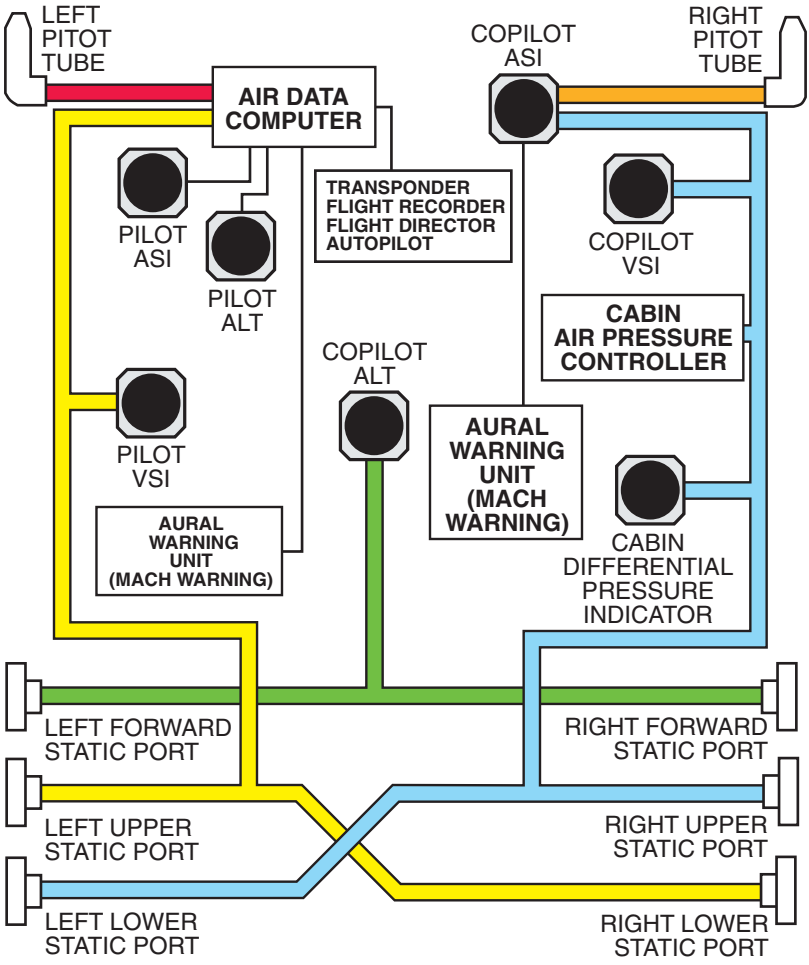
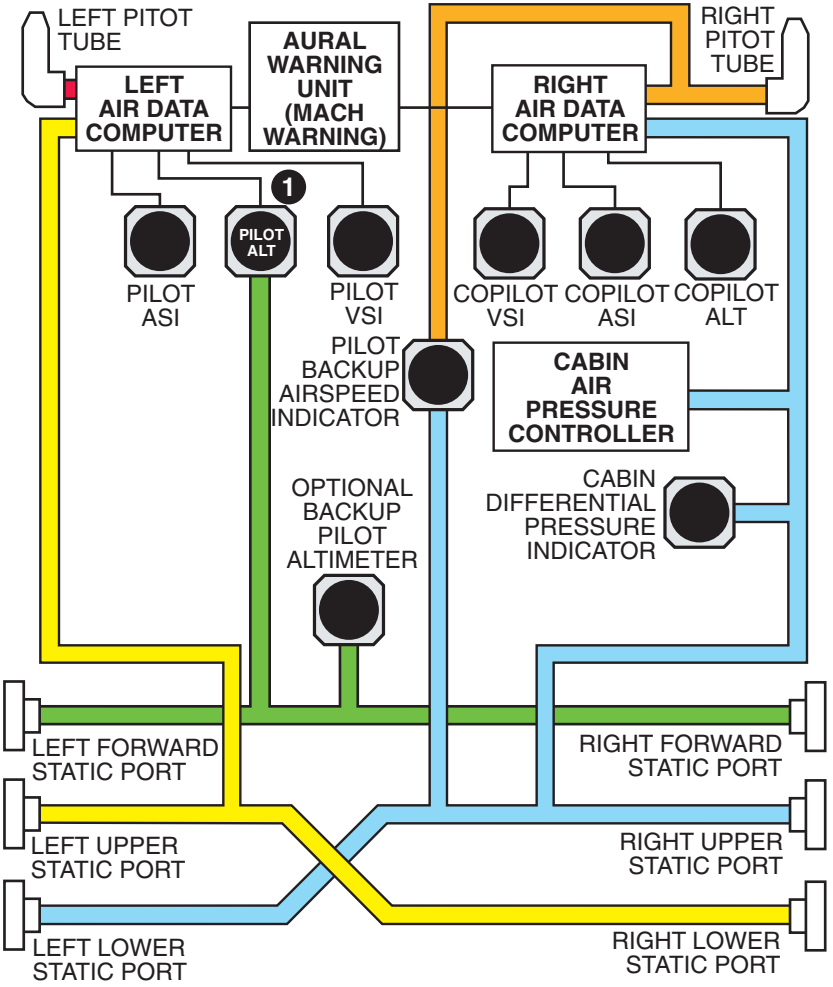
Pitot/Static System

Single ADC



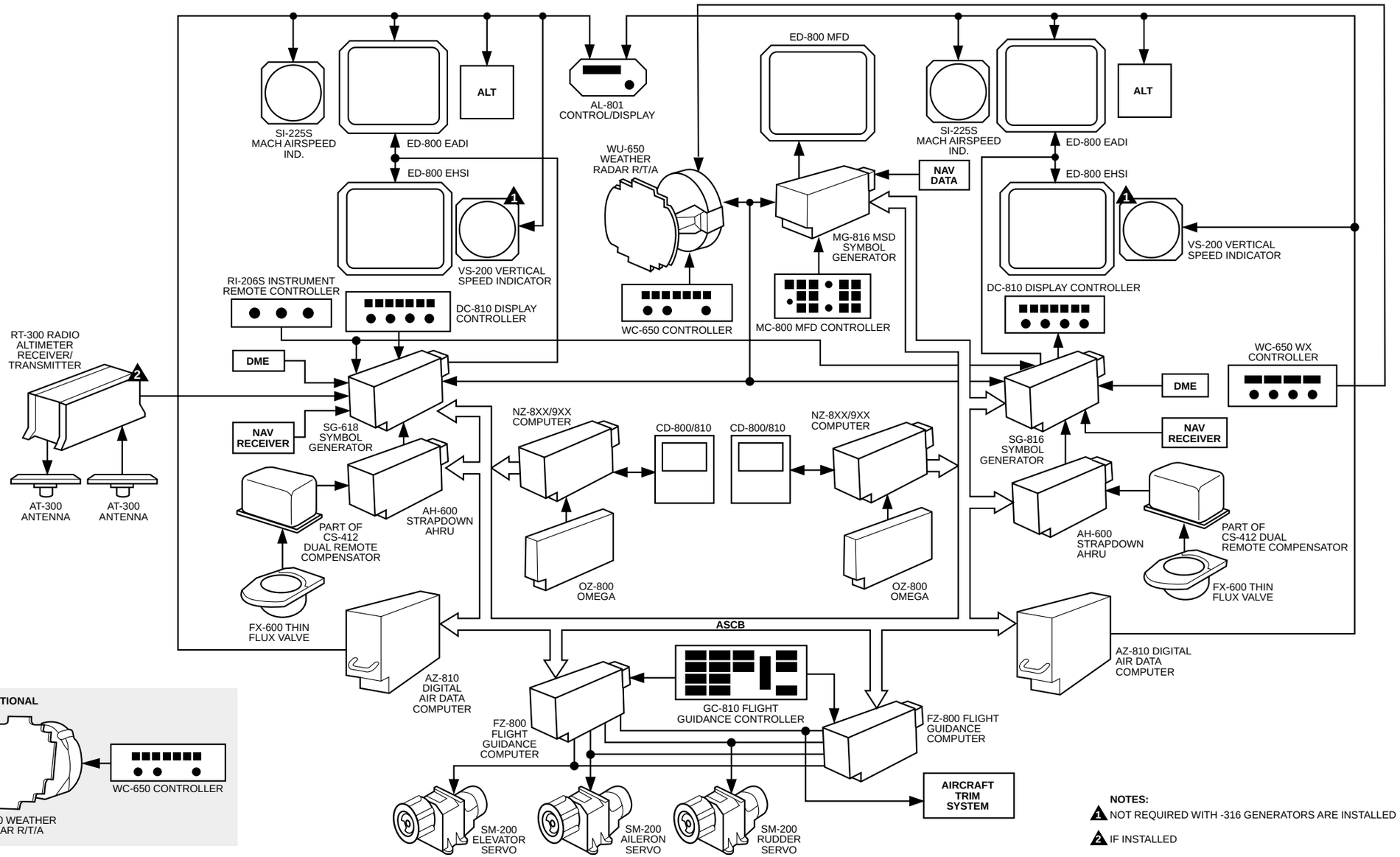
Pitot/Static System

Dual ADC

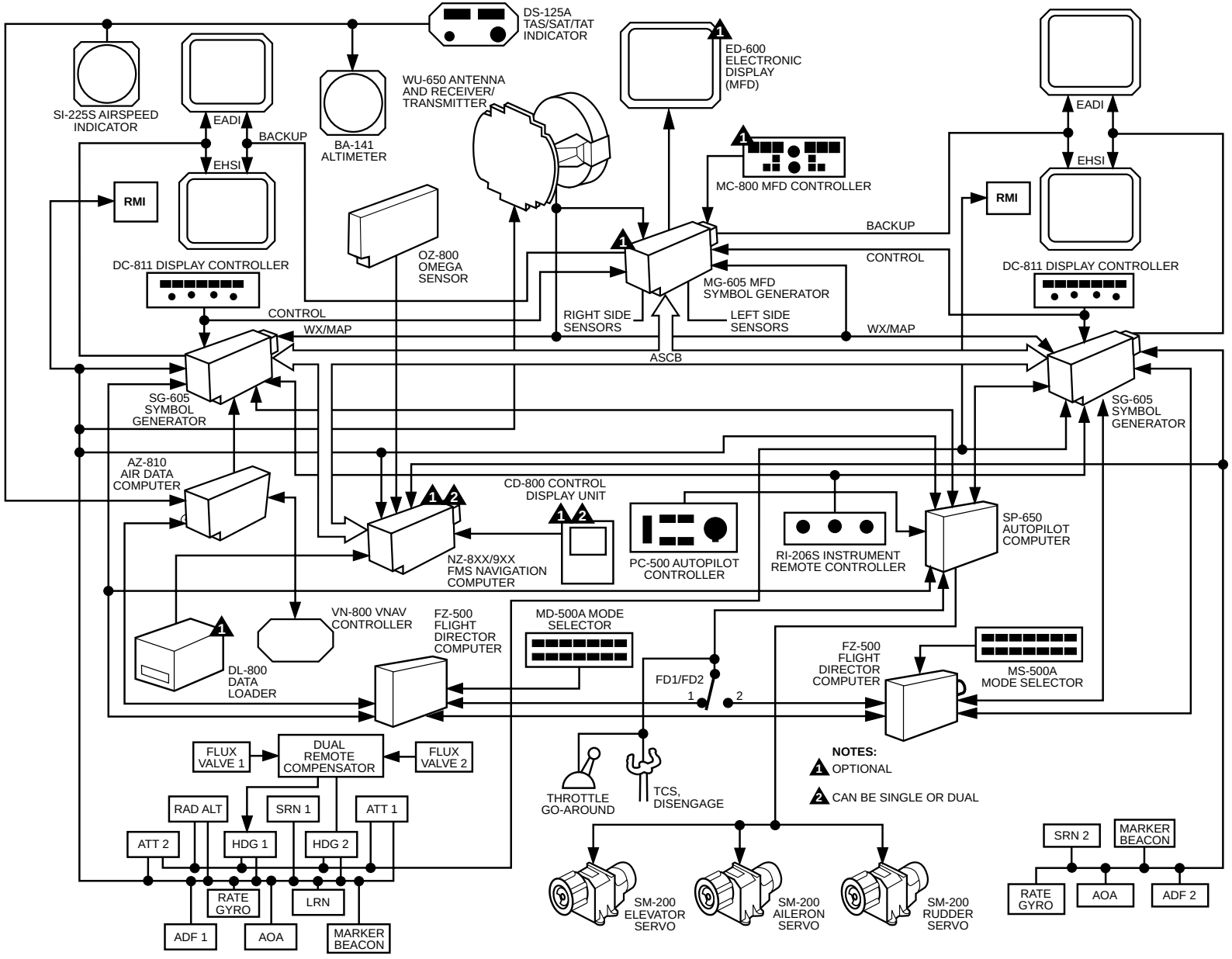


1 PILOT'S ALTIMETER OPERATES PNEUMATICALLY IF ELECTRICAL MODE FAILS.

SPZ-8000 System



SPZ-650 Automatic Flight Control System



Pitot/Static System

On **aircraft with a single air data computer (ADC)**, the left pitot tube supplies the ADC and the right pitot tube supplies the copilot's airspeed indicator.

The aircraft has three independent static systems: pilot's, copilot's, and standby. Each system has a static port on the left and right forward fuselage. The pilot's system supplies static pressure to the ADC, while the copilot's system supplies the copilot's airspeed indicator, vertical speed indicator (VSI), the cabin air pressure controller, and the cabin differential pressure indicator. The standby system supplies the copilot's altimeter.

On **aircraft with dual ADCs**, the left pitot tube supplies the No. 1 ADC and the right pitot tube supplies the No. 2 ADC and the standby airspeed indicator.

The three independent static systems each has a static port on the left and right forward fuselage. The pilot's system supplies the No. 1 ADC, the copilot's system supplies the No. 2 ADC, cabin air pressure controller, and cabin differential pressure indicator. The standby system supplies the pilot's dual mode altimeter.

On **all aircraft**, water drains in the static lines allow removal of accumulated water from the system. Water in the pitot lines drains through the pitot tubes.

Electrically powered heating elements in the pitot tubes and static ports prevents ice accumulation (see Ice and Rain Protection).

Air Data Computer

The air data computer (ADC) receives pitot pressure (P_T) and static pressure (P_S) inputs from the pitot/static system and temperature data from a probe on the lower forward fuselage. The ADC converts and processes these inputs and provides as electrical signals:

- indicated airspeed (IAS)
- true airspeed (TAS)
- Mach number
- true air temperature (TAT)
- static air temperature (SAT)
- pressure altitude.

The ADC provides these inputs to:

- airspeed indicator
- overspeed warning system
- altimeter
- altitude alerting system
- vertical speed indicator (dual ADC equipped)
- vertical navigation (VNAV) controller
- optional electronic flight instrument system (EFIS) symbol generator
- TAS/SAT/TAT indicator
- ATC transponder
- flight director computer
- autopilot computer
- optional flight data recorder.

Digital air data computers (DADCs) provide the same outputs as the ADCs. DADCs are microprocessor-based units that accept analog and digital inputs from the pitot/static system and TAT probe. They then provide analog and digital outputs to the flight instruments, navigation systems, flight director and autopilot, and flight data recorder.

SPZ-650

The Honeywell SPZ-650 automatic flight control system (AFCS) combines the functions of an autopilot, flight director, yaw damper, and elevator trim system to provide automatic flight path and attitude control through the pitch, roll, and yaw axes. Various subsystems of the SPZ-650 AFCS include:

- air data system
- autopilot
- flight director system
- flight instrumentation (mechanical or optional EFIS)
- vertical and directional gyros
- radio altimeter
- weather radar.

The flight control system receives aircraft attitude, position, and heading data from various sensors and navigation equipment. These data sources include:

- air data system – airspeed, vertical speed, altitude
- directional gyro – heading
- vertical gyro – attitude (pitch, roll, and yaw)
- accelerometer – acceleration
- navigation radios – position in relation to navaids.

Supplied with these inputs, the AFCS generates the appropriate pitch, roll, and yaw commands or cues to fly the aircraft from its actual attitude to a desired attitude.

Flight instrumentation can be mechanical instruments that consists of conventional attitude director indicators (ADIs) and horizontal situation indicators (HSIs) or electronic flight instrumentation (EFIS) that uses cathode ray tubes (CRTs) and symbol generators (SGs) to displays the same information.

SPZ-8000

The Honeywell SPZ-8000 is a fail-operational digital automatic flight control system (AFCS) that provides autopilot, yaw damper, flight director guidance, and trim functions. The complete system consists of:

- air data system
- dual flight guidance system (FGS)
- electronic flight instrument system (EFIS)
- optional multifunction display (MFD)
- optional flight management system (FMS)
- attitude and heading reference system (AHRS)
- weather radar system
- radio altimeter system.

A bi-directional, high-speed avionics standard communications bus (ASCB) and private-line paths interface with the various subsystems and components to provide rapid data transfer.

Supplied with the necessary inputs from the air data system, navigation sensors, and AHRS, the SPZ-8000 AFCS generates the appropriate commands and cues to automatically or manually fly the aircraft from its present attitude to a desired attitude.