

Subpart F—Equipment**GENERAL****§ 25.1301 Function and installation.**

(a) Each item of installed equipment must—

(1) Be of a kind and design appropriate to its intended function;

(2) Be labeled as to its identification, function, or operating limitations, or any applicable combination of these factors;

(3) Be installed according to limitations specified for that equipment; and

(4) Function properly when installed.

(b) EWIS must meet the requirements of subpart H of this part.

[Doc. No. 5066, 29 FR 18333, Dec. 24, 1964, as amended by Amdt. 25-123, 72 FR 63405, Nov. 8, 2007]

§ 25.1302 Installed systems and equipment for use by the flightcrew.

This section applies to installed systems and equipment intended for flightcrew members' use in operating the airplane from their normally seated positions on the flight deck. The applicant must show that these systems and installed equipment, individually and in combination with other such systems and equipment, are designed so that qualified flightcrew members trained in their use can safely perform all of the tasks associated with the systems' and equipment's intended functions. Such installed equipment and systems must meet the following requirements:

(a) Flight deck controls must be installed to allow accomplishment of all the tasks required to safely perform the equipment's intended function, and information must be provided to the flightcrew that is necessary to accomplish the defined tasks.

(b) Flight deck controls and information intended for the flightcrew's use must:

(1) Be provided in a clear and unambiguous manner at a resolution and precision appropriate to the task;

(2) Be accessible and usable by the flightcrew in a manner consistent with the urgency, frequency, and duration of their tasks; and

(3) Enable flightcrew awareness, if awareness is required for safe oper-

ation, of the effects on the airplane or systems resulting from flightcrew actions.

(c) Operationally-relevant behavior of the installed equipment must be:

(1) Predictable and unambiguous; and

(2) Designed to enable the flightcrew to intervene in a manner appropriate to the task.

(d) To the extent practicable, installed equipment must incorporate means to enable the flightcrew to manage errors resulting from the kinds of flightcrew interactions with the equipment that can be reasonably expected in service. This paragraph does not apply to any of the following:

(1) Skill-related errors associated with manual control of the airplane;

(2) Errors that result from decisions, actions, or omissions committed with malicious intent;

(3) Errors arising from a crew-member's reckless decisions, actions, or omissions reflecting a substantial disregard for safety; and

(4) Errors resulting from acts or threats of violence, including actions taken under duress.

[Doc. No. FAA-2010-1175, 78 FR 25846, May 3, 2013]

§ 25.1303 Flight and navigation instruments.

(a) The following flight and navigation instruments must be installed so that the instrument is visible from each pilot station:

(1) A free air temperature indicator or an air-temperature indicator which provides indications that are convertible to free-air temperature.

(2) A clock displaying hours, minutes, and seconds with a sweep-second pointer or digital presentation.

(3) A direction indicator (non-stabilized magnetic compass).

(b) The following flight and navigation instruments must be installed at each pilot station:

(1) An airspeed indicator. If airspeed limitations vary with altitude, the indicator must have a maximum allowable airspeed indicator showing the variation of V_{MO} with altitude.

(2) An altimeter (sensitive).

(3) A rate-of-climb indicator (vertical speed).