



適航指令發布單

Airworthiness Directive Issuance Form

民航局 AD 編號 AD number	CAA-2023-03-013	發布日期 Date issued	2023/3/29
適用之航空產品 Applied to (models, serial numbers or part numbers, as applicable)	Boeing Company Model 747-400, -400D, and -400F series airplanes, certificated in any category.		
主旨摘要 Subject	This AD requires revising the existing maintenance or inspection program, as applicable, to incorporate new or more restrictive airworthiness limitations.		
民航局 CAA <input type="checkbox"/> 本國產品 Native product <input type="checkbox"/> 其他個案 Other	設計國民航主管機構 Original Authority <input checked="" type="checkbox"/> FAA <input type="checkbox"/> EASA <input type="checkbox"/> Brazil <input type="checkbox"/> Transport Canada Civil Aviation <input type="checkbox"/> DGAC <input type="checkbox"/> Germany LBA <input type="checkbox"/> CAA-NL <input type="checkbox"/> UK CAA <input type="checkbox"/> Japan CAB <input type="checkbox"/> CAA of Israel <input type="checkbox"/> Other _____		
	設計國 AD 編號 Original AD number	2023-03-20	
	1. 直接採用原 AD 之內容?(Is the original AD directly adopted?) <input checked="" type="checkbox"/> 是(Yes) <input type="checkbox"/> 否(No) _ a. 生效日期另訂為(Re-specify the effective date as) : _____ b. 執行時限另訂為(Re-specify the compliance time or period as) : _____ 2. 使用人是否需要將 AD 執行結果向民航局提出報告?(Do Users need to report the status of compliance to the CAA?) <input type="checkbox"/> 是(Yes) <input checked="" type="checkbox"/> 否(No)		
備註 Note	This AD Affected FAA AD 2008-10-06 R1, 2008-18-09(CAA-2008-09-002), 2010-13-12(CAA-2010-07-007), 2010-14-08(CAA-2010-07-009), 2011-06-03(CAA-2011-03-009), 2014-15-14(CAA-2014-08-003), 2016-19-03(CAA-2016-09-014).		
註： 1. AD 內容後附。 2. 航空器產品使用人得向民航局提出豁免、替代符合方法、執行時限之展延之申請。 3. 如有任何問題，請聯絡交通部民用航空局初始適航科。Tel：(02)2349-6330 / 6332, Fax：(02)2545-8464, e-mail： adcaa@mail.caa.gov.tw Note： 1. The AD text is enclosed. 2. Exemption, an alternative method of compliance or adjustment of the compliance time may be proposed to the CAA for approval. 3. For further information, please contact Civil Aeronautics Administration on Tel：(02)2349-6330 / 6332, Fax： (02)2545-8464, e-mail： adcaa@mail.caa.gov.tw			

[Federal Register, Volume 88 Number 58 (Monday, March 27, 2023)]

[Rules and Regulations]

[Pages 18016-18019]

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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2022-1170; Project Identifier AD-2022-00023-T; Amendment 39-22345; AD 2023-03-20]

RIN 2120-AA64

Airworthiness Directives; The Boeing Company Airplanes

AGENCY:

Federal Aviation Administration (FAA), DOT.

ACTION:

Final rule.

SUMMARY:

The FAA is adopting a new airworthiness directive (AD) for all The Boeing Company Model 747-400, -400D, and -400F series airplanes. This AD was prompted by the FAA's analysis of the Model 747 airplane fuel system reviews conducted by the manufacturer, and by the determination that new or more restrictive airworthiness limitations are necessary. This AD requires revising the existing maintenance or inspection program, as applicable, to incorporate new or more restrictive airworthiness limitations. The FAA is issuing this AD to address the unsafe condition on these products.

DATES:

This AD is effective May 1, 2023.

The Director of the Federal Register approved the incorporation by reference of a certain publication listed in this AD as of May 1, 2023.

ADDRESSES:

AD Docket: You may examine the AD docket at *regulations.gov* by searching for and locating Docket No. FAA-2022-1170; 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, 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.

Material Incorporated by Reference:

- 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; phone: (562) 797-1717; website: *myboeingfleet.com*.
- You may view this service information at the FAA, Airworthiness Products Section, Operational Safety 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 at *regulations.gov* by searching for and locating Docket No. FAA-2022-1170.

FOR FURTHER INFORMATION CONTACT:

Samuel Dorsey, Aerospace Engineer, Propulsion Section, FAA, Seattle ACO Branch, 2200 South 216th St., Des Moines, WA 98198; phone: (206) 231-3415; email Samuel.J.Dorsey@faa.gov.

SUPPLEMENTARY INFORMATION:

Background

The FAA issued a notice of proposed rulemaking (NPRM) to amend [14 CFR part 39](#) by adding an AD that would apply to all The Boeing Company Model 747-400, -400D, and -400F series airplanes. The NPRM published in the **Federal Register** on November 4, 2022 ([87 FR 66615](#)). The NPRM was prompted by the FAA's analysis of the fuel system reviews on Model 747-400, -400D, and -400F series airplanes conducted by the manufacturer, and by the determination that new or more restrictive airworthiness limitations are necessary. In the NPRM, the FAA proposed to require revising the existing maintenance or inspection program, as applicable, to incorporate new or more restrictive airworthiness limitations.

Discussion of Final Airworthiness Directive

Comments

The FAA received comments from the Air Line Pilots Association, International (ALPA), Boeing, and an individual, who supported the NPRM without change.

The FAA received an additional comment from Delta Air Lines, Inc. (Delta). The following presents the comment received on the NPRM and the FAA's response to the comment.

Request To Allow Use of Latest Revision of Service Information

Delta requested that the FAA allow operators the option to incorporate Section B, Airworthiness Limitations—Systems, of Section 9, Airworthiness Limitations (AWLs) and Certification Maintenance Requirements (CMRs), of Boeing 747-400 Maintenance Planning Data (MPD) Document, D621U400-9, dated April 2022, in lieu of the September 2021 revision specified in the NPRM. Delta stated that allowing operators the option to incorporate this latest MPD will provide an opportunity to ensure the most current information is incorporated into their maintenance

program and avoid the potential for additional alternative methods of compliance (AMOCs) in the immediate future when the final rule is published.

The FAA agrees with the request for the reasons stated above. The FAA has revised the reference to Section B, Airworthiness Limitations—Systems, of Section 9, Airworthiness Limitations (AWLs) and Certification Maintenance Requirements (CMRs), of Boeing 747-400 Maintenance Planning Data (MPD) Document, D621U400-9, in paragraph (g) of this AD from “September 2021” to “April 2022.” The FAA reviewed this revision and determined it does not require additional work or impose any substantive changes to the actions proposed in the NPRM.

The FAA has also added paragraph (k) of this AD to provide credit for operators who have revised the existing maintenance or inspection program, as applicable, before the effective date of this AD, to incorporate the information specified in Section B, Airworthiness Limitations—Systems, of Section 9, Airworthiness Limitations (AWLs) and Certification Maintenance Requirements (CMRs), of Boeing 747-400 Maintenance Planning Data (MPD) Document, D621U400-9, dated September 2021. This change imposes no additional burden on operators who are required to comply with this AD.

Conclusion

The FAA reviewed the relevant data, considered any comments received, and determined that air safety requires adopting this AD as proposed. Accordingly, the FAA is issuing this AD to address the unsafe condition on these products. Except for minor editorial changes, and any other changes described previously, this AD is adopted as proposed in the NPRM. None of the changes will increase the economic burden on any operator.

Related Service Information Under [1 CFR Part 51](#)

The FAA reviewed Section 9, Airworthiness Limitations (AWLs) and Certification Maintenance Requirements (CMRs), of Boeing 747-400 Maintenance Planning Data (MPD) Document, D621U400-9, dated April 2022. This service information specifies airworthiness limitations for fuel tank systems. 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 **ADDRESSES**.

Costs of Compliance

The FAA estimates that this AD affects 119 airplanes of U.S. registry. The FAA estimates the following costs to comply with this AD:

The FAA has determined that revising the existing maintenance or inspection program takes an average of 90 work-hours per operator, although the agency recognizes that this number may vary from operator to operator. Since operators incorporate maintenance or inspection program changes for their affected fleet(s), the FAA has determined that a per-operator estimate is more accurate than a per-airplane estimate. Therefore, the FAA estimates the average total cost per operator to be \$7,650 (90 work-hours × \$85 per work-hour).

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.

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

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:

2023-03-20 The Boeing Company: Amendment 39-22345; Docket No. FAA-2022-1170; Project Identifier AD-2022-00023-T.

(a) Effective Date

This airworthiness directive (AD) is effective May 1, 2023.

(b) Affected ADs

This AD affects the ADs specified in paragraphs (b)(1) through (7) of this AD.

(1) AD 2008-10-06 R1, Amendment 39-16160 ([75 FR 906](#), January 7, 2010) (AD 2008-10-06 R1).

(2) AD 2008-18-09, Amendment 39-15666 ([73 FR 52911](#), September 12, 2008) (AD 2008-18-09).

(3) AD 2010-13-12, Amendment 39-16343 ([75 FR 37997](#), July 1, 2010) (AD 2010-13-12).

(4) AD 2010-14-08, Amendment 39-16353 ([75 FR 38397](#), July 2, 2010) (AD 2010-14-08).

(5) AD 2011-06-03, Amendment 39-16627 ([76 FR 15814](#), March 22, 2011) (AD 2011-06-03).

(6) AD 2014-15-14, Amendment 39-17916 ([79 FR 45324](#), August 5, 2014) (AD 2014-15-14).

(7) AD 2016-19-03, Amendment 39-18652 ([81 FR 65872](#), September 26, 2016) (AD 2016-19-03).

(c) Applicability

This AD applies to all The Boeing Company Model 747-400, -400D, and -400F series airplanes, certificated in any category.

(d) Subject

Air Transport Association (ATA) of America Code 28, Fuel.

(e) Unsafe Condition

This AD was prompted by the FAA's analysis of the fuel system reviews on Model 747-400, -400D, and -400F series airplanes conducted by the manufacturer, and by the determination that new or more restrictive airworthiness limitations are necessary. The FAA is issuing this AD to reduce the potential of ignition sources inside fuel tanks, which, in combination with flammable fuel vapors, could result in fuel tank explosions and consequent loss of the airplane.

(f) Compliance

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

(g) Maintenance or Inspection Program Revision

Within 60 days after the effective date of this AD, revise the existing maintenance or inspection program, as applicable, to incorporate the information specified in Section B, Airworthiness Limitations—Systems, of Section 9, Airworthiness Limitations (AWLs) and Certification Maintenance Requirements (CMRs), of Boeing 747-400 Maintenance Planning Data (MPD) Document, D621U400-9, dated April 2022; except as provided by paragraph (h) of this AD. The initial compliance time for doing the airworthiness limitation instruction (ALI) tasks is at the times specified in paragraphs (g)(1) through (13) of this AD.

(1) For AWL No. 28-AWL-01, “External Wires Over Center Fuel Tank”: At the applicable time specified in paragraph (g)(1)(i) or (ii) of this AD.

(i) For airplanes that did not have any version of AWL No. 28-AWL-01 in their maintenance or inspection program before the effective date of this AD: Within 144 months since issuance of the

original airworthiness certificate or original export certificate of airworthiness, or within 12 months after the effective date of this AD, whichever occurs later.

(ii) For airplanes not identified in paragraph (g)(1)(i) of this AD: Within 144 months since AWL No. 28-AWL-01 was added to the maintenance or inspection program, or within 144 months after the most recent inspection was performed as specified in AWL No. 28-AWL-01, whichever occurs later.

(2) For AWL No. 28-AWL-03, “Fuel Quantity Indication System (FQIS)—Out of Tank Wiring Lightning Shield to Ground Termination”: At the applicable time specified in paragraph (g)(2)(i) or (ii) of this AD.

(i) For airplanes that did not have any version of AWL No. 28-AWL-03 in their maintenance or inspection program before the effective date of this AD: Within 144 months since issuance of the original airworthiness certificate or original export certificate of airworthiness, or within 12 months after the effective date of this AD, whichever occurs later.

(ii) For airplanes not identified in paragraph (g)(2)(i) of this AD: Within 144 months since AWL No. 28-AWL-03 was added to the maintenance or inspection program, or within 144 months after the most recent inspection was performed as specified in AWL No. 28-AWL-03, whichever occurs later.

(3) For AWL No. 28-AWL-10, “Main Tank, Center Wing Tank, and Horizontal Stabilizer Tank (if installed) Refuel Valve Installation—Fault Current Bond”: At the applicable time specified in paragraph (g)(3)(i) or (ii) of this AD.

(i) For airplanes that did not have any version of AWL No. 28-AWL-10 in their maintenance or inspection program before the effective date of this AD: Within 144 months since issuance of the original airworthiness certificate or original export certificate of airworthiness, or within 12 months after the effective date of this AD, whichever occurs later.

(ii) For airplanes not identified in paragraph (g)(3)(i) of this AD: Within 144 months since AWL No. 28-AWL-10 was added to the maintenance or inspection program, or within 144 months after the most recent inspection was performed as specified in AWL No. 28-AWL-10, whichever occurs later.

(4) For AWL No. 28-AWL-17, “Over-Current and Arcing Protection Electrical Design Features Operation—Fault Current Detector (FCD) for Center Wing Tank (CWT) Pumps and Inboard Main Tank Override/Jettison (O/J) Pumps and Horizontal Stabilizer Tank (HST) Transfer Fuel Pumps”: At the applicable time specified in paragraph (g)(4)(i) or (ii) of this AD.

(i) For airplanes that did not have any version of AWL No. 28-AWL-17 in their maintenance or inspection program before the effective date of this AD: Within 18 months since issuance of the original airworthiness certificate or original export certificate of airworthiness, or within 90 days after the effective date of this AD, whichever occurs later.

(ii) For airplanes not identified in paragraph (g)(4)(i) of this AD: Within 18 months since AWL No. 28-AWL-17 was added to the maintenance or inspection program, or within 18 months after the most recent inspection was performed as specified in AWL No. 28-AWL-17, whichever occurs later.

(5) For AWL No. 28-AWL-24, “Horizontal Stabilizer Tank (HST) Fuel Pump Automatic Shutoff Circuit (If Installed)”: At the applicable time specified in paragraph (g)(5)(i) or (ii) of this AD.

(i) For airplanes that did not have any version of AWL No. 28-AWL-24 in their maintenance or inspection program before the effective date of this AD: Within 12 months since issuance of the original airworthiness certificate or original export certificate of airworthiness, or within 90 days after the effective date of this AD, whichever occurs later.

(ii) For airplanes not identified in paragraph (g)(5)(i) of this AD: Within 12 months since AWL No. 28-AWL-24 was added to the maintenance or inspection program, or within 12 months after the most recent inspection was performed as specified in AWL No. 28-AWL-24, whichever occurs later.

(6) For AWL No. 28-AWL-26, “Main Tank 2 and Main Tank 3 Override/Jettison Fuel Pump Uncommanded on System”: At the applicable time specified in paragraph (g)(6)(i) or (ii) of this AD.

(i) For airplanes that did not have any version of AWL No. 28-AWL-26 in their maintenance or inspection program before the effective date of this AD: Within 12 months since issuance of the original airworthiness certificate or original export certificate of airworthiness, or within 90 days after the effective date of this AD, whichever occurs later.

(ii) For airplanes not identified in paragraph (g)(6)(i) of this AD: Within 12 months since AWL No. 28-AWL-26 was added to the maintenance or inspection program, or within 12 months after the most recent inspection was performed as specified in AWL No. 28-AWL-26, whichever occurs later.

(7) For AWL No. 28-AWL-28, “Over-Current and Arcing Protection Electrical Design Features Operation—Main Tank AC Fuel Pump Ground Fault Interrupter (GFI)”: At the applicable time specified in paragraph (g)(7)(i) or (ii) of this AD.

(i) For airplanes that did not have any version of AWL No. 28-AWL-28 in their maintenance or inspection program before the effective date of this AD: Within 12 months since issuance of the original airworthiness certificate or original export certificate of airworthiness, or within 90 days after the effective date of this AD, whichever occurs later.

(ii) For airplanes not identified in paragraph (g)(7)(i) of this AD: Within 12 months since AWL No. 28-AWL-28 was added to the maintenance or inspection program, or within 12 months after the most recent inspection was performed as specified in AWL No. 28-AWL-28, whichever occurs later.

(8) For AWL No. 28-AWL-29, “Over-Current and Arcing Protection Electrical Design Features Operation—Center Tank Scavenge AC Fuel Pump Ground Fault Interrupter (GFI)”: At the applicable time specified in paragraph (g)(8)(i) or (ii) of this AD.

(i) For airplanes that did not have any version of AWL No. 28-AWL-29 in their maintenance or inspection program before the effective date of this AD: Within 12 months since issuance of the original airworthiness certificate or original export certificate of airworthiness, or within 90 days after the effective date of this AD, whichever occurs later.

(ii) For airplanes not identified in paragraph (g)(8)(i) of this AD: Within 12 months since AWL No. 28-AWL-29 was added to the maintenance or inspection program, or within 12 months after the most recent inspection was performed as specified in AWL No. 28-AWL-29, whichever occurs later.

(9) For AWL No. 28-AWL-33, “Cushion Clamps and Teflon Sleeving Installed on Out-of-Tank Wire Bundles Installed on Brackets that are Mounted Directly on the Fuel Tanks,” at the applicable time specified in paragraph (g)(9)(i) or (ii) of this AD.

(i) For airplanes that did not have any version of AWL No. 28-AWL-33 in their maintenance or inspection program before the effective date of this AD: Within 144 months since issuance of the original airworthiness certificate or original export certificate of airworthiness, or within 12 months after the effective date of this AD, whichever occurs later.

(ii) For airplanes not identified in paragraph (g)(9)(i) of this AD: Within 144 months since AWL No. 28-AWL-33 was added to the maintenance or inspection program, or within 144 months after the most recent inspection was performed as specified in AWL No. 28-AWL-33, whichever occurs later.

(10) For AWL No. 28-AWL-40, “Reserve Tank Refuel Valve Installation—Lightning Protection Electrical Bond,” at the applicable time specified in paragraph (g)(10)(i) or (ii) of this AD.

(i) For airplanes that did not have any version of AWL No. 28-AWL-40 in their maintenance or inspection program before the effective date of this AD: Within 72 months since issuance of the original airworthiness certificate or original export certificate of airworthiness, or within 12 months after the effective date of this AD, whichever occurs later.

(ii) For airplanes not identified in paragraph (g)(10)(i) of this AD: Within 72 months since AWL No. 28-AWL-40 was added to the maintenance or inspection program, or within 72 months after the most recent inspection was performed as specified in AWL No. 28-AWL-40, whichever occurs later.

(11) For AWL No. 47-AWL-07, “Nitrogen Generation System—Nitrogen Enriched Air (NEA) Distribution Ducting Inspection,” at the applicable time specified in paragraph (g)(11)(i) or (ii) of this AD.

(i) For airplanes that did not have any version of AWL No. 47-AWL-07 in their maintenance or inspection program before the effective date of this AD: Within 21,250 total flight hours since issuance of the original airworthiness certificate or original export certificate of airworthiness, or within 4 months after the effective date of this AD, whichever occurs later.

(ii) For airplanes not identified in paragraph (g)(11)(i) of this AD: Within 21,250 total flight hours since AWL No. 47-AWL-07 was added to the maintenance or inspection program, or within 21,250 total flight hours after the most recent inspection was performed as specified in AWL No. 47-AWL-07, whichever occurs later.

(12) For AWL No. 47-AWL-08, “Nitrogen Generation System [NGS]—Cross-Vent Check Valve Functional Check,” at the applicable time specified in paragraph (g)(12)(i) or (ii) of this AD.

(i) For airplanes that did not have any version of AWL No. 47-AWL-08 in their maintenance or inspection program before the effective date of this AD: Within 21,250 total flight hours since issuance of the original airworthiness certificate or original export certificate of airworthiness, or within 4 months after the effective date of this AD, whichever occurs later.

(ii) For airplanes not identified in paragraph (g)(12)(i) of this AD: Within 21,250 total flight hours since AWL No. 47-AWL-08 was added to the maintenance or inspection program, or within 21,250 total flight hours after the most recent inspection was performed as specified in AWL No. 47-AWL-08, whichever occurs later.

(13) For AWL No. 47-AWL-10, “NGS—Thermal Switch,” at the applicable time specified in paragraph (g)(13)(i) or (ii) of this AD.

(i) For airplanes that did not have any version of AWL No. 47-AWL-10 in their maintenance or inspection program before the effective date of this AD: Within 54,000 total flight hours since issuance of the original airworthiness certificate or original export certificate of airworthiness, or within 4 months after the effective date of this AD, whichever occurs later.

(ii) For airplanes not identified in paragraph (g)(13)(i) of this AD: Within 54,000 total flight hours since AWL No. 47-AWL-10 was added to the maintenance or inspection program, or within 54,000 total flight hours after the most recent inspection was performed as specified in AWL No. 47-AWL-10, whichever occurs later.

(h) Additional Acceptable Wire Types and Sleeving

As an option, during accomplishment of the actions required by paragraph (g) of this AD, the alternative materials specified in paragraphs (h)(1) and (2) of this AD are acceptable.

(1) Where AWL No. 28-AWL-08 identifies wire types BMS 13-48, BMS 13-58, and BMS 13-60, the following wire types, as applicable, are acceptable: MIL-W-22759/16, SAE AS22759/16 (M22759/16), MIL-W-22759/32, SAE AS22759/32 (M22759/32), MIL-W-22759/34, SAE AS22759/34 (M22759/34), MIL-W-22759/41, SAE AS22759/41 (M22759/41), MIL-W-22759/86, SAE AS22759/86 (M22759/86), MIL-W-22759/87, SAE AS22759/87 (M22759/87), MIL-W-22759/92, and SAE AS22759/92 (M22759/92); and MIL-C-27500 and NEMA WC 27500 cables constructed from these military or SAE specification wire types.

(2) Where AWL No. 28-AWL-08 identifies TFE-2X Standard wall for wire sleeving, the following sleeving materials are acceptable: Roundit 2000NX and Varglas Type HO, HP, or HM, as applicable.

(i) No Alternative Actions, Intervals, or Critical Design Configuration Control Limitations (CDCCLs)

After the existing maintenance or inspection program has been revised as required by paragraph (g) of this AD, no alternative actions (*e.g.*, inspections), intervals, or CDCCLs may be used unless the actions, intervals, and CDCCLs are approved as an alternative method of compliance (AMOC) in accordance with the procedures specified in paragraph (l) of this AD.

(j) Terminating Actions

(1) Accomplishing the actions required by paragraph (g) of this AD terminates all requirements of AD 2008-10-06 R1.

(2) Accomplishing the actions required by paragraph (g) of this AD terminates paragraph (g)(2) of AD 2008-18-09 for Model 747-400, -400D, and -400F airplanes only.

(3) Accomplishing the actions required by paragraph (g) of this AD terminates paragraph (h)(1) of AD 2010-13-12 for Model 747-400, -400D, and -400F airplanes only.

(4) Accomplishing the actions required by this AD terminates paragraph (j) of AD 2010-14-08.

(5) Accomplishing the actions required by paragraph (g) of this AD terminates paragraph (l) of AD 2011-06-03 for Model 747-400, -400D, and -400F airplanes only.

(6) Accomplishing the actions required by paragraph (g) of this AD terminates paragraph (h)(1) of AD 2014-15-14 for Model 747-400, -400D, and -400F airplanes only.

(7) Accomplishing the actions required by paragraph (g) of this AD terminates paragraph (h) of AD 2016-19-03 for Model 747-400, -400D, and -400F airplanes only.

(k) Credit for Previous Actions

This paragraph provides credit for the actions specified in paragraph (g) of this AD, if those actions were performed before the effective date of this AD using Section B, Airworthiness Limitations—Systems, of Section 9, AWLs and CMRs, of Boeing 747-400 MPD Document, D621U400-9, dated September 2021.

(l) 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 responsible Flight Standards 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 (m) 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 responsible Flight Standards 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.

(m) Related Information

For more information about this AD, contact Samuel Dorsey, Aerospace Engineer, Propulsion Section, FAA, Seattle ACO Branch, 2200 South 216th St., Des Moines, WA 98198; phone: (206) 231-3415; email: Samuel.J.Dorsey@faa.gov.

(n) 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) Section 9, Airworthiness Limitations (AWLs) and Certification Maintenance Requirements (CMRs), of Boeing 747-400 Maintenance Planning Data (MPD) Document, D621U400-9, dated April 2022.

(ii) [Reserved]

(3) For Boeing 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; phone: (562) 797-1717; website: myboeingfleet.com.

(4) You may view this service information at FAA, Airworthiness Products Section, Operational Safety 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: fr.inspection@nara.gov, or go to: www.archives.gov/federal-register/cfr/ibr-locations.html.

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Christina Underwood,

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