§ 23.1326 Pitot heat indication systems.

If a flight instrument pitot heating system is installed to meet the requirements specified in §23.1323(d), an indication system must be provided to indicate to the flight crew when that pitot heating system is not operating. The indication system must comply with the following requirements:

(a) The indication provided must incorporate an amber light that is in clear view of a flightcrew member.

(b) The indication provided must be designed to alert the flight crew if either of the following conditions exist:

1. The pitot heating system is switched “off.”

2. The pitot heating system is switched “on” and any pitot tube heating element is inoperative.

(b) The indication provided must be designed to alert the flight crew if either of the following conditions exist:

(d) Each manually operated control for the system operation must be readily accessible to the pilot. Each control must operate in the same plane and sense of motion as specified in §23.779 for cockpit controls. The direction of motion must be plainly indicated on or near each control.

(f) Each system must be designed so that a single malfunction will not produce a hardover signal in more than one control axis. If the automatic pilot system is installed, it must meet the following:

1. Be quickly and positively disengaged by the pilots to prevent it from interfering with their control of the airplane; or

2. Be sufficiently overpowered by one pilot to let him control the airplane.

(b) If the provisions of paragraph (a)(1) of this section are applied, the quick release (emergency) control must be located on the control wheel (both control wheels if the airplane can be operated from either pilot seat) on the side opposite the throttles, or on the stick control, (both stick controls, if the airplane can be operated from either pilot seat) such that it can be operated without moving the hand from its normal position on the control.

(c) Unless there is automatic synchronization, each system must have a means to readily indicate to the pilot the alignment of the actuating device in relation to the control system it operates.

(d) Each manually operated control for the system operation must be readily accessible to the pilot. Each control must operate in the same plane and sense of motion as specified in §23.779 for cockpit controls. The direction of motion must be plainly indicated on or near each control.

(e) Each system must be designed and adjusted so that, within the range of adjustment available to the pilot, it cannot produce hazardous loads on the airplane or create hazardous deviations in the flight path, under any flight condition appropriate to its use, either during normal operation or in the event of a malfunction, assuming that corrective action begins within a reasonable period of time.

(f) Each system must be designed so that a single malfunction will not produce a hardover signal in more than one control axis. If the automatic pilot
§ 23.1337 Powerplant instruments installation.

(a) Instruments and instrument lines.

(1) Each powerplant and auxiliary power unit instrument line must meet the requirements of §23.993.

(2) Each line carrying flammable fluids under pressure must—
   (i) Have restricting orifices or other safety devices at the source of pressure to prevent the escape of excessive fluid if the line fails; and
   (ii) Be installed and located so that the escape of fluids would not create a hazard.

(3) Each powerplant and auxiliary power unit instrument that utilizes flammable fluids must be installed and located so that the escape of fluid would not create a hazard.

(b) Fuel quantity indication. There must be a means to indicate to the flight crew members the quantity of usable fuel in each tank during flight. An indicator calibrated in appropriate units and clearly marked to indicate those units must be used. In addition:

(1) Each fuel quantity indicator must be calibrated to read “zero” during level flight when the quantity of fuel remaining in the tank is equal to the unusable fuel supply determined under §23.959(a);

(2) Each exposed sight gauge used as a fuel quantity indicator must be protected against damage;

(3) Each sight gauge that forms a trap in which water can collect and automatic means to select each power source; or

(4) A separate display of parameters for heading, altitude, airspeed, and attitude that has a power source independent from the airplane’s primary electrical power system.