

DN11

DIGITAL DIALER
MD-11-DZDNA-A

EP-DZDNA-A-DL-A

OCT 1976

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digital

FICHE 1 OF 1

Made In U.S.A.

IDENTIFICATION

PRODUCT CODE: MAINDEC-11-DZDNA-A-D
PRODUCT NAME: DN11 DIALEX
DATE : 21 MAY 76
MAINTAINER: DIAGNOSTIC GROUP

NOTE: THIS PROGRAM OBSOLETE MD-11-D9J

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1. ABSTRACT

THE DN11 DIAGNOSTIC CONSISTS OF TWO PARTS. THE FIRST IS A SERIES OF INCREMENTAL TESTS WHICH STATICLY CHECK OUT THE DN11 USING THE MAINTENANCE MODE. THE SECOND PART IS THE ON LINE EXERCISER WHICH ALLOWS THE USER TO DIAL ANY GIVEN PHONE IN HIS DIALING RANGE. UPON THE COMPLETION OF THE CALL THE PROGRAM WILL TERMINATE THE CALL AND TRY AGAIN.

2. REQUIREMENTS

2.1 EQUIPMENT

PDP-11 (MIN.4K)-WITH OR WITHOUT A HARDWARE SWITCH REGISTER TELETYPE.
DN11 (MAX.OF4 USED AT ONE ANY TIME)

2.2 STORAGE

DIALEX OCCUPIES THE FIRST 4K OF CORE.

3. LOADING PROCEDURE

3.1 METHOD OF LOADING DIALEX TAPE

PROGRAM FORMAT ABSOLUTE

- A. VERIFY THE BOOT LOADER IS IN MEMORY
- B. SET SWITCH REGISTER EQUAL TO *500

MEMORY	SIZE *
4K	17
8K	27
12K	37
16K	47
20K	57
24K	67
28K	77
32K	87
36K	97
40K	107
44K	117
48K	127
52K	137
56K	147
60K	157

- C. DEPRESS LOAD ADDRESS
- D. DEPRESS START

4. STARTING PROCEDURE

- A. LOAD ADDRESS 200.
- B. SET SWITCH REGISTER CORRESPONDING TO SEC 5.2
-SEE D. FOR SOFTWARE SWITCH REGISTER LOADING-
- C. DEPRESS START.
- D. IF THE SOFTWARE SWITCH REGISTER IS SELECTED THEN THE FOLLOWING
WILL BE TYPED:
SWR=XXXXXX NEW= (REFER TO SECTION 5.2 FOR OPTIONS)

4.1 SCOPE LOOP STARTING PROCEDURE

- A. LOAD ADDRESS 204.
- B. SET THE SWITCH REGISTER EQUAL TO THE ADDRESS
OF THE DN11.
***WHEN SOFTWARE SWITCH REGISTER IS SELECTED THE
OPERATOR WILL BE ABLE TO LOAD THE DN11 ADDRESS AFTER DEPRESSING START.
- C. DEPRESS START.
- D. SET SWITCH TO CORRESPOND TO SEC. 5.3
- E. DEPRESS CONTINUE.
***IF THE SOFTWARE SWITCH REGISTER IS USED DEPRESS CONTINUE,
THE MACHINE WILL THEN ASK FOR SOFTWARE SWITCH REGISTER CHANGE
BY TYPING THE FOLLOWING: SWR=XXXXXX NEW= (REFER TO SECTION
5.2 FOR OPERATOR OPTIONS)***

4.2 RESTARTING AT LOC. 200

RESTARTING AT LOC. 200 WILL AUTOMATICALLY USE THE ADDRESS
AND VECTOR ENTERED AT THE INITIAL START-UP.
IF IT IS DESIRED, TO ENTER A NEW ADDRESS UPON RESTART,
CLEAR LOCATION 1062 AND START AT LOC. 200.

5. OPERATING PROCEDURE

AT THE INITIAL START OF THE PROGRAM THE OPERATOR WILL BE ASKED FOR THE ADDRESS OF THE FIRST DN11, AND ITS VECTOR ASSIGNMENT.

****IF SOFTWARE SWITCH REGISTER IS SELECTED THEN THE FOLLOWING WILL BE TYPED FIRST:
SWR=XXXXXX NEW= (REFER TO SECTION 5.2 FOR OPTIONS)

DN11 REGISTER ADDRESS?XXXXXX

VECTOR ASSIGNMENT?XXX

5.1 DIALING PROCEDURES

THE OPERATOR WILL BE ASKED FOR A PHONE NUMBER FOR EACH DN11, IN THE FOLLOWING MANNER:
WHEN THE MAXIMUM NUMBER OF DN11'S IS REACHED FOR THE SYSTEM THE OPERATOR MUST DEPRESS THE CARRIAGE-RETURN KEY WITHOUT DEPRESSING ANY OTHER CHARACTER.

PHONE #1? XXXXX

PHONE #2? XXXXXX

PHONE #3? XXXXXX

PHONE #4? XXXXXX

NOTE: DO NOT TYPE <↑G> DURING THE INPUTING OF PHONE NUMBERS OR ERRGR WILL OCCUR.

IF THE DIAGNOSTIC IS RUN ON A CPU WITHOUT A SWITCH REGISTER THEN A SOFTWARE SWITCH REGISTER IS USED WHICH ALLOWS THE USER THE SAME SWITCH OPTIONS AS THE HARDWARE SWITCH REGISTER. IF THE HARDWARE SWITCH REGISTER DOES NOT EXIST OR IF ONE DOES AND IT CONTAINS ALL ONES (177777) THEN THE SOFTWARE SWITCH REGISTER (LOC. 176) IS USED.

CONTROL:

THIS PROGRAM ALSO SUPPORTS THE DYNAMIC LOADING OF THE SOFTWARE SWITCH REGISTER (LOC. 176) FROM THE TTY. THIS CAN BE ACCOMPLISHED BY DOING THE FOLLOWING:

- 1) TYPE CONTROL G (<↑G>): THIS WILL ALLOW THE TTY TO ENTER DATA INTO LOC. 176 AT SELECTED POINTS WITHIN THE PROGRAM.
- 2) THE MACHINE WILL THEN TYPE: SWR=XXXXXXNEW= (XXXXXX IS THE OCTAL CONTENTS OF THE SOFTWARE SWITCH REGISTER.)
- 3) AFTER THE "NEW=" HAS BEEN TYPED THEN THE OPERATOR CAN DO ONE OF THE FOLLOWING AT THE TTY:
 - A) TYPE A NUMBER TO BE LOADED INTO LOC. 176 FOLLOWED BY A <CR>. (ONLY NUMBERS BETWEEN 0-7 WILL BE ACCEPTED AND ONLY 6 NUMBERS WILL BE ALLOWED)
IF A <CR> IS THE FIRST KEY DEPRESSED THE SOFTWARE SWITCH REGISTER CONTENTS WILL NOT BE CHANGED.
 - B) IF A CONTROL U (<↑U>) IS DEPRESSED THEN THE PROGRAM WILL SEND YOU BACK TO STEP 2.

NOTE: DUE TO THE USE OF RESET INSTRUCTION IT MAY BE NECESSARY TO DEPRESS <↑G> MORE THAN ONCE. THIS IS CAUSED BY THE RESET INSTRUCTION NOT ALLOWING THE LOADING OF THE TTY RECEIVER BUFFER DURING THE RESET EXECUTION.

GO1

SEQ 0006

SR BIT15 SET=HALT ON ERROR
SR BIT15 RESET=CONTINUE AFTER REPORTING ERROR

SR BIT14 SET=LOOP ON STATIC TEST SUB-SET
SR BIT14 RESET=DO EACH STATIC TEST SUB-SET 15 TIMES.

SR BIT13 SET=DELET TYPE-OUT
SR BIT13 RESET=REPORT EACH ERROR

SR BIT12 SET=TERMINATE CALL BY LOWERING CRQ (CALL REQUEST)
SR BIT12 RESET=TERMINATE CALL BY ISSUING RESET

BIT11 SET=801 NEEDS EON TO COMPLETE CALL
BIT11 RESET=EON NOT NEEDED TO COMPLETE CALL

SR BIT10 SET=LOOP ON ON-LINE TEST
SR BIT10 RESET=SEQUENCE THROUGH PROGRAM

SR BIT9 SET=LOOP ON ALL STATIC TESTS
SR BIT9 RESET=SEQUENCE THROUGH PROGRAM

SR BIT8 SET=RUN STATIC TEST ON DN11 SELECTED BY SRD-1
SR BIT8 RESET=PROGRAM WILL SEQUENCE THROUGH ALL DN11'S

SR BIT7 SET=DELETE TTY CONVERSATION FOR DIALING SEQUENCE.
SR BIT7 RESET=ENTER TTY CONVERSATION FOR DIALING SEQUENCE

SR 1 0 =SELECT DN11 FOR STATIC TEST
 RESET RESET=FIRST DN11
 RESET SET =SECOND DN11
 SET RESET=THIRD DN11
 SET SET =FOURTH DN11

5.3 SCOPE LOOP SWITCH SELECTION

IN THE SCOPE LOOP THE USER MAY SET ANY OR ALL OF THE DN11 STATUS BITS IN THE MAINTENANCE OR DYNAMIC MODE. IF THE USER SETS THE BITS IN THE DYNAMIC MODE THE PROGRAM WILL AUTOMATICALLY STICK IN THE CORRECT TIME DELAYS FOR THE PHONE LINE.

*****REFER TO SECTIONS 4.1 AND 5.2 FOR SOFTWARE SWITCH REGISTER OPERATION*****

THE DETAILED DESCRIPTION OF DN11 STATUS BITS

BIT	NAME	DESCRIPTION
00	CALL REQUEST (FCRQ)	CONTROL LEAD TO ACU. THIS BIT STARTS THE AUTOMATIC CALLING SEQUENCE. (WRITE ONLY)
01	DIGIT PRESENT (FDPR)	CONTROL LEAD TO THE ACU. THIS BIT MUST BE SET BY THE PROGRAM AFTER IT LOADS THE NEXT DIGIT (IN RESPONSE TO A PND REQUEST) TO INFORM THE ACU TO CONTINUE WITH DIALING. THE INTERFACE AUTOMATICALLY CLEARS THIS BIT WHEN THE ACU CLEARS PND TO INDICATE ACCEPTANCE OF THE DIGIT. (READ/WRITE)
02	MASTER ENABLE (MINAB)	ALLOWS THE PROGRAM TO DISABLE THEN REENABLE ALL 4 ACU INTERRUPTS EASILY WITH ONE BIT. THIS BIT IS CONNECTED FOR ONLY ONE OF THE FOUR POSSIBLE LINES WHICH MOUNT IN ONE SYSTEM UNIT. (READ/WRITE)
03	MAINTENANCE (MAINT)	THIS BIT, WHEN SET, ALLOWS CHECKING OF THE INTERFACE WITHOUT A CONNECTED ACU. IT ALLOWS FCRQ TO BE READ AND SWITCHES THE ACU RESPONSE LINES-- PND, DSS, PWI AND ACR TO THE OUTPUT OF THE DIGIT LINES FOR TESTING PURPOSES. BIT DIGIT ACU LINE CTL BIT # 08 NB1 PND FPND 04 09 NB2 DSS FDSS 05 10 NB4 PWI PWO 13 11 NB8 ACR FACR 14
04	PRESENT NEXT DIGIT (FPND)	ALSO FORCES CRQ (TO ACU) OFF AND FORCES FDLD (BIT 12) ON. (READ/WRITE) CONTROL LEAD FROM THE ACU. THIS IS A REQUEST BY THE ACU FOR THE PROGRAM TO LOAD ANOTHER DIGIT DURING DIALING. IT IS ACCOMPANIED BY THE SETTING OF DONE TO OBTAIN AN INTERRUPT. IT IS CLEARED BY THE ACU WHEN THE DIGIT IS ACCEPTED (AFTER DPR IS SET) AND WILL REMAIN OFF AT LEAST 600 MS BEFORE COMING UP FOR THE NEXT REQUEST. (READ ONLY)

IO1

SEQ 0008

- 05 DATA SET STATUS (FDSS) CONTROL LEAD FROM ACU. THIS IS A STATEMENT BY THE ACU THAT THE CALLED PARTY HAS ANSWERED AND THAT THE ASSOCIATED DATA SET NOW HAS CONTROL OF THE LINE. IT IS ACCOMPANIED BY THE SETTING OF DONE TO OBTAIN AN INTERRUPT. IT REMAINS SET UNTIL AFTER THE END OF THE CALL. (OR UNTIL THE DATA TERMINAL READY LEAD TO THE ASSOCIATED MODEM IS DROPPED WHICH THEN DROPS FDSS).
- IF THE ASSOCIATED MODEM ANSWERS A CALL WHILE THE DIALER IS IN USE (CRQ=1) THEN DSS WILL BE ENABLED AND DONE SET. IF INTERRUPT ENABLE IS SET THERE WILL BE AN INTERRUPT. (READ ONLY)
- 06 INTERRUPT ENABLE (INTENB) THIS BIT ALLOWS THE SETTING OF DONE TO CAUSE AN INTERRUPT IF THE MASTER ENABLE BIT (BIT 02 LINE #1 OF A SYSTEM UNIT) IS SET. (READ/WRITE)
- 07 DONE THIS BIT, IS SET TO INDICATE THAT THE ACU IS DONE WITH THE PREVIOUSLY REQUESTED ACTION AND READY TO ACCEPT NEW DATA, USUALLY THE NEXT DIGIT IN A SEQUENCE TO BE DIALED. THE CONDITIONS THAT SET DONE ARE LISTED (CRQ MUST BE A ONE):
1. TRANS. OF PND TO ONE (AFTER LAST SET OR PREV. DPR SET)
 2. TRANS. OF DSS TO ONE (AFTER LAST DPR OR EON)
 3. TRANS. OF ACR TO ONE (IF TIMEOUT ERR--ANYTIME)
 4. TRANS. OF PLO TO ONE (IF POWER SWITCHED OFF) (READ/WRITE)
- 08-11 DIGIT BITS (NB1-4) THESE FOUR BITS ARE CONTROL LEADS TO THE ACU. THESE LOW ORDER BITS OF THE SECOND BYTE MAKE UP THE BCD DIGIT TO BE DIALED. SINCE THE HIGH-ORDER FOUR ARE READ ONLY, IT DOESN'T MATTER WHAT IS IN THEM DURING A LOAD, AND THE PROGRAMMER MAY USE THEM AS HE WISHES. IN MAINT MODE, THESE BITS ARE USED TO THE FOUR CONTROL LINES THAT CAN CAUSE INTERRUPTS. SEE BIT 03 FOR DESCRIPTION. (READ/WRITE)

J01

SEQ 0009

- 12 DATA LINE OCCUPIED (FDLO) THIS BIT IS SET BY THE ACU WHENEVER THE LINE TO THE TELEPHONE CENTRAL OFFICE IS BEING USED BY THE ACU. IT ALLOWS THE PROGRAMMER TO TEST THE ACU TO SEE IF THE LAST CALL WAS SUCCESSFULLY TERMINATED BEFORE HE TRIES TO USE IT FOR THE NEXT ONE. (READ ONLY)
- 13 NOT USED
- 14 ABANDON CALL AND RETRY (ACR) A CONTROL LEAD FROM THE ACU. THIS BIT IS SET BY THE ACU WHENEVER AN INTERNAL TIMER TIMES OUT. THE TIMER IS RESET BY THE ACU WHENEVER IT GIVES PBD AND IS FOR DETECTING WRONG NUMBERS AND BUSY SIGNALS. IT IS INHIBITED BY THE PRESENCE OF DSS EXCEPT IF THE B01 OPTION "Y" IS IN USE IN WHICH CASE IT TIMES OUT EVEN THEN AND GIVES AN INTERRUPT (BY SETTING DONE). THIS IS USED WHEN THE PROGRAMMER WANTS A TIMER TO DETECT WRONG NUMBERS AND BUSY SIGNALS.
- 15 POWER IN (PWI) THIS BIT IS NORMALLY ZERO AND IS SET BY THE ACU WHENEVER POWER IS SWITCHED OFF AT THE UNIT. IF A CALL IS IN PROGRESS AT THAT TIME, DONE IS SET. (THIS CAUSES AN INTERRUPT IF ITENB AND MINAB=1). (READ ONLY)

6.1 ERROR REPORTS

6.1.1 XXX ERROR COUNT

XXXXXX DN11

EQUAL TO THE ERROR TAG IN THE LISTING. THIS ENABLES THE USER TO FOLLOW THE EXACT CODE THAT FAILED.

DEFINES WHICH DN11 FAILED THE STATIC TESTS. THIS IS EQUAL TO THE ADDRESS ASSIGNMENT.

6.1.2 XXXXXX GD DATA

XXXXXX BD DATA

THIS EQUALS THE DATA LOADED INTO A REGISTER BY THE PROGRAM.

THIS EQUALS THE DATA READ FROM A REGISTER BY THE PROGRAM.

6.1.3 XXX ERROR COUNT

XXXXXX DNCSR

XXXXXX DN11

EQUAL TO THE ERROR TAG IN PROGRAM LISTING

CONTENTS OF DN11 STATUS REGISTER AT THE TIME ERROR

DEFINES WHICH DN11 THAT FAILED

6.2 PROGRAM TIMED OUT UNABLE TO COMPLETE CALL

THIS MESSAGE IS REPORTED AFTER A PERIOD OF TIME HAS PASSED IN WHICH THE PROGRAM HAD EXPECTED TO HAVE RECEIVED DATA SET STATUS AND DID NOT.

6.2.1 THE 801 IS OFF LINE

THIS MESSAGE IS REPORTED AT THE START OF THE STATIC TEST WHENEVER THE DN11 IN USE HAS NO 801 DAILING UNIT CONNECTED TO IT.

6.3 POWER FAIL OCCURRED

THIS MESSAGE IS REPORTED IN THE RESTART SEQUENCE OF THE POWER FAIL ROUTINE. WHENEVER A POWER FAIL HAS OCCURRED THE PROGRAM TRAPS TO 24 AND RESETS THE VECTOR AND HALTS. ON THE RESTART SEQUENCE THE PROGRAM REPORTS THE MESSAGE AND WAITS TWO SECONDS FOR THE PHONE LINES TO SETTLE DOWN, THEN IT JUMPS TO THE START OF THE PROGRAM.

6.4 END

THIS MESSAGE IS REPORTED AT THE END OF EACH PASS OF THE PROGRAM:

L01

SEQ 0011

7. TIME
AMOUNT OF TIME TO RUN STATIC TEST 1.5 MIN.
AMOUNT OF TIME TO RUN ON-LINE TEST 3 MIN.

8. RESTRICTIONS

THE POWER FAIL CAPABILITY OF THIS DEVICE MUST ONLY BE PERFORMED IN THE ON-LINE TEST.

9. **RECOVERING FROM ERROR HALTS WITH A SOFTWARE SWITCH REGISTER**

IF THE SOFTWARE SWITCH IS TO BE CHANGE AFTER A HALT THEN THE OPERATOR SHOULD DEPRESS A <↑G> BEFORE DEPRESSING THE CONTINUE SWITCH.

MO1

SEQ 0012

10. LISTING
+++++

0
1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
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J
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	000240
	000001
	000002
	000004
	000010
	000020
	000040
	000100
	000200
	000400
	001000
	002000
	004000
	010000
	020000
	040000
	100000
	000004
	000000
000020	000020
000022	000340
000024	006634
000026	000340
	000030
000030	006546
000032	000340

```

.ENABLE ABS,AMA
;MD-11-DZDNA-A
;OBSOLETE MD-11-D9J
;DN11 DIALEX
;COPYRIGHT 1976, DIGITAL EQUIPMENT CORP., MAYNARD, MASS. 01754
;RELEASED 21 MAY 76 BY SAM CARPENTER
;SUPPORTS SOFTWARE SWITCH REGISTER, LOC. 176
;ALSO, SUPPORTS THE DYNAMIC LODING OF LOC.176
;*****DIALEX-11*****
N=0
NOP=240
BIT0=1
BIT1=2
BIT2=4
BIT3=10
BIT4=20
BIT5=40
BIT6=100
BIT7=200
BIT8=400
BIT9=1000
BIT10=2000
BIT11=4000
BIT12=10000
BIT13=20000
BIT14=40000
BIT15=100000
;
; SCOPE=IOT ;TRAP CALL FOR SCOPE LOOP
;
;TRAP CATCHER LOC.0-200 *****
.=0
.REPT 200
.+2
HALT
.ENDR
.=20
LOOP
340
PWRDWN
340
.=30
EMTRP
340

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001030 0000000
001031 0000000
001032 0000000
001033 0000000
001034 0000000
001035 0000000
001036 0000000
001037 0000000
001038 0000000
001039 0000000
001040 0000000
001041 0000000
001042 0000000
001043 0000000
001044 0000000
001045 0000000
001046 0000000
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001061 0000000
001062 0000000
001063 0000000
001064 0000000
001065 0000000
001066 0000000
001067 0000000
001068 0000000
001069 0000000
001070 0000000
001071 0000000
001072 0000000
001073 0000000
001074 0000000
001075 0000000
001076 001052
001100 006314

```

000 000

:PROGRAM WORK REGISTER

```

:SSCNT: 0
:WORK: 00000000
:WORK1: 00000000
:COUNT: 00000000
:TIME: 00000000
:TIME1: 00000000
:SAVE: 0
:ERCOUNT: 0
:STATUS: 175200 0
:PNT1: 00000000
:PNT2: 00000000
:PNT3: 00000000
:PNT4: 00000000
:FLAG: 00000000
:PASS: 00000000
:MASK: 00000000
:STKLINK: STACK
:MAP: .BYTE 0,0,0,0

:
:
:ENTRY: PNT1
:POINT: PH01

```



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110
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```

001102	000005				
001104	013706	001070			
001110	004737	010044			
001114	005737	001062			
001120	001071				
001122	052737	177777	001062		
001130	012703	006272			
001134	104001				
001136	007313				
001140	004737	006172			
001144	012702	001014			
001150	004737	007074			
001154	013737	001014	001016		
001162	062737	000002	001016		
001170	013737	001016	001020		
001176	062737	000002	001020		
001204	013737	001020	001022		
001212	062737	000002	001022		
001220	013737	001014	001050		
001226	012703	006272			
001232	104001				
001234	007343				
001236	004737	006172			
001242	012702	001024			
001246	004737	007074			
001252	022737	001000	001024		
001260	101762				
001262	062737	000002	001024		
001270	012777	000200	177526		
001276	162737	000002	001024		
001304	013737	001014	001050		
001312	032777	002000	177460		
001320	001402				
001322	000137	004270			

```

: THIS ROUTINE IS USED TO INITIALIZE THE PROGRAM TO THE CORRECT
: DN11 REGISTER ASSIGNMENTS THIS ROUTINE IS ONLY ENTERED ONCE
: UPON THE FIRST START OF THE PROGRAM
START: RESET
      MOV     STKLINK,%6      ;SET UP THE STACK
      JSR     PC,SUSWR       ;GO TO SWITCH REGISTER SIZING ROUTINE
      TST     FLAG           ;TEST FOR THE PASS
      BNE     NOTFIRST       ;BRANCH NOT THE FIRST PASS
      BIS     #177777,FLAG    ;SET PASS INDICATOR
      MOV     #TEXBUF,%3     ;SET UP TO RECEIVE DATA FROM TTY
      EMT     +1             ;ASK OPERATOR FOR FIRST DN11 ADDRESS
      DNADDR
      JSR     %7,TYST        ;GO FETCH ADDRESS FROM TTY
      MOV     #DNCSR1,%2     ;
      JSR     %7,NEXCHAR     ;CONVERT OCTAL TO ASCII
      MOV     DNCSR1,DNCSR2  ;SET UP ALL DN11 ADDRESSES
      ADD     #2,DNCSR2
      MOV     DNCSR2,DNCSR3
      ADD     #2,DNCSR3
      MOV     DNCSR3,DNCSR4
      ADD     #2,DNCSR4
      MOV     DNCSR1,STATUS
      GETVEC: MOV #TEXBUF,%3 ;SET UP TO ASK FOR VECTOR ASSIGNMENT
      EMT     +1
      VECDN
      JSR     %7,TYST        ;FETCH VECTOR ADDRESS FROM TTY
      MOV     #VECTOR,%2
      JSR     %7,NEXCHAR     ;CONVERT OCTAL TO ASCII
      CMP     #1000,VECTOR   ;IS VECTOR ADDRESS LESS THAN 1000
      BLOS   GETVEC        ;BRANCH THE ADDRESS IS GREATER THAN 1000
      ADD     #2,VECTOR      ;POINT TO VECTOR PSW
      MOV     #200,VECTOR    ;SET PRIORITY AT 4
      SUB     #2,VECTOR      ;ADJ. VECTOR
      NOTFIRST: MOV DNCSR1,STATUS
      BIT     #BIT10,CSR     ;TEST TO ENTER ON-LINE TEST ONLY
      BEQ    +6              ;ENTER STATIC
      JMP    BEGIN          ;ENTER ON-LINE TEST

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001326 004737 010142
001332 032777 000400 177440
001340 001414
001342 017737 177432 001032
001350 042737 177774 001032
001356 000241
001360 006137 001032
001364 063737 001032 001050
001372 005777 177452
001376 100404
001400 012737 177777 001066
001406 000405
001410 012737 077777 001066
001416 104001
001420 007130
001422 042777 177777 177420
001430 033777 001066 177412
001436 100005
001440 012737 000000 001046
000001
001446 004537 007540
001452 000004
001454 001422

*****DIALEX-11*****
:DN11 TEST PART1
:AUTOMATIC DIALER INTERFACE
:
:THE FIRST PART OF THIS TEST CONSISTS OF
:INTER-ACTION BETWEEN THE OPERATOR AND
:THE PROGRAM

: IS PWO CLEARED

ST1: JSR PC,CKSWR :CHECK FOR <↑G>
BIT #BIT8,@SR :DOES THE OPERATOR WANT TO SELECT ONE DN11
BEQ STIX :NO RUN NORMAL
MOV @SR,WORK :FETCH WHICH DN11 HE WANTS TO RUN
BIC #177774,WORK :MASK COUNT
CLC
ROL WORK :COUNT X2
ADD WORK,STATUS :SET UP SELECTED DN11
STIX: TST @STATUS :TEST FOR 801
BMI .+12 :NO 801 PRESENT
MOV #177777,MASK
BR .+14
MOV #77777,MASK
EMT +1
MES1
STIXE: BIC #177777,@STATUS
BIT MASK,@STATUS :TEST STATUS BIT
BPL ST2XE :BRANCH IF POWER OFF
ERRD: MOV #0,ERCOUNT :*** ERROR 0 ***
N=N+1
JSR %5,STAER :REPORT ERROR
ST2XE: SCOPE
STIXE

```

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186
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188
189
190 001456 042777 177777 177364 ST2X: BIC #177777,@STATUS
191 001464 032777 040000 177356 BIT #BIT14,@STATUS
192 001472 001405 BEQ ST3E ;BRANCH IF ACR IS CLEARED
193 001474 012737 000001 001046 ERR1: MOV #1,ERCOUNT ;*** ERROR 1 ***
194 001502 004537 007540 JSR %5,STAER
195 001506 000004 ST3E: SCOPE
196 001510 001456 ST2X
197
198
199
200
201 001512 042777 177777 177330 ST3: BIC #177777,@STATUS
202 001520 032777 020000 177322 BIT #BIT13,@STATUS
203 001526 001405 BEQ ST4E ;BIT 13 CLEAR EXIT
204 001530 012737 000002 001046 ERR2: MOV #2,ERCOUNT ;*** ERROR 2 ***
205 001536 004537 007540 JSR %5,STAER
206 001542 000004 ST4E: SCOPE
207 001544 001512 ST3
208
209
210
211
212 001546 042777 177777 177274 ST4: BIC #177777,@STATUS ;CLEAR THE WORLD
213 001554 032777 010000 177266 BIT #BIT12,@STATUS ;TEST FOR DATA LINE NOT OCCUPIED
214 001562 001405 BEQ ST5E ;BRANCH IF LINE NOT OCCUPIED
215 001564 012737 000003 001046 ERR3: MOV #3,ERCOUNT ;*** ERROR 3 ***
216 001572 004537 007540 JSR %5,STAER ;REPROT ERROR
217 001576 000004 ST5E: SCOPE
218 001600 001546 ST4
219
220
221
222
223
224
225
226
227 001602 042777 177777 177240 ST5: BIC #177777,@STATUS ;CLEAR THE WORLD
228 001610 032777 007400 177232 BIT #7400,@STATUS ;TEST BCD DIGITS
229 001616 001405 BEQ ST6E ;BITS SHOULD BE CLEARED
230 001620 012737 000004 001046 ERR4: MOV #4,ERCOUNT ;*** ERROR 4 ***
231 001626 004537 007540 JSR %5,STAER ;REPORT ERROR
232 001632 000004 ST6E: SCOPE
233 001634 001602 ST5

```

IS ACR CLEARED

IS BIT 13 CLEARED (BIT NOT USED)

IS DLO CLEARED

ARE THE BCD BITS CLEARED

H02

MAIN. MACY11 27(732) 09-APR-76 14:21 PAGE 8
 DZDAAA.P11

SEQ 0020

251	001742	013777	001034	177100	ST7X:	MOV	WORK1,STATUS	;SET UP BCD BITS
252	001750	017737	177074	001032		MOV	STATUS,WORK	;READ BACK BCD BITS
253	001756	042737	170377	001032		BIC	#170377,WORK	;MASK BITS
254	001764	023737	001034	001032		CMP	WORK1,WORK	;DO THE BITS EQUAL WHAT WAS LOADED
255	001772	001007				BNE	ST7ER	;ERROR IN BITS READ BACK
256	001774	022737	007400	001032		CMP	#7400,WORK	
257	002002	001412				BEQ	ST10E	;EXIT PATTERN COMPLETE
258	002004	105237	001035			INCB	WORK1+1	;SETUP NEXT PATTERN
259	002010	000754				BR	ST7X	;LOAD THE NEXT PATTERN
260	002012				ST7ER:			
261	002012	012737	000006	001046	ERR6:	MOV	#6,ERCOUNT	;*** ERROR 6 ***
262		000007				N=N+1		
263						JSR	%5,STAER1	;REPORT ERROR
264	002020	004537	007636			JSR	%5,STAER	
265	002024	004537	007540			JSR	%5,STAER	
266	002030	000004			ST10E:	SCOPE		
267	002032	001726				ST7		
268								
269								
270								
271	002034	042777	177777	177006	ST10:	BIC	#177777,STATUS	;CLEAR THE WORLD
272	002042	105777	177002			TSTB	STATUS	;TEST FOR NOT DONE
273	002046	100005				BPL	ST11E	;BRANCH IF DONE NOT SET
274	002050	012737	000007	001046	ERR7:	MOV	#7,ERCOUNT	;*** ERROR 7 ***
275		000010				N=N+1		
276	002056	004537	007540			JSR	%5,STAER	;REPORT DONE SET
277	002062	000004			ST11E:	SCOPE		
278	002064	002034				ST10		

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303
; IS INTERRUPT ENABLE CLEARED
002066 042777 177777 176754 ST11: BIC #177777, @STATUS ; CLEAR THE WORLD
002074 032777 000100 176746 BIT #BIT6, @STATUS ; WAS BIT6 CLEARED
002102 001405 BEQ ST12E ; BRANCH IF BIT6 CLEARED
002104 012737 000010 001046 ERR10: MOV #10, ERCOUNT ; *** ERROR 10 ***
002112 004537 007540 JSR %5, STAER ; REPORT BIT6 SET
002116 000004 ST12E: SCOPE
002120 002066 ST11

; CAN WE SET INTERRUPT ENABLE
002122 012777 000340 176652 ST12: MOV #340, @CSR ; LOCK UP CPU
002130 052777 000100 176712 BIS #BIT6, @STATUS ; SET INTERRUPT ENABLE
002136 032777 000100 176704 BIT #BIT6, @STATUS ; WAS THE BIT SET
002144 001006 BNE ST12EX ; BIT SET CLEAR INTERRUPT
002146 000005 RESET ; CLEAR INTERRUPTS
002150 012737 000011 001046 ERR11: MOV #11, ERCOUNT ; *** ERROR 11 ***
002156 004537 007540 JSR %5, STAER ; REPORT ERROR
002162 005077 176662 ST12EX: CLR @STATUS ; CLEAR INTERRUPTS
002166 000004 SCOPE
002170 002122 ST12
  
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306           ; IS DSS CLEARED
307
308 002172 042777 177777 176650 ST13: BIC #177777, @STATUS ; CLEAR THE WORLD
309 002200 032777 000040 176642      BIT #BIT5, @STATUS ; IS DSS SET
310 002206 001405                BEQ ST14E ; BRANCH IF DSS IS NOT SET
311 002210 012737 000012 001046 ERR12: MOV #12, ERCOUNT ; *** ERROR 12 ***
312                000013                N=N+1
313 002216 004537 007540                JSR %5, STAER ; REPORT DSS SET
314 002222 000004                ST14E: SCOPE
315 002224 002172                ST13
316
317           ; IS PND CLEARED
318
319 002226 042777 177777 176614 ST14: BIC #177777, @STATUS ; CLEAR THE WORLD
320 002234 032777 000020 176606      BIT #BIT4, @STATUS ; IS PND SET
321 002242 001405                BEQ ST15E ; BRANCH IF PND NOT SET
322 002244 012737 000013 001046 ERR13: MOV #13, ERCOUNT ; *** ERROR 13 ***
323                000014                N=N+1
324 002252 004537 007540                JSR %5, STAER ; REPORT PND SET
325 002256 000004                ST15E: SCOPE
326 002260 002226                ST14
  
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K02

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DZDNAA.P11

SEQ 0023

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327
328
329
330 002262 042777 177777 176550 ST15: BIC #177777, @STATUS ; CLEAR THE WORLD
331 002270 032777 000010 176552 BIT #BIT3, @STATUS ; IS MAINTENANCE BIT CLEAR
332 002276 001405 BEQ ST15XE ; BRANCH IF MAINTENANCE CLEAR
333 002300 012737 000014 001046 ERR14: MOV #14, ERCOUNT ; *** ERROR 14 ***
334 000015 N=N+1
335 002306 004537 007540 JSR %5, STAER ; REPORT MAINTENANCE SET
336 002312 000004 ST15XE: SCOPE
337 002314 002262 ST15
338
339
340
341 002316 042777 177777 176524 ST15X: BIC #177777, @STATUS
342 002324 052777 000010 176516 BIS #BIT3, @STATUS ; CAN WE SET MAINTENANCE
343 002332 032777 000010 176510 BIT #BIT3, @STATUS ; IS MAINTENANCE SET
344 002340 001005 BNE ST16E ; YES EXIT
345 002342 012737 000015 001046 ERR15: MOV #15, ERCOUNT ; *** ERROR 15 ***
346 000016 N=N+1
347 002350 004537 007540 JSR %5, STAER
348 002354 000004 ST16E: SCOPE
349 002356 002316 ST15X
350
351
352
353 002360 042777 177777 176462 ST16: BIC #177777, @STATUS ; CLEAR THE WORLD
354 002366 032777 000004 176454 BIT #BIT2, @STATUS ; IS MASTER ENABLE CLEARED
355 002374 001405 BEQ ST16XE ; BRANCH IF CLEARED
356 002376 012737 000016 001046 ERR16: MOV #16, ERCOUNT ; *** ERROR 16 ***
357 000017 N=N+1
358 002404 004537 007540 JSR %5, STAER ; REPORT MASTER ENABLE STILL SET
359 002410 000004 ST16XE: SCOPE
360 002412 002360 ST16
361
362
363
364 002414 042777 177777 176426 ST16X: BIC #177777, @STATUS
365 002422 012777 000340 176352 MOV #340, @CSR
366 002430 052777 000004 176412 BIS #BIT2, @STATUS ; CAN WE SET MASTER ENABLE
367 002436 032777 000004 176404 BIT #BIT2, @STATUS ; IS MASTER ENABLE SET
368 002444 001005 BNE ST17E ; YES EXIT
369 002446 012737 000017 001046 ERR17: MOV #17, ERCOUNT ; *** ERROR 17 ***
370 000020 N=N+1
371 002454 004537 007540 JSR %5, STAER ; REPORT ERROR
372 002460 000004 ST17E: SCOPE
373 002462 002414 ST16X
374
375
376
377 002464 042777 177777 176356 ST17: BIC #177777, @STATUS ; CLEAR THE WORLD
378 002472 032777 000002 176350 BIT #BIT1, @STATUS ; IS DATA PRESENT CLEARED
379 002500 001405 BEQ ST17XE ; BRANCH IF DATA PRESENT AS CLEARED
380 002502 012737 000020 001046 ERR20: MOV #20, ERCOUNT ; *** ERROR 20 ***
381 000021 N=N+1
382 002510 004537 007540 JSR %5, STAER ; REPORT DATA PRESENT IS SET

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L02

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DZDNAA.P11

SEQ 0024

383 002514 000004
384 002516 002464

ST17XE: SCOPE
ST17

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385
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387
388 002520 042777 177777 176322
389 002526 012777 000410 176314
390 002534 052777 000002 176306
391 002542 032777 000002 176300
392 002550 001005
393 002552 012737 000021 001046
394 000022
395 002560 004537 007540
396 002564 000004
397 002566 002520
398
399
400
401 002570 042777 177777 176252
402 002576 032777 000001 176244
403 002604 001405
404 002606 012737 000022 001046
405 000023
406 002614 004537 007540
407 002620 000004
408 002622 002570
409
410 002624 042777 177777 176216
411 002632 033777 001066 176210
412 002640 001406
413 002642 012737 000023 001046
414 000024
415 002650 004537 007540
416 002654 000425
417 002656 052777 000001 176164
418 002664 032777 000001 176156
419 002672 001006
420 002674 012737 000024 001046
421 000025
422 002702 004537 007540
423 002706 000410
424 002710 105777 176134
425 002714 100005
426 002716 012737 000025 001046
427 000026
428 002724 004537 007540
429 002730 000004
430 002732 002624
431
432
433
434 002734 042777 177777 176106
435 002742 033777 001066 176100
436 002750 001406
437 002752 012737 000026 001046
438 000027
439 002760 004537 007540
440 002764 000414

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; CAN WE SET DPR (DIGIT PRESENT)
ST17X: BIC #177777, @STATUS
MOV #BIT8!BIT3, @STATUS ; SET PND
BIS #BIT1, @STATUS ; SET DPR
BIT #BIT1, @STATUS
BNE ST20E
ERR21: MOV #21, ERCOUNT ; *** ERROR 21 ***
N=N+1
JSR %5, STAER
ST20E: SCOPE
ST17X

; IS CRQ (CALL REQUEST) CLEARED
ST20: BIC #177777, @STATUS
BIT #BIT0, @STATUS ; IS CALL REQUEST SET
BEQ ST21E ; NO! IT SHOULD NEVER BE SET
ERR22: MOV #22, ERCOUNT ; *** ERROR 22 ***
N=N+1
JSR %5, STAER ; REPORT ERROR
ST21E: SCOPE
ST20

; TEST THE ABILITY OF SETTING CRQ
ST21: BIC #177777, @STATUS ; CLEAR THE WORLD
BIT MASK, @STATUS ; IS THE DN11 CLEAR
BEQ ST22 ; DN11 OK
ERR23: MOV #23, ERCOUNT ; *** ERROR 23 ***
N=N+1
JSR %5, STAER ; REPORT ERROR "STATUS REG. NOT CLEAR"
BR ST22E ; EXIT ERROR OCCURRED
ST22: BIS #BIT0, @STATUS ; SET CALL REQUEST
BIT #BIT0, @STATUS ; IS CALL REQUEST SET
BNE ST22X ; YES! EXIT
ERR24: MOV #24, ERCOUNT ; *** ERROR 24 ***
N=N+1
JSR %5, STAER ; REPORT ERROR
BR ST22E ; LOOP ON ERRO
ST22X: TSTB @STATUS ; DONE SHOULD NOT BE SET
BPL ST22E ; BRANCH IF DONE NOT SET
ERR25: MOV #25, ERCOUNT ; *** ERROR 25 ***
N=N+1
JSR %5, STAER ; REPORT THE ERROR
ST22E: SCOPE
ST21

; DOES MAINTENANCE SET DLO
ST23: BIC #177777, @STATUS ; CLEAR THE WORLD
BIT MASK, @STATUS ; IS REG CLR
BEQ ST24 ; YES! EXIT
ERR26: MOV #26, ERCOUNT ; *** ERROR 26 ***
N=N+1
JSR %5, STAER ; REPORT ERROR
BR ST25E

G03

647	004144	001414			BEQ	RESTART	
648	004146	062737	000002	001050	ADD	#2,STATUS	
649	004154	052777	000100	174666	BIS	#BIT6,STATUS	;SET INTERRUPT ENABLE
650	004162	032777	000100	174660	BIT	#BIT6,STATUS	;IF SET DN11 IS POSSABILE THERE
651	004170	001402			BEQ	.+6	
652	004172	000137	001326		JMP	ST1	
653	004176	013737	001014	001050	RESTART: MOV	DNCSR1,STATUS	
654	004204	032777	001000	174566	BIT	#BIT9,SR	;TEST IF THE OPERATOR WANTS TO LOOP ON STATIC TESTS
655	004212	001410			BEQ	MYCNT+2	;BRANCH TO ON-LINE TEST IF BIT 9 NOT SET
656	004214	005737	004232		TST	MYCNT	
657	004220	001405			BEQ	MYCNT+2	
658	004222	005337	004232		DEC	MYCNT	
659	004226	000137	001372		JMP	ST1X	;LOOP ON STATIC TESTS BIT9 SET
660	004232	000100			MYCNT: 100		
661	004234	012737	000100	004232	MOV	#100,MYCNT	
662	004242	012737	177770	001042	MOV	#177770,TIME1	;WAIT FOR PHONE LINE TO SETTLE
663	004250	005037	001040		CLR	TIME	
664	004254	005237	001040		INC	TIME	
665	004260	001375			BNE	.-4	
666	004262	005237	001042		INC	TIME1	
667	004266	001372			BNE	.-12	

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695          :DIALEX 11
696          :THE OPERATOR MUST ASSIGN PHONE NUMBER TO EACH DN11
697 004270 013706 001070 BEGIN: MOV STKLINK,%6 ;SET UP STACK
698 004274 004737 010142 JSR PC,CKSWR ;CHECK FOR CNTL G
699 004300 000005 RESET
700 004302 012777 005412 174514 MOV #INT,VECTOR ;SET UP VECTOR
701 004310 005004 CLR %4
702 004312 005737 004322 TST NOFLAG
703 004316 001002 BNE .+6
704 004320 000407 BR NEWNO
705 004322 000000 NOFLAG: 0
706 004324 004737 010142 JSR PC,CKSWR ;CHECK FOR <↑G>
707 004330 032777 000200 174442 BIT #BIT7,DSR ;TEST FOR TTY CONVERSATION
708 004336 001104 BNE DNDIAL ;BRANCH IF NO CONVERSATION
709 004340 005037 001072 NEWNO: CLR MAP ;CLEAR PHONE MAP
710 004344 005037 001074 CLR MAP+2
711 004350 052737 177777 004322 BIS #177777,NOFLAG
712 004356 005037 001036 CLR COUNT
713 004362 012703 006314 NO0: MOV #PH01,%3 ;SET UP PHONE #1 BUFFER
714 004366 104001 EMT +1
715 004370 007157 PH1
716 004372 004737 006172 JSR %7,TYST ;FETCH KEYBOARD CHAR
717 004376 105737 006314 TSTB PH01
718 004402 001405 BEQ NO1 ;OPERATOR FAILED TO TYPE A PHONE NUMBER
719 004404 005237 001036 INC COUNT
720 004410 152764 000377 001072 BISB #377,MAP(4) ;LOAD MAP
721 004416 005204 NO1: INC %4
722 004420 012703 006336 MOV #PH02,%3
723 004424 104001 EMT +1
724 004426 007172 PH2
725 004430 004737 006172 JSR %7,TYST ;FETCH KEYBOARD CHARACTER
726 004434 105737 006336 TSTB PH02 ;DID THE OPERATOR TYPE A PHONE NUMBER
727 004440 001405 BEQ NO2 ;THE OPERATOR ONLY GAVE THE PROGRAM ONE NUMBER
728 004442 005237 001036 INC COUNT ;THE OPERATOR TYPED AN NUMBER
729 004446 152764 000377 001072 BISB #377,MAP(4) ;LOAD MAP
730 004454 005204 NO2: INC %4
731 004456 012703 006360 MOV #PH03,%3
732 004462 104001 EMT +1
733 004464 007205 PH3
734 004466 004737 006172 JSR %7,TYST ;FETCH KEYBOARD CHARACTER
735 004472 105737 006360 TSTB PH03 ;DID THE OPERATOR TYPE A NUMBER FOR LINE THREE
736 004476 001405 BEQ NO3 ;NO NUMBER FOR LINE THREE
737 004500 005237 001036 INC COUNT ;OPERATOR TYPE D A NUMBER
738 004504 152764 000377 001072 BISB #377,MAP(4) ;LOAD MAP
739 004512 005204 NO3: INC %4
740 004514 012703 006402 MOV #PH04,%3
741 004520 104001 EMT +1
742 004522 007220 PH4
743 004524 004737 006172 JSR %7,TYST ;FETCH KEYBOARD CHARACTER
744 004530 105737 006402 TSTB PH04 ;TEST IF THE OPERATOR TYPED A NUMBER FOR THIS LINE
745 004534 001405 BEQ DNDIAL ;OPERATOR DID NOT TYPE A NUMBER
746 004536 152764 000377 001072 BISB #377,MAP(4) ;LOAD MAP
747 004544 005237 001036 INC COUNT
748 004550 013737 001014 001050 DNDIAL: MOV DNCSR1,STATUS
749 004556 013737 001036 001044 MOV COUNT,SAVE
750 004564 005004 CLR %4
  
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755 004566 004737 010142
756 004572 105764 001072
757 004576 001423
758 004600 005777 174244
759 004604 001415
760 004606 017737 174236 001032
761 004614 013737 001050 001034
762 004622 012737 000055 001046 ERR55: MOV #55,ERCOUNT
763 000056 N=N+1
764 004630 004537 007724 JSR %5,STAER2
765 004634 000000 HALT
766 004636 000777 BR
767 004640 005337 001044 MODOK: DEC SAVE
768 004644 001405 BEQ SETPT
769 004646 005204 EXMODOK: INC %4
770 004650 062737 000002 001050 ADD #2,STATUS
771 004656 000743 BR RINGO
772
773
774
775 004660 005037 001052
776 004664 005037 001054
777 004670 005037 001056
778 004674 005037 001060
779 004700 005004
780 004702 013737 001036 001044
781 004710 013737 001014 001050
782 004716 105764 001072 SETCRQ: TSTB MAP(4)
783 004722 001423 BEQ EXCRQ
784 004724 012777 000101 174116 MOV #101,%STATUS
785 004732 032777 010000 174110 BIT #BIT12,%STATUS
786 004740 001411 BEQ DLOTST
787 004742 012737 000056 001046 ERR56: MOV #56,ERCOUNT
788 000057 N=N+1
789 004750 017737 174074 001032 MOV %STATUS,WORK
790 004756 004537 007724 JSR %5,STAER2
791 004762 000755 BR SETCRQ
792 004764 005337 001044 DLOTST: DEC SAVE
793 004770 001405 BEQ WAITIN
794 004772 005204 EXCRQ: INC %4
795 004774 062737 000002 001050 ADD #2,STATUS
796 005002 000745 BR SETCRQ
797
798
799 005004 005077 173772
800 005010 013737 001036 001030 WAITIN: CLR %CSR
801 005016 012737 177700 001042 MOV COUNT,DSECNT
802 005024 012737 000000 001040 MOV #177700,TIME1
803 005032 052777 000004 173754 MOV #0,TIME
804 005040 005237 001040 TWOSEC: BIS #BIT2,%DNCSR1
805 005044 001375 INC TIME
806 005046 005237 001042 INC TIME1

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;TEST FOR DN11'S TO BE IN READY STATE
;REGISTERS SHOULD BE CLEARED BECAUSE
;OF RESET COMMAND ISSUED AT START
RINGO: JSR PC,CKSWR ;CHECK FOR CNTL G
TSTB MAP(4) ;IS THIS LINE ACTIVE
BEQ EXMODOK ;BRANCH NOT ACTIVE
TST %STATUS
BEQ MODOK ;DN11 READY OK
MOV %STATUS,WORK ;FETCH CONTENTS OF REGISTER
MOV STATUS,WORK1 ;FETCH ADDRESS OF REGISTER
ERR55: MOV #55,ERCOUNT ;*** ERROR 55 ***
N=N+1
JSR %5,STAER2 ;REPORT DN11 NOT READY
HALT
BR ;YOU CAN NOT CONTINUE
MODOK: DEC SAVE ;ON UNTIL DN11 IS MADE READY
BEQ SETPT ;GO SET CALL REQUEST
EXMODOK: INC %4
ADD #2,STATUS ;SET UP FOR NEXT DN11
BR RINGO ;TEST NEXT DN11

;SET UP DIGIT POINTERS FOR PHONE NUMBERS
;FOR DAILING SEQUENCE
SETPT: CLR PNT1 ;SET UP DIGIT POINTER ONE
CLR PNT2 ;SET UP DIGIT POINTER TWO
CLR PNT3 ;SET UP DIGIT POINTER THREE
CLR PNT4 ;SET UP DIGIT POINTER FOUR
CLR %4
MOV COUNT,SAVE ;SET UP TO ENABLE CRQ
MOV DNCSR1,STATUS ;SET UP DN11 POINTER
SETCRQ: TSTB MAP(4) ;IS THIS ACTIVE
BEQ EXCRQ
MOV #101,%STATUS ;SET CRQ - INT. ENABLE - MASTER ENABLE
BIT #BIT12,%STATUS ;TEST FOR DLO SET
BEQ DLOTST ;DLO SET OK!
ERR56: MOV #56,ERCOUNT ;*** ERROR 56 ***
N=N+1
MOV %STATUS,WORK ;FETCH CONTENTS OF STATUS REGISTER
JSR %5,STAER2
BR SETCRQ
DLOTST: DEC SAVE ;GO WAIT FOR INTERRUPTS
BEQ WAITIN
EXCRQ: INC %4
ADD #2,STATUS ;SET UP FOR NEXT DN11
BR SETCRQ ;SET UP NEXT DN11

;SET UP TO COUNT DSS INTERRUPTS AND TIME OUT IF ALL
;DSS INTERRUPTS DO NOT OCCUR
WAITIN: CLR %CSR
MOV COUNT,DSECNT ;NUMBER OF DN11
MOV #177700,TIME1
MOV #0,TIME ;SET UP TIMER
BIS #BIT2,%DNCSR1 ;SET MASTER ENABLE
TWOSEC: INC TIME ;WAIT FOR DSS
BNE TIME
INC TIME1

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807 005052 001372          BNE      TWOSEC
808 005054 012777 000340 173720  MOV     #340,DCSR      ;LOCK UP CPU
809 005062 104001          EMT     +1             ;REPORT TIME OUT
810 005064 007233          TIMO
811 005066 005004          CLR     %4
812 005070 012737 000057 001046  ERR57:  MOV     #57,ERCOUNT  ;*** ERROR 57 ***
813          000060          N=N+1
814 005076 013737 001036 001044  MOV     COUNT,SAVE
815 005104 013737 001014 001050  MOV     DNCSR1,STATUS ;SET UP TO FETCH DN11 REGISTERS
816 005112 105764 001072          DNSTATE: TSTB      MAP(4) ;TEST IF THE LINE IS ACTIVE
817 005116 001410          BEQ     MPDN          ;LINE NOT ACTIVE CHECK NEXT
818 005120 017737 173724 001032  MOV     @STATUS,WORK  ;FETCH DN11 STATUS
819 005126 004537 007724          JSR     %5,STAER2    ;REPORT STATUS
820 005132 005337 001044          DEC     SAVE
821 005136 001521          BEQ     REPEND       ;GO REPORT END
822 005140 005204          MPDN:  INC     %4
823 005142 062737 000002 001050  ADD     #2,STATUS     ;SET UP TO TEST NEXT DN11
824 005150 000760          BR     DNSTATE
825 005152 012737 177770 001042  END:   MOV     #177770,TIME1 ;SET UP TIME TO LET PHONE RING
826 005160 005037 001040          CLR     TIME
827 005164 005237 001040          INC     TIME
828 005170 001375          BNE     -4
829 005172 005237 001042          INC     TIME1
830 005176 001372          BNE     -12
831 005200 032777 010000 173572  BIT     #BIT12,@SR    ;TEST HOW DO WE TERMINATE THE CALL
832 005206 001457          BEQ     NOTCRQ       ;CALL TERMINATED BY RESET
833 005210 013737 001036 001044  MOV     COUNT,SAVE
834 005216 013737 001014 001050  MOV     DNCSR1,STATUS
835 005224 005004          CLRDN: CLR     %4
836 005226 105764 001072          TSTB   MAP(4)       ;IS THIS LINE ACTIVE
837 005232 001440          BEQ     EXCLRDN     ;LINE IS NOT ACTIVE
838 005234 042777 000001 173606  BIC     #BIT0,@STATUS ;CLEAR CRQ
839 005242 013737 177770 001042  MOV     177770,TIME1
840 005250 005037 001040          CLR     TIME
841 005254 005237 001040          INC     TIME         ;WIAT FOR DSS TO COME BACK
842 005260 001375          BNE     -4
843 005262 005237 001042          INC     TIME1
844 005266 001372          BNE     -12
845 005270 032777 000040 173552  BIT     #BIT5,@STATUS ;TEST FOR DSS
846 005276 001413          BEQ     DSSCLR      ;DSS CLEARED BY CRQ
847 005300 013737 001050 001034  MOV     STATUS,WORK1 ;SET UP FOR ERROR REPORT
848 005306 017737 173536 001032  MOV     @STATUS,WORK
849 005314 012737 000060 001046  ERR60:  MOV     #60,ERCOUNT  ;*** ERROR 60 ***
850          000061          N=N+1
851 005322 004537 007724          JSR     %5,STAER2    ;REPORT ERROR
852 005326 005337 001044          DSSCLR: DEC     SAVE
853 005332 001423          BEQ     REPEND       ;RECYCLE
854 005334 005204          EXCLRDN: INC     %4
855 005336 062737 000002 001050  ADD     #2,STATUS     ;GO CLEAR NEXT DN11
856 005344 000730          BR     CLRDN+2
857          ;
858          ;DN11'S MUST BE CLEARED BY RESET IN THIS TEST
859          ;
860          ;
861 005346 004737 010142          NOTCRQ: JSR     PC,CKSWR ;CHECK FOR CNTL G
862 005352 000005          RESET ;CLEAR THE WORLD

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K03

.MAIN. MACY11 27(732) 08-APR-76 14:21 PAGE 24
DZDNR.P11

SEQ 0036

863	005354	012737	177770	001042	MOV	#177770,TIME1	;SET UP TO WAIT FOR LINES TO SETTLE DOWN
864	005362	005037	001040		CLR	TIME	
865	005366	005237	001040		INC	TIME	
866	005372	001375			BNE	-4	
867	005374	005237	001042		INC	TIME1	
868	005400	001372			BNE	-12	
869	005402	104001		REPEND:	EMT	+1	
870	005404	007306			MESEND		;REPORT END
871	005406	000137	001304		JMP	NOTFIRST	;RECYCLE TEST
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873							
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080 005412 042777 000004 173374 INT: BIC #BIT2, DNCSR1 ;CLEAR MASTER ENABLE
081 005420 013737 001036 001044 MOV COUNT, SAVE ;SET UP TO COUNT DN11'S
082 005426 013737 001014 001050 MOV DNCSR1, STATUS ;SET UP ADDRESS ASSIGNMENT
083 005434 012737 006314 001100 MOV #PH01, POINT ;FETCH NUMBER POINT
084 005442 012737 001052 001076 MOV #PNT1, ENTRY
085 005450 005004 CLR %4
086 005452 105764 001072 DNTST: TSTB MAP(4) ;IS THE LINE ACTIVE
087 005456 001511 BEQ EXINC ;BRANCH THE LINE IS NOT ACTIVE
088 005460 105777 173364 TSTB STATUS ;IS THE DONE FLAG SET
089 005464 100077 BPL INCDN ;NO INTERRUPT FROM THIS DN11
090 005466 032777 160000 173354 BIT #160000, STATUS ;ERROR ? (PWO-ACR-BIT13 UNUSED)
091 005474 001404 BEQ NOERROR ;BRANCH NO ERROR
092 005476 005777 173374 TST ENTRY ;IS IT THE END OF CALL
093 005502 100525 BMI DSSSET ;YES ACR SET END OF CALL
094 005504 000532 BR REPRR ;REPORT ERROR OCCURRED
095 005506 032777 000040 173334 NOERROR: BIT #BIT5, STATUS ;IS DSS SET
096 005514 001120 BNE DSSSET ;BRANCH IF DSS SET
097 005516 032777 000020 173324 BIT #BIT4, STATUS ;TEST FOR PND
098 005524 001006 BNE PNDSET ;PND SET OK!
099 005526 012737 000061 001046 ERR61: MOV #61, ERCOUNT ;*** ERROR 61 ***
100 000062 N=N+1
101 005534 004537 007724 JSR %5, STAER2
102 005540 000451 BR INCDN
103 005542 013737 001100 005564 PNDSET: MOV POINT, INDEX ;SET UP TO FETCH DIGIT
104 005550 017703 173322 MOV ENTRY, %3 ;SET UP DIGIT POINTER
105 005554 005777 173316 TST ENTRY
106 005560 100441 BMI INCDN
107 005562 116337 000000 001032 SELECT: MOVB 0(3), WORK ;FETCH DIGIT
108 005570 032737 000377 001032 BIT #377, WORK ;IS THIS THE LAST DIGIT
109 005576 001012 BNE LASTDG ;BRANCH IF NOT LAST DIGIT
110 005600 052777 100000 173270 BIS #BIT15, ENTRY ;SET END OF CALL FLAG
111 005606 032777 004000 173164 BIT #BIT11, JSR ;TEST FOR EON OPTION
112 005614 001060 BNE DSSSET ;801 DOES NOT HAVE EON OPTION
113 005616 012737 000012 001032 MOV #12, WORK ;LOAD END OF NUMBER CODE
114 005624 042737 000360 001032 LASTDG: BIC #360, WORK
115 005632 013700 001050 MOV STATUS, %0 ;LOAD DIGIT INTO TOP BYTE OF DN11 REGISTER
116 005636 005200 INC %0
117 005640 113710 001032 MOVB WORK, %0 ;LOAD BCD DIGIT
118 005644 042777 000200 173176 SETDPR: BIC #BIT7, STATUS ;CLEAR DONE
119 005652 052777 000002 173170 BIS #BIT1, STATUS ;SET DPR
120 005660 005277 173212 INC ENTRY
121 005664 023737 001050 001022 INCDN: CMP STATUS, DNCSR4 ;TEST FOR LAST DN11
122 005672 001416 BEQ EXDSS ;BRANCH ALL DN11 OPERATING
123 005674 005337 001044 DEC SAVE
124 005700 001413 BEQ EXDSS
125 005702 005204 EXINC: INC %4
126 005704 062737 000002 001076 ADD #2, ENTRY ;SET UP FOR NEXT DN11 POLE
127 005712 062737 000002 001050 ADD #2, STATUS
128 005720 062737 000022 001100 ADD #22, POINT
129 005726 000651 BR DNTST ;TEST NEXT DN11
130 ;

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931          ;TEST DSS FOR OVERFLOW AND EXIT
932 005730 005737 001030 EXDSS: TST DSSCNT ;DID WE RECEIVE DSS FROM ALL
933 005734 001404          BEQ RESTE ;YES EXIT
934 005736 052777 000004 173050 BIS #BIT2,@DNCSR1 ;SET MASTER ENABLE
935 005744 000002          RTI
936 005746 012706 001000 RESTE: MOV #1000,%6 ;RESET STACK
937 005752 000137 005152          JMP END ;RECYCLE PROGRAM
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961          ;
962 006014 012737 000340 001002 MASTER: MOV #340,CSR ;LOOK UP CPU. PRIORITY
963 006022 013706 001070          MOV STKLINK,%6
964 006026 004737 010044          JSR PC,SUSWR ;CHECK FOR HARDWARE SWITCH REGISTER
965 006032 017737 172742 001050          MOV @SR,STATUS ;STORE ADDRESS
966 006040 000000          HALT ;LOADSR FROM DOC. 5.3
967 006042 004737 010142          JSR PC,CKSWR ;CHECK FOR <↑G>
968 006046 017777 172726 172774 EXMAST: MOV @SR,@STATUS ;MOVE SR INTO DN11 REGISTER
969 006054 000240          NOP
970 006056 000240          NOP
971 006060 000240          NOP
972 006062 000240          NOP
973 006064 032777 000010 172706          BIT #BIT3,@SR ;TEST FOR MAINTENANCE MODE
974 006072 001015          BNE CLRWAT ;BRANCH WE ARE IN MAINTENANCE MODE
975 006074 012737 177770 001036          MOV #177770,COUNT ;WAIT 2 SECONDS FOR 801 SIGNALS
976 006102 005037 001040          CLR TIME
977 006106 005237 001040          TIMW: INC TIME
978 006112 001375          BNE TIMW
979 006114 005237 001036          INC COUNT
980 006120 001370          BNE TIMW-4
981 006122 005077 172722          CLR @STATUS ;CLEAR DN11
982 006126 032777 000010 172644 CLRWAT: BIT #BIT3,@SR ;ARE WE IN MAINTENANCE MODE
983 006134 001013          BNE CLRREG ;BRANCH NO NEED TO WAIT
984 006136 012737 177770 001036          MOV #177770,COUNT ;WAIT FOR 801
985 006144 005037 001040          CLR TIME
986 006150 005237 001040          CLRTIM: INC TIME

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987 006154 001375          BNE   CLRTIM
988 006156 005237 001036  INC   COUNT
989 006162 001370          BNE   CLRTIM-4
990 006164 005077 172660 CLRREG: CLR  STATUS      ;RECYCLE
991 006170 000724          BR    EXMAST
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1000 006172 012777 000340 172602 TYST:  MOV   #340, @CSR    ;LOCK UP INTERRUPTS
1001 006200 105777 172606 TSTFLG: TSTB  @TKS      ;CHECK FOR FLAG
1002 006204 100375          BPL   TSTFLG
1003 006206 117777 172574 172570 MOVB  @TKB, @TPB      ;CHARACTER IN BUFFER
1004 006214 105777 172570 TSTB  @TPS      ;ECHO CHARACTER
1005 006220 100375          BPL   -4
1006 006222 122777 000377 172556 CMPB  #377, @TKB    ;CHECK FOR RUB-OUT
1007 006230 001004          BNE   CKCH        ;EXIT IF NOT RUB-OUT
1008 006232 104001          EMT   +1
1009 006234 007364          MESS  ;REPORT RUB-OUT ACKNOWLEDGED
1010 006236 005303          DEC   %3
1011 006240 000757          BR    TSTFLG      ;GO WAIT FOR NEW CHAR.
1012 006242 105737 010140 CKCH:  TSTB  TTIN      ;CHECK TO SEE IF LOADING SWREG
1013 006246 001010          BNE   %5          ;IF SO GET OUT
1014 006250 022777 000215 172530 CMP   #215, @TKB   ;CHECK FOR CARRIAGE RETURN
1015 006256 001403          BEQ   +10
1016 006260 117723 172522 MOVB  @TKB, (3)+   ;LOAD CHARACTER IN BUFFER
1017 006264 000745          BR    TSTFLG
1018 006266 105023          CLRB  (3)+
1019 006270 000207          RTS   %7          ;EXIT DELIMITER TYPED
1020 006272 000000          %5:
1021          TEXBUF: 0
1022          PH01: 0
1023          PH02: 0
1024          PH03: 0
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1602          PH581: 0
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1604          PH583: 0
1605          PH584: 0
1606          PH585: 0
1607          PH586: 0
1608          PH587: 0
1609          PH588: 0
1610          PH589: 0
1611          PH590: 0
1612          PH591: 0
1613          PH592: 0
1614          PH593: 0
1615          PH594: 0
1616          PH595: 0
1617          PH596: 0
1618          PH597: 0
1619          PH598: 0
1620          PH599: 0
1621          PH600: 0
1622          PH601: 0
1623          PH602: 0
1624          PH603: 0
1625          PH604: 0
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1631          PH610: 0
1632          PH611: 0
1633          PH612: 0
1634          PH613: 0
1635          PH614: 0
1636          PH615: 0
1637          PH616: 0
1638          PH617: 0
1639          PH618: 0
1640          PH619: 0
1641          PH620: 0
1642          PH621: 0
1643          PH622: 0
1644          PH623: 0
1645          PH624: 0
1646          PH625: 0
1647          PH626: 0
1648          PH627: 0
1649          PH628: 0
1650          PH629: 0
1651          PH630: 0
1652          PH631: 0
1653          PH632: 0
1654          PH633: 0
1655          PH634: 0
1656          PH635: 0
1657          PH636: 0
1658          PH637: 0
1659          PH638: 0
1660          PH639: 0
1661          PH640: 0
1662          PH641: 0
1663          PH642: 0
1664          PH643: 0
1665          PH644: 0
1666          PH645: 0
1667          PH646: 0
1668          PH647: 0
1669          PH648: 0
1670          PH649: 0
1671          PH650: 0
1672          PH651: 0
1673          PH652: 0
1674          PH653: 0
1675          PH654: 0
1676          PH655: 0
1677          PH656: 0
1678          PH657: 0
1679          PH658: 0
1680          PH659: 0
1681          PH660: 0
1682          PH661: 0
1683          PH662: 0
1684          PH663: 0
1685          PH664: 0
1686          PH665: 0
1687          PH666: 0
1688          PH667: 0
1689          PH668: 0
1690          PH669: 0
1691          PH670: 0
1692          PH671: 0
1693          PH672: 0
1694          PH673: 0
1695          PH674: 0
1696          PH675: 0
1697          PH676: 0
1698          PH677: 0
1699          PH678: 0
1700          PH679: 0
1701          PH680: 0
1702          PH681: 0
1703          PH682: 0
1704          PH683: 0
1705          PH684: 0
1706          PH685: 0
1707          PH686: 0
1708          PH687: 0
1709          PH688: 0
1710          PH689: 0
1711          PH690: 0
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1717          PH696: 0
1718          PH697: 0
1719          PH698: 0
1720          PH699: 0
1721          PH700: 0
1722          PH701: 0
1723          PH702: 0
1724          PH703: 0
1725          PH704: 0
1726          PH705: 0
1727          PH706: 0
1728          PH707: 0
1729          PH708: 0
1730          PH709: 0
1731          PH710: 0
1732          PH711: 0
1733          PH712: 0
1734          PH713: 0
1735          PH714: 0
1736          PH715: 0
1737          PH716: 0
1738          PH717: 0
1739          PH718: 0
1740          PH719: 0
1741          PH720: 0
1742          PH721: 0
1743          PH722: 0
1744          PH723: 0
1745          PH724: 0
1746          PH725: 0
1747          PH726: 0
1748          PH727: 0
1749          PH728: 0
1750          PH729: 0
1751          PH730: 0
1752          PH731: 0
1753          PH732: 0
1754          PH733: 0
1755          PH734: 0
1756          PH735: 0
1757          PH736: 0
1758          PH737: 0
1759          PH738: 0
1760          PH739: 0
1761          PH740: 0
1762          PH741: 0
1763          PH742: 0
1764          PH743: 0
1765          PH744: 0
1766          PH745: 0
1767          PH746: 0
1768          PH747: 0
1769          PH748: 0
1770          PH749: 0
1771          PH750: 0
1772          PH751: 0
1773          PH752: 0
1774          PH753: 0
1775          PH754: 0
1776          PH755: 0
1777          PH756: 0
1778          PH757: 0
1779          PH758: 0
1780          PH759: 0
1781          PH760: 0
1782          PH761: 0
1783          PH762: 0
1784          PH763: 0
1785          PH764: 0
1786          PH765: 0
1787          PH766: 0
1788          PH767: 0
1789          PH768: 0
1790          PH769: 0
1791          PH770: 0
1792          PH771: 0
1793          PH772: 0
1794          PH773: 0
1795          PH774: 0
1796          PH775: 0
1797          PH776: 0
1798          PH777: 0
1799          PH778: 0
1800          PH779: 0
1801          PH780: 0
1802          PH781: 0
1803          PH782: 0
1804          PH783: 0
1805          PH784: 0
1806          PH785: 0
1807          PH786: 0
1808          PH787: 0
1809          PH788: 0
1810          PH789: 0
1811          PH790: 0
1812          PH791: 0
1813          PH792: 0
1814          PH793: 0
1815          PH794: 0
1816          PH795: 0
1817          PH796: 0
1818          PH797: 0
1819          PH798: 0
1820          PH799: 0
1821          PH800: 0
1822          PH801: 0
1823          PH802: 0
1824          PH803: 0
1825          PH804: 0
1826          PH805: 0
1827          PH806: 0
1828          PH807: 0
1829          PH808: 0
1830          PH809: 0
1831          PH810: 0
1832          PH811: 0
1833          PH812: 0
1834          PH813: 0
1835          PH814: 0
1836          PH815: 0
1837          PH816: 0
1838          PH817: 0
1839          PH818: 0
1840          PH819: 0
1841          PH820: 0
1842          PH821: 0
1843          PH822: 0
1844          PH823: 0
1845          PH824: 0
1846          PH825: 0
1847          PH826: 0
1848          PH827: 0
1849          PH828: 0
1850          PH829: 0
1851          PH830: 0
1852          PH831: 0
1853          PH832: 0
1854          PH833: 0
1855          PH834: 0
1856          PH835: 0
1857          PH836: 0
1858          PH837: 0
1859          PH838: 0
1860          PH839: 0
1861          PH840: 0
1862          PH841: 0
1863          PH842: 0
1864          PH843: 0
1865          PH844: 0
1866          PH845: 0
1867          PH846: 0
1868          PH847: 0
1869          PH848: 0
1870          PH849: 0
1871          PH850: 0
1872          PH851: 0
1873          PH852: 0
1874          PH853: 0
1875          PH854: 0
1876          PH855: 0
1877          PH856: 0
1878          PH857: 0
1879          PH858: 0
1880          PH859: 0
1881          PH860: 0
1882          PH861: 0
1883          PH862: 0
1884          PH863: 0
1885          PH864: 0
1886          PH865: 0
1887          PH866: 0
1888          PH867: 0
1889          PH868: 0
1890          PH869: 0
1891          PH870: 0
1892          PH871: 0
1893          PH872: 0
1894          PH873: 0
1895          PH874: 0
1896          PH875: 0
1
```



```

1004 006462 122737 000042 006544 CMPB #42,TYPDAT ;NOT "%". CHECK FOR "#".
1005 006463 001417 BEQ TYPG ;BRANCH IF "#".
1006 006464 004737 006500 JSR %7,TYPD ;TYPE CHAR IN TYPDAT
1007 006465 000736 BR TYPG
1008 006466 113777 006544 172276 TYPD: MOVB TYPDAT,%TPB ;OUTPUT CHARACTER TO PRINTER
1009 006467 105777 172276 TSTB %TPS ;WAIT FOR DONE FLAG.
1010 006468 100375 BPL -4
1011 006469 000207 TYEXIT: RTS %7 ;EXIT
1012 006470 112737 000015 006544 TYPF: MOVB #15,TYPDAT ;MOVE CARRIAGE RETURN CODE TO TYPDAT
1013 006471 004737 006500 JSR %7,TYPD ;GO TYPE CHAR.
1014 006472 112737 000012 006544 TYPG: MOVB #12,TYPDAT ;MOVE LF CODE TO TYPDAT.
1015 006473 004737 006500 JSR %7,TYPD ;GO TYPE CHAR.
1016 006474 000734 BR TYPG
1017 006475 000000 TYPDAT: 0

```

:ROUTINE TO DECODE EMT CALLS FOR TTY

```

1018 006476 011600 EMTAP: MOV (6),%D
1019 006477 022740 104001 CMP #EMT+1,-(0) ;WAS CALL EMT+1
1020 006478 001101 BNE TYP ;EMT+0
1021 006479 000722 BR TYP

```

:INDIVIDUAL STATIC TEST SCOPE LOOP ROUTINE

:IF BIT 14 IS SET BYPASS THIS ROUTINE AND JUST LOOP ON THE TEST
:IF BIT 14 IS NOT SET LOOP ON EACH TEST 15 TIMES THEN GO TO THE NEXT TEST

```

1022 006480 004737 010142 LOOP: JSR PC,CKSWR ;CHECK FOR <IG>
1023 006481 032777 040000 172206 BIT #BIT14,%SR ;TEST IF BIT 14 IS SET
1024 006482 001402 BEQ +6 ;BRANCH IF BIT 14 IS NOT SET
1025 006483 013646 MOV %2(6)+,-(6) ;PLAYING WITH THE STACK
1026 006484 000002 RTI ;LOOP ON TEST WITHOUT ENTERING THIS ROUTINE
1027 006485 005737 001064 TST PASS ;TEST IF THE PASS COUNT IS ZERO
1028 006486 001003 BNE +10 ;PASS COUNT NOT ZERO KEEP COUNTING
1029 006487 012737 000035 001064 MOV #35,PASS ;SET UP PASS COUNT FIRST TIME THROUGH
1030 006488 005337 001064 DEC PASS ;-1 PASS THIS TIME THROUGH
1031 006489 001402 BEQ +6 ;PASS ZERO ENTER NEXT TEST
1032 006490 013646 MOV %2(6)+,-(6) ;PLAYING WITH THE STACK AGAIN
1033 006491 000002 RTI ;RE-ENTER TEST
1034 006492 062715 000002 ADD #2,(6) ;INC STACK FOR THE NEXT TEST
1035 006493 000002 RTI ;EXIT TO THE NEXT TEST

```

:POWER FAIL SEQUENCE

```

1036 006494 012737 006644 000024 PWRDWN: MOV #PWRUP,%24 ;SET UP POWER FAIL VECTOR FOR RESTART
1037 006495 000000 HALT ;HALT AND WAIT FOR POWER TO COME BACK

```

:THIS THE POWER UP SEQUENCE REPORT POWER HAS FAILED AND
:WAIT TWO SECONDS FOR THE PHONE LINES TO SETTLE

```

1099
1100 006644 012737 006634 000024 PWRUP: MOV #PWRDWN,24 ;SET UP POWER FAIL VECTOR FOR POWER DOWN
1101 006652 012706 001000 MOV #1000,%5 ;SET UP THE STACK
1102 006656 104000 EMT +0
1103 006660 007512 HED6 ;REPORT THE POWER HAS FAILED
1104 006662 177777 -1
1105 006664 012737 177770 001042 INCTM: MOV #177770,TIME1 ;SET THE TWO SECOND TIMER
1106 006672 005237 001040 INC TIME
1107 006676 001375 BNE INCTM
1108 006700 005237 001042 INC TIME1
1109 006704 001375 BNE INCTM
1110 006706 022737 000176 001000 CMP #SWREG,SR ;CHECK FOR SWREG USE
1111 006714 001002 BNE 1$ ;IF NOT GO TO 1$
1112 006716 004737 010212 JSR PC,CNTLU ;GO LOAD SWREG FROM TTY
1113 006722 000137 001102 1$: JMP START ;GO TO THE BEGINNING OF THE PROGRAM AND RESTART
1114 :ROUTINE TO SAVE REGISTERS
1115 006726 010046 SAVEREG: MOV %0,-(6) ;SAVE REGISTER 0
1116 006730 010146 MOV %1,-(6) ;SAVE REGISTER 1
1117 006732 010246 MOV %2,-(6) ;SAVE REGISTER 2
1118 006734 010346 MOV %3,-(6) ;SAVE REGISTER 3
1119 006736 010446 MOV %4,-(6) ;SAVE REGISTER 4
1120 006740 000115 JMP (5) ;EXIT ROUTINE
1121 :ROUTINE TO RESTORE REGISTERS
1122 006742 005726 RESTORE: TST (6)+
1123 006744 012604 MOV (6)+,%4 ;RESTORE REGISTER 4
1124 006746 012603 MOV (6)+,%3 ;RESTORE REGISTER 3
1125 006750 012602 MOV (6)+,%2 ;RESTORE REGISTER 2
1126 006754 012601 MOV (6)+,%1 ;RESTORE REGISTER 1
1127 006758 012600 MOV (6)+,%0 ;RESTORE REGISTER 0
1128 006756 000205 RTS %5 ;EXIT ROUTINE
1129
1130
1131

```

```

1132
1133
1134
1135 006760 011600
1136 006762 062716 000002
1137 006766 011037 007006
1138 006772 022737 177777 007006
1139 007000 001001
1140 007002 000002
1141 007004 104001
1142 007006 000000
1143 007010 000763

:SUBROUTINE TO OUTPUT A SERIES OF ASCII MESSAGES ON TELETYPE PRINTER
TYP5:  MOV  3%6,%0      :GET ADDRESS THAT CONTAINS MESSAGE ADDRESS
      ADD  #2,3%6      :UPDATE TO NEXT MESSAGE ADDRESS
      MOV  3%0,TYP5B   :ADDRESS OF MESSAGE TO TYP5B
      CMP  #-1,TYP5B   :CHECK FOR TERMINATOR
      BNE  TYP5A       :BRANCH IF NOT TERMINATOR.
      RTI                    :TERMINATOR. EXIT.
TYP5A:  EMT  +1        :CALL ON TYP SUB TO TYPE MESSAGE
TYP5B:  0
      BR   TYP5        :ADDRESS OF MESSAGE GOES HERE
                        :GO PROCESS NEXT MESSAGE

:
:OCTAL TO ASCII CONVERT ROUTINE
:ENTER ROUTINE AS FOLLOWS
:JSR %5,CONV
:ADDR# = ADDRESS OF NUMBER TO BE CONVERTED
:ADDR BYTE = LSB OF WHERE ASCII IS GOING
:ASCII# = THE NUMBER OF ASCII CHAR. TO BE CONVERTED
:
1159 007012 013537 007072  CONV:  MOV  3(5)+,ACNVX  :VALUE OF # TO BE CONVERTED
1160 007016 012501          MOV  (5)+,%1        :ASCII ADDR
1161 007020 012502          MOV  (5)+,%2        :# OF ASCII CHAR
1162 007022 060201          ADD  %2,%1
1163 007024 013703 007072  ACVN:  MOV  ACNVX,%3
1164 007030 042703 177770  BIC  #177770,%3    :ISOLATE LEAST SIGNIFICANT OCTAL #
1165 007034 062703 000060  ADD  #60,%3        :SET UP ASCII #
1166 007040 110341          MOVB %3,-(1)       :STORE ASCII CHAR
1167 007042 042737 000007 007072  BIC  #7,ACNVX
1168 007050 006037 007072  ROR  ACNVX          :ROTATE OCTAL #
1169 007054 006037 007072  ROR  ACNVX
1170 007060 006037 007072  ROR  ACNVX
1171 007064 005302          DEC  %2            :-1 FROM ASCII CHAR COUNT
1172 007066 001356          BNE  ACVN
1173 007070 000205          RTS  %5          :EXIT # CONVERTED
1174 007072 000000          ACNVX: 0        :WORK REGISTER

```

```

1175          : THIS ROUTINES IS USED TO CONVERT ASCII INPUT TO OCTAL
1176          :
1177          :
1178          :
1179 007074 012703 006272 NEXCHAR: MOV    #TEXBUF,%3    ;FETCH ASCII POINTER
1180 007100 005012          CLR    %2              ;
1181 007102 105713          TSTB   %3              ;TEST FOR LAST CHACTER
1182 007104 001410          BEQ    EXNEX          ;LAST CHACTER EXIT
1183 007106 000241          CLC
1184 007110 006312          ASL    %2
1185 007112 006312          ASL    %2
1186 007114 006312          ASL    %2
1187 007116 142713 000370 BICB   #370,%3      ;MASK OUT HI ORDER BITS
1188 007122 152312          BISB   (%3)+,%2     ;LOAD OCTAL VALUE
1189 007124 000766          BR     NEXCHAR+6
1190 007126 000207          EXNEX: RTS    %7    ;EXIT LAST CHARACTER PROCESSED
  
```

1190
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1234
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1245

007130	020045	044124	020105
007136	030070	020061	051511
007144	047440	043106	046040
007152	047111	027105	100
007157	045	044120	047117
007164	020105	030443	040077
007172	050045	047510	042516
007200	021440	037462	100
007205	045	044120	047117
007212	020105	031443	040077
007220	050045	047510	042516
007226	021440	037464	100
007233	045	051120	043517
007240	040522	020115	044524
007246	042515	020104	052517
007254	020124	047125	041101
007262	042514	052040	020117
007270	047503	050115	042514
007276	042524	041440	046101
007304	040114		
007306	042445	042116	100
007313	045	047104	030461
007320	051040	043505	051511
007326	042524	020122	042101
007334	051104	051505	037523
007342	100		

```

:TTY OUTPUT FOR DIALEX-11
MES1: .ASCII /% THE 801 IS OFF LINE.0/
:
PH1: .ASCII /%PHONE #1?0/
:
PH2: .ASCII /%PHONE #2?0/
:
PH3: .ASCII /%PHONE #3?0/
:
PH4: .ASCII /%PHONE #4?0/
:
TIMO: .ASCII /%PROGRAM TIMED OUT UNABLE TO COMPLETE CALL0/
:
MESEND: .ASCII /%END0/
:
DNADDR: .ASCII /%DN11 REGISTER ADDRESS?0/
:

```

1246					:
1247	007343	045	042526	052103	VECDN: .ASCII /%VECTOR ADDRESS?@/
1248	007350	051117	040440	042104	
1249	007356	042522	051523	040077	
1250					:
1251					:
1252					:
1253					:
1254					:
1255					:
1256					:
1257					:
1258					:
1259					:
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1263					:
1264					:
1265					:
1266					:
1267					:
1268					:
1269					:
1270					:
1271	007364	040057	047		MESB: .ASCII %/@'%
1272	007367	045	100		HEDO: .ASCII /%@/
1273					:
1274					:
1275					:
1276					:
1277					:
1278					:
1279					:
1280					:
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1299					:
1300					:
1301					:

```

007371 040 020040 042440 HED1: .ASCII / ERROR COUNT @/
007376 051122 051117 041440
007404 052517 052116 020040
007412 040040

007414 020040 020040 020040 HED2: .ASCII / GD DATA @/
007422 043440 020104 040504
007430 040524 020040 040040

007436 020040 020040 020040 HED3: .ASCII / BD DATA@/
007444 041040 020104 040504
007452 040524 100

007455 040 020040 020040 HED4: .ASCII / DN11 @/
007462 042040 030516 020061
007470 020040 100

007473 040 020040 020040 HED5: .ASCII / DNCSR @/
007500 042040 041516 051123
007506 020040 040040

007512 050045 053517 051105 HED6: .ASCII /%POWER FAIL OCCURRED@/
007520 043040 044501 020114
007526 041517 052503 051122
007534 042105 100

```

H04

MAIN. MACY11 27(732) 08-APR-76 14:21 PAGE 34
DZDAAA.P11

SEQ 0046

1302

007540

.EVEN

```

1303
1304
1305          ;ROUTINE TO REPORT ERRORS
1306
1307 007540 032777 020000 171232 STAER: BIT      #BIT13,JSR      ;TEST TO DELETE TYPE-OUT
1308 007546 001401          BEQ      .+4          ;BRANCH TO TYPE
1309 007550 000205          RTS      %5          ;DELETE TYPE-OUT
1310 007552 004537 006726 JSR      %5,SAVEREG ;SAVE REGISTERS
1311 007556 004537 007012 JSR      %5,CONV   ;CONVERT OCTAL TO ASCII
1312 007562 001046          ERCOUNT
1313 007564 007371          HED1
1314 007566 000003          3
1315 007570 004537 007012 JSR      %5,CONV
1316 007574 001050          STATUS
1317 007576 007455          HED4
1318 007600 000006          6
1319 007602 104000          EMT      +0          ;REPORT ERROR NUMBER
1320 007604 007367          HED0
1321 007606 007371          HED1
1322 007610 007455          HED4
1323 007612 177777          -1
1324 007614 005777 171160 TST      JSR          ;TEST TO HALT ON ERROR
1325 007620 100001          BPL      1$
1326 007622 000000          HALT
1327 007624 004737 010142 1$: JSR      PC,CKSWR  ;CHECK FOR <1G>
1328 007630 004537 006742 JSR      %5,RESTORE ;RESTORE REGISTERS
1329 007634 000205          RTS      %5          ;EXIT
1330
1331          ;
1332
1333 007636 032777 020000 171134 STAER1: BIT      #BIT13,JSR      ;TEST TO DELETE TYPE-OUT
1334 007644 001401          BEQ      .+4          ;BRANCH TO TYPE
1335 007646 000205          RTS      %5          ;BIT13 SET DELETE TYPE-OUT
1336 007650 004537 006726 JSR      %5,SAVEREG ;SAVE REGISTERS
1337 007654 004537 007012 JSR      %5,CONV   ;CONVERT OCTAL TO ASCII
1338 007660 001034          WORK1
1339 007662 007414          HED2
1340 007664 000006          6
1341 007666 004537 007012 JSR      %5,CONV   ;CONVERT OCTAL TO ASCII
1342 007672 001032          WORK      ;WHAT REGISTER CONTAINED
1343 007674 007436          HED3
1344 007676 000006          6
1345 007700 104000          EMT      +0          ;REPORT MESSAGE
1346 007702 007367          HED0
1347 007704 007414          HED2
1348 007706 007436          HED3
1349 007710 177777          -1
1350 007712 004537 006742 JSR      %5,RESTORE ;RESTORE REGISTERS
1351 007716 004737 010142 JSR      PC,CKSWR  ;CHECK FOR <1G>
1352 007722 000205          RTS      %5
1353
1354          ;
1355
1356 007724 032777 020000 171046 STAER2: BIT      #BIT13,JSR      ;TEST TO DELETE TYPE-OUT
1357 007732 001401          BEQ      .+4          ;BRANCH TO TYPE
1358 007734 000205          RTS      %5          ;DELETE TYPE-OUT

```



```

1359 007736 004537 006726 JSR %5,SAVEREG ;SAVE REGISTERS
1360 007742 004537 007012 JSR %5,CONV ;CONVERT OCTAL TO ASCII
1361 007746 001046 ERCOUNT
1362 007750 007371 HED1
1363 007752 000003 3
1364 007754 017737 171070 001032 MOV @STATUS,WORK
1365 007762 004537 007012 JSR %5,CONV ;CONVERT OCTAL TO ASCII
1366 007766 001032 WORK
1367 007770 007473 HED5
1368 007772 000006 6
1369 007774 004537 007012 JSR %5,CONV ;CONVERT OCTAL TO ASCII
1370 010000 001050 STATUS
1371 010002 007455 HED4
1372 010004 000006 6
1373 010006 104000 EMT +0
1374 010010 007367 HED0
1375 010012 007371 HED1
1376 010014 007473 HED5
1377 010016 007455 HED4
1378 010020 177777 -1
1379 010022 005777 170752 TST @SR ;TEST TO DELETE HALT ON ERROR
1380 010026 100001 BPL 1$ ;BRANCH IF NO HALT WANTED
1381 010030 000000 HALT
1382 010032 004737 010142 1$: JSR PC,CKSWR ;CHECK FOR <↑G>
1383 010036 004537 006742 JSR %5,RESTORE ;RESTORE REGISTERS
1384 010042 000205 RTS %5
1385
1386
1387 ;HARDWARE SWITCH REGISTER SIZING ROUTINE*****
1388
1389
1390 010044 013746 000006 SUSWR: MOV @#6,-(SP) ;SAVE VECTORS
1391 010050 013746 000004 MOV @#4,-(SP)
1392 010054 012737 010074 000004 MOV #64$,@#4 ;SET UP FOR TIMEOUT
1393 010062 022777 177777 170710 CMP #-1,@SR ;REFERENCE HARDWARE SWITCH REGISTER
1394 010070 001402 BEQ 65$
1395 010072 000404 BR 66$
1396 010074 022626 64$: CMP (SP)+,(SP)+ ;ADJUST STACK
1397 010076 012737 000176 001000 65$: MOV #SWREG,SR ;POINT TO SOFTWARE SWITCH REG
1398 010104 012637 000004 66$: MOV (SP)+,@#4 ;RESTORE VECTORS
1399 010110 012637 000006 MOV (SP)+,@#6
1400 010114 022737 000176 001000 CMP #SWREG,SR ;IS SWREG USED
1401 010122 001002 BNE 67$
1402 010124 004737 010212 JSR PC,CNTLU ;ALLOW SWREG TO BE LOADED
1403 010130 000207 67$: RTS PC
1404
1405

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1406 ;CHECK SWITCH REGISTER ROUTINE. CHECKS FOR ↑G TO ALLOW CHANGING
1407 ;OF LOC.175.
1408 ;LOCATIONS USED:
1409 010132 000000 TEMPST: .WORD 0
1410 010134 000000 WCOUNT: .WORD 0
1411 010136 000000 TIB: .WORD 0
1412 010140 000000 TTIN: .WORD 0
1413
1414 010142 022737 000176 001000 CKSWR: CMP #SWREG,SR ;SOFTWARE SWITCH REGISTER PRESENT
1415 010150 001132 BNE OUT ;NO GET OUT
1416 010152 032777 004000 170632 69$: BIT #BIT11,ATKS ;SEE IF TTY IS BUSY
1417 010160 001374 BNE 69$ ;IF BUSY WAIT TILL DONE
1418 010162 017737 170620 010136 MOV ATKB,TIB ;AND STRIP OFF
1419 010170 042737 000200 010136 BIC #200,TIB ;THE GARBAGE
1420 010176 122737 000007 010136 CMPB #7,TIB ;IS IT A <↑G>
1421 010204 001114 BNE OUT
1422 010206 104001 EMT +1 ;TYPE <↑G>
1423 010210 010444 MCNTLG
1424 010212 104001 CNTLU: EMT +1 ;TYPE SWR=
1425 010214 010451 MSWR
1426 010216 004537 006726 JSR %5,SAVEREG ;SAVE REGISTERS
1427 010222 004537 007012 JSR %5,CONV ;GET CONTENTS OF SWREG
1428 010226 000176 SWREG
1429 010230 010457 MNEW
1430 010232 000006 6
1431 010234 004537 006742 JSR %5,RESTORE ;RESTORE REGISTERS
1432 010240 104001 EMT +1 ;TYPE OUT CONTENTS OF SWREG
1433 010242 010457 MNEW ;AND NEW=
1434 010244 005037 010132 $READ: CLR TEMPST
1435 010250 012737 000007 010134 MOV #7,WCOUNT
1436 010256 005237 010140 INC TTIN
1437 010262 004737 006172 1$: JSR PC,TYST ;GO READ A CHARACTER
1438 010266 017737 170514 010136 MOV ATKB,TIB
1439 010274 042737 177600 010136 BIC #177600,TIB ;STRIP OFF GARBAGE
1440 010302 122737 000025 010136 CMPB #25,TIB ;IS IT A ↑U?
1441 010310 001001 BNE 2$ ;BRANCH IF NOT
1442 010312 000737 BR CNTLU ;START OVER
1443 010314 122737 000015 010136 2$: CMPB #15,TIB ;IS IT A <CR>?
1444 010322 001007 BNE 4$ ;BRANCH IF NOT
1445 010324 104001 EMT +1 ;TYPE CRLF
1446 010326 010476 MCRLF
1447 010330 022737 000007 010134 CMP #7,WCOUNT ;WAS IT FIRST CHARACTER
1448 010336 001034 BNE 7$ ;CHANGE SWR IF NOT FIRST ONE
1449 010340 000436 BR OUT ;GET OUT
1450 010342 122737 000060 010136 4$: CMPB #60,TIB
1451 010350 003004 BGT 5$
1452 010352 122737 000067 010136 CMPB #67,TIB
1453 010360 002003 BGE 6$
1454 010362 104001 5$: EMT +1 ;TYPE ?
1455 010364 010500 MQUEST
1456 010366 000751 BR 3$ ;START OVER IF NOT LEGAL CHARACTER
1457 010370 006337 010132 6$: ASL TEMPST
1458 010374 006337 010132 ASL TEMPST
1459 010400 006337 010132 ASL TEMPST
1460 010404 142737 000060 010136 BICB #60,TIB ;GET NITTY-GRITTY
1461 010412 153737 010136 010132 BISB TIB,TEMPST

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L04

1462	010420	005337	010134			DEC	WCOUNT		
1463	010424	001756				BEQ	5\$; ONLY WANT 6 DIGITS
1464	010426	000715				BR	1\$		
1465	010430	013777	010132	170342	7\$:	MOV	TEMPST, @SR		; CHANGE SWITCH REGISTER CONTENTS
1466	010436	005037	010140		OUT:	CLR	TTIN		
1467	010442	000207				RTS	PC		; RETURN TO PROGRAM
1468									
1469	010444	057045	022507	100	MCNTLG:	.ASCII	/%↑G%@/		
1470	010451	045	053523	036522	MSWR:	.ASCII	/%SWR=@/		
1471	010456	100							
1472	010457	040	020040	020040	MNEW:	.ASCII	/	NEW=@/	
1473	010464	020040	020040	047040					
1474	010472	053505	040075						
1475	010476	040045			MCRLF:	.ASCII	/%@/		
1476	010500	037445	040045		MQUEST:	.ASCII	/%?%@/		
1477									
1478									
1479									
1480									
1481		011504							
1482	011504	000000			STACK:	0	.+.1000		
1483		000001					.END		

ACNVX	007072	ERR14	002300	GETVEC	001226	PNT1	001052	ST15XE	002312
ACVN	007024	ERR15	002342	HED0	007367	PNT2	001054	ST16	002360
BEGIN	004270	ERR16	002376	HED1	007371	PNT3	001056	ST16E	002354
BIT0	= 000001	ERR17	002446	HED2	007414	PNT4	001060	ST16X	002414
BIT1	= 000002	ERR2	001530	HED3	007436	POINT	001100	ST16XE	002410
BIT10	= 002000	ERR20	002502	HED4	007455	PRIORI	001026	ST17	002464
BIT11	= 004000	ERR21	002552	HED5	007473	PWRDN	006634	ST17E	002460
BIT12	= 010000	ERR22	002606	HED6	007512	PWRUP	006644	ST17X	002520
BIT13	= 020000	ERR23	002642	INCDN	005664	REPEND	005402	ST17XE	002514
BIT14	= 040000	ERR24	002674	INCTM	006672	REPORR	005772	ST2X	001456
BIT15	= 100000	ERR25	002716	INDEX	= 005564	RESTAR	004176	ST2XE	001452
BIT2	= 000004	ERR26	002752	INT	005412	RESTE	005746	ST20	002570
BIT3	= 000010	ERR27	003004	INTER	003762	RESTOR	006742	ST20E	002564
BIT4	= 000020	ERR3	001564	LASTDG	005624	RINGO	004566	ST21	002624
BIT5	= 000040	ERR30	003040	LOOP	006560	R0	=%000000	ST21E	002620
BIT6	= 000100	ERR31	003072	MAP	001072	R1	=%000001	ST22	002656
BIT7	= 000200	ERR32	003114	MASK	001066	R2	=%000002	ST22E	002730
BIT8	= 000400	ERR33	003150	MASTER	006014	R3	=%000003	ST22X	002710
BIT9	= 001000	ERR34	003202	MCNTLG	010444	R4	=%000004	ST23	002734
CKCH	006242	ERR35	003224	MCRLF	010476	R5	=%000005	ST24	002766
CKSWR	010142	ERR36	003260	MESEND	007306	SAVE	001044	ST25	003022
CLRDN	005224	ERR37	003324	MES1	007130	SAVERE	006726	ST25E	003016
CLRDON	003652	ERR4	001620	MES8	007364	SCOPE	= 000004	ST25X	003054
CLRREG	006164	ERR40	003346	MNEW	010457	SECINT	004032	ST26	003106
CLRTIM	006150	ERR41	003402	MODOK	004640	SELECT	005562	ST26E	003126
CLRWT	006126	ERR42	003434	MPDN	005140	SETCRQ	004716	ST26X	003132
CNTLU	010212	ERR43	003456	MQUEST	010500	SETDPR	005644	ST27	003164
CONV	007012	ERR44	003512	MSWR	010451	SETPT	004660	ST27E	003236
COUNT	001036	ERR45	003552	MYCNT	004232	SP	=%000006	ST3	001512
CSR	001002	ERR46	003604	N	= 000063	SR	001000	ST3E	001506
DLOTST	004764	ERR47	003630	NEWNO	004340	STACK	011504	ST30	003216
DNADDR	007313	ERR5	001676	NEXCHA	007074	STAER	007540	ST31	003242
DNCSR1	001014	ERR50	003660	NOERRO	005506	STAER1	007636	ST31X	003274
DNCSR2	001016	ERR51	003710	NOFLAG	004322	STAER2	007724	ST32	003340
DNCSR3	001020	ERR52	003774	NOP	= 000240	START	001102	ST32E	003360
DNCSR4	001022	ERR53	004032	NOTCRQ	005346	STATUS	001050	ST32X	003364
DNDIAL	004550	ERR54	004100	NCTFIR	001304	STKLIN	001070	ST33	003416
DNSTAT	005112	ERR55	004622	NO0	004362	ST1	001326	ST34	003450
DNTST	005452	ERR56	004742	NO1	004416	ST1X	001372	ST34E	003470
DONSET	003674	ERR57	005070	NO2	004454	ST1XE	001422	ST34X	003474
DSSCLR	005326	ERR6	002012	NO3	004512	ST10	002034	ST35	003526
DSSCNT	001030	ERR60	005314	OUT	010436	ST10E	002030	ST35E	003616
DSSSET	005756	ERR61	005526	PASS	001064	ST11	002066	ST35X	003566
EMTRP	006546	ERR62	005772	PC	=%000007	ST11E	002062	ST36	003622
END	005152	ERR7	002050	PH01	006314	ST12	002122	ST36E	003722
ENTRY	001076	EXCLRD	005334	PH02	006336	ST12E	002116	ST36X	003644
ERCOUN	001046	EXCRQ	004772	PH03	006360	ST12EX	002162	ST37	003726
ERRO	001440	EXDSS	005730	PH04	006402	ST13	002172	ST37X	004010
ERR1	001474	EXINC	005702	PH1	007157	ST14	002226	ST38	004046
ERR10	002104	EXMAST	006042	PH2	007172	ST14E	002222	ST38E	004112
ERR11	002150	EXMODO	004646	PH3	007205	ST15	002262	ST4	001546
ERR12	002210	EXNEX	007126	PH4	007220	ST15E	002256	ST4E	001542
ERR13	002244	FLAG	001062	PNDSET	005542	ST15X	002316	ST40	004122

STS	001602	SWREG	000176	TKS	001012	TYPC	006452	VECDN	007343
ST5E	001576	TEMPST	010132	TPB	001004	TYPD	006500	VECTOR	001024
ST6	001636	TEXBUF	006272	TFS	001010	TYPDAT	006544	WAITIN	005004
ST6E	001632	TIB	010136	TSTFLG	006200	TYPF	006516	WCOUNT	010134
ST7	001726	TIME	001040	TTIN	010140	TYPG	006530	WORK	001032
ST7E	001722	TIME1	001042	TWOSEC	005040	TYPS	006760	WORK1	001034
ST7ER	002012	TIMO	007233	TYEXIT	006514	TYPSA	007004	\$READ	010244
ST7X	001742	TIMW	006106	TYP	006424	TYPSB	007006	.	= 011506

ERRORS DETECTED: 0
 DEFAULT GLOBALS GENERATED: 0

*DZDNAA.DZDNA/SOL+DZDNAA.P11
 RUN-TIME: 4 8 .8 SECONDS
 RUN-TIME RATIO: 39/13=2.9
 CORE USED: 6K (11 PAGES)

