



**AIRSPEED**  
Measures Dynamic Pressure caused by movement in air

**PREFLIGHT**  
=zero, alive on take-off

REQUIRED VFR

**INFO**  
IAS- Indicated  
CAS- Calibrated  
EAS- Equivalent  
TAS- True  
Mach # - TAS : Speed of Sound

**SYSTEM**  
PITOT/STATIC SYSTEM  
Pitot (RAM): Static & Dynamic Pressure  
Static Port: Static Pressure

**ERRORS**  
TAS- corrected for temp/pressure alt  
TAS = CAS + 2% per 1000' MSL  
Air temp↑ Pressure↑ TAST



**TURN COORDINATOR**  
Roll Rate & Rate of Turn  
Indirect Bank Attitude  
Quality of Turn (ball)

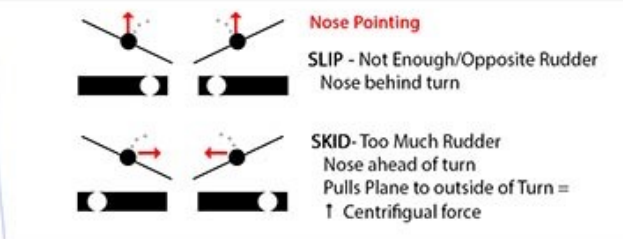
Needle Center  
Tube full of fluid  
Taxi - Shows proper skid turn  
Listen for any unusual sounds

REQUIRED IFR

Standard Rate Turn  
3°/sec = 2min  
Half Rate Turn  
1.5°/sec = 4min

Increased Air Speed =  
↓ Rate of Turn ↑ Turn Radius

GRYO - ELECTRIC POWERED

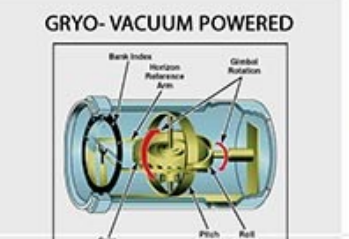


**ATITUDE INDICATOR**  
Change of Pitch & Bank Attitude/ Angle

After 5min, bar stable,  
dips <5° while taxiing

REQUIRED IFR

Primary for establishing  
Standard Rate Turn



after 180°, indicates climb/bank in opposite dir.  
after 360°, cancels error  
acceleration, bar ↓ , shows climb  
decceleration, bar ↑ , shows decent



**HEADING INDICATOR**  
DG DIRECTIONAL GYRO

After 5min, set to Compass,  
check headings while taxi.  
<3° in 15min is acceptable

REQUIRED IFR

GRYO - VACUUM POWERED

PROCESSION ERROR

Slaved Gyro (electric) Corrections:  
Left Compass Card Deflection  
Turn Compass Card Right ↻ Clockwise

Blocked

Blocked	Airspeed	Altimeter	VSI
Pitot	zero	works	works
Pitot/Drain	High in Climb Low in Decent (acts like Alt.)	works	works
Static Port	Low in Climb High in Decent	frozen	frozen
Using Cockpit Static Air	Reads High	Reads High	momentarily shows climb
VSI Glass Broken	Reads High	Reads High	reverses



**ALTIMETER**  
MSL Altitude

<75' deviation from FE

REQUIRED VFR & IFR

PITOT/STATIC SYSTEM

PITOT/STATIC SYSTEM

Blocked	Airspeed	Altimeter	VSI
Pitot	zero	works	works
Pitot/Drain	High in Climb Low in Decent (acts like Alt.)	works	works
Static Port	Low in Climb High in Decent	frozen	frozen
Using Cockpit Static Air	Reads High	Reads High	momentarily shows climb
VSI Glass Broken	Reads High	Reads High	reverses



**VERTICAL SPEED VSI**  
Rate of Climb/Decent

=zero (correct for errors)

NOT REQUIRED

↑ Rate of Decent (VSI)  
w/ ↑ Ground Speed  
to maintain Glide Slope

Lead by 10% VSI  
500fpm = 50' lead

PITOT/STATIC SYSTEM

N/S Heading:  
Lag or Opposite - When turn thru Northern Headings 270°-90°  
Lead -When turn thru Southern Headings 90°-270°

W/E Heading- ANDS  
Acceleration = shows turn N  
Deceleration = show turn S



**COMPASS**

REQUIRED VFR