

**MANEUVERING SPEED**

Va at a certain weight

$$V_a = \sqrt{\frac{\text{Weight}}{\text{Gross Weight}}} * V_A \text{ (max gross)}$$

**SHUTDOWN CHECKLIST**

- RADIOS
- ELECTRICAL
- MIXTURE
- MASTER
- MAGS

**DURING FLYING**

- AVIATE
- NAVIGATE
- COMMUNICATE

**AruleofThumb**

A 10 % increase in GROSS WEIGHT results in:

- 5% increase in the speed needed for takeoff
- 9% decrease in acceleration
- 21% increase in take-off distance

<b>VFR magnetic course</b> WEOO +5	<b>IFR magnetic course</b> WEOO
<b>WEST</b>	<b>WEST</b>
<b>EVEN +500</b>	<b>EVEN</b>
<b>EAST</b>	<b>EAST</b>
<b>ODD + 500</b>	<b>ODD</b>

**CLEARANCE**

- C LEARED to ...
- R OUTE of flight
- A LTITUDE to maintain
- F REQUENCY (departure)
- T RANSPONDER SQUACK

**INSTRUMENT APPROACH**

- A TIS
- M ISSED approach procedure
- A IRSPEED x various segments
- R ADIOS
- T IME (from FAF to MAP)
- I EADINGS
- A LTITUDES
- N OTES

**IFR CROSSING A FIX**

- T URN to proper heading (figure out the holding)
- T IME to hold or approach
- T WIST the needle OBS knob to inbound course
- T HROTTLE adjustment, as required
- T ALK – procedure turn inbound, entering the hold, etc...
- T RACK the course

**LOSS OF COMMUNICATIONS**

**ROUTE OF FLIGHT**

- A ssigned
- V ectored
- E xpected
- F iled
- ALTITUDE**
- M inimum IFR altitude
- E xpected as advised by ATC
- A ssigned by ATC

**SETUP FOR AN APPROACH**

- M ISSED procedure to review
- G UIDE (set the course guidance)
- F RQUENCY (set and remember to IDENT all the navigation aids : ADF – MARKER BEACONS – ILS – LOC – VOR)
- I NITIAL approach fix (to identify on the chart)
- A LTITUDE (DH or MDA)
- T IME (set and startwhen appropriate)

**When to give Position Reports ? Under IFR**

- Leaving an assigned altitude
- There's a change of altitude while VFR-on-top
- You're unable to climb or descend 500 fpm
- There's a true airspeed change in excess of 5% or 10 knots
- Reaching a holding fix
- Leaving a holding fix
- There's a missed approach
- There's any kind of equipment failure
- Anything affects the safety of the flight

**When not in radar contact**

- Leaving a final approach fix inbound
- Unforecast weather
- Change in the ETA greater than plus or minus three minutes
- Designated reporting points

**POSITION REPORT**

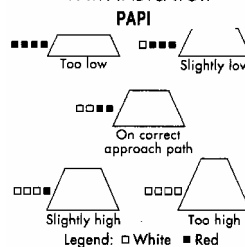
- P OSITION where I was
- T IME past the hour where I was
- A LTITUDE
- T YPE of flight plan
- E STIMATE at the next reporting point
- N EXT reporting point

RATE OF CLIMB TABLE (ft. per min.)

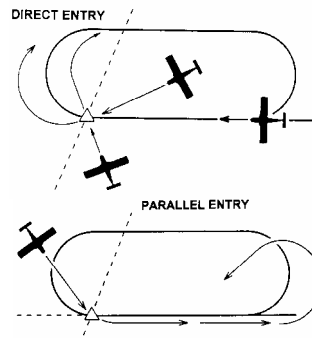
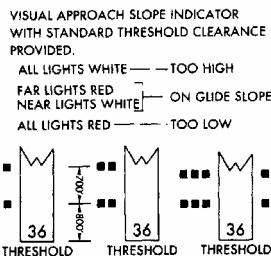
REQUIRED GRADIENT RATE (ft. per min.)	GROUND SPEED (KNOTS)					
	30	60	80	90	100	120
200	100	200	267	300	333	400
250	125	250	333	375	417	500
300	150	300	400	450	500	600
350	175	350	467	525	583	700
400	200	400	533	600	667	800
450	225	450	600	675	750	900
500	250	500	667	750	833	1000
550	275	550	733	825	917	1100
600	300	600	800	900	1000	1200
650	325	650	867	975	1083	1300
700	350	700	933	1050	1167	1400

REQUIRED GRADIENT RATE (ft. per NM)	GROUND SPEED (KNOTS)					
	150	180	210	240	270	300
200	500	600	700	800	900	1000
250	625	750	875	1000	1125	1250
300	750	900	1050	1200	1350	1500
350	875	1050	1225	1400	1575	1750
400	1000	1200	1400	1600	1700	2000
450	1125	1350	1575	1800	2025	2250
500	1250	1500	1750	2000	2250	2500
550	1375	1650	1925	2200	2475	2750
600	1500	1800	2100	2400	2700	3000
650	1625	1950	2275	2600	2925	3250
700	1750	2100	2450	2800	3150	3500

**PRECISION APPROACH PATH INDICATOR**

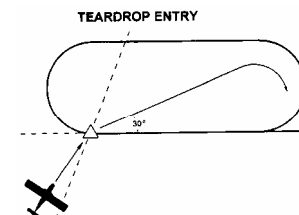
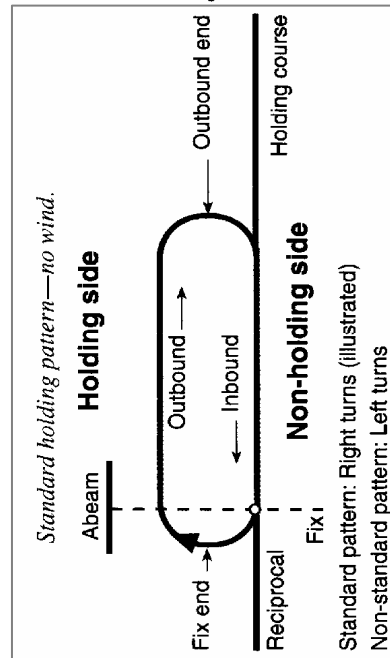
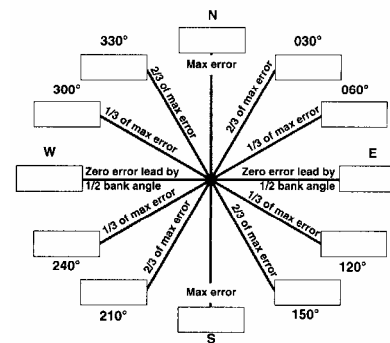


**VASI VISUAL APPROACH SLOPE INDICATOR**



<b>Compas Error</b>	<b>Compas Error</b>
Undershoot	Accelerate
North	North
Overshoot	Decelerate
South	South

North (360°) max error = Latitude + (1/2 standard rate)  
 South (180°) max error = Latitude - (1/2 standard rate)



ANGLE BETWEEN WIND DIRECTION AND TRUE COURSE

Wind Speed	ANGLE BETWEEN WIND DIRECTION AND TRUE COURSE									
	0°	10°	20°	30°	40°	50°	60°	70°	80°	90°
10	10	9	8	6	5	3	2	0	10	10
20	20	19	17	15	13	10	7	3	20	20
30	30	28	26	23	19	15	10	5	30	30
40	39	38	35	31	26	20	14	7	40	40
50	49	47	43	38	32	25	17	9	50	50
60	59	56	52	46	39	33	21	10	60	60
70	69	66	61	54	45	35	24	12	70	70

