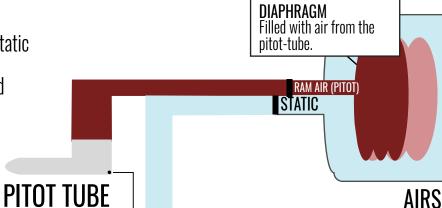
PITOT-STATIC INSTRUMENTS

DRAIN HOLE

Pitot-static instruments work by comparing static air pressure from the static ports to either ram air pressure from the pitot-tube (airspeed indicator), standard atmopsheric pressure of 29.92" Hg (altimeter), or static air pressure from several seconds prior (vertical append indicator) speed indicator).



Increases in airspeed cause the diaphragm to expand.

Static air pressure provides resistance to expansion. This allows the airspeed indicator to compensate for changes in pressure caused by altitude not speed.

STATIC AIR

AIRSPEED INDICATOR



STATIC

Changes in static air pressure cause the wafers to expand and contract. The instrument measures this as changing altitude.

Actual air pressure may not be 29.92". To compensate, we enter the altimeter setting in the kollsman window.

STATIC AIR

ALTIMETER

DIAPHRAGM Filled with static air.

STATIC STATIC

CALIBRATED LEAK

Slows the change in air pressure.

Changes in pressure occur faster in the diaphragm than the in the casing because of the calibrated leak.

This causes a momentary expansion or contraction which is measured.

STATIC AIR

VERTICAL SPEED INDICATOR







Vertical Speed Indicator



Blocked pitot tube

Airspeed will indicate lower than normal or zero.

Blocked static port

Altimeter will freeze and VSI will show zero. Airspeed will increase in climb and decrease in a descent.

Blocked pitot tube and static port

All three instruments will be frozen.

STATIC PORT

ALT. STATIC

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