

Flight Deck Layout and Facilities

1. SCOPE:

This document recommends criteria for the layout and for the design, installation, and operation of flight deck facilities for transport aircraft.

2. REFERENCES:

2.1 Documentation:

- SAE S-7 ARP4101, Flight Deck Layout and Facilities, Annexes
- SAE S-7 ARP4102, Flight Deck Panels, Controls and Displays
- SAE S-7 ARP4105, Nomenclature and Abbreviations for Use on the Flight Deck

2.2 Definitions:

- 2.2.1 **Seat Reference Point:** The intersection of a line tangential to the surface of the seat bottom cushion with a line through the seat back cushion, when both cushions are compressed by the weight of a 50th percentile person. The line tangent to the seat bottom should be horizontal (Fig. 1) (see ARP4101/1, Fig. 1).
- 2.2.2 **Design Eye Position:** A point fixed in relation to the aircraft structure (seat reference point) at which the pilot should be located when he is seated at the normal position. The DEP is the principal dimensional reference point for the location of flight deck panels, controls, displays and external vision (Fig. 1) (see ARP4101/1, Fig. 1 and ARP4102, paragraph 2.2.1).
- 2.2.3 **Accessible:** Within the reach of a crew member whose lap belt is on, shoulder harness is unlocked and whose seat is at the position which locates his eyes at the DEP.
- 2.2.4 **Primary Controls:** Those controls which are essential for the operation of the aircraft and, hence, must be readily accessible to the crew.

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3. OPERATIONAL REQUIREMENTS:

3.1 Layout:

The layout of the flight deck shall be designed to ensure:

- accommodation of pilots ranging in size from 5 ft 2 in to 6 ft 3 in height (157.5 cm to 190.5 cm)
- accessibility of controls, in agreement with ARP4102
Fig. 1 shows location, travel and adjustment of primary controls in relation to the design eye position
- maximum freedom of movement of arms and legs to enable the crew to exercise their limbs in flight

3.2 Facilities:

3.2.1 Seats: The number of seats is determined by the minimum crew and flight observer requirements. ARP4101/1 recommends criteria for seats for the flight crew. The position, comfort and adjustments of an observer's seat shall be compatible with the intended function of the observer. The first observer seat position shall allow to see at least one set of primary flight instruments, to have acceptable forward external vision during approach and landing, and to provide comfort that allows for the duration of the flight leg.

3.2.2 Document Stowage: Documents which are essential to flight operation shall have stowage which:

- is within easy reach of the pilots
- has sufficient volume to avoid damaging documents or jamming within the stowage container
- shall restrain the documents in turbulent conditions

3.2.3 Bags: Space shall be provided for

- Navigation bags, located between the pilots' seats and side-walls: 46L x 35H x 25W cms (18 x 14 x 10 inches). Space shall be available for a third navigation bag.
- Personal bags, located in the flight deck area behind the crew seats: 45L x 30H x 25W cms (18 x 12 x 10 inches). There shall be a personal bag stowage for each flight deck crew seat.

All stowages shall have restraint devices which do not prevent ready accessibility.

3.2.4 Coats and Hats: Space and attachments shall be provided to stow a jacket, a raincoat and a hat for each crew member.

3.2.5 Writing Equipment: A convenient writing surface and adjacent stowage with immediate access for a pen shall be provided for each pilot.