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* V.D.M. PART NO. 92L0107-020D

* RELEASED 7-6-71

* 620 MEMORY TEST

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* THIS TEST PROGRAM IS A PART OF THE MAINTAIN II TEST PROGRAM SYSTEM

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000027          .CRG      .027                      CCC7300083
*
000027  001000  .JMP      .EBG2          BEGINNING OF TEST EXEC  CCC7400084
000030  002146 R                                     CCC7500085
*****
*      INPUT PARAMETERS (TTY MODE)
*****
000044          .CRG      .044                      CCC7600086
000044  100445  MTTM     .EXC      .0400+PRTY  ENABLE PARITY INTERRUPTS  CCC7700087
000045  006030          .LXI      .HDG1      'MEMORY TEST'        CCC7800088
000046  001416 R                                     CCC7900089
000047  002000          .CALL     .OUTD                      CCC8000090
000050  003123 R                                     CCC8100091
000051  006030  MTT5     .LXI      .HDG6          CYCLES =          CCC8200092
000052  001463 R                                     CCC8300093
000053  002000          .CALL     .OUTD                      CCC8400094
000054  003123 R                                     CCC8500095
000055  002000          .CALL     .INPG          INPUT CYCLES        CCC8600096
000056  002771 R                                     CCC8700097
000057  001000          .JMP      .MTTM          SSJ TERMINATE      CCC8800098
000060  000044 R                                     CCC8900099
000061  001000          .JMP      .MTT5          BACKSLASH          CCC9000100
000062  000051 R                                     CCC9100101
000063  001000          .JMP      .MTT6          COMMA (PRINT 'END MEMC') CCC9200102
000064  000072 R                                     CCC9300103
000065  051377          .STA      .CYCL          SAVE CYCLES          CCC9400104
000066  005001          .TZA      .          CCC9500105
000067  051400          .STA      .EMEM          SET FLAG TO SUPRESS END MEMC CCC9600106
000070  001000          .JMP      .MINT          BRANCH TO TEST INITIALIZATION CCC9700107
000071  000177 R                                     CCC9800108
000072  051377  MTT6     .STA      .CYCL          SAVE CYCLES          CCC9900109
000073  005001          .TZA      .          CC10000110
000074  005211          .CPA      .          CC10000111
000075  051400          .STA      .EMEM          SET FLAG TO PRINT END MEMC  CC10200112
000076  001000          .JMP      .MINT
000077  000177 R
*
000100          .CRG      .0100
000100  000000          .ENTR     .0          INSTRUCTION PARITY ERROR
000101  001000          .JMP      .IPER
000102  003236 R
000104          .CRG      .0104

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000104	000000	.ENTR	.0	ADDRESS PARITY ERRCR	CC10300113
000105	001000	.JMP	.APER		CC10400114
000106	003275	R			
000110		.CRG	.0110		CC10500115
000110	000000	.ENTR	.0	OPERAND PARITY ERRCR	CC10600116
000111	001000	.JMP	.CPER		CC10700117
000112	003334	R			
000114		.CRG	.0114		CC10800118
000114	000000	.ENTR	.0	TRAP PARITY ERROR	CC10900119
000115	001000	.JMP	.TPER		CC11000120
000116	003373	R			

*

 * INPUT PARAMETERS (CONSOLE MODE) *

000117	100445	MTCM	.EXC	.0400+PRTY	ENABLE PARITY INTERRUPTS	CC11100121
000120	005103		.INCR	.03	INPUT CYCLES	CC11200122
000121	004541		.LLSR	.1		CC11300123
000122	005021		.TBA	.	A=10---0	CC11400124
000123	001000		.JMP	.MTC1+1		CC11500125
000124	000126	R				CC11600126
000125	005001	MTC1	.TZA	.		CC11700127
000126	000037		.HLT	.037	INPUT PARAMETERS	CC11800128
000127	001004		.JAN	.MTC4	INPUT CYCLES? YES.GOTO MTC4	CC11900129
000130	000133	R				CC12000130
000131	001000		.JMP	.MTCM		CC12100131
000132	000117	R				CC12200132
000133	006150	MTC4	.ANAI	.077777	STORE CYCLES	CC12300133
000134	077777					CC12400134
000135	051377		.STA	.CYCL		CC12500135
000136	001000		.JMP	.MINT		CC12600136
000137	000177	R				CC12700137

*
 *
 *
 * *****
 * *
 * * GET NEXT ITEM FROM TABLE *
 * *
 * *****
 * CALL UACA,TBLPTR,ENDEXIT (A)=()(TBL+1+() (TBLPTR))
 *
 * TBL=INDEX,TBLSIZE,ITEM1,.....ITEMN
 *

000140	030170	UACB	.LDB	.UACA	(B)=TBLPTR	CC13700147
000141	025000		.LDB	.0,1		CC13800148
000142	046000		.INR	.0,2	INCR ()TBLPTR	CC13900149
000143	016001		.LDA	.1,2	IF ()TBLPTR .GT. ()(TBLPTR+1).;GOTO ENDEXIT	CC14000150
000144	146000		.SUB	.0,2		CC14100151
000145	001004		.JAN	.UACC		CC14200152
000146	000161	R				
000147	005121		.INCR	.021	(A)=()(TBLPTR+1+()(TBLPTR)	CC14300153
000150	126000		.ADD	.0,2		CC14400154
000151	005012		.TAB	.		CC14500155
000152	016000		.LDA	.0,2		CC14600156
000153	020175		.LDB	.UACD	RESTORE B,X	CC14700157
000154	030176		.LDX	.UACD+1		CC14800158
000155	040170		.INR	.UACA	EXIT (RETURN+2)	CC14900159
000156	040170		.INR	.UACA		CC15000160
000157	001000		.JMP	.(UACA)*		CC15100161
000160	100170	R				
000161	016001	UACC	.LDA	.1,2	(A)=TBLSIZE	CC15200162
000162	035001		.LDX	.1,1	SETEXIT	CC15300163
000163	070167		.STX	.LACA-1		CC15400164
000164	020175		.LDB	.UACD	RESTORE B,X	CC15500165
000165	030176		.LDX	.UACD+1		CC15600166
000166	001000		.JMP	.0	EXIT (RETURN+1)* #GOTO ENDEXIT	CC15700167
000167	000000					
000170	000000	UACA	.ENTR	.	ENTRY POINT	CC15800168
000171	060175		.STB	.UACD	SAVE B,X	CC15900169
000172	070176		.STX	.UACD+1		CC16000170
000173	001000		.JMP	.UACB	CONTINUE	CC16100171
000174	000140	R				
000175		UACD	.BSS	.2	(B),(X)	CC16200172
		*				CC16300173
		*****				CC16400174
		* SUBTEST DRIVER, AND CYCLS COUNTER *				CC16500175
		*****				CC16600176
000177	005001	MINT	.TZA	.		CC16700177
000200	051412		.STA	.TERR	INIT ERROR CTR	CC16800178
000201	051413		.STA	.SWCH	SET TO PRINT ERROR TABLE HEADING	CC16900179
000202	051376		.STA	.TCYC	TOTAL CYCLES EXECUTED = 0	CC17000180
000203	007400	MIN1	.RCF	.	RESET ERROR INDICATOR	CC17100181
000204	002000		.CALL	.TUAT	UNIQUE ADDRS	CC17200182
000205	000654	R				
000206	005001		.TZA	.	INIT TEL	CC17300183

000207	051565		.STA	.TBL			CC17400184
000210	002000	MIN2	.CALL	.UACA.TBL.MIN3	GET FRST	ADDRS	CC17500185
000211	000170	R					
000212	001565	R					
000213	000234	R					
000214	051405		.STA	.FRST			CC17600186
000215	002000		.CALL	.UACA.TBL.MIN3	GET LAST	ADDRS	CC17700187
000216	000170	R					
000217	001565	R					
000220	000234	R					
000221	051406		.STA	.LAST			CC17800188
000222	002000		.CALL	.TAZT	ALL ZEROS		CC17900189
000223	000771	R					
000224	002000		.CALL	.TACT	ALL ONES		CC18000190
000225	001016	R					
000226	002000		.CALL	.TCBT	CHECKERBOARD		CC18100191
000227	001044	R					
000230	002000		.CALL	.TWCT	WORST CASE		CC18200192
000231	001200	R					
000232	001000		.JMP	.MIN2	CONTINUE TO NEXT CASE		CC18300193
000233	000210	R					
000234	002000	MIN3	.CALL	.DEM	DISPLAY 'END MEMO'		CC18400194
000235	000247	R					
000236	011377		.LDA	.CYCL	CONTINUES ?		CC18500195
000237	001010		.JAZ	.MIN1	YES.GOTO MIN1		CC18600196
000240	000203	R					
000241	005311		.DAR	.	NO.DONE ?		CC18700197
000242	051377		.STA	.CYCL			CC18800198
000243	001010		.JAZ	.TERM	YES.GOTO TERM		CC18900199
000244	000265	R					
000245	001000		.JMP	.MIN1	NO.CONTINUE TO MIN1		CC19000200
000246	000203	R					
000247	000000	DEM	.ENTR	.0	DISPLAY END MEMO		CC19100201
000250	041376		.INR	.TCYC	TCYC = TCYC+1		CC19200202
000251	013225		.LDA	.SCCN	CONSOLE MODE? YES.RETURN		CC19300203
000252	001010		.JAZ	.(DEM)*			CC19400204
000253	100247	R					
000254	011400		.LDA	.EMEM	SUPPRESS MESSAGE ? YES.RETURN		CC19500205
000255	001010		.JAZ	.(DEM)*			CC19600206
000256	100247	R					
000257	006030		.LDXI	.HDGB	'END MEMO'		CC19700207
000260	001472	R					

000261 002000
 000262 003123 R
 000263 001000
 000264 100247 R

.CALL .OUTD
 .JMP .(DEM)* RETURN

CC19800208
 CC19900209

 * TERMINATE TESTS *

000265 013225
 000266 001010
 000267 000314 R
 000270 006030
 000271 001500 R
 000272 002000
 000273 003123 R
 000274 011412
 000275 002000
 000276 003077 R
 000277 002000
 000300 003123 R
 000301 006030
 000302 001533 R
 000303 002000
 000304 003123 R
 000305 011376
 000306 002000
 000307 003077 R
 000310 002000
 000311 003070 R
 000312 001000
 000313 000017 R
 000314 011412
 000315 021376
 000316 031401
 000317 000777
 000320 001000
 000321 000017 R

TERM .LDA .SCON TERMINATE TEST,REPORT TOTALS
 .JAZ .TERN MODE = CONSOLE ? YES,GC TC TERN
 .LDXI .HDG9 *ERROR TOTAL =*,TERR
 .CALL .OUTD
 .LDA .TERR
 .CALL .OUTE
 .CALL .OUTD
 .LDXI .HG11 *NO. CYCLES RUN =*
 .CALL .OUTD
 .LDA .TCYC TOTAL CYCLES EXECUTED
 .CALL .OUTE
 .CALL .OUTC CR/LF
 .JMP .MTOP CONTINUE
 TERN .LDA .TERR A = TOTAL ERRORS
 .LDB .TCYC B = NO. CYCLES
 .LDX .TEST X = CURRENT (OR LAST) TEST
 .HLT .0777 DISPLAY TOTALS
 .JMP .MTOP CONTINUE

CC20000210
 CC20100211
 CC20200212
 CC20300213
 CC20400214
 CC20500215
 CC20600216
 CC20700217
 CC20800218
 CC20900219
 CC21000220
 CC21100221
 CC21200222
 CC21300223
 CC21400224
 CC21500225
 CC21600226
 CC21700227
 CC21800228
 CC21900229
 CC22000230

 * ERROR REPORTING ROUTINE *

000322 000000
 000323 007401
 000324 041412

MERR .ENTR .0
 .SOF .
 .INR .TERR INCR ERR CTR

CC22100231
 CC22200232
 CC22300233
 CC22400234
 CC22500235
 CC22600236

000325	061414		.STB	.SAVB	SAVE B (#TEST CYCLES)	CC22700237
000326	071415		.STX	.SAVX	ERROR ADDRESS	CC22800238
000327	011401		.LDA	.TEST		CC22900239
000330	050335		.STA	.ERR1+2	GET TEST NO.	CC23000240
000331	011374		.LDA	.MTW1	EXPECTED	CC23100241
000332	021375		.LDB	.MTW2	ACTUAL	CC23200242
000333	002000	ERR1	.CALL	.SSWT	CALL SENSE SWITCH ROUTINE	CC23300243
000334	002461	R				
000335	000000		.DATA	.0	TEST*	CC23400244
000336	100345	R	.DATA	.(ERPO)*	ERR PRINTOUT	CC23500245
000337	000265	R	.DATA	.TERM	SS3 EXIT	CC23600246
000340	000641	R	.DATA	.ELCP	LOOP ON ERROR	CC23700247
000341	021414		.LDB	.SAVB	RESTORE B	CC23800248
000342	031415		.LDX	.SAVX		CC23900249
000343	001000		.JMP*	.MERR	PROCEED WITH TEST	CC24000250
000344	100322	R				
			* ERROR PRINTOUT SUBROUTINE			CC24100251
000345	000000	ERPC	.ENTR	.0		CC24200252
000346	002000		.CALL	.OUTC	CR/LF	CC24300253
000347	003070	R				
000350	011413		.LDA	.SWCH		CC24400254
000351	001010		.JAZ	.*+4		CC24500255
000352	000355	R				
000353	001000		.JMP	.ERP1		CC24600256
000354	000362	R				
000355	041413		.INR	.SWCH	SET TO BYPASS HEADING	CC24700257
000356	006030		.LXI	.HG10		CC24800258
000357	001511	R				
000360	002000		.CALL	.OUTD		CC24900259
000361	003123	R				
000362	011401	ERP1	.LDA	.TEST	TEST NO.	CC25000260
000363	002000		.CALL	.OUTE		CC25100261
000364	003077	R				
000365	011415		.LDA	.SAVX	ADDR	CC25200262
000366	002000		.CALL	.OUTE		CC25300263
000367	003077	R				
000370	006010		.LDAI	.0120240		CC25400264
000371	120240					
000372	002000		.CALL	.OUTB		CC25500265
000373	003055	R				
000374	011374		.LDA	.MTW1	EXP	CC25600266
000375	001000		.JMP	.ERP2		CC25700267

000376	000622	R							
000622			ERP2	.ORG	.0622				CC25800268
000622	002000			.CALL	.CUTE				CC25900269
000623	003077	R							
000624	006010			.LDAI	.0120240				CC26000270
000625	120240								
000626	002000			.CALL	.OUTB				CC26100271
000627	003055	R							
000630	002000			.CALL	.OUTA				CC26200272
000631	003021	R							
000632	011375			.LDA	.MTW2	ACTUAL			CC26300273
000633	002000			.CALL	.CUTE				CC26400274
000634	003077	R							
000635	001000			.JMP*	.ERPO	RETURN			CC26500275
000636	100345	R							
*****									CC26600276
* LOOP ON ERROR *									CC26700277
*****									CC26800278
000637	001200			.JSS2	.ERR1-2	SS2 EXIT FROM LOOPING			CC26900279
000640	000331	R							
000641	001400		ELOP	.JSS3	.TERM	SS3 EXIT			CC27000280
000642	000265	R							
000643	011374			.LDA	.MTW1				CC27100281
000644	005000			.NOP	.				CC27200282
000645	135000			.ERA	.0,1	READ ERROR WORD			CC27300283
000646	001010			.JAZ	.ELCP-2	ERROR AGAIN? NO, TRY AGAIN			CC27400284
000647	000637	R							
000650	131374			.ERA	.MTW1	RESTORE			CC27500285
000651	051375			.STA	.MTW2				CC27600286
000652	001000			.JMP	.ERR1-2	REPORT			CC27700287
000653	000331	R							
*****									CC27800288
* SUBTEST ROUTINES *									CC27900289
*****									CC28000290
* UNIQUE ADDRS									CC28100291
*****									CC28200292
000654	000000		TUAT	.ENTR	.0				CC28300293
000655	006010			.LDAI	.1	TEST = 1			CC28400294
000656	000001								
000657	051401			.STA	.TEST				CC28500295
000660	005001			.TZA	.	INIT TBL			CC28600296
000661	051565			.STA	.TBL				CC28700297

000662	002000	TUAA	.CALL	.UACA.TBL.TUAB	GET FRST		CC28800298
000663	000170					R	
000664	001565					R	
000665	000702					R	
000666	051405		.STA	.FRST			CC28900299
000667	002000		.CALL	.UACA.TBL.TUAB	GET LAST		CC29000300
000670	000170					R	
000671	001565					R	
000672	000702					R	
000673	051406		.STA	.LAST			CC29100301
000674	001400		.JSS3	.TERM	SS3 TERMINATE TESTS		CC29200302
000675	000265					R	
000676	002000		.CALL	.IUA	INIT MEMORY		CC29300303
000677	000727					R	
000700	001000		.JMP	.TUAA	CONTINUE		CC29400304
000701	000662					R	
000702	005001	TUAB	.TZA	.	INIT TBL		CC29500305
000703	051565		.STA	.TBL			CC29600306
000704	006010		.LDAI	.1	REP = 1		CC29700307
000705	000001						
000706	051404		.STA	.REP			CC29800308
000707	002000	TUAC	.CALL	.UACA.TBL.(TUAT)*	GET FRST		CC29900309
000710	000170					R	
000711	001565					R	
000712	100654					R	
000713	051405		.STA	.FRST			CC30000310
000714	002000		.CALL	.UACA.TBL.(TUAT)*	GET LAST		CC30100311
000715	000170					R	
000716	001565					R	
000717	100654					R	
000720	051406		.STA	.LAST			CC30200312
000721	001400		.JSS3	.TERM	SS3 TERMINATE TESTS		CC30300313
000722	000265					R	
000723	002000		.CALL	.TUA	TEST UNIQUE ADDRS		CC30400314
000724	000741					R	
000725	001000		.JMP	.TUAC	CONTINUE		CC30500315
000726	000707					R	
		*		INIT UNIQUE ADDRS			CC30600316
000727	000000	IUA	.ENTR	.0			CC30700317
000730	031405		.LEX	.FRST			CC30800318
000731	005041	IUA1	.TXA	.	()X = X		CC30900319
000732	055000		.STA	.0.1			CC31000320

000733	005144	.IXR	.	X = X+1	CC31100321
000734	141406	.SUB	.LAST	DONE ?	CC31200322
000735	001004	.JAN	.TUA1	NO,CONTINUE	CC31300323
000736	000731				
000737	001000	.JMP	.(ILA)*	RETURN	CC31400324
000740	100727				
		* TEST UNIQUE ADDRS			CC31500325
000741	000000	TUA	.ENTR .0		CC31600326
000742	021404		.LDB .REP	B . REP	CC31700327
000743	031405		.LDX .FRST	X = FRST	CC31800328
000744	005041	TUA1	.TXA .	(X = X ?	CC31900329
000745	135000		.ERA .0,1		CC32000330
000746	001010		.JAZ .**7		CC32100331
000747	000755				
000750	071374	.STX	.MTW1	NO,CALL MERR	CC32200332
000751	131374	.ERA	.MTW1		CC32300333
000752	051375	.STA	.MTW2		CC32400334
000753	002000	.CALL	.MERR		CC32500335
000754	000322				
000755	005041	.TXA	.	A = X	CC32600336
000756	005144	.IXR	.	X = X+1	CC32700337
000757	141406	.SUB	.LAST	DONE ?	CC32800338
000760	001004	.JAN	.TUA1	NO,CONTINUE	CC32900339
000761	000744				
000762	001020	.JBZ	.TUA+1	CONTINUES ? YES	CC33000340
000763	000742				
000764	005322	.DBR	.	DONE ?	CC33100341
000765	001020	.JBZ	.(TLA)*	YES,RETURN	CC33200342
000766	100741				
000767	001000	.JMP	.TUA+1	NO,CONTINUE	CC33300343
000770	000742				
		*****			CC33400344
		*			CC33500345
		* ALL ZEROS			CC33600346
		*			CC33700347
000771	000000	TAZT	.ENTR .0	ENTRY/EXIT	CC33800348
000772	002000		.CALL .IAZ	INIT	CC33900349
000773	001003				
000774	006010	.LEAI	.3	REP = 3	CC34000350
000775	000003				
000776	051404	.STA	.REP		CC34100351
000777	002000	.CALL	.TES	TEST PATTERN	CC34200352

001000	001336	R						
001001	001000		.JMP	.(TAZT)*	RETURN		CC34300353	
001002	100771	R						
			* IAZ	INIT ALL ZEROS			CC34400354	
001003	000000		.ENTR	.0			CC34500355	
001004	006010		.LDAI	.2	TEST = 2		CC34600356	
001005	000002							
001006	051401		.STA	.TEST			CC34700357	
001007	005001		.TZA	.	BITS = 0		CC34800358	
001010	051407		.STA	.BITS			CC34900359	
001011	051410		.STA	.PAT1	PATTERN1 = 0		CC35000360	
001012	002000		.CALL	.SET	SET PATTERN INTO MEMCRY		CC35100361	
001013	001321	R						
001014	001000		.JMP	.(IAZ)*			CC35200362	
001015	101003	R						
			*****					CC35300363
			* IAO	INIT ALL ONES			CC35400364	
							CC35500365	
							CC35600366	
001016	000000		TAOT	.ENTR .0	ENTRY/EXIT		CC35700367	
001017	002000		.CALL	.IAC	INIT		CC35800368	
001020	001030	R						
001021	006010		.LDAI	.3	REP = 3		CC35900369	
001022	000003							
001023	051404		.STA	.REP			CC36000370	
001024	002000		.CALL	.TES	TEST PATTERN		CC36100371	
001025	001336	R						
001026	001000		.JMP	.(TAOT)*	RETURN		CC36200372	
001027	101016	R						
			* IAO	INIT ALL ONES			CC36300373	
001030	000000		.ENTR	.0			CC36400374	
001031	006010		.LDAI	.3	TEST = 3		CC36500375	
001032	000003							
001033	051401		.STA	.TEST			CC36600376	
001034	005001		.TZA	.	BITS = 0		CC36700377	
001035	051407		.STA	.BITS			CC36800378	
001036	005211		.CPA	.	PATTERN1 = 1'S		CC36900379	
001037	051410		.STA	.PAT1	PATTERN1 = 1'S		CC37000380	
001040	002000		.CALL	.SET	SET PATTERN INTO MEMORY		CC37100381	
001041	001321	R						
001042	001000		.JMP	.(IAO)*			CC37200382	
001043	101030	R						

```

*****
*
*   CHECKER BOARD
*
001044 000000 TCBT  .ENTR  .0
001045 006010      .LDAI  .3      REP = 3
001046 000003
001047 051404      .STA   .REP
001050 002000      .CALL  .ICB      INIT CHECKER BOARD
001051 001062 R
001052 002000      .CALL  .TCB      TEST CHECKER BOARD
001053 001133 R
001054 002000      .CALL  .ICBC     INIT CHECKER BOARD COMPLIMENTED
001055 001071 R
001056 002000      .CALL  .TCB      TEST CHECKER BOARD
001057 001133 R
001060 001000      .JMP   .(TCBT)*
001061 101044 R
*   INIT CHECKER BOARD
001062 000000 ICB  .ENTR  .0
001063 002000      .CALL  .ICB1     B = 0252525
001064 001101 R
001065 002000      .CALL  .ICB2     WRITE B AND NOT B INTO MEMCRY
001066 001115 R
001067 001000      .JMP   .(ICB)*   RETURN
001070 101062 R
*   INIT CHECKER BOARD COMPLIMENTED
001071 000000 ICBC .ENTR  .0
001072 002000      .CALL  .ICB1     B = 0525252
001073 001101 R
001074 005222      .CPB   .
001075 002000      .CALL  .ICB2     WRITE B AND NOT B INTO MEMCRY
001076 001115 R
001077 001000      .JMP   .(ICBC)*  RETURN
001100 101071 R
*   ICB1
001101 000000 ICB1 .ENTR  .
001102 006010      .LDAI  .4      TEST = 4
001103 000004
001104 051401      .STA   .TEST
001105 006010      .LDAI  .0525     B = 252525
001106 000525

```

CC37300383
 CC37400384
 CC37500385
 CC37600386
 CC37700387
 CC37800388

 CC37900389
 CC38000390
 CC38100391
 CC38200392
 CC38300393
 CC38400394
 CC38500395
 CC38600396
 CC38700397
 CC38800398
 CC38900399
 CC39000400
 CC39100401
 CC39200402
 CC39300403
 CC39400404
 CC39500405
 CC39600406
 CC39700407
 CC39800408
 CC39900409
 CC40000410

001157	051375	.STA	.MTW2		CC43600446
001160	002000	.CALL	.MERR		CC43700447
001161	000322				
001162	005041	.TXA	.	DONE?	CC43800448
001163	005144	.IXR	.		CC43900449
001164	141406	.SUB	.LAST		CC44000450
001165	001004	.JAN	.TCBB	NO,CONTINUE	CC44100451
001166	001137				
001167	011403	.LDA	.REP1	CONTINUES ?	CC44200452
001170	001010	.JAZ	.TCBB-1	YES,CONTINUE	CC44300453
001171	001136				
001172	005311	.DAR	.		CC44400454
001173	001010	.JAZ	.(TCB)*	DONE ? YES,RETURN	CC44500455
001174	101133				
001175	051403	.STA	.REP1		CC44600456
001176	001000	.JMP	.TCBB-1	CONTINUE	CC44700457
001177	001136				

*
* WORST CASE TEST
*

001200	000000	TWCT	.ENTR	.0	SELECT WORST CASE PATTERN TABLE	CC44800458
001201	006010		.LDAI	.4	TEST = 4 + N	CC44900459
001202	000004					CC45000460
001203	051401		.STA	.TEST		CC45100461
001204	006010		.LDAI	.3	REP = 3	CC45200462
001205	000003					CC45300463
001206	051404		.STA	.REP		CC45400464
001207	011402		.LDA	.MTYP		CC45500465
001210	006150		.ANAI	.03	GET TBL ADDRS	CC45600466
001211	000003					CC45700467
001212	006120		.ADDI	.TBL1	TBL1 = TBL1,TBL2,TBL3,TBL4	CC45800468
001213	001577					CC45900469
001214	005012		.TAB	.		CC46000470
001215	026000		.LDB	.0,2		CC46100471
001216	005001	TWCA	.TZA	.		CC46200472
001217	056000		.STA	.0,2		CC46300473
001220	061223		.STB	.TWCB+2		CC46400474
001221	002000	TWCB	.CALL	.UACA,0,(TWCT)*	GET WORST CASE PATTERN FROM TABLE	CC46500475
001222	000170					
001223	000000					
001224	101200					

001225	002000		.CALL	.IWC	INIT WCRST CASE	CC46600476
001226	001237	R				
001227	002000		.CALL	.TES	TEST PATTERN	CC46700477
001230	001336	R				
001231	002000		.CALL	.IWCC	INIT WCRST CASE COMPLIMENT	CC46800478
001232	001252	R				
001233	002000		.CALL	.TES	TEST MEMORY	CC46900479
001234	001336	R				
001235	001000		.JMP	.TWCB		CC47000480
001236	001221	R				
* INIT WCRST CASE						
001237	000000	IWC	.ENTR	.0		CC47100481
001240	051407		.STA	.BITS		CC47200482
001241	005001		.TZA	.	PAT1 = 0	CC47300483
001242	051410		.STA	.PAT1		CC47400484
001243	005211		.CPA	.	PAT2 = 1	CC47500485
001244	051411		.STA	.PAT2		CC47600486
001245	002000		.CALL	.SET	SET PATTERN INTO MEMORY	CC47700487
001246	001321	R				
001247	041401		.INR	.TEST	TEST = TEST + 1	CC47900489
001250	001000		.JMP	.(IWC)*		CC48000490
001251	101237	R				
* INIT WCRST CASE COMPLIMENT						
001252	000000	IWCC	.ENTR	.0		CC48100491
001253	005001		.TZA	.	COMPLIMENT PAT1 AND PAT2	CC48200492
001254	051411		.STA	.PAT2		CC48300493
001255	005211		.CPA	.		CC48400494
001256	051410		.STA	.PAT1		CC48500495
001257	002000		.CALL	.SET	SET PATTERN INTO MEMORY	CC48600496
001260	001321	R				
001261	001000		.JMP	.(IWCC)*		CC48800498
001262	101252	R				

* MISC ROUTINES *						

* DERIVE ADDR PARITY						
* ADDR IN (A) RETURN PAT(0/1)						
* ENTRY/EXIT						
001263	000000	DAP	.ENTR	.0	ENTRY/EXIT	CC48900499
001264	001400		.JSSJ	.TERM	SSJ TERMINATE TESTS	CC49000500
001265	000265	R				CC49100501

001266	061317		.STB	.DAP3	SAVE B	CC49800508
001267	071320		.STX	.DAP3+1	SAVE X	CC49900509
001270	005006		.ZERO	.06	ZERO B,X	CC50000510
001271	031405		.LDX	.FRST	ATTEMPT TO MAKE CONSOLE LIGHTS MORE VISIBLE	CC50100511
001272	151407		.ANA	.BITS	SELECT BITS	CC50200512
001273	001010	DAP1	.JAZ	.DAP2	DONE ?	CC50300513
001274	001304	R				
001275	004541		.LLSR	.1	NO,GET NEXT BIT	CC50400514
001276	001020		.J8Z	.DAP1	EVEN PARITY?	CC50500515
001277	001273	R				
001300	005144		.IXR	.	NO	CC50600516
001301	005002		.TZB	.	RESET B	CC50700517
001302	001000		.JMP	.DAP1	CONTINUE	CC50800518
001303	001273	R				
001304	005041	DAP2	.TXA	.	A=PAT1 IF EVEN	CC50900519
001305	006150		.ANA1	.1	A=PAT2 IF ODD	CC51000520
001306	000001					
001307	006120		.ADDI	.PAT1		CC51100521
001310	001410	R				
001311	005014		.TAX	.		CC51200522
001312	015000		.LDA	.0,1		CC51300523
001313	021317		.LDB	.DAP3	RETURN	CC51400524
001314	031320		.LDX	.DAP3+1		CC51500525
001315	001000		.JMP	.(DAP)*		CC51600526
001316	101263	R				
001317		DAP3	.B9S	.2		CC51700527
		*				CC51800528
		*	SET			CC51900529
		*		SET MEMORY TO TEST PATTERN		CC52000530
		*		FRST, LAST, BITS, PAT1, PAT2		CC52100531
		*				CC52200532
001321	000000	SET	.ENTR	.0	ENTRY/EXIT	CC52300533
001322	031405		.LDX	.FRST	X=FIRST ADDR	CC52400534
001323	005041	SET1	.TXA	.	DERIVE ADDR PATTERN	CC52500535
001324	002000		.CALL	.DAP		CC52600536
001325	001263	R				
001326	055000		.STA	.0,1	STORE PATTERN	CC52700537
001327	005041		.TXA	.	DONE?	CC52800538
001330	141406		.SUB	.LAST		CC52900539
001331	001010		.JAZ	.(SET)*	YES, RETURN	CC53000540
001332	101321	R				
001333	005144		.IXR	.	ADDRS = ADDRS+1	CC53100541

```

001334 001000      JMP      SET1      CONTINUE      CC53200542
001335 001323 R
*
*      TES
*      TEST MEMORY PATTERN
*      REP,FRST, LAST,BITS,PAT1,PAT2
*
001336 000000      TES      ENTR      0      ENTRY/EXIT      CC53800548
001337 021404      LDB      REP      B = REPETITIONS      CC53900549
001340 031405      LDX      FRST     X = FIRST ADDRS      CC54000550
001341 005041      TES1    TXA      DERIVE ADDRS PATTERN      CC54100551
001342 002000      CALL    DAP
001343 001263 R
001344 051374      STA      MTW1
001345 015000      LDA      0,1      GET ACTUAL PATTERN      CC54400554
001346 051375      STA      MTW2
001347 131374      ERA      MTW1     ERROR?      CC54600556
001350 001010      JAZ      **4
001351 001354 R
001352 002000      CALL    MERR     YES,CALL MERR      CC54800558
001353 000322 R
001354 001400      JSS3    TERM     SS3 TERMINATE TESTS      CC54900559
001355 000265 R
001356 005041      TXA
001357 141406      SUB     LAST     DONE?      CC55000560
001360 001010      JAZ     TES2    YES,JMP TES2      CC55200562
001361 001365 R
001362 005144      IXR
001363 001000      JMP     TES1    ADVANCE X TO NEXT WORD      CC55300563
001364 001341 R
001365 001020      TES2   JBZ     TES+2    CONTINUES ?,YES      CC55500565
001366 001340 R
001367 005322      DBR
001370 001020      JBZ     (TES)*   NO,DONE ?      CC55600566
001371 101336 R
001372 001000      JMP     TES+2    YES,RETURN      CC55700567
001373 001340 R
001373 001340 R      NO,CONTINUE      CC55800568

```

```

*****
*      DATA
*****
*
*      DATA TABLE
*****

```

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CC55900569
CC56000570
CC56100571
CC56200572
CC56300573

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001374		MTW1	.BSS	.1	SAVE VALID PATTERN	CC56400574
001375		MTW2	.BSS	.1	SAVE PATTERN READ	CC56500575
001376		TCYC	.BSS	.1	TOTLE CYCLES EXECUTED	CC56600576
001377	000000	CYCL	.DATA	.0	CYCLES	CC56700577
001400	000000	EMEM	.DATA	.0	PRINT END MEMO FLAG	CC56800578
001401	000000	TEST	.DATA	.0	TEST NUMBER	CC56900579
001402	000002	MTYP	.DATA	.2	MACHINE TYPE I=0,L=1,F=2	CC57000580
001403		REP1	.BSS	.1	REP CTR	CC57100581
001404		REP	.BSS	.1	REP CTR	CC57200582
001405	000000	FRST	.DATA	.0	FIRST ADDRESS	CC57300583
001406	000000	LAST	.DATA	.0	LAST ADDRESS	CC57400584
001407		BITS	.BSS	.1	BIT SELECT PATTERN	CC57500585
001410		PAT1	.BSS	.1	PATTERN 1	CC57600586
001411		PAT2	.BSS	.1	PATTERN 2	CC57700587
001412	000000	TERR	.DATA	.0	ERROR TOTAL	CC57800588
001413	000000	SWCH	.DATA	.0	PRINT ERROR HDG FLG	CC57900589
001414	000000	SAVB	.DATA	.0		CC58000590
001415	000000	SAVX	.DATA	.0		CC58100591

*
 * MESSAGE TABLE
 *
 CRLF .SET .0106612 CARRIAGE RETURN / LINE FEED
 HDG1 .DATA .CRLF.MEMORY TEST.0

001416	106612					CC58200592
001417	146705					CC58300593
001420	146717					CC58400594
001421	151331					CC58500595
001422	120324					CC58600596
001423	142723					CC58700597
001424	152240					
001425	000000					
001426	152317	HDG3	.DATA	.0	.TOO MANY PARAMETERS.CRLF.0	CC58800598
001427	147640					
001430	146701					
001431	147331					
001432	120320					
001433	140722					
001434	140715					
001435	142724					
001436	142722					
001437	151640					
001440	106612					

001441	000000					
001442	146717	HDG5	.DATA	.'MODULE NOT WITHIN MEMORY RANGE'.	.CRLF.	0
001443	142325					
001444	146305					
001445	120316					
001446	147724					
001447	120327					
001450	144724					
001451	144311					
001452	147240					
001453	146705					
001454	146717					
001455	151331					
001456	120322					
001457	140716					
001460	143705					
001461	106612					
001462	000000					
001463	106612	HDG6	.DATA	.'CYCLES = '.	.CRLF.	0
001464	141731					
001465	141714					
001466	142723					
001467	120275					
001470	120240					
001471	000000					
001472	106612	HDG8	.DATA	.'END MEMO'.	.CRLF.	0
001473	142716					
001474	142240					
001475	146705					
001476	146717					
001477	000000					
001500	106612	HDG9	.DATA	.'ERROR TOTAL = '.	.CRLF.	0
001501	142722					
001502	151317					
001503	151240					
001504	152317					
001505	152301					
001506	146240					
001507	136640					
001510	000000					
001511	152305	HG10	.DATA	.'TEST ADDRESS EXPECTED ACTUAL'.	.CRLF.	0
001512	151724					

CC58900599

CC59000600

CC59100601

CC59200602

CC59300603

001513 120240
 001514 120301
 001515 142304
 001516 151305
 001517 151723
 001520 120240
 001521 142730
 001522 150305
 001523 141724
 001524 142704
 001525 120240
 001526 140703
 001527 152325
 001530 140714
 001531 106612
 001532 000000
 001533 106612
 001534 147325
 001535 146702
 001536 142722
 001537 120317
 001540 143240
 001541 141731
 001542 141714
 001543 142723
 001544 120322
 001545 152716
 001546 120275
 001547 000000

HG11 .DATA .CRLF.#NUMBER OF CYCLES RUN ='.0

CC59400604

*
 * TABLES HAVE THE FORM
 * NAME BSS 1 TABLE NAME, INDEX PTR FOR TABLE
 * BSS 1 MAX LENGTH OR CURRENT LENGTH OF TABLE
 * (DEPENDING ON ROUTINE ACCESSING TABLE)
 * BSS N BODY OF TABLE,N=OCTAL MAX LENGTH

CC59500605
 CC59600606
 CC59700607
 CC59800608
 CC59900609
 CC60000610
 CC60100611
 CC60200612
 CC60300613
 CC60400614
 CC60500615

* TBLI = WORST CASE PATTERNS FOR 620/622/I MEMORIES

001550 000000
 001551 000004
 001552 000203

TBLI .DATA .0.4 620/I
 .DATA .0203 AMPEX

CC60600616

001553	004001	.DATA	.04001	FABRI-TEK OR LITTON	CC60700617
001554	000202	.DATA	.0202	FERRXCUBE	CC60800616
001555	004010	.DATA	.04010	KERONIX	CC60900619
		*			CC61000620
		* TBL	* WORST CASE PATTERNS FOR 620/L	MEMCRIES	CC61100621
		*			CC61200622
001556	000000	TBL	.DATA	.0.2	CC61300623
001557	000002				
001560	000140	.DATA	.0140.0144		CC61400624
001561	000144				
		*			CC61500625
		* TBLF	* WORST CASE PATTERNS FOR 620/F	MEMCRIES	CC61600626
		*			CC61700627
001562	000000	TBLF	.DATA	.0.1	CC61800628
001563	000001				
001564	004001	.DATA	.04001		CC61900629
		*			CC62000630
		* TBL	CONTAINS BEGINNING AND ENDING ADDRS OF MEMORY SEGMENT TO BE TESTED		CC62100631
		*			CC62200632
001565	000000	TBL	.DATA	.0	CC62300633
001566	000010			TBL INDEX	CC62400634
001567	000000	.DATA	.2	TBL LENGTH	CC62500635
001570	000001	.DATA	.0.1,040,043,0400,0621,03550,07755		
001571	000040				
001572	000043				
001573	000400				
001574	000621				
001575	003550				
001576	007755				
		*			CC62600636
001577	001550 R	TBL1	.DATA	.TBL1,TBL,TBLF,TBLI	CC62700637
001600	001556 R				
001601	001562 R				
001602	001550 R				
		*			CC62800638
		* ETRP	--TRAP TO LOCATION X STARTING FROM LOCATION Y.		CC62900639
		*	IF LOCATION X IS REACHED: RESTORE LOCATIONS X & X+1, PRINT		CC63000640
		*	THE CURRENT VALUES OF REGISTERS A,B,X, AND RETURN TO THE		CC63100641
		*	EXEC SUPERVISOR		CC63200642
		*			CC63300643
		*	NOTE: CONTENTS OF LOCATIONS X AND X+1 MUST BE RESTORED BY		CC63400644
		*	USER IF TRAP IS NOT REACHED BY THIS ROUTINE		CC63500645

Address	Op Code	Op	Op 2	Description	Hex
				* * FORMAT: TX,Y. * * *	CC63600646
001603	006020	ETRP	.LDBI .ETS1	(B) POINTS TO PARAMETER TBL	CC63700647
001604	003216	R			CC63800648
001605	013216		.LDA .ETS1	X = PREVIOUS Y	CC63900649
001606	053217		.STA .ETS1+1		CC64000650
001607	002000		.CALL .INPG	INPUT CCTAL NUMBER	CC64100651
001610	002771	R			CC64200652
001611	001000		.JMP .ETCP	TERMINATION EXIT VIA SSS	CC64300653
001612	002157	R			CC64400654
001613	001000		.JMP .ETCP	ABORT	CC64500655
001614	002157	R			CC64600656
001615	001000		.JMP .ETR1	COMMA EXIT--GET SECCND PARAMETER	CC64700657
001616	001671	R			CC64800658
			* NCRMAL RETURN FROM INPG		CC64900659
001617	056000		.STA .0,2	STORE PARAMETER	CC65000660
001620	006030		.LDXI .ETS1+2	TEMP STORE ADDRESS	CC65100661
001621	003220	R			CC65200662
001622	023216		.LDB .ETS1	X PARAMETER (TRAP LOCATION)	CC65300663
001623	016000		.LDA .0,2		CC65400664
001624	055000		.STA .0,1	SAVE CONTENTS OF LOCATION X AT TSC2	CC65500665
001625	016001		.LDA .1,2		CC65600666
001626	055001		.STA .1,1	SAVE CONTENTS OF LOC: X+1 AT TSC3	CC65700667
001627	006010		.LDAI .02000	OP CODE FOR JMPM	CC65800668
001630	002000				CC65900669
001631	056000		.STA .0,2	STORE JMPM AT LOC X	CC66000670
001632	006010		.LDAI .ETR2		CC66100671
001633	001701	R			CC66200672
001634	056001		.STA .1,2	STORE TRAP RETURN ADDRESS AT X+1	CC66300673
001635	001000		.JMP .EGC1	LOAD PSEUDO REGISTERS ANL GCTC LOC Y	CC66400674
001636	002022	R			CC66500675
			* * ETR3		CC66600676
001637	053213		.STA .EAR1	PUT A CONTENTS INTO PSEUDC A REG	CC66700677
001640	063214		.STB .EBR1	PUT B CONTENTS INTO PSEUDC B REG	CC66800678
001641	073215		.STX .EXR1	PUT X CONTENTS INTO PSEUDC X REG	CC66900679
001642	031701		.LDX .ETR2		CC67000680
001643	005344		.DXR .		CC67100681
001644	005344		.DXR .	SET X REG TO TRAP LOCATION ADDRESS	CC67200682
001645	013220		.LDA .ETS1+2		CC67300683
001646	023221		.LDB .ETS1+3		CC67400684

001647	055000		.STA	.0,1	RESTORE CONTENTS OF LOC X	CC66900679
001650	065001		.STB	.1,1	RESTORE CONTENTS OF X+1	CC67000680
001651	002000		.CALL	.OUTC	OUTPUT CR & LF	CC67100681
001652	003070	R				
001653	005041		.TXA	.	OUTPUT ADDRS OF TRAP RETURN	CC67200682
001654	002000		.CALL	.OUTF		CC67300683
001655	003134	R				
001656	013213		.LDA	.EAR1		CC67400684
001657	002000		.CALL	.OUTE	PRINT CONTENTS OF PSEUDO A	CC67500685
001660	003077	R				
001661	013214		.LDA	.EBR1		CC67600686
001662	002000		.CALL	.OUTE	PRINT CONTENTS OF PSEUDO B	CC67700687
001663	003077	R				
001664	013215		.LDA	.EXR1		CC67800688
001665	002000		.CALL	.OUTE	PRINT CONTENTS OF PSEUDO X	CC67900689
001666	003077	R				
001667	001000		.JMP	.ETCP	RETURN TO EXEC SUPERVISOR	CC68000690
001670	002157	R				
		*				
001671	056000	ETR1	.STA	.0,2	STORE PARAMETER X	CC68100691
001672	005123		.INCR	.023	INC PARAMETER PTR	CC68200692
001673	006140		.SUBI	.ETS1+1	MORE THAN 1 X PARAMETER 3	CC68300693
001674	003217	R				
001675	001010		.JAZ	.ETRP+4	NO CONTINUE	CC68500695
001676	001607	R				
001677	001000		.JMP	.EXIT	YES PRINT INVALID AND GC TC ETCF	CC68600696
001700	002266	R				
		*				
001701	000000	ETR2	.ENTR	.0		CC68700697
001702	001000		.JMP	.ETR3	PROCESS TRAP RETURN	CC68800698
001703	001637	R				CC68900699
		*				
		*				
		*				
		*				
		*			DISPLAY/CHANGE THE PSEUDO A REGISTER	CC69000700
		*				CC69100701
		*				CC69200702
		*				CC69300703
		*				CC69400704
		*				CC69500705
001704	006010	EARG	.LDAI	.0240	ASCII SPACE	
001705	000240					
001706	002000		.CALL	.OUTA		CC69600706
001707	003021	R				
001710	013213		.LDA	.EAR1	LOAD PSEUDO A	CC69700707
001711	002000		.CALL	.OUTE	PRINT CONTENTS	CC69800708

001712	003077	R						
001713	002000		.CALL	.INPG	INPUT OCTAL AND/OR PERICE			CC69900709
001714	002771	R						
001715	001000		.JMP	.ETCP	TERMINATION EXIT VIA SS3			CC70000710
001716	002157	R						
001717	001000		.JMP	.ETCP	ABORT EXIT			CC70100711
001720	002157	R						
001721	001000		.JMP	.*+2	COMMA EXIT--ACCEPT IT			CC70200712
001722	001723	R						
			*	NCRMAL RETURN FROM INPG				CC70300713
001723	053216		.STA	.ETS1	SAVE INPUT			CC70400714
001724	013232		.LDA	.TSC4	TSC4=DIGIT COUNTER FOR INPG			CC70500715
001725	001010		.JAZ	.ETCP	0=NO OCTAL INPUT,RETURN TO SUPERVISOR			CC70600716
001726	002157	R						
001727	013216		.LDA	.ETS1				CC70700717
001730	053213		.STA	.EAR1	STORE NEW VALUE IN PSEUDO A			CC70800718
001731	001000		.JMP	.ETCP	RETURN TO SUPERVISOR			CC70900719
001732	002157	R						
			*					CC71000720
			*					CC71100721
			*	DISPLAY/CHANGE THE PSEUDO B REGISTER				CC71200722
			*					CC71300723
			*					CC71400724
001733	013224		EBRG	.LDA	.EK00	ASCII BLANK(SPACE)		CC71500725
001734	002000			.CALL	.CUTA			CC71600726
001735	003021	R						
001736	013214		.LDA	.EBR1	LOAD PSEUDO B			CC71700727
001737	002000		.CALL	.CUTE	PRINT CONTENTS			CC71800728
001740	003077	R						
001741	002000		.CALL	.INPG	INPUT OCTAL AND/OR PERICE			CC71900729
001742	002771	R						
001743	001000		.JMP	.ETCP	TERMINATION EXIT VIA SS3			CC72000730
001744	002157	R						
001745	001000		.JMP	.ETCP	ABORT EXIT			CC72100731
001746	002157	R						
001747	001000		.JMP	.*+2	COMMA EXIT--ACCEPT IT			CC72200732
001750	001751	R						
			*	NCRMAL RETURN FROM INPG				CC72300733
001751	053216		.STA	.ETS1	SAVE INPUT			CC72400734
001752	013232		.LDA	.TSC4	TSC4=DIGIT COUNTER FOR INPG			CC72500735
001753	001010		.JAZ	.ETCP	U=NO OCTAL INPUT,RETURN TO SUPERVISOR			CC72600736
001754	002157	R						

001755	013216	.LDA	.ETS1		CC72700737	
001756	053214	.STA	.EBR1	STORE NEW VALUE IN PSEUDC E	CC72800738	
001757	001000	.JMP	.ETCP	RETURN TO SUPERVISOR	CC72900739	
001760	002157	R				
		*			CC73000740	
		*			CC73100741	
		*	DISPLAY/CHANGE THE PSEUDO X REGISTER		CC73200742	
		*			CC73300743	
		*			CC73400744	
001761	013224	EXRG	.LDA	.EK00	ASCII BLANK(SPACE)	CC73500745
001762	002000		.CALL	.CUTA		CC73600746
001763	003021	R				
001764	013215		.LDA	.EXR1	LOAD PSEUDO X	CC73700747
001765	002000		.CALL	.CUTE	PRINT CONTENTS	CC73800748
001766	003077	R				
001767	002000		.CALL	.INPG	INPUT OCTAL AND/OR PERIOD	CC73900749
001770	002771	R				
001771	001000		.JMP	.ETCP	TERMINATION EXIT VIA SSS	CC74000750
001772	002157	R				
001773	001000		.JMP	.ETCP	ABORT	CC74100751
001774	002157	R				
001775	001000		.JMP	..+2	COMA EXIT--ACCEPT IT	CC74200752
001776	001777	R				
		*	NRML RETURN FROM INPG			CC74300753
001777	053216		.STA	.ETS1	SAVE INPUT	CC74400754
002000	013232		.LDA	.TS04	TS04=DIGIT COUNTER FOR INPG	CC74500755
002001	001010		.JAZ	.ETCP	0=NO OCTAL INPUT,RETURN TO SUPERVISOR	CC74600756
002002	002157	R				
002003	013216		.LDA	.ETS1		CC74700757
002004	053215		.STA	.EXR1	STORE NEW VALUE IN PSEUDC X	CC74800758
002005	001000		.JMP	.ETCP	RETURN TO SUPERVISOR	CC74900759
002006	002157	R				
		*				CC75000760
		*				CC75100761
		*				CC75200762
		*				CC75300763
		*				CC75400764
		*	EGOT--LOAD PSEUDO REGISTERS INTO A,B,X AND TRANSFER TO			CC75500765
		*	LOCATION SPECIFIED BY USER.			CC75600766
		*	THE PSEUDO REGISTERS CAN BE PRESET WITH THE A,B,X			CC75700767
		*	UTILITY FUNCTIONS.			CC75800768
		*				CC75900769

002007	002000	*	EGOT	.CALL	.INPG	INPUT OCTAL NUMBER	CC7E000770
002010	002771	R					CC7E100771
002011	001000			.JMP	.ETCP	TERMINATION EXIT VIA SSJ	CC7E200772
002012	002157	R					
002013	001000			.JMP	.ETCP	ABORT	CC7E300773
002014	002157	R					
002015	001000			.JMP	.*+2	COMMA EXIT--ACCEPT IT	CC7E400774
002016	002017	R					
			*	NORMAL RETURN FROM INPG			CC7E500775
002017	053217			.STA	.ETS1+1		CC7E600776
002020	002000			.CALL	.OUTC	DO A CR + LF	CC7E700777
002021	003070	R					
002022	013213		EGO1	.LDA	.EAR1	LOAD PSEUDO A REG.	CC7E800778
002023	023214			.LDB	.EBR1	LOAD PSEUDO B REG.	CC7E900779
002024	033215			.LDX	.EXR1	LOAD PSEUDO X REG.	CC77000780
002025	001000			.JMP*	.ETS1+1		CC77100781
002026	103217	R					
			*	DLMP CORE MEMCRY TO TTY PRINTER			CC77200782
			*				CC77300783
002027	002000		EDUM	.CALL	.INPG	INPUT START LOCATION (OCTAL)	CC77400784
002030	002771	R					
002031	001000			.JMP	.ETCP	TERMINATION EXIT VIA SSJ	CC77500785
002032	002157	R					
002033	001000			.JMP	.ETCP	ABORT	CC77600786
002034	002157	R					
002035	001000			.JMP	.*+2	COMMA EXIT--ACCEPT IT	CC77700787
002036	002037	R					
			*	NORMAL RETURN FROM INPG			CC77800788
002037	053216			.STA	.ETS1		CC77900789
002040	002000			.CALL	.OUTC	OUTPUT CR & LF	CC7E000790
002041	003070	R					
002042	013216			.LDA	.ETS1		CC7E100791
002043	005014			.TAX	.		CC7E200792
002044	002000		EDU1	.CALL	.CLTF	OUTPUT MEMORY ADDRESS	CC7E300793
002045	003134	R					
002046	013224			.LDA	.EK00	ASCII BLANK(SPACE)	CC7E400794
002047	002000			.CALL	.CUTA		CC7E500795
002050	003021	R					
002051	015000		EDU2	.LDA	.0.1		CC7E600796
002052	002000			.CALL	.CUTE	PRINT LOCATION CONTENTS	CC7E700797
002053	003077	R					

002114	002157	R					
002115	001000		.JMP	.ETCP	ABORT		CC81700827
002116	002157	R					
002117	001000		.JMP	.ECN2	COMMA EXIT--PRINT NEXT LOCATION & CONTENTS		CC81800828
002120	002131	R					
			*		NORMAL RETURN FROM INPG WITH PERIOD		CC81900829
002121	053216		.STA	.ETS1	SAVE INPUT		CC82000830
002122	013232		.LDA	.TS04	TS04=DIGIT COUNTER FOR INPG		CC82100831
002123	001010		.JAZ	..+4			CC82200832
002124	002127	R					
002125	013216		.LDA	.ETS1	GET LAST INPUT		CC82300833
002126	055000		.STA	.0.1			CC82400834
002127	001000		.JMP	.ETCP			CC82500835
002130	002157	R					
			*				CC82600836
002131	053216		ECN2	.STA	.ETS1	SAVE INPUT	CC82700837
002132	013232		.LDA	.TS04	TS04=DIGIT COUNTER FOR INPG		CC82800838
002133	001010		.JAZ	..+4			CC82900839
002134	002137	R					
002135	013216		.LDA	.ETS1	GET LAST INPUT		CC83000840
002136	055000		.STA	.0.1	STORE NEW VALUE IN LOCATION		CC83100841
002137	002000		.CALL	.OUTC	CR & LF		CC83200842
002140	003070	R					
002141	005145		.INCR	.045	INCREMENT X AND PUT INTO A AND X		CC83300843
002142	002000		.CALL	.OUTF	PRINT NEXT MEMORY ADDRESS		CC83400844
002143	003134	R					
002144	001000		.JMP	.ECN3	PRINT CONTENTS		CC83500845
002145	002102	K					
002146	002000		EBG2	.CALL	.OUTH.0201	PRINT ENABLE	CC83600846
002147	003200	R					
002150	000201						
002151	002000		.CALL	.OUTC	OUTPUT CR&LF		CC83700847
002152	003070	K					
002153	006030		.LDXI	.MSG1	THIS IS THE 620 TEST EXECUTIVE		CC83800848
002154	002272	R					
002155	002000		.CALL	.OUTD	OUTPUT MESSAGE		CC83900849
002156	003123	R					
			*				CC84000850
			*				CC84100851
			*				CC84200852
			*		TEST EXECUTIVE SUPERVISOR		CC84300853
			*				CC84400854

002157	006010	ETOP	.LDAI	.0207	TTY BELL	CC84500855
002160	000207					
002161	002000		.CALL	.OUTA	OUTPUT	CC84600856
002162	003021	R				
002163	002000		.CALL	.OUTH.0201	PRINT ENABLE	CC84700857
002164	003200	R				
002165	000201					
002166	006030		.LDXI	.STTY		CC84800858
002167	003054	R				
002170	015000		.LDA	.0.1		CC84900859
002171	006110		.CRAI	.C102500		CC85000860
002172	102500					
002173	052174		.STA	.*+1		CC85100861
002174	102500		.CIA	.0		CC85200862
002175	002000		.CALL	.OUTC		CC85300863
002176	003070	R				
002177	002000		.CALL	.INPB	INPUT ONE CHARACTER	CC85400864
002200	002522	R				
002201	001000		.JMP	.ETCP	ABORT EXIT	CC85500865
002202	002157	R				
002203	052215		.STA	.ETC4+1	SAVE INPUT	CC85600866
002204	006140		.SUBI	.0212	LINE FEED CODE	CC85700867
002205	000212					
002206	001010		.JAZ	.ETCP	YES	CC85800868
002207	002157	R				
002210	006140		.SUBI	.3	CARRIAGE RETURN(0215)	CC85900869
002211	000003					
002212	001010		.JAZ	.ETCP	YES	CC86000870
002213	002157	R				
002214	006010	ETO4	.LDAI	.0	GET ORIGINAL INPUT	CC86100871
002215	000000					
002216	006140		.SUBI	.'A'		CC86200872
002217	000301					
002220	001004		.JAN	.EXIT	INVALID INPUT	CC86300873
002221	002266	R				
002222	006140		.SUBI	.032	Z CHAR	CC86400874
002223	000032					
002224	001002		.JAP	.EXIT	INVALID INPUT	CC86500875
002225	002266	R				
002226	006120		.ADDI	.(ETBL+032)*	INDIRECT ADDRESS PCINTER FOR UTILITY TABLE	CC86600876
002227	102266	R				
002230	052233		.STA	.*+3		CC86700877

002231	005007		.ZERO	.7	CLEAR REGISTERS A,B,X	CC86800878	
002232	001000		.JMP	..		CC86900879	
002233	002232	R					
002234	001704	R	ETBL	.DATA	.EARG	A PRINT/CHANGE PSEUDO A REG	CC87000880
002235	001733	R		.DATA	.EBRG	B PRINT/CHANGE PSEUDO B REG	CC87100881
002236	002071	R		.DATA	.ECNG	C PRINT/CHANGE MEMORY LOCATION	CC87200882
002237	002027	R		.DATA	.EDLM	D DUMP CORE TO TTY PRINTER	CC87300883
002240	002266	R		.DATA	.EXIT	E NOT USED	CC87400884
002241	002266	R		.DATA	.EXIT	F NOT USED	CC87500885
002242	002007	R		.DATA	.EGCT	G TRANSFER TO SPECIFIED LOCATION	CC87600886
002243	002266	R		.DATA	.EXIT	H NOT USED	CC87700887
002244	002266	R		.DATA	.EXIT	I NOT USED	CC87800888
002245	002266	R		.DATA	.EXIT	J NOT USED	CC87900889
002246	002266	R		.DATA	.EXIT	K NOT USED	CC88000890
002247	002266	R		.DATA	.EXIT	L NOT USED	CC88100891
002250	002266	R		.DATA	.EXIT	M NOT USED	CC88200892
002251	002266	R		.DATA	.EXIT	N NOT USED	CC88300893
002252	002266	R		.DATA	.EXIT	O NOT USED	CC88400894
002253	002266	R		.DATA	.EXIT	P NOT USED	CC88500895
002254	002266	R		.DATA	.EXIT	Q NOT USED	CC88600896
002255	002266	R		.DATA	.EXIT	R NOT USED	CC88700897
002256	002266	R		.DATA	.EXIT	S NOT USED	CC88800898
002257	001603	R		.DATA	.ETRP	T TRAP	CC88900899
002260	002266	R		.DATA	.EXIT	U NOT USED	CC89000900
002261	002266	R		.DATA	.EXIT	V NOT USED	CC89100901
002262	002266	R		.DATA	.EXIT	W NOT USED	CC89200902
002263	001761	R		.DATA	.EXRG	X PRINT/CHANGE PSEUDO X REG	CC89300903
002264	002266	R		.DATA	.EXIT	Y NOT USED	CC89400904
002265	002266	R		.DATA	.EXIT	Z NOT USED	CC89500905
			*				CC89600906
			*				CC89700907
			*				CC89800908
			*				CC89900909
002266	002000	R	EXIT	.CALL	.OUTG	PRINT INVALID & CR/LF	CC90000910
002267	003153	R					
002270	001000	R		.JMP	.ETCP	RETURN TO TOP OF SUPERVISOR	CC90100911
002271	002157	R					
			*				CC90200912
			*	MESSAGE TABLE			CC90300913
			*				CC90400914
002272	106612	R	MSG1	.DATA	.CRLF	'TEST EXEC',0	CC90500915
002273	152305	R					

002274 151724
 002275 120305
 002276 154305
 002277 141640
 002300 000000
 002301 120240
 002302 144716
 002303 153301
 002304 146311
 002305 142240
 002306 000000

MSG5 ,DATA , INVALID ,0

CC9C600916

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*
*****
*
*          SENSE SWITCH SUBROUTINE
* THIS SUBROUTINE PROVIDES A STANDARD SENSE SWITCH INTERFACE.
* THE CALLING SEQUENCE IS AS FOLLOWS
*   THE A, B, AND X REGISTERS CONTAIN ERROR HALT VALUES.
*   CALL SSWT
*   DATA (U REGISTER VALUE)
*   DATA (ERROR MESSAGE ADDRESS) (IF NEG. ERRCR SUB.)
*   DATA (TERMINATION EXIT)
*   DATA (LOOP ON ERROR EXIT)
*   *      NORMAL EXIT RETURN
*
* STANDARD SENSE SWITCH SETTINGS
*   SS1 -(SET) SUPPRESS ERROR PRINTOUT
*         (RESET) ALLOW ERROR PRINTOUTS
*   SS2 (SET) HALT ON ERRCR
*         (IF SET AFTER HALT = CONTINUE )
*         (RESET) DO NOT HALT ON ERRCR
*         (IF HALT ON ERROR SET FIRST THEN RESET ON
*         HALT CONDITION = LOOP UNTIL SET )
*   SS3 (SET) TERMINATE TEST = RETURN TO BEGINING OF TEST
*         (RESET) CONTINUE TEST
*****

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CC9C700917
 CC9C800918
 CC9C900919
 CC91000920
 CC91100921
 CC91200922
 CC91300923
 CC91400924
 CC91500925
 CC91600926
 CC91700927
 CC91800928
 CC91900929
 CC92000930
 CC92100931
 CC92200932
 CC92300933
 CC92400934
 CC92500935
 CC92600936
 CC92700937
 CC92800938
 CC92900939
 CC93000940
 CC93100941
 CC93200942
 CC93300943
 CC93400944
 CC93500945
 CC93600946

002307 052445
 002310 062446
 002311 072447
 002312 001400
 002313 002450 R

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SSWP ,STA ,SSWS          SAVE VOLATILE REGISTERS
      ,STB ,SSWS+1
      ,STX ,SSWS+2
      ,JSS3 ,SSWE        IF SS3 SET RETURN THROUGH TERMINATION EXIT

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002314	013225		.LDA	.SCCN	CHECK IF CONSOLE OR TTY MODE	CC93700947
002315	001010		.JAZ	.SSKN		CC93800948
002316	002403	R				
002317	001100		.JSS1	.SSW1	TELETYPE MODE - CHECK IF TTY SUPPRESSED	CC93900949
002320	002342	R				
002321	022461		.LDB	.SSWT	GET 2ND PARAMETER	CC94000950
002322	005122		.IBR	.		CC94100951
002323	016000		.LDA	.0,2		CC94200952
002324	001010		.JAZ	.SSW1		CC94300953
002325	002342	R				
002326	005012		.TAB	.	CHECK IF BIT 15 SET	CC94400954
002327	006150		.ANAI	.0100000		CC94500955
002330	100000					
002331	005014		.TAX	.		CC94600956
002332	005021		.TBA	.		CC94700957
002333	001040		.JXZ	.*+4		CC94800958
002334	002337	R				
002335	001000		.JMP	.SSWR	CALL ERROR SUBROUTINE	CC94900959
002336	002433	R				
002337	005014		.TAX	.	PRINT ERROR MESSAGE	CC95000960
002340	002000		.CALL	.OUTD		CC95100961
002341	003123	R				
002342	001400	SSW1	.JSS3	.SSWE	IF SS3 SET - RETURN THROUGH TERMINATION EXIT	CC95200962
002343	002450	R				
002344	013226		.LDA	.SFLG	CHECK IF LOOPING	CC95300963
002345	001010		.JAZ	.SSW4		CC95400964
002346	002377	R				
002347	001200	SSW2	.JSS2	.SSW3	LOOPING - CHECK IF TERMINATE LOOPING.	CC95500965
002350	002364	R				
002351	022461	SSWL	.LDB	.SSWT	RETURN THROUGH LOOP EXIT	CC95600966
002352	005122		.IBR	.		CC95700967
002353	005122		.IBR	.		CC95800968
002354	005122		.IBR	.		CC95900969
002355	016000		.LDA	.0,2		CC96000970
002356	052363		.STA	.*+5		CC96100971
002357	012445		.LDA	.SSWS	RETURN VOLATILE REGISTERS.	CC96200972
002360	022446		.LDB	.SSWS+1		CC96300973
002361	032447		.LDX	.SSWS+2		CC96400974
002362	001000		.JMP	.*		CC96500975
002363	002362	R				
002364	005001	SSW3	.TZA	.	RETURN TO NORMAL EXIT (CONTINUATION EXIT)	CC96600976
002365	053226		.STA	.SFLG	CLEAR LOOP FLAG.	CC96700977

002366	012461		.LDA	.SSWT		CC96600976
002367	006120		.ADDI	.4		CC96900979
002370	000004					
002371	052376		.STA	.**+5		CC97000980
002372	012445		.LDA	.SSWS	RETURN VOLATILE REGISTERS.	CC97100981
002373	022446		.LDB	.SSWS+1		CC97200982
002374	032447		.LDX	.SSWS+2		CC97300983
002375	001000		.JMP	.*		CC97400984
002376	002375	R				
002377	001200	SSW4	.JSS2	.SSW5	CHECK IF HALT ON ERROR	CC97500985
002400	002410	R				
002401	001000		.JMP	.SSW3	RETURN TO NORMAL EXIT LCC.	CC97600986
002402	002364	R				
002403	013226	SSWN	.LDA	.SFLG	CHECK IF LOOP FLAG ZERO	CC97700987
002404	001010		.JAZ	.SSW4		CC97800988
002405	002377	R				
002406	001100		.JSS1	.SSW6		CC97900989
002407	002417	R				
002410	022461	SSW5	.LDB	.SSWT	GET FIRST PARAMETER	CC98000990
002411	016000		.LDA	.0.2		CC98100991
002412	052416		.STA	.**+4		CC98200992
002413	012445		.LDA	.SSWS	RETURNED SAVED PARAMETERS.	CC98300993
002414	022446		.LDB	.SSWS+1		CC98400994
002415	032447		.LDX	.SSWS+2		CC98500995
002416	005000		.NOP	.	1ST PARAMETER STORED HERE AND EXECUTED.	CC98600996
002417	001400	SSW6	.JSS3	.SSWE	IF SS3 SET RETURN THROUGH TERMINATION EXIT	CC98700997
002420	002450	R				
002421	013226		.LDA	.SFLG	CHECK IF LOOPING	CC98800998
002422	001010		.JAZ	.**+4		CC98900999
002423	002426	R				
002424	001000		.JMP	.SSW2		CC99001000
002425	002347	R				
002426	001200		.JSS2	.SSW3	LOOP FLAG ZERO - CHECK IF LCCP REQUEST	CC99101001
002427	002364	R				
002430	043226		.INR	.SFLG	INCREMENT LOOP FLAG	CC99201002
002431	001000		.JMP	.SSWL	JUMP THROUGH LCCP EXIT	CC99301003
002432	002351	R				
002433	006150	SSWR	.ANAI	.077777	ERROR SUBROUTINE MASK CUI BIT 15	CC99401004
002434	077777					
002435	052442		.STA	.**+5		CC99501005
002436	012445		.LDA	.SSWS		CC99601006
002437	022446		.LDB	.SSWS+1		CC99701007

002440	032447		.LDX	.SSWS+2		CC99801006
002441	002000		.JMPP	.*	CALL ERROR SUBROUTINE	CC99901009
002442	002441	R				
002443	001000		.JMP	.SSW1		C100001010
002444	002342	R				
002445		SSWS	.BGS	.3		C100101011
002450	005001	SSWE	.TZA	.	JUMP THROUGH TERMINATION EXIT.	C100201012
002451	053226		.STA	.SFLG	CLEAR LOOP FLAG.	C100301013
002452	022461		.LDB	.SSWT		C100401014
002453	005122		.IBR	.	SET LP TERMINATION EXIT	C100501015
002454	005122		.IBR	.		C100601016
002455	016000		.LDA	.0,2		C100701017
002456	052460		.STA	.*+2		C100801018
002457	001000		.JMP	.*		C100901019
002460	002457	R				
002461	000000	SSWT	.ENTR	.	SENSE SWITCH SUBROUTINE ENTRANCE	C101001020
002462	001000		.JMP	.SSWP		C101101021
002463	002307	R				
		*				C101201022
		*			INPUT ONE CHARACTER FROM TTY TO A REGISTER	C101301023
		*				C101401024
002464	013054	INA1	.LDA	.STTY		C101501025
002465	006110		.CRAI	.0101200	ADJUST TTY DA	C101601026
002466	101200					
002467	052473		.STA	.*+4		C101701027
002470	006120		.ADDI	.001300		C101801028
002471	001300					
002472	052502		.STA	.*+8		C101901029
002473	101000		.SEN	.0,.*+7	READ REGISTER READY	C102001030
002474	002502	R				
002475	005011		.MERC	.011		C102101031
002476	001400		.JSSJ*	.INPA	TERMINATE EXIT	C102201032
002477	102506	R				
002500	001000		.JMP	.*-5		C102301033
002501	002473	R				
002502	102500		.CIA	.0	INPUT CHARACTER	C102401034
002503	042506		.INR	.INPA		C102501035
002504	042506		.INR	.INPA		C102601036
002505	001000		.JMP*	.0	EXIT	C102701037
002506	100000					
002506		INPA	.BES	.0		C102801038
002507	001000		.JMP	.INA1		C102901039

002510	002464	R								C103001040
			*							C103101041
			*							C103201042
			*							C103301043
002511	002000		INB1	.CALL	.INPA			INPUT ONE CHARACTER		
002512	002506	R								
002513	001000			.JMP*	.INPB			TERMINATE EXIT		C103401044
002514	102522	R								
002515	002000			.CALL	.OUTA			OUTPUT ONE CHARACTER		C103501045
002516	003021	R								
002517	042522			.INR	.INPB					C103601046
002520	042522			.INR	.INPB					C103701047
002521	001000			.JMP*	.0			EXIT		C103801048
002522	100000									
002522			INPB	.BES	.0					C103901049
002523	001000			.JMP	.INB1					C104001050
002524	002511	R								
			*							C104101051
			*							C104201052
			*							C104301053
			*							C104401054
002525	002000		INC3	.CALL	.INPB					
002526	002522	R								
002527	001000			.JMP*	.INPC			TERMINATE EXIT		C104501055
002530	102554	R								
002531	006130			.ERAI	.'\'			BACKSLASH		C104601056
002532	000334									
002533	001010			.JAZ	.INC2			ABORT INPUT EXIT		C104701057
002534	002551	R								
002535	006130			.ERAI	.'\'			RESTORE A		C104801058
002536	000334									
002537	006130			.ERAI	.0337			BACKARROW		C104901059
002540	000337									
002541	001010			.JAZ	.INC1			DELETE ONE CHARACTER EXIT		C105001060
002542	002547	R								
002543	006130			.ERAI	.0337			RESTORE A		C105101061
002544	000337									
002545	042554			.INR	.INPC					C105201062
002546	042554			.INR	.INPC					C105301063
002547	042554		INC1	.INR	.INPC					C105401064
002550	042554			.INR	.INPC					C105501065
002551	042554		INC2	.INR	.INPC					C105601066
002552	042554			.INR	.INPC					C105701067

002553	001000		.JMP*	.0	EXIT	C105801068
002554	100000					
002554		INPC	.BES	.0		C105901069
002555	001000		.JMP	.INC3		C106001070
002556	002525	R				
		*				C106101071
		*	INPLY ONE ALPHA CHARACTER FROM TTY KEYBOARD TO A REG			C106201072
		*				C106301073
002557	002000	IND4	.CALL	.INPC	INPUT ONE CHAR	C106401074
002560	002554	R				
002561	001000		.JMP*	.INPD	TERMINATE EXIT	C106501075
002562	102610	R				
002563	001000		.JMP	.IND2	ABORT INPUT EXIT	C106601076
002564	002605	R				
002565	001000		.JMP	.IND1	DELETE PREVIOS CHARACTER EXIT	C106701077
002566	002603	R				
002567	006140		.SUBI	.0301	CHAR A	C106801078
002570	000301					
002571	001004		.JAN	.IND3	INVALID INPUT	C106901079
002572	002613	R				
002573	006140		.SUBI	.032	CHAR Z	C107001080
002574	000032					
002575	001002		.JAP	.IND3	INVALID INPUT	C107101081
002576	002613	R				
002577	006120		.ADDI	.0333	RESTORE A	C107201082
002600	000333					
002601	042610		.INR	.INPD	NORMAL EXIT	C107301083
002602	042610		.INR	.INPD		C107401084
002603	042610	IND1	.INR	.INPD	DELETE PREVIOS CHARACTER EXIT	C107501085
002604	042610		.INR	.INPD		C107601086
002605	042610	IND2	.INR	.INPD	ABORT INPUT EXIT	C107701087
002606	042610		.INR	.INPD		C107801088
002607	001000		.JMP*	.0	EXIT	C107901089
002610	100000					
002610		INPD	.BES	.0		C108001090
002611	001000		.JMP	.INL4		C108101091
002612	002557	R				
002613	002000	IND3	.CALL	.OUTG	INVALID INPUT--PRINT MESSAGE	C108201092
002614	003153	R				
002615	001000		.JMP	.INL2	ABORT	C108301093
002616	002605	R				
		*				C108401094

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*
* INPUT TWO LETTER CHARACTERS FROM TTY
*
002617 002000 INE3  JCALL  JINPD      INPUT ALPHA CHAR
002620 002610 R          J      J      J      J
002621 001000          JMP*   JINPE      TERMINATE EXIT
002622 102651 R          J      J      J      J
002623 001000          JMP    JINE2      ABORT INPUT EXIT
002624 002646 R          J      J      J      J
002625 001000          JMP    JINE1      DELETE PREVIOUS CHARACTER EXIT
002626 002644 R          J      J      J      J
002627 004250          JLRLA  J8
002630 053230          JSTA  JTSG2
002631 002000          JCALL  JINPD      INPUT ALPHA CHAR
002632 002610 R          J      J      J      J
002633 001000          JMP*   JINPE      TERMINATE EXIT
002634 102651 R          J      J      J      J
002635 001000          JMP    JINE2      ABORT INPUT EXIT
002636 002646 R          J      J      J      J
002637 001000          JMP    JINE3      DELETE PREVIOUS CHARACTER EXIT
002640 002617 R          J      J      J      J
002641 113230          JCRA  JTSG2
002642 042651          JINR  JINPE      NORMAL EXIT
002643 042651          JINR  JINPE
002644 042651 INE1  JINR  JINPE      DELETE PREVIOUS CHARACTER EXIT
002645 042651          JINR  JINPE
002646 042651 INE2  JINR  JINPE      ABORT INPUT EXIT
002647 042651          JINR  JINPE
002650 001000          JMP*   J0        EXIT
002651 100000          J      J      J      J
002651 INPE  JBES  J0
002652 001000          JMP    JINE3
002653 002617 R          J      J      J      J

*
* INPLY PERIOD,COMMA FOR MESSAGE TERMINATOR
*
002654 002000 INF5  JCALL  JINPC      INPUT ONE CHARACTER
002655 002554 R          J      J      J      J
002656 001000          JMP*   JINPF      TERMINATE EXIT
002657 102711 R          J      J      J      J
002660 001000          JMP    JINF2      ABORT INPUT EXIT
002661 002706 R          J      J      J      J

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C108501095
C108601096
C108701097
C108801098
C108901099
C109001100
C109101101
C109201102
C109301103
C109401104
C109501105
C109601106
C109701107
C109801108
C109901109
C110001110
C110101111
C110201112
C110301113
C110401114
C110501115
C110601116
C110701117
C110801118
C110901119
C111001120
C111101121
C111201122
C111301123

002662	001000		.JMP	.INF1	DELETE PREVIOUS CHARACTER EXIT	C111401124	
002663	002704	R					
002664	006140		.SUBI	.0254	COMMA	C111501125	
002665	000254						
002666	001010		.JAZ	.INF3	COMMA EXIT	C111601126	
002667	002702	R					
002670	006140		.SUBI	.02	PERIOD	C111701127	
002671	000002						
002672	001010		.JAZ	.INF4	PERIOD EXIT	C111801128	
002673	002700	R					
002674	002000		.CALL	.CUTG	PRINT INVALID MESSAGE	C111901129	
002675	003153	R					
002676	001000		.JMP	.INF2	ABORT	C112001130	
002677	002706	R					
002700	042711		INF4	.INR	.INPF	NORMAL EXIT	C112101131
002701	042711			.INR	.INPF		C112201132
002702	042711		INF3	.INR	.INPF	COMMA EXIT	C112301133
002703	042711			.INR	.INPF		C112401134
002704	042711		INF1	.INR	.INPF	DELETE PREVIOUS CHARACTER EXIT	C112501135
002705	042711			.INR	.INPF		C112601136
002706	042711		INF2	.INR	.INPF	ABORT INPUT EXIT	C112701137
002707	042711			.INR	.INPF		C112801138
002710	001000		.JMP*	.0	EXIT	C112901139	
002711	100000						
002711			INPF	.BES	.0		C113001140
002712	001000			.JMP	.INF5		C113101141
002713	002654	R					
			*				C113201142
			*	INPLY OCTAL NUMBER FROM TTY KEYBOARD			C113301143
			*	ASSEMBLE AS 16 BIT NUMBER IN A REG			C113401144
			*	ONLY OCTAL NUMBERS ACCEPTED			C113501145
			*				C113601146
002714	005001		ING7	.TZA	.		C113701147
002715	053230			.STA	.TSG2	TEMP STORAGE FOR OCTAL NUMBER	C113801148
002716	053232			.STA	.TSG4	TEMP STORAGE FOR DIGIT COUNTER	C113901149
002717	063235			.STB	.TSG7		C114001150
002720	005002			.TZB	.		C114101151
002721	002000		ING5	.CALL	.INPC	INPUT ONE CHARACTER	C114201152
002722	002554	R					
002723	001000			.JMP*	.INPG	TERMINATE EXIT	C114301153
002724	102771	R					
002725	001000			.JMP	.ING2	ABORT INPUT EXIT	C114401154

002726	002764	R						
002727	001000		.JMP	.ING1	DELETE PREVIOUS CHARACTER EXIT			C114501155
002730	003011	R						
002731	053233		.STA	.TS05	SAVE INPUT			C114601156
002732	006140		.SUBI	.0260				C114701157
002733	000260							
002734	001004		.JAN	.ING6	INVALID IF NOT OCTAL NUMBER			C114801158
002735	002774	R						
002736	006140		.SUBI	.010				C114901159
002737	000010							
002740	001002		.JAP	.ING6	INVALID IF NOT OCTAL NUMBER			C115001160
002741	002774	R						
002742	006120		.AEDI	.010	RESTORE DIGIT			C115101161
002743	000010							
002744	053231		.STA	.TS03	SAVE CHARACTER			C115201162
002745	013230		.LDA	.TS02	INSERT CHARACTER			C115301163
002746	004443		.LLRL	.3	INTO			C115401164
002747	113231		.CRA	.TS03	OCTAL NUMBER			C115501165
002750	001020		.JBZ	.*+4	TOO MANY BITS ?			C115601166
002751	002754	R						
002752	001000		.JMP	.ING8	YES			C115701167
002753	003005	R						
002754	053230		.STA	.TS02	NO			C115801168
002755	043232		.INR	.TS04	INCR * DIGITS			C115901169
002756	001000		.JMP	.ING5	GET NEXT DIGIT			C116001170
002757	002721	R						
002760	042771		ING3	.INR	.INPG	NORMAL EXIT		C116101171
002761	042771			.INR	.INPG			C116201172
002762	042771		ING4	.INR	.INPG	COMMA EXIT		C116301173
002763	042771			.INR	.INPG			C116401174
002764	042771		ING2	.INR	.INPG	ABORT INPUT EXIT		C116501175
002765	042771			.INR	.INPG			C116601176
002766	023235			.LDB	.TS07			C116701177
002767	013230			.LDA	.TS02	GET ASSEMBLED OCTAL NUMBER		C116801178
002770	001000			.JMP	.0	EXIT		C116901179
002771	000000							
002771			INPG	.BES	.0			C117001180
002772	001000			.JMP	.ING7			C117101181
002773	002714	R						
002774	013233		ING6	.LDA	.TS05	GET LAST INPUT		C117201182
002775	006140			.SUBI	.0254	IS IT A COMMA		C117301183
002776	000254							

002777	001010		.JAZ	.ING4	YES	C117401184
003000	002762	R				
003001	006140		.SUBI	.02	IS IT A PERIOD	C117501185
003002	000002					
003003	001010		.JAZ	.ING3	YES	C117601186
003004	002760	R				
003005	002000		INGE	.CALL	.OUTG	PRINT INVALID MESSAGE
003006	003153	K				
003007	001000		.JMP	.ING2	ABORT	C117801188
003010	002764	R				
			*			
003011	013230		ING1	.LCA	.TS02	DELETE LAST CHARACTER
003012	004343			.LGRA	.3	
003013	053230			.STA	.TS02	
003014	013232			.LCA	.TS04	
003015	005311			.DAR	.	REDUCE DIGIT COUNT
003016	053232			.STA	.TS04	
003017	001000			.JMP	.ING5	
003020	002721	R				
			*			
			*	OUTPUT ONE CHARACTER FROM A REG TO TTY		
			*			
003021	000000		OUTA	.ENTR	.0	
003022	073227			.STX	.TS01	SAVE X
003023	005014			.TAX	.	
003024	013054			.LCA	.STY	
003025	006110			.CRAI	.0101100	ADJUST TTY DA
003026	101100					
003027	053036			.STA	..+7	
003030	006120			.AEDI	.002000	
003031	002000					
003032	053050			.STA	.OUT1	
003033	005041			.TXA	.	
003034	006030			.LDXI	.0	
003035	000000					
003036	101000			.SEN	.0.CUT1	WRITE REGISTER READY
003037	003050	R				
003040	005344			.DXR	.	
003041	001040			.JXZ	..+4	
003042	003045	R				
003043	001000			.JMP	..-5	
003044	003036	R				

003045	000077		.FLT	.077						C120401214	
003046	001000		.JMP	.*-10						C120501215	
003047	003034	R									
003050	103100		OUT1	.CAR	.0					C120601216	
003051	033227			.LDX	.TSC1		RESTORE X			C120701217	
003052	001000			.JMP*	.OUTA		RETURN			C120801218	
003053	103021	R									
			*							C120901219	
			*							C121001220	
003054	000001		STTY	.DATA	.01					C121101221	
			*							C121201222	
			*							C121301223	
			*							C121401224	
			*	CLTPUT TWO CHARACTERS FROM A REG TO TTY (HIGH ORDER FIRST)							C121501225
			*	ENTER WITH CHARACTERS IN A REG							C121601226
			*							C121701227	
003055	000000		OUTB	.ENTR	.0					C121801228	
003056	063234			.STB	.TS06		SAVE B			C121901229	
003057	004550			.LLSR	.8					C122001230	
003060	002000			.CALL	.OUTA		OUTPUT FIRST CHAR			C122101231	
003061	003021	R									
003062	004450			.LLRL	.8					C122201232	
003063	002000			.CALL	.OUTA		OUTPUT SECOND CHAR			C122301233	
003064	003021	R									
003065	023234			.LDB	.TS06		RESTORE B			C122401234	
003066	001000			.JMP*	.OUTB		RETURN			C122501235	
003067	103055	R									
			*							C122601236	
			*	CLTPUT CARRIAGE RETURN AND LINE FEED TO TTY							C122701237
			*							C122801238	
003070	000000		OUTC	.ENTR	.0					C122901239	
003071	006010			.LDAI	.0106612		CR AND LF			C123001240	
003072	106612										
003073	002000			.CALL	.OUTB		OUTPUT 2 CHAR			C123101241	
003074	003055	R									
003075	001000			.JMP*	.OUTC		RETURN			C123201242	
003076	103070	R									
			*							C123301243	
			*	CLTPUT OCTAL WORD AND A SPACE TO TTY							C123401244
			*							C123501245	
003077	000000		OUTE	.ENTR	.0					C123601246	
003100	005002			.TZB	.					C123701247	

003101	004557		.LLSR	.15		C123801248
003102	005122		.1BR	.		C123901249
003103	006110	OUT2	.GRAI	.00	MAKE DIGIT	C124001250
003104	000260					
003105	002000		.CALL	.OUTA	OUTPUT ONE DIGIT	C124101251
003106	003021	R				
003107	005001		.TZA	.		C124201252
003110	004443		.LLRL	.3		C124301253
003111	001020		.JBZ	***4	OCTAL OUTPUT COMPLETE	C124401254
003112	003115	R				
003113	001000		.JMP	.OUT2		C124501255
003114	003103	R				
003115	006010		.LDAI	.0240	ASCII BLANK CODE	C124601256
003116	000240					
003117	002000		.CALL	.OUTA	OUTPUT SPACE	C124701257
003120	003021	R				
003121	001000		.JMP*	.OUTE	RETURN	C124801258
003122	103077	R				
			*			C124901259
			*	CLTPUT MESSAGE TO TTY (X REG CONTAINS ADDRESS OF MESSAGE)		C125001260
			*			C125101261
003123	000000	OUTD	.ENTR	.0		C125201262
003124	015000		.LDA	.0,1		C125301263
003125	001010		.JAZ*	.CLTD		C125401264
003126	103123	R				
003127	002000		.CALL	.OUTB		C125501265
003130	003055	R				
003131	005144		.IXR	.		C125601266
003132	001000		.JMP	.OUTD+1		C125701267
003133	003124	R				
			*			C125801268
			*	CLTPUT OCTAL MEMORY ADDRESS TO TTY PRINTER		C125901269
			*			C126001270
003134	000000	OUTF	.ENTR	.0		C126101271
003135	053230		.STA	.TS02	SAVE WORD	C126201272
003136	006010		.LDAI	.01	PAREN SPACE	C126301273
003137	124240					
003140	002000		.CALL	.OUTB	PRINT CHAR	C126401274
003141	003055	R				
003142	013230		.LDA	.TS02		C126501275
003143	002000		.JMPM	.OUTE	OUTPUT OCTAL WORD	C126601276
003144	003077	R				

003145	006010		.LDAI	.')	RIGHT PARENTHESIS AND SPACE	C126701277
003146	124640					
003147	002000		.CALL	.OUTB		C126801278
003150	003055	R				
003151	001000		.JMP*	.OUTF		C126901279
003152	103134	R				
			*			C127001280
			*	INVALID INPUT--PRINT MESSAGE		C127101281
			*			C127201282
003153	000000		OUTG	.ENTR	.0	C127301283
003154	006030			.LDXI	.MSG5	C127401284
					INVALID MESSAGE	
003155	002301	R				
003156	002000		.CALL	.OUTD	OUTPUT MESSAGE	C127501285
003157	003123	R				
003160	001000		.JMP*	.OUTG		C127601286
003161	103153	R				
			*			C127701287
			*	OUTPUT CONTROL CHARACTER SUBROUTINE		C127801288
			*			C127901289
003162	053203		OUT3	.STA	.OUTH+3	C128001290
					SAVE A	
003163	073204			.STX	.OUTH+4	C128101291
					SAVE X	
003164	033200			.LDX	.OUTH	C128201292
					A=CONTROL	
003165	015000			.LDA	.0,1	C128301293
					CHARACTER	
003166	002000			.CALL	.OUTA	C128401294
					OUTPUT CHARACTER	
003167	003021	R				
003170	006030			.LDXI	.077777	C128501295
					INIT	
003171	077777					
003172	002000		.CALL	.TDLY	TIME DELAY	C128601296
003173	003205	R				
003174	043200			.INR	.OUTH	C128701297
					SET RETURN	
003175	013203			.LDA	.OUTH+3	C128801298
					RESTORE A	
003176	033204			.LDX	.OUTH+4	C128901299
					RESTORE X	
003177	001000			.JMP	.0	C129001300
					RETURN	
003200	000000					
003200			OUTH	.BES	.0	C129101301
					ENTRY	
003201	001000			.JMP	.OUT3	C129201302
					LOOP	
003202	003162	R				
003203				.BSS	.2	C129301303
					STORAGE FOR A + X	
			*			C129401304
			*	TIME DELAY SUBROUTINE		C129501305
			*			C129601306
003205	000000		TDLY	.ENTR	.0	C129701307

003206	005344	.DxR	.		C129801308
003207	001040	.JXZ*	.TDLY	RETURN	C129901309
003210	103205				
003211	001000	.JMP	..-3		C130001310
003212	003206				

*
* EXECUTIVE DATA TABLE
*

003213	000000	EAR1	.DATA	.0	PSEUDO A REG	C130101311
003214	000000	EBR1	.DATA	.0	PSEUDO B REG	C130201312
003215	000000	EXR1	.DATA	.0	PSEUDO X REG	C130301313
003216		ETS1	.BSS	.6	TEMPORARY STORAGE	C130401314
003224	000240	EK00	.DATA	.0240	ASCII BLANK(SPACE)	C130501315
003225		SCON	.BSS	.1	MODE FLAG 0 = CCNSOLE , 1 = TTY	C130601316
003226		SFLG	.BSS	.1	LOOP FLG USED IN SSWT	C130701317

*
* DATA TABLE
*

003227	000000	TS01	.DATA	.0	TEMPORARY STORAGE	C130801318
003230	000000	TS02	.DATA	.0	TEMPORARY STORAGE	C130901319
003231	000000	TS03	.DATA	.0	TEMPORARY STORAGE	C131001320
003232	000000	TS04	.DATA	.0	DIGIT COUNTER FOR INPG	C131101321
003233	000000	TS05	.DATA	.0	TEMPORARY STORAGE	C131201322
003234	000000	TS06	.DATA	.0	TEMPORARY STORAGE	C131301323
003235	000000	TS07	.DATA	.0	TEMPORARY STORAGE	C131401324

* PARITY ERROR REPORTING ROUTINES *

003236		IPER	.BSS	.0	INSTRUCTION PARITY ERROR PROCESSOR	C131501325
003236	100545	.EXC	.0500+PRTY		DISABLE PARITY INTERRUPTS	C131601326
003237	053272	.STA	.IPEA		SAVE A	C131701327
003240	063273	.STB	.IPEB		B	C131801328
003241	073274	.STX	.IPEX		AND X	C131901329
003242	010100	.LDA	.0100		A=ERROR ADDRESS	C132001330
003243	006020	.LDBI	.0100		B=TRAP LOCATION	C132101331
003244	000100					C132201332
003245	002000	.CALL	.SSWT		CALL SENSE SWITCH ROUTINE	C132301333
003246	002461					C132401334
003247	005000	.DATA	.05000		NOP	C132501335
003250	103256	.DATA	.(IPE1)*		ERR PRINTOUT	C132601336

003251	000265	R	.DATA	.TERM	SS3 EXIT	C133601346
003252	003253	R	.DATA	.*+1		C133701347
003253	000020		.HLT	.020		C133801348
003254	001000		.JMP	.TERM		C133901349
003255	000265	R				C134001350
			* IPE1			C134101351
003256	000000		.DATA	.0		C134201352
003257	006030		.LDXI	.HG12		
003260	003432	R				
003261	002000		.CALL	.OUTD	OUTPUT ERR MESSAGE	C134301353
003262	003123	R				
003263	010100		.LDA	.0100		C134401354
003264	002000		.CALL	.OLTE	AND PARITY ERROR ADDRESS	C134501355
003265	003077	R				
003266	002000		.CALL	.OUTC	CR/LF	C134601356
003267	003070	R				
003270	001000		.JMP*	.IPE1		C134701357
003271	103256	R				
003272	000000		IPEA	.DATA	.0	REGISTER
003273	000000		IPEB	.DATA	.0	SAVE
003274	000000		IPEX	.DATA	.0	AREA
			* APER			
003275			.BSS	.0	ADDRESS PARITY ERROR PROCESSOR	C135101361
003275	100545		.EXC	.0500+PRTY	DISABLE PARITY INTERRUPTS	C135201362
003276	053331		.STA	.APEA	SAVE A	C135301363
003277	063332		.STB	.APEB	B	C135401364
003300	073333		.STX	.APEX	AND X	C135501365
003301	010104		.LDA	.0104	A=ERROR ADDRESS	C135601366
003302	006020		.LDBI	.0104	B=TRAP LOCATION	C135701367
003303	000104					C135801368
003304	002000		.CALL	.SSWT	CALL SENSE SWITCH ROUTINE	C135901369
003305	002461	R				
003306	005000		.DATA	.05000	NOP	C136001370
003307	103315	R	.DATA	.(APE1)*	ERR PRINTOUT	C136101371
003310	000265	R	.DATA	.TERM	SS3 EXIT	C136201372
003311	003312	R	.DATA	.*+1		C136301373
003312	000021		.FLT	.021		C136401374
003313	001000		.JMP	.TERM		C136501375
003314	000265	R				
			* APE1			C136601376
003315	000000		.DATA	.0		C136701377
003316	006030		.LDXI	.HG13		C136801378

003317	003452	R							
003320	002000		.CALL	.OUTD	OUTPUT ERR MESSAGE				C136901379
003321	003123	R							
003322	010104		.LDA	.0104					C137001380
003323	002000		.CALL	.CUTE	AND PARITY ERROR ADDRESS				C137101381
003324	003077	R							
003325	002000		.CALL	.OUTC	CR/LF				C137201382
003326	003070	R							
003327	001000		.JMP*	.APE1					C137301383
003330	103315	R							
003331	000000		APEA	.DATA	.0	REGISTER			C137401384
003332	000000		APEE	.DATA	.0	SAVE			C137501385
003333	000000		APEX	.DATA	.0	AREA			C137601386
			*						C137701387
003334			OPER	.BSS	.0	OPERAND PARITY ERROR PROCESSOR			C137801388
003334	100545			.EXC	.0500+PRTY	DISABLE PARITY INTERRUPTS			C137901389
003335	053370			.STA	.OPEA	SAVE A			C138001390
003336	063371			.STB	.OPEB	B			C138101391
003337	073372			.STX	.OPEX	AND X			C138201392
003340	010110			.LDA	.0110	A=ERROR ADDRESS			C138301393
003341	006020			.LDXI	.0110	B=TRAP LOCATION			C138401394
003342	000110								
003343	002000		.CALL	.SSWT	CALL SENSE SWITCH ROUTINE				C138501395
003344	002461	R							
003345	005000		.DATA	.05000	NOP				C138601396
003346	103354	R	.DATA	.(OPE1)*	ERR PRINTOUT				C138701397
003347	000265	R	.DATA	.TERM	SS3 EXIT				C138801398
003350	003351	R	.DATA	.*+1					C138901399
003351	000022		.FLT	.022					C139001400
003352	001000		.JMP	.TERM					C139101401
003353	000265	R							
			*						C139201402
003354	000000		OPE1	.DATA	.0				C139301403
003355	006030		.LDXI	.HG14					C139401404
003356	003470	R							
003357	002000		.CALL	.OUTD	OUTPUT ERR MESSAGE				C139501405
003360	003123	R							
003361	010110		.LDA	.0110					C139601406
003362	002000		.CALL	.CUTE	AND PARITY ERROR ADDRESS				C139701407
003363	003077	R							
003364	002000		.CALL	.OUTC	CR/LF				C139801408
003365	003070	R							

003366	001000		.JMP*	.CPE1		C139901409	
003367	103354	R					
003370	000000		OPEA	.DATA	.0	REGISTER	C140001410
003371	000000		OPEB	.DATA	.0	SAVE	C140101411
003372	000000		OPEX	.DATA	.0	AREA	C140201412
			*				C140301413
003373			TPER	.BSS	.0	TRAP PARITY ERROR PROCESSOR	C140401414
003373	100545			.EXC	.0500+PRTY	DISABLE PARITY INTERRUPTS	C140501415
003374	053427			.STA	.TPEA	SAVE A	C140601416
003375	063430			.STB	.TPEB	b	C140701417
003376	073431			.STX	.TPEX	AND X	C140801418
003377	010114			.LDA	.0114	A=ERROR ADDRESS	C140901419
003400	006020			.LDBI	.0114	B=TRAP LOCATION	C141001420
003401	000114						
003402	002000			.CALL	.SSWT	CALL SENSE SWITCH ROUTINE	C141101421
003403	002461	R					
003404	005000			.DATA	.05000	NOP	C141201422
003405	103413	R		.DATA	.(TPE1)*	ERR PRINTOUT	C141301423
003406	000265	R		.DATA	.TERM	SS3 EXIT	C141401424
003407	003410	R		.DATA	.*+1		C141501425
003410	000023			.HLT	.023		C141601426
003411	001000			.JMP	.TERM		C141701427
003412	000265	R					
			*				C141801428
003413	000000		TPE1	.DATA	.0		C141901429
003414	006030			.LDXI	.HG15		C142001430
003415	003506	R					
003416	002000			.CALL	.OUTD	OUTPUT ERR MESSAGE	C142101431
003417	003123	R					
003420	010114			.LDA	.0114		C142201432
003421	002000			.CALL	.OUTE	AND PARITY ERROR ADDRESS	C142301433
003422	003077	R					
003423	002000			.CALL	.OUTC	CR/LF	C142401434
003424	003070	R					
003425	001000			.JMP*	.TPE1		C142501435
003426	103413	R					
003427	000000		TPEA	.DATA	.0	REGISTER	C142601436
003430	000000		TPEB	.DATA	.0	SAVE	C142701437
003431	000000		TPEX	.DATA	.0	AREA	C142801438
*****							C142901439
* MESSAGE TABLE							C143001440
* MESSAGE TABLE							C143101441

003432 106612
 003433 144716
 003434 151724
 003435 151325
 003436 141724
 003437 144717
 003440 147240
 003441 150301
 003442 151311
 003443 152331
 003444 120305
 003445 151322
 003446 147722
 003447 120301
 003450 152240
 003451 000000
 003452 106612
 003453 140704
 003454 142322
 003455 142723
 003456 151640
 003457 150301
 003460 151311
 003461 152331
 003462 120305
 003463 151322
 003464 147722
 003465 120301
 003466 152240
 003467 000000
 003470 106612
 003471 147720
 003472 142722
 003473 140716
 003474 142240
 003475 150301
 003476 151311
 003477 152331
 003500 120305
 003501 151322
 003502 147722

*
HG12 .DATA .CRLF.*INSTRUCTION PARITY ERROR AT %.0

C143201442
C143301443

HG13 .DATA .CRLF.*ADDRESS PARITY ERROR AT %.0

C143401444

HG14 .DATA .CRLF.*OPERAND PARITY ERROR AT %.0

C143501445

003503 120301
 003504 152240
 003505 000000
 003506 106612
 003507 152322
 003510 140720
 003511 120320
 003512 140722
 003513 144724
 003514 154640
 003515 142722
 003516 151317
 003517 151240
 003520 140724
 003521 120240
 003522 000000
 000007

HG15 .DATA .CRLF .TRAP PARITY ERROR AT .0

C143601446

.END .07

C143701447

LITERALS

POINTERS

SYMBOLS

1 003506 R HG15
 1 003470 R HG14
 1 003452 R HG13
 1 003432 R HG12
 1 003431 R TPEX
 1 003430 R TPEB
 1 003427 R TPEA
 1 003413 R TPE1
 1 003373 R TPER
 1 003372 R OPEX
 1 003371 R OPEB
 1 003370 R OPEA
 1 003354 R OPE1
 1 003334 R OPER
 1 003333 R APEX
 1 003332 R APEB
 1 003331 R APEA

1	003315	R	APE1
1	003275	R	APER
1	003274	R	IPEX
1	003273	R	IPEB
1	003272	R	IPEA
1	003256	R	IPE1
1	003236	R	IPER
1	003235	R	TS07
1	003234	R	TS06
1	003233	R	TS05
1	003232	R	TS04
1	003231	R	TS03
1	003230	R	TS02
1	003227	R	TS01
1	003226	R	SFLG
1	003225	R	SCON
1	003224	R	EK00
1	003216	R	ETS1
1	003215	R	EXR1
1	003214	R	EBR1
1	003213	R	EAR1
1	003205	R	TDLY
1	003200	R	OUTH
1	003162	R	OUT3
1	003153	R	OUTG
1	003134	R	OUTF
1	003123	R	OUTC
1	003103	R	OUT2
1	003077	R	OUTE
1	003070	R	OUTC
1	003055	R	OUTB
1	003054	R	STTY
1	003050	R	CUT1
1	003021	R	OUTA
1	003011	R	ING1
1	003005	R	ING8
1	002774	R	ING6
1	002771	R	INPG
1	002764	R	ING2
1	002762	R	ING4
1	002760	R	ING3
1	002721	R	ING5

1	002714	R	ING7
1	002711	R	INPF
1	002706	R	INF2
1	002704	R	INF1
1	002702	R	INF3
1	002700	R	INF4
1	002654	R	INF5
1	002651	R	INPE
1	002646	R	INE2
1	002644	R	INE1
1	002617	R	INE3
1	002613	R	IND3
1	002610	R	INPD
1	002605	R	IND2
1	002603	R	IND1
1	002557	R	IND4
1	002554	R	INPC
1	002551	R	INC2
1	002547	R	INC1
1	002525	R	INC3
1	002522	R	INP5
1	002511	R	INB1
1	002506	R	INPA
1	002464	R	INA1
1	002461	R	SSWT
1	002450	R	SSWE
1	002445	R	SSWS
1	002433	R	SSWR
1	002417	R	SSW6
1	002410	R	SSW5
1	002403	R	SSWN
1	002377	R	SSW4
1	002364	R	SSW3
1	002351	R	SSWL
1	002347	R	SSW2
1	002342	R	SSW1
1	002307	R	SSWP
1	002301	R	MSG5
1	002272	R	MSG1
1	002266	R	EXIT
1	002234	R	ETBL
1	002214	R	ETO4

1	002157	R	ETOP
1	002146	R	EBG2
1	002131	R	ECN2
1	002102	R	ECN3
1	002071	R	ECNG
1	002064	R	EDU4
1	002051	R	EDU2
1	002044	R	EDU1
1	002027	R	EDUM
1	002022	R	EGO1
1	002007	R	EGOT
1	001761	R	EXRG
1	001733	R	EBRG
1	001704	R	EARG
1	001701	R	ETR2
1	001671	R	ETR1
1	001637	R	ETR3
1	001603	R	ETRP
1	001577	R	TBL1
1	001565	R	TBL
1	001562	R	TBLF
1	001556	R	TBLL
1	001550	R	TBLI
1	001533	R	HG11
1	001511	R	HG1C
1	001500	R	HDG9
1	001472	R	HDG8
1	001463	R	HDG6
0	001442	R	HDG5
0	001426	R	HDG3
1	001416	R	HDG1
1	106612		CRLF
1	001415	R	SAVX
1	001414	R	SAVE
1	001413	R	SWCH
1	001412	R	TERR
1	001411	R	PAT2
1	001410	R	PAT1
1	001407	R	BITS
1	001406	R	LAST
1	001405	R	FRST
1	001404	R	REP

1	001403	R	REP1
1	001402	R	MTYP
1	001401	R	TEST
1	001400	R	EMEM
1	001377	R	CYCL
1	001376	R	TCYC
1	001375	R	MTW2
1	001374	R	MTW1
1	001365	R	TES2
1	001341	R	TES1
1	001336	R	TES
1	001323	R	SET1
1	001321	R	SET
1	001317	R	DAP3
1	001304	R	DAP2
1	001273	R	DAP1
1	001263	R	DAP
1	001252	R	IWCC
1	001237	R	IWC
1	001221	R	TWCB
0	001216	R	TWCA
1	001200	R	TWCT
1	001137	R	TCB6
1	001133	R	TCB
1	001115	R	ICB2
1	001101	R	ICB1
1	001071	R	ICBC
1	001062	R	ICB
1	001044	R	TCBT
1	001030	R	IAO
1	001016	R	TAOT
1	001003	R	IAZ
1	000771	R	TAZT
1	000744	R	TUA1
1	000741	R	TUA
1	000731	R	IUA1
1	000727	R	IUA
1	000707	R	TUAC
1	000702	R	TUAB
1	000662	R	TUAA
1	000654	R	TUAT
1	000641	R	ELOP

1	000622	R	ERP2
1	000362	R	ERP1
1	000345	R	ERPC
1	000333	R	ERR1
1	000322	R	MERR
1	000314	R	TERN
1	000265	R	TERM
1	000247	R	DEM
1	000234	R	MIN3
1	000210	R	MIN2
1	000203	R	MIN1
1	000177	R	MINT
1	000175	R	UACC
1	000170	R	UACA
1	000161	R	UACC
1	000140	R	UACB
1	000133	R	MTC4
1	000125	R	MTC1
1	000117	R	MTCM
1	000072	R	MTT6
1	000051	R	MTT5
1	000044	R	MTTM
1	000017	R	MTOP
1	000045		PRTY