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CURVE

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Abstract

CURVE is a program which allows selected portions of a data curve to be displayed in an expanded form.

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CURVE is a program which allows the user to draw a curve for display on the oscilloscope and then to select various portions of this curve for display in an expanded form.

The program occupies the following memory locations:

20-166  
400-422  
476-517  
1000-1777

Operating instructions are as follows:

1. Set right switches to determine the amount of time to be used in creating the curve; the larger the right switch setting is, the longer it will take to draw the curve. Setting the right switches to 1000 gives the user a reasonable length of time in which to draw the curve.
2. Press START 400. A curve to be displayed in a subsequent part of the program may now be drawn, using Knob 3. As the knob is turned, an intensified point will move across the scope; its vertical coordinate is computed from sampling Knob 3.

When the point has reached the righthand edge of the scope, that is, when Knob 3 has been sampled  $1000_8$  times, the curve composed of all  $1000_8$  intensified points will be displayed.

Turning Knob 0 varies the vertical position of the curve.

Turning Knob 1 varies the horizontal position of a cursor which rides along the curve; the cursor is used to select the portion of the curve to be expanded and displayed above the first curve. The number displayed in the top right corner of the scope is the value obtained by sampling Knob 3, during the original

drawing of the curve, at the position selected by the cursor. This point and the 377<sub>8</sub> points to its right on the first curve are those displayed in expanded form in the upper curve. In both curves the entire horizontal range of the scope is used; in the lower curve 1000<sub>8</sub> points are displayed, whereas in the upper curve only 400<sub>8</sub> points are displayed. This upper curve is somewhat out of proportion in that, while the horizontal scale is doubled relative to the lower curve, the vertical scale is unchanged. Turning Knob 2 varies the vertical position of the expanded curve.

Instead of drawing his own curve as described above, the user may choose to use the program to display any 1000<sub>8</sub> data as a curve, provided the data are in the range ±177. The following operating instructions should be followed, instead of those described above:

1. Transfer the data into quarters two and three, that is, memory registers 1000 through 1777.
2. Press START 20. The data will be displayed on the oscilloscope as a curve. Knobs 0, 1, and 2 are used as described above; Knob 3 is unused in this case.

CURVE, O.

	VALUE	LVF
1A	0035	45
1B	0027	37
1C	0074	106
1D	0055	66
1X	0124	137
2A	0111	123
2B	0112	125
2C	0156	171
2D	0127	142
2X	0404	7

```

P   CONT
      CURVE
      @400 IDRAW CURVE
400 0074   SET i 14
401 0777   777
402 0075   SET i 15
403 0777   777
404 0076 #2X SET i 16
405 7774   -3
406 0516   RSW
407 1120   ADA i
410 7776   -1
411 0450   AZE
412 6407   JMP P-3
413 0236   XSK i 16
414 6406   JMP P-6
415 0103   SAM 3
416 1075   STA i 15
417 0174   DIS i 14
420 0215   XSK 15
421 6404   JMP 2X
422 6020   JMP 20
      IREAD KNOB 0 AND      DISPLAY CURVE
      @20
20 0062   SET i 2
21 0777   777
22 0063   SET i 3
23 0777   777
24 0100   SAM 0
25 0241   ROL 1
26 4035   STC 1A
27 1022 #1B LDA i 2
30 2035   ADD 1A
31 0163   DIS i 3
32 0202   XSK 2
33 6027   JMP 1B
34 6036   JMP P+2
35 0000 #1A
      IREAD KNOB 1 AND      DISPLAY CURSOR
36 0066   SET i 6
37 7752   -25
40 0101   SAM 1
41 1120   ADA i
42 0200   200
43 0241   ROL 1
44 4004   STC 4
45 2004   ADD 4
46 1120   ADA i
47 1000   1000
50 4005   STC 5
51 2005   ADD 5
52 4007   STC 7
53 1005   LDA 5
54 2035   ADD 1A
55 0144 #1D DIS 4
56 1120   ADA i
57 0001   1

```

CURVE,2 LN=71

```
P  CONT
60 0226      XSK 1 6
61 6055      JMP 10
      (READ KNOB 2 AND      DISPLAY EXPANDED CURVE
62 0062      SET 1 2
63 0777      777
64 0011      CLR
65 2005      ADD 5
66 1120      ADA 1
67 7776      -1
70 4005      STC 5
71 0102      SAM 2
72 0241      ROL 1
73 4111      STC 2A
74 1025 #1C  LDA 1 5
75 2111      ADD 2A
76 0162      DIS 1 2
77 1020      LDA 1
100 0001     1
101 2002     ADD 2
102 4002     STC 2      HORIZONTAL SKIPS      EVERY OTHER
      POINT
103 0205     XSK 5
104 6106     JMP P+2
105 6112     JMP 2B
106 0202     XSK 2
107 6074     JMP 1C
110 6112     JMP 2B
111 0000 #2A
      (DISPLAY KNOB 3      SAMPLE VALUE FOR PT.      SELECTED BY
      KNOB 1
112 0061 #2B  SET 1 1
113 0660     660
114 0070     SET 1 10
115 0340     340
116 0071     SET 1 11
117 7774     -3
120 0072     SET 1 12
121 0476     476
122 1007     LDA 7
123 1060     STA 1
124 0000 #1X
125 0451     APO
126 6156     JMP 2C
127 0061 #2D  SET 1 1
130 0754     754
131 0011     CLR
132 2124     ADD 1X
133 1560     BCL 1
134 7770     7770
135 0241     ROL 1
136 1120     ADA 1
137 0500     500
140 4012     STC 12
141 2010     ADD 10
142 1752     DSC 12
143 1772     DSC 1 12
```

CURVE 3 LN=157

P	CONT	
144	1020	LDA i
145	7733	-44
146	2001	ADD 1
147	4001	STC 1
150	2124	ADD 1X
151	0343	SCR 3
152	4124	STC 1X
153	0231	XSK i 11
154	6131	JMP 20+2
155	6020	JMP 20
156	0011 #2C	CLR
157	2010	ADD 10
160	1752	DSC 12
161	1772	DSC 1 12
162	0011	CLR
163	2124	ADD 1X
164	0017	COM
165	4124	STC 1X
166	6127	JMP 20
		B476
476	0404	0404
477	0404	0404
500	4136	4136
501	3641	3641
502	2101	2101
503	0177	0177
504	4523	4523
505	2151	2151
506	4122	4122
507	2651	2651
510	2414	2414
511	0477	0477
512	5172	5172
513	0651	0651
514	1506	1506
515	4225	4225
516	4443	4443
517	6050	6050