DESIGNED FOR FLIGHT SIMULATION

Handy Sheet

FREEWARE

Glide Slope	
NM	*Feet*
15	4780
14	4460
13	4140
12	3820
11	3500
10	3180
9	2870
8	2550
7	2230
6	1910
5	1590
4	1270
3	960
2	640
1	320
0.5	160
Thr	50
TD	0

Standard 3° Glide Slope
Distance from RWY Threshold
Feet Above Ground Level

L A N D I N G

50 ft (AGL) Over RWY Threshold

Aircraft	Final Approach	Short Final	Touchdown
A	1.4 x V_{SO}	1.4 x V_{SO}	V_{REF}
B-D	V_{REF} + 20 kts	V_{REF} + 10 kts	V_{REF}

Aircraft A: V_{REF} < 91 kts; Aircraft B, C or D: V_{REF} > 91 kts (For Detailed Aircraft Landing Categories see Table in "Procedure Turn" below)

Rules of Thumb

(a) **TOD** (Top of Descent) = **3 x (Current Altitude - Airport Elevation)** *(e.g. 3 x 39,000ft - 1,500ft elev = 113nm from airport).* Use (b) to set the appropriate vertical speed based on TAS. Add 10% for unexpected tail wind.

(b) **Descent Rate** (for 3° glide slope) = **5 x TAS** *(e.g. 5 x 400KTAS = 1200ft/min).*

(c) **Descent Altitude Check** = **glide slope angle x 100 x Distance** from RWY in nm *(e.g. 3 x 100ft x 10nm = 3,000ft).* For 4°, 400 x Distance; for 5°, 500 x D etc.

(d) **TAS** = **[(IAS x 2%) x (ALT/1,000ft)] + IAS**. So, if IAS=300 and ALT=20,000: 300 x 0.02 x 20 + 300 = 420 kts TAS.

(e) **Bank Angle** for Std Turns (i.e. Props 3°/s or 360° in 2 min; Jets 1.5°/s or 360° in 4 min). **Props: BA = (TAS / 10) +7; Jets: BA = (TAS / 10) x 0.75**. Airliners: plan BA to be max. 25° for passenger's comfort.

(d) **Rollout Angle** = **BA / 2**. (e.g. current HDG = 090; desired HDG = 270; BA = 30; RA = 30 / 2 = 15; so start RA when HDG 285 (i.e. 15° before reaching HDG 270).

Main V Speeds (kts IAS)

V_1 takeoff decision speed
V_R rotate speed
V_2 takeoff safety speed
V_S stall speed (clean)
V_{SO} stall speed (landing configuration)
V_{REF} landing reference speed (1.3 x V_{SO})
V_{MC} minimum control speed

N (+)
W (-) + E (+)
S (-)

GMT = Z = UTC

GS = TAS - Headwind Comp. or **GS = TAS + Tailwind Comp.**

Set altimeter to 1013hPa/29.92inHg passing through transition level (USA 18,000ft; NZ 11,000up/13,000dwn)

MET reports' WINDS are in TRUE North; ATC reported WINDS are MAG North

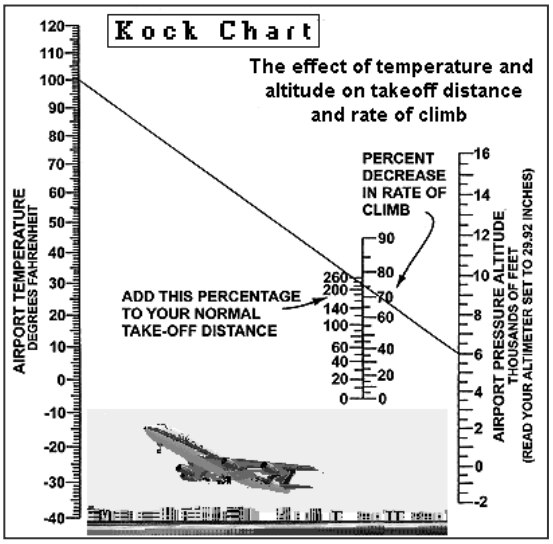
Reciprocal RWY Help		
36	√	18
01	√	19
02	√	20
03	√	21
04	√	22
05	√	23
06	√	24
07	√	25
08	√	26
09	√	27
10	√	28
11	√	29
12	√	30
13	√	31
14	√	32
15	√	33
16	√	34
17	√	35
18	√	36

ANGLE BETWEEN WIND DIRECTION AND TRUE COURSE

Wind Speed	0°	10°	20°	30°	40°	50°	60°	70°	80°	90°
10	10 / 0	10 / 2	9 / 3	9 / 5	8 / 6	6 / 8	5 / 9	3 / 9	2 / 10	0 / 10
20	20 / 0	20 / 3	19 / 7	17 / 10	15 / 13	13 / 15	10 / 17	7 / 19	3 / 20	0 / 20
30	30 / 0	30 / 5	28 / 10	26 / 15	23 / 19	19 / 23	15 / 26	10 / 28	5 / 30	0 / 30
40	40 / 0	39 / 7	38 / 14	35 / 20	31 / 26	26 / 31	20 / 35	14 / 38	7 / 39	0 / 40
50	50 / 0	49 / 9	47 / 17	43 / 25	38 / 32	32 / 38	25 / 43	17 / 47	9 / 49	0 / 50
60	60 / 0	59 / 10	56 / 21	52 / 30	46 / 39	39 / 46	30 / 52	21 / 56	10 / 59	0 / 60
70	70 / 0	69 / 12	66 / 24	61 / 35	54 / 45	45 / 54	35 / 61	24 / 66	12 / 69	0 / 70

HEADWIND/TAILWIND AND CROSSWIND COMPONENTS

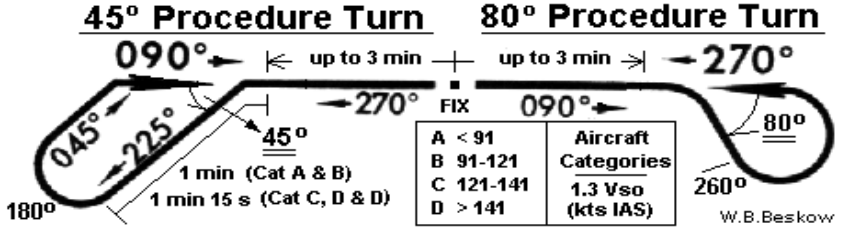
Triangles: Upper-left shows headwind or tailwind component depending on whether the wind is coming from ahead or behind. Lower-right shows left or right crosswind component also depending on wind direction.



Don't debug anything on final, GO AROUND !

°C		°F
-60	√	-76
-50	√	-58
-30	√	-22
-25	√	-13
-20	√	-4
-15	√	5
-10	√	14
- 5	√	23
0	√	32
5	√	41
10	√	50
15	√	59
20	√	68
25	√	77
30	√	86
35	√	95
40	√	104
50	√	122

A	ALPHA	.–
B	BRAVO	–...
C	CHARLIE	–.–.
D	DELTA	–..
E	ECHO	.
F	FOXTROT	..–.
G	GOLF	––.
H	HOTEL	....
I	INDIA	..
J	JULIET	.–––
K	KILO	–.–
L	LIMA	.–..
M	MIKE	––
N	NOVEMBER	–.
O	OSCAR	–––
P	PAPA	.––.
Q	QUEBEC	––.–
R	ROMEO	.–.
S	SIERRA	...
T	TANGO	–
U	UNIFORM	..–
V	VICTOR	...–
W	WISKEY	.––
X	XRAY	–..–
Y	YANKEE	–.––
Z	ZULU	––..



A small correction early is better than a big correction late

C O N V E R S I O N S

1 ft = 0.305 m
1 kts = 1 NM / hour
1 NM = 1.1516 SM = 1.853 km
1 SM = 0.8683 NM = 1.609 km

Air Pressure
inHg → hPa
33.86
(follow multiply, back divide)