



COMPUTER CONTROL DIVISION (EUROPE)

PROGRAM DOCUMENTATION

1 C 0078-001-H903 (NUMBER) DRAWING NO. 41285375-001-03

PAGE 1

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2 C

3 C

4 C

5 C COMPUTER: H316, DDP-516

6 C

7 C

8 C PROGRAM CATEGORY: INPUT/OUTPUT

9 C

10 C

11 C PROGRAM TITLE: NUMBER

12 C PLOT A FLOATING POINT NUMBER ON THE DIGITAL PLOTTER

13 C

14 C

15 C

16 C

17 C

18 C

19 C

20 C

21 C

22 C

23 C

24 C

25 C

26 C

27 C

28 C

29 C

30 C

31 C

32 C

33 C

34 C

35 C

36 C

37 C

APPROVAL

DATE

PROG *H. R. Pimms**23 Sep 70*

SUPR

QUAL

N. G. Depledge
*J. D. Sill**24 Sep 70*

NO. OF PAGES

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38 C
39 C
40 C AUTHOR
41 C
42 C HONEYWELL - COMPUTER CONTROL DIVISION (EUROPE)
43 C
44 C
45 C PURPOSE
46 C
47 C TO PLOT A FLOATING POINT NUMBER AT A SPECIFIED ANGLE AND POSITION
48 C ON THE DIGITAL PLOTTER
49 C
50 C
51 C RESTRICTIONS
52 C
53 C THIS ROUTINE WILL WORK ON AN H316 OR DDP-516 COMPUTER WITH A
54 C DIGITAL PLOTTER
55 C
56 C
57 C STORAGE
58 C
59 C 402 (OCTAL)
60 C 258 (DECIMAL)
61 C
62 C
63 C USE
64 C
65 C PLOT A FLOATING POINT NUMBER
66 C
67 C CALL NUMBER (X,Y,HGHT,FPN,THETA,N)
68 C
69 C OR
70 C
71 C CALL NUMBER PLOT A FLOATING POINT NUMBER
72 C DAC X LOWER LEFT HAND CORNER OF FIRST DIGIT
73 C DAC Y LOWER LEFT HAND CORNER OF FIRST DIGIT
74 C DAC HGHT HEIGHT OF THE NUMBER



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75 C          DAC   FPN          THE FLOATING POINT NUMBER
76 C          DAC   THETA        ANGLE OF INCLINATION OF THE NUMBER
77 C          DAC   N            NUMBER OF DIGITS (MAXIMUM = 7)
78 C          OCT   0            END OF PARAMETER LIST
79 C                                     NORMAL RETURN
80 C
81 C  ALL PARAMETERS EXCEPT N ARE FLOATING POINT.  THETA IS DEGREES
82 C  MEASURED ANTI-CLOCKWISE FROM THE X-AXIS.  ALL LENGTHS AND DISTANCES
83 C  ARE INCHES (MILLIMETRES FOR THE METRIC PLOTTERS).
84 C
85 C
86 C  METHOD
87 C
88 C  THE PARAMETERS FOR CALLS ON THE O$XA ROUTINE ARE CALCULATED FROM
89 C  THE INPUT PARAMETERS OF THIS ROUTINE.  THE CALLS ON THE O$XA
90 C  ROUTINE ARE MADE IN ORDER TO PLOT THE SIGN (IF THE FLOATING POINT
91 C  NUMBER IS NEGATIVE), THE INTEGRAL PART, THE DECIMAL POINT (UNLESS
92 C  DELIBERATELY SUPPRESSED BY NEGATING N) AND THE FRACTIONAL PART
93 C  OF THE NUMBER.
94 C
95 C
96 C CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
97 C
98 C
99 C  SUBROUTINE NUMBER (X,Y,HGHT,FPN,THETA,N)
100 C
101 C
102 C  DIMENSION IBCD(5)
103 C
104 C  M=-N
105 C  IF (N.LT.0) M=0
106 C
107 C  ROUND-OFF FLOATING-POINT NUMBER TO THE SPECIFIED NUMBER OF PLACES
108 C  TFPN=ABS (FPN)+(0.5*10.0**M)
109 C
110 C  NO MORE THAN SEVEN DIGITS ALLOWED PER PLOT
111 C  IF (N.GT.7) N=7
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112 C
113     XT=X
114     YT=Y
115 C
116 C IF PARAMETERS ARE AT ORIGIN, OFFSET SLIGHTLY
117     IF (XT.EQ.0.0) XT=0.00001
118     IF (YT.EQ.0.0) YT=0.00001
119 C
120 C ARRAY OF CONSTANTS FOR THE NUMBER 10H0.00000000
121     IBCD(1)=-20306
122     IBCD(2)=-20304
123     IBCD(3)=-20304
124     IBCD(4)=-20304
125     IBCD(5)=-20304
126 C
127     IF (FPN) 10,90,20
128 C
129 C THE NUMBER IS NEGATIVE, PLOT A MINUS SIGN
130     10 CALL O$XA (XT,YT,HGHT,1H-,THETA,1)
131     XT=0.0
132     YT=0.0
133 C
134 C THE NUMBER IS POSITIVE. IS IT LESS THAN UNITY?
135     20 I=ALOG10 (TFPN)+1.0
136     IF (I) 50,50,25
137 C
138 C THE NUMBER IS GREATER THAN, OR EQUAL TO, ONE
139 C
140 C IS THE SPECIFIED NUMBER OF DIGITS LESS THAN -1?
141     25 IF (N+1) 27,30,30
142     27 I=I+N+1
143 C
144 C PLOT THE INTEGER PART OF THE FLOATING-POINT NUMBER
145     30 DO 40 J=1,I
146         K=TFPN*10.0**(J-I)
147         CALL O$XA (XT,YT,HGHT,(K*256)-20480,THETA,1)
148         TFPN=TFPN-FLOAT (K*10**(I-J))
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149      XT=0.0
150      40   YT=0.0
151 C
152 C IF N=-1, SUPPRESS THE DECIMAL POINT
153      IF (N+1) 80,80,50
154 C
155 C PLOT THE DECIMAL POINT
156      50 CALL O$XA (XT,YT,HGHT,1H.,THETA,1)
157 C
158 C PLOT THE DIGITS FOLLOWING THE DECIMAL POINT
159      IF (N) 80,80,60
160      60 DO 70 I=1,N
161          K=TFPN*10.0
162          CALL O$XA (0.0,0.0,HGHT,(K*256)-20480,THETA,1)
163      70   TFPN=TFPN*10.0-FLOAT (K)
164      80 RETURN
165      90 I=2+N
166      IF (N) 91,92,92
167      91 I=+1
168 C
169 C PLOT 0.00000000
170      92 CALL O$XA (XT,YT,HGHT,IBCD,THETA,I)
171      RETURN
172 C
173 C END OF NUMBER 25.JUN.70 HAD
174      END
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