

PDP11/45

ASHC

MD-11-DCKBJ-A

EP DCKBJ-A DL-A

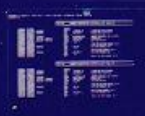
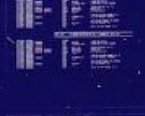
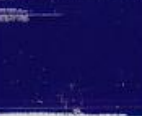
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IDENTIFICATION

PRODUCT CODE: MAINDEC-11-DCKBJ-A1-D

PRODUCT NAME: ASHC INSTRUCTION TEST

DATE CREATED: 15 MAR 1972

MAINTAINER: DIAGNOSTIC GROUP

AUTHOR: BOB BRAIN

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MAYNARD, MASS

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THIS PROGRAM WILL INCREMENTALLY TEST AND ISOLATE SIMPLE MALFUNCTIONS
RELATED TO THE ASHC INSTRUCTION

EQUIPMENT
BASIC 11/45 SYSTEM OR
11/40 WITH KELL-E OPTION

THIS PROGRAM USES 0 THRU 17500

2.2 STORAGE

THIS PROGRAM USES 0 THRU 17500

2.3 PRELIMINARY PROGRAMS DOMA 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 BELL ON PASS COMPLETION.

5.0 OPERATING PROCEDURE

5.1 SWITCH SETTINGS

5.2 SUBROUTINE ABSTRACTS

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

5.2.2 MLT
MLT 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 PRECEDING 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
```

001

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TRAPVEC+4: 012716 ;MOVE SCOPE ADDRESS TO STACK
TRAPVEC+6: 000006 ;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 TERMINATION 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
THE PROGRAM INITIALLY SETS THE STACK POINTER AT 500.

9.0 PROGRAM DESCRIPTIONS

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

.TITLE MAINDEC-11-DCKBJ-A ASHC TEST
;COPYRIGHT 1972, DIGITAL EQUIPMENT CORP., MAYNARD, MASS
;PROGRAM BY BOB BRAIN

.ABS

010701
000000
177776
177570
177570
000001
000000
000000

SCOPE= 10701
HLT= HALT
PS= 177776
SI= 177570
DISPLAY=SMR
N= 1
DUMMY= 0
H=0

000000

.=0

;TRAP CATCHER 0 - 776

000200 000200 000576
000167
001000

.= 200
JrP BEG
.= 1000

001000 000000

ICNT: 0 ;PASS COUNT

001002 012706 000500
001006 005037 177776
001012 032737 001000 177570
001020 071403
001022 012737 004000 177776
001030 032767 000400 176532
001036 001403
001040 116767 176524 176722

BEG: MOV #500,%6 ;** STACK AT 500 **
CLR 2#PS
BIT #1000,2#SMR ;WHICH REGISTER SET?
BEQ .+10
MOV #4000,2#PS ;ALTERNATE!
BIT #400,SMR ;LOAD UB REG?
BEQ .+10
MOVB SMR,177770

EO1

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```

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

```

001046	010701			SCOPE		
001050	012700	000000		MOV	80,XD	;LOAD RD WITH 0
001054	012701	000000		MOV	80,XD!1	;LOAD RD!1 WITH 0
001060	000241			CLC		
001062	073027	000000		ASHC	8,XD	;SHIFT RD,RD!1 BY 0
001066	013767	177776	013654	MOV	28,PS	;SAVE PS
001074	122767	000004	013646	CMPS	84,PS	;IS THE PS 4?
001102	001401			BEO	.+4	
001104	001401			HLT		
001106	022700	000000		CMPS	80,XD	;THE PS IS NOT EQUAL TO 4
001112	001401			BEO	.+4	;IS THE RESULT 0?
001114	000000			HLT		
001116	022701	000000		CMPS	80,XD!1	;RD IS NOT EQUAL TO 0
001122	001401			BEO	.+4	;IS THE RESULT 0?
001124	000000			HLT		;RD!1 IS NOT EQUAL TO 0

```

*****
;TEST 2      0 0 SHIFTED BY -32. = 0 0  PS = 4
*****

```

001126	010701			SCOPE		
001130	012700	000000		MOV	80,XD	;LOAD RD WITH 0
001134	012701	000000		MOV	80,XD!1	;LOAD RD!1 WITH 0
001140	000241			CLC		
001142	073027	177740		ASHC	8-32,XD	;SHIFT RD,RD!1 BY -32.
001146	013767	177776	013574	MOV	28,PS	;SAVE PS
001154	122767	000004	013566	CMPS	84,PS	;IS THE PS 4?
001162	001401			BEO	.+4	
001164	000000			HLT		
001166	022700	000000		CMPS	80,XD	;THE PS IS NOT EQUAL TO 4
001172	001401			BEO	.+4	;IS THE RESULT 0?
001174	000000			HLT		
001176	022701	000000		CMPS	80,XD!1	;RD IS NOT EQUAL TO 0
001202	001401			BEO	.+4	;IS THE RESULT 0?
001204	000000			HLT		;RD!1 IS NOT EQUAL TO 0

GO1

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:TEST 3 0 0 SHIFTED BY 32. = 0 0 PS = 4

001206	010701		SCOPE		
001210	012700	000000	MOV	80,X0	:LOAD R0 WITH 0
001214	012701	000000	MOV	80,X0!1	:LOAD R0!1 WITH 0
001218	001241		CLC		
001222	073027	000040	ASHC	832,X0	:SHIFT R0,R0!1 BY 32.
001226	013767	177776 013514	MOV	28PS,PSW	:SAVE PS
001230	122767	000004 013506	CHPB	84,PSW	:IS THE PS 4?
001234	001401		BEQ	.+4	
001238	001000		HLT		:THE PS IS NOT EQUAL TO 4
001242	022700	000000	CHP	80,X0	:IS THE RESULT 0?
001246	001401		BEQ	.+4	
001250	000000		HLT		:R0 IS NOT EQUAL TO 0
001254	001701	000000	CHP	80,X0!1	:IS THE RESULT 0?
001258	001401		BEQ	.+4	
001262	000000		HLT		:R0!1 IS NOT EQUAL TO 0

:TEST 4 0 1 SHIFTED BY 0 = 0 1 PS = 0

001266	010701		SCOPE		
001270	012700	000000	MOV	80,X0	:LOAD R0 WITH 0
001274	012701	000001	MOV	81,X0!1	:LOAD R0!1 WITH 1
001278	001241		CLC		
001282	073027	000000	ASHC	80,X0	:SHIFT R0,R0!1 BY 0
001286	013767	177776 013434	MOV	28PS,PSW	:SAVE PS
001290	122767	000000 013426	CHPB	80,PSW	:IS THE PS 0?
001294	001401		BEQ	.+4	
001298	000000		HLT		:THE PS IS NOT EQUAL TO 0
001302	022700	000000	CHP	80,X0	:IS THE RESULT 0?
001306	001401		BEQ	.+4	
001310	000000		HLT		:R0 IS NOT EQUAL TO 0
001314	022701	000001	CHP	81,X0!1	:IS THE RESULT 1?
001318	001401		BEQ	.+4	
001322	000000		HLT		:R0!1 IS NOT EQUAL TO 1

```

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

```

001346	010701		SCOPE		
001350	012700	000000	MOV	00,X0	;LOAD R0 WITH 0
001354	012701	000001	MOV	01,X0!1	;LOAD R0!1 WITH 1
001358	012701		CLC		
001362	012701	000001	ASHC	01,X0	;SHIFT R0,R0!1 BY 1
001366	012701	177776	MOV	00,PS,PSW	;SAVE PS
001370	012701	000000	CMPB	00,PSW	;IS THE PS 0?
001374	012701		BEO	.+4	
001378	012701		HLT		;THE PS IS NOT EQUAL TO 0
001382	012701	000000	CMP	00,X0	;IS THE RESULT 0?
001386	012701		BEO	.+4	
001390	012701		HLT		;R0 IS NOT EQUAL TO 0
001394	012701	000002	CMP	02,X0!1	;IS THE RESULT 2?
001398	012701		BEO	.+4	
001402	012701		HLT		;R0!1 IS NOT EQUAL TO 2

```

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

```

001426	010701		SCOPE		
001430	012700	000000	MOV	00,X0	;LOAD R0 WITH 0
001434	012701	000001	MOV	01,X0!1	;LOAD R0!1 WITH 1
001438	012701		CLC		
001442	012701	000002	ASHC	02,X0	;SHIFT R0,R0!1 BY 2
001446	012701	177776	MOV	00,PS,PSW	;SAVE PS
001450	012701	000000	CMPB	00,PSW	;IS THE PS 0?
001454	012701		BEO	.+4	
001458	012701		HLT		;THE PS IS NOT EQUAL TO 0
001462	012701	000000	CMP	00,X0	;IS THE RESULT 0?
001466	012701		BEO	.+4	
001470	012701		HLT		;R0 IS NOT EQUAL TO 0
001474	012701	000004	CMP	04,X0!1	;IS THE RESULT 4?
001478	012701		BEO	.+4	
001482	012701		HLT		;R0!1 IS NOT EQUAL TO 4

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TEST 7 0 1 SHIFTED BY 3 = 0 10 PS = 0

001506	010701			SCOPE		
001510	012700	000000		MOV	80,X0	;LOAD R0 WITH 0
001514	012701	000001		MOV	81,X0!1	;LOAD R0!1 WITH 1
001520	00241			CLC		
001522	073027	000003		ASHC	83,X0	;SHIFT R0,R0!1 BY 3
001526	013767	177776	013214	MOV	28,PS,PSM	;SAVE PS
001534	122767	000000	013206	CHPB	80,PSM	;IS THE PS 0?
001542	001401			BEQ	.+4	
001544	000000			HLT		;THE PS IS NOT EQUAL TO 0
001546	022700	000000		CHP	80,X0	;IS THE RESULT 0?
001552	001401			BEQ	.+4	
001554	000000			HLT		;R0 IS NOT EQUAL TO 0
001556	022701	000010		CHP	810,X0!1	;IS THE RESULT 10?
001562	001401			BEQ	.+4	
001564	000000			HLT		;R0!1 IS NOT EQUAL TO 10

TEST 10 0 1 SHIFTED BY 4 = 0 20 PS = 0

001566	010701			SCOPE		
001570	012700	000000		MOV	80,X0	;LOAD R0 WITH 0
001574	012701	000001		MOV	81,X0!1	;LOAD R0!1 WITH 1
001600	00241			CLC		
001602	073027	000004		ASHC	84,X0	;SHIFT R0,R0!1 BY 4
001606	013767	177776	013134	MOV	28,PS,PSM	;SAVE PS
001614	122767	000000	013126	CHPB	80,PSM	;IS THE PS 0?
001622	001401			BEQ	.+4	
001624	000000			HLT		;THE PS IS NOT EQUAL TO 0
001626	022700	000000		CHP	80,X0	;IS THE RESULT 0?
001632	001401			BEQ	.+4	
001634	000000			HLT		;R0 IS NOT EQUAL TO 0
001636	022701	000020		CHP	820,X0!1	;IS THE RESULT 20?
001642	001401			BEQ	.+4	
001644	000000			HLT		;R0!1 IS NOT EQUAL TO 20

```

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

```

001646	010701		SCOPE		
001650	012700	000000	MOV	#0,X0	;LOAD R0 WITH 0
001654	012701	000001	MOV	#1,X0!1	;LOAD R0!1 WITH 1
001660	000241		CLC		
001662	073027	000005	ASHC	#5,X0	;SHIFT R0,R0!1 BY 5
001666	013767	177776	MOV	@PS,PSH	;SAVE PS
001674	122767	000000	CHB	#0,PSH	;IS THE PS 0?
001702	001401		BEQ	.+4	
001704	012700		HLT		;THE PS IS NOT EQUAL TO 0
001706	012700	000000	CHP	#0,X0	;IS THE RESULT 0?
001712	012700		BEQ	.+4	
001714	012700		HLT		;R0 IS NOT EQUAL TO 0
001716	012701	000040	CHP	#40,X0!1	;IS THE RESULT 40?
001722	001401		BEQ	.+4	
001724	000000		HLT		;R0!1 IS NOT EQUAL TO 40

```

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

```

001726	010701		SCOPE		
001730	012700	000000	MOV	#0,X0	;LOAD R0 WITH 0
001734	012701	000001	MOV	#1,X0!1	;LOAD R0!1 WITH 1
001740	000241		CLC		
001742	073027	000006	ASHC	#6,X0	;SHIFT R0,R0!1 BY 6
001746	013767	177776	MOV	@PS,PSH	;SAVE PS
001754	122767	000000	CHPB	#0,PSH	;IS THE PS 0?
001762	012701		BEQ	.+4	
001764	012700		HLT		;THE PS IS NOT EQUAL TO 0
001766	012700	000000	CHP	#0,X0	;IS THE RESULT 0?
001772	012700		BEQ	.+4	
001774	012700		HLT		;R0 IS NOT EQUAL TO 0
001776	012701	000100	CHP	#100,X0!1	;IS THE RESULT 100?
002002	001401		BEQ	.+4	
002004	000000		HLT		;R0!1 IS NOT EQUAL TO 100

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:TEST 13 0 1 SHIFTED BY 7 = 0 200 PS = 0

002006	010701		SCOPE		
002010	012700	000000	MOV	80,X0	;LOAD R0 WITH 0
002014	012701	000001	MOV	81,X0!1	;LOAD R0!1 WITH 1
002020	000241		CLC		
002022	073027	000007	ASHC	87,X0	;SHIFT R0,R0!1 BY 7
002026	013767	177776	MOV	88PS,PSW	;SAVE PS
002034	122767	000000	CMPB	80,PSW	;IS THE PS 0?
002042	001401		BEQ	.+4	
002044	000000		HLT		;THE PS IS NOT EQUAL TO 0
002046	022700	000000	CMP	80,X0	;IS THE RESULT 0?
002050	001401		BEQ	.+4	
002054	000000		HLT		;R0 IS NOT EQUAL TO 0
002056	022701	000200	CMP	8200,X0!1	;IS THE RESULT 200?
002062	001401		BEQ	.+4	
002064	000000		HLT		;R0!1 IS NOT EQUAL TO 200

:TEST 14 0 1 SHIFTED BY 10 = 0 400 PS = 0

002066	010701		SCOPE		
002070	012700	000000	MOV	80,X0	;LOAD R0 WITH 0
002074	012701	000001	MOV	81,X0!1	;LOAD R0!1 WITH 1
002080	000241		CLC		
002102	073027	000010	ASHC	810,X0	;SHIFT R0,R0!1 BY 10
002106	013767	177776	MOV	88PS,PSW	;SAVE PS
002114	122767	000000	CMPB	80,PSW	;IS THE PS 0?
002122	001401		BEQ	.+4	
002124	000000		HLT		;THE PS IS NOT EQUAL TO 0
002126	022700	000000	CMP	80,X0	;IS THE RESULT 0?
002132	001401		BEQ	.+4	
002134	000000		HLT		;R0 IS NOT EQUAL TO 0
002136	022701	000400	CMP	8400,X0!1	;IS THE RESULT 400?
002142	001401		BEQ	.+4	
002144	000000		HLT		;R0!1 IS NOT EQUAL TO 400

:TEST 15 0 1 SHIFTED BY 11 = 0 1000 PS = 0

002146	010701			SCOPE		
002150	012700	000000		MOV	#0,%0	;LOAD R0 WITH 0
002154	012701	000001		MOV	#1,%0!1	;LOAD R0!1 WITH 1
002160	000241			CLC		
002162	073027	000011		ASHC	#11,%0	;SHIFT R0,R0!1 BY 11
002166	013767	177776	012554	MOV	#PS,PSW	;SAVE PS
002174	122767	000000	012546	CMPB	#0,PSW	;IS THE PS 0?
002202	001401			BEQ	.+4	
002204	000000			HLT		;THE PS IS NOT EQUAL TO 0
002206	022700	000000		CMP	#0,%0	;IS THE RESULT 0?
002212	001401			BEQ	.+4	
002214	000000			HLT		;R0 IS NOT EQUAL TO 0
002216	022701	001000		CMP	#1000,%0!1	;IS THE RESULT 1000?
002222	001401			BEQ	.+4	
002224	000000			HLT		;R0!1 IS NOT EQUAL TO 1000

:TEST 16 0 1 SHIFTED BY 12 = 0 2000 PS = 0

002226	010701			SCOPE		
002230	012700	000000		MOV	#0,%0	;LOAD R0 WITH 0
002234	012701	000001		MOV	#1,%0!1	;LOAD R0!1 WITH 1
002240	000241			CLC		
002242	073027	000012		ASHC	#12,%0	;SHIFT R0,R0!1 BY 12
002246	013767	177776	012474	MOV	#PS,PSW	;SAVE PS
002254	122767	000000	012466	CMPB	#0,PSW	;IS THE PS 0?
002256	001401			BEQ	.+4	
002258	000000			HLT		;THE PS IS NOT EQUAL TO 0
002260	022700	000000		CMP	#0,%0	;IS THE RESULT 0?
002272	001401			BEQ	.+4	
002274	000000			HLT		;R0 IS NOT EQUAL TO 0
002276	022701	002000		CMP	#2000,%0!1	;IS THE RESULT 2000?
002302	001401			BEQ	.+4	
002304	000000			HLT		;R0!1 IS NOT EQUAL TO 2000

```

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

```

002306	010701			SCOPE		
002310	012700	000000		MOV	#0,XD	;LOAD RD WITH 0
002314	012701	000001		MOV	#1,XD!1	;LOAD RD!1 WITH 1
002320	000241			CLC		
002322	073027	000013		ASHC	#13,XD	;SHIFT RD,RD!1 BY 13
002326	013767	177776	012414	MOV	#PS,PSW	;SAVE PS
002334	122767	000000	012406	CMPB	#0,PSW	;IS THE PS 0?
002342	001401			BEQ	.+4	
002344	000000			HLT		
002346	022700	000000		CMP	#0,XD	;THE PS IS NOT EQUAL TO 0
002352	001401			BEQ	.+4	;IS THE RESULT 0?
002354	000000			HLT		
002356	022701	004000		CMP	#4000,XD!1	;RD IS NOT EQUAL TO 0
002362	001401			BEQ	.+4	;IS THE RESULT 4000?
002364	000000			HLT		;RD!1 IS NOT EQUAL TO 4000

```

*****
;TEST 20      0 1 SHIFTED BY 14 = 0 10000 PS = 0
*****

```

002366	010701			SCOPE		
002370	012700	000000		MOV	#0,XD	;LOAD RD WITH 0
002374	012701	000001		MOV	#1,XD!1	;LOAD RD!1 WITH 1
002400	000241			CLC		
002402	073027	000014		ASHC	#14,XD	;SHIFT RD,RD!1 BY 14
002406	013767	177776	012334	MOV	#PS,PSW	;SAVE PS
002414	122767	000000	012326	CMPB	#0,PSW	;IS THE PS 0?
002422	001401			BEQ	.+4	
002424	000000			HLT		
002426	012700	000000		CMP	#0,XD	;THE PS IS NOT EQUAL TO 0
002432	001401			BEQ	.+4	;IS THE RESULT 0?
002434	000000			HLT		
002436	012701	010000		CMP	#10000,XD!1	;RD IS NOT EQUAL TO 0
002442	001401			BEQ	.+4	;IS THE RESULT 10000?
002444	000000			HLT		;RD!1 IS NOT EQUAL TO 10000

```

*****
TEST 21      0 1 SHIFTED BY 15 = 0 20000 PS = 0
*****

```

002446	010701			SCOPE		
002450	012700	000000		MOV	#0,%0	;LOAD R0 WITH 0
002454	012701	000001		MOV	#1,%0!1	;LOAD R0!1 WITH 1
002460	000241			CLC		
002462	073027	000015		ASHC	#15,%0	;SHIFT R0,R0!1 BY 15
002466	013767	177776	012254	MOV	#PS,PSW	;SAVE PS
002474	122767	000000	012246	CMPB	#0,PSW	;IS THE PS 0?
002478	001401			BEQ	+.4	
002482	000000			HLT		;THE PS IS NOT EQUAL TO 0
002486	022700	000000		CMP	#0,%0	;IS THE RESULT 0?
002490	001401			BEQ	+.4	
002494	000000			HLT		;R0 IS NOT EQUAL TO 0
002502	022701	020000		CMP	#20000,%0!1	;IS THE RESULT 20000?
002506	001401			BEQ	+.4	
002524	000000			HLT		;R0!1 IS NOT EQUAL TO 20000

```

*****
TEST 22      0 1 SHIFTED BY 16 = 0 40000 PS = 0
*****

```

002526	010701			SCOPE		
002530	012700	000000		MOV	#0,%0	;LOAD R0 WITH 0
002534	012701	000001		MOV	#1,%0!1	;LOAD R0!1 WITH 1
002540	000241			CLC		
002542	073027	000016		ASHC	#16,%0	;SHIFT R0,R0!1 BY 16
002546	013767	177776	012174	MOV	#PS,PSW	;SAVE PS
002554	122767	000000	012166	CMPB	#0,PSW	;IS THE PS 0?
002558	001401			BEQ	+.4	
002562	000000			HLT		;THE PS IS NOT EQUAL TO 0
002566	022700	000000		CMP	#0,%0	;IS THE RESULT 0?
002572	001401			BEQ	+.4	
002574	000000			HLT		;R0 IS NOT EQUAL TO 0
002576	022701	040000		CMP	#40000,%0!1	;IS THE RESULT 40000?
002582	001401			BEQ	+.4	
002604	000000			HLT		;R0!1 IS NOT EQUAL TO 40000

```

*****
:TEST 23      0 1 SHIFTED BY 17 = 0 100000 PS = 0
*****

```

002606	010701			SCOPE		
002610	012700	000000		MOV	80,X0	;LOAD R0 WITH 0
002614	012701	000001		MOV	81,X0!1	;LOAD R0!1 WITH 1
002620	000241			CLC		
002622	073027	000017		ASHC	817,X0	;SHIFT R0,R0!1 BY 17
002626	013767	177776	012114	MOV	80PS,PSH	;SAVE PS
002634	122767	000000	012106	CHPB	80,PSH	;IS THE PS 0?
002642	001401			BEQ	.+4	
002644	000000			HLT		
002646	022700	000000		CHP	80,X0	;THE PS IS NOT EQUAL TO 0
002652	001401			BEQ	.+4	;IS THE RESULT 0?
002654	000000			HLT		
002656	022701	100000		CHP	8100000,X0!1	;R0 IS NOT EQUAL TO 0
002662	001401			BEQ	.+4	;IS THE RESULT 100000?
002664	000000			HLT		;R0!1 IS NOT EQUAL TO 100000

```

*****
:TEST 24      0 1 SHIFTED BY 20 = 1 0 PS = 0
*****

```

002666	010701			SCOPE		
002670	012700	000000		MOV	80,X0	;LOAD R0 WITH 0
002674	012701	000001		MOV	81,X0!1	;LOAD R0!1 WITH 1
002700	000241			CLC		
002702	073127	000020		ASHC	820,X0	;SHIFT R0,R0!1 BY 20
002706	013767	177776	012034	MOV	80PS,PSH	;SAVE PS
002714	122767	000000	012026	CHPB	80,PSH	;IS THE PS 0?
002722	001401			BEQ	.+4	
002724	000000			HLT		
002726	022700	000001		CHP	81,X0	;THE PS IS NOT EQUAL TO 0
002732	001401			BEQ	.+4	;IS THE RESULT 1?
002734	000000			HLT		
002736	022701	000000		CHP	80,X0!1	;R0 IS NOT EQUAL TO 1
002742	001401			BEQ	.+4	;IS THE RESULT 0?
002744	000000			HLT		;R0!1 IS NOT EQUAL TO 0

```

*****
:TEST 25      0 1 SHIFTED BY 21 = 2 0  PS = 0
*****

```

002746	010701			SCOPE		
012750	012700	000000		MOV	80,X0	;LOAD R0 WITH 0
002754	012701	000001		MOV	81,X0!1	;LOAD R0!1 WITH 1
002760	000241			CLC		
002762	073 27	000021		RSHC	821,X0	;SHIFT R0,R0!1 BY 21
002766	013767	177776	011754	PSW	80,PSW	;SAVE PS
002774	122767	000000	011746	PSW	80,PSW	;IS THE PS 0?
003002	001401			BEQ	.+4	
003004	000000			HLT		
003006	0527 0	000002			82,X0	;THE PS IS NOT EQUAL TO 0
003012	001401			BEQ	.+4	;IS THE RESULT 2?
003014	001 30			HLT		
003016	022701	000000		CHP	80,X0!1	;R0 IS NOT EQUAL TO 2
003022	001401			BEQ	.+4	;IS THE RESULT 0?
003024	000000			HLT		;R0!1 IS NOT EQUAL TO 0

```

*****
:TEST 26      0 1 SHIFTED BY 22 = 4 0  PS = 0
*****

```

003026	010701			SCOPE		
003030	012700	000000		MOV	80,X0	;LOAD R0 WITH 0
003034	012701	000001		MOV	81,X0!1	;LOAD R0!1 WITH 1
003040	000241			CLC		
003042	073027	000022		RSHC	822,X0	;SHIFT R0,R0!1 BY 22
003046	013767	177776	011674	PSW	80,PSW	;SAVE PS
003054	122767	000000	011666	PSW	80,PSW	;IS THE PS 0?
003062	001401			BEQ	.+4	
003064	000000			HLT		
003066	052700	000004		CHP	84,X0	;THE PS IS NOT EQUAL TO 0
003072	001401			BEQ	.+4	;IS THE RESULT 4?
003074	000000			HLT		
003076	052701	000000		CHP	80,X0!1	;R0 IS NOT EQUAL TO 4
003102	001401			BEQ	.+4	;IS THE RESULT 0?
003104	000000			HLT		;R0!1 IS NOT EQUAL TO 0

```

:*****
:TEST 27      0 1 SHIFTED BY 23 = 10 0  PS = 0
:*****

```

003106	010701			SCOPE		
003110	012700	000000		MOV	80,XD	;LOAD RD WITH 0
003114	012701	000001		MOV	81,XD!1	;LOAD RD!1 WITH 1
003118	000241			CLC		
003122	073027	000023		ASHC	823,XD	;SHIFT RD,RD!1 BY 23
003126	013787	177776	011614	MOV	80,PS	;SAVE PS
003130	122787	000000	011606	CHPB	80,PS	;IS THE PS 0?
003134	001401			BEQ	.+4	
003138	000000			HLT		
003142	022700	000010		CHPB	810,XD	;THE PS IS NOT EQUAL TO 0
003146	001401			BEQ	.+4	;IS THE RESULT 10?
003150	000000			HLT		
003154	022701	000000		CHPB	80,XD!1	;RD IS NOT EQUAL TO 10
003158	001401			BEQ	.+4	;IS THE RESULT 0?
003162	000000			HLT		
003166	000000					;RD!1 IS NOT EQUAL TO 0

```

:*****
:TEST 30      0 1 SHIFTED BY 24 = 20 0  PS = 0
:*****

```

003166	010701			SCOPE		
003170	012700	000000		MOV	80,XD	;LOAD RD WITH 0
003174	012701	000001		MOV	81,XD!1	;LOAD RD!1 WITH 1
003178	000241			CLC		
003182	073027	000024		ASHC	824,XD	;SHIFT RD,RD!1 BY 24
003186	013787	177776	011534	MOV	80,PS	;SAVE PS
003190	122787	000000	011526	CHPB	80,PS	;IS THE PS 0?
003194	001401			BEQ	.+4	
003198	000000			HLT		
003202	022700	000020		CHPB	820,XD	;THE PS IS NOT EQUAL TO 0
003206	001401			BEQ	.+4	;IS THE RESULT 20?
003210	000000			HLT		
003214	022701	000000		CHPB	80,XD!1	;RD IS NOT EQUAL TO 20
003218	001401			BEQ	.+4	;IS THE RESULT 0?
003222	000000			HLT		
003226	000000					;RD!1 IS NOT EQUAL TO 0

```

*****
:TEST 31      0 1 SHIFTED BY 25 = 40 0 PS = 0
*****

```

003246	010701			SCOPE		
003248	012700	000000		MOV	80,X0	;LOAD R0 WITH 0
003250	012701	000001		MOV	81,X0!1	;LOAD R0!1 WITH 1
003260	000241			CLC		
003262	073027	000025		ASHC	825,X0	;SHIFT R0,R0!1 BY 25
003264	013767	177776	011454	MOV	88PS,PSW	;SAVE PS
003274	122767	000000	011446	CHPB	80,PSW	;IS THE PS 0?
003302	001401			BEO	.+4	
003304	000000			HLT		;THE PS IS NOT EQUAL TO 0
003306	022700	000040		CHP	840,X0	;IS THE RESULT 40?
003312	001401			BEO	.+4	
003314	000000			HLT		;R0 IS NOT EQUAL TO 40
003316	022701	000000		CHP	80,X0!1	;IS THE RESULT 0?
003322	001401			BEO	.+4	
003324	000000			HLT		;R0!1 IS NOT EQUAL TO 0

```

*****
:TEST 32      0 1 SHIF ED BY 26 = 100 0 PS = 0
*****

```

003326	010701			SCOPE		
003330	012700	000000		MOV	80,X0	;LOAD R0 WITH 0
003334	012701	000001		MOV	81,X0!1	;LOAD R0!1 WITH 1
003340	000241			CLC		
003342	073027	000026		ASHC	826,X0	;SHIFT R0,R0!1 BY 26
003346	013767	177776	011374	MOV	88PS,PSW	;SAVE PS
003354	122767	000000	011366	CHPB	80,PSW	;IS THE PS 0?
003362	001401			BEO	.+4	
003364	000000			HLT		;THE PS IS NOT EQUAL TO 0
003366	022700	000100		CHP	8100,X0	;IS THE RESULT 100?
003372	001401			BEO	.+4	
003374	000000			HLT		;R0 IS NOT EQUAL TO 100
003376	022701	000000		CHP	80,X0!1	;IS THE RESULT 0?
003402	001401			BEO	.+4	
003404	000000			HLT		;R0!1 IS NOT EQUAL TO 0

```

*****
:TEST 33      0 1 SHIFTED BY 27 = 200 0 PS = 0
*****

```

003406	010701			SCOPE		
003410	012700	000000		MOV	80,XD	;LOAD R0 WITH 0
003414	012701	000001		MOV	81,XD!1	;LOAD R0!1 WITH 1
003420	012701			CLC		
003424	073 27	000027		PSH	827,XD	;SHIFT R0,R0!1 BY 27
003428	013 67	177776	011314	MOV	827,PSH	;SAVE PS
003434	122767	000000	011306	CHPB	80,PSH	;IS THE PS 0?
003440	001401			BEG	.+4	
003444	012700			HLT		;THE PS IS NOT EQUAL TO 0
003448	012700	000200		BEG	8200,XD	;IS THE RESULT 200?
003452	001401			BEG	.+4	
003456	000000			HLT		;R0 IS NOT EQUAL TO 200
003460	022701	000000		CHP	80,XD!1	;IS THE RESULT 0?
003464	001401			BEG	.+4	
003468	000000			HLT		;R0!1 IS NOT EQUAL TO 0

```

*****
:TEST 34      0 1 SHIFTED BY 30 = 400 0 PS = 0
*****

```

003466	010701			SCOPE		
003470	012700	000000		MOV	80,XD	;LOAD R0 WITH 0
003474	012701	000001		MOV	81,XD!1	;LOAD R0!1 WITH 1
003480	000241			CLC		
003484	073 27	000030		ASHC	830,XD	;SHIFT R0,R0!1 BY 30
003488	013 67	177776	011234	MOV	830,PSH	;SAVE PS
003494	122767	000000	011226	CHPB	80,PSH	;IS THE PS 0?
003500	001401			BEG	.+4	
003504	000000			HLT		;THE PS IS NOT EQUAL TO 0
003508	022700	000400		CHP	8400,XD	;IS THE RESULT 400?
003512	001401			BEG	.+4	
003516	000000			HLT		;R0 IS NOT EQUAL TO 400
003520	022701	000000		CHP	80,XD!1	;IS THE RESULT 0?
003524	001401			BEG	.+4	
003528	000000			HLT		;R0!1 IS NOT EQUAL TO 0

```

*****
:TEST 35      0 1 SHIFTED BY 31 = 1000 0  PS = 0
*****

```

003546	010701			SCOPE		
003550	012700	000000		MOV	80,X0	;LOAD R0 WITH 0
003554	012701	000001		MOV	81,X0!1	;LOAD R0!1 WITH 1
003560	000241			CLC		
003564	073027	000031		ASHC	831,X0	;SHIFT R0,R0!1 BY 31
003568	013767	177776	011154	MOV	88PS,PSW	;SAVE PS
003572	122767	000000	011146	CHPB	80,PSW	;IS THE PS 0?
003576	001401			BEQ	.+4	
003580	000000			HLT		;THE PS IS NOT EQUAL TO 0
003584	022700	001000		CHP	81000,X0	;IS THE RESULT 1000?
003588	001401			BEQ	.+4	
003592	000000			HLT		;R0 IS NOT EQUAL TO 1000
003596	022701	000000		CHP	80,X0!1	;IS THE RESULT 0?
003600	001401			BEQ	.+4	
003604	000000			HLT		;R0!1 IS NOT EQUAL TO 0

```

*****
:TEST 36      0 1 SHIFTED BY 32 = 2000 0  PS = 0
*****

```

003626	010701			SCOPE		
003630	012700	000000		MOV	80,X0	;LOAD R0 WITH 0
003634	012701	000001		MOV	81,X0!1	;LOAD R0!1 WITH 1
003638	000241			CLC		
003642	073027	000032		ASHC	832,X0	;SHIFT R0,R0!1 BY 32
003646	013767	177776	011074	MOV	88PS,PSW	;SAVE PS
003650	122767	000000	011066	CHPB	80,PSW	;IS THE PS 0?
003654	001401			BEQ	.+4	
003658	000000			HLT		;THE PS IS NOT EQUAL TO 0
003662	022700	002000		CHP	82000,X0	;IS THE RESULT 2000?
003666	001401			BEQ	.+4	
003670	000000			HLT		;R0 IS NOT EQUAL TO 2000
003674	022701	000000		CHP	80,X0!1	;IS THE RESULT 0?
003678	001401			BEQ	.+4	
003682	000000			HLT		;R0!1 IS NOT EQUAL TO 0

```

*****
:TEST 37      0 1 SHIFTED BY 33 = 4000 0  PS = 0
*****

```

003706	010701			SCOPE		
003710	012700	000000		MOV	80,XD	:LOAD R0 WITH 0
003714	012701	000001		MOV	81,XD!1	:LOAD R0!1 WITH 1
003720	012701			CLC		
003724	012701	000033		ASHC	833,XD	:SHIFT R0,R0!1 BY 33
003728	012701	177776	011014	MOV	80,PS	:SAVE PS
003732	012701	000000	011006	CHPB	80,PS	:IS THE PS 0?
003736	012701			BEQ	.+4	
003740	012701			HLT		:THE PS IS NOT EQUAL TO 0
003744	012701	004000		CHPB	84000,XD	:IS THE RESULT 4000?
003748	012701			BEQ	.+4	
003752	012701			HLT		:R0 IS NOT EQUAL TO 4000
003756	012701	000000		CHPB	80,XD!1	:IS THE RESULT 0?
003760	012701			BEQ	.+4	
003764	000000			HLT		:R0!1 IS NOT EQUAL TO 0

```

*****
:TEST 40      0 1 SHIFTED BY 34 = 10000 0  PS = 0
*****

```

003766	010701			SCOPE		
003770	012700	000000		MOV	80,XD	:LOAD R0 WITH 0
003774	012701	000001		MOV	81,XD!1	:LOAD R0!1 WITH 1
003778	012701			CLC		
003782	012701	000034		ASHC	834,XD	:SHIFT R0,R0!1 BY 34
003786	012701	177776	010734	MOV	80,PS	:SAVE PS
003790	012701	000000	010726	CHPB	80,PS	:IS THE PS 0?
003794	012701			BEQ	.+4	
003798	012701			HLT		:THE PS IS NOT EQUAL TO 0
003802	012701	010000		CHPB	810000,XD	:IS THE RESULT 10000?
003806	012701			BEQ	.+4	
003810	012701			HLT		:R0 IS NOT EQUAL TO 10000
003814	012701	000000		CHPB	80,XD!1	:IS THE RESULT 0?
003818	012701			BEQ	.+4	
003822	000000			HLT		:R0!1 IS NOT EQUAL TO 0

```

*****
:TEST 41      0 1 SHIFTED BY 35 = 20000 0 PS = 0
*****

```

```

004046 010701 000000
004047 010701 000001
004048 010701 000005
004049 010701 17776 010654
004050 010701 000000 010646
004116 022701 020000
004117 022701 000000
004122 022701 000000
004123 022701 000000

```

```

SCOPE
MOV      R0,X0          ;LOAD R0 WITH 0
MOV      R1,X0!1        ;LOAD R0!1 WITH 1
CLC
PUSHC    R0,X0          ;SHIFT R0,R0!1 BY 35
PUSHV    R0,X0          ;SAVE PS
CHPB     R0,PSW         ;IS THE PS 0?
BEQ      .+4            ;THE PS IS NOT EQUAL TO 0
HLT      .+4            ;IS THE RESULT 20000?
CMP      R0,X0!1        ;R0 IS NOT EQUAL TO 20000
HLT      .+4            ;IS THE RESULT 0?
CMP      R0,X0!1        ;R0!1 IS NOT EQUAL TO 0
HLT      .+4

```

```

*****
:TEST 42      0 1 SHIFTED BY 36 = 40000 0 PS = 0
*****

```

```

004126 010701 000000
004130 012700 000001
004134 012701 000006
004135 012701 17776 010674
004136 012701 000000 010666
004155 012701 040000
004156 012701 000000
004176 012701 000000
004177 012701 000000

```

```

SCOPE
MOV      R0,X0          ;LOAD R0 WITH 0
MOV      R1,X0!1        ;LOAD R0!1 WITH 1
CLC
PUSHC    R0,X0          ;SHIFT R0,R0!1 BY 36
PUSHV    R0,X0          ;SAVE PS
CHPB     R0,PSW         ;IS THE PS 0?
BEQ      .+4            ;THE PS IS NOT EQUAL TO 0
HLT      .+4            ;IS THE RESULT 40000?
CMP      R0,X0!1        ;R0 IS NOT EQUAL TO 40000
HLT      .+4            ;IS THE RESULT 0?
CMP      R0,X0!1        ;R0!1 IS NOT EQUAL TO 0
HLT      .+4

```

J02

TEST 43 40000 0 SHIFTED BY 177762 = 1 0 PS = 0

004206	010701		SCOPE		
004210	012700	040000	MOV	#40000,X0	;LOAD R0 WITH 40000
004214	012701	000000	MOV	R0,X0!1	;LOAD R0!1 WITH 0
004220	000241		CLC		
004222	073027	177762	ASHC	#177762,X0	;SHIFT R0,R0!1 BY 177762
004226	013767	177776	MOV	#PS,PSH	;SAVE PS
004230	122767	000000	CMPB	R0,PSH	;IS THE PS 0?
004234	001401		BEG	.+4	
004238	000000		HLT		;THE PS IS NOT EQUAL TO 0
004242	022700	000001	CMP	R1,X0	;IS THE RESULT 1?
004246	001401		BEG	.+4	
004250	000000		HLT		;R0 IS NOT EQUAL TO 1
004254	022701	000000	CMP	R0,X0!1	;IS THE RESULT 0?
004258	001401		BEG	.+4	
004264	000000		HLT		;R0!1 IS NOT EQUAL TO 0

TEST 44 40000 0 SHIFTED BY 177763 = 2 0 PS = 0

004266	010701		SCOPE		
004270	012700	040000	MOV	#40000,X0	;LOAD R0 WITH 40000
004274	012701	000000	MOV	R0,X0!1	;LOAD R0!1 WITH 0
004278	000241		CLC		
004282	073027	177763	ASHC	#177763,X0	;SHIFT R0,R0!1 BY 177763
004286	013767	177776	MOV	#PS,PSH	;SAVE PS
004290	122767	000000	CMPB	R0,PSH	;IS THE PS 0?
004294	001401		BEG	.+4	
004298	000000		HLT		;THE PS IS NOT EQUAL TO 0
004302	022700	000002	CMP	R2,X0	;IS THE RESULT 2?
004306	001401		BEG	.+4	
004310	000000		HLT		;R0 IS NOT EQUAL TO 2
004314	022701	000000	CMP	R0,X0!1	;IS THE RESULT 0?
004318	001401		BEG	.+4	
004324	000000		HLT		;R0!1 IS NOT EQUAL TO 0

```

*****
TEST 45      40000 0 SHIFTED BY 177764 = 4 0  PS = 0
*****

```

004346	010701			SCOPE		
004348	012700	040000		MOV	#40000,XD	;LOAD RD WITH 40000
004350	012701	000000		MOV	RD,XD!1	;LOAD RD!1 WITH 0
004352	012741			CLC		
004354	012747	177764		ASHC	#177764,XD	;SHIFT RD,RD!1 BY 177764
004356	013767	177776	010354	MOV	PS,PSH	;SAVE PS
004358	013767	000000	010346	CHPB	RD,PSH	;IS THE PS 0?
004360	013767			BEQ	.+4	
004362	013767			HLT		;THE PS IS NOT EQUAL TO 0
004364	013767	000004		CHP	#4,XD	;IS THE RESULT 4?
004366	013767			BEQ	.+4	
004368	013767			HLT		;RD IS NOT EQUAL TO 4
004370	013767			CHP	RD,XD!1	;IS THE RESULT 0?
004372	013767			BEQ	.+4	
004374	013767			HLT		;RD!1 IS NOT EQUAL TO 0

```

*****
TEST 46      40000 0 SHIFTED BY 177765 = 10 0  PS = 0
*****

```

004426	010701			SCOPE		
004430	012700	040000		MOV	#40000,XD	;LOAD RD WITH 40000
004434	012701	000000		MOV	RD,XD!1	;LOAD RD!1 WITH 0
004438	012741			CLC		
004442	012747	177765		ASHC	#177765,XD	;SHIFT RD,RD!1 BY 177765
004446	013767	177776	010274	MOV	PS,PSH	;SAVE PS
004450	013767	000000	010266	CHPB	RD,PSH	;IS THE PS 0?
004454	013767			BEQ	.+4	
004458	013767			HLT		;THE PS IS NOT EQUAL TO 0
004462	013767	000010		CHP	#10,XD	;IS THE RESULT 10?
004466	013767			BEQ	.+4	
004470	013767			HLT		;RD IS NOT EQUAL TO 10
004474	013767			CHP	RD,XD!1	;IS THE RESULT 0?
004478	013767			BEQ	.+4	
004482	013767			HLT		;RD!1 IS NOT EQUAL TO 0

:TEST 47 40000 0 SHIFTED BY 177766 = 20 0 PS = 0

004506	010701			SCOPE		
004510	012700	040000		MOV	#40000,XD	;LOAD RD WITH 40000
004514	012701	000000		MOV	#0,XD!1	;LOAD RD!1 WITH 0
004520	000241			CLC		
004524	073037	177766		ASHC	#177766,XD	;SHIFT RD,RD!1 BY 177766
004528	013067	177776	010214	MOV	#PS,PSH	;SAVE PS
004532	122767	000000	010206	CMPB	#0,PSH	;IS THE PS 0?
004536				BEQ	.+4	
004540				HLT		;THE PS IS NOT EQUAL TO 0
004544		000020		CMP	#20,XD	;IS THE RESULT 20?
004548				EQ	.+4	
004552				HLT		;RD IS NOT EQUAL TO 20
004556		000000		CMP	#0,XD!1	;IS THE RESULT 0?
004560				BEQ	.+4	
004564				HLT		;RD!1 IS NOT EQUAL TO 0

:TEST 50 40000 0 SHIFTED BY 177767 = 40 0 PS = 0

004566	010701			SCOPE		
004570	012700	040000		MOV	#40000,XD	;LOAD RD WITH 40000
004574	012701	000000		MOV	#0,XD!1	;LOAD RD!1 WITH 0
004578	000241			CLC		
004582	073037	177767		ASHC	#177767,XD	;SHIFT RD,RD!1 BY 177767
004586	013067	177776	010134	MOV	#PS,PSH	;SAVE PS
004590	122767	000000	010126	CMPB	#0,PSH	;IS THE PS 0?
004594				BEQ	.+4	
004598				HLT		;THE PS IS NOT EQUAL TO 0
004602		000040		CMP	#40,XD	;IS THE RESULT 40?
004606				BEQ	.+4	
004610				HLT		;RD IS NOT EQUAL TO 40
004614		000000		CMP	#0,XD!1	;IS THE RESULT 0?
004618				BEQ	.+4	
004622				HLT		;RD!1 IS NOT EQUAL TO 0

:TEST 51 40000 0 SHIFTED BY 177770 = 100 0 PS = 0

004646 010701
004647 012700 040000
004648 012701 000000
004649 000000
004650 000000
004651 000000
004652 000000
004653 000000
004654 000000
004655 000000
004656 000000
004657 000000
004658 000000
004659 000000
004660 000000
004661 000000
004662 000000
004663 000000
004664 000000
004665 000000
004666 000000
004667 000000
004668 000000
004669 000000
004670 000000
004671 000000
004672 000000
004673 000000
004674 000000
004675 000000
004676 000000
004677 000000
004678 000000
004679 000000
004680 000000
004681 000000
004682 000000
004683 000000
004684 000000
004685 000000
004686 000000
004687 000000
004688 000000
004689 000000
004690 000000
004691 000000
004692 000000
004693 000000
004694 000000
004695 000000
004696 000000
004697 000000
004698 000000
004699 000000
004700 000000
004701 000000
004702 000000
004703 000000
004704 000000
004705 000000
004706 000000
004707 000000
004708 000000
004709 000000
004710 000000
004711 000000
004712 000000
004713 000000
004714 000000
004715 000000
004716 000000
004717 000000
004718 000000
004719 000000
004720 000000
004721 000000
004722 000000
004723 000000
004724 000000

SCOPE
MOV #40000,X0 ;LOAD RO WITH 40000
MOV #0,X0!1 ;LOAD RO!1 WITH 0
CLC
ASHC #177770,X0 ;SHIFT RO,RO!1 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,X0 ;IS THE RESULT 100?
BEQ .+4
HLT ;RO IS NOT EQUAL TO 100
CMP #0,X0!1 ;IS THE RESULT 0?
BEQ .+4
HLT ;RO!1 IS NOT EQUAL TO 0

:TEST 52 40000 0 SHIFTED BY 177771 = 200 0 PS = 0

004726 010701
004730 012700 040000
004734 012701 000000
004740 000000
004742 073027 177771
004746 013767 177776 007774
004754 122767 000000 007766
004762 001401
004764 000000
004766 002700 000200
004772 001401
004774 000000
004776 002701 000000
005002 001401
005004 000000

SCOPE
MOV #40000,X0 ;LOAD RO WITH 40000
MOV #0,X0!1 ;LOAD RO!1 WITH 0
CLC
ASHC #177771,X0 ;SHIFT RO,RO!1 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,X0 ;IS THE RESULT 200?
BEQ .+4
HLT ;RO IS NOT EQUAL TO 200
CMP #0,X0!1 ;IS THE RESULT 0?
BEQ .+4
HLT ;RO!1 IS NOT EQUAL TO 0

005006	010701		
010	012701	040000	
014	012701	000000	
000000	000000		
000000	070000	177772	
000000	013000	177776	007714
000000	122767	000000	007706
000000	000000		
000000	000000		
000000	000000	000400	
000000	000000		
000000	000000		
000000	000000	000000	
000000	000000		
005064	000000		

```

*****
;TEST 54      40000 0 SHIFTED BY 177773 = 1000 0  PS = 0
*****

```

005066	010701		
005070	012700	040000	
005074	012701	000000	
005100	005241		
005102	07527	177773	
005106	013567	177776	007634
005114	122767	000000	007626
005122	001401		
005124	005200		
005126	005700	001000	
005132	001401		
005134	000000		
005136	022701	000000	
005142	001401		
005144	000000		

SCOPE		
MOV	#40000,%0	;LOAD R0 WITH 40000
MOV	00,%0!1	;LOAD R0!1 WITH 0
CLC		
ASHC	#177773,%0	;SHIFT R0,R0!1 BY 177773
MOV	2:PS,PSW	;SAVE PS
CMPB	00,PSW	;IS THE PS 0?
BEQ	.+4	
HLT		;THE PS IS NOT EQUAL TO 0
CMP	#1000,%0	;IS THE RESULT 1000?
BEQ	.+4	
HLT		;R0 IS NOT EQUAL TO 1000
CMP	00,%0!1	;IS THE RESULT 0?
BEQ	.+4	
HLT		;R0!1 IS NOT EQUAL TO 0

```

*****
:TEST 55      40000 0 SHIFTED BY 177774 = 2000 0  PS = 0
*****

```

005146	010701			SCOPE		
005151	012700	040000		MOV	#40000,X0	;LOAD R0 WITH 40000
005155	012701	000000		MOV	R0,X0!1	;LOAD R0!1 WITH 0
005159	000241			CLC		
005163	073027	177774		ASHC	#177774,X0	;SHIFT R0,R0!1 BY 177774
005167	013767	177776	007554	MOV	0PS,PSH	;SAVE PS
005171	122767	000000	007546	CHPB	R0,PSH	;IS THE PS 0?
005175	001401			BEQ	.+4	
005179	000000			HLT		;THE PS IS NOT EQUAL TO 0
005183	022700	000000		CHPB	#2000,X0	;IS THE RESULT 2000?
005187	001401			BEQ	.+4	
005191	000000			HLT		;R0 IS NOT EQUAL TO 2000
005195	022701	000000		CHPB	R0,X0!1	;IS THE RESULT 0?
005199	001401			BEQ	.+4	
005203	000000			HLT		;R0!1 IS NOT EQUAL TO 0

```

*****
:TEST 56      40000 0 SHIFTED BY 177775 = 4000 0  PS = 0
*****

```

005228	010701			SCOPE		
005233	012700	040000		MOV	#40000,X0	;LOAD R0 WITH 40000
005237	012701	000000		MOV	R0,X0!1	;LOAD R0!1 WITH 0
005241	000241			CLC		
005245	073027	177775		ASHC	#177775,X0	;SHIFT R0,R0!1 BY 177775
005249	013767	177776	007474	MOV	0PS,PSH	;SAVE PS
005253	122767	000000	007466	CHPB	R0,PSH	;IS THE PS 0?
005257	001401			BEQ	.+4	
005261	000000			HLT		;THE PS IS NOT EQUAL TO 0
005265	022700	004000		CHPB	#4000,X0	;IS THE RESULT 4000?
005269	001401			BEQ	.+4	
005273	000000			HLT		;R0 IS NOT EQUAL TO 4000
005277	022701	000000		CHPB	R0,X0!1	;IS THE RESULT 0?
005281	001401			BEQ	.+4	
005285	000000			HLT		;R0!1 IS NOT EQUAL TO 0

```

*****
TEST 57      40000 0 SHIFTED BY 177776 = 10000 0  PS = 0
*****

```

```

005306 010701 040000
005310 012700 000000
005314 012701 000000
005318 012701 177776
005322 012701 177776 007414
005326 012701 000000 007406
005330 012701 010000
005334 012701 000000
005338 012701 000000
005342 012701 000000

```

```

SCOPE
MOV      #40000,XD      ;LOAD RD WITH 40000
MOV      RD,XD!1        ;LOAD RD!1 WITH 0
CLC
ASHC     #177776,XD     ;SHIFT RD,RD!1 BY 177776
MOV      2*PS,PSH        ;SAVE PS
CMPB     RD,PSH          ;IS THE PS 0?
BEQ      .+4             ;THE PS IS NOT EQUAL TO 0
HLT
CMP      #10000,XD       ;IS THE RESULT 10000?
BEQ      .+4
HLT
CMP      RD,XD!1         ;RD IS NOT EQUAL TO 10000
BEQ      .+4             ;IS THE RESULT 0?
HLT
CMP      RD!1,XD         ;RD!1 IS NOT EQUAL TO 0
BEQ      .+4
HLT

```

```

*****
TEST 60      40000 0 SHIFTED BY 177777 = 20000 0  PS = 0
*****

```

```

005346 010701 040000
005350 012700 000000
005354 012701 000000
005358 012701 177777
005362 012701 177776 017334
005366 012701 000000 017326
005370 012701 020000
005374 012701 000000
005378 012701 000000
005382 012701 000000

```

```

SCOPE
MOV      #40000,XD      ;LOAD RD WITH 40000
MOV      RD,XD!1        ;LOAD RD!1 WITH 0
CLC
ASHC     #177777,XD     ;SHIFT RD,RD!1 BY 177777
MOV      2*PS,PSH        ;SAVE PS
CMPB     RD,PSH          ;IS THE PS 0?
BEQ      .+4             ;THE PS IS NOT EQUAL TO 0
HLT
CMP      #20000,XD       ;IS THE RESULT 20000?
BEQ      .+4
HLT
CMP      RD,XD!1         ;RD IS NOT EQUAL TO 20000
BEQ      .+4             ;IS THE RESULT 0?
HLT
CMP      RD!1,XD         ;RD!1 IS NOT EQUAL TO 0
BEQ      .+4
HLT

```

TEST 61 40000 0 SHIFTED BY 0 = 40000 0 PS = 0

010701 040000
010702 000000
010703 000000
010704 177776 007254
010705 000000 007246
010706 040000
010707 000000
010708 000000
010709 000000
010710 000000

SCOPE
MOV #40000,X0 ;LOAD R0 WITH 40000
MOV #0,X0!1 ;LOAD R0!1 WITH 0
CLC
RSHC #0,X0 ;SHIFT R0,R0!1 BY 0
MOV #PS,PSH ;SAVE PS
CMB #0,PSH ;IS THE PS 0?
BEQ .+4 ;THE PS IS NOT EQUAL TO 0
HLT ;IS THE RESULT 40000?
MOV #40000,X0
BEQ .+4
HLT ;R0 IS NOT EQUAL TO 40000
CMB #0,X0!1 ;IS THE RESULT 0?
BEQ .+4
HLT ;R0!1 IS NOT EQUAL TO 0

TEST 62 40 10 0 SHIFTED BY 177742 = 0 1 PS = 0

010701 040000
010702 000000
010703 177742 007174
010704 177776 007166
010705 000000
010706 000000
010707 000000
010708 000000
010709 000000
010710 000000

SCOPE
MOV #40000,X0 ;LOAD R0 WITH 40000
MOV #0,X0!1 ;LOAD R0!1 WITH 0
CLC
RSHC #177742,X0 ;SHIFT R0,R0!1 BY 177742
MOV #PS,PSH ;SAVE PS
CMB #0,PSH ;IS THE PS 0?
BEQ .+4 ;THE PS IS NOT EQUAL TO 0
HLT ;IS THE RESULT 0?
MOV #0,X0
BEQ .+4
HLT ;R0 IS NOT EQUAL TO 0
CMB #1,X0!1 ;IS THE RESULT 1?
BEQ .+4
HLT ;R0!1 IS NOT EQUAL TO 1

010701	040000	
0112700	000000	
0112701	177743	007114
0113127	177776	007106
0113127	000000	
0122707		
011401	000000	
011401	000000	
011401	000002	
000000		

```
SCOPE
MOV      #40000,XD          ;LOAD PD WITH 40000
MOV      R0,XD!1            ;LOAD R0!1 WITH 0
CLC
RORC     #177743,XD         ;SHIFT RD,R0!1 BY 177743
MOV      @PS,PSH             ;STORE PS
CMQB     R0,PSH              ;IS THE PS 0?
BCJ      .+4
HLT
CMQB     R0,XD               ;THE PS IS NOT EQUAL TO 0
BCJ      .+4                 ;IS THE RESULT 0?
HLT
CMQB     R0,XD!1             ;RD IS NOT EQUAL TO 0
BCJ      .+4                 ;IS THE RESULT 2?
HLT
CMQB     R0,XD!1             ;RD!1 IS NOT EQUAL TO 2
```

[illegible]

```

SCOPE
MOV      #40000,XD      ;LOAD RD WITH 40000
MOV      RD,XD!1        ;LOAD RD!1 WITH 0
CLC
ROR      #177744,XD     ;SHIFT RD,RD!1 BY 177744
ROR      20PS,PSH        ;SAVE PS
MOV      RD,PSH         ;IS THE PS 0?
ROR      .+4
HLT
MOV      RD,XD          ;THE PS IS NOT EQUAL TO 0
ROR      .+4            ;IS THE RESULT 0?
MOV      RD,XD!1        ;RD IS NOT EQUAL TO 0
ROR      .+4            ;IS THE RESULT 4?
HLT
MOV      RD,XD!1        ;RD!1 IS NOT EQUAL TO 4
ROR      .+4
HLT

```

01000
000000
077745
077776
000000

000000

010000

005754
006748

```

SYNOPSIS
MOV     R0,R0
CLC
JC      PS
JNB     PS
INC     R0
DEC     R0
ROR     R0
ROR     R0!1
LD      R0,#40000
LD      R0!1,#0
SWT     R0,R0!1,BY #177745
JE      PS
IS      THE PS 0?
        ;THE PS IS NOT EQUAL TO 0
        ;IS THE RESULT 0?
        ;R0 IS NOT EQUAL TO 0
        ;IS THE RESULT 10?
        ;R0!1 IS NOT EQUAL TO 10

```

[illegible]

SYNOPSIS	MOV RO, #40000	; LOAD RO WITH 40000
MOV RO, #0	; LOAD RO!1 WITH 0	
CLC		
MOV RO, #17774	; SHIFT RO, RO!1 BY 177746	
CLC	; CLEAR PS	
MOV RO, #PSH	; IS THE PS 0?	
ADD		
MOV RO, #0	; THE PS IS NOT EQUAL TO 0	
ADD	; IS THE RESULT 0?	
MOV RO, #20	; RO IS NOT EQUAL TO 0	
ADD	; IS THE RESULT 20?	
MOV RO, #0	; RO!1 IS NOT EQUAL TO 20	
ADD		

000001
000002
000003
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000100

SCOPE		
MOV	R#0000, X0	; LOAD R0 WITH 40000
MOV	R0, X0!1	; LOAD R0!1 WITH 0
CLC		
RLW	R177747, X0	; SHIFT R0, R0!1 BY 177747
RLV	R#PS, PSM	; R#PS
CLZ	R0, PSM	; IS THE PS 0?
	.+4	
HLT		; THE PS IS NOT EQUAL TO 0
	R0, X0	; IS THE RESULT 0?
	.+4	
		; R0 IS NOT EQUAL TO 0
	R#40, X0!1	; IS THE RESULT 40?
	.+4	
		; R0!1 IS NOT EQUAL TO 40

	000000	006534
	000000	006526
	000000	
	000100	

```

SCOPE
MOV      #40000,XD          ;LOAD RD WITH 40000
MOV      RD,XD!1           ;LOAD RD!1 WITH 0
CLC
FNC
MOV      #177750,XD        ;SHIFT RD,RD!1 BY 177750
JPS,PSM          ;SAVE PS
CMPB     RD,PSM            ;IS THE PS 0?
EQA      .+4
HLT
CMP      RD,XD             ;THE PS IS NOT EQUAL TO 0
BEQ      .+4              ;IS THE RESULT 0?
HLT
CMP      #100,XD!1        ;RD IS NOT EQUAL TO 0
BEQ      .+4              ;IS THE RESULT 100?
HLT
CMP      RD,XD!1          ;RD!1 IS NOT EQUAL TO 100
BEQ      .+4
HLT

```

[illegible][illegible]

```

:*****
:TEST 72      40000 0 SHIFTED BY 177752 = 0 400 PS = 0
:*****

```

[illegible]

```
SCOPE
MOVMO, XO
MO, XU!1
;LOAD MO WITH 40000
;LOAD MO!1 WITH 0

B177752, XO
JPS, PS
;SHIFT MO, MO!1 BY 177752
;THE PS
;IS THE PS 0?

MO, XO
;THE PS IS NOT EQUAL TO 0
;IS THE RESULT 0?

MOO, XO!1
;MO IS NOT EQUAL TO 0
;IS THE RESULT 400?

MO, XO!1
;MO!1 IS NOT EQUAL TO 400
```

[illegible]

SCOPE	#40000,X0	:LOAD R0 WITH 40000
MOV	R0,X0!1	:LOAD R0!1 WITH 0
CLC		
PSH	#177753,X0	:SHIFT R0,R0!1 BY 177753
MOV	PS,PSH	:SAVE PS
MOV	R0,PSH	:IS THE PS 0?
HLT	.+4	
		:THE PS IS NOT EQUAL TO 0
	R0,X0	:IS THE RESULT 0?
	.+4	
	#1000,X0!1	:R0 IS NOT EQUAL TO 0
	.+4	:IS THE RESULT 1000?
		:R0!1 IS NOT EQUAL TO 1000

000000
002000

SCOPE		
MOV	#40000,XD	:LOAD RD WITH 40000
MOV	RD,XD!1	:LOAD RD!1 WITH 0
CLC		
PLC	#177754,XD	:SHIFT RD,RD!1 BY 177754
MOV	PS,PSH	:S.E PS
CHPB	RD,PSH	:IS THE PS 0?
PLC	.+4	
HLT		
CHP	RD,XD	:THE PS IS NOT EQUAL TO 0
PLC	.+4	:IS THE RESULT 0?
HLT		
CHP	#2000,XD!1	:RD IS NOT EQUAL TO 0
PLC	.+4	:IS THE RESULT 2000?
HLT		:RD!1 IS NOT EQUAL TO 2000

```

*****
TEST 75      40000 0 SHIFTED BY 177755 = 0 4000 PS = 0
*****

```

```

006546 010701
000000 012700 040000
000000 000000 000000
000000 000000 177755
000000 000000 177756 006154
000000 000000 000000 006146
000000
000000
004000

```

```

SCOPE
MOV      #40000,X0      ;LOAD R0 WITH 40000
MOV      R0,X0!1        ;LOAD R0!1 WITH 0
CLC
ASHC     #177755,X0      ;SHIFT R0,R0!1 BY 177755
MOV      @PS,PSH        ;SAVE PS
CMPB     R0,PSH          ;IS THE PS 0?
HLT      .+4
          ;THE PS IS NOT EQUAL TO 0
CMP      R0,X0           ;IS THE RESULT 0?
BEQ      .+4
          ;R0 IS NOT EQUAL TO 0
HLT      .+4             ;IS THE RESULT 4000?
CMP      #4000,X0!1
BEQ      .+4
          ;R0!1 IS NOT EQUAL TO 4000
HLT

```

```

*****
TEST 76      40000 0 SHIFTED BY 177756 = 0 10000 PS = 0
*****

```

```

006546 010701
000000 012700 040000
000000 000000 000000
000000 000000 177756
000000 000000 177757 006074
000000 000000 000000 006066
000000
000000
010000

```

```

SCOPE
MOV      #40000,X0      ;LOAD R0 WITH 40000
MOV      R0,X0!1        ;LOAD R0!1 WITH 0
CLC
ASHC     #177756,X0      ;SHIFT R0,R0!1 BY 177756
MOV      @PS,PSH        ;SAVE PS
CMPB     R0,PSH          ;IS THE PS 0?
HLT      .+4
          ;THE PS IS NOT EQUAL TO 0
CMP      R0,X0           ;IS THE RESULT 0?
BEQ      .+4
          ;R0 IS NOT EQUAL TO 0
HLT      .+4             ;IS THE RESULT 10000?
CMP      #10000,X0!1
BEQ      .+4
          ;R0!1 IS NOT EQUAL TO 10000
HLT

```

K03

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DCKBJA.P11

:TEST 77 40000 0 SHIFTED BY 177757 = 0 20000 PS = 0

006706	010701			SCOPE		
006710	012700	040000		MOV	#40000,XD	;LOAD RD WITH 40000
006714	012701	000000		MOV	RD,XD!1	;LOAD RD!1 WITH 0
006720	001241			CLC		
006722	073327	177757		ASHC	#177757,XD	;SHIFT RD,RD!1 BY 177757
006726	013767	177776	005014	MOV	#PS,PSW	;SAVE PS
006734	122767	000000	006006	CHPB	RD,PSW	;IS THE PS 0?
006742	001401			BEQ	.+4	
006744	000000			HLT		;THE PS IS NOT EQUAL TO 0
006746	002700	000000		CHP	RD,XD	;IS THE RESULT 0?
006752	000000			BEQ	.+4	
006754	000000			HLT		;RD IS NOT EQUAL TO 0
006756	000001	020000		CHP	#20000,XD!1	;IS THE RESULT 20000?
006762	001401			BEQ	.+4	
006764	000000			HLT		;RD!1 IS NOT EQUAL TO 20000

:TEST 100 40000 0 SHIFTED BY 177760 = 0 40000 PS = 0

006766	010701			SCOPE		
006770	012700	040000		MOV	#40000,XD	;LOAD RD WITH 40000
006774	012701	000000		MOV	RD,XD!1	;LOAD RD!1 WITH 0
007000	001241			CLC		
007002	073327	177760		ASHC	#177760,XD	;SHIFT RD,RD!1 BY 177760
007006	013767	177776	005734	MOV	#PS,PSW	;SAVE PS
007014	122767	000000	005726	CHPB	RD,PSW	;IS THE PS 0?
007022	001401			BEQ	.+4	
007024	000000			HLT		;THE PS IS NOT EQUAL TO 0
007026	002700	000000		CHP	RD,XD	;IS THE RESULT 0?
007032	001401			BEQ	.+4	
007034	000000			HLT		;RD IS NOT EQUAL TO 0
007036	022701	040000		CHP	#40000,XD!1	;IS THE RESULT 40000?
007042	001401			BEQ	.+4	
007044	000000			HLT		;RD!1 IS NOT EQUAL TO 40000

:TEST 101 40000 0 SHIFTED BY 177761 = 0 100000 PS = 0

007046	010701			SCOPE		
007050	012700	040000		MOV	#40000,XD	;LOAD RD WITH 40000
007054	012701	000000		MOV	RD,XD!1	;LOAD RD!1 WITH 0
007060	000241			CLC		
007064	073027	177761		ASHC	#177761,XD	;SHIFT RD,RD!1 BY 177761
007067	013767	177776	005654	MOV	#PS,PSW	;SAVE PS
007074	122767	000000	005646	CHPB	RD,PSW	;IS THE PS 0?
007108	001401			BEQ	.+4	
007109	000000			HLT		;THE PS IS NOT EQUAL TO 0
007106	022700	000000		CHP	RD,XD	;IS THE RESULT 0?
007113	001401			BEQ	.+4	
007114	000000			HLT		;RD IS NOT EQUAL TO 0
007116	022701	100000		CHP	#100000,XD!1	;IS THE RESULT 100000?
007122	001401			BEQ	.+4	
007124	000000			HLT		;RD!1 IS NOT EQUAL TO 100000

:TEST 102 -1 0 SHIFTED BY -16. = -1 -1 PS = 10

007126	010701			SCOPE		
007130	012700	177777		MOV	#-1,XD	;LOAD RD WITH -1
007134	012701	000000		MOV	RD,XD!1	;LOAD RD!1 WITH 0
007140	000241			CLC		
007142	073027	177760		ASHC	#-16,XD	;SHIFT RD,RD!1 BY -16.
007146	013767	177776	005574	MOV	#PS,PSW	;SAVE PS
007154	122767	000010	005566	CHPB	RD,PSW	;IS THE PS 10?
007162	001401			BEQ	.+4	
007164	000000			HLT		;THE PS IS NOT EQUAL TO 10
007166	022700	177777		CHP	#-1,XD	;IS THE RESULT -1?
007172	001401			BEQ	.+4	
007174	000000			HLT		;RD IS NOT EQUAL TO -1
007176	022701	177777		CHP	#-1,XD!1	;IS THE RESULT -1?
007202	001401			BEQ	.+4	
007204	000000			HLT		;RD!1 IS NOT EQUAL TO -1

:TEST 103 125252 0 SHIFTED BY -16. = -1 125252 PS = 10

007206	010701		SCOPE		
007210	012700	125252	MOV	#125252,X0	;LOAD R0 WITH 125252
007214	012701	000000	MOV	R0,X0!1	;LOAD R0!1 WITH 0
007218	012702		CLC		
007222	012703	177760	ASHC	#-16,X0	;SHIFT R0,R0!1 BY -16.
007226	012704	177776	MOV	#PS,PSW	;SAVE PS
007230	012705	000010	CHB	#10,PSW	;IS THE PS 10?
007234	012706		BLO	.+4	
007238	012707		HLT		;THE PS IS NOT EQUAL TO 10
007242	012708	177777	CMP	#-1,X0	;IS THE RESULT -1?
007246	012709		BEQ	.+4	
007250	012710		HLT		;R0 IS NOT EQUAL TO -1
007254	012711	125252	CMP	#125252,X0!1	;IS THE RESULT 125252?
007258	012712		BEQ	.+4	
007262	012713		HLT		;R0!1 IS NOT EQUAL TO 125252

:TEST 104 52525 0 SHIFTED BY -16. = 0 52525 PS = 0

007256	010701		SCOPE		
007260	012700	052525	MOV	#52525,X0	;LOAD R0 WITH 52525
007264	012701	000000	MOV	R0,X0!1	;LOAD R0!1 WITH 0
007268	012702		CLC		
007272	012703	177760	ASHC	#-16,X0	;SHIFT R0,R0!1 BY -16.
007276	012704	177776	MOV	#PS,PSW	;SAVE PS
007280	012705	000000	CHB	#0,PSW	;IS THE PS 0?
007284	012706		BLO	.+4	
007288	012707		HLT		;THE PS IS NOT EQUAL TO 0
007292	012708	000000	CMP	R0,X0	;IS THE RESULT 0?
007296	012709		BEQ	.+4	
007300	012710		HLT		;R0 IS NOT EQUAL TO 0
007304	012711	052525	CMP	#52525,X0!1	;IS THE RESULT 52525?
007308	012712		BEQ	.+4	
007312	012713		HLT		;R0!1 IS NOT EQUAL TO 52525

```
*****
;TEST 105      100000 0 SHIFTED BY -32. = -1 -1 PS = 11
*****
```

007346	010701			SCOPE		
007350	012700	100000		MOV	#100000,%0	;LOAD R0 WITH 100000
007354	012701	000000		MOV	#0,%0!1	;LOAD R0!1 WITH 0
007360	01241			CLC		
007362	073027	177740		ASHC	#-32,%0	;SHIFT R0,R0!1 BY -32.
007366	013067	177776	005354	MOV	@PS,PSW	;SAVE PS
007374	013067	000011	005346	CMPB	#11,PSW	;IS THE PS 11?
007378	013071			BEQ	.+4	
007384	013071			HLT		;THE PS IS NOT EQUAL TO 11
007386	013071	177777		CMP	#-1,%0	;IS THE RESULT -1?
007392	013071			BEQ	.+4	
007394	013071			HLT		;R0 IS NOT EQUAL TO -1
007396	013071			CMP	#-1,%0!1	;IS THE RESULT -1?
007402	013071			BEQ	.+4	
007404	013071			HLT		;R0!1 IS NOT EQUAL TO -1

```
*****
;TEST 106      0 -1 SHIFTED BY 15. = 77777 100000 PS = 0
*****
```

007426	010701			SCOPE		
007430	012700	000000		MOV	#0,%0	;LOAD R0 WITH 0
007434	012701	177777		MOV	#-1,%0!1	;LOAD R0!1 WITH -1
007440	01241			CLC		
007442	073027	000017		ASHC	#15,%0	;SHIFT R0,R0!1 BY 15.
007446	013067	177776	005374	MOV	@PS,PSW	;SAVE PS
007454	013067	000000	005366	CMPB	#0,PSW	;IS THE PS 0?
007462	013071			BEQ	.+4	
007464	013071			HLT		;THE PS IS NOT EQUAL TO 0
007466	013071	077777		CMP	#77777,%0	;IS THE RESULT 77777?
007472	013071			BEQ	.+4	
007474	013071			HLT		;R0 IS NOT EQUAL TO 77777
007476	013071	100000		CMP	#100000,%0!1	;IS THE RESULT 100000?
007482	013071			BEQ	.+4	
007484	013071			HLT		;R0!1 IS NOT EQUAL TO 100000

```

*****
:TEST 107      0 -1 SHIFTED BY 16. = -1 0  PS = 12
*****

```

007506	010701			SCOPE		
007510	012700	000000		MOV	00,XD	;LOAD R0 WITH 0
007514	012701	177777		MOV	0-1,XD!1	;LOAD R0!1 WITH -1
007520	000241			CLC		
007524	073027	000020		ASHC	016,XD	;SHIFT R0,R0!1 BY 16.
007528	013767	177776	005214	MOV	01PS,PSH	;SAVE PS
007534	122767	000012	005206	CHPB	012,PSH	;IS THE PS 12?
007540	001401			BEQ	.+4	
007544	000000			HLT		
007548	022700	177777		CHPB	0-1,XD	;THE PS IS NOT EQUAL TO 12
007554	001401			BEQ	.+4	;IS THE RESULT -1?
007558	000000			HLT		
007564	022701	000000		CHPB	00,XD!1	;R0 IS NOT EQUAL TO -1
007568	001401			BEQ	.+4	;IS THE RESULT 0?
007574	000000			HLT		;R0!1 IS NOT EQUAL TO 0

```

*****
:TEST 110      101000 -2 SHIFT BY 15. = 77777 0  PS = 2
*****

```

007566	010701			SCOPE		
007570	012700	100000		MOV	1100000,XD	;LOAD R0 WITH 100000
007574	012701	177776		MOV	1-2,XD!1	;LOAD R0!1 WITH -2
007600	000241			CLC		
007602	073027	000017		ASHC	015,XD	;SHIFT R0,R0!1 BY 15.
007606	013767	177776	005134	MOV	01PS,PSH	;SAVE PS
007614	122767	000002	005126	CHPB	02,PSH	;IS THE PS 2?
007622	001401			BEQ	.+4	
007624	000000			HLT		
007626	022700	077777		CHPB	077777,XD	;THE PS IS NOT EQUAL TO 2
007632	001401			BEQ	.+4	;IS THE RESULT 77777?
007634	000000			HLT		
007636	022701	000000		CHPB	00,XD!1	;R0 IS NOT EQUAL TO 77777
007642	001401			BEQ	.+4	;IS THE RESULT 0?
007644	000000			HLT		;R0!1 IS NOT EQUAL TO 0

```

*****
:TEST 111      0 125252 SHIFTED BY 15. = 52525 0 PS = 0
*****

```

007646	010701			SCOPE		
007648	012700	000000		MOV	00,X0	:LOAD R0 WITH 0
007650	012701	125252		MOV	0125252,X0!1	:LOAD R0!1 WITH 125252
007660	000241			CLC		
007662	073027	000017		ASHC	015,X0	:SHIFT R0,R0!1 BY 15.
007664	013767	177776	005054	MOV	00PS,PSH	:SAVE PS
007666	013767	000000	005046	CHPB	00,PSH	:IS THE PS 0?
007702	001401			BEG	.+4	
007704	000000			HLT		:THE PS IS NOT EQUAL TO 0
007706	000000	052525		CHP	052525,X0	:IS THE RESULT 52525?
007712	001401			BEG	.+4	
007714	000000			HLT		:R0 IS NOT EQUAL TO 52525
007716	002701	000000		CHP	00,X0!1	:IS THE RESULT 0?
007722	001401			BEG	.+4	
007724	000000			HLT		:R0!1 IS NOT EQUAL TO 0

```

*****
:TEST 112      0 125252 SHIFTED BY 16. = 125252 0 PS = 12
*****

```

007726	010701			SCOPE		
007730	012700	000000		MOV	00,X0	:LOAD R0 WITH 0
007734	012701	125252		MOV	0125252,X0!1	:LOAD R0!1 WITH 125252
007740	000241			CLC		
007742	073027	000020		ASHC	016,X0	:SHIFT R0,R0!1 BY 16.
007746	013767	177776	004774	MOV	00PS,PSH	:SAVE PS
007754	122767	000012	004766	CHPB	012,PSH	:IS THE PS 12?
007762	001401			BEG	.+4	
007764	000000			HLT		:THE PS IS NOT EQUAL TO 12
007766	022700	125252		CHP	0125252,X0	:IS THE RESULT 125252?
007772	001401			BEG	.+4	
007774	000000			HLT		:R0 IS NOT EQUAL TO 125252
007776	022701	000000		CHP	00,X0!1	:IS THE RESULT 0?
010002	001401			BEG	.+4	
010004	000000			HLT		:R0!1 IS NOT EQUAL TO 0

004

:TEST 113 0 52525 SHIFTED BY 16. = 52525 0 PS = 0

010006	010701			SCOPE		
010010	012700	000000		MOV	80,X0	:LOAD R0 WITH 0
010014	012701	062525		MOV	80525,X0!1	:LOAD R0!1 WITH 52525
010020	000241			CLC		
010022	073027	000020		ASHC	816,X0	:SHIFT R0,R0!1 BY 16.
010024	013767	177776	004714	MOV	80PS,PSM	:SAVE PS
010026	122767	000000	004706	CHPB	80,PSM	:IS THE PS 0?
010028	001401			BEQ	.+4	
01002A	000000			HLT		:THE PS IS NOT EQUAL TO 0
01002C	022700	062525		MOV	80525,X0	:IS THE RESULT 52525?
01002E	001401			CHPB	.+4	
010030	000000			HLT		:R0 IS NOT EQUAL TO 52525
010032	022701	000000		CHPB	80,X0!1	:IS THE RESULT 0?
010034	001401			BEQ	.+4	
010036	000000			HLT		:R0!1 IS NOT EQUAL TO 0

:TEST 114 -1 0 SHIFTED BY 16. = 0 0 PS = 7

010056	010701			SCOPE		
010070	012700	177777		MOV	8-1,X0	:LOAD R0 WITH -1
010074	012701	000000		MOV	80,X0!1	:LOAD R0!1 WITH 0
010100	000241			CLC		
010102	073027	000020		ASHC	816,X0	:SHIFT R0,R0!1 BY 16.
010106	013767	177776	004634	MOV	80PS,PSM	:SAVE PS
010114	122767	000007	004626	CHPB	87,PSM	:IS THE PS 7?
010122	001401			BEQ	.+4	
010124	000000			HLT		:THE PS IS NOT EQUAL TO 7
010126	022700	000000		CHPB	80,X0	:IS THE RESULT 0?
010132	001401			BEQ	.+4	
010134	000000			HLT		:R0 IS NOT EQUAL TO 0
010136	022701	000000		CHPB	80,X0!1	:IS THE RESULT 0?
010142	001401			BEQ	.+4	
010144	000000			HLT		:R0!1 IS NOT EQUAL TO 0

:TEST 115 1 SHIFTED BY 8. = 400 PS = 0

010146	010701			SCOPE		
010153	012701	000000		MOV	DUPPY,X1	;LOAD R1 WITH DUMMY
010154	012701	000001		MOV	R1,X1!1	;LOAD R1!1 WITH 1
010160	012701			CLC		
010162	073127	000010		ASHC	R8,X1	;SHIFT R1,R1!1 BY 8.
010176	013767	177776	004554	MOV	2*PS,PSH	;SAVE PS
010174	12767	000000	004546	CHPB	R0,PSH	;IS THE PS 0?
010172	001401			BEQ	.+4	
010174	001401			HLT		;THE PS IS NOT EQUAL TO 0
010176	001401	000400		CHPB	R400,X1	;IS THE RESULT 400?
010178	001401			BEQ	.+4	
010214	000000			HLT		;R1 IS NOT EQUAL TO 400

:TEST 116 -1 SHIFTED BY 15. = 100000 PS = 11

010216	010701			SCOPE		
010233	012701	000000		MOV	DUPPY,X1	;LOAD R1 WITH DUMMY
010234	012701	177777		MOV	R-1,X1!1	;LOAD R1!1 WITH -1
010236	012701			CLC		
010238	073127	000017		ASHC	R15,X1	;SHIFT R1,R1!1 BY 15.
010240	013767	177776	004504	MOV	2*PS,PSH	;SAVE PS
010242	12767	000011	004476	CHPB	R11,PSH	;IS THE PS 11?
010244	001401			BEQ	.+4	
010246	001401			HLT		;THE PS IS NOT EQUAL TO 11
010248	001401	100000		CHPB	R100000,X1	;IS THE RESULT 100000?
010250	001401			BEQ	.+4	
010254	000000			HLT		;R1 IS NOT EQUAL TO 100000

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:TEST 117 52525 SHIFTED BY 0 = 52525 PS = 0

010326	010701			SCOPE		
010327	012701	00000		MOV	#DUMMY,X1	;LOAD R1 WITH DUMMY
010328	012701	00005		MOV	#52525,X1:1	;LOAD R1:1 WITH 52525
010329	013127	00000		CLC		
010330	013767	17776	004434	PSH	#X1	;SHIFT R1,R1:1 BY 0
010331	122767	000000	004436	PSH	#PS	;SAVE PS
010332	001401			PSH	#PS	;IS THE PS 0?
010333	000000			BEQ	.+4	
010334	022701	052525		BEQ	#52525,X1	;THE PS IS NOT EQUAL TO 0
	001401			BEQ	.+4	;IS THE RESULT 52525?
	000000			HLT		;R1 IS NOT EQUAL TO 52525

:TEST 118 20010 SHIFTED BY -13. = 101 PS = 0

010336	010701			SCOPE		
010337	012701	00000		MOV	#DUMMY,X1	;LOAD R1 WITH DUMMY
010338	012701	00010		MOV	#20010,X1:1	;LOAD R1:1 WITH 20010
010339	013127	00000		CLC		
010340	013767	177763	000004	PSH	#-13,X1	;SHIFT R1,R1:1 BY -13.
010341	001401			PSH	#PS	;SAVE PS
010342	000000			PSH	#PS	;IS THE PS 0?
010343	000000			BEQ	.+4	
010344	000101			BEQ	#101,X1	;THE PS IS NOT EQUAL TO 0
				BEQ	.+4	;IS THE RESULT 101?
				HLT		;R1 IS NOT EQUAL TO 101

:TEST 121 -1 SHIFTED BY 16. = 0 PS = 11
:*****

010406	010701			SCOPE		
010410	012701	000000		MOV	\$DUMMY,X1	;LOAD R1 WITH DUMMY
010414	012701	177777		MOV	\$-1,X1!1	;LOAD R1!1 WITH -1
010420	000241			CLC		
010422	073127	000000		P-4C	\$16,X1	;SHIFT R1,R1!1 BY 16.
010426	013767	177776	004314	MOV	\$-1,PSH	;SAVE PS
010434	122767	000011	004306	CMPSB	\$11,PSH	;IS THE PS 11?
010442	001401			BEQ	+.4	
010444	000000			HLT		;THE PS IS NOT EQUAL TO 11
010446	022701	000000		CMP	\$0,X1	;IS THE RESULT 0?
010452	001401			BEQ	+.4	
010454	000000			HLT		;R1 IS NOT EQUAL TO 0

:TEST 122 1 SHIFTED BY -1 = 100000 PS = 1
:*****

010456	010701			SCOPE		
010460	012701	000000		MOV	\$DUMMY,X1	;LOAD R1 WITH DUMMY
010464	012701	000001		MOV	\$1,X1!1	;LOAD R1!1 WITH 1
010470	000241			CLC		
010472	073127	177777		P-4C	\$-1,X1	;SHIFT R1,R1!1 BY -1
010476	013767	177776	004244	MOV	\$-1,PSH	;SAVE PS
010504	122767	000001	004236	CMPSB	\$1,PSH	;IS THE PS 1?
010512	001401			BEQ	+.4	
010514	000000			HLT		;THE PS IS NOT EQUAL TO 1
010516	001401	100000		CMP	\$100000,X1	;IS THE RESULT 100000?
010522	001401			BEQ	+.4	
010524	000000			HLT		;R1 IS NOT EQUAL TO 100000

:TEST 123 125252 SHIFTED BY -16. = 125252 PS = 11
:*****

```
010576 010701 000000
010577 010701 125252
010578 010701 177760
010579 010701 177776 004174
010580 010701 000011 004166
010581 010701 125252
010582 010701 000000
```

```
SCOPE
MOV 0DUPPY,X1 ;LOAD R1 WITH DUPPY
MOV 0125252,X1!1 ;LOAD R1!1 WITH 125252
CLC
F HC 0-16,X1 ;SHIFT R1,R1!1 BY -16.
F V 00PS,PSW ;SAVE PS
C 011,PSW ;IS THE PS 11?
F 04 ;
F 0125252,X1 ;THE PS IS NOT EQUAL TO 11
F 04 ;IS THE RESULT 125252?
F 04 ;R1 IS NOT EQUAL TO 125252
```

:TEST 124 -1 0 SHIFTED BY -16. = -1 -1 PS = 10
:*****

```
010576 010701 177777
010577 010701 000000
010578 010701 177760
010579 010701 177776 004124
010580 010701 000010 004116
010581 010701 177777
010582 010701 000000
```

```
SCOPE
MOV 0-1,X2 ;LOAD R2 WITH -1
MOV 00,X2!1 ;LOAD R2!1 WITH 0
CLC
F HC 0-16,X2 ;SHIFT R2,R2!1 BY -16.
F V 00PS,PSW ;SAVE PS
C 010,PSW ;IS THE PS 10?
F 04 ;
F 0-1,X2 ;THE PS IS NOT EQUAL TO 10
F 04 ;IS THE RESULT -1?
F 0-1,X2!1 ;R2 IS NOT EQUAL TO -1
F 04 ;IS THE RESULT -1?
F 04 ;R2!1 IS NOT EQUAL TO -1
```

[illegible]

```

*****
TEST 1:6      5      5 0 SHIFTED BY -16. = 0 5      5 PS = 0
*****

```

010730	010731	000000	
010740	010741	000000	
010744	010745	000000	
010750	010751	000000	
010752	010753	177760	
010754	010755	177776	000764
010764	010765	000000	000756
010772	010773	000000	
010774	010775	000000	
011002	011003	000000	
011004	011005	000000	
011006	011007	052525	
011012	011013	001401	
011014	011015	000000	

```

SCOPE
MOV    R2,R2
MOV    R2,R2
CLC
RNC
MOV    R2,R2
CLC
BEQ    R2,R2
HLT
CMP    R2,R2
BEQ    R2,R2
HLT
CMP    R2,R2
BEQ    R2,R2
HLT

```

0111016	0110701	100000	
0111016	0110702	000000	
0111016	0110703	177740	
0111016	0110704	177776	003704
0111016	0110705	000011	003676
0111016	0110706		
0111016	0110707	177777	
0111016	0110708		
0111016	0110709	177777	
0111016	0110710		
0111016	0110711		
0111016	0110712		
0111016	0110713		
0111016	0110714		
0111016	0110715		
0111016	0110716		
0111016	0110717		
0111016	0110718		
0111016	0110719		
0111016	0110720		
0111016	0110721		
0111016	0110722		
0111016	0110723		
0111016	0110724		
0111016	0110725		
0111016	0110726		
0111016	0110727		
0111016	0110728		
0111016	0110729		
0111016	0110730		
0111016	0110731		
0111016	0110732		
0111016	0110733		
0111016	0110734		
0111016	0110735		
0111016	0110736		
0111016	0110737		
0111016	0110738		
0111016	0110739		
0111016	0110740		
0111016	0110741		
0111016	0110742		
0111016	0110743		
0111016	0110744		
0111016	0110745		
0111016	0110746		
0111016	0110747		
0111016	0110748		
0111016	0110749		
0111016	0110750		
0111016	0110751		
0111016	0110752		
0111016	0110753		
0111016	0110754		
0111016	0110755		
0111016	0110756		
0111016	0110757		
0111016	0110758		
0111016	0110759		
0111016	0110760		
0111016	0110761		
0111016	0110762		
0111016	0110763		
0111016	0110764		
0111016	0110765		
0111016	0110766		
0111016	0110767		
0111016	0110768		
0111016	0110769		
0111016	0110770		
0111016	0110771		
0111016	0110772		
0111016	0110773		
0111016	0110774		
0111016	0110775		
0111016	0110776		
0111016	0110777		
0111016	0110778		
0111016	0110779		
0111016	0110780		
0111016	0110781		
0111016	0110782		
0111016	0110783		
0111016	0110784		
0111016	0110785		
0111016	0110786		
0111016	0110787		
0111016	0110788		
0111016	0110789		
0111016	0110790		
0111016	0110791		
0111016	0110792		
0111016	0110793		
0111016	0110794		

SCOPE		
MOV	#100000,X2	;LOAD R2 WITH 100000
MOV	#0,X2!1	;LOAD R2!1 WITH 0
CLC		
RLC	#-32,X2	;SHIFT R2,R2!1 BY -32.
MOV	#11,PSW	;SET PS
CLPB	#11,PSW	;IS THE PS 11?
BLO	.+4	
HLT		
CMP	#-1,X2	;THE PS IS NOT EQUAL TO 11
BLO	.+4	;IS THE RESULT -1?
HLT		
CMP	#-1,X2!1	;R2 IS NOT EQUAL TO -1
BLO	.+4	;IS THE RESULT -1?
HLT		
		;R2!1 IS NOT EQUAL TO -1

011076	010701	000000	
011100	000000	177777	
011104	000000	177777	
011110	000000	000017	
011112	000000	177776	000524
011116	000000	000000	000516
011124	000000	000000	
011132	000000	000000	
011134	000000	000000	
011136	000000	000000	
011140	000000	000000	
011144	000000	000000	
011148	000000	000000	
011152	000000	000000	
011154	000000	000000	

```

SCOPE
MOV      R0,R2      ;LOAD R2 WITH 0
MOV      R0-1,R2!1  ;LOAD R2!1 WITH -1
CLC
PUSHC    R15,R2      ;SHIFT R2,R2!1 BY 15.
MOV      R2,R5,PSW   ;SAVE PS
CMPB     R0,PSW      ;IS THE PS 0?
BEQ      .+4
HLT      ;THE PS IS NOT EQUAL TO 0
CMP      R0,77777,x2 ;IS THE RESULT 77777?
BEQ      .+4
HLT      ;R2 IS NOT EQUAL TO 77777
CMP      R0,100000,x2!1 ;IS THE RESULT 100000?
BEQ      .+4
HLT      ;R2!1 IS NOT EQUAL TO 100000

```

K04

MAINDEC-11-DCKBJ-A ASHC TEST MACY11 27(732) 07-SEP-76 09:46 PAGE 49
DCKBJA.P11

:TEST 131 0 -1 SHIFTED BY 16. = -1 0 PS = 12

011156	010701			SCOPE		
011160	012702	000000		MOV	00,x2	;LOAD R2 WITH 0
011164	012703	177777		MOV	0-1,x2!1	;LOAD R2!1 WITH -1
011170	012704			CLC		
011172	012705	000020		RHC	016,x2	;SHIFT R2,R2!1 BY 16.
011176	012706	177776	003544	MOV	0,PS,PSW	;SAVE PS
011204	012707	000012	003536	CMPB	012,PSW	;IS THE PS 12?
011212	012708			BEQ	.+4	
011214	012709			HLT		;THE PS IS NOT EQUAL TO 12
011216	012710	177777		CMP	0-1,x2	;IS THE RESULT -1?
011222	012711			BEQ	.+4	
011224	012712			HLT		;R2 IS NOT EQUAL TO -1
011226	012713	000000		CMP	00,x2!1	;IS THE RESULT 0?
011232	012714			BEQ	.+4	
011234	012715			HLT		;R2!1 IS NOT EQUAL TO 0

:TEST 132 10000 -2 SHIFTED BY 15. = 77777 0 PS = 2

011236	010701			SCOPE		
011240	012702	100000		MOV	010000,x2	;LOAD R2 WITH 100000
011244	012703	177776		MOV	0-2,x2!1	;LOAD R2!1 WITH -2
011250	012704			CLC		
011252	012705	000017		RHC	015,x2	;SHIFT R2,R2!1 BY 15.
011256	012706	177776	003464	MOV	0,PS,PSW	;SAVE PS
011264	012707	000002	003456	CMPB	02,PSW	;IS THE PS 2?
011272	012708			BEQ	.+4	
011274	012709			HLT		;THE PS IS NOT EQUAL TO 2
011276	012710	077777		CMP	077777,x2	;IS THE RESULT 77777?
011302	012711			BEQ	.+4	
011304	012712			HLT		;R2 IS NOT EQUAL TO 77777
011306	012713	000000		CMP	00,x2!1	;IS THE RESULT 0?
011312	012714			BEQ	.+4	
011314	012715			HLT		;R2!1 IS NOT EQUAL TO 0

L04

:TEST 133 0 125252 SHIFTED BY 15. = 52525 0 PS = 0

011316	010701		SCOPE		
011320	012702	000000	MOV	#0,x2	;LOAD R2 WITH 0
011324	012703	125252	MOV	#125252,x2!1	;LOAD R2!1 WITH 125252
011330	001241		CLC		
011332	07327	000017	ASHC	#15,x2	;SHIFT R2,R2!1 BY 15.
011336	01367	177776	MOV	#PS,PSW	;SAVE PS
011344	122767	000000	CLPB	#0,PSW	;IS THE PS 0?
011352	001401		BEQ	.+4	
011354	01367		HLT		;THE PS IS NOT EQUAL TO 0
011356	01367	052525	CMP	#52525,x2	;IS THE RESULT 52525?
011362	001401		BEQ	.+4	
011364	000000		HLT		;R2 IS NOT EQUAL TO 52525
011366	022703	000000	CMP	#0,x2!1	;IS THE RESULT 0?
011372	001401		BEQ	.+4	
011374	000000		HLT		;R2!1 IS NOT EQUAL TO 0

:TEST 134 0 125252 SHIFTED BY 16. = 125252 0 PS = 12

011376	010701		SCOPE		
011400	012702	000000	MOV	#0,x2	;LOAD R2 WITH 0
011404	012703	125252	MOV	#125252,x2!1	;LOAD R2!1 WITH 125252
011410	001241		CLC		
011412	07327	000020	ASHC	#16,x2	;SHIFT R2,R2!1 BY 16.
011416	013767	177776	MOV	#PS,PSW	;SAVE PS
011424	122767	000012	CLPB	#12,PSW	;IS THE PS 12?
011432	001401		BEQ	.+4	
011434	013767		HLT		;THE PS IS NOT EQUAL TO 12
011436	013767	125252	CMP	#125252,x2	;IS THE RESULT 125252?
011442	001401		BEQ	.+4	
011444	000000		HLT		;R2 IS NOT EQUAL TO 125252
011446	022703	000000	CMP	#0,x2!1	;IS THE RESULT 0?
011452	001401		BEQ	.+4	
011454	000000		HLT		;R2!1 IS NOT EQUAL TO 0

```

*****
;TEST 135      0 52525 SHIFTED BY 16. = 52525 0  PS = 0
*****

```

011456	010701		SCOPE		
011460	012702	000000	MOV	#0, X2	;LOAD R2 WITH 0
011464	012703	052525	MOV	#52525, X2!1	;LOAD R2!1 WITH 52525
011470	000241		CLC		
011472	073227	000020	ASHC	#16., X2	;SHIFT R2, R2!1 BY 16.
011476	013767	177776	MOV	2#PS, PSW	;SAVE PS
011504	122767	000000	CMPB	#0, PSW	;IS THE PS 0?
011512	001401		BEQ	.+4	
011514	010000		HLT		;THE PS IS NOT EQUAL TO 0
011516	012702	052525	CMP	#52525, X2	;IS THE RESULT 52525?
011522	011401		BEQ	.+4	
011524	000000		HLT		;R2 IS NOT EQUAL TO 52525
011526	022703	000000	CMP	#0, X2!1	;IS THE RESULT 0?
011532	001401		BEQ	.+4	
011534	000000		HLT		;R2!1 IS NOT EQUAL TO 0

```

*****
;TEST 136      -1 0 SHIFTED BY 16. = 0 0  PS = 7
*****

```

011536	010701		SCOPE		
011540	012702	177777	MOV	#-1, X2	;LOAD R2 WITH -1
011544	012703	000000	MOV	#0, X2!1	;LOAD R2!1 WITH 0
011550	000241		CLC		
011552	073227	000020	ASHC	#16., X2	;SHIFT R2, R2!1 BY 16.
011556	013767	177776	MOV	2#PS, PSW	;SAVE PS
011564	122767	000007	CMPB	#7, PSW	;IS THE PS 7?
011572	001401		BEQ	.+4	
011574	000000		HLT		;THE PS IS NOT EQUAL TO 7
011576	022702	000000	CMP	#0, X2	;IS THE RESULT 0?
011602	001401		BEQ	.+4	
011604	000000		HLT		;R2 IS NOT EQUAL TO 0
011606	022703	000000	CMP	#0, X2!1	;IS THE RESULT 0?
011612	001401		BEQ	.+4	
011614	000000		HLT		;R2!1 IS NOT EQUAL TO 0

;TEST 137 1 SHIFTED BY 8. = 400 PS = 0

011616	010701			SCOPE		
011620	012703	000000		MOV	#DUMMY,%3	;LOAD R3 WITH DUMMY
011624	012703	000001		MOV	#1,%3!1	;LOAD R3!1 WITH 1
011630	000241			CLC		
011632	073327	000010		ASHC	#8,%3	;SHIFT R3,R3!1 BY 8.
011636	013767	177776	003104	MOV	2#PS,PSW	;SAVE PS
011644	122767	000000	003076	CMPB	#0,PSW	;IS THE PS 0?
011652	001401			BEQ	.+4	
011654	000000			HLT		;THE PS IS NOT EQUAL TO 0
011656	002703	000400		CMP	#400,%3	;IS THE RESULT 400?
011662	001401			BEQ	.+4	
011664	000000			HLT		;R3 IS NOT EQUAL TO 400

;TEST 140 -1 SHIFTED BY 15. = 100000 PS = 11

011666	010701			SCOPE		
011670	012703	000000		MOV	#DUMMY,%3	;LOAD R3 WITH DUMMY
011674	012703	177777		MOV	#-1,%3!1	;LOAD R3!1 WITH -1
011700	000241			CLC		
011702	073327	000017		ASHC	#15,%3	;SHIFT R3,R3!1 BY 15.
011706	013767	177776	003034	MOV	2#PS,PSW	;SAVE PS
011714	122767	000011	003026	CMPB	#11,PSW	;IS THE PS 11?
011722	001401			BEQ	.+4	
011724	000000			HLT		;THE PS IS NOT EQUAL TO 11
011726	022703	100000		CMP	#100000,%3	;IS THE RESULT 100000?
011732	001401			BEQ	.+4	
011734	000000			HLT		;R3 IS NOT EQUAL TO 100000

:TEST 141 52525 SHIFTED BY 0 = 52525 PS = 0

011736	010701			SCOPE		
011740	012703	000000		MOV	#DUMMY,X3	;LOAD R3 WITH DUMMY
011744	012703	052525		MOV	#52525,X3!1	;LOAD R3!1 WITH 52525
011750	000241			CLC		
011752	073327	000000		ASHC	#0,X3	;SHIFT R3,R3!1 BY 0
011756	013767	177776	002764	MOV	#PS,PSH	;SAVE PS
011764	122767	000000	002756	CMPB	#0,PSH	;IS THE PS 0?
011772	001401			BEQ	.+4	
011774	000000			HLT		;THE PS IS NOT EQUAL TO 0
011776	022703	052525		CMP	#52525,X3	;IS THE RESULT 52525?
012002	001401			BEQ	.+4	
012004	000000			HLT		;R3 IS NOT EQUAL TO 52525

:TEST 142 20010 SHIFTED BY -13. = 101 PS = 0

012006	010701			SCOPE		
012010	012703	000000		MOV	#DUMMY,X3	;LOAD R3 WITH DUMMY
012014	012703	020010		MOV	#20010,X3!1	;LOAD R3!1 WITH 20010
012020	000241			CLC		
012022	073327	177763		ASHC	#-13,X3	;SHIFT R3,R3!1 BY -13.
012026	013767	177776	002714	MOV	#PS,PSH	;SAVE PS
012034	122767	000000	002706	CMPB	#0,PSH	;IS THE PS 0?
012042	001401			BEQ	.+4	
012044	000000			HLT		;THE PS IS NOT EQUAL TO 0
012046	022703	000101		CMP	#101,X3	;IS THE RESULT 101?
012052	001401			BEQ	.+4	
012054	000000			HLT		;R3 IS NOT EQUAL TO 101

```

*****
:TEST 143      -1 SHIFTED BY 16. = 0  PS = 11
*****

```

```

012756 010701
012758 012703 000000
012760 012703 177777
012762 012703 000020
012764 013767 177776 002644
012766 013767 000011 002636
012768 013767
012770 013767
012772 013767
012774 013767
012776 013767
012778 013767
012780 013767
012782 013767
012784 013767
012786 013767
012788 013767
012790 013767
012792 013767
012794 013767
012796 013767
012798 013767
012800 013767
012802 013767
012804 013767
012806 013767
012808 013767
012810 013767
012812 013767
012814 013767
012816 013767
012818 013767
012820 013767
012822 013767
012824 013767
012826 013767
012828 013767
012830 013767
012832 013767
012834 013767
012836 013767
012838 013767
012840 013767
012842 013767
012844 013767
012846 013767
012848 013767
012850 013767
012852 013767
012854 013767
012856 013767
012858 013767
012860 013767
012862 013767
012864 013767
012866 013767
012868 013767
012870 013767
012872 013767
012874 013767
012876 013767
012878 013767
012880 013767
012882 013767
012884 013767
012886 013767
012888 013767
012890 013767
012892 013767
012894 013767
012896 013767
012898 013767
012900 013767
012902 013767
012904 013767
012906 013767
012908 013767
012910 013767
012912 013767
012914 013767
012916 013767
012918 013767
012920 013767
012922 013767
012924 013767
012926 013767
012928 013767
012930 013767
012932 013767
012934 013767
012936 013767
012938 013767
012940 013767
012942 013767
012944 013767
012946 013767
012948 013767
012950 013767
012952 013767
012954 013767
012956 013767
012958 013767
012960 013767
012962 013767
012964 013767
012966 013767
012968 013767
012970 013767
012972 013767
012974 013767
012976 013767
012978 013767
012980 013767
012982 013767
012984 013767
012986 013767
012988 013767
012990 013767
012992 013767
012994 013767
012996 013767
012998 013767
013000 013767

```

```

SCOPE
MOV      @DUMMY,X3      ;LOAD R3 WITH DUMMY
MOV      @-1,X3!1       ;LOAD R3!1 WITH -1
CLC
ASHC     @16,X3          ;SHIFT R3,R3!1 BY 16.
MOV      @PS,PSH        ;SAVE PS
CHPB     @11,PSH        ;IS THE PS 11?
BEQ      .+4
HLT      .               ;THE PS IS NOT EQUAL TO 11
CHPB     @0,X3           ;IS THE RESULT 0?
BEQ      .+4
HLT      .               ;R3 IS NOT EQUAL TO 0

```

```

*****
:TEST 144      1 SHIFTED BY -1 = 100000 PS = 1
*****

```

```

012126 010701
012128 012703 000000
012130 012703 000001
012132 012703 000001
012134 012703 000001
012136 012703 000001
012138 012703 000001
012140 012703 000001
012142 012703 000001
012144 012703 000001
012146 012703 000001
012148 012703 000001
012150 012703 000001
012152 012703 000001
012154 012703 000001
012156 012703 000001
012158 012703 000001
012160 012703 000001
012162 012703 000001
012164 012703 000001
012166 012703 000001
012168 012703 000001
012170 012703 000001
012172 012703 000001
012174 012703 000001
012176 012703 000001
012178 012703 000001
012180 012703 000001
012182 012703 000001
012184 012703 000001
012186 012703 000001
012188 012703 000001
012190 012703 000001
012192 012703 000001
012194 012703 000001
012196 012703 000001
012198 012703 000001
012200 012703 000001
012202 012703 000001
012204 012703 000001
012206 012703 000001
012208 012703 000001
012210 012703 000001
012212 012703 000001
012214 012703 000001
012216 012703 000001
012218 012703 000001
012220 012703 000001
012222 012703 000001
012224 012703 000001
012226 012703 000001
012228 012703 000001
012230 012703 000001
012232 012703 000001
012234 012703 000001
012236 012703 000001
012238 012703 000001
012240 012703 000001
012242 012703 000001
012244 012703 000001
012246 012703 000001
012248 012703 000001
012250 012703 000001
012252 012703 000001
012254 012703 000001
012256 012703 000001
012258 012703 000001
012260 012703 000001
012262 012703 000001
012264 012703 000001
012266 012703 000001
012268 012703 000001
012270 012703 000001
012272 012703 000001
012274 012703 000001
012276 012703 000001
012278 012703 000001
012280 012703 000001
012282 012703 000001
012284 012703 000001
012286 012703 000001
012288 012703 000001
012290 012703 000001
012292 012703 000001
012294 012703 000001
012296 012703 000001
012298 012703 000001
012300 012703 000001
012302 012703 000001
012304 012703 000001
012306 012703 000001
012308 012703 000001
012310 012703 000001
012312 012703 000001
012314 012703 000001
012316 012703 000001
012318 012703 000001
012320 012703 000001
012322 012703 000001
012324 012703 000001
012326 012703 000001
012328 012703 000001
012330 012703 000001
012332 012703 000001
012334 012703 000001
012336 012703 000001
012338 012703 000001
012340 012703 000001
012342 012703 000001
012344 012703 000001
012346 012703 000001
012348 012703 000001
012350 012703 000001
012352 012703 000001
012354 012703 000001
012356 012703 000001
012358 012703 000001
012360 012703 000001
012362 012703 000001
012364 012703 000001
012366 012703 000001
012368 012703 000001
012370 012703 000001
012372 012703 000001
012374 012703 000001
012376 012703 000001
012378 012703 000001
012380 012703 000001
012382 012703 000001
012384 012703 000001
012386 012703 000001
012388 012703 000001
012390 012703 000001
012392 012703 000001
012394 012703 000001
012396 012703 000001
012398 012703 000001
012400 012703 000001

```

```

SCOPE
MOV      @DUMMY,X3      ;LOAD R3 WITH DUMMY
MOV      @1,X3!1        ;LOAD R3!1 WITH 1
CLC
ASHC     @-1,X3          ;SHIFT R3,R3!1 BY -1
MOV      @PS,PSH        ;SAVE PS
CHPB     @1,PSH          ;IS THE PS 1?
BEQ      .+4
HLT      .               ;THE PS IS NOT EQUAL TO 1
CHPB     @100000,X3      ;IS THE RESULT 100000?
BEQ      .+4
HLT      .               ;R3 IS NOT EQUAL TO 100000

```

[illegible]

```

*****
TEST 146      -1 0 SHIFTED BY -16.  x -1 -1  PS x 10
*****

```

010701	177777	
000000	000000	
000000	177750	
000000	1777.6	000010
000000	000010	
000000	177777	
000000	177777	

SCOPE		
MOV	R-1, X4	; LOAD R4 WITH -1
MOV	R0, X4!1	; LOAD R4!1 WITH 0
CLC		
R JC	R-16, X4	; SHIFT R4, R4!1 BY -16.
MOV	2RPS, PSW	; SAVE PS
C B	R10, PSW	; IS THE PS 10?
E 2	.+4	
HLT		; THE PS IS NOT EQUAL TO 10
CHP	R-1, X4	; IS THE RESULT -1?
BLO	.+4	
HLT		; R4 IS NOT EQUAL TO -1
CHP	R-1, X4!1	; IS THE RESULT -1?
BEQ	.+4	
HLT		; R4!1 IS NOT EQUAL TO -1

[illegible]

```

:*****
:TEST 150      5025 0 SHIFTED BY -16. = 0 520.5 PS = 0
:*****

```

012406	010701		
012407	010704	000000	
012408	010705	000000	
012409	010711		
012410	010717	177760	
012411	010717	177776	002314
012412	010717	000000	000006
012413	010717		
012414	010717		
012415	010717		
012416	010717		
012417	010717		
012418	010717		
012419	010717		
012420	010717		
012421	010717		
012422	010717		
012423	010717		
012424	010717		
012425	010717		
012426	010717		
012427	010717		
012428	010717		
012429	010717		
012430	010717		
012431	010717		
012432	010717		
012433	010717		
012434	010717		
012435	010717		
012436	010717		
012437	010717		
012438	010717		
012439	010717		
012440	010717		
012441	010717		
012442	010717		
012443	010717		
012444	010717		
012445	010717		
012446	010717		
012447	010717		
012448	010717		
012449	010717		
012450	010717		
012451	010717		
012452	010717		
012453	010717		
012454	010717		
012455	010717		
012456	010717		
012457	010717		
012458	010717		
012459	010717		
012460	010717		
012461	010717		
012462	010717		
012463	010717		
012464	010717		
012465	010717		
012466	010717		
012467	010717		
012468	010717		
012469	010717		
012470	010717		
012471	010717		
012472	010717		
012473	010717		
012474	010717		
012475	010717		
012476	010717		
012477	010717		
012478	010717		
012479	010717		
012480	010717		
012481	010717		
012482	010717		
012483	010717		
012484	010717		
012485	010717		
012486	010717		
012487	010717		
012488	010717		
012489	010717		
012490	010717		
012491	010717		
012492	010717		
012493	010717		
012494	010717		
012495	010717		
012496	010717		
012497	010717		
012498	010717		
012499	010717		
012500	010717		

```
SCOPE
MOV      #52525,X4          ;LOAD R4 WITH 52525
MOV      R0,X4!1           ;LOAD R4!1 WITH 0
CLC
ASHC     -16,X4             ;SHIFT R4,R4!1 BY -16.
MOV      @RPS,PSW           ;SET PS
CMPB     R0,PSW             ;IS THE PS 0?
BEQ      .+4
HLT
CMP      R0,X4              ;THE PS IS NOT EQUAL TO 0
BEQ      .+4                ;IS THE RESULT 0?
HLT
CMP      #52525,X4!1        ;R4 IS NOT EQUAL TO 0
BEQ      .+4                ;IS THE RESULT 52525?
HLT                          ;R4!1 IS NOT EQUAL TO 52525
```

```

*****
TEST 151      10 0 0 0 0 BY -32. = -1 -1 PS = 11
*****

```

012346	010701	100000		SCOPE		
012347	012704	000000		MOV	#100000,X4	:LOAD R4 WITH 100000
012348	012705			MOV	#0,X4:1	:LOAD R4:1 WITH 0
012349	073427	177740		CLC		
012350	013767	177776	000034	ASHC	#-32,X4	:SHIFT R4,R4:1 BY -32.
012351	013767	000011	000036	MOV	#0,PS	:SAVE PS
012352				CHPB	#1,PS	:IS THE PS 11?
012353				BEO	.+4	
012354		177777		HLT		:THE PS IS NOT EQUAL TO 11
012355						:IS THE RESULT -1?
012356						
012357		177777				:R4 IS NOT EQUAL TO -1
012358						:IS THE RESULT -1?
012359						
012360						:R4:1 IS NOT EQUAL TO -1

```

*****
TEST 152      0 -1 SHIFTED BY 15. = 77777 100000 PS = 0
*****

```

012346	010701	000000		SCOPE		
012347	012704	177777		MOV	#0,X4	:LOAD R4 WITH 0
012348	012705			MOV	#-1,X4:1	:LOAD R4:1 WITH -1
012349	000241			CLC		
012350	073427	000017		ASHC	#15,X4	:SHIFT R4,R4:1 BY 15.
012351	013767	177776	002154	MOV	#0,PS	:SAVE PS
012352	013767	000000	002146	CHPB	#0,PS	:IS THE PS 0?
012353	001401			BEO	.+4	
012354	073427			HLT		:THE PS IS NOT EQUAL TO 0
012355	013767	077777		CHPB	#77777,X4	:IS THE RESULT 77777?
012356	001401			BEO	.+4	
012357	073427			HLT		:R4 IS NOT EQUAL TO 77777
012358	013767	100000		CHPB	#100000,X4:1	:IS THE RESULT 100000?
012359	001401			BEO	.+4	
012360	000000			HLT		:R4:1 IS NOT EQUAL TO 100000

```

*****
:TEST 153      0 -1 SHIFTED BY 16. = -1 0 PS = 12
*****

```

012626	010701			SCOPE		
01	012704	000000		MOV	80,X4	;LOAD R4 WITH 0
01	012705	177777		MOV	8-1,X4!1	;LOAD R4!1 WITH -1
01	012706			CLC		
012666	012707	000020		ASHC	816,X4	;SHIFT R4,R4!1 BY 16.
012667	012708	177776	012074	MOV	8PS,PSH	;SAVE PS
012668	012709	000012	012066	CLB	812,PSH	;IS THE PS 12?
012669	012710			BEQ	.+4	
012670	012711			HLT		;THE PS IS NOT EQUAL TO 12
012671	012712	177777		CMP	8-1,X4	;IS THE RESULT -1?
012672	012713			BEQ	.+4	
012673	012714			HLT		;R4 IS NOT EQUAL TO -1
012674	012715	000000		CMP	80,X4!1	;IS THE RESULT 0?
012702	001401			BEQ	.+4	
012704	000000			HLT		;R4!1 IS NOT EQUAL TO 0

```

*****
:TEST 154      100000 -2 SHIFTED BY 15. = 77777 0 PS = 2
*****

```

012706	010701			SCOPE		
012710	012704	100000		MOV	810000,X4	;LOAD R4 WITH 100000
012714	012705	177776		MOV	8-2,X4!1	;LOAD R4!1 WITH -2
012717	012706			CLC		
012720	012707	000017		ASHC	815,X4	;SHIFT R4,R4!1 BY 15.
012723	012708	177776	012014	MOV	8PS,PSH	;SAVE PS
012726	012709	000002	012006	CLB	82,PSH	;IS THE PS 2?
012729	012710			BEQ	.+4	
012732	012711			HLT		;THE PS IS NOT EQUAL TO 2
012735	012712	077777		CMP	877777,X4	;IS THE RESULT 77777?
012738	012713			BEQ	.+4	
012741	012714			HLT		;R4 IS NOT EQUAL TO 77777
012744	012715	000000		CMP	80,X4!1	;IS THE RESULT 0?
012747	001401			BEQ	.+4	
012750	000000			HLT		;R4!1 IS NOT EQUAL TO 0

012706	010701		
012707	012704	000000	
012708	012705	100002	
012709	012710		
012711	012711	000017	
012712	012712	100006	001734
012713	012713	000000	001726
012714	012714		
012715	012715		
012716	012716		
012717	012717		
012718	012718		
012719	012719	000525	
012720	012720		
012721	012721	000000	
012722	012722		
012723	012723		
012724	012724		
012725	012725		
012726	012726		
012727	012727		
012728	012728		
012729	012729		
012730	012730		
012731	012731		
012732	012732		
012733	012733		
012734	012734		
012735	012735		
012736	012736		
012737	012737		
012738	012738		
012739	012739		
012740	012740		
012741	012741		
012742	012742		
012743	012743		
012744	012744		
012745	012745		
012746	012746		
012747	012747		
012748	012748		
012749	012749		
012750	012750		

TEST 1 0 12 2 SHIFTED BY 16. = 12 2 0 PS = 12

011204	010701		
011205	012704	000020	
011206	012705	125532	
011207	000134		
011208	073427	000020	
011209	013757	177776	01154
011210	122757	000012	011546
011211	001401		
011212	000130		
011213	022704	125527	
011214	001401		
011215	000130		
011216	022705	000000	
011217	001401		
011218	000000		

SCOPE		
MOV	R0, X4	; LOAD R4 WITH 0
MOV	R125252, X4!1	; LOAD R4!1 WITH 125252
CLC		
RX C	R16, X4	; SHIFT R4, R4!1 BY 16.
MOV	2PS, PSN	; SAVE PS
CL B	R12, PSN	; IS THE PS 12?
BEQ	.+4	
HLT		; THE PS IS NOT EQUAL TO 12
CMP	R125252, X4	; IS THE RESULT 125252?
BEQ	.+4	
HLT		; R4 IS NOT EQUAL TO 125252
CMP	R0, X4!1	; IS THE RESULT 0?
BEQ	.+4	
HLT		; R4!1 IS NOT EQUAL TO 0

```

SCOPE
MOV      8-1,X4          ;LOAD R4 WITH -1
MOV      80,X4!1        ;LOAD R4!1 WITH 0
CLC
P=4C     816.,X4         ;SHIFT R4,R4!1 BY 16.
P=V      2...S,PSW       ;SAVE PS
CMPB     87,PSW          ;IS THE PS 7?
BEQ      .+4
HLT
CMP      80,X4           ;THE PS IS NOT EQUAL TO 7
EQ       .+4             ;IS THE RESULT 0?
HLT
CMP      80,X4!1        ;R4 IS NOT EQUAL TO 0
EQ       .+4             ;IS THE RESULT 0?
HLT
CMP      P=0            ;R4!1 IS NOT EQUAL TO 0
EQ       .+4
HLT

```

```

*****
:TEST 161      1 SHIFTED BY 8. = 400 PS = 0
*****

```

```

013336 010701
013340 012705 000000
013344 012705 000001
013348 000041
013352 000027 000010
013356 013367 177776 001434
013360 122767 000000 001426
013364 000041
013368 000000
013372 000000
013376 000000
013380 000000
013384 000000
013388 000000
013392 000000
013396 000000
013400 000000
013404 000000

```

```

SCOPE
MOV      @DUMMY,XS      ;LOAD RS WITH DUMMY
MOV      @1,XS!1        ;LOAD RS!1 WITH 1
CLC
ASHC     @8,XS           ;SHIFT RS,RS!1 BY 8.
MOV      @PS,PSW        ;SAVE PS
CMPB     @0,PSW          ;IS THE PS 0?
E-Q      .+4
HLT
CMP      @400,XS         ;THE PS IS NOT EQUAL TO 0
E-Q      .+4             ;IS THE RESULT 400?
HLT
CMP      @400,XS         ;RS IS NOT EQUAL TO 400
E-Q      .+4
HLT

```

```

*****
:TEST 162      -1 SHIFTED BY 15. = 100000 PS = 11
*****

```

```

013336 010701
013340 012705 000000
013344 012705 177777
013348 000041
013352 000027 000017
013356 013367 177776 001364
013360 122767 000011 001356
013364 000041
013368 000000
013372 000000
013376 000000
013380 000000
013384 000000
013388 000000
013392 000000
013396 000000
013400 000000
013404 000000

```

```

SCOPE
MOV      @DUMMY,XS      ;LOAD RS WITH DUMMY
MOV      @-1,XS!1       ;LOAD RS!1 WITH -1
CLC
ASHC     @15,XS          ;SHIFT RS,RS!1 BY 15.
MOV      @PS,PSW        ;SAVE PS
CMPB     @11,PSW         ;IS THE PS 11?
E-Q      .+4
HLT
CMP      @100000,XS      ;THE PS IS NOT EQUAL TO 11
E-Q      .+4             ;IS THE RESULT 100000?
HLT
CMP      @100000,XS      ;RS IS NOT EQUAL TO 100000
E-Q      .+4
HLT

```

013476	017701	000000	
013475	017700	000000	
013474	017699	000000	
013473	017698	000000	
013472	017697	000000	
013471	017696	177776	001314
013470	017695	000000	001306
013469	017694	000000	
013468	017693	000000	
013467	017692	000000	
013466	017691	000000	
013465	017690	000000	
013464	017689	000000	
013463	017688	000000	
013462	017687	000000	
013461	017686	000000	
013460	017685	000000	
013459	017684	000000	
013458	017683	000000	
013457	017682	000000	
013456	017681	000000	
013455	017680	000000	
013454	017679	000000	
013453	017678	000000	
013452	017677	000000	
013451	017676	000000	
013450	017675	000000	
013449	017674	000000	
013448	017673	000000	
013447	017672	000000	
013446	017671	000000	
013445	017670	000000	
013444	017669	000000	
013443	017668	000000	
013442	017667	000000	
013441	017666	000000	
013440	017665	000000	
013439	017664	000000	
013438	017663	000000	
013437	017662	000000	
013436	017661	000000	
013435	017660	000000	
013434	017659	000000	
013433	017658	000000	
013432	017657	000000	
013431	017656	000000	
013430	017655	000000	
013429	017654	000000	
013428	017653	000000	
013427	017652	000000	
013426	017651	000000	
013425	017650	000000	
013424	017649	000000	
013423	017648	000000	
013422	017647	000000	
013421	017646	000000	
013420	017645	000000	
013419	017644	000000	
013418	017643	000000	
013417	017642	000000	
013416	017641	000000	
013415	017640	000000	
013414	017639	000000	
013413	017638	000000	
013412	017637	000000	
013411	017636	000000	
013410	017635	000000	
013409	017634	000000	
013408	017633	000000	
013407	017632	000000	
013406	017631	000000	
013405	017630	000000	
013404	017629	000000	
013403	017628	000000	
013402	017627	000000	
013401	017626	000000	
013400	017625	000000	
013399	017624	000000	
013398	017623	000000	
013397	017622	000000	
013396	017621	000000	
013395	017620	000000	
013394	017619	000000	
013393	017618	000000	
013392	017617	000000	

```

*****
:TEST 164      2010 SHIFTED BY -13. = 101  PS = 0
:*****

```

013456	010701	000000	
011370	001375	000010	
011370	000001		
013472	000007	177763	
013476	000007	177776	001244
011374	000007	000000	001236
011372	000001		
011374	000003		
011376	000005	000101	
011372	000001		
011374	000000		

SCOPE		
MOV	R0, R10, X5	; LOAD R5 WITH DUMMY
MOV	R10, X5!1	; LOAD R5!1 WITH 20010
CLC		
RLSHC	R-13, X5	; SHIFT R5, R5!1 BY -13.
MOV	RPS, PSW	; SAVE PS
CIR	R0, PSW	; IS THE PS 0?
BLQ	.+4	
HLT		; THE PS IS NOT EQUAL TO 0
CMP	R101, X5	; IS THE RESULT 101?
BEQ	.+4	
HLT		; R5 IS NOT EQUAL TO 101

:TEST 165 -1 SHIFTED BY 16. = 0 PS = 11

```
013576 010701
013577 012705 000000
013578 012705 177777
013579 012705 000000
013580 012705 177776 001174
013581 012705 000011 001166
013582 012705 000000
013583 012705 000000
013584 012705 000000
```

```
SCOPE
MOV #DUMMY,XS ;LOAD RS WITH DUMMY
MOV #1,XS!1 ;LOAD RS!1 WITH -1
CLC
RHC #16,XS ;SHIFT RS,RS!1 BY 16.
MOV #PS,PSW ;SAVE PS
CMPB #1,PSW ;IS THE PS 11?
BLO .+4 ;THE PS IS NOT EQUAL TO 11
CMP #0,XS ;IS THE RESULT 0?
BEQ .+4 ;RS IS NOT EQUAL TO 0
HLT
```

:TEST 166 1 SHIFTED BY -1 = 100000 PS = 1

```
013576 010701
013577 012705 000000
013578 012705 177777
013579 012705 177776 001124
013580 012705 000001 001116
013581 012705 100000
013582 012705 000000
013583 012705 000000
013584 012705 000000
```

```
SCOPE
MOV #DUMMY,XS ;LOAD RS WITH DUMMY
MOV #1,XS!1 ;LOAD RS!1 WITH 1
CLC
RHC #-1,XS ;SHIFT RS,RS!1 BY -1
MOV #PS,PSW ;SAVE PS
CMPB #1,PSW ;IS THE PS 1?
BLO .+4 ;THE PS IS NOT EQUAL TO 1
CMP #100000,XS ;IS THE RESULT 100000?
BEQ .+4 ;RS IS NOT EQUAL TO 100000
HLT
```

:TEST 167 125252 SHIFTED BY -16. = 125252 PS = 11
:*****

013646	010701	
013647	012705	000000
013648	012705	125252
013649	000041	
013650	013657	177760
013651	013657	177776
013652	125252	000011
013653	001401	
013654	000000	
013706	000000	125252
013712	001401	
013714	000000	

SCOPE		
MOV	#DUMMY,X5	;LOAD R5 WITH DUMMY
MOV	#125252,X5!1	;LOAD R5!1 WITH 125252
CLC		
ASHC	#-16,X5	;SHIFT R5,R5!1 BY -16.
MOV	#PS,PSW	;SAVE PS
CMPB	#11,PSW	;IS THE PS 11?
BEQ	.+4	
HLT		;THE PS IS NOT EQUAL TO 11
CMP	#125252,X5	;IS THE RESULT 125252?
BEQ	.+4	
HLT		;R5 IS NOT EQUAL TO 125252

013716	012702	177771
013722	012703	014754
013726	012704	014756

MOV	#-7,X2
MOV	#S1,X3
MOV	#S2,X4

:TEST 170 125252 125252 SHIFTED BY S1 = 177525 52525 PS = 10
:*****

013732	010701	
013734	012700	125252
013740	012701	125252
013744	000041	
013746	070057	001002
013752	013657	177776
013760	125252	000010
013766	001401	
013770	000000	
013772	000000	177525
013776	001401	
014000	000000	
014002	022701	052525
014006	001401	
014010	000000	

SCOPE		
MOV	#125252,X0	;LOAD R0 WITH 125252
MOV	#125252,X0!1	;LOAD R0!1 WITH 125252
CLC		
ASHC	S1,X0	;SHIFT R0,R0!1 BY S1
MOV	#PS,PSW	;SAVE PS
CMPB	#10,PSW	;IS THE PS 10?
BEQ	.+4	
HLT		;THE PS IS NOT EQUAL TO 10
CMP	#177525,X0	;IS THE RESULT 177525?
BEQ	.+4	
HLT		;R0 IS NOT EQUAL TO 177525
CMP	#52525,X0!1	;IS THE RESULT 52525?
BEQ	.+4	
HLT		;R0!1 IS NOT EQUAL TO 52525

```

*****
TEST 171      125252 125252 SHIFTED BY 252 = 177525 52525 PS = 10
*****

```

014012	010701			SCOPE		
014014	012700	125252		MOV	#125252,X0	;LOAD R0 WITH 125252
014020	012701	125252		MOV	#125252,X0!1	;LOAD R0!1 WITH 125252
014024	000241			CLC		
014026	073077	000724		ASHC	252,X0	;SHIFT R0,R0!1 BY 252
014032	013767	177776	000710	MOV	2#PS,PSW	;SAVE PS
014040	122767	000010	000702	CHPB	#10,PSW	;IS THE PS 10?
014046	001401			BEQ	.+4	
014050	000000			HLT		;THE PS IS NOT EQUAL TO 10
014052	022700	177525		CMP	#177525,X0	;IS THE RESULT 177525?
014056	001401			BEQ	.+4	
014060	000000			HLT		;R0 IS NOT EQUAL TO 177525
014062	022701	052525		CMP	#52525,X0!1	;IS THE RESULT 52525?
014066	001401			BEQ	.+4	
014070	000000			HLT		;R0!1 IS NOT EQUAL TO 52525

```

*****
TEST 172      125252 125252 SHIFTED BY 251 = 177525 52525 PS = 10
*****

```

014072	010701			SCOPE		
014074	012700	125252		MOV	#125252,X0	;LOAD R0 WITH 125252
014100	012701	125252		MOV	#125252,X0!1	;LOAD R0!1 WITH 125252
014104	000241			CLC		
014106	073037	014754		ASHC	251,X0	;SHIFT R0,R0!1 BY 251
014112	013767	177776	000630	MOV	2#PS,PSW	;SAVE PS
014120	122767	000010	000622	CHPB	#10,PSW	;IS THE PS 10?
014126	001401			BEQ	.+4	
014130	000000			HLT		;THE PS IS NOT EQUAL TO 10
014132	022700	177525		CMP	#177525,X0	;IS THE RESULT 177525?
014136	001401			BEQ	.+4	
014140	000000			HLT		;R0 IS NOT EQUAL TO 177525
014142	022701	052525		CMP	#52525,X0!1	;IS THE RESULT 52525?
014146	001401			BEQ	.+4	
014150	000000			HLT		;R0!1 IS NOT EQUAL TO 52525

```

*****
:TEST 173      125252 125252 SHIFTED BY X2 = 177525 52525 PS = 10
*****

```

```

014153 010701
014154 012700 125252
014160 012701 125252
014164 000241
014166 070223
014170 013767 177776 000552
014176 120767 000010 000344
014204 001401
014206 000000
014210 000000 177525
014214 000000
014216 000000
014220 001401 052525
014224 001401
014226 000000

```

```

SCOPE
MOV      0125252,X0      ;LOAD R0 WITH 125252
MOV      0125252,X0!1    ;LOAD R0!1 WITH 125252
CLC
ASHC     X2,X0           ;SHIFT R0,R0!1 BY X2
MOV      20PS,PSH        ;SAVE PS
CHPB     010,PSH         ;IS THE PS 10?
BEQ      .+4
HLT      ;THE PS IS NOT EQUAL TO 10
CHPB     0177525,X0      ;IS THE RESULT 177525?
BEQ      .+4
HLT      ;R0 IS NOT EQUAL TO 177525
CHPB     052525,X0!1     ;IS THE RESULT 52525?
BEQ      .+4
HLT      ;R0!1 IS NOT EQUAL TO 52525

```

```

*****
:TEST 174      125252 125252 SHIFTED BY (3)+ = 177525 52525 PS = 10
*****

```

```

014230 010701
014232 012700 125252
014236 012701 125252
014242 000241
014244 070223
014246 013767 177776 000474
014254 120767 000010 000466
014258 001401
014262 000000
014266 000000 177525
014270 001401
014274 000000
014276 002701 052525
014302 001401
014304 000000

```

```

SCOPE
MOV      0125252,X0      ;LOAD R0 WITH 125252
MOV      0125252,X0!1    ;LOAD R0!1 WITH 125252
CLC
ASHC     (3)+,X0         ;SHIFT R0,R0!1 BY (3)+
MOV      20PS,PSH        ;SAVE PS
CHPB     010,PSH         ;IS THE PS 10?
BEQ      .+4
HLT      ;THE PS IS NOT EQUAL TO 10
CHPB     0177525,X0      ;IS THE RESULT 177525?
BEQ      .+4
HLT      ;R0 IS NOT EQUAL TO 177525
CHPB     052525,X0!1     ;IS THE RESULT 52525?
BEQ      .+4
HLT      ;R0!1 IS NOT EQUAL TO 52525

```

```

*****
TEST 175      125252 125252 SHIFTED BY -(3) = 177525 52525 PS = 10
*****

```

014306	010701			SCOPE		
014310	012700	125252		MOV	0125252,XD	;LOAD RD WITH 125252
014314	012701	125252		MOV	0125252,XD!1	;LOAD RD!1 WITH 125252
014318	000000			CLC		
014322	013767	177776	000416	ASHC	-(3),XD	;SHIFT RD,RD!1 BY -(3)
014326	013767	000010	000410	MOV	00PS,PSW	;SAVE PS
014330	013767			CHPB	010,PSW	;IS THE PS 10?
014334	013767			BEQ	.+4	
014338	013767	177525		HLT		;THE PS IS NOT EQUAL TO 10
014342	013767			CHPB	0177525,XD	;IS THE RESULT 177525?
014346	013767			BEQ	.+4	
014350	013767	052525		HLT		;RD IS NOT EQUAL TO 177525
014354	013767			CHPB	052525,XD!1	;IS THE RESULT 52525?
014358	013767			BEQ	.+4	
014362	000000			HLT		;RD!1 IS NOT EQUAL TO 52525

```

*****
TEST 176      125252 125252 SHIFTED BY 2(4) = 177252 125252 PS = 11
*****

```

014364	010701			SCOPE		
014368	012700	125252		MOV	0125252,XD	;LOAD RD WITH 125252
014372	012701	125252		MOV	0125252,XD!1	;LOAD RD!1 WITH 125252
014376	000000			CLC		
014380	013767	000002		ASHC	2(4),XD	;SHIFT RD,RD!1 BY 2(4)
014384	013767	177776	000336	MOV	00PS,PSW	;SAVE PS
014388	013767	000011	000330	CHPB	011,PSW	;IS THE PS 11?
014392	013767			BEQ	.+4	
014396	013767			HLT		;THE PS IS NOT EQUAL TO 11
014400	013767	177252		CHPB	0177252,XD	;IS THE RESULT 177252?
014404	013767			BEQ	.+4	
014408	013767			HLT		;RD IS NOT EQUAL TO 177252
014412	013767	125252		CHPB	0125252,XD!1	;IS THE RESULT 125252?
014416	013767			BEQ	.+4	
014420	000000			HLT		;RD!1 IS NOT EQUAL TO 125252

```

*****
TEST 177      125252 125252 SHIFTED BY 2(4) = 177525 52525 PS = 10
*****

```

```

014442 010701 125252
014443 012700 125252
014444 012701 000000
014445 012702 177776 000256
014446 012703 000010 000250
014447 012704 177525
014448 012705 052525
014449 001401
014450 000000

```

```

SCOPE
MOV      0125252,XD      ;LOAD RD WITH 125252
MOV      0125252,XD!1    ;LOAD RD!1 WITH 125252
CLC
ASHC     2(4),XD          ;SHIFT RD,RD!1 BY 2(4)
MOV      20PS,PSW         ;SAVE PS
CMPB     010,PSW          ;IS THE PS 10?
BEQ      .+4
HLT      ;THE PS IS NOT EQUAL TO 10
CMP      0177525,XD       ;IS THE RESULT 177525?
BEQ      .+4
HLT      ;RD IS NOT EQUAL TO 177525
CMP      052525,XD!1      ;IS THE RESULT 52525?
BEQ      .+4
HLT      ;RD!1 IS NOT EQUAL TO 52525

```

```

*****
TEST 200      125252 125252 SHIFTED BY 2(4)+ = 177525 52525 PS = 10
*****

```

```

014521 010701 125252
014522 012700 125252
014523 012701 000000
014524 012702 177776 000200
014525 012703 000010 000172
014526 012704 177525
014527 012705 052525
014528 001401
014529 000000

```

```

SCOPE
MOV      0125252,XD      ;LOAD RD WITH 125252
MOV      0125252,XD!1    ;LOAD RD!1 WITH 125252
CLC
ASHC     2(4)+,XD         ;SHIFT RD,RD!1 BY 2(4)+
MOV      20PS,PSW         ;SAVE PS
CMPB     010,PSW          ;IS THE PS 10?
BEQ      .+4
HLT      ;THE PS IS NOT EQUAL TO 10
CMP      0177525,XD       ;IS THE RESULT 177525?
BEQ      .+4
HLT      ;RD IS NOT EQUAL TO 177525
CMP      052525,XD!1      ;IS THE RESULT 52525?
BEQ      .+4
HLT      ;RD!1 IS NOT EQUAL TO 52525

```

TEST 201 125252 125252 SHIFTED BY 2-(4) = 177525 525 PS = 10

010701	12332	
012700		
012701		
010000	177776	003122
010001	000010	003114
010002		
010003		
010004		
010005		
010006		
010007		
010008		
010009		
010010	177525	
010011		
010012		
010013		
010014		
010015	052525	

```

SCOPE
MOV      0125252,XD
MOV      0125252,XD!1
CLC
RTHC
MOV      2-(4),XD
MOV      2-PS,PSH
CMPB     010,PSH
BEQ      .+4
HLT
CMP      0177525,XD
BEQ      .+4
HLT
CMP      052525,XD!1
BEQ      .+4
HLT
;LOAD RD WITH 125252
;LOAD RD!1 WITH 125252
;SHIFT RD,RD!1 BY 2-(4)
;SAVE PS
;IS THE PS 10?
;THE PS IS NOT EQUAL TO 10
;IS THE RESULT 177525?
;RD IS NOT EQUAL TO 177525
;IS THE RESULT 52525?
;RD!1 IS NOT EQUAL TO 52525

```

01470	00007	164114	
01471	00007	164110	177570
01472	00007	020000	164100
01473	00007		
01474	00007	164174	
01475	00007	164106	
014712	00007	177564	
014716	00005		
014717	00011	00007	177566
014718	00011	00042	
014719	00011		
014720	00011		
014721	00011		
014722	00011		
014723	00011		
014724	00011		
014725	00011		
014726	00011		
014727	00011		
014728	00011		
014729	00011		
014730	00011		
014731	00011		
014732	00011		
014733	00011		
014734	00011		
014735	00011		
014736	00011		
014737	00011		
014738	00011		
014739	00011		
014740	00011		
014741	00011		
014742	00011		
014743	00011		
014744	00011		
014745	00011		
014746	00011		
014747	00011		
014748	00011		
014749	00011		
014750	00011		
014751	00011		
014752	00011		
014753	00011		
014754	00011		
014755	00011		
014756	00011		
014757	00011		
014758	00011		
014759	00011		
014760	00011		
014761	00011		
014762	00011		
014763	00011		
014764	00011		
014765	00011		
014766	00011		
014767	00011		
014768	00011		
014769	00011		
014770	00011		
014771	00011		
014772	00011		
014773	00011		
014774	00011		
014775	00011		
014776	00011		
014777	00011		
014778	00011		
014779	00011		
014780	00011		
014781	00011		
014782	00011		
014783	00011		
014784	00011		
014785	00011		
014786	00011		
014787	00011		
014788	00011		
014789	00011		
014790	00011		
014791	00011		
014792	00011		
014793	00011		
014794	00011		
014795	00011		
014796	00011		
014797	00011		
014798	00011		
014799	00011		
014800	00011		
014801	00011		
014802	00011		
014803	00011		
014804	00011		
014805	00011		
014806	00011		
014807	00011		
014808	00011		
014809	0		

```

INC      ICNT
MOV      ICNT, @DISPLAY
CMP      #20000, ICNT
BGT      +6
JMP      PGM
CLR      ICNT
TSTB     @177564
BPL      -4
MOVVB    #7, @177566
MOV      @+2, X0      ; GET MONITOR RETURN ADDRESS
BEQ      IS           ; SKIP IF NONE
JBR      7, (0)        ; GO BACK TO THE MONITOR
NOP
NOP
NOP
JMP      @200          ; RESTART THE PROGRAM

```

014750	014750
014752	014752
014754	177771
014755	014754
014760	177772

PSW:	0
SO:	7
SI:	-7
SI:	SI
SI:	-6

000001

.END

F06

```

BFG      001002
FLA      17
DUNITY   00000
HLT      000000

```

ICNT 001000
M = 000006

N = 000202

PS = 177776

[illegible]

NR1MDEC-11-DCKBJ-A ASHC TEST M00Y11 27(777) 07-SEP-76 09:46 PAGE 75
 DCAWNA.P11 CROSS REFERENCE TABLE -- M00Y11 27(777)

SASHC	1358	150	171	192	213	234	255	276	297	318	339	360	381	402	423
	444	465	486	507	528	549	570	591	612	633	654	675	696	717	738
	759	780	801	822	843	864	885	906	927	948	969	990	1011	1032	1053
	1074	1095	1116	1137	1158	1179	1200	1221	1242	1263	1284	1305	1326	1347	1368
	1389	1410	1431	1452	1473	1494	1515	1536	1557	1578	1599	1620	1641	1662	1683
	1704	1725	1746	1767	1788	1809	1830	1851	1872	1893	1914	1935	1956	1977	1998
	2019	2040	2061	2082	2103	2124	2145	2166	2187	2208	2229	2250	2271	2292	2313
	2334	2355	2376	2397	2418	2439	2460	2481	2502	2523	2544	2565	2586	2607	2628
SASHCS	1358	2591	2612	2633	2654	2675	2696	2717	2738	2759	2780	2801	2822	2843	2864

J06

CLP	CLT	REF	ASHC
1108	1108	1108	1108
1109	1109	1109	1109
1110	1110	1110	1110
1111	1111	1111	1111
1112	1112	1112	1112
1113	1113	1113	1113
1114	1114	1114	1114
1115	1115	1115	1115
1116	1116	1116	1116
1117	1117	1117	1117
1118	1118	1118	1118
1119	1119	1119	1119
1120	1120	1120	1120
1121	1121	1121	1121
1122	1122	1122	1122
1123	1123	1123	1123
1124	1124	1124	1124
1125	1125	1125	1125
1126	1126	1126	1126
1127	1127	1127	1127
1128	1128	1128	1128
1129	1129	1129	1129
1130	1130	1130	1130
1131	1131	1131	1131
1132	1132	1132	1132
1133	1133	1133	1133
1134	1134	1134	1134
1135	1135	1135	1135
1136	1136	1136	1136
1137	1137	1137	1137
1138	1138	1138	1138
1139	1139	1139	1139
1140	1140	1140	1140
1141	1141	1141	1141
1142	1142	1142	1142
1143	1143	1143	1143
1144	1144	1144	1144
1145	1145	1145	1145
1146	1146	1146	1146
1147	1147	1147	1147
1148	1148	1148	1148
1149	1149	1149	1149
1150	1150	1150	1150
1151	1151	1151	1151
1152	1152	1152	1152
1153	1153	1153	1153
1154	1154	1154	1154
1155	1155	1155	1155
1156	1156	1156	1156
1157	1157	1157	1157
1158	1158	1158	1158
1159	1159	1159	1159
1160	1160	1160	1160
1161	1161	1161	1161
1162	1162	1162	1162
1163	1163	1163	1163
1164	1164	1164	1164
1165	1165	1165	1165
1166	1166	1166	1166
1167	1167	1167	1167
1168	1168	1168	1168
1169	1169	1169	1169
1170	1170	1170	1170
1171	1171	1171	1171
1172	1172	1172	1172
1173	1173	1173	1173
1174	1174	1174	1174
1175	1175	1175	1175
1176	1176	1176	1176
1177	1177	1177	1177
1178	1178	1178	1178
1179	1179	1179	1179
1180	1180	1180	1180
1181	1181	1181	1181
1182	1182	1182	1182
1183	1183	1183	1183
1184	1184	1184	1184
1185	1185	1185	1185
1186	1186	1186	1186
1187	1187	1187	1187
1188	1188	1188	1188
1189	1189	1189	1189
1190	1190	1190	1190
1191	1191	1191	1191
1192	1192	1192	1192
1193	1193	1193	1193
1194	1194	1194	1194
1195	1195	1195	1195
1196	1196	1196	1196
1197	1197	1197	1197
1198	1198	1198	1198
1199	1199	1199	1199
1200	1200	1200	1200

K06

[illegible]

M06

MAINDEC-11-DCKBJ-A ASHC TEST MACY11 27(732) 07-SEP-76 09:46 PAGE 80
DCKBJA.P11 CROSS REFERENCE TABLE -- PERMANENT SYMBOLS

.PAGE	150	192	234	276	318	360	402	444	486	528	570	612	654	696	738
	780	822	864	906	948	990	1032	1074	1116	1158	1200	1242	1284	1326	1368
	1410	1452	1494	1536	1578	1620	1662	1704	1746	1788	1830	1872	1914	1956	1998
	2019	2061	2103	2145	2187	2229	2271	2313	2355	2397	2439	2481	2523	2565	2607
	2612	2654	2696	2738	2780										
.REM	1														
.REPT	134	213	549	864	1179	1515									
.TITLE	118														

ERRORS DETECTED: 0
DEFAULT GLOBALS GENERATED: 0

*DCKBJA.DCKBJA.SEG/SOL/CRF/DS:ERFZ/EN:ABS=DSKM:DCKBJA.P11
RUN-TIME: 14 23 3 SECONDS
RUN-TIME RATIO: 125/42=2.9
CORE USED: 7K (14 PAGES)

