

**SDS 930 COMPUTER
EXAMINER DIAGNOSTIC SYSTEM
TECHNICAL MANUAL**

SDS 900097A September 1964

(Volume I)

SDS

SCIENTIFIC DATA SYSTEMS/1649 Seventeenth Street/Santa Monica, California

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		00002	1	ORG	2	
CCCC2	2 32	00012	2	WIM	10,2	CARD LOADER
CCCC3	C 41	00002	3	BRX	*-1	
CCCC4	C 71	00011	4	LDX	9	* 16K 9R LESS 930 MEMORY DIAGNOSTIC
CCCC5	C 32	00000	5	WIM	0	
CCCC6	C 32	00001	6	WIM	1	
CCCC7	C 32	00002	7	WIM	2	
CCC10	C 01	00000	8	BRU	0	
CCC11	CCC4C000		9	OCT	40000	
		00000	10	ORG	0	
CCCC0	2 32	00003	11	WIM	3,2	LOAD PROGRAM
CCCC1	2 55	00003	12	ADD	3,2	ACCUMULATE CHECKSUM
CCCC2	C 40	21000	13	BRTW		BUFFER READY TEST
CCCC3	C 41	00000	14	BRX	*-3	CONTINUE LOAD
CCCC4	C 40	11006	15	CFTW	1	END OF FILE TEST
CCCC5	C 01	00175	16	BRU	MSIZE	FINISHED
CCCC6	C 40	12006	17	CRTW	1	CARD READER READY TEST
CCCC7	C 01	00004	18	BRU	*-3	NOT READY
CCC10	C 02	03606	19	RCHW	1,4	READ CARDS BINARY
CCC11	C 01	00000	20	BRU	0	LOAD NEXT CARD

		00002	1	ORG	2	
CCCC2	2 32	00012	2	WIM	10,2	PAPER TAPE LOADER
CCCC3	C 41	00002	3	BRX	*-1	* 16K 0R LESS 930 MEMORY DIAGNOSTIC
CCCC4	C 71	00011	4	LDX	9	
CCCC5	2 32	00012	5	WIM	10,2	
CCCC6	C 40	21000	6	BRTW		
CCCC7	C 41	00005	7	BRX	*-2	
CCC10	C 01	00175	8	BRU	MSIZE	
CCC11	CCC4C000		9	OCT	40000	

MEMORY DIAG.

304 001R

10		PAGE	
11	*		BREAKPOINT SETTINGS DURING LOADING
12	*	BPT	1
13	*	SET	HALT-ALLOWS OPERATOR TO CHANGE MACHINE SIZE, AS DISPLAYED IN THE A REGISTER.
14	*		
15	*	RESET	NO AFFECT.
16	*		
17	*	BPT	3
18	*	SET	HALT-ALLOWS OPERATOR TO CHANGE LIMITS OF TEST (MULTIPLES OF OCTAL 200 ONLY).
19	*		
20	*		
21	*		BREAKPOINT SETTINGS DURING EXECUTION.
22	*	BPT	1
23	*	SET	REPEAT TESTING IN SAME AREA. PATTERN WILL BE INVERTED EVERY SECOND CYCLE.
24	*		
25	*	RESET	NORMAL TESTING CYCLE
26	*		
27	*	BPT	2
28	*	SET	INHIBIT ERROR HALTS.
29	*	RESET	NORMAL HALT FOR ERRORS.
30	*		
31	*	BPT	3
32	*	SET	SPECIAL LIMITS EMPLOYED
33	*	RESET	NORMAL LIMITS EMPLOYED
34	*		
35	*	BPT	4
36	*	SET	HALT BEFORE EACH HALF CYCLE USING NORMAL LIMITS.
37	*	RESET	NORMAL TESTING CYCLE.

			38	PAGE		
			39	*		
			40	*		
CCC12	4 76 00121	41	BEGIN	LDA	BRL,4	INITIATE PATTERN STORE
CCC13	4 35 00017	42		STA	LINK,4	STORE BRANCH OR SKE
CCC14	4 76 00010	43		LDA	START,4	
CCC15	C 46 00060	44		XXB		
CCC16	C 46 00450	45		RCH	45C	CBA,CAX,CXB
CCC17	C 00 00000	46	LINK	PZE		
CCC20	4 43 00106	47		BRM	ERROR,4	ERROR IN PATTERN
CCC21	C 46 00014	48		XAB		
CCC22	2 35 00000	49		STA	0,2	
CCC23	2 50 00000	50	SKE	SKE	0,2	
CCC24	4 43 00106	51		BRM	ERROR,4	ERROR IN INVERTED WORD
CCC25	C 46 00014	52		XAB		
CCC26	2 35 00000	53	STA	STA	0,2	RESTORE PATTERN
CCC27	4 41 00030	54		BRX	**1,4	INCREMENT ADDRESS
CCC30	C 46 00600	55		XXA		
CCC31	4 72 00047	56		SKA	077,4	DONE 64?
CCC32	4 01 00016	57		BRU	LINK-1,4	NO
CCC33	4 50 00177	58		SKE	LIMIT,4	YES-FINISHED?
CCC34	4 01 00015	59		BRU	LINK-2,4	NO - BRANCH TO XXB
CCC35	4 76 00023	60		LDA	SKE,4	
CCC36	4 53 00017	61		SKN	LINK,4	WHAT NEXT?
CCC37	C 40 20400	62		BPT	1	MOVE IF NORMAL LIMITS
CCC40	4 01 00013	63		BRU	BEGIN+1,4	TEST
CCC41	4 76 00124	64		LDA	CONS,4	
CCC42	4 63 00123	65		ADM	TEST,4	
CCC43	4 72 00123	66		SKA	TEST,4	INVERT PATTERN?
CCC44	C 46 00060	67		XXB		YES
CCC45	4 76 00122	68	SHOW	LDA	ERRORS,4	
CCC46	C 40 20040	69		BPT	4	CHECK NUMBER OF ERRORS?
CCC47	00000077	70	077	OCT	77	YES
CCC50	4 35 00122	71		STA	ERRORS,4	
CCC51	4 76 00053	72		LDA	**2,4	
CCC52	4 72 00000	73		SKA	NLS,4	WHICH MOVE?
CCC53	4 01 00125	74		BRU	HIMOVE,4	HIGH
CCC54	4 76 00000	75	LOWMOVE	LDA	NLS,4	LOW
CCC55	C 40 20100	76		BPT	3	SPECIAL LOWER START?

CCC56	4	76	00004	77	LDA	SLS,4	YES
CCC57	0	35	00010	78	STA	START	
CCC60	4	76	00001	79	LDA	NLL,4	
CCC61	0	40	20100	80	BPT	3	SPECIAL LOWER LIMIT?
CCC62	4	76	00005	81	LDA	SLL,4	YES
CCC63	4	35	00177	82	STA	LIMIT,4	
CCC64	4	76	00002	83	LDA	NUS,4	
CCC65	0	40	20100	84	BPT	3	SPECIAL UPPER START?
CCC66	4	76	00006	85	LDA	SUS,4	YES
CCC67	4	72	00124	86	SKA	CONS,4	
CCC70	4	01	00172	87	BRU	RESET,4	TYPE 2, NO MOVE
CCC71	4	35	00010	88	STA	START,4	
CCC72	4	76	00003	89	LDA	NUL,4	
CCC73	0	40	20100	90	BPT	3	SPECIAL UPPER LIMIT?
CCC74	4	76	00007	91	LDA	SUL,4	YES
CCC75	4	35	00177	92	STA	LIMIT,4	
CCC76	4	76	00000	93	LDA	NLS,4	INITIATE
CCC77	4	35	00116	94	STA	FM,4	MOVE
CC100	4	76	00001	95	LDA	NLL,4	TO
CC101	4	35	00011	96	STA	TO,4	HIGH
CC102	4	76	00105	97	LDA	LOEAX,4	MEMORY
CC103	4	01	00154	98	BRU	MOVE,4	MOVE TO HIGH MEMORY
CC104	2	77	00000	99	HIEAX	EAX	
CC105	2	77	00000	100	LOEAX	EAX	

				101		PAGE		
CC106	C	CC	00000	102	ERROR	PZE		ERROR ROUTINE
CC107	4	61	00122	103		MIN	ERRORS,4	
CC110	4	51	00110	104		BRR	*,4	SET OVERFLOW
CC111	C	4C	20200	105		BPT	2	HALT?
CC112	4	51	00106	106		BRR	ERROR,4	NO
CC113	4	37	00116	107		STX	ADD,4	
CC114	2	71	00000	108		LDX	0,2	
CC115	C	0C	00000	109	ZERO	HLT		
CC116	C	0C	00000	110	ADD	PZE		
				111	*			ERROR DISPLAY
				112	*			A = CORRECT PATTERN
				113	*			B = INVERTED PATTERN
				114	*			X = ERROR PATTERN
				115	*			C = LOCATION OF ERROR
CC117	4	71	00116	116		LDX	ADD,4	
CC120	4	51	00106	117		BRR	ERROR,4	
CC121	4	01	00026	118	BRU	BRU	STA,4	
CC122	C	0C	00000	119	ERRORS	PZE		
CC123	C	0C	00001	120	TEST	PZE	1	
CC124	C	0C	00001	121	CONS	PZE	1	
CC125	4	76	00002	122	MOVE	LDA	NUS,4	
CC126	C	4C	20100	123		BPT	3	SPECIAL UPPER START
CC127	4	76	00006	124		LDA	SUS,4	
CC130	4	35	00010	125		STA	START,4	
CC131	4	76	00003	126		LDA	NUL,4	
CC132	C	4C	20100	127		BPT	3	SPECIAL UPPER LIMIT?
CC133	4	76	00007	128		LDA	SUL,4	YES
CC134	4	35	00177	129		STA	LIMIT,4	
CC135	4	76	00000	130		LDA	NLS,4	
CC136	C	4C	20100	131		BPT	3	SPECIAL LOWER START?
CC137	4	76	00004	132		LDA	SLS,4	YES
CC140	4	72	00124	133		SKA	CONS,4	
CC141	4	01	00172	134		BRU	RESET,4	TYPE 3, NO MOVE
CC142	4	35	00010	135		STA	START,4	
CC143	4	76	00001	136		LDA	NLL,4	
CC144	C	4C	20100	137		BPT	3	SPECIAL LOWER LIMIT?
CC145	4	76	00005	138		LDA	SLL,4	YES
CC146	4	35	00177	139		STA	LIMIT,	
CC147	4	76	00001	140		LDA	NLL,4	
CC150	4	35	00116	141		STA	FM,4	INITIATE
CC151	4	76	00000	142		LDA	NLS,4	MOVE
CC152	4	35	00011	143		STA	TO,4	TO
CC153	4	76	00104	144		LDA	HIEAX,4	LOW
								MEMORY

			145		PAGE		
CC154	4 35	00165	146	MOVE	STA	MODIFY,4	EAX FOR MODIFYING ADDRESSES
CC155	4 76	00174	147		LDA	0177,4	
CC156	4 35	00106	148		STA	COUNT,4	
CC157	4 60	00116	149		SKR	FM,4	
CC160	4 60	00011	150		SKR	T0,4	
CC161	4 76	40116	151		LDA*	FM,4	
CC162	4 53	40116	152		SKN*	FM,4	RELATIVE ADDRESS BIT PRESENT?
CC163	4 01	00167	153		BRU	MODIFY+2,4	NO
CC164	C 46	00600	154		XXA		YES
CC165	C 00	00000	155	MODIFY	PZE		
CC166	0 46	00600	156		XXA		
CC167	4 35	40011	157		STA*	T0,4	
CC170	4 60	00106	158		SKR	COUNT,4	FINISHED MOVE?
CC171	4 01	00157	159		BRU	MOVE+3,4	NO
CC172	C 02	20001	160	RESET	ROV		
CC173	4 01	40011	161		BRU*	T0,4	
CC174	0000C	177	162	0177	OCT	177	

			163		PAGE		
			164	*	CONSTANTS AND WORKING STORAGE		
			165	*			
00106			166	COUNT	EQU	ERROR	
00116			167	FM	EQU	ADD	
00011			168	T0	BO0L	11	
00000			169	NLS	BO0L	0	
00001			170	NLL	BO0L	1	
00002			171	NUS	BO0L	2	
00003			172	NUL	BO0L	3	
00004			173	SLS	BO0L	4	
00005			174	SLL	BO0L	5	
00006			175	SUS	BO0L	6	
00007			176	SUL	BO0L	7	
00010			177	START	BO0L	10	
00177			178	LIMIT	BO0L	177	

			179					
CC175	2	46	00000	180	MSIZE	RCH	0,2	CALCULATE MEMORY SIZE
CC176	C	76	00274	181		LDA	=0200	
CC177	2	77	07777	182		EAX	4095,2	
CC200	C	41	00204	183		BRX	++4	
CC201	2	35	00400	184		STA	256,2	
CC202	2	72	00400	185		SKA	256,2	
CC203	C	01	00177	186		BRU	MSIZE+2	
CC204	C	46	00202	187		RCH	202	CXA,CLB
CC205	C	40	20400	188		BPT	1	CHANGE MEMORY SIZE
CC206	00037777			189	037777	OCT	37777	
CC207	C	14	00275	190		ETR	=077600	
CC210	C	71	00276	191		LDX	=02000000	
CC211	C	46	00244	192		RCH	244	CAB,CXA,CXB
CC212	C	36	00001	193		STB	NLL	STORE
CC213	C	35	00002	194		STA	NUS	STARTS
CC214	C	46	00400	195		CAX		AND
CC215	2	77	00200	196		EAX	128,2	LIMIS
CC216	C	37	00000	197		STX	NLS	
CC217	C	46	00034	198		RCH	34	CEX,XAB
CC220	2	77	37600	199		EAX	16256,2	
CC221	C	46	00600	200		XXA		
CC222	C	14	00277	201		ETR	=02037777	
CC223	C	46	00600	202		XXA		
CC224	C	37	00003	203		STX	NUL	
CC225	C	40	20100	204		BPT	3	SET SPECIAL LIMITS?
CC226	00037600			205	037600	OCT	37600	YES
CC227	C	14	00275	206		ETR	=077600	
CC230	C	77	00000	207		EAX	0	
CC231	C	46	00014	208		XAB		
CC232	C	14	00226	209		ETR	037600	
CC233	C	46	00254	210		RCH	254	XAB,CXA,CXB
CC234	C	35	00005	211		STA	SLL	
CC235	C	36	00004	212		STB	SLS	
CC236	0	52	00226	213		SKB	037600	
CC237	C	01	00263	214		BRU	TYPE2	
CC240	C	35	00007	215		STA	SUL	
CC241	C	36	00006	216		STB	SUS	
CC242	C	73	00003	217		SKG	NUL	

CC243	C 01 00267	218	BRU	TYPE3
CC244	C 76 00000	219	LDA	NLS
CC245	C 75 00003	220	LDB	NUL
CC246	C 35 00004	221	STA	SLS
CC247	C 36 00007	222	STB	SUL
CC250	C 76 00273	223	GETSET LDA	LOOP
CC251	C 35 00011	224	STA	T0
CC252	C 76 00003	225	LDA	NUL
CC253	C 14 00206	226	ETR	037777
CC254	C 63 00105	227	ADM	L0EAX
CC255	C 46 01000	228	CNA	
CC256	C 14 00206	229	ETR	037777
CC257	C 63 00104	230	ADM	H1EAX
CC260	C 71 00300	231	LDX	--1
CC261	C 46 00002	232	CLB	
CC262	C 01 00045	233	BRU	SHOW
CC263	C 76 00273	234	TYPE2 LDA	LOOP
CC264	C 35 00007	235	STA	SUL
CC265	C 35 00006	236	STA	SUS
CC266	C 01 00251	237	BRU	GETSET+1
CC267	C 76 00273	238	TYPE3 LDA	LOOP
CC270	C 35 00005	239	STA	SLL
CC271	C 35 00004	240	STA	SLS
CC272	C 01 00251	241	BRU	GETSET+1
CC273	C 20 00001	242	LOOP NOP	1
	00000	243	END	
CC274	C000C200			
CC275	C0077600			
CC276	C200C000			
CC277	C2037777			
CC300	77777777			

ERRORS	CC122	GETSET	CC250	MOVE	00125	REMOVE	00054
MODIFY	CC165	0376CC	CC226	037777	00206	BEGIN	00012
COUNT	CC106	ERROR	CC106	H1EAX	00104	LIMIT	00177
L0EAX	CC105	MSIZE	CC175	RESET	00172	START	00010
TYPE2	00263	TYPE3	CC267	CONS	00124	LINK	00017
LOOP	CC273	MOVE	CC154	0177	00174	SHOW	00045
TEST	CC123	ZERO	CC115	ADD	00116	BRU	00121
NLL	CC001	NLS	CC000	NUL	00003	NUS	00002
077	CC047	SKE	CC023	SLL	00005	SLS	00004
STA	CC026	SLL	CC007	SUS	00006	FM	00116
T0	CC011						

		00002	1
00002	2 32	00012	2
00003	0 41	00002	3
00004	0 71	00011	4
00005	0 32	00000	5
00006	0 32	00001	6
00007	0 32	00002	7
00010	0 01	00000	8
00011	00040000		9
		00000	10
00000	2 32	00003	11
00001	2 55	00003	12
00002	0 40	21000	13
00003	0 41	00000	14
00004	0 40	11006	15
00005	0 01	00404	16
00006	0 40	12006	17
00007	0 01	00004	18
00010	0 02	03606	19
00011	0 01	00000	20

ORG	2
WIM	10.2
BRX	**1
LDX	9
WIM	0
WIM	1
WIM	2
BRU	0
BCT	40000
ORG	0
WIM	3.2
ADD	3.2
BRTW	
BRX	**3
CFTW	1
BRU	MSIZE-1
CRTW	1
BRU	**3
ROBA	1.4
BRU	0

CARD LOADER

* OVER 16K 930 MEMORY DIAGNOSTIC *

LOAD PROGRAM
 ACCUMULATE CHECKSUM
 BUFFER READY TEST
 CONTINUE LOAD
 END OF FILE TEST
 FINISHED
 CARD READER READY TEST
 NOT READY
 READ CARDS BINARY
 LOAD NEXT CARD

		00002	1
00002	2 32	00012	2
00003	0 41	00002	3
00004	0 71	00011	4
00005	2 32	00012	5
00006	0 40	21000	6
00007	0 41	00005	7
00010	0 01	00404	8
00011	00040000		9

ORG	2
WIM	10.2
BRX	**1
LDX	9
WIM	10.2
BRTW	
BRX	**2
BRU	MSIZE-1
BCT	40000

PAPER TAPE LOADER

* OVER 16K 930 MEMORY DIAGNOSTIC*

10		PAGE	
11	*		BREAKPOINT SETTINGS DURING LOADING
12	*	BPT	1
13	*	SET	HALT-ALLOWS OPERATOR TO CHANGE MACHINE SIZE,
14	*		AS DISPLAYED IN THE A REGISTER.
15	*	RESET	NO AFFECT.
16	*		
17	*	BPT	3
18	*	SET	HALT-ALLOWS OPERATOR TO CHANGE LIMITS OF TEST
19	*		(MULTIPLES OF OCTAL 200 ONLY).
20	*		
21	*		BREAKPOINT SETTINGS DURING EXECUTION.
22	*	BPT	1
23	*	SET	REPEAT TESTING IN SAME AREA. PATTERN WILL BE
24	*		INVERTED EVERY SECOND CYCLE.
25	*	RESET	NORMAL TESTING CYCLE
26	*		
27	*	BPT	2
28	*	SET	INHIBIT ERROR HALTS.
29	*	RESET	NORMAL HALT FOR ERRORS.
30	*		
31	*	BPT	3
32	*	SET	SPECIAL LIMITS EMPLOYED
33	*	RESET	NORMAL LIMITS EMPLOYED
34	*		
35	*	BPT	4
36	*	SET	HALT BEFORE EACH HALF CYCLE USING NORMAL LIMITS.
37	*	RESET	NORMAL TESTING CYCLE.

00012	0	02	20001	38		PAGE		
00013	0	76	00136	39	L0MD	ROV		RESET OVERFLOW
00014	0	71	00315	40		LDA	LBRU	INITIATE PATTERN STORE
00015	0	35	00123	41		LDX	MIN7	
00016	2	23	00300	42		STA	LLINK	STORE BRU FOR STORE OR SKE FOR TEST
00017	2	76	00102	43		EXU	E0D1+8.2	
00020	0	35	00007	44		LDA	E0R+8.2	ADJUSTMENT CONSTANT FOR ADJUSTING
00021	2	76	00377	45		STA	ADJUST	ADDRESS IN ERROR ROUTINE
00022	0	35	00377	46		LDA	LIMIT+8.2	
00023	2	76	00367	47		STA	FINISH	LIMIT FOR PARTICULAR 4K STACK
00024	0	37	00010	48		LDA	START+8.2	
00025	0	71	00300	49		STX	SAVEX	
00026	0	72	00115	50		LDX	ONES	ONES WORD
00027	0	01	00121	51	LRET	SKA	077	
00030	0	50	00377	52		BRU	XXB	NO
00031	0	01	00122	53		SKE	FINISH	YES-FINISHED PARTICULAR STACK?
00032	0	71	00010	54		BRU	XXB+1	NO
00033	0	01	00400	55		LDX	SAVEX	
00034	0	76	00127	56		BRU	LFINAL	
00035	0	53	00123	57	L0UT	LDA	SKE	
00036	0	40	20400	58		SKN	LLINK	TEST NEXTB8
00037	0	01	00014	59		BPT	1	CONTINUE TEST?
00040	0	71	00300	60		BRU	L0MD+2	YES
00041	0	61	00071	61		LDX	ONES	
00042	0	76	00071	62		MIN	TEST	
00043	0	72	00301	63		LDA	TEST	
00044	0	46	00060	64		SKA	CONS	INVERT PATTERN?
00045	0	76	00006	65		XXB		YES
00046	0	40	20040	66	SHOW	LDA	ERRORS	
00047	00070000			67		BPT	4	CHECK ERROR COUNT?
00050	0	35	00006	68	070000	0CT	70000	YES
00051	0	37	00300	69		STA	ERRORS	
00052	0	71	00247	70		STX	ONES	
00053	2	76	00157	71		LDX	MIN16	
00054	0	40	20100	72		LDA	NS+16.2	
00055	2	76	00357	73		BPT	3	SPECIAL LIMITS?
00056	2	35	00377	74		LDA	SS+16.2	YES
00057	0	41	00053	75		STA	START+16.2	
				76		BRX	070000+4	

00060	0 76 00367	77		LDA	LIMIT	
00061	0 73 00074	78		SKG	ZER0	LIMIT ZER0?
00062	0 01 00012	79		BRU	LOMD	YES-NO MOVE
00063	0 00 00000	80	LE0D	PZE		
00064	0 71 00047	81		LDX	070000	
00065	2 76 10000	82		LDA	4096.2	
00066	2 35 37400	83		STA	16128.2	MOVE TO
00067	0 41 00065	84		BRX	*-2	HIGH
00070	0 01 37612	85		BRU	HIMD+M	MEMORY
00071	0 00 00000	86	TEST	PZE		
00072	00020000	87	E0R	0CT	20000	
00073	00030000	88		0CT	30000	
00074	00000000	89	ZER0	0CT	0	
00075	00010000	90		0CT	10000	
00076	00060000	91		0CT	60000	
00077	00070000	92		0CT	70000	
00100	00040000	93		0CT	40000	
00101	00050000	94		0CT	50000	

			95		PAGE		
00102	0 00	00000	96	LERROR	PZE		
00103	0 61	00006	97		MIN	ERRORS	INCREMENT ERROR COUNT
00104	4 51	00104	98		BRR	*,4	SET OVERFLOW
00105	0 40	20200	99		BPT	2	INHIBIT ERROR HALT?
00106	0 51	00102	100		BRR	LERROR	YES
00107	0 37	00011	101		STX	INDEX	
00110	0 46	00600	102		XXA		
00111	0 17	00007	103		EOR	ADJUST	ADJUST ADDRESS
00112	0 35	00116	104		STA	LOADD	
00113	0 46	00600	105		XXA		
00114	0 71	40011	106		LDX*	INDEX	
00115	00000077		107	077	0CT	77	
00116	0 00	00000	108	LOADD	PZE		
			109	*			ERROR DISPLAY
			110	*			A = CORRECT PATTERN
			111	*			B = INVERTED PATTERN
			112	*			X = ERROR PATTERN
			113	*			C = LOCATION OF ERROR
00117	0 71	00011	114		LDX	INDEX	
00120	0 51	00102	115		BRR	LERROR	
00121	0 46	00060	116	XXB	XXB		NOT OCTAL HUNDRED ADDRESS
00122	0 46	00600	117		XXA		
00123	0 00	00000	118	LLINK	PZE		BRU (STORE) OR SKE (TEST)
00124	0 43	00102	119		BRM	LERROR	PATTERN INCORRECT
00125	0 46	00014	120		XAB		
00126	2 35	00000	121		STA	0.2	
00127	2 50	00000	122	SKE	SKE	0.2	
00130	0 43	00102	123		BRM	LERROR	INVERTED PATTERN INCORRECT
00131	0 46	00014	124		XAB		
00132	2 35	00000	125		STA	0.2	
00133	2 77	00001	126		EAX	1.2	INCREMENT ADDRESS
00134	0 46	00600	127		XXA		
00135	0 01	00026	128		BRU	L0MD+12	TEST NEW WORD
00136	4 01	00157	129	LBRU	BRU	LSTA.4	
00137	0 20	20000	130	NS	N0P	8192	
00140	0 20	20000	131		N0P	8192	
00141	0 20	20000	132		N0P	8192	
00142	0 20	20000	133		N0P	8192	

00143	0	20	20000	134		NOP	8192	
00144	0	20	20000	135		NOP	8192	
00145	0	20	20000	136		NOP	8192	
00146	0	20	20000	137		NOP	8192	
00147	0	20	20000	138	NL	NOP	8192	
00150	0	20	20000	139		NOP	8192	
00151	0	20	20000	140		NOP	8192	
00152	0	20	20000	141		NOP	8192	
00153	0	20	20000	142		NOP	8192	
00154	0	20	20000	143		NOP	8192	
00155	0	20	20000	144		NOP	8192	
00156	0	20	20000	145		NOP	8192	
00157	2	35	00000	146	LSTA	STA	0.2	STORE
00160	2	36	00001	147		STB	1.2	PATTERN
00161	2	35	00002	148		STA	2.2	IN
00162	2	36	00003	149		STB	3.2	MEMORY
00163	2	35	00004	150		STA	4.2	
00164	2	36	00005	151		STB	5.2	
00165	2	35	00006	152		STA	6.2	
00166	2	36	00007	153		STB	7.2	
00167	2	77	00010	154		EAX	8.2	
00170	0	46	00224	155		RCH	224	CXA,CAB,CBX
00171	0	01	00026	156		BRU	LRET	
00172	2	35	00000	157	HSTA	STA	0.2	STORE
00173	2	36	00001	158		STB	1.2	PATTERN
00174	2	35	00002	159		STA	2.2	IN
00175	2	36	00003	160		STB	3.2	MEMORY
00176	2	35	00004	161		STA	4.2	
00177	2	36	00005	162		STB	5.2	
00200	2	35	00006	163		STA	6.2	
00201	2	36	00007	164		STB	7.2	
00202	2	77	00010	165		EAX	8.2	
00203	0	46	00224	166		RCH	224	CXA,CAB,CBX
00204	0	01	37626	167		BRU	HRET+M	
00205	2	76	37776	168	FINAL	LDA	LIMIT+7+M.2	
00206	0	72	37611	169		SKA	END+M	
00207	0	01	37634	170		BRU	OUT+M	
00210	0	01	37616	171		BRU	HIMD+4+M	
00211	2	00	00000	172	END	HLT	.2	
			00006	173	ERRORS	BOOL	6	
			00007	174	ADJUST	BOOL	7	
			00010	175	SAVEX	BOOL	10	
			00011	176	INDEX	BOOL	11	

00260	0 73 37474	216		SKG	ZERO+M	LIMIT = ZERO?
00261	0 01 37612	217		BRU	HIMD+M	YES-NO MOVE
00262	0 00 00000	218	HEED	PZE		
00263	0 71 37447	219		LDX	070000+M	
00264	2 76 37400	220		LDA	16128,2	MOVE
00265	2 35 10000	221		STA	4096,2	TO
00266	0 41 37664	222		BRX	*-2+M	LOW
00267	0 01 00012	223		BRU	L0MD	MEMORY
00270	0 06 20100	224	E0D1	E0D	0	
00271	0 06 20101	225		E0D	1	
00272	0 06 20102	226		E0D	2	
00273	0 06 20103	227		E0D	3	
00274	0 06 20104	228		E0D	4	
00275	0 06 20105	229		E0D	5	
00276	0 06 20106	230		E0D	6	
00277	0 06 20107	231		E0D	7	
00300	77777777	232	ONES	DEC	-1	
00301	0 00 00001	233	CONS	PZE	1	

			234		PAGE		
00302	0 00	00000	235	HERROR	PZE		
00303	0 61	37406	236		MIN	ERRORS+M	INCREMENT ERROR COUNT
00304	4 51	37704	237		BRR	*+M,4	
00305	0 40	20200	238		BPT	2	INHIBIT ERROR HALT?
00306	0 51	37702	239		BRR	HERROR+M	YES
00307	0 37	37411	240		STX	INDEX+M	
00310	0 46	00600	241		XXA		
00311	0 17	37407	242		EOR	ADJUST+M	ADJUST ADDRESS
00312	0 35	37716	243		STA	HIADD+M	
00313	0 46	00600	244		XXA		
00314	0 71	77411	245		LDX*	INDEX+M	
00315	0 00	77771	246	MIN7	HLT*	16377	YES
00316	0 00	00000	247	HIADD	PZE		
			248	*			ERROR DISPLAY
			249	*			A = CORRECT PATTERN
			250	*			B = INVERTED PATTERN
			251	*			X = ERROR PATTERN
			252	*			C = LOCATION OF ERROR
00317	0 71	37411	253		LDX	INDEX+M	
00320	0 51	37702	254		BRR	HERROR+M	
00321	0 46	00060	255	XXB1	XXB		NOT OCTAL HUNDRESS ADDRESS
00322	0 46	00600	256		XXA		
00323	0 00	00000	257	HLINK	PZE		BRU (STORE) OR SKE (TEST)
00324	0 43	37702	258		BRM	HERROR+M	PATTERN INCORRECT
00325	0 46	00014	259		XAB		
00326	2 35	00000	260		STA	0,2	
00327	2 50	00000	261		SKE	0,2	
00330	0 43	37702	262		BRM	HERROR+M	INVERTED PATTERN INCORRECT
00331	0 46	00014	263		XAB		
00332	2 35	00000	264		STA	0,2	
00333	2 77	00001	265		EAX	1,2	INCREMENT ADDRESS
00334	0 46	00600	266		XXA		
00335	0 01	37626	267		BRU	HRET+M	TEST NEXT WORD
00336	4 01	37572	268	HBRU	BRU	HSTA+M,4	
00337	0 20	20000	269	SS	NOP	8192	
00340	0 20	20000	270		NOP	8192	
00341	0 20	20000	271		NOP	8192	
00342	0 20	20000	272		NOP	8192	

00343	0 20 20000	273		NOP	8192
00344	0 20 20000	274		NOP	8192
00345	0 20 20000	275		NOP	8192
00346	0 20 20000	276		NOP	8192
00347	0 20 30000	277	SL	NOP	12288
00350	0 20 30000	278		NOP	12288
00351	0 20 30000	279		NOP	12288
00352	0 20 30000	280		NOP	12288
00353	0 20 30000	281		NOP	12288
00354	0 20 30000	282		NOP	12288
00355	0 20 30000	283		NOP	12288
00356	0 20 30000	284		NOP	12288
00357	0 00 00000	285	START	PZE	
00360	0 00 00000	286		PZE	
00361	0 00 00000	287		PZE	
00362	0 00 00000	288		PZE	
00363	0 00 00000	289		PZE	
00364	0 00 00000	290		PZE	
00365	0 00 00000	291		PZE	
00366	0 00 00000	292		PZE	
00367	0 00 00000	293	LIMIT	PZE	
00370	0 00 00000	294		PZE	
00371	0 00 00000	295		PZE	
00372	0 00 00000	296		PZE	
00373	0 00 00000	297		PZE	
00374	0 00 00000	298		PZE	
00375	0 00 00000	299		PZE	
00376	0 00 00000	300		PZE	
00377	0 00 00000	301	FINISH	PZE	
00400	2 76 00377	302	LFINAL	LDA	LIMIT+8.2
00401	0 72 00211	303		SKA	END
00402	0 01 00034	304		BRU	LOUT
00403	0 41 00016	305		BRX	LQMD+4
	37400	306	M	B00L	37400

00404	0	71	00541	307	PAGE		
00405	0	46	00202	308	LDX	==8	
00406	0	36	00006	309	MSIZE RCH	202	CXA,CLB
00407	0	36	00123	310	STB	ERRORS	
00410	2	23	00300	311	STB	LLINK	
00411	0	35	21000	312	EXU	E0D1+8,2	CALCULATOR
00412	0	72	21000	313	STA	8704	MEMORY
00413	0	61	00123	314	SKA	8704	SIZE
00414	0	41	00410	315	MIN	LLINK	
00415	0	76	00123	316	BRX	*-4	
00416	0	67	00014	317	LDA	LLINK	
00417	0	40	20400	318	LSH	12	
00420	0	00	00000	319	BPT	1	CHANGE MEMORY SIZE?
00421	0	35	00367	320	HLT		YES
00422	0	66	00014	321	STA	LIMIT	
00423	0	35	00116	322	RSH	12	SET
00424	0	35	00123	323	STA	LOADD	UP
00425	0	60	00116	324	STA	LLINK	LAST
00426	0	76	00116	325	SKR	LOADD	EOD
00427	0	67	00003	326	LDA	LOADD	
00430	0	16	00116	327	LSH	3	
00431	0	16	00542	328	MRG	LOADD	
00432	0	35	00063	329	MRG	=0620300	
00433	0	35	00262	330	STA	LEOD	
00434	0	71	00541	331	STA	HEOD	
00435	0	76	00543	332	LDX	==8	
00436	0	60	00123	333	LDA	=02030000	STORE
00437	2	35	00157	334	SKR	LLINK	NORMAL
00440	0	41	00436	335	STA	NL+8,2	LIMITS
00441	0	76	00367	336	BRX	*-2	
00442	0	40	20100	337	LDA	LIMIT	
00443	0	00	00000	338	BPT	3	SPECIAL LIMITS?
00444	0	14	00544	339	HLT		YES
00445	0	52	00545	340	ETR	==128	
00446	0	01	00466	341	SKB	=070000	
00447	0	55	00546	342	BRU	TYPE2	
00450	0	73	00367	343	ADD	=010000	
00451	0	01	00472	344	SKG	LIMIT	
				345	BRU	TYPE3	

00452	0	54	00546	346	TYPE1	SUB	=010000	
00453	0	43	00477	347		BRM	SET	
00454	0	71	00116	348	EXIT	LDX	LOADD	
00455	0	76	00211	349		LDA	END	
00456	2	63	00147	350		ADM	NL,2	
00457	2	63	00137	351		ADM	NS,2	
00460	0	71	00123	352		LDX	LLINK	
00461	2	63	00346	353		ADM	SL-1,2	
00462	2	63	00336	354		ADM	SS-1,2	
00463	0	46	30003	355		CLR		
00464	0	71	00300	356		LDX	ONES	
00465	0	01	00045	357		BRU	SHOW	
00466	0	43	00477	358	TYPE2	BRM	SET	
00467	0	46	30003	359		CLR		
00470	0	35	00347	360		STA	SL	
00471	0	01	00454	361		BRU	EXIT	
00472	0	54	00546	362	TYPE3	SUB	=010000	
00473	0	43	00477	363		BRM	SET	
00474	0	46	30003	364		CLR		
00475	0	35	00356	365		STA	SL+7	
00476	0	01	00454	366		BRU	EXIT	
00477	0	00	00000	367	SET	PZE		
00500	0	72	00547	368		SKA	=077700000	
00501	0	76	00550	369		LDA	=0100000	
00502	0	14	00551	370		ETR	=0177600	
00503	0	66	20014	371		RCY	12	
00504	0	46	00501	372		RCH	501	CAX,CLA,EXPONENT
00505	0	67	20014	373		LCY	12	
00506	0	16	00543	374		MRG	=02030000	
00507	0	72	00552	375		SKA	=07777	
00510	0	41	00511	376		BRX	**+1	
00511	0	72	00552	377		SKA	=07777	
00512	0	17	00546	378		EOR	=010000	
00513	0	37	00123	379		STX	LLINK	
00514	0	46	00224	380		RCH	224	CXA,CAB,CBX
00515	0	54	00553	381		SUB	=011	
00516	0	46	00450	382		RCH	450	CAX,CBA,CXB
00517	2	35	00357	383		STA	SL+8,2	
00520	0	76	00554	384		LDA	=02020000	

00521	0 41	00517	385
00522	0 46	10012	386
00523	0 14	00555	387
00524	0 66	00014	388
00525	0 46	00401	389
00526	0 67	00014	390
00527	0 16	00554	391
00530	2 35	00337	392
00531	0 75	00554	393
00532	0 46	00200	394
00533	0 54	00556	395
00534	0 72	00547	396
00535	0 51	00477	397
00536	0 46	00400	398
00537	2 36	00347	399
00540	0 01	00533	400
			401
		00000	402

EOD

BRX	*-2
BAC	
ETR	=077600
RSH	12
RCH	401
LSH	12
MRG	=02020000
STA	SS,2
LDB	=02020000
CXA	
SUB	=1
SKA	=077700000
BRR	SET
CAX	
STB	SL,2
BRU	*-5
OPD	620100
END	

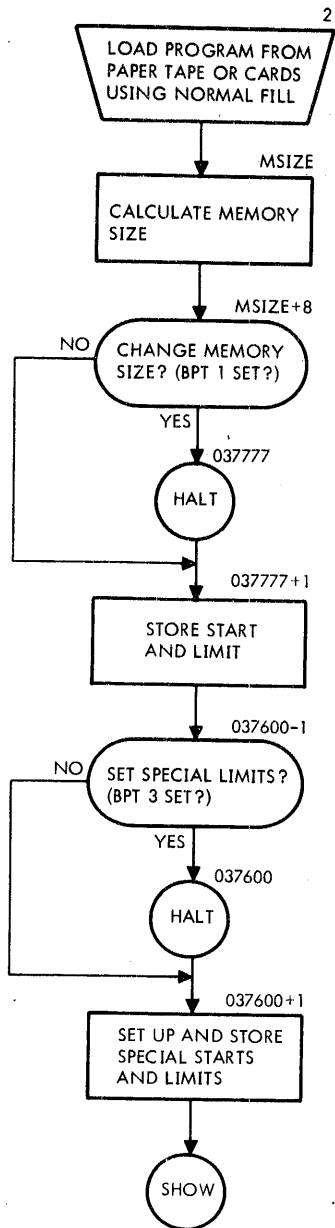
CAX,CLA

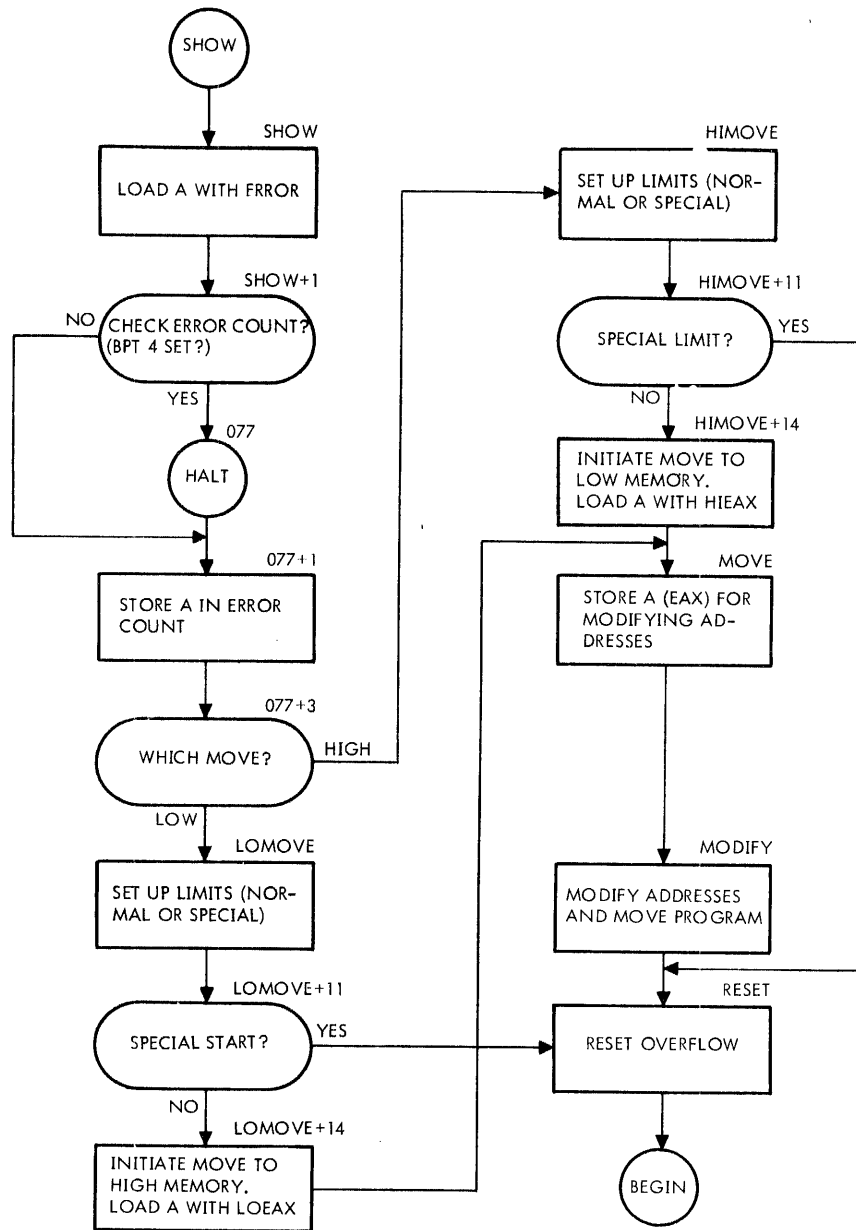
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00542	00620300
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00551	00177600
00552	00007777
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00554	02020000
00555	00077600
00556	00000001

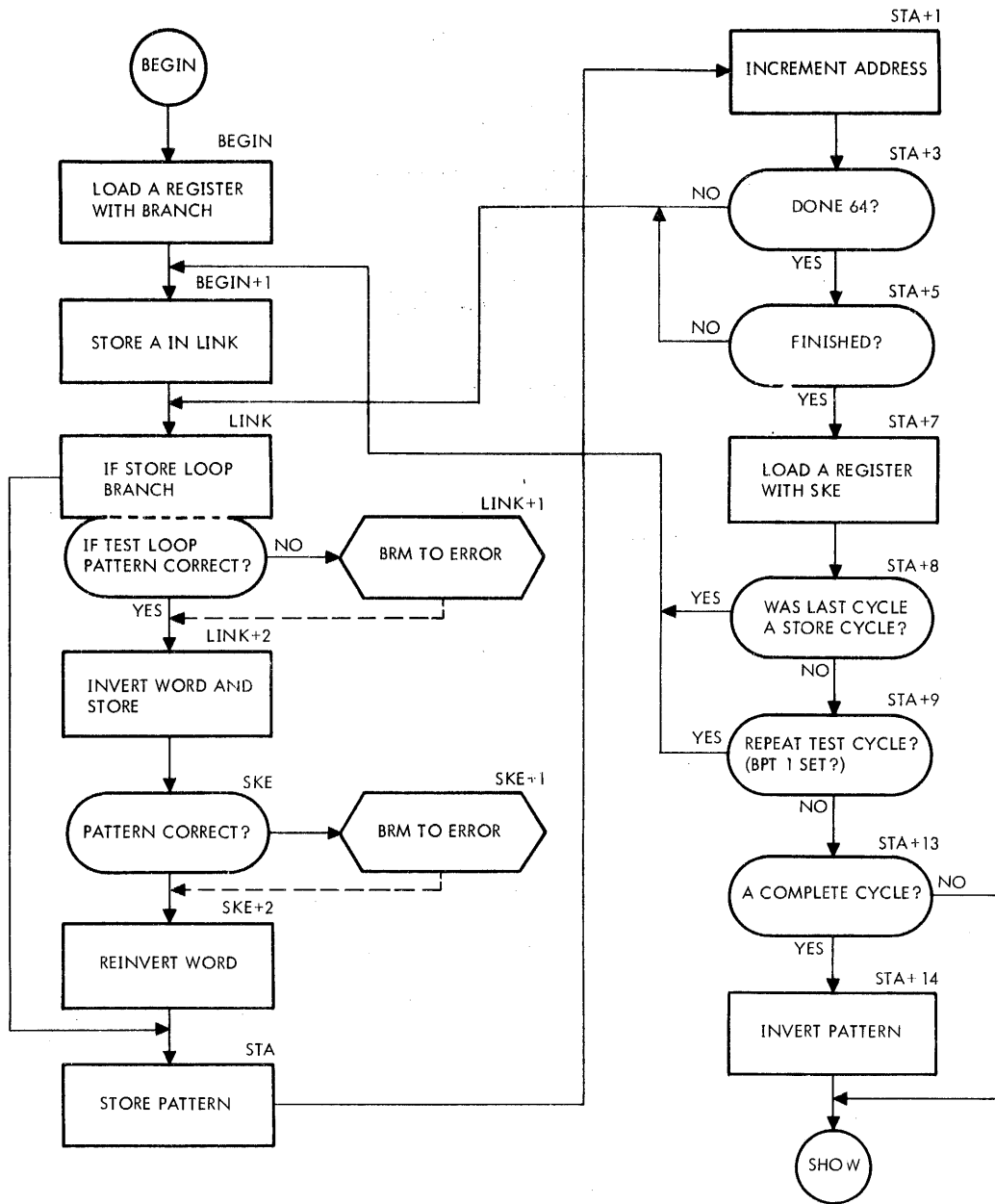
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LERROR	00102	LFINAL	00400	070000	00047	FINAL	00205
HIADD	00316	HLINK	00323	INDEX	00011	LIMIT	00367
LLINK	00123	LOADD	00116	MIN16	00247	MSIZE	00405
SAVEX	00010	START	00357	TYPE2	00466	TYPE3	00472
CONS	00301	E0D1	00270	EXIT	00454	HBRU	00336
HE0D	00262	MIMD	00212	HRET	00226	HSTA	00172
LBRU	00136	LE0D	00063	L0MD	00012	L0UT	00034
LRET	00026	LSTA	00157	MIN7	00315	0NES	00300
SHOW	00045	TEST	00071	TYP1	00452	XXB1	00321
ZER0	00074	END	00211	E0D	00541	E0R	00072
077	00115	0UT	00234	SET	00477	SKE	00127
XXB	00121	NL	00147	NS	00137	SL	00347
SS	00337	M	37400				

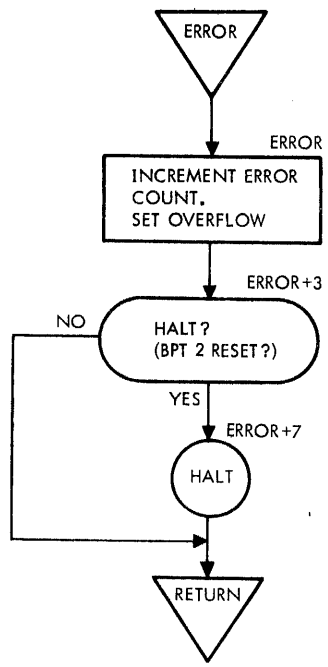
SDS 930 MEMORY DIAGNOSTIC

("16K OR LESS")



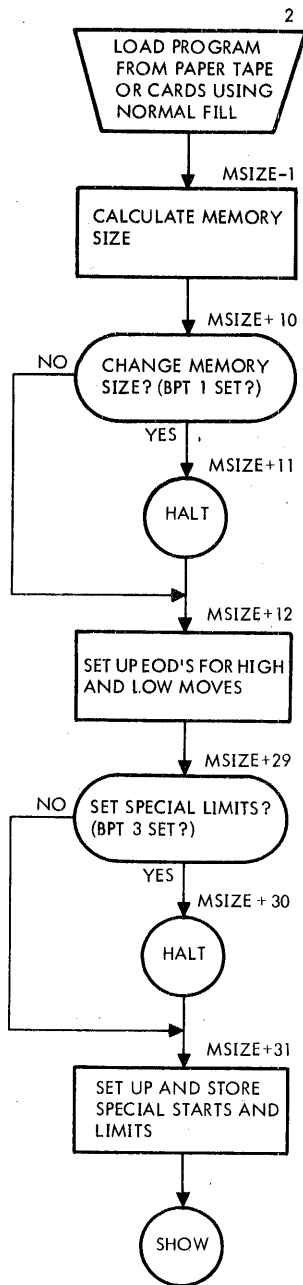


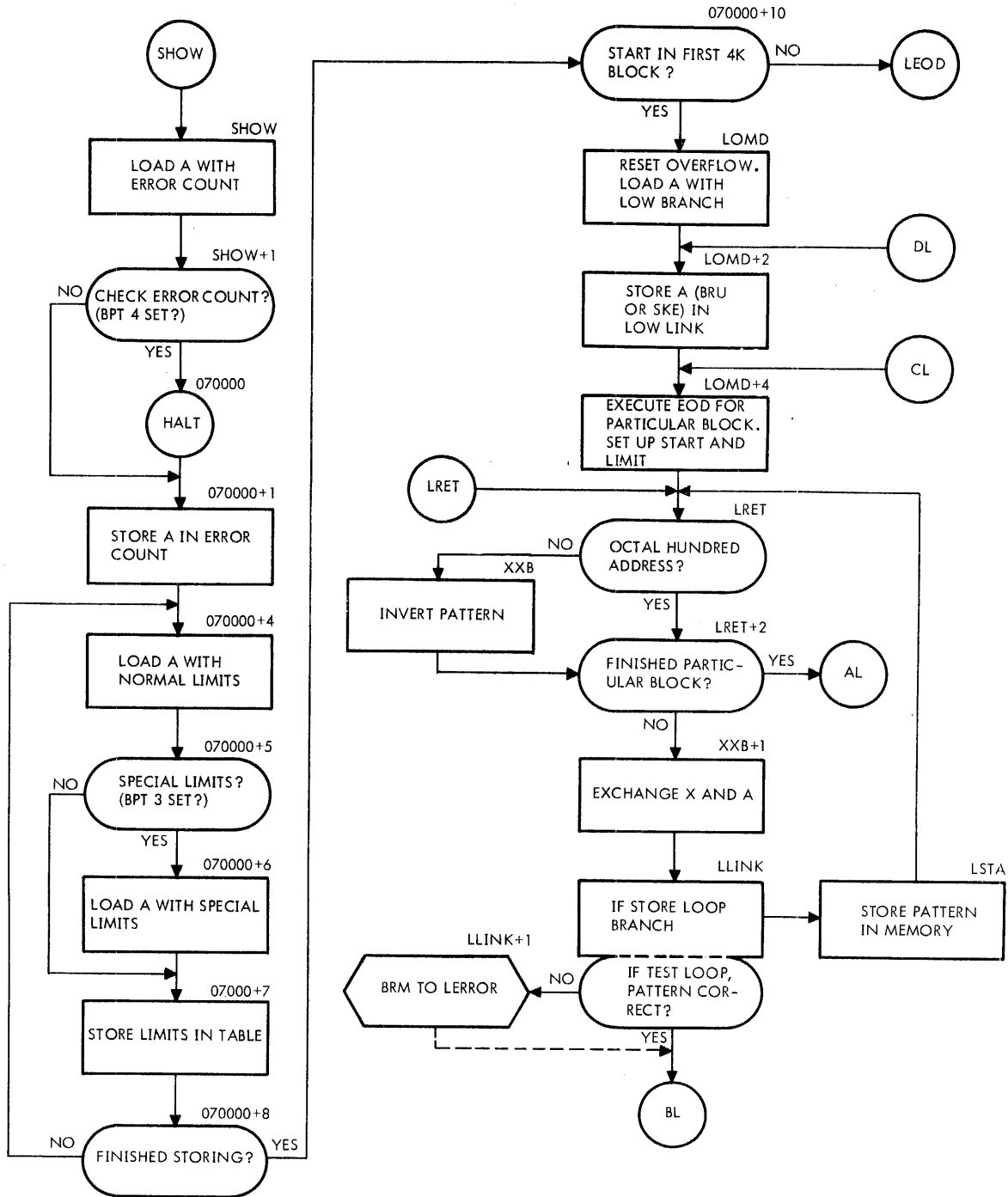


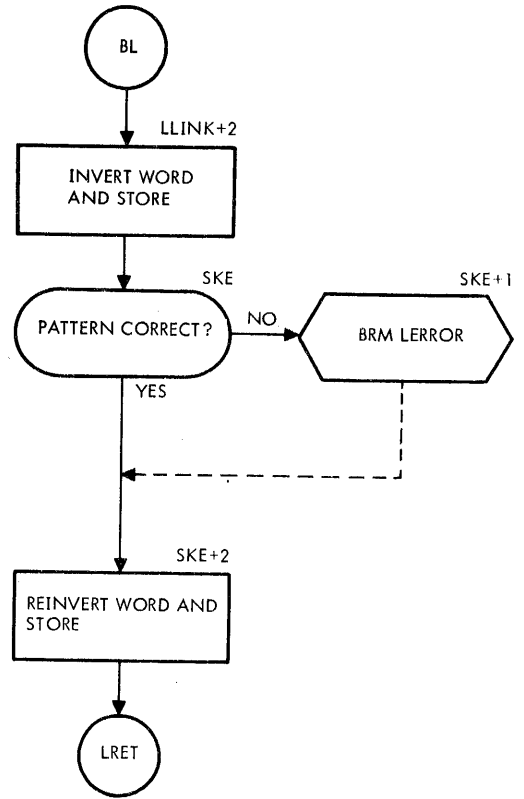
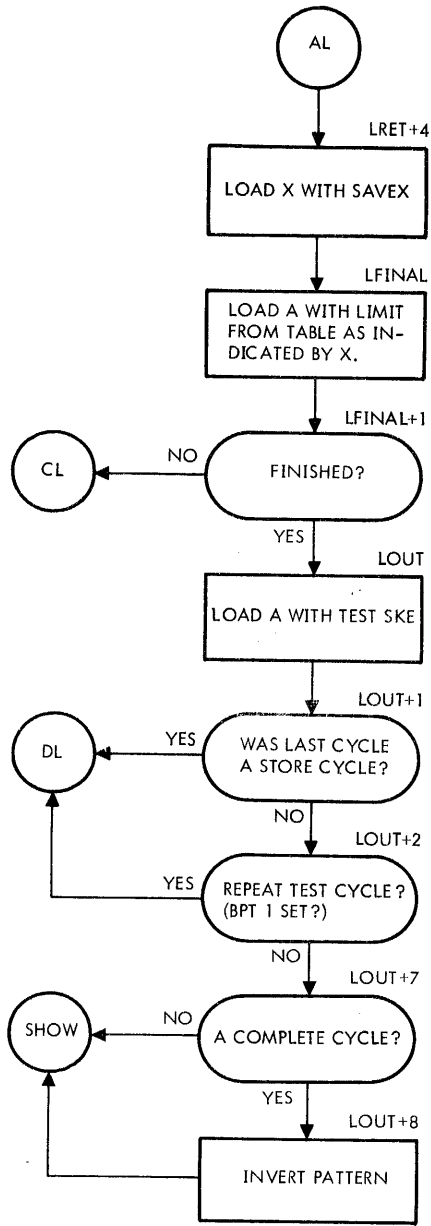


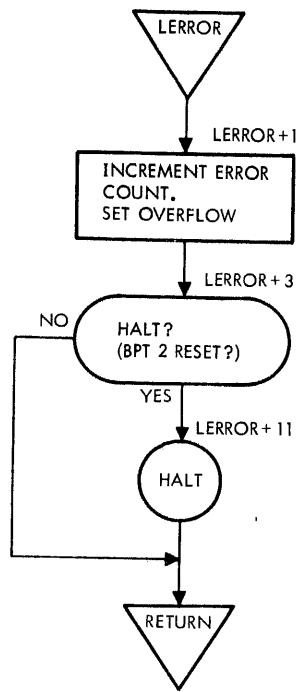
SDS 930 MEMORY DIAGNOSTIC

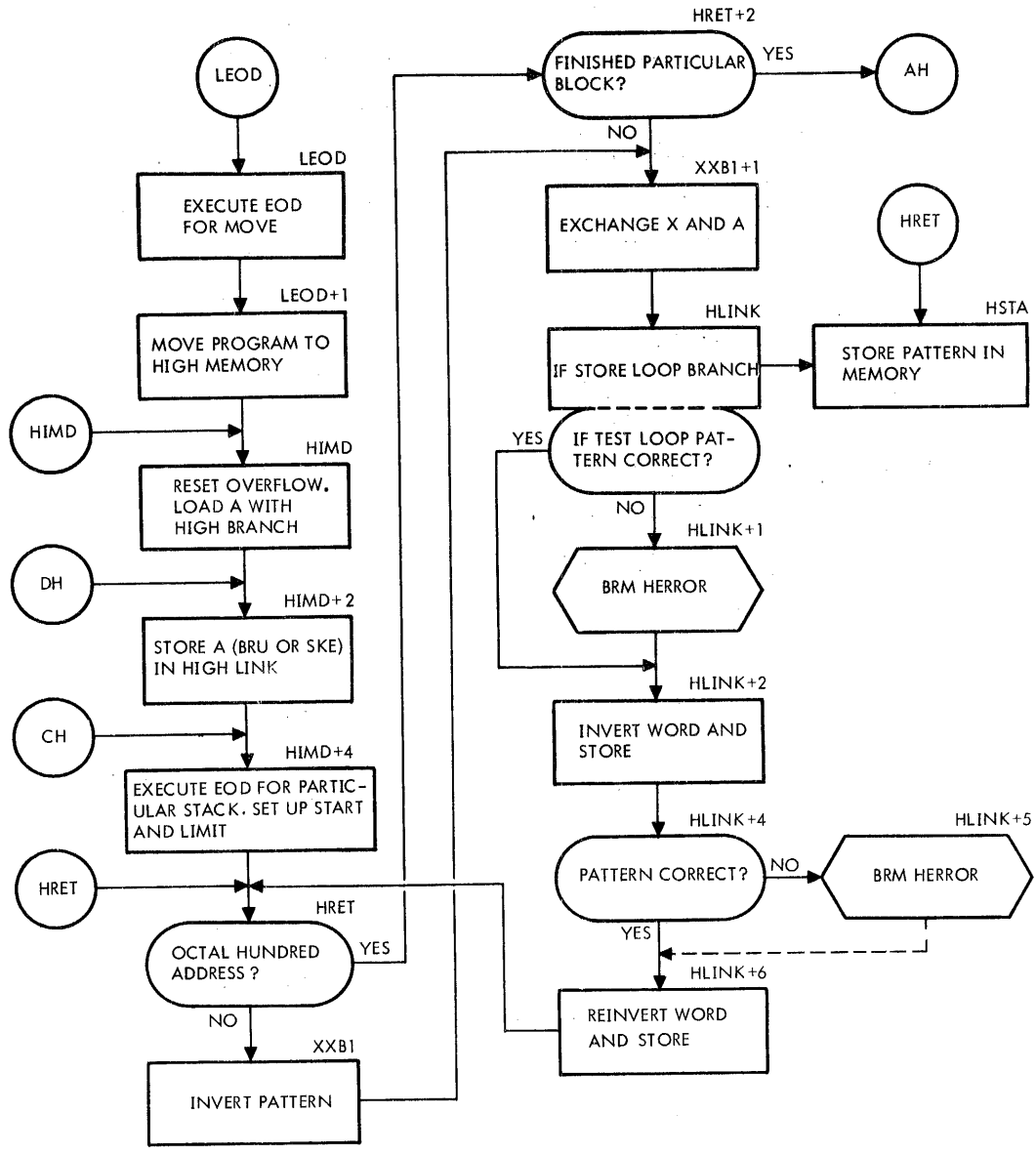
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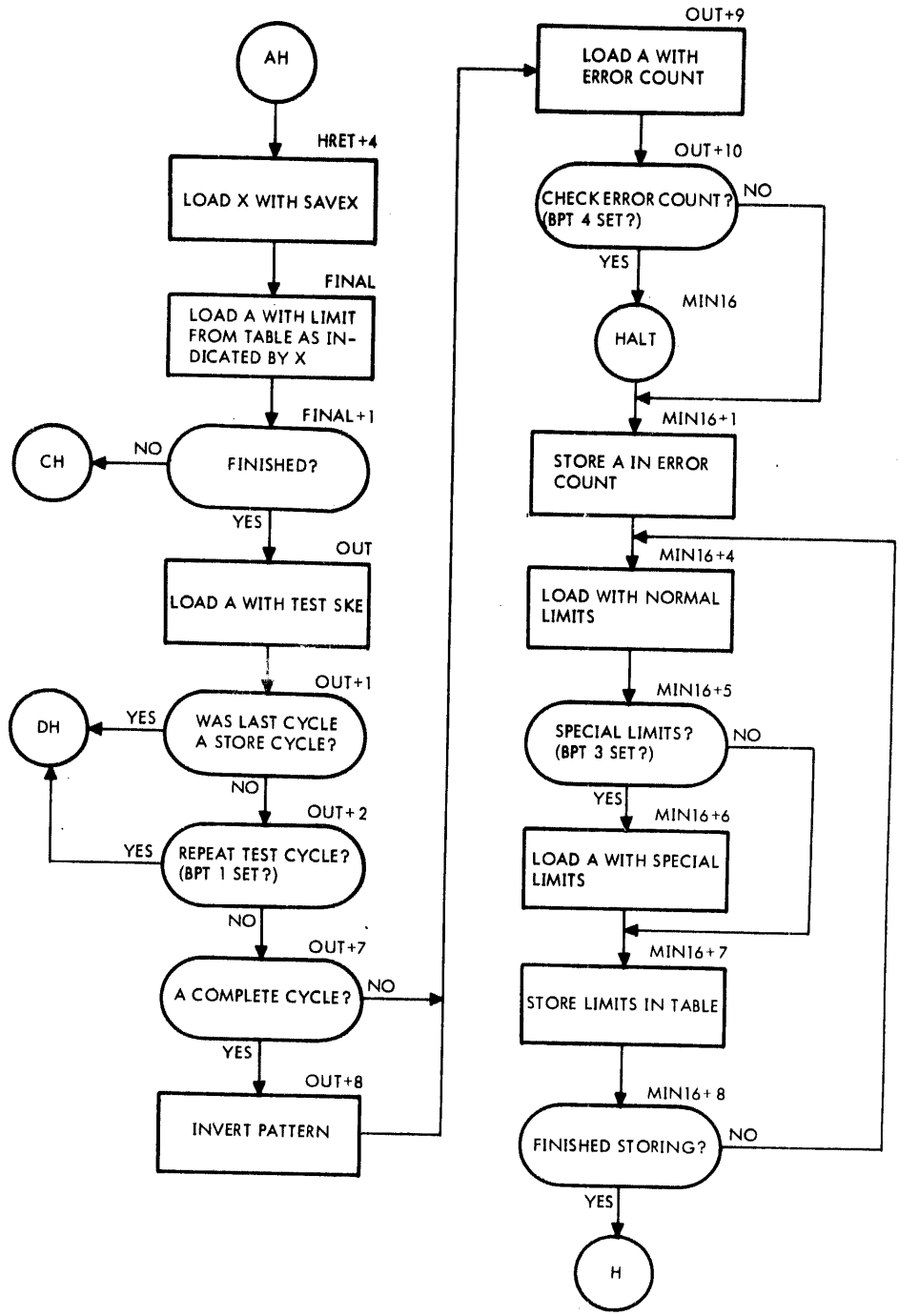


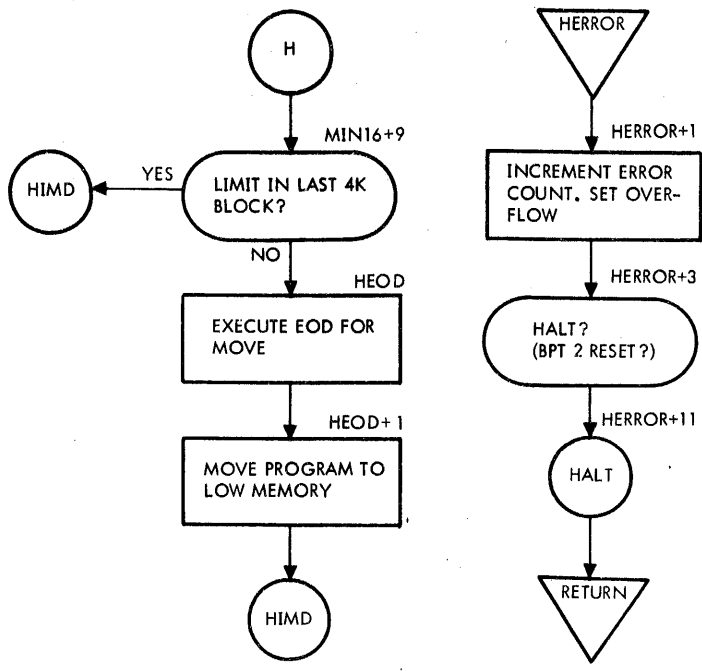












			1	*			
			2	*			
			3	*		LOADER FOR *4K ONLY* 930 MEMORY DIAGNOSTIC	
		00200	4		ORG	128	
00200	0 71	00212	5	LOADER	LDX	040000	
00201	0 43	00253	6		BRM	LOAD	
00202	0 72	00303	7		SKA	ONES	LOAD 4K ONLY MEMORY DIAGNOSTIC
00203	0 00	10000	8	010000	HLT	4096	TEST FOR CHECK SUM ERROR
00204	0 76	00203	9		LDA	010000	
00205	0 35	10000	10		STA	4096	TEST FOR MORE THAN 4K
00206	0 72	10000	11		SKA	4096	
00207	0 01	00270	12		BRU	OVER4K	
00210	0 46	00002	13		CLB		
00211	0 40	20100	14		BPT	3	TEST FOR SPECIAL LIMITS
00212	0 00	40000	15	040000	HLT*	0	
00213	0 14	00277	16		ETR	017700	
00214	0 35	00145	17		STA	HIMD	
00215	0 71	00275	18		LDX	EAX	
00216	0 46	00054	19		RCH	54	XAB,CXB
00217	0 14	00276	20		ETR	07700	
00220	0 73	00145	21		SKG	HIMD	
00221	0 01	00231	22		BRU	0K	
00222	0 71	00300	23	DONE	LDX	070000	
00223	0 43	00253	24		BRM	LOAD	READ PAST SYMBOL LOADER
00224	0 43	00253	25		BRM	LOAD	READ PAST 930 MD LOADER FOR OVER 4K
00225	0 43	00253	26		BRM	LOAD	READ PAST 930 MD FOR OVER 4K
00226	0 76	00303	27		LDA	ONES	
00227	0 75	00304	28		LDB	ZEROS	
00230	0 01	00000	29		BRU	0	ENTER MD
00231	0 16	00274	30	0K	MRG	NOP	2000000
00232	0 73	00063	31		SKG	NLS	SS > 2000177
00233	0 01	00241	32		BRU	SSLNLS	SPECIAL START < NORMAL LOWER START
00234	0 36	00156	33		STB	SLL	SPECIAL LOWER LIMIT = SL
00235	0 46	00600	34		XXA		
00236	2 77	37777	35		EAX	16383.2	DECREMENT ADDRESS BY 1
00237	0 37	00151	36		STX	SLS	SPECIAL LOWER START = SS
00240	0 01	00222	37		BRU	DONE	
00241	0 46	00054	38	SSLNLS	RCH	54	XAB,CXB

MEMORY DIAG

804001

00242	0	46	00060	39
00243	2	77	37777	40
00244	0	37	00160	41
00245	0	73	00014	42
00246	0	01	00251	43
00247	0	35	00156	44
00250	0	01	00222	45
00251	0	35	00162	46
00252	0	01	00222	47

	XXB	
	EAX	16383.2
	STX	SUS
	SKG	NUL
	BRU	SLLNUL
	STA	SLL
	BRU	DONE
SLLNUL	STA	SUL
	BRU	DONE

SPECIAL UPPER START = SS
7707600-NORMAL UPPER LIMIT
SPECIAL LIMIT < NORMAL UPPER LIMIT
SPECIAL LOWER LIMIT = SL
SPECIAL UPPER LIMIT = SL

00253	0 00	00000	48		PAGE	
00254	0 46	30003	49	LOAD	PZE	
00255	0 02	02604	50		CLR	
00256	2 32	00000	51	BLOCK	RPTW	1,4
00257	2 32	00000	52		WIM	0,2
00260	2 75	00000	53		WIM	0,2
00261	2 32	00000	54		LDR	0,2
00262	2 55	00000	55	WORD	WIM	0,2
00263	0 40	21000	56		ADD	0,2
00264	0 41	00261	57		BRTW	
00265	0 52	00301	58		BRX	WORD
00266	0 01	00255	59		SKB	101
00267	0 51	00253	60		BRU	BLOCK
00270	0 02	02604	61		BRR	LOAD
00271	0 71	00302	62	OVER4K	RPTW	1,4
00272	0 32	00002	63		LDX	M7
00273	0 01	00002	64		WIM	2
00274	0 20	00000	65		BRU	2
00275	0 77	00000	66	NOP	NOP	0
00276	0 00	07700	67	EAX	EAX	0
00277	0 00	17700	68	07700	HLT	4032
00300	0 00	20000	69	017700	HLT	8128
00301	2 00	00000	70	070000	HLT*	12288
00302	77777771		71	101	HLT	0,2
00303	77777777		72	M7	DEC	-7
00304	00000000		73	ONES	DEC	-1
	00200		74	ZEROS	DEC	0
	00000		75		TCD	LOADER
			76		ORG	0

STIMULATE AUTO FILL

			77		PAGE	
			78	*		
			79	*		
			80	*		*4K ONLY* 930 MEMORY DIAGNOSTIC
00000	0 71	00056	81	LOW	LDX	L0MD
00001	0 40	20040	82		BPT	4
00002	0 00	00077	83	077	HLT	63
00003	0 37	00145	84		STX	HIMD
00004	0 40	20100	85		BPT	3
00005	0 01	00154	86		BRU	SETSL
00006	0 71	00063	87		LDX	NLS
00007	0 37	00152	88		STX	LSTART
00010	0 77	10000	89		EAX	4096
00011	0 37	00153	90		STX	LLIMIT
00012	0 77	37777	91		EAX	16383
00013	0 37	00077	92		STX	HSTART
00014	0 77	07600	93	NUL	EAX	3968
00015	0 37	00177	94	SETHL	STX	HLIMIT
00016	0 02	00000	95		E0M	0
00017	0 66	20060	96		RCY	48
00020	0 71	00061	97		LDX	LBRU
00021	0 43	00056	98		BRM	L0MD
00022	0 71	00062	99		LDX	SKE
00023	0 43	00056	100		BRM	L0MD
00024	0 71	00072	101		LDX	0177
00025	0 37	00073	102		STX	L0ADD
00026	0 77	07777	103		EAX	4095
00027	0 37	00173	104		STX	HIADD
00030	0 71	40073	105	L0MOVE	LDX*	L0ADD
00031	0 37	40173	106		STX*	HIADD
00032	0 60	00173	107		SKR	HIADD
00033	0 60	00073	108		SKR	L0ADD
00034	0 01	00030	109		BRU	L0MOVE
00035	0 01	07700	110		BRU	HIGH+M

ERRORS ARE IN L0MD
 DISPLAY ONES,ZEROS,ERRORS IN A,P,X
 SAVE ERRORS IN HIMD
 US SPECIAL OR NORMAL LIMITS
 SET SPECIAL LIMITS
 177 INTO NORMAL LOWER START
 10000 INTO NORMAL LOW LIMIT
 37777 INTO NORMAL UPPER START
 7600 INTO NORMAL UPPER LIMIT
 OBSERVE RINGING
 STORE WORST CASE PATTERN
 TEST WORST CASE PATTERN
 START MOVE TO 7600
 SET *MOVE FROM* ADDRESS = 177
 SET *MOVE TO* ADDRESS = 7777
 MOVE 200 WORDS FROM 0 TO 7600

00036	0	46	00060	111					
00037	0	46	00450	112	LINALT	XXB			
00040	6	35	00000	113	LALT	RCH	450		
00041	0	00	00000	114	LRPT	STA	0,6		CAX,CXB,CBA
00042	0	01	00064	115	LLINK	PZE			STORE WORD
00043	2	36	00000	116		BRU	LERROR		
00044	0	40	20400	117		STR	0,2		
00045	0	01	00040	118		BPT	1		RESTORE CORRECT WORD
00046	2	77	00001	119		BRU	LRPT		
00047	0	48	00600	120		EAX	1,2		REPFAT
00050	0	72	00002	121	LSETAR	XXA			INCREMENT X
00051	0	01	00037	122		SKA	077		
00052	0	50	00153	123		BRU	LALT		
00053	0	01	00036	124		SKE	LLIMIT		ALTERNATE ONES AND ZEROS
00054	0	46	00050	125		BRU	LINALT		
00055	0	51	00056	126		RCH	50		INHIBIT ALTERNATION
00056	0	00	00000	127		BRR	L0MD		CRA,CXB
00057	0	37	00041	128	L0MD	PZE			EXIT L0MD
00060	0	71	00152	129		STX	LLINK		LOW MEMORY DIAGNOSTIC
00061	0	01	00046	130		LTX	LSTART		SET LOW LINK FOR STORE OR TEST
00062	2	50	00000	131	LBRU	BRU	LSETAR-1		
00063	0	20	00177	132	SKE	SKE	0,2		LOW SET A AND B
				133	NLS	N0P	127		NORMAL LOW START = 177

00064	0 61 00145	134		PAGE		
00065	0 40 20200	135	LERROR	MIN	HIMD	INCREMENT ERRORS
00066	0 01 00043	136		BPT	2	
00067	0 37 00073	137		BRU	LLINK+2	BYPASS DISPLAY
00070	2 71 00000	138		STX	LOADD	SET ADDRESS DISPLAY IN C
00071	0 46 00014	139		LDX	0.2	SET ERROR WORD IN X
00072	0 00 00177	140		XAB		SET CORRECT WORD IN B
00073	0 00 00000	141	0177	HLT	127	
00074	0 46 00014	142	LOADD	PZE		
00075	0 71 00073	143		XAB		
00076	0 01 00043	144		LDX	LOADD	
00077	0 00 00000	145		BRU	LLINK+2	
		146	HSTART	PZE		HIGH START

				PAGE		
00100	0 71 07745	147				
00101	0 40 20040	148	HIGH	LDX	HIMD+M	PICK UP ERRORS
00102	0 00 00000	149		BPT	4	
00103	0 37 07656	150		HLT		
00104	0 02 00000	151		STX	LOMD+M	SAVE ERRORS IN LOMD
00105	0 66 20060	152		EOM	0	
00106	0 71 07750	153		RCY	48	OBSERVE RINGING
00107	0 43 07745	154		LDX	HBRU+M	
00110	0 71 07662	155		BRM	HIMD+M	STORE WORST CASE PATTERN
00111	0 43 07745	156		LDX	SKE+M	
00112	0 71 07672	157		BRM	HIMD+M	TEST WORST CASE PATTERN
00113	0 37 07673	158		LDX	0177+M	START MOVE TO 0
00114	0 77 07777	159		STX	LOADD+M	SET *MOVE TO* ADDRESS = 177
00115	0 37 07773	160		EAX	4095	
00116	0 71 47773	161		STX	HIADD+M	SET *MOVE FROM ADDRESS = 7777
00117	0 37 47673	162	HIMOVE	LDX*	HIADD+M	
00120	0 60 07773	163		STX*	LOADD+M	
00121	0 60 07673	164		SKR	HIADD+M	
00122	0 01 07716	165		SKR	LOADD+M	MOVE 200 WORDS FROM 7600 TO 0
00123	0 46 00014	166		BRU	HIMOVE+M	
00124	0 01 00000	167		XAB		INVERT
		168		BRU	LOW	

			169		PAGE		
00125	0 46	00060	170	HINALT	XXB		
00126	0 46	00450	171	HALT	RCH	450	CAX,CXB,CBA
00127	6 35	00000	172	HRPT	STA	0.6	STORE WORD
00130	0 00	00000	173	HLINK	PZE		
00131	0 01	07764	174		BRU	HERROR+M	
00132	2 36	00000	175		STB	0.2	RESTORE WORD
00133	0 40	20400	176		BPT	1	
00134	0 01	07727	177		BRU	HRPT+M	REPEAT
00135	2 77	00001	178		EAX	1.2	INCREMENT X
00136	0 46	00600	179	HSETAB	XXA		
00137	0 72	07602	180		SKA	077+M	
00140	0 01	07726	181		BRU	HALT+M	ALTERNATE ONES AND ZEROS
00141	0 50	07777	182		SKE	HLIMIT+M	
00142	0 01	07725	183		BRU	HINALT+M	INHIBIT ALTERNATION
00143	0 46	00050	184		RCH	50	CBA,CXB
00144	0 51	07745	185		BRR	HIMD+M	EXIT HIMD
00145	0 00	00000	186	HIMD	PZE		HIGH MEMORY DIAGNOSTIC
00146	0 37	07730	187		STX	HLINK+M	SET HIGH LINK FOR STORE OR TEST
00147	0 71	07677	188		LDX	HSTART+M	
00150	0 01	07735	189	HBRU	BRU	HSETAB-1+M	
00151	0 20	00177	190	SLS	NOP	127	SPECIAL LOW START
00152	0 00	00000	191	LSTART	PZE		LOW START
00153	0 00	00000	192	LLIMIT	PZE		LOW LIMIT
00154	0 71	00151	193	SETSL	LDX	SLS	
00155	0 37	00152	194		STX	LSTART	
00156	0 77	00200	195	SLL	EAX	128	
00157	0 37	00153	196		STX	LLIMIT	
00160	0 77	07577	197	SUS	EAX	3967	
00161	0 37	00077	198		STX	HSTART	
00162	0 77	07600	199	SUL	EAX	3968	
00163	0 01	00015	200		BRU	SETHL	SET HIGH LIMIT

00164 0 61 07656
 00165 0 40 20200
 00166 0 01 07732
 00167 0 37 07773
 00170 2 71 00000
 00171 0 46 00014
 00172 0 00 00000
 00173 0 00 00000
 00174 0 46 00014
 00175 0 71 07773
 00176 0 01 07732
 00177 0 00 00000
 07600
 00000

201 PAGE
 202 HERROR MIN LOME+M
 203 BPT 2
 204 BRU HLINK+2+M
 205 STX HIADD+M
 206 LDX 0.2
 207 XAB
 208 HLT
 209 HIADD PZE
 210 XAB
 211 LDX HIADD+M
 212 BRU HLINK+2+M
 213 HLIMIT PZE
 214 M B00L 7600
 215 LOAD
 216 END

INCREMENT ERRORS

BYPASS ERROR DISPLAY
 SET ADDRESS DISPLAY IN C
 SET ERROR WORD IN X
 SET CORRECT WORD IN B

HIGH LIMIT

HERROR	00164	HIMOVE	00116	HINALT	00125	HLIMIT	00177
HSETAB	00136	HSTART	00077	LERROR	00064	LINALT	00036
LLIMIT	00153	LOADER	00200	LOMOVE	00030	LSETAB	00047
LSTART	00152	010000	00203	017700	00277	040000	00212
070000	00300	0VER4K	00270	SLLNUL	00251	SSLNLS	00241
BLOCK	00255	HIADD	00173	HLINK	00130	LLINK	00041
LOADD	00073	07700	00276	SETHL	00015	SETSL	00154
ZEROS	00304	DONE	00222	HALT	00126	HBRU	00150
HIGH	00100	HIND	00145	HRPT	00127	LALT	00037
LBRU	00061	LOAD	00253	L0MD	00056	LRPT	00040
0177	00072	ONES	00303	WORD	00261	IQ1	00301
EAX	00275	LOW	00000	NLS	00063	N0P	00274
NUL	00014	077	00002	SKE	00062	SLL	00156
SLS	00151	SUL	00162	SUS	00160	M7	00302
0K	00231	M	07600				

LOADER FOR "OVER 4K" 930 MEMORY DIAGNOSTIC

			1	*		
			2	*		
			3	*		
		00300	4		ORG	192
00300	0 71	00440	5	LOADER	LDX	ATAELE+1
00301	0 46	30003	6		CLR	
00302	0 02	02604	7	BLOCK	RPTW	1,4
00303	2 32	00000	8		WIM	0,2
00304	2 32	00000	9		WIM	0,2
00305	2 75	00000	10		LDB	0,2
00306	2 32	00000	11	WORD	WIM	0,2
00307	2 55	00000	12		ADD	0,2
00310	0 40	21000	13		BRTW	
00311	0 41	00306	14		BRX	WORD
00312	0 52	00315	15		SKB	101
00313	0 01	00302	16		BRU	BLOCK
00314	0 72	00436	17		SKA	ATAELE-1
00315	2 00	00000	18	101	HLT	0,2
00316	0 71	00202	19		LDX	M11
00317	2 76	00457	20	SET	LDA	SETS+11,2
00320	2 35	00164	21		STA	SLS+11,2
00321	0 41	00317	22		BRX	SET
00322	0 75	00150	23		LDB	NUL
00323	0 76	00351	24		LDA	2023
00324	0 35	00156	25		STA	XSAVER
00325	0 71	00426	26		LDX	M3
00326	2 23	00133	27	BANK	EXU	LEED+3,2
00327	0 46	00220	28		RCH	220
00330	2 77	07777	29	BUMPX	EAX	4095,2
00331	0 41	00335	30		BRX	16K
00332	2 35	01000	31		STA	512,2
00333	2 72	01000	32		SKA	512,2
00334	0 01	00330	33		BRU	BUMPX
00335	0 46	00600	34	16K	XXA	
00336	0 14	00425	35		ETR	MASK1
00337	0 50	00136	36		SKE	NLS
00340	0 01	00360	37		BRU	COUNT
00341	2 35	00147	38	SETNLL	STA	NIL+3,2

TEST FOR CHECKSUM ERROR

SFT SPECIAL STARTS AND LIMITS

2010000

CXA,CBX

2030000

2020000

NORMAL LOWER LIMIT

00342	2	35	00162	39	STA	SLL+3.2	SPECIAL LOWER LIMIT
00343	0	41	00326	40	BRX	BANK	
00344	0	75	00156	41	LDB	XSAVER	
00345	0	67	00014	42	LSH	12	
00346	0	46	10012	43	BAC		
00347	0	35	00156	44	STA	XSAVER	
00350	0	40	20100	45	BPT	3	
00351	0	00	00002	46	2023 HLT	2	
00352	0	14	00430	47	ETR	MASK2	177700
00353	0	73	00156	48	SKG	XSAVER	TEST SL > NL
00354	0	01	00364	49	BRU	TESTSS	TEST SPECIAL START
00355	0	76	00436	50	DONE LDA	ATABLE-1	
00356	0	75	00443	51	LDR	ZEROS	
00357	0	01	00000	52	BRU	0	
00360	0	61	00156	53	COUNT MIN	XSAVER	
00361	0	50	00425	54	SKE	MASK1	20300000
00362	0	61	00156	55	MIN	XSAVER	
00363	0	01	00341	56	BRU	SETNLL	

00364	0 46	00014	57		PAGE	
00365	0 14	00431	58	TESTSS	XAB	
00366	0 36	00156	59		ETR	077700
00367	0 73	00156	60		STB	XSAVER
00370	0 01	00372	61		SKG	XSAVER
00371	0 01	00355	62		BRU	SETSS
00372	0 71	00427	63		BRU	DONE
00373	2 73	00437	64	SETSS	LDB	M5
00374	0 41	00373	65		SKG	BTABLE+5,2
00375	0 14	00433	66		BRX	*-1
00376	0 16	00424	67		ETR	037700
00377	0 41	00401	68		MRC	NOP
00400	0 01	00407	69		BRX	SETSLS
00401	2 35	00155	70		BRU	SETSUS
00402	0 01	00405	71	SETSLS	STA	SLS+4,2
00403	2 76	00163	72		BRU	SETSUS-2
00404	2 35	00155	73		LDA	SLL+4,2
00405	0 41	00403	74		STA	SLS+4,2
00406	0 76	00163	75		BRX	*-2
00407	0 35	00155	76		LDA	SUL
00410	0 46	10012	77	SETSUS	STA	SUS
00411	0 71	00427	78		BAC	
00412	0 01	00415	79		LDB	M5
00413	2 75	00155	80		BRU	SETSLL+2
00414	2 36	00163	81	SETSLL	LDB	SLS+4,2
00415	2 73	00444	82		STB	SLL+4,2
00416	0 41	00413	83		SKG	ATABLE+5,2
00417	0 14	00433	84		BRX	SETSLL
00420	0 16	00424	85		ETR	037700
00421	0 41	00422	86		MRC	NOP
00422	2 35	00163	87		BRX	*+1
00423	0 01	00355	88		STA	SLL+4,2
00424	0 20	00000	89		BRU	DONE
00425	0 20	30000	90	NOP	NOP	0
00426	0 00	77775	91	MASK1	NOP	12288
00427	0 00	77773	92	M3	HLT*	-3
00430	00177700		93	M5	HLT*	-5
00431	00077700		94	MASK2	OCT	177700
			95	077700	OCT	77700

TEST SL > SS
SPECIAL START

00432	00057700	96	BTABLE	OCT	57700
00433	00037700	97	037700	OCT	37700
00434	00017700	98		OCT	17700
00435	00007700	99		OCT	7700
00436	77777777	100		OCT	77777777
00437	00060000	101	ATABLE	OCT	60000
00440	00040000	102		OCT	40000
00441	00020000	103		OCT	20000
00442	00010000	104		OCT	10000
00443	00000000	105	ZEROS	DEC	0
00444	0 20 20000	106	SETS	NOP	8192
00445	0 20 20000	107		NOP	8192
00446	0 20 20000	108		NOP	8192
00447	0 20 10000	109		NOP	4096
00450	0 20 00000	110		NOP	0
00451	0 00 00000	111		PZE	0
00452	0 20 00000	112		NOP	0
00453	0 20 00000	113		NOP	0
00454	0 20 00000	114		NOP	0
00455	0 20 20000	115		NOP	8192
00456	0 20 10000	116		NOP	4096
	00300	117		TCD	LOADER
	00000	118		ORG	0

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110          PAGE
120          *
121          *          *OVER 4K* 930 MEMORY DIAGNOSTIC
122          *
00000 0 71 00143 123 LOW LDX ERRORS PICK UP ERRORS FOR DISPLAY
00001 0 40 20040 124 BPT 4
00002 0 00 00077 125 077 HLT 63
00003 0 37 00143 126 STX ERRORS
00004 0 35 00127 127 STA ONES
00005 0 71 00202 128 LDX M11
00006 0 40 20100 129 BPT 3 US SPECIAL OR NORMAL LIMITS
00007 0 01 00055 130 BRU SETSL SET SPECIAL LIMITS
00010 2 76 00151 131 SETNL LDA NLS+11,2
00011 2 35 00200 132 STA LSTART+12,2
00012 0 41 00010 133 BRX SETNL
00013 0 71 00072 134 LDX M4
00014 0 02 00000 135 2KBITE EOM 0
00015 0 66 20060 136 RCY 48 OBSERVE RINGING
00016 2 23 00134 137 EXU LE0E+4,2
00017 2 76 00140 138 LDA EOR+4,2
00020 0 35 00066 139 STA ADJUST SFT ADDRESS ADJUSTER
00021 2 76 00177 140 LDA LLIMIT+5,2
00022 0 35 00172 141 STA LLIMIT
00023 0 76 00127 142 LDA ONES
00024 0 37 00156 143 STX XSAVER
00025 2 71 00171 144 LDX LSTART+5,2
00026 0 37 00164 145 STX LSTART
00027 0 46 00600 146 LADDS XXA
00030 0 72 00002 147 SKA 077
00031 0 01 00100 148 BRU LALTS LOW ALTERNATE-STORE
00032 0 50 00172 149 SKE LLIMIT
00033 0 01 00077 150 BRU LNALTS LOW NO ALTERNATE-STORE
00034 0 46 00050 151 RCH 50 CRA,CXB
00035 0 71 00164 152 LDX LSTART
00036 0 46 00600 153 LADDT XXA
00037 0 72 00002 154 SKA 077
00040 0 01 00114 155 BRU LALTT LOW ALTERNATE-TEST
00041 0 50 00172 156 SKE LLIMIT
00042 0 01 00113 157 BRU LNALTT LOW NO ALTERNATE TEST

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00043	0 46	00050	158	RCH	50	CRA,CXB
00044	0 71	00156	159	LDX	XSAVER	
00045	0 41	00014	160	BRX	2KBITE	
00046	0 71	00272	161	LDX	070000	
00047	0 39	00127	162	STA	0NES	
00050	2 76	10000	163	LOMOVE LDA	4096.2	
00051	2 35	27500	164	STA	4096+M.2	
00052	0 41	00050	165	BRX	LOMOVE	
00053	0 76	00127	166	LDA	0NES	
00054	0 01	17700	167	BRU	HIGH+M	
00055	2 76	00164	168	SETSL LDA	SLS+11.2	
00056	2 39	00200	169	STA	LSTART+12.2	
00057	0 41	00055	170	BRX	SETSL	
00060	0 01	00013	171	BRU	2KBITE-1	

00061	0 61 00143	172		PAGE	
00062	0 40 20200	173	LERROR	MIN	ERRORS
00063	0 01 00120	174		BPT	2
00064	0 37 00273	175		BRU	LRPT+3
00065	0 46 00600	176		STX	HIADD
00066	0 00 00000	177		XXA	
00067	0 35 00073	178	ADJUST	PZF	
00070	0 46 00050	179		STA	LOADD
00071	0 71 40273	180		RCH	50
00072	0 00 77774	181		LDX*	HIADD
00073	0 00 00000	182	M4	HLT*	-4
00074	0 46 00014	183	LOADD	PZF	
00075	0 71 00273	184		XAR	
00076	0 01 00120	185		LDX	HIADD
00077	0 46 00060	186		BRU	LRPT+3
00100	0 46 00600	187	LNALTS	XXB	
00101	2 35 00000	188	LALTS	XXA	
00102	2 36 00001	189		STA	0,2
00103	2 35 00002	190		STR	1,2
00104	2 36 00003	191		STA	2,2
00105	2 35 00004	192		STR	3,2
00106	2 36 00005	193		STA	4,2
00107	2 35 00006	194		STR	5,2
00110	2 36 00007	195		STA	6,2
00111	2 77 00010	196		STR	7,2
00112	0 01 00027	197		EAX	8,2
00113	0 46 00060	198		BRU	LADES
00114	0 46 00450	199	LNALTT	XXB	
00115	6 35 00000	200	LALTT	RCH	450
00116	2 50 00000	201	LRPT	STA	0,6
00117	0 01 00061	202		SKE	0,2
00120	2 36 00000	203		BRU	LERROR
00121	0 40 20400	204		STR	0,2
00122	0 01 00115	205		BPT	1
00123	2 77 00001	206		BRU	LRPT
00124	0 01 00036	207		EAX	1,2
		208		BRU	LADET

INCREMENT ERRORS

BYPASS DISPLAY
SAVE ADDRESS IN HIADD

SFT ADDRESS DISPLAY IN C
CRA,CXB-SFT CORRECT WORD IN R
SET ERROR WORD IN X

LOW ADDRESSFR-STORE

CAX,CXB,CBA

LOW REPEAT

LOW ADDRESSFR-TEST

		209	PAGE		
00125	00040000	210	040000	0CT	40000
00126	00060000	211	060000	0CT	60000
00127	77777777	212	0NES	0CT	77777777
00130	0 06 20376	213	LE0D	E0D	62 376
00131	0 06 20354	214		E0D	44 354
00132	0 06 20332	215		E0D	26 332
00133	0 06 20311	216		E0D	9 311
00134	0 17 00125	217	E0R	E0R	040000
00135	0 17 00120	218		E0R	060000
00136	0 20 20000	219	NLS	N0P	8192 60000 NORMAL LOW STARTS
00137	0 20 20000	220		N0P	8192 40000
00140	0 20 20000	221		N0P	8192 20000
00141	0 20 10000	222		N0P	4096 10000
00142	0 20 00000	223	NUS	N0P	0 NORMAL UPPER START
00143	0 00 00000	224	ERRORS	PZE	
00144	0 20 00000	225	NLL	N0P	** NORMAL LOW LIMITS
00145	0 20 00000	226		N0P	**
00146	0 20 00000	227		N0P	**
00147	0 20 20000	228		N0P	8192
00150	0 20 10000	229	NUL	N0P	4096 NORMAL UPPER LIMIT
00151	0 20 20000	230	SLS	N0P	8192 SPECIAL LOWER STARTS
00152	0 20 20000	231		N0P	8192
00153	0 20 20000	232		N0P	8192
00154	0 20 10000	233		N0P	4096
00155	0 20 00000	234	SUS	N0P	0 SPECIAL UPPER START
00156	0 00 00000	235	XSAVER	PZE	
00157	0 20 00000	236	SLL	N0P	** SPECIAL LOWER LIMITS
00160	0 20 00000	237		N0P	**
00161	0 20 00000	238		N0P	**
00162	0 20 20000	239		N0P	8192
00163	0 20 10000	240	SUL	N0P	4096 SPECIAL UPPER LIMIT
00164	0 00 00000	241	LSTART	PZE	
00165	0 00 00000	242		PZE	
00166	0 00 00000	243		PZE	
00167	0 00 00000	244		PZE	
00170	0 00 00000	245		PZE	
00171	0 00 00000	246	HSTART	PZE	
00172	0 00 00000	247	LLIMIT	PZE	

00173	0	00	00000	248	PZF
00174	0	00	00000	249	PZF
00175	0	00	00000	250	PZF
00176	0	00	00000	251	PZE
00177	0	00	00000	252	HLIMIT PZF

00200	0 71 17643	253		PAGF		
00201	0 40 20040	254	HIGH	LDX	ERRORS+M	
00202	0 00 77765	255		BPT	4	
00203	0 37 17643	256	M11	HLT*	-11	
00204	0 02 00000	257		STX	ERRORS+M	SAVE ERRORS
00205	0 66 20060	258		EOM	0	
00206	0 71 17671	259		RCY	48	
00207	0 46 00600	260		LDX	HSTART+M	
00210	0 72 17502	261	HADDS	XXA		
00211	0 01 17735	262		SKA	077+M	
00212	0 50 17677	263		BRU	HALTS+M	
00213	0 01 17734	264		SKE	HLIMIT+M	
00214	0 46 00050	265		BRU	HNALTS+M	
00215	0 71 17671	266		RCH	50	CRA,CXB
00216	0 46 00600	267		LDX	HSTART+M	
00217	0 72 17502	268	HADDT	XXA		
00220	0 01 17751	269		SKA	077+M	
00221	0 50 17677	270		BRU	HALTT+M	
00222	0 01 17750	271		SKE	HLIMIT+M	
00223	0 46 00600	272		BRU	HNALTT+M	
00224	0 35 17627	273		XXA		
00225	0 71 17772	274		STA	0NES+M	
00226	2 76 27500	275		LDX	070000+M	
00227	2 35 10000	276	HIMOVE	LDA	4096+M,2	
00230	0 41 17726	277		STA	4096,2	
00231	0 76 17627	278		BRX	HIMOVE+M	
00232	0 46 00014	279		LDA	0NES+M	
00233	0 01 00000	280		XAR		
		281		BRU	LOW	

00234	0	46	00060	282					
00235	0	46	00600	283	HNALTS	XXR			
00236	2	35	00000	284	HALTS	XXA			
00237	2	36	00001	285		STA	0.2		STORE ALTERNATING PATTERN
00240	2	35	00002	286		STR	1.2		
00241	2	36	00003	287		STA	2.2		
00242	2	35	00004	288		STB	3.2		
00243	2	36	00005	289		STA	4.2		
00244	2	35	00006	290		STB	5.2		
00245	2	36	00007	291		STA	6.2		
00246	2	77	00010	292		STB	7.2		
00247	0	01	17707	293		EAX	8.2		BUMP X BY 8
00250	0	46	00060	294		BRU	HADD+M		HIGH ADDRESSER-STORE
00251	0	46	00450	295	HNALTT	XXR			
00252	6	35	00000	296	HALTT	RCH	450		CAX,CXB,CRA
00253	2	50	00000	297	HRPT	STA	0.6		STORE INVERTED WORD
00254	0	01	17764	298		SKE	0.2		VERIFY
00255	2	36	00000	299		BRU	HERROR+M		
00256	0	40	20400	300		STR	0.2		STORE CORRECT WORD
00257	0	01	17752	301		BPT	1		
00260	2	77	00001	302		BRU	HRPT+M		REPEAT
00261	0	01	17716	303		EAX	1.2		BUMP X BY 1
00262	0	00	00000	304		BRU	HADD+M		HIGH ADDRESSER-TEST
00263	0	00	00000	305		PZE			
				306		PZF			

00264	0 61	17643	307		PAGE	
00265	0 40	20200	308	HERROR	MIN	ERRORS+M
00266	0 01	17755	309		BPT	2
00267	0 37	17773	310		BRU	HRPT+3+M
00270	2 71	00000	311		STX	HIADD+M
00271	0 46	00014	312		LDX	0,2
00272	0 00	20000	313		XAB	
00273	0 00	00000	314	070000	HLT*	12288
00274	0 46	00014	315	HIADD	PZE	
00275	0 71	17773	316		XAB	
00276	0 01	17755	317		LDX	HIADD+M
			318		BRU	HRPT+3+M
			319	EOD	OPD	620300
	17500		320	M	BOOL	17500
			321		LOAD	
	00000		322		END	

INCREMENT ERRORS

BYPASS DISPLAY

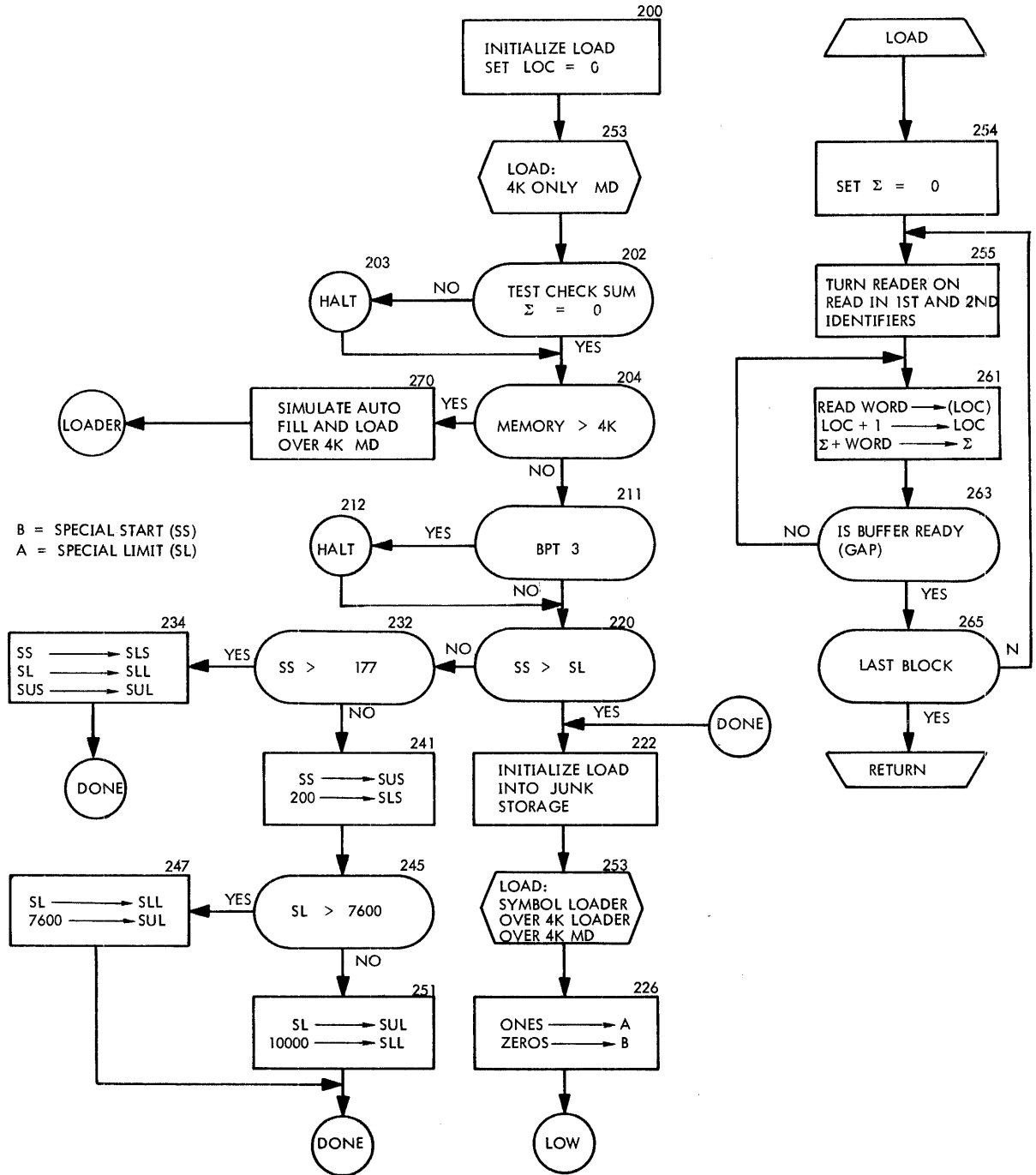
SET ADDRESS DISPLAY IN C

SET ERROR WORD IN X

SET CORRECT WORD IN B

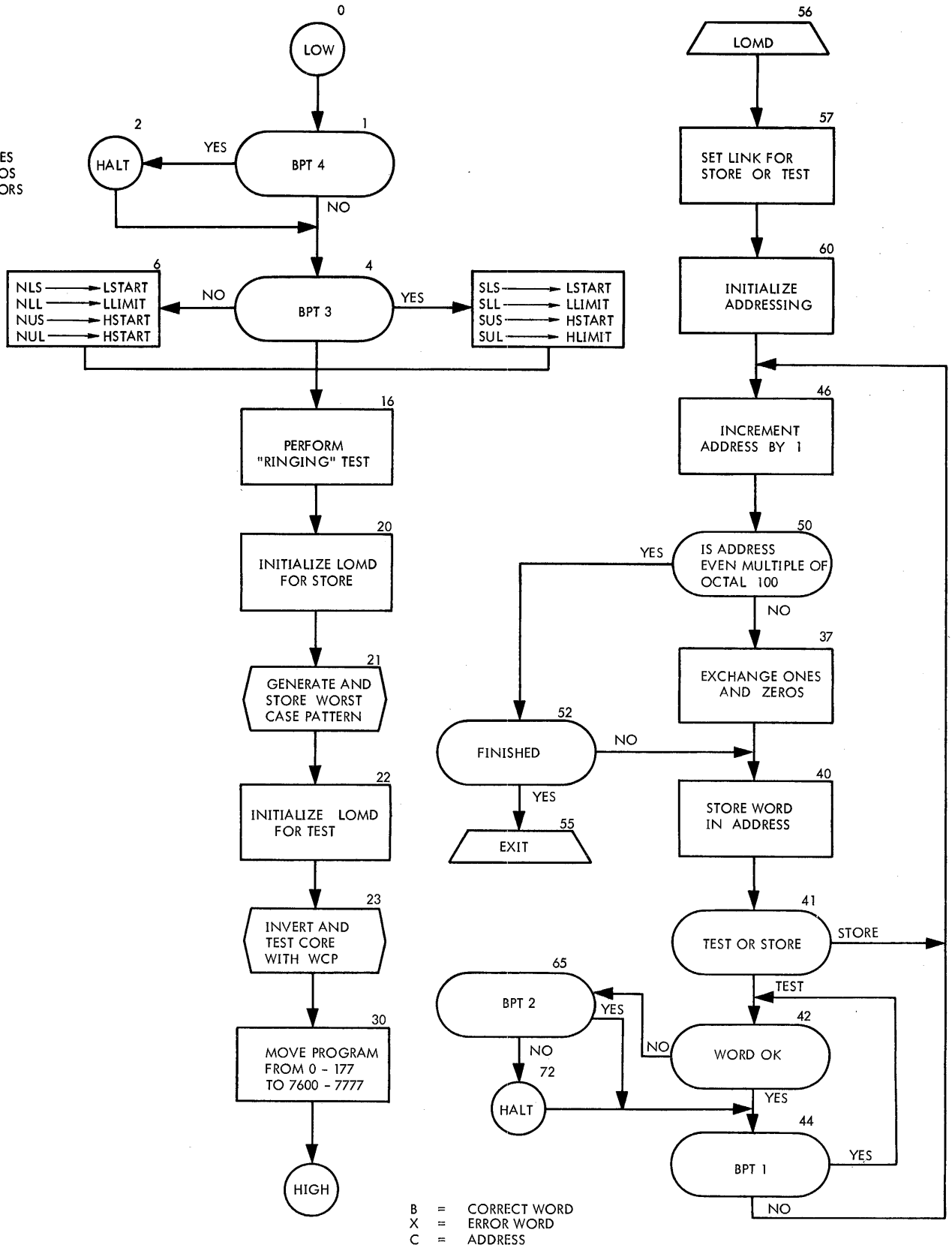
2KBITE	00014	ADJUST	00066	ATABLE	00437	BTABLE	00432
ERRORS	00143	HERROR	00264	HIMOVE	00226	HLIMIT	00177
HNALTS	00234	HNALTT	00250	HSTART	00171	LERROR	00061
LLIMIT	00172	LNALTS	00077	LNALTT	00113	LOADER	00300
LOMOVE	00050	LSTART	00164	037700	00433	040000	00125
060000	00126	070000	00272	077700	00431	SETNLL	00341
SETSLL	00413	SETSLS	00401	SETSUS	00407	TESTSS	00364
XSAVER	00156	BLOCK	00302	BUMPX	00330	COUNT	00360
HADDS	00207	HADDT	00218	HALTS	00235	HALTT	00251
HIADD	00273	LADDS	00027	LADDT	00036	LALTS	00100
LALTT	00114	LOADD	00073	MASK1	00425	MASK2	00430
SETNL	00010	SETSL	00055	SETSS	00372	ZEROS	00443
2023	00351	BANK	00326	DONE	00355	HIGH	00200
HRPT	00252	LEOP	00130	LRPT	00115	ONES	00127
SETS	00444	WORD	00306	16K	00335	101	00315
EOD	00277	EOP	00134	LOW	00000	M11	00202
NLL	00144	NLS	00136	NOP	00424	NUL	00150
NUS	00142	077	00002	SET	00317	SLL	00157
SLS	00151	SUL	00163	SUS	00155	M3	00426
M4	00072	M5	00427	M	17500		

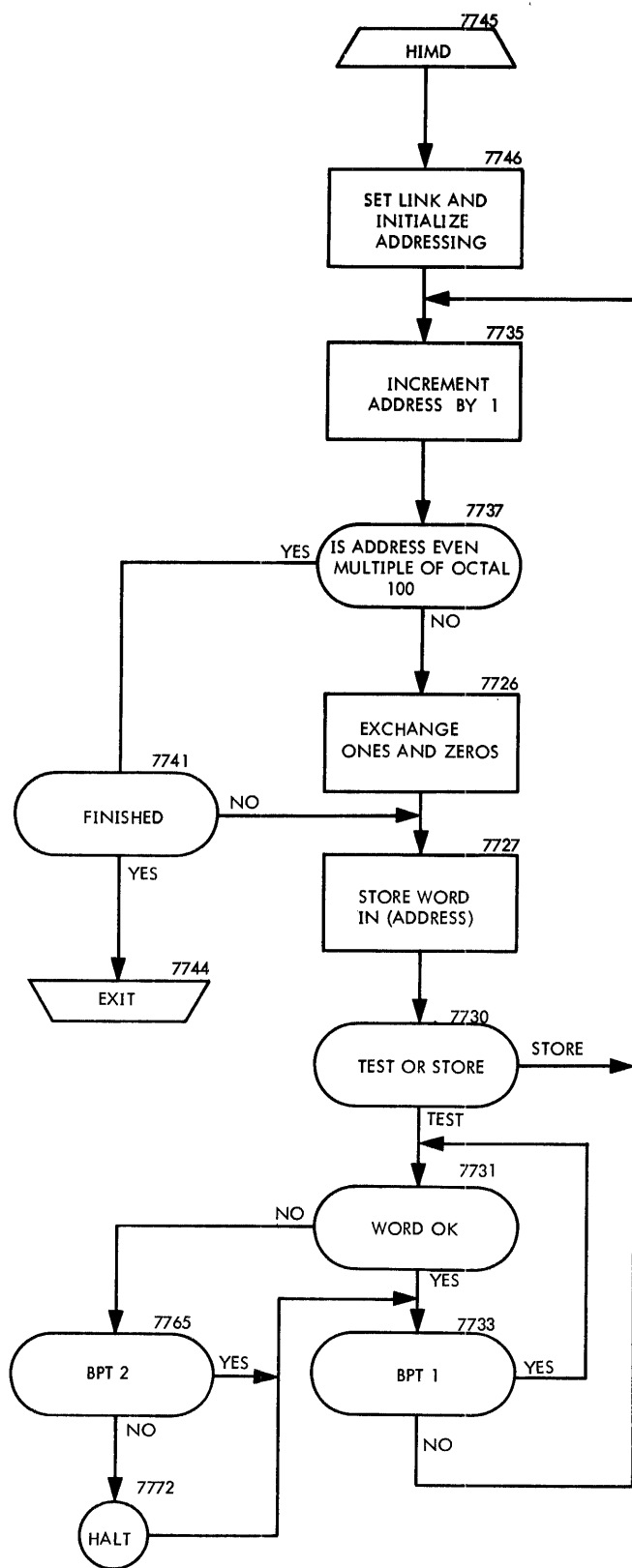
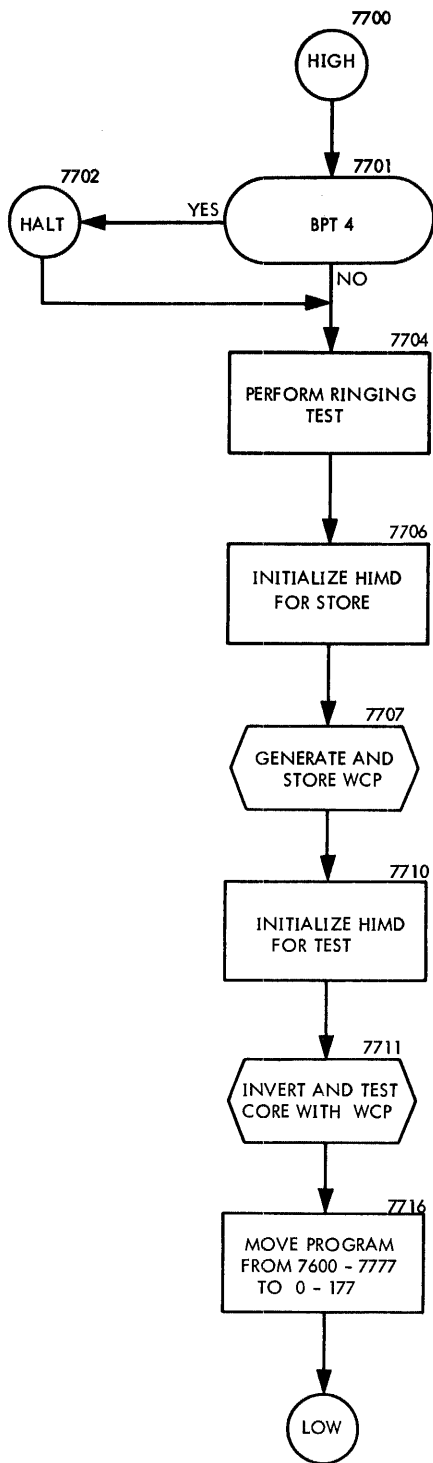
SDS 930 MEMORY DIAGNOSTIC LOADER FOR "4K ONLY"



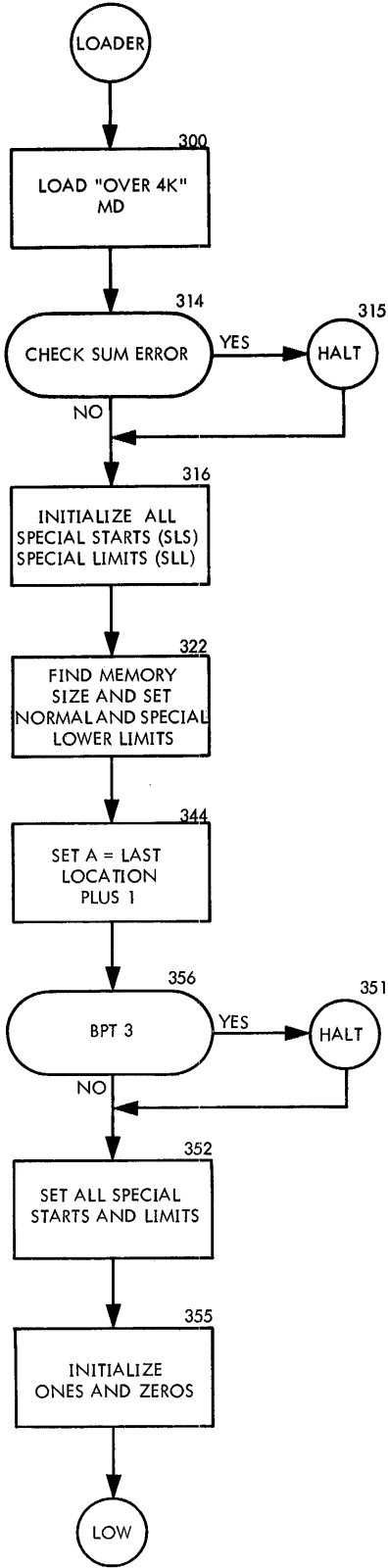
SDS 930 MEMORY DIAGNOSTIC "4K ONLY"

A = ONES
B = ZEROS
X = ERRORS

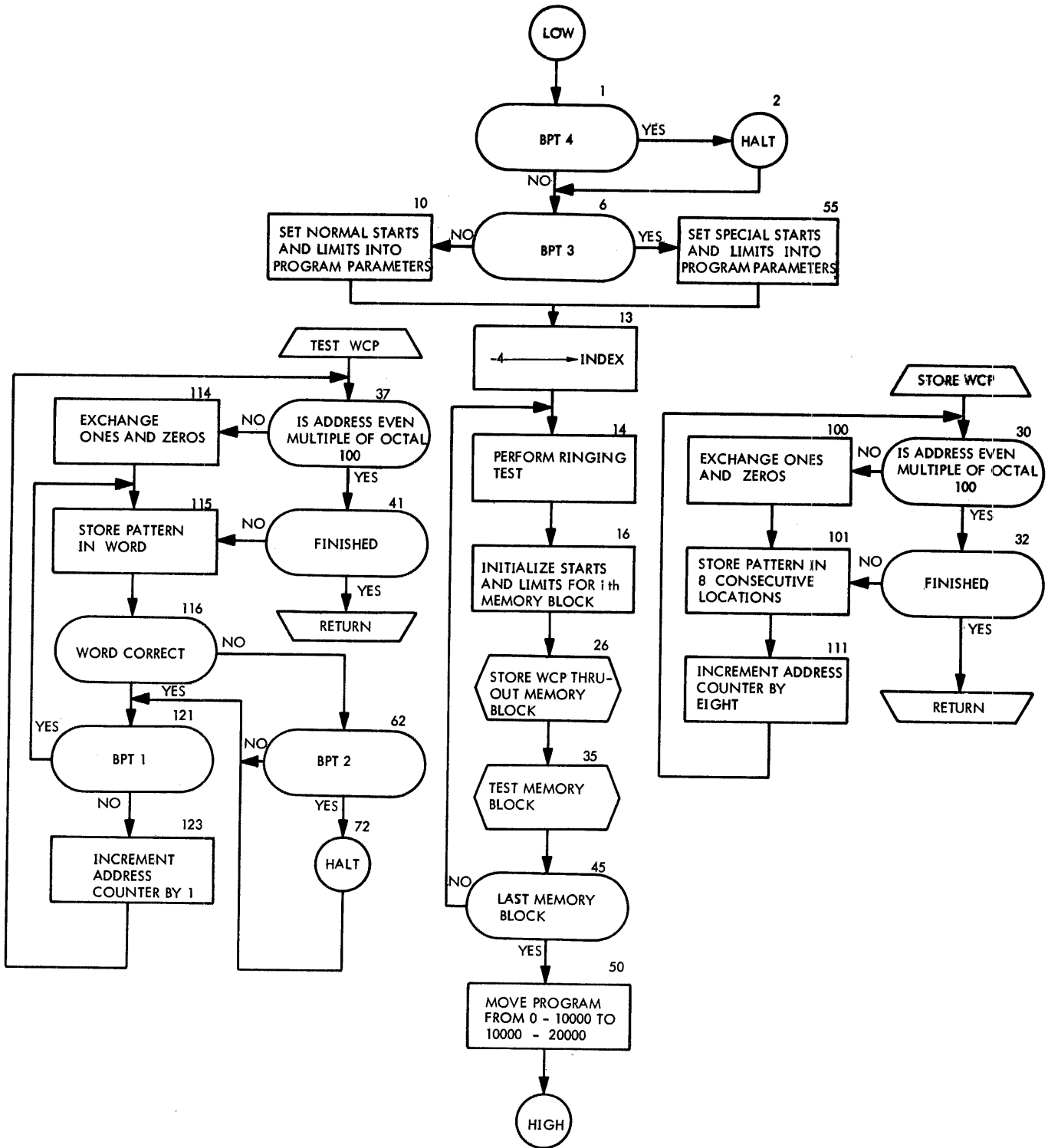


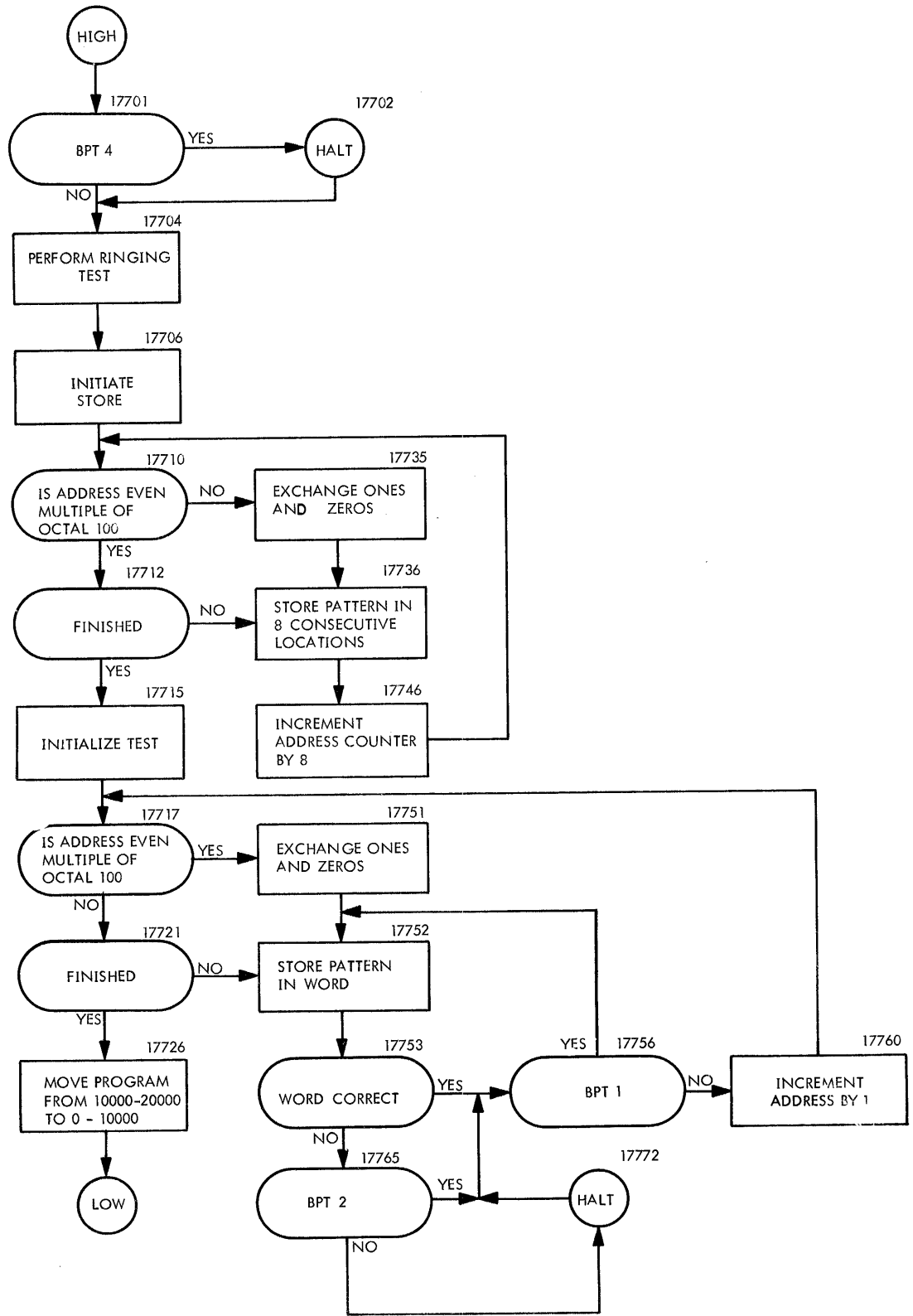


SDS 930 MEMORY DIAGNOSTIC LOADER "OVER 4K"



SDS 930 MEMORY DIAGNOSTIC "OVER 4K"





**SDS PROGRAM LIBRARY
PROGRAM DESCRIPTION**

Catalog No. 304002

IDENTIFICATION: Instruction Diagnostic

AUTHOR: R. Resnick/M. Mulholland

ACCEPTED: August 28, 1964

**COMPUTER
CONFIGURATION:** SDS 930

PURPOSE: To aid in diagnosing computer faults by verifying proper execution of computer logic.

**PROGRAM
OPERATORS:** Not applicable

STORAGE: 4096 words starting at location 00000

TIMING: Approximately 53 milliseconds per pass when in the Automatic mode.

SOURCE LANGUAGE: SYMBOL 8 Assembler

LOADING PROCEDURE: Self-loading, paper tape or cards

USE: There are three reasons for testing the performance of a computer:
Evaluation of the computer's performance,
Detection of errors when the computer has failed, and
Verification of the computer's performance.

This program provides for all three.

To test the computer's performance, it is necessary to perform:

- a Manual Test that involves the execution of a minimum number of specific instructions using the control console and compares the resulting contents of the programmable registers with predetermined constants,
- a Semi-automatic Test that uses a simple program principally consisting of those instructions tested during the Manual test; that executes a few more instructions and halts after each execution to let the operator inspect the registers for predetermined results, and

		14	PAGE		
		15	*		
		16	*	930 SEMI-AUTOMATIC INSTRUCTION DIAGNOSTIC	
		17	*		
00176	2 32 01036	18		WIM	542.2
00177	0 41 00176	19		BRX	126
00200	0 40 20040	20		BPT	4
00201	0 01 00210	21		BRU	SEMIA
00202	0 71 01024	22		LDX	M7
00203	0 40 21000	23		BRTW	
00204	0 01 00203	24		BRU	*-1
00205	0 02 02604	25		RPTW	1.4
00206	0 32 00002	26		WIM	2
00207	0 01 00002	27		BRU	2
		28	*	SEMI-AUTOMATIC TEST	
00210	0 00 00000	29	SEMIA	HLT	
00211	0 76 00707	30	BPTEST	LDA	ABP
00212	0 75 00710	31		LDB	BBP
00213	0 71 00711	32		LDX	XBP
00214	44020400	33	BP1	0CT	44020400
00215	0 01 00217	34		BRU	BP11
00216	0 01 00214	35		BRU	BP1
00217	0 00 00000	36	BP11	HLT	
00220	44020400	37		0CT	44020400
00221	0 01 00220	38		BRU	BP11+1
00222	0 00 00000	39		HLT	NO-CHECK REGISTERS
00223	44020200	40	BP2	0CT	44020200
00224	0 01 00226	41		BRU	BP22
00225	0 01 00223	42		BRU	BP2
00226	0 00 00000	43	BP22	HLT	
00227	0 40 20400	44		BPT	1
00230	0 01 00223	45		BRU	BP2
00231	44020200	46		0CT	44020200
00232	0 01 00231	47		BRU	BP22+3
00233	0 00 00000	48		HLT	NO-CHECK REGISTERS
00234	0 40 20400	49		BPT	1
00235	0 01 00231	50		BRU	BP22+3
00236	44020100	51	BP3	0CT	44020100
00237	0 01 00241	52		BRU	BP33

INSTRUCTION DIAG

304002

00240	0 01 00236	53		BRU	BP3	NO
00241	0 00 00000	54	BP33	HLT		
00242	0 40 20400	55		BPT	1	REPEAT
00243	0 01 00236	56		BRU	BP3	YES
00244	44020100	57		OCT	44020100	BREAKPOINT 3 SET
00245	0 01 00244	58		BRU	BP33+3	YES
00246	0 00 00000	59		HLT		NO-CHECK REGISTERS
00247	0 40 20400	60		BPT	1	REPEAT
00250	0 01 00244	61		BRU	BP33+3	YES
00251	44020040	62	BP4	OCT	44020040	NO-BREAKPOINT 4 SET
00252	0 01 00254	63		BRU	BP44	YES
00253	0 01 00251	64		BRU	BP4	NO
00254	0 00 00000	65	BP44	HLT		
00255	0 40 20400	66		BPT	1	REPEAT
00256	0 01 00251	67		BRU	BP4	YES
00257	44020040	68		OCT	44020040	BREAKPOINT 4 SET
00260	0 01 00257	69		BRU	BP44+3	YES
00261	0 00 00000	70		HLT		NO-CHECK REGISTERS
00262	0 40 20400	71		BPT	1	REPEAT
00263	0 01 00257	72		BRU	BP44+3	YES
00264	0 76 00712	73	LOADX	LDA	ACONS1	NO - REGISTER LOADS
00265	0 75 00713	74		LDR	BCONS1	CONSTANTS FOR LOADS
00266	4 71 00714	75		LDX	XCONS1.4	SIGNIFICANT REGISTER
00267	0 40 20200	76		BPT	2	CHECK REGISTERS
00270	0 01 00272	77		BRU	LDRFX	NO
00271	0 00 00000	78		HLT		YES
00272	0 40 20400	79	LDRFX	BPT	1	REPEAT LOAD X
00273	0 01 00264	80		BRU	LOADX	YES
00274	0 76 40723	81	LOADXI	LDA*	LD11	NO-REGISTERS LOADS*
00275	0 75 40725	82		LDB*	LD211	CONSTANTS FOR LOADS*
00276	4 71 40727	83		LDX*	LDX11.4	SIGNIFICANT REGISTER
00277	0 40 20200	84		BPT	2	CHECK REGISTERS
00300	0 01 00302	85		BRU	LDXIRE	NO
00301	0 00 00000	86		HLT		YES
00302	0 40 20400	87	LDXIRE	BPT	1	REPEAT LOAD
00303	0 01 00274	88		BRU	LOADXI	YES
00304	0 71 00717	89	LOADB	LDX	XCONS2	NO - REGISTER LOADS
00305	0 76 00715	90		LDA	ACONS2	CONSTANTS FOR LOADS
00306	4 75 00718	91		LDR	PCONS2.4	SIGNIFICANT REGISTER

00307	0	40	20200	92	BPT	2	CHECK REGISTERS
00310	0	01	00312	93	BRU	LDREPB	NO
00311	0	00	00000	94	HLT		YES
00312	0	40	20400	95	LDREPB	BPT 1	REPEAT LOAD B
00313	0	01	00304	96	BRU	LOADB	YES
00314	0	71	40731	97	LOADBI	LDX*	NO-REGISTER LOADS*
00315	0	76	40733	98	LDA*	LDA2I	CONSTANTS FOR LOADS*
00316	4	75	40735	99	LDB*	LDB2I.4	SIGNIFICANT REGISTER
00317	0	40	20200	100	BPT	2	CHECK REGISTERS
00320	0	01	00322	101	BRU	LDBIRE	NO
00321	0	00	00000	102	HLT		YES
00322	0	40	20400	103	LDBIRE	BPT 1	REPEAT LOAD
00323	0	01	00314	104	BRU	LOADBI	YES
00324	0	75	00721	105	LOADA	LDB	NO - REGISTER LOADS
00325	0	71	00722	106	LDX	BCONS3	CONSTANTS FOR LOADS
00326	4	76	00720	107	LDA	XCONS3	SIGNIFICANT REGISTER
00327	0	40	20200	108	BPT	ACONS3.4	CHECK REGISTERS
00330	0	01	00332	109	BRU	LDREPA	NO
00331	0	00	00000	110	HLT		YES
00332	0	40	20400	111	LDREPA	BPT 1	REPEAT LOAD A
00333	0	01	00324	112	BRU	LOADA	YES
00334	0	75	40737	113	LOADAI	LDB*	NO-REGISTER LOADS*
00335	0	71	40741	114	LDX*	LDB3I	CONSTANTS FOR LOADS*
00336	4	76	40743	115	LDA*	LDB3I	SIGNIFICANT REGISTER
00337	0	40	20200	116	BPT	LDA3I.4	CHECK REGISTERS
00340	0	01	00342	117	BRU	2	NO
00341	0	00	00000	118	HLT	LDAIRE	YES
00342	0	40	20400	119	LDAIRE	BPT 1	REPEAT
00343	0	01	00334	120	BRU	LOADAI	YES
00344	0	76	00745	121	BSTORE	LDA	NO-REGISTER STORES
00345	0	75	00746	122	LDB	AST0B	
00346	0	71	00747	123	LDX	BST0B	
00347	0	37	00750	124	STX	XST0B	
00350	4	36	00750	125	STB	STB	
00351	0	40	20200	126	BPT	STB.4	
00352	0	01	00354	127	BRU	2	CHECK REGISTERS
00353	0	00	00000	128	HLT	**2	NO
00354	0	76	00750	129	LDA	STB	YES
00355	0	40	20200	130	BPT	2	CHECK REGISTERS

00366	0	01	00366	131	BRU	**2	NO
00367	0	00	00000	132	HLT		YES
00368	0	40	20400	133	BPT	1	REPEAT
00369	0	01	00344	134	BRU	BSTORE	YES
00370	0	76	00755	135	EST0IA LDA	AST0IB	NO-REGISTER STORES*
00371	0	75	00756	136	LDB	BST0IB	
00372	0	71	00757	137	LDX	XST0IB	
00373	0	37	00760	138	STX	IST0	
00374	4	36	40761	139	STB*	ST0IA,4	
00375	0	40	20200	140	BPT	2	CHECK REGISTERS
00376	0	01	00372	141	BRU	**2	NO
00377	0	00	00000	142	HLT		YES
00378	0	76	00760	143	LDA	IST0	
00379	0	40	20200	144	BPT	2	CHECK REGISTERS
00380	0	01	00376	145	BRU	**2	NO
00381	0	00	00000	146	HLT		YES
00382	0	40	20400	147	BPT	1	REPEAT
00383	0	01	00362	148	BRU	BST0IA	YES
00400	0	76	00751	149	XSTORE LDA	AST0X	NO-REGISTER STORE-
00401	0	75	00752	150	LDB	BST0X	
00402	0	71	00753	151	LDX	XST0X	
00403	0	36	00754	152	STB	STX	
00404	4	37	00754	153	STX	STX,4	
00405	0	40	20200	154	BPT	2	CHECK REGISTERS
00406	0	01	00410	155	BRU	**2	NO
00407	0	00	00000	156	HLT		YES
00408	0	76	00754	157	LDA	STX	
00409	0	40	20200	158	BPT	2	CHECK REGISTERS
00410	0	01	00414	159	BRU	**2	NO
00411	0	00	00000	160	HLT		YES
00412	0	40	20400	161	BPT	1	REPEAT
00413	0	01	00400	162	BRU	XSTORE	YES
00414	0	76	00762	163	XST0IA LDA	AST0IX	NO-REGISTER STORES*
00415	0	75	00763	164	LDB	BST0IX	
00416	0	71	00764	165	LDX	XST0IX	
00417	0	36	00765	166	STB	ISTX	
00418	4	37	40766	167	STX*	STXIA,4	
00419	0	40	20200	168	BPT	2	CHECK REGISTERS
00420	0	01	00426	169	BRU	**2	NO

00425	C	00	00000	170
00426	C	76	00765	171
00427	C	40	20200	172
00430	C	01	00432	173
00431	C	00	00000	174
00432	C	40	20400	175
00433	C	01	00416	176
00434	C	76	00767	177
00435	C	75	00770	178
00436	C	71	00771	179
00437	A	51	00442	180
00440	C	40	20200	181
00441	C	01	00443	182
00442	A	00	00442	183
00443	C	40	20200	184
00444	C	01	00446	185
00445	C	00	00000	186
00446	C	40	20400	187
00447	C	01	00434	188
00450	C	76	00772	189
00451	C	75	00773	190
00452	C	71	00774	191
00453	A	51	00453	192
00454	A	40	20001	193
00455	C	01	00461	194
00456	C	40	20200	195
00457	C	01	00461	196
00460	C	00	00000	197
00461	C	40	20200	198
00462	C	01	00464	199
00463	C	00	00000	200
00464	C	40	20400	201
00465	C	01	00450	202
00466	C	76	00775	203
00467	C	75	00776	204
00470	C	71	00777	205
00471	A	51	00474	206
00472	C	40	20200	207
00473	C	01	00475	208

	HLT		YES
	LDA	ISTX	
	BPT	2	CHECK REGISTERS
	BRU	**2	NO
	HLT		YES
	BPT	1	REPEAT
	BRU	XSTOIA	YES
BRR1	LDA	BRR1	NO - BRR. SET OF
	LDB	BRR01	
	LDX	BRRX1	
	BRR	REPBR-1.4	
	BPT	2	BRR FAILED
	BRU	REPBR	
	HLT	*.4	CHECK ERROR
REPBR	BPT	2	CHECK REGISTERS
	BRU	**2	NO
	HLT		YES - CHECK REGISTERS
	BPT	1	REPEAT BRR. SET OF
	BRU	BRR1	YES
OVFL01	LDA	OFA1	NO - BRR. SET OF AND
	LDB	OFB1	TEST OF AND RESET
	LDX	OFX1	
	BRR	*.4	
	SKS	20001.4	OVERFLOW SET
	BRU	REPOF	YES - RESET OF
	BPT	2	NO-ERROR
	BRU	REPOF	
	HLT		CHECK ERROR
REPOF	BPT	2	CHECK REGISTERS
	BRU	**2	NO
	HLT		YES - CHECK REGISTERS
	BPT	1	REPEAT OVERFLOW
	BRU	OVFL01	YES
BRR2	LDA	BRR2	NO - BRR. OF NOT SET
	LDB	BRR02	
	LDX	BRRX2	
	BRR	BRRREP-1.4	
	BPT	2	BRR FAILED
	BRU	BRRREP	

00474	0	00	00474	209		HLT	*		CHECK ERROR
00475	0	40	00208	210	ERRREP	BPT	2		CHECK REGISTERS
00476	0	01	00500	211		BRU	**2		NO
00477	0	00	00000	212		HLT			YES-CHECK REGISTERS
00500	0	40	00400	213		BPT	1		REPEAT BR
00501	0	01	00466	214		BRU	BRR2		YES
00502	0	76	01000	215	BRR1A1	LDA	BRR1A		NO - BRR*
00503	0	75	01001	216		LDR	BRR1B		
00504	0	71	01002	217		LDX	BRR1X		
00505	4	81	41003	218		BRR*	IABRR,4		
00506	0	40	00208	219		BPT	2		BRR FAILED
00507	0	01	00511	220		BRU	REP0IA		
00510	0	00	00510	221		HLT	*		CHECK ERROR
00511	0	40	00208	222	REP0IA	BPT	2		CHECK REGISTERS
00512	0	01	00514	223		BRU	**2		NO
00513	0	00	00000	224		HLT			YES - CHECK REGISTERS
00514	0	40	00400	225		BPT	1		REPEAT BRR1A
00515	0	01	00502	226		BRU	BRR1A1		YES
00516	0	76	01004	227	BRX1	LDA	BRX1A1		NO - BRX, NO BRANCH
00517	0	75	01005	228		LDR	BRX1B1		
00520	0	71	01006	229		LDX	BRX1X1		
00521	4	41	00523	230		BRX	BRXFAL,4		
00522	0	01	00526	231		BRU	REPBRX		
00523	0	40	00208	232	BRXFAL	BPT	2		BRX FAILED
00524	0	01	00526	233		BRU	REPBRX		
00525	0	00	00000	234		HLT			CHECK ERROR
00526	0	40	00208	235	REPBRX	BPT	2		CHECK REGISTERS
00527	0	01	00531	236		BRU	**2		NO
00530	0	00	00000	237		HLT			YES - CHECK REGISTERS
00531	0	40	00400	238		BPT	1		REPEAT BRX
00532	0	01	00516	239		BRU	BRX1		YES
00533	0	76	01007	240	OVFL02	LDA	0FA2		NO - CHECK OVERFLOW
00534	0	75	01010	241		LDR	0FB2		
00535	0	71	01011	242		LDX	0FX2		
00536	4	40	00001	243		SKS	00001,4		OF SET
00537	0	01	00541	244		BRU	0FERR		YES - ERROR
00540	0	01	00544	245		BRU	0FREP		NO
00541	0	40	00208	246	0FERR	BPT	2		
00542	0	01	00544	247		BRU	0FREP		

00543	0	00	00000	248		HLT			CHECK ERROR
00544	0	40	20200	249	BFREP	BPT	2		CHECK REGISTERS
00545	0	01	00547	250		BRU	**2		NO
00546	0	00	00000	251		HLT			YES - CHECK REGISTERS
00547	0	40	20400	252		BPT	1		REPEAT OVERFLOW
00550	0	01	00533	259		BRU	OVFL02		YES
00551	0	76	01012	254	BRX2	LDA	BRXA2		NO - BRX, BRANCH
00552	0	75	01013	255		LDR	BRXB2		
00553	0	71	01014	256		LDX	BRXX2		X9 = 1
00554	4	41	00560	257		BRX	BRXREP.4		
00555	0	40	20200	258		BPT	2		BRX FAILED TO BRANCH
00556	0	01	00560	259		BRU	BRXREP		
00557	0	00	00000	260		HLT			CHECK ERROR
00560	0	40	20200	261	BRXREP	BPT	2		CHECK REGISTERS
00561	0	01	00563	262		BRU	**2		NO
00562	0	00	00000	263		HLT			YES - CHECK REGISTERS
00563	0	40	20400	264		BPT	1		REPEAT BRX
00564	0	01	00551	265		BRU	BRX2		YES
00565	0	76	01015	266	BRXIA1	LDA	BRXIA		NO - BRX*
00566	0	75	01016	267		LDB	BRXIB		
00567	0	71	01017	268		LDX	BRXIX		
00570	0	41	41020	269		BRX*	BRXIAR		
00571	0	40	20200	270		BPT	2		BRX FAILED
00572	0	01	00574	271		BRU	REPIA9		
00573	0	00	00000	272		HLT			CHECK ERROR
00574	0	40	20200	273	REPIAB	BPT	2		CHECK REGISTERS
00575	0	01	00577	274		BRU	**2		NO
00576	0	00	00000	275		HLT			YES - CHECK REGISTERS
00577	0	40	20400	276		BPT	1		REPEAT BRXIA
00600	0	01	00565	277		BRU	BRXIA1		YES
00601	0	71	01023	278	SKEAEM	LDX	M2		NO - SKE (A = M)
00602	0	76	01031	279		LDA	SKETAB		
00603	0	75	01031	280		LDB	SKETAB		
00604	0	36	01021	281		STB	SKEM1		
00605	4	50	01021	282		SKE	SKEM1.4		
00606	0	01	00610	283		BRU	ERRSKE		ERROR
00607	0	01	00613	284		BRU	REPSKE		
00610	0	40	20200	285	ERRSKE	BPT	2		
00611	0	01	00613	286		BRU	REPSKE		

00612	0	00	00000	287		HLT			CHECK ERROR
00613	0	40	20200	288	REPSKE	BPT	2		CHECK REGISTERS
00614	0	01	00616	289		BRU	**2		NO
00615	0	00	00000	290		HLT			YES - CHECK REGISTERS
00616	0	40	20400	291		BPT	1		REPEAT
00617	0	01	00604	292		BRU	SKEAEM+3		YES
00620	0	76	01032	293		LDA	SKETAB+1		NO - LOAD OTHER CONSTANTS
00621	0	75	01032	294		LDR	SKETAB+1		
00622	0	41	00604	295		BRX	SKEAEM+3		DONE BOTH CASES
00623	0	71	01023	296	SKE1	LDX	M2		YES - SKE (A NOT EQUAL TO M)
00624	0	76	01033	297		LDA	SKETAB+2		
00625	0	75	01031	298		LDR	SKETAB		
00626	0	36	01021	299		STR	SKEM1		
00627	4	50	01021	300		SKF	SKEM1.4		
00630	0	01	00634	301		BRU	REPSK1		
00631	0	40	20200	302		BPT	2		ERROR
00632	0	01	00634	303		BRU	REPSK1		
00633	0	00	00000	304		HLT			CHECK ERROR
00634	0	40	20200	305	REPSK1	BPT	2		CHECK REGISTERS
00635	0	01	00637	306		BRU	**2		NO
00636	0	00	00000	307		HLT			YES - CHECK REGISTERS
00637	0	40	20400	308		BPT	1		REPEAT
00640	0	01	00626	309		BRU	SKE1+3		YES
00641	0	76	01031	310		LDA	SKETAB		
00642	0	75	01033	311		LDR	SKETAB+2		
00643	0	41	00626	312		BRX	SKE1+3		DONE BOTH CASES
00644	0	71	01023	313	SKE2	LDX	M2		YES - DO NEXT TWO
00645	0	76	01034	314		LDA	SKETAB+3		
00646	0	75	01031	315		LDR	SKETAB		
00647	0	36	01021	316		STR	SKEM1		
00650	4	50	01021	317		SKE	SKEM1.4		
00651	0	01	00655	318		BRU	REPSK2		
00652	0	40	20200	319		BPT	2		ERROR
00653	0	01	00655	320		BRU	REPSK2		
00654	0	00	00000	321		HLT			CHECK ERROR
00655	0	40	20200	322	REPSK2	BPT	2		CHECK REGISTERS
00656	0	01	00660	323		BRU	**2		NO
00657	0	00	00000	324		HLT			YES - CHECK REGISTERS
00660	0	40	20400	325		BPT	1		REPEAT

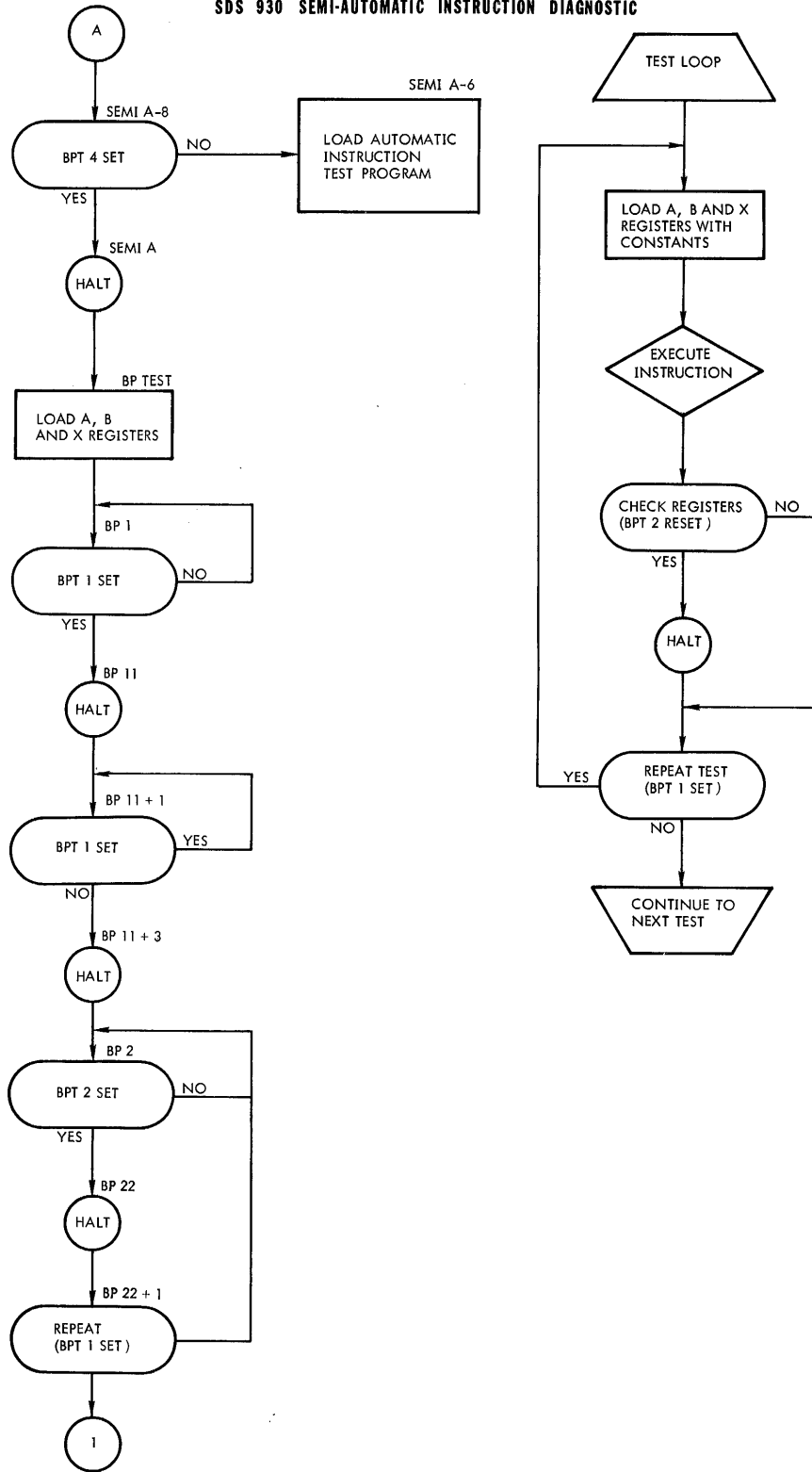
00661	0 01 00647	326		BRU	SKE2+3	YES
00662	0 76 01031	327		LDA	SKETAB	
00663	0 75 01034	328		LDB	SKETAB+3	
00664	0 41 00647	329		BRX	SKE2+3	DONE BOTH CASES
00665	0 71 01023	330	SKE3	LDX	M2	YES - DO NEXT TWO
00666	0 76 01035	331		LDA	SKETAB+4	
00667	0 75 01031	332		LDB	SKETAB	
00670	0 36 01021	333		STB	SKEM1	
00671	4 50 01021	334		SKE	SKEM1.4	
00672	0 01 00676	335		BRU	REPSK3	
00673	0 40 20200	336		BPT	2	ERROR
00674	0 01 00676	337		BRU	REPSK3	
00675	0 00 00000	338		HLT		CHECK ERROR
00676	0 40 20200	339	REPSK3	BPT	2	CHECK REGISTERS
00677	0 01 00701	340		BRU	**2	NO
00700	0 00 00000	341		HLT		YES - CHECK REGISTERS
00701	0 40 20400	342		BPT	1	REPEAT
00702	0 01 00670	343		BRU	SKE3+3	YES
00703	0 76 01031	344		LDA	SKETAB	
00704	0 75 01035	345		LDB	SKETAB+4	
00705	0 41 00670	346		BRX	SKE3+3	DONE BOTH CASES
00706	0 01 00200	347		BRU	SEMIA-8	
		348	*		CONSTANTS	
00707	70707070	349	ABP	OCT	70707070	
00710	01010101	350	BBP	OCT	01010101	
00711	40000001	351	XBP	OCT	40000001	
00712	52525252	352	ACONS1	OCT	52525252	
00713	25252525	353	BCONS1	OCT	25252525	
00714	70707070	354	XCONS1	OCT	70707070	
00715	25252525	355	ACONS2	OCT	25252525	
00716	70707070	356	BCONS2	OCT	70707070	
00717	52525252	357	XCONS2	OCT	52525252	
00720	70707070	358	ACONS3	OCT	70707070	
00721	52525252	359	BCONS3	OCT	52525252	
00722	25252525	360	XCONS3	OCT	25252525	
00723	0 75 00724	361	LDA11	LDB	**1	
00724	40000001	362		OCT	40000001	
00725	0 71 00726	363	LDB11	LDX	**1	
00726	37777776	364		OCT	37777776	

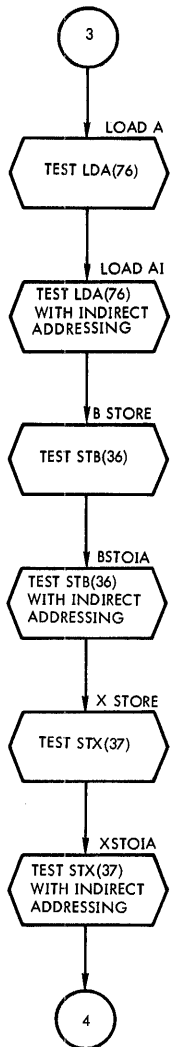
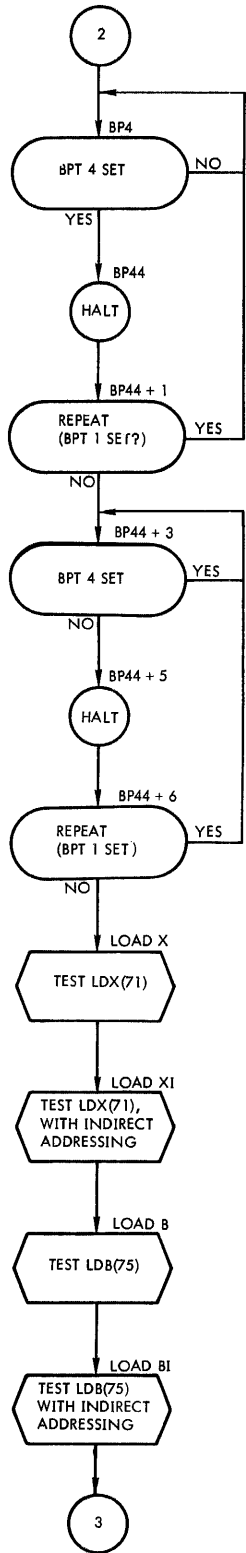
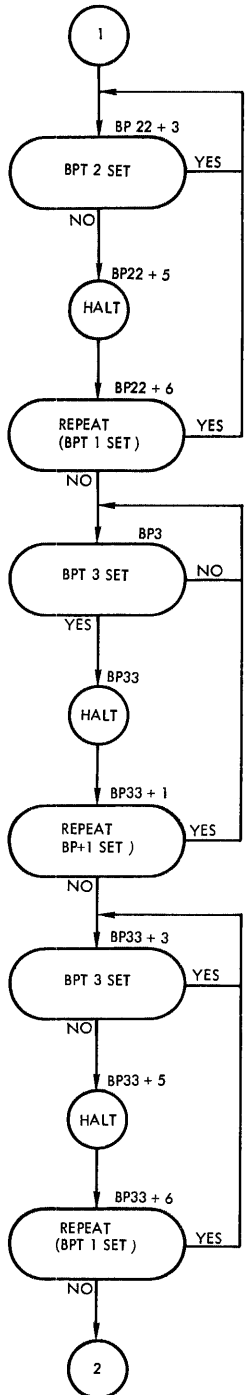
00727	C 76 00730	365	LDX1I	LDA	**1
00730	70707070	366		OCT	70707070
00731	C 76 00732	367	LDX2I	LDA	**1
00732	07070707	368		OCT	07070707
00733	C 75 00734	369	LDA2I	LDB	**1
00734	37777776	370		OCT	37777776
00735	C 71 00736	371	LDB2I	LDX	**1
00736	40000001	372		OCT	40000001
00737	C 71 00740	373	LDB3I	LDX	**1
00740	37777776	374		OCT	37777776
00741	C 76 00742	375	LDX3I	LDA	**1
00742	70707070	376		OCT	70707070
00743	C 75 00744	377	LDA3I	LDB	**1
00744	40000001	378		OCT	40000001
00745	25255252	379	AST0B	OCT	25255252
00746	77777777	380	BST0B	OCT	77777777
00747	00000000	381	XST0B	OCT	00000000
00750	C 00 00000	382	STB	PZE	
00751	44441111	383	AST0X	OCT	44441111
00752	10101010	384	BST0X	OCT	10101010
00753	32323232	385	XST0X	OCT	32323232
00754	C 00 00000	386	STX	PZE	
00755	11114444	387	AST0IB	OCT	11114444
00756	07070707	388	BST0IB	OCT	07070707
00757	70707070	389	XST0IB	OCT	70707070
00760	C 00 00000	390	ISTB	PZE	
00761	C 37 00760	391	STBIA	STX	ISTB
00762	C1014040	392	AST0IX	OCT	01014040
00763	00007777	393	BST0IX	OCT	7777
00764	77770000	394	XST0IX	OCT	77770000
00765	C 00 00000	395	ISTX	PZE	
00766	C 36 00765	396	STXIA	STB	ISTX
00767	41111114	397	BRR1	OCT	41111114
00770	14141414	398	BRRB1	OCT	14141414
00771	43434343	399	BRRX1	OCT	43434343
00772	12121212	400	OFA1	OCT	12121212
00773	21212121	401	OFB1	OCT	21212121
00774	C1010101	402	OFX1	OCT	01010101
00775	10101010	403	BRR2	OCT	10101010

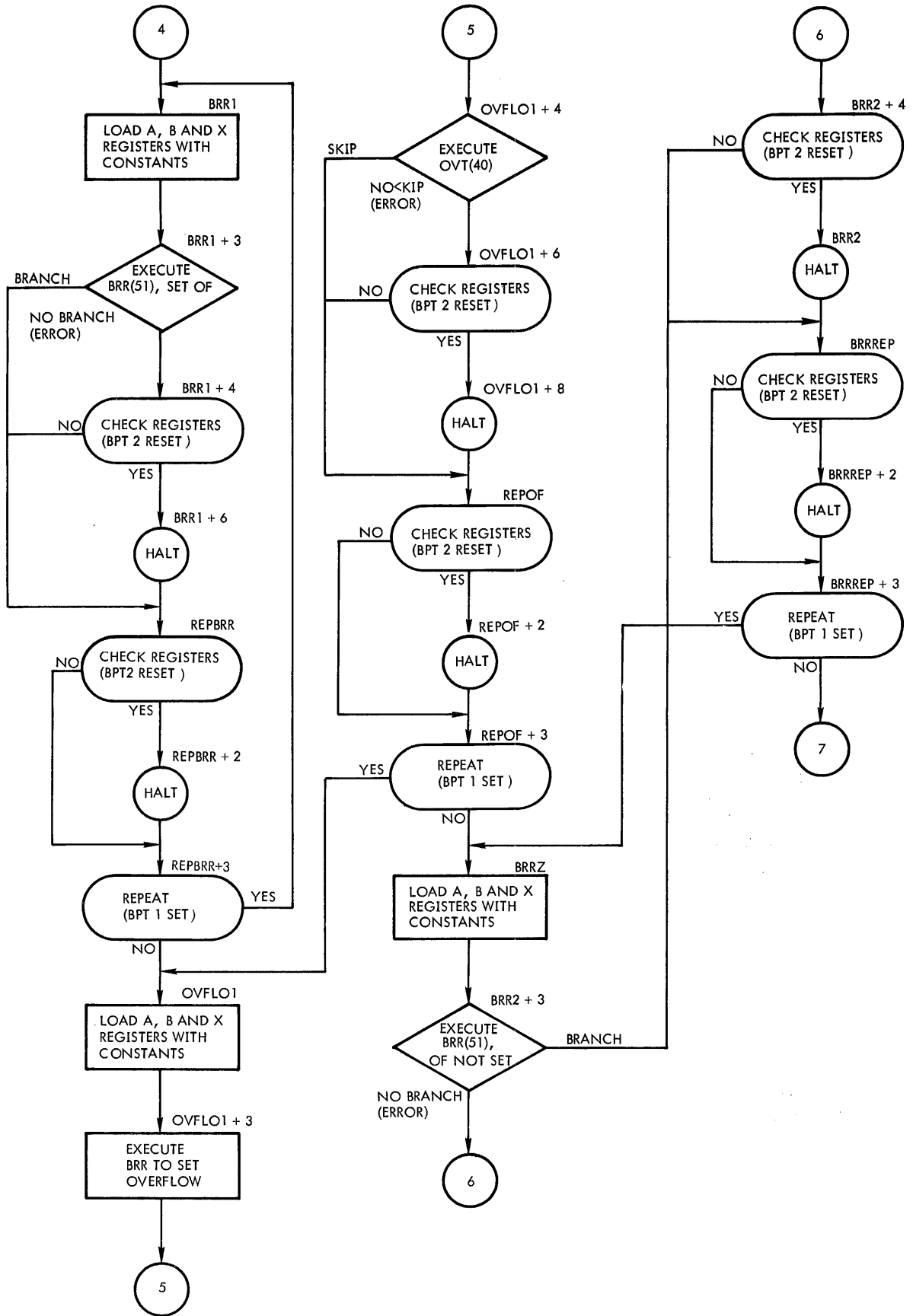
00776	01010101	404	BRRB2	0CT	01010101
00777	40000001	405	BRRX2	0CT	40000001
01000	00000000	406	ERRIA	0CT	00000000
01001	70707070	407	BRRIB	0CT	70707070
01002	07070707	408	BRRIX	0CT	07070707
01003	0 35 00510	409	IABRR	STA	REP BIA-1
01004	77777777	410	BRXA1	0CT	77777777
01005	00000000	411	BRXB1	0CT	00000000
01006	00077777	412	BRXX1	0CT	00077777
01007	07707707	413	0FA2	0CT	07707707
01010	70070070	414	0FB2	0CT	70070070
01011	77777777	415	0FX2	0CT	77777777
01012	77000077	416	BRXA2	0CT	77000077
01013	70777707	417	BRXB2	0CT	70777707
01014	00040000	418	BRXX2	0CT	00040000
01015	37777776	419	BRXIA	0CT	37777776
01016	40000001	420	BRXIB	0CT	40000001
01017	70040006	421	BRXIX	0CT	70040006
01020	0 35 00574	422	BRXIAR	STA	REPIAB
01021	0 00 00000	423	SKEMI	PZE	
01022	00040002	424	M	0CT	40002
01023	77777776	425	M2	0CT	77777776
01024	77777771	426	M7	0CT	77777771
01025	00000000	427	ATABL	0CT	00000000
01026	77777777	428		0CT	77777777
01027	10000000	429	B TABL	0CT	10000000
01030	37777777	430		0CT	37777777
01031	00000000	431	SKETAB	0CT	00000000
01032	77777777	432		0CT	77777777
01033	40000000	433		0CT	40000000
01034	20000000	434		0CT	20000000
01035	10000000	435		0CT	10000000
	00200	436	END		SEMIA-8

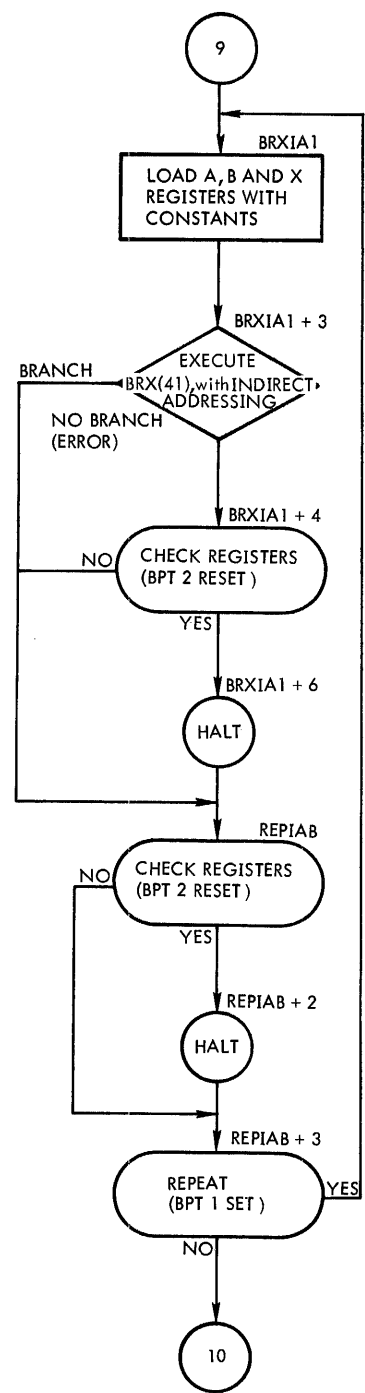
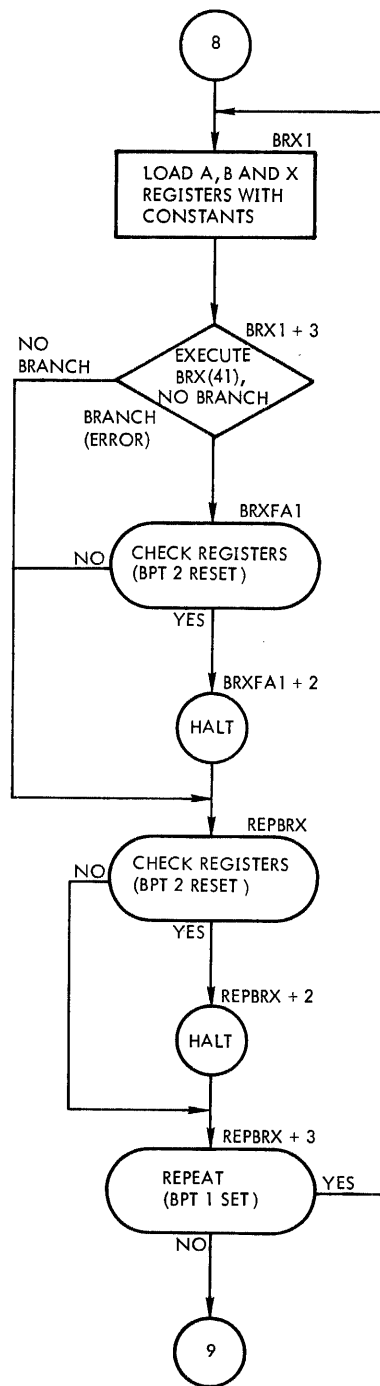
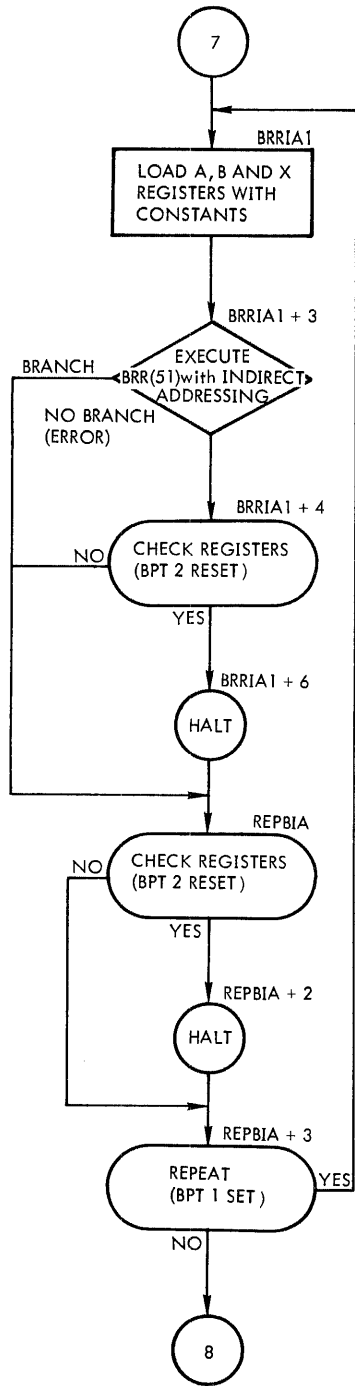
ACONS1	00712	ACONS2	00715	ACONS3	00720	AST01F	00755
AST01X	00762	BCONS1	00713	BCONS2	00716	BCONS3	00721
BPTEST	00211	BRRIA1	00502	BRREP	00475	BRXFA1	00523
BRXIA1	00565	BRXIAR	01020	BRXREP	00560	BST01A	00362
BST01B	00756	BST01X	00763	BSTORE	00344	EKRSKE	00610
LDAIRE	00342	LDBIRE	00322	LDREPA	00332	LDREPB	00312
LDREPX	00272	LDXIRE	00302	LBADAI	00334	LBADBI	00314
LOADXI	00274	OVFL01	00450	OVFL02	00533	KEPIA	00511
REPERR	00443	REPERX	00526	KEPIAB	00574	KEPSK1	00634
REPSK2	00655	REPSK3	00676	REPSKE	00613	SKEAEM	00601
SKETAB	01031	XCONS1	00714	XCONS2	00717	XCONS3	00722
XST01A	00416	XST01B	00757	XST01X	00764	XSTORE	00400
AST00	00745	AST0X	00751	ATABL	01025	BRX41	00767
BKRAZ	00775	BKRE1	00770	BKRE2	00776	BRRIA	01000
BKRI6	01001	BKRIX	01002	BKRX1	00771	BKRX2	00777
BRXA1	01004	BRXA2	01012	BRXB1	01005	BRXB2	01013
BRXIA	01015	BRXIB	01016	BRXIX	01017	BRXX1	01006
BRXX2	01014	BST00	00746	BST0X	00752	BTABL	01027
IABRR	01003	LDA11	00723	LDA21	00733	LD431	00743
LDB11	00725	LDB21	00735	LDB31	00737	LDX11	00727
LDA21	00731	LUX31	00741	L6ADA	00324	L6ADB	00304
LOADX	00264	DFERR	00541	DFREP	00544	REP0F	00461
SEMIA	00210	SKEM1	01021	STBIA	00761	STX1A	00766
XST00	00747	XST0X	00753	BP11	00217	BP22	00225
BP33	00241	BP44	00254	BRR1	00434	BRR2	00466
BRX1	00516	BRX2	00551	IST6	00760	ISTX	00765
BFA1	00772	BFA2	01007	DFB1	00773	DF32	01010
DFX1	00774	DFX2	01011	SKE1	00623	SKE2	00644
SKE3	00665	ABP	00707	BBP	00710	BP1	00214
BP2	00223	BP3	00236	BP4	00251	ST3	00750
STX	00754	XBP	00711	M2	01023	M7	01024
M	01022						

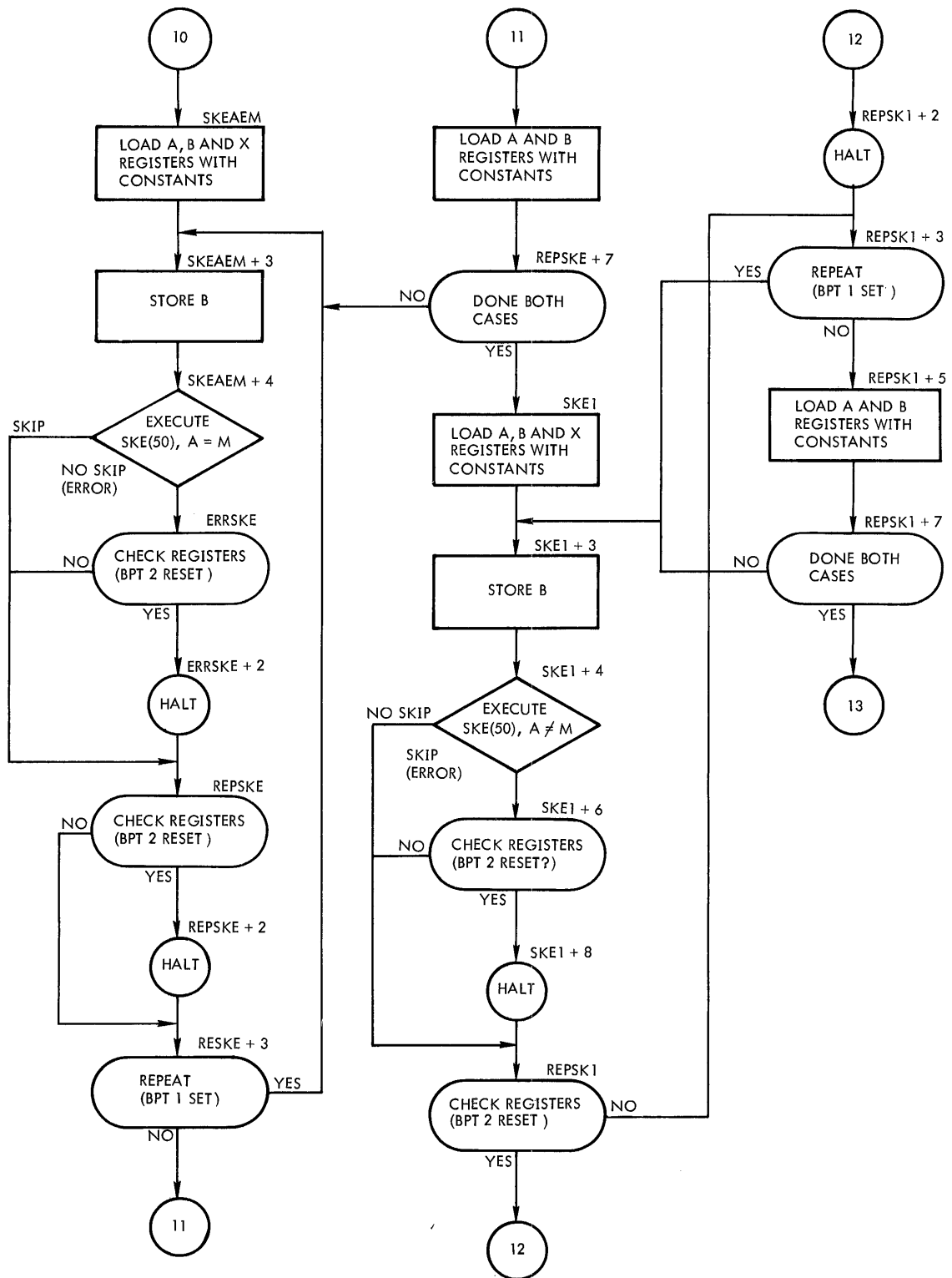
SDS 930 SEMI-AUTOMATIC INSTRUCTION DIAGNOSTIC

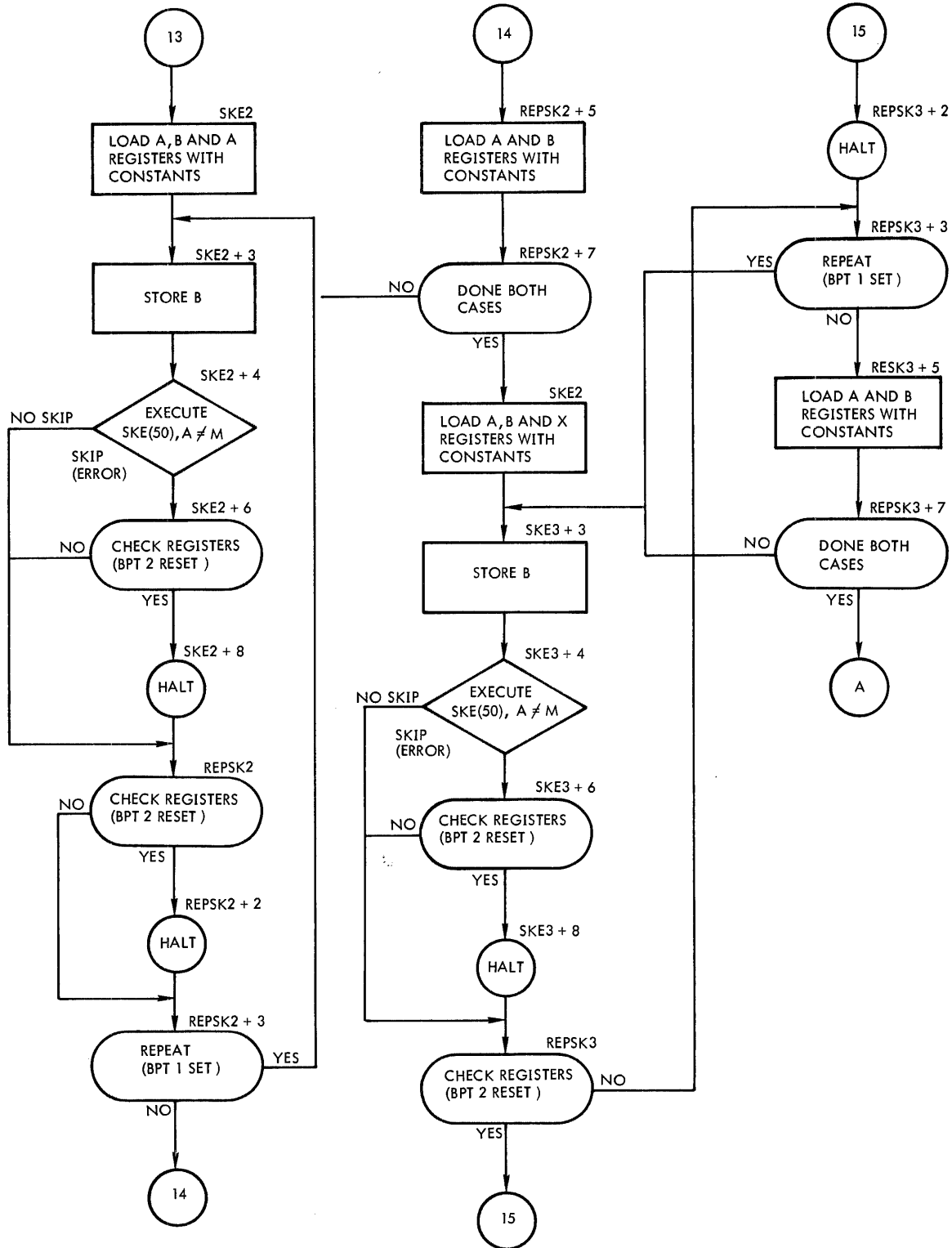












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1 *
2 *930 INSTRUCTION DIAGNOSTIC-LOADER
3 *
4     00002
00002 2 32 00012 5     ORG      2
00003 0 41 00002 6     WIM      10.2
00004 0 32 00001 7     BRX      *-1
00005 0 32 00002 8     WIM      1          READ IN WIM
00006 0 71 00010 9     WIM      2          READ IN BRX
00007 0 01 00001 10    LDX      8          LOAD X WITH 70002
00010 00070003 11    BRU      1
00011 00000000 12    OCT      70003
00012      77767 13    OCT      0
14    BSS      -9
15 *
16 *930 INSTRUCTION DIAGNOSTIC
17 *
00001 2 32 10000 17    WIM      4096.2
00002 0 41 00001 18    BRX      *-1
00003 0 71 00106 19    START LDX  L0
00004 2 71 00013 20    CHANGE LDX 11.2      MODULE ADDRESS (XA)
00005 2 75 00001 21    REPEAT LDB 1.2       INSTRUCTION (J)
00006 0 06 20300 22    EOD      3*A        SET BANK REGISTERS TO FIRST 4K
00007 0 36 00022 23    STB      SKIP+2
00010 0 36 00032 24    STR      NOSKIP+2
00011 0 37 00026 25    STX      SKER
00012 0 37 00037 26    STX      NOSKER
00013 2 75 00010 27    LDB      8.2        ORIGINAL CONTENTS OF MEMORY (MO)
00014 0 36 00113 28    STB      MEMORY
00015 2 76 00002 29    LDA      2.2        ORIGINAL CONTENTS OF A (AO)
00016 2 75 00004 30    LDB      4.2        ORIGINAL CONTENTS OF B (BO)
00017 2 51 00012 31    BRR      10.2       SET STATE OF OVFL0 AND BRANCH

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INSTRUCTION DIAG.

304002

00066	2	50	00011	71	SKF	9.2
00067	0	40	20200	72	BPT	2
00070	0	01	00072	73	BRU	BR0VF
00071	0	00	00000	74	HLT	
00072	2	01	00013	75	BR0VF	BRU 11.2

MEMORY ERROR
BRANCH TO PROPER 0VFL0 TEST

00073	0	40	20001	76		PAGE	
00074	0	40	20200	77	NOVFL0	SVT	
00075	0	01	00105	78		RPT	2
00076	0	00	00000	79		BRU	0K
00077	0	01	00105	80		HLT	
00100	0	10	20001	81		BRU	0K
00101	0	01	00105	82	NOVFL0	SVT	
00102	0	40	20200	83		BRU	0K
00103	0	01	00105	84		RPT	2
00104	0	00	00000	85		BRU	0K
00105	0	40	20100	86		HLT	
00106	0	00	00115	87	0K	RPT	3
00107	0	40	20400	88	LD	HLT	77
00110	0	01	00005	89		RPT	1
00111	0	41	00004	90		BRU	REPEAT
00112	0	01	00003	91		BRX	CHANGE
00113	0	00	00000	92		BRU	START
00114	0	01	00040	93	MEMORY	P7F	
00115	0	36	00122	94		BRU	NOERR
00116	0	75	00000	95	P&P	STR	BRFC
00117	0	36	00113	96		LDR	0
00120	0	01	00041	97		STR	MEMORY
00121	0	00	00000	98		BRU	NOERR+1
00122	0	00	00000	99	AREG	P7F	
00123	0	00	00000	100	BRFC	P7F	
00124	0	00	00000	101	XREG	P7F	
00125	0	00	00000	102		P7F	
00126	0	00	00000	103		P7E	
00127	0	00	00000	104		P7F	
				105		P7F	
				106	CLX	0PD	24600000
				107	FRT	0PD	4000000
				108	P&P	0PD	11500000
				109	7	0PD	700000
				110	E00	0PD	620000
				111	RE0	0PD	220010
		00100		112	A	0001	100
		00010		113	R	0001	10

OVERFLOW TESTS

OVERFLOW SHOULD NOT OCCUR
OVERFLOW ERROR

OVERFLOW SHOULD OCCUR
OVERFLOW ERROR

TEST FOR REPEAT

PICK UP CONTENTS OF LOCATION 0
STORE FOR TESTING

Address	Hex	Dec	Label	Page	Module
00130	0 20 40130	114		PAGE	MODULES-NOP
00131	4 20 40064	115	NOP1	NOP*	*
00132	77700070	116		NOP*	TESTM.4
00133	77700070	117		0CT	77700070
00134	33344434	118		0CT	77700070
00135	33344434	119		0CT	33344434
00136	44433343	120		0CT	33344434
00137	44433343	121		0CT	44433343
00140	66611161	122		0CT	44433343
00141	66611161	123		0CT	66611161
00142	0 01 00030	124		0CT	66611161
00143	0 01 00073	125		BRU	NOSKIP
00144	0 20 40144	126		BRU	N0VFL0
00145	4 20 40064	127	NOP2	NOP*	*
00146	00077707	128		NOP*	TESTM.4
00147	00077707	129		0CT	00077707
00150	22255525	130		0CT	00077707
00151	22255525	131		0CT	22255525
00152	55522252	132		0CT	22255525
00153	55522252	133		0CT	55522252
00154	11166616	134		0CT	55522252
00155	11166616	135		0CT	11166616
00156	4 01 00030	136		0CT	11166616
00157	0 01 00100	137		BRU	NOSKIP.4
00160	0 20 40160	138		BRU	0VFL0
00161	4 20 00113	139	NOP3	NOP*	*
00162	55522252	140		NOP	MEMORY.4
00163	55522252	141		0CT	55522252
00164	11166616	142		0CT	55522252
00165	11166616	143		0CT	11166616
00166	66611161	144		0CT	11166616
00167	66611161	145		0CT	11166616
00170	33344434	146		0CT	66611161
00171	33344434	147		0CT	66611161
00172	0 01 00030	148		0CT	33344434
00173	0 01 00073	149		0CT	33344434
		150		BRU	NOSKIP
				BRU	N0VFL0

00174	0 20 40174	151		PAGE		
00175	4 20 00113	152	N0P4	N0P*	*	N0P
00176	22255525	153		N0P	MEMORY.4	
00177	22255525	154		0CT	22255525	
00200	00077707	155		0CT	22255525	
00201	00077707	156		0CT	00077707	
00202	77700070	157		0CT	00077707	
00203	77700070	158		0CT	77700070	
00204	11166616	159		0CT	77700070	
00205	11166616	160		0CT	11166616	
00206	4 01 00030	161		0CT	11166616	
00207	0 01 00100	162		BRU	N0SKIP.4	SFT OVERFLOW
		163		BRU	OVFL0	OVERFLOW

		164				
00210	0 20 40210	165	E0M1	PAGE NOP*	*	E0M
00211	4 02 20001	166		E0M	20001,4	
00212	77700070	167		0CT	77700070	
00213	77700070	168		0CT	77700070	
00214	66611161	169		0CT	66611161	
00215	66611161	170		0CT	66611161	
00216	55522252	171		0CT	55522252	
00217	55522252	172		0CT	55522252	
00220	00000000	173		0CT	0	
00221	00000000	174		0CT	0	
00222	4 01 00030	175		BRU	N0SKIP,4	SET OVERFLOW
00223	0 01 00073	176		BRU	N0VFL0	
00224	0 20 40224	177	E0M2	NOP*	*	
00225	4 02 20001	178		E0M	20001,4	
00226	00077707	179		0CT	00077707	
00227	00077707	180		0CT	00077707	
00230	11166616	181		0CT	11166616	
00231	11166616	182		0CT	11166616	
00232	22255525	183		0CT	22255525	
00233	22255525	184		0CT	22255525	
00234	00000000	185		0CT	0	
00235	00000000	186		0CT	0	
00236	0 01 00030	187		BRU	N0SKIP	
00237	0 01 00073	188		BRU	N0VFL0	

				PAGE	
00240	0 20 40240	130			
00241	4 14 00113	190	ETR1	NBP*	*
00242	14631463	191		ETR	MEMORY.4
00243	04210421	192		OCT	14631463
00244	77700070	193		OCT	04210421
00245	77700070	194		OCT	77700070
00246	00077707	195		OCT	77700070
00247	00077707	196		OCT	00077707
00250	25252525	197		OCT	00077707
00251	25252525	198		OCT	25252525
00252	0 01 00030	199		OCT	25252525
00253	0 01 00073	200		BRU	NOSKIP
00254	0 20 40254	201		BRU	NOVFL0
00255	4 14 00113	202	ETR2	NBP*	*
00256	63146314	203		ETR	MEMORY.4
00257	21042104	204		OCT	63146314
00260	66611161	205		OCT	21042104
00261	66611161	206		OCT	66611161
00262	11166616	207		OCT	66611161
00263	11166616	208		OCT	11166616
00264	25252525	209		OCT	11166616
00265	25252525	210		OCT	25252525
00266	0 01 00030	211		OCT	25252525
00267	0 01 00073	212		BRU	NOSKIP
00270	0 20 40270	213		BRU	NOVFL0
00271	4 14 40064	214	ETR3	NBP*	*
00272	31463146	215		ETR*	TFSTM.4
00273	10421042	216		OCT	31463146
00274	55522252	217		OCT	10421042
00275	55522252	218		OCT	55522252
00276	22255525	219		OCT	55522252
00277	22255525	220		OCT	22255525
00300	52525252	221		OCT	22255525
00301	52525252	222		OCT	52525252
00302	0 01 00030	223		OCT	52525252
00303	0 01 00073	224		BRU	NOSKIP
		225		BRU	NOVFL0

ETR

IA

00304	0 20 40304	226		PAGE		
00305	4 14 00113	227	ETR4	NBP*	*	ETR
00306	46314631	228		ETR	MEMORY.4	
00307	42104210	229		OCT	46314631	
00310	44433343	230		OCT	42104210	
00311	44433343	231		OCT	44433343	
00312	33344434	232		OCT	44433343	
00313	33344434	233		OCT	33344434	
00314	52525252	234		OCT	33344434	
00315	52525252	235		OCT	52525252	
00316	4 01 00030	236		OCT	52525252	
00317	0 01 00100	237		BRU	NOSKIP.4	SFT OVERFLOW
		238		BRU	OVFL0	OVERFLOW

		239		PAGE	
00320	0 20 40320	240	MRG1	NOP*	*
00321	4 16 00113	241		MRG	MEMORY.4
00322	14631463	242		OCT	14631463
00323	35673567	243		OCT	35673567
00324	33344434	244		OCT	33344434
00325	33344434	245		OCT	33344434
00326	44433343	246		OCT	44433343
00327	44433343	247		OCT	44433343
00330	25252525	248		OCT	25252525
00331	25252525	249		OCT	25252525
00332	0 01 00030	250		BRU	NOSKIP
00333	0 01 00073	251		BRU	NOVFL0
00334	0 20 40334	252	MRG2	NOP*	*
00335	4 16 00113	253		MRG	MEMORY.4
00336	63146314	254		OCT	63146314
00337	67356735	255		OCT	67356735
00340	22255525	256		OCT	22255525
00341	22255525	257		OCT	22255525
00342	55522252	258		OCT	55522252
00343	55522252	259		OCT	55522252
00344	25252525	260		OCT	25252525
00345	25252525	261		OCT	25252525
00346	0 01 00030	262		BRU	NOSKIP
00347	0 01 00073	263		BRU	NOVFL0
00350	0 20 40350	264	MRG3	NOP*	*
00351	4 16 40064	265		MRG*	TESTM.4
00352	31463146	266		OCT	31463146
00353	73567356	267		OCT	73567356
00354	11166616	268		OCT	11166616
00355	11166616	269		OCT	11166616
00356	66611161	270		OCT	66611161
00357	66611161	271		OCT	66611161
00360	52525252	272		OCT	52525252
00361	52525252	273		OCT	52525252
00362	4 01 00030	274		BRU	NOSKIP.4
00363	0 01 00100	275		BRU	OVFL0

MRG

IA

SFT OVERFLOW
OVERFLOW

			276		PAGE				
00364	0 20 40364		277	MRG4	NOP*	*		MRG	
00365	4 16 00113		278		MRG	MEMORY.4			
00366	46314631		279		ECT	46314631			
00367	56735673		280		ECT	56735673			
00370	00077707		281		ECT	00077707			
00371	00077707		282		ECT	00077707			
00372	77700070		283		ECT	77700070			
00373	77700070		284		ECT	77700070			
00374	52525252		285		ECT	52525252			
00375	52525252		286		ECT	52525252			
00376	0 01 00030		287		BRU	NOSKIP			
00377	0 01 00073		288		BRU	NOVFL0			

00400	0 20 40400	289		PAGE		
00401	4 17 00113	290	EOR1	NOP*	*	EOR
00402	14631463	291		EOR	MEMORY,4	
00403	31463146	292		OCT	14631463	
00404	77700070	293		OCT	31463146	
00405	77700070	294		OCT	77700070	
00406	00077707	295		OCT	77700070	
00407	00077707	296		OCT	00077707	
00410	25252525	297		OCT	00077707	
00411	25252525	298		OCT	25252525	
00412	0 01 00030	299		OCT	25252525	
00413	0 01 00073	300		BRU	NOSKIP	
00414	0 20 40414	301		BRU	NOVFL0	
00415	4 17 00113	302	EOR2	NOP*	*	
00416	31463146	303		EOR	MEMORY,4	
00417	63146314	304		OCT	31463146	
00420	66611161	305		OCT	63146314	
00421	66611161	306		OCT	66611161	
00422	11166616	307		OCT	66611161	
00423	11166616	308		OCT	11166616	
00424	52525252	309		OCT	11166616	
00425	52525252	310		OCT	52525252	
00426	4 01 00030	311		OCT	52525252	
00427	0 01 00100	312		BRU	NOSKIP,4	SFT OVERFLOW
00430	0 20 40430	313		BRU	OVFL0	OVERFLOW
00431	4 17 40064	314	EOR3	NOP*	*	
00432	46314631	315		EOR*	TESTM,4	IA
00433	14631463	316		OCT	46314631	
00434	55522252	317		OCT	14631463	
00435	55522252	318		OCT	55522252	
00436	22255525	319		OCT	55522252	
00437	22255525	320		OCT	22255525	
00440	52525252	321		OCT	22255525	
00441	52525252	322		OCT	52525252	
00442	0 01 00030	323		OCT	52525252	
00443	0 01 00073	324		BRU	NOSKIP	
		325		BRU	NOVFL0	

				PAGE	
00444	0 20 40444	326			
00445	4 17 00113	327	EOR4	NOP*	*
00446	63146314	328		EOR	MEMORY.4
00447	46314631	329		ECT	63146314
00450	44433343	330		ECT	46314631
00451	44433343	331		ECT	44433343
00452	33344434	332		ECT	44433343
00453	33344434	333		ECT	33344434
00454	25252525	334		ECT	33344434
00455	25252525	335		ECT	25252525
00456	0 01 00030	336		ECT	25252525
00457	0 01 00073	337		BRU	NOSKIP
		338		BRU	NOVFL0

				PAGE	
00460	0 20 40460	330			
00461	6 46 00000	340	CLX	NOP*	*
00462	77700070	341		CLX	,4
00463	77700070	342		OCT	77700070
00464	66611161	343		OCT	77700070
00465	66611161	344		OCT	66611161
00466	77777777	345		OCT	66611161
00467	00000000	346		OCT	77777777
00470	00000000	347		OCT	0
00471	00000000	348		OCT	0
00472	0 01 00030	349		OCT	0
00473	0 01 00073	350		BRU	NOSKIP
00474	0 20 40474	351		BRU	NOVFLR
00475	4 46 00001	352	CLA	NOP*	*
00476	77777777	353		CLA	,4
00477	00000000	354		OCT	77777777
00500	55522252	355		OCT	0
00501	55522252	356		OCT	55522252
00502	44433343	357		OCT	55522252
00503	44433343	358		OCT	44433343
00504	00000000	359		OCT	44433343
00505	00000000	360		OCT	0
00506	0 01 00030	361		OCT	0
00507	0 01 00073	362		BRU	NOSKIP
00510	0 20 40510	363		BRU	NOVFLR
00511	4 46 00002	364	CLB	NOP*	*
00512	55522252	365		CLB	,4
00513	55522252	366		OCT	55522252
00514	77777777	367		OCT	55522252
00515	00000000	368		OCT	77777777
00516	33344434	369		OCT	0
00517	33344434	370		OCT	33344434
00520	00000000	371		OCT	33344434
00521	00000000	372		OCT	0
00522	0 01 00030	373		OCT	0
00523	0 01 00073	374		BRU	NOSKIP
		375		BRU	NOVFLR

RCH

00524	0 20 40524	376		PAGE		
00525	4 46 30003	377	CLR	NOP*	*	RCH
00526	77777777	378		CLR	.4	
00527	00000000	379		OCT	77777777	
00530	77777777	380		OCT	0	
00531	00000000	381		OCT	77777777	
00532	22255525	382		OCT	0	
00533	22255525	383		OCT	22255525	
00534	00000000	384		OCT	22255525	
00535	00000000	385		OCT	0	
00536	0 01 00030	386		OCT	0	
00537	0 01 00073	387		BRU	NOSKIP	
00540	0 20 40540	388		BRU	NOVFL0	
00541	4 46 00004	389	CAB	NOP*	*	
00542	33344434	390		CAB	.4	
00543	33344434	391		OCT	33344434	
00544	44433343	392		OCT	33344434	
00545	33344434	393		OCT	44433343	
00546	11166616	394		OCT	33344434	
00547	11166616	395		OCT	11166616	
00550	00000000	396		OCT	11166616	
00551	00000000	397		OCT	0	
00552	4 01 00030	398		OCT	0	
00553	0 01 00100	399		BRU	NOSKIP.4	SFT OVERFLOW
00554	0 20 40554	400		BRU	OVFL0	OVERFLOW
00555	4 46 00010	401	CBA	NOP*	*	
00556	66611161	402		CBA	.4	
00557	11166616	403		OCT	66611161	
00560	11166616	404		OCT	11166616	
00561	11166616	405		OCT	11166616	
00562	00077707	406		OCT	11166616	
00563	00077707	407		OCT	00077707	
00564	00000000	408		OCT	00077707	
00565	00000000	409		OCT	0	
00566	0 01 00030	410		OCT	0	
00567	0 01 00073	411		BRU	NOSKIP	
		412		BRU	NOVFL0	

			PAGE	
00570	0 20 40570	413		
00571	4 46 00014	414	XAB NOP*	RCH *
00572	77700070	415	XAP	.4
00573	00077707	416	0CT	77700070
00574	00077707	417	0CT	00077707
00575	77700070	418	0CT	00077707
00576	11166616	419	0CT	77700070
00577	11166616	420	0CT	11166616
00600	00000000	421	0CT	11166616
00601	00000000	422	0CT	0
00602	0 01 00030	423	0CT	0
00603	0 01 00073	424	BRU	N0SKIP
00604	0 20 40604	425	BRU	N0VFL0
00605	4 46 10012	426	BAC NOP*	*
00606	00077707	427	BAC	.4
00607	77700070	428	0CT	00077707
00610	77700070	429	0CT	77700070
00611	00000000	430	0CT	77700070
00612	66611161	431	0CT	0
00613	66611161	432	0CT	66611161
00614	00000000	433	0CT	66611161
00615	00000000	434	0CT	0
00616	0 01 00030	435	0CT	0
00617	0 01 00073	436	BRU	N0SKIP
00620	0 20 40620	437	BRU	N0VFL0
00621	4 46 20005	438	ABC NOP*	*
00622	77700070	439	ABC	.4
00623	00000000	440	0CT	77700070
00624	00077707	441	0CT	0
00625	77700070	442	0CT	00077707
00626	55522252	443	0CT	77700070
00627	55522252	444	0CT	55522252
00630	00000000	445	0CT	55522252
00631	00000000	446	0CT	0
00632	0 01 00030	447	0CT	0
00633	0 01 00073	448	BRU	N0SKIP
		449	BRU	N0VFL0

00634	0 20 40634	450		PAGE		
00635	4 46 00200	451	CXA	NOP*	*	RCH
00636	33344434	452		CXA	,4	
00637	44433343	453		0CT	33344434	
00640	55522252	454		0CT	44433343	
00641	55522252	455		0CT	55522252	
00642	44433343	456		0CT	55522252	
00643	44433343	457		0CT	44433343	
00644	00000000	458		0CT	44433343	
00645	00000000	459		0CT	0	
00646	0 01 00030	460		0CT	0	
00647	0 01 00073	461		BRU	NOSKIP	
00650	0 20 40650	462		BRU	NOVFL0	
00651	4 46 00400	463	CAX	NOP*	*	
00652	55522252	464		CAX	,4	
00653	55522252	465		0CT	55522252	
00654	44433343	466		0CT	55522252	
00655	44433343	467		0CT	44433343	
00656	22255525	468		0CT	44433343	
00657	55522252	469		0CT	22255525	
00660	00000000	470		0CT	55522252	
00661	00000000	471		0CT	0	
00662	4 01 00030	472		0CT	0	
00663	0 01 00100	473		BRU	NOSKIP,4	SET OVERFLOW
00664	0 20 40664	474		BRU	OVFL0	OVERFLOW
00665	4 46 00600	475	XXA	NOP*	*	
00666	77700070	476		XXA	,4	
00667	00077707	477		0CT	77700070	
00670	33344434	478		0CT	00077707	
00671	33344434	479		0CT	33344434	
00672	00077707	480		0CT	33344434	
00673	77700070	481		0CT	00077707	
00674	00000000	482		0CT	77700070	
00675	00000000	483		0CT	0	
00676	0 01 00030	484		0CT	0	
00677	0 01 00073	485		BRU	NOSKIP	
		486		BRU	NOVFL0	

00700	0 20 40700	487		PAGE		
00701	4 46 00020	488	CBX	NOP*	*	RCH
00702	33344434	489		CBX	.4	
00703	33344434	490		0CT	33344434	
00704	22255525	491		0CT	33344434	
00705	22255525	492		0CT	22255525	
00706	22255525	493		0CT	22255525	
00707	55522252	494		0CT	55522252	
00707	22255525	495		0CT	22255525	
00710	00000000	496		0CT	0	
00711	00000000	497		0CT	0	
00712	0 01 00030	498		BRU	NOSKIP	
00713	0 01 00073	499		BRU	NOVFL0	
00714	0 20 40714	500	CXB	NOP*	*	
00715	4 46 00040	501		CXB	.4	
00716	22255525	502		0CT	22255525	
00717	22255525	503		0CT	22255525	
00720	77700070	504		0CT	77700070	
00721	00077707	505		0CT	00077707	
00722	00077707	506		0CT	00077707	
00723	00077707	507		0CT	00077707	
00724	00000000	508		0CT	0	
00725	00000000	509		0CT	0	
00726	0 01 00030	510		BRU	NOSKIP	
00727	0 01 00073	511		BRU	NOVFL0	
00730	0 20 40730	512	XXB	NOP*	*	
00731	4 46 00060	513		XXB	.4	
00732	11166616	514		0CT	11166616	
00733	11166616	515		0CT	11166616	
00734	00077707	516		0CT	00077707	
00735	77700070	517		0CT	77700070	
00736	77700070	518		0CT	77700070	
00737	00077707	519		0CT	00077707	
00740	00000000	520		0CT	0	
00741	00000000	521		0CT	0	
00742	4 01 00030	522		BRU	NOSKIP.4	SET OVERFLOW
00743	0 01 00100	523		BRU	OVFL0	OVERFLOW

Address	Hex	Dec	Op	Op	Op	Op
00744	0 20 40744	524		PAGE		RCH-EXPONENT
00745	4 46 00122	525	STE	NOP*	*	
00746	11166616	526		STF	,4	
00747	11166616	527		OCT	11166616	
00750	77777377	528		OCT	11166616	
00751	77777000	529		OCT	77777377	
00752	77777400	530		OCT	77777000	
00753	00000377	531		OCT	77777400	
00754	00000000	532		OCT	00000377	
00755	00000000	533		OCT	0	
00756	4 01 00030	534		OCT	0	
00757	0 01 00100	535		BRU	NOSKIP,4	SET OVERFLOW
00760	0 20 40760	536		BRU	OVFL0	OVERFLOW
00761	4 46 00140	537	LDE	NOP*	*	
00762	77700070	538		LDE	,4	
00763	77700070	539		OCT	77700070	
00764	77777000	540		OCT	77700070	
00765	77777777	541		OCT	77777000	
00766	00000777	542		OCT	77777777	
00767	00000777	543		OCT	00000777	
00770	00000000	544		OCT	00000777	
00771	00000000	545		OCT	0	
00772	0 01 00030	546		OCT	0	
00773	0 01 00073	547		BRU	NOSKIP	
00774	0 20 40774	548		BRU	NOVFL0	
00775	4 46 00160	549	XEE	NOP*	*	
00776	66611161	550		XEE	,4	
00777	66611161	551		OCT	66611161	
01000	00077707	552		OCT	66611161	
01001	00077070	553		OCT	00077707	
01002	00000070	554		OCT	00077070	
01003	77777707	555		OCT	00000070	
01004	00000000	556		OCT	77777707	
01005	00000000	557		OCT	0	
01006	0 01 00030	558		OCT	0	
01007	0 01 00073	559		BRU	NOSKIP	
		560		BRU	NOVFL0	

01010	0 20 41010	561		PAGE			
01011	4 46 01000	562	CNA1	NOP*	*	CNA	
01012	04000000	563		CNA	.4	HX H	
01013	74000000	564		OCT	04000000	123Z	TIME
01014	44433343	565		OCT	74000000	1110	T0
01015	44433343	566		OCT	44433343	0111	T1
01016	33344434	567		OCT	44433343	1111	T2 - T7
01017	33344434	568		OCT	33344434		
01020	00000000	569		OCT	33344434		
01021	00000000	570		OCT	0		
01022	0 01 00030	571		OCT	0		
01023	0 01 00073	572		BRU	NOSKIP		
01024	0 20 41024	573		BRU	NOVFL0		
01025	4 46 01000	574	CNA2	NOP*	*		
01026	11111111	575		CNA	.4		
01027	66666667	576		OCT	11111111	1100	T0 - T6
01030	33344434	577		OCT	66666667	1101	T7
01031	33344434	578		OCT	33344434		
01032	22255525	579		OCT	33344434		
01033	22255525	580		OCT	22255525		
01034	00000000	581		OCT	22255525		
01035	00000000	582		OCT	0		
01036	0 01 00030	583		OCT	0		
01037	0 01 00073	584		BRU	NOSKIP		
01040	0 20 41040	585		BRU	NOVFL0		
01041	4 46 01000	586	CNA3	NOP*	*		
01042	22222222	587		CNA	.4		
01043	55555556	588		OCT	22222222	1010	T0 - T6
01044	22255525	589		OCT	55555556	1011	T7
01045	22255525	590		OCT	22255525		
01046	11166616	591		OCT	22255525		
01047	11166616	592		OCT	11166616		
01050	00000000	593		OCT	11166616		
01051	00000000	594		OCT	0		
01052	0 01 00030	595		OCT	0		
01053	0 01 00073	596		BRU	NOSKIP		
		597		BRU	NOVFL0		

01054	0 20 41054	598		PAGE			
01055	4 46 01000	599	CNA4	NBP*	*		
01056	33333333	600		CNA	,4		
01057	44444445	601		ECT	33333333	1000	T0 - T6
01060	11166616	602		ECT	44444445	1001	T7
01061	11166616	603		ECT	11166616		
01062	00077707	604		ECT	11166616		
01063	00077707	605		ECT	00077707		
01064	00000000	606		ECT	00077707		
01065	00000000	607		ECT	0		
01066	0 01 00030	608		ECT	0		
01067	0 01 00073	609		BRU	NOSKIP		
01070	0 20 41070	610		BRU	NBVFL0		
01071	4 46 01000	611	CNA5	NBP*	*		
01072	44444444	612		CNA	,4		
01073	33333334	613		ECT	44444444	0110	T0 - T6
01074	00077707	614		ECT	33333334	0111	T7
01075	00077707	615		ECT	00077707		
01076	77700070	616		ECT	00077707		
01077	77700070	617		ECT	77700070		
01100	00000000	618		ECT	77700070		
01101	00000000	619		ECT	0		
01102	0 01 00030	620		ECT	0		
01103	0 01 00073	621		BRU	NOSKIP		
01104	0 20 41104	622		BRU	NBVFL0		
01105	4 46 01000	623	CNA6	NBP*	*		
01106	55555555	624		CNA	,4		
01107	22222223	625		ECT	55555555	0100	T0 - T6
01110	77700070	626		ECT	22222223	0101	T7
01111	77700070	627		ECT	77700070		
01112	66611161	628		ECT	77700070		
01113	66611161	629		ECT	66611161		
01114	00000000	630		ECT	66611161		
01115	00000000	631		ECT	0		
01116	0 01 00030	632		ECT	0		
01117	0 01 00073	633		BRU	NOSKIP		
		634		BRU	NBVFL0		

01120	0 20 41120	635		PAGE				
01121	4 46 01000	636	CNA7	NOP*	*		CNA	
01122	66666666	637		CNA	.4			
01123	11111112	638		OCT	66666666		0010	T0 - T6
01124	66611161	639		OCT	11111112		0011	T7
01125	66611161	640		OCT	66611161			
01126	55522252	641		OCT	66611161			
01127	55522252	642		OCT	55522252			
01130	00000000	643		OCT	55522252			
01131	00000000	644		OCT	0			
01132	0 01 00030	645		OCT	0			
01133	0 01 00073	646		BRU	NOSKIP			
01134	0 20 41134	647		BRU	NOVFL0			
01135	4 46 01000	648	CNA8	NOP*	*			
01136	77777777	649		CNA	.4			
01137	00000001	650		OCT	77777777		0000	T0 - T6
01140	55522252	651		OCT	1		0001	T7
01141	55522252	652		OCT	55522252			
01142	44433343	653		OCT	55522252			
01143	44433343	654		OCT	44433343			
01144	00000000	655		OCT	44433343			
01145	00000000	656		OCT	0			
01146	0 01 00030	657		OCT	0			
01147	0 01 00073	658		BRU	NOSKIP			
		659		BRU	NOVFL0			

01214	0 20 41214	697		PAGE					
01215	4 55 00113	698	ADD4	NOP*	*			ADD	
01216	52525250	699		ADD	MEMORY,4			0 1 0 1 0 1 0 0	C
01217	15263747	700		OCT	52525250			5 2 5 2 5 2 5 0	A
01220	11166616	701		OCT	15263747			4 2 5 3 6 4 7 0	M
01221	11166616	702		OCT	11166616				
01222	22255525	703		OCT	11166616				
01223	62255525	704		OCT	22255525				
01224	42536477	705		OCT	62255525			CARRY OUT	
01225	42536477	706		OCT	42536477				
01226	0 01 00030	707		OCT	42536477				
01227	0 01 00100	708		BRU	NOSKIP				
01230	0 20 41230	709		BRU	OVFLO			OVERFLOW	
01231	4 55 00113	710	ADD5	NOP*	*			0 1 0 1 0 1 0 0	C
01232	51616162	711		ADD	MEMORY,4			5 1 6 1 6 1 6 2	A
01233	05364757	712		OCT	51616162			3 3 5 4 6 5 7 5	M
01234	22255525	713		OCT	05364757				
01235	22255525	714		OCT	22255525				
01236	33344434	715		OCT	22255525				
01237	73344434	716		OCT	33344434				
01240	33546575	717		OCT	73344434			CARRY OUT	
01241	33546575	718		OCT	33546575				
01242	0 01 00030	719		OCT	33546575				
01243	0 01 00073	720		BRU	NOSKIP				
01244	0 20 41244	721		BRU	NOVFO				
01245	4 55 00113	722	ADD6	NOP*	*			0 0 0 0 0 0 0 0	C
01246	33444452	723		ADD	MEMORY,4			3 3 4 4 4 4 5 2	A
01247	67456754	724		OCT	33444452			3 4 0 1 2 3 0 2	M
01248	67456754	725		OCT	67456754				
01250	77700070	726		OCT	77700070				
01251	77700070	727		OCT	77700070				
01252	66611161	728		OCT	77700070				
01253	26611161	729		OCT	66611161			NO CARRY OUT	
01254	34012302	730		OCT	26611161				
01255	34012302	731		OCT	34012302				
01256	0 01 00030	732		OCT	34012302				
01257	0 01 00100	733		BRU	NOSKIP				
				BRU	OVFLO			OVERFLOW	

			PAGE		ADD	
01260	0 20 41250	734				
01261	4 55 00 13	735	ADD7	NOP*	*	
01262	2232233	736		ADD	MEMORY.4	0 0 0 0 0 0 0 0 C
01263	6553234	737		θCT	22322335	2 2 3 2 2 3 3 5 A
01264	66611161	738		θCT	65532346	4 3 2 1 0 0 1 1 M
01265	66611161	739		θCT	66611161	
01266	55522252	740		θCT	66611161	
01267	15522252	741		θCT	55522252	
01270	43210011	742		θCT	15522252	NO CARRY OUT
01271	43210011	743		θCT	43210011	
01272	0 01 00030	744		θCT	43210011	
01273	0 01 00073	745		BRU	NOSKIP	
01274	0 20 41274	746		BRU	NOVFL0	
01275	4 55 40064	747	ADD8	NOP*	*	
01276	00000007	748		ADD*	TESTM.4	0 0 0 0 0 0 0 0 C
01277	01234567	749		θCT	00000007	0 0 0 0 0 0 0 7 A
01300	55522252	750		θCT	01234567	0 1 2 3 4 5 6 0 M
01301	55522252	751		θCT	55522252	
01302	44433343	752		θCT	55522252	
01303	04433343	753		θCT	44433343	
01304	01234560	754		θCT	04433343	NO CARRY OUT
01305	01234560	755		θCT	01234560	
01306	4 01 00030	756		θCT	01234560	
01307	0 01 00100	757		BRU	NOSKIP.4	SFT OVERFLOW
		758		BRU	OVFL0	OVERFLOW

01310	0 20 41310	759		PAGE					
01311	4 54 00113	760	SUB1	NOP*	*				
01312	77777777	761		SUB	MEMORY,4	1 1 1 1 1 1 1		CARRY	
01313	01234567	762		0CT	77777777	7 7 7 7 7 7 7		A REGISTER	
01314	66611161	763		0CT	01234567	0 1 2 3 4 5 6 7		MEMORY	
01315	66611161	764		0CT	66611161	0 1 2 3 4 5 6 7		TIMING	
01316	00077707	765		0CT	66611161				
01317	40077707	766		0CT	00077707				
01320	76543210	767		0CT	40077707				
01321	76543210	768		0CT	76543210				
01322	0 01 00030	769		0CT	76543210				
01323	0 01 00073	770		BRU	NOSKIP				
01324	0 20 41324	771		BRU	NOVFL0				
01325	4 54 00113	772	SUB2	NOP*	*				
01326	44455555	773		SUB	MEMORY,4	1 1 1 1 1 1 1		C	
01327	43201234	774		0CT	44455555	4 4 4 5 5 5 5		A	
01330	00077707	775		0CT	43201234	7 6 5 2 3 4 5 6		M	
01331	00077707	776		0CT	00077707				
01332	11166616	777		0CT	00077707				
01333	51166616	778		0CT	11166616				
01334	01254321	779		0CT	51166616				
01335	01254321	780		0CT	01254321				
01336	0 01 00030	781		0CT	01254321				
01337	0 01 00073	782		BRU	NOSKIP				
01340	0 20 41340	783		BRU	NOVFL0				
01341	4 54 00113	784	SUB3	NOP*	*				
01342	45450121	785		SUB	MEMORY,4	0 1 0 1 1 1 1		C	
01343	27360001	786		0CT	45450121	4 5 4 5 0 1 2 1		A	
01344	77700070	787		0CT	27360001	6 1 7 0 7 6 5 7		M	
01345	77700070	788		0CT	77700070				
01346	22255525	789		0CT	77700070				
01347	62255525	790		0CT	22255525				
01350	16070120	791		0CT	62255525				
01351	16070120	792		0CT	16070120				
01352	0 01 00030	793		0CT	16070120				
01353	0 01 00100	794		BRU	NOSKIP				
		795		BRU	OVFL0				OVERFLOW

		796		PAGE				
01354	0 20 41354	797	SUB4	NOP*	*		SUR	
01355	4 54 00113	798		SUR	MEMORY.4			1 0 1 0 1 0 1 1 C
01356	34343236	799		0CT	34343236			3 4 3 4 3 2 3 6 A
01357	40516176	800		0CT	40516176			0 4 1 5 2 7 3 7 M
01360	66611161	801		0CT	66611161			
01361	66611161	802		0CT	66611161			
01362	77700070	803		0CT	77700070			
01363	37700070	804		0CT	37700070			NO CARRY OUT
01364	73625040	805		0CT	73625040			
01365	73625040	806		0CT	73625040			
01366	0 01 00030	807		BRU	NO SKIP			
01367	0 01 00100	808		BRU	NOVFL0			OVERFLOW
01370	0 20 41370	809	SUB5	NOP*	*			
01371	4 54 00113	810		SUR	MEMORY.4			1 1 0 1 0 1 0 1 C
01372	04716161	811		0CT	04716161			0 4 7 1 6 1 6 1 A
01373	71640312	812		0CT	71640312			6 4 7 2 2 1 3 0 M
01374	77700070	813		0CT	77700070			
01375	77700070	814		0CT	77700070			
01376	66611161	815		0CT	66611161			
01377	26611161	816		0CT	26611161			NO CARRY OUT
01400	13055647	817		0CT	13055647			
01401	13055647	818		0CT	13055647			
01402	0 01 00030	819		BRU	NO SKIP			
01403	0 01 00073	820		BRU	NOVFL0			
01404	0 20 41404	821	SUB6	NOP*	*			
01405	4 54 00113	822		SUR	MEMORY.4			0 1 0 1 0 1 0 1 C
01406	10607070	823		0CT	10607070			1 0 6 0 7 0 7 0 A
01407	04254653	824		0CT	04254653			7 3 4 4 5 5 6 2 M
01410	66611161	825		0CT	66611161			
01411	66611161	826		0CT	66611161			
01412	33344434	827		0CT	33344434			
01413	73344434	828		0CT	73344434			CARRY OUT
01414	04332215	829		0CT	04332215			
01415	04332215	830		0CT	04332215			
01416	0 01 00030	831		BRU	NO SKIP			
01417	0 01 00073	832		BRU	NOVFL0			

01420	0 20 41420	833		PAGE					
01421	4 54 00113	834	SUB7	NOP*	*				
01422	56607072	835		SUB	MEMORY,4			0 0 0 1 0 1 0 1	C
01423	76710214	836		OCT	56607072			5 6 6 0 7 0 7 2	A
01424	44433343	837		OCT	76710214			2 0 1 0 1 1 2 1	M
01425	44433343	838		OCT	44433343				
01426	44433343	839		OCT	44433343				
01427	55522252	840		OCT	55522252				
01428	15522252	841		OCT	15522252				
01429	57676656	842		OCT	57676656				
01430	57676656	843		OCT	57676656				
01431	0 01 00030	844		BRU	NOSKIP				
01432	0 01 00073	845		BRU	NOVFL0				
01433	0 20 41434	846	SUB8	NOP*	*				
01434	4 54 40064	847		SUB*	TESTM,4			0 0 0 0 0 0 0 1	C
01435	11111112	848		OCT	11111112			1 1 1 1 1 1 1 2	A
01436	12345673	849		OCT	12345673			0 1 2 3 4 5 6 0	M
01437	55522252	850		OCT	55522252				
01438	55522252	851		OCT	55522252				
01439	44433343	852		OCT	44433343				
01440	04433343	853		OCT	04433343				
01441	76543217	854		OCT	76543217				
01442	76543217	855		OCT	76543217				
01443	4 01 00030	856		BRU	NOSKIP,4				
01444	0 01 00100	857		BRU	OVFL0				

SUB

NO CARRY OUT

NO CARRY OUT

SET OVERFLOW
OVERFLOW

01514	0 20 41514	895		PAGE					
01515	4 57 00113	896	ADC4	NOP*	*				
01516	52525250	897		ADC	MEMORY,4	1	XZ1	0	CZ
01517	15263747	898		OCT	52525250	1	YZ1	0	XZ3
01520	00077707	899		OCT	15263747	0	ADD1	1	YZ3
01521	00077707	900		OCT	00077707				
01521	00077707	901		OCT	00077707				
01522	33344434	902		OCT	33344434				
01523	73344434	903		OCT	73344434				
01524	42536477	904		OCT	42536477				
01525	42536477	905		OCT	42536477				
01526	0 01 00030	906		BRU	NOSKIP				
01527	0 01 00100	907		BRU	OVFLO				
01530	0 20 41530	908	ADC5	NOP*	*				
01531	4 57 00113	909		ADC	MEMORY,4	1	XZ1	1	CZ
01532	77777777	910		OCT	77777777	0	YZ1	1	XZ3
01533	01234567	911		OCT	01234567	0	ADD1	1	YZ3
01534	22255525	912		OCT	22255525				
01535	22255525	913		OCT	22255525				
01536	44433343	914		OCT	44433343				
01537	44433343	915		OCT	44433343				
01540	01234567	916		OCT	01234567				
01541	01234567	917		OCT	01234567				
01542	0 01 00030	918		BRU	NOSKIP				
01543	0 01 00073	919		BRU	NOVFL0				
01544	0 20 41544	920	ADC6	NOP*	*				
01545	4 57 40064	921		ADC*	TESTM,4	0	XZ1	1	CZ
01546	34343236	922		OCT	34343236	0	YZ1	0	XZ3
01547	40516176	923		OCT	40516176	1	ADD1	1	YZ3
01550	55522252	924		OCT	55522252				
01551	55522252	925		OCT	55522252				
01552	66611161	926		OCT	66611161				
01553	26611161	927		OCT	26611161				
01554	04152737	928		OCT	04152737				
01555	04152737	929		OCT	04152737				
01556	0 01 00030	930		BRU	NOSKIP				
01557	0 01 00100	931		BRU	OVFLO				

ADC

1 XZ1 0 CZ
1 YZ1 0 XZ3
0 ADD1 1 YZ3

NO CARRY IN
CARRY OUT

OVERFLOW

1 XZ1 1 CZ
0 YZ1 1 XZ3
0 ADD1 1 YZ3

CARRY IN
CARRY OUT

0 XZ1 1 CZ
0 YZ1 0 XZ3
1 ADD1 1 YZ3

CARRY IN
NO CARRY OUT

OVERFLOW

01560	0 20 41560	932	PAGE
01561	4 57 00113	933	ADC7 NOP*
01562	04716161	934	ADC MEMORY,4
01563	71640312	935	0CT 04716161
01564	33344434	936	0CT 71640312
01565	33344434	937	0CT 33344434
01566	44433343	938	0CT 33344434
01567	04433343	939	0CT 44433343
01570	64722130	940	0CT 04433343
01571	64722130	941	0CT 64722130
01572	0 01 00030	942	0CT 64722130
01573	0 01 00073	943	BRU NOSKIP
01574	0 20 41574	944	BRU NOVFL0
01575	4 57 00113	945	ADC8 NOP*
01576	11111112	946	ADC MEMORY,4
01577	12345673	947	0CT 11111112
01600	44433343	948	0CT 12345673
01601	44433343	949	0CT 44433343
01602	55522252	950	0CT 44433343
01603	15522252	951	0CT 55522252
01604	01234560	952	0CT 15522252
01605	01234560	953	0CT 01234560
01606	0 01 00030	954	0CT 01234560
01607	0 01 00073	955	BRU NOSKIP
		956	BRU NOVFL0

ADC

0	XZ1	1	CZ
1	YZ1	0	XZ3
1	ADD1	0	YZ3

CARRY IN
NO CARRY OUT

0	XZ1	1	CZ
0	YZ1	0	XZ3
0	ADD1	0	YZ3

CARRY IN
NO CARRY OUT

01610	0 20 41610	957		PAGE					
01611	4 58 00113	958	SUC1	NOP*	*		SUC		
01612	51616162	959		SUC	MEMORY.4		1	XZ1	0 CZ
01613	05364757	960		0CT	51616162		0	YZ1	0 XZ3
01614	77700070	961		0CT	05364757		0	ADD1	1 YZ3
01615	77700070	962		0CT	77700070				
01616	00077707	963		0CT	77700070				
01617	40077707	964		0CT	00077707				
01620	44231202	965		0CT	40077707				
01621	44231202	966		0CT	44231202				
01622	4 01 00030	967		0CT	44231202				
01623	0 01 00073	968		BRU	NOSKIP.4				
01624	0 20 41624	969		BRU	NOVFL0				
01625	4 56 00113	970	SUC2	NOP*	*				
01626	33444452	971		SUC	MEMORY.4		0	XZ1	0 CZ
01627	67456754	972		0CT	33444452		0	YZ1	0 XZ3
01630	66611161	973		0CT	67456754		1	ADD1	0 YZ3
01631	66611161	974		0CT	66611161				
01632	11166616	975		0CT	66611161				
01633	11166616	976		0CT	11166616				
01634	43765475	977		0CT	11166616				
01635	43765475	978		0CT	43765475				
01636	0 01 00030	979		0CT	43765475				
01637	0 01 00100	980		BRU	NOSKIP				
01640	0 20 41640	981		BRU	OVFL0				
01641	4 56 00113	982	SUC3	NOP*	*				
01642	22322335	983		SUC	MEMORY.4		0	XZ1	0 CZ
01643	65532346	984		0CT	22322335		1	YZ1	0 XZ3
01644	55522252	985		0CT	65532346		1	ADD1	1 YZ3
01645	55522252	986		0CT	55522252				
01646	22255525	987		0CT	55522252				
01647	22255525	988		0CT	22255525				
01650	34567766	989		0CT	22255525				
01651	34567766	990		0CT	34567766				
01652	0 01 00030	991		0CT	34567766				
01653	0 01 00073	992		BRU	NOSKIP				
		993		BRU	NOVFL0				

SUC

1 XZ1 0 CZ
0 YZ1 0 XZ3
0 ADD1 1 YZ3

NO CARRY IN
CARRY OUT

SET OVERFLOW
TEST R OF PHASE 6 T7

0 XZ1 0 CZ
0 YZ1 0 XZ3
1 ADD1 0 YZ3

NO CARRY IN
NO CARRY OUT

OVERFLOW

0 XZ1 0 CZ
1 YZ1 0 XZ3
1 ADD1 1 YZ3

NO CARRY IN
NO CARRY OUT

01654	0 20 41654	994
01655	4 56 40064	995
01656	00000007	996
01657	01234567	997
01660	44433343	998
01661	44433343	999
01662	33344434	1000
01663	33344434	1001
01664	76543217	1002
01665	76543217	1003
01666	4 01 00030	1004
01667	0 01 00073	1005
01670	0 20 41670	1006
01671	4 56 00113	1007
01672	44455555	1008
01673	43201234	1009
01674	33344434	1010
01675	33344434	1011
01676	44433343	1012
01677	44433343	1013
01700	01254321	1014
01701	01254321	1015
01702	0 01 00030	1016
01703	0 01 00073	1017
01704	0 20 41704	1018
01705	4 56 00113	1019
01706	45450121	1020
01707	27360001	1021
01710	22255525	1022
01711	22255525	1023
01712	55522252	1024
01713	55522252	1025
01714	16070120	1026
01715	16070120	1027
01716	0 01 00030	1028
01717	0 01 00100	1029
		1030

	PAGE	
SUC4	NOP*	*
	SUC*	TESTM,4
	0CT	7
	0CT	01234567
	0CT	44433343
	0CT	44433343
	0CT	33344434
	0CT	33344434
	0CT	76543217
	0CT	76543217
	BRU	NOSKIP,4
	BRU	NOVFL0
SUC5	NOP*	*
	SUC	MEMORY,4
	0CT	44455555
	0CT	43201234
	0CT	33344434
	0CT	33344434
	0CT	44433343
	0CT	44433343
	0CT	01254321
	0CT	01254321
	BRU	NOSKIP
	BRU	NOVFL0
SUC6	NOP*	*
	SUC	MEMORY,4
	0CT	45450121
	0CT	27360001
	0CT	22255525
	0CT	22255525
	0CT	55522252
	0CT	55522252
	0CT	16070120
	0CT	16070120
	BRU	NOSKIP
	BRU	OVFL0

SUC			
0	YZ1	0	CZ
0	YZ1	1	XZ3
0	ADD1	0	YZ3
NO CARRY IN			
NO CARRY OUT			
SET OVERFLOW			
TEST R OF PHASE 6 T7			
1	XZ1	1	CZ
1	YZ1	1	XZ3
1	ADD1	0	YZ3
CARRY IN			
CARRY OUT			
1	XZ1	1	CZ
1	YZ1	1	XZ3
0	ADD1	1	YZ3
CARRY IN			
CARRY OUT			
OVERFLOW			

				PAGE		SUC		
01720	0 20 41720	1031		NBP*	*			
01721	6 56 26732	1032	SUC7	SUC	MEMORY-4721.6	0	XZ1	1 CZ
01722	10607070	1034		θCT	10607070	1	YZ1	0 XZ3
01723	04254653	1035		θCT	04254653	0	ADD1	0 YZ3
01724	11166616	1036		θCT	11166616			
01725	11166616	1037		θCT	11166616			
01726	66611161	1038		θCT	66611161			
01727	66611161	1039		θCT	66611161			
01730	04332215	1040		θCT	04332215			
01731	04332215	1041		θCT	04332215			
01732	0 01 00030	1042		BRU	NOSKIP			
01733	0 01 00073	1043		BRU	NOVFL0			
01734	0 20 41734	1044	SUC8	NBP*	*			
01735	4 56 00113	1045		SUC	MEMORY.4	1	XZ1	1 CZ
01736	56607072	1046		θCT	56607072	0	Y71	0 XZ3
01737	76710214	1047		θCT	76710214	1	ADD1	1 YZ3
01740	00077707	1048		θCT	00077707			
01741	00077707	1049		θCT	00077707			
01742	77700070	1050		θCT	77700070			
01743	37700070	1051		θCT	37700070			
01744	57676656	1052		θCT	57676656			
01745	57676656	1053		θCT	57676656			
01746	0 01 00030	1054		BRU	NOSKIP			
01747	0 01 00073	1055		BRU	NOVFL0			

CARRY IN
CARRY OUT

CARRY IN
NO CARRY OUT

		1056
01750	0 20 41750	1057
01751	4 53 00113	1058
01752	44433343	1059
01753	44433343	1060
01754	11166616	1061
01755	11166616	1062
01756	00077707	1063
01757	00077707	1064
01760	70707070	1065
01761	70707070	1066
01762	0 01 00020	1067
01763	0 01 00073	1068
01764	0 20 41764	1069
01765	4 53 40064	1070
01766	33344434	1071
01767	33344434	1072
01770	66611161	1073
01771	66611161	1074
01772	77700070	1075
01773	77700070	1076
01774	07070707	1077
01775	07070707	1078
01776	4 01 00030	1079
01777	0 01 00100	1080

	PAGE	
SKN1	NOP*	*
	SKN	MEMORY.4
	θCT	44433343
	θCT	44433343
	θCT	11166616
	θCT	11166616
	θCT	00077707
	θCT	00077707
	θCT	70707070
	θCT	70707070
	BRU	SKIP
	BRU	NOVFL0
SKN2	NOP*	*
	SKN*	TESTM.4
	θCT	33344434
	θCT	33344434
	θCT	66611161
	θCT	66611161
	θCT	77700070
	θCT	77700070
	θCT	07070707
	θCT	07070707
	BRU	N0SKIP.4
	BRU	0VFL0

SKN

TURN CO OFF AND ON EACH CLOCK

IX COULD SET IF X7 ≠ 0. RESULTING IN NO SKIP
BECAUSE SSK = IX + CO (IX = CO)

IA

TURN CO ON AND OFF EACH CLOCK

SFT OVERFLOW - IF XZ ≠ 0. A SKIP COULD RESULT
OVERFLOW - BECAUSE SK = IX + CO (IX ≠ CO)

Address	Hex	Dec	Label	Page	SKR	Time
02000	0 20 42000	1081	PAGE			
02001	4 52 00113	1082	NOP*	SKB1		
02002	44433343	1083	SKR		MEMORY,4	
02003	44433343	1084	θCT		44433343	
02004	70707000	1085	θCT		44433343	C21.B21 C22.B22 C23.B23
02005	70707000	1086	θCT		70707000	1 0 1 0 1 0
02006	77700070	1087	θCT		70707000	0 1 0 1 0 1
02007	77700070	1088	θCT		77700070	0 0 0 0 0 0
02010	07070700	1089	θCT		77700070	T0, T2, T4
02011	07070700	1090	θCT		07070700	T1, T3, T5
02012	0 01 00020	1091	θCT		07070700	T6, T7
02013	0 01 00073	1092	BRU		SKIP	
02014	0 20 42014	1093	BRU		NOVFL0	
02015	6 52 26732	1094	NOP*	SKB2		
02016	77700070	1095	SKR		MEMORY-4721.6	INDEXING
02017	77700070	1096	θCT		77700070	
02020	40000000	1097	θCT		77700070	
02021	40000000	1098	θCT		40000000	C23.B23
02022	66611161	1099	θCT		40000000	1 1 T0
02023	66611161	1100	θCT		66611161	
02024	40000000	1101	θCT		66611161	
02025	40000000	1102	θCT		40000000	
02026	0 01 00030	1103	θCT		40000000	
02027	0 01 00073	1104	BRU		NOSKIP	
02030	0 20 42030	1105	BRU		NOVFL0	
02031	4 52 40064	1106	NOP*	SKB3		
02032	66611161	1107	SKB*		TESTM,4	IA
02033	66611161	1108	θCT		66611161	
02034	20000000	1109	θCT		66611161	
02035	20000000	1110	θCT		20000000	C22.B22
02036	00077707	1111	θCT		20000000	1 1 T0
02037	00077707	1112	θCT		00077707	
02040	20000000	1113	θCT		00077707	
02041	20000000	1114	θCT		20000000	
02042	0 01 00030	1115	θCT		20000000	
02043	0 01 00073	1116	BRU		NOSKIP	
		1117	BRU		NOVFL0	

02044	0 20 42044	1118		PAGE				
02045	4 52 00113	1119	SKB4	NBP*	*		SKB	
02046	00077707	1120		SKP	MEMORY,4			
02047	00077707	1121		ECT	00077707			
02050	10000000	1122		ECT	00077707			
02051	10000000	1123		ECT	10000000		C21.B21	
02052	44433343	1124		ECT	10000000		1 1	TC
02053	44433343	1125		ECT	44433343			
02054	10000000	1126		ECT	44433343			
02055	10000000	1127		ECT	10000000			
02056	4 01 00030	1128		ECT	10000000			
02057	0 01 00100	1129		BRU	NOSKIP,4		SFT OVERFLOW	
		1130		BRU	OVFL0		OVERFLOW	

02060	0 20 42060	1131
02061	4 72 00113	1132
02062	70707000	1133
02063	70707000	1134
02064	66611161	1135
02065	66611161	1136
02066	33344434	1137
02067	33344434	1138
02070	07070700	1139
02071	07070700	1140
02072	4 01 00020	1141
02073	0 01 00100	1142
02074	0 20 42074	1143
02075	4 72 40064	1144
02076	40000000	1145
02077	40000000	1146
02100	77700070	1147
02101	77700070	1148
02102	66611161	1149
02103	66611161	1150
02104	40000000	1151
02105	40000000	1152
02106	0 01 00030	1153
02107	0 01 00073	1154
02110	0 20 42110	1155
02111	6 72 22366	1156
02112	20000000	1157
02113	20000000	1158
02114	33344434	1159
02115	33344434	1160
02116	22255525	1161
02117	22255525	1162
02120	20000000	1163
02121	20000000	1164
02122	0 01 00030	1165
02123	0 01 00073	1166
		1167

	PAGF	
SKA1	N0P*	*
	SKA	MEMORY,4
	0CT	70707000
	0CT	70707000
	0CT	66611161
	0CT	66611161
	0CT	33344434
	0CT	33344434
	0CT	07070700
	0CT	07070700
	BRU	SKIP,4
	BRU	0VFL0
SKA2	N0P*	*
	SKA*	TESTM,4
	0CT	40000000
	0CT	40000000
	0CT	77700070
	0CT	77700070
	0CT	66611161
	0CT	66611161
	0CT	40000000
	0CT	40000000
	BRU	N0SKIP
	BRU	N0VFL0
SKA3	N0P*	*
	SKA	MEMORY-6997,6
	0CT	20000000
	0CT	20000000
	0CT	33344434
	0CT	33344434
	0CT	22255525
	0CT	22255525
	0CT	20000000
	0CT	20000000
	BRU	N0SKIP
	BRU	N0VFL0

SKA

C21.A21	C22.A22	C23.A23	TIME
1 0 1 0 1 0			T0, T2, T4
0 1 0 1 0 1			T1, T3, T5
0 0 0 0 0 0			T6, T7

SET OVERFLOW
OVERFLOW

IA	
C23.A23	
1 1	TO

INDEXING	
C22.A22	
1 1	TO

			1168
02124	0 20 42124		1169
02125	4 72 00113		1170
02126	10000000		1171
02127	10000000		1172
02130	00077707		1173
02131	00077707		1174
02132	11166616		1175
02133	11166616		1176
02134	10000000		1177
02135	10000000		1178
02136	0 01 00030		1179
02137	0 01 00073		1180

	PAGE	
SKA4	NBP*	*
	SKA	MEMORY.4
	0CT	10000000
	0CT	10000000
	0CT	00077707
	0CT	00077707
	0CT	11166616
	0CT	11166616
	0CT	10000000
	0CT	10000000
	BRU	NBSKIP
	BRU	NOVELL

SKA		
	C23.A23	
1	1	TO

02140	0 20 42140	1181		PAGE		
02141	4 73 00113	1182	SKG1	NOP*	*	
02142	31553047	1183		SKG	MEMORY.4	
02143	31553047	1184		OCT	31553047	ADD1 XZ1 YZ1
02144	77700070	1185		OCT	31553047	0 0 0
02145	77700070	1186		OCT	77700070	
02146	66611161	1187		OCT	77700070	
02147	66611161	1188		OCT	66611161	
02148	66611161	1189		OCT	66611161	
02149	34072615	1190		OCT	34072615	
02150	34072615	1191		OCT	34072615	
02151	0 01 00030	1192		BRU	NOSKIP	
02152	0 01 00073	1193		BRU	NOVFL0	
02153	0 20 42154	1194	SKG2	NOP*	*	
02154	4 73 40064	1195		SKG*	TESTM.4	IA
02155	15530473	1196		OCT	15530473	ADD1 XZ1 YZ1
02156	15530473	1197		OCT	15530473	0 0 1
02157	00077707	1198		OCT	00077707	
02158	00077707	1199		OCT	00077707	
02159	11166616	1200		OCT	11166616	
02160	11166616	1201		OCT	11166616	
02161	40726153	1202		OCT	40726153	
02162	40726153	1203		OCT	40726153	
02163	0 01 00020	1204		BRU	SKIP	
02164	0 01 00073	1205		BRU	NOVFL0	
02165	0 20 42170	1206	SKG3	NOP*	*	
02166	4 73 00113	1207		SKG	MEMORY.4	
02167	55304731	1208		OCT	55304731	ADD1 XZ1 YZ1
02168	55304731	1209		OCT	55304731	0 1 0
02169	66611161	1210		OCT	66611161	
02170	66611161	1211		OCT	66611161	
02171	55522252	1212		OCT	55522252	
02172	55522252	1213		OCT	55522252	
02173	07261534	1214		OCT	07261534	
02174	07261534	1215		OCT	07261534	
02175	4 01 00030	1216		BRU	NOSKIP.4	SET OVERFLOW
02176	0 01 00100	1217		BRU	OVFL0	OVERFLOW

		1218		PAGE		SKG
02204	0 20 42204	1219	SKG4	NOP*	*	
02205	4 73 00113	1220		SKG	MEMORY,4	
02206	53047315	1221		0CT	53047315	ADD1 XZ1 YZ1
02207	53047315	1222		0CT	53047315	0 1 1
02210	11166616	1223		0CT	11166616	
02211	11166616	1224		0CT	11166616	
02212	22255525	1225		0CT	22255525	
02213	22255525	1226		0CT	22255525	
02214	72615340	1227		0CT	72615340	
02215	72615340	1228		0CT	72615340	
02216	0 01 00030	1229		BRU	NOSKIP	
02217	0 01 00073	1230		BRU	NOVFL0	
02220	0 20 42220	1231	SKG5	NOP*	*	
02221	4 73 00113	1232		SKG	MEMORY,4	
02222	30473155	1233		0CT	30473155	ADD1 XZ1 YZ1
02223	30473155	1234		0CT	30473155	1 0 0
02224	55522252	1235		0CT	55522252	
02225	55522252	1236		0CT	55522252	
02226	44433343	1237		0CT	44433343	
02227	44433343	1238		0CT	44433343	
02230	26153407	1239		0CT	26153407	
02231	26153407	1240		0CT	26153407	
02232	4 01 00020	1241		BRU	SKIP,4	SFT OVERFLOW
02233	0 01 00100	1242		BRU	OVFL0	OVERFLOW
02234	0 20 42234	1243	SKG6	NOP*	*	
02235	6 73 33457	1244		SKG	MEMORY-2332,6	INDEXING
02236	04731553	1245		0CT	04731553	ADD1 XZ1 YZ1
02237	04731553	1246		0CT	04731553	1 0 1
02240	22255525	1247		0CT	22255525	
02241	22255525	1248		0CT	22255525	
02242	33344434	1249		0CT	33344434	
02243	33344434	1250		0CT	33344434	
02244	61534072	1251		0CT	61534072	
02245	61534072	1252		0CT	61534072	
02246	0 01 00020	1253		BRU	SKIP	
02247	0 01 00073	1254		BRU	NOVFL0	

02250	0 20 42250	1255
02251	4 73 00113	1256
02252	47315530	1257
02253	47315530	1258
02254	44433343	1259
02255	44433343	1260
02256	33344434	1261
02257	33344434	1262
02260	15340726	1263
02261	15340726	1264
02262	0 01 00030	1265
02263	0 01 00073	1266
02264	0 20 42264	1267
02265	4 73 00113	1268
02266	73155304	1269
02267	73155304	1270
02270	33344434	1271
02271	33344434	1272
02272	44433343	1273
02273	44433343	1274
02274	53407260	1275
02275	53407260	1276
02276	0 01 00020	1277
02277	0 01 00073	1278
		1279

	PAGE	
SKG7	NOP*	*
	SKG	MEMORY.4
	0CT	47315530
	0CT	47315530
	0CT	44433343
	0CT	44433343
	0CT	33344434
	0CT	33344434
	0CT	15340726
	0CT	15340726
	BRU	NOSKIP
	BRU	NOVELA
SKG8	NOP*	*
	SKG	MEMORY.4
	0CT	73155304
	0CT	73155304
	0CT	33344434
	0CT	33344434
	0CT	44433343
	0CT	44433343
	0CT	53407260
	0CT	53407260
	BRU	SKIP
	BRU	NOVELA

SKG

ADD1 XZ1 YZ1
1 1 0

ADD1 XZ1 YZ1
1 1 1

02300	0 20 42300	1280		PAGE				
02301	4 70 00113	1281	SKM1	NBP*	*	SKM		
02302	00000000	1282		SKM	MEMORY.4			
02303	00000000	1283		0CT	0		A21 B21 C21	TIME
02304	40000000	1284		0CT	0		0 1 1	TO
02305	40000000	1285		0CT	40000000			
02306	00077707	1286		0CT	40000000			
02307	00077707	1287		0CT	00077707			
02310	40000000	1288		0CT	00077707			
02311	40000000	1289		0CT	40000000			
02312	0 01 00030	1290		0CT	40000000			
02313	0 01 00073	1291		BRU	NOSKIP			
02314	0 20 42314	1292		BRU	NOVFL0			
02315	4 70 00113	1293	SKM2	NBP*	*			
02316	00000000	1294		SKM	MEMORY.4			
02317	00000000	1295		0CT	0		A22 B22 C22	TIME
02320	20000000	1296		0CT	0		0 1 1	TO
02321	20000000	1297		0CT	20000000			
02322	77700070	1298		0CT	20000000			
02323	77700070	1299		0CT	77700070			
02324	20000000	1300		0CT	77700070			
02325	20000000	1301		0CT	20000000			
02326	0 01 00030	1302		0CT	20000000			
02327	0 01 00073	1303		BRU	NOSKIP			
02330	0 20 42330	1304		BRU	NOVFL0			
02331	6 70 26732	1305	SKM3	NBP*	*			
02332	00000000	1306		SKM	MEMORY-4721.6		INDEXING	
02333	00000000	1307		0CT	0		A23 B23 C23	TIME
02334	10000000	1308		0CT	0		0 1 1	TO
02335	10000000	1309		0CT	10000000			
02336	66611161	1310		0CT	10000000			
02337	66611161	1311		0CT	66611161			
02340	10000000	1312		0CT	66611161			
02341	10000000	1313		0CT	10000000			
02342	0 01 00030	1314		0CT	10000000			
02343	0 01 00073	1315		BRU	NOSKIP			
		1316		BRU	NOVFL0			

Address	Hex	Dec	Label	Page	SKM	Time
02344	0 20 42344	1317	PAGE			
02345	4 70 40064	1318	NOP*	SKM4	*	
02346	40000000	1319	SKM*		TESTM.4	IA
02347	40000000	1320	0CT		40000000	A21 B21 C21
02348	40000000	1321	0CT		40000000	1 1 0
02349	40000000	1322	0CT		40000000	
02350	40000000	1323	0CT		40000000	
02351	11166616	1324	0CT		11166616	
02352	11166616	1325	0CT		11166616	
02353	00000000	1326	0CT		0	
02354	00000000	1327	0CT		0	
02355	4 01 00030	1328	BRU		N0SKIP.4	SFT OVERFLOW
02356	0 01 00100	1329	BRU		0VFL0	OVERFLOW
02357	0 20 42360	1330	NOP*	SKM5	*	
02358	4 70 00113	1331	SKM		MEMORY.4	
02359	20000000	1332	0CT		20000000	A22 B22 C22
02360	20000000	1333	0CT		20000000	1 1 0
02361	20000000	1334	0CT		20000000	
02362	20000000	1335	0CT		20000000	
02363	55522252	1336	0CT		55522252	
02364	55522252	1337	0CT		55522252	
02365	00000000	1338	0CT		0	
02366	00000000	1339	0CT		0	
02367	0 01 00030	1340	BRU		N0SKIP	
02368	0 01 00073	1341	BRU		N0VFL0	
02369	0 20 42374	1342	NOP*	SKM6	*	
02370	4 70 00113	1343	SKM		MEMORY.4	
02371	10000000	1344	0CT		10000000	A23 B23 C23
02372	10000000	1345	0CT		10000000	1 1 0
02373	10000000	1346	0CT		10000000	
02374	10000000	1347	0CT		10000000	
02375	22255525	1348	0CT		22255525	
02376	22255525	1349	0CT		22255525	
02377	00000000	1350	0CT		0	
02378	00000000	1351	0CT		0	
02379	0 01 00030	1352	BRU		N0SKIP	
02380	0 01 00073	1353	BRU		N0VFL0	

			PAGE	SKM					
02410	0 20 42410	1354	SKM7	NBP*	*				
02411	4 70 00117	1355		SKM	MEMORY.4				
02412	70770070	1356		ECT	70770070	A(21-23)	B(21-23)	C(21-23)	TIME
02413	70770070	1357		ECT	70770070	1	1	1	T0
02414	77000000	1358		ECT	77000000	0	1	0	T1
02415	77000000	1359		ECT	77000000	1	0	1	T2
02416	44433343	1360		ECT	44433343	1	0	0	T3
02417	44433343	1361		ECT	44433343	0	0	1	T4
02420	70707007	1362		ECT	70707007	0	0	0	T5
02421	70707007	1363		ECT	70707007	1	0	0	T6
02422	0 01 00020	1364		BRU	SKIP	0	0	1	T7
02423	0 01 00073	1365		BRU	NOVFL0				

		1367		PAGE		
02424	0 20 42424	1368	EXU1	NOP*	*	EXU
02425	4 23 00113	1369		EXU	MEMORY.4	
02426	52522651	1370		0CT	52522651	
02427	67353777	1371		0CT	67353777	
02430	25253413	1372		0CT	25253413	
02431	56733775	1373		0CT	56733775	
02432	46311364	1374		0CT	46311364	
02433	77773653	1375		0CT	77773653	
02434	0 46 00674	1376		RCH	674	XXA,XXB,XAB
02435	0 46 00674	1377		RCH	674	XXA,XXB,XAB
02436	0 01 00030	1378		BRU	NOSKIP	
02437	0 01 00073	1379		BRU	NOVFL0	
02440	0 20 42440	1380	EXU2	NOP*	*	
02441	4 23 00113	1381		EXU	MEMORY.4	
02442	25231546	1382		0CT	25231546	
02443	25231737	1383		0CT	25231737	
02444	65213421	1384		0CT	65213421	
02445	65213556	1385		0CT	65213556	
02446	12112114	1386		0CT	12112114	
02447	77777567	1387		0CT	77777567	
02450	0 46 01774	1388		RCH	1774	XXA,XXB,XAB,CNA-EXPONENT ONLY
02451	0 46 01774	1389		RCH	1774	XXA,XXB,XAB,CNA-EXPONENT ONLY
02452	4 01 00030	1390		BRU	NOSKIP.4	SFT OVERFLOW
02453	0 01 00100	1391		BRU	OVFL0	OVERFLOW
02454	0 20 42454	1392	EXU3	NOP*	*	
02455	4 23 00113	1393		EXU	MEMORY.4	SAME AS SKM7
02456	70770070	1394		0CT	70770070	
02457	70770070	1395		0CT	70770070	
02460	77000000	1396		0CT	77000000	
02461	77000000	1397		0CT	77000000	
02462	70707007	1398		0CT	70707007	
02463	70707007	1399		0CT	70707007	
02464	0 70 02462	1400		SKM	*-2	
02465	0 70 02462	1401		SKM	*-3	
02466	4 01 00020	1402		BRU	SKIP.4	SFT OVERFLOW
02467	0 01 00100	1403		BRU	OVFL0	OVERFLOW

02470	0 20 42470	1404
02471	4 23 40064	1405
02472	33344434	1406
02473	33344434	1407
02474	66611161	1408
02475	66611161	1409
02476	07070707	1410
02477	07070707	1411
02500	0 53 02476	1412
02501	0 53 02476	1413
02502	0 01 00030	1414
02503	0 01 00073	1415
		1416

EXU4	PAGE	
	NOP*	*
	EXU*	TESTM,4
	0CT	33344434
	0CT	33344434
	0CT	66611161
	0CT	66611161
	0CT	07070707
	0CT	07070707
	SKN	*-2
	SKN	*-3
	BRU	NOSKIP
	BRU	NOVFL0

EXU

1A - SAME AS SKN2

02504	0 20 42504	1417	PAGE		STA
02505	4 35 00113	1418	STA1	NOP*	*
02506	77700070	1419		STA	MEMORY,4
02507	77700070	1420		0CT	77700070
02510	66611161	1421		0CT	77700070
02511	66611161	1422		0CT	66611161
02512	11166616	1423		0CT	66611161
02513	11166616	1424		0CT	11166616
02514	00077707	1425		0CT	11166616
02515	77700070	1426		0CT	00077707
02516	4 01 00030	1427		0CT	77700070
02517	0 01 00100	1428		BRU	NOSKIP,4
02520	0 20 42520	1429		BRU	OVFL0
02521	4 35 40064	1430	STA2	NOP*	SET OVERFLOW
02522	00077707	1431		STA*	OVERFLOW
02523	00077707	1432		0CT	IA
02524	11166616	1433		0CT	
02525	11166616	1434		0CT	
02526	66611161	1435		0CT	
02527	66611161	1436		0CT	
02530	77700070	1437		0CT	
02531	00077707	1438		0CT	
02532	0 01 00030	1439		0CT	
02533	0 01 00073	1440		BRU	NOSKIP
		1441		BRU	NOVFL0

		1442		PAGF			
02534	0 20 42534	1443	XMA1	NBP*	*		XMA
02535	4 62 00113	1444		XMA	MEMORY.4		
02536	55522252	1445		OCT	55522252		
02537	22255525	1446		OCT	22255525		
02540	44433343	1447		OCT	44433343		
02541	44433343	1448		OCT	44433343		
02542	33344434	1449		OCT	33344434		
02543	33344434	1450		OCT	33344434		
02544	22255525	1451		OCT	22255525		
02545	55522252	1452		OCT	55522252		
02546	0 01 00030	1453		BRU	NOSKIP		
02547	0 01 00073	1454		BRU	OVFLO		
02550	0 20 42550	1455	XMA2	NBP*	*		
02551	4 62 40064	1456		XMA*	TESTM.4		IA
02552	22255525	1457		OCT	22255525		
02553	55522252	1458		OCT	55522252		
02554	33344434	1459		OCT	33344434		
02555	33344434	1460		OCT	33344434		
02556	44433343	1461		OCT	44433343		
02557	44433343	1462		OCT	44433343		
02560	55522252	1463		OCT	55522252		
02561	22255525	1464		OCT	22255525		
02562	4 01 00030	1465		BRU	NOSKIP.4		SET OVERFLOW
02563	0 01 00100	1466		BRU	OVFLO		OVERFLOW

02564	0 20 42564	1467		PAGE		
02565	4 61 00113	1468	MIN1	NOP*	*	MIN
02566	77700070	1470		MIN	MEMORY,4	
02567	77700070	1471		OCT	77700070	
02570	66611161	1472		OCT	77700070	
02571	66611161	1473		OCT	66611161	
02572	55522252	1474		OCT	66611161	
02573	55522252	1475		OCT	55522252	
02574	37777777	1476		OCT	55522252	
02575	40000000	1477		OCT	37777777	YZ1 ADD1
02576	0 01 00030	1478		OCT	40000000	0 1
02577	0 01 00100	1479		BRU	NOSKIP	
02600	0 20 42600	1480	MIN2	BRU	OVFL0	OVERFLOW
02601	4 61 40064	1481		NOP*	*	
02602	00077707	1482		MIN*	TESTM,4	IA
02603	00077707	1483		OCT	00077707	
02604	11166616	1484		OCT	00077707	
02605	11166616	1485		OCT	11166616	
02606	22255525	1486		OCT	11166616	
02607	22255525	1487		OCT	11166616	
02610	77777777	1488		OCT	22255525	
02611	00000000	1489		OCT	22255525	
02612	0 01 00030	1490		OCT	77777777	YZ1 ADD1 CARRY (KZ) ON EVERY CLOCK
02613	0 01 00073	1491		BRU	0	1 0
02614	0 20 42614	1492	MIN3	BRU	NOSKIP	
02615	6 61 00023	1493		BRU	NOVFL0	
02616	66611161	1494		NOP*	*	INDEXING
02617	66611161	1495		MIN	MEMORY-56,6	
02620	11166616	1496		OCT	66611161	
02621	11166616	1497		OCT	66611161	
02622	77700070	1498		OCT	11166616	
02623	77700070	1499		OCT	11166616	
02624	00000000	1500		OCT	77700070	
02625	00000001	1501		OCT	77700070	YZ1 ADD1
02626	4 01 00030	1502		OCT	00000000	0 0
02627	0 01 00100	1503		BRU	00000001	SFT OVERFLOW
				BRU	NOSKIP,4	OVERFLOW
				BRU	OVFL0	

02630	0 20 42630	1504		PAGE		
02631	4 61 00113	1505	MIN4	NOP*	*	MIN
02632	11166616	1506		MIN	MEMORY.4	
02633	11166616	1507		0CT	11166616	
02634	11166616	1508		0CT	11166616	
02634	66611161	1509		0CT	66611161	
02635	66611161	1510		0CT	66611161	
02636	00077707	1511		0CT	00077707	
02637	00077707	1512		0CT	00077707	
02640	77777776	1513		0CT	77777776	Y71 ADD1
02641	77777777	1514		0CT	77777777	1 1
02642	0 01 00030	1515		BRU	NOSKIP	
02643	0 01 00073	1516		BRU	NOVFL0	

		1517		PAGE		SKR
02644	0 20 42644	1518	SKR1	NOP*	*	
02645	4 60 00113	1519		SKR	MEMORY,4	
02646	77700070	1520		OCT	77700070	
02647	77700070	1521		OCT	77700070	
02650	66611161	1522		OCT	66611161	
02651	66611161	1523		OCT	66611161	
02652	55522252	1524		OCT	55522252	
02653	55522252	1525		OCT	55522252	
02654	00000000	1526		OCT	0	YZ1 ADD1
02655	77777777	1527		OCT	77777777	0 1
02656	0 01 00020	1528		BRU	SKIP	
02657	0 01 00073	1529		BRU	NOVFL0	
02660	0 20 42660	1530	SKR2	NOP*	*	
02661	4 60 40064	1531		SKR*	TESTM,4	IA
02662	00077707	1532		OCT	00077707	
02663	00077707	1533		OCT	00077707	
02664	11166616	1534		OCT	11166616	
02665	11166616	1535		OCT	11166616	
02666	22255525	1536		OCT	22255525	
02667	22255525	1537		OCT	22255525	
02670	00000001	1538		OCT	1	YZ1 ADD1
02671	00000000	1539		OCT	0	0 0
02672	4 01 00030	1540		BRU	NOSKIP,4	SET OVERFLOW
02673	0 01 00100	1541		BRU	OVFL0	OVERFLOW
02674	0 20 42674	1542	SKR3	NOP*	*	
02675	6 60 26732	1543		SKR	MEMORY-4721,6	INDEXING
02676	44433343	1544		OCT	44433343	
02677	44433343	1545		OCT	44433343	
02700	55522252	1546		OCT	55522252	
02701	55522252	1547		OCT	55522252	
02702	66611161	1548		OCT	66611161	
02703	66611161	1549		OCT	66611161	
02704	40000000	1550		OCT	40000000	YZ1 ADD1 CARRY (KZ) ON EVERY CLOCK
02705	37777777	1551		OCT	37777777	1 0
02706	0 01 00030	1552		BRU	NOSKIP	
02707	0 01 00100	1553		BRU	OVFL0	

02710	0 20 42710	1554		PAGE		
02711	4 60 00113	1555	SKR4	NOP*	*	SKR
02712	33344434	1556		SKR	MEMORY.4	
02713	33344434	1557		OCT	33344434	
02714	22255525	1558		OCT	33344434	
02715	22255525	1559		OCT	22255525	
02716	11166616	1560		OCT	22255525	
02717	11166616	1561		OCT	11166616	
02720	77777777	1562		OCT	11166616	
02721	77777776	1563		OCT	77777777	YZ1 ADD1
02722	0 01 00020	1564		OCT	77777776	1 1
02723	0 01 00073	1565		BRU	SKIP	
		1566		BRU	NOVFL0	

02724	0 20 42724	1567		PAGE			
02724	0 20 42724	1568	ADM1	NOP*	*		ADM
02725	4 63 00113	1569		ADM	MEMORY,4		
02726	07060504	1570		0CT	07060504		ALTERNATELY TURN KZ ON AND OFF EACH CLOCK
02727	07060504	1571		0CT	07060504		
02730	77700070	1572		0CT	77700070		
02731	77700070	1573		0CT	77700070		
02732	66611161	1574		0CT	66611161		
02733	66611161	1575		0CT	66611161		
02734	01020304	1576		0CT	01020304		XZ1 YZ1 ADD1
02735	10101010	1577		0CT	10101010		0 0 0
02736	0 01 00030	1578		BRU	NOSKIP		
02737	0 01 00073	1579		BRU	NOVFL0		
02740	0 20 42740	1580	ADM2	NOP*	*		
02741	4 63 40064	1581		ADM*	TFSTM,4		IA
02742	32104675	1582		0CT	32104675		
02743	32104675	1583		0CT	32104675		
02744	00077707	1584		0CT	00077707		
02745	00077707	1585		0CT	00077707		
02746	11166616	1586		0CT	11166616		
02747	11166616	1587		0CT	11166616		
02750	05673103	1588		0CT	05673103		XZ1 YZ1 ADD1
02751	40000000	1589		0CT	40000000		0 0 1
02752	0 01 00030	1590		BRU	NOSKIP		
02753	0 01 00100	1591		BRU	OVFL0		OVERFLOW
02754	0 20 42754	1592	ADM3	NOP*	*		
02755	6 63 04550	1593		ADM	MEMORY-14051,6		INDEXING
02756	00000001	1594		0CT	1		
02757	00000001	1595		0CT	1		
02760	55522252	1596		0CT	55522252		
02761	55522252	1597		0CT	55522252		
02762	44433343	1598		0CT	44433343		
02763	44433343	1599		0CT	44433343		
02764	77777777	1600		0CT	77777777		XZ1 YZ1 ADD1
02765	00000000	1601		0CT	0		0 1 0
02766	0 01 00030	1602		BRU	NOSKIP		
02767	0 01 00073	1603		BRU	NOVFL0		

02770	0 20 42770	1604		PAGE	
02771	4 63 00113	1605	ADM4	NOP*	*
02772	01234567	1606		ADM	MEMORY.4
02773	01234567	1607		0CT	01234567
02774	22255525	1608		0CT	01234567
02775	22255525	1609		0CT	22255525
02776	33344434	1610		0CT	22255525
02777	33344434	1611		0CT	33344434
03000	67777777	1612		0CT	33344434
03001	71234566	1613		0CT	67777777
03002	0 01 00030	1614		0CT	71234566
03003	0 01 00073	1615		BRU	NOSKIP
03004	0 20 43004	1616		BRU	NOVFL0
03005	4 63 00113	1617	ADM5	NOP*	*
03006	76543210	1618		ADM	MEMORY.4
03007	76543210	1619		0CT	76543210
03010	77777770	1620		0CT	76543210
03011	77777770	1621		0CT	77777770
03012	00000007	1622		0CT	77777770
03013	00000007	1623		0CT	7
03014	01234570	1624		0CT	7
03015	00000000	1625		0CT	01234570
03016	4 01 00030	1626		0CT	0
03017	0 01 00100	1627		BRU	NOSKIP.4
03020	0 20 43020	1628		BRU	OVFL0
03021	4 63 00113	1629	ADM6	NOP*	*
03022	45670123	1630		ADM	MEMORY.4
03023	45670123	1631		0CT	45670123
03024	00000007	1632		0CT	45670123
03025	00000007	1633		0CT	7
03026	77777770	1634		0CT	7
03027	77777770	1635		0CT	77777770
03030	32107654	1636		0CT	77777770
03031	77777777	1637		0CT	32107654
03032	0 01 00030	1638		0CT	77777777
03033	0 01 00073	1639		BRU	NOSKIP
		1640		BRU	NOVFL0

ADM

GENERATE A CARRY (KZ) EACH CLOCK

XZ1 YZ1 ADD1
0 1 1

XZ1 YZ1 ADD1
1 0 0

SET OVERFLOW
OVERFLOW

NO CARRYS (KZ OFF EVERY CLOCK)

XZ1 YZ1 ADD1
1 0 1

03034	0 20 43034	1641		PAGE	
03035	4 63 00113	1642	ADM7	NOP*	*
03036	77777777	1643		ADM	MEMORY,4
03037	77777777	1644		OCT	77777777
03040	07777777	1645		OCT	77777777
03041	07777777	1646		OCT	07777777
03042	70000000	1647		OCT	07777777
03043	70000000	1648		OCT	70000000
03044	40000000	1649		OCT	70000000
03045	37777777	1650		OCT	40000000
03046	0 01 00030	1651		OCT	37777777
03047	0 01 00100	1652		BRU	NOSKIP
03050	0 20 43050	1653	ADM8	BRU	OVFL0
03051	4 63 00113	1654		NOP*	*
03052	40000001	1655		ADM	MEMORY,4
03053	40000001	1656		OCT	40000001
03054	70000000	1657		OCT	40000001
03055	70000000	1658		OCT	70000000
03056	07777777	1659		OCT	70000000
03057	07777777	1660		OCT	07777777
03060	77777777	1661		OCT	07777777
03061	40000000	1662		OCT	77777777
03062	0 01 00030	1663		OCT	77777777
03063	0 01 00073	1664		BRU	40000000
		1665		BRU	NOSKIP
				BRU	NOVFL0

ADM

XZ1 YZ1 ADD1
1 1 0

OVERFLOW

CARRY (KZ) EVERY CLOCK

XZ1 YZ1 ADD1
1 1 1

		1666		PAGE		
03064	0 20 43064	1667	BRM1	NOP*	*	BRM
03065	4 43 00113	1668		BRM	MEMORY,4	
03066	77700070	1669		OCT	77700070	
03067	77700070	1670		OCT	77700070	
03070	66611161	1671		OCT	66611161	
03071	66611161	1672		OCT	66611161	
03072	55522252	1673		OCT	55522252	
03073	55522252	1674		OCT	55522252	
03074	0 06 20377	1675		EOD	3*A+7*B+7	EOD 377 SET REG 2 AND 3 = 32K
03075	4 77 00032	1676		EAX	NOSKIP+2,4	
03076	4 01 00027	1677		BRU	NOSKIP-1,4	SET OVERFLOW
03077	0 01 00100	1678		BRU	OVFL0	OVERFLOW
03100	0 20 43100	1679	BRM2	NOP*	*	
03101	4 43 40064	1680		BRM*	TESTM,4	IA
03102	00077707	1681		OCT	00077707	
03103	00077707	1682		OCT	00077707	
03104	11166616	1683		OCT	11166616	
03105	11166616	1684		OCT	11166616	
03106	22255525	1685		OCT	22255525	
03107	22255525	1686		OCT	22255525	
03110	0 06 20077	1687		EOD	7*B+7	EOD 77 SELECT NO REGISTERS
03111	4 00 00022	1688		HLT	SKIP+2,4	
03112	4 01 00017	1689		BRU	SKIP-1,4	SET OVERFLOW
03113	0 01 00100	1690		BRU	OVFL0	OVERFLOW
03114	0 20 43114	1691	BRM3	NOP*	*	
03115	6 43 00123	1692		BRM	MEMORY-16376,6	INDEXING
03116	07777777	1693		OCT	07777777	
03117	07777777	1694		OCT	07777777	
03120	70000000	1695		OCT	70000000	
03121	70000000	1696		OCT	70000000	
03122	77777770	1697		OCT	77777770	
03123	77777770	1698		OCT	77777770	
03124	0 06 20277	1699		EOD	2*A+7*B+7	EOD 277 SET REG 3 = 32K
03125	0 70 00022	1700		SKM	SKIP+2	
03126	0 01 00017	1701		BRU	SKIP-1	
03127	0 01 00073	1702		BRU	NOVFL0	

		1703		PAGE			
03130	0 20 43130	1704	BRM4	NOP*	*		BRM
03131	4 43 00113	1705		BRM	MEMORY.4		
03132	70000000	1706		ECT	70000000		
03133	70000000	1707		ECT	70000000		
03134	07777777	1708		ECT	07777777		
03135	07777777	1709		ECT	07777777		
03136	00000007	1710		ECT	7		
03137	00000007	1711		ECT	7		
03140	0 06 20177	1712		EOD	1*A+7*B+7		EOD 177 SET REG 2 = 32K
03141	0 07 00032	1713		7	NOSKIP+2		
03142	0 01 00027	1714		BRU	NOSKIP-1		
03143	0 01 00073	1715		BRU	NOVFL0		

		1716		PAGE		
03144	0 20 43144	1717	POP1	NOP*	*	
03145	5 15 00000	1718		POP	0.4	
03146	77700070	1719		OCT	77700070	
03147	77700070	1720		OCT	77700070	
03150	66611161	1721		OCT	66611161	
03151	66611161	1722		OCT	66611161	
03152	55522252	1723		OCT	55522252	
03153	55522252	1724		OCT	55522252	
03154	0 06 20377	1725		EOD	3*A+7*B+7	EOD 377 SET REG 2 AND 3 = 32K
03155	4 77 40032	1726		EAX*	NO SKIP+2.4	
03156	4 01 00027	1727		BRU	NO SKIP-1.4	SET OVERFLOW
03157	0 01 00073	1728		BRU	NOVFL0	
03160	0 20 43160	1729	POP2	NOP*	*	
03161	5 15 00000	1730		POP	0.4	
03162	00077707	1731		OCT	00077707	
03163	00077707	1732		OCT	00077707	
03164	11166616	1733		OCT	11166616	
03165	11166616	1734		OCT	11166616	
03166	22255525	1735		OCT	22255525	
03167	22255525	1736		OCT	22255525	
03170	0 06 20077	1737		EOD	7*B+7	EOD 77 SELECT NO REG.
03171	4 00 40022	1738		HLT*	SKIP+2.4	
03172	4 01 00017	1739		BRU	SKIP-1.4	SET OVERFLOW
03173	0 01 00073	1740		BRU	NOVFL0	
03174	0 20 43174	1741	POP3	NOP*	*	
03175	5 15 00000	1742		POP	0.4	
03176	07777777	1743		OCT	07777777	
03177	07777777	1744		OCT	07777777	
03200	70000000	1745		OCT	70000000	
03201	70000000	1746		OCT	70000000	
03202	77777770	1747		OCT	77777770	
03203	77777770	1748		OCT	77777770	
03204	0 06 20277	1749		EOD	2*A+7*B+7	EOD 277 SET REG 3 = 32K
03205	0 70 40022	1750		SNM*	SKIP+2	
03206	0 01 00017	1751		BRU	SKIP-1	
03207	0 01 00073	1752		BRU	NOVFL0	

		1753		PAGF			POP
03210	0 20 43210	1754	POP4	NOP*	*		
03211	5 15 00000	1755		POP	0.4		
03212	70000000	1756		OCT	70000000		
03213	70000000	1757		OCT	70000000		
03214	07777777	1758		OCT	07777777		
03215	07777777	1759		OCT	07777777		
03216	00000007	1760		OCT	7		
03217	00000007	1761		OCT	7		
03220	0 06 20177	1762		EOD	1*A+7*B+7		EOD 177 SET REG 2 = 32K
03221	0 07 40032	1763		7*	NOSKIP+2		
03222	0 01 00027	1764		BRU	NOSKIP-1		
03223	0 01 00073	1765		BRU	NOVFL0		

		1766				
03224	0 20 43224	1767	EAX1	PAGE NOP*	*	EAX
03225	4 77 00000	1768		EAX	0,4	
03226	77700070	1769		ECT	77700070	
03227	77700070	1770		ECT	77700070	
03230	66611161	1771		ECT	66611161	
03231	66611161	1772		ECT	66611161	
03232	77777777	1773		ECT	77777777	
03233	77740000	1774		ECT	77740000	
03234	00000000	1775		ECT	0	
03235	00000000	1776		ECT	0	
03236	0 01 00030	1777		BRU	NOSKIP	
03237	0 01 00073	1778		BRU	NOVFL0	
03240	0 20 43240	1779	EAX2	NOP*	*	
03241	6 77 00001	1780		EAX	1,6	INDEXING
03242	00077707	1781		ECT	00077707	
03243	00077707	1782		ECT	00077707	
03244	11166616	1783		ECT	11166616	
03245	11166616	1784		ECT	11166616	
03246	77777777	1785		ECT	77777777	
03247	77740000	1786		ECT	77740000	
03250	00000000	1787		ECT	0	
03251	00000000	1788		ECT	0	
03252	4 01 00030	1789		BRU	NOSKIP,4	SFT OVERFLOW
03253	0 01 00100	1790		BRU	OVFL0	OVERFLOW
03254	0 20 43254	1791	EAX3	NOP*	*	
03255	4 77 00113	1792		EAX	MEMORY,4	
03256	66611161	1793		ECT	66611161	
03257	66611161	1794		ECT	66611161	
03260	55522252	1795		ECT	55522252	
03261	55522252	1796		ECT	55522252	
03262	77777777	1797		ECT	77777777	
03263	7 77 40113	1798		EAX*	MEMORY,7	
03264	44433343	1799		ECT	44433343	
03265	44433343	1800		ECT	44433343	
03266	0 01 00030	1801		BRU	NOSKIP	
03267	0 01 00073	1802		BRU	NOVFL0	

03270	0 20 43270	1803		PAGE		EAX
03271	6 72 70064	1804	EAX4	NOP*	*	
03272	11166616	1805		EAX*	TESTM-4096.6	IA
03273	11166616	1806		OCT	11166616	
03274	22255525	1807		OCT	11166616	
03275	22255525	1808		OCT	22255525	
03276	00010000	1809		OCT	22255525	
03277	0 00 00113	1810		OCT	00010000	
03300	33344434	1811		HLT	MEMORY	
03301	33344434	1812		OCT	33344434	
03302	0 01 00030	1813		OCT	33344434	
03303	0 01 00073	1814		BRU	NOSKIP	
		1815		BRU	NOVFL0	

				PAGE			
03304	0 20 43304	1816		PAGE			
		1817	RE01	NOP*	*		RFO
03305	4 02 20010	1818		RE0	.4		
03306	77700070	1819		OCT	77700070		
03307	77700070	1820		OCT	77700070		
03310	66611161	1821		OCT	66611161		
03311	66611161	1822		OCT	66611161		
03312	55522252	1823		OCT	55522252		X14 X15
03313	55522252	1824		OCT	55522252		0 0
03314	00000000	1825		OCT	0		
03315	00000000	1826		OCT	0		
03316	0 01 00030	1827		BRU	NOSKIP		
03317	0 01 00073	1828		BRU	NOVFL0		
03320	0 20 43320	1829	RE02	NOP*	*		
03321	4 02 20010	1830		RE0	.4		
03322	00077707	1831		OCT	00077707		
03323	00077707	1832		OCT	00077707		
03324	11166616	1833		OCT	11166616		
03325	11166616	1834		OCT	11166616		
03326	22255525	1835		OCT	22255525		X14 X15
03327	22255525	1836		OCT	22255525		1 1
03330	00000000	1837		OCT	0		
03331	00000000	1838		OCT	0		
03332	0 01 00030	1839		BRU	NOSKIP		
03333	0 01 00073	1840		BRU	NOVFL0		
03334	0 20 43334	1841	RE03	NOP*	*		
03335	4 02 20010	1842		RE0	.4		
03336	66611161	1843		OCT	66611161		
03337	66611161	1844		OCT	66611161		
03340	55522252	1845		OCT	55522252		
03341	55522252	1846		OCT	55522252		
03342	44433343	1847		OCT	44433343		X14 X15
03343	44433343	1848		OCT	44433343		1 0
03344	00000000	1849		OCT	0		
03345	00000000	1850		OCT	0		
03346	0 01 00030	1851		BRU	NOSKIP		
03347	0 01 00100	1852		BRU	OVFL0		OVERFLOW

03350	0 20 43350	1853		PAGE		REG
03351	4 02 20010	1854	REG4	NOP*	*	
03352	11166616	1855		REG	.4	
03353	11166616	1856		OCT	11166616	
03354	22255525	1857		OCT	11166616	
03355	22255525	1858		OCT	22255525	
03356	33344434	1859		OCT	22255525	
03357	33344434	1860		OCT	33344434	X14 X15
03360	00000000	1861		OCT	33344434	0 1
03361	00000000	1862		OCT	0	
03362	0 01 00030	1863		OCT	0	
03363	0 01 00100	1864		BRU	NOSKIP	
		1865		BRU	OVFLO	OVERFLOW

03364	0 20 43364	1866		PAGE			
03365	4 40 20004	1867	INT1	NOP*	*		INT
03366	77700070	1868		IET	.4		INTERRUPT TFSTS
03367	77700070	1869		OCT	77700070		
03370	66611161	1870		OCT	77700070		
03371	66611161	1871		OCT	66611161		
03372	55522252	1872		OCT	66611161		
03373	55522252	1873		OCT	55522252		
03374	0 02 20002	1874		OCT	55522252		
03375	0 02 20002	1875		EIR			ENABLE THE INTERRUPTS
03376	0 01 00017	1876		EIR			
03377	0 01 00073	1877		BRU	SKIP-1		
03400	0 20 43400	1878		BRU	NOVFL0		
03401	4 40 20002	1879	INT2	NOP*	*		
03402	00077707	1880		IDT	.4		
03403	00077707	1881		OCT	00077707		
03404	11166616	1882		OCT	00077707		
03405	11166616	1883		OCT	11166616		
03406	22255525	1884		OCT	11166616		
03407	22255525	1885		OCT	11166616		
03410	0 02 20002	1886		OCT	22255525		
03411	0 02 20002	1887		EIR			ENABLE THE INTERRUPTS
03412	4 01 00027	1888		EIR			
03413	0 01 00100	1889		BRU	NOSKIP-1.4		SET OVERFLOW
03414	0 20 43414	1890		BRU	OVFL0		OVERFLOW
03415	4 40 20004	1891	INT3	NOP*	*		
03416	44433343	1892		IET	.4		
03417	44433343	1893		OCT	44433343		
03420	33344434	1894		OCT	44433343		
03421	33344434	1895		OCT	33344434		
03422	11166616	1896		OCT	33344434		
03423	11166616	1897		OCT	11166616		
03424	0 02 20004	1898		OCT	11166616		
03425	0 02 20004	1899		DIR			
03426	0 01 00027	1900		DIR			
03427	0 01 00073	1901		BRU	NOSKIP-1		
		1902		BRU	NOVFL0		

03430	0 20 43430	1903		PAGE					
03431	4 40 20002	1904	INT4	NOP*	*			INT	
03432	33344434	1905		IDT	.4				
03433	33344434	1906		OCT	33344434				
03434	44433343	1907		OCT	33344434				
03435	44433343	1908		OCT	44433343				
03436	66611161	1909		OCT	44433343				
03437	66611161	1910		OCT	66611161				
03440	0 02 20004	1911		OCT	66611161				
03441	0 02 20004	1912		DIR					
03442	4 01 00017	1913		DIR					
03443	0 01 00100	1914		BRU	SKIP-1.4			SFT OVERFLOW	
		1915		BRU	OVFLG			OVERFLOW	

		1916
03444	0 20 43444	1917
03445	4 40 21000	1918
03446	77700070	1919
03447	77700070	1920
03450	66611161	1921
03451	66611161	1922
03452	55522252	1923
03453	55522252	1924
03454	0 02 02601	1925
03455	0 02 02601	1926
03456	0 01 00027	1927
03457	0 01 00073	1928
03460	0 20 43460	1929
03461	4 40 21000	1930
03462	00077707	1931
03463	00077707	1932
03464	11166616	1933
03465	11166616	1934
03466	22255525	1935
03467	22255525	1936
03470	0 02 00000	1937
03471	0 02 00000	1938
03472	0 01 00017	1939
03473	0 01 00073	1940

	PAGE	
BRTW1	NOP*	*
	BRTW	.4
	OCT	77700070
	OCT	77700070
	OCT	66611161
	OCT	66611161
	OCT	55522252
	OCT	55522252
	RKBW	1.4
	RKBW	1.4
	BRU	NO SKIP-1
	BRU	NOVFL0
BRTW2	NOP*	*
	BRTW	.4
	OCT	00077707
	OCT	00077707
	OCT	11166616
	OCT	11166616
	OCT	22255525
	OCT	22255525
	DISW	
	DISW	
	BRU	SKIP-1
	BRU	NOVFL0

BRTW
W BUFFER READY TESTS

TURN ON TYPEWRITER W BUFFER

		1941		PAGE		ERT
03474	0 20 43474	1942	ERT1	NOP*	*	
03475	4 40 40001	1943		ERT*	1,4	TEST BANK REGISTER 2
03476	77700070	1944		OCT	77700070	
03477	77700070	1945		OCT	77700070	
03500	66611161	1946		OCT	66611161	
03501	66611161	1947		OCT	66611161	
03502	55522252	1948		OCT	55522252	
03503	55522252	1949		OCT	55522252	
03504	0 06 20335	1950		EOD	3*A+3*B+5	EOD 335
03505	0 06 20335	1951		EOD	3*A+3*B+5	SET REG 3 = 16K-SET REG 2 = 24K
03506	0 01 00017	1952		BRU	SKIP-1	
03507	0 01 00073	1953		BRU	NOVFL0	
03510	0 20 43510	1954	ERT2	NOP*	*	
03511	4 40 40001	1955		ERT*	1,4	
03512	00077707	1956		OCT	00077707	
03513	00077707	1957		OCT	00077707	
03514	11166616	1958		OCT	11166616	
03515	11166616	1959		OCT	11166616	
03516	22255525	1960		OCT	22255525	
03517	22255525	1961		OCT	22255525	
03520	0 06 20352	1962		EOD	3*A+5*B+2	EOD 352
03521	0 06 20352	1963		EOD	3*A+5*B+2	SET REG 3 = 24K-SET REG 2 = 12K
03522	0 01 00027	1964		BRU	NO SKIP-1	
03523	0 01 00073	1965		BRU	NOVFL0	
03524	0 20 43524	1966	ERT3	NOP*	*	
03525	4 40 40002	1967		ERT*	2,4	TEST BANK REGISTER 3
03526	66611161	1968		OCT	66611161	
03527	66611161	1969		OCT	66611161	
03530	44433343	1970		OCT	44433343	
03531	44433343	1971		OCT	44433343	
03532	77700070	1972		OCT	77700070	
03533	77700070	1973		OCT	77700070	
03534	0 06 20331	1974		EOD	3*A+3*B+1	EOD 331
03535	0 06 20331	1975		EOD	3*A+3*B+1	SET REG 3 = 16K-SET REG 2 = 8K
03536	0 01 00027	1976		BRU	NO SKIP-1	
03537	0 01 00073	1977		BRU	NOVFL0	

			1978		PAGE		ERT
03540	0 20 43540	1979	ERT4	NOP*	*		
03541	4 40 40002	1980		ERT*	2.4		
03542	11166616	1981		OCT	11166616		
03543	11166616	1982		OCT	11166616		
03544	33344434	1983		OCT	33344434		
03545	33344434	1984		OCT	33344434		
03546	00077707	1985		OCT	00077707		
03547	00077707	1986		OCT	00077707		
03550	0 06 20362	1987		EOD	3*A+6*B+2	EOD 362	
03551	0 06 20362	1988		EOD	3*A+6*B+2	SET REG 3 = 28K-SET REG 2 = 12K	
03552	0 01 00017	1989		BRU	SKIP-1		
03553	0 01 00073	1990		BRU	NOVLO		

		1991		PAGE		SKD
03554	0 20 43554	1992	SKD1	NOP*	*	
03555	4 74 00113	1993		SKD	MEMORY,4	
03556	77700070	1994		0CT	77700070	
03557	77700070	1995		0CT	77700070	
03560	65465345	1996		0CT	65465345	B15 C15 X15 OFE
03561	65465345	1997		0CT	65465345	0 0 0 0
03562	00077707	1998		0CT	00077707	
03563	33333032	1999		0CT	33333032	
03564	32132313	2000		0CT	32132313	SET OFE EVERY CLOCK EXCEPT T5
03565	32132313	2001		0CT	32132313	RESET CO EVERY CLOCK
03566	0 01 00030	2002		BRU	NOSKIP	
03567	0 01 00073	2003		BRU	NOVFL0	
03570	0 20 43570	2004	SKD2	NOP*	*	
03571	4 74 40064	2005		SKD*	TESTM,4	1A
03572	00077707	2006		0CT	00077707	
03573	00077707	2007		0CT	00077707	
03574	01234567	2008		0CT	01234567	B15 C15 X15 OFE
03575	01234567	2009		0CT	01234567	1 0 0 1
03576	77700070	2010		0CT	77700070	
03577	77667565	2011		0CT	77667565	
03600	01124354	2012		0CT	01124354	RESET OFE EVERY CLOCK EXCEPT T5
03601	01124354	2013		0CT	01124354	RESET CO EVERY CLOCK
03602	0 01 00020	2014		BRU	SKIP	
03603	0 01 00073	2015		BRU	NOVFL0	
03604	0 20 43604	2016	SKD3	NOP*	*	
03605	6 74 11275	2017		SKD	MEMORY-11662,6	INDEXING
03606	66611161	2018		0CT	66611161	
03607	66611161	2019		0CT	66611161	
03610	54672120	2020		0CT	54672120	B15 C15 X15 OFE
03611	54672120	2021		0CT	54672120	0 1 0 0
03612	11166616	2022		0CT	11166616	
03613	76457266	2023		0CT	76457266	
03614	56212632	2024		0CT	56212632	RESET OFE EVERY CLOCK
03615	56212632	2025		0CT	56212632	SET CO EVERY CLOCK EXCEPT T5
03616	0 01 00030	2026		BRU	NOSKIP	
03617	0 01 00073	2027		BRU	NOVFL0	

		2028		PAGE		SKD
03620	0 20 43620	2029	SKD4	NOP*	*	
03621	4 74 00113	2030		SKD	MEMORY.4	
03622	11166616	2031		OCT	11166616	
03623	11166616	2032		OCT	11166616	
03624	67622654	2033		OCT	67622654	B15 C15 X15
03625	67622654	2034		OCT	67622654	1 1 0
03626	66611161	2035		OCT	66611161	
03627	75467123	2036		OCT	75467123	RESET OFE AND CO AT T5
03630	72133531	2037		OCT	72133531	RESET OFE AND SET CO AT TO THRU T4
03631	72133531	2038		OCT	72133531	SET OFE AND RESET CO AT T6 AND T7
03632	0 01 00030	2039		BRU	NOSKIP	
03633	0 01 00073	2040		BRU	NOVFL0	
03634	0 20 43634	2041	SKD5	NOP*	*	
03635	4 74 00113	2042		SKD	MEMORY.4	
03636	55522252	2043		OCT	55522252	
03637	55522252	2044		OCT	55522252	
03640	11232213	2045		OCT	11232213	B15 C15 X15
03641	11232213	2046		OCT	11232213	0 0 1
03642	22255525	2047		OCT	22255525	
03643	33233134	2048		OCT	33233134	
03644	44465347	2049		OCT	44465347	SET OFE EVERY CLOCK EXCEPT T5
03645	44465347	2050		OCT	44465347	SET CO EVERY CLOCK
03646	0 01 00020	2051		BRU	SKIP	
03647	0 01 00073	2052		BRU	NOVFL0	
03650	0 20 43650	2053	SKD6	NOP*	*	
03651	4 74 00113	2054		SKD	MEMORY.4	
03652	22255525	2055		OCT	22255525	
03653	22255525	2056		OCT	22255525	
03654	10234756	2057		OCT	10234756	B15 C15 X15
03655	10234756	2058		OCT	10234756	1 0 1
03656	55522252	2059		OCT	55522252	
03657	46667177	2060		OCT	46667177	
03660	57124155	2061		OCT	57124155	RESET OFE EVERY CLOCK
03661	57124155	2062		OCT	57124155	RESET CO EVERY CLOCK EXCEPT T5
03662	0 01 00020	2063		BRU	SKIP	
03663	0 01 00073	2064		BRU	NOVFL0	

03664	0 20 43664	2065		PAGF			
03665	4 74 00113	2066	SKD7	NOP*	*	SKD	
03666	33344434	2067		SKD	MEMORY,4		
03667	33344434	2068		θCT	33344434		
03670	56657244	2069		θCT	33344434		
03671	56657244	2070		θCT	56657244	B15 C15 X15	
03672	44433343	2071		θCT	56657244	0 1 1	
03673	33323523	2072		θCT	44433343		
03674	23333521	2073		θCT	33323523		
03675	23333521	2074		θCT	23333521	SFT θFE EVERY CLOCK	
03676	0 01 00030	2075		θCT	23333521	RESET CO EVERY CLOCK EXCEPT T5	
03677	0 01 00073	2076		BRU	NθSKIP		
03700	0 20 43700	2077		BRU	NθVFLθ		
03701	4 74 00113	2078	SKD8	NOP*	*		
03702	44433343	2079		SKD	MEMORY,4		
03703	44433343	2080		θCT	44433343		
03704	32275612	2081		θCT	44433343		
03705	32275612	2082		θCT	32275612	B15 C15 X15	
03706	33344434	2083		θCT	32275612	1 1 1	
03707	65457134	2084		θCT	33344434		
03710	17754746	2085		θCT	65457134	RESET θFE AND SFT CO T5	
03711	17754746	2086		θCT	17754746	RESET θFE AND CO TO THRU T4	
03712	0 01 00020	2087		θCT	17754746	SET θFE AND CO T6, T7	
03713	0 01 00073	2088		BRU	SKIP		
		2089		BRU	NθVFLθ		

		2090		PAGE		RSH
03714	0 20 43714	2091	RSH1	NOP*	*	
03715	4 66 00000	2092		RSH	0.4	SFT SK AT T1 PHASE 1
03716	40000001	2093		OCT	40000001	
03717	40000001	2094		OCT	40000001	
03720	37777776	2095		OCT	37777776	
03721	37777776	2096		OCT	37777776	
03722	77777777	2097		OCT	77777777	
03723	77777777	2098		OCT	77777777	
03724	00000000	2099		OCT	0	
03725	00000000	2100		OCT	0	
03726	0 01 00030	2101		BRU	NOSKIP	
03727	0 01 00073	2102		BRU	NOVFL0	
03730	0 20 43730	2103	RSH2	NOP*	*	
03731	4 66 40113	2104		RSH*	MEMORY.4	IA-SD2 NEVER GOES. SET SK AT TO PHASE 3
03732	52525252	2105		OCT	52525252	
03733	65252525	2106		OCT	65252525	A0 GETS SET BY A00
03734	61616160	2107		OCT	61616160	
03735	30707070	2108		OCT	30707070	B0 GETS SET BY A23
03736	77700070	2109		OCT	77700070	
03737	77700070	2110		OCT	77700070	
03740	00000001	2111		OCT	1	
03741	00000001	2112		OCT	1	
03742	0 01 00030	2113		BRU	NOSKIP	
03743	0 01 00073	2114		BRU	NOVFL0	
03744	0 20 43744	2115	RSH3	NOP*	*	
03745	6 66 00765	2116		RSH	501.6	INDEXING (2)-SD2 GOES AT T1. SET SK AT TO 1ST CYCLE
03746	25252525	2117		OCT	25252525	
03747	05252525	2118		OCT	05252525	
03750	25252525	2119		OCT	25252525	BRI TURNS B(0-23) ON AND OFF EACH CLOCK
03751	25252525	2120		OCT	25252525	
03752	42376015	2121		OCT	42376015	
03753	42376015	2122		OCT	42376015	
03754	00000002	2123		OCT	2	
03755	00000002	2124		OCT	2	
03756	0 01 00030	2125		BRU	NOSKIP	
03757	0 01 00073	2126		BRU	NOVFL0	

		2127		PAGE		RSH
03760	0 20 43760	2128	RSH4	NOP*	*	
03761	4 66 00003	2129		RSH	3,4	
03762	40000000	2130		ECT	40000000	S02 GOES AT TO, SK AT TP 1ST CYCLE
03763	74000000	2131		ECT	74000000	S14 ON AT T2 AND T1 AND TR AND OFF AT TO
03764	00000000	2132		ECT	0	AND TP
03765	00000000	2133		ECT	0	
03766	00077707	2134		ECT	00077707	
03767	00077707	2135		ECT	00077707	
03770	00000003	2136		ECT	3	
03771	00000003	2137		ECT	3	
03772	4 01 00030	2138		BRU	NOSKIP,4	SET OVERFLOW
03773	0 01 00100	2139		BRU	OVFL0	OVERFLOW
03774	0 20 43774	2140	RSH5	NOP*	*	CHECK SX48 AND ALL RELATED TERMS
03775	4 66 00060	2141		RSH	48,4	SX48 GETS SET BY S9S10 AT PHASE 0 T1
03776	37777777	2142		ECT	37777777	
03777	00000000	2143		ECT	0	
04000	77777777	2144		ECT	77777777	
04001	00000000	2145		ECT	0	
04002	66611161	2146		ECT	66611161	
04003	66611161	2147		ECT	66611161	
04004	00000060	2148		ECT	60	
04005	00000060	2149		ECT	60	
04006	0 01 00030	2150		BRU	NOSKIP	
04007	0 01 00073	2151		BRU	NOVFL0	
04010	0 20 44010	2152	RSH6	NOP*	*	
04011	4 66 00100	2153		RSH	64,4	SX48 GETS SET BY S8 AT PHASE 0 T1
04012	40000000	2154		ECT	40000000	
04013	77777777	2155		ECT	77777777	
04014	00000000	2156		ECT	0	
04015	77777777	2157		ECT	77777777	
04016	11166616	2158		ECT	11166616	
04017	11166616	2159		ECT	11166616	
04020	00000100	2160		ECT	100	
04021	00000100	2161		ECT	100	
04022	0 01 00030	2162		BRU	NOSKIP	
04023	0 01 00073	2163		BRU	NOVFL0	

04024	0 20 44024	2164		PAGP	
04025	4 66 00203	2165	RSH7	NOP*	*
04026	20000001	2166		RSH	131.4
04027	00000000	2167		0CT	20000001
04030	40000001	2168		0CT	0
04031	00000000	2169		0CT	40000001
04032	55522252	2170		0CT	0
04033	55522252	2171		0CT	55522252
04034	00000203	2172		0CT	55522252
04035	00000203	2173		0CT	203
04036	0 01 00030	2174		0CT	203
04037	0 01 00073	2175		BRU	NOSKIP
04040	0 20 44040	2176		BRU	NOVFL0
04041	4 66 00404	2177	RSH8	NOP*	*
04042	40000000	2178		RSH	260.4
04043	77777777	2179		0CT	40000000
04044	00000000	2180		0CT	77777777
04045	77777777	2181		0CT	0
04046	22255525	2182		0CT	77777777
04047	22255525	2183		0CT	22255525
04050	00000404	2184		0CT	22255525
04051	00000404	2185		0CT	404
04052	0 01 00030	2186		0CT	404
04053	0 01 00073	2187		BRU	NOSKIP
04054	0 20 44054	2188		BRU	NOVFL0
04055	4 66 20005	2189	RSH9	NOP*	*
04056	20000001	2190		RCY	5.4
04057	02400000	2191		0CT	20000001
04060	00000001	2192		0CT	02400000
04061	02000000	2193		0CT	00000001
04062	44433343	2194		0CT	02000000
04063	44433343	2195		0CT	44433343
04064	00000005	2196		0CT	44433343
04065	00000005	2197		0CT	5
04066	0 01 00030	2198		0CT	5
04067	0 01 00073	2199		BRU	NOSKIP
		2200		BRU	NOVFL0

RSH

SX48 GETS SET BY S7 AT PHASE 0 T1

SX48 GETS SET BY S6 AT PHASE 0 T1
TEST S REGISTER COUNT TO 48

A0 SET BY B23

B0 SET BY A23

04070	0 20 44070	2201	PAGE	
04071	4 66 20057	2202	RSH10 N0P*	*
04072	52525252	2203	RCY	47.4
04073	25252525	2204	0CT	52525252
04074	52525252	2205	0CT	25252525
04075	25252525	2206	0CT	52525252
04076	33344434	2207	0CT	25252525
04077	33344434	2208	0CT	33344434
04100	00000057	2209	0CT	33344434
04101	00000057	2210	0CT	57
04102	0 01 00030	2211	0CT	57
04103	0 01 00073	2212	BRU	N0SKIP
04104	0 20 44104	2213	BRU	N0VFL0
04105	4 66 60113	2214	RSH11 N0P*	*
04106	14631463	2215	RCY*	MEMORY.4
04107	63146314	2216	0CT	14631463
04110	14631463	2217	0CT	63146314
04111	63146314	2218	0CT	14631463
04112	11166616	2219	0CT	63146314
04113	11166616	2220	0CT	11166616
04114	00020056	2221	0CT	11166616
04115	00020056	2222	0CT	20056
04116	0 01 00030	2223	0CT	20056
04117	0 01 00073	2224	BRU	N0SKIP
04120	0 20 44120	2225	BRU	N0VFL0
04121	4 66 60113	2226	RSH12 N0P*	*
04122	41414141	2227	RCY*	MEMORY.4
04123	00414141	2228	0CT	41414141
04124	22222227	2229	0CT	00414141
04125	41222222	2230	0CT	22222227
04126	66611161	2231	0CT	41222222
04127	66611161	2232	0CT	66611161
04130	00024006	2233	0CT	66611161
04131	00024006	2234	0CT	24006
04132	0 01 00030	2235	0CT	24006
04133	0 01 00073	2236	BRU	N0SKIP
		2237	BRU	N0VFL0

RSH

TURN A(0-23) AND B(0-23) ON AND OFF
EVERY CLOCK

IA - TEST BR1 WITH ALL COMBINATIONS OF
SET BI+1=BI

0	0
0	1
1	0
1	1

IA - LOGICAL RIGHT CYCLE

A0 SET TO 0

B0 SET BY A23

04134	0 20 44134	2238
04135	4 66 24004	2239
04136	70707070	2240
04137	03434343	2241
04140	52525252	2242
04141	42525252	2243
04142	77700070	2244
04143	77700070	2245
04144	00004004	2246
04145	00004004	2247
04146	4 01 00030	2248
04147	0 01 00100	2249
04150	0 20 44150	2250
04151	6 66 74101	2251
04152	12345670	2252
04153	65432101	2253
04154	76543210	2254
04155	23456707	2255
04156	00004012	2256
04157	00004012	2257
04160	20020013	2258
04161	20020013	2259
04162	0 01 00030	2260
04163	0 01 00073	2261
04164	0 20 44164	2262
04165	4 66 01001	2263
04166	40000000	2264
04167	60000000	2265
04170	00000002	2266
04171	00000001	2267
04172	00077707	2268
04173	00077707	2269
04174	00001001	2270
04175	00001001	2271
04176	0 01 00030	2272
04177	0 01 00073	2273
		2274

	PAGE	
RSH13	NOP*	*
	RCY	2052.4
	OCT	70707070
	OCT	03434343
	OCT	52525252
	OCT	42525252
	OCT	77700070
	OCT	77700070
	OCT	4004
	OCT	4004
	BRU	NOSKIP.4
	BRU	OVFL0
RSH14	NOP*	*
	RSH*	MEMORY-2058.6
	OCT	12345670
	OCT	65432101
	OCT	76543210
	OCT	23456707
	OCT	4012
	OCT	4012
	OCT	20020013
	OCT	20020013
	BRU	NOSKIP
	BRU	NOVFL0
RSH15	NOP*	*
	RSH	513.4
	OCT	40000000
	OCT	60000000
	OCT	2
	OCT	1
	OCT	00077707
	OCT	00077707
	OCT	1001
	OCT	1001
	BRU	NOSKIP
	BRU	NOVFL0

RSH

LOGICAL RIGHT CYCLE
SK SETS AT T8 2ND CYCLE

SFT OVERFLOW
OVERFLOW

IX,IA,IX-21 PLACES-CYCLE

TEST C(0-2)=C(21-23) AT T4,T3 AND T2

04200	0 20 44200	2275		PAGE		
04201	4 67 00000	2276	LSH1	NOP*	*	LSH
04202	40000001	2277		LSH	0.4	
04203	40000001	2278		OCT	40000001	SET SK AT T1 PHASE 1
04204	37777776	2279		OCT	40000001	
04205	37777776	2280		OCT	37777776	
04206	77700070	2281		OCT	37777776	
04207	77700070	2282		OCT	77700070	
04210	00000000	2283		OCT	77700070	
04211	00000000	2284		OCT	0	
04212	0 01 00030	2285		OCT	0	
04213	0 01 00073	2286		BRU	NOSKIP	
04214	0 20 44214	2287		BRU	NOVFL0	
04215	4 67 00001	2288	LSH2	NOP*	*	
04216	65252525	2289		LSH	1.4	SD2 GOES AT T1 PHASE 3
04217	52525252	2290		OCT	65252525	SK GOES AT TO PHASE 3
04220	37070707	2291		OCT	52525252	
04221	76161616	2292		OCT	37070707	A23 SET BY B0
04222	00077707	2293		OCT	76161616	
04223	00077707	2294		OCT	00077707	B23 SET TO 0
04224	00000001	2295		OCT	00077707	
04225	00000001	2296		OCT	1	
04226	0 01 00030	2297		OCT	1	
04227	0 01 00073	2298		BRU	NOSKIP	
04230	0 20 44230	2299		BRU	NOVFL0	
04231	4 67 40113	2300	LSH3	NOP*	*	
04232	40707070	2301		LSH*	MEMORY.4	IA - SD2 GOES AT T1 PHASE 3
04233	01616161	2302		OCT	40707070	SK SET AT TO PHASE 3
04234	51111111	2303		OCT	01616161	
04235	22222222	2304		OCT	51111111	
04236	66611161	2305		OCT	22222222	
04237	66611161	2306		OCT	66611161	
04240	00000001	2307		OCT	66611161	
04241	00000001	2308		OCT	1	
04242	0 01 00030	2309		OCT	1	
04243	0 01 00100	2310		BRU	NOSKIP	
		2311		BRU	OVFL0	OVERFLOW SET BY A0+A1 AT T1 PHASE 3

04244	0 20 44244	2312		PAGE	
04245	4 67 00002	2313	LSH4	NOP*	*
04246	70707070	2314		LSH	2.4
04247	43434342	2315		OCT	70707070
04250	43434343	2316		OCT	43434342
04251	16161614	2317		OCT	43434343
04252	11166616	2318		OCT	16161614
04253	11166616	2319		OCT	11166616
04254	00000002	2320		OCT	11166616
04255	00000002	2321		OCT	2
04256	0 01 00030	2322		OCT	2
04257	0 01 00073	2323		BRU	NOSKIP
04260	0 20 44260	2324		BRU	OVFL0
04261	6 67 00153	2325	LSH5	NOP*	*
04262	12345670	2326		LSH	107.6
04263	51627343	2327		OCT	12345670
04264	67543201	2328		OCT	51627343
04265	36615004	2329		OCT	67543201
04266	00000627	2330		OCT	36615004
04267	00000627	2331		OCT	00000627
04270	00000002	2332		OCT	00000627
04271	00000002	2333		OCT	2
04272	0 01 00030	2334		OCT	2
04273	0 01 00100	2335		BRU	NOSKIP
04274	0 20 44274	2336		BRU	OVFL0
04275	4 67 00057	2337	LSH6	NOP*	*
04276	00000000	2338		LSH	47.4
04277	40000000	2339		OCT	0
04300	00000001	2340		OCT	40000000
04301	00000000	2341		OCT	1
04302	55522252	2342		OCT	0
04303	55522252	2343		OCT	55522252
04304	00000057	2344		OCT	55522252
04305	00000057	2345		OCT	57
04306	0 01 00030	2346		OCT	57
04307	0 01 00100	2347		BRU	NOSKIP
		2348		BRU	OVFL0

LSH

INDEXING-SHIFT 2 PLACES

OVERFLOW SET BY (A1+A2)S13 AT T1 PHASE 3

SD2 GOES EVERY OTHER CLOCK STARTING AT
T1 PHASE 3

OVERFLOW

04310	0 20 44310	2349	PAGE	
04311	4 67 00057	2350	LSH7	NOP*
04312	77777777	2351		*
04313	40000000	2352		LSH 47.4
04314	77777777	2353		OCT 77777777
04315	00000000	2354		OCT 40000000
04316	22255525	2355		OCT 77777777
04317	22255525	2356		OCT 0
04320	00000057	2357		OCT 22255525
04321	00000057	2358		OCT 57
04322	0 01 00030	2359		OCT 57
04323	0 01 00073	2360		BRU NOSKIP
04324	0 20 44324	2361		BRU NOVFL0
04325	4 67 00060	2362	LSH8	NOP*
04326	77777777	2363		*
04327	00000000	2364		LSH 48.4
04330	77777777	2365		OCT 77777777
04331	00000000	2366		OCT 0
04332	44433343	2367		OCT 0
04333	44433343	2368		OCT 44433343
04334	00000060	2369		OCT 44433343
04335	00000060	2370		OCT 60
04336	0 01 00030	2371		OCT 60
04337	0 01 00100	2372		BRU NOSKIP
04340	0 20 44340	2373		BRU OVFL0
04341	4 67 40113	2374	LSH9	NOP*
04342	43434340	2375		*
04343	07070701	2376		LSH* MEMORY.4
04344	70707070	2377		OCT 43434340
04345	61616161	2378		OCT 07070701
04346	33344434	2379		OCT 70707070
04347	33344434	2380		OCT 61616161
04350	00020001	2381		OCT 33344434
04351	00020001	2382		OCT 33344434
04352	0 01 00030	2383		OCT 00020001
04353	0 01 00073	2384		OCT 00020001
		2385		BRU NOSKIP
				BRU NOVFL0

LSH

SX48 GOES AT T2 PHASE 1

IA - CYCLE

A23 SET BY B0

B23 SET BY A0

04354	0 20 44354	2386		PAGE	
04355	4 67 20057	2387	LSH10	NOP*	*
04356	03607417	2388		LCY	47.4
04357	41703607	2389		OCT	03607417
04360	03607417	2390		OCT	41703607
04361	41703607	2391		OCT	03607417
04362	22255525	2392		OCT	41703607
04363	22255525	2393		OCT	22255525
04364	00000057	2394		OCT	22255525
04365	00000057	2395		OCT	57
04366	4 01 00030	2396		OCT	57
04367	0 01 00100	2397		BRU	NOSKIP,4
04370	0 20 44370	2398		BRU	OVFL0
04371	4 67 20057	2399	LSH11	NOP*	*
04372	14631463	2400		LCY	47.4
04373	46314631	2401		OCT	14631463
04374	14631463	2402		OCT	46314631
04375	46314631	2403		OCT	14631463
04376	55522252	2404		OCT	46314631
04377	55522252	2405		OCT	55522252
04400	00000057	2406		OCT	55522252
04401	00000057	2407		OCT	57
04402	0 01 00030	2408		OCT	57
04403	0 01 00073	2409		BRU	NOSKIP
04404	0 20 44404	2410		BRU	NOVFL0
04405	4 67 60113	2411	LSH12	NOP*	*
04406	00000000	2412		LCY*	MEMORY,4
04407	00000000	2413		OCT	0
04410	00000000	2414		OCT	0
04411	00000000	2415		OCT	0
04412	61247613	2416		OCT	0
04413	61247613	2417		OCT	61247613
04414	23775164	2418		OCT	61247613
04415	23775164	2419		OCT	23775164
04416	0 01 00030	2420		OCT	23775164
04417	0 01 00073	2421		BRU	NOSKIP
		2422		BRU	NOVFL0

LSH

TEST AL2 WITH ALL COMBINATIONS OF

SET BI=BI+2

0 0

0 1

1 0

1 1

SET OVERFLOW

TURN A(0-23) AND B(0-23) OFF AND ON
EACH CLOCK

IA AND INDEXING 511 PLACES-SXXG0ES AT T2

COUNT S DOWN

SK GETS SET BY S REGISTER AT T6 PHASE 3

		2423		PAGE			
04420	0 20 44420	2424	N0D1	N0P*	*		N0D
04421	4 67 10000	2425		N0D	0.4		SK SET AT T2 BY S(6-14)=0
04422	05436701	2426		0CT	05436701		
04423	05436701	2427		0CT	05436701		
04424	12345670	2428		0CT	12345670		
04425	12345670	2429		0CT	12345670		
04426	77777777	2430		0CT	77777777		RF KO BC23
04427	77777777	2431		0CT	77777777		0 0 0 T8 - TP
04430	00000000	2432		0CT	0		
04431	00000000	2433		0CT	0		
04432	0 01 00030	2434		BRU	N0SKIP		
04433	0 01 00073	2435		BRU	N0VFL0		
04434	0 20 44434	2436	N0D2	N0P*	*		
04435	4 67 10001	2437		N0D	1.4		SK SET AT T2 BY A0#A1
04436	21076543	2438		0CT	21076543		RESET S14 AT T2 BY A0#A1(NO SHIFT AT TP)
04437	21076543	2439		0CT	21076543		
04440	01234567	2440		0CT	01234567		
04441	01234567	2441		0CT	01234567		
04442	00000000	2442		0CT	0		RF KO BC23
04443	00000000	2443		0CT	0		0 0 0 T8 - TP
04444	00000000	2444		0CT	0		
04445	00000000	2445		0CT	0		
04446	0 01 00030	2446		BRU	N0SKIP		
04447	0 01 00073	2447		BRU	N0VFL0		
04450	0 20 44450	2448	N0D3	N0P*	*		
04451	4 67 10001	2449		N0D	1.4		S02 GOES AT T1
04452	77324500	2450		0CT	77324500		SET SK AT T1 BY S(9-13)=0
04453	76651201	2451		0CT	76651201		AR1 AT TP BY SKS14
04454	45601237	2452		0CT	45601237		A23 SET BY B0
04455	13402476	2453		0CT	13402476		B23 SET TO 0
04456	00000000	2454		0CT	0		RF KO BC23
04457	77777777	2455		0CT	77777777		1 1 1 T8 - TP
04460	00000001	2456		0CT	1		
04461	00000001	2457		0CT	1		
04462	0 01 00030	2458		BRU	N0SKIP		
04463	0 01 00073	2459		BRU	N0VFL0		

			PAGE		
04464	0 20 44464	2460			
04465	4 67 10002	2461	N0D4	N0P*	*
04466	74234560	2462		N0D	2,4
04467	61162701	2463		0CT	74234560
04470	32156701	2464		0CT	61162701
04471	50673404	2465		0CT	32156701
04472	77777777	2466		0CT	50673404
04473	77777775	2467		0CT	77777777
04474	00000002	2468		0CT	77777775
04475	00000002	2469		0CT	2
04476	0 01 00030	2470		0CT	2
04477	0 01 00073	2471		BRU	N0SKIP
04500	0 20 44500	2472		BRU	N0VFL0
04501	4 67 10003	2473	N0D5	N0P*	*
04502	04345670	2474		N0D	3,4
04503	21627343	2475		0CT	04345670
04504	76543201	2476		0CT	21627343
04505	72615004	2477		0CT	76543201
04506	00000001	2478		0CT	72615004
04507	77777777	2479		0CT	1
04510	00000002	2480		0CT	77777777
04511	00000002	2481		0CT	2
04512	0 01 00030	2482		0CT	2
04513	0 01 00073	2483		BRU	N0SKIP
04514	0 20 44514	2484		BRU	N0VFL0
04515	4 67 10004	2485	N0D6	N0P*	*
04516	12345670	2486		N0D	4,4
04517	24713561	2487		0CT	12345670
04520	76504321	2488		0CT	24713561
04521	75210642	2489		0CT	76504321
04522	00000002	2490		0CT	75210642
04523	00000001	2491		0CT	2
04524	00000001	2492		0CT	1
04525	00000001	2493		0CT	1
04526	0 01 00030	2494		0CT	1
04527	0 01 00073	2495		BRU	N0SKIP
		2496		BRU	N0VFL0

N0D
 SET SK AT T1 BY S(9,10,11,12,14)=0
 RF KO BC23
 1 1 0 T8
 1 1 1 T7 - TP
 SET SK AT T1 BY (A1=A2)(A2+A3)S13
 RESET S14 AT T1 BY (A1=A2)(A2+A3)S13
 SAME AS N0D4
 SET SK AT T1 BY A1+A2
 SET S14 AT T1 BY A1+A2
 AR1 AT TP BY SKS14
 SAME AS N0D4

04530	0 20 44530	2497	PAGE
04531	4 67 40113	2498	N0P*
04532	04000000	2499	LSH*
04533	20000000	2500	OCT
04534	00000000	2501	OCT
04535	00000000	2502	OCT
04536	00000002	2503	OCT
04537	00000000	2504	OCT
04540	00010005	2505	OCT
04541	00010005	2506	OCT
04542	0 01 00030	2507	OCT
04543	0 01 00073	2508	BRU
04544	0 20 44544	2509	BRU
04545	4 67 10011	2510	N0P*
04546	04000000	2511	N0D
04547	20000000	2512	OCT
04550	00000000	2513	OCT
04551	00000000	2514	OCT
04552	00000003	2515	OCT
04553	00000001	2516	OCT
04554	00000002	2517	OCT
04555	00000002	2518	OCT
04556	0 01 00030	2519	OCT
04557	0 01 00073	2520	BRU
04560	0 20 44560	2521	BRU
04561	4 67 10021	2522	N0P*
04562	04000000	2523	N0D
04563	20000000	2524	OCT
04564	00000000	2525	OCT
04565	00000000	2526	OCT
04566	00000004	2527	OCT
04567	00000002	2528	OCT
04570	00000002	2529	OCT
04571	00000002	2530	OCT
04572	0 01 00030	2531	OCT
04573	0 01 00073	2532	BRU
		2533	BRU

N0D7

N0D8

N0D9

N0D

IA

SET SK AT T1 BY (A1=A2)(A2+A3)S12

RESET S14 AT T1 BY (A1=A222)(A2+A3)S12

SAME AS N0D4

SET SK AT T1 BY (A1=A2)(A2+A3)S11

RESET S14 AT T1 BY (A1=A2)(A2+A3)S11

SAME AS N0D4

SET SK AT T1 BY (A1=A2)(A2+A3)S10

RESET S14 AT T1 BY (A1=A2)(A2+A3)S10

SAME AS N0D4

04574	0 20 44574	2534
04575	6 67 10421	2535
04576	04000000	2536
04577	20000000	2537
04600	00000000	2538
04601	00000000	2539
04602	37777420	2540
04603	37777416	2541
04604	00000002	2542
04605	00000002	2543
04606	0 01 00030	2544
04607	0 01 00073	2545
04610	0 20 44610	2546
04611	4 67 10113	2547
04612	74000000	2548
04613	40000000	2549
04614	00000000	2550
04615	00000000	2551
04616	00000000	2552
04617	77777775	2553
04620	00000003	2554
04621	00000003	2555
04622	4 01 00030	2556
04623	0 01 00100	2557
04624	0 20 44624	2558
04625	4 67 10031	2559
04626	01000000	2560
04627	20000000	2561
04630	00000000	2562
04631	00000000	2563
04632	00000000	2564
04633	77777774	2565
04634	00000004	2566
04635	00000004	2567
04636	0 01 00030	2568
04637	0 01 00073	2569
		2570

	PAGE	
N0D10	N0P*	*
	N0D	273.6
	0CT	04000000
	0CT	20000000
	0CT	0
	0CT	0
	0CT	37777420
	0CT	37777416
	0CT	2
	0CT	2
	BRU	N0SKIP
	BRU	N0VFL0
N0D11	N0P*	*
	N0D	75.4
	0CT	74000000
	0CT	40000000
	0CT	0
	0CT	0
	0CT	0
	0CT	77777775
	0CT	3
	0CT	3
	BRU	N0SKIP.4
	BRU	0VFL0
N0D12	N0P*	*
	N0D	25.4
	0CT	01000000
	0CT	20000000
	0CT	0
	0CT	0
	0CT	0
	0CT	77777774
	0CT	4
	0CT	4
	BRU	N0SKIP
	BRU	N0VFL0

N0D

INDEXING

SFT SK AT T1 BY (A1=A2)(A2+A3)S0
RFSFT S14 AT T1 BY (A1=A2)(A2+A3)S9

SAME AS N0D4

SX48 GOES AT T2 PHASE 1
SET SK, SFT S14 AT TK PHASE 3

RF K0 BC23

1 0 1 T8 PHASE 7
1 1 1 T7 - TP PHASE 7

SFT OVERFLOW

RFSFT S14, SET SK AT TR PHASE 3

RF K0 BC23

1 0 0 T8 PHASE 7
1 1 1 T7 - TP PHASE 7

04640	0 20 44610	2571
04641	4 67 10404	2572
04642	00400000	2573
04643	20000000	2574
04644	00000000	2575
04645	00000000	2576
04646	00000000	2577
04647	77777773	2578
04648	00000005	2579
04649	00000005	2580
04650	4 01 00030	2581
04651	0 01 00100	2582
04652	0 20 44654	2583
04653	4 67 10031	2584
04654	77600000	2585
04655	40000000	2586
04656	00000000	2587
04657	00000000	2588
04658	00000000	2589
04659	00000000	2590
04660	77777771	2591
04661	00000006	2592
04662	00000006	2593
04663	0 01 00030	2594
04664	0 01 00073	2595
04665	0 20 44670	2596
04666	4 67 10030	2597
04667	77700000	2598
04668	40000000	2599
04669	00000000	2600
04670	00000000	2601
04671	00000010	2602
04672	00000000	2603
04673	00000007	2604
04674	00000007	2605
04675	0 01 00030	2606
04676	0 01 00073	2607

	PAGE	
N0D13	N0P*	*
	N0D	260.4
	0CT	00400000
	0CT	20000000
	0CT	0
	0CT	0
	0CT	0
	0CT	77777773
	0CT	5
	0CT	5
	BRU	N0SKIP.4
	BRU	0VFL0
N0D14	N0P*	*
	N0D	25.4
	0CT	77600000
	0CT	40000000
	0CT	0
	0CT	0
	0CT	0
	0CT	77777771
	0CT	6
	0CT	6
	BRU	N0SKIP
	BRU	N0VFL0
N0D15	N0P*	*
	N0D	24.4
	0CT	77700000
	0CT	40000000
	0CT	0
	0CT	0
	0CT	10
	0CT	0
	0CT	7
	0CT	7
	BRU	N0SKIP
	BRU	N0VFL0

N0D

SX48 AT T2 PHASE 1
SET SK, SET S14 AT TP PHASE 3

RF K0 BC23
0 1 1 T8 PHASE 7
1 1 1 T7 - TP PHASE 7

SET OVERFLOW
OVERFLOW

SET SK, RESET S14 AT TP PHASE 3

RF K0 BC23
0 1 0 T8 PHASE 7
1 1 1 T7 - TP PHASE 7

SFT SK, SET S14 AT T8 PHASE 3
2ND CYCLE

RF K0 BC23
0 0 1 T8 PHASE 7
1 1 1 T7 - TP PHASE 7

		2608	PAGE	
04704	0 20 44704	2609	N0P*	*
04705	4 67 10057	2610	N0D	47.4
04706	77777777	2611	0CT	77777777
04707	40000000	2612	0CT	40000000
04710	77777777	2613	0CT	77777777
04711	00000000	2614	0CT	0
04712	00000000	2615	0CT	0
04713	77777721	2616	0CT	77777721
04714	00000057	2617	0CT	57
04715	00000057	2618	0CT	57
04716	0 01 00030	2619	BRU	N0SKIP
04717	0 01 00073	2620	BRU	N0VFL0
04720	0 20 44720	2621	N0P*	*
04721	4 67 10060	2622	N0D	48.4
04722	00000000	2623	0CT	0
04723	00000000	2624	0CT	0
04724	00000000	2625	0CT	0
04725	00000000	2626	0CT	0
04726	00000000	2627	0CT	0
04727	77777720	2628	0CT	77777720
04730	00000060	2629	0CT	60
04731	00000060	2630	0CT	60
04732	0 01 00030	2631	BRU	N0SKIP
04733	0 01 00073	2632	BRU	N0VFL0
04734	0 20 44734	2633	N0P*	*
04735	4 67 40113	2634	LSH*	MEM0RY.4
04736	77400000	2635	0CT	77400000
04737	40000070	2636	0CT	40000070
04740	70000000	2637	0CT	70000000
04741	00000077	2638	0CT	00000077
04742	00000000	2639	0CT	0
04743	77777772	2640	0CT	77777772
04744	00030037	2641	0CT	00030037
04745	00030037	2642	0CT	00030037
04746	0 01 00030	2643	BRU	N0SKIP
04747	0 01 00073	2644	BRU	N0VFL0

N0D

TEST ABILITY TO DECREMENT S(2-7) AND
S(9-13) PROPERLY WITH ODD NUMBER

TEST ABILITY TO DECREMENT S(22) AND
S(9-13) WITH EVEN NUMBER AND ZERO
IN A,B.

SFT A23=B0

SFT B23=A0

6 PLACES
NORMALIZE-LEFT CYCLE

		2645		PAGE		
04750	0 20 44750	2646	MUL1	NOP*	*	MUL
04751	4 64 00113	2647		MUL	MEMORY,4	
04752	74121733	2648		OCT	74121733	FOR ALL MULTIPLY CASES
04753	77652714	2649		OCT	77652714	REFER APPENDIX III C PAGE N
04754	00077707	2650		OCT	00077707	WHERE N CORRESPONDS TO THE NUMBER
04755	03224436	2651		OCT	03224436	OF THE MULTIPLY MODULE.
04756	77700070	2652		OCT	77700070	
04757	77700070	2653		OCT	77700070	
04760	01305135	2654		OCT	01305135	
04761	01305135	2655		OCT	01305135	
04762	0 01 00030	2656		BRU	NOSKIP	
04763	0 01 00073	2657		BRU	NOVLO	
04764	0 20 44764	2658	MUL2	NOP*	*	
04765	4 64 00113	2659		MUL	MEMORY,4	
04766	45666162	2660		OCT	45666162	
04767	02200343	2661		OCT	02200343	
04770	11166616	2662		OCT	11166616	
04771	65100504	2663		OCT	65100504	
04772	66611161	2664		OCT	66611161	
04773	66611161	2665		OCT	66611161	
04774	75175331	2666		OCT	75175331	
04775	75175331	2667		OCT	75175331	
04776	0 01 00030	2668		BRU	NOSKIP	
04777	0 01 00073	2669		BRU	NOVLO	
05000	0 20 45000	2670	MUL3	NOP*	*	
05001	4 64 00113	2671		MUL	MEMORY,4	
05002	76536132	2672		OCT	76536132	
05003	01225457	2673		OCT	01225457	
05004	22255525	2674		OCT	22255525	
05005	06470510	2675		OCT	06470510	
05006	55522252	2676		OCT	55522252	
05007	55522252	2677		OCT	55522252	
05010	40451332	2678		OCT	40451332	
05011	40451332	2679		OCT	40451332	
05012	0 01 00030	2680		BRU	NOSKIP	
05013	0 01 00073	2681		BRU	NOVLO	

		2682		PAGE		
05014	0 20 45014	2683	MUL4	NOP*	*	MUL
05015	4 64 00113	2684		MUL	MEMORY,4	
05016	37124376	2685		OCT	37124376	
05017	14411426	2686		OCT	14411426	
05020	33344434	2687		OCT	33344434	
05021	44633734	2688		OCT	44633734	
05022	44433343	2689		OCT	44433343	
05023	44433343	2690		OCT	44433343	
05024	14665211	2691		OCT	14665211	
05025	14665211	2692		OCT	14665211	
05026	0 01 00030	2693		BRU	NOSKIP	
05027	0 01 00073	2694		BRU	NOVFL0	
05030	0 20 45030	2695	MUL5	NOP*	*	
05031	4 64 00113	2696		MUL	MEMORY,4	
05032	55340547	2697		OCT	55340547	
05033	72505325	2698		OCT	72505325	
05034	44433343	2699		OCT	44433343	
05035	45501024	2700		OCT	45501024	
05036	33344434	2701		OCT	33344434	
05037	33344434	2702		OCT	33344434	
05040	11177146	2703		OCT	11177146	
05041	11177146	2704		OCT	11177146	
05042	4 01 00030	2705		BRU	NOSKIP,4	SFT OVERFLOW
05043	0 01 00100	2706		BRU	OVFL0	OVERFLOW
05044	0 20 45044	2707	MUL6	NOP*	*	
05045	4 64 40064	2708		MUL*	TESTM,4	IA
05046	37252204	2709		OCT	37252204	
05047	46133723	2710		OCT	46133723	
05050	22255525	2711		OCT	22255525	
05051	57100650	2712		OCT	57100650	
05052	55522252	2713		OCT	55522252	
05053	55522252	2714		OCT	55522252	
05054	45502225	2715		OCT	45502225	
05055	45502225	2716		OCT	45502225	
05056	0 01 00030	2717		BRU	NOSKIP	
05057	0 01 00073	2718		BRU	NOVFL0	

05060	0 20 45060	2719			
05061	4 64 00113	2720	MUL7	PAGE	MUL
05062	11565130	2721		NOP*	*
05063	06437742	2722		MUL	MEMORY.4
05064	11166616	2724		0CT	11565130
05065	35001420	2725		0CT	06437742
05066	66611161	2726		0CT	11166616
05067	66611161	2727		0CT	35001420
05070	25453363	2728		0CT	66611161
05071	25453363	2729		0CT	25453363
05072	0 01 00030	2730		0CT	25453363
05073	0 01 00073	2731		BRU	NOSKIP
05074	0 20 45074	2732	MUL8	BRU	NOVFL0
05075	4 64 00113	2733		NOP*	*
05076	72672751	2734		MUL	MEMORY.4
05077	04045712	2735		0CT	72672751
05100	55522252	2736		0CT	04045712
05101	32372146	2737		0CT	55522252
05102	22255525	2738		0CT	32372146
05103	22255525	2739		0CT	22255525
05104	46470673	2740		0CT	22255525
05105	46470673	2741		0CT	46470673
05106	0 01 00030	2742		0CT	46470673
05107	0 01 00073	2743		BRU	NOSKIP
05110	0 20 45110	2744	MUL9	BRU	NOVFL0
05111	6 64 00023	2745		NOP*	*
05112	51007400	2746		MUL	MEMORY-56.6
05113	10406001	2747		0CT	51007400
05114	00077707	2748		0CT	10406001
05115	20330000	2749		0CT	00077707
05116	77700070	2750		0CT	20330000
05117	77700070	2751		0CT	77700070
05120	64114650	2752		0CT	77700070
05121	64114650	2753		0CT	64114650
05122	0 01 00030	2754		0CT	64114650
05123	0 01 00073	2755		BRU	NOSKIP
				BRU	NOVFL0

INDEXING

05124	0 20 45124	2756		PAGE		
05125	4 64 00113	2757	MUL10	NOP*	*	MUL
05126	15447261	2758		MUL	MEMORY,4	
05127	13604526	2759		OCT	15447261	
05130	77700070	2760		OCT	13604526	
05131	64505442	2761		OCT	77700070	
05132	00077707	2762		OCT	64505442	
05133	00077707	2763		OCT	00077707	
05134	33556341	2764		OCT	00077707	
05135	33556341	2765		OCT	33556341	
05136	4 01 00030	2766		OCT	33556341	
05137	0 01 00100	2767		BRU	NOSKIP,4	SET OVERFLOW
05140	0 20 45140	2768		BRU	OVFL0	OVERFLOW
05141	6 64 66703	2769	MUL11	NOP*	*	
05142	03532233	2770		MUL*	TESTM-4721,6	IA AND INDEXING
05143	77163427	2771		OCT	03532233	
05144	11166616	2772		OCT	77163427	
05145	76765550	2773		OCT	11166616	
05146	66611161	2774		OCT	76765550	
05147	66611161	2775		OCT	66611161	
05150	71205134	2776		OCT	66611161	
05151	71205134	2777		OCT	71205134	
05152	0 01 00030	2778		OCT	71205134	
05153	0 01 00073	2779		BRU	NOSKIP	
05154	0 20 45154	2780		BRU	NOVFL0	
05155	4 64 00113	2781	MUL12	NOP*	*	
05156	22541417	2782		MUL	MEMORY,4	
05157	76723246	2783		OCT	22541417	
05160	22255525	2784		OCT	76723246	
05161	25616366	2785		OCT	22255525	
05162	55522252	2786		OCT	25616366	
05163	55522252	2787		OCT	55522252	
05164	76106725	2788		OCT	55522252	
05165	76106725	2789		OCT	76106725	
05166	0 01 00030	2790		OCT	76106725	
05167	0 01 00073	2791		BRU	NOSKIP	
		2792		BRU	NOVFL0	

05170	0 20 45170	2793		PAGE	
05171	4 64 00113	2794	MUL13	NOP*	*
05172	53451005	2796		MUL	MEMORY,4
05173	56603537	2797		OCT	53451005
05174	33344434	2798		OCT	56603537
05175	21726302	2799		OCT	33344434
05176	44433343	2800		OCT	21726302
05177	44433343	2801		OCT	44433343
05200	33012655	2802		OCT	44433343
05201	33012655	2803		OCT	33012655
05202	0 01 00030	2804		OCT	33012655
05203	0 01 00073	2805		BRU	NOSKIP
05204	0 20 45204	2806	MUL14	BRU	NOVFL0
05205	4 64 00113	2807		NOP*	*
05206	15101573	2808		MUL	MEMORY,4
05207	77040237	2809		OCT	15101573
05210	44433343	2810		OCT	77040237
05211	52035164	2811		OCT	44433343
05212	33344434	2812		OCT	44433343
05213	33344434	2813		OCT	52035164
05214	75556616	2814		OCT	33344434
05215	75556616	2815		OCT	33344434
05216	0 01 00030	2816		OCT	75556616
05217	0 01 00073	2817		OCT	75556616
05220	0 20 45220	2818	MUL15	BRU	NOSKIP
05221	4 64 00113	2819		BRU	NOVFL0
05222	71042702	2820		NOP*	*
05223	00066032	2821		MUL	MEMORY,4
05224	55522252	2822		OCT	71042702
05225	51624720	2823		OCT	00066032
05226	22255525	2824		OCT	55522252
05227	22255525	2825		OCT	51624720
05230	77406364	2826		OCT	22255525
05231	77406364	2827		OCT	22255525
05232	0 01 00030	2828		OCT	77406364
05233	0 01 00073	2829		BRU	77406364
				BRU	NOSKIP
				BRU	NOVFL0

MUL

		2830		PAGE		MUL
05234	0 20 45234	2831	MUL16	NOP*	*	
05235	4 64 00113	2832		MUL	MEMORY.4	
05236	17457571	2833		OCT	17457571	
05237	03223757	2834		OCT	03223757	
05240	66611161	2835		OCT	66611161	
05241	67567714	2836		OCT	67567714	
05242	11166616	2837		OCT	11166616	
05243	11166616	2838		OCT	11166616	
05244	06577626	2839		OCT	06577626	
05245	06577626	2840		OCT	06577626	
05246	0 01 00030	2841		BRU	NOSKIP	
05247	0 01 00073	2842		BRU	NOVFL0	
05250	0 20 45250	2843	MUL17	NOP*	*	
05251	4 64 00113	2844		MUL	MEMORY.4	
05252	53075604	2845		OCT	53075604	
05253	57066216	2846		OCT	57066216	
05254	77700070	2847		OCT	77700070	
05255	56071300	2848		OCT	56071300	
05256	00077707	2849		OCT	00077707	
05257	00077707	2850		OCT	00077707	
05260	31710530	2851		OCT	31710530	
05261	31710530	2852		OCT	31710530	
05262	0 01 00030	2853		BRU	NOSKIP	
05263	0 01 00073	2854		BRU	NOVFL0	
05264	0 20 45264	2855	MUL18	NOP*	*	
05265	4 64 00113	2856		MUL	MEMORY.4	
05266	55617111	2857		OCT	55617111	
05267	12145626	2858		OCT	12145626	
05270	00077707	2859		OCT	00077707	
05271	04303070	2860		OCT	04303070	
05272	77700070	2861		OCT	77700070	
05273	77700070	2862		OCT	77700070	
05274	56055074	2863		OCT	56055074	
05275	56055074	2864		OCT	56055074	
05276	0 01 00030	2865		BRU	NOSKIP	
05277	0 01 00073	2866		BRU	NOVFL0	

		2867		PAGE		
05300	0 20 45300	2868	MUL19	NOP*	*	MUL
05301	4 64 00113	2869		MUL	MEMORY,4	
05302	72447427	2870		OCT	72447427	
05303	76276151	2871		OCT	76276151	
05304	11166616	2872		OCT	11166616	
05305	24566024	2873		OCT	24566024	
05306	66611161	2874		OCT	66611161	
05307	66611161	2875		OCT	66611161	
05310	11470206	2876		OCT	11470206	
05311	11470206	2877		OCT	11470206	
05312	0 01 00030	2878		BRU	NOSKIP	
05313	0 01 00073	2879		BRU	NOVFL0	
05314	0 20 45314	2880	MUL20	NOP*	*	
05315	4 64 00113	2881		MUL	MEMORY,4	
05316	36427241	2882		OCT	36427241	
05317	71173165	2883		OCT	71173165	
05320	22255525	2884		OCT	22255525	
05321	72126104	2885		OCT	72126104	
05322	55522252	2886		OCT	55522252	
05323	55522252	2887		OCT	55522252	
05324	70726342	2888		OCT	70726342	
05325	70726342	2889		OCT	70726342	
05326	0 01 00030	2890		BRU	NOSKIP	
05327	0 01 00073	2891		BRU	NOVFL0	
05330	0 20 45330	2892	MUL21	NOP*	*	
05331	4 64 00113	2893		MUL	MEMORY,4	
05332	10150477	2894		OCT	10150477	
05333	77004325	2895		OCT	77004325	
05334	33344434	2896		OCT	33344434	
05335	77001212	2897		OCT	77001212	
05336	44433343	2898		OCT	44433343	
05337	44433343	2899		OCT	44433343	
05340	74104173	2900		OCT	74104173	
05341	74104173	2901		OCT	74104173	
05342	0 01 00030	2902		BRU	NOSKIP	
05343	0 01 00073	2903		BRU	NOVFL0	

		2904		PAGE	
05344	0 20 45344	2905	MUL22	NOP*	*
05345	4 64 00113	2906		MUL	MEMORY.4
05346	61010463	2907		OCT	61010463
05347	65577047	2908		OCT	65577047
05350	44433343	2909		OCT	44433343
05351	53467714	2910		OCT	53467714
05352	33344434	2911		OCT	33344434
05353	33344434	2912		OCT	33344434
05354	25712202	2913		OCT	25712202
05355	25712202	2914		OCT	25712202
05356	0 01 00030	2915		BRU	NOSKIP
05357	0 01 00073	2916		BRU	NOVFL0
05360	0 20 45360	2917	MUL23	NOP*	*
05361	4 64 00113	2918		MUL	MEMORY.4
05362	62111173	2919		OCT	62111173
05363	15523762	2920		OCT	15523762
05364	55522252	2921		OCT	55522252
05365	54111166	2922		OCT	54111166
05366	22255525	2923		OCT	22255525
05367	22255525	2924		OCT	22255525
05370	40344101	2925		OCT	40344101
05371	40344101	2926		OCT	40344101
05372	0 01 00030	2927		BRU	NOSKIP
05373	0 01 00073	2928		BRU	NOVFL0
05374	0 20 45374	2929	MUL24	NOP*	*
05375	4 64 00113	2930		MUL	MEMORY.4
05376	65503143	2931		OCT	65503143
05377	67201543	2932		OCT	67201543
05400	66611161	2933		OCT	66611161
05401	12433276	2934		OCT	12433276
05402	11166616	2935		OCT	11166616
05403	11166616	2936		OCT	11166616
05404	32774725	2937		OCT	32774725
05405	32774725	2938		OCT	32774725
05406	0 01 00030	2939		BRU	NOSKIP
05407	0 01 00073	2940		BRU	NOVFL0

05410	0 20 45410	2941		PAGE	
05411	4 64 00113	2942	MUL25	NOP*	*
05412	57411100	2943		MUL	MEMORY,4
05413	16425421	2944		0CT	57411100
05414	77700070	2945		0CT	16425421
05415	75165600	2946		0CT	77700070
05416	00077707	2947		0CT	75165600
05417	00077707	2948		0CT	00077707
05420	43610437	2949		0CT	00077707
05421	43610437	2950		0CT	43610437
05422	0 01 00030	2951		0CT	43610437
05423	0 01 00073	2952		BRU	NOSKIP
05424	0 20 45424	2953		BRU	NAVFL0
05425	4 64 00113	2954	MUL26	NOP*	*
05426	15051535	2955		MUL	MEMORY,4
05427	00764773	2956		0CT	15051535
05430	00077707	2957		0CT	00764773
05431	16360132	2958		0CT	00077707
05432	77700070	2959		0CT	16360132
05433	77700070	2960		0CT	77700070
05434	02311421	2961		0CT	77700070
05435	02311421	2962		0CT	02311421
05436	0 01 00030	2963		0CT	02311421
05437	0 01 00073	2964		BRU	NOSKIP
05440	0 20 45440	2965		BRU	NAVFL0
05441	4 64 00113	2966	MUL27	NOP*	*
05442	57330170	2967		MUL	MEMORY,4
05443	17312204	2968		0CT	57330170
05444	11166616	2969		0CT	17312204
05445	00443740	2970		0CT	11166616
05446	66611161	2971		0CT	00443740
05447	66611161	2972		0CT	66611161
05450	42220642	2973		0CT	66611161
05451	42220642	2974		0CT	42220642
05452	0 01 00030	2975		0CT	42220642
05453	0 01 00073	2976		BRU	NOSKIP
		2977		BRU	NAVFL0

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		2978		PAGE	
05454	0 20 45454	2979	MUL28	NOP*	*
05455	4 64 00113	2980		MUL	MEMORY.4
05456	03005166	2981		OCT	03005166
05457	00355615	2982		OCT	00355615
05460	22255525	2983		OCT	22255525
05461	23630064	2984		OCT	23630064
05462	55522252	2985		OCT	55522252
05463	55522252	2986		OCT	55522252
05464	04737527	2987		OCT	04737527
05465	04737527	2988		OCT	04737527
05466	0 01 00030	2989		BRU	NOSKIP
05467	0 01 00073	2990		BRU	NOVFL0
05470	0 20 45470	2991	MUL29	NOP*	*
05471	4 64 00113	2992		MUL	MEMORY.4
05472	62761652	2993		OCT	62761652
05473	67532402	2994		OCT	67532402
05474	33344434	2995		OCT	33344434
05475	10014460	2996		OCT	10014460
05476	44433343	2997		OCT	44433343
05477	44433343	2998		OCT	44433343
05500	24343434	2999		OCT	24343434
05501	24343434	3000		OCT	24343434
05502	0 01 00030	3001		BRU	NOSKIP
05503	0 01 00073	3002		BRU	NOVFL0
05504	0 20 45504	3003	MUL30	NOP*	*
05505	4 64 00113	3004		MUL	MEMORY.4
05506	32527245	3005		OCT	32527245
05507	06745073	3006		OCT	06745073
05510	44433343	3007		OCT	44433343
05511	46420734	3008		OCT	46420734
05512	33344434	3009		OCT	33344434
05513	33344434	3010		OCT	33344434
05514	10253726	3011		OCT	10253726
05515	10253726	3012		OCT	10253726
05516	0 01 00030	3013		BRU	NOSKIP
05517	0 01 00073	3014		BRU	NOVFL0

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05520	0 20 45520	3015		
05521	4 64 00113	3016	MUL31	NOP*
05522	01242560	3017		MUL MEMORY,4
05523	77401510	3018		OCT 01242560
05524	55522252	3019		OCT 77401510
05525	42064640	3020		OCT 55522252
05526	22255525	3021		OCT 42064640
05527	22255525	3022		OCT 22255525
05530	63737373	3023		OCT 22255525
05531	63737373	3024		OCT 63737373
05532	0 01 00030	3025		OCT 63737373
05533	0 01 00073	3026		BRU NOSKIP
05534	0 20 45534	3027		BRU NOVFL0
05535	4 64 00113	3028	MUL32	NOP*
05536	76310175	3029		MUL MEMORY,4
05537	00361521	3030		OCT 76310175
05540	66611161	3031		OCT 00361521
05541	66277232	3032		OCT 66611161
05542	11166616	3033		OCT 66277232
05543	11166616	3034		OCT 11166616
05544	66471421	3035		OCT 11166616
05545	66471421	3036		OCT 66471421
05546	0 01 00030	3037		OCT 66471421
05547	0 01 00073	3038		BRU NOSKIP
05550	0 20 45550	3039		BRU NOVFL0
05551	4 64 00113	3040	MUL33	NOP*
05552	32300533	3041		MUL MEMORY,4
05553	06361472	3042		OCT 32300533
05554	77700070	3043		OCT 06361472
05555	36302432	3044		OCT 77700070
05556	00077707	3045		OCT 36302432
05557	00077707	3046		OCT 00077707
05560	07664067	3047		OCT 00077707
05561	07664067	3048		OCT 07664067
05562	0 01 00030	3049		OCT 07664067
05563	0 01 00073	3050		BRU NOSKIP
		3051		BRU NOVFL0

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05564	0 20 45564	3052		
05565	4 64 00113	3053	MUL34	NOP*
05566	23402515	3054		MUL
05567	63723734	3055		OCT
05570	00077707	3056		OCT
05571	26006610	3057		OCT
05572	77700070	3058		OCT
05573	77700070	3059		OCT
05574	54127724	3060		OCT
05575	54127724	3061		OCT
05576	0 01 00030	3062		OCT
05577	0 01 00073	3063		BRU
05600	0 20 45600	3064		BRU
05601	4 64 00113	3065	MUL35	NOP*
05602	62360411	3066		MUL
05603	10550561	3067		OCT
05604	11166616	3068		OCT
05605	33016416	3069		OCT
05606	66611161	3070		OCT
05607	66611161	3071		OCT
05610	53323417	3072		OCT
05611	53323417	3073		OCT
05612	0 01 00030	3074		OCT
05613	0 01 00073	3075		BRU
05614	0 20 45614	3076		BRU
05615	4 64 00113	3077	MUL36	NOP*
05616	44436405	3078		MUL
05617	30536721	3079		OCT
05620	22255525	3080		OCT
05621	76064526	3081		OCT
05622	55522252	3082		OCT
05623	55522252	3083		OCT
05624	43154757	3084		OCT
05625	43154757	3085		OCT
05626	0 01 00030	3086		OCT
05627	0 01 00073	3087		BRU
		3088		BRU

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05630	0 20 45630	3089		
05631	4 64 00113	3090	MUL37	NOP*
05632	12254114	3091		MUL MEMORY,4
05633	06521556	3092		OCT 12254114
05634	33344434	3093		OCT 06521556
05635	21500510	3094		OCT 33344434
05636	44433343	3095		OCT 21500510
05637	44433343	3096		OCT 44433343
05640	24474123	3097		OCT 44433343
05641	24474123	3098		OCT 24474123
05642	0 01 00030	3099		OCT 24474123
05643	0 01 00073	3100		BRU NOSKIP
05644	0 20 45644	3101		BRU NOVFL0
05645	4 64 00113	3102	MUL38	NOP*
05646	10310731	3103		MUL MEMORY,4
05647	07204746	3104		OCT 10310731
05650	44433343	3105		OCT 07204746
05651	64342230	3106		OCT 44433343
05652	33344434	3107		OCT 64342230
05653	33344434	3108		OCT 33344434
05654	33534454	3109		OCT 33344434
05655	33534454	3110		OCT 33534454
05656	0 01 00030	3111		OCT 33534454
05657	0 01 00073	3112		BRU NOSKIP
05660	0 20 45660	3113		BRU NOVFL0
05661	4 64 00113	3114	MUL39	NOP*
05662	16516613	3115		MUL MEMORY,4
05663	05043667	3116		OCT 16516613
05664	55522252	3117		OCT 05043667
05665	76312562	3118		OCT 55522252
05666	22255525	3119		OCT 76312562
05667	22255525	3120		OCT 22255525
05670	13044513	3121		OCT 22255525
05671	13044513	3122		OCT 13044513
05672	0 01 00030	3123		OCT 13044513
05673	0 01 00073	3124		BRU NOSKIP
		3125		BRU NOVFL0

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		3126		PAGE	MUL
05674	0 20 45674	3127	MUL40	NOP*	*
05675	4 64 00113	3128		MUL	MEMORY,4
05676	03573443	3129		OCT	3573443
05677	02073303	3130		OCT	02073303
05700	00000000	3131		OCT	0
05701	11151642	3132		OCT	11151642
05702	77777777	3133		OCT	77777777
05703	77777777	3134		OCT	77777777
05704	22062173	3135		OCT	22062173
05705	22062173	3136		OCT	22062173
05706	0 01 00030	3137		BRU	NOSKIP
05707	0 01 00073	3138		BRU	NOVFL0
05710	0 20 45710	3139	MUL41	NOP*	*
05711	4 64 00113	3140		MUL	MEMORY,4
05712	34330013	3141		OCT	34330013
05713	77116344	3142		OCT	77116344
05714	11111111	3143		OCT	11111111
05715	30635022	3144		OCT	30635022
05716	66666666	3145		OCT	66666666
05717	66666666	3146		OCT	66666666
05720	77027673	3147		OCT	77027673
05721	77027673	3148		OCT	77027673
05722	0 01 00030	3149		BRU	NOSKIP
05723	0 01 00073	3150		BRU	NOVFL0
05724	0 20 45724	3151	MUL42	NOP*	*
05725	4 64 00113	3152		MUL	MEMORY,4
05726	15470352	3153		OCT	15470352
05727	02675464	3154		OCT	02675464
05730	22222222	3155		OCT	22222222
05731	65657500	3156		OCT	65657500
05732	55555555	3157		OCT	55555555
05733	55555555	3158		OCT	55555555
05734	06577220	3159		OCT	06577220
05735	06577220	3160		OCT	06577220
05736	0 01 00030	3161		BRU	NOSKIP
05737	0 01 00073	3162		BRU	NOVFL0

05740	0 20 45740	3163		PAGE		MUL
05741	4 64 00113	3164	MUL43	NOP*	*	
05742	47453333	3165		MUL	MEMORY,4	
05743	03303112	3166		OCT	47453333	
05744	33333333	3167		OCT	03303112	
05745	44670636	3168		OCT	33333333	
05746	44444444	3169		OCT	44670636	
05747	44444444	3170		OCT	44444444	
05750	73443035	3171		OCT	44444444	
05751	73443035	3172		OCT	73443035	
05752	0 01 00030	3173		OCT	73443035	
05753	0 01 00073	3174		BRU	NOSKIP	
05754	0 20 45754	3175		BRU	NOVFL0	
05755	4 64 00113	3176	MUL44	NOP*	*	
05756	32432635	3177		MUL	MEMORY,4	
05757	05536742	3178		OCT	32432635	
05760	44444444	3179		OCT	05536742	
05761	02312574	3180		OCT	44444444	
05762	33333333	3181		OCT	02312574	
05763	33333333	3182		OCT	33333333	
05764	06664126	3183		OCT	33333333	
05765	06664126	3184		OCT	06664126	
05766	0 01 00030	3185		OCT	06664126	
05767	0 01 00073	3186		BRU	NOSKIP	
05770	0 20 45770	3187		BRU	NOVFL0	
05771	4 64 00113	3188	MUL45	NOP*	*	
05772	30556344	3189		MUL	MEMORY,4	
05773	07221555	3190		OCT	30556344	
05774	55555555	3191		OCT	07221555	
05775	20577040	3192		OCT	55555555	
05776	22222222	3193		OCT	20577040	
05777	22222222	3194		OCT	22222222	
06000	11334744	3195		OCT	22222222	
06001	11334744	3196		OCT	11334744	
06002	0 01 00030	3197		OCT	11334744	
06003	0 01 00073	3198		BRU	NOSKIP	
		3199		BRU	NOVFL0	

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06004	0 20 46004	3200			
06005	4 64 00113	3201	MUL46	NOP*	*
06006	11430455	3202		MUL	MEMORY,4
06007	04002564	3203		OCT	11430455
06010	66666666	3204		OCT	04002564
06011	42550272	3205		OCT	66666666
06012	11111111	3206		OCT	42550272
06013	11111111	3207		OCT	11111111
06014	15330761	3208		OCT	11111111
06015	15330761	3209		OCT	15330761
06016	0 01 00030	3210		OCT	15330761
06017	0 01 00073	3211		BRU	NOSKIP
06020	0 20 46020	3212		BRU	NOVFL0
06021	4 64 00113	3213	MUL47	NOP*	*
06022	75513000	3214		MUL	MEMORY,4
06023	00006074	3215		OCT	75513000
06024	77777777	3216		OCT	00006074
06025	35126000	3217		OCT	77777777
06026	00000000	3218		OCT	35126000
06027	00000000	3219		OCT	0
06030	77654641	3220		OCT	0
06031	77654641	3221		OCT	77654641
06032	0 01 00030	3222		OCT	77654641
06033	0 01 00073	3223		BRU	NOSKIP
06034	0 20 46034	3224		BRU	NOVFL0
06035	4 64 00113	3225	MUL48	NOP*	*
06036	06431271	3226		MUL	MEMORY,4
06037	00404502	3227		OCT	06431271
06040	01234567	3228		OCT	00404502
06041	17747764	3229		OCT	01234567
06042	76543210	3230		OCT	17747764
06043	76543210	3231		OCT	76543210
06044	02371312	3232		OCT	76543210
06045	02371312	3233		OCT	02371312
06046	0 01 00030	3234		OCT	02371312
06047	0 01 00073	3235		BRU	NOSKIP
		3236		BRU	NOVFL0

		3237		PAGE		MUL
06050	0 20 46050	3238	MUL49	NOP*	*	
06051	4 64 00113	3239		MUL	MEMORY.4	
06052	33330610	3240		OCT	33330610	
06053	02216520	3241		OCT	02216520	
06054	76543210	3242		OCT	76543210	
06055	77651600	3243		OCT	77651600	
06056	01234567	3244		OCT	01234567	
06057	01234567	3245		OCT	01234567	
06060	02521270	3246		OCT	02521270	
06061	02521270	3247		OCT	02521270	
06062	0 01 00030	3248		BRU	NOSKIP	
06063	0 01 00073	3249		BRU	NOVFL0	
06064	0 20 46064	3250	MUL50	NOP*	*	
06065	4 64 00113	3251		MUL	MEMORY.4	
06066	62512352	3252		OCT	62512352	
06067	74002276	3253		OCT	74002276	
06070	77777777	3254		OCT	77777777	
06071	11743170	3255		OCT	11743170	
06072	00000000	3256		OCT	0	
06073	00000000	3257		OCT	0	
06074	11445546	3258		OCT	11445546	
06075	11445546	3259		OCT	11445546	
06076	0 01 00030	3260		BRU	NOSKIP	
06077	0 01 00073	3261		BRU	NOVFL0	
06100	0 20 46100	3262	MUL51	NOP*	*	
06101	4 64 00113	3263		MUL	MEMORY.4	
06102	40000000	3264		OCT	40000000	
06103	40000000	3265		OCT	40000000	
06104	00000000	3266		OCT	0	
06105	00000000	3267		OCT	0	
06106	77777777	3268		OCT	77777777	
06107	77777777	3269		OCT	77777777	
06110	40000000	3270		OCT	40000000	
06111	40000000	3271		OCT	40000000	
06112	0 01 00030	3272		BRU	NOSKIP	
06113	0 01 00100	3273		BRU	OVFL0	OVERFLOW

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06114	0 20 46114	3274			DIV
06115	4 65 00113	3275	DIV1	NBP*	*
06116	37777777	3276		DIV	MEMORY.4
06117	40000000	3277		OCT	37777777
06120	00000000	3278		OCT	40000000
06121	00000000	3279		OCT	0
06122	77700070	3280		OCT	0
06123	77700070	3281		OCT	77700070
06124	37777777	3282		OCT	77700070
06125	37777777	3283		OCT	37777777
06126	0 01 00030	3284		OCT	37777777
06127	0 01 00100	3285		BRU	NOSKIP
06130	0 20 46130	3286		BRU	OVFL0
06131	4 65 00113	3287	DIV2	NBP*	OVERFLOW
06132	37777777	3288		DIV	MEMORY.4
06133	40000000	3289		OCT	37777777
06134	00000002	3290		OCT	40000000
06135	00000001	3291		OCT	2
06136	66611161	3292		OCT	1
06137	66611161	3293		OCT	66611161
06140	37777777	3294		OCT	66611161
06141	37777777	3295		OCT	37777777
06142	0 01 00030	3296		OCT	37777777
06143	0 01 00100	3297		BRU	NOSKIP
06144	0 20 46144	3298		BRU	OVFL0
06145	4 65 00113	3299	DIV3	NBP*	OVERFLOW
06146	37777777	3300		DIV	MEMORY.4
06147	40000000	3301		OCT	37777777
06150	00000000	3302		OCT	40000000
06151	00000000	3303		OCT	0
06152	55522252	3304		OCT	0
06153	55522252	3305		OCT	55522252
06154	40000001	3306		OCT	55522252
06155	40000001	3307		OCT	40000001
06156	0 01 00030	3308		OCT	40000001
06157	0 01 00073	3309		BRU	NOSKIP
		3310		BRU	NOVFL0

06160	0 20 46160	3311		PAGE		
06161	4 65 00113	3312	DIV4	NOP*	*	DIV
06162	37777777	3313		DIV	MEMORY.4	
06163	40000000	3314		OCT	37777777	
06164	00000002	3315		OCT	40000000	
06165	00000001	3316		OCT	2	
06166	44433343	3317		OCT	1	
06167	44433343	3318		OCT	44433343	
06170	40000001	3319		OCT	44433343	
06171	40000001	3320		OCT	40000001	
06172	0 01 00030	3321		OCT	40000001	
06173	0 01 00100	3322		BRU	NOSKIP	
06174	0 20 46174	3323		BRU	OVFL0	OVERFLOW
06175	4 65 00113	3324	DIV5	NOP*	*	
06176	40000000	3325		DIV	MEMORY.4	
06177	37777777	3326		OCT	40000000	
06200	00000002	3327		OCT	37777777	
06201	00000000	3328		OCT	2	
06202	52222222	3329		OCT	0	
06203	52222222	3330		OCT	52222222	
06204	37777777	3331		OCT	52222222	
06205	37777777	3332		OCT	37777777	
06206	0 01 00030	3333		OCT	37777777	
06207	0 01 00100	3334		BRU	NOSKIP	
06210	0 20 46210	3335		BRU	OVFL0	OVERFLOW
06211	4 65 00113	3336	DIV6	NOP*	*	
06212	40000000	3337		DIV	MEMORY.4	
06213	40000001	3338		OCT	40000000	
06214	00000002	3339		OCT	40000001	
06215	00000000	3340		OCT	2	
06216	33344434	3341		OCT	0	
06217	33344434	3342		OCT	33344434	
06220	40000001	3343		OCT	33344434	
06221	40000001	3344		OCT	40000001	
06222	0 01 00030	3345		OCT	40000001	
06223	0 01 00100	3346		BRU	NOSKIP	
		3347		BRU	OVFL0	OVERFLOW

		3348		PAGE		
06224	0 20 46224	3349	DIV7	NOP*	*	DIV
06225	4 65 00113	3350		DIV	MEMORY,4	
06226	40000000	3351		OCT	40000000	
06227	40000001	3352		OCT	40000001	
06230	00000000	3353		OCT	0	
06231	00000000	3354		OCT	0	
06232	22255525	3355		OCT	22255525	
06233	22255525	3356		OCT	22255525	
06234	00000000	3357		OCT	0	
06235	00000000	3358		OCT	0	
06236	0 01 00030	3359		BRU	NOSKIP	
06237	0 01 00100	3360		BRU	OVFL0	OVERFLOW
06240	0 20 46240	3361	DIV8	NOP*	*	
06241	4 65 00113	3362		DIV	MEMORY,4	
06242	37777776	3363		OCT	37777776	
06243	37777777	3364		OCT	37777777	
06244	00000002	3365		OCT	2	
06245	00000000	3366		OCT	0	
06246	11166616	3367		OCT	11166616	
06247	11166616	3368		OCT	11166616	
06250	37777777	3369		OCT	37777777	
06251	37777777	3370		OCT	37777777	
06252	0 01 00030	3371		BRU	NOSKIP	
06253	0 01 00073	3372		BRU	NOVFL0	
06254	0 20 46254	3373	DIV9	NOP*	*	
06255	4 65 00113	3374		DIV	MEMORY,4	
06256	37777777	3375		OCT	37777777	
06257	40000001	3376		OCT	40000001	
06260	00000002	3377		OCT	2	
06261	00000001	3378		OCT	1	
06262	00077707	3379		OCT	00077707	
06263	00077707	3380		OCT	00077707	
06264	40000000	3381		OCT	40000000	
06265	40000000	3382		OCT	40000000	
06266	0 01 00030	3383		BRU	NOSKIP	
06267	0 01 00073	3384		BRU	NOVFL0	

		3385		PAGE		
06270	0 20 46270	3386	DIV10	NOP*	*	DIV
06271	4 65 00113	3387		DIV	MEMORY.4	
06272	40000001	3388		OCT	40000001	
06273	40000001	3389		OCT	40000001	
06274	00000002	3390		OCT	2	
06275	40000002	3391		OCT	40000002	
06276	00000000	3392		OCT	0	
06277	00000000	3393		OCT	0	
06300	37777777	3394		OCT	37777777	
06301	37777777	3395		OCT	37777777	
06302	0 01 00030	3396		BRU	NOSKIP	
06303	0 01 00073	3397		BRU	NOVFL0	
06304	0 20 46304	3398	DIV11	NOP*	*	
06305	4 65 00113	3399		DIV	MEMORY.4	
06306	40000001	3400		OCT	40000001	
06307	37777777	3401		OCT	37777777	
06310	00000002	3402		OCT	2	
06311	40000002	3403		OCT	40000002	
06312	77777777	3404		OCT	77777777	
06313	77777777	3405		OCT	77777777	
06314	40000001	3406		OCT	40000001	
06315	40000001	3407		OCT	40000001	
06316	0 01 00030	3408		BRU	NOSKIP	
06317	0 01 00073	3409		BRU	NOVFL0	
06320	0 20 46320	3410	DIV12	NOP*	*	
06321	4 65 40064	3411		DIV*	TESTM.4	IA
06322	40000001	3412		OCT	40000001	
06323	40000000	3413		OCT	40000000	
06324	00000000	3414		OCT	0	
06325	00000000	3415		OCT	0	
06326	01234567	3416		OCT	01234567	
06327	01234567	3417		OCT	01234567	
06330	37777777	3418		OCT	37777777	
06331	37777777	3419		OCT	37777777	
06332	0 01 00030	3420		BRU	NOSKIP	
06333	0 01 00073	3421		BRU	NOVFL0	

		3422		PAGE			
06334	0 20 46334	3423	DIV13	NOP*	*		DIV
06335	6 65 00114	3424		DIV	MEMORY-16383.6		INDEXING
06336	40000001	3425		OCT	40000001		
06337	40000000	3426		OCT	40000000		
06340	00000000	3427		OCT	0		
06341	00000000	3428		OCT	0		
06342	77777777	3429		OCT	77777777		
06343	77777777	3430		OCT	77777777		
06344	40000001	3431		OCT	40000001		
06345	40000001	3432		OCT	40000001		
06346	0 01 00030	3433		BRU	NOSKIP		
06347	0 01 00100	3434		BRU	OVFLO		OVERFLOW
06350	0 20 46350	3435	DIV14	NOP*	*		
06351	6 65 60065	3436		DIV*	TESTM-8191.6		
06352	40000000	3437		OCT	40000000		
06353	37777777	3438		OCT	37777777		
06354	00000001	3439		OCT	1		
06355	77777777	3440		OCT	77777777		
06356	77757777	3441		OCT	77757777		
06357	77757777	3442		OCT	77757777		
06360	37777777	3443		OCT	37777777		
06361	37777777	3444		OCT	37777777		
06362	0 01 00030	3445		BRU	NOSKIP		
06363	0 01 00100	3446		BRU	OVFLO		OVERFLOW
06364	0 20 46364	3447	DIV15	NOP*	*		
06365	4 65 00113	3448		DIV	MEMORY.4		
06366	37777771	3449		OCT	37777771		
06367	37777777	3450		OCT	37777777		
06370	00000000	3451		OCT	0		
06371	00000010	3452		OCT	10		
06372	56673214	3453		OCT	56673214		
06373	56673214	3454		OCT	56673214		
06374	40000010	3455		OCT	40000010		
06375	40000010	3456		OCT	40000010		
06376	0 01 00030	3457		BRU	NOSKIP		
06377	0 01 00100	3458		BRU	OVFLO		OVERFLOW

06400	0 20 46400	3459		PAGE		
06401	4 65 80113	3460	DIV16	NOP*	*	DIV
06402	37777720	3461		DIV	MEMORY,4	
06403	37777760	3462		0CT	37777720	
06404	00000000	3463		0CT	37777760	
06405	00002000	3464		0CT	0	
06406	75321700	3465		0CT	2000	
06407	75321700	3466		0CT	75321700	
06410	40000100	3467		0CT	75321700	
06411	40000100	3468		0CT	40000100	
06412	0 01 00030	3469		0CT	40000100	
06413	0 01 00100	3470		BRU	NOSKIP	
06414	0 20 46414	3471		BRU	0VFL0	OVERFLOW
06415	4 65 00113	3472	DIV17	NOP*	*	
06416	37777400	3473		DIV	MEMORY,4	
06417	37777400	3474		0CT	37777400	
06420	00000000	3475		0CT	37777400	
06421	00400000	3476		0CT	0	
06422	61111111	3477		0CT	400000	
06423	61111111	3478		0CT	61111111	
06424	40001000	3479		0CT	61111111	
06425	40001000	3480		0CT	40001000	
06426	0 01 00030	3481		0CT	40001000	
06427	0 01 00100	3482		BRU	NOSKIP	
06430	0 20 46430	3483		BRU	0VFL0	OVERFLOW
06431	4 65 00113	3484	DIV18	NOP*	*	
06432	37777777	3485		DIV	MEMORY,4	
06433	40000000	3486		0CT	37777777	
06434	00000001	3487		0CT	40000000	
06435	00000000	3488		0CT	1	
06436	70000000	3489		0CT	0	
06437	70000000	3490		0CT	70000000	
06440	40000001	3491		0CT	70000000	
06441	40000001	3492		0CT	40000001	
06442	0 01 00030	3493		0CT	40000001	
06443	0 01 00100	3494		BRU	NOSKIP	
		3495		BRU	0VFL0	OVERFLOW

06444	0 20 46444	3496
06445	4 65 00113	3497
06446	37777777	3498
06447	40000000	3499
06450	00000004	3500
06451	00000002	3501
06452	77777770	3502
06453	77777770	3503
06454	40000001	3504
06455	40000001	3505
06456	0 01 00030	3506
06457	0 01 00100	3507
06460	0 20 46460	3508
06461	4 65 00113	3509
06462	17777777	3510
06463	40000002	3511
06464	00000002	3512
06465	00000001	3513
06466	66666661	3514
06467	66666661	3515
06470	60000000	3516
06471	60000000	3517
06472	0 01 00030	3518
06473	0 01 00073	3519
06474	0 20 46474	3520
06475	4 65 00113	3521
06476	60000001	3522
06477	37777776	3523
06500	00000000	3524
06501	00000000	3525
06502	55555552	3526
06503	55555552	3527
06504	60000000	3528
06505	60000000	3529
06506	0 01 00030	3530
06507	0 01 00073	3531
		3532

	PAGE	
DIV19	NOP*	*
	DIV	MEMORY,4
	OCT	37777777
	OCT	40000000
	OCT	4
	OCT	2
	OCT	77777770
	OCT	77777770
	OCT	40000001
	OCT	40000001
	BRU	NOSKIP
	BRU	OVFL0
DIV20	NOP*	*
	DIV	MEMORY,4
	OCT	17777777
	OCT	40000002
	OCT	2
	OCT	1
	OCT	66666661
	OCT	66666661
	OCT	60000000
	OCT	60000000
	BRU	NOSKIP
	BRU	NOVFL0
DIV21	NOP*	*
	DIV	MEMORY,4
	OCT	60000001
	OCT	37777776
	OCT	0
	OCT	0
	OCT	55555552
	OCT	55555552
	OCT	60000000
	OCT	60000000
	BRU	NOSKIP
	BRU	NOVFL0

DIV

OVERFLOW

			PAGE	DIV
06510	0 20 46510	3533		
06511	4 65 00113	3534	DIV22 NOP*	
06512	60000002	3535	DIV	MEMORY.4
06513	37777774	3536	OCT	60000002
06514	00000000	3537	OCT	37777774
06515	00000000	3538	OCT	0
06516	44444443	3539	OCT	0
06517	44444443	3540	OCT	44444443
06520	60000000	3541	OCT	44444443
06521	60000000	3542	OCT	60000000
06522	0 01 00030	3543	OCT	60000000
06523	0 01 00073	3544	BRU	NOSKIP
06524	0 20 46524	3545	BRU	NOVFL0
06525	4 65 00113	3546	DIV23 NOP*	
06526	60000004	3547	DIV	MEMORY.4
06527	37777770	3548	OCT	60000004
06530	00000000	3549	OCT	37777770
06531	00000000	3550	OCT	0
06532	33333334	3551	OCT	0
06533	33333334	3552	OCT	33333334
06534	60000000	3553	OCT	33333334
06535	60000000	3554	OCT	60000000
06536	0 01 00030	3555	OCT	60000000
06537	0 01 00073	3556	BRU	NOSKIP
06540	0 20 46540	3557	BRU	NOVFL0
06541	4 65 00113	3558	DIV24 NOP*	
06542	60000010	3559	DIV	MEMORY.4
06543	37777760	3560	OCT	60000010
06544	00000000	3561	OCT	37777760
06545	00000000	3562	OCT	0
06546	22222225	3563	OCT	0
06547	22222225	3564	OCT	22222225
06550	60000000	3565	OCT	22222225
06551	60000000	3566	OCT	60000000
06552	0 01 00030	3567	OCT	60000000
06553	0 01 00073	3568	BRU	NOSKIP
		3569	BRU	NOVFL0

Address	Hex	Dec	Op	Op	Op
06554	0 20 46554	3570	PAGE		DIV
06555	4 65 00113	3571	DIV25	NOP*	*
06556	60000020	3572		DIV	MEMORY,4
06557	37777740	3573		0CT	60000020
06560	00000000	3574		0CT	37777740
06561	00000000	3575		0CT	0
06562	11111116	3576		0CT	0
06563	11111116	3577		0CT	11111116
06564	60000000	3578		0CT	11111116
06565	60000000	3579		0CT	60000000
06566	0 01 00030	3580		0CT	60000000
06567	0 01 00073	3581		BRU	NOSKIP
06570	0 20 46570	3582		BRU	NOVFL0
06571	4 65 00113	3583	DIV26	NOP*	*
06572	60000040	3584		DIV	MEMORY,4
06573	37777700	3585		0CT	60000040
06574	00000000	3586		0CT	37777700
06575	00000000	3587		0CT	0
06576	00000007	3588		0CT	0
06577	00000007	3589		0CT	7
06600	60000000	3590		0CT	7
06601	60000000	3591		0CT	60000000
06602	0 01 00030	3592		0CT	60000000
06603	0 01 00073	3593		BRU	NOSKIP
06604	0 20 46604	3594		BRU	NOVFL0
06605	4 65 00113	3595	DIV27	NOP*	*
06606	60000100	3596		DIV	MEMORY,4
06607	37777600	3597		0CT	60000100
06610	00000000	3598		0CT	37777600
06611	00000000	3599		0CT	0
06612	77777707	3600		0CT	0
06613	77777707	3601		0CT	77777707
06614	60000000	3602		0CT	77777707
06615	60000000	3603		0CT	60000000
06616	0 01 00030	3604		0CT	60000000
06617	0 01 00073	3605		BRU	NOSKIP
		3606		BRU	NOVFL0

				PAGE	DIV
06620	0 20 46620	3607			
06621	4 65 00113	3608	DIV28	NOP*	*
06622	60000200	3609		DIV	MEMORY,4
06623	37777400	3610		OCT	60000200
06624	00000000	3611		OCT	37777400
06625	00000000	3612		OCT	0
06626	66666616	3613		OCT	0
06627	66666616	3614		OCT	66666616
06630	60000000	3615		OCT	66666616
06631	60000000	3616		OCT	60000000
06632	0 01 00030	3617		OCT	60000000
06633	0 01 00073	3618		BRU	NOSKIP
06634	0 20 46634	3619		BRU	NOVFL0
06635	4 65 00113	3620	DIV29	NOP*	*
06636	60000400	3621		DIV	MEMORY,4
06637	37777000	3622		OCT	60000400
06640	00000000	3623		OCT	37777000
06641	00000000	3624		OCT	0
06642	55555525	3625		OCT	0
06643	55555525	3626		OCT	55555525
06644	60000000	3627		OCT	55555525
06645	60000000	3628		OCT	60000000
06646	0 01 00030	3629		OCT	60000000
06647	0 01 00073	3630		BRU	NOSKIP
06650	0 20 46650	3631		BRU	NOVFL0
06651	4 65 00113	3632	DIV30	NOP*	*
06652	60001000	3633		DIV	MEMORY,4
06653	37776000	3634		OCT	60001000
06654	00000000	3635		OCT	37776000
06655	00000000	3636		OCT	0
06656	44444434	3637		OCT	0
06657	44444434	3638		OCT	44444434
06660	60000000	3639		OCT	44444434
06661	60000000	3640		OCT	60000000
06662	0 01 00030	3641		OCT	60000000
06663	0 01 00073	3642		BRU	NOSKIP
		3643		BRU	NOVFL0

			PAGE	DIV
06664	0 20 46664	3644		
06665	4 65 00113	3645	DIV31	NOP*
06666	60002000	3646		*
06667	37774000	3647		MEMORY.4
06670	00000000	3648		0CT
06671	00000000	3649		60002000
06672	00000000	3650		0CT
06673	33333343	3651		37774000
06674	33333343	3652		0CT
06675	60000000	3653		0
06676	60000000	3654		0CT
06677	0 01 00030	3655		33333343
06700	0 01 00073	3656		0CT
06701	0 20 46700	3657	DIV32	BRU
06702	4 65 00113	3658		NOSKIP
06703	60004000	3659		NOVFL0
06704	37770000	3660		NOP*
06705	00000000	3661		*
06706	00000000	3662		MEMORY.4
06707	22222252	3663		0CT
06710	22222252	3664		60004000
06711	60000000	3665		0CT
06712	60000000	3666		37770000
06713	0 01 00030	3667		0CT
06714	0 01 00073	3668		0
06715	0 20 46714	3669	DIV33	0CT
06716	4 65 00113	3670		22222252
06717	60010000	3671		22222252
06718	37760000	3672		60000000
06720	00000000	3673		0CT
06721	00000000	3674		60000000
06722	11111161	3675		0CT
06723	11111161	3676		60000000
06724	60000000	3677		0CT
06725	60000000	3678		11111161
06726	0 01 00030	3679		11111161
06727	0 01 00073	3680		0CT
				60000000
				BRU
				NOSKIP
				NOVFL0

06730	0 20 46730	3681			
06731	4 65 00113	3682	DIV34	PAGE NOP*	DIV
06732	60020000	3683		DIV	MEMORY.4
06733	37740000	3684		0CT	60020000
06734	00000000	3685		0CT	37740000
06735	00000000	3686		0CT	0
06736	00000070	3687		0CT	0
06737	00000070	3688		0CT	70
06740	60000000	3689		0CT	70
06741	60000000	3690		0CT	60000000
06742	0 01 00030	3691		0CT	60000000
06743	0 01 00073	3692		BRU	NOSKIP
06744	0 20 46744	3693		BRU	NOVFL0
06745	4 65 00113	3694	DIV35	NOP*	*
06746	60040000	3695		DIV	MEMORY.4
06747	37700000	3696		0CT	60040000
06750	00000000	3697		0CT	37700000
06751	00000000	3698		0CT	0
06752	77777077	3699		0CT	0
06753	77777077	3700		0CT	77777077
06754	60000000	3701		0CT	77777077
06755	60000000	3702		0CT	60000000
06756	0 01 00030	3703		0CT	60000000
06757	0 01 00073	3704		BRU	NOSKIP
06760	0 20 46760	3705		BRU	NOVFL0
06761	4 65 00113	3706	DIV36	NOP*	*
06762	60100000	3707		DIV	MEMORY.4
06763	37600000	3708		0CT	60100000
06764	00000000	3709		0CT	37600000
06765	00000000	3710		0CT	0
06766	66666166	3711		0CT	0
06767	66666166	3712		0CT	66666166
06770	60000000	3713		0CT	66666166
06771	60000000	3714		0CT	60000000
06772	4 01 00030	3715		0CT	60000000
06773	0 01 00100	3716		BRU	NOSKIP.4
		3717		BRU	OVFL0

SET OVERFLOW
OVERFLOW

		3718		PAGE		DIV
06774	0 20 46774	3719	DIV37	NOP*	*	
06775	4 65 00113	3720		DIV	MEMORY.4	
06776	60200000	3721		OCT	60200000	
06777	37400000	3722		OCT	37400000	
07000	00000000	3723		OCT	0	
07001	00000000	3724		OCT	0	
07002	55555255	3725		OCT	55555255	
07003	55555255	3726		OCT	55555255	
07004	60000000	3727		OCT	60000000	
07005	60000000	3728		OCT	60000000	
07006	0 01 00030	3729		BRU	NOSKIP	
07007	0 01 00073	3730		BRU	NOVFL0	
07010	0 20 47010	3731	DIV38	NOP*	*	
07011	4 65 00113	3732		DIV	MEMORY.4	
07012	60400000	3733		OCT	60400000	
07013	37000000	3734		OCT	37000000	
07014	00000000	3735		OCT	0	
07015	00000000	3736		OCT	0	
07016	44444344	3737		OCT	44444344	
07017	44444344	3738		OCT	44444344	
07020	60000000	3739		OCT	60000000	
07021	60000000	3740		OCT	60000000	
07022	0 01 00030	3741		BRU	NOSKIP	
07023	0 01 00073	3742		BRU	NOVFL0	
07024	0 20 47024	3743	DIV39	NOP*	*	
07025	4 65 00113	3744		DIV	MEMORY.4	
07026	61000000	3745		OCT	61000000	
07027	36000000	3746		OCT	36000000	
07030	00000000	3747		OCT	0	
07031	00000000	3748		OCT	0	
07032	33333433	3749		OCT	33333433	
07033	33333433	3750		OCT	33333433	
07034	60000000	3751		OCT	60000000	
07035	60000000	3752		OCT	60000000	
07036	0 01 00030	3753		BRU	NOSKIP	
07037	0 01 00073	3754		BRU	NOVFL0	

		3755	PAGE	DIV
07040	0 20 47040	3756	NOP*	*
07041	4 65 00113	3757	DIV	MEMORY,4
07042	62000000	3758	OCT	62000000
07043	34000000	3759	OCT	34000000
07044	00000000	3760	OCT	0
07045	00000000	3761	OCT	0
07046	22222522	3762	OCT	22222522
07047	22222522	3763	OCT	22222522
07050	60000000	3764	OCT	60000000
07051	60000000	3765	OCT	60000000
07052	0 01 00030	3766	BRU	NOSKIP
07053	0 01 00073	3767	BRU	NOVFL0
07054	0 20 47054	3768	DIV41	NOP*
07055	4 65 00113	3769	DIV	MEMORY,4
07056	64000000	3770	OCT	64000000
07057	30000000	3771	OCT	30000000
07060	00000000	3772	OCT	0
07061	00000000	3773	OCT	0
07062	11111611	3774	OCT	11111611
07063	11111611	3775	OCT	11111611
07064	60000000	3776	OCT	60000000
07065	60000000	3777	OCT	60000000
07066	0 01 00030	3778	BRU	NOSKIP
07067	0 01 00073	3779	BRU	NOVFL0
07070	0 20 47070	3780	DIV42	NOP*
07071	4 65 00113	3781	DIV	MEMORY,4
07072	70000000	3782	OCT	70000000
07073	20000000	3783	OCT	20000000
07074	00000000	3784	OCT	0
07075	00000000	3785	OCT	0
07076	00000700	3786	OCT	700
07077	00000700	3787	OCT	700
07100	60000000	3788	OCT	60000000
07101	60000000	3789	OCT	60000000
07102	0 01 00030	3790	BRU	NOSKIP
07103	0 01 00073	3791	BRU	NOVFL0

		3792		PAGE		
07104	0 20 47104	3793	DIV43	NOP*	*	DIV
07105	4 65 00113	3794		DIV	MEMORY.4	
07106	60000000	3795		OCT	60000000	
07107	20000000	3796		OCT	20000000	
07110	00000000	3797		OCT	0	
07111	00000000	3798		OCT	0	
07112	77770777	3799		OCT	77770777	
07113	77770777	3800		OCT	77770777	
07114	40000000	3801		OCT	40000000	
07115	40000000	3802		OCT	40000000	
07116	0 01 00030	3803		BRU	NOSKIP	
07117	0 01 00073	3804		BRU	NOVFL0	
07120	0 20 47120	3805	DIV44	NOP*	*	
07121	4 65 00113	3806		DIV	MEMORY.4	
07122	44542115	3807		OCT	44542115	
07123	11640050	3808		OCT	11640050	
07124	71160352	3809		OCT	71160352	
07125	63164415	3810		OCT	63164415	
07126	66661666	3811		OCT	66661666	
07127	66661666	3812		OCT	66661666	
07130	20100711	3813		OCT	20100711	
07131	20100711	3814		OCT	20100711	
07132	0 01 00030	3815		BRU	NOSKIP	
07133	0 01 00100	3816		BRU	OVFL0	OVERFLOW
07134	0 20 47134	3817	DIV45	NOP*	*	
07135	4 65 00113	3818		DIV	MEMORY.4	
07136	55440464	3819		OCT	55440464	
07137	05153205	3820		OCT	5153205	
07140	51761317	3821		OCT	51761317	
07141	70242676	3822		OCT	70242676	
07142	55552555	3823		OCT	55552555	
07143	55552555	3824		OCT	55552555	
07144	12021725	3825		OCT	12021725	
07145	12021725	3826		OCT	12021725	
07146	0 01 00030	3827		BRU	NOSKIP	
07147	0 01 00100	3828		BRU	OVFL0	OVERFLOW

07150	0 20 47150	3829		PAGE		
07151	4 65 00113	3830	DIV46	NOP*	*	DIV
07152	56763275	3831		DIV	MEMORY.4	
07153	17503715	3832		OCT	56763275	
07154	02710031	3833		OCT	17503715	
07155	52670641	3834		OCT	2710031	
07156	44443444	3835		OCT	52670641	
07157	44443444	3836		OCT	44443444	
07160	00727427	3837		OCT	44443444	
07161	00727427	3838		OCT	727427	
07162	0 01 00030	3839		OCT	727427	
07163	0 01 00100	3840		BRU	NOSKIP	
07164	0 20 47164	3841		BRU	OVFL0	OVERFLOW
07165	4 65 00113	3842	DIV47	NOP*	*	
07166	00704547	3843		DIV	MEMORY.4	
07167	77047436	3844		OCT	704547	
07170	35534245	3845		OCT	77047436	
07171	24263720	3846		OCT	35534245	
07172	33334333	3847		OCT	24263720	
07173	33334333	3848		OCT	33334333	
07174	41254457	3849		OCT	33334333	
07175	41254457	3850		OCT	41254457	
07176	0 01 00030	3851		OCT	41254457	
07177	0 01 00073	3852		BRU	NOSKIP	
07200	0 20 47200	3853		BRU	NOVFL0	
07201	4 65 00113	3854	DIV48	NOP*	*	
07202	16657605	3855		DIV	MEMORY.4	
07203	60202004	3856		OCT	16657605	
07204	72043476	3857		OCT	60202004	
07205	17350247	3858		OCT	72043476	
07206	22225222	3859		OCT	17350247	
07207	22225222	3860		OCT	22225222	
07210	41653276	3861		OCT	22225222	
07211	41653276	3862		OCT	41653276	
07212	0 01 00030	3863		OCT	41653276	
07213	0 01 00073	3864		BRU	NOSKIP	
		3865		BRU	NOVFL0	

		3866		PAGE			
07214	0 20 47214	3867	DIV49	NOP*	*		DIV
07215	4 65 00113	3868		DIV	MEMORY,4		
07216	21002075	3869		OCT	21002075		
07217	46227270	3870		OCT	46227270		
07220	00010113	3871		OCT	10113		
07221	05612335	3872		OCT	5612335		
07222	11116111	3873		OCT	11116111		
07223	11116111	3874		OCT	11116111		
07224	16152677	3875		OCT	16152677		
07225	16152677	3876		OCT	16152677		
07226	0 01 00030	3877		BRU	NOSKIP		
07227	0 01 00100	3878		BRU	OVFL0		OVERFLOW
07230	0 20 47230	3879	DIV50	NOP*	*		
07231	4 65 00113	3880		DIV	MEMORY,4		
07232	11412441	3881		OCT	11412441		
07233	63420721	3882		OCT	63420721		
07234	75316651	3883		OCT	75316651		
07235	13535047	3884		OCT	13535047		
07236	00007000	3885		OCT	7000		
07237	00007000	3886		OCT	7000		
07240	47440035	3887		OCT	47440035		
07241	47440035	3888		OCT	47440035		
07242	0 01 00030	3889		BRU	NOSKIP		
07243	0 01 00073	3890		BRU	NOVFL0		
07244	0 20 47244	3891	DIV51	NOP*	*		
07245	4 65 00113	3892		DIV	MEMORY,4		
07246	77471243	3893		OCT	77471243		
07247	76072766	3894		OCT	76072766		
07250	15235633	3895		OCT	15235633		
07251	74455603	3896		OCT	74455603		
07252	77707777	3897		OCT	77707777		
07253	77707777	3898		OCT	77707777		
07254	06455137	3899		OCT	6455137		
07255	06455137	3900		OCT	6455137		
07256	0 01 00030	3901		BRU	NOSKIP		
07257	0 01 00073	3902		BRU	NOVFL0		

		3903		PAGE		
07260	0 20 47260	3904	DIV52	NOP*	*	DIV
07261	4 65 00113	3905		DIV	MEMORY.4	
07262	62577376	3906		OCT	62577376	
07263	56002562	3907		OCT	56002562	
07264	14460725	3908		OCT	14460725	
07265	61556456	3909		OCT	61556456	
07266	66616666	3910		OCT	66616666	
07267	66616666	3911		OCT	66616666	
07270	27440716	3912		OCT	27440716	
07271	27440716	3913		OCT	27440716	
07272	0 01 00030	3914		BRU	NOSKIP	
07273	0 01 00073	3915		BRU	NOVFL0	
07274	0 20 47274	3916	DIV53	NOP*	*	
07275	4 65 00113	3917		DIV	MEMORY.4	
07276	03423023	3918		OCT	3423023	
07277	04363677	3919		OCT	4363677	
07300	22540776	3920		OCT	22540776	
07301	30736776	3921		OCT	30736776	
07302	55525555	3922		OCT	55525555	
07303	55525555	3923		OCT	55525555	
07304	31222477	3924		OCT	31222477	
07305	31222477	3925		OCT	31222477	
07306	0 01 00030	3926		BRU	NOSKIP	
07307	0 01 00073	3927		BRU	NOVFL0	
07310	0 20 47310	3928	DIV54	NOP*	*	
07311	4 65 00113	3929		DIV	MEMORY.4	
07312	74576514	3930		OCT	74576514	
07313	74520707	3931		OCT	74520707	
07314	52404733	3932		OCT	52404733	
07315	47016161	3933		OCT	47016161	
07316	44434444	3934		OCT	44434444	
07317	44434444	3935		OCT	44434444	
07320	37111644	3936		OCT	37111644	
07321	37111644	3937		OCT	37111644	
07322	0 01 00030	3938		BRU	NOSKIP	
07323	0 01 00073	3939		BRU	NOVFL0	

				PAGE		DIV
07324	0 20 47324	3940				
07325	4 65 00113	3941	DIV55	NOP*	*	
07326	33130202	3942		DIV	MEMORY.4	
07327	41676363	3943		OCT	33130202	
07330	14073355	3944		OCT	41676363	
07331	31043510	3945		OCT	14073355	
07332	33343333	3946		OCT	31043510	
07333	33343333	3947		OCT	33343333	
07334	43107232	3948		OCT	43107232	
07335	43107232	3949		OCT	43107232	
07336	0 01 00030	3950		BRU	NOSKIP	
07337	0 01 00073	3951		BRU	NOVFL0	
07340	0 20 47340	3952	DIV56	NOP*	*	
07341	4 65 00113	3953		DIV	MEMORY.4	
07342	04417370	3954		OCT	4417370	
07343	72014004	3955		OCT	72014004	
07344	71706720	3956		OCT	71706720	
07345	13437770	3957		OCT	13437770	
07346	22252222	3958		OCT	22252222	
07347	22252222	3959		OCT	22252222	
07350	47574674	3960		OCT	47574674	
07351	47574674	3961		OCT	47574674	
07352	0 01 00030	3962		BRU	NOSKIP	
07353	0 01 00073	3963		BRU	NOVFL0	
07354	0 20 47354	3964	DIV57	NOP*	*	
07355	4 65 00113	3965		DIV	MEMORY.4	
07356	12257535	3966		OCT	12257535	
07357	23676546	3967		OCT	23676546	
07360	73604361	3968		OCT	73604361	
07361	10403014	3969		OCT	10403014	
07362	11161111	3970		OCT	11161111	
07363	11161111	3971		OCT	11161111	
07364	20517362	3972		OCT	20517362	
07365	20517362	3973		OCT	20517362	
07366	0 01 00030	3974		BRU	NOSKIP	
07367	0 01 00073	3975		BRU	NOVFL0	

07370	0 20 47370	3977	PAGE		
07371	4 65 00113	3978	DIV58	NOP*	*
07372	42262332	3979		DIV	MEMORY.4
07373	60034171	3980		OCT	42262332
07374	30122704	3981		OCT	60034171
07375	71272720	3982		OCT	30122704
07376	00070000	3983		OCT	71272720
07377	00070000	3984		OCT	70000
07400	54202442	3985		OCT	70000
07401	54202442	3986		OCT	54202442
07402	0 01 00030	3987		OCT	54202442
07403	0 01 00100	3988		BRU	NOSKIP
07404	0 20 47404	3989		BRU	OVFL0
07405	4 65 00113	3990	DIV59	NOP*	*
07406	66562553	3991		DIV	MEMORY.4
07407	03305057	3992		OCT	66562553
07410	54177240	3993		OCT	3305057
07411	47476622	3994		OCT	54177240
07412	77077777	3995		OCT	47476622
07413	77077777	3996		OCT	77077777
07414	03070242	3997		OCT	77077777
07415	03070242	3998		OCT	3070242
07416	0 01 00030	3999		OCT	3070242
07417	0 01 00100	4000		BRU	NOSKIP
07420	0 20 47420	4001		BRU	OVFL0
07421	4 65 00113	4002	DIV60	NOP*	*
07422	02377223	4003		DIV	MEMORY.4
07423	74660235	4004		OCT	2377223
07424	45265627	4005		OCT	74660235
07425	21636425	4006		OCT	45265627
07426	66166666	4007		OCT	21636425
07427	66166666	4008		OCT	66166666
07430	46523256	4009		OCT	66166666
07431	46523256	4010		OCT	46523256
07432	0 01 00030	4011		OCT	46523256
07433	0 01 00073	4012		BRU	NOSKIP
		4013		BRU	NOVFL0

DIV

OVERFLOW

OVERFLOW

		4014		PAGE		
07434	0 20 47434	4015	DIV61	N0P*	*	DIV
07435	4 65 00113	4016		DIV	MEMORY.4	
07436	32272650	4017		0CT	32272650	
07437	40444131	4018		0CT	40444131	
07440	71430106	4019		0CT	71430106	
07441	04571155	4020		0CT	4571155	
07442	55255555	4021		0CT	55255555	
07443	55255555	4022		0CT	55255555	
07444	31716246	4023		0CT	31716246	
07445	31716246	4024		0CT	31716246	
07446	0 01 00030	4025		BRU	N0SKIP	
07447	0 01 00100	4026		BRU	0VFL0	OVERFLOW
07450	0 20 47450	4027	DIV62	N0P*	*	
07451	4 65 00113	4028		DIV	MEMORY.4	
07452	45641207	4029		0CT	45641207	
07453	65653241	4030		0CT	65653241	
07454	70677650	4031		0CT	70677650	
07455	65317434	4032		0CT	65317434	
07456	44344444	4033		0CT	44344444	
07457	44344444	4034		0CT	44344444	
07460	60336670	4035		0CT	60336670	
07461	60336670	4036		0CT	60336670	
07462	0 01 00030	4037		BRU	N0SKIP	
07463	0 01 00100	4038		BRU	0VFL0	OVERFLOW
07464	0 20 47464	4039	DIV63	N0P*	*	
07465	4 65 00113	4040		DIV	MEMORY.4	
07466	62311602	4041		0CT	62311602	
07467	14027473	4042		0CT	14027473	
07470	73170133	4043		0CT	73170133	
07471	41214356	4044		0CT	41214356	
07472	33433333	4045		0CT	33433333	
07473	33433333	4046		0CT	33433333	
07474	00753715	4047		0CT	753715	
07475	00753715	4048		0CT	753715	
07476	0 01 00030	4049		BRU	N0SKIP	
07477	0 01 00100	4050		BRU	0VFL0	OVERFLOW

07500	0 20 47500	4051		PAGE		
07501	4 65 00113	4052	DIV64	NOP*	*	
07502	67745772	4053		DIV	MEMORY,4	
07503	12231200	4054		OCT	67745772	
07504	01721272	4055		OCT	12231200	
07505	64527135	4056		OCT	1721272	
07506	22522222	4057		OCT	64527135	
07507	22522222	4058		OCT	22522222	
07510	46770716	4059		OCT	22522222	
07511	46770716	4060		OCT	46770716	
07512	0 01 00030	4061		OCT	46770716	
07513	0 01 00073	4062		BRU	NOSKIP	
07514	0 20 47514	4063		BRU	NOVFL0	
07515	4 65 00113	4064	DIV65	NOP*	*	
07516	50253200	4065		DIV	MEMORY,4	
07517	26042655	4066		OCT	50253200	
07520	53333102	4067		OCT	26042655	
07521	46425510	4068		OCT	53333102	
07522	11611111	4069		OCT	46425510	
07523	11611111	4070		OCT	11611111	
07524	01160135	4071		OCT	11611111	
07525	01160135	4072		OCT	1160135	
07526	0 01 00030	4073		OCT	1160135	
07527	0 01 00100	4074		BRU	NOSKIP	
07530	0 20 47530	4075		BRU	OVFL0	OVERFLOW
07531	4 65 00113	4076	DIV66	NOP*	*	
07532	00312075	4077		DIV	MEMORY,4	
07533	76212415	4078		OCT	312075	
07534	33376625	4079		OCT	76212415	
07535	00414240	4080		OCT	33376625	
07536	00700000	4081		OCT	414240	
07537	00700000	4082		OCT	700000	
07540	70544122	4083		OCT	700000	
07541	70544122	4084		OCT	70544122	
07542	0 01 00030	4085		OCT	70544122	
07543	0 01 00073	4086		BRU	NOSKIP	
		4087		BRU	NOVFL0	

		4088		PAGE				
07544	0 20 47544	4089	DIV67	NO P*	*			DIV
07545	4 65 00113	4090		DIV	MEMORY.4			
07546	34280727	4091		OCT	34230727			
07547	72062320	4092		OCT	72062320			
07550	24317475	4093		OCT	24317475			
07551	76225116	4094		OCT	76225116			
07552	70777777	4095		OCT	70777777			
07553	70777777	4096		OCT	70777777			
07554	14254051	4097		OCT	14254051			
07555	14254051	4098		OCT	14254051			
07556	0 01 00030	4099		BRU	NO SKIP			
07557	0 01 00100	4100		BRU	OV FLO			OVERFLOW
07560	0 20 47560	4101	DIV68	NO P*	*			
07561	4 65 00113	4102		DIV	MEMORY.4			
07562	06662624	4103		OCT	6662624			
07563	11565411	4104		OCT	11565411			
07564	32035730	4105		OCT	32035730			
07565	20731660	4106		OCT	20731660			
07566	61666666	4107		OCT	61666666			
07567	61666666	4108		OCT	61666666			
07570	26415534	4109		OCT	26415534			
07571	26415534	4110		OCT	26415534			
07572	0 01 00030	4111		BRU	NO SKIP			
07573	0 01 00073	4112		BRU	NO V FLO			
07574	0 20 47574	4113	DIV69	NO P*	*			
07575	4 65 00113	4114		DIV	MEMORY.4			
07576	02425672	4115		OCT	2425672			
07577	75175170	4116		OCT	75175170			
07600	02176161	4117		OCT	2176161			
07601	05337450	4118		OCT	5337450			
07602	52555555	4119		OCT	52555555			
07603	52555555	4120		OCT	52555555			
07604	42360576	4121		OCT	42360576			
07605	42360576	4122		OCT	42360576			
07606	0 01 00030	4123		BRU	NO SKIP			
07607	0 01 00073	4124		BRU	NO V FLO			

07610	0 20 47610	4125		PAGE		
07611	4 65 00113	4126	DIV70	NOP*	*	DIV
07612	11631731	4128		DIV	MEMORY.4	
07613	15626505	4129		OCT	11631731	
07614	22222044	4130		OCT	15626505	
07615	12777521	4131		OCT	22222044	
07616	43444444	4132		OCT	12777521	
07617	43444444	4133		OCT	43444444	
07620	26570515	4134		OCT	43444444	
07621	26570515	4135		OCT	26570515	
07622	0 01 00030	4136		BRU	26570515	
07623	0 01 00073	4137		BRU	NOSKIP	
07624	0 20 47624	4138	DIV71	NOP*	NOVFL0	
07625	4 65 00113	4139		DIV	MEMORY.4	
07626	67392927	4140		OCT	67392927	
07627	70505773	4141		OCT	70505773	
07630	55464166	4142		OCT	55464166	
07631	71775561	4143		OCT	71775561	
07632	34333333	4144		OCT	34333333	
07633	34333333	4145		OCT	34333333	
07634	77253076	4146		OCT	77253076	
07635	77253076	4147		OCT	77253076	
07636	0 01 00030	4148		BRU	NOSKIP	
07637	0 01 00100	4149		BRU	OVFL0	OVERFLOW
07640	0 20 47640	4150	DIV72	NOP*	*	
07641	4 65 00113	4151		DIV	MEMORY.4	
07642	00156137	4152		OCT	156137	
07643	77421646	4153		OCT	77421646	
07644	76543640	4154		OCT	76543640	
07645	01563506	4155		OCT	1563506	
07646	25222222	4156		OCT	25222222	
07647	25222222	4157		OCT	25222222	
07650	61144207	4158		OCT	61144207	
07651	61144207	4159		OCT	61144207	
07652	0 01 00030	4160		BRU	NOSKIP	
07653	0 01 00073	4161		BRU	NOVFL0	

07654	0 20 47654	4162
07655	4 65 00113	4163
07656	56106526	4164
07657	36762602	4165
07660	41641171	4166
07661	74640044	4167
07662	16111111	4168
07663	16111111	4169
07664	55427614	4170
07665	55427614	4171
07666	0 01 00030	4172
07667	0 01 00073	4173
07670	0 20 47670	4174
07671	4 65 00113	4175
07672	74711330	4176
07673	74170301	4177
07674	12011202	4178
07675	57266103	4179
07676	07000000	4180
07677	07000000	4181
07700	32317176	4182
07701	32317176	4183
07702	0 01 00030	4184
07703	0 01 00073	4185
07704	0 20 47704	4186
07705	4 65 00113	4187
07706	37404050	4188
07707	50274231	4189
07710	31755437	4190
07711	11150140	4191
07712	07777777	4192
07713	07777777	4193
07714	06174407	4194
07715	06174407	4195
07716	0 01 00030	4196
07717	0 01 00100	4197
		4198

	PAGE	
DIV73	NOP*	*
	DIV	MEMORY,4
	0CT	56106526
	0CT	36762602
	0CT	41641171
	0CT	74640044
	0CT	16111111
	0CT	16111111
	0CT	55427614
	0CT	55427614
	BRU	NOSKIP
	BRU	NOVFL0
DIV74	NOP*	*
	DIV	MEMORY,4
	0CT	74711330
	0CT	74170301
	0CT	12011202
	0CT	57266103
	0CT	7000000
	0CT	7000000
	0CT	32317176
	0CT	32317176
	BRU	NOSKIP
	BRU	NOVFL0
DIV75	NOP*	*
	DIV	MEMORY,4
	0CT	37404050
	0CT	50274231
	0CT	31755437
	0CT	11150140
	0CT	07777777
	0CT	07777777
	0CT	6174407
	0CT	6174407
	BRU	NOSKIP
	BRU	OVFL0

DIV

OVERFLOW

07720	0 20 47720	4199			
07721	4 65 00113	4200	DIV76	PAGE	DIV
07722	16141140	4201		NOP*	*
07723	77764913	4202		DIV	MEMORY.4
07724	70702140	4203		OCT	16141140
07725	23655013	4204		OCT	77764213
07726	16666666	4205		OCT	70702140
07727	16666666	4206		OCT	23655013
07730	07054017	4207		OCT	16666666
07731	07054017	4208		OCT	16666666
07732	0 01 00030	4209		OCT	7054017
07733	0 01 00100	4210		OCT	7054017
07734	0 20 47734	4211		BRU	NOSKIP
07735	4 65 00113	4212	DIV77	BRU	OVFL0
07736	22130502	4213		NOP*	*
07737	06705260	4214		DIV	MEMORY.4
07740	64012150	4215		OCT	22130502
07741	76657624	4216		OCT	6705260
07742	25555555	4217		OCT	64012150
07743	25555555	4218		OCT	76657624
07744	71531776	4219		OCT	25555555
07745	71531776	4220		OCT	25555555
07746	0 01 00030	4221		OCT	71531776
07747	0 01 00100	4222		OCT	71531776
07750	0 20 47750	4223		BRU	NOSKIP
07751	4 65 00113	4224	DIV78	BRU	OVFL0
07752	32777271	4225		NOP*	*
07753	22571422	4226		DIV	MEMORY.4
07754	57217524	4227		OCT	32777271
07755	52402376	4228		OCT	22571422
07756	34444444	4229		OCT	57217524
07757	34444444	4230		OCT	52402376
07760	72121446	4231		OCT	34444444
07761	72121446	4232		OCT	34444444
07762	0 01 00030	4233		OCT	72121446
07763	0 01 00100	4234		OCT	72121446
		4235		BRU	NOSKIP
				BRU	OVFL0

OVERFLOW

OVERFLOW

OVERFLOW

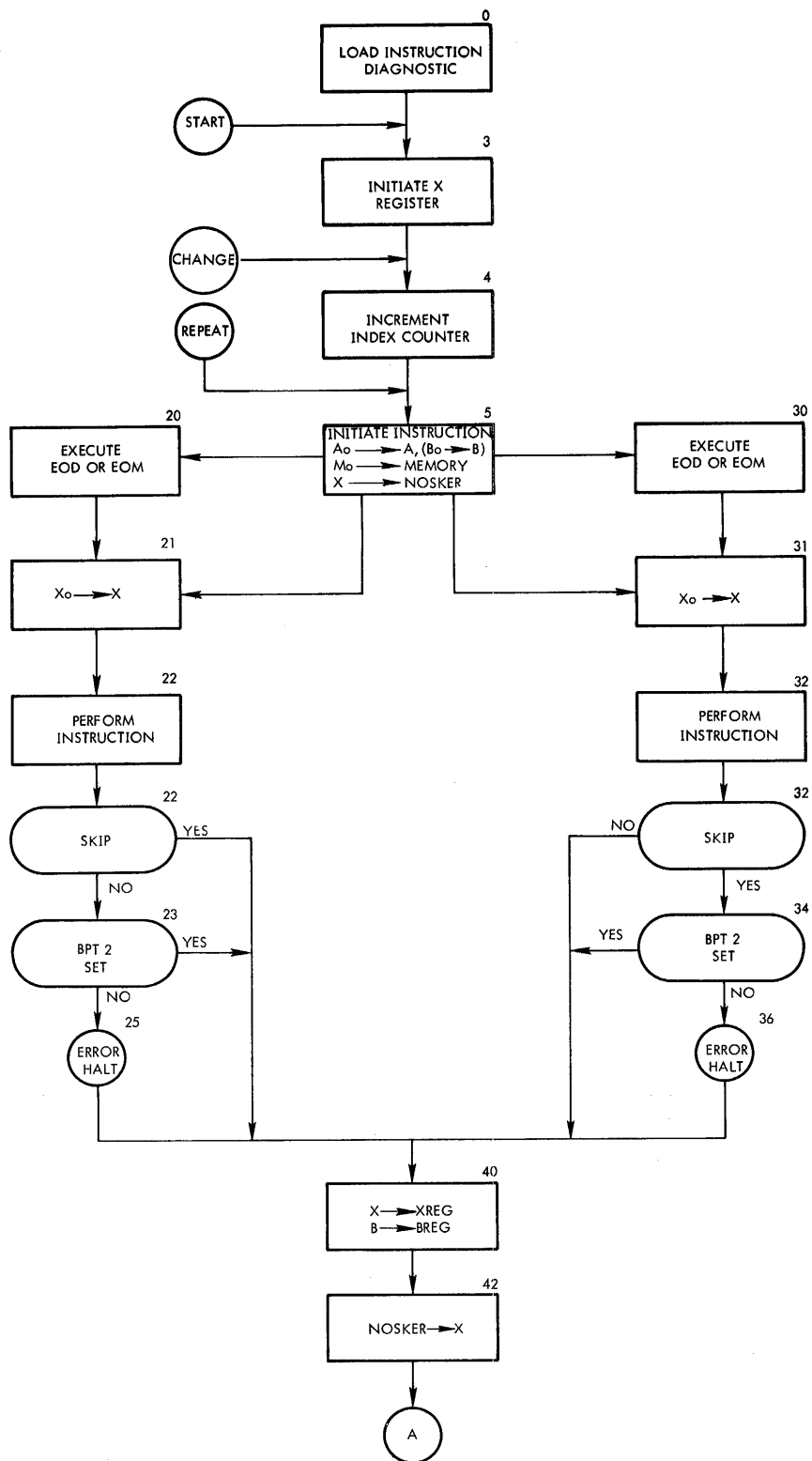
07764	0 20 07764	4236	PAGE		DIV
07765	4 65 00113	4237	DIV79	NOP	*
07766	40751345	4238		DIV	MEMORY.4
07767	25145043	4239		OCT	40751345
07770	44374146	4240		OCT	25145043
07771	75317137	4241		OCT	44374146
07772	43333333	4242		OCT	75317137
07773	43333333	4243		OCT	43333333
07774	27153034	4244		OCT	43333333
07775	27153034	4245		OCT	27153034
07776	0 01 00030	4246		OCT	27153034
07777	0 01 00100	4247		BRU	NO SKIP
	00000	4248		BRU	OVFL0
		4249		END	OVERFLOW

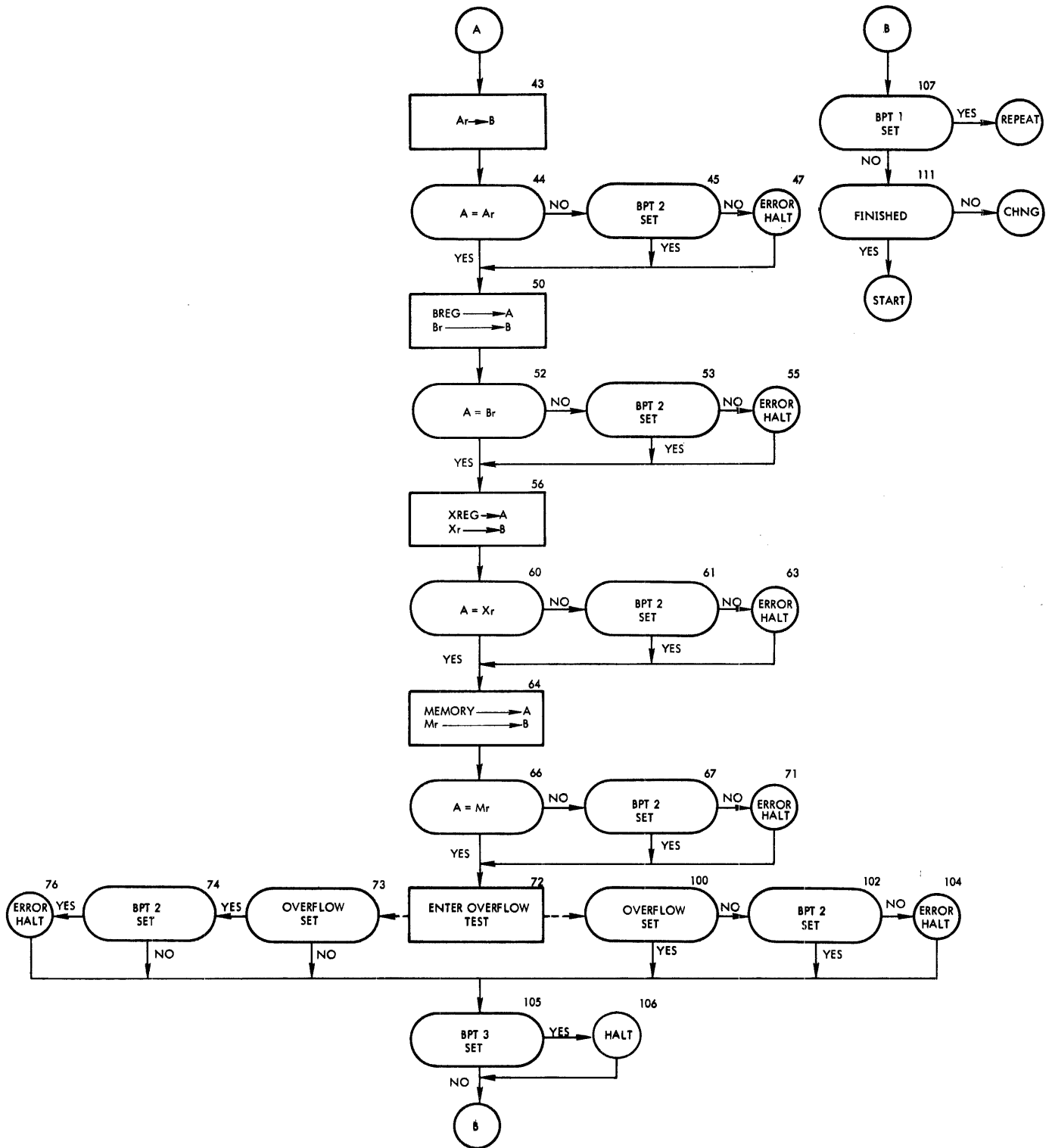
CHANGE	00004	MEMORY	00113	NBSKER	00037	NBSKIP	00030
NOVFLA	00073	REPEAT	00005	BR0VF	00072	BRTW1	03444
BRTW2	03460	DIV10	06270	DIV11	06304	DIV12	06320
DIV13	06334	DIV14	06350	DIV15	06364	DIV16	06400
DIV17	06414	DIV18	06430	DIV19	06444	DIV20	06460
DIV21	06474	DIV22	06510	DIV23	06524	DIV24	06540
DIV25	06554	DIV26	06570	DIV27	06604	DIV28	06620
DIV29	06634	DIV30	06650	DIV31	06664	DIV32	06700
DIV33	06714	DIV34	06730	DIV35	06744	DIV36	06760
DIV37	06774	DIV38	07010	DIV39	07024	DIV40	07040
DIV41	07054	DIV42	07070	DIV43	07104	DIV44	07120
DIV45	07134	DIV46	07150	DIV47	07164	DIV48	07200
DIV49	07214	DIV50	07230	DIV51	07244	DIV52	07260
DIV53	07274	DIV54	07310	DIV55	07324	DIV56	07340
DIV57	07354	DIV58	07370	DIV59	07404	DIV60	07420
DIV61	07434	DIV62	07450	DIV63	07464	DIV64	07500
DIV65	07514	DIV66	07530	DIV67	07544	DIV68	07560
DIV69	07574	DIV70	07610	DIV71	07624	DIV72	07640
DIV73	07654	DIV74	07670	DIV75	07704	DIV76	07720
DIV77	07734	DIV78	07750	DIV79	07764	LSH10	04354
LSH11	04370	LSH12	04404	MUL10	05124	MUL11	05140
MUL12	05154	MUL13	05170	MUL14	05204	MUL15	05220
MUL16	05234	MUL17	05250	MUL18	05264	MUL19	05300
MUL20	05314	MUL21	05330	MUL22	05344	MUL23	05360
MUL24	05374	MUL25	05410	MUL26	05424	MUL27	05440
MUL28	05454	MUL29	05470	MUL30	05504	MUL31	05520
MUL32	05534	MUL33	05550	MUL34	05564	MUL35	05600
MUL36	05614	MUL37	05630	MUL38	05644	MUL39	05660
MUL40	05674	MUL41	05710	MUL42	05724	MUL43	05740
MUL44	05754	MUL45	05770	MUL46	06004	MUL47	06020
MUL48	06034	MUL49	06050	MUL50	06064	MUL51	06100
N0D10	04974	N0D11	04610	N0D12	04624	N0D13	04640
N0D14	04654	N0D15	04670	N0D16	04704	N0D17	04720
N0D18	04734	N0ERR	00040	0VPL0	00100	RSH10	04070
RSH11	04104	RSH12	04120	RSH13	04134	RSH14	04150
RSH15	04164	START	00003	TESTB	00050	TESTM	00064
TESTX	00056	ADC1	01450	ADC2	01464	ADC3	01500
ADC4	01514	ADC5	01530	ADC6	01544	ADC7	01560

ADC8	01574	ADD1	01150	ADD2	01164	ADD3	01200
ADD4	01214	ADD5	01230	ADD6	01244	ADD7	01260
ADD8	01274	ADM1	02724	ADM2	02740	ADM3	02754
ADM4	02770	ADM6	03004	ADM6	03020	ADM7	03034
ADM8	03050	AREG	00121	BREG	00122	BRW1	03064
BRM2	03100	BRM3	03114	BRM4	03130	CNA1	01010
CNA2	01024	CNA3	01040	CNA4	01054	CNA5	01070
CNA6	01104	CNA7	01120	CNA8	01134	DIV1	06114
DIV2	06130	DIV3	06144	DIV4	06160	DIV5	06174
DIV6	06210	DIV7	06224	DIV8	06240	DIV9	06254
EAX1	03224	EAX2	03240	EAX3	03254	EAX4	03270
EOM1	00210	EOM2	00224	EOR1	00400	EOR2	00414
EOR3	00430	EOR4	00444	ERT1	03474	ERT2	03510
ERT3	03524	ERT4	03540	ETR1	00240	ETR2	00254
ETR3	00270	ETR4	00304	EXU1	02424	EXU2	02440
EXU3	02454	EXU4	02470	INT1	03364	INT2	03400
INT3	03414	INT4	03430	LSH1	04200	LSH2	04214
LSH3	04230	LSH4	04244	LSH5	04260	LSH6	04274
LSH7	04310	LSH8	04324	LSH9	04340	MIN1	02564
MIN2	02600	MIN3	02614	MIN4	02630	MRG1	00320
MRG2	00334	MRG3	00350	MRG4	00364	MUL1	04750
MUL2	04764	MUL3	05000	MUL4	05014	MUL5	05030
MUL6	05044	MUL7	05060	MUL8	05074	MUL9	05110
NOD1	04420	NOD2	04434	NOD3	04450	NOD4	04464
NOD5	04500	NOD6	04514	NOD7	04530	NOD8	04544
NOD9	04560	NOP1	00130	NOP2	00144	NOP3	00160
NOP4	00174	POP1	03144	POP2	03160	POP3	03174
POP4	03210	REG1	03304	REG2	03320	REG3	03334
REG4	03350	RSH1	03714	RSH2	03730	RSH3	03744
RSH4	03760	RSH5	03774	RSH6	04010	RSH7	04024
RSH8	04040	RSH9	04054	SKA1	02060	SKA2	02074
SKA3	02110	SKA4	02124	SKB1	02000	SKB2	02014
SKB3	02030	SKB4	02044	SKD1	03554	SKD2	03570
SKD3	03604	SKB4	03620	SKD5	03634	SKD6	03650
SKB7	03664	SKD8	03700	SKER	00026	SKG1	02140
SKG2	02154	SKG3	02170	SKG4	02204	SKG5	02220
SKG6	02234	SKG7	02250	SKG8	02264	SKIP	00020
SKM1	02300	SKM2	02314	SKM3	02330	SKM4	02344
SKM5	02360	SKM6	02374	SKM7	02410	SKN1	01750

SKN2	01764	SKR1	02644	SKR2	02660	SKR3	02674
SKR4	02710	STA1	02504	STA2	02520	SUB1	01310
SUB2	01324	SUB3	01340	SUB4	01354	SUB5	01370
SUB6	01404	SUB7	01420	SUB8	01434	SUC1	01610
SUC2	01624	SUC3	01640	SUC4	01654	SUC5	01670
SUC6	01704	SUC7	01720	SUC8	01734	XMA1	02534
XMA2	02550	XREG	00123	ABC	00620	BAC	00604
CAB	00540	CAX	00650	CBA	00554	CRX	00700
CLA	00474	CLB	00510	CLR	00524	CLX	00570
CLX	00130	CXA	00634	CXB	00714	E00	00130
ERT	00130	LDE	00760	POP	00135	POP	00115
REG	00130	STE	00744	XAB	00570	XEE	00774
XXA	00664	XXB	00730	LO	00106	OK	00105
7	00130	A	00100	B	00010		

SDS 930 AUTOMATIC INSTRUCTION DIAGNOSTIC





```

1 *
2 *
3 *
4 * BPT 1 SET = CONTINUE TESTING
5 * RESET = NORMAL OPERATION
6 *
7 * BPT 2 SET = HALT ON ERRORS
8 * RESET = NO HALT ON ERRORS
9 *
10 * BPT 3 SET = PERFORM BRM TEST (EXERCISE P+1 INTO P)
11 * RESET = PERFORM BRR TEST (EXERCISE C+1 INTO C)
12 *
13 * BPT 4 SET = HALT AND INSPECT THE REGISTERS A= RETURN ADDR
14 * RESET = NORMAL OPERATION X= BRANCH ADDRESS
15 * C= BRANCH-BRM/BRR
16 AORG 2
17 WIM 012.X BINARY LOADER-NO CHECK SUM
18 BRX S-1
19 LDX START
20 WIM 012-LIST.X
21 BRTW 0
22 BRX S-2
23 BRU S+2
24 START PZE *LIST
25 LDA MASK FIND MEMORY LENGTH
26 LDX ZERO
27 LENGTH EAX 04000.X BUMP MEMORY BY 2K - EAX CANT CARRY
28 STX 0.X INTO BIT 9 SO X GOES TO 0 FOR 16K.
29 SKA 0.X SKIP WHEN RUN OFF MEMORY OR 0 IN X.
30 BRU LENGTH
31 EAX -1.X GENERATE LAST ADDRESS
32 STX STOP SAVE LAST ADDRESS
33 SETUP LDX START
34 LDB BRR
35 BPT 3
36 LDB BRM
37 STB BRANCH SET BRM OR BRR TEST
38 LDA BRMRET
    
```

P S REG TESTER

4008

```

00030 2 35 0 00000
00031 0 41 0 00030
00032 0 02 20001
00033 0 71 0 00011
00034 0 76 0 00011
00035 2 35 0 00000
00036 0 55 0 00065
00037 0 40 20040
00040 0 00 0 00000
00041 0 00 00000
00042 0 00 00000
00043 0 40 20400
00044 0 01 0 00041
00045 0 75 0 00073
00046 2 36 0 00000
00047 0 75 0 00070
00050 0 70 0 00042
00051 0 01 0 00061
00052 0 40 20400
00053 0 54 0 00065
00054 0 40 20400
00055 2 77 0 37777
00056 0 70 0 00000
00057 0 41 0 00035
00060 0 01 0 00022

```

```

39 STA 0,X
40 BRX S-1
41 RCV
42 LDX START
43 LDA START
44 TEST STA 0,X
45 ADD ONE
46 BPT 4
47 ZERO HLT 0
48 BRANCH PZE
49 RETURN PZE
50 BPT 1
51 BRU BRANCH
52 LDB BRMRET
53 STB 0,X
54 LDB MASK
55 SKM RETURN
56 BRU ERROR
57 REPEAT BPT 1
58 SUB ONE
59 BPT 1
60 EAX -1,X
61 SKM STOP
62 BRX TEST
63 BRU SETUP

```

```
STORE BRM RETURN THROUGH OUT MEMORY
```

```
INITIALIZE A
SET RETURN ADDRESS
INCREMENT LIST COUNT IN A.
```

```
SET A=X+1 FOR CHANGE
BRANCH
RETURN ADDRESS
REPEAT?
YES
FILL LIST WITH BRM RETURN
```

```
TEST A = CONTENTS OF RETURN
NOT EQUAL
TEST FOR REPEAT
RESTORE A FOR REPEAT
TEST FOR REPEAT
RESTORE X FOR REPEAT
TEST A = LAST LOCATION
NOT EQUAL
```

00061	4 51 0 00061	64	PAGE	
00062	0 40 20200	65 *		
00063	0 01 0 00052	66 *		
00064	0 75 0 00042	67 *		
00065	0 00 0 00001	68 ERROR	BRR	\$,4
00066	0 75 0 00070	69	BPT	2
00067	0 01 0 00052	70	BRU	REPEAT
00070	00037777	71	LDB	RETURN
00071	6 51 0 00000	72 ONE	HLT	1
00072	6 43 0 00000	73	LDB	MASK
00073	0 43 0 00042	74	BRU	REPEAT
00074	0 00 00000	75 MASK	DATA	037777
00075	0 00 00000	76 BRR	BRR	0,6
	00000002	77 BRM	BRM	0,6
	00000000	78 BRMRET	BRM	RETURN
		79	PZE	
		80 LIST	PZE	
		81 X	EQU	2
		82 STOP	EQU	0
		83	END	

ERROR DISPLAY
A = CORRECT COUNT
B = WRONG COUNT (CONTENTS OF MEMORY)
X = LOCATION JUST TESTED
SET ERROR LIGHT
TEST TO BYPASS ERROR HALT

INDEX BIT