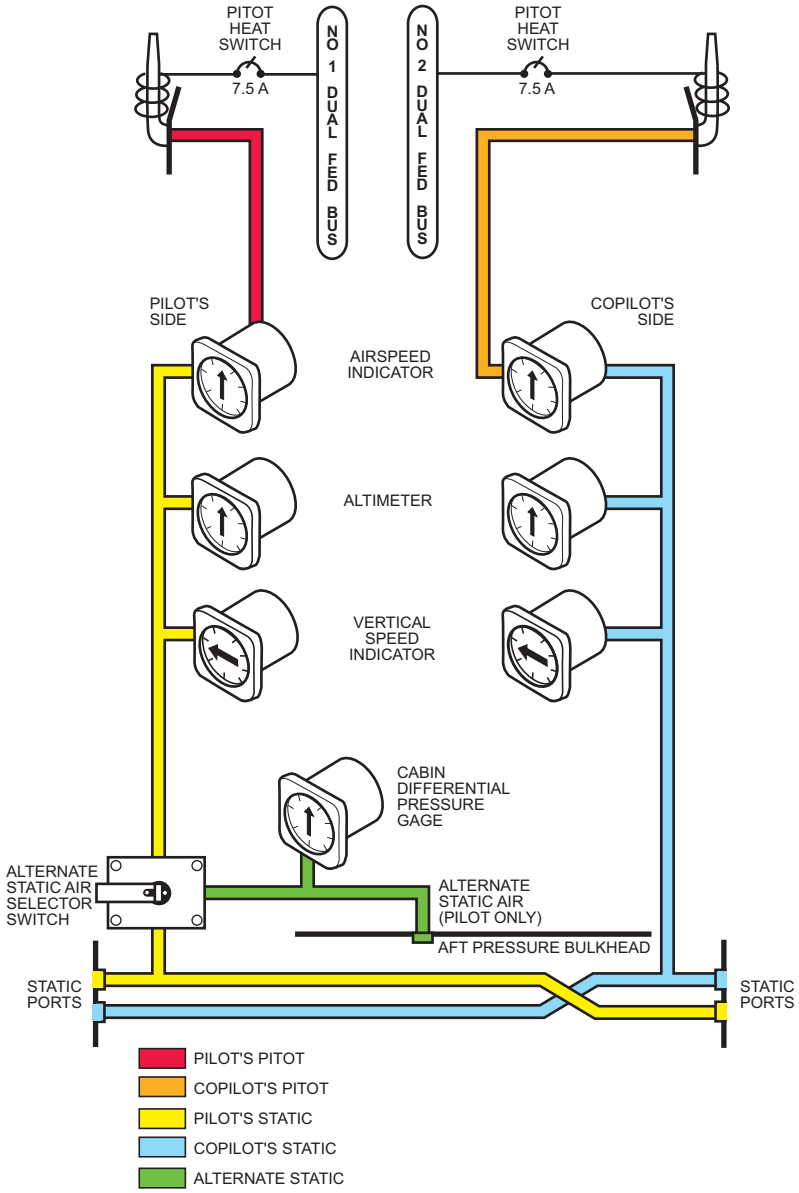
Pitot/Static System

Non-ADC Equipped



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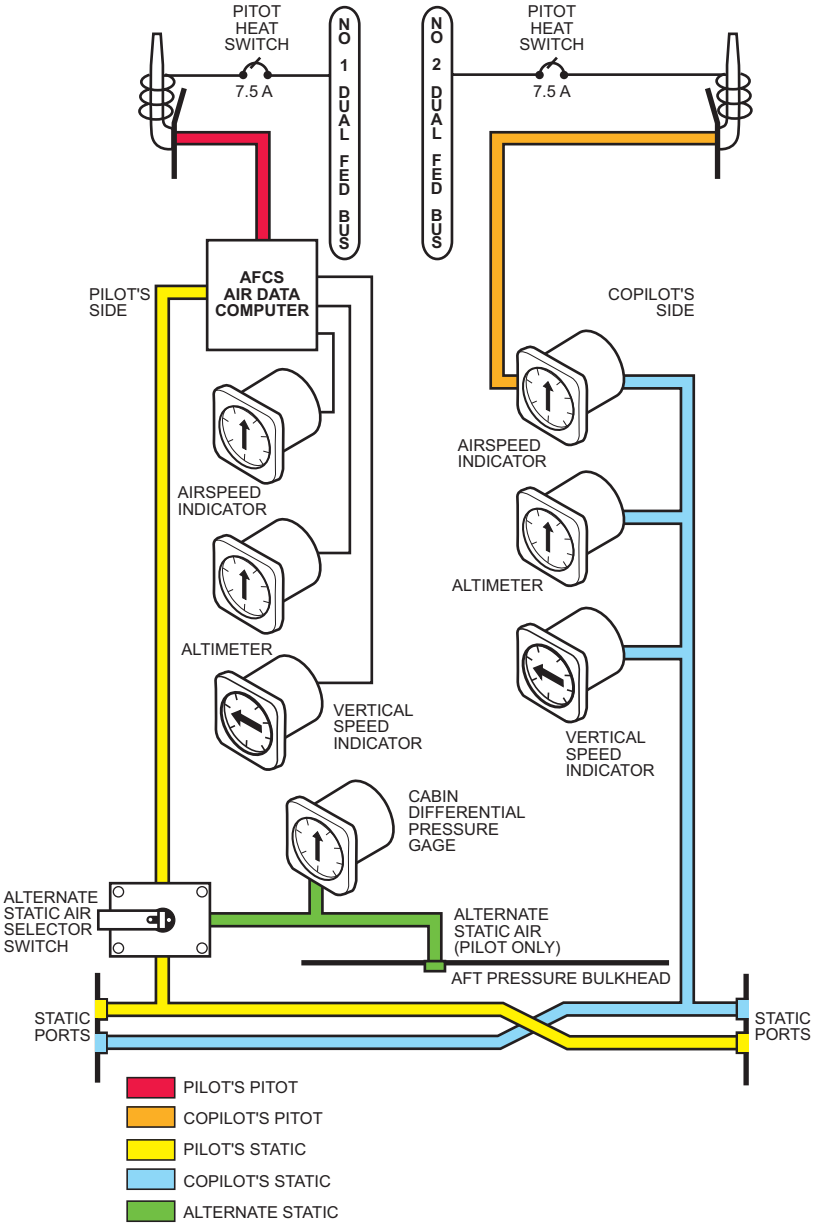

Avionics

This section includes:

- pitot/static system
- avionics power
- communications and navigation equipment
- autopilot.

Please refer to the applicable manuals for more detailed information.

Pitot/Static System

A pitot mast on the left and right forward fuselage and static ports on the left and right rear fuselage provide ram and static pressure to the pitot/static system. Electrically powered heating elements warms the pitot masts to prevent ice formation. With the LEFT and RIGHT PITOT switches in ON, the pitot mast heating elements are powered. Static ports are unheated.

The pilot or left pitot supplies the pilot airspeed indicator and air data computer (if installed). The copilot or right pitot supplies the copilot airspeed indicator. On **S/Ns BB-324 to BB-452 without SI 1047**, the copilot's pitot mast also supplies the landing gear warning system's differential pressure switch.

The static ports supply pressure for the:

- airspeed indicators
- vertical speed indicators
- altimeter
- cabin pressure differential gage
- air data computer (if installed).

The PILOT'S STATIC AIR SOURCE valve handle can connect the pilot's pitot/static system to an alternate static source in the aircraft tailcone.

Air Data Computer

The air data computer processes ram and static air pressure inputs to provide electrical outputs for various flight and avionics equipment. These outputs include:

- indicated and true airspeed
- vertical speed
- pressure and barometric corrected altitude
- altitude alerting
- altitude and airspeed warnings.

The ADC then provides information from the outputs to the following:

- pilot's altimeter
- flight management system (if installed)
- flight guidance system (FGS)
- SAT/TAS indicator
- ATC transponders
- automatic flight control system (AFCS).
- Avionics Power

The aircraft battery and/or generators supply 28V DC to three avionics buses (Avionics Nos. 1, 2, and 3) when the AVIONICS MASTER PWR switch is on. If the AVIONICS MASTER PWR switch fails, pull the AVIONICS MASTER circuit breaker to restore power to the Avionics buses by de-energizing the avionics relays.

An optional ground communications electric power bus can supply power to the No. 2 communications radio and audio panel. This feature reduces battery load of radio use before engine start.

Another option is an auxiliary DC bus system to power essential avionics equipment if electrical load-shedding is required. With the generator and battery switches off, the AUX DC BUS switch in ON normally provides power directly from the Hot Battery bus to the No. 2 communications and navigation radios, audio panel, compass, and glareshield floodlights.

Communications Equipment

A typical communications equipment installation includes:

- two audio control panels
- two VHF communications transceivers
- radio telephone

Because of the wide variation of equipment found in these aircraft, please refer to the applicable manuals for more detailed descriptions and operating information.

Static Discharging

Static wicks on the aircraft structure and control surfaces minimize the effects of lightning strikes and static charges on avionics equipment and the aircraft structure. The wicks bleed off accumulated static charges to the atmosphere. Due to varying configurations, consult your MEL for number and position of static wicks.

Navigation

Navigation equipment provides aircraft direction and attitude information, determines aircraft position, and furnishes flight management.

Attitude and direction equipment use inertial and magnetic forces to sense and display aircraft heading and attitude. Equipment includes:

- magnetic compass
- turn and slip indicator
- gyro horizon/vertical gyro
- radio magnetic indicator
- vertical gyro system
- compass system.

Position determining equipment includes systems that operate independently of ground stations or with ground stations to determine aircraft position. Equipment includes:

- instrument landing system (ILS)
- very high frequency (VHF) navigation equipment
- automatic direction finding (ADF)
- distance measuring equipment (DME)
- transponder
- long range navigation equipment
- LORAN
- global positioning system (GPS)
- flight management system (FMS)
- weather radar.

Autopilot

The autopilot system provides automatic control and stabilization of the aircraft about the pitch, roll, and yaw axes. It positions the aircraft elevator, ailerons, and rudder in response to autopilot/flight computer steering commands. Selectable operating modes automatically maintain a desired altitude, pitch attitude or heading, and capture and track localizer, glideslope, and VOR signals.

Systems certified on this aircraft include:

- Collins AP-105
- Collins AP-106
- Collins APS-65
- Collins APS-80
- King KFC-300
- King KFC-400 (**B200 only**)
- Honeywell (Sperry) SPZ-200A
- Honeywell (Sperry) SPZ-4000.

A typical autopilot system consists of:

- autopilot or flight control computer
- autopilot controller
- airspeed sensor or air data computer (ADC)
- mode selector
- aileron, elevator, and rudder servo-actuators.

The autopilot system receives signals from the airspeed sensor or ADC, vertical accelerometer, vertical and directional gyros, and navigation receivers. With this data, the autopilot drives the servo-actuators to maintain a desired altitude, attitude, navigation path, or airspeed.

A typical autopilot system provides:

- yaw damping
- roll rate and bank angle limiting
- automatic capture and track of VOR, ILS, and localizer
- heading, roll, airspeed, and altitude capture and hold
- heading select
- soft ride.