

HP-41C Photo Zones by Stephen Stokes and Ray Cole
PPC Calculator Journal V9 No 4 Pg 39 May-Jul 1982

```
01 LBL "ZONES" ;Photo Zones Calculation Program
02 CF 01
03 CF 02
04 CF 03
05 FIX 0
06 "    ASA=" ;4 spaces, ASA=
07 PROMPT    ;Enter Film ASA Speed Rating
08 ARCL X
09 AVIEW
10 STO 00
11 STO 01
12 FIX 1
13 FC? 55
14 PSE
15 "INPUT UNITS"
16 AVIEW
17 FC? 55
18 PSE
19 "1=C 2=EV 3=T"
20 PROMPT    ;1=foot candles, 2=EV numbers, 3=F/stop-Speed
21 STO 08
22 SF IND 08
23 "FT. CANDLES"
24 FS? 01
25 AVIEW
26 "EV"
27 FS? 02
28 AVIEW
29 "F/STOP TIME"
30 FS? 03
31 AVIEW
32 LBL a      ;Reset Program for New Light Readings, Same ASA & Units
33 FIX 1
34 CF 04
35 "ORMAL"
36 ASTO 02
37 RCL 00
38 STO 01
39 XEQ 06
40 ">3:"      ;Zone 3 Reading
41 AVIEW
42 FC? 03
43 TONE 3
44 FC? 03
45 PROMPT
46 XEQ IND 08
47 STO 03
48 FC? 55
49 PSE
50 XEQ 06
51 ">7:"      ;Zone 7 Reading
52 AVIEW
53 FC? 03
54 TONE 7
55 FC? 03
56 PROMPT
57 XEQ IND 08
58 STO 04
59 GTO 04
60 LBL 06
61 "READING"
62 AVIEW
63 FC? 55
64 PSE
65 "    ZONE "
66 RTN
67 LBL 01
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68 CLA
69 ARCL X
70 >" C/FT^2"
71 AVIEW
72 RTN
73 LBL 02
74 "      EV "      ;4 spaces, letters EV
75 ARCL X
76 AVIEW
77 2
78 LN
79 *
80 E^X
81 1 E-3
82 *
83 RTN
84 LBL 03
85 "F/STOP?"
86 TONE 5
87 PROMPT          ;Ask for F/stop Value
88 "  F/"          ;2 spaces, letter F, forward slash
89 ARCL X
90 AVIEW
91 X^2
92 STO 10
93 "EXP. TIME?"
94 TONE 5
95 PROMPT          ;Ask for Exposure Time Value
96 CLA
97 STO 09
98 XEQ "X"         ;Make Film Exposure Time String from X (Line 253)
99 >" SEC."        ;Append 1 space, SEC.
100 AVIEW
101 RCL 09
102 RCL 00
103 *
104 RCL 10
105 X<>Y
106 /
107 RTN
108 LBL 00
109 2
110 *
111 FIX 0
112 RND
113 2
114 /
115 FIX 1
116 RTN
117 LBL 04
118 RCL 04
119 RCL 03
120 X<>Y
121 X<=Y?
122 GTO E
123 X<>Y
124 /
125 LOG
126 2
127 LOG
128 /
129 CLD
130 XEQ 00
131 4
132 X=Y?
133 GTO 05
134 -
135 CHS
136 X>0?
137 SF 04

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```

138 XEQ 00
139 STO 02
140 .50787
141 *
142 E^X
143 .995669
144 *
145 RCL 00
146 *
147 STO 01
148 LBL 05
149 RCL 04
150 LOG
151 RCL 03
152 LOG
153 +
154 2
155 /
156 10^X
157 RCL 01
158 *
159 STO 05
160 FIX 0
161 R-P
162 LN
163 %CH
164 X>Y?
165 P-R
166 CHS
167 STO 10
168 AVIEW
169 FC? 55
170 PSE
171 CLA
172 "    N"      ;4 spaces, letter N
173 FS? 04
174 ">+"      ;Append + symbol
175 ARCL 02
176 AVIEW
177 FC? 55
178 PSE
179 "EXPOSE FILM:"
180 AVIEW
181 FC? 55
182 GTO 08
183 GTO "PZ"      ;Photo Program Printing Module (PZ - Line 1)
184 LBL "PZR"     ;Return Location from PZ Program
185 BEEP
186 STOP
187 LBL 08
188 FIX 1
189 RCL 07
190 LBL b         ;Enter Different F/stop for Same Input Data
191 X=0?
192 8
193 ENTER
194 FRC
195 X=0?
196 FIX 0
197 RDN
198 X^2
199 RCL 05
200 /
201 STO 06
202 1
203 X<=Y?
204 GTO 12
205 XEQ "Z"       ;Store Shutter Speeds (Line 276)
206 LBL 16
207 GTO 14

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208 LBL 12
209 RDN
210 1/X
211 LBL 14
212 1/X
213 STO 11
214 RCL 05
215 *
216 SQRT
217 FIX 1
218 RND
219 FIX 0
220 64
221 X<Y?
222 GTO 15
223 X<>Y
224 1
225 X<>Y
226 X<Y?
227 GTO 17
228 10
229 X<>Y
230 X<=Y?
231 FIX 1
232 "F/" ;Make F/stop String
233 ARCL X
234 ">"," ;Append 1 comma
235 RCL 11
236 CF 29 ;Digit Grouping Flag
237 XEQ "X" ;Make Film Exposure Time String from X (Line 253)
238 FS? 05
239 ">" SEC." ;Append Seconds
240 AVIEW
241 SF 29 ;Digit Grouping Flag
242 STOP
243 LBL 17
244 RCL 23
245 1
246 -
247 RCL IND X
248 GTO 14
249 LBL 15
250 1.09
251 /
252 GTO b ;Enter Different F/stop for Same Input Data (Line 190)
253 LBL "X" ;Make Film Exposure Time String from X
254 CF 05
255 1/X
256 1
257 X>Y?
258 GTO 07
259 X<>Y
260 FIX 0
261 RND
262 1
263 X<>Y
264 X<=Y?
265 GTO 07
266 ">" 1/" ;Append 2 spaces, number 1, forward slash
267 ARCL X
268 RTN
269 LBL 07
270 SF 05
271 X<>Y
272 1/X
273 ">" " ;Append 1 space
274 ARCL X
275 RTN
276 LBL "Z" ;Store Shutter Speeds
277 1

```

```
278 STO 12
279 2
280 STO 13
281 4
282 STO 14
283 8
284 STO 15
285 15
286 STO 16
287 30
288 STO 17
289 60
290 STO 18
291 125
292 STO 19
293 250
294 STO 20
295 500
296 STO 21
297 1000
298 STO 22
299 LBL 09
300 CLD
301 ENTER
302 ENTER
303 2
304 *
305 *
306 SQRT
307 RCL 06
308 1/X
309 X>Y?
310 GTO 10
311 RCL 22
312 X<=Y?
313 RTN
314 12.02201
315 STO 23
316 LBL 13
317 RCL IND 23
318 RCL 23
319 1
320 +
321 RCL IND X
322 RCL Z
323 *
324 SQRT
325 RCL 06
326 1/X
327 X<Y?
328 GTO 11
329 ISG 23
330 GTO 13
331 STOP
332 GTO 10
333 LBL 10
334 RCL 22
335 RTN
336 LBL 11
337 RCL IND 23
338 FIX 0
339 RTN
340 LBL E
341 "WRONG ENTRY"
342 AVIEW
343 RTN
344 END
```

02B2C000F6005A4F4E4553A901A902A9039C00F82020202041
53413D8E9B737E30319C01AD3789FB494E50555420554E4954
537EAD3789FC313D4320323D455620333D548E38A888FB4654
2E2043414E444C4553AC017EF24556AC027EFB462F53544F50
2054494D45AC037ECF7B9C01A904F54F524D414C9A022031E0
0006F37F333A7EAD039F03AD038EAE8833AD3789E00006F37F
373A7EAD039F07AD038EAE8834B50007F752454144494E477E
AD3789F720205A4F4E45208502879B73F87F20432F46545E32
7E8503F7202020204556209B737E12504255111B1C13428504
F7462F53544F503F9F058EF42020462F9B737E513AFA455850
2E2054494D453F9F058E87391EF158F67F205345432E7E2920
422A7143850112429C006E12439C01850524237146D0006A71
43561256437FE000001478B600415464A804E00000321A1510
17181742551A19191516161942204231062456235640124357
2142359C004F504D454E543A7EAD378987F5202020204EAC04
F27F2B9B027EAD3789FC4558504F53452046494C4D3A7EAD37
B9001DF2505AC000F400505A528684099C0127CF7C67188369
679C0075512543361146BD001EF15ACF10BF000D75600F603B
2542529C016E9C00161444D0000F71117144D0001111107146
9C01F2462F9B73F27F2C2BA91D1EF158AC05F67F205345432E
7EA81D84CF119017114190F3BF00CF0F111A101943D0007CC0
00F20058A905601145B800719C006E117146B800F57F202031
2F9B738508A8057160F27F209B7385C000F2005A113C123D14
3E183F11159110131091111610911211121591131215109114
15101091151110101091160A7F838312424252266045BB0090
16468511121A101212101191170E90979017114090F3907142
52266044BC009617BE0084BB000B9016850C90979C0085CF6A
FB57524F4E4720454E5452597E85C0000D01

690 BYTES

HP-41C Photo Program PZ by Stephen Stokes & Ray Cole
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01 LBL "PZ" ;Printing Part of Photo Zones Program
02 CF 12 ;Single Width Printing
03 FIX 0
04 "F/STOP ----- "
05 XROM 29,01 ;ACA
06 "SECONDS"
07 XROM 29,01 ;ACA
08 XROM 29,10 ;PRBUF
09 "-----"
10 XROM 29,01 ;ACA
11 XROM 29,01 ;ACA
12 XROM 29,10 ;PRBUF
13 1000 ;1/1000 second shutter speed
14 XEQ "T" ;Calculate F/stop-Speed (Line 44)
15 500 ;1/500 second shutter speed
16 XEQ "T"
17 250 ;1/250 second shutter speed
18 XEQ "T"
19 125 ;1/125 second shutter speed
20 XEQ "T"
21 60 ;1/60 second shutter speed
22 XEQ "T"
23 30 ;1/30 second shutter speed
24 XEQ "T"
25 15 ;1/15 second shutter speed
26 XEQ "T"
27 8 ;1/8 second shutter speed
28 XEQ "T"
29 4 ;1/4 second shutter speed
30 XEQ "T"
31 2 ;1/2 second shutter speed
32 XEQ "T"
33 1 ;1 second shutter speed
34 XEQ "T"
35 .5 ;2 second shutter speed
36 XEQ "T"

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37 .25          ;4 second shutter speed
38 XEQ "T"
39 .125         ;8 second shutter speed
40 XEQ "T"
41 .0625        ;16 second shutter speed
42 XEQ "T"
43 GTO "PZR"    ;ZONES Program (Line 184)
44 LBL "T"      ;Calculate F/stop-Speed
45 STO 09
46 1/X
47 RCL 05
48 *
49 SQRT
50 10
51 X>Y?
52 FIX 1
53 X<>Y
54 1
55 X>Y?
56 RTN
57 RDN
58 64
59 X<Y?
60 GTO "PZR"    ;ZONES Program (Line 184)
61 RDN
62 "F/"
63 ARCL X
64 XROM 29,01 ;ACA
65 4
66 XROM 29,22 ;SKPCHR
67 124          ;Vertical Bar character
68 XROM 29,02 ;ACCHR
69 RCL 09
70 1/X
71 CLA
72 CF 29        ;No digit grouping
73 FIX 0
74 XEQ "X"      ;ZONES Program (Line 253)
75 FS? 05       ;Print Exposure Time
76 >" SEC."
77 FC? 05
78 GTO 00
79 10
80 X<=Y?
81 GTO 00
82 3
83 XROM 29,22 ;SKPCHR
84 LBL 01
85 XROM 29,01 ;ACA
86 XROM 29,10 ;PRBUF
87 SF 29
88 RTN
89 LBL 00
90 2
91 XROM 29,22 ;SKPCHR
92 GTO 01
93 END

```

```

00EAC000F300505AA90C9C00FD462F53544F50202D2D2D2D2D
20A741F75345434F4E4453A741A74AFA2D2D2D2D2D2D2D2D
2DA741A741A74A111010101EF1541510101EF1541215101EF1
541112151EF15416101EF15413101EF15411151EF154181EF1
54141EF154121EF154111EF1541A151EF1541A12151EF1541A
1112151EF1541A101612151EF1541DF3505A52C000F2005439
602542521110459C0171114585751614441DF3505A5275F246
2F9B73A74114A756111214A742296087A91D9C001EF158AC05
F67F205345432EAD05B100111046B10013A75602A741A74AA8
1D850112A756B200C0000D5A

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234 BYTES

HP-41C Photo Zones by Stokes & Cole PPC V9 N4 P39 May-Jul 1982

Program Registers Needed: 99

Row 1 (1 - 3)



Row 2 (4 - 6)



Row 3 (7 - 15)



Row 4 (15 - 17)



Row 5 (18 - 19)



Row 6 (19 - 23)



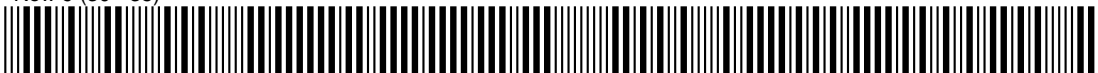
Row 7 (23 - 28)



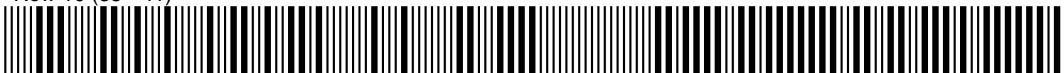
Row 8 (29 - 30)



Row 9 (30 - 35)



Row 10 (35 - 41)



Row 11 (42 - 49)



Row 12 (50 - 55)



Row 13 (55 - 61)



Row 14 (61 - 65)



Row 15 (65 - 70)



Row 16 (70 - 74)



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Row 17 (74 - 82)



Row 18 (83 - 87)



Row 19 (88 - 93)



Row 20 (93 - 97)



Row 21 (98 - 102)



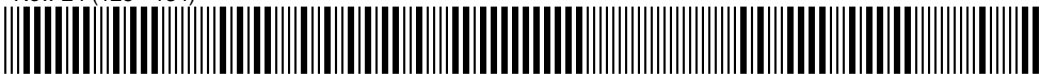
Row 22 (103 - 114)



Row 23 (115 - 124)



Row 24 (125 - 134)



Row 25 (135 - 140)



Row 26 (140 - 146)



Row 27 (147 - 159)



Row 28 (160 - 170)



Row 29 (171 - 175)



Row 30 (175 - 179)



Row 31 (179 - 183)



Row 32 (183 - 188)



Row 33 (189 - 199)

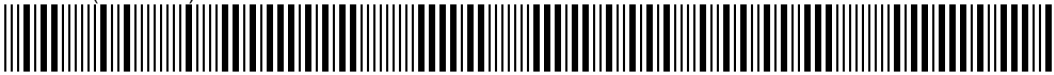


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Row 34 (200 - 207)



Row 35 (208 - 219)



Row 36 (219 - 227)



Row 37 (227 - 234)



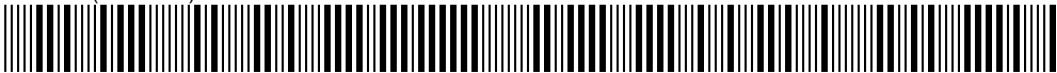
Row 38 (234 - 239)



Row 39 (239 - 245)



Row 40 (246 - 252)



Row 41 (252 - 258)



Row 42 (258 - 266)



Row 43 (266 - 273)



Row 44 (273 - 280)



Row 45 (281 - 289)



Row 46 (289 - 294)



Row 47 (295 - 300)



Row 48 (301 - 311)



Row 49 (312 - 316)



Row 50 (317 - 325)

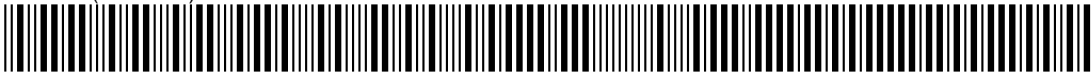


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Row 51 (326 - 334)



Row 52 (334 - 341)



Row 53 (341 - 344)



Row 54 (344)



HP-41C Photo Program PZ by Stokes & Cole PPC V9 N4 P39 May-Jul 1982

Program Registers Needed: 34

Row 1 (1 - 4)



Row 2 (4 - 5)



Row 3 (6 - 9)



Row 4 (9 - 11)



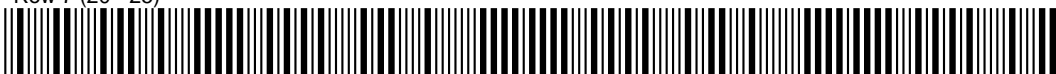
Row 5 (11 - 15)



Row 6 (16 - 20)



Row 7 (20 - 25)



Row 8 (25 - 31)



Row 9 (32 - 37)



Row 10 (37 - 41)



HP-41C Photo Program PZ by Stokes & Cole PPC V9 N4 P39 May-Jul 1982

Row 11 (41 - 44)



Row 12 (44 - 52)



Row 13 (52 - 60)



Row 14 (60 - 67)



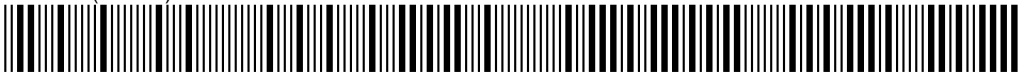
Row 15 (67 - 74)



Row 16 (74 - 78)



Row 17 (78 - 86)



Row 18 (86 - 93)

