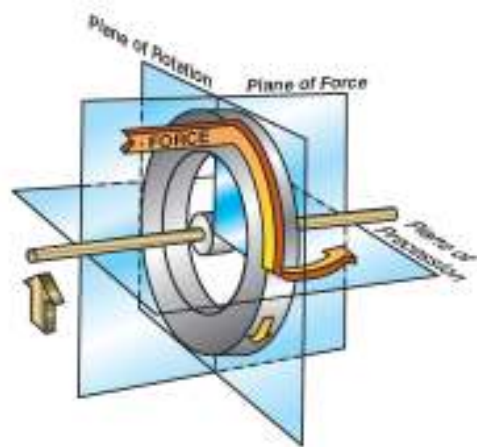


Basic Flight Instruments

The gyroscopic principles are _____ and _____.



Label the basic flight instruments...



Write a “G” next to the instruments with gyroscopes.

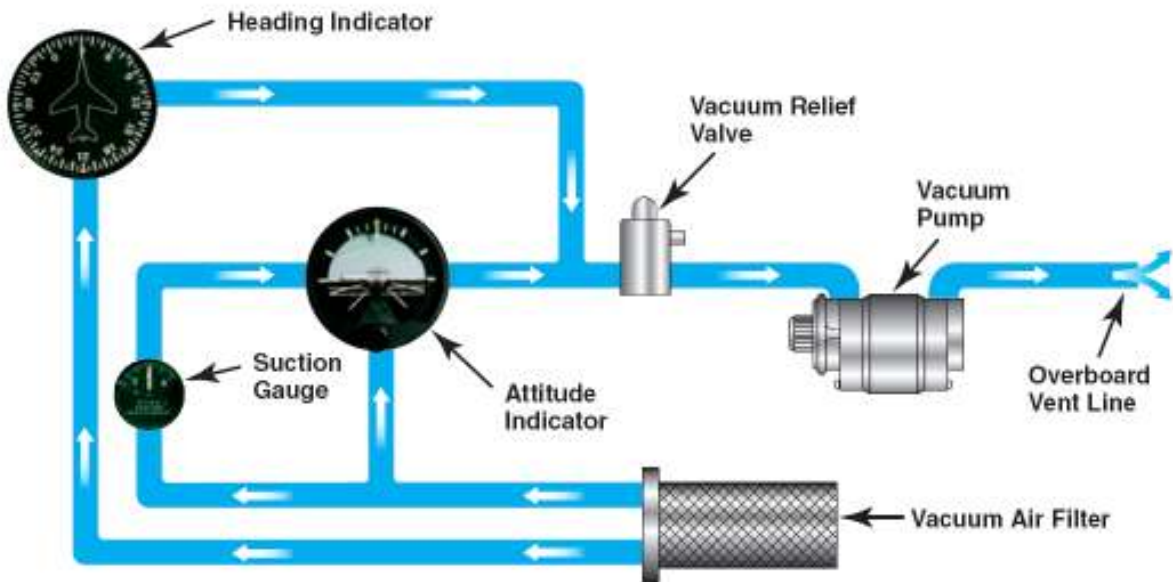
Write a “V” next to the instruments spun by the vacuum system.

Write an “E” next to the instruments spun by the electrical system.

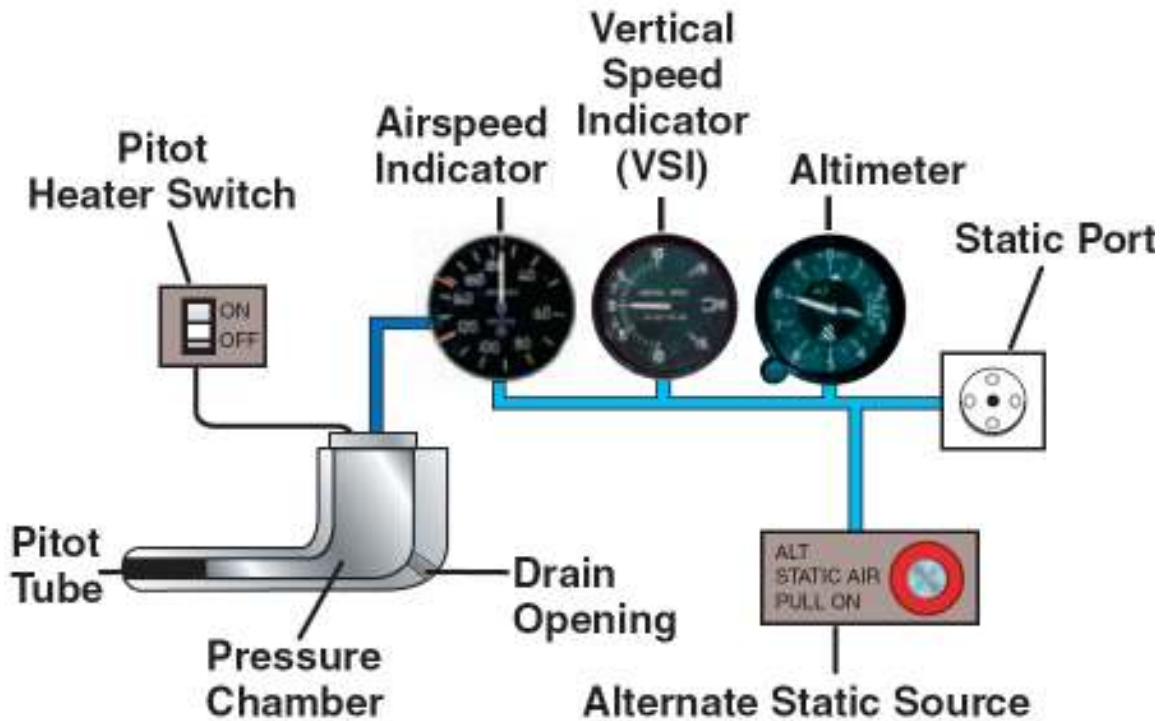
Write an “S” near the instruments connected to the static port.

Write a “P” next to the instruments connected to the pitot tube.

The Instruments Spun by the Vacuum System



The Pitot-Static Instruments and System



Airspeed Indicator

Label the following on the airspeed indicator:

V_{SO}

V_S

V_{FE}

V_{NO}

V_{NE}



Types of Airspeed

_____ **Stalling speed in the landing configuration.** Think “stuff out.”

_____ **Stalling speed in a clean configuration.** This speed is often synonymous with V_{S1} , the stalling speed in the take-off configuration configuration.

_____ **Rotation speed.** The speed at which an aircraft leaves the ground during take-off.

_____ **Best angle of climb speed.** This provides the best altitude gain per unit of horizontal distance. It is usually used for clearing obstacles during takeoff.

_____ **Best rate of climb speed.** This provides the best altitude gain per unit of time.

_____ **Maximum flap extended speed.**

_____ **Maximum landing gear extended speed.**

_____ **Maneuvering speed.** Stalling speed at the maximum legal G-force. Hence, the maximum speed at which abrupt, full deflection, control inputs will not cause the aircraft to exceed its G-force limit.

_____ **Maximum structural cruising speed.** Above this speed, the plane may only fly straight-and-level in perfectly smooth air.

_____ **Never-exceed speed.**

Types of Altitude

T _____ altitude is the exact height of an aircraft above MSL.

A _____ altitude is the exact height of an aircraft AGL.

I _____ altitude is the altitude above MSL when the _____ altimeter setting is adjusted to the barometric scale.

P _____ altitude is the IA corrected for non-standard _____. It can be found by setting the altimeter to _____.

D _____ altitude is the PA corrected for non-standard _____.

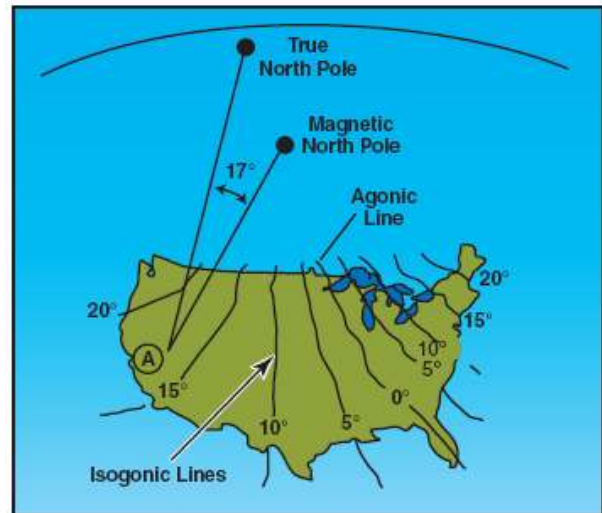
$$\text{Pressure Altitude} = (29.92'' \text{ Hg} - \text{Local Altimeter Setting}) \times 1000$$

Magnetic Compass Errors

1. **V** _____ is the angular difference between true and magnetic north.

2. **D** _____ is caused by magnetic fields from metallic and electrical components in the aircraft.

3. **M** _____ **D** _____ is the tendency of the compass needles to point to the magnetic pole. The greatest error occurs at the poles and zero at the equator. Since the compass card is designed to respond only to the horizontal plane of the earth's magnetic field, it turns freely only in the horizontal plane. Any movement of the card from the horizontal results in dip errors.

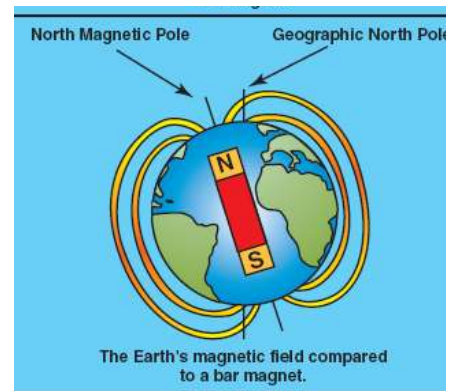


a. Northerly Turning Error:

U _____
 N _____
 O _____
 S _____

b. Acceleration Error:

A _____
 N _____
 D _____
 S _____



4. **O** _____ **Error** - results from erratic movement of the compass which may be caused by turbulence or rough control technique.