

# DH11

AUTO ECHO LOGIC  
MD-11-DZDHH-B

EP-DZDHH-B-DL-A  
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FICHE 1 OF 1

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The image shows a microfiche card. The left side contains a grid of frames, which are small images of documents or data. The right side is a large, mostly blank area, possibly for additional information or a larger image. The card is dark blue with a lighter blue border at the top.



000000  
000001  
000002  
000003  
000004  
000005  
000006  
000007  
  
177570  
177570  
177776  
015460  
  
005746  
005726  
010046  
012600  
024646  
022626  
  
100000  
040000  
020000  
010000  
004000  
002000  
001000  
000400  
000200  
000100  
000040  
000020  
000010  
000004  
000002  
000001

;REGISTER DEFINITIONS

000000 R0=%0 ;GENERAL REGISTER  
 000001 R1=%1 ;GENERAL REGISTER  
 000002 R2=%2 ;GENERAL REGISTER  
 000003 R3=%3 ;GENERAL REGISTER  
 000004 R4=%4 ;GENERAL REGISTER  
 000005 R5=%5 ;GENERAL REGISTER  
 000006 SP=%6 ;PROCESSOR STACK POINTER  
 000007 PC=%7 ;PROGRAM COUNTER

;LOCATION EQUIVALENCIES

177570 SWR=177570 ;CONSOLE SWITCH REGISTER  
 177570 LIGHTS=177570 ;PDP-11/45 DISPLAY REGISTER  
 177776 PS=177776 ;PROCESSOR STATUS WORD  
 015460 STACK=ENDCOD+200;START OF PROCESSOR STACK

;INSTRUCTION DEFINITIONS

005746 PUSH1SP=5746 ;DECREMENT PROCESSOR STACK 1 WORD  
 005726 POP1SP=5726 ;INCREMENT PROCESSOR STACK 1 WORD  
 010046 PUSHRO=10046 ;SAVE R0 ON STACK  
 012600 POPRO=12600 ;RESTORE R0 FROM STACK  
 024646 PUSH2SP=24646 ;DECREMENT STACK TWICE  
 022626 POP2SP=22626 ;INCREMENT STACK TWICE  
 .EQUIV EMT,HLT ;BASIC DEFINITION OF ERROR CALL

BIT15=100000  
 BIT14=40000  
 BIT13=20000  
 BIT12=10000  
 BIT11=4000  
 BIT10=2000  
 BIT09=1000  
 BIT08=400  
 BIT07=200  
 BIT06=100  
 BIT05=40  
 BIT04=20  
 BIT03=10  
 BIT02=4  
 BIT01=2  
 BIT00=1

```

86 ;TRAPCATCAER FOR ILLEGAL INTERRUPTS
87      =0
88      000000 000000      .+2      ;UNEXPECTED TRAP TO THIS LOCATION
89      000002 000000      HALT      ;EXAMINE STACK TO FIND CAUSE
90      000004 000006      .+2      ;UNEXPECTED TRAP TO THIS LOCATION
91      000006 000000      HALT      ;EXAMINE STACK TO FIND CAUSE
92      000010 000012      .+2      ;UNEXPECTED TRAP TO THIS LOCATION
93      000012 000000      HALT      ;EXAMINE STACK TO FIND CAUSE
94      000014 000016      .+2      ;UNEXPECTED TRAP TO THIS LOCATION
95      000016 000000      HALT      ;EXAMINE STACK TO FIND CAUSE
96      000020 000022      .+2      ;UNEXPECTED TRAP TO THIS LOCATION
97      000022 000000      HALT      ;EXAMINE STACK TO FIND CAUSE
98      000024 000026      .+2      ;UNEXPECTED TRAP TO THIS LOCATION
99      000026 000000      HALT      ;EXAMINE STACK TO FIND CAUSE
100     000030 000032      .+2      ;UNEXPECTED TRAP TO THIS LOCATION
101     000032 000000      HALT      ;EXAMINE STACK TO FIND CAUSE
102     000034 000036      .+2      ;UNEXPECTED TRAP TO THIS LOCATION
103     000036 000000      HALT      ;EXAMINE STACK TO FIND CAUSE
104     000040 000042      .+2      ;UNEXPECTED TRAP TO THIS LOCATION
105     000042 000000      HALT      ;EXAMINE STACK TO FIND CAUSE
106     000044 000046      .+2      ;UNEXPECTED TRAP TO THIS LOCATION
107     000046 000000      HALT      ;EXAMINE STACK TO FIND CAUSE
108     000050 000052      .+2      ;UNEXPECTED TRAP TO THIS LOCATION
109     000052 000000      HALT      ;EXAMINE STACK TO FIND CAUSE
110     000054 000056      .+2      ;UNEXPECTED TRAP TO THIS LOCATION
111     000056 000000      HALT      ;EXAMINE STACK TO FIND CAUSE
112     000060 000062      .+2      ;UNEXPECTED TRAP TO THIS LOCATION
113     000062 000000      HALT      ;EXAMINE STACK TO FIND CAUSE
114     000064 000066      .+2      ;UNEXPECTED TRAP TO THIS LOCATION
115     000066 000000      HALT      ;EXAMINE STACK TO FIND CAUSE
116     000070 000072      .+2      ;UNEXPECTED TRAP TO THIS LOCATION
117     000072 000000      HALT      ;EXAMINE STACK TO FIND CAUSE
118     000074 000076      .+2      ;UNEXPECTED TRAP TO THIS LOCATION
119     000076 000000      HALT      ;EXAMINE STACK TO FIND CAUSE
120     000100 000102      .+2      ;UNEXPECTED TRAP TO THIS LOCATION
121     000102 000000      HALT      ;EXAMINE STACK TO FIND CAUSE
122     000104 000106      .+2      ;UNEXPECTED TRAP TO THIS LOCATION
123     000106 000000      HALT      ;EXAMINE STACK TO FIND CAUSE
124     000110 000112      .+2      ;UNEXPECTED TRAP TO THIS LOCATION
125     000112 000000      HALT      ;EXAMINE STACK TO FIND CAUSE
126     000114 000116      .+2      ;UNEXPECTED TRAP TO THIS LOCATION
127     000116 000000      HALT      ;EXAMINE STACK TO FIND CAUSE
128     000120 000122      .+2      ;UNEXPECTED TRAP TO THIS LOCATION
129     000122 000000      HALT      ;EXAMINE STACK TO FIND CAUSE
130     000124 000126      .+2      ;UNEXPECTED TRAP TO THIS LOCATION
131     000126 000000      HALT      ;EXAMINE STACK TO FIND CAUSE
132     000130 000132      .+2      ;UNEXPECTED TRAP TO THIS LOCATION
133     000132 000000      HALT      ;EXAMINE STACK TO FIND CAUSE
134     000134 000136      .+2      ;UNEXPECTED TRAP TO THIS LOCATION
135     000136 000000      HALT      ;EXAMINE STACK TO FIND CAUSE
136     000140 000142      .+2      ;UNEXPECTED TRAP TO THIS LOCATION
137     000142 000000      HALT      ;EXAMINE STACK TO FIND CAUSE
138     000144 000146      .+2      ;UNEXPECTED TRAP TO THIS LOCATION
139     000146 000000      HALT      ;EXAMINE STACK TO FIND CAUSE
140     000150 000152      .+2      ;UNEXPECTED TRAP TO THIS LOCATION
141     000152 000000      HALT      ;EXAMINE STACK TO FIND CAUSE

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## E01

DZDHH MACY11 27(732) 29-SEP-76 15:23 PAGE 146  
 DZDHH8.P11

142	000154	000156	.+2	:UNEXPECTED TRAP TO THIS LOCATION
143	000156	000000	HALT	:EXAMINE STACK TO FIND CAUSE
144	000160	000162	.+2	:UNEXPECTED TRAP TO THIS LOCATION
145	000162	000000	HALT	:EXAMINE STACK TO FIND CAUSE
146	000164	000166	.+2	:UNEXPECTED TRAP TO THIS LOCATION
147	000166	000000	HALT	:EXAMINE STACK TO FIND CAUSE
148	000170	000172	.+2	:UNEXPECTED TRAP TO THIS LOCATION
149	000172	000000	HALT	:EXAMINE STACK TO FIND CAUSE
150	000174	000176	.+2	:UNEXPECTED TRAP TO THIS LOCATION
151	000176	000000	HALT	:EXAMINE STACK TO FIND CAUSE
152	000200	000202	.+2	:UNEXPECTED TRAP TO THIS LOCATION
153	000202	000000	HALT	:EXAMINE STACK TO FIND CAUSE
154	000204	000206	.+2	:UNEXPECTED TRAP TO THIS LOCATION
155	000206	000000	HALT	:EXAMINE STACK TO FIND CAUSE
156	000210	000212	.+2	:UNEXPECTED TRAP TO THIS LOCATION
157	000212	000000	HALT	:EXAMINE STACK TO FIND CAUSE
158	000214	000216	.+2	:UNEXPECTED TRAP TO THIS LOCATION
159	000216	000000	HALT	:EXAMINE STACK TO FIND CAUSE
160	000220	000222	.+2	:UNEXPECTED TRAP TO THIS LOCATION
161	000222	000000	HALT	:EXAMINE STACK TO FIND CAUSE
162	000224	000226	.+2	:UNEXPECTED TRAP TO THIS LOCATION
163	000226	000000	HALT	:EXAMINE STACK TO FIND CAUSE
164	000230	000232	.+2	:UNEXPECTED TRAP TO THIS LOCATION
165	000232	000000	HALT	:EXAMINE STACK TO FIND CAUSE
166	000234	000236	.+2	:UNEXPECTED TRAP TO THIS LOCATION
167	000236	000000	HALT	:EXAMINE STACK TO FIND CAUSE
168	000240	000242	.+2	:UNEXPECTED TRAP TO THIS LOCATION
169	000242	000000	HALT	:EXAMINE STACK TO FIND CAUSE
170	000244	000246	.+2	:UNEXPECTED TRAP TO THIS LOCATION
171	000246	000000	HALT	:EXAMINE STACK TO FIND CAUSE
172	000250	000252	.+2	:UNEXPECTED TRAP TO THIS LOCATION
173	000252	000000	HALT	:EXAMINE STACK TO FIND CAUSE
174	000254	000256	.+2	:UNEXPECTED TRAP TO THIS LOCATION
175	000256	000000	HALT	:EXAMINE STACK TO FIND CAUSE
176	000260	000262	.+2	:UNEXPECTED TRAP TO THIS LOCATION
177	000262	000000	HALT	:EXAMINE STACK TO FIND CAUSE
178	000264	000266	.+2	:UNEXPECTED TRAP TO THIS LOCATION
179	000266	000000	HALT	:EXAMINE STACK TO FIND CAUSE
180	000270	000272	.+2	:UNEXPECTED TRAP TO THIS LOCATION
181	000272	000000	HALT	:EXAMINE STACK TO FIND CAUSE
182	000274	000276	.+2	:UNEXPECTED TRAP TO THIS LOCATION
183	000276	000000	HALT	:EXAMINE STACK TO FIND CAUSE
184	000300	000302	.+2	:UNEXPECTED TRAP TO THIS LOCATION
185	000302	000000	HALT	:EXAMINE STACK TO FIND CAUSE
186	000304	000306	.+2	:UNEXPECTED TRAP TO THIS LOCATION
187	000306	000000	HALT	:EXAMINE STACK TO FIND CAUSE
188	000310	000312	.+2	:UNEXPECTED TRAP TO THIS LOCATION
189	000312	000000	HALT	:EXAMINE STACK TO FIND CAUSE
190	000314	000316	.+2	:UNEXPECTED TRAP TO THIS LOCATION
191	000316	000000	HALT	:EXAMINE STACK TO FIND CAUSE
192	000320	000322	.+2	:UNEXPECTED TRAP TO THIS LOCATION
193	000322	000000	HALT	:EXAMINE STACK TO FIND CAUSE
194	000324	000326	.+2	:UNEXPECTED TRAP TO THIS LOCATION
195	000326	000000	HALT	:EXAMINE STACK TO FIND CAUSE
196	000330	000332	.+2	:UNEXPECTED TRAP TO THIS LOCATION
197	000332	000000	HALT	:EXAMINE STACK TO FIND CAUSE

# F01

198	000334	000336	.+2	:UNEXPECTED TRAP TO THIS LOCATION
199	000336	000000	HALT	:EXAMINE STACK TO FIND CAUSE
200	000340	000342	.+2	:UNEXPECTED TRAP TO THIS LOCATION
201	000342	000000	HALT	:EXAMINE STACK TO FIND CAUSE
202	000344	000346	.+2	:UNEXPECTED TRAP TO THIS LOCATION
203	000346	000000	HALT	:EXAMINE STACK TO FIND CAUSE
204	000350	000352	.+2	:UNEXPECTED TRAP TO THIS LOCATION
205	000352	000000	HALT	:EXAMINE STACK TO FIND CAUSE
206	000354	000356	.+2	:UNEXPECTED TRAP TO THIS LOCATION
207	000356	000000	HALT	:EXAMINE STACK TO FIND CAUSE
208	000360	000362	.+2	:UNEXPECTED TRAP TO THIS LOCATION
209	000362	000000	HALT	:EXAMINE STACK TO FIND CAUSE
210	000364	000366	.+2	:UNEXPECTED TRAP TO THIS LOCATION
211	000366	000000	HALT	:EXAMINE STACK TO FIND CAUSE
212	000370	000372	.+2	:UNEXPECTED TRAP TO THIS LOCATION
213	000372	000000	HALT	:EXAMINE STACK TO FIND CAUSE
214	000374	000376	.+2	:UNEXPECTED TRAP TO THIS LOCATION
215	000376	000000	HALT	:EXAMINE STACK TO FIND CAUSE
216	000400	000402	.+2	:UNEXPECTED TRAP TO THIS LOCATION
217	000402	000000	HALT	:EXAMINE STACK TO FIND CAUSE
218	000404	000406	.+2	:UNEXPECTED TRAP TO THIS LOCATION
219	000406	000000	HALT	:EXAMINE STACK TO FIND CAUSE
220	000410	000412	.+2	:UNEXPECTED TRAP TO THIS LOCATION
221	000412	000000	HALT	:EXAMINE STACK TO FIND CAUSE
222	000414	000416	.+2	:UNEXPECTED TRAP TO THIS LOCATION
223	000416	000000	HALT	:EXAMINE STACK TO FIND CAUSE
224	000420	000422	.+2	:UNEXPECTED TRAP TO THIS LOCATION
225	000422	000000	HALT	:EXAMINE STACK TO FIND CAUSE
226	000424	000426	.+2	:UNEXPECTED TRAP TO THIS LOCATION
227	000426	000000	HALT	:EXAMINE STACK TO FIND CAUSE
228	000430	000432	.+2	:UNEXPECTED TRAP TO THIS LOCATION
229	000432	000000	HALT	:EXAMINE STACK TO FIND CAUSE
230	000434	000436	.+2	:UNEXPECTED TRAP TO THIS LOCATION
231	000436	000000	HALT	:EXAMINE STACK TO FIND CAUSE
232	000440	000442	.+2	:UNEXPECTED TRAP TO THIS LOCATION
233	000442	000000	HALT	:EXAMINE STACK TO FIND CAUSE
234	000444	000446	.+2	:UNEXPECTED TRAP TO THIS LOCATION
235	000446	000000	HALT	:EXAMINE STACK TO FIND CAUSE
236	000450	000452	.+2	:UNEXPECTED TRAP TO THIS LOCATION
237	000452	000000	HALT	:EXAMINE STACK TO FIND CAUSE
238	000454	000456	.+2	:UNEXPECTED TRAP TO THIS LOCATION
239	000456	000000	HALT	:EXAMINE STACK TO FIND CAUSE
240	000460	000462	.+2	:UNEXPECTED TRAP TO THIS LOCATION
241	000462	000000	HALT	:EXAMINE STACK TO FIND CAUSE
242	000464	000466	.+2	:UNEXPECTED TRAP TO THIS LOCATION
243	000466	000000	HALT	:EXAMINE STACK TO FIND CAUSE
244	000470	000472	.+2	:UNEXPECTED TRAP TO THIS LOCATION
245	000472	000000	HALT	:EXAMINE STACK TO FIND CAUSE
246	000474	000476	.+2	:UNEXPECTED TRAP TO THIS LOCATION
247	000476	000000	HALT	:EXAMINE STACK TO FIND CAUSE
248	000500	000502	.+2	:UNEXPECTED TRAP TO THIS LOCATION
249	000502	000000	HALT	:EXAMINE STACK TO FIND CAUSE
250	000504	000506	.+2	:UNEXPECTED TRAP TO THIS LOCATION
251	000506	000000	HALT	:EXAMINE STACK TO FIND CAUSE
252	000510	000512	.+2	:UNEXPECTED TRAP TO THIS LOCATION
253	000512	000000	HALT	:EXAMINE STACK TO FIND CAUSE

254	000514	000516	.+2	:UNEXPECTED TRAP TO THIS LOCATION
255	000516	000000	HALT	:EXAMINE STACK TO FIND CAUSE
256	000520	000522	.+2	:UNEXPECTED TRAP TO THIS LOCATION
257	000522	000000	HALT	:EXAMINE STACK TO FIND CAUSE
258	000524	000526	.+2	:UNEXPECTED TRAP TO THIS LOCATION
259	000526	000000	HALT	:EXAMINE STACK TO FIND CAUSE
260	000530	000532	.+2	:UNEXPECTED TRAP TO THIS LOCATION
261	000532	000000	HALT	:EXAMINE STACK TO FIND CAUSE
262	000534	000536	.+2	:UNEXPECTED TRAP TO THIS LOCATION
263	000536	000000	HALT	:EXAMINE STACK TO FIND CAUSE
264	000540	000542	.+2	:UNEXPECTED TRAP TO THIS LOCATION
265	000542	000000	HALT	:EXAMINE STACK TO FIND CAUSE
266	000544	000546	.+2	:UNEXPECTED TRAP TO THIS LOCATION
267	000546	000000	HALT	:EXAMINE STACK TO FIND CAUSE
268	000550	000552	.+2	:UNEXPECTED TRAP TO THIS LOCATION
269	000552	000000	HALT	:EXAMINE STACK TO FIND CAUSE
270	000554	000556	.+2	:UNEXPECTED TRAP TO THIS LOCATION
271	000556	000000	HALT	:EXAMINE STACK TO FIND CAUSE
272	000560	000562	.+2	:UNEXPECTED TRAP TO THIS LOCATION
273	000562	000000	HALT	:EXAMINE STACK TO FIND CAUSE
274	000564	000566	.+2	:UNEXPECTED TRAP TO THIS LOCATION
275	000566	000000	HALT	:EXAMINE STACK TO FIND CAUSE
276	000570	000572	.+2	:UNEXPECTED TRAP TO THIS LOCATION
277	000572	000000	HALT	:EXAMINE STACK TO FIND CAUSE
278	000574	000576	.+2	:UNEXPECTED TRAP TO THIS LOCATION
279	000576	000000	HALT	:EXAMINE STACK TO FIND CAUSE
280	000600	000602	.+2	:UNEXPECTED TRAP TO THIS LOCATION
281	000602	000000	HALT	:EXAMINE STACK TO FIND CAUSE
282	000604	000606	.+2	:UNEXPECTED TRAP TO THIS LOCATION
283	000606	000000	HALT	:EXAMINE STACK TO FIND CAUSE
284	000610	000612	.+2	:UNEXPECTED TRAP TO THIS LOCATION
285	000612	000000	HALT	:EXAMINE STACK TO FIND CAUSE
286	000614	000616	.+2	:UNEXPECTED TRAP TO THIS LOCATION
287	000616	000000	HALT	:EXAMINE STACK TO FIND CAUSE
288	000620	000622	.+2	:UNEXPECTED TRAP TO THIS LOCATION
289	000622	000000	HALT	:EXAMINE STACK TO FIND CAUSE
290	000624	000626	.+2	:UNEXPECTED TRAP TO THIS LOCATION
291	000626	000000	HALT	:EXAMINE STACK TO FIND CAUSE
292	000630	000632	.+2	:UNEXPECTED TRAP TO THIS LOCATION
293	000632	000000	HALT	:EXAMINE STACK TO FIND CAUSE
294	000634	000636	.+2	:UNEXPECTED TRAP TO THIS LOCATION
295	000636	000000	HALT	:EXAMINE STACK TO FIND CAUSE
296	000640	000642	.+2	:UNEXPECTED TRAP TO THIS LOCATION
297	000642	000000	HALT	:EXAMINE STACK TO FIND CAUSE
298	000644	000646	.+2	:UNEXPECTED TRAP TO THIS LOCATION
299	000646	000000	HALT	:EXAMINE STACK TO FIND CAUSE
300	000650	000652	.+2	:UNEXPECTED TRAP TO THIS LOCATION
301	000652	000000	HALT	:EXAMINE STACK TO FIND CAUSE
302	000654	000656	.+2	:UNEXPECTED TRAP TO THIS LOCATION
303	000656	000000	HALT	:EXAMINE STACK TO FIND CAUSE
304	000660	000662	.+2	:UNEXPECTED TRAP TO THIS LOCATION
305	000662	000000	HALT	:EXAMINE STACK TO FIND CAUSE
306	000664	000666	.+2	:UNEXPECTED TRAP TO THIS LOCATION
307	000666	000000	HALT	:EXAMINE STACK TO FIND CAUSE
308	000670	000672	.+2	:UNEXPECTED TRAP TO THIS LOCATION
309	000672	000000	HALT	:EXAMINE STACK TO FIND CAUSE

# H01

DZDHH MACY11 27(732) 28-SEP-76 15:23 PAGE 149  
DZDHMB.P11

310	000674	000676	.+2	;UNEXPECTED TRAP TO THIS LOCATION
311	000676	000000	HALT	;EXAMINE STACK TO FIND CAUSE
312	000700	000702	.+2	;UNEXPECTED TRAP TO THIS LOCATION
313	000702	000000	HALT	;EXAMINE STACK TO FIND CAUSE
314	000704	000706	.+2	;UNEXPECTED TRAP TO THIS LOCATION
315	000706	000000	HALT	;EXAMINE STACK TO FIND CAUSE
316	000710	000712	.+2	;UNEXPECTED TRAP TO THIS LOCATION
317	000712	000000	HALT	;EXAMINE STACK TO FIND CAUSE
318	000714	000716	.+2	;UNEXPECTED TRAP TO THIS LOCATION
319	000716	000000	HALT	;EXAMINE STACK TO FIND CAUSE
320	000720	000722	.+2	;UNEXPECTED TRAP TO THIS LOCATION
321	000722	000000	HALT	;EXAMINE STACK TO FIND CAUSE
322	000724	000726	.+2	;UNEXPECTED TRAP TO THIS LOCATION
323	000726	000000	HALT	;EXAMINE STACK TO FIND CAUSE
324	000730	000732	.+2	;UNEXPECTED TRAP TO THIS LOCATION
325	000732	000000	HALT	;EXAMINE STACK TO FIND CAUSE
326	000734	000736	.+2	;UNEXPECTED TRAP TO THIS LOCATION
327	000736	000000	HALT	;EXAMINE STACK TO FIND CAUSE
328	000740	000742	.+2	;UNEXPECTED TRAP TO THIS LOCATION
329	000742	000000	HALT	;EXAMINE STACK TO FIND CAUSE
330	000744	000746	.+2	;UNEXPECTED TRAP TO THIS LOCATION
331	000746	000000	HALT	;EXAMINE STACK TO FIND CAUSE
332	000750	000752	.+2	;UNEXPECTED TRAP TO THIS LOCATION
333	000752	000000	HALT	;EXAMINE STACK TO FIND CAUSE
334	000754	000756	.+2	;UNEXPECTED TRAP TO THIS LOCATION
335	000756	000000	HALT	;EXAMINE STACK TO FIND CAUSE
336	000760	000762	.+2	;UNEXPECTED TRAP TO THIS LOCATION
337	000762	000000	HALT	;EXAMINE STACK TO FIND CAUSE
338	000764	000766	.+2	;UNEXPECTED TRAP TO THIS LOCATION
339	000766	000000	HALT	;EXAMINE STACK TO FIND CAUSE
340	000770	000772	.+2	;UNEXPECTED TRAP TO THIS LOCATION
341	000772	000000	HALT	;EXAMINE STACK TO FIND CAUSE
342	000774	000776	.+2	;UNEXPECTED TRAP TO THIS LOCATION
343	000776	000000	HALT	;EXAMINE STACK TO FIND CAUSE



```

344                                     ;STANDARD INTERRUPT VECTORS
345
346
347                                     . =24
348 000024 014352 PFAIL ;POWER FAIL HANDLER
349 000026 000340 340 ;SERVICE AT LEVEL 7
350 000030 012216 ERRORS ;ERROR HANDLER
351 000032 000340 340 ;SERVICE AT LEVEL 7
352 000034 012420 TRPSRV ;GENERAL HANDLER DISPATCH SERVICE
353 000036 000340 340 ;SERVICE AT LEVEL 7
354                                     . =200
355 000200 000167 000574 JMP START ;GO TO START OF PROGRAM
356
357
358
359 ;DEFINITIONS FOR TRAP SUBROUTINE CALLS
360 ;POINTERS TO SUBROUTINES CAN BE FOUND STARTING
361 ;AT LOCATION "TRPTAB"
362
363 104400 SCOPE=TRAP+Y ;SCOPE LOOP AND ITERATION HANDLER
364 104401 TYPE=TRAP+Y ;TELETYPE OUTPUT ROUTINE
365 104402 OCTASC=TRAP+Y ;OCTAL TO ASCII CONVERSION
366 104403 INSTR=TRAP+Y ;INPUT ASCII STRING
367 104404 INSTER=TRAP+Y ;STRING INPUT ERROR
368 104405 PARAM=TRAP+Y ;CONVERT STRING TO OCTAL, CHECK LIMITS
369 104406 SAVOSP=TRAP+Y ;SAVE R0-R5, PC
370 104407 RESOS=TRAP+Y ;RESTORE R0-R5
371 104410 SCOPE1=TRAP+Y ;CHECK FOR FREEZE ON CURRENT DATA

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372          001000          . =1000
373
374          ;PROGRAM INITIALIZATION
375          ;LOCK OUT INTERRUPTS
376          ;SET UP PROCESSOR STACK
377          ;SET UP POWER FAIL VECTOR
378          ;CLEAR PROGRAM FLAGS AND COUNTS
379          ;TYPE TITLE MESSAGE
380
381 001000 012767 000340 176770 START: MOV #340,PS          ;LOCK OUT INTERRUPTS
382 001006 012706 015460          MOV #STACK,SP        ;SET UP PROCESSOR STACK
383 001012 012737 014352 000024 MOV #PFAIL,2#24      ;SET UP POWER FAIL TRAP
384 001020 005067 012452          CLR STFLG           ;CLEAR TEST START FLAG
385 001024 005067 012406          CLR PASCNT         ;CLEAR PASS COUNT
386 001030 005067 012404          CLR ERRCNT         ;CLEAR ERROR COUNT
387 001034 005067 012374          CLR ERRFLG        ;CLEAR ERROR FLAG
388 001040 005067 012370          CLR ERRFLG        ;CLEAR LAST ERROR PC
389 001044 104401 014516          TYPE ,MTITLE      ;TYPE TITLE MESSAGE
390 001050 005767 012420          TST INIFLG        ;CHECK INITIALIZATION FLAG
391 001054 001001          BNE VEC1          ;IF NOT 0, CHECK SWITCHES
392          ;FOR REINITIALIZATION
393 001056 000404          BR VEC2
394 001060 032767 000001 176502 VEC1: BIT #SW00,SWR        ;IF SW00=1, GET NEW VECTOR
395 001066 001445          BEQ BEGIN          ;AND CSR
396 001070 012701 000300          VEC2: MOV #300,R1
397 001074 012702 000302          MOV #302,R2
398 001100 012703 000004          MOV #4,R3
399 001104 010211          IS: MOV R2,(R1)      ;RESTORE TRAPCATCHER
400 001106 005012          CLR (R2)          ;IN FLOATING VECTOR AREA
401 001110 060301          ADD R3,R1
402 001112 060302          ADD R3,R2
403 001114 020127 001000          CMP R1,#1000
404 001120 001371          BNE IS
405 001122 104403          INSTR           ;INPUT ADDRESS OF DEVICE VECTOR
406 001124 014550          MVECTOR         ;MESSAGE "VECTOR ADDRESS--"
407 001126 104405          PARAM          ;CONVERT STRING TO OCTAL
408 001130 000300          300            ;LOW LIMIT
409 001132 000770          770            ;HIGH LIMIT
410 001134 013424          DHRVEC         ;LOCATIONS TO BE FILLED
411 001136 003          .BYTE 3          ;NUMBER OF LOCATIONS
412 001137 004          .BYTE 4          ;LSB MASK
413 001140 104403          INSTR           ;INPUT ADDRESS OF DEVICE CSR
414 001142 014572          MREGAD         ;MESSAGE "CONTROL REGISTER ADDRESS--"
415 001144 104405          PARAM          ;CONVERT STRING TO OCTAL
416 001146 000000          0             ;LOW LIMIT
417 001150 177776          177776        ;HIGH LIMIT
418 001152 013402          DHSCR         ;LOCATIONS TO BE FILLED
419 001154 007          .BYTE 7          ;NUMBER OF LOCATIONS
420 001155 010          .BYTE 10         ;LSB MASK
421 001156 016767 012236 012236 MOV DHSSR,DHSLR  ;SET UP ADDRESS OF SILO
422 001164 005267 012232          INC DHSLR       ;STATUS REGISTER HIGH BYTE
423 001170 005767 012300          TST INIFLG      ;IF INITIALIZATION FLAG
424 001174 001002          BNE BEGIN      ;IS CLEARED
425 001176 005167 012272          COM INIFLG      ;SET IT
426
427          ;PROGRAM START
  
```

# K01

DZDHH MACY11 27(732) 29-SEP-76 15:23 PAGE 152  
 DZDHHB.P11

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428                                     ;CHECK FOR PROGRAM START AT SELECTED ADDRESS
429
430 001202 012767 000340 176566 BEGIN: MOV #340,PS ;LOCK OUT INTERRUPTS
431 001210 012706 015460 MOV #STACK,SP ;SET UP PROCESSOR STACK
432 001214 032767 000002 176346 BIT #SW01,SWR ;IF SW01=1
433 001222 001410 BEQ 1$ ;GET PC FOR PROGRAM START
434 001224 104403 INSTR ;GET PC
435 001226 014736 MTSTPC ;MESSAGE "TEST PC"
436 001230 104405 PARAM ;CONVERT STRING TO OCTAL
437 001232 000000 0
438 001234 017500 17500
439 001236 000207 RETURN
440 001240 001 .BYTE 1
441 001241 001 .BYTE 1
442 001242 000410 BR 2$
443 001244 012767 001274 012170 1$: MOV #T1,RETURN ;NORMAL START, TEST 1
444 001252 005767 012220 TST STFLG ;IF LOOPING, BYPASS TIMEOUT
445 001256 001004 BNE 3$
446 001260 005167 012212 COM STFLG
447 001264 104401 014732 2$: TYPE MR ;TYPE "R" TO INDICATE START
448 001270 000177 012146 3$: JMP @RETURN ;START TESTING
  
```

L01

DZDHH MACY11 27(732) 29-SEP-76 15:23 PAGE 153  
DZDHHB.P11

449

# MO1

```

450
451      ;ENABLE AUTO ECHO ON LINE 0
452      ;TRANSMIT ONE CHARACTER ON LINE 0
453      ;AT 9600 BAUD, 8 BITS.
454      ;RECEIVE AND VERIFY CHARACTERS UNTIL 64 HAVE BEEN RECEIVED.
455      ;AFTER 64 CHARACTERS HAVE BEEN RECEIVED, DISABLE AUTO ECHO.
456      ;EXACTLY ONE MORE CHARACTER SHOULD BE RECEIVED.
457
458 001274 012767 000340 176474 T1:  MOV    #340,PS      ;DISABLE ALL INTERRUPTS
459 001302 012767 000100 012140      MOV    #100,ICOUNT ;SET UP FOR 100 ITERATIONS
460 001310 012767 001450 012126      MOV    #4$,ESCAPE  ;SET UP TO ESCAPE TO NEXT TEST
461 001316 012777 004000 012056      MOV    #BIT11,ADHSCR ;MASTER CLEAR INTERFACE
462 001324 004767 011712      1$:  JSR    PC,CLRALL   ;CLEAR ALL BYTE COUNT AN
463                                     ;BUS ADDRESS REGISTERS
464 001330 012777 000000 012044      MOV    #0,ADHSCR   ;SELECT LINE 0
465 001336 012777 177777 012046      MOV    #-1,ADHBC   ;SET BYTE COUNT TO 1
466 001344 012777 014152 012036      MOV    #TWRD0,ADHBA ;SET UP ADDRESS OF CHARACTER TO BE TRANSMITTED
467 001352 012700 000100      MOV    #100,R0     ;SET UP TO RECEIVE 64 CHARACTERS
468 001356 005001      CLR    R1          ;COUNT OF CHARACTERS RECEIVED
469 001360 012777 133503 012020      MOV    #133503,ADHLPR ;SET UP SPEED FOR 9600 BAUD
470                                     ;8 BITS PER CHARACTER,
471                                     ;AUTO ECHO ENABLED ON LINE 0
472 001366 012777 000001 012020      MOV    #1,ADHBAR   ;SET BAR BIT FOR LINE 0
473 001374 105777 012002      2$:  TSTB  ADHSCR      ;WAIT FOR CHARACTER TO
474 001400 100375      BPL   2$          ;BE RECEIVED
475 001402 005201      INC   R1          ;UPDATE RECEIVED CHARACTER COUNT
476 001404 017704 011774      MOV    ADHNRC,R4   ;READ CHARACTER
477 001410 020467 012536      CMP   R4,TWRD0    ;IS CHARACTER CORRECT
478 001414 001406      BEQ   3$          ;
479 001416 016705 012530      MOV    TWRD0,R5   ;(R5)=EXPECTED CHARACTER
480 001422 005077 011760      CLR   ADHLPR     ;SHUT OFF AUTO ECHO
481 001426 104000      HLT   0           ;CHARACTER ECHOED INCORRECTLY
482 001430 000407      BR    4$          ;RESTART TEST
483 001432 005300      3$:  DEC   R0          ;IF 64 CHARACTERS HAVE NOT
484 001434 003357      BGT   2$          ;BEEN RECEIVED, CONTINUE
485 001436 100404      BMI   4$          ;
486 001440 042777 100000 011740      BIC   #100000,ADHLPR ;SHUT OFF AUTO-ECHO
487 001446 000752      BR    2$          ;GET 1 MORE CHARACTER
488 001450 104400      4$:  SCOPE ;CHECK FOR ITERATIONS, LOOP
489
490      ;ENABLE AUTO ECHO ON LINE 1
491      ;TRANSMIT ONE CHARACTER ON LINE 1
492      ;AT 9600 BAUD, 8 BITS.
493      ;RECEIVE AND VERIFY CHARACTERS UNTIL 64 HAVE BEEN RECEIVED.
494      ;AFTER 64 CHARACTERS HAVE BEEN RECEIVED, DISABLE AUTO ECHO.
495      ;EXACTLY ONE MORE CHARACTER SHOULD BE RECEIVED.
496
497 001452 012767 000340 176316 T2:  MOV    #340,PS      ;DISABLE ALL INTERRUPTS
498 001460 012767 000100 011762      MOV    #100,ICOUNT ;SET UP FOR 100 ITERATIONS
499 001466 012767 001626 011750      MOV    #4$,ESCAPE  ;SET UP TO ESCAPE TO NEXT TEST
500 001474 012777 004000 011700      MOV    #BIT11,ADHSCR ;MASTER CLEAR INTERFACE
501 001502 004767 011534      1$:  JSR    PC,CLRALL   ;CLEAR ALL BYTE COUNT AN
502                                     ;BUS ADDRESS REGISTERS
503 001506 012777 000001 011666      MOV    #1,ADHSCR   ;SELECT LINE 1
504 001514 012777 177777 011670      MOV    #-1,ADHBC   ;SET BYTE COUNT TO 1
505 001522 012777 014154 011660      MOV    #TWRD1,ADHBA ;SET UP ADDRESS OF CHARACTER TO BE TRANSMITTED

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506 001530 012700 000100      MOV      #100,R0      ;SET UP TO RECEIVE 64 CHARACTERS
507 001534 005001      CLR      R1          ;COUNT OF CHARACTERS RECEIVED
508 001536 012777 133503 011642  MOV      #133503,ADHLPR ;SET UP SPEED FOR 9600 BAUD
509                                     ;8 BITS PER CHARACTER,
510                                     ;AUTO ECHO ENABLED ON LINE 1
511 001544 012777 000002 011642  MOV      #2,ADHBAR   ;SET BAR BIT FOR LINE 1
512 001552 105777 011624      2$:  TSTB     ADHSCR      ;WAIT FOR CHARACTER TO
513 001556 100375                                     ;BE RECEIVED
514 001560 005201      INC      R1          ;UPDATE RECEIVED CHARACTER COUNT
515 001562 017704 011616      MOV      ADHNR, R4   ;READ CHARACTER
516 001566 020467 012362      CMP      R4, TWRD1  ;IS CHARACTER CORRECT
517 001572 001406      BEQ      3$         ;
518 001574 016705 012354      MOV      TWRD1, R5  ;(R5)=EXPECTED CHARACTER
519 001600 005077 011602      CLR      ADHLPR     ;SHUT OFF AUTO ECHO
520 001604 104000      HLT      0          ;CHARACTER ECHOED INCORRECTLY
521 001606 000407      BR      4$         ;RESTART TEST
522 001610 005300      3$:  DEC      R0          ;IF 64 CHARACTERS HAVE NOT
523 001612 003357      BGT      2$         ;BEEN RECEIVED, CONTINUE
524 001614 100404      BMI      4$         ;
525 001616 042777 100000 011562  BIC      #100000,ADHLPR ;SHUT OFF AUTO-ECHO
526 001624 000752      BR      2$         ;GET 1 MORE CHARACTER
527 001626 104400      4$:  SCOPE                                     ;CHECK FOR ITERATIONS, LOOP
528
529                                     ;ENABLE AUTO ECHO ON LINE 2
530                                     ;TRANSMIT ONE CHARACTER ON LINE 2
531                                     ;AT 9600 BAUD, 8 BITS.
532                                     ;RECEIVE AND VERIFY CHARACTERS UNTIL 64 HAVE BEEN RECEIVED.
533                                     ;AFTER 64 CHARACTERS HAVE BEEN RECEIVED, DISABLE AUTO ECHO.
534                                     ;EXACTLY ONE MORE CHARACTER SHOULD BE RECEIVED.
535
536 001630 012767 000340 176140  T3:  MOV      #340,PS   ;DISABLE ALL INTERRUPTS
537 001636 012767 000100 011604  MOV      #100,ICOUNT ;SET UP FOR 100 ITERATIONS
538 001644 012767 002004 011572  MOV      #4$,ESCAPE  ;SET UP TO ESCAPE TO NEXT TEST
539 001652 012777 004000 011522  MOV      #BIT11,ADHSCR ;MASTER CLEAR INTERFACE
540 001660 004767 011356      1$:  JSR      PC,CLRALL  ;CLEAR ALL BYTE COUNT AN
541                                     ;BUS ADDRESS REGISTERS
542 001664 012777 000002 011510  MOV      #2,ADHSCR   ;SELECT LINE 2
543 001672 012777 177777 011512  MOV      #-1,ADHBC   ;SET BYTE COUNT TO 1
544 001700 012777 014156 011502  MOV      #TWRD2,ADHBA ;SET UP ADDRESS OF CHARACTER TO BE TRANSMITTED
545 001706 012700 000100      MOV      #100,R0    ;SET UP TO RECEIVE 64 CHARACTERS
546 001712 005001      CLR      R1          ;COUNT OF CHARACTERS RECEIVED
547 001714 012777 133503 011464  MOV      #133503,ADHLPR ;SET UP SPEED FOR 9600 BAUD
548                                     ;8 BITS PER CHARACTER,
549                                     ;AUTO ECHO ENABLED ON LINE 2
550 001722 012777 000004 011464  MOV      #4,ADHBAR   ;SET BAR BIT FOR LINE 2
551 001730 105777 011446      2$:  TSTB     ADHSCR      ;WAIT FOR CHARACTER TO
552 001734 100375                                     ;BE RECEIVED
553 001736 005201      INC      R1          ;UPDATE RECEIVED CHARACTER COUNT
554 001740 017704 011440      MOV      ADHNR, R4   ;READ CHARACTER
555 001744 020467 012206      CMP      R4, TWRD2  ;IS CHARACTER CORRECT
556 001750 001406      BEQ      3$         ;
557 001752 016705 012200      MOV      TWRD2, R5  ;(R5)=EXPECTED CHARACTER
558 001756 005077 011424      CLR      ADHLPR     ;SHUT OFF AUTO ECHO
559 001762 104000      HLT      0          ;CHARACTER ECHOED INCORRECTLY
560 001764 000407      BR      4$         ;RESTART TEST
561 001766 005300      3$:  DEC      R0          ;IF 64 CHARACTERS HAVE NOT

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562	001770	003357			BGT	2\$		;SEEN RECEIVED, CONTINUE
563	001772	100404			BMI	4\$		
564	001774	042777	100000	011404	BIC	#100000,2DHLPR		;SHUT OFF AUTO-ECHO
565	002002	000752			BR	2\$		;GET 1 MORE CHARACTER
566	002004	104400			4\$: SCOPE			;CHECK FOR ITERATIONS, LOOP
567								
568								;ENABLE AUTO ECHO ON LINE 3
569								;TRANSMIT ONE CHARACTER ON LINE 3
570								;AT 9600 BAUD, 8 BITS.
571								;RECEIVE AND VERIFY CHARACTERS UNTIL 64 HAVE BEEN RECEIVED.
572								;AFTER 64 CHARACTERS HAVE BEEN RECEIVED, DISABLE AUTO ECHO.
573								;EXACTLY ONE MORE CHARACTER SHOULD BE RECEIVED.
574								
575	002006	012767	000340	175762	74: MOV	#340,PS		;DISABLE ALL INTERRUPTS
576	002014	012767	000100	011426	MOV	#100,ICOUNT		;SET UP FOR 100 ITERATIONS
577	002022	012767	002162	011414	MOV	#4\$,ESCAPE		;SET UP TO ESCAPE TO NEXT TEST
578	002030	012777	004000	011344	MOV	#BIT11,2DHSCR		;MASTER CLEAR INTERFACE
579	002036	004767	011200		1\$: JSR	PC,CLRALL		;CLEAR ALL BYTE COUNT AN
580								;BUS ADDRESS REGISTERS
581	002042	012777	000003	011332	MOV	#3,2DHSCR		;SELECT LINE 3
582	002050	012777	177777	011334	MOV	#-1,2DHBC		;SET BYTE COUNT TO 1
583	002056	012777	014160	011324	MOV	#TWRD3,2DHBA		;SET UP ADDRESS OF CHARACTER TO BE TRANSMITTED
584	002064	012700	000100		MOV	#100,R0		;SET UP TO RECEIVE 64 CHARACTERS
585	002070	005001			CLR	R1		;COUNT OF CHARACTERS RECEIVED
586	002072	012777	133503	011306	MOV	#133503,2DHLPR		;SET UP SPEED FOR 9600 BAUD
587								;8 BITS PER CHARACTER,
588								;AUTO ECHO ENABLED ON LINE 3
589	002100	012777	000010	011306	MOV	#10,2DHBAR		;SET BAR BIT FOR LINE 3
590	002106	105777	011270		2\$: TSTB	2DHSCR		;WAIT FOR CHARACTER TO
591	002112	100375			BPL	2\$		;BE RECEIVED
592	002114	005201			INC	R1		;UPDATE RECEIVED CHARACTER COUNT
593	002116	017704	011262		MOV	2DHNRC,R4		;READ CHARACTER
594	002122	020467	012032		CMP	R4,TWRD3		;IS CHARACTER CORRECT
595	002126	001406			BEQ	3\$		
596	002130	016705	012024		MOV	TWRD3,R5		;(R5)=EXPECTED CHARACTER
597	002134	005077	011246		CLR	2DHLPR		;SHUT OFF AUTO ECHO
598	002140	104000			HLT	0		;CHARACTER ECHOED INCORRECTLY
599	002142	000407			BR	4\$		;RESTART TEST
600	002144	005300			3\$: DEC	R0		;IF 64 CHARACTERS HAVE NOT
601	002146	003357			BGT	2\$		;BEEN RECEIVED, CONTINUE
602	002150	100404			BMI	4\$		
603	002152	042777	100000	011226	BIC	#100000,2DHLPR		;SHUT OFF AUTO-ECHO
604	002160	000752			BR	2\$		;GET 1 MORE CHARACTER
605	002162	104400			4\$: SCOPE			;CHECK FOR ITERATIONS, LOOP
606								
607								;ENABLE AUTO ECHO ON LINE 4
608								;TRANSMIT ONE CHARACTER ON LINE 4
609								;AT 9600 BAUD, 8 BITS.
610								;RECEIVE AND VERIFY CHARACTERS UNTIL 64 HAVE BEEN RECEIVED.
611								;AFTER 64 CHARACTERS HAVE BEEN RECEIVED, DISABLE AUTO ECHO.
612								;EXACTLY ONE MORE CHARACTER SHOULD BE RECEIVED.
613								
614	002164	012767	000340	175604	75: MOV	#340,PS		;DISABLE ALL INTERRUPTS
615	002172	012767	000100	011250	MOV	#100,ICOUNT		;SET UP FOR 100 ITERATIONS
616	002200	012767	002340	011236	MOV	#4\$,ESCAPE		;SET UP TO ESCAPE TO NEXT TEST
617	002206	012777	004000	011166	MOV	#BIT11,2DHSCR		;MASTER CLEAR INTERFACE

618	002214	004767	011022		1\$:	JSR	PC, CLRALL		: CLEAR ALL BYTE COUNT AN
619									: BUS ADDRESS REGISTERS
620	002220	012777	000004	011154		MOV	#4, JDHSCR		: SELECT LINE 4
621	002226	012777	177777	011156		MOV	#-1, JDHBC		: SET BYTE COUNT TO 1
622	002234	012777	014162	011146		MOV	#TWRD4, JDHBA		: SET UP ADDRESS OF CHARACTER TO BE TRANSMITTED
623	002242	012700	000100			MOV	#100, R0		: SET UP TO RECEIVE 64 CHARACTERS
624	002246	005001				CLR	R1		: COUNT OF CHARACTERS RECEIVED
625	002250	012777	133503	011130		MOV	#133503, JDHLPR		: SET UP SPEED FOR 9600 BAUD
626									: 8 BITS PER CHARACTER,
627									: AUTO ECHO ENABLED ON LINE 4
628	002256	012777	000020	011130		MOV	#20, JDHBAR		: SET BAR BIT FOR LINE 4
629	002264	105777	011112		2\$:	TSTB	JDHSCR		: WAIT FOR CHARACTER TO
630	002270	100375				BPL	2\$		: BE RECEIVED
631	002272	005201				INC	R1		: UPDATE RECEIVED CHARACTER COUNT
632	002274	017704	011104			MOV	JDHNRC, R4		: READ CHARACTER
633	002300	020467	011656			CMP	R4, TWRD4		: IS CHARACTER CORRECT
634	002304	001406				BEQ	3\$		
635	002306	016705	011650			MOV	TWRD4, R5		: (R5)=EXPECTED CHARACTER
636	002312	005077	011070			CLR	JDHLPR		: SHUT OFF AUTO ECHO
637	002316	104000				HLT	0		: CHARACTER ECHOED INCORRECTLY
638	002320	000407				BR	4\$		: RESTART TEST
639	002322	005300			3\$:	DEC	R0		: IF 64 CHARACTERS HAVE NOT
640	002324	003357				BGT	2\$		: BEEN RECEIVED, CONTINUE
641	002326	100404				BMI	4\$		
642	002330	042777	100000	011050		BIC	#100000, JDHLPR		: SHUT OFF AUTO-ECHO
643	002336	000752				BR	2\$		: GET 1 MORE CHARACTER
644	002340	104400			4\$:	SCOPE			: CHECK FOR ITERATIONS, LOOP
645									
646									: ENABLE AUTO ECHO ON LINE 5
647									: TRANSMIT ONE CHARACTER ON LINE 5
648									: AT 9600 BAUD, 8 BITS.
649									: RECEIVE AND VERIFY CHARACTERS UNTIL 64 HAVE BEEN RECEIVED.
650									: AFTER 64 CHARACTERS HAVE BEEN RECEIVED, DISABLE AUTO ECHO.
651									: EXACTLY ONE MORE CHARACTER SHOULD BE RECEIVED.
652									
653	002342	012767	000340	175426	T6:	MOV	#340, P5		: DISABLE ALL INTERRUPTS
654	002350	012767	000100	011072		MOV	#100, ICOUNT		: SET UP FOR 100 ITERATIONS
655	002356	012767	002516	011060		MOV	#45, ESCAPE		: SET UP TO ESCAPE TO NEXT TEST
656	002364	012777	004000	011010		MOV	#BIT11, JDHSCR		: MASTER CLEAR INTERFACE
657	002372	004767	010644		1\$:	JSR	PC, CLRALL		: CLEAR ALL BYTE COUNT AN
658									: BUS ADDRESS REGISTERS
659	002376	012777	000005	010776		MOV	#5, JDHSCR		: SELECT LINE 5
660	002404	012777	177777	011000		MOV	#-1, JDHBC		: SET BYTE COUNT TO 1
661	002412	012777	014164	010770		MOV	#TWRD5, JDHBA		: SET UP ADDRESS OF CHARACTER TO BE TRANSMITTED
662	002420	012700	000100			MOV	#100, R0		: SET UP TO RECEIVE 64 CHARACTERS
663	002424	005001				CLR	R1		: COUNT OF CHARACTERS RECEIVED
664	002426	012777	133503	010752		MOV	#133503, JDHLPR		: SET UP SPEED FOR 9600 BAUD
665									: 8 BITS PER CHARACTER,
666									: AUTO ECHO ENABLED ON LINE 5
667	002434	012777	000040	010752		MOV	#40, JDHBAR		: SET BAR BIT FOR LINE 5
668	002442	105777	010734		2\$:	TSTB	JDHSCR		: WAIT FOR CHARACTER TO
669	002446	100375				BPL	2\$		: BE RECEIVED
670	002450	005201				INC	R1		: UPDATE RECEIVED CHARACTER COUNT
671	002452	017704	010726			MOV	JDHNRC, R4		: READ CHARACTER
672	002456	020467	011502			CMP	R4, TWRD5		: IS CHARACTER CORRECT
673	002462	001406				BEQ	3\$		



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674 002464 016705 011474      MOV      TWRD5,R5      ;(R5)=EXPECTED CHARACTER
675 002470 005077 010712      CLR      @DHLPR      ;SHUT OFF AUTO ECHO
676 002474 104000                HLT      0            ;CHARACTER ECHOED INCORRECTLY
677 002476 000407                BR       4$          ;RESTART TEST
678 002500 005300                3$:     DEC      R0      ;IF 64 CHARACTERS HAVE NOT
679 002502 003357                BGT      2$          ;BEEN RECEIVED, CONTINUE
680 002504 100404                BMI      4$
681 002506 042777 100000 010672    BIC      #100000,@DHLPR ;SHUT OFF AUTO-ECHO
682 002514 000752                BR       2$          ;GET 1 MORE CHARACTER
683 002516 104400                4$:     SCOPE        ;CHECK FOR ITERATIONS, LOOP
684
685                ;ENABLE AUTO ECHO ON LINE 6
686                ;TRANSMIT ONE CHARACTER ON LINE 6
687                ;AT 9600 BAUD, 8 BITS.
688                ;RECEIVE AND VERIFY CHARACTERS UNTIL 64 HAVE BEEN RECEIVED.
689                ;AFTER 64 CHARACTERS HAVE BEEN RECEIVED, DISABLE AUTO ECHO.
690                ;EXACTLY ONE MORE CHARACTER SHOULD BE RECEIVED.
691
692 002520 012767 000340 175250  T7:     MOV      #340,PS      ;DISABLE ALL INTERRUPTS
693 002526 012767 000100 010714    MOV      #100,ICOUNT  ;SET UP FOR 100 ITERATIONS
694 002534 012767 002674 010702    MOV      #4$,ESCAPE  ;SET UP TO ESCAPE TO NEXT TEST
695 002542 012777 004000 010632    MOV      #BIT11,@DHSCR ;MASTER CLEAR INTERFACE
696 002550 004767 010466                1$:     JSR      PC,CLRALL ;CLEAR ALL BYTE COUNT AN
697                ;BUS ADDRESS REGISTERS
698 002554 012777 000006 010620    MOV      #6,@DHSCR   ;SELECT LINE 6
699 002562 012777 177777 010622    MOV      #-1,@DHBC   ;SET BYTE COUNT TO 1
700 002570 012777 014166 010612    MOV      #TWRD6,@DHBA ;SET UP ADDRESS OF CHARACTER TO BE TRANSMITTED
701 002576 012700 000100                MOV      #100,R0     ;SET UP TO RECEIVE 64 CHARACTERS
702 002602 005001                CLR      R1          ;COUNT OF CHARACTERS RECEIVED
703 002604 012777 133503 010574    MOV      #133503,@DHLPR ;SET UP SPEED FOR 9600 BAUD
704                ;8 BITS PER CHARACTER,
705                ;AUTO ECHO ENABLED ON LINE 6
706 002612 012777 000100 010574    MOV      #100,@DHBAR ;SET BAR BIT FOR LINE 6
707 002620 105777 010556                2$:     TSTB     @DHSCR   ;WAIT FOR CHARACTER TO
708 002624 000375                BPL      2$          ;BE RECEIVED
709 002626 005201                INC      R1          ;UPDATE RECEIVED CHARACTER COUNT
710 002630 017704 010550                MOV      @DHNRC,R4   ;READ CHARACTER
711 002634 020467 011326                CMP      R4,TWRD6    ;IS CHARACTER CORRECT
712 002640 001406                BEQ      3$
713 002642 016705 011320                MOV      TWRD6,R5   ;(R5)=EXPECTED CHARACTER
714 002646 005077 010534                CLR      @DHLPR     ;SHUT OFF AUTO ECHO
715 002652 104000                HLT      0            ;CHARACTER ECHOED INCORRECTLY
716 002654 000407                BR       4$          ;RESTART TEST
717 002656 005300                3$:     DEC      R0      ;IF 64 CHARACTERS HAVE NOT
718 002660 003357                BGT      2$          ;BEEN RECEIVED, CONTINUE
719 002662 100404                BMI      4$
720 002664 042777 100000 010514    BIC      #100000,@DHLPR ;SHUT OFF AUTO-ECHO
721 002672 000752                BR       2$          ;GET 1 MORE CHARACTER
722 002674 104400                4$:     SCOPE        ;CHECK FOR ITERATIONS, LOOP
723
724                ;ENABLE AUTO ECHO ON LINE 7
725                ;TRANSMIT ONE CHARACTER ON LINE 7
726                ;AT 9600 BAUD, 8 BITS.
727                ;RECEIVE AND VERIFY CHARACTERS UNTIL 64 HAVE BEEN RECEIVED.
728                ;AFTER 64 CHARACTERS HAVE BEEN RECEIVED, DISABLE AUTO ECHO.
729                ;EXACTLY ONE MORE CHARACTER SHOULD BE RECEIVED.

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730
731 002676 012767 000340 175072 T10: MOV #340,PS ;DISABLE ALL INTERRUPTS
732 002704 012767 000100 010536 MOV #100,ICOUNT ;SET UP FOR 100 ITERATIONS
733 002712 012767 003052 010524 MOV #4$,ESCAPE ;SET UP TO ESCAPE TO NEXT TEST
734 002720 012777 004000 010454 MOV #BIT11,ADHSCR ;MASTER CLEAR INTERFACE
735 002726 004767 010310 1$: JSR PC,CLRALL ;CLEAR ALL BYTE COUNT AN
736 ;BUS ADDRESS REGISTERS
737 002732 012777 000007 010442 MOV #7,ADHSCR ;SELECT LINE 7
738 002740 012777 177777 010444 MOV #-1,ADHBC ;SET BYTE COUNT TO 1
739 002746 012777 014170 010434 MOV #TWRD7,ADHBA ;SET UP ADDRESS OF CHARACTER TO BE TRANSMITTED
740 002754 012700 000100 MOV #100,R0 ;SET UP TO RECEIVE 64 CHARACTERS
741 002760 005001 CLR R1 ;COUNT OF CHARACTERS RECEIVED
742 002762 012777 133503 010416 MOV #133503,ADHLPR ;SET UP SPEED FOR 9600 BAUD
743 ;8 BITS PER CHARACTER,
744 ;AUTO ECHO ENABLED ON LINE 7
745 002770 012777 000200 010416 MOV #200,ADHBAR ;SET BAR BIT FOR LINE 7
746 002776 105777 010400 2$: TSTB ADHSCR ;WAIT FOR CHARACTER TO
747 003002 100375 BPL 2$ ;BE RECEIVED
748 003004 005201 INC R1 ;UPDATE RECEIVED CHARACTER COUNT
749 003006 017704 010372 MOV ADHNRC,R4 ;READ CHARACTER
750 003012 020467 011152 CMP R4,TWRD7 ;IS CHARACTER CORRECT
751 003016 001406 BEQ 3$
752 003020 016705 011144 MOV TWRD7,R5 ;(R5)=EXPECTED CHARACTER
753 003024 005077 010356 CLR ADHLPR ;SHUT OFF AUTO ECHO
754 003030 104000 HLT 0 ;CHARACTER ECHOED INCORRECTLY
755 003032 000407 BR 4$ ;RESTART TEST
756 003034 005300 3$: DEC R0 ;IF 64 CHARACTERS HAVE NOT
757 003036 003357 BGT 2$ ;BEEN RECEIVED, CONTINUE
758 003040 100404 BMI 4$
759 003042 042777 100000 010336 BIC #100000,ADHLPR ;SHUT OFF AUTO-ECHO
760 003050 000752 BR 2$ ;GET 1 MORE CHARACTER
761 003052 104400 4$: SCOPE ;CHECK FOR ITERATIONS, LOOP
762
763 ;ENABLE AUTO ECHO ON LINE 10
764 ;TRANSMIT ONE CHARACTER ON LINE 10
765 ;AT 9600 BAUD, 8 BITS.
766 ;RECEIVE AND VERIFY CHARACTERS UNTIL 64 HAVE BEEN RECEIVED.
767 ;AFTER 64 CHARACTERS HAVE BEEN RECEIVED, DISABLE AUTO ECHO.
768 ;EXACTLY ONE MORE CHARACTER SHOULD BE RECEIVED.
769
770 003054 012767 000340 174714 T11: MOV #340,PS ;DISABLE ALL INTERRUPTS
771 003062 012767 000100 010360 MOV #100,ICOUNT ;SET UP FOR 100 ITERATIONS
772 003070 012767 003230 010346 MOV #4$,ESCAPE ;SET UP TO ESCAPE TO NEXT TEST
773 003076 012777 004000 010276 MOV #BIT11,ADHSCR ;MASTER CLEAR INTERFACE
774 003104 004767 010132 1$: JSR PC,CLRALL ;CLEAR ALL BYTE COUNT AN
775 ;BUS ADDRESS REGISTERS
776 003110 012777 000010 010264 MOV #10,ADHSCR ;SELECT LINE 10
777 003116 012777 177777 010266 MOV #-1,ADHBC ;SET BYTE COUNT TO 1
778 003124 012777 014172 010256 MOV #TWRD10,ADHBA ;SET UP ADDRESS OF CHARACTER TO BE TRANSMITTED
779 003132 012700 000100 MOV #100,R0 ;SET UP TO RECEIVE 64 CHARACTERS
780 003136 005001 CLR R1 ;COUNT OF CHARACTERS RECEIVED
781 003140 012777 133503 010240 MOV #133503,ADHLPR ;SET UP SPEED FOR 9600 BAUD
782 ;8 BITS PER CHARACTER,
783 ;AUTO ECHO ENABLED ON LINE 10
784 003146 012777 000400 010240 MOV #400,ADHBAR ;SET BAR BIT FOR LINE 10
785 003154 105777 010222 2$: TSTB ADHSCR ;WAIT FOR CHARACTER TO

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786 003160 100375          BPL      2$          ;BE RECEIVED
787 003162 005201          INC      R1          ;UPDATE RECEIVED CHARACTER COUNT
788 003164 017704 010214  MOV     @DHNRC,R4    ;READ CHARACTER
789 003170 020467 010776  CMP     R4,TWRD10   ;IS CHARACTER CORRECT
790 003174 001406          BEQ     3$          ;
791 003176 016705 010770  MOV     TWRD10,R5   ;(R5)=EXPECTED CHARACTER
792 003202 005077 010200  CLR     @DHLPR      ;SHUT OFF AUTO ECHO
793 003206 104000          HLT     0           ;CHARACTER ECHOED INCORRECTLY
794 003210 000407          BR      4$          ;RESTART TEST
795 003212 005300          3$:    DEC     RO     ;IF 64 CHARACTERS HAVE NOT
796 003214 003357          BGT     2$          ;BEEN RECEIVED, CONTINUE
797 003216 100404          BMI     4$          ;
798 003220 042777 100000 010160 BIC     #100000,@DHLPR ;SHUT OFF AUTO-ECHO
799 003226 000752          BR      2$          ;GET 1 MORE CHARACTER
800 003230 104400          4$:    SCOPE        ;CHECK FOR ITERATIONS, LOOP
801
802          ;ENABLE AUTO ECHO ON LINE 11
803          ;TRANSMIT ONE CHARACTER ON LINE 11
804          ;AT 9600 BAUD, 8 BITS.
805          ;RECEIVE AND VERIFY CHARACTERS UNTIL 64 HAVE BEEN RECEIVED.
806          ;AFTER 64 CHARACTERS HAVE BEEN RECEIVED, DISABLE AUTO ECHO.
807          ;EXACTLY ONE MORE CHARACTER SHOULD BE RECEIVED.
808
809 003232 012767 000340 174536 T12:   MOV     #340,PS     ;DISABLE ALL INTERRUPTS
810 003240 012767 000100 010202  MOV     #100,ICOUNT ;SET UP FOR 100 ITERATIONS
811 003246 012767 003406 010170  MOV     #4$,ESCAPE  ;SET UP TO ESCAPE TO NEXT TEST
812 003254 012777 004000 010120  MOV     #BIT11,@DHSCR ;MASTER CLEAR INTERFACE
813 003262 004767 007754          1$:    JSR     PC,CLRALL ;CLEAR ALL BYTE COUNT AN
814          ;BUS ADDRESS REGISTERS
815 003266 012777 000011 010106  MOV     #11,@DHSCR  ;SELECT LINE 11
816 003274 012777 177777 010110  MOV     #-1,@DHBC   ;SET BYTE COUNT TO 1
817 003302 012777 014174 010100  MOV     #TWRD11,@DHBA ;SET UP ADDRESS OF CHARACTER TO BE TRANSMITTED
818 003310 012700 000100          MOV     #100,RO    ;SET UP TO RECEIVE 64 CHARACTERS
819 003314 005001          CLR     R1         ;COUNT OF CHARACTERS RECEIVED
820 003316 012777 133503 010062  MOV     #133503,@DHLPR ;SET UP SPEED FOR 9600 BAUD
821          ;8 BITS PER CHARACTER,
822          ;AUTO ECHO ENABLED ON LINE 11
823 003324 012777 001000 010062  MOV     #1000,@DHBAR ;SET BAR BIT FOR LINE 11
824 003332 105777 010044          2$:    TSTB    @DHSCR   ;WAIT FOR CHARACTER TO
825 003336 100375          BPL     2$         ;BE RECEIVED
826 003340 005201          INC     R1         ;UPDATE RECEIVED CHARACTER COUNT
827 003342 017704 010036  MOV     @DHNRC,R4   ;READ CHARACTER
828 003346 020467 010622  CMP     R4,TWRD11   ;IS CHARACTER CORRECT
829 003352 001406          BEQ     3$         ;
830 003354 016705 010614  MOV     TWRD11,R5   ;(R5)=EXPECTED CHARACTER
831 003360 005077 010022  CLR     @DHLPR      ;SHUT OFF AUTO ECHO
832 003364 104000          HLT     0           ;CHARACTER ECHOED INCORRECTLY
833 003366 000407          BR      4$         ;RESTART TEST
834 003370 005300          3$:    DEC     RO     ;IF 64 CHARACTERS HAVE NOT
835 003372 003357          BGT     2$         ;BEEN RECEIVED, CONTINUE
836 003374 100404          BMI     4$         ;
837 003376 042777 100000 010002 BIC     #100000,@DHLPR ;SHUT OFF AUTO-ECHO
838 003404 000752          BR      2$         ;GET 1 MORE CHARACTER
839 003406 104400          4$:    SCOPE        ;CHECK FOR ITERATIONS, LOOP
840
841          ;ENABLE AUTO ECHO ON LINE 12

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# G02

DZDHH MACY11 27(732) 29-SEP-76 15:23 PAGE 161  
 DZDHHB.P11

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842                                     ; TRANSMIT ONE CHARACTER ON LINE 12
843                                     ; AT 9600 BAUD, 8 BITS.
844                                     ; RECEIVE AND VERIFY CHARACTERS UNTIL 64 HAVE BEEN RECEIVED.
845                                     ; AFTER 64 CHARACTERS HAVE BEEN RECEIVED, DISABLE AUTO ECHO.
846                                     ; EXACTLY ONE MORE CHARACTER SHOULD BE RECEIVED.
847
848 003410 012767 000340 174360 T13:  MOV    #340,PS          ; DISABLE ALL INTERRUPTS
849 003416 012767 000100 010024      MOV    #100,ICOUNT      ; SET UP FOR 100 ITERATIONS
850 003424 012767 003564 010012      MOV    #4$,ESCAPE      ; SET UP TO ESCAPE TO NEXT TEST
851 003432 012777 004000 007742      MOV    #BIT11,JDHSCR   ; MASTER CLEAR INTERFACE
852 003440 004767 007576              JSR    PC,CLRALL       ; CLEAR ALL BYTE COUNT AN
853                                     ; BUS ADDRESS REGISTERS
854 003444 012777 000012 007730      MOV    #12,JDHSCR      ; SELECT LINE 12
855 003452 012777 177777 007732      MOV    #-1,JDHBC       ; SET BYTE COUNT TO 1
856 003460 012777 014176 007722      MOV    #TWRD12,JDHBA   ; SET UP ADDRESS OF CHARACTER TO BE TRANSMITTED
857 003466 012700 000100              MOV    #100,RO         ; SET UP TO RECEIVE 64 CHARACTERS
858 003472 005001              CLR    R1              ; COUNT OF CHARACTERS RECEIVED
859 003474 012777 133503 007704      MOV    #133503,JDHLPR  ; SET UP SPEED FOR 9600 BAUD
860                                     ; 8 BITS PER CHARACTER,
861                                     ; AUTO ECHO ENABLED ON LINE 12
862 003502 012777 002000 007704      MOV    #2000,JDHBAR    ; SET BAR BIT FOR LINE 12
863 003510 105777 007666              TSTB   JDHSCR          ; WAIT FOR CHARACTER TO
864 003514 100375              BPL    2$              ; BE RECEIVED
865 003516 005201              INC    R1              ; UPDATE RECEIVED CHARACTER COUNT
866 003520 017704 007660      MOV    JDHNR, R4       ; READ CHARACTER
867 003524 020467 010446      CMP    R4, TWRD12     ; IS CHARACTER CORRECT
868 003530 001406              BEQ    3$              ;
869 003532 016705 010440      MOV    TWRD12, R5     ; (R5)=EXPECTED CHARACTER
870 003536 005077 007644      CLR    JDHLPR         ; SHUT OFF AUTO ECHO
871 003542 104000              HLT    0               ; CHARACTER ECHOED INCORRECTLY
872 003544 000407              BR     4$              ; RESTART TEST
873 003546 005300              DEC    RO              ; IF 64 CHARACTERS HAVE NOT
874 003550 003357              BGT    2$              ; BEEN RECEIVED, CONTINUE
875 003552 100404              BMI    4$              ;
876 003554 042777 100000 007624      BIC    #100000,JDHLPR ; SHUT OFF AUTO-ECHO
877 003562 000752              BR     2$              ; GET 1 MORE CHARACTER
878 003564 104400              BR     4$              ; CHECK FOR ITERATIONS, LOOP
879
880                                     ; ENABLE AUTO ECHO ON LINE 13
881                                     ; TRANSMIT ONE CHARACTER ON LINE 13
882                                     ; AT 9600 BAUD, 8 BITS.
883                                     ; RECEIVE AND VERIFY CHARACTERS UNTIL 64 HAVE BEEN RECEIVED.
884                                     ; AFTER 64 CHARACTERS HAVE BEEN RECEIVED, DISABLE AUTO ECHO.
885                                     ; EXACTLY ONE MORE CHARACTER SHOULD BE RECEIVED.
886
887 003566 012767 000340 174202 T14:  MOV    #340,PS          ; DISABLE ALL INTERRUPTS
888 003574 012767 000100 007646      MOV    #100,ICOUNT      ; SET UP FOR 100 ITERATIONS
889 003602 012767 003742 007634      MOV    #4$,ESCAPE      ; SET UP TO ESCAPE TO NEXT TEST
890 003610 012777 004000 007564      MOV    #BIT11,JDHSCR   ; MASTER CLEAR INTERFACE
891 003616 004767 007420              JSR    PC,CLRALL       ; CLEAR ALL BYTE COUNT AN
892                                     ; BUS ADDRESS REGISTERS
893 003622 012777 000013 007552      MOV    #13,JDHSCR      ; SELECT LINE 13
894 003630 012777 177777 007554      MOV    #-1,JDHBC       ; SET BYTE COUNT TO 1
895 003636 012777 014200 007544      MOV    #TWRD13,JDHBA   ; SET UP ADDRESS OF CHARACTER TO BE TRANSMITTED
896 003644 012700 000100              MOV    #100,RO         ; SET UP TO RECEIVE 64 CHARACTERS
897 003650 005001              CLR    R1              ; COUNT OF CHARACTERS RECEIVED
  
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898 003652 012777 133503 007526      MOV      #133503, @DHLPR      ;SET UP SPEED FOR 9600 BAUD
899                                     ;8 BITS PER CHARACTER,
900                                     ;AUTO ECHO ENABLED ON LINE 13
901 003660 012777 004000 007526      MOV      #4000, @DHBAR      ;SET BAR BIT FOR LINE 13
902 003666 105777 007510      2$:    TSTB      @DHSCR      ;WAIT FOR CHARACTER TO
903 003672 100375                                     BPL      2$                ;BE RECEIVED
904 003674 005201                                     INC      R1                ;UPDATE RECEIVED CHARACTER COUNT
905 003676 017704 007502      MOV      @DHNRC, R4        ;READ CHARACTER
906 003702 020467 010272      CMP      R4, TWRD13       ;IS CHARACTER CORRECT
907 003706 001406                                     BEQ      3$
908 003710 016705 010264      MOV      TWRD13, R5        ;(R5)=EXPECTED CHARACTER
909 003714 005077 007466      CLR      @DHLPR          ;SHUT OFF AUTO ECHO
910 003720 104000                                     HLT      0                ;CHARACTER ECHOED INCORRECTLY
911 003722 000407                                     BR       4$                ;RESTART TEST
912 003724 005300      3$:    DEC      R0                ;IF 64 CHARACTERS HAVE NOT
913 003726 003357                                     BGT      2$                ;BEEN RECEIVED, CONTINUE
914 003730 100404                                     BMI      4$
915 003732 042777 100000 007446      BIC      #100000, @DHLPR   ;SHUT OFF AUTO-ECHO
916 003740 000752                                     BR       2$                ;GET 1 MORE CHARACTER
917 003742 104400      4$:    SCOPE                                     ;CHECK FOR ITERATIONS, LOOP
918
919                                     ;ENABLE AUTO ECHO ON LINE 14
920                                     ;TRANSMIT ONE CHARACTER ON LINE 14
921                                     ;AT 9600 BAUD, 8 BITS.
922                                     ;RECEIVE AND VERIFY CHARACTERS UNTIL 64 HAVE BEEN RECEIVED.
923                                     ;AFTER 64 CHARACTERS HAVE BEEN RECEIVED, DISABLE AUTO ECHO.
924                                     ;EXACTLY ONE MORE CHARACTER SHOULD BE RECEIVED.
925
926 003744 012767 000340 174024      T15:   MOV      #340, PS      ;DISABLE ALL INTERRUPTS
927 003752 012767 000100 007470      MOV      #100, ICOUNT     ;SET UP FOR 100 ITERATIONS
928 003760 012767 004120 007456      MOV      #4$, ESCAPE     ;SET UP TO ESCAPE TO NEXT TEST
929 003766 012777 004000 007406      MOV      #BIT11, @DHSCR   ;MASTER CLEAR INTERFACE
930 003774 004767 007242      1$:    JSR      PC, CLRALL  ;CLEAR ALL BYTE COUNT AN
931                                     ;BUS ADDRESS REGISTERS
932 004000 012777 000014 007374      MOV      #14, @DHSCR     ;SELECT LINE 14
933 004006 012777 177777 007376      MOV      #-1, @DHBC      ;SET BYTE COUNT TO 1
934 004014 012777 014202 007366      MOV      #TWRD14, @DHBA  ;SET UP ADDRESS OF CHARACTER TO BE TRANSMITTED
935 004022 012700 000100      MOV      #100, R0        ;SET UP TO RECEIVE 64 CHARACTERS
936 004026 005001                                     CLR      R1                ;COUNT OF CHARACTERS RECEIVED
937 004030 012777 133503 007350      MOV      #133503, @DHLPR ;SET UP SPEED FOR 9600 BAUD
938                                     ;8 BITS PER CHARACTER,
939                                     ;AUTO ECHO ENABLED ON LINE 14
940 004036 012777 010000 007350      MOV      #10000, @DHBAR  ;SET BAR BIT FOR LINE 14
941 004044 105777 007332      2$:    TSTB      @DHSCR      ;WAIT FOR CHARACTER TO
942 004050 100375                                     BPL      2$                ;BE RECEIVED
943 004052 005201                                     INC      R1                ;UPDATE RECEIVED CHARACTER COUNT
944 004054 017704 007324      MOV      @DHNRC, R4        ;READ CHARACTER
945 004060 020467 010116      CMP      R4, TWRD14       ;IS CHARACTER CORRECT
946 004064 001406                                     BEQ      3$
947 004066 016705 010110      MOV      TWRD14, R5        ;(R5)=EXPECTED CHARACTER
948 004072 005077 007310      CLR      @DHLPR          ;SHUT OFF AUTO ECHO
949 004076 104000                                     HLT      0                ;CHARACTER ECHOED INCORRECTLY
950 004100 000407                                     BR       4$                ;RESTART TEST
951 004102 005300      3$:    DEC      R0                ;IF 64 CHARACTERS HAVE NOT
952 004104 003357                                     BGT      2$                ;BEEN RECEIVED, CONTINUE
953 004106 100404                                     BMI      4$

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DZDHH MACY11 27(732) 28-SEP-76 15:23 PAGE 163  
DZDHHB.P11

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954 004110 042777 100000 007270      BIC      #100000,ADHLPR      ;SHUT OFF AUTO-ECHO
955 004116 000752                      BR        2$                ;GET 1 MORE CHARACTER
956 004120 104400                      4$:      SCOPE              ;CHECK FOR ITERATIONS, LOOP
957
958                      ;ENABLE AUTO ECHO ON LINE 15
959                      ;TRANSMIT ONE CHARACTER ON LINE 15
960                      ;AT 9600 BAUD, 8 BITS.
961                      ;RECEIVE AND VERIFY CHARACTERS UNTIL 64 HAVE BEEN RECEIVED.
962                      ;AFTER 64 CHARACTERS HAVE BEEN RECEIVED, DISABLE AUTO ECHO.
963                      ;EXACTLY ONE MORE CHARACTER SHOULD BE RECEIVED.
964
965 004122 012767 000340 173646 T16:  MOV      #340,PS            ;DISABLE ALL INTERRUPTS
966 004130 012767 000100 007312      MOV      #100,ICOUNT        ;SET UP FOR 100 ITERATIONS
967 004136 012767 004276 007300      MOV      #4$,ESCAPE        ;SET UP TO ESCAPE TO NEXT TEST
968 004144 012777 004000 007230      MOV      #BIT11,ADHSCR     ;MASTER CLEAR INTERFACE
969 004152 004767 007064                      1$:      JSR        PC,CLRALL  ;CLEAR ALL BYTE COUNT AN
970                      ;BUS ADDRESS REGISTERS
971 004156 012777 000015 007216      MOV      #15,ADHSCR        ;SELECT LINE 15
972 004164 012777 177777 007220      MOV      #-1,ADHBC         ;SET BYTE COUNT TO 1
973 004172 012777 014204 007210      MOV      #TWRD15,ADHBA     ;SET UP ADDRESS OF CHARACTER TO BE TRANSMITTED
974 004200 012700 000100                      MOV      #100,RO           ;SET UP TO RECEIVE 64 CHARACTERS
975 004204 005001                      CLR      R1                 ;COUNT OF CHARACTERS RECEIVED
976 004206 012777 133503 007172      MOV      #133503,ADHLPR    ;SET UP SPEED FOR 9600 BAUD
977                      ;8 BITS PER CHARACTER,
978                      ;AUTO ECHO ENABLED ON LINE 15
979 004214 012777 020000 007172      MOV      #20000,ADHBAR     ;SET BAR BIT FOR LINE 15
980 004222 105777 007154                      2$:      TSTB      ADHSCR        ;WAIT FOR CHARACTER TO
981 004226 100375                      BPL      2$                ;BE RECEIVED
982 004230 005201                      INC      R1                 ;UPDATE RECEIVED CHARACTER COUNT
983 004232 017704 007146      MOV      ADHNR, R4         ;READ CHARACTER
984 004236 020467 007742      CMP      R4, TWRD15        ;IS CHARACTER CORRECT
985 004242 001406                      BEQ      3$                ;
986 004244 016705 007734      MOV      TWRD15, R5        ;(R5)=EXPECTED CHARACTER
987 004250 005077 007132      CLR      ADHLPR           ;SHUT OFF AUTO ECHO
988 004254 104000                      HLT      0                 ;CHARACTER ECHOED INCORRECTLY
989 004256 000407                      BR        4$                ;RESTART TEST
990 004260 005300                      3$:      DEC      RO             ;IF 64 CHARACTERS HAVE NOT
991 004262 003357                      BGT      2$                ;BEEN RECEIVED, CONTINUE
992 004264 100404                      BMI      4$                ;
993 004266 042777 100000 007112      BIC      #100000,ADHLPR    ;SHUT OFF AUTO-ECHO
994 004274 000752                      BR        2$                ;GET 1 MORE CHARACTER
995 004276 104400                      4$:      SCOPE              ;CHECK FOR ITERATIONS, LOOP
996
997                      ;ENABLE AUTO ECHO ON LINE 16
998                      ;TRANSMIT ONE CHARACTER ON LINE 16
999                      ;AT 9600 BAUD, 8 BITS.
1000                      ;RECEIVE AND VERIFY CHARACTERS UNTIL 64 HAVE BEEN RECEIVED.
1001                      ;AFTER 64 CHARACTERS HAVE BEEN RECEIVED, DISABLE AUTO ECHO.
1002                      ;EXACTLY ONE MORE CHARACTER SHOULD BE RECEIVED.
1003
1004 004300 012767 000340 173470 T17:  MOV      #340,PS            ;DISABLE ALL INTERRUPTS
1005 004306 012767 000100 007134      MOV      #100,ICOUNT        ;SET UP FOR 100 ITERATIONS
1006 004314 012767 004454 007122      MOV      #4$,ESCAPE        ;SET UP TO ESCAPE TO NEXT TEST
1007 004322 012777 004000 007052      MOV      #BIT11,ADHSCR     ;MASTER CLEAR INTERFACE
1008 004330 004767 006706                      1$:      JSR        PC,CLRALL  ;CLEAR ALL BYTE COUNT AN
1009                      ;BUS ADDRESS REGISTERS

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1010	004334	012777	000016	007040		MOV	#16, @DHSCR	; SELECT LINE 16
1011	004342	012777	177777	007042		MOV	#-1, @DHBC	; SET BYTE COUNT TO 1
1012	004350	012777	014206	007032		MOV	#TWRD16, @DHBA	; SET UP ADDRESS OF CHARACTER TO BE TRANSMITTED
1013	004356	012700	000100			MOV	#100, R0	; SET UP TO RECEIVE 64 CHARACTERS
1014	004362	005001				CLR	R1	; COUNT OF CHARACTERS RECEIVED
1015	004364	012777	133503	007014		MOV	#133503, @DHLPR	; SET UP SPEED FOR 9500 BAUD
1016								; 8 BITS PER CHARACTER,
1017								; AUTO ECHO ENABLED ON LINE 16
1018	004372	012777	040000	007014		MOV	#40000, @DHBAR	; SET BAR BIT FOR LINE 16
1019	004400	105777	006776		2\$:	TSTB	@DHSCR	; WAIT FOR CHARACTER TO
1020	004404	100375				BPL	2\$	; BE RECEIVED
1021	004406	005201				INC	R1	; UPDATE RECEIVED CHARACTER COUNT
1022	004410	017704	006770			MOV	@DHNR, R4	; READ CHARACTER
1023	004414	020467	007566			CMP	R4, TWRD16	; IS CHARACTER CORRECT
1024	004420	001406				BEQ	3\$	
1025	004422	016705	007560			MOV	TWRD16, R5	; (R5)=EXPECTED CHARACTER
1026	004426	005077	006754			CLR	@DHLPR	; SHUT OFF AUTO ECHO
1027	004432	104000				HLT	0	; CHARACTER ECHOED INCORRECTLY
1028	004434	000407				BR	4\$	; RESTART TEST
1029	004436	005300			3\$:	DEC	R0	; IF 64 CHARACTERS HAVE NOT
1030	004440	003357				BGT	2\$	; BEEN RECEIVED, CONTINUE
1031	004442	100404				BMI	4\$	
1032	004444	042777	100000	006734		BIC	#100000, @DHLPR	; SHUT OFF AUTO-ECHO
1033	004452	000752				BR	2\$	; GET 1 MORE CHARACTER
1034	004454	104400			4\$:	SCOPE		; CHECK FOR ITERATIONS, LOOP
1035								
1036								; ENABLE AUTO ECHO ON LINE 17
1037								; TRANSMIT ONE CHARACTER ON LINE 17
1038								; AT 9600 BAUD, 8 BITS.
1039								; RECEIVE AND VERIFY CHARACTERS UNTIL 64 HAVE BEEN RECEIVED.
1040								; AFTER 64 CHARACTERS HAVE BEEN RECEIVED, DISABLE AUTO ECHO.
1041								; EXACTLY ONE MORE CHARACTER SHOULD BE RECEIVED.
1042								
1043	004456	012767	000340	173312	T20:	MOV	#340, PS	; DISABLE ALL INTERRUPTS
1044	004464	012767	000100	006756		MOV	#100, ICOUNT	; SET UP FOR 100 ITERATIONS
1045	004472	012767	004632	006744		MOV	#4\$, ESCAPE	; SET UP TO ESCAPE TO NEXT TEST
1046	004500	012777	004000	006674		MOV	#BIT11, @DHSCR	; MASTER CLEAR INTERFACE
1047	004506	004767	006530		1\$:	JSR	PC, CLRALL	; CLEAR ALL BYTE COUNT AN
1048								; BUS ADDRESS REGISTERS
1049	004512	012777	000017	006662		MOV	#17, @DHSCR	; SELECT LINE 17
1050	004520	012777	177777	006664		MOV	#-1, @DHBC	; SET BYTE COUNT TO 1
1051	004526	012777	014210	006654		MOV	#TWRD17, @DHBA	; SET UP ADDRESS OF CHARACTER TO BE TRANSMITTED
1052	004534	012700	000100			MOV	#100, R0	; SET UP TO RECEIVE 64 CHARACTERS
1053	004540	005001				CLR	R1	; COUNT OF CHARACTERS RECEIVED
1054	004542	012777	133503	006636		MOV	#133503, @DHLPR	; SET UP SPEED FOR 9600 BAUD
1055								; 8 BITS PER CHARACTER,
1056								; AUTO ECHO ENABLED ON LINE 17
1057	004550	012777	100000	006636		MOV	#100000, @DHBAR	; SET BAR BIT FOR LINE 17
1058	004556	105777	006620		2\$:	TSTB	@DHSCR	; WAIT FOR CHARACTER TO
1059	004562	100375				BPL	2\$	; BE RECEIVED
1060	004564	005201				INC	R1	; UPDATE RECEIVED CHARACTER COUNT
1061	004566	017704	006612			MOV	@DHNR, R4	; READ CHARACTER
1062	004572	020467	007412			CMP	R4, TWRD17	; IS CHARACTER CORRECT
1063	004576	001406				BEQ	3\$	
1064	004600	016705	007404			MOV	TWRD17, R5	; (R5)=EXPECTED CHARACTER
1065	004604	005077	006576			CLR	@DHLPR	; SHUT OFF AUTO ECHO

## K02

DZDHH MACY11 27(732) 29-SEP-76 15:23 PAGE 165  
 DZDHHB.P11

1066	004610	104000				HLT	0		; CHARACTER ECHOED INCORRECTLY
1067	004612	000407				BR	4\$		; RESTART TEST
1068	004614	005300			3\$:	DEC	RO		; IF 64 CHARACTERS HAVE NOT
1069	004616	003357				BGT	2\$		; BEEN RECEIVED, CONTINUE
1070	004620	100404				BMI	4\$		
1071	004622	042777	100000	006556		BIC	#100000, 2DHLP		; SHUT OFF AUTO-ECHC
1072	004630	000752				BR	2\$		; GET 1 MORE CHARACTER
1073	004632	104400			4\$:	SCOPE			; CHECK FOR ITERATIONS, LOOP
1074									
1075									; TRANSMIT A BINARY COUNT PATTERN ON ALL LINES EXCEPT LINE 0
1076									; TRANSMIT 1 CHARACTER ON LINE 0 WITH AUTO ECHO ENABLED
1077									; TRANSMISSION SPEED FOR ALL LINES IS 9600 BAUD
1078									; CHARACTER LENGTH IS 8 BITS
1079									; VERIFY THAT CORRECT DATA IS RECEIVED ON ALL LINES
1080									
1081	004634	012767	000340	173134	T21:	MOV	#340, PS		; DISABLE ALL INTERRUPTS
1082	004642	012767	000010	006600		MOV	#10, ICOUNT		; SET UP FOR 10 ITERATIONS
1083	004650	012767	005070	006566		MOV	#5\$, ESCAPE		; SET UP TO ESCAPE TO NEXT TEST
1084	004656	012777	004000	006516		MOV	#BIT11, 2DHSCR		; MASTER CLEAR INTERFACE
1085	004664	004767	006400			JSR	PC, SETALL		; SET UP ALL LINES TO TRANSMIT
1086									; 400 (OCTAL) CHARACTERS
1087	004670	012777	000000	006504		MOV	#0, 2DHSCR		; SELECT LINE 0 FOR TESTING
1088	004676	012777	014152	006504		MOV	#TWRD0, 2DHBA		; CHARACTER TO BE TRANSMITTED
1089									; ON LINE 0 IN AUTO ECHO MODE
1090	004704	012777	177777	006500		MOV	#-1, 2DHBC		; TRANSMIT ONLY 1 CHARACTER ON LINE 0
1091	004712	012777	133503	006466		MOV	#133503, 2DHLP		; SET AUTO ECHO FOR LINE 0
1092	004720	042767	000001	006556		BIC	#1, LINACT		; CLEAR LINE ACTIVE BIT
1093	004726	012777	177777	006460		MOV	#-1, 2DHBA		; SET BAR BITS FOR ALL LINES
1094	004734	005000				CLR	RO		; KEEP COUNT OF NUMBER OF RECEIVED CHARACTERS
1095	004736	017704	006442		1\$:	MOV	2DHNRC, R4		; GET A CHARACTER FROM SILO
1096	004742	100375				BPL	1\$		; IF NOT VALID DATA, TRY AGAIN
1097	004744	010403				MOV	R4, R3		; EXTRACT LINE NUMBER FORM CHARACTER
1098	004746	000303				SWAB	R3		
1099	004750	042703	177760			BIC	#177760, R3		; CLEAR STATUS BITS
1100	004754	010302				MOV	R3, R2		
1101	004756	006302				ASL	R2		
1102	004760	020327	000000			CMP	R3, #0		; IF LINE NUMBER IS 0
1103	004764	001432				BEQ	4\$		; CHECK FOR CORRECT ECHOED CHARACTER
1104	004766	026204	014110			CMP	RBUF(R2), R4		; IF NOT LINE 0, CHECK DATA
1105	004772	001404				BEQ	2\$		
1106	004774	016205	014110			MOV	RBUF(R2), R5		; (R5)=EXPECTED NON ECHOED DATA
1107	005000	104001				HLT	1		; NON ECHOED DATA ERROR
1108	005002	000423				BR	4\$		
1109	005004	105262	014110		2\$:	INCB	RBUF(R2)		; UPDATE EXPECTED RECEIVED DATA
1110	005010	001352				BNE	1\$		; CONTINUE IF NOT DONE
1111	005012	046267	014312	006464		BIC	LINBIT(R2), LINACT		; CLEAR ACTIVE BIT
1112	005020	005767	006460		3\$:	TST	LINACT		; IF ALL LINES ARE DONE
1113	005024	001344				BNE	1\$		; EXIT
1114	005026	012777	000000	006346		MOV	#0, 2DHSCR		; SELECT LINE 0
1115	005034	042777	100000	006344		BIC	#100000, 2DHLP		; CLEAR AUTO ECHO FOR LINE 0
1116	005042	105777	006354			TSTB	2DHSLR		; GET REST OF CHARACTERS
1117	005046	001333				BNE	1\$		; AND CHECK
1118	005050	000407				BR	5\$		
1119	005052	005200			4\$:	INC	RO		; UPDATE ECHOED CHARACTER COUNT
1120	005054	020467	007072			CMP	R4, TWRD0		; CHECK ECHOED DATA
1121	005060	001757				BEQ	3\$		



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1122 005062 016705 007064      MOV      TWRD0,R5      ;(R5)=EXPECTED ECHOED DATA
1123 005066 104002      HLT      2            ;ECHOED DATA ERROR
1124 005070 104400      5$:      SCOPE        ;CHECK FOR ITERATIONS, LOOP
1125
1126      ;TRANSMIT A BINARY COUNT PATTERN ON ALL LINES EXCEPT LINE 1
1127      ;TRANSMIT 1 CHARACTER ON LINE 1 WITH AUTO ECHO ENABLED
1128      ;TRANSMISSION SPEED FOR ALL LINES IS 9600 BAUD
1129      ;CHARACTER LENGTH IS 8 BITS
1130      ;VERIFY THAT CORRECT DATA IS RECEIVED ON ALL LINES
1131
1132 005072 012767 000340 172676 T22:    MOV      #340,PS      ;DISABLE ALL INTERRUPTS
1133 005100 012767 000010 006342    MOV      #10,ICOUNT   ;SET UP FOR 10 ITERATIONS
1134 005106 012767 005326 006330    MOV      #5$,ESCAPE   ;SET UP TO ESCAPE TO NEXT TEST
1135 005114 012777 004000 006260    MOV      #BIT11,JDHSCR ;MASTER CLEAR INTERFACE
1136 005122 004767 006142      JSR      PC,SETALL    ;SET UP ALL LINES TO TRANSMIT
1137      ;400 (OCTAL) CHARACTERS
1138 005126 012777 000001 006246    MOV      #1,JDHSCR    ;SELECT LINE 1 FOR TESTING
1139 005134 012777 014154 006246    MOV      #TWRD1,JDHBA ;CHARACTER TO BE TRANSMITTED
1140      ;ON LINE 1 IN AUTO ECHO MODE
1141 005142 012777 177777 006242    MOV      #-1,JDHBC    ;TRANSMIT ONLY 1 CHARACTER ON LINE 1
1142 005150 012777 133503 006230    MOV      #133503,JDHLPR ;SET AUTO ECHO FOR LINE 1
1143 005156 042767 000002 006320    BIC      #2,LINACT    ;CLEAR LINE ACTIVE BIT
1144 005164 012777 177777 006222    MOV      #-1,JDHBAR   ;SET BAR BITS FOR ALL LINES
1145 005172 005000      CLR      R0          ;KEEP COUNT OF NUMBER OF RECEIVED CHARACTERS
1146 005174 017704 006204      1$:      MOV      JDHNR0,R4    ;GET A CHARACTER FROM SILO
1147 005200 100375      BPL      1$          ;IF NOT VALID DATA, TRY AGAIN
1148 005202 010403      MOV      R4,R3      ;EXTRACT LINE NUMBER FORM CHARACTER
1149 005204 000303      SWAB    R3
1150 005206 042703 177760      BIC      #177760,R3  ;CLEAR STATUS BITS
1151 005212 010302      MOV      R3,R2
1152 005214 006302      ASL      R2
1153 005216 020327 000001      CMP      R3,#1      ;IF LINE NUMBER IS 1
1154 005222 001432      BEQ      4$          ;CHECK FOR CORRECT ECHOED CHARACTER
1155 005224 026204 014110      CMP      RBUF(R2),R4 ;IF NOT LINE 1, CHECK DATA
1156 005230 001404      BEQ      2$
1157 005232 016205 014110      MOV      RBUF(R2),R5 ;(R5)=EXPECTED NON ECHOED DATA
1158 005236 104001      HLT      1          ;NON ECHOED DATA ERROR
1159 005240 000423      BR       4$
1160 005242 105262 014110      2$:      INCB    RBUF(R2)    ;UPDATE EXPECTED RECEIVED DATA
1161 005246 001352      BNE      1$          ;CONTINUE IF NOT DONE
1162 005250 046267 014312 006226    BIC      LINBIT(R2),LINACT ;CLEAR ACTIVE BIT
1163 005256 005767 006222      3$:      TST     LINACT      ;IF ALL LINES ARE DONE
1164 005262 001344      BNE      1$          ;EXIT
1165 005264 012777 000001 006110    MOV      #1,JDHSCR   ;SELECT LINE 1
1166 005272 042777 100000 006106    BIC      #100000,JDHLPR ;CLEAR AUTO ECHO FOR LINE 1
1167 005300 105777 006116      TSTB    JDHSLR      ;GET REST OF CHARACTERS
1168 005304 001333      BNE      1$          ;AND CHECK
1169 005306 000407      BR       5$
1170 005310 005200      4$:      INC     R0          ;UPDATE ECHOED CHARACTER COUNT
1171 005312 020467 006636      CMP     R4,TWRD1    ;CHECK ECHOED DATA
1172 005316 001757      BEQ     3$
1173 005320 016705 006630      MOV     TWRD1,R5    ;(R5)=EXPECTED ECHOED DATA
1174 005324 104002      HLT     2            ;ECHOED DATA ERROR
1175 005326 104400      5$:      SCOPE        ;CHECK FOR ITERATIONS, LOOP
1176
1177      ;TRANSMIT A BINARY COUNT PATTERN ON ALL LINES EXCEPT LINE 2

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# M02

DZDHH MACY11 27(732) 29-SEP-76 15:23 PAGE 167  
 DZDHHB.P11

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1178 ; TRANSMIT 1 CHARACTER ON LINE 2 WITH AUTO ECHO ENABLED
1179 ; TRANSMISSION SPEED FOR ALL LINES IS 9600 BAUD
1180 ; CHARACTER LENGTH IS 8 BITS
1181 ; VERIFY THAT CORRECT DATA IS RECEIVED ON ALL LINES
1182
1183 005330 012767 000340 172440 T23: MOV #340,PS ; DISABLE ALL INTERRUPTS
1184 005336 012767 000010 006104 MOV #10,ICOUNT ; SET UP FOR 10 ITERATIONS
1185 005344 012767 005564 006072 MOV #5$,ESCAPE ; SET UP TO ESCAPE TO NEXT TEST
1186 005352 012777 004000 006022 MOV #BIT11,ADHSCR ; MASTER CLEAR INTERFACE
1187 005360 004767 005704 JSR PC,SETALL ; SET UP ALL LINES TO TRANSMIT
1188 ; 400 (OCTAL) CHARACTERS
1189 005364 012777 000002 006010 MOV #2,ADHSCR ; SELECT LINE 2 FOR TESTING
1190 005372 012777 014156 006010 MOV #TWRD2,ADHBA ; CHARACTER TO BE TRANSMITTED
1191 ; ON LINE 2 IN AUTO ECHO MODE
1192 005400 012777 177777 006004 MOV #-1,ADHBC ; TRANSMIT ONLY 1 CHARACTER ON LINE 2
1193 005406 012777 133503 005772 MOV #133503,ADHLPR ; SET AUTO ECHO FOR LINE 2
1194 005414 042767 000004 006062 BIC #4,LINACT ; CLEAR LINE ACTIVE BIT
1195 005422 012777 177777 005764 MOV #-1,ADHBAR ; SET BAR BITS FOR ALL LINES
1196 005430 005000 CLR R0 ; KEEP COUNT OF NUMBER OF RECEIVED CHARACTERS
1197 005432 017704 005746 1$: MOV ADHNR, R4 ; GET A CHARACTER FROM SILO
1198 005436 100375 BPL 1$ ; IF NOT VALID DATA, TRY AGAIN
1199 005440 010403 MOV R4, R3 ; EXTRACT LINE NUMBER FORM CHARACTER
1200 005442 000303 SWAB R3
1201 005444 042703 177760 BIC #177760, R3 ; CLEAR STATUS BITS
1202 005450 010302 MOV R3, R2
1203 005452 006302 ASL R2
1204 005454 020327 000002 CMP R3, #2 ; IF LINE NUMBER IS 2
1205 005460 001432 BEQ 4$ ; CHECK FOR CORRECT ECHOED CHARACTER
1206 005462 026204 014110 CMP RBUF(R2), R4 ; IF NOT LINE 2, CHECK DATA
1207 005466 001404 BEQ 2$
1208 005470 016205 014110 MOV RBUF(R2), R5 ; (R5)=EXPECTED NON ECHOED DATA
1209 005474 104001 HLT 1 ; NON ECHOED DATA ERROR
1210 005476 000423 BR 4$
1211 005500 105262 014110 2$: INCB RBUF(R2) ; UPDATE EXPECTED RECEIVED DATA
1212 005504 001352 BNE 1$ ; CONTINUE IF NOT DONE
1213 005506 046267 014312 005770 BIC LINBIT(R2), LINACT ; CLEAR ACTIVE BIT
1214 005514 005767 005764 3$: TST LINACT ; IF ALL LINES ARE DONE
1215 005520 001344 BNE 1$ ; EXIT
1216 005522 012777 000002 005652 MOV #2,ADHSCR ; SELECT LINE 2
1217 005530 042777 100000 005650 BIC #100000,ADHLPR ; CLEAR AUTO ECHO FOR LINE 2
1218 005536 105777 005660 TSTB ADHSLR ; GET REST OF CHARACTERS
1219 005542 001333 BNE 1$ ; AND CHECK
1220 005544 000407 BR 5$
1221 005546 005200 4$: INC R0 ; UPDATE ECHOED CHARACTER COUNT
1222 005550 020467 006402 CMP R4, TWRD2 ; CHECK ECHOED DATA
1223 005554 001757 BEQ 3$
1224 005556 016705 006374 MOV TWRD2, R5 ; (R5)=EXPECTED ECHOED DATA
1225 005562 104002 HLT 2 ; ECHOED DATA ERROR
1226 005564 104400 5$: SCOPE ; CHECK FOR ITERATIONS, LOOP
1227
1228 ; TRANSMIT A BINARY COUNT PATTERN ON ALL LINES EXCEPT LINE 3
1229 ; TRANSMIT 1 CHARACTER ON LINE 3 WITH AUTO ECHO ENABLED
1230 ; TRANSMISSION SPEED FOR ALL LINES IS 9600 BAUD
1231 ; CHARACTER LENGTH IS 8 BITS
1232 ; VERIFY THAT CORRECT DATA IS RECEIVED ON ALL LINE
1233

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1234 005566 012767 000340 172202 T24:  MOV    #340,PS           ;DISABLE ALL INTERRUPTS
1235 005574 012767 000010 005646      MOV    #10,I'COUNT      ;SET UP FOR 10 ITERATIONS
1236 005602 012767 006022 005634      MOV    #5$,ESCAPE        ;SET UP TO ESCAPE TO NEXT TEST
1237 005610 012777 004C00 005564      MOV    #BIT11,ADHSCR     ;MASTER CLEAR INTERFACE
1238 005616 004767 005446      JSR    PC,SETALL        ;SET UP ALL LINES TO TRANSMIT
1239                                     ;400 (OCTAL) CHARACTERS
1240 005622 012777 000003 005552      MOV    #3,ADHSCR        ;SELECT LINE 3 FOR TESTING
1241 005630 012777 014160 005552      MOV    #TWRD3,ADHBA     ;CHARACTER TO BE TRANSMITTED
1242                                     ;ON LINE 3 IN AUTO ECHO MODE
1243 005636 012777 177777 005546      MOV    #-1,ADHBC        ;TRANSMIT ONLY 1 CHARACTER ON LINE 3
1244 005644 012777 133503 005534      MOV    #133503,ADHLPR   ;SET AUTO ECHO FOR LINE 3
1245 005652 042767 000010 005624      BIC    #10,LINACT       ;CLEAR LINE ACTIVE BIT
1246 005660 012777 177777 005526      MOV    #-1,ADHBA       ;SET BAR BITS FOR ALL LINES
1247 005666 005000                CLR    RO               ;KEEP COUNT OF NUMBER OF RECEIVED CHARACTERS
1248 005670 017704 005510      1$:  MOV    ADHNR, R4        ;GET A CHARACTER FROM SILO
1249 005674 100375                BPL    1$               ;IF NOT VALID DATA, TRY AGAIN
1250 005676 010403                MOV    R4, R3          ;EXTRACT LINE NUMBER FORM CHARACTER
1251 005700 000303                SWAB   R3
1252 005702 042703 177760      BIC    #177760, R3     ;CLEAR STATUS BITS
1253 005706 010302                MOV    R3, R2
1254 005710 006302                ASL    R2
1255 005712 020327 000003      CMP    R3, #3          ;IF LINE NUMBER IS 3
1256 005716 001432                BEQ    4$               ;CHECK FOR CORRECT ECHOED CHARACTER
1257 005720 026204 014110      CMP    RBUF(R2), R4    ;IF NOT LINE 3, CHECK DATA
1258 005724 001404                BEQ    2$
1259 005726 016205 014110      MOV    RBUF(R2), R5    ;(R5)=EXPECTED NON ECHOED DATA
1260 005732 104001                HLT    1               ;NON ECHOED DATA ERROR
1261 005734 000423                BR     4$
1262 005736 105262 014110      2$:  INCB   RBUF(R2)      ;UPDATE EXPECTED RECEIVED DATA
1263 005742 001352                BNE    1$               ;CONTINUE IF NOT DONE
1264 005744 046267 014312 005532      BIC    LINBIT(R2), LINACT ;CLEAR ACTIVE BIT
1265 005752 005767 005526      3$:  TST    LINACT         ;IF ALL LINES ARE DONE
1266 005756 001344                BNE    1$               ;EXIT
1267 005760 012777 000003 005414      MOV    #3,ADHSCR       ;SELECT LINE 3
1268 005766 042777 100000 005412      BIC    #100000,ADHLPR  ;CLEAR AUTO ECHO FOR LINE 3
1269 005774 105777 005422      TSTB   ADHSLR         ;GET REST OF CHARACTERS
1270 006000 001333                BNE    1$               ;AND CHECK
1271 006002 000407                BR     5$
1272 006004 005200                4$:  INC    RO           ;UPDATE ECHOED CHARACTER COUNT
1273 006006 020467 006146      CMP    R4, TWRD3      ;CHECK ECHOED DATA
1274 006012 001757                BEQ    3$
1275 006014 016705 006140      MOV    TWRD3, R5     ;(R5)=EXPECTED ECHOED DATA
1276 006020 104002                HLT    2               ;ECHOED DATA ERROR
1277 006022 104400                5$:  SCOPE              ;CHECK FOR ITERATIONS, LOOP
1278
1279                                     ;TRANSMIT A BINARY COUNT PATTERN ON ALL LINES EXCEPT LINE 4
1280                                     ;TRANSMIT 1 CHARACTER ON LINE 4 WITH AUTO ECHO ENABLED
1281                                     ;TRANSMISSION SPEED FOR ALL LINES IS 9600 BAUD
1282                                     ;CHARACTER LENGTH IS 8 BITS
1283                                     ;VERIFY THAT CORRECT DATA IS RECEIVED ON ALL LINES
1284
1285 006024 012767 000340 171744 T25:  MOV    #340,PS           ;DISABLE ALL INTERRUPTS
1286 006032 012767 000010 005410      MOV    #10,I'COUNT      ;SET UP FOR 10 ITERATIONS
1287 006040 012767 006260 005376      MOV    #5$,ESCAPE        ;SET UP TO ESCAPE TO NEXT TEST
1288 006046 012777 004000 005326      MOV    #BIT11,ADHSCR     ;MASTER CLEAR INTERFACE
1289 006054 004767 005210      JSR    PC,SETALL        ;SET UP ALL LINES TO TRANSMIT

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1346 006340 012777 133503 005040      MOV      #133503,ADHLPR      ;SET AUTO ECHO FOR LINE 5
1347 006346 042767 000040 005130      BIC      #40,LINACT      ;CLEAR LINE ACTIVE BIT
1348 006354 012777 177777 005032      MOV      #-1,ADHBAR      ;SET BAR BITS FOR ALL LINES
1349 006362 005000      CLR      R0              ;KEEP COUNT OF NUMBER OF RECEIVED CHARACTERS
1350 006364 017704 005014      1$:      MOV      ADHNR, R4      ;GET A CHARACTER FROM SILO
1351 006370 100375      BPL      1$              ;IF NOT VALID DATA, TRY AGAIN
1352 006372 010403      MOV      R4, R3          ;EXTRACT LINE NUMBER FORM CHARACTER
1353 006374 000303      SWAB     R3              ;
1354 006376 042703 177760      BIC      #177760, R3     ;CLEAR STATUS BITS
1355 006402 010302      MOV      R3, R2          ;
1356 006404 006302      ASL      R2              ;
1357 006406 020327 000005      CMP      R3, #5          ;IF LINE NUMBER IS 5
1358 006412 001432      BEQ      4$              ;CHECK FOR CORRECT ECHOED CHARACTER
1359 006414 026204 014110      CMP      RBUF(R2), R4    ;IF NOT LINE 5, CHECK DATA
1360 006420 001404      BEQ      2$              ;
1361 006422 016205 014110      MOV      RBUF(R2), R5    ;(R5)=EXPECTED NON ECHOED DATA
1362 006426 104001      HLT      1              ;NON ECHOED DATA ERROR
1363 006430 000423      BR       4$              ;
1364 006432 105262 014110      2$:      INCB     RBUF(R2)        ;UPDATE EXPECTED RECEIVED DATA
1365 006436 001352      BNE      1$              ;CONTINUE IF NOT DONE
1366 006440 046267 014312 005036      BIC      LINBIT(R2), LINACT ;CLEAR ACTIVE BIT
1367 006446 005767 005032      3$:      TST      LINACT          ;IF ALL LINES ARE DONE
1368 006452 001344      BNE      1$              ;EXIT
1369 006454 012777 000005 004720      MOV      #5, ADHSCR      ;SELECT LINE 5
1370 006462 042777 100000 004716      BIC      #100000, ADHLPR ;CLEAR AUTO ECHO FOR LINE 5
1371 006470 105777 004726      TSTB     ADHSLR          ;GET REST OF CHARACTERS
1372 006474 001333      BNE      1$              ;AND CHECK
1373 006476 000407      BR       5$              ;
1374 006500 005200      4$:      INC      R0              ;UPDATE ECHOED CHARACTER COUNT
1375 006502 020467 005456      CMP      R4, TWRD5      ;CHECK ECHOED DATA
1376 006506 001757      BEQ      3$              ;
1377 006510 016705 005450      MOV      TWRD5, R5      ;(R5)=EXPECTED ECHOED DATA
1378 006514 104002      HLT      2              ;ECHOED DATA ERROR
1379 006516 104400      5$:      SCOPE     ;CHECK FOR ITERATIONS, LOOP
1380
1381      ;TRANSMIT A BINARY COUNT PATTERN ON ALL LINES EXCEPT LINE 6
1382      ;TRANSMIT 1 CHARACTER ON LINE 6 WITH AUTO ECHO ENABLED
1383      ;TRANSMISSION SPEED FOR ALL LINES IS 9600 BAUD
1384      ;CHARACTER LENGTH IS 8 BITS
1385      ;VERIFY THAT CORRECT DATA IS RECEIVED ON ALL LINES
1386
1387 006520 012767 000340 171250 T27:      MOV      #340, PS        ;DISABLE ALL INTERRUPTS
1388 006526 012767 000010 004714      MOV      #10, ICOUNT     ;SET UP FOR 10 ITERATIONS
1389 006534 012767 006754 004702      MOV      #5$, ESCAPE     ;SET UP TO ESCAPE TO NEXT TEST
1390 006542 012777 004000 004632      MOV      #BIT11, ADHSCR  ;MASTER CLEAR INTERFACE
1391 006550 004767 004514      JSR      PC, SETALL      ;SET UP ALL LINES TO TRANSMIT
1392      ;400 (OCTAL) CHARACTERS
1393 006554 012777 000006 004620      MOV      #6, ADHSCR      ;SELECT LINE 6 FOR TESTING
1394 006562 012777 014166 004620      MOV      #TWRD6, ADHBA   ;CHARACTER TO BE TRANSMITTED
1395      ;ON LINE 6 IN AUTO ECHO MODE
1396 006570 012777 177777 004614      MOV      #-1, ADHBC      ;TRANSMIT ONLY 1 CHARACTER ON LINE 6
1397 006576 012777 133503 004602      MOV      #133503, ADHLPR ;SET AUTO ECHO FOR LINE 6
1398 006604 042767 000100 004672      BIC      #100, LINACT    ;CLEAR LINE ACTIVE BIT
1399 006612 012777 177777 004574      MOV      #-1, ADHBAR      ;SET BAR BITS FOR ALL LINES
1400 006620 005000      CLR      R0              ;KEEP COUNT OF NUMBER OF RECEIVED CHARACTERS
1401 006622 017704 004556      1$:      MOV      ADHNR, R4      ;GET A CHARACTER FROM SILO

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1402 006626 100375      BPL      1$      ;IF NOT VALID DATA, TRY AGAIN
1403 006630 010403      MOV      R4,R3  ;EXTRACT LINE NUMBER FORM CHARACTER
1404 006632 000303      SWAB    R3
1405 006634 042703 177760      BIC     #177760,R3 ;CLEAR STATUS BITS
1406 006640 010302      MOV     R3,R2
1407 006642 006302      ASL    R2
1408 006644 020327 000006      CMP    R3,#6      ;IF LINE NUMBER IS 6
1409 006650 001432      BEQ    4$      ;CHECK FOR CORRECT ECHOED CHARACTER
1410 006652 026204 014110      CMP    RBUF(R2),R4 ;IF NOT LINE 6, CHECK DATA
1411 006656 001404      BEQ    2$
1412 006660 016205 014110      MOV    RBUF(R2),R5 ;(R5)=EXPECTED NON ECHOED DATA
1413 006664 104001      HLT    1        ;NON ECHOED DATA ERROR
1414 006666 000423      BR     4$
1415 006670 105262 014110      2$:    INCB   RBUF(R2) ;UPDATE EXPECTED RECEIVED DATA
1416 006674 001352      BNE    1$      ;CONTINUE IF NOT DONE
1417 006676 046267 014312 004600      BIC    LINBIT(R2),LINACT ;CLEAR ACTIVE BIT
1418 006704 005767 004574      3$:    TST    LINACT ;IF ALL LINES ARE DONE
1419 006710 001344      BNE    1$      ;EXIT
1420 006712 012777 000006 004462      MOV    #6,JDHSCR ;SELECT LINE 6
1421 006720 042777 100000 004460      BIC    #100000,JDHLPR ;CLEAR AUTO ECHO FOR LINE 6
1422 006726 105777 004470      TSTB   JDHSLR ;GET REST OF CHARACTERS
1423 006732 001333      BNE    1$      ;AND CHECK
1424 006734 000407      BR     5$
1425 006736 005200      4$:    INC    R0 ;UPDATE ECHOED CHARACTER COUNT
1426 006740 020467 005222      CMP    R4,TWRD6 ;CHECK ECHOED DATA
1427 006744 001757      BEQ    3$
1428 006746 016705 005214      MOV    TWRD6,R5 ;(R5)=EXPECTED ECHOED DATA
1429 006752 104002      HLT    2        ;ECHOED DATA ERROR
1430 006754 104400      5$:    SCOPE ;CHECK FOR ITERATIONS, LOOP
1431
1432      ;TRANSMIT A BINARY COUNT PATTERN ON ALL LINES EXCEPT LINE 7
1433      ;TRANSMIT 1 CHARACTER ON LINE 7 WITH AUTO ECHO ENABLED
1434      ;TRANSMISSION SPEED FOR ALL LINES IS 9600 BAUD
1435      ;CHARACTER LENGTH IS 8 BITS
1436      ;VERIFY THAT CORRECT DATA IS RECEIVED ON ALL LINES
1437
1438 006756 012767 000340 171012 T30:    MOV    #340,PS ;DISABLE ALL INTERRUPTS
1439 006764 012767 000010 004456      MOV    #10,ICOUNT ;SET UP FOR 10 ITERATIONS
1440 006772 012767 007212 004444      MOV    #55,ESCAPE ;SET UP TO ESCAPE TO NEXT TEST
1441 007000 012777 004000 004374      MOV    #BIT11,JDHSCR ;MASTER CLEAR INTERFACE
1442 007006 004767 004256      JSR    PC,SETALL ;SET UP ALL LINES TO TRANSMIT
1443      ;400 (OCTAL) CHARACTERS
1444 007012 012777 000007 004362      MOV    #7,JDHSCR ;SELECT LINE 7 FOR TESTING
1445 007020 012777 014170 004362      MOV    #TWRD7,JDHBA ;CHARACTER TO BE TRANSMITTED
1446      ;ON LINE 7 IN AUTO ECHO MODE
1447 007026 012777 177777 004356      MOV    #-1,JDHBC ;TRANSMIT ONLY 1 CHARACTER ON LINE 7
1448 007034 012777 133503 004344      MOV    #133503,JDHLPR ;SET AUTO ECHO FOR LINE 7
1449 007042 042767 000200 004434      BIC    #200,LINACT ;CLEAR LINE ACTIVE BIT
1450 007050 012777 177777 004336      MOV    #-1,JDHBA ;SET BAR BITS FOR ALL LINES
1451 007056 005000      CLR    R0 ;KEEP COUNT OF NUMBER OF RECEIVED CHARACTERS
1452 007060 017704 004320      1$:    MOV    JDHNR, R4 ;GET A CHARACTER FROM SILO
1453 007064 100375      BPL    1$      ;IF NOT VALID DATA, TRY AGAIN
1454 007066 010403      MOV    R4,R3  ;EXTRACT LINE NUMBER FORM CHARACTER
1455 007070 000303      SWAB   R3
1456 007072 042703 177760      BIC    #177760,R3 ;CLEAR STATUS BITS
1457 007076 010302      MOV    R3,R2

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# E03

DZDHH MACY11 27(732) 28-SEP-76 15:23 PAGE 172  
 DZDHHB.P11

1458	007100	006302				ASL	R2	
1459	007102	020327	000007			CMP	R3,#7	;IF LINE NUMBER IS 7
1460	007106	001432				BEQ	4\$	;CHECK FOR CORRECT ECHOED CHARACTER
1461	007110	026204	014110			CMP	RBUF(R2),R4	;IF NOT LINE 7, CHECK DATA
1462	007114	001404				BEQ	2\$	
1463	007116	016205	014110			MOV	RBUF(R2),R5	;(R5)=EXPECTED NON ECHOED DATA
1464	007122	104001				HLT	1	;NON ECHOED DATA ERROR
1465	007124	000423				BR	4\$	
1466	007126	105262	014110		2\$:	INCB	RBUF(R2)	;UPDATE EXPECTED RECEIVED DATA
1467	007132	001352				BNE	1\$	;CONTINUE IF NOT DONE
1468	007134	046267	014312	004342		BIC	LINBIT(R2),LINACT	;CLEAR ACTIVE BIT
1469	007142	005767	004336		3\$:	TST	LINACT	;IF ALL LINES ARE DONE
1470	007146	001344				BNE	1\$	;EXIT
1471	007150	012777	000007	004224		MOV	#7,JDHSCR	;SELECT LINE 7
1472	007156	042777	100000	004222		BIC	#100000,JDHLPR	;CLEAR AUTO ECHO FOR LINE 7
1473	007164	105777	004232			TSTB	JDHSLR	;GET REST OF CHARACTERS
1474	007170	001333				BNE	1\$	;AND CHECK
1475	007172	000407				BR	5\$	
1476	007174	005200			4\$:	INC	R0	;UPDATE ECHOED CHARACTER COUNT
1477	007176	020467	004766			CMP	R4,TWRD7	;CHECK ECHOED DATA
1478	007202	001757				BEQ	3\$	
1479	007204	016705	004760			MOV	TWRD7,R5	;(R5)=EXPECTED ECHOED DATA
1480	007210	104002				HLT	2	;ECHOED DATA ERROR
1481	007212	104400			5\$:	SCOPE		;CHECK FOR ITERATIONS, LOOP
1482								
1483								;TRANSMIT A BINARY COUNT PATTERN ON ALL LINES EXCEPT LINE 10
1484								;TRANSMIT 1 CHARACTER ON LINE 10 WITH AUTO ECHO ENABLED
1485								;TRANSMISSION SPEED FOR ALL LINES IS 9600 BAUD
1486								;CHARACTER LENGTH IS 8 BITS
1487								;VERIFY THAT CORRECT DATA IS RECEIVED ON ALL LINES
1488								
1489	007214	012767	000340	170554	T31:	MOV	#340,PS	;DISABLE ALL INTERRUPTS
1490	007222	012767	000010	004220		MOV	#10,ICOUNT	;SET UP FOR 10 ITERATIONS
1491	007230	012767	007450	004206		MOV	#5\$,ESCAPE	;SET UP TO ESCAPE TO NEXT TEST
1492	007236	012777	004000	004136		MOV	#BIT11,JDHSCR	;MASTER CLEAR INTERFACE
1493	007244	004767	004020			JSR	PC,SETALL	;SET UP ALL LINES TO TRANSMIT
1494								;400 (OCTAL) CHARACTERS
1495	007250	012777	000010	004124		MOV	#10,JDHSCR	;SELECT LINE 10 FOR TESTING
1496	007256	012777	014172	004124		MOV	#TWRD10,JDHBA	;CHARACTER TO BE TRANSMITTED
1497								;ON LINE 10 IN AUTO ECHO MODE
1498	007264	012777	177777	004120		MOV	#-1,JDHBC	;TRANSMIT ONLY 1 CHARACTER ON LINE 10
1499	007272	012777	133503	004106		MOV	#133503,JDHLPR	;SET AUTO ECHO FOR LINE 10
1500	007300	042767	000400	004176		BIC	#400,LINACT	;CLEAR LINE ACTIVE BIT
1501	007306	012777	177777	004100		MOV	#-1,JDHBAR	;SET BAR BITS FOR ALL LINES
1502	007314	005000				CLR	R0	;KEEP COUNT OF NUMBER OF RECEIVED CHARACTERS
1503	007316	017704	004062		1\$:	MOV	JDHNR, R4	;GET A CHARACTER FROM SILO
1504	007322	100375				BPL	1\$	;IF NOT VALID DATA, TRY AGAIN
1505	007324	010403				MOV	R4,R3	;EXTRACT LINE NUMBER FORM CHARACTER
1506	007326	000303				SWAB	R3	
1507	007330	042703	177760			BIC	#177760,R3	;CLEAR STATUS BITS
1508	007334	010302				MOV	R3,R2	
1509	007336	006302				ASL	R2	
1510	007340	020327	000010			CMP	R3,#10	;IF LINE NUMBER IS 10
1511	007344	001432				BEQ	4\$	;CHECK FOR CORRECT ECHOED CHARACTER
1512	007346	026204	014110			CMP	RBUF(R2),R4	;IF NOT LINE 10, CHECK DATA
1513	007352	001404				BEQ	2\$	

# F03

DZDHH MACY11 27(732) 29-SEP-76 15:23 PAGE 173  
 DZDHHB.P11

1514	007354	016205	014110			MOV	RBUF(R2),R5	;(R5)=EXPECTED NON ECHOED DATA
1515	007360	104001				HLT	1	;NON ECHOED DATA ERROR
1516	007362	000423				BR	4\$	
1517	007364	105262	014110		2\$:	INCB	RBUF(R2)	;UPDATE EXPECTED RECEIVED DATA
1518	007370	001352				BNE	1\$	;CONTINUE IF NOT DONE
1519	007372	046267	014312	004104		BIC	LINBIT(R2),LINACT	;CLEAR ACTIVE BIT
1520	007400	005767	004100		3\$:	TST	LINACT	;IF ALL LINES ARE DONE
1521	007404	001344				BNE	1\$	;EXIT
1522	007406	012777	000010	003766		MOV	#10,ADHSCR	;SELECT LINE 10
1523	007414	042777	100000	003764		BIC	#100000,ADHLPR	;CLEAR AUTO ECHO FOR LINE 10
1524	007422	105777	003774			TSTB	ADHSLR	;GET REST OF CHARACTERS
1525	007426	001333				BNE	1\$	;AND CHECK
1526	007430	000407				BR	5\$	
1527	007432	005200			4\$:	INC	R0	;UPDATE ECHOED CHARACTER COUNT
1528	007434	020467	004532			CMP	R4,TWRD10	;CHECK ECHOED DATA
1529	007440	001757				BEQ	3\$	
1530	007442	016705	004524			MOV	TWRD10,R5	; (R5)=EXPECTED ECHOED DATA
1531	007446	104002				HLT	2	;ECHOED DATA ERROR
1532	007450	104400			5\$:	SCOPE		;CHECK FOR ITERATIONS, LOOP
1533								
1534								;TRANSMIT A BINARY COUNT PATTERN ON ALL LINES EXCEPT LINE 11
1535								;TRANSMIT 1 CHARACTER ON LINE 11 WITH AUTO ECHO ENABLED
1536								;TRANSMISSION SPEED FOR ALL LINES IS 9600 BAUD
1537								;CHARACTER LENGTH IS 8 BITS
1538								;VERIFY THAT CORRECT DATA IS RECEIVED ON ALL LINES
1539								
1540	007452	012767	000340	170316	T32:	MOV	#340,PS	;DISABLE ALL INTERRUPTS
1541	007460	012767	000010	003762		MOV	#10,ICOUNT	;SET UP FOR 10 ITERATIONS
1542	007466	012767	007706	003750		MOV	#5\$,ESCAPE	;SET UP TO ESCAPE TO NEXT TEST
1543	007474	012777	004000	003700		MOV	#BIT11,ADHSCR	;MASTER CLEAR INTERFACE
1544	007502	004767	003562			JSR	PC,SETALL	;SET UP ALL LINES TO TRANSMIT
1545								;400 (OCTAL) CHARACTERS
1546	007506	012777	000011	003666		MOV	#11,ADHSCR	;SELECT LINE 11 FOR TESTING
1547	007514	012777	014174	003666		MOV	#TWRD11,ADHBA	;CHARACTER TO BE TRANSMITTED
1548								;ON LINE 11 IN AUTO ECHO MODE
1549	007522	012777	177777	003662		MOV	#-1,ADHBC	;TRANSMIT ONLY 1 CHARACTER ON LINE 11
1550	007530	012777	133503	003650		MOV	#133503,ADHLPR	;SET AUTO ECHO FOR LINE 11
1551	007536	042767	001000	003740		BIC	#1000,LINACT	;CLEAR LINE ACTIVE BIT
1552	007544	012777	177777	003642		MOV	#-1,ADHBA	;SET BAR BITS FOR ALL LINES
1553	007552	005000				CLR	R0	;KEEP COUNT OF NUMBER OF RECEIVED CHARACTERS
1554	007554	017704	003624		1\$:	MOV	ADHNRC,R4	;GET A CHARACTER FROM SILC
1555	007560	100375				BPL	1\$	;IF NOT VALID DATA, TRY AGAIN
1556	007562	010403				MOV	R4,R3	;EXTRACT LINE NUMBER FORM CHARACTER
1557	007564	000303				SWAB	R3	
1558	007566	042703	177760			BIC	#177760,R3	;CLEAR STATUS BITS
1559	007572	010302				MOV	R3,R2	
1560	007574	006302				ASL	R2	
1561	007576	020327	000011			CMP	R3,#11	;IF LINE NUMBER IS 11
1562	007602	001432				BEQ	4\$	;CHECK FOR CORRECT ECHOED CHARACTER
1563	007604	026204	014110			CMP	RBUF(R2),R4	;IF NOT LINE 11, CHECK DATA
1564	007610	001404				BEQ	2\$	
1565	007612	016205	014110			MOV	RBUF(R2),R5	; (R5)=EXPECTED NON ECHOED DATA
1566	007616	104001				HLT	1	;NON ECHOED DATA ERROR
1567	007620	000423				BR	4\$	
1568	007622	105262	014110		2\$:	INCB	RBUF(R2)	;UPDATE EXPECTED RECEIVED DATA
1569	007626	001352				BNE	1\$	;CONTINUE IF NOT DONE



## G03

DZDHH MACY11 27(732) 28-SEP-76 15:23 PAGE 174  
 DZDHHB.P11

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1570 007630 046267 014312 003646      BIC      LINBIT(R2),LINACT      ;CLEAR ACTIVE BIT
1571 007636 005767 003642      3$:     TST      LINACT          ;IF ALL LINES ARE DONE
1572 007642 001344          BNE      1$                    ;EXIT
1573 007644 012777 000011 003530      MOV      #11,ADHSCR          ;SELECT LINE 11
1574 007652 042777 100000 003526      BIC      #100000,ADHLPR      ;CLEAR AUTO ECHO FOR LINE 11
1575 007660 105777 003536          TSTB     ADHSLR              ;GET REST OF CHARACTERS
1576 007664 001333          BNE      1$                    ;AND CHECK
1577 007666 000407          BR       5$                    ;
1578 007670 005200          4$:     INC      R0              ;UPDATE ECHOED CHARACTER COUNT
1579 007672 020467 004276          CMP      R4,TWRD11          ;CHECK ECHOED DATA
1580 007676 001757          BEQ      3$                    ;
1581 007700 016705 004270          MOV      TWRD11,R5          ;(R5)=EXPECTED ECHOED DATA
1582 007704 104002          HLT      2                    ;ECHOED DATA ERROR
1583 007706 104400          5$:     SCOPE                ;CHECK FOR ITERATIONS, LOOP
1584
1585          ;TRANSMIT A BINARY COUNT PATTERN ON ALL LINES EXCEPT LINE 12
1586          ;TRANSMIT 1 CHARACTER ON LINE 12 WITH AUTO ECHO ENABLED
1587          ;TRANSMISSION SPEED FOR ALL LINES IS 9600 BAUD
1588          ;CHARACTER LENGTH IS 8 BITS
1589          ;VERIFY THAT CORRECT DATA IS RECEIVED ON ALL LINES
1590
1591 007710 012767 000340 170060      T33:    MOV      #340,PS          ;DISABLE ALL INTERRUPTS
1592 007716 012767 000010 003524          MOV      #10,ICOUNT        ;SET UP FOR 10 ITERATIONS
1593 007724 012767 010144 003512          MOV      #5$,ESCAPE        ;SET UP TO ESCAPE TO NEXT TEST
1594 007732 012777 004000 003442          MOV      #BIT11,ADHSCR     ;MASTER CLEAR INTERFACE
1595 007740 004767 003324          JSR      PC,SETALL         ;SET UP ALL LINES TO TRANSMIT
1596          ;400 (OCTAL) CHARACTERS
1597 007744 012777 000012 003430          MOV      #12,ADHSCR        ;SELECT LINE 12 FOR TESTING
1598 007752 012777 014176 003430          MOV      #TWRD12,ADHBA     ;CHARACTER TO BE TRANSMITTED
1599          ;ON LINE 12 IN AUTO ECHO MODE
1600 007760 012777 177777 003424          MOV      #-1,ADHBC         ;TRANSMIT ONLY 1 CHARACTER ON LINE 12
1601 007766 012777 133503 003412          MOV      #133503,ADHLPR    ;SET AUTO ECHO FOR LINE 12
1602 007774 042767 002000 003502          BIC      #2000,LINACT      ;CLEAR LINE ACTIVE BIT
1603 010002 012777 177777 003404          MOV      #-1,ADHBAR        ;SET BAR BITS FOR ALL LINES
1604 010010 005000          CLR      R0                  ;KEEP COUNT OF NUMBER OF RECEIVED CHARACTERS
1605 010012 017704 003366          1$:     MOV      ADHNR, R4        ;GET A CHARACTER FROM SILO
1606 010016 100375          BPL      1$                    ;IF NOT VALID DATA, TRY AGAIN
1607 010020 010403          MOV      R4,R3              ;EXTRACT LINE NUMBER FORM CHARACTER
1608 010022 000303          SWAB     R3                  ;
1609 010024 042703 177760          BIC      #177760,R3        ;CLEAR STATUS BITS
1610 010030 010302          MOV      R3,R2              ;
1611 010032 006302          ASL      R2                  ;
1612 010034 020327 000012          CMP      R3,#12            ;IF LINE NUMBER IS 12
1613 010040 001432          BEQ      4$                    ;CHECK FOR CORRECT ECHOED CHARACTER
1614 010042 026204 014110          CMP      RBUF(R2),R4       ;IF NOT LINE 12, CHECK DATA
1615 010046 001404          BEQ      2$                    ;
1616 010050 016205 014110          MOV      RBUF(R2),R5       ;(R5)=EXPECTED NON ECHOED DATA
1617 010054 104001          HLT      1                    ;NON ECHOED DATA ERROR
1618 010056 000423          BR       4$                    ;
1619 010060 105262 014110          2$:     INCB     RBUF(R2)      ;UPDATE EXPECTED RECEIVED DATA
1620 010064 001352          BNE      1$                    ;CONTINUE IF NOT DONE
1621 010066 046267 014312 003410          BIC      LINBIT(R2),LINACT  ;CLEAR ACTIVE BIT
1622 010074 005767 003404          3$:     TST      LINACT          ;IF ALL LINES ARE DONE
1623 010100 001344          BNE      1$                    ;EXIT
1624 010102 012777 000012 003272          MOV      #12,ADHSCR        ;SELECT LINE 12
1625 010110 042777 100000 003270          BIC      #100000,ADHLPR    ;CLEAR AUTO ECHO FOR LINE 12

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# H03

DZDHH MACY11 27(732) 28-SEP-76 15:23 PAGE 175  
 DZDHHB.P11

1626	010116	105777	003300			TSTB	JDHSLR		;GET REST OF CHARACTERS
1627	010122	001333				BNE	1\$		;AND CHECK
1628	010124	000407				BR	5\$		
1629	010126	005200			4\$:	INC	R0		;UPDATE ECHOED CHARACTER COUNT
1630	010130	020467	004042			CMP	R4,TWRD12		;CHECK ECHOED DATA
1631	010134	001757				BEQ	3\$		
1632	010136	016705	004034			MOV	TWRD12,R5		; (R5)=EXPECTED ECHOED DATA
1633	010142	104002				HLT	2		;ECHOED DATA ERROR
1634	010144	104400			5\$:	SCOPE			;CHECK FOR ITERATIONS, LOOP
1635									
1636									;TRANSMIT A BINARY COUNT PATTERN ON ALL LINES EXCEPT LINE 13
1637									;TRANSMIT 1 CHARACTER ON LINE 13 WITH AUTO ECHO ENABLED
1638									;TRANSMISSION SPEED FOR ALL LINES IS 9600 BAUD
1639									;CHARACTER LENGTH IS 8 BITS
1640									;VERIFY THAT CORRECT DATA IS RECEIVED ON ALL LINES
1641									
1642	010146	012767	000340	167622	T34:	MOV	#340,PS		;DISABLE ALL INTERRUPTS
1643	010154	012767	000010	003266		MOV	#10,ICOUNT		;SET UP FOR 10 ITERATIONS
1644	010162	012767	010402	003254		MOV	#5\$,ESCAPE		;SET UP TO ESCAPE TO NEXT TEST
1645	010170	012777	004000	003204		MOV	#BIT11,JDHSCR		;MASTER CLEAR INTERFACE
1646	010176	004767	003066			JSR	PC,SETALL		;SET UP ALL LINES TO TRANSMIT
1647									;400 (OCTAL) CHARACTERS
1648	010202	012777	000013	003172		MOV	#13,JDHSCR		;SELECT LINE 13 FOR TESTING
1649	010210	012777	014200	003172		MOV	#TWRD13,JDHBA		;CHARACTER TO BE TRANSMITTED
1650									;ON LINE 13 IN AUTO ECHO MODE
1651	010216	012777	177777	003166		MOV	#-1,JDHBC		;TRANSMIT ONLY 1 CHARACTER ON LINE 13
1652	010224	012777	133503	003154		MOV	#133503,JDHLPR		;SET AUTO ECHO FOR LINE 13
1653	010232	042767	004000	003244		BIC	#4000,LINACT		;CLEAR LINE ACTIVE BIT
1654	010240	012777	177777	003146		MOV	#-1,JDHBA		;SET BAR BITS FOR ALL LINES
1655	010246	005000				CLR	R0		;KEEP COUNT OF NUMBER OF RECEIVED CHARACTERS
1656	010250	017704	003130		1\$:	MOV	JDHNRC,R4		;GET A CHARACTER FROM SILO
1657	010254	100375				BPL	1\$		;IF NOT VALID DATA, TRY AGAIN
1658	010256	010403				MOV	R4,R3		;EXTRACT LINE NUMBER FORM CHARACTER
1659	010260	000303				SWAB	R3		
1660	010262	042703	177760			BIC	#177760,R3		;CLEAR STATUS BITS
1661	010266	010302				MOV	R3,R2		
1662	010270	006302				ASL	R2		
1663	010272	020327	000013			CMP	R3,#13		;IF LINE NUMBER IS 13
1664	010276	001432				BEQ	4\$		;CHECK FOR CORRECT ECHOED CHARACTER
1665	010300	026204	014110			CMP	RBUF(R2),R4		;IF NOT LINE 13, CHECK DATA
1666	010304	001404				BEQ	2\$		
1667	010306	016205	014110			MOV	RBUF(R2),R5		; (R5)=EXPECTED NON ECHOED DATA
1668	010312	104001				HLT	1		;NON ECHOED DATA ERROR
1669	010314	000423				BR	4\$		
1670	010316	105262	014110		2\$:	INCB	RBUF(R2)		;UPDATE EXPECTED RECEIVED DATA
1671	010322	001352				BNE	1\$		;CONTINUE IF NOT DONE
1672	010324	046267	014312	003152		BIC	LINBIT(R2),LINACT		;CLEAR ACTIVE BIT
1673	010332	005767	003146		3\$:	TST	LINACT		;IF ALL LINES ARE DONE
1674	010336	001344				BNE	1\$		;EXIT
1675	010340	012777	000013	003034		MOV	#13,JDHSCR		;SELECT LINE 13
1676	010346	042777	100000	003032		BIC	#100000,JDHLPR		;CLEAR AUTO ECHO FOR LINE 13
1677	010354	105777	003042			TSTB	JDHSLR		;GET REST OF CHARACTERS
1678	010360	001333				BNE	1\$		;AND CHECK
1679	010362	000407				BR	5\$		
1680	010364	005200			4\$:	INC	R0		;UPDATE ECHOED CHARACTER COUNT
1681	010366	020467	003606			CMP	R4,TWRD13		;CHECK ECHOED DATA

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1682 010372 001757          BEQ      3$
1683 010374 016705 003600  MOV      TWRD13,R5          ;(R5)=EXPECTED ECHOED DATA
1684 010400 104002          HLT      2                  ;ECHOED DATA ERROR
1685 010402 104400          SCOPE                    ;CHECK FOR ITERATIONS, LOOP
1686
1687          ;TRANSMIT A BINARY COUNT PATTERN ON ALL LINES EXCEPT LINE 14
1688          ;TRANSMIT 1 CHARACTER ON LINE 14 WITH AUTO ECHO ENABLED
1689          ;TRANSMISSION SPEED FOR ALL LINES IS 9600 BAUD
1690          ;CHARACTER LENGTH IS 8 BITS
1691          ;VERIFY THAT CORRECT DATA IS RECEIVED ON ALL LINES
1692
1693 010404 012767 000340 167364 T3$:  MOV      #340,PS          ;DISABLE ALL INTERRUPTS
1694 010412 012767 000010 003030  MOV      #10,I'COUNT    ;SET UP FOR 10 ITERATIONS
1695 010420 012767 010640 003016  MOV      #5$,ESCAPE      ;SET UP TO ESCAPE TO NEXT TEST
1696 010426 012777 004000 002746  MOV      #BIT11,JDHSCR    ;MASTER CLEAR INTERFACE
1697 010434 004767 002630          JSR      PC,SETALL       ;SET UP ALL LINES TO TRANSMIT
1698          ;400 (OCTAL) CHARACTERS
1699 010440 012777 000014 002734  MOV      #14,JDHSCR      ;SELECT LINE 14 FOR TESTING
1700 010446 012777 014202 002734  MOV      #TWRD14,JDHBA   ;CHARACTER TO BE TRANSMITTED
1701          ;ON LINE 14 IN AUTO ECHO MODE
1702 010454 012777 177777 002730  MOV      #-1,JDHBC       ;TRANSMIT ONLY 1 CHARACTER ON LINE 14
1703 010462 012777 133503 002716  MOV      #133503,JDHLPR  ;SET AUTO ECHO FOR LINE 14
1704 010470 042767 010000 003006  BIC      #10000,LINACT   ;CLEAR LINE ACTIVE BIT
1705 010476 012777 177777 002710  MOV      #-1,JDHBAR      ;SET BAR BITS FOR ALL LINES
1706 010504 005000          CLR      R0              ;KEEP COUNT OF NUMBER OF RECEIVED CHARACTERS
1707 010506 017704 002672          1$:  MOV      JDHNR, R4       ;GET A CHARACTER FROM SILO
1708 010512 100375          BPL      1$              ;IF NOT VALID DATA, TRY AGAIN
1709 010514 010403          MOV      R4,R3          ;EXTRACT LINE NUMBER FORM CHARACTER
1710 010516 000303          SWAB    R3
1711 010520 042703 177760          BIC      #177760,R3     ;CLEAR STATUS BITS
1712 010524 010302          MOV      R3,R2
1713 010526 006302          ASL     R2
1714 010530 020327 000014          CMP     R3,#14         ;IF LINE NUMBER IS 14
1715 010534 001432          BEQ     4$              ;CHECK FOR CORRECT ECHOED CHARACTER
1716 010536 026204 014110          CMP     RBUF(R2),R4    ;IF NOT LINE 14, CHECK DATA
1717 010542 001404          BEQ     2$
1718 010544 016205 014110          MOV     RBUF(R2),R5    ;(R5)=EXPECTED NON ECHOED DATA
1719 010550 104001          HLT     1              ;NON ECHOED DATA ERROR
1720 010552 000423          BR      4$
1721 010554 105262 014110          2$:  INCB   RBUF(R2)       ;UPDATE EXPECTED RECEIVED DATA
1722 010560 001352          BNE     1$              ;CONTINUE IF NOT DONE
1723 010562 046267 014312 002714  BIC     LINBIT(R2),LINACT ;CLEAR ACTIVE BIT
1724 010570 005767 002710          3$:  TST    LINACT         ;IF ALL LINES ARE DONE
1725 010574 001344          BNE     1$              ;EXIT
1726 010576 012777 000014 002576  MOV     #14,JDHSCR      ;SELECT LINE 14
1727 010604 042777 100000 002574  BIC     #100000,JDHLPR  ;CLEAR AUTO ECHO FOR LINE 14
1728 010612 105777 002604          TSTB   JDHSLR         ;GET REST OF CHARACTERS
1729 010616 001333          BNE     1$              ;AND CHECK
1730 010620 000407          BR      5$
1731 010622 005200          4$:  INC    R0              ;UPDATE ECHOED CHARACTER COUNT
1732 010624 020467 003352          CMP     R4,TWRD14     ;CHECK ECHOED DATA
1733 010630 001757          BEQ     3$
1734 010632 016705 003344          MOV     TWRD14,R5     ;(R5)=EXPECTED ECHOED DATA
1735 010636 104002          HLT     2              ;ECHOED DATA ERROR
1736 010640 104400          5$:  SCOPE                    ;CHECK FOR ITERATIONS, LOOP
1737

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1738      ; TRANSMIT A BINARY COUNT PATTERN ON ALL LINES EXCEPT LINE 15
1739      ; TRANSMIT 1 CHARACTER ON LINE 15 WITH AUTO ECHO ENABLED
1740      ; TRANSMISSION SPEED FOR ALL LINES IS 9600 BAUD
1741      ; CHARACTER LENGTH IS 8 BITS
1742      ; VERIFY THAT CORRECT DATA IS RECEIVED ON ALL LINES
1743
1744 010642 012767 000340 167126 T36: MOV      #340,PS      ; DISABLE ALL INTERRUPTS
1745 010650 012767 000010 002572 MOV      #10,I,COUNT ; SET UP FOR 10 ITERATIONS
1746 010656 012767 011076 002560 MOV      #55,ESCAPE  ; SET UP TO ESCAPE TO NEXT TEST
1747 010664 012777 004000 002510 MOV      #BIT11,JDHSCR ; MASTER CLEAR INTERFACE
1748 010672 004767 002372 JSR      PC,SETALL   ; SET UP ALL LINES TO TRANSMIT
1749                                     ; 400 (OCTAL) CHARACTERS
1750 010676 012777 000015 002476 MOV      #15,JDHSCR  ; SELECT LINE 15 FOR TESTING
1751 010704 012777 014204 002476 MOV      #TWRD15,JDHBA ; CHARACTER TO BE TRANSMITTED
1752                                     ; ON LINE 15 IN AUTO ECHO MODE
1753 010712 012777 177777 002472 MOV      #-1,JDHBC   ; TRANSMIT ONLY 1 CHARACTER ON LINE 15
1754 010720 012777 133503 002460 MOV      #133503,JDHLPR ; SET AUTO ECHO FOR LINE 15
1755 010726 042767 020000 002550 BIC      #20000,LINACT ; CLEAR LINE ACTIVE BIT
1756 010734 012777 177777 002452 MOV      #-1,JDHBAR  ; SET BAR BITS FOR ALL LINES
1757 010742 005000 CLR      R0          ; KEEP COUNT OF NUMBER OF RECEIVED CHARACTERS
1758 010744 017704 002434 1$: MOV      JDHNR,R4    ; GET A CHARACTER FROM SILO
1759 010750 100375 BPL      1$         ; IF NOT VALID DATA, TRY AGAIN
1760 010752 010403 MOV      R4,R3      ; EXTRACT LINE NUMBER FORM CHARACTER
1761 010754 000303 SWAB   R3
1762 010756 042703 177760 BIC      #177760,R3 ; CLEAR STATUS BITS
1763 010762 010302 MOV      R3,R2
1764 010764 006302 ASL     R2
1765 010766 020327 000015 CMP      R3,#15     ; IF LINE NUMBER IS 15
1766 010772 001432 BEQ     4$         ; CHECK FOR CORRECT ECHOED CHARACTER
1767 010774 026204 014110 CMP      RBUF(R2),R4 ; IF NOT LINE 15, CHECK DATA
1768 011000 001404 BEQ     2$
1769 011002 016205 014110 MOV      RBUF(R2),R5 ; (R5)=EXPECTED NON ECHOED DATA
1770 011006 104001 HLT     1          ; NON ECHOED DATA ERROR
1771 011010 000423 BR      4$
1772 011012 105262 014110 2$: INCB   RBUF(R2)    ; UPDATE EXPECTED RECEIVED DATA
1773 011016 011352 BNE     1$         ; CONTINUE IF NOT DONE
1774 011020 042267 014312 002456 BIC     LINBIT(R2),LINACT ; CLEAR ACTIVE BIT
1775 011026 005767 002452 3$: TST    LINACT      ; IF ALL LINES ARE DONE
1776 011032 001344 BNE     1$         ; EXIT
1777 011034 012777 000015 002340 MOV     #15,JDHSCR  ; SELECT LINE 15
1778 011042 042777 100000 002336 BIC     #100000,JDHLPR ; CLEAR AUTO ECHO FOR LINE 15
1779 011050 105777 002346 TSTB   JDHSLR     ; GET REST OF CHARACTERS
1780 011054 001333 BNE     1$         ; AND CHECK
1781 011056 000407 BR      5$
1782 011060 005200 4$: INC     R0          ; UPDATE ECHOED CHARACTER COUNT
1783 011062 020467 003116 CMP     R4,TWRD15  ; CHECK ECHOED DATA
1784 011066 001757 BEQ     3$
1785 011070 016705 003110 MOV     TWRD15,R5  ; (R5)=EXPECTED ECHOED DATA
1786 011074 104002 HLT     2          ; ECHOED DATA ERROR
1787 011076 104400 5$: SCOPE ; CHECK FOR ITERATIONS, LOOP
1788
1789      ; TRANSMIT A BINARY COUNT PATTERN ON ALL LINES EXCEPT LINE 16
1790      ; TRANSMIT 1 CHARACTER ON LINE 16 WITH AUTO ECHO ENABLED
1791      ; TRANSMISSION SPEED FOR ALL LINES IS 9600 BAUD
1792      ; CHARACTER LENGTH IS 8 BITS
1793      ; VERIFY THAT CORRECT DATA IS RECEIVED ON ALL LINES

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# K03

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1794
1795 011100 012767 000340 166670 T37:  MOV    #340,PS           ;DISABLE ALL INTERRUPTS
1796 011106 012767 000010 002334    MOV    #10,I'COUNT      ;SET UP FOR 10 ITERATIONS
1797 011114 012767 011334 002322    MOV    #5$,ESCAPE        ;SET UP TO ESCAPE TO NEXT TEST
1798 011122 012777 004000 002252    MOV    #BIT11,ADHSCR     ;MASTER CLEAR INTERFACE
1799 011130 004767 002134          JSR    PC,SETALL         ;SET UP ALL LINES TO TRANSMIT
1800                                ;400 (OCTAL) CHARACTERS
1801 011134 012777 000016 002240    MOV    #16,ADHSCR        ;SELECT LINE 16 FOR TESTING
1802 011142 012777 014206 002240    MOV    #TWRD16,ADHBA     ;CHARACTER TO BE TRANSMITTED
1803                                ;ON LINE 16 IN AUTO ECHO MODE
1804 011150 012777 177777 002234    MOV    #-1,ADHBC         ;TRANSMIT ONLY 1 CHARACTER ON LINE 16
1805 011156 012777 133503 002222    MOV    #133503,ADHLPR    ;SET AUTO ECHO FOR LINE 16
1806 011164 042767 040000 002312    BIC    #40000,LINACT     ;CLEAR LINE ACTIVE BIT
1807 011172 012777 177777 002214    MOV    #-1,ADHBA        ;SET BAR BITS FOR ALL LINES
1808 011200 005000          CLR    R0                ;KEEP COUNT OF NUMBER OF RECEIVED CHARACTERS
1809 011202 017704 002176    1$:  MOV    ADHNR,R4         ;GET A CHARACTER FROM SILO
1810 011206 100375          BPL    1$                ;IF NOT VALID DATA, TRY AGAIN
1811 011210 010403          MOV    R4,R3            ;EXTRACT LINE NUMBER FORM CHARACTER
1812 011212 000303          SWAB   R3
1813 011214 042703 177760    BIC    #177760,R3        ;CLEAR STATUS BITS
1814 011220 010302          MOV    R3,R2
1815 011222 006302          ASL    R2
1816 011224 020327 000016    CMP    R3,#16           ;IF LINE NUMBER IS 16
1817 011230 001432          BEQ    4$                ;CHECK FOR CORRECT ECHOED CHARACTER
1818 011232 026204 014110    CMP    RBUF(R2),R4      ;IF NOT LINE 16, CHECK DATA
1819 011236 001404          BEQ    2$
1820 011240 016205 014110    MOV    RBUF(R2),R5      ;(R5)=EXPECTED NON ECHOED DATA
1821 011244 104001          HLT    1                 ;NON ECHOED DATA ERROR
1822 011246 000423          BR     4$
1823 011250 105262 014110    2$:  INCB   RBUF(R2)        ;UPDATE EXPECTED RECEIVED DATA
1824 011254 001352          BNE    1$                ;CONTINUE IF NOT DONE
1825 011256 046267 014312 002220    BIC    LINBIT(R2),LINACT ;CLEAR ACTIVE BIT
1826 011264 005767 002214    3$:  TST    LINACT          ;IF ALL LINES ARE DONE
1827 011270 001344          BNE    1$                ;EXIT
1828 011272 012777 000016 002102    MOV    #16,ADHSCR        ;SELECT LINE 16
1829 011300 042777 100000 002100    BIC    #100000,ADHLPR    ;CLEAR AUTO ECHO FOR LINE 16
1830 011306 105777 002110    TSTB   ADHSLR           ;GET REST OF CHARACTERS
1831 011312 001333          BNE    1$                ;AND CHECK
1832 011314 000407          BR     5$
1833 011316 005200          4$:  INC    R0                ;UPDATE ECHOED CHARACTER COUNT
1834 011320 020467 002662    CMP    R4,TWRD16        ;CHECK ECHOED DATA
1835 011324 001757          BEQ    3$
1836 011326 016705 002654    MOV    TWRD16,R5        ;(R5)=EXPECTED ECHOED DATA
1837 011332 104002          HLT    2                 ;ECHOED DATA ERROR
1838 011334 104400          5$:  SCOPE                ;CHECK FOR ITERATIONS, LOOP
1839
1840                                ;TRANSMIT A BINARY COUNT PATTERN ON ALL LINES EXCEPT LINE 17
1841                                ;TRANSMIT 1 CHARACTER ON LINE 17 WITH AUTO ECHO ENABLED
1842                                ;TRANSMISSION SPEED FOR ALL LINES IS 9600 BAUD
1843                                ;CHARACTER LENGTH IS 8 BITS
1844                                ;VERIFY THAT CORRECT DATA IS RECEIVED ON ALL LINES
1845
1846 011336 012767 000340 166432 T40:  MOV    #340,PS           ;DISABLE ALL INTERRUPTS
1847 011344 012767 000010 002076    MOV    #10,I'COUNT      ;SET UP FOR 10 ITERATIONS
1848 011352 012767 011572 002064    MOV    #5$,ESCAPE        ;SET UP TO ESCAPE TO NEXT TEST
1849 011360 012777 004000 002014    MOV    #BIT11,ADHSCR     ;MASTER CLEAR INTERFACE

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1850	011366	004767	001676		JSR	PC,SETALL		;SET UP ALL LINES TO TRANSMIT
1851								;400 (OCTAL) CHARACTERS
1852	011372	012777	000017	002002	MOV	#17,ADHSCR		;SELECT LINE 17 FOR TESTING
1853	011400	012777	014210	002002	MOV	#TWRD17,ADHBA	;CHARACTER TO BE TRANSMITTED	
1854								;ON LINE 17 IN AUTO ECHO MODE
1855	011406	012777	177777	001776	MOV	#-1,ADHBC		;TRANSMIT ONLY 1 CHARACTER ON LINE 17
1856	011414	012777	133503	001764	MOV	#133503,ADHLPR		;SET AUTO ECHO FOR LINE 17
1857	011422	042767	100000	002054	BIC	#100000,LINACT	;CLEAR LINE ACTIVE BIT	
1858	011430	012777	177777	001756	MOV	#-1,ADHBAR		;SET BAR BITS FOR ALL LINES
1859	011436	005000			CLR	R0		;KEEP COUNT OF NUMBER OF RECEIVED CHARACTERS
1860	011440	017704	001740		MOV	ADHNR, R4		;GET A CHARACTER FROM SILO
1861	011444	100375			BPL	1\$		;IF NOT VALID DATA, TRY AGAIN
1862	011446	010403			MOV	R4, R3		;EXTRACT LINE NUMBER FORM CHARACTER
1863	011450	000303			SWAB	R3		
1864	011452	042703	177760		BIC	#177760, R3		;CLEAR STATUS BITS
1865	011456	010302			MOV	R3, R2		
1866	011460	006302			ASL	R2		
1867	011462	020327	000017		CMP	R3, #17	;IF LINE NUMBER IS 17	
1868	011466	001432			BEQ	4\$		;CHECK FOR CORRECT ECHOED CHARACTER
1869	011470	026204	014110		CMP	RBUF(R2), R4		;IF NOT LINE 17, CHECK DATA
1870	011474	001404			BEQ	2\$		
1871	011476	016205	014110		MOV	RBUF(R2), R5		; (R5)=EXPECTED NON ECHOED DATA
1872	011502	104001			HLT	1		;NON ECHOED DATA ERROR
1873	011504	000423			BR	4\$		
1874	011506	105262	014110		INCB	RBUF(R2)		;UPDATE EXPECTED RECEIVED DATA
1875	011512	001352			BNE	1\$		;CONTINUE IF NOT DONE
1876	011514	046267	014312	001762	BIC	LINBIT(R2), LINACT		;CLEAR ACTIVE BIT
1877	011522	005767	001756		TST	LINACT		;IF ALL LINES ARE DONE
1878	011526	001344			BNE	1\$		;EXIT
1879	011530	012777	000017	001644	MOV	#17,ADHSCR		;SELECT LINE 17
1880	011536	042777	100000	001642	BIC	#100000,ADHLPR		;CLEAR AUTO ECHO FOR LINE 17
1881	011544	105777	001652		TSTB	ADHSLR		;GET REST OF CHARACTERS
1882	011550	001333			BNE	1\$		;AND CHECK
1883	011552	000407			BR	5\$		
1884	011554	005200			INC	R0		;UPDATE ECHOED CHARACTER COUNT
1885	011556	020467	002426		CMP	R4, TWRD17		;CHECK ECHOED DATA
1886	011562	001757			BEQ	3\$		
1887	011564	016705	002420		MOV	TWRD17, R5		; (R5)=EXPECTED ECHOED DATA
1888	011570	104002			HLT	2		;ECHOED DATA ERROR
1889	011572	104400			5\$: SCOPE			;CHECK FOR ITERATIONS, LOOP

# M03

DZDHH MACY11 27(732) 29-SEP-76 15:23 PAGE 180  
 DZDHHB.P11

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1890
1891
1892
1893
1894 011574 012767 000340 166174 T41: MOV #340,PS ;DISABLE ALL INTERRUPTS
1895 011602 012767 000100 001640 MOV #100,ICOUNT ;SET UP FOR 100 ITERATIONS
1896 011610 012767 012024 001626 MOV #5$,ESCAPE ;SET UP TO ESCAPE TO NEXT TEST
1897 011616 012777 004000 001556 MOV #BIT11,ADHSCR ;MASTER CLEAR INTERFACE
1898 011624 012700 000020 MOV #20,R0 ;SET PARAMETERS FOR 16 LINES
1899 011630 012701 014152 MOV #TWRDO,R1 ;CHARACTER TO BE TRANSMITTED
1900 011634 012702 014212 MOV #RCNTO,R2 ;RECEIVED CHARACTER COUNT
1901 011640 012703 014252 MOV #RDCTO,R3 ;EXPECTED NUMBER OF CHARACTERS
1902 011644 010177 001540 1$: MOV R1,ADHBA ;LOAD BUS ADDRESS
1903 011650 012777 177777 001534 MOV #-1,ADHBC ;LOAD BYTE COUNT
1904 011656 012777 131403 001522 MOV #131403,ADHLPR ;SET AUTO ECHO
1905 011664 005022 CLR (R2)+ ;CLEAR RECEIVED CHARACTER COUNT
1906 011666 012723 000100 MOV #100,(R3)+ ;=NUMBER OF CHARACTERS TO BE RECEIVED
1907 011672 062701 000002 ADD #2,R1 ;ADVANCE POINTER
1908 011676 005300 DEC R0 ;CONTINUE IF NOT DONE
1909 011700 001361 BNE 1$
1910 011702 012767 177777 001576 MOV #-1,AEACT ;INDICATE AUTO ECHO ACTIVE
1911
1912 011710 012777 177777 001476 MOV #-1,ADHBAR ;FOR ALL LINES
1913 011716 105777 001460 2$: TSTB ADHSCR ;SET BAR BITS FOR ALL LINES
1914 011722 100375 BPL 2$ ;WAIT FOR A CHARACTER
1915 011724 017704 001454 MOV ADHNRC,R4 ;GET CHARACTER
1916 011730 010403 MOV R4,R3
1917 011732 000303 SWAB R3
1918 011734 042703 177760 BIC #177760,R3 ;EXTRACT LINE NUMBER
1919 011740 010302 MOV R3,R2
1920 011742 006302 ASL R2
1921 011744 005262 014212 INC RCNTO(R2) ;UPDATE RECEIVED COUNT FOR LINE
1922 011750 020462 014152 CMP R4,TWRDO(R2) ;CHECK EXPECTED AND RECEIVED DATA
1923 011754 001404 BEQ 3$
1924 011756 016205 014152 MOV TWRDO(R2),R5 ;(R5)=EXPECTED ECHOED DATA
1925 011762 104002 HLT -2 ;AUTO ECHO ERROR
1926 011764 000417 BR 5$
1927 011766 005362 014252 3$: DEC RDCTO(R2) ;UPDATE RECEIVED EXPECTED COUNT
1928 011772 003351 BGT 2$ ;CONTINUE IF NOT 0
1929 011774 100413 BMI 5$ ;EXIT IOF NEGATIVE
1930 011776 010377 001400 MOV R3,ADHSCR ;SELECT LINE THAT FINISHED
1931 012002 042777 100000 001376 BIC #100000,ADHLPR ;CLEAR AUTO ECHO
1932 012010 046267 014312 001470 BIC LINBIT(R2),AEACT ;CLEAR AUTO ECHO ACTIVE
1933 012016 005767 001464 TST AEACTION ;ALL LINES DONE
1934 012022 001335 BNE 2$ ;IF NOT, CONTINUE
1935 012024 104400 5$: SCOPE ;CHECK FOR ITERATIONS, LOOP

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1936
1937
1938 ;END OF PASS
1939 ;TYPE NAME OF TEST
1940 ;UPDATE PASS COUNT
1941 ;CHECK FOR EXIT TO ACT-11
1942 ;RESTART TEST
1943
1944 012026 104401 EOP: TYPE ;TYPE NAME OF TEST
1945 012030 014722 MEPASS
1946 012032 005067 001442 CLR LAST ;CLEAR LAST ERROR PC
1947 012036 005067 001372 CLR ERRFLG ;CLEAR ERROR FLAG
1948 012042 005267 001370 INC PASCNT ;UPDATE PASS COUNT
1949 012046 016767 001364 165514 MOV PASCNT,LIGHTS ;DISPLAY PASS COUNT
1950 012054 013701 000042 MOV #42,R1 ;CHECK FOR ACT-11 OR DDP
1951 012060 001405 BEQ RESTART ;IF NOT, CONTINUE TESTING
1952 012062 000005 RESET
1953 012064 004711 LOGICAL: JSR PC,(R1)
1954 012066 000240 NOP
1955 012070 000240 NOP
1956 012072 000240 NOP
1957 012074 000167 167102 RESTART: JMP BEGIN
1958
1959 ;CHECK FOR LOOP ON CURRENT TEST
1960 ;CHECK FOR ITERATION SUPPRESSION
1961
1962 012100 032767 002000 165462 SCOPER: BIT #SW10,SWR
1963 012106 001030 BNE 4$
1964 012110 032767 040000 165452 1$: BIT #SW14,SWR
1965 012116 001021 BNE 3$
1966 012120 032767 004000 165442 BIT #SW11,SWR
1967 012126 001006 BNE 2$
1968 012130 005267 001316 INC LPCNT
1969 012134 026767 001312 001306 CMP LPCNT,ICOUNT
1970 012142 001007 BNE 3$
1971 012144 005067 001302 2$: CLR LPCNT
1972 012150 005067 001260 CLR ERRFLG
1973 012154 011667 001262 MOV (SP),RETURN
1974 012160 000002 RTI
1975 012162 016716 001254 3$: MOV RETURN,(SP)
1976 012166 000002 RTI
1977 012170 005767 001240 4$: TST ERRFLG
1978 012174 001745 BEQ 1$
1979 012176 000762 BR 2$
1980
1981 ;CHECK FOR FREEZE ON CURRENT DATA
1982
1983 012200 032767 001000 165362 SCOP1R: BIT #SW09,SWR
1984 012206 001402 BEQ 1$
1985 012210 016716 001232 MOV FREEZ1,(SP)
1986 012214 000002 1$: RTI

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1987
1988
1989
1990 012216 032767 020000 165344 ERRORS: BIT #SW13,SWR
1991 012224 001051 BNE HALTS
1992 012226 021667 001246 CMP (SP),LAST
1993 012232 001404 BEQ IS
1994 012234 011667 001240 MOV (SP),LAST
1995 012240 005067 001170 CLR ERRFLG
1996 012244 104406 IS: SAVOSP
1997 012246 011605 MOV (SP),R5
1998 012250 162705 000002 SUB #2,R5
1999 012254 011504 MOV (R5),R4
2000 012256 006304 ASL R4
2001 012260 006304 ASL R4
2002 012262 042704 177001 BIC #177001,R4
2003 012266 062704 015032 ADD #ERRTAB,R4
2004 012272 012467 000034 MOV (R4)+,ERRMSG
2005 012276 011467 000042 MOV (R4),DATABP
2006 012302 005767 001126 TST ERRFLG
2007 012306 001403 BEQ TYPMSG
2008 012310 005767 000030 TST DATABP
2009 012314 001007 BNE TYPDAT
2010 012316 104402 TYPMSG: OCTASC
2011 012320 012412 ERTABO
2012 012322 012767 000001 001104 MOV #1,ERRFLG
2013 012330 104401 TYPE
2014 012332 000000 ERRMSG: 0
2015 012334 005767 000004 TYPDAT: TST DATABP
2016 012340 001402 BEQ RESREG
2017 012342 104402 OCTASC
2018 012344 000000 DATABP: 0
2019 012346 104407 RESREG: RESOS
2020 012350 005767 165214 HALTS: TST SWR
2021 012354 100005 BPL EXITER
2022 012356 010046 PUSHRO
2023 012360 016600 000002 MOV 2(SP),R0
2024 012364 000000 HALT
2025 012366 012600 POPRO
2026 012370 005267 001044 EXITER: INC ERRCNT
2027 012374 032767 002000 165166 BIT #SW10,SWR
2028 012402 001402 BEQ IS
2029 012404 016716 001034 MOV ESCAPE,(SP)
2030 012410 000002 IS: RTI
2031 012412 000001 ERTABO: 1
2032 012414 006 002 .BYTE 6,2
2033 012416 013472 SAVPC

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2034                                     ; TRAP DISPATCH SERVICE
2035                                     ; ARGUMENT OF TRAP IS EXTRACTED
2036                                     ; AND USED AS OFFSET TO OBTAIN POINTER
2037                                     ; TO SELECTED SUBROUTINE
2038
2039 012420 011646 TRPSRV: MOV      (SP), -(SP)           ; GET PC OF RETURN
2040 012422 162716 000002 SUB      #2, (SP)           ; =PC OF TRAP
2041 012426 017616 000000 MOV      @ (SP), (SP)      ; GET TRP
2042 012432 006316 TRPOK: ASL      (SP)           ; MULTIPLY TRAP ARG BY 2
2043 012434 042716 177001 BIC      #177001, (SP)    ; CLEAR UNWANTED BITS
2044 012440 062716 014752 ADD      #TRPTAB, (SP)    ; POINTER TO SUBROUTINE ADDRESS
2045 012444 017616 000000 MOV      @ (SP), (SP)    ; SUBROUTINE ADDRESS
2046 012450 000136 JMP      @ (SP)+         ; GO TO SUBROUTINE
2047
2048                                     ; SAVE PC OF TEST THAT FAILED AND R0-R5
2049
2050 012452 016667 000004 001012 SVOSP: MOV      4(SP), SAVPC
2051
2052                                     ; SAVE R0-R5
2053
2054 012460 010567 001002 SVOS:  MOV      R5, SAVR5
2055 012464 010467 000774 MOV      R4, SAVR4
2056 012470 010367 000766 MOV      R3, SAVR3
2057 012474 010267 000760 MOV      R2, SAVR2
2058 012500 010167 000752 MOV      R1, SAVR1
2059 012504 010067 000744 MOV      R0, SAVR0
2060 012510 000002 RTI
2061                                     ; RESTORE R0-R5
2062
2063 012512 016700 000736 RSOS:  MOV      SAVR0, R0
2064 012516 016701 000734 MOV      SAVR1, R1
2065 012522 016702 000732 MOV      SAVR2, R2
2066 012526 016703 000730 MOV      SAVR3, R3
2067 012532 016704 000726 MOV      SAVR4, R4
2068 012536 016705 000724 MOV      SAVR5, R5
2069 012542 000002 RTI

```

```

2070
2071                                     ;TELETYPE OUTPUT ROUTINE
2072
2073 012544 017605 000000          TYPBR: MOV      @ (SP), R5
2074 012550 062716 000002          ADD      #2, (SP)
2075 012554 105777 000616          1$:   TSTB   @TPCSR
2076 012560 100375                   BPL     1$
2077 012562 105715                   TSTB   (R5)
2078 012564 001001                   BNE    2$
2079 012566 000002                   RTI
2080 012570 112577 000604          2$:   MOVB  (R5)+, @TPDBR
2081 012574 000767                   BR     1$
2082
2083                                     ;ASCII STRING INPUT ROUTINE
2084
2085 012576 017667 000000 000006  INSTRG: MOV      @ (SP), MSG
2086 012604 062716 000002          ADD      #2, (SP)
2087 012610 104401                   INSTR1: TYPE
2088 012612 000000                   MSG:   0
2089 012614 012704 014774          MOV      #INBUF, R4
2090 012620 012703 000007          MOV      #7, R3
2091 012624 105777 000542          1$:   TSTB   @TKCSR
2092 012630 100375                   BPL     1$
2093 012632 117714 000536          MOVB   @TKDBR, (R4)
2094 012636 142714 000200          BICB   #200, (R4)
2095 012642 122427 000015          CMPB   (R4)+, #15
2096 012646 001413                   BEQ    INSTR2
2097 012650 117777 000520 000522  2$:   MOVB  @TKDBR, @TPDBR
2098 012656 105777 000514          TSTB   @TPCSR
2099 012662 100375                   BPL     2$
2100 012664 005303                   DEC    R3
2101 012666 001356                   BNE    1$
2102 012670 104401                   INSTRE: TYPE
2103 012672 014626                   MOVM
2104 012674 000745                   BR     INSTR1
2105 012676 000002                   INSTR2: RTI
  
```

2106					
2107					;CONVERT ASCII STRING TO OCTAL
2108					
2109	012700	011605		PARAMS:	MOV (SP),R5
2110	012702	012567	000146		MOV (R5)+,LOLIM
2111	012706	012567	000144		MOV (R5)+,HILIM
2112	012712	012567	000142		MOV (R5)+,DEVADR
2113	012716	112567	000140		MOVB (R5)+,LOBITS
2114	012722	112567	000135		MOVB (R5)+,ADRCNT
2115	012726	010516			MOV R5,(SP)
2116	012730	005005		PARAM1:	CLR R5
2117	012732	012704	014774		MOV #INBUF,R4
2118	012736	122714	000015		CMPB #15,(R4)
2119	012742	001420			BEQ PARERR
2120	012744	121427	000060	1\$:	CMPB (R4),#60
2121	012750	002415			BLT PARERR
2122	012752	121427	000067		CMPB (R4),#67
2123	012756	003012			BGT PARERR
2124	012760	142714	000060		BICB #60,(R4)
2125	012764	152405			BISB (R4)+,R5
2126	012766	122714	000015		CMPB #15,(R4)
2127	012772	001406			BEQ LIMITS
2128	012774	006305			ASL R5
2129	012776	006305			ASL R5
2130	013000	006305			ASL R5
2131	013002	000760			BR 1\$
2132	013004	104404		PARERR:	INSTR
2133	013006	000750			BR PARAM1
2134					
2135					;TEST TO SEE IF NUMBER IS WITHIN LIMITS
2136					
2137	013010	020567	000042	LIMITS:	CMP R5,HILIM
2138	013014	101373			BHI PARERR
2139	013016	020567	000032		CMP R5,LOLIM
2140	013022	103770			BLO PARERR
2141	013024	136705	000032		BITB LOBITS,R5
2142	013030	001365			BNE PARERR
2143					
2144					;STORE NUMBER AT SPECIFIED ADDRESS
2145					
2146	013032	016704	000022	1\$:	MOV DEVADR,R4
2147	013036	010524			MOV R5,(R4)+
2148	013040	062705	000002		ADD #2,R5
2149	013044	105367	000013		DECB ADRCNT
2150	013050	001372			BNE 1\$
2151	013052	000002			RTI
2152	013054	000000		LOLIM:	0
2153	013056	000000		HILIM:	0
2154	013060	000000		DEVADR:	0
2155	013062	000000		LOBITS:	0
2156		013063		ADRCNT=	LOBITS+1

```

2157
2158
2159
2160 013064 104401
2161 013066 014632
2162 013070 017601 000000
2163 013074 062716 000002
2164 013100 012167 000130
2165 013104 112167 000126
2166 013110 112167 000123
2167 013114 013167 000120
2168 013120 016704 000114
2169 013124 116705 000106
2170 013130 012700 015006
2171 013134 010403
2172 013136 042703 177770
2173 013142 062703 000260
2174 013146 110320
2175 013150 006204
2176 013152 006204
2177 013154 006204
2178 013156 005305
2179 013160 001365
2180 013162 012703 015020
2181 013166 114023
2182 013170 105367 000042
2183 013174 001374
2184 013176 105767 000035
2185 013202 001405
2186 013204 112723 000240
2187 013210 105367 000023
2188 013214 001373
2189 013216 105013
2190 013220 104401
2191 013222 015020
2192 013224 005367 000004
2193 013230 001325
2194 013232 000002
2195 013234 000000
2196 013236 000000
2197 013237
2198 013240 000000

```

;CONVERT OCTAL NUMBER TO ASCII AND OUTPUT TO TELEPRINTER

```

OCTASN: TYPE
MCRLF
MOV @ (SP), R1
ADD #2, (SP)
MOV (R1)+, WRDCNT
1$: MOVB (R1)+, CHRCNT
MOVB (R1)+, SPACNT
MOV @ (R1)+, BINWRD
2$: MOV BINWRD, R4
MOVB CHRCNT, R5
MOV #TEMP, R0
3$: MOV R4, R3
BIC #177770, R3
ADD #260, R3
MOVB R3, (R0)+
ASR R4
ASR R4
ASR R4
DEC R5
BNE 3$
MOV #MDATA, R3
4$: MOVB -(R0), (R3)+
DECB CHRCNT
BNE 4$
TSTB SPACNT
BEQ 6$
5$: MOVB #240, (R3)+
DECB SPACNT
BNE 5$
6$: CLRB (R3)
TYPE
MDATA
DEC WRDCNT
BNE 1$
RTI
WRDCNT: 0
CHRCNT: 0
SPACNT=CHRCNT+1
BINWRD: 0

```

```

2199
2200 ;CLEAR ALL BYTE COUNT AND BUS ADDRESS REGISTERS
2201
2202 013242 012700 000020 CLRALL: MOV #20,R0 ;SET UP TO CLEAR 16
2203 013246 005077 000136 1$: CLR @DHBA ;CLEAR BUS ADDRESS
2204 013252 005077 000134 CLR @DHBC ;CLEAR BYTE COUNT
2205 013256 005277 000120 INC @DHSCR ;ADVANCE LINE NUMBER
2206 013262 005300 DEC R0 ;CONTINUE IF NOT DONE
2207 013264 001370 BNE 1$
2208 013266 000207 RTS ;RETURN TO CALLING ROUTINE
2209
2210 ;SET BYTE COUNT FOR ALL LINES TO 400
2211 ;SET BUS ADDRESS FOR ALL LINES TO TBUF
2212 ;CLEAR EXPECTED CHARACTER BUFFERS
2213 ;SET LINE ACTIVE BITS FOR ALL LINES
2214
2215 013270 012700 000020 SETALL: MOV #20,R0 ;SET UP TO LOAD 16
2216 ;BYTE COUNT AND BUS ADDRESS
2217 ;MEMORY LOCATIONS
2218 013274 005001 CLR R1 ;SET UP TO GENERATE EXPECTED
2219 ;RECEIVED CHARACTER BUFFER
2220 013276 012702 000200 MOV #200,R2 ;WILL BE HIGH BYTE
2221 ;OF EXPECTED RECEIVED CHARACTER
2222 013302 012703 000001 MOV #1,R3 ;OFFSET FOR HIGH BYTE
2223 013306 012777 013510 000074 1$: MOV #TBUF,@DHBA ;LOAD BUS ADDRESS
2224 013314 012777 177400 000070 MOV #-400,@DHBC ;LOAD BYTE COUNT
2225 013322 012777 031403 000056 MOV #31403,@DHLPR ;SET LINE SPEED TO 4800 BAUD
2226 013330 105061 014110 CLRB RBUF(R1)
2227 ;RECEIVED CHARACTER
2228 013334 110263 014110 MOVB R2,RBUF(R3) ;LOAD HIGH BYTE
2229 013340 005277 000036 INC @DHSCR ;ADVANCE LINE NUMBER TO NEXT LINE
2230 013344 005202 INC R2 ;UPDATE POINTERS
2231 013346 062701 000002 ADD #2,R1
2232 013352 062703 000002 ADD #2,R3
2233 013356 005300 DEC R0 ;CONTINUE IF NOT DONE
2234 013360 001352 BNE 1$
2235 013362 012767 177777 000114 MOV #-1,LINACT ;SET ACTIVE FLAGS FOR ALL LINES
2236 013370 000207 RTS ;RETURN TO CALLING ROUTINE

```

2237 ;INDIRECT POINTERS

2238				
2239	013372	177560	TKCSR:	177560
2240	013374	177562	TKDBR:	177562
2241	013376	177564	TPCSR:	177564
2242	013400	177566	TPDBR:	177566
2243	013402	000000	DHSCR:	0
2244	013404	000000	DHNRC:	0
2245	013406	000000	DHLPR:	0
2246	013410	000000	DHBA:	0
2247	013412	000000	DHBC:	0
2248	013414	000000	DHBAR:	0
2249	013416	000000	DHBCR:	0
2250	013420	000000	DHSSR:	0
2251	013422	000000	DHSLR:	0
2252	013424	000000	DHRVEC:	0
2253	013426	000000	DHRLVL:	0
2254	013430	000000	DHTVEC:	0
2255	013432	000000	DHTLVL:	0

;PROGRAM VARIABLES

2256				
2257				
2258	013434	000000	ERRFLG:	0 ;ERROR FLAG
2259	013436	000000	PASCNT:	0 ;PASS COUNT
2260	013440	000000	ERRCNT:	0 ;ERROR COUNT
2261	013442	000000	RETURN:	0 ;SCOPE RETURN ADDRESS FOR TEST LOOPING
2262	013444	000000	ESCAPE:	0 ;ADDRESS FOR ERROR ESCAPE
2263	013446	000000	FREEZ1:	0 ;DATA LOOPING RETURN ADDRESS
2264	013450	000000	ICOUNT:	0 ;ITERATION COUNT FOR TEST IN PROGRESS
2265	013452	000000	LPCNT:	0 ;NUMBER OF ITERATIONS THIS TEST
2266	013454	000000	SAVR0:	0 ;R0 SAVE AREA
2267	013456	000000	SAVR1:	0 ;R1 SAVE AREA
2268	013460	000000	SAVR2:	0 ;R2 SAVE AREA
2269	013462	000000	SAVR3:	0 ;R3 SAVE ARE
2270	013464	000000	SAVR4:	0 ;R4 SAVE AREA
2271	013466	000000	SAVR5:	0 ;R5 SAVE AREA
2272	013470	000000	SAVSP:	0 ;STACK POINTER SAVE AREA
2273	013472	000000	SAVPC:	0 ;CALLING ROUTINE SAVE AREA
2274	013474	000000	INIFLG:	0 ;PROGRAM INITIALIZATION FLAG
2275	013476	000000	STFLG:	0 ;PROGRAM START FLAG
2276	013500	000000	LAST:	0 ;LAST ERROR PC
2277	013502	000000	ENDFLG:	0
2278	013504	000000	LINACT:	0
2279	013506	000000	AREACT:	0

DZDHH MACY11 27(732) 29-SEP-76 15:23 PAGE 189  
DZDHHB.P11

2280	013510	000	TBUF:	.BYTE	0
2281	013511	001	.BYTE	TDAT	
2282	013512	002	.BYTE	TDAT	
2283	013513	003	.BYTE	TDAT	
2284	013514	004	.BYTE	TDAT	
2285	013515	005	.BYTE	TDAT	
2286	013516	006	.BYTE	TDAT	
2287	013517	007	.BYTE	TDAT	
2288	013520	010	.BYTE	TDAT	
2289	013521	011	.BYTE	TDAT	
2290	013522	012	.BYTE	TDAT	
2291	013523	013	.BYTE	TDAT	
2292	013524	014	.BYTE	TDAT	
2293	013525	015	.BYTE	TDAT	
2294	013526	016	.BYTE	TDAT	
2295	013527	017	.BYTE	TDAT	
2296	013530	020	.BYTE	TDAT	
2297	013531	021	.BYTE	TDAT	
2298	013532	022	.BYTE	TDAT	
2299	013533	023	.BYTE	TDAT	
2300	013534	024	.BYTE	TDAT	
2301	013535	025	.BYTE	TDAT	
2302	013536	026	.BYTE	TDAT	
2303	013537	027	.BYTE	TDAT	
2304	013540	030	.BYTE	TDAT	
2305	013541	031	.BYTE	TDAT	
2306	013542	032	.BYTE	TDAT	
2307	013543	033	.BYTE	TDAT	
2308	013544	034	.BYTE	TDAT	
2309	013545	035	.BYTE	TDAT	
2310	013546	036	.BYTE	TDAT	
2311	013547	037	.BYTE	TDAT	
2312	013550	040	.BYTE	TDAT	
2313	013551	041	.BYTE	TDAT	
2314	013552	042	.BYTE	TDAT	
2315	013553	043	.BYTE	TDAT	
2316	013554	044	.BYTE	TDAT	
2317	013555	045	.BYTE	TDAT	
2318	013556	046	.BYTE	TDAT	
2319	013557	047	.BYTE	TDAT	
2320	013560	050	.BYTE	TDAT	
2321	013561	051	.BYTE	TDAT	
2322	013562	052	.BYTE	TDAT	
2323	013563	053	.BYTE	TDAT	
2324	013564	054	.BYTE	TDAT	
2325	013565	055	.BYTE	TDAT	
2326	013566	056	.BYTE	TDAT	
2327	013567	057	.BYTE	TDAT	
2328	013570	060	.BYTE	TDAT	
2329	013571	061	.BYTE	TDAT	
2330	013572	062	.BYTE	TDAT	
2331	013573	063	.BYTE	TDAT	
2332	013574	064	.BYTE	TDAT	
2333	013575	065	.BYTE	TDAT	
2334	013576	066	.BYTE	TDAT	
2335	013577	067	.BYTE	TDAT	



2336	013600	070	.BYTE	TDAT
2337	013601	071	.BYTE	TDAT
2338	013602	072	.BYTE	TDAT
2339	013603	073	.BYTE	TDAT
2340	013604	074	.BYTE	TDAT
2341	013605	075	.BYTE	TDAT
2342	013606	076	.BYTE	TDAT
2343	013607	077	.BYTE	TDAT
2344	013610	100	.BYTE	TDAT
2345	013611	101	.BYTE	TDAT
2346	013612	102	.BYTE	TDAT
2347	013613	103	.BYTE	TDAT
2348	013614	104	.BYTE	TDAT
2349	013615	105	.BYTE	TDAT
2350	013616	106	.BYTE	TDAT
2351	013617	107	.BYTE	TDAT
2352	013620	110	.BYTE	TDAT
2353	013621	111	.BYTE	TDAT
2354	013622	112	.BYTE	TDAT
2355	013623	113	.BYTE	TDAT
2356	013624	114	.BYTE	TDAT
2357	013625	115	.BYTE	TDAT
2358	013626	116	.BYTE	TDAT
2359	013627	117	.BYTE	TDAT
2360	013630	120	.BYTE	TDAT
2361	013631	121	.BYTE	TDAT
2362	013632	122	.BYTE	TDAT
2363	013633	123	.BYTE	TDAT
2364	013634	124	.BYTE	TDAT
2365	013635	125	.BYTE	TDAT
2366	013636	126	.BYTE	TDAT
2367	013637	127	.BYTE	TDAT
2368	013640	130	.BYTE	TDAT
2369	013641	131	.BYTE	TDAT
2370	013642	132	.BYTE	TDAT
2371	013643	133	.BYTE	TDAT
2372	013644	134	.BYTE	TDAT
2373	013645	135	.BYTE	TDAT
2374	013646	136	.BYTE	TDAT
2375	013647	137	.BYTE	TDAT
2376	013650	140	.BYTE	TDAT
2377	013651	141	.BYTE	TDAT
2378	013652	142	.BYTE	TDAT
2379	013653	143	.BYTE	TDAT
2380	013654	144	.BYTE	TDAT
2381	013655	145	.BYTE	TDAT
2382	013656	146	.BYTE	TDAT
2383	013657	147	.BYTE	TDAT
2384	013660	150	.BYTE	TDAT
2385	013661	151	.BYTE	TDAT
2386	013662	152	.BYTE	TDAT
2387	013663	153	.BYTE	TDAT
2388	013664	154	.BYTE	TDAT
2389	013665	155	.BYTE	TDAT
2390	013666	156	.BYTE	TDAT
2391	013667	157	.BYTE	TDAT

2392	013670	160	.BYTE	TDAT
2393	013671	161	.BYTE	TDAT
2394	013672	162	.BYTE	TDAT
2395	013673	163	.BYTE	TDAT
2396	013674	164	.BYTE	TDAT
2397	013675	165	.BYTE	TDAT
2398	013676	166	.BYTE	TDAT
2399	013677	167	.BYTE	TDAT
2400	013700	170	.BYTE	TDAT
2401	013701	171	.BYTE	TDAT
2402	013702	172	.BYTE	TDAT
2403	013703	173	.BYTE	TDAT
2404	013704	174	.BYTE	TDAT
2405	013705	175	.BYTE	TDAT
2406	013706	176	.BYTE	TDAT
2407	013707	177	.BYTE	TDAT
2408	013710	200	.BYTE	TDAT
2409	013711	201	.BYTE	TDAT
2410	013712	202	.BYTE	TDAT
2411	013713	203	.BYTE	TDAT
2412	013714	204	.BYTE	TDAT
2413	013715	205	.BYTE	TDAT
2414	013716	206	.BYTE	TDAT
2415	013717	207	.BYTE	TDAT
2416	013720	210	.BYTE	TDAT
2417	013721	211	.BYTE	TDAT
2418	013722	212	.BYTE	TDAT
2419	013723	213	.BYTE	TDAT
2420	013724	214	.BYTE	TDAT
2421	013725	215	.BYTE	TDAT
2422	013726	216	.BYTE	TDAT
2423	013727	217	.BYTE	TDAT
2424	013730	220	.BYTE	TDAT
2425	013731	221	.BYTE	TDAT
2426	013732	222	.BYTE	TDAT
2427	013733	223	.BYTE	TDAT
2428	013734	224	.BYTE	TDAT
2429	013735	225	.BYTE	TDAT
2430	013736	226	.BYTE	TDAT
2431	013737	227	.BYTE	TDAT
2432	013740	230	.BYTE	TDAT
2433	013741	231	.BYTE	TDAT
2434	013742	232	.BYTE	TDAT
2435	013743	233	.BYTE	TDAT
2436	013744	234	.BYTE	TDAT
2437	013745	235	.BYTE	TDAT
2438	013746	236	.BYTE	TDAT
2439	013747	237	.BYTE	TDAT
2440	013750	240	.BYTE	TDAT
2441	013751	241	.BYTE	TDAT
2442	013752	242	.BYTE	TDAT
2443	013753	243	.BYTE	TDAT
2444	013754	244	.BYTE	TDAT
2445	013755	245	.BYTE	TDAT
2446	013756	246	.BYTE	TDAT
2447	013757	247	.BYTE	TDAT

2448	013760	250	.BYTE	TUAT
2449	013761	251	.BYTE	TDAT
2450	013762	252	.BYTE	TDAT
2451	013763	253	.BYTE	TDAT
2452	013764	254	.BYTE	TDAT
2453	013765	255	.BYTE	TDAT
2454	013766	256	.BYTE	TDAT
2455	013767	257	.BYTE	TDAT
2456	013770	260	.BYTE	TDAT
2457	013771	261	.BYTE	TDAT
2458	013772	262	.BYTE	TDAT
2459	013773	263	.BYTE	TDAT
2460	013774	264	.BYTE	TDAT
2461	013775	265	.BYTE	TDAT
2462	013776	266	.BYTE	TDAT
2463	013777	267	.BYTE	TDAT
2464	014000	270	.BYTE	TDAT
2465	014001	271	.BYTE	TDAT
2466	014002	272	.BYTE	TDAT
2467	014003	273	.BYTE	TDAT
2468	014004	274	.BYTE	TDAT
2469	014005	275	.BYTE	TDAT
2470	014006	276	.BYTE	TDAT
2471	014007	277	.BYTE	TDAT
2472	014010	300	.BYTE	TDAT
2473	014011	301	.BYTE	TDAT
2474	014012	302	.BYTE	TDAT
2475	014013	303	.BYTE	TDAT
2476	014014	304	.BYTE	TDAT
2477	014015	305	.BYTE	TDAT
2478	014016	306	.BYTE	TDAT
2479	014017	307	.BYTE	TDAT
2480	014020	310	.BYTE	TDAT
2481	014021	311	.BYTE	TDAT
2482	014022	312	.BYTE	TDAT
2483	014023	313	.BYTE	TDAT
2484	014024	314	.BYTE	TDAT
2485	014025	315	.BYTE	TDAT
2486	014026	316	.BYTE	TDAT
2487	014027	317	.BYTE	TDAT
2488	014030	320	.BYTE	TDAT
2489	014031	321	.BYTE	TDAT
2490	014032	322	.BYTE	TDAT
2491	014033	323	.BYTE	TDAT
2492	014034	324	.BYTE	TDAT
2493	014035	325	.BYTE	TDAT
2494	014036	326	.BYTE	TDAT
2495	014037	327	.BYTE	TDAT
2496	014040	330	.BYTE	TDAT
2497	014041	331	.BYTE	TDAT
2498	014042	332	.BYTE	TDAT
2499	014043	333	.BYTE	TDAT
2500	014044	334	.BYTE	TDAT
2501	014045	335	.BYTE	TDAT
2502	014046	336	.BYTE	TDAT
2503	014047	337	.BYTE	TDAT

2504	014050	340	.BYTE	TDAT
2505	014051	341	.BYTE	TDAT
2506	014052	342	.BYTE	TDAT
2507	014053	343	.BYTE	TDAT
2508	014054	344	.BYTE	TDAT
2509	014055	345	.BYTE	TDAT
2510	014056	346	.BYTE	TDAT
2511	014057	347	.BYTE	TDAT
2512	014060	350	.BYTE	TDAT
2513	014061	351	.BYTE	TDAT
2514	014062	352	.BYTE	TDAT
2515	014063	353	.BYTE	TDAT
2516	014064	354	.BYTE	TDAT
2517	014065	355	.BYTE	TDAT
2518	014066	356	.BYTE	TDAT
2519	014067	357	.BYTE	TDAT
2520	014070	360	.BYTE	TDAT
2521	014071	361	.BYTE	TDAT
2522	014072	362	.BYTE	TDAT
2523	014073	363	.BYTE	TDAT
2524	014074	364	.BYTE	TDAT
2525	014075	365	.BYTE	TDAT
2526	014076	366	.BYTE	TDAT
2527	014077	367	.BYTE	TDAT
2528	014100	370	.BYTE	TDAT
2529	014101	371	.BYTE	TDAT
2530	014102	372	.BYTE	TDAT
2531	014103	373	.BYTE	TDAT
2532	014104	374	.BYTE	TDAT
2533	014105	375	.BYTE	TDAT
2534	014106	376	.BYTE	TDAT
2535	014107	377	.BYTE	TDAT
2536			.EVEN	
2537	014110	000000	RBUF:	0
2538		014152	. = .+40	

2539 014152 100377  
 2540 014154 100777  
 2541 014156 101377  
 2542 014160 101777  
 2543 014162 102377  
 2544 014164 102777  
 2545 014166 103377  
 2546 014170 103777  
 2547 014172 104377  
 2548 014174 104777  
 2549 014176 105377  
 2550 014200 105777  
 2551 014202 106377  
 2552 014204 106777  
 2553 014206 107377  
 2554 014210 107777  
 2555 014212 000000  
 2556 014214 000000  
 2557 014216 000000  
 2558 014220 000000  
 2559 014222 000000  
 2560 014224 000000  
 2561 014226 000000  
 2562 014230 000000  
 2563 014232 000000  
 2564 014234 000000  
 2565 014236 000000  
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 2567 014242 000000  
 2568 014244 000000  
 2569 014246 000000  
 2570 014250 000000  
 2571 014252 000000  
 2572 014254 000000  
 2573 014256 000000  
 2574 014260 000000  
 2575 014262 000000  
 2576 014264 000000  
 2577 014266 000000  
 2578 014270 000000  
 2579 014272 000000  
 2580 014274 000000  
 2581 014276 000000  
 2582 014300 000000  
 2583 014302 000000  
 2584 014304 000000  
 2585 014306 000000  
 2586 014310 000000  
 2587 014312 000001  
 2588 014314 000002  
 2589 014316 000004  
 2590 014320 000010  
 2591 014322 000020  
 2592 014324 000040  
 2593 014326 000100  
 2594 014330 000200

TWRD0: 100377  
 TWRD1: 100777  
 TWRD2: 101377  
 TWRD3: 101777  
 TWRD4: 102377  
 TWRD5: 102777  
 TWRD6: 103377  
 TWRD7: 103777  
 TWRD10: 104377  
 TWRD11: 104777  
 TWRD12: 105377  
 TWRD13: 105777  
 TWRD14: 106377  
 TWRD15: 106777  
 TWRD16: 107377  
 TWRD17: 107777  
 RCNT0: 0  
 RCNT1: 0  
 RCNT2: 0  
 RCNT3: 0  
 RCNT4: 0  
 RCNT5: 0  
 RCNT6: 0  
 RCNT7: 0  
 RCNT10: 0  
 RCNT11: 0  
 RCNT12: 0  
 RCNT13: 0  
 RCNT14: 0  
 RCNT15: 0  
 RCNT16: 0  
 RCNT17: 0  
 RDCT0: 0  
 RDCT1: 0  
 RDCT2: 0  
 RDCT3: 0  
 RDCT4: 0  
 RDCT5: 0  
 RDCT6: 0  
 RDCT7: 0  
 RDCT10: 0  
 RDCT11: 0  
 RDCT12: 0  
 RDCT13: 0  
 RDCT14: 0  
 RDCT15: 0  
 RDCT16: 0  
 RDCT17: 0  
 LINBIT: 1  
 2  
 4  
 10  
 20  
 40  
 100  
 200



```

2603                                     ;ENTER HERE ON POWER FAILURE
2604
2605
2606 014352 010046          PFAIL:  MOV    R0,-(SP)          ;SAVE R0-R5 ON PROCESSOR STACK
2607 014354 010146          MOV    R1,-(SP)
2608 014356 010246          MOV    R2,-(SP)
2609 014360 010346          MOV    R3,-(SP)
2610 014362 010446          MOV    R4,-(SP)
2611 014364 010546          MOV    R5,-(SP)
2612 014366 016746 163432  MOV    24,-(SP)
2613 014372 010667 177072  MOV    SP,SAVSP          ;SAVE STACK POINTER
2614 014376 012767 014410 163420 MOV    #RESTART,24      ;SET UP FOR POWER UP TRAP
2615 014404 000000          HALT                                ;HALT ON POWER DOWN NORMAL
2616 014406 000777          BR
2617
2618                                     ;PROCESSOR WILL TRAP HERE WHEN POWER IS RESTORED
2619
2620 014410 016706 177054  RESTAR: MOV    SAVSP,SP          ;RESTORE STACK POINTER
2621 014414 012605          MOV    (SP)+,R5          ;RESTORE R0-R5
2622 014416 012604          MOV    (SP)+,R4
2623 014420 012603          MOV    (SP)+,R3
2624 014422 012602          MOV    (SP)+,R2
2625 014424 012601          MOV    (SP)+,R1
2626 014426 012600          MOV    (SP)+,R0
2627 014430 012767 014352 163366  MOV    #PFAIL,24          ;SET UP FOR POWER FAILURE
2628 014436 012767 000340 163332  MOV    #340,PS
2629 014444 012706 015460          MOV    #STACK,SP
2630 014450 005067 000332          CLR    TEMP
2631 014454 005267 000326          INC    TEMP
2632 014460 001375          BNE    .-4
2633 014462 104402          OCTASC
2634 014464 014506          PFTAB
2635 014466 104401          TYPE
2636 014470 014635          MPFAIL
2637 014472 005067 176736          CLR    ERRFLG
2638 014476 005067 176776          CLR    LAST
2639 014502 000177 176734          JMP    @RETURN
2640 014506 000001          PFTAB: 1
2641 014510 000006 000002          6,2
2642 014514 000207          RETURN
  
```

2643	014516	005015	042012	030510	MTITLE: .ASCIZ <15><12><12>/DH11 AUTO ECHO TEST /<15><12>
2644	014524	020061	052501	047524	
2645	014532	042440	044103	020117	
2646	014540	042524	052123	006440	
2647	014546	000012			
2648	014550	005015	042526	052103	MVECTOR: .ASCIZ <15><12>/VECTOR ADDRESS-/
2649	014556	051117	040440	042104	
2650	014564	042522	051523	000055	
2651	014572	005015	047503	052116	MREGAD: .ASCIZ <15><12>/CONTROL REGISTER ADDRESS-/
2652	014600	047522	020114	042522	
2653	014606	044507	052123	051105	
2654	014614	040440	042104	042522	
2655	014622	051523	000055		
2656	014626	020040	000077		
2657	014632	005015	000		
2658	014635	040	050040	053517	
2659	014642	051105	043040	044501	
2660	014650	052514	042522	020054	
2661	014656	051120	043517	040522	
2662	014664	020115	042522	052123	
2663	014672	051101	020124	052101	
2664	014700	052040	051505	020124	
2665	014706	047111	050040	047522	
2666	014714	051107	051505	000123	
2667	014722	005015	055104	044104	MEPASS: .ASCIZ <15><12>/DZDHH/
2668	014730	000110			
2669	014732	005015	000122		MR: .ASCIZ <15><12>/R/
2670	014736	005015	042524	052123	MTSTPC: .ASCIZ <15><12>/TEST PC-/
2671	014744	050040	026503	000	
2672		014752			.EVEN
2673					
2674					;TABLE OF POINTERS FOR TRAP DECODING
2675					
2676	014752	012100			TRPTAB: SCOPER
2677	014754	012544			TYPER
2678	014756	013064			OCTASN
2679	014760	012576			INSTRG
2680	014762	012670			INSTRE
2681	014764	012700			PARAMS
2682	014766	012452			SVOSP
2683	014770	012512			RSOS
2684	014772	012200			SCOP1R
2685					
2686					;BUFFERS FOR INPUT-OUTPUT
2687					
2688	014774	000000			INBUF: 0
2689		015006			.=.+10
2690	015006	000000			TEMP: 0
2691		015020			.=.+10
2692	015020	000000			MDATA: 0
2693		015032			.=.+10
2694					
2695					;TABLE OF POINTERS TO ERROR MESSAGES AND DATA
2696					
2697	015032				ERRTAB:
2698	015032	015046			EM1











RCNT13	014240	2566#												
RCNT14	014242	2567#												
RCNT15	014244	2568#												
RCNT16	014246	2569#												
RCNT17	014250	2570#												
RCNT2	014216	2557#												
RCNT3	014220	2558#												
RCNT4	014222	2559#												
RCNT5	014224	2560#												
RCNT6	014226	2561#												
RCNT7	014230	2562#												
RDCT0	014252	1901	1927*	2571#										
RDCT1	014254	2572#												
RDCT10	014272	2579#												
RDCT11	014274	2580#												
RDCT12	014276	2581#												
RDCT13	014300	2582#												
RDCT14	014302	2583#												
RDCT15	014304	2584#												
RDCT16	014306	2585#												
RDCT17	014310	2586#												
RDCT2	014256	2573#												
RDCT3	014260	2574#												
RDCT4	014262	2575#												
RDCT5	014264	2576#												
RDCT6	014266	2577#												
RDCT7	014270	2578#												
RESREG	012346	2016	2019#											
RESTAR	014410	2614	2620#											
RESTRT	012074	1951	1957#											
RESOS =	104407	370#	2019											
RETURN	013442	443#	448	1973*	1975	2261#	2639							
RSOS	012512	2063#	2683											
RD	=%000000	43#	467*	483*	506*	522*	545*	561*	584*	600*	623*	639*	662*	678*
		701*	717*	740*	756*	779*	795*	818*	834*	857*	873*	896*	912*	935*
		951*	974*	990*	1013*	1029*	1052*	1068*	1094*	1119*	1145*	1170*	1196*	1221*
		1247*	1272*	1298*	1323*	1349*	1374*	1400*	1425*	1451*	1476*	1502*	1527*	1553*
		1578*	1604*	1629*	1655*	1680*	1706*	1731*	1757*	1782*	1808*	1833*	1859*	1884*
		1898*	1908*	2023*	2059	2063*	2170*	2174*	2181	2202*	2206*	2215*	2233*	2606
		2626*												
R1	=%000001	44#	396*	399*	401*	403	468*	475*	507*	514*	546*	553*	585*	592*
		624*	631*	663*	670*	702*	709*	741*	748*	780*	787*	819*	826*	858*
		865*	897*	904*	936*	943*	975*	982*	1014*	1021*	1053*	1060*	1899*	1902
		1907*	1950*	1953	2058	2064*	2162*	2164	2165	2166	2167	2218*	2226*	2231*
		2607	2625*											
R2	=%000002	45#	397*	399	400*	402*	1100*	1101*	1104	1106	1109*	1111	1151*	1152*
		1155	1157	1160*	1162	1202*	1203*	1206	1208	1211*	1213	1253*	1254*	1257
		1259	1262*	1264	1304*	1305*	1308	1310	1313*	1315	1355*	1356*	1359	1361
		1364*	1366	1406*	1407*	1410	1412	1415*	1417	1457*	1458*	1461	1463	1466*
		1468	1508*	1509*	1512	1514	1517*	1519	1559*	1560*	1563	1565	1568*	1570
		1610*	1611*	1614	1616	1619*	1621	1661*	1662*	1665	1667	1670*	1672	1712*
		1713*	1716	1718	1721*	1723	1763*	1764*	1767	1769	1772*	1774	1814*	1815*
		1818	1820	1823*	1825	1865*	1866*	1869	1871	1874*	1876	1900*	1905*	1919*
		1920*	1921*	1922	1924	1927*	1932	2057	2065*	2220*	2228	2230*	2608	2624*
R3	=%000003	46#	398*	401	402	1097*	1098*	1099*	1100	1102	1148*	1149*	1150*	1151
		1153	1199*	1200*	1201*	1202	1204	1250*	1251*	1252*	1253	1255	1301*	1302*









# M05

DZDHH MACY11 27(732) 29-SEP-76 15:23 PAGE 207  
DZDHHB.P11 CROSS REFERENCE TABLE -- USER SYMBOLS

242	244	246	248	250	252	254	256	258	260	262	264	266
268	270	272	274	276	278	280	282	284	286	288	290	292
294	296	298	300	302	304	306	308	310	312	314	316	318
320	322	324	326	328	330	332	334	336	338	340	342	347#
354#	372#	2538#	2616	2632	2672#	2689#	2691#	2693#	2724#			







NOP	1954	1955	1956															
RESET	1952																	
RETURN	439	2642																
RTI	1974	1976	1986	2030	2060	2069	2079	2105	2151	2194								
RTS	2208	2236																
SUB	1998	2040																
SWAB	1098	1149	1200	1251	1302	1353	1404	1455	1506	1557	1608	1659	1710	1761	1812			
	1863	1917																
TRAP	363	364	365	366	367	368	369	370	371									
TST	390	423	444	1112	1163	1214	1265	1316	1367	1418	1469	1520	1571	1622	1673			
	1724	1775	1826	1877	1933	1977	2006	2008	2015	2020								
TSTB	473	512	551	590	629	668	707	746	785	824	863	902	941	980	1019			
	1058	1116	1167	1218	1269	1320	1371	1422	1473	1524	1575	1626	1677	1728	1779			
	1830	1881	1913	2075	2077	2091	2098	2184										
.ASCIZ	2643	2648	2651	2656	2657	2658	2667	2669	2670	2704	2709	2717						
.BYTE	411	412	419	420	440	441	2032	2280	2281	2282	2283	2284	2285	2286	2287			
	2288	2289	2290	2291	2292	2293	2294	2295	2296	2297	2298	2299	2300	2301	2302			
	2303	2304	2305	2306	2307	2308	2309	2310	2311	2312	2313	2314	2315	2316	2317			
	2318	2319	2320	2321	2322	2323	2324	2325	2326	2327	2328	2329	2330	2331	2332			
	2333	2334	2335	2336	2337	2338	2339	2340	2341	2342	2343	2344	2345	2346	2347			
	2348	2349	2350	2351	2352	2353	2354	2355	2356	2357	2358	2359	2360	2361	2362			
	2363	2364	2365	2366	2367	2368	2369	2370	2371	2372	2373	2374	2375	2376	2377			
	2378	2379	2380	2381	2382	2383	2384	2385	2386	2387	2388	2389	2390	2391	2392			
	2393	2394	2395	2396	2397	2398	2399	2400	2401	2402	2403	2404	2405	2406	2407			
	2408	2409	2410	2411	2412	2413	2414	2415	2416	2417	2418	2419	2420	2421	2422			
	2423	2424	2425	2426	2427	2428	2429	2430	2431	2432	2433	2434	2435	2436	2437			
	2438	2439	2440	2441	2442	2443	2444	2445	2446	2447	2448	2449	2450	2451	2452			
	2453	2454	2455	2456	2457	2458	2459	2460	2461	2462	2463	2464	2465	2466	2467			
	2468	2469	2470	2471	2472	2473	2474	2475	2476	2477	2478	2479	2480	2481	2482			
	2483	2484	2485	2486	2487	2488	2489	2490	2491	2492	2493	2494	2495	2496	2497			
	2498	2499	2500	2501	2502	2503	2504	2505	2506	2507	2508	2509	2510	2511	2512			
	2513	2514	2515	2516	2517	2518	2519	2520	2521	2522	2523	2524	2525	2526	2527			
	2528	2529	2530	2531	2532	2533	2534	2535	2726	2728	2731	2733	2735					
.ENABL	20																	
.END	2738																	
.ENDC	393	394	421	423	461	500	539	578	617	656	695	734	773	812	851			
	890	929	968	1007	1046	1084	1135	1186	1237	1288	1339	1390	1441	1492	1543			
	1594	1645	1696	1747	1798	1849	1897											
.EQUIV	67																	
.EVEN	2536	2672	2724															
.IF	391	393	421	461	500	539	578	617	656	695	734	773	812	851	890			
	929	968	1007	1046	1084	1135	1186	1237	1288	1339	1390	1441	1492	1543	1594			
	1645	1696	1747	1798	1849	1897												
.IFF	393	394																
.IIF	380																	
.IRP	2243	2277																
.LIST	1	20	364	365	366	367	368	369	370	371	372	450	461	489	500			
	528	539	567	578	606	617	645	656	684	695	723	734	762	773	801			
	812	840	851	879	890	918	929	957	968	996	1007	1035	1046	1074	1084			
	1125	1135	1176	1186	1227	1237	1278	1288	1329	1339	1380	1390	1431	1441	1482			
	1492	1533	1543	1584	1594	1635	1645	1686	1696	1737	1747	1788	1798	1839	1849			
	1890	1897	2280	2282	2283	2284	2285	2286	2287	2288	2289	2290	2291	2292	2293			
	2294	2295	2296	2297	2298	2299	2300	2301	2302	2303	2304	2305	2306	2307	2308			
	2309	2310	2311	2312	2313	2314	2315	2316	2317	2318	2319	2320	2321	2322	2323			
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	2339	2340	2341	2342	2343	2344	2345	2346	2347	2348	2349	2350	2351	2352	2353			

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	2384	2385	2386	2387	2388	2389	2390	2391	2392	2393	2394	2395	2396	2397	2398
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	2429	2430	2431	2432	2433	2434	2435	2436	2437	2438	2439	2440	2441	2442	2443
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	2459	2460	2461	2462	2463	2464	2465	2466	2467	2468	2469	2470	2471	2472	2473
	2474	2475	2476	2477	2478	2479	2480	2481	2482	2483	2484	2485	2486	2487	2488
	2489	2490	2491	2492	2493	2494	2495	2496	2497	2498	2499	2500	2501	2502	2503
	2504	2505	2506	2507	2508	2509	2510	2511	2512	2513	2514	2515	2516	2517	2518
	2519	2520	2521	2522	2523	2524	2525	2526	2527	2528	2529	2530	2531	2532	2533
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	2551	2552	2553	2554	2555	2556	2557	2558	2559	2560	2561	2562	2563	2564	2565
	2566	2567	2568	2569	2570	2571	2572	2573	2574	2575	2576	2577	2578	2579	2580
	2581	2582	2583	2584	2585	2586	2587								
.MACRO	1	372	449	450	2539										
.NLIST	1	20	364	365	366	367	368	369	370	371	372	450	461	489	500
	528	539	567	578	606	617	645	656	684	695	723	734	762	773	801
	812	840	851	879	890	918	929	957	968	996	1007	1035	1046	1074	1084
	1125	1135	1176	1186	1227	1237	1278	1288	1329	1339	1380	1390	1431	1441	1482
	1492	1533	1543	1584	1594	1635	1645	1686	1696	1737	1747	1788	1798	1839	1849
	1890	1897	2280	2282	2283	2284	2285	2286	2287	2288	2289	2290	2291	2292	2293
	2294	2295	2296	2297	2298	2299	2300	2301	2302	2303	2304	2305	2306	2307	2308
	2309	2310	2311	2312	2313	2314	2315	2316	2317	2318	2319	2320	2321	2322	2323
	2324	2325	2326	2327	2328	2329	2330	2331	2332	2333	2334	2335	2336	2337	2338
	2339	2340	2341	2342	2343	2344	2345	2346	2347	2348	2349	2350	2351	2352	2353
	2354	2355	2356	2357	2358	2359	2360	2361	2362	2363	2364	2365	2366	2367	2368
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ERRORS DETECTED: 0  
DEFAULT GLOBALS GENERATED: 0

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RUN-TIME RATIO: 139/47=2.9

F06

DZDHH MACY11 27(732) 28-SEP-76 15:23 PAGE 215  
DZDHHB.P11 CROSS REFERENCE TABLE -- PERMANENT SYMBOLS

CORE USED: 11K (21 PAGES)