



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).

90-04-05 MCDONNELL DOUGLAS: Amendment 39-6504. Docket No. 89-NM-143-AD.

Applicability: Model DC-9-80 and MD-88 series airplanes, certificated in any category.

Compliance: Required as indicated, unless previously accomplished.

To prevent takeoff of an airplane while in an unsafe configuration for takeoff, due to deactivation of the takeoff warning system by the flight crew to eliminate nuisance warnings of the takeoff warning system during single-engine taxi operation, accomplish the following:

A. Within 12 months after the effective date of this AD, rewire the takeoff warning system throttle lever switches to place them in series, rather than in parallel, in a manner approved by the Manager, Los Angeles Aircraft Certification Office, FAA, Northwest Mountain Region, or in accordance with the Accomplishment Instructions of McDonnell Douglas Service Bulletin 31-34, dated December 20, 1989.

B. An alternate means of compliance or adjustment of the compliance time, which provides an acceptable level of safety, may be used when approved by the Manager, Los Angeles Aircraft Certification Office, FAA, Northwest Mountain Region.

NOTE: This request should be forwarded through an FAA Principal Maintenance Inspector (PMI), who will either concur or comment and then send it to the Manager, Los Angeles Aircraft Certification Office, FAA, Northwest Mountain Region.

C. 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.

All persons affected by this directive who have not already received the appropriate service documents from the manufacturer may obtain copies upon request to McDonnell Douglas Corporation, 3855 Lakewood Boulevard, Long Beach, California 90846, Attention: Director of Publications, C1-L00 (54-60). These documents may be examined at the FAA, Northwest Mountain Region, Transport Airplane Directorate, 17900 Pacific Highway South, Seattle, Washington, or Los Angeles Aircraft Certification Office, 3229 East Spring Street, Long Beach, California 90806.

This amendment (39-6504, AD 90-04-05) becomes effective on March 8, 1990.

FOR FURTHER INFORMATION CONTACT:

Mr. Richard S. Saul, Aerospace Engineer, Systems and Equipment Branch, ANM-130L, FAA, Northwest Mountain Region, Los Angeles Aircraft Certification Office, 3229 East Spring Street, Long Beach, California 90806; telephone (213) 988-5342.

[4910-13]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

(Docket No. 89-NM-143-AD; Amendment 39-6504)

Airworthiness Directives; McDonnell Douglas Model DC-9-80 and MD-88 Series Airplanes.

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final Rule.

SUMMARY: This amendment adopts a new airworthiness directive (AD), applicable to McDonnell Douglas Model DC-9-80 and MD-88 series airplanes, which requires modification of the aircraft to revise the wiring of the takeoff warning system throttle lever switches in order to place them in series instead of parallel. This amendment is prompted by an FAA review of large turbofan/turbojet aircraft takeoff configuration warning systems, which concluded that takeoff warning systems deactivated by flight crews because of nuisance warnings during less-than-all-engine taxi operation pose a potential problem if the deactivation is not annunciated to the flight crew. This condition, if not corrected, could result in takeoff of an airplane in an unsafe takeoff configuration.

DATES: Effective March 8, 1990.

ADDRESSES: The applicable service information may be obtained from McDonnell Douglas Corporation, 3855 Lakewood Boulevard, Long Beach, California 90846, Attention: Director of Publications, CI-100 (54-60). This information may be examined at the FAA, Northwest Mountain Region, Transport Airplane Directorate, 17900 Pacific Highway South, Seattle, Washington, or the Los Angeles Aircraft Certification Office, 3229 East Spring Street, Long Beach, California 90806.

FOR FURTHER INFORMATION CONTACT: Mr. Richard S. Saul, Aerospace Engineer, Systems and Equipment Branch, ANM-130L, FAA, Northwest Mountain Region, Los Angeles Aircraft Certification Office, 3229 East Spring Street, Long Beach, California 908068; telephone (213) 988-5342.

SUPPLEMENTARY INFORMATION: A proposal to amend Part 39 of the Federal Aviation Regulations to include an airworthiness directive, applicable to McDonnell Douglas Model DC-9-80 and MD-88 series airplanes, which requires modification of the aircraft to revise the wiring of the takeoff warning system throttle lever switches in order to place them in series instead of parallel, was published in the Federal Register on September 26, 1989 (54 FR 39405).

Interested persons have been afforded an opportunity to participate in the making of this amendment. Due consideration has been given to the comments received.

The Air Transport Association (ATA) of America requested the FAA to consider the reduction in reliability with this change, to consider McDonnell Douglas Service Bulletin 31-34 as an equivalent means of compliance, and to consider a compliance time of 18 months instead of 12 months to avoid "special scheduling" by operators of large Model DC-9-80 or MD-88 fleets.

The FAA considered the effect of this modification on the reliability of the takeoff warning system prior to the issuance of the NPRM. McDonnell Douglas indicated at that time the probability of losing either throttle lever switch was 2.44×10^{-5} for a 10 hour exposure. With the switches in parallel, the takeoff warning system availability figure was 94.9 percent. Placing the switches in series does not affect the system reliability, but does reduce the system availability figure to 92.4 percent. This decrease is considered acceptable by the FAA.

The proposed rule indicated McDonnell Douglas was developing a modification to the Model DC-9-80 and MD-88 wiring for the takeoff warning system throttle lever switches which would place them in series rather than in parallel. It further indicated that, if service information was available, FAA would consider referencing this information in the final rule. Since issuance of the NPRM, McDonnell Douglas has released Service Bulletin 31-34, dated December 20, 1989, to provide modification instructions for wiring of the throttle lever switches. The FAA has reviewed and approved this service bulletin. Accordingly, the final rule has been revised to include accomplishment of McDonnell Douglas Service Bulletin 31-34 as a means of compliance with the requirements of the rule.

The FAA investigated how extensive the modification is by reviewing McDonnell Douglas Service Bulletin 31-34. The service bulletin instructions require replacement of one terminal block in the radio rack, reconnection and reidentification of three wires in the radio rack, addition of a socket in a forward pedestal connector, and reconnection and reidentification of one wire in the forward pedestal. The new terminal block and socket are readily available. Elapsed time published in the service bulletin for accomplishing the modification is three hours (6.1 manhours). The largest U.S. operator of Model DC-9-80 aircraft has a fleet of 173 aircraft and the largest U.S. operator of Model MD-88 aircraft has a fleet of 46 aircraft. The FAA therefore disagrees with the requested extension of compliance time to 18 months and has determined that the 12 month compliance time is adequate to complete the modification on the affected aircraft.

The economic impact paragraph, below, has been revised to specify that the current estimated number of manhours required to accomplish the modification is 6.1 manhours.

After careful review of the available data, including the comments noted above, the FAA has determined that air safety and the public interest require the adoption of the rule as proposed with the change previously described. The FAA has determined that this change will neither increase the economic burden on any operator nor increase the scope of the rule.

There are approximately 605 Model DC-9-80 and MD-88 series airplanes of the affected design in the worldwide fleet. It is estimated that 364 airplanes of U.S. registry will be affected by this AD, that it will take

approximately 61. manhours per airplane to accomplish the required actions, and that the average labor cost will be \$40 per manhour. The cost of required parts is expected to be negligible. Based on these figures, the total cost impact of the AD on U.S. operators is estimated to be \$88,816.

The regulations adopted herein will not have substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government. Therefore, in accordance with Executive Order 12612, it is determined that this final rule does not have sufficient federalism implications to warrant the preparation of a Federalism Assessment.

For the reasons discussed above, I certify that this action (1) is not a "major rule" under Executive Order 12291; (2) is not a "significant rule" under DOT Regulatory Policies and Procedures (44 FR 11034; February 26, 1979); and (3) will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act. A final evaluation has been prepared for this action and is contained in the regulatory docket. A copy of it may be obtained from the Rules Docket.

List of Subjects in 14 CFR Part 39:

Air transportation, Aircraft, Aviation safety, Safety.

ADOPTION OF THE AMENDMENT

Accordingly, pursuant to the authority delegated to me by the Administrator, the Federal Aviation Administration amends Part 39 of the Federal Aviation Regulations as follows:

1. The authority citation for Part 39 continues to read as follows:
Authority: 49 U.S.C. 1354(a), 1421 and 1423; 49 U.S.C. 106(g) (Revised Pub. L. 97-449, January 12, 1983); and 14 CFR 11.89.
2. Section 39.13 is amended by adding the following new airworthiness directive: