

[Federal Register Volume 84, Number 239 (Thursday, December 12, 2019)]  
[Rules and Regulations]  
[Pages 67851-67854]  
From the Federal Register Online via the Government Publishing Office [www.gpo.gov]  
[FR Doc No: 2019-26734]

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## **DEPARTMENT OF TRANSPORTATION**

### **Federal Aviation Administration**

#### **14 CFR Part 39**

**[Docket No. FAA-2019-0494; Product Identifier 2019-NM-051-AD; Amendment 39-19801; AD 2019-23-07]**

**RIN 2120-AA64**

#### **Airworthiness Directives; The Boeing Company Airplanes**

**AGENCY:** Federal Aviation Administration (FAA), DOT.

**ACTION:** Final rule.

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**SUMMARY:** The FAA is adopting a new airworthiness directive (AD) for certain The Boeing Company Model 787-8, 787-9, and 787-10 airplanes. This AD was prompted by reports that the nose landing gear (NLG) retracted on the ground, with weight on the airplane's wheels, due to the incorrect installation of an NLG downlock pin in the apex pin inner bore of the NLG lock link assembly. This AD requires installing an insert to prevent installation of the pin in the incorrect location. The FAA is issuing this AD to address the unsafe condition on these products.

**DATES:** This AD is effective January 16, 2020.

The Director of the Federal Register approved the incorporation by reference of a certain publication listed in this AD as of January 16, 2020.

**ADDRESSES:** For service information identified in this final rule, contact Boeing Commercial Airplanes, Attention: Contractual & Data Services (C&DS), 2600 Westminister Blvd., MC 110-SK57, Seal Beach, CA 90740-5600; telephone 562-797-1717; internet <https://www.myboeingfleet.com>. You may view this service information at the FAA, Transport Standards Branch, 2200 South 216th St., Des Moines, WA. For information on the availability of this material at the FAA, call 206-231-3195. It is also available on the internet at <https://www.regulations.gov> by searching for and locating Docket No. FAA-2019-0494.

#### **Examining the AD Docket**

You may examine the AD docket on the internet at <https://www.regulations.gov> by searching for and locating Docket No. FAA-2019-0494; or in person at Docket Operations between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this final rule, the regulatory evaluation, any comments received, and other information. The address for Docket

Operations is U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE, Washington, DC 20590.

**FOR FURTHER INFORMATION CONTACT:** Allen Rauschendorfer, Aerospace Engineer, Airframe Section, FAA, Seattle ACO Branch, 2200 South 216th St., Des Moines, WA 98198; phone and fax: 206-231-3528; email: allen.rauschendorfer@faa.gov.

## **SUPPLEMENTARY INFORMATION:**

### **Discussion**

The FAA issued a notice of proposed rulemaking (NPRM) to amend 14 CFR part 39 by adding an AD that would apply to certain The Boeing Company Model 787-8, 787-9, and 787-10 airplanes. The NPRM published in the Federal Register on July 23, 2019 (84 FR 35352). The NPRM was prompted by reports that the NLG retracted on the ground, with weight on the airplane's wheels, due to the incorrect installation of an NLG downlock pin in the apex pin inner bore of the NLG lock link assembly. The NPRM proposed to require installing an insert to prevent installation of the pin in the incorrect location.

The FAA is issuing this AD to address the NLG downlock pin being incorrectly installed in the apex pin inner bore of the NLG lock link assembly, which could result in the NLG retracting on the ground, possibly causing serious injuries to personnel and passengers and substantial damage to the airplane.

### **Comments**

The FAA gave the public the opportunity to participate in developing this final rule. The following presents the comments received on the NPRM and the FAA's response to each comment.

### **Request To Revise Applicability of the Proposed AD**

American Airlines (AAL) requested that the FAA revise the applicability of the AD to specify the affected part numbers of the NLG lock link assembly rather than the affected airplanes because the affected parts may be swapped between airplanes. AAL noted that paragraph A.2. of Boeing Requirements Bulletin B787-81205-SB320040-00 RB, Issue 001, dated March 12, 2019, specifies to identify, modify, and part mark the spares. AAL suggested that once the apex bin inner bore insert is installed in the NLG lock link assembly in production, the NLG lock link assembly part number should also change. AAL requested that, should the FAA not revise the applicability of the proposed AD to affected part numbers, the applicability of the proposed AD be revised to include all Model 787 airplanes rather than only the airplanes specified in Boeing Requirements Bulletin B787-81205-SB320040-00 RB, Issue 001, dated March 12, 2019. AAL asserted that the unsafe condition applies to all airplanes.

The FAA disagrees with the request to revise the applicability of this AD. This AD does not require operators to identify, modify, or part mark their spares. Paragraph (g) of this AD specifies to accomplish the actions in accordance with the Accomplishment Instructions of Boeing Requirements Bulletin B787-81205-SB320040-00 RB, Issue 001, dated March 12, 2019, and does not specify to accomplish actions in accordance with paragraph A.2. of Boeing Requirements Bulletin B787-81205-SB320040-00 RB, Issue 001, dated March 12, 2019. Therefore, the FAA has determined that it is appropriate for this AD to apply to Boeing Model 787-8, 787-9, 787-10 airplanes, line numbers 6 through 848 inclusive, as specified in Boeing Requirements Bulletin B787-81205-SB320040-00 RB, Issue 001, dated March 12, 2019. Only these airplanes need to have the apex bin inner bore insert installed in order to address the identified unsafe condition.

Regarding AAL's request to revise the applicability to all Model 787 airplanes, Boeing will incorporate the apex pin inner bore insert as part of the airplane type design at line number 849 and

subsequent. At that time, the NLG lock link assembly will change part numbers, and the airplane type design will be changed as a result. If an operator installs an NLG lock link assembly of a different part number than what is defined as airplane type design, then the airplane would be out of compliance. Consequently, all airplanes will be required to have the apex pin inner bore insert installed in the NLG lock link assembly. No changes have been made to the applicability of this AD.

### **Requests To Change NLG Lock Link Assembly Part Number Post-Installation**

AAL requested that the FAA revise the proposed AD to add a requirement that the NLG lock link assembly part number be changed upon installing the apex pin inner bore insert. AAL reasoned that the NLG lock link would be modified as an assembly and that, even though the airplane may be in the proper configuration, there would be no documentation to support the modification having been accomplished. AAL also noted that there is no consistent procedure for marking the change identification of the NLG lock link assembly amongst operators, which could lead to configuration issues when parts are exchanged between airlines. AAL suggested that operators should be informed on how Boeing is marking the change identification of the NLG lock link assemblies that are in production.

The FAA does not agree with the request. Boeing Requirements Bulletin B787-81205-SB320040-00 RB, Issue 001, dated March 12, 2019, identifies the Boeing assigned NLG lock link assembly part number prior to installation of the apex pin inner bore insert and indicates that there is no new Boeing part number for the changed NLG lock link assembly. Boeing Service Bulletin B787-81205-SB320040-00, Issue 001, dated March 12, 2019 (which is referred to in Boeing Requirements Bulletin B787-81205-SB320040-00 RB, Issue 001, dated March 12, 2019), specifies to mark the change identification of the NLG lock link assembly to indicate the apex pin bore insert has been installed. Operators are not required to change the identification as specified in Boeing Service Bulletin B787-81205-SB320040-00, Issue 001, dated March 12, 2019. Each operator has the latitude to identify the installed part that is consistent with their internal operating procedures. Operators may contact Boeing for information on how production airplanes are being marked for change identification of the NLG lock link assembly. The AD has not been changed in this regard.

### **Request To Allow Alternative Method of Compliance (AMOC)**

United Airlines (UAL) requested that the FAA issue an AMOC that would allow the apex pin inner bore to be completely filled with sealant. UAL stated that it recognized the possible unsafe condition of the NLG downlock pin being incorrectly installed in the apex pin inner bore of the NLG lock link assembly, and plugged the apex pin inner bore with sealant as a preventive modification. UAL explained that it applied this modification to its entire fleet prior to the issue of Boeing Requirements Bulletin B787-81205-SB320040-00 RB, Issue 001, dated March 12, 2019, and it proposed to add the apex pin inner bore insert at the time of the next component overhaul to maintain configuration control.

The FAA disagrees with the request. The FAA and Boeing are concerned that filling the apex pin inner bore with sealant is not a long term solution because the sealant may deteriorate and degrade over the life of the landing gear. The FAA has determined that the proposed apex pin inner bore insert is a more robust solution that will address the unsafe condition and withstand the harsh environment of the NLG. The AD has not been changed in this regard. However, if any person has data that would justify an alternative solution, that person may request approval of an AMOC under the provisions of paragraph (i) of this AD.

### **Requests To Identify a Certain Step as Non-RC (Required for Compliance)**

UAL requested that the FAA identifies the step that specifies to mark the change identification of the NLG lock link assembly as Non-RC. UAL predicted that each operator will implement their own

unique change identification method and reasoned that its own internal controls clearly identify its compliance with the requirements and accomplishment of the modification, which would negate the need to require change identification of the NLG lock link assembly.

The FAA agrees to clarify. The change identification of the NLG lock link assembly is not required for compliance. The change identification in the Requirements Bulletin is a “refer to” procedure. As stated in a note under the Accomplishment Instructions of Boeing Requirements Bulletin B787-81205-SB320040-00, Issue 001, dated March 12, 2019, procedures marked as “refer to” may be deviated from using accepted methods in accordance with the operator's maintenance or inspection program without obtaining approval of an AMOC. The AD has not been changed in this regard.

### **Request To Clarify NLG Retraction Incident**

Boeing requested that the FAA clarify the Discussion of the NPRM to state that the NLG retraction incident that took place in March of 2016 was caused by the lack of an NLG downlock pin being installed on the NLG, not by the installation of an NLG downlock pin in an incorrect location. Boeing conceded that the event was an inadvertent NLG retraction, but maintained that the event was not due to the NLG downlock pin being installed incorrectly.

We partially agree with the request to change the Discussion section of the NPRM. As specified above, the design approval holder noted in their investigation that the inadvertent NLG retraction in March of 2019 was caused by a missing NLG downlock pin. However, we also received a safety recommendation submitted by Aviation Technical Services that indicated the probable cause was that the NLG downlock pin was installed in the wrong location for both incidents referenced in the Discussion section of the NPRM.

We note that we have received conflicting information about the March 2016 incident and what was the probable cause of the incident. However, we have not changed this final rule in this regard because the Discussion section of the NPRM is not restated in the final rule.

### **Conclusion**

The FAA reviewed the relevant data, considered the comments received, and determined that air safety and the public interest require adopting this final rule as proposed, except for minor editorial changes. The FAA determined that these minor changes:

Are consistent with the intent that was proposed in the NPRM for addressing the unsafe condition; and

Do not add any additional burden upon the public than was already proposed in the NPRM.

### **Related Service Information Under 1 CFR Part 51**

The FAA reviewed Boeing Requirements Bulletin B787-81205-SB320040-00 RB, Issue 001, dated March 12, 2019. The service information describes procedures for installing an insert into the apex pin inner bore of the NLG lock link assembly to prevent the NLG downlock pin from being inserted in the incorrect location. This service information is reasonably available because the interested parties have access to it through their normal course of business or by the means identified in the ADDRESSES section.

### **Costs of Compliance**

The FAA estimates that this AD would affect 73 airplanes of U.S. registry. The agency estimates the following costs to comply with this AD:

### Estimated Costs for Required Actions

Action	Labor cost	Parts cost	Cost per product	Cost on U.S. operators
Install insert	2 work-hours × \$85 per hour = \$170	\$1,820	\$1,990	\$145,270

#### Authority for This Rulemaking

Title 49 of the United States Code specifies the FAA's authority to issue rules on aviation safety. Subtitle I, section 106, describes the authority of the FAA Administrator. Subtitle VII: Aviation Programs, describes in more detail the scope of the Agency's authority.

The FAA is issuing this rulemaking under the authority described in Subtitle VII, Part A, Subpart III, Section 44701: "General requirements." Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

This AD is issued in accordance with authority delegated by the Executive Director, Aircraft Certification Service, as authorized by FAA Order 8000.51C. In accordance with that order, issuance of ADs is normally a function of the Compliance and Airworthiness Division, but during this transition period, the Executive Director has delegated the authority to issue ADs applicable to transport category airplanes and associated appliances to the Director of the System Oversight Division.

#### Regulatory Findings

This AD will not have federalism implications under Executive Order 13132. This AD will not have a substantial direct effect 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.

For the reasons discussed above, I certify that this AD:

- (1) Is not a "significant regulatory action" under Executive Order 12866,
- (2) Will not affect intrastate aviation in Alaska, 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.

#### List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

#### Adoption of the Amendment

Accordingly, under the authority delegated to me by the Administrator, the FAA amends 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. The FAA amends § 39.13 by adding the following new airworthiness directive (AD):



**2019-23-07 The Boeing Company:** Amendment 39-19801; Docket No. FAA-2019-0494; Product Identifier 2019-NM-051-AD.

**(a) Effective Date**

This AD is effective January 16, 2020.

**(b) Affected ADs**

None.

**(c) Applicability**

This AD applies to The Boeing Company Model 787-8, 787-9, and 787-10 airplanes, certificated in any category, as identified in Boeing Requirements Bulletin B787-81205-SB320040-00 RB, Issue 001, dated March 12, 2019.

**(d) Subject**

Air Transport Association (ATA) of America Code 32, Landing gear.

**(e) Unsafe Condition**

This AD was prompted by reports that the nose landing gear (NLG) retracted on the ground, with weight on the airplane's wheels, due to the incorrect installation of an NLG downlock pin in the apex pin inner bore of the NLG lock link assembly. The FAA is issuing this AD to address the NLG downlock pin being incorrectly installed in the apex pin inner bore of the NLG lock link assembly, which could result in the NLG retracting on the ground, possibly causing serious injuries to personnel and passengers and substantial damage to the airplane.

**(f) Compliance**

Comply with this AD within the compliance times specified, unless already done.

**(g) Required Actions**

Except as specified by paragraph (h) of this AD: At the applicable times specified in the "Compliance" paragraph of Boeing Requirements Bulletin B787-81205-SB320040-00 RB, Issue 001, dated March 12, 2019, do all applicable actions identified in, and in accordance with, the Accomplishment Instructions of Boeing Requirements Bulletin B787-81205-SB320040-00 RB, Issue 001, dated March 12, 2019.

Note 1 to paragraph (g): Guidance for accomplishing the actions required by this AD can be found in Boeing Service Bulletin B787-81205-SB320040-00, Issue 001, dated March 12, 2019,

which is referred to in Boeing Requirements Bulletin B787-81205-SB320040-00 RB, Issue 001, dated March 12, 2019.

#### **(h) Exceptions to Service Information Specifications**

For purposes of determining compliance with the requirements of this AD: Where Boeing Requirements Bulletin B787-81205-SB320040-00 RB, Issue 001, dated March 12, 2019, uses the phrase “the Issue 001 date of Requirements Bulletin B787-81205-SB320040-00 RB,” this AD requires using “the effective date of this AD.”

#### **(i) Alternative Methods of Compliance (AMOCs)**

(1) The Manager, Seattle ACO Branch, FAA, has the authority to approve AMOCs for this AD, if requested using the procedures found in 14 CFR 39.19. In accordance with 14 CFR 39.19, send your request to your principal inspector or local Flight Standards District Office, as appropriate. If sending information directly to the manager of the certification office, send it to the attention of the person identified in paragraph (j) of this AD. Information may be emailed to: 9-ANM-Seattle-ACO-AMOC-Requests@faa.gov.

(2) Before using any approved AMOC, notify your appropriate principal inspector, or lacking a principal inspector, the manager of the local flight standards district office/certificate holding district office.

(3) An AMOC that provides an acceptable level of safety may be used for any repair, modification, or alteration required by this AD if it is approved by The Boeing Company Organization Designation Authorization (ODA) that has been authorized by the Manager, Seattle ACO Branch, FAA, to make those findings. To be approved, the repair method, modification deviation, or alteration deviation must meet the certification basis of the airplane, and the approval must specifically refer to this AD.

#### **(j) Related Information**

For more information about this AD, contact Allen Rauschendorfer, Aerospace Engineer, Airframe Section, FAA, Seattle ACO Branch, 2200 South 216th St., Des Moines, WA 98198; phone and fax: 206-231-3528; email: allen.rauschendorfer@faa.gov.

#### **(k) Material Incorporated by Reference**

(1) The Director of the Federal Register approved the incorporation by reference (IBR) of the service information listed in this paragraph under 5 U.S.C. 552(a) and 1 CFR part 51.

(2) You must use this service information as applicable to do the actions required by this AD, unless the AD specifies otherwise.

(i) Boeing Requirements Bulletin B787-81205-SB320040-00 RB, Issue 001, dated March 12, 2019.

(ii) [Reserved]

(3) For service information identified in this AD, contact Boeing Commercial Airplanes, Attention: Contractual & Data Services (C&DS), 2600 Westminister Blvd., MC 110-SK57, Seal Beach, CA 90740-5600; telephone 562-797-1717; internet <https://www.myboeingfleet.com>.

(4) You may view this service information at the FAA, Transport Standards Branch, 2200 South 216th St., Des Moines, WA. For information on the availability of this material at the FAA, call 206-231-3195.

(5) You may view this service information that is incorporated by reference at the National Archives and Records Administration (NARA). For information on the availability of this material at



NARA, email [fedreg.legal@nara.gov](mailto:fedreg.legal@nara.gov), or go to: <https://www.archives.gov/federal-register/cfr/ibr-locations.html>.

Issued in Des Moines, Washington, on December 2, 2019.

John Piccola,  
Acting Director, System Oversight Division,  
Aircraft Certification Service.