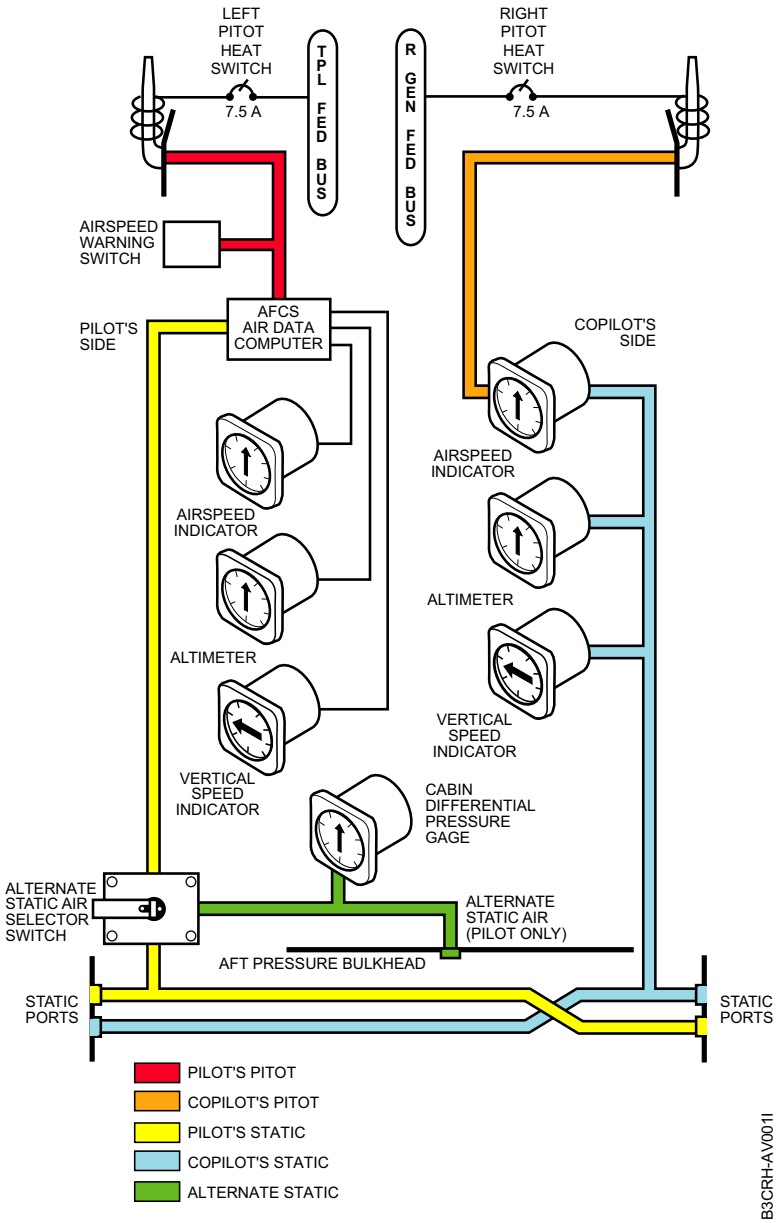
Pitot/Static System



Avionics

This section includes:

- pitot/static system
- communication and navigation equipment
- autopilot
- traffic collision avoidance system (TCAS)
- electronic flight instrument system (EFIS)

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 warm the pitot masts to prevent ice formation. With the Left and Right Pitot Heat switches in ON, the pitot mast heating elements are powered. Static ports are unheated.

The left pitot tube supplies the pilot airspeed indicator and air data computer. The right pitot tube supplies the copilot airspeed indicator. The pilot's pitot mast also supplies the cabin differential pressure switch.

The static ports supply pressure for the:

- airspeed indicators
- vertical speed indicators
- altimeter
- cabin pressure differential gage
- air data computer.

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

Air Data Computer

The air data computer (ADC) 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

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

- pilot's altimeter
- flight management system (if installed)
- flight guidance system (FGS)
- ATC transponders
- automatic flight control system (AFCS)
- enhanced ground proximity warning system (EGPWS).

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. Consult your MEL for the required 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
- horizon/vertical gyro
- radio magnetic indicator
- vertical gyro system
- compass system
- electronic flight instrument system (EFIS)
- distance measuring equipment indicator.

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)
- global positioning system (GPS)
- ATC transponder
- traffic collision avoidance system (TCAS)
- enhanced ground proximity warning system (EGPWS)

- flight management system (FMS).

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 steering commands. Selectable operating modes automatically maintain a desired altitude, pitch attitude, or heading, and capture and track localizer, glideslope, and VOR signals.

A typical autopilot system consists of:

- autopilot or flight control computer
- autopilot controller
- air data computer (ADC)
- mode selector
- altitude preselector/alerter
- aileron, elevator, and rudder servo-actuators.

The autopilot system receives signals from the 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.

Traffic Collision Avoidance System

The TCAS system receives signals from the ADC and ATC transponder and provides surrounding traffic information. Traffic warnings can be displayed on the VSI indicators and on the multifunction display.

Electronic Flight Control System (EFIS)

The EFIS processes navigation data from aircraft systems and provides displays for the pilot and copilot. The EFIS consists of the following equipment:

- electronic attitude director indicator (EADI)
- electronic horizontal situation indicator (EHSI)
- multifunction display (MFD)
- data processing unit (DPU)
- multifunction processor unit (MPU)
- weather radar control panel
- display control panel.