Calculations

I. PALT

1 inHg / 1000ft

IALT = IALT + (29.92 - ALTsetting) * 1000

II. DALT

ISA' = 15 - (2 * IALT / 1000)

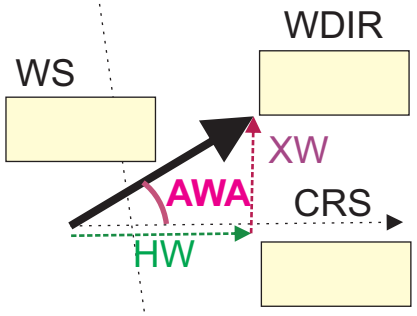
PALT = PALT + (120 * [OAT - ISA'])

III. TAS

2% / 1000ft

IAS -> CAS = IAS -> CAS + 0.02 * DALT / 1000 * IAS -> CAS

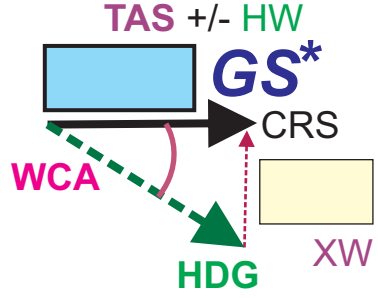
IV. XW / HW



XW = WS * SIN AWA

HW = WS * COS AWA

V. WCA



WCA = SIN^{-1} (XW / TAS +/- HW)

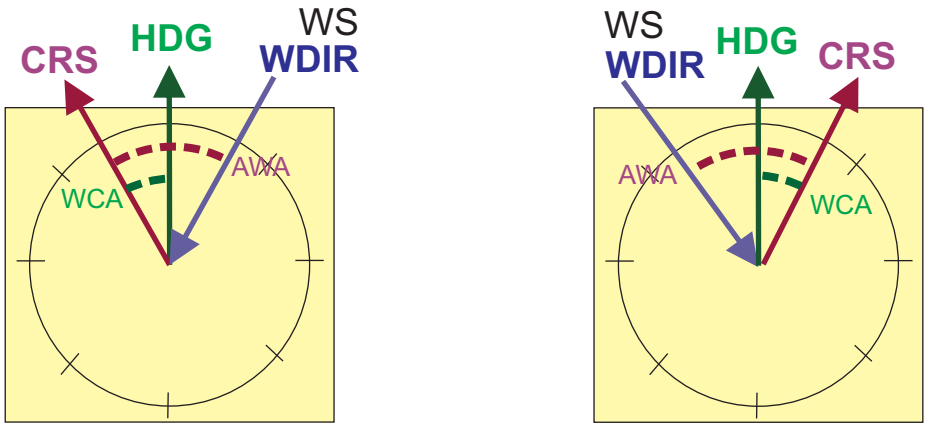
HDG = CRS +/- WCA

* not accurate - **round down!**

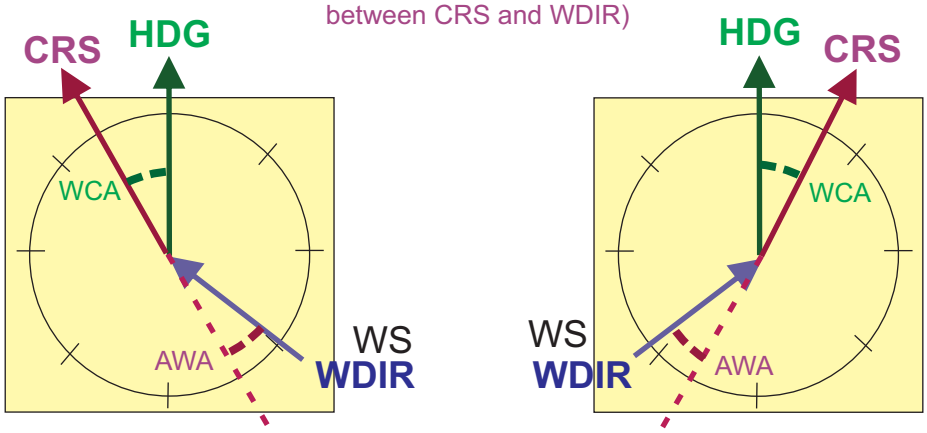
Help

deg	0	10	20	30	40	45	50	60	70	80	90
cos	1	0.98	0.94	0.87	0.77	0.71	0.64	0.5	0.34	0.17	0
sin	0	0.17	0.34	0.5	0.64	0.71	0.77	0.87	0.94	0.98	1

$1 / \sqrt{2} = 1.41$



AWA = *Acute Wind Angle*
(the smaller one possible
between CRS and WDIR)



$$\text{WCA} = \text{SIN}^{-1}\ \text{ASIN}\left(\frac{\text{WS}}{\text{TAS}} * \frac{\text{AWA}}{\text{SIN}(\ )}\right)$$