

|| DIGITAL RESEARCH

Post Office Box 579, Pacific Grove, California 93950, (408) 373-3403

DDT UTILITIES

CP/M VERSION _____

COPYRIGHT © 1976

DIGITAL RESEARCH

P. O. BOX 579

PACIFIC GROVE, CA. 93950

SER. # _____

```

2>
3>
4>
5>
6>
7>
8> 0100
9> 0005 =
10> 0200 =
11>
12> 0100 010000
13> 0103 C5
14> 0104 210700
15>
16> 0107 79
17> 0108 07
18> 0125 7E
19> 010A CA0E01
20> 010D 3D
21> 010E 90
22> 010F 57
23> 0110 1E00
24> 0112 D5
25>
26> 0113 210002
27> 0116 78
28> 0117 01
29> 0118 CA2301
30> 0118 08
31> 011C 7E
32> 011D 12
33> 011E 13
34> 011F 23
35> 0120 C31601
36>
37>
38>
39> 0123 D1
40> 0124 C1
41> 0125 E5
42> 0126 62
43>
44> 0127 78
45> 0128 01
46> 0129 CA4501
47>
48>
49> 012C 08
50> 012D 78
51> 012E E607
52> 0130 C23001
53>
54> 0133 E3
55> 0134 7E
56> 0135 23
57> 0136 E3
58> 0137 6F
59> 0138 7D
60> 0139 17

```

```

; DDT UTILITY RELOCATOR PROGRAM. INCLUDED WITH THE UTILITY
; TO MOVE IT UP NEXT TO THE LOWEST MODULE BENEATH THE DDT
; PROGRAM. ALSO CHANGES THE BRANCH INSTRUCTION AT LOCATION
; 5H TO ADDRESS THE NEWLY INSERTED MODULE, AND GIVES IT CONTROL
; AT THE PRIMARY ENTRY POINT.
ORG 100H
;
; BDDS
MODULE EQU 0005H
MODULE EQU 200H ;MODULE ADDRESS
;
LXI B,0 ;ADDRESS FIELD FILLED-IN WHEN MODULE BUILT
PUSH B ;USING DDT'S STACK
LXI H,BDDS+2;ADDRESS FIELD OF JUMP TO BDDS (TOP MEMORY)
CHECK LEAST SIGNIFICANT BYTE OF SIZE FIELD
MOV A,C
ORA A ;ZERO FLAG SET IF = 00H
MOV A,H ;A HAS HIGH ORDER ADDRESS OF MEMORY TOP
JZ NODEC
DCR A ;PAGE DIRECTLY BELOW BDDS
SUB B ;A HAS HIGH ORDER ADDRESS OF
MOV D,A
MVI E,0
PUSH D
;
LXI H,MODULE;READY FOR THE MOVE
MOV A,B ;BC=0?
ORA C
JZ RELOC
DCX B ;COUNT MODULE SIZE DOWN TO ZERO
MOV A,M ;GET NEXT ABSOLUTE LOCATION
STAX D ;PLACE IT INTO THE RELOC AREA
INX D
INX H
JMP MOVE
;
; STORAGE MOVED, READY FOR RELOCATION
; HL ADDRESSES BEGINNING OF THE BIT MAP FOR RELOCATION
POP D ;RECALL BASE OF RELOCATION AREA
POP B ;RECALL MODULE LENGTH
PUSH H ;SAVE BIT MAP BASE IN STACK
MOV H,D ;RELOCATION BIAS IS IN D
;
;
MOV A,B ;BC=0?
ORA C
JZ ENDREL
;
; NOT END OF THE RELOCATION, MAY BE INTO NEXT BYTE OF BIT MAP
DCX B ;COUNT LENGTH DOWN
MOV A,E
ANI 111B ;0 CAUSES FETCH OF NEXT BYTE
JNZ REL1
;
; FETCH BIT MAP FROM STACKED ADDRESS
XTHL
MOV A,M ;NEXT 8 BITS OF MAP
INX H
XTHL ;BASE ADDRESS GOES BACK TO STACK
MOV L,A ;L HOLDS THE MAP AS WE PROCESS 8 LOCATIONS
MOV A,L
RAL ;CY SET TO 1 IF RELOCATION NECESSARY

```

UTILMO1

```

013A 6F
013B D24101
;
013E 1A
013F 04
0140 12
0141 13
0142 C32701
;
0145 D1
0146 2E00
;
0148 220600
0149 2E03
014D E9
014E

```

CPM VERSION _____
 COPYRIGHT © 1976
 DIGITAL RESEARCH
 P. O. BOX 579
 PACIFIC GROVE, CA 93950
 SERIAL # _____
 UTILITY MOVE PROC

```

MOV L,A ;BACK TO L FOR NEXT TIME AROUND
JNC REL2 ;SKIP RELOCATION IF CY=0
;
CURRENT ADDRESS REQUIRES RELOCATION
LDAX D
ADD H ;APPLY BIAS IN H
STAX D
INX D ;TO NEXT ADDRESS
JMP REL0 ;FOR ANOTHER BYTE TO RELOCATE
;
ENDREL; ;END OF RELOCATION
POP D ;CLEAR STACKED ADDRESS
MVI L,0
;
; ENTRY ADDRESS IS AT H.L + 3
; THE MODULE CONTAINS A JUMP AROUND TO NEXT MODULE
; CHANGE ADDRESS FIELD AT 5H TO ADDRESS BEGINNING OF MODUL
SHLD BDDS+1 ;CHANGE ENTRY ADDRESS
MVI L,3 ;MODULE ADDRESS + 3
PCHL ;GONE...
END

```

HISTO

```

1>
2>
3> 0000 HISTO, ORG 000H
4>
5> ;
6> ; COPYRIGHT (C) 1976
7> ; DIGITAL RESEARCH
8> ; BOX 579 PACIFIC GROVE
9> ; CALIFORNIA 93950
10>
11> ; HISTOGRAM OF PROGRAM EXECUTION FREQUENCY
12> ; DDT ENTRY POINT
13> 0039 = DDTBASE EQU 7*8+1 ;RESTART ENTRY POINT HAS BASE
14> 0000 C30004 JMP ENDMOD ;END OF THIS MODULE (TO BEGINNING OF NEXT)
15> 0003 C30F00 INIE: JMP INITIAL
16> 0006 C3F100 COLE: JMP COLLECT
17> 0009 C32F01 DISE: JMP DISPLAY
18> 000C 434F505952 DB 'COPYRIGHT (C) 1976 DIGITAL RESEARCH
19> ; DDT SUBROUTINES
20> GETBUFF, ;
21> ; READ NEXT COMMAND BUFFER
22> LXI B,3
23> JMP GODDT
24>
25>
26> GNC, ;READ NEXT CHARACTER TO REGISTER A
27> LXI B,6
28> JMP GODDT
29>
30> PCHAR, ;PRINT CHARACTER FROM REGISTER A
31> LXI B,9
32> JMP GODDT
33>
34> PBYTE, ;PRINT DECODED BYTE FROM REGISTER A
35>
36>
37> 0044 010C00 LXI B,12
38> 0047 C35900 JMP GODDT
39>
40>
41> PADDR, ;PRINT DECODED ADDRESS FROM D,E
42> LXI B,15
43> 004A 010F00 JMP GODDT
44> 004D C35900
45>
46> SCANEXP, ;
47> ; SCAN COMMAND LINE FOR 1,2, OR 3 EXPRESSIONS
48> LXI B,18
49> JMP GODDT
50>
51> GETVAL, ;
52> ; READ NEXT VALUE FROM SCANEXP CALL TO H,L
53> LXI B,21
54>
55>
56> GODDT, ;PERFORM THE DDT CALL
57> LHL DDTBASE
58> DAD B
59> PCHL
60>
61>
62>
63>
64>
65>
66>
67>
68>
69>
70>
71>
72>
73>
74>
75>
76>
77>
78>
79>
80>
81>
82>
83>
84>
85>
86>
87>
88>
89>
90>
91>
92>
93>
94>
95>
96>
97>
98>
99>
000D = CR EQU 0DH

```

CP/M VERSION _____
 COPYRIGHT © 1976
 DIGITAL RESEARCH
 P. O. BOX 579
 PACIFIC GROVE, CA 93950
 SER. # HISTOGRAM GENERATOR

```

000A = LF EQU 0AH
0040 = HSIZE EQU 64 ;SIZE OF HISTOGRAM (MUST CORRESPOND TO SHR)
;
; USEFUL SUBROUTINES
; COMPUTE THE DIFFERENCE: DE = DE - HL
;
005E 7B MOV A,E
005F 95 SUB L
0060 5F MOV E,A
0061 7A MOV A,D
0062 9C SBB H
0063 57 MOV D,A
0064 C9 RET
;
; SHR6, ;DIVIDE H,L BY 64 (MUST CORRESPOND TO HSIZE)
;
0065 7D MOV A,L
0066 6C MOV L,H
0067 2600 MVI H,0
0069 29 DAD H ;HIGH ORDER * 2
006A 29 DAD H ;HIGH ORDER * 4
006B 07 RLC ;MOVE HIGH TWO BITS OF LOW BYTE
006C 07 RLC ;TO POSITION IN A
006D E603 ANI 11B ;MASK TO REPLACE LOW BITS OF H,L
006F B5 ORA L
0070 6F MOV L,A
0071 C9 RET
;
; CRLF, ;SEND CRLF CHARACTERS
;
0072 3E0D MVI A,CR
0074 CD3E00 CALL PCHAR
0077 3E0A MVI A,LF
0079 CD3E00 CALL PCHAR
007C C9 RET
;
; PRINT, ;PRINT MESSAGE IN D,E 'TIL FIRST SER.#
;
007D 1A LDAX D
007E B7 ORA A
007F C8 RZ
;
; MORE TO PRINT
;
0080 13 INX D
0081 D5 PUSH D
0082 CD7E00 CALL PCHAR
0085 D1 POP D
0086 C37D00 JMP PRINT
;
; INERR, LXI D,ERMSG
; CALL PRINT
;
; PRINCIPAL PROCESSORS
;
INITIAL, ;
; LXI D,BOUNDS ;SEND STARTING MESSAGE
; CALL PRINT
; CALL GETBUFF ;GET BUFFER FULL FOR BOUNDS SCAN
; CALL SCANEXP ;SHOULD BE 2 PARAMETERS
; JC INERR ;CANNOT BE ,X,X
; CPI 2
; JNZ INERR ;1,3?
; CALL GETVAL ;FIRST PARAMTER TO H,L
; SHLD LB ;LOWER BOUND SAVED
; PUSH H ;COMPARED WITH UPPER BOUND LATER

```

CP/M VERSION _____
 COPYRIGHT © 1976
 DIGITAL RESEARCH
 P. O. BOX 579
 PACIFIC GROVE, CA 93950
 SER.# _____


```

240> 0164 AF XRA A /CLEAR ZERCNT
241> 0165 327602 STA ZERCNT
242>
243>
244> 0160 2A7702 LHL D LB
245> 0160 EB XCHG /LOWER BOUND TO D,E
246> 016C 017B02 LXI B,HVEC /BASE OF HIST VECTOR
247> 016F D5 DISPO, PUSH D /SAVE CURRENT LINE ADDRESS
248> 0170 2A7902 LHL D UB /TEST FOR OVER THE TOP
249> 0173 CD5E00 CALL DIFF
250> 0176 D1 POP D
251> 0177 D2B001 JNC DISP1 /NO CARRY IF CURRENT >= UB
252> CHECK FOR MULTIPLE BLANK LINES AND PRINT .... INSTEAD
253> 017A 60 MOV H,B /HIGH ORDER HVEC INDEX
254> 017B 69 MOV L,C /LOW ORDER HVEC INDEX
255> 017C 7E MOV A,M /LOW ORDER HVEC VALUE
256> 017D 23 INX H
257> 017E 86 ORA M /VALUE = 0?
258> 017F 217602 LXI H,ZERCNT
259> 0182 C29E01 JNZ ZCHK1 /VALUE IS NOT ZERO, PRINT LINE
260> VALUE IS ZERO, ALREADY PRINTED?
261> 0185 7E MOV A,M /GET ZERCNT
262> 0186 B7 ORA A
263> 0187 C29601 JNZ ZCHK0 /JUMP IF ALREADY PRINTED LINE
264> NOT PRINTED YET, SET ZERCNT TO TRUE AND PRINT MSG
265> 018A 36FF MVI M,0FFH
266> 018C C5 PUSH B
267> 018D D5 PUSH D
268> 019E 116F02 LXI D,PERMSG
269> 0191 CD7D00 CALL PRINT
270> 0194 D1 POP D
271> 0195 C1 POP B
272> ZCHK0, /INCREMENT LINE ADDRESS
273> 0196 2AFD02 LHL INC
274> 0199 19 DAD D
275> 019A EB XCHG
276> 019B C36F01 JMP DISPO
277>
278>
279> ZCHK1, /LINE IS NOT ZERO, FLAG IT AND CONTINUE
280> 019E 3600 MVI M,0 /ZERCNT SET FALSE
281> 01A0 C5 PUSH B /INDEX TO HVEC SAVED
282> 01A1 D5 PUSH D /CURRENT LINE SAVED
283> 01A2 D5 PUSH D /ANOTHER COPY
284> 01A3 CD7200 CALL CRLF
285> 01A6 D1 POP D /LINE ADDRESS TO DE
286> 01A7 CD4A00 CALL PADDR /PRINTED
287> 01AA D1 POP D /RECALL LINE ADDRESS
288> 01AB 2AFD02 LHL INC /INCREMENT BETWEEN LINES
289> 01AE 19 DAD D
290> 01AF E3 XTHL /LINE ADDRESS STACKED, INDEX TO HVEC IN HL
291> 01B0 5E MOV E,M
292> 01B1 23 INX H
293> 01B2 56 MOV D,M
294> 01B3 23 INX H
295> 01B4 E5 PUSH H /SAVE UPDATED HVEC ADDRESS
296> 01B5 CDC101 CALL STARS /PRINTS STARS FOR THIS LINE
297> 01B8 C1 POP B /RECALL HVEC BASE
298> 01B9 D1 POP D /RECALL CURRENT LINE
299> 01BA C36F01 JMP DISPO
300>

```

```

01BD CD7200
01C0 C9
01C1 7B
01C2 B2
01C3 C8
01C4 D5
01C5 3E20
01C7 CD3E00
01CA D1
01CB 2AFB02
01CE CD5E00
01D1 D8
01D2 D5
01D3 3E2A
01D5 CD3E00
01D8 D1
01D9 C3CB01
01DC 0D0A455252ERMMSG,
01F2 0D0A545950BBOUNDS,
0200 0D0A484953LARMMSG,
0217 0D0A414444
0240 0D0A494E49IHIMSG,
0255 0D0A434F4CCDLMMSG,
0262 0D0A444953DISMSG,
026F 0D0A2E2E2EPERMSG,
0276 ZERCNT,
0277 LB,
0279 UB,
027B HVEC,
02FB SCALE,
02FD INC,
02FF 00
0400 =
0300
ENDMOD
END

```

```

DISP1, /END OF DISPLAY
CALL CRLF
RET /RETURN TO DDT

STARS, /PRINT STARS ACROSS LINE BASED ON SCALE VALUE
MOV A,E
ORA D
RZ /RETURN IF ZERO STARS
PUSH D
MVI A,' '
CALL PCHAR

STAR0, /LOOP PRINTING STARS
LHL SCALE /SCALING FACTOR
CALL DIFF /X = SIZE - SCALE
RC
PUSH D /SAVE REMAINING LENGTH
MVI A,' '
CALL PCHAR
POP D
JMP STAR0

```

```

DATA AREAS
DB CR,LF,'ERROR - FORM IS X,Y',0
DB CR,LF,'TYPE HISTOGRAM BOUNDS ',0
DB CR,LF,'HISTOGRAM,'
DB CR,LF,'ADDR RELATIVE FREQUENCY, LARGEST VALUE'
DB CR,LF,'INITIAL = ',0
DB CR,LF,'COLLECT = ',0
DB CR,LF,'DISPLAY = ',0
DB CR,LF,'.....',0
1 ZERCNT,
2 /LOWER BOUND
2 /UPPER BOUND
HSIZE*2 /HISTOGRAM VECTOR
2 /SCALE FACTOR
2 /INCREMENT BETWEEN LINES
NOP
EQU (&*100H) AND 0FF00H /BEGINNING OF NEXT MODULE
END HISTO

```

CPM VERSION _____
 COPYRIGHT © 1976
 DIGITAL RESEARCH
 P. O. BOX 579
 PACIFIC GROVE, CA. 93950
 SER. # _____

CPM VERSION _____
 COPYRIGHT © 1976
 DIGITAL RESEARCH
 P. O. BOX 579
 PACIFIC GROVE, CA. 93950
 SER. # _____

```

1>
2>
3> 0100      ORG      100H
4> FFFF =    TRUE   EQU      0FFFFH
5> 0000 =    FALSE  EQU      NOT TRUE
6> 0000 =    TEST   EQU      FALSE
7>
8>
9>
10>
11>
12>
13>
14>
15>
16> 0100 C30004
17> 0103 C35C01
18> 0106 C3A601
19> 0109 C3B801
20>
21> 010C 434F505952
22>
23> 0039 =    DDTBASE EQU      7*8+1
24> 000D =    CR       EQU      BDH
25> 000A =    LF       EQU      BAH
26>
27>
28> 0133 010900
29> 0136 C33C01
30>
31>
32> 0139 010F00
33> 013C 2A3900
34> 013F 09
35> 0140 E9
36>
37>
38> 0141 1A
39> 0142 87
40> 0143 C8
41>
42> 0144 13
43> 0145 D5
44> 0146 CD3301
45> 0149 D1
46> 014A C34101
47>
48>
49> 014D C5
50> 014E D5
51> 014F 3E0D
52> 0151 CD3301
53> 0154 3E0A
54> 0156 CD3301
55> 0159 D1
56> 015A C1
57> 015B C9
58>
59>
60>

```

```

TRUE
FALSE
TEST

TRACE INSTRUCTIONS IN. DDT

COPYRIGHT (C) 1976
DIGITAL RESEARCH
BOX 579, PACIFIC GROVE, CA.
93950

ENTRY VECTOR
JMP      ENDMOD
INIE,   JMP      INITIAL
COLE,   JMP      COLLECT
DISE,   JMP      DISPLAY

DB      'COPYRIGHT (C) 1976, DIGITAL RESEARCH'

DDTBASE EQU      7*8+1
CR       EQU      BDH
LF       EQU      BAH

PCHAR,  PRINT CHARACTER FROM REGISTER A
LXI     B, 9
JMP     CODDT

PADDR,  PRINT ADDRESS FROM D,E
LXI     B, 15
CODDT,  LHL DDTBASE
DAD     B
PCHL

PRINT,  PRINT MESSAGE IN. D,E 'TIL FIRST ZERO
LDAX   D
ORA    A
RZ

MORE TO PRINT
INX   D
PUSH D
CALL PCHAR
PDP   D
JMP  PRINT

CRLF,  PRINT CARRIAGE RETURN, LINE FEED
PUSH B
PUSH D
MVI  A, CR
CALL PCHAR
MVI  A, LF
CALL PCHAR
POP  D
POP  B
RET

INITIAL,
PRINT ENTRY POINT ADDRESSES

```

TRACE

CPI: VERSION _____
 COPYRIGHT © 1976
 DIGITAL RESEARCH
 P. O. BOX 579
 PACIFIC GROVE, CA. 93950
 SER. # TRACE PROGRAM

```

61> 015C 112102
62> 015F CD4101
63> 0162 110301
64> 0165 CD3901
65> 0168 112E02
66> 016B CD4101
67> 016E 110601
68> 0171 CD3901
69> 0174 113002
70> 0177 CD4101
71> 017A 110901
72> 017D CD3901
73>
74>
75> 0180 3A3A00
76> 0183 FE04
77> 0185 C29001
78>
79> 0188 114002
80> 018B 3E01
81> 018D C39401
82>
83> 0190 AF
84> 0191 117102
85>
86> 0194 329E02
87> 0197 CD4101
88> 019A 219902
89> 019D 3600
90> 019F 210003
91> 01A2 229A02
92> 01A5 C9
93>
94>
95>
96> 01A6 219902
97> 01A9 7E
98> 01AA B7
99> 01AB FAF01
100> 01AE 34
101> 01AF 2A9A02
102> 01B2 73
103> 01B3 2C
104> 01B4 72
105> 01B5 2C
106> 01B6 229A02
107> 01B9 AF
108> 01BA C9
109>
110>
111>
112> 01BB 219E02
113> 01BE 7E
114> 01BF B1
115> 01C0 4F
116> 01C1 C5
117> 01C2 118C02
118> 01C5 CD4101
119> 01C8 C1
120> 01C9 219902

```

```

LXI     D, INMSG
CALL    PRINT
LXI     D, INIE
CALL    PADDR
LXI     D, COLMSG
CALL    PRINT
LXI     D, COLE
CALL    PADDR
LXI     D, DISMSG
CALL    PRINT
LXI     D, DISE
CALL    PADDR

DETERMINE IF THE DISASSEMBLER IS PRESENT
LDA     DDTBASE+1
CPI     ENDMOD SHR B
JHZZ    INIT1
DISASSEMBLER HAS BEEN. OVERLAYED
LXI     D, OVERMSG
MVI     A, 1
JMP     INIT2

INIT1,  MARK AS FULL TRACE
XRA     A
LXI     D, UNDMSG

INIT2,  STA     DISFLG
CALL    PRINT
LXI     H, COUNT
MVI     H, 0
LXI     H, ABUFF
SHLD   NEXT
RET

COLLECT,
ENTER WITH INSTRUCTION. ADDRESS IN. D,E
LXI     H, COUNT
MOVA   A, H
ORA    A
JM     FULLC
INR    M
LHLD  NEXT
MOVA   M, E
INR    L
MOVA   M, D
INR    L
SHLD  NEXT
XRA    A
RET

FULLC,  LHLD  NEXT
MOVA   M, E
INR    L
MOVA   M, D
INR    L
SHLD  NEXT
XRA    A
RET

DISPLAY,
ENTER WITH C=1 IF ONLY ADDRESS TRACE IS REQUESTED
LXI     H, DISFLG
MOVA   A, H
ORA    C
MOVA   C, A
PUSH   B
LXI     D, TRMSG
CALL    PRINT
POP    B
LXI     H, COUNT

```

CPI: VERSION _____
 COPYRIGHT © 1976
 DIGITAL RESEARCH
 P. O. BOX 579
 PACIFIC GROVE, CA. 93950
 SER. # _____

```

121> 01CC 46          MOVA   B,M          ;QUEUE SIZE IN. B
122> 01CD AF          XRA    A              ;CLEAR COLUMN, COUNT
123> 01CE 329F02     STA    COLUMN
124> 01D1 79          MOVA   A,C
125> 01D2 B7          ORA    A              ;ADDRESS MODE?
126> 01D3 C2DC01     JNZZ  DISPB
127>                  SAVE OLD PC FROM DISASSEMBLER
128> 01D6 2A0C04     LHL   PC
129> 01D9 229C02     SHLD  TPC
130> 01DC 2A9A02     DISPB: LHL   NEXT
131>
132>
133> 01DF 78          DISPI: ;DISPLAY COLLECTED ADDRESSES OR INSTRUCTIONS
134> 01E0 87          MOVA   A,B          ;QUEUE SIZE
135> 01E1 CA1702     ORA    A
136> 01E4 95          JZ     ENDISP
137> 01E5 C5          DCR   B              ;COUNT SIZE DOWN
138> 01E6 2D          PUSH  B              ;SAVE COUNT AND MODE
139> 01E7 56          DCR   L              ;ADDRESS LAST HIGH ORDER ADDR
140> 01E8 2D          MOVA  D,M
141> 01E9 5E          DCR   L              ;ADDRESS LAST LOW ORDER ADDRESS
142> 01EA E5          MOVA  E,M
143> 01EB EB          PUSH  H              ;SAVE NEXT TO GET
144>                  XCHG
145> 01EC 79          CHECK MODE OF DISPLAY
146> 01ED B7          MOVA  A,C
147> 01EE CA0702     ORA    A
148>
149> 01F0 87          JZ+   FDISP         ;FULL DISPLAY?
150>
151> 01F1 EB          PARTIAL ADDRESS DISPLAY
152> 01F2 219F02     XCHG  ;READY FOR ADDRESS PRINTING
153> 01F5 7E          LXI   H,COLUMN
154> 01F6 34          MOVA  A,M
155> 01F7 E607       INR   M
156> 01F9 CC4001     ANI   11B          ;COUNTS 0-7
157> 01FC CD3901     C2    CRLF         ;START NEW LINE
158> 01FF 3E20       CALL  PADDR
159> 0201 CD3301     MVI  A,' '
160> 0204 C31202     CALL  PCHAR
161> 0207 220C04     JMP   EDISP
162> 020A 3E02       FDISP: SHLD  PC      ;READY FOR DECODE
163> 020C 321004     MVI  A,2
164> 020F CD0604     STA  PAGM          ;TO DISPLAY ONE LINE
165> 0212 E1         CALL  DISENT       ;DISPLAYED
166> 0213 C1         EDISP: POP  H       ;RECOVER NEXT TO DECODE
167> 0214 C3DF01     POP  B             ;RECOVER COUNT
168> 0214 C3DF01     JMP  DISPI
169>
170> 0217 79         ENDISP: ;END OF DISPLAY
171> 0218 B7         MOVA  A,C
172> 0219 C8         ORA   A
173> 021A 2A9C02     RZ+   ;RETURN, WITHOUT RESTORING PC
174> 021D 220C04     LHL   TPC
175> 0220 C9         SHLD  PC          ;DISASSEMBLER'S PC RESTORED
176> 0220 C9         RET
177>
178> 0221 0D0A494E49INIMSG, DB   CR,LF,'INITIAL = ',0
179> 0222 0D0A434F4CCOLMSG, DB  CR,LF,'COLLECT = ',0
180> 023B 0D0A444953DISMSG, DB  CR,LF,'DISPLAY = ',0

```

SER. # _____
PACIFIC GROVE, CA. 93950
DIGITAL RESEARCH
P. O. BOX 579
COPYRIGHT © 1976

CP/ VERSION _____
COPYRIGHT © 1976
DIGITAL RESEARCH
P. O. BOX 579
PACIFIC GROVE, CA. 93950
SER. # _____