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1 0000      .TITLE PRMSFT , ' P00343B 03/19/75'      8.
2 0000      :                                          9.
3 0000      :      SOFTWARE FOR THE PRGM PROGRAMMER FOR THE IMP 16L/16P. 10.
4 0000      :                                          11.
5 0000      :      WHEN USING IMP-16P WITH A CARD READER:      12.
6 0000      :      1.  PRESS INITIALIZE.      13.
7 0000      :      2.  SET PC (PROGRAM COUNTER) TO X' 7F00.      14.
8 0000      :      3.  SET DISPLAY SWITCH TO PROG DATA POSITION.      15.
9 0000      :      4.  LOAD CARD DECK IN CARD READER.      16.
10 0000     :      5.  PUSH RESET ON CARD READER.      17.
11 0000     :      6.  WAIT UNTIL GREEN READY LITE IS LIT.      18.
12 0000     :      7.  PUSH RUN ON PROCESSOR.      19.
13 0000     :      8.  CARDS WILL BE READ IN.      20.
14 0000     :      9.  PROGRAM IS NOW READY TO USE.      21.
15 0000     :                                          22.
16 0000     :                                          23.
17 0000     :                                          24.
18 0000     :                                          25.
19 0000     :      WHEN USING IMP-16L WITH A CARD READER:      26.
20 0000     :      1.  PRESS INITIALIZE.      27.
21 0000     :      2.  PUT 2 CRBOOT CARDS AT FRONT OF DECK.      28.
22 0000     :      3.  PUT ABSCR DECK NEXT.      29.
23 0000     :      4.  PUT CARD DECK FOR PRMSFT NEXT.      30.
24 0000     :      5.  PUT A GO CARD ON THE END.      31.
25 0000     :      6.  PUT CARD DECK IN CARD READER.      32.
26 0000     :      7.  PUSH RESET ON CARD READER.      33.
27 0000     :      8.  WAIT UNTIL GREEN READY LITE IS LIT.      34.
28 0000     :      9.  PUSH AUX1, ONE CARD WILL BE READ IN.      35.
29 0000     :      10. PUSH RUN.      36.
30 0000     :      11. CARDS WILL BE READ IN.      37.
31 0000     :      12. PROGRAM IS NOW READY TO USE.      38.
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32 0000	.PAGE	39.
33 0000	: COMMANDS USED WITH PRMSFT:	40.
34 0000		41.
35 0000	: TERMINATOR IS CARRIAGE RETURN. CR	42.
36 0000		43.
37 0000	: G(HEX ADDRESS) CR GO TO HEX ADDRESS.	44.
38 0000		45.
39 0000	: H CR READ PROM TO WRITE BUFFER.	46.
40 0000		47.
41 0000	: I CR (RUB OUT FIRST) READ COMPLEMENTED BINARY TAPE.	48.
42 0000		49.
43 0000	: J CR READ RLM CARDS TO TEMP BUFFER.	50.
44 0000		51.
45 0000	: K CR (RUBOUT FIRST) READ TRUE BINARY TAPE.	52.
46 0000		53.
47 0000	: L CR READ RLM PAPER TAPE TO TEMP BUFFER.	54.
48 0000		55.
49 0000	: M(HEX ADDRESS) CR MOVE DATA STARTING AT HEX ADDRESS.	56.
50 0000		57.
51 0000	: N CR READ P/N PAPER TAPE.	58.
52 0000		59.
53 0000	: O (HEX NUMBER) CR SET STARTING ADDRESS OF TEMP BUFFER.	60.
54 0000		61.
55 0000	: P CR CHECK IF PROM IS ERASED THEN PROGRAM.	62.
56 0000		63.
57 0000	: Q CR PRINT THE CHECK SUM OF THE PROM.	64.
58 0000		65.
59 0000	: R(HEX ADDRESS) CR READ AND TYPE PROM STARTING AT HEX ADDRESS.	66.
60 0000		67.
61 0000	: S CR SET MODE.	68.
62 0000		69.
63 0000	: T(HEX ADDRESS) CR TYPE MEMORY STARTING AT HEX ADDRESS.	70.
64 0000		71.
65 0000	: V (HEX ADDRESS) CR VERIFY PROM TO WRITE BUFFER.	72.
66 0000		73.
67 0000	: W(HEX NUMBER) CR FILL TEMP BUFFER WITH HEX NUMBER.	74.
68 0000		75.
69 0000	: X CR PRINT THE CHECK SUM OF THE WRITE BUFFER.	76.
70 0000		77.
71 0000	: Y(HEX ADDRESS) CR PROGRAM PROM STARTING AT HEX ADDRESS.	78.
72 0000		79.
73 0000	: Z CR CHECK IF PROM IS ERASED.	80.
74 0000		81.
75 0000	: <----- TYPE MODE.BACK ARROW.	82.
76 0000		83.
77 0000	: \$ TYPE TEMP BUFFER ADDRESS.	84.
78 0000		85.
79 0000	: ALT MODE ESCAPE FROM KEYBOARD REQUEST.	86.
80 0000		87.
81 0000	: WRITE BUFFER IS FROM X'0E00 TO X'0FFF. FOR MM5203 ONLY THE	88.
82 0000		89.
83 0000	: LOWER BUFFER IS USED X'0E00 TO X'0EFF.	90.

84	0000		.PAGE				91.
85	0000		.BSECT				92.
86	0000	2403 B	BSTART:	JMP	@.+3	:RECOVER FROM INIT	93.
87	0001	0002 B	.	=	+.1	:DUMMY	94.
88	0002	0003 B	.	=	+.1	:DUMMY	95.
89	0003	0304 A	.WORD	SPACE			96.
90	0004	000R B	.	=	+.07		97.
91	000B	089A A	SETPL:	.WORD	SSETPL	:SET WHICH PROCESSER.	98.
92	000C	0891 A	INTEST:	.WORD	ITEST	:INPUT FROM KEYBOARD.	99.
93	000D	0848 A	PUTC:	.WORD	PPUTC	:WRITE TO TTY.	100.
94	000E	084C A	GETC:	.WORD	PGETC	:GET CHAR FROM TTY.	101.
95	000F	088D A	GECO:	.WORD	PGECO	:GET AND ECHO CHAR.	102.
96	0010	00FF A	BUFEND:	.WORD	255	:LENGTH OF ROM ADDRESS SPACE.	103.
97	0011	0342 A	MESSA:	.WORD	MESS	:POINTER TO PRINT MESSAGE.	104.
98	0012	00FF A	MFF:	.WORD	OFF	:MASK FOR LEAST BYTE.	105.
99	0013	01FF A	K511:	.WORD	511	:LENGTH OF 4K BUFFER.	106.
100	0014	0490 A	ROMIA:	.WORD	ROMI	:POINTER TO INCR ROM.	107.
101	0015	048C A	SPACA:	.WORD	SPAC	:POINTER TO PRINT ONE SPACE.	108.
102	0016	000F A	KF:	.WORD	OF	:MASK FOR LSD.	109.
103	0017	0000 A	FLAG:	.WORD	0	:INDICATOR FOR HEX WORD.	110.
104	0018	0000 A	AFLAG:	.WORD	0	:INDICATOR FOR ALPHA WORD.	111.
105	0019	0000 A	WHAT:	.WORD	0	:LAST 4 HEX WORDS.	112.
106	001A	0000 A	WHERE:	.WORD	0	:LAST 2 ALPHA WORDS.	113.
107	001B	001C B	AC0:	.	+.1		114.
108	001C	001D B	AC1:	.	+.1		115.
109	001D	001E B	AC2:	.	+.1		116.
110	001E	001F B	AC3:	.	+.1		117.
111	001F	0046 A	K46:	.WORD	046	:ASCII F.	118.
112	0020	0002 A	RR:	.WORD	2	:REP RATE.	119.
113	0021	000A A	PW:	.WORD	10	:PULSE WIDTH.	120.
114	0022	0000 A	ROM:	.WORD	0	:CURRENT ROM ADDRESS.	121.
115	0023	0E00 A	SWBUF:	.WORD	0E00	:START ADR WRITE BUFFER AT 0E00 TO 0FFF.	122.
116	0024	0FFF A	ENDBUF:	.WORD	0FFF	:END OF WRITE BUFFER.	123.
117	0025	0470 A	LWAITA:	.WORD	LWAIT	:POINTER TO LONG WAIT.	124.
118	0026	0380 A	OHEXA:	.WORD	OHEX	:POINTER TO PRINT HEX WORD.	125.
119	0027	0351 A	CRLFA:	.WORD	CRLF	:POINTER TO CRLF.	126.
120	0028	0465 A	READWA:	.WORD	READWD	:POINTER TO READ A PROM WORD.	127.
121	0029	04EB A	LOKSA:	.WORD	LOKSE	:POINTER TO SEE IF KEYBOARD HIT.	128.
122	002A	031C A	HEXYA:	.WORD	HEXY	:POINTER TO SEE IF HEX NUMBER.	129.
123	002B	007F A	K7F:	.WORD	X'7F		130.
124	002C	0000 A	RO:	.WORD	0		131.
125	002D	0000 A	R1:	.WORD	0		132.
126	002E	0000 A	R2:	.WORD	0		133.
127	002F	0000 A	R3:	.WORD	0		134.
128	0030	0000 A	SFLGS:	.WORD	0		135.
129	0031	0000 A	SAVSEL:	.WORD	0		136.
130	0032	7FD3 A	REDCR:	.WORD	07FD3	:16P READ CARD ROUTINE.	137.
131	0033	0C00 A	BUFFAD:	.WORD	TBUF		138.
132	0034	0C00 A	TBFAD:	.WORD	TBUF		139.
133	0035	06D3 A	CHARGA:	.WORD	CKRG	:CHECK IF PROTECTED.	140.
134	0036	03FFF A	K3FFF:	.WORD	03FFF		141.
135	0037	0FFF A	ADMSK:	.WORD	0FFF		142.

136 0038 0000 A FIRAD: .WORD 0  
137 0039 0000 A HICKSM: .WORD 0

143.  
144.



156	0300			.PAGE			163.
157	0300			NSTART:			164.
158	0300	2C0B	B	JSR	@SETPL	;SET WHAT MACHINE USED.	165.
159	0301	2C27	B	JSR	@CRLFA		166.
160	0302	2C11	B	JSR	@MESSA	;PRINT NAME OF PROGRAM	167.
161	0303	06FF	A	.WORD	MSG		168.
162	0304			SPACE:			169.
163	0304	4D10	A	LI	1,16	;ZERO STACK.	170.
164	0305	4400	A	SPACE1:	PULL 0	;DO IT.	171.
165	0306	49FF	A	AISZ	1,-1	;DONE ?	172.
166	0307	21FD	A	JMP	SPACE1		173.
167	0308	2C27	B	JSR	@CRLFA		174.
168	0309	0A80	A	PFLG	2	;RESET SEL FLAG	175.
169	030A	4C3F	A	LI	0,03F	;AC0 = ASCII ?.	176.
170	030B	2C0D	B	JSR	@PUTC	;PRINT IT.	177.
171	030C	4C20	A	LI	0,020	;ASCII SPACE.	178.
172	030D	2C0D	B	JSR	@PUTC	;TYPE IT.	179.
173	030E	294C	A	JSR	START	;GET CHAR.HEX WRD IN WHAT,ALPH IN WHERE.	180.
174	030F	2909	A	JSR	SMTHNG	;CHECK FOR ALPHA CHAR.	181.
175	0310	2000	B	JMP	BSTART	;TO START.	182.
176	0311	801A	B	LD	0,WHERE	;GET LAST 2 ALPHA CHAR.	183.
177	0312	6012	B	AND	0,MFF	;LEAVE JUST THE LAST.	184.
178	0313	C104	A	ADD	0,LIST	;MAKE POINTER TO ADDRESS.	185.
179	0314	3281	A	KCPY	0,2	;MOVE TC AC2.	186.
180	0315	8019	B	LD	0,WHAT	;GET HEX WORD	187.
181	0316	8E00	A	LD	3,(2)	;PUT POINTER IN 3.	188.
182	0317	2300	A	JMP	(3)	;GO THERE	189.
183	0318	06EB	A	LIST:	.WORD ALIST		190.

184 0319		.PAGE			191.
185 0319	:	JSR	SMTHNG	:CHECK IF AN ALPH CHAR RECEIVED	192.
186 0319	:		NO ALPHA WORD RECEIVED		193.
187 0319	:		NORMAL RETURN		194.
188 0319					195.
189 0319		SMTHNG:			196.
190 0319 7818 B		ISZ	AFLAG	:IF -1 NO ALPA INPUT.	197.
191 031A 0201 A		RTS	1	:NORMAL RETURN	198.
192 031B 0200 A		RTS		:NO ALPHA FLAG	199.
193 031C					200.
194 031C	:	JSR	HEXY	:CHECK IF A HEX WORD RECEIVED.	201.
195 031C	:		NO HEX NUMBER RETURN		202.
196 031C	:		HEX NUMBER RETURN		203.
197 031C					204.
198 031C		HEXY:			205.
199 031C 7817 B		ISZ	FLAG	:SKIP IF NO HEX	206.
200 031D 0201 A		RTS	1	:HEX RETURN.	207.
201 031E 0200 A		RTS		:NO HEX RETURN.	208.
202 031F					209.
203 031F					210.
204 031F	:		CREATE A FCUR DIGIT HEX WORD		211.
205 031F					212.
206 031F					213.
207 031F 8419 B	IHEX:	LD	1,WHAT	:GET WORD	214.
208 0320 5D04 A		SHL	1,4	:MAKE ROOM FOR NEW	215.
209 0321 3100 A		RADD	0,1	:MAKE WORD	216.
210 0322 A419 B		ST	1,WHAT	:STORE WORD.	217.
211 0323 A017 B		ST	0,FLAG	:FIX FLAG.	218.
212 0324 213C A		JMP	NOW	:RETURN	219.
213 0325					220.
214 0325		GO:			221.
215 0325 29F6 A		JSR	HEXY	:CHECK FOR HEX CHAR	222.
216 0326 2000 B		JMP	BSTART	:TO START.	223.
217 0327 2C27 B		JSR	@CRLFA		224.
218 0328 2419 B		JMP	@WHAT	:GO TO ARGUMENT	225.

219	0329			.PAGE			226.
220	0329	:		JSR	GET	GET CHAR FROM ITY	227.
221	0329	:		HEX RETURN		HEX NUMBER IN ACO	228.
222	0329	:		SPECIAL RETURN		ASCII CHAR IN ACO	229.
223	0329	:		ALPHA RETURN		HEX NUMBER IN ACO 0-13 (G-Z)	230.
224	0329	:		USES ACO			231.
225	0329						232.
226	0329	2C0F B GET:		JSR	@GFCO	;GET CHAR IN ACO	233.
227	032A	602B B		AND	0,K7F	;MAKE 7 BIT ASCII.	234.
228	032B	E10F A		SKG	0,K39	;SKIP IF GT 9	235.
229	032C	E10E A		SKG	0,K30	;SKIP IF 0-9	236.
230	032D	2102 A		JMP	HEX	;KEEP CHECKING NOT 0-9.	237.
231	032E	6016 B FIX:		AND	0,KF	;MASK OFF	238.
232	032F	0200 A		RTS		;CHAR IS HEX	239.
233	0330	E01F B HEX:		SKG	0,K46	;SKIP IF GT F	240.
234	0331	E10B A		SKG	0,K40	;SKIP IF A-F	241.
235	0332	2102 A		JMP	ALPH	;NOT A HEX NUMBER	242.
236	0333	4809 A		AND	0,9	;MAKE HEX NUMBER	243.
237	0334	21F9 A		JMP	FIX		244.
238	0335	E108 A ALPH:		SKG	0,K5A	;SKIP IF NOT ALPHA GT Z.	245.
239	0336	E01F B		SKG	0,K46	;SKIP IF GT G-Z.	246.
240	0337	0201 A		RTS	1	;SPECIAL	247.
241	0338	D103 A		SUB	0,K47	;MAKE A NUMBER BETWEEN 0-13	248.
242	0339	0202 A		RTS	2	;BETWEEN 0-13,(G-Z)	249.
243	033A						250.
244	033A	0039 A K39:		.WORD	039		251.
245	033B	002F A K30:		.WORD	02F		252.
246	033C	0047 A K47:		.WORD	047		253.
247	033D	0040 A K40:		.WORD	040		254.
248	033E	005A A K5A:		.WORD	05A		255.
249	033F	007D A ALMOD:		.WORD	07D	;ASCII ALTMODE	256.
250	0340	000D A CRR:		.WORD	0D	;ASCII CARRIAGE RETURN	257.
251	0341	007E A ESC:		.WORD	07E	;ASCII ESCAPE.	258.



252	0342		.PAGE				259.
253	0342	:	JSR	@MESSA	PRINT MESSAGE		260.
254	0342	:		ADDRESS OF MESSAGE			261.
255	0342	:		RETURN			262.
256	0342	:		PRINTS MESSAGE UNTIL A WORD OF ALL 0 FOUND			263.
257	0342						264.
258	0342		MESS:				265.
259	0342	2913 A	JSR	SAVE	;SAVE ALL REG		266.
260	0343	4700 A	PULL	3			267.
261	0344	4300 A	PUSH	3			268.
262	0345	8B00 A	LD	2,(3)	;GET ADDRESS OF MESSAGE		269.
263	0346	8200 A L1:	LD	0,(2)	;GET WORD		270.
264	0347	4800 A	AISZ	0,0	;SKIP IF DONE		271.
265	0348	2102 A	JMP	KEEP	;KEEP GOING		272.
266	0349	2930 A	JSR	RETRV	;GET SAVED REG.		273.
267	034A	0201 A	RTS	1	;RETURN +1		274.
268	034B	58F8 A KEEP:	ROR	0,8	;MOVE MOST TO LEAST		275.
269	034C	2C0D B	JSR	@PUTC	;PRINT IT		276.
270	034D	8200 A	LD	0,(2)	;PRINT LOW ORDER		277.
271	034E	2C0D B	JSR	@PUTC			278.
272	034F	4A01 A	AISZ	2,1	;POINT TO NEXT WORD		279.
273	0350	21F5 A	JMP	L1	; GET MORE		280.
274	0351						281.
275	0351	:	JSR	@CRLF	PRINT CR LF		282.
276	0351						283.
277	0351	4C0D A CRLF:	LI	0,0D			284.
278	0352	2C0D B	JSR	@PUTC	;PRINT IT		285.
279	0353	4C0A A	LI	0,0A			286.
280	0354	2C0D B	JSR	@PUTC	;PRINT IT.		287.
281	0355	0200 A	RTS				288.
282	0356						289.
283	0356		SAVE:				290.
284	0356	AC1F B	ST	3,AC3	;SAVE AC3.		291.
285	0357	A81D B	ST	2,AC2	;SAVE AC2.		292.
286	0358	A41C B	ST	1,AC1	;SAVE AC1.		293.
287	0359	A01B B	ST	0,AC0	;SAVE AC0.		294.
288	035A	0200 A	RTS		;RETURN		295.

289	035B			.PAGE			296.
290	035B						297.
291	035B	:	JSR	START	:	GET CHAR.	298.
292	035R	:		RETURN AFTER A CARRIAGE RETURN HAS BEEN TYPED.			299.
293	035B	:		SPECIAL CHAR RETURN			300.
294	035B						301.
295	035B						302.
296	035B	:		ALTMODE. START OF PROGRAM.			303.
297	035B	:		BACK ARROW. TYPE WHICH MODE OF OPERATION.			304.
298	035B						305.
299	035B						306.
300	035B	:		LAST 4 HEX DIG IN WHAT. FLAG -1 IF NO HEX CHAR.			307.
301	035B	:		LAST 2 ALPHA CHAR AS A NUMBER 0-13 (G-Z) IN WHERE.			308.
302	035R	:		AFLAG -1 IF NO ALPHA CHAR.			309.
303	035B						310.
304	035B			START:			311.
305	035B	4C00	A	LI	0,0	:ZERO FLAGS THAT ARE USED.	312.
306	035C	A019	B	ST	0,WHAT	:HEX WORD.	313.
307	035D	A01A	B	ST	0,WHERE	:ALPHA POINTER.	314.
308	035E	4CFF	A	LI	0,-1	:TO SET FLAGS TO -1.	315.
309	035F	A017	B	ST	0,FLAG	:HEX FLAG.	316.
310	0360	A018	B	ST	0,AFLAG	:ALPHA FLAG.	317.
311	0361						318.
312	0361	29C7	A	NOW: JSR	GET	:READ/WRITE FROM TTY	319.
313	0362	21BC	A	JMP	IHEX	:HEX NUMBER RETURN	320.
314	0363	2106	A	JMP	SPCC	:SPECIAL CHAR	321.
315	0364	A018	B	ST	0,AFLAG	:SET AN ALPHA FLAG.	322.
316	0365	881A	B	LD	2,WHERE	:GET LAST INPUTS.	323.
317	0366	5E08	A	SHL	2,8	:MAKE ROOM FOR NEW.	324.
318	0367	3200	A	RADD	0,2	:MAKE POINTER	325.
319	0368	A81A	B	ST	2,WHERE	:WHERE IS LAST TWO ALPHA.	326.
320	0369	21F7	A	JMP	NOW	:KEEP GOING UNTILL CR.	327.
321	036A						328.
322	036A	F1D4	A	SPCC: SKNE	0,ALMOD	:CHECK FOR ALTMODE	329.
323	036B	2194	A	JMP	NSTART	:SPECIAL GO TO START.	330.
324	036C	F1D4	A	SKNE	0,ESC	:CHECK FOR ESCAPE.	331.
325	036D	2192	A	JMP	NSTART		332.
326	036E	F1D1	A	SKNE	0,CRR	:CHECK FOR CARRIAGE RETURN	333.
327	036F	0200	A	RTS		:NORMAL EXIT	334.
328	0370	F129	A	SKNE	0,BARR	:CHECK FOR BACK ARROW.	335.
329	0371	211F	A	JMP	BAR	:IS.	336.
330	0372	F106	A	SKNE	0,KD	:CHECK IF \$.	337.
331	0373	2101	A	JMP	TTA		338.
332	0374	21EC	A	JMP	NOW	:KEEP CHECKING	339.
333	0375						340.
334	0375			TTA:			341.
335	0375	2C27	B	JSR	@CRLFA	:CRLF.	342.
336	0376	8033	B	LD	0,BUFFAD	:GET ADDRESS.	343.
337	0377	2C26	B	JSR	@HEXA	:PRINT IT.	344.
338	0378	2000	B	JMP	BSTART		345.
339	0379						346.
340	0379	0024	A	KD: .WORD	024	:ASCII \$.	347.

341	037A			.PAGE					348.
342	037A		RETRV:						349.
343	037A	801B	B	LD	0,AC0		:RESTORE AC0.		350.
344	037B	841C	B	LD	1,AC1		:RESTORE AC1.		351.
345	037C	881D	B	LD	2,AC2		:RESTORE AC2.		352.
346	037D	8C1E	B	LD	3,AC3		:RESTORE AC3.		353.
347	037E	0200	A	RTS			:RETURN		354.
348	037E								355.
349	037F								356.
350	037F	06DB	A	LISTE:	.WORD	LST			357.
351	0380								358.
352	0380			OHEX:					359.
353	0380	29D5	A	JSR	SAVE		:SAVE ALL REG.		360.
354	0381	3281	A	RCPY	0,2		:PUT NUMBER TO TYPE IN AC2.		361.
355	0382	4F04	A	LI	3,4		:SET BIT COUNTER		362.
356	0383	85FB	A	LD	1,LISTE		:GET POINTER TO LIST		363.
357	0384	5A04	A	LOOP:	RQL	2,4	:MOVE MOST TO LEAST		364.
358	0385	8016	B	LD	0,KF		:MASK		365.
359	0386	A819	B	ST	2,WHAT		:SAVE WORD		366.
360	0387	3283	A	RAND	0,2		:MASK IT		367.
361	0388	3600	A	RADD	1,2		:MAKE POINTER		368.
362	0389	8200	A	LD	0,(2)		:GET WORD TO TYPE		369.
363	038A	2C0D	B	JSR	@PUTC		:TYPE IT		370.
364	038B	8819	B	LD	2,WHAT		:GET WORD		371.
365	038C	48FF	A	AISZ	3,-1		:BUMP COUNTER		372.
366	038D	21F6	A	JMP	LOOP		:NOT DONE		373.
367	038E	29EB	A	JSR	RETRV		:GET SAVED REG.		374.
368	038F	0200	A	RTS			:RETURN		375.

369	039C			.PAGE				376.
370	0390		BAR:					377.
371	0390	2C27	B	JSR	@CRLFA			378.
372	0391	8010	B	LD	0,BUFEND		;GET ROM LENGTH.	379.
373	0392	F012	B	SKNE	0,MFF		;SKIP IF 4K PROM.	380.
374	0393	2103	A	JMP	T2K		;IS 2K PROM.	381.
375	0394	2C11	B	JSR	@MESSA		;PRINT MESSAGE.	382.
376	0395	C789	A	.WORD	NOW4K			383.
377	0396	2000	B	JMP	BSTART		;TO START.	384.
378	0397	2C11	B T2K:	JSR	@MESSA		;PRINT MESSAGE.	385.
379	0398	078F	A	.WORD	NOW2K			386.
380	0399	2000	B	JMP	BSTART		;TO START.	387.
381	039A							388.
382	039A	005F	A BARR:	.WORD	05F		;ASCII BACK ARROW.	389.
383	039B							390.
384	039B							391.
385	039B		ENDNOW:					392.
386	039B	2C11	B	JSR	@MESSA		;PRINT MESSAGE.	393.
387	039C	0713	A	.WORD	PAD			394.
388	039D		TS:					395.
389	039D	8022	B	LD	0,RCM		;GET ROM ADDRESS.	396.
390	039E	2C26	B	JSR	@HEXA		;PRINT ADDRESS.	397.
391	039F	2C27	B	JSR	@CRLFA			398.
392	03A0	2901	A	JSR	BELL			399.
393	03A1	2000	B	JMP	BSTART		;TO START.	400.
394	03A2							401.
395	03A2		BELL:					402.
396	03A2							403.
397	03A2	4EFC	A	LI	2,-4		;SET NUMBER OF TIMES.	404.
398	03A3	4C07	A BELL1:	LI	0,07		;ASCII BELL.	405.
399	03A4	2C0D	B	JSR	@PUTC			406.
400	03A5	4D32	A	LI	1,50		;WAIT NUMBER.	407.
401	03A6	2C25	B	JSR	@LWAITA		;WAIT.	408.
402	03A7	4D32	A	LI	1,50		;WAIT NUMBER.	409.
403	03A8	2C25	B	JSR	@LWAITA		;WAIT.	410.
404	03A9	4A01	A	AISZ	2,1		;CHECK IF DONE.	411.
405	03AA	21F8	A	JMP	BELL1		;NO.	412.
406	03AB	0200	A	RTS				413.

407	03AC		.PAGE				414.
408	03AC						415.
409	03AC	SETK:					416.
410	03AC	2C2A B	JSR	@HEXYA	:CHECK IF HEX NUMBER.		417.
411	03AD	2101 A	JMP	SETK1	:NO HEX NUMBER.		418.
412	03AE	2109 A	JMP	NOMES			419.
413	03AF	SETK1:					420.
414	03AF	2C11 B	JSR	@MESSA	:PRINT MESSAGE.		421.
415	03B0	0789 A	.WORD	NOW4K			422.
416	03B1	2C11 B	JSR	@MESSA	:PRINT MESSAGE.		423.
417	03B2	07A3 A	.WORD	BTY4			424.
418	03B3	2C11 B	JSR	@MESSA	:PRINT MESSAGE.		425.
419	03B4	078F A	.WORD	NOW2K			426.
420	03B5	2C11 B	JSR	@MESSA	:PRINT MESSAGE.		427.
421	03B6	079A A	.WORD	BTY			428.
422	03B7	29A3 A	JSR	START	:GET CHAR.		429.
423	03B8	NOMES:					430.
424	03B8	8019 B	LD	0,WHAT	:GET LAST 4 HEX WORDS.		431.
425	03B9	6016 B	AND	0,KF	:KEEP LAST.		432.
426	03BA	48FE A	AISZ	0,-2	:CHECK FOR A 2.		433.
427	03BB	2101 A	JMP	.+2	:NOT 2.		434.
428	03BC	2107 A	JMP	S2K	:INITIALIZE FOR 2K PROM.		435.
429	03BD	48FE A	AISZ	0,-2	:CHECK IF 4 TYPED.		436.
430	03BE	21F0 A	JMP	SETK1	:NDT A 2 OR 4.		437.
431	03BF						438.
432	03BF	S4K:					439.
433	03BF	810A A	LD	0,MUL4	:MAKE X + 5X.		440.
434	03C0	A14E A	ST	0,MULT			441.
435	03C1	8813 B	LD	2,K511	:GET MAX BUFFER LENGTH.		442.
436	03C2	A810 B	ST	2,BUFEND	:STORE AT BUFFER LENGTH.		443.
437	03C3	21CC A	JMP	BAR	:RETURN.		444.
438	03C4						445.
439	03C4	S2K:					446.
440	03C4	8104 A	LD	0,MUL2	:MAKE X + 3X.		447.
441	03C5	A149 A	ST	0,MULT			448.
442	03C6	8812 B	LD	2,MFF	:GET BUFFER LENGTH.		449.
443	03C7	A810 B	ST	2,BUFEND	:STORE BUFFER LENGTH.		450.
444	03C8	21C7 A	JMP	BAR	:RETURN.		451.
445	03C9						452.
446	03C9						453.
447	03C9	5D01 A	MUL2:	SHL	1,1	:X + 3X.	454.
448	03CA	5D02 A	MUL4:	SHL	1,2	:X + 5X.	455.

449	03CB		.PAGE				456.	
450	03CB						457.	
451	03CB						458.	
452	03CB	2902	A	JSR	ERROR	;DO IT.	459.	
453	03CC	2905	A	JSR	BELL		460.	
454	03CD	2000	B	JMP	BSTART	;TO START.	461.	
455	03CE		ERROR:				462.	
456	03CE	2C27	B	JSR	@CRLFA		463.	
457	03CF	2C11	B	JSR	@MESSA		464.	
458	03D0	0753	A	.WORD	IS		465.	
459	03D1	801A	B	LD	O,WHERE	;GET BAD WORD	466.	
460	03D2	2C26	B	JSR	@HEXA		467.	
461	03D3	2C11	B	JSR	@MESSA		468.	
462	03D4	0756	A	.WORD	SB		469.	
463	03D5	8300	A	LD	O,(3)	;GET GOOD WORD.	470.	
464	03D6	2C26	B	JSR	@HEXA	;PRINT IT.	471.	
465	03D7	2C11	B	JSR	@MESSA	;PRINT MESSAGE.	472.	
466	03D8	0710	A	.WORD	BADP		473.	
467	03D9	2C11	B	JSR	@MESSA	;PRINT MESSAGE.	474.	
468	03DA	0713	A	.WORD	PAD		475.	
469	03DB	8022	B	LD	O,RCM	;PRINT RCM ADDRESS.	476.	
470	03DC	2C26	B	JSR	@HEXA	;PRINT IT.	477.	
471	03DD	7819	B	ISZ	WHAT	;SET WHAT FOR USE WITH VAR.	478.	
472	03DE	2C0C	B	JSR	@INTEST	;SEE IF KEYBOARD HIT.	479.	
473	03DF	2000	B	JMP	BSTART	;TO START.	480.	
474	03EC	0200	A	RTS			481.	
475	03E1						482.	
476	03E1						483.	
477	03E1	00FF	A	MAX:	.WORD	OFF	;MAX NUMBER OF TIMES TO HIT EACH LOC.	484.

478	03E2			.PAGE			485.
479	03E2		ERASE:				486.
480	03E2	2C27	B	JSR	@CRLFA		487.
481	03E3	2901	A	JSR	ERAS		488.
482	03E4	213F	A	JMP	VAR		489.
483	03F5						490.
484	03E5						491.
485	03E5		ERAS:				492.
486	03E5	4C00	A	LI	0,0	;ZERO ROM ADDRESS.	493.
487	03E6	A022	B	ST	0,RCM	;DO IT.	494.
488	03E7	8410	B	LD	1,BUFEND	;GET LENGTH OF ROM.	495.
489	03E8	F412	B	SKNE	1,MFF	;SKIP IF NOT 2K PROM.	496.
490	03E9	2107	A	JMP	VSTART	;CHECK IF 2K PROM ERASED, THEN PROG.	497.
491	03EA	2C28	B	V4KON: JSR	@READWA	;READ DATA WORD.	498.
492	03EB	4800	A	AISZ	0,0	;CHECK IF PROM ZERO.	499.
493	03EC	2107	A	JMP	EVER	;PROM NOT ERASED.	500.
494	03ED	2C14	B	JSR	@ROMIA	;CHECK IF DONE.	501.
495	03EE	21FB	A	JMP	V4KON	;NOT DONE.	502.
496	03FF	0200	A	RTS			503.
497	03E0	039B	A	NDNOA: .WORD	ENDNOW		504.

498	03F1			.PAGE			505.
499	03F1		VSTART:				506.
500	03F1	2C28	B	JSR	@READWA	;READ PRGM.	507.
501	03F2	F012	B	SKNE	0,MFF	;IF PROM NOT ERASED SKIP.	508.
502	03F3	2103	A	JMP	KEEPE	;ROM IS ERASED KEEP GOING.	509.
503	03F4			EVER:			510.
504	03F4	2C11	B	JSR	@MESSA	;PRINT MESSAGE.	511.
505	03F5	077C	A		.WORD		512.
506	03F6	21A6	A	JMP	TS	;DONE	513.
507	03F7			KEEPE:			514.
508	03F7	2C14	B	JSR	@ROMIA	;BUMP ROM ADDRESS, CHECK FOR END.	515.
509	03F8	21F8	A	JMP	VSTART	;KEEP GOING.	516.
510	03F9	0200	A	RTS			517.
511	03FA						518.
512	03FA			VP:			519.
513	03FA	29EA	A	JSR	ERAS	;CHECK IF ERASED.	520.
514	03FB	4C00	A	PSTAR: LI	0,0	;ZERO ROM ADDRESS.	521.
515	03FC						522.
516	03FC			PSTART:			523.
517	03FC	A022	B	ST	0,RCM	;SAVE ROM ADDRESS.	524.
518	03FD	8C23	B	LD	3,SWBUF	;WRITE BUFFER ADDRESS IN AC3.	525.
519	03FE	3300	A	RADD	0,3	;CORRECT WRITE BUFFER ADDRESS.	526.
520	03FF	2C11	B	JSR	@MESSA	;PRINT MESSAGE.	527.
521	0400	0704	A		.WORD	WORK	528.
522	0401			AGAIN:			529.
523	0401	4E01	A	LI	2,1	;WRITE ONCE THEN READ.	530.
524	0402			NPR:			531.
525	0402	4D04	A	LI	1,4	;SET TIME.	532.
526	0403	2C25	B	JSR	@LWAITA	;WAIT.	533.
527	0404	2C28	B	JSR	@READWA	;READ WORD FROM PROGRAMMER.	534.
528	0405	F300	A	SKNE	0,(3)	;COMPARE DATA	535.
529	0406	2107	A	JMP	AGD	;EQUAL FINISH	536.
530	0407	4A01	A	AISZ	2,1	;ADD 1 TO COUNTER	537.
531	0408	F9D8	A	SKG	2,MAX	;SKIP IF BAD PROM	538.
532	0409	2101	A	JMP	+2	;KEEP GOING	539.
533	040A	21C0	A	JMP	ERRCR-3	;COUNT EXCEEDED.	540.
534	040B	2927	A	JSR	TEMPCK	;CHECK FOR OVER TEMP.	541.
535	040C	291C	A	JSR	PPROM	;PROGRAM PROM	542.
536	040D	21F4	A	JMP	NPR	;KEEP GOING.	543.



537	040E			.PAGE				544.
538	040E		AGC:					545.
539	040E	3981	A	KCPY	2,1	:SAVE NUMBER.		546.
540	040F	5002	A	MULT: SHL	1,2	:MULT BY 4.		547.
541	0410	3600	A	RADD	1,2	:MAKE X +.5 X .		548.
542	0411			AGOO:				549.
543	0411	8420	B	LD	1,RR	:GET HOW LONG TO WAIT.		550.
544	0412	2C25	B	JSR	@LWAITA	:TO KEEP TIME THE SAME.		551.
545	0413	291F	A	JSR	TEMPCK	:CHECK FOR OVER TEMP		552.
546	0414	2914	A	JSR	PPRCM	:PROGRAM PROM		553.
547	0415	4AFF	A	AISZ	2,-1	:COUNTER MINUS 1		554.
548	0416	21FA	A	JMP	AGOO	:NOT DONE KEEP PROGRAMMING.		555.
549	0417	2C0C	B	JSR	@INTEST	:CHECK IF KEYBOARD HIT.		556.
550	0418	25D7	A	JMP	@NDNOA	:WAS HIT.		557.
551	0419	4B01	A	AISZ	3,1	:BUMP BUFFER ADDRESS		558.
552	041A	2C14	B	JSR	@ROMIA	:CHECK IF DONE.		559.
553	041B	21E5	A	JMP	AGAIN	:NOT DONE KEEP GOING		560.
554	041C	2C11	B	JSR	@MESSA	:PRINT MESSAGE		561.
555	041D	070D	A	.WORD	DONE			562.
556	041E	4D14	A	LI	1,20	:SET NUMBER OF TIMES.		563.
557	041F	4C07	A	LI	0,07	:GET BELL.		564.
558	0420	2C0D	B	JSR	@PUTC	:TYPE IT.		565.
559	0421	49FF	A	AISZ	1,-1	:CHECK IF DONE.		566.
560	0422	21FD	A	JMP	.-2	:NO DO IT AGAIN.		567.
561	0423	2D04	A	JSR	@VAIRA	:VERIFY PROM.		568.
562	0424	2C11	B	VAR: JSR	@MESSA	:PRINT MESSAGE.		569.
563	0425	076A	A	.WORD	ROMV			570.
564	0426	2000	B	JMP	BSTART	:TO START.		571.
565	0427							572.
566	0427	3000	A	XADA: .WORD	03000			573.
567	0428	0553	A	VAIRA: .WORD	VAIR			574.
568	0429							575.
569	0429			PPROM:				576.
570	0429	4D04	A	LI	1,4			577.
571	042A	0F00	A	SFLG	6	:SET WRITE VOLTAGES		578.
572	042B	49FF	A	AISZ	1,-1			579.
573	042C	21FE	A	JMP	.-1			580.
574	042D	0F00	A	SFLG	7	:PROGRAM PROM		581.
575	042E	8421	B	LD	1,PW	:GET TIME.		582.
576	042F	2C25	B	JSR	@LWAITA	:LONG WAIT.		583.
577	0430	0F80	A	PFLG	7	:RESET FLAG		584.
578	0431	0E80	A	PFLG	6	:RESET FLAG		585.
579	0432	0200	A	RTS				586.

580	0433			.PAGE				587.
581	0433		TEMPCK:					588.
582	0433	8022	R	LD	0,RCM		:GET ROM ADDRESS.	589.
583	0434	C12E	A	ADD	0,TEMPWD		:MAKE COMMAND WORD.	590.
584	0435	2920	A	JSR	SENDA		:SEND COMMAND.	591.
585	0436	2907	A	JSR	SEND		:DUMMY FOR HARDWARE.	592.
586	0437			WAIT:				593.
587	0437	4004	A	LI	1,4		:GET TIME.	594.
588	0438	2C25	B	JSR	@LWAITA		:WAIT BEFORE GOING ON.	595.
589	0439	1FFD	A	BQC	TEMPT,WAIT		:CHECK FOR OVER TEMP.	596.
590	043A							597.
591	043A			WRITEWD:				598.
592	043A	8022	B	LD	0,RCM		:GET ROM ADDRESS.	599.
593	043B	C125	A	ADD	0,WRITE		:WRITE ADDRESS COMMAND.	600.
594	043C	2919	A	JSR	SENDA		:SEND WORD.	601.
595	043D	8300	A	LD	0,(3)		:GET DATA WORD.	602.
596	043E							603.
597	043E							604.
598	043E			:	SEND DATA TO PROM PROGRAMMER.			605.
599	043E			:	DATA IS COMPLEMENTED BEFORE IT IS SENT.			606.
600	043E							607.
601	043E							608.
602	043E							609.
603	043E			SEND:				610.
604	043E	5000	A	CAI	0,0		:COMPLEMENT DATA.	611.
605	043E	6012	B	AND	0,MFF		:KEEP LEAST 8 BITS.	612.
606	0440	4D08	A	LI	1,8		:NUMBER OF BITS TO SEND.	613.
607	0441	5809	A	ROL	0,9		:MOVE TO HIGH.	614.
608	0442	2115	A	JMP	ON2		:GO SEND DATA.	615.

609	0443			.PAGE			616.
610	0443						617.
611	0443	4C00	A	RECV:	LI	0,0	:ZERO RECEIVED WORD
612	0444	4D08	A		LI	1,8	:SET COUNTER
613	0445	2102	A		JMP	BOCC	:CHECK FOR BOC FIRST.
614	0446	5801	A	GOO:	RDL	0,1	:PUT BIT IN CORRECT POSITION
615	0447	C880	A		PFLG	0	:CLOCK NEXT BIT.
616	0448	1F01	A	BOCC:	BOC	DATA,RED	:IF REC DATA A 0 GO TO RED.
617	0449	4801	A		AISZ	0,1	:ADD A ONE TO RECEIVED DATA.
618	044A	49FF	A	RED:	AISZ	1,-1	:DONE?
619	044B	21FA	A		JMP	GOO	:NO
620	044C	0880	A		PFLG	0	:NEED 8 CLOCKS.
621	044D	4300	A		PUSH	3	:SAVE AC3.
622	044E	8D15	A		LD	3,CPAD	:PUT ADDRESS OF CONTROL PANEL.
623	044F	A01A	B		ST	0,WHERE	:SAVE RECEIVED WORD.
624	0450	0668	A		ROUT	LDR	:SEND DATA TO LITES.
625	0451	8022	B		LD	0,RCM	:GET ROM ADDRESS.
626	0452	0660	A		ROUT	LPCDR	:SEND ADDRESS TO LITES.
627	0453	4700	A		PULL	3	:GET AC3 BACK.
628	0454	801A	B		LD	0,WHERE	:GET RECEIVED WORD.
629	0455	0200	A		RTS		
630	0456	4D10	A	SENDA:	LI	1,16	:LOAD COUNTER
631	0457	5801	A	SEBD1:	RDL	0,1	
632	0458	0880	A	ON2:	PFLG	3	:ZERO DATA FLAG.
633	0459	1304	A		BOC	ODD,CNE	:IF DATA A 1 SET DATA FLAG.
634	045A	0880	A	ON:	PELG	0	:CLOCK DATA.
635	045B	49FF	A		AISZ	1,-1	:DONE SENDING ?
636	045C	21FA	A		JMP	SEBC1	:NO.
637	045D	0200	A	OOP:	RTS		
638	045E	0800	A	ONE:	SFLG	3	:SET DATA FLAG.
639	045F	21FA	A		JMP	ON	
640	0460						647.

641	0460			.PAGE			648.
642	0460						649.
643	0460	:		6BITS IN COMMAND WORD.			650.
644	0460	:		15 START BIT.			651.
645	0460	:		14 READ FROM PROGRAMMER.			652.
646	0460	:		13 ENABLE VOLTAGE.			653.
647	0460	:		12 ENABLE PROGRAM VOLTAGE.			654.
648	0460	:		11 ENABLE TEMPERATURE READ.			655.
649	0460	:		10 TAKE AWAY +5 VOLTS FROM VBB.			656.
650	0460	:		09 SPARE.			657.
651	0460						658.
652	0460	:		08 THRU 00 ADDRESS OF PROM.			659.
653	0460	:		08 MSB FOR 4K BIT PROM.			660.
654	0460	:		07 MSB FOR 2K BIT PROM. MM5203.			661.
655	0460	:		00 LSB.			662.
656	0460						663.
657	0460						664.
658	0460	8000	A	SBIT: .WORD 08000		;START BIT ONLY.	665.
659	0461	B400	A	WRITE: .WORD 0B400		;LOAD BITS 15,13,12,10.	666.
660	0462	C000	A	READ: .WORD 0C000		;LOAD BITS 15,14.	667.
661	0463	8C00	A	TEMPWD: .WORD 08C00		;LOAD BITS 15,11,10.	668.
662	0464	0700	A	CPAD: .WORD 0700			669.
663	0465						670.
664	0465						671.
665	0465			READWD:			672.
666	0465	8022	B	LD 0,ROM		;GET ROM ADDRESS	673.
667	0466	5000	A	CAI 0,0		;COMPLEMENT ADDRESS.	674.
668	0467	6010	B	AND 0,BUFEND		;MASK OFF ADDRESS.	675.
669	0468	C1F7	A	ADD 0,SBIT		;PUT ONLY START BIT.	676.
670	0469	29EC	A	JSR SENDA		;SEND ADDRESS WORD	677.
671	046A	29D3	A	JSR SEND		;DUMMY FOR HARDWARE.	678.
672	046B	8022	B	LD 0,ROM		;GET ROM ADDRESS	679.
673	046C	C1F5	A	ADD 0,READ		;READ ADDRESS COMMAND	680.
674	046D	29E8	A	JSR SENDA		;SEND ADDRESS WORD	681.
675	046E	29D4	A	JSR RECV		;RECEIVE WORD	682.
676	046F	0200	A	RTS		;RETURN	683.
677	0470						684.

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678 0470          .PAGE          685.
679 0470          LWAIT:          686.
680 0470 5810 A  LOOPP:  ROL      0,16      ;A WAIT LOOP      687.
681 0471 49FF A          AISZ     1,-1      ;DONE?            688.
682 0472 21FD A          JMP      LOOPP     ;NO               689.
683 0473 0200 A          RTS          690.
684 0474          691.
685 0474          692.
686 0474          : PRINT A LIST LESS THAN VALUE IN BUFEND STARTING AT ADDRESS IN ACO. 693.
687 0474          694.
688 0474          695.
689 0474          RLIST:          696.
690 0474 2C2A B      JSR      @HEXYA      ;CHECK IF HEX NUMBER TYPED. 697.
691 0475 8023 B      LD       @,SWBUF     ;NO GET WRITE BUFFER ADDRESS. 698.
692 0476 3381 A      RCPY     0,3        ;PUT STARTING ADDRESS IN AC3. 699.
693 0477 293B A      JSR      ZROM      ;ZERO ROM ADDRESS.      700.
694 0478          BL:          701.
695 0478 4E08 A      LI       2,8        ;SET CHAR PER LINE      702.
696 0479 2C27 B      JSR      @CRLF@      703.
697 047A 3C81 A      RCPY     3,0        ;GET ADDRESS          704.
698 047B 2C26 B      JSR      @OHEXA     ;PRINT IT            705.
699 047C 2C0C B      JSR      @INTEST    ;KEYBOARD HIT?      706.
700 047D 2000 B      JMP      BSTART     ;TO START.          707.
701 047E 2C15 B      JSR      @SPACA      ;SPACE ONE          708.
702 047F          BUL:          709.
703 047F 2C15 B      JSR      @SPACA      710.
704 0480 8300 A      LD       0,(3)      ;GET DATA TO PRINT    711.
705 0481 2C26 B      JSR      @OHEXA     ;PRINT IT            712.
706 0482 2C0C B      JSR      @INTEST    ;KEYBOARD HIT?      713.
707 0483 2000 B      JMP      BSTART     ;TO START.          714.
708 0484 4B01 A      AISZ     3,1        ;BUMP ADDRESS        715.
709 0485 2100 A      JMP      .+1        ;OVER FLOW.         716.
710 0486 2C14 B      JSR      @ROMIA     ;CHECK FOR END OF BUFFER. 717.
711 0487 2101 A      JMP      .+2        ;NOT DONE.          718.
712 0488 2000 B      JMP      BSTART     ;TO START.          719.
713 0489 4AFF A      AISZ     2,-1      ;BUMP LINE COUNTER   720.
714 048A 21F4 A      JMP      BUL        ;SAME LINE          721.
715 048B 21EC A      JMP      BL         ;NO                 722.
716 048C          723.
717 048C          SPAC:          724.
718 048C 4C20 A      LI       0,020     ;GET ASCII SPACE     725.
719 048D 2C0D B      JSR      @PUTC      ;TYPE IT            726.
720 048E 0200 A      RTS          ;RETURN            727.
721 048F          728.
722 048F FE00 A  KFE00: .WORD    0FE00      729.
```

723	0490		.PAGE				730.
724	0490	:	JSR	@ROMIA	ADD 1 TO ROM ADDRESS		731.
725	0490	:		NORMAL RETURN			732.
726	0490	:		RETURN ROM ADDRESS	GT BUFFER END		733.
727	0490						734.
728	0490						735.
729	0490		ROMI:				736.
730	0490	7822 B	ISZ	ROM	;ADD 1 TO ROM ADDRESS.		737.
731	0491	8422 B	LD	1,RCM	;GET ROM ADDRESS.		738.
732	0492	E410 B	SKG	1,BUFEND	;SKIP IF DONE.		739.
733	0493	0200 A	RTS		;NORE TO GO RETURN.		740.
734	0494	0201 A	RTS	1	;DONE RETURN.		741.
735	0495						742.
736	0495		PREAD:				743.
737	0495	A022 B	ST	0,RCM	;SAVE STARTING ADDRESS.		744.
738	0496	71F8 A	SKAZ	0,KFE00	;CHECK IF TO LARGE.		745.
739	0497	2000 B	JMP	BSTART	;TO LARGE.		746.
740	0498	2C27 B	LLPP:	JSR	@CRLFA		747.
741	0499	4E08 A	LI	2,8	;SET WORD COUNTER		748.
742	049A	8022 B	LD	0,RCM	;GET PROM ADDRESS		749.
743	049B	2C26 B	JSR	@OHEXA	;PRINT ROM ADDRESS		750.
744	049C	2C15 B	JSR	@SPACA	;SPACE 1		751.
745	049D	2C15 B	LPLP:	JSR	@SPACA	;SPACE 1	752.
746	049E	2C28 B	JSR	@READWA	;READ ROM.		753.
747	049F	2C26 B	JSR	@OHEXA	;PRINT WORD.		754.
748	04A0	2C0C B	JSR	@INTEST	;SEE IF KEYBOARD HIT.		755.
749	04A1	2000 B	JMP	BSTART	;TO START.		756.
750	04A2	2C14 B	JSR	@ROMIA	;CHECK FOR END OF BUFFER.		757.
751	04A3	2101 A	JMP	LLPP1	;KEEP GOING.		758.
752	04A4	2000 B	JMP	BSTART	;TO START.		759.
753	04A5	4AFF A	LLPP1:	AISZ	2,-1	;CHECK IF LINE DONE.	760.
754	04A6	21E6 A	JMP	LPLP	;LINE NOT DONE		761.
755	04A7	21F0 A	JMP	LLPP	;LINE DONE		762.
756	04A8						763.
757	04A8						764.
758	04A8	:		FILL WRITE BUFFER WITH HEX WORD THAT IS IN ACO.			765.
759	04A8						766.
760	04A8						767.
761	04A8		ZRO:				768.
762	04A8	8823 B	LD	2,SWBUF	;FILL WRITE BUFFER.		769.
763	04A9	2903 A	JSR	ZERCF	;FILL BUFFER.		770.
764	04AA	2C11 B	JSR	@MESSA	;PRINT MESSAGE.		771.
765	04AB	0794 A	.WORD	V00N			772.
766	04AC	2000 B	JMP	BSTART	;TO START.		773.

Address	Label	Op	Op2	Op3	Comment	Line
767	04AD				.PAGE	774.
768	04AD					775.
769	04AD				ZEROF:	776.
770	04AD	2905	A	JSR	ZROM ;SET ROM ADDRESS TO 0.	777.
771	04AE	A200	A	ST	0.(2) ;STORE WORD.	778.
772	04AF	4A01	A	AISZ	2,1 ;BUMP ADDRESS.	779.
773	04B0	2C14	B	JSR	@ROMIA ;DONE?	780.
774	04B1	21EC	A	JMP	.-3 ;NO	781.
775	04B2	0200	A	RTS		782.
776	04B3					783.
777	04B3				ZROM:	784.
778	04B3	4D00	A	LI	1,0 ;AC1 = 0.	785.
779	04B4	A422	B	ST	1,RCM ;ZERO ROM ADDRESS.	786.
780	04B5	0200	A	RTS		787.
781	04B6				INBIN:	788.
782	04B6	8103	A	LD	0,CCMP ;FIX FOR COM DATA.	789.
783	04B7	A126	A	ST	0,DCCMP1	790.
784	04B8	A10F	A	ST	0,DCCMP	791.
785	04B9	2105	A	JMP	NBIN ;NOW READ TAPE.	792.
786	04BA					793.
787	04BA	5000	A	COMP:	CAI 0,0 ;MAKE 1'S COMP.	794.
788	04BB	2100	A	NCOMP:	JMP .+1 ;DUMMY.	795.
789	04BC					796.
790	04BC				BININ:	797.
791	04BC	81FE	A	LD	0,NCOMP ;TRUE DATA.	798.
792	04BD	A10A	A	ST	0,DCCMP	799.
793	04BE	A11F	A	ST	0,DCCMP1	800.

794	04BF			.PAGE			801.
795	04BF						802.
796	04BF		NBIN:				803.
797	04BF	29F3	A	JSR	ZROM	;ZERO ROM ADDRESS.	804.
798	04C0	4E00	A	LI	2,0	;ZERO CHECK SUM.	805.
799	04C1	2C11	B	JSR	@MESSA	;PRINT MESSAGE.	806.
800	04C2	0720	A		.WORD		807.
801	04C3	2C29	B	JSR	@LOKSA	;WAIT UNTIL KEYBOERD HIT	808.
802	04C4	2C27	B	JSR	@CRLFA		809.
803	04C5	292C	A	JSR	LEADR	;READ PT UNTIL FF FOUND	810.
804	04C6	8C23	B	LD	3,SWBUF	;AC3 = PCINTER TO MEMORY	811.
805	04C7				ONGO:		812.
806	04C7	2C0F	B	JSR	@GETC	;READ PT	813.
807	04C8	5000	A	DCOMP:	CAI	0,0	814.
808	04C9	6012	B	AND	0,MFF	;MASK OFF MOST SIG BYTE.	815.
809	04CA	A300	A	ST	0,(3)	;STORE DATA	816.
810	04CB	3200	A	RADD	0,2	;MAKE CHECKSUM.	817.
811	04CC	4801	A	AISZ	3,1	;BUMP POINTER	818.
812	04CD	2C14	B	JSR	@ROMIA	;DONE?	819.
813	04CE	21F8	A	JMP	ONGO	;NOT_DONE	820.
814	04CF	2944	A	JSR	PCKSM	;PRINT CHECK SUM.	821.
815	04D0	2C11	B	JSR	@MESSA	;PRINT MESSAGE.	822.
816	04D1	07DB	A		.WORD		823.
817	04D2	2937	A	JSR	INYN+2	;CHECK IF VERIFY.	824.
818	04D3	2116	A	JMP	FNI	;NO VERIFY.	825.
819	04D4	2C11	B	JSR	@MESSA	;PRINT MESSAGE.	826.
820	04D5	0720	A		.WORD		827.
821	04D6	2C11	B	JSR	@MESSA	;PRINT MESSAGE.	828.
822	04D7	0746	A		.WORD		829.
823	04D8	29DA	A	JSR	ZROM	;ZERO ROM ADDRESS.	830.
824	04D9	2C29	B	JSR	@LOKSA	;WAIT UNTIL KEYBOERD HIT	831.
825	04DA	2C27	B	JSR	@CRLFA		832.
826	04DB	2916	A	JSR	LEADR	;READ PT UNTIL FF FOUND	833.
827	04DC	8C23	B	LD	3,SWBUF	;AC3 = POINTER TO MEMORY	834.
828	04DD				ANGO:		835.
829	04DD	2C0F	B	JSR	@GETC	;READ PT	836.
830	04DE	5000	A	DCOMP1:	CAI	0,0	837.
831	04DE	6012	B	AND	0,MFF	;MASK OFF MOST SIG BYTE.	838.
832	04F0	F300	A	SKNE	0,(3)	;SKIP IF DATA DOES NOT MATCH	839.
833	04E1	2103	A	JMP	OGOOD	;DATA MATCHES	840.
834	04E2				BF IN:		841.
835	04E2	2C11	B	JSR	@MESSA	;PRINT MESSAGE.	842.
836	04E3	0733	A		.WORD		843.
837	04E4	2000	B	JMP	BSTART	;TO START.	844.



838	04E5			.PAGE			845.	
839	04E5		OGOOD:				846.	
840	04F5	4B01	A	WISZ	3,1	:BUMP POINTER	847.	
841	04E6	2C14	B	JSR	@ROMIA	:DONE?	848.	
842	04F7	21F5	A	JMP	ANGC	:KEEP GOING	849.	
843	04E8			FIN:		:DATA IS CORRECT.	850.	
844	04E8	2C11	B	JSR	@MESSA	:PRINT MESSAGE.	851.	
845	04E9	076A	A	.WORD	ROMV		852.	
846	04EA			FNI:			853.	
847	04FA	2000	B	JMP	BSTART	:TO START.	854.	
848	04EB						855.	
849	04EB			LOKSE:			856.	
850	04EB	4F38	A	LI	3,TTYAD	:SET AC3 TO TTY ADDRESS.	857.	
851	04EC	0605	A	ROUT	5	:RESET TTY.	858.	
852	04ED	2C11	B	JSR	@MESSA	:PRINT MESSAGE.	859.	
853	04EE	0727	A	.WORD	HIT		860.	
854	04EF	2C0C	B	JSR	@INTEST	:CHECK IF KEYBOARD HIT.	861.	
855	04F0	0200	A	RTS		:YES	862.	
856	04F1	21FD	A	JMP	.-2	:NO WAIT.	863.	
857	04F2						864.	
858	04F2			LEADR:			865.	
859	04F2	2C0E	B	JSR	@GETC	:READ CHAR.	866.	
860	04F3	F012	B	SKNE	0,MFF	:READ UNTIL RUBOUT.	867.	
861	04F4	0200	A	RTS			868.	
862	04F5	21FC	A	JMP	LEADR		869.	
863	04F6						870.	
864	04F6			PNTAPE:			871.	
865	04F6	29BC	A	JSR	ZROM	:ZERO ROM ADDRESS.	872.	
866	04F7	2925	A	JSR	RPN	:READ P/N TAPE	873.	
867	04F8	4000	A	PUSH	0	:PUT RETURN ADDRESS B	874.	
868	04F9	A700	A	ST	1,(3)	:STORE WORD	875.	
869	04FA	2100	A	JMP	+.1	:DUMMY	876.	
870	04FB	2148	A	JMP	FWD	:RETURN TO RPN	877.	
871	04FC	2C11	B	JSR	@MESSA	:PRINT MESSAGE.	878.	
872	04FD	0762	A	.WORD	PDONE		879.	
873	04FE	2C11	B	JSR	@MESSA	:PRINT MESSAGE.	880.	
874	04FF	07DR	A	.WORD	VERF		881.	
875	0500	2909	A	JSR	INYN2	:CHECK IF VERIFY.	882.	
876	0501	21E8	A	JMP	FNI	:NOW VERIFY.	883.	
877	0502	291A	A	JSR	RPN	:READ P/N TAPE	884.	
878	0503	4000	A	PUSH	0	:SAVE RETURN ADDRESS.	885.	
879	0504	F700	A	SKNE	1,(3)	:SKIP IF DATA NOT CORRECT.	886.	
880	0505	213E	A	JMP	FWD	:RETURN TO RPN	887.	
881	0506	21DB	A	JMP	BFIN	:ERROR	888.	
882	0507	21E0	A	FINA:	JMP	FIN	:ALL CORRECT	889.

883	0508			.PAGE					890.
884	0508	:		GET INPUT Y OR N.					891.
885	0508	:		JSR INYN+2					892.
886	0508	:		RETURN FOR N.					893.
887	0508	:		RETURN FOR Y.					894.
888	0508								895.
889	0508		INYN:						896.
890	0508	2C11	B	JSR @MESSA			;PRINT MESSAGE.		897.
891	0509	0801	A	.WORD ERF					898.
892	050A	2D08	A	INYN2: JSR @STRA			;GET CHAR Y OR N.		899.
893	050B	801A	B	LD 0,WHERE			;GET INPUT.		900.
894	050C	6012	B	AND 0,MFF			;MASK OFF.		901.
895	050D	48F9	A	AISZ 0,-7			;CHECK FOR N.		902.
896	050E	2101	A	JMP .+2			;NOT N.		903.
897	050F	0200	A	RTS			;N.		904.
898	0510	48F5	A	AISZ 0,-11			;CHECK IF Y.		905.
899	0511	21F6	A	JMP INYN			;BAD INPUT.		906.
900	0512	0201	A	RTS 1			;YES.		907.
901	0513								908.
902	0513	035B	A	STRA: .WORD START					909.
903	0514								910.
904	0514			PCKSM:					911.
905	0514	2C11	B	JSR @MESSA			;PRINT MESSAGE.		912.
906	0515	07E8	A	.WORD VEFR					913.
907	0516	8039	B	LD 0,HICKSM			;GET MOST SIG CKSM.		914.
908	0517	2C26	B	JSR @HEXA			;PRINT IT.		915.
909	0518	4C20	A	LI 0,020			;PRINT A SPACE.		916.
910	0519	2C0D	B	JSR @PUTC					917.
911	051A	3881	A	RCPY 2,0			;PUT CHECK SUM IN ACO.		918.
912	051B	2C26	B	JSR @HEXA			;PRINT NUMBER.		919.
913	051C	0200	A	RTS					920.

914	051D		.PAGE				921.
915	051D	RPN:					922.
916	051D	2C11	B	JSR	@MESSA	;PRINT MESSAGE.	923.
917	051E	0720	A	.WORD	DATAID		924.
918	051E	2C29	B	JSR	@LOKSA	;WAIT FOR KEYBRD HIT	925.
919	0520	2C27	B	JSR	@CRLFA		926.
920	0521	4D00	A	LI	1,0	;ZERO WORD	927.
921	0522	4E00	A	LI	2,0	;ZERO BIT_COUNTER	928.
922	0523	8C23	B	LD	3,SWBUF	;AC3 = BUFFER POINTER	929.
923	0524			READB:			930.
924	0524	2C0E	B	JSR	@GETC	;READ TAPE	931.
925	0525	602B	B	AND	0,K7F	;MAKE 7 BIT ASCII.	932.
926	0526	48BE	A	AISZ	0,-042	;READ UNTIL A B FOUND.	933.
927	0527	21FC	A	JMP	READB	;NOT A B KEEP READING	934.
928	0528	4D00	A	LI	1,0	;ZERO WORD	935.
929	0529	4F08	A	LI	2,8	;SET BIT_COUNTER	936.
930	052A			NOWREAD:			937.
931	052A	2C0E	B	JSR	@GETC	;READ PAPER TAPE.	938.
932	052B	602B	B	AND	0,K7F	;MAKE 7 BIT ASCII.	939.
933	052C	F11D	A	SKNE	0,KP	;CHECK FOR P.	940.
934	052D	2107	A	JMP	PREAS	;IT IS A P.	941.
935	052E	F11C	A	SKNE	0,KN	;IS IT AN N?	942.
936	052F	210D	A	JMP	NREAD	;YES	943.
937	0530	F01F	B	SKNE	0,K46	;IS IT AN F ?	944.
938	0531	210D	A	JMP	FREAD	;YES	945.
939	0532			ERROR:			946.
940	0532	2C11	B	JSR	@MESSA	;PRINT MESSAGE.	947.
941	0533	0759	A	.WORD	BADTAPE		948.
942	0534	2000	B	JMP	BSTART	;TO START.	949.

943	0535			.PAGE				950.
944	0535							951.
945	0535			PREAS:				952.
946	0535	5D01	A	SHL	1,1		:SHIFT WORD LEFT ONE	953.
947	0536	4901	A	AISZ	1,1		:ADD A BIT	954.
948	0537			GOON:				955.
949	0537	4A00	A	AISZ	2,0		:IF COUNTER IS 0 BAD.	956.
950	0538	2101	A	JMP	.*2		:GOOD.	957.
951	0539	21F8	A	JMP	RERRCR		:TAPE IS BAD.	958.
952	053A	4AFF	A	AISZ	2,-1		:DEC COUNTER	959.
953	053B	2100	A	JMP	.*1		:OVER FLOW	960.
954	053C	21FD	A	JMP	NDWREAD		:GET MORE	961.
955	053D							962.
956	053D			NREAD:				963.
957	053D	5D01	A	SHL	1,1		:SHIFT ONE BIT	964.
958	053E	21F8	A	JMP	GCCN			965.
959	053F							966.
960	053F			FREAD:				967.
961	053F	4A00	A	AISZ	2,0		:SKIP IF COUNTER = 0	968.
962	0540	21F1	A	JMP	RERROR		:BIT COUNT BAD	969.
963	0541	4400	A	PULL	0		:SET RETURN ADDRESS	970.
964	0542	4000	A	PUSH	0		:SET RETURN ADDRESS	971.
965	0543	0200	A	RTS				972.
966	0544							973.
967	0544			FWD:				974.
968	0544	4801	A	AISZ	3,1		:BUMP POINTER	975.
969	0545	2C14	B	JSR	@ROMIA		:CHECK IF DONE	976.
970	0546	21DD	A	JMP	READB		:NOT DONE CHECK FOR B NOW.	977.
971	0547	4D00	A	LI	1,0		:AC1 = 0.	978.
972	0548	A422	B	ST	1,RCM		:ZERO RCM ADDRESS.	979.
973	0549	0204	A	RTS	4		:RETURN	980.
974	054A							981.
975	054A	0050	A	KP:	.WORD	050		982.
976	054B	004E	A	KN:	.WORD	04E		983.
977	054C	0424	A	AVAR:	.WORD	VAR		984.

978	054D		.PAGE				985.
979	054D	VARA:					986.
980	054D	85FE A	LD	1,AVAR	:GET RETURN ADDRESS.		987.
981	054E	4100 A	PUSH	1	:PUT ON STACK.		988.
982	054E	4000 A	PUSH	0	:SAVE NUMBER.		989.
983	0550	2C27 B	JSR	@CRLF A			990.
984	0551	4400 A	PULL	0	:GET NUMBER.		991.
985	0552	2C2A B	JSR	@HEXYA			992.
986	0553	VAIR:					993.
987	0553	4C00 A	LI	0,0	:SET ROM ADDRESS = 0		994.
988	0554	AC22 B	ST	0,ROM	:STORE IT.		995.
989	0555	4E00 A	LI	2,0	:ZERO CHECK SUM.		996.
990	0556	A839 B	ST	2,HICKSM	:SET MOST SIG CKSM TO 0.		997.
991	0557	A819 B	ST	2,WHAT	:SET FLAG.		998.
992	0558	8C23 B	LD	3,SWBUF	:SET AC3 = POINTER		999.
993	0559	3300 A	RADD	0,3	:FIX STARTING ADDRESS.		1000.
994	055A	PUTIT:					1001.
995	055A	2C28 B	JSR	@READWA	:READ PROM		1002.
996	055B	3200 A	RADD	0,2	:MAKE CHECK SUM.		1003.
997	055C	1A0B A	BDC	CYOV,ADAG	:CHECK IF MORE THAN 16 BIT CKSM.		1004.
998	055D	F300 A	KEPC:	SKNE	0,(3)	:SKIP IF ERROR	1005.
999	055E	2101 A	JMP	.,+2	:NORMAL		1006.
1000	055F	2D37 A	JSR	@ARR	:PRINT BAD DATA THEN KEEP CHECKING.		1007.
1001	0560	4801 A	AISZ	3,1	:BUMP POINTER		1008.
1002	0561	2C14 B	JSR	@ROMIA	:CHECK FOR BUFEND.		1009.
1003	0562	21F7 A	JMP	PUTIT	:NOT DONE		1010.
1004	0563	8019 B	LD	0,WHAT	:GET FLAG.		1011.
1005	0564	4800 A	AISZ	0,0	:IF NO ERRORS WILL BE ZERO.		1012.
1006	0565	2104 A	JMP	NCTVAR	:AN ERROR.		1013.
1007	0566	29AD A	JSR	PCKSM	:PRINT CHECK SUM.		1014.
1008	0567	0200 A	RTS				1015.
1009	0568						1016.
1010	0568	ADAG:					1017.
1011	0568	7839 B	ISZ	HICKSM	:BUMP HIGH CKSM.		1018.
1012	0569	21F3 A	JMP	KEPC	:DO REST.		1019.

1013	056A							1020.
1014	056A							1021.
1015	056A							1022.
								1023.
1016	056A	2C11	B	JSR	@MESSA		;PRINT MESSAGE.	1024.
1017	056B	0794	A		VDON			1025.
1018	056C	2000	B	JMP	BSTART		;TO START.	1026.
1019	056D							1027.
1020	056D							1028.
								1029.
1021	056D	2C27	B	JSR	@CRLFA			1030.
1022	056E	4C00	A	LI	0,0		;SET ACO TO 0.	1031.
1023	056F	A039	B	ST	0,HICKSM		;ZERO HIGH CHECK SUM.	1032.
1024	0570	A022	B	ST	0,RCM		;ZERO PROM ADDRESS.	1033.
1025	0571	4E00	A	LI	2,0		;ZERO CHECK SUM.	1034.
1026	0572	2C28	B	PRLP: JSR	@READWA		;READ A PROM WORD.	1035.
1027	0573	3200	A	RADD	0,2		;UP DATE CHECK SUM.	1036.
1028	0574	1A10	A	BOC	CYOV,ADD1		;ADD ONE TO HIGH CKSM IF BRANCH.	1037.
1029	0575	2C14	B	PRLGP: JSR	@ROMIA		;CHECK FOR END.	1038.
1030	0576	21FB	A	JMP	PRLP		;KEEP GOING.	1039.
1031	0577	299C	A	OD: JSR	PCKSM		;PRINT CHECK SUM.	1040.
1032	0578	2000	B	JMP	BSTART		;TO START.	1041.
1033	0579							1042.
1034	0579							1043.
								1044.
1035	0579	2C27	B	JSR	@CRLFA			1045.
1036	057A	4C00	A	LI	0,0		;ZERO ACO.	1046.
1037	057B	A039	B	ST	0,HICKSM		;ZERO HIGH CHECK SUM.	1047.
1038	057C	A022	B	ST	0,RCM		;ZERO PROM ADDRESS.	1048.
1039	057D	4E00	A	LI	2,0		;ZERO CHECK SUM.	1049.
1040	057E	8C23	B	LD	3,SWBUF		;STARTING ADDRESS OF BUFFER.	1050.
1041	057F	CB00	A	BCKLP: ADD	2,(3)		;UPDATA CHECK SUM.	1051.
1042	0580	1A06	A	BOC	CYOV,DAD		;ADD ONE TO HIGH CKSM IF BRANCH.	1052.
1043	0581	4B01	A	KKPP: AISZ	3,1		;UP DATA BUFFER POINTER.	1053.
1044	0582	2C14	B	JSR	@ROMIA		;CHECK IF DONE.	1054.
1045	0583	21FB	A	JMP	BCKLP		;KEEP GOING.	1055.
1046	0584	21F2	A	JMP	OD		;DONE.	1056.
1047	0585							1057.
1048	0585							1058.
								1059.
1049	0585	7839	B	ADD1: ISZ	HICKSM		;ADD 1 TO HIGH CKSM.	1060.
1050	0586	21FE	A	JMP	PRLGP		;RETURN.	1061.
1051	0587							1062.
1052	0587							1063.
								1064.
1053	0587	7839	B	DAD: ISZ	HICKSM		;ADD 1 TO HIGH CKSM.	1065.
1054	0588	21F8	A	JMP	KKPP		;RETURN.	1066.

1055	0589		.PAGE				1062.
1056	0589						1063.
1057	0589		DUP:				1064.
1058	0589	2C11	B	JSR	@MESSA	:PRINT MESSAGE.	1065.
1059	058A	0770	A	.WORD	LDRCM		1066.
1060	0588	2C29	B	JSR	@LCKSA	:WAIT FOR INPUT	1067.
1061	058C	4C00	A	LI	0,0	:SET ROM ADDRESS	1068.
1062	058D	A022	B	ST	0,RCM	:SAVE IT	1069.
1063	058E	8C23	B	LD	3,SWBUF	:MEMORY POINTER	1070.
1064	058F			DUPED:			1071.
1065	058F	2C28	B	JSR	@READWA	:READ FROM PROM	1072.
1066	0590	A300	A	ST	0,(3)	:STORE IT	1073.
1067	0591	4B01	A	AISZ	3,1	:BUMP POINTER	1074.
1068	0592	2C14	B	JSR	@ROMIA	:ADD ONE TO ADDRESS.	1075.
1069	0593	21FB	A	JMP	DUPED	:NOT DONE	1076.
1070	0594	29BF	A	JSR	VAIR	:VERIFY.	1077.
1071	0595	2500	A	JMP	@FFIN	:PRINT MESSAGE.	1078.
1072	0596						1079.
1073	0596	04E8	A	FFIN:	.WORD	FIN	1080.
1074	0597						1081.
1075	0597	03CE	A	ARR:	.WORD	ERROR	1082.
1076	0598						1083.
1077	0598						1084.
1078	0598	0639	A	TNGI:	.WORD	PTNGI	1085.
1079	0599	C004	A	K4:	.WORD	4	1086.
1080	059A						1087.
1081	059A						1088.
1082	059A			REDCRL:			1089.
1083	059A	4F10	A	LI	3,CRAD	:ADDRESS OF CR.	1090.
1084	059B	8168	A	LD	0,CRBUF	:ADDRESS OF BUFFER.	1091.
1085	059C	0602	A	ROUT	STAND	:READ CARD.	1092.
1086	059D	1C01	A	bOC	POA,..+2	:CHECK IF RECEIVED.	1093.
1087	059E	21FD	A	JMP	.-2		1094.
1088	059F	0401	A	WTLOP:	RIN	:GET STATUS.	1095.
1089	05A0	7164	A	SKAZ	0,HCO	:CHECK IF ERROR.	1096.
1090	05A1	0200	A	RTS		:ERROR.	1097.
1091	05A2	5CFE	A	SHR	0,2		1098.
1092	05A3	14FB	A	bOC	BIT1,WTLOP	:BUSY.	1099.
1093	05A4	0201	A	RTS	1	:DONE.	1100.
1094	05A5						1101.
1095	05A5						1102.
1096	05A5			CRER:			1103.
1097	05A5	4400	A	PULL	0		1104.
1098	05A6	4F10	A	LI	3,CRAD	:GET CARD READER ADDRESS.	1105.
1099	05A7	0401	A	RIN	STATUS	:GET STATUS.	1106.
1100	05A8	71F0	A	SKAZ	0,K4	:SKIP IF ON LINE.	1107.
1101	05A9	21D1	A	JMP	CR	:NOT ON LINE.	1108.
1102	05AA	216E	A	JMP	INERR	:ERROR.	1109.

1103	05AB			.PAGE			1110.
1104	05AB		CR:				1111.
1105	05AB	2960	A	JSR	NEW	;FIX FLAGS FOR BUFFER ADDRESS.	1112.
1106	05AC	A111	A	ST	0,ANDCR	;SET AND INSTRUCTION.	1113.
1107	05AD	2C11	B	JSR	@MESSA	;PRINT MESSAGE.	1114.
1108	05AE	0807	A	.WORD	CRRL		1115.
1109	05AF	2C29	B	JSR	@LOKSA	;WAIT FOR KEYBOARD HIT.	1116.
1110	05B0	2C27	B	JSR	@CRLFA		1117.
1111	05B1	2101	A	JMP	CRRLM		1118.
1112	05B2						1119.
1113	05B2			TORSC:			1120.
1114	05B2	2919	A	JSR	CRCKSM	;CHECK SUM UNTILL DONE.	1121.
1115	05B3			CRRLM:			1122.
1116	05B3	292B	A	JSR	READCR	;READ A CARD.	1123.
1117	05B4	25E3	A	JMP	@TNGI	;DONE READING. WAS AN *.	1124.
1118	05B5	8300	A	LD	0,(3)	;GET RECORD TYPE.	1125.
1119	05B6	12FB	A	BQC	GTEQ,TORSC	;TITLE OR SYMBOL.	1126.
1120	05B7	7151	A	SKAZ	0,M4000	;SKIP IF DATA.	1127.
1121	05B8	21F9	A	JMP	TORSC	;END RECORD.	1128.
1122	05B9			CR DATA:			1129.
1123	05B9	2912	A	JSR	CRCKSM	;CHECK RECORD.	1130.
1124	05BA	8D49	A	LD	3,CRBUF	;ADDRESS OF CARD BUFFER.	1131.
1125	05B8	8700	A	LD	1,(3)	;GET LENGTH.	1132.
1126	05BC	6436	B	AND	1,K3FFF	;KEEP LENGTH.	1133.
1127	05BD	8303	A	LD	0,3(3)	;GET INITIAL ADDRESS.	1134.
1128	05BE	6037	B	ANDCR:	AND	0,ADMSK	;KEEP LEAST BITS.
1129	05BF	3281	A	RCPY	0,2		1136.
1130	05C0	C833	B	ADD	2,BUFFAD	;ADDRESS OF WRITE BUFFER.	1137.
1131	05C1	8038	B	LD	0,FIRAD	;CHECK IF FIRST.	1138.
1132	05C2	1501	A	BQC	NZRC,NFRN	;NO.	1139.
1133	05C3	A838	B	ST	2,FIRAD	;YES SAVE ADDRESS.	1140.
1134	05C4	49FC	A	NFRN:	AISZ	1,-4	;UP DATE LENGTH.
1135	05C5			CRST:			1142.
1136	05C5	8306	A	LD	0,6(3)	;GET DATA.	1143.
1137	05C6	A200	A	ST	0,(2)	;STORE IT.	1144.
1138	05C7	4A01	A	AISZ	2,1		1145.
1139	05C8	4B01	A	AISZ	3,1		1146.
1140	05C9	49FF	A	AISZ	1,-1	;CHECK IF CARD DONE.	1147.
1141	05CA	21FA	A	JMP	CRST	;NO.	1148.
1142	05CB	21E7	A	JMP	CRRLM		1149.



1143	05CC								
1144	05CC		CRCKSM:						
1145	05CC	8D37	A	LD	3,CRBUF				
1146	05CD	8300	A	LD	0,(3)		:GET LENGTH.		
1147	05CE	6036	B	AND	0,K3FFF		:KEEP LENGTH.		
1148	05CF	3281	A	RCPY	0,2		:LENGTH IN AC2.		
1149	05D0	8301	A	LD	0,1(3)		:GET CHECK SUM.		
1150	05D1	1109	A	ADC	ZERC,ENDCK		:NO CHECK SUM.		
1151	05D2	5001	A	CAI	0,1		:FORM 2*COMP.		
1152	05D3	3181	A	RCPY	0,1		:CHECK SUM IN AC1.		
1153	05D4	8302	A	LD	0,2(3)		:GET WORD.		
1154	05D5	3100	A	RADD	0,1		:UP DATE CHECK SUM.		
1155	05D6	4801	A	AISZ	3,1		:BUMP POINTER.		
1156	05D7	4AFF	A	AISZ	2,-1		:CHECK IF DONE.		
1157	05D8	21FB	A	JMP	.-4				
1158	05D9	4900	A	AISZ	1,0		:CHECK IF OK.		
1159	05DA	2101	A	JMP	.*2		:BAD CHECK SUM.		
1160	05DB	0200	A	ENDCK:	RTS				
1161	05DC	294F	A	JSR	BADCK		:CHECK IF REPEAT.		
1162	05DD	4400	A	PULL	0				
1163	05DE	21CC	A	JMP	CR		:YES.		
1164	05DF								
1165	05DF	0010	A	CRAD	=	2*8			
1166	05DF	0002	A	STAND	=	2			
1167	05DF	0001	A	STATUS	=	1			

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			.PAGE			
1168	05DF					1175.
1169	05DF	READCR:				1176.
1170	05DF	8924 A	LD	2,CRBUF	:GET CARD BUFFER.	1177.
1171	05F0	2C32 B	JSR	@REDCR	:READ A CARD.	1178.
1172	05E1	21C3 A	JMP	CRER	:ERROR.	1179.
1173	05F2	8D21 A	LD	3,CRBUF		1180.
1174	05E3	3E81 A	RCPY	3,2	:AC2 IS POINTER.	1181.
1175	05E4	8300 A	LD	0,(3)	:GET PUNCH WORD.	1182.
1176	05E5	D121 A	SUB	0,ASTR	:CHECK IF *.	1183.
1177	05E6	1501 A	B0C	NZPC,..+2	:NO +2.	1184.
1178	05E7	0200 A	RTS		:WAS AN *.	1185.
1179	05E8	4D01 A	LI	1,1	:SET COUNTER.	1186.
1180	05E9	A419 B	ST	1,WHAT	:BIT COUNTER.	1187.
1181	05EA	AC1A B	ST	3,WHERE	:ADDRESS.	1188.
1182	05EB	901A B STEP1:	LD	0,@WHERE	:GET PUNCH WORD.	1189.
1183	05EC	781A B	ISZ	WHERE	:BUMP ADDRESS.	1190.
1184	05ED	8D18 A	LD	3,ATBL	:CONVERT TABLE.	1191.
1185	05EE	1108 A	B0C	ZERC,STEP2	:BLANK.	1192.
1186	05EF	F300 A SLOP1:	SKNE	0,(3)	:CHECK FOR CHAR.	1193.
1187	05F0	2106 A	JMP	STEP2	:MATCH.	1194.
1188	05F1	4801 A	AISZ	3,1	:BUMP POINTER.	1195.
1189	05F2	ED15 A	SKG	3,ETBL	:SKIP IF BAD CHAR.	1196.
1190	05F3	21FB A	JMP	SLOP1	:KEEP CHECKING.	1197.
1191	05F4	2C11 B	JSR	@MESSA	:PRINT MESSAGE.	1198.
1192	05F5	0810 A	.WORD	INVAL		1199.
1193	05E6	2000 B	JMP	BSTART	:TO START.	1200.
1194	05F7					1201.
1195	05F7	0D0E A STEP2:	SUB	3,ATBL	:CREATE WORD.	1202.
1196	05F8	5D04 A	SHL	1,4	:MAKE ROOM FOR NEW BIG.	1203.
1197	05F9	3D00 A	RADD	3,1	:MAKE WORD.	1204.
1198	05FA	8019 B	LD	0,WHAT	:GET COUNT.	1205.
1199	05FB	1303 A	B0C	ODD,STEP3	:	1206.
1200	05FC	1402 A	B0C	BIT1,STEP3	:	1207.
1201	05FD	A600 A	ST	1,(2)	:PUT NEW WORD AWAY.	1208.
1202	05FE	4A01 A	AISZ	2,1	:BUMP POINTER.	1209.
1203	05FF	7819 B STEP3:	ISZ	WHAT	:BUMP COUNT.	1210.
1204	0600	48B8 A	AISZ	0,-72	:CHECK FOR END OF CARD.	1211.
1205	0601	21E9 A	JMP	STEP1	:NO.	1212.
1206	0602	8D01 A	LD	3,CRBUF		1213.
1207	0603	0201 A	RTS	1		1214.



1236 0619		.PAGE				1243.
1237 0619						1244.
1238 0619						1245.
1239 0619						1246.
1240 0619	2C11 B	INERR:	JSR	@MESSA	:PRINT MESSAGE.	1247.
1241 061A	0819 A		.WORD	XMIS		1248.
1242 061B	2000 B		JMP	BSTART	:TO START.	1249.
1243 061C						1250.
1244 061C		CK SM:				1251.
1245 061C	4BFF A		AISZ	3,-1	:UPDATE LENGTH.	1252.
1246 061D	2101 A		JMP	.+2	:NOT DONE.	1253.
1247 061E	2103 A		JMP	BADC	:DONE.	1254.
1248 061F	2955 A		JSR	READ2	:READ WORD.	1255.
1249 0620	3200 A		RADD	0,+2	:UPDATE CHECK SUM.	1256.
1250 0621	0200 A		RTS		:NORMAL NOT DONE RETURN.	1257.
1251 0622	7819 B	BADD:	ISZ	WHAT	:CHECK IF THERE WAS A CKSM.	1258.
1252 0623	2101 A		JMP	.+2	:THERE WAS A CHECK SUM.	1259.
1253 0624	0201 A		RTS	1	:NORMAL DONE RETURN.	1260.
1254 0625	4A00 A		AISZ	2,0	:SKIP IF CHECK SUM OK.	1261.
1255 0626	2101 A		JMP	.+2		1262.
1256 0627	0201 A		RTS	1	:GOOD.	1263.
1257 0628	2903 A		JSR	BADCK	:CHECK IF REPEAT.	1264.
1258 0629	4400 A		PULL	0		1265.
1259 062A	4400 A		PULL	0		1266.
1260 062B	2108 A		JMP	PT1	:YES.	1267.
1261 062C						1268.
1262 062C	2C11 B	BADCK:	JSR	@MESSA	:PRINT MESSAGE.	1269.
1263 062D	07C7 A		.WORD	CKER		1270.
1264 062E	2D02 A		JSR	@INYNA	:GET YES OR NO.	1271.
1265 062F	2000 B		JMP	BSTART	:TO START.	1272.
1266 0630	0200 A		RTS		:YES.	1273.
1267 0631						1274.
1268 0631	050A A	INYNA:	.WORD	INYN2		1275.

1269	0632			.PAGE			1276.
1270	0632		PT:				1277.
1271	0632	29D9	A	JSR	NEW	;FIX FLAGS FOR BUFFER.	1278.
1272	0633	A151	A	ST	0,ANDPT	;SET MASK INSTRUCTION.	1279.
1273	0634	2C11	B	PT1: JSR	@MESSA	;PRINT MESSAGE.	1280.
1274	0635	0720	A	.WORD	DATAID		1281.
1275	0636	2C29	B	JSR	@LOKSA	;WAIT FOR KEYBOARD HIT.	1282.
1276	0637	2C27	B	JSR	@CRLFA		1283.
1277	0638	2942	A	JSR	PTRLM	;READ RLM PAPER TAPE.	1284.
1278	0639			PTNGI:			1285.
1279	0639	2C11	B	JSR	@MESSA	;PRINT MESSAGE.	1286.
1280	063A	074A	A	.WORD	STAPTA		1287.
1281	063B	8038	B	LD	0,FIRAD	;GET FIRST BUFFER ADDRESS.	1288.
1282	063C	2C26	B	JSR	@DHEXA	;PRINT IT.	1289.
1283	063D	8039	B	LD	0,HICKSM	;CHECK IF FIXED BUFFER OR NOT.	1290.
1284	063E	1529	A	BDC	NZRC,PTDN	;NO.	1291.
1285	063F	8010	B	LD	0,BUFEND	;CHECK FOR 2K.	1292.
1286	0640	8833	B	LD	2,BUFFAD		1293.
1287	0641	F012	B	SKNE	0,MFF		1294.
1288	0642	2102	A	JMP	.*+3		1295.
1289	0643	2C27	B	JSR	@CRLFA		1296.
1290	0644	216B	A	JMP	MOVIE	;IS NOT 2K.	1297.
1291	0645	2C11	B	DUMB: JSR	@MESSA	;PRINT MESSAGE.	1298.
1292	0646	07FD	A	.WORD	UL		1299.
1293	0647	2DC2	A	JSR	@ASTART	;GET LAST CHAR.	1300.
1294	0648	801A	B	LD	0,WHERE	;GET CHAR.	1301.
1295	0649	8833	B	LD	2,BUFFAD		1302.
1296	064A	6012	B	AND	0,MFF	;KEEP LAST.	1303.
1297	064B	48FB	A	AISZ	0,-5	;CHECK IF LOWER.	1304.
1298	064C	2101	A	JMP	.*+2		1305.
1299	064D	2162	A	JMP	MOVIE	;YES.	1306.
1300	064E	48F7	A	AISZ	0,-9	;CHECK IF UPPER.	1307.
1301	064F	21F5	A	JMP	DUMB	;BAD CHAR.	1308.
1302	0650	8C23	B	LD	3,SWBUF	;GET TO.	1309.
1303	0651	89B9	A	LD	2,LSWB	;GET FROM.	1310.
1304	0652	2960	A	JSR	MOVE	;MOVE IT.	1311.
1305	0653	2101	A	JMP	.*+2		1312.

1306	0654			.PAGE			1313.
1307	0654		PTNG:				1314.
1308	0654	2C27	B	JSR	@CRLF		1315.
1309	0655	2C11	B	JSR	@MESSA	;PRINT MESSAGE.	1316.
1310	0656	07AB	A	.WORD	LOR		1317.
1311	0657	20B7	A	JSR	@ASTART	;GET CHAR.	1318.
1312	0658	801A	B	LD	0,WHERE	;GET LAST CHAR.	1319.
1313	0659	6012	B	AND	0,MFF	;KEEP JUST LAST.	1320.
1314	065A	48FB	A	AISZ	0,-5	;CHECK IF L.	1321.
1315	065B	2101	A	JMP	.+2	;NOT AN L.	1322.
1316	065C	210E	A	JMP	LEF		1323.
1317	065D	48FA	A	AISZ	0,-6	;CHECK IF R.	1324.
1318	065E	21F5	A	JMP	PTNG	;NOT L OR R.	1325.
1319	065F	4C00	A	LI	0,0	;ZERO.	1326.
1320	0660	A022	B	ST	0,ROM	;ZERO ROM ADDRESS.	1327.
1321	0661	8C23	B	LD	3,SWBUF	;GET STARTING ADDRESS OF BUF.	1328.
1322	0662	8300	A	RLL: LD	0,(3)	;GET WORD.	1329.
1323	0663	6012	B	AND	0,MFF	;MASK OFF MSD.	1330.
1324	0664	A300	A	ST	0,(3)	;STORE IT.	1331.
1325	0665	4B01	A	AISZ	3,1	;BUMP ADDRESS.	1332.
1326	0666	2C14	B	JSR	@ROMIA	;BUMP PCINTER.	1333.
1327	0667	21FA	A	JMP	RLL	;NOT DONE.	1334.
1328	0668	2C11	B	PTDN: JSR	@MESSA	;PRINT MESSAGE.	1335.
1329	0669	0794	A	.WORD	VDCN		1336.
1330	066A	2000	B	JMP	BSTART	;TO START.	1337.
1331	066B						1338.
1332	066B						1339.
1333	066B	4C00	A	LEF: LI	0,0	;ZERO ACO.	1340.
1334	066C	A022	B	ST	0,ROM	;ZERO ROM ADDRESS.	1341.
1335	066D	8C23	B	LD	3,SWBUF	;GET STARTING ADDRESS OF BUF.	1342.
1336	066E	8300	A	LLL: LD	0,(3)	;GET WORD.	1343.
1337	066F	5CF8	A	SHR	0,8	;PUT MOST TO LEAST.	1344.
1338	0670	A300	A	ST	0,(3)	;STORE IT.	1345.
1339	0671	4B01	A	AISZ	3,1	;BUMP ADDRESS.	1346.
1340	0672	2C14	B	JSR	@ROMIA		1347.
1341	0673	21FA	A	JMP	LLL	;NOT DONE.	1348.
1342	0674	21F3	A	JMP	PTDN		1349.

1343	0675			.PAGE			1350.
1344	0675						1351.
1345	0675			READ2:			1352.
1346	0675	2C0E	B	JSR	@GETC	:GET CHAR.	1353.
1347	0676	3181	A	RCPY	0,1	:SAVE IN ACL.	1354.
1348	0677	2C0E	B	JSR	@GETC	:GET CHAR.	1355.
1349	0678	5D08	A	SHL	1,8	:MOVE TO MOST.	1356.
1350	0679	3400	A	RADD	1.0	:FORM WORD.	1357.
1351	067A	0200	A	RTS			1358.
1352	067B			PTRLM:			1359.
1353	067B	292D	A	JSR	LSTX	:WAIT FOR STX CHAR.	1360.
1354	067C	29F8	A	JSR	READ2	:READ A 2 FRAME WORD.	1361.
1355	067D	121C	A	BOC	GTEQ,TORS	:GO TO TITLE OR SYMBOL.	1362.
1356	067E	718A	A	SKAZ	0,M4000	:CHECK FOR DATA.	1363.
1357	067F	2116	A	JMP	ENDRC	:END RECORD.	1364.
1358	0680						1365.
1359	0680			PTDATA:			1366.
1360	0680	291D	A	JSR	FIXL	:FIX LENGTH.	1367.
1361	0681	299A	A	JSR	CKSM	:READ TYPE.	1368.
1362	0682	2100	A	JMP	.+1	:DUMMY.	1369.
1363	0683	2998	A	JSR	CKSM	:READ INITIAL ADDRESS.	1370.
1364	0684	2100	A	JMP	.+1		1371.
1365	0685	6037	B	ANDPT: AND	0,ADMSK	:MASK OFF.	1372.
1366	0686	C033	B	ADD	0,BUFFAD	:MAKE STARTING ADDRESS.	1373.
1367	0687	A01A	B	ST	0,WHERE	:SAVE ADDRESS.	1374.
1368	0688	8038	B	LD	0,FIRAD	:CHECK IF FIRST.	1375.
1369	0689	1502	A	BOC	NZRC,FRSTP	:CHECK IF FIRST.	1376.
1370	068A	801A	B	LD	0,WHERE	:SAVE FIRST ADDRESS IN FIRAD.	1377.
1371	068B	A038	B	ST	0,FIRAD		1378.
1372	068C			FRSTP:			1379.
1373	068C	298F	A	JSR	CKSM	:READ TYPE 1.	1380.
1374	068D	2100	A	JMP	.+1	:DUMMY.	1381.
1375	068E	298D	A	JSR	CKSM	:READ TYPE 2.	1382.
1376	068F	2100	A	JMP	.+1	:DUMMY.	1383.
1377	0690	298B	A	STDATA: JSR	CKSM	:READ DATA.	1384.
1378	0691	2101	A	JMP	.+2	:NORMAL RETURN.	1385.
1379	0692	21E8	A	JMP	PTRLM	:READ NEXT RECORD.	1386.
1380	0693	801A	B	ST	0,@WHERE	:STORE DATA.	1387.
1381	0694	781A	B	ISZ	WHERE	:BUMP POINTER.	1388.
1382	0695	21FA	A	JMP	STDATA	:GO GET NEXT.	1389.
1383	0696	2907	A	ENDRC: JSR	FIXL	:FIX LENGTH AND CHECK SUM.	1390.
1384	0697	2984	A	JSR	CKSM	:READ WORD UPDATE CHECK SUM.	1391.
1385	0698	21FE	A	JMP	.-1	:NOT DONE.	1392.
1386	0699	0200	A	RTS		:ALLDONE.	1393.

1387	069A			.PAGE				1394.
1388	069A	2903 A	TORS:	JSR	FIXL		;FIX LENGTH.	1395.
1389	069B	2980 A		JSR	CKSM		;READ UPDATE CHECK SUM.	1396.
1390	069C	21FF A		JMP	.-1		;NOT DONE.	1397.
1391	069D	21DD A		JMP	PTRLM		;READ NEXT RECORD.	1398.
1392	069E							1399.
1393	069E		FIXL:					1400.
1394	069E	6036 B		AND	0,K3FFF		;KEEP LENGTH.	1401.
1395	069F	3381 A		RCPY	0,3		;LENGTH IN AC3.	1402.
1396	06A0	4B01 A		AISZ	3,1		;CORRECT LENGTH.	1403.
1397	06A1	29D3 A		JSR	READ2		;READ CHECK SUM.	1404.
1398	06A2	4800 A		AISZ	0,0		;CHECK IF CHECK SUM IS 0.	1405.
1399	06A3	2102 A		JMP	YES		;NOT 0.	1406.
1400	06A4	4DFE A		LI	1,-1		;SET FLAG.	1407.
1401	06A5	A419 B		ST	1,WHAT		;STORE IT.	1408.
1402	06A6	5001 A	YES:	CAI	0,1		;FORM 2'S COMP.	1409.
1403	06A7	3281 A		RCPY	0,2		;AC2 HAS CHECK SUM.	1410.
1404	06A8	0200 A		RTS				1411.



1405	06A9			.PAGE			1412.
1406	06A9		LSTX:				1413.
1407	06A9	2C0E B		JSR	@GETC	;GET CHAR.	1414.
1408	06AA	48FF A		AISZ	0,-2	;CHECK FOR STX CHAR.	1415.
1409	06AB	21FD A		JMP	.-2	;NOT IT.	1416.
1410	06AC	0200 A		RTS			1417.
1411	06AD						1418.
1412	06AD		MOVEE:				1419.
1413	06AD	2C2A B		JSR	@HEXYA	;SEE IF THERE WAS A CHAR.	1420.
1414	06AE	8033 B		LD	0,BUFFAD	;NO USE READ IN BUFFER.	1421.
1415	06AF	3281 A		RCPY	0,2	;PUT FROM ADDRESS IN AC2.	1422.
1416	06B0		MOVIE:				1423.
1417	06B0	8C23 B		LD	3,SWBUF	;PUT TO ADDRESS IN AC3.	1424.
1418	06B1	2901 A		JSR	MOVE	;MOVE IT.	1425.
1419	06B2	21A1 A		JMP	PTNG	;DO OPTIONS.	1426.
1420	06B3						1427.
1421	06B3						1428.
1422	06B3		MOVE:				1429.
1423	06B3	4C00 A		LI	0,0	;ZERO ROM ADDRESS.	1430.
1424	06B4	A022 B		ST	0,RCM		1431.
1425	06B5	8200 A	MOVL:	LD	0,(2)	;GET WORD.	1432.
1426	06B6	A300 A		ST	0,(3)	;STORE IT.	1433.
1427	06B7	4A01 A		AISZ	2,1		1434.
1428	06B8	4B01 A		AISZ	3,1		1435.
1429	06B9	2C14 B		JSR	@ROMIA	;CHECK FOR END.	1436.
1430	06BA	21FA A		JMP	MOVL	;NO.	1437.
1431	06BB	0200 A		RTS			1438.
1432	06BC						1439.
1433	06BC						1440.
1434	06BC		SRG:				1441.
1435	06BC	2C2A B		JSR	@HEXYA	;CHECK IF CHAR.	1442.
1436	06BD	8034 B		LD	0,TBFAD	;NO GET TEMP ADDRESS.	1443.
1437	06BE	2C35 B		JSR	@CHARGA	;CHECK IF PROTECTED.	1444.
1438	06BF	A033 B		ST	0,BUFFAD	;SET ADDRESS.	1445.
1439	06C0	8410 B		LD	1,BUFEND	;SAVE MODE IN AFLAG.	1446.
1440	06C1	A418 B		ST	1,AFLAG		1447.
1441	06C2	F034 B		SKNE	0,TBFAD	;CHECK IF NEW OR OLD BUFFER ADDRESS.	1448.
1442	06C3	2102 A		JMP	SRGL	;DEFAULT BUFFER.	1449.
1443	06C4	8024 B		LD	0,ENDBUF	;SET RANGE OF PROM TO 4K.	1450.
1444	06C5	2101 A		JMP	SRGLO		1451.
1445	06C6		SRGL:				1452.
1446	06C6	8013 B		LD	0,K511	;SET BUFFER LENGTH TO 511.	1453.
1447	06C7		SRGLO:				1454.
1448	06C7	A010 B		ST	0,BUFEND		1455.
1449	06C8	F412 B		SKNE	1,MFF	;CHECK IF 4K OR 2K PROMS.	1456.
1450	06C9	2106 A		JMP	MM5203		1457.
1451	06CA	4C00 A		LI	0,0	;IS 4K PROM ZERO BUFFER.	1458.

1452	06CB				.PAGE				1459.
1453	06CB		SRGLL:						1460.
1454	06CB	8833	B	LD	2,BUFFAD		:FILL TEMP BUFFER.		1461.
1455	06CC	2D0D	A	JSR	@ERCF		:FILL BUFFER.		1462.
1456	06CD	8018	B	LD	0,AFLAG		:FIX MODE.		1463.
1457	06CE	A010	B	ST	0,BUFEND				1464.
1458	06CF	2502	A	JMP	@TTAA		:PRINT BACK.		1465.
1459	06D0		MM5203:						1466.
1460	06D0	4CFF	A	LI	0,-1		:MODE IS 2K PROM.		1467.
1461	06D1	21F9	A	JMP	SRGLL				1468.
1462	06D2								1469.
1463	06D2								1470.
1464	06D2	0375	A	TTAA:	.WORD	TTA			1471.
1465	06D3								1472.
1466	06D3								1473.
1467	06D3		CKRG:						1474.
1468	06D3	F105	A	SKG	0,PROTEC		:CHECK IF PROTECTED.		1475.
1469	06D4	2101	A	JMP	ERRG		:PROTECTED ERROR.		1476.
1470	06D5	0200	A	RTS			:NO RETURN.		1477.
1471	06D6		ERRG:						1478.
1472	06D6	2C11	B	JSR	@MESSA		:PRINT MESSAGE		1479.
1473	06D7	073F	A	.WORD	PROT				1480.
1474	06D8	2000	B	JMP	BSTART				1481.
1475	06D9								1482.
1476	06D9	08FE	A	PROTEC:	.WORD	FENC-1			1483.
1477	06DA	04AD	A	ERCF:	.WORD	ZERCF			1484.



1504	06FF			.PAGE		1511.
1505	06FF	5052 A	MSG:	.ASCII	'PRMSFTB'	1512.
	0700	4053 A				
	0701	4654 A				
	0702	4220 A				
1506	0703	0000 A		.WORD	0	1513.
1507	0704					1514.
1508	0704	0D0A A	WORK:	.WORD	0D0A	1515.
1509	0705	5052 A		.ASCII	'PROGRAMMING.'	1516.
	0706	4F47 A				
	0707	5241 A				
	0708	4D4D A				
	0709	494E A				
	070A	472E A				
	070B	2020 A				
1510	070C	0000 A		.WORD	0	1517.
1511	070D					1518.
1512	070D					1519.
1513	070D		DONE:			1520.
1514	070D	5645 A		.ASCII	'VERIFYING.'	1521.
	070E	5249 A				
	070F	4649 A				
	0710	4E47 A				
	0711	2E20 A				
1515	0712	0000 A		.WORD	0	1522.

1516	0713			.PAGE		1523.
1517	0713	2050 A	PAD:	.ASCII	' PROM AT ADDRESS '	1524.
	0714	524F A				
	0715	4D20 A				
	0716	4154 A				
	0717	2041 A				
	0718	4444 A				
	0719	5245 A				
	071A	5353 A				
	071B	2020 A				
1518	071C	0000 A		.WORD	0	1525.
1519	071D					1526.
1520	071D	2042 A	BADP:	.ASCII	' BAD '	1527.
	071E	4144 A				
1521	071F	0000 A		.WORD	0	1528.
1522	0720					1529.
1523	0720					1530.
1524	0720	000A A	DATAID:	.WORD	000A	1531.
1525	0721	404F A		.ASCII	'LOAD TAPE.'	1532.
	0722	4144 A				
	0723	2054 A				
	0724	4150 A				
	0725	452E A				
1526	0726	0000 A		.WORD	0	1533.
1527	0727					1534.
1528	0727					1535.
1529	0727		HIT:			1536.
1530	0727	2048 A		.ASCII	' HIT SPACE WHEN READY.'	1537.
	0728	4954 A				
	0729	2053 A				
	072A	5041 A				
	072B	4345 A				
	072C	2057 A				
	072D	4845 A				
	072E	4E20 A				
	072F	5245 A				
	0730	4144 A				
	0731	592E A				
1531	0732	0000 A		.WORD	0	1538.

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1533	0733					1540.
1534	0733	4E4F A	NOVER:	.ASCII	'NOT CORRECT TRY AGAIN.'	1541.
	0734	5420 A				
	0735	434F A				
	0736	5252 A				
	0737	4543 A				
	0738	5420 A				
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	073A	5920 A				
	073B	4147 A				
	073C	4149 A				
	073D	4E2E A				
1535	073E	0000 A		.WORD	0	1542.
1536	073F					1543.
1537	073F	000A A	PROT:	.WORD	000A	1544.
1538	0740	5052 A		.ASCII	'PRCTECTED.'	1545.
	0741	4F54 A				
	0742	4543 A				
	0743	5445 A				
	0744	442E A				
1539	0745	0000 A		.WORD	0	1546.
1540	0746	4147 A	PAGAIN:	.ASCII	'AGAIN.'	1547.
	0747	4149 A				
	0748	4E2E A				
1541	0749	0000 A		.WORD	0	1548.
1542	074A					1549.
1543	074A					1550.
1544	074A	4649 A	STARTA:	.ASCII	'FIRST ADDRESS = '	1551.
	074B	5253 A				
	074C	5420 A				
	074D	4144 A				
	074E	4452 A				
	074F	4553 A				
	0750	5320 A				
	0751	3020 A				
1545	0752	0000 A		.WORD	0	1552.

1546	0753			.PAGE		1553.
1547	0753					1554.
1548	0753	4953	A	IS:	.ASCII 'IS '	1555.
	0754	2020	A			
1549	0755	0000	A	.WORD	0	1556.
1550	0756					1557.
1551	0756	2053	A	SB:	.ASCII 'SB '	1558.
	0757	4220	A			
1552	0758	0000	A	.WORD	0	1559.
1553	0759					1560.
1554	0759	0D0A	A	BADTAPE:	.WORD 0D0A	1561.
1555	075A	502F	A		.ASCII 'P/N TAPE BAD. '	1562.
	075B	4F20	A			
	075C	5441	A			
	075D	5045	A			
	075E	2042	A			
	075F	4144	A			
	0760	2E20	A			
1556	0761	0000	A	.WORD	0	1563.
1557	0762					1564.
1558	0762	502F	A	PDONE:	.ASCII 'P/N TAPE DONE. '	1565.
	0763	4F20	A			
	0764	5441	A			
	0765	5045	A			
	0766	2044	A			
	0767	4F4E	A			
	0768	452F	A			
1559	0769	0000	A	.WORD	0	1566.

1560	076A			.PAGE		1567.
1561	076A					1568.
1562	076A	2043	A	RDMV: .ASCII	'CORRECT.'	1569.
	076B	4F52	A			
	076C	5245	A			
	076D	4354	A			
	076E	2E20	A			
1563	076F	0000	A	.WORD	0	1570.
1564	0770					1571.
1565	0770					1572.
1566	0770	0DOA	A	LDRGM: .WORD	ODOA	1573.
1567	0771	5055	A	.ASCII	'PUT PROM IN SOCKET.'	1574.
	0772	5420	A			
	0773	5052	A			
	0774	4F4D	A			
	0775	2049	A			
	0776	4E20	A			
	0777	534F	A			
	0778	434B	A			
	0779	4554	A			
	077A	2E20	A			
1568	077B	0000	A	.WORD	0	1575.
1569	077C					1576.
1570	077C					1577.
1571	077C	0DOA	A	NOTER: .WORD	ODOA	1578.
1572	077D					1579.
1573	077D	4E4F	A	.ASCII	'NOT ERASED AT ADDRESS '	1580.
	077E	5420	A			
	077F	4552	A			
	0780	4153	A			
	0781	4544	A			
	0782	2041	A			
	0783	5420	A			
	0784	4144	A			
	0785	4452	A			
	0786	4553	A			
	0787	5320	A			
1574	0788	0000	A	.WORD	0	1581.



1575	0789			.PAGE		1582.	
1576	0789					1583.	
1577	0789	000A	A	NOW4K:	.WORD	000A	1584.
1578	078A	404D	A		.ASCII	'MM5204.'	1585.
	078B	3532	A				
	078C	3034	A				
	078D	2E20	A				
1579	078E	0000	A		.WORD	0	1586.
1580	078F						1587.
1581	078F						1588.
1582	078F			NOW2K:			1589.
1583	078F	204D	A		.ASCII	'MM5203.'	1590.
	0790	4035	A				
	0791	3230	A				
	0792	332E	A				
1584	0793	0000	A		.WORD	0	1591.
1585	0794						1592.
1586	0794						1593.
1587	0794	000A	A	V00N:	.WORD	000A	1594.
1588	0795	444E	A		.ASCII	'00NE.'	1595.
	0796	4E45	A				
	0797	2E20	A				
1589	0798	000A	A		.WORD	000A,0	1596.
	0799	0000	A				
1590	079A						1597.
1591	079A	2054	A	BTY:	.ASCII	'TYPE 2 (CR).'	1598.
	079B	5950	A				
	079C	4520	A				
	079D	3220	A				
	079E	2843	A				
	079F	5229	A				
	07A0	2E20	A				
1592	07A1	000A	A		.WORD	000A	1599.
1593	07A2	0000	A		.WORD	0	1600.
1594	07A3						1601.
1595	07A3	2054	A	BTY4:	.ASCII	'TYPE 4 (CR).'	1602.
	07A4	5950	A				
	07A5	4520	A				
	07A6	3420	A				
	07A7	2843	A				
	07A8	5229	A				
	07A9	2E20	A				
1596	07AA	0000	A		.WORD	0	1603.

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1599	07AB	000A A	LOR: .WORD	000A	1606.
1600	07AC	2020 A	.ASCII	' LEFT BYTE TYPE L (CR).'	1607.
	07AD	4C45 A			
	07AE	4654 A			
	07AF	2042 A			
	07B0	5954 A			
	07B1	4520 A			
	07B2	5459 A			
	07B3	5045 A			
	07B4	204C A			
	07B5	2028 A			
	07B6	4352 A			
	07B7	292E A			
1601	07B8				1608.
1602	07B8	2020 A	.ASCII	' RIGHT BYTE TYPE R (CR).'	1609.
	07B9	5249 A			
	07BA	4748 A			
	07BB	5420 A			
	07BC	4259 A			
	07BD	5445 A			
	07BE	2054 A			
	07BF	5950 A			
	07C0	4520 A			
	07C1	5220 A			
	07C2	2843 A			
	07C3	5229 A			
	07C4	2E20 A			
1603	07C5	000A A	.WORD	000A,0	1610.
	07C6	0000 A			
1604	07C7				1611.
1605	07C7	4348 A	CKER: .ASCII	'CHECK SUM ERROR.'	1612.
	07C8	4543 A			
	07C9	4820 A			
	07CA	5355 A			
	07CB	4D20 A			
	07CC	4552 A			
	07CD	524F A			
	07CE	522E A			
1606	07CF	000A A	.WORD	000A	1613.
1607	07D0	5452 A	.ASCII	'TRY AGAIN? Y OR N.'	1614.
	07D1	5920 A			
	07D2	4147 A			
	07D3	4149 A			
	07D4	4E3F A			
	07D5	2059 A			
	07D6	204F A			
	07D7	5220 A			
	07D8	4E2E A			
1608	07D9	000A A	.WORD	000A,0	1615.
	07DA	0000 A			

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1612	07DB	OD0A A	VERF: .WORD	OD0A	1619.
1613	07DC	5645 A	.ASCII	'VERIFY TAPE? Y OR N '	1620.
	07DD	5249 A			
	07DE	4659 A			
	07DF	2054 A			
	07E0	4150 A			
	07E1	453F A			
	07E2	2059 A			
	07E3	204F A			
	07E4	5220 A			
	07E5	4E20 A			
1614	07E6	OD0A A	.WORD	OD0A,0	1621.
	07E7	0000 A			
1615	07E8				1622.
1616	07E8				1623.
1617	07E8		VERF:		1624.
1618	07E8	2043 A	.ASCII	' CKSM = '	1625.
	07E9	4853 A			
	07EA	4020 A			
	07EB	3020 A			
1619	07EC	0000 A	.WORD	0	1626.
1620	07ED				1627.
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1622	07ED		UL:		1629.
1623	07ED	2055 A	.ASCII	' UPPER 256 U (CR) '	1630.
	07EE	5050 A			
	07EF	4552 A			
	07F0	2032 A			
	07F1	3536 A			
	07F2	2055 A			
	07F3	2028 A			
	07F4	4352 A			
	07F5	2920 A			
1624	07F6				1631.
1625	07F6	204C A	.ASCII	' LCWER 256 L (CR) '	1632.
	07F7	4F57 A			
	07F8	4552 A			
	07F9	2032 A			
	07FA	3536 A			
	07FB	204C A			
	07FC	2028 A			
	07FD	4352 A			
	07FE	2920 A			
1626	07FF	OD0A A	.WORD	OD0A,0	1633.
	0800	0000 A			

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1629	0801	0D0A	A	ERF:	.WORD 0D0A	1636.
1630	0802	5920	A		.ASCII 'Y CR N'	1637.
	0803	4F52	A			
	0804	204E	A			
1631	0805	0D0A	A		.WORD 0D0A,0	1638.
	0806	0000	A			
1632	0807					1639.
1633	0807	0D0A	A	CRRL:	.WORD 0D0A	1640.
1634	0808	4D41	A		.ASCII 'MAKE CR READY.'	1641.
	0809	4B45	A			
	080A	2043	A			
	080B	5220	A			
	080C	5245	A			
	080D	4144	A			
	080E	592E	A			
1635	080F	0000	A		.WORD 0	1642.
1636	0810					1643.
1637	0810	0D0A	A	INVAL:	.WORD 0D0A	1644.
1638	0811	494E	A		.ASCII 'INVALID CHAR.'	1645.
	0812	5641	A			
	0813	4C49	A			
	0814	4420	A			
	0815	4348	A			
	0816	4152	A			
	0817	2E20	A			
1639	0818	0000	A		.WORD 0	1646.
1640	0819					1647.
1641	0819	0D0A	A	XMIS:	.WORD 0D0A	1648.
1642	081A	5452	A		.ASCII 'TRANSMISSION ERROR.'	1649.
	081B	414E	A			
	081C	534D	A			
	081D	4953	A			
	081E	5349	A			
	081F	4F4E	A			
	0820	2045	A			
	0821	5252	A			
	0822	4F52	A			
	0823	2E20	A			
1643	0824	0000	A		.WORD 0	1650.

		.PAGE			
1644	0825				1651.
1645	0825	TBL:			1652.
1646	0825	C200 A	.WORD	0200	1653.
1647	0826	0100 A	.WORD	0100	1654.
1648	0827	0080 A	.WORD	0080	1655.
1649	0828	0040 A	.WORD	0040	1656.
1650	0829	0020 A	.WORD	0020	1657.
1651	082A	0010 A	.WORD	0010	1658.
1652	082B	0008 A	.WORD	0008	1659.
1653	082C	0004 A	.WORD	0004	1660.
1654	082D	0002 A	.WORD	0002	1661.
1655	082E	0001 A	.WORD	0001	1662.
1656	082F	0900 A	.WORD	0900	1663.
1657	0830	0880 A	.WORD	0880	1664.
1658	0831	0840 A	.WORD	0840	1665.
1659	0832	0820 A	.WORD	0820	1666.
1660	0833	0810 A	.WORD	0810	1667.
1661	0834	0808 A	.WORD	0808	1668.

1662	0835								1669.
1663	0835								1670.
1664	0835	FFF5	A DELAY	=		OFFF5			1671.
1665	0835	FFF6	A DELAY1	=		OFFF6			1672.
1666	0835	FFF8	A TTYSR	=		OFFF8			1673.
1667	0835		: OSCILLATOR.						1674.
1668	0835								1675.
1669	0835								1676.
1670	0835	0029	A TA	=		41			1677.
1671	0835	0009	A EA	=		9			1678.
1672	0835	0016	A EB	=		22			1679.
1673	0835	0026	A EC	=		38			1680.
1674	0835	0038	A TTYAD	=		7*8			1681.
1675	0835								1682.
1676	0835								1683.
1677	0835		: RIN		2		= READ A BIT FROM TTY.		1684.
1678	0835		: RIN		4		= TURN ON READER RELAY.		1685.
1679	0835		: RIN		5		= RESET.		1686.
1680	0835		: RIN		6		= SET BIT 7 IF INTERRUPT REQ.		1687.
1681	0835								1688.
1682	0835		: ROUT		1		= TURN ON INTERRUPT ENABLE.		1689.
1683	0835		: ROUT		3		= SEND A BIT TO TTY.		1690.
1684	0835		: ROUT		4		= TURN ON READER RELAY.		1691.
1685	0835		: ROUT		5		= RESET.		1692.

1686	0835			.PAGE		1693.
1687	0835	:		TELETYPE TRANSMIT CHARACTER ROUTINE FOR IMP - 16L.		1694.
1688	0835					1695.
1689	0835	291E	A	LPUTC: JSR	SAVER	1696.
1690	0836	3181	A	RCPY	0.1	1697.
1691	0837	4C30	A	LI	0,X*30	1698.
1692	0838	03F6	A	JSRI	DELAY1	1699.
1693	0839	4E09	A	LI	2.9	1700.
1694	083A	4F38	A	LI	3,TTYAD	1701.
1695	083B	0603	A	ROUT	3	1702.
1696	083C	03F5	A	LP1: JSRI	DELAY	1703.
1697	083D	5829	A	ROL	0,TA	1704.
1698	083E	4AFF	A	AISZ	2,-1	1705.
1699	083F	2101	A	JMP	.+2	1706.
1700	0840	2104	A	JMP	DDCN	1707.
1701	0841	59FF	A	ROR	1,1	1708.
1702	0842	3481	A	RCPY	1,0	1709.
1703	0843	0603	A	ROUT	3	1710.
1704	0844	21F7	A	JMP	LP1	1711.
1705	0845	4CEF	A	DDON: LI	0,-1	1712.
1706	0846	0603	A	ROUT	3	1713.
1707	0847	2118	A	JMP	RETRR	1714.
1708	0848					1715.
1709	0848					1716.
1710	0848					1717.
1711	0848	290B	A	PPUTC: JSR	SAVER	1718.
1712	0849	2D01	A	JSR@	PPUTCA	1719.
1713	084A	2115	A	JMP	RETRR	1720.
1714	084B					1721.
1715	084B	7E59	A	PPUTCA: .WORD	07E59	1722.

1716	084C			.PAGE					1723.
1717	084C	:		GET CHARACTER ROUTINE FOR IMP - 16P.					1724.
1718	084C								1725.
1719	084C	2907	A	PGETC:	JSR	SAVER			1726.
1720	084D	2D02	A		JSR	@PGETCA			1727.
1721	084F	A02C	B		ST	0,R0			1728.
1722	084F	2110	A		JMP	RETRR			1729.
1723	0850								1730.
1724	0850	7E3B	A	PGETCA:	.WORD	07E3B			1731.
1725	0851								1732.
1726	0851	:		GET CHARACTER ROUTINE FOR IMP-16L.					1733.
1727	0851			LGETC:					1734.
1728	0851	2902	A		JSR	SAVER			1735.
1729	0852	03EB	A		JSR I	TTYSR			1736.
1730	0853	21FA	A		JMP	PGETC+2			1737.
1731	0854								1738.
1732	0854			SAVER:					1739.
1733	0854	A02C	B		ST	0,R0	:SAVE R0.		1740.
1734	0855	A42D	B		ST	1,R1	:SAVE R0.		1741.
1735	0856	A82E	B		ST	2,R2	:SAVE R2.		1742.
1736	0857	AC2F	B		ST	3,R3	:SAVE R3.		1743.
1737	0858	0080	A		PUSHF				1744.
1738	0859	4400	A		PULL	0			1745.
1739	085A	A030	B		ST	0,SFLGS			1746.
1740	085B	4C01	A		LI	0,1			1747.
1741	085C	58EF	A		ROR	0,17			1748.
1742	085D	A031	B		ST	0,SAVSEL			1749.
1743	085E	802C	B		LD	0,R0			1750.
1744	085F	0200	A		RTS		:RETURN.		1751.
1745	0860								1752.
1746	0860								1753.
1747	0860								1754.
1748	0860			RETRR:					1755.
1749	0860	842D	B		LD	1,R1	:RESTORE R1.		1756.
1750	0861	882E	B		LD	2,R2	:RESTORE R2.		1757.
1751	0862	8C2F	B		LD	3,R3	:RESTORE R3.		1758.
1752	0863	8030	B		LD	0,SFLGS			1759.
1753	0864	4000	A		PUSH	0			1760.
1754	0865	0280	A		PULLF				1761.
1755	0866	8031	B		LD	0,SAVSEL			1762.
1756	0867	7130	A		SKAZ	0,ITEST+7			1763.
1757	0868	0A00	A		SFLG	2			1764.
1758	0869	802C	B		LD	0,R0	:RESTORE R0.		1765.
1759	086A	0200	A		RTS		:RETURN		1766.



1760	086B			.PAGE		1767.
1761	086B	:		GET CHARACTER AND ECHO ROUTINE		1768.
1762	086B					1769.
1763	086B	29E8	A	LGECO:	JSR SAVER	1770.
1764	086C	4F38	A		LI 3,TTYAD	1771.
1765	086D	0A80	A		PFLG 2	1772.
1766	086E	0605	A		ROUT 5	1773.
1767	086F	4E08	A		LI 2,8	1774.
1768	0870	0604	A		ROUT 4	1775.
1769	0871	0402	A		RIN 2	1776.
1770	0872	1201	A		BOC 2,..+2	1777.
1771	0873	21FD	A		JMP .-2	1778.
1772	0874	4C09	A		LI 0,EA	1779.
1773	0875	03F6	A		JSRI DELAY1	1780.
1774	0876	58EA	A		ROR 0,EB	1781.
1775	0877	0402	A		RIN 2	1782.
1776	0878	1201	A		BOC 2,..+2	1783.
1777	0879	21F4	A		JMP LGECO+3	1784.
1778	087A	0603	A	LP3:	ROUT 3	1785.
1779	087B	03F5	A		JSRI DELAY	1786.
1780	087C	5826	A		ROL 0,EC	1787.
1781	087D	0402	A		RIN 2	1788.
1782	087E	610D	A		AND 0,MASK	1789.
1783	087F	5DFF	A		SHR 1,1	1790.
1784	0880	3182	A		RXOR 0,1	1791.
1785	0881	4AFF	A		AISZ 2,-1	1792.
1786	0882	21F7	A		JMP LP3	1793.
1787	0883	0603	A		ROUT 3	1794.
1788	0884	03F5	A		JSRI DELAY	1795.
1789	0885	4CFF	A		LI 0,-1	1796.
1790	0886	0603	A		ROUT 3	1797.
1791	0887	03F5	A		JSRI DELAY	1798.
1792	0888	0605	A		ROUT 5	1799.
1793	0889	5DF8	A		SHR 1,8	1800.
1794	088A	3481	A		RCPY 1,0	1801.
1795	088B	21C2	A		JMP PGETC+2	1802.
1796	088C					1803.
1797	088C	8000	A	MASK:	.WORD X'8000	1804.

1798	088D					.PAGE	1805.
1799	088D						1806.
1800	088D	29C6	A	PGECO:	JSR	SAVER	1807.
1801	088E	2D01	A		JSR@	PGECO@	1808.
1802	088F	21BE	A		JMP	PGETC+2	1809.
1803	0890						1810.
1804	0890	7E73	A	PGECO@:	.WORD	07E73	1811.
1805	0891						1812.
1806	0891						1813.
1807	0891						1814.
1808	0891			:		TELETYPE INPUT TEST	1815.
1809	0891						1816.
1810	0891			:		RTS 1 - NORMAL RETURN	1817.
1811	0891			:		RTS 0 - ATTEMPT TO INPUT	1818.
1812	0891						1819.
1813	0891	29C2	A	ITEST:	JSR	SAVER	1820.
1814	0892	4F00	A		LI	3,0	1821.
1815	0893	0406	A		RIN	6	1822.
1816	0894	5C08	A		SHL	0,8	1823.
1817	0895	1201	A		BDC	2,.,+2	1824.
1818	0896	21C9	A		JMP	RETRR	1825.
1819	0897	29C8	A		JSR	RETRR	1826.
1820	0898	0201	A		RTS	1	1827.

1821	0899			.PAGE		1828.
1822	0899					1829.
1823	0899		:	TELETYPE SYSTEM	INITIALIZATION/RESET	1830.
1824	0899					1831.
1825	0899	0018	A	GPCS	= 018	1832.
1826	0899	0760	A	CCPAD:	.WORD 0760	1833.
1827	089A					1834.
1828	089A	29B9	A	SSETPL:	JSR SAVER	1835.
1829	089B	8DFD	A		LD 3,CCPAD	1836.
1830	089C	0418	A		RIN GPCS	1837.
1831	089D	4801	A		AISZ 0,1	1838.
1832	089E	2103	A		JMP LINIT	1839.
1833	089F	4F38	A	RST:	LI 3,TTYAD	1840.
1834	08A0	C605	A		R0UT 5	1841.
1835	08A1	21BE	A		JMP RETRR	1842.
1836	08A2					1843.
1837	08A2					1844.
1838	08A2	8108	A	LINIT:	LD 0,LPUTCA	1845.
1839	08A3	A00D	B		ST 0,PUTC	1846.
1840	08A4	8107	A		LD 0,LGETCA	1847.
1841	08A5	A00E	B		ST 0,GETC	1848.
1842	08A6	8106	A		LD 0,LGECCA	1849.
1843	08A7	A00F	B		ST 0,GECC	1850.
1844	08A8	8105	A		LD 0,LREDCR	1851.
1845	08A9	A032	B		ST 0,REDCR	1852.
1846	08AA	21F4	A		JMP RST	1853.
1847	08AB					1854.
1848	08AB	0835	A	LPUTCA:	.WORD LPUTC	1855.
1849	08AC	0851	A	LGETCA:	.WORD LGETC	1856.
1850	08AD	086B	A	LGECCA:	.WORD LGECO	1857.
1851	08AE	059A	A	LREDCR:	.WORD REDCRL	1858.
1852	08AF					1859.
1853	08AF	08FF	A	CRUFF:	. = .+80	1860.
1854	08FF	08FF	A	FEND:	. = .	1861.
1855	08FF	0C00	A	TBUF	= 0C00	1862.

1856 08FF .PAGE  
1857 08FF 0300 A .END NSTART

1863.  
1864.

\*\*\*\*\* 0 ERRORS IN ASSEMBLY \*\*\*\*\*

ACO	AC1	AC2	AC3	ADAG	ADD1	ADMSK	AFLAG	AGAIN	AGO
001B B	001C B	001D B	001E B	0568 A	0585 A	0037 B	0018 B	0401 A	040E A
AGOO	ALIST	ALMOD	ALPH	ANDCR	ANCL	ANDPT	ANDS	ANGO	ARR
0411 A	06EB A	033F A	0335 A	05BE A	0617 A	0685 A	0618 A	04DD A	0597 A
ASTART	ASTR	ATBL	AVAR	BADCK	RADD	BADP	BADTAP	BAR	BARR
060A A	0607 A	0606 A	054C A	062C A	0622 A	071D A	0759 A	0390 A	039A A
BCK	BCKLP	BELL	BELL1	BFIN	BININ	BIT1	BL	BOCC	BSTART
0579 A	057F A	03A2 A	03A3 A	04E2 A	04BC A	0004 A	0478 A	0448 A	0000 B
BTY	BTY4	BUFEND	BUFFAD	BUL	CBUFF	CCPAD	CHARGA	CKER	CKRG
079A A	07A3 A	0010 B	0033 B	047F A	08AF A	0899 A	0035 B	07C7 A	06D3 A
CKSM	COMP	CPAD	CR	CRAD	CRBUF	CRCKSM	CRDATA	CRER	CRLF
061C A	04BA A	0464 A	05AB A	0010 A	0604 A	05CC A	05B9 A	05A5 A	0351 A
CRLFA	CRR	CRRL	CRRLM	CRST	CYCV	DAD	DATA	DATAIC	DCOMP
0027 B	0340 A	0807 A	05B3 A	05C5 A	000A A	0587 A	000E A	0720 A	04C8 A
DCOMP1	DDON	DELAY	DELAY1	DONE	DUMB	DUP	DUPED	EA	EB
04DE A	0845 A	FFF5 A	FFF6 A	070D A	0645 A	0589 A	058F A	0009 A	0016 A
EC	ENDBUF	ENDCK	ENDNOW	ENDRC	ERAS	ERASE	ERF	EROF	ERRG
0026 A	0024 B	05DB A	039B A	0696 A	03E5 A	03E2 A	0801 A	06DA A	0606 A
ERROR	ESC	ETBL	EVER	FEND	FFIN	FIN	FINA	FIRAD	FIX
03CE A	0341 A	0608 A	03F4 A	08FF A	0596 A	04E8 A	0507 A	0038 B	032E A
FIXL	FLAG	FNI	FREAD	FRSTP	FWD	GECO	GET	GETC	GO
069E A	0017 B	04EA A	053F A	068C A	0544 A	000F B	0329 A	000E B	0325 A
GOD	GOON	GPCS	GTEQ	HCO	HEX	HEXY	HEXYA	HICKSM	HIT
0446 A	0537 A	0018 A	0002 A	0605 A	0330 A	031C A	002A B	0039 B	0727 A
IHEX	INBIN	INERR	INTEST	INVAL	INYN	INYN2	INYNA	IS	ITEST
031F A	0486 A	0619 A	000C B	081D A	0508 A	050A A	0631 A	0753 A	0891 A
K30	K39	K3FFF	K4	K40	K46	K47	K511	K5A	K7F
033B A	033A A	0036 B	0599 A	033D A	001F B	033C A	0013 B	033E A	002B B
KD	KEEP	KEEPE	KEPC	KF	KFE00	KKPP	KN	KP	L1
0379 A	034B A	03F7 A	055D A	0016 B	048F A	0581 A	054B A	054A A	0346 A
LDR	LDROM	LEADR	LEF	LGECO	LGEOA	LGETC	LGETCA	LINIT	LIST
0068 A	0770 A	04F2 A	066B A	086B A	08AD A	0851 A	08AC A	08A2 A	0318 A
LISTE	LLL	LLPP	LLPP1	LOKSA	LOKSE	LOOP	LOOPP	LCR	LP1
037F A	066E A	0498 A	04A5 A	0029 B	04EB A	0384 A	0470 A	07AB A	083C A

LP3	LPCDR	LPLP	LPUTC	LPUTCA	LREDCR	LST	LSTX	LSWB	LTEQ
087A A	0060 A	049D A	0835 A	08AB A	08AE A	06DB A	06A9 A	060B A	000B A
LWAIT	LWAITA	M4000	MASK	MAX	MESS	MESSA	MFF	MM5203	MOVE
0470 A	0025 B	0609 A	088C A	03E1 A	0342 A	0011 B	0012 B	06D0 A	06B3 A
MOVEE	MOVIE	MOVL	MSG	MUL2	MUL4	MULT	NBIN	NCCMP	NDNCA
06AD A	06B0 A	06B5 A	06FF A	03C9 A	03CA A	040F A	048F A	04BB A	03F0 A
NEW	NFRN	NCMES	NOTER	NOTVAR	NOVER	NOW	NCW2K	NCW4K	NOWREA
060C A	05C4 A	03B8 A	077C A	056A A	0733 A	0361 A	078F A	0789 A	052A A
NPR	NREAD	NSTART	NZRO	OD	ODD	OGOOD	CHEX	CHEXA	OLD
0402 A	053D A	0300 A	0005 A	0577 A	0003 A	04E5 A	0380 A	0026 B	0614 A
ON	ON2	CNE	CNGO	ODP	PAC	PAGAIN	PCKSM	PDONE	PGECO
045A A	0458 A	045E A	04C7 A	045D A	0713 A	0746 A	0514 A	0762 A	088D A
PGECO	PGETC	PGETCA	PNTAPE	POA	PPROM	PPUTC	PPUTCA	PRCK	PREAD
0890 A	084C A	0850 A	04E6 A	000C A	0429 A	0848 A	084B A	056D A	0495 A
PREAS	PRLGP	PRLP	PROT	PROTEC	PSTAR	PSTART	PT	PT1	PTDATA
0535 A	0575 A	0572 A	073F A	06D9 A	03FB A	03FC A	0632 A	0634 A	0680 A
PTDN	PTNG	PTNGI	PTRLM	PUTC	PUTIT	PW	RO	R1	R2
0668 A	0654 A	0639 A	067B A	000D B	055A A	0021 B	002C B	002D B	002E B
R3	READ	READ2	READB	READCR	READWA	READWD	RECV	RED	REDCR
002F B	0462 A	0675 A	0524 A	05DF A	0028 B	0465 A	0443 A	044A A	0032 B
REDCRL	RERROR	RETRR	RETRV	RLIST	RLL	ROM	ROMI	RCMIA	ROMV
059A A	0532 A	0860 A	037A A	0474 A	0662 A	0022 B	0490 A	0014 B	076A A
RPN	RR	RST	S2K	S4K	SAVE	SAVER	SAVSEL	SB	SBIT
051D A	0020 B	089F A	03C4 A	03BF A	0356 A	0854 A	0031 B	0756 A	0460 A
SEBD1	SEL	SEND	SENDA	SETK	SETK1	SETPL	SFLGS	SLCP1	SMTHNG
0457 A	000D A	043E A	0456 A	03AC A	03AF A	000B B	0030 B	05EF A	0319 A
SPAC	SPACA	SPACE	SPACE1	SPCC	SRG	SRGL	SRGLL	SRGLO	SSETPL
048C A	0015 B	0304 A	0305 A	036A A	06BC A	06C6 A	06CB A	06C7 A	089A A
STAND	START	STARTA	STATUS	STDATA	STEP1	STEP2	STEP3	STRA	SWBUF
0002 A	035B A	074A A	0001 A	0690 A	05EB A	05F7 A	05FF A	0513 A	0023 B
T2K	TA	TBFAD	TBL	TBUF	TEMPCK	TEMPT	TEMPWD	TNGI	TORS
0397 A	0029 A	0034 B	0825 A	0C00 A	0433 A	000F A	0463 A	0598 A	069A A
TORSC	TS	TTA	TTAA	TTYAD	TTYSR	UL	V4KON	VAIR	VAIRA
05B2 A	039D A	0375 A	06D2 A	0038 A	FFEB A	07ED A	03EA A	0553 A	0428 A

VAR VARA VDCN VEFR VEFV VP VSTART WAIT WHAT WHERE  
0424 A 054D A 0794 A 07E8 A 07DB A 03FA A 03F1 A 0437 A 0019 B 001A B

WORK WRITE WRITW WTLOP XADA XMIS YES ZERO ZEROF ZRO  
0704 A 0461 A 043A A 059F A 0427 A 0819 A 06A6 A 0001 A 04AD A 04A8 A

ZROM  
04B3 A

D82E D3A4