23	
1044	003624	004467	000410		JSR	R4, RITSH	;IF SO THEN GO AND INITIATE RIGHT SHIFT
1045	003630	004767	000440		JSR	%7, TST160	
1046	003634	010701		6\$: REG23:	SCOPE1		
1047	003636	013702	000004		MOV	Q#TEMP1, %2	;PLACE THE CONTENTS OF TEMP1 IN REGISTER 2
1048	003642	013703	000006		MOV	Q#TEMP2, %2!1	;PLACE THE CONTENTS OF TEMP2 IN REGISTER 3
1049	003646	000241			CLC		
1050	003650	032737	000001	016336	BIT	#1, Q#SPASS	;IS IT AN EVEN PASS ?
1051	003656	001004			BNE	2\$;IF NOT THEN GO TO 2\$
1052	003660	013704	000010		MOV	Q#TEMP3, R4	;OTHERWISE EXECUTE ASHC INSTRUCTION IN MODE 0
1053	003664	073204			ASHC	R4, R2	;USING R2
1054	003666	000402			BR	4\$	
1055	003670	073267	174114		ASHC	TEMP3, %2	;ASHC REGISTER 2 BY THE CONTENTS OF TEMP3
1056	003674	106737	000002		MFPS	Q#PSWORD	;SAVE PS
1057	003700	123737	000016	000002	CMPB	Q#TEMP6, Q#PSWORD	;COMPARE PS WITH THE CONTENTS OF TEMP6
1058	003706	001403			BEQ	.+10	
1059	003710	004767	012472		JSR	PC, \$HLT	;SEEN AN ERROR, GO TO TH HALT ROUTINE
1060							;WRONG PS
1061	003714	000046			46		
1062	003716	005237	000000		INC	Q#COUNT	
1063	003722	023702	000012		CMP	Q#TEMP4, %2	;IS THE RESULT IN R2 SAME AS TEMP4?
1064	003726	001403			BEQ	.+10	
1065	003730	004767	012452		JSR	PC, \$HLT	;SEEN AN ERROR, GO TO TH HALT ROUTINE
1066							;WRONG RESULT IN R2
1067	003734	000047			47		
1068	003736	023703	000014		CMP	Q#TEMPS, %3	;IS THE RESULT IN R3 SAME AS TEMPS?
1069	003742	001403			BEQ	.+10	;TEMP1 TEMP2 SHIFTED BY TEMP3=TEMP4 TEMPS
1070							;AND PS=TEMP6
1071	003744	004767	012436		JSR	PC, \$HLT	;SEEN AN ERROR, GO TO TH HALT ROUTINE
1072							;WRONG RESULT IN R1
1073	003750	000050			50		
1074	003752	021537	000000		CMP	(R5), Q#COUNT	;IS TEST NUMBER=COUNTER?
1075	003756	001403			BEQ	.+10	
1076	003760	004767	012422		JSR	PC, \$HLT	;SEEN AN ERROR, GO TO TH HALT ROUTINE
1077							;NO
1078	003764	000051			51		
1079	003766	005215			INC	(R5)	
1080	003770	021527	000160		CMP	(R5), #160	;HAVE THE FIRST 159 TEST BEEN EXECUTED?
1081	003774	002014			BGE	6\$;YES
1082	003776	005237	000010		INC	Q#TEMP3	
1083	004002	000241			CLC		
1084	004004	006137	000014		ROL	Q#TEMPS	;ROTATE TEMPS LEFT BY 1 PLACE
1085	004010	006137	000012		ROL	Q#TEMP4	;INTRODUCE CARRY FROM TEMPS IN TEMP4
1086	004014	021527	000121		CMP	(R5), #121	;IS IT TEST 121?
1087	004020	001004			BNE	REG45	
1088	004022	004467	000212		JSR	R4, RITSH	;IF SO THEN GO AND INITIATE RIGHT SHIFT
1089	004026	004767	000242		JSR	%7, TST160	
1090	004032	010701		6\$: REG45:	SCOPE1		
1091	004034	010501			MOV	R5, R1	;SAVE R5

1092	004036	013704	000004		MOV	Q#TEMP1,%4	;PLACE THE CONTENTS OF TEMP1 IN REGISTER 4
1093	004042	013705	000006		MOV	Q#TEMP2,%4!1	;PLACE THE CONTENTS OF TEMP2 IN REGISTER 5
1094	004046	000241			CLC		
1095	004050	032737	000001	016336	BIT	#1,Q#SPASS	;IS IT AN EVEN PASS ?
1096	004056	001004			BNE	2\$;IF NOT THEN GO TO 2\$
1097	004060	013700	000010		MOV	Q#TEMP3,R0	;OTHERWISE EXECUTE ASHC INSTRUCTION IN MODE 0
1098	004064	073400			ASHC	R0,R4	;USING R4
1099	004066	000402			BR	4\$	
1100	004070	073467	173714		ASHC	TEMP3,%4	;ASHC REGISTER 4 BY THE CONTENTS OF TEMP3
1101	004074	106737	000002		MFPS	Q#PSWORD	;SAVE PS
1102	004100	123737	000016	000002	CMPB	Q#TEMP6,Q#PSWORD	;COMPARE PS WITH THE CONTENTS OF TEMP6
1103	004106	001403			BEQ	.+10	
1104	004110	004767	012272		JSR	PC,\$HLT	;SEEN AN ERROR, GO TO TH HALT ROUTINE
1105							;WRONG PS
1106	004114	000052			52		
1107	004116	005237	000000		INC	Q#COUNT	
1108	004122	023704	000012		CMP	Q#TEMP4,%4	;IS THE RESULT IN R4 SAME AS TEMP4?
1109	004126	001403			BEQ	.+10	
1110	004130	004767	012252		JSR	PC,\$HLT	;SEEN AN ERROR, GO TO TH HALT ROUTINE
1111							;WRONG RESULT IN R4
1112	004134	000053			53		
1113	004136	023705	000014		CMP	Q#TEMP5,%5	;IS THE RESULT IN R5 SAME AS TEMP5?
1114	004142	001403			BEQ	.+10	;TEMP1 TEMP2 SHIFTED BY TEMP3=TEMP4 TEMP5
1115							;AND PS=TEMP6
1116	004144	004767	012236		JSR	PC,\$HLT	;SEEN AN ERROR, GO TO TH HALT ROUTINE
1117							;WRONG RESULT IN R5
1118	004150	000054			54		
1119	004152	021137	000000		CMP	(R1),Q#COUNT	;IS TEST NUMBER=COUNTER?
1120	004156	001403			BEQ	.+10	
1121	004160	004767	012222		JSR	PC,\$HLT	;SEEN AN ERROR, GO TO TH HALT ROUTINE
1122							;NO
1123	004164	000055			55		
1124	004166	010105			MOV	R1,R5	;RESTORE R5
1125	004170	005215			INC	(R5)	
1126	004172	021527	000160		CMP	(R5),#160	;HAVE THE FIRST 159 TEST BEEN EXECUTED?
1127	004176	002014			BGE	6\$;YES
1128	004200	005237	000010		INC	Q#TEMP3	

1129	004204	000241			CLC		
1130	004206	006137	000014		ROL	@#TEMP5	; ROTATE TEMP5 LEFT BY 1 PLACE
1131	004212	006137	000012		ROL	@#TEMP4	; INTRODUCE CARRY FROM TEMP5 IN TEMP4
1132	004216	021527	000121		CMP	(R5), #121	; IS IT TEST 121?
1133	004222	001004			BNE	B\$	
1134	004224	004467	000010		JSR	R4, RITSH	; IF SO THEN GO AND INITIATE RIGHT SHIFT
1135	004230	004767	000040		JSR	%7, TST160	
1136	004234	000167	177172		JMP	REG01	
1137	004240	022424			RITSH: CMP	(R4)+, (R4)+	; MAKE R4 POINT TO THE NEXT REG TAG
1138	004242	012737	040000	000004	MOV	#40000, @#TEMP1	; TEMP1=4000
1139	004250	005037	000006		CLR	@#TEMP2	; TEMP2=0
1140	004254	012737	177742	000010	MOV	#-30, @#TEMP3	; TEMP3=-30
1141	004252	005037	000012		CLR	@#TEMP4	; TEMP4=0
1142	004266	005237	000014		INC	@#TEMP5	; TEMP5=1
1143	004272	000204			RTS	R4	
1144	004274	021527	000160		TST160: CMP	(R5), #160	; IS IT TEST 160
1145	004300	001010			BNE	TST161	; IF NOT THEN TRY TEST 161
1146	004302	005037	000004		CLR	@#TEMP1	; 0 0 SHIFTED BY 0
1147	004306	005037	000012		CLR	@#TEMP4	; IS EQUAL TO 0 0
1148	004312	012737	000004	000016	MOV	#4, @#TEMP6	; AND PS=4
1149	004320	000207			RTS	%7	
1150	004322	021527	000161		TST161: CMP	(R5), #161	; IS IT TEST 161
1151	004326	001004			BNE	TST162	
1152	004330	012737	177746	000010	MOV	#-32, @#TEMP3	; 0 0 SHIFTED BY -32=0 0, PS=4
1153	004336	000207			RTS	%7	
1154	004340	021527	000162		TST162: CMP	(R5), #162	; IS IT TEST 162
1155	004344	001004			BNE	TST163	; IF NOT THEN TRY TEST 163
1156	004346	012737	000032	000010	MOV	#32, @#TEMP3	; 0 0 SHIFTED BY 32=0 0, PS=4
1157	004354	000207			RTS	%7	
1158	004356	021527	000163		TST163: CMP	(R5), #163	; IS IT TEST 163?
1159	004362	001016			BNE	TST164	; IF NOT THEN TRY TEST 164
1160	004364	012737	052525	000004	MOV	#52525, @#TEMP1	; 52525 0
1161	004372	012737	177760	000010	MOV	#-16, @#TEMP3	; SHIFTED BY -16.
1162	004400	005037	000012		CLR	@#TEMP4	
1163	004404	012737	052525	000014	MOV	#52525, @#TEMP5	; IS EQUAL TO 0 52525
1164	004412	005037	000016		CLR	@#TEMP6	; AND PS = 0
1165	004416	000207			RTS	%7	
1166	004420	021527	000164		TST164: CMP	(R5), #164	; IS IT TEST 164?
1167	004424	001014			BNE	TST165	; IF NOT THEN TRY TEST 165
1168	004426	012737	125252	000004	MOV	#125252, @#TEMP1	; 125252 0 SHIFTED BY -16.
1169	004434	005337	000012		DEC	@#TEMP4	
1170	004440	012737	125252	000014	MOV	#125252, @#TEMP5	; IS EQUAL TO -1 125252
1171	004446	012737	000010	000016	MOV	#10, @#TEMP6	; AND PS=10
1172	004454	000207			RTS	%7	
1173	004456	021527	000165		TST165: CMP	(R5), #165	; IS IT TEST 165?
1174	004462	001007			BNE	TST166	; IF NOT THEN TRY TEST 166
1175	004464	012737	177777	000004	MOV	#-1, @#TEMP1	; -1 0 SHIFTED BY -16
1176	004472	012737	177777	000014	MOV	#-1, @#TEMP5	; IS EQUAL TO -1 -1, AND PS=10
1177	004500	000207			RTS	%7	
1178	004502	021527	000166		TST166: CMP	(R5), #166	; IS IT TEST 166?
1179	004506	001011			BNE	TST167	; IF NOT THEN TRY TEST 167
1180	004510	012737	100000	000004	MOV	#100000, @#TEMP1	; 100000 0
1181	004516	012737	177740	000010	MOV	#-32, @#TEMP3	; SHIFTED BY -32 IS EQUAL TO -1 -1
1182	004524	005237	000016		INC	@#TEMP6	; AND PS=11
1183	004530	000207			RTS	%7	
1184	004532	021527	000167		TST167: CMP	(R5), #167	; IS IT TEST 167?

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1195 004536 001014 BNE TST170 :IF NOT THEN TRY TEST 170
1196 004540 005037 000004 CLR @TEMP1
1197 004544 005337 000006 DEC @TEMP2 :0 -1
1198 004550 012737 000020 000010 MOV #16,@TEMP3 :SHIFTED BY 16.
1199 004556 005037 000014 CLR @TEMP5 :IS EQUAL TO -1 0
1200 004562 005237 000016 INC @TEMP6 :AND PS=12
1201 004566 000207 RTS %7
1202 004570 021527 000170 TST170: CMP (R5),#170 :IS IT TEST 170?
1203 004574 001007 BNE TST171 :IF NOT THEN TRY TEST 171
1204 004576 012737 125252 000006 MOV #125252,@TEMP2 :0 125252 SHIFTED BY 16
1205 004604 012737 125252 000012 MOV #125252,@TEMP4 :IS EQUAL TO 125252 0, AND PS=12
1206 004612 000207 RTS %7
1207 004614 021527 000171 TST171: CMP (R5),#171 :IS IT TEST 171?
1208 004620 001010 BNE TST172 :IF NOT THEN TRY TEST 172
1209 004622 005337 000010 DEC @TEMP3 :0 125252 SHIFTED BY 15
1210 004626 012737 052525 000012 MOV #52525,@TEMP4 :IS EQUAL TO 52525 0
1211 004634 005037 000016 CLR @TEMP6 :AND PS=0
1212 004640 000207 RTS %7
1213 004642 021527 000172 TST172: CMP (R5),#172 :IS IT TEST 172?
1214 004646 001006 BNE TST173 :IF NOT THEN TRY TEST 173
1215 004650 012737 052525 000006 MOV #52525,@TEMP2 :0 52525
1216 004656 005237 000010 INC @TEMP3 :SHIFTED BY 16. IS EQUAL TO 52525 0, AND PS=0
1217 004662 000207 RTS %7
1218 004664 021527 000173 TST173: CMP (R5),#173 :IS IT TEST 173?
1219 004670 001014 BNE TST174 :IF NOT THEN TRY TEST 174
1220 004672 012737 177777 000006 MOV #-1,@TEMP2 :0 -1
1221 004700 005337 000010 DEC @TEMP3 :SHIFTED BY 15.
1222 004704 012737 077777 000012 MOV #77777,@TEMP4
1223 004712 012737 100000 000014 MOV #100000,@TEMP5 :IS EQUAL TO 77777 100000, AND PS=0
1224 004720 000207 RTS %7
1225 004722 021527 000174 TST174: CMP (R5),#174 :IS IT TEST 174?
1226 004726 001013 BNE TST175 :IF NOT THEN TRY TEST 175
1227 004730 012737 100000 000004 MOV #100000,@TEMP1
1228 004736 005337 000006 DEC @TEMP2 :100000 -2 SHIFTED BY 15.
1229 004742 005037 000014 CLR @TEMP5 :IS EQUAL TO 77777 0
1230 004746 012737 000002 000016 MOV #2,@TEMP6 :AND PS=2
1231 004754 000207 RTS %7
1232 004756 021527 000175 TST175: CMP (R5),#175 :IS IT TEST 175?
1233 004762 001015 BNE ENT176 :IF NOT THEN TRY TEST 176
1234 004764 012737 177777 000004 MOV #-1,@TEMP1
1235 004772 005037 000006 CLR @TEMP2 :-1 0
1236 004776 005237 000010 INC @TEMP3 :SHIFTED BY 16.
1237 005002 005037 000012 CLR @TEMP4 :IS EQUAL TO 0 0
1238 005006 012737 000007 000016 MOV #7,@TEMP6 :AND PS=7
1239 005014 000207 RTS %7
1240 005016 021527 000176 ENT176: CMP (R5),#176 :IS THE PROGRAM ENTERING TEST 176?
1241 005022 001403 BEQ .+10
1242 005024 004767 011356 JSR PC,$HLT :SEEN AN ERROR, GO TO TH HALT ROUTINE
1243 :TEST NUMBER GOOFED
1244 005030 000056 S6
1245
1246 005032 005726 TST (SP)+ :RESTORE STACK POINTER
1247

```



```

1238
1239
1240
1241
1242 005034 010701
1243 005036 012701 000000
1244 005042 012701 000001
1245 005046 000241
1246 005050 073127 000010
1247 005054 106737 000002
1248 005060 122737 000000 000002
1249 005066 001403
1250 005070 004767 011312
1251
1252 005074 000057
1253 005076 022701 000400
1254 005102 001403
1255 005104 004767 011276
1256
1257 005110 000060
1258 005112 021527 000176
1259 005116 001403
1260 005120 004767 011262
1261
1262 005124 000061
1263 005126 005215
1264
1265
1266
1267
1268
1269
1270
1271 005130 010701
1272 005132 012703 000000
1273 005136 012703 177777
1274 005142 000241
1275 005144 073327 000017
1276 005150 106737 000002
1277 005154 122737 000011 000002
1278 005162 001403
1279 005164 004767 011216
1280
1281 005170 000062
1282 005172 022703 100000
1283 005176 001403
1284 005200 004767 011202
1285
1286 005204 000063
1287 005206 021527 000177
1288 005212 001403
1289 005214 004767 011166
1290
1291 005220 000064
1292 005222 005215
1293
    
```

```

:*****
:TEST:176      1 SHIFTED BY 8. = 400 PS = 0
:*****
    
```

```

TST176: SCOPE1
MOV      #DUMMY,%1      ;LOAD R1 WITH DUMMY
MOV      #1,%1!1        ;LOAD R1!1 WITH 1
CLC
ASHC     #8,%1          ;SHIFT R1,R1!1 BY 8.
MFPS     @#PSWORD       ;SAVE PS
CMPB     #0,@#PSWORD    ;IS THE PS 0?
BEQ      +10
JSR      PC,$HLT        ;SEEN AN ERROR, GO TO TH HALT ROUTINE
                        ;THE PS IS NOT EQUAL TO 0
57
CMP      #400,%1        ;IS THE RESULT 400?
BEQ      +10
JSR      PC,$HLT        ;SEEN AN ERROR, GO TO TH HALT ROUTINE
                        ;R1 IS NOT EQUAL TO 400
60
CMP      (R5),#176      ;IS $TESTN = #176?
BEQ      +10            ;IF NOT THEN GO TO HLT
JSR      PC,$HLT        ;SEEN AN ERROR, GO TO TH HALT ROUTINE
                        ;TEST IS IN WRONG SEQUENCE
61
INC      (R5)
    
```

```

:*****
:TEST:177      -1 SHIFTED BY 15. = 100000 PS = 11
:*****
    
```

```

TST177: SCOPE1
MOV      #DUMMY,%3      ;LOAD R3 WITH DUMMY
MOV      #-1,%3!1       ;LOAD R3!1 WITH -1
CLC
ASHC     #15,%3         ;SHIFT R3,R3!1 BY 15.
MFPS     @#PSWORD       ;SAVE PS
CMPB     #11,@#PSWORD   ;IS THE PS 11?
BEQ      +10
JSR      PC,$HLT        ;SEEN AN ERROR, GO TO TH HALT ROUTINE
                        ;THE PS IS NOT EQUAL TO 11
62
CMP      #100000,%3     ;IS THE RESULT 100000?
BEQ      +10
JSR      PC,$HLT        ;SEEN AN ERROR, GO TO TH HALT ROUTINE
                        ;R3 IS NOT EQUAL TO 100000
63
CMP      (R5),#177      ;IS $TESTN = #177?
BEQ      +10            ;IF NOT THEN GO TO HLT
JSR      PC,$HLT        ;SEEN AN ERROR, GO TO TH HALT ROUTINE
                        ;TEST IS IN WRONG SEQUENCE
64
INC      (R5)
    
```

```

1294 :*****
1295 :TEST:200      52525 SHIFTED BY 0 = 52525  PS = 0
1296 :*****
1298 005224 010701          TST200: SCOPE1
1299 005226 010501          MOV      R5,R1          ;SAVE R5
1300 005230 012705 000000  MOV      #DUMMY,%5     ;LOAD R5 WITH DUMMY
1301 005234 012705 052525  MOV      #52525,%5!1   ;LOAD R5!1 WITH 52525
1302 005240 000241          CLC
1303 005242 073527 000000  ASHC     #0,%5         ;SHIFT R5,R5!1 BY 0
1304 005246 106737 000002  MFPS     @#PSWORD      ;SAVE PS
1305 005252 122737 000000 000002  CMPB     #0,@#PSWORD   ;IS THE PS 0?
1306 005250 001403          BEQ      +10
1307 005262 004767 011120  JSR      PC,$HLT       ;SEEN AN ERROR, GO TO TH HALT ROUTINE
1308                                     ;THE PS IS NOT EQUAL TO 0
1309 005266 000065          B5
1310 005270 022705 052525  CMP      #52525,%5     ;IS THE RESULT 52525?
1311 005274 001403          BEQ      +10
1312 005276 004767 011104  JSR      PC,$HLT       ;SEEN AN ERROR, GO TO TH HALT ROUTINE
1313                                     ;R5 IS NOT EQUAL TO 52525
1314 005302 000066          B6
1315 005304 010105          MOV      R1,R5         ;RESTORE R5
1316 005306 021527 000200  CMP      (R5),#200     ;IS $TESTN = #200?
1317 005312 001403          BEQ      +10           ;IF NOT THEN GO TO HLT
1318 005314 004767 011066  JSR      PC,$HLT       ;SEEN AN ERROR, GO TO TH HALT ROUTINE
1319                                     ;TEST IS IN WRONG SEQUENCE
1320 005320 000067          B7
1321 005322 005215          INC      (R5)
1322
1323 :*****
1324 :TEST:201      20010 SHIFTED BY -13. = 101  PS = 0
1325 :*****
1327 005324 010701          TST201: SCOPE1
1328 005326 012701 000000  MOV      #DUMMY,%1     ;LOAD R1 WITH DUMMY
1329 005332 012701 020010  MOV      #20010,%1!1   ;LOAD R1!1 WITH 20010
1330 005336 000241          CLC
1331 005340 073127 177763  ASHC     #-13,%1      ;SHIFT R1,R1!1 BY -13.
1332 005344 106737 000002  MFPS     @#PSWORD      ;SAVE PS
1333 005350 122737 000000 000002  CMPB     #0,@#PSWORD   ;IS THE PS 0?
1334 005356 001403          BEQ      +10
1335 005360 004767 011022  JSR      PC,$HLT       ;SEEN AN ERROR, GO TO TH HALT ROUTINE
1336                                     ;THE PS IS NOT EQUAL TO 0
1337 005364 000070          B70
1338 005366 022701 000101  CMP      #101,%1      ;IS THE RESULT 101?
1339 005372 001403          BEQ      +10
1340 005374 004767 011006  JSR      PC,$HLT       ;SEEN AN ERROR, GO TO TH HALT ROUTINE
1341                                     ;R1 IS NOT EQUAL TO 101
1342 005400 000071          B71
1343 005402 021527 000201  CMP      (R5),#201     ;IS $TESTN = #201?
1344 005406 001403          BEQ      +10           ;IF NOT THEN GO TO HLT
1345 005410 004767 010772  JSR      PC,$HLT       ;SEEN AN ERROR, GO TO TH HALT ROUTINE
1346                                     ;TEST IS IN WRONG SEQUENCE
1347 005414 000072          B72
1348 005416 005215          INC      (R5)
    
```

E03

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DFKACA.P11 ASHC INSTRUCTION TESTS

1350
1351

```

1352
1353
1354
1355
1356 005420 010701
1357 005422 012703 000000
1358 005426 012703 177777
1359 005432 000241
1360 005434 073327 000020
1361 005440 106737 000002
1362 005444 122737 000011 000002
1363 005452 001403
1364 005454 004767 010726
1365
1366 005460 000073
1367 005462 022703 000000
1368 005466 001403
1369 005470 004767 010712
1370
1371 005474 000074
1372 005476 021527 000202
1373 005502 001403
1374 005504 004767 010676
1375
1376 005510 000075
1377 005512 005215
1378
1379
1380
1381
1382
1383
1384 005514 010701
1385 005516 010501
1386 005520 012705 000000
1387 005524 012705 000001
1388 005530 000241
1389 005532 073527 177777
1390 005536 106737 000002
1391 005542 122737 000001 000002
1392 005550 001403
1393 005552 004767 010630
1394
1395 005556 000076
1396 005560 022705 100000
1397 005564 001403
1398 005566 004767 010614
1399
1400 005572 000077
1401 005574 010105
1402 005576 021527 000203
1403 005602 001403
1404 005604 004767 010576
1405
1406 005610 000100
1407 005612 005215
    
```

```

:*****
;TEST:202      -1 SHIFTED BY 16. = 0 PS = 11
:*****
TST202: SCOPE1
    MOV      #DUMMY,%3      ;LOAD R3 WITH DUMMY
    MOV      #-1,%3!1      ;LOAD R3!1 WITH -1
    CLC
    ASHC     #16,%3        ;SHIFT R3,R3!1 BY 16.
    MFPS     @#PSWORD      ;SAVE PS
    CMPB     #11,@#PSWORD  ;IS THE PS 11?
    BEQ      +10
    JSR      PC,$HLT       ;SEEN AN ERROR, GO TO TH HALT ROUTINE
                                ;THE PS IS NOT EQUAL TO 11
    73
    CMP      #0,%3        ;IS THE RESULT 0?
    BEQ      +10
    JSR      PC,$HLT       ;SEEN AN ERROR, GO TO TH HALT ROUTINE
                                ;R3 IS NOT EQUAL TO 0
    74
    CMP      (R5),#202     ;IS $TESTN = #202?
    BEQ      +10
    JSR      PC,$HLT       ;IF NOT THEN GO TO HLT
                                ;SEEN AN ERROR, GO TO TH HALT ROUTINE
                                ;TEST IS IN WRONG SEQUENCE
    75
    INC      (R5)
:*****
;TEST:203      1 SHIFTED BY -1 = 100000 PS = 1
:*****
TST203: SCOPE1
    MOV      R5,R1        ;SAVE R5
    MOV      #DUMMY,%5    ;LOAD R5 WITH DUMMY
    MOV      #1,%5!1     ;LOAD R5!1 WITH 1
    CLC
    ASHC     #-1,%5       ;SHIFT R5,R5!1 BY -1
    MFPS     @#PSWORD      ;SAVE PS
    CMPB     #1,@#PSWORD  ;IS THE PS 1?
    BEQ      +10
    JSR      PC,$HLT       ;SEEN AN ERROR, GO TO TH HALT ROUTINE
                                ;THE PS IS NOT EQUAL TO 1
    76
    CMP      #100000,%5   ;IS THE RESULT 100000?
    BEQ      +10
    JSR      PC,$HLT       ;SEEN AN ERROR, GO TO TH HALT ROUTINE
                                ;R5 IS NOT EQUAL TO 100000
    77
    MOV      R1,R5        ;RESTORE R5
    CMP      (R5),#203    ;IS $TESTN = #203?
    BEQ      +10
    JSR      PC,$HLT       ;IF NOT THEN GO TO HLT
                                ;SEEN AN ERROR, GO TO TH HALT ROUTINE
                                ;TEST IS IN WRONG SEQUENCE
    100
    INC      (R5)
    
```

G03

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DFKACA.P11 ASHC INSTRUCTION TESTS

1408
1409

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1410 ;*****
1411 ;TEST:204      125252 SHIFTED BY -16. = 125252 PS = 11
1412 ;*****
1413
1414 TST204: SCOPE1
1415 005614 010701          MOV      #DUMMY,%1      ;LOAD R1 WITH DUMMY
1416 005616 012701 000000 MOV      #125252,%1!1    ;LOAD R1!1 WITH 125252
1417 005622 012701 125252 CLC
1418 005626 000241          ASHC     #-16,%1        ;SHIFT R1,R1!1 BY -16.
1419 005630 073127 177760 MFPS     @#PSWORD        ;SAVE PS
1420 005634 106737 000002 CMPB     #11,@#PSWORD    ;IS THE PS 11?
1421 005640 122737 000011 000002 BEQ      .+10
1422 005646 001403          JSR      PC,$HLT        ;SEEN AN ERROR, GO TO TH HALT ROUTINE
1423 005650 004767 010532                                     ;THE PS IS NOT EQUAL TO 11
1424 005654 000101          101
1425 005656 022701 125252 CMP      #125252,%1      ;IS THE RESULT 125252?
1426 005662 001403          BEQ      .+10
1427 005664 004767 010516 JSR      PC,$HLT        ;SEEN AN ERROR, GO TO TH HALT ROUTINE
1428                                     ;R1 IS NOT EQUAL TO 125252
1429 005670 000102          102
1430 005672 021527 000204 CMP      (R5),#204        ;IS $TESTN = #204?
1431 005676 001403          BEQ      .+10          ;IF NOT THEN GO TO HLT
1432 005700 004767 010502 JSR      PC,$HLT        ;SEEN AN ERROR, GO TO TH HALT ROUTINE
1433                                     ;TEST IS IN WRONG SEQUENCE
1434 005704 000103          103
1435 005706 005215          INC      (R5)
1436
1437
1438 ;*****
1439 ;TEST:205      125252 125252 SHIFTED BY 21. = 52500 000000 PS = 3
1440 ;*****
1441
1442 TST205: SCOPE1
1443 005710 010701          MOV      #125252,%2      ;LOAD R2 WITH 125252
1444 005712 012702 125252 MOV      #125252,%2!1    ;LOAD R2!1 WITH 125252
1445 005716 012703 125252 CLC
1446 005722 000241          ASHC     #21,%2         ;SHIFT R2,R2!1 BY 21.
1447 005724 073227 000025 MFPS     @#PSWORD        ;SAVE PS
1448 005730 106737 000002 CMPB     #3,@#PSWORD    ;IS THE PS 3?
1449 005734 122737 000003 000002 BEQ      .+10
1450 005742 001403          JSR      PC,$HLT        ;SEEN AN ERROR, GO TO TH HALT ROUTINE
1451 005744 004767 010436                                     ;THE PS IS NOT EQUAL TO 3
1452 005750 000104          104
1453 005752 022702 052500 CMP      #52500,%2      ;IS THE RESULT 52500?
1454 005756 001403          BEQ      .+10
1455 005760 004767 010422 JSR      PC,$HLT        ;SEEN AN ERROR, GO TO TH HALT ROUTINE
1456                                     ;R2 IS NOT EQUAL TO 52500
1457 005764 000105          105
1458 005766 022703 000000 CMP      #000000,%2!1    ;IS THE RESULT 000000?
1459 005772 001403          BEQ      .+10
1460 005774 004767 010406 JSR      PC,$HLT        ;SEEN AN ERROR, GO TO TH HALT ROUTINE
1461                                     ;R2!1 IS NOT EQUAL TO 000000
1462 006000 000106          106
1463 006002 021527 000205 CMP      (R5),#205        ;IS $TESTN = #205?
1464 006006 001403          BEQ      .+10          ;IF NOT THEN GO TO HLT
1465 006010 004767 010372 JSR      PC,$HLT        ;SEEN AN ERROR, GO TO TH HALT ROUTINE
    
```


;TEST IS IN WRONG SEQUENCE

1466					
1467	006014	000107		107	
1468	006016	005215		INC	(R5)
1469					
1470					
1471					
1472	006020	012702	177771	MOV	#-7,%2
1473	006024	012703	000024	MOV	#51,%3
1474	006030	012704	000026	MOV	#52,%4
1475					

```

1476 ;*****
1477 ;TEST:206      125252 125252 SHIFTED BY S1 = 177525 52525 PS = 10
1478 ;*****
1479
1480 TST206: SCOPE1
1481 006034 010701          MOV      #125252,%0          ;LOAD RO WITH 125252
1482 006036 012700 125252 MOV      #125252,%0!1      ;LOAD RO!1 WITH 125252
1483 006042 012701 125252 CLC
1484 006046 000241          CLC
1485 006050 073067 171750 ASHC    S1,%0              ;SHIFT RO,RO!1 BY S1
1486 006054 106737 000002 MFPS    @#PSWORD          ;SAVE PS
1487 006060 122737 000010 000002 CMPB    #10,@#PSWORD      ;IS THE PS 10?
1488 006066 001403          BEQ     .+10
1489 006070 004767 010312 JSR     PC,$HLT           ;SEEN AN ERROR, GO TO TH HALT ROUTINE
1490 ;THE PS IS NOT EQUAL TO 10
1491 006074 000110          110
1492 006076 022700 177525 CMP     #177525,%0        ;IS THE RESULT 177525?
1493 006102 001403          BEQ     .+10
1494 006104 004767 010276 JSR     PC,$HLT           ;SEEN AN ERROR, GO TO TH HALT ROUTINE
1495 ;RO IS NOT EQUAL TO 177525
1496 006110 000111          111
1497 006112 022701 052525 CMP     #52525,%0!1      ;IS THE RESULT 52525?
1498 006116 001403          BEQ     .+10
1499 006120 004767 010262 JS:    JSR     PC,$HLT           ;SEEN AN ERROR, GO TO TH HALT ROUTINE
1500 ;RO!1 IS NOT EQUAL TO 52525 OR INCORRECT SEQUENCE
1501 006124 000112          112
1502 006126 021527 000206 CMP     (R5),#206        ;IS THE $TESTN = #206?
1503 006132 001372          BNE    1$              ;IF NOT THEN GO TO HLT ABOVE
1504 006134 005215          INC     (R5)
1505
1506 ;*****
1507 ;TEST:207      125252 125252 SHIFTED BY @S2 = 177525 52525 PS = 10
1508 ;*****
1509
1510 TST207: SCOPE1
1511 006136 010701          MOV      #125252,%0          ;LOAD RO WITH 125252
1512 006140 012700 125252 MOV      #125252,%0!1      ;LOAD RO!1 WITH 125252
1513 006144 012701 125252 CLC
1514 006150 000241          CLC
1515 006152 073077 171650 ASHC    @S2,%0            ;SHIFT RO,RO!1 BY @S2
1516 006156 106737 000002 MFPS    @#PSWORD          ;SAVE PS
1517 006162 122737 000010 000002 CMPB    #10,@#PSWORD      ;IS THE PS 10?
1518 006170 001403          BEQ     .+10
1519 006172 004767 010210 JSR     PC,$HLT           ;SEEN AN ERROR, GO TO TH HALT ROUTINE
1520 ;THE PS IS NOT EQUAL TO 10
1521 006176 000113          113
1522 006200 022700 177525 CMP     #177525,%0        ;IS THE RESULT 177525?
1523 006204 001403          BEQ     .+10
1524 006206 004767 010174 JSR     PC,$HLT           ;SEEN AN ERROR, GO TO TH HALT ROUTINE
1525 ;RO IS NOT EQUAL TO 177525
1526 006212 000114          114
1527 006214 022701 052525 CMP     #52525,%0!1      ;IS THE RESULT 52525?
1528 006220 001403          BEQ     .+10
1529 006222 004767 010160 JS:    JSR     PC,$HLT           ;SEEN AN ERROR, GO TO TH HALT ROUTINE
1530 ;RO!1 IS NOT EQUAL TO 52525 OR INCORRECT SEQUENCE
1531
    
```

K03

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DFKACA.P11 ASHC INSTRUCTION TESTS

1532 006226 000115
1533 006230 021527 000207
1534 006234 001372
1535 006236 005215
1536
1537

115
CMP (R5), #207
BNE 1\$
INC (R5)

; IS THE \$TESTN = #207?
; IF NOT THEN GO TO HLT ABOVE

```

1538 :*****
1539 :TEST:210      125252 125252 SHIFTED BY @#S1 = 177525 52525 PS = 10
1540 :*****
1541
1542 006240 010701 TST210: SCOPE1
1543 006242 012700 125252 MOV #125252,%0 ;LOAD RO WITH 125252
1544 006246 012701 125252 MOV #125252,%0!1 ;LOAD RO!1 WITH 125252
1545 006252 090241 CLC
1546 006254 073037 000024 ASHC @#S1,%0 ;SHIFT RO,RO!1 BY @#S1
1547 006260 106737 000002 MFPS @#PSWORD ;SAVE PS
1548 006264 122737 000010 000002 CMPB #10,@#PSWORD ;IS THE PS 10?
1549 006272 001403 BEQ .+10
1550 006274 004767 010106 JSR PC,$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
1551 ;THE PS IS NOT EQUAL TO 10
1552 006300 000116 116
1553 006302 022700 177525 CMP #177525,%0 ;IS THE RESULT 177525?
1554 006306 001403 BEQ .+10
1555 006310 004767 010072 JSR PC,$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
1556 ;RO IS NOT EQUAL TO 177525
1557 006314 000117 117
1558 006316 022701 052525 CMP #52525,%0!1 ;IS THE RESULT 52525?
1559 006322 001403 BEQ .+10
1560 006324 15: JSR PC,$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
1561 006324 004767 010056 ;RO!1 IS NOT EQUAL TO 52525 OR INCORRECT SEQUENCE
1562
1563 006330 000120 120
1564 006332 021527 000210 CMP (R5),#210 ;IS THE $TESTN = #210?
1565 006336 001372 BNE 15 ;IF NOT THEN GO TO HLT ABOVE
1566 006340 005215 INC (R5)
1567
1568
1569 :*****
1570 :TEST:211      125252 125252 SHIFTED BY (3) = 177525 52525 PS = 10
1571 :*****
1572
1573 006342 010701 TST211: SCOPE1
1574 006344 012700 125252 MOV #125252,%0 ;LOAD RO WITH 125252
1575 006350 012701 125252 MOV #125252,%0!1 ;LOAD RO!1 WITH 125252
1576 006354 000241 CLC
1577 006356 073013 ASHC (3),%0 ;SHIFT RO,RO!1 BY (3)
1578 006360 106737 000002 MFPS @#PSWORD ;SAVE PS
1579 006364 122737 000010 000002 CMPB #10,@#PSWORD ;IS THE PS 10?
1580 006372 001403 BEQ .+10
1581 006374 004767 010006 JSR PC,$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
1582 ;THE PS IS NOT EQUAL TO 10
1583 006400 000121 121
1584 006402 022700 177525 CMP #177525,%0 ;IS THE RESULT 177525?
1585 006406 001403 BEQ .+10
1586 006410 004767 007772 JSR PC,$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
1587 ;RO IS NOT EQUAL TO 177525
1588 006414 000122 122
1589 006416 022701 052525 CMP #52525,%0!1 ;IS THE RESULT 52525?
1590 006422 001403 BEQ .+10
1591 006424 15: JSR PC,$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
1592 006424 004767 007756 ;RO!1 IS NOT EQUAL TO 52525 OR INCORRECT SEQUENCE
1593
    
```

1594	006430	000123		123		
1595	006432	021527	000211	CMP	(R5),#211	: IS THE \$TESTN = #211?
1596	006436	001372		BNE	1\$: IF NOT THEN GC TO HLT ABOVE
1597	006440	005215		INC	(R5)	
1598						
1599						

```

1600                                     ;*****
1601                                     ;TEST:212      125252 125252 SHIFTED BY (3)+ = 177525 52525  PS = 10
1602                                     ;*****
1603
1604 006442 010701 TST212: SCOPE1
1605 006444 012700 125252 MOV      #125252,%0          ;LOAD RO WITH 125252
1606 006450 012701 125252 MOV      #125252,%0!1      ;LOAD RO!1 WITH 125252
1607 006454 000241 CLC
1608 006456 073023 ASHC      (3)+,%0          ;SHIFT RO,RO!1 BY (3)+
1609 006460 106737 000002 MFPS     @#PSWORD          ;SAVE PS
1610 006464 122737 000010 000002 CMPB    #10,@#PSWORD       ;IS THE PS 10?
1611 006472 001403 BEQ      +10
1612 006474 004767 007706 JSR     PC,$HLT          ;SEEN AN ERROR, GO TO TH HALT ROUTINE
1613                                     ;THE PS IS NOT EQUAL TO 10
1614 006500 000124 124
1615 006502 022700 177525 CMP      #177525,%0          ;IS THE RESULT 177525?
1616 006506 001403 BEQ      +10
1617 006510 004767 007672 JSR     PC,$HLT          ;SEEN AN ERROR, GO TO TH HALT ROUTINE
1618                                     ;RO IS NOT EQUAL TO 177525
1619 006514 000125 125
1620 006516 022701 052525 CMP      #52525,%0!1      ;IS THE RESULT 52525?
1621 006522 001403 BEQ      +10
1622 006524 1S:
1623 006524 004767 007656 JSR     PC,$HLT          ;SEEN AN ERROR, GO TO TH HALT ROUTINE
1624                                     ;RO!1 IS NOT EQUAL TO 52525 OR INCORRECT SEQUENCE
1625 006530 000126 126
1626 006532 021527 000212 CMP      (R5),#212          ;IS THE $TESTN = #212?
1627 006536 001372 BNE     1S
1628 006540 005215 INC      (R5)          ;IF NOT THEN GO TO HLT ABOVE
1629
1630
1631                                     ;*****
1632                                     ;TEST:213      125252 125252 SHIFTED BY -(3) = 177525 52525  PS = 10
1633                                     ;*****
1634
1635 006542 010701 TST213: SCOPE1
1636 006544 012700 125252 MOV      #125252,%0          ;LOAD RO WITH 125252
1637 006550 012701 125252 MOV      #125252,%0!1      ;LOAD RO!1 WITH 125252
1638 006554 000241 CLC
1639 006556 073043 ASHC      -(3),%0          ;SHIFT RO,RO!1 BY -(3)
1640 006560 106737 000002 MFPS     @#PSWORD          ;SAVE PS
1641 006564 122737 000010 000002 CMPB    #10,@#PSWORD       ;IS THE PS 10?
1642 006572 001403 BEQ      +10
1643 006574 004767 007606 JSR     PC,$HLT          ;SEEN AN ERROR, GO TO TH HALT ROUTINE
1644                                     ;THE PS IS NOT EQUAL TO 10
1645 006600 000127 127
1646 006602 022700 177525 CMP      #177525,%0          ;IS THE RESULT 177525?
1647 006606 001403 BEQ      +10
1648 006610 004767 007572 JSR     PC,$HLT          ;SEEN AN ERROR, GO TO TH HALT ROUTINE
1649                                     ;RO IS NOT EQUAL TO 177525
1650 006614 000130 130
1651 006616 022701 052525 CMP      #52525,%0!1      ;IS THE RESULT 52525?
1652 006622 001403 BEQ      +10
1653 006624 1S:
1654 006624 004767 007556 JSR     PC,$HLT          ;SEEN AN ERROR, GO TO TH HALT ROUTINE
1655                                     ;RO!1 IS NOT EQUAL TO 52525 OR INCORRECT SEQUENCE
    
```


1656	006630	000131	
1657	006632	021527	000213
1658	006636	001372	
1659	006640	005215	

131
CMP
BNE
INC

(R5), #213
IS
(R5) : IS THE \$TESTN = #213?
: IF NOT THEN GC TO HLT ABOVE

```

1662
1663
1664
1665
1666 006642 010701
1667 006644 012700 125252
1668 006650 012701 125252
1669 006654 000241
1670 006656 073064 000002
1671 006662 106737 000002
1672 006666 122737 000011 000002
1673 006674 001403
1674 006676 004767 007504
1675
1676 006702 000132
1677 006704 022700 177252
1678 006710 001403
1679 006712 004767 007470
1680
1681 006716 000133
1682 006720 022701 125252
1683 006724 001403
1684 006726
1685 006726 004767 007454
1686
1687 006732 000134
1688 006734 021527 000214
1689 006740 001372
1690 006742 005215
1691
1692
1693
1694
1695
1696
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:*****
:TEST:214      125252 125252 SHIFTED BY 2(4) = 177252 125252 PS = 11
:*****

```

```

TST214: SCOPE1
MOV      #125252,%0      ;LOAD R0 WITH 125252
MOV      #125252,%0!1    ;LOAD R0!1 WITH 125252
CLC
ASHC     2(4),%0        ;SHIFT R0,R0!1 BY 2(4)
MFPS     @#PSWORD       ;SAVE PS
CMPB     #11,@#PSWORD    ;IS THE PS 11?
BEQ      .+10
JSR      PC,$HLT        ;SEEN AN ERROR, GO TO TH HALT ROUTINE
                        ;THE PS IS NOT EQUAL TO 11
CMP      #177252,%0      ;IS THE RESULT 177252?
BEQ      .+10
JSR      PC,$HLT        ;SEEN AN ERROR, GO TO TH HALT ROUTINE
                        ;R0 IS NOT EQUAL TO 177252
CMP      #125252,%0!1    ;IS THE RESULT 125252?
BEQ      .+10
1$:      JSR      PC,$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
                        ;R0!1 IS NOT EQUAL TO 125252 OR INCORRECT SEQUENCE
CMP      (R5),#214       ;IS THE $TESTN = #214?
1$:      BNE     $      ;IF NOT THEN GO TO HLT ABOVE
INC      (R5)

```

```

:*****
:TEST:215      125252 125252 SHIFTED BY 2(4) = 177525 52525 PS = 10
:*****

```

```

TST215: SCOPE1
MOV      #125252,%0      ;LOAD R0 WITH 125252
MOV      #125252,%0!1    ;LOAD R0!1 WITH 125252
CLC
ASHC     2(4),%0        ;SHIFT R0,R0!1 BY 2(4)
MFPS     @#PSWORD       ;SAVE PS
CMPB     #10,@#PSWORD    ;IS THE PS 10?
BEQ      .+10
JSR      PC,$HLT        ;SEEN AN ERROR, GO TO TH HALT ROUTINE
                        ;THE PS IS NOT EQUAL TO 10
CMP      #177525,%0      ;IS THE RESULT 177525?
BEQ      .+10
JSR      PC,$HLT        ;SEEN AN ERROR, GO TO TH HALT ROUTINE
                        ;R0 IS NOT EQUAL TO 177525
CMP      #52525,%0!1     ;IS THE RESULT 52525?
BEQ      .+10
1$:      JSR      PC,$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
                        ;R0!1 IS NOT EQUAL TO 52525 OR INCORRECT SEQUENCE

```

1718	007034	000137	
1719	007036	021527	000215
1720	007042	001372	
1721	007044	005215	

137	
CMP	(R5), #215
BNE	IS
INC	(R5)

: IS THE STESTN = #215?
: IF NOT THEN GC TO HLT ABOVE

```

1724
1725
1726
1727
1728 007046 010701
1729 007050 012700 125252
1730 007054 012701 125252
1731 007060 000241
1732 007062 073034
1733 007064 106737 000002
1734 007070 122737 000010 000002
1735 007076 001403
1736 007100 004767 007302
1737
1738 007104 000140 140
1739 007106 022700 177525
1740 007112 001403
1741 007114 004767 007266
1742
1743 007120 000141 141
1744 007122 022701 052525
1745 007126 001403
1746 007130
1747 007130 004767 007252
1748
1749 007134 000142 142
1750 007136 021527 000216
1751 007142 001372
1752 007144 005215
1753
1754
1755
1756
1757
1758
1759 007146 010701
1760 007150 012700 125252
1761 007154 012701 125252
1762 007160 000241
1763 007162 073054
1764 007164 106737 000002
1765 007170 122737 000010 000002
1766 007176 001403
1767 007200 004767 007202
1768
1769 007204 000143 143
1770 007206 022700 177525
1771 007212 001403
1772 007214 004767 007166
1773
1774 007220 000144 144
1775 007222 022701 052525
1776 007226 001403
1777 007230
1778 007230 004767 007152
1779

```

```

:*****
:TEST:216 125252 125252 SHIFTED BY 2(4)+ = 177525 52525 PS = 10
:*****

```

```

TST216: SCOPE1
MOV #125252,%0 ;LOAD R0 WITH 125252
MOV #125252,%0!1 ;LOAD R0!1 WITH 125252
CLC
ASHC 2(4)+,%0 ;SHIFT R0,R0!1 BY 2(4)+
MFPS 2#PSWORD ;SAVE PS
CMPB #10,2#PSWORD ;IS THE PS 10?
BEQ .+10
JSR PC,$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
;THE PS IS NOT EQUAL TO 10

CMP #177525,%0 ;IS THE RESULT 177525?
BEQ .+10
JSR PC,$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
;R0 IS NOT EQUAL TO 177525

CMP #52525,%0!1 ;IS THE RESULT 52525?
BEQ .+10
JSR PC,$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
;R0!1 IS NOT EQUAL TO 52525 OR INCORRECT SEQUENCE

CMP (R5),#216 ;IS THE $TESTN = #216?
BNE 1$ ;IF NOT THEN GO TO HLT ABOVE
INC (R5)

```

```

:*****
:TEST:217 125252 125252 SHIFTED BY 2-(4) = 177525 52525 PS = 10
:*****

```

```

TST217: SCOPE1
MOV #125252,%0 ;LOAD R0 WITH 125252
MOV #125252,%0!1 ;LOAD R0!1 WITH 125252
CLC
ASHC 2-(4),%0 ;SHIFT R0,R0!1 BY 2-(4)
MFPS 2#PSWORD ;SAVE PS
CMPB #10,2#PSWORD ;IS THE PS 10?
BEQ .+10
JSR PC,$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
;THE PS IS NOT EQUAL TO 10

CMP #177525,%0 ;IS THE RESULT 177525?
BEQ .+10
JSR PC,$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
;R0 IS NOT EQUAL TO 177525

CMP #52525,%0!1 ;IS THE RESULT 52525?
BEQ .+10
JSR PC,$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
;R0!1 IS NOT EQUAL TO 52525 OR INCORRECT SEQUENCE

```

1780	007234	000145	
1781	007236	021527	000217
1782	007242	001372	
1783	007244	005215	
1784			
1785			
1786			
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1792			

145	
CMP	(R5),#217
BNE	IS
INC	(R5)

: IS THE \$TESTN = #217?
: IF NOT THEN GO TO HLT ABOVE

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1800
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1828

: MUL INSTRUCTION TESTS

: TEST:220 MUL 1 * #0 = 0 0 PS = 4

```

TST220: SCOPE
MOV      #1,%0      ;LOAD MULTIPLICAND WITH 1
MUL      #0,%0      ;MULTIPLY 1 * #0
MFPS     @#PSWORD   ;SAVE PS
CMPB     #4,@#PSWORD ;IS PS = 4
BEQ      .+10
JSR      PC,$HLT    ;SEEN AN ERROR, GO TO TH HALT ROUTINE
                        ;PS IS WRONG
                        146
CMP      #0,%0      ;IS HIGH ORDER = 0
BEQ      .+10
JSR      PC,$HLT    ;SEEN AN ERROR, GO TO TH HALT ROUTINE
                        ;HIGH ORDER IS WRONG
                        147
CMP      #0,%0!1    ;IS LOW ORDER = 0
BEQ      .+10
IS:      JSR      PC,$HLT    ;SEEN AN ERROR, GO TO TH HALT ROUTINE
                        ;LOW ORDER IS WRONG OR WRONG SEQUENCE
                        150
CMP      (R5),#220
BNE      IS
INC      (R5)
; IF IN WRONG SEQUENCE GO TO THE HLT ABOVE

```

000001
000000
000002
000004 000002
007106
000000
007072
000000
007056
000220


```

1829 :*****
1830 :TEST:221      MUL      -1 * #1 = -1 -1      PS = 10
1831 :*****
1832
1833 007342 010701      TST221: SCOPE
1834 007344 012700 177777      MOV      #-1,%0      ;LOAD MULTIPLICAND WITH -1
1835 007350 070027 000001      MUL      #1,%0      ;MULTIPLY -1 * #1
1836 007354 106737 000002      MFFS    @#PSWORD    ;SAVE PS
1837 007360 122737 000010 0C0002      CMP@    #10,@#PSWORD ;IS PS = 10
1838 007366 001403      BEQ      .+10
1839 007370 004767 007012      JSR      PC,$HLT     ;SEEN AN ERROR, GO TO TH HALT ROUTINE
1840                                     ;PS IS WRONG
1841 007374 000151      151
1842 007376 022700 177777      CMP      #-1,%0      ;IS HIGH ORDER = -1
1843 007402 001403      BEQ      .+10
1844 007404 004767 006776      JSR      PC,$HLT     ;SEEN AN ERROR, GO TO TH HALT ROUTINE
1845                                     ;HIGH ORDER IS WRONG
1846 007410 000152      152
1847 007412 022701 177777      CMP      #-1,%0!1    ;IS LOW ORDER = -1
1848 007416 001403      BEQ      .+10
1849 007420 004767 006762      15: JSR      PC,$HLT     ;SEEN AN ERROR, GO TO TH HALT ROUTINE
1850                                     ;LOW ORDER IS WRONG OR WRONG SEQUENCE
1851 007424 000153      153
1852 007426 021527 000221      CMP      (R5),#221
1853 007432 001372      BNE     15
1854 007434 005215      INC     (R5)      ;IF IN WRONG SEQUENCE GO TO THE HLT ABOVE
1855
1856
1857

```

```

1858 :*****
1859 :TEST:222      MUL      2 * #2 = 0 4      PS = 0
1860 :*****
1861
1862 007436 010701          TST222: SCOPE
1863 007440 012702 000002      MOV      #2,%2      ;LOAD MULTIPLICAND WITH 2
1864 007444 070227 000002      MUL      #2,%2      ;MULTIPLY 2 * #2
1865 007450 106737 000002      MFPS    @#PSWORD    ;SAVE PS
1866 007454 122737 000000 000002      CMPB    #0,@#PSWORD ;IS PS = 0
1867 007462 001403      BEQ     .+10
1868 007464 004767 006716      JSR     PC,$HLT     ;SEEN AN ERROR, GO TO TH HALT ROUTINE
1869                                     ;PS IS WRONG
1870 007470 000154          154
1871 007472 022702 000000      CMP     #0,%2      ;IS HIGH ORDER = 0
1872 007476 001403      BEQ     .+10
1873 007500 004767 006702      JSR     PC,$HLT     ;SEEN AN ERROR, GO TO TH HALT ROUTINE
1874                                     ;HIGH ORDER IS WRONG
1875 007504 000155          155
1876 007506 022703 000004      CMP     #4,%2!1    ;IS LOW ORDER = 4
1877 007512 001403      BEQ     .+10
1878 007514          15:
1879 007514 004767 006666      JSR     PC,$HLT     ;SEEN AN ERROR, GO TO TH HALT ROUTINE
1880                                     ;LOW ORDER IS WRONG OR WRONG SEQUENCE
1881 007520 000156          156
1882 007522 021527 000222      CMP     (R5),#222
1883 007526 001372      BNE    15:
1884 007530 005215      INC    (R5)
1885
1886
    
```

```

1887
1888
1889
1890
1891 007532 010701
1892 007534 010501
1893 007536 012704 001000
1894 007542 070427 000200
1895 007546 106737 000002
1896 007552 122737 000001 000002
1897 007560 001403
1898 007562 004767 006620
1899
1900 007566 000157
1901 007570 022704 000001
1902 007574 001403
1903 007576 004767 006604
1904
1905 007602 000160
1906 007604 022705 000000
1907 007610 001403
1908 007612
1909 007612 004767 006570
1910
1911 007616 000161
1912 007620 021127 000223
1913 007624 001372
1914 007626 010105
1915 007630 005215
1916
1917

```

```

:*****
:TEST:223      MUL      1000 * #200 = 1 0      PS = 1
:*****
TST223: SCOPE
      MOV      R5,R1      ;SAVE R5
      MOV      #1000,%4   ;LOAD MULTIPLICAND WITH 1000
      MUL      #200,%4    ;MULTIPLY 1000 * #200
      MFPS     @#PSWORD   ;SAVE PS
      CMPB    #1,@#PSWORD ;IS PS = 1
      BEQ     .+10
      JSR     PC,$HLT     ;SEEN AN ERROR, GO TO TH HALT ROUTINE
                          ;PS IS WRONG
      157
      CMP     #1,%4       ;IS HIGH ORDER = 1
      BEQ     .+10
      JSR     PC,$HLT     ;SEEN AN ERROR, GO TO TH HALT ROUTINE
                          ;HIGH ORDER IS WRONG
      160
      CMP     #0,%4!1     ;IS LOW ORDER = 0
      BEQ     .+10
      JSR     PC,$HLT     ;SEEN AN ERROR, GO TO TH HALT ROUTINE
                          ;LOW ORDER IS WRONG OR WRONG SEQUENCE
      161
      CMP     (R1),#223   ;CHECK THE TEST NUMBER
      BNE     $S         ;IF IN WRONG SEQUENCE GO TO THE HLT ABOVE
      MOV     R1,R5
      INC     (R5)       ;RESTORE R5

```

```

1918 ;*****
1919 ;TEST:224      MUL      2 * #77777 = 0 177776      PS = 1
1920 ;*****
1921
1922 TST224: SCOPE
1923 007632 010701          MOV      #2,%0      ;LOAD MULTIPLICAND WITH 2
1924 007634 012700 000002 MUL      #77777,%0  ;MULTIPLY 2 * #77777
1925 007640 070027 077777 MFPS     @#PSWORD   ;SAVE PS
1926 007644 106737 000002          CMPB    #1,@#PSWORD ;IS PS = 1
1927 007650 122737 000001 000002 BEQ      .+10
1928 007656 001403          JSR     PC,$HLT     ;SEEN AN ERROR, GO TO TH HALT ROUTINE
1929 007660 004767 006522          ;PS IS WRONG
1930 007664 000162          162
1931 007666 022700 000000          CMP     #0,%0      ;IS HIGH ORDER = 0
1932 007672 001403          BEQ     .+10
1933 007674 004767 006506          JSR     PC,$HLT     ;SEEN AN ERROR, GO TO TH HALT ROUTINE
1934 ;HIGH ORDER IS WRONG
1935 007700 000163          163
1936 007702 022701 177776          CMP     #177776,%0!1 ;IS LOW ORDER = 177776
1937 007706 001403          BEQ     .+10
1938 ;
1939 007710 004767 006472          JSR     PC,$HLT     ;SEEN AN ERROR, GO TO TH HALT ROUTINE
1940 ;LOW ORDER IS WRONG OR WRONG SEQUENCE
1941 007714 000164          164
1942 007716 021527 000224          CMP     (R5),#224
1943 007722 001372          BNE    1$
1944 007724 005215          INC     (R5)
1945
1946

```

```

1947
1948
1949
1950
1951 007726 010701
1952 007730 012702 007777
1953 007734 070227 000010
1954 007740 106737 000002
1955 007744 122737 000000 000002
1956 007752 001403
1957 007754 004767 006426
1958
1959 007750 000165
1960 007762 022702 000000
1961 007766 001403
1962 007770 004767 006412
1963
1964 007774 000166
1965 007776 022703 077770
1966 010002 001403
1967 010004
1968 010004 004767 006376
1969
1970 010010 000167
1971 010012 021527 000225
1972 010016 001372
1973 010020 005215
1974
1975

;*****
;TEST:225 MUL 7777 * #10 = 0 77770 PS = 0
;*****

TST225: SCOPE
MOV #7777,%2 ;LOAD MULTIPLICAND WITH 7777
MUL #10,%2 ;MULTIPLY 7777 * #10
MFPS @#PSWORD ;SAVE PS
CMPB #0,@#PSWORD ;IS PS = 0
BEQ .+10
JSR PC,$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
;PS IS WRONG

165
CMP #0,%2 ;IS HIGH ORDER = 0
BEQ .+10
JSR PC,$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
;HIGH ORDER IS WRONG

166
CMP #77770,%2!1 ;IS LOW ORDER = 77770
BEQ .+10
JSR PC,$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
;LOW ORDER IS WRONG OR WRONG SEQUENCE

167
CMP (R5),#225
BNE 1$ ;IF IN WRONG SEQUENCE GO TO THE HLT ABOVE
INC (R5)

1$:

```

```

1976 ;*****
1977 ;TEST:226      MUL      77777 * #77777 = 37777 1      PS = 1
1978 ;*****
1979
1980 010022 010701 TST226: SCOPE
1981 010024 010501      MOV      R5,R1      ;SAVE R5
1982 010026 012704 077777      MOV      #77777,%4    ;LOAD MULTIPLICAND WITH 77777
1983 010032 070427 077777      MUL      #77777,%4    ;MULTIPLY 77777 * #77777
1984 010036 106737 000002      MFPS     @#PSWORD     ;SAVE PS
1985 010042 122737 000001 000002      CMPB    #1,@#PSWORD  ;IS PS = 1
1986 010050 001403      BEQ     .+10
1987 010052 004767 006330      JSR     PC,$HLT      ;SEEN AN ERROR, GO TO TH HALT ROUTINE
1988 ;PS IS WRONG
1989 010056 000170      170
1990 010060 022704 037777      CMP     #37777,%4    ;IS HIGH ORDER = 37777
1991 010064 001403      BEQ     .+10
1992 010066 004767 006314      JSR     PC,$HLT      ;SEEN AN ERROR, GO TO TH HALT ROUTINE
1993 ;HIGH ORDER IS WRONG
1994 010072 000171      171
1995 010074 022705 000001      CMP     #1,%4!1     ;IS LOW ORDER = 1
1996 010100 001403      BEQ     .+10
1997 010102      15:
1998 010102 004767 006300      JSR     PC,$HLT      ;SEEN AN ERROR, GO TO TH HALT ROUTINE
1999 ;LOW ORDER IS WRONG OR WRONG SEQUENCE
2000 010106 000172      172
2001 010110 021127 000226      CMP     (R1),#226    ;CHECK THE TEST NUMBER
2002 010114 001372      BNE     15           ;IF IN WRONG SEQUENCE GO TO THE HLT ABOVE
2003 010116 010105      MOV     R1,R5       ;RESTORE R5
2004 010120 005215      INC     (R5)
2005
2006
    
```

```

2007 :*****
2008 :TEST:227      MUL      -1 * #77777 = -1 100001      PS = 10
2009 :*****
2010
2011 010122 010701          TST227: SCOPE
2012 010124 012702 177777      MOV      #-1,%2      ;LOAD MULTIPLICAND WITH -1
2013 010130 070227 077777      MUL      #77777,%2    ;MULTIPLY -1 * #77777
2014 010134 106737 000002      MFPS     @#PSWORD     ;SAVE PS
2015 010140 122737 000010 000002  CMPB     #10,@#PSWORD ;IS PS = 10
2016 010146 001403          BEQ      .+10
2017 010150 004767 006232      JSR      PC,$HLT      ;SEEN AN ERROR, GO TO TH HALT ROUTINE
2018                                     ;PS IS WRONG
2019 010154 000173          173
2020 010156 022702 177777      CMP      #-1,%2      ;IS HIGH ORDER = -1
2021 010162 001403          BEQ      .+10
2022 010164 004767 006216      JSR      PC,$HLT      ;SEEN AN ERROR, GO TO TH HALT ROUTINE
2023                                     ;HIGH ORDER IS WRONG
2024 010170 000174          174
2025 010172 022703 100001      CMP      #100001,%2!1 ;IS LOW ORDER = 100001
2026 010176 001403          BEQ      .+10
2027 010200                                     1$:
2028 010200 004767 006202      JSR      PC,$HLT      ;SEEN AN ERROR, GO TO TH HALT ROUTINE
2029                                     ;LOW ORDER IS WRONG OR WRONG SEQUENCE
2030 010204 000175          175
2031 010206 021527 000227      CMP      (R5),#227
2032 010212 001372          BNE     1$
2033 010214 005215          INC     (R5)
2034
2035

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2093

010312 010701
010314 012702 125252
010320 070227 000002
010324 106737 000002
010330 122737 000011 000002
010336 001403
010340 004767 006042

010344 000201
010346 022702 177777
010352 001403
010354 004767 006026

010360 000202
010362 022703 052524
010366 001403
010370
010370 004767 006012

010374 000203
010376 021527 000231
010402 001372
010404 005215

:TEST:231 MUL 125252 * #2 = -1 52524 PS = 11

TST231: SCOPE
MOV #125252,%2 ;LOAD MULTIPLICAND WITH 125252
MUL #2,%2 ;MULTIPLY 125252 * #2
MFPS @#PSWORD ;SAVE PS
CMPB #11,@#PSWORD ;IS PS = 11
BEQ .+10
JSR PC,\$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
;PS IS WRONG

201
CMP #-1,%2 ;IS HIGH ORDER = -1
BEQ .+10
JSR PC,\$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
;HIGH ORDER IS WRONG

202
CMP #52524,%2!1 ;IS LOW ORDER = 52524
BEQ .+10

1S:
JSR PC,\$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
;LOW ORDER IS WRONG OR WRONG SEQUENCE

203
CMP (R5),#231
BNE 1S ;IF IN WRONG SEQUENCE GO TO THE HLT ABOVE
INC (R5)

:TEST:232 MUL 125252 * #40000 = 165252 100000 PS = 11

000000
000001
000002
000003
000004
000005
000006
000007
000008
000009
000010
000011
000012
000013
000014
000015
000016
000017
000018
000019
000020
000021
000022
000023
000024

010406 010701
010410 010501
010412 012704 125252
010416 070427 040000
010422 106737 000002
010426 122737 000011 000002
010434 001403
010436 004767 005744

010442 000204
010444 022704 165252
010450 001403
010452 004767 005730

010456 000205
010460 022705 100000
010464 001403
010466
010466 004767 005714

010472 000206
010474 021127 000232
010500 001372
010502 010105
010504 005215

TST232: SCOPE
MOV R5,R1 ;SAVE R5
MOV #125252,%4 ;LOAD MULTIPLICAND WITH 125252
MUL #40000,%4 ;MULTIPLY 125252 * #40000
MFPS @#PSWORD ;SAVE PS
CMPB #1,@#PSWORD ;IS PS = 11
BEQ .+10 ;
JSR PC,\$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
;PS IS WRONG

204
CMP #165252,%4 ;IS HIGH ORDER = 165252
BEQ .+10 ;
JSR PC,\$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
;HIGH ORDER IS WRONG

205
CMP #100000,%4!1 ;IS LOW ORDER = 100000
BEQ .+10 ;
JSR PC,\$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
;LOW ORDER IS WRONG OR WRONG SEQUENCE

206
CMP (R1),#232 ;CHECK THE TEST NUMBER
IS ;IF IN WRONG SEQUENCE GO TO THE HLT ABOVE
MOV R1,R5 ;RESTORE R5
INC (R5)

```

2125:
2126:
2127:
2128:
2129:
2130: 010506 010701
2131: 010510 012700 107070
2132: 010514 070027 107070
2133: 010520 106737 000002
2134: 010524 122737 000001 000002
2135: 010532 001403
2136: 010534 004767 005646
2137: 010540 000207
2138: 010542 022700 031222
2139: 010546 001403
2140: 010550 004767 005632
2141:
2142: 010554 000210
2143: 010556 022701 026100
2144: 010562 001403
2145: 010564
2146: 010564 004767 005616
2147:
2148: 010570 000211
2149: 010572 021527 000233
2150: 010576 001372
2151: 010600 005215
2152:
2153:

```

```

:*****
:TEST 233      MUL      107070 * #107070 = 31222 26100      PS = 1
:*****
TST233: SCOPE
MOV      #107070,%0      ;LOAD MULTIPLICAND WITH 107070
MUL      #107070,%0      ;MULTIPLY 107070 * #107070
MFPB    2#PSWORD        ;SAVE PS
CMPB    #1,2#PSWORD      ;IS PS = 1
BEQ     .+10
JSR     PC,$HLT          ;SEEN AN ERROR, GO TO TH HALT ROUTINE
                          ;PS IS WRONG
207
CMP      #31222,%0        ;IS HIGH ORDER = 31222
BEQ     .+10
JSR     PC,$HLT          ;SEEN AN ERROR, GO TO TH HALT ROUTINE
                          ;HIGH ORDER IS WRONG
210
CMP      #26100,%0!1      ;IS LOW ORDER = 26100
BEQ     .+10
1$: JSR     PC,$HLT          ;SEEN AN ERROR, GO TO TH HALT ROUTINE
                          ;LOW ORDER IS WRONG OR WRONG SEQUENCE
211
CMP      (R5),#233
BNE     1$
INC     (R5)
;IF IN WRONG SEQUENCE GO TO THE HLT ABOVE

```

F05

```

2154 :*****
2155 :TEST:234      MUL      -1 * r1 = -1 -1      PS = 10
2156 :*****
2157
2158 010602 010701      TST234: SCOPE
2159 010604 012701 177777      MOV      #-1,%1      ;LOAD MULTIPLICAND WITH -1
2160 010610 070127 000001      MUL      #1,%1      ;MULTIPLY -1 * #1
2161 010614 106737 000002      MFPS     @#PSWORD    ;SAVE PS
2162 010620 122737 000010 0C0002      CMPB     #10,@#PSWORD ;IS PS = 10
2163 010626 001403      BEQ      .+10
2164 010630 004767 005552      JSR      PC,$HLT     ;SEEN AN ERROR, GO TO TH HALT ROUTINE
2165 :PS IS WRONG
2166 010634 000212      212
2167 010636 022701 177777      CMP      #-1,%1      ;IS HIGH ORDER = -1
2168 010642 001403      BEQ      .+10
2169 010644 004767 005536      JSR      PC,$HLT     ;SEEN AN ERROR, GO TO TH HALT ROUTINE
2170 :HIGH ORDER IS WRONG
2171 010650 000213      213
2172 010652 022701 177777      CMP      #-1,%1!1    ;IS LOW ORDER = -1
2173 010656 001403      BEQ      .+10
2174 010660      1$:
2175 010660 004767 005522      JSR      PC,$HLT     ;SEEN AN ERROR, GO TO TH HALT ROUTINE
2176 :LOW ORDER IS WRONG OR WRONG SEQUENCE
2177 010664 000214      214
2178 010666 021527 000234      CMP      (R5),#234
2179 010672 001372      BNE     1$
2180 010674 005215      INC     (R5)
2181
2182
  
```

```

2183 :*****
2184 :TEST:235      MUL      -1 * #0 = 0 0      PS = 4
2185 :*****
2186
2187 010676 010701      TST235: SCOPE
2188 010700 012703 177777      MOV      #-1,%3      ;LOAD MULTIPLICAND WITH -1
2189 010704 070327 000000      MUL      #0,%3      ;MULTIPLY -1 * #0
2190 010710 106737 000002      MFPS     @#PSWORD    ;SAVE PS
2191 010714 122737 000004 000002      CMPB     #4,@#PSWORD ;IS PS = 4
2192 010722 001403      BEQ      .+10
2193 010724 004767 005456      JSR      PC,$HLT     ;SEEN AN ERROR, GO TO TH HALT ROUTINE
2194                                     ;PS IS WRONG
2195 010730 000215      215
2196 010732 022703 000000      CMP      #0,%3      ;IS HIGH ORDER = 0
2197 010736 001403      BEQ      .+10
2198 010740 004767 005442      JSR      PC,$HLT     ;SEEN AN ERROR, GO TO TH HALT ROUTINE
2199                                     ;HIGH ORDER IS WRONG
2200 010744 000216      216
2201 010746 022703 000000      CMP      #0,%3!1    ;IS LOW ORDER = 0
2202 010752 001403      BEQ      .+10
2203
2204 010754 004767 005426      1$: JSR      PC,$HLT     ;SEEN AN ERROR, GO TO TH HALT ROUTINE
2205                                     ;LOW ORDER IS WRONG OR WRONG SEQUENCE
2206 010760 000217      217
2207 010762 021527 000235      CMP      (R5),#235
2208 010766 001372      BNE     1$
2209 010770 005215      INC      (R5)
2210
2211

```

```

2212 :*****
2213 :TEST:236      MUL      77777 * #100000 = 100000 100000      PS = 11
2214 :*****
2215
2216 010772 010701      TST236: SCOPE
2217 010774 010501      MOV      R5,R1      ;SAVE R5
2218 010776 012705 077777      MOV      #77777,%5  ;LOAD MULTIPLICAND WITH 77777
2219 011002 070527 100000      MUL      #100000,%5 ;MULTIPLY 77777 * #100000
2220 011006 106737 000002      MFPS     @#PSWORD   ;SAVE PS
2221 011012 122737 000011 000002      CMPB    #11,@#PSWORD ;IS PS = 11
2222 011020 001403      BEQ
2223 011022 004767 005360      JSR     PC,$HLT     ;SEEN AN ERROR, GO TO TH HALT ROUTINE
2224                                     ;PS IS WRONG
2225 011026 000220      220
2226 011030 022705 100000      CMP      #100000,%5 ;IS HIGH ORDER = 100000
2227 011034 001403      BEQ      .+10
2228 011036 004767 005344      JSR     PC,$HLT     ;SEEN AN ERROR, GO TO TH HALT ROUTINE
2229                                     ;HIGH ORDER IS WRONG
2230 011042 000221      221
2231 011044 022705 100000      CMP      #100000,%5!1 ;IS LOW ORDER = 100000
2232 011050 001403      BEQ      .+10
2233 011052                                     1S:
2234 011052 004767 005330      JSR     PC,$HLT     ;SEEN AN ERROR, GO TO TH HALT ROUTINE
2235                                     ;LOW ORDER IS WRONG OR WRONG SEQUENCE
2236 011056 000222      222
2237 011060 021127 000236      CMP      (R1),#236   ;CHECK THE TEST NUMBER
2238 011064 001372      BNE     1S          ;IF IN WRONG SEQUENCE GO TO THE HLT ABOVE
2239 011066 010105      MOV     R1,R5      ;RESTORE R5
2240 011070 005215      INC     (R5)
2241
2242

```

```

2243 :*****
2244 :TEST:237      MUL      -1 * #77777 = 100001 100001      PS = 10
2245 :*****
2246
2247 011072 010701      TST237: SCOPE
2248 011074 012701 177777      MOV      #-1,%1      ;LOAD MULTIPLICAND WITH -1
2249 011100 070127 077777      MUL      #77777,%1    ;MULTIPLY -1 * #77777
2250 011104 106737 000002      MFPS     @#PSWORD     ;SAVE PS
2251 011110 122737 000010 000002      CMPB    #10,@#PSWORD ;IS PS = 10
2252 011116 001403      BEQ      +10
2253 011120 004767 005262      JSR      PC,$HLT     ;SEEN AN ERROR, GO TO T4 HALT ROUTINE
2254                                     ;PS IS WRONG
2255 011124 000223      223
2256 011126 022701 100001      CMP      #100001,%1   ;IS HIGH ORDER = 100001
2257 011132 001403      BEQ      +10
2258 011134 004767 005246      JSR      PC,$HLT     ;SEEN AN ERROR, GO TO TH HALT ROUTINE
2259                                     ;HIGH ORDER IS WRONG
2260 011140 000224      224
2261 011142 022701 100001      CMP      #100001,%1!1 ;IS LOW ORDER = 100001
2262 011146 001403      BEQ      +10
2263 011150      1$:
2264 011150 004767 005232      JSR      PC,$HLT     ;SEEN AN ERROR, GO TO TH HALT ROUTINE
2265                                     ;LOW ORDER IS WRONG OR WRONG SEQUENCE
2266 011154 000225      225
2267 011156 021527 000237      CMP      (R5),#237
2268 011162 001372      BNE     1$
2269 011164 005215      INC     (R5)
2270
2271

```



```

2272 :*****
2273 :TEST:240      MUL      77777 * #77777 = 1 1      PS = 1
2274 :*****
2275
2276 011166 010701          TST240: SCOPE
2277 011170 012703 077777 MOV      #77777,%3      ;LOAD MULTIPLICAND WITH 77777
2278 011174 070327 077777 MUL      #77777,%3      ;MULTIPLY 77777 * #77777
2279 011200 106737 000002 MFPS     @#PSWORD      ;SAVE PS
2280 011204 122737 000001 000002 CMPB     #1,@#PSWORD    ;IS PS = 1
2281 011212 001403      BEQ      .+10
2282 011214 004767 005166 JSR      PC,$HLT      ;SEEN AN ERROR, GO TO TH HALT ROUTINE
2283                                     ;PS IS WRONG
2284 011220 000226          226
2285 011222 022703 000001 CMP      #1,%3      ;IS HIGH ORDER = 1
2286 011226 001403      BEQ      .+10
2287 011230 004767 005152 JSR      PC,$HLT      ;SEEN AN ERROR, GO TO TH HALT ROUTINE
2288                                     ;HIGH ORDER IS WRONG
2289 011234 000227          227
2290 011236 022703 000001 CMP      #1,%3!1     ;IS LOW ORDER = 1
2291 011242 001403      BEQ      .+10
2292 011244          1$:
2293 011244 004767 005136 JSR      PC,$HLT      ;SEEN AN ERROR, GO TO TH HALT ROUTINE
2294                                     ;LOW ORDER IS WRONG OR WRONG SEQUENCE
2295 011250 000230          230
2296 011252 021527 000240 CMP      (R5),#240
2297 011256 001372      BNE     1$          ;IF IN WRONG SEQUENCE GO TO THE HLT ABOVE
2298 011260 005215      INC     (R5)
2299
2300

```

```

2301 :*****
2302 :TEST:241      MUL      2 * #2 = 4 4      PS = 0
2303 :*****
2304
2305 TST241: SCOPE
2306 011262 010701      MOV      R5,R1      ;SAVE R5
2307 011264 010501      MOV      #2,%5      ;LOAD MULTIPLICAND WITH 2
2308 011266 012705 000002      MUL      #2,%5      ;MULTIPLY 2 * #2
2309 011272 070527 000002      MFPS    @#PSWORD    ;SAVE PS
2310 011276 106737 000002      CMPB    #0,@#PSWORD ;IS PS = 0
2311 011302 122737 000000 000002      BEQ     .+10
2312 011310 001403      JSR     PC,$HLT     ;SEEN AN ERROR, GO TO TH HALT ROUTINE
2313 011312 004767 005070      ;PS IS WRONG
2314 011316 000231      231
2315 011320 022705 000004      CMP     #4,%5      ;IS HIGH ORDER = 4
2316 011324 001403      BEQ     .+10
2317 011326 004767 005054      JSR     PC,$HLT     ;SEEN AN ERROR, GO TO TH HALT ROUTINE
2318 011332 000232      .        ;HIGH ORDER IS WRONG
2319 011334 022705 000004      232
2320 011340 001403      CMP     #4,%5!1    ;IS LOW ORDER = 4
2321 011342 004767 005040      BEQ     .+10
2322 011344      1$:
2323 011346 000233      JSR     PC,$HLT     ;SEEN AN ERROR, GO TO TH HALT ROUTINE
2324 011350 021127 000241      ;LOW ORDER IS WRONG OR WRONG SEQUENCE
2325 011354 001372      233
2326 011356 010105      CMP     (R1),#241   ;CHECK THE TEST NUMBER
2327 011360 005215      BNE     1$         ;IF IN WRONG SEQUENCE GO TO THE HLT ABOVE
2328      MOV     R1,R5    ;RESTORE R5
2329      INC     (R5)
2330
2331
    
```

```

2332 011362 012702 040000
2333 011366 012703 000034
2334 011372 012704 000036
2335
2336
2337
2338
2339
2340 011376 010701
2341 011400 012700 125252
2342 011404 070067 166424
2343 011410 106737 000002
2344 011414 122737 000011 000002
2345 011422 001403
2346 011424 004767 004756
2347
2348 011430 000234
2349 011432 022700 165252
2350 011436 001403
2351 011440 004767 004742
2352
2353 011444 000235
2354 011446 022701 100000
2355 011452 001403
2356 011454
2357 011454 004767 004726
2358
2359 011460 000236
2360 011462 021527 000242
2361 011466 001372
2362 011470 005215
2363
2364
    
```

```

MOV #40000,%2
MOV #S5,%3
MOV #S6,%4

;*****
;TEST:242 MUL 125252 * S5 = 165252 100000 PS = 11
;*****

TST242: SCOPE
MOV #125252,%0 ;LOAD MULTIPLICAND WITH 125252
MUL S5,%0 ;MULTIPLY 125252 * S5
MFPS @#PSWORD ;SAVE PS
CMPB #11,@#PSWORD ;IS PS = 11
BEQ .+10
JSR PC,$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
;PS IS WRONG

234
CMP #165252,%0 ;IS HIGH ORDER = 165252
BEQ .+10
JSR PC,$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
;HIGH ORDER IS WRONG

235
CMP #100000,%0!1 ;IS LOW ORDER = 100000
BEQ .+10

1$: JSR PC,$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
;LOW ORDER IS WRONG OR WRONG SEQUENCE

236
CMP (R5),#242
1$: BNE 1$ ;IF IN WRONG SEQUENCE GO TO THE HLT ABOVE
INC (R5)
    
```

M05

```

2365 :*****
2366 :TEST:243      MUL      125252 * 256 = 165252 100000      PS = 11
2367 :*****
2368
2369 011472 010701      TST243: SCOPE
2370 011474 012700      MOV      #125252,%0      ;LOAD MULTIPLICAND WITH 125252
2371 011500 070077      MUL      256,%0      ;MULTIPLY 125252 * 256
2372 011504 106737      MFPS    @#PSWORD      ;SAVE PS
2373 011510 122737      CMPB    #11,@#PSWORD  ;IS PS = 11
2374 011516 001403      BEQ     .+10
2375 011520 004767      JSR     PC,$HLT      ;SEEN AN ERROR, GO TO TH HALT ROUTINE
2376                                     ;PS IS WRONG
2377 011524 000237      237
2378 011526 022700      CMP     #165252,%0      ;IS HIGH ORDER = 165252
2379 011532 001403      BEQ     .+10
2380 011534 004767      JSR     PC,$HLT      ;SEEN AN ERROR, GO TO TH HALT ROUTINE
2381                                     ;HIGH ORDER IS WRONG
2382 011540 000240      240
2383 011542 022701      CMP     #100000,%0!1    ;IS LOW ORDER = 100000
2384 011546 001403      BEQ     .+10
2385 011550                                     1$:
2386 011550 004767      JSR     PC,$HLT      ;SEEN AN ERROR, GO TO TH HALT ROUTINE
2387                                     ;LOW ORDER IS WRONG OR WRONG SEQUENCE
2388 011554 000241      241
2389 011556 021527      CMP     (R5),#243
2390 011562 001372      BNE    1$
2391 011564 005215      INC    (R5)      ;IF IN WRONG SEQUENCE GO TO THE HLT ABOVE
2392
2393

```

```

2394 :*****
2395 ;TEST:244      MUL      125252 * @#55 = 165252 100000      PS = 11
2396 :*****
2397
2398 011566 010701          TST244: SCOPE
2399 011570 012700 125252      MOV      #125252,%0      ;LOAD MULTIPLICAND WITH 125252
2400 011574 070037 000034      MUL      @#55,%0      ;MULTIPLY 125252 * @#55
2401 011600 106737 000002      MFPS     @#PSWORD      ;SAVE PS
2402 011604 122737 000011 000002  CMPB     #11,@#PSWORD  ;IS PS = 11
2403 011612 001403      BEQ      .+10
2404 011614 004767 004566      JSR      PC,$HLT      ;SEEN AN ERROR, GO TO TH HALT ROUTINE
2405                                     ;PS IS WRONG
2406 011620 000242          242
2407 011622 022700 165252      CMP      #165252,%0      ;IS HIGH ORDER = 165252
2408 011626 001403      BEQ      .+10
2409 011630 004767 004552      JSR      PC,$HLT      ;SEEN AN ERROR, GO TO TH HALT ROUTINE
2410                                     ;HIGH ORDER IS WRONG
2411 011634 000243          243
2412 011636 022701 100000      CMP      #100000,%0!1    ;IS LOW ORDER = 100000
2413 011642 001403      BEQ      .+10
2414 011644          1$:
2415 011644 004767 004536      JSR      PC,$HLT      ;SEEN AN ERROR, GO TO TH HALT ROUTINE
2416                                     ;LOW ORDER IS WRONG OR WRONG SEQUENCE
2417 011650 000244          244
2418 011652 021527 000244      CMP      (R5),#244
2419 011656 001372      BNE     1$
2420 011660 005215      INC     (R5)      ;IF IN WRONG SEQUENCE GO TO THE HLT ABOVE
2421
2422

```


011754
011756
011762
011764
011770
011776
012000
012004
012006
012012
012014
012020
012022
012026
012030
012036
012034
012036
012042
012044

010701
012700 125252
070023 000002
106737 000011 000002
122737
001403
004767 004402
000250
022700 165252
001403
004767 004366
000251
022701 100000
001403
004767 004352
000252
021527 000246
001372
005215

```
*****
:TEST:246      MUL      125252 * (3)+ = 165252 100000      PS = 11
*****
TST246: SCOPE
MOV      #125252,%0      ;LOAD MULTIPLICAND WITH 125252
MUL      (3)+,%0        ;MULTIPLY 125252 * (3)+
MFPS     @PSWORD        ;SAVE PS
CMPB     #11,@PSWORD     ;IS PS = 11
BEQ      .+10
JSR      PC,$HLT        ;SEEN AN ERROR, GO TO TH HALT ROUTINE
                        ;PS IS WRONG

                250
CMP      #165252,%0      ;IS HIGH ORDER = 165252
BEQ      .+10
JSR      PC,$HLT        ;SEEN AN ERROR, GO TO TH HALT ROUTINE
                        ;HIGH ORDER IS WRONG

                251
CMP      #100000,%0!1    ;IS LOW ORDER = 100000
BEQ      .+10

1$: JSR      PC,$HLT        ;SEEN AN ERROR, GO TO TH HALT ROUTINE
                        ;LOW ORDER IS WRONG OR WRONG SEQUENCE

                252
CMP      (R5),#246      ;IF IN WRONG SEQUENCE GO TO THE HLT ABOVE
BNE     1$
INC      (R5)
```

25001
25002
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25012
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25018
25019
25020
25021
25022
25023
25024
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25026
25027
25028
25029
25030

012046 010701
012050 012700 125252
012054 070043
012056 106737 000002
012062 122737 000011 000002
012070 001403
012072 004767 004310

012076 000253
012100 022700 165252
012104 001403
012106 004767 004274

012112 000254
012114 022701 100000
012120 001403
012122
012122 004767 004260

012126 000255
012130 021527 000247
012134 001372
012136 005215

:TEST:247 MUL 125252 * -(3) = 165252 100000 PS = 11

TST247: SCOPE
MOV #125252,%0 ;LOAD MULTIPLICAND WITH 125252
MUL -(3),%0 ;MULTIPLY 125252 * -(3)
MFPS @#PSWORD ;SAVE PS
CMPB #11,@#PSWORD ;IS PS = 11
BEQ .+10
JSR PC,\$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
;PS IS WRONG

253
CMP #165252,%0 ;IS HIGH ORDER = 165252
BEQ .+10
JSR PC,\$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
;HIGH ORDER IS WRONG

254
CMP #100000,%0!1 ;IS LOW ORDER = 100000
BEQ .+10

1\$: JSR PC,\$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
;LOW ORDER IS WRONG OR WRONG SEQUENCE

255
CMP (R5),#247
1\$: BNE 1\$;IF IN WRONG SEQUENCE GO TO THE HLT ABOVE
INC (R5)

E06

```

2510 :*****
2511 :TEST:250      MUL      125252 * 2(4) = 165252 100000      PS = 11
2512 :*****
2513
2514
2515 012140 010701          TST250: SCOPE
2516 012142 012700 125252      MOV      #125252,%0      ;LOAD MULTIPLICAND WITH 125252
2517 012146 070064 000002      MUL      2(4),%0      ;MULTIPLY 125252 * 2(4)
2518 012152 106737 000002      MFPS    @#PSWORD      ;SAVE PS
2519 012156 122737 000011 000002  CMPB    #11,@#PSWORD   ;IS PS = 11
2520 012164 001403          BEQ      .+10
2521 012166 004767 004214      JSR     PC,$HLT        ;SEEN AN ERROR, GO TO TH HALT ROUTINE
2522                                     ;PS IS WRONG
2523
2524 012172 000256          256
2525 012174 022700 165252      CMP     #165252,%0     ;IS HIGH ORDER = 165252
2526 012200 001403          BEQ     .+10
2527 012202 004767 004200      JSR     PC,$HLT        ;SEEN AN ERROR, GO TO TH HALT ROUTINE
2528                                     ;HIGH ORDER IS WRONG
2529
2530 012206 000257          257
2531 012210 022701 100000      CMP     #100000,%0!1   ;IS LOW ORDER = 100000
2532 012214 001403          BEQ     .+10
2533 012216 004767 004164      JSR     PC,$HLT        ;SEEN AN ERROR, GO TO TH HALT ROUTINE
2534                                     ;LOW ORDER IS WRONG OR WRONG SEQUENCE
2535
2536 012222 000260          260
2537 012224 021527 000250      CMP     (R5),#250
2538 012230 001372          BNE    1$              ;IF IN WRONG SEQUENCE GO TO THE HLT ABOVE
2539 012232 005215          INC     (R5)
  
```

F06

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 DFKACA.P11 MUL INSTRUCTION TESTS

```

2539 :*****
2540 ;TEST:251      MUL      125252 * 3(4) = 165252 100000      PS = 11
2541 :*****
2542
2543 012234 010701      TST251: SCOPE
2544 012236 012700      MOV      #125252,%0      ;LOAD MULTIPLICAND WITH 125252
2545 012242 070074      MUL      3(4),%0      ;MULTIPLY 125252 * 3(4)
2546 012246 106737      MFPS     3#PSWORD      ;SAVE PS
2547 012252 122737      CMPB    #11,3#PSWORD   ;IS PS = 11
2548 012260 001403      BEQ     .+10
2549 012262 004767      JSR     PC,$HLT      ;SEEN AN ERROR, GO TO TH HALT ROUTINE
2550                                     ;PS IS WRONG
2551 012266 000261      261
2552 012270 022700      CMP     #165252,%0     ;IS HIGH ORDER = 165252
2553 012274 001403      BEQ     .+10
2554 012276 004767      JSR     PC,$HLT      ;SEEN AN ERROR, GO TO TH HALT ROUTINE
2555                                     ;HIGH ORDER IS WRONG
2556 012302 000262      262
2557 012304 022701      CMP     #100000,%0!1   ;IS LOW ORDER = 100000
2558 012310 001403      BEQ     .+10
2559 012312                                     1$:
2560 012312 004767      JSR     PC,$HLT      ;SEEN AN ERROR, GO TO TH HALT ROUTINE
2561                                     ;LOW ORDER IS WRONG OR WRONG SEQUENCE
2562 012316 000263      263
2563 012320 021527      CMP     (R5),#251
2564 012324 001372      BNE    1$
2565 012326 005215      INC    (R5)
2566
2567
  
```

```

2568 :*****
2569 :TEST:252      MUL      125252 * 2(4)+ = 165252 100000      PS = 11
2570 :*****
2571
2572 012330 010701      TST252: SCOPE
2573 012332 012700 125252      MOV      #125252,%0      ;LOAD MULTIPLICAND WITH 125252
2574 012336 070034      MUL      2(4)+,%0      ;MULTIPLY 125252 * 2(4)+
2575 012340 106737 000002      MFPS     @#PSWORD      ;SAVE PS
2576 012344 122737 000011 000002      CMPB    #11,@#PSWORD    ;IS PS = 11
2577 012352 001403      BEQ     .+10
2578 012354 004767 004026      JSR     PC,$HLT        ;SEEN AN ERROR, GO TO TH HALT ROUTINE
2579                                     ;PS IS WRONG
2580 012360 000264      264
2581 012362 022700 165252      CMP     #165252,%0      ;IS HIGH ORDER = 165252
2582 012366 001403      BEQ     .+10
2583 012370 004767 004012      JSR     PC,$HLT        ;SEEN AN ERROR, GO TO TH HALT ROUTINE
2584                                     ;HIGH ORDER IS WRONG
2585 012374 000265      265
2586 012376 022701 100000      CMP     #100000,%0!1    ;IS LOW ORDER = 100000
2587 012402 001403      BEQ     .+10
2588 012404                                     IS:
2589 012404 004767 003776      JSR     PC,$HLT        ;SEEN AN ERROR, GO TO TH HALT ROUTINE
2590                                     ;LOW ORDER IS WRONG OR WRONG SEQUENCE
2591 012410 000266      266
2592 012412 021527 000252      CMP     (R5),#252
2593 012416 001372      BNE    IS
2594 012420 005215      INC     (R5)
2595
2596
    
```

;IF IN WRONG SEQUENCE GO TO THE HLT ABOVE

H06

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 DFKACA.P11 MUL INSTRUCTION TESTS

```

2597 :*****
2598 :TEST:253      MUL      125252 * 2-(4) = 165252 100000      PS = 11
2599 :*****
2600
2601 012422 010701          TST253: SCOPE
2602 012424 012700 125252      MOV      #125252,%0      ;LOAD MULTIPLICAND WITH 125252
2603 012430 070054          MUL      2-(4),%0      ;MULTIPLY 125252 * 2-(4)
2604 012432 106737 000002      MFPS     2*PSWORD      ;SAVE PS
2605 012436 122737 000011 000002      CMPB    #11,2*PSWORD   ;IS PS = 11
2606 012444 001403          BEQ      .+10
2607 012446 004767 003734          JSR     PC,$HLT        ;SEEN AN ERROR, GO TO TH HALT ROUTINE
2608                                     ;PS IS WRONG
2609 012452 000267          267
2610 012454 022700 165252      CMP      #165252,%0    ;IS HIGH ORDER = 165252
2611 012460 001403          BEQ      .+10
2612 012462 004767 003720          JSR     PC,$HLT        ;SEEN AN ERROR, GO TO TH HALT ROUTINE
2613                                     ;HIGH ORDER IS WRONG
2614 012466 000270          270
2615 012470 022701 100000      CMP      #100000,%0!1  ;IS LOW ORDER = 100000
2616 012474 001403          BEQ      .+10
2617 012476          15:
2618 012476 004767 003704          JSR     PC,$HLT        ;SEEN AN ERROR, GO TO TH HALT ROUTINE
2619                                     ;LOW ORDER IS WRONG OR WRONG SEQUENCE
2620 012502 000271          271
2621 012504 021527 000253      CMP      (R5),#253
2622 012510 001372          BNE     15
2623 012512 005215          INC     (R5)           ;IF IN WRONG SEQUENCE GO TO THE HLT ABOVE
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2625

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 : DIV INSTRUCTION TESTS

 : TEST:254 DIV 0 4 / #2 = 2 REM = 0 PS = 0

TST254: SCOPE
 MOV #0,%0 ;LOAD HIGH ORDER WITH 0
 MOV #4,%0+1 ;LOAD LOW ORDER WITH 4
 DIV #2,%0 ;DIVIDE BY #2
 MFPS @#PSWORD ;SAVE PS
 CMPB #0,@#PSWORD ;IS PS = 0
 BEQ +10
 JSR PC,\$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
 ;PS IS WRONG
 272
 CMP #2,%0 ;IS QUOTIENT = 2
 BEQ +10
 JSR PC,\$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
 ;QUOTIENT IS WRONG
 273
 CMP #0,%0+1 ;IS REMAINDER = 0
 BEQ +10
 JSR PC,\$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
 ;WRONG REMAINDER
 274
 CMP (R5),#254
 BEQ +10 ;IF IN WRONG SEQUENCE GO TO THE HLT
 JSR PC,\$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
 ;TEST IS IN WRONG SEQUENCE
 275
 INC (R5)

012514 010701
 012516 012700 000000
 012522 012701 000004
 012526 071027 000002
 012532 106737 000002
 012536 122737 000000 000002
 012544 001403
 012546 004767 003634
 012552 000272
 012554 022700 000002
 012560 001403
 012562 004767 003620
 012566 000273
 012570 022701 000000
 012574 001403
 012576 004767 003604
 012602 000274
 012604 021527 000254
 012610 001403
 012612 004767 003570
 012616 000275
 012620 005215

```

2666 ;*****
2667 ;TEST:255 DIV -1 -9. / #3 = -3 REM = 0 PS = 10
2668 ;*****
2669
2670 012622 010701 TST255: SCOPE
2671 012624 012702 177777 MOV #-1,%2 ;LOAD HIGH ORDER WITH -1
2672 012630 012703 177767 MOV #-9,%2+1 ;LOAD LOW ORDER WITH -9.
2673 012634 071227 000003 DIV #3,%2 ;DIVIDE BY #3
2674 012640 106737 000002 MFPS @#PSWORD ;SAVE PS
2675
2676 012644 122737 000010 000002 CMPB #10,@#PSWORD ;IS PS = 10
2677 012652 001403 BEQ +10
2678 012654 004767 003526 JSR PC,$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
2679 ;PS IS WRCNG
2680 012660 000276 276
2681
2682 012662 022702 177775 CMP #-3,%2 ;IS QUOTIENT = -3
2683 012666 001403 BEQ +10
2684 012670 004767 003512 JSR PC,$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
2685 ;QUOTIENT IS WRONG
2686 012674 000277 277
2687
2688 012676 022703 000000 CMP #0,%2+1 ;IS REMAINDER = 0
2689 012702 001403 BEQ +10
2690 012704 004767 003476 JSR PC,$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
2691 ;WRONG REMAINDER
2692 012710 000300 300
2693 012712 021527 000255 CMP (R5),#255
2694 012716 001403 BEQ +10 ;IF IN WRONG SEQUENCE GO TO THE HLT
2695 012720 004767 003462 JSR PC,$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
2696 ;TEST IS IN WRONG SEQUENCE
2697 012724 000301 301
2698 012726 005215 INC (R5)
2699
    
```

```

2700 :*****
2701 :TEST:256 DIV 0 9. / #2 = 4 REM = 1 PS = 0
2702 :*****
2703
2704 012730 010701 TST256: SCOPE
2705 012732 010501 MOV R5,R1 ;SAVE R5
2706 012734 012704 000000 MOV #0,%4 ;LOAD HIGH ORDER WITH 0
2707 012740 012705 000011 MOV #9,%4+1 ;LOAD LOW ORDER WITH 9.
2708 012744 071427 000002 DIV #2,%4 ;DIVIDE BY #2
2709 012750 106737 000002 MFPS J#PSWORD ;SAVE PS
2710
2711 012754 122737 000000 000002 CMPB #0,J#PSWORD ;IS PS = 0
2712 012752 001403 BEQ .+10
2713 012764 004767 003416 JSR PC,$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
2714 ;PS IS WRONG
2715 012770 000302 302
2716
2717 012772 022704 000004 CMP #4,%4 ;IS QUOTIENT = 4
2718 012776 001403 BEQ .+10
2719 013000 004767 003402 JSR PC,$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
2720 ;QUOTIENT IS WRONG
2721 013004 000303 303
2722
2723 013006 022705 000001 CMP #1,%4+1 ;IS REMAINDER = 1
2724 013012 001403 BEQ .+10
2725 013014 004767 003366 JSR PC,$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
2726 ;WRONG REMAINDER
2727 013020 000304 304
2728 013022 010105 MOV R1,R5 ;RESTORE R5
2729 013024 021527 000256 CMP (R5),#256
2730 013030 001403 BEQ .+10 ;IF IN WRONG SEQUENCE GO TO THE HLT
2731 013032 004767 003350 JSR PC,$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
2732 ;TEST IS IN WRONG SEQUENCE
2733 013036 000305 305
2734 013040 005215 INC (R5)
2735
    
```

```

2736 :*****
2737 ;TEST:257 DIV -1 -9. / #2 = -4 REM = -1 PS = 10
2738 :*****
2739
2740 TST257: SCOPE
2741 013042 010701 MOV #-1,%0 ;LOAD HIGH ORDER WITH -1
2742 013044 012700 177777 MOV #-9,%0+1 ;LOAD LOW ORDER WITH -9.
2743 013050 012701 177767 DIV #2,%0 ;DIVIDE BY #2
2744 013054 071027 000002 MFPS @#PSWORD ;SAVE PS
2745 013060 106737 000002
2746 013064 122737 000010 000002 CMPB #10,@#PSWORD ;IS PS = 10
2747 013072 001403 BEQ .+10
2748 013074 004767 003306 JSR PC,$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
2749 ;PS IS WRONG
2750 013100 000306 306
2751
2752 013102 022700 177774 CMP #-4,%0 ;IS QUOTIENT = -4
2753 013105 001403 BEQ .+10
2754 013110 004767 003272 JSR PC,$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
2755 ;QUOTIENT IS WRONG
2756 013114 000307 307
2757
2758 013116 022701 177777 CMP #-1,%0+1 ;IS REMAINDER = -1
2759 013122 001403 BEQ .+10
2760 013124 004767 003256 JSR PC,$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
2761 ;WRONG REMAINDER
2762 013130 000310 310
2763 013132 021527 000257 CMP (R5),#257
2764 013136 001403 BEQ .+10 ;IF IN WRONG SEQUENCE GO TO THE HLT
2765 013140 004767 003242 JSR PC,$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
2766 ;TEST IS IN WRONG SEQUENCE
2767 013144 000311 311
2768 013146 005215 INC (R5)
2769
    
```


M06

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 DFKACA.P11 DIV INSTRUCTION TESTS

```

2770 :*****
2771 :TEST:260 DIV 0 2 / #-3 = 0 REM = 2 PS = 4
2772 :*****
2773
2774 013150 010701 TST260: SCOPE
2775 013152 012702 000000 MOV #0,%2 ;LOAD HIGH ORDER WITH 0
2776 013156 012703 000002 MOV #2,%2+1 ;LOAD LOW ORDER WITH 2
2777 013162 071227 177775 DIV #-3,%2 ;DIVIDE BY #-3
2778 013166 106737 000002 MFPS @#PSWORD ;SAVE PS
2779
2780 013172 122737 000004 000002 CMPB #4,@#PSWORD ;IS PS = 4
2781 013200 001403 BEQ .+10
2782 013202 004767 003200 JSR PC,$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
2783 ;PS IS WRONG
2784 013206 000312 312
2785
2786 013210 022702 000000 CMP #0,%2 ;IS QUOTIENT = 0
2787 013214 001403 BEQ .+10
2788 013216 004767 003164 JSR PC,$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
2789 ;QUOTIENT IS WRONG
2790 013222 000313 313
2791
2792 013224 022703 000002 CMP #2,%2+1 ;IS REMAINDER = 2
2793 013230 001403 BEQ .+10
2794 013232 004767 003150 JSR PC,$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
2795 ;WRONG REMAINDER
2796 013236 000314 314
2797 013240 021527 000260 CMP (R5),#260
2798 013244 001403 BEQ .+10 ;IF IN WRONG SEQUENCE GO TO THE HLT
2799 013246 004767 003134 JSR PC,$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
2800 ;TEST IS IN WRONG SEQUENCE
2801 013252 000315 315
2802 013254 005215 INC (R5)
2803
  
```

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2804                                     :*****
2805                                     :TEST:261      DIV      -1 -2 / #3 = 0      REM = -2      PS = 4
2806                                     :*****
2807
2808 013256 010701 TST261: SCOPE
2809 013260 010501      MOV      R5,R1      ;SAVE R5
2810 013262 012704 177777      MOV      #-1,%4      ;LOAD HIGH ORDER WITH -1
2811 013266 012705 177776      MOV      #-2,%4+1    ;LOAD LOW ORDER WITH -2
2812 013272 071427 000003      DIV      #3,%4      ;DIVIDE BY #3
2813 01327E 106737 000002      MFPS     @#PSWORD   ;SAVE PS
2814
2815 013302 122737 000004 000002      CMPB    #4,@#PSWORD ;IS PS = 4
2816 013310 001403      BEQ     .+10
2817 013312 004767 003070      JSR     PC,$HLT     ;SEEN AN ERROR, GO TO TH HALT ROUTINE
2818                                     ;PS IS WRONG
2819 013316 000316      316
2820
2821 013320 022704 000000      CMP     #0,%4      ;IS QUOTIENT = 0
2822 013324 001403      BEQ     .+10
2823 013326 004767 003054      JSR     PC,$HLT     ;SEEN AN ERROR, GO TO TH HALT ROUTINE
2824                                     ;QUOTIENT IS WRONG
2825 013332 000317      317
2826
2827 013334 022705 177776      CMP     #-2,%4+1    ;IS REMAINDER = -2
2828 013340 001403      BEQ     .+10
2829 013342 004767 003040      JSR     PC,$HLT     ;SEEN AN ERROR, GO TO TH HALT ROUTINE
2830                                     ;WRONG REMAINDER
2831 013346 000320      320
2832 013350 010105      MOV     R1,R5      ;RESTORE R5
2833 013352 021527 000261      CMP     (R5),#261
2834 013356 001403      BEQ     .+10
2835 013360 004767 003022      JSR     PC,$HLT     ;IF IN WRONG SEQUENCE GO TO THE HLT
2836                                     ;SEEN AN ERROR, GO TO TH HALT ROUTINE
2837 013364 000321      321
2838 013366 005215      INC     (R5)
2839
    
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010701
012700 177777
012701 177777
071027 000001
106737 000002

122737 000010 000002
001403
004767 002760

000322 322

022700 177777
001403
004767 002744

000323 323

022701 000000
001403
004767 002730

000324 324
021527 000262
001403
004767 002714

000325 325
005215 INC (R5)

```
*****
:TEST:262 DIV -1 -1 / #1 = -1 REM = 0 PS = 10
*****

TST262: SCOPE
MOV #-1,%0 :LOAD HIGH ORDER WITH -1
MOV #-1,%0+1 :LOAD LOW ORDER WITH -1
DIV #1,%0 :DIVIDE BY #1
MFPS @#PSWORD :SAVE PS

CMPB #10,@#PSWORD :IS PS = 10
BEQ +10
JSR PC,$HLT :SEEN AN ERROR, GO TO TH HALT ROUTINE
:PS IS WRONG

322

CMP #-1,%0 :IS QUOTIENT = -1
BEQ +10
JSR PC,$HLT :SEEN AN ERROR, GO TO TH HALT ROUTINE
:QUOTIENT IS WRONG

323

CMP #0,%0+1 :IS REMAINDER = 0
BEQ +10
JSR PC,$HLT :SEEN AN ERROR, GO TO TH HALT ROUTINE
:WRONG REMAINDER

324
CMP (R5),#262
BEQ +10 :IF IN WRONG SEQUENCE GO TO THE HLT
JSR PC,$HLT :SEEN AN ERROR, GO TO TH HALT ROUTINE
:TEST IS IN WRONG SEQUENCE

325
INC (R5)
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013476 010701 000000
013500 012700 000000
013504 012701 000000
013510 071027 000001
013514 106737 000002

013520 122737 000004 000002
013526 001403
013530 004767 002652

013534 000326

013536 022700 000003
013542 001403
013544 004767 002636

013550 000327

013552 022701 000000
013556 001403
013560 004767 002622

013564 000330
013566 021527 000263
013572 001403
013574 004767 002606

013600 000331
013602 005215

```
*****
:TEST:263 DIV 0 0 / #1 = 0 REM = 0 PS = 4
*****
TST263: S
MOV #0,%0 ;LOAD HIGH ORDER WITH 0
MOV #0,%0+1 ;LOAD LOW ORDER WITH 0
DIV #1,%0 ;DIVIDE BY #1
MFPS #PSWORD ;SAVE PS

CMP #4,%PSWORD ;IS PS = 4
BEQ +10
JSR PC,$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
;PS IS WRONG

CMP #0,%0 ;IS QUOTIENT = 3
BEQ +10
JSR PC,$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
;QUOTIENT IS WRONG

CMP #0,%0+1 ;IS REMAINDER = 0
BEQ +10
JSR PC,$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
;WRONG REMAINDER

CMP (R5),#263
BEQ +10 ;IF IN WRONG SEQUENCE GO TO THE HLT
JSR PC,$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
;TEST IS IN WRONG SEQUENCE

331
INC (R5)
```

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2908 :*****
2909 :TEST:264 DIV -1 125252 / #2 = 152525 REM = 0 PS = 10
2910 :*****
2911
2912 013604 010701 TST264: SCOPE
2913 013606 012702 MOV #-1,%2 ;LOAD HIGH ORDER WITH -1
2914 013612 012703 MOV #125252,%2+1 ;LOAD LOW ORDER WITH 125252
2915 013616 071227 DIV #2,%2 ;DIVIDE BY #2
2916 013622 106737 MFPS @#PSWORD ;SAVE PS
2917
2918 013626 122737 000010 000002 CMPB #10,@#PSWORD ;IS PS = 10
2919 013634 001403 BEQ +10
2920 013636 004767 002544 JSR PC,$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
2921 ;PS IS WRONG
2922 013642 000332 332
2923
2924 013644 022702 152525 CMP #152525,%2 ;IS QUOTIENT = 152525
2925 013650 001403 BEQ +10
2926 013652 004767 002530 JSR PC,$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
2927 ;QUOTIENT IS WRONG
2928 013656 000333 333
2929
2930 013660 022703 000000 CMP #0,%2+1 ;IS REMAINDER = 0
2931 013664 001403 BEQ +10
2932 013666 004767 002514 JSR PC,$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
2933 ;WRONG REMAINDER
2934 013672 000334 334
2935 013674 021527 000264 CMP (R5),#264
2936 013700 001403 BEQ +10 ;IF IN WRONG SEQUENCE GO TO THE HLT
2937 013702 004767 002500 JSR PC,$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
2938 ;TEST IS IN WRONG SEQUENCE
2939 013706 000335 335
2940 013710 005215 INC (R5)

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:*****
:TEST:265      DIV      -1 -1 / #-1 = 1      REM = 0      PS = 0
:*****
  
```

TST265: SCOPE

```

MOV      R5,R1      ;SAVE R5
MOV      #-1,%4     ;LOAD HIGH ORDER WITH -1
MOV      #-1,%4+1   ;LOAD LOW ORDER WITH -1
DIV      #-1,%4     ;DIVIDE BY #-1
MFPS     J#PSWORD   ;SAVE PS

CMPB     #0,J#PSWORD ;IS PS = 0
BEQ      +10
JSR      PC,$HLT    ;SEEN AN ERROR, GO TO TH HALT ROUTINE
                    ;PS IS WRONG

CMP      #1,%4      ;IS QUOTIENT = 1
BEQ      +10
JSR      PC,$HLT    ;SEEN AN ERROR, GO TO TH HALT ROUTINE
                    ;QUOTIENT IS WRONG

CMP      #0,%4+1    ;IS REMAINDER = 0
BEQ      +10
JSR      PC,$HLT    ;SEEN AN ERROR, GO TO TH HALT ROUTINE
                    ;WRONG REMAINDER

MOV      R1,R5      ;RESTORE R5
CMP      (R5),#265
BEQ      +10
JSR      PC,$HLT    ;IF IN WRONG SEQUENCE GO TO THE HLT
                    ;SEEN AN ERROR, GO TO TH HALT ROUTINE
                    ;TEST IS IN WRONG SEQUENCE

341
INC      (R5)
  
```

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010701
010501
012704 177777
012705 177777
071427 177777
1C6737 000002

122737 000000 000002
001403
004767 002434

000336

013754 022704 000001
013760 001403
013762 004767 002420

013766 000337

013770 022705 000000
013774 001403
013776 004767 002404

014002 000340
014004 010105
014006 021527 000265
014012 001403
014014 004767 002356

014020 000341
014022 005215
  
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2978 :*****
2979 ;TEST:266 DIV 25253 1 / #125252 = 100000 REM = 1 PS = 10
2980 :*****
2981
2982 014024 010701 TST266: SCOPE
2983 014026 012700 025253 MOV #25253,%0 ;LOAD HIGH ORDER WITH 25253
2984 014032 012701 000001 MOV #1,%0+1 ;LOAD LOW ORDER WITH 1
2985 014036 071027 125252 DIV #125252,%0 ;DIVIDE BY #125252
2986 014042 106737 000002 MFPS @#PSWORD ;SAVE PS
2987
2988 014046 122737 000010 000002 CMPB #10,@#PSWORD ;IS PS = 10
2989 014054 001403 BEQ +10
2990 014056 004767 002324 JSR PC,$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
2991 ;PS IS WRONG
2992 014062 000342 342
2993
2994 014064 022700 100000 CMP #100000,%0 ;IS QUOTIENT = 100000
2995 014070 001403 BEQ +10
2996 014072 004767 002310 JSR PC,$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
2997 ;QUOTIENT IS WRONG
2998 014076 000343 343
2999
3000 014100 022701 000001 CMP #1,%0+1 ;IS REMAINDER = 1
3001 014104 001403 BEQ +10
3002 014106 004767 002274 JSR PC,$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
3003 ;WRONG REMAINDER
3004 014112 000344 344
3005 014114 021527 000266 CMP (R5),#266
3006 014120 001403 BEQ +10 ;IF IN WRONG SEQUENCE GO TO THE HLT
3007 014122 004767 002260 JSR PC,$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
3008 ;TEST IS IN WRONG SEQUENCE
3009 014126 000345 345
3010 014130 005215 INC (R5)
3011
    
```

```

3012 :*****
3013 ;TEST:267 DIV 37777 77777 / #77777 = 77777 REM = 77776 PS = 0
3014 :*****
3015
3016 014132 010701 TST267: SCOPE
3017 014134 012702 037777 MOV #37777,%2 ;LOAD HIGH ORDER WITH 37777
3018 014140 012703 077777 MOV #77777,%2+1 ;LOAD LOW ORDER WITH 77777
3019 014144 071227 077777 DIV #77777,%2 ;DIVIDE BY #77777
3020 014150 106737 000002 MFPS @#PSWORD ;SAVE PS
3021
3022 014154 122737 000000 000002 CMPB #0,@#PSWORD ;IS PS = 0
3023 014162 001403 BEQ .+10
3024 014154 004767 002216 JSR PC,$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
3025 ;PS IS WRONG
3026 014170 000346 346
3027
3028 014172 022702 077777 CMP #77777,%2 ;IS QUOTIENT = 77777
3029 014176 001403 BEQ .+10
3030 014200 004767 002202 JSR PC,$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
3031 ;QUOTIENT IS WRONG
3032 014204 000347 347
3033
3034 014206 022703 077776 CMP #77776,%2+1 ;IS REMAINDER = 77776
3035 014212 001403 BEQ .+10
3036 014214 004767 002166 JSR PC,$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
3037 ;WRONG REMAINDER
3038 014220 000350 350
3039 014222 021527 000267 CMP (R5),#267
3040 014226 001403 BEQ .+10 ;IF IN WRONG SEQUENCE GO TO THE HLT
3041 014230 004767 002152 JSR PC,$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
3042 ;TEST IS IN WRONG SEQUENCE
3043 014234 000351 351
3044 014236 005215 INC (R5)
3045
    
```



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3050 014240 010701
3051 014242 010501
3052 014244 012704 000000
3053 014250 012705 100000
3054 014254 071427 000002
3055 014260 106737 000002
3056
3057 014264 122737 000000 000002
3058 014272 001403
3059 014274 004767 002106
3060
3061 014300 000352
3062
3063 014302 022704 040000
3064 014306 001403
3065 014310 004767 002072
3066
3067 014314 000353
3068
3069 014316 022705 000000
3070 014322 001403
3071 014324 004767 002056
3072
3073 014330 000354
3074 014332 010105
3075 014334 021527 000270
3076 014340 001403
3077 014342 004767 002040
3078
3079 014346 000355
3080 014350 005215
3081

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:*****
:TEST:270 DIV 0 100000 / #2 = 40000 REM = 0 PS = 0
:*****
TST270: SCOPE
MOV R5,R1 ;SAVE R5
MOV #0,%4 ;LOAD HIGH ORDER WITH 0
MOV #100000,%4+1 ;LOAD LOW ORDER WITH 100000
DIV #2,%4 ;DIVIDE BY #2
MFPS J#PSWORD ;SAVE PS

CMPB #0,J#PSWORD ;IS PS = 0
BEQ .+10
JSR PC,$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
;PS IS WRONG

352

CMP #40000,%4 ;IS QUOTIENT = 40000
BEQ .+10
JSR PC,$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
;QUOTIENT IS WRONG

353

CMP #0,%4+1 ;IS REMAINDER = 0
BEQ .+10
JSR PC,$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
;WRONG REMAINDER

354
MOV R1,R5 ;RESTORE R5
CMP (R5),#270
BEQ .+10
JSR PC,$HLT ;IF IN WRONG SEQUENCE GO TO THE HLT
;SEEN AN ERROR, GO TO TH HALT ROUTINE
;TEST IS IN WRONG SEQUENCE

355
INC (R5)

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3082 :*****
3083 :TEST:271 DIV 177777 77777 / #177776 = 40000 REM = 177777 PS = 0
3084 :*****
3085
3086 014352 010701 TST271: SCOPE
3087 014354 012700 177777 MOV #177777,%0 ;LOAD HIGH ORDER WITH 177777
3088 014360 012701 077777 MOV #77777,%0+1 ;LOAD LOW ORDER WITH 77777
3089 014364 071027 177776 DIV #177776,%0 ;DIVIDE BY #177776
3090 014370 106737 000002 MFPS @#PSWORD ;SAVE PS
3091
3092 014374 122737 000000 000002 CMPB #0,@#PSWORD ;IS PS = 0
3093 014402 001403 BEQ .+10
3094 014404 004767 001776 JSR PC,$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
3095 ;PS IS WRONG
3096 014410 000356 356
3097
3098 014412 022700 040000 CMP #40000,%0 ;IS QUOTIENT = 40000
3099 014416 001403 BEQ .+10
3100 014420 004767 001762 JSR PC,$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
3101 ;QUOTIENT IS WRONG
3102 014424 000357 357
3103
3104 014426 022701 177777 CMP #177777,%0+1 ;IS REMAINDER = 177777
3105 014432 001403 BEQ .+10
3106 014434 004767 001746 JSR PC,$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
3107 ;WRONG REMAINDER
3108 014440 000360 360
3109 014442 021527 000271 CMP (R5),#271
3110 014446 001403 BEQ .+10 ;IF IN WRONG SEQUENCE GO TO THE HLT
3111 014450 004767 001732 JSR PC,$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
3112 ;TEST IS IN WRONG SEQUENCE
3113 014454 000361 361
3114 014456 005215 INC (R5)
3115
    
```

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3116                                     ;*****
3117                                     ;TEST:272      DIV      0 52525 / #52525 = 1      REM = 0      PS = 0
3118                                     ;*****
3119
3120 014460 010701 TST272: SCOPE
3121 014462 012702 000000 MOV      #0,%2      ;LOAD HIGH ORDER WITH 0
3122 014466 012703 052525 MOV      #52525,%2+1 ;LOAD LOW ORDER WITH 52525
3123 014472 071227 052525 DIV      #52525,%2 ;DIVIDE BY #52525
3124 014476 106737 000002 MFPS     @#PSWORD ;SAVE PS
3125
3126 014502 122737 000000 000002 CMPB    #0,@#PSWORD ;IS PS = 0
3127 014510 001403 BEQ     .+10
3128 014512 004767 001670 JSR     PC,$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
3129                                     ;PS IS WRONG
3130 014516 000362 362
3131
3132 014520 022702 000001 CMP      #1,%2      ;IS QUOTIENT = 1
3133 014524 001403 BEQ     .+10
3134 014526 004767 001654 JSR     PC,$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
3135                                     ;QUOTIENT IS WRONG
3136 014532 000363 363
3137
3138 014534 022703 000000 CMP      #0,%2+1 ;IS REMAINDER = 0
3139 014540 001403 BEQ     .+10
3140 014542 004767 001640 JSR     PC,$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
3141                                     ;WRONG REMAINDER
3142 014546 000364 364
3143 014550 021527 000272 CMP      (R5),#272
3144 014554 001403 BEQ     .+10 ;IF IN WRONG SEQUENCE GO TO THE HLT
3145 014556 004767 001624 JSR     PC,$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
3146                                     ;TEST IS IN WRONG SEQUENCE
3147 014562 000365 365
3148 014564 005215 INC      (R5)
3149
    
```

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3150 :*****
3151 :TEST:273 DIV 0 77777 / #0 = DUMMY REM = DUMMY PS = 3
3152 :*****
3153
3154 014566 010701 TST273: SCOPE
3155 014570 010501 MOV R5,R1 ;SAVE R5
3156 014572 012704 000000 MOV #0,%4 ;LOAD HIGH ORDER WITH 0
3157 014576 012705 077777 MOV #77777,%4+1 ;LOAD LOW ORDER WITH 77777
3158 014602 071427 000000 DIV #0,%4 ;DIVIDE BY #0
3159 014606 106737 000002 MFPS @#PSWORD ;SAVE PS
3160 014612 042737 000014 000002 BIC #14,@#PSWORD
3161
3162 014620 122737 000003 000002 CMPB #3,@#PSWORD ;IS PS = 3
3163 014626 001403 BEQ +10
3164 014630 004767 001552 JSR PC,$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
3165 ;PS IS WRONG
3166 014634 000366 366
3167
3168 014636 010105 MOV R1,R5 ;RESTORE R5
3169 014640 021527 000273 CMP (R5),#273
3170 014644 001403 BEQ +10 ;IF IN WRONG SEQUENCE GO TO THE HLT
3171 014646 004767 001534 JSR PC,$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
3172 ;TEST IS IN WRONG SEQUENCE
3173 014652 000367 367
3174 014654 005215 INC (R5)
3175

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3176 :*****
3177 ;TEST:274 DIV 77777 177777 / #2 = DUMMY REM = DUMMY PS = 2
3178 :*****
3179
3180 014656 010701 TST274: SCOPE
3181 014660 012700 077777 MOV #77777,%0 ;LOAD HIGH ORDER WITH 77777
3182 014664 012701 177777 MOV #177777,%0+1 ;LOAD LOW ORDER WITH 177777
3183 014670 071027 000002 DIV #2,%0 ;DIVIDE BY #2
3184 014674 106737 000002 MFPS @#PSWORD ;SAVE PS
3185 014700 042737 000014 000002 BIC #14,@#PSWORD
3186
3187 014706 122737 000002 000002 CMPB #2,@#PSWORD ;IS PS = 2
3188 014714 001403 BEQ +10
3189 014716 004767 001464 JSR PC,$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
3190 ;PS IS WRONG
3191 014722 000370 370
3192
3193 014724 021527 000274 CMP (R5),#274
3194 014730 001403 BEQ +10 ;IF IN WRONG SEQUENCE GO TO THE HLT
3195 014732 004767 001450 JSR PC,$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
3196 ;TEST IS IN WRONG SEQUENCE
3197 014736 000371 371
3198 014740 005215 INC (R5)
3199
    
```

3200	014742	012702	000002	MOV	#2,%2	
3201	014746	012703	000044	MOV	#S9,%3	
3202	014752	012704	000046	MOV	#S10,%4	
3203						
3204						
3205						:*****
3206						:TEST:275 DIV 0 52525 / S9 = 25252 REM = 1 PS = 0
3207						:*****
3208	014756	010701		TST275: SCOPE		
3209	014760	012700	000000	MOV	#0,%0	;LOAD HIGH ORDER WITH 0
3210	014764	012701	052525	MOV	#52525,%0+1	;LOAD LOW ORDER WITH 52525
3211	014770	071067	163050	DIV	S9,%0	;DIVIDE BY S9
3212	014774	106737	000002	MFPS	2#PSWORD	;SAVE PS
3213						
3214	015000	122737	000000 000002	CMPB	#0,2#PSWORD	;IS PS = 0
3215	015006	001403		BEQ	.+10	
3216	015010	004767	001372	JSR	PC,\$HLT	;SEEN AN ERROR, GO TO TH HALT ROUTINE
3217						;PS IS WRONG
3218	015014	000372		372		
3219						
3220	015016	022700	025252	CMP	#25252,%0	;IS QUOTIENT = 25252
3221	015022	001403		BEQ	.+10	
3222	015024	004767	001356	JSR	PC,\$HLT	;SEEN AN ERROR, GO TO TH HALT ROUTINE
3223						;QUOTIENT IS WRONG
3224	015030	000373		373		
3225						
3226	015032	022701	000001	CMP	#1,%0+1	;IS REMAINDER = 1
3227	015036	001403		BEQ	.+10	
3228	015040	004767	001342	JSR	PC,\$HLT	;SEEN AN ERROR, GO TO TH HALT ROUTINE
3229						;WRONG REMAINDER
3230	015044	000374		374		
3231	015046	021527	000275	CMP	(R5),#275	
3232	015052	001403		BEQ	.+10	;IF IN WRONG SEQUENCE GO TO THE HLT
3233	015054	004767	001326	JSR	PC,\$HLT	;SEEN AN ERROR, GO TO TH HALT ROUTINE
3234						;TEST IS IN WRONG SEQUENCE
3235	015060	000375		375		
3236	015062	005215		INC	(R5)	
3237						

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3238 :*****
3239 :TEST:276 DIV 0 52525 / 2510 = 25252 REM = 1 PS = 0
3240 :*****
3241
3242 015064 010701 TST276: SCOPE
3243 015066 012700 MOV #0,%0 ;LOAD HIGH ORDER WITH 0
3244 015072 012701 MOV #52525,%0+1 ;LOAD LOW ORDER WITH 52525
3245 015076 071077 DIV 2510,%0 ;DIVIDE BY 2510
3246 015102 106737 MFPS 2*PSWORD ;SAVE PS
3247
3248 015106 122737 000000 000002 CMPB #0,2*PSWORD ;IS PS = 0
3249 015114 001403 BEQ .+10
3250 015116 004767 001264 JSR PC,$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
3251 ;PS IS WRONG
3252 015122 000376 376
3253
3254 015124 022700 025252 CMP #25252,%0 ;IS QUOTIENT = 25252
3255 015130 001403 BEQ .+10
3256 015132 004767 001250 JSR PC,$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
3257 ;QUOTIENT IS WRONG
3258 015136 000377 377
3259
3260 015140 022701 000001 CMP #1,%0+1 ;IS REMAINDER = 1
3261 015144 001403 BEQ .+10
3262 015146 004767 001234 JSR PC,$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
3263 ;WRONG REMAINDER
3264 015152 000400 400
3265 015154 021527 000276 CMP (R5),#276
3266 015160 001403 BEQ .+10 ;IF IN WRONG SEQUENCE GO TO THE HLT
3267 015162 004767 001220 JSR PC,$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
3268 ;TEST IS IN WRONG SEQUENCE
3269 015166 000401 401
3270 015170 005215 INC (R5)
3271
    
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33100

:TEST:277 DIV 0 52525 / 2#59 = 25252 REM = 1 , PS = 0

015172 010701
015174 012700 000000
015200 012701 052525
015204 071037 000044
015210 106737 000002

015214 122737 000000 000002
015222 001403
015224 004767 001156

015230 000402

015232 022700 025252
015236 001403
015240 004767 001142

015244 000403

015246 022701 000001
015252 001403
015254 004767 001126

015260 000404
015262 021527 000277
015266 001403
015270 004767 001112

015274 000405
015276 005215

TST277: SCOPE
MOV #0,%0 ;LOAD HIGH ORDER WITH 0
MOV #52525,%0+1 ;LOAD LOW ORDER WITH 52525
DIV 2#59,%0 ;DIVIDE BY 2#59
MFPS 2#PSWORD ;SAVE PS

CMPB #0,2#PSWORD ;IS PS = 0
BEQ +10
JSR PC,\$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
;PS IS WRONG
402

CMP #25252,%0 ;IS QUOTIENT = 25252
BEQ +10
JSR PC,\$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
;QUOTIENT IS WRONG
403

CMP #1,%0+1 ;IS REMAINDER = 1
BEQ +10
JSR PC,\$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
;WRONG REMAINDER
404

CMP (R5),#277 ;IF IN WRONG SEQUENCE GO TO THE HLT
BEQ +10 ;SEEN AN ERROR, GO TO TH HALT ROUTINE
JSR PC,\$HLT ;TEST IS IN WRONG SEQUENCE
405
INC R5


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3306 :*****
3307 :TEST:300 DIV 0 52525 / %2 = 25252 REM = 1 PS = 0
3308 :*****
3309
3310 015200 010701 TST300: SCOPE
3311 015302 012700 000000 MOV #0,%0 ;LOAD HIGH ORDER WITH 0
3312 015306 012701 052525 MOV #52525,%0+1 ;LOAD LOW ORDER WITH 52525
3313 015312 071002 DIV %2,%0 ;DIVIDE BY %2
3314 015314 106737 000002 MFPS @#PSWORD ;SAVE PS
3315
3316 015320 122737 000000 000002 CMPB #0,@#PSWORD ;IS PS = 0
3317 015326 001403 BEQ +10
3318 015330 004767 001052 JSR PC,$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
3319 ;PS IS WRONG
3320 015334 000406 406
3321
3322 015336 022730 025252 CMP #25252,%0 ;IS QUOTIENT = 25252
3323 015342 001403 BEQ +10
3324 015344 004767 001036 JSR PC,$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
3325 ;QUOTIENT IS WRONG
3326 015350 000407 407
3327
3328 015352 022701 000001 CMP #1,%0+1 ;IS REMAINDER = 1
3329 015356 001403 BEQ +10
3330 015360 004767 001022 JSR PC,$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
3331 ;WRONG REMAINDER
3332 015364 000410 410
3333 015366 021527 000300 CMP (R5),#300
3334 015372 001403 BEQ +10 ;IF IN WRONG SEQUENCE GO TO THE HLT
3335 015374 004767 001006 JSR PC,$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
3336 ;TEST IS IN WRONG SEQUENCE
3337 015400 000411 411
3338 015402 005215 INC (R5)
3339

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3340 :*****
3341 :TEST:301 DIV @ 52525 / (3)+ = 25252 REM = 1 PS = 0
3342 :*****
3343
3344 015404 010701 TST301: SCOPE
3345 015406 012700 MOV #0,%0 ;LOAD HIGH ORDER WITH 0
3346 015412 012701 MOV #52525,%0+1 ;LOAD LOW ORDER WITH 52525
3347 015416 071023 DIV (3)+,%0 ;DIVIDE BY (3)+
3348 015420 106737 MFPS @#PSWORD ;SAVE PS
3349
3350 015424 122737 000000 000002 CMPB #0,@#PSWORD ;IS PS = 0
3351 015432 001403 BEQ .+10
3352 015434 004767 000746 JSR PC,$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
3353 ;PS IS WRONG
3354 015440 000412 412
3355
3356 015442 022700 025252 CMP #25252,%0 ;IS QUOTIENT = 25252
3357 015446 001403 BEQ .+10
3358 015450 004767 000732 JSR PC,$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
3359 ;QUOTIENT IS WRONG
3360 015454 000413 413
3361
3362 015456 022701 000001 CMP #1,%0+1 ;IS REMAINDER = 1
3363 015462 001403 BEQ .+10
3364 015464 004767 000716 JSR PC,$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
3365 ;WRONG REMAINDER
3366 015470 000414 414
3367 015472 021527 000301 CMP (R5),#301
3368 015476 001403 BEQ .+10 ;IF IN WRONG SEQUENCE GO TO THE HLT
3369 015500 004767 000702 JSR PC,$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
3370 ;TEST IS IN WRONG SEQUENCE
3371 015504 000415 415
3372 015506 005215 INC (R5)
3373

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3377 *****
3378 :TEST:302 DIV 0 52525 / -(3) = 25252 REM = 1 PS = 0
3379 *****
3380 TST302: SCOPE
3381 MOV #0,%0 ;LOAD HIGH ORDER WITH 0
3382 MOV #52525,%0+1 ;LOAD LOW ORDER WITH 52525
3383 DIV -(3),%0 ;DIVIDE BY -(3)
3384 MFPS @#PSWORD ;SAVE PS
3385 CMPB #0,@#PSWORD ;IS PS = 0
3386 BEQ .+10
3387 JSR PC,$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
3388 ;PS IS WRONG
3389
3390 CMP #25252,%0 ;IS QUOTIENT = 25252
3391 BEQ .+10
3392 JSR PC,$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
3393 ;QUOTIENT IS WRONG
3394
3395
3396 CMP #1,%0+1 ;IS REMAINDER = 1
3397 BEQ .+10
3398 JSR PC,$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
3399 ;WRONG REMAINDER
3400
3401 CMP (R5),#302
3402 BEQ .+10 ;IF IN WRONG SEQUENCE GO TO THE HLT
3403 JSR PC,$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
3404 ;TEST IS IN WRONG SEQUENCE
3405
3406 INC (R5)

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F08

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 DFKACA.P11 DIV INSTRUCTION TESTS

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3408 :*****
3409 :TEST:303 DIV 0 52525 / 2(4) = 25252 REM = 1 PS = 0
3410 :*****
3411
3412 015614 010701 TST303: SCOPE
3413 015616 012700 000000 MOV #0,%0 ;LOAD HIGH ORDER WITH 0
3414 015622 012701 052525 MOV #52525,%0+1 ;LOAD LOW ORDER WITH 52525
3415 015626 071064 000002 DIV 2(4),%0 ;DIVIDE BY 2(4)
3416 015632 106737 000002 MFPS @#PSWORD ;SAVE PS
3417
3418 015636 122737 000000 000002 CMPB #0,@#PSWORD ;IS PS = 0
3419 015644 001403 BEQ .+10
3420 015646 004767 000534 JSR PC,$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
3421 ;PS IS WRONG
3422 015652 000422 422
3423
3424 015654 022700 025252 CMP #25252,%0 ;IS QUOTIENT = 25252
3425 015660 001403 BEQ .+10
3426 015662 004767 000520 JSR PC,$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
3427 ;QUOTIENT IS WRONG
3428 015666 000423 423
3429
3430 015670 022701 000001 CMP #1,%0+1 ;IS REMAINDER = 1
3431 015674 001403 BEQ .+10
3432 015676 004767 000504 JSR PC,$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
3433 ;WRONG REMAINDER
3434 015702 000424 424
3435 015704 021527 000303 CMP (R5),#303
3436 015710 001403 BEQ .+10 ;IF IN WRONG SEQUENCE GO TO THE HLT
3437 015712 004767 000470 JSR PC,$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
3438 ;TEST IS IN WRONG SEQUENCE
3439 015716 000425 425
3440 015720 005215 INC (R5)
3441
  
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3442 ;*****
3443 ;TEST:304 DIV 0 52525 / 2(4) = 25252 REM = 1 PS = 0
3444 ;*****
3445
3446 015722 010701 TST304: SCOPE
3447 015724 012700 000000 MOV #0,%0 ;LOAD HIGH ORDER WITH 0
3448 015730 012701 052525 MOV #52525,%0+1 ;LOAD LOW ORDER WITH 52525
3449 015734 071074 000000 DIV 2(4),%0 ;DIVIDE BY 2(4)
3450 015740 106737 000002 MFPS 2*PSWORD ;SAVE PS
3451
3452 015744 122737 000000 000002 CMPB #0,2*PSWORD ;IS PS = 0
3453 015752 001403 BEQ .+10
3454 015754 004767 000426 JSR PC,$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
3455 ;PS IS WRONG
3456 015760 000426 426
3457
3458 015762 022700 025252 CMP #25252,%0 ;IS QUOTIENT = 25252
3459 015766 001403 BEQ .+10
3460 015770 004767 000412 JSR PC,$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
3461 ;QUOTIENT IS WRONG
3462 015774 000427 427
3463
3464 015776 022701 000001 CMP #1,%0+1 ;IS REMAINDER = 1
3465 016002 001403 BEQ .+10
3466 016004 004767 000376 JSR PC,$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
3467 ;WRONG REMAINDER
3468 016010 000430 430
3469 016012 021527 000304 CMP (R5),#304
3470 016016 001403 BEQ .+10 ;IF IN WRONG SEQUENCE GO TO THE HLT
3471 016020 004767 000362 JSR PC,$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
3472 ;TEST IS IN WRONG SEQUENCE
3473 016024 000431 431
3474 016026 005215 INC (R5)
3475

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016030 010701
016032 012700 000000
016036 012701 052525
016042 071034
016044 106737 000002
016050 122737 000000 000002
016051 001403
016060 004767 000322
016064 000432
016066 022700 025252
016072 001403
016074 004767 000306
016100 000433
016102 022701 000001
016106 001403
016110 004767 000272
016114 000434
016116 021527 000305
016122 001403
016124 004767 000256
016130 000435
016132 005215

```
*****  
:TEST:305 DIV 0 52525 / 2(4)+ = 25252 REM = 1 PS = 0  
*****  
TST305: SCOPE  
MOV #0,%0 ;LOAD HIGH ORDER WITH 0  
MOV #52525,%0+1 ;LOAD LOW ORDER WITH 52525  
DIV 2(4)+,%0 ;DIVIDE BY 2(4)+  
MFPS 2*PSWORD ;SAVE PS  
CMPB #0,2*PSWORD ;IS PS = 0  
BEQ +10  
JSR PC,$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE  
;PS IS WRONG  
432  
CMP #25252,%0 ;IS QUOTIENT = 25252  
BEQ +10  
JSR PC,$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE  
;QUOTIENT IS WRONG  
433  
CMP #1,%0+1 ;IS REMAINDER = 1  
BEQ +10  
JSR PC,$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE  
;WRONG REMAINDER  
434  
CMP (R5),#305  
BEQ +10 ;IF IN WRONG SEQUENCE GO TO THE HLT  
JSR PC,$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE  
;TEST IS IN WRONG SEQUENCE  
435  
INC (R5)
```

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3510 :*****
3511 :TEST:306 DIV 0 52525 / 2-(4) = 25252 REM = 1 PS = 0
3512 :*****
3513
3514 016134 010701 TST306: SCOPE
3515 016136 012700 000000 MOV #0,%0 ;LOAD HIGH ORDER WITH 0
3516 016142 012701 052525 MOV #52525,%0+1 ;LOAD LOW ORDER WITH 52525
3517 016146 071054 DIV 2-(4),%0 ;DIVIDE BY 2-(4)
3519 016150 106737 000002 MFPS 2#PSWORD ;SAVE PS
3519
3520 016154 122737 000000 000002 CMPB #0,2#PSWORD ;IS PS = 0
3521 016162 001403 BEQ .+10
3522 016164 004767 000216 JSR PC,$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
3523 ;PS IS WRONG
3524 016170 000436 436
3525
3526 016172 022700 025252 CMP #25252,%0 ;IS QUOTIENT = 25252
3527 016176 001403 BEQ .+10
3528 016200 004767 000202 JSR PC,$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
3529 ;QUOTIENT IS WRONG
3530 016204 000437 437
3531
3532 016206 022701 000001 CMP #1,%0+1 ;IS REMAINDER = 1
3533 016212 001403 BEQ .+10
3534 016214 004767 000166 JSR PC,$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
3535 ;WRONG REMAINDER
3536 016220 000440 440
3537 016222 021527 000306 CMP (R5),#306
3538 016226 001403 BEQ .+10 ;IF IN WRONG SEQUENCE GO TO THE HLT
3539 016230 004767 000152 JSR PC,$HLT ;SEEN AN ERROR, GO TO TH HALT ROUTINE
3540 ;TEST IS IN WRONG SEQUENCE
3541 016234 000441 441
3542 016236 005215 INC (R5)
3543
    
```

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3544 ;*****
3545
3546 .SBTTL END OF PASS ROUTINE
3547
3548 ;*INCREMENT THE PASS NUMBER ($PASS)
3549 ;*TYPE "END PASS"
3550 ;*IF THERES A MONITOR GO TO IT
3551 ;*IF THERE ISN'T JUMP TO BEGIN
3552 ;*IF IT IS DESIRED TO HAVE A BELL INDICATE THE "END OF PASS" LOCATION
3553 ;*SENDMG CAN BE CHANGED TO 7.
3554
3555 $EOP:
3556 016240 010701 SCOPE
3557 016240 005267 000070 INC $PASS ;; INCF _MENT THE PASS NUMBER
3558 016246 042767 100000 000062 BIC #100000,$PASS ;; DON'T ALLOW A NEG. NUMBER
3559 016254 005327 DEC (PC)+ ;; LOOP?
3560 016256 000001 $EOPCT: .WORD 1
3561 016260 003024 BGT $DOAGN ;; YES
3562 016262 012737 MOV (PC)+,2(PC)+ ;; RESTORE COUNTER
3563 016264 000001 $ENDCT: .WORD 1
3564 016266 016256 $EOPCT
3565 016270 000004 016340 TYPE $SENDMG ;; TYPE "END PASS"
3566 016274 013700 000042 $GET42: MOV 2#42,RO ;; GET MONITOR ADDRESS
3567 016300 001414 BEQ $DOAGN ;; BRANCH IF NO MONITOR
3568 016302 022700 016322 CMP #SENDAD,RO ;; IS MONITOR ACT11?
3569 016306 001005 BNE $ENDAD ;; NO--BRANCH
3570 016310 022760 177777 000002 CMP #-1,2(RO) ;; YES--IS THIS THE LAST PASS?
3571 016316 001005 BNE $DOAGN ;; NO--MAKE ANOTHER PASS
3572 016320 000005 RESET ;; CLEAR THE WORLD
3573 016322 004710 $ENDAD: JSR PC,(RO) ;; GO TO MONITOR
3574 016324 000240 NOP ;; SAVE ROOM
3575 016326 000240 NOP ;; FOR
3576 016330 000240 NOP ;; ACT11
3577 016332 000137 000600 $DOAGN: JMP 2#BEGIN ;; RETURN
3578 016336 000000 $PASS: .WORD 0 ;; NUMBER OF PASSES
3579 016340 0J5015 047105 020104 $SENDMG: .ASCII <15><12>/END PASS/
3580 016346 040520 051523
3581 016352 377 377 000 $ENULL: .BYTE -1,-1,0 ;; NULL CHARACTER STRING
3582 016356 .EVEN
3583
3584 016264 000400 $ENDCT: 400
3585
3586 ;*****
3587
3588 .SBTTL POWER FAIL ROUTINE
3589
3590
3591 016353 012737 016366 000024 $PWRDN: MOV #SPWRUP,2#24
3592 016364 000000 HALT
3593
3594 016366 012706 000600 $PWRUP: MOV #BEGIN,SP ;; RESTORE THE SP
3595 016372 012737 016356 000024 MOV #SPWRDN,2#24
3596 016400 06J004 000072 TYPE POWER ;; GO AND TYPE "POWER"
3597 016404 000752 BR $DOAGN

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U 3606 016406 017637 000000 000000 $HLT: MOV 2(SP), 2*$FATAL ;PLACE THE ERROR NUMBER AT LOCATION $FATAL
3607 016414 032777 020000 161430 BIT #20000, 2$SWR ;HAS THE OPERATOR ASKED TO SUPRESS ERROR TYPE CUTS
3608 016422 001046 BNE 6$
3609 016424 000004 000064 TYPE $SCLF ;GO AND TYPE A CR, LF, FOLLOWED BY 3 SPACES
3610 016430 010046 MOV RO, -(SP) ;SAVE RO
3611 016432 112767 000002 161361 MOVB #2, $TPCNT ;ALLOW TYPE OUTS OF PC AND ERROR NUMBER
3612 016440 016600 000002 MOV 2(SP), RO ;BRING THE RETURN PC IN RO
3613 016444 162700 000004 SUB #4, RO
3614 016450 112737 000006 000020 2$: MOVB #6, 2*$TPCNT ;ALLOW TYPE OUT OF 6 DIGITS
3615 016456 005046 CLR -(SP)
3616 016460 000241 4$: CLC
3617 016462 006100 ROL RO
3618 016464 006116 ROL (SP) ;BRING THE C BIT FROM RO IN (SP)
3619 016466 052716 000060 BIS #60, (SP) ;PREPARE TO TYPE IT OUT
3620 016472 004767 000130 JSR PC, $TPCHR ;AND GO TO OUT PUT A CHARACTER
3621 016476 005016 CLR (SP)
3622 016500 006100 ROL RO
3623 016502 006116 ROL (SP)
3624 016504 006100 ROL RO
3625 016506 006116 ROL (SP)
3626 016510 105367 161304 DECB TPCNT ;HAS ALL THE SIX CHARACTERS BEEN TYPED ?
3627 016514 001361 BNE 4$ ;IF NOT THEN REPEAT FROM 4$
3628 016516 005726 TST (SP)+ ;RESTORE STACK POINTER
3629 016520 017600 000002 MOV 2(SP), RO ;PREPARE TO OUT PUT THE ERROR NUMBER
3630 016524 000004 000066 TYPE $SCLF+2 ;GO AND TYPE 3 SPACES
3631 016530 105367 161265 DECB $TPCNT ;IF BOTH PC AND ERROR NUMBER HAS NOT BEEN
3632 016534 001345 BNE 2$ ;REPORTED THEN REPEAT FROM 2$
3633 016536 012600 MOV (SP)+, RO ;RESTORE RO
U 3634 016540 105767 161234 6$: TSTB $ENV ;IF WE ARE NOT UNDER APT. THEN GO TO
3635 016544 001403 BEQ 8$ ;8$
U 3636 016546 005237 000000 INC 2*$MSGTY ;OTHERWISE INFORM APT. ABOUT SEEING THE ERROR
3637 016552 000777 BR ;AND LOOP
3638 016554 005777 161272 8$: TST 2$SWR ;IS IT REQUIRED TO HALT ON ERROR ?
3639 016560 100001 BPL 10$ ;IF NOT THEN GO TO 10$
3640 016562 000000 HALT
3641 016564 062716 000002 10$: ADD #2, (SP) ;ADJUST THE RETURN ADDRESS
3642 016570 000207 RTS PC ;AND RETURN
    
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3643
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3651 016572 010046
3652 016574 017600 000002
3653 016600 112046
3654 016602 001005
3655 016604 005726
3656 016606 012600
3657 016610 062716 000002
3658 016614 000002
3659
3660 016616 004767 000004
3661 016622 005726
3662 016624 000765
3663
U 3664 016626 132737 000040 000000 $TPCHR: BITB #40,2*$ENVM
3665 016634 001006 BNE 4$
3666 016636 105777 161220 2$: TSTB 2$TPS
3667 016642 100375 BPL 2$
3668 016644 115677 000002 161206 MOVB 2(SP),2$TPB
3669 016652 000207 4$: RTS PC
3670 000001 .END
    
```

```

;*      TYPE OUT ROUTINE
;*      -----
;*
;*      THIS ROUTINE IS USED TO TYPE ASCIZ MESSAGES
;*
$TYPE:  MOV    RO, -(SP)      ;SAVE RO
        MOV    22(SP),RO     ;GET THE ADDRESS OF THE ASSCIZ STRING
2$:     MOVB   (RO)+, -(SP)   ;PUSH THE CHARACTER TO BE TYPED ONTO STACK
        BNE    4$            ;BRANCH IF IT IS NOT THE TERMINATOR
        TST   (SP)+
        MOV    (SP)+,RO      ;OTHERWISE RESTORE THE STACK AND RO
3$:     ADD    #2,(SP)       ;ADJUST THE RETURN PC
        RTI
        ;AND RETURN
4$:     JSR    PC,$TPCHR     ;GO TO TYPE A CHARACTER
        TST   (SP)+
        BR    2$            ;RESTORE THE STACK POINTER
        ;AND RETURN TO 2$
$TPCHR: BITB   #40,2*$ENVM   ;HAS THE CONSOLE OUTPUTS BEEN SUPPRESSED?
        BNE   4$            ;IF SO THEN RETURN FROM THE SUBROUTINE VIA 4$
2$:     TSTB  2$TPS         ;IS THE PRINTER AVAILABLE?
        BPL   2$            ;IF NOT THEN LOOP HERE
        MOVB  2(SP),2$TPB   ;OUT PUT THE CHARACTER
4$:     RTS    PC
.END
    
```

M08

A	= 016356	3584#	3585											
BEGIN	000600	415	419#	422	3577	3594								
COUNT	000000	363#	364	420*	462*	469	497*	504	531*	538	565*	572	600*	608
		636*	643	992*	1017*	1030	1062*	1074	1107*	1119				
DISPLA	000054	392#												
DISPRE	000174	409#												
DUMMY	= 000000	339#	1243	1271	1300	1329	1357	1386	1415					
ENDCT	016264	3584#												
ENT176	005016	1223	1230#											
ENT51	002410	716	720#											
ERRNM	= 000442	340#	459	462#	466	469#	494	497#	501	504#	528	531#	535	539#
		562	565#	569	572#	597	600#	604	607#	633	536#	640	643#	722
		725#	740	743#	746	749#	765	768#	771	774#	790	793#	796	799#
		815	818#	821	824#	840	843#	846	849#	865	868#	871	874#	890
		893#	896	899#	915	918#	921	924#	940	943#	946	949#	965	968#
		971	974#	1014	1017#	1020	1023#	1026	1029#	1032	1035#	1059	1062#	1065
		1068#	1071	1074#	1076	1079#	1104	1107#	1110	1113#	1116	1119#	1121	1124#
		1232	1235#	1250	1253#	1255	1258#	1260	1263#	1278	1281#	1283	1286#	1288
		1291#	1307	1310#	1312	1315#	1318	1321#	1336	1339#	1341	1344#	1346	1349#
		1364	1367#	1369	1372#	1374	1377#	1393	1396#	1398	1401#	1404	1407#	1422
		1425#	1427	1430#	1432	1435#	1450	1453#	1455	1458#	1460	1463#	1465	1468#
		1488	1491#	1493	1496#	1499	1502#	1519	1522#	1524	1527#	1530	1533#	1550
		1553#	1555	1558#	1561	1564#	1581	1584#	1586	1589#	1592	1595#	1612	1615#
		1617	1620#	1623	1626#	1643	1646#	1648	1651#	1654	1657#	1674	1677#	1679
		1682#	1685	1688#	1705	1708#	1710	1713#	1716	1719#	1736	1739#	1741	1744#
		1747	1750#	1767	1770#	1772	1775#	1778	1781#	1810	1813#	1815	1818#	1821
		1824#	1839	1842#	1844	1847#	1850	1853#	1868	1871#	1873	1876#	1879	1882#
		1898	1901#	1903	1906#	1909	1912#	1928	1931#	1933	1936#	1939	1942#	1957
		1960#	1962	1965#	1968	1971#	1987	1990#	1992	1995#	1998	2001#	2017	2020#
		2022	2025#	2028	2031#	2046	2049#	2051	2054#	2057	2060#	2075	2079#	2080
		2083#	2086	2089#	2105	2108#	2110	2113#	2116	2119#	2135	2138#	2140	2143#
		2146	2149#	2164	2167#	2169	2172#	2175	2178#	2193	2196#	2198	2201#	2204#
		2207#	2223	2226#	2228	2231#	2234	2237#	2253	2256#	2258	2261#	2264	2267#
		2282	2285#	2287	2290#	2293	2296#	2312	2315#	2317	2320#	2323	2326#	2346
		2349#	2351	2354#	2357	2360#	2375	2378#	2380	2383#	2386	2389#	2404	2407#
		2409	2412#	2415	2418#	2433	2436#	2438	2441#	2444	2447#	2462	2465#	2467
		2470#	2473	2476#	2491	2494#	2496	2499#	2502	2505#	2520	2523#	2525	2528#
		2531	2534#	2549	2552#	2554	2557#	2560	2563#	2578	2581#	2583	2596#	2589
		2592#	2607	2610#	2612	2615#	2618	2621#	2644	2647#	2650	2653#	2656	2659#
		2661	2664#	2678	2681#	2684	2687#	2690	2693#	2695	2698#	2713	2716#	2719
		2722#	2725	2728#	2731	2734#	2748	2751#	2754	2757#	2760	2763#	2765	2768#
		2782	2785#	2788	2791#	2794	2797#	2799	2802#	2817	2820#	2823	2826#	2829
		2832#	2835	2838#	2852	2855#	2858	2861#	2864	2867#	2869	2872#	2886	2889#
		2892	2895#	2898	2901#	2903	2906#	2920	2923#	2926	2929#	2932	2935#	2937
		2940#	2955	2958#	2961	2964#	2967	2970#	2973	2976#	2990	2993#	2996	2999#
		3002	3005#	3007	3010#	3024	3027#	3030	3033#	3036	3039#	3041	3044#	3059
		3062#	3065	3068#	3071	3074#	3077	3080#	3094	3097#	3100	3103#	3106	3109#
		3111	3114#	3128	3131#	3134	3137#	3140	3143#	3145	3148#	3164	3167#	3171
		3174#	3189	3192#	3195	3198#	3216	3219#	3222	3225#	3228	3231#	3233	3236#
		3250	3253#	3256	3259#	3262	3265#	3267	3270#	3284	3287#	3290	3293#	3296
		3299#	3301	3304#	3318	3321#	3324	3327#	3330	3333#	3335	3338#	3352	3355#
		3358	3361#	3364	3367#	3369	3372#	3386	3389#	3392	3395#	3398	3401#	3403
		3406#	3420	3423#	3426	3429#	3432	3435#	3437	3440#	3454	3457#	3460	3463#
		3466	3469#	3471	3474#	3488	3491#	3494	3497#	3500	3503#	3505	3508#	3522
		3525#	3528	3531#	3534	3537#	3539	3542#						
F	= 000063	341#	730	755#	780#	805#	830#	855#	880#	905#	930#	955#	990#	

TST220	007246	1904#
TST221	007342	1833#
TST222	007436	1862#
TST223	007532	1891#
TST224	007632	1922#
TST225	007726	1951#
TST226	010022	1980#
TST227	010122	2011#
TST228	010216	2040#
TST229	010312	2069#
TST230	010406	2098#
TST231	010506	2129#
TST232	010602	2158#
TST233	010676	2187#
TST234	010772	2216#
TST235	011072	2247#
TST236	011166	2276#
TST237	011262	2305#
TST238	011376	2340#
TST239	011472	2369#
TST240	011566	2398#
TST241	011662	2427#
TST242	011754	2456#
TST243	012046	2485#
TST244	012140	2514#
TST245	012234	2543#
TST246	012330	2572#
TST247	012422	2601#
TST248	012514	2636#
TST249	012622	2670#
TST250	012730	2704#
TST251	013042	2740#
TST252	013150	2774#
TST253	013256	2808#
TST254	013370	2844#
TST255	013476	2878#
TST256	013604	2912#
TST257	013712	2946#
TST258	014024	2982#
TST259	014132	3016#
TST260	014240	3050#
TST261	014352	3086#
TST262	014460	3120#
TST263	014566	3154#
TST264	014656	3180#
TST265	014756	3208#
TST266	015064	3242#
TST267	015172	3276#
TST268	015300	3310#
TST269	015404	3344#
TST270	015510	3378#
TST271	015614	3412#
TST272	015722	3446#
TST273	016030	3480#
TST274	016134	3514#
TST275	002036	482

TST40	002072	663	669#											
TST41	002106	670	673#											
TST42	002124	674	677#											
TST43	002160	678	684#											
TST44	002212	685	690#											
TST45	002244	691	696#											
TST46	002276	697	702#											
TST47	002334	703	709#											
TST50	002364	710	715#											
TST51	002442	734#												
TST52	002522	759#												
TST53	002602	784#												
TST54	002662	809#												
TST55	002740	834#												
TST56	003016	859#												
TST57	003074	884#												
TST60	003154	909#												
TST61	003234	934#												
TST62	003312	959#												
TTYOUT	000056	393#												
TYPCNT	000020	377#	3614*	3626*										
TYPE =	000004	352#	3565	3596	3609	3630								
SAPTHD =	***** U	362												
SCRLF	000064	396#	3609	3630										
SDEVCT =	***** U	411												
SDDAGN	016332	3561	3567	3571	3577#	3597								
SENDAD	016322	3568	3569	3573#										
SENDOCT	016264	3563#	3584											
SENDMG	016340	3565	3579#											
SENULL	016352	3581#												
SENV =	***** U	425	3634											
SEVM =	***** U	3664												
SEOP	016240	3555#												
SEOPCT	016256	3560#	3564											
SFATAL =	***** U	3606#												
SGE742	016274	3566#												
SHD =	000003	326	327											
SHLT	016406	459	466	494	501	528	535	562	569	597	604	633	640	723
		740	746	765	771	790	796	815	821	840	846	865	871	890
		896	915	921	940	946	965	971	1014	1020	1026	1032	1059	1065
		1071	1076	1104	1110	1116	1121	1232	1250	1255	1260	1278	1283	1289
		1307	1312	1318	1336	1341	1346	1364	1369	1374	1393	1398	1404	1420
		1427	1432	1450	1455	1460	1465	1488	1493	1499	1519	1524	1530	1550
		1555	1561	1581	1586	1592	1612	1617	1623	1642	1648	1654	1674	1679
		1685	1705	1710	1716	1736	1741	1747	1767	1772	1779	1810	1815	1821
		1839	1844	1850	1868	1873	1879	1898	1903	1909	1929	1932	1939	1955
		1962	1968	1987	1992	1998	2017	2022	2028	2046	2051	2057	2075	2080
		2086	2105	2110	2116	2135	2140	2146	2164	2169	2175	2192	2198	2204
		2223	2228	2234	2253	2258	2264	2282	2287	2293	2312	2317	2323	2330
		2351	2357	2375	2380	2386	2404	2409	2415	2422	2438	2444	2462	2467
		2473	2491	2496	2502	2520	2525	2531	2549	2554	2560	2578	2583	2588
		2607	2612	2618	2644	2650	2656	2661	2678	2684	2690	2695	2713	2718
		2725	2731	2748	2754	2760	2765	2782	2788	2794	2799	2811	2823	2828
		2835	2852	2858	2864	2869	2886	2892	2898	2903	2920	2926	2932	2937
		2955	2961	2967	2973	2990	2996	3002	3007	3024	3030	3036	3041	3046
		3065	3071	3077	3094	3100	3106	3111	3128	3134	3140	3145	3154	3161

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 DFKACH.P11 CROSS REFERENCE TABLE -- USER SYMBOLS

	3189	3195	3216	3222	3228	3233	3250	3256	3262	3267	3284	3290	3296
	3301	3318	3324	3330	3335	3352	3358	3364	3369	3386	3392	3398	3403
	3420	3426	3432	3437	3454	3460	3466	3471	3488	3494	3500	3505	3522
	3528	3534	3539	3606*									
	412												
SMAIL = ***** U	3625*												
SMSGTY = ***** U	449	485	519	553	588	624	1005	1050	1095	3557*	3558*	3578*	
SPASS 016336	410	3591*	3595										
SPWRDN 016356	3591	3594*											
SPWRUP 016366	400*	3557											
SSETUP = 00002C	400*												
SSTUP = 177777	326	327*	3550	3557	3566	3579							
SSWR = 160000	427												
SSWREG = ***** U	419												
STESTN = ***** U	326*												
STN = 000001	394*	3668*											
STPB 000060	3620	3660	3664*										
STPCHR 016626	378*	3611*	3631*										
STPCNT 000021	395*	3666											
STPS 000062	356	3651*											
TYPE = 016572	333*	336	355*	357*	362*	364*	366*	368*	370*	372*	374*	409*	417*
= 016654	458	464	493	499	527	533	561	567	596	602	632	638	721
	739	744	764	769	789	794	814	819	839	844	864	869	889
	894	914	919	939	944	964	969	1013	1019	1024	1031	1058	1064
	1069	1075	1103	1109	1114	1120	1231	1249	1254	1259	1277	1283	1287
	1306	1311	1317	1335	1340	1345	1363	1368	1373	1392	1397	1403	1421
	1426	1431	1449	1454	1459	1464	1487	1492	1497	1518	1523	1528	1549
	1554	1559	1580	1585	1590	1611	1616	1621	1642	1647	1652	1673	1678
	1683	1704	1709	1714	1735	1740	1745	1766	1771	1776	1809	1814	1819
	1838	1843	1848	1867	1872	1877	1897	1902	1907	1927	1932	1937	1956
	1961	1966	1986	1991	1996	2016	2021	2026	2045	2050	2055	2074	2079
	2084	2104	2109	2114	2134	2139	2144	2163	2168	2173	2192	2197	2202
	2222	2227	2232	2252	2257	2262	2281	2286	2291	2311	2316	2321	2345
	2350	2355	2374	2379	2384	2403	2408	2413	2432	2437	2442	2461	2456
	2471	2490	2495	2500	2519	2524	2529	2548	2553	2558	2577	2582	2587
	2606	2611	2616	2643	2649	2655	2660	2677	2683	2689	2694	2712	2718
	2724	2730	2747	2753	2759	2764	2781	2787	2793	2798	2816	2822	2828
	2834	2851	2857	2863	2868	2885	2891	2897	2902	2919	2925	2931	2936
	2954	2960	2966	2972	2989	2995	3001	3006	3023	3029	3035	3040	3058
	3064	3070	3076	3093	3099	3105	3110	3127	3133	3139	3144	3163	3170
	3188	3194	3215	3221	3227	3232	3249	3255	3261	3266	3283	3289	3295
	3300	3317	3323	3329	3334	3351	3357	3363	3368	3385	3391	3397	3403
	3419	3425	3431	3436	3453	3459	3465	3470	3487	3493	3504	3505	3522
	3527	3533	3538	3578	3583*	3584*	3585*	3637					

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DFKACA.P11 CROSS REFERENCE TABLE -- MACRO NAMES

.SEOP 314# 3544

ADD	3641	3657													
ASH	453	455	489	490	522	524	556	558	591	593	627	629	736	761	786
ASHC	911	836	861	886	911	936	961								
AS	1008	1010	1053	1055	1098	1100	1246	1274	1303	1332	1360	1389	1418	1446	1484
BEQ	1515	1546	1577	1608	1639	1670	1701	1732	1763						
	478	512	546	580	616	652									
	426	458	464	493	499	527	533	561	567	596	602	632	638	654	721
	739	744	764	769	789	794	814	819	839	844	864	869	889	894	914
	919	939	944	964	969	1013	1019	1024	1031	1058	1064	1069	1075	1103	1109
	1114	1120	1231	1249	1254	1259	1277	1282	1287	1306	1311	1317	1335	1340	1345
	1363	1368	1373	1392	1397	1403	1421	1426	1431	1449	1454	1459	1464	1487	1492
	1497	1518	1523	1528	1549	1554	1559	1580	1585	1590	1611	1616	1621	1642	1647
	1652	1673	1678	1683	1704	1709	1714	1735	1740	1745	1766	1771	1776	1809	1814
	1819	1838	1843	1848	1867	1872	1877	1897	1902	1907	1927	1932	1937	1956	1961
	1966	1986	1991	1996	2016	2021	2026	2045	2050	2055	2074	2079	2084	2104	2109
	2114	2134	2139	2144	2163	2168	2173	2192	2197	2202	2222	2227	2232	2252	2257
	2262	2281	2286	2291	2311	2316	2321	2345	2350	2355	2374	2379	2384	2403	2408
	2413	2432	2437	2442	2461	2466	2471	2490	2495	2500	2519	2524	2529	2548	2553
	2558	2577	2582	2587	2606	2611	2616	2643	2649	2655	2660	2677	2683	2689	2694
	2712	2718	2724	2730	2747	2753	2759	2764	2781	2787	2793	2798	2816	2822	2828
	2834	2851	2857	2863	2868	2885	2891	2897	2902	2919	2925	2931	2936	2954	2960
	2966	2972	2989	2995	3001	3006	3023	3029	3035	3040	3058	3064	3070	3076	3093
	3099	3105	3110	3127	3133	3139	3144	3163	3170	3188	3194	3215	3221	3227	3232
	3249	3255	3261	3266	3283	3289	3295	3300	3317	3323	3329	3334	3351	3357	3363
	3368	3385	3391	3397	3402	3419	3425	3431	3436	3453	3459	3465	3470	3487	3493
	3499	3504	3521	3527	3533	3538	3567	3635							
BGE	476	510	544	578	614	650	1037	1081	1127						
BGT	3561														
BYC	3160	3185	3558												
BYS	3619														
BIT	449	485	519	553	588	624	1005	1050	1099	3607					
BITB	425	3664													
BNE	414	450	471	480	486	505	514	520	539	548	554	573	582	589	609
	618	625	644	663	670	674	678	685	691	697	703	710	716	750	775
	800	825	850	875	900	925	950	975	1006	1043	1051	1087	1096	1133	1145
	1151	1155	1159	1167	1174	1179	1185	1193	1198	1204	1209	1216	1223	1503	1534
	1565	1596	1627	1658	1689	1720	1751	1782	1825	1854	1883	1913	1943	1972	2002
	2032	2061	2090	2120	2150	2179	2208	2238	2268	2297	2327	2361	2390	2419	2448
	2477	2506	2535	2564	2593	2622	3569	3571	3608	3627	3632	3654	3665		
BPL	3639	3667													
BR	454	489	523	557	583	592	619	628	655	1009	1054	1099	3597	3637	3662
CLC	1004	1039	1049	1083	1094	1129	1245	1273	1302	1331	1359	1388	1417	1445	1483
	1514	1545	1576	1607	1638	1669	1700	1731	1762	3616					
CLR	412	420	429	431	664	666	671	706	993	995	996	998	1139	1141	1146
	1147	1162	1164	1186	1189	1201	1219	1225	1227	3615	3621				
CMP	413	463	469	474	479	498	504	508	513	532	538	542	547	556	572
	576	581	601	608	612	617	637	643	648	653	662	669	673	677	684
	690	696	702	709	715	720	743	749	768	774	793	799	818	824	843
	849	868	874	893	899	918	924	943	949	968	974	1018	1023	1030	1036
	1042	1063	1068	1074	1080	1086	1108	1113	1119	1126	1132	1137	1144	1150	1154
	1158	1166	1173	1178	1184	1192	1197	1203	1208	1215	1222	1230	1253	1258	1281
	1286	1310	1316	1339	1344	1367	1372	1396	1402	1425	1430	1453	1458	1463	1491
	1496	1502	1522	1527	1533	1553	1558	1564	1584	1589	1595	1615	1620	1626	1646
	1651	1657	1677	1692	1688	1708	1713	1719	1739	1744	1750	1770	1775	1781	1813
	1818	1824	1842	1847	1853	1871	1876	1882	1901	1906	1912	1931	1936	1942	1960
	1965	1971	1990	1995	2001	2020	2025	2031	2049	2054	2060	2078	2083	2089	2108

	2113	2119	2138	2143	2149	2167	2172	2178	2196	2201	2207	2226	2231	2237	2256
	2261	2267	2285	2290	2296	2315	2320	2326	2349	2354	2360	2378	2383	2389	2407
	2412	2418	2436	2441	2447	2465	2470	2476	2494	2499	2505	2523	2528	2534	2552
	2557	2563	2581	2586	2592	2610	2615	2621	2648	2654	2659	2682	2688	2693	2717
	2723	2729	2752	2758	2763	2786	2792	2797	2821	2827	2833	2856	2862	2867	2890
	2896	2901	2924	2930	2935	2959	2965	2971	2994	3000	3005	3028	3034	3039	3053
	3069	3075	3098	3104	3109	3132	3138	3143	3169	3193	3220	3226	3231	3254	3260
	3265	3288	3294	3299	3322	3328	3333	3356	3362	3367	3340	3396	3401	3424	3430
	3435	3458	3464	3469	3492	3498	3503	3526	3532	3537	3568	3570			
CMPB	457	492	526	560	595	631	738	763	788	813	838	863	888	913	938
	963	1012	1057	1102	1248	1276	1305	1334	1362	1391	1420	1448	1486	1517	1548
	1579	1610	1641	1672	1703	1734	1765	1808	1837	1866	1896	1926	1955	1985	2015
	2044	2073	2103	2133	2162	2191	2221	2251	2280	2310	2344	2373	2402	2431	2460
	2489	2518	2547	2576	2605	2642	2676	2711	2746	2780	2815	2850	2884	2918	2953
	2988	3022	3057	3092	3126	3162	3187	3214	3248	3282	3316	3350	3384	3418	3452
	3486	3520													
DEC	681	711	1169	1187	1199	1211	1218	3559							
DECB	3626	3631													
DIV	2639	2673	2708	2743	2777	2812	2847	2881	2915	2950	2985	3019	3054	3089	3123
	3158	3183	3211	3245	3279	3313	3347	3381	3415	3449	3483	3517			
HALT	336	3592	3640												
INC	462	472	477	497	506	511	531	540	545	565	574	579	600	610	615
	636	646	651	680	751	776	801	826	851	876	901	926	951	976	1017
	1035	1038	1062	1079	1082	1107	1125	1128	1142	1182	1190	1206	1226	1263	1291
	1321	1349	1377	1407	1435	1468	1504	1535	1566	1597	1628	1659	1690	1721	1752
	1783	1826	1855	1884	1915	1944	1973	2004	2033	2062	2091	2122	2151	2180	2209
	2240	2269	2298	2329	2362	2391	2420	2449	2478	2507	2536	2565	2594	2623	2664
	2698	2734	2768	2802	2838	2872	2906	2940	2976	3010	3044	3080	3114	3148	3174
	3198	3236	3270	3304	3338	3372	3406	3440	3474	3508	3542	3577	3636		
ICT	352														
JMP	415	481	515	549	657	661	1136	3577							
JSR	459	466	482	494	501	516	528	535	550	562	569	584	597	604	620
	633	640	656	722	740	746	765	771	790	796	815	821	840	846	865
	871	890	896	915	921	940	946	965	971	1014	1020	1026	1032	1044	1045
	1059	1065	1071	1076	1088	1089	1104	1110	1116	1121	1134	1135	1232	1250	1255
	1260	1278	1283	1288	1307	1312	1318	1336	1341	1346	1369	1374	1393	1398	1398
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	1555	1561	1581	1586	1592	1612	1617	1623	1643	1648	1654	1674	1679	1685	1705
	1710	1716	1736	1741	1747	1767	1772	1778	1810	1815	1821	1839	1844	1850	1868
	1873	1879	1898	1903	1909	1928	1933	1939	1957	1962	1968	1987	1992	1998	2017
	2022	2028	2046	2051	2057	2075	2080	2086	2105	2110	2116	2135	2140	2146	2164
	2169	2175	2193	2198	2204	2223	2228	2234	2253	2258	2264	2282	2287	2293	2312
	2317	2323	2346	2351	2357	2375	2380	2386	2404	2409	2415	2433	2438	2444	2462
	2467	2473	2491	2496	2502	2520	2525	2531	2549	2554	2560	2578	2583	2589	2607
	2612	2618	2644	2650	2656	2661	2678	2684	2690	2695	2713	2719	2725	2731	2748
	2754	2760	2765	2782	2788	2794	2799	2817	2823	2829	2835	2852	2858	2864	2869
	2886	2892	2898	2903	2920	2926	2932	2937	2955	2961	2967	2973	2990	2996	3002
	3007	3024	3030	3036	3041	3059	3065	3071	3077	3094	3100	3106	3111	3128	3134
	3140	3145	3164	3171	3189	3195	3216	3222	3228	3233	3250	3256	3262	3267	3284
	3290	3296	3301	3318	3324	3330	3335	3352	3358	3364	3369	3386	3392	3398	3403
	3420	3426	3432	3437	3454	3460	3466	3471	3488	3494	3500	3505	3522	3528	3534
	3539	3573	3620	3650											
MFPS	456	491	525	559	594	630	737	762	787	812	837	862	887	912	937
	962	1011	1056	1101	1247	1275	1304	1333	1361	1390	1419	1447	1485	1516	1547
	1578	1609	1640	1671	1702	1733	1764	1807	1836	1865	1895	1925	1954	1994	2014
	2043	2072	2102	2132	2161	2190	2220	2250	2279	2309	2343	2372	2401	2430	2459

	2488	2517	2546	2575	2604	2640	2674	2709	2744	2779	2813	2848	2882	2916	2951
	2986	3020	3055	3090	3124	3159	3184	3212	3246	3280	3314	3348	3382	3416	3450
	3484	3518													
MOV	410	411	419	421	422	427	428	430	448	451	484	487	518	521	552
	555	586	587	590	607	622	623	626	645	658	659	660	665	667	675
	679	682	686	687	688	692	693	694	698	699	700	704	705	707	712
	713	717	718	727	728	729	735	760	785	810	835	860	885	910	935
	960	992	994	997	1001	1002	1003	1007	1029	1047	1048	1052	1091	1092	1093
	1097	1124	1138	1140	1148	1152	1156	1160	1161	1163	1168	1170	1171	1175	1176
	1180	1181	1188	1194	1195	1200	1205	1210	1212	1213	1217	1220	1224	1228	1243
	1244	1271	1272	1299	1300	1301	1315	1329	1330	1357	1358	1385	1386	1387	1401
	1415	1416	1443	1444	1472	1473	1474	1481	1482	1512	1513	1543	1544	1574	1575
	1605	1606	1636	1637	1667	1668	1698	1699	1729	1730	1760	1761	1805	1834	1863
	1892	1893	1914	1923	1952	1981	1982	2003	2012	2041	2070	2099	2100	2121	2130
	2159	2188	2217	2218	2239	2249	2277	2306	2307	2328	2332	2333	2334	2341	2370
	2399	2428	2457	2486	2515	2544	2573	2602	2637	2638	2671	2672	2705	2706	2707
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	2947	2948	2949	2970	2983	2984	3017	3018	3051	3052	3053	3074	3087	3088	3121
	3122	3155	3156	3157	3168	3181	3182	3200	3201	3202	3209	3210	3243	3244	3277
	3278	3311	3312	3345	3346	3379	3380	3413	3414	3447	3448	3481	3482	3515	3516
	3562	3566	3591	3594	3595	3606	3610	3612	3629	3633	3651	3652	3656		
MOV8	3611	3614	3653	3668											
MTPS	424														
MUL	1806	1835	1864	1894	1924	1953	1983	2013	2042	2071	2101	2131	2160	2189	2219
	2249	2278	2308	2342	2371	2400	2429	2458	2487	2516	2545	2574	2603		
NOP	3574	3575	3576												
RESET	3572														
ROL	1040	1041	1084	1085	1130	1131	3617	3618	3622	3623	3624	3625			
RTI	3658														
RTS	668	672	676	683	689	695	701	708	714	719	1143	1149	1153	1157	1165
	1172	1177	1183	1191	1196	1202	1207	1214	1221	1229	3642	3669			
SUB	3613														
TST	726	1236	3628	3638	3655	3661									
TSTB	3634	3666													
.ABS	311														
.ASCII	3579														
.ASCIZ	396	397													
.BYTE	377	378	3581												
.END	3670														
.ENDC	321	332	336	400	730	735	749	750	751	755	760	774	775	776	780
	785	799	800	801	805	810	824	825	826	830	835	849	850	851	855
	860	874	875	876	880	885	899	900	901	905	910	924	925	926	930
	935	949	950	951	955	960	974	975	976	1238	1243	1258	1266	1271	1286
	1294	1300	1315	1316	1324	1329	1344	1352	1357	1372	1380	1386	1401	1402	1410
	1415	1430	438	1443	1463	1476	1481	1502	1503	1504	1507	1512	1533	1534	1535
	1538	1543	1564	1565	1566	1569	1574	1595	1596	1597	1600	1605	1626	1627	1628
	1631	1636	1657	1658	1659	1662	1667	1688	1689	1690	1693	1698	1719	1720	1721
	1724	1729	1750	1751	1752	1755	1760	1781	1782	1783	1805	1824	1825	1826	1834
	1853	1854	1855	1863	1882	1883	1884	1893	1913	1915	1923	1942	1943	1944	1952
	1971	1972	1973	1982	2002	2004	2012	2031	2032	2033	2041	2060	2061	2062	2070
	2089	2090	2091	2100	2120	2122	2130	2149	2150	2151	2159	2178	2179	2180	2189
	2207	2208	2209	2218	2238	2240	2248	2267	2268	2269	2277	2296	2297	2298	2307
	2327	2329	2341	2360	2361	2362	2370	2389	2390	2391	2399	2418	2419	2420	2428
	2447	2448	2449	2457	2476	2477	2478	2486	2505	2506	2507	2515	2534	2535	2536
	2544	2563	2564	2565	2573	2592	2593	2594	2602	2621	2622	2623	2637	2641	2659
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