

[4910-13-U]

**DEPARTMENT OF TRANSPORTATION**

**Federal Aviation Administration**

**14 CFR Part 39 [64 FR 33392 No. 120 06/23/99]**

**[Docket No. 98-NM-109-AD; Amendment 39-11201; AD 99-13-07]**

**RIN 2120-AA64**

**Airworthiness Directives; McDonnell Douglas Model DC-9-80 Series Airplanes, Model MD-88 Airplanes, and Model MD-90-30 Airplanes**

**AGENCY:** Federal Aviation Administration, DOT.

**ACTION:** Final rule.

**SUMMARY:** This amendment adopts a new airworthiness directive (AD), applicable to certain McDonnell Douglas Model DC-9-80 series airplanes, Model MD-88 airplanes, and Model MD-90-30 airplanes; that requires repetitive inspections to detect cracking of the main landing gear (MLG) shock strut pistons, and replacement of a cracked piston with a new or serviceable part. This amendment is prompted by reports indicating that, while an airplane was positioned on the taxiway, the right MLG shock strut piston failed due to fatigue cracking. The actions specified by this AD are intended to detect and correct such fatigue cracking, which could result in failure of the piston, and consequent damage to the airplane structure or injury to the passengers and flightcrew.

**DATES:** Effective July 28, 1999.

The incorporation by reference of certain publications listed in the regulations is approved by the Director of the Federal Register as of July 28, 1999.

**ADDRESSES:** The service information referenced in this AD may be obtained from Boeing Commercial Aircraft Group, Long Beach Division, 3855 Lakewood Boulevard, Long Beach, California 90846, Attention: Technical Publications Business Administration, Dept. C1-L51 (2-60). This information may be examined at the Federal Aviation Administration (FAA), Transport Airplane Directorate, Rules Docket, 1601 Lind Avenue, SW., Renton, Washington; or at the FAA, Transport Airplane Directorate, Los Angeles Aircraft Certification Office, 3960 Paramount Boulevard, Lakewood, California; or at the Office of the Federal Register, 800 North Capitol Street, NW., suite 700, Washington, DC.

**FOR FURTHER INFORMATION CONTACT:** Brent Bandle, Aerospace Engineer, Airframe Branch, ANM-120L, FAA, Transport Airplane Directorate, Los Angeles Aircraft Certification Office, 3960 Paramount Boulevard, Lakewood, California 90712-4137; telephone (562) 627-5237; fax (562) 627-5210.

**SUPPLEMENTARY INFORMATION:** A proposal to amend part 39 of the Federal Aviation Regulations (14 CFR part 39) to include an airworthiness directive (AD) that is applicable to certain McDonnell Douglas Model DC-9-80 series airplanes, Model MD-88 airplanes, and Model MD-90-30 airplanes was published in the **Federal Register** on September 8, 1998 (63 FR 47443). That action proposed to require repetitive inspections to detect cracking of the main landing gear (MLG) shock strut pistons, and replacement of a cracked piston with a new or serviceable part.

**Comments**

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

**Support for the Proposal**

Three commenters support the proposal, and three commenters have no objection to the proposal.

**Request to Revise Applicability**

One commenter requests that the proposed rule be revised to provide for airplanes on which an existing piston is replaced with a modified piston having certain part numbers. The commenter provides no justification for its request.

The FAA concurs with the commenter's request to include a provision for operators who replace an existing piston with a modified piston. The FAA has determined that Boeing will produce modified pistons having the part numbers referenced by the commenter. The FAA finds that an airplane on which a modified piston, having part number 5935347-517 or 5935347-519, is installed is not subject to the requirements of this AD. Therefore, the applicability statement of this final rule has been revised to include only airplanes that are equipped with a MLG shock strut piston having part number 5935347-1 through -509 inclusive, 5935347-511, or 5935347-513.

#### **Request to Revise Cost Impact Information**

Two commenters request that the cost impact information in the proposed rule be revised to more accurately represent the number of work hours necessary to accomplish the inspection. One commenter estimates that it will take 14 work hours to accomplish the initial inspection and 12 work hours to accomplish each repetitive inspection. The other commenter states that the work hours should reflect the estimates provided in the service bulletin.

The FAA does not concur with the commenters' request to revise the cost impact information. The cost impact information, which is restated below, describes only the "direct" costs of the specific actions required by this AD. The estimated number of work hours represents the time necessary to perform only the actions actually required by this AD. The FAA recognizes that, in accomplishing the requirements of any AD, operators may incur "incidental" costs in addition to the "direct" costs. However, the cost analysis in AD rulemaking actions typically does not include incidental costs, such as the time required to gain access and close up, planning time, or time necessitated by other administrative actions. Because incidental costs may vary significantly from operator to operator, they are almost impossible to calculate. No change to the final rule is necessary in this regard.

#### **Request to Reference Specific Chapters of Component Maintenance Manual**

One commenter requests that paragraph (a)(2) of the proposed AD be revised to reference McDonnell Douglas Component Maintenance Manual (CMM) Chapter 32-17-01 or 32-17-02, instead of All Operator Letter (AOL) 9-2153, dated June 27, 1991, as the appropriate source of service information for initial inspection of the MLG shock strut piston accomplished prior to the effective date of this AD on McDonnell Douglas Model DC-9-80 series airplanes and Model MD-88 airplanes. The commenter also requests that the proposed rule be revised to provide credit for airplanes on which major overhaul is accomplished in accordance with CMM Chapter 32-17-01 or 32-17-02, so that such airplanes are subject to a repetitive inspection interval of 2,500 flight cycles after overhaul. The commenter justifies its requests by stating that AOL 9-2153 does not describe inspection procedures, but specifies only that inspection methods will be added to the CMM.

The FAA does not concur with the commenter's request to reference specific chapters of the CMM instead of AOL 9-2153. The FAA cannot reference appropriate revision levels of CMM sections by citing specific dates, as it can with service bulletins and AOL's. Therefore, as stated in the proposal, the FAA intends the compliance time stated in paragraph (a)(2) to apply only to Model DC-9-80 series airplanes and Model MD-88 airplanes that are inspected or overhauled prior to the effective date of this AD in accordance with the instructions incorporated into the CMM per AOL 9-2153. With regard to the commenter's request for credit for airplanes overhauled in accordance with the applicable chapters of the CMM, the FAA finds that paragraph (a)(2) clearly states that inspection is required within 2,500 landings after major overhaul in accordance with AOL 9-2153. No change to the final rule is necessary in this regard.

#### **Explanation of Change to Final Rule**

Paragraph (b) of the final rule has been revised to provide clarification. The FAA finds that the last sentence of paragraph (b) in the proposal did not make it clear that replacement of a cracked MLG shock strut piston with a new or serviceable piston allows the compliance threshold for the inspection to be "reset" to 10,000 total landings on the piston. Therefore, the last sentence of paragraph (b) of the final rule has been revised to read, "Thereafter, repeat the inspections required by paragraph (a) of this AD prior to the accumulation of 10,000 total landings on the MLG shock strut piston."

## Conclusion

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 with the changes described previously. The FAA has determined that these changes will neither increase the economic burden on any operator nor increase the scope of the AD.

## Cost Impact

There are approximately 1,250 airplanes of the affected design in the worldwide fleet. The FAA estimates that 828 airplanes of U.S. registry will be affected by this AD, that it will take approximately 4 work hours per airplane to accomplish the required inspection, and that the average labor rate is \$60 per work hour. Based on these figures, the cost impact of the inspection required by this AD on U.S. operators is estimated to be \$198,720, or \$240 per airplane, per inspection cycle.

Should an operator be required to accomplish the replacement of an MLG shock strut piston, it will take approximately 16 work hours per airplane to accomplish, at an average labor rate of \$60 per work hour. Required parts will cost approximately \$107,070 per airplane. Based on these figures, the cost impact of the replacement required by this AD on U.S. operators is estimated to be \$108,030 per airplane.

The cost impact figures discussed above are based on assumptions that no operator has yet accomplished any of the requirements of this AD action, and that no operator would accomplish those actions in the future if this AD were not adopted.

## Regulatory Impact

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 "significant regulatory action" under Executive Order 12866; (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 it is contained in the Rules Docket. A copy of it may be obtained from the Rules Docket at the location provided under the caption "ADDRESSES."

## List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, Aviation safety, Incorporation by reference, 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 (14 CFR part 39) as follows:

### **PART 39 - AIRWORTHINESS DIRECTIVES**

1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

#### **§ 39.13 [Amended]**

2. Section 39.13 is amended by adding the following new airworthiness directive:

# AIRWORTHINESS DIRECTIVE

Aircraft Certification Service  
Washington, DC



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

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 and 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 (reference FAR Subpart 39.3).

**99-13-07 MCDONNELL DOUGLAS:** Amendment 39-11201. Docket 98-NM-109-AD.

Applicability: Model DC-9-81 (MD-81), DC-9-82 (MD-82), DC-9-83 (MD-83), and DC-9-87 (MD-87) series airplanes, Model MD-88 airplanes, and Model MD-90-30 airplanes; equipped with a main landing gear (MLG) shock strut piston having part number 5935347-1 through -509 inclusive, 5935347-511, or 5935347-513; certificated in any category.

NOTE 1: This AD applies to each airplane identified in the preceding applicability provision, regardless of whether it has been modified, altered, or repaired in the area subject to the requirements of this AD. For airplanes that have been modified, altered, or repaired so that the performance of the requirements of this AD is affected, the owner/operator must request approval for an alternative method of compliance in accordance with paragraph (e) of this AD. The request should include an assessment of the effect of the modification, alteration, or repair on the unsafe condition addressed by this AD; and, if the unsafe condition has not been eliminated, the request should include specific proposed actions to address it.

Compliance: Required as indicated, unless accomplished previously.

To detect and correct fatigue cracking of the MLG shock strut pistons, which could result in failure of the piston, and consequent damage to the airplane structure or injury to the passengers and flightcrew, accomplish the following:

## Initial Inspection

(a) Perform fluorescent dye penetrant and fluorescent magnetic particle inspections to detect cracking of an MLG shock strut piston, in accordance with McDonnell Douglas Alert Service Bulletin MD80-32A308, dated March 5, 1998, or MD80-32A308, Revision 01, dated May 12, 1998 [for Model DC-9-81 (MD-81), DC-9-82 (MD-82), DC-9-83 (MD-83), and DC-9-87 (MD-87) series airplanes, and Model MD-88 airplanes]; or MD90-32A030, dated March 26, 1998, or MD90-32A030, Revision 01, dated May 11, 1998 (for Model MD-90-30 airplanes); as applicable. Perform the inspections at the later of the times specified in paragraphs (a)(1) and (a)(2) of this AD.

(1) Prior to the accumulation of 10,000 total landings on an MLG shock strut piston, or within 6 months after the effective date of this AD, whichever occurs later.

(2) Within 2,500 landings after a major overhaul and initial inspection of the MLG shock strut piston accomplished prior to the effective date of this AD, in accordance with McDonnell Douglas All Operator Letter 9-2153 [for Model DC-9-81 (MD-81), DC-9-82 (MD-82), DC-9-83 (MD-83), and DC-9-87 (MD-87) series airplanes, and Model MD-88 airplanes], or McDonnell Douglas Component Maintenance Manual, Chapter 32-17-01 (for Model MD-90-30 airplanes).

## Corrective Actions

(b) Condition 1. If any cracking is detected, prior to further flight, replace any cracked MLG shock strut piston with a new or serviceable piston, in accordance with McDonnell Douglas Alert Service Bulletin MD80-32A308, dated March 5, 1998, or MD80-32A308, Revision 01, dated May 12, 1998 [for Model DC-9-81 (MD-81), DC-9-82 (MD-82), DC-9-83 (MD-83), and DC-9-87 (MD-87) series airplanes, and Model MD-88 airplanes]; or MD90-32A030, dated March 26, 1998, or MD90-32A030, Revision 01, dated May 11, 1998 (for Model MD-90-30 airplanes); as applicable. Thereafter, repeat the inspections required by paragraph (a) of this AD prior to the accumulation of 10,000 total landings on the MLG shock strut piston.

(c) Condition 2. If no cracking is detected, repeat the fluorescent dye penetrant and fluorescent magnetic particle inspections thereafter at intervals not to exceed 2,500 landings, in accordance with McDonnell Douglas Alert Service Bulletin MD80-32A308, dated March 5, 1998, or MD80-32A308, Revision 01, dated May 12, 1998 [for Model DC-9-81 (MD-81), DC-9-82 (MD-82), DC-9-83 (MD-83), and DC-9-87 (MD-87) series airplanes, and Model MD-88 airplanes]; or MD90-32A030, dated March 26, 1998, or MD90-32A030, Revision 01, dated May 11, 1998 (for Model MD-90-30 airplanes); as applicable.

## Spares

(d) As of the effective date of this AD, no person shall install on any airplane a replacement MLG shock strut piston, part number 5935347-509, -511, or -513, or an MLG assembly from an operator's spares inventory, unless those components have been inspected in accordance with the requirements specified by paragraph (a) of this AD.

## Alternative Methods of Compliance

(e) An alternative method of compliance or adjustment of the compliance time that provides an acceptable level of safety may be used if approved by the Manager, Los Angeles Aircraft Certification Office (ACO), FAA, Transport Airplane Directorate. Operators shall submit their requests through an appropriate FAA Principal Maintenance Inspector, who may add comments and then send it to the Manager, Los Angeles ACO.

NOTE 2: Information concerning the existence of approved alternative methods of compliance with this AD, if any, may be obtained from the Los Angeles ACO.

## Special Flight Permits

(f) Special flight permits may be issued in accordance with sections 21.197 and 21.199 of the Federal Aviation Regulations (14 CFR 21.197 and 21.199) to operate the airplane to a location where the requirements of this AD can be accomplished.

## Incorporation by Reference

(g) The actions shall be done in accordance with McDonnell Douglas Alert Service Bulletin MD80-32A308, dated March 5, 1998; McDonnell Douglas Alert Service Bulletin MD80-32A308, Revision 01, dated May 12, 1998; McDonnell Douglas Alert Service Bulletin MD90-32A030, dated March 26, 1998; or McDonnell Douglas Alert Service Bulletin MD90-32A030, Revision 01, dated May 11, 1998. This incorporation by reference was approved by the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. Copies may be obtained from Boeing Commercial Aircraft Group, Long Beach Division, 3855 Lakewood Boulevard, Long Beach, California 90846, Attention: Technical Publications Business Administration, Dept. C1-L51 (2-60). Copies may be inspected at the FAA, Transport Airplane Directorate, 1601 Lind Avenue, SW., Renton, Washington; or at the FAA, Transport Airplane Directorate, Los Angeles Aircraft Certification Office, 3960 Paramount Boulevard, Lakewood, California; or at the Office of the Federal Register, 800 North Capitol Street, NW., suite 700, Washington, DC.

(h) This amendment becomes effective on July 28, 1999.

FOR FURTHER INFORMATION CONTACT:

Brent Bandle, Aerospace Engineer, Airframe Branch, ANM-120L, FAA, Transport Airplane Directorate, Los Angeles Aircraft Certification Office, 3960 Paramount Boulevard, Lakewood, California 90712-4137; telephone (562) 627-5237; fax (562) 627-5210.

SUPERSEDED