

7030 DPS

SMFI-1^A
File No. JA AX1^A

SMFI-1^A
I-Box 1 Program

JA AX1^A

April 5, 1961

1. Program becoming obsolete: None
2. Used to provide a basic test of the Central Processor I-Box.

TABLE OF CONTENTS

	PAGE
1. Purpose	1
2. Program Introduction	1
3. Operating Procedures	1
4. Program Philosophy	2

1. PURPOSE

The I-Box 1 program provides the maintenance engineer with a basic test of the Central Processor I-Box. The program tests the following instruction categories.

- 1) Unconditional Branch
- 2) Direct Index Arithmetic except RNX, LVE, SVA
- 3) Immediate Index Arithmetic except LVS
- 4) Index Branching
- 5) Store Instruction Counter if

2. PROGRAM INTRODUCTION

SMFI-1 is a low level go-no go type of program designed to test the basic I-Box operations.

It contains the initial instruction tests to produce a semi-reliable set of I-Box instructions. It is run in a disabled mode and will cause program hang-ups on error conditions and allow for failure interpretation via the hang-up location.

3. OPERATING PROCEDURES

3.1. Loading Procedures (PUNFUL Cards)

3.1.1. At the Maintenance Console:

- 1. Depress Master Reset
- 2. Depress Start Clock
- 3. Depress IPL
- 4. Enable Interrupt and Time Clock

3.1.2. Place binary deck in card reader.

3.1.3. Depress Start on card reader, the program will start itself.

3.2. Error Indications

All errors are indicated by the program branching to itself at a given location. Observe the contents of the Instruction Counter and refer to the listing to determine the type of error.

3.3. Success Indications

If no errors occur, the program will cycle indefinitely.

4. PROGRAM PHILOSOPHY

All instructions are tested in all positions of the Y Registers and all possible varieties of Y to Z transfer and Y to Z control are handled.

The program starts with a housekeeping routine to clear and set up all internal registers and to provide an Interrupt hang-up if for some reason the system should become enabled.

A logical progression is followed through the I-Box instruction set and a semi-reliability is established on an even expanding basis.

Since the major portion of the program is run in a disabled mode, it became necessary to place all enabling type instructions at the end. These are preceded by a new interrupt setup that allows normal running through the routines and allows only a programmed type hang-up in a disabled status.

The order of reliability of the instructions in the program is as follows:

- B All positions of Y Registers and all combinations of addresses.
- NOP (There is no provision for hang-ups until the second half of the BD routine.)
- BD
- BR Forward and Backward Branches.
- LX & SX All positions of Y Registers and hang-up if data not moved correctly. Last LX and SX provides a store close to Instruction fetch condition.
- SIC; B & BD There is no hang-up in this first test, the IC is stored in a data area and should be manually checked.
- SIC; B & BD There is a hang-up built into this section if the IC is not stored properly.
- SIC; B & BD Is the same as the previous one except it uses WBC.
- LV & SV All positions of Y Registers and hang-up if data not moved correctly.

V+ Using LX and SV, all positions of Y Registers, varies stored address positive values 1/2 wd, fw, and Bit, minus values and wraparounds.

LC & SC Uses LV, V+, & SV to condition BD, all positions of Y Registers.

LR & SR Same as LC & SC.

V + C BD setup as before. All positions of Y Registers varies stored address.

V + CR Same as V + C. One case no refill, other case refills.

B (IND) I-Box indicators only. First 5 Index status generated I-Box compare indicators caused by Store Value in Index Register. All forms of instruction used successful and unsuccessful branching used.

KV All conditions, all values tested with B (IND).

KC All conditions, all counts tested with B (IND).

LVI Same as LV & SV.

LVNI Same as LV & SV.

LCI Same as LC & S.

LRI Same as LR and SR.

V + I Same as V +.

V + IC Same as V + C.

V + ICR Same as V + CR.

V - I Same as V +.

V - IC Same as V + C.

V - ICR Same as V + CR.

C + I Same as LC & SC.

C - I Same as LC & SC.

KVI Same as KV.

KVNI Same as KV.

KCI Same as KC.

LX & SX Same as before only using Internal Memory.

LV & SV Same as before only using Internal Memory.

LC & SC Same as before only using Internal Memory.

LR & SR Same as before only using Internal Memory.

CB All 16 variations of the CB Instruction. In all positions of the Y Registers using successful and unsuccessful branching and zero not zero Branching.

SIC; CB Successful and unsuccessful in all positions of Y Registers.

SIC; B (IND) Successful and unsuccessful in all positions of Y Registers.

L (BRGZ & BRZ) Zero and ones tested with B (IND) as noted.

Y- Z Seq. Controls 40 variations in odd and even addresses for use from both Y Registers.

Setup of Enabling & Interrupt Table

BE Same as B.

SIC; BE Same as SIC; B # 2 & # 3.

BEW Interrupt by IT.

S IC; BEW Interrupt by IT

END OF PROGRAM

K-V VARIATIONS

		RZ·EAC	$\overline{\text{RZ}}\cdot\text{EAC}$	$\overline{\text{RZ}}\cdot\text{EAC}$	$\overline{\text{RZ}}\cdot\text{EAC}$	$\overline{\text{RZ}}\cdot\text{EAC}$	$\overline{\text{RZ}}\cdot\text{EAC}$	ZERØS
X+	0.01	/	/	0.01	1.00	1.00	/	0.0
Y+	0.01	/	/	1.00	0.01	0.01	/	0.0
X+	400000.0	0.0	400001.0	400000.0	400000.0	400000.0	377777.0	0.0
Y-	400000.0	0.0	400000.0	400001.0	400001.0	377777.0	400000.0	0.0
X-	0.01	/	/	0.01	1.00	1.00	/	0.0
Y-	0.01	/	/	1.00	0.01	0.01	/	0.0
X-	400000.0	0.0	400001.0	400000.0	400000.0	400000.0	377777.0	0.0
Y+	400000.0	0.0	400000.0	400001.0	400001.0	377777.0	400000.0	0.0
		X = Y	X = Y	X < Y	X > Y	X > Y	X < Y	

7030 DPS

PROGRAM WRITEUP ADDENDUM

Program I-Box - 1A
 File No. JA AXIA

MAINTENANCE TAPE CONTROL CARD

Location/s of Exit Branch/es

1.			6	1	1	0	4
2.							
3.							
4.							
5.							
6.							

Pre-Loading Manual Intervention Required ? Yes No

Pre-Loading Procedure (If Any)

SLC,64.

000100.00

PUNID,SMFI-1A

J A A X I A

SMFI-1A

END,64.

100.00

000100.00

18

15

12

11

8

PRNID, SUENRAM SMF11A

18

15

12

11

9

-FEBRUARY 6, 1961

	SLC,%8#3000.0			003000.00
	PUNFUL			
	PRNS			
	XW,%8#3001.0,100LC+1.00-1B00,0,2		3001.00 20 062320.00 00	003000.00
IB00	BD,\$+.32		3001.44 00	003001.00
	NOP,0.		0.30 00	003001.40
	LX,\$X1,PRED1	-ALL ZERO WORD	3167.02 10	003002.00
	SX,\$X1,0.	-SET ALL	0.03 10	003002.40
	SV,\$X1,1.0		1.03 30	003003.00
	SX,\$X1,2.0	-SPECIAL	2.03 10	003003.40
	SX,\$X1,3.0	-ADDRESSES	3.03 10	003004.00
	SX,\$X1,5.0		5.03 10	003004.40
	SX,\$X1,6.0		6.03 10	003005.00
	SX,\$X1,7.0		7.03 10	003005.40
	SX,\$X1,8.0		10.03 10	003006.00
	SX,\$X1,9.0		11.03 10	003006.40
	SX,\$X1,10.0		12.03 10	003007.00
	SX,\$X1,11.0		13.03 10	003007.40
	SX,\$X1,12.0		14.03 10	003010.00
	SX,\$X1,13.0		15.03 10	003010.40
	SX,\$X1,14.0		16.03 10	003011.00
	SX,\$X1,15.0		17.03 10	003011.40
	SX,\$X1,16.0		20.03 10	003012.00
	SX,\$X1,17.0		21.03 10	003012.40
	SX,\$X1,18.0		22.03 10	003013.00
	SX,\$X1,19.0		23.03 10	003013.40
	SX,\$X1,20.0		24.03 10	003014.00
	SX,\$X1,21.0		25.03 10	003014.40
	SX,\$X1,22.0		26.03 10	003015.00
	SX,\$X1,23.0		27.03 10	003015.40
	SX,\$X1,24.0		30.03 10	003016.00
	SX,\$X1,25.0		31.03 10	003016.40
	SX,\$X1,26.0		32.03 10	003017.00
	SX,\$X1,27.0		33.03 10	003017.40
	SX,\$X1,28.0		34.03 10	003020.00
	SX,\$X1,29.0		35.03 10	003020.40
	SX,\$X1,30.0		36.03 10	003021.00
	SX,\$X1,31.0		37.03 10	003021.40
	L%BU,64,8#PRED1+.32	-CLEAR ECC IN C + D REGS	3167.40 80 000000.20 50	003022.00
	LX,\$X1,PRED2	-SET VALUES INTO	3171.02 10	003023.00
	SX,\$X1,3.0	-BOUNDARY REGISTER	3.03 10	003023.40
	LX,\$X1,PRED3	-ALL ONES INTO MASK	3170.02 10	003024.00
	SX,\$X1,12.0	-REGISTER	14.03 10	003024.40
	LV,\$X1,PRED4	-SET INTERRUPT	3172.02 30	003025.00
	SV,\$X1,2.0	-BASE ADDRESS	2.03 30	003025.40
	BD,IB	-TO ACTUAL PROGRAM	3172.44 00	003026.00
INRT	SIC,MK		3106.40 80	003026.40
	BD,MK1	-THE INTERRUPT TABLE	3136.44 00	003027.00
	SIC,IK		3107.00 80	003027.40
	BD,IK1		3137.04 00	003030.00
	SIC,IJ		3107.40 80	003030.40
	BD,IJ1		3137.44 00	003031.00
	SIC,EK		3110.00 80	003031.40
	BD,EK1		3140.04 00	003032.00
	SIC,TS		3110.40 80	003032.40
	BD,TS1		3140.44 00	003033.00
	SIC,CPUS		3111.00 80	003033.40
	BD,CPUS1		3141.04 00	003034.00

SIC,ERJ		3111.40 80	003034.40
	BD,EKJ1	3141.44 00	003035.00
SIC,UNRJ		3112.00 80	003035.40
	BD,UNRJ1	3142.04 00	003036.00
SIC,CBJ		3112.40 80	003036.40
	BD,CBJ1	3142.44 00	003037.00
SIC,EPGK		3113.00 80	003037.40
	BD,EPGK1	3143.04 00	003040.00
SIC,UK		3113.40 80	003040.40
	BD,UK1	3143.44 00	003041.00
SIC,EE		3114.00 80	003041.40
	BD,EE1	3144.04 00	003042.00
SIC,EOP		3114.40 80	003042.40
	BD,EOP1	3144.44 00	003043.00
SIC,CS		3115.00 80	003043.40
	BD,CS1	3145.04 00	003044.00
SIC,RSV		3115.40 80	003044.40
	BD,RSV1	3145.44 00	003045.00
SIC,OP		3116.00 80	003045.40
	BD,OP1	3146.04 00	003046.00
SIC,AD		3116.40 80	003046.40
	BD,AD1	3146.44 00	003047.00
SIC,USA		3117.00 80	003047.40
	BD,USA1	3147.04 00	003050.00
SIC,EXE		3117.40 80	003050.40
	BD,EXE1	3147.44 00	003051.00
SIC,DS		3120.00 80	003051.40
	BD,DS1	3150.04 00	003052.00
SIC,DF		3120.40 80	003052.40
	BD,DF1	3150.44 00	003053.00
SIC,IF		3121.00 80	003053.40
	BD,IF1	3151.04 00	003054.00
SIC,LC		3121.40 80	003054.40
	BD,LC1	3151.44 00	003055.00
SIC,PF		3122.00 80	003055.40
	BD,PF1	3152.04 00	003056.00
SIC,ZD		3122.40 80	003056.40
	BD,ZD1	3152.44 00	003057.00
SIC,IR		3123.00 80	003057.40
	BD,IR1	3153.04 00	003060.00
SIC,LS		3123.40 80	003060.40
	BD,LS1	3153.44 00	003061.00
SIC,PSH		3124.00 80	003061.40
	BD,PSH1	3154.04 00	003062.00
SIC,XPPF		3124.40 80	003062.40
	BD,XPPF1	3154.44 00	003063.00
SIC,XPO		3125.00 80	003063.40
	BD,XPO1	3155.04 00	003064.00
SIC,XPH		3125.40 80	003064.40
	BD,XPH1	3155.44 00	003065.00
SIC,XPL		3126.00 80	003065.40
	BD,XPL1	3156.04 00	003066.00
SIC,XPU		3126.40 80	003066.40
	BD,XPU	3126.44 00	003067.00
SIC,XPFN		3127.00 80	003067.40
	BD,XPFN1	3157.04 00	003070.00
SIC,RU		3127.40 80	003070.40
	BD,RU1	3157.44 00	003071.00
SIC,TF		3130.00 80	003071.40
	BD,TF1	3160.04 00	003072.00
SIC,UF		3130.40 80	003072.40
	BD,UF1	3160.44 00	003073.00
SIC,VF		3131.00 80	003073.40
	BD,VF1	3161.04 00	003074.00
SIC,XF		3131.40 80	003074.40
	BD,XF1	3161.44 00	003075.00

	SIC,BTR	BD,BTR1		3132.00 80	003075.40
				3162.04 00	003076.00
	SIC,DTR	BD,DTR1		3132.40 80	003076.40
				3162.44 00	003077.00
	SIC,PG0	BD,PG01		3133.00 80	003077.40
				3163.04 00	003100.00
	SIC,PG1	BD,PG11		3133.40 80	003100.40
				3163.44 00	003101.00
	SIC,PG2	BD,PG21		3134.00 80	003101.40
				3164.04 00	003102.00
	SIC,PG3	BD,PG31		3134.40 80	003102.40
				3164.44 00	003103.00
	SIC,PG4	BD,PG41		3135.00 80	003103.40
				3165.04 00	003104.00
	SIC,PG5	BD,PG51		3135.40 80	003104.40
				3165.44 00	003105.00
	SIC,PG6	BD,PG61		3136.00 80	003105.40
				3166.04 00	003106.00
MK	BD,0		-PLACE RESERVED	0.04 00	003106.40 G
IK	BD,0		-FOR INSTRUCTION	0.04 00	003107.00 G
IJ	BD,0		-COUNTER TO BE	0.04 00	003107.40 G
EK	BD,0		-STORED UPON	0.04 00	003110.00 G
TS	BD,0		-INTERRUPTS	0.04 00	003110.40 G
CPUS	BD,0			0.04 00	003111.00 G
EKJ	BD,0			0.04 00	003111.40 G
UNRJ	BD,0			0.04 00	003112.00 G
CBJ	BD,0			0.04 00	003112.40 G
EPGK	BD,0			0.04 00	003113.00 G
UK	BD,0			0.04 00	003113.40 G
EE	BD,0			0.04 00	003114.00 G
EOP	BD,0			0.04 00	003114.40 G
CS	BD,0			0.04 00	003115.00 G
RSV	BD,0			0.04 00	003115.40 G
OP	BD,0			0.04 00	003116.00 G
AD	BD,0			0.04 00	003116.40 G
USA	BD,0			0.04 00	003117.00 G
EXE	BD,0			0.04 00	003117.40 G
DS	BD,0			0.04 00	003120.00 G
DF	BD,0			0.04 00	003120.40 G
IF	BD,0			0.04 00	003121.00 G
LC	BD,0			0.04 00	003121.40 G
PF	BD,0			0.04 00	003122.00 G
ZD	BD,0			0.04 00	003122.40 G
IR	BD,0			0.04 00	003123.00 G
LS	BD,0			0.04 00	003123.40 G
PSH	BD,0			0.04 00	003124.00 G
XFPF	BD,0			0.04 00	003124.40 G
XPO	BD,0			0.04 00	003125.00 G
XPH	BD,0			0.04 00	003125.40 G
XPL	BD,0			0.04 00	003126.00 G
XPU	BD,0			0.04 00	003126.40 G
XPFN	BD,0			0.04 00	003127.00 G
RU	BD,0			0.04 00	003127.40 G
TE	BD,0			0.04 00	003130.00 G
UF	BD,0			0.04 00	003130.40 G
VF	BD,0			0.04 00	003131.00 G
XF	BD,0			0.04 00	003131.40 G
BTR	BD,0			0.04 00	003132.00 G
DTR	BD,0			0.04 00	003132.40 G
PG0	BD,0			0.04 00	003133.00 G
PG1	BD,0			0.04 00	003133.40 G
PG2	BD,0			0.04 00	003134.00 G
PG3	BD,0			0.04 00	003134.40 G
PG4	BD,0			0.04 00	003135.00 G
PG5	BD,0			0.04 00	003135.40 G
PG6	BD,0			0.04 00	003136.00 G

MK1	BD,\$	-AREA OF UNIQUE	3136.44 00	003136.40	
IK1	BD,\$	-INTERRUPT	3137.04 00	003137.00	
IJ1	BD,\$	-PROGRAM	3137.44 00	003137.40	
EK1	BD,\$	-HANG UPS	3140.04 00	003140.00	
TS1	BD,\$		3140.44 00	003140.40	
CPUS1	BD,\$		3141.04 00	003141.00	
EKJ1	BD,\$		3141.44 00	003141.40	
UNRJ1	BD,\$		3142.04 00	003142.00	
CBJ1	BD,\$		3142.44 00	003142.40	
EDGK1	BD,\$		3143.04 00	003143.00	
UK1	BD,\$		3143.44 00	003143.40	
FF1	BD,\$		3144.04 00	003144.00	
EOP1	BD,\$		3144.44 00	003144.40	
CS1	BD,\$		3145.04 00	003145.00	
RSV1	BD,\$		3145.44 00	003145.40	
OP1	BD,\$		3146.04 00	003146.00	
AD1	BD,\$		3146.44 00	003146.40	
USA1	BD,\$		3147.04 00	003147.00	
EXE1	BD,\$		3147.44 00	003147.40	
DS1	BD,\$		3150.04 00	003150.00	
DF1	BD,\$		3150.44 00	003150.40	
IF1	BD,\$		3151.04 00	003151.00	
LC1	BD,\$		3151.44 00	003151.40	
PF1	BD,\$		3152.04 00	003152.00	
ZD1	BD,\$		3152.44 00	003152.40	
IR1	BD,\$		3153.04 00	003153.00	
LS1	BD,\$		3153.44 00	003153.40	
PSH1	BD,\$		3154.04 00	003154.00	
XPFP1	BD,\$		3154.44 00	003154.40	
XPO1	BD,\$		3155.04 00	003155.00	
XPH1	BD,\$		3155.44 00	003155.40	
XPL1	BD,\$		3156.04 00	003156.00	
XPU1	BD,\$		3156.44 00	003156.40	
XPFN1	BD,\$		3157.04 00	003157.00	
RU1	BD,\$		3157.44 00	003157.40	
TF1	BD,\$		3160.04 00	003160.00	
UF1	BD,\$		3160.44 00	003160.40	
VF1	BD,\$		3161.04 00	003161.00	
XF1	BD,\$		3161.44 00	003161.40	
BTR1	BD,\$		3162.04 00	003162.00	
DTR1	BD,0		0.04 00	003162.40 G	
PG01	BD,\$		3163.04 00	003163.00	
PG11	BD,\$		3163.44 00	003163.40	
PG21	BD,\$		3164.04 00	003164.00	
PG31	BD,\$		3164.44 00	003164.40	
PG41	BD,\$		3165.04 00	003165.00	
PG51	BD,\$		3165.44 00	003165.40	
PG61	BD,\$		3166.04 00	003166.00	
18	CNOP,0		0.30 00	003166.40	
PRED1	%8DD%BU,64,8,0 000 000 000 000 000 000 000 000 -ALL ZERO WORD		000000000000000000000000	003167.00	
PRED3	%8DD%BU,64,8,1 777 777 777 777 777 777 777 777 -ALL ONES WORD		177777777777777777777777	003170.00	
15	PRED2	VF,1BZ+2.0	-UPPER BOUNDARY	6112.00+	003171.00
14		VF,32.0	-LOWER BOUNDARY	40.00+	003171.40
	PRED4	VF,1NRT		3026.40+	003172.00
	-* * * *				
	-* * * *	*BRANCH %B TESTS *** BRANCH %B TESTS *** BRANCH %B TESTS			
	-* * * *				
	-* * * *	*START OF TEST			
	-* * * *				
		-BRANCH TO EVERY OTHER WORD AT HALF + FULL WORD ADDRESSES			
	IB	B,1B2		3174.50 00	003172.40
		B,1B3+.32		3176.10 00	003173.00
	IB1	B,1B3		3175.50 00	003173.40
		B,1B4+.32		3177.10 00	003174.00
	IB2	B,1B4		3176.50 00	003174.40
		B,1B5+.32		3200.10 00	003175.00

IB3	B,IB5		3177.50 00	003175.40
		B,IB1+.32	3174.10 00	003176.00
IB4	B,IB6		3200.50 00	003176.40
		B,IB2+.32	3175.10 00	003177.00
IB5	B,IB7		3201.50 00	003177.40
		B,IB8+.32	3203.10 00	003200.00
IB6	B,IB8		3202.50 00	003200.40
		B,IB9+.32	3204.10 00	003201.00
IB7	B,IB9		3203.50 00	003201.40
		B,IB10+.32	3205.10 00	003202.00
IB8	B,IB10		3204.50 00	003202.40
		B,IB6+.32	3201.10 00	003203.00
IB9	B,IB11		3205.50 00	003203.40
		B,IB7+.32	3202.10 00	003204.00
IB10	B,IB12		3206.50 00	003204.40
		B,IB13+.32	3210.10 00	003205.00
IB11	B,IB13		3207.50 00	003205.40
		B,IB12+.32	3207.10 00	003206.00
IB12	B,IB14		3210.50 00	003206.40
		B,IB14+.32	3211.10 00	003207.00
IB13	B,IB+.32		3173.10 00	003207.40
		B,IB11+.32	3206.10 00	003210.00
IB14	B,IB1		3173.50 00	003210.40
		B,IB15	3211.50 00	003211.00
- * * * *				
-B FROM YL TO YR AND YR TO YL VARIATIONS				
- * * * *				
IB15	B,IB17+.32		3214.10 00	003211.40
		B,\$	3212.10 00	003212.00
IB16	B,\$		3212.50 00	003212.40
		B,\$	3213.10 00	003213.00
IB17	B,\$		3213.50 00	003213.40
		B,IB19	3215.50 00	003214.00
IB18	B,IB20+.32		3217.10 00	003214.40
		B,\$	3215.10 00	003215.00
IB19	B,IB23+.32		3222.10 00	003215.40
		B,\$	3216.10 00	003216.00
IB20	B,\$		3216.50 00	003216.40
		B,IB25	3223.50 00	003217.00
IB21	B,IB28		3226.50 00	003217.40
		B,\$	3220.10 00	003220.00
IB22	B,\$		3220.50 00	003220.40
		B,\$	3221.10 00	003221.00
IB23	B,\$		3221.50 00	003221.40
		B,IB27	3225.50 00	003222.00
IB24	B,\$		3222.50 00	003222.40
		B,\$	3223.10 00	003223.00
IB25	B,IB26+.32		3225.10 00	003223.40
		B,\$	3224.10 00	003224.00
IB26	B,\$		3224.50 00	003224.40
		B,IB21	3217.50 00	003225.00
IB27	B,IB18		3214.50 00	003225.40
		B,\$	3226.10 00	003226.00
- * * * *				
- * * * *%NOP TESTS **** %NOP TESTS **** %NOP TESTS				
- * * * *				
- * * * *START OF TEST				
- * * * *				
-PASS THRU NOP,WITH VARIOUS BIT PATTERNS IN ADDRESS FIELD				
IB28	NOP,0		0.30 00	003226.40
		NOP,92.	134.30 00	003227.00
		NOP,87381.	252525.30 00	003227.40
		NOP,93.	135.30 00	003230.00
		NOP,174762.	525252.30 00	003230.40
		NOP,94.	136.30 00	003231.00
		NOP,209715.	631403.30 00	003231.40

NOP,29127.	NOP,95.	-110011001100	137.30 00	003232.00
NOP,233016.	NOP,96.	-000111000111	140.30 00	003233.00
NOP,200463.	NOP,97.	-111000111000	141.30 00	003234.00
NOP,61680.	NOP,98.	-110000111100001111	142.30 00	003235.00
NOP,100.	NOP,99.	-001111000011110000	143.30 00	003236.00
NOP,101.	NOP,87381.	-01010101	144.30 00	003236.40
NOP,101.	NOP,174762.	-10101010	145.30 00	003237.00
NOP,102.	NOP,209715.	-11001100	146.30 00	003240.00
NOP,103.	NOP,29127.	-000111000111	147.30 00	003240.40
NOP,104.	NOP,233016.	-111000111000	148.30 00	003241.00
NOP,105.	NOP,200463.	-11000011110000	149.30 00	003241.40
NOP,106.	NOP,61680.	-0011110000	150.30 00	003242.00
NOP,107.	NOP,262143.	-1111111111	151.30 00	003242.40
			152.30 00	003243.00
			153.30 00	003243.40
			170360.30 00	003244.00
			153.30 00	003244.40
			153.30 00	003245.00
			153.30 00	003245.40
			777777.20 00	003246.00

-* * * *
 -* * * *BRANCH DISABLE %BD# TESTS **** BRANCH DISABLED %BD# TESTS
 -* * * *
 -* * * *START OF TEST
 -* * * *

IB29	BD,IB31	-BD TO EVERY OTHER WORD AT HALF + FULL WORD ADDRESSES	3250.44 00	003246.40
		BD,IB31+.32 -START BD TEST	3251.04 00	003247.00
IB30	BD,IB32		3251.44 00	003247.40
		BD,IB32+.32	3252.04 00	003250.00
IB31	BD,IB33		3252.44 00	003250.40
		BD,IB33+.32	3253.04 00	003251.00
IB32	BD,IB34		3253.44 00	003251.40
		BD,IB34+.32	3254.04 00	003252.00
IB33	BD,IB35		3254.44 00	003252.40
		BD,IB35+.32	3255.04 00	003253.00
IB34	BD,IB36		3255.44 00	003253.40
		BD,IB36+.32	3256.04 00	003254.00
IB35	BD,IB37		3256.44 00	003254.40
		BD,IB37+.32	3257.04 00	003255.00
IB36	BD,IB38		3257.44 00	003255.40
		BD,IB38+.32	3260.04 00	003256.00
IB37	BD,IB39		3260.44 00	003256.40
		BD,IB39+.32	3261.04 00	003257.00
IB38	BD,IB40		3261.44 00	003257.40
		BD,IB40+.32	3262.04 00	003260.00
IB39	BD,IB41		3262.44 00	003260.40
		BD,IB41+.32	3263.04 00	003261.00
IB40	BD,IB42		3263.44 00	003261.40
		BD,IB42+.32	3264.04 00	003262.00
IB41	BD,IB43		3264.44 00	003262.40
		BD,IB43+.32	3265.04 00	003263.00
IB42	BD,IB29+.32		3247.04 00	003263.40
		BD,IB44	3265.44 00	003264.00
IB43	BD,IB30		3247.44 00	003264.40
		BD,IB30+.32	3250.04 00	003265.00

-* * * *
 -BD FROM YL TO YR AND YR TO YL VARIATIONS
 -* * * *

IB44	BD,IB46+.32		3270.04 00	003265.40
		BD,S	3266.04 00	003266.00

IB45	BD,\$	BD,IB51	3266.44 00	003266.40
IB46	BD,IB45+.32		3274.44 00	003267.00
		BD,IB49	3267.04 00	003267.40
IB47	BD,\$		3272.44 00	003270.00
		BD,\$	3270.44 00	003270.40
IB48	BD,\$		3271.04 00	003271.00
		BD,IB46	3271.44 00	003271.40
IB49	BD,IB50+.32		3267.44 00	003272.00
		BD,\$	3274.04 00	003272.40
IB50	BD,\$		3273.04 00	003273.00
		BD,IB53	3273.44 00	003273.40
IB51	BD,IB75		3276.44 00	003274.00
		BD,\$	3300.04 00	003274.40
IB52	BD,\$		3275.04 00	003275.00
		BD,\$	3275.44 00	003275.40
IB53	BD,IB48+.32		3276.04 00	003276.00
		BD,\$	3272.04 00	003276.40
			3277.04 00	003277.00

-* * * *
 -* * * *BRANCH RELATIVE %BR# TESTS **** BRANCH RELATIVE %BR# TESTS
 -* * * *
 -* * * *START OF TEST
 -* * * *

		CNOP,0	0.30 00	003277.40
IB75	BD,\$+.32		3300.44 00	003300.00
		NOP,%8#777777.40	777777.70 00	003300.40
		BR,0		
		BD,IB76	-START BREL SNAKE	0.14 00
		BD,\$	-SAME AS NOP	3302.44 00
		BR,0.32	-CONTINUE	003301.00
IB76	BR,0.32		3302.04 00	003301.40
		BD,\$	-SKIP OVER HALF WORD	0.54 00
		BR,1.0		3303.04 00
		BD,\$	-SKIP OVER FULL WORD	1.14 00
		BD,\$		3304.04 00
		BD,\$		3304.44 00
		BR,1.32	-SKIP OVER ONE AND A HALF WORDS	1.54 00
		BD,\$		3305.44 00
		BD,\$		003305.00
		BD,\$		3306.04 00
		BD,\$		3306.44 00
		BR,2.0	-SKIP OVER TWO WORDS	2.14 00
		BD,\$		003307.00
		BD,\$		3307.44 00
		BD,\$		3310.04 00
		BD,\$		3310.44 00
		BR,2.32	-SKIP OVER TWO AND A HALF WORDS	2.54 00
		BD,\$		3311.04 00
		BD,\$		003311.00
		BD,\$		3312.04 00
		BD,\$		3312.44 00
		BD,\$		003312.00
		BD,\$		3313.04 00
		BD,\$		3313.44 00
		BD,\$		003313.00
		BD,\$		3314.04 00
		BR,4.0	-SKIP OVER FOUR WORDS	4.14 00
		BD,\$		003314.00
		BD,\$		3315.04 00
		BD,\$		3315.44 00
		BD,\$		003315.00
		BD,\$		3316.04 00
		BD,\$		3316.44 00
		BD,\$		003316.00
		BD,\$		3317.04 00
		BD,\$		3317.44 00
		BD,\$		003317.00
		BD,\$		3320.04 00
		BD,\$		3320.44 00
		BD,\$		003320.00
		CNOP,0		
		NOP,0	-REPEAT BREL OFFSET IN YREGS	0.30 00
				003321.00

-* * * *RESTART OF ROUTINE

IB77	BD,\$+.32		3322.04 00	003321.40
		NOP,%8#777777.40	777777.70 00	003322.00
		BR,0	-SAME AS NOP	0.14 00
		BD,IB78		3324.04 00
		BD,\$		3323.44 00
				003323.00
				003323.40

IB78	BR,0.32	-SKIP OVER HALF WORD	0.54 00	003324.00
	BD,\$		3324.44 00	003324.40
	BR,1.0	-SKIP OVER FULL WORD	1.14 00	003325.00
	BD,\$		3325.44 00	003325.40
	BD,\$		3326.04 00	003326.00
	BR,1.32	-SKIP OVER ONE AND A HALF WORDS	1.54 00	003326.40
	BD,\$		3327.04 00	003327.00
	BD,\$		3327.44 00	003327.40
	BD,\$		3330.04 00	003330.00
	BR,2.0	-SKIP OVER TWO WORDS	2.14 00	003330.40
	BD,\$		3331.04 00	003331.00
	BD,\$		3331.44 00	003331.40
	BD,\$		3332.04 00	003332.00
	BD,\$		3332.44 00	003332.40
	BR,2.32	-SKIP OVER TWO AND A HALF WORDS	2.54 00	003333.00
	BD,\$		3333.44 00	003333.40
	BD,\$		3334.04 00	003334.00
	BD,\$		3334.44 00	003334.40
	BD,\$		3335.04 00	003335.00
	BD,\$		3335.44 00	003335.40
	BR,4.0	-SKIP OVER FOUR WORDS	4.14 00	003336.00
	BD,\$		3336.44 00	003336.40
	BD,\$		3337.04 00	003337.00
	BD,\$		3337.44 00	003337.40
	BD,\$		3340.04 00	003340.00
	BD,\$		3340.44 00	003340.40
	BD,\$		3341.04 00	003341.00
	BD,\$		3341.44 00	003341.40
	BD,\$		3342.04 00	003342.00
	- * * * *RESTART OF ROUTINE			
IB79	CNOP,0		0.30 00	003342.40
	BD,IB81	-TO START REVERSE BREL TEST	3356.04 00	003343.00
IB80	B,IB82	-TO NEXT TEST SECTION	3356.50 00	003343.40
	BR,262143.	-BACK UP HALF WORD	777777.14 00	003344.00
	BD,\$		3344.44 00	003344.40
	BR,262142.32	-BACK UP FULL WORD	777776.54 00	003345.00
	BD,\$		3345.44 00	003345.40
	BD,\$		3346.04 00	003346.00
	BR,262142.	-BACK UP WORD AND A HALF	777776.14 00	003346.40
	BD,\$		3347.04 00	003347.00
	BD,\$		3347.44 00	003347.40
	BD,\$		3350.04 00	003350.00
	BR,262141.32	-BACK UP TWO WORDS	777775.54 00	003350.40
	BD,\$		3351.04 00	003351.00
	BD,\$		3351.44 00	003351.40
	BD,\$		3352.04 00	003352.00
	BD,\$		3352.44 00	003352.40
	BR,262141.	-BACK UP TWO AND A HALF WORDS	777775.14 00	003353.00
	BD,\$		3353.44 00	003353.40
	BD,\$		3354.04 00	003354.00
	BD,\$		3354.44 00	003354.40
	BD,\$		3355.04 00	003355.00
	BD,\$		3355.44 00	003355.40
IB81	BR,262140.32	-BACK UP THREE WORDS	777774.54 00	003356.00
	- * * * *RESTART OF ROUTINE			
IB82	CNOP,0		0.30 00	003356.40
	NOP,%8#777777.40	-REVERSE BREL OFFSET	777777.70 00	003357.00
	BD,IB84	-IN Y REGS	3372.44 00	003357.40
IB83	B,IBA	-TO LOAD INDEX TEST	3373.10 00	003360.00
	BR,262143.	-BACK UP HALF WORD	777777.14 00	003360.40
	BD,\$		3361.04 00	003361.00
	BR,262142.32	-BACK UP FULL WORD	777776.54 00	003361.40
	BD,\$		3362.04 00	003362.00
	BD,\$		3362.44 00	003362.40
	BR,262142.	-BACK UP WORD AND A HALF	777776.14 00	003363.00
	BD,\$		3363.44 00	003363.40

	BD,\$		3364.44 00	003364.40
	BR,262141.32	-BACK UP TWO WORDS	777775.54 00	003365.00
	BD,\$		3365.44 00	003365.40
	BD,\$		3366.04 00	003366.00
	BD,\$		3366.44 00	003366.40
	BD,\$		3367.04 00	003367.00
	BR,262141.	-BACK UP TWO AND A HALF WORDS	777775.14 00	003367.40
	BD,\$		3370.04 00	003370.00
	BD,\$		3370.44 00	003370.40
	BD,\$		3371.04 00	003371.00
	BD,\$		3371.44 00	003371.40
	BD,\$		3372.04 00	003372.00
IB84	BR,262140.32	-BACK UP THREE WORDS	777774.54 00	003372.40
	CNOP,C.0			
	-* * * *			
	-* * * *	*LOAD + STORE INDEX %LX+SX# **** LOAD + STORE INDEX %LX+KX#		
	-* * * *			
	-* * * *	*START OF TEST		
	-* * * *			
IBA	LX,\$X1,IBA3	-PICK UP INSTRUCTION	3377.02 10	003373.00
	SX,\$X1,IBA6	-WORDS AND MOVE	3402.03 10	003373.40
IBA1	LX,\$X1,IBA4	-INTO PROPER PLACE	3400.02 10	003374.00
	SX,\$X1,IBA7	-IN PROGRAM	3403.03 10	003374.40
IBA2	LX,\$X1,IBA5		3401.02 10	003375.00
	SX,\$X1,IBA8		3404.03 10	003375.40
	NOP,		0.30 00	003376.00
	BD,IBA7		3403.04 00	003376.40
IBA3	NOP,%8#525252.0		525252.30 00	003377.00
	B,IBA9		3404.50 00	003377.40
IBA4	B,IBA8		3404.10 00	003400.00
	BD,IBA6		3402.04 00	003400.40
IBA5	BD,IBA7+.32		3403.44 00	003401.00
	NOP,%8#252525.0		252525.30 00	003401.40
IBA6	BE,\$	-NOP,01010.1	3402.00 00	003402.00
	BD,\$	-B,IBA9	3402.44 00	003402.40
IBA7	B,\$	-B,IBA8	3403.10 00	003403.00
	BE,\$	-BD,IBA6	3403.40 00	003403.40
IBA8	BD,\$	-BD,IBA7+.32	3404.04 00	003404.00
IBA9	B,\$	-NOP,10101.0	3404.50 00	003404.40
IBA10	NOP,%8#777777.0	-LX IN YR	777777.30 00	003405.00
	-* * * *	*RESTART OF ROUTINE		
IBA11	LX,\$X1,IBA15	-SX IN YL	3411.02 10	003405.40
	SX,\$X1,IBA18	-PREVIOUS ROUTINE IBA	3414.03 10	003406.00
IBA12	LX,\$X1,IBA16	-LX IN YL	3412.02 10	003406.40
	SX,\$X1,IBA19	-SX IN YR	3415.03 10	003407.00
IBA13	LX,\$X1,IBA17		3413.02 10	003407.40
	SX,\$X1,IBA20		3416.03 10	003410.00
IBA14	BD,IBA19		3415.04 00	003410.40
IBA15	NOP,%8#000000.0		0.30 00	003411.00
	B,IBA21		3416.50 00	003411.40
IBA16	BD,IBA20		3416.04 00	003412.00
	BD,IBA18		3414.04 00	003412.40
IBA17	B,IBA19+.32		3415.50 00	003413.00
	NOP,%8#777777.0		777777.30 00	003413.40
IBA18	BE,\$	-NOP,000...ETC.	3414.00 00	003414.00
	BD,\$	-B,IBA21	3414.44 00	003414.40
IBA19	B,\$	-BD,IBA20	3415.10 00	003415.00
	BE,\$	-BD,IBA18	3415.40 00	003415.40
IBA20	BD,\$	-B,IBA19+.32	3416.04 00	003416.00
IBA21	B,\$	-NOP,111...ETC.	3416.50 00	003416.40
IBA22	BD,IBA26	-LAST LX	3423.04 00	003417.00
	NOP,%8#777777.0	-AND SX	777777.30 00	003417.40
IBA23	NOP,%8#525252.0	-CAUSE	525252.30 00	003420.00
	BD,IBA30+.32	-STORE	3427.44 00	003420.40
IBA24	B,IBA32	-CLOSE	3431.10 00	003421.00

	BD, IBA29+.32	-TO	3426.44 00	003421.40
IBA25	B, IBA31	-INSTRUCTION	3430.10 00	003422.00
	NOP, 252525.0	-FETCH	755155.30 00	003422.40
	- * * * *RESTART OF ROUTINE			
IBA26	LX, SX1, IBA23		3420.02 10	003423.00
	SX, SX1, IBA31		3430.03 10	003423.40
IBA27	LX, SX1, IBA24		3421.02 10	003424.00
	SX, SX1, IBA30		3427.03 10	003424.40
IBA28	LX, SX1, IBA25		3422.02 10	003425.00
	SX, SX1, IBA29		3426.03 10	003425.40
IBA29	BE, S	-B, IBA31	3425.00 00	003426.00
	BD, S	-NOP, 01010 ETC	3426.44 00	003426.40
IBA30	B, S	-B, IBA32	3427.10 00	003427.00
	BE, S	-BD, IBA29+.32	3427.40 00	003427.40
IBA31	BD, S	-NOP, 10101 ETC	3430.04 00	003430.00
	B, S	-BD, IBA30+.32	3430.50 00	003430.40
IBA32	NOP, %8H777777.0		777777.30 00	003431.00
	NOP, %8H777777.0		777777.30 00	003431.40
	- * * * *			
	- * * * *%SIC-BH + %SIC-BDH ***** %SIC-BH + %SIC-BDH			
	- * * * *			
	- * * * *START OF TEST			
	- * * * *			
	-SIC-B + SIC-BD TEST WITH MANUAL DISPLAY OF SIC FIELD			
IBB	SIC, IBB14		3447.00 00	003432.00
	B, IBB4		3436.10 00	003432.40
IBB1	SIC, IBB15		3447.40 80	003433.00
	BD, IBB5		3437.04 00	003433.40
IBB2	SIC, IBB16		3450.00 80	003434.00
	B, IBB3		3435.10 00	003434.40
IBB3	SIC, IBB17		3450.40 80	003435.00
	BD, IBB6		3440.04 00	003435.40
IBB4	SIC, IBB18		3451.00 80	003436.00
	BD, IBB1		3433.04 00	003436.40
IBB5	SIC, IBB19		3451.40 80	003437.00
	BD, IBB2		3434.04 00	003437.40
IBB6	NOP, 0		0.20 00	003440.00
IBB7	SIC, IBB20		3452.00 80	003440.40
	B, IBB11		3444.50 00	003441.00
IBB8	SIC, IBB21		3452.40 80	003441.40
	B, IBB12		3445.50 00	003442.00
IBB9	SIC, IBB22		3453.00 80	003442.40
	B, IBB10		3443.50 00	003443.00
IBB10	SIC, IBB23		3453.40 80	003443.40
	BD, IBB13		3446.44 00	003444.00
IBB11	SIC, IBB24		3454.00 80	003444.40
	BD, IBB8		3441.44 00	003445.00
IBB12	SIC, IBB25		3454.40 80	003445.40
	BD, IBB9		3442.44 00	003446.00
IBB13	BD, IBB26		3455.04 00	003446.40
IBB14	BE, 0	-INSTRUCTION COUNTER	0.00 00	003447.00 G
IBB15	BE, 0	-VALUES ARE SEQUENTIAL	0.00 00	003447.40 G
IBB16	BE, 0	-BY HALF WORDS AND	0.00 00	003450.00 G
IBB17	BE, 0	-MUST BE CONSECUTIVELY	0.00 00	003450.40 G
IBB18	BE, 0	-DISPLAYED FOR VERIFICATION.	0.00 00	003451.00 G
IBB19	BE, 0	-DISPLAY FORM IBB14	0.00 00	003451.40 G
IBB20	BE, 0	-TO IBB25, 6 WORDS	0.00 00	003452.00 G
IBB21	BE, 0	-INITIALLY SET TO ZERO	0.00 00	003452.40 G
IBB22	BE, 0	-MODIFIED ONLY BY SIC	0.00 00	003453.00 G
IBB23	BE, 0	-INSTRUCTIONS	0.00 00	003453.40 G
IBB24	BE, 0		0.00 00	003454.00 G
IBB25	BE, 0		0.00 00	003454.40 G
		-START SIC SNAKE TEST		
	- * * * *RESTART OF ROUTINE			
IBB26	SIC, IBB29		3460.00 80	003455.00
	B, IBB34	-BY POSITIONING	3465.10 00	003455.40

IBB27	BD,\$		-BD,IBB35	3456.04 00	003456.00
		BD,\$		3456.44 00	003456.40
IBB28	SIC,IBB31			3462.00 80	003457.00
		BD,IBB32	-ADDRESSES IN	3463.04 00	003457.40
IBB29	BD,\$			3460.04 00	003460.00
		BD,\$		3460.44 00	003460.40
IBB30	SIC,IBB33			3464.00 80	003461.00
		B,IBB36	-BRANCH INSTRUCTIONS	3467.10 00	003461.40
IBB31	BD,\$			3462.04 00	003462.00
		BD,\$		3462.44 00	003462.40
IBB32	SIC,IBB36			3467.00 80	003463.00
		B,IBB30	-AND THEN	3461.10 00	003463.40
IBB33	BD,\$			3464.04 00	003464.00
		BD,\$		3464.44 00	003464.40
IBB34	SIC,IBB27			3456.00 80	003465.00
		BD,IBB28	-EXECUTING THEM	3457.04 00	003465.40
IBB35	B,IBB37			3470.10 00	003466.00
		BD,\$		3466.44 00	003466.40
IBB36	B,\$			3467.10 00	003467.00
		BD,\$		3467.44 00	003467.40
IBB37	NOP,262143.			777777.30 00	003470.00
IBB38	SIC,IBB41			3473.40 80	003470.40
		B,IBB46	-REPEAT SIC SNAKE	3500.50 00	003471.00
IBB39	BD,\$			3471.44 00	003471.40
		BD,\$		3472.04 00	003472.00
IBB40	SIC,IBB43			3475.40 80	003472.40
		BD,IBB44	-TEST-OFFSET	3476.44 00	003473.00
IBB41	BD,\$			3473.44 00	003473.40
		BD,\$		3474.04 00	003474.00
IBB42	SIC,IBB45			3477.40 80	003474.40
		B,IBB48	-THE PROGRAM	3502.50 00	003475.00
IBB43	BD,\$			3475.44 00	003475.40
		BD,\$		3476.04 00	003476.00
IBB44	SIC,IBB48			3502.40 80	003476.40
		B,IBB42	-IN THE Y REGISTERS	3474.50 00	003477.00
IBB45	BD,\$			3477.44 00	003477.40
		BD,\$		3500.04 00	003500.00
IBB46	SIC,IBB39			3471.40 80	003500.40
		BD,IBB40		3472.44 00	003501.00
IBB47	B,IBB49			3503.50 00	003501.40
		BD,\$		3502.04 00	003502.00
IBB48	B,\$			3502.50 00	003502.40
		BD,\$		3503.04 00	003503.00
IBB49	NOP,-1.		-	777777.30 00	003503.40 C

```

-* * * *
-* * * *LOAD + STORE VALUE %LV+SV% **** LOAD + STORE VALUE %LV+SV%
-* * * *
-* * * *START OF TEST

```

			-LOAD VALUE THEN STORE VALUE IN WORKING AREA		
IBC	LV,\$X1,IBC9		-LV IN	3512.42 80	003504.00
	SV,\$X1,IBC4		-YL	3510.03 80	003504.40
IBC1	LV,\$X1,IBC8		-SV IN	3512.02 80	003505.00
	SV,\$X1,IBC5		-YR	3510.43 80	003505.40
IBC2	LV,\$X1,IBC10			3513.02 80	003506.00
	SV,\$X1,IBC6			3511.03 80	003506.40
IBC3	LV,\$X1,IBC11			3513.42 80	003507.00
	SV,\$X1,IBC7			3511.43 80	003507.40
IBC4	B,\$		-BD,IBC6	3510.10 00	003510.00
IBC5	B,\$		-BD,IBC12	3510.50 00	003510.40
IBC6	B,\$		-NOP,%8#525252.4	3511.10 00	003511.00
IBC7	B,\$		-BD,IBC5	3511.50 00	003511.40
IBC8	BD,IBC12			3514.04 00	003512.00
IBC9	BD,IBC6			3511.04 00	003512.40
IBC10	NOP,%8#525252.0			525252.30 00	003513.00
IBC11	BD,IBC5			3510.44 00	003513.40

IBC12	NOP,%8#777777.0		777777.30 00	003514.40
	NOP,%8#777777.0		777777.30 00	003514.40
IBC13	NOP,0	-LVIN	0.30 00	003515.00
	-* * * *RESTART OF ROUTINE			
IBC14	LV,\$X1,IBC23	-YR	3524.02 30	003515.40
	SV,\$X1,IBC18	-SV IN	3521.43 30	003516.00
IBC15	LV,\$X1,IBC22	-YL	3523.42 30	003516.40
	SV,\$X1,IBC19		3522.03 30	003517.00
IBC16	LV,\$X1,IBC24		3524.42 30	003517.40
	SV,\$X1,IBC20		3522.40 30	003520.00
IBC17	LV,\$X1,IBC25		3525.02 30	003520.40
	SV,\$X1,IBC21		3523.03 30	003521.00
IBC18	B,\$	-BD,IBC20	3521.50 00	003521.40
IBC19	BE,\$	-BD,IBC26	3522.00 00	003522.00
IBC20	BD,\$	-NOP,%8#525252.4	3522.44 00	003522.40
IBC21	B,\$	-BD,IBC19	3523.10 00	003523.00
IBC22	BD,IBC26		3525.44 00	003523.40
IBC23	BD,IBC20		3522.44 00	003524.00
IBC24	NOP,%8#525252.0		525252.30 00	003524.40
IBC25	BD,IBC19		3522.04 00	003525.00
IBC26	NOP,%8#777777.0		777777.30 00	003525.40
	NOP,%8#777777.0		777777.30 00	003526.00
	NOP,%8#777777.0		777777.30 00	003526.40
	CNOP,			
	-* * * *			
	-* * * *ADD TO VALUE %V+# **** ADD TO VALUE %V+# **** ADD TO VALUE %V+			
	-* * * *			
	-* * * *START OF TEST			
	-* * * *			
IBE	LX,\$X1,IBE7	-LX WITH BD,IBE7	3535.02 10	003527.00
IBE1	V+,\$X1,IBEN1	-V+%0.32# V NOW+IBE8	3540.02 B0	003527.40
	SV,\$X1,IBE12	-SV AT IBE12	3537.43 30	003530.00
IBE2	V+,\$X1,IBEN1	-V+%0.32# V NOW+IBE9	3540.02 B0	003530.40
	SV,\$X1,IBE10	-SV AT IBE10	3536.43 30	003531.00
IBE3	NOP,%8#525252.0	-SHIFT V+ FROM Y-R TO Y-L	525252.30 00	003531.40
IBE4	V+,\$X1,IBEN1	-V+%0.32# V NOW+IBE10	3540.02 B0	003532.00
	SV,\$X1,IBE8	-SV AT IBE8	3535.43 30	003532.40
IBE5	V+,\$X1,IBEN1	-V+%0.32# V NOW+IBE11	3540.02 B0	003533.00
	SV,\$X1,IBE9	-SV AT IBE9	3536.03 30	003533.40
IBE6	B,IBE12		3537.50 00	003534.00
IBE6A	CNOP,0		0.30 00	003534.40
IBE7	BD,IBE7	-COMMON XW	3535.04 00	003535.00
IBE8	BE,0.0	-BD,IBE10	0.00 00	003535.40 G
IBE9	BE,0.0	-BD,IBE11	0.00 00	003536.00 G
IBE10	BE,0.0	-BD,IBE9	0.00 00	003536.40 G
IBE11	BD,IBE13	-STILL BD,IBE13	3540.44 00	003537.00
IBE12	BE,0.0	-BD,IBE8	0.00 00	003537.40 G
IBEN1	BE,0.32	-COMMON VALUE	0.40 00	003540.00 G
IBE13	NOP,%8#777777.0		777777.30 00	003540.40
	NOP,%8#777777.0		777777.30 00	003541.00
	-* * * *RESTART OF ROUTINE			
IBE14	LX,\$X1,IBE21	-LX WITH BD,IBE21	3547.02 10	003541.40
IBE15	V+,\$X1,IBEN2	-V+%1.0# V NOW+IBE22	3554.02 B0	003542.00
	SV,\$X1,IBE26	-SV	3553.43 30	003542.40
IBE16	V+,\$X1,IBEN2	-V+%1.0# V NOW + IBE23	3554.02 B0	003543.00
	SV,\$X1,IBE24	-SV	3552.03 30	003543.40
IBE17	NOP,%8#525252.0	-SHIFT V+ FROM Y-R TO Y-L	525252.30 00	003544.00
IBE18	V+,\$X1,IBEN2	-V+%1.0# V NOW+IBE24	3554.02 B0	003544.40
	SV,\$X1,IBE22	-SV	3550.03 30	003545.00
IBE19	V+,\$X1,IBEN2	-V+ %1.0# V NOW+IBE25	3554.02 B0	003545.40
	SV,\$X1,IBE23	-SV	3551.03 30	003546.00
IBE20	B,IBE26	-	3553.50 00	003546.40
IBE20A	CNOP,0			
IBE21	BD,IBE21	-COMMON XW	3547.04 00	003547.00
	NOP,%8#525252.0		525252.30 00	003547.40
IBE22	BE,0.0	-IBE24	0.00 00	003550.00 G

	BD,\$			3550.44 00	003550.40
IBE23	BE,0.0		-IBE25	0.00 00	003551.00 G
	BD,\$			3551.44 00	003551.40
IBE24	BE,0.0		-IBE23	0.00 00	003552.00 G
	BD,\$			3552.44 00	003552.40
IBE25	BD,IBE27		-STILL BD,IBE27	3554.44 00	003553.00
IBE26	BE,0.0		-IBE22	0.00 00	003553.40 G
IBEN2	BE,1.0		-COMMON VALUE	1.00 00	003554.00 G
IBE27	NOP,%8#777777.0			777777.30 00	003554.40
	NOP,%8#777777.0			777777.30 00	003555.00
	CNOP,0.			0.30 00	003555.40
-* * * *RESTART OF ROUTINE					
IBF	LX,\$X1,IBF12		-V IS IBF12	3564.02 10	003556.00
IBF1	V+,\$X1,IBF11		-V IS IBF15, INCREMENT 1.5	3563.42 B0	003556.40
IBF2	SV,\$X1,IBF13			3565.03 30	003557.00
IBF3	V+,\$X1,IBF11		-V IS IBF18	3563.42 B0	003557.40
IBF4	SV,\$X1,IBF15			3566.03 30	003560.00
IBF5	NOP,0		-TO SHIFT V+ INSTRUCT	0.30 00	003560.40
IBF6	V+,\$X1,IBF11		-V IS IBF21	3563.42 B0	003561.00
IBF7	SV,\$X1,IBF18			3567.43 30	003561.40
IBF8	V+,\$X1,IBF11		-V IS IBF24	3563.42 B0	003562.00
IBF9	SV,\$X1,IBF21			3571.03 30	003562.40
IBF10	B,IBF13			3565.10 00	003563.00
IBF11	BE,1.32		-INCREMENT	1.40 00	003563.40 G
IBF12	BD,\$+.32			3564.44 00	003564.00
	BE,0.0		-BASIC IX WORD	0.00 00	003564.40 G
IBF13	BE,\$		-BD,IBF15	3565.00 00	003565.00
IBF14	BD,\$			3565.44 00	003565.40
IBF15	BE,\$		-BD,IBF18	3566.00 00	003566.00
IBF16	BD,\$			3566.44 00	003566.40
IBF17	BD,\$			3567.04 00	003567.00
IBF18	BE,\$		-BD,IBF21	3567.40 00	003567.40
IBF19	BD,\$			3570.04 00	003570.00
IBF20	BD,\$			3570.44 00	003570.40
IBF21	BE,\$		-BD,IBF24	3571.00 00	003571.00
IBF22	BD,\$			3571.44 00	003571.40
IBF23	BD,\$			3572.04 00	003572.00
IBF24	BD,IBF27			3574.04 00	003572.40
IBF25	BD,\$			3573.04 00	003573.00
IBF26	BD,\$			3573.44 00	003573.40
-* * * *RESTART OF ROUTINE					
IBF27	LX,\$X1,IBF39		-BASIC WORD V IS IBF39	3602.02 10	003574.00
IBF28	V+,\$X1,IBF38		-V IS IBF43	3601.42 B0	003574.40
IBF29	SV,\$X1,IBF40			3603.03 30	003575.00
IBF30	V+,\$X1,IBF38		-V IS IBF IBF 48	3601.42 B0	003575.40
IBF31	SV,\$X1,IBF43			3604.43 30	003576.00
IBF32	NOP,0		-TO SHIFT V+ INSTRUCT	0.30 00	003576.40
IBF33	V+,\$X1,IBF38		-V IS IBF53	3601.42 B0	003577.00
IBF34	SV,\$X1,IBF48			3607.03 30	003577.40
IBF35	V+,\$X1,IBF38		-V IS IBF58	3601.42 B0	003600.00
IBF36	SV,\$X1,IBF53			3611.43 30	003600.40
IBF37	B,IBF40			3603.10 00	003601.00
IBF38	BE,2.32		-INCREMENT 2.5	2.40 00	003601.40 G
IBF39	BD,\$			3602.04 00	003602.00
	BE,0		-BASIC IX WORD	0.00 00	003602.40 G
IBF40	BE,0		-BD,IBF 43	0.00 00	003603.00 G
IBF41	BD,\$			3603.44 00	003603.40
IBF42	BD,\$			3604.04 00	003604.00
IBF43	BE,0		-BD,IBF48	0.00 00	003604.40 G
IBF44	BD,\$			3605.04 00	003605.00
IBF45	BD,\$			3605.44 00	003605.40
IBF46	BD,\$			3606.04 00	003606.00
IBF47	BD,\$			3606.44 00	003606.40
IBF48	BE,0		-BD,IBF53	0.00 00	003607.00 G
IBF49	BD,\$			3607.44 00	003607.40
IBF50	BD,\$			3610.04 00	003610.00

IBF51	BD,\$		3610.44 00	003610.40
IBF52	BD,\$		3611.04 00	003611.00
IBF53	BE,0	-BD,IBF58	0.00 00	003611.40 G
IBF54	BD,\$		3612.04 00	003612.00
IBF55	BD,\$		3612.44 00	003612.40
IBF56	BD,\$		3613.04 00	003613.00
IBF57	BD,\$		3613.44 00	003613.40
IBF58	BD,IBG		3614.44 00	003614.00
- * * * *RESTART OF ROUTINE				
IBG	LX,\$X1,IBG11		3625.02 10	003614.40
IBG1	V+,\$X1,IBEN3		3624.02 B0	003615.00
	SV,\$X1,IBG7		3622.03 30	003615.40
IBG2	V+,\$X1,IBEN3		3624.02 B0	003616.00
	SV,\$X1,IBG8		3622.43 30	003616.40
IBG3	NOP,%8#525252.0		525252.30 00	003617.00
IBG4	V+,\$X1,IBEN3		3624.02 B0	003617.40
	SV,\$X1,IBG6		3621.43 30	003620.00
IBG5	V+,\$X1,IBEN3		3624.02 B0	003620.40
	SV,\$X1,IBG9		3623.03 30	003621.00
IBG6	BE,\$	-BECOMES BD,IBG8	3621.40 00	003621.40
IBG7	BE,\$	-BECOMES BD,IBG10	3622.00 00	003622.00
IBG8	BE,\$	-BECOMES BD,IBG9	3622.40 00	003622.40
IBG9	BE,\$	-BECOMES BD,IBG7	3623.00 00	003623.00
IBG10	B,IBG12	-STILL B,IBG12	3626.10 00	003623.40
IBEN3	V+,\$X0,0.32	-EQUALS %-#0.32	0.40 B0	003624.00
	CNOP,0.0		0.30 00	003624.40
IBG11	BD,IBEN3	-COMMON XW	3624.04 00	003625.00
	NOP,%8#525252.0		525252.30 00	003625.40
IBG12	NOP,%8#777777.0		777777.30 00	003626.00
	NOP,%8#777777.0		777777.30 00	003626.40
	CNOP			
- * * * *RESTART OF ROUTINE				
IBG13	LX,\$X1,IBG24		3641.02 10	003627.00
IBG14	V+,\$X1,IBEN4		3640.42 B0	003627.40
	SV,\$X1,IBG21		3636.03 20	003630.00
IBG15	V+,\$X1,IBEN4		3640.42 B0	003630.40
	SV,\$X1,IBG19		3634.03 30	003631.00
IBG16	NOP,%8#525252.0		525252.30 00	003631.40
IBG17	V+,\$X1,IBEN4		3640.42 B0	003632.00
	SV,\$X1,IBG20		3635.03 30	003632.40
IBG18	V+,\$X1,IBEN4		3640.42 B0	003633.00
	SV,\$X1,IBG22		3637.03 30	003633.40
IBG19	BE,\$	-BECOMES BD, IBG 22	3634.00 00	003634.00
	BD,\$		3634.44 00	003634.40
IBG20	BE,\$	-BECOMES BD, IBG 21	3635.00 00	003635.00
	BD,\$		3635.44 00	003635.40
IBG21	BE,\$	-BECOMES BD, IBG 23	3636.00 00	003636.00
	BD,\$		3636.44 00	003636.40
IBG22	BE,\$	-BECOMES BD, IBG 20	3637.00 00	003637.00
	BD,\$		3637.44 00	003637.40
IBG23	B,IBG25	-REMAINS B, IBG 25	3642.10 00	003640.00
IBEN4	V+,\$X0,1.0	-EQUAL TO %-1.0#	1.00 B0	003640.40
IBG24	BD,IBG24	-COMMON XW	3641.04 00	003641.00
	NOP,%8#525252.0		525252.30 00	003641.40
IBG25	NOP,%8#777777.0		777777.30 00	003642.00
	NOP,%8#777777.0		777777.30 00	003642.40
	CNOP			
- * * * *RESTART OF ROUTINE				
IBG26	LX,\$X1,IBG37		3654.02 10	003643.00
IBG27	V+,\$X1,IBEN6		3655.42 B0	003643.40
	SV,\$X1,IBG33		3651.03 30	003644.00
IBG28	V+,\$X1,IBEN5		3655.02 B0	003644.40
	SV,\$X1,IBG32		3650.03 30	003645.00
IBG29	NOP,%8#525252.0		525252.30 00	003645.40
IBG30	V+,\$X1,IBEN5		3655.02 B0	003646.00
	SV,\$X1,IBG35		3652.43 30	003646.40

IBG31	V+,\$X1,IBEN6		3655.42	B0	003647.00
	SV,\$X1,IBG34		3652.03	30	003647.40
IBG32	BE,\$	-BECOMES BD, IBG 35	3650.00	00	003650.00
	BD,\$		3650.44	00	003650.40
IBG33	BE,\$	-BECOMES BD, IBG 36	3651.00	00	003651.00
	BD,\$		3651.44	00	003651.40
IBG34	BE,\$	-BECOMES BD, IBG 33	3652.00	00	003652.00
IBG35	BE,\$	-BECOMES BD, IBG 34	3652.40	00	003652.40
IBG36	B,IBG38	-STAYS B, IBG 38	3656.10	00	003653.00
	NOP,0.0		0.30	00	003653.40
IBG37	BD,IBG37	-COMMON XW	3654.04	00	003654.00
	NOP,%8#525252.0		525252.30	00	003654.40
IBEN5	VF,%8#777777.40	-WRAP AROUND %-.32#	777777.40+		003655.00
IBEN6	BE,%8#777777.0	-WRAP AROUND %-1.0#	777777.00	00	003655.40
IBG38	NOP,%8#777777.0		777777.30	00	003656.00
	NOP,%8#777777.0		777777.30	00	003656.40

CNOP

--* * * *
 --* * * *LOAD + STORE COUNT %LC+SC# **** LOAD + STORE COUNT %LC+SC#
 --* * * *
 --* * * *START OF TEST
 --* * * *

IBD	LC,\$X1,IBD8A	-LC WITH FULL	3700.42	50	003657.00
	SC,\$X1,ISTOY		6105.03	50	003657.40
	LV,\$X1,ISTOY		6105.02	30	003660.00
	V+,\$X1,COM04		6106.02	B0	003660.40
	SV,\$X1,IBD4	-AND HALF WORD	3673.03	30	003661.00
	NOP,0.0		0.30	00	003661.40
IBD1	LC,\$X1,IBD7A	-VALUES BUT ONLY	3700.02	50	003662.00
	SC,\$X1,ISTOY		6105.03	50	003662.40
	LV,\$X1,ISTOY		6105.02	30	003663.00
	V+,\$X1,COM04		6106.02	B0	003663.40
	SV,\$X1,IBD8	-18 BITS SHOULD	3675.03	30	003664.00
	NOP,0.0		0.30	00	003664.40
IBD2	LC,\$X1,IBD5A	-BE LOADED AND	3677.02	50	003665.00
	SC,\$X1,ISTOY		6105.03	50	003665.40
	LV,\$X1,ISTOY		6105.02	30	003666.00
	V+,\$X1,COM04		6106.02	B0	003666.40
	SV,\$X1,IBD7	-STORED, SC WILL	3674.43	30	003667.00
	NOP,0.0		0.30	00	003667.40
IBD3	LC,\$X1,IBD6A	-STORE 18 BITS + SET	3677.42	50	003670.00
	SC,\$X1,ISTOY		6105.03	50	003670.40
	LV,\$X1,ISTOY		6105.02	30	003671.00
	V+,\$X1,COM04		6106.02	B0	003671.40
	SV,\$X1,IBD5	-NEXT 7 BITS TO ZERO	3673.43	30	003672.00
	NOP,0.0		0.30	00	003672.40
IBD4	BD,IBD4	-BE,IBD8	3673.04	00	003673.00
IBD5	BD,IBD5	-BE,IBD8	3673.44	00	003673.40
IBD6	BD,IBD9	-BD,IBD9	3675.44	00	003674.00
IBD7	BD,IBD7	-BE,IBD4	3674.44	00	003674.40
IBD8	BD,IBD8	-BE,IBD6	3675.04	00	003675.00
IBD9	NOP,%8#777777.0	-NOP ALL 1S	777777.30	00	003675.40
	B,IBD10		3702.10	00	003676.00
IBD4A	BD,IBD4		3673.04	00	003676.40
IBD5A	BD,IBD5		3673.44	00	003677.00
IBD6A	BD,IBD6		3674.04	00	003677.40
IBD7A	BD,IBD7		3674.44	00	003700.00
IBD8A	BD,IBD8		3675.04	00	003700.40
IBD9A	NOP,%8#777777.0		777777.30	00	003701.00
	CNOP		0.30	00	003701.40

--* * * *
 --* * * *LOAD + STORE REFILL %LR+SR# **** LOAD + STORE REFILL %LR+SR#
 --* * * *
 --* * * *START OF TEST
 --* * * *

IBD10	LR,\$X1,IBD18A	-LR WITH FULL	3723.42	70	003702.00 6
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	SR,\$X1,ISTOY		6105.03 70	003702.40
	LV,\$X1,ISTOY		6105.02 30	003703.00
	V+,\$X1,COM04		6106.02 B0	003703.40
	SV,\$X1,IBD14	--+ HALF WORD	3716.03 30	003704.00
	NOP,0.0		0.30 00	003704.40
IBD11	LR,\$X1,IBD17A	-VALUES BUT ONLY	3723.02 70	003705.00 6
	SR,\$X1,ISTOY		6105.03 70	003705.40
	LV,\$X1,ISTOY		6105.02 30	003706.00
	V+,\$X1,COM04		6106.02 30	003706.40
	SV,\$X1,IBD18	-18 BITS SHOULD	3720.03 30	003707.00
	NOP,0.0		0.30 00	003707.40
IBD12	LR,\$X1,IBD15A	-BE LOADED AND	3722.02 70	003710.00 6
	SR,\$X1,ISTOY		6105.03 70	003710.40
	LV,\$X1,ISTOY		6105.02 30	003711.00
	V+,\$X1,COM04		6106.02 B0	003711.40
	SV,\$X1,IBD17	-STORED SR WILL	3717.43 30	003712.00
	NOP,0.0		0.30 00	003712.40
IBD13	LR,\$X1,IBD16A	-STORE 18 BITS + SET	3722.42 70	003713.00 6
	SR,\$X1,ISTOY		6105.03 70	003713.40
	LV,\$X1,ISTOY		6105.02 30	003714.00
	V+,\$X1,COM04		6106.02 B0	003714.40
	SV,\$X1,IBD15	-NEXT 7 BITS TO ZERO	3716.43 30	003715.00
	NOP,0.0		0.30 00	003715.40
IBD14	BD,IBD14	-BE,IBD18	3716.04 00	003716.00
IBD15	BD,IBD15	-BE,IBD18	3716.44 00	003716.40
IBD16	BD,IBD19	-BD,IBD19	3720.44 00	003717.00
IBD17	BD,IBD17	-BE,IBD14	3717.44 00	003717.40
IBD18	BD,IBD18	-BE,IBD16	3720.04 00	003720.00
IBD19	NOP,%8#777777.0	-NOP ALL 1 S	777777.30 00	003720.40
	B,IBG39		3725.10 00	003721.00
IBD14A	BD,IBD14		3716.04 00	003721.40 6
IBD15A	BD,IBD15		3716.44 00	003722.00 6
IBD16A	BD,IBD16		3717.04 00	003722.40 6
IBD17A	BD,IBD17		3717.44 00	003723.00 6
IBD18A	BD,IBD18		3720.04 00	003723.40 6
IBD19A	NOP,%8#777777.0		777777.30 00	003724.00 6
	CNOP,0	-START WORD BNDRY	0.30 00	003724.40
	-* * * *			
	-* * * *ADD TO VALUE + COUNT %V+C# ***** ADD TO VALUE AND COUNT %V+C#			
	-* * * *			
	-* * * *START OF TEST			
	-* * * *			
IBG39	LX,\$X1,IBG53	-LOAD INDEX	3752.02 10	003725.00
IBG40	V+C,\$X1,IBEN7	-ADD TO VALUE A HALF	3751.42 D0	003725.40
	SV,\$X1,IBG47	-DIMINISH COUNT BY ONE	3744.43 30	003726.00
	SC,\$X1,ISTOY		6105.03 50	003726.40
	LV,\$X1,ISTOY		6105.02 30	003727.00
	V+,\$X1,COM04		6106.02 B0	003727.40
	SV,\$X1,IBG50	-STORE VALUES	3747.03 30	003730.00
	LV,\$X1,IBG47		3744.42 30	003730.40
IBG41	V+C,\$X1,IBEN7	--+ COUNTS	3751.42 D0	003731.00
	SV,\$X1,IBG45	-INTO PROPER	3743.43 30	003731.40
	SC,\$X1,ISTOY		6105.03 50	003732.00
	LV,\$X1,ISTOY		6105.02 30	003732.40
	V+,\$X1,COM04		6106.02 B0	003733.00
	SV,\$X1,IBG48	-AREAS + TRY	3745.03 30	003733.40
	LV,\$X1,IBG45		3743.42 30	003734.00
IBG42	V+C,\$X1,IBEN7	-TO BRANCH THRU.	3751.42 D0	003734.40
	SV,\$X1,IBG44		3743.03 30	003735.00
	SC,\$X1,ISTOY		6105.03 50	003735.40
	LV,\$X1,ISTOY		6105.02 30	003736.00
	V+,\$X1,COM04		6106.02 B0	003736.40
	SV,\$X1,IBG49		3746.03 30	003737.00
	LV,\$X1,IBG44		3743.02 30	003737.40
IBG43	V+C,\$X1,IBEN7		3751.42 D0	003740.00
	SV,\$X1,IBG46		3744.03 30	003740.40

	SC,\$X1,ISTOY		6105.03	-50		003741.00
	LV,\$X1,ISTOY		6105.02	30		003741.40
	V+,\$X1,COM04		6106.02	B0		003742.00
	SV,\$X1,IBG51		3750.03	20		003742.40
	CNOP					
IBG44	BE,\$	-VALUE BD,IBG 47	3743.00	00		003743.00
IBG45	BE,\$	-TEST BD,IBG 46	3743.40	00		003743.40
IBG46	BE,\$	-AREA. BD,IBG 48	3744.00	00		003744.00
IBG47	BE,\$	-AREA. BD,IBG 45	3744.40	00		003744.40
IBG48	BD,\$	-COUNT BE,IBG 51	3745.04	00		003745.00
	BD,\$		3745.44	00		003745.40
IBG49	BD,\$	-TEST BE,IBG 50	3746.04	00		003746.00
	BD,\$		3746.44	00		003746.40
IBG50	BD,\$	-AREA. BE,IBG 52	3747.04	00		003747.00
	BD,\$		3747.44	00		003747.40
IBG51	BD,\$	- BE,IBG 49	3750.04	00		003750.00
	BD,\$		3750.44	00		003750.40
IBG52	B,IBG54		3753.10	00		003751.00
IBEN7	BE,0.32	-COMMON VALUE	0.40	00		003751.40 G
IBG53	XW,IBG44.04,IBG52+1.0,0	-COMMON XW	3743.04	00	077240.00 00	003752.00
IBG54	NOP,%8#777777.		777777.30	00		003753.00
	NOP,%8#777777.		777777.30	00		003753.40
	CNOP					
	-* * * *					
	-* * * *%V+CR# **** ADD TO VALUE, COUNT, + REFILL **** %V+CR#					
	-* * * *					
	-* * * *START OF TEST					
	-* * * *					
IBG55	LX,\$X1,IBG63	-LX WITH COUNT %1#ONE	3766.02	10		003754.00
IBG56	V+CR,\$X1,IBG59	-SHOULD CAUSE REFILL	3763.42	F0		003754.40
	SV,\$X1,IBG57	-IF NOT SV WILL BE B,IBG63	3762.43	30		003755.00
	SC,\$X1,ISTOY		6105.03	50		003755.40
	LV,\$X1,ISTOY		6105.02	30		003756.00
	V+,\$X1,COM04		6106.02	B0		003756.40
	SV,\$X1,IBG61	-WHICH WILL CAUSE HANG UP	3764.43	30		003757.00
	NOP,0.0		0.30	00		003757.40
	SR,\$X1,ISTOY		6105.03	70		003760.00
	LV,\$X1,ISTOY		6105.02	30		003760.40
	V+,\$X1,COM04		6106.02	B0		003761.00
	SV,\$X1,IBG58	-TO BE STORED AT IBG57	3763.03	30		003761.40
	LV,\$X1,IBG57		3762.42	30		003762.00
IBG57	B,\$	-SHOULD BECOME BD,IBG61	3762.50	00		003762.40
IBG58	B,\$	-SHOULD BECOME BD,IBG64	3763.10	00		003763.00
IBG59	BD,%8#0.0		0.04	00		003763.40 G
IBG60	VF,%8#777777.50	-	777777.50+			003764.00
IBG61	B,\$	-SHOULD BECOME BD,IBG58	3764.50	00		003764.40
IBG62	XW,IBG61.04,IBG58,IBG64	-REFILL XW	3764.44	00	077460.07 F7	003765.00
IBG63	XW,IBG63.04,1,IBG62	-INITIAL XW	3766.04	00	000020.07 F5	003766.00
IBG64	NOP,%8#777777.0		777777.30	00		003767.00
	NOP,%8#777777.0		777777.30	00		003767.40
	-* * * *RESTART OF ROUTINE					
IBG65	LX,\$X1,IBG87	-LX,WITH COUNT %2#TWO	4015.02	10		003770.00
IBG66	V+CR,\$X1,IBG86	-ADD %1# TO VALUE %-1# TO COUNT	4014.02	F0		003770.40
IBG67	SV,\$X1,IBG79	-SHOULD NOT REFILL	4005.03	30		003771.00
IBG68	SC,\$X1,IBG86		4014.03	50		003771.40
	NOP,0.0		0.30	00		003772.00
IBG69	V+,\$X1,IBG86		4014.02	B0		003772.40
IBG70	SV,\$X1,IBG85		4013.03	30		003773.00
IBG71	SR,\$X1,IBG81		4007.03	70		003773.40
IBG72	LV,\$X1,IBG81		4007.02	30		003774.00
	V+,\$X1,COM04		6106.02	B0		003774.40
IBG73	V+,\$X1,IBG86		4014.02	B0		003775.00
IBG74	SV,\$X1,IBG82		4010.03	30		003775.40
	LV,\$X1,IBG79		4005.02	30		003776.00
	NOP,0.0		0.30	00		003776.40
IBG75	V+CR,\$X1,IBG86	-SHOULD REFILL NOW	4014.02	F0		003777.00

	IBG76	SV,\$X1,IBG83		4011.03 30	003777.40
		SC,\$X1,ISTOY		6105.03 50	004000.00
		LV,\$X1,ISTOY		6105.02 30	004000.40
		V+,\$X1,COM04		6106.02 80	004001.00
	IBG77	SV,\$X1,IBG84		4012.03 30	004001.40
		NOP,0.0		0.30 00	004002.00
		SR,\$X1,ISTOY		6105.03 70	004002.40
		LV,\$X1,ISTOY		6105.02 30	004003.00
		V+,\$X1,COM04		6106.02 80	004003.40
	IBG78	SV,\$X1,IBG80		4006.03 30	004004.00
		LV,\$X1,IBG83		4011.02 30	004004.40
	IBG79	BE,\$		4005.00 00	004005.00
		BD,\$	-BECOMES BD,IBG 83	4005.44 00	004005.40
	IBG80	BE,\$		4006.00 00	004006.00
		BD,\$	-BECOMES BD,IBG 82	4006.44 00	004006.40
	IBG81	BE,0.0		0.00 00	004007.00 G
		BD,\$	-BECOMES BE,IBG 88 BUT NOT USED	4007.44 00	004007.40
	IBG82	BE,\$		4010.00 00	004010.00
		BD,\$	-BECOMES BE,IBG 89	4010.44 00	004010.40
	IBG83	BE,\$		4011.00 00	004011.00
		BD,\$	-BECOMES BE,IBG 80	4011.44 00	004011.40
	IBG84	BD,\$		4012.04 00	004012.00
		BD,\$	-BECOMES BE,IBG 91	4012.44 00	004012.40
	IBG85	BD,\$		4013.04 00	004013.00
		BD,\$	-BECOMES BD,IBG 84	4013.44 00	004013.40
	IBG86	BE,2.0		2.00 00	004014.00 G
		NOP,%8#525252.0	-SHOULD BECOME BE,1.0	525252.30 00	004014.40
	IBG87	XW,IBG81.04,2,IBG88		4007.04 00	000040.10 0E
	IBG88	XW,IBG80.04,IBG91,IBG82		4006.04 00	100420.10 08
	IBG89	BD,IBG85		4013.04 00	004017.00
		BD,\$	-	4017.44 00	004017.40
	IBG90	BD,\$		4020.04 00	004020.00
		BD,\$		4020.44 00	004020.40
	IBG91	NOP,%8#777777.0		777777.30 00	004021.00
		LVI,\$X1,2.0	-RESTORE IBG86	2.03 01	004021.40
		SV,\$X1,IBG86		4014.03 30	004022.00
		NOP,%8#777777.0		777777.30 00	004022.40
	-* * * *				
	-* * * *	*BRANCH ON I BOX INDICATORS %B-IND#			
	-* * * *				
	-* * * *	*START OF TEST			
	-* * * *				
		-BRANCH ON I BOX INDICATORS ONLY			
		LX,\$X1,IBXWZC	-TURN ON XF,XCZ,XVLZ	4030.02 10	004023.00 6
	IBIN1	BZXF,\$	-HANG UP IF BIT OFF	4023.63 40	004023.40
	IBIN2	BXF,\$+1.0	-DONT BRANCH IF BIT OFF	4025.23 42	004024.00
		BD,\$	-HANG UP IF NO BRANCH	4024.44 00	004024.40
	IBIN3	BZXFZ,\$	-HANG UP IF BIT OFF OR TURN OFF	4025.23 44	004025.00
	IBIN4	BXF,\$	-HANG UP IF BIT ON	4025.63 42	004025.40
	IBIN5	BZXF,\$+1.0	-BRANCH IF BIT OFF	4027.23 40	004026.00
		BD,\$	-HANG UP IF BIT ON	4026.44 00	004026.40
		B,IBIN6	-BRANCH OUT	4031.10 00	004027.00
	IBXWZ0	XW,-1,0,0,4	-COMMON XW FOR XF,XCZ,XVLZ	0.01 C0	000000.00 00
	IBIN6	VF,%8#777777.70	-NOP,-.32	777777.70+	004031.00
		VF,%8#777777.70	-NOP,-.32	777777.70+	004031.40
	IBIN8	BZXCZ,\$	-HANG UP IF BIT OFF	4032.30 40	004032.00
	IBIN9	BXCZ,\$+1.0	-DONT BRANCH IF BIT OFF	4033.70 42	004032.40
		BD,\$	-HANG UP IF NO BRANCH	4033.04 00	004033.00
	IBIN10	BZXCZZ,\$	-HANG UP IF BIT OFF OR TURN OFF	4033.70 44	004033.40 6
	IBIN11	BXCZ,\$	-HANG UP IF BIT ON	4034.30 42	004034.00 6
	IBIN12	BZXCZ,\$+1.0	-BRANCH IF BIT OFF	4035.70 40	004034.40 6
		BD,\$	-HANG UP IF BIT ON	4035.04 00	004035.00
		B,IBIN13	-BRANCH OUT	4036.10 00	004035.40 6
	IBIN13	VF,%8#777777.70	-NOP,-.32	777777.70+	004036.00 6
		VF,%8#777777.70	-NOP,-.32	777777.70+	004036.40
	IBIN15	BZXVLZ,\$	-HANG UP IF BIT OFF	4037.30 C0	004037.00 6

IBIN16	BXVLZ,s	-DONT BRANCH IF BIT OFF	4040.70 C2	004037.40 6
	BD,s	-HANG UP IF NO BRANCH	4040.04 00	004040.00
IBIN17	BZXVLZZ,s	-HANG UP IF BIT OFF OR TURN OFF	4040.70 C4	004040.40 6
IBIN18	BXVLZ,s	-HANG UP IF BIT ON	4041.30 C2	004041.00 6
IBIN19	BZXVLZ,s+1.0	-BRANCH IF BIT OFF	4042.70 C0	004041.40 6
	BD,s	-HANG UP IF BIT ON	4042.04 00	004042.00
	B,IBIN20	-BRANCH OUT	4043.10 00	004042.40 6
IBIN20	VF,%8#777777.70	-NOP,-.32	777777.70+	004043.00 6
	VF,%8#777777.70	-NOP,-.32	777777.70+	004043.40
	-* * * *RESTART OF ROUTINE			
	LX,\$X1,IBXWZ1	-TURN ON XVZ	4051.02 10	004044.00 6
IBIN22	BZXVZ,s	-HANG UP IF BIT OFF	4044.71 40	004044.40 6
IBIN23	BXVZ,s+1.0	-DONT BRANCH IF BIT OFF	4046.31 42	004045.00 6
	BD,s	-HANG UP IF NO BRANCH	4045.44 00	004045.40
IBIN24	BZXVZZ,s	-HANG UP IF BIT OFF OR TURN OFF	4046.31 44	004046.00 6
IBIN25	BXVZ,s	-HANG UP IF BIT ON	4046.71 42	004046.40 6
IBIN26	BZXVZ,s+1.0	-BRANCH IF BIT OFF	4050.31 40	004047.00 6
	BD,s	-HANG UP IF BIT ON	4047.44 00	004047.40
	B,IBIN27	-BRANCH OUT	4052.10 00	004050.00 6
IBXWZ1	XW,0,1,0,0	-COMMON XW FOR XVZ	0.00 00 000020.00 00	004051.00 6
IBIN27	VF,%8#777777.70	-NOP,-.32	777777.70+	004052.00 6
	VF,%8#777777.70	-NOP,-.32	777777.70+	004052.40
	-* * * *RESTART OF ROUTINE			
	LX,\$X1,IBXWZ2	-TURN ON XVGZ	4060.02 10	004053.00 6
IBIN29	BZXVGZ,s	-HANG UP IF BIT OFF	4053.71 C0	004053.40 6
IBIN30	BXVGZ,s+1.0	-DONT BRANCH IF BIT OFF	4055.31 C2	004054.00 6
	BD,s	-HANG UP IF NO BRANCH	4054.44 00	004054.40
IBIN31	BZXVGZZ,s	-HANG UP IF BIT OFF OR TURN OFF	4055.31 C4	004055.00 6
IBIN32	BXVGZ,s	-HANG UP IF BIT ON	4055.71 C2	004055.40 6
IBIN33	BZXVGZ,s+1.0	-BRANCH IF BIT OFF	4057.31 C0	004056.00 6
	BD,s	-HANG UP IF BIT ON	4056.44 00	004056.40
	B,IBIN34	-BRANCH OUT	4061.10 00	004057.00 6
IBXWZ2	XW,1,1,0,0	-COMMON XW FOR XVGZ	0.01 00 000020.00 00	004060.00 6
IBIN34	VF,%8#777777.70	-NOP,-.32	777777.70+	004061.00 6
	VF,%8#777777.70	-NOP,-.32	777777.70+	004061.40
	-* * * *RESTART OF ROUTINE			
IBIN35	LX,\$X1,IBXWZ	-SET XW TO ZERO	4070.02 10	004062.00 6
	LV,\$X1,IBXWZ6	-LOAD BIT 20,%XL IND#	4067.42 30	004062.40 6
	SV,\$X1,\$IND+.32	-STORE IN IND REG.	13.43 30	004063.00
IBIN36	BZXL,s	-HANG UP IF BIT OFF	4063.72 40	004063.40 6
IBIN37	BXL,s+1.0	-DONT BRANCH IF BIT OFF	4065.32 42	004064.00 6
	BD,s	-HANG UP IF NO BRANCH	4064.44 00	004064.40
IBIN38	BZXLZ,s	-HANG UP IF BIT OFF OR TURN OFF	4065.32 44	004065.00 6
IBIN39	BXL,s	-HANG UP IF BIT ON	4065.72 42	004065.40 6
IBIN40	BZXL,s+1.0	-BRANCH IF BIT OFF	4067.32 40	004066.00 6
	BD,s	-HANG UP IF BIT ON	4066.44 00	004066.40
	B,IBIN41	-BRANCH OUT	4071.10 00	004067.00 6
IBXWZ6	VF,%8#000000.10	-EQUALS %XL IND#	0.10+	004067.40 6
IBXWZ	XW,0,0,0,0	-COMMON XW	0.00 00 000000.00 00	004070.00
IBIN41	VF,%8#777777.70	-NOP,-.32	777777.70+	004071.00 6
	VF,%8#777777.70	-NOP,-.32	777777.70+	004071.40
	-* * * *RESTART OF ROUTINE			
IBIN42	LX,\$X1,IBXWZ	-SET XW TO ZERO	4070.02 10	004072.00 6
	LV,\$X1,IBXWZ7	-LOAD BIT 21,%XE IND#	4077.42 30	004072.40 6
	SV,\$X1,\$IND+.32	-STORE IN IND REG.	13.43 30	004073.00
IBIN43	BZXE,s	-HANG UP IF BIT OFF	4073.72 C0	004073.40 6
IBIN44	BXE,s+1.0	-DONT BRANCH IF BIT OFF	4075.32 C2	004074.00 6
	BD,s	-HANG UP IF NO BRANCH	4074.44 00	004074.40
IBIN45	BZXEZ,s	-HANG UP IF BIT OFF OR TURN OFF	4075.32 C4	004075.00 6
IBIN46	BXE,s	-HANG UP IF BIT ON	4075.72 C2	004075.40 6
IBIN47	BZXE,s+1.0	-BRANCH IF BIT OFF	4077.32 C0	004076.00 6
	BD,s	-HANG UP IF BIT ON	4076.44 00	004076.40
	B,IBIN48	-BRANCH OUT	4100.10 00	004077.00 6
IBXWZ7	VF,%8#000000.04	-EQUALS %XE IND#	0.04+	004077.40 6
IBIN48	VF,%8#777777.70	-NOP,-.32	777777.70+	004100.00 6
	VF,%8#777777.70	-NOP,-.32	777777.70+	004100.40

	IBIN49	LX,\$X1,IBXW7	-SET XW TO ZERO	4070.02 10	004101.00 6
		LV,\$X1,IBXWZ8	-LOAD BIT 22,%XH INDE	4106.42 30	004101.40 6
		SV,\$X1,SIND+.32	-STORE IN IND REG.	13.43 30	004102.00
	IBIN50	BZXH,S	-HANG UP IF BIT OFF	4102.72 40	004102.40 6
	IBIN51	BXH,\$+1.0	-DONT BRANCH IF BIT OFF	4104.32 42	004102.00 6
		BD,S	-HANG UP IF NO BRANCH	4103.44 00	004103.40
	IBIN52	BZXHZ,S	-HANG UP IF BIT OFF OR TURN OFF	4104.32 44	004104.00 6
	IBIN53	BXH,S	-HANG UP IF BIT ON	4104.72 42	004104.40 6
	IBIN54	BZXH,\$+1.0	-BRANCH IF BIT OFF	4105.32 40	004105.00 6
		BD,S	-HANG UP IF BIT ON	4105.44 00	004105.40
		R,IBIN55	-BRANCH OUT	4107.10 00	004106.00 6
	IBXWZ8	VF,%8#000000.02	-EQUALS %XH INDE	0.02+	004106.40 6
	IBIN55	VF,%8#777777.70	-NOP,-.32	777777.70+	004107.00 6
		VF,%8#777777.70	-NOP,-.32	777777.70+	004107.40
	-* * * *				
	-* * *	*COMPARE VALUE %KV#**** COMPARE VALUE %KV#**** COMPARE VALUE%KV			
	-* * * *				
	-* * *	*START OF TEST			
	-* * * *				
		BXEZ,\$+.32		4110.72 C6	004110.00
		BXLZ,\$+.32		4111.32 46	004110.40
		BXHZ,\$+.32		4111.72 46	004111.00
	IBKV	LV,\$X1,IBKVVDG	-LV %+# 0.01	4205.02 30	004111.40 6
		KV,\$X1,IBKVVDG	-KV %+# 0.01	4205.02 90	004112.00 6
		BXEZ,\$+1.0	-BRANCH IF EQUAL	4113.72 C6	004112.40
		BD,S	-INDEX NOT EQUAL	4112.04 00	004113.00
		BZXEZ,\$+1.0	-BRANCH IF XE WENT OFF	4114.72 C4	004113.40
		BD,S	-XE INDICATOR STAYED ON	4114.04 00	004114.00
		KV,\$X1,IBKVVDH	-KV %+# 1.00	4205.42 90	004114.40 6
		BXLZ,\$+1.0	-BRANCH IF LOW	4116.32 46	004115.00
		BD,S	-INDEX NOT LOW	4115.44 00	004115.40
		BZXLZ,\$+1.0	-BRANCH IF XL WENT OFF	4117.32 44	004116.00
		BD,S	-XL INDICATOR STAYED ON	4116.44 00	004116.40
	-* * *	*RESTART OF ROUTINE			
	IBKV1	LV,\$X1,IBKVVDH	-LV %+# 1.00	4205.42 30	004117.00 6
		KV,\$X1,IBKVVDG	-KV %+# 0.01	4205.02 90	004117.40 6
		BXHZ,\$+1.0	-BRANCH IF HIGH	4121.32 46	004120.00
		BD,S	-INDEX NOT HIGH	4120.44 00	004120.40
		BZXHZ,\$+1.0	-BRANCH IF XH WENT OFF	4122.32 44	004121.00
		BD,S	-XH INDICATOR STAYED ON	4121.44 00	004121.40
	-* * *	*RESTART OF ROUTINE			
	IBKV2	LV,\$X1,IBKVDA	-LV %+# 0.00	4202.02 30	004122.00 6
		KV,\$X1,IBKVDA	-KV %+# 0.00	4202.02 90	004122.40 6
		BXEZ,\$+1.0	-BRANCH IF EQUAL	4124.32 C6	004123.00
		BD,S	-INDEX NOT EQUAL	4123.44 00	004123.40
		BZXEZ,\$+1.0	-BRANCH IF XE WENT OFF	4125.32 C4	004124.00
		BD,S	-XE INDICATOR STAYED ON	4124.44 00	004124.40
		KV,\$X1,IBKVVDJ	-KV %-# 0.00	4207.42 90	004125.00 6
		BXEZ,\$+1.0	-BRANCH IF EQUAL	4126.72 C6	004125.40
		BD,S	-INDEX NOT EQUAL	4126.04 00	004126.00
		BZXEZ,\$+1.0	-BRANCH IF XE WENT OFF	4127.72 C4	004126.40
		BD,S	-XE INDICATOR STAYED ON	4127.04 00	004127.00
	-* * *	*RESTART OF ROUTINE			
	IBKV3	LV,\$X1,IBKVDF	-LV %+# 400000.0	4204.42 30	004127.40 6
		KV,\$X1,IBKVDO	-KV %-# 400000.0	4212.02 90	004130.00 6
		BXHZ,\$+1.0	-BRANCH IF HIGH	4131.72 46	004130.40
		BD,S	-INDEX NOT HIGH	4131.04 00	004131.00
		BZXHZ,\$+1.0	-BRANCH IF XH WENT OFF	4132.72 44	004131.40
		BD,S	-XH INDICATOR STAYED ON	4132.04 00	004132.00
		KV,\$X1,IBKVVDU	-KV %+# 400001.0	4206.02 90	004132.40 6
		BXLZ,\$+1.0	-BRANCH IF LOW	4134.32 46	004133.00
		BD,S	-INDEX NOT LOW	4133.44 00	004133.40
		BZXLZ,\$+1.0	-BRANCH IF XL WENT OFF	4135.32 44	004134.00
		BD,S	-XL INDICATOR STAYED ON	4134.44 00	004134.40
		KV,\$X1,IBKVVDV	-KV %+# 377777.0	4206.42 90	004135.00 6

	BXHZ,\$+1.0	-BRANCH IF HIGH	4136.73 46	004135.40
	BD,\$	-INDEX NOT HIGH	4136.04 00	004136.00
	BZXHZ,\$+1.0	-BRANCH IF XH WENT OFF	4137.73 44	004136.40
	BD,\$	-XH INDICATOR STAYED ON	4137.04 00	004137.00
	- * * * *RESTART OF ROUTINE			
18	IBKV4	LV,\$X1,IBKVDU	-LV %+ 400001.0	4206.02 30 004137.40 6
		KV,\$X1,IBKVDO	-KV %- 400000.0	4212.02 90 004140.00 6
		BXHZ,\$+1.0	-BRANCH IF HIGH	4141.73 46 004140.40
		BD,\$	-INDEX NOT HIGH	4141.04 00 004141.00
		BZXHZ,\$+1.0	-BRANCH IF XH WENT OFF	4142.73 44 004141.40
		BD,\$	-XH INDICATOR STAYED ON	4142.04 00 004142.00
	- * * * *RESTART OF ROUTINE			
	IBKV5	LV,\$X1,IBKVDV	-LV %+ 377777.0	4206.42 30 004142.40 6
		KV,\$X1,IBKVDO	-KV %- 400000.0	4212.02 90 004143.00 6
		BXHZ,\$+1.0	-BRANCH IF HIGH	4144.73 46 004143.40
		BD,\$	-INDEX NOT HIGH	4144.04 00 004144.00
		BZXHZ,\$+1.0	-BRANCH IF XH WENT OFF	4145.73 44 004144.40
		BD,\$	-XH INDICATOR STAYED ON	4145.04 00 004145.00
	- * * * *RESTART OF ROUTINE			
	IBKV6	LV,\$X1,IBKVDP	-LV %- 0.01	4212.42 30 004145.40 6
		KV,\$X1,IBKVDP	-KV %- 0.01	4212.42 90 004146.00 6
		BXEZ,\$+1.0	-BRANCH IF EQUAL	4147.72 C6 004146.40
		BD,\$	-INDEX NOT EQUAL	4147.04 00 004147.00
		BZXEZ,\$+1.0	-BRANCH IF XE WENT OFF	4150.72 C4 004147.40
		BD,\$	-XE INDICATOR STAYED ON	4150.04 00 004150.00
		KV,\$X1,IBKVDQ	-KV %- 1.00	4213.02 90 004150.40 6
		BXHZ,\$+1.0	-BRANCH IF HIGH	4152.33 46 004151.00
		BD,\$	-INDEX NOT HIGH	4151.44 00 004151.40
		BZXHZ,\$+1.0	-BRANCH IF XH WENT OFF	4153.33 44 004152.00
		BD,\$	-XH INDICATOR STAYED ON	4152.44 00 004152.40
	- * * * *RESTART OF ROUTINE			
	IBKV7	LV,\$X1,IBKVDO	-LV %- 1.00	4213.02 30 004153.00 6
		KV,\$X1,IBKVDP	-KV %- 0.01	4212.42 90 004153.40 6
		BXLZ,\$+1.0	-BRANCH IF LOW	4155.32 46 004154.00
		BD,\$	-INDEX NOT LOW	4154.44 00 004154.40
		BZXLZ,\$+1.0	-BRANCH IF XL WENT OFF	4156.32 44 004155.00
		BD,\$	-XL INDICATOR STAYED ON	4155.44 00 004155.40
	- * * * *RESTART OF ROUTINE			
	IBKV8	LV,\$X1,IBKVDJ	-LV %- 0.00	4207.42 30 004156.00 6
		KV,\$X1,IBKVDJ	-KV %- 0.00	4207.42 90 004156.40 6
		BXEZ,\$+1.0	-BRANCH IF EQUAL	4160.32 C6 004157.00
		BD,\$	-INDEX NOT EQUAL	4157.44 00 004157.40
		BZXEZ,\$+1.0	-BRANCH IF XE WENT OFF	4161.32 C4 004160.00
		BD,\$	-XE INDICATOR STAYED ON	4160.44 00 004160.40
		KV,\$X1,IBKVDA	-KV %+ 0.00	4202.02 90 004161.00 6
		BXEZ,\$+1.0	-BRANCH IF EQUAL	4162.72 C6 004161.40
		BD,\$	-INDEX NOT EQUAL	4162.04 00 004162.00
		BZXEZ,\$+1.0	-BRANCH IF XE WENT OFF	4163.72 C4 004162.40
		BD,\$	-XE INDICATOR STAYED ON	4163.04 00 004163.00
	- * * * *RESTART OF ROUTINE			
15	IBKV9	LV,\$X1,IBKVDO	-LV %- 400000.0	4212.02 30 004163.40 6
		KV,\$X1,IBKVDF	-KV %+ 400000.0	4204.42 90 004164.00 6
		BXLZ,\$+1.0	-BRANCH IF LOW	4165.72 46 004164.40
		BD,\$	-INDEX NOT LOW	4165.04 00 004165.00
		BZXLZ,\$+1.0	-BRANCH IF XL WENT OFF	4166.72 44 004165.40
		BD,\$	-XL INDICATOR STAYED ON	4166.04 00 004166.00
		KV,\$X1,IBKVDW	-KV %- 400001.0	4213.42 90 004166.40 6
		BXHZ,\$+1.0	-BRANCH IF HIGH	4170.33 46 004167.00
		BD,\$	-INDEX NOT HIGH	4167.44 00 004167.40
		BZXHZ,\$+1.0	-BRANCH IF XH WENT OFF	4171.33 44 004170.00
		BD,\$	-XH INDICATOR STAYED ON	4170.44 00 004170.40
		KV,\$X1,IBKVDX	-KV %- 377777.0	4214.02 90 004171.00 6
		BXLZ,\$+1.0	-BRANCH IF LOW	4172.72 46 004171.40
		BD,\$	-INDEX NOT LOW	4172.04 00 004172.00
		BZXLZ,\$+1.0	-BRANCH IF XL WENT OFF	4173.72 44 004172.40
		BD,\$	-XL INDICATOR STAYED ON	4173.04 00 004173.00

- * * * *RESTART OF ROUTINE			
IBKV10	LV,\$X1,IBKVDW	-LV %H 400001.0	4213.42 30 004173.40 66
	KV,\$X1,IBKVDF	-KV %H 400000.0	4204.42 90 004174.00 6
	BXLZ,\$+1.0	-BRANCH IF LOW	4175.72 46 004174.40
	BD,\$	-INDEX NOT LOW	4175.04 00 004175.00
	BZXLZ,\$+1.0	-BRANCH IF XL WENT OFF	4176.72 44 004175.40
	BD,\$	-XL INDICATOR STAYED ON	4176.04 00 004176.00
- * * * *RESTART OF ROUTINE			
IBKV11	LV,\$X1,IBKVDX	-LV %H 377777.0	4214.02 30 004176.40 66
	KV,\$X1,IBKVDF	-KV %H 400000.0	4204.42 90 004177.00 6
	BXLZ,\$+1.0	-BRANCH IF LOW	4200.72 46 004177.40
	BD,\$	-INDEX NOT LOW	4200.04 00 004200.00
	BZXLZ,\$+1.0	-BRANCH IF XL WENT OFF	4201.72 44 004200.40
	BD,\$	-XL INDICATOR STAYED ON	4201.04 00 004201.00
IBKV25	B,IBKC	-END ROUTINE	4214.50 00 004201.40 6
IBKVDA	VF,%8H000000.00	-%H0S	0.00+ 004202.00 6
IBKVDB	VF,%8H777777.77	-%H1S	777777.77+ 004202.40 6
IBKVDC	VF,%8H377777.77	-%H1S 0 IN BIT 0	377777.77+ 004203.00 6
IBKVDD	VF,%8H777777.76	-%H1S 0 IN BIT 23	777777.76+ 004203.40 6
IBKVDE	VF,%8H777776.77	-%H1S 0 IN BIT 17	777776.77+ 004204.00 6
IBKVDF	VF,%8H400000.00	-%H0S 1 IN BIT 0	400000.00+ 004204.40 6
IBKVDG	VF,%8H000000.01	-%H0S 1 IN BIT 23	0.01+ 004205.00 6
IBKVDH	VF,%8H000001.00	-%H0S 1 IN BIT 17	1.00+ 004205.40 6
IBKVDU	VF,%8H400001.0	-%H400001.0	400001.00+ 004206.00 6
IBKVDV	VF,%8H377777.0	-%H377777.0	377777.00+ 004206.40 6
	NOP		0.30 00 004207.00
IBKVDJ	%8HDD%BU,32,8H,00000000200	-%H0S	00000000200 004207.40 6
IBKVDK	%8HDD%BU,32,8H,37777777600	-%H1S	37777777600 004210.00 6
IBKVDL	%8HDD%BU,32,8H,17777777600	-%H1S 0 IN BIT 0	17777777600 004210.40 6
IBKVDM	%8HDD%BU,32,8H,37777777200	-%H1S 0 IN BIT 23	37777777200 004211.00 6
IBKVDN	%8HDD%BU,32,8H,37777737600	-%H1S 0 IN BIT 17	37777737600 004211.40 6
IBKVDO	%8HDD%BU,32,8H,20000000200	-%H 0 S 1 IN BIT 0	20000000200 004212.00 6
IBKVDP	%8HDD%BU,32,8H,00000000600	-%H0S 1 IN BIT 23	00000000600 004212.40 6
IBKVDP	%8HDD%BU,32,8H,00000040200	-%H0S 1 IN BIT 17	00000040200 004213.00 6
IBKVDW	%8HDD%BU,32,8H,20000040200	-%H400001.0	20000040200 004213.40 6
IBKVDX	%8HDD%BU,32,8H,17777740200	-%H377777.0	17777740200 004214.00 6
- * * * *			
- * * * *COMPARE COUNT %KH**** COMPARE COUNT%KH**** COMPARE COUNT %KH			
- * * * *			
- * * * *START OF TEST			
- * * * *			
IBKC	LC,\$X1,IBKVDA	-LC, 18-0S	4202.02 50 004214.40 6
IBKC1	KC,\$X1,IBKVDA	-KC, 18-0S	4202.03 90 004215.00 6
	BXEZ,\$+1.0	-EQUAL	4216.72 C6 004215.40
	BD,\$	-HANG UP IF NOT EQUAL	4216.04 00 004216.00
IBKC2	KC,\$X1,IBKVDB	-KC, 18-1S	4202.43 90 004216.40 6
	BXLZ,\$+1.0	-INDEX LOW	4220.32 46 004217.00
	BD,\$	-HANG UP IF NOT LOW	4217.44 00 004217.40
IBKC3	KC,\$X1,IBKVDF	-KC, 1 IN BIT 0 + 17-0S	4204.43 90 004220.00 6
	BZXLZ,\$	-HANG UP IF NOT XL	4220.72 44 004220.40
IBKC4	KC,\$X1,IBKVDG	-KC, 18-0S, 1 IN 23 NO EFFECT	4205.03 90 004221.00 6
	BZXEZ,\$	-HANG IF NOT XE	4221.72 C4 004221.40
IBKC5	KC,\$X1,IBKVDH	-KC, 17-0S + 1 IN BIT 17	4205.43 90 004222.00 6
	BXL,\$+1.0	-BRANCH IF XL LEAVE XL ON	4223.72 42 004222.40
	BD,\$	-HANG UP IF NOT XL	4223.04 00 004223.00
	BZXLZ,\$	-HANG UP IF XL WAS TURNED OFF	4223.72 44 004223.40
- * * * *RESTART OF ROUTINE			
IBKC6	LC,\$X1,IBKVDF	-LC, 1 IN BIT 0 + 17-0S	4204.42 50 004224.00 6
IBKC7	KC,\$X1,IBKVDF	-KC, 1 IN BIT 0 + 17-0S	4204.43 90 004224.40 6
	BXEZ,\$+1.0	-BRANCH IF XE	4226.32 C6 004225.00
	BD,\$	-HANG UP IF NOT XE	4225.44 00 004225.40
IBKC8	KC,\$X1,IBKVDG	-KC, 18-0S, 1 IN 23 NO EFFECT	4205.03 90 004226.00 6
	BXH,\$+1.0	-BRANCH IF XH, LEAVE XH ON	4227.73 42 004226.40
	BD,\$	-HANG UP IF NOT XH	4227.04 00 004227.00
	BZXHZ,\$	-HANG UP IF XH WAS TURNED OFF	4227.73 44 004227.40
	BXLZ,\$	-HANG UP IF XL IS ON	4230.32 46 004230.00

	BXEZ,\$		-HANG UP IF XE IS ON	4203.72 C6	004230.40
IBKC9	KC,\$X1,IBKVDH		-KC, 17-0 S + 1 IN BIT 17	4205.43 90	004231.00 6
	BZXHZ,\$		-HANG UP IF NOT XH	4231.73 44	004231.40
IBKC10	KC,\$X1,IBKVDB		-KC, 18-1S	4202.43 90	004232.00 66
	BXL,\$+1.0		-BRANCH IF XL, LEAVE XL ON	4233.72 42	004232.40
	BD,\$		-HANG UP IF NOT XL	4233.04 00	004233.00
	BZXLZ,\$		-HANG UP IF XL WAS TURNED OFF	4233.72 44	004233.40
	BXLZ,\$		-HANG UP IF XL NOT TURNED OFF	4234.32 46	004234.00
IBKC11	KC,\$X1,IBKVDC		-KC, 0 IN BIT 0 + 17-1S	4203.03 90	004234.40 66
	BXHZ,\$+1.0		-BRANCH IF XH	4236.33 46	004235.00
	BD,\$		-HANG UP IF NOT XH	4235.44 00	004235.40
IBKC12	KC,\$X1,IBKVDE		-KC, 17-1 S + 0 IN BIT 17	4204.03 90	004236.00 66
	BZXHZ,\$+1.0		-BRANCH IF NOT XH	4237.73 44	004236.40
	BD,\$		-HANG UP IF XH	4237.04 00	004237.00
	BZXL,\$		-HANG UP IF NOT XL, LEAVE XL ON	4237.72 40	004237.40
	BXLZ,\$+1.0		-BRANCH IF XL ON	4241.32 46	004240.00
	BD,\$		-HANG UP IF XL OFF	4240.44 00	004240.40
	BXEZ,\$		-HANG UP IF XE ON	4241.32 C6	004241.00
	CNOP			0.30 00	004241.40
IBKC13	VF,%8H777777.70		-NOP,-.32	777777.70+	004242.00 6
	VF,%8H777777.70		-NOP,-.32	777777.70+	004242.40
	-* * * *				
	-* * * *%LVI□ **** LOAD VALUE IMMEDIATE **** %LVI□				
	-* * * *				
	-* * * *START OF TEST				
	-* * * *				
IBH	LVI,\$X1,2.0			2.03 01	004243.00
	V+,\$X1,IBEN8			4253.02 B0	004243.40
	SV,\$X1,IBH7			4252.43 30	004244.00
IBH1	LVI,\$X1,2.22			2.43 01	004244.40
	V+,\$X1,IBEN8			4253.02 B0	004245.00
	SV,\$X1,IBH5			4251.43 30	004245.40
IBH2	LVI,\$X1,3.0			3.03 01	004246.00
	V+,\$X1,IBEN8			4253.02 B0	004246.40
	SV,\$X1,IBH4			4251.03 30	004247.00
IBH3	LVI,\$X1,4.32			4.43 01	004247.40
	V+,\$X1,IBEN8			4253.02 B0	004250.00
	SV,\$X1,IBH6			4252.03 30	004250.40
IBH4	BE,\$		-BD,IBH 7	4251.00 00	004251.00
IBH5	BE,\$		-BD,IBH 6	4251.40 00	004251.40
IBH6	BE,\$		-BD,IBH9	4252.00 00	004252.00
IBH7	BE,\$		-BD,IBH 5	4252.40 00	004252.40
IBEN8	BD,IBH3			4247.44 00	004253.00
IBH8	NOP,%8H525252.40			525252.70 00	004253.40
IBH9	NOP,%8H777777.40			777777.70 00	004254.00
	NOP,%8H777777.40			777777.70 00	004254.40
	-* * * *RESTART OF ROUTINE				
IBH10	LVI,\$X1,IBH13A			4262.43 01	004255.00 6
	V+,\$X1,IBEN10			4265.42 B0	004255.40 6
	SV,\$X1,IBH14			4263.03 30	004256.00
IBH11	LVI,\$X1,IBH15			4263.43 01	004256.40
	V+,\$X1,IBEN9			4265.02 B0	004257.00
	SV,\$X1,IBH17			4264.43 30	004257.40
IBH12	LVI,\$X1,IBH14			4263.03 01	004260.00
	V+,\$X1,IBEN9			4265.02 B0	004260.40
	SV,\$X1,IBH16			4264.03 30	004261.00
IBH13	LVI,\$X1,IBH16			4264.03 01	004261.40
	V+,\$X1,IBEN10			4265.42 B0	004262.00 6
IBH13A	SV,\$X1,IBH15			4263.43 30	004262.40 6
IBH14	BE,\$		-BD,IBH 17	4263.00 00	004263.00
IBH15	BE,\$		-BD,IBH 18	4263.40 00	004263.40
IBH16	BE,\$		-BD,IBH 15	4264.00 00	004264.00
IBH17	BE,\$		-BD,IBH 16	4264.40 00	004264.40
IBEN9	BD,0.32		-COMMON VALUE %HALF□	0.44 00	004265.00 G
IBEN10	BD,2.0		-COMMON VALUE %TWO□	2.04 00	004265.40 6G
IBH18	NOP,%8H777777.0			777777.30 00	004266.00

17,0

IBH19	NOP,%8H777777.0		777777.30 00	004266.40
- * * * *RESTART OF ROUTINE				
IBH20	LVI,\$X1,IBH29		4300.43 01	004267.00
	V+,\$X1,IBEN12		4277.42 B0	004267.40 6
	SV,\$X1,IBH24		4275.03 30	004270.00
IBH21	LVI,\$X1,IBH27		4276.43 01	004270.40
	V+,\$X1,IBEN11		4277.02 B0	004271.00 6
	SV,\$X1,IBH27		4276.43 30	004271.40
IBH22	LVI,\$X1,IBEN12		4277.43 01	004272.00 6
	V+,\$X1,IBEN12		4277.42 B0	004272.40 6
	SV,\$X1,IBH26		4276.03 30	004273.00
IBH23	LVI,\$X1,IBH29		4300.43 01	004273.40
	V+,\$X1,IBEN11		4277.02 B0	004274.00 6
	SV,\$X1,IBH25		4275.43 30	004274.40
IBH24	BE,\$	-BD, IBH 27	4275.00 00	004275.00
IBH25	BE,\$	-BD, IBH 28	4275.40 00	004275.40
IBH26	BE,\$	-BD, IBH 25	4276.00 00	004276.00
IBH27	BE,\$	-BD, IBH26	4276.40 00	004276.40
IBEN11	VF,%8H777777.44	-COMMON VALUE %-HALF	777777.44+	004277.00 6
IBEN12	BD,%8H777776.0	-COMMON VALUE %-TWO	777776.04 00	004277.40 6
IBH28	NOP,%8H777777.0		777777.30 00	004300.00
IBH29	NOP,%8H777777.0		777777.30 00	004300.40
- * * * *				
- * * * *%LVNI ***** LOAD VALUE NEGATIVE IMMEDIATE ***** %LVNI				
- * * * *				
- * * * *START OF TEST				
- * * * *				
IBH30	LVNI,\$X1,0.32		0.43 09	004301.00
	V+,\$X1,IBH39		4311.42 B0	004301.40
	SV,\$X1,IBH34		4307.03 30	004302.00
IBH31	LVNI,\$X1,1.0		1.03 09	004302.40
	V+,\$X1,IBH39		4311.42 B0	004303.00
	SV,\$X1,IBH36		4310.03 30	004303.40
IBH32	LVNI,\$X1,1.32		1.43 09	004304.00
	V+,\$X1,IBH39		4311.42 B0	004304.40
	SV,\$X1,IBH38		4311.03 30	004305.00
IBH33	LVNI,\$X1,2.0		2.03 09	004305.40
	V+,\$X1,IBH39		4311.42 B0	004306.00
	SV,\$X1,IBH37		4310.43 30	004306.40
IBH34	BE,\$	-BD, IBH 38	4307.00 00	004307.00
IBH35	BD,IBH40	-REMAINS BD,IBH 40	4312.04 00	004307.40
IBH36	BE,\$	-BD, IBH 37	4310.00 00	004310.00
IBH37	BE,\$	-BD, IBH 35	4310.40 00	004310.40
IBH38	BE,\$	-BD, IBH 36	4311.00 00	004311.00
IBH39	BD,\$		4311.44 00	004311.40
IBH40	NOP,%8H777777.0		777777.30 00	004312.00
	NOP,%8H777777.0		777777.30 00	004312.40
- * * * *				
- * * * *%LCI ***** LOAD COUNT IMMEDIATE ***** %LCI				
- * * * *				
- * * * *START OF TEST				
- * * * *				
IBJ	LCI,\$X1,IBJ10		4333.03 02	004313.00
	SC,\$X1,ISTOY		6105.03 50	004313.40
	LV,\$X1,ISTOY		6105.02 30	004314.00
	V+,\$X1,COM04		6106.02 B0	004314.40
	SV,\$X1,IBJ4		4330.03 30	004315.00
	NOP,0.0		0.30 00	004315.40
IBJ1	LCI,\$X1,IBJ8		4332.03 02	004316.00
	SC,\$X1,ISTOY		6105.03 50	004316.40
	LV,\$X1,ISTOY		6105.02 30	004317.00
	V+,\$X1,COM04		6106.02 B0	004317.40
	SV,\$X1,IBJ10		4333.03 30	004320.00
	NOP,0.0		0.30 00	004320.40
IBJ1A	NOP,%8H525252.0		525252.30 00	004321.00
IBJ2	LCI,\$X1,IBJ6		4331.03 02	004321.40

	SC,\$X1,ISTOY		6105.03 50	004322.00
	LV,\$X1,ISTOY		6105.02 30	004322.40
	V+,\$X1,COM04		6106.02 50	004323.00
	SV,\$X1,IBJ8		4332.03 30	004323.40
	NOP,0.0		0.30 00	004324.00
IBJ3	LCI,\$X1,IBJ12		4334.03 02	004324.40
	SC,\$X1,ISTOY		6105.03 50	004325.00
	LV,\$X1,ISTOY		6105.02 30	004325.40
	V+,\$X1,COM04		6106.02 50	004326.00
	SV,\$X1,IBJ6		4331.03 30	004326.40
	NOP,0.0		0.30 00	004327.00
IBJ3A	NOP,%8#525252.0		525252.30 00	004327.40
IBJ4	NOP,%8#525252.0	-BE,IBJ 10	525252.30 00	004330.00
IBJ5	BD,\$		4330.44 00	004330.40
IBJ6	NOP,%8#525252.0	-BE,IBJ 12	525252.30 00	004331.00
IBJ7	BD,\$		4331.44 00	004331.40
IBJ8	NOP,%8#525252.0	-BE,IBJ 6	525252.30 00	004332.00
IBJ9	BD,\$		4332.44 00	004332.40
IBJ10	NOP,%8#525252.0	-BE,IBJ 8	525252.30 00	004333.00
IBJ11	BD,\$		4333.44 00	004333.40
IBJ12	NOP,%8#777777.0		777777.30 00	004334.00
	NOP,%8#777777.0		777777.30 00	004334.40
	-* * * *			
	-* * * *%LRI# **** LOAD REFILL IMMEDIATE **** %LRI#			
	-* * * *			
	-* * * *START OF TEST			
	-* * * *			
IBK	LRI,\$X1,IBK10		4355.03 03	004335.00
	SR,\$X1,ISTOY		6105.03 70	004335.40
	LV,\$X1,ISTOY		6105.02 30	004336.00
	V+,\$X1,COM04		6106.02 50	004336.40
	SV,\$X1,IBK4		4352.03 30	004337.00
	NOP,0.0		0.30 00	004337.40
IBK1	LRI,\$X1,IBK8		4354.03 03	004340.00
	SR,\$X1,ISTOY		6105.03 70	004340.40
	LV,\$X1,ISTOY		6105.02 30	004341.00
	V+,\$X1,COM04		6106.02 50	004341.40
	SV,\$X1,IBK10		4355.03 30	004342.00
	NOP,0.0		0.30 00	004342.40
IBK1A	NOP,%8#525252.0		525252.30 00	004343.00
IBK2	LRI,\$X1,IBK6		4353.03 03	004343.40
	SR,\$X1,ISTOY		6105.03 70	004344.00
	LV,\$X1,ISTOY		6105.02 30	004344.40
	V+,\$X1,COM04		6106.02 50	004345.00
	SV,\$X1,IBK8		4354.03 30	004345.40
	NOP,0.0		0.30 00	004346.00
IBK3	LRI,\$X1,IBK12		4356.03 03	004346.40
	SR,\$X1,ISTOY		6105.03 70	004347.00
	LV,\$X1,ISTOY		6105.02 30	004347.40
	V+,\$X1,COM04		6106.02 50	004350.00
	SV,\$X1,IBK6		4353.03 30	004350.40
	NOP,0.0		0.30 00	004351.00
IBK3A	NOP,%8#525252.0		525252.30 00	004351.40
IBK4	NOP,%8#525252.0	-BE,IBK 10	525252.30 00	004352.00
IBK5	BD,\$		4352.44 00	004352.40
IBK6	NOP,%8#525252.0	-BE,IBK 12	525252.30 00	004353.00
IBK7	BD,\$		4353.44 00	004353.40
IBK8	NOP,%8#525252.0		525252.30 00	004354.00
IBK9	BD,\$		4354.44 00	004354.40
IBK10	NOP,%8#525252.0	-BE,IBK 8	525252.30 00	004355.00
IBK11	BD,\$		4355.44 00	004355.40
IBK12	NOP,%8#777777.0		777777.30 00	004356.00
	NOP,%8#777777.0		777777.30 00	004356.40
	-* * * *			
	-* * * *%V+I# **** ADD TO VALUE IMMEDIATE **** %V+I#			
	-* * * *			

*** *START OF TEST

IBL	CNOP,-1.	BD,IBL1	-START V+I TEST	4357.44 00	004357.00
IBL1	LX,\$X1,IBL27		-SET UP INDEX REG,V IS N	4400.02 10	004357.40
IBL2	V+I,\$X1,0.32		-N+.32	0.43 05	004360.00
	SV,\$X1,IBL9			4367.03 30	004360.40
IBL3	V+I,\$X1,1.32		-N+2.0	1.43 05	004361.00
	SV,\$X1,IBL11			4370.03 30	004361.40
IBL4	V+I,\$X1,1.0		-N+3.0	1.03 05	004362.00
	SV,\$X1,IBL13			4371.03 30	004362.40
IBL5	V+I,\$X1,2.0		-N+5.0	2.03 05	004363.00
	SV,\$X1,IBL15			4372.03 30	004363.40
IBL6	V+I,\$X1,2.32		-N+7.32	2.43 05	004364.00
	SV,\$X1,IBL19			4374.03 30	004364.40
IBL7	V+I,\$X1,262143.		-N+6.32	777777.03 05	004365.00
	SV,\$X1,IBL24			4376.43 30	004365.40
IBL8	V+I,\$X1,2.0		-N+8.32	2.03 05	004366.00
	SV,\$X1,IBL22			4375.43 30	004366.40
IBL9	BE,0		-BD,IBL10, %N+.32# FORM IBL2	0.00 00	004367.00 G
IBL10	BD,IBL11			4370.04 00	004367.40
IBL11	BE,0		-BD,IBL13, %N+2.0# FORM IBL3	0.00 00	004370.00 G
IBL12	BD,\$			4370.44 00	004370.40
IBL13	BE,0		-BD,IBL15, %N+3.0# FORM IBL4	0.00 00	004371.00 G
IBL14	BD,\$			4371.44 00	004371.40
IBL15	BE,0		-BD,IBL19, %N+5.0# FORM IBL5	0.00 00	004372.00 G
IBL16	BD,\$			4372.44 00	004372.40
IBL17	BD,\$			4373.04 00	004373.00
IBL18	BD,\$			4373.44 00	004373.40
IBL19	BE,0		-BD,IBL24, %N+7.32# FORM IBL6	0.00 00	004374.00 G
IBL20	BD,\$			4374.44 00	004374.40
IBL21	BD,\$			4375.04 00	004375.00
IBL22	BE,0		-BD,IBL26 %N+6.32# FORM IBL8	0.00 00	004375.40 G
IBL23	BD,\$			4376.04 00	004376.00
IBL24	BE,0		-BD,IBL22, %N+6.32# FORM IBL7	0.00 00	004376.40 G
IBL25	BD,\$			4377.04 00	004377.00
IBL26	BD,IBL28		-START NEXT SECTION	4401.04 00	004377.40
IBL27	XW,IBL9+.4,0,0			4367.04 00 000000.00 00	004400.00
IBL28	NOP,-1.0		-V+I TEST OFFSET IN Y REGS	777777.30 00	004401.00 C
	*** *RESTART OF ROUTINE				
IBL29	LX,\$X1,IBL55		-SET UP INDEX REG, V IS V	4422.02 10	004401.40
IBL30	V+I,\$X1,0.32		-V+.32	0.43 05	004402.00
	SV,\$X1,IBL37			4411.03 30	004402.40
IBL31	V+I,\$X1,1.32		-V+2.0	1.43 05	004403.00
	SV,\$X1,IBL39			4412.03 30	004403.40
IBL32	V+I,\$X1,1.0		-V+3.0	1.03 05	004404.00
	SV,\$X1,IBL41			4413.03 30	004404.40
IBL33	V+I,\$X1,2.0		-V+5.0	2.03 05	004405.00
	SV,\$X1,IBL43			4414.03 30	004405.40
IBL34	V+I,\$X1,2.32		-V+7.32	2.43 05	004406.00
	SV,\$X1,IBL47			4416.03 30	004406.40
IBL35	V+I,\$X1,262143.		-V+6.32	777777.03 05	004407.00
	SV,\$X1,IBL52			4420.43 30	004407.40
IBL36	V+I,\$X1,2.0		-V+8.32	2.03 05	004410.00
	SV,\$X1,IBL50			4417.43 30	004410.40
IBL37	BE,0		-BD,IBL38 %V+.32# FORM IBL30	0.00 00	004411.00 G
IBL38	BD,IBL39			4412.04 00	004411.40
IBL39	BE,0		-BD,IBL41 %V+2.0# FORM IBL31	0.00 00	004412.00 G
IBL40	BD,\$			4412.44 00	004412.40
IBL41	BE,0		-BD,IBL43 %V+3.0# FORM IBL32	0.00 00	004413.00 G
IBL42	BD,\$			4413.44 00	004413.40
IBL43	BE,0		-BD,IBL47 %V+5.0# FORM IBL33	0.00 00	004414.00 G
IBL44	BD,\$			4414.44 00	004414.40
IBL45	BD,\$			4415.04 00	004415.00
IBL46	BD,\$			4415.44 00	004415.40
IBL47	BE,0		-BD,IBL52 %V+7.32# FORM IBL34	0.00 00	004416.00 G

IBL48	BD,\$		4416.44 00	004416.40
IBL49	BD,\$		4417.04 00	004417.00
IBL50	BE,0.0	-BD, IBL54 %V+8.32H FROM IBL36	0.00 00	004417.40 G
IBL51	BD,\$		4420.04 00	004420.00
IBL52	BE,0.0	-BD, IBL50 %V+6.32H FROM IBL35	0.00 00	004420.40 G
IBL53	BD,\$		4421.04 00	004421.00
IBL54	BD,IBM	-TO NEXT TEST	4422.04 00	004421.40
IBL55	XW,IBL37+.4,0,0.		4411.04 00 000000.00 00	004422.00
- * * * *				
- * * * *%V+IC# **** ADD TO VALUE IMMEDIATE + COUNT **** %V+IC#				
- * * * *				
- * * * *START OF TEST				
- * * * *				
IBM	NOP,-1.	-START V+IC TEST	777777.30 00	004423.00 C
IBM1	LX,\$X1,IBM58	-SET UP, V IS N, C IS P	4507.02 10	004423.40
IBM2	V+IC,\$X1,1.0	-N+1, P-1	1.03 06	004424.00
	SV,\$X1,IBM9		4447.43 30	004424.40
	SC,\$X1,ISTOY		6105.03 50	004425.00
	LV,\$X1,ISTOY		6105.02 30	004425.40
	V+,\$X1,COM04		6106.02 80	004426.00
	SV,\$X1,IBM29		4461.43 30	004426.40
	LV,\$X1,IBM9		4447.42 30	004427.00
IBM3	V+IC,\$X1,2.0	-N+3, P-2	2.03 06	004427.40
	SV,\$X1,IBM11		4450.43 30	004430.00
	SC,\$X1,ISTOY		6105.03 50	004430.40
	LV,\$X1,ISTOY		6105.02 30	004431.00
	SV,\$X1,IBM30		4462.03 30	004431.40
	LV,\$X1,IBM11		4450.42 20	004432.00
IBM4	V+IC,\$X1,3.0	-N+6, P-3	3.03 06	004432.40
	SV,\$X1,IBM15		4452.43 30	004433.00
	SC,\$X1,ISTOY		6105.03 50	004433.40
	LV,\$X1,ISTOY		6105.02 30	004434.00
	SV,\$X1,IBM31		4462.43 30	004434.40
	LV,\$X1,IBM15		4452.42 30	004435.00
IBM5	V+IC,\$X1,262143.	-N+5, P-4	777777.03 06	004435.40
	SV,\$X1,IBM21		4455.43 30	004436.00
	SC,\$X1,ISTOY		6105.03 50	004436.40
	LV,\$X1,ISTOY		6105.02 30	004437.00
	SV,\$X1,IBM32		4463.03 30	004437.40
	LV,\$X1,IBM21		4455.42 20	004440.00
IBM6	V+IC,\$X1,4.0	-N+9, P-5	4.03 06	004440.40
	SV,\$X1,IBM19		4454.43 20	004441.00
	SC,\$X1,ISTOY		6105.03 50	004441.40
	LV,\$X1,ISTOY		6105.02 30	004442.00
	SV,\$X1,IBM33		4463.43 30	004442.40
	LV,\$X1,IBM19		4454.42 30	004443.00
IBM7	V+IC,\$X1,262142.	-N+7, P-6	777776.03 06	004443.40
	SV,\$X1,IBM27		4460.43 30	004444.00
	SC,\$X1,ISTOY		6105.03 50	004444.40
	LV,\$X1,ISTOY		6105.02 30	004445.00
	V+,\$X1,COM04		6106.02 80	004445.40
	SV,\$X1,IBM34		4464.03 30	004446.00
	LV,\$X1,IBM27		4460.42 30	004446.40
IBM8	NOP,0.	-PROVE ADD TO VALUE	0.30 00	004447.00
IBM9	BE,\$	-BD, IBM11, FROM IBM2A	4447.40 00	004447.40
IBM10	BD,\$		4450.04 00	004450.00
IBM11	BE,\$	-BD, IBM15, FROM IBM3A	4450.40 00	004450.40
IBM12	BD,\$		4451.04 00	004451.00
IBM13	BD,\$		4451.44 00	004451.40
IBM14	BD,\$		4452.04 00	004452.00
IBM15	BE,\$	-BD, IBM21, FROM IBM4A	4452.40 00	004452.40
IBM16	BD,\$		4453.04 00	004453.00
IBM17	BD,\$		4453.44 00	004453.40
IBM18	BD,\$		4454.04 00	004454.00
IBM19	BE,\$	-BD, IBM27, FROM IBM6A	4454.40 00	004454.40
IBM20	BD,\$		4455.04 00	004455.00

IBM21	BE,\$			4455.40 00	004455.40
IBM22	BD,\$			4456.04 00	004456.00
IBM23	BD,IBM35		-TO PROVE COUNTING OPN	4464.44 00	004456.40
IBM24	BD,\$			4457.04 00	004457.00
IBM25	BD,\$			4457.44 00	004457.40
IBM26	BD,\$			4460.04 00	004460.00
IBM27	BE,\$		-BD, IBM23, FROM IBM7	4460.40 00	004460.40
IBM28	BD,\$			4461.04 00	004461.00
IBM29	BE,0		-COUNT FIELD STORAGE, P-1	0.00 00	004461.40 G
IBM30	BE,0		-P-2	0.00 00	004462.00 G
IBM31	BE,0		-P-3	0.00 00	004462.40 G
IBM32	BE,0		-P-4	0.00 00	004463.00 G
IBM33	BE,0		-P-5	0.00 00	004463.40 G
IBM34	BE,0		-P-6	0.00 00	004464.00 G
-* * * *RESTART OF ROUTINE					
IBM35	LX,\$X1,IBM59		-V HAS .4 TO GIVE BD OPN CODE	4510.02 10	004464.40
	V+,\$X1,IBM29			4461.42 B0	004465.00
	SV,\$X1,IBM53		-P-1 WITH BD OPN CODE	4504.03 30	004465.40
IBM36	LX,\$X1,IBM59			4510.02 10	004466.00
	V+,\$X1,IBM30		-P-2 WITH BD OP CODE	4462.02 B0	004466.40
	SV,\$X1,IBM51			4503.03 30	004467.00
IBM37	LX,\$X1,IBM59			4510.02 10	004467.40
	V+,\$X1,IBM31		-P-3 WITH BD OP CODE	4462.42 B0	004470.00
	SV,\$X1,IBM49			4502.03 30	004470.40
IBM38	LX,\$X1,IBM59			4510.02 10	004471.00
	V+,\$X1,IBM32		-P-4 WITH BD OP CODE	4463.02 B0	004471.40
	SV,\$X1,IBM47			4501.03 30	004472.00
IBM39	LX,\$X1,IBM59			4510.02 10	004472.40
	V+,\$X1,IBM33		-P-5 WITH BD OP CODE	4463.42 B0	004473.00
	SV,\$X1,IBM45			4500.03 30	004473.40
IBM40	LX,\$X1,IBM59			4510.02 10	004474.00
	V+,\$X1,IBM34		-P-6 WITH BD OF CODE	4464.02 B0	004474.40
	SV,\$X1,IBM43			4477.03 30	004475.00
	CNOP			0.30 00	004475.40
IBM41	BD,IBM43			4477.04 00	004476.00
IBM42	BD,\$			4476.44 00	004476.40
IBM43	BE,\$		-BD, IBM45 FROM IBM40/7B	4477.00 00	004477.00
IBM44	BD,\$			4477.44 00	004477.40
IBM45	BE,\$		-BD, IBM47 FROM IBM39/6B	4500.00 00	004500.00
IBM46	BD,\$			4500.44 00	004500.40
IBM47	BE,\$		-BD, IBM49 FROM IBM38/5B	4501.00 00	004501.00
IBM48	BD,\$			4501.44 00	004501.40
IBM49	BE,\$		-BD, IBM51 FROM IBM37/4B	4502.00 00	004502.00
IBM50	BD,\$			4502.44 00	004502.40
IBM51	BE,\$		-BD, IBM53 FROM IBM36/3B	4503.00 00	004503.00
IBM52	BD,\$			4503.44 00	004503.40
IBM53	BE,\$		-BD, IBM55 FROM IBM35/2B	4504.00 00	004504.00
IBM54	BD,\$			4504.44 00	004504.40
IBM55	BD,IBM60		-TO NEXT TEST	4511.04 00	004505.00
IBM56	NOP,-1.			777777.30 00	004505.40 C
IBM57	NOP,-1.			777777.30 00	004506.00 C
IBM58	XW,IBM9+.4,IBM57,0			4447.44 00 112140.00 00	004507.00
IBM59	XW,0.4,0,0		-TO CONVERT C TO BD, C	0.04 00 000000.00 00	004510.00
IBM60	NOP,-1			777777.70 00	004511.00 C
	BD,IBN			4523.44 00	004511.40
IBM61	XW,IBN+.4,1,IBM70		-XW FOR V+ICR TESTS	4523.44 00 000020.11 4F	004512.00
IBM62	XW,IBN4+.36,2,IBN9			4535.44 00 000040.11 66	004513.00
IBM63	XW,0,0,0		-TEMP IX WD STORAGE	0.00 00 000000.00 00	004514.00
IBM64	XW,,			0.00 00 000000.00 00	004515.00
IBM65	XW,,			0.00 00 000000.00 00	004516.00
IBM70	NOP,0			0.30 00	004517.00
	BD,IBN3			4527.44 00	004517.40
IBM71	BE,0		-COUNT STORAGE AREA	0.00 00	004520.00 G
IBM72	BE,0		-REFILL STORAGE AREA	0.00 00	004520.40 G
IBM73	BE,0		-TEMP V STORAGE	0.00 00	004521.00 G
IBM74	BE,0		-TEMP C STORAGE	0.00 00	004521.40 G

IBM75	BE,0	-TEMP R STORAGE	0.00 00	004522.00 G
IBM76	VF,IBN8+%8H.04	-DUMMY ADDRESS SEE IBN6	4542.44+	004522.40
IBM77	VF,1.4	-ONE WORD AND 4 BITS	1.04+	004523.00
- * * * *				
- * * * *%V+ICR *** ADD TO VALUE IMMEDIATE,COUNT + REFILL *** %V+ICR				
- * * * *				
- * * * *START OF TEST				
- * * * *				
IBN	LX,\$X1,IBM61	-START V+ICR TESTS	4512.02 10	004523.40
	V+ICR,\$X1,2.0	-V WAS IBN+4, CMAS 1, R WAS IBM7	2.03 07	004524.00
	SX,\$X1,IBN1	-IBN1 SHOULD NOW BE TWO VALID OP	4526.03 10	004524.40
	NOP,0	-SPACE FOR STORE CLOSE TO	0.30 00	004525.00
	CNOP,0	-INSTRUCT FETCH INTERLOCK	0.30 00	004525.40
IBN1	BE,\$	-NOP,0	4526.00 00	004526.00
	BE,\$	-BD,IBN3	4526.40 00	004526.40
IBN2	BD,\$		4527.04 00	004527.00
IBN3	LX,\$X1,IBM62	-START NEXT TEST	4513.02 10	004527.40
	V+ICR,\$X1,2.0	-V WAS IBN4+.4, CMAS 2,R WAS	2.03 07	004530.00
	SX,\$X1,IBM63	-VIS IBN4+.4+, C IS 1,RIS	4514.03 10	004530.40
	SV,\$X1,IBM73	-TEMP STORAGE V IS	4521.03 30	004531.00
	SV,\$X1,IBN5		4536.43 30	004531.40
	SC,\$X1,ISTOY		6105.03 50	004532.00
	LV,\$X1,ISTOY		6105.02 30	004532.40
	SV,\$X1,IBM74	-C IS 1	4521.43 30	004533.00
	SR,\$X1,ISTOY		6105.03 70	004533.40
	LV,\$X1,ISTOY		6105.02 30	004534.00
	SV,\$X1,IBM75	-R IS IBN9	4522.03 30	004534.40
IBN4	NOP,0		0.30 00	004535.00
	LV,\$X1,IBM73		4521.02 30	004535.40
	NOP,0		0.30 00	004536.00
IBN5	BE,\$	-BD, IBN4+2.4 IF V CORRECT	4536.40 00	004536.40
	BD,\$		4537.04 00	004537.00
	BD,IBN6	-TO TEST COUNT FIELD	4540.44 00	004537.40
	BD,\$		4540.04 00	004540.00
IBN6	LV,\$X1,IBM76	-TEST COUNT FIELD FOR 1	4522.42 30	004540.40
	V+,\$X1,IBM74	-	4521.42 B0	004541.00
IBN7	SV,\$X1,IBN8		4542.43 30	004541.40
	NOP,0		0.30 00	004542.00
IBN8	BE,\$	-BD,IBN8+1 IF COUNT CORRECT	4542.40 00	004542.40
	NOP		0.30 00	004543.00
	LV,\$X1,IBM75	-TEST REFILL FIELD	4522.02 30	004543.40
	V+,\$X1,IBM77		4523.02 B0	004544.00
	SV,\$X1,IBN9		4546.03 30	004544.40
	NOP,0		0.30 00	004545.00
	NOP,0		0.30 00	004545.40
IBN9	BE,\$	-BD,IBN10 IF REFILL UNCHANGED	4546.00 00	004546.00
	BD,\$		4546.44 00	004546.40
IBN10	BD,IBN11	-TO SKIP OVER V+ICR ON THIS MODI	4550.44 00	004547.00
	NOP,0	-IX WORD BECAUSE NOW THE SAME	0.30 00	004547.40
	NOP,-1	-AS THE FIRST TEST.	777777.70 00	004550.00 C
IBN11	NOP,0.0		0.30 00	004550.40
- * * * *				
- * * * *%V- *** ADD TO VALUE %- IMMEDIATE *** %V-				
- * * * *				
- * * * *START OF TEST				
- * * * *				
IBP	LX,\$X1,IBPA1	-SET UP XW	4563.02 10	004551.00
IBP1	V-1,\$X1,0.32	-SUBTRACT FROM VALUE +.32	0.43 0D	004551.40
	SV,\$X1,IBP13	-STORE NEW VALUE	4562.43 30	004552.00
IBP2	V-1,\$X1,2.0	-SUBTRACT FROM VALUE +2.0	2.03 0D	004552.40
	SV,\$X1,IBP12	-STORE NEW VALUE	4562.03 30	004553.00
IBP3	V-1,\$X1,%8H777776.0	-C-1.0	777776.03 0D	004553.40
	V+1,\$X1,%8H777777.0	-V+1.0	777777.03 05	004554.00
	SV,\$X1,IBP8	-STORE NEW VALUE	4560.03 30	004554.40
IBP4	V-1,\$X1,2.32	-SUBTRACT FROM VALUE 2.32	2.43 0D	004555.00
	SX,\$X1,IBP10	-STORE INDEX	4561.03 10	004555.40

	CNOP,					
IBP4A	B,IBP13	-BRANCH TO TEST IBP13	4562.50 00	004556.00		
IBP5	B,IBP14	-GO TO NEXT ROUTINE	4564.10 00	004556.40		
IBP6	B,\$	-HANG UP	4557.10 00	004557.00		
IBP7	B,\$	-HANG UP	4557.50 00	004557.40		
IBP8	B,\$	-BD,IBP10	4560.10 00	004560.00		
IBP9	B,\$	-HANG UP	4560.50 00	004560.40		
IBP10	B,\$	-BD,IBP5	4561.10 00	004561.00		
IBP11	B,\$	-ALL ONES	4561.50 00	004561.40		
IBP12	B,\$	-BD,IBP8	4562.10 00	004562.00		
IBP13	B,\$	-BD,IBP12	4562.50 00	004562.40		
IBPA1	XW,IBP13+%8H.04,%8H97777,-1	-COMMON XW	4562.44 00	777777.77 FF	004563.00 C	
IBP14	VF,%8H777777.70	-NOP,-.32	777777.70+	004564.00		
	VF,%8H777777.70	-NOP,-.32	777777.70+	004564.40		
	-* * * *					
	-* * * *%V-IC# ***** ADD TO VALUE #-# IMMED. + COUNT ***** %V-IC#					
	-* * * *					
	-* * * *START OF TEST					
	-* * * *					
IBP14A	LX,\$X1,IBPA2	-SET UP XW	4612.02 10	004565.00 6		
IBP15	V-IC,\$X1,0.32	-V-.02, C-1.0	0.43 0E	004565.40		
	SV,\$X1,IBP28	-STORE VALUE	4611.03 30	004566.00		
	SC,\$X1,ISTOY		6105.03 50	004566.40		
	LV,\$X1,ISTOY		6105.02 30	004567.00		
	V+,\$X1,COM04		6106.02 50	004567.40		
	SV,\$X1,IBP19		4604.03 30	004570.00		
	LV,\$X1,IBP28		4611.02 30	004570.40		
IBP16	V-IC,\$X1,2.0	-V-2.0, C-1.0	2.03 0E	004571.00		
	SV,\$X1,IBP27	-STORE VALUE	4610.43 30	004571.40		
	SC,\$X1,ISTOY		6105.03 50	004572.00		
	LV,\$X1,ISTOY		6105.02 30	004572.40		
	V+,\$X1,COM04		6106.02 50	004573.00		
	SV,\$X1,IBP26		4610.03 30	004573.40		
	LV,\$X1,IBP27		4610.42 30	004574.00		
IBP17	V-IC,\$X1,%8H777776.0	-C-1.0	777776.03 0E	004574.40		
	V+I,\$X1,%8H777777.0	-V+1.0	777777.03 05	004575.00		
	SV,\$X1,IBP23	-STORE VALUE	4606.43 30	004575.40		
	SC,\$X1,ISTOY		6105.03 50	004576.00		
	LV,\$X1,ISTOY		6105.02 30	004576.40		
	V+,\$X1,COM04		6106.02 50	004577.00		
	SV,\$X1,IBP24		4607.03 30	004577.40		
	LV,\$X1,IBP23		4606.42 30	004600.00		
IBP18	V-IC,\$X1,2.0	-V-2.0, C-1.0	2.03 0E	004600.40		
	SV,\$X1,IBP25	-STORE VALUE	4607.43 30	004601.00		
	SC,\$X1,ISTOY		6105.03 50	004601.40		
	LV,\$X1,ISTOY		6105.02 30	004602.00		
	V+,\$X1,COM04		6106.02 50	004602.40		
	SV,\$X1,IBP22		4606.03 30	004603.00		
	NOP,0.0		0.30 00	004603.40		
IBP19	B,\$	-BE, IBP26	4604.10 00	004604.00		
	CNOP		0.30 00	004604.40		
IBP20	B,IBP28	-BRANCH TO VALUE TEST	4611.10 00	004605.00		
IBP21	B,IBP29	-BEANCH OUT	4613.10 00	004605.40		
IBP22	B,\$	-BE IBP20	4606.10 00	004606.00		
IBP23	B,\$	-BD, IBP25	4606.50 00	004606.40		
IBP24	B,\$	-BE IBP22	4607.10 00	004607.00		
IBP25	B,\$	-BD, IBP21	4607.50 00	004607.40		
IBP26	B,\$	-BE, IBP24	4610.10 00	004610.00		
IBP27	B,\$	-BD, IBP23	4610.50 00	004610.40		
IBP28	B,\$	-BD, IBP27	4611.10 00	004611.00		
IBPA2	XW,IBP28+%8H.04,IBP28,-1	-COMMON XW	4611.04 00	114237.77 FF	004612.00 C	
IBP29	VF,%8H777777.70	-NOP,-.32	777777.70+	004613.00		
	VF,%8H777777.70	-NOP,-.32	777777.70+	004613.40		
	-* * * *					
	-* * * *%V-ICR# ***** ADD TO VALUE #-# IMMED., COUNT, + REFILL *****					
	-* * * *					

*****START OF TEST

IBP30	LX,\$X1,IBPA3	-SET UP XW	4620.02 10	004614.00
	V-ICR,\$X1,2.0	-SHOULD REFILL	2.03 0F	004614.40
	SX,\$X1,IBP31		4616.03 10	004615.00
	NOP,0.0		0.30 00	004615.40
	CNOP,0.0			
IBP31	BE,\$	-NOP,%8=525252.0	4616.00 00	004616.00
	BE,\$	-B,IBP33	4616.40 00	004616.40
IBP32	BD,\$	-HANG UP	4617.04 00	004617.00
IBPA3	XW,IBPA3+.34,1,IBPA4	-COMMON XW	4620.42 00 000020.11 91	004620.00
IBPA4	NOP,%8=525252.0		525252.30 00	004621.00
		B,IBP33		
IBP33	LX,\$X1,IBPA5	-REFILL XW	4622.10 00	004621.40
IBP34	V-ICR,\$X1,2.32	-SET UP XW	4650.02 10	004622.00
IBP35	SV,\$X1,IBP46	-SHOULDNT REFILL V-2.32	2.43 0F	004622.40
	SC,\$X1,ISTOY	-STORE VALUE	4640.03 30	004623.00
	LV,\$X1,ISTOY		6105.03 50	004623.40
IBP36	SV,\$X1,IBPSTO		6105.02 30	004624.00
	SR,\$X1,ISTOY		4647.03 30	004624.40 6
	LV,\$X1,ISTOY		6105.03 70	004625.00
	V+,\$X1,COM04		6105.02 30	004625.40
IBP37	SV,\$X1,ISTOZ		6106.02 B0	004626.00
	LV,\$X1,ISTOZ		6104.03 30	004626.40
IBP38	V+,\$X1,IBPSTO	-ADD C+R	6104.02 30	004627.00
IBP39	SV,\$X1,IBP52	-STORE C+R	4647.02 B0	004627.40 6
	LV,\$X1,IBP46		4646.03 30	004630.00
	NOP,0.0		4640.02 30	004630.40
			0.30 00	004631.00
IBP40	V-ICR,\$X1,0.32	-SHOULD REFILL	0.43 0F	004631.40
IBP41	SV,\$X1,IBP50	-STORE VALUE	4644.03 30	004632.00
	SC,\$X1,ISTOY		6105.03 50	004632.40
	LV,\$X1,ISTOY		6105.02 30	004633.00
IBP42	SV,\$X1,IBPSTO		4647.03 30	004633.40 6
	SR,\$X1,ISTOY		6105.03 70	004634.00
	LV,\$X1,ISTOY		6105.02 30	004634.40
	V+,\$X1,COM04		6106.02 B0	004635.00
IBP43	SV,\$X1,ISTOZ		6104.03 30	004635.40
	LX,\$X1,ISTOZ		6104.02 10	004636.00
IBP44	V+,\$X1,IBPSTO	-ADD C+R	4647.02 B0	004636.40 6
IBP45	SV,\$X1,IBP49	-STORE C+R	4643.03 30	004637.00
	LX,\$X1,ISTOZ		6104.02 10	004637.40
		CNOP,0.0		
IBP46	BE,0		0.00 00	004640.00 G
	BD,\$	-BD, IBP49 + 3D, \$	4640.44 00	004640.40
IBP47	BE,0		0.00 00	004641.00 G
	BD,\$		4641.44 00	004641.40
IBP48	BE,0		0.00 00	004642.00 G
	BD,\$		4642.44 00	004642.40
IBP49	BE,0		0.00 00	004643.00 G
	BD,\$	-BE, IBP50 + BD, \$	4643.44 00	004643.40
IBP50	BE,0		0.00 00	004644.00 G
	BD,\$	-BE,IBP52 + BD, \$	4644.44 00	004644.40
IBP51	BE,0		0.00 00	004645.00 G
	BD,\$		4645.44 00	004645.40
IBP52	BE,0		0.00 00	004646.00 G
	BD,\$	-BD, IBP53 + BD, \$	4646.44 00	004646.40
IBPSTO	BE,0		0.00 00	004647.00 6G
	BD,\$	-STORE AREA	4647.44 00	004647.40
IBPA5	XW,IBP51+.36,2,IBPA6	-COMMON XW	4645.44 00 000040.11 A9	004650.00
IBPA6	XW,IBP52+.04,4,IBP46	-REFILL XW	4646.04 00 000100.11 A0	004651.00
IBP53	VF,%8=777777.70		777777.70+	004652.00
		VF,262143.56 -NOP,-.32 + NOP-.32	777777.70+	004652.40

*****%C+I ***** ADD TO COUNT IMMEDIATE *****%C+I

*****START OF TEST

	IBP54	LCI,\$X1,IBP58+2.32	-SET UP COUNT	4667.03 02	004652.00
	IBP55	C+I,\$X1,3.0	-C+3.0	3.03 00	004653.40
		SC,\$X1,ISTOY		6105.03 50	004654.00
		LV,\$X1,ISTOY		6105.02 30	004654.40
		V+,\$X1,COM04		6106.02 30	004655.00
		SV,\$X1,IBP59	-STORE FOR TEST	4670.03 30	004655.40
		NOP,0.0		0.30 00	004656.00
	IBP56	C+I,\$X1,1.0	-C + 1.0	1.03 00	004656.40
		SC,\$X1,ISTOY		6105.02 50	004657.00
		LV,\$X1,ISTOY		6105.02 30	004657.40
		V+,\$X1,COM04		6106.02 30	004660.00
		SV,\$X1,IBP61	-STORE FOR TEST	4672.03 30	004660.40
		NOP,0.0		0.30 00	004661.00
	IBP57	C+I,\$X1,2.0	-C + 2.0	2.03 00	004661.40
		SC,\$X1,ISTOY		6105.03 50	004662.00
		LV,\$X1,ISTOY		6105.02 30	004662.40
		V+,\$X1,COM04		6106.02 30	004663.00
		SV,\$X1,IBP62	-STORE FOR TEST	4673.03 30	004663.40
		NOP,0.0		0.30 00	004664.00
	IBP58	C+I,\$X1,%8#777777.0	-C-1.0	777777.03 00	004664.40
		SC,\$X1,ISTOY		6105.03 50	004665.00
		LV,\$X1,ISTOY		6105.02 30	004665.40
		V+,\$X1,COM04		6106.02 30	004666.00
		SV,\$X1,IBP64	-STORE FOR TEST	4675.03 30	004666.40
		NOP,0.0		0.30 00	004667.00
		NOP		0.30 00	004667.40
	IBP59	B,0.0		0.10 00	004670.00 C
		BD,\$	-BE, IBP61 + BD, \$	4670.44 00	004670.40
	IBP60	BD,\$		4671.04 00	004671.00
		BD,\$		4671.44 00	004671.40
	IBP61	B,\$		4672.10 00	004672.00
		BD,\$	-BE, IBP62 + BD, \$	4672.44 00	004672.40
	IBP62	B,\$		4673.10 00	004673.00
		BD,\$	-BE, IBP64 + BD, \$	4673.44 00	004673.40
	IBP63	NOP,-1		777777.70 00	004674.00 C
		BD,IBP65	-STILL NOP-1 + BD,IBP65	4676.04 00	004674.40
	IBP64	B,\$		4675.10 00	004675.00
		BD,\$	-BE, IBP63 + BD, \$	4675.44 00	004675.40
	IBP65	VF,%8#777777.70	-NOP,-.32	777777.70+	004676.00
		VF,%8#777777.70	-NOP,-.32	777777.70+	004676.40
	- * * * *				
	- * * * *%C-1# **** ADD TO COUNT %-# IMMEDIATE **** %C-1#				
	- * * * *				
	- * * * *START OF TEST				
	- * * * *				
	IBP66	LCI,\$X1,IBP77	-SET UP COUNT	4723.03 02	004677.00
		CNOP		0.30 00	004677.40
	IBP67	C-I,\$X1,1.0	-C-1.0	1.03 08	004700.00
		SC,\$X1,ISTOY		6105.03 50	004700.40
		LV,\$X1,ISTOY		6105.02 30	004701.00
		V+,\$X1,COM04		6106.02 30	004701.40
		SV,\$X1,IBP71	-STORE FOR TEST	4715.03 30	004702.00
		NOP,0.0		0.30 00	004702.40
	IBP68	C-I,\$X1,3.0	-C-3.0	3.03 08	004703.00
		SC,\$X1,ISTOY		6105.03 50	004703.40
		LV,\$X1,ISTOY		6105.02 30	004704.00
		V+,\$X1,COM04		6106.02 30	004704.40
		SV,\$X1,IBP76	-STORE FOR TEST	4722.03 30	004705.00
		NOP,0.0		0.30 00	004705.40
	IBP69	C-I,\$X1,%8#777777.0	-C+1.0	777777.03 08	004706.00
		SC,\$X1,ISTOY		6105.03 50	004706.40
		LV,\$X1,ISTOY		6105.02 30	004707.00
		V+,\$X1,COM04		6106.02 30	004707.40
		SV,\$X1,IBP73	-STORE FOR TEST	4717.03 30	004710.00
		NOP,0.0		0.30 00	004710.40

IBP70	C-1,\$X1,2.0	-C-2.0	2.03 08	004711.00
	SC,\$X1,ISTOY		6105.02 30	004711.40
	LV,\$X1,ISTOY		6105.02 30	004712.00
	V+,\$X1,COM04		6106.02 B0	004712.40
	SV,\$X1,IBP74	-STORE FOR TEST	4720.03 30	004713.00
	NOP,0.0		0.30 00	004713.40
	LX,\$X1,ISTOZ		6104.02 10	004714.00
		CNOP	0.30 00	004714.40
IBP71	B,0.0		0.10 00	004715.00 G
	BD,\$	-BE, IBP76 + BD, \$	4715.44 00	004715.40
IBP72	NOP,-1		777777.70 00	004716.00 C
	BD,IBP77	-STILL NOP,-1 + BD, IBP77	4723.04 00	004716.40
IBP73	B,0.0		0.10 00	004717.00 G
	BD,\$	-BE, IBP74 + BD, \$	4717.44 00	004717.40
IBP74	B,0.0		0.10 00	004720.00 G
	BD,\$	-BE,IBP72 + BD, \$	4720.44 00	004720.40
IBP75	B,\$		4721.10 00	004721.00
	BD,\$		4721.44 00	004721.40
IBP76	B,0.0		0.10 00	004722.00 G
	BD,\$	-BE, IBP73 + BD, \$	4722.44 00	004722.40
IBP77	VF,%8=777777.70	-NOP,-.32	777777.70+	004723.00
	VF,%8=777777.70	-NOP,-.32	777777.70+	004723.40
	-* * * *			
	-* * * *%KVI= **** COMPARE VALUE IMMEDIATE **** %KVI=			
	-* * * *			
	-* * * *START OF TEST			
	-* * * *			
IKVI	LV,\$X1,IBKVDA	-LV, %+ 24-0 S	4202.02 30	004724.00 6
IKVI1	KVI,\$X1,0.0	-KVI, %+ 19-0 S	0.03 04	004724.40
	BXEZ,\$+1.0	-BRANCH IF EQUAL	4726.32 C6	004725.00
	BD,\$	-HANG IF NOT EQUAL	4725.44 00	004725.40
IKVI2	KVI,\$X1,0.32	-KVI, %+ 18-0 S + 1 IN BIT 18	0.43 04	004726.00
	BZXLZ,\$	-HANG UP IF NOT XL	4726.72 44	004726.40
IKVI3	KVI,\$X1,1.0	-KVI, %+ 17-0 S, 1+0 IN 17+18	1.02 04	004727.00
	BZXL,\$	-HANG UP IF NOT XL LEAVE XL ON	4727.72 40	004727.40
	BZXLZ,\$	-HANG UP IF XL WAS TURNED OFF	4730.32 44	004730.00
IKVI4	KVI,\$X1,%8=777777.40	-KVI, 19-1 S	777777.43 04	004730.40
	BXLZ,\$+1.0	-BRANCH IF XL	4732.32 46	004731.00
	BD,\$	-HANG UP IF NOT XL	4731.44 00	004731.40
	-* * * *RESTART OF ROUTINE			
IKVI5	LV,\$X1,IBKVDG	-LV, %+ 22-0 S, 1 IN BIT 23	4205.02 30	004732.00 6
IKVI6	KVI,\$X1,0.0	-KVI, 19-0 S	0.03 04	004732.40
	BXE,\$	-HANG UP IF EQUAL	4733.32 C2	004733.00
	BZXHZ,\$	-HANG UP IF NOT XH	4733.73 44	004733.40
IKVI7	KVI,\$X1,0.32	-KVI, 18-0 S, 1 IN BIT 18	0.43 04	004734.00
	BXE,\$	-HANG UP IF EQUAL	4734.72 C2	004734.40
	BZXLZ,\$	-HANG UP IF NOT LOW	4735.32 44	004735.00
	-* * * *RESTART OF ROUTINE			
IKVI8	LV,\$X1,IBKVDJ	-LV, %- 24-0 S	4207.42 30	004735.40 6
IKVI9	KVI,\$X1,0.0	-KVI %+ 19-0 S	0.03 04	004736.00
	BXL,\$	-HANG UP IF LOW	4736.72 42	004736.40
	BXH,\$	-HANG UP IF HIGH	4737.33 42	004737.00
	BZXEZ,\$	-HANG UP IF NOT EQUAL	4737.72 C4	004737.40
IKVI10	KVI,\$X1,0.32	-KVI, %+ 18-0 S + 1 IN BIT 18	0.43 04	004740.00 6
	BXLZ,\$+1.0	-BRANCH IF XL	4741.72 46	004740.40
	BD,\$	-HANG UP IF NOT XL	4741.04 00	004741.00
	-* * * *RESTART OF ROUTINE			
IKVI11	LV,\$X1,IBKVDO	-LV, %- 1 IN BIT 0 + 23-0S	4212.02 30	004741.40 66
IKVI12	KVI,\$X1,%8=377777.	-KVI, 18-1 S+0 IN BIT 18	377777.03 04	004742.00 6
	BXH,\$	-HANG UP IF HIGH	4742.73 42	004742.40
	BXE,\$	-HANG UP IF EQUAL	4743.32 C2	004743.00
	BZXLZ,\$	-HANG UP IF NOT LOW	4743.72 44	004743.40
IKVI13	KVI,\$X1,%8=400000.	-KVI, %+ 1 IN BIT 0+18-0 S	400000.03 04	004744.00 6
	BXE,\$	-HANG UP IF EQUAL	4744.72 C2	004744.40
	BXH,\$	-HANG UP IF HIGH	4745.33 42	004745.00
	BXLZ,\$+1.0	-BRANCH IF LOW	4746.72 46	004745.40

-* * * *
-* * * *%KVNI# **** COMPARE VALUE #-# IMMEDIATE **** %KVNI#
-* * * *
-* * * *START OF TEST
-* * * *

IKVNI	LV,\$X1,IBKVDO	-LV, #-# 24-0 S	4212.02 30	004746.40 6
IKVNI1	KVNI,\$X1,%8#400000.	-KVNI, #-# 1 IN BIT 0+18-0 S	400000.03 0C	004747.00 6
	BXL,\$	-HANG UP IF LOW	4747.72 42	004747.40
	BXH,\$	-HANG UP IF HIGH	4750.33 42	004750.00
	BZXEZ,\$	-HANG UP IF NOT EQUAL	4750.72 C4	004750.40
IKVNI2	KVNI,\$X1,%8#377777.	-KVNI, #-# 18-1 S + 0 IN 18	377777.03 0C	004751.00 6
	BXH,\$	-HANG UP IF HIGH	4751.73 42	004751.40
	BXE,\$	-HANG UP IF EQUAL	4752.32 C2	004752.00
	BZXLZ,\$	-HANG UP IF NOT LOW	4752.72 44	004752.40
IKVNI3	KVNI,\$X1,%8#400000.40	-KVNI, 1 IN 0+18,+17-0 S	400000.43 0C	004753.00 6
	BXE,\$	-HANG UP IF EQUAL	4753.72 C2	004753.40
	BZXHZ,\$	-HANG UP IF NOT HIGH	4754.33 44	004754.00

-* * * *RESTART OF ROUTINE

IKVNI4	LV,\$X1,IBKVDA	-LV, #-# 24-0 S	4202.02 30	004754.40 66
IKVNI5	KVNI,\$X1,0.0	-KVNI #-# 18-0 S	0.03 0C	004755.00 6
	BXEZ,\$+1.0	-BRANCH IF XE	4756.72 C6	004755.40
	BD,\$	-HANG UP IF NOT XE	4756.04 00	004756.00
IKVNI6	KVNI,\$X1,0.32	-KVNI, #-# 18-0 S + 1 IN 18	0.43 0C	004756.40 6
	BXHZ,\$+1.0	-BRANCH IF XH	4760.33 46	004757.00
	BD,\$	-HANG UP IF NOT XH	4757.44 00	004757.40
IKVNI7	KVNI,\$X1,%8#777777.40	-KVNI, #-# 19-1 S	777777.43 0C	004760.00 6
	BXHZ,\$+1.0	-BRANCH IF XH	4761.73 46	004760.40
	BD,\$	-HANG UP IF NOT XH	4761.04 00	004761.00
	CNOP		0.30 00	004761.40
IKVNI8	VF,%8#777777.70	-NOP,-.32	777777.70+	004762.00 6
	VF,%8#777777.70	-NOP,-.32	777777.70+	004762.40

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-* * * *%KCI# **** COMPARE COUNT IMMEDIATE **** %KCI#
-* * * *
-* * * *START OF TEST
-* * * *

IKCI	LC,\$X1,IBKVDA	-LC, 18-0 S	4202.02 50	004763.00 6
IKCI1	KCI,\$X1,0	-KCI, 18-0 S	0.03 0A	004763.40
	BXEZ,\$+1.0	-BRANCH IF XE	4765.32 C6	004764.00
	BD,\$	-HANG UP IF NOT XE	4764.44 00	004764.40
IKCI2	KCI,\$X1,%8#777777	-KCI, 18-1 S	777777.03 0A	004765.00
	BXLZ,\$+1.0	-BRANCH IF XL	4766.72 46	004765.40
	BD,\$	-HANG UP IF NOT XL	4766.04 00	004766.00
IKCI3	KCI,\$X1,%8#400000	-KCI, 1+17-0 S	400000.03 0A	004766.40
	BZXLZ,\$	-HANG UP IF NOT XL	4767.32 44	004767.00
IKCI4	KCI,\$X1,%8#0000001	-KCI, 17-0 S + 1 IN 17	1.03 0A	004767.40
	BXL,\$+1.0	-BRANCH IF XL, LEAVE XL ON	4771.32 42	004770.00
	BD,\$	-HANG UP IF NOT XL	4770.44 00	004770.40
	BZXLZ,\$	-HANG UP IF XL OFF	4771.32 44	004771.00

-* * * *RESTART OF ROUTINE

IKCI5	LC,\$X1,IBKVDF	-LC, 1 IN 0+17-0 S	4204.42 50	004771.40 6
IKCI6	KCI,\$X1,%8#400000	-KCI, 1 IN 0+17-0 S	400000.03 0A	004772.00
	BXEZ,\$+1.0	-BRANCH IF XE	4773.72 C6	004772.40
	BD,\$	-HANG UP IF NOT XE	4773.04 00	004773.00
IKCI7	KCI,\$X1,%8#0000001	-KCI, 17-0 S+1 IN 17	1.03 0A	004773.40
	BZXHZ,\$	-HANG UP IF NOT XH	4774.33 44	004774.00
IKCI8	KCI,\$X1,%8#777777	-KCI, 18-1 S	777777.03 0A	004774.40
	BXL,\$+1.0	-BRANCH IF XL, LEAVE XL ON	4776.32 42	004775.00
	BD,\$	-HANG UP IF NOT XL	4775.44 00	004775.40
	BZXLZ,\$	-HANG UP IF XL OFF	4776.32 44	004776.00
	BXLZ,\$	-HANG UP IF XL ON	4776.72 46	004776.40
IKCI9	KCI,\$X1,%8#377777	-KCI, 0+17-1 S	377777.03 0A	004777.00
	BXHZ,\$+1.0	-BRANCH IF XH	5000.73 46	004777.40
	BD,\$	-HANG UP IF NOT XH	5000.04 00	005000.00

IKCI10	KCI,\$X1,%8#777776	-KCI, 17-1 S + 0 IN 17	777776.03 0A	005000.40 6
	BZXHZ,\$+1.0	-BRANCH IF NOT XH	5002.33 44	005001.00
	BD,\$	-HANG UP IF XH	5001.44 00	005001.40
	BZXL,\$	-HANG UP IF NOT XL	5002.32 40	005002.00
	BXLZ,\$+1.0	-BRANCH IF XL	5003.72 46	005002.40
	BD,\$	-HANG UP IF NOT XL	5003.04 00	005003.00
	BXEZ,\$	-HANG UP IF XE	5003.72 C6	005003.40
IKCI11	KCI,\$X1,0	-KCI, 18-0 S	0.03 0A	005004.00 6
	BXH,\$+1.0	-BRANCH IF XH	5005.73 42	005004.40
	BD,\$	-HANG UP IF NOT XH	5005.04 00	005005.00
	BZXHZ,\$	-HANG UP IF XH OFF	5005.73 44	005005.40
	BXLZ,\$	-HANG UP IF XL	5006.32 46	005006.00
	BXEZ,\$	-HANG UP IF XE	5006.72 C6	005006.40
	CNOP	-		
IKCI12	VF,%8#777777.70	-NOP,-.32	777777.70+	005007.00 6
	VF,%8#777777.70	-NOP,-.32	777777.70+	005007.40
	-* * * *			
	-* * * *LOAD + STORE INDEX IN INTERNAL MEMORY ****			
	-* * * *			
	-* * * *START OF TEST			
	-* * * *			
IBQ	LX,\$X1,IBQ8	-LX,NOP,1010 ETC+NOP,0101 ETC	5026.02 10	005010.00
	SX,\$X1,\$L	-SX,IN LEFT ACC.	10.03 10	005010.40
	LX,\$X1,\$L	-LX,FROM LEFT ACC.	10.02 10	005011.00
	SX,\$X1,IBQ4	-SX, IN TEST AREA	5022.03 10	005011.40
	NOP,0	-OFFSET LX+SX IN Y REGS	0.30 00	005012.00
IBQ1	LX,\$X1,IBQ9	-LX,NOP,-.32 + NOP,-32	5027.02 10	005012.40
	SX,\$X1,\$L	-SX IN LEFT ACC.	10.03 10	005013.00
	LX,\$X1,\$L	-LX FROM LEFT ACC.	10.02 10	005013.40
	SX,\$X1,IBQ5	-SX, IN TEST AREA	5023.03 10	005014.00
	NOP,0	-OFFSET LX+SX IN Y REGS	0.30 00	005014.40
IBQ2	LX,\$X1,IBQ8	-LX, NOP, 1010ETC+NOP, 0101 ETC	5026.02 10	005015.00
	SX,\$X1,\$R	-SX,IN RIGHT ACC	11.03 10	005015.40
	LX,\$X1,\$R	-LX, FROM RIGHT ACC	11.02 10	005016.00
	SX,\$X1,IBQ6	-SX, IN TEST AREA	5024.03 10	005016.40
	NOP,0	-OFFSET LX+SX IN Y REGS	0.30 00	005017.00
IBQ3	LX,\$X1,IBQ9	-LX,NOP,-.32 + NOP,-.32	5027.02 10	005017.40
	SX,\$X1,\$R	-SX, IN RIGHT ACC	11.03 10	005020.00
	LX,\$X1,\$R	-LX, FROM RIGHT ACC	11.02 10	005020.40
	SX,\$X1,IBQ7		5025.03 10	005021.00
	CNOP	-SX, IN TEST AREA	0.30 00	005021.40
IBQ4	BD,\$		5022.04 00	005022.00
	BD,\$	-T A	5022.44 00	005022.40
IBQ5	BD,\$		5023.04 00	005023.00
	BD,\$	-E R	5023.44 00	005023.40
IBQ6	BD,\$		5024.04 00	005024.00
	BD,\$	-S E	5024.44 00	005024.40
IBQ7	BD,\$		5025.04 00	005025.00
	BD,\$	-T A	5025.44 00	005025.40
IBQ8	VF,%8#525252.70		525252.70+	005026.00
	VF,174762.56	-NOP,1010--+ NOP,0101--	525252.70+	005026.40
IBQ9	VF,%8#777777.70		777777.70+	005027.00
	VF,262143.56	-NOP,-.32 + NOP,-.32	777777.70+	005027.40
	-* * * *			
	-* * * *LOAD + STORE VALUE IN INTERNAL MEMORY ****			
	-* * * *			
	-* * * *START OF TEST			
	-* * * *			
IBQ10	LV,\$X1,IBQ18	-LV, NOP,.32	5043.42 30	005030.00
	SV,\$X1,7.0	-SV,IN ADDR 7.0-.16+LZC+.24	7.03 30	005030.40
	LV,\$X1,7.0	-LV, FROM ADDR 7.0-.24	7.02 30	005031.00
	SV,\$X1,IBQ14	-SV, NOP, .32 IN TEST AREA	5041.43 30	005031.40
	NOP,0	-OFFSET LV+SV IN Y REGS	0.30 00	005032.00
IBQ11	LV,\$X1,IBQ19	-LV,NOP,-.32	5044.02 30	005032.40
	SV,\$X1,7.0	-SV, IN ADDR 7.0-.16+LZC+.24	7.03 30	005033.00
	LV,\$X1,7.0	-LV, FROM ADDR 7.0-.24	7.02 30	005033.40

	SV,\$X1,IBQ15	-SV, NOP, 1.32 IN TEST AREA	5042.03 30	005034.00
	NOP,0	-OFFSET LV+SV IN Y REGS	0.30 00	005034.40
IBQ12	LV,\$X1,IBQ18	-LV, NOP,.32	5043.42 30	005035.00
	SV,\$X1,7.0	-SV, IN ADDR 7.0-.16+LZC+.24	7.03 20	005035.40
	LV,\$X1,7.0	-LV, FROM ADDR 7.0-.24	7.02 30	005036.00
	SV,\$X1,IBQ16	-SV, NOP, .32 IN TEST AREA	5042.43 30	005036.40
	NOP,0	-OFFSET LV+SV IN Y REGS	0.30 00	005037.00
IBQ13	LV,\$X1,IBQ19	-LV, NOP,-.32	5044.02 30	005037.40
	SV,\$X1,7.0	-SV, IN ADDR 7.0-.16+LZC+.24	7.03 30	005040.00
	LV,\$X1,7.0	-LV, FROM ADDR 7.0-.24	7.02 30	005040.40
	SV,\$X1,IBQ17	-SV, NOP, 1.32 IN TEST AREA	5043.03 30	005041.00
IBQ14	BD,\$	-T A	5041.44 00	005041.40
IBQ15	BD,\$	-E R	5042.04 00	005042.00
IBQ16	BD,\$	-S E	5042.44 00	005042.40
IBQ17	BD,\$	-T A	5043.04 00	005043.00
IBQ18	VF,%8H0.70		0.70+	005043.40
	CNOP	-COMMON VALUE		
IBQ19	VF,%8H777777.70		777777.70+	005044.00
	VF,262143.56	-NOP,-.32 + NOP,-.32	777777.70+	005044.40
	-* * * *			
	-* * * *LOAD + STORE COUNT IN INTERNAL MEMORY ****			
	-* * * *			
	-* * * *START OF TEST			
	-* * * *			
IBQ20	LC,\$X1,IBQ21	-LC,IBQ28	5051.02 50	005045.00
	SC,\$X1,SUB	-SC, IN UB REG 0-17	3.03 50	005045.40
	LC,\$X1,\$UB	-LC, FROM UB REG 0-17	3.02 50	005046.00
	SC,\$X1,ISTOY		6105.03 50	005046.40
	LV,\$X1,ISTOY		6105.02 30	005047.00
	V+,\$X1,COM04		6106.02 80	005047.40
	SV,\$X1,IBQ25		5067.03 30	005050.00
	NOP,0.0		0.30 00	005050.40
IBQ21	NOP,IBQ28	-OFFSET LC+SC IN Y + DATA	5072.30 00	005051.00
	LC,\$X1,IBQ22	-LC,IBQ29	5055.42 50	005051.40
	SC,\$X1,SUB	-SC, IN UB REG 0-17	3.03 50	005052.00
	LC,\$X1,\$UB	-LC, FROM UB REG 0-17	3.02 50	005052.40
	SC,\$X1,ISTOY		6105.03 50	005053.00
	LV,\$X1,ISTOY		6105.02 30	005053.40
	V+,\$X1,COM04		6106.02 80	005054.00
	SV,\$X1,IBQ27		5071.03 30	005054.40
	NOP,0.0		0.30 00	005055.00
IBQ22	NOP,IBQ29	-OFFSET LC+SC IN Y + DATA	5073.30 00	005055.40
	LC,\$X1,IBQ23	-LC,IBQ26	5062.02 50	005056.00
	SC,\$X1,\$LB	-SC, IN LB REG 32-49	3.43 50	005056.40
	LC,\$X1,\$LB	-LC, FROM LB REG 32-49	3.42 50	005057.00
	SC,\$X1,ISTOY		6105.03 50	005057.40
	LV,\$X1,ISTOY		6105.02 30	005060.00
	V+,\$X1,COM04		6106.02 80	005060.40
	SV,\$X1,IBQ28		5072.03 30	005061.00
	NOP,0.0		0.30 00	005061.40
IBQ23	NOP,IBQ26	-OFFSET LC+SC IN Y + DATA	5070.30 00	005062.00
	LC,\$X1,IBQ24	-LC,IBQ27	5066.42 50	005062.40
	SC,\$X1,\$LB	-SC, IN LB REG 32-49	3.43 50	005063.00
	LC,\$X1,\$LB	-LC, FROM LB REG 32-49	3.42 50	005063.40
	SC,\$X1,ISTOY		6105.03 50	005064.00
	LV,\$X1,ISTOY		6105.02 30	005064.40
	V+,\$X1,COM04		6106.02 80	005065.00
	SV,\$X1,IBQ26		5070.03 30	005065.40
	NOP,0.0		0.30 00	005066.00
IBQ24	NOP,IBQ27		5071.30 00	005066.40
	CNOP	-DATA + PASS THRU		
IBQ25	BD,\$		5067.04 00	005067.00
	BD,\$	-BE,IBQ28 + BD,\$	5067.44 00	005067.40
IBQ26	BD,\$		5070.04 00	005070.00
	BD,\$	-BE, IBQ27 + BD,\$	5070.44 00	005070.40
IBQ27	BD,\$		5071.04 00	005071.00

	IBQ28	BD,\$		-BE, IBQ29 + BD,\$	5072.44 00	005071.40
			BD,\$			
	IBQ29	VF,262142.56		-BE, IBQ26 + BD,\$	5072.44 00	005072.40
			VF,%8□777777.70	-NOP,-.32 + NOP,-.32	777777.70+	005073.00
					777777.70+	005073.40
	- * * * *					
	- * * * *LOAD + STORE REFILL IN INTERNAL MEMORY ****					
	- * * * *					
	- * * * *START OF TEST					
	- * * * *					
	IBQ30	LR,\$X1,IBQ31		-LR, IBQ36	5100.02 70	005074.00
		SR,\$X1,\$IND+.32		-SR, IN IND REG .32	13.43 70	005074.40
		LR,\$X1,\$IND+.32		-LR, FROM IND REG .32	13.42 70	005075.00
		SR,\$X1,ISTOY			6105.03 70	005075.40
		LV,\$X1,ISTOY			6105.02 30	005076.00
		V+,\$X1,COM04			6106.02 80	005076.40
		SV,\$X1,IBQ38			5121.03 30	005077.00
		NOP,0.0			0.30 00	005077.40
	IBQ31	NOP,IBQ36		-DATA + LR, SR Y OFFSET	5117.30 00	005100.00
		LR,\$X1,IBQ32		-LR, IBQ37	5104.42 70	005100.40
		SR,\$X1,\$IND+.32		-SR, IN IN REG .32	13.43 70	005101.00
		LR,\$X1,\$IND+.32		-LR, FROM IND REG .32	13.42 70	005101.40
		SR,\$X1,ISTOY			6105.03 70	005102.00
		LV,\$X1,ISTOY			6105.02 30	005102.40
		V+,\$X1,COM04			6106.02 80	005103.00
		SV,\$X1,IBQ36			5117.03 30	005103.40
		NOP,0.0			0.30 00	005104.00
	IBQ32	NOP,IBQ37		-DATA + LR, SR Y OFFSET	5120.30 00	005104.40
		LR,\$X1,IBQ33		-LR, IBQ33	5111.02 70	005105.00
		SR,\$X1,\$IND+.32		-SR, IN IND REG .32	13.43 70	005105.40
		LR,\$X1,\$IND+.32		-LR, FROM IND REG .32	13.42 70	005106.00
		SR,\$X1,ISTOY			6105.03 70	005106.40
		LV,\$X1,ISTOY			6105.02 30	005107.00
		V+,\$X1,COM04			6106.02 80	005107.40
		SV,\$X1,IBQ35			5116.03 30	005110.00
		NOP,0.0			0.30 00	005110.40
	IBQ33	NOP,IBQ38		-DATA + LR SR Y OFFSET	5121.30 00	005111.00
		LR,\$X1,IBQ34		-LR, IBQ39	5115.42 70	005111.40
		SR,\$X1,\$IND+.32		-SR, IN IND REG .32	13.43 70	005112.00
		LR,\$X1,\$IND+.32		-LR, FROM IND REG .32	13.42 70	005112.40
		SR,\$X1,ISTOY			6105.03 70	005113.00
		LV,\$X1,ISTOY			6105.02 30	005113.40
		V+,\$X1,COM04			6106.02 80	005114.00
		SV,\$X1,IBQ37			5120.03 30	005114.40
		NOP,0.0			0.30 00	005115.00
	IBQ34	NOP,IBQ39			5122.30 00	005115.40
		CNOP		-DATA+PASS THRU		
	IBQ35	BD,\$			5116.04 00	005116.00
18		BD,\$		-T A	5116.44 00	005116.40
	IBQ36	BD,\$			5117.04 00	005117.00
		BD,\$		-E R	5117.44 00	005117.40
15	IBQ37	BD,\$			5120.04 00	005120.00
		BD,\$		-S E	5120.44 00	005120.40
	IBQ38	BD,\$			5121.04 00	005121.00
2		BD,\$		-T A	5121.44 00	005121.40
14	IBQ39	VF,262143.56			777777.70+	005122.00
		VF,%8□777777.70		-NOP,-.32+NOP,-.32	777777.70+	005122.40
	- * * * *					
	- * * * *%CB□ **** COUNT + BRANCH **** %CB□					
	- * * * *					
	- * * * *START OF TEST					
	- * * * *					
4	IBR	LX,\$X1,IBR1		-SET UP XW	5132.02 10	005123.00
	IBR1	CB,\$X1,IBR2		-COUNT TO 3 + BRANCH	5124.42 48	005123.40
		BD,\$		-HANG UP NO BRANCH	5124.04 00	005124.00
	IBR2	CB,\$X1,IBR3		-COUNT TO 2 + BRANCH	5126.02 48	005124.40

	BD,\$		-HANG UP NO BRANCH	5125.04 00	005125.00
	BD,\$			5125.44 00	005125.40
IBR3	CB,\$X1,IBR4		-COUNT OT 1 + BRANCH	5130.02 48	005126.00
	BD,\$		-HANG UP NO BRANCH	5126.44 00	005126.40
	BD,\$			5127.04 00	005127.00
	BD,\$			5127.44 00	005127.40
IBR4	CB,\$X1,IBR7		-COUNT OT ZERO NO BRANCH	5131.42 48	005130.00
IBR5	SX,\$X1,IBR8		-STORE FOR VALUE TEST	5133.03 10	005130.40
IBR6	B,IBR8			5133.10 00	005131.00
IBR7	BD,\$		-HANG UP IF IBR4 BRANCH	5131.44 00	005131.40
IBRA1	XW,IBR9+8H.04,4,-1			5135.04 00	000117.77 FF
IBR8	BD,\$			5133.04 00	005132.00 C
	BD,\$		-BECOMES %BD,IBR9H,14-0+18-1S	5133.44 00	005133.40
	BD,\$			5134.04 00	005134.00
	BD,\$			5134.44 00	005134.40
IBR9	VF,8H777777.70		-21 ONES OR NOP,-1	777777.70+	005135.00
	VF,8H777777.70		-21 ONES OR NOP,-1	777777.70+	005135.40
	-* * * *				
	-* * * *%CB+H **** COUNT,BRANCH, + ADD ONE TO VALUE **** %CB+H				
	-* * * *				
	-* * * *START OF TEST				
	-* * * *				
IBR10	LX,\$X1,IBRA2		-SET UP XW	5145.02 10	005136.00
IBR11	CB+,\$X1,IBR12		-COUNT OT 3 + BRANCH	5137.43 48	005136.40
	BD,\$		-HANG UP NO BRANCH	5137.04 00	005137.00
IBR12	CB+,\$X1,IBR13		-COUNT TO 2 + BRANCH	5141.03 48	005137.40
	BD,\$		-HANG UP NO BRANCH	5140.04 00	005140.00
	BD,\$			5140.44 00	005140.40
IBR13	CB+,\$X1,IBR14		-COUNT TO 1 + BRANCH	5143.03 48	005141.00
	BD,\$		-HANG UP NO BRANCH	5141.44 00	005141.40
	BD,\$			5142.04 00	005142.00
	BD,\$			5142.44 00	005142.40
IBR14	CB+,\$X1,IBR17		-COUNT TO ZERO NO BRANCH	5144.43 48	005143.00
IBR15	SX,\$X1,IBR18		-STORE FOR VALUE TEST	5146.03 10	005143.40
IBR16	B,IBR18			5146.10 00	005144.00
IBR17	BD,\$		-HANG UP IF IBR14 BRANCH	5144.44 00	005144.40
IBRA2	XW,IBR16+8H.04,4,-1			5144.04 00	000117.77 FF
IBR18	BD,\$			5146.04 00	005145.00 C
	BD,\$		-BECOMES %BD,IBR19H,14-0+18-1S	5146.44 00	005146.40
	BD,\$			5147.04 00	005147.00
	BD,\$			5147.44 00	005147.40
IBR19	VF,8H777777.70		-21 ONES OR NOP,-1	777777.70+	005150.00
	VF,8H777777.70		-21 ONES OR NOP,-1	777777.70+	005150.40
	-* * * *				
	-* * * *%CBH+H **** COUNT,BRANCH, + ADD HALF TO VALUE **** %CBH+H				
	-* * * *				
	-* * * *START OF TEST				
	-* * * *				
IBR20	LX,\$X1,IBRA3		-SET UP XW	5160.02 10	005151.00
IBR21	CBH,\$X1,IBR22		-COUNT TO 3 + BRANCH	5152.42 C8	005151.40
	BD,\$		-HANG UP NO BRANCH	5152.04 00	005152.00
IBR22	CBH,\$X1,IBR23		-COUNT TO 2 + BRANCH	5154.02 C8	005152.40
	BD,\$		-HANG UP NO BRANCH	5153.04 00	005153.00
	BD,\$			5153.44 00	005153.40
IBR23	CBH,\$X1,IBR24		-COUNT TO 1 + BRANCH	5156.02 C8	005154.00
	BD,\$		-HANG UP NO BRANCH	5154.44 00	005154.40
	BD,\$			5155.04 00	005155.00
	BD,\$			5155.44 00	005155.40
IBR24	CBH,\$X1,IBR27		-COUNT TO ZERO NO BRANCH	5157.42 C8	005156.00
IBR25	SX,\$X1,IBR28		-STORE FOR VALUE TEST	5161.03 10	005156.40
IBR26	B,IBR28			5161.10 00	005157.00
IBR27	BD,\$		-HANGS UP IF IBR24 BRNACH	5157.44 00	005157.40
IBRA3	XW,IBR28+.04,4,-1			5161.04 00	000117.77 FF
IBR28	BD,\$			5161.04 00	005160.00 C
	BD,\$		-BECOMES %BD,IBR29H,14-0+18-1S	5161.44 00	005161.40
	BD,\$			5162.04 00	005162.00

	BD,S		5162.44 00	005162.40
IBR29	VF,%8H777777.70	-21 ONES OR NOP,-1	777777.70+	005163.00
	VF,%8H777777.70	-21 ONES OR NOP,-1	777777.70+	005163.40
	-* * * *			
	-* * * *%CB-H **** COUNT, BRANCH, + SUB ONE FROM VALUE **** %CB-H			
	-* * * *			
	-* * * *START OF TEST			
	-* * * *			
IBR30	LX,\$X1,IBRA4	-SET UP XW	5173.02 10	005164.00
IBR31	CB-,SX1,IBR32	-COUNT TO 3 + BRANCH	5165.43 C8	005164.40
	BD,S	-HANG UP NO BRANCH	5165.04 00	005165.00
IBR32	CB-,SX1,IBR33	-COUNT TO 2 + BRANCH	5167.03 C8	005165.40
	BD,S	-HANG UP NO BRANCH	5166.04 00	005166.00
	BD,S		5166.44 00	005166.40
	BD,S		5171.03 C8	005167.00
IBR33	CB-,SX1,IBR34	-COUNT TO 1 + BRANCH	5167.44 00	005167.40
	BD,S	-HANG UP NO BRANCH	5170.04 00	005170.00
	BD,S		5170.44 00	005170.40
	BD,S		5172.43 C8	005171.00
IBR34	CB-,SX1,IBR37	-COUNT TO ZERO NO BRANCH	5174.03 10	005171.40
IBR35	SX,\$X1,IBR38	-STORE FOR VALUE TEST	5174.10 00	005172.00
IBR36	B,IBR38		5172.44 00	005172.40
IBR37	BD,S	-HANG UP IF IB34 BRANCH	5202.04 00 000117.77 FF	005173.00 C
IBRA4	XW,IBR39+%8H4.04,4,-1		5174.04 00	005174.00
IBR38	BD,S		5174.44 00	005174.40
	BD,S	-BECOMES %BD,IBR39H,14-0+18-1S	5175.04 00	005175.00
	BD,S		5175.44 00	005175.40
	BD,S		5175.44 00	005175.40
IBR39	VF,%8H777777.70	-21 ONES OR NOP,-1	777777.70+	005176.00
	VF,%8H777777.70	-21 ONES OR NOP,-1	777777.70+	005176.40
	-* * * *			
	-* * * *%CBZH **** COUNT, + BRANCH ON ZERO			
	-* * * *			
	-* * * *START OF TEST			
	-* * * *			
IBR40	LX,\$X1,IBRA5	-SET UP XW	5206.02 10	005177.00
IBR41	CBZ,\$X1,IBR47	-NO BRANCH C TO 4	5202.42 4A	005177.40
IBR42	CBZ,\$X1,IBR48	-NO BRANCH C TO 3	5203.02 4A	005200.00
IBR43	CBZ,\$X1,IBR49	-NO BRANCH C TO 2	5203.42 4A	005200.40
IBR44	CBZ,\$X1,IBR50	-NO BRANCH C TO 1	5204.02 4A	005201.00
IBR45	CBZ,\$X1,IBR51	-BRANCH C TO 0	5204.42 4A	005201.40
IBR46	BD,S	-HANG	5202.04 00	005202.00
IBR47	BD,S		5202.44 00	005202.40
IBR48	BD,S	-UP	5203.04 00	005203.00
IBR49	BD,S		5203.44 00	005203.40
IBR50	BD,S	-AREA	5204.04 00	005204.00
IBR51	SX,\$X1,IBR52	-STORE FOR VALUE TEST	5207.03 10	005204.40
	B,IBR52		5207.10 00	005205.00
IBRA5	XW,IBR53+%8H.04,5,-1	-COMMON XW	5210.04 00 000137.77 FF	005206.00 C
IBR52	BD,S	-BECOMES BD IBR 53	5207.04 00	005207.00
	BD,S	-14-0 + 18-1	5207.44 00	005207.40
IBR53	VF,%8H777777.70	-NOP,-1	777777.70+	005210.00
	VF,%8H777777.70	-NOP,-1	777777.70+	005210.40
	-* * * *			
	-* * * *%CBZ+H **** COUNT, ADD ONE TO VALUE, + BRANCH ON ZERO			
	-* * * *			
	-* * * *START OF TEST			
	-* * * *			
IBR54	LX,\$X1,IBRA6	-SET UP XW	5220.02 10	005211.00
	CNOP		0.30 00	005211.40
IBR55	CBZ+,\$X1,IBR61	-NO BRANCH C TO 4	5215.03 4A	005212.00
IBR56	CBZ+,\$X1,IBR62	-NO BRANCH C TO 3	5215.43 4A	005212.40
IBR57	CBZ+,\$X1,IBR63	-NO BRANCH C TO 2	5216.03 4A	005213.00
IBR58	CBZ+,\$X1,IBR64	-NO BRANCH C TO 1	5216.43 4A	005213.40
IBR59	CBZ+,\$X1,IBR65	-BRANCH C TO 0	5217.03 4A	005214.00
IBR60	BD,S	-HANG	5214.44 00	005214.40
IBR61	BD,S		5215.04 00	005215.00

IBR62	BD,\$	-UP	5215.44 00	005215.40
IBR63	BD,\$		5216.04 00	005216.00
IBR64	BD,\$	-AREA	5216.44 00	005216.40
IBR65	SX,\$X1,IBR66	-STORE FOR VALUE TEST	5221.03 10	005217.00
	B,IBR66		5221.10 00	005217.40
IBRA6	XW,IBR61+%8#0.04,5,-1	-COMMON XW	5215.04 00 000137.77 FF	005220.00 C
IBR66	BD,\$	-BECOMES BD,IBR67	5221.04 00	005221.00
	BD,\$	-14-0 + 18-1	5221.44 00	005221.40
IBR67	VF,%8#777777.70	-NOP,-1	777777.70+	005222.00
	VF,%8#777777.70	-NOP,-1	777777.70+	005222.40
-* * * *				
-* * * *%CBZ-# ***** COUNT, SUB ONE FROM VALUE, + BRANCH ON ZERO				
-* * * *				
-* * * *START OF TEST				
-* * * *				
IBR68	LX,\$X1,IBRA7	-SET UP XW	5232.02 10	005223.00
IBR69	CBZ-,SX1,IBR75	-NO BRANCH C TO 4	5226.43 CA	005223.40
IBR70	CBZ-,SX1,IBR76	-NO BRANCH C TO 3	5227.03 CA	005224.00
IBR71	CBZ-,SX1,IBR77	-NO BRANCH C TO 2	5227.43 CA	005224.40
IBR72	CBZ-,SX1,IBR78	-NO BRANCH C TO 1	5230.03 CA	005225.00
IBR73	CBZ-,SX1,IBR79	-BRANCH C TO 0	5230.43 CA	005225.40
IBR74	BD,\$	-HANG	5226.04 00	005226.00
IBR75	BD,\$		5226.44 00	005226.40
IBR76	BD,\$	-UP	5227.04 00	005227.00
IBR77	BD,\$		5227.44 00	005227.40
IBR78	BD,\$	-AREA	5230.04 00	005230.00
IBR79	SX,\$X1,IBR80	-STORE FOR VALUE TEST	5233.03 10	005230.40
	B,IBR80		5233.10 00	005231.00
IBRA7	XW,IBR81+%8#5.04,5,-1	-COMMON XW	5241.04 00 000137.77 FF	005232.00 C
IBR80	BD,\$	-BECOMES BD,IBR81	5233.04 00	005233.00
	BD,\$	-14-0 +18-1	5233.44 00	005233.40
IBR81	VF,%8#777777.70	-NOP,-1	777777.70+	005234.00
	VF,%8#777777.70	-NOP,-1	777777.70+	005234.40
-* * * *				
-* * * *%CBZH# ***** COUNT, ADD HALF TO VALUE, + BRANCH ON ZERO				
-* * * *				
-* * * *START OF TEST				
-* * * *				
IBR82	LX,\$X1,IBRA8	-SET UP XW	5244.02 10	005235.00
IBR83	CBZH,\$X1,IBR89	-NO BRANCH C TO 4	5240.42 CA	005235.40
IBR84	CBZH,\$X1,IBR90	-NO BRANCH C TO 3	5241.42 CA	005236.00
IBR85	CBZH,\$X1,IBR91	-NO BRANCH C TO 2	5241.02 CA	005236.40
IBR86	CBZH,\$X1,IBR92	-NO BRANCH C TO 1	5242.02 CA	005237.00
IBR87	CBZH,\$X1,IBR93	-BRANCH C TO 0	5243.02 CA	005237.40
IBR88	BD,\$	-HANG	5240.04 00	005240.00
IBR89	BD,\$		5240.44 00	005240.40
IBR91	BD,\$		5241.04 00	005241.00
IBR90	BD,\$	-UP	5241.44 00	005241.40
IBR92	BD,\$	-AREA	5242.04 00	005242.00
	CNOP		0.30 00	005242.40
IBR93	SX,\$X1,IBR94	-STORE FOR VALUE TEST	5245.03 10	005243.00
	B,IBR94		5245.10 00	005243.40
IBRA8	XW,IBR93+%8#0.44,5,-1	-COMMON XW	5243.44 00 000137.77 FF	005244.00 C
IBR94	BD,\$	-BECOMES BD,IBR95	5245.04 00	005245.00
	BD,\$	-BECOMES 14-0 +18-1	5245.44 00	005245.40
IBR95	VF,%8#777777.70	-NOP,-1	777777.70+	005246.00
	VF,%8#777777.70	-NOP,-.32	777777.70+	005246.40
	CNOP			
-* * * *				
-* * * *%CBR# ***** COUNT,BRANCH + REFILL				
-* * * *				
-* * * *START OF TEST				
-* * * *				
IBR96	LX,\$X1,IBRA9	-SET UP XW	5254.02 10	005247.00
IBR97	CBR,\$X1,IBR98	-COUNT 3 TO 2,BR,NO REFILL	5250.42 4C	005247.40
	B,\$	-NO BRANCH	5250.10 00	005250.00

IBR98	B,\$		-COUNT 2 TO 1, BR, NO REFILL	5252.02 4C	005250.40
	B,\$		-NO BRANCH	5251.10 00	005251.00
	B,\$		-WRONG BRANCH	5251.50 00	005251.40
IBR99	CBR,\$X1,HANGS1		-COUNT 1 TO 0, NO BR, REFILL	5257.02 4C	005252.00 6
	SX,\$X1,IBR100		-STORE NEW XW	5256.03 10	005252.40 6
	B,IBR100			5256.10 00	005253.00 6
		NOP,0.0	-BRANCH TO NEW INST.	0.30 00	005253.40
IBRA9	XW,IBRA9+%8#0.04,3,IBRA10		-ORIGIANL XW	5254.04 00 000060.12 AD	005254.00 6
IBRA10	XW,IBR101+%8#0.04,%8#37777,-1		-REFILL XW	5260.04 00 777777.77 FF	005255.00 66C
IBR100	B,\$		-BECOMES BD,IBR101	5256.10 00	005256.00 6
	B,\$		-ALL 1	5256.50 00	005256.40
HANGS1	B,\$		-WRONG BRANCH	5257.10 00	005257.00 6
	B,\$		-WRONG BRANCH	5257.50 00	005257.40
IBR101	VF,%8#777777.70		-NOP,-.32	777777.70+	005260.00 6
	VF,%8#777777.70		-NOP,-.32	777777.70+	005260.40
	-* * * *				
	-* * * *		-%CBR+# **** COUNT, BRANCH REFILL, + ADD ONE TO VALUE		
	-* * * *				
	-* * * *		*START OF TEST		
	-* * * *				
IBR102	LX,\$X1,IBRA11		-SET UP XW	5267.02 10	005261.00 66
IBR103	CBR+,\$X1,IBR104		-COUNT 3 TO 2, 1 TO VAL,+ BRANCH	5262.43 4C	005261.40 66
	B,\$		-NO BRANCH	5262.10 00	005262.00
IBR104	CBR+,\$X1,IBR105		-COUNT 2 TO 1, 1 TO VAL,+BRANCH	5264.03 4C	005262.40 66
	B,\$		-NO BRANCH	5263.10 00	005263.00
	B,\$		-WRONG BRANCH	5263.50 00	005263.40
IBR105	SX,\$X1,IBR106		-SX TO TEST VALUE	5271.03 10	005264.00 66
	CBR+,\$X1,HANGS2		-COUNT 1TO0,NOV+,NOB,REFILL	5272.03 4C	005264.40 6
	SX,\$X1,IBR107		-SX + TEST FOR REFILL	5273.03 10	005265.00 6
	B,IBR106			5271.10 00	005265.40 6
		NOP,0.0	-BRANCH TO VALUE TEST	0.30 00	005266.00
IBRA11	XW,IBR106+%8#0.04,3,IBRA12		-ORIGINAL XW	5271.04 00 000060.12 B9	005267.00 666
IBRA12	XW,IBR108+%8#0.04,%8#37777,-1			5275.04 00 777777.77 FF	005270.00 66C
IBR106	B,\$		-HANG,OR BRANCH TO REFILL TEST	5271.10 00	005271.00 6
	B,\$			5271.50 00	005271.40
HANGS2	B,\$		-BRANCHED AT COUNT 0,ERROR	5272.10 00	005272.00 6
	B,\$		-	5272.50 00	005272.40
IBR107	B,\$		-REFILL TEST HANG OR BRANCH OUT	5273.10 00	005273.00 6
	B,\$		-ALL 1	5273.50 00	005273.40
	B,\$		-	5274.10 00	005274.00
	B,\$		-	5274.50 00	005274.40
IBR108	VF,%8#777777.70		-NOP,-.32	777777.70+	005275.00 6
	VF,%8#777777.70		-NOP,-.32	777777.70+	005275.40
	-* * * *				
	-* * * *		-%CBR-# **** COUNT, BRANCH, REFILL, + SUB ONE FROM VALUE		
	-* * * *				
	-* * * *		*START OF TEST		
	-* * * *				
IBR109	LX,\$X1,IBRA13		-SET UP XW	5303.02 10	005276.00 66
IBR110	CBR-,\$X1,IBR111		-COUNT 3TO 2, VAL.-1, +BRANCH	5277.43 CC	005276.40 66
	B,\$		-NO BRANCH	5277.10 00	005277.00
IBR111	CBR-,\$X1,IBR112		-COUNT 2TO 1,VAL.-1,+BRANCH	5301.03 CC	005277.40 66
	B,\$		-NO BRANCH	5300.10 00	005300.00
	B,\$		-WRONG BRANCH	5300.50 00	005300.40
IBR112	SX,\$X1,IBR113		-SX TO TEST VALUE	5305.03 10	005301.00 66
	CBR-,\$X1,HANGS3		-COUNT 1TO 0, NOV-, NO B,REFILL	5306.03 CC	005301.40 6
	SX,\$X1,IBR114		-SX +TEST FOR REFILL	5307.03 10	005302.00 6
	B,IBR113		-BRANCH TO VALUE TEST	5305.10 00	005302.40 6
IBRA13	XW,IBR115+%8#0.04,3,IBRA14		-ORIGINAL XW	5311.04 00 000060.12 C4	005303.00 666
IBRA14	XW,IBR115+%8#0.04,%8#37777,-1		-REFILL XW	5311.04 00 777777.77 FF	005304.00 66C
IBR113	B,\$		-HANG OR BRANCH TO REFILL TEST	5305.10 00	005305.00 6
	B,\$		-	5305.50 00	005305.40
HANGS3	B,\$		-BRANCHED AT COUNT 0,ERROR	5306.10 00	005306.00 6
	B,\$		-	5306.50 00	005306.40
IBR114	B,\$		-REFILL TEST HANG OR BRANCH OUT	5307.10 00	005307.00 6
	B,\$		-ALL 1	5307.50 00	005307.40

	B,\$	-	5310.10 00	005310.00
	B,\$	-	5310.50 00	005310.40
IBR115	VF,%8#777777.70	-NOP,-.32	777777.70+	005311.00 6
	VF,%8#777777.70	-NOP,-.32	777777.70+	005311.40
	-* * * *			
	-* * * *%CBRH#**** COUNT, BRANCH REFILL, + ADD HALF TO VALUE			
	-* * * *			
	-* * * *START OF TEST			
	-* * * *			
IBR116	LX,\$X1,IBRA15	-SET UP XW	5317.02 10	005312.00 66
IBR117	CBRH,\$X1,IBR118	-COUNT 3TO2,VAL+.4,+BRANCH	5313.42 CC	005312.40 66
	B,\$	-NO BRANCH	5313.10 00	005313.00
IBR118	CBRH,\$X1,IBR119	-COUNT 2TO1,VAL+.4,+BRANCH	5315.02 CC	005313.40 66
	B,\$	-NO BRANCH	5314.10 00	005314.00
	B,\$	-WRONG BRANCH	5314.50 00	005314.40
IBR119	SX,\$X1,IBR120	-SX TO TEST VALUE	5321.03 10	005315.00 66
	CBRH,\$X1,HANGS4	-COUNT 1TO0,NO V+,NOB,REFILL	5322.02 CC	005315.40 6
	SX,\$X1,IBR121	-SX + TEST FOR REFILL	5323.03 10	005316.00 6
	B,IBR120	-BRANCH TO VALUE TEST	5321.10 00	005316.40 6
IBRA15	XW,HANGS4+%8#0.04,3,IBRA16	-ORIGINAL XW	5322.04 00 000060.12 D0	005317.00 666
IBRA16	XW,IBR122+%8#0.04,%8#37777,-1	-REFILL XW	5325.04 00 777777.77 FF	005320.00 66C
IBR120	B,\$	-HANG OR BRANCH TO REFILL TEST	5321.10 00	005321.00 6
	B,\$	-	5321.50 00	005321.40
HANGS4	B,\$	-BRANCH AT COUNT 0,ERROR	5322.10 00	005322.00 6
	B,\$	-	5322.50 00	005322.40
IBR121	B,\$	-REFILL TEST,HANG OR BRANCH OUT	5323.10 00	005323.00 6
	B,\$	-ALL 1	5323.50 00	005323.40
	B,\$	-	5324.10 00	005324.00
	B,\$	-	5324.50 00	005324.40
IBR122	VF,%8#777777.70	-NOP,-.32	777777.70+	005325.00 6
	VF,%8#777777.70	-NOP,-.32	777777.70+	005325.40
	-* * * *			
	-* * * *%CBRZ#****COUNT, BRANCH ON ZERO, + REFILL			
	-* * * *			
	-* * * *START OF TEST			
	-* * * *			
IBR123	LX,\$X1,IBRA17	-SET UP XW	5336.02 10	005326.00 66
IBR124	CBRZ,\$X1,IBR132	-COUNT 6 TO 5, NO B OR REF.	5332.42 4E	005326.40 66
IBR125	CBRZ,\$X1,IBR133	-COUNT 5 TO 4, NO B OR REF.	5333.02 4E	005327.00 66
IBR126	CBRZ,\$X1,IBR134	-COUNT 4 TO 3, NO B OR REF.	5333.42 4E	005327.40 66
IBR127	CBRZ,\$X1,IBR135	-COUNT 3 TO 2, NO B OR REF.	5334.02 4E	005330.00 66
IBR128	CBRZ,\$X1,IBR136	-COUNT 2 TO 1 NO B OR REF.	5334.42 4E	005330.40 66
IBR129	SX,\$X1,IBR138	-SX FOR VALUE TEST	5340.03 10	005331.00 66
IBR130	CBRZ,\$X1,IBR137	-SHOULD BRANCH + REFILL C TO 0	5335.02 4E	005331.40 66
IBR131	B,\$	-HANG UP IF NO B ON ZERO	5332.10 00	005332.00 6
IBR132	B,\$	-HANG UP IF B ON NOT ZER	5332.50 00	005332.40 6
IBR133	B,\$	-HANG UP IF B ON NOT ZER	5333.10 00	005333.00 6
IBR134	B,\$	-HANG UP IF B ON NOT ZER	5333.50 00	005333.40 6
IBR135	B,\$	-HANG UP IF B ON NOT ZER	5334.10 00	005334.00 6
IBR136	B,\$	-HANG UP IF B ON NOT ZER	5334.50 00	005334.40 6
IBR137	SX,\$X1,IBR139	-HANG UP IF B ON NOT ZERO	5341.03 10	005335.00 66
	B,IBR138	-GO TO VALUE TEST	5340.10 00	005335.40 6
IBRA17	XW,IBR139+%8#0.04,6,IBRA18	-COMMON XW	5341.04 00 000140.12 DF	005336.00 666
IBRA18	XW,IBR140+%8#0.04,%8#37777,-1	-REFILL XW	5342.04 00 777777.77 FF	005337.00 66C
IBR138	B,\$	-IF HANG UP, VALUE ON CBRZ WRONG	5340.10 00	005340.00 6
	B,\$	-	5340.50 00	005340.40
IBR139	B,\$	-IF HANG UP, FAULTY REFILL ZERO	5341.10 00	005341.00 6
	B,\$	-ALL 1 S	5341.50 00	005341.40
IBR140	VF,%8#777777.70	-EQUALS NOP,-.32	777777.70+	005342.00 6
	VF,%8#777777.70	-EQUALS NOP,-.32	777777.70+	005342.40
	-* * * *			
	-* * * *%CBRZ#**** COUNT, ADD ONE TO VALUE, BRANCH ON ZERO, + REFILL			
	-* * * *			
	-* * * *START OF TEST			
	-* * * *			
IBR141	LX,\$X1,IBRA19	-SET UP XW	5353.02 10	005343.00 66

IBR142	CBRZ+,\$X1,IBR150	-COUNT 6 TO 5, NO B OR REF.	5347.43 4E	005343.40 66
IBR143	CBRZ+,\$X1,IBR151	-COUNT 5 TO 4, NO B OR REF.	5350.03 4E	005344.00 66
IBR144	CBRZ+,\$X1,IBR152	-COUNT 4 TO 3, NO B OR REF.	5350.43 4E	005344.40 66
IBR145	CBRZ+,\$X1,IBR153	-COUNT 2 TO 1, NO B OR REF.	5351.03 4E	005345.00 66
IBR146	CBRZ+,\$X1,IBR154	-COUNT 2 TO 1, NO B OR REF.	5351.43 4E	005345.40 66
IBR147	SX,\$X1,IBR156	-SX FOR VALUE TEST	5355.03 10	005346.00 66
IBR148	CBRZ+,\$X1,IBR155	-SHOULD BRANCH + REFILL C TO 0	5352.03 4E	005346.40 66
IBR149	B,\$	-HANG UP IF NO B ON ZERO	5347.10 00	005347.00 6
IBR150	B,\$	-HANG UP IF B ON NOT ZERO	5347.50 00	005347.40 6
IBR151	B,\$	-HANG UP IF B ON NOT ZERO	5350.10 00	005350.00 6
IBR152	B,\$	-HANG UP IF B ON NOT ZERO	5350.50 00	005350.40 6
IBR153	B,\$	-HANG UP IF B ON NOT ZERO	5351.10 00	005351.00 6
IBR154	B,\$	-HANG UP IF B ON NOT ZERO	5351.50 00	005351.40 6
IBR155	SX,\$X1,IBR157	-SX FOR REFILL TEST	5356.03 10	005352.00 66
	B,IBR156	-GO TO VALUE TEST	5355.10 00	005352.40 6
IBRA19	XW,IBR153+%8H.04,6,IBRA20	-COMMON XW	5351.04 00 000140.12 EC	005353.00 666
IBRA20	XW,IBR158+%8H.04,%8H37777,-1	-REFILL XW	5357.04 00 777777.77 FF	005354.00 66C
IBR156	B,\$	-IF HANG UP, VALUE ON CBRZ WRONG	5355.10 00	005355.00 6
	B,\$	-	5355.50 00	005355.40
IBR157	B,\$	-IF HANG UP, FAULTY REFILL ZERO	5356.10 00	005356.00 6
	B,\$	-ALL 1 S	5356.50 00	005356.40
IBR158	VF,%8H777777.70	-EQUALS NOP,-.32	777777.70+	005357.00 6
	VF,%8H777777.70	-EQUALS NOP,-.32	777777.70+	005357.40
	-* * * *			
	-* * * *%CBRZ-H****COUNT, SUB ONE FROM VALUE, BRANCH ON ZERO+ REFILL			
	-* * * *			
	-* * * *START OF TEST			
	-* * * *			
IBR159	LX,\$X1,IBRA21	-SET UP XW	5370.02 10	005360.00 66
IBR160	CBRZ-,\$X1,IBR168	-COUNT 6 TO 5, NO B OR REF.	5364.43 CE	005360.40 66
IBR161	CBRZ-,\$X1,IBR169	-COUNT 5 TO 4, NO B OR REF.	5365.03 CE	005361.00 66
IBR162	CBRZ-,\$X1,IBR170	-COUNT 4 TO 3, NO B OR REF.	5365.43 CE	005361.40 66
IBR163	CBRZ-,\$X1,IBR171	-COUNT 3 TO 2, NO B OR REF.	5366.03 CE	005362.00 66
IBR164	CBRZ-,\$X1,IBR172	-COUNT 2 TO 1, NO B OR REF.	5366.43 CE	005362.40 66
IBR165	SX,\$X1,IBR174	-SX FOR VALUE TEST	5372.03 10	005363.00 66
IBR166	CBRZ-,\$X1,IBR173	-SHOULD BRANCH + REFILL C TO 0	5367.03 CE	005363.40 66
IBR167	B,\$	-HANG UP IF NO B ON ZERO	5364.10 00	005364.00 6
IBR168	B,\$	-HANG UP IF B ON NOT ZERO	5364.50 00	005364.40 6
IBR169	B,\$	-HANG UP IF B ON NOT ZERO	5365.10 00	005365.00 6
IBR170	B,\$	-HANG UP IF B ON NOT ZERO	5365.50 00	005365.40 6
IBR171	B,\$	-HANG UP IF B ON NOT ZERO	5366.10 00	005366.00 6
IBR172	B,\$	-HANG UP IF B ON NOT ZERO	5366.50 00	005366.40 6
IBR173	SX,\$X1,IBR175	-SX FOR REFILL TEST	5373.03 10	005367.00 66
	B,IBR174	-GO TO VALUE TEST	5372.10 00	005367.40 6
IBRA21	XW,IBR175+%8H5.04,6,IBRA22	-COMMON XW	5400.04 00 000140.12 F9	005370.00 666
IBRA22	XW,IBR176+%8H.04,%8H37777,-1	-REFILL XW	5374.04 00 777777.77 FF	005371.00 66C
IBR174	B,\$	-IF HANG UP, VALUE ON CBRZ WRONG	5372.10 00	005372.00 6
	B,\$	-	5372.50 00	005372.40
IBR175	B,\$	-IF HANG UP, FAULTY REFILL ZERO	5373.10 00	005373.00 6
	B,\$	-ALL 1 S	5373.50 00	005373.40
IBR176	VF,%8H777777.70	-EQUALS NOP,-.32	777777.70+	005374.00 6
	VF,%8H777777.70	-EQUALS NOP,-.32	777777.70+	005374.40
	-* * * *			
	-* * * *%CBRZH****COUNT, ADD HALF TO VALUE, BRANCH ON ZERO+ REFILL			
	-* * * *			
	-* * * *START OF TEST			
	-* * * *			
IBR177	LX,\$X1,IBRA23	-SET UP XW	5405.02 10	005375.00 66
IBR178	CBRZH,\$X1,IBR186	-COUNT 6 TO 5, NO B OR REF.	5401.42 CE	005375.40 66
IBR179	CBRZH,\$X1,IBR187	-COUNT 5 TO 4, NO B OR REF.	5402.02 CE	005376.00 66
IBR180	CBRZH,\$X1,IBR188	-COUNT 4 TO 3, NO B OR REF.	5402.42 CE	005376.40 66
IBR181	CBRZH,\$X1,IBR189	-COUNT 2 TO 1, NO B OR REF.	5403.02 CE	005377.00 66
IBR182	CBRZH,\$X1,IBR190	-COUNT 2 TO 1 NO B OR REF.	5403.42 CE	005377.40 66
IBR183	SX,\$X1,IBR192	-SX FOR VALUE TEST	5407.03 10	005400.00 66
IBR184	CBRZH,\$X1,IBR191	-SHOULD BRANCH + REFILL, C TO 0	5404.02 CE	005400.40 66
IBR185	B,\$	-HANG UP IF NO B ON ZERO	5401.10 00	005401.00 6

IBR186	B,\$	-HANG UP IF B ON NOT ZERO	5401.50 00	005401.40 6
IBR187	B,\$	-HANG UP IF B ON NOT ZERO	5402.10 00	005402.00 6
IBR188	B,\$	-HANG UP IF B ON NOT ZERO	5402.50 00	005402.40 6
IBR189	B,\$	-HANG UP IF B ON NOT ZERO	5403.10 00	005403.00 6
IBR190	B,\$	-HANG UP IF B ON NOT ZERO	5403.50 00	005403.40 6
IBR191	SX,\$X1,IBR193	-SX FOR REFILL TEST	5410.03 10	005404.00 66
	B,IBR192	-GO TO VALUE TEST	5407.10 00	005404.40 6
IBRA23	XW,IBRA23+%8H.44,6,IBRA24	-COMMON XW	5405.44 00 000140.13 06	005405.00 666
IBRA24	XW,IBR194+%8H.04,%8H37777,-1	-REFILL XW	5411.04 00 777777.77 FF	005406.00 66C
IBR192	B,\$	-IF HANG UP, VALUE ON CDDZ WRONG	5407.10 00	005407.00 6
	B,\$	-	5407.50 00	005407.40
IBR193	B,\$	-IF HANG UP, FAULTY REFILL ZERO	5410.10 00	005410.00 6
	B,\$	-ALL 1 S	5410.50 00	005410.40
IBR194	VF,%8H777777.70	-EQUALS NOP,-.32	777777.70+	005411.00 6
	VF,%8H777777.70	-EQUALS NOP,-.32	777777.70+	005411.40
	-* * * *			
	-* * * *%SIC-CB#***STORE IC IF COUNT AND BRANCH			
	-* * * *			
	-* * * *START OF TEST			
	-* * * *			
ISCB	LCI,\$X1,4	-SET UP COUNT	4.03 02	005412.00
	NOP,0.0		0.30 00	005412.40
ISCB1	SIC,ISCB	-STORE IC,	5430.40 00	005413.00
	CB,\$X1,ISCB2	-COUNT NOT 0,BRANCH	5414.42 48	005413.40
ISCB5	BD,\$	-HANG UP OR BECOME BD,ISCB	5414.04 00	005414.00
ISCB2	SIC,ISCB	-STORE IC,	5414.00 80	005414.40
	CB,\$X1,ISCB3	-COUNT NOT 0, BRANCH	5416.02 48	005415.00
ISCB3	BD,\$	-HANG UP OR BECOME BD,ISCB	5415.44 00	005415.40
ISCB3	SIC,ISCB	-STORE IC,	5415.40 80	005416.00
	CB,\$X1,ISCB4	-COUNT NOT 0, BRANCH	5417.42 48	005416.40
ISCB4	BD,\$	-HANG UP OR BECOME BD,ISCB	5417.04 00	005417.00
ISCB4	SIC,ISCB	-STORE IC,	5417.00 80	005417.40
	CBZ,\$X1,ISCB5	-COUNT ZERO, BRANCH	5421.02 4A	005420.00
ISCBH	BD,\$	-HANG UP OR BECOME BD,ISCB	5420.44 00	005420.40
	-* * * *			
	-* * * *%SIC-CBZ# *** STORE IC IF COUNT + BRANCH ON ZERO			
	-* * * *			
	-* * * *START OF TEST			
	-* * * *			
ISCB5	LCI,\$X1,4	-SET UP COUNT	4.03 02	005421.00
ISCB6	SIC,ISCB	-DONT STORE IC	5422.40 80	005421.40
	CBZ,\$X1,\$+.32	-COUNT NOT ZERO NO BRANCH	5422.42 4A	005422.00
ISCB	BD,\$+.32	-HANG IF IC STORED	5423.04 00	005422.40
ISCB7	SIC,ISCB	-DONT STORE IC	5424.00 80	005423.00
	CBZ,\$X1,\$+.32	-COUNT NOT ZERO NO BRANCH	5424.02 4A	005423.40
ISCB	BD,\$+.32	-HANG IF IC STORED	5424.44 00	005424.00
ISCB8	SIC,ISCB	-DONT STORE IC	5425.40 80	005424.40
	CBZ,\$X1,\$+.32	-COUNT NOT ZERO, NO BRANCH	5425.42 4A	005425.00
ISCBG	BD,\$+.32	-HANG IF IC STORED	5426.04 00	005425.40
ISCB9	SIC,ISCBH	-STORE IC BECAUSE	5420.40 80	005426.00
	CBZ,\$X1,\$+1.0	-COUNT IS ZERO, BRANCH	5427.42 4A	005426.40
ISCB1	BD,\$	-BD, ISCBK %NEW ADDR#	5427.04 00	005427.00
	LV,\$X1,ISCBJ	-SET UP ISCB1 TO	5431.02 30	005427.40
	SV,\$X1,ISCB1	-BRANCH OUT OF ROUTINE	5427.03 30	005430.00
ISCB	BD,\$	-BD,ISCB %NEW ADDR#	5430.44 00	005430.40
ISCBJ	VF,ISCBK+.04	-ISCB1 SET UP	5431.44+	005431.00
ISCBK	VF,%8H777777.70	-NOP,-.32	777777.70+	005431.40
	VF,%8H777777.70	-NOP,-.32	777777.70+	005432.00
	-* * * *			
	-* * * *%SIC-B,ZIND# *** STORE IC IF BRANCH ON ZERO IND			
	-* * * *			
	-* * * *START OF TEST			
	-* * * *			
ISBI	LX,\$X1,ISBXW	-XVZ ON, XCZ, XVGZ, XVLZ, XF OFF	5442.02 10	005432.40
	NOP		0.30 00	005433.00
ISBI1	SIC,ISBIA	-STORE IC	5452.00 80	005433.40

	BZXF,ISB12	-IND OFF, BRANCH	5435.23 40	005434.00
ISB1B	BD,\$	-HANG UP OR BECOME BD, ISB1C	5434.44 00	005434.40
ISB12	SIC,ISB1B	-STORE IC	5434.40 80	005435.00
	BZXCZ,ISB13	-IND OFF, BRANCH	5436.70 40	005435.40
ISB1C	BD,\$	-HANG UP OR BECOME BD, ISB1D	5436.04 00	005436.00
ISB13	SIC,ISB1C	-STORE IC	5436.00 80	005436.40
	BZXVGZ,ISB14	-IND OFF, BRANCH	5440.31 C0	005437.00
ISB1D	BD,\$	-HANG UP OR BECOME BD, ISB1E	5437.44 00	005437.40
ISB14	SIC,ISB1D	-STORE IC	5437.40 80	005440.00
	RZXVLZ,ISB15	-IND OFF, BRANCH	5443.30 C0	005440.40
ISB1H	BD,\$	-HANG UP OR BECOME BD, ISB1I	5441.04 00	005441.00
ISBXW	XW,0,2,0	-INDEX WROD	0.00 00 000040.00 00	005442.00
	- * * * *			
	- * * * *%SIC-B,IND= ***** STORE IC IF BRANCH ON IND			
	- * * * *			
	- * * * *START OF TEST			
	- * * * *			
ISB15	SIC,ISB1E	-DONT STORE IC	5444.00 80	005443.00
	BXF,\$+.32	-IND OFF, NO BRANCH	5444.23 42	005443.40
ISB1E	BD,\$+.32	-HANG IF IC STORED	5444.44 00	005444.00
ISB16	SIC,ISB1F	-DONT STORE IC	5445.40 80	005444.40
	BXCZ,\$+.32	-IND OFF, NO BRANCH	5445.70 42	005445.00
ISB1F	BD,\$+.32	-HANG IF IC STORED	5446.04 00	005445.40
ISB17	SIC,ISB1G	-DONT STORE IC	5447.00 80	005446.00
	BXVGZ,\$+.32	-IND OFF, NO BRANCH	5447.31 C2	005446.40
ISB1G	BD,\$+.32	-HANG IF IC STORED	5447.44 00	005447.00
ISB18	SIC,ISB1H	-STORE IC BECAUSE	5441.00 80	005447.40
	BXVZ,\$+1.0	-XVZ IS ON, BRANCH	5451.31 42	005450.00
ISB1I	BD,\$	-BD, ISBIK %NEW ADDR=	5450.44 00	005450.40
	LV,\$X1,ISBIJ	-SET UP ISB1I TO	5452.42 30	005451.00
	SV,\$X1,ISB1I	-BRANCH OUT OF ROUTINE	5450.43 30	005451.40
ISB1A	BD,\$	-BD, ISB1B %NEW ADDR=	5452.04 00	005452.00
ISBIJ	VF,ISBIK+.04	-ISB1I SET UP	5453.04+	005452.40
ISBIK	VF,%8=777777.70	-NOP,-.32	777777.70+	005453.00
	VF,%8=777777.70	-NOP,-.32	777777.70+	005453.40
	CNOP			
	- * * * *			
	- * * * *START OF TEST			
	- * * * *			
WEN2	L%BU,64,8=,WEN7	-LOAD ONES	6103.00 80 000000.20 50	005454.00
	BRGZZ,\$+1.0		5456.35 46	005455.00
	BD,\$		5455.44 00	005455.40
WEN	L%BU,64,8=,WEN6	-LOAD ZEROS	6102.00 80 000000.20 50	005456.00
	BRZZ,\$+1.0		5460.34 C6	005457.00
	BD,\$		5457.44 00	005457.40
VEN	L%BU,64,8=,WEN7		6103.00 80 000000.20 50	005460.00
	BRGZZ,\$+1.0		5462.35 46	005461.00
	BD,\$		5461.44 00	005461.40
	- * * * *			
	- * * * *Y-Z CONTROL SEQUENCES IN OPPOSITE Y REGS			
	- * * * *			
	- * * * *START OF TEST			
	- * * * *			
	-Y-Z CONTROL SEQUENCES OPERATIONS			
	-*NOT PROG INDEXING MOD-ZL %Z0-23+/-X0-23= TO Z0-23			
	-PROG INDEXING MOD-ZL %X0-23 TO Z0-23=			
	-***PROG INDEXING Z0-23 TO Y0-23			
IBY	LX,\$X1,IBYXW		5463.02 10	005462.00
	B,IBY1	-SET UP IX REG.	5464.10 00	005462.40
IBYXW	XW,0,0,-1,\$	-COMMON XW	0.00 0F 777760.13 33	005463.00 C
IBY1	L%U=,IBYFPA	-FP %NOT-MOD= %ZEROS= YL-ZR	5471.40 60	005464.00 6
	L%U=,IBYFPB	-FP %NOT-MOD= %ONES= YR-ZL	5472.40 60	005464.40 6
IBY2	L%U=,IBYFPB	-FP %NOT-MOD= %ONES= YL-ZR	5472.40 60	005465.00 6
	L%U=,IBYFPB\$X1=	-FP %MOD= %ONES= YR-ZL%M-ZL=	5472.40 61	005465.40 6
IBY3	L%U=,IBYFPA\$X1=	-FP %MOD= %ZEROS= YL-ZR%M-ZR=	5471.40 61	005466.00 6
	L%U=,IBYFPA	-FP %NOT-MOD= %ZEROS= YR-ZL	5471.40 60	005466.40 6

IBY4	L%U,IBYFPB%\$X1	-FP %MOD %ONES YL-ZR %M-ZR	5472.40 61	005467.40 6
	L%U,IBYFPA%\$X1	-FP %MOD %ZEROS YR-ZL %M-ZL	5471.40 61	005467.40 6
	B,IBY5		5475.10 00	005470.00
	CNOP,0.0		0.30 00	005470.40
IBYFPA	%8DD%BU,64,8,0	-EX/0%+ ,FRACT/0%+	00000000000000000000	005471.00 6
IBYFPB	%8DD%BU,64,8,000017777777777777777760	-EX/0%+ ,FRACT/48-1S%+	0000177777777777777760	005472.00 6
IBYVFA	%8DD%BU,64,8,0	-ALL OS	00000000000000000000	005473.00 6
IBYVFB	%8DD%BU,64,8,177777777777777777777777	-ALL IS	177777777777777777777777	005474.00 6
IBY5	L%U,IBYFPB	-FP%NOT-MOD %ONES YL-ZR	5472.40 60	005475.00 6
	B,IBY6	-IHW%NOT-M%YR-ZL, XF+DEC, ZL%B, IBY6	5500.10 00	005475.40
IBY7	L%U,IBYFPB%\$X1	-FP%MOD %ONES YL-ZR, %MOD-ZR	5472.40 61	005476.00 6
	LV,\$X1,IBYXW	-IHW %NOT-M% YR-ZL, XF+DEC ZL%V, ZERO	5463.02 30	005476.40
IBY8	L%U,IBYFPA%\$X1	-FP%MOD %ZEROS YL-ZR, %MOD-ZR	5471.40 61	005477.00 6
	B,IBY9%\$X1	-IHW %MOD YR-ZL %MOD-ZL %B, IBY9	5501.10 01	005477.40
IBY6	L%U,IBYFPA	-FP%NOT-M% %ZEROS XL-ZR	5471.40 60	005500.00 6
	B,IBY7%\$X1	-IHW %MOD YR-ZL %MOD-ZL %B, IBY7	5476.10 01	005500.40
IBY9	LV,\$X1,IBYXW	-IHW %NOT-M% YL-ZR	5463.02 30	005501.00
	L%U,IBYFPB	-FP %NOT-M% %ONES YR-ZL %IHW-EX	5472.40 60	005501.40 6
IBY10	LV,\$X1,IBYXW	-IHW %NOT-M% YL-ZR	5463.02 30	005502.00
	L%U,IBYFPA%\$X1	-FP%M%YR-ZL, %M-ZL %IHW-EX, XF+DECZL	5471.40 61	005502.40 6
IBY11	LV,\$X1,IBYXW%\$X1	-IHW%MODE YL-ZR %MOD-ZR	5463.02 31	005503.00
	L%U,IBYFPA	-FP %NOT-M% %ONES YR-ZL, IHW-EX	5471.40 60	005503.40 6
IBY12	LV,\$X1,IBYXW%\$X1	-IHW %MOD YL-ZR %MOD-ZR	5463.02 31	005504.00
	L%U,IBYFPB%\$X1	-FP%M%YR-ZL %M-ZL %IHW-EX, XF+DEC ZL	5472.40 61	005504.40 6
IBY13	LV,\$X1,IBYXW	-IHW %NO-M% YL-ZR	5463.02 30	005505.00
	B,IBY14	-IHW%NO-M%YR-ZL %IHW%XF+DECZL, IHWX	5507.10 00	005505.40
IBY15	LV,\$X1,IBYXW%\$X1	-IHW %M% YL-ZR%M-ZR	5463.02 31	005506.00
	B,IBY16	-IHW %NO-M% YR-ZL, IHWX, XF+DECZL, IHWX	5510.10 00	005506.40
IBY14	LV,\$X1,IBYXW	-IHW %NO-M% YL-ZR	5463.02 30	005507.00
	B,IBY15%\$X1	-IHW%M%YR-ZL, IHWX, XFXDECZL, M-ZL, IHWX	5506.10 01	005507.40
IBY16	LV,\$X1,IBYXW%\$X1	-IHW %M% YL-ZR%M-ZR	5463.02 31	005510.00
	B,IBY17%\$X1	-IHW %M% YR-ZL, IHWX, XF+DECZL, M-ZL, IHW	5511.10 01	005510.40
IBY17	L%U,IBYFPA	-FP YL-ZR	5471.40 60	005511.00 6
	L%BU,64,8,IBYVFB	-LH YR-ZL, YBACK FROM MEM	5474.00 30 000000.20 50	005511.40 6
	NOP,0.0		0.30 00	005512.40
IBY18	L%U,IBYFPB	-FP YL-ZR	5472.40 60	005513.00 6
	L%BU,64,8,IBYVFA%\$X1	-*LH%M%YR-ZL, YBACK FROM MEM, MOD-ZL	5473.00 81 000000.20 50	005513.40 6
	NOP,0.0		0.30 00	005514.40
IBY19	L%U,IBYFPA%\$X1	-FP%M% YL-ZR, MOD-ZR	5471.40 61	005515.00 6
	L%BU,64,8,IBYVFB	-LH YR-ZL, YBACK FROM MEM	5474.00 80 000000.20 50	005515.40 6
	NOP,0.0		0.30 00	005516.40
IBY20	L%U,IBYFPB%\$X1	-FP YL-ZR, MOD-ZR	5472.40 61	005517.00 6
	L%BU,64,8,IBYVFA%\$X1	-*LH%M% YR-ZL, Y BACK FROM MEM, MOD-ZL	5473.00 81 000000.20 50	005517.40 6
	NOP,0.		0.30 00	005520.40
IBY21	CBZ,\$X1,HANGUP	-IHW, YL-ZR	5531.42 4A	005521.00 6
	L%BU,64,8,IBYVFA	-LH, YR-ZL, IHWX, Y BACK FROM MEM	5473.00 80 000000.20 50	005521.40 6
	NOP,0.0		0.30 00	005522.40
IBY22	LV,\$X1,IBYXW	-IHW, YL-ZR	5463.02 30	005523.00
	L%BU,64,8,IBYVFB%\$X1	-*LH%M%YR-ZL, IHWX, XF+DEC-ZL	5474.00 81 000000.20 50	005523.40 6
	NOP,0.0	-Y BACK FROM MEM, M-ZL	0.30 00	005524.40
IBY23	CBZ,\$X1,HANGUP%\$X1	-IHW%M% YL-ZR, MOD-ZR	5531.42 4B	005525.00 6
	L%BU,64,8,IBYVFB	-LH, YR-ZL, IHWX, Y BACK FROM MEM	5474.00 80 000000.20 50	005525.40 6
	NOP,0.0		0.30 00	005526.40
IBY24	LV,\$X1,IBYXW%\$X1	-IHW%7%YL-ZR, MOD-ZR	5463.02 31	005527.00
	L%BU,64,8,IBYVFA%\$X1	-*LH%M% YR-ZL, IHWX, XF+DEC-ZL	5473.00 81 000000.20 50	005527.40 6
	NOP,0.0	-Y BACK FORM MEM, M-ZL	0.30 00	005530.40
	B,IBY21A	-	5532.10 00	005531.00 6
HANGUP	BD,\$	-HANG UP IF CBZ FAILS	5531.44 00	005531.40 6
IBY21A	CBZ,\$X1,HANGUP	-IHW, YL-ZR	5531.42 4A	005532.00 66
	L%BU,64,8,IBYVFA	-LH, YR-ZL, IHWX, Y BACK FORM MEM	5473.00 80 000000.20 50	005532.40 6
	NOP,0.0		0.30 00	005533.40
IBY22A	LV,\$X1,IBYXW	-IHW, YL-ZR	5463.02 30	005534.00 6
	L%V+ICR%BU,64,8,0.%\$X1	-*LH%M%YR-ZL, IHWX, XF+DEC-ZL	0.00 81 300000.20 50	005534.40
	NOP,0.0	-Y BACK FROM MEM, M-ZL	0.30 00	005535.40
IBY23A	CBZ,\$X1,HANGUP%\$X1	-IHW%M%YL-ZR, MOD-ZR	5531.42 4B	005536.00 66
	L%BU,64,8,IBYVFB	-LH, YR-ZL, IHWX, Y BACK FROM MEM	5474.00 80 000000.20 50	005536.40 6

	NOP,0.0	-	0.30 00		005537.40
IBY24A	LV,\$X1,IBYXW\$SX1#	-IHW\$M\$YL-ZR,MOD-ZR	5463.02 31		005540.00 6
	L%V-ICR\$BU,64,8#,\$SX1#	-*LH\$M\$YR-ZL,IHW,XF+DEC-ZL	0.00 81	700000.20 50	005540.40
	NOP,0.0	-Y BACK FROM MEM,M-ZL	0.30 00		005541.40
IBY25	NOP,0.0	-	0.30 00		005542.00
	SIC,IBYSTO	-LH OF F.W. INST TYPE	5553.40 80		005542.40 6
	CBZ,\$X1,HANGUP	-RH,YL-ZR,WBC+DEC,WAIT FOR ZMT	5531.42 4A		005543.00 6
	L%U#,IBYFPA	-FP,YR-ZL	5471.40 60		005543.40 6
IBY26	NOP,0.0	-	0.30 00		005544.00
	L%BU,64,8#,IBYVFB	-RH,YL-ZR,WBC+DEC,WAIT FOR ZMT	5474.00 80	000000.20 50	005544.40 6
	L%U#,IBYFPA\$SX1#	-FP\$M\$YR-ZL,MOD-ZL	5471.40 61		005545.40 6
IBY27	NOP,0.0	-	0.30 00		005546.00
	SIC,IBYSTO	-LH OF F.W. INST TYPE	5553.40 80		005546.40 6
	CB,\$X1,IBY27A\$SX1#	-RH\$M\$YL-ZR,M-ZR,WBC+DEC,WAIT-ZMT	5550.42 49		005547.00 6
	B,HANGUP	-NO BRANCH	5531.50 00		005547.40 6
	B,HANGUP	-WRONG BRANCH	5531.50 00		005550.00 6
IBY27A	L%U#,IBYFPB	-FP,YR-ZL	5472.40 60		005550.40 66
IBY28	NOP,0.0	-	0.30 00		005551.00
	L%BU#,IBYVFA,\$SX1#	-*RH\$M\$YL-ZR,M-ZR,WBC+DEC,WAIT-ZMT	5473.00 80	000000.20 51	005551.40 6
	L%U#,IBYFPA\$SX1#	-FP\$M\$YR-ZL,M-ZL	5471.40 61		005552.40 6
	B,IBY29	-GO TO NEXT ROUTINE	5554.10 00		005553.00
IBYSTO	%CDD\$BU,32,8#,0	-SIC STORE AREA		000000000000	005553.40 6
IBY29	NOP,0.0	-	0.20 00		005554.00
	SIC,IBYSTO	-LH OF F.W. INST TYPE	5553.40 80		005554.40 6
	CB,\$X1,IBY29A	-RH,YL-ZR,WBC+DEC,WAIT FOR ZMT	5556.42 48		005555.00 6
	B,HANGUP	-NO BRANCH	5531.50 00		005555.40 6
	B,HANGUP	-WRONG BRANCH	5531.50 00		005556.00 6
IBY29A	LV,\$X1,IBYXW	-IHW,YR-ZL	5463.02 30		005556.40 6
IBY30	NOP,0.0	-	0.30 00		005557.00
	L%BU,64,8#,IBYVFA	-RH,YL-ZR,WBC+DEC,WAIT FOR ZMT	5472.00 80	000000.20 50	005557.40 6
	CBZ,\$X1,HANGUP\$SX1#	-IHW\$M\$YR-ZL\$M-ZL#	5531.42 4B		005560.40 6
IBY31	NOP,0.0	-	0.30 00		005561.00
IBY31A	SIC,IBYSTO	-LH OF F.W. INST TYPE	5553.40 80		005561.40 66
	CBZ,\$X1,HANGUP\$SX1#	-RH\$M\$YL-ZR,M-ZR,WBC+DEC,WAIT-ZMT	5531.42 4B		005562.00 6
	LV,\$X1,IBYXW	-IHW,YR-ZL	5463.02 30		005562.40
IBY32	NOP,0.0	-	0.30 00		005563.00
	L%BU#,IBYVFB,\$SX1#	-*RH\$M\$YL-ZR,M-ZR,WBC+DEC,WAIT-ZMT	5474.00 80	000000.20 51	005563.40 6
	CB,\$X1,IBY33\$SX1#	-IHW\$M\$YR-ZL	5566.02 49		005564.40
	B,HANGUP	-NO BRANCH	5531.50 00		005565.00 6
	B,HANGUP	-WRONG BRANCH	5531.50 00		005565.40 6
IBY33	NOP,0.0	-	0.30 00		005566.00
	L%BU,64,8#,IBYVFA	-RH,YL-ZR,WBC+DEC,WAIT-ZMT	5473.00 80	000000.20 50	005566.40 6
	SIC,IBYSTO	-LH,YR-ZL,Y BACK FROM MEM	5553.40 80		005567.40 6
	CB,\$X1,IBY34A	-SUCCESSFULL BRANCH	5571.42 49		005570.00 6
	B,HANGUP	-NO BRANCH	5531.50 00		005570.40 6
	B,HANGUP	-WRONG BRANCH	5531.50 00		005571.00 6
IBY34A	L%BU#,IBYVFB	-RH,YL-ZR,WBC+DEC,WAIT-ZMT	5474.00 80	000000.20 50	005571.40 66
	L%BU#,IBYVFA\$SX1#	-*LH\$M\$YR-ZL,YBACK FROM MEM,M-ZL	5473.00 81	000000.20 50	005572.40 6
IBY35	NOP,0.0	-	0.30 00		005573.40
	NOP,0.0	-	0.30 00		005574.00
	SIC,IBYSTO	-NO STORE BRANCH UNSUCCESSFUL	5553.40 80		005574.40 6
	CBZ,\$X1,HANGUP\$SX1#	-RH\$M\$YL-ZR\$M-ZR,WBC+DEC,Y FROM MEM	5531.42 4B		005575.00 6
	L%BU#,IBYVFB	-LH,YR-ZL,Y BACK FROM MEM	5474.00 80	000000.20 50	005575.40 6
	NOP,0.0	-	0.30 00		005576.40
IBY36	NOP,0.0	-	0.30 00		005577.00
	L%BU#,IBYVFA,0,\$SX1#	-*RH\$M\$YL-ZR\$M-ZR,WBC+DEC,Y FROM MEM	5473.00 80	000000.20 51	005577.40 6
	L%BU#,IBYVFB\$SX1#	-*LH\$M\$YR-ZL,Y BACK FROM MEM	5474.00 81	000000.20 50	005600.40 6
	NOP,0.0	-	0.30 00		005601.40
IBY37	L%BU#,IBYVFA,0	-LH,RH,YR-ZR,YL-ZL,WBC+DEC	5473.00 80	000000.20 50	005602.00 6
IBY38	SIC,IBYSTO	-LH,YL-ZL,WBC+DEC	5553.40 80		005603.00 6
	CBZ,\$X1,HANGUP\$SX1#	-RH\$M\$YR-ZR,MOD-ZR	5531.42 4B		005603.40 6
IBY39	L%BU#,IBYVFB\$SX1#,0	-*LH\$M\$RH,YR-ZR,YL-ZL,M-ZL,WBC+DEC	5474.00 81	000000.20 50	005604.00 6
IBY40	SIC,IBYSTO\$SX1#	-LH\$M\$YL-ZL\$M-ZL,WBC+DEC	5553.40 81		005605.00 6
	CB,\$X1,IBYB\$SX1#	-RH\$M\$YR-ZR\$M-ZR#	5607.02 49		005605.40
	B,HANGUP	-NO BRANCH	5531.50 00		005606.00 6
	B,HANGUP	-WRONG BRANCH	5531.50 00		005606.40 6

IBYB	LX,\$X1,IBYXWB		5610.02 10	005607.00 6
		B,IBY1B -SET UP IX REG.	5611.10 00	005607.40 -
IBYXWB	XW,0.0,-1,S	-COMMON XW	0.00 0F 777760.13 88	005610.00 6C
IBY1B	L%U#,IBYFPA	-FP %NOT-MODE %ZEROSH YL-ZR	5471.40 60	005611.00 6
	L%U#,IBYFPB	-FP %NOT-MODE %ONESH YR-ZL	5472.40 60	005611.40 6
IBY2B	L%U#,IBYFPB	-FP %NOT-MODE %ONESH YL-ZR	5472.40 60	005612.00 6
	L%U#,IBYFPB%\$X1#	-FP %MODE %ONESH YR-ZL%Y-ZL#	5472.40 61	005612.40 6
IBY3B	L%U#,IBYFPA%\$X1#	-FP %MODE %ZEROSH YL-ZR %M-ZR#	5471.40 61	005613.00 6
	L%U#,IBYFPA	-FP %NOT-MODE %ZEROSH YR-ZL	5471.40 60	005612.40 6
IBY4B	L%U#,IBYFPB%\$X1#	-FP %MODE %ONESH YL-ZR %M-ZR#	5472.40 61	005614.00 6
	L%U#,IBYFPA%\$X1#	-FP %MODE%ZEROSH YR-ZL %M-ZL#	5471.40 61	005614.40 6
	B,IBY5B		5616.10 00	005615.00
	CNOP,0.0		0.30 00	005615.40
IBY5B	L%U#,IBYFPB	-FP%NOT-MODE %ONESH YL-ZR	5472.40 60	005616.00 6
	B,IBY6B	-IHW%NOT-M%YR-ZL,XF+DEC,ZL%B,IBY6#	5621.10 00	005616.40
IBY7B	L%U#,IBYFPB%\$X1#	-FP%MODE %ONES YL-ZR, %MOF-ZR#	5472.40 61	005617.00 6
	LV,\$X1,IBYXWB	-IHW %NOT-M% YR-ZL,XF+DEC ZL%V,ZEROSH	5610.02 30	005617.40 6
IBY8B	L%U#,IBYFPA%\$X1#	-FP%MODE %ZEROSH YL-ZR, %MOD-ZR#	5471.40 61	005620.00 6
	B,IBY9B%\$X1#	-IHW %MODE YR-ZL %MOD-ZL# %B,IBY9#	5622.10 01	005620.40
IBY6B	L%U#,IBYFPA	-FP%NOT-M% %ZEROSH XL-ZR	5471.40 60	005621.00 6
	B,IBY7B%\$X1#	-IHW %MODE YR-ZL %MOD-ZL# %B,IBY7#	5617.10 01	005621.40
IBY9B	LV,\$X1,IBYXWB	-IHW %NOT-M% YL-ZR	5610.02 30	005622.00 6
	L%U#,IBYFPB	-FP %NOT-M% %ONESH YR-ZL %IHW-EX#	5472.40 60	005622.40 6
IBY10B	LV,\$X1,IBYXWB	-IHW %NOT-M% YL-ZR	5610.02 30	005623.00 66
	L%U#,IBYFPA%\$X1#	-FP%M%YR-ZL, %M-ZL#IHW-EX,XF+DECZL	5471.40 61	005623.40 6
IBY11B	LV,\$X1,IBYXWB%\$X1#	-IHW%MODE YL-ZR %MOD-ZR#	5610.02 31	005624.00 66
	L%U#,IBYFPA	-FP %NOT-M% %ONES YR-ZL,IHW-EX	5471.40 60	005624.40 6
IBY12B	LV,\$X1,IBYXWB%\$X1#	-IHW %MODE YL-ZR %MOD-ZR#	5610.02 31	005625.00 66
	L%U#,IBYFPB%\$X1#	-FP%M%YR-ZL %M-ZL# IHW-EX,XF+DEC ZL	5472.40 61	005625.40 +6
IBY13B	LV,\$X1,IBYXWB	-IHW %NO-M% YL-ZR	5610.02 30	005626.00 66
	B,IBY14B	-IHW%NO-M%YR-ZL%IHWX%XF+DECZL,IHWX	5630.10 00	005626.40 6
IBY15B	LV,\$X1,IBYXWB%\$X1#	-IHW %M% YL-ZR%M-ZR#	5610.02 31	005627.00 66
	B,IBY16B	-IHW %NO-M% YR-ZL,IHWX,XF+DECZL,IHWX	5631.10 00	005627.40 6
IBY14B	LV,\$X1,IBYXWB	-IHW %NO-M% YL-ZR	5610.02 30	005630.00 66
	B,IBY15B%\$X1#	-IHW%M%YR-ZL,IHWX,XF+DECZL,M-ZL,IHWX	5627.10 01	005630.40 6
IBY16B	LV,\$X1,IBYXWB%\$X1#	-IHW %M% YL-ZR%M-ZR#	5610.02 31	005631.00 66
	B,IBY17B%\$X1#	-IHW %M% YR-ZL,IHWX,XF+DECZL,M-ZL,IHW	5632.10 01	005631.40 6
IBY17B	L%U#,IBYFPA	-FP YL-ZR	5471.40 60	005632.00 66
	L%BU,64,8#,IBYVFB	-LH YR-ZL,YBACK FROM MEM	5474.00 80 000000.20 50	005632.40 6
	NOP,0.0		0.30 00	005633.40
IBY18B	L%U#,IBYFPB	-FP YL-ZR	5472.40 60	005634.00 66
	L%BU,64,8#,IBYVFA%\$X1#	-*LH%M%YR-ZL,YBACK FROM MEM,MOD-ZL	5473.00 81 000000.20 50	005634.40 6
	NOP,0.0		0.30 00	005635.40
IBY19B	L%U#,IBYFPA%\$X1#	-FP%M% YL-ZR,MOD-ZR	5471.40 61	005636.00 66
	L%BU,64,8#,IBYVFB	-LH YR-ZL, YBACK FROM MEM	5474.00 80 000000.20 50	005636.40 6
	NOP,0.0		0.30 00	005637.40
IBY20B	L%U#,IBYFPB%\$X1#	-FP YL-ZR,MOD-ZR	5472.40 61	005640.00 66
	L%BU,64,8#,IBYVFA%\$X1#	-*LH%M% YR-ZL,Y BACK FROM MEM,MOD-ZL	5473.00 81 000000.20 50	005640.40 6
	NOP,0.0		0.30 00	005641.40
IBY21B	CBZ,\$X1,HANGUP	-IHW,YL-ZR	5531.42 4A	005642.00 66
	L%BU,64,8#,IBYVFA	-LH,YR-ZL,IHWX,Y BACK FROM MEM	5473.00 80 000000.20 50	005642.40 6
	NOP,0.0		0.30 00	005643.40
IBY22B	LV,\$X1,IBYXWB	-IHW,YL-ZR	5610.02 30	005644.00 66
	L%BU,64,8#,IBYVFB%\$X1#	-*LH%M%YR-ZL,IHWX,XF+DEC-ZL	5474.00 81 000000.20 50	005644.40 6
	NOP,0.0		0.30 00	005645.40
IBY23B	CBZ,\$X1,HANGUP%\$X1#	-IHW%M% YL-ZR,MOD-ZR	5531.42 4B	005646.00 66
	L%BU,64,8#,IBYVFB	-LH,YR-ZL,IHWX,Y BACK FROM MEM	5474.00 80 000000.20 50	005646.40 6
	NOP,0.0		0.30 00	005647.40
IBY24B	LV,\$X1,IBYXWB%\$X1#	-IHW%7#YL-ZR,MOD-ZR	5610.02 31	005650.00 66
	L%BU,64,8#,IBYVFA%\$X1#	-*LH%M% YR-ZL,IHWX,XF+DEC-ZL	5473.00 81 000000.20 50	005650.40 6
	NOP,0.0		0.30 00	005651.40
	B,IBY21C		5653.10 00	005652.00 6
	NOP,0.0		0.30 00	005652.40

IBY21C	CBZ,\$X1,HANGUP L%BU,64,8H,IBYVFA	-IHW,YL-ZR -LH,YR-ZL,IHWX,Y BACK FROM MEM	5531.42 4A 5473.00 80 000000.20 50	005653.40 6 005653.40 6
IBY22C	NOP,0.0 LV,\$X1,IBYXWB	- -IHW,YL-ZR	0.30 00 5610.02 30	005654.40 005655.00 66
IBY23C	L%V+ICR%BU,64,8H,0.%SX1H NOP,0.0	-*LH%MYR-ZL,IHWX,XF+DEC-ZL -Y BACK FROM MEM,M-ZL	0.00 81 300000.20 50 0.30 00	005655.40 005656.40
IBY24C	CBZ,\$X1,HANGUP%\$X1H L%BU,64,8H,IBYVFB	-IHW%MYL-ZR,MOD-ZR -LH,YR-ZL,IHWX,IY BACK FROM MEM	5531.42 4B 5474.00 80 000000.20 50	005657.00 66 005657.40 6
IBY25B	NOP,0.0 SIC,IBYSTB	- -LH OF F.W. INST TYPE	0.30 00 5674.40 80	005660.40 005661.00 66
IBY26B	CBZ,\$X1,HANGUP L%UH,IBYFPA	-RH,YL-ZR,WBC+DEC,WAIT FOR ZMT -FP,YR-ZL	5531.42 4A 5471.40 60	005661.40 005662.40
IBY27B	NOP,0.0 SIC,IBYSTB	- -LH OF F.W. INST TYPE	0.30 00 5674.40 80	005663.00 6 005663.40 6
IBY28B	CB,\$X1,IBY27C%\$X1H B,HANGUP	-RH%MYL-ZR,M-ZR,WBC+DEC,WAIT-ZMT -NO BRANCH	5671.42 49 5531.50 00	005664.00 6 005664.40 6
IBY29B	B,HANGUP L%UH,IBYFPA%\$X1H	-WRONG BRANCH -FP%MYR-ZL,MOD-ZL	5531.50 00 5471.40 61	005665.00 6 005665.40 5
IBY29C	NOP,0.0 L%BUH,IBYVFA,0%\$X1H	- -*RH%MYL-ZR,M-ZR,WBC+DEC,WAIT-ZMT	0.30 00 5473.00 80 000000.20 51	005666.40 5 005667.00 6
IBY29D	L%UH,IBYFPA%\$X1H	-FP%MYR-ZL,M-ZL	5471.40 61	005667.40 6 005670.00 6
IBY29E	B,IBY29B	-GO TO NEXT ROUTINE	5675.10 00	005670.40 6 005671.00 6
IBY29F	%8HDD%BU,32,8H,0	-SIC STORE AREA	000000000000	005671.40 66 005672.00 6
IBY29G	NOP,0.0 SIC,IBYSTB	- -LH OF F.W. INST TYPE	0.30 00 5674.40 80	005672.40 6 005673.40 6
IBY29H	CB,\$X1,IBY29C	-RH,YL-ZR,WBC+DEC,WAIT FOR ZMT	5677.42 48	005674.00 6 005674.40 6
IBY29I	B,HANGUP	-NO BRANCH	5531.50 00	005676.00 6 005676.40 6
IBY29J	B,HANGUP	-WRONG BRANCH	5531.50 00	005677.00 6 005677.40 66
IBY29K	LV,\$X1,IBYXWB	-IHW,YR-ZL	5610.02 30	005677.40 66
IBY30B	NOP,0.0 L%BU,64,8H,IBYVFA	- -RH,YL-ZR,WBC+DEC,WAIT FOR ZMT	0.30 00 5473.00 80 000000.20 50	005700.00 6 005700.40 6
IBY31B	CBZ,\$X1,HANGUP%\$X1H NOP,0.0	-IHW%MYR-ZL%M-ZLH -	5531.42 4B 0.30 00	005701.40 6 005702.00 6
IBY31C	SIC,IBYSTB	-LH OF F.W. INST TYPE	5674.40 80	005702.40 66 005703.00 6
IBY31D	CBZ,\$X1,HANGUP%\$X1H	-RH%MYL-ZR,M-ZR,WBC+DEC,WAIT-ZMT	5531.42 4B	005703.40 6 005704.00 6
IBY31E	LV,\$X1,IBYXWB	-IHW,YR-ZL	5610.02 30	005704.40 5 005705.40 6
IBY31F	NOP,0.0 L%BUH,IBYVFB,0%\$X1H	- -*RH%MYL-ZR,M-ZR,WBC+DEC,WAIT-ZMT	0.30 00 5474.00 80 000000.20 51	005706.00 6 005706.40 6
IBY31G	CB,\$X1,IBY33B%\$X1H	-IHW%MYR-ZL	5707.02 49	005707.00 6 005707.40 6
IBY31H	B,HANGUP	-NO BRANCH	5531.50 00	005710.40 6 005711.00 6
IBY31I	B,HANGUP	-WRONG BRANCH	5531.50 00	005711.40 6 005712.00 66
IBY31J	NOP,0.0 L%BU,64,8H,IBYVFA	- -RH,YL-ZR,WBC+DEC,WAIT-ZMT	0.30 00 5473.00 80 000000.20 50	005712.40 66 005713.40 6
IBY31K	SIC,IBYSTB	-LH OF F.W. INST TYPE	5674.40 80	005714.40 005715.00 6
IBY31L	CB,\$X1,IBY34C	-SUCCESSFULL BRANCH	5712.42 48	005715.40 6 005716.00 6
IBY31M	B,HANGUP	-NO BRANCH	5531.50 00	005716.40 6 005717.40
IBY31N	B,HANGUP	-WRONG BRANCH	5531.50 00	005720.00 6 005720.40 6
IBY31O	L%BUH,IBYVFB	-RH,YL-ZR,WBC+DEC,WAIT-ZMT	5474.00 80 000000.20 50	005712.40 66 005713.40 6
IBY31P	L%BUH,IBYVFA%\$X1H	-*LH%MYR-ZL,Y BACK FROM MEM,M-ZL	5473.00 81 000000.20 50	005714.40 005715.00 6
IBY31Q	NOP,0.0 NOP,0.0	- -	0.30 00 0.30 00	005716.40 6 005717.40
IBY31R	SIC,IBYSTB	-NO STORE BRANCH UNSUCCESSFUL	5674.40 80	005718.40 005719.00 6
IBY31S	CBZ,\$X1,HANGUP%\$X1H	-RH%MYL-ZR%M-ZR%WBC+DEC,Y FROM MEM	5531.42 4B	005720.00 6 005720.40 6
IBY31T	L%BUH,IBYVFB	-LH,YR-ZL,Y BACK FROM MEM	5474.00 80 000000.20 50	005716.40 6 005717.40
IBY31U	NOP,0.0 NOP,0.0	- -	0.30 00 0.30 00	005720.00 6 005720.40 6
IBY31V	L%BUH,IBYVFA,0.%\$X1H	-*RH%MYL-ZR%M-ZR%WBC+DEC,Y FROM MEM	5473.00 80 000000.20 51	005721.40 6 005722.40
IBY31W	L%BUH,IBYVFB%\$X1H	-*LH%MYR-ZL,Y BACK FROM MEM	5474.00 81 000000.20 50	005721.40 6 005722.40
IBY31X	NOP,0.0	-	0.30 00	005722.40

IBY37B	L%BUH,IBYVFA,0	-LH,RH,YR-ZR,YL-ZL,WBC+DEC	5473.00 80 000000.20 50	005723.00 66
IBY38B	SIC,IBYSTB	-LH,YL-ZL,WBC+DEC	(5674.40 80)	005724.00 66
IBY39B	CBZ,SX1,HANGUP%\$X1#	-RH%M#YR-ZR,MOD-ZR	(5531.42 48)	005724.40 6
IBY40B	L%BUH,IBYVFB%\$X1#,0	-*LH%M#RH,YR-ZR,YL-ZL,M-ZL,WBC+DEC	5474.00 81 000000.20 50	005725.00 66
IBY40B	SIC,IBYSTB%\$X1#	-LH%M#YL-ZL%M#ZL#WBC+DEC	5674.40 81	005726.00 66
IBY40B	SIC,IBYSTB%\$X1#	-LH%M#YL-ZL%M#ZL#WBC+DEC	5674.40 81	005726.00 66
	CB,\$X1,IBY40C%\$X1#	-RH%M# YR-ZR%M#-ZR#	5730.02 49	005726.40 6
	B,HANGUP	-NO BRANCH	5531.50 00	005727.00 6
	B,HANGUP	-WRONG BRANCH	5531.50 00	005727.40 6
IBY40C	NOP,%8#777777.	-END OF Y-Z	777777.30 00	005730.00 6
	NOP,%8#777777.	-CONTROL SEQUENCE	777777.30 00	005730.40
	-*NOT PROG INDEXING MOD-ZL %Z0-23+/-X0-23# TO Z0-23#			
	-PROG INDEXING MOD-ZL %X0-23 TO Z0-23#			
	-**PROG INDEXING Z0-23 TO Y0-23			
	CNOP			
ENSU	BD,\$+.32	-SET	5731.44 00	005731.00
	LVI,\$X1,INT1	-UP	6054.03 01	005731.40
	SV,\$X1,\$IA	-INTERRUPT	2.03 30	005732.00
	LX,\$X1,WEN6	-RESET	6102.02 10	005732.40
	SX,\$X1,SMASK	-MASK REG. TO ZEROS	14.03 10	005733.00
	LX,\$X1,BOUND	-SET UP	5735.02 10	005733.40
	SX,\$X1,3.0	-BOUNDARIES	3.03 10	005734.00
	B,BOUND+1.0	-32.0-262143.	5736.10 00	005734.40
BOUND	XW,%8#777777.00,2,%8#100	-BOUNDARIES WORD	777777.00 00 000040.00 40	005735.00
	BE,\$+.32	-ADDRESS	5736.40 00	005736.00
	CNOP,		0.30 00	005736.40
	-* * * *			
	-* * * *%BE# **** BRANCH ENABLED **** %BE# **** BRANCH ENABLED			
	-* * * *			
	-* * * *START OF TEST			
	-* * * *			
	-BE TO EVERY OTHER WORD AT HALF + FULL WORD ADDRESSES			
IB54	BE,IB56		5741.00 00	005737.00
	BE,IB56+.32	-START BE TEST	5741.40 00	005737.40
IB55	BE,IB57		5742.00 00	005740.00
	BE,IB57+.32		5742.40 00	005740.40
IB56	BE,IB58		5743.00 00	005741.00
	BE,IB58+.32		5743.40 00	005741.40
IB57	BE,IB59		5744.00 00	005742.00
	BE,IB59+.32		5744.40 00	005742.40
IB58	BE,IB60		(5745.00 00)	005743.00
	BE,IB60+.32		5745.40 00	005743.40
IB59	BE,IB61		5746.00 00	005744.00
	BE,IB61+.32		5746.40 00	005744.40
IB60	BE,IB62		5747.00 00	005745.00
	BE,IB62+.32		5747.40 00	005745.40
IB61	BE,IB63		5750.00 00	005746.00
	BE,IB63+.32		5750.40 00	005746.40
IB62	BE,IB64		5751.00 00	005747.00
	BE,IB64+.32		5751.40 00	005747.40
IB63	BE,IB54+.32		5737.40 00	005750.00
	BE,IB65		5752.00 00	005750.40
IB64	BE,IB55		5740.00 00	005751.00
	BE,IB55+.32		5740.40 00	005751.40
	-* * * *			
	-BE FROM YL TO YR AND YR TO YL VARIATIONS			
	-* * * *			
IB65	BE,IB67+.32		5754.40 00	005752.00
	BD,\$		5752.44 00	005752.40
IB66	BD,\$		5753.04 00	005753.00
	BE,IB69+.32		5756.40 00	005753.40
IB67	BE,IB71+.32		5760.40 00	005754.00
	BE,IB70		5757.00 00	005754.40
IB68	BD,\$		5755.04 00	005755.00

IB69	BD,\$			5755.44 00	005755.40
		BE,IB73		5756.04 00	005756.00
IB70	BE,IB66+.32			5762.00 00	005756.40
			BD,\$	5753.40 00	005757.00
IB71	BD,\$			5757.44 00	005757.40
		BE,ISBE		5760.04 00	005760.00
IB72	BD,\$		-GO TO NEXT ROUTINE	5764.00 00	005760.40
				5761.04 00	005761.00
		BD,\$		5761.44 00	005761.40
IB73	BE,IB74+.32			5763.40 00	005762.00
			BD,\$	5762.44 00	005762.40
IB74	BD,\$			5763.04 00	005763.00
		BE,IB67		5754.00 00	005763.40
	-* * * *				
	-* * * *%SIC-BE ***** STORE IC IF BRANCH ENABLED				
	-* * * *				
	-* * * *START OF TEST				
	-* * * *				
		-START SIC-BE + SIC-BEW SNAKE TEST			
ISBE	SIC,ISBE7+.32			5773.40 80	005764.00
		BE,ISBE4	-POSITION	5770.00 00	005764.40
ISBE1	BD,\$			5765.04 00	005765.00
		BD,\$	-BD, ISBE 5	5765.44 00	005765.40
ISBE2	SIC,ISBE5			5771.00 80	005766.00
		BE,ISBE6	-ADDRESSES	5772.00 00	005766.40
ISBE3	BD,\$			5767.04 00	005767.00
		BD,\$	-BD, ISBE7	5767.44 00	005767.40
ISBE4	SIC,ISBE1			5765.00 80	005770.00
		BE,ISBE2	-IN	5766.00 00	005770.40
ISBE5	BD,\$			5771.04 00	005771.00
		BD,\$	-BD, ISBE 3	5771.44 00	005771.40
ISBE6	SIC,ISBE3			5767.00 80	005772.00
		BE,ISBE8	-BRANCH	5774.00 00	005772.40
ISBE7	BE,ISBE16+.32			6004.00 00	005773.00 6
		BD,\$	-BE, ISBE16.32 + BD,ISBE 1	5773.44 00	005773.40
ISBE8	NOP,%8#525252.0		*** OFFSET SIC ***	525252.00 00	005774.00
ISBE9	SIC,ISBE16+.32			6004.00 00	005774.40 6
		BE,ISBE13	-INSTRUCTIONS	6000.40 00	005775.00 6
ISBE10	BD,\$			5775.44 00	005775.40 6
		BD,\$	-BD,ISBE14	5776.04 00	005776.00
ISBE11	SIC,ISBE14			6001.40 80	005776.40 66
		BE,ISBE15	-AND	6002.40 00	005777.00 6
ISBE12	BD,\$			5777.44 00	005777.40 6
		BD,\$	-BD, ISBE 16	6000.04 00	006000.00
ISBE13	SIC,ISBE10			5775.40 80	006000.40 66
		BE,ISBE11	-EXCUTING	5776.40 00	006001.00 6
ISBE14	BD,\$			6001.44 00	006001.40 6
		BD,\$	-BD, ISBE 12	6002.04 00	006002.00
ISBE15	SIC,ISBE12			5777.40 80	006002.40 66
		BE,ISBE7+.32	-THEM	5773.40 00	006003.00
ISBE16	BE,ISBE18			6005.00 00	006003.40 66
		BD,\$	-BE,ISBE18 + BD,ISBE10	6004.04 00	006004.00
ISBE17	BD,\$			6004.44 00	006004.40 6
ISBE18	SIC,ISBE25+.32			6014.40 80	006005.00 66
		BE,ISBE22	-	6011.00 00	006005.40 6
ISBE19	BD,\$			6006.04 00	006006.00 6
		BD,\$	-BD, ISBE 23	6006.44 00	006006.40
ISBE20	SIC,ISBE23			6012.00 80	006007.00 66
		BE,ISBE24	-	6013.00 00	006007.40 6
ISBE21	BD,\$			6010.04 00	006010.00 6
		BD,\$	-BD, ISBE 25	6010.44 00	006010.40
ISBE22	SIC,ISBE19			6006.00 80	006011.00 66
		BE,ISBE20	-	6007.00 00	006011.40 6
ISBE23	BD,\$			6012.04 00	006012.00 6
		BD,\$	-BD, ISBE 21	6012.44 00	006012.40
ISBE24	SIC,ISBE21			6010.00 80	006013.00 66

	ISBE25	BE, ISBE34+.32		6025.00 00	006013.40 6
		BD, \$	-BE, ISBE 34+.32 + BD, ISBE19	6014.44 00	006014.40
	ISBE26	NOP, %8#525252.0	-*** OFFSET SIC ***	525252.30 00	006015.00 6
	ISBE27	SIC, ISBE34+.32		6025.00 80	006015.40 66
		BE, ISBE31	-	6021.40 00	006016.00 6
	ISBE28	BD, \$		6016.44 00	006016.40 6
		BD, \$	-BD, ISBE 32	6017.04 00	006017.00
	ISBE29	SIC, ISBE32		6022.40 80	006017.40 66
		BE, ISBE33	-	6023.40 00	006020.00 6
	ISBE30	BD, \$		6020.44 00	006020.40 6
		BD, \$	-BD, ISBE 34	6021.04 00	006021.00
	ISBE31	SIC, ISBE28		6016.40 80	006021.40 66
		BE, ISBE29	-	6017.40 00	006022.00 6
	ISBE32	BD, \$		6022.44 00	006022.40 6
		BD, \$	-BD, ISBE 30	6023.04 00	006023.00
	ISBE33	SIC, ISBE30		6020.40 80	006023.40 66
		BE, ISBE25+.32	-	6014.40 00	006024.00 6
	ISBE34	BE, ISBE35		6025.40 00	006024.40 66
		BD, \$	-BE, ISBE 35 + BD, ISBE 28	6025.04 00	006025.00
	ISBE35	VF, %8#777777.70	-NOP, -.32	777777.70+	006025.40 6
		VF, %8#777777.70	-NOP, -.32	777777.70+	006026.00
	ISB36	BD, \$+.32	-SET	6027.04 00	006026.40
		LVI, \$X1, 1.0	-UP	1.03 01	006027.00
	-* * * *				
	-* * * *	%BEW# **** BRANCH ENABLED + WAIT **** %BEW#			
	-* * * *				
	-* * * *	START OF TEST			
	-* * * *				
		SV, \$X1, \$IT	-FOR	1.03 30	006027.40 6
		BE, \$+.32	-BEW TEST	6030.40 00	006030.00
	ISBE37	BEW, ISBE38	-BEW TILL I. T. SIGNAL	6031.60 00	006030.40 66
		BD, \$		6031.04 00	006031.00
	ISBE38	BD, \$+.32	-SET UP	6032.04 00	006031.40 6
		LVI, \$X1, 1.0	-FOR	1.03 01	006032.00
		SV, \$X1, \$IT	-NEXT	1.03 30	006032.40
		BE, \$+.32	-BEW TEST	6033.40 00	006033.00
	ISBE39	BEW, ISBE40	-BEW TILL I. T. SIGNAL	6035.20 00	006033.40 66
		BD, \$		6034.04 00	006034.00
		NOP, %8#525252.0	-OFFSET IN Y REGS	525252.30 00	006034.40
	ISBE40	BD, \$+.32	-SET UP	6035.44 00	006035.00 6
		LVI, \$X1, 1.0	-FOR	1.03 01	006035.40
		SV, \$X1, \$IT	-NEXT	1.03 30	006036.00
		BE, \$+.32	-BEW TEST	6037.00 00	006036.40
	ISBE41	BEW, ISBE42	-BEW TILL I. T. SIGNAL	6040.20 00	006037.00 66
		BD, \$		6037.44 00	006037.40
	ISBE42	BD, \$+.32	-SET UP	6040.44 00	006040.00 6
		LVI, \$X1, 1.0	-FOR	1.03 01	006040.40
		SV, \$X1, \$IT	-NEXT	1.03 30	006041.00
		BE, \$+.32	-BEW TEST	6042.00 00	006041.40
	ISBE43	BEW, ISBE44	-BEW TILL I. T. SIGNAL	6043.20 00	006042.00 66
		BD, \$		6042.44 00	006042.40
	-* * * *				
	-* * * *	%SIC-BEW# **** STORE IC IF BRANCH ENABLED + WAIT			
	-* * * *				
	-* * * *	START OF TEST			
	-* * * *				
	ISBE44	BD, \$+.32	-SET UP	6043.44 00	006043.00 6
		LVI, \$X1, 1.0	-FOR	1.03 01	006043.40
		SV, \$X1, \$IT	-SIC, BEW	1.03 30	006044.00
		BE, \$+.32	-TEST	6045.00 00	006044.40
	ISBE45	SIC, ISBE46+.32		6046.40 80	006045.00 66
		BEW, ISBE46+.32	-SIC + BEW TILL I.T. SIGNAL	6046.60 00	006045.40 6
	ISBE46	BD, \$+1.0		6047.04 00	006046.00 6
		BD, \$	-BD, \$+1.0 + BD, ISBE 46	6046.44 00	006046.40
		LVI, \$X1, 1.0	-SETS UP	1.03 01	006047.00

	SV,\$X1,\$IT	-FOR NEXT	1.00 20	006047.40
	BE,\$#32	-SIC, BEW TEST	6050.40 00	006050.00
	NOP,%8#525252.0	** OFFSET SIC, BEW **	525252.20 00	006050.40
ISBE47	SIC, ISBE49		6052.40 80	006051.00 66
	BEW, ISBE49	-SIC + BEW TILL I. T. SIGNAL	6052.60 00	006051.40 6
ISBE48	BD, ISBE50	-BD, ISBE 50	6053.04 00	006052.00 66
ISBE49	BD,\$	-BD, ISBE 48	6052.44 00	006052.40 6
ISBE50	BD, IBZZ	-GO TO END OF SMFI-1	6101.04 00	006053.00 6
	CNOP		0.30 00	006053.40
INT1	NOP,0		0.30 00	006054.00
	NOP,0	-INTERRUPT TABLE	0.30 00	006054.40
	NOP,0		0.30 00	006055.00
	NOP,0		0.30 00	006055.40
	NOP,0		0.30 00	006056.00
	NOP,0		0.30 00	006056.40
	NOP,0		0.30 00	006057.00
	NOP,0		0.30 00	006057.40
	NOP,0		0.30 00	006060.00
	NOP,0		0.30 00	006060.40
	NOP,0		0.30 00	006061.00
	NOP,0		0.30 00	006061.40
	NOP,0		0.30 00	006062.00
	NOP,0		0.30 00	006062.40
	NOP,0		0.30 00	006063.00
	NOP,0		0.30 00	006063.40
	NOP,0		0.30 00	006064.00
	NOP,0		0.30 00	006064.40
	NOP,0		0.30 00	006065.00
	NOP,0		0.30 00	006065.40
	NOP,0		0.30 00	006066.00
	NOP,0		0.30 00	006066.40
	NOP,0		0.30 00	006067.00
	NOP,0		0.30 00	006067.40
	NOP,0		0.30 00	006070.00
	NOP,0		0.30 00	006070.40
	NOP,0		0.30 00	006071.00
	NOP,0		0.30 00	006071.40
	NOP,0		0.30 00	006072.00
	NOP,0		0.30 00	006072.40
	NOP,0		0.30 00	006073.00
	NOP,0		0.30 00	006073.40
	NOP,0		0.30 00	006074.00
	NOP,0		0.30 00	006074.40
	NOP,0		0.30 00	006075.00
	NOP,0		0.30 00	006075.40
	NOP,0		0.30 00	006076.00
	NOP,0		0.30 00	006076.40
	NOP,0		0.30 00	006077.00
	NOP,0		0.30 00	006077.40
	NOP,0		0.30 00	006100.00
	NOP,0		0.30 00	006100.40
15	IBZZ	BD, IBZZ1	6106.44 00	006101.00
	NOP,0.0		0.30 00	006101.40
12	WEN6	%8#DD%BU,64,8#,000000000000000000000000	000000000000000000000000	006102.00
	WEN7	%8#DD%BU,64,8#,177777777777777777777777	177777777777777777777777	006103.00
11	ISTOZ	%8#DD%BU#,0	000000000000000000000000	006104.00
	ISTOY	%8#DD%BU#,0	000000000000000000000000	006105.00
9	COM04	VF,0.04	0.04+	006106.00
	IBZZ1	B, IBZ+.32	6110.50 00	006106.40
	NOP,%8#777777.40		777777.70 00	006107.00
	NOP,%8#777777.40		777777.70 00	006107.40
7	IBZ	NOP,%8#777777.40	777777.70 00	006110.00
	LX,\$X1,%8#103.0		103.02 10	006110.40
	KV,\$X1,100LC		6115.02 90	006111.00
	BZXE,%8#3001.0	-LOOP	3001.32 C0	006111.40
	KC,\$X1,100LC		6115.03 90	006112.00

BZXE,%8H3001.0	-LOOP	3001.32 C0	006112.40
SR,\$X1,17.0		21.03 70	006113.00
KV,\$X1,100LC+.32		6115.42 90	006113.40
BZXE,%8H3001.0	-LOOP	3001.32 C0	006114.00
B,%8H144.40	-CONTINUE	144.50 00	006114.40
CNOP			
100LC %8HDD%BU,64,8H,0 000 011 770 025 700 000 000		0000011770025700000000	006115.00
END,%8H3001.0		3001.00	006116.00

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