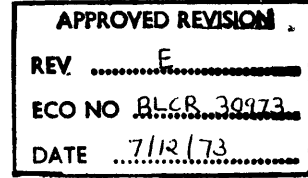


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\* NAME: AB16-CM15 DOC 70181454000 REV E  
\* DESCRIPTION: MEMORY TEST FOR HONEYWELL CENTRAL PROCESSOR  
\* UNITS 316, 516 AND 716

\* REVISION HISTORY:  
\* REV DATE

\* E JUN 7, 73 (AB16-CM15)  
\* D JAN 25, 72 (AB16-CM14)  
\* C JAN 12, 71 (016-CM14)  
\* B DEC 1, 70 (016-CM14)  
\* A FEB 20, 70 (316-CM11)



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\*\*\*\*\*

EJCT

0001  
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\* DISTRIBUTION

\* THIS PROGRAM IS INTENDED TO BE DISTRIBUTED IN A BINARY (SELF-LOADING) FORM. EITHER PAL-AP (FOR PAPER TAPE) OR PAL-C (FOR CARDS) FORMAT IS SATISFACTORY. THE PROGRAM IS COMPLETE AS LOADED AND NO EXTERNAL LIBRARIES ARE REQUIRED.

\* PURPOSE

\* TO TEST THE CORE MEMORY SUBSYSTEM USED IN THE H316, 516 AND 716 COMPUTERS.

\* STORAGE

\* ALL OF CORE, UP TO 32K.

\* TIMING

MEMORY SIZE	APPROX. TIME IN SECONDS FOR	316	516	716
		---	---	---
4K		10	5	5
8K		20	9	8
12K		30	13	11
16K		40	17	14
20K		50	20	16
24K		60	24	19
28K		70	27	22
32K		80	30	25

\* USE

\* LOAD AND START AT \*1000,

0031  
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0068 \* IF PREVIOUSLY EXECUTED START AT LOCATION CONTAINED IN '20.  
0069 \*  
0070 \* WHENEVER THE PROGRAM IS MOVED THE STARTING  
0071 \* ADDRESS IS SAVED IN OCTAL LOCATION ('20).  
0072 \*  
0073 \* NOTE: WHEN ALL SWITCHES ARE RESET, THE PROGRAM WILL  
0074 \* DETERMINE THE CP TYPE AND SIZE AND WILL TEST ALL  
0075 \* OF MEMORY.  
0076 \*  
0077 \* EJECT

0068  
0069  
0070  
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0075  
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0078 \* SENSE SWITCH USAGE  
0079 \*  
0080 \* SS1 SET - OPERATOR SETS TEST BOUNDS.  
0081 \* RESET - ALL AVAILABLE CORE TESTED EACH PASS.  
0082 \*  
0083 \*  
0084 \* SS2 SET - PROGRAM REMAINS AT PRESENT LOCATION.  
0085 \* RESET - PROGRAM RELOCATES ITSELF AFTER EACH PASS.  
0086 \*  
0087 \*  
0088 \* SS3 SET - SUPPRESS SINGLE ERROR MESSAGES.  
0089 \* RESET - TYPE EACH ERROR  
0090 \*  
0091 \*  
0092 \* REQUEST FOR NEW TEST BOUNDS (SWITCH ONE SET)  
0093 \*  
0094 \* \*\*\*\*\*  
0095 \* 001750 LO . \* RETAIN OLD LOW LIMIT  
0096 \* 007777 HI 3777 \* NEW HIGH LIMIT  
0097 \* \*\*\*\*\*  
0098 \*  
0099 \* ELEMENT EXPLANATION  
0100 \*  
0101 \* PERIOD OR = TERMINATE INPUT. IF NO VALUE  
0102 \* CARRIAGE RETURN HAS BEEN ENTERED, OLD VALUE  
0103 \* WILL BE RETAINED.  
0104 \* RUBOUT = RESTART INPUT  
0105 \*  
0106 \* NOTE : ANY ENTRIES OTHER THAN OCTAL WILL BE IGNORED.  
0107 \* THE LO MUST NOT BE HIGHER THAN THE HI.  
0108 \*  
0109 \*  
0110 \* OUTPUT MESSAGE FORMAT  
0111 \*  
0112 \* END OF PASS MESSAGE  
0113 \*  
0114 \* \*\*\*\*\*

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0115	*	* PSXXXX LLLLLL HHHHHH ERYYYY *	0115
0117	*	*****	0116
0117	*		0117
0118	*	WHERE:	0118
0119	*	X = PASS COUNT	0119
0120	*	L = CURRENT LOW LIMIT	0120
0121	*	H = CURRENT HIGH LIMIT	0121
0122	*	Y = TOTAL ERROR COUNT (ONLY PRINTED IF NONZERO)	0122
0123	*		0123
0124	*	FOLLOWED BY TOTAL ACCUMULATED BIT FAILURE BUFFER	0124
0125	*	IF ANY ERRORS THIS PASS	0125
0126		EJCT	0126

0127	*	*****	0127
0128	*	* BITS P D * P=PICKED	0128
0129	*	* 00 XXXX ZZZZ * D=DROPE	0129
0130	*	* THRU * *	0130
0131	*	* 16 XXXX ZZZZ *	0131
0132	*	*****	0132
0133	*		0133
0134	*		0134
0135	*	ONLY THOSE BIT POSITIONS WHICH HAVE A FAILURE	0135
0136	*	HISTORY WILL BE PRINTED.	0136
0137	*		0137
0138	*		0138
0139	*	NOTE - THE 'BIT' FAILURE HISTORY AND THE ERROR COUNT	0139
0140	*	IS CLEARED ONLY ON A RESTART AT '1000	0140
0141	*	(RELOCATED IF REQUIRED).	0141
0142	*		0142
0143	*		0143
0144	*	SINGLE ERROR PRINT OUT	0144
0145	*		0145
0146	*	*****	0146
0147	*	* L XXXXXX SB YYYYYY IS ZZZZZZ *	0147
0148	*	*****	0148
0149	*		0149
0150	*		0150
0151	*	WHERE:	0151
0152	*	L = LOCATION	0152
0153	*	SB= SHOULD BE	0153
0154	*	IS= ACTJAL	0154
0155	*		0155
0156	*		0156
0157	*	METHOD	0157
0158	*		0158
0159	*	THIS PROGRAM WILL SEQUENTIALLY EXECUTE ALL FIVE	0159
0160	*	TEST PATTERN ROUTINES. THEY ARE RUN IN THE FOLLOWING ORDER-	0160
0161	*	(1) ADDRESS TEST	0161
0162	*	CHECKS EACH LOCATION FOR UNIQUENESS	0162
0163	*		0163

```

0164 * (2) WORST CASE PATTERN TEST. 0164
0165 * A DOUBLE CHECKERBOARD PATTERN USEFUL FOR 0165
0166 * SYSTEMS WITH MORE THAN 1 BANK. 0166
0167 * 0167
0168 * (3) COMPLEMENTED WORST CASE PATTERN TEST. 0168
0169 * ONES COMPLEMENT OF 2. 0169
0170 * 0170
0171 * (4) PSEUDO RANDOM NUMBER PATTERN TEST 0171
0172 * A. A PSEUDO RANDOM NUMBER STRING. 0172
0173 * B. VARIABLE LOAD ON POWER SUPPLY 0173
0174 * 0174
0175 * (5) BII PATTERN TEST 0175
0176 * MEMORY CLEARED TO ALL ZERO'S, THEN EACH 0176
0177 * MEMORY CELL WILL BE CHANGED TO ALL ONES, 0177
0178 * READ, COMPLEMENTED, STORED AND REREAD. 0178
0179 * 0179
0180 * THE COMMON READ ROUTINE WILL ITERATE FOUR TIMES ON EACH 0180
0181 * LOCATION TESTED, WITH AN ALTERNATE COMPLEMENTED PATTERN. THEREFORE 0181
0182 * CREATING THE POSSIBILITY OF FOUR ERRORS FOR EACH LOCATION PER 0182
0183 * ROUTINE, IN ORDER THAT THE TEST MAY BE CARRIED THROUGH COMPLETELY, 0183
0184 * EACH LOCATION WILL BE RESET TO THE ORIGINAL TEST PATTERN UPON 0184
0185 * THE EXITING OF THIS ROUTINE. 0185
0186 * 0186
0187 * AT THE END OF EACH PASS, THE PROGRAM WILL 0187
0188 * TEST THE MEMORY PARITY FLOP. IF IT IS SET, THE PROGRAM 0188
0189 * WILL TYPE 'MP' AND HALT. THIS IS CONSIDERED A FATAL 0189
0190 * ERROR AND RESTART IS NOT PERMITTED. 0190
0191 * 0191
0192 * SINCE THE PROGRAM CAN NOT DETERMINE IF A PARITY ERROR 0192
0193 * OCCURRED ON AN INSTRUCTION FETCH, OPERAND FETCH OR 0193
0194 * INDIRECT, IT IS SUGGESTED THAT THE OPERATOR PROCEED 0194
0195 * AS FOLLOWS IN ORDER TO LOCATE AN INFREQUENT ERROR: 0195
0196 * 0196
0197 * (1) LOCK PROGRAM (SET SSW2) AND TEST LIMITS IN ITS 0197
0198 * PRESENT LOCATION. 0198
0199 * 0199
0200 * (2) SET UP LOCATION *63 FOR INTERRUPT TO A HALT. 0200

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0201 * 0201
0202 * (3) DO A MANUAL SMK WITH BIT 15 AND ENB. 0202
0203 * 0203
0204 * (4) START WITHOUT MASTER CLEAR. 0204
0205 * 0205
0206 * IF THE ERROR IS SOLID IT CAN BE FOUND BY USING THE 0206
0207 * FOLLOWING SHORT PROGRAM KEYED IN BY HAND IN ANY 0207
0208 * AVAILABLE MEMORY. 0208
0209 * 0209
0210 * EXA 0210
0211 * STA 0 0211
0212 * RMP RMP 0212
0213 * LDA 0,1 0213
0214 * SPN 0214
0215 * HLT 0215
0216 * IRS 0 0216
0217 * JMP RMP 0217
0218 * 0218
0219 * 0219
0220 * ***** 0220
0221 * 0221
0222 * LOAD ALLOW NO LOADER GENERATED LINKS 0222
0223 * ORG *120 0223
0224 * 0224
0225 * CORE SIZE AND TEST AREA LIMITS DEFINED 0225
0226 * 0226
0227 * CUSI DAC ** CORE SIZING ROUTINE 0227
0228 * 000013 EXA 0228
0229 * 0 10 00123 JST **1 0229
0230 * 0 000000 CUSE DAC ** 0230
0231 * 0 02 00123 LDA COSE DETERMINE BOTTOM OF PROGRAM 0231
0232 * 0 05 00760 ERA =*123 0232
0233 * 00126 101040 SNZ 0233
0234 * 00127 0 01 00151 JMP COSC 0234
0235 * 00130 0 03 00757 ANA =*77000 0235
0236 * 00131 0 04 00674 STA NOW SAVE CURRENT DISPLACEMENT 0236
0237 * 00132 0 02 00756 LDA =*21 0237

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0238	00133	0 04 00700	STA	NFA		0238
0239	00134	0 04 00676	STA	CFA		0239
0240	00135	0 02 00123	LDA	COSE		0240
0241	00136	0 07 00755	SUB	=4		0241
0242	00137	0 04 00701	STA	NLA		0242
0243	00140	0 04 00677	STA	CLA		0243
0244	00141	000021	CUSD	RMP		0244
0245	00142	0 02 00674	LDA	NOW	FETCH THE CURRENT DISPLACEMENT	0245
0246	00143	0 06 00675	ADD	NOWB	AND ADD DISPLACEMENT IN PROGRAM	0246
0247	00144	010000	UCT	10000	(STA 0) STORE THE ADDRESS	0247
0248	00145	0 02 00674	LDA	NOW	AND FORWARD THE CURRENT PGM	0248
0249	00146	110000	UCT	110000	(STA* 0) LOCATION TO THE SECOND SECTOR	0249
0250	00147	101000	NDP			0250
0251	00150	-0 01 00120	JMP*	COS1		0251
0252			*			0252
0253			*			0253
0254			*			0254
0255	00151	0 02 00705	CUSC	LDA	PNTZ	0255
0256	00152	0 04 00676	STA	CFA	WRITE ADDRESS AS CONTENTS INTO MEMORY	0256
0257	00153	0 04 00700	STA	NFA	LOCATIONS ABOVE PROGRAM	0257
0258	00154	140040	CUSS	CRA		0258
0259	00155	0 04 00000	STA	0		0259
0260	00156	0 12 00676	IRS	CFA		0260
0261	00157	0 02 00676	LDA	CFA		0261
0262	00160	-0 04 00676	STA*	CFA		0262
0263	00161	0 02 00000	LDA	0		0263
0264	00162	100040	SZE			0264
0265	00163	0 01 00172	JMP	COSB		0265
0266	00164	-0 02 00676	LDA*	CFA		0266
0267	00165	0 11 00676	CAS	CFA		0267
0268	00166	0 01 00170	JMP	**2		0268
0269	00167	0 01 00154	JMP	CUSS		0269
0270	00170	100040	SZE			0270
0271	00171	0 01 00154	JMP	CUSS		0271
0272	00172	0 02 00676	CUSB	LDA	CFA	0272
0273	00173	0 07 00754	SUB	=1		0273
0274	00174	0 04 00701	STA	NLA		0274

0275	00175	0 04 00677	STA	CLA		0275
0276	00176	140040	CRA			0276
0277	00177	0 04 00674	STA	NOW	SAVE CURRENT DISPLACEMENT	0277
0278	00200	0 02 00700	LDA	NFA		0278
0279	00201	0 04 00676	STA	CFA		0279
0280	00202	0 01 00141	JMP	COSD		0280
0281			*			0281
0282			*	TWO SPACES		0282
0283			*			0283
0284	00203	0 000000	SPAC	DAC	**	0284
0285	00204	0 10 00222	JST	OPow		0285
0286	00205	120240	UCT	120240		0286
0287	00206	-0 01 00203	JMP*	SPAC		0287
0288			*			0288
0289			*	INPUT ONE CHARACTER ROUTINE		0289
0290			*			0290
0291	00207	0 000000	IPOC	DAC	**	0291
0292	00210	34 0104	SKS	*104	SUBROUTINE ENTRY	0292
0293	00211	0 01 00210	JMP	*-1	TEST DEVICE	0293
0294	00212	14 0004	UCP	*4	FOR READY	0294
0295	00213	54 1004	INA	*1004	SET DEVICE IN INPUT MODE	0295
0296	00214	0 01 00213	JMP	*-1	INPUT ONE CHAR	0296
0297	00215	0 03 00753	ANA	=*177	WAIT LOOP	0297
0298	00216	0 05 00752	ERA	=*200	SET PARITY BIT	0298
0299	00217	-0 04 00207	STA*	IPOC	TO MARKING	0299
0300	00220	0 12 00207	IRS	IPOC	STORE BACK	0300
0301	00221	-0 01 00207	JMP*	IPOC	UPDATE RETURN	0301
0302			*		RETURN	0302
0303			*	OUTPUT TWO CHARACTERS ROUTINE		0303
0304			*			0304
0305	00222	0 000000	OPow	DAC	**	0305
0306	00223	-0 02 00222	LDA*	OPow	OUTPUT ONE WORD	0306
0307	00224	141340	ICA		REACH BACK FOR DATA	0307
0308	00225	0 12 00222	IRS	OPow		0308
0309	00226	34 0104	SKS	*104		0309
0310	00227	0 01 00226	JMP	*-1		0310
0311	00230	14 0104	OCF	*104		0311

0312	00231	74 0074	UTA	*4		0312
0313	00232	0 01 00231	JMP	*-1		0313
0314	00233	141340	ICA			0314
0315	00234	74 0074	UTA	*4		0315
0316	00235	0 01 00234	JMP	*-1		0316
0317	00236	140040	CRA			0317
0318	00237	0 01 00222	JMP*	OPW		0318
0319			*			0319
0320			* LINE FEED AND CARRIAGE RETURN			0320
0321			*			0321
0322	00240	0 000000	LFCK	DAC	**	0322
0323	00241	0 10 00222	JST	OPW		0323
0324	00242	106612	UCT	106612		0324
0325	00243	0 01 00240	JMP*	LFCK		0325
0326			*			0326
0327			* OUTPUT CONTROL ROUTINE			0327
0328			*			0328
0329	00244	0 000000	OPCO	DAC	**	0329
0330	00245	-0 02 00244	LDA*	OPCO		0330
0331	00246	0 06 00674	ADD	NOw	ADD DISPLACEMENT TO DAC	0331
0332	00247	0 04 00261	STA	PNTX	POINTER	0332
0333	00250	0 12 00244	IRS	OPCO		0333
0334	00251	-0 02 00261	OPNW	LDA*	PNTX	0334
0335	00252	101040	SNZ			0335
0336	00253	-0 01 00244	JMP*	OPCO		0336
0337	00254	0 04 00256	STA	**2		0337
0338	00255	0 10 00222	JST	OPW		0338
0339	00256	0 000000	DAC	**		0339
0340	00257	0 12 00261	IRS	PNTX	UPDATE POINTER	0340
0341	00260	0 01 00251	JMP	OPNW		0341
0342	00261	0 000000	PNTX	DAC	**	0342
0343			*			0343
0344			* OUTPUT SINGLE ERROR			0344
0345			*			0345
0346	00262	0 000000	TYSE	DAC	**	0346
0347	00263	0 02 00751	LDA	=-3	OUTPUT SINGLE ERROR SUBROUTINE	0347
0348	00264	0 04 00442	STA	REJ1+1	COUNT	0348

0349	00265	0 10 00240	JST	LFCK	LFCK	0349
0350	00266	0 02 00665	LDA	AME1	SET UP ERROR MESSAGE	0350
0351	00267	0 04 00271	STA	AME1	ERROR MESSAGE	0351
0352	00270	0 10 00244	TYRE	JST	OPCO	0352
0353	00271	0 000000	AME1	DAC	**	0353
0354	00272	0 10 00203	JST	SPAC		0354
0355	00273	-0 02 00262	LDA*	TYSE	LOCATION OF ERROR,	0355
0356	00274	0 10 00362	JST	CBAS	CORRECT PATTERN	0356
0357	00275	0 12 00262	IRS	TYSE	UPDATE RETURN,	0357
0358	00276	0 12 00271	IRS	AME1	UPDATE MESSAGE CALL	0358
0359	00277	0 12 00271	IRS	AME1		0359
0360	00300	0 12 00442	IRS	REJ1+1		0360
0361	00301	0 01 00270	JMP	TYRE	REPEAT	0361
0362	00302	-0 01 00262	JMP*	TYSE	RETURN	0362
0363			*			0363
0364			* OCTAL TO DECIMAL TO ASCII FOR OUTPUT			0364
0365			*			0365
0366	00303	0 000000	DECC	DAC	**	0366
0367	00304	0 15 00666	STX	PNTW	CONVERT OCTAL TO DECIMAL	0367
0368	00305	0 35 00750	LDX	==4	SAVE X REG.	0368
0369	00306	140040	CRA		CLEAR	0369
0370	00307	0 04 00355	STA	DECL	COUNTING REGISTER	0370
0371	00310	000201	IAB			0371
0372	00311	-0 02 00303	LDA*	DECC	DATA TO BE CONVERTED	0372
0373	00312	101400	SMI		IF VALUE NOT 0 TO 9999 RANGE	0373
0374	00313	0 11 00747	CAS	=9999		0374
0375	00314	0 02 00747	LDA	=9999	THEN FORCE TO BE 9999	0375
0376	00315	101000	NOP			0376
0377	00316	1 07 00362	DECS	SUB	SUBTRACT DECIMAL NO.	0377
0378	00317	100400	SPL		IF A PLUS CONTINUE SUBTRACTING	0378
0379	00320	0 01 00323	JMP	DEAB	NEG.	0379
0380	00321	0 12 00355	IRS	DECL	INC COUNTER	0380
0381	00322	0 01 00316	JMP	DECS	REPEAT	0381
0382	00323	1 06 00362	DEAB	ADD	ADD BACK DECIMAL NO.	0382
0383	00324	0 04 00667	STA	ASVC	SAVE A REG .	0383
0384	00325	0 02 00355	LDA	DECL	SHIFT	0384
0385	00326	0412 74	LLR	4	COUNT	0385

0386	00327	0 04 00355	STA	DECL	REGISTER	0386
0387	00330	0 02 00667	LDA	ASVC	RESTORE A REG .	0387
0388	00331	0 24000	UCT	24000	(IRS 0) BUMP AND TEST COUNTER	0388
0389	00332	0 01 00316	JMP	DECS	REPEAT TEST ON NEXT BIT	0389
0390	00333	0 02 00355	LDA	DECL	CONVERT	0390
0391	00334	0 412 60	LLR	16	DECIMAL	0391
0392	00335	0 414 74	LGL	4	COUNT	0392
0393	00336	0 412 74	LLR	4	TO	0393
0394	00337	0 06 00746	ADD	=*130260	ASCII	0394
0395	00340	0 04 00343	STA	**3		0395
0396	00341	0 35 00666	LDX	PNTW	RESTORE X REG.	0396
0397	00342	0 10 00222	JST	OPUW	OUTPUT	0397
0398	00343	0 000000	DAC	**		0398
0399	00344	0 412 74	LLR	4	TO	0399
0400	00345	0 414 74	LGL	4	ASR	0400
0401	00346	0 412 74	LLR	4	FOUR	0401
0402	00347	0 06 00746	ADD	=A00	DECIMAL	0402
0403	00350	0 04 00352	STA	**2	NUMBERS	0403
0404	00351	0 10 00222	JST	OPUW	OUTPUT LOW ORDER	0404
0405	00352	0 000000	DAC	**	NUMBER	0405
0406	00353	0 12 00303	IRS	DECC	UPDATE RETURN	0406
0407	00354	-0 01 00303	JMP*	DECC	RETURN TO MAIN PROGRAM	0407
0408	00355	0 000000	DECL DAC	**		0408
0409	00356	001750	DECLN DEC	1000		0409
0410	00357	000144	DEC	100		0410
0411	00360	000012	DEC	10		0411
0412	00361	000001	DEC	1		0412
0413						0413
0414					* OCTAL TO ASCII FOR OUTPUT	0414
0415						0415
0416	00362	0 000000	CBAS DAC	**	CONVERT OCTAL TO ASCII	0416
0417	00363	000201	IAB			0417
0418	00364	0 02 00751	LDA	=-3	LOOP COUNT	0418
0419	00365	0 04 00667	STA	ASVC	LOOP COUNTER	0419
0420	00366	140040	CRA			0420
0421	00367	0 410 77	LLL	1		0421
0422	00370	0 415 73	CBAR ALS	5	FOR	0422

0423	00371	0 412 75	LLR	3	OCTAL	0423
0424	00372	0 06 00746	ADD	=A00	CONVERSION	0424
0425	00373	0 04 00375	STA	**2		0425
0426	00374	0 10 00222	JST	OPUW		0426
0427	00375	0 000000	DAC	**	TEMP DATA STORAGE	0427
0428	00376	0 412 75	LLR	3		0428
0429	00377	0 12 00667	IRS	ASVC	COUNTER	0429
0430	00400	0 01 00370	JMP	CBAR	REPEAT	0430
0431	00401	0 10 00203	JST	SPAC		0431
0432	00402	-0 01 00362	JMP*	CBAS	RETURN	0432
0433						0433
0434					* INPUT-NEW LIMITS	0434
0435						0435
0436	00403	0 000000	IPLS DAC	**		0436
0437	00404	0 10 00240	JST	LFRC		0437
0438	00405	0 02 00700	LDA	NFA	WORKING FIRST ADDRESS	0438
0439	00406	0 10 00362	JST	CBAS	OCTAL TO ASCII	0439
0440	00407	0 10 00222	JST	OPUW		0440
0441	00410	146317	BCI	1,LU	OUTPUT 2 CHARS	0441
0442	00411	0 10 00726	JST	PBA		0442
0443	00412	0 10 00436	JST	PACK		0443
0444	00413	0 02 00673	LDA	NEWL		0444
0445	00414	100040	SZE			0445
0446	00415	0 04 00700	STA	NFA		0446
0447	00416	0 10 00240	JST	LFRC		0447
0448	00417	0 02 00701	LDA	NLA	WORKING LAST ADDRESS	0448
0449	00420	0 10 00362	JST	CBAS		0449
0450	00421	0 10 00222	JST	OPUW		0450
0451	00422	144311	BCI	1,HI		0451
0452	00423	0 10 00726	JST	PBA		0452
0453	00424	0 10 00436	JST	PACK		0453
0454	00425	0 02 00673	LDA	NEWL	TO	0454
0455	00426	100040	SZE			0455
0456	00427	0 04 00701	STA	NLA		0456
0457	00430	0 10 00240	JST	LFRC		0457
0458	00431	0 02 00700	LDA	NFA	MAKE SURE THAT FIRST LOCATION	0458
0459	00432	0 11 00701	CAS	NLA	DOES NOT HAVE HIGHER ADDRESS THAN LAST	0459

0460	00433	0 01 00404	JMP	IPLS+1	OH-OH		0460
0461	00434	101000	NOP				0461
0462	00435	-0 01 00403	JMP*	IPLS			0462
0463			*				0463
0464			*	INPUT OCTAL VALJE			0464
0465			*				0465
0466	00436	0 000000	PACK	DAC	**	A REGISTER ZERO ON ENTRY	0466
0467	00437	1+0040	CRA				0467
0468	00440	0 04 00673	STA	NEWL		CLEAR VALUE ACCUMULATOR	0468
0469	00441	0 10 00207	REJT	JST	IPOC	INPUT A CHARACTER	0469
0470	00442	0 000000	DAC	**			0470
0471	00443	0 11 00745	CAS	=*267	7		0471
0472	00444	0 01 00460	JMP	ASCH			0472
0473	00445	0 01 00467	JMP	OCTL			0473
0474	00446	0 11 00744	CAS	=*260	OCTAL 0		0474
0475	00447	0 01 00467	JMP	OCTL			0475
0476	00450	0 01 00467	JMP	OCTL			0476
0477	00451	0 11 00743	CAS	=*250			0477
0478	00452	0 01 00441	JMP	REJT		IGNORE THIS CHARACTER	0478
0479	00453	-0 01 00436	JMP*	PACK			0479
0480	00454	0 11 00742	CAS	=*215	CR		0480
0481	00455	0 01 00441	JMP	REJT			0481
0482	00456	-0 01 00436	JMP*	PACK			0482
0483	00457	0 01 00441	JMP	REJT			0483
0484			*				0484
0485	00460	0 05 00741	ASCH	ERA	=*377		0485
0486	00461	100040		SIZE			0486
0487	00462	0 01 00441	JMP	REJT		NOT A RUB OUT	0487
0488	00463	0 02 00436	LDA	PACK		RUB OUT	0488
0489	00464	0 07 00740	SJB	=7	ADJUST ADDRESS RETURN		0489
0490	00465	0 04 00436	STA	PACK			0490
0491	00466	-0 01 00436	JMP*	PACK			0491
0492			*				0492
0493	00467	0 07 00744	OCTL	SJB	=*260	CHANGE ASCII TO OCTAL	0493
0494	00470	0 13 00673	IMA	NEWL			0494
0495	00471	0 14 75	LGL	3	MAKE ROOM FOR NEW OCTAL		0495
0496	00472	0 06 00673	ADD	NEWL			0496

0497	00473	0 04 00673	STA	NEWL		STORE OCTAL VALUF	0497
0498	00474	0 01 00441	JMP	REJT		GO ENTER NEW CHARACTER	0498
0499			*				0499
0500			*	RANDOM NUMBER GENERATOR FOR WRITE			0500
0501			*				0501
0502	00475	0 000000	RNGW	DAC	**	SUBROUTINE ENTRY	0502
0503	00476	0 02 00702	LDA	RAND		LOAD RANDOM NUMBER	0503
0504	00477	0416 63	ALR	13		SHIFT LEFT	0504
0505	00500	0 06 00703	ADD	RANE		ADD	0505
0506	00501	0406 70	ARR	8		SHIFT RIGHT	0506
0507	00502	0 06 00737	ADD	=*17/503		ADD	0507
0508	00503	0 04 00702	STA	RAND		SAVE AND UPDATE	0508
0509	00504	-0 01 00475	JMP*	RNGW		RETURN	0509
0510			*				0510
0511			*	RANDOM NUMBER GENERATOR FOR READ			0511
0512			*				0512
0513	00505	0 000000	RNGR	DAC	**	SUBROUTINE ENTRY	0513
0514	00506	0 02 00704	LDA	RANF		LOAD RANDOM NUMBER ONE	0514
0515	00507	0416 63	ALR	13		SHIFT LEFT	0515
0516	00510	0 06 00703	ADD	RANE		ADD	0516
0517	00511	0406 70	ARR	8		SHIFT RIGHT	0517
0518	00512	0 06 00737	ADD	=*177503		ADD	0518
0519	00513	0 04 00704	STA	RANF		SAVE AND UPDATE	0519
0520	00514	-0 01 00505	JMP*	RNGR		RETURN	0520
0521			*				0521
0522			*				0522
0523			*				0523
0524			*	END OF PASS ROUTINE			0524
0525			*				0525
0526	00515	0 000000	EUPR	DAC	**	ROUTINE ENTRY	0526
0527	00516	101200	SPS			SKIP IF PARITY FLOP IS SET	0527
0528	00517	0 01 00524	JMP	EOPS		NOT SET, GO ON	0528
0529	00520	0 10 00244	JST	OPCO		SET*** INFORM THE USER	0529
0530	00521	0 000723	DAC	PRTY			0530
0531	00522	000000	HLT			HALT - FATAL ERROR***	0531
0532	00523	0 01 00522	JMP	*-1		ON RESTART, HALT AGAIN	0532
0533	00524	0 02 00664	EUPS	LDA	PACU	UNRELOCATED ADDRESS OF PASS COUNTER	0533



0534	00525	0 06 00674	ADD	NOW	RELOCATE THE ADDRESS	0534
0535	00526	0 04 00261	STA	PNTX	SAVE THE ADDRESS	0535
0536	00527	-0 12 00261	IRS*	PNTX	INCREMENT THE PASS COUNTER	0536
0537	00530	-0 02 00261	LDA*	PNTX	FETCH THE PASS COUNTER	0537
0538	00531	0 04 00536	STA	LOPP	SAVE IT FOR PRINTING	0538
0539	00532	0 10 00240	JST	LFCR	ADVANCE THE LINE	0539
0540	00533	0 10 00242	JST	OPW	PRINT 'P3'	0540
0541	00534	150323	BCI	1,P5		0541
0542	00534	0 10 00303	JST	DECC	PRINT THE PASS COUNT IN DECIMAL	0542
0543	00536	0 000000	EUPP	DAC **		0543
0544	00537	0 10 00203	JST	SPAC	SPACE	0544
0545	00540	0 02 00700	LDA	NFA	FETCH THE LOW LIMIT	0545
0546	00541	0 10 00362	JST	CBAS	PRINT THE LOW LIMIT IN OCTAL	0546
0547	00542	0 02 00701	LDA	NLA	FETCH HIGH LIMIT	0547
0548	00543	0 10 00362	JST	CBAS	PRINT THE HIGH LIMIT IN OCTAL	0548
0549			*	TOTAL	ERROR COUNT OUTPUT	0549
0550			*			0550
0551	00544	0 02 00662	LDA	TLCU	UNRELOCATED ADDRESS OF ERROR COUNTER	0551
0552	00545	0 06 00674	ADD	NOW	RELOCATE THE ADDRESS	0552
0553	00546	0 04 00261	STA	PNTX	SAVE THE ADDRESS	0553
0554	00547	-0 02 00261	LDA*	PNTX	FETCH THE ERROR COUNT	0554
0555	00550	101040	SNZ		SKIP IF THERE HAVE BEEN ERRORS	0555
0556	00551	-0 01 00515	JMP*	EOPK	ELSE EXIT	0556
0557	00552	0 04 00560	STA	TCPT	SAVE THE COUNT FOR PRINTING	0557
0558	00553	0 10 00203	JST	SPAC	SPACE	0558
0559	00554	0 10 00222	JST	OPW	PRINT 'ER'	0559
0560	00555	142722	BCI	1,ER		0560
0561	00556	0 10 00203	JST	SPAC		0561
0562	00557	0 10 00303	JST	DECC	PRINT COUNT	0562
0563	00560	0 000000	TCPT	DAC **		0563
0564	00561	0 02 00560	LDA	TCPT	ERROR THIS PASS	0564
0565	00562	0 13 00663	IMA	TLPP	BECOME NEW ERRORS PREV. PASS	0565
0566	00563	0 07 00663	SUB	TLPP		0566
0567	00564	101040	SNZ		SKIP IF ERRORS THIS PASS	0567
0568	00565	-0 01 00515	JMP*	EOPK	RETURN	0568
0569	00566	100004	SR3		SKIP IF ERROR REPORTS SUPPRESSED	0569
0570	00567	-0 01 00515	JMP*	EOPK		0570

0571			*			0571
0572			*	OUTPUT	ERROR BUFFER-ACCUMULATED BIT FAILURE-	0572
0573			*			0573
0574	00570	0 10 00240	JST	LFCR	OUTPUT	0574
0575	00571	0 10 00244	JST	OPCU	FOR	0575
0576	00572	0 000720	DAC	MES2		0576
0577	00573	0 10 00203	JST	SPAC	BITS	0577
0578	00574	0 10 00222	JST	OPW	OUTPUT 2 CHARS	0578
0579	00575	150240	BCI	1,P		0579
0580	00576	0 10 00203	JST	SPAC		0580
0581	00577	0 10 00203	JST	SPAC		0581
0582	00600	0 10 00222	JST	OPW		0582
0583	00601	142240	BCI	1,D		0583
0584	00602	0 02 00736	LDA	=-16	SETUP	0584
0585	00603	0 04 00671	STA	PNTU	COUNTER	0585
0586	00604	0 02 00711	LDA	DBFF		0586
0587	00605	0 06 00674	ADD	NOW	ADD DISPLACEMENT TO DAC	0587
0588	00606	0 04 00670	STA	PNTM	POINTER	0588
0589	00607	140040	CRA		RESET	0589
0590	00610	0 04 00672	STA	BITC	BIT	0590
0591	00611	0 12 00672	OERP	IRS	COUNTER	0591
0592	00612	-0 02 00670	LDA*	PNTM	OBTAIN	0592
0593	00613	101040	SNZ		DATA	0593
0594	00614	0 01 00650	JMP	UECK		0594
0595	00615	0 02 00672	OELI	LDA	BITC	0595
0596	00616	0 11 00735	CAS	=10	AND	0596
0597	00617	101000	NOP		TEST	0597
0598	00620	0 01 00622	JMP	**2	NEW HIGH	0598
0599	00621	0 01 00660	JMP	OECN	LIMIT	0599
0600	00622	0 07 00735	SUB	=10	FOR	0600
0601	00623	0 06 00734	ADD	=A10	ERROR	0601
0602	00624	0 04 00627	OECU	STA	OEHE	0602
0603	00625	0 10 00240	JST	LFCR		0603
0604	00626	0 10 00222	JST	OPW	BUFFER	0604
0605	00627	0 000000	OEH	DAC **	IF	0605
0606	00630	0 10 00203	JST	SPAC	NO	0606
0607	00631	0 10 00203	JST	SPAC	ERRORS	0607

0608	00632	-0 02 00670	LDA*	PNTM	SUPPRESS PRINT	0608
0609	00633	0 04 00635	STA	**2	ON	0609
0610	00634	0 10 00303	JST	DECC	A	0610
0611	00635	0 000000	DAC	**	LINE	0611
0612	00636	0 12 00670	IRS	PNTM	FOR	0612
0613	00637	0 10 00203	JST	SPAC	LINE	0613
0614	00640	-0 02 00670	LDA*	PNTM	BASIS	0614
0615	00641	0 04 00643	STA	**2		0615
0616	00642	0 10 00303	JST	DECC		0616
0617	00643	0 000000	DAC	**	UPDATE	0617
0618	00644	0 12 00670	ULSR IRS	PNTM	POINTER	0618
0619	00645	0 12 00671	IRS	PNTM	COUNTER	0619
0620	00646	0 01 00611	JMP	OEK*	REPEAT	0620
0621	00647	-0 01 00515	JMP*	EOPR	RETURN	0621
0622	00650	0 12 00670	ULCK IRS	PNTM	UPDATE	0622
0623	00651	-0 02 00670	LDA*	PNTM	POINTER	0623
0624	00652	101040	SNZ		TEST	0624
0625	00653	0 01 00644	JMP	UESK	DATA	0625
0626	00654	0 02 00670	LDA	PNTM	RESTORE POINTER	0626
0627	00655	0 07 00754	SUB	=1	BEFORE	0627
0628	00656	0 04 00670	STA	PNTM	OUTPUT	0628
0629	00657	0 01 00615	JMP	OELI	FOR	0629
0630			*			0630
0631	00660	0 06 00746	OECN ADD	=AOU	ZERO	0631
0632	00661	0 01 00624	JMP	OECU	SETUP FOR OUTPUT	0632
0633	00662	0 001462	TLCD DAC	TLEC	ADDRESS OF ERROR COUNTER	0633
0634	00663	000000	TLPP BSZ	1	ERROR COUNT PREV PASS	0634
0635	00664	0 001561	PACD DAC	PASC		0635
0636			*			0636
0637			*			0637
0638			*			0638
0639	00665	0 000712	AME1 DAC	MES1		0639
0640	00666	0 000000	PNTW DAC	**		0640
0641	00667	0 000000	ASVC DAC	**	COUNTER	0641
0642	00670	0 000000	PNTM DAC	**		0642
0643	00671	0 000000	PNTD DAC	**		0643
0644	00672	0 000000	BITC DAC	**		0644

0645	00673	0 00 00000	NEWL PZE			0645
0646	00674	000000	NOW BSZ	1	CURRENT LOWER SECTOR	0646
0647	00675	0 001533	NUWB DAC	NOWA	AND SAME IN SECOND SECTOR	0647
0648	00676	0 000000	CFA DAC	**		0648
0649	00677	0 000000	CLA DAC	**		0649
0650	00700	0 000000	NFA DAC	**		0650
0651	00701	0 000000	NLA DAC	**		0651
0652	00702	135742	RAND OCT	135742		0652
0653	00703	024635	RANE OCT	024635		0653
0654	00704	135742	RANF OCT	135742		0654
0655	00705	0 001673	PNTZ DAC	ENDT	POINTER	0655
0656	00706	0 001475	DBX1 DAC	BTX1		0656
0657	00707	0 001476	DBX2 DAC	BTX2		0657
0658	00710	0 001467	DBX3 DAC	BTX3		0658
0659	00711	0 001464	DBFF DAC	BUFF		0659
0660			*			0660
0661			*			0661
0662	00712	146240	MES1 BCI	1*L	LOCATION	0662
0663	00713	0 000000	DAC	**		0663
0664	00714	151702	BCI	1*SB	SHOULD BE	0664
0665	00715	0 000000	DAC	**		0665
0666	00716	144723	BCI	1*IS		0666
0667	00717	0 000000	DAC	**		0667
0668	00720	141311	MES2 BCI	2*BITS		0668
	00721	152323				
0669	00722	0 000000	DAC	**		0669
0670	00723	106612	PRTY OCT	106612	CARRIAGE RETURN, LINEFEED	0670
0671	00724	146720	BCI	1*MP		0671
0672	00725	0 000000	DAC	**		0672
0673	00726	0 000000	PBA DAC	**		0673
0674	00727	0 10 00222	JST	OPW		0674
0675	00730	120277	OCT	120277		0675
0676	00731	0 10 00222	JST	OPW		0676
0677	00732	135240	OCT	135240		0677
0678	00733	-0 01 00726	JMP*	PBA		0678
0679	00734	130660	FIN			0679
	00735	000012				

00736	177760								
00737	177503								
00740	000007								
00741	000377								
00742	000215								
00743	000256								
00744	000260								
00745	000267								
00746	130260								
00747	023417								
00750	177774								
00751	177775								
00752	000200								
00753	000177								
00754	000001								
00755	000004								
00756	000021								
00757	017000								
00760	000123								
0680		*							0680
0681		*							0681
0682			ORG	1000					0682
0683	01000	-0 10 01477	JST*	INIT		FIRST	INITIALIZATION		0683
0684									0684
0685			*			THE	PREVIOUS INSTRUCTION WILL BE REPLACED BY A 'CRA'		0685
0686			*			AFTER	INITIALIZATION.		0686
0687			*						0687
0688	01001	0 04 00000	STA	0					0688
0689	01002	0 10 01057	CMT	JST	INT1	INITIALIZE	ROUTINE		0689
0690			*						0690
0691	01003	-0 10 01545	STR2	JST*	CHNA				0691
0692	01004	100020	SRL						0692
0693	01005	-0 10 01556	JST*	DIPL		INPUT	NEW LIMITS		0693
0694	01006	0 10 01100	JST	CELC		ADDRESS	TEST ROUTINE		0694
0695	01007	0 10 01017	JST	WCP		WORST	CASE PATTERN ROUTINE		0695
0696	01010	0 10 01026	JST	CWCP		COMPLEMENTED	WORST CASE PATTERN		0696

0697	01011	0 10 01134	JST	RNDP		RANDOM	NUMBER PATTERN ROUTINE		0697
0698	01012	0 10 01051	JST	BPT1		BIT	PATTERN ROUTINE		0698
0699	01013	-0 10 01560	JST*	CHNZ		END	OF PASS ROUTINE		0699
0700	01014	101010	SS2			IF	SS2 RESET MOVE PROGRAM		0700
0701	01015	0 10 01347	JST	MOVE		MOVE	PROGRAM		0701
0702	01016	0 01 01004	JMP	CM1+2		REPEAT			0702
0703			*						0703
0704			*			WORST	CASE PATTERN ROUTINE		0704
0705			*						0705
0706	01017	0 000000	WCP	DAC	**	ROUTINE	ENTRY		0706
0707	01020	140040	CRA			ZERO	*S		0707
0708	01021	0 04 01531	STA	Y1		PATTERN	NO.1		0708
0709	01022	140401	CMA			ONES			0709
0710	01023	0 04 01532	STA	Y2		PATTERN	NO.2		0710
0711	01024	0 10 01035	JST	GGRO		SET	UP		0711
0712	01025	-0 01 01017	JMP*	WCP		RETURN			0712
0713			*						0713
0714			*			COMPLEMENTED	WORST CASE PATTERN ROUTINE		0714
0715			*						0715
0716	01026	0 000000	CWCP	DAC	**	ROUTINE	ENTRY		0716
0717	01027	140040	CRA			ZERO			0717
0718	01030	0 04 01532	STA	Y2		PATTERN	NO.2		0718
0719	01031	140401	CMA			ONES			0719
0720	01032	0 04 01531	STA	Y1		PATTERN	NO.4		0720
0721	01033	0 10 01035	JST	GGRO		SETUP			0721
0722	01034	-0 01 01026	JMP*	CWCP		RETURN			0722
0723			*						0723
0724			*			GENERAL	SERVICE ROUTINE		0724
0725			*						0725
0726	01035	0 000000	GGRO	DAC	**	ROUTINE	ENTRY		0726
0727	01036	-0 35 01550	LDX*	CHNM		INITIALIZE	FIRST ADDR		0727
0728	01037	-0 02 01551	LDA*	CHNM		*			0728
0729	01040	0 04 01530	STA	LA		*			0729
0730	01041	140040	CRA			SETUP	FOR		0730
0731	01042	0 10 01246	JST	RWOU		WRITE			0731
0732	01043	-0 35 01550	LDX*	CHNM		INITIALIZE	FIRST ADDR		0732
0733	01044	0 10 01625	JST	JOGL		JOGGLE	THE MEMORY A LITTLE		0733

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0734 01045 140500 SSM SET UP FOR READ 0734
0735 01046 0 10 01246 JST RW00 0735
0736 01047 0 10 01563 GGSU JST GG8K OR NOP H316 CSM-150 GENERAL SERVICE ROUT 0736
0737 * THE ABOVE BECOMES A *NOP* IF CP NOT H316 0737
0738 01050 -0 01 01035 JMP* GGRU RETURN 0738
0739 * 0739
0740 * 0740
0741 * BIT PATTERN TEST ROUTINE 0741
0742 * 0742
0743 01051 0 000000 BPTT DAC ** ROUTINE ENTRY 0743
0744 01052 140040 CRA INITIALIZE 0744
0745 01053 0 04 01531 STA Y1 * 0745
0746 01054 0 04 01532 STA Y2 * 0746
0747 01055 0 10 01035 JST GGRU TO WRITE/READ 0747
0748 01056 -0 01 01051 JMP* BPTT RETURN 0748
0749 * 0749
0750 * INITIALIZATION 0750
0751 * 0751
0752 01057 0 000000 INTT DAC ** ROUTINE ENTRY 0752
0753 01060 -0 10 01545 JST* CHNA 0753
0754 01061 0 02 01463 LDA BUSA INITIALIZE 0754
0755 01062 0 06 01533 ADD NOWA ADD DISPLACEMENT TO DAC 0755
0756 01063 0 04 01524 STA PNTA * 0756
0757 01064 0 35 01672 LDX =-32 BUFFER(ERROR) 0757
0758 01065 -0 02 01552 LDA* CHNP RANDOM NUMBER 0758
0759 01066 -0 04 01553 STA* CHNG GENERATORS 0759
0760 01067 140040 CRA CLEAR 0760
0761 01070 0 04 01561 STA PASC INITIALIZE 0761
0762 01071 0 04 01462 STA TLEC TOTAL ERR COUNT 0762
0763 01072 -0 04 01557 STA* DTLP TOTAL ERRORS PREV PASS 0763
0764 01073 -0 04 01524 INTI STA* PNTA 0764
0765 01074 0 12 01524 IRS PNTA CLEAR 64 DECIMAL 0765
0766 01075 0 12 00000 IRS 0 LOCATIONS 0766
0767 01076 0 01 01073 JMP INTI BOTH ERR BUFFERS 0767
0768 01077 -0 01 01057 JMP* INTI RETURN 0768
0769 * 0769
0770 * ADDRESS TEST ROUTINE 0770
0771 * 0771

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0771 * 0771
0772 01100 0 000000 CELC DAC ** 0772
0773 01101 140040 CRA 0773
0774 01102 0 04 01534 STA SIGN 0774
0775 01103 -0 02 01551 LDA* CHNM NEW LAST ADDR 0775
0776 01104 0 04 01530 STA LA 0776
0777 01105 -0 02 01550 LDA* CHNM FETCH NEW FIRST ADDRESS 0777
0778 01106 0 04 00000 STA 0 STARTING ADDRESS 0778
0779 01107 0 04 01537 STA PATI STARTING PATTERN 0779
0780 01110 0 10 01120 JST CELO TO READ OR WRITE 0780
0781 01111 -0 02 01550 LDA* CHNM FETCH STARTING ADDRESS FOR READ 0781
0782 01112 0 04 00000 STA 0 0782
0783 01113 0 04 01537 STA PATI 0783
0784 01114 140500 SSM 0784
0785 01115 0 04 01534 STA SIGN FLAG 0785
0786 01116 0 10 01120 JST CELO TO READ 0786
0787 01117 -0 01 01100 JMP* CELC RETURN 0787
0788 * 0788
0789 * SERVICE ROUTINE FOR ADDRESS TEST 0789
0790 * 0790
0791 01120 0 000000 CELC DAC ** 0791
0792 01121 0 02 01534 LDA SIGN TEST FOR 0792
0793 01122 101400 SMI READ OR WRITE 0793
0794 01123 0 10 01342 JST WR00 TO WRITE 0794
0795 01124 0 10 01314 JST R000 TO READ 0795
0796 01125 0 02 00000 LDA 0 TEST FOR 0796
0797 01126 0 11 01530 CAS LA LAST ADDRESS 0797
0798 01127 0 01 01131 JMP **2 0798
0799 01130 -0 01 01120 JMP* CELO RETURN 0799
0800 01131 0 12 01537 IRS PATI 0800
0801 01132 0 12 00000 IRS 0 BUMP AND 0801
0802 01133 0 01 01121 JMP CELO+1 REPEAT 0802
0803 * 0803
0804 * RANDOM 0804
0805 * NUMBER 0805
0806 * 0806
0807 01134 0 000000 RNDP DAC ** ROUTINE ENTRY 0807

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0808 01135 -0 02 01550 LDA* CHNM INITIALIZE 0808
0809 01136 0 04 00000 STA 0 0809
0810 01137 -0 02 01551 LDA* CHNM * 0810
0811 01140 0 04 01530 STA LA * 0811
0812 01141 0 02 00000 CONT LDA 0 0812
0813 01142 0 11 01530 CAS LA 0813
0814 01143 0 01 01145 JMP **2 0814
0815 01144 0 01 01151 JMP JTRD SETUP FOR READ 0815
0816 01145 -0 10 01554 JST* CHNR CONTINUE WITH WRITE MODE 0816
0817 01146 1 04 00000 STA 0+1 STORE THE RANDOM DATA 0817
0818 01147 0 12 00000 IRS 0 AND BUMP THE ADDRESS 0818
0819 * 0819
0820 01150 0 01 01141 JMP CONT REPEAT 0820
0821 01151 -0 02 01550 JTRD LDA* CHNM INITIALIZE 0821
0822 01152 0 04 00000 STA 0 FOR READ MODE 0822
0823 01153 0 02 00000 CONG LDA 0 0823
0824 01154 0 11 01530 CAS LA 0824
0825 01155 101000 NOP 0825
0826 01156 -0 01 01134 JMP* RNDP 0826
0827 01157 -0 10 01555 JST* CHNS READ NEXT 0827
0828 01160 0 04 01537 STA PATT LOCATION 0828
0829 01161 0 10 01314 JST RDOG READ 0829
0830 01162 0 12 00000 IRS 0 BUMP TO NEXT ADDRESS 0830
0831 01163 0 01 01153 JMP CONG REPEAT 0831
0832 * 0832
0833 * ERROR DECODE AND PACKING ROUTINE 0833
0834 * 0834
0835 01164 0 000000 ERR DAC ** ROUTINE ENTRY 0835
0836 01165 0 12 01462 IRS TLEC UPDATE TOTAL ERROR COUNT 0836
0837 01166 101000 NOP 0837
0838 01167 0 02 01463 LDA BUSA SETUP 0838
0839 01170 0 06 01533 ADD N0WA ADD DISPLACEMENT TO DAC 0839
0840 01171 0 04 01562 STA TEMN POINTER 0840
0841 01172 0 02 01671 LDA =-16 COUNT 0841
0842 01173 0 04 01540 STA CNTA * 0842
0843 01174 0 02 01215 LDA TEMP+1 CORRECT WORD (C.W.) 0843
0844 01175 000201 IAB TO B REG 0844
    
```

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0845 01176 0 02 01216 LDA TEMP+2 ERROR WORD (E.W.) 0845
0846 01177 101400 SHBT SMI TEST BIT 1 OF E.W. 0846
0847 01200 0 01 01220 JMP TEFP BIT 1 OF E.W. RESET 0847
0848 01201 0412 77 LLK 1 SHIFT TO TEST BIT ONE OF C.W. 0848
0849 01202 101100 SLN TEST BIT 1 OF C.W. 0849
0850 01203 -0 12 01562 IRS* TEMN 0850
0851 01204 101000 NOP 0851
0852 01205 0 12 01562 SHBR IRS TEMN 0852
0853 01206 0 12 01562 SHBS IRS TEMN 0853
0854 01207 0 12 01540 IRS CNTA BUMP COUNTER 0854
0855 01210 0 01 01177 JMP SHBT TEST NEXT BIT 0855
0856 01211 100004 SR3 0856
0857 01212 -0 01 01164 JMP* ERR RETURN 0857
0858 01213 -0 10 01546 JST* CHNJ SET UP 0858
0859 01214 0 000000 TEMP DAC ** FOR SINGLE 0859
0860 01215 0 000000 DAC ** ERROR 0860
0861 01216 0 000000 DAC ** PRINT 0861
0862 01217 -0 01 01164 JMP* ERR RETURN 0862
0863 01220 0412 77 TEFP LLK 1 SHIFT TO TEST BIT ONE OF C.W. 0863
0864 01221 101100 SLN TEST BIT OF C.W. 0864
0865 01222 0 01 01205 JMP SHBR BIT TEST OK 0865
0866 01223 0 12 01562 IRS TEMN 0866
0867 01224 -0 12 01562 IRS* TEMN 0867
0868 01225 101000 NOP 0868
0869 01226 0 01 01206 JMP SHBS REPEAT TEST NEXT BIT 0869
0870 * 0870
0871 * ADDRESS CHECK ROUTINE 0871
0872 * 0872
0873 * 0873
0874 * THIS ROUTINE IS USED TO SELECT THE WORST CASE 0874
0875 * NOISE PATTERN FOR THE LOCATION BEING TESTED. THE CODING 0875
0876 * SHOWN BELOW SELECTS THE WORST CASE NOISE PATTERN FOR THE H316. IF 0876
0877 * THE INITIALIZATION ROUTINE DETERMINES THAT THE HOST 0877
0878 * COMPUTER IS A DDP-516, THE ROUTINE TO SELECT THE DDP-516 0878
0879 * PATTERN WILL OVERLAY THIS ROUTINE. SIMILARLY, IF CP IS 716, 0879
0880 * THE 716 PATTERN WILL OVERLAY THIS ROUTINE. 0880
0881 01227 0 000000 BTES DAC ** ROUTINE ENTRY 0881
    
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0882	01230	0 15 01526	STX	SAVC		0882
0883	01231	0 35 01670	LDA	==4		0883
0884	01232	1 11 01246	BETS	CAS	M+4,1	0884
0885	01233	0 01 01235	JMP	**2		0885
0886	01234	0 01 01240	JMP	X1	BITS	0886
0887	01235	0 12 00000	IRS	0	BUMP POINTER	0887
0888	01236	0 01 01232	JMP	BETS	REPEAT	0888
0889	01237	0 12 01227	IRS	BTES	UPDATE FOR RETURN	0889
0890	01240	0 35 01526	X1	LDA	SAVC	0890
0891	01241	-5 01 01227	JMP*	BTES		0891
0892	01242	000001	M	OCT	1	0892
0893	01243	000004		OCT	4	0893
0894	01244	000010		OCT	10	0894
0895	01245	000015		OCT	15	0895
0896						0896
0897						0897
0898						0898
0899	01246	0 000000	RW00	DAC	**	0899
0900	01247	0 04 01534	STA	SIGN		0900
0901	01250	0 02 00000	RW06	LDA	0	0901
0902	01251	0404 72	LGR	6		0902
0903	01252	0 03 01667	ANA	=*15		0903
0904	01253	0 10 01227	JST	BTES		0904
0905	01254	0 01 01262	JMP	RW01		0905
0906	01255	0 02 01531	LDA	Y1		0906
0907	01256	0 04 01535	STA	PAT1		0907
0908	01257	0 02 01532	LDA	Y2		0908
0909	01260	0 04 01536	STA	PAT2		0909
0910	01261	0 01 01266	JMP	RW02		0910
0911	01262	0 02 01531	RW01	LDA	Y1	0911
0912	01263	0 04 01536	STA	PAT2		0912
0913	01264	0 02 01532	LDA	Y2		0913
0914	01265	0 04 01535	STA	PAT1		0914
0915	01266	0 02 00000	RW02	LDA	0	0915
0916	01267	0 03 01667	ANA	=*15		0916
0917	01270	0 10 01227	JST	BTES		0917
0918	01271	0 01 01274	JMP	RW03		0918

0919	01272	0 02 01535	LDA	PAT1		0919
0920	01273	0 01 01275	JMP	RW04		0920
0921	01274	0 02 01536	RW03	LDA	PAT2	0921
0922	01275	0 04 01537	RW04	STA	PAT1	0922
0923	01276	0 02 01534	LDA	SIGN		0923
0924	01277	101400	SMI			0924
0925	01300	0 10 01342	JST	RW00		0925
0926	01301	0 10 01314	JST	RDU0		0926
0927	01302	0 02 00000	LDA	0		0927
0928	01303	0 11 01530	CAS	LA		0928
0929	01304	101000	NDP			0929
0930	01305	-0 01 01246	JMP*	RW00		0930
0931	01306	0 12 00000	IRS	0		0931
0932	01307	141206	ADA			0932
0933	01310	0 03 01666	ANA	=*77		0933
0934	01311	100040	SZE			0934
0935	01312	0 01 01266	JMP	RW02		0935
0936	01313	0 01 01250	JMP	RW06		0936
0937						0937
0938						0938
0939						0939
0940	01314	0 000000	RDU0	DAC	**	0940
0941	01315	0 02 01670	LDA	==4		0941
0942	01316	0 04 01526	STA	SAVC		0942
0943	01317	1 02 00000	RDU1	LDA	0,1	0943
0944	01320	1 02 00000	LDA	0,1		0944
0945	01321	1 02 00000	LDA	0,1		0945
0946	01322	0 11 01537	CAS	PAT1		0946
0947	01323	0 01 01325	JMP	**2		0947
0948	01324	0 01 01333	JMP	RDU2		0948
0949						0949
0950	01325	0 04 01216	STA	TEMP+2		0950
0951	01326	0 02 01537	LDA	PAT1		0951
0952	01327	0 04 01215	STA	TEMP+1		0952
0953	01330	0 02 00000	LDA	0		0953
0954	01331	0 04 01214	STA	TEMP		0954
0955	01332	0 10 01164	JST	ERR		0955

0956	01333	0 02 01537	RDU2	LDA	PATT		0956
0957	01334	140401		CMA		COMPLEMENT PATTERN	0957
0958	01335	0 04 01537		STA	PATT	SAVE PATTERN	0958
0959	01336	1 04 00000		STA	0,1	STORE DATA INTO TEST LOCATION	0959
0960	01337	0 12 01526		IRS	SAVC	INC COUNTER	0960
0961	01340	0 01 01317		JMP	RDU1	REPEAT	0961
0962	01341	-0 01 01314		JMP*	RDUU	RETURN	0962
0963				*			0963
0964				*	COMMON WRITE ROUTINE		0964
0965				*			0965
0966	01342	0 000000	WRDU	DAC	**	WRITE SUBROUTINE	0966
0967	01343	0 02 01537		LDA	PATT	LOAD -A-REG WITH TEST PATTERN	0967
0968	01344	1 04 00000		STA	0,1	STORE DATA INTO TEST LOCATION	0968
0969	01345	0 12 01342		IRS	WRDU	UPDATE RETURN	0969
0970	01346	-0 01 01342		JMP*	WRDU	RETURN	0970
0971				*			0971
0972				*	MOVE PROGRAM ROUTINE		0972
0973				*			0973
0974	01347	0 000000	MOVE	DAC	**	SUBROUTINE ENTRY	0974
0975	01350	0 02 01347		LDA	MOVE	DETERMINE CURRENT SECTOR	0975
0976	01351	0 03 01665		ANA	=*76000		0976
0977	01352	101040		SNZ			0977
0978	01353	0 01 01413		JMP	NUPL	GO TO MOVE UP	0978
0979				*			0979
0980	01354	101000		NOP			0980
0981	01355	0 02 01347		LDA	MOVE	MOVE DOWN ROUT.	0981
0982	01356	0 03 01664		ANA	=*77000		0982
0983	01357	0 06 01544		ADD	CHNO		0983
0984	01360	0 07 01663		SUB	=*1000		0984
0985	01361	0 04 01524		STA	PNTA	POINTER	0985
0986	01362	0 07 01544		SUB	CHNO	ADJUSTMENT	0986
0987	01363	0 06 01662		ADD	=*21	POINTER USED FOR	0987
0988	01364	0 04 01526		STA	SAVC	MOVING PROGRAM DOWN	0988
0989	01365	0 35 01543		LDX	NDIF		0989
0990	01366	-0 02 01524	MURP	LDA*	PNTA	CHANGE	0990
0991	01367	0 03 01661		ANA	=*777	JUMP TABLE	0991
0992	01370	-0 04 01524		STA*	PNTA	RESTORE JUMP TABLE	0992

0993	01371	0 12 01524		IRS	PNTA	UPDATE POINTER	0993
0994	01372	0 12 00000		IRS	0	INC COUNTER	0994
0995	01373	0 01 01366		JMP	MORP	COMPLETE TABLE CHNGE	0995
0996	01374	0 35 01542		LDX	DPGL	NEG OF PROGRAM LENGTH	0996
0997	01375	0 02 01526		LDA	SAVC	POINTER	0997
0998	01376	0 04 01524		STA	PNTA	POINTER A	0998
0999	01377	0 02 01662		LDA	=*21	STARTING POINT FOR	0999
1000	01400	0 04 01525		STA	PNTB	POINTER B	1000
1001	01401	-0 02 01524	MURT	LDA*	PNTA	MOVE PROGRAM	1001
1002	01402	-0 04 01525		STA*	PNTB	TO HIGHER CORE	1002
1003	01403	0 12 01524		IRS	PNTA	UPDATE POINTER A	1003
1004	01404	0 12 01525		IRS	PNTB	UPDATE POINTER B	1004
1005	01405	0 12 00000		IRS	0	INC COUNTER	1005
1006	01406	0 01 01401		JMP	MORT	COMPLETE PROG. MOVE	1006
1007	01407	0 02 01541		LDA	NSAD	NEW STARTING ADDRESS	1007
1008	01410	0 04 00020		STA	*20	NEW PROG START	1008
1009	01411	14 0020		UCP	*20	LET RTC RUN WHILE PROGRAM TESTING HIGH	1009
1010	01412	-0 01 00020		JMP*	*20	JMP TO NEW START	1010
1011				*			1011
1012	01413	-0 02 01551	NUPL	LDA*	CHNN	NEW LAST ADDR	1012
1013	01414	0 03 01660		ANA	=*177000		1013
1014	01415	0 07 01663		SUB	=*1000	LEAVE ROOM FOR TWO SECTORS OF PROGRAM	1014
1015	01416	0 11 01673		CAS	ENDT	SHOULD BE BIGGER THAN THE START ADDR	1015
1016	01417	101000		NOP			1016
1017	01420	0 01 01424		JMP	**4		1017
1018	01421	000000		HLT			1018
1019				*			1019
1020				*			1020
1021				*	(A) PRESENT CHOICE OF THE HIGH LIMIT WILL CAUSE		1021
1022				*	THIS PROGRAM TO SELF DESTRUCT		1022
1023				*			1023
1024				*	(B) PLEASE REEVALUATE YOUR SELECTION CONCERNING		1024
1025				*	THIS LIMIT		1025
1026				*			1026
1027				*	(C) PRESS START		1027
1028				*			1028
1029				*			1029

1030	01422	-0 10 01547	JST*	CHHL		1030
1031	01423	0 01 01413	JMP	NOPL		1031
1032	01424	0 04 01526	STA	SAVC	SAVE	1032
1033	01425	0 06 01662	ADD	=*21	NEW	1033
1034	01426	0 04 01525	STA	PNTB	STARTING	1034
1035	01427	0 02 01541	LDA	NSAD	ADDRESS	1035
1036	01430	0 07 01662	SUB	=*21	AND	1036
1037	01431	0 06 01525	ADD	PNTB	MOVE	1037
1038	01432	0 04 01527	STA	SAVE	STARTING ADDRESS	1038
1039	01433	0 02 01544	LDA	CHNO	JUMP TABLE	1039
1040	01434	0 04 01524	STA	PNTA	POINTER	1040
1041	01435	0 35 01543	LDX	NDIF		1041
1042	01436	-0 02 01524	MOUC LDA*	PNTA	CHANGE CONTAINS	1042
1043	01437	0 06 01526	ADD	SAVC	OF JUMP TABLE	1043
1044	01440	-0 04 01524	STA*	PNTA	STORE BACK	1044
1045	01441	0 12 01524	IRS	PNTA	UPDATE POINTER	1045
1046	01442	0 12 00000	IRS	0	UPDATE COUNTER	1046
1047	01443	0 01 01436	JMP	MOUC	COMPLETE TABLE	1047
1048	01444	0 02 01662	LDA	=*21	STARTING POINT	1048
1049	01445	0 04 01524	STA	PNTA	POINTER	1049
1050	01446	0 35 01542	LDX	DPGL	NEG OF PGM LENGTH	1050
1051	01447	-0 02 01524	MOAD LDA*	PNTA	MOVE PROGRAM	1051
1052	01450	-0 04 01525	STA*	PNTB	TO LOW CORE	1052
1053	01451	0 12 01524	IRS	PNTA	UPDATE POINTER A	1053
1054	01452	0 12 01525	IRS	PNTB	UPDATE POINTER B	1054
1055	01453	0 12 00000	IRS	0	INC COUNTER	1055
1056	01454	0 01 01447	JMP	MOAD	COMPLETE PROGRAM MOVE	1056
1057	01455	101000	NOJ			1057
1058	01456	0 02 01527	LDA	SAVE	NEW STARTING POINT	1058
1059	01457	0 04 00020	STA	*20	STORE FOR RETURN JUMP	1059
1060	01460	14 0220	OCF	*220	TURN OFF RTC WHILE TESTING LOW	1060
1061	01461	-0 01 00020	JMP*	*20	RETURN JUMP	1061
1062			*			1062
1063			*			1063
1064			*			1064
1065	01462	0 000000	TLEC DAC	**		1065
1066	01463	0 001464	BUSA DAC	**1		1066

1067			*			1067
1068			*		THE FOLLOWING IS THE DDP-516 WORST CASE NOISE PATTERN	1068
1069			*		SELECTOR. IF IT IS REQUIRED, IT WILL BE MOVED SO THAT	1069
1070			*		IT OVERLAYS 'BTES'.	1070
1071			*			1071
1072	01464	0 02 00000	BTEX LDA	0	FETCH CURRENT ADDRESS	1072
1073	01465	0 03 01241	ANA	BTC1	ISOLATE BITS 5 AND 12	1073
1074	01466	0 04 01526	STA	SAVC	SAVE THE BITS	1074
1075	01467	0404 71	BTX3 LGR	7	BECOMES *LGR 9* FOR H716	1075
1076	01470	0 05 01526	ERA	SAVC	ERA ORIGINAL BITS 5 AND 12	1076
1077	01471	0 03 01242	ANA	BTC2	ISOLATE THE RESULT	1077
1078	01472	101040	SNZ		SKIP IF PATTERN TWO	1078
1079	01473	0 12 01227	IRS	BTES	SELECT PATTERN ONE	1079
1080	01474	-0 01 01227	JMP*	BTES	EXIT	1080
1081	01475	004020	BTX1 OCT	4020	BECOMES 4004 FOR 716	1081
1082	01476	000020	BTX2 OCT	20	BECOMES 4 FOR 716	1082
1083		001241	BTC1 EQU	M-1		1083
1084		001242	BTC2 EQU	M		1084
1085			*			1085
1086	01477	0 002000	INIT DAC	S2IN		1086
1087			*			1087
1088			ORG	BTEX		1088
1089			*			1089
1090	01464		BUFF BSS	32	BIT FAILURE HISTORY BUFFER	1090
1091	01524	0 000000	PNTA DAC	**		1091
1092	01525	0 000000	PNTB DAC	**		1092
1093	01526	0 00 00000	SAVC PZE			1093
1094	01527	0 00 00000	SAVE PZE			1094
1095	01530	0 00 00000	LA PZE		WORKING LAST ADDR.	1095
1096	01531	177777	Y1 OCT	177777		1096
1097	01532	000000	Y2 OCT	0		1097
1098	01533	000000	NOwa BSZ	1	CURRENT FIRST OF 2 SECTORS	1098
1099	01534	000000	SIGN BSZ	1		1099
1100	01535	0 00 00000	PAT1 PZE			1100
1101	01536	0 00 00000	PAT2 PZE			1101
1102	01537	0 00 00000	PATT PZE			1102
1103	01540	0 000000	CNTA DAC	**		1103



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1104 01541 001005 NSAD DAC STRZ 1104
1105 01542 0 176105 DPGL DAC **-END1 NEG OF PROGRAM LENGTH 1105
1106 01543 0 177754 NDIF DAC CHNU-CHNZ 1106
1107 01544 0 001545 CHNO DAC **1 1107
1108 01545 0 000120 CHNA DAC COSI 1108
1109 01546 0 000252 CHNJ DAC TYSE 1109
1110 01547 0 000403 CHNL DAC IPLS 1110
1111 01550 000700 CHNM DAC NFA 1111
1112 01551 000701 CHNN DAC NLA 1112
1113 01552 000702 CHNP DAC RAND 1113
1114 01553 000704 CHNU DAC RANF 1114
1115 01554 0 000475 CHNR DAC RNGW 1115
1116 01555 0 000505 CHNS DAC RNGR 1116
1117 01556 0 000403 DIPL DAC INPUT TEST LIMITS 1117
1118 01557 000663 DTLP DAC TLPP ERROR COUNT PREV PASS 1118
1119 01560 000515 CHNZ DAC EOPK 1119
1120 01561 000000 PASC BSZ 1 1120
1121 01562 000000 TEMN BSZ 1 1121
1122 * 1122
1123 * 1123
1124 * GENERAL SERVICE ROUTINE FOR CSM-150 MEM MODULE FOR 316. 1124
1125 * 1125
1126 01563 0 000000 GG8K DAC ** 1126
1127 01564 -0 35 01550 LDX* CHNM INITIALIZE FIRST ADDR 1127
1128 01565 140040 CRA SET UP FOR WRITE 1128
1129 01566 0 10 01575 JST RW8K GO TO CSM-150 READ/WRITE ROUT 1129
1130 01567 -0 35 01550 LDX* CHNM INITIALIZE FIRST ADDR 1130
1131 01570 0 10 01625 JST JOGL JOGGLE THE MEMORY A LITTLE 1131
1132 01571 101000 NOP 1132
1133 01572 140500 SSM SET UP FOR READ 1133
1134 01573 0 10 01575 JST RW8K GO TO CSM-150 READ/WRITE ROUT 1134
1135 01574 -0 01 01563 JMP* GG8K RETURN 1135
1136 * 1136
1137 * 1137
1138 * COMMON READ/WRITE SET UP ROUT. FOR CSM-150 MEM MODULE 1138
1139 * 1139
1140 01575 0 000000 RW8K DAC ** 1140

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1141 01576 0 04 01534 STA SIGN PLUS FOR WRITE, MINUS FOR READ 1141
1142 01577 0 02 00000 RW8L LDA 0 DO EXCLUSIVE OR OF BITS 8 AND 13 1142
1143 01600 0 03 01623 ANA B813 IF RESULT IS ZERO, GO TO FILL ONES ROUT 1143
1144 01601 0 04 01653 STA TLP IF RESULT IS NON-ZERO, GO TO FILL ZEROES RO 1144
1145 01602 0404 73 LGR 5 1145
1146 01603 0 05 01653 ERA TLP 1146
1147 01604 0 03 01624 ANA B13 1147
1148 01605 100040 SZE 1148
1149 01606 0 02 01657 LDA ==-1 1149
1150 01607 140401 CMA 1150
1151 01610 0 04 01537 STA PAIT 1151
1152 01611 0 02 01534 LDA SIGN 1152
1153 01612 101400 SMI 1153
1154 01613 0 10 01342 JST WR00 WRITE ROUT 1154
1155 01614 0 10 01314 JST RD00 READ ROUT 1155
1156 01615 0 02 00000 LDA 0 1156
1157 01616 0 11 01530 CAS LA 1157
1158 01617 101000 NOP 1158
1159 01620 -0 01 01575 JMP* RW8K RETURN 1159
1160 01621 0 12 00000 IRS 0 1160
1161 01622 0 01 01577 JMP RW8L 1161
1162 * 1162
1163 * 1163
1164 * 1164
1165 01623 000410 B813 OCT 410 BITS 8 AND 13 1165
1166 01624 000010 B13 OCT 10 BIT 13 1166
1167 * 1167
1168 * 1168
1169 * JOGGLE THE MEMORY BEFORE READING BACK THE DATA 1169
1170 * 1170
1171 01625 0 000000 JUGL DAC ** 1171
1172 01626 0 02 01651 LDA SHF1 FETCH THE SHIFT INSTRUCTION 1172
1173 01627 0 04 01635 STA SHFE STORE FOR EXECUTION 1173
1174 01630 0 02 01656 LDA ==-9 SET INITIAL JUSTIFICATION 1174
1175 01631 0 04 01652 STA JCNT DELAY COUNT 1175
1176 01632 0 02 01655 LDA ==-8 1176
1177 01633 0 04 01653 STA TLP SET DELAY CONSTANT 1177

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1178	01634	0 04 01654	LP1 STA	TLPT	WORKING COPY OF DELAY CONSTANT	1178
1179	01635	0416 00	SHFL ALR	**	EXECUTE SHIFT INSTRUCTION	1179
1180	01636	0 12 01654	IRS	TLPT		1180
1181	01637	0 01 01636	JMP	**1	INITIAL DELAY	1181
1182	01640	0 12 01635	IRS	SHFL	DECREMENT THE SHIFT COUNT	1182
1183	01641	0 02 01653	LP2 LDA	TLP	FETCH THE DELAY CONSTANT	1183
1184	01642	0 12 01652	IRS	JCNT	BUMP THE JUSTIFICATION COUNT	1184
1185	01643	0 01 01634	JMP	LP1		1185
1186	01644	0 02 01656	LDA	==9		1186
1187	01645	0 04 01652	STA	JCNT	REINITIALIZE THE JUSTIFICATION COUNT	1187
1188	01646	0 12 01653	IRS	TLP	DECREMENT THE DELAY CONSTANT	1188
1189	01647	0 01 01641	JMP	LP2		1189
1190	01650	-0 01 01625	JMP*	JUGL	RETURN	1190
1191			*			1191
1192	01651	0416 00	SHFI ALR	**	SHIFT INSTR	1192
1193	01652	000000	JCNT BSZ	1		1193
1194	01653	000000	TLP BSZ	1		1194
1195	01654	000000	TLPT BSZ	1		1195
1196			*			1196
1197			*			1197
1198	01655	177770		FIN		1198
	01656	177767				
	01657	177777				
	01660	177000				
	01661	000777				
	01662	000021				
	01663	001000				
	01664	077000				
	01665	076000				
	01666	000077				
	01667	000015				
	01670	177774				
	01671	177760				
	01672	177740				
1199			*			1199
1200	01673	0 001674	ENDT DAC	**1		1200

1201			*			1201
1202			*			1202
1203			*			1203
1204				ORG	*2000	1204
1205	02000	0 000000	SZIN DAC	**	ONE TIME INITIALIZATION	1205
1206	02001	0 35 02120	LDX	ZERO		1206
1207	02002	0 0021	KMP		INSURE THE MEMORY PARITY FLOP IS RESET	1207
1208	02003	0 10 00240	JST	LFCK	LINE FEED, CARRIAGE RETURN	1208
1209	02004	0 10 00240	JST	LFCK		1209
1210	02005	0 10 00240	JST	LFCK		1210
1211	02006	0 10 00244	JST	OPCU	PRINT HEADING	1211
1212	02007	0 002100	DAC	MESA		1212
1213	02010	0 02 02007	LDA	**1		1213
1214	02011	000201	IAB		STORE WORD IN B REG	1214
1215	02012	0 02 02007	LDA	**3	LOAD THE WORD AGAIN	1215
1216	02013	0 05 00002	ERA	2	XOR WITH LOC.2	1216
1217	02014	101040	SNZ		IF NON-ZERO, SKIP	1217
1218	02015	0 01 02044	JMP	X13R	IF ZERO, CP IS 716	1218
1219	02016	140040	CRA	CRA	DETERMINE MACHINE TYPE BY TIMING	1219
1220	02017	141206	AUA			1220
1221	02020	34 0104	SK5	*104		1221
1222	02021	0 01 02017	JMP	**2		1222
1223	02022	0 07 02152	SUB	=20000		1223
1224	02023	100400	SPL			1224
1225	02024	0 01 02057	JMP	H316		1225
1226	02025	0 10 00240	JST	LFCK		1226
1227	02026	0 10 00244	JST	OPCU	PRINT COMPUTER TYPE	1227
1228	02027	0 002121	LAC	DD5		1228
1229	02030	0 35 02151	DSX LDX	==11	11 WORD OVERLAY	1229
1230	02031	-0 02 02074	LDA*	DAC1	FETCH OVERLAY WORD	1230
1231	02032	-0 04 02075	STA*	DAC2	STORE IT	1231
1232	02033	0 12 02074	IRS	DAC1	INCREMENT POINTERS	1232
1233	02034	0 12 02075	IRS	DAC2		1233
1234	02035	0 12 00000	IRS	0	INCREMENT WORD COUNT	1234
1235	02036	0 01 02031	JMP	**5	GO BACK FOR NEXT WORD	1235
1236	02037	0 02 02150	LDA	=*101000		1236
1237	02040	-0 04 02077	STA*	DGGS	DELETE CALL TO 8K MOD GEN SER ROUT	1237

1238	02041	0 02 02147	LDA	=*100000	PLACE SKIP INSTRUCTION	1238
1239	02042	-0 04 02076	STA*	DAC3		1239
1240	02043	0 01 02062	JMP	D5H3		1240
1241						1241
1242	02044	0 10 00240	x13R JST	LFCK		1242
1243	02045	0 10 00244	JST	OPCC	PRINT COMPUTER TYPE	1243
1244	02046	0 002135	DAC	X13		1244
1245	02047	-0 02 00710	LDA*	DBX3	MODIFY SO THAT	1245
1246	02050	0 06 02146	ADU	=-2	YOU CAN MOVE BIT 5	1246
1247	02051	-J 04 00710	STA*	DBX3	TO BIT 14	1247
1248	02052	0 02 02145	LDA	=*4004		1248
1249	02053	-0 04 00706	STA*	DBX1	MODIFY WORST CASE BIT	1249
1250	02054	0 02 02144	LDA	=4	PATTERNS FOR 716	1250
1251	02055	-C 04 00707	STA*	DBX2	COMPUTER	1251
1252	02056	0 01 02030	JMP	D5X		1252
1253						1253
1254	02057	0 10 00240	H316 JST	LFCK		1254
1255	02060	0 10 00244	JST	OPCC		1255
1256	02061	0 002127	DAC	HH3		1256
1257	02062	0 10 00240	D5H3 JST	LFCK		1257
1258	02063	0 02 02000	LDA	S2IN	REMOVE CALL TO THIS ROUTINE	1258
1259	02064	0 07 02143	SUB	=1		1259
1260	02065	0 04 02000	STA	S2IN		1260
1261	02066	0 04 00020	STA	=20	MARK THE RESTART LOCATION	1261
1262	02067	0 10 00240	JST	LFCK		1262
1263	02070	0 10 00240	JST	LFCK		1263
1264	02071	0 02 02016	LDA	CRA		1264
1265	02072	-0 04 02000	STA*	S2IN		1265
1266	02073	-0 01 02000	JMP*	S2IN	EXIT	1266
1267						1267
1268	02074	0 001464	DAC1 DAC	BTEX		1268
1269	02075	0 001230	DAC2 DAC	BTES+1		1269
1270	02076	0 001253	DAC3 DAC	RWU6+3		1270
1271	02077	0 001047	DGGS DAC	CGSU	ENABLE OR DISABLF H316 CSM-150 TEST	1271
1272	02100	140702	MESA BCI	0,AB16-CMT5		1272
	02101	130666				
	02102	126703				

	02103	146724				
	02104	132640				
	02105	120240				
1273	02106	145325	BCI	6, JUN 7, 73		1273
	02107	147240				
	02110	133654				
	02111	120267				
	02112	131640				
	02113	120240				
1274	02114	151305	BCI	3, REV E		1274
	02115	153240				
	02116	142640				
1275	02117	000000	UCT	0		1275
1276	02120	000000	ZERO UCT	0		1276
1277	02121	141720	D55 BCI	5, CP IS 516		1277
	02122	120311				
	02123	151640				
	02124	132661				
	02125	133240				
1278	02126	000000	UCT	0		1278
1279	02127	141720	HH3 BCI	5, CP IS 316		1279
	02130	120311				
	02131	151640				
	02132	131661				
	02133	133240				
1280	02134	000000	UCT	0		1280
1281	02135	141720	x13 BCI	5, CP IS 716		1281
	02136	120311				
	02137	151640				
	02140	133661				
	02141	133240				
1282	02142	000000	UCT	0		1282
1283	02143	000001	FIN			1283
	02144	000004				
	02145	004004				
	02146	177776				
	02147	100000				

02150 101000  
 02151 177765  
 02152 047040

1284 END \*1000

1284

AME1	000665A	ASCH	000460A	ASVC	000667A	B13	001624A
B&B3	001623A	BEIS	001232A	BITC	000672A	BPTT	001051A
BTC1	001241A	BTC2	001242A	BTES	001227A	BTEX	001464A
BTX1	001475A	BTX2	001476A	BTX3	001467A	BUFF	001464A
BUSA	001463A	CBAR	000370A	CBAS	000362A	CELC	001100A
CELU	001120A	CFA	000676A	CHNA	001545A	CHNJ	001546A
CHNL	001547A	CHNM	001550A	CHNN	001551A	CHNO	001544A
CHNP	001552A	CHNQ	001553A	CHNR	001554A	CHNS	001555A
CHNZ	001560A	CLA	000677A	CMT	001002A	CNTA	001540A
CUNO	001153A	CJNT	001141A	COSB	000172A	COJC	000151A
COJD	000141A	COSE	000123A	COSI	000120A	COSS	000154A
CRA	002016A	C&CP	001026A	D5H3	002062A	D5X	002030A
JAC1	002074A	DAC2	002075A	DAC3	002076A	UBFF	000711A
DBX1	000706A	DBX2	000707A	DBX3	000710A	DD5	002121A
DEAB	000323A	DECC	000303A	DECL	000355A	DECN	000356A
DECS	000316A	DGGS	002077A	DIPL	001556A	DPGL	001542A
JTLP	001557A	EMEI	000271A	ENDT	001673A	EDPP	000536A
EUPK	000515A	EOPS	000524A	ERR	001164A	GG8K	001563A
GCRO	001035A	GGSO	001047A	H316	002057A	HH3	002127A
INIT	001477A	INT1	001073A	INTT	001057A	IPLS	000403A
IPUC	000207A	JCNT	001652A	JOGL	001625A	JTRD	001151A
LA	001530A	LFCR	000240A	LP1	001634A	LP2	001641A
M	001242A	MES1	000712A	MES2	000720A	MESA	002100A
MOAD	001447A	MORP	001366A	MORT	001401A	MOUC	001436A
MCVE	001347A	NDIF	001543A	NEWL	000673A	NFA	000700A
NLA	000701A	NJW	000674A	NOWA	001533A	NQWB	000675A
NSAD	001541A	NJPL	001413A	OCTL	000467A	OECK	000650A
DECN	000660A	DECU	000624A	OEHE	000627A	OELI	000615A
OLRP	000611A	OESR	000644A	OPCU	000244A	OPNW	000251A
OPOW	000222A	PACD	000664A	PACK	000436A	PASC	001561A
PAT1	001535A	PAT2	001536A	PATT	001537A	PBA	000726A

PNTA	001524A	PNTB	001525A	PNTM	000670A	PNTO	000671A
PRTW	000666A	PNTX	000261A	PNTZ	000705A	PRTY	000723A
RAND	000702A	RANE	000703A	RANF	000704A	RDO1	001317A
RDO2	001333A	RDOO	001314A	REJT	000441A	RNDP	001134A
RNGR	000505A	RNGW	000475A	RWBK	001575A	RWBL	001577A
RW01	001262A	RW02	001266A	RW03	001274A	RW04	001275A
RW06	001250A	RW00	001246A	S2IN	002000A	SAVC	001526A
SAVE	001527A	SHBR	001205A	SHBS	001206A	SHBT	001177A
SHFE	001635A	SHFI	001651A	SIGN	001534A	SPAC	000203A
SHR2	001003A	TCPT	000560A	TEFP	001220A	TEMN	001562A
TEMP	001214A	TLCD	000662A	TLEC	001462A	TLP	001653A
TLPP	000663A	TLPT	001654A	TYRE	000270A	TYSE	000262A
WCP	001017A	WR00	001342A	X1	001240A	X13	002135A
X13K	002044A	Y1	001531A	Y2	001532A	ZERO	002120A

0000 WARNING OR ERRJR FI AGS  
 DAP-16 MOD 2 REV. D 06-28-71