

In English, please



IAS VS TAS A QUICK SPEED TEST

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The statements below are all related to the different airspeeds a pilot will, or might, have to deal with when operating an aircraft. Each one is followed by four additional statements of which only three are correct. Find the wrong one out.

The ASI

1 - The flight instrument that provides information on speed is the airspeed indicator. The ASI:

- a - falls in the category of pressure instruments, with the altimeter and the vertical speed indicator
- b - makes use of pressure readings from a pitot head and a static vent
- c - is the only instrument to use pitot pressure
- d - indicates the difference between dynamic pressure and static air pressure

2 - The ASI:

- a - is calibrated to indicate true airspeed under standard sea level conditions
- b - displays the calibrated airspeed (CAS)
- c - displays the indicated airspeed
- d - is calibrated to read in units of speed (knots) rather than units of pressure

3 - The pitot tube measures... pitot pressure. Pitot pressure is also called:

- a - total pressure
- b - ram pressure
- c - impact pressure
- d - static pressure

4 - It is important that the pitot tube and static vent are not damaged, obstructed or iced over. Otherwise:

- a - a blockage of the static vent affects the ASI, but also the altimeter and the vertical speed indicator
- b - if the static vent clogs, the ASI will read low in a climb and high in a descent
- c - if the static vent clogs, the ASI will read high in a climb and low in a descent
- d - at take off with a completely blocked pitot tube the ASI will indicate zero

Airspeeds and groundspeed

5 - Indicated airspeed (IAS)

- a - is the airspeed read directly off the ASI
- b - is closely related to dynamic pressure
- c - is the airspeed the aircraft depends on for its aerodynamic qualities
- d - increases as angle of attack decreases

6 - Calibrated airspeed (CAS)

- a - is indicated airspeed corrected for installation and instrument errors
- b - is calculated with the help of the flight computer
- c - is deduced from IAS by using a chart or table in the pilot's operating handbook (POH)
- d - can be assumed to be equivalent to IAS in most light aircraft

7 - Equivalent airspeed (EAS)

- a - is CAS corrected for compressibility error, due to the compression of air in the pitot tube
- b - is the same as CAS and TAS at standard sea level
- c - must be taken into account, even at low speeds
- d - is determined with the help of an airspeed correction chart

8 - True airspeed (TAS)

- a - is calibrated airspeed corrected for altitude and nonstandard temperature
- b - is the actual speed of the airplane through the air
- c - increases with altitude for a given IAS
- d - is usually displayed on the ASI

9 - Ground speed (GS)

- a - is true speed adjusted for wind
- b - is the actual speed of the airplane over the ground

- c - is traditionally expressed in kilometers per hour (kph)
- d - decreases with headwind, increases with tailwind

Some airspeed limitations

10 - Airspeed limitations

- a - are also called V-speeds, V for velocity
- b - include V_{LO} and V_{LE} for fixed-gear aircraft
- c - are based on indicated airspeed
- d - if not shown on the ASI, can be found on placards in the cockpit and/or in the POH

11 - Maneuvering speed (V_A)

- a - is displayed on the ASI
- b - is the maximum allowable speed for maximum control deflection
- c - may vary with total weight
- d - is the speed to be referred to if no turbulence penetration speed (V_{TURB}) or rough air speed (V_{RA}) is specified

12 - Never-exceed speed (V_{NE})

- a - is the absolute maximum speed at which an aircraft should be flown
- b - marks the beginning of the ASI yellow arc
- c - is indicated on the ASI by a red line
- d - is determined by the aircraft manufacturer

13 - The stalling speed (V_s) of an airplane varies according to

- a - its weight
- b - the wind
- c - the power setting
- d - the load factor

Sources :

Air Pilot's Manual, Volume 4, Air Pilot Publishing
Private Pilot Manual, Jeppesen Sanderson Inc.

Answers

1 - d; 2 - b; 3 - d; 4 - f; 5 - d; 6 - b; 7 - c; 8 - d; 9 - c; 10 - b; 11 - a; 12 - b; 13 - b