



FABRI-TEK INC.
COMPUTER SYSTEMS

MP12

SYSTEM MANUAL

Prepared by FABRI-TEK Inc.
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INTRODUCTION

This manual is divided into three sections. Section I contains program listings for the standard MP12 software. Section II contains instruction flow charts that depict data paths and instruction steps for each MP12 instruction. Section III contains logic schematics for the major functional components of the MP12

SECTION I SOFTWARE LISTINGS

This section contains assembly listings of the following standard MP12 software programs:

- Source Edit Utility
- Assembler
- Binary Loader
- Debugging Utility
- Processor Diagnostic
- Memory Diagnostic

Statements are printed in the format indicated below:

Print Position – 1-4 : Location (octal)
 5 : Blank
 6-9 : Data (octal)
 10: Blank
 11-14: Statement number (decimal)
 15: Blank
 16-90: Program statement

Each assembly listing is followed by a cross-reference listing that is printed in the following format:

Print Position – 1-8 : Symbol
 9 : Blank
 10-13: Value of symbol (octal)
 14-15: Blanks
 16-19: Statement number of definition reference
 20-23: Blanks
 24-90: One statement number for each statement reference
 up to a maximum of eight statement numbers per
 line. Printing is continued to print positions 24-90
 of successive lines if required.

The assembly listings are followed by a source listing of the MP12 Cross-Assembler.

```

1 /-----
2 /
3 / MP12 SOURCE EDIT UTILITY      900-0077-04 REV 00A
4 /
5 / (C) COPYRIGHT 1974, FABRI-TEK INCORPORATED
6 /
7 /-----
0002      8          *002
          9 /-----
0002 7402 10          HLT
          11 /-----
0020     12          *020
          13 /-----
          14 /-----STORAGE
0020 0000 15 EF,      0          /EDIT FLAG
0021 0000 16 DF,      0          /DUMP FLAG
0022 0000 17 FF,      0          /FORMAT FLAG
0023 0000 18 LF,      0          /LOAD FLAG
0024 0000 19 IBFX,    0          /INPUT BUFFER INDEX
0025 0000 20 OBFX,    0          /OUTPUT BUFFER INDEX
0026 0000 21 GENX,    0          /GENERAL INDEX
0027 0000 22 EBFX,    0          /EDIT BUFFER INDEX
0030 2166 23 EBF,    EBF        /EDIT BUFFER POINTER
0031 0000 24 CH,      0          /CHARACTER STORAGE
0032 0000 25 TEMP,    0          /TEMPORARY STORAGE
0033 0000 26 TEMP1,   0
0034 0000 27 TEMP2,   0
0035 0000 28 TEMP3,   0
0036 0000 29 TEMP4,   0
0037 0000 30 S1,      0          /STATEMENT NUMBER STORAGE
0040 0000 31 S2,      0
0041 0000 32 SS1,    0
0042 0000 33 SS2,    0
0043 0000 34 SM,     0;0
0044 0000
0045 0000 35 SN,     0;0
0046 0000
0047 0000 36 SM1,    0
0050 0000 37 SM2,    0
0051 0000 38 SN1,    0
0052 0000 39 SN2,    0
          40 /-----PROGRAM ADDRESS LINKAGE
0053 1767 41 OCRX,    OCR          /OUTPUT CARRIAGE-RETURN
0054 1773 42 OLFX,    OLF          /OUTPUT LINE-FEED
0055 1763 43 OELX,    OEL          /OUTPUT END OF LINE
0056 1316 44 PAKX,    PAK          /PACK STATEMENT
0057 1346 45 UPKX,    UPK          /UNPACK STATEMENT
0060 1726 46 ICHX,    ICH          /INPUT CHARACTER
0061 1733 47 INBCHX, INBCH        /INPUT NON-BLANK CHARACTER
0062 1742 48 OCHX,    OCH          /OUTPUT CHARACTER
0063 1037 49 SEBX,    SEB          /SEARCH EDIT BUFFER
0064 1071 50 SCHX,    SCH          /SEARCH EDIT BUFFER

```

0065	1433	51	MOVX,	MOV	/MOVE STATEMENT
0066	1747	52	PCHX,	PCH	/PUNCH CHARACTER
0067	1754	53	PUNX,	PUN	/PUNCH BLANK TAPE
0070	1200	54	CMPX,	CMP	/COMPARE STATEMENT NUMBERS
0071	1400	55	OSTX,	OST	/OUTPUT STATEMENT
0072	1013	56	ISNX,	ISN	/INPUT STATEMENT NUMBER
0073	0730	57	IDECX,	IDEC	/INPUT DECIMAL NUMBER
0074	1252	58	BDCX,	BDC	/BINARY TO DECIMAL CONVERSION
0075	1643	59	IKBX,	IKB	/INPUT KEYBOARD RECORD
0076	1600	60	IRRX,	IRR	/INPUT READER RECORD
0077	1156	61	IEBX,	IEB	/INSERT WORD INTO EDIT BUFFER
0100	1240	62	TDX,	TDX	/TEST FOR DIGIT
0101	0701	63	DELX,	DEL	/DELETE STATEMENT FROM EDIT BUFFER
0102	1000	64	ITBFX,	ITBF	/INITIALIZE TEXT BUFFER
0103	0764	65	OTBFX,	OTBF	/OUTPUT TEXT BUFFER
0104	0200	66	EDITX,	EDIT	
0105	0201	67	EDIT1X,	EDIT1	
0106	0202	68	EDIT2X,	EDIT2	
0107	0267	69	EDIT8X,	EDIT8	
0110	0377	70	EDIT34X,	EDIT34	
0111	0507	71	EDIT42X,	EDIT42	
		72	/-----DATA ADDRESS LINKAGE		
0112	2013	73	XTBF,	TBF	/TEMP BUFFER ADDRESS
0113	2055	74	XIBF,	IBF	/INPUT BUFFER ADDRESS
0114	2025	75	XOBF,	DBF	/OUTPUT BUFFER ADDRESS
0115	2166	76	XEBF,	EBF	/EDIT BUFFER ADDRESS
0116	1777	77	XMSG,	MSG	
0117	2017	78	XTBF4,	TBF+4	
0120	2034	79	XOBF7,	DBF+7	
0121	2054	80	XOBF23,	DBF+23	
0122	2123	81	XOBF62,	DBF+62	
0123	2130	82	XOBF67,	DBF+67	
		83	/-----CONSTANTS		
0124	0017	84	017,	017	
0125	0037	85	037,	037	
0126	0077	86	077,	077	
0127	0177	87	0177,	0177	
0130	0200	88	0200,	0200	
0131	0212	89	0212,	0212	
0132	0215	90	0215,	0215	
0133	0240	91	0240,	0240	
0134	0256	92	0256,	0256	
0135	0260	93	0260,	0260	
0136	0277	94	0277,	0277	
0137	0337	95	0337,	0337	
0140	03700	96	03700,	03700	
0141	7775	97	M3,	-3	
0142	7774	98	M4,	-4	
0143	7767	99	M9,	-9	
0144	7766	100	M10,	-10	
0145	7764	101	M12,	-12	
0146	7750	102	M24,	-24	

0147	7670	103	M72,	-72	
0150	7667	104	M73,	-73	
0151	7701	105	M077,	-077	
0152	7563	106	M0215,	-0215	/CARRIAGE-RETURN
0153	7545	107	M0233,	-0233	/ESC
0154	7540	108	M0240,	-0240	/BLANK
0155	7534	109	M0244,	-0244	/\$
0156	7524	110	M0254,	-0254	/,
0157	7523	111	M0255,	-0255	/-
0160	7522	112	M0256,	-0256	/.
0161	7521	113	M0257,	-0257	//
0162	7520	114	M0260,	-0260	/0
0163	7506	115	M0272,	-0272	/:
0164	7503	116	M0275,	-0275	/=
0165	7474	117	M0304,	-0304	/D
0166	7473	118	M0305,	-0305	/E
0167	7472	119	M0306,	-0306	/F
0170	7467	120	M0311,	-0311	/I
0171	7460	121	M0320,	-0320	/D
0172	7464	122	M0314,	-0314	/L
0173	7441	123	M0337,	-0337	/LEFT ARROW
0174	4100	124	M03700,	-03700	
		125	/		
		126	/-----		
0200		127	*0200		
		128	/-----		
0200	4453	129	EDIT, JMS I	OCRX	/OUTPUT CARRIAGE-RETURN
0201	4454	130	EDIT1, JMS I	OLFX	/OUTPUT LINE-FEED
0202	3020	131	EDIT2, DCA	EF	/INITIALIZE
0203	3021	132		DF	
0204	3022	133		FF	
0205	3023	134		LF	
0206	3430	135		EBFP	
0207	4475	136	JMS I	IKBX	/INPUT KEYBOARD RECORD
0210	4460	137	JMS I	ICHX	/INPUT FIRST CHARACTER
0211	4500	138	EDIT3, JMS I	TDGX	/TEST FOR DIGIT
0212	5275	139	JMP	EDIT10	/IF NOT DIGIT
		140	/-----	PROCESS STATEMENT	
0213	4472	141	JMS I	ISNX	/INPUT STATEMENT NUMBER
0214	4463	142	EDIT4, JMS I	SEBX	/SEARCH EDIT BUFFER
0215	7410	143	SKP		/IF STATEMENT NOT FOUND
0216	4501	144	JMS I	DELX	/DELETE STATEMENT
		145	/-----	INSERT STATEMENT INTO EDIT BUFFER	
0217	1031	146	TAD	CH	/DELETION ONLY REQUIRED
0220	7650	147	SNA	CLA	
0221	5241	148	JMP	EDIT7	/YES
0222	4477	149	JMS I	IEBX	/NO, INSERT STATEMENT NUMBER
0223	1037	150	TAD	S1	
0224	4477	151	JMS I	IEBX	
0225	1040	152	TAD	S2	
0226	4477	153	JMS I	IEBX	
0227	7040	154	CMA		/ADJUST INPUT BUFFER POINTER

0230	1024	155	TAD	IBFX	
0231	3024	156	DCA	IBFX	
0232	4456	157	JMS I	PAKX	/PACK STATEMENT
0233	1030	158	TAD	EBFP	/COMPUTE WORD COUNT FOR ENTRY
0234	7041	159	CMA	IAC	
0235	1027	160	TAD	EBFX	
0236	3430	161	DCA I	EBFP	/STORE IN BUFFER
0237	1027	162	TAD	EBFX	/UPDATE BUFFER POINTER
0240	3030	163	DCA	EBFP	
0241	3430	164	EDIT7, DCA I	EBFP	
0242	1023	165	TAD	LF	
0243	7640	166	SZA	CLA	
0244	5333	167	JMP	EDIT12	
0245	4455	168	JMS I	DELX	/OUTPUT END OF LINE
0246	4475	169	JMS I	IKBX	/INPUT KEYBOARD RECORD
0247	4460	170	JMS I	ICHX	/INPUT FIRST CHARACTER
0250	1031	171	TAD	CH	/CARRIAGE-RETURN
0251	7640	172	SZA	CLA	
0252	5211	173	JMP	EDIT3	/NO
0253	2037	174	ISZ	S1	/YES, INCREMENT STATEMENT NUMBER
0254	7410	175	SKP		
0255	5201	176	JMP	EDIT1	/IF ZERO
0256	3040	177	DCA	S2	
0257	1037	178	TAD	S1	/CONVERT STATEMENT NUMBER
0260	4474	179	JMS I	BDCX	/TO DECIMAL
0261	2013	180	TBF		
0262	3517	181	DCA I	XTBF4	
0263	4503	182	JMS I	OTBFX	/OUTPUT STATEMENT NUMBER
0264	4475	183	JMS I	IKBX	/INPUT KEYBOARD RECORD
0265	4460	184	JMS I	ICHX	/INPUT CHARACTER
0266	5214	185	JMP	EDIT4	/GO PROCESS RECORD
		186	/-----COMMAND ERROR		
0267	7200	187	EDIT8, CLA		
0270	4453	188	JMS I	OCRX	/OUTPUT CARRIAGE-RETURN
0271	4454	189	EDIT9, JMS I	QLFX	/OUTPUT LINE-FEED
0272	1136	190	TAD	0277	/OUTPUT "?"
0273	4462	191	JMS I	OCHX	
0274	5200	192	JMP	EDIT	
		193	/-----DECODE COMMAND LETTER		
0275	1031	194	EDIT10, TAD	CH	/FETCH CHARACTER
0276	1170	195	TAD	MO311	/LETTER "I"
0277	7640	196	SZA	CLA	
0300	5310	197	JMP	EDIT11	/NO
		198	/-----INITIALIZE COMMAND		
0301	4460	199	JMS I	ICHX	/YES, INPUT CHARACTER
0302	1031	200	TAD	CH	/TEST FOR CARRIAGE-RETURN
0303	7640	201	SZA	CLA	
0304	5271	202	JMP	EDIT9	/IF NOT, ERROR
0305	1115	203	TAD	XEBF	/INITIALIZE EDIT BUFFER POINTER
0306	3030	204	DCA	EBFP	
0307	5200	205	JMP	EDIT	
0310	1031	206	EDIT11, TAD	CH	/FETCH CHARACTER

0311	1172	207	TAD	MD314	/LETTER "L"
0312	7640	208	SZA	CLA	
0313	5350	209	JMP	EDIT26	/NO
0314	4460	210	JMS I	ICHX	/YES, INPUT CHARACTER
0315	4500	211	JMS I	TDGX	/TEST FOR DIGIT
0316	5267	212	JMP	EDIT8	/IF NOT DIGIT, ERROR
		213	/-----LOAD COMMAND		
0317	4473	214	JMS I	IDECX	/INPUT STATEMENT NUMBER
0320	1031	215	TAD	CH	/FETCH TERMINATING CHARACTER
0321	7640	216	SZA	CLA	/SKIP IF CARRIAGE-RETURN
0322	5267	217	JMP	EDIT8	/ERROR
0323	1045	218	TAD	SN	/INITIALIZE STATEMENT NUMBER
0324	7450	219	SNA		
0325	5267	220	JMP	EDIT8	/IF ZERO
0326	3037	221	DCA	S1	
0327	3040	222	DCA	S2	
0330	2023	223	ISZ	LF	/SET LOAD FLAG
0331	4455	224	JMS I	DELX	/OUTPUT END OF LINE
0332	5336	225	JMP	EDIT14	
0333	2037	226	EDIT12, ISZ	S1	/INCREMENT STATEMENT NUMBER
0334	5336	227	JMP	EDIT14	
0335	5201	228	JMP	EDIT1	/IF ZERO, TERMINATE LOAD
0336	4476	229	EDIT14, JMS I	IRRX	/INPUT READER RECORD
0337	4461	230	JMS I	INBCHX	/INPUT NON-BLANK CHARACTER
0340	1031	231	TAD	CH	/FETCH CHARACTER
0341	1155	232	TAD	MD244	/TEST FOR \$
0342	7650	233	SNA	CLA	
0343	5201	234	JMP	EDIT1	/IF \$, TERMINATE LOAD
0344	1113	235	TAD	XIBF	/INITIALIZE INPUT BUFFER POINTER
0345	3024	236	DCA	IBFX	
0346	4460	237	JMS I	ICHX	/INPUT FIRST CHARACTER
0347	5214	238	JMP	EDIT4	/GO ENTER STATEMENT
		239	/-----		
0350	1031	240	EDIT26, TAD	CH	/FETCH CHARACTER
0351	1166	241	TAD	MD305	/LETTER "E"
0352	7640	242	SZA	CLA	
0353	5356	243	JMP	EDIT28	/NO
0354	2020	244	ISZ	EF	/YES, SET EDIT FLAG
0355	4460	245	JMS I	ICHX	/INPUT CHARACTER
0356	1031	246	EDIT28, TAD	CH	/FETCH CHARACTER
0357	1165	247	TAD	MD304	/LETTER "D"
0360	7640	248	SZA	CLA	
0361	5364	249	JMP	EDIT30	/NO
0362	2021	250	ISZ	DF	/YES, SET DUMP FLAG
0363	5370	251	JMP	EDIT32	
0364	1031	252	EDIT30, TAD	CH	/FETCH CHARACTER
0365	1171	253	TAD	MD320	/LETTER "P"
0366	7640	254	SZA	CLA	
0367	5507	255	JMP I	EDIT8X	/NO, ERROR
0370	4460	256	EDIT32, JMS I	ICHX	/YES, INPUT CHARACTER
0371	1031	257	TAD	CH	/FETCH CHARACTER
0372	1167	258	TAD	MD306	/LETTER "F"

0373	7640	259	SZA	CLA	
0374	5510	260	JMP	I EDIT34X	/NO
0375	2022	261	ISZ	FF	/YES, SET FORMAT FLAG
0376	4460	262	JMS	I ICHX	/INPUT CHARACTER
0377	1020	263	EDIT34, TAD	EF	/EDIT MODE
0400	7640	264	SZA	CLA	
0401	5314	265	JMP	EDIT44	/YES
		266	/-----PRINT-DUMP COMMAND		
0402	3047	267	DCA	SM1	/INITIALIZE STATEMENT NUMBERS
0403	3050	268	DCA	SM2	
0404	7040	269	CMA		
0405	3051	270	DCA	SN1	
0406	7040	271	CMA		
0407	3052	272	DCA	SN2	
0410	4500	273	JMS	I TDGX	/TEST IF DIGIT INPUT
0411	5247	274	JMP	EDIT36	/IF NOT
0412	4472	275	JMS	I ISNX	/INPUT STATEMENT NUMBER
0413	1037	276	TAD	S1	
0414	3051	277	DCA	SN1	
0415	1040	278	TAD	S2	
0416	3052	279	DCA	SN2	
0417	7140	280	CLL	CMA	/REDUCE BY 0.0001
0420	1040	281	TAD	S2	
0421	3050	282	DCA	SM2	
0422	7420	283	SNL		
0423	7040	284	CMA		
0424	1037	285	TAD	S1	
0425	3047	286	DCA	SM1	
0426	1031	287	TAD	CH	/FETCH TERMINATING CHARACTER
0427	1156	288	TAD	MO254	/COMMA
0430	7640	289	SZA	CLA	
0431	5247	290	JMP	EDIT36	/NO
0432	4460	291	JMS	I ICHX	/YES, INPUT CHARACTER
0433	4500	292	JMS	I TDGX	/TEST IF DIGIT
0434	5507	293	JMP	I EDIT8X	/IF NOT DIGIT, ERROR
0435	4472	294	JMS	I ISNX	/INPUT STATEMENT NUMBER
0436	1037	295	TAD	S1	
0437	3051	296	DCA	SN1	
0440	1040	297	TAD	S2	
0441	3052	298	DCA	SN2	
0442	4470	299	JMS	I CMPX	/COMPARE STATEMENT NUMBERS
0443	0047	300	SM1		
0444	0051	301	SN1		
0445	7740	302	SMA	SZA CLA	
0446	5507	303	JMP	I EDIT8X	/IF FIRST > SECOND, ERROR
0447	1031	304	EDIT36, TAD	CH	/FETCH TERMINATING CHARACTER
0450	7640	305	SZA	CLA	/SKIP IF CARRIAGE-RETURN
0451	5507	306	JMP	I EDIT8X	/ERROR
0452	4455	307	JMS	I CELX	/OUTPUT END OF LINE
0453	1021	308	TAD	DF	/DUMP
0454	7640	309	SZA	CLA	
0455	4467	310	JMS	I PUNX	/YES, PUNCH LEADER

0456	4464	311	EDIT38,	JMS I SCHX	/SEARCH EDIT BUFFER
0457	5307	312		JMP EDIT42	/IF SEARCH COMPLETE
0460	1021	313		TAD DF	/DUMP
0461	7640	314		SZA CLA	
0462	5277	315		JMP EDIT41	/YES
0463	4502	316		JMS I ITBFX	/INITIALIZE TEXT BUFFER
0464	1047	317		TAD SM1	/CONVERT STATEMENT NUMBER
0465	4474	318		JMS I BDCX	/TO DECIMAL
0466	2013	319		TBF	
0467	1050	320		TAD SM2	
0470	7450	321		SNA	
0471	5276	322		JMP EDIT39	
0472	4474	323		JMS I BDCX	
0473	2020	324		TBF+5	
0474	1134	325		TAD 0256	
0475	3517	326		DCA I XTBF4	
0476	4503	327	EDIT39,	JMS I OTBFX	/OUTPUT STATEMENT NUMBER
0477	4457	328	EDIT41,	JMS I UPKX	/UNPACK STATEMENT
0500	4465	329		JMS I MOVX	/MOVE STATEMENT
0501	4471	330		JMS I OSTX	/OUTPUT STATEMENT
0502	6037	331		IOT 037	/CHECK FOR KEYBOARD BREAK-IN
0503	5256	332		JMP EDIT38	
0504	7750	333		SPA SNA CLA	
0505	5504	334		JMP I EDITX	/IF SO, TERMINATE OUTPUT
0506	5256	335		JMP EDIT38	
0507	1021	336	EDIT42,	TAD DF	/DUMP
0510	7650	337		SNA CLA	
0511	5505	338		JMP I EDIT1X	/NO
0512	4467	339		JMS I PUNX	/YES, PUNCH TRAILER
0513	5506	340		JMP I EDIT2X	
		341	/-----	EDIT PRINT-DUMP	COMMAND
0514	1030	342	EDIT44,	TAD EBFP	/INITIALIZE
0515	3027	343		DCA EBFX	
0516	1031	344		TAD CH	/FETCH TERMINATING CHARACTER
0517	7650	345		SNA CLA	/SKIP IF NOT CARRIAGE-RETURN
0520	5375	346		JMP EDIT52	/IF NO DELETIONS REQUIRED
0521	4500	347	EDIT46,	JMS I TDGX	/TEST CHARACTER FOR DIGIT
0522	5507	348		JMP I EDIT8X	/IF NOT DIGIT, ERROR
0523	4473	349		JMS I IDECX	/INPUT DECIMAL NUMBER
0524	1045	350		TAD SN	
0525	3043	351		DCA SM	
0526	1031	352		TAD CH	/FETCH TERMINATING CHARACTER
0527	1157	353		TAD M0255	/HYPHEN
0530	7640	354		SZA CLA	
0531	5336	355		JMP EDIT48	/NO
0532	4460	356		JMS I ICHX	/YES, INPUT CHARACTER
0533	4500	357		JMS I TDGX	/TEST IF DIGIT
0534	5507	358		JMP I EDIT8X	/IF NOT DIGIT, ERROR
0535	4473	359		JMS I IDECX	/INPUT DECIMAL NUMBER
0536	4470	360	EDIT48,	JMS I CMPX	/COMPARE VALUES
0537	0043	361		SM	
0540	0045	362		SN	

0541	7740	363	SMA SZA CLA	/SKIP IF FIRST < SECOND
0542	5507	364	JMP I EDIT8X	/ERROR
0543	2045	365	ISZ SN	
0544	7000	366	NOP	
0545	1031	367	TAD CH	/FETCH TERMINATING CHARACTER
0546	7450	368	SNA	
0547	5353	369	JMP EDIT50	/IF CARRIAGE-RETURN
0550	1156	370	TAD M0254	/COMMA
0551	7640	371	SZA CLA	
0552	5507	372	JMP I EDIT8X	/NO, ERROR
		373	/-----INSERT DELETE DATA INTO EDIT BUFFER	
0553	7307	374	EDIT50,CLA CLL IAC RTL	
0554	4477	375	JMS I IEBX	
0555	1043	376	TAD SM	
0556	4477	377	JMS I IEBX	
0557	4477	378	JMS I IEBX	
0560	1140	379	TAD 03700	
0561	4477	380	JMS I IEBX	
0562	2043	381	ISZ SM	
0563	1043	382	TAD SM	
0564	7041	383	CMA IAC	
0565	1045	384	TAD SN	
0566	7640	385	SZA CLA	
0567	5353	386	JMP EDIT50	
0570	1031	387	TAD CH	
0571	7650	388	SNA CLA	
0572	5375	389	JMP EDIT52	
0573	4460	390	JMS I ICHX	
0574	5321	391	JMP EDIT46	
0575	3427	392	EDIT52,DCA I EBFX	
0576	4455	393	JMS I DELX	/OUTPUT END OF LINE
0577	1021	394	TAD DF	/DUMP
0600	7640	395	SZA CLA	
0601	4467	396	JMS I PUNX	/YES, PUNCH LEADER
0602	3043	397	DCA SM	/INITIALIZE STATEMENT NUMBERS
0603	3045	398	DCA SN	
0604	1045	399	EDIT54,TAD SN	
0605	3047	400	DCA SM1	
0606	3050	401	DCA SM2	
0607	2045	402	ISZ SN	
0610	1045	403	TAD SN	
0611	3051	404	DCA SN1	
0612	3052	405	DCA SN2	
0613	4464	406	EDIT56,JMS I SCHX	/SEARCH EDIT BUFFER
0614	5227	407	JMP EDIT62	/IF STATEMENT NOT FOUND
0615	1427	408	TAD I EBFX	/CHECK FOR DELETE CODE
0616	1174	409	TAD M03700	
0617	7650	410	SNA CLA	
0620	5232	411	JMP EDIT64	/IF DELETE CODE
0621	4457	412	JMS I UPKX	/UNPACK STATEMENT
0622	4252	413	JMS EDIT68	/OUTPUT STATEMENT
0623	1050	414	TAD SM2	/REPLACEMENT PERFORMED

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0624 7640 415      SZA  CLA
0625 5213 416      JMP  EDIT56  /NO, CONTINUE
0626 5247 417      JMP  EDIT66  /YES, GO SKIP SOURCE STATEMENT
0627 4476 418 EDIT62,JMS I IRRX  /INPUT STATEMENT FROM READER
0630 4252 419      JMS  EDIT68  /OUTPUT STATEMENT
0631 5204 420      JMP  EDIT54  /GO PROCESS NEXT STATEMENT
0632 7344 421 EDIT64,CLA CLL CMA RAL /DROP DELETE DATA FROM BUFFER
0633 1027 422      TAD  EBFX
0634 3027 423      DCA  EBFX
0635 3427 424      DCA  I EBFX
0636 7040 425      CMA                      /REDUCE (SM1,SM2) BY 0.0001
0637 3050 426      DCA  SM2
0640 7040 427      CMA
0641 1047 428      TAD  SM1
0642 3047 429      DCA  SM1
0643 4464 430      JMS  I SCHX  /SEARCH EDIT BUFFER
0644 5247 431      JMP  EDIT66  /IF REPLACEMENT NOT FOUND
0645 4457 432      JMS  I UPKX  /UNPACK STATEMENT
0646 4252 433      JMS  EDIT68  /OUTPUT REPLACEMENT STATEMENT
0647 4476 434 EDIT66,JMS I IRRX  /INPUT STATEMENT FROM READER
0650 4272 435      JMS  EDIT72  /CHECK FOR $ STATEMENT
0651 5204 436      JMP  EDIT54  /GO PROCESS NEXT STATEMENT
0652 0000 437 EDIT68,0
0653 2043 438      ISZ  SM      /BUMP RUNNING STATEMENT NUMBER
0654 1021 439      TAD  DF      /DUMP
0655 7640 440      SZA  CLA
0656 5264 441      JMP  EDIT70  /YES
0657 1043 442      TAD  SM      /NO, CONVERT STATEMENT NUMBER TO
0660 4474 443      JMS  I BDCX  /DECIMAL
0661 2013 444      TBF
0662 3517 445      DCA  I XTBF4
0663 4503 446      JMS  I DTBFX /OUTPUT STATEMENT NUMBER
0664 4465 447 EDIT70,JMS I MOVX  /MOVE STATEMENT TO OUTPUT BUFFER
0665 4471 448      JMS  I OSTX  /OUTPUT STATEMENT
0666 1114 449      TAD  X0BF  /INITIALIZE POINTER
0667 3024 450      DCA  IBFX
0670 4272 451      JMS  EDIT72  /CHECK FOR $ STATEMENT
0671 5652 452      JMP  I EDIT68 /RETURN
453 /-----CHECK FOR $ STATEMENT
0672 0000 454 EDIT72,0
0673 4461 455      JMS  I INBCH /INPUT NON-BLANK CHARACTER
0674 1031 456      TAD  CH      /DOLLAR SIGN
0675 1155 457      TAD  MD244
0676 7650 458      SNA  CLA
0677 5511 459      JMP  I EDIT42X /YES
0700 5672 460      JMP  I EDIT72 /NO, RETURN
461 /-----
462 /
463 / SUBROUTINE TO DELETE STATEMENT FROM EDIT
464 / BUFFER AND REALLOCATE BUFFER STORAGE
465 /
466 /-----

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0701	0000	467	DEL,	0		
0702	1027	468		TAD	EBFX	
0703	1141	469		TAD	M3	
0704	3027	470		DCA	EBFX	
0705	1427	471		TAD	I EBFX	
0706	1027	472		TAD	EBFX	
0707	3026	473		DCA	GENX	
0710	1426	474	DEL2,	TAD	I GENX	
0711	7450	475		SNA		
0712	5324	476		JMP	DEL6	
0713	7041	477		CMA	IAC	
0714	3032	478		DCA	TEMP	
0715	1426	479	DEL4,	TAD	I GENX	
0716	3427	480		DCA	I EBFX	
0717	2026	481		ISZ	GENX	
0720	2027	482		ISZ	EBFX	
0721	2032	483		ISZ	TEMP	
0722	5315	484		JMP	DEL4	
0723	5310	485		JMP	DEL2	
0724	3427	486	DEL6,	DCA	I EBFX	
0725	1027	487		TAD	EBFX	
0726	3030	488		DCA	EBFP	
0727	57C1	489		JMP	I DEL	
		490	/----	INPUT	DECIMAL	NUMBER
0730	00C0	491	IDEC,	0		
0731	3045	492		DCA	SN	/INITIALIZE SN
0732	1045	493	IDEC2,	TAD	SN	/MULTIPLY SN BY 10
0733	71C4	494		CLL	RAL	
0734	7430	495		SZL		
0735	55C7	496		JMP	I EDIT8X	/OVERFLOW
0736	3045	497		DCA	SN	
0737	1045	498		TAD	SN	
0740	71C4	499		CLL	RAL	
0741	7430	500		SZL		
0742	55C7	501		JMP	I EDIT8X	/OVERFLOW
0743	71C4	502		CLL	RAL	
0744	7430	503		SZL		
0745	55C7	504		JMP	I EDIT8X	/OVERFLOW
0746	1045	505		TAD	SN	
0747	7430	506		SZL		
0750	55C7	507		JMP	I EDIT8X	/OVERFLOW
0751	3045	508		DCA	SN	
0752	1031	509		TAD	CH	/FETCH CHARACTER
0753	C124	510		AND	017	/MASK FOR DECIMAL DIGIT
0754	1045	511		TAD	SN	/ADD DIGIT TO SN
0755	7430	512		SZL		
0756	55C7	513		JMP	I EDIT8X	/OVERFLOW
0757	3045	514		DCA	SN	
0760	4460	515		JMS	I ICHX	/INPUT CHARACTER
0761	45C0	516		JMS	I TDGX	/TEST FOR DIGIT
0762	5730	517		JMP	I IDEC	/IF NOT DIGIT, RETURN
0763	5332	518		JMP	IDEC2	/CONTINUE

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519 /----OUTPUT TEXT BUFFER
0764 0000 520 OTBF, 0
0765 1112 521     TAD  XTBF
0766 3026 522     DCA  GENX
0767 1426 523 OTBF2, TAD I GENX
0770 7450 524     SNA
0771 5375 525     JMP  OTBF4
0772 4462 526     JMS I OCHX
0773 2026 527     ISZ  GENX
0774 5367 528     JMP  OTBF2
0775 1133 529 OTBF4, TAD  0240
0776 4462 530     JMS I OCHX
0777 5764 531     JMP I OTBF
532 /----INITIALIZE TEXT BUFFER
1000 0000 533 ITBF, 0
1001 1143 534     TAD  M9
1002 3032 535     DCA  TEMP
1003 1112 536     TAD  XTBF
1004 3026 537     DCA  GENX
1005 1133 538 ITBF2, TAD  0240
1006 3426 539     DCA I GENX
1007 2026 540     ISZ  GENX
1010 2032 541     ISZ  TEMP
1011 5205 542     JMP  ITBF2
1012 5600 543     JMP I ITBF
544 /----INPUT STATEMENT NUMBER
1013 0000 545 ISN, 0
1014 4473 546     JMS I IDECX  /INPUT DECIMAL NUMBER
1015 1045 547     TAD  SN      /STORE IN S1
1016 3037 548     DCA  S1
1017 1031 549     TAD  CH      /FETCH TERMINATING CHARACTER
1020 1160 550     TAD  M0256  /TEST FOR PERIOD
1021 7640 551     SZA  CLA
1022 5230 552     JMP  ISN2    /IF NOT PERIOD
1023 4460 553     JMS I ICHX   /INPUT CHARACTER
1024 4500 554     JMS I TDGX   /TEST FOR DIGIT
1025 5230 555     JMP  ISN2    /IF NOT DIGIT
1026 4473 556     JMS I IDECX  /INPUT DECIMAL NUMBER
1027 1045 557     TAD  SN      /STORE IN S2
1030 3040 558 ISN2, DCA  S2
1031 1037 559     TAD  S1      /CHECK STATEMENT NUMBER
1032 7450 560     SNA
1033 1040 561     TAD  S2
1034 7650 562     SNA  CLA
1035 5507 563     JMP I EDIT8X /IF ZERO, ERROR
1036 5613 564     JMP I ISN    /RETURN
565 /----SEARCH EDIT BUFFER FOR STATEMENT S1,S2
1037 0000 566 SEB, 0
1040 1115 567     TAD  XEBF
1041 3027 568     DCA  EBFX
1042 1427 569 SEB2, TAD I EBFX
1043 7450 570     SNA

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1044 5637 571      JMP I SEB          /IF NOT FOUND
1045 1027 572      TAD   EBFX
1046 3032 573      DCA   TEMP
1047 2027 574      ISZ   EBFX
1050 1427 575      TAD I EBFX
1051 7041 576      CMA   IAC
1052 1037 577      TAD   S1
1053 7640 578      SZA   CLA
1054 5266 579      JMP   SEB4
1055 2027 580      ISZ   EBFX
1056 1427 581      TAD I EBFX
1057 7041 582      CMA   IAC
1060 1040 583      TAD   S2
1061 7640 584      SZA   CLA
1062 5266 585      JMP   SEB4
1063 2027 586      ISZ   EBFX
1064 2237 587      ISZ   SEB
1065 5637 588      JMP I SEB
1066 1032 589 SEB4, TAD   TEMP
1067 3027 590      DCA   EBFX
1070 5242 591      JMP   SEB2

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592 /-----
593 /
594 /   SUBROUTINE TO SEARCH THE EDIT BUFFER FOR THE
595 /   LOWEST NUMBERED STATEMENT (S1,S2) HAVING THE
596 /   PROPERTY: (SM1,SM2) < (S1,S2) <= (SN1,SN2)
597 /
598 /-----

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1071 0000 599 SCH,   0
1072 1051 600      TAD   SN1
1073 3041 601      DCA   SS1
1074 1052 602      TAD   SN2
1075 3042 603      DCA   SS2
1076 3036 604      DCA   TEMP4
1077 1115 605      TAD   XEBF
1100 3027 606 SCH2, DCA   EBFX
1101 1427 607      TAD I EBFX
1102 7450 608      SNA
1103 5344 609      JMP   SCH6
1104 1027 610      TAD   EBFX
1105 3032 611      DCA   TEMP
1106 2027 612      ISZ   EBFX
1107 1427 613      TAD I EBFX
1110 3037 614      DCA   S1
1111 2027 615      ISZ   EBFX
1112 1427 616      TAD I EBFX
1113 3040 617      DCA   S2
1114 1037 618      TAD   S1
1115 7450 619      SNA
1116 1040 620      TAD   S2
1117 7650 621      SNA   CLA
1120 5342 622      JMP   SCH4

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1121 2027 623      ISZ   EBFX
1122 4470 624      JMS  I  CMPX
1123 0047 625      SM1
1124 0037 626      S1
1125 7700 627      SMA   CLA
1126 5342 628      JMP   SCH4
1127 4470 629      JMS  I  CMPX
1130 0037 630      S1
1131 0041 631      SS1
1132 7740 632      SMA  SZA CLA
1133 5342 633      JMP   SCH4
1134 1037 634      TAD   S1
1135 3041 635      DCA   SS1
1136 1040 636      TAD   S2
1137 3042 637      DCA   SS2
1140 1027 638      TAD   EBFX
1141 3036 639      DCA   TEMP4
1142 1032 640  SCH4, TAD   TEMP
1143 5300 641      JMP   SCH2
1144 1036 642  SCH6, TAD   TEMP4
1145 7450 643      SNA
1146 5671 644      JMP  I  SCH
1147 3027 645      DCA   EBFX
1150 1041 646      TAD   SS1
1151 3047 647      DCA   SM1
1152 1042 648      TAD   SS2
1153 3050 649      DCA   SM2
1154 2271 650      ISZ   SCH
1155 5671 651      JMP  I  SCH
652 /----INSERT WORD INTO EDIT BUFFER
1156 0000 653  IEB,   0
1157 3427 654      DCA  I  EBFX      /STORE WORD
1160 7101 655      CLL   IAC
1161 1027 656      TAD   EBFX      /CHECK FOR BUFFER FULL
1162 1130 657      TAD   0200     /NDP TO UNPROTECT LAST PAGE
1163 7630 658      SZL   CLA
1164 5367 659      JMP   IEB1
1165 2027 660      ISZ   EBFX      /INCREMENT BUFFER POINTER
1166 5756 661      JMP  I  IEB
662 /      BUFFER OVERFLOW
1167 1116 663  IEB1, TAD   XMSG
1170 3026 664      DCA   GENX
1171 4455 665      JMS  I  DELX
1172 1426 666  IEB2, TAD  I  GENX
1173 7450 667      SNA
1174 5504 668      JMP  I  EDITX
1175 4462 669      JMS  I  OCHX
1176 2026 670      ISZ   GENX
1177 5372 671      JMP   IEB2
672 /----COMPARE STATEMENT NUMBERS
1200 0000 673  CMP,   0
1201 1600 674      TAD  I  CMP

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1202	3033	675	DCA	TEMP1	
1203	2200	676	ISZ	CMP	
1204	1600	677	TAD I	CMP	
1205	3034	678	DCA	TEMP2	
1206	2200	679	ISZ	CMP	
1207	7300	680	CLA	CLL	
1210	1433	681	TAD I	TEMP1	
1211	3035	682	DCA	TEMP3	
1212	2033	683	ISZ	TEMP1	
1213	1434	684	TAD I	TEMP2	
1214	2034	685	ISZ	TEMP2	
1215	7041	686	CMA	IAC	
1216	1035	687	TAD	TEMP3	
1217	7420	688	SNL		
1220	5236	689	JMP	CMP4	
1221	7640	690	SZA	CLA	
1222	5234	691	JMP	CMP2	
1223	1433	692	TAD I	TEMP1	
1224	3035	693	DCA	TEMP3	
1225	1434	694	TAD I	TEMP2	
1226	7041	695	CMA	IAC	
1227	1035	696	TAD	TEMP3	
1230	7650	697	SNA	CLA	
1231	5600	698	JMP I	CMP	
1232	7430	699	SZL		
1233	5236	700	JMP	CMP4	
1234	7201	701	CMP2, CLA	IAC	
1235	5600	702	JMP I	CMP	
1236	7240	703	CMP4, CLA	CMA	
1237	5600	704	JMP I	CMP	
		705	/----TEST FOR DIGIT		
1240	0000	706	TDG,	0	
1241	1031	707	TAD	CH	/0260 <= CH < 0272
1242	1162	708	TAD	MD260	
1243	7710	709	SPA	CLA	
1244	5640	710	JMP I	TDG	
1245	1031	711	TAD	CH	
1246	1163	712	TAD	MD272	
1247	7710	713	SPA	CLA	
1250	2240	714	ISZ	TDG	/YES, INCREMENT RETURN ADDRESS
1251	5640	715	JMP I	TDG	/RETURN
		716	/----BINARY TO DECIMAL CONVERSION		
1252	0000	717	BDC,	0	
1253	3032	718	DCA	TEMP	
1254	1652	719	TAD I	BDC	
1255	2252	720	ISZ	BDC	
1256	3033	721	DCA	TEMP1	
1257	2033	722	ISZ	TEMP1	
1260	2033	723	ISZ	TEMP1	
1261	2033	724	ISZ	TEMP1	
1262	1142	725	TAD	M4	
1263	3035	726	DCA	TEMP3	

1264	1145	727	BDC2,	TAD	M12
1265	3036	728		DCA	TEMP4
1266	1032	729		TAD	TEMP
1267	7104	730		CLL	RAL
1270	3032	731		DCA	TEMP
1271	7004	732	BDC4,	RAL	
1272	3034	733		DCA	TEMP2
1273	1034	734		TAD	TEMP2
1274	1144	735		TAD	M10
1275	7430	736		SZL	
1276	3034	737		DCA	TEMP2
1277	7200	738		CLA	
1300	1032	739		TAD	TEMP
1301	7004	740		RAL	
1302	3032	741		DCA	TEMP
1303	1034	742		TAD	TEMP2
1304	2036	743		ISZ	TEMP4
1305	5271	744		JMP	BDC4
1306	1135	745		TAD	0260
1307	3433	746		DCA I	TEMP1
1310	7040	747		CMA	
1311	1033	748		TAD	TEMP1
1312	3033	749		DCA	TEMP1
1313	2035	750		ISZ	TEMP3
1314	5264	751		JMP	BDC2
1315	5652	752		JMP I	BDC
		753	/-----PACK STATEMENT		
1316	0000	754	PAK,	0	
1317	1424	755	PAK2,	TAD I	IBFX
1320	2024	756		ISZ	IBFX
1321	7450	757		SNA	
1322	5340	758		JMP	PAK4
1323	0126	759		AND	077
1324	7106	760		CLL	RTL;RTL;RTL
1325	7006				
1326	7006				
1327	3032	761		DCA	TEMP
1330	1424	762		TAD I	IBFX
1331	2024	763		ISZ	IBFX
1332	7450	764		SNA	
1333	5342	765		JMP	PAK6
1334	0126	766		AND	077
1335	1032	767		TAD	TEMP
1336	4477	768		JMS I	IEBX
1337	5317	769		JMP	PAK2
1340	1140	770	PAK4,	TAD	03700
1341	5344	771		JMP	PAK8
1342	1032	772	PAK6,	TAD	TEMP
1343	1125	773		TAD	037
1344	4477	774	PAK8,	JMS I	IEBX
1345	5716	775		JMP I	PAK
		776	/-----UNPACK STATEMENT		

1346	C000	777	UPK,	0	
1347	1113	778		TAD	XIBF
1350	3024	779		DCA	IBFX
1351	1427	780	UPK2,	TAD I	EBFX
1352	7012	781		RTR;	RTR;RTR
1353	7012				
1354	7012				
1355	4362	782		JMS	UPK4
1356	1427	783		TAD I	EBFX
1357	4362	784		JMS	UPK4
1360	2027	785		ISZ	EBFX
1361	5351	786		JMP	UPK2
1362	0000	787	UPK4,	0	
1363	1133	788		TAD	0240
1364	0126	789		AND	077
1365	1151	790		TAD	M077
1366	7500	791		SMA	
1367	5374	792		JMP	UPK6
1370	1137	793		TAD	0337
1371	3424	794		DCA I	IBFX
1372	2024	795		ISZ	IBFX
1373	5762	796		JMP I	UPK4
1374	3424	797	UPK6,	DCA I	IBFX
1375	1113	798		TAD	XIBF
1376	3024	799		DCA	IBFX
1377	5746	800		JMP I	UPK
		801	/-----OUTPUT STATEMENT		
1400	0000	802	OST,	0	
1401	1021	803		TAD	DF
1402	7640	804		SZA	CLA
1403	5214	805		JMP	OST2
1404	1062	806		TAD	OCHX
1405	3026	807		DCA	GENX
1406	3523	808		DCA I	XOBF67
1407	1020	809		TAD	EF
1410	7640	810		SZA	CLA
1411	5216	811		JMP	OST4
1412	3522	812		DCA I	XOBF62
1413	5216	813		JMP	OST4
1414	1066	814	OST2,	TAD	PCHX
1415	3026	815		DCA	GENX
1416	1114	816	OST4,	TAD	XOBF
1417	3024	817		DCA	IBFX
1420	1424	818	OST6,	TAD I	IBFX
1421	7450	819		SNA	
1422	5226	820		JMP	OST8
1423	4426	821		JMS I	GENX
1424	2024	822		ISZ	IBFX
1425	5220	823		JMP	OST6
1426	1132	824	OST8,	TAD	0215
1427	4426	825		JMS I	GENX
1430	1131	826		TAD	0212

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1431 4426 827      JMS I GENX
1432 56C0 828      JMP I DST
829 /----MOVE STATEMENT FROM INPUT BUFFER TO OUTPUT BUFFER
1433 00C0 830 MOV,    0
1434 72C0 831      CLA
1435 1146 832      TAD    M24
1436 3032 833      DCA    TEMP
1437 1114 834      TAD    X0BF
1440 3025 835      DCA    0BFX
1441 1133 836 MOV2,   TAD    0240
1442 3425 837      DCA I 0BFX
1443 2025 838      ISZ   0BFX
1444 2032 839      ISZ   TEMP
1445 5241 840      JMP   MOV2
1446 1114 841      TAD    X0BF
1447 3025 842      DCA    0BFX
1450 1022 843      TAD    FF
1451 7640 844      SZA   CLA
1452 5263 845      JMP   MOV6
1453 1424 846 MOV4,   TAD I 0BFX
1454 3425 847      DCA I 0BFX
1455 1425 848      TAD I 0BFX
1456 7650 849      SNA   CLA
1457 5633 850      JMP I MOV
1460 2024 851      ISZ   0BFX
1461 2025 852      ISZ   0BFX
1462 5253 853      JMP   MOV4
854 /      FORMAT STATEMENT
1463 1424 855 MOV6,   TAD I 0BFX
1464 1161 856      TAD    M0257
1465 7650 857      SNA   CLA
1466 5370 858      JMP   MOV23
1467 1144 859      TAD    M10
1470 3032 860      DCA    TEMP
1471 4461 861      JMS I INBCHX
1472 1031 862 MOV8,   TAD    CH
1473 7450 863      SNA
1474 5313 864      JMP   MOV10
1475 1156 865      TAD    M0254
1476 7650 866      SNA   CLA
1477 5336 867      JMP   MOV16
1500 1031 868      TAD    CH
1501 1164 869      TAD    M0275
1502 7650 870      SNA   CLA
1503 5336 871      JMP   MOV16
1504 1031 872      TAD    CH
1505 1161 873      TAD    M0257
1506 7650 874      SNA   CLA
1507 5313 875      JMP   MOV10
1510 4460 876      JMS I ICHX
1511 2032 877      ISZ   TEMP
1512 5272 878      JMP   MOV8

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1513	1113	879	MOV10,	TAD	XIBF
1514	3024	880		DCA	IBFX
1515	4461	881	MOV12,	JMS I	INBCHX
1516	1025	882		TAD	OBFX
1517	7041	883		CMA	IAC
1520	1120	884		TAD	XOBF7
1521	7710	885		SPA	CLA
1522	5325	886		JMP	MOV14
1523	1120	887		TAD	XOBF7
1524	3025	888		DCA	OBFX
1525	4372	889	MOV14,	JMS	MOV24
1526	1161	890		TAD	MO257
1527	7650	891		SNA	CLA
1530	5356	892		JMP	MOV20
1531	1031	893		TAD	CH
1532	3425	894		DCA I	OBFX
1533	2025	895		ISZ	OBFX
1534	4460	896		JMS I	ICHX
1535	5325	897		JMP	MOV14
1536	1113	898	MOV16,	TAD	XIBF
1537	3024	899		DCA	IBFX
1540	4461	900		JMS I	INBCHX
1541	1031	901	MOV18,	TAD	CH
1542	3425	902		DCA I	OBFX
1543	2025	903		ISZ	OBFX
1544	1031	904		TAD	CH
1545	1156	905		TAD	MO254
1546	7650	906		SNA	CLA
1547	5315	907		JMP	MOV12
1550	1031	908		TAD	CH
1551	1164	909		TAD	MO275
1552	7650	910		SNA	CLA
1553	5315	911		JMP	MOV12
1554	4460	912		JMS I	ICHX
1555	5341	913		JMP	MOV18
1556	1025	914	MOV20,	TAD	OBFX
1557	7041	915		CMA I	IAC
1560	1121	916		TAD	XOBF23
1561	7710	917		SPA	CLA
1562	5365	918		JMP	MOV22
1563	1121	919		TAD	XOBF23
1564	3025	920		DCA	OBFX
1565	4372	921	MOV22,	JMS	MOV24
1566	3425	922		DCA I	OBFX
1567	2025	923		ISZ	OBFX
1570	4460	924	MOV23,	JMS I	ICHX
1571	5365	925		JMP	MOV22
1572	0000	926	MOV24,	O	
1573	1031	927		TAD	CH
1574	7440	928		SZA	
1575	5772	929		JMP I	MOV24
1576	3425	930		DCA I	OBFX

```

1577 5633 931          JMP I MOV
          932 /-----
          933 /
          934 /   SUBROUTINE TO INPUT READER RECORD CONSISTING OF
          935 /   72 CHARACTERS MAXIMUM
          936 /   CARRIAGE-RETURN TERMINATES INPUT
          937 /   CHARACTERS NOT IN THE RANGE 0240-0336 ARE IGNORED
          938 /
          939 /-----
1600 0000 940 IRR,    0
1601 1113 941          TAD    XIBF
1602 3024 942          DCA    IBFX
1603 1147 943          TAD    M72
1604 3032 944          DCA    TEMP
          945 /-----
1605 6037 946 IRR2,  IOT    037      /IOT 017 FOR HIGH SPEED READER
          947 /-----
1606 5205 948          JMP    .-1
1607 0127 949          AND    0177
1610 1130 950          TAD    0200
1611 3031 951          DCA    CH
1612 1031 952          TAD    CH
1613 1152 953          TAD    M0215
1614 7650 954          SNA    CLA
1615 5237 955          JMP    IRR4
1616 1031 956          TAD    CH
1617 1173 957          TAD    M0337
1620 7700 958          SMA    CLA
1621 5205 959          JMP    IRR2
1622 1031 960          TAD    CH
1623 1154 961          TAD    M0240
1624 7710 962          SPA    CLA
1625 5205 963          JMP    IRR2
1626 1032 964          TAD    TEMP
1627 7700 965          SMA    CLA
1630 5205 966          JMP    IRR2
1631 1031 967          TAD    CH
1632 3424 968          DCA I  IBFX
1633 2024 969          ISZ   IBFX
1634 2032 970          ISZ   TEMP
1635 7000 971          NOP
1636 5205 972          JMP    IRR2
1637 3424 973 IRR4,  DCA I  IBFX
1640 1113 974          TAD    XIBF
1641 3024 975          DCA    IBFX
1642 5600 976          JMP I  IRR
          977 /-----
          978 /
          979 /   SUBROUTINE TO INPUT KEYBOARD RECORD CONSISTING OF
          980 /   72 CHARACTERS MAXIMUM
          981 /   CARRIAGE-RETURN TERMINATES INPUT
          982 /   ESC REINITIALIZES INPUT

```

983 / LEFT-ARROW DELETES PRECEEDING CHARACTERS
 984 / CHARACTERS NOT IN THE RANGE 0240-0336 ARE IGNORED
 985 /
 986 / -----

1643	0000	987	IKB,	0	
1644	1113	988		TAD	XIBF
1645	3024	989		DCA	IBFX
1646	1150	990		TAD	M73
1647	3032	991		DCA	TEMP
1650	6037	992	IKB2,	IOT	037
1651	5250	993		JMP	.-1
1652	0127	994		AND	0177
1653	1130	995		TAD	0200
1654	3031	996		DCA	CH
1655	1031	997		TAD	CH
1656	1152	998		TAD	M0215
1657	7650	999		SNA	CLA
1660	5307	1000		JMP	IKB4
1661	1031	1001		TAD	CH
1662	1153	1002		TAD	M0233
1663	7650	1003		SNA	CLA
1664	5504	1004		JMP I	EDITX
1665	1031	1005		TAD	CH
1666	1173	1006		TAD	M0337
1667	7450	1007		SNA	
1670	5313	1008		JMP	IKB6
1671	7700	1009		SMA	CLA
1672	5250	1010		JMP	IKB2
1673	1031	1011		TAD	CH
1674	1154	1012		TAD	M0240
1675	7710	1013		SPA	CLA
1676	5250	1014		JMP	IKB2
1677	1031	1015		TAD	CH
1700	3424	1016		DCA I	IBFX
1701	1031	1017		TAD	CH
1702	4462	1018		JMS I	OCHX
1703	2024	1019		ISZ	IBFX
1704	2032	1020		ISZ	TEMP
1705	5250	1021		JMP	IKB2
1706	5507	1022		JMP I	EDIT8X
1707	3424	1023	IKB4,	DCA I	IBFX
1710	1113	1024		TAD	XIBF
1711	3024	1025		DCA	IBFX
1712	5643	1026		JMP I	IKB
1713	7040	1027	IKB6,	CMA	
1714	1024	1028		TAD	IBFX
1715	3024	1029		DCA	IBFX
1716	1031	1030		TAD	CH
1717	4462	1031		JMS I	OCHX
1720	1113	1032		TAD	XIBF
1721	7041	1033		CMA	IAC
1722	1024	1034		TAD	IBFX

/ECHO CHARACTER

```

1723 7510 1035      SPA
1724 5507 1036      JMP I EDIT8X
1725 5250 1037      JMP      IKB2
1038 /-----INPUT CHARACTER FROM BUFFER
1726 0000 1039 ICH,  0
1727 1424 1040      TAD I IBFX
1730 3031 1041      DCA  CH
1731 2024 1042      ISZ  IBFX
1732 5726 1043      JMP I ICH
1044 /-----INPUT NON-BLANK CHARACTER FROM BUFFER
1733 0000 1045 INBCH, 0
1734 4326 1046      JMS   ICH
1735 1031 1047      TAD   CH
1736 1154 1048      TAD   M0240
1737 7650 1049      SNA   CLA
1740 5327 1050      JMP   ICH+1
1741 5733 1051      JMP I INBCH
1052 /-----OUTPUT CHARACTER TO PRINTER
1742 0000 1053 OCH,  0
1743 6047 1054      IDT   047
1744 5343 1055      JMP   .-1
1745 7200 1056      CLA
1746 5742 1057      JMP I OCH
1058 /-----OUTPUT CHARACTER TO PUNCH
1747 0000 1059 PCH,  0
1060 /-----
1750 6047 1061      IDT   047      /-----
1062 /IDT 027 FOR HIGH SPEED PUNCH
1063 /-----
1751 5350 1063      JMP   .-1
1752 7200 1064      CLA
1753 5747 1065      JMP I PCH
1066 /-----PUNCH BLANK TAPE
1754 0000 1067 PUN,  0
1755 1147 1068      TAD   M72
1756 3032 1069      DCA   TEMP
1757 4466 1070      JMS I PCHX
1760 2032 1071      ISZ   TEMP
1761 5357 1072      JMP   .-2
1762 5754 1073      JMP I PUN
1074 /-----OUTPUT END OF LINE
1763 0000 1075 OEL,  0
1764 4367 1076      JMS   OCR
1765 4373 1077      JMS   OLF
1766 5763 1078      JMP I OEL
1079 /-----OUTPUT CARRIAGE-RETURN
1767 0000 1080 OCR,  0
1770 1132 1081      TAD   0215
1771 4462 1082      JMS I OCHX
1772 5767 1083      JMP I OCR
1084 /-----OUTPUT LINE-FEED
1773 0000 1085 OLF,  0
1774 1131 1086      TAD   0212

```



```
1775 4462 1087      JMS I OCHX
1776 5773 1088      JMP I OLF
1089 /-----
1777 0302 1090 MSG,  'BUFFER FULL';0
2000 0325
2001 0306
2002 0306
2003 0305
2004 0322
2005 0240
2006 0306
2007 0325
2010 0314
2011 0314
2012 0000
2024      1091 TBF,  *.*+9           /TEXT BUFFER
2024 0000 1092      0
2055      1093 OBF,  *.*+24        /OUTPUT BUFFER
2166      1094 IBF,  *.*+73        /INPUT BUFFER
2166 0000 1095 EBF,  0             /START OF EDIT BUFFER
```

1097 /-----HIGH SPEED READER OVERLAY
1605 1098 *IRR2
1605 6017 1099 IOT 017

PAGE 24

```
1101 /-----HIGH SPEED PUNCH OVERLAY
1750 1102 *PCH+1
1750 6027 1103 IOT 027
```

NO ERRORS

CROSS-REFERENCE

SYMBOL	ADDR	DEFN	REFERENCES							
BDC	1252	717	58	719	720	752				
BDCX	C074	58	179	318	323	443				
BDC2	1264	727	751							
BDC4	1271	732	744							
CH	0031	24	146	171	194	200	206	215	231	240
			246	252	257	287	304	344	352	367
			387	456	509	549	707	711	862	868
			872	893	901	904	908	927	951	952
			956	960	967	996	997	1001	1005	1011
			1015	1017	1030	1041	1047			
CMP	1200	673	54	674	676	677	679	698	702	704
CMPX	C070	54	299	360	624	629				
CMP2	1234	701	691							
CMP4	1236	703	689	700						
DEL	C701	467	63	489						
DELX	0101	63	144							
DEL2	C710	474	485							
DEL4	C715	479	484							
DEL6	C724	486	476							
DF	C021	16	132	250	308	313	336	394	439	803
EBF	2166	1095	23	76						
EBFP	C030	23	135	158	161	163	164	204	342	488
EBFX	C027	22	160	162	343	392	408	422	423	424
			468	470	471	472	480	482	486	487
			568	569	572	574	575	580	581	586
			590	606	607	610	612	613	615	616
			623	638	645	654	656	660	780	783
			785							
EDIT	C200	129	66	192	205					
EDITX	C104	66	334	668	1004					
EDIT1	C201	130	67	176	228	234				
EDIT1X	C105	67	338							
EDIT10	C275	194	139							
EDIT11	C310	206	197							
EDIT12	C333	226	167							
EDIT14	C336	229	225	227						
EDIT2	C202	131	68							
EDIT2X	C106	68	340							
EDIT26	C350	240	209							
EDIT28	C356	246	243							
EDIT3	C211	138	173							
EDIT30	C364	252	249							
EDIT32	C370	256	251							
EDIT34	C377	263	70							
EDIT34X	C110	70	260							
EDIT36	C447	304	274	290						
EDIT38	C456	311	332	335						
EDIT39	C476	327	322							
EDIT4	C214	142	185	238						
EDIT41	C477	328	315							
EDIT42	C507	336	71	312						
EDIT42X	0111	71	459							

SYMBOL	ADDR	DEFN	REFERENCES
EDIT44	0514	342	265
EDIT46	0521	347	391
EDIT48	0536	360	355
EDIT50	0553	374	369 386
EDIT52	0575	392	346 389
EDIT54	0604	399	420 436
EDIT56	0613	406	416
EDIT62	0627	418	407
EDIT64	0632	421	411
EDIT66	0647	434	417 431
EDIT68	0652	437	413 419 433 452
EDIT7	0241	164	148
EDIT70	0664	447	441
EDIT72	0672	454	435 451 460
EDIT8	0267	187	69 212 217 220
EDIT8X	0107	69	255 293 303 306 348 358 364 372 496 501 504 507 513 563 1022 1036
EDIT9	0271	189	202
EF	0020	15	131 244 263 809
FF	0022	17	133 261 843
GENX	0026	21	473 474 479 481 522 523 527 537 539 540 664 666 670 807 815 821 825 827
IBF	2055	1094	74
IBFX	0024	19	155 156 236 450 755 756 762 763 779 794 795 797 799 817 818 822 846 851 855 880 899 942 968 969 973 975 989 1016 1019 1023 1025 1028 1029 1034 1040 1042
ICH	1726	1039	46 1043 1046 1050
ICHX	0060	46	137 170 184 199 210 237 245 256 262 291 356 390 515 553 876 896 912 924
IDEC	0730	491	57 517
IDECX	0073	57	214 349 359 546 556
IDEC2	0732	493	518
IEB	1156	653	61 661
IEBX	0077	61	149 151 153 375 377 378 380 768 774
IEB1	1167	663	659
IEB2	1172	666	671
IKB	1643	987	59 1026
IKBX	0075	59	136 169 183
IKB2	1650	992	1010 1014 1021 1037
IKB4	1707	1023	1000
IKB6	1713	1027	1008
INBCH	1733	1045	47 1051
INBCHX	0061	47	230 455 861 881 900
IRR	1600	940	60 976
IRRX	0076	60	229 418 434
IRR2	1605	946	959 963 966 972 1098
IRR4	1637	973	955

SYMBOL	ADDR	DEFN	REFERENCES							
ISN	1013	545	56	564						
ISNX	0072	56	141	275	294					
ISN2	1030	558	552	555						
ITBF	1000	533	64	543						
ITBFX	C102	64	316							
ITBF2	1005	538	542							
LF	0023	18	134	165	223					
MOV	1433	830	51	850	931					
MOVX	0065	51	329	447						
MOV10	1513	879	864	875						
MOV12	1515	881	907	911						
MOV14	1525	889	886	897						
MOV16	1536	898	867	871						
MOV18	1541	901	913							
MOV2	1441	836	840							
MOV20	1556	914	892							
MOV22	1565	921	918	925						
MOV23	1570	924	858							
MOV24	1572	926	889	921	929					
MOV4	1453	846	853							
MOV6	1463	855	845							
MOV8	1472	862	878							
MO215	C152	106	953	998						
MO233	C153	107	1002							
MO240	C154	108	961	1012	1048					
MO244	C155	109	232	457						
MO254	C156	110	288	370	865	905				
MO255	0157	111	353							
MO256	C160	112	550							
MO257	C161	113	856	873	890					
MO260	C162	114	708							
MO272	C163	115	712							
MO275	0164	116	869	909						
MO304	0165	117	247							
MO305	C166	118	241							
MO306	C167	119	258							
MO311	C170	120	195							
MO314	C172	122	207							
MO320	C171	121	253							
MO337	C173	123	957	1006						
MO3700	C174	124	409							
MO77	C151	105	790							
MSG	1777	1090	77							
M10	C144	100	735	859						
M12	C145	101	727							
M24	C146	102	832							
M3	0141	97	469							
M4	C142	98	725							
72	C147	103	943	1068						
M73	C150	104	990							
M9	0143	99	534							
QBF	2025	1093	75	79	80	81	82			

CROSS-REFERENCE

SYMBOL	ADDR	DEFN	REFERENCES							
DBFX	0025	20	835	837	838	842	847	848	852	882
			888	894	895	902	903	914	920	922
			923	930						
OCH	1742	1053	48	1057						
OCHX	0062	48	191	526	530	669	806	1018	1031	1082
			1087							
OCR	1767	1080	41	1076	1083					
OCRX	0053	41	129	188						
DEL	1763	1075	43	1078						
DELX	0055	43	168	224	307	393	665			
OLF	1773	1085	42	1077	1088					
OLFX	0054	42	130	189						
OST	1400	802	55	828						
OSTX	0071	55	330	448						
OST2	1414	814	805							
OST4	1416	816	811	813						
OST6	1420	818	823							
OST8	1426	824	820							
DTBF	0764	520	65	531						
DTBFX	0103	65	182	327	446					
DTBF2	0767	523	528							
DTBF4	0775	529	525							
O17	0124	84	510							
O177	0127	87	949	994						
O200	0130	88	657	950	995					
O212	0131	89	826	1086						
O215	0132	90	824	1081						
O240	0133	91	529	538	788	836				
O256	0134	92	325							
O260	0135	93	745							
O277	0136	94	190							
O337	0137	95	793							
O37	0125	85	773							
O3700	0140	96	379	770						
O77	0126	86	759	766	789					
PAK	1316	754	44	775						
PAKX	0056	44	157							
PAK2	1317	755	769							
PAK4	1340	770	758							
PAK6	1342	772	765							
PAK8	1344	774	771							
PCH	1747	1059	52	1065	1102					
PCHX	0066	52	814	1070						
PUN	1754	1067	53	1073						
PUNX	0067	53	310	339	396					
SCH	1071	599	50	644	650	651				
SCHX	0064	50	311	406	430					
SCH2	1100	606	641							
SCH4	1142	640	622	628	633					
SCH6	1144	642	609							
SEB	1037	566	49	571	587	588				
SEBX	0063	49	142							

CROSS-REFERENCE

SYMBOL	ADDR	DEFN	REFERENCES							
SEB2	1042	569	591							
SEB4	1066	589	579	585						
SM	C043	34	351	361	376	381	382	397	438	442
SM1	C047	36	267	286	300	317	400	428	429	625
			647							
SM2	C050	37	268	282	320	401	414	426	649	
SN	C045	35	218	350	362	365	384	398	399	402
			403	492	493	497	498	505	508	511
			514	547	557					
SN1	C051	38	270	277	296	301	404	600		
SN2	C052	39	272	279	298	405	602			
SS1	C041	32	601	631	635	646				
SS2	C042	33	603	637	648					
S1	C037	30	150	174	178	221	226	276	285	295
			548	559	577	614	618	626	630	634
S2	C040	31	152	177	222	278	281	297	558	561
			583	617	620	636				
TBF	2013	1091	73	78	180	319	324	444		
TDG	1240	706	62	710	714	715				
TDGX	C100	62	138	211	273	292	347	357	516	554
TEMP	0032	25	478	483	535	541	573	589	611	640
			718	729	731	739	741	761	767	772
			833	839	860	877	944	964	970	991
			1020	1069	1071					
TEMP1	C033	26	675	681	683	692	721	722	723	724
			746	748	749					
TEMP2	C034	27	678	684	685	694	733	734	737	742
TEMP3	C035	28	682	687	693	696	726	750		
TEMP4	C036	29	604	639	642	728	743			
UPK	1346	777	45	800						
UPKX	0057	45	328	412	432					
UPK2	1351	780	786							
UPK4	1362	787	782	784	796					
UPK6	1374	797	792							
XEBF	C115	76	203	567	605					
XIBF	C113	74	235	778	798	879	898	941	974	988
			1024	1032						
XMSG	C116	77	663							
XOBF	C114	75	449	816	834	841				
XOBF23	C121	80	916	919						
XOBF62	C122	81	812							
XOBF67	C123	82	808							
XOBF7	C120	79	884	887						
XTBF	C112	73	521	536						
XTBF4	C117	78	181	326	445					


```

1 /-----
2 /
3 / MP12 ASSEMBLER                      900-0076-04 REV 00B
4 /
5 / (C) COPYRIGHT 1974, FABRI-TEK INCORPORATED
6 /
7 /-----
8           OCTAL
9 /-----
0001      10           *1
11 /-----
0001 5403      12           JMP I .+2           /INTERRUPT JUMP
0002 7402      13           HLT                 /POWER UP
0003 2177      14           INT                 /INTERRUPT ADDRESS
15 /-----CONSTANTS AND STORAGE
0004 0000      16 PASS, 0                     /PASS NUMBER
0005 0000      17 T1, 0                       /STORAGE TEMP 1
0006 0000      18 T2, 0                       /STORAGE TEMP 2
0007 0000      19 T3, 0                       /STORAGE TEMP 3
0010 0000      20 T4, 0                       /STORAGE TEMP 4
0011 0000      21 AIX, 0                      /GENERAL USE
0012 0000      22 AIY, 0                      /GENERAL USE
0013 0000      23 SP, 0                       /STRING POINTER
0014 0000      24 STX, 0                      /SYMBOL TABLE INDEX
0015 0000      25 IP, 0                       /INPUT BUFFER POINTER
0016 0000      26 OP, 0                       /OUTPUT BUFFER POINTER
0017 0000      27 PP, 0                       /PUNCH BUFFER POINTER
0020 0000      28 TSP, 0                      /TEMP STRING POINTER
0021 0000      29 TCH, 0                      /TEMP CHARACTER
0022 0000      30 NM, 0                       /NUMERIC CONVERSION MODE
0023 0000      31 PN, 0                       /PAGE NUMBER
0024 0000      32 SN, 0                       /STATEMENT NUMBER
0025 0000      33 LN, 0                       /LINE NUMBER
0026 0000      34 LC, 0                       /LOCATION COUNTER
0027 0000      35 RA, 0                       /RECORD ADDRESS
0030 3202      36 STP, ST                     /SYMBOL TABLE POINTER
0031 0000      37 SYA, 0;0                    /ADDRESS OF SYMBOL IN TABLE
0032 0000
0033 0000      38 S1, 0                       /SYMBOL, WORD 1
0034 0000      39 S2, 0                       /SYMBOL, WORD 2
0035 0000      40 S3, 0                       /SYMBOL, WORD 3
0036 0000      41 S4, 0                       /SYMBOL, WORD 4
0037 0000      42 S5, 0                       /SYMBOL WORD COUNT
0040 0000      43 CH, 0                       /CHARACTER STORAGE
0041 0000      44 CR, 0                       /CHARACTER STORAGE
0042 0000      45 CT, 0                       /CHARACTER COUNT
0043 0000      46 AC, 0                       /STORAGE FOR AC
0044 0000      47 LK, 0                       /STORAGE FOR LINK
0045 0000      48 EV, 0                       /EXPRESSION VALUE
0046 0000      49 TV, 0                       /TERM VALUE
0047 0000      50 SIGN, 0                     /TERM SIGN
0050 0000      51 DATA, 0                    /ASSEMBLED DATA WORD

```

0051	0000	52	MASK,	0	/INSTRUCTION MASK
0052	0000	53	CSUM,	0	/CHECKSUM
		54	/-----SUBROUTINE ARGUMENT STORAGE		
0053	0000	55	AO,	0	/AC
0054	0000	56	A1,	0	/ARGUMENT ADDRESS
		57	/-----DATA ADDRESS LINKAGE		
0055	0032	58	SY,	SI-1	/ADDRESS OF SYMBOL - 1
0056	3201	59	STY,	ST-1	/BASE OF SYMBOL TABLE - 1
0057	2737	60	MTY,	MT-1	/BASE OF MNEMONIC TABLE - 1
0060	3164	61	MT1Y,	MT1-1	/BASE OF DIRECTIVE TABLE - 1
0061	2624	62	DBY,	DB-1	/ADDRESS OF OUTPUT BUFFER - 1
0062	2512	63	PBY,	PB-1	/ADDRESS OF PUNCH BUFFER - 1
0063	2314	64	PAY,	PA-1	/ADDRESS OF PAGE HEADING
0064	2357	65	IBX,	IB	/ADDRESS OF INPUT BUFFER
0065	2377	66	IBY,	IB+20	/ADDRESS OF INPUT RECORD - 1
0066	2355	67	IBZ,	IB-2	/ADDRESS OF INPUT BUFFER - 2
0067	2372	68	IB12X,	IB+13	/
		69	/-----PROGRAM ADDRESS LINKAGE		
0070	1020	70	TPX,	TP	/TEST PASS
0071	2062	71	RRX,	RR	/READ RECORD
0072	1533	72	OLX,	OL	/OUTPUT LISTING
0073	2005	73	ORX,	OR	/OUTPUT RECORD
0074	2156	74	WBX,	WB	/WRITE BUFFER
0075	1373	75	WTX,	WT	/WAIT FOR OUTPUT COMPLETION
0076	1255	76	PWX,	PW	/PUNCH WORD
0077	1274	77	PRX,	PR	/PUNCH RECORD
0100	2026	78	PLX,	PL	/PUNCH LEADER
0101	0603	79	ASTX,	AST	/PROCESS ASTERISK
0102	1773	80	STRX,	STR	/PROCESS CHARACTER STRING
0103	0257	81	WUPX,	WUP	/WRAP UP
0104	1757	82	PSPX,	PSP	/PRESERVE STRING POINTER
0105	1765	83	RSPX,	RSP	/RESTORE STRING POINTER
0106	1027	84	IEVX,	IEV	/INPUT EXPRESSION VALUE
0107	1505	85	BDCX,	BOC	/BINARY TO OCTAL CONVERSION
0110	1436	86	BDCX,	BDC	/BINARY TO DECIMAL CONVERSION
0111	1200	87	PAKX,	PAK	/PACK SYMBOL
0112	2047	88	IIBX,	IIB	/INITIALIZE INPUT BUFFER
0113	0400	89	ASMBX,	ASMB	/ASSEMBLE STATEMENT
0114	1400	90	TDIGX,	TDIG	/TEST FOR DIGIT
0115	1414	91	TLETX,	TLET	/TEST FOR LETTER
0116	1000	92	TENDX,	TEND	/TEST FOR STATEMENT END
0117	1430	93	TLODX,	TLOD	/TEST FOR LETTER OR DIGIT
0120	0615	94	SMTX,	SMT	/SEARCH MNEMONIC TABLE
0121	0646	95	SSTX,	SST	/SEARCH SYMBOL TABLE
0122	0757	96	ICHX,	ICH	/INPUT CHARACTER
0123	0763	97	INBCHX,	INBCH	/INPUT NON-BLANK CHARACTER
		98	/-----CONSTANTS		
0124	0003	99	O3,	3	
0125	0007	100	O7,	7	
0126	0017	101	O17,	17	
0127	0077	102	O77,	77	
0130	0100	103	O100,	100	

0131	0177	104	0177,	177	
0132	0200	105	0200,	200	
0133	0240	106	0240,	240	/BLANK
0134	0260	107	0260,	260	/D
0135	0304	108	0304,	304	/D
0136	0306	109	0306,	0306	/F
0137	0311	110	0311,	311	/I
0140	0320	111	0320,	320	/P
0141	0323	112	0323,	323	/S
0142	0325	113	0325,	325	/U
0143	0400	114	0400,	400	
0144	0777	115	0777,	777	
0145	7600	116	07600,	7600	
0146	7774	117	M4,	-4	
0147	7771	118	M7,	-7	
0150	7766	119	M10,	-12	
0151	7764	120	M12,	-14	
0152	7756	121	M18,	-22	
0153	7750	122	M24,	-30	
0154	7737	123	M33,	-41	
0155	7741	124	M31,	-37	
0156	7714	125	M52,	-64	
0157	7670	126	M72,	-110	
0160	7563	127	M0215,	-215	/CARRIAGE-RETURN
0161	7540	128	M0240,	-240	/BLANK
0162	7534	129	M0244,	-244	/\$
0163	7531	130	M0247,	-247	/'
0164	7526	131	M0252,	-252	/*
0165	7525	132	M0253,	-253	/+
0166	7524	133	M0254,	-254	/,
0167	7523	134	M0255,	-255	/-
0170	7521	135	M0257,	-257	/SLASH
0171	7505	136	M0273,	-273	/;
0172	7503	137	M0275,	-275	/=
0173	7467	138	M0311,	-311	/I
0174	7440	139	M0340,	-340	
		140	/-----		
0176		141	*0176		
		142	/-----		
0176	4475	143	HALT, JMS I WTX		/WAIT FOR OUTPUT COMPLETION
0177	7402	144	HLT		/END OF PASS, HALT
		145	/-----BEGIN ASSEMBLY		
0200	7604	146	CLA DSR		/READ SWITCH REGISTER
0201	0124	147	AND 03		
0202	7450	148	SNA		
0203	5176	149	JMP HALT		/UNSPECIFIED PASS NUMBER
0204	7041	150	CMA IAC		
0205	7040	151	CMA		
0206	3004	152	DCA PASS		/SAVE PASS NUMBER
0207	1132	153	TAD 0200		/INITIALIZE PASS
0210	3026	154	DCA LC		
0211	1026	155	TAD LC		

0212	3027	156	DCA	RA		
0213	3022	157	DCA	NM		
0214	3023	158	DCA	PN		
0215	3024	159	DCA	SN		
0216	3015	160	DCA	IP		
0217	3016	161	DCA	OP		
0220	7040	162	CMA			
0221	3025	163	DCA	LN		
0222	6001	164	ION		/ENABLE INTERRUPTS	
0223	1004	165	TAD	PASS	/FETCH PASS NUMBER	
0224	7440	166	SZA		/SKIP IF PASS 1	
0225	5231	167	JMP	.+4	/NOT PASS 1	
0226	1056	168	TAD	STY	/SET SYMBOL TABLE POINTER	
0227	3030	169	DCA	STP		
0230	2030	170	ISZ	STP		
0231	7010	171	RAR			
0232	7630	172	SZL	CLA	/SKIP IF NOT PASS 2	
0233	4500	173	JMS I	PLX	/PASS 2, PUNCH LEADER	
		174	/-----INPUT RECORD			
0234	4471	175	IR,	JMS I	RRX	/READ RECORD
		176	/-----PROCESS INPUT RECORD			
0235	4516	177	PIR,	JMS I	TENDX	/TEST FOR STATEMENT END
0236	5263	178		JMP	WUP2	/YES, GO WRAP UP
0237	4504	179		JMS I	PSPX	/NO, PRESERVE STRING POINTER
0240	1040	180		TAD	CH	/TEST FOR ASTERISK (*)
0241	1164	181		TAD	MO252	
0242	7650	182		SNA	CLA	
0243	5501	183		JMP I	ASTX	/YES, GO PROCESS
0244	4515	184		JMS I	TLETX	/TEST FOR LETTER
0245	5300	185		JMP	LET	/YES, GO PROCESS
0246	1040	186		TAD	CH	/TEST FOR APOSTROPHE
0247	1163	187		TAD	MO247	
0250	7650	188		SNA	CLA	
0251	5502	189		JMP I	STRX	/YES, GO PROCESS STRING
0252	4470	190	PIR2,	JMS I	TPX	/TEST PASS
0253	4505	191		JMS I	RSPX	/RESTORE STRING POINTER
0254	4513	192		JMS I	ASMBX	/ASSEMBLE STATEMENT
0255	1050	193		TAD	DATA	/FETCH ASSEMBLED DATA
0256	4473	194		JMS I	ORX	/OUTPUT RECORD
		195	/-----WRAP UP STATEMENT PROCESSING			
0257	4516	196	WUP,	JMS I	TENDX	/TEST FOR STATEMENT END
0260	5263	197		JMP	WUP2	/IF YES
0261	4523	198		JMS I	INBCHX	/INPUT NON-BLANK CHARACTER
0262	5257	199		JMP	WUP	/GO TEST AGAIN
0263	7040	200	WUP2,	CMA		/PASS 2
0264	1004	201		TAD	PASS	
0265	7650	202		SNA	CLA	
0266	5272	203		JMP	WUP4	/YES
0267	1467	204		TAD I	IB12X	/NO, RECDRD LISTED
0270	7640	205		SZA	CLA	
0271	4472	206		JMS I	OLX	/NO, OUTPUT LISTING
0272	1040	207	WUP4,	TAD	CH	/TERMINATING CHAR SEMICOLON

0273	1171	208		TAD	MO273	
0274	7640	209		SZA	CLA	
0275	5234	210		JMP	IR	/NO, GO INPUT NEXT RECORD
0276	4523	211	WUP6,	JMS I	INBCHX	/YES, INPUT NON-BLANK CHARACTER
0277	5235	212		JMP	PIR	/GO PROCESS RECORD
		213	/-----		PROCESS LETTER	
0300	4511	214	LET,	JMS I	PAKX	/PACK SYMBOL
0301	1040	215		TAD	CH	/FETCH TERMINATING CHARACTER
0302	1172	216		TAD	MO275	/EQUAL SIGN (=)
0303	7640	217		SZA	CLA	
0304	5340	218		JMP	LET10	/NO, GO CHECK FOR LABEL
		219	/----		EQUALITY SYMBOL	
0305	4521	220		JMS I	SSTX	/SEARCH SYMBOL TABLE
0306	5336	221		JMP	LET8	/SYMBOL TABLE FULL
0307	5317	222		JMP	LET2	/SYMBOL NOT DEFINED
0310	2031	223		ISZ	SYA	/INCREMENT ADDRESS
0311	1004	224		TAD	PASS	/FETCH PASS NUMBER
0312	7640	225		SZA	CLA	/PASS 1
0313	5333	226		JMP	LET6	/NO
0314	1135	227		TAD	0304	/YES, DOUBLE DEFINITION
0315	3464	228		DCA I	IBX	/STORE ERROR FLAG
0316	5333	229		JMP	LET6	/GO LIST RECORD
0317	1031	230	LET2,	TAD	SYA	/SAVE SYMBOL ADDRESS
0320	3032	231		DCA	SYA+1	
0321	4523	232		JMS I	INBCHX	/INPUT NON-BLANK CHARACTER
0322	4513	233		JMS I	ASMBX	/ASSEMBLE EXPRESSION
0323	1032	234		TAD	SYA+1	/RESTORE SYMBOL ADDRESS
0324	3031	235		DCA	SYA	
0325	1431	236		TAD I	SYA	/INDICATE SYMBOL DEFINED
0326	1130	237		TAD	0100	
0327	3431	238		DCA I	SYA	
0330	2031	239		ISZ	SYA	
0331	1050	240		TAD	DATA	/FETCH SYMBOL VALUE
0332	3431	241		DCA I	SYA	/STORE IN SYMBOL TABLE
0333	1431	242	LET6,	TAD I	SYA	/FETCH SYMBOL VALUE
0334	4507	243		JMS I	BOCX;IB+7	/CONVERT TO OCTAL
0335	2366					
0336	4472	244	LET8,	JMS I	OLX	/OUTPUT LISTING
0337	5257	245		JMP	WUP	/GO WRAP UP
		246	/		CHECK FOR LABEL	
0340	1040	247	LET10,	TAD	CH	/FETCH TERMINATING CHARACTER
0341	1166	248		TAD	MO254	/COMMA (,)
0342	7650	249		SNA	CLA	
0343	5352	250		JMP	LET12	/YES, GO PROCESS LABEL
0344	1060	251		TAD	MT1Y	/NO, FETCH TABLE ADDRESS
0345	4520	252		JMS I	SMTX	/SEARCH TABLE
0346	5252	253		JMP	PIR2	/IF MNEMONIC NOT FOUND
0347	1431	254		TAD I	SYA	/FETCH ROUTINE ADDRESS
0350	3031	255		DCA	SYA	/STORE
0351	5431	256		JMP I	SYA	/GO PROCESS DIRECTIVE
		257	/----		LABEL	
0352	4521	258	LET12,	JMS I	SSTX	/SEARCH SYMBOL TABLE

0353	5276	259	JMP	WUP6	/SYMBOL TABLE FULL
0354	5363	260	JMP	LET14	/SYMBOL NOT DEFINED
0355	1004	261	TAD	PASS	/SYMBOL DEFINED, FETCH PASS NUMBER
0356	7640	262	SZA	CLA	/PASS 1
0357	5276	263	JMP	WUP6	/NO, GO PROCESS REMAINDER OF RECORD
0360	1135	264	TAD	0304	/YES, DOUBLE DEFINITION
0361	3464	265	DCA I	IBX	/STORE ERROR FLAG (D)
0362	5276	266	JMP	WUP6	/GO PROCESS REMAINDER OF RECORD
0363	1431	267	LET14, TAD I	SYA	/INDICATE SYMBOL DEFINED
0364	1130	268	TAD	0100	
0365	3431	269	DCA I	SYA	
0366	2031	270	ISZ	SYA	
0367	1026	271	TAD	LC	/FETCH SYMBOL VALUE (LC)
0370	3431	272	DCA I	SYA	/STORE SYMBOL VALUE
0371	5276	273	JMP	WUP6	/GO PROCESS REMAINDER OF RECORD
		274	/-----PROCESS DECIMAL MNEMONIC		
0372	7040	275	DEC, CMA		/MODE = -1
0373	3022	276	DCA	NM	/SET CONVERSION MODE
0374	5257	277	JMP	WUP	/GO WRAP UP
		278	/-----PROCESS OCTAL MNEMONIC		
0375	7001	279	OCT, IAC		/MODE = +1
0376	3022	280	DCA	NM	/SET CONVERSION MODE
0377	5257	281	JMP	WUP	/GO WRAP UP
		282	/-----ASSEMBLE STATEMENT		
0400	0000	283	ASMB, 0		
0401	4504	284	JMS I	PSPX	/PRESERVE STRING POINTER
0402	4515	285	JMS I	TLETX	/TEST FOR LETTER
0403	5211	286	JMP	ASMB4	/IF LETTER
0404	4505	287	ASMB2, JMS I	RSPX	/RESTORE STRING POINTER
0405	4506	288	JMS I	IEVX	/INPUT EXPRESSION VALUE
0406	1045	289	TAD	EV	/FETCH EXPRESSION VALUE
0407	3050	290	DCA	DATA	/STORE
0410	5600	291	JMP I	ASMB	/RETURN
0411	4511	292	ASMB4, JMS I	PAKX	/PACK SYMBOL
0412	1057	293	TAD	MTY	/FETCH MNEMONIC TABLE ADDRESS
0413	4520	294	JMS I	SMTX	/SEARCH MNEMONIC TABLE
0414	5204	295	JMP	ASMB2	/IF MNEMONIC NOT FOUND
0415	1431	296	TAD I	SYA	
0416	3051	297	DCA	MASK	
0417	2031	298	ISZ	SYA	
0420	1431	299	TAD I	SYA	
0421	3050	300	DCA	DATA	
0422	1050	301	TAD	DATA	/DETERMINE INSTRUCTION TYPE
0423	7106	302	CLL	RTL	
0424	7006	303	RTL		
0425	0125	304	AND	07	
0426	1147	305	TAD	M7	
0427	7450	306	SNA		/SKIP IF NOT OPERATE
0430	5330	307	JMP	ASMB26	/OPERATE, GO PROCESS
0431	7001	308	IAC		/TEST FOR MEM REF OR I/O
0432	7650	309	SNA	CLA	/SKIP IF MEMORY REFERENCE
0433	5312	310	JMP	ASMB20	/IF I/O

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311 /---- MEMORY REFERENCE INSTRUCTION
0434 4516 312 JMS I TENDX /TEST FOR STATEMENT END
0435 5307 313 JMP ASMB16 /YES, STATEMENT ERROR
0436 1040 314 TAD CH /NO, FETCH CHARACTER
0437 1173 315 TAD MD311 /LETTER I
0440 7640 316 SZA CLA
0441 5257 317 JMP ASMB10 /NO
0442 4504 318 JMS I PSPX /YES, PRESERVE STRING POINTER
0443 4522 319 JMS I ICHX /INPUT NEXT CHARACTER
0444 1040 320 TAD CH /BLANK
0445 1161 321 TAD MD240
0446 7640 322 SZA CLA
0447 5256 323 JMP ASMB8 /NO
0450 4516 324 JMS I TENDX /TEST FOR STATEMENT END
0451 5256 325 JMP ASMB8 /IF YES
0452 1050 326 TAD DATA /SET INDIRECT BIT
0453 1143 327 TAD 0400
0454 3050 328 DCA DATA
0455 5257 329 JMP ASMB10
0456 4505 330 ASMB8, JMS I RSPX /RESTORE STRING POINTER
0457 4506 331 ASMB10, JMS I IEVX /INPUT EXPRESSION VALUE
0460 1045 332 TAD EV /FETCH ADDRESS
0461 0131 333 AND 0177 /EXTRACT DISPLACEMENT
0462 3006 334 DCA T2 /SAVE
0463 1045 335 TAD EV /BASE PAGE ADDRESS
0464 0145 336 AND 07600
0465 7450 337 SNA
0466 5303 338 JMP ASMB13 /YES
0467 3005 339 DCA T1 /NO, CURRENT PAGE ADDRESS
0470 1026 340 TAD LC
0471 0145 341 AND 07600
0472 7041 342 CMA IAC
0473 1005 343 TAD T1
0474 7650 344 SNA CLA
0475 5302 345 JMP ASMB12 /YES, GO PROCESS
0476 1140 346 TAD 0320 /NO, PAGE ERROR
0477 3464 347 DCA I IBX /STORE ERROR FLAG (P)
0500 1131 348 TAD 0177 /ASSIGN DISPLACEMENT
0501 3006 349 DCA T2
0502 1132 350 ASMB12, TAD 0200 /SET CURRENT PAGE BIT
0503 1006 351 ASMB13, TAD T2 /ADD DISPLACEMENT
0504 1050 352 ASMB14, TAD DATA /ADD INSTRUCTION
0505 3050 353 DCA DATA /STORE INSTRUCTION
0506 5600 354 JMP I ASMB /RETURN
0507 1141 355 ASMB16, TAD 0323 /STATEMENT ERROR
0510 3464 356 DCA I IBX /STORE ERROR FLAG (S)
0511 5600 357 JMP I ASMB /RETURN
358 /---- INPUT-OUTPUT INSTRUCTION
0512 1050 359 ASMB20, TAD DATA /INTERRUPT INSTRUCTION
0513 0144 360 AND 0777
0514 7640 361 SZA CLA
0515 5600 362 JMP I ASMB /YES, RETURN

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0516	4516	363	JMS I	TENDX	/NO, TEST FOR STATEMENT END
0517	5307	364	JMP	ASMB16	/IF YES, STATEMENT ERROR
0520	4506	365	JMS I	IEVX	/INPUT EXPRESSION VALUE
0521	1045	366	TAD	EV	/PRUNE VALUE TO 9 BITS
0522	0144	367	AND	0777	
0523	5304	368	JMP	ASMB14	/GO RETURN
		369	/----- OPERATE INSTRUCTION		
0524	1137	370	ASMB22, TAD	0311	/ILLEGAL COMBINATION
0525	5327	371	JMP	ASMB25	
0526	1142	372	ASMB24, TAD	0325	/UNDEFINED MNEMONIC
0527	3464	373	ASMB25, DCA I	IBX	
0530	4516	374	ASMB26, JMS I	TENDX	/TEST FOR STATEMENT END
0531	5600	375	JMP I	ASMB	/YES, RETURN
0532	4515	376	JMS I	TLETX	/NO, TEST FOR LETTER
0533	5335	377	JMP	ASMB28	/IF LETTER
0534	5307	378	JMP	ASMB16	/STATEMENT ERROR
0535	4511	379	ASMB28, JMS I	PAKX	/PACK MNEMONIC
0536	1057	380	TAD	MTY	/FETCH MNEMONIC TABLE ADDRESS
0537	4520	381	JMS I	SMTX	/SEARCH MNEMONIC TABLE
0540	5326	382	JMP	ASMB24	/NOT FOUND
0541	1431	383	TAD I	SYA	/FOUND, FETCH BIT MASK
0542	3006	384	DCA	T2	/SAVE
0543	2031	385	ISZ	SYA	/FETCH INSTRUCTION SKELETON
0544	1431	386	TAD I	SYA	
0545	3007	387	DCA	T3	/SAVE
0546	1051	388	TAD	MASK	/CHECK FOR LEGAL COMBINATION
0547	0006	389	AND	T2	
0550	3005	390	DCA	T1	
0551	1005	391	TAD	T1	
0552	0050	392	AND	DATA	
0553	3010	393	DCA	T4	
0554	1007	394	TAD	T3	
0555	0005	395	AND	T1	
0556	7041	396	CMA	IAC	
0557	1010	397	TAD	T4	
0560	7640	398	SZA	CLA	
0561	5324	399	JMP	ASMB22	/ILLEGAL COMBINATION
0562	1051	400	TAD	MASK	/OK, COMBINE INSTRUCTION
0563	7040	401	CMA		
0564	0006	402	AND	T2	
0565	1051	403	TAD	MASK	
0566	3051	404	DCA	MASK	
0567	1050	405	TAD	DATA	
0570	7040	406	CMA		
0571	0007	407	AND	T3	
0572	1050	408	TAD	DATA	
0573	3050	409	DCA	DATA	
0574	5330	410	JMP	ASMB26	/GO PROCESS NEXT INSTRUCTION
		411	/-----PROCESS PAGE MNEMONIC		
0575	7240	412	PAG, CLA	CMA	/SET LC TO ORIGIN OF NEXT PAGE
0576	1026	413	TAD	LC	
0577	0145	414	AND	07600	


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0600 1132 415      TAD    0200
0601 3045 416      DCA    EV
0602 5205 417      JMP    AST2    /GO FINISH UP
418 /-----PROCESS ASTERISK
0603 4523 419  AST,   JMS I  INBCHX  /INPUT NON-BLANK CHARACTER
0604 4506 420      JMS I  IEVX    /INPUT EXPRESSION VALUE
0605 1045 421  AST2,  TAD    EV      /FETCH EXPRESSION VALUE
0606 4507 422      JMS I  BOCX;I8+2 /CONVERT TO OCTAL
0607 2361
0610 1045 423      TAD    EV      /SET LOCATION COUNTER
0611 3026 424      DCA    LC
0612 4472 425      JMS I  DLX    /OUTPUT LISTING
0613 4477 426      JMS I  PRX    /PUNCH RECORD
0614 5503 427      JMP I  WUPX    /GO WRAP UP
428 /-----SEARCH MNEMONIC TABLE
0615 C000 429  SMT,   0
0616 3014 430      DCA    STX    /STORE TABLE POINTER
0617 1055 431  SMT2,  TAD    SY      /INITIALIZE SYMBOL POINTER
0620 3011 432      DCA    AIX
0621 1414 433      TAD I  STX    /FETCH FIRST WORD FROM TABLE
0622 7450 434      SNA
0623 5615 435      JMP I  SMT    /MNEMONIC NOT FOUND, RETURN
0624 7041 436      CMA    IAC    /COMPARE WITH FIRST WORD OF SYMBOL
0625 1411 437      TAD I  AIX
0626 7640 438      SZA    CLA
0627 5242 439      JMP    SMT6    /IF NO MATCH
0630 1414 440      TAD I  STX    /MATCH, FETCH SECOND WORD FROM TABLE
0631 7041 441      CMA    IAC    /COMPARE WITH SECOND WORD OF SYMBOL
0632 1411 442      TAD I  AIX
0633 7640 443      SZA    CLA
0634 5243 444      JMP    SMT6+1  /IF NO MATCH
0635 2014 445      ISZ   STX    /MATCH, SAVE ADDRESS
0636 1014 446      TAD   STX
0637 3031 447      DCA   SYA
0640 2215 448      ISZ   SMT    /INCREMENT RETURN ADDRESS
0641 5615 449      JMP I  SMT    /RETURN
0642 2014 450  SMT6,  ISZ   STX    /STEP TABLE INDEX
0643 2014 451      ISZ   STX
0644 2014 452      ISZ   STX
0645 5217 453      JMP    SMT2    /CONTINUE SEARCH
454 /-----SEARCH SYMBOL TABLE
0646 C000 455  SST,   0
0647 1056 456      TAD   STY    /INITIALIZE TABLE INDEX
0650 3014 457      DCA   STX
0651 1055 458  SST2,  TAD   SY      /INITIALIZE SYMBOL INDEX
0652 3011 459      DCA   AIX
0653 1030 460      TAD   STP    /CHECK FOR END OF TABLE
0654 7041 461      CMA   IAC
0655 1014 462      TAD   STX
0656 7001 463      IAC
0657 7450 464      SNA
0660 5321 465      JMP   SST8    /END OF TABLE, GO ENTER SYMBOL

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0661	1030	466	TAD	STP	/STORE ADDRESS OF SYMBOL
0662	3031	467	DCA	SYA	
0663	1414	468	TAD I	STX	/FETCH SYMBOL WORD COUNT
0664	0125	469	AND	07	
0665	3005	470	DCA	T1	/SAVE
0666	2014	471	ISZ	STX	/STEP TABLE INDEX
0667	1014	472	TAD	STX	
0670	1005	473	TAD	T1	
0671	3006	474	DCA	T2	
0672	1005	475	TAD	T1	/CHECK FOR WORD COUNT MATCH
0673	7041	476	CMA	IAC	
0674	3005	477	DCA	T1	
0675	1005	478	TAD	T1	
0676	1037	479	TAD	S5	
0677	7640	480	SZA	CLA	
0700	5316	481	JMP	SST6	/NO MATCH, CONTINUE SEARCH
0701	1414	482	SST4, TAD I	STX	/CHECK FOR SYMBOL MATCH
0702	7041	483	CMA	IAC	
0703	1411	484	TAD I	AIX	
0704	7640	485	SZA	CLA	
0705	5316	486	JMP	SST6	/NO MATCH, CONTINUE SEARCH
0706	2005	487	ISZ	T1	
0707	5301	488	JMP	SST4	
0710	1431	489	TAD I	SYA	/MATCH, CHECK IF SYMBOL DEFINED
0711	0130	490	AND	0100	
0712	7640	491	SZA	CLA	/SKIP IF NOT DEFINED
0713	2246	492	ISZ	SST	/DEFINED, INCREMENT RETURN ADDRESS
0714	2246	493	ISZ	SST	
0715	5646	494	JMP I	SST	/RETURN
0716	1006	495	SST6, TAD	T2	/SET INDEX
0717	3014	496	DCA	STX	
0720	5251	497	JMP	SST2	/CONTINUE SEARCH
0721	1030	498	SST8, TAD	STP	/FETCH TABLE POINTER
0722	3031	499	DCA	SYA	/STORE AS SYMBOL ADDRESS
0723	1030	500	TAD	STP	/SAVE TABLE POINTER
0724	3014	501	DCA	STX	
0725	1037	502	TAD	S5	/FETCH SYMBOL WORD COUNT
0726	4345	503	JMS	SSTP	/STORE IN TABLE
0727	4345	504	JMS	SSTP	
0730	1037	505	TAD	S5	/MOVE SYMBOL INTO TABLE
0731	7041	506	CMA	IAC	
0732	3005	507	DCA	T1	
0733	1411	508	SST10, TAD I	AIX	
0734	4345	509	JMS	SSTP	
0735	2005	510	ISZ	T1	
0736	5333	511	JMP	SST10	
0737	1031	512	TAD	SYA	/UPDATE TABLE POINTER
0740	3030	513	DCA	STP	
0741	1014	514	TAD	STX	/STORE SYMBOL ADDRESS
0742	3031	515	DCA	SYA	
0743	2246	516	ISZ	SST	/INCREMENT RETURN ADDRESS
0744	5646	517	JMP I	SST	/RETURN

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518 /-----STORE WORD IN SYMBOL TABLE
0745 0000 519 SSTP, 0
0746 3431 520 DCA I SYA /STORE WORD
0747 2031 521 ISZ SYA /INCREMENT POINTER
0750 1031 522 TAD SYA /CHECK FOR OVERFLOW
0751 1132 523 TAD 0200 /NOP TO UNPROTECT LAST PAGE
0752 7640 524 SZA CLA
0753 5745 525 JMP I SSTP /RETURN
0754 1136 526 TAD 0306 /TABLE FULL, STORE ERROR FLAG (F)
0755 3464 527 DCA I IBX
0756 5646 528 JMP I SST /RETURN
529 /-----INPUT CHARACTER
0757 0000 530 ICH, 0
0760 1413 531 TAD I SP /FETCH CHARACTER
0761 3040 532 DCA CH /SAVE
0762 5757 533 JMP I ICH /RETURN
534 /-----INPUT NON-BLANK CHARACTER
0763 0000 535 INBCH, 0
0764 4357 536 JMS ICH /INPUT CHARACTER
0765 1040 537 TAD CH /FETCH CHARACTER
0766 1161 538 TAD M0240 /TEST FOR BLANK
0767 7650 539 SNA CLA
0770 5360 540 JMP ICH+1 /IF BLANK
0771 5763 541 JMP I INBCH /NON-BLANK, RETURN
542 /-----
1000 543 PAGE
544 /-----
545 /-----TEST FOR STATEMENT END
1000 0000 546 TEND, 0
1001 1040 547 TAD CH /FETCH CHARACTER
1002 1161 548 TAD M0240 /TEST FOR BLANK
1003 7650 549 SNA CLA
1004 4523 550 JMS I INBCH /YES, INPUT NON-BLANK CHARACTER
1005 1040 551 TAD CH /FETCH CHARACTER
1006 7450 552 SNA /SKIP IF NOT END OF STATEMENT
1007 5600 553 JMP I TEND /RETURN
1010 1170 554 TAD M0257 /TEST FOR SLASH (/)
1011 7650 555 SNA CLA
1012 5600 556 JMP I TEND /YES, RETURN
1013 1040 557 TAD CH /NO, FETCH CHARACTER
1014 1171 558 TAD M0273 /TEST IF SEMICOLON (;)
1015 7640 559 SZA CLA
1016 2200 560 ISZ TEND /NO, INCREMENT RETURN ADDRESS
1017 5600 561 JMP I TEND /RETURN
562 /-----TEST PASS
1020 0000 563 TP, 0
1021 1004 564 TAD PASS /FETCH PASS NUMBER
1022 7640 565 SZA CLA /SKIP IF PASS 1
1023 5620 566 JMP I TP /NOT PASS 1
1024 2026 567 ISZ LC /INCREMENT LOCATION
1025 5503 568 JMP I WUPX /GO WRAP UP
1026 5503 569 JMP I WUPX /GO WRAP UP

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570 /-----INPUT EXPRESSION VALUE
1027 0000 571 IEV, 0
1030 3045 572 DCA EV /INITIALIZE VALUE
1031 3046 573 IEV1, DCA TV /INITIALIZE TERM VALUE
1032 7240 574 CLA CMA /INITIALIZE TERM SIGN
1033 3047 575 DCA SIGN
1034 1040 576 TAD CH /FETCH CHARACTER
1035 1167 577 TAD MQ255 /MINUS (-)
1036 7650 578 SNA CLA
1037 5255 579 JMP IEV3 /YES
1040 1040 580 TAD CH /NO, FETCH CHARACTER
1041 1165 581 TAD MQ253 /TEST FOR PLUS (+)
1042 7650 582 SNA CLA /SKIP IF NOT PLUS
1043 4523 583 IEV2, JMS I INBCHX /INPUT NON-BLANK CHARACTER
1044 4514 584 JMS I TDIGX /TEST FOR DIGIT
1045 5272 585 JMP IEV6 /DIGIT, GO PROCESS
1046 1040 586 TAD CH /FETCH CHARACTER
1047 1376 587 TAD MQ256 /TEST FOR PERIOD
1050 7650 588 SNA CLA
1051 5345 589 JMP IEV10 /PERIOD, GO PROCESS
1052 4515 590 JMS I TLETX /TEST FOR LETTER
1053 5257 591 JMP IEV4 /LETTER, GO PROCESS
1054 5367 592 JMP IEV18 /STATEMENT ERROR
1055 3047 593 IEV3, DCA SIGN /SET SIGN FOR MINUS
1056 5243 594 JMP IEV2 /GO INPUT CHARACTER
595 /---- PROCESS SYMBOL TERM
1057 4511 596 IEV4, JMS I PAKX /PACK SYMBOL
1060 4521 597 JMS I SSTX /SEARCH SYMBOL TABLE
1061 5350 598 JMP IEV12 /SYMBOL TABLE FULL
1062 5267 599 JMP IEV5 /SYMBOL NOT DEFINED
1063 2031 600 ISZ SYA /DEFINED
1064 1431 601 TAD I SYA /FETCH VALUE
1065 3046 602 DCA TV /STORE AS TERM VALUE
1066 5350 603 JMP IEV12 /GO PROCESS TERM
1067 1142 604 IEV5, TAD Q325 /UNDEFINED SYMBOL (U)
1070 3464 605 DCA I IBX /STORE ERROR FLAG (U)
1071 5350 606 JMP IEV12 /GO PROCESS TERM
607 /---- PROCESS NUMERIC TERM
1072 1022 608 IEV6, TAD NM /DETERMINE CONVERSION MODE
1073 7510 609 SPA
1074 5303 610 JMP IEV7 /DECIMAL
1075 7640 611 SZA CLA
1076 5324 612 JMP IEV8 /OCTAL
1077 1040 613 TAD CH /UNSPECIFIED, FETCH FIRST DIGIT
1100 0126 614 AND Q17 /ZERO
1101 7450 615 SNA
1102 5324 616 JMP IEV8 /YES, CONVERT AS OCTAL
617 /-- DECIMAL CONVERSION
1103 7200 618 IEV7, CLA
1104 1046 619 TAD TV /FETCH TERM VALUE
1105 7104 620 CLL RAL /MULTIPLY BY 10
1106 3046 621 DCA TV

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1107	1046	622	TAD	TV	
1110	7104	623	CLL	RAL	
1111	7104	624	CLL	RAL	
1112	1046	625	TAD	TV	
1113	3046	626	DCA	TV	
1114	1040	627	TAD	CH	/FETCH CHARACTER
1115	0126	628	AND	017	/MASK FOR DIGIT
1116	1046	629	TAD	TV	/ADD TO TERM VALUE
1117	3046	630	DCA	TV	/STORE AS TERM VALUE
1120	4522	631	JMS I	ICHX	/INPUT NEXT CHARACTER
1121	4514	632	JMS I	TDIGX	/TEST FOR DIGIT
1122	5303	633	JMP	IEV7	/DIGIT, GO PROCESS
1123	5350	634	JMP	IEV12	/NOT DIGIT, GO PROCESS TERM
		635	/--	OCTAL CONVERSION	
1124	1040	636	IEV8,	TAD	CH /TEST FOR OCTAL DIGIT
1125	1377	637		TAD	MO270
1126	7700	638		SMA	CLA
1127	5367	639		JMP	IEV18 /NOT OCTAL DIGIT
1130	1046	640		TAD	TV /MULTIPLY TERM VALUE BY 8
1131	7104	641		CLL	RAL
1132	7104	642		CLL	RAL
1133	7104	643		CLL	RAL
1134	3046	644		DCA	TV
1135	1040	645		TAD	CH /FETCH CHARACTER
1136	0125	646		AND	07 /MASK FOR OCTAL DIGIT
1137	1046	647		TAD	TV /ADD TO TERM VALUE
1140	3046	648		DCA	TV /STORE AS TERM VALUE
1141	4522	649		JMS I	ICHX /INPUT NEXT CHARACTER
1142	4514	650		JMS I	TDIGX /TEST FOR DIGIT
1143	5324	651		JMP	IEV8 /DIGIT, GO TEST IF OCTAL
1144	5350	652		JMP	IEV12 /NOT DIGIT, GO PROCESS TERM
		653	/----	PROCESS PERIOD TERM	
1145	1026	654	IEV10,	TAD	LC /SET TERM VALUE TO VALUE OF LC
1146	3046	655		DCA	TV
1147	4523	656		JMS I	INBCHX /INPUT NON-BLANK CHARACTER
		657	/----	PROCESS TERM VALUE	
1150	1046	658	IEV12,	TAD	TV /FETCH TERM VALUE
1151	2047	659		ISZ	SIGN /SKIP IF SIGN PLUS
1152	7041	660		CMA	IAC /NEGATE TERM
1153	1045	661		TAD	EV /ADD TO EXPRESSION VALUE
1154	3045	662		DCA	EV /STORE EXPRESSION VALUE
1155	4516	663	IEV14,	JMS I	TENDX /TEST FOR STATEMENT END
1156	5627	664		JMP I	IEV /IF YES, RETURN
1157	1040	665		TAD	CH /TEST FOR PLUS
1160	1165	666		TAD	MO253
1161	7650	667		SNA	CLA
1162	5231	668		JMP	IEV1 /IF PLUS
1163	1040	669		TAD	CH /TEST FOR MINUS
1164	1167	670		TAD	MO255
1165	7650	671		SNA	CLA
1166	5231	672		JMP	IEV1 /IF MINUS
1167	1141	673	IEV18,	TAD	0323 /STATEMENT ERROR

1170	3464	674	DCA	I	IBX	/STORE ERROR FLAG (S)
1171	3045	675	DCA		EV	/CLEAR VALUE
1172	4516	676	IEV20,	JMS	I TENDX	/TEST FOR STATEMENT END
1173	5627	677		JMP	I IEV	/IF YES, RETURN
1174	4523	678		JMS	I INBCHX	/INPUT NON-BLANK CHARACTER
1175	5372	679		JMP	IEV20	/CONTINUE
1176	7522	680	MD256,		-256	/.
1177	7510	681	MD270,		-270	/8
		682	/-----	PACK	SYMBOL	
1200	0000	683	PAK,		0	
1201	1253	684	TAD		04040	/INITIALIZE
1202	3033	685	DCA		S1	
1203	1253	686	TAD		04040	
1204	3034	687	DCA		S2	
1205	1253	688	TAD		04040	
1206	3035	689	DCA		S3	
1207	1253	690	TAD		04040	
1210	3036	691	DCA		S4	
1211	3037	692	DCA		S5	/INITIALIZE SYMBOL WORD COUNT
1212	1146	693	TAD		M4	/INITIALIZE INPUT WORD COUNT
1213	3005	694	DCA		T1	
1214	1055	695	TAD		SY	/INITIALIZE SYMBOL ADDRESS
1215	7001	696	IAC			
1216	3006	697	DCA		T2	
1217	4517	698	PAK2,	JMS	I TLODX	/TEST FOR LETTER OR DIGIT
1220	5600	699		JMP	I PAK	/NOT LETTER OR DIGIT, RETURN
1221	2037	700		ISZ	S5	/INCREMENT SYMBOL WORD COUNT
1222	1040	701		TAD	CH	/FETCH CHARACTER
1223	7006	702		RTL		/LEFT ADJUST
1224	7006	703		RTL		
1225	7006	704		RTL		
1226	0254	705		AND	07700	/KILL LOW ORDER 6 BITS
1227	3007	706		DCA	T3	/SAVE
1230	1406	707		TAD	I T2	/FETCH SYMBOL WORD
1231	0127	708		AND	077	/KILL HIGH ORDER 6 BITS
1232	1007	709		TAD	T3	/MERGE WITH CHARACTER
1233	3406	710		DCA	I T2	/REPLACE SYMBOL WORD
1234	4522	711		JMS	I ICHX	/INPUT NEXT CHARACTER
1235	4517	712		JMS	I TLODX	/TEST FOR LETTER OR DIGIT
1236	5600	713		JMP	I PAK	/NOT LETTER OR DIGIT, RETURN
1237	1040	714		TAD	CH	/FETCH CHARACTER
1240	0127	715		AND	077	/PRUNE TO 6 BITS
1241	3007	716		DCA	T3	/SAVE
1242	1406	717		TAD	I T2	/FETCH SYMBOL WORD
1243	0254	718		AND	07700	/KILL LOW ORDER 6 BITS
1244	1007	719		TAD	T3	/MERGE WITH CHARACTER
1245	3406	720		DCA	I T2	/REPLACE SYMBOL WORD
1246	2006	721		ISZ	T2	
1247	4522	722		JMS	I ICHX	/INPUT CHARACTER
1250	2005	723		ISZ	T1	/EIGHT CHARACTERS INPUT
1251	5217	724		JMP	PAK2	/NO
1252	5600	725		JMP	I PAK	/YES, RETURN

1253	4040	726	04040,	4040	
1254	7700	727	07700,	7700	
		728	/-----PUNCH WORD		
1255	0000	729	PW,	0	
1256	3053	730	DCA	AO	/SAVE WORD
1257	1004	731	TAD	PASS	/FETCH PASS NUMBER
1260	7010	732	RAR		/PASS 2
1261	7620	733	SNL	CLA	
1262	5655	734	JMP I	PW	/NO, RETURN
1263	1062	735	TAD	PBY	/YES, CHECK BUFFER
1264	7041	736	CMA	IAC	
1265	1155	737	TAD	M31	
1266	1017	738	TAD	PP	
1267	7700	739	SMA	CLA	
1270	4274	740	JMS	PR	/BUFFER FULL, PUNCH RECORD
1271	1053	741	TAD	AO	/FETCH DATA WORD
1272	3417	742	DCA I	PP	/STORE IN BUFFER
1273	5655	743	JMP I	PW	/RETURN
		744	/-----PUNCH RECORD		
1274	0000	745	PR,	0	
1275	1004	746	TAD	PASS	/FETCH PASS NUMBER
1276	7010	747	RAR		/PASS 2
1277	7620	748	SNL	CLA	
1300	5674	749	JMP I	PR	/NO, RETURN
1301	1062	750	TAD	PBY	/YES, COMPUTE WORD COUNT
1302	7041	751	CMA	IAC	
1303	1017	752	TAD	PP	
1304	7450	753	SNA		
1305	5340	754	JMP	PR2	/IF ZERO
1306	3005	755	DCA	T1	/SAVE COUNT
1307	1061	756	TAD	DBY	
1310	3012	757	DCA	AIY	
1311	4475	758	JMS I	WTX	/WAIT FOR OUTPUT COMPLETION
1312	1005	759	TAD	T1	/BUILD CONTROL BYTE
1313	1130	760	TAD	0100	
1314	3412	761	DCA I	AIY	/STORE IN BUFFER
1315	1062	762	TAD	PBY	/INITIALIZE
1316	3011	763	DCA	AIX	
1317	1005	764	TAD	T1	
1320	7041	765	CMA	IAC	
1321	3005	766	DCA	T1	
1322	3052	767	DCA	CSUM	/CLEAR CHECKSUM
1323	1027	768	TAD	RA	/FETCH RECORD ADDRESS
1324	4345	769	JMS	OW	/OUTPUT TO BUFFER
1325	1411	770	TAD I	AIX	/FETCH DATA WORD
1326	4345	771	JMS	OW	/OUTPUT TO BUFFER
1327	2005	772	ISZ	T1	/INCREMENT COUNT, FINISHED
1330	5325	773	JMP	.-3	/NO
1331	1052	774	TAD	CSUM	/YES, FETCH CHECKSUM
1332	4345	775	JMS	OW	/OUTPUT TO BUFFER
1333	4345	776	JMS	OW	
1334	4345	777	JMS	OW	

1335	7240	778	CLA	CMA	/PLUG BUFFER
1336	3412	779	DCA	I AIY	
1337	4474	780	JMS	I WBX	/WRITE BUFFER
1340	1026	781	PR2, TAD	LC	/INITIALIZE RECORD ADDRESS
1341	3027	782	DCA	RA	
1342	1062	783	TAD	PBY	/INITIALIZE PUNCH BUFFER POINTER
1343	3017	784	DCA	PP	
1344	5674	785	JMP	I PR	/RETURN
		786	/-----OUTPUT WORD TO BUFFER		
1345	0000	787	DW, O		
1346	3006	788	DCA	T2	/SAVE DATA WORD
1347	1006	789	TAD	T2	/FETCH DATA WORD
1350	7012	790	RTR		/EXTRACT LEFTMOST 6 BITS
1351	7012	791	RTR		
1352	7012	792	RTR		
1353	0127	793	AND	077	
1354	3007	794	DCA	T3	
1355	1007	795	TAD	T3	
1356	3412	796	DCA	I AIY	/STORE IN BUFFER
1357	1052	797	TAD	CSUM	/COMPUTE CHECKSUM
1360	1007	798	TAD	T3	
1361	3052	799	DCA	CSUM	
1362	1006	800	TAD	T2	/FETCH DATA WORD
1363	0127	801	AND	077	/EXTRACT RIGHTMOST 6 BITS
1364	3007	802	DCA	T3	
1365	1007	803	TAD	T3	
1366	3412	804	DCA	I AIY	/STORE IN BUFFER
1367	1052	805	TAD	CSUM	/COMPUTE CHECKSUM
1370	1007	806	TAD	T3	
1371	3052	807	DCA	CSUM	
1372	5745	808	JMP	I DW	/RETURN
		809	/-----WAIT FOR OUTPUT COMPLETION		
1373	0000	810	WT, O		
1374	1016	811	TAD	OP	
1375	7640	812	SZA	CLA	
1376	5374	813	JMP	.-2	
1377	5773	814	JMP	I WT	
		815	/-----TEST FOR DIGIT		
1400	0000	816	TDIG, O		
1401	1040	817	TAD	CH	/260 <= CH < 272
1402	1212	818	TAD	MO260	
1403	7710	819	SPA	CLA	
1404	5210	820	JMP	TDIG2	
1405	1040	821	TAD	CH	
1406	1213	822	TAD	MO272	
1407	7700	823	SMA	CLA	
1410	2200	824	TDIG2, ISZ	TDIG	/NO, INCREMENT RETURN ADDRESS
1411	5600	825	JMP	I TDIG	/RETURN
1412	7520	826	MO260, -260		
1413	7506	827	MO272, -272		
		828	/-----TEST FOR LETTER		
1414	0000	829	TLET, O		

1415	1040	830	TAD	CH	/301 <= CH < 333
1416	1226	831	TAD	MO301	
1417	7710	832	SPA	CLA	
1420	5224	833	JMP	TLET2	
1421	1040	834	TAD	CH	
1422	1227	835	TAD	MO333	
1423	7700	836	SMA	CLA	
1424	2214	837	TLET2,	ISZ	TLET /NO, INCREMENT RETURN ADDRESS
1425	5614	838	JMP I	TLET	/RETURN
1426	7477	839	MO301,	-301	
1427	7445	840	MO333,	-333	
		841	/-----TEST FOR LETTER OR DIGIT		
1430	0000	842	TLOD,	0	
1431	4214	843	JMS	TLET	/LETTER
1432	5234	844	JMP	.+2	/YES
1433	4200	845	JMS	TDIG	/NO, DIGIT
1434	2230	846	ISZ	TLOD	/YES, INCREMENT RETURN ADDRESS
1435	5630	847	JMP I	TLOD	/RETURN
		848	/-----BINARY TO DECIMAL CONVERSION		
1436	0000	849	BDC,	0	
1437	3053	850	DCA	A0	
1440	1636	851	TAD I	BDC	
1441	3054	852	DCA	A1	
1442	2236	853	ISZ	BDC	
1443	7346	854	CLA	CLL CMA RTL	
1444	3006	855	DCA	T2	
1445	1133	856	BDC2,	TAD	0240
1446	3454	857	DCA I	A1	
1447	2054	858	ISZ	A1	
1450	2006	859	ISZ	T2	
1451	5245	860	JMP	BDC2	
1452	1151	861	BDC4,	TAD	M12
1453	3005	862	DCA	T1	
1454	1053	863	TAD	A0	
1455	7104	864	CLL	RAL	
1456	3053	865	DCA	A0	
1457	7004	866	BDC6,	RAL	
1460	3006	867	DCA	T2	
1461	1006	868	TAD	T2	
1462	1150	869	TAD	M10	
1463	7430	870	SZL		
1464	3006	871	DCA	T2	
1465	7200	872	CLA		
1466	1053	873	TAD	A0	
1467	7004	874	RAL		
1470	3053	875	DCA	AC	
1471	1006	876	TAD	T2	
1472	2005	877	ISZ	T1	
1473	5257	878	JMP	BDC6	
1474	1134	879	TAD	0260	
1475	3454	880	DCA I	A1	
1476	7040	881	CMA		

1477	1054	882	TAD	A1		
1500	3054	883	DCA	A1		
1501	1053	884	TAD	AC		
1502	7640	885	SZA	CLA		
1503	5252	886	JMP	BDC4		
1504	5636	887	JMP I	BDC		
		888	/-----BINARY TO OCTAL CONVERSION			
1505	0000	889	BDC,	0		
1506	3053	890	DCA	A0		
1507	1705	891	TAD I	BDC		
1510	3054	892	DCA	A1		
1511	2305	893	ISZ	BDC		
1512	1146	894	TAD	M4		
1513	3005	895	DCA	T1		
1514	1053	896	BDC2,	TAD	A0	
1515	7006	897	RTL			
1516	7006	898	RTL			
1517	3006	899	DCA	T2		
1520	1006	900	TAD	T2		
1521	7010	901	RAR			
1522	3053	902	DCA	A0		
1523	1006	903	TAD	T2		
1524	0125	904	AND	07		
1525	1134	905	TAD	0260		
1526	3454	906	DCA I	A1		
1527	2054	907	ISZ	A1		
1530	2005	908	ISZ	T1		
1531	5314	909	JMP	BDC2		
1532	5705	910	JMP I	BDC		
		911	/-----OUTPUT LISTING			
1533	0000	912	DL,	0		
1534	7040	913	CMA		/PASS 2	
1535	1004	914	TAD	PASS		
1536	7650	915	SNA	CLA		
1537	5733	916	JMP I	DL	/YES, RETURN	
1540	1464	917	TAD I	IBX	/NO, CHECK IF ERROR NOTED	
1541	1161	918	TAD	M0240		
1542	7640	919	SZA	CLA		
1543	5347	920	JMP	DL4	/IF ERROR NOTED	
1544	1004	921	TAD	PASS	/FETCH PASS NUMBER	
1545	7650	922	SNA	CLA	/PASS 1	
1546	5733	923	JMP I	DL	/YES, RETURN	
1547	2025	924	DL4,	ISZ	LN	/NO, INCREMENT LINE NUMBER
1550	5373	925	JMP	DL8		/GO OUTPUT RECORD
1551	2023	926	ISZ	PN		/NEW PAGE, INCREMENT PAGE NUMBER
1552	1156	927	TAD	M52		/INITIALIZE LINE NUMBER
1553	3025	928	DCA	LN		
1554	1023	929	TAD	PN		/FETCH PAGE NUMBER
1555	4510	930	JMS I	BDCX;PA20		/CONVERT TO DECIMAL
1556	2343					
1557	1154	931	TAD	M33		/MOVE PAGE HEADING TO OUTPUT BUFFE
1560	3005	932	DCA	T1		

1561	1063	933	TAD	PAY	
1562	3011	934	DCA	AIX	
1563	1061	935	TAD	OBY	
1564	3012	936	DCA	AIY	
1565	4475	937	JMS	I WTX	
1566	1411	938	TAD	I AIX	OL6,
1567	3412	939	DCA	I AIY	
1570	2005	940	ISZ	T1	
1571	5366	941	JMP	OL6	
1572	4474	942	JMS	I WBX	/OUTPUT PAGE HEADING
1573	1024	943	TAD	SN	/FETCH STATEMENT NUMBER
1574	4510	944	JMS	I BDCX;18+14	/CONVERT TO DECIMAL
1575	2373				
		945	/-----	FORMAT RECORD	
1576	4504	946	JMS	I PSPX	
1577	1066	947	TAD	IBZ	
1600	3013	948	DCA	SP	
1601	1061	949	TAD	OBY	
1602	3012	950	DCA	AIY	
1603	1152	951	TAD	M18	
1604	3005	952	DCA	T1	
1605	4475	953	JMS	I WTX	
1606	4522	954	JMS	I ICHX	OL10,
1607	4322	955	JMS	OL32	
1610	3412	956	DCA	I AIY	
1611	2005	957	ISZ	T1	
1612	5206	958	JMP	OL10	
1613	1153	959	TAD	M24	
1614	3005	960	DCA	T1	
1615	4522	961	JMS	I ICHX	
1616	1040	962	TAD	CH	
1617	1170	963	TAD	M0257	
1620	7650	964	SNA	CLA	
1621	5316	965	JMP	OL30	
1622	1065	966	TAD	IBY	
1623	3013	967	DCA	SP	
1624	1133	968	TAD	0240	OL12,
1625	3412	969	DCA	I AIY	
1626	2005	970	ISZ	T1	
1627	5224	971	JMP	OL12	
1630	1353	972	TAD	0B18X	
1631	3012	973	DCA	AIY	
1632	1150	974	TAD	M10	
1633	3005	975	DCA	T1	
1634	4523	976	JMS	I INBCHX	
1635	1040	977	TAD	CH	OL14,
1636	1166	978	TAD	M0254	
1637	7650	979	SNA	CLA	
1640	5277	980	JMP	OL24	
1641	1040	981	TAD	CH	
1642	1172	982	TAD	M0275	
1643	7650	983	SNA	CLA	

1644	5277	984		JMP	OL24
1645	4517	985		JMS I	TLODX
1646	5252	986		JMP	OL16
1647	4522	987		JMS I	ICHX
1650	2005	988		ISZ	T1
1651	5235	989		JMP	OL14
1652	1065	990	OL16,	TAD	IBY
1653	3013	991		DCA	SP
1654	4523	992	OL18,	JMS I	INBCHX
1655	1012	993		TAD	AIY
1656	7040	994		CMA	
1657	1354	995		TAD	OB25X
1660	7710	996		SPA	CLA
1661	5264	997		JMP	OL20
1662	1354	998		TAD	OB25X
1663	3012	999		DCA	AIY
1664	4322	1000	OL20,	JMS	OL32
1665	1163	1001		TAD	MO247
1666	7650	1002		SNA	CLA
1667	5316	1003		JMP	OL30
1670	1040	1004		TAD	CH
1671	1170	1005		TAD	MO257
1672	7650	1006		SNA	CLA
1673	5307	1007		JMP	OL28
1674	4340	1008		JMS	OL36
1675	4522	1009		JMS I	ICHX
1676	5264	1010		JMP	OL20
1677	1065	1011	OL24,	TAD	IBY
1700	3013	1012		DCA	SP
1701	4523	1013		JMS I	INBCHX
1702	4340	1014	OL26,	JMS	OL36
1703	4517	1015		JMS I	TLODX
1704	5254	1016		JMP	OL18
1705	4522	1017		JMS I	ICHX
1706	5302	1018		JMP	OL26
1707	1012	1019	OL28,	TAD	AIY
1710	7040	1020		CMA	
1711	1355	1021		TAD	OB41X
1712	7710	1022		SPA	CLA
1713	5316	1023		JMP	OL30
1714	1355	1024		TAD	OB41X
1715	3012	1025		DCA	AIY
1716	4322	1026	OL30,	JMS	OL32
1717	4340	1027		JMS	OL36
1720	4522	1028		JMS I	ICHX
1721	5316	1029		JMP	OL30
1722	0000	1030	OL32,	O	
1723	1040	1031		TAD	CH
1724	7440	1032		SZA	
1725	5722	1033		JMP I	OL32
1726	1352	1034	OL34,	TAD	0215
1727	3412	1035		DCA I	AIY

1730	3412	1036	DCA	I	AIY		
1731	4474	1037	JMS	I	WBX		
1732	4512	1038	JMS	I	IIBX		
1733	3467	1039	DCA	I	IB12X		
1734	4505	1040	JMS	I	RSPX		
1735	1472	1041	TAD	I	OLX		
1736	3005	1042	DCA		T1		
1737	5405	1043	JMP	I	T1		
1740	0000	1044	OL36,		0		
1741	7450	1045	SNA				
1742	1040	1046	TAD		CH		
1743	3412	1047	DCA	I	AIY		
1744	1012	1048	TAD		AIY		
1745	7040	1049	CMA				
1746	1356	1050	TAD		0B73X		
1747	7710	1051	SPA		CLA		
1750	5326	1052	JMP		OL34		
1751	5740	1053	JMP	I	OL36		
1752	C215	1054	0215,		215	/CARRIAGE-RETURN	
1753	2646	1055	0B18X,		0B+21	/LABEL, PRINT POSITION 18	
1754	2655	1056	0B25X,		0B+30	/OP, PRINT POSITION 25	
1755	2675	1057	0B41X,		0B+50	/COMMENT, PRINT POSITION 41	
1756	2735	1058	0B73X,		0B+110	/END OF BUFFER - 2	
		1059	/-----		PRESERVE STRING POINTER		
1757	C000	1060	PSP,		0		
1760	1013	1061	TAD		SP	/FETCH STRING POINTER	
1761	3020	1062	DCA		TSP	/STORE	
1762	1040	1063	TAD		CH	/FETCH CHARACTER	
1763	3021	1064	DCA		TCH	/STORE	
1764	5757	1065	JMP	I	PSP	/RETURN	
		1066	/-----		RESTORE STRING POINTER		
1765	C000	1067	RSP,		0		
1766	1020	1068	TAD		TSP	/FETCH STRING POINTER	
1767	3013	1069	DCA		SP	/RESTORE	
1770	1021	1070	TAD		TCH	/FETCH CHARACTER	
1771	3040	1071	DCA		CH	/RESTORE	
1772	5765	1072	JMP	I	RSP	/RETURN	
		1073	/-----		PROCESS CHARACTER STRING		
1773	4522	1074	STR,	JMS	I	ICHX	/INPUT CHARACTER
1774	1040	1075	TAD		CH	/FETCH CHARACTER	
1775	7450	1076	SNA			/SKIP IF NON-ZERO	
1776	5503	1077	JMP	I	WUPX	/GO WRAP UP	
1777	1163	1078	TAD		MO247	/TEST FOR APOSTROPHE	
2000	7650	1079	SNA		CLA		
2001	5503	1080	JMP	I	WUPX	/IF APOSTROPHE	
2002	1040	1081	TAD		CH	/OUTPUT RECORD	
2003	4473	1082	JMS	I	ORX		
2004	5502	1083	JMP	I	STRX	/CONTINUE	
		1084	/-----		OUTPUT RECORD		
2005	0000	1085	OR,		0		
2006	3050	1086	DCA		DATA	/SAVE DATA WORD	
2007	1004	1087	TAD		PASS	/TEST PASS	

2010	7650	1088	SNA	CLA	
2011	5223	1089	JMP	OR2	/IF PASS 1
2012	1050	1090	TAD	DATA	/FETCH DATA WORD
2013	4507	1091	JMS I	BOCX;IB+7	/CONVERT TO OCTAL
2014	2366				
2015	1026	1092	TAD	LC	/FETCH LC
2016	4507	1093	JMS I	BOCX;IB+2	/CONVERT TO OCTAL
2017	2361				
2020	4472	1094	JMS I	OLX	/OUTPUT LISTING
2021	1050	1095	TAD	DATA	/FETCH DATA WORD
2022	4476	1096	JMS I	PWX	/OUTPUT TO PUNCH BUFFER
2023	2026	1097	OR2,	ISZ LC	/INCREMENT LOCATION COUNTER
2024	7000	1098		NOP	
2025	5605	1099	JMP I	OR	/RETURN
		1100	/-----	PUNCH LEADER	
2026	C000	1101	PL,	O	
2027	3006	1102		DCA T2	
2030	1157	1103		TAD M72	
2031	3005	1104		DCA T1	
2032	1061	1105		TAD OBY	
2033	3012	1106		DCA AIY	
2034	4475	1107	JMS I	WTX	/WAIT FOR OUTPUT COMPLETION
2035	1006	1108		TAD T2	
2036	3412	1109	DCA I	AIY	
2037	2005	1110		ISZ T1	
2040	5236	1111		JMP .-2	
2041	7240	1112		CLA CMA	
2042	3412	1113		DCA I AIY	
2043	4474	1114	JMS I	WBX	
2044	1062	1115		TAD PBY	/INITIALIZE PUNCH BUFFER POINTER
2045	3017	1116		DCA PP	
2046	5626	1117	JMP I	PL	/RETURN
		1118	/-----	INITIALIZE INPUT BUFFER	
2047	C000	1119	IIB,	O	
2050	1064	1120		TAD IBX	
2051	3005	1121		DCA T1	
2052	1152	1122		TAD M18	
2053	3006	1123		DCA T2	
2054	1133	1124		TAD Q240	
2055	3405	1125	DCA I	T1	
2056	2005	1126		ISZ T1	
2057	2006	1127		ISZ T2	
2060	5254	1128		JMP .-4	
2061	5647	1129	JMP I	IIB	
		1130	/-----	READ RECORD	
2062	0000	1131	RR,	O	
2063	4512	1132	JMS I	IIBX	/INITIALIZE INPUT BUFFER
2064	1024	1133		TAD SN	/FIRST RECORD
2065	7640	1134		SZA CLA	
2066	5275	1135		JMP RR4	/NO
2067	1065	1136	RR2,	TAD IBY	/YES, READ RECORD
2070	4347	1137		JMS RRI	

2071	1015	1138	TAD	IP	/WAIT FOR INPUT COMPLETION
2072	7640	1139	SZA	CLA	
2073	5271	1140	JMP	.-2	
2074	5316	1141	JMP	RR8	/GO CHECK FOR \$ STATEMENT
2075	1004	1142	RR4, TAD	PASS	/PASS 2
2076	7010	1143	RAR		
2077	7630	1144	SZL	CLA	
2100	5267	1145	JMP	RR2	/YES
2101	1015	1146	TAD	IP	/NO, INPUT COMPLETE
2102	7640	1147	SZA	CLA	
2103	5301	1148	JMP	.-2	/NO
2104	1062	1149	TAD	PBY	/YES, MOVE RECORD
2105	3017	1150	DCA	PP	
2106	1065	1151	TAD	IBY	
2107	3013	1152	DCA	SP	
2110	1417	1153	RR6, TAD I	PP	
2111	7450	1154	SNA		
2112	5315	1155	JMP	RR7	
2113	3413	1156	DCA I	SP	
2114	5310	1157	JMP	RR6	
2115	3413	1158	RR7, DCA I	SP	
2116	1065	1159	RR8, TAD	IBY	/CHECK FOR \$ STATEMENT
2117	3013	1160	DCA	SP	
2120	4523	1161	JMS I	INBCHX	
2121	1040	1162	TAD	CH	
2122	1162	1163	TAD	MD244	
2123	7650	1164	SNA	CLA	
2124	5337	1165	JMP	RR12	/IF \$ STATEMENT
2125	2024	1166	ISZ	SN	/INCREMENT STATEMENT NUMBER
2126	7410	1167	SKP		
2127	2024	1168	ISZ	SN	
2130	1004	1169	RR10, TAD	PASS	/PASS 2
2131	7010	1170	RAR		
2132	7630	1171	SZL	CLA	
2133	5662	1172	JMP I	RR	/YES, RETURN
2134	1062	1173	TAD	PBY	/NO, READ NEXT RECORD
2135	4347	1174	JMS	RRI	
2136	5662	1175	JMP I	RR	/RETURN
		1176	/-----END OF PASS (\$)		
2137	1004	1177	RR12, TAD	PASS	/PASS 2
2140	7010	1178	RAR		
2141	7620	1179	SNL	CLA	
2142	5176	1180	JMP	HALT	/NO, GO HALT
2143	4477	1181	JMS I	PRX	/YES, DUMP PUNCH BUFFER
2144	1130	1182	TAD	O100	/PUNCH TRAILER
2145	4500	1183	JMS I	PLX	
2146	5176	1184	JMP	HALT	/GO HALT
		1185	/-----INITIATE READ OPERATION		
2147	0000	1186	RRI, 0		
		1187			/-----
2150	6033	1188	IDT	033	/IDT 013 FOR HIGH SPEED READER
		1189			/-----

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2151 5350 1190      JMP      .-1
2152 3015 1191      DCA      IP          /STORE BUFFER POINTER
2153 1157 1192      TAD      M72        /INITIALIZE INPUT COUNT
2154 3042 1193      DCA      CT
2155 5747 1194      JMP I RRI          /RETURN
                1195 /-----WRITE BUFFER
2156 0000 1196  WB,  O
2157 1061 1197      TAD      0BY        /INITIALIZE BUFFER POINTER
2160 3016 1198      DCA      OP
2161 1004 1199      TAD      PASS      /TEST PASS
2162 7010 1200      RAR
2163 7620 1201      SNL      CLA
2164 5372 1202      JMP      WBPR      /IF PASS 3
                1203 /-----INITIATE PUNCH OPERATION
2165 1416 1204  WBPH, TAD I OP
                1205 /-----
2166 6047 1206      IOT      047      /IOT 027 FOR HIGH SPEED PUNCH
                1207 /-----
2167 5366 1208      JMP      .-1
2170 7200 1209      CLA
2171 5756 1210      JMP I WB
                1211 /-----INITIATE PRINT OPERATION
2172 1416 1212  WBPR, TAD I OP
2173 6047 1213      IOT      047
2174 5373 1214      JMP      .-1
2175 7200 1215      CLA
2176 5756 1216      JMP I WB
2177 3043 1217  INT,  DCA      AC          /SAVE AC
2200 7004 1218      RAL          /SAVE LINK
2201 3044 1219      DCA      LK
                1220 /-----
2202 6035 1221  INT2, IOT      035      /IOT 015 FOR HIGH SPEED READER
                1222 /-----
2203 5205 1223      JMP      INT3
2204 5247 1224      JMP      INTR      /IF READER INTERRUPT
2205 1004 1225  INT3, TAD      PASS
2206 7010 1226      RAR
2207 7620 1227      SNL      CLA
2210 5230 1228      JMP      INPTR     /IF PRINTER INTERRUPT
                1229 /-----PUNCH INTERRUPT
2211 1016 1230  INPCH, TAD      OP
2212 7650 1231      SNA      CLA
2213 5226 1232      JMP      INPCH4
2214 1416 1233      TAD I OP
2215 7040 1234      CMA
2216 7450 1235      SNA
2217 5225 1236      JMP      INPCH3
2220 7040 1237      CMA
                1238 /-----
2221 6047 1239  INPCH2, IOT      047      /IOT 027 FOR HIGH SPEED PUNCH
                1240 /-----
2222 5221 1241      JMP      .-1

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2223 7200 1242          CLA
2224 5306 1243          JMP      INTR3
2225 3016 1244  INPCH3,DCA  OP
                1245          /-----
2226 6042 1246  INPCH4,IOT  042          /IOT 022 FOR HIGH SPEED PUNCH
                1247          /-----
2227 5306 1248          JMP      INTR3
                1249  /---- PRINTER INTERRUPT
2230 1016 1250  INPTR, TAD  OP
2231 7650 1251          SNA  CLA
2232 5245 1252          JMP  INPTR4
2233 6041 1253          IOT  041
2234 5306 1254          JMP  INTR3
2235 1416 1255          TAD  I  OP
2236 7450 1256          SNA
2237 5244 1257          JMP  INPTR3
2240 6047 1258  INPTR2,IOT  047
2241 5240 1259          JMP  -1
2242 7200 1260          CLA
2243 5306 1261          JMP  INTR3
2244 3016 1262  INPTR3,DCA  OP
2245 6042 1263  INPTR4,IOT  042
2246 5306 1264          JMP  INTR3
                1265  /---- READER INTERRUPT
2247 0131 1266  INTR,  AND  0177          /MASK FOR RIGHTMOST 7 BITS
2250 1132 1267          TAD  0200          /INSERT PARITY BIT
2251 3041 1268          DCA  CR          /SAVE CHARACTER
2252 1015 1269          TAD  IP
2253 7650 1270          SNA  CLA
2254 5306 1271          JMP  INTR3
2255 1041 1272          TAD  CR          /FETCH CHARACTER
2256 1160 1273          TAD  M0215          /CARRIAGE-RETURN
2257 7650 1274          SNA  CLA
2260 5275 1275          JMP  INTR1          /YES
2261 1041 1276          TAD  CR          /NO, FETCH CHARACTER
2262 1174 1277          TAD  M0340          /TEST IF >= 0340
2263 7700 1278          SMA  CLA
2264 5305 1279          JMP  INTR2          /IF >= 0340, IGNORE
2265 1041 1280          TAD  CR          /FETCH CHARACTER
2266 1161 1281          TAD  M0240          /TEST IF < 0240
2267 7710 1282          SPA  CLA
2270 5305 1283          JMP  INTR2          /IF < 0240, IGNORE
2271 1042 1284          TAD  CT          /72 CHARACTERS INPUT
2272 7700 1285          SMA  CLA
2273 5305 1286          JMP  INTR2          /YES
2274 1041 1287          TAD  CR          /NO, FETCH CHARACTER
2275 3415 1288  INTR1, DCA  I  IP          /STORE IN BUFFER
2276 1041 1289          TAD  CR          /FETCH CHARACTER
2277 1160 1290          TAD  M0215          /CARRIAGE-RETURN
2300 7450 1291          SNA
2301 3015 1292          DCA  IP          /YES, CLEAR BUFFER POINTER
2302 2042 1293          ISZ  CT          /INCREMENT CHARACTER COUNT

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2303	7000	1294		NOP			
2304	7640	1295		SZA	CLA	/SKIP IF CARRIAGE-RETURN	
		1296				/-----	
2305	6032	1297	INTR2,	IOT	032	/IOT 012 FOR HIGH SPEED READER	
		1298				/-----	
2306	7000	1299	INTR3,	NOP			
2307	7000	1300		NOP			
2310	1044	1301		TAD	LK	/RESTORE LINK	
2311	7110	1302		CLL	RAR		
2312	1043	1303		TAD	AC	/RESTORE AC	
2313	60C1	1304		ION		/ENABLE INTERRUPT	
2314	54C0	1305		JMP	I 0	/RETURN	
		1306	/			/-----	
2315	0215	1307	PA,	0215		/PAGE HEADING	
2316	0212	1308		0212			
2317	0212	1309		0212			
2320	0212	1310		0212			
2321	0212	1311		0212			
2322	0212	1312		0212			
2323	0212	1313		0212			
2324	0255	1314		0255			
2325	0255	1315		0255			
2326	0255	1316		0255			
2327	0255	1317		0255			
2330	0255	1318		0255			
2331	0255	1319		0255			
2332	0215	1320	PA10,	0215			
2333	0212	1321		0212			
2334	0212	1322		0212			
2335	0212	1323		0212			
2336	0212	1324		0212			
2337	0320	1325		0320		/P	
2340	0301	1326		0301		/A	
2341	0307	1327		0307		/G	
2342	0305	1328		0305		/E	
2343	0240	1329	PA20,	0240			
2344	0240	1330		0240			
2345	0240	1331		0240			
2346	0240	1332		0240			
2347	0240	1333		0240			
2350	0215	1334		0215			
2351	0212	1335		0212			
2352	0212	1336		0212			
2353	0212	1337		0212			
2354	0212	1338		0212			
2355	0000	1339		0000			
2356	0212	1340		0212			
		1341	/			/-----	
2513		1342	IB,	*.+134		/INPUT BUFFER	
2625		1343	PB,	*.+112		/PUNCH BUFFER	
2740		1344	OB,	*.+113		/OUTPUT BUFFER	
		1345	/			/-----	

1346 / MNEMONIC TABLE

		1347 /	-----	
2740	2401	1348	MT,	2401 /T A
2741	0440	1349		0440 /D
2742	7777	1350		7777
2743	1000	1351		1000
		1352 /		
2744	0403	1353		0403 /D C
2745	0140	1354		0140 /A
2746	7777	1355		7777
2747	3000	1356		3000
		1357 /		
2750	1215	1358		1215 /J M
2751	2040	1359		2040 /P
2752	7777	1360		7777
2753	5000	1361		5000
		1362 /		
2754	1123	1363		1123 /I S
2755	3240	1364		3240 /Z
2756	7777	1365		7777
2757	2000	1366		2000
		1367 /		
2760	1215	1368		1215 /J M
2761	2340	1369		2340 /S
2762	7777	1370		7777
2763	4000	1371		4000
		1372 /		
2764	0116	1373		0116 /A N
2765	0440	1374		0440 /D
2766	7777	1375		7777
2767	0000	1376		0000
		1377 /		
2770	0314	1378		0314 /C L
2771	0140	1379		0140 /A
2772	7000	1380		7000
2773	7200	1381		7200
		1382 /		
2774	0314	1383		0314 /C L
2775	1440	1384		1440 /L
2776	7500	1385		7500
2777	7100	1386		7100
		1387 /		
3000	0315	1388		0315 /C M
3001	0140	1389		0140 /A
3002	7440	1390		7440
3003	7040	1391		7040
		1392 /		
3004	0315	1393		0315 /C M
3005	1440	1394		1440 /L
3006	7420	1395		7420
3007	7020	1396		7020
		1397 /		

3010	2201	1398	2201	/R A
3011	2240	1399	2240	/R
3012	7412	1400	7412	
3013	7010	1401	7010	
		1402 /		
3014	2201	1403	2201	/R A
3015	1440	1404	1440	/L
3016	7406	1405	7406	
3017	7004	1406	7004	
		1407 /		
3020	2224	1408	2224	/R T
3021	2240	1409	2240	/R
3022	7412	1410	7412	
3023	7012	1411	7012	
		1412 /		
3024	2224	1413	2224	/R T
3025	1440	1414	1440	/L
3026	7406	1415	7406	
3027	7006	1416	7006	
		1417 /		
3030	1101	1418	1101	/I A
3031	0340	1419	0340	/C
3032	7401	1420	7401	
3033	7001	1421	7001	
		1422 /		
3034	1617	1423	1617	/N D
3035	2040	1424	2040	/P
3036	7777	1425	7777	
3037	7000	1426	7000	
		1427 /		
3040	2315	1428	2315	/S M
3041	0140	1429	0140	/A
3042	7510	1430	7510	
3043	7500	1431	7500	
		1432 /		
3044	2320	1433	2320	/S P
3045	0140	1434	0140	/A
3046	7510	1435	7510	
3047	7510	1436	7510	
		1437 /		
3050	2332	1438	2332	/S Z
3051	0140	1439	0140	/A
3052	7450	1440	7450	
3053	7440	1441	7440	
		1442 /		
3054	2316	1443	2316	/S N
3055	0140	1444	0140	/A
3056	7450	1445	7450	
3057	7450	1446	7450	
		1447 /		
3060	2316	1448	2316	/S N
3061	1440	1449	1440	/L

3062	7430	1450	7430	
3063	7420	1451	7420	
		1452 /		
3064	2332	1453	2332	/S Z
3065	1440	1454	1440	/L
3066	7430	1455	7430	
3067	7430	1456	7430	
		1457 /		
3070	2313	1458	2313	/S K
3071	2040	1459	2040	/P
3072	7570	1460	7570	
3073	7410	1461	7410	
		1462 /		
3074	1723	1463	1723	/O S
3075	2240	1464	2240	/R
3076	7404	1465	7404	
3077	7404	1466	7404	
		1467 /		
3100	1014	1468	1014	/H L
3101	2440	1469	2440	/T
3102	7402	1470	7402	
3103	7402	1471	7402	
		1472 /		
3104	1117	1473	1117	/I O
3105	2440	1474	2440	/T
3106	7777	1475	7777	
3107	6000	1476	6000	
		1477 /		
3110	1117	1478	1117	/I O
3111	1640	1479	1640	/N
3112	7777	1480	7777	
3113	6001	1481	6001	
		1482 /		
3114	1117	1483	1117	/I O
3115	0640	1484	0640	/F
3116	7777	1485	7777	
3117	6002	1486	6002	
		1487 /		
3120	2320	1488	2320	/S P
3121	1440	1489	1440	/L
3122	7777	1490	7777	
3123	6004	1491	6004	
		1492 /		
3124	0317	1493	0317	/C O
3125	1640	1494	1640	/N
3126	7777	1495	7777	
3127	6774	1496	6774	
		1497 /		
3130	0317	1498	0317	/C O
3131	0640	1499	0640	/F
3132	7777	1500	7777	
3133	6772	1501	6772	

		1502 /			
3134	2303	1503	2303	/S C	
3135	0440	1504	0440	/D	
3136	7777	1505	7777		
3137	6771	1506	6771		
		1507 /			
3140	2324	1508	2324	/S T	
3141	1440	1509	1440	/L	
3142	7520	1510	7520		
3143	7120	1511	7120		
		1512 /			
3144	0714	1513	0714	/G L	
3145	1340	1514	1340	/K	
3146	7606	1515	7606		
3147	7204	1516	7204		
		1517 /			
3150	2324	1518	2324	/S T	
3151	0140	1519	0140	/A	
3152	7640	1520	7640		
3153	7240	1521	7240		
		1522 /			
3154	0311	1523	0311	/C I	
3155	0140	1524	0140	/A	
3156	7441	1525	7441		
3157	7041	1526	7041		
		1527 /			
3160	1401	1528	1401	/L A	
3161	2340	1529	2340	/S	
3162	7604	1530	7604		
3163	7604	1531	7604		
		1532 /			
3164	0000	1533	0	/END OF MNEMONIC TABLE	
		1534 /			
		1535 /			
		1536 /			
3165	C405	1537	MT1, 0405	/D E	
3166	C311	1538	0311	/C I	
3167	C372	1539	DEC		
3170	0000	1540	0000		
		1541 /			
3171	1703	1542	1703	/D C	
3172	2401	1543	2401	/T A	
3173	0375	1544	DCT		
3174	0000	1545	0000		
		1546 /			
3175	2001	1547	2001	/P A	
3176	C705	1548	0705	/G E	
3177	C575	1549	PAG		
3200	0000	1550	0000		
		1551 /			
3201	0000	1552	0	/END OF DIRECTIVE TABLE	
		1553 /			

3202 0000 1554 ST, 0

/START OF SYMBOL TABLE

		1556	/-----HIGH SPEED READER OVERLAY
2150		1557	*RRI+1
2150	6013	1558	IOT 013
2202		1559	*INT2
2202	6015	1560	IOT 015
2305		1561	*INTR2
2305	6012	1562	IOT 012;IOT 034;CLA
2306	6034		
2307	7200		

	1564	/-----	HIGH SPEED PUNCH OVERLAY
2221	1565		*INPCH2
2221	6027	1566	IOT 027
2226	1567		*INPCH4
2226	6022	1568	IOT 022
2166	1569		*WBPH+1
2166	6027	1570	IOT 027

NO ERRORS

SYMBOL	ADDR	DEFN	REFERENCES							
AC	C043	46	1217	1303						
AIX	0011	21	432	437	442	459	484	508	763	770
			934	938						
AIY	C012	22	757	761	779	796	804	936	939	950
			956	969	973	993	999	1019	1025	1035
			1036	1047	1048	1106	1109	1113		
ASMB	0400	283	89	291	354	357	362	375		
ASMBX	C113	89	192	233						
ASMB10	C457	331	317	329						
ASMB12	0502	350	345							
ASMB13	0503	351	338							
ASMB14	0504	352	368							
ASMB16	C507	355	313	364	378					
ASMB2	0404	287	295							
ASMB20	0512	359	310							
ASMB22	0524	370	399							
ASMB24	C526	372	382							
ASMB25	C527	373	371							
ASMB26	0530	374	307	410						
ASMB28	0535	379	377							
ASMB4	0411	292	286							
ASMB8	C456	330	323	325						
AST	0603	419	79							
ASTX	C101	79	183							
AST2	0605	421	417							
AO	0053	55	730	741	850	863	865	873	875	884
			890	896	902					
A1	0054	56	852	857	858	880	882	883	892	906
			907							
BDC	1436	849	86	851	853	887				
BDCX	C110	86	930	944						
BDC2	1445	856	860							
BDC4	1452	861	886							
BDC6	1457	866	878							
BDC	1505	889	85	891	893	910				
BDCX	C107	85	243	422	1091	1093				
BDC2	1514	896	909							
CH	0040	43	180	186	207	215	247	314	320	532
			537	547	551	557	576	580	586	613
			627	636	645	665	669	701	714	817
			821	830	834	962	977	981	1004	1031
			1046	1063	1071	1075	1081	1162		
CR	0041	44	1268	1272	1276	1280	1287	1289		
CSUM	0052	53	767	774	797	799	805	807		
CT	C042	45	1193	1284	1293					
DATA	0050	51	193	240	290	300	301	326	328	352
			353	359	392	405	408	409	1086	1090
			1095							
DEC	0372	275	1539							
EV	0045	48	289	332	335	366	416	421	423	572
			661	662	675					
HALT	0176	143	149	1180	1184					

CROSS-REFERENCE

SYMBOL	ADDR	DEFN	REFERENCES							
IB	2357	1342	65	66	67	68	243	422	944	1091
			1093							
IBX	0064	65	228	265	347	356	373	527	605	674
			917	1120						
IBY	0065	66	966	990	1011	1136	1151	1159		
IBZ	0066	67	947							
IB12X	0067	68	204	1039						
ICH	0757	530	96	533	536	540				
ICHX	0122	96	319	631	649	711	722	954	961	987
			1009	1017	1028	1074				
IEV	1027	571	84	664	677					
IEVX	0106	84	288	331	365	420				
IEV1	1031	573	668	672						
IEV10	1145	654	589							
IEV12	1150	658	598	603	606	634	652			
IEV14	1155	663								
IEV18	1167	673	592	639						
IEV2	1043	583	594							
IEV20	1172	676	679							
IEV3	1055	593	579							
IEV4	1057	596	591							
IEV5	1067	604	599							
IEV6	1072	608	585							
IEV7	1103	618	610	633						
IEV8	1124	636	612	616	651					
IIB	2047	1119	88	1129						
IIBX	0112	88	1038	1132						
INBCH	0763	535	97	541						
INBCHX	0123	97	198	211	232	419	550	583	656	678
			976	992	1013	1161				
INPCH	2211	1230								
INPCH2	2221	1239	1565							
INPCH3	2225	1244	1236							
INPCH4	2226	1246	1232	1567						
INPTR	2230	1250	1228							
INPTR2	2240	1258								
INPTR3	2244	1262	1257							
INPTR4	2245	1263	1252							
INT	2177	1217	14							
INTR	2247	1266	1224							
INTR1	2275	1288	1275							
INTR2	2305	1297	1279	1283	1286	1561				
INTR3	2306	1299	1243	1248	1254	1261	1264	1271		
INT2	2202	1221	1559							
INT3	2205	1225	1223							
IP	0015	25	160	1138	1146	1191	1269	1288	1292	
IR	0234	175	210							
LC	0026	34	154	155	271	340	413	424	567	654
			781	1092	1097					
LET	0300	214	185							
LET10	0340	247	218							
LET12	0352	258	250							

SYMBOL	ADDR	DEFN	REFERENCES
LET14	0363	267	260
LET2	0317	230	222
LET6	0333	242	226 229
LET8	0336	244	221
LK	0044	47	1219 1301
LN	0025	33	163 924 928
MASK	0051	52	297 388 400 403 404
MO215	0160	127	1273 1290
MO240	0161	128	321 538 548 918 1281
MO244	0162	129	1163
MO247	0163	130	187 1001 1078
MO252	0164	131	181
MO253	0165	132	581 666
MO254	0166	133	248 978
MO255	0167	134	577 670
MO256	1176	680	587
MO257	0170	135	554 963 1005
MO260	1412	826	818
MO270	1177	681	637
MO272	1413	827	822
MO273	0171	136	208 558
MO275	0172	137	216 982
MO301	1426	839	831
MO311	0173	138	315
MO333	1427	840	835
MO340	0174	139	1277
MT	2740	1348	60
MTY	0057	60	293 380
MT1	3165	1537	61
MT1Y	0060	61	251
M10	0150	119	869 974
M12	0151	120	861
M18	0152	121	951 1122
M24	0153	122	959
M31	0155	124	737
M33	0154	123	931
M4	0146	117	693 894
M52	0156	125	927
M7	0147	118	305
M72	0157	126	1103 1192
NM	0022	30	157 276 280 608
OB	2625	1344	62 1055 1056 1057 1058
OBY	0061	62	756 935 949 1105 1197
OB18X	1753	1055	972
OB25X	1754	1056	995 998
OB41X	1755	1057	1021 1024
OB73X	1756	1058	1050
OCT	0375	279	1544
OL	1533	912	72 916 923
OLX	0072	72	206 244 425 1041 1094
OL10	1606	954	958
OL12	1624	968	971

SYMBOL	ADDR	DEFN	REFERENCES
OL14	1635	977	989
OL16	1652	990	986
OL18	1654	992	1016
OL20	1664	1000	997 1010
OL24	1677	1011	980 1984
OL26	1702	1014	1018
OL28	1707	1019	1007
OL30	1716	1026	965 1003 1023 1029
OL32	1722	1030	955 1000 1026 1033
OL34	1726	1034	1052
OL36	1740	1044	1008 1014 1027 1053
OL4	1547	924	920
OL6	1566	938	941
OL8	1573	943	925
OP	0016	26	161 811 1198 1204 1212 1230 1233 1244 1250 1255 1262
OR	2005	1085	73 1099
ORX	0073	73	194 1082
OR2	2023	1097	1089
OW	1345	787	769 771 775 776 777 808
O100	0130	103	237 268 490 760 1182
O17	0126	101	614 628
O177	0131	104	333 348 1266
O200	0132	105	153 350 415 523 1267
O215	1752	1054	1034
O240	0133	106	856 968 1124
O260	0134	107	879 905
O3	0124	99	147
O304	0135	108	227 264
O306	0136	109	526
O311	0137	110	370
O320	0140	111	346
O323	0141	112	355 673
O325	0142	113	372 604
O400	0143	114	327
O4040	1253	726	684 686 688 690
O7	0125	100	304 469 646 904
O7600	0145	116	336 341 414
O77	0127	102	708 715 793 801
O7700	1254	727	705 718
O777	0144	115	360 367
PA	2315	1307	64
PAG	0575	412	1549
PAK	1200	683	87 699 713 725
PAKX	0111	87	214 292 379 596
PAK2	1217	698	724
PASS	0004	16	152 165 201 224 261 564 731 746 914 921 1087 1142 1169 1177 1199 1225
PAY	0063	64	933
PA10	2332	1320	
PA20	2343	1329	930
PB	2513	1343	63

SYMBOL	ADDR	DEFN	REFERENCES							
PBY	0062	63	735	750	762	783	1115	1149	1173	
PIR	0235	177	212							
PIR2	0252	190	253							
PL	2026	1101	78	1117						
PLX	0100	78	173	1183						
PN	0023	31	158	926	929					
PP	0017	27	738	742	752	784	1116	1150	1153	
PR	1274	745	77	740	749	785				
PRX	0077	77	426	1181						
PR2	1340	781	754							
PSP	1757	1060	82	1065						
PSPX	0104	82	179	284	318	946				
PW	1255	729	76	734	743					
PWX	0076	76	1096							
RA	0027	35	156	768	782					
RR	2062	1131	71	1172	1175					
RRI	2147	1186	1137	1174	1194	1557				
RRX	0071	71	175							
RR10	2130	1169								
RR12	2137	1177	1165							
RR2	2067	1136	1145							
RR4	2075	1142	1135							
RR6	2110	1153	1157							
RR7	2115	1158	1155							
RR8	2116	1159	1141							
RSP	1765	1067	83	1072						
RSPX	0105	83	191	287	330	1040				
SIGN	0047	50	575	593	659					
SMT	0615	429	94	435	448	449				
SMTX	0120	94	252	294	381					
SMT2	0617	431	453							
SMT6	0642	450	439	444						
SN	0024	32	159	943	1133	1166	1168			
SP	0013	23	531	948	967	991	1012	1061	1069	1152
			1156	1158	1160					
SST	0646	455	95	492	493	494	516	517	528	
SSTP	0745	519	503	504	509	525				
SSTX	0121	95	220	258	597					
SST10	0733	508	511							
SST2	0651	458	497							
SST4	0701	482	488							
SST6	0716	495	481	486						
SST8	0721	498	465							
ST	3202	1554	36	59						
STP	0030	36	169	170	460	466	498	500	513	
STR	1773	1074	80							
STRX	0102	80	189	1083						
STX	0014	24	430	433	440	445	446	450	451	452
			457	462	468	471	472	482	496	501
			514							
STY	0056	59	168	456						
SY	0055	58	431	458	695					

SYMBOL	ADDR	DEFN	REFERENCES							
SYA	0031	37	223	230	231	234	235	236	238	239
			241	242	254	255	256	267	269	270
			272	296	298	299	383	385	386	447
			467	489	499	512	515	520	521	522
			600	601						
S1	0033	38	58	685						
S2	0034	39	687							
S3	0035	40	689							
S4	0036	41	691							
S5	0037	42	479	502	505	692	700			
TCH	0021	29	1064	1070						
TDIG	1400	816	90	824	825	845				
TDIGX	0114	90	584	632	650					
TDIG2	1410	824	820							
TEND	1000	546	92	553	556	560	561			
TENDX	0116	92	177	196	312	324	363	374	663	676
TLET	1414	829	91	837	838	843				
TLETX	0115	91	184	285	376	590				
TLET2	1424	837	833							
TLOD	1430	842	93	846	847					
TLODX	0117	93	698	712	985	1015				
TP	1020	563	70	566						
TPX	0070	70	190							
TSP	0020	28	1062	1068						
TV	0046	49	573	602	619	621	622	625	626	629
			630	640	644	647	648	655	658	
T1	0005	17	339	343	390	391	395	470	473	475
			477	478	487	507	510	694	723	755
			759	764	766	772	862	877	895	908
			932	940	952	957	960	970	975	988
			1042	1043	1104	1110	1121	1125	1126	
T2	0006	18	334	349	351	384	389	402	474	495
			697	707	710	717	720	721	788	789
			800	855	859	867	868	871	876	899
			900	903	1102	1108	1123	1127		
T3	0007	19	387	394	407	706	709	716	719	794
			795	798	802	803	806			
T4	0010	20	393	397						
WB	2156	1196	74	1210	1216					
WBPH	2165	1204	1569							
WBPR	2172	1212	1202							
WBX	0074	74	780	942	1037	1114				
WT	1373	810	75	814						
WTX	0075	75	143	758	937	953	1107			
WUP	0257	196	81	199	245	277	281			
WUPX	0103	81	427	568	569	1077	1080			
WUP2	0263	200	178	197						
WUP4	0272	207	203							
WUP6	0276	211	259	263	266	273				

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1 /-----
2 /
3 / MP12 BINARY LOADER                      900-0078-04 REV
4 /
5 / (C) COPYRIGHT 1974, FABRI-TEK INCORPORATED
6 /
7 /-----
8           DCTAL
9 /-----
7702      10           *7702
11 /-----
7702 7300 12 LOAD,  CLA  CLL      /INITIALIZE
7703 4354 13           JMS  INB    /INPUT DATA BYTE
7704 7450 14           SNA                    /SKIP IF NON-ZERO
7705 5355 15           JMP  INB+1  /GO INPUT NEXT BYTE
7706 1366 16           TAD  M100   /CHECK FOR END OF LOAD
7707 7450 17           SNA
7710 5301 18           JMP  HALT    /END, HALT WITH 0000 IN AC
7711 0367 19           AND  0300   /CHECK FOR CONTROL BYTE
7712 7440 20           SZA
7713 5301 21           JMP  HALT    /NOT CONTROL BYTE, GO HALT
22 /-----LOAD RECORD
7714 1373 23           TAD  BYTE    /FETCH CONTROL BYTE
7715 0365 24           AND  077    /EXTRACT WORD COUNT
7716 7041 25           CMA  IAC    /NEGATE COUNT
7717 3374 26           DCA  TEMP   /STORE COUNT
7720 3371 27           DCA  CSUM   /CLEAR CHECKSUM
7721 4341 28           JMS  INW    /INPUT ADDRESS
7722 3370 29           DCA  LC     /STORE ADDRESS
7723 4341 30 LOOP,   JMS  INW    /INPUT DATA WORD
7724 3770 31           DCA  I LC    /STORE IN MEMORY
7725 2370 32           ISZ  LC     /INCREMENT LOCATION
7726 2374 33           ISZ  TEMP   /INCREMENT COUNT
7727 5323 34           JMP  LOOP   /NOT FINISHED, LOOP
7730 1371 35           TAD  CSUM   /FINISHED, FETCH CHECKSUM
7731 3374 36           DCA  TEMP   /SAVE
7732 4341 37           JMS  INW    /INPUT TAPE CHECKSUM
7733 7041 38           CMA  IAC    /COMPARE WITH COMPUTED CHECKSUM
7734 1374 39           TAD  TEMP
7735 7450 40           SNA
7736 5302 41           JMP  LOAD    /MATCH, GO LOAD NEXT RECORD
42 /-----CHECKSUM ERROR
7737 7340 43           CLA  CLL  CMA  /SET AC TO 7777
7740 5301 44           JMP  HALT    /GO HALT
45 /-----INPUT WORD
7741 0000 46 INW,   0
7742 4354 47           JMS  INB    /INPUT LEFT BYTE
7743 0365 48           AND  077
7744 7106 49           CLL  RTL    /LEFT ADJUST
7745 7006 50           RTL
7746 7006 51           RTL
7747 3372 52           DCA  WORD    /SAVE

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7750 4354 53      JMS   INB      /INPUT RIGHT BYTE
7751 0365 54      AND   077
7752 1372 55      TAD   WORD    /MERGE WITH LEFT BYTE
7753 5741 56      JMP I INW    /RETURN
57 /-----INPUT BYTE
7754 0000 58 INB,  0
59
7755 6037 60      IDT   037    /IDT 017 FOR HIGH SPEED READER
61 /-----
7756 5355 62      JMP   .-1
7757 3373 63      DCA   BYTE    /SAVE DATE BYTE
7760 1373 64      TAD   BYTE    /UPDATE CHECKSUM
7761 1371 65      TAD   CSUM
7762 3371 66      DCA   CSUM
7763 1373 67      TAD   BYTE    /FETCH DATA BYTE
7764 5754 68      JMP I INB    /RETURN
69 /-----
7765 0077 70 077,   77
7766 7700 71 M100, -100
7767 0300 72 0300, 300
7770 0000 73 LC,    0      /LOCATION COUNTER
7771 0000 74 CSUM,  0      /CHECKSUM
7772 0000 75 WORD,  0      /WORD STORAGE
7773 0000 76 BYTE,  0      /BYTE STORAGE
7774 0000 77 TEMP,  0      /STORAGE TEMP
78 /-----
7777      79      *7777
80 /-----
7777 5302 81      JMP   LOAD    /START LOAD
82 /-----
7700      83      *7700
84 /-----
7700 5265 85      JMP   .-13    /FOR BOOTSTRAP
7701 7402 86 HALT,  HLT    /FOR BOOTSTRAP

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NO ERRORS

CROSS-REFERENCE

SYMBOL	ADDR	DEFN	REFERENCES			
BYTE	7773	76	23	63	64	67
CSUM	7771	74	27	35	65	66
HALT	7701	86	18	21	44	
INB	7754	58	13	15	47	53 68
INW	7741	46	28	30	37	56
LC	7770	73	29	31	32	
LOAD	7702	12	41	81		
LOOP	7723	30	34			
M100	7766	71	16			
O300	7767	72	19			
O77	7765	70	24	48	54	
TEMP	7774	77	26	33	36	39
WORD	7772	75	52	55		

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1 /-----
2 /
3 / MP12 DEBUGGING UTILITY          900-0079-04 REV 00A
4 /
5 / (C) COPYRIGHT 1974, FABRI-TEK INCORPORATED
6 /
7 /-----
8         OCTAL
9 /-----
5600      10         *5600
11 /-----
5600 5726 12         JMP I C011          /CLEAR BREAKPCINTS
13 /-----COMMAND ERROR
5601 4253 14 ERR,   JMS   OEL          /OUTPUT CR-LF
5602 1340 15         TAD   C10277       /OUTPUT "?"
5603 4242 16         JMS   OCH
5604 4253 17 NEXT,  JMS   OEL          /OUTPUT CR-LF
5605 4227 18         JMS   ICH          /INPUT COMMAND LETTER
19 /-----DECODE COMMAND
5606 7200 20         CLA                   /INITIALIZE
5607 1355 21         TAD   IN2
5610 3213 22         DCA   TAD
5611 1341 23         TAD   IN1
5612 3224 24         DCA   JUMP
5613 0000 25 TAD,   0          /FETCH CHARACTER FROM COMMAND TABLE
5614 7450 26         SNA                   /SKIP IF NON-ZERO
5615 5205 27         JMP   NEXT+1       /ILLEGAL COMMAND LETTER
5616 2213 28         ISZ   TAD
5617 1322 29         TAD   CH          /COMPARE WITH COMMAND CHARACTER
5620 7640 30         SZA   CLA          /SKIP ON MATCH
5621 5225 31         JMP   LOOP        /NO MATCH, CONTINUE
5622 1322 32         TAD   CH          /FETCH CHARACTER
5623 4242 33         JMS   OCH          /ECHO CHARACTER
5624 0000 34 JUMP,  0          /JUMP TO COMMAND ROUTINE
5625 2224 35 LOOP,  ISZ   JUMP
5626 5213 36         JMP   TAD
37 /-----INPUT KEYBOARD CHARACTER
5627 0000 38 ICH,   0
5630 6037 39         IOT   037          /READ CHARACTER
5631 5230 40         JMP   .-1
5632 0334 41         AND   C10177       /TRIM CHARACTER
5633 3322 42         DCA   CH          /SAVE CHARACTER
5634 1322 43         TAD   CH          /FETCH CHARACTER
5635 1333 44         TAD   C1M33       /TEST FOR ESC
5636 7650 45         SNA   CLA
5637 5204 46         JMP   NEXT        /IF ESC
5640 1322 47         TAD   CH          /FETCH CHARACTER
5641 5627 48         JMP I ICH          /RETURN
49 /-----OUTPUT CHARACTER TO PRINTER
5642 0000 50 OCH,   0
5643 6047 51         IOT   047          /OUTPUT CHARACTER
5644 5243 52         JMP   .-1

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5645	7200	53	CLA		/CLEAR AC
5646	5642	54	JMP I	OCH	/RETURN
		55	/-----ECHO CHARACTER		
5647	0000	56	ECHO,	0	
5650	1322	57	TAD	CH	/FETCH CHARACTER
5651	4242	58	JMS	OCH	/OUTPUT TO PRINTER
5652	5647	59	JMP I	ECHO	/RETURN
		60	/-----OUTPUT END-OF-LINE		
5653	0000	61	DEL,	0	
5654	7200	62	CLA		
5655	1336	63	TAD	C10215	/OUTPUT CR
5656	4242	64	JMS	OCH	
5657	1335	65	TAD	C10212	/OUTPUT LF
5660	4242	66	JMS	OCH	
5661	5653	67	JMP I	DEL	/RETURN
		68	/-----DISPLAY AC AND LINK		
5662	7040	69	LOO,	CMA	/ENTRY FOR LINK DISPLAY
5663	3316	70	A00,	DCA TO	/ENTRY FOR AC DISPLAY
5664	1316	71	TAD	TO	/LINK OR AC DISPLAY
5665	7650	72	SNA	CLA	
5666	5271	73	JMP	A01	/AC
5667	1321	74	TAD	LK	/LINK, FETCH CONTENTS
5670	5272	75	JMP	A02	/GO OUTPUT
5671	1320	76	A01,	TAD AC	/FETCH AC CONTENTS
5672	4731	77	A02,	JMS I OVAL	/OUTPUT VALUE
5673	4730	78	JMS I	OTS1	/OUTPUT SPACING
5674	4727	79	JMS I	IVAL	/INPUT VALUE
5675	1724	80	TAD I	CK1	
5676	7640	81	SZA	CLA	
5677	5201	82	JMP	ERR	/IF ILLEGAL TERMINATING CHARACTER
5700	1723	83	TAD I	CT1	/CHECK IF VALUE INPUT
5701	7650	84	SNA	CLA	
5702	5204	85	JMP	NEXT	/IF NO VALUE INPUT
5703	1725	86	TAD I	VAL	
5704	2316	87	ISZ	TO	/SKIP IF LINK DISPLAY
5705	5314	88	JMP	A04	/GO STORE AC VALUE
5706	7110	89	CLL	RAR	/TEST FOR 0 OR 1
5707	7640	90	SZA	CLA	
5710	5201	91	JMP	ERR	/IF NO, ERROR
5711	7004	92	RAL		/STORE LINK
5712	3321	93	DCA	LK	
5713	5204	94	JMP	NEXT	/PROCESS NEXT COMMAND
5714	3320	95	A04,	DCA AC	/STORE AC
5715	5204	96	JMP	NEXT	/PROCESS NEXT COMMAND
		97	/-----		
5716	0000	98	TO,	0	
5717	0200	99	LC,	200	/LOCATION COUNTER
5720	0000	100	AC,	0	/AC
5721	0000	101	LK,	0	/LINK
5722	0000	102	CH,	0	/CHARACTER STORAGE
5723	6554	103	CT1,	CT	
5724	6555	104	CK1,	CK	

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5725 6556 105 VAI, VA
5726 60C3 106 CO11, CO1
5727 64C0 107 IVA1, IVA
5730 7265 108 DTS1, DTS
5731 6525 109 OVA1, OVA
5732 7763 110 C1M15, -15
5733 7745 111 C1M33, -33
5734 0177 112 C10177,177
5735 C212 113 C10212,212
5736 C215 114 C10215,215
5737 C240 115 C10240,240
5740 0277 116 C10277,277
117 /----- TABLE OF COMMAND ROUTINE ADDRESSES
5741 5742 118 IN1, JMP I .+1
5742 5663 119 A00 /DISPLAY AC
5743 6042 120 B00 /SET BREAKPOINT
5744 5772 121 C00 /CLEAR BREAKPOINT
5745 6600 122 P00 /PRINT
5746 6260 123 F00 /FILL
5747 6326 124 G00 /GO
5750 6174 125 M00 /MEMORY INSPECT
5751 5662 126 L00 /DISPLAY LINK
5752 6632 127 D00 /DUMP
5753 6276 128 S00 /SEARCH
5754 70C0 129 T00 /TRACE
130 /----- TABLE OF COMMAND CHARACTERS
5755 1356 131 IN2, TAD .+1
5756 7677 132 -101 /A
5757 7676 133 -102 /B
5760 7675 134 -103 /C
5761 7660 135 -120 /P
5762 7672 136 -106 /F
5763 7671 137 -107 /G
5764 7663 138 -115 /M
5765 7664 139 -114 /L
5766 7674 140 -104 /D
5767 7655 141 -123 /S
5770 7654 142 -124 /T
5771 0000 143 0 /END OF TABLE
144 /-----CLEAR BREAKPOINT
5772 4727 145 COO, JMS I IVA1 /INPUT BREAKPOINT NUMBER
5773 1724 146 TAD I CK1
5774 7640 147 SZA CLA
5775 52C1 148 JMP ERR /IF ILLEGAL TERMINATING CHARACTER
5776 1723 149 TAD I CT1 /CHECK IF BREAKPOINT SPECIFIED
5777 7650 150 SNA CLA
6000 52C3 151 JMP CO1 /UNSPECIFIED, CLEAR ALL
6001 4214 152 JMS CO4 /CLEAR SPECIFIED BREAKPOINT
6002 5750 153 JMP I NEXT2 /PROCESS NEXT COMMAND
154 /-----CLEAR ALL BREAKPOINTS
6003 72C0 155 CO1, CLA /N=0
6004 3736 156 DCA I VA2

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6005 4214 157 C03,   JMS   C04           /CLEAR BREAKPOINT N
6006 2736 158       ISZ I VA2           /N=N+1
6007 1736 159       TAD I VA2           /N=8
6010 1352 160       TAD   C2M10
6011 7640 161       SZA   CLA
6012 5205 162       JMP   C03           /NO, CONTINUE
6013 5750 163       JMP I NEXT2        /YES
164 /----- SUBROUTINE TO CLEAR SPECIFIED BREAKPOINT
6014 0000 165 C04,   0
6015 7300 166       CLA   CLL
6016 1736 167       TAD I VA2           /FETCH BREAKPOINT NUMBER
6017 1352 168       TAD   C2M10
6020 7630 169       SZL   CLA
6021 5744 170       JMP I ERR2        /IF < 0 OR > 7, ERROR
6022 1736 171       TAD I VA2           /COMPUTE BREAKPOINT TABLE ADDRESS
6023 7004 172       RAL
6024 1353 173       TAD   BT
6025 3330 174       DCA   T1           /SAVE ADDRESS
6026 1730 175       TAD I T1           /FETCH ADDRESS WORD
6027 7450 176       SNA
6030 5614 177       JMP I C04        /IF BREAKPOINT CLEAR
6031 3331 178       DCA   T2           /SAVE ADDRESS
6032 2330 179       ISZ   T1           /INCREMENT TABLE ADDRESS
6033 1730 180       TAD I T1           /FETCH INSTRUCTION
6034 3731 181       DCA I T2           /RESTORE
6035 7240 182       CLA   CMA        /RELEASE BREAKPOINT
6036 1330 183       TAD   T1
6037 3330 184       DCA   T1
6040 3730 185       DCA I T1
6041 5614 186       JMP I C04        /RETURN
187 /----- SET BREAKPOINT
6042 4746 188 B00,   JMS I IVS2        /INPUT VALUE STRING
6043 1737 189       TAD I VX2        /SET SPECIFIED BREAKPOINT
6044 3736 190       DCA I VA2
6045 4247 191       JMS   B01
6046 5750 192       JMP I NEXT2        /PROCESS NEXT COMMAND
193 /----- SUBROUTINE TO SET SPECIFIED BREAKPOINT
6047 0000 194 B01,   0
6050 4214 195       JMS   C04        /CLEAR BREAKPOINT, IF SET
6051 1740 196       TAD I VY2        /FETCH INSTRUCTION ADDRESS
6052 3730 197       DCA I T1           /STORE IN BREAKPOINT TABLE
6053 1740 198       TAD I VY2
6054 3331 199       DCA   T2
6055 2330 200       ISZ   T1
6056 1731 201       TAD I T2        /FETCH INSTRUCTION
6057 3730 202       DCA I T1        /STORE IN BREAKPOINT TABLE
6060 1341 203       TAD   B010       /FETCH JMS INSTRUCTION
6061 3731 204       DCA I T2        /STORE AT INSTRUCTION ADDRESS
6062 1342 205       TAD   B011       /FETCH RETURN ADDRESS
6063 3000 206       DCA   0           /STORE AT LOCATION 0
6064 5647 207       JMP I B01        /RETURN
208 /----- PROCESS BREAKPOINT INTERRUPT

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6065	C0C0	209	B02,	0	
6066	60C2	210		IDF	/INTERRUPTS OFF
6067	3732	211		DCA I AC2	/SAVE AC
6070	70C4	212		RAL	
6071	3734	213		DCA I LK2	/SAVE LINK
6072	7240	214		CLA CMA	
6073	1265	215		TAD B02	
6074	3735	216		DCA I LC2	/SAVE LC
		217	/----	SEARCH BREAKPOINT TABLE	
6075	1353	218	B03,	TAD BT	/INITIALIZE FOR TABLE SEARCH
6076	3330	219		DCA T1	
6077	1352	220		TAD C2M10	
6100	3331	221		DCA T2	
6101	1730	222	B04,	TAD I T1	/FETCH LOCATION FROM TABLE
6102	7041	223		CMA IAC	/COMPARE WITH LC
6103	1735	224		TAD I LC2	
6104	7650	225		SNA CLA	
6105	5313	226		JMP B06	/IF EQUAL
6106	2330	227		ISZ T1	/STEP TABLE INDEX
6107	2330	228		ISZ T1	
6110	2331	229		ISZ T2	/INCREMENT COUNT, FINISHED
6111	5301	230		JMP B04	/NO, CONTINUE
6112	5743	231		JMP I E032	/YES, ILLEGAL BREAKPOINT
6113	1331	232	B06,	TAD T2	/COLLECT VALUES
6114	7041	233		CMA IAC	
6115	1352	234		TAD C2M10	
6116	7041	235		CMA IAC	
6117	3737	236		DCA I VX2	
6120	1737	237		TAD I VX2	
6121	3736	238		DCA I VA2	
6122	1735	239		TAD I LC2	
6123	3740	240		DCA I VY2	
6124	4214	241		JMS C04	/CLEAR BREAKPOINT
6125	4751	242		JMS I MESS22	/OUTPUT MESSAGE
6126	4747	243		JMS I QVS2	/OUTPUT VALUES
6127	5750	244		JMP I NEXT2	/PROCESS NEXT COMMAND
		245	/-----		
6130	00C0	246	T1,	0	
6131	0000	247	T2,	0	
6132	5720	248	AC2,	AC	
6133	6554	249	CT2,	CT	
6134	5721	250	LK2,	LK	
6135	5717	251	LC2,	LC	
6136	6556	252	VA2,	VA	
6137	6561	253	VX2,	VX	
6140	6562	254	VY2,	VY	
6141	4400	255	B010,	JMS I 0	
6142	6065	256	B011,	B02	
6143	7243	257	E032,	E03	
6144	5601	258	ERR2,	ERR	
6145	6400	259	I VA2,	I VA	
6146	6456	260	I VS2,	I VS	

6147	7247	261	OVS2, OVS	
6150	5604	262	NEXT2, NEXT	
6151	7275	263	MESS22, MESS2	
6152	7770	264	C2M10, -10	
		265	/-----	BREAKPOINT TABLE
6153	6154	266	BT, .+1	
6154	0000	267		/BREAKPOINT 0
6155	0000			
6156	0000	268		/BREAKPOINT 1
6157	0000			
6160	0000	269		/BREAKPOINT 2
6161	0000			
6162	0000	270		/BREAKPOINT 3
6163	0000			
6164	0000	271		/BREAKPOINT 4
6165	0000			
6166	0000	272		/BREAKPOINT 5
6167	0000			
6170	0000	273		/BREAKPOINT 6
6171	0000			
6172	0000	274		/BREAKPOINT 7
6173	0000			
		275	/-----	INSPECT MEMORY
6174	4745	276	M00, JMS I IVA2	/INPUT ADDRESS
6175	1733	277	TAD I CT2	/CHECK IF ADDRESS INPUT
6176	7650	278	SNA CLA	
6177	5744	279	JMP I ERR2	/IF NO, ERROR
6200	1763	280	TAD I VA3	/FETCH ADDRESS
6201	3354	281	DCA T3	/SAVE
6202	1757	282	TAD I CK3	/CHECK TERMINATING CHARACTER
6203	7640	283	SZA CLA	/SKIP IF CARRIAGE-RETURN
6204	5770	284	JMP I ERR3	/ERROR
6205	5237	285	JMP M03	/GO OUTPUT ADDRESS
6206	1754	286	M01, TAD I T3	/FETCH CONTENTS OF ADDRESS
6207	4772	287	JMS I OVA3	/OUTPUT VALUE
6210	4773	288	JMS I OTS3	/OUTPUT SPACING
6211	4771	289	JMS I IVA3	/INPUT VALUE
6212	1760	290	TAD I CT3	/CHECK IF VALUE ENTERED
6213	7640	291	SZA CLA	
6214	5251	292	JMP M06	/IF VALUE ENTERED
6215	1757	293	M02, TAD I CK3	/CHECK TERMINATING CHARACTER
6216	7450	294	SNA	
6217	5776	295	JMP I NEXT3	/IF CR, TERMINATE INSPECT
6220	7041	296	CMA IAC	
6221	7001	297	IAC	
6222	7450	298	SNA	
6223	5246	299	JMP M05	/IF COMMA, DISPLAY NEXT
6224	7001	300	IAC	
6225	7450	301	SNA	
6226	5237	302	JMP M03	/IF PERIOD, DISPLAY AGAIN
6227	7001	303	IAC	
6230	7450	304	SNA	

6231	5243	305	JMP	M04	/IF SLASH, DISPLAY LAST
6232	7001	306	IAC		
6233	7440	307	SZA		/SKIP IF LETTER "I"
6234	5770	308	JMP I	ERR3	/ILLEGAL CONTROL CHARACTER
6235	1754	309	TAD I	T3	/FETCH CONTENTS OF ADDRESS
6236	3354	310	DCA	T3	/STORE ADDRESS
6237	4775	311	M03,	JMS I DEL3	/OUTPUT CR-LF
6240	1354	312	TAD	T3	/FETCH ADDRESS
6241	4772	313	M03,	JMS I OVA3	/OUTPUT VALUE
6242	5206	314	JMP	M01	/GO OUTPUT CONTENTS
6243	7040	315	M04,	CMA	/DECREMENT ADDRESS
6244	1354	316	TAD	T3	/FETCH ADDRESS
6245	5236	317	JMP	M03-1	/GO OUTPUT
6246	2354	318	M05,	ISZ T3	/INCREMENT ADDRESS
6247	7000	319	NOP		
6250	5237	320	JMP	M03	/GO OUTPUT
6251	1757	321	M06,	TAD I CK3	/CHECK TERMINATING CHARACTER
6252	1377	322	TAD	C3M4	
6253	7740	323	SMA	SZA CLA	
6254	5770	324	JMP I	ERR3	/IF ILLEGAL CHARACTER
6255	1763	325	TAD I	VA3	/FETCH VALUE
6256	3754	326	DCA I	T3	/STORE AT ADDRESS
6257	5215	327	JMP	M02	/GO DECODE CHARACTER
		328	/-----	FILL MEMORY	
6260	4774	329	FOO,	JMS I IVS3	/INPUT VALUE STRING
6261	2767	330	ISZ I	VY3	/INCREMENT END ADDRESS
6262	7000	331	NOP		
6263	1766	332	TAD I	VX3	/FETCH START ADDRESS
6264	3354	333	DCA	T3	/SAVE
6265	1764	334	FO1,	TAD I VM3	/FETCH FILL CONSTANT
6266	3754	335	DCA I	T3	/STORE IN MEMORY
6267	2354	336	ISZ	T3	/INCREMENT ADDRESS
6270	1354	337	TAD	T3	/TEST FOR COMPLETION
6271	7041	338	CMA	IAC	
6272	1767	339	TAD I	VY3	
6273	7640	340	SZA	CLA	
6274	5265	341	JMP	FO1	/CONTINUE
6275	5776	342	JMP I	NEXT3	/PROCESS NEXT COMMAND
		343	/-----	SEARCH MEMORY	
6276	4774	344	S00,	JMS I IVS3	/INPUT VALUE STRING
6277	2767	345	ISZ I	VY3	/INCREMENT END ADDRESS
6300	7000	346	NOP		
6301	1766	347	TAD I	VX3	/FETCH START ADDRESS
6302	3354	348	DCA	T3	/SAVE
6303	1754	349	S01,	TAD I T3	/FETCH DATA WORD
6304	0765	350	AND I	VN3	/AND WITH SEARCH MASK
6305	7041	351	CMA	IAC	/COMPARE WITH SEARCH VALUE
6306	1764	352	TAD I	VM3	
6307	7640	353	SZA	CLA	
6310	5317	354	JMP	S03	/IF UNEQUAL, CONTINUE
6311	4775	355	JMS I	DEL3	/OUTPUT CR-LF
6312	1354	356	TAD	T3	/FETCH ADDRESS

6313	4772	357	JMS I	QVA3	/OUTPUT VALUE
6314	1754	358	TAD I	T3	/FETCH DATA WORD
6315	4772	359	JMS I	QVA3	/OUTPUT VALUE
6316	4345	360	JMS	BRK	/CHECK FOR BREAK-IN
6317	2354	361	S03, ISZ	T3	/INCREMENT ADDRESS
6320	1354	362	TAD	T3	/TEST FOR COMPLETION
6321	7041	363	CMA	IAC	
6322	1767	364	TAD I	VY3	
6323	7640	365	SZA	CLA	
6324	5303	366	JMP	S01	/CONTINUE
6325	5776	367	JMP I	NEXT3	/PROCESS NEXT COMMAND
		368	/-----GO TO PROGRAM LOCATION		
6326	4771	369	G00, JMS I	IVA3	/INPUT LOCATION
6327	1757	370	TAD I	CK3	
6330	7640	371	SZA	CLA	
6331	5770	372	JMP I	ERR3	/IF ILLEGAL TERMINATING CHARACTER
6332	1760	373	TAD I	CT3	/CHECK IF LOCATION SPECIFIED
6333	7650	374	SNA	CLA	
6334	5337	375	JMP	G01	/IF NO LOCATION SPECIFIED
6335	1763	376	TAD I	VA3	/SET LC
6336	3761	377	DCA I	LC3	
6337	1761	378	G01, TAD I	LC3	/FETCH LC
6340	3355	379	DCA	T4	/STORE LOCATION
6341	1762	380	TAD I	LK3	/RESTORE LINK
6342	7110	381	CLL	RAR	
6343	1756	382	TAD I	AC3	/RESTORE AC
6344	5755	383	JMP I	T4	/JUMP TO LOCATION
		384	/-----CHECK FOR BREAK REQUEST		
6345	0000	385	BRK,	0	
6346	6037	386	IDT	037	
6347	5745	387	JMP I	BRK	
6350	7550	388	SPA	SNA	
6351	5776	389	JMP I	NEXT3	
6352	7200	390	CLA		
6353	5745	391	JMP I	BRK	
		392	/-----		
6354	0000	393	T3,	0	
6355	0000	394	T4,	0	
6356	5720	395	AC3,	AC	
6357	6555	396	CK3,	CK	
6360	6554	397	CT3,	CT	
6361	5717	398	LC3,	LC	
6362	5721	399	LK3,	LK	
6363	6556	400	VA3,	VA	
6364	6557	401	VM3,	VM	
6365	6560	402	VN3,	VN	
6366	6561	403	VX3,	VX	
6367	6562	404	VY3,	VY	
6370	5601	405	ERR3,	ERR	
6371	6400	406	IVA3,	IVA	
6372	6525	407	QVA3,	QVA	
6373	7265	408	OTS3,	OTS	

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6374 6456 409 IVS3, IVS
6375 5653 410 DEL3, DEL
6376 5604 411 NEXT3, NEXT
6377 7774 412 C3M4, -4
413 /-----INPUT VALUE
6400 0000 414 IVA, 0
6401 3355 415 DCA CK /INITIALIZE
6402 3354 416 DCA CT
6403 3356 417 DCA VA
6404 4766 418 IVA10, JMS I ICH5 /INPUT CHARACTER
6405 1376 419 TAD C5M60 /OCTAL DIGIT
6406 7510 420 SPA
6407 5227 421 JMP IVA20 /NO, GO CHECK TERMINATING CHARACTER
6410 1375 422 TAD C5M10
6411 7700 423 SMA CLA
6412 5227 424 JMP IVA20
6413 4772 425 JMS I ECH05 /YES, ECHO CHARACTER
6414 1356 426 TAD VA /MULTIPLY VALUE BY 8
6415 7104 427 CLL RAL
6416 7104 428 CLL RAL
6417 7104 429 CLL RAL
6420 3356 430 DCA VA
6421 1763 431 TAD I CH5 /FETCH CHARACTER
6422 0374 432 AND C507 /MASK FOR OCTAL DIGIT
6423 1356 433 TAD VA /ADD TO VALUE
6424 3356 434 DCA VA /SAVE VALUE
6425 2354 435 ISZ CT /INCREMENT CHARACTER COUNT
6426 5204 436 JMP IVA10 /CONTINUE
437 /-----CHECK TERMINATING CHARACTER
6427 7200 438 IVA20, CLA /INITIALIZE
6430 1247 439 TAD IVA40
6431 3232 440 DCA IVA30
6432 0000 441 IVA30, 0 /FETCH CHARACTER FROM TABLE
6433 7450 442 SNA /SKIP IF NON-ZERO
6434 5764 443 JMP I ERR5 /ILLEGAL TERMINATING CHARACTER
6435 1763 444 TAD I CH5 /COMPARE WITH TERMINATING CHARACTER
6436 7650 445 SNA CLA /SKIP IF NOT SAME
6437 5243 446 JMP IVA32 /IF SAME
6440 2355 447 ISZ CK /INCREMENT CHECK VALUE
6441 2232 448 ISZ IVA30
6442 5232 449 JMP IVA30 /CONTINUE
6443 1355 450 IVA32, TAD CK /FETCH CHECK VALUE
6444 7640 451 SZA CLA /SKIP IF ZERO
6445 4772 452 JMS I ECH05 /ECHO CHARACTER
6446 5600 453 JMP I IVA /RETURN
454 /----- TABLE OF LEGAL TERMINATING CHARACTERS
6447 1250 455 IVA40, TAD .+1
6450 7763 456 -15 /CR
6451 7724 457 -54 /,
6452 7722 458 -56 /.
6453 7721 459 -57 //
6454 7667 460 -111 /I

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6455 0000 461 0 /END OF TABLE
462 /-----INPUT VALUE STRING
6456 C0C0 463 IVS, 0
6457 3357 464 DCA VM /VM DEFAULT = 0000
6460 7040 465 CMA
6461 3360 466 DCA VN /VN DEFAULT = 7777
6462 4765 467 JMS I IVA5 /INPUT VX
6463 1356 468 TAD VA
6464 3361 469 DCA VX
6465 4316 470 JMS IVS12 /CHECK TERMINATING CHARACTER
6466 7640 471 SZA CLA
6467 5764 472 JMP I ERR5 /IF NOT COMMA
6470 4765 473 JMS I IVA5 /INPUT VY
6471 1356 474 TAD VA
6472 3362 475 DCA VY
6473 4316 476 JMS IVS12 /CHECK TERMINATING CHARACTER
6474 7640 477 SZA CLA
6475 5312 478 JMP IVS10 /IF NOT COMMA
6476 4765 479 JMS I IVA5 /INPUT VM
6477 1356 480 TAD VA
6500 3357 481 DCA VM
6501 4316 482 JMS IVS12 /CHECK TERMINATING CHARACTER
6502 7640 483 SZA CLA
6503 5312 484 JMP IVS10 /IF NOT COMMA
6504 4765 485 JMS I IVA5 /INPUT VN
6505 1356 486 TAD VA
6506 3360 487 DCA VN
6507 1354 488 TAD CT /VALUE INPUT
6510 7650 489 SNA CLA
6511 5764 490 JMP I ERR5 /NO, ERROR
6512 1355 491 IVS10, TAD CK /TERMINATING CHARACTER CR
6513 7640 492 SZA CLA
6514 5764 493 JMP I ERR5 /NO, ERROR
6515 5656 494 JMP I IVS /YES, RETURN
6516 C0C0 495 IVS12, 0
6517 1354 496 TAD CT /NON-ZERO DIGIT COUNT
6520 7650 497 SNA CLA
6521 5764 498 JMP I ERR5 /NO, ERROR
6522 7240 499 CLA CMA /YES, DECREMENT CHECK VALUE
6523 1355 500 TAD CK /AC IS ZERO FOR COMMA
6524 5716 501 JMP I IVS12 /RETURN
502 /-----OUTPUT VALUE
6525 C0C0 503 OVA, 0
6526 3351 504 DCA T6 /INITIALIZE
6527 1373 505 TAD C5M4
6530 3352 506 DCA T7
6531 4771 507 JMS I OTS5
6532 4771 508 JMS I OTS5
6533 1351 509 OVA10, TAD T6
6534 7006 510 RTL
6535 7006 511 RTL
6536 3353 512 DCA T8

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6537	1353	513	TAD	T8	
6540	7010	514	RAR		
6541	3351	515	DCA	T6	
6542	1353	516	TAD	T8	
6543	0374	517	AND	C507	
6544	1377	518	TAD	C50260	/CONVERT TO ASCII CHARACTER
6545	4770	519	JMS I	0CH5	/OUTPUT TO PRINTER
6546	2352	520	ISZ	T7	
6547	5333	521	JMP	0VA10	/NO, CONTINUE
6550	5725	522	JMP I	0VA	/YES, RETURN
		523	/		
6551	0000	524	T6,	0	
6552	0000	525	T7,	0	
6553	0000	526	T8,	0	
6554	0000	527	CT,	0	
6555	0000	528	CK,	0	
6556	0000	529	VA,	0	
6557	0000	530	VM,	0	
6560	0000	531	VN,	0	
6561	0000	532	VX,	0	
6562	0000	533	VY,	0	
6563	5722	534	CH5,	CH	
6564	5601	535	ERR5,	ERR	
6565	6400	536	IVA5,	IVA	
6566	5627	537	ICH5,	ICH	
6567	6456	538	IVS5,	IVS	
6570	5642	539	0CH5,	0CH	
6571	7265	540	0TS5,	0TS	
6572	5647	541	ECH05,	ECH0	
6573	7774	542	C5M4,	-4	
6574	0007	543	C507,	7	
6575	7770	544	C5M10,	-10	
6576	7720	545	C5M60,	-60	
6577	0260	546	C50260,	260	
		547	/-----	PRINT MEMORY CONTENTS	
6600	4764	548	P00,	JMS I IVS6	/INPUT VALUE STRING
6601	1760	549		TAD I VX6	/ALIGN START ADDRESS
6602	0377	550		AND C607770	
6603	3352	551		DCA T10	/SAVE START ADDRESS
6604	1352	552		TAD T10	/COMPUTE TOTAL WORD COUNT
6605	7041	553		CMA IAC	
6606	1761	554		TAD I VY6	
6607	7001	555		IAC	
6610	7041	556		CMA IAC	
6611	3354	557		DCA T13	/SAVE COUNT
6612	4765	558	P03,	JMS I 0EL6	/OUTPUT CR-LF
6613	1352	559		TAD T10	/FETCH LINE ADDRESS
6614	4766	560		JMS I 0VA6	/OUTPUT VALUE
6615	1371	561		TAD C6M10	/INITIALIZE LINE WORD COUNT
6616	3353	562		DCA T12	
6617	1752	563	P05,	TAD I T10	/FETCH DATA WORD
6620	4766	564		JMS I 0VA6	/OUTPUT VALUE

6621	2352	565	ISZ	T10	/INCREMENT ADDRESS	
6622	7000	566	NOP			
6623	2354	567	ISZ	T13	/INCREMENT TOTAL WORD COUNT	
6624	7410	568	SKP			
6625	5767	569	JMP I	NEXT6	/IF FINISHED	
6626	2353	570	ISZ	T12	/INCREMENT LINE WORD COUNT	
6627	5217	571	JMP	P05	/CONTINUE	
6630	4762	572	JMS I	BRK6	/FINISHED, CHECK FOR BREAK-IN	
6631	5212	573	JMP	P03	/GO OUTPUT NEXT LINE	
		574	/-----DUMP MEMORY			
6632	4764	575	D00,	JMS I	IVS6	/INPUT VALUE STRING
6633	1760	576		TAD I	VX6	/FETCH START ADDRESS
6634	3352	577		DCA	T10	/SAVE
6635	1352	578		TAD	T10	/COMPUTE COUNT
6636	7041	579		CMA	IAC	
6637	1761	580		TAD I	VY6	
6640	7040	581		CMA		
6641	3353	582		DCA	T12	/SAVE COUNT
6642	1376	583		TAD	C6M110	/OUTPUT LEADER
6643	4312	584		JMS	D10	
6644	1353	585	D01,	TAD	T12	/COMPUTE RECORD COUNT
6645	7500	586		SMA		
6646	5251	587		JMP	D02	
6647	1373	588		TAD	C6D37	
6650	7550	589		SPA	SNA	
6651	7200	590	D02,	CLA		
6652	1372	591		TAD	C6M37	
6653	3354	592		DCA	T13	
6654	1354	593		TAD	T13	
6655	7041	594		CMA	IAC	
6656	1375	595		TAD	C6D100	/OUTPUT CONTROL BYTE
6657	4345	596		JMS	OCHP	
6660	3355	597		DCA	T14	
6661	1352	598		TAD	T10	/OUTPUT RECORD ADDRESS
6662	4320	599		JMS	D12	
6663	1752	600	D03,	TAD I	T10	/FETCH DATA WORD
6664	4320	601		JMS	D12	/OUTPUT TO PUNCH
6665	2352	602		ISZ	T10	/INCREMENT ADDRESS
6666	7000	603		NOP		
6667	2353	604		ISZ	T12	/INCREMENT COUNT
6670	7410	605		SKP		
6671	5301	606		JMP	D04	/IF ZERO
6672	2354	607		ISZ	T13	/INCREMENT RECORD COUNT
6673	5263	608		JMP	D03	/IF NON-ZERO, CONTINUE
6674	1355	609		TAD	T14	/FETCH CHECKSUM
6675	4320	610		JMS	D12	/OUTPUT TO PUNCH
6676	1370	611		TAD	C6M4	/OUTPUT 4 BLANK FRAMES
6677	4312	612		JMS	D10	
6700	5244	613		JMP	D01	/GO PROCESS NEXT RECORD
6701	1355	614	D04,	TAD	T14	/OUTPUT FINAL CHECKSUM
6702	4320	615		JMS	D12	
6703	1370	616		TAD	C6M4	/OUTPUT 4 BLANK FRAMES

6704	4312	617	JMS	D10	
6705	1375	618	TAD	C60100	/OUTPUT END RECORD
6706	4345	619	JMS	QCHP	
6707	1376	620	TAD	C6M110	/OUTPUT TRAILER
6710	4312	621	JMS	D10	
6711	5767	622	JMP I	NEXT6	/PROCESS NEXT COMMAND
		623	/----	OUTPUT LEADER-TRAILER	
6712	0000	624	D10,	0	
6713	3356	625	DCA	T15	/SAVE COUNT
6714	4345	626	D11,	JMS QCHP	/PUNCH ZERO DATA
6715	2356	627	ISZ	T15	/INCREMENT COUNT, FINISHED
6716	5314	628	JMP	D11	/NO, CONTINUE
6717	5712	629	JMP I	D10	/YES, RETURN
		630	/----	OUTPUT DATA WORD	
6720	0000	631	D12,	0	
6721	3356	632	DCA	T15	/SAVE WORD
6722	1356	633	TAD	T15	/EXTRACT RIGHT 6 BITS
6723	0374	634	AND	C6077	
6724	1355	635	TAD	T14	/ADD TO CHECKSUM
6725	3355	636	DCA	T14	
6726	1356	637	TAD	T15	/FETCH WORD
6727	7012	638	RTR		/EXTRACT LEFT 6 BITS
6730	7012	639	RTR		
6731	7012	640	RTR		
6732	0374	641	AND	C6077	
6733	3357	642	DCA	T16	/SAVE
6734	1357	643	TAD	T16	/ADD TO CHECKSUM
6735	1355	644	TAD	T14	
6736	3355	645	DCA	T14	
6737	1357	646	TAD	T16	/OUTPUT LEFT 6 BITS
6740	4345	647	JMS	QCHP	
6741	1356	648	TAD	T15	/OUTPUT RIGHT 6 BITS
6742	0374	649	AND	C6077	
6743	4345	650	JMS	QCHP	
6744	5720	651	JMP I	D12	/RETURN
		652	/-----	OUTPUT CHARACTER TO PUNCH	
6745	0000	653	QCHP,	0	
		654			/-----
6746	6047	655	IOT	047	/IOT 027 FOR HIGH SPEED PUNCH
		656			/-----
6747	5346	657	JMP	.-1	
6750	7200	658	CLA		
6751	5745	659	JMP I	QCHP	
		660	/-----		
6752	0000	661	T10,	0	
6753	0000	662	T12,	0	
6754	0000	663	T13,	0	
6755	0000	664	T14,	0	
6756	0000	665	T15,	0	
6757	0000	666	T16,	0	
6760	6561	667	VX6,	VX	
6761	6562	668	VY6,	VY	

6762	6345	669	BRK6,	BRK	
6763	6400	670	IVA6,	IVA	
6764	6456	671	IVS6,	IVS	
6765	5653	672	OEL6,	OEL	
6766	6525	673	OVA6,	OVA	
6767	5604	674	NEXT6,	NEXT	
6770	7774	675	C6M4,	-4	
6771	7770	676	C6M10,	-10	
6772	7741	677	C6M37,	-37	
6773	0037	678	C6037,	37	
6774	0077	679	C6077,	77	
6775	0100	680	C60100,	100	
6776	7670	681	C6M110,	-110	
6777	7770	682	C607770,	7770	
		683	/-----INSTRUCTION TRACE		
7000	4756	684	T00,	JMS I IVA7	/INPUT TRACE LOCATION
7001	1750	685		TAD I VA7	
7002	3341	686		DCA T20	/SAVE
7003	1744	687		TAD I CK7	/CHECK INPUT
7004	7640	688		SZA CLA	
7005	5755	689		JMP I ERR7	/IF ILLEGAL TERMINATING CHARACTER
7006	4761	690		JMS I MESS17	/OUTPUT TRACE HEADING
7007	1745	691		TAD I CT7	/EXPLICIT ADDRESS
7010	7650	692		SNA CLA	
7011	5214	693		JMP T01	/NO, USE CURRENT VALUE OF LC
7012	1341	694		TAD T20	/YES, SET LC
7013	3747	695		DCA I LC7	
7014	4753	696	T01,	JMS I BRK7	/CHECK FOR KEYBOARD BREAK-IN
7015	1747	697		TAD I LC7	/FETCH LC
7016	3341	698		DCA T20	/SAVE
7017	1741	699		TAD I T20	/FETCH INSTRUCTION
7020	1365	700		TAD C7M4400	/CHECK FOR BREAKPOINT
7021	7650	701		SNA CLA	
7022	5754	702		JMP I B037	/IF BREAKPOINT INSTRUCTION
7023	1741	703		TAD I T20	/FETCH INSTRUCTION
7024	0363	704		AND C7L3	/MASK FOR OP BITS
7025	7106	705		CLL RTL	/RIGHT ADJUST OP
7026	7006	706		RTL	
7027	3342	707		DCA T21	/SAVE OP
7030	1366	708		TAD AJMP	
7031	1342	709		TAD T21	
7032	3237	710		DCA T02	
7033	1342	711		TAD T21	
7034	1362	712		TAD C7M6	/MEMORY REFERENCE INSTRUCTION
7035	7710	713		SPA CLA	
7036	5377	714		JMP E00	/YES, COMPUTE EFFECTIVE ADDRESS
7037	0000	715	T02,	0	/TRANSFER TO INSTRUCTION ROUTINE
		716	/----- OPERATE INSTRUCTION		
7040	1741	717	T000,	TAD I T20	/CHECK FOR HLT INSTRUCTION
7041	0364	718		AND C707402	
7042	7041	719		CMA IAC	
7043	1364	720		TAD C707402	

7044	7650	721	SNA	CLA	
7045	5775	722	JMP	I EC37	/IF HLT, END TRACE
7046	1741	723	TAD	I T20	/FETCH INSTRUCTION
7047	3253	724	DCA	T0001	/STORE INSTRUCTION
7050	1746	725	TAD	I LK7	/RESTORE LINK
7051	7110	726	CLL	RAR	
7052	1743	727	TAD	I AC7	/RESTORE AC
7053	0000	728	T0001,	0	/EXECUTE INSTRUCTION
7054	7410	729	SKP		/IF NO SKIP GENERATED
7055	2341	730	ISZ	T20	/SKIP, INCREMENT LC
7056	2341	731	ISZ	T20	/INCREMENT LC
7057	3743	732	DCA	I AC7	/STORE AC
7060	7004	733	RAL		/STORE LINK
7061	3746	734	DCA	I LK7	
7062	1747	735	TAD	I LC7	/FETCH LC
7063	3751	736	DCA	I VX7	/STORE FOR OUTPUT
7064	1253	737	TAD	T0001	/FETCH INSTRUCTION
7065	3752	738	DCA	I VY7	/STORE FOR OUTPUT
7066	4760	739	JMS	I DVS7	/OUTPUT VALUES
7067	5212	740	JMP	T01-2	/CONTINUE TRACE
		741	/----	ISZ INSTRUCTION	
7070	2742	742	T001,	ISZ I T21	
7071	5321	743	JMP	T03-2	
7072	7001	744	IAC		
7073	5321	745	JMP	T03-2	
		746	/----	AND INSTRUCTION	
7074	1743	747	T002,	TAD I AC7	
7075	0742	748	AND	I T21	
7076	5320	749	JMP	T03-3	
		750	/----	TAD INSTRUCTION	
7077	1746	751	T003,	TAD I LK7	
7100	7110	752	CLL	RAR	
7101	1743	753	TAD	I AC7	
7102	1742	754	TAD	I T21	
7103	3743	755	DCA	I AC7	
7104	7004	756	RAL		
7105	3746	757	DCA	I LK7	
7106	5321	758	JMP	T03-2	
		759	/----	JMP INSTRUCTION	
7107	1342	760	T004,	TAD T21	
7110	5323	761	JMP	T03	
		762	/----	JMS INSTRUCTION	
7111	1341	763	T005,	TAD T20	
7112	7001	764	IAC		
7113	3742	765	DCA	I T21	
7114	1342	766	TAD	T21	
7115	5322	767	JMP	T03-1	
		768	/----	DCA INSTRUCTION	
7116	1743	769	T006,	TAD I AC7	
7117	3742	770	DCA	I T21	
7120	3743	771	DCA	I AC7	
7121	1341	772	TAD	T20	

7122	7001	773	IAC		
7123	3340	774	T03, DCA	T19	/SAVE NEW LC
7124	1741	775	TAD	I T20	/FETCH INSTRUCTION
7125	3752	776	DCA	I VY7	/STORE FOR OUTPUT
7126	1747	777	TAD	I LC7	/FETCH CURRENT LC
7127	3751	778	DCA	I VX7	/STORE FOR OUTPUT
7130	1340	779	TAD	T19	/FETCH NEW LC
7131	3747	780	DCA	I LC7	/STORE AS CURRENT LC
7132	4760	781	JMS	I OVS7	/OUTPUT VALUES
7133	1342	782	TAD	T21	/FETCH EFFECTIVE ADDRESS
7134	4757	783	JMS	I OVA7	/OUTPUT VALUE
7135	1742	784	TAD	I T21	/FETCH CONTENTS
7136	4757	785	JMS	I OVA7	/OUTPUT VALUE
7137	5214	786	JMP	T01	/CONTINUE

787 /-----

7140	0000	788	T19,	0	
7141	0000	789	T20,	0	
7142	0000	790	T21,	0	
7143	5720	791	AC7,	AC	
7144	6555	792	CK7,	CK	
7145	6554	793	CT7,	CT	
7146	5721	794	LK7,	LK	
7147	5717	795	LC7,	LC	
7150	6556	796	VA7,	VA	
7151	6561	797	VX7,	VX	
7152	6562	798	VY7,	VY	
7153	6345	799	BRK7,	BRK	
7154	6075	800	B037,	B03	
7155	5601	801	ERR7,	ERR	
7156	6400	802	IVA7,	IVA	
7157	6525	803	OVA7,	OVA	
7160	7247	804	OVS7,	OVS	
7161	7271	805	MESS17,	MESS1	
7162	7772	806	C7M6,	-6	
7163	7000	807	C7L3,	7000	
7164	7402	808	C7D7402,	7402	
7165	3400	809	C7M4400,	-4400	

810 /-----ADDRESS TABLE FOR TRACE ROUTINES

7166	5767	811	AJMP,	JMP I .+1	
7167	7074	812		T002	/AND
7170	7077	813		T003	/TAD
7171	7070	814		T001	/ISZ
7172	7116	815		T006	/DCA
7173	7111	816		T005	/JMS
7174	7107	817		T004	/JMP
7175	7243	818	E037,	E03	/I/O - NOT TRACED
7176	7040	819		T000	/OPERATE

820 /-----COMPUTE EFFECTIVE ADDRESS

7177	1341	821	E00,	TAD	T20
7200	3337	822		DCA	T26
7201	1737	823		TAD	I T26
7202	3337	824		DCA	T26

7203	1337	825	TAD	T26
7204	0364	826	AND	C80200
7205	3333	827	DCA	T22
7206	1337	828	TAD	T26
7207	0370	829	AND	C80400
7210	3334	830	DCA	T23
7211	1743	831	TAD I	T204
7212	0360	832	AND	C8L5
7213	3335	833	DCA	T24
7214	1337	834	TAD	T26
7215	0363	835	AND	C80177
7216	3336	836	DCA	T25
7217	1333	837	TAD	T22
7220	7640	838	SZA	CLA
7221	1335	839	TAD	T24
7222	1336	840	TAD	T25
7223	3333	841	DCA	T22
7224	1334	842	TAD	T23
7225	7650	843	SNA	CLA
7226	5240	844	JMP	E02
7227	1333	845	TAD	T22
7230	0371	846	AND	C807770
7231	1361	847	TAD	C8M10
7232	7640	848	SZA	CLA
7233	5236	849	JMP	E01
7234	2733	850	ISZ I	T22
7235	7000	851	NOP	
7236	1733	852	E01, TAD I	T22
7237	3333	853	DCA	T22
7240	1333	854	E02, TAD	T22
7241	3744	855	DCA I	T214
7242	5742	856	JMP I	T024
7243	4753	857	E03, JMS I	DEL8
7244	1746	858	TAD I	LC8
7245	4754	859	JMS I	OVA8
7246	5755	860	JMP I	NEXT8
		861	/-----OUTPUT VALUE STRING	
7247	C0C0	862	OVS,	0
7250	4753	863	JMS I	DEL8
7251	1750	864	TAD I	VX8
7252	4754	865	JMS I	OVA8
7253	1751	866	TAD I	VY8
7254	4754	867	JMS I	OVA8
7255	1745	868	TAD I	AC8
7256	4754	869	JMS I	OVA8
7257	4265	870	JMS	OTS
7260	4265	871	JMS	OTS
7261	1747	872	TAD I	LK8
7262	1366	873	TAD	C80260
7263	4752	874	JMS I	OCH8
7264	5647	875	JMP I	OVS /RETURN
		876	/-----OUTPUT SPACE CHARACTER	

7265	0000	877	DTS,	0
7266	1365	878	TAD	C80240
7267	4752	879	JMS I	OCH8
7270	5665	880	JMP I	DTS
		881	/-----MESSAGE ROUTINES	
7271	0000	882	MESS1,	0
7272	1356	883	TAD	MSG1X
7273	4301	884	JMS	MESS
7274	5671	885	JMP I	MESS1
7275	0000	886	MESS2,	0
7276	1357	887	TAD	MSG2X
7277	4301	888	JMS	MESS
7300	5675	889	JMP I	MESS2
7301	0000	890	MESS,	0
7302	3340	891	DCA	T28
7303	4753	892	JMS I	DEL8
7304	1740	893	TAD I	T28
7305	7450	894	SNA	
7306	5701	895	JMP I	MESS
7307	3341	896	DCA	T29
7310	4265	897	JMS	DTS
7311	2341	898	ISZ	T29
7312	5310	899	JMP	.-2
7313	2340	900	ISZ	T28
7314	1740	901	TAD I	T28
7315	7012	902	RTR	
7316	7012	903	RTR	
7317	7012	904	RTR	
7320	0362	905	AND	C8077
7321	1367	906	TAD	C80300
7322	4752	907	JMS I	OCH8
7323	1740	908	TAD I	T28
7324	2340	909	ISZ	T28
7325	0362	910	AND	C8077
7326	7450	911	SNA	
7327	5304	912	JMP	MESS+3
7330	1367	913	TAD	C80300
7331	4752	914	JMS I	OCH8
7332	5304	915	JMP	MESS+3
		916	/-----	
7333	0000	917	T22,	0
7334	0000	918	T23,	0
7335	0000	919	T24,	0
7336	0000	920	T25,	0
7337	0000	921	T26,	0
7340	0000	922	T28,	0
7341	0000	923	T29,	0
7342	7037	924	T024,	T02
7343	7141	925	T204,	T20
7344	7142	926	T214,	T21
7345	5720	927	AC8,	AC
7346	5717	928	LC8,	LC

7347	5721	929	LK8,	LK	
7350	6561	930	VX8,	VX	
7351	6562	931	VY8,	VY	
7352	5642	932	DCH8,	DCH	
7353	5653	933	DEL8,	DEL	
7354	6525	934	DVA8,	DVA	
7355	5604	935	NEXT8,	NEXT	
7356	7372	936	MSG1X,	MSG1	
7357	7407	937	MSG2X,	MSG2	
7360	7600	938	C8L5,	7600	
7361	7770	939	C8M10,	-10	
7362	0077	940	C8077,	77	
7363	0177	941	C80177,	177	
7364	0200	942	C80200,	200	
7365	0240	943	C80240,	240	
7366	0260	944	C80260,	0260	
7367	0300	945	C80300,	300	
7370	0400	946	C80400,	400	
7371	7770	947	C807770,	7770	
7372	7775	948	MSG1,	-3;2003	/PC
7373	2003				
7374	7774	949		-4;1122	/IR
7375	1122				
7376	7774	950		-4;0103	/AC
7377	0103				
7400	7775	951		-3;1400	/L
7401	1400				
7402	7775	952		-3;1501	/MA
7403	1501				
7404	7774	953		-4;1504	/MD
7405	1504				
7406	0000	954		0	
7407	7775	955	MSG2,	-3;0220	/BP
7410	0220				
7411	7774	956		-4;2003	/PC
7412	2003				
7413	7774	957		-4;0103	/AC
7414	0103				
7415	7775	958		-3;1400	/L
7416	1400				
7417	0000	959		0	

	961	/-----HIGH SPEED PUNCH OVERLAY
6746	962	*OHP+1
6746 6027	963	IOT 027

NO ERRORS

SYMBOL	ADDR	DEFN	REFERENCES							
AC	5720	100	76	95	248	395	791	927		
AC2	6132	248	211							
AC3	6356	395	382							
AC7	7143	791	727	732	747	753	755	769	771	
AC8	7345	927	868							
AJMP	7166	811	708							
A00	5663	70	119							
A01	5671	76	73							
A02	5672	77	75							
A04	5714	95	88							
BRK	6345	385	360	387	391	669	799			
BRK6	6762	669	572							
BRK7	7153	799	696							
BT	6153	266	173	218						
B00	6042	188	120							
B01	6047	194	191	207						
B010	6141	255	203							
B011	6142	256	205							
B02	6065	209	215	256						
B03	6075	218	800							
B037	7154	800	702							
B04	6101	222	230							
B06	6113	232	226							
CH	5722	102	29	32	42	43	47	57	534	
CH5	6563	534	431	444						
CK	6555	528	104	396	415	447	450	491	500	792
CK1	5724	104	80	146						
CK3	6357	396	282	293	321	370				
CK7	7144	792	687							
CT	6554	527	103	249	397	416	435	488	496	793
CT1	5723	103	83	149						
CT2	6133	249	277							
CT3	6360	397	290	373						
CT7	7145	793	691							
C00	5772	145	121							
C01	6003	155	106	151						
C011	5726	106	12							
C03	6005	157	162							
C04	6014	165	152	157	177	186	195	241		
C1M15	5732	110								
C1M33	5733	111	44							
C10177	5734	112	41							
C10212	5735	113	65							
C10215	5736	114	63							
C10240	5737	115								
C10277	5740	116	15							
C2M10	6152	264	160	168	220	234				
C3M4	6377	412	322							
C5M10	6575	544	422							
C5M4	6573	542	505							
C5M60	6576	545	419							
C50260	6577	546	518							

SYMBOL	ADDR	DEFN	REFERENCES							
C507	6574	543	432	517						
C6M10	6771	676	561							
C6M110	6776	681	583	620						
C6M37	6772	677	591							
C6M4	6770	675	611	616						
C60100	6775	680	595	618						
C6037	6773	678	588							
C6077	6774	679	634	641	649					
C607770	6777	682	550							
C7L3	7163	807	704							
C7M4400	7165	809	700							
C7M6	7162	806	712							
C707402	7164	808	718	720						
C8L5	7360	938	832							
C8M10	7361	939	847							
C80177	7363	941	835							
C80200	7364	942	826							
C80240	7365	943	878							
C80260	7366	944	873							
C80300	7367	945	906	913						
C80400	7370	946	829							
C8077	7362	940	905	910						
C807770	7371	947	846							
D00	6632	575	127							
D01	6644	585	613							
D02	6651	590	587							
D03	6663	600	608							
D04	6701	614	606							
D10	6712	624	584	612	617	621	629			
D11	6714	626	628							
D12	6720	631	599	601	610	615	651			
ECH0	5647	56	59	541						
ECH05	6572	541	425	452						
ERR	5601	14	82	91	148	258	405	535	801	
ERR2	6144	258	170	279						
ERR3	6370	405	284	308	324	372				
ERR5	6564	535	443	472	490	493	498			
ERR7	7155	801	689							
E00	7177	821	714							
E01	7236	852	849							
E02	7240	854	844							
E03	7243	857	257	818						
E032	6143	257	231							
E037	7175	818	722							
F00	6260	329	123							
F01	6265	334	341							
G00	6326	369	124							
G01	6337	378	375							
ICH	5627	38	18	48	537					
ICH5	6566	537	418							
IN1	5741	118	23							
IN2	5755	131	21							

SYMBOL	ADDR	DEFN	REFERENCES							
IVA	6400	414	107	259	406	453	536	670	802	
IVA1	5727	107	79	145						
IVA10	6404	418	436							
IVA2	6145	259	276							
IVA20	6427	438	421	424						
IVA3	6371	406	289	369						
IVA30	6432	441	440	448	449					
IVA32	6443	450	446							
IVA40	6447	455	439							
IVA5	6565	536	467	473	479	485				
IVA6	6763	670								
IVA7	7156	802	684							
IVS	6456	463	260	409	494	538	671			
IVS10	6512	491	478	484						
IVS12	6516	495	470	476	482	501				
IVS2	6146	260	188							
IVS3	6374	409	329	344						
IVS5	6567	538								
IVS6	6764	671	548	575						
JUMP	5624	34	24	35						
LC	5717	99	251	398	795	928				
LC2	6135	251	216	224	239					
LC3	6361	398	377	378						
LC7	7147	795	695	697	735	777	780			
LC8	7346	928	858							
LK	5721	101	74	93	250	399	794	929		
LK2	6134	250	213							
LK3	6362	399	380							
LK7	7146	794	725	734	751	757				
LK8	7347	929	872							
LOOP	5625	35	31							
L00	5662	69	126							
MESS	7301	890	884	888	895	912	915			
MESS1	7271	882	805	885						
MESS17	7161	805	690							
MESS2	7275	886	263	889						
MESS22	6151	263	242							
MSG1	7372	948	936							
MSG1X	7356	936	883							
MSG2	7407	955	937							
MSG2X	7357	937	887							
M00	6174	276	125							
M01	6206	286	314							
M02	6215	293	327							
M03	6237	311	285	302	317	320				
M04	6243	315	305							
M05	6246	318	299							
M06	6251	321	292							
NEXT	5604	17	27	46	85	94	96	262	411	674
			935							
NEXT2	6150	262	153	163	192	244				
NEXT3	6376	411	295	342	367	389				

SYMBOL	ADDR	DEFN	REFERENCES							
NEXT6	6767	674	569	622						
NEXT8	7355	935	860							
OCH	5642	50	16	33	54	58	64	66	539	932
OCHP	6745	653	596	619	626	647	650	659	962	
OCH5	6570	539	519							
OCH8	7352	932	874	879	907	914				
OEL	5653	61	14	17	67	410	672	933		
OEL3	6375	410	311	355						
OEL6	6765	672	558							
OEL8	7353	933	857	863	892					
OTS	7265	877	108	408	540	870	871	880	897	
OTS1	5730	108	78							
OTS3	6373	408	288							
OTS5	6571	540	507	508						
OVA	6525	503	109	407	522	673	803	934		
OVA1	5731	109	77							
OVA10	6533	509	521							
OVA3	6372	407	287	313	357	359				
OVA6	6766	673	560	564						
OVA7	7157	803	783	785						
OVA8	7354	934	859	865	867	869				
OVS	7247	862	261	804	875					
OVS2	6147	261	243							
OVS7	7160	804	739	781						
P00	6600	548	122							
P03	6612	558	573							
P05	6617	563	571							
S00	6276	344	128							
S01	6303	349	366							
S03	6317	361	354							
TAD	5613	25	22	28	36					
T0	5716	98	70	71	87					
T00	7000	684	129							
T000	7040	717	819							
T0001	7053	728	724	737						
T001	7070	742	814							
T002	7074	747	812							
T003	7077	751	813							
T004	7107	760	817							
T005	7111	763	816							
T006	7116	769	815							
T01	7014	696	693	740	786					
T02	7037	715	710	924						
T024	7342	924	856							
T03	7123	774	743	745	749	758	761	767		
T1	6130	246	174	175	179	180	183	184	185	197
			200	202	219	222	227	228		
T10	6752	661	551	552	559	563	565	577	578	598
			600	602						
T12	6753	662	562	570	582	585	604			
T13	6754	663	557	567	592	593	607			
T14	6755	664	597	609	614	635	636	644	645	

CROSS-REFERENCE

SYMBOL	ADDR	DEFN	REFERENCES							
T15	6756	665	625	627	632	633	637	648		
T16	6757	666	642	643	646					
T19	7140	788	774	779						
T2	6131	247	178	181	199	201	204	221	229	232
T20	7141	789	686	694	698	699	703	717	723	730
			731	763	772	775	821	925		
T204	7343	925	831							
T21	7142	790	707	709	711	742	748	754	760	765
			766	770	782	784	926			
T214	7344	926	855							
T22	7333	917	827	837	841	845	850	852	853	854
T23	7334	918	830	842						
T24	7335	919	833	839						
T25	7336	920	836	840						
T26	7337	921	822	823	824	825	828	834		
T28	7340	922	891	893	900	901	908	909		
T29	7341	923	896	898						
T3	6354	393	281	286	309	310	312	316	318	326
			333	335	336	337	348	349	356	358
			361	362						
T4	6355	394	379	383						
T6	6551	524	504	509	515					
T7	6552	525	506	520						
T8	6553	526	512	513	516					
VA	6556	529	105	252	400	417	426	430	433	434
			468	474	480	486	796			
VA1	5725	105	86							
VA2	6136	252	156	158	159	167	171	190	238	
VA3	6363	400	280	325	376					
VA7	7150	796	685							
VM	6557	530	401	464	481					
VM3	6364	401	334	352						
VN	6560	531	402	466	487					
VN3	6365	402	350							
VX	6561	532	253	403	469	667	797	930		
VX2	6137	253	189	236	237					
VX3	6366	403	332	347						
VX6	6760	667	549	576						
VX7	7151	797	736	778						
VX8	7350	930	864							
VY	6562	533	254	404	475	668	798	931		
VY2	6140	254	196	198	240					
VY3	6367	404	330	339	345	364				
VY6	6761	668	554	580						
VY7	7152	798	738	776						
VY8	7351	931	866							

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1 /-----
2 /
3 / MP12 PROCESSOR DIAGNOSTIC    900-0080-04 REV 00A    .
4 /
5 / (C) COPYRIGHT 1974, FABRI-TEK, INCORPORATED        .
6 /
7 /-----
8         OCTAL
9 /-----
0000      10         *0000
11 /-----
0000 00C0 12 BP000, 0000         /ADDRESS 0000
0001 74C2 13         HLT         /JMP OR JMS FAILURE
0002 5443 14         JMP I K0200  /POWER UP
15 /-----
0020      16         *0020         /BASE PAGE CONSTANTS
17 /-----
0020 00C0 18 K0000, 0000
0021 00C1 19 K0001, 0001
0022 00C2 20 K0002, 0002
0023 00C3 21 K0003, 0003
0024 00C4 22 K0004, 0004
0025 0006 23 K0006, 0006
0026 C0C7 24 K0007, 0007
0027 C010 25 K0010, 0010
0030 0014 26 K0014, 0014
0031 0017 27 K0017, 0017
0032 0020 28 K0020, 0020
0033 0030 29 K0030, 0030
0034 0037 30 K0037, 0037
0035 0040 31 K0040, 0040
0036 C060 32 K0060, 0060
0037 C077 33 K0077, 0077
0040 01C0 34 K0100, 0100
0041 C140 35 K0140, 0140
0042 C177 36 K0177, 0177
0043 0200 37 K0200, 0200
0044 0300 38 K0300, 0300
0045 C377 39 K0377, 0377
0046 C400 40 K0400, 0400
0047 C6C0 41 K0600, 06C0
0050 0777 42 K0777, 0777
0051 1000 43 K1000, 1000
0052 1234 44 K1234, 1234
0053 14C0 45 K1400, 14C0
0054 1777 46 K1777, 1777
0055 20C0 47 K2000, 20C0
0056 2525 48 K2525, 2525
0057 30C0 49 K3000, 30C0
0060 3777 50 K3777, 3777
0061 40C0 51 K4000, 40C0
         5000 52 CP000= 5000

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	5177	53	CP177=	5177	
0062	5252	54	K5252,	5252	
0063	5777	55	K5777,	5777	
0064	6000	56	K6000,	6000	
0065	6777	57	K6777,	6777	
0066	7000	58	K7000,	7000	
0067	7377	59	K7377,	7377	
0070	7400	60	K7400,	7400	
0071	7577	61	K7577,	7577	
0072	7600	62	K7600,	7600	
0073	7677	63	K7677,	7677	
0074	7700	64	K7700,	7700	
0075	7717	65	K7717,	7717	
0076	7737	66	K7737,	7737	
0077	7740	67	K7740,	7740	
0100	7757	68	K7757,	7757	
0101	7760	69	K7760,	7760	
0102	7767	70	K7767,	7767	
0103	7770	71	K7770,	7770	
0104	7773	72	K7773,	7773	
0105	7774	73	K7774,	7774	
0106	7775	74	K7775,	7775	
0107	7776	75	K7776,	7776	
0110	7777	76	K7777,	7777	
		77	/-----		
0172		78		*0172	
		79	/-----		
0172	0176	80	K0176,	0176	/ADDRESS 0172
0173	0172	81	K0172,	0172	/ADDRESS 0173
0174	0173	82	K0173,	0173	/ADDRESS 0174
0175	0174	83	K0174,	0174	/ADDRESS 0175
0176	0175	84	K0175,	0175	/ADDRESS 0176
		85	/-----		
0177	0000	86	BP177,	0000	/ADDRESS 0177
		87	/-----		
0200		88		*0200	
		89	/-----		
		90	/SKP TEST 1		
		91	/-----		
0200	7410	92		SKP	
0201	7402	93		HLT	/SKP FAILED
		94	/-----		
		95	/SZA TEST 1		
		96	/-----		
0202	7200	97		CLA	
0203	7440	98		SZA	
0204	7402	99		HLT	/SZA SHOULD HAVE SKIPPED
		100			/AC SHOULD EQUAL 0000
0205	7450	101		SNA	
0206	7410	102		SKP	
0207	7402	103		HLT	/SNA SHOULD NOT HAVE SKIPPED
		104			/AC SHOULD EQUAL 0000

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105 /-----
106 /SZA TEST 2
107 /-----
0210 7200 108      CLA
0211 1061 109      TAD K4000
0212 7440 110      SZA
0213 7410 111      SKP
0214 7402 112      HLT          /SZA SHOULD NOT HAVE SKIPPED
113                                /AC SHOULD EQUAL 4000
0215 7450 114      SNA
0216 7402 115      HLT          /SNA SHOULD HAVE SKIPPED
116                                /AC SHOULD EQUAL 4000
117 /-----
118 /SOA TEST 3
119 /-----
0217 7200 120      CLA
0220 1055 121      TAD K2000
0221 7440 122      SZA
0222 7410 123      SKP
0223 7402 124      HLT          /SZA SHOULD NOT HAVE SKIPPED
125                                /AC SHOULD EQUAL 2000
0224 7450 126      SNA
0225 7402 127      HLT          /SNA SHOULD HAVE SKIPPED
128                                /AC SHOULD EQUAL 2000
129 /-----
130 /SZA TEST 4
131 /-----
0226 7200 132      CLA
0227 1051 133      TAD K1000
0230 7440 134      SZA
0231 7410 135      SKP
0232 7402 136      HLT          /SZA SHOULD NOT HAVE SKIPPED
137                                /AC SHOULD EQUAL 1000
0233 7450 138      SNA
0234 7402 139      HLT          /SNA SHOULD HAVE SKIPPED
140                                /AC SHOULD EQUAL 1000
141 /-----
142 /SZA TEST 5
143 /-----
0235 7200 144      CLA
0236 1046 145      TAD K0400
0237 7440 146      SZA
0240 7410 147      SKP
0241 7402 148      HLT          /SZA SHOULD NOT HAVE SKIPPED
149                                /AC SHOULD EQUAL 0400
0242 7450 150      SNA
0243 7402 151      HLT          /SNA SHOULD HAVE SKIPPED
152                                /AC SHOULD EQUAL 0400
153 /-----
154 /SZA TEST 6
155 /-----
0244 7200 156      CLA

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0245	1043	157	TAD K0200	
0246	7440	158	SZA	
0247	7410	159	SKP	
0250	7402	160	HLT	/SZA SHOULD NOT HAVE SKIPPED
		161		/AC SHOULD EQUAL 0200
0251	7450	162	SNA	
0252	7402	163	HLT	/SNA SHOULD HAVE SKIPPED
		164		/AC SHOULD EQUAL 0200
		165	/	-----
		166	/SZA TEST 7	
		167	/	-----
0253	7200	168	CLA	
0254	1040	169	TAD K0100	
0255	7440	170	SZA	
0256	7410	171	SKP	
0257	7402	172	HLT	/SZA SHOULD NOT HAVE SKIPPED
		173		/AC SHOULD EQUAL 0100
0260	7450	174	SNA	
0261	7402	175	HLT	/SNA SHOULD HAVE SKIPPED
		176		/AC SHOULD EQUAL 0100
		177	/	-----
		178	/SZA TEST 8	
		179	/	-----
0262	7200	180	CLA	
0263	1035	181	TAD K0040	
0264	7440	182	SZA	
0265	7410	183	SKP	
0266	7402	184	HLT	/SZA SHOULD NOT HAVE SKIPPED
		185		/AC SHOULD EQUAL 0040
0267	7450	186	SNA	
0270	7402	187	HLT	/SNA SHOULD HAVE SKIPPED
		188		/AC SHOULD EQUAL 0040
		189	/	-----
		190	/SZA TEST 9	
		191	/	-----
0271	7200	192	CLA	
0272	1032	193	TAD K0020	
0273	7440	194	SZA	
0274	7410	195	SKP	
0275	7402	196	HLT	/SZA SHOULD NOT HAVE SKIPPED
		197		/AC SHOULD EQUAL 0020
0276	7450	198	SNA	
0277	7402	199	HLT	/SNA SHOULD HAVE SKIPPED
		200		/AC SHOULD EQUAL 0020
		201	/	-----
		202	/SZA TEST 10	
		203	/	-----
0300	7200	204	CLA	
0301	1027	205	TAD K0010	
0302	7440	206	SZA	
0303	7410	207	SKP	
0304	7402	208	HLT	/SZA SHOULD NOT HAVE SKIPPED

		209		/AC SHOULD EQUAL 0010
0305	7450	210	SNA	
0306	7402	211	HLT	/SNA SHOULD HAVE SKIPPED
		212		/AC SHOULD EQUAL 0010
		213	/	-----
		214	/SZA TEST 11	
		215	/	-----
0307	7200	216	CLA	
0310	1024	217	TAD K0004	
0311	7440	218	SZA	
0312	7410	219	SKP	
0313	7402	220	HLT	/SZA SHOULD NOT HAVE SKIPPED
		221		/AC SHOULD EQUAL 0004
0314	7450	222	SNA	
0315	7402	223	HLT	/SNA SHOULD HAVE SKIPPED
		224		/AC SHOULD EQUAL 0004
		225	/	-----
		226	/SZA TEST 12	
		227	/	-----
0316	7200	228	CLA	
0317	1022	229	TAD K0002	
0320	7440	230	SZA	
0321	7410	231	SKP	
0322	7402	232	HLT	/SZA SHOULD NOT HAVE SKIPPED
		233		/AC SHOULD EQUAL 0002
0323	7450	234	SNA	
0324	7402	235	HLT	/SNA SHOULD HAVE SKIPPED
		236		/AC SHOULD EQUAL 0002
		237	/	-----
		238	/SZA TEST 13	
		239	/	-----
0325	7200	240	CLA	
0326	1021	241	TAD K0001	
0327	7440	242	SZA	
0330	7410	243	SKP	
0331	7402	244	HLT	/SZA SHOULD NOT HAVE SKIPPED
		245		/AC SHOULD EQUAL 0001
0332	7450	246	SNA	
0333	7402	247	HLT	/SNA SHOULD HAVE SKIPPED
		248		/AC SHOULD EQUAL 0001
		249	/	-----
		250	/SZA TEST 14	
		251	/	-----
0334	7200	252	CLA	/AC EQUALS 0000
0335	7440	253	SZA	
0336	7402	254	HLT	/CLA OR SZA FAILED
0337	7040	255	CMA	/AC EQUALS 7777
0340	7440	256	SZA	/SZA SHOULD NOT SKIP
0341	7450	257	SNA	/SNA SHOULD SKIP
0342	7402	258	HLT	/CMA FAILED
		259		/AC SHOULD EQUAL 7777
0343	7040	260	CMA	/AC EQUALS 0000

0344	7450	261	SNA	/SNA SHOULD NOT SKIP
0345	7440	262	SZA	/SZA SHOULD SKIP
0346	7402	263	HLT	/CMA FAILED
		264	/-----	
		265	/SPA TEST 1	
		266	/-----	
0347	7200	267	CLA	
0350	1060	268	TAD K3777	
0351	7510	269	SPA	
0352	7402	270	HLT	/SPA SHOULD HAVE SKIPPED
		271		/AC SHOULD EQUAL 3777
		272	/-----	
		273	/SPA TEST 2	
		274	/-----	
0353	7200	275	CLA	
0354	1061	276	TAD K4000	
0355	7510	277	SPA	
0356	7410	278	SKP	
0357	7402	279	HLT	/SPA SHOULD NOT HAVE SKIPPED
		280		/AC SHOULD EQUAL 4000
		281	/-----	
		282	/SMA TEST 1	
		283	/-----	
0360	7200	284	CLA	
0361	1060	285	TAD K3777	
0362	7500	286	SMA	
0363	7410	287	SKP	
0364	7402	288	HLT	/SMA SHOULD NOT HAVE SKIPPED
		289		/AC SHOULD EQUAL 3777
		290	/-----	
		291	/SMA TEST 2	
		292	/-----	
0365	7200	293	CLA	
0366	1061	294	TAD K4000	
0367	7500	295	SMA	
0370	7402	296	HLT	/SMA SHOULD HAVE SKIPPED
		297		/AC SHOULD EQUAL 4000
		298	/-----	
		299	/SZL TEST 1	
		300	/-----	
0371	7100	301	CLL	/CLEAR LINK
0372	7430	302	SZL	/SZL SHOULD SKIP
0373	7402	303	HLT	/CLL OR SZL FAILED
		304		/LINK SHOULD EQUAL ZERO
		305	/-----	
		306	/SZL TEST 2	
		307	/-----	
0374	7100	308	CLL	/CLEAR LINK
0375	7420	309	SNL	/SNL SHOULD NOT SKIP
0376	7410	310	SKP	
0377	7402	311	HLT	/CLL OR SNL FAILED
		312		/LINK SHOULD EQUAL ZERO

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313 /-----
314 /SZL TEST 3
315 /-----
0400 7100 316      CLL      /CLEAR LINK
0401 7420 317      SNL      /SNL SHOULD NOT SKIP
0402 7430 318      SZL      /SZL SHOULD SKIP
0403 7402 319      HLT      /CLL, SNL, OR SZL FAILED
320      /LINK SHOULD EQUAL ZERO
321 /-----
322 /SZL TEST 4
323 /-----
0404 7100 324      CLL      /CLEAR LINK
0405 7420 325      SNL      /SNL SHOULD NOT SKIP
0406 7430 326      SZL      /SZL SHOULD SKIP
0407 7402 327      HLT      /CLL, SNL, OR SZL FAILED
328      /LINK SHOULD EQUAL ZERO
0410 7020 329      CML      /SET LINK
0411 7430 330      SZL      /SZL SHOULD NOT SKIP
0412 7410 331      SKP
0413 7402 332      HLT      /CML OR SZL FAILED
333      /LINK SHOULD EQUAL ONE
334 /-----
335 /SZL TEST 5
336 /-----
0414 7100 337      CLL      /CLEAR LINK
0415 7420 338      SNL      /SNL SHOULD NOT SKIP
0416 7430 339      SZL      /SZL SHOULD SKIP
340      /LINK SHOULD EQUAL ZERO
0417 7402 341      HLT      /CLL, SNL, OR SZL FAILED
0420 7020 342      CML      /SET LINK
0421 7420 343      SNL      /SNL SHOULD SKIP
0422 7402 344      HLT      /CML OR SNL FAILED
345      /LINK SHOULD EQUAL ONE
346 /-----
347 /SZL TEST 6
348 /-----
0423 7100 349      CLL      /CLEAR LINK
0424 7420 350      SNL      /SNL SHOULD NOT SKIP
0425 7430 351      SZL      /SZL SHOULD SKIP
0426 7402 352      HLT      /CLL, SNL, OR SZL FAILED
353      /LINK SHOULD EQUAL ZERO
0427 7020 354      CML      /SET LINK
0430 7430 355      SZL      /SZL SHOULD NOT SKIP
0431 7420 356      SNL      /SNL SHOULD SKIP
0432 7402 357      HLT      /CML, SZL, OR SNL FAILED
358      /LINK SHOULD EQUAL ONE
359      /LINK SHOULD EQUAL ONE
360 /-----
361 /CMA - TAD TEST 1
362 /-----
0433 7200 363      CLA
0434 1110 364      TAD K7777

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0435	7040	365	CMA	
0436	7440	366	SZA	
0437	7402	367	HLT	/TAD OR CMA ERROR
		368		/AC SHOULD EQUAL 0000
		369	/-----	
		370	/CMA - TAD TEST 2	
		371	/-----	
0440	7200	372	CLA	
0441	1056	373	TAD K2525	
0442	7040	374	CMA	
0443	7450	375	SNA	
0444	7402	376	HLT	/TAD OR CMA ERROR
		377		/AC SHOULD EQUAL 5252
0445	1056	378	TAD K2525	
0446	7040	379	CMA	
0447	7440	380	SZA	
0450	7402	381	HLT	/TAD OR CMA ERROR
		382		/AC SHOULD EQUAL 0000
		383	/-----	
		384	/CMA - TAD TEST 3	
		385	/-----	
0451	7200	386	CLA	
0452	1062	387	TAD K5252	
0453	7040	388	CMA	
0454	7450	389	SNA	
0455	7402	390	HLT	/TAD OR CMA ERROR
		391		/AC SHOULD EQUAL 2525
0456	1062	392	TAD K5252	
0457	7040	393	CMA	
0460	7440	394	SZA	
0461	7402	395	HLT	/TAD OR CMA ERROR
		396		/AC SHOULD EQUAL 0000
		397	/-----	
		398	/TAD TEST 1	
		399	/-----	
0462	7200	400	CLA	
0463	1060	401	TAD K3777	/OPERAND 1
0464	1061	402	TAD K4000	/OPERAND 2
0465	7040	403	CMA	
0466	7440	404	SZA	
0467	7402	405	HLT	/TAD ERROR
		406		/AC SHOULD EQUAL 0000
		407	/-----	
		408	/TAD TEST 2	
		409	/-----	
0470	7200	410	CLA	
0471	1063	411	TAD K5777	/OPERAND 1
0472	1055	412	TAD K2000	/OPERAND 2
0473	7040	413	CMA	
0474	7440	414	SZA	
0475	7402	415	HLT	/TAD ERROR
		416		/AC SHOULD EQUAL 0000

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417 /-----
418 /TAD TEST 3
419 /-----
0476 7200 420          CLA
0477 1065 421          TAD K6777          /OPERAND 1
0500 1051 422          TAD K1000         /OPERAND 2
0501 7040 423          CMA
0502 7440 424          SZA
0503 7402 425          HLT                /TAD ERROR
426                                /AC SHOULD EQUAL 0000
427 /-----
428 /TAD TEST 4
429 /-----
0504 7200 430          CLA
0505 1067 431          TAD K7377          /OPERAND 1
0506 1046 432          TAD K0400         /OPERAND 2
0507 7040 433          CMA
0510 7440 434          SZA
0511 7402 435          HLT                /TAD ERROR
436                                /AC SHOULD EQUAL 0000
437 /-----
438 /TAD TEST 5
439 /-----
0512 7200 440          CLA
0513 1071 441          TAD K7577          /OPERAND 1
0514 1043 442          TAD K0200         /OPERAND 2
0515 7040 443          CMA
0516 7440 444          SZA
0517 7402 445          HLT                /TAD ERROR
446                                /AC SHOULD EQUAL 0000
447 /-----
448 /TAD TEST 6
449 /-----
0520 7200 450          CLA
0521 1073 451          TAD K7677          /OPERAND 1
0522 1040 452          TAD K0100         /OPERAND 2
0523 7040 453          CMA
0524 7440 454          SZA
0525 7402 455          HLT                /TAD ERROR
456                                /AC SHOULD EQUAL 0000
457 /-----
458 /TAD TEST 7
459 /-----
0526 7200 460          CLA
0527 1076 461          TAD K7737          /OPERAND 1
0530 1035 462          TAD K0040         /OPERAND 2
0531 7040 463          CMA
0532 7440 464          SZA
0533 7402 465          HLT                /TAD ERROR
466                                /AC SHOULD EQUAL 0000
467 /-----
468 /TAD TEST 8

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469 /-----
0534 7200 470          CLA
0535 1100 471          TAD K7757          /OPERAND 1
0536 1032 472          TAD K0020          /OPERAND 2
0537 7040 473          CMA
0540 7440 474          SZA
0541 7402 475          HLT                /TAD ERROR
476                                /AC SHOULD EQUAL 0000
477 /-----
478 /TAD TEST 9
479 /-----
0542 7200 480          CLA
0543 1102 481          TAD K7767          /OPERAND 1
0544 1027 482          TAD K0010          /OPERAND 2
0545 7040 483          CMA
0546 7440 484          SZA
0547 7402 485          HLT                /TAD ERROR
486                                /AC SHOULD EQUAL 0000
487 /-----
488 /TAD TEST 10
489 /-----
0550 7200 490          CLA
0551 1104 491          TAD K7773          /OPERAND 1
0552 1024 492          TAD K0004          /OPERAND 2
0553 7040 493          CMA
0554 7440 494          SZA
0555 7402 495          HLT                /TAD ERROR
496                                /AC SHOULD EQUAL 0000
497 /-----
498 /TAD TEST 11
499 /-----
0556 7200 500          CLA
0557 1106 501          TAD K7775          /OPERAND 1
0560 1022 502          TAD K0002          /OPERAND 2
0561 7040 503          CMA
0562 7440 504          SZA
0563 7402 505          HLT                /TAD ERROR
506                                /AC SHOULD EQUAL 0000
507 /-----
508 /TAD TEST 12
509 /-----
0564 7200 510          CLA
0565 1107 511          TAD K7776          /OPERAND 1
0566 1021 512          TAD K0001          /OPERAND 2
0567 7040 513          CMA
0570 7440 514          SZA
0571 7402 515          HLT                /TAD ERROR
516                                /AC SHOULD EQUAL 0000
517 /-----
518 /TAD TEST 13
519 /-----
0572 7200 520          CLA

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0573	7100	521	CLL	
0574	1061	522	TAD K4000	/OPERAND 1
0575	1061	523	TAD K4000	/OPERAND 2
0576	7430	524	SZL	
0577	7440	525	SZA	
0600	7402	526	HLT	/TAD ERROR
		527		/AC SHOULD EQUAL 0000
		528		/LINK SHOULD EQUAL ONE
		529	/-----	
		530	/TAD TEST 14	
		531	/-----	
0601	7200	532	CLA	
0602	7100	533	CLL	
0603	1064	534	TAD K6000	/OPERAND 1
0604	1055	535	TAD K2000	/OPERAND 2
0605	7430	536	SZL	
0606	7440	537	SZA	
0607	7402	538	HLT	/TAD ERROR
		539		/AC SHOULD EQUAL 0000
		540		/LINK SHOULD EQUAL ONE
		541	/-----	
		542	/TAD TEST 15	
		543	/-----	
0610	7200	544	CLA	
0611	7100	545	CLL	
0612	1066	546	TAD K7000	/OPERAND 1
0613	1051	547	TAD K1000	/OPERAND 2
0614	7430	548	SZL	
0615	7440	549	SZA	
0616	7402	550	HLT	/TAD ERROR
		551		/AC SHOULD EQUAL 0000
		552		/LINK SHOULD EQUAL ONE
		553	/-----	
		554	/TAD TEST 16	
		555	/-----	
0617	7200	556	CLA	
0620	7100	557	CLL	
0621	1070	558	TAD K7400	/OPERAND 1
0622	1046	559	TAD K0400	/OPERAND 2
0623	7430	560	SZL	
0624	7440	561	SZA	
0625	7402	562	HLT	/TAD ERROR
		563		/AC SHOULD EQUAL 0000
		564		/LINK SHOULD EQUAL ONE
		565	/-----	
		566	/TAD TEST 17	
		567	/-----	
0626	7200	568	CLA	
0627	7100	569	CLL	
0630	1072	570	TAD K7600	/OPERAND 1
0631	1043	571	TAD K0200	/OPERAND 2
0632	7430	572	SZL	

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0726	7200	677	CLA	
0727	7100	678	CLL	
0730	1060	679	TAD K3777	/OPERAND 1
0731	1055	680	TAD K2000	/OPERAND 2
0732	1055	681	TAD K2000	/OPERAND 3
0733	7040	682	CMA	
0734	7420	683	SNL	
0735	7440	684	SZA	
0736	7402	685	HLT	/TAD ERROR
		686		/AC SHOULD EQUAL 0000
		687		/LINK SHOULD EQUAL ZERO
		688	/-----	
		689	/TAD TEST 27	
		690	/-----	
0737	7200	691	CLA	
0740	7100	692	CLL	
0741	1063	693	TAD K5777	/OPERAND 1
0742	1051	694	TAD K1000	/OPERAND 2
0743	1051	695	TAD K1000	/OPERAND 3
0744	7040	696	CMA	
0745	7420	697	SNL	
0746	7440	698	SZA	
0747	7402	699	HLT	/TAD ERROR
		700		/AC SHOULD EQUAL 0000
		701		/LINK SHOULD EQUAL ZERO
		702	/-----	
		703	/TAD TEST 28	
		704	/-----	
0750	7200	705	CLA	
0751	7100	706	CLL	
0752	1065	707	TAD K6777	/OPERAND 1
0753	1046	708	TAD K0400	/OPERAND 2
0754	1046	709	TAD K0400	/OPERAND 3
0755	7040	710	CMA	
0756	7420	711	SNL	
0757	7440	712	SZA	
0760	7402	713	HLT	/TAD ERROR
		714		/AC SHOULD EQUAL 0000
		715		/LINK SHOULD EQUAL ZERO
		716	/-----	
		717	/TAD TEST 29	
		718	/-----	
0761	7200	719	CLA	
0762	7100	720	CLL	
0763	1067	721	TAD K7377	/OPERAND 1
0764	1043	722	TAD K0200	/OPERAND 2
0765	1043	723	TAD K0200	/OPERAND 3
0766	7040	724	CMA	
0767	7420	725	SNL	
0770	7440	726	SZA	
0771	7402	727	HLT	/TAD ERROR
		728		/AC SHOULD EQUAL 0000

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729                                     /LINK SHOULD EQUAL ZERO
730 /-----
731 /TAD TEST 30
732 /-----
0772 7200 733          CLA
0773 7100 734          CLL
0774 1071 735          TAD K7577          /OPERAND 1
0775 1040 736          TAD K0100          /OPERAND 2
0776 1040 737          TAD K0100          /OPERAND 3
0777 7040 738          CMA
1000 7420 739          SNL
1001 7440 740          SZA
1002 7402 741          HLT                /TAD ERROR
742                                     /AC SHOULD EQUAL 0000
743                                     /LINK SHOULD EQUAL ZERO
744 /-----
745 /TAD TEST 31
746 /-----
1003 7200 747          CLA
1004 7100 748          CLL
1005 1073 749          TAD K7677          /OPERAND 1
1006 1035 750          TAD K0040          /OPERAND 2
1007 1035 751          TAD K0040          /OPERAND 3
1010 7040 752          CMA
1011 7420 753          SNL
1012 7440 754          SZA
1013 7402 755          HLT                /TAD ERROR
756                                     /AC SHOULD EQUAL 0000
757                                     /LINK SHOULD EQUAL ZERO
758 /-----
759 /TAD TEST 32
760 /-----
1014 7200 761          CLA
1015 7100 762          CLL
1016 1076 763          TAD K7737          /OPERAND 1
1017 1032 764          TAD K0020          /OPERAND 2
1020 1032 765          TAD K0020          /OPERAND 3
1021 7040 766          CMA
1022 7420 767          SNL
1023 7440 768          SZA
1024 7402 769          HLT                /TAD ERROR
770                                     /AC SHOULD EQUAL 0000
771                                     /LINK SHOULD EQUAL ZERO
772 /-----
773 /TAD TEST 33
774 /-----
1025 7200 775          CLA
1026 7100 776          CLL
1027 1100 777          TAD K7757          /OPERAND 1
1030 1027 778          TAD K0010          /OPERAND 2
1031 1027 779          TAD K0010          /OPERAND 3
1032 7040 780          CMA

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1033	7420	781	SNL	
1034	7440	782	SZA	
1035	7402	783	HLT	/TAD ERROR
		784		/AC SHOULD EQUAL 0000
		785		/LINK SHOULD EQUAL ZERO
		786	/-----	
		787	/TAD TEST 34	
		788	/-----	
1036	7200	789	CLA	
1037	7100	790	CLL	
1040	1102	791	TAD K7767	/OPERAND 1
1041	1024	792	TAD K0004	/OPERAND 2
1042	1024	793	TAD K0004	/OPERAND 3
1043	7040	794	CMA	
1044	7420	795	SNL	
1045	7440	796	SZA	
1046	7402	797	HLT	/TAD ERROR
		798		/AC SHOULD EQUAL 0000
		799		/LINK SHOULD EQUAL ZERO
		800	/-----	
		801	/TAD TEST 35	
		802	/-----	
1047	7200	803	CLA	
1050	7100	804	CLL	
1051	1104	805	TAD K7773	/OPERAND 1
1052	1022	806	TAD K0002	/OPERAND 2
1053	1022	807	TAD K0002	/OPERAND 3
1054	7040	808	CMA	
1055	7420	809	SNL	
1056	7440	810	SZA	
1057	7402	811	HLT	/TAD ERROR
		812		/AC SHOULD EQUAL 0000
		813		/LINK SHOULD EQUAL ZERO
		814	/-----	
		815	/TAD TEST 36	
		816	/-----	
1060	7200	817	CLA	
1061	7100	818	CLL	
1062	1106	819	TAD K7775	/OPERAND 1
1063	1021	820	TAD K0001	/OPERAND 2
1064	1021	821	TAD K0001	/OPERAND 3
1065	7040	822	CMA	
1066	7420	823	SNL	
1067	7430	824	SZL	
1070	7402	825	HLT	/TAD ERROR
		826		/AC SHOULD EQUAL 0000
		827		/LINK SHOULD EQUAL ZERO
		828	/-----	
		829	/TAD TEST 37	
		830	/-----	
1071	7200	831	CLA	
1072	7100	832	CLL	

1073	1021	833	TAD	K0001	/0000+0001=0001
1074	1023	834	TAD	K0003	/0001+0003=0004
1075	1104	835	TAD	K7773	/0004+7773=7777
1076	7040	836	CMA		
1077	7420	837	SNL		
1100	7440	838	SZA		
1101	7402	839	HLT		/TAD ERROR
		840			/AC SHOULD EQUAL 0000
		841			/LINK SHOULD EQUAL ZERO
		842	/	-----	
		843	/TAD TEST 38		
		844	/	-----	
1102	7200	845	CLA		
1103	7100	846	CLL		
1104	1022	847	TAD	K0002	/0000+0002=0002
1105	1025	848	TAD	K0006	/0002+0006=0010
1106	1102	849	TAD	K7767	/0010+7767=7777
1107	7040	850	CMA		
1110	7020	851	CML		
1111	7440	852	SZA		
1112	7402	853	HLT		/TAD ERROR
		854			/AC SHOULD EQUAL 0000
		855			/LINK SHOULD EQUAL ZERO
		856	/	-----	
		857	/TAD TEST 39		
		858	/	-----	
1113	7200	859	CLA		
1114	7100	860	CLL		
1115	1024	861	TAD	K0004	/0000+0004=0004
1116	1030	862	TAD	K0014	/0004+0014=0020
1117	1100	863	TAD	K7757	/0020+7757=7777
1120	7040	864	CMA		
1121	7420	865	SNL		
1122	7440	866	SZA		
1123	7402	867	HLT		/TAD ERROR
		868			/AC SHOULD EQUAL 0000
		869			/LINK SHOULD EQUAL ZERO
		870	/	-----	
		871	/TAD TEST 40		
		872	/	-----	
1124	7200	873	CLA		
1125	7100	874	CLL		
1126	1027	875	TAD	K0010	/0000+0010=0010
1127	1033	876	TAD	K0030	/0010+0030=0040
1130	1076	877	TAD	K7737	/0040+7737=7777
1131	7040	878	CMA		
1132	7420	879	SNL		
1133	7440	880	SZA		
1134	7402	881	HLT		/TAD ERROR
		882			/AC SHOULD EQUAL 0000
		883			/LINK SHOULD EQUAL ZERO
		884	/	-----	

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885 /TAD TEST 41
886 /-----
1135 7200 887      CLA
1136 7100 888      CLL
1137 1032 889      TAD      K0020      /0000+0020=0020
1140 1036 890      TAD      K0060      /0020+0060=0100
1141 1073 891      TAD      K7677      /0100+7677=7777
1142 7040 892      CMA
1143 7420 893      SNL
1144 7440 894      SZA
1145 7402 895      HLT
                               /TAD ERROR
                               /AC SHOULD EQUAL 0000
896                               /LINK SHOULD EQUAL ZERO
897 /-----
898 /TAD TEST 42
899 /-----
900 /-----
1146 7200 901      CLA
1147 7100 902      CLL
1150 1035 903      TAD      K0040      /0000+0040=0040
1151 1041 904      TAD      K0140      /0040+0140=0200
1152 1071 905      TAD      K7577      /0200+7577=7777
1153 7040 906      CMA
1154 7420 907      SNL
1155 7440 908      SZA
1156 7402 909      HLT
                               /TAD ERROR
                               /AC SHOULD EQUAL 0000
910                               /LINK SHOULD EQUAL ZERO
911 /-----
912 /TAD TEST 43
913 /-----
914 /-----
1157 7200 915      CLA
1160 7100 916      CLL
1161 1040 917      TAD      K0100      /0000+0100=0100
1162 1044 918      TAD      K0300      /0100+0300=0400
1163 1067 919      TAD      K7377      /0400+7377=7777
1164 7040 920      CMA
1165 7420 921      SNL
1166 7440 922      SZA
1167 7402 923      HLT
                               /TAD ERROR
                               /AC SHOULD EQUAL 0000
924                               /LINK SHOULD EQUAL ZERO
925 /-----
926 /TAD TEST 44
927 /-----
928 /-----
1170 7200 929      CLA
1171 7100 930      CLL
1172 1043 931      TAD      K0200      /0000+0200=0200
1173 1047 932      TAD      K0600      /0200+0600=1000
1174 1065 933      TAD      K6777      /1000+6777=7777
1175 7040 934      CMA
1176 7420 935      SNL
1177 7440 936      SZA

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1200	7402	937	HLT		/TAD ERROR
		938			/AC SHOULD EQUAL 0000
		939			/LINK SHOULD EQUAL ZERO
		940	/-----		
		941	/TAD TEST 45		
		942	/-----		
1201	7200	943	CLA		
1202	7100	944	CLL		
1203	1046	945	TAD	K0400	/0000+0400=0400
1204	1053	946	TAD	K1400	/0400+1400=2000
1205	1063	947	TAD	K5777	/2000+5777=7777
1206	7040	948	CMA		
1207	7420	949	SNL		
1210	7440	950	SZA		
1211	7402	951	HLT		/TAD ERROR
		952			/AC SHOULD EQUAL 0000
		953			/LINK SHOULD EQUAL ZERO
		954	/-----		
		955	/TAD TEST 46		
		956	/-----		
1212	7200	957	CLA		
1213	7100	958	CLL		
1214	1051	959	TAD	K1000	/0000+1000=1000
1215	1057	960	TAD	K3000	/1000+3000=4000
1216	1060	961	TAD	K3777	/4000+3777=7777
1217	7040	962	CMA		
1220	7420	963	SNL		
1221	7440	964	SZA		
1222	7402	965	HLT		/TAD ERROR
		966			/AC SHOULD EQUAL 0000
		967			/LINK SHOULD EQUAL ZERO
		968	/-----		
		969	/TAD TEST 47		
		970	/-----		
1223	7200	971	CLA		
1224	7100	972	CLL		
1225	1055	973	TAD	K2000	/0000+2000=2000
1226	1064	974	TAD	K6000	/2000+6000=0000 WITH CARRY
1227	7430	975	SZL		
1230	7440	976	SZA		
1231	7402	977	HLT		/TAD ERROR
		978			/AC SHOULD EQUAL 0000
		979			/LINK SHOULD EQUAL ONE
		980	/-----		
		981	/TAD TEST 48		
		982	/-----		
1232	7200	983	CLA		
1233	7100	984	CLL		
1234	1110	985	TAD	K7777	/0000+7777=7777
1235	1021	986	TAD	K0001	/7777+0001=0000 WITH CARRY
1236	7430	987	SZL		
1237	7440	988	SZA		

1240	7402	989	HLT		/TAD ERROR
		990			/AC SHOULD EQUAL 0000
		991			/LINK SHOULD EQUAL ONE
		992	/-----		
		993	/TAD TEST 49		
		994	/-----		
1241	7200	995	CLA		
1242	7100	996	CLL		
1243	1023	997	TAD	K0003	/0000+0003=0003
1244	1023	998	TAD	K0003	/0003+0003=0006
1245	1103	999	TAD	K7770	/0006+7770=7776
1246	1021	1000	TAD	K0001	/7776+0001=7777
1247	7040	1001	CMA		
1250	7420	1002	SNL		
1251	7440	1003	SZA		
1252	7402	1004	HLT		/TAD ERROR
		1005			/AC SHOULD EQUAL 0000
		1006			/LINK SHOULD EQUAL ZERO
		1007	/-----		
		1008	/TAD TEST 50		
		1009	/-----		
1253	7200	1010	CLA		
1254	7100	1011	CLL		
1255	1025	1012	TAD	K0006	/0000+0006=0006
1256	1025	1013	TAD	K0006	/0006+0006=0014
1257	1101	1014	TAD	K7760	/0014+7760=7774
1260	1023	1015	TAD	K0003	/7774+0003=7777
1261	7040	1016	CMA		
1262	7420	1017	SNL		
1263	7440	1018	SZA		
1264	7402	1019	HLT		/TAD ERROR
		1020			/AC SHOULD EQUAL 0000
		1021			/LINK SHOULD EQUAL ZERO
		1022	/-----		
		1023	/TAD TEST 51		
		1024	/-----		
1265	7200	1025	CLA		
1266	7100	1026	CLL		
1267	1030	1027	TAD	K0014	/0000+0014=0014
1270	1030	1028	TAD	K0014	/0014+0014=0030
1271	1077	1029	TAD	K7740	/0030+7740+7770
1272	1026	1030	TAD	K0007	/7770+0007=7777
1273	7040	1031	CMA		
1274	7420	1032	SNL		
1275	7440	1033	SZA		
1276	7402	1034	HLT		/TAD ERROR
		1035			/AC SHOULD EQUAL 0000
		1036			/LINK SHOULD EQUAL ZERO
		1037	/-----		
		1038	/TAD TEST 52		
		1039	/-----		
1277	7200	1040	CLA		

1300	7100	1041	CLL		
1301	1033	1042	TAD	K0030	/0000+0030=0030
1302	1033	1043	TAD	K0030	/0030+0030=0060
1303	1075	1044	TAD	K7717	/0060+7717=7777
1304	7040	1045	CMA		
1305	7420	1046	SNL		
1306	7440	1047	SZA		
1307	7402	1048	HLT		/TAD ERROR
		1049			/AC SHOULD EQUAL 0000
		1050			/LINK SHOULD EQUAL ZERO

1051 /-----
 1052 /TAD TEST 53
 1053 /-----

1310	7200	1054	CLA		
1311	7100	1055	CLL		
1312	1036	1056	TAD	K0060	/0000+0060=0060
1313	1036	1057	TAD	K0060	/0060+0060=0140
1314	1072	1058	TAD	K7600	/0140+7600=7740
1315	1034	1059	TAD	K0037	/7740+0037=7777
1316	7040	1060	CMA		
1317	7420	1061	SNL		
1320	7440	1062	SZA		
1321	7402	1063	HLT		/TAD ERROR
		1064			/AC SHOULD EQUAL 0000
		1065			/LINK SHOULD EQUAL ZERO

1066 /-----
 1067 /TAD TEST 54
 1068 /-----

1322	7200	1069	CLA		
1323	7100	1070	CLL		
1324	1041	1071	TAD	K0140	/0000+0140=0140
1325	1041	1072	TAD	K0140	/0140+0140=0300
1326	1070	1073	TAD	K7400	/0300+7400=7700
1327	1037	1074	TAD	K0077	/7700+0077=7777
1330	7040	1075	CMA		
1331	7420	1076	SNL		
1332	7440	1077	SZA		
1333	7402	1078	HLT		/TAD ERROR
		1079			/AC SHOULD EQUAL 0000
		1080			/LINK SHOULD EQUAL ZERO

1081 /-----
 1082 /TAD TEST 55
 1083 /-----

1334	7200	1084	CLA		
1335	7100	1085	CLL		
1336	1044	1086	TAD	K0300	/0000+0300=0300
1337	1044	1087	TAD	K0300	/0300+0300=0600
1340	1066	1088	TAD	K7000	/0600+7000=7600
1341	1042	1089	TAD	K0177	/7600+0177=7777
1342	7040	1090	CMA		
1343	7420	1091	SNL		
1344	7440	1092	SZA		

1345	7402	1093	HLT		/TAD ERROR
		1094			/AC SHOULD EQUAL 0000
		1095			/LINK SHOULD EQUAL ZERO
		1096	/-----		
		1097	/TAD TEST 56		
		1098	/-----		
1346	7200	1099	CLA		
1347	7100	1100	CLL		
1350	1047	1101	TAD	K0600	/0000+0600=0600
1351	1047	1102	TAD	K0600	/0600+0600=1400
1352	1064	1103	TAD	K6000	/1400+6000=7400
1353	1045	1104	TAD	K0377	/7400+3777=7777
1354	7040	1105	CMA		
1355	7420	1106	SNL		
1356	7440	1107	SZA		
1357	7402	1108	HLT		/TAD ERROR
		1109			/AC SHOULD EQUAL 0000
		1110			/LINK SHOULD EQUAL ZERO
		1111	/-----		
		1112	/TAD TEST 57		
		1113	/-----		
1360	7200	1114	CLA		
1361	7100	1115	CLL		
1362	1053	1116	TAD	K1400	/0000+1400=1400
1363	1053	1117	TAD	K1400	/1400+1400=3000
1364	1061	1118	TAD	K4000	/3000+4000=7000
1365	1050	1119	TAD	K0777	/7000+0777=7777
1366	7040	1120	CMA		
1367	7420	1121	SNL		
1370	7440	1122	SZA		
1371	7402	1123	HLT		/TAD ERROR
		1124			/AC SHOULD EQUAL 0000
		1125			/LINK SHOULD EQUAL ZERO
		1126	/-----		
		1127	/TAD TEST 58		
		1128	/-----		
1372	7200	1129	CLA		
1373	7100	1130	CLL		
1374	1057	1131	TAD	K3000	/0000+3000=3000
1375	1057	1132	TAD	K3000	/3000+3000=6000
1376	1054	1133	TAD	K1777	/6000+1777=7777
1377	7040	1134	CMA		
1400	7420	1135	SNL		
1401	7440	1136	SZA		
1402	7402	1137	HLT		/TAD ERROR
		1138			/AC SHOULD EQUAL 0000
		1139			/LINK SHOULD EQUAL ZERO
		1140	/-----		
		1141	/TAD TEST 59		
		1142	/-----		
1403	7200	1143	CLA		
1404	7100	1144	CLL		

1405	1064	1145	TAD	K6000	/0000+6000=6000
1406	1064	1146	TAD	K6000	/6000+6000=4000 WITH CARRY
1407	1060	1147	TAD	K3777	/4000+3777=7777
1410	7040	1148	CMA		
1411	7430	1149	SZL		
1412	7440	1150	SZA		
1413	7402	1151	HLT		/TAD ERROR
		1152			/AC SHOULD EQUAL 0000
		1153			/LINK SHOULD EQUAL ONE
		1154	/	-----	
		1155	/TAD TEST 60		
		1156	/	-----	
1414	7200	1157	CLA		
1415	7100	1158	CLL		
1416	1110	1159	TAD	K7777	/0000+7777=7777
1417	1110	1160	TAD	K7777	/7777+7777=7776 WITH CARRY
1420	1021	1161	TAD	K0001	/7776+0001=7777
1421	7040	1162	CMA		
1422	7430	1163	SZL		
1423	7440	1164	SZA		
1424	7402	1165	HLT		/TAD ERROR
		1166			/AC SHOULD EQUAL 0000
		1167			/LINK SHOULD EQUAL ONE
		1168	/	-----	
		1169	/IAC TEST 1		
		1170	/	-----	
1425	7200	1171	CLA		/AC EQUALS 0000
1426	7100	1172	CLL		/LINK EQUALS ZERO
1427	7001	1173	IAC		/TEST INSTRUCTION
1430	7420	1174	SNL		/SNL SHOULD NOT SKIP
1431	7450	1175	SNA		/SNA SHOULD SKIP
1432	7402	1176	HLT		/IAC FAILED
		1177			/AC SHOULD EQUAL 0001
		1178			/LINK SHOULD EQUAL ZERO
		1179	/	-----	
		1180	/IAC TEST 2		
		1181	/	-----	
1433	7200	1182	CLA		/AC EQUALS 7777
1434	7040	1183	CMA		/LINK EQUALS ZERO
1435	7100	1184	CLL		/TEST INSTRUCTION
1436	7001	1185	IAC		/SZL SHOULD NOT SKIP
1437	7430	1186	SZL		/SZA SHOULD SKIP
1440	7440	1187	SZA		/IAC FAILED
1441	7402	1188	HLT		/AC SHOULD EQUAL 0000
		1189			/LINK SHOULD EQUAL ONE
		1190			
		1191	/	-----	
		1192	/IAC TEST 3		
		1193	/	-----	
1442	7200	1194	CLA		/AC EQUALS 0000
1443	7100	1195	CLL		/LINK EQUALS ZERO
1444	7001	1196	IAC		/TEST INSTRUCTION

		1197		/AC SHOULD EQUAL 0001
1445	7040	1198	CMA	/AC SHOULD EQUAL 7776
1446	7001	1199	IAC	/TEST INSTRUCTION
1447	7430	1200	SZL	/SZL SHOULD NOT SKIP
1450	7402	1201	HLT	/IAC FAILS
		1202		/LINK SHOULD EQUAL ZERO
1451	7001	1203	IAC	/TEST INSTRUCTION
1452	7430	1204	SZL	/SZL SHOULD NOT SKIP
1453	7440	1205	SZA	/SZA SHOULD SKIP
1454	7402	1206	HLT	/IAC FAILED
1455	7200	1207	CLA	/AC EQUALS 0000
		1208		/LINK SHOULD EQUAL ONE
		1209	/	-----
		1210	/RAR TEST 1	
		1211	/	-----
1456	7200	1212	CLA	
1457	7100	1213	CLL	
1460	1021	1214	TAD K0001	/ROTATE PATTERN
1461	7010	1215	RAR	
1462	7420	1216	SNL	
1463	7402	1217	HLT	/RAR FAILED
		1218		/LINK SHOULD EQUAL ONE
		1219	/	-----
		1220	/RAR TEST 2	
		1221	/	-----
1464	7200	1222	CLA	
1465	7100	1223	CLL	
1466	1020	1224	TAD K0000	/ROTATE PATTERN
1467	7010	1225	RAR	
1470	7440	1226	SZA	
1471	7402	1227	HLT	/RAR FAILED
		1228		/AC SHOULD EQUAL 0000
		1229	/	-----
		1230	/RAR TEST 3	
		1231	/	-----
1472	7200	1232	CLA	
1473	7100	1233	CLL	
1474	1020	1234	TAD K0000	/ROTATE PATTERN
1475	7010	1235	RAR	
1476	7430	1236	SZL	
1477	7402	1237	HLT	/RAR FAILED
		1238		/LINK SHOULD EQUAL ZERO
		1239	/	-----
		1240	/RAR TEST 4	
		1241	/	-----
1500	7200	1242	CLA	
1501	7100	1243	CLL	
1502	7020	1244	CML	
1503	1020	1245	TAD K0000	/ROTATE PATTERN
1504	7010	1246	RAR	
1505	7430	1247	SZL	
1506	7402	1248	HLT	/RAR FAILED

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1249                                     /LINK SHOULD EQUAL ZERO
1250 /-----
1251 /RAR TEST 5
1252 /-----
1507 7200 1253          CLA
1510 7100 1254          CLL
1511 7020 1255          CML
1512 1110 1256          TAD K7777          /ROTATE PATTERN
1513 7010 1257          RAR
1514 7040 1258          CMA
1515 7440 1259          SZA
1516 7402 1260          HLT          /RAR FAILED
1261                                     /AC SHOULD EQUAL 0000
1262 /-----
1263 /RAR TEST 6
1264 /-----
1517 7200 1265          CLA
1520 7100 1266          CLL
1521 7020 1267          CML
1522 1020 1268          TAD K0000          /ROTATE PATTERN
1523 7010 1269          RAR
1524 1060 1270          TAD K3777
1525 7040 1271          CMA
1526 7450 1272          SNA
1527 7430 1273          SZL
1530 7402 1274          HLT          /RAR FAILED
1275                                     /AC SHOULD EQUAL 0000
1276                                     /LINK SHOULD EQUAL ZERO
1277 /-----
1278 /RAR TEST 7
1279 /-----
1531 7200 1280          CLA
1532 7100 1281          CLL
1533 1061 1282          TAD K4000          /ROTATE PATTERN
1534 7010 1283          RAR
1535 1063 1284          TAD K5777
1536 7040 1285          CMA
1537 7450 1286          SNA
1540 7430 1287          SZL
1541 7402 1288          HLT          /RAR FAILED
1289                                     /AC SHOULD EQUAL 0000
1290                                     /LINK SHOULD EQUAL ZERO
1291 /-----
1292 /RAR TEST 8
1293 /-----
1542 7200 1294          CLA
1543 7100 1295          CLL
1544 1055 1296          TAD K2000          /ROTATE PATTERN
1545 7010 1297          RAR
1546 1065 1298          TAD K6777
1547 7040 1299          CMA
1300

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1550	7430	1301	SZL	
1551	7402	1302	HLT	/RAR FAILED
		1303		/AC SHOULD EQUAL 0000
		1304		/LINK SHOULD EQUAL ZERO
		1305	/	-----
		1306	/RAR TEST 9	
		1307	/	-----
1552	7200	1308	CLA	
1553	7100	1309	CLL	
1554	1051	1310	TAD K1000	/ROTATE PATTERN
1555	7010	1311	RAR	
1556	1067	1312	TAD K7377	
1557	7040	1313	CMA	
1560	7450	1314	SNA	
1561	7430	1315	SZL	
1562	7402	1316	HLT	/RAR FAILED
		1317		/AC SHOULD EQUAL 0000
		1318		/LINK SHOULD EQUAL ZERO
		1319	/	-----
		1320	/RAR TEST 10	
		1321	/	-----
1563	7200	1322	CLA	
1564	7100	1323	CLL	
1565	1046	1324	TAD K0400	/ROTATE PATTERN
1566	7010	1325	RAR	
1567	1071	1326	TAD K7577	
1570	7040	1327	CMA	
1571	7450	1328	SNA	
1572	7430	1329	SZL	
1573	7402	1330	HLT	/RAR FAILED
		1331		/AC SHOULD EQUAL 0000
		1332		/LINK SHOULD EQUAL ZERO
		1333	/	-----
		1334	/RAR TEST 11	
		1335	/	-----
1574	7200	1336	CLA	
1575	7100	1337	CLL	
1576	1043	1338	TAD K0200	/ROTATE PATTERN
1577	7010	1339	RAR	
1600	1073	1340	TAD K7677	
1601	7040	1341	CMA	
1602	7450	1342	SNA	
1603	7430	1343	SZL	
1604	7402	1344	HLT	/RAR FAILED
		1345		/AC SHOULD EQUAL 0000
		1346		/LINK SHOULD EQUAL ZERO
		1347	/	-----
		1348	/RAR TEST 12	
		1349	/	-----
1605	7200	1350	CLA	
1606	7100	1351	CLL	
1607	1040	1352	TAD K0100	/ROTATE PATTERN

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1610 7010 1353      RAR
1611 1076 1354      TAD K7737
1612 7040 1355      CMA
1613 7450 1356      SNA
1614 7430 1357      SZL
1615 7402 1358      HLT
                    /RAR FAILED
                    /AC SHOULD EQUAL 0000
                    /LINK SHOULD EQUAL ZERO
1359
1360
1361 /-----
1362 /RAR TEST 13
1363 /-----

1616 7200 1364      CLA
1617 7100 1365      CLL
1620 1035 1366      TAD K0040      /ROTATE PATTERN
1621 7010 1367      RAR
1622 1100 1368      TAD K7757
1623 7040 1369      CMA
1624 7450 1370      SNA
1625 7430 1371      SZL
1626 7402 1372      HLT
                    /RAR FAILED
                    /AC SHOULD EQUAL 0000
                    /LINK SHOULD EQUAL ZERO
1373
1374
1375 /-----
1376 /RAR TEST 14
1377 /-----

1627 7200 1378      CLA
1630 7100 1379      CLL
1631 1032 1380      TAD K0020      /ROTATE PATTERN
1632 7010 1381      RAR
1633 1102 1382      TAD K7767
1634 7040 1383      CMA
1635 7450 1384      SNA
1636 7430 1385      SZL
1637 7402 1386      HLT
                    /RAR FAILED
                    /AC SHOULD EQUAL 0000
                    /LINK SHOULD EQUAL ZERO
1387
1388
1389 /-----
1390 /RAR TEST 15
1391 /-----

1640 7200 1392      CLA
1641 7100 1393      CLL
1642 1027 1394      TAD K0010      /ROTATE PATTERN
1643 7010 1395      RAR
1644 1104 1396      TAD K7773
1645 7040 1397      CMA
1646 7450 1398      SNA
1647 7430 1399      SZL
1650 7402 1400      HLT
                    /RAR FAILED
                    /AC SHOULD EQUAL 0000
                    /LINK SHOULD EQUAL ZERO
1401
1402
1403 /-----
1404 /RAR TEST 16

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1405 /-----
1651 7200 1406      CLA
1652 7100 1407      CLL
1653 1024 1408      TAD K0004      /ROTATE PATTERN
1654 7010 1409      RAR
1655 1106 1410      TAD K7775
1656 7040 1411      CMA
1657 7450 1412      SNA
1660 7430 1413      SZL
1661 7402 1414      HLT      /RAR FAILED
1415      /AC SHOULD EQUAL 0000
1416      /LINK SHOULD EQUAL ZERO
1417 /-----
1418 /RAR TEST 17
1419 /-----
1662 7200 1420      CLA
1663 7100 1421      CLL
1664 1022 1422      TAD K0002      /ROTATE PATTERN
1665 7010 1423      RAR
1666 1107 1424      TAD K7776
1667 7040 1425      CMA
1670 7450 1426      SNA
1671 7430 1427      SZL
1672 7402 1428      HLT      /RAR FAILED
1429      /AC SHOULD EQUAL 0000
1430      /LINK SHOULD EQUAL ZERO
1431 /-----
1432 /RAR TEST 18
1433 /-----
1673 7200 1434      CLA
1674 7100 1435      CLL
1675 1021 1436      TAD K0001      /ROTATE PATTERN
1676 7010 1437      RAR
1677 1110 1438      TAD K7777
1700 7040 1439      CMA
1701 7450 1440      SNA
1702 7420 1441      SNL
1703 7402 1442      HLT      /RAR FAILED
1443      /AC SHOULD EQUAL 0000
1444      /LINK SHOULD EQUAL ZERO
1445 /-----
1446 /RTR TEST 1
1447 /-----
1704 7200 1448      CLA
1705 7100 1449      CLL
1706 1022 1450      TAD K0002      /ROTATE PATTERN
1707 7012 1451      RTR
1710 7420 1452      SNL
1711 7402 1453      HLT      /RTR FAILED
1454      /LINK SHOULD EQUAL ONE
1455 /-----
1456 /RTR TEST 2

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1457 /-----
1712 7200 1458          CLA
1713 7100 1459          CLL
1714 1020 1460          TAD K0000          /ROTATE PATTERN
1715 7012 1461          RTR
1716 7440 1462          SZA
1717 7402 1463          HLT          /RTR FAILED
1464          /AC SHOULD EQUAL 0000
1465 /-----
1466 /RTR TEST 3
1467 /-----
1720 7200 1468          CLA
1721 7100 1469          CLL
1722 1020 1470          TAD K0000          /ROTATE PATTERN
1723 7012 1471          RTR
1724 7430 1472          SZL
1725 7402 1473          HLT          /RTR FAILED
1474          /AC SHOULD EQUAL 0000
1475          /LINK SHOULD EQUAL ZERO
1476 /-----
1477 /RTR TEST 4
1478 /-----
1726 7200 1479          CLA
1727 7100 1480          CLL
1730 7020 1481          CML
1731 1020 1482          TAD K0000          /ROTATE PATTERN
1732 7012 1483          RTR
1733 7430 1484          SZL
1734 7402 1485          HLT          /RTR FAILED
1486          /AC SHOULD EQUAL 0000
1487          /LINK SHOULD EQUAL ZERO
1488 /-----
1489 /RTR TEST 5
1490 /-----
1735 7200 1491          CLA
1736 7100 1492          CLL
1737 7020 1493          CML
1740 1110 1494          TAD K7777          /ROTATE PATTERN
1741 7012 1495          RTR
1742 7040 1496          CMA
1743 7440 1497          SZA
1744 7402 1498          HLT          /RTR FAILED
1499          /AC SHOULD EQUAL 7777
1500          /LINK SHOULD EQUAL ONE
1501 /-----
1502 /RTR TEST 6
1503 /-----
1745 7200 1504          CLA
1746 7100 1505          CLL
1747 7020 1506          CML
1750 1020 1507          TAD K0000          /ROTATE PATTERN
1751 7012 1508          RTR

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1752	1063	1509	TAD K5777	
1753	7040	1510	CMA	
1754	7450	1511	SNA	
1755	7430	1512	SZL	
1756	7402	1513	HLT	/RTR FAILED
		1514		/AC SHOULD EQUAL 0000
		1515		/LINK SHOULD EQUAL ZERO
		1516	/	-----
		1517	/RTR TEST 7	
		1518	/	-----
1757	7200	1519	CLA	
1760	7100	1520	CLL	
1761	1061	1521	TAD K4000	/ROTATE PATTERN
1762	7012	1522	RTR	
1763	1065	1523	TAD K6777	
1764	7040	1524	CMA	
1765	7450	1525	SNA	
1766	7430	1526	SZL	
1767	7402	1527	HLT	/RTR FAILED
		1528		/AC SHOULD EQUAL 0000
		1529		/LINK SHOULD EQUAL ZERO
		1530	/	-----
		1531	/RTR TEST 8	
		1532	/	-----
1770	7200	1533	CLA	
1771	7100	1534	CLL	
1772	1055	1535	TAD K2000	/ROTATE PATTERN
1773	7012	1536	RTR	
1774	1067	1537	TAD K7377	
1775	7040	1538	CMA	
1776	7450	1539	SNA	
1777	7430	1540	SZL	
2000	7402	1541	HLT	/RTR FAILED
		1542		/AC SHOULD EQUAL 0000
		1543		/LINK SHOULD EQUAL ZERO
		1544	/	-----
		1545	/RTR TEST 9	
		1546	/	-----
2001	7200	1547	CLA	
2002	7100	1548	CLL	
2003	1051	1549	TAD K1000	/ROTATE PATTERN
2004	7012	1550	RTR	
2005	1071	1551	TAD K7577	
2006	7040	1552	CMA	
2007	7450	1553	SNA	
2010	7430	1554	SZL	
2011	7402	1555	HLT	/RTR FAILED
		1556		/AC SHOULD EQUAL 0000
		1557		/LINK SHOULD EQUAL ZERO
		1558	/	-----
		1559	/RTR TEST 10	
		1560	/	-----

2012	7200	1561	CLA	
2013	7100	1562	CLL	
2014	1046	1563	TAD K0400	/ROTATE PATTERN
2015	7012	1564	RTR	
2016	1073	1565	TAD K7677	
2017	7040	1566	CMA	
2020	7450	1567	SNA	
2021	7430	1568	SZL	
2022	7402	1569	HLT	/RTR FAILED
		1570		/AC SHOULD EQUAL 0000
		1571		/LINK SHOULD EQUAL ZERO
		1572	/	-----
		1573	/RTR TEST 11	
		1574	/	-----
2023	7200	1575	CLA	
2024	7100	1576	CLL	
2025	1043	1577	TAD K0200	/ROTATE PATTERN
2026	7012	1578	RTR	
2027	1076	1579	TAD K7737	
2030	7040	1580	CMA	
2031	7450	1581	SNA	
2032	7430	1582	SZL	
2033	7402	1583	HLT	/RTR FAILED
		1584		/AC SHOULD EQUAL 0000
		1585		/LINK SHOULD EQUAL ZERO
		1586	/	-----
		1587	/RTR TEST 12	
		1588	/	-----
2034	7200	1589	CLA	
2035	7100	1590	CLL	
2036	1040	1591	TAD K0100	/ROTATE PATTERN
2037	7012	1592	RTR	
2040	1100	1593	TAD K7757	
2041	7040	1594	CMA	
2042	7450	1595	SNA	
2043	7430	1596	SZL	
2044	7402	1597	HLT	/RTR FAILED
		1598		/AC SHOULD EQUAL 0000
		1599		/LINK SHOULD EQUAL ZERO
		1600	/	-----
		1601	/RTR TEST 13	
		1602	/	-----
2045	7200	1603	CLA	
2046	7100	1604	CLL	
2047	1035	1605	TAD K0040	/ROTATE PATTERN
2050	7012	1606	RTR	
2051	1102	1607	TAD K7767	
2052	7040	1608	CMA	
2053	7450	1609	SNA	
2054	7430	1610	SZL	
2055	7402	1611	HLT	/RTR FAILED
		1612		/AC SHOULD EQUAL 0000

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1613                                     /LINK SHOULD EQUAL ZERO
1614 /-----
1615 /RTR TEST 14
1616 /-----
2056 7200 1617          CLA
2057 7100 1618          CLL
2060 1032 1619          TAD K0020          /ROTATE PATTERN
2061 7012 1620          RTR
2062 1104 1621          TAD K7773
2063 7040 1622          CMA
2064 7450 1623          SNA
2065 7430 1624          SZL
2066 7402 1625          HLT          /RTR FAILED
1626          /AC SHOULD EQUAL 0000
1627          /LINK SHOULD EQUAL ZERO
1628 /-----
1629 /RTR TEST 15
1630 /-----
2067 7200 1631          CLA
2070 7100 1632          CLL
2071 1027 1633          TAD K0010          /ROTATE PATTERN
2072 7012 1634          RTR
2073 1106 1635          TAD K7775
2074 7040 1636          CMA
2075 7450 1637          SNA
2076 7430 1638          SZL
2077 7402 1639          HLT          /RTR FAILED
1640          /AC SHOULD EQUAL 0000
1641          /LINK SHOULD EQUAL ZERO
1642 /-----
1643 /RTR TEST 16
1644 /-----
2100 7200 1645          CLA
2101 7100 1646          CLL
2102 1024 1647          TAD K0004          /ROTATE PATTERN
2103 7012 1648          RTR
2104 1107 1649          TAD K7776
2105 7040 1650          CMA
2106 7450 1651          SNA
2107 7430 1652          SZL
2110 7402 1653          HLT          /RTR FAILED
1654          /AC SHOULD EQUAL 0000
1655          /LINK SHOULD EQUAL ZERO
1656 /-----
1657 /RTR TEST 17
1658 /-----
2111 7200 1659          CLA
2112 7100 1660          CLL
2113 1022 1661          TAD K0002          /ROTATE PATTERN
2114 7012 1662          RTR
2115 7450 1663          SNA
2116 7420 1664          SNL

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2117 7402 1665      HLT          /RTR FAILED
      1666          /AC SHOULD EQUAL 0000
      1667          /LINK SHOULD EQUAL ONE
      1668 /-----
      1669 /RTR TEST 18
      1670 /-----

2120 7200 1671      CLA
2121 7100 1672      CLL
2122 1021 1673      TAD K0001    /ROTATE PATTERN
2123 7012 1674      RTR
2124 1060 1675      TAD K3777
2125 7040 1676      CMA
2126 7450 1677      SNA
2127 7430 1678      SZL
2130 7402 1679      HLT          /RTR FAILED
      1680          /AC SHOULD EQUAL 0000
      1681          /LINK SHOULD EQUAL ZERO
      1682 /-----
      1683 /RAL TEST 1
      1684 /-----

2131 7200 1685      CLA
2132 7100 1686      CLL
2133 1061 1687      TAD K4000    /ROTATE PATTERN
2134 7004 1688      RAL
2135 7430 1689      SZL
2136 7440 1690      SZA
2137 7402 1691      HLT          /RAL FAILED
      1692          /AC SHOULD EQUAL 0000
      1693          /LINK SHOULD EQUAL ONE
      1694 /-----
      1695 /RAL TEST 2
      1696 /-----

2140 7200 1697      CLA
2141 7100 1698      CLL
2142 1020 1699      TAD K0000    /ROTATE PATTERN
2143 7004 1700      RAL
2144 7420 1701      SNL
2145 7440 1702      SZA
2146 7402 1703      HLT          /RAL FAILED
      1704          /AC SHOULD EQUAL 0000
      1705          /LINK SHOULD EQUAL ZERO
      1706 /-----
      1707 /RAL TEST 3
      1708 /-----

2147 7200 1709      CLA
2150 7100 1710      CLL
2151 7020 1711      CML
2152 1020 1712      TAD K0000    /ROTATE PATTERN
2153 7004 1713      RAL
2154 7430 1714      SZL
2155 7402 1715      HLT          /RAL FAILED
      1716          /AC SHOULD EQUAL 0001

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1717                                     /LINK SHOULD EQUAL ZERO
1718 /-----
1719 /RAL TEST 4
1720 /-----
2156 7200 1721          CLA
2157 7100 1722          CLL
2160 7020 1723          CML
2161 1110 1724          TAD K7777          /ROTATE PATTERN
2162 7004 1725          RAL
2163 7040 1726          CMA
2164 7440 1727          SZA
2165 7402 1728          HLT
                                     /RAL FAILED
                                     /AC SHOULD EQUAL 0000
1729                                     /LINK SHOULD EQUAL ONE
1730 /-----
1731 /-----
1732 /RAL TEST 5
1733 /-----
2166 7200 1734          CLA
2167 7100 1735          CLL
2170 1055 1736          TAD K2000          /ROTATE PATTERN
2171 7004 1737          RAL
2172 1060 1738          TAD K3777
2173 7040 1739          CMA
2174 7450 1740          SNA
2175 7430 1741          SZL
2176 7402 1742          HLT
                                     /RAL FAILED
                                     /AC SHOULD EQUAL 0000
1743                                     /LINK SHOULD EQUAL ONE
1744 /-----
1745 /-----
1746 /RAL TEST 6
1747 /-----
2177 7200 1748          CLA
2200 7100 1749          CLL
2201 1051 1750          TAD K1000          /ROTATE PATTERN
2202 7004 1751          RAL
2203 1063 1752          TAD K5777
2204 7040 1753          CMA
2205 7440 1754          SZA
2206 7402 1755          HLT
                                     /RAL FAILED
                                     /AC SHOULD EQUAL 0000
1756                                     /LINK SHOULD EQUAL ZERO
1757 /-----
1758 /-----
1759 /RAL TEST 7
1760 /-----
2207 7200 1761          CLA
2210 7100 1762          CLL
2211 1046 1763          TAD K0400          /ROTATE PATTERN
2212 7004 1764          RAL
2213 1065 1765          TAD K6777
2214 7040 1766          CMA
2215 7450 1767          SNA
2216 7430 1768          SZL

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2217 7402 1769      HLT          /RAL FAILED
                1770          /AC SHOULD EQUAL 0000
                1771          /LINK SHOULD EQUAL ZERO
                1772 /-----
                1773 /RAL TEST 8
                1774 /-----
2220 7200 1775      CLA
2221 7100 1776      CLL
2222 1043 1777      TAD K0200    /ROTATE PATTERN
2223 7004 1778      RAL
2224 1067 1779      TAD K7377
2225 7040 1780      CMA
2226 7450 1781      SNA
2227 7430 1782      SZL
2230 7402 1783      HLT          /RAL FAILED
                1784          /AC SHOULD EQUAL 0000
                1785          /LINK SHOULD EQUAL ZERO
                1786 /-----
                1787 /RAL TEST 9
                1788 /-----
2231 7200 1789      CLA
2232 7100 1790      CLL
2233 1040 1791      TAD K0100    /ROTATE PATTERN
2234 7004 1792      RAL
2235 1071 1793      TAD K7577
2236 7040 1794      CMA
2237 7450 1795      SNA
2240 7430 1796      SZL
2241 7402 1797      HLT          /RAL FAILED
                1798          /AC SHOULD EQUAL 0000
                1799          /LINK SHOULD EQUAL ZERO
                1800 /-----
                1801 /RAL TEST 10
                1802 /-----
2242 7200 1803      CLA
2243 7100 1804      CLL
2244 1035 1805      TAD K0040    /ROTATE PATTERN
2245 7004 1806      RAL
2246 1073 1807      TAD K7677
2247 7040 1808      CMA
2250 7450 1809      SNA
2251 7430 1810      SZL
2252 7402 1811      HLT          /RAL FAILED
                1812          /AC SHOULD EQUAL 0000
                1813          /LINK SHOULD EQUAL ZERO
                1814 /-----
                1815 /RAL TEST 11
                1816 /-----
2253 7200 1817      CLA
2254 7100 1818      CLL
2255 1032 1819      TAD K0020    /ROTATE PATTERN
2256 7004 1820      RAL

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2357	1020	1925	TAD K0000	/ROTATE PATTERN
2360	7006	1926	RTL	
2361	7430	1927	SZL	
2362	7402	1928	HLT	/RTL FAILED
		1929		/AC SHOULD EQUAL 0000
		1930		/LINK SHOULD EQUAL ZERO
		1931	/-----	
		1932	/RTL TEST 4	
		1933	/-----	
2363	7200	1934	CLA	
2364	7100	1935	CLL	
2365	7020	1936	CML	
2366	1020	1937	TAD K0000	/ROTATE PATTERN
2367	7006	1938	RTL	
2370	7430	1939	SZL	
2371	7402	1940	HLT	/RTL FAILED
		1941		/AC SHOULD EQUAL 0000
		1942		/LINK SHOULD EQUAL ZERO
		1943	/-----	
		1944	/RTL TEST 5	
		1945	/-----	
2372	7200	1946	CLA	
2373	7100	1947	CLL	
2374	7020	1948	CML	
2375	1110	1949	TAD K7777	/ROTATE PATTERN
2376	7006	1950	RTL	
2377	7040	1951	CMA	
2400	7440	1952	SZA	
2401	7402	1953	HLT	/RTL FAILED
		1954		/AC SHOULD EQUAL 7777
		1955		/LINK SHOULD EQUAL ONE
		1956	/-----	
		1957	/RTL TEST 6	
		1958	/-----	
2402	7200	1959	CLA	
2403	7100	1960	CLL	
2404	1061	1961	TAD K4000	/ROTATE PATTERN
2405	7006	1962	RTL	
2406	1107	1963	TAD K7776	
2407	7040	1964	CMA	
2410	7450	1965	SNA	
2411	7430	1966	SZL	
2412	7402	1967	HLT	/RTL FAILED
		1968		/AC SHOULD EQUAL 0000
		1969		/LINK SHOULD EQUAL ZERO
		1970	/-----	
		1971	/RTL TEST 7	
		1972	/-----	
2413	7200	1973	CLA	
2414	7100	1974	CLL	
2415	1055	1975	TAD K2000	/ROTATE PATTERN
2416	7006	1976	RTL	

2417	7450	1977	SNA	
2420	7420	1978	SNL	
2421	7402	1979	HLT	/RTL FAILED
		1980		/AC SHOULD EQUAL 0000
		1981		/LINK SHOULD EQUAL ZERO
		1982	/-----	
		1983	/RTL TEST 8	
		1984	/-----	
2422	7200	1985	CLA	
2423	7100	1986	CLL	
2424	1051	1987	TAD K1000	/ROTATE PATTERN
2425	7006	1988	RTL	
2426	1060	1989	TAD K3777	
2427	7040	1990	CMA	
2430	7450	1991	SNA	
2431	7430	1992	SZL	
2432	7402	1993	HLT	/RTL FAILED
		1994		/AC SHOULD EQUAL 0000
		1995		/LINK SHOULD EQUAL ZERO
		1996	/-----	
		1997	/RTL TEST 9	
		1998	/-----	
2433	7200	1999	CLA	
2434	7100	2000	CLL	
2435	1046	2001	TAD K0400	/ROTATE PATTERN
2436	7006	2002	RTL	
2437	1063	2003	TAD K5777	
2440	7040	2004	CMA	
2441	7450	2005	SNA	
2442	7430	2006	SZL	
2443	7402	2007	HLT	/RTL FAILED
		2008		/AC SHOULD EQUAL 0000
		2009		/LINK SHOULD EQUAL ZERO
		2010	/-----	
		2011	/RTL TEST 10	
		2012	/-----	
2444	7200	2013	CLA	
2445	7100	2014	CLL	
2446	1043	2015	TAD K0200	/ROTATE PATTERN
2447	7006	2016	RTL	
2450	1065	2017	TAD K6777	
2451	7040	2018	CMA	
2452	7450	2019	SNA	
2453	7430	2020	SZL	
2454	7402	2021	HLT	/RTL FAILED
		2022		/AC SHOULD EQUAL 0000
		2023		/LINK SHOULD EQUAL ZERO
		2024	/-----	
		2025	/RTL TEST 11	
		2026	/-----	
2455	7200	2027	CLA	
2456	7100	2028	CLL	

2457	1040	2029	TAD K0100	/ROTATE PATTERN
2460	7006	2030	RTL	
2461	1067	2031	TAD K7377	
2462	7040	2032	CMA	
2463	7450	2033	SNA	
2464	7430	2034	SZL	
2465	7402	2035	HLT	/RTL FAILED
		2036		/AC SHOULD EQUAL 0000
		2037		/LINK SHOULD EQUAL ZERO
		2038	/-----	
		2039	/RTL TEST 12	
		2040	/-----	
2466	7200	2041	CLA	
2467	7100	2042	CLL	
2470	1035	2043	TAD K0040	/ROTATE PATTERN
2471	7006	2044	RTL	
2472	1071	2045	TAD K7577	
2473	7040	2046	CMA	
2474	7450	2047	SNA	
2475	7430	2048	SZL	
2476	7402	2049	HLT	/RTL FAILED
		2050		/AC SHOULD EQUAL 0000
		2051		/LINK SHOULD EQUAL ZERO
		2052	/-----	
		2053	/RTL TEST 13	
		2054	/-----	
2477	7200	2055	CLA	
2500	7100	2056	CLL	
2501	1032	2057	TAD K0020	/ROTATE PATTERN
2502	7006	2058	RTL	
2503	1073	2059	TAD K7677	
2504	7040	2060	CMA	
2505	7450	2061	SNA	
2506	7430	2062	SZL	
2507	7402	2063	HLT	/RTL FAILED
		2064		/AC SHOULD EQUAL 0000
		2065		/LINK SHOULD EQUAL ZERO
		2066	/-----	
		2067	/RTL TEST 14	
		2068	/-----	
2510	7200	2069	CLA	
2511	7100	2070	CLL	
2512	1027	2071	TAD K0010	/ROTATE PATTERN
2513	7006	2072	RTL	
2514	1076	2073	TAD K7737	
2515	7040	2074	CMA	
2516	7450	2075	SNA	
2517	7430	2076	SZL	
2520	7402	2077	HLT	/RTL FAILED
		2078		/AC SHOULD EQUAL 0000
		2079		/LINK SHOULD EQUAL ZERO
		2080	/-----	

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2081 /RTL TEST 15
2082 /-----
2521 7200 2083          CLA
2522 7100 2084          CLL
2523 1024 2085          TAD K0004          /ROTATE PATTERN
2524 7006 2086          RTL
2525 1100 2087          TAD K7757
2526 7040 2088          CMA
2527 7450 2089          SNA
2530 7430 2090          SZL
2531 7402 2091          HLT
2092                                /RTL FAILED
2093                                /AC SHOULD EQUAL 0000
2094                                /LINK SHOULD EQUAL ZERO
2094 /-----
2095 /RTL TEST 16
2096 /-----
2532 7200 2097          CLA
2533 7100 2098          CLL
2534 1022 2099          TAD K0002          /ROTATE PATTERN
2535 7006 2100          RTL
2536 1102 2101          TAD K7767
2537 7040 2102          CMA
2540 7450 2103          SNA
2541 7430 2104          SZL
2542 7402 2105          HLT
2106                                /RTL FAILED
2107                                /AC SHOULD EQUAL 0000
2108                                /LINK SHOULD EQUAL ZERO
2108 /-----
2109 /RTL TEST 17
2110 /-----
2543 7200 2111          CLA
2544 7100 2112          CLL
2545 1021 2113          TAD K0001          /ROTATE PATTERN
2546 7006 2114          RTL
2547 1104 2115          TAD K7773
2550 7040 2116          CMA
2551 7450 2117          SNA
2552 7430 2118          SZL
2553 7402 2119          HLT
2120                                /RTL FAILED
2121                                /AC SHOULD EQUAL 0000
2122                                /LINK SHOULD EQUAL ZERO
2122 /-----
2123 /RTL TEST 18
2124 /-----
2554 7200 2125          CLA
2555 7100 2126          CLL
2556 7020 2127          CML
2557 7006 2128          RTL
2560 1106 2129          TAD K7775
2561 7040 2130          CMA
2562 7450 2131          SNA
2563 7430 2132          SZL
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2564	7402	2133	HLT	/RTL FAILED
		2134		/AC SHOULD EQUAL 0000
		2135		/LINK SHOULD EQUAL ZERO
		2136	/-----	
		2137	/GROUP 1 OPERATE TEST 1	
		2138	/-----	
2565	7200	2139	CLA	/CLEAR AC
2566	7100	2140	CLL	/CLEAR LINK
2567	7040	2141	CMA	/AC EQUALS 7777
2570	7020	2142	CML	/LINK EQUALS ONE
2571	7300	2143	CLA CLL	/TEST COMBINATION
2572	7420	2144	SNL	
2573	7440	2145	SZA	
2574	7402	2146	HLT	/CLA CLL FAILED
		2147		/AC SHOULD EQUAL 0000
		2148		/LINK SHOULD EQUAL ZERO
		2149	/-----	
		2150	/GROUP 1 OPERATE TEST 2	
		2151	/-----	
2575	7200	2152	CLA	/AC EQUALS 0000
2576	1056	2153	TAD K2525	/AC EQUALS 2525
2577	7240	2154	CLA CMA	/TEST COMBINATION
2600	7040	2155	CMA	
2601	7440	2156	SZA	
2602	7402	2157	HLT	/CLA CMA FAILED
		2158		/AC SHOULD EQUAL 0000
		2159	/-----	
		2160	/GROUP 1 OPERATE TEST 3	
		2161	/-----	
2603	7200	2162	CLA	
2604	7100	2163	CLL	
2605	7040	2164	CMA	/AC EQUALS 7777
		2165		/LINK EQUALS ONE
2606	7140	2166	CLL CMA	/TEST COMBINATION
2607	7420	2167	SNL	
2610	7440	2168	SZA	
2611	7402	2169	HLT	/CLL CMA FAILED
		2170		/AC SHOULD EQUAL 0000
		2171		/LINK SHOULD EQUAL ZERO
		2172	/-----	
		2173	/GROUP 1 OPERATE TEST 4	
		2174	/-----	
2612	7100	2175	CLL	
2613	7020	2176	CML	/LINK EQUALS ONE
2614	7200	2177	CLA	
2615	7040	2178	CMA	/AC EQUALS 7777
2616	7340	2179	CLA CMA CLL	/TEST COMBINATION
2617	7040	2180	CMA	
2620	7420	2181	SNL	
2621	7440	2182	SZA	
2622	7402	2183	HLT	/CLA CMA CLL FAILED
		2184		/AC SHOULD EQUAL 0000

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2185                                     /LINK SHOULD EQUAL ZERO
2186 /-----
2187 /GROUP 1 OPERATE TEST 5
2188 /-----
2623 7200 2189          CLA
2624 7100 2190          CLL          /LINK EQUALS ZERO
2625 7040 2191          CMA          /AC EQUALS 7777
2626 7220 2192          CLA CML      /TEST COMBINATION
2627 7430 2193          SZL
2630 7440 2194          SZA
2631 7402 2195          HLT          /CLA CML FAILED
2196          /AC SHOULD EQUAL 0000
2197          /LINK SHOULD EQUAL ONE
2198 /-----
2199 /GROUP 1 OPERATE TEST 6
2200 /-----
2632 7100 2201          CLL
2633 7020 2202          CML          /LINK EQUALS ONE
2634 7120 2203          CLL CML      /TEST COMBINATION
2635 7420 2204          SNL
2636 7402 2205          HLT          /CLL CML FAILED
2206          /LINK SHOULD EQUAL ONE
2207 /-----
2208 /GROUP 1 OPERATE TEST 7
2209 /-----
2637 7020 2210          CML          /LINK EQUALS ZERO
2640 7120 2211          CLL CML      /TEST COMBINATION
2641 7420 2212          SNL
2642 7402 2213          HLT          /CLL CML FAILED
2214          /LINK SHOULD EQUAL ONE
2215 /-----
2216 /GROUP 1 OPERATE TEST 8
2217 /-----
2643 7120 2218          CLL CML      /LINK EQUALS ONE
2644 7240 2219          CLA CMA          /AC EQUALS 7777
2645 7320 2220          CLA CLL CML      /TEST COMBINATION
2646 7430 2221          SZL
2647 7440 2222          SZA
2650 7402 2223          HLT          /CLA CLL CML FAILED
2224          /AC SHOULD EQUAL 0000
2225          /LINK SHOULD EQUAL ONE
2226 /-----
2227 /GROUP 1 OPERATE TEST 9
2228 /-----
2651 7340 2229          CLA CLL CMA          /AC EQUALS 7777
2230          /LINK EQUALS ZERO
2652 7320 2231          CLA CLL CML      /TEST COMBINATION
2653 7430 2232          SZL
2654 7440 2233          SZA
2655 7402 2234          HLT          /CLA CLL CML FAILED
2235          /AC SHOULD EQUAL 0000
2236          /LINK SHOULD EQUAL ONE

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2341 /GROUP 1 OPERATE TEST 18
2342 /-----
2745 7320 2343      CLA CLL CML      /AC EQUALS 2525
2746 1056 2344      TAD K2525        /LINK EQUALS ONE
                2345                        /TEST COMBINATION
2747 7301 2346      CLA CLL IAC      /AC EQUALS 2525
2750 1107 2347      TAD K7776        /LINK EQUALS ONE
2751 7040 2348      CMA              /TEST COMBINATION
2752 7420 2349      SNL
2753 7440 2350      SZA
2754 7402 2351      HLT              /CLA CLL IAC FAILED
                2352                        /AC SHOULD EQUAL 0000
                2353                        /LINK SHOULD EQUAL ZERO
2354 /-----
2355 /GROUP 1 OPERATE TEST 19
2356 /-----
2755 7300 2357      CLA CLL          /AC EQUALS 0000
                2358                        /LINK EQUALS ZERO
2756 7041 2359      CMA IAC         /TEST COMBINATION
2757 7430 2360      SZL
2760 7440 2361      SZA
2761 7402 2362      HLT            /CMA IAC FAILED
                2363                        /AC SHOULD EQUAL 0000
                2364                        /LINK SHOULD EQUAL ONE
2365 /-----
2366 /GROUP 1 OPERATE TEST 20
2367 /-----
2762 7300 2368      CLA CLL          /AC EQUALS 2525
2763 1056 2369      TAD K2525        /LINK EQUALS ZERO
                2370                        /TEST COMBINATION
2764 7241 2371      CLA CMA IAC     /AC EQUALS 2525
2765 7430 2372      SZL              /LINK EQUALS ONE
2766 7440 2373      SZA              /TEST COMBINATION
2767 7402 2374      HLT            /CLA CMA IAC FAILED
                2375                        /AC SHOULD EQUAL 0000
                2376                        /LINK SHOULD EQUAL ONE
2377 /-----
2378 /GROUP 1 OPERATE TEST 21
2379 /-----
2770 7320 2380      CLL CLA CML     /AC EQUALS 0000
                2381                        /LINK EQUALS ONE
2771 1021 2382      TAD K0001        /AC EQUALS 0001
2772 7141 2383      CLL CMA IAC     /TEST COMBINATION
2773 7040 2384      CMA
2774 7420 2385      SNL
2775 7440 2386      SZA
2776 7100 2387      CLL            /CLA CMA IAC FAILED
                2388                        /AC SHOULD EQUAL 0000
                2389                        /LINK SHOULD EQUAL ZERO
2390 /-----
2391 /GROUP 1 OPERATE TEST 22
2392 /-----

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2777	7320	2393	CLA CLL CML	
3000	1056	2394	TAD K2525	/AC EQUALS 2525
		2395		/LINK EQUALS ONE
3001	7341	2396	CLA CLL CMA IAC	
		2397		/TEST COMBINATION
3002	7430	2398	SZL	
3003	7440	2399	SZA	
3004	7402	2400	HLT	/CLA CLL CMA IAC FAILED
		2401		/AC SHOULD EQUAL 0000
		2402		/LINK SHOULD EQUAL ONE
		2403	/-----	
		2404	/GROUP 1 OPERATE TEST 23	
		2405	/-----	
3005	7300	2406	CLA CLL	
3006	1062	2407	TAD K5252	/AC EQUALS 5252
		2408		/LINK EQUALS ZERO
3007	7341	2409	CLA CLL CMA IAC	
		2410		/TEST COMBINATION
3010	7430	2411	SZL	
3011	7440	2412	SZA	
3012	7402	2413	HLT	/CLA CLL CMA IAC FAILED
		2414		/AC SHOULD EQUAL 0000
		2415		/LINK SHOULD EQUAL ONE
		2416	/-----	
		2417	/GROUP 1 OPERATE TEST 24	
		2418	/-----	
3013	7300	2419	CLA CLL	
3014	1107	2420	TAD K7776	/AC EQUALS 7776
		2421		/LINK EQUALS ZERO
3015	7021	2422	CML IAC	/TEST COMBINATION
3016	7040	2423	CMA	
3017	7430	2424	SZL	
3020	7440	2425	SZA	
3021	7402	2426	HLT	/CML IAC FAILED
		2427		/AC SHOULD EQUAL 0000
		2428		/LINK SHOULD EQUAL ONE
		2429	/-----	
		2430	/GROUP 1 OPERATE TEST 25	
		2431	/-----	
3022	7320	2432	CLA CLL CML	
3023	1107	2433	TAD K7776	/AC EQUALS 7776
		2434		/LINK EQUALS ONE
3024	7021	2435	CML IAC	/TEST COMBINATION
3025	7040	2436	CMA	
3026	7420	2437	SNL	
3027	7440	2438	SZA	
3030	7402	2439	HLT	/CML IAC FAILED
		2440		/AC SHOULD EQUAL 0000
		2441		/LINK SHOULD EQUAL ZERO
		2442	/-----	
		2443	/GROUP 1 OPERATE TEST 26	
		2444	/-----	

3031	7300	2445	CLA CLL	
3032	1056	2446	TAD K2525	/AC EQUALS 2525
		2447		/LINK EQUALS ZERO
3033	7221	2448	CLA CML IAC	/TEST COMBINATION
3034	1107	2449	TAD K7776	
3035	7040	2450	CMA	
3036	7430	2451	SZL	
3037	7440	2452	SZA	
3040	7402	2453	HLT	/CLA CML IAC FAILED
		2454		/AC SHOULD EQUAL 0000
		2455		/LINK SHOULD EQUAL ONE
		2456	/-----	
		2457	/GROUP 1 OPERATE TEST 27	
		2458	/-----	
3041	7320	2459	CLA CLL CML	/AC EQUALS 0000
		2460		/LINK EQUALS ONE
3042	1107	2461	TAD K7776	/AC EQUALS 7776
3043	7121	2462	CLL CML IAC	/TEST COMBINATION
3044	7040	2463	CMA	
3045	7430	2464	SZL	
3046	7440	2465	SZA	
3047	7402	2466	HLT	/CLL CML IAC FAILED
		2467		/AC SHOULD EQUAL 0000
		2468		/LINK SHOULD EQUAL ONE
		2469	/-----	
		2470	/GROUP 1 OPERATE TEST 28	
		2471	/-----	
3050	7300	2472	CLA CLL	
3051	1107	2473	TAD K7776	/AC EQUALS 7776
		2474		/LINK EQUALS ZERO
3052	7121	2475	CLL CML IAC	/TEST COMBINATION
3053	7040	2476	CMA	
3054	7430	2477	SZL	
3055	7440	2478	SZA	
3056	7402	2479	HLT	/CLL CML IAC FAILED
		2480		/AC SHOULD EQUAL 0000
		2481		/LINK SHOULD EQUAL ONE
		2482	/-----	
		2483	/GROUP 1 OPERATE TEST 29	
		2484	/-----	
3057	7300	2485	CLA CLL	
3060	1056	2486	TAD K2525	/AC EQUALS 2525
		2487		/LINK EQUALS ZERO
3061	7321	2488	CLA CLL CML IAC	/TEST COMBINATION
		2489		
3062	1107	2490	TAD K7776	
3063	7040	2491	CMA	
3064	7430	2492	SZL	
3065	7440	2493	SZA	
3066	7402	2494	HLT	/CLA CLL CML IAC FAILED
		2495		/AC SHOULD EQUAL 0000
		2496		/LINK SHOULD EQUAL ONE


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2549 /AC SHOULD EQUAL 0000
2550 /LINK SHOULD EQUAL ZERO
2551 /-----
2552 /GROUP 1 OPERATE TEST 34
2553 /-----
3123 7320 2554 CLA CLL CML
3124 1056 2555 TAD K2525 /AC EQUALS 2525
2556 /LINK EQUALS ONE
3125 7261 2557 CLA CMA CML IAC
2558 /TEST COMBINATION
3126 7430 2559 SZL
3127 7440 2560 SZA
3130 7402 2561 HLT /CLA CMA CML IAC FAILED
2562 /AC SHOULD EQUAL 0000
2563 /LINK SHOULD EQUAL ONE
2564 /-----
2565 /GROUP 1 OPERATE TEST 35
2566 /-----
3131 7300 2567 CLA CLL
3132 1021 2568 TAD K0001 /AC EQUALS 0001
2569 /LINK EQUALS ZERO
3133 7161 2570 CLL CMA CML IAC
2571 /TEST COMBINATION
3134 7040 2572 CMA
3135 7430 2573 SZL
3136 7440 2574 SZA
3137 7402 2575 HLT /CLL CMA CML IAC FAILED
2576 /AC SHOULD EQUAL 0000
2577 /LINK SHOULD EQUAL ONE
2578 /-----
2579 /GROUP 1 OPERATE TEST 36
2580 /-----
3140 7320 2581 CLA CLL CML
3141 1021 2582 TAD K0001 /AC EQUALS 0001
2583 /LINK EQUALS ONE
3142 7161 2584 CLL CMA CML IAC
2585 /TEST COMBINATION
3143 7040 2586 CMA
3144 7430 2587 SZL
3145 7440 2588 SZA
3146 7402 2589 HLT /CLL CMA CML IAC FAILED
2590 /AC SHOULD EQUAL 0000
2591 /LINK SHOULD EQUAL ONE
2592 /-----
2593 /GROUP 1 OPERATE TEST 37
2594 /-----
3147 7300 2595 CLA CLL
3150 1056 2596 TAD K2525 /AC EQUALS 2525
2597 /LINK EQUALS ZERO
3151 7361 2598 CLA CLL CMA CML IAC
2599 /TEST COMBINATION
3152 7420 2600 SNL

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3153	7440	2601	SZA	
3154	7402	2602	HLT	/CLA CLL CMA CML IAC FAILED
		2603		/AC SHOULD EQUAL 0000
		2604		/LINK SHOULD EQUAL ZERO
		2605	/	-----
		2606	/GROUP 1 OPERATE TEST 38	
		2607	/	-----
3155	7360	2608	CLA CMA CLL CML	
		2609		/AC EQUALS 7777
		2610		/LINK EQUALS ONE
3156	7210	2611	CLA RAR	/TEST COMBINATION
3157	1060	2612	TAD K3777	
3160	7040	2613	CMA	
3161	7420	2614	SNL	
3162	7440	2615	SZA	
3163	7402	2616	HLT	/CLA RAR FAILED
		2617		/AC SHOULD EQUAL 0000
		2618		/LINK SHOULD EQUAL ZERO
		2619	/	-----
		2620	/GROUP 1 OPERATE TEST 39	
		2621	/	-----
3164	7360	2622	CLA CMA CLL CML	
		2623		/AC EQUALS 7777
		2624		/LINK EQUALS ONE
3165	7204	2625	CLA RAL	/TEST COMBINATION
3166	1107	2626	TAD K7776	
3167	7040	2627	CMA	
3170	7420	2628	SNL	
3171	7440	2629	SZA	
3172	7402	2630	HLT	/CLA RAL FAILED
		2631		/AC SHOULD EQUAL 0000
		2632		/LINK SHOULD EQUAL ZERO
		2633	/	-----
		2634	/GROUP 1 OPERATE TEST 40	
		2635	/	-----
3173	7360	2636	CLA CMA CLL CML	
		2637		/AC EQUALS 7777
		2638		/LINK EQUALS ONE
3174	7212	2639	CLA RTR	/TEST COMBINATION
3175	1063	2640	TAD K5777	
3176	7040	2641	CMA	
3177	7420	2642	SNL	
3200	7440	2643	SZA	
3201	7402	2644	HLT	/CLA RTR FAILED
		2645		/AC SHOULD EQUAL 0000
		2646		/LINK SHOULD EQUAL ZERO
		2647	/	-----
		2648	/GROUP 1 OPERATE TEST 41	
		2649	/	-----
3202	7360	2650	CLA CMA CLL CML	
		2651		/AC EQUALS 7777
		2652		/LINK EQUALS ONE

3203	7206	2653	CLA RTL	/TEST COMBINATION
3204	1106	2654	TAD K7775	
3205	7040	2655	CMA	
3206	7420	2656	SNL	
3207	7440	2657	SZA	
3210	7402	2658	HLT	/CLA RTL FAILED
		2659		/AC SHOULD EQUAL 0000
		2660		/LINK SHOULD EQUAL ZERO
		2661	/-----	
		2662	/GROUP 1 OPERATE TEST 42	
		2663	/-----	
3211	7320	2664	CLA CLL CML	
3212	1035	2665	TAD K0040	/AC EQUALS 0040
		2666		/LINK EQUALS ONE
3213	7110	2667	CLL RAR	/TEST COMBINATION
3214	1100	2668	TAD K7757	
3215	7040	2669	CMA	
3216	7420	2670	SNL	
3217	7440	2671	SZA	
3220	7402	2672	HLT	/CLL RAR FAILED
		2673		/AC SHOULD EQUAL 0000
		2674		/LINK SHOULD EQUAL ZERO
		2675	/-----	
		2676	/GROUP 1 OPERATE TEST 43	
		2677	/-----	
3221	7320	2678	CLA CLL CML	
		2679		/LINK EQUALS ONE
3222	1035	2680	TAD K0040	/AC EQUALS 0040
3223	7104	2681	CLL RAL	/TEST COMBINATION
3224	1073	2682	TAD K7677	
3225	7040	2683	CMA	
3226	7420	2684	SNL	
3227	7440	2685	SZA	
3230	7402	2686	HLT	/CLL RAL FAILED
		2687		/AC SHOULD EQUAL 0000
		2688		/LINK SHOULD EQUAL ZERO
		2689	/-----	
		2690	/GROUP 1 OPERATE TEST 44	
		2691	/-----	
3231	7320	2692	CLA CLL CML	
3232	1035	2693	TAD K0040	/AC EQUALS 0040
		2694		/LINK EQUALS ONE
3233	7112	2695	CLL RTR	/TEST COMBINATION
3234	1102	2696	TAD K7767	
3235	7040	2697	CMA	
3236	7420	2698	SNL	
3237	7440	2699	SZA	
3240	7402	2700	HLT	/CLL RTR FAILED
		2701		/AC SHOULD EQUAL 0000
		2702		/LINK SHOULD EQUAL ZERO
		2703	/-----	
		2704	/GROUP 1 OPERATE TEST 45	

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2705 /-----
3241 7320 2706          CLA CLL CML
3242 1035 2707          TAD K0040          /AC EQUALS 0040
2708                    /LINK EQUALS ONE
3243 7106 2709          CLL RTL          /TEST COMBINATION
3244 1071 2710          TAD K7577
3245 7040 2711          CMA
3246 7420 2712          SNL
3247 7440 2713          SZA
3250 7402 2714          HLT          /CLL RTL FAILED
2715                    /AC SHOULD EQUAL 0000
2716                    /LINK SHOULD EQUAL ZERO
2717 /-----
2718 /GROUP 1 OPERATE TEST 46
2719 /-----
3251 7360 2720          CLA CMA CLL CML
2721                    /AC EQUALS 7777
2722                    /LINK EQUALS ONE
3252 7310 2723          CLL CLA RAR          /TEST COMBINATION
3253 7420 2724          SNL
3254 7440 2725          SZA
3255 7402 2726          HLT          /CLL CLA RAR FAILED
2727                    /AC SHOULD EQUAL 0000
2728                    /LINK SHOULD EQUAL ZERO
2729 /-----
2730 /GROUP 1 OPERATE TEST 47
2731 /-----
3256 7360 2732          CLA CMA CLL CML
2733                    /AC EQUALS 7777
2734                    /LINK EQUALS ONE
3257 7304 2735          CLL CLA RAL          /TEST COMBINATION
3260 7420 2736          SNL
3261 7430 2737          SZL
3262 7402 2738          HLT          /CLL CLA RAL FAILED
2739                    /AC SHOULD EQUAL 0000
2740                    /LINK SHOULD EQUAL ZERO
2741 /-----
2742 /GROUP 1 OPERATE TEST 48
2743 /-----
3263 7360 2744          CLA CMA CLL CML
2745                    /AC EQUALS 7777
2746                    /LINK EQUALS ONE
3264 7312 2747          CLA CLL RTR          /TEST COMBINATION
3265 7420 2748          SNL
3266 7440 2749          SZA
3267 7402 2750          HLT          /CLA CLL RTR FAILED
2751                    /AC SHOULD EQUAL 0000
2752                    /LINK SHOULD EQUAL ZERO
2753 /-----
2754 /GROUP 1 OPERATE TEST 49
2755 /-----
3270 7360 2756          CLA CMA CLL CML

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		2757		/AC EQUALS 7777
		2758		/LINK EQUALS ONE
3271	7306	2759	CLA CLL RTL	/TEST COMBINATION
3272	7420	2760	SNL	
3273	7440	2761	SZA	
3274	7402	2762	HLT	/CLA CLL RTL FAILED
		2763		/AC SHOULD EQUAL 0000
		2764		/LINK SHOULD EQUAL ZERO
		2765	/-----	
		2766	/GROUP 1 OPERATE TEST 50	
		2767	/-----	
3275	7300	2768	CLA CLL	/AC EQUALS 0000
		2769		/LINK EQUALS ZERO
3276	7030	2770	CML RAR	/TEST COMBINATION
3277	1060	2771	TAD K3777	
3300	7040	2772	CMA	
3301	7420	2773	SNL	
3302	7440	2774	SZA	
3303	7402	2775	HLT	/CML RAR FAILED
		2776		/AC SHOULD EQUAL 0000
		2777		/LINK SHOULD EQUAL ZERO
		2778	/-----	
		2779	/GROUP 1 OPERATE TEST 51	
		2780	/-----	
3304	7300	2781	CLA CLL	/AC EQUALS 0000
		2782		/LINK EQUALS ZERO
3305	7024	2783	CML RAL	/TEST COMBINATION
3306	1107	2784	TAD K7776	
3307	7040	2785	CMA	
3310	7420	2786	SNL	
3311	7440	2787	SZA	
3312	7402	2788	HLT	/CML RAL FAILED
		2789		/AC SHOULD EQUAL 0000
		2790		/LINK SHOULD EQUAL ZERO
		2791	/-----	
		2792	/GROUP 1 OPERATE TEST 52	
		2793	/-----	
3313	7300	2794	CLA CLL	/AC EQUALS 0000
		2795		/LINK EQUALS ZERO
3314	7032	2796	CML RTR	/TEST COMBINATION
3315	1063	2797	TAD K5777	
3316	7040	2798	CMA	
3317	7420	2799	SNL	
3320	7440	2800	SZA	
3321	7402	2801	HLT	/CML RTR FAILED
		2802		/AC SHOULD EQUAL 0000
		2803		/LINK SHOULD EQUAL ZERO
		2804	/-----	
		2805	/GROUP 1 OPERATE TEST 53	
		2806	/-----	
3322	7300	2807	CLA CLL	/AC EQUALS 0000
		2808		/LINK EQUALS ZERO

3323	7026	2809	CML RTL	/TEST COMBINATION
3324	1106	2810	TAD K7775	
3325	7040	2811	CMA	
3326	7420	2812	SNL	
3327	7440	2813	SZA	
3330	74C2	2814	HLT	/CML RTL FAILED
		2815		/AC SHOULD EQUAL 0000
		2816		/LINK SHOULD EQUAL ZERO
		2817	/-----	
		2818	/GROUP 1 OPERATE TEST 54	
		2819	/-----	
3331	7300	2820	CLA CLL	
3332	1062	2821	TAD K5252	/AC EQUALS 5252
		2822		/LINK EQUALS ZERO
3333	7230	2823	CLA CML RAR	/TEST COMBINATION
3334	1060	2824	TAD K3777	
3335	7040	2825	CMA	
3336	7420	2826	SNL	
3337	7440	2827	SZA	
3340	74C2	2828	HLT	/CLA CML RAR FAILED
		2829		/AC SHOULD EQUAL 0000
		2830		/LINK SHOULD EQUAL ZERO
		2831	/-----	
		2832	/GROUP 1 OPERATE TEST 55	
		2833	/-----	
3341	7300	2834	CLA CLL	
3342	1062	2835	TAD K5252	/AC EQUALS 5252
		2836		/LINK EQUALS ZERO
3343	7224	2837	CLA CML RAL	/TEST COMBINATION
3344	11C7	2838	TAD K7776	
3345	7040	2839	CMA	
3346	7420	2840	SNL	
3347	7440	2841	SZA	
3350	7402	2842	HLT	/CLA CML RAL FAILED
		2843		/AC SHOULD EQUAL 0000
		2844		/LINK SHOULD EQUAL ZERO
		2845	/-----	
		2846	/GROUP 1 OPERATE TEST 56	
		2847	/-----	
3351	7300	2848	CLA CLL	
3352	1062	2849	TAD K5252	/AC EQUALS 5252
		2850		/LINK EQUALS ZERO
3353	7232	2851	CLA CML RTR	/TEST COMBINATION
3354	1063	2852	TAD K5777	
3355	7040	2853	CMA	
3356	7420	2854	SNL	
3357	7440	2855	SZA	
3360	7402	2856	HLT	/CLA CML RTR FAILED
		2857		/AC SHOULD EQUAL 0000
		2858		/LINK SHOULD EQUAL ZERO
		2859	/-----	
		2860	/GROUP 1 OPERATE TEST 57	

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2861 /-----
3361 7300 2862      CLA CLL
3362 1062 2863      TAD K5252      /AC EQUALS 5252
2864      /LINK EQUALS ZERO
3363 7226 2865      CLA CML RTL      /TEST COMBINATION
3364 1106 2866      TAD K7775
3365 7040 2867      CMA
3366 7420 2868      SNL
3367 7440 2869      SZA
3370 7402 2870      HLT      /CLA CML RTL FAILED
2871      /AC SHOULD EQUAL 0000
2872      /LINK SHOULD EQUAL ZERO
2873 /-----
2874 /GROUP 1 OPERATE TEST 58
2875 /-----
3371 7300 2876      CLA CLL      /AC EQUALS 0000
2877      /LINK EQUALS ZERO
3372 7230 2878      CLA CML RAR      /TEST COMBINATION
3373 7004 2879      RAL
3374 7430 2880      SZL
3375 7440 2881      SZA
3376 7402 2882      HLT      /CLA CML RAR FAILED
2883      /AC SHOULD EQUAL 0000
2884      /LINK SHOULD EQUAL ONE
2885 /-----
2886 /GROUP 1 OPERATE TEST 59
2887 /-----
3377 7320 2888      CLA CLL CML      /AC EQUALS 0000
2889      /LINK EQUALS ONE
3400 7130 2890      CLL CML RAR      /TEST COMBINATION
3401 7004 2891      RAL
3402 7430 2892      SZL
3403 7440 2893      SZA
3404 7402 2894      HLT      /CLL CML RAR FAILED
2895      /AC SHOULD EQUAL 0000
2896      /LINK SHOULD EQUAL ONE
2897 /-----
2898 /GROUP 1 OPERATE TEST 60
2899 /-----
3405 7300 2900      CLA CLL      /AC EQUALS 0000
2901      /LINK EQUALS ZERO
3406 7124 2902      CLL CML RAL      /TEST COMBINATION
3407 7010 2903      RAR
3410 7430 2904      SZL
3411 7440 2905      SZA
3412 7402 2906      HLT      /CLL CML RAL FAILED
2907      /AC SHOULD EQUAL 0000
2908      /LINK SHOULD EQUAL ONE
2909 /-----
2910 /GROUP 1 OPERATE TEST 61
2911 /-----
3413 7320 2912      CLA CLL CML      /AC EQUALS 0000

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		2913		/LINK EQUALS ONE
3414	7124	2914	CLL CML RAL	/TEST COMBINATION
3415	7010	2915	RAR	
3416	7430	2916	SZL	
3417	7440	2917	SZA	
3420	7402	2918	HLT	/CLL CML RAL FAILED
		2919		/AC SHOULD EQUAL 0000
		2920		/LINK SHOULD EQUAL ONE
		2921	/	-----
		2922	/GROUP 1 OPERATE TEST 62	
		2923	/	-----
3421	7300	2924	CLA CLL	/AC EQUALS 0000
		2925		/LINK EQUALS ZERO
3422	7132	2926	CLL CML RTR	/TEST COMBINATION
3423	7006	2927	RTL	
3424	7430	2928	SZL	
3425	7440	2929	SZA	
3426	7402	2930	HLT	/CLL CML RTR FAILED
		2931		/AC SHOULD EQUAL 0000
		2932		/LINK SHOULD EQUAL ONE
		2933	/	-----
		2934	/GROUP 1 OPERATE TEST 63	
		2935	/	-----
3427	7320	2936	CLA CLL CML	/AC EQUALS 0000
		2937		/LINK EQUALS ONE
3430	7132	2938	CLL CML RTR	/TEST COMBINATION
3431	7006	2939	RTL	
3432	7430	2940	SZL	
3433	7440	2941	SZA	
3434	7402	2942	HLT	/CLL CML RTR FAILED
		2943		/AC SHOULD EQUAL 0000
		2944		/LINK SHOULD EQUAL ONE
		2945	/	-----
		2946	/GROUP 1 OPERATE TEST 64	
		2947	/	-----
3435	7300	2948	CLA CLL	/AC EQUALS 0000
		2949		/LINK EQUALS ZERO
3436	7126	2950	CLL CML RTL	/TEST COMBINATION
3437	7012	2951	RTR	
3440	7430	2952	SZL	
3441	7440	2953	SZA	
3442	7402	2954	HLT	/CLL CML RTL FAILED
		2955		/AC SHOULD EQUAL 0000
		2956		/LINK SHOULD EQUAL ONE
		2957	/	-----
		2958	/GROUP 1 OPERATE TEST 65	
		2959	/	-----
3443	7320	2960	CLA CLL CML	/AC EQUALS 0000
		2961		/LINK EQUALS ONE
3444	7126	2962	CLL CML RTL	/TEST COMBINATION
3445	7012	2963	RTR	
3446	7430	2964	SZL	

3447	7440	2965	SZA		
3450	7402	2966	HLT		/CLL CML RTL FAILED
		2967			/AC SHOULD EQUAL 0000
		2968			/LINK SHOULD EQUAL ONE
		2969			/-----
		2970		/GROUP 1 OPERATE TEST 66	
		2971			/-----
3451	7300	2972	CLA CLL		
3452	1062	2973	TAD K5252		/AC EQUALS 5252
		2974			/LINK EQUALS ZERO
3453	7330	2975	CLA CLL CML RAR		
		2976			/TEST COMBINATION
3454	7004	2977	RAL		
3455	7430	2978	SZL		
3456	7440	2979	SZA		
3457	7402	2980	HLT		/CLA CLL CML RAR FAILED
		2981			/AC SHOULD EQUAL 0000
		2982			/LINK SHOULD EQUAL ONE
		2983			/-----
		2984		/GROUP 1 OPERATE TEST 67	
		2985			/-----
3460	7320	2986	CLA CLL CML		
3461	1056	2987	TAD K2525		/AC EQUALS 2525
		2988			/LINK EQUALS ONE
3462	7330	2989	CLA CLL CML RAR		
		2990			/TEST COMBINATION
3463	7004	2991	RAL		
3464	7430	2992	SZL		
3465	7440	2993	SZA		
3466	7402	2994	HLT		/CLA CLL CML RAR FAILED
		2995			/AC SHOULD EQUAL 0000
		2996			/LINK SHOULD EQUAL ONE
		2997			/-----
		2998		/GROUP 1 OPERATE TEST 68	
		2999			/-----
3467	7300	3000	CLA CLL		
3470	1056	3001	TAD K2525		/AC EQUALS 2525
		3002			/LINK EQUALS ZERO
3471	7324	3003	CLA CLL CML RAL		
		3004			/TEST COMBINATION
3472	7010	3005	RAR		
3473	7430	3006	SZL		
3474	7440	3007	SZA		
3475	7402	3008	HLT		/CLA CLL CML RAL FAILED
		3009			/AC SHOULD EQUAL 0000
		3010			/LINK SHOULD EQUAL ONE
		3011			/-----
		3012		/GROUP 1 OPERATE TEST 69	
		3013			/-----
3476	7320	3014	CLA CLL CML		
3477	1062	3015	TAD K5252		/AC EQUALS 5252
		3016			/LINK EQUALS ONE

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3500 7324 3017          CLA CLL CML RAL
          3018          /TEST COMBINATION
3501 7010 3019          RAR
3502 7430 3020          SZL
3503 7440 3021          SZA
3504 7402 3022          HLT          /CLA CLL CML RAL FAILED
          3023          /AC SHOULD EQUAL 0000
          3024          /LINK SHOULD EQUAL ONE
          3025 /-----
          3026 /GROUP 1 OPERATE TEST 70
          3027 /-----
3505 7300 3028          CLA CLL
3506 1056 3029          TAD K2525          /AC EQUALS 2525
          3030          /LINK EQUALS ZERO
3507 7332 3031          CLA CLL CML RTR
          3032          /TEST COMBINATION
3510 7006 3033          RTL
3511 7430 3034          SZL
3512 7440 3035          SZA
3513 7402 3036          HLT          /CLA CLL CML RTR FAILED
          3037          /AC SHOULD EQUAL 0000
          3038          /LINK SHOULD EQUAL ONE
          3039 /-----
          3040 /GROUP 1 OPERATE TEST 71
          3041 /-----
3514 7320 3042          CLA CLL CML
3515 1062 3043          TAD K5252          /AC EQUALS 5252
          3044          /LINK EQUALS ONE
3516 7332 3045          CLA CLL CML RTR
          3046          /TEST COMBINATION
3517 7006 3047          RTL
3520 7430 3048          SZL
3521 7440 3049          SZA
3522 7402 3050          HLT          /CLA CLL CML RTR FAILED
          3051          /AC SHOULD EQUAL 0000
          3052          /LINK SHOULD EQUAL ONE
          3053 /-----
          3054 /GROUP 1 OPERATE TEST 72
          3055 /-----
3523 7300 3056          CLL CLA
3524 1056 3057          TAD K2525          /AC EQUALS 2525
          3058          /LINK EQUALS ZERO
3525 7326 3059          CLA CLL CML RTL
          3060          /TEST COMBINATION
3526 7012 3061          RTR
3527 7430 3062          SZL
3530 7440 3063          SZA
3531 7402 3064          HLT          /CLA CLL CML RTL FAILED
          3065          /AC SHOULD EQUAL 0000
          3066          /LINK SHOULD EQUAL ZERO
          3067 /-----
          3068 /GROUP 1 OPERATE TEST 73

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3069 /-----
3532 7320 3070      CLL CLA CML
3533 1062 3071      TAD K5252      /AC EQUALS 5252
3072                /LINK EQUALS ONE
3534 7326 3073      CLA CLL CML RTL
3074                /TEST COMBINATION
3535 7012 3075      RTR
3536 7430 3076      SZL
3537 7440 3077      SZA
3540 7402 3078      HLT      /CLA CLL CML RTL FAILED
3079                /AC SHOULD EQUAL 0000
3080                /LINK SHOULD EQUAL ONE
3081 /-----
3082 /GROUP 1 OPERATE TEST 74
3083 /-----
3541 7300 3084      CLA CLL
3542 1110 3085      TAD K7777      /TEST PATTERN
3543 7041 3086      CMA IAC
3544 1107 3087      TAD K7776
3545 7040 3088      CMA
3546 7420 3089      SNL
3547 7440 3090      SZA
3550 7402 3091      HLT      /INSTRUCTION FAILED
3092                /AC SHOULD EQUAL 0000
3093                /LINK SHOULD EQUAL ZERO
3094 /-----
3095 /GROUP 1 OPERATE TEST 75
3096 /-----
3551 7300 3097      CLA CLL
3552 1107 3098      TAD K7776      /TEST PATTERN
3553 7041 3099      CMA IAC
3554 1106 3100      TAD K7775
3555 7040 3101      CMA
3556 7420 3102      SNL
3557 7440 3103      SZA
3560 7402 3104      HLT      /INSTRUCTION FAILED
3105                /AC SHOULD EQUAL 0000
3106                /LINK SHOULD EQUAL ZERO
3107 /-----
3108 /GROUP 1 OPERATE TEST 76
3109 /-----
3561 7300 3110      CLA CLL
3562 1105 3111      TAD K7774      /TEST PATTERN
3563 7041 3112      CMA IAC
3564 1104 3113      TAD K7773
3565 7040 3114      CMA
3566 7420 3115      SNL
3567 7440 3116      SZA
3570 7402 3117      HLT      /INSTRUCTION FAILED
3118                /LINK SHOULD EQUAL ZERO
3119 /-----
3120 /GROUP 1 OPERATE TEST 77

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3121 /-----
3571 7300 3122          CLA CLL
3572 1103 3123          TAD K7770          /TEST PATTERN
3573 7041 3124          CMA IAC
3574 1102 3125          TAD K7767
3575 7040 3126          CMA
3576 7420 3127          SNL
3577 7440 3128          SZA
3600 7402 3129          HLT          /INSTRUCTION FAILED
3130          /AC SHOULD EQUAL 0000
3131 /-----
3132 /GROUP 1 OPERATE TEST 78
3133 /-----
3601 7300 3134          CLA CLL
3602 1101 3135          TAD K7760          /TEST PATTERN
3603 7041 3136          CMA IAC
3604 1100 3137          TAD K7757
3605 7040 3138          CMA
3606 7420 3139          SNL
3607 7440 3140          SZA
3610 7402 3141          HLT          /INSTRUCTION FAILED
3142          /AC SHOULD EQUAL 0000
3143          /LINK SHOULD EQUAL ZERO
3144 /-----
3145 /GROUP 1 OPERATE TEST 79
3146 /-----
3611 7300 3147          CLA CLL
3612 1077 3148          TAD K7740          /TEST PATTERN
3613 7041 3149          CMA IAC
3614 1076 3150          TAD K7737          /AC EQUALS 0040
3615 7040 3151          CMA
3616 7420 3152          SNL
3617 7440 3153          SZA
3620 7402 3154          HLT          /INSTRUCTION FAILED
3155          /AC SHOULD EQUAL 0000
3156          /LINK SHOULD EQUAL ZERO
3157 /-----
3158 /GROUP 1 OPERATE TEST 80
3159 /-----
3621 7300 3160          CLA CLL
3622 1074 3161          TAD K7700          /TEST PATTERN
3623 7041 3162          CMA IAC
3624 1073 3163          TAD K7677
3625 7040 3164          CMA
3626 7420 3165          SNL
3627 7440 3166          SZA
3630 7402 3167          HLT          /INSTRUCTION FAILED
3168          /AC SHOULD EQUAL 0000
3169          /LINK SHOULD EQUAL ZERO
3170 /-----
3171 /GROUP 1 OPERATE TEST 81
3172 /-----

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3631	7300	3173	CLA CLL	
3632	1072	3174	TAD K7600	/TEST PATTERN
3633	7041	3175	CMA IAC	
3634	1071	3176	TAD K7577	
3635	7040	3177	CMA	
3636	7420	3178	SNL	
3637	7440	3179	SZA	
3640	7402	3180	HLT	/INSTRUCTION FAILED
		3181		/AC SHOULD EQUAL 0000
		3182		/LINK SHOULD EQUAL ZERO
		3183	/-----	
		3184	/GROUP 1 OPERATE TEST 82	
		3185	/-----	
3641	7300	3186	CLA CLL	
3642	1070	3187	TAD K7400	/TEST PATTERN
3643	7041	3188	CMA IAC	
3644	1067	3189	TAD K7377	
3645	7040	3190	CMA	
3646	7420	3191	SNL	
3647	7440	3192	SZA	
3650	7402	3193	HLT	/INSTRUCTION FAILED
		3194		/AC SHOULD EQUAL 0000
		3195		/LINK SHOULD EQUAL ZERO
		3196	/-----	
		3197	/GROUP 1 OPERATE TEST 83	
		3198	/-----	
3651	7300	3199	CLA CLL	
3652	1066	3200	TAD K7000	/TEST PATTERN
3653	7041	3201	CMA IAC	
3654	1065	3202	TAD K6777	
3655	7040	3203	CMA	
3656	7420	3204	SNL	
3657	7440	3205	SZA	
3660	7402	3206	HLT	/INSTRUCTION FAILED
		3207		/AC SHOULD EQUAL 0000
		3208		/LINK SHOULD EQUAL ZERO
		3209	/-----	
		3210	/GROUP 1 OPERATE TEST 84	
		3211	/-----	
3661	7300	3212	CLA CLL	
3662	1064	3213	TAD K6000	/TEST PATTERN
3663	7041	3214	CMA IAC	
3664	1063	3215	TAD K5777	
3665	7040	3216	CMA	
3666	7420	3217	SNL	
3667	7440	3218	SZA	
3670	7402	3219	HLT	/INSTRUCTION FAILED
		3220		/AC SHOULD EQUAL 0000
		3221		/LINK SHOULD EQUAL ZERO
		3222	/-----	
		3223	/GROUP 1 OPERATE TEST 85	
		3224	/-----	

3671	7300	3225	CLA CLL	
3672	1061	3226	TAD K4000	/TEST PATTERN
3673	7041	3227	CMA IAC	
3674	1060	3228	TAD K3777	
3675	7040	3229	CMA	
3676	7420	3230	SNL	
3677	7440	3231	SZA	
3700	7402	3232	HLT	/INSTRUCTION FAILED
		3233		/AC SHOULD EQUAL 0000
		3234		/LINK SHOULD EQUAL ZERO
		3235	/	-----
		3236	/GROUP 1 OPERATE TEST 86	
		3237	/	-----
3701	7300	3238	CLA CLL	
3702	1020	3239	TAD K0000	/TEST PATTERN
3703	7041	3240	CMA IAC	
3704	7450	3241	SNA	
3705	7420	3242	SNL	
3706	7402	3243	HLT	/INSTRUCTION FAILED
		3244		/AC SHOULD EQUAL 0000
		3245		/LINK SHOULD EQUAL ONE
		3246	/	-----
		3247	/GROUP 1 OPERATE TEST 87	
		3248	/	-----
3707	7340	3249	CLA CMA CLL	/AC EQUALS 7777
		3250		/LINK EQUALS ZERO
3710	7311	3251	CLA CLL IAC RAR	
		3252		/AC EQUALS 0000
		3253		/LINK EQUALS ONE
3711	7430	3254	SZL	
3712	7440	3255	SZA	
3713	7402	3256	HLT	/INSTRUCTION FAILED
		3257		/AC SHOULD EQUAL 0000
		3258		/LINK SHOULD EQUAL ONE
		3259	/	-----
		3260	/GROUP 1 OPERATE TEST 88	
		3261	/	-----
3714	7360	3262	CLA CMA CLL CML	
		3263		/AC EQUALS 7777
		3264		/LINK EQUALS ONE
3715	7305	3265	CLA CLL IAC RAL	
		3266		/AC EQUALS 0002
		3267		/LINK EQUALS ONE
3716	7430	3268	SZL	
3717	7402	3269	HLT	/INSTRUCTION FAILED
		3270		/LINK SHOULD EQUAL ZERO
3720	7041	3271	CMA IAC	
3721	1022	3272	TAD K0002	
3722	7440	3273	SZA	
3723	7402	3274	HLT	/INSTRUCTION FAILED
		3275		/AC SHOULD EQUAL 0002
		3276	/	-----

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3277 /GROUP 1 OPERATE TEST 89
3278 /-----
3724 7320 3279          CLA CLL CML          /AC EQUALS 0000
3280                                /LINK EQUALS ONE
3725 7313 3281          CLA CLL IAC RTR
3282                                /AC EQUALS 4000
3283                                /LINK EQUALS ZERO
3726 7430 3284          SZL
3727 7402 3285          HLT          /INSTRUCTION FAILED
3286                                /LINK SHOULD EQUAL ZERO
3730 7500 3287          SMA
3731 7402 3288          HLT          /TEST FAILED
3289                                /AC SHOULD EQUAL 4000
3290 /-----
3291 /GROUP 1 OPERATE TEST 90
3292 /-----
3732 7360 3293          CLA CMA CLL CML
3294                                /AC EQUALS 7777
3295                                /LINK EQUALS ONE
3733 7307 3296          CLA CLL IAC RTL
3297                                /AC EQUALS 0004
3298                                /LINK EQUALS ZERO
3734 7430 3299          SZL
3735 7402 3300          HLT          /INSTRUCTION FAILED
3301                                /LINK SHOULD EQUAL ZERO
3736 7041 3302          CMA IAC
3737 1024 3303          TAD K0004
3740 7440 3304          SZA
3741 7402 3305          HLT          /TEST FAILED
3306                                /AC SHOULD EQUAL 0004
3307 /-----
3308 /GROUP 1 OPERATE TEST 91
3309 /-----
3742 7300 3310          CLA CLL          /AC EQUALS 0000
3311                                /LINK EQUALS ZERO
3743 7331 3312          CLA CLL CML IAC RAR
3313                                /AC EQUALS 4000
3314                                /LINK EQUALS ONE
3744 7520 3315          SMA SNL
3745 7402 3316          HLT          /INSTRUCTION FAILED
3317                                /AC SHOULD EQUAL 4000
3318                                /LINK SHOULD EQUAL ONE
3319 /-----
3320 /GROUP 1 OPERATE TEST 92
3321 /-----
3746 7300 3322          CLA CLL          /AC EQUALS 0000
3323                                /LINK EQUALS ZERO
3747 7345 3324          CLA CMA CLL IAC RAL
3325                                /AC EQUALS 0001
3326                                /LINK EQUALS ZERO
3750 7430 3327          SZL
3751 7402 3328          HLT          /INSTRUCTION FAILED

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		3329		/LINK SHOULD EQUAL ZERO
3752	7041	3330	CMA IAC	
3753	1021	3331	TAD K0001	
3754	7440	3332	SZA	
3755	7402	3333	HLT	/AC NOT 0001
		3334	/-----	
		3335	/GROUP 1 OPERATE TEST 93	
		3336	/-----	
3756	7360	3337	CLA CMA CLL CML	
		3338		/AC EQUAL 7777
		3339		/LINK EQUALS ONE
3757	7373	3340	CLA CMA CLL CML	IAC RTR
		3341		/AC EQUAL 0000
		3342		/LINK EQUALS ZERO
3760	7440	3343	SZA	
3761	7402	3344	HLT	/INSTRUCTION FAILED
3762	7430	3345	SZL	
3763	7402	3346	HLT	/INSTRUCTION FAILED
		3347	/-----	
		3348	/GROUP 1 OPERATE TEST 94	
		3349	/-----	
3764	7332	3350	CLA CLL CML RTR	
		3351		/AC EQUALS 2000
		3352		/LINK EQUALS ZERO
3765	7006	3353	RTL	/AC EQUALS 0000
		3354		/LINK EQUALS ONE
3766	7430	3355	SZL	
3767	7440	3356	SZA	
3770	7402	3357	HLT	/CLA CLL CML RTR OR RTL FAILED
		3358	/-----	
		3359	/CLA TEST 1 (OPERATE GROUP 2)	
		3360	/-----	
3771	7200	3361	CLA	
3772	1110	3362	TAD K7777	/AC EQUALS 7777
3773	7600	3363	7600	/TEST INSTRUCTION
		3364		/CLA (GROUP 2)
3774	7440	3365	SZA	
3775	7402	3366	HLT	/CLA FAILED
		3367		/AC SHOULD EQUAL 0000
3776	7000	3368	NOP	
3777	7000	3369	NOP	
		3370	/-----	
		3371	/OSR TEST 1	
		3372	/-----	
4000	7200	3373	CLA	/AC EQUALS 0000
4001	7404	3374	OSR	/TEST INSTRUCTION
		3375		/AC SHOULD EQUAL 7777
4002	7040	3376	CMA	
4003	7440	3377	SZA	
4004	7402	3378	HLT	/OSR FAILED
		3379		/AC SHOULD EQUAL 0000
		3380	/-----	

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3381 /NOP TEST 1 (OPERATE GROUP 1)
3382 /-----
4005 7200 3383          CLA          /AC EQUALS 0000
4006 7100 3384          CLL          /LINK EQUALS ZERO
4007 7000 3385          7000         /TEST INSTRUCTION
3386                                     /NOP (GROUP 1)
4010 7450 3387          SNA
4011 7430 3388          SZL
4012 7402 3389          HLT          /NOP FAILED
3390                                     /AC SHOULD EQUAL 0000
3391                                     /LINK SHOULD EQUAL ZERO
3392 /-----
3393 /NOP TEST 2 (OPERATE GROUP 2)
3394 /-----
4013 7200 3395          CLA          /AC EQUALS 0000
4014 7100 3396          CLL          /LINK EQUALS ZERO
4015 7400 3397          7400         /TEST INSTRUCTION
3398                                     /NOP (GROUP 2)
4016 7450 3399          SNA
4017 7430 3400          SZL
4020 7402 3401          HLT          /NOP FAILED
3402                                     /AC SHOULD EQUAL 0000
3403                                     /LINK SHOULD EQUAL ZERO
3404 /-----
3405 /GROUP 2 OPERATE TEST 1
3406 /-----
4021 7240 3407          CLA CMA      /AC EQUALS 7777
4022 7700 3408          CLA SMA      /TEST COMBINATION
4023 7402 3409          HLT          /CLA SMA SHOULD HAVE SKIPPED
4024 7440 3410          SZA
4025 7402 3411          HLT          /CLA SMA SHOULD HAVE CLEARED AC
3412                                     /AC SHOULD EQUAL 0000
3413 /-----
3414 /GROUP 2 OPERATE TEST 2
3415 /-----
4026 7240 3416          CLA CMA      /AC EQUALS 7777
4027 7650 3417          CLA SNA      /TEST COMBINATION
4030 7402 3418          HLT          /CLA SZA SHOULD HAVE SKIPPED
4031 7440 3419          SZA
4032 7402 3420          HLT          /CLA SZA SHOULD HAVE CLEARED AC
3421                                     /AC SHOULD EQUAL 0000
3422 /-----
3423 /GROUP 2 OPERATE TEST 3
3424 /-----
4033 7240 3425          CLA CMA      /AC EQUALS 7777
4034 7540 3426          SMA SZA      /TEST COMBINATION
4035 7402 3427          HLT          /SMA SZA SHOULD HAVE SKIPPED
3428                                     /AC SHOULD EQUAL 7777
3429 /-----
3430 /GROUP 2 OPERATE TEST 4
3431 /-----
4036 7200 3432          CLA          /AC EQUALS 0000

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4037	7540	3433	SMA SZA	/TEST COMBINATION
4040	7402	3434	HLT	/SMA SZA SHOULD HAVE SKIPPED
		3435		/AC SHOULD EQUAL 0000
		3436	/-----	
		3437	/GROUP 2 OPERATE TEST 5	
		3438	/-----	
4041	7200	3439	CLA	
4042	1060	3440	TAD K3777	/AC EQUALS 3777
4043	7540	3441	SMA SZA	/TEST COMBINATION
4044	7410	3442	SKP	
4045	7402	3443	HLT	/SMA SZA SHOULD NOT HAVE SKIPPED
		3444		/AC SHOULD EQUAL 3777
		3445	/-----	
		3446	/GROUP 2 OPERATE TEST 6	
		3447	/-----	
4046	7240	3448	CLA CMA	/AC EQUALS 7777
4047	7740	3449	CLA SMA SZA	/TEST COMBINATION
4050	7402	3450	HLT	/CLA SMA SZA SHOULD HAVE SKIPPED
4051	7440	3451	SZA	
4052	7402	3452	HLT	/CLA SMA SZA SHOULD HAVE CLEARED AC
		3453		/AC SHOULD EQUAL 0000
		3454	/-----	
		3455	/GROUP 2 OPERATE TEST 7	
		3456	/-----	
4053	7200	3457	CLA	/AC EQUALS 0000
4054	7740	3458	CLA SMA SZA	/TEST COMBINATION
4055	7402	3459	HLT	/CLA SMA SZA SHOULD HAVE SKIPPED
		3460		/AC SHOULD EQUAL 0000
4056	7440	3461	SZA	
4057	7402	3462	HLT	/CLA SMA SZA SHOULD HAVE CLEARED AC
		3463		/AC SHOULD EQUAL 0000
		3464	/-----	
		3465	/GROUP 2 OPERATE TEST 8	
		3466	/-----	
4060	7200	3467	CLA	
4061	1060	3468	TAD K3777	/AC EQUALS 3777
4062	7740	3469	CLA SMA SZA	/TEST COMBINATION
4063	7410	3470	SKP	
4064	7402	3471	HLT	/CLA SMA SZA SHOULD NOT HAVE SKIPPED
4065	7440	3472	SZA	
4066	7402	3473	HLT	/CLA SMA SZA SHOULD HAVE CLEARED AC
		3474		/AC SHOULD EQUAL 0000
		3475	/-----	
		3476	/GROUP 2 OPERATE TEST 9	
		3477	/-----	
4067	7300	3478	CLA CLL	/AC EQUALS 0000
		3479		/LINK EQUALS ZERO
4070	1062	3480	TAD K5252	/AC EQUALS 5252
4071	7620	3481	CLA SNL	/TEST COMBINATION
4072	7430	3482	SZL	
4073	7402	3483	HLT	/CLA SNL SHOULD NOT SKIPPED
		3484		/AC SHOULD EQUAL 0000

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3485                                     /LINK SHOULD EQUAL ZERO
3486 /-----
3487 /GROUP 2 OPERATE TEST 10
3488 /-----
4074 7320 3489          CLA CLL CML
4075 1056 3490          TAD   K2525      /AC EQUALS 2525
3491                                     /LINK SHOULD EQUAL ONE
4076 7620 3492          CLA SNL        /TEST COMBINATION
4077 7402 3493          HLT            /CLA SNL SHOULD HAVE SKIPPED
3494                                     /LINK SHOULD EQUAL ONE
4100 7440 3495          SZA
4101 7402 3496          HLT            /CLA SNL SHOULD HAVE CLEARED AC
3497                                     /AC SHOULD EQUAL 0000
3498 /-----
3499 /GROUP 2 OPERATE TEST 11
3500 /-----
4102 7300 3501          CLA CLL        /AC EQUALS 0000
3502                                     /LINK SHOULD EQUAL ZERO
4103 7520 3503          SMA SNL        /TEST COMBINATION
4104 7430 3504          SZL
4105 7402 3505          HLT            /SMA SNL SHOULD NOT HAVE SKIPPED
3506                                     /AC SHOULD EQUAL 0000
3507                                     /LINK SHOULD EQUAL ZERO
3508 /-----
3509 /GROUP 2 OPERATE TEST 12
3510 /-----
4106 7320 3511          CLA CLL CML    /AC EQUALS 0000
3512                                     /LINK EQUALS ONE
4107 7520 3513          SMA SNL        /TEST COMBINATION
4110 7402 3514          HLT            /SNA SNL SHOULD HAVE SKIPPED
3515                                     /LINK SHOULD EQUAL ONE
3516 /-----
3517 /GROUP 2 OPERATE TEST 13
3518 /-----
4111 7300 3519          CLA CLL
4112 1061 3520          TAD   K4000     /AC EQUALS 4000
4113 7520 3521          SMA SNL        /TEST COMBINATION
4114 7402 3522          HLT            /SMA SNL SHOULD HAVE SKIPPED
3523                                     /AC SHOULD EQUAL 4000
3524 /-----
3525 /GROUP 2 OPERATE TEST 14
3526 /-----
4115 7320 3527          CLA CLL CML
4116 1061 3528          TAD   K4000     /AC EQUALS 4000
3529                                     /LINK EQUALS ONE
4117 7520 3530          SMA SNL        /TEST COMBINATION
4120 7402 3531          HLT            /SMA SNL SHOULD HAVE SKIPPED
3532                                     /AC SHOULD EQUAL 4000
3533                                     /LINK SHOULD EQUAL ONE
3534 /-----
3535 /GROUP 2 OPERATE TEST 15
3536 /-----

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4121	7300	3537	CLA CLL	/AC EQUALS 0000
		3538		/LINK EQUALS ZERO
4122	7720	3539	CLA SMA SNL	/TEST COMBINATION
4123	7440	3540	SZA	
4124	7402	3541	HLT	/CLA SMA SNL SHOULD NOT HAVE SKIPPED
		3542		/AC SHOULD EQUAL 0000
		3543		/LINK SHOULD EQUAL ZERO
		3544	/	-----
		3545	/GROUP 2 OPERATE TEST 16	
		3546	/	-----
4125	7320	3547	CLA CLL CML	/AC EQUALS 0000
		3548		/LINK EQUALS ONE
4126	7720	3549	CLA SMA SNL	/TEST COMBINATION
4127	7402	3550	HLT	/CLA SMA SNL SHOULD HAVE SKIPPED
		3551		/LINK SHOULD EQUAL ONE
4130	7440	3552	SZA	
4131	7402	3553	HLT	/CLA SMA SNL SHOULD HAVE CLEARED AC
		3554		/AC SHOULD EQUAL 0000
		3555	/	-----
		3556	/GROUP 2 OPERATE TEST 17	
		3557	/	-----
4132	7300	3558	CLA CLL	
4133	1061	3559	TAD K4000	/AC EQUALS 4000
		3560		/LINK EQUALS ZERO
4134	7720	3561	CLA SMA SNL	/TEST COMBINATION
4135	7402	3562	HLT	/SMA SHOULD HAVE SKIPPED
		3563		/AC SHOULD EQUAL 0000
		3564		/LINK SHOULD EQUAL ZERO
4136	7440	3565	SZA	
4137	7402	3566	HLT	/CLA SMA SNL SHOULD HAVE CLEARED AC
		3567		/AC SHOULD EQUAL 0000
		3568	/	-----
		3569	/GROUP 2 OPERATE TEST 18	
		3570	/	-----
4140	7320	3571	CLA CLL CML	
4141	1061	3572	TAD K4000	/AC EQUALS 4000
		3573		/LINK EQUALS ONE
4142	7720	3574	CLA SMA SNL	/TEST COMBINATION
4143	7402	3575	HLT	/CLA SMA SNL SHOULD HAVE SKIPPED
		3576		/AC SHOULD EQUAL 0000
		3577		/LINK SHOULD EQUAL ONE
4144	7440	3578	SZA	
4145	7402	3579	HLT	/CLA SMA SNL SHOULD HAVE CLEARED AC
		3580		/AC SHOULD EQUAL 0000
		3581		/LINK SHOULD EQUAL ONE
		3582	/	-----
		3583	/GROUP 2 OPERATE TEST 19	
		3584	/	-----
4146	7300	3585	CLA CLL	/AC EQUALS 0000
		3586		/LINK EQUALS ZERO
4147	7460	3587	SZA SNL	/TEST COMBINATION
4150	7402	3588	HLT	/SZA SNL SHOULD HAVE SKIPPED


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3797 /GROUP 2 OPERATE TEST 39
3798 /-----
4276 7200 3799          CLA
4277 1060 3800          TAD    K3777      /AC EQUALS 3777
4300 7710 3801          CLA SPA      /TEST COMBINATION
4301 7402 3802          HLT          /CLA SPA DID NOT SKIP
3803                      /AC SHOULD EQUAL 0000
4302 7440 3804          SZA
4303 7402 3805          HLT          /CLA SPA SHOULD HAVE CLEARED AC
3806                      /AC SHOULD EQUAL 0000
3807 /-----
3808 /GROUP 2 OPERATE TEST 40
3809 /-----
4304 7200 3810          CLA
4305 1061 3811          TAD    K4000
4306 7710 3812          CLA SPA      /TEST COMBINATION
4307 7440 3813          SZA
4310 7402 3814          HLT          /CLA SPA SHOULD NOT HAVE SKIPPED
3815                      /AC SHOULD EQUAL ZERO
3816 /-----
3817 /GROUP 2 OPERATE TEST 41
3818 /-----
4311 7240 3819          CLA CMA      /AC EQUAL 7777
4312 7650 3820          CLA SNA      /TEST COMBINATION
4313 7402 3821          HLT          /CLA SNA SHOULD HAVE SKIPPED
3822                      /AC SHOULD EQUAL ZERO
3823 /-----
3824 /GROUP 2 OPERATE TEST 42
3825 /-----
4314 7200 3826          CLA          /AC EQUALS 0000
4315 7650 3827          CLA SNA      /TEST COMBINATION
4316 7440 3828          SZA
4317 7402 3829          HLT          /CLA SNA SHOULD NOT HAVE SKIPPED
3830                      /AC SHOULD EQUAL 0000
3831 /-----
3832 /GROUP 2 OPERATE TEST 43
3833 /-----
4320 7200 3834          CLA          /AC EQUALS 0000
4321 7550 3835          SPA SNA      /TEST COMBINATION (AND)
4322 7440 3836          SZA
4323 7402 3837          HLT          /SPA SNA SHOULD NOT HAVE SKIPPED
3838                      /AC SHOULD EQUAL ZERO
3839 /-----
3840 /GROUP 2 OPERATE TEST 44
3841 /-----
4324 7200 3842          CLA
4325 1060 3843          TAD    K3777      /AC EQUALS 3777
4326 7550 3844          SPA SNA      /TEST COMBINATION (AND)
4327 7402 3845          HLT          /SPA SNA SHOULD HAVE SKIPPED
3846                      /AC SHOULD EQUAL 3777
3847 /-----
3848 /GROUP 2 OPERATE TEST 45

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3849 /-----
4330 7200 3850          CLA
4331 1061 3851          TAD      K4000      /AC EQUALS 4000
4332 7550 3852          SPA SNA      /TEST COMBINATION (AND)
4333 7450 3853          SNA
4334 7402 3854          HLT          /SPA SNA SHOULD NOT HAVE SKIPPED
3855                      /AC SHOULD EQUAL 4000
3856 /-----
3857 /GROUP 2 OPERATE TEST 46
3858 /-----
4335 7200 3859          CLA          /AC EQUALS 0000
4336 7750 3860          CLA SPA SNA /TEST COMBINATION (AND)
4337 7440 3861          SZA
4340 7402 3862          HLT          /CLA SPA SNA SHOULD NOT HAVE SKIPPED
3863                      /AC SHOULD EQUAL 0000
3864 /-----
3865 /GROUP 2 OPERATE TEST 47
3866 /-----
4341 7200 3867          CLA
4342 1060 3868          TAD      K3777      /AC EQUALS 3777
4343 7750 3869          CLA SPA SNA /TEST COMBINATION (AND)
4344 7402 3870          HLT          /CLA SPA SNA SHOULD HAVE SKIPPED
3871                      /AC SHOULD EQUAL 0000
4345 7440 3872          SZA
4346 7402 3873          HLT          /CLA SPA SNA SHOULD HAVE CLEARED AC
3874                      /AC SHOULD EQUAL 0000
3875 /-----
3876 /GROUP 2 OPERATE TEST 48
3877 /-----
4347 7200 3878          CLA
4350 1061 3879          TAD      K4000      /AC EQUALS 4000
4351 7750 3880          CLA SPA SNA /TEST COMBINATION (AND)
4352 7440 3881          SZA
4353 7402 3882          HLT          /CLA SPA SNA SHOULD NOT HAVE SKIPPED
3883                      /AC SHOULD EQUAL 0000
3884 /-----
3885 /GROUP 2 OPERATE TEST 49
3886 /-----
4354 7300 3887          CLA CLL
4355 1062 3888          TAD      K5252      /AC EQUALS 5252
3889                      /LINK EQUALS ZERO
4356 7630 3890          CLA SZL      /TEST COMBINATION
4357 7402 3891          HLT          /CLA SZL SHOULD HAVE SKIPPED
3892                      /AC SHOULD EQUAL 0000
3893                      /LINK SHOULD EQUAL ZERO
4360 7440 3894          SZA
4361 7402 3895          HLT          /CLA SZL SHOULD HAVE CLEARED AC
3896                      /AC SHOULD EQUAL 0000
3897                      /LINK SHOULD EQUAL ZERO
3898 /-----
3899 /GROUP 2 OPERATE TEST 50
3900 /-----

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4362	7360	3901	CLA CMA CLL CML	
		3902		/AC EQUALS 7777
		3903		/LINK EQUALS ONE
4363	7630	3904	CLA SZL	/TEST COMBINATION (AND)
4364	7440	3905	SZA	
4365	7402	3906	HLT	/CLA SZL SHOULD NOT HAVE SKIPPED
		3907		/AC SHOULD EQUAL 0000
		3908		/LINK SHOULD EQUAL ONE
		3909	/-----	
		3910	/GROUP 2 OPERATE TEST 51	
		3911	/-----	
4366	7300	3912	CLA CLL	
4367	1060	3913	TAD K3777	/AC EQUALS 3777
		3914		/LINK EQUALS ZERO
4370	7530	3915	SPA SZL	/TEST COMBINATION (AND)
4371	7402	3916	HLT	/SPA SZL SHOULD HAVE SKIPPED
		3917		/AC SHOULD EQUAL 3777
		3918		/LINK SHOULD EQUAL ZERO
		3919	/-----	
		3920	/GROUP 2 OPERATE TEST 52	
		3921	/-----	
4372	7320	3922	CLA CLL CML	
4373	1060	3923	TAD K3777	/AC EQUALS 3777
		3924		/LINK EQUALS ONE
4374	7530	3925	SPA SZL	/TEST COMBINATION (AND)
4375	7450	3926	SNA	
4376	7402	3927	HLT	/SPA SZL SHOULD NOT HAVE SKIPPED
		3928		/AC SHOULD EQUAL 3777
		3929		/LINK SHOULD EQUAL ONE
		3930	/-----	
		3931	/GROUP 2 OPERATE TEST 53	
		3932	/-----	
4377	7300	3933	CLA CLL	
4400	1061	3934	TAD K4000	/AC EQUALS 4000
		3935		/LINK EQUALS ZERO
4401	7530	3936	SPA SZL	/TEST COMBINATION (AND)
4402	7500	3937	SMA	
4403	7402	3938	HLT	/SPA SZL SHOULD NOT HAVE SKIPPED
		3939		/AC SHOULD EQUAL 4000
		3940		/LINK SHOULD EQUAL ZERO
		3941	/-----	
		3942	/GROUP 2 OPERATE TEST 54	
		3943	/-----	
4404	7300	3944	CLA CLL	
4405	1060	3945	TAD K3777	/AC EQUALS 3777
		3946		/LINK EQUALS ZERO
4406	7730	3947	CLA SPA SZL	/TEST COMBINATION (AND)
4407	7402	3948	HLT	/CLA SPA SZL SHOULD HAVE SKIPPED
		3949		/AC SHOULD EQUAL 0000
		3950		/LINK SHOULD EQUAL ZERO
4410	7440	3951	SZA	
4411	7402	3952	HLT	/CLA SPA SZL SHOULD HAVE CLEARED AC

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3953 /AC SHOULD EQUAL ZERO
3954 /-----
3955 /GROUP 2 OPERATE TEST 55
3956 /-----
4412 7320 3957 CLA CLL CML
4413 1060 3958 TAD K3777 /AC EQUALS 3777
3959 /LINK EQUALS ONE
4414 7730 3960 CLA SPA SZL /TEST COMBINATION (AND)
4415 7440 3961 SZA
4416 7402 3962 HLT /CLA SPA SZL SHOULD NOT HAVE SKIPPED
3963 /AC SHOULD EQUAL 0000
3964 /LINK SHOULD EQUAL ONE
3965 /-----
3966 /GROUP 2 OPERATE TEST 56
3967 /-----
4417 7300 3968 CLA CLL
4420 1061 3969 TAD K4000 /AC EQUALS 4000
3970 /LINK EQUALS ZERO
4421 7730 3971 CLA SPA SZL /TEST COMBINATION (AND)
4422 7440 3972 SZA
4423 7402 3973 HLT /CLA SPA SZL SHOULD NOT HAVE SKIPPED
3974 /AC SHOULD EQUAL 0000
3975 /LINK SHOULD EQUAL ZERO
3976 /-----
3977 /GROUP 2 OPERATE TEST 57
3978 /-----
4424 7300 3979 CLA CLL
4425 1061 3980 TAD K4000 /AC EQUALS 4000
3981 /LINK EQUALS ZERO
4426 7470 3982 SNA SZL /TEST COMBINATION (AND)
4427 7402 3983 HLT /SNA SZL SHOULD HAVE SKIPPED
3984 /AC SHOULD EQUAL 4000
3985 /LINK SHOULD EQUAL ZERO
3986 /-----
3987 /GROUP 2 OPERATE TEST 58
3988 /-----
4430 7320 3989 CLA CLL CML
4431 1061 3990 TAD K4000 /AC EQUALS 4000
3991 /LINK EQUALS ONE
4432 7470 3992 SNA SZL /TEST COMBINATION (AND)
4433 7420 3993 SNL
4434 7402 3994 HLT /SNA SZL SHOULD NOT HAVE SKIPPED
3995 /AC SHOULD EQUAL 4000
3996 /LINK SHOULD EQUAL ONE
3997 /-----
3998 /GROUP 2 OPERATE TEST 59
3999 /-----
4435 7300 4000 CLA CLL /AC EQUALS 0000
4001 /LINK EQUALS ZERO
4436 7470 4002 SNA SZL /TEST COMBINATION (AND)
4437 7430 4003 SZL
4440 7402 4004 HLT /SNA SZL SHOULD NOT HAVE SKIPPED

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4005 /AC SHOULD EQUAL 0000
4006 /LINK SHOULD EQUAL ZERO
4007 /-----
4008 /GROUP 2 OPERATE TEST 60
4009 /-----
4441 7320 4010 CLA CLL CML
4442 1061 4011 TAD K4000 /AC EQUALS 4000
4012 /LINK EQUALS ONE
4443 7670 4013 CLA SNA SZL /TEST COMBINATION (AND)
4444 7440 4014 SZA
4445 7402 4015 HLT /CLA SNA SZL SHOULD NOT HAVE SKIPPED
4016 /AC SHOULD EQUAL 0000
4017 /LINK SHOULD EQUAL ONE
4018 /-----
4019 /GROUP 2 OPERATE TEST 61
4020 /-----
4446 7300 4021 CLA CLL
4447 1061 4022 TAD K4000 /AC EQUALS 4000
4023 /LINK EQUALS ZERO
4450 7670 4024 CLA SNA SZL /TEST COMBINATION (AND)
4451 7402 4025 HLT /CLA SNA SZL SHOULD HAVE SKIPPED
4026 /AC SHOULD EQUAL 0000
4027 /LINK SHOULD EQUAL ZERO
4452 7440 4028 SZA
4453 7402 4029 HLT /CLA SNA SZL SHOULD HAVE CLEARED AC
4030 /-----
4031 /GROUP 2 OPERATE TEST 62
4032 /-----
4454 7300 4033 CLA CLL /AC EQUALS 0000
4034 /LINK EQUALS ZERO
4455 7670 4035 CLA SNA SZL /TEST COMBINATION (AND)
4456 7440 4036 SZA
4457 7402 4037 HLT /CLA SNA SZL SHOULD NOT HAVE SKIPPED
4038 /AC SHOULD EQUAL 0000
4039 /LINK SHOULD EQUAL ZERO
4040 /-----
4041 /GROUP 2 OPERATE TEST 63
4042 /-----
4460 7300 4043 CLA CLL
4461 1060 4044 TAD K3777 /AC EQUALS 3777
4045 /LINK EQUALS ZERO
4462 7570 4046 SPA SNA SZL /TEST COMBINATION (AND)
4463 7402 4047 HLT /SPA SNA SZL SHOULD HAVE SKIPPED
4048 /AC SHOULD EQUAL 3777
4049 /LINK SHOULD EQUAL ZERO
4050 /-----
4051 /GROUP 2 OPERATE TEST 64
4052 /-----
4464 7320 4053 CLA CLL CML
4465 1060 4054 TAD K3777 /AC EQUALS 3777
4055 /LINK EQUALS ONE
4466 7570 4056 SPA SNA SZL /TEST COMBINATION (AND)

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4467 7420 4057      SNL
4470 7402 4058      HLT          /SPA SNA SZL SHOULD NOT HAVE SKIPPED
4059                /AC SHOULD EQUAL 3777
4060                /LINK SHOULD EQUAL ONE
4061 /-----
4062 /GROUP 2 OPERATE TEST 65
4063 /-----
4471 7300 4064      CLA CLL          /AC EQUALS 0000
4065                /LINK EQUALS ZERO
4472 7570 4066      SPA SNA SZL      /TEST COMBINATION (AND)
4473 7430 4067      SZL
4474 7402 4068      HLT          /SPA SNA SZL SHOULD NOT HAVE SKIPPED
4069                /AC SHOULD EQUAL 0000
4070                /LINK SHOULD EQUAL ZERO
4071 /-----
4072 /GROUP 2 OPERATE TEST 66
4073 /-----
4475 7300 4074      CLA CLL
4476 1061 4075      TAD    K4000      /AC EQUALS 4000
4076                /LINK EQUALS ZERO
4477 7570 4077      SPA SNA SZL      /TEST COMBINATION (AND)
4500 7430 4078      SZL
4501 7402 4079      HLT          /SPA SNA SZL SHOULD NOT HAVE SKIPPED
4080                /AC SHOULD EQUAL 4000
4081                /LINK SHOULD EQUAL ZERO
4082 /-----
4083 /GROUP 2 OPERATE TEST 67
4084 /-----
4502 7300 4085      CLA CLL
4503 1060 4086      TAD    K3777      /AC EQUALS 3777
4087                /LINK EQUALS ZERO
4504 7770 4088      CLA SPA SNA SZL /TEST COMBINATION (AND)
4505 7402 4089      HLT          /CLA SPA SNA SZL SHOULD HAVE SKIPPED
4090                /AC SHOULD EQUAL 0000
4091                /LINK SHOULD EQUAL ZERO
4506 7440 4092      SZA
4507 7402 4093      HLT          /CLA SPA SNA SZL SHOULD HAVE CLEARED A
4094                /AC SHOULD EQUAL 0000
4095                /LINK SHOULD EQUAL ZERO
4096 /-----
4097 /GROUP 2 OPERATE TEST 68
4098 /-----
4510 7320 4099      CLA CLL CML
4511 1060 4100      TAD    K3777      /AC EQUALS 3777
4101                /LINK EQUALS ONE
4512 7770 4102      CLA SPA SNA SZL /TEST COMBINATION (AND)
4103                /TEST COMBINATION (AND)
4513 7440 4104      SZA
4514 7402 4105      HLT          /CLA SPA SNA SZL FAILED
4106                /AC SHOULD EQUAL ZERO
4107                /LINK SHOULD EQUAL ONE
4108 /-----

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4109 /GROUP 2 OPERATE TEST 69
4110 /-----
4515 7300 4111          CLA CLL
4516 1061 4112          TAD    K4000          /AC EQUALS 4000
4113                                     /LINK EQUALS ZERO
4114                                     /TEST COMBINATION (AND)
4517 7770 4115          CLA SPA SNA SZL
4520 7440 4116          SZA
4521 7402 4117          HLT          /CLA SPA SNA SZL FAILED
4118                                     /AC SHOULD EQUAL 0000
4119                                     /LINK SHOULD EQUAL ZERO
4120 /-----
4121 /GROUP 2 OPERATE TEST 70
4122 /-----
4522 7300 4123          CLA CLL          /AC EQUALS 0000
4124                                     /LINK EQUALS ZERO
4523 7770 4125          CLA SPA SNA SZL
4126                                     /TEST COMBINATION (AND)
4524 7440 4127          SZA
4525 7402 4128          HLT          /CLA SPA SNA SZL SHOULD HAVE CLEARED AC
4129                                     /AC SHOULD EQUAL 0000
4130                                     /LINK SHOULD EQUAL ZERO
4131 /-----
4132 /GROUP 2 OPERATE TEST 71
4133 /-----
4526 7200 4134          CLA
4527 1062 4135          TAD    K5252          /AC EQUALS 5252
4530 7604 4136          CLA DSR          /TEST COMBINATION
4531 7040 4137          CMA
4532 7440 4138          SZA
4533 7402 4139          HLT          /CLA DSR FAILED
4140                                     /AC SHOULD EQUAL 0000
4141 /-----
4142 /GROUP 2 OPERATE TEST 72
4143 /-----
4534 7200 4144          CLA
4535 1061 4145          TAD    K4000          /AC EQUALS 4000
4536 7504 4146          SMA DSR          /TEST COMBINATION
4537 7402 4147          HLT          /SMA DSR SHOULD HAVE SKIPPED
4148                                     /AC SHOULD EQUAL 7777
4540 7040 4149          CMA
4541 7440 4150          SZA
4542 7402 4151          HLT          /SMA DSR FAILED
4152                                     /AC SHOULD EQUAL 0000
4153 /-----
4154 /GROUP 2 OPERATE TEST 73
4155 /-----
4543 7200 4156          CLA          /AC EQUALS 0000
4544 7444 4157          SZA DSR          /TEST COMBINATION
4545 7402 4158          HLT          /SZA DSR SHOULD HAVE SKIPPED
4159                                     /AC SHOULD EQUAL 0000
4546 7040 4160          CMA

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4547	7440	4161	SZA	
4550	7402	4162	HLT	/SZA OSR FAILED
		4163		/AC SHOULD EQUAL 0000
		4164	/	-----
		4165	/GROUP 2 OPERATE TEST 74	
		4166	/	-----
4551	7320	4167	CLA CLL CML	/AC EQUALS 0000
		4168		/LINK EQUALS ONE
4552	7424	4169	SNL OSR	/TEST COMBINATION
4553	7402	4170	HLT	/SNL OSR SHOULD HAVE SKIPPED
		4171		/AC SHOULD EQUAL 7777
4554	7040	4172	CMA	
4555	7440	4173	SZA	
4556	7402	4174	HLT	/SNL OSR FAILED.
		4175		/AC SHOULD EQUAL 0000
		4176	/	-----
		4177	/GROUP 2 OPERATE TEST 75	
		4178	/	-----
4557	7300	4179	CLA CLL	
4560	1060	4180	TAD K3777	/AC EQUALS 3777
		4181		/LINK EQUALS ZERO
4561	7764	4182	CLA SMA SZA SNL OSR	
		4183		/TEST COMBINATION
4562	7450	4184	SNA	
4563	7402	4185	HLT	/CLA SMA SZA SNL OSR FAILED
		4186		/AC SHOULD EQUAL 7777
		4187		/LINK EQUALS ZERO
4564	7040	4188	CMA	
4565	7440	4189	SZA	
4566	7402	4190	HLT	/CLA SMA SZA SNL OSR FAILED
		4191		/AC SHOULD EQUAL 0000
		4192	/	-----
		4193	/GROUP 2 OPERATE TEST 76	
		4194	/	-----
4567	7200	4195	CLA	/AC EQUALS 0000
4570	7414	4196	SKP OSR	/TEST COMBINATION
4571	7402	4197	HLT	/SKP OSR SHOULD HAVE SKIPPED
		4198		/AC SHOULD EQUAL 7777
4572	7040	4199	CMA	
4573	7440	4200	SZA	
4574	7402	4201	HLT	/SKP OSR FAILED
		4202		/AC SHOULD EQUAL 0000
		4203	/	-----
		4204	/GROUP 2 OPERATE TEST 77	
		4205	/	-----
4575	7200	4206	CLA	/AC EQUALS 0000
4576	7514	4207	SPA OSR	/TEST COMBINATION
4577	7402	4208	HLT	/SPA OSR SHOULD HAVE SKIPPED
		4209		/AC SHOULD EQUAL 7777
4600	7040	4210	CMA	
4601	7440	4211	SZA	
4602	7402	4212	HLT	/SPA OSR FAILED

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4213                                     /AC SHOULD EQUAL 0000
4214 /-----
4215 /GROUP 2 OPERATE TEST 78
4216 /-----
4603 7200 4217          CLA
4604 1046 4218          TAD      K0400      /AC EQUALS 0400
4605 7454 4219          SNA  OSR        /TEST COMBINATION
4606 7402 4220          HLT                /SNA OSR SHOULD HAVE SKIPPED
4221                                     /AC SHOULD EQUAL 7777
4607 7040 4222          CMA
4610 7440 4223          SZA
4611 7402 4224          HLT                /SNA OSR FAILED
4225                                     /AC SHOULD EQUAL 0000
4226 /-----
4227 /GROUP 2 OPERATE TEST 79
4228 /-----
4612 7300 4229          CLA CLL          /AC EQUALS 0000
4230                                     /LINK EQUALS ZERO
4613 7444 4231          SZA  OSR        /TEST COMBINATION
4614 7402 4232          HLT                /SZL OSR SHOULD HAVE SKIPPED
4233                                     /AC SHOULD EQUAL 7777
4615 7040 4234          CMA
4616 7440 4235          SZA
4617 7402 4236          HLT                /SZL OSR FAILED
4237                                     /AC SHOULD EQUAL 0000
4238 /-----
4239 /GROUP 2 OPERATE TEST 80
4240 /-----
4620 7300 4241          CLA CLL
4621 1060 4242          TAD      K3777      /AC EQUALS 3777
4243                                     /LINK EQUALS ZERO
4622 7774 4244          CLA SPA SNA SZL OSR
4245                                     /TEST COMBINATION (AND)
4623 7402 4246          HLT                /CLA SPA SNA SZL OSR SHOULD HAVE SKIPPED
4247                                     /AC SHOULD EQUAL 7777
4624 7040 4248          CMA
4625 7440 4249          SZA
4626 7402 4250          HLT                /CLA SPA SNA SZL OSR FAILED
4251                                     /AC SHOULD EQUAL 0000
4252 /-----
4253 /AND TEST 1
4254 /-----
4627 7200 4255          CLA
4630 0110 4256          AND K7777
4631 7440 4257          SZA
4632 7402 4258          HLT                /AND FAILED
4259                                     /AC SHOULD EQUAL 0000
4260 /-----
4261 /AND TEST 2
4262 /-----
4633 7240 4263          CLA CMA
4634 0020 4264          AND K0000

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4635 7440 4265          SZA
4636 7402 4266          HLT          /AND FAILED
                                         /AC SHOULD EQUAL 0000
                                         -----
                                         /AND TEST 3
                                         -----
4637 7360 4271          CLA CLL CMA CML
                                         /AC EQUALS 7777
                                         /LINK EQUALS ONE
4640 0110 4274          AND K7777
4641 7040 4275          CMA
4642 7430 4276          SZL
4643 7440 4277          SZA
4644 7402 4278          HLT          /AND FAILED
                                         /AC SHOULD EQUAL 0000
                                         /LINK SHOULD EQUAL ONE
                                         -----
                                         /AND TEST 4
                                         -----
4645 7300 4284          CLA CLL
4646 1056 4285          TAD K2525          /AC EQUALS 2525
                                         /LINK EQUALS ZERO
4647 0062 4287          AND K5252
4650 7420 4288          SNL
4651 7440 4289          SZA
4652 7402 4290          HLT          /AND FAILED
                                         /AC SHOULD EQUAL 0000
                                         /LINK SHOULD EQUAL ZERO
                                         -----
                                         /AND TEST 5
                                         -----
4653 7300 4296          CLA CLL
4654 1062 4297          TAD K5252          /AC EQUALS 5252
                                         /LINK EQUALS ZERO
4655 0056 4299          AND K2525
4656 7420 4300          SNL
4657 7440 4301          SZA
4660 7402 4302          HLT          /AND FAILED
                                         /AC SHOULD EQUAL 0000
                                         /LINK SHOULD EQUAL ZERO
                                         -----
                                         /AND TEST 6
                                         -----
4661 7300 4308          CLA CLL
4662 1056 4309          TAD K2525          /AC EQUALS 2525
                                         /LINK EQUALS ZERO
4663 0056 4311          AND K2525          /TEST INSTRUCTION
4664 7041 4312          CMA IAC
4665 1056 4313          TAD K2525          /AC EQUALS 0000
                                         /LINK EQUALS ONE
4666 7430 4315          SZL
4667 7440 4316          SZA

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4670 7402 4317      HLT                /AND FAILED
          4318                /LINK SHOULD EQUAL ONE
          4319                /AC SHOULD EQUAL 0000
          4320 /-----
          4321 /AND TEST 7
          4322 /-----
4671 7300 4323      CLA CLL
4672 1062 4324      TAD K5252          /AC EQUALS 5252
          4325                /LINK EQUALS ZERO
4673 0062 4326      AND K5252          /TEST INSTRUCTION
4674 7041 4327      CMA IAC
4675 1062 4328      TAD K5252          /AC EQUALS 0000
          4329                /LINK EQUALS ONE
4676 7430 4330      SZL
4677 7440 4331      SZA
4700 7402 4332      HLT                /AND FAILED
          4333                /AC SHOULD EQUAL 0000
          4334                /LINK SHOULD EQUAL ONE
          4335 /-----
          4336 /JMP TEST 1
          4337 /-----
4701 5303 4338      JMP      .+2
4702 7402 4339      HLT                /JMP FAILS
4703 5307 4340      JMP      .+4
4704 7402 4341      HLT                /JMP FAILS
4705 5311 4342      JMP      .+4
4706 7402 4343      HLT                /JMP FAILS
4707 5305 4344      JMP      .-2
4710 7402 4345      HLT                /JMP FAILS
          4346 /-----
          4347 /DCA TEST 1
          4348 /-----
4711 7300 4349      CLA CLL          /AC EQUALS 0000
          4350                /LINK EQUALS ZERO
4712 3000 4351      DCA      BP000    /TEST INSTRUCTION
4713 7440 4352      SZA
4714 7402 4353      HLT                /DCA FAILED
          4354                /AC SHOULD EQUAL ZERO
4715 1000 4355      TAD      BP000
4716 7420 4356      SNL
4717 7440 4357      SZA
4720 7402 4358      HLT                /DCA FAILED
          4359                /AC SHOULD EQUAL 0000
          4360                /LINK SHOULD EQUAL ZERO
          4361 /-----
          4362 /DCA TEST 2
          4363 /-----
4721 7360 4364      CLA CLL CMA CML
          4365                /AC SHOULD EQUAL 7777
          4366                /LINK SHOULD EQUAL ONE
4722 3000 4367      DCA      BP000    /TEST INSTRUCTION
4723 7440 4368      SZA

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4724	7402	4369	HLT		/DCA FAILED
		4370			/AC SHOULD EQUAL ZERO
4725	1000	4371	TAD	BP000	
4726	7040	4372	CMA		
4727	7430	4373	SZL		
4730	7440	4374	SZA		
4731	7402	4375	HLT		/DCA FAILED
		4376			/AC SHOULD EQUAL ZERO
		4377			/LINK SHOULD EQUAL ONE
		4378	/-----		
		4379	/DCA TEST 3		
		4380	/-----		
4732	7300	4381	CLA	CLL	
4733	1056	4382	TAD	K2525	/AC EQUALS 2525
4734	3000	4383	DCA	BP000	/TEST INSTRUCTION
4735	7440	4384	SZA		
4736	7402	4385	HLT		/DCA FAILED
		4386			/AC SHOULD EQUAL 0000
4737	1000	4387	TAD	BP000	
4740	7041	4388	CMA	IAC	
4741	1056	4389	TAD	K2525	
4742	7430	4390	SZL		
4743	7440	4391	SZA		
4744	7402	4392	HLT		/DCA FAILED
		4393			/AC SHOULD EQUAL 0000
		4394			/LINK SHOULD EQUAL ONE
		4395	/-----		
		4396	/DCA TEST 4		
		4397	/-----		
4745	7300	4398	CLA	CLL	
4746	1062	4399	TAD	K5252	/AC EQUALS 5252
4747	3000	4400	DCA	BP000	/TEST INSTRUCTION
4750	7440	4401	SZA		
4751	7402	4402	HLT		/DCA FAILED
		4403			/AC SHOULD EQUAL 0000
4752	1062	4404	TAD	K5252	
4753	7041	4405	CMA	IAC	
4754	1000	4406	TAD	BP000	
4755	7430	4407	SZL		
4756	7440	4408	SZA		
4757	7402	4409	HLT		/DCA FAILED
		4410			/AC SHOULD EQUAL 0000
		4411			/LINK SHOULD EQUAL ONE
		4412	/-----		
		4413	/DCA TEST 5		
		4414	/-----		
4760	7300	4415	CLA	CLL	/AC EQUALS 0000
		4416			/LINK EQUALS ZERO
4761	3177	4417	DCA	BP177	/TEST INSTRUCTION
4762	7440	4418	SZA		
4763	7402	4419	HLT		/DCA FAILED
		4420			/AC SHOULD EQUAL 0000

4764	1177	4421	TAD	BP177		
4765	7420	4422	SNL			
4766	7440	4423	SZA			
4767	7402	4424	HLT		/DCA FAILED	
		4425			/AC SHOULD EQUAL 0000	
		4426			/LINK SHOULD EQUAL ZERO	
		4427	/-----			
		4428	/DCA TEST 6			
		4429	/-----			
4770	7360	4430	CLA	CLL	CMA	CML
		4431				/AC EQUALS 7777
		4432				/LINK EQUALS ONE
4771	3177	4433	DCA	BP177		/TEST INSTRUCTION
4772	7440	4434	SZA			
4773	7402	4435	HLT			/DCA FAILED
		4436				/AC SHOULD EQUAL 0000
4774	1177	4437	TAD	BP177		
4775	7040	4438	CMA			
		4439	/-----			
4776	7000	4440	NOP;SKP;0000			
4777	7410					
5000	0000					
		4441	/-----			
5001	7430	4442	SZL			
5002	7440	4443	SZA			
5003	7402	4444	HLT			/DCA FAILED
		4445				/AC SHOULD EQUAL 0000
		4446				/LINK SHOULD EQUAL ONE
		4447	/-----			
		4448	/DCA TEST 7			
		4449	/-----			
5004	7300	4450	CLA	CLL		
		4451				/LINK EQUALS ZERO
5005	1056	4452	TAD	K2525		/AC EQUALS 2525
5006	3177	4453	DCA	BP177		/TEST INSTRUCTION
5007	7440	4454	SZA			
5010	7402	4455	HLT			/DCA FAILED
		4456				/AC SHOULD EQUAL 0000
5011	1177	4457	TAD	BP177		
5012	7041	4458	CMA	IAC		
5013	1056	4459	TAD	K2525		
5014	7430	4460	SZL			
5015	7440	4461	SZA			
5016	7402	4462	HLT			/DCA FAILED
		4463				/AC SHOULD EQUAL 0000
		4464				/LINK SHOULD EQUAL ONE
		4465	/-----			
		4466	/DCA TEST 8			
		4467	/-----			
5017	7300	4468	CLA	CLL		
		4469				/LINK EQUALS ZERO
5020	1062	4470	TAD	K5252		/AC EQUALS 5252

5021	3177	4471	DCA	BP177	/TEST INSTRUCTION
5022	7430	4472	SZL		
5023	7402	4473	HLT		/DCA FAILED
		4474			/AC SHOULD EQUAL ZERO
5024	1177	4475	TAD	BP177	
5025	7041	4476	CMA	IAC	
5026	1062	4477	TAD	K5252	
5027	7430	4478	SZL		
5030	7440	4479	SZA		
5031	7402	4480	HLT		/DCA FAILED
		4481			/AC SHOULD EQUAL ZERO
		4482			/LINK SHOULD EQUAL ONE
		4483	/-----		
		4484	/DCA TEST 9		
		4485	/-----		
5032	7300	4486	CLA	CLL	/AC EQUALS 0000
		4487			/LINK EQUALS ZERO
5033	3200	4488	DCA	CP000	/TEST INSTRUCTION
5034	7440	4489	SZA		
5035	7402	4490	HLT		/DCA FAILED
		4491			/AC SHOULD EQUAL 0000
5036	1200	4492	TAD	CP000	
5037	7420	4493	SNL		
5040	7440	4494	SZA		
5041	7402	4495	HLT		/DCA FAILED
		4496			/AC SHOULD EQUAL 0000
		4497			/LINK SHOULD EQUAL ZERO
		4498	/-----		
		4499	/DCA TEST 10		
		4500	/-----		
5042	7360	4501	CLA	CLL CMA CML	
		4502			/AC SHOULD EQUAL 7777
		4503			/LINK SHOULD EQUAL ONE
5043	3200	4504	DCA	CP000	/TEST INSTRUCTION
5044	7440	4505	SZA		
5045	7402	4506	HLT		/DCA FAILED
		4507			/AC SHOULD EQUAL 0000
5046	1200	4508	TAD	CP000	
5047	7040	4509	CMA		
5050	7430	4510	SZL		
5051	7440	4511	SZA		
5052	7402	4512	HLT		/DCA FAILED
		4513			/AC SHOULD EQUAL 7777
		4514			/LINK SHOULD EQUAL ONE
		4515	/-----		
		4516	/DCA TEST 11		
		4517	/-----		
5053	7300	4518	CLA	CLL	
5054	1056	4519	TAD	K2525	/AC EQUALS 2525
5055	3200	4520	DCA	CP000	/TEST INSTRUCTION
5056	7440	4521	SZA		
5057	7402	4522	HLT		/DCA FAILED

		4523			/AC SHOULD EQUAL 0000
5060	1200	4524	TAD	CP000	
5061	7041	4525	CMA	IAC	
5062	1056	4526	TAD	K2525	
5063	7430	4527	SZL		
5064	7440	4528	SZA		
5065	7402	4529	HLT		/DCA FAILED
		4530			/AC SHOULD EQUAL 0000
		4531			/LINK SHOULD EQUAL ONE
		4532	/-----		
		4533	/DCA TEST 12		
		4534	/-----		
5066	7300	4535	CLA	CLL	
5067	1062	4536	TAD	K5252	/AC EQUALS 5252
5070	3200	4537	DCA	CP000	/TEST INSTRUCTION
5071	7440	4538	SZA		
5072	7402	4539	HLT		/DCA FAILED
		4540			/AC SHOULD EQUAL 0000
5073	1200	4541	TAD	CP000	
5074	7041	4542	CMA	IAC	
5075	1062	4543	TAD	K5252	
5076	7430	4544	SZL		
5077	7440	4545	SZA		
5100	7402	4546	HLT		/DCA FAILED
		4547			/AC SHOULD EQUAL 0000
		4548			/LINK SHOULD EQUAL ONE
		4549	/-----		
		4550	/DCA TEST 13		
		4551	/-----		
5101	7300	4552	CLA	CLL	/AC EQUALS 0000
5102	3377	4553	DCA	CP177	/TEST INSTRUCTION
5103	7440	4554	SZA		
5104	7402	4555	HLT		/DCA FAILED
		4556			/AC SHOULD EQUAL 0000
5105	1377	4557	TAD	CP177	
5106	7420	4558	SNL		
5107	7440	4559	SZA		
5110	7402	4560	HLT		/DCA FAILED
		4561			/AC SHOULD EQUAL 0000
		4562			/LINK SHOULD EQUAL ZERO
		4563	/-----		
		4564	/DCA TEST 14		
		4565	/-----		
5111	7360	4566	CLA	CLL CMA CML	
		4567			/AC EQUALS 7777
		4568			/LINK EQUALS ONE
5112	3377	4569	DCA	CP177	/TEST INSTRUCTION
5113	7440	4570	SZA		
5114	7402	4571	HLT		/DCA FAILED
		4572			/AC SHOULD EQUAL 0000
5115	1377	4573	TAD	CP177	
5116	7040	4574	CMA		

5117	7430	4575	SZL		
5120	7440	4576	SZA		
5121	7402	4577	HLT		/DCA FAILED
		4578			/AC SHOULD EQUAL 0000
		4579			/LINK SHOULD EQUAL ONE
		4580	/	-----	
		4581	/DCA TEST 15		
		4582	/	-----	
5122	7300	4583	CLA CLL		
		4584			/LINK EQUALS ZERO
5123	1056	4585	TAD	K2525	/AC EQUALS 2525
5124	3377	4586	DCA	CP177	/TEST INSTRUCTION
5125	7440	4587	SZA		
5126	7402	4588	HLT		/DCA FAILED
		4589			/AC SHOULD EQUAL ZERO
5127	1377	4590	TAD	CP177	
5130	7041	4591	CMA	IAC	
5131	1056	4592	TAD	K2525	
5132	7430	4593	SZL		
5133	7440	4594	SZA		
5134	7402	4595	HLT		/DCA FAILED
		4596			/LINK SHOULD EQUAL ONE
		4597			/AC SHOULD EQUAL ZERO
		4598	/	-----	
		4599	/DCA TEST 16		
		4600	/	-----	
5135	7300	4601	CLA CLL		
		4602			/LINK EQUALS ZERO
5136	1062	4603	TAD	K5252	/AC EQUALS 5252
5137	3377	4604	DCA	CP177	/TEST INSTRUCTION
5140	7430	4605	SZL		
5141	7402	4606	HLT		/DCA FAILED
		4607			/AC SHOULD EQUAL ZERO
5142	1377	4608	TAD	CP177	
5143	7041	4609	CMA	IAC	
5144	1062	4610	TAD	K5252	
5145	7430	4611	SZL		
5146	7440	4612	SZA		
5147	7402	4613	HLT		/DCA FAILED
		4614			/AC SHOULD EQUAL ZERO
		4615			/LINK SHOULD EQUAL ONE
		4616	/	-----	
		4617	/ISZ TEST 1		
		4618	/	-----	
5150	7300	4619	CLA CLL		
5151	3200	4620	DCA	CP000	
5152	1200	4621	TAD	CP000	
5153	7040	4622	CMA		
5154	7650	4623	SNA	CLA	
5155	5361	4624	JMP	+.4	
5156	2200	4625	ISZ	CP000	/TEST INSTRUCTION
5157	5352	4626	JMP	.-5	

5160	7402	4627	HLT		/ISZ SHOULD NOT HAVE SKIPPED
5161	2200	4628	ISZ	CP000	/TEST INSTRUCTION
5162	7402	4629	HLT		/ISZ FAILED TO SKIP
		4630	/-----		
		4631	/ISZ TEST 2		
		4632	/-----		
5163	7300	4633	CLA	CLL	
5164	3200	4634	DCA	CP000	
5165	7001	4635	IAC		
5166	2200	4636	ISZ	CP000	
5167	5365	4637	JMP	.-2	
5170	7440	4638	SZA		/AC SHOULD EQUAL 0000
5171	7402	4639	HLT		/ISZ ERROR
5172	1200	4640	TAD	CP000	/CP000 SHOULD EQUAL 0000
5173	7440	4641	SZA		
5174	7402	4642	HLT		/ISZ ERROR
		4643	/-----		
5175	7000	4644	NOP;SKP;0000		
5176	7410				
5177	0000				
		4645	/-----		
		4646	/ISZ TEST 3		
		4647	/-----		
5200	7320	4648	CLA	CLL CML	
5201	3000	4649	DCA	BP000	
5202	1000	4650	TAD	BP000	
5203	7040	4651	CMA		
5204	7650	4652	SNA	CLA	
5205	5211	4653	JMP	.+4	
5206	2000	4654	ISZ	BP000	/TEST INSTRUCTION
5207	5202	4655	JMP	.-5	
5210	7402	4656	HLT		/ISZ SHOULD NOT HAVE SKIPPED
5211	2000	4657	ISZ	BP000	/TEST INSTRUCTION
5212	7402	4658	HLT		/ISZ FAILED TO SKIP
		4659	/-----		
		4660	/ISZ TEST 4		
		4661	/-----		
5213	7320	4662	CLA	CLL CML	
5214	3000	4663	DCA	BP000	
5215	7001	4664	IAC		
5216	2000	4665	ISZ	BP000	/TEST INSTRUCTION
5217	5215	4666	JMP	.-2	
5220	7440	4667	SZA		/AC SHOULD EQUAL 0000
5221	7402	4668	HLT		/ISZ ERROR
5222	7200	4669	CLA		
5223	1000	4670	TAD	BP000	/BP000 SHOULD EQUAL 0000
5224	7440	4671	SZA		
5225	7402	4672	HLT		/ISZ ERROR
		4673	/-----		
		4674	/JMS TEST 1		
		4675	/-----		
5226	3231	4676	DCA	+.3	/ALTER SAVE LOCATION AND CLEAR AC

5227	4231	4677	JMS	+.2	/TEST INSTRUCTION
5230	7402	4678	HLT		/JMS FAILED
5231	0000	4679	0000		
5232	7440	4680	SZA		
5233	7402	4681	HLT		/JMS FAILED
		4682			/AC SHOULD EQUAL 0000
5234	1231	4683	TAD	.-3	
5235	7410	4684	SKP		
5236	5230	4685	.	-6	
5237	7041	4686	CMA	IAC	
5240	1236	4687	TAD	.-2	
5241	7440	4688	SZA		
5242	7402	4689	HLT		/JMS FAILED
		4690	/	-----	
		4691	/	INDIRECT ADDRESSING TEST 1	
		4692	/	-----	
5243	7200	4693	CLA		
5244	1110	4694	TAD	K7777	
5245	0573	4695	AND I	K0172	/OPERAND=0176
5246	7041	4696	CMA	IAC	
5247	1172	4697	TAD	K0176	
5250	7440	4698	SZA		/AND INDIRECT FAILED
5251	7402	4699	HLT		/AC SHOULD EQUAL 0000
		4700	/	-----	
		4701	/	INDIRECT ADDRESSING TEST 2	
		4702	/	-----	
5252	7200	4703	CLA		
5253	1110	4704	TAD	K7777	
5254	0574	4705	AND I	K0173	/OPERAND=0172
5255	7041	4706	CMA	IAC	
5256	1173	4707	TAD	K0172	
5257	7440	4708	SZA		/AND INDIRECT FAILED
5260	7402	4709	HLT		/AC SHOULD EQUAL 0000
		4710	/	-----	
		4711	/	INDIRECT ADDRESSING TEST 3	
		4712	/	-----	
5261	7200	4713	CLA		
5262	1110	4714	TAD	K7777	
5263	0575	4715	AND I	K0174	/OPERAND=0173
5264	7041	4716	CMA	IAC	
5265	1174	4717	TAD	K0173	
5266	7440	4718	SZA		/AND INDIRECT FAILED
5267	7402	4719	HLT		/AC SHOULD EQUAL 0000
		4720	/	-----	
		4721	/	INDIRECT ADDRESSING TEST 4	
		4722	/	-----	
5270	7200	4723	CLA		
5271	1110	4724	TAD	K7777	
5272	0576	4725	AND I	K0175	/OPERAND=0174
5273	7041	4726	CMA	IAC	
5274	1175	4727	TAD	K0174	
5275	7440	4728	SZA		/AND INDIRECT FAILED

5276 7402 4729 HLT /AC SHOULD EQUAL 0000

4730 /-----

4731 /INDIRECT ADDRESSING TEST 5

4732 /-----

5277 7200 4733

CLA

5300 1110 4734

TAD K7777

5301 0572 4735

AND I K0176 /OPERAND=0175

5302 7041 4736

CMA IAC

5303 1176 4737

TAD K0175

5304 7440 4738

SZA /AND INDIRECT FAILED

5305 7402 4739

HLT /AC SHOULD EQUAL 0000

4740 /-----

4741 /INDIRECT ADDRESSING TEST 6

4742 /-----

5306 7200 4743

CLA

5307 1052 4744

TAD K1234

5310 3177 4745

DCA BP177

5311 1110 4746

TAD K7777

5312 0442 4747

AND I K0177 /OPERAND=1234

5313 7041 4748

CMA IAC

5314 1052 4749

TAD K1234

5315 7440 4750

SZA

5316 7402 4751

HLT /AND INDIRECT FAILED

4752 /AC SHOULD EQUAL 0000

4753 /-----

4754 /INDIRECT ADDRESSING TEST 7

4755 /-----

5317 7200 4756

CLA

5320 1573 4757

TAD I K0172 /OPERAND=0176

5321 7041 4758

CMA IAC

5322 1172 4759

TAD K0176

5323 7440 4760

SZA

5324 7402 4761

HLT /TAD INDIRECT FAILED

4762 /AC SHOULD EQUAL 0000

4763 /-----

4764 /INDIRECT ADDRESSING TEST 8

4765 /-----

5325 7200 4766

CLA

5326 1574 4767

TAD I K0173 /OPERAND=0172

5327 7041 4768

CMA IAC

5330 1173 4769

TAD K0172

5331 7440 4770

SZA

5332 7402 4771

HLT /TAD INDIRECT FAILED

4772 /AC SHOULD EQUAL 0000

4773 /-----

4774 /INDIRECT ADDRESSING TEST 9

4775 /-----

5333 7200 4776

CLA

5334 1575 4777

TAD I K0174 /OPERAND=0173

5335 7041 4778

CMA IAC

5336 1174 4779

TAD K0173

5337 7440 4780

SZA

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5340 7402 4781          HLT          /TAD INDIRECT FAILED
4782                      /AC SHOULD EQUAL 0000
4783 /-----
4784 /INDIRECT ADDRESSING TEST 10
4785 /-----
5341 7200 4786          CLA
5342 1576 4787          TAD I K0175      /OPERAND=0174
5343 7041 4788          CMA IAC
5344 1175 4789          TAD   K0174
5345 7440 4790          SZA
5346 7402 4791          HLT          /TAD INDIRECT FAILED
4792                      /AC SHOULD EQUAL 0000
4793 /-----
4794 /INDIRECT ADDRESSING TEST 11
4795 /-----
5347 7200 4796          CLA
5350 1572 4797          TAD I K0176      /OPERAND=0175
5351 7041 4798          CMA IAC
5352 1176 4799          TAD   K0175
5353 7440 4800          SZA
5354 7402 4801          HLT          /TAD INDIRECT FAILED
4802                      /AC SHOULD EQUAL 0000
4803 /-----
4804 /INDIRECT ADDRESSING TEST 12
4805 /-----
5355 7200 4806          CLA
5356 1052 4807          TAD   K1234
5357 3177 4808          DCA   BP177
5360 1442 4809          TAD I K0177      /OPERAND=1234
5361 7041 4810          CMA IAC
5362 1052 4811          TAD   K1234
5363 7440 4812          SZA
5364 7402 4813          HLT          /TAD INDIRECT FAILED
4814                      /AC SHOULD EQUAL 0000
4815 /-----
4816 /INDIRECT ADDRESSING TEST 13
4817 /-----
5365 7200 4818          CLA
5366 1173 4819          TAD   K0172
5367 3000 4820          DCA   BP000
5370 2420 4821          ISZ I K0000      /TEST INSTRUCTION
5371 7410 4822          SKP
5372 7402 4823          HLT          /ISZ SHOULD NOT HAVE SKIPPED
5373 1000 4824          TAD   BP000
5374 7041 4825          CMA IAC
5375 1173 4826          TAD   K0172
5376 7040 4827          CMA
5377 7440 4828          SZA
5400 7402 4829          HLT          /DCA INDIRECT FAILED
4830                      /AC SHOULD EQUAL 0000
4831 /-----
4832 /INDIRECT ADDRESSING TEST 14

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4833 /-----
5401 7200 4834      CLA
5402 1174 4835      TAD      K0173
5403 3000 4836      DCA      BP000
5404 2420 4837      ISZ I K0000      /TEST INSTRUCTION
5405 7410 4838      SKP
5406 7402 4839      HLT              /ISZ SHOULD NOT HAVE SKIPPED
5407 1000 4840      TAD      BP000
5410 7041 4841      CMA IAC
5411 1174 4842      TAD      K0173
5412 7040 4843      CMA
5413 7440 4844      SZA
5414 7402 4845      HLT              /DCA INDIRECT FAILED
4846              /AC SHOULD EQUAL 0000

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4847 /-----
4848 /INDIRECT ADDRESSING TEST 15
4849 /-----

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5415 7200 4850      CLA
5416 1175 4851      TAD      K0174
5417 3000 4852      DCA      BP000
5420 2420 4853      ISZ I K0000      /TEST INSTRUCTION
5421 7410 4854      SKP
5422 7402 4855      HLT              /ISZ SHOULD NOT HAVE SKIPPED
5423 1000 4856      TAD      BP000
5424 7041 4857      CMA IAC
5425 1175 4858      TAD      K0174
5426 7040 4859      CMA
5427 7440 4860      SZA
5430 7402 4861      HLT              /DCA INDIRECT FAILED
4862              /AC SHOULD EQUAL 0000

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4863 /-----
4864 /INDIRECT ADDRESSING TEST 16
4865 /-----

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5431 7200 4866      CLA
5432 1176 4867      TAD      K0175
5433 3000 4868      DCA      BP000
5434 2420 4869      ISZ I K0000      /TEST INSTRUCTION
5435 7410 4870      SKP
5436 7402 4871      HLT              /ISZ SHOULD NOT HAVE SKIPPED
5437 1000 4872      TAD      BP000
5440 7041 4873      CMA IAC
5441 1176 4874      TAD      K0175
5442 7040 4875      CMA
5443 7440 4876      SZA
5444 7402 4877      HLT              /AC SHOULD EQUAL 0000

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4878 /-----
4879 /INDIRECT ADDRESSING TEST 17
4880 /-----

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```

5445 7200 4881      CLA
5446 1172 4882      TAD      K0176
5447 3000 4883      DCA      BP000
5450 2420 4884      ISZ I K0000      /TEST INSTRUCTION

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5451	7410	4885	SKP	
5452	7402	4886	HLT	/ISZ SHOULD NOT HAVE SKIPPED
5453	1000	4887	TAD	BP000
5454	7041	4888	CMA	IAC
5455	1172	4889	TAD	K0176
5456	7040	4890	CMA	
5457	7440	4891	SZA	
5460	7402	4892	HLT	/ISZ INDIRECT FAILED
		4893		/AC SHOULD EQUAL 0000
		4894	/	-----
		4895	/INDIRECT ADDRESSING TEST 18	
		4896	/	-----
5461	7200	4897	CLA	
5462	1042	4898	TAD	K0177
5463	3000	4899	DCA	BP000
5464	2420	4900	ISZ I	K0000 /TEST INSTRUCTION
5465	7410	4901	SKP	
5466	7402	4902	HLT	/ISZ SHOULD NOT HAVE SKIPPED
5467	1000	4903	TAD	BP000
5470	7041	4904	CMA	IAC
5471	1042	4905	TAD	K0177
5472	7040	4906	CMA	
5473	7440	4907	SZA	
5474	7402	4908	HLT	/ISZ INDIRECT FAILED
		4909		/AC SHOULD EQUAL 0000
		4910	/	-----
		4911	/AUTO INDEX TEST 1	
		4912	/	-----
5475	7200	4913	CLA	
5476	1020	4914	TAD	K0000 /CONSTANT TO BE INDEXED
5477	3010	4915	DCA	10
5500	0410	4916	AND I	10 /DO AUTO INDEX
5501	1010	4917	TAD	10
5502	1107	4918	TAD	K7776 /AC SHOULD EQUAL 7777
5503	7040	4919	CMA	
5504	7440	4920	SZA	/AC SHOULD BE ZERO
5505	7402	4921	HLT	/AUTO INDEX ERROR
		4922	/	-----
		4923	/AUTO INDEX TEST 2	
		4924	/	-----
5506	7200	4925	CLA	
5507	1107	4926	TAD	K7776 /CONSTANT TO BE INDEXED
5510	3010	4927	DCA	10
5511	0410	4928	AND I	10 /DO AUTO INDEX
5512	1010	4929	TAD	10
5513	1020	4930	TAD	K0000 /AC SHOULD EQUAL 7777
5514	7040	4931	CMA	
5515	7440	4932	SZA	/AC SHOULD BE ZERO
5516	7402	4933	HLT	/AUTO INDEX ERROR
		4934	/	-----
		4935	/AUTO INDEX TEST 3	
		4936	/	-----

5517	7200	4937	CLA	
5520	1106	4938	TAD K7775	/CONSTANT TO BE INDEXED
5521	3010	4939	DCA 10	
5522	3410	4940	DCA I 10	/DO AUTO INDEX
5523	1010	4941	TAD 10	
5524	1021	4942	TAD K0001	/AC SHOULD EQUAL 7777
5525	7040	4943	CMA	
5526	7440	4944	SZA	/AC SHOULD BE ZERO
5527	7402	4945	HLT	/AUTO INDEX ERROR

4946 /-----
 4947 /AUTO INDEX TEST 4
 4948 /-----

5530	7200	4949	CLA	
5531	1104	4950	TAD K7773	/CONSTANT TO BE INDEXED
5532	3010	4951	DCA 10	
5533	1410	4952	TAD I 10	/DO AUTO INDEX
5534	7200	4953	CLA	
5535	1010	4954	TAD 10	
5536	1023	4955	TAD K0003	/AC SHOULD EQUAL 7777
5537	7040	4956	CMA	
5540	7440	4957	SZA	/AC SHOULD BE ZERO
5541	7402	4958	HLT	/AUTO INDEX ERROR

4959 /-----
 4960 /AUTO INDEX TEST 5
 4961 /-----

5542	7200	4962	CLA	
5543	1102	4963	TAD K7767	/CONSTANT TO BE INDEXED
5544	3010	4964	DCA 10	
5545	0410	4965	AND I 10	/DO AUTO INDEX
5546	1010	4966	TAD 10	
5547	1026	4967	TAD K0007	/AC SHOULD EQUAL 7777
5550	7040	4968	CMA	
5551	7440	4969	SZA	/AC SHOULD BE ZERO
5552	7402	4970	HLT	/AUTO INDEX ERROR

4971 /-----
 4972 /AUTO INDEX TEST 6
 4973 /-----

5553	7200	4974	CLA	
5554	1100	4975	TAD K7757	/CONSTANT TO BE INDEXED
5555	3010	4976	DCA 10	
5556	0410	4977	AND I 10	/DO AUTO INDEX
5557	1010	4978	TAD 10	
5560	1031	4979	TAD K0017	/AC SHOULD EQUAL 7777
5561	7040	4980	CMA	
5562	7440	4981	SZA	/AC SHOULD BE ZERO
5563	7402	4982	HLT	/AUTO INDEX ERROR

4983 /-----
 4984 /AUTO INDEX TEST 7
 4985 /-----

5564	7200	4986	CLA	
5565	1076	4987	TAD K7737	/CONSTANT TO BE INDEXED
5566	3010	4988	DCA 10	

5567	0410	4989	AND I 10	/DO AUTO INDEX
5570	1010	4990	TAD 10	
5571	1034	4991	TAD K0037	/AC SHOULD EQUAL 7777
5572	7040	4992	CMA	
5573	7440	4993	SZA	/AC SHOULD BE ZERO
5574	7402	4994	HLT	/AUTO INDEX ERROR
		4995	/-----	
		4996	/AUTO INDEX TEST 8	
		4997	/-----	
5575	7200	4998	CLA	
5576	1073	4999	TAD K7677	/CONSTANT TO BE INDEXED
5577	3010	5000	DCA 10	
5600	0410	5001	AND I 10	/DO AUTO INDEX
5601	1010	5002	TAD 10	
5602	1037	5003	TAD K0077	/AC SHOULD EQUAL 7777
5603	7040	5004	CMA	
5604	7440	5005	SZA	/AC SHOULD BE ZERO
5605	7402	5006	HLT	/AUTO INDEX ERROR
		5007	/-----	
		5008	/AUTO INDEX TEST 9	
		5009	/-----	
5606	7200	5010	CLA	
5607	1071	5011	TAD K7577	/CONSTANT TO BE INDEXED
5610	3010	5012	DCA 10	
5611	0410	5013	AND I 10	/DO AUTO INDEX
5612	1010	5014	TAD 10	
5613	1042	5015	TAD K0177	/AC SHOULD EQUAL 7777
5614	7040	5016	CMA	
5615	7440	5017	SZA	/AC SHOULD BE ZERO
5616	7402	5018	HLT	/AUTO INDEX ERROR
		5019	/-----	
		5020	/AUTO INDEX TEST 10	
		5021	/-----	
5617	7200	5022	CLA	
5620	1067	5023	TAD K7377	/CONSTANT TO BE INDEXED
5621	3010	5024	DCA 10	
5622	0410	5025	AND I 10	/DO AUTO INDEX
5623	1010	5026	TAD 10	
5624	1045	5027	TAD K0377	/AC SHOULD EQUAL 7777
5625	7040	5028	CMA	
5626	7440	5029	SZA	/AC SHOULD BE ZERO
5627	7402	5030	HLT	/AUTO INDEX ERROR
		5031	/-----	
		5032	/AUTO INDEX TEST 11	
		5033	/-----	
5630	7200	5034	CLA	
5631	1065	5035	TAD K6777	/CONSTANT TO BE INDEXED
5632	3010	5036	DCA 10	
5633	0410	5037	AND I 10	/DO AUTO INDEX
5634	1010	5038	TAD 10	
5635	1050	5039	TAD K0777	/AC SHOULD EQUAL 7777
5636	7040	5040	CMA	

5637	7440	5041	SZA	/AC SHOULD BE ZERO
5640	74C2	5042	HLT	/AUTO INDEX ERROR
		5043	/-----	
		5044	/AUTO INDEX TEST 12	
		5045	/-----	
5641	7200	5046	CLA	
5642	1063	5047	TAD K5777	/CONSTANT TO BE INDEXED
5643	3010	5048	DCA 10	
5644	2410	5049	ISZ I 10	/DO AUTO INDEX
5645	70C0	5050	NOP	
5646	1010	5051	TAD 10	
5647	1054	5052	TAD K1777	/AC SHOULD EQUAL 7777
5650	7040	5053	CMA	
5651	7440	5054	SZA	/AC SHOULD BE ZERO
5652	74C2	5055	HLT	/AUTO INDEX ERROR
		5056	/-----	
		5057	/AUTO INDEX TEST 13	
		5058	/-----	
5653	72C0	5059	CLA	
5654	1060	5060	TAD K3777	/CONSTANT TO BE INDEXED
5655	3010	5061	DCA 10	
5656	C410	5062	AND I 10	/DO AUTO INDEX
5657	1010	5063	TAD 10	
5660	1060	5064	TAD K3777	/AC SHOULD EQUAL 7777
5661	7040	5065	CMA	
5662	7440	5066	SZA	/AC SHOULD BE ZERO
5663	74C2	5067	HLT	/AUTO INDEX ERROR
		5068	/-----	
		5069	/AUTO INDEX TEST 14	
		5070	/-----	
5664	72C0	5071	CLA	
5665	1110	5072	TAD K7777	/CONSTANT TO BE INDEXED
5666	3010	5073	DCA 10	
5667	0410	5074	AND I 10	/DO AUTO INDEX
5670	1010	5075	TAD 10	
5671	1110	5076	TAD K7777	/AC SHOULD EQUAL 7777
5672	7040	5077	CMA	
5673	7440	5078	SZA	/AC SHOULD BE ZERO
5674	74C2	5079	HLT	/AUTO INDEX ERROR
		5080	/-----	
		5081	/AUTO INDEX TEST 15	
		5082	/-----	
5675	72C0	5083	CLA	
5676	1020	5084	TAD K0000	/CONSTANT TO BE INDEXED
5677	3011	5085	DCA 11	
5700	0411	5086	AND I 11	/DO AUTO INDEX
5701	1011	5087	TAD 11	
5702	11C7	5088	TAD K7776	/AC SHOULD EQUAL 7777
5703	7040	5089	CMA	
5704	7440	5090	SZA	/AC SHOULD BE ZERO
5705	74C2	5091	HLT	/AUTO INDEX ERROR
		5092	/-----	

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5093 /AUTO INDEX TEST 16
5094 /-----
5706 7200 5095          CLA
5707 1107 5096          TAD K7776          /CONSTANT TO BE INDEXED
5710 3011 5097          DCA 11
5711 0411 5098          AND I 11          /DO AUTO INDEX
5712 1011 5099          TAD 11
5713 1020 5100          TAD K0000          /AC SHOULD EQUAL 7777
5714 7040 5101          CMA
5715 7440 5102          SZA          /AC SHOULD BE ZERO
5716 7402 5103          HLT          /AUTO INDEX ERROR
5104 /-----
5105 /AUTO INDEX TEST 17
5106 /-----
5717 7200 5107          CLA
5720 1106 5108          TAD K7775          /CONSTANT TO BE INDEXED
5721 3011 5109          DCA 11
5722 3411 5110          DCA I 11          /DO AUTO INDEX
5723 1011 5111          TAD 11
5724 1021 5112          TAD K0001          /AC SHOULD EQUAL 7777
5725 7040 5113          CMA
5726 7440 5114          SZA          /AC SHOULD BE ZERO
5727 7402 5115          HLT          /AUTO INDEX ERROR
5116 /-----
5117 /AUTO INDEX TEST 18
5118 /-----
5730 7200 5119          CLA
5731 1104 5120          TAD K7773          /CONSTANT TO BE INDEXED
5732 3011 5121          DCA 11
5733 1411 5122          TAD I 11          /DO AUTO INDEX
5734 7200 5123          CLA
5735 1011 5124          TAD 11
5736 1023 5125          TAD K0003          /AC SHOULD EQUAL 7777
5737 7040 5126          CMA
5740 7440 5127          SZA          /AC SHOULD BE ZERO
5741 7402 5128          HLT          /AUTO INDEX ERROR
5129 /-----
5130 /AUTO INDEX TEST 19
5131 /-----
5742 7200 5132          CLA
5743 1102 5133          TAD K7767          /CONSTANT TO BE INDEXED
5744 3011 5134          DCA 11
5745 0411 5135          AND I 11          /DO AUTO INDEX
5746 1011 5136          TAD 11
5747 1026 5137          TAD K0007
5750 7040 5138          CMA
5751 7440 5139          SZA          /AC SHOULD BE ZERO
5752 7402 5140          HLT          /AUTO INDEX ERROR
5141 /-----
5142 /AUTO INDEX TEST 20
5143 /-----
5753 7200 5144          CLA

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5754	1100	5145	TAD K7757	/CONSTANT TO BE INDEXED
5755	3011	5146	DCA 11	
5756	C411	5147	AND I 11	/DO AUTO INDEX
5757	1011	5148	TAD 11	
5760	1031	5149	TAD K0017	/AC SHOULD EQUAL 7777
5761	7040	5150	CMA	
5762	7440	5151	SZA	/AC SHOULD BE ZERO
5763	7402	5152	HLT	/AUTO INDEX ERROR

5153 /-----
 5154 /AUTO INDEX TEST 21
 5155 /-----

5764	7200	5156	CLA	
5765	1076	5157	TAD K7737	/CONSTANT TO BE INDEXED
5766	3011	5158	DCA 11	
5767	C411	5159	AND I 11	/DO AUTO INDEX
5770	1011	5160	TAD 11	
5771	1034	5161	TAD K0037	/AC SHOULD EQUAL 7777
5772	7040	5162	CMA	
5773	7440	5163	SZA	/AC SHOULD BE ZERO
5774	7402	5164	HLT	/AUTO INDEX ERROR
5775	7000	5165	NOP	

5166 /-----
 5776 7000 5167 NOP;SKP;0000
 5777 7410
 6000 0000

5168 /-----
 5169 /AUTO INDEX TEST 22
 5170 /-----

6001	7200	5171	CLA	
6002	1073	5172	TAD K7677	/CONSTANT TO BE INDEXED
6003	3011	5173	DCA 11	
6004	C411	5174	AND I 11	/DO AUTO INDEX
6005	1011	5175	TAD 11	
6006	1037	5176	TAD K0077	/AC SHOULD EQUAL 7777
6007	7040	5177	CMA	
6010	7440	5178	SZA	/AC SHOULD BE ZERO
6011	7402	5179	HLT	/AUTO INDEX ERROR

5180 /-----
 5181 /AUTO INDEX TEST 23
 5182 /-----

6012	7200	5183	CLA	
6013	1071	5184	TAD K7577	/CONSTANT TO BE INDEXED
6014	3011	5185	DCA 11	
6015	C411	5186	AND I 11	/DO AUTO INDEX
6016	1011	5187	TAD 11	
6017	1042	5188	TAD K0177	/AC SHOULD EQUAL 7777
6020	7040	5189	CMA	
6021	7440	5190	SZA	/AC SHOULD BE ZERO
6022	7402	5191	HLT	/AUTO INDEX ERROR

5192 /-----
 5193 /AUTO INDEX TEST 24
 5194 /-----

6023	7200	5195	CLA	
6024	1067	5196	TAD K7377	/CONSTANT TO BE INDEXED
6025	3011	5197	DCA 11	
6026	C411	5198	AND I 11	/DO AUTO INDEX
6027	1011	5199	TAD 11	
6030	1045	5200	TAD K0377	/AC SHOULD EQUAL 7777
6031	7040	5201	CMA	
6032	7440	5202	SZA	/AC SHOULD BE ZERO
6033	7402	5203	HLT	/AUTO INDEX ERROR
		5204	/-----	
		5205	/AUTO INDEX TEST 25	
		5206	/-----	
6034	7200	5207	CLA	
6035	1065	5208	TAD K6777	/CONSTANT TO BE INDEXED
6036	3011	5209	DCA 11	
6037	C411	5210	AND I 11	/DO AUTO INDEX
6040	1011	5211	TAD 11	
6041	1050	5212	TAD K0777	/AC SHOULD EQUAL 7777
6042	7040	5213	CMA	
6043	7440	5214	SZA	/AC SHOULD BE ZERO
6044	7402	5215	HLT	/AUTO INDEX ERROR
		5216	/-----	
		5217	/AUTO INDEX TEST 26	
		5218	/-----	
6045	7200	5219	CLA	
6046	1063	5220	TAD K5777	/CONSTANT TO BE INDEXED
6047	3011	5221	DCA 11	
6050	2411	5222	ISZ I 11	/DO AUTO INDEX
6051	7000	5223	NOP	
6052	1011	5224	TAD 11	
6053	1054	5225	TAD K1777	/AC SHOULD EQUAL 7777
6054	7040	5226	CMA	
6055	7440	5227	SZA	/AC SHOULD BE ZERO
6056	7402	5228	HLT	/AUTO INDEX ERROR
		5229	/-----	
		5230	/AUTO INDEX TEST 27	
		5231	/-----	
6057	7200	5232	CLA	
6060	1060	5233	TAD K3777	/CONSTANT TO BE INDEXED
6061	3011	5234	DCA 11	
6062	C411	5235	AND I 11	/DO AUTO INDEX
6063	1011	5236	TAD 11	
6064	1060	5237	TAD K3777	/AC SHOULD EQUAL 7777
6065	7040	5238	CMA	
6066	7440	5239	SZA	/AC SHOULD BE ZERO
6067	7402	5240	HLT	/AUTO INDEX ERROR
		5241	/-----	
		5242	/AUTO INDEX TEST 28	
		5243	/-----	
6070	7200	5244	CLA	
6071	1110	5245	TAD K7777	/CONSTANT TO BE INDEXED
6072	3011	5246	DCA 11	

6073	0411	5247	AND I 11	/DO AUTO INDEX
6074	1011	5248	TAD 11	
6075	1110	5249	TAD K7777	/AC SHOULD EQUAL 7777
6076	7040	5250	CMA	
6077	7440	5251	SZA	/AC SHOULD BE ZERO
6100	7402	5252	HLT	/AUTO INDEX ERROR
		5253	/-----	
		5254	/AUTO INDEX TEST 29	
		5255	/-----	
6101	7200	5256	CLA	
6102	1020	5257	TAD K0000	/CONSTANT TO BE INDEXED
6103	3012	5258	DCA 12	
6104	0412	5259	AND I 12	/DO AUTO INDEX
6105	1012	5260	TAD 12	
6106	1107	5261	TAD K7776	/AC SHOULD EQUAL 7777
6107	7040	5262	CMA	
6110	7440	5263	SZA	/AC SHOULD BE ZERO
6111	7402	5264	HLT	/AUTO INDEX ERROR
		5265	/-----	
		5266	/AUTO INDEX TEST 30	
		5267	/-----	
6112	7200	5268	CLA	
6113	1107	5269	TAD K7776	/CONSTANT TO BE INDEXED
6114	3012	5270	DCA 12	
6115	0412	5271	AND I 12	/DO AUTO INDEX
6116	1012	5272	TAD 12	
6117	1020	5273	TAD K0000	/AC SHOULD EQUAL 7777
6120	7040	5274	CMA	
6121	7440	5275	SZA	/AC SHOULD BE ZERO
6122	7402	5276	HLT	/AUTO INDEX ERROR
		5277	/-----	
		5278	/AUTO INDEX TEST 31	
		5279	/-----	
6123	7200	5280	CLA	
6124	1106	5281	TAD K7775	/CONSTANT TO BE INDEXED
6125	3012	5282	DCA 12	
6126	3412	5283	DCA I 12	/DO AUTO INDEX
6127	1012	5284	TAD 12	
6130	1021	5285	TAD K0001	/AC SHOULD EQUAL 7777
6131	7040	5286	CMA	
6132	7440	5287	SZA	/AC SHOULD BE ZERO
6133	7402	5288	HLT	/AUTO INDEX ERROR
		5289	/-----	
		5290	/AUTO INDEX TEST 32	
		5291	/-----	
6134	7200	5292	CLA	
6135	1104	5293	TAD K7773	/CONSTANT TO BE INDEXED
6136	3012	5294	DCA 12	
6137	1412	5295	TAD I 12	/DO AUTO INDEX
6140	7200	5296	CLA	
6141	1012	5297	TAD 12	
6142	1023	5298	TAD K0003	/AC SHOULD EQUAL 7777

6143	7040	5299	CMA	
6144	7440	5300	SZA	/AC SHOULD BE ZERO
6145	7402	5301	HLT	/AUTO INDEX ERROR
		5302	/-----	
		5303	/AUTO INDEX TEST 33	
		5304	/-----	
6146	7200	5305	CLA	
6147	1102	5306	TAD K7767	/CONSTANT TO BE INDEXED
6150	3012	5307	DCA 12	
6151	0412	5308	AND I 12	/DO AUTO INDEX
6152	1012	5309	TAD 12	
6153	1026	5310	TAD K0007	/AC SHOULD EQUAL 7777
6154	7040	5311	CMA	
6155	7440	5312	SZA	/AC SHOULD BE ZERO
6156	7402	5313	HLT	/AUTO INDEX ERROR
		5314	/-----	
		5315	/AUTO INDEX TEST 34	
		5316	/-----	
6157	7200	5317	CLA	
6160	1100	5318	TAD K7757	/CONSTANT TO BE INDEXED
6161	3012	5319	DCA 12	
6162	0412	5320	AND I 12	/DO AUTO INDEX
6163	1012	5321	TAD 12	
6164	1031	5322	TAD K0017	/AC SHOULD EQUAL 7777
6165	7040	5323	CMA	
6166	7440	5324	SZA	/AC SHOULD BE ZERO
6167	7402	5325	HLT	/AUTO INDEX ERROR
		5326	/-----	
		5327	/AUTO INDEX TEST 35	
		5328	/-----	
6170	7200	5329	CLA	
6171	1076	5330	TAD K7737	/CONSTANT TO BE INDEXED
6172	3012	5331	DCA 12	
6173	0412	5332	AND I 12	/DO AUTO INDEX
6174	1012	5333	TAD 12	
6175	1034	5334	TAD K0037	/AC SHOULD EQUAL 7777
6176	7040	5335	CMA	
6177	7440	5336	SZA	/AC SHOULD BE ZERO
6200	7402	5337	HLT	/AUTO INDEX ERROR
		5338	/-----	
		5339	/AUTO INDEX TEST 36	
		5340	/-----	
6201	7200	5341	CLA	
6202	1073	5342	TAD K7677	/CONSTANT TO BE INDEXED
6203	3012	5343	DCA 12	
6204	0412	5344	AND I 12	/DO AUTO INDEX
6205	1012	5345	TAD 12	
6206	1037	5346	TAD K0077	/AC SHOULD EQUAL 7777
6207	7040	5347	CMA	
6210	7440	5348	SZA	/AC SHOULD BE ZERO
6211	7402	5349	HLT	/AUTO INDEX ERROR
6212	7000	5350	NOP	

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5351 /-----
5352 /AUTO INDEX TEST 37
5353 /-----
6213 7200 5354      CLA
6214 1071 5355      TAD K7577      /CONSTANT TO BE INDEXED
6215 3012 5356      DCA 12
6216 0412 5357      AND I 12      /DO AUTO INDEX
6217 1012 5358      TAD 12
6220 1042 5359      TAD K0177     /AC SHOULD EQUAL 7777
6221 7040 5360      CMA
6222 7440 5361      SZA      /AC SHOULD BE ZERO
6223 7402 5362      HLT      /AUTO INDEX ERROR
5363 /-----
5364 /AUTO INDEX TEST 38
5365 /-----
6224 7200 5366      CLA
6225 1067 5367      TAD K7377     /CONSTANT TO BE INDEXED
6226 3012 5368      DCA 12
6227 0412 5369      AND I 12     /DO AUTO INDEX
6230 1012 5370      TAD 12
6231 1045 5371      TAD K0377     /AC SHOULD EQUAL 7777
6232 7040 5372      CMA
6233 7440 5373      SZA      /AC SHOULD BE ZERO
6234 7402 5374      HLT      /AUTO INDEX ERROR
5375 /-----
5376 /AUTO INDEX TEST 39
5377 /-----
6235 7200 5378      CLA
6236 1065 5379      TAD K6777     /CONSTANT TO BE INDEXED
6237 3012 5380      DCA 12
6240 0412 5381      AND I 12     /DO AUTO INDEX
6241 1012 5382      TAD 12
6242 1050 5383      TAD K0777     /AC SHOULD EQUAL 7777
6243 7040 5384      CMA
6244 7440 5385      SZA      /AC SHOULD BE ZERO
6245 7402 5386      HLT      /AUTO INDEX ERROR
5387 /-----
5388 /AUTO INDEX TEST 40
5389 /-----
6246 7200 5390      CLA
6247 1063 5391      TAD K5777     /CONSTANT TO BE INDEXED
6250 3012 5392      DCA 12
6251 2412 5393      ISZ I 12     /DO AUTO INDEX
6252 7000 5394      NOP
6253 1012 5395      TAD 12
6254 1054 5396      TAD K1777     /AC SHOULD EQUAL 7777
6255 7040 5397      CMA
6256 7440 5398      SZA      /AC SHOULD BE ZERO
6257 7402 5399      HLT      /AUTO INDEX ERROR
5400 /-----
5401 /AUTO INDEX TEST 41
5402 /-----

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6260	7200	5403	CLA	
6261	1060	5404	TAD K3777	/CONSTANT TO BE INDEXED
6262	3012	5405	DCA 12	
6263	0412	5406	AND I 12	/DO AUTO INDEX
6264	1012	5407	TAD 12	
6265	1060	5408	TAD K3777	/AC SHOULD EQUAL 7777
6266	7040	5409	CMA	
6267	7440	5410	SZA	/AC SHOULD BE ZERO
6270	7402	5411	HLT	/AUTO INDEX ERROR
		5412	/-----	
		5413	/AUTO INDEX TEST 42	
		5414	/-----	
6271	7200	5415	CLA	
6272	1110	5416	TAD K7777	/CONSTANT TO BE INDEXED
6273	3012	5417	DCA 12	
6274	0412	5418	AND I 12	/DO AUTO INDEX
6275	1012	5419	TAD 12	
6276	1110	5420	TAD K7777	/AC SHOULD EQUAL 7777
6277	7040	5421	CMA	
6300	7440	5422	SZA	/AC SHOULD BE ZERO
6301	7402	5423	HLT	/AUTO INDEX ERROR
		5424	/-----	
		5425	/AUTO INDEX TEST 43	
		5426	/-----	
6302	7200	5427	CLA	
6303	1020	5428	TAD K0000	/CONSTANT TO BE INDEXED
6304	3013	5429	DCA 13	
6305	0413	5430	AND I 13	/DO AUTO INDEX
6306	1013	5431	TAD 13	
6307	1107	5432	TAD K7776	/AC SHOULD EQUAL 7777
6310	7040	5433	CMA	
6311	7440	5434	SZA	/AC SHOULD BE ZERO
6312	7402	5435	HLT	/AUTO INDEX ERROR
		5436	/-----	
		5437	/AUTO INDEX TEST 44	
		5438	/-----	
6313	7200	5439	CLA	
6314	1107	5440	TAD K7776	/CONSTANT TO BE INDEXED
6315	3013	5441	DCA 13	
6316	0413	5442	AND I 13	/DO AUTO INDEX
6317	1013	5443	TAD 13	
6320	1020	5444	TAD K0000	/AC SHOULD EQUAL 7777
6321	7040	5445	CMA	
6322	7440	5446	SZA	/AC SHOULD BE ZERO
6323	7402	5447	HLT	/AUTO INDEX ERROR
		5448	/-----	
		5449	/AUTO INDEX TEST 45	
		5450	/-----	
6324	7200	5451	CLA	
6325	1106	5452	TAD K7775	/CONSTANT TO BE INDEXED
6326	3013	5453	DCA 13	
6327	3413	5454	DCA I 13	/DO AUTO INDEX

6330	1013	5455	TAD 13	
6331	1021	5456	TAD K0001	/AC SHOULD EQUAL 7777
6332	7040	5457	CMA	
6333	7440	5458	SZA	/AC SHOULD BE ZERO
6334	7402	5459	HLT	/AUTO INDEX ERROR
		5460	/	-----
		5461	/AUTO INDEX TEST 46	
		5462	/	-----
6335	7200	5463	CLA	
6336	1104	5464	TAD K7773	/CONSTANT TO BE INDEXED
6337	3013	5465	DCA 13	
6340	1413	5466	TAD I 13	/DO AUTO INDEX
6341	7200	5467	CLA	
6342	1013	5468	TAD 13	
6343	1023	5469	TAD K0003	/AC SHOULD EQUAL 7777
6344	7040	5470	CMA	
6345	7440	5471	SZA	/AC SHOULD BE ZERO
6346	7402	5472	HLT	/AUTO INDEX ERROR
		5473	/	-----
		5474	/AUTO INDEX TEST 47	
		5475	/	-----
6347	7200	5476	CLA	
6350	1102	5477	TAD K7767	/CONSTANT TO BE INDEXED
6351	3013	5478	DCA 13	
6352	0413	5479	AND I 13	/DO AUTO INDEX
6353	1013	5480	TAD 13	
6354	1026	5481	TAD K0007	/AC SHOULD EQUAL 7777
6355	7040	5482	CMA	
6356	7440	5483	SZA	/AC SHOULD BE ZERO
6357	7402	5484	HLT	/AUTO INDEX ERROR
		5485	/	-----
		5486	/AUTO INDEX TEST 48	
		5487	/	-----
6360	7200	5488	CLA	
6361	1100	5489	TAD K7757	/CONSTANT TO BE INDEXED
6362	3013	5490	DCA 13	
6363	0413	5491	AND I 13	/DO AUTO INDEX
6364	1013	5492	TAD 13	
6365	1031	5493	TAD K0017	/AC SHOULD EQUAL 7777
6366	7040	5494	CMA	
6367	7440	5495	SZA	/AC SHOULD BE ZERO
6370	7402	5496	HLT	/AUTO INDEX ERROR
		5497	/	-----
		5498	/AUTO INDEX TEST 49	
		5499	/	-----
6371	7200	5500	CLA	
6372	1076	5501	TAD K7737	/CONSTANT TO BE INDEXED
6373	3013	5502	DCA 13	
6374	0413	5503	AND I 13	/DO AUTO INDEX
6375	1013	5504	TAD 13	
6376	1034	5505	TAD K0037	/AC SHOULD EQUAL 7777
6377	7040	5506	CMA	

6400	7440	5507	SZA	/AC SHOULD BE ZERO
6401	7402	5508	HLT	/AUTO INDEX ERROR
		5509	/-----	
		5510	/AUTO INDEX TEST 50	
		5511	/-----	
6402	7200	5512	CLA	
6403	1073	5513	TAD K7677	/CONSTANT TO BE INDEXED
6404	3013	5514	DCA 13	
6405	0413	5515	AND I 13	/DO AUTO INDEX
6406	1013	5516	TAD 13	
6407	1037	5517	TAD K0077	/AC SHOULD EQUAL 7777
6410	7040	5518	CMA	
6411	7440	5519	SZA	/AC SHOULD BE ZERO
6412	7402	5520	HLT	/AUTO INDEX ERROR
		5521	/-----	
		5522	/AUTO INDEX TEST 51	
		5523	/-----	
6413	7200	5524	CLA	
6414	1071	5525	TAD K7577	/CONSTANT TO BE INDEXED
6415	3013	5526	DCA 13	
6416	0413	5527	AND I 13	/DO AUTO INDEX
6417	1013	5528	TAD 13	
6420	1042	5529	TAD K0177	/AC SHOULD EQUAL 7777
6421	7040	5530	CMA	
6422	7440	5531	SZA	/AC SHOULD BE ZERO
6423	7402	5532	HLT	/AUTO INDEX ERROR
		5533	/-----	
		5534	/AUTO INDEX TEST 52	
		5535	/-----	
6424	7200	5536	CLA	
6425	1067	5537	TAD K7377	/CONSTANT TO BE INDEXED
6426	3013	5538	DCA 13	
6427	0413	5539	AND I 13	/DO AUTO INDEX
6430	1013	5540	TAD 13	
6431	1045	5541	TAD K0377	/AC SHOULD EQUAL 7777
6432	7040	5542	CMA	
6433	7440	5543	SZA	/AC SHOULD BE ZERO
6434	7402	5544	HLT	/AUTO INDEX ERROR
		5545	/-----	
		5546	/AUTO INDEX TEST 53	
		5547	/-----	
6435	7200	5548	CLA	
6436	1065	5549	TAD K6777	/CONSTANT TO BE INDEXED
6437	3013	5550	DCA 13	
6440	0413	5551	AND I 13	/DO AUTO INDEX
6441	1013	5552	TAD 13	
6442	1050	5553	TAD K0777	/AC SHOULD EQUAL 7777
6443	7040	5554	CMA	
6444	7440	5555	SZA	/AC SHOULD BE ZERO
6445	7402	5556	HLT	/AUTO INDEX ERROR
		5557	/-----	
		5558	/AUTO INDEX TEST 54	

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6565	1031	5663	TAD K0017	/AC SHOULD EQUAL 7777
6566	7040	5664	CMA	
6567	7440	5665	SZA	/AC SHOULD BE ZERO
6570	7402	5666	HLT	/AUTO INDEX ERROR
		5667	/-----	
		5668	/AUTO INDEX TEST 63	
		5669	/-----	
6571	7200	5670	CLA	
6572	1076	5671	TAD K7737	/CONSTANT TO BE INDEXED
6573	3014	5672	DCA 14	
6574	0414	5673	AND I 14	/DO AUTO INDEX
6575	1014	5674	TAD 14	
6576	1034	5675	TAD K0037	/AC SHOULD EQUAL 7777
6577	7040	5676	CMA	
6600	7440	5677	SZA	/AC SHOULD BE ZERO
6601	7402	5678	HLT	/AUTO INDEX ERROR
		5679	/-----	
		5680	/AUTO INDEX TEST 64	
		5681	/-----	
6602	7200	5682	CLA	
6603	1073	5683	TAD K7677	/CONSTANT TO BE INDEXED
6604	3014	5684	DCA 14	
6605	0414	5685	AND I 14	/DO AUTO INDEX
6606	1014	5686	TAD 14	
6607	1037	5687	TAD K0077	/AC SHOULD EQUAL 7777
6610	7040	5688	CMA	
6611	7440	5689	SZA	/AC SHOULD BE ZERO
6612	7402	5690	HLT	/AUTO INDEX ERROR
		5691	/-----	
		5692	/AUTO INDEX TEST 65	
		5693	/-----	
6613	7200	5694	CLA	
6614	1071	5695	TAD K7577	/CONSTANT TO BE INDEXED
6615	3014	5696	DCA 14	
6616	0414	5697	AND I 14	/DO AUTO INDEX
6617	1014	5698	TAD 14	
6620	1042	5699	TAD K0177	/AC SHOULD EQUAL 7777
6621	7040	5700	CMA	
6622	7440	5701	SZA	/AC SHOULD BE ZERO
6623	7402	5702	HLT	/AUTO INDEX ERROR
		5703	/-----	
		5704	/AUTO INDEX TEST 66	
		5705	/-----	
6624	7200	5706	CLA	
6625	1067	5707	TAD K7377	/CONSTANT TO BE INDEXED
6626	3014	5708	DCA 14	
6627	0414	5709	AND I 14	/DO AUTO INDEX
6630	1014	5710	TAD 14	
6631	1045	5711	TAD K0377	/AC SHOULD EQUAL 7777
6632	7040	5712	CMA	
6633	7440	5713	SZA	/AC SHOULD BE ZERO
6634	7402	5714	HLT	/AUTO INDEX ERROR

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5715 /-----
5716 /AUTO INDEX TEST 67
5717 /-----
6635 7200 5718      CLA
6636 1065 5719      TAD K6777      /CONSTANT TO BE INDEXED
6637 3014 5720      DCA 14
6640 0414 5721      AND I 14      /DO AUTO INDEX
6641 1014 5722      TAD 14
6642 1050 5723      TAD K0777      /AC SHOULD EQUAL 7777
6643 7040 5724      CMA
6644 7440 5725      SZA      /AC SHOULD BE ZERO
6645 7402 5726      HLT      /AUTO INDEX ERROR
5727 /-----
5728 /AUTO INDEX TEST 68
5729 /-----
6646 7200 5730      CLA
6647 1063 5731      TAD K5777      /CONSTANT TO BE INDEXED
6650 3014 5732      DCA 14
6651 2414 5733      ISZ I 14      /DO AUTO INDEX
6652 7000 5734      NOP
6653 1014 5735      TAD 14
6654 1054 5736      TAD K1777      /AC SHOULD EQUAL 7777
6655 7040 5737      CMA
6656 7440 5738      SZA      /AC SHOULD BE ZERO
6657 7402 5739      HLT      /AUTO INDEX ERROR
5740 /-----
5741 /AUTO INDEX TEST 69
5742 /-----
6660 7200 5743      CLA
6661 1060 5744      TAD K3777      /CONSTANT TO BE INDEXED
6662 3014 5745      DCA 14
6663 0414 5746      AND I 14      /DO AUTO INDEX
6664 1014 5747      TAD 14
6665 1060 5748      TAD K3777      /AC SHOULD EQUAL 7777
6666 7040 5749      CMA
6667 7410 5750      SKP
6670 0000 5751      O
6671 7440 5752      SZA      /AC SHOULD BE ZERO
6672 7402 5753      HLT      /AUTO INDEX ERROR
5754 /-----
5755 /AUTO INDEX TEST 70
5756 /-----
6673 7200 5757      CLA
6674 3014 5758      DCA 14
6675 0414 5759      AND I 14      /DO AUTO INDEX
6676 1014 5760      TAD 14
6677 1107 5761      TAD K7776      /AC SHOULD EQUAL 7777
6700 7040 5762      CMA
6701 7440 5763      SZA      /AC SHOULD BE ZERO
6702 7402 5764      HLT      /AUTO INDEX ERROR
5765 /-----
5766 /AUTO INDEX TEST 71

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5767 /-----
6703 7200 5768          CLA
6704 1020 5769          TAD K0000          /CONSTANT TO BE INDEXED
6705 3015 5770          DCA 15
6706 0415 5771          AND I 15          /DO AUTO INDEX
6707 1015 5772          TAD 15
6710 1107 5773          TAD K7776          /AC SHOULD EQUAL 7777
6711 7040 5774          CMA
6712 7440 5775          SZA          /AC SHOULD BE ZERO
6713 7402 5776          HLT          /AUTO INDEX ERROR
5777 /-----
5778 /AUTO INDEX TEST 72
5779 /-----
6714 7200 5780          CLA
6715 1107 5781          TAD K7776          /CONSTANT TO BE INDEXED
6716 3015 5782          DCA 15
6717 0415 5783          AND I 15          /DO AUTO INDEX
6720 1015 5784          TAD 15
6721 1020 5785          TAD K0000          /AC SHOULD EQUAL 7777
6722 7040 5786          CMA
6723 7440 5787          SZA          /AC SHOULD BE ZERO
6724 7402 5788          HLT          /AUTO INDEX ERROR
5789 /-----
5790 /AUTO INDEX TEST 73
5791 /-----
6725 7200 5792          CLA
6726 1106 5793          TAD K7775          /CONSTANT TO BE INDEXED
6727 3015 5794          DCA 15
6730 3415 5795          DCA I 15          /DO AUTO INDEX
6731 1015 5796          TAD 15
6732 1021 5797          TAD K0001          /AC SHOULD EQUAL 7777
6733 7040 5798          CMA
6734 7440 5799          SZA          /AC SHOULD BE ZERO
6735 7402 5800          HLT          /AUTO INDEX ERROR
5801 /-----
5802 /AUTO INDEX TEST 74
5803 /-----
6736 7200 5804          CLA
6737 1104 5805          TAD K7773          /CONSTANT TO BE INDEXED
6740 3015 5806          DCA 15
6741 1415 5807          TAD I 15          /DO AUTO INDEX
6742 7200 5808          CLA
6743 1015 5809          TAD 15
6744 1023 5810          TAD K0003          /AC SHOULD EQUAL 7777
6745 7040 5811          CMA
6746 7440 5812          SZA          /AC SHOULD BE ZERO
6747 7402 5813          HLT          /AUTO INDEX ERROR
6750 1110 5814          TAD K7777          /CONSTANT TO BE INDEXED
5815 /-----
5816 /AUTO INDEX TEST 75
5817 /-----
6751 7200 5818          CLA

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6752	1102	5819	TAD K7767	/CONSTANT TO BE INDEXED
6753	3015	5820	DCA 15	
6754	0415	5821	AND I 15	/DO AUTO INDEX
6755	1015	5822	TAD 15	
6756	1026	5823	TAD K0007	/AC SHOULD EQUAL 7777
6757	7040	5824	CMA	
6760	7440	5825	SZA	/AC SHOULD BE ZERO
6761	7402	5826	HLT	/AUTO INDEX ERROR
		5827	/-----	
		5828	/AUTO INDEX TEST 76	
		5829	/-----	
6762	7200	5830	CLA	
6763	1100	5831	TAD K7757	/CONSTANT TO BE INDEXED
6764	3015	5832	DCA 15	
6765	0415	5833	AND I 15	/DO AUTO INDEX
6766	1015	5834	TAD 15	
6767	1031	5835	TAD K0017	/AC SHOULD EQUAL 7777
6770	7040	5836	CMA	
6771	7440	5837	SZA	/AC SHOULD BE ZERO
6772	7402	5838	HLT	/AUTO INDEX ERROR
		5839	/-----	
		5840	/AUTO INDEX TEST 77	
		5841	/-----	
6773	7200	5842	CLA	
6774	1076	5843	TAD K7737	/CONSTANT TO BE INDEXED
6775	3015	5844	DCA 15	
6776	0415	5845	AND I 15	/DO AUTO INDEX
6777	1015	5846	TAD 15	
7000	1034	5847	TAD K0037	/AC SHOULD EQUAL 7777
7001	7040	5848	CMA	
7002	7440	5849	SZA	/AC SHOULD BE ZERO
7003	7402	5850	HLT	/AUTO INDEX ERROR
		5851	/-----	
		5852	/AUTO INDEX TEST 78	
		5853	/-----	
7004	7200	5854	CLA	
7005	1073	5855	TAD K7677	/CONSTANT TO BE INDEXED
7006	3015	5856	DCA 15	
7007	0415	5857	AND I 15	/DO AUTO INDEX
7010	1015	5858	TAD 15	
7011	1037	5859	TAD K0077	/AC SHOULD EQUAL 7777
7012	7040	5860	CMA	
7013	7440	5861	SZA	/AC SHOULD BE ZERO
7014	7402	5862	HLT	/AUTO INDEX ERROR
		5863	/-----	
		5864	/AUTO INDEX TEST 79	
		5865	/-----	
7015	7200	5866	CLA	
7016	1071	5867	TAD K7577	/CONSTANT TO BE INDEXED
7017	3015	5868	DCA 15	
7020	0415	5869	AND I 15	/DO AUTO INDEX
7021	1015	5870	TAD 15	

7022	1042	5871	TAD K0177	/AC SHOULD EQUAL 7777
7023	7040	5872	CMA	
7024	7440	5873	SZA	/AC SHOULD BE ZERO
7025	7402	5874	HLT	/AUTO INDEX ERROR
		5875	/-----	
		5876	/AUTO INDEX TEST 80	
		5877	/-----	
7026	7200	5878	CLA	
7027	1067	5879	TAD K7377	/CONSTANT TO BE INDEXED
7030	3015	5880	DCA 15	
7031	0415	5881	AND I 15	/DO AUTO INDEX
7032	1015	5882	TAD 15	
7033	1045	5883	TAD K0377	/AC SHOULD EQUAL 7777
7034	7040	5884	CMA	
7035	7440	5885	SZA	/AC SHOULD BE ZERO
7036	7402	5886	HLT	/AUTO INDEX ERROR
		5887	/-----	
		5888	/AUTO INDEX TEST 81	
		5889	/-----	
7037	7200	5890	CLA	
7040	1065	5891	TAD K6777	/CONSTANT TO BE INDEXED
7041	3015	5892	DCA 15	
7042	0415	5893	AND I 15	/DO AUTO INDEX
7043	1015	5894	TAD 15	
7044	1050	5895	TAD K0777	/AC SHOULD EQUAL 7777
7045	7040	5896	CMA	
7046	7440	5897	SZA	/AC SHOULD BE ZERO
7047	7402	5898	HLT	/AUTO INDEX ERROR
		5899	/-----	
		5900	/AUTO INDEX TEST 82	
		5901	/-----	
7050	7200	5902	CLA	
7051	1063	5903	TAD K5777	/CONSTANT TO BE INDEXED
7052	3015	5904	DCA 15	
7053	2415	5905	ISZ I 15	/DO AUTO INDEX
7054	7000	5906	NOP	
7055	1015	5907	TAD 15	
7056	1054	5908	TAD K1777	/AC SHOULD EQUAL 7777
7057	7040	5909	CMA	
7060	7440	5910	SZA	/AC SHOULD BE ZERO
7061	7402	5911	HLT	/AUTO INDEX ERROR
		5912	/-----	
		5913	/AUTO INDEX TEST 83	
		5914	/-----	
7062	7200	5915	CLA	
7063	1060	5916	TAD K3777	/CONSTANT TO BE INDEXED
7064	3015	5917	DCA 15	
7065	0415	5918	AND I 15	/DO AUTO INDEX
7066	1015	5919	TAD 15	
7067	1060	5920	TAD K3777	/AC SHOULD EQUAL 7777
7070	7040	5921	CMA	
7071	7440	5922	SZA	/AC SHOULD BE ZERO

7072	7402	5923	HLT	/AUTO INDEX ERROR
		5924	/-----/	
		5925	/AUTO INDEX TEST 84	
		5926	/-----/	
7073	7200	5927	CLA	
7074	1110	5928	TAD K7777	/CONSTANT TO BE INDEXED
7075	3015	5929	DCA 15	
7076	C415	5930	AND I 15	/DO AUTO INDEX
7077	1015	5931	TAD 15	
7100	1110	5932	TAD K7777	/AC SHOULD EQUAL 7777
7101	7040	5933	CMA	
7102	7440	5934	SZA	/AC SHOULD BE ZERO
7103	7402	5935	HLT	/AUTO INDEX ERROR
		5936	/-----/	
		5937	/AUTO INDEX TEST 85	
		5938	/-----/	
7104	7200	5939	CLA	
7105	1020	5940	TAD K0000	/CONSTANT TO BE INDEXED
7106	3016	5941	DCA 16	
7107	C416	5942	AND I 16	/DO AUTO INDEX
7110	1016	5943	TAD 16	
7111	11C7	5944	TAD K7776	/AC SHOULD EQUAL 7777
7112	7040	5945	CMA	
7113	7440	5946	SZA	/AC SHOULD BE ZERO
7114	7402	5947	HLT	/AUTO INDEX ERROR
		5948	/-----/	
		5949	/AUTO INDEX TEST 86	
		5950	/-----/	
7115	7200	5951	CLA	
7116	11C7	5952	TAD K7776	/CONSTANT TO BE INDEXED
7117	3016	5953	DCA 16	
7120	0416	5954	AND I 16	/DO AUTO INDEX
7121	1016	5955	TAD 16	
7122	1020	5956	TAD K0000	/AC SHOULD EQUAL 7777
7123	7040	5957	CMA	
7124	7440	5958	SZA	/AC SHOULD BE ZERO
7125	7402	5959	HLT	/AUTO INDEX ERROR
		5960	/-----/	
		5961	/AUTO INDEX TEST 87	
		5962	/-----/	
7126	7200	5963	CLA	
7127	1106	5964	TAD K7775	/CONSTANT TO BE INDEXED
7130	3016	5965	DCA 16	
7131	3416	5966	DCA I 16	/DO AUTO INDEX
7132	1016	5967	TAD 16	
7133	1021	5968	TAD K0001	/AC SHOULD EQUAL 7777
7134	7040	5969	CMA	
7135	7440	5970	SZA	/AC SHOULD BE ZERO
7136	7402	5971	HLT	/AUTO INDEX ERROR
		5972	/-----/	
		5973	/AUTO INDEX TEST 88	
		5974	/-----/	

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7257	7040	6079	CMA	
7260	7440	6080	SZA	/AC SHOULD BE ZERO
7261	7402	6081	HLT	/AUTO INDEX ERROR
		6082	/-----	
		6083	/AUTO INDEX TEST 97	
		6084	/-----	
7262	7200	6085	CLA	
7263	1060	6086	TAD K3777	/CONSTANT TO BE INDEXED
7264	3016	6087	DCA 16	
7265	0416	6088	AND I 16	/DO AUTO INDEX
7266	1016	6089	TAD 16	
7267	1060	6090	TAD K3777	/AC SHOULD EQUAL 7777
7270	7040	6091	CMA	
7271	7440	6092	SZA	/AC SHOULD BE ZERO
7272	7402	6093	HLT	/AUTO INDEX ERROR
		6094	/-----	
		6095	/AUTO INDEX TEST 98	
		6096	/-----	
7273	7200	6097	CLA	
7274	1110	6098	TAD K7777	/CONSTANT TO BE INDEXED
7275	3016	6099	DCA 16	
7276	0416	6100	AND I 16	/DO AUTO INDEX
7277	1016	6101	TAD 16	
7300	1110	6102	TAD K7777	/AC SHOULD EQUAL 7777
7301	7040	6103	CMA	
7302	7440	6104	SZA	/AC SHOULD BE ZERO
7303	7402	6105	HLT	/AUTO INDEX ERROR
		6106	/-----	
		6107	/AUTO INDEX TEST 99	
		6108	/-----	
7304	7200	6109	CLA	
7305	1020	6110	TAD K0000	/CONSTANT TO BE INDEXED
7306	3017	6111	DCA 17	
7307	0417	6112	AND I 17	/DO AUTO INDEX
7310	1017	6113	TAD 17	
7311	1107	6114	TAD K7776	/AC SHOULD EQUAL 7777
7312	7040	6115	CMA	
7313	7440	6116	SZA	/AC SHOULD BE ZERO
7314	7402	6117	HLT	/AUTO INDEX ERROR
		6118	/-----	
		6119	/AUTO INDEX TEST 100	
		6120	/-----	
7315	7200	6121	CLA	
7316	1107	6122	TAD K7776	/CONSTANT TO BE INDEXED
7317	3017	6123	DCA 17	
7320	0417	6124	AND I 17	/DO AUTO INDEX
7321	1017	6125	TAD 17	
7322	1020	6126	TAD K0000	/AC SHOULD EQUAL 7777
7323	7040	6127	CMA	
7324	7440	6128	SZA	/AC SHOULD BE ZERO
7325	7402	6129	HLT	/AUTO INDEX ERROR
		6130	/-----	

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6131 /AUTO INDEX TEST 101
6132 /-----
7326 7200 6133     CLA
7327 1106 6134     TAD K7775           /CONSTANT TO BE INDEXED
7330 3017 6135     DCA 17
7331 3417 6136     DCA I 17           /DO AUTO INDEX
7332 1017 6137     TAD 17
7333 1021 6138     TAD K0001           /AC SHOULD EQUAL 7777
7334 7040 6139     CMA
7335 7440 6140     SZA           /AC SHOULD BE ZERO
7336 7402 6141     HLT           /AUTO INDEX ERROR
6142 /-----
6143 /AUTO INDEX TEST 102
6144 /-----
7337 7200 6145     CLA
7340 1104 6146     TAD K7773           /CONSTANT TO BE INDEXED
7341 3017 6147     DCA 17
7342 1417 6148     TAD I 17           /DO AUTO INDEX
7343 7200 6149     CLA
7344 1017 6150     TAD 17
7345 1023 6151     TAD K0003           /AC SHOULD EQUAL 7777
7346 7040 6152     CMA
7347 7440 6153     SZA           /AC SHOULD BE ZERO
7350 7402 6154     HLT           /AUTO INDEX ERROR
6155 /-----
6156 /AUTO INDEX TEST 103
6157 /-----
7351 7200 6158     CLA
7352 1102 6159     TAD K7767           /CONSTANT TO BE INDEXED
7353 3017 6160     DCA 17
7354 0417 6161     AND I 17           /DO AUTO INDEX
7355 1017 6162     TAD 17
7356 1026 6163     TAD K0007           /AC SHOULD EQUAL 7777
7357 7040 6164     CMA
7360 7440 6165     SZA           /AC SHOULD BE ZERO
7361 7402 6166     HLT           /AUTO INDEX ERROR
6167 /-----
6168 /AUTO INDEX TEST 104
6169 /-----
7362 7200 6170     CLA
7363 1100 6171     TAD K7757           /CONSTANT TO BE INDEXED
7364 3017 6172     DCA 17
7365 0417 6173     AND I 17           /DO AUTO INDEX
7366 1017 6174     TAD 17
7367 1031 6175     TAD K0017           /AC SHOULD EQUAL 7777
7370 7040 6176     CMA
7371 7440 6177     SZA           /AC SHOULD BE ZERO
6178 /-----
6179 /AUTO INDEX TEST 105
6180 /-----
7372 7200 6181     CLA
7373 1076 6182     TAD K7737           /CONSTANT TO BE INDEXED

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7374	3017	6183	DCA 17	
7375	0417	6184	AND I 17	/DO AUTO INDEX
7376	1017	6185	TAD 17	
7377	1034	6186	TAD K0037	/AC SHOULD EQUAL 7777
7400	7040	6187	CMA	
7401	7440	6188	SZA	/AC SHOULD BE ZERO
7402	7402	6189	HLT	/AUTO INDEX ERROR
		6190	/-----	
		6191	/AUTO INDEX TEST 106	
		6192	/-----	
7403	7200	6193	CLA	
7404	1073	6194	TAD K7677	/CONSTANT TO BE INDEXED
7405	3017	6195	DCA 17	
7406	0417	6196	AND I 17	/DO AUTO INDEX
7407	1017	6197	TAD 17	
7410	1037	6198	TAD K0077	/AC SHOULD EQUAL 7777
7411	7040	6199	CMA	
7412	7440	6200	SZA	/AC SHOULD BE ZERO
7413	7402	6201	HLT	/AUTO INDEX ERROR
		6202	/-----	
		6203	/AUTO INDEX TEST 107	
		6204	/-----	
7414	7200	6205	CLA	
7415	1071	6206	TAD K7577	/CONSTANT TO BE INDEXED
7416	3017	6207	DCA 17	
7417	0417	6208	AND I 17	/DO AUTO INDEX
7420	1017	6209	TAD 17	
7421	1042	6210	TAD K0177	/AC SHOULD EQUAL 7777
7422	7040	6211	CMA	
7423	7440	6212	SZA	/AC SHOULD BE ZERO
7424	7402	6213	HLT	/AUTO INDEX ERROR
		6214	/-----	
		6215	/AUTO INDEX TEST 108	
		6216	/-----	
7425	7200	6217	CLA	
7426	1067	6218	TAD K7377	/CONSTANT TO BE INDEXED
7427	3017	6219	DCA 17	
7430	0417	6220	AND I 17	/DO AUTO INDEX
7431	1017	6221	TAD 17	
7432	1045	6222	TAD K0377	/AC SHOULD EQUAL 7777
7433	7040	6223	CMA	
7434	7440	6224	SZA	/AC SHOULD BE ZERO
7435	7402	6225	HLT	/AUTO INDEX ERROR
		6226	/-----	
		6227	/AUTO INDEX TEST 109	
		6228	/-----	
7436	7200	6229	CLA	
7437	1065	6230	TAD K6777	/CONSTANT TO BE INDEXED
7440	3017	6231	DCA 17	
7441	0417	6232	AND I 17	/DO AUTO INDEX
7442	1017	6233	TAD 17	
7443	1050	6234	TAD K0777	/AC SHOULD EQUAL 7777

7444	7040	6235	CMA	
7445	7440	6236	SZA	/AC SHOULD BE ZERO
7446	7402	6237	HLT	/AUTO INDEX ERROR
		6238	/-----	
		6239	/AUTO INDEX TEST 110	
		6240	/-----	
7447	7200	6241	CLA	
7450	1063	6242	TAD K5777	/CONSTANT TO BE INDEXED
7451	3017	6243	DCA 17	
7452	2417	6244	ISZ I 17	/DO AUTO INDEX
7453	7000	6245	NOP	
7454	1017	6246	TAD 17	
7455	1054	6247	TAD K1777	/AC SHOULD EQUAL 7777
7456	7040	6248	CMA	
7457	7440	6249	SZA	/AC SHOULD BE ZERO
7460	7402	6250	HLT	/AUTO INDEX ERROR
		6251	/-----	
		6252	/AUTO INDEX TEST 111	
		6253	/-----	
7461	7200	6254	CLA	
7462	1060	6255	TAD K3777	/CONSTANT TO BE INDEXED
7463	3017	6256	DCA 17	
7464	0417	6257	AND I 17	/DO AUTO INDEX
7465	1017	6258	TAD 17	
7466	1060	6259	TAD K3777	/AC SHOULD EQUAL 7777
7467	7040	6260	CMA	
7470	7440	6261	SZA	/AC SHOULD BE ZERO
7471	7402	6262	HLT	/AUTO INDEX ERROR
		6263	/-----	
		6264	/AUTO INDEX TEST 112	
		6265	/-----	
7472	7200	6266	CLA	
7473	1110	6267	TAD K7777	/CONSTANT TO BE INDEXED
7474	3017	6268	DCA 17	
7475	0417	6269	AND I 17	/DO AUTO INDEX
7476	1017	6270	TAD 17	
7477	1110	6271	TAD K7777	/AC SHOULD EQUAL 7777
7500	7040	6272	CMA	
7501	7440	6273	SZA	/AC SHOULD BE ZERO
7502	7402	6274	HLT	/AUTO INDEX ERROR
		6275	/-----	
		6276	/AUTO INDEX TEST 113	
		6277	/-----	
7503	5305	6278	JMP .+2	
7504	7402	6279	HLT	/JMP FAILED
7505	7410	6280	SKP	
7506	7513	6281	+.5	
7507	1306	6282	TAD .-1	
7510	3010	6283	DCA 10	
7511	5410	6284	JMP I 10	/TEST INSTRUCTION
7512	7402	6285	HLT	/JMP INDIRECT FAILED
7513	7402	6286	HLT	/AUTO INDEX ERROR

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6287 /-----
6288 /AUTO INDEX TEST 114
6289 /-----
7514 7200 6290      CLA
7515 4317 6291      JMS .+2
7516 7402 6292      HLT                /JMS FAILED
7517 0000 6293      0000
7520 1317 6294      TAD .-1
7521 7410 6295      SKP
7522 7516 6296      .-4
7523 7041 6297      CMA IAC
7524 1322 6298      TAD .-2
7525 7440 6299      SZA
7526 7402 6300      HLT                /INCORRECT ADDRESS STORED BY JMS
7527 7410 6301      SKP
7530 7534 6302      .+4
7531 1330 6303      TAD .-1
7532 3010 6304      DCA 10
7533 4410 6305      JMS I 10
7534 0000 6306      0000
7535 7402 6307      HLT                /JMS FAILED
7536 1335 6308      TAD .-1
7537 7410 6309      SKP
7540 7534 6310      .-4
7541 7041 6311      CMA IAC
7542 1340 6312      TAD .-2
7543 7440 6313      SZA
7544 7402 6314      HLT                /INCORRECT ADDRESS STORED BY JMS
6315 /-----
7545 5746 6316      JMP I .+1          /REPEAT TESTS
7546 C200 6317      0200

```

NO ERRORS

CROSS-REFERENCE

SYMBOL	ADDR	DEFN	REFERENCES							
			1577	1777	2015	3648				
K0300	0044	38	918	1086	1087					
K0377	0045	39	1104	5027	5200	5371	5541	5711	5883	6053
			6222							
K0400	0046	40	145	432	559	708	709	945	1324	1563
			1763	2001	3603	4218				
K0600	0047	41	932	1101	1102					
K0777	0050	42	1119	5039	5212	5383	5553	5723	5895	6065
			6234							
K1000	0051	43	133	422	547	694	695	959	1310	1549
			1750	1987						
K1234	0052	44	4744	4749	4807	4811				
K1400	0053	45	946	1116	1117					
K1777	0054	46	1133	5052	5225	5396	5566	5736	5908	6078
			6247							
K2000	0055	47	121	412	535	680	681	973	1296	1535
			1736	1903	1975	3660				
K2525	0056	48	373	378	2153	2253	2266	2268	2292	2306
			2320	2344	2369	2394	2446	2486	2501	2543
			2555	2596	2987	3001	3029	3057	3490	4285
			4299	4309	4311	4313	4382	4389	4452	4459
			4519	4526	4585	4592				
K3000	0057	49	960	1131	1132					
K3777	0060	50	268	285	401	679	961	1147	1270	1675
			1738	1989	2612	2771	2824	3228	3440	3468
			3680	3700	3724	3751	3780	3790	3800	3843
			3868	3913	3923	3945	3958	4044	4054	4086
			4100	4180	4242	5060	5064	5233	5237	5404
			5408	5574	5578	5744	5748	5916	5920	6086
			6090	6255	6259					
K4000	0061	51	109	276	294	402	522	523	667	668
			1118	1282	1521	1687	1961	3226	3520	3528
			3559	3572	3690	3737	3811	3851	3879	3934
			3969	3980	3990	4011	4022	4075	4112	4145
K5252	0062	54	387	392	2407	2821	2835	2849	2863	2973
			3015	3043	3071	3480	3888	4135	4287	4297
			4324	4326	4328	4399	4404	4470	4477	4536
			4543	4603	4610					
K5777	0063	55	411	693	947	1284	1509	1752	2003	2640
			2797	2852	3215	5047	5220	5391	5561	5731
			5903	6073	6242					
K6000	0064	56	534	974	1103	1145	1146	3213		
K6777	0065	57	421	707	933	1298	1523	1765	2017	3202
			5035	5208	5379	5549	5719	5891	6061	6230
K7000	0066	58	546	1088	3200					
K7377	0067	59	431	721	919	1312	1537	1779	2031	3189
			5023	5196	5367	5537	5707	5879	6049	6218
K7400	0070	60	558	1073	3187					
K7577	0071	61	441	735	905	1326	1551	1793	2045	2710
			3176	5011	5184	5355	5525	5695	5867	6037
			6206							
K7600	0072	62	570	1058	3174					


```

1 /-----
2 /
3 / MP12 MEMORY DIAGNOSTIC          900-0102-04 REV
4 /
5 / (C) COPYRIGHT 1974, FABRI-TEK INCORPORATED
6 /
7 /-----
8 /
9 / THIS PROGRAM VERIFIES THAT EACH MEMORY LOCATION
10 / CAN BE WRITTEN AND READ CORRECTLY WITHOUT AFFECT-
11 / ING THE CONTENTS OF ANY OTHER LOCATION.
12 /
13 / OPERATING PROCEDURES:
14 /
15 /     1. LOAD THE MEMORY DIAGNOSTIC OBJECT TAPE
16 /        USING THE BINARY LOADER
17 /     2. READY THE TELETYPE
18 /     3. TOGGLE THE CONSOLE RESET SWITCH
19 /     3. TOGGLE THE RUN SWITCH TO COMMENCE
20 /        EXECUTION
21 /
22 /     THE MEMORY DIAGNOSTIC PRINTS A HEADING ON THE
23 /     TELETYPE PRINTER AND THEN BEGINS TESTING. IN
24 /     CASE AN ERROR IS DETECTED, THE PROGRAM PRINTS
25 /     ADDRESS DATA, TEST DATA, AND ERROR DATA FOR
26 /     THE FAILING ADDRESS.
27 /
28 /     THE TIME TO COMPLETE ONE MEMORY TEST CYCLE IS 3
29 /     MINUTES. THE TEST MAY BE HALTED AT THE COMPLET-
30 /     ION OF THE CYCLE IN PROGRESS BY SETTING CONSOLE
31 /     SWITCH 0. WHEN THE PROGRAM IS HALTED IN THIS
32 /     MANNER, THE BINARY LOADER IS RESTORED TO THE LAST
33 /     PAGE OF MEMORY BEFORE THE PROGRAM HALTS. TESTING
34 /     MAY BE RESUMED BY TOGGING THE RUN SWITCH.
35 /

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7400

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36 /-----
37 /
38 /
39 /

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7400 4201 40 MOVE00,JMS PA /LOCATE PROGRAM
7401 0000 41 PA, 0 /PROGRAM ADDRESS
7402 7240 42 CLA CMA
7403 1201 43 TAD PA
7404 3361 44 DCA SA /SET SOURCE ADDRESS
7405 7130 45 STL RAR
7406 1361 46 TAD SA
7407 3366 47 DCA DA /SET DESTINATION ADDRESS
7410 1761 48 TAD I SA /RELOCATE PROGRAM
7411 3766 49 DCA I DA
7412 2361 50 ISZ SA
7413 5215 51 JMP .+2
7414 5217 52 JMP .+3

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7415	2366	53	ISZ	DA	
7416	5210	54	JMP	.-6	
7417	7604	55	CLA	OSR	/TEST FOR HALT
7420	7710	56	SPA	CLA	
7421	7402	57	HLT		/HALT WITH LOADER RESTORED
7422	1201	58	TAD	PA	
7423	1226	59	TAD	DA	
7424	3201	60	DCA	PA	/SET PROGRAM ADDRESS
7425	5601	61	JMP I	PA	/EXECUTE TEST
		62	/		
		63	/-----		
7426	4026	64	DA,	MOVE02-MOVE00-1-04000	
		65	/-----		
		66	/		
7427	1201	67	MOVE02,	TAD PA	
7430	7004	68		RAL	
7431	7210	69		CLA RAR	
7432	3361	70		DCA SA	/SET LOWER TEST LIMIT
7433	1201	71		TAD PA	
7434	7004	72		RAL	
7435	7250	73		STA RAR	
7436	3366	74		DCA DA	/SET UPPER TEST LIMIT
7437	5243	75		JMP .+4	
		76	/		
		77	/-----		
		78	/		
7440	1363	79	TEST00,	TAD TD	/SET BACKGROUND DATA
7441	7450	80		SNA	
7442	5200	81		JMP MOVE00	
7443	3365	82		DCA BD	
7444	1363	83		TAD TD	/SET TEST DATA
7445	7040	84		CMA	
7446	3363	85		DCA TD	
7447	7240	86		CLA CMA	/SET TEST ADDRESS
7450	1361	87		TAD SA	
7451	3362	88		DCA TA	
7452	1366	89	TEST02,	TAD DA	/TEST FOR STOP ADDRESS
7453	7041	90		CMA IAC	
7454	1362	91		TAD TA	
7455	7650	92		SNA CLA	
7456	5240	93		JMP TEST00	
7457	2362	94		ISZ TA	/INCREMENT TEST ADDRESS
7460	1361	95	TEST04,	TAD SA	/SET BACKGROUND ADDRESS
7461	3364	96		DCA BA	
7462	1362	97		TAD TA	/SET STOP ADDRESS
7463	7041	98		CMA IAC	
7464	3201	99		DCA PA	
7465	1363	100		TAD TD	/STORE TEST WORD
7466	3762	101		DCA I TA	
7467	1364	102	TEST06,	TAD BA	/TEST FOR STOP ADDRESS
7470	1201	103		TAD PA	
7471	7650	104		SNA CLA	

7472	5277	105	JMP	TEST08	
7473	1365	106	TAD	BD	/STORE BACKGROUND WORD
7474	3764	107	DCA I	BA	
7475	2364	108	ISZ	BA	/INCREMENT BACKGROUND ADDRESS
7476	5267	109	JMP	TEST06	
7477	1366	110	TEST08,TAD	DA	/SET STOP ADDRESS
7500	7041	111	CMA	IAC	
7501	3201	112	DCA	PA	
7502	1364	113	TEST10,TAD	BA	/TEST FOR STOP ADDRESS
7503	1201	114	TAD	PA	
7504	2364	115	ISZ	BA	/INCREMENT BACKGROUND ADDRESS
7505	7650	116	SNA	CLA	
7506	5312	117	JMP	TEST12	
7507	1365	118	TAD	BD	/STORE BACKGROUND WORD
7510	3764	119	DCA I	BA	
7511	5302	120	JMP	TEST10	
7512	1762	121	TEST12,TAD I	TA	/TEST FOR ERROR
7513	7041	122	CMA	IAC	
7514	1363	123	TAD	TD	
7515	7650	124	SNA	CLA	
7516	5252	125	JMP	TEST02	

126 /
127 /-----
128 /

7517	1371	129	TAD	00215	
7520	4354	130	JMS	TEST16	
7521	1370	131	TAD	00212	
7522	4354	132	JMS	TEST16	
7523	1362	133	TAD	TA	/OUTPUT TEST ADDRESS
7524	4332	134	JMS	TEST14	
7525	1363	135	TAD	TD	/OUTPUT TEST DATA
7526	4332	136	JMS	TEST14	
7527	1762	137	TAD I	TA	/OUTPUT ERROR DATA
7530	4332	138	JMS	TEST14	
7531	5252	139	JMP	TEST02	

140 /
141 /-----
142 /

7532	0000	143	TEST14,00000		
7533	3364	144	DCA	BA	
7534	1374	145	TAD	07774	/SET COUNT
7535	3365	146	DCA	BD	
7536	1364	147	TAD	BA	
7537	7104	148	CLL	RAL	
7540	7006	149	RTL		
7541	3364	150	DCA	BA	
7542	1364	151	TAD	BA	
7543	7004	152	RAL		
7544	0367	153	AND	00007	
7545	1373	154	TAD	00260	
7546	4354	155	JMS	TEST16	
7547	2365	156	ISZ	BD	

```

7550 5336 157      JMP      .-10
7551 1372 158      TAD      00240
7552 4354 159      JMS      TEST16
7553 5732 160      JMP I TEST14
161 /
162 /-----
163 /
7554 0000 164 TEST16,0
7555 6047 165      IOT      047      /TTY OUTPUT COMMAND
7556 5355 166      JMP      .-1
7557 7300 167      CLA      CLL
7560 5754 168      JMP I TEST16
169 /
170 /-----
171 /
7561 0000 172 SA,      00000      /START ADDRESS
7562 0000 173 TA,      00000      /TEST ADDRESS
7563 0000 174 TD,      00000      /TEST DATA
7564 0000 175 BA,      00000      /BACKGROUND ADDRESS
7565 0000 176 BD,      00000      /BACKGROUND DATA
7566 0000 177 DA,      00000      /STOP ADDRESS
178 /
179 /-----
180 /
7567 0007 181 00007, 00007
7570 0212 182 00212, 00212
7571 0215 183 00215, 00215
7572 0240 184 00240, 00240
7573 0260 185 00260, 00260
7574 7774 186 07774, 07774
187 /
188 /-----
0200      189      *00200
190 /-----
191 /
0200 7300 192      CLA      CLL      /OUTPUT HEADING
0201 2211 193      ISZ     MSG
0202 1611 194      TAD I  MSG      /LOAD CHARACTER
0203 7450 195      SNA
0204 5610 196      JMP I  MOVE00X     /START PROGRAM
0205 4607 197      JMS I  TEST16X     /OUTPUT CHARACTER
0206 5201 198      JMP      .-5
199 /
200 /-----
0207 7554 201 TEST16X,      TEST16
0210 7400 202 MOVE00X,      MOVE00
203 /-----
204 /
0211 0211 205 MSG, .;0215;0212;'MP12 MEMORY DIAGNOSTIC PROGRAM'
0212 0215
0213 0212
0214 0315

```

0215 0320
0216 0261
0217 C262
0220 0240
0221 0315
0222 0305
0223 0315
0224 0317
0225 0322
0226 C331
0227 C240
0230 0304
0231 0311
0232 0301
0233 0307
0234 0316
0235 0317
0236 C323
0237 0324
0240 0311
0241 0303
0242 0240
0243 0320
0244 0322
0245 0317
0246 0307
0247 0322
0250 0301
0251 0315
0252 0215
0253 0212
0254 0212
0255 0240
0256 C240
0257 0240
0260 0240
0261 0240
0262 0240
0263 0240
0264 0240
0265 0240
0266 0240
0267 0301
0270 0304
0271 0304
0272 0322
0273 0240
0274 0275
0275 0240
0276 C301
0277 C304
0300 0304

206

0215;0212;0212;'

ADDR = ADDRESS OF FAILURE'

0301 0322
0302 0305
0303 0323
0304 0323
0305 0240
0306 0317
0307 0306
0310 0240
0311 0306
0312 0301
0313 0311
0314 0314
0315 0325
0316 0322
0317 0305
0320 0215
0321 0212
0322 0240
0323 0240
0324 0240
0325 0240
0326 0240
0327 0240
0330 0240
0331 0240
0332 0240
0333 0240
0334 0304
0335 0301
0336 0324
0337 0301
0340 0240
0341 0275
0342 0240
0343 0303
0344 0317
0345 0322
0346 0322
0347 0305
0350 0303
0351 0324
0352 0240
0353 0304
0354 0301
0355 0324
0356 0301
0357 0215
0360 0212
0361 0240
0362 0240
0363 0240
0364 0240

207

0215;0212;'

DATA = CORRECT DATA'

208

0215;0212;'

ERROR= ERROR DATA'

0365 0240
0366 0240
0367 0240
0370 0240
0371 0240
0372 0240
0373 0305
0374 0322
0375 0322
0376 0317
0377 0322
0400 0275
0401 0240
0402 0305
0403 0322
0404 0322
0405 0317
0406 0322
0407 0240
0410 0304
0411 0301
0412 0324
0413 0301
0414 0215
0415 0212
0416 0212
0417 0212
0420 0301
0421 0304
0422 0304
0423 0322
0424 0240
0425 0304
0426 0301
0427 0324
0430 0301
0431 0240
0432 0305
0433 0322
0434 0322
0435 0317
0436 0322
0437 0215
0440 0212
0441 0000

209

0215;0212;0212;0212;'ADDR DATA ERROR'

210

0215;0212;0000

NO ERRORS

CROSS-REFERENCE

SYMBOL	ADDR	DEFN	REFERENCES							
BA	7564	175	96	102	107	108	113	115	119	144
			147	150	151					
BD	7565	176	82	106	118	146	156			
DA	7566	177	47	49	53	74	89	110		
MESG	0211	205	193	194						
MOVE00	7400	40	64	81	202					
MOVE00X	0210	202	196							
MOVE02	7427	67	64							
QA	7426	64	59							
00007	7567	181	153							
00212	7570	182	131							
00215	7571	183	129							
00240	7572	184	158							
00260	7573	185	154							
07774	7574	186	145							
PA	7401	41	40	43	58	60	61	67	71	99
			103	112	114					
SA	7561	172	44	46	48	50	70	87	95	
TA	7562	173	88	91	94	97	101	121	133	137
TD	7563	174	79	83	85	100	123	135		
TEST00	7440	79	93							
TEST02	7452	89	125	139						
TEST04	7460	95								
TEST06	7467	102	109							
TEST08	7477	110	105							
TEST10	7502	113	120							
TEST12	7512	121	117							
TEST14	7532	143	134	136	138	160				
TEST16	7554	164	130	132	155	159	168	201		
TEST16X	0207	201	197							


```

*****
*
*      MP12 CROSS-ASSEMBLER      900-0085-04 REV 00B
*
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*
*****

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```

XMP12  START
        BALR  9,0          LOAD BASE REGISTER
        USING #,9
$      MVI   PASS,0       INITIALIZE PASS 1
        MVI   NREF,0
        COMRG GET COM REGION ADDRESS
        L     2,32(1)     FETCH END AREA ADDRESS
        SRL   2,2         ALIGN ON FULL WORD BOUNDARY
        SLL   2,2
        ST    2,STAT      STORE REFERENCE TABLE ORIGN
        L     1,40(1)     FETCH END PROGRAM ADDRESS
        SRL   1,2         ALIGN ON FULL WORD BOUNDARY
        LA    1,1(1)
        SLL   1,2
        ST    1,STAB      STORE SYMBOL TABLE ORIGN
        ST    1,STAP      INIT SYMBOL TABLE POINTER
***** INITIALIZE PASS
INIT    MVI   MODE,0
        MVI   PBUFFX,0
        XR    0,0
        STH   0,SNUM
        STH   0,PNUM
        LA    0,51
        STH   0,LNUM
        LA    0,X'80'
        STH   0,LC
        STH   0,LDC
        MVC   PBUFF(80),PBUFF-1 INITIALIZE PUNCH BUFFER
***** INPUT RECORD
IR      LH    1,SNUM      INCREMENT STATEMENT NUMBER
        LA    1,1(1)
        STH   1,SNUM
        BAL   7,INPUT     INPUT SOURCE RECORD
        LR    1,0         LOAD RECORD ADDRESS
        MVC   WBUFF+17(72),0(1) MOVE RECORD TO WORK BUFFER
        MVC   WBUFF-1(18),WBUFF-2 INITIALIZE WORK BUFFER
        XR    WBUFFX,WBUFFX INITIALIZE BUFFER POINTER
PR      BAL   6,INBCH     INPUT NON-BLANK CHAR
        CLI   CHAR,C'$'   $ CHARACTER
        BNE   PR4         NO
        CLI   PASS,1      YES, PASS 2
        BE    XREF        YES, GO PRINT XREF LISTING
        XR    0,0         NO, OPEN SYS002 FOR PASS 2
        BAL   7,OUTPUT
        MVI   PASS,1      SET FOR PASS 2

```

	B	INIT	GO INITIALIZE
PR4	BAL	7,PBP	PRESERVE BUFFER POINTER
	BAL	7,TEND	TEST FOR STATEMENT END
	BE	WUP2	IF YES
	CLI	CHAR,C'*	CHECK FOR ASTERISK (*)
	BE	AST	IF ASTERISK
	BAL	7,TLET	CHECK FOR LETTER
	BE	LET	IF LETTER
	CLI	CHAR,C''''	TEST FOR APOSTROPHE
	BE	STR	IF APOSTROPHE
PR5	CLI	PASS,0	TEST PASS
	BE	PR6	IF NOT PASS 1
	BAL	7,RBP	RESTORE BUFFER POINTER
	BAL	4,ASMB	ASSEMBLE STATEMENT
	BAL	5,OUTREC	OUTPUT RECORD
	B	WUP	GO WRAP UP
PR6	LH	1,LC	INCREMENT LC
	LA	1,1(1)	
	STH	1,LC	
*****	WRAP UP		
WUP	BAL	7,TEND	TEST FOR STATEMENT END
	BE	WUP2	IF YES
	BAL	6,INBCH	INPUT NON-BLANK CHAR
	B	WUP	GO TEST AGAIN
WUP2	CLI	PASS,0	TEST PASS
	BE	WUP4	IF PASS 1
	CLI	WBUFF+11,X'FF'	CHECK IF RECORD LISTED
	BE	WUP4	IF LISTED
	BAL	6,LIST	LIST RECORD
WUP4	CLI	CHAR,C';'	TERMINATING CHAR SEMICOLON
	BE	PR	IF SEMICOLON
	B	IR	GO INPUT NEXT RECORD
*****	PROCESS LETTER		
LET	BAL	6,PACK	PACK SYMBOL
	CLI	CHAR,C'='	TERMINATING CHAR EQUAL SIGN (=)
	BNE	LET10	IF NO, GO CHECK FOR LABEL
*	EQUALITY	SYMBOL	
	XI	NREF,X'01'	
	BAL	7,SST	SEARCH SYMBOL TABLE
	B	LET2	IF SYMBOL UNDEFINED
	CLI	PASS,0	TEST PASS
	BNE	LET2	IF PASS 2
	MVI	WBUFF,C'D'	DOUBLY DEFINED SYMBOL
	XI	NREF,X'01'	
	B	LET6	GO LIST RECORD
LET2	XI	NREF,X'01'	
	ST	6,TEMP	SAVE SYMBOL ADDRESS
	BAL	6,INBCH	INPUT NON-BLANK CHAR
	BAL	4,ASMB	ASSEMBLE EXPRESSION
	L	6,TEMP	RELOAD SYMBOL ADDRESS
	LH	1,DATA	FETCH VALUE
	CLI	PASS,0	TEST PASS

	BNE	LET4	IF PASS 2
	STH	1,2(6)	STORE VALUE IN TABLE
	LH	0,SNUM	INDICATE SYMBOL DEFINED
	STH	0,0(6)	
LET4	LA	2,WBUFF+7	CONVERT VALUE TO OCTAL
	BAL	7,BDC	
LET6	BAL	6,LIST	LIST RECORD
	B	WUP	GO WRAP UP
LET10	CLI	CHAR,C','	CHECK FOR LABEL
	BNE	LET18	IF NO, GO CHECK FOR MNEMONIC
*	LABEL		
	CLI	PASS,0	TEST PASS
	BNE	PR	IF PASS 2
	BAL	7,SST	SEARCH SYMBOL TABLE
	B	LET12	IF SYMBOL NOT DEFINED
	MVI	WBUFF,C'D'	DOUBLY DEFINED LABEL
	B	PR	CONTINUE
LET12	LH	0,SNUM	INDICATE SYMBOL DEFINED
	STH	0,0(6)	
	LH	0,LC	STORE SYMBOL VALUE
	STH	0,2(6)	
	B	PR	CONTINUE
*	CHECK FOR MNEMONIC		
LET18	LA	6,MTAB1	GET DIRECTIVE TABLE ADDRESS
	BAL	7,SMT	SEARCH DIRECTIVE TABLE
	B	PR5	NOT FOUND
	LH	1,4(6)	FETCH ROUTINE ADDRESS
	B	\$(1)	GO PROCESS DIRECTIVE
*****	ASSEMBLE INSTRUCTION		
ASMB	BAL	7,PBP	PRESERVE BUFFER POINTER
	BAL	7,TLET	TEST FOR LETTER
	BE	ASMB4	IF YES
ASMB2	BAL	7,RBP	RESTORE BUFFER POINTER
	BAL	5,IEV	INPUT EXPRESSION VALUE
	LH	0,VALUE	FETCH VALUE
	STH	0,DATA	STORE FOR OUTPUT
	B	0(4)	RETURN
ASMB4	BAL	6,PACK	PACK SYMBOL
	LA	6,MTAB	GET MNEMONIC TABLE ADDRESS
	BAL	7,SMT	SEARCH MNEMONIC TABLE
	B	ASMB2	ASSUME EXPRESSION
	LH	0,4(6)	FETCH INSTRUCTION MASK
	STH	0,MASK	STORE
	LH	0,6(6)	FETCH INSTRUCTION
	STH	0,DATA	STORE
	SRL	0,9	ISOLATE OPERATION CODE
	CH	0,=H'6'	DETERMINE INST TYPE
	BH	ASMB24	IF OPERATE
	BE	ASMB22	IF INPUT-OUTPUT
*****	MEMCRY REFERENCE INST		
	BAL	7,TEND	TEST FOR STATEMENT END
	BE	ASMB20	IF YES, FLAG AS ERROR

	CLI	CHAR,C'	TEST FOR BLANK CHARACTER
	BNE	ASMB20	IF NO, FLAG AS ERROR
	BAL	6,INBCH	INPUT NON-BLANK CHAR
	CLI	CHAR,C'I'	LETTER "I"
	BNE	ASMB10	NO
	BAL	7,PBP	YES, PRESERVE BUFFER POINTER
	BAL	7,ICH	INPUT CHARACTER
	CLI	CHAR,C'	TEST FOR BLANK
	BE	ASMB8	IF BLANK
	BAL	7,RBP	RESTORE BUFFER POINTER
	B	ASMB10	GO INPUT ADDRESS
ASMB8	OI	DATA,1	SET INDIRECT BIT
	BAL	6,INBCH	INPUT NON-BLANK CHAR
ASMB10	BAL	5,IEV	INPUT EXPRESSION VALUE
	LH	1,VALUE	CHECK FOR BASE PAGE ADDRESS
	SRL	1,7	
	OR	1,1	
	BE	ASMB14	YES
	LH	0,LC	NO, CHECK FOR CURRENT PAGE ADDRESS
	SRL	0,7	
	CLR	0,1	
	BNE	ASMB18	IF NO, GO FLAG PAGE ERROR
	OI	DATA+1,X'80'	SET CURRENT PAGE BIT
ASMB14	LH	0,VALUE	INSERT DISPLACEMENT
	N	0,=X'0000007F'	
	AH	0,DATA	
	STH	0,DATA	
	B	0(4)	RETURN
ASMB18	MVI	WBUF,C'P'	PAGE ERROR
	OI	DATA+1,X'FF'	INSERT 0177 FOR DISPLACEMENT
	B	0(4)	RETURN
ASMB20	MVI	WBUF,C'S'	STATEMENT ERROR
	B	0(4)	RETURN
***** INPUT-OUTPUT INST			
ASMB22	CLI	DATA+1,0	TEST FOR INTERRUPT INST
	BNE	0(4)	IF YES, RETURN
	BAL	7,TEND	TEST FOR STATEMENT END
	BE	ASMB20	IF YES, GO FLAG AS ERROR
	CLI	CHAR,C'	TEST FOR BLANK CHARACTER
	BNE	ASMB20	IF NO, GO FLAG AS ERROR
	BAL	6,INBCH	INPUT NON-BLANK CHARACTER
	BAL	5,IEV	INPUT EXPRESSION VALUE
	LH	0,VALUE	FETCH VALUE
	N	0,=X'000001FF'	EXTRACT NINE BITS
	AH	0,DATA	INSERT INTO INSTRUCTION
	STH	0,DATA	
	B	0(4)	RETURN
***** OPERATE INST			
ASMB24	CLI	CHAR,C'	CHECK FOR BLANK CHARACTER
	BNE	*+8	IF NOT BLANK
	BAL	6,INBCH	INPUT NON-BLANK CHAR
	BAL	7,TLET	TEST FOR LETTER

ASMB26	BE	ASMB28	IF LETTER
	BAL	7, TEND	TEST FOR STATEMENT END
	BE	0(4)	IF YES, RETURN
	B	ASMB20	GO FLAG STATEMENT ERROR
ASMB28	BAL	6, PACK	PACK INST MNEMONIC
	LA	6, MTAB	FETCH MNEMONIC TABLE ADDRESS
	BAL	7, SMT	SEARCH MNEMONIC TABLE
	B	ASMB32	IF MNEMONIC UNDEFINED
	LH	0, 4(6)	FETCH INSTRUCTION MASK
	STH	0, MASK1	SAVE
	LH	1, 6(6)	FETCH INSTRUCTION VALUE
	STH	1, DATA1	SAVE
	LH	2, MASK	CHECK FOR VALID COMBINATION
	NR	2, 0	
	LH	0, DATA	
	NR	0, 2	
	NR	1, 2	
	XR	0, 1	
	BNE	ASMB30	IF INVALID
	LH	0, MASK	OK, COMBINE
	LH	1, MASK1	
	OR	0, 1	
	STH	0, MASK	
	LH	0, DATA	
	LH	1, DATA1	
	OR	0, 1	
	STH	0, DATA	
	B	ASMB24	CONTINUE
ASMB30	MVI	WBUFF, C'I'	INVALID COMBINATION
	B	ASMB24	CONTINUE
ASMB32	MVI	WBUFF, C'U'	UNDEFINED MNEMONIC
	B	ASMB24	CONTINUE
*****	PROCESS	ASTERISK	
AST	BAL	6, INBCH	INPUT NON-BLANK CHAR
	BAL	5, IEV	INPUT EXPRESSION VALUE
AST2	LA	2, WBUFF+2	CONVERT VALUE TO OCTAL
	LH	1, VALUE	
	STH	1, LC	
	BAL	7, BOC	
	BAL	6, LIST	LIST RECORD
	BAL	6, DUMP	DUMP PUNCH BUFFER
	B	WUP	GO WRAP UP
*****	PROCESS	DECIMAL MNEMONIC	
DEC	MVI	MODE, 2	SET MODE = 2
	B	WUP	GO WRAP UP
*****	PROCESS	OCTAL MNEMONIC	
OCT	MVI	MODE, 1	SET MODE = 1
	B	WUP	GO WRAP UP
*****	PROCESS	PAGE MNEMONIC	
PAG	LH	1, LC	FETCH LC
	BCT	1, **4	SUBTRACT ONE
	SRL	1, 7	GET PAGE NUMBER

	LA	1,1(1)	INCREMENT PAGE NUMBER
	SLL	1,7	POSITION LC
	STH	1,VALUE	STORE LC
	B	AST2	GO OUTPUT RECORD
*****	EJECT PRINTER		
EJECT	LA	0,51	FORCE TOP OF FORM
	STH	0,LNUM	
	B	IR	GO INPUT NEXT RECORD
*****	PROCESS CHARACTER STRING		
STR	BAL	7,ICH	INPUT CHARACTER
	CLI	CHAR,C'...'	TEST FOR CLOSING APOSTROPHE
	BE	WUP	IF YES
	CLI	CHAR,X'FF'	TEST FOR END OF STATEMENT
	BE	WUP	IF YES
	XR	1,1	FETCH ASCII CHARACTER
	IC	1,CHAR	
	IC	1,TABLE(1)	
	STH	1,DATA	STORE CHARACTER
	BAL	5,OUTREC	OUTPUT RECORD
	B	STR	CONTINUE
*****	INPUT EXPRESSION VALUE		
IEV	XR	0,0	INITIALIZE
	STH	0,VALUE	VALUE
IEV2	XR	0,0	INITIALIZE
	STH	0,TERM	TERM VALUE
	STC	0,SIGN	TERM SIGN
	CLI	CHAR,C'-'	CHECK FOR MINUS
	BNE	IEV6	IF NOT MINUS
	MVI	SIGN,1	SET SIGN MINUS
IEV4	BAL	6,INBCH	INPUT NON-BLANK CHAR
	B	IEV8	GO CHECK FOR TERM
IEV6	CLI	CHAR,C'+'	CHECK FOR PLUS
	BE	IEV4	IF PLUS
IEV8	BAL	7,TDIG	TEST FOR DIGIT
	BE	IEV14	IF DIGIT
	BAL	7,TLET	TEST FOR LETTER
	BE	IEV10	IF LETTER
	CLI	CHAR,C'.'	TEST FOR PERIOD
	BE	IEV20	IF PERIOD
	B	IEV26	ILLEGAL CHARACTER
*	SYMBOL TERM		
IEV10	BAL	6,PACK	PACK SYMBOL
	BAL	7,SST	SEARCH SYMBOL TABLE
	B	IEV12	IF SYMBOL UNDEFINED
	LH	0,2(6)	FETCH VALUE
	STH	0,TERM	STORE AS TERM VALUE
	B	IEV22	GO PROCESS TERM
IEV12	MVI	WBUFF,C'U'	UNDEFINED SYMBOL
	B	IEV22	GO PROCESS TERM
*	NUMERIC TERM		
IEV14	CLI	MODE,1	CHECK CONVERSION MODE
	BH	IEV16	DECIMAL

	BE	IEV18	OCTAL
	CLI	CHAR,C'0'	UNSPECIFIED, FIRST DIGIT ZERO
	BE	IEV18	YES, CONVERT AS OCTAL
*	DECIMAL CONSTANT		
IEV16	LH	0,TERM	FETCH TERM VALUE
	MH	0,=H*10'	MULTIPLY BY TEN
	NI	CHAR,X'F'	EXTRACT DECIMAL DIGIT
	XR	1,1	
	IC	1,CHAR	
	AR	0,1	ADD TO TERM VALUE
	STH	0,TERM	SAVE TERM VALUE
	BAL	7,ICH	INPUT CHARACTER
	BAL	7,TDIG	TEST IF DIGIT
	BE	IEV16	IF YES, CONTINUE
	B	IEV22	PROCESS TERM VALUE
*	OCTAL CONSTANT		
IEV18	CLI	CHAR,C'7'	TEST FOR OCTAL DIGIT
	BH	IEV26	IF NO, GO FLAG ERROR
	LH	0,TERM	FETCH TERM VALUE
	SLL	0,3	MULTIPLY BY EIGHT
	NI	CHAR,X'7'	EXTRACT OCTAL DIGIT
	XR	1,1	
	IC	1,CHAR	
	AR	0,1	ADD TO TERM VALUE
	STH	0,TERM	SAVE TERM VALUE
	BAL	7,ICH	INPUT CHARACTER
	BAL	7,TDIG	TEST IF DIGIT
	BE	IEV18	IF YES, CONTINUE
	B	IEV22	GO PROCESS TERM
*	PERIOD TERM		
IEV20	LH	0,LC	FETCH LC
	STH	0,TERM	STORE AS TERM VALUE
	BAL	6,INBCH	INPUT NON-BLANK CHAR
*	PROCESS TERM		
IEV22	LH	0,TERM	FETCH TERM VALUE
	CLI	SIGN,0	TEST SIGN
	BE	**6	IF PLUS
	LCR	0,0	NEGATE TERM
	AH	0,VALUE	ADD TERM VALUE TO EXPRESSION VALUE
	STH	0,VALUE	SAVE EXPRESSION VLAUE
	CLI	CHAR,C' '	TERMINATING CHAR BLANK
	BNE	**8	NO
	BAL	6,INBCH	YES, INPUT NON-BLANK CHAR
	CLI	CHAR,C'+'	PLUS CHARACTER
	BE	IEV2	IF PLUS
	CLI	CHAR,C'-'	MINUS CHARACTER
	BE	IEV2	IF MINUS
	BAL	7,TEND	TEST FOR STATEMENT END
	BE	0(5)	IF YES, RETURN
IEV26	MVI	WBUF,C'S'	STATEMENT ERROR
	XR	0,0	ZERO EXPRESSION VALUE
	STH	0,VALUE	

BAL	6, INBCH	INPUT NON-BLANK CHAR
BAL	7, TEND	TEST FOR STATEMENT END
BE	0(5)	IF YES, RETURN
B	INBCH	INPUT CHAR AND TEST AGAIN

***** SEARCH MNEMONIC TABLE

SMT	L	0, 0(6)
	OR	0, 0
	BE	0(7)
	CLC	0(4, 6), SYMBOL
	BE	4(7)
	LA	6, 8(6)
	B	SMT

***** SEARCH SYMBOL TABLE

SST	L	6, STAB
	CL	6, STAP
	BNL	SST6
	CLC	12(8, 6), SYMBCL
	BE	SST4
	LA	6, 20(6)
	B	SST+4

SST4	CLI	NREF, X'01'
------	-----	-------------

	BE	SST5
	CLI	PASS, 1
	BE	SST8

SST5	LH	0, 0(6)
------	----	---------

	LTR	0, 0
	BE	0(7)
	B	4(7)

SST6	L	6, STAP
------	---	---------

	LA	0, 20(6)
	ST	0, STAP
	XR	0, 0
	ST	0, 0(6)
	ST	0, 4(6)
	ST	0, 8(6)
	MVC	12(8, 6), SYMBOL
	B	SST4

***** BUILD CROSS-REFERENCE TABLE ENTRY

SST8	L	1, STAT
------	---	---------

	S	1, =F'4'
	C	1, STAP
	BNH	SST14

	LH	0, SNUM
	ST	0, 0(1)
	XR	0, 0

	ST	0, 4(1)
	L	2, 8(6)
	ST	1, 8(6)

	LTR	2, 2
	BE	SST12

SST10	ST	1, 4(2)
-------	----	---------

	S	1, =F'4'
--	---	----------


```

      ST      1,STAT
      B      SST5
SST12  ST      1,4(6)
      B      SST10
SST14  MVI     NREF,X'01'
      B      SST5
***** BINARY TO DECIMAL CONVERSION
BDC    MVI     0(2),C' '
      MVI     1(2),C' '
      MVI     2(2),C' '
      LA      2,3(2)
BDC2   XR      0,0
      D      0,=F'10'
      STC     0,0(2)
      CI      0(2),C'0'
      CR      1,1
      BE      0(7)
      BCT     2,BDC2
***** BINARY TO OCTAL CONVERSION
BOC    LA      3,4
      SLDL   0,20
BOC2   XR      0,0
      SLDL   0,3
      STC     0,0(2)
      CI      0(2),C'0'
      LA      2,1(2)
      BCT     3,BOC2
      B      0(7)
***** PACK SYMBOL
PACK   LA      3,SYMBOL
      MVC     SYMBOL(8),SYMBOL-1
      LA      2,8
PACK2  BAL     7,TDIG
      BE      PACK4
      BAL     7,TLET
      BNE     0(6)
PACK4  MVC     0(1,3),CHAR
      LA      3,1(3)
      BAL     7,ICH
      BCT     2,PACK2
      B      0(6)
***** OUTPUT RECORD
OUTREC CLI     PASS,0          TEST PASS
      BE      OUTREC4        IF PASS 1
      LH      1,DATA         FETCH DATA WORD
      LA      2,WBUFF+7
      BAL     7,BOC          CONVERT TO OCTAL
      LH      1,LC           FETCH LC
      LA      2,WBUFF+2
      BAL     7,BOC          CONVERT TO OCTAL
      BAL     6,LIST         LIST RECORD
      CLI     PBUFFX,68     CHECK PUNCH BUFFER

```

	BL	**8	IF NOT FULL
	BAL	6,DUMP	DUMP PUNCH BUFFER
	XR	2,2	
	IC	2,PBUFFX	BUMP PUNCH BUFFER POINTER
	LA	1,4(2)	
	STC	1,PBUFFX	
	LA	2,PBUFF+4(2)	STORE DATA IN PUNCH BUFFER
	LH	1,DATA	
	BAL	7,BDC	
OUTREC4	LH	1,LC	INCREMENT LC
	LA	1,1(1)	
	STH	1,LC	
	B	0(5)	RETURN
*****	OUTPUT LISTING		
LIST	CLI	PASS,0	TEST PASS
	BNE	LIST2	IF PASS 2
	CLI	WBUFF,C' '	CHECK IF ERROR NOTED
	BE	0(6)	IF NO, RETURN
LIST2	MVI	WBUFF-1,C' '	SET SPACING CONTROL
	LH	1,LNUM	INCREMENT LINE NUMBER
	LA	1,1(1)	
	STH	1,LNUM	
	CH	1,=H'52'	52 LINES PRINTED
	BNE	LIST4	NO
	LH	1,PNUM	YES, INCREMENT PAGE NUMBER
	LA	1,1(1)	
	STH	1,PNUM	
	LA	2,PAGE+4	
	BAL	7,BDC	CONVERT TO DECIMAL
	LA	0,PAGE-1	FETCH PAGE HEADING ADDRESS
	LA	1,10	FETCH CHARACTER COUNT
	BAL	7,OUTPTR	OUTPUT TO PRINTER
	MVI	WBUFF-1,C'-'	SET FORMS CONTROL
	XR	0,0	ZERO LINE NUMBER
	STH	0,LNUM	
LIST4	CLI	WBUFF+11,X'FF'	CHECK FOR SHORT RECORD
	BNE	LIST6	IF NOT
	LA	1,12	SHORTEN RECORD
	B	LIST8	GO OUTPUT
LIST6	LH	1,SNUM	FETCH STATEMENT NUMBER
	LA	2,WBUFF+12	
	BAL	7,BDC	CONVERT TO DECIMAL
	LA	1,90	FETCH COUNT
LIST8	LA	0,WBUFF-1	FETCH BUFFER ADDRESS
	BAL	7,OUTPTR	OUTPUT RECORD TO PRINTER
	CLI	WBUFF,C' '	
	BE	LIST10	
	MVI	EMSG,C'*	
	MVI	EMSG+1,C'*	
LIST10	MVC	WBUFF-1(12),WBUFF-2	INITIALIZE WORK BUFFER
	MVI	WBUFF+11,X'FF'	INDICATE RECORD LISTED
	B	0(6)	RETURN

```

***** DUMP PUNCH BUFFER
DUMP      CLI    PBUFFX,0      CHECK BUFFER
          BE     DUMP2        IF EMPTY
          LA     2,PBUFF      INSERT ADDRESS WORD
          LH     1,LOC
          BAL    7,BOC
          LA     0,PBUFF      FETCH PUNCH BUFFER ADDRESS
          LA     1,80        FETCH COUNT
          BAL    7,OUTCRD     OUTPUT CARD IMAGE
          MVC    PBUFF(80),PBUFF-1 INITIALIZE PUNCH BUFFER
DUMP2     LH     0,LC        INIT RECORD ADDRESS
          STH    0,LOC
          MVI    PBUFFX,0     INIT PUNCH BUFF POINTER
          B      0(6)        RETURN

***** TEST FOR STATEMENT END
TEND      CLI    CHAR,X'FF'
          BE     0(7)
          CLI    CHAR,C';'
          BE     0(7)
          CLI    CHAR,C'/'
          B      0(7)

***** TEST FOR DIGIT
TDIG      CLI    CHAR,C'9'
          BH     0(7)
          CLI    CHAR,C'0'
          B      TLET2

***** TEST FOR LETTER
TLET      CLI    CHAR,C'Z'
          BH     0(7)
          CLI    CHAR,C'A'
TLET2     BL     0(7)
          XR     0,0
          B      0(7)

***** INPUT CHARACTER
ICH       IC     0,WBUFF+17(WBUFFX)
          STC    0,CHAR
          LA     WBUFFX,1(WBUFFX)
          B      0(7)

***** INPUT NON-BLANK CHARACTER
INBCH     BAL    7,ICH
          CLI    CHAR,C' '
          BE     ICH
          B      0(6)

***** PRESERVE BUFFER POINTER
PBP       LR     0,WBUFFX
          BCT    0,**+4
          STC    0,WBUFFP
          B      0(7)

***** RESTORE BUFFER POINTER
RBP       XR     WBUFFX,WBUFFX
          IC     WBUFFX,WBUFFP
          B      ICH

```

***** PRINT CROSS-REFERENCE LISTING

XREF	LA	0,EMSG-1
	LA	1,10
	BAL	7,OUTPTR
	BAL	6,DUMP
	XR	0,0
	BAL	7,OUTCRD
	CLI	NREF,X'01'
	BE	XREF18
	LA	0,51
	STH	0,LNUM
	MVC	WBUFF-1(90),WBUFF-2
	MVC	SYMBOL(8),SYMBOL-1
XREF2	MVI	SYMBOL,X'FF'
	L	2,STAB
XREF4	CL	2,STAP
	BNL	XREF10
	CLC	12(8,2),SYMBOL
	BNH	XREF6
	CLC	12(8,2),SYMBOL
	BNL	XREF6
	LR	4,2
	MVC	SYMBOL(8),12(2)
XREF6	LA	2,20(2)
	B	XREF4
XREF10	CLI	SYMBOL,X'FF'
	BE	XREF18
	MVC	WBUFF(8),SYMBOL
	MVC	SYMBOL(8),SYMBOL
	LH	1,0(4)
	LTR	1,1
	BE	XREF12
	LA	2,WBUFF+15
	BAL	7,BDC
	LH	1,2(4)
	LA	2,WBUFF+9
	BAL	7,BDC
XREF12	LA	5,WBUFF+23
	LA	3,8
XREF14	L	4,4(4)
	LTR	4,4
	BE	XREF16
	LR	2,5
	LH	1,2(4)
	BAL	7,BDC
	LA	5,6(5)
	BCT	3,XREF14
	BAL	6,OUTREF
	B	XREF12
XREF16	CLI	WBUFF,C' '
	BNE	XREF17
	CLI	WBUFF+26,C' '

```

XREF17 BE XREF2
        BAL 6,OUTREF
        B XREF2
XREF18 XR 0,0
        BAL 7,OUTPTR
        EOJ

```

***** OUTPUT REFERENCE LINE

```

OUTREF LH 1,LNUM
        LA 1,1(1)
        STH 1,LNUM
        CH 1,=H'52'
        BNE OUTREF2
        LH 1,PNUM
        LA 1,1(1)
        STH 1,PNUM
        LA 2,PAGE+4
        BAL 7,BDC
        LA 0,PAGE-1
        LA 1,38
        BAL 7,OUTPTR
        LA 0,HEADING-1
        LA 1,34
        BAL 7,OUTPTR
        XR 0,0
        STH 0,LNUM
        MVI WBUFF-1,C'0'
OUTREF2 LA 0,WBUFF-1
        LA 1,90
        BAL 7,OUTPTR
        MVC WBUFF-1(90),WBUFF-2
        B 0(6)

```

* INPUT-OUTPUT SECTION

* THE INPUT-OUTPUT SECTION USES THE DOS UTILITY
* MACROS INCARD, OUTCARD, INDISK, OUTDISK, AND
* OUTPTR AS DESCRIBED IN THE IBM SYSTEMS REFERENCE
* PUBLICATION GC24-5042

```

***** INPUT SOURCE RECORD (BAL 7,INPUT)
***** READS SOURCE RECORDS FROM SYS005 DURING PASS 1
***** READS SOURCE RECORDS FROM SYS002 DURING PASS 2
***** EXITS WITH:
***** RO = ADDRESS OF 80 BYTE INPUT RECORD
INPUT  CLI PASS,1 PASS 2
        BE INPUT4 YES
INPUT2 INCARD UNIT=SYS005 NO, INPUT CARD IMAGE
        LTR 0,0 END OF FILE

```

```

      BE      INPUT2      YES, GO INPUT AGAIN
      B      OUTPUT      NO, GO OUTPUT RECORD
INPUT4  INDISK  BUFSIZ=1040,DEVICE=2314,RECSIZ=80,FILE=IJSYSO2
      B      O(7)      RETURN

```

```

*
*****

```

```

***** OUTPUT SOURCE RECORD (BAL 7,OUTPUT)
***** WRITES SOURCE RECORDS TO SYS002 DURING PASS 1
***** ENTERED WITH:
***** RO = ADDRESS OF OUTPUT RECORD
***** R1 = RECORD LENGTH IN BYTES
OUTPUT  OUTDISK BUFSIZ=1040,BLK=13,DEVICE=2314,FILE=IJSYSO2,RETURN=NO
      B      O(7)      RETURN

```

```

*
*****

```

```

***** OUTPUT RECORD TO PRINTER (BAL 7,OUTPTR)
***** ENTERED WITH:
***** RO = ADDRESS OF PRINT RECORD
***** R1 = RECORD LENGTH IN BYTES
OUTPTR  OUTPRT  UNIT=SYS007,BUFSIZ=90,RETURN=NO,FORMS=D
      B      O(7)

```

```

*
*****

```

```

***** OUTPUT RECORD TO PUNCH (BAL 7,OUTCRD)
***** ENTERED WITH:
***** RO = ADDRESS OF PUNCH RECORD
***** R1 = RECORD LENGTH IN BYTES
OUTCRD  OUTCARD UNIT=SYS006,DEVICE=2540,RETURN=NO
      B      O(7)      RETURN

```

```

*
*****

```

***** DATA AREA

TEMP	DS	1F	TEMPORARY STORAGE
STAB	DS	1F	BASE OF SYMBOL TABLE
STAP	DS	1F	SYMBOL TABLE POINTER
STAT	DS	1F	REFERENCE TABLE POINTER
PASS	DS	1C	PASS NUMBER
MODE	DS	1C	CONVERSION MODE
SNUM	DS	1H	STATEMENT NUMBER
LNUM	DS	1H	LINE NUMBER
PNUM	DS	1H	PAGE NUMBER
LC	DS	1H	LOCATION COUNTER
LOC	DS	1H	LOCATION
PBUFFX	DS	1C	PUNCH BUFFER INDEX
CHAR	DS	1C	CHARACTER STORAGE
WBUFFX	EQU	8	WORK BUFFER INDEX
WBUFFP	DS	1C	WORK BUFFER POINTER
SIGN	DS	1C	TERM SIGN
TERM	DS	1H	TERM VALUE

VALUE	DS	IH	EXPRESSION VALUE
MASK	DS	IH	MASK WORD
MASK1	DS	IH	MASK WORD
DATA	DS	IH	DATA WORD
DATAL	DS	IH	DATA WORD
NREF	DS	IC	NO REFERENCE LISTING FLAG
	DC	C' '	FILL CHARACTER
SYMBOL	DC	8C' '	SYMBOL STORAGE
SYMBOLX	DC	CL8' '	SYMBOL BOX

LTORG

***** EBCDIC TO ASCII CORRESPONDENCE TABLE

TABLE	DC	64X'A0'	FILLER
	DC	X'A0'	BLANK
	DC	10X'A0'	FILLER
	DC	X'AE'	. 0256
	DC	X'BC'	< 0274
	DC	X'A8'	(0250
	DC	X'AB'	+ 0253
	DC	X'DE'	0336
	DC	X'A6'	& 0246
	DC	9X'A0'	FILLER
	DC	X'A1'	0241
	DC	X'A4'	\$ 0244
	DC	X'AA'	* 0252
	DC	X'A9') 0251
	DC	X'BB'	; 0273
	DC	X'DC'	~ 0334
	DC	X'AD'	- 0255
	DC	X'AF'	/ 0257
	DC	9X'A0'	FILLER
	DC	X'AC'	, 0254
	DC	X'A5'	% 0245
	DC	X'DF'	- 0337
	DC	X'BE'	> 0276
	DC	X'BF'	? 0277
	DC	10X'A0'	FILLER
	DC	X'BA'	: 0272
	DC	X'A3'	# 0243
	DC	X'CO'	@ 0300
	DC	X'A7'	' 0247
	DC	X'BD'	= 0275
	DC	X'A2'	" 0242
	DC	65X'A0'	FILLER
	DC	X'C1'	A 0301
	DC	X'C2'	B 0302
	DC	X'C3'	C 0303
	DC	X'C4'	D 0304
	DC	X'C5'	E 0305
	DC	X'C6'	F 0306
	DC	X'C7'	G 0307
	DC	X'C8'	H 0310
	DC	X'C9'	I 0311

DC	7X'A0'	FILLER
DC	X'CA'	J 0312
DC	X'CB'	K 0313
DC	X'CC'	L 0314
DC	X'CD'	M 0315
DC	X'CE'	N 0316
DC	X'CF'	O 0317
DC	X'D0'	P 0320
DC	X'D1'	Q 0321
DC	X'D2'	R 0322
DC	8X'A0'	FILLER
DC	X'D3'	S 0323
DC	X'D4'	T 0324
DC	X'D5'	U 0325
DC	X'D6'	V 0326
DC	X'D7'	W 0327
DC	X'D8'	X 0320
DC	X'D9'	Y 0331
DC	X'DA'	Z 0332
DC	6X'A0'	FILLER
DC	X'B0'	0 0260
DC	X'B1'	1 0261
DC	X'B2'	2 0262
DC	X'B3'	3 0263
DC	X'B4'	4 0264
DC	X'B5'	5 0265
DC	X'B6'	6 0266
DC	X'B7'	7 0267
DC	X'B8'	8 0270
DC	X'B9'	9 0271
DC	6X'A0'	FILLER

***** BUFFER AREA

	DC	C'0'	FORMS CONTROL
EMSG	DC	C'ND ERRORS'	
	DC	C'-'	FORMS CONTROL
HEADING	DC	C'SYMBOL	ADDR DEFN REFERENCES'
	DC	C'1'	FORMS CONTROL
PAGE	DC	C'PAGE	CROSS-REFERENCE'
	DC	C' '	FILL CHARACTER
	DC	C' '	FORMS CONTROL
WBUFF	DC	89C' '	WORK BUFFER
	DC	X'FF'	SENTINAL
	DC	C' '	FILL CHARACTER
PBUFF	DC	80C' '	PUNCH BUFFER

***** MNEMONIC TABLE

MTAB	DS	OF
	DC	C'TAD'
	DC	X'OFFF'
	DC	X'0200'

*

	DC	C'DCA'
	DC	X'OFFF'


```

*      DC      X'0600'
      DC      C'JMP '
      DC      X'0FFF'
      DC      X'0A00'
*
      DC      C'ISZ '
      DC      X'0FFF'
      DC      X'0400'
*
      DC      C'JMS '
      DC      X'0FFF'
      DC      X'0800'
*
      DC      C'AND '
      DC      X'0FFF'
      DC      X'0000'
*
      DC      C'CLA '
      DC      X'0E00'
      DC      X'0E80'
*
      DC      C'CLL '
      DC      X'0F40'
      DC      X'0E40'
*
      DC      C'CMA '
      DC      X'0F20'
      DC      X'0E20'
*
      DC      C'CML '
      DC      X'0F10'
      DC      X'0E10'
*
      DC      C'RAR '
      DC      X'0F0A'
      DC      X'0E08'
*
      DC      C'RAL '
      DC      X'0F06'
      DC      X'0E04'
*
      DC      C'RTR '
      DC      X'0F0A'
      DC      X'0E0A'
*
      DC      C'RTL '
      DC      X'0F06'
      DC      X'0E06'
*
      DC      C'IAC '
      DC      X'0F01'

```

```
*      DC      X'0000'  
      DC      C'EJEC'  
      DC      AL2(EJECT-3)  
      DC      X'0000'  
*  
      DC      X'00000000' SENTINAL  
END
```