The normal formulas for computing Hc and azimuth are:

sin Hc = sin Lat sin Dec + cos Lat cos Dec cos LHA

and

sin Z = (sin LHA cos Dec)/ cos Hc

rearranged to the more convenient
sin Z = sin LHA cos Dec sec Hc

These can be solved using logarithms using this format:

                                 Hc   Az

Lat _____ log sin Lat _____ log cos Lat _____
Dec _____ log sin Dec + _____ log cos Dec _____ log cos Dec _____
LHA _____   log cos LHA + _____ log sin LHA _____

                       _____   _____

              inv log _____   inv log _____
                                 +
                     ....>>> _____

Hc _____<<<<<<<.................inv sin _____

               ....>>>>>>>>> >>>>>>log sec Hc + _____

Z _____<<<<<<<<<..inv log sin _____

Using Chichester's numbers:

	Hc		Az

Lat 37-08.5 N_ log sin Lat   9.78088____   log cos Lat 9.90154_____
Dec 08-02 N__ log sin Dec +9.14535___   log cos Dec 9.99572_____   log cos Dec 9.99572
LHA 35-48.5__   log cos LHA +9.90901_____   log sin LHA 9.76716_

_8.92623____   9.80627_____

inv log   ____.08438_____   inv log   ___.64010_____
                                  +
                          ....>>> __.08438_____

Hc 46-26_____ <<<<<<<<.........................inv sin __.72448_____

....>>>>>>>>>>>>>>>>>> log sec Hc + 10.16166

Z __57.2_____ <<<<<<<<<<...inv log sin __9.92459

This method required referring to only eight pages of trig tables and log tables, the addition of three six digit numbers twice, and the addition of two six digit numbers twice.,

They can also be solved using the following key stroke sequence on a calculator with three memories:

Assumed Lat
2nd DMS-D.D (changes to decimal degree format)
STO 1 (stored A. LAT in 1)
Declination
2nd DMS-D.D
STO 2   (stored DEC in 2)
GHA
2nd DMS-D.D

-
Assumed Longitude
2nd DMS - D.D
= (computed LHA)
STO 3   (LHA stored in 3)
COS
X
RECALL 2 (recalled declination)
COS
X
RECALL 1 (recalled Assumed latitude)
COS
+
RECALL 1 (recalled A. LAT)
SIN
X
RECALL 2 (recalled DEC)
SIN
=
2nd SIN (ARCSIN, computed Hc)

2nd D.D-DMS (changes decimal degree Hc to degree-minute-second so it can be written down)

2nd DMS - D.D (changes it back)

1/x   (converts COS Hc to SEC Hc)
RECALL 3 (recalled LHA)
SIN
X
RECALL 2 (recalled DEC)
COS
=
2nd SIN (ARCSIN, computed Z)

*