

PDP11

ASH
MD-11-DCKBI-B

EP-DCKBI-B-DL-A

NOV 1976

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FICHE 1 OF 1

MADE IN USA

					
					
					
					
					
					
					
					
					
					
					
					
					

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.REM %

IDENTIFICATION

PRODUCT CODE: MAINDEC-11-DCKBI-B-D
PRODUCT NAME: ASH INSTRUCTION TEST
DATE RELEASED: OCTOBER, 1976
MAINTAINER: DIAGNOSTIC GROUP

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1.0 ABSTRACT

THIS PROGRAM WILL INCREMENTLY TEST AND ISOLATE SIMPLE MALFUNCTIONS
RELATED TO THE ASH INSTRUCTION

2.0 REQUIREMENTS

2.1 EQUIPMENT

BASIC 11/45 SYSTEM OR
11/40 WITH KE11-E OPTION

2.2 STORAGE

THIS PROGRAM USES 0 THRU 17500

2.3 PRELIMINARY PROGRAMS

DOAA THRU DOMA

3.0 LOADING PROCEDURE

LOAD PROGRAM USING ABS LOADER

4.0 STARTING PROCEDURE

LOAD ADDRESS 200. PRESS START. THE PROGRAM WILL LOOP AND
RING THE BELL, AND PRINT AN '*', ON PASS COMPLETION.

5.0 OPERATING PROCEDURE

5.1 SWITCH SETTINGS

NONE

5.2 SUBROUTINE ABSTRACTS

5.2.1 SCOPE

SCOPE IS A MOVE PC,R1 AND STORES THE PC+2 IN R1.

5.2.2 HLT

HLT IS A HALT INSTRUCTION.

6.0 ERRORS

ALL ERRORS WILL CAUSE A HALT
TRAP AND INTERRUPT ERRORS WILL CAUSE A HALT AT VECTOR+2.

6.1 ERROR RECOVERY

PRESS CONTINUE TO PROCEED TO NEXT TEST

6.2 ERROR LOOPING

TO LOOP ON AN ERROR, PLACE A BRANCH TO THE PREVIOUS SCOPE
INSTRUCTION IN PLACE OF THE HALT INSTRUCTION.
NOTE THAT IF THE ERROR IS INTERMITTANT THAT THE TEST WILL
DROP THRU THE HALT AND PROCEED TO THE NEXT TEST.
THEREFORE, TO LOOP THE TEST CONTINUOUSLY REPLACE THE BEQ .+4
INSTRUCTION IMMEDIATELY PRECEEDING THE HALT WITH A BRANCH
BACK TO THE PREVIOUS SCOPE.

TO LOOP ON TRAP FAILURES, PATCH IN THE FOLLOWING ROUTINE
AT THE ADDRESS OF THE TRAP VECTOR.

TRAPVEC: TRAPVEC+4
TRAPVEC+2: 0

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TRAPVEC+4: 012716 ;MOVE SCOPE ADDRESS TO STACK
TRAPVEC+6: ADDRESS ;ADDRESS OF PREVIOUS SCOPE
TRAPVEC+10: 000006 ;RETURN TO TEST AT SCOPE

RESTORE ALL LOCATIONS BEFORE PROCEEDING TO NEXT TEST.

7.0 RESTRICTIONS
NONE

8.0 MISCELLANEOUS
ON TRAP ERRORS THE STACK POINTER(R6) WILL CONTAIN THE
ADDRESS WHERE THE TRAP OCCURED.

8.1 EXECUTION TIME
THE PROGRAM TAKES ABOUT 1 MINUTE.

8.2 STACK POINTER
THIS PROGRAM INITIALLY SETS THE STACK POINTER AT 500.

9.0 PROGRAM DESCRIPTION

THIS IS A TEST OF THE ASH INSTRUCTION. IT TESTS ASH
WITH DIFFERENT SHIFT COUNTS IN ALL THE REGISTERS.

9.1 NOTE: THE LAST ROUTINE IN THIS DIAGNOSTIC IS DESIGNED TO
VERIFY THAT ECO M7238-0004/FCO M7238-0004 (11/40 ONLY)
HAS BEEN IMPLEMENTED AND IS FUNCTIONING PROPERLY. THIS ECO/FCO
AFFECTS THE 11/40 EIS (M7238) OPTION ONLY; THUS, ALL 11/45'S
MUST PASS THIS ROUTINE. ALSO, THE ECO HAS BEEN PHASED INTO
PRODUCTION SO ALL 11/40'S WITH THE M7238 MODULE MUST PASS THE
ROUTINE IN MANUFACTURING.
FIELD SERVICE - ALL M7238 MODULES INCORPORATING THIS ECO OR FCO
WILL HAVE CS REVISION E OR ABOVE AND MUST PASS THIS ROUTINE.
ANY M7238 MODULE BELOW THIS CS REVISION LEVEL WILL FAIL THE
ROUTINE. THIS IS ACCEPTABLE ONLY IF THE CUSTOMER SOFTWARE
DOES NOT MAKE USE OF THE DECREMENTED OPERAND RESULTING FROM
THE EXECUTION OF AN EXTENDED INSTRUCTION (ASH, ASHC, MUL, OR DIV)
USING DESTINATION MODE FIVE. IF THE CUSTOMER SOFTWARE DOES
MAKE USE OF THIS DECREMENTED OPERAND THEN FCO M7238-0004
(CS REV. E) MUST BE INCORPORATED AND THE LAST ROUTINE IN THE
DIAGNOSTIC MUST PASS. IF THE FIELD SERVICE TECHNICIAN HAS
DETERMINED FROM THE ABOVE CRITERIA THAT A PARTICULAR M7238
MODULE IS NOT REQUIRED TO PASS THE LAST ROUTINE, THEN HE
MAY INSERT THE APPROPRIATE CODE TO JUMP FROM THE 'SCOPE'
INSTRUCTION TO 'ENDPAS', THUS BYPASSING THE ROUTINE. SEE
THE ECO OR FCO FOR MORE INFORMATION.

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.TITLE MAINDEC-11-DCKBI-B ASH TEST
;COPYRIGHT 1972,1976 DIGITAL EQUIPMENT CORP., MAYNARD, MASS
;PROGRAM BY BOB BRAIN

.ENABL ABS
TPS= 177564
TPB= 177566

177564
177566

010701				SCOPE=	10701	
000000				HLT=	HALT	
177776				PS=	177776	
177570				SWR=	177570	
177570				DISPLAY=	SWR	
000001				N=	1	
000000				DUMMY=	HALT	
000000				M=	0	
000000				.=	0	;TRAP CATCHER 0 - 776
000046	000046			.=	46	
000052	013730			\$ENDAD		
000200	000052			.=	52	
	000000			0		
	000200			.=	200	
0001000	000167	000576		JMP	BEG1	
001000	001000			.=	1000	
001002	000000			ICNT:	0	;PASS COUNT
001010	023727	000042	013730	BEG1:	CMP	;AUTOMATIC MODE?
001012	001412				2#42, #SENDAD	;YES, SKIP HEADER
001016	012705	013756			BEG	;GET ADDRESS OF PRINT MESSAGE
001022	105737	177564		1\$:	MOV	;CHECK FOR READY
001024	100375				#MSG1, RS	
001026	105715				2#TPS	
001030	001403				TSTB	;END OF MESSAGE?
001034	112537	177566			BPL	;YES, GO START TEST
	000770				5	;PRINT CHARACTER
					(5)	
					BEG	
					(5)+, 2#TPB	
					1\$	
001036	012706	000500		BEG:	MOV	; ** STACK AT 500 **
001042	005037	177776			#500, %6	
001046	032737	001000	177570		2#PS	;WHICH REGISTER SET?
001054	001403				BIT	
001056	012737	004000	177776		#1000, 2#SWR	
001064	032737	000400	177570		BEG	;ALTERNATE!
001072	001403				.+10	;LOAD UB REG??
001074	113737	177570	177770		MOV	
					2#SWR, 2#177770	


```

*****
:TEST 1  ASH      0 SHIFTED BY -16. = 0  PS = 4
*****

```

001102	010701			SCOPE		
001104	012700	000000		MOV	#0,%0	;LOAD RO WITH 0
001110	072027	177760		ASH	#-16,%0	;SHIFT RO BY -16.
001114	013767	177776	012622	MOV	3#PS,PSW	;SAVE PS
001122	122767	000004	012614	CMPB	#4,PSW	;IS THE PS 4?
001130	001401			BEQ	.+4	
001132	000000			HLT		;THE PS IS NOT EQUAL TO 4
001134	022700	000000		CMP	#0,%0	;IS THE RESULT 0?
001140	001401			BEQ	.+4	
001142	000000			HLT		;RO IS NOT EQUAL TO 0

```

*****
:TEST 2  ASH      0 SHIFTED BY 0 = 0  PS = 4
*****

```

001144	010701			SCOPE		
001146	012700	000000		MOV	#0,%0	;LOAD RO WITH 0
001152	072027	000000		ASH	#0,%0	;SHIFT RO BY 0
001156	013767	177776	012560	MOV	3#PS,PSW	;SAVE PS
001164	122767	000004	012552	CMPB	#4,PSW	;IS THE PS 4?
001172	001401			BEQ	.+4	
001174	000000			HLT		;THE PS IS NOT EQUAL TO 4
001176	022700	000000		CMP	#0,%0	;IS THE RESULT 0?
001202	001401			BEQ	.+4	
001204	000000			HLT		;RO IS NOT EQUAL TO 0

```

*****
:TEST 3  ASH      0 SHIFTED BY 16. = 0  PS = 4
*****

```

001206	010701			SCOPE		
001210	012700	000000		MOV	#0,%0	;LOAD RO WITH 0
001214	072027	000020		ASH	#16,%0	;SHIFT RO BY 16.
001220	013767	177776	012516	MOV	3#PS,PSW	;SAVE PS
001226	122767	000004	012510	CMPB	#4,PSW	;IS THE PS 4?
001234	001401			BEQ	.+4	
001236	000000			HLT		;THE PS IS NOT EQUAL TO 4
001240	022700	000000		CMP	#0,%0	;IS THE RESULT 0?
001244	001401			BEQ	.+4	
001246	000000			HLT		;RO IS NOT EQUAL TO 0

GO1

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;TEST 4 ASH 1 SHIFTED BY 0 = 1 PS = 0

001250	010701			SCOPE		
001252	012700	000001		MOV	#1,%0	;LOAD RD WITH 1
001256	072027	000000		ASH	#0,%0	;SHIFT RD BY 0
001262	013767	177776	012454	MOV	2#PS,PSW	;SAVE PS
001270	122767	000000	012446	CMPB	#0,PSW	;IS THE PS 0?
001276	001401			BEQ	+.4	
001300	000000			HLT		;THE PS IS NOT EQUAL TO 0
001302	022700	000001		CMP	#1,%0	;IS THE RESULT 1?
001306	001401			BEQ	+.4	
001310	000000			HLT		;RD IS NOT EQUAL TO 1

;TEST 5 ASH 1 SHIFTED BY 1 = 2 PS = 0

001312	010701			SCOPE		
001314	012700	000001		MOV	#1,%0	;LOAD RD WITH 1
001320	072027	000001		ASH	#1,%0	;SHIFT RD BY 1
001324	013767	177776	012412	MOV	2#PS,PSW	;SAVE PS
001332	122767	000000	012404	CMPB	#0,PSW	;IS THE PS 0?
001340	001401			BEQ	+.4	
001342	000000			HLT		;THE PS IS NOT EQUAL TO 0
001344	022700	000002		CMP	#2,%0	;IS THE RESULT 2?
001350	001401			BEQ	+.4	
001352	000000			HLT		;RD IS NOT EQUAL TO 2

;TEST 6 ASH 1 SHIFTED BY 2 = 4 PS = 0

001354	010701			SCOPE		
001356	012700	000001		MOV	#1,%0	;LOAD RD WITH 1
001362	072027	000002		ASH	#2,%0	;SHIFT RD BY 2
001366	013767	177776	012350	MOV	2#PS,PSW	;SAVE PS
001374	122767	000000	012342	CMPB	#0,PSW	;IS THE PS 0?
001402	001401			BEQ	+.4	
001404	000000			HLT		;THE PS IS NOT EQUAL TO 0
001406	022700	000004		CMP	#4,%0	;IS THE RESULT 4?
001412	001401			BEQ	+.4	
001414	000000			HLT		;RD IS NOT EQUAL TO 4

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*****
;TEST 7  ASH      1 SHIFTED BY 3 = 10  PS = 0
*****
```

001416	010701			SCOPE		
001420	012700	000001		MOV	#1,%0	;LOAD RO WITH 1
001424	072027	000003		ASH	#3,%0	;SHIFT RO BY 3
001430	013767	177776	012306	MOV	3#PS,PSW	;SAVE PS
001436	122767	000000	012300	CMPB	#0,PSW	;IS THE PS 0?
001444	001401			BEQ	.+4	
001446	000000			HLT		;THE PS IS NOT EQUAL TO 0
001450	022700	000010		CMP	#10,%0	;IS THE RESULT 10?
001454	001401			BEQ	.+4	
001456	000000			HLT		;RO IS NOT EQUAL TO 10

```
*****
;TEST 10 ASH      1 SHIFTED BY 4 = 20  PS = 0
*****
```

001460	010701			SCOPE		
001462	012700	000001		MOV	#1,%0	;LOAD RO WITH 1
001466	072027	000004		ASH	#4,%0	;SHIFT RO BY 4
001472	013767	177776	012244	MOV	3#PS,PSW	;SAVE PS
001500	122767	000000	012236	CMPB	#0,PSW	;IS THE PS 0?
001506	001401			BEQ	.+4	
001510	000000			HLT		;THE PS IS NOT EQUAL TO 0
001512	022700	000020		CMP	#20,%0	;IS THE RESULT 20?
001516	001401			BEQ	.+4	
001520	000000			HLT		;RO IS NOT EQUAL TO 20

```
*****
;TEST 11 ASH      1 SHIFTED BY 5 = 40  PS = 0
*****
```

001522	010701			SCOPE		
001524	012700	000001		MOV	#1,%0	;LOAD RO WITH 1
001530	072027	000005		ASH	#5,%0	;SHIFT RO BY 5
001534	013767	177776	012202	MOV	3#PS,PSW	;SAVE PS
001542	122767	000000	012174	CMPB	#0,PSW	;IS THE PS 0?
001550	001401			BEQ	.+4	
001552	000000			HLT		;THE PS IS NOT EQUAL TO 0
001554	022700	000040		CMP	#40,%0	;IS THE RESULT 40?
001560	001401			BEQ	.+4	
001562	000000			HLT		;RO IS NOT EQUAL TO 40

;TEST 12 ASH 1 SHIFTED BY 6 = 100 PS = 0

001564	010701			SCOPE		
001566	012700	000001		MOV	#1,%0	;LOAD RO WITH 1
001572	072027	000006		ASH	#6,%0	;SHIFT RO BY 6
001576	013767	177776	012140	MOV	2#PS,PSW	;SAVE PS
001604	122767	000000	012132	CMPB	#0,PSW	;IS THE PS 0?
001612	001401			BEQ	.+4	
001614	000000			HLT		;THE PS IS NOT EQUAL TO 0
001616	022700	000100		CMP	#100,%0	;IS THE RESULT 100?
001622	001401			BEQ	.+4	
001624	000000			HLT		;RO IS NOT EQUAL TO 100

;TEST 13 ASH 1 SHIFTED BY 7 = 200 PS = 0

001626	010701			SCOPE		
001630	012700	000001		MOV	#1,%0	;LOAD RO WITH 1
001634	072027	000007		ASH	#7,%0	;SHIFT RO BY 7
001640	013767	177776	012076	MOV	2#PS,PSW	;SAVE PS
001646	122767	000000	012070	CMPB	#0,PSW	;IS THE PS 0?
001654	001401			BEQ	.+4	
001656	000000			HLT		;THE PS IS NOT EQUAL TO 0
001660	022700	000200		CMP	#200,%0	;IS THE RESULT 200?
001664	001401			BEQ	.+4	
001666	000000			HLT		;RO IS NOT EQUAL TO 200

;TEST 14 ASH 1 SHIFTED BY 10 = 400 PS = 0

001670	010701			SCOPE		
001672	012700	000001		MOV	#1,%0	;LOAD RO WITH 1
001676	072027	000010		ASH	#10,%0	;SHIFT RO BY 10
001702	013767	177776	012034	MOV	2#PS,PSW	;SAVE PS
001710	122767	000000	012026	CMPB	#0,PSW	;IS THE PS 0?
001716	001401			BEQ	.+4	
001720	000000			HLT		;THE PS IS NOT EQUAL TO 0
001722	022700	000400		CMP	#400,%0	;IS THE RESULT 400?
001726	001401			BEQ	.+4	
001730	000000			HLT		;RO IS NOT EQUAL TO 400

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;TEST 15 ASH 1 SHIFTED BY 11 = 1000 PS = 0

001732	010701			SCOPE		
001734	012700	000001		MOV	#1,%0	;LOAD RO WITH 1
001740	072027	000011		ASH	#11,%0	;SHIFT RO BY 11
001744	013767	177776	011772	MOV	3#PS,PSW	;SAVE PS
001752	122767	000000	011764	CMPB	#0,PSW	;IS THE PS 0?
001760	001401			BEQ	.+4	
001762	000000			HLT		;THE PS IS NOT EQUAL TO 0
001764	022700	001000		CMP	#1000,%0	;IS THE RESULT 1000?
001770	001401			BEQ	.+4	
001772	000000			HLT		;RO IS NOT EQUAL TO 1000

;TEST 16 ASH 1 SHIFTED BY 12 = 2000 PS = 0

001774	010701			SCOPE		
001776	012700	000001		MOV	#1,%0	;LOAD RO WITH 1
002002	072027	000012		ASH	#12,%0	;SHIFT RO BY 12
002006	013767	177776	011730	MOV	3#PS,PSW	;SAVE PS
002014	122767	000000	011722	CMPB	#0,PSW	;IS THE PS 0?
002022	001401			BEQ	.+4	
002024	000000			HLT		;THE PS IS NOT EQUAL TO 0
002026	022700	002000		CMP	#2000,%0	;IS THE RESULT 2000?
002032	001401			BEQ	.+4	
002034	000000			HLT		;RO IS NOT EQUAL TO 2000

;TEST 17 ASH 1 SHIFTED BY 13 = 4000 PS = 0

002036	010701			SCOPE		
002040	012700	000001		MOV	#1,%0	;LOAD RO WITH 1
002044	072027	000013		ASH	#13,%0	;SHIFT RO BY 13
002050	013767	177776	011666	MOV	3#PS,PSW	;SAVE PS
002056	122767	000000	011660	CMPB	#0,PSW	;IS THE PS 0?
002064	001401			BEQ	.+4	
002066	000000			HLT		;THE PS IS NOT EQUAL TO 0
002070	022700	004000		CMP	#4000,%0	;IS THE RESULT 4000?
002074	001401			BEQ	.+4	
002076	000000			HLT		;RO IS NOT EQUAL TO 4000

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*****
:TEST 20 ASH 1 SHIFTED BY 14 = 10000 PS = 0
*****
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002100	010701			SCOPE		
002102	012700	000001		MOV	#1,%0	;LOAD RD WITH 1
002106	072027	000014		ASH	#14,%0	;SHIFT RD BY 14
002112	013767	177776	011624	MOV	3#PS,PSW	;SAVE PS
002120	122767	000000	011616	CMPB	#0,PSW	;IS THE PS 0?
002126	001401			BEQ	.+4	
002130	000000			HLT		;THE PS IS NOT EQUAL TO 0
002132	022700	010000		CMP	#10000,%0	;IS THE RESULT 10000?
002136	001401			BEQ	.+4	
002140	000000			HLT		;RD IS NOT EQUAL TO 10000

```
*****
:TEST 21 ASH 1 SHIFTED BY 15 = 20000 PS = 0
*****
```

002142	010701			SCOPE		
002144	012700	000001		MOV	#1,%0	;LOAD RD WITH 1
002150	072027	000015		ASH	#15,%0	;SHIFT RD BY 15
002154	013767	177776	011562	MOV	3#PS,PSW	;SAVE PS
002162	122767	000000	011554	CMPB	#0,PSW	;IS THE PS 0?
002170	001401			BEQ	.+4	
002172	000000			HLT		;THE PS IS NOT EQUAL TO 0
002174	022700	020000		CMP	#20000,%0	;IS THE RESULT 20000?
002200	001401			BEQ	.+4	
002202	000000			HLT		;RD IS NOT EQUAL TO 20000

```
*****
:TEST 22 ASH 1 SHIFTED BY 16 = 40000 PS = 0
*****
```

002204	010701			SCOPE		
002206	012700	000001		MOV	#1,%0	;LOAD RD WITH 1
002212	072027	000016		ASH	#16,%0	;SHIFT RD BY 16
002216	013767	177776	011520	MOV	3#PS,PSW	;SAVE PS
002224	122767	000000	011512	CMPB	#0,PSW	;IS THE PS 0?
002232	001401			BEQ	.+4	
002234	000000			HLT		;THE PS IS NOT EQUAL TO 0
002236	022700	040000		CMP	#40000,%0	;IS THE RESULT 40000?
002242	001401			BEQ	.+4	
002244	000000			HLT		;RD IS NOT EQUAL TO 40000

:TEST 23 ASH 40000 SHIFTED BY 177762 = 1 PS = 0

002246	010701			SCOPE		
002250	012700	040000		MOV	#40000,%0	;LOAD R0 WITH 40000
002254	072027	177762		ASH	#177762,%0	;SHIFT R0 BY 177762
002260	013767	177776	011456	MOV	3#PS,PSW	;SAVE PS
002266	122767	000000	011450	CMPB	#0,PSW	;IS THE PS 0?
002274	001401			BEQ	+.4	
002276	000000			HLT		;THE PS IS NOT EQUAL TO 0
002300	022700	000001		CMP	#1,%0	;IS THE RESULT 1?
002304	001401			BEQ	+.4	
002306	000000			HLT		;R0 IS NOT EQUAL TO 1

:TEST 24 ASH 40000 SHIFTED BY 177763 = 2 PS = 0

002310	010701			SCOPE		
002312	012700	040000		MOV	#40000,%0	;LOAD R0 WITH 40000
002316	072027	177763		ASH	#177763,%0	;SHIFT R0 BY 177763
002322	013767	177776	011414	MOV	3#PS,PSW	;SAVE PS
002330	122767	000000	011406	CMPB	#0,PSW	;IS THE PS 0?
002336	001401			BEQ	+.4	
002340	000000			HLT		;THE PS IS NOT EQUAL TO 0
002342	022700	000002		CMP	#2,%0	;IS THE RESULT 2?
002346	001401			BEQ	+.4	
002350	000000			HLT		;R0 IS NOT EQUAL TO 2

:TEST 25 ASH 40000 SHIFTED BY 177764 = 4 PS = 0

002352	010701			SCOPE		
002354	012700	040000		MOV	#40000,%0	;LOAD R0 WITH 40000
002360	072027	177764		ASH	#177764,%0	;SHIFT R0 BY 177764
002364	013767	177776	011352	MOV	3#PS,PSW	;SAVE PS
002372	122767	000000	011344	CMPB	#0,PSW	;IS THE PS 0?
002400	001401			BEQ	+.4	
002402	000000			HLT		;THE PS IS NOT EQUAL TO 0
002404	022700	000004		CMP	#4,%0	;IS THE RESULT 4?
002410	001401			BEQ	+.4	
002412	000000			HLT		;R0 IS NOT EQUAL TO 4

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```
*****
;TEST 26 ASH 40000 SHIFTED BY 177765 = 10 PS = 0
*****
```

```
002414 010701
002416 012700 040000
002422 072027 177765
002426 013767 177776 011310
002434 122767 000000 011302
002442 001401
002444 000000
002446 022700 000010
002452 001401
002454 000000
```

```
SCOPE
MOV #40000,%0 ;LOAD RO WITH 40000
ASH #177765,%0 ;SHIFT RO BY 177765
MOV @#PS,PSW ;SAVE PS
CMPB #0,PSW ;IS THE PS 0?
BEQ .+4
HLT ;THE PS IS NOT EQUAL TO 0
CMP #10,%0 ;IS THE RESULT 10?
BEQ .+4
HLT ;RO IS NOT EQUAL TO 10
```

```
*****
;TEST 27 ASH 40000 SHIFTED BY 177766 = 20 PS = 0
*****
```

```
002456 010701
002460 012700 040000
002464 072027 177766
002470 013767 177776 011246
002476 122767 000000 011240
002504 001401
002506 000000
002510 022700 000020
002514 001401
002516 000000
```

```
SCOPE
MOV #40000,%0 ;LOAD RO WITH 40000
ASH #177766,%0 ;SHIFT RO BY 177766
MOV @#PS,PSW ;SAVE PS
CMPB #0,PSW ;IS THE PS 0?
BEQ .+4
HLT ;THE PS IS NOT EQUAL TO 0
CMP #20,%0 ;IS THE RESULT 20?
BEQ .+4
HLT ;RO IS NOT EQUAL TO 20
```

```
*****
;TEST 30 ASH 40000 SHIFTED BY 177767 = 40 PS = 0
*****
```

```
002520 010701
002522 012700 040000
002526 072027 177767
002532 013767 177776 011204
002540 122767 000000 011176
002546 001401
002550 000000
002552 022700 000040
002556 001401
002560 000000
```

```
SCOPE
MOV #40000,%0 ;LOAD RO WITH 40000
ASH #177767,%0 ;SHIFT RO BY 177767
MOV @#PS,PSW ;SAVE PS
CMPB #0,PSW ;IS THE PS 0?
BEQ .+4
HLT ;THE PS IS NOT EQUAL TO 0
CMP #40,%0 ;IS THE RESULT 40?
BEQ .+4
HLT ;RO IS NOT EQUAL TO 40
```

NO1

;TEST 31 ASH 40000 SHIFTED BY 177770 = 100 PS = 0

002562 010701
002564 012700 040000
002570 072027 177770
002574 013767 177776 011142
002602 122767 000000 011134
002610 001401
002612 000000
002614 022700 000100
002620 001401
002622 000000

SCOPE
MOV #40000,%0 ;LOAD RO WITH 40000
ASH #177770,%0 ;SHIFT RO BY 177770
MOV @#PS,PSW ;SAVE PS
CMPB #0,PSW ;IS THE PS 0?
BEQ .+4
HLT ;THE PS IS NOT EQUAL TO 0
CMP #100,%0 ;IS THE RESULT 100?
BEQ .+4
HLT ;RO IS NOT EQUAL TO 100

;TEST 32 ASH 40000 SHIFTED BY 177771 = 200 PS = 0

002624 010701
002626 012700 040000
002632 072027 177771
002636 013767 177776 011100
002644 122767 000000 011072
002652 001401
002654 000000
002656 022700 000200
002662 001401
002664 000000

SCOPE
MOV #40000,%0 ;LOAD RO WITH 40000
ASH #177771,%0 ;SHIFT RO BY 177771
MOV @#PS,PSW ;SAVE PS
CMPB #0,PSW ;IS THE PS 0?
BEQ .+4
HLT ;THE PS IS NOT EQUAL TO 0
CMP #200,%0 ;IS THE RESULT 200?
BEQ .+4
HLT ;RO IS NOT EQUAL TO 200

;TEST 33 ASH 40000 SHIFTED BY 177772 = 400 PS = 0

002666 010701
002670 012700 040000
002674 072027 177772
002700 013767 177776 011036
002706 122767 000000 011030
002714 001401
002716 000000
002720 022700 000400
002724 001401
002726 000000

SCOPE
MOV #40000,%0 ;LOAD RO WITH 40000
ASH #177772,%0 ;SHIFT RO BY 177772
MOV @#PS,PSW ;SAVE PS
CMPB #0,PSW ;IS THE PS 0?
BEQ .+4
HLT ;THE PS IS NOT EQUAL TO 0
CMP #400,%0 ;IS THE RESULT 400?
BEQ .+4
HLT ;RO IS NOT EQUAL TO 400

B02

:TEST 34 ASH 40000 SHIFTED BY 177773 = 1000 PS = 0

002730	010701			SCOPE		
002732	012700	040000		MOV	#40000,%0	:LOAD R0 WITH 40000
002736	072027	177773		ASH	#177773,%0	:SHIFT R0 BY 177773
002742	013767	177776	010774	MOV	3#PS,PSW	:SAVE PS
002750	122767	000000	010766	CMPB	#0,PSW	:IS THE PS 0?
002756	001401			BEQ	+.4	
002760	000000			HLT		:THE PS IS NOT EQUAL TO 0
002762	022700	001000		CMP	#1000,%0	:IS THE RESULT 1000?
002766	001401			BEQ	+.4	
002770	000000			HLT		:R0 IS NOT EQUAL TO 1000

:TEST 35 ASH 40000 SHIFTED BY 177774 = 2000 PS = 0

002772	010701			SCOPE		
002774	012700	040000		MOV	#40000,%0	:LOAD R0 WITH 40000
003000	072027	177774		ASH	#177774,%0	:SHIFT R0 BY 177774
003004	013767	177776	010732	MOV	3#PS,PSW	:SAVE PS
003012	122767	000000	010724	CMPB	#0,PSW	:IS THE PS 0?
003020	001401			BEQ	+.4	
003022	000000			HLT		:THE PS IS NOT EQUAL TO 0
003024	022700	002000		CMP	#2000,%0	:IS THE RESULT 2000?
003030	001401			BEQ	+.4	
003032	000000			HLT		:R0 IS NOT EQUAL TO 2000

:TEST 36 ASH 40000 SHIFTED BY 177775 = 4000 PS = 0

003034	010701			SCOPE		
003036	012700	040000		MOV	#40000,%0	:LOAD R0 WITH 40000
003042	072027	177775		ASH	#177775,%0	:SHIFT R0 BY 177775
003046	013767	177776	010670	MOV	3#PS,PSW	:SAVE PS
003054	122767	000000	010662	CMPB	#0,PSW	:IS THE PS 0?
003062	001401			BEQ	+.4	
003064	000000			HLT		:THE PS IS NOT EQUAL TO 0
003066	022700	004000		CMP	#4000,%0	:IS THE RESULT 4000?
003072	001401			BEQ	+.4	
003074	000000			HLT		:R0 IS NOT EQUAL TO 4000

```

*****
:TEST 37  ASH      40000 SHIFTED BY 177776 = 10000  PS = 0
*****

```

003076	010701			SCOPE		
003100	012700	040000		MOV	#40000,%0	;LOAD R0 WITH 40000
003104	072027	177776		ASH	#177776,%0	;SHIFT R0 BY 177776
003110	013767	177776	010626	MOV	2#PS,PSW	;SAVE PS
003116	122767	000000	010620	CMPB	#0,PSW	;IS THE PS 0?
003124	001401			BEQ	.+4	
003126	000000			HLT		;THE PS IS NOT EQUAL TO 0
003130	022700	010000		CMP	#10000,%0	;IS THE RESULT 10000?
003134	001401			BEQ	.+4	
003136	000000			HLT		;R0 IS NOT EQUAL TO 10000

```

*****
:TEST 40  ASH      40000 SHIFTED BY 177777 = 20000  PS = 0
*****

```

003140	010701			SCOPE		
003142	012700	040000		MOV	#40000,%0	;LOAD R0 WITH 40000
003146	072027	177777		ASH	#177777,%0	;SHIFT R0 BY 177777
003152	013767	177776	010564	MOV	2#PS,PSW	;SAVE PS
003160	122767	000000	010556	CMPB	#0,PSW	;IS THE PS 0?
003166	001401			BEQ	.+4	
003170	000000			HLT		;THE PS IS NOT EQUAL TO 0
003172	022700	020000		CMP	#20000,%0	;IS THE RESULT 20000?
003176	001401			BEQ	.+4	
003200	000000			HLT		;R0 IS NOT EQUAL TO 20000

```

*****
:TEST 41  ASH      40000 SHIFTED BY 0 = 40000  PS = 0
*****

```

003202	010701			SCOPE		
003204	012700	040000		MOV	#40000,%0	;LOAD R0 WITH 40000
003210	072027	000000		ASH	#0,%0	;SHIFT R0 BY 0
003214	013767	177776	010522	MOV	2#PS,PSW	;SAVE PS
003222	122767	000000	010514	CMPB	#0,PSW	;IS THE PS 0?
003230	001401			BEQ	.+4	
003232	000000			HLT		;THE PS IS NOT EQUAL TO 0
003234	022700	040000		CMP	#40000,%0	;IS THE RESULT 40000?
003240	001401			BEQ	.+4	
003242	000000			HLT		;R0 IS NOT EQUAL TO 40000


```

*****
:TEST 42  ASH      100000 SHIFTED BY -15. = -1  PS = 10
*****

```

003244	010701			SCOPE		
003246	012700	100000		MOV	#100000,%0	;LOAD RO WITH 100000
003252	072027	177761		ASH	#-15,%0	;SHIFT RO BY -15.
003256	013767	177776	010460	MOV	2#PS,PSW	;SAVE PS
003264	122767	000010	010452	CMPB	#10,PSW	;IS THE PS 10?
003272	001401			BEQ	.+4	
003274	000000			HLT		;THE PS IS NOT EQUAL TO 10
003276	022700	177777		CMP	#-1,%0	;IS THE RESULT -1?
003302	001401			BEQ	.+4	
003304	000000			HLT		;RO IS NOT EQUAL TO -1

```

*****
:TEST 43  ASH      -1 SHIFTED BY 15. = 100000  PS = 11
*****

```

003306	010701			SCOPE		
003310	012700	177777		MOV	#-1,%0	;LOAD RO WITH -1
003314	072027	000017		ASH	#15,%0	;SHIFT RO BY 15.
003320	013767	177776	010416	MOV	2#PS,PSW	;SAVE PS
003326	122767	000011	010410	CMPB	#11,PSW	;IS THE PS 11?
003334	001401			BEQ	.+4	
003336	000000			HLT		;THE PS IS NOT EQUAL TO 11
003340	022700	100000	:	CMP	#100000,%0	;IS THE RESULT 100000?
003344	001401			BEQ	.+4	
003346	000000			HLT		;RO IS NOT EQUAL TO 100000

```

*****
:TEST 44  ASH      -1 SHIFTED BY 16. = 0  PS = 7
*****

```

003350	010701			SCOPE		
003352	012700	177777		MOV	#-1,%0	;LOAD RO WITH -1
003356	072027	000020		ASH	#16,%0	;SHIFT RO BY 16.
003362	013767	177776	010354	MOV	2#PS,PSW	;SAVE PS
003370	122767	000007	010346	CMPB	#7,PSW	;IS THE PS 7?
003376	001401			BEQ	.+4	
003400	000000			HLT		;THE PS IS NOT EQUAL TO 7
003402	022700	000000		CMP	#0,%0	;IS THE RESULT 0?
003406	001401			BEQ	.+4	
003410	000000			HLT		;RO IS NOT EQUAL TO 0

```

*****
;TEST 45  ASH      137777 SHIFTED BY 15. = 100000 PS = 13
*****

```

003412	010701			SCOPE		
003414	012700	137777		MOV	#137777,%0	;LOAD RO WITH 137777
003420	072027	000017		ASH	#15,%0	;SHIFT RO BY 15.
003424	013767	177776	010312	MOV	2#PS,PSW	;SAVE PS
003432	122767	000013	010304	CMPB	#13,PSW	;IS THE PS 13?
003440	001401			BEQ	+.4	
003442	000000			HLT		;THE PS IS NOT EQUAL TO 13
003444	022700	100000		CMP	#100000,%0	;IS THE RESULT 100000?
003450	001401			BEQ	+.4	
003452	000000			HLT		;RO IS NOT EQUAL TO 100000

```

*****
;TEST 46  ASH      125252 SHIFTED BY 1 = 52524 PS = 3
*****

```

003454	010701			SCOPE		
003456	012700	125252		MOV	#125252,%0	;LOAD RO WITH 125252
003462	072027	000001		ASH	#1,%0	;SHIFT RO BY 1
003466	013767	177776	010250	MOV	2#PS,PSW	;SAVE PS
003474	122767	000003	010242	CMPB	#3,PSW	;IS THE PS 3?
003502	001401			BEQ	+.4	
003504	000000			HLT		;THE PS IS NOT EQUAL TO 3
003506	022700	052524		CMP	#52524,%0	;IS THE RESULT 52524?
003512	001401			BEQ	+.4	
003514	000000			HLT		;RO IS NOT EQUAL TO 52524

```

*****
;TEST 47  ASH      125252 SHIFTED BY -1 = 152525 PS = 10
*****

```

003516	010701			SCOPE		
003520	012700	125252		MOV	#125252,%0	;LOAD RO WITH 125252
003524	072027	177777		ASH	#-1,%0	;SHIFT RO BY -1
003530	013767	177776	010206	MOV	2#PS,PSW	;SAVE PS
003536	122767	000010	010200	CMPB	#10,PSW	;IS THE PS 10?
003544	001401			BEQ	+.4	
003546	000000			HLT		;THE PS IS NOT EQUAL TO 10
003550	022700	152525		CMP	#152525,%0	;IS THE RESULT 152525?
003554	001401			BEQ	+.4	
003556	000000			HLT		;RO IS NOT EQUAL TO 152525


```

*****
;TEST 50 ASH 125252 SHIFTED BY -2 = 165252 PS = 11
*****

```

003560	010701			SCOPE		
003562	012700	125252		MOV	#125252,%0	;LOAD R0 WITH 125252
003566	072027	177776		ASH	#-2,%0	;SHIFT R0 BY -2
003572	013767	177776	010144	MOV	@#PS,PSW	;SAVE PS
003600	122767	000011	010136	CMPB	#11,PSW	;IS THE PS 11?
003606	001401			BEQ	+.4	
003610	000000			HLT		;THE PS IS NOT EQUAL TO 11
003612	022700	165252		CMP	#165252,%0	;IS THE RESULT 165252?
003616	001401			BEQ	+.4	
003620	000000			HLT		;R0 IS NOT EQUAL TO 165252

```

*****
;TEST 51 ASH 40000 SHIFTED BY 177762 = 1 PS = 0
*****

```

003622	010701			SCOPE		
003624	012701	040000		MOV	#40000,%1	;LOAD R1 WITH 40000
003630	072127	177762		ASH	#177762,%1	;SHIFT R1 BY 177762
003634	013767	177776	010102	MOV	@#PS,PSW	;SAVE PS
003642	122767	000000	010074	CMPB	#0,PSW	;IS THE PS 0?
003650	001401			BEQ	+.4	
003652	000000			HLT		;THE PS IS NOT EQUAL TO 0
003654	022701	000001		CMP	#1,%1	;IS THE RESULT 1?
003660	001401			BEQ	+.4	
003662	000000			HLT		;R1 IS NOT EQUAL TO 1

```

*****
;TEST 52 ASH 40000 SHIFTED BY 177763 = 2 PS = 0
*****

```

003664	010701			SCOPE		
003666	012701	040000		MOV	#40000,%1	;LOAD R1 WITH 40000
003672	072127	177763		ASH	#177763,%1	;SHIFT R1 BY 177763
003676	013767	177776	010040	MOV	@#PS,PSW	;SAVE PS
003704	122767	000000	010032	CMPB	#0,PSW	;IS THE PS 0?
003712	001401			BEQ	+.4	
003714	000000			HLT		;THE PS IS NOT EQUAL TO 0
003716	022701	000002		CMP	#2,%1	;IS THE RESULT 2?
003722	001401			BEQ	+.4	
003724	000000			HLT		;R1 IS NOT EQUAL TO 2

```

*****
:TEST 53  ASH      40000 SHIFTED BY 177764 = 4  PS = 0
*****

```

003726	010701			SCOPE		
003730	012701	040000		MOV	#40000,%1	;LOAD R1 WITH 40000
003734	072127	177764		ASH	#177764,%1	;SHIFT R1 BY 177764
003740	013767	177776	007776	MOV	2#PS,PSW	;SAVE PS
003746	122767	000000	007770	CMPB	#0,PSW	;IS THE PS 0?
003754	001401			BEQ	+.4	
003756	000000			HLT		;THE PS IS NOT EQUAL TO 0
003760	022701	000004		CMP	#4,%1	;IS THE RESULT 4?
003764	001401			BEQ	+.4	
003766	000000			HLT		;R1 IS NOT EQUAL TO 4

```

*****
:TEST 54  ASH      40000 SHIFTED BY 177765 = 10  PS = 0
*****

```

003770	010701			SCOPE		
003772	012701	040000		MOV	#40000,%1	;LOAD R1 WITH 40000
003776	072127	177765		ASH	#177765,%1	;SHIFT R1 BY 177765
004002	013767	177776	007734	MOV	2#PS,PSW	;SAVE PS
004010	122767	000000	007726	CMPB	#0,PSW	;IS THE PS 0?
004016	001401			BEQ	+.4	
004020	000000			HLT		;THE PS IS NOT EQUAL TO 0
004022	022701	000010		CMP	#10,%1	;IS THE RESULT 10?
004026	001401			BEQ	+.4	
004030	000000			HLT		;R1 IS NOT EQUAL TO 10

```

*****
:TEST 55  ASH      40000 SHIFTED BY 177766 = 20  PS = 0
*****

```

004032	010701			SCOPE		
004034	012701	040000		MOV	#40000,%1	;LOAD R1 WITH 40000
004040	072127	177766		ASH	#177766,%1	;SHIFT R1 BY 177766
004044	013767	177776	007672	MOV	2#PS,PSW	;SAVE PS
004052	122767	000000	007664	CMPB	#0,PSW	;IS THE PS 0?
004060	001401			BEQ	+.4	
004062	000000			HLT		;THE PS IS NOT EQUAL TO 0
004064	022701	000020		CMP	#20,%1	;IS THE RESULT 20?
004070	001401			BEQ	+.4	
004072	000000			HLT		;R1 IS NOT EQUAL TO 20


```

*****
;TEST 56  ASH      40000 SHIFTED BY 177767 = 40  PS = 0
*****

```

004074	010701			SCOPE		
004076	012701	040000		MOV	#40000,%1	;LOAD R1 WITH 40000
004102	072127	177767		ASH	#177767,%1	;SHIFT R1 BY 177767
004106	013767	177776	007630	MOV	@#PS,PSW	;SAVE PS
004114	122767	000000	007622	CMPB	#0,PSW	;IS THE PS 0?
004122	001401			BEQ	+.4	
004124	000000			HLT		;THE PS IS NOT EQUAL TO 0
004126	022701	000040		CMP	#40,%1	;IS THE RESULT 40?
004132	001401			BEQ	+.4	
004134	000000			HLT		;R1 IS NOT EQUAL TO 40

```

*****
;TEST 57  ASH      40000 SHIFTED BY 177770 = 100  PS = 0
*****

```

004136	010701			SCOPE		
004140	012701	040000		MOV	#40000,%1	;LOAD R1 WITH 40000
004144	072127	177770		ASH	#177770,%1	;SHIFT R1 BY 177770
004150	013767	177776	007566	MOV	@#PS,PSW	;SAVE PS
004156	122767	000000	007560	CMPB	#0,PSW	;IS THE PS 0?
004164	001401			BEQ	+.4	
004166	000000			HLT		;THE PS IS NOT EQUAL TO 0
004170	022701	000100		CMP	#100,%1	;IS THE RESULT 100?
004174	001401			BEQ	+.4	
004176	000000			HLT		;R1 IS NOT EQUAL TO 100

```

*****
;TEST 60  ASH      40000 SHIFTED BY 177771 = 200  PS = 0
*****

```

004200	010701			SCOPE		
004202	012701	040000		MOV	#40000,%1	;LOAD R1 WITH 40000
004206	072127	177771		ASH	#177771,%1	;SHIFT R1 BY 177771
004212	013767	177776	007524	MOV	@#PS,PSW	;SAVE PS
004220	122767	000000	007516	CMPB	#0,PSW	;IS THE PS 0?
004226	001401			BEQ	+.4	
004230	000000			HLT		;THE PS IS NOT EQUAL TO 0
004232	022701	000200		CMP	#200,%1	;IS THE RESULT 200?
004236	001401			BEQ	+.4	
004240	000000			HLT		;R1 IS NOT EQUAL TO 200

```

*****
;TEST 61 ASH 40000 SHIFTED BY 177772 = 400 PS = 0
*****

```

004242	010701			SCOPE		
004244	012701	040000		MOV	#40000,%1	;LOAD R1 WITH 40000
004250	072127	177772		ASH	#177772,%1	;SHIFT R1 BY 177772
004254	013767	177776	007462	MOV	@PS,PSW	;SAVE PS
004262	122767	000000	007454	CMPB	#0,PSW	;IS THE PS 0?
004270	001401			BEQ	+.4	
004272	000000			HLT		;THE PS IS NOT EQUAL TO 0
004274	022701	000400		CMP	#400,%1	;IS THE RESULT 400?
004300	001401			BEQ	+.4	
004302	000000			HLT		;R1 IS NOT EQUAL TO 400

```

*****
;TEST 62 ASH 40000 SHIFTED BY 177773 = 1000 PS = 0
*****

```

004304	010701			SCOPE		
004306	012701	040000		MOV	#40000,%1	;LOAD R1 WITH 40000
004312	072127	177773		ASH	#177773,%1	;SHIFT R1 BY 177773
004316	013767	177776	007420	MOV	@PS,PSW	;SAVE PS
004324	122767	000000	007412	CMPB	#0,PSW	;IS THE PS 0?
004332	001401			BEQ	+.4	
004334	000000			HLT		;THE PS IS NOT EQUAL TO 0
004336	022701	001000		CMP	#1000,%1	;IS THE RESULT 1000?
004342	001401			BEQ	+.4	
004344	000000			HLT		;R1 IS NOT EQUAL TO 1000

```

*****
;TEST 63 ASH 40000 SHIFTED BY 177774 = 2000 PS = 0
*****

```

004346	010701			SCOPE		
004350	012701	040000		MOV	#40000,%1	;LOAD R1 WITH 40000
004354	072127	177774		ASH	#177774,%1	;SHIFT R1 BY 177774
004360	013767	177776	007356	MOV	@PS,PSW	;SAVE PS
004366	122767	000000	007350	CMPB	#0,PSW	;IS THE PS 0?
004374	001401			BEQ	+.4	
004376	000000			HLT		;THE PS IS NOT EQUAL TO 0
004400	022701	002000		CMP	#2000,%1	;IS THE RESULT 2000?
004404	001401			BEQ	+.4	
004406	000000			HLT		;R1 IS NOT EQUAL TO 2000

J02

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DCKBIB.SRC

;TEST 64 ASH 40000 SHIFTED BY 177775 = 4000 PS = 0

004410	010701			SCOPE		
004412	012701	040000		MOV	#40000,%1	;LOAD R1 WITH 40000
004416	072127	177775		ASH	#177775,%1	;SHIFT R1 BY 177775
004422	013767	177776	007314	MOV	2#PS,PSW	;SAVE PS
004430	122767	000000	007306	CMPB	#0,PSW	;IS THE PS 0?
004436	001401			BEQ	.+4	
004440	000000			HLT		;THE PS IS NOT EQUAL TO 0
004442	022701	004000		CMP	#4000,%1	;IS THE RESULT 4000?
004446	001401			BEQ	.+4	
004450	000000			HLT		;R1 IS NOT EQUAL TO 4000

;TEST 65 ASH 40000 SHIFTED BY 177776 = 10000 PS = 0

004452	010701			SCOPE		
004454	012701	040000		MOV	#40000,%1	;LOAD R1 WITH 40000
004460	072127	177776		ASH	#177776,%1	;SHIFT R1 BY 177776
004464	013767	177776	007252	MOV	2#PS,PSW	;SAVE PS
004472	122767	000000	007244	CMPB	#0,PSW	;IS THE PS 0?
004500	001401			BEQ	.+4	
004502	000000			HLT		;THE PS IS NOT EQUAL TO 0
004504	022701	010000		CMP	#10000,%1	;IS THE RESULT 10000?
004510	001401			BEQ	.+4	
004512	000000			HLT		;R1 IS NOT EQUAL TO 10000

;TEST 66 ASH 40000 SHIFTED BY 177777 = 20000 PS = 0

004514	010701			SCOPE		
004516	012701	040000		MOV	#40000,%1	;LOAD R1 WITH 40000
004522	072127	177777		ASH	#177777,%1	;SHIFT R1 BY 177777
004526	013767	177776	007210	MOV	2#PS,PSW	;SAVE PS
004534	122767	000000	007202	CMPB	#0,PSW	;IS THE PS 0?
004542	001401			BEQ	.+4	
004544	000000			HLT		;THE PS IS NOT EQUAL TO 0
004546	022701	020000		CMP	#20000,%1	;IS THE RESULT 20000?
004552	001401			BEQ	.+4	
004554	000000			HLT		;R1 IS NOT EQUAL TO 20000

K02

MAINDEC-11-DCKBI-B ASH TEST
DCKBIB.SRC

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```

*****
;TEST 67  ASH      40000 SHIFTED BY 0 = 40000  PS = 0
*****

```

004556	010701			SCOPE		
004560	012701	040000		MOV	#40000,%1	;LOAD R1 WITH 40000
004564	072127	000000		ASH	#0,%1	;SHIFT R1 BY 0
004570	013767	177776	007146	MOV	@PS,PSW	;SAVE PS
004576	122767	000000	007140	CMPB	#0,PSW	;IS THE PS 0?
004604	001401			BEQ	.+4	
004606	000000			HLT		;THE PS IS NOT EQUAL TO 0
004610	022701	040000		CMP	#40000,%1	;IS THE RESULT 40000?
004614	001401			BEQ	.+4	
004616	000000			HLT		;R1 IS NOT EQUAL TO 40000

```

*****
;TEST 70  ASH      100000 SHIFTED BY -15. = -1  PS = 10
*****

```

004620	010701			SCOPE		
004622	012701	100000		MOV	#100000,%1	;LOAD R1 WITH 100000
004626	072127	177761		ASH	#-15,%1	;SHIFT R1 BY -15.
004632	013767	177776	007104	MOV	@PS,PSW	;SAVE PS
004640	122767	000010	007076	CMPB	#10,PSW	;IS THE PS 10?
004646	001401			BEQ	.+4	
004650	000000			HLT		;THE PS IS NOT EQUAL TO 10
004652	022701	177777		CMP	#-1,%1	;IS THE RESULT -1?
004656	001401			BEQ	.+4	
004660	000000			HLT		;R1 IS NOT EQUAL TO -1

```

*****
;TEST 71  ASH      -1 SHIFTED BY 15. = 100000  PS = 11
*****

```

004662	010701			SCOPE		
004664	012701	177777		MOV	#-1,%1	;LOAD R1 WITH -1
004670	072127	000017		ASH	#15,%1	;SHIFT R1 BY 15.
004674	013767	177776	007042	MOV	@PS,PSW	;SAVE PS
004702	122767	000011	007034	CMPB	#11,PSW	;IS THE PS 11?
004710	001401			BEQ	.+4	
004712	000000			HLT		;THE PS IS NOT EQUAL TO 11
004714	022701	100000		CMP	#100000,%1	;IS THE RESULT 100000?
004720	001401			BEQ	.+4	
004722	000000			HLT		;R1 IS NOT EQUAL TO 100000


```

*****
;TEST 72  ASH      -1 SHIFTED BY 16. = 0  PS = 7
*****

```

004724	010701			SCOPE		
004726	012701	177777		MOV	#-1,%1	;LOAD R1 WITH -1
004732	072127	000020		ASH	#16,%1	;SHIFT R1 BY 16.
004736	013767	177776	007000	MOV	@#PS,PSW	;SAVE PS
004744	122767	000007	006772	CMPB	#7,PSW	;IS THE PS 7?
004752	001401			BEQ	+.4	
004754	000000			HLT		;THE PS IS NOT EQUAL TO 7
004756	022701	000000		CMP	#0,%1	;IS THE RESULT 0?
004762	001401			BEQ	+.4	
004764	000000			HLT		;R1 IS NOT EQUAL TO 0

```

*****
;TEST 73  ASH      137777 SHIFTED BY 15. = 100000  PS = 13
*****

```

004766	010701			SCOPE		
004770	012701	137777		MOV	#137777,%1	;LOAD R1 WITH 137777
004774	072127	000017		ASH	#15,%1	;SHIFT R1 BY 15.
005000	013767	177776	006736	MOV	@#PS,PSW	;SAVE PS
005006	122767	000013	006730	CMPB	#13,PSW	;IS THE PS 13?
005014	001401			BEQ	+.4	
005016	000000			HLT		;THE PS IS NOT EQUAL TO 13
005020	022701	100000		CMP	#100000,%1	;IS THE RESULT 100000?
005024	001401			BEQ	+.4	
005026	000000			HLT		;R1 IS NOT EQUAL TO 100000

```

*****
;TEST 74  ASH      125252 SHIFTED BY 1 = 52524  PS = 3
*****

```

005030	010701			SCOPE		
005032	012701	125252		MOV	#125252,%1	;LOAD R1 WITH 125252
005036	072127	000001		ASH	#1,%1	;SHIFT R1 BY 1
005042	013767	177776	006674	MOV	@#PS,PSW	;SAVE PS
005050	122767	000003	006666	CMPB	#3,PSW	;IS THE PS 3?
005056	001401			BEQ	+.4	
005060	000000			HLT		;THE PS IS NOT EQUAL TO 3
005062	022701	052524		CMP	#52524,%1	;IS THE RESULT 52524?
005066	001401			BEQ	+.4	
005070	000000			HLT		;R1 IS NOT EQUAL TO 52524

```

*****
;TEST 75  ASH      125252 SHIFTED BY -1 = 152525  PS = 10
*****

```

005072	010701			SCOPE		
005074	012701	125252		MOV	#125252,%1	;LOAD R1 WITH 125252
005100	072127	177777		ASH	#-1,%1	;SHIFT R1 BY -1
005104	013767	177776	006632	MOV	@#PS,PSW	;SAVE PS
005112	122767	000010	006624	CMPB	#10,PSW	;IS THE PS 10?
005120	001401			BEQ	+.4	
005122	000000			HLT		;THE PS IS NOT EQUAL TO 10
005124	022701	152525		CMP	#152525,%1	;IS THE RESULT 152525?
005130	001401			BEQ	+.4	
005132	000000			HLT		;R1 IS NOT EQUAL TO 152525

```

*****
;TEST 76  ASH      125252 SHIFTED BY -2 = 165252  PS = 11
*****

```

005134	010701			SCOPE		
005136	012701	125252		MOV	#125252,%1	;LOAD R1 WITH 125252
005142	072127	177776		ASH	#-2,%1	;SHIFT R1 BY -2
005146	013767	177776	006570	MOV	@#PS,PSW	;SAVE PS
005154	122767	000011	006562	CMPB	#11,PSW	;IS THE PS 11?
005162	001401			BEQ	+.4	
005164	000000			HLT		;THE PS IS NOT EQUAL TO 11
005166	022701	165252		CMP	#165252,%1	;IS THE RESULT 165252?
005172	001401			BEQ	+.4	
005174	000000			HLT		;R1 IS NOT EQUAL TO 165252

```

*****
;TEST 77  ASH      40000 SHIFTED BY 177762 = 1  PS = 0
*****

```

005176	010701			SCOPE		
005200	012702	040000		MOV	#40000,%2	;LOAD R2 WITH 40000
005204	072227	177762		ASH	#177762,%2	;SHIFT R2 BY 177762
005210	013767	177776	006526	MOV	@#PS,PSW	;SAVE PS
005216	122767	000000	006520	CMPB	#0,PSW	;IS THE PS 0?
005224	001401			BEQ	+.4	
005226	000000			HLT		;THE PS IS NOT EQUAL TO 0
005230	022702	000001		CMP	#1,%2	;IS THE RESULT 1?
005234	001401			BEQ	+.4	
005236	000000			HLT		;R2 IS NOT EQUAL TO 1

N02

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:TEST 100 ASH 40000 SHIFTED BY 177763 = 2 PS = 0

005240	010701			SCOPE		
005242	012702	040000		MOV	#40000,%2	;LOAD R2 WITH 40000
005246	072227	177763		ASH	#177763,%2	;SHIFT R2 BY 177763
005252	013767	177776	006464	MOV	@#PS,PSW	;SAVE PS
005260	122767	000000	006456	CMPB	#0,PSW	;IS THE PS 0?
005266	001401			BEQ	+.4	
005270	000000			HLT		;THE PS IS NOT EQUAL TO 0
005272	022702	000002		CMP	#2,%2	;IS THE RESULT 2?
005276	001401			BEQ	+.4	
005300	000000			HLT		;R2 IS NOT EQUAL TO 2

:TEST 101 ASH 40000 SHIFTED BY 177764 = 4 PS = 0

005302	010701			SCOPE		
005304	012702	040000		MOV	#40000,%2	;LOAD R2 WITH 40000
005310	072227	177764		ASH	#177764,%2	;SHIFT R2 BY 177764
005314	013767	177776	006422	MOV	@#PS,PSW	;SAVE PS
005322	122767	000000	006414	CMPB	#0,PSW	;IS THE PS 0?
005330	001401			BEQ	+.4	
005332	000000			HLT		;THE PS IS NOT EQUAL TO 0
005334	022702	000004		CMP	#4,%2	;IS THE RESULT 4?
005340	001401			BEQ	+.4	
005342	000000			HLT		;R2 IS NOT EQUAL TO 4

:TEST 102 ASH 40000 SHIFTED BY 177765 = 10 PS = 0

005344	010701			SCOPE		
005346	012702	040000		MOV	#40000,%2	;LOAD R2 WITH 40000
005352	072227	177765		ASH	#177765,%2	;SHIFT R2 BY 177765
005356	013767	177776	006360	MOV	@#PS,PSW	;SAVE PS
005364	122767	000000	006352	CMPB	#0,PSW	;IS THE PS 0?
005372	001401			BEQ	+.4	
005374	000000			HLT		;THE PS IS NOT EQUAL TO 0
005376	022702	000010		CMP	#10,%2	;IS THE RESULT 10?
005402	001401			BEQ	+.4	
005404	000000			HLT		;R2 IS NOT EQUAL TO 10

```

*****
:TEST 103  ASH      40000 SHIFTED BY 177766 = 20  PS = 0
*****

```

005406	010701			SCOPE		
005410	012702	040000		MOV	#40000,%2	;LOAD R2 WITH 40000
005414	072227	177766		ASH	#177766,%2	;SHIFT R2 BY 177766
005420	013767	177776	006316	MOV	2#PS,PSW	;SAVE PS
005426	122767	000000	006310	CMPB	#0,PSW	;IS THE PS 0?
005434	001401			BEQ	.+4	
005436	000000			HLT		;THE PS IS NOT EQUAL TO 0
005440	022702	000020		CMP	#20,%2	;IS THE RESULT 20?
005444	001401			BEQ	.+4	
005446	000000			HLT		;R2 IS NOT EQUAL TO 20

```

*****
:TEST 104  ASH      40000 SHIFTED BY 177767 = 40  PS = 0
*****

```

005450	010701			SCOPE		
005452	012702	040000		MOV	#40000,%2	;LOAD R2 WITH 40000
005456	072227	177767		ASH	#177767,%2	;SHIFT R2 BY 177767
005462	013767	177776	006254	MOV	2#PS,PSW	;SAVE PS
005470	122767	000000	006246	CMPB	#0,PSW	;IS THE PS 0?
005476	001401			BEQ	.+4	
005500	000000			HLT		;THE PS IS NOT EQUAL TO 0
005502	022702	000040		CMP	#40,%2	;IS THE RESULT 40?
005506	001401			BEQ	.+4	
005510	000000			HLT		;R2 IS NOT EQUAL TO 40

```

*****
:TEST 105  ASH      40000 SHIFTED BY 177770 = 100 PS = 0
*****

```

005512	010701			SCOPE		
005514	012702	040000		MOV	#40000,%2	;LOAD R2 WITH 40000
005520	072227	177770		ASH	#177770,%2	;SHIFT R2 BY 177770
005524	013767	177776	006212	MOV	2#PS,PSW	;SAVE PS
005532	122767	000000	006204	CMPB	#0,PSW	;IS THE PS 0?
005540	001401			BEQ	.+4	
005542	000000			HLT		;THE PS IS NOT EQUAL TO 0
005544	022702	000100		CMP	#100,%2	;IS THE RESULT 100?
005550	001401			BEQ	.+4	
005552	000000			HLT		;R2 IS NOT EQUAL TO 100


```

*****
;TEST 106 ASH 40000 SHIFTED BY 177771 = 200 PS = 0
*****

```

005554	010701			SCOPE		
005556	012702	040000		MOV	#40000,%2	;LOAD R2 WITH 40000
005562	072227	177771		ASH	#177771,%2	;SHIFT R2 BY 177771
005566	013767	177776	006150	MOV	2#PS,PSW	;SAVE PS
005574	122767	000000	006142	CMPB	#0,PSW	;IS THE PS 0?
005602	001401			BEQ	.+4	
005604	000000			HLT		;THE PS IS NOT EQUAL TO 0
005606	022702	000200		CMP	#200,%2	;IS THE RESULT 200?
005612	001401			BEQ	.+4	
005614	000000			HLT		;R2 IS NOT EQUAL TO 200

```

*****
;TEST 107 ASH 40000 SHIFTED BY 177772 = 400 PS = 0
*****

```

005616	010701			SCOPE		
005620	012702	040000		MOV	#40000,%2	;LOAD R2 WITH 40000
005624	072227	177772		ASH	#177772,%2	;SHIFT R2 BY 177772
005630	013767	177776	006106	MOV	2#PS,PSW	;SAVE PS
005636	122767	000000	006100	CMPB	#0,PSW	;IS THE PS 0?
005644	001401			BEQ	.+4	
005646	000000			HLT		;THE PS IS NOT EQUAL TO 0
005650	022702	000400		CMP	#400,%2	;IS THE RESULT 400?
005654	001401			BEQ	.+4	
005656	000000			HLT		;R2 IS NOT EQUAL TO 400

```

*****
;TEST 110 ASH 40000 SHIFTED BY 177773 = 1000 PS = 0
*****

```

005660	010701			SCOPE		
005662	012702	040000		MOV	#40000,%2	;LOAD R2 WITH 40000
005666	072227	177773		ASH	#177773,%2	;SHIFT R2 BY 177773
005672	013767	177776	006044	MOV	2#PS,PSW	;SAVE PS
005700	122767	000000	006036	CMPB	#0,PSW	;IS THE PS 0?
005706	001401			BEQ	.+4	
005710	000000			HLT		;THE PS IS NOT EQUAL TO 0
005712	022702	001000		CMP	#1000,%2	;IS THE RESULT 1000?
005716	001401			BEQ	.+4	
005720	000000			HLT		;R2 IS NOT EQUAL TO 1000

```

*****
;TEST 111 ASH 40000 SHIFTED BY 177774 = 2000 PS = 0
*****

```

005722	010701			SCOPE		
005724	012702	040000		MOV	#40000,%2	;LOAD R2 WITH 40000
005730	072227	177774		ASH	#177774,%2	;SHIFT R2 BY 177774
005734	013767	177776	006002	MOV	2#PS,PSW	;SAVE PS
005742	122767	000000	005774	CMPB	#0,PSW	;IS THE PS 0?
005750	001401			BEQ	+.4	
005752	000000			HLT		;THE PS IS NOT EQUAL TO 0
005754	022702	002000		CMP	#2000,%2	;IS THE RESULT 2000?
005760	001401			BEQ	+.4	
005762	000000			HLT		;R2 IS NOT EQUAL TO 2000

```

*****
;TEST 112 ASH 40000 SHIFTED BY 177775 = 4000 PS = 0
*****

```

005764	010701			SCOPE		
005766	012702	040000		MOV	#40000,%2	;LOAD R2 WITH 40000
005772	072227	177775		ASH	#177775,%2	;SHIFT R2 BY 177775
005776	013767	177776	005740	MOV	2#PS,PSW	;SAVE PS
006004	122767	000000	005732	CMPB	#0,PSW	;IS THE PS 0?
006012	001401			BEQ	+.4	
006014	000000			HLT		;THE PS IS NOT EQUAL TO 0
006016	022702	004000		CMP	#4000,%2	;IS THE RESULT 4000?
006022	001401			BEQ	+.4	
006024	000000			HLT		;R2 IS NOT EQUAL TO 4000

```

*****
;TEST 113 ASH 40000 SHIFTED BY 177776 = 10000 PS = 0
*****

```

006026	010701			SCOPE		
006030	012702	040000		MOV	#40000,%2	;LOAD R2 WITH 40000
006034	072227	177776		ASH	#177776,%2	;SHIFT R2 BY 177776
006040	013767	177776	005676	MOV	2#PS,PSW	;SAVE PS
006046	122767	000000	005670	CMPB	#0,PSW	;IS THE PS 0?
006054	001401			BEQ	+.4	
006056	000000			HLT		;THE PS IS NOT EQUAL TO 0
006060	022702	010000		CMP	#10000,%2	;IS THE RESULT 10000?
006064	001401			BEQ	+.4	
006066	000000			HLT		;R2 IS NOT EQUAL TO 10000

E03

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;TEST 114 ASH 40000 SHIFTED BY 177777 = 20000 PS = 0

006070	010701			SCOPE		
006072	012702	040000		MOV	#40000,%2	;LOAD R2 WITH 40000
006076	072227	177777		ASH	#177777,%2	;SHIFT R2 BY 177777
006102	013767	177776	005634	MOV	@#PS,PSW	;SAVE PS
006110	122767	000000	005626	CMPB	#0,PSW	;IS THE PS 0?
006116	001401			BEQ	.+4	
006120	000000			HLT		;THE PS IS NOT EQUAL TO 0
006122	022702	020000		CMP	#20000,%2	;IS THE RESULT 20000?
006126	001401			BEQ	.+4	
006130	000000			HLT		;R2 IS NOT EQUAL TO 20000

;TEST 115 ASH 40000 SHIFTED BY 0 = 40000 PS = 0

006132	010701			SCOPE		
006134	012702	040000		MOV	#40000,%2	;LOAD R2 WITH 40000
006140	072227	000000		ASH	#0,%2	;SHIFT R2 BY 0
006144	013767	177776	005572	MOV	@#PS,PSW	;SAVE PS
006152	122767	000000	005564	CMPB	#0,PSW	;IS THE PS 0?
006160	001401			BEQ	.+4	
006162	000000			HLT		;THE PS IS NOT EQUAL TO 0
006164	022702	040000		CMP	#40000,%2	;IS THE RESULT 40000?
006170	001401			BEQ	.+4	
006172	000000			HLT		;R2 IS NOT EQUAL TO 40000

;TEST 116 ASH 100000 SHIFTED BY -15. = -1 PS = 10

006174	010701			SCOPE		
006176	012702	100000		MOV	#100000,%2	;LOAD R2 WITH 100000
006202	072227	177761		ASH	#-15,%2	;SHIFT R2 BY -15.
006206	013767	177776	005530	MOV	@#PS,PSW	;SAVE PS
006214	122767	000010	005522	CMPB	#10,PSW	;IS THE PS,10?
006222	001401			BEQ	.+4	
006224	000000			HLT		;THE PS IS NOT EQUAL TO 10
006226	022702	177777		CMP	#-1,%2	;IS THE RESULT -1?
006232	001401			BEQ	.+4	
006234	000000			HLT		;R2 IS NOT EQUAL TO -1

```

*****
;TEST 117  ASH      -1 SHIFTED BY 15. = 100000  PS = 11
*****

```

006236	010701			SCOPE		
006240	012702	177777		MOV	#-1,%2	;LOAD R2 WITH -1
006244	072227	000017		ASH	#15,%2	;SHIFT R2 BY 15.
006250	013767	177776	005466	MOV	@PS,PSW	;SAVE PS
006256	122767	000011	005460	CMPB	#11,PSW	;IS THE PS 11?
006264	001401			BEQ	.+4	
006266	000000			HLT		
006270	022702	100000		CMP	#100000,%2	;THE PS IS NOT EQUAL TO 11
006274	001401			BEQ	.+4	;IS THE RESULT 100000?
006276	000000			HLT		;R2 IS NOT EQUAL TO 100000

```

*****
;TEST 120  ASH      -1 SHIFTED BY 16. = 0  PS = 7
*****

```

006300	010701			SCOPE		
006302	012702	177777		MOV	#-1,%2	;LOAD R2 WITH -1
006306	072227	000020		ASH	#16,%2	;SHIFT R2 BY 16.
006312	013767	177776	005424	MOV	@PS,PSW	;SAVE PS
006320	122767	000007	005416	CMPB	#7,PSW	;IS THE PS 7?
006326	001401			BEQ	.+4	
006330	000000			HLT		
006332	022702	000000		CMP	#0,%2	;THE PS IS NOT EQUAL TO 7
006336	001401			BEQ	.+4	;IS THE RESULT 0?
006340	000000			HLT		;R2 IS NOT EQUAL TO 0

```

*****
;TEST 121  ASH      137777 SHIFTED BY 15. = 100000  PS = 13
*****

```

006342	010701			SCOPE		
006344	012702	137777		MOV	#137777,%2	;LOAD R2 WITH 137777
006350	072227	000017		ASH	#15,%2	;SHIFT R2 BY 15.
006354	013767	177776	005362	MOV	@PS,PSW	;SAVE PS
006362	122767	000013	005354	CMPB	#13,PSW	;IS THE PS 13?
006370	001401			BEQ	.+4	
006372	000000			HLT		
006374	022702	100000		CMP	#100000,%2	;THE PS IS NOT EQUAL TO 13
006400	001401			BEQ	.+4	;IS THE RESULT 100000?
006402	000000			HLT		;R2 IS NOT EQUAL TO 100000

G03

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```

*****
;TEST 122  ASH      125252 SHIFTED BY 1 = 52524  PS = 3
*****

```

006404	010701			SCOPE		
006406	012702	125252		MOV	#125252,%2	;LOAD R2 WITH 125252
006412	072227	000001		ASH	#1,%2	;SHIFT R2 BY 1
006416	013767	177776	005320	MOV	@#PS,PSW	;SAVE PS
006424	122767	000003	005312	CMPB	#3,PSW	;IS THE PS 3?
006432	001401			BEQ	.+4	
006434	000000			HLT		;THE PS IS NOT EQUAL TO 3
006436	022702	052524		CMP	#52524,%2	;IS THE RESULT 52524?
006442	001401			BEQ	.+4	
006444	000000			HLT		;R2 IS NOT EQUAL TO 52524

```

*****
;TEST 123  ASH      125252 SHIFTED BY -1 = 152525  PS = 10
*****

```

006446	010701			SCOPE		
006450	012702	125252		MOV	#125252,%2	;LOAD R2 WITH 125252
006454	072227	177777		ASH	#-1,%2	;SHIFT R2 BY -1
006460	013767	177776	005256	MOV	@#PS,PSW	;SAVE PS
006466	122767	000010	005250	CMPB	#10,PSW	;IS THE PS 10?
006474	001401			BEQ	.+4	
006476	000000			HLT		;THE PS IS NOT EQUAL TO 10
006500	022702	152525		CMP	#152525,%2	;IS THE RESULT 152525?
006504	001401			BEQ	.+4	
006506	000000			HLT		;R2 IS NOT EQUAL TO 152525

```

*****
;TEST 124  ASH      125252 SHIFTED BY -2 = 165252  PS = 11
*****

```

006510	010701			SCOPE		
006512	012702	125252		MOV	#125252,%2	;LOAD R2 WITH 125252
006516	072227	177776		ASH	#-2,%2	;SHIFT R2 BY -2
006522	013767	177776	005214	MOV	@#PS,PSW	;SAVE PS
006530	122767	000011	005206	CMPB	#11,PSW	;IS THE PS 11?
006536	001401			BEQ	.+4	
006540	000000			HLT		;THE PS IS NOT EQUAL TO 11
006542	022702	165252		CMP	#165252,%2	;IS THE RESULT 165252?
006546	001401			BEQ	.+4	
006550	000000			HLT		;R2 IS NOT EQUAL TO 165252

H03

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:TEST 125 ASH 40000 SHIFTED BY 177762 = 1 PS = 0

006552	010701			SCOPE		
006554	012703	040000		MOV	#40000,%3	;LOAD R3 WITH 40000
006560	072327	177762		ASH	#177762,%3	;SHIFT R3 BY 177762
006564	013767	177776	005152	MOV	@PS,PSW	;SAVE PS
006572	122767	000000	005144	CMPB	#0,PSW	;IS THE PS 0?
006600	001401			BEQ	+.4	
006602	000000			HLT		;THE PS IS NOT EQUAL TO 0
006604	022703	000001		CMP	#1,%3	;IS THE RESULT 1?
006610	001401			BEQ	+.4	
006612	000000			HLT		;R3 IS NOT EQUAL TO 1

:TEST 126 ASH 40000 SHIFTED BY 177763 = 2 PS = 0

006614	010701			SCOPE		
006616	012703	040000		MOV	#40000,%3	;LOAD R3 WITH 40000
006622	072327	177763		ASH	#177763,%3	;SHIFT R3 BY 177763
006626	013767	177776	005110	MOV	@PS,PSW	;SAVE PS
006634	122767	000000	005102	CMPB	#0,PSW	;IS THE PS 0?
006642	001401			BEQ	+.4	
006644	000000			HLT		;THE PS IS NOT EQUAL TO 0
006646	022703	000002		CMP	#2,%3	;IS THE RESULT 2?
006652	001401			BEQ	+.4	
006654	000000			HLT		;R3 IS NOT EQUAL TO 2

:TEST 127 ASH 40000 SHIFTED BY 177764 = 4 PS = 0

006656	010701			SCOPE		
006660	012703	040000		MOV	#40000,%3	;LOAD R3 WITH 40000
006664	072327	177764		ASH	#177764,%3	;SHIFT R3 BY 177764
006670	013767	177776	005046	MOV	@PS,PSW	;SAVE PS
006676	122767	000000	005040	CMPB	#0,PSW	;IS THE PS 0?
006704	001401			BEQ	+.4	
006706	000000			HLT		;THE PS IS NOT EQUAL TO 0
006710	022703	000004		CMP	#4,%3	;IS THE RESULT 4?
006714	001401			BEQ	+.4	
006716	000000			HLT		;R3 IS NOT EQUAL TO 4


```
*****
;TEST 130 ASH 40000 SHIFTED BY 177765 = 10 PS = 0
*****
```

006720	010701			SCOPE		
006722	012703	040000		MOV	#40000,%3	;LOAD R3 WITH 40000
006726	072327	177765		ASH	#177765,%3	;SHIFT R3 BY 177765
006732	013767	177776	005004	MOV	2#PS,PSW	;SAVE PS
006740	122767	000000	004776	CMPB	#0,PSW	;IS THE PS 0?
006746	001401			BEQ	.+4	
006750	000000			HLT		;THE PS IS NOT EQUAL TO 0
006752	022703	000010		CMP	#10,%3	;IS THE RESULT 10?
006756	001401			BEQ	.+4	
006760	000000			HLT		;R3 IS NOT EQUAL TO 10

```
*****
;TEST 131 ASH 40000 SHIFTED BY 177766 = 20 PS = 0
*****
```

006762	010701			SCOPE		
006764	012703	040000		MOV	#40000,%3	;LOAD R3 WITH 40000
006770	072327	177766		ASH	#177766,%3	;SHIFT R3 BY 177766
006774	013767	177776	004742	MOV	2#PS,PSW	;SAVE PS
007002	122767	000000	004734	CMPB	#0,PSW	;IS THE PS 0?
007010	001401			BEQ	.+4	
007012	000000			HLT		;THE PS IS NOT EQUAL TO 0
007014	022703	000020		CMP	#20,%3	;IS THE RESULT 20?
007020	001401			BEQ	.+4	
007022	000000			HLT		;R3 IS NOT EQUAL TO 20

```
*****
;TEST 132 ASH 40000 SHIFTED BY 177767 = 40 PS = 0
*****
```

007024	010701			SCOPE		
007026	012703	040000		MOV	#40000,%3	;LOAD R3 WITH 40000
007032	072327	177767		ASH	#177767,%3	;SHIFT R3 BY 177767
007036	013767	177776	004700	MOV	2#PS,PSW	;SAVE PS
007044	122767	000000	004672	CMPB	#0,PSW	;IS THE PS 0?
007052	001401			BEQ	.+4	
007054	000000			HLT		;THE PS IS NOT EQUAL TO 0
007056	022703	000040		CMP	#40,%3	;IS THE RESULT 40?
007062	001401			BEQ	.+4	
007064	000000			HLT		;R3 IS NOT EQUAL TO 40

```

*****
;TEST 133  ASH      40000 SHIFTED BY 177770 = 100  PS = 0
*****

```

007066	010701			SCOPE		
007070	012703	040000		MOV	#40000,%3	;LOAD R3 WITH 40000
007074	072327	177770		ASH	#177770,%3	;SHIFT R3 BY 177770
007100	013767	177776	004636	MOV	@#PS,PSW	;SAVE PS
007106	122767	000000	004630	CMPB	#0,PSW	;IS THE PS 0?
007114	001401			BEQ	+.4	
007116	000000			HLT		;THE PS IS NOT EQUAL TO 0
007120	022703	000100		CMP	#100,%3	;IS THE RESULT 100?
007124	001401			BEQ	+.4	
007126	000000			HLT		;R3 IS NOT EQUAL TO 100

```

*****
;TEST 134  ASH      40000 SHIFTED BY 177771 = 200  PS = 0
*****

```

007130	010701			SCOPE		
007132	012703	040000		MOV	#40000,%3	;LOAD R3 WITH 40000
007136	072327	177771		ASH	#177771,%3	;SHIFT R3 BY 177771
007142	013767	177776	004574	MOV	@#PS,PSW	;SAVE PS
007150	122767	000000	004566	CMPB	#0,PSW	;IS THE PS 0?
007156	001401			BEQ	+.4	
007160	000000			HLT		;THE PS IS NOT EQUAL TO 0
007162	022703	000200		CMP	#200,%3	;IS THE RESULT 200?
007166	001401			BEQ	+.4	
007170	000000			HLT		;R3 IS NOT EQUAL TO 200

```

*****
;TEST 135  ASH      40000 SHIFTED BY 177772 = 400  PS = 0
*****

```

007172	010701			SCOPE		
007174	012703	040000		MOV	#40000,%3	;LOAD R3 WITH 40000
007200	072327	177772		ASH	#177772,%3	;SHIFT R3 BY 177772
007204	013767	177776	004532	MOV	@#PS,PSW	;SAVE PS
007212	122767	000000	004524	CMPB	#0,PSW	;IS THE PS 0?
007220	001401			BEQ	+.4	
007222	000000			HLT		;THE PS IS NOT EQUAL TO 0
007224	022703	000400		CMP	#400,%3	;IS THE RESULT 400?
007230	001401			BEQ	+.4	
007232	000000			HLT		;R3 IS NOT EQUAL TO 400

K03

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```

*****
;TEST 136  ASH      40000 SHIFTED BY 177773 = 1000  PS = 0
*****

```

007234	010701			SCOPE		
007236	012703	040000		MOV	#40000,%3	;LOAD R3 WITH 40000
007242	072327	177773		ASH	#177773,%3	;SHIFT R3 BY 177773
007246	013767	177776	004470	MOV	2#PS,PSW	;SAVE PS
007254	122767	000000	004462	CMPB	#0,PSW	;IS THE PS 0?
007262	001401			BEQ	+.4	
007264	000000			HLT		;THE PS IS NOT EQUAL TO 0
007266	022703	001000		CMP	#1000,%3	;IS THE RESULT 1000?
007272	001401			BEQ	+.4	
007274	000000			HLT		;R3 IS NOT EQUAL TO 1000

```

*****
;TEST 137  ASH      40000 SHIFTED BY 177774 = 2000  PS = 0
*****

```

007276	010701			SCOPE		
007300	012703	040000		MOV	#40000,%3	;LOAD R3 WITH 40000
007304	072327	177774		ASH	#177774,%3	;SHIFT R3 BY 177774
007310	013767	177776	004426	MOV	2#PS,PSW	;SAVE PS
007316	122767	000000	004420	CMPB	#0,PSW	;IS THE PS 0?
007324	001401			BEQ	+.4	
007326	000000			HLT		;THE PS IS NOT EQUAL TO 0
007330	022703	002000		CMP	#2000,%3	;IS THE RESULT 2000?
007334	001401			BEQ	+.4	
007336	000000			HLT		;R3 IS NOT EQUAL TO 2000

```

*****
;TEST 140  ASH      40000 SHIFTED BY 177775 = 4000  PS = 0
*****

```

007340	010701			SCOPE		
007342	012703	040000		MOV	#40000,%3	;LOAD R3 WITH 40000
007346	072327	177775		ASH	#177775,%3	;SHIFT R3 BY 177775
007352	013767	177776	004364	MOV	2#PS,PSW	;SAVE PS
007360	122767	000000	004356	CMPB	#0,PSW	;IS THE PS 0?
007366	001401			BEQ	+.4	
007370	000000			HLT		;THE PS IS NOT EQUAL TO 0
007372	022703	004000		CMP	#4000,%3	;IS THE RESULT 4000?
007376	001401			BEQ	+.4	
007400	000000			HLT		;R3 IS NOT EQUAL TO 4000

L03

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:TEST 141 ASH 40000 SHIFTED BY 177776 = 10000 PS = 0

007402	010701			SCOPE		
007404	012703	040000		MOV	#40000,%3	;LOAD R3 WITH 40000
007410	072327	177776		ASH	#177776,%3	;SHIFT R3 BY 177776
007414	013767	177776	004322	MOV	@#PS,PSW	;SAVE PS
007422	122767	000000	004314	CMPB	#0,PSW	;IS THE PS 0?
007430	001401			BEQ	.+4	
007432	000000			HLT		;THE PS IS NOT EQUAL TO 0
007434	022703	010000		CMP	#10000,%3	;IS THE RESULT 10000?
007440	001401			BEQ	.+4	
007442	000000			HLT		;R3 IS NOT EQUAL TO 10000

:TEST 142 ASH 40000 SHIFTED BY 177777 = 20000 PS = 0

007444	010701			SCOPE		
007446	012703	040000		MOV	#40000,%3	;LOAD R3 WITH 40000
007452	072327	177777		ASH	#177777,%3	;SHIFT R3 BY 177777
007456	013767	177776	004260	MOV	@#PS,PSW	;SAVE PS
007464	122767	000000	004252	CMPB	#0,PSW	;IS THE PS 0?
007472	001401			BEQ	.+4	
007474	000000			HLT		;THE PS IS NOT EQUAL TO 0
007476	022703	020000		CMP	#20000,%3	;IS THE RESULT 20000?
007502	001401			BEQ	.+4	
007504	000000			HLT		;R3 IS NOT EQUAL TO 20000

:TEST 143 ASH 40000 SHIFTED BY 0 = 40000 PS = 0

007506	010701			SCOPE		
007510	012703	040000		MOV	#40000,%3	;LOAD R3 WITH 40000
007514	072327	000000		ASH	#0,%3	;SHIFT R3 BY 0
007520	013767	177776	004216	MOV	@#PS,PSW	;SAVE PS
007526	122767	000000	004210	CMPB	#0,PSW	;IS THE PS 0?
007534	001401			BEQ	.+4	
007536	000000			HLT		;THE PS IS NOT EQUAL TO 0
007540	022703	040000		CMP	#40000,%3	;IS THE RESULT 40000?
007544	001401			BEQ	.+4	
007546	000000			HLT		;R3 IS NOT EQUAL TO 40000

M03

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DCKBIB.SRC

```
*****
;TEST 144  ASH      100000 SHIFTED BY -15. = -1  PS = 10
;*****
```

007550	010701			SCOPE		
007552	012703	100000		MOV	#100000,%3	;LOAD R3 WITH 100000
007556	072327	177761		ASH	#-15,%3	;SHIFT R3 BY -15.
007562	013767	177776	004154	MOV	@#PS,PSW	;SAVE PS
007570	122767	000010	004146	CMPB	#10,PSW	;IS THE PS 10?
007576	001401			BEQ	+.4	
007600	000000			HLT		;THE PS IS NOT EQUAL TO 10
007602	022703	177777		CMP	#-1,%3	;IS THE RESULT -1?
007606	001401			BEQ	+.4	
007610	000000			HLT		;R3 IS NOT EQUAL TO -1

```
*****
;TEST 145  ASH      -1 SHIFTED BY 15. = 100000  PS = 11
;*****
```

007612	010701			SCOPE		
007614	012703	177777		MOV	#-1,%3	;LOAD R3 WITH -1
007620	072327	000017		ASH	#15,%3	;SHIFT R3 BY 15.
007624	013767	177776	004112	MOV	@#PS,PSW	;SAVE PS
007632	122767	000011	004104	CMPB	#11,PSW	;IS THE PS 11?
007640	001401			BEQ	+.4	
007642	000000			HLT		;THE PS IS NOT EQUAL TO 11
007644	022703	100000		CMP	#100000,%3	;IS THE RESULT 100000?
007650	001401			BEQ	+.4	
007652	000000			HLT		;R3 IS NOT EQUAL TO 100000

```
*****
;TEST 146  ASH      -1 SHIFTED BY 16. = 0  PS = 7
;*****
```

007654	010701			SCOPE		
007656	012703	177777		MOV	#-1,%3	;LOAD R3 WITH -1
007662	072327	000020		ASH	#16,%3	;SHIFT R3 BY 16.
007666	013767	177776	004050	MOV	@#PS,PSW	;SAVE PS
007674	122767	000007	004042	CMPB	#7,PSW	;IS THE PS 7?
007702	001401			BEQ	+.4	
007704	000000			HLT		;THE PS IS NOT EQUAL TO 7
007706	022703	000000		CMP	#0,%3	;IS THE RESULT 0?
007712	001401			BEQ	+.4	
007714	000000			HLT		;R3 IS NOT EQUAL TO 0

N03

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;TEST 147 ASH 137777 SHIFTED BY 15. = 100000 PS = 13

007716	010701			SCOPE		
007720	012703	137777		MOV	#137777,%3	;LOAD R3 WITH 137777
007724	072327	000017		ASH	#15,%3	;SHIFT R3 BY 15.
007730	013767	177776	004006	MOV	@#PS,PSW	;SAVE PS
007736	122767	000013	004000	CMPB	#13,PSW	;IS THE PS 13?
007744	001401			BEQ	.+4	
007746	000000			HLT		;THE PS IS NOT EQUAL TO 13
007750	022703	100000		CMP	#100000,%3	;IS THE RESULT 100000?
007754	001401			BEQ	.+4	
007756	000000			HLT		;R3 IS NOT EQUAL TO 100000

;TEST 150 ASH 125252 SHIFTED BY 1 = 52524 PS = 3

007760	010701			SCOPE		
007762	012703	125252		MOV	#125252,%3	;LOAD R3 WITH 125252
007766	072327	000001		ASH	#1,%3	;SHIFT R3 BY 1
007772	013767	177776	003744	MOV	@#PS,PSW	;SAVE PS
010000	122767	000003	003736	CMPB	#3,PSW	;IS THE PS 3?
010006	001401			BEQ	.+4	
010010	000000			HLT		;THE PS IS NOT EQUAL TO 3
010012	022703	052524		CMP	#52524,%3	;IS THE RESULT 52524?
010016	001401			BEQ	.+4	
010020	000000			HLT		;R3 IS NOT EQUAL TO 52524

;TEST 151 ASH 125252 SHIFTED BY -1 = 152525 PS = 10

010022	010701			SCOPE		
010024	012703	125252		MOV	#125252,%3	;LOAD R3 WITH 125252
010030	072327	177777		ASH	#-1,%3	;SHIFT R3 BY -1
010034	013767	177776	003702	MOV	@#PS,PSW	;SAVE PS
010042	122767	000010	003674	CMPB	#10,PSW	;IS THE PS 10?
010050	001401			BEQ	.+4	
010052	000000			HLT		;THE PS IS NOT EQUAL TO 10
010054	022703	152525		CMP	#152525,%3	;IS THE RESULT 152525?
010060	001401			BEQ	.+4	
010062	000000			HLT		;R3 IS NOT EQUAL TO 152525

:TEST 152 ASH 125252 SHIFTED BY -2 = 165252 PS = 11

010064	010701			SCOPE		
010066	012703	125252		MOV	#125252,%3	:LOAD R3 WITH 125252
010072	072327	177776		ASH	#-2,%3	:SHIFT R3 BY -2
010076	013767	177776	003640	MOV	3#PS,PSW	:SAVE PS
010104	122767	000011	003632	CMPB	#11,PSW	:IS THE PS 11?
010112	001401			BEQ	+.4	
010114	000000			HLT		:THE PS IS NOT EQUAL TO 11
010116	022703	165252		CMP	#165252,%3	:IS THE RESULT 165252?
010122	001401			BEQ	+.4	
010124	000000			HLT		:R3 IS NOT EQUAL TO 165252

:TEST 153 ASH 40000 SHIFTED BY 177762 = 1 PS = 0

010126	010701			SCOPE		
010130	012704	040000		MOV	#40000,%4	:LOAD R4 WITH 40000
010134	072427	177762		ASH	#177762,%4	:SHIFT R4 BY 177762
010140	013767	177776	003576	MOV	3#PS,PSW	:SAVE PS
010146	122767	000000	003570	CMPB	#0,PSW	:IS THE PS 0?
010154	001401			BEQ	+.4	
010156	000000			HLT		:THE PS IS NOT EQUAL TO 0
010160	022704	000001		CMP	#1,%4	:IS THE RESULT 1?
010164	001401			BEQ	+.4	
010166	000000			HLT		:R4 IS NOT EQUAL TO 1

:TEST 154 ASH 40000 SHIFTED BY 177763 = 2 PS = 0

010170	010701			SCOPE		
010172	012704	040000		MOV	#40000,%4	:LOAD R4 WITH 40000
010176	072427	177763		ASH	#177763,%4	:SHIFT R4 BY 177763
010202	013767	177776	003534	MOV	3#PS,PSW	:SAVE PS
010210	122767	000000	003526	CMPB	#0,PSW	:IS THE PS 0?
010216	001401			BEQ	+.4	
010220	000000			HLT		:THE PS IS NOT EQUAL TO 0
010222	022704	000002		CMP	#2,%4	:IS THE RESULT 2?
010226	001401			BEQ	+.4	
010230	000000			HLT		:R4 IS NOT EQUAL TO 2

```

*****
:TEST 155  ASH      40000 SHIFTED BY 177764 = 4  PS = 0
*****

```

010232	010701			SCOPE		
010234	012704	040000		MOV	#40000,%4	;LOAD R4 WITH 40000
010240	072427	177764		ASH	#177764,%4	;SHIFT R4 BY 177764
010244	013767	177776	003472	MOV	2#PS,PSW	;SAVE PS
010252	122767	000000	003464	CMPB	#0,PSW	;IS THE PS 0?
010260	001401			BEQ	+.4	
010262	000000			HLT		;THE PS IS NOT EQUAL TO 0
010264	022704	000004		CMP	#4,%4	;IS THE RESULT 4?
010270	001401			BEQ	+.4	
010272	000000			HLT		;R4 IS NOT EQUAL TO 4

```

*****
:TEST 156  ASH      40000 SHIFTED BY 177765 = 10  PS = 0
*****

```

010274	010701			SCOPE		
010276	012704	040000		MOV	#40000,%4	;LOAD R4 WITH 40000
010302	072427	177765		ASH	#177765,%4	;SHIFT R4 BY 177765
010306	013767	177776	003430	MOV	2#PS,PSW	;SAVE PS
010314	122767	000000	003422	CMPB	#0,PSW	;IS THE PS 0?
010322	001401			BEQ	+.4	
010324	000000			HLT		;THE PS IS NOT EQUAL TO 0
010326	022704	000010		CMP	#10,%4	;IS THE RESULT 10?
010332	001401			BEQ	+.4	
010334	000000			HLT		;R4 IS NOT EQUAL TO 10

```

*****
:TEST 157  ASH      40000 SHIFTED BY 177766 = 20  PS = 0
*****

```

010336	010701			SCOPE		
010340	012704	040000		MOV	#40000,%4	;LOAD R4 WITH 40000
010344	072427	177766		ASH	#177766,%4	;SHIFT R4 BY 177766
010350	013767	177776	003366	MOV	2#PS,PSW	;SAVE PS
010356	122767	000000	003360	CMPB	#0,PSW	;IS THE PS 0?
010364	001401			BEQ	+.4	
010366	000000			HLT		;THE PS IS NOT EQUAL TO 0
010370	022704	000020		CMP	#20,%4	;IS THE RESULT 20?
010374	001401			BEQ	+.4	
010376	000000			HLT		;R4 IS NOT EQUAL TO 20

D04

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```

*****
:TEST 160 ASH 40000 SHIFTED BY 177767 = 40 PS = 0
*****

```

010400	010701			SCOPE		
010402	012704	040000		MOV	#40000,%4	;LOAD R4 WITH 40000
010406	072427	177767		ASH	#177767,%4	;SHIFT R4 BY 177767
010412	013767	177776	003324	MOV	2#PS,PSW	;SAVE PS
010420	122767	000000	003316	CMPB	#0,PSW	;IS THE PS 0?
010426	001401			BEQ	+.4	
010430	000000			HLT		;THE PS IS NOT EQUAL TO 0
010432	022704	000040		CMP	#40,%4	;IS THE RESULT 40?
010436	001401			BEQ	+.4	
010440	000000			HLT		;R4 IS NOT EQUAL TO 40

```

*****
:TEST 161 ASH 40000 SHIFTED BY 177770 = 100 PS = 0
*****

```

010442	010701			SCOPE		
010444	012704	040000		MOV	#40000,%4	;LOAD R4 WITH 40000
010450	072427	177770		ASH	#177770,%4	;SHIFT R4 BY 177770
010454	013767	177776	003262	MOV	2#PS,PSW	;SAVE PS
010462	122767	000000	003254	CMPB	#0,PSW	;IS THE PS 0?
010470	001401			BEQ	+.4	
010472	000000			HLT		;THE PS IS NOT EQUAL TO 0
010474	022704	000100		CMP	#100,%4	;IS THE RESULT 100?
010500	001401			BEQ	+.4	
010502	000000			HLT		;R4 IS NOT EQUAL TO 100

```

*****
:TEST 162 ASH 40000 SHIFTED BY 177771 = 200 PS = 0
*****

```

010504	010701			SCOPE		
010506	012704	040000		MOV	#40000,%4	;LOAD R4 WITH 40000
010512	072427	177771		ASH	#177771,%4	;SHIFT R4 BY 177771
010516	013767	177776	003220	MOV	2#PS,PSW	;SAVE PS
010524	122767	000000	003212	CMPB	#0,PSW	;IS THE PS 0?
010532	001401			BEQ	+.4	
010534	000000			HLT		;THE PS IS NOT EQUAL TO 0
010536	022704	000200		CMP	#200,%4	;IS THE RESULT 200?
010542	001401			BEQ	+.4	
010544	000000			HLT		;R4 IS NOT EQUAL TO 200

```

*****
;TEST 163  ASH      40000 SHIFTED BY 177772 = 400  PS = 0
*****

```

010546	010701			SCOPE		
010550	012704	040000		MOV	#40000,%4	;LOAD R4 WITH 40000
010554	072427	177772		ASH	#177772,%4	;SHIFT R4 BY 177772
010560	013767	177776	003156	MOV	2#PS,PSW	;SAVE PS
010566	122767	000000	003150	CMPB	#0,PSW	;IS THE PS 0?
010574	001401			BEQ	+.4	
010576	000000			HLT		;THE PS IS NOT EQUAL TO 0
010600	022704	000400		CMP	#400,%4	;IS THE RESULT 400?
010604	001401			BEQ	+.4	
010606	000000			HLT		;R4 IS NOT EQUAL TO 400

```

*****
;TEST 164  ASH      40000 SHIFTED BY 177773 = 1000  PS = 0
*****

```

010610	010701			SCOPE		
010612	012704	040000		MOV	#40000,%4	;LOAD R4 WITH 40000
010616	072427	177773		ASH	#177773,%4	;SHIFT R4 BY 177773
010622	013767	177776	003114	MOV	2#PS,PSW	;SAVE PS
010630	122767	000000	003106	CMPB	#0,PSW	;IS THE PS 0?
010636	001401			BEQ	+.4	
010640	000000			HLT		;THE PS IS NOT EQUAL TO 0
010642	022704	001000		CMP	#1000,%4	;IS THE RESULT 1000?
010646	001401			BEQ	+.4	
010650	000000			HLT		;R4 IS NOT EQUAL TO 1000

```

*****
;TEST 165  ASH      40000 SHIFTED BY 177774 = 2000  PS = 0
*****

```

010652	010701			SCOPE		
010654	012704	040000		MOV	#40000,%4	;LOAD R4 WITH 40000
010660	072427	177774		ASH	#177774,%4	;SHIFT R4 BY 177774
010664	013767	177776	003052	MOV	2#PS,PSW	;SAVE PS
010672	122767	000000	003044	CMPB	#0,PSW	;IS THE PS 0?
010700	001401			BEQ	+.4	
010702	000000			HLT		;THE PS IS NOT EQUAL TO 0
010704	022704	002000		CMP	#2000,%4	;IS THE RESULT 2000?
010710	001401			BEQ	+.4	
010712	000000			HLT		;R4 IS NOT EQUAL TO 2000


```

*****
;TEST 166 ASH 40000 SHIFTED BY 177775 = 4000 PS = 0
*****

```

010714	010701			SCOPE		
010716	012704	040000		MOV	#40000,%4	;LOAD R4 WITH 40000
010722	072427	177775		ASH	#177775,%4	;SHIFT R4 BY 177775
010726	013767	177776	003010	MOV	@#PS,PSW	;SAVE PS
010734	122767	000000	003002	CMPB	#0,PSW	;IS THE PS 0?
010742	001401			BEQ	+.4	
010744	000000			HLT		;THE PS IS NOT EQUAL TO 0
010746	022704	004000		CMP	#4000,%4	;IS THE RESULT 4000?
010752	001401			BEQ	+.4	
010754	000000			HLT		;R4 IS NOT EQUAL TO 4000

```

*****
;TEST 167 ASH 40000 SHIFTED BY 177776 = 10000 PS = 0
*****

```

010756	010701			SCOPE		
010760	012704	040000		MOV	#40000,%4	;LOAD R4 WITH 40000
010764	072427	177776		ASH	#177776,%4	;SHIFT R4 BY 177776
010770	013767	177776	002746	MOV	@#PS,PSW	;SAVE PS
010776	122767	000000	002740	CMPB	#0,PSW	;IS THE PS 0?
011004	001401			BEQ	+.4	
011006	000000			HLT		;THE PS IS NOT EQUAL TO 0
011010	022704	010000		CMP	#10000,%4	;IS THE RESULT 10000?
011014	001401			BEQ	+.4	
011016	000000			HLT		;R4 IS NOT EQUAL TO 10000

```

*****
;TEST 170 ASH 40000 SHIFTED BY 177777 = 20000 PS = 0
*****

```

011020	010701			SCOPE		
011022	012704	040000		MOV	#40000,%4	;LOAD R4 WITH 40000
011026	072427	177777		ASH	#177777,%4	;SHIFT R4 BY 177777
011032	013767	177776	002704	MOV	@#PS,PSW	;SAVE PS
011040	122767	000000	002676	CMPB	#0,PSW	;IS THE PS 0?
011046	001401			BEQ	+.4	
011050	000000			HLT		;THE PS IS NOT EQUAL TO 0
011052	022704	020000		CMP	#20000,%4	;IS THE RESULT 20000?
011056	001401			BEQ	+.4	
011060	000000			HLT		;R4 IS NOT EQUAL TO 20000

G04

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DCKBIB.SRC

;TEST 171 ASH 40000 SHIFTED BY 0 = 40000 PS = 0

011062	010701			SCOPE		
011064	012704	040000		MOV	#40000,%4	;LOAD R4 WITH 40000
011070	072427	000000		ASH	#0,%4	;SHIFT R4 BY 0
011074	013767	177776	002642	MOV	@#PS,PSW	;SAVE PS
011102	122767	000000	002634	CMPB	#0,PSW	;IS THE PS 0?
011110	001401			BEQ	+.4	
011112	000000			HLT		;THE PS IS NOT EQUAL TO 0
011114	022704	040000		CMP	#40000,%4	;IS THE RESULT 40000?
011120	001401			BEQ	+.4	
011122	000000			HLT		;R4 IS NOT EQUAL TO 40000

;TEST 172 ASH 100000 SHIFTED BY -15. = -1 PS = 10

011124	010701			SCOPE		
011126	012704	100000		MOV	#100000,%4	;LOAD R4 WITH 100000
011132	072427	177761		ASH	#-15,%4	;SHIFT R4 BY -15.
011136	013767	177776	002600	MOV	@#PS,PSW	;SAVE PS
011144	122767	000010	002572	CMPB	#10,PSW	;IS THE PS 10?
011152	001401			BEQ	+.4	
011154	000000			HLT		;THE PS IS NOT EQUAL TO 10
011156	022704	177777		CMP	#-1,%4	;IS THE RESULT -1?
011162	001401			BEQ	+.4	
011164	000000			HLT		;R4 IS NOT EQUAL TO -1

;TEST 173 ASH -1 SHIFTED BY 15. = 100000 PS = 11

011166	010701			SCOPE		
011170	012704	177777		MOV	#-1,%4	;LOAD R4 WITH -1
011174	072427	000017		ASH	#15,%4	;SHIFT R4 BY 15.
011200	013767	177776	002536	MOV	@#PS,PSW	;SAVE PS
011206	122767	000011	002530	CMPB	#11,PSW	;IS THE PS 11?
011214	001401			BEQ	+.4	
011216	000000			HLT		;THE PS IS NOT EQUAL TO 11
011220	022704	100000		CMP	#100000,%4	;IS THE RESULT 100000?
011224	001401			BEQ	+.4	
011226	000000			HLT		;R4 IS NOT EQUAL TO 100000

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DCKBIB.SRC

;TEST 174 ASH -1 SHIFTED BY 16. = 0 PS = 7

011230	010701			SCOPE		
011232	012704	177777		MOV	#-1,%4	;LOAD R4 WITH -1
011236	072427	000020		ASH	#16,%4	;SHIFT R4 BY 16.
011242	013767	177776	002474	MOV	@#PS,PSW	;SAVE PS
011250	122767	000007	002466	CMPB	#7,PSW	;IS THE PS 7?
011256	001401			BEQ	.+4	
011260	000000			HLT		;THE PS IS NOT EQUAL TO 7
011262	022704	000000		CMP	#0,%4	;IS THE RESULT 0?
011266	001401			BEQ	.+4	
011270	000000			HLT		;R4 IS NOT EQUAL TO 0

;TEST 175 ASH 137777 SHIFTED BY 15. = 100000 PS = 13

011272	010701			SCOPE		
011274	012704	137777		MOV	#137777,%4	;LOAD R4 WITH 137777
011300	072427	000017		ASH	#15,%4	;SHIFT R4 BY 15.
011304	013767	177776	002432	MOV	@#PS,PSW	;SAVE PS
011312	122767	000013	002424	CMPB	#13,PSW	;IS THE PS 13?
011320	001401			BEQ	.+4	
011322	000000			HLT		;THE PS IS NOT EQUAL TO 13
011324	022704	100000		CMP	#100000,%4	;IS THE RESULT 100000?
011330	001401			BEQ	.+4	
011332	000000			HLT		;R4 IS NOT EQUAL TO 100000

;TEST 176 ASH 125252 SHIFTED BY 1 = 52524 PS = 3

011334	010701			SCOPE		
011336	012704	125252		MOV	#125252,%4	;LOAD R4 WITH 125252
011342	072427	000001		ASH	#1,%4	;SHIFT R4 BY 1
011346	013767	177776	002370	MOV	@#PS,PSW	;SAVE PS
011354	122767	000003	002362	CMPB	#3,PSW	;IS THE PS 3?
011362	001401			BEQ	.+4	
011364	000000			HLT		;THE PS IS NOT EQUAL TO 3
011366	022704	052524		CMP	#52524,%4	;IS THE RESULT 52524?
011372	001401			BEQ	.+4	
011374	000000			HLT		;R4 IS NOT EQUAL TO 52524

```

*****
;TEST 177 ASH 125252 SHIFTED BY -1 = 152525 PS = 10
*****

```

011376	010701			SCOPE		
011400	012704	125252		MOV	#125252,%4	;LOAD R4 WITH 125252
011404	072427	177777		ASH	#-1,%4	;SHIFT R4 BY -1
011410	013767	177776	002326	MOV	@#PS,PSW	;SAVE PS
011416	122767	000010	002320	CMPB	#10,PSW	;IS THE PS 10?
011424	001401			BEQ	.+4	
011426	000000			HLT		;THE PS IS NOT EQUAL TO 10
011430	022704	152525		CMP	#152525,%4	;IS THE RESULT 152525?
011434	001401			BEQ	.+4	
011436	000000			HLT		;R4 IS NOT EQUAL TO 152525

```

*****
;TEST 200 ASH 125252 SHIFTED BY -2 = 165252 PS = 11
*****

```

011440	010701			SCOPE		
011442	012704	125252		MOV	#125252,%4	;LOAD R4 WITH 125252
011446	072427	177776		ASH	#-2,%4	;SHIFT R4 BY -2
011452	013767	177776	002264	MOV	@#PS,PSW	;SAVE PS
011460	122767	000011	002256	CMPB	#11,PSW	;IS THE PS 11?
011466	001401			BEQ	.+4	
011470	000000			HLT		;THE PS IS NOT EQUAL TO 11
011472	022704	165252		CMP	#165252,%4	;IS THE RESULT 165252?
011476	001401			BEQ	.+4	
011500	000000			HLT		;R4 IS NOT EQUAL TO 165252

```

*****
;TEST 201 ASH 40000 SHIFTED BY 177762 = 1 PS = 0
*****

```

011502	010701			SCOPE		
011504	012705	040000		MOV	#40000,%5	;LOAD R5 WITH 40000
011510	072527	177762		ASH	#177762,%5	;SHIFT R5 BY 177762
011514	013767	177776	002222	MOV	@#PS,PSW	;SAVE PS
011522	122767	000000	002214	CMPB	#0,PSW	;IS THE PS 0?
011530	001401			BEQ	.+4	
011532	000000			HLT		;THE PS IS NOT EQUAL TO 0
011534	022705	000001		CMP	#1,%5	;IS THE RESULT 1?
011540	001401			BEQ	.+4	
011542	000000			HLT		;R5 IS NOT EQUAL TO 1

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DCKBIB.SRC

```
*****
;TEST 202 ASH 40000 SHIFTED BY 177763 = 2 PS = 0
*****
```

011544	010701			SCOPE		
011546	012705	040000		MOV	#40000,%5	;LOAD R5 WITH 40000
011552	072527	177763		ASH	#177763,%5	;SHIFT R5 BY 177763
011556	013767	177776	002160	MOV	@#PS,PSW	;SAVE PS
011564	122767	000000	002152	CMPB	#0,PSW	;IS THE PS 0?
011572	001401			BEQ	+.4	
011574	000000			HLT		;THE PS IS NOT EQUAL TO 0
011576	022705	000002		CMP	#2,%5	;IS THE RESULT 2?
011602	001401			BEQ	+.4	
011604	000000			HLT		;R5 IS NOT EQUAL TO 2

```
*****
;TEST 203 ASH 40000 SHIFTED BY 177764 = 4 PS = 0
*****
```

011606	010701			SCOPE		
011610	012705	040000		MOV	#40000,%5	;LOAD R5 WITH 40000
011614	072527	177764		ASH	#177764,%5	;SHIFT R5 BY 177764
011620	013767	177776	002116	MOV	@#PS,PSW	;SAVE PS
011626	122767	000000	002110	CMPB	#0,PSW	;IS THE PS 0?
011634	001401			BEQ	+.4	
011636	000000			HLT		;THE PS IS NOT EQUAL TO 0
011640	022705	000004		CMP	#4,%5	;IS THE RESULT 4?
011644	001401			BEQ	+.4	
011646	000000			HLT		;R5 IS NOT EQUAL TO 4

```
*****
;TEST 204 ASH 40000 SHIFTED BY 177765 = 10 PS = 0
*****
```

011650	010701			SCOPE		
011652	012705	040000		MOV	#40000,%5	;LOAD R5 WITH 40000
011656	072527	177765		ASH	#177765,%5	;SHIFT R5 BY 177765
011662	013767	177776	002054	MOV	@#PS,PSW	;SAVE PS
011670	122767	000000	002046	CMPB	#0,PSW	;IS THE PS 0?
011676	001401			BEQ	+.4	
011700	000000			HLT		;THE PS IS NOT EQUAL TO 0
011702	022705	000010		CMP	#10,%5	;IS THE RESULT 10?
011706	001401			BEQ	+.4	
011710	000000			HLT		;R5 IS NOT EQUAL TO 10

K04

MAINDEC-11-DCKBI-B ASH TEST MACY11 27(732) 01-OCT-76 13:03 PAGE 50
DCKBIB.SRC

;TEST 205 ASH 40000 SHIFTED BY 177766 = 20 PS = 0

011712	010701			SCOPE		
011714	012705	040000		MOV	#40000,%5	;LOAD R5 WITH 40000
011720	072527	177766		ASH	#177766,%5	;SHIFT R5 BY 177766
011724	013767	177776	002012	MOV	@#PS,PSW	;SAVE PS
011732	122767	000000	002004	CMPB	#0,PSW	;IS THE PS 0?
011740	001401			BEQ	+.4	
011742	000000			HLT		;THE PS IS NOT EQUAL TO 0
011744	022705	000020		CMP	#20,%5	;IS THE RESULT 20?
011750	001401			BEQ	+.4	
011752	000000			HLT		;R5 IS NOT EQUAL TO 20

;TEST 206 ASH 40000 SHIFTED BY 177767 = 40 PS = 0

011754	010701			SCOPE		
011756	012705	040000		MOV	#40000,%5	;LOAD R5 WITH 40000
011762	072527	177767		ASH	#177767,%5	;SHIFT R5 BY 177767
011766	013767	177776	001750	MOV	@#PS,PSW	;SAVE PS
011774	122767	000000	001742	CMPB	#0,PSW	;IS THE PS 0?
012002	001401			BEQ	+.4	
012004	000000			HLT		;THE PS IS NOT EQUAL TO 0
012006	022705	000040		CMP	#40,%5	;IS THE RESULT 40?
012012	001401			BEQ	+.4	
012014	000000			HLT		;R5 IS NOT EQUAL TO 40

;TEST 207 ASH 40000 SHIFTED BY 177770 = 100 PS = 0

012016	010701			SCOPE		
012020	012705	040000		MOV	#40000,%5	;LOAD R5 WITH 40000
012024	072527	177770		ASH	#177770,%5	;SHIFT R5 BY 177770
012030	013767	177776	001706	MOV	@#PS,PSW	;SAVE PS
012036	122767	000000	001700	CMPB	#0,PSW	;IS THE PS 0?
012044	001401			BEQ	+.4	
012046	000000			HLT		;THE PS IS NOT EQUAL TO 0
012050	022705	000100		CMP	#100,%5	;IS THE RESULT 100?
012054	001401			BEQ	+.4	
012056	000000			HLT		;R5 IS NOT EQUAL TO 100


```

*****
;TEST 210 ASH 40000 SHIFTED BY 177771 = 200 PS = 0
*****

```

012060	010701			SCOPE		
012062	012705	040000		MOV	#40000,%5	;LOAD R5 WITH 40000
012066	072527	177771		ASH	#177771,%5	;SHIFT R5 BY 177771
012072	013767	177776	001644	MOV	@#PS,PSW	;SAVE PS
012100	122767	000000	001636	CMPB	#0,PSW	;IS THE PS 0?
012106	001401			BEQ	+.4	
012110	000000			HLT		;THE PS IS NOT EQUAL TO 0
012112	022705	000200		CMP	#200,%5	;IS THE RESULT 200?
012116	001401			BEQ	+.4	
012120	000000			HLT		;R5 IS NOT EQUAL TO 200

```

*****
;TEST 211 ASH 40000 SHIFTED BY 177772 = 400 PS = 0
*****

```

012122	010701			SCOPE		
012124	012705	040000		MOV	#40000,%5	;LOAD R5 WITH 40000
012130	072527	177772		ASH	#177772,%5	;SHIFT R5 BY 177772
012134	013767	177776	001602	MOV	@#PS,PSW	;SAVE PS
012142	122767	000000	001574	CMPB	#0,PSW	;IS THE PS 0?
012150	001401			BEQ	+.4	
012152	000000			HLT		;THE PS IS NOT EQUAL TO 0
012154	022705	000400		CMP	#400,%5	;IS THE RESULT 400?
012160	001401			BEQ	+.4	
012162	000000			HLT		;R5 IS NOT EQUAL TO 400

```

*****
;TEST 212 ASH 40000 SHIFTED BY 177773 = 1000 PS = 0
*****

```

012164	010701			SCOPE		
012166	012705	040000		MOV	#40000,%5	;LOAD R5 WITH 40000
012172	072527	177773		ASH	#177773,%5	;SHIFT R5 BY 177773
012176	013767	177776	001540	MOV	@#PS,PSW	;SAVE PS
012204	122767	000000	001532	CMPB	#0,PSW	;IS THE PS 0?
012212	001401			BEQ	+.4	
012214	000000			HLT		;THE PS IS NOT EQUAL TO 0
012216	022705	001000		CMP	#1000,%5	;IS THE RESULT 1000?
012222	001401			BEQ	+.4	
012224	000000			HLT		;R5 IS NOT EQUAL TO 1000

M04

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DCKBIB.SRC

;TEST 213 ASH 40000 SHIFTED BY 177774 = 2000 PS = 0

012226	010701			SCOPE		
012230	012705	040000		MOV	#40000,%5	;LOAD R5 WITH 40000
012234	072527	177774		ASH	#177774,%5	;SHIFT R5 BY 177774
012240	013767	177776	001476	MOV	@PS,PSW	;SAVE PS
012246	122767	000000	001470	CMPB	#0,PSW	;IS THE PS 0?
012254	001401			BEQ	+.4	
012256	000000			HLT		;THE PS IS NOT EQUAL TO 0
012260	022705	002000		CMP	#2000,%5	;IS THE RESULT 2000?
012264	001401			BEQ	+.4	
012266	000000			HLT		;R5 IS NOT EQUAL TO 2000

;TEST 214 ASH 40000 SHIFTED BY 177775 = 4000 PS = 0

012270	010701			SCOPE		
012272	012705	040000		MOV	#40000,%5	;LOAD R5 WITH 40000
012276	072527	177775		ASH	#177775,%5	;SHIFT R5 BY 177775
012302	013767	177776	001434	MOV	@PS,PSW	;SAVE PS
012310	122767	000000	001426	CMPB	#0,PSW	;IS THE PS 0?
012316	001401			BEQ	+.4	
012320	000000			HLT		;THE PS IS NOT EQUAL TO 0
012322	022705	004000		CMP	#4000,%5	;IS THE RESULT 4000?
012326	001401			BEQ	+.4	
012330	000000			HLT		;R5 IS NOT EQUAL TO 4000

;TEST 215 ASH 40000 SHIFTED BY 177776 = 10000 PS = 0

012332	010701			SCOPE		
012334	012705	040000		MOV	#40000,%5	;LOAD R5 WITH 40000
012340	072527	177776		ASH	#177776,%5	;SHIFT R5 BY 177776
012344	013767	177776	001372	MOV	@PS,PSW	;SAVE PS
012352	122767	000000	001364	CMPB	#0,PSW	;IS THE PS 0?
012360	001401			BEQ	+.4	
012362	000000			HLT		;THE PS IS NOT EQUAL TO 0
012364	022705	010000		CMP	#10000,%5	;IS THE RESULT 10000?
012370	001401			BEQ	+.4	
012372	000000			HLT		;R5 IS NOT EQUAL TO 10000

NO4

MAINDEC-11-DCKBI-B ASH TEST MACY11 27(732) 01-OCT-76 13:03 PAGE 53
DCKBIB.SRC

:TEST 216 ASH 40000 SHIFTED BY 177777 = 20000 PS = 0

012374	010701			SCOPE		
012376	012705	040000		MOV	#40000,%5	;LOAD R5 WITH 40000
012402	072527	177777		ASH	#177777,%5	;SHIFT R5 BY 177777
012406	013767	177776	001330	MOV	@#PS,PSW	;SAVE PS
012414	122767	000000	001322	CMPB	#0,PSW	;IS THE PS 0?
012422	001401			BEQ	.+4	
012424	000000			HLT		;THE PS IS NOT EQUAL TO 0
012426	022705	020000		CMP	#20000,%5	;IS THE RESULT 20000?
012432	001401			BEQ	.+4	
012434	000000			HLT		;R5 IS NOT EQUAL TO 20000

:TEST 217 ASH 40000 SHIFTED BY 0 = 40000 PS = 0

012436	010701			SCOPE		
012440	012705	040000		MOV	#40000,%5	;LOAD R5 WITH 40000
012444	072527	000000		ASH	#0,%5	;SHIFT R5 BY 0
012450	013767	177776	001266	MOV	@#PS,PSW	;SAVE PS
012456	122767	000000	001260	CMPB	#0,PSW	;IS THE PS 0?
012464	001401			BEQ	.+4	
012466	000000			HLT		;THE PS IS NOT EQUAL TO 0
012470	022705	040000		CMP	#40000,%5	;IS THE RESULT 40000?
012474	001401			BEQ	.+4	
012476	000000			HLT		;R5 IS NOT EQUAL TO 40000

:TEST 220 ASH 100000 SHIFTED BY -15. = -1 PS = 10

012500	010701			SCOPE		
012502	012705	100000		MOV	#100000,%5	;LOAD R5 WITH 100000
012506	072527	177761		ASH	#-15,%5	;SHIFT R5 BY -15.
012512	013767	177776	001224	MOV	@#PS,PSW	;SAVE PS
012520	122767	000010	001216	CMPB	#10,PSW	;IS THE PS 10?
012526	001401			BEQ	.+4	
012530	000000			HLT		;THE PS IS NOT EQUAL TO 10
012532	022705	177777		CMP	#-1,%5	;IS THE RESULT -1?
012536	001401			BEQ	.+4	
012540	000000			HLT		;R5 IS NOT EQUAL TO -1

```

*****
;TEST 221  ASH      -1 SHIFTED BY 15. = 100000  PS = 11
*****

```

012542	010701			SCOPE		
012544	012705	177777		MOV	#-1,%5	;LOAD R5 WITH -1
012550	072527	000017		ASH	#15,%5	;SHIFT R5 BY 15.
012554	013767	177776	001162	MOV	@PS,PSW	;SAVE PS
012562	122767	000011	001154	CMPB	#11,PSW	;IS THE PS 11?
012570	001401			BEQ	.+4	
012572	000000			HLT		;THE PS IS NOT EQUAL TO 11
012574	022705	100000		CMP	#100000,%5	;IS THE RESULT 100000?
012600	001401			BEQ	.+4	
012602	000000			HLT		;R5 IS NOT EQUAL TO 100000

```

*****
;TEST 222  ASH      -1 SHIFTED BY 16. = 0  PS = 7
*****

```

012604	010701			SCOPE		
012606	012705	177777		MOV	#-1,%5	;LOAD R5 WITH -1
012612	072527	000020		ASH	#16,%5	;SHIFT R5 BY 16.
012616	013767	177776	001120	MOV	@PS,PSW	;SAVE PS
012624	122767	000007	001112	CMPB	#7,PSW	;IS THE PS 7?
012632	001401			BEQ	.+4	
012634	000000			HLT		;THE PS IS NOT EQUAL TO 7
012636	022705	000000		CMP	#0,%5	;IS THE RESULT 0?
012642	001401			BEQ	.+4	
012644	000000			HLT		;R5 IS NOT EQUAL TO 0

```

*****
;TEST 223  ASH      137777 SHIFTED BY 15. = 100000  PS = 13
*****

```

012646	010701			SCOPE		
012650	012705	137777		MOV	#137777,%5	;LOAD R5 WITH 137777
012654	072527	000017		ASH	#15,%5	;SHIFT R5 BY 15.
012660	013767	177776	001056	MOV	@PS,PSW	;SAVE PS
012666	122767	000013	001050	CMPB	#13,PSW	;IS THE PS 13?
012674	001401			BEQ	.+4	
012676	000000			HLT		;THE PS IS NOT EQUAL TO 13
012700	022705	100000		CMP	#100000,%5	;IS THE RESULT 100000?
012704	001401			BEQ	.+4	
012706	000000			HLT		;R5 IS NOT EQUAL TO 100000


```

*****
:TEST 224  ASH      125252 SHIFTED BY 1 = 52524  PS = 3
*****

```

012710	010701			SCOPE		
012712	012705	125252		MOV	#125252,%5	;LOAD R5 WITH 125252
012716	072527	000001		ASH	#1,%5	;SHIFT R5 BY 1
012722	013767	177776	001014	MOV	3#PS,PSW	;SAVE PS
012730	122767	000003	001006	CMPB	#3,PSW	;IS THE PS 3?
012736	001401			BEQ	.+4	
012740	000000			HLT		;THE PS IS NOT EQUAL TO 3
012742	022705	052524		CMP	#52524,%5	;IS THE RESULT 52524?
012746	001401			BEQ	.+4	
012750	000000			HLT		;R5 IS NOT EQUAL TO 52524

```

*****
:TEST 225  ASH      125252 SHIFTED BY -1 = 152525  PS = 10
*****

```

012752	010701			SCOPE		
012754	012705	125252		MOV	#125252,%5	;LOAD R5 WITH 125252
012760	072527	177777		ASH	#-1,%5	;SHIFT R5 BY -1
012764	013767	177776	000752	MOV	3#PS,PSW	;SAVE PS
012772	122767	000010	000744	CMPB	#10,PSW	;IS THE PS 10?
013000	001401			BEQ	.+4	
013002	000000			HLT		;THE PS IS NOT EQUAL TO 10
013004	022705	152525		CMP	#152525,%5	;IS THE RESULT 152525?
013010	001401			BEQ	.+4	
013012	000000			HLT		;R5 IS NOT EQUAL TO 152525

```

*****
:TEST 226  ASH      125252 SHIFTED BY -2 = 165252  PS = 11
*****

```

013014	010701			SCOPE		
013016	012705	125252		MOV	#125252,%5	;LOAD R5 WITH 125252
013022	072527	177776		ASH	#-2,%5	;SHIFT R5 BY -2
013026	013767	177776	000710	MOV	3#PS,PSW	;SAVE PS
013034	122767	000011	000702	CMPB	#11,PSW	;IS THE PS 11?
013042	001401			BEQ	.+4	
013044	000000			HLT		;THE PS IS NOT EQUAL TO 11
013046	022705	165252		CMP	#165252,%5	;IS THE RESULT 165252?
013052	001401			BEQ	.+4	
013054	000000			HLT		;R5 IS NOT EQUAL TO 165252

013056	012704	177771		MOV	#-7,%4	
013062	012702	013750		MOV	#51,%2	
013066	012703	013752		MOV	#52,%3	

```

*****
:TEST 227 11/40 ASH 125252 SHIFTED BY S1 = 177525 PS = 10
*****

```

013072	010701			SCOPE		
013074	012700	125252		MOV	#125252,%0	;LOAD R0 WITH 125252
013100	072067	000644		ASH	S1,%0	;SHIFT R0 BY S1
013104	013767	177776	000632	MOV	2#PS,PSW	;SAVE PS
013112	122767	000010	000624	CMPB	#10,PSW	;IS THE PS 10?
013120	001401			BEQ	.+4	
013122	000000			HLT		;THE PS IS NOT EQUAL TO 10
013124	022700	177525		CMP	#177525,%0	;IS THE RESULT 177525?
013130	001401			BEQ	.+4	
013132	000000			HLT		;R0 IS NOT EQUAL TO 177525

```

*****
:TEST 230 11/40 ASH 125252 SHIFTED BY 2S2 = 177525 PS = 10
*****

```

013134	010701			SCOPE		
013136	012700	125252		MOV	#125252,%0	;LOAD R0 WITH 125252
013142	072077	000604		ASH	2S2,%0	;SHIFT R0 BY 2S2
013146	013767	177776	000570	MOV	2#PS,PSW	;SAVE PS
013154	122767	000010	000562	CMPB	#10,PSW	;IS THE PS 10?
013162	001401			BEQ	.+4	
013164	000000			HLT		;THE PS IS NOT EQUAL TO 10
013166	022700	177525		CMP	#177525,%0	;IS THE RESULT 177525?
013172	001401			BEQ	.+4	
013174	000000			HLT		;R0 IS NOT EQUAL TO 177525

```

*****
:TEST 231 11/40 ASH 125252 SHIFTED BY 2#S1 = 177525 PS = 10
*****

```

013176	010701			SCOPE		
013200	012700	125252		MOV	#125252,%0	;LOAD R0 WITH 125252
013204	072037	013750		ASH	2#S1,%0	;SHIFT R0 BY 2#S1
013210	013767	177776	000526	MOV	2#PS,PSW	;SAVE PS
013216	122767	000010	000520	CMPB	#10,PSW	;IS THE PS 10?
013224	001401			BEQ	.+4	
013226	000000			HLT		;THE PS IS NOT EQUAL TO 10
013230	022700	177525		CMP	#177525,%0	;IS THE RESULT 177525?
013234	001401			BEQ	.+4	
013236	000000			HLT		;R0 IS NOT EQUAL TO 177525


```

*****
:TEST 232  11/40 ASH      125252 SHIFTED BY %4 = 177525  PS = 10
*****

```

013240	010701			SCOPE		
013242	012700	125252		MOV	#125252,%0	;LOAD R0 WITH 125252
013246	072004			ASH	%4,%0	;SHIFT R0 BY %4
013250	013767	177776	000466	MOV	2#PS,PSW	;SAVE PS
013256	122767	000010	000460	CMPB	#10,PSW	;IS THE PS 10?
013264	001401			BEQ	.+4	
013266	000000			HLT		;THE PS IS NOT EQUAL TO 10
013270	022700	177525		CMP	#177525,%0	;IS THE RESULT 177525?
013274	001401			BEQ	.+4	
013276	000000			HLT		;R0 IS NOT EQUAL TO 177525

```

*****
:TEST 233  11/40 ASH      125252 SHIFTED BY (2)+ = 177525  PS = 10
*****

```

013300	010701			SCOPE		
013302	012700	125252		MOV	#125252,%0	;LOAD R0 WITH 125252
013306	072022			ASH	(2)+,%0	;SHIFT R0 BY (2)+
013310	013767	177776	000426	MOV	2#PS,PSW	;SAVE PS
013316	122767	000010	000420	CMPB	#10,PSW	;IS THE PS 10?
013324	001401			BEQ	.+4	
013326	000000			HLT		;THE PS IS NOT EQUAL TO 10
013330	022700	177525		CMP	#177525,%0	;IS THE RESULT 177525?
013334	001401			BEQ	.+4	
013336	000000			HLT		;R0 IS NOT EQUAL TO 177525

```

*****
:TEST 234  11/40 ASH      125252 SHIFTED BY -(2) = 177525  PS = 10
*****

```

013340	010701			SCOPE		
013342	012700	125252		MOV	#125252,%0	;LOAD R0 WITH 125252
013346	072042			ASH	-(2),%0	;SHIFT R0 BY -(2)
013350	013767	177776	000366	MOV	2#PS,PSW	;SAVE PS
013356	122767	000010	000360	CMPB	#10,PSW	;IS THE PS 10?
013364	001401			BEQ	.+4	
013366	000000			HLT		;THE PS IS NOT EQUAL TO 10
013370	022700	177525		CMP	#177525,%0	;IS THE RESULT 177525?
013374	001401			BEQ	.+4	
013376	000000			HLT		;R0 IS NOT EQUAL TO 177525

```

*****
;TEST 235  11/40 ASH      125252 SHIFTED BY 2(3) = 177252 PS = 11
*****

```

013400	010701			SCOPE		
013402	012700	125252		MOV	#125252,%0	;LOAD RO WITH 125252
013406	072063	000002		ASH	2(3),%0	;SHIFT RO BY 2(3)
013412	013767	177776	000324	MOV	2#PS,PSW	;SAVE PS
013420	122767	000011	000316	CMPB	#11,PSW	;IS THE PS 11?
013426	001401			BEQ	.+4	
013430	000000			HLT		;THE PS IS NOT EQUAL TO 11
013432	022700	177252		CMP	#177252,%0	;IS THE RESULT 177252?
013436	001401			BEQ	.+4	
013440	000000			HLT		;RO IS NOT EQUAL TO 177252

```

*****
;TEST 236  11/40 ASH      125252 SHIFTED BY 2(3) = 177525 PS = 10
*****

```

013442	010701			SCOPE		
013444	012700	125252		MOV	#125252,%0	;LOAD RO WITH 125252
013450	072073	000000		ASH	2(3),%0	;SHIFT RO BY 2(3)
013454	013767	177776	000262	MOV	2#PS,PSW	;SAVE PS
013462	122767	000010	000254	CMPB	#10,PSW	;IS THE PS 10?
013470	001401			BEQ	.+4	
013472	000000			HLT		;THE PS IS NOT EQUAL TO 10
013474	022700	177525		CMP	#177525,%0	;IS THE RESULT 177525?
013500	001401			BEQ	.+4	
013502	000000			HLT		;RO IS NOT EQUAL TO 177525

```

*****
;TEST 237  11/40 ASH      125252 SHIFTED BY 2(3)+ = 177525 PS = 10
*****

```

013504	010701			SCOPE		
013506	012700	125252		MOV	#125252,%0	;LOAD RO WITH 125252
013512	072033			ASH	2(3)+,%0	;SHIFT RO BY 2(3)+
013514	013767	177776	000222	MOV	2#PS,PSW	;SAVE PS
013522	122767	000010	000214	CMPB	#10,PSW	;IS THE PS 10?
013530	001401			BEQ	.+4	
013532	000000			HLT		;THE PS IS NOT EQUAL TO 10
013534	022700	177525		CMP	#177525,%0	;IS THE RESULT 177525?
013540	001401			BEQ	.+4	
013542	000000			HLT		;RO IS NOT EQUAL TO 177525


```

*****
;TEST 240 11/40 ASH 125252 SHIFTED BY 2-(3) = 177525 PS = 10
*****

```

013544	010701			SCOPE		
013546	012700	125252		MOV	#125252,%0	;LOAD R0 WITH 125252
013552	072053			ASH	2-(3),%0	;SHIFT R0 BY 2-(3)
013554	013767	177776	000162	MOV	2#PS,PSW	;SAVE PS
013562	122767	000010	000154	CMPB	#10,PSW	;IS THE PS 10?
013570	001401			BEQ	.+4	
013572	000000			HLT		;THE PS IS NOT EQUAL TO 10
013574	022700	177525		CMP	#177525,%0	;IS THE RESULT 177525?
013600	001401			BEQ	.+4	
013602	000000			HLT		;R0 IS NOT EQUAL TO 177525

```

*****
;TEST 241 CHECKS THAT ASH WITH DST MODE 5 RETURNS
;DECREMENTED OPERAND TO DST REGISTER
*****
;NOTE: THIS ROUTINE DOES NOT HAVE TO PASS IN SOME CASES IN FIELD
;SERVICE ONLY. IT MUST PASS IN MANUFACTURING TO REFLECT ECO M7238-0004.
;SEE PARAGRAPH 9.1 AT BEGINNING OF PROGRAM FOR FULL EXPLANATION.

```

013604	010701			SCOPE		
013606	012700	000100		MOV	#100,R0	;LOAD R0 WITH 100
013612	012701	013636		MOV	#0+2,R1	;LOAD R1 WITH DST OPERAND
013616	072051			ASH	2-(1),R0	;SHIFT USING DST MODE 5
013620	022701	013634		CMP	#0,R1	;DECREMENTED OPERAND RETURNED TO R1?
013624	001404			BEQ	PASCNT	;YES
013626	000000			HLT		;R1 DOES NOT HAVE DECREMENTED OPERAND
013630	000402			BR	PASCNT	;BRANCH AHEAD ON CONTINUE
013632	000003			.WORD	3	
013634	013632			.WORD	.-2	
013636	005267	165136		PASCNT: INC	ICNT	
013642	016737	165132	177570	MOV	ICNT,2#DISPLAY	
013650	022767	020000	165122	CMP	#20000,ICNT	
013656	001402			BEQ	.+6	
013660	000167	165152		JMP	BEG	
013664	005067	165110		CLR	ICNT	
013670	105737	177564		TSTB	2#TPS	
013674	100375			BPL	.-4	
013676	112737	000007	177566	MOVB	#7,2#TPB	;RING BELL FOR PASS COMPLETE
013704	105737	177564		TSTB	2#TPS	
013710	100375			BPL	.-4	
013712	112737	000052	177566	MOVB	#52,2#TPB	;ALSO PRINT '*' FOR PASS COMPLETE
013720	013700	000042		MOV	2#42,%0	;GET MONITOR RETURN ADDRESS
013724	001405			BEQ	AGAIN	;SKIP IF NONE
013726	000005			RESET		
013730	004710			SENDAD: JSR	7,(0)	;GO BACK TO THE MONITOR
013732	000240			NOP		
013734	000240			NOP		
013736	000240			NOP		
013740	000137	000200		AGAIN: JMP	2#200	;RESTART THE PROGRAM

H05

MAINDEC-11-DCKBI-B ASH TEST MACY11 27(732) 01-OCT-76 13:03 PAGE 60
DCKBIB.SRC

013744 000000
013746 000007
013750 177771
013752 013750
013754 177772
013756 005015
013764 026511
013772 020110
014000 052522
014006 020116
014014 005015

041504 041113
020102 051501
047111 052123
052103 047511
042524 052123
000012

PSW: 0
SQ: 7
S1: -7
S2: S1
S3: -6

MSG1: .ASCIZ <15><12>/DCKBI-B ASH INSTRUCTION TEST/<15><12><12>

000001

.END

AGAIN 013740
BEG 001036
BEG1 001002
DISPLA= 177570
DUMMY = 000000
HLT = 000000

ICNT 001000
M = 000006

MSG1 013756
N = 000241

2957	2963#	191#	2948											
182	187													
178	181#													
165#	2945*													
167#														
162#	211	214	228	231	245	248	263	266	290	283	297	300		
314	317	331	334	348	351	365	368	382	385	399	402	416		
419	433	436	450	453	467	470	484	487	501	504	518	521		
535	538	552	555	569	572	586	589	603	606	620	623	637		
640	654	657	671	674	688	691	705	708	722	725	739	742		
756	759	773	776	790	793	807	810	824	827	841	844	858		
861	875	878	892	895	909	912	926	929	943	946	960	963		
977	980	994	997	1011	1014	1028	1031	1045	1048	1062	1065	1079		
1082	1096	1099	1113	1116	1130	1133	1147	1150	1164	1167	1181	1184		
1198	1201	1215	1218	1232	1235	1249	1252	1266	1269	1283	1286	1300		
1303	1317	1320	1334	1337	1351	1354	1368	1371	1385	1388	1402	1405		
1419	1422	1436	1439	1453	1456	1470	1473	1487	1490	1504	1507	1521		
1524	1538	1541	1555	1558	1572	1575	1589	1592	1606	1609	1623	1626		
1640	1643	1657	1660	1674	1677	1691	1694	1708	1711	1725	1728	1742		
1745	1759	1762	1776	1779	1793	1796	1810	1813	1827	1830	1844	1847		
1861	1864	1878	1881	1895	1898	1912	1915	1929	1932	1946	1949	1963		
1966	1980	1983	1997	2000	2014	2017	2031	2034	2048	2051	2065	2068		
2082	2085	2099	2102	2116	2119	2133	2136	2150	2153	2167	2170	2184		
2187	2201	2204	2218	2221	2235	2238	2252	2255	2269	2272	2286	2289		
2303	2306	2320	2323	2337	2340	2354	2357	2371	2374	2388	2391	2405		
2408	2422	2425	2439	2442	2456	2459	2473	2476	2490	2493	2507	2510		
2524	2527	2541	2544	2558	2561	2575	2578	2592	2595	2609	2612	2626		
2629	2643	2646	2660	2663	2677	2680	2694	2697	2711	2714	2728	2731		
2745	2748	2765	2768	2782	2785	2799	2802	2816	2819	2833	2836	2850		
2853	2867	2870	2884	2887	2901	2904	2918	2921	2939					
180#	2944*	2945	2946	2949*										
168#	253	270	287	304	321	338	355	372	389	406	423	440		
457	474	491	508	525	542	559	576	593	610	627	644	661		
678	695	712	729	746	763	780	797	814	831	848	865	882#		
899	916	933	950	967	984	1001	1018	1035	1052	1069	1086	1103		
1120	1137	1154	1171	1188	1205	1222	1239	1256#	1273	1290	1307	1324		
1341	1358	1375	1392	1409	1426	1443	1460	1477	1494	1511	1528	1545		
1562	1579	1596	1613	1630#	1647	1664	1681	1698	1715	1732	1749	1766		
1783	1800	1817	1834	1851	1868	1885	1902	1919	1936	1953	1970	1987		
2004#	2021	2038	2055	2072	2089	2106	2123	2140	2157	2174	2191	2208		
2225	2242	2259	2276	2293	2310	2327	2344	2361	2378#	2395	2412	2429		
2446	2463	2480	2497	2514	2531	2548	2565	2582	2599	2616	2633	2650		
2667	2684	2701	2718	2735	2752#									
183	2970#													
166#	201	218#	235#	252#	253	270#	287#	304#	321#	338#	355#	372#		
389#	406#	423#	440#	457#	474#	491#	508#	525#	542#	559#	576#	593#		
610#	627#	644#	661#	678#	695#	712#	729#	746#	763#	780#	797#	814#		
831#	848#	865#	882#	899#	916#	933#	950#	967#	984#	1001#	1018#	1035#		
1052#	1069#	1086#	1103#	1120#	1137#	1154#	1171#	1188#	1205#	1222#	1239#	1256#		
1273#	1290#	1307#	1324#	1341#	1358#	1375#	1392#	1409#	1426#	1443#	1460#	1477#		
1494#	1511#	1528#	1545#	1562#	1579#	1596#	1613#	1630#	1647#	1664#	1681#	1698#		
1715#	1732#	1749#	1766#	1783#	1800#	1817#	1834#	1851#	1868#	1885#	1902#	1919#		
1936#	1953#	1970#	1987#	2004#	2021#	2038#	2055#	2072#	2089#	2106#	2123#	2140#		
2157#	2174#	2191#	2208#	2225#	2242#	2259#	2276#	2293#	2310#	2327#	2344#	2361#		
2378#	2395#	2412#	2429#	2446#	2463#	2480#	2497#	2514#	2531#	2548#	2565#	2582#		
2599#	2616#	2633#	2650#	2667#	2684#	2701#	2718#	2735#	2752#	2772#	2789#			

J05

MAINDEC-11-DCKBI-B ASH TEST MACY11 27(732) 01-OCT-76 13:03 PAGE 63
 DCKBIB.SRC CROSS REFERENCE TABLE -- USER SYMBOLS

PASCNT 013636
 PS = 177776

PSW 013744

Q 013634
 R = 100000

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379	396	413	430	447	464	481	498	515	532	549	566	583	
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821	838	855	872	889	906	923	940	957	974	991	1008	1025	
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1484	1501	1518	1535	1552	1569	1586	1603	1620	1637	1654	1671	1688	
1705	1722	1739	1756	1773	1790	1807	1824	1841	1858	1875	1892	1909	
1926	1943	1960	1977	1994	2011	2028	2045	2062	2079	2096	2113	2130	
2147	2164	2181	2198	2215	2232	2249	2266	2283	2300	2317	2334	2351	
2368	2385	2402	2419	2436	2453	2470	2487	2504	2521	2538	2555	2572	
2589	2606	2623	2640	2657	2674	2691	2708	2725	2742	2762	2779	2796	
2813	2830	2847	2864	2881	2898	2915							
208*	209	225*	226	242*	243	260*	261	277*	278	294*	295	311*	
312	328*	329	345*	346	362*	363	379*	380	396*	397	413*	414	
430*	431	447*	448	464*	465	481*	482	498*	499	515*	516	532*	
533	549*	550	566*	567	583*	584	600*	601	617*	618	634*	635	
651*	652	668*	669	685*	686	702*	703	719*	720	736*	737	753*	
754	770*	771	787*	788	804*	805	821*	822	838*	839	855*	856	
872*	873	889*	890	906*	907	923*	924	940*	941	957*	958	974*	
975	991*	992	1008*	1009	1025*	1026	1042*	1043	1059*	1060	1076*	1077	
1093*	1094	1110*	1111	1127*	1128	1144*	1145	1161*	1162	1178*	1179	1195*	
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1314*	1315	1331*	1332	1348*	1349	1365*	1366	1382*	1383	1399*	1400	1416*	
1417	1433*	1434	1450*	1451	1467*	1468	1484*	1485	1501*	1502	1518*	1519	
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1977*	1978	1994*	1995	2011*	2012	2028*	2029	2045*	2046	2062*	2063	2079*	
2080	2096*	2097	2113*	2114	2130*	2131	2147*	2148	2164*	2165	2181*	2182	
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2301	2317*	2318	2334*	2335	2351*	2352	2368*	2369	2385*	2386	2402*	2403	
2419*	2420	2436*	2437	2453*	2454	2470*	2471	2487*	2488	2504*	2505	2521*	
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183#													
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K05

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S2 013752
S3 013754
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SENDAD 013730
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1736	1753	1770	1787	1804	1821	1838	1855	1872	1889	1906	1923	1940
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2178	2195	2212	2229	2246	2263	2280	2297	2314	2331	2348	2365	2382
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2844	2861	2878	2895	2912	2933							
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695#	712#	729#	746#	763#	882#	899#	916#	933#	950#	967#	984#	1001#
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2208#	2225#	2242#	2259#	2378#	2395#	2412#	2429#	2446#	2463#	2480#	2497#	2514#
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571	585	588	602	605	619	622	636	639	653	656	670	673
687	690	704	707	721	724	738	741	755	758	772	775	789
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908	911	925	928	942	945	959	962	976	979	993	996	1010
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2013	2016	2030	2033	2047	2050	2064	2067	2081	2084	2098	2101	2115
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[illegible]

M05

MAINDEC-11-DCKBI-B ASH TEST MACY11 27(732) 01-OCT-76 13:03 PAGE 67
DCKBIB.SRC CROSS REFERENCE TABLE -- MACRO NAMES

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	299	313	316	330	333	347	350	364	367	381	384	398	401	415	418
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	2746	2766	2783	2800	2817	2834	2851	2868	2885	2902	2919	2937	2946		
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	2755	2772	2789	2806	2823	2840	2857	2874	2891	2908	2925				
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	406	423	440	457	474	491	508	525	542	559	576	593	610	627	644
	661	678	695	712	729	746	763	780	797	814	831	848	865	882	899
	916	933	950	967	984	1001	1018	1035	1052	1069	1086	1103	1120	1137	1154
	1171	1188	1205	1222	1239	1256	1273	1290	1307	1324	1341	1358	1375	1392	1409
	1426	1443	1460	1477	1494	1511	1528	1545	1562	1579	1596	1613	1630	1647	1664
	1681	1698	1715	1732	1749	1766	1783	1800	1817	1834	1851	1868	1885	1902	1919
	1936	1953	1970	1987	2004	2021	2038	2055	2072	2089	2106	2123	2140	2157	2174
	2191	2208	2225	2242	2259	2276	2293	2310	2327	2344	2361	2378	2395	2412	2429

C06

MAINDEC-11-DCKBI-B ASH TEST MACY11 27(732) 01-OCT-76 13:03 PAGE 71
 DCKBIB.SRC CROSS REFERENCE TABLE -- PERMANENT SYMBOLS

	2446	2463	2480	2497	2514	2531	2548	2565	2582	2599	2616	2633	2650	2667	2684
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	661	678	695	712	729	746	763	780	797	814	831	848	865	882	899
	916	933	950	967	984	1001	1018	1035	1052	1069	1086	1103	1120	1137	1154
	1171	1188	1205	1222	1239	1256	1273	1290	1307	1324	1341	1358	1375	1392	1409
	1426	1443	1460	1477	1494	1511	1528	1545	1562	1579	1596	1613	1630	1647	1664
	1681	1698	1715	1732	1749	1766	1783	1800	1817	1834	1851	1868	1885	1902	1919
	1936	1953	1970	1987	2004	2021	2038	2055	2072	2089	2106	2123	2140	2157	2174
	2191	2208	2225	2242	2259	2276	2293	2310	2327	2344	2361	2378	2395	2412	2429
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	2701	2718	2735	2752	2772	2789	2806	2823	2840	2857	2874	2891	2908	2925	
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	1732	1783	1834	1885	1936	1987	2038	2089	2140	2191	2242	2293	2344	2395	2446
	2497	2548	2599	2650	2701	2755	2806	2857	2908						
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ERRORS DETECTED: 0
 DEFAULT GLOBALS GENERATED: 0

*.DCKBIB.SEG/SOL/CRF/PAGNUM/NL:TOC=SYSMAC.CO,DCKBIB.SRC
 RUN-TIME: 31 40 3 SECONDS
 RUN-TIME RATIO: 137/75=1.8
 CORE USED: 33K (65 PAGES)

Spooler runtime 9 Seconds, 40 KCS, 244 disk reads, 4 disk writes, 62 pages

SHAW-WALKER, J. L. 1983. The effect of the 1982-83 El Niño on the Pacific coast of South America. *Journal of Marine Research* 41:1-16.

[illegible]