U.S. Department of Transportation
Federal Aviation Administration

Advisory Circular

Subject:	**FLIGHT DECK OBSERVER SEAT AND ASSOCIATED EQUIPMENT**	**Date: 6/3/04**	**AC No:**	**120-83**
		Initiated by: AFS-220	**Change:**	

1. PURPOSE. To provide guidance for Title 14 of the Code of Federal Regulations (14 CFR) parts 121, 125, and 135 certificate holders for obtaining a Federal Aviation Administration (FAA) finding regarding the operational safety/suitability of the Flight Deck Observer Seat and Associated Equipment. This guidance may be used to comply with part 121, section 121.581(a), part 125, section 125.317(b), and part 135, section 135.75(b). The FAA Administrator has delegated the responsibility for determining operational suitability of Flight Deck Observer Seats to the FAA Flight Standards Service.

2. RELATED 14 CFR SECTIONS.

a. Part 25, Subpart D - Design and Construction. Section 25.785. Part 25, Subpart C – Structure. Sections 25.561, 25.562.

b. Part 121, Subpart T – Flight Operations. Section 121.581.

c. Part 125, Subpart J – Flight Operations. Section 125.317.

d. Part 135, Subpart B – Flight Operations. Section 135.75.

3. DEFINITIONS. For purposes of this document, these terms are defined as follows:

a. Administrator. The Federal Aviation Administrator or any person to whom the Administrator has delegated authority in the matter concerned.

b. Flight Deck Observer Seat. The Flight Deck Observer Seat (henceforth referred to as "observer seat") designated by the Administrator located in or adjacent to the flight deck. It does not include any passenger seat. If the airplane has more than one observer seat installed on the flight deck, it means the seat that is designated by the Administrator for the purposes of conducting en-route inspections.

c. Flight Deck or Cockpit. While only the term "flight deck" is used in this AC, these terms are used in 14 CFR and in other publications interchangeably. For the purpose of this document, "flight deck" and "cockpit" have the same meaning.

4. RELATED READING MATERIAL.

a. Related Advisory Circulars (AC). AC 25-17, Transport Airplane Cabin Interiors Crashworthiness Handbook.

NOTE: You can download many ACs free of charge from the following FAA public Web site:

www.faa.gov
Click on Regulations & Policies
Click on Advisory Circulars

Free ACs may be obtained by mail from:

U.S. Department of Transportation
Subsequent Distribution Office, M-30
Ardmore East Business Center
3341 Q 75th Ave.
Landover, MD 20785

b. Related Technical Standard Orders (TSO).

(1) TSO C22(a-g), Safety Belts.

(2) TSO C39(a-b), Aircraft Seats and Berths.

(3) TSO C114, Torso Restraint Systems.

(4) TSO C127, Rotorcraft and Transport Seating Systems.

NOTE: You can obtain TSO from the following FAA public Web site:

www.faa.gov
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Click on Regulatory & Guidance Library
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5. OPERATIONAL CONSIDERATIONS AND STANDARDS. The observer seat must meet all the requirements for occupancy as prescribed by the pertinent sections of part 25. However, because the Type Design Certification Basis of the airplanes into which observer seats are installed vary widely, newer airplanes may have more stringent requirements applied to observer seats than older airplanes. If necessary, the resources noted in paragraphs 2 and 4 should be used

as the basis for determining if the requirements of part 25 have been met. The following standards shall be met:

a. Observer Seat Location. The location of the observer seat should allow the observer a clear unobstructed view of the aircraft instrument panel to determine the pilot's compliance with operating rules and standards. The location must not impede flight deck crewmember or observer emergency egress routes from the flight deck to the cabin or flight deck windows (if they are used as escape routes) and flight deck escape hatches. The observer seat location must account for both tall and short individuals occupying it, based on use of existing part 25 height, weight, and human factors requirements. The observer seat location needs to provide adequate leg and foot clearance to prevent leg impingement with adjoining structure or other crew seats during crew seat adjustments.

b. Observer Seat Foot Rest. The observer seat will be occupied for extended periods of time, therefore human factors associated with foot placement must be considered. The occupant's feet need to be able to rest on a solid surface and to have some freedom of movement during flight. If the occupant's feet cannot rest on a solid surface, then installation of footrests or fixed or retractable footrest bars should be considered. Foot placement can be extremely critical if an observer seat location permits the occupant's feet to be placed on the flight deck center pedestal area and/or the flight deck controls or systems. Consideration should be given to installing foot restraint bars to prevent foot migration to critical airplane controls.

c. Observer Seat Comfort. The observer seat may be occupied for extended periods of time. Observer seat comfort considerations should be addressed, such as padding, thickness, foam density, firmness, etc., as called for under the seat TSO, AC, and regulations referenced above. In addition, observer seat comfort evaluations should be conducted under actual flight conditions and should consider the length of time the seat is occupied by an observer.

d. Visibility from Observer Seat. The observer seat should also provide a clear view through the flight deck windows with the observer seated fully upright. The observer should be able to assist the flightcrew in seeing other aircraft during all phases of flight.

e. Observer Seat Safety Harness Systems. The observer seat Torso Restraint or Safety Harness System should meet the requirements of part 25. For example, the observer seat should have the same "five-point" quick release harness (lap, crotch, and two shoulder belts) as the other flight deck crewmembers to restrain movement during turbulence or impact. The restraint system should allow the observer seat occupant the same flexibility to remove shoulder harnesses without removal of the seatbelt during certain phases of flight. Shoulder harness and belt restraint system comfort should be evaluated under actual flight conditions.

f. Oxygen. The observer seat should have the same quick don type oxygen mask and smoke goggles as the other flight deck crewmembers. The oxygen mask must be located within easy reach while seated and be able to be donned in 5 seconds. The oxygen mask must provide for communications with the flight and cabin crew. All 14 CFR requirements for Protective Breathing Equipment (PBE) should be addressed and evaluated under actual flight conditions.

g. Communications. The observer seat should have a dedicated communications panel that allows the observer to listen to the flight and cabin crewmembers and all other channels of communications that are used by flight crewmembers. This includes, but is not limited to, communication with ground service personnel, flight attendants, and all radio communication. The observer seat should be located so that the occupant has access to a standard headset, and the location of the headset receptacle must be within easy reach while seated. All 14 CFR communications requirements for PBE should be addressed and evaluated.

h. Lighting. The observer seat should have a dedicated light available that can be directed (pointed) and dimmed while seated. The on/off dimmer switch should be easily accessible while seated.

i. Ventilation. The observer should have dedicated fresh airflow available through an "eyeball" or similar outlet. Control of the airflow should be within easy reach while seated.

j. Safety and Security. The observer seat should be designed so that it cannot be retracted while seated. Downward collapsing observer seats that employ suspension type hook arrangements are not desirable where inadvertent movement of the locking devices could cause the observer seat to collapse. Observer seats should not be designed with sharp edges or finger entrapment locations. Placarding of instructions for observer seat deployment and stowage should be provided for observer seats whose operation is not obvious. Observer seat release and stowage control handles should be identifiable with a contrasting color to the general background.

6. REQUEST FOR OPERATIONAL SAFETY/SUITABILITY DETERMINATION. Requests for an FAA finding of the operational safety/suitability of observer seat installations, for the purpose of meeting the requirements of section 121.581(a), section 125.317(b), or section 135.75(b), should be sent to the appropriate FAA Flight Standards Aircraft Evaluation Group (AEG) at the following address:

Federal Aviation Administration

Aircraft Evaluation Group, SEA AEG
1601 Lind Ave. S.W.
Renton, WA 98055-4056

Aircraft Evaluation Group, LGB AEG
3960 Paramount Boulevard
Lakewood, CA 90712-4137

Aircraft Evaluation Group, MKC AEG
DOT Building, 901 Locust
Kansas City, MO 64106-2641

a. Requests for observer seat finding of operational safety/suitability should include evidence that the observer seat has been certified for occupancy in accordance with the requirements of part 25 and is part of the original type certificate, amended type certificate, or supplemental type certificate. An installation conformity compliance check of the observer seat should be accomplished prior to the FAA ground and flight evaluations. Requests should include evidence that the Instructions for Continued Airworthiness have been included as a part of the observer seat installation certification process.

b. In the event that the design of the observer seat usage requires preparation by the observer prior to use, such as deployment and stowage, the evaluation request should include appropriate preparation procedures, recommended qualification/training requirements, and proposed maintenance and operational actions to be taken in the event that the observer seat becomes inoperative.

c. The evaluating AEG will complete a report on the operational safety/suitability evaluation including any limitations regarding use of the observer seat. This report should be referenced in the applicable type certificate or supplemental type certificate data sheet. Any limitations on the observer seat should be addressed in the Airplane Flight Manual and placarded on, or adjacent to, the seat.

James J. Ballough
Director, Flight Standards Service