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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2013-0089; Directorate Identifier 2012-NM-166-AD; Amendment 39-17806; AD 2014-06-02]

RIN 2120-AA64

Airworthiness Directives; The Boeing Company Airplanes

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule.

SUMMARY: We are adopting a new airworthiness directive (AD) for certain The Boeing Company Model 747-400 series airplanes. This AD was prompted by reports of auxiliary power unit (APU) faults due to power feeder cable chafing. This AD requires detailed inspections for damage of the APU power feeder cables; replacing the clamps and installing grommets; and related investigative and corrective actions if necessary. We are issuing this AD to detect and correct chafing of the APU power feeder cables within a flammable fluid leakage zone, which, with arcing, could result in fire and structural damage.

DATES: This AD is effective April 25, 2014.

The Director of the Federal Register approved the incorporation by reference of a certain publication listed in this AD as of April 25, 2014.

ADDRESSES: For service information identified in this AD, contact Boeing Commercial Airplanes, Attention: Data & Services Management, P.O. Box 3707, MC 2H-65, Seattle, WA 98124-2207; telephone 206-544-5000, extension 1; fax 206-766-5680; Internet <https://www.myboeingfleet.com>. You may view this referenced service information at the FAA, Transport Airplane Directorate, 1601 Lind Avenue SW., Renton, WA. For information on the availability of this material at the FAA, call 425-227-1221.

Examining the AD Docket

You may examine the AD docket on the Internet at <http://www.regulations.gov> by searching for and locating Docket No. FAA-2013-0089; or in person at the Docket Management Facility between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this AD, the regulatory evaluation, any comments received, and other information. The address for the Docket

Office (phone: 800-647-5527) is Docket Management Facility, 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: Georgios Roussos, Aerospace Engineer, Systems and Equipment Branch, ANM-130S, Seattle Aircraft Certification Office, FAA, 1601 Lind Avenue SW., Renton, WA 98057-3356; phone: 425-917-6482; fax: 425-917-6590; email: georgios.roussos@faa.gov.

SUPPLEMENTARY INFORMATION:

Discussion

We 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 747-400 series airplanes. The NPRM published in the Federal Register on February 7, 2013 (78 FR 8999). The NPRM was prompted by reports of APU faults due to power feeder cable chafing. The NPRM proposed to require detailed inspections for damage of the APU power feeder cables; replacing the clamps and installing grommets; and related investigative and corrective actions if necessary. We are issuing this AD to detect and correct chafing of the APU power feeder cables within a flammable fluid leakage zone, which, with arcing, could result in fire and structural damage.

Relevant Service Information

Since we issued the NPRM (78 FR 8999, February 7, 2013), we reviewed Boeing Service Bulletin 747-24A2360, Revision 2, dated October 2, 2013. (The NPRM referenced Boeing Service Bulletin 747-24A2360, Revision 1, dated May 2, 2012, as the appropriate source of service information for accomplishing the required actions.) Boeing Service Bulletin 747-24A2360, Revision 2, dated October 2, 2013, among other things, revises the recommended compliance time from 14 months to 18 months. For information on the procedures and compliance times, see this service information at <http://www.regulations.gov> by searching for and locating Docket No. FAA-2013-0089.

We have determined that extending the compliance time, as recommended by the manufacturer, will not adversely affect safety. We have revised the compliance time in paragraph (g) of this AD accordingly. We have also revised paragraphs (c), (g), (h), and (i) of this AD to refer to Boeing Service Bulletin 747-24A2360, Revision 2, dated October 2, 2013.

In addition, we have revised paragraph (j) of this final rule to include Boeing Alert Service Bulletin 747-24A2360, Revision 1, dated May 2, 2012, for credit for the actions required by paragraph (g) of this AD, if those actions were performed before the effective date of this AD.

Comments

We gave the public the opportunity to participate in developing this AD. The following presents the comments received on the proposal (78 FR 8999, February 7, 2013) and the FAA's response to each comment.

Request To Extend Compliance Time

KLM Royal Dutch Airlines (KLM) requested that we revise the compliance time of the NPRM (78 FR 8999, February 7, 2013) from 14 months to 36 months. KLM explained that due to the possible operational impact when damage is found, and since the Accomplishment Instructions of Boeing Service Bulletin 747-24A2360, Revision 2, dated October 2, 2013, are performed with

electrical power removed, the recommended maintenance check to perform Boeing Service Bulletin 747-24A2360, Revision 2, dated October 2, 2013, is a C-check, and therefore 14 months is not effective.

We disagree with the request to extend the compliance time to 36 months. Based on a review of the safety aspects and the potential impact to the affected fleet, in conjunction with the latest recommendation from Boeing, as discussed previously, we determined that an extension of the compliance time to 18 months for this final rule is appropriate.

Request for Clarification of a Possible Process To Prevent Undoing the Actions Required by ADs

United Airlines (UA) requested clarification of a possible process to prevent undoing the actions required by ADs. UA stated that clamp replacement could take place by non-routine maintenance after accomplishment of Boeing Alert Service Bulletin 747-24A2360, Revision 1, dated May 2, 2012, and could undo the mandate of the NPRM (78 FR 8999, February 7, 2013). UA asked if there are any means that this AD or future ADs will mandate a process to identify items/areas affected by the AD that may be followed by the industry and original equipment manufacturers (OEMs) so as not to undo the AD.

We acknowledge that operators must prevent non-routine maintenance from impacting AD requirements. The FAA worked in conjunction with industry, under the Airworthiness Directives Implementation Aviation Rulemaking Committee (ARC), to enhance the AD system. One enhancement involves design approval holder (DAH) recommendations to evaluate the potential for undoing an AD-mandated configuration during all stages of design and development of service bulletins, maintenance documents, or Instructions for Continued Airworthiness (ICA). Refer to Advisory Circular (AC) 20-176, dated December 19, 2011 ([http://rgl.avs.faa.gov/Regulatory_and_Guidance_Library/rgAdvisoryCircular.nsf/0/a78cc91a47b192278625796b0075f419/\\$FILE/AC%2020-176.pdf](http://rgl.avs.faa.gov/Regulatory_and_Guidance_Library/rgAdvisoryCircular.nsf/0/a78cc91a47b192278625796b0075f419/$FILE/AC%2020-176.pdf)). The DAH recommendations in this AC are voluntary.

Also in response to the AD Implementation ARC, the FAA released AC 39-9, (http://www.faa.gov/documentLibrary/media/Advisory_Circular/AC%2039-9%20CHG%201.pdf). This AC includes guidance to operators for developing an AD management process that includes information about preventative measures to eliminate and/or mitigate the risk of altering the AD configuration. It is the responsibility of operators to apply necessary controls to maintain the airplane in accordance with the required configuration of an AD. However, given the variety of maintenance and inspection programs of affected operators, we do not believe it is necessary or appropriate to prescribe a particular process to ensure that operators fulfill this responsibility. We have made no changes to this final rule in this regard.

Request for Clarification of Compliance Time

Virgin Atlantic Airways (the commenter) requested that we clarify the compliance time of the NPRM (78 FR 8999, February 7, 2013). The commenter explained that the compliance time is not clear because Boeing Alert Service Bulletin 747-24A2360, Revision 1, dated May 2, 2012, states a recommended compliance time of 14 months from the date of Boeing Alert Service Bulletin 747-24A2360, Revision 1, dated May 2, 2012, but that paragraph (h)(2) of the NPRM states, "this AD requires compliance within the specified compliance time after the effective date of this AD."

Boeing requested that we clarify the compliance time of the NPRM (78 FR 8999, February 7, 2013). Boeing explained that paragraph (h)(2) of the NPRM states: "Where Boeing Alert Service Bulletin 747-24A2360, Revision 1, dated May 2, 2012, specifies a compliance time after the date on the service bulletin, this AD requires compliance within the specified compliance time after the effective date of this AD." Boeing stated that the compliance statement within Boeing Alert Service Bulletin 747-24A2360, Revision 1, dated May 2, 2012, states: "Boeing recommends that the

inspection, change and/or repair given in this service bulletin be done within 14 months after the Revision 1 date of this service bulletin."

We agree to clarify the compliance time. The NPRM (78 FR 8999, February 7, 2013) referred to the compliance times specified in Boeing Alert Service Bulletin 747-24A2360, Revision 1, dated May 2, 2012, except that where the service bulletin specifies a compliance time after the date on the service bulletin, this AD would require a compliance time within a specified compliance time after the effective date of this AD. In other words, where Boeing Alert Service Bulletin 747-24A2360, Revision 1, dated May 2, 2012, specifies a compliance time of "within 14 months after the Revision 1 date of this service bulletin," the NPRM would require a compliance time of "within 14 months after the effective date of this AD." However, as stated previously, we have extended the compliance time and stated it directly in paragraph (g) of this AD.

Request To Revise Parts Installation Limitation

Boeing requested that we revise the NPRM (78 FR 8999, February 7, 2013) to either remove the requirement in paragraph (i) of the NPRM, which only allows the use of part number (P/N) TA025097L16 clamps, or that we remove the size suffix (16) from the part number (e.g., P/N TA025097L()). Boeing explained that the variability in wire bundle size due to different wire types/part numbers or wire quantity sometimes requires clamp sizing flexibility. Boeing also expressed that paragraph (i) conflicts with Note 5 of paragraph 3.A., "GENERAL INFORMATION," of Boeing Alert Service Bulletin 747-24A2360, Revision 1, dated May 2, 2012.

Virgin Atlantic Airways also requested that we revise paragraph (i) of the NPRM (78 FR 8999, February 7, 2013) to not specify the clamp size. Virgin Atlantic Airways explained that if an operator needs to install a different size clamp, then that would require requesting an alternative method of compliance (AMOC) to comply with this AD.

We agree with the request to revise paragraph (i) in this final rule. Paragraph (i) as written in the NPRM (78 FR 8999, February 7, 2013), would not allow the flexibility needed to use a different size clamp of the same basic part number to accommodate wire bundle size differences. We have revised paragraph (i) of this final rule by adding a parenthesis "()", which designates different size clamps to accommodate possible wire bundle diameter size differences. We disagree to remove paragraph (i) in this final rule because installation of an improper or unsafe clamp may be detrimental to the safety of the airplane.

Request for Clarification of Areas Affected by the Parts Installation Limitation

Virgin Atlantic Airways requested that we clarify paragraph (i) of the NPRM (78 FR 8999, February 7, 2013). Virgin Atlantic Airways explained that the current wording in paragraph (i) of the NPRM can be interpreted as if it applies to the entire aircraft and not just those clamps that are required to be replaced as per Boeing Alert Service Bulletin 747-24A2360, Revision 1, dated May 2, 2012.

We agree to revise paragraph (i) of this final rule. Paragraph (i), as written in the NPRM (78 FR 8999, February 7, 2013), could be misinterpreted to mean it applies to all areas of the airplane when, in fact, it applies to those areas of the airplane identified in Boeing Service Bulletin 747-24A2360, Revision 2, dated October 2, 2013. We have revised paragraph (i) of this final rule accordingly.

Request To Delay the NPRM (78 FR 8999, February 7, 2013)

Mr. David Jiang, a private citizen, requested that we delay the NPRM (78 FR 8999, February 7, 2013), until more independent research to assess the cost to Boeing can be performed. Mr. Jiang explained that the estimate in the NPRM is not correct and would like the FAA to disclose how we calculated the cost associated with inspecting and replacing the affected clamps and grommets. Mr. Jiang expressed that if independent third-party entities determine that the financial costs of these

minor repairs outweigh other concerns, perhaps this AD will be scrapped entirely, saving Boeing and the public much unnecessary work and expense.

We disagree to delay this final rule. The estimated costs of the inspections and replacement of the clamps and grommets, which are industry accepted, have been thoroughly assessed by Boeing, and is part of the Boeing service information provided to the operators. The safety merits of this final rule have also been assessed by both Boeing and the FAA, and it was determined that this final rule needs to be released in order to maintain an acceptable level of safety for the affected airplanes. We have made no changes to this final rule in this regard.

Conclusion

We reviewed the relevant data, considered the comments received, and determined that air safety and the public interest require adopting this AD with the changes described previously and minor editorial changes. We have determined that these minor changes:

- Are consistent with the intent that was proposed in the NPRM (78 FR 8999, February 7, 2013) for correcting the unsafe condition; and
- Do not add any additional burden upon the public than was already proposed in the NPRM (78 FR 8999, February 7, 2013).

We also determined that these changes will not increase the economic burden on any operator or increase the scope of this AD.

Costs of Compliance

We estimate that this AD affects 55 airplanes of U.S. registry.
 We estimate the following costs to comply with this AD:

Estimated Costs

Action	Labor cost	Parts cost	Cost per product	Cost on U.S. operators
Inspection, and clamp and grommet replacement	6 work-hours × \$85 per hour = \$510 per inspection cycle	\$70	\$580 per inspection cycle	\$31,900 per inspection cycle.

We have received no definitive data that would enable us to provide cost estimates for the on-condition actions specified in this AD.

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.

We are 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.

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) Is not a "significant rule" under DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979),
- (3) Will not affect intrastate aviation in Alaska, and
- (4) 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):



2014-06-02 The Boeing Company: Amendment 39-17806; Docket No. FAA-2013-0089; Directorate Identifier 2012-NM-166-AD.

(a) Effective Date

This AD is effective April 25, 2014.

(b) Affected ADs

None.

(c) Applicability

This AD applies to The Boeing Company Model 747-400 series airplanes, certificated in any category, as identified in Boeing Service Bulletin 747-24A2360, Revision 2, dated October 2, 2013.

(d) Subject

Air Transport Association (ATA) of America Code 24, Electrical Power.

(e) Unsafe Condition

This AD was prompted by reports of auxiliary power unit (APU) faults due to power feeder cable chafing. We are issuing this AD to detect and correct chafing of the APU power feeder cables within a flammable fluid leakage zone, which, with arcing, could result in fire and structural damage.

(f) Compliance

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

(g) Inspection, Related Investigative and Corrective Actions

Within 18 months after the effective date of this AD: Do a detailed inspection for damage (e.g., surface finish integrity, excessive wear or possible heat damage) of the APU power feeder cables within each wire bundle on the left and right sides of the bulkhead, and do all applicable related investigative and corrective actions, in accordance with the Accomplishment Instructions of Boeing Service Bulletin 747-24A2360, Revision 2, dated October 2, 2013; except as required by paragraph (h) of this AD. If no damage is found during this inspection, before further flight, replace the clamp(s) and install grommets, in accordance with the Accomplishment Instructions of Boeing Service Bulletin 747-24A2360, Revision 2, dated October 2, 2013. Do all applicable related investigative and correction actions before further flight. Where Boeing Service Bulletin 747-24A2360, Revision 2, dated October 2, 2013, specifies installation of a clamp having part number (P/N) TA025097L16, a clamp having P/N TA025097L() may be installed instead.

Note 1 to paragraph (g) of this AD: The parenthesis "(" designates different size clamps, to accommodate possible wire bundle diameter size differences.

(h) Exceptions to the Service Information

If any damage is found during any inspection required by this AD, and Boeing Service Bulletin 747-24A2360, Revision 2, dated October 2, 2013, specifies to contact Boeing for appropriate action: Before further flight, repair the damage using a method approved in accordance with paragraph (k) of this AD.

(i) Parts Installation Limitation

As of the effective date of this AD, no person may install, on any airplane, any wiring support clamp, except for part number TA025097L(), in those areas of the airplane identified in Boeing Service Bulletin 747-24A2360, Revision 2, dated October 2, 2013.

Note 2 to paragraph (i) of this AD: The parenthesis "(" designates different size clamps, to accommodate possible wire bundle diameter size differences.

(j) Credit for Previous Actions

This paragraph provides credit for the actions required by paragraph (g) of this AD, if those actions were performed before the effective date of this AD using Boeing Alert Service Bulletin 747-24A2360, dated January 18, 2012; or Boeing Alert Service Bulletin 747-24A2360, Revision 1, dated May 2, 2012; which are not incorporated by reference in this AD.

(k) Alternative Methods of Compliance (AMOCs)

(1) The Manager, Seattle Aircraft Certification Office (ACO), 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 ACO, send it to the attention of the person identified in paragraph (l) 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 required by this AD if it is approved by the Boeing Commercial Airplanes Organization Designation Authorization (ODA) that has been authorized by the Manager, Seattle ACO, to make those findings. For a repair method to be approved, the repair must meet the certification basis of the airplane, and the approval must specifically refer to this AD.

(l) Related Information

(1) For more information about this AD, contact Georgios Roussos, Aerospace Engineer, Systems and Equipment Branch, ANM-130S, Seattle Aircraft Certification Office, FAA, 1601 Lind Avenue SW., Renton, WA 98057-3356; phone: 425-917-6482; fax: 425-917-6590; email: georgios.roussos@faa.gov.

(2) Service information identified in this AD that is not incorporated by reference may be obtained at the addresses specified in paragraphs (m)(3) and (m)(4) of this AD.

(m) 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 Service Bulletin 747-24A2360, Revision 2, dated October 2, 2013.

(ii) Reserved.

(3) For Boeing service information identified in this AD, contact Boeing Commercial Airplanes, Attention: Data & Services Management, P.O. Box 3707, MC 2H-65, Seattle, WA 98124-2207; telephone 206-544-5000, extension 1; fax 206-766-5680; Internet <https://www.myboeingfleet.com>.

(4) You may view this service information at FAA, Transport Airplane Directorate, 1601 Lind Avenue SW., Renton, Washington. For information on the availability of this material at the FAA, call 425-227-1221.

(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, call 202-741-6030, or go to: <http://www.archives.gov/federal-register/cfr/ibr-locations.html>.

Issued in Renton, Washington, on March 7, 2014.

Michael J. Kaszycki,
Acting Manager, Transport Airplane Directorate,
Aircraft Certification Service.