



U.S. Department  
of Transportation  
**Federal Aviation  
Administration**

## AIRWORTHINESS DIRECTIVE

AVIATION STANDARDS NATIONAL FIELD OFFICE  
P.O. BOX 26460  
OKLAHOMA CITY, OKLAHOMA 73125

The following Airworthiness Directive issued by the Federal Aviation Administration in accordance with the provisions of Federal Aviation Regulations, Part 39, applies to an aircraft model of which our records indicate you may be the registered owner. Airworthiness Directives affect aviation safety. They are regulations which require immediate attention. You are cautioned that no person may operate an aircraft to which an Airworthiness Directive applies, except in accordance with the requirements of the Airworthiness Directive (FAR 39.3).

91-10-02 BOEING and MCDONNELL DOUGLAS: Amendment 39-6986.  
Docket No. 91-NM-34-AD. Supersedes AD 89-18-12 R1.

Applicability: Boeing Models 707, 727, 737, 747, and 757 series airplanes, and McDonnell Douglas Models DC-8, DC-9 (includes MD-80 series), and DC-10 series airplanes; equipped with a main deck Class B cargo compartment, as defined by FAR 25.857(b) or its predecessors, with a volume exceeding 200 cubic feet; certificated in any category.

Compliance: Required as indicated, unless previously accomplished.

To minimize the hazard associated with a main deck Class B cargo compartment fire, accomplish the following:

A. Within one year after May 3, 1990 (the effective date of Amendment 39-6557, AD 89-18-12 R1), or prior to carrying cargo in a Class B cargo compartment, whichever occurs later, accomplish the following in accordance with the appropriate technical data approved by the Manager, Seattle Aircraft Certification Office (for Boeing series airplanes), FAA, Transport Airplane Directorate; or the Manager, Los Angeles Aircraft Certification Office (for McDonnell Douglas series airplanes), FAA, Transport Airplane Directorate:

1. Revise the Limitations Section of the FAA approved Airplane Flight Manual (AFM) to include the following:

"FOR EACH FLIGHT IN WHICH CARGO IS TRANSPORTED IN THE CLASS B CARGO COMPARTMENT:

Prior to flight, a flight deck crewmember must make a visual inspection throughout the Class B cargo compartment to verify access to cargo and the general fire security of the compartment after the cargo door is closed and secured."

2. Incorporate the following systems and equipment:

a. Provide appropriate protective garments stored adjacent to the cargo compartment entrance.

b. Provide a minimum of 30 minutes of protective breathing. This equipment must meet the requirements of Technical Standard Order (TSO) C-116, Action Notice 8150.2A, or equivalent, and be stored adjacent to the cargo compartment entrance.

c. Provide a minimum of 48 lbs. Halon 1211 fire extinguishant, or its equivalent, in portable fire extinguisher bottles readily available for use in the cargo compartment. At least two bottles must be a minimum of 16 lb. capacity.

d. Provide at least two Underwriters Laboratories (UL)2A (2-1/2 gallon) rated water portable fire extinguishers, or its equivalent, adjacent to the cargo compartment entrance for use in the compartment.

e. Provide a means for two-way communication between the flight deck and the interior of the cargo compartment.

f. Install placards in conspicuous place(s) within the cargo compartment clearly defining the cargo loading envelope and limitations that provide sufficient access of sufficient width for firefighting along the entire length of at least two sides of a loaded pallet or container. Amend the appropriate Weight and Balance and loading instructions by description and diagrams to include this information.

NOTE: In accordance with paragraph C. of this AD, if the requirements of paragraph B.1. or B.2. of this AD are accomplished within one year after the effective date of AD 89-18-12 R1, compliance with paragraph A. of this AD is unnecessary.

B. Within three years after May 3, 1990 (the effective date of Amendment 39-6557, AD 89-18-12 R1), or prior to carrying cargo in a Class B cargo compartment, whichever occurs later, accomplish the requirements of paragraph B.1., B.2., or B.3., below:

1. Modify the Class B cargo compartment to comply with the requirements for a Class C cargo compartment, as defined in FAR 25.855 (Amdt. 25-60), 25.857(c), and 25.858 (Amdt. 25-54).

2. Modify all main deck Class B cargo compartments to require the following placard installed in conspicuous locations approved by the Manager, Seattle Aircraft Certification Office, FAA, Transport Airplane Directorate (for Boeing airplanes), or the Manager, Los Angeles Aircraft Certification Office, FAA, Transport Airplane Directorate (for McDonnell Douglas airplanes), throughout the compartment:

"Cargo carried in this compartment must be loaded in an approved flame penetration-resistant container meeting the requirements of FAR 25.857(c) with ceiling and sidewall liners and floor panels that meet the requirements of FAR 25, Appendix F, Part III, (Amdt. 25-60)."

3. In addition to the requirements of paragraph A.2. of this AD, accomplish the following in accordance with technical data approved by the Manager, Seattle Aircraft Certification Office (for affected Boeing series airplanes), or the Manager, Los Angeles Aircraft Certification Office (for affected McDonnell Douglas series airplanes), to include the following:

a. Revise the Limitations Section of the FAA-approved Airplane Flight Manual (AFM) to include the following:

"FOR EACH FLIGHT IN WHICH CARGO IS TRANSPORTED IN THE CLASS B CARGO COMPARTMENT:

(1) For airplanes having compartments of 200 square feet or less of cargo/baggage floor area, a minimum of one individual trained to fight cargo fires must be provided. (This individual is in addition to the crewmembers required by the operational rules.)

(2) Prior to flight, a flight deck crewmember or the individual required by the previous paragraph B.3.a.(1) must make a visual inspection throughout the Class B cargo compartment to verify access to cargo and the general fire security of the compartment after the cargo door is closed and secured.

(3) For airplanes having compartments with more than 200 square feet of cargo/baggage floor area, provide an additional person trained to fight cargo fires to work with the individual required by the previous paragraph B.3.a.(1). (This individual may be a required flight attendant.)"

b. Provide a cargo compartment fire "knock down" extinguishing system that provides an initial fire extinguishant concentration of at least 5 percent of the empty compartment volume of Halon 1301 or equivalent, and a fire suppression extinguishant concentration of at least 3 percent of the empty compartment volume of Halon 1301 or equivalent, for a period of time not less than 15 minutes.

c. Provide a smoke or fire detection systems that meets the requirements of FAR 25.858 (Amdt. 25-54) and also provides an aural and visual warning to the station assigned to the individual trained to fight cargo fires. The designated station must be located adjacent to the in-flight access door to the cargo compartment.

d. Provide a means from the flight deck to shut off ventilation system inflow to the cargo compartment.

e. Accomplish the requirements of paragraph B.3.e.(1) or B.3.e.(2):

(1) Provide a thermal monitoring system to the flight deck and station designated for the individual trained to fight cargo fire to advise of potentially hazardous conditions within the cargo compartment.

(2) At intervals not to exceed 30 minutes in flight and continuously after a fire has been detected and extinguished, the individual trained to fight cargo fires must conduct a visual inspection throughout the Class B cargo compartment to monitor for evidence of fire.

f. Provide a cargo compartment liner that meets the requirements of FAR 25.855, (Amdt. 25-60). The smoke/fire barrier between the occupants and cargo compartment must

extend from the cargo compartment floor to the ceiling liner, or top skin of the airplane, and from the right side liner to the left side liner of the cargo compartment. The liner and barrier seals must also be constructed of materials that meet the flame penetration resistance requirements of FAR 25, Appendix F, Part III (Amdt. 25-60), except that currently installed glass fiber reinforced resin material is acceptable. In addition, provide protective covers for cockpit voice and flight data recorders, windows, wiring, and primary flight control systems (unless it can be shown that a fire could not cause jamming or loss of control), and other equipment within the compartment that is required for safe flight and landing; those covers must be constructed of materials that meet the Flame Penetration Resistance requirements of FAR 25, Appendix F, Part III (Amdt. 25-60).

g. Provide illumination of the cargo compartment as follows:

(1) General area illumination of the cargo with an average illumination of 0.1 foot-candle measured at 40-inch intervals both at one-half the pallet or container height, and at the full pallet or container height.

(2) Illumination of the access pathways required by paragraph A.2.f. of this AD under visibility conditions likely to be encountered after a fire and discharge of the fire extinguishant, and prior to the decay of extinguishant concentration below 3 percent, must provide an average of 0.1 foot-candle measured at each 40-inch interval, with not less than 0.05 foot-candle minimum along a line that is within 2 inches of and parallel to the floor centered on the pathway.

h. Provide a safe means to effectively discharge portable fire extinguishers into each container or into each pallet that is covered.

i. Establish FAA-approved firefighting procedures for controlling cargo compartment fires.

j. Establish an FAA-approved training program for firefighters required by paragraphs B.3.a.(1) and B.3.a.(3) of this AD.

k. Demonstrate the following features and functions during flight tests:

(1) Fire extinguishant concentration, required by paragraph B.3.b. of this AD.

(2) Smoke or fire detection system, required by paragraph B.3.c. of this AD.

(3) Prevention of smoke penetration into occupied compartments [Refer to FAR 25.857(b)2 and 25.855(e)2].

(4) Compartment temperature indication system, if required by paragraph B.3.e. of this AD.

(5) Cargo accessibility, required by paragraph A.2.f. of this AD.

(6) Firefighting procedures, required by paragraph B.3.i. of this AD.

l. Items specified in paragraphs B.3.k.(5) and B.3.k.(6) of this AD must be evaluated under reduced visibility conditions representative of those likely to occur with cargo fires.

m. Provide a means of two-way communication between the flight deck and the station assigned to the individual trained to fight cargo fires.

C. Compliance with paragraphs B.1. or B.2. of this AD constitutes terminating action for the requirements of paragraph A. of this AD.

D. An alternative method of compliance or adjustment of the compliance time, which provides an acceptable level of safety, may be used when approved by the Manager, Seattle Aircraft Certification Office (ACO), FAA, Transport Airplane Directorate (for Boeing series airplanes); or the Manager, Los Angeles Aircraft Certification Office, FAA, Transport Airplane Directorate (for McDonnell Douglas series airplanes).

NOTE: The request should be forwarded through an FAA Principal Maintenance Inspector, who may concur or comment and then send it to the Manager, Seattle ACO, or the Manager, Los Angeles ACO, as appropriate.

NOTE: Alternative methods of compliance previously granted for Amendment 39-6557, AD 89-18-12 R1, continue to be acceptable alternative methods of compliance for this amendment.

E. Special flight permits may be issued in accordance with FAR 21.197 and 21.199 to operate airplanes to a base in order to comply with the requirements of this AD.

Airworthiness Directive 91-10-02 supersedes AD 89-18-12 R1, Amendment 39-6557.

This amendment (39-6986, AD 91-10-02) becomes effective on May 1, 1991.

FOR FURTHER INFORMATION CONTACT:

Ms. Susan Letcher, Seattle Aircraft Certification Office, Systems and Equipment Branch, ANM-130S, Northwest Mountain Region, 1601 Lind Avenue S.W., Renton, Washington 98055-4056; telephone (206) 227-2670; or Mr. Kevin Kuniyoshi, Los Angeles Aircraft Certification Office, Systems and Equipment Branch, ANM-130L, Northwest Mountain Region, 3229 E. Spring Street, Long Beach, California 90806-2425; telephone (213) 988-5337.