

now works out the QRA locator of the remaining eight squares and finds the latitude and longitude for the corners of your square. With this information you are able to plot on a map your square and the adjacent ones. On completion the pixel of your relative position will flash again in case it has been overwritten. Looking at the listing, eg. lines 1860 or 2060, there are some unusual lines of code. The best way to explain the reason for this is to try the following short program.

```
10 LET A = 1
20 LET A = A/3
30 PRINT A
40 LET A = A*3
50 PRINT A
60 LET A = INT A
70 PRINT A
```

By running this the reason for the 'fixes' in code should be seen. The size of the program is about 8.1K and loading takes about 3½ minutes. The area covered by this program is

LAT 40 00 00 NORTH to 62 59 59

Program A listing

```
10 REM FIND YOUR QRA PROGRAM
   FOR ZX81+16K RAM
20 REM COPYRIGHT R. FULLER
   08CE OCT 19 JAN 1983
30 REM PLEASE DO NOT COPY THIS
   PROGRAM, IF YOU DO YOU
   ARE DIVERTING MONEY
   FROM RAIBC FUNDS
40 REM FOR EVERY TAPE SOLD AT
   FULL PRICE ONE POUND
   IS TO BE SENT TO RAIBC
50 LET UD=2.5/60
60 LET LX=4/60
70 LET SHIFT=0
80 DIM ZN(3,1)
90 LET ZN(1,1)=40
100 LET ZN(1,2)=42
110 LET ZN(1,3)=41
120 LET ZN(2,1)=44
130 LET ZN(2,2)=47
140 LET ZN(2,3)=40
150 LET ZN(3,1)=45
160 LET ZN(3,2)=38
170 LET ZN(3,3)=39
180 LET A$="08CEZ"
190 LET B$="RAIBC"
200 FOR S=1 TO 5
210 PRINT AT 1+5,1;A$;AT 1+5,7;
   B$
220 PRINT AT 1+5,24;A$;AT 1+5,1
   B$
230 PRINT AT 20-5,24;A$;AT 20-5
   B$
240 PRINT AT 20-5,1;A$;AT 20-5,
   7;B$
250 PRINT AT 11,5;"WELCOME TO T
   HE PROGRAM"
260 LET C$=""
270 PRINT AT 1+5,7;C$
280 PRINT AT 1+5,18;C$
290 PRINT AT 20-5,24;C$
300 PRINT AT 20-5,1;C$
310 NEXT S
320 PAUSE 200
330 POKE 16437,255
340 CLS
350 PRINT AT 4,1;"WHAT IS YOUR
   LATITUDE"
360 PRINT
370 INPUT LATD
380 IF LATD>62 THEN GOTO 0430
390 IF LATD<40 THEN GOTO 0430
400 IF LATD<14 THEN GOTO 0430
410 IF LATD<40 THEN LET SHIFT=1
420 GOTO 0450
430 GOSUB 3070
440 GOTO 0360
450 PRINT LATD
460 PRINT
470 PRINT "MINS "
480 INPUT LATH
490 IF LATH>59 THEN GOTO 0510
500 GOTO 0530
510 GOSUB 3110
520 GOTO 0460
530 PRINT LATH
540 PRINT
550 PRINT "SECS "
560 INPUT LATS
570 IF LATS>59 THEN GOTO 0590
580 GOTO 0610
590 GOSUB 3110
600 GOTO 0540
```

NORTH

and

LON 11 59 59 WEST to 39 59 59 EAST

If you input below 40 degrees latitude you will be prompted to the fact that there is an identical QRA locator above 40 degrees latitude.

Program B

This program can be regarded as a standard QRA program, but with several significant improvements on all other versions seen. The program is loaded in the normal way. After the introduction you can name the contest and input your base QRA locator. For every QRA locator the corresponding latitude and longitude for the bottom left hand corner of its square is given. The flashing prompt will invite you to input the distant station. The following items are worked out and presented on the screen: latitude/longitude, distance in kilometres, bearing, points for RSGB contests, total points for IARU (ie. points per kilometre),

total points for RSGB, number of contacts and best DX so far. A void bearing is given for a QRA locator which is the same as the base QRA locator.

The input of a QRA locator is checked for 5 characters, letters only in first and second characters, the third and fourth holding a value between 01 and 80, and a valid letter in the last character. No invalid inputs are accepted; all invalid inputs produce an error report without affecting the total score etc. The size of this program about 7.5K and loads in about 3 minutes. The area covered by this program is LAT 36 00 00 NORTH to 65 57 30 NORTH, and LON 12 00 00 WEST to 38 56 00 EAST.

Copies of the tape and instructions are obtainable from:

R Fuller, 35 Chichester Walk, Wimborne, Dorset, BH21 1SL. The price is £3.50 (including £1 for RAIBC funds and P&P).

It is hoped to produce a *Spec-trum* version in the near future which will be distributed exclusively by *Ham Radio Today*.

```
610 PRINT LATS
620 PAUSE 50
630 POKE 16437,255
640 CLS
650 PRINT AT 4,1;"WHAT IS YOUR
   LONGITUDE"
660 PRINT
670 INPUT "INPUT "E" OR "U""
680 IF INKEY$="" THEN GOTO 0680
690 IF INKEY$="E" THEN GOTO 0690
700 LET E$=INKEY$
710 IF E$="E" THEN GOTO 0800
720 IF E$="U" THEN GOTO 0800
730 CLS
740 PRINT "E" INPUT E OR U
750 PRINT
760 PRINT "YOUR INPUT WAS ";E$
770 PRINT
780 GOTO 0660
790 PRINT
800 PRINT E$
810 PRINT
820 PRINT "DEGS "
830 INPUT LOND
840 IF LOND>11 AND E$="U" THEN
   GOTO 0870
850 IF LOND>39 AND E$="E" THEN
   GOTO 0870
860 GOTO 0890
870 GOSUB 3060
880 GOTO 0810
890 PRINT LOND
900 PRINT
910 PRINT "MINS "
920 INPUT LONH
930 IF LONH>59 THEN GOTO 0950
940 GOTO 0970
950 GOSUB 3110
960 GOTO 0900
970 PRINT LONH
980 PRINT
990 PRINT "SECS "
1000 INPUT LONS
1010 IF LONS>59 THEN GOTO 1030
1020 GOTO 1050
1030 GOSUB 3110
1040 GOTO 0980
1050 PRINT LONS
1060 PAUSE 50
1070 POKE 16437,255
1080 IF SHIFT=1 THEN GOSUB 3140
1090 GOSUB 1650
1100 GOSUB 2130
1110 LET N3=(10*N1)+N2
1120 GOSUB 2570
1130 GOSUB 2670
1140 GOSUB 2330
1150 GOSUB 2280
1160 GOSUB 2810
1170 GOSUB 2440
1180 REM BOTTOM CENTER
1190 LET LAT=LAT-UD
1200 GOSUB 2330
1210 GOSUB 1650
1220 PRINT AT 19,13;CHR$ A1;CHR$
   A2;N1;N2;CHR$ Z(K,H)
1230 REM BOTTOM RIGHT
1240 LET LON=LON-LR
1250 GOSUB 2330
1260 GOSUB 1650
1270 PRINT AT 19,26;CHR$ A1;CHR$
   A2;N1;N2;CHR$ Z(K,H)
1280 REM MID RIGHT
1290 LET LAT=LAT+UD
1300 GOSUB 2330
1310 GOSUB 2480
1320 GOSUB 1650
1330 PRINT AT 11,26;CHR$ A1;CHR$
   A2;N1;N2;CHR$ Z(K,H)
1340 REM TOP RIGHT
1350 LET LAT=LAT+UD
1360 GOSUB 2330
1370 GOSUB 2510
1380 GOSUB 1650
1390 PRINT AT 2,26;CHR$ A1;CHR$
   A2;N1;N2;CHR$ Z(K,H)
1400 REM MID TOP
1410 LET LON=LON+LR
1420 IF LON>0.000001 THEN LET E$
   ="U"
1430 GOSUB 2330
1440 GOSUB 2540
1450 GOSUB 1650
1460 PRINT AT 2,13;CHR$ A1;CHR$
   A2;N1;N2;CHR$ Z(K,H)
1470 REM TOP LEFT
1480 LET LON=LON-LR
1490 IF LON>0.000001 THEN LET E$
   ="U"
1500 GOSUB 2330
1510 GOSUB 1650
1520 PRINT AT 2,2;CHR$ A1;CHR$ A
   2;N1;N2;CHR$ Z(K,H)
1530 REM MID LEFT
1540 LET LAT=LAT-UD
1550 GOSUB 2330
1560 GOSUB 1650
1570 PRINT AT 11,2;CHR$ A1;CHR$
   A2;N1;N2;CHR$ Z(K,H)
1580 REM BOTTOM LEFT
1590 LET LAT=LAT-UD
1600 GOSUB 2330
1610 GOSUB 1650
1620 PRINT AT 19,2;CHR$ A1;CHR$
   A2;N1;N2;CHR$ Z(K,H)
1630 GOSUB 2810
1632 POKE 16418,0
1634 PRINT AT 22,12;"FINISHED"
1636 PRINT AT 23,0;"PRESS RUN/NL
   TO GO AGAIN"
1640 STOP
1650 REM FIND QRA
1660 IF LOND+LONH+LONS=0 THEN LE
   T E$=""
1670 REM ***FIRST ALPHA***
1680 LET D=(LONH/60)+(LONS/3600)
1690 LET B=LOND/2
1700 LET A=(LOND+D)/2
1710 IF E$="E" THEN LET A1=INT (
   B/5)
1720 IF E$="U" THEN LET A1=INT (
   64-A)
1730 REM ***SECOND NUMBER***
1740 LET C=(B-INT B)*10
1750 LET D=(D*5)+C
1760 IF E$="E" THEN LET E=D
1770 IF E$="U" THEN LET E=10-D
1780 LET F=INT E
1790 LET N2=1+F
1800 LET G=E-F
1810 IF N2=10 THEN LET N2=0
1820 IF N2=11 THEN LET N2=1
1830 LET G=(G+3)
1840 IF E$="E" THEN LET G=G+0.00
   00000001
```