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## **DEPARTMENT OF TRANSPORTATION**

### **Federal Aviation Administration**

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

**[Docket No. FAA-2016-4220; Directorate Identifier 2015-NM-076-AD; Amendment 39-18923; AD 2017-12-08]**

**RIN 2120-AA64**

#### **Airworthiness Directives; BAE Systems (Operations) Limited Airplanes**

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

**ACTION:** Final rule.

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**SUMMARY:** We are superseding Airworthiness Directive (AD) 2011-24-06 for all BAE Systems (Operations) Limited Model BAe 146-100A, -200A, and -300A airplanes; and Model Avro 146-RJ70A, 146-RJ85A, and 146-RJ100A airplanes. AD 2011-24-06 required revising the maintenance program to incorporate life limits for certain items, adding new and more restrictive inspections to detect fatigue cracking in certain structures, and adding fuel system critical design configuration control limitations (CDCCLs) to prevent ignition sources in the fuel tanks. AD 2011-24-06 also required modifying the main fittings of the main landing gear (MLG) and revising the maintenance program to incorporate new life limits on MLG up-locks and door up-locks and other MLG components. This new AD requires revising the maintenance or inspection program, as applicable, to incorporate new or revised structural inspection requirements. This AD was prompted by a determination that new or revised structural inspection requirements are necessary. We are issuing this AD to address the unsafe condition on these products.

**DATES:** This AD is effective July 20, 2017.

The Director of the Federal Register approved the incorporation by reference of a certain publication listed in this AD as of January 3, 2012 (76 FR 73477, November 29, 2011).

**ADDRESSES:** For service information identified in this final rule, contact BAE Systems (Operations) Limited, Customer Information Department, Prestwick International Airport, Ayrshire, KA9 2RW, Scotland, United Kingdom; telephone +44 1292 675207; fax +44 1292 675704; email [RApublications@baesystems.com](mailto:RApublications@baesystems.com); Internet <http://www.baesystems.com/Businesses/RegionalAircraft/index.htm>. 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. It is also

available on the Internet at <http://www.regulations.gov> by searching for and locating Docket No. FAA-2016-4220.

## **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-2016-4220; 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 (telephone 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:** Todd Thompson, Aerospace Engineer, International Branch, ANM-116, Transport Airplane Directorate, FAA, 1601 Lind Avenue SW., Renton, WA 98057-3356; telephone 425-227-1175; fax 425-227-1149.

## **SUPPLEMENTARY INFORMATION:**

### **Discussion**

We issued a supplemental notice of proposed rulemaking (SNPRM) to amend 14 CFR part 39 to supersede AD 2011-24-06, Amendment 39-16870 (76 FR 73477, November 29, 2011) (“AD 2011-24-06”). AD 2011-24-06 applied to all BAE Systems (Operations) Limited Model BAe 146-100A, -200A, and -300A airplanes; and Model Avro 146-RJ70A, 146-RJ85A, and 146-RJ100A airplanes. The SNPRM published in the Federal Register on December 13, 2016 (81 FR 89878) (“the SNPRM”). We preceded the SNPRM with a notice of proposed rulemaking (NPRM) that published in the Federal Register on March 8, 2016 (81 FR 12044) (“the NPRM”). The NPRM was prompted by a determination that new or revised structural inspection requirements are necessary. The NPRM proposed to require revising the maintenance or inspection program, as applicable, to incorporate new or revised structural inspection requirements. We are issuing this AD to detect and correct fatigue cracking of certain structural elements, which could adversely affect the structural integrity of the airplane.

The European Aviation Safety Agency (EASA), which is the Technical Agent for the Member States of the European Union, has issued EASA Airworthiness Directive 2014-0071, dated March 19, 2014 (referred to after this as the Mandatory Continuing Airworthiness Information, or “the MCAI”), to correct an unsafe condition for all BAE Systems (Operations) Limited Model BAe 146 series and Model Avro 146-RJ series airplanes. The MCAI states:

The BAe 146/AVRO 146-RJ Aircraft Maintenance Manual (AMM) includes the Chapters as listed in Appendix 1 of this [EASA] AD. Compliance with these chapters has been identified as a mandatory action for continued airworthiness and EASA AD 2012-0004 was issued to require operators to comply with those instructions.

Since that [EASA] AD was issued, BAE Systems (Operations) Ltd revised the AMM (Revision 107), introducing a new defined life limit for the Fire Bottle Cartridge Firing Unit into Chapter 05-10-15. Subsequently, Revision 108 of the AMM introduced in Chapter 05-20-00 inspection tasks for repairs applied to fatigue critical structures and also introduced a new Chapter 05-20-07 to provide Structural Repair Manual (SRM) references for these tasks, applicable to repairs accomplished after the publication of AMM Revision 108. Finally, AMM Revision 111 introduced safe life limitations into Chapter 05-10-15 for rollers of main landing gear and door up-locks.

Furthermore, Section 6 of the Maintenance Review Board Report (MRBR) Document MRB 146-01, Issue 2, Revision 18 was published (as referenced in Chapter 05-20-01 of the AMM) to correct discrepancies in inspection tasks for a number of Structurally Important Items (SIIs). Grace periods for these revised inspection tasks are included in BAE Systems (Operations) Ltd Inspection Service Bulletin (ISB) ISB.53-237.

Failure to comply with the new and more restrictive tasks and limitations referenced above could result in an unsafe condition.

For the reasons described above, this [EASA] AD retains the requirements of EASA AD 2012-0004, which is superseded, and requires implementation of the maintenance tasks and/or airworthiness limitations as specified in the defined parts of Chapter 05 of the AMM at Revision 112.

The unsafe condition is fatigue cracking of certain structural elements, which could adversely affect the structural integrity of the airplane. You may examine the MCAI in the AD docket on the Internet at <http://www.regulations.gov> by searching for and locating Docket No. FAA-2016-4220.

## **Comments**

We gave the public the opportunity to participate in developing this AD. We received no comments on the SNPRM or on the determination of the cost to the public.

## **Conclusion**

We reviewed the available data and determined that air safety and the public interest require adopting this AD as proposed except for minor editorial changes. We have determined that these minor changes:

- Are consistent with the intent that was proposed in the SNPRM for correcting the unsafe condition; and
- Do not add any additional burden upon the public than was already proposed in the SNPRM.

## **Costs of Compliance**

We estimate that this AD affects 2 airplanes of U.S. registry.

The actions required by AD 2011-24-06 and retained in this AD take about 3 work-hours per product, at an average labor rate of \$85 per work-hour. Based on these figures, the estimated cost of the actions that are required by AD 2011-24-06 is \$255 per product.

We also estimate that it would take about 1 work-hour per product to comply with the basic requirements of this AD. The average labor rate is \$85 per work-hour. Based on these figures, we estimate the cost of this AD on U.S. operators to be \$170, or \$85 per product.

## **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**

We determined that 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 the 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 removing Airworthiness Directive (AD) 2011-24-06, Amendment 39-16870 (76 FR 73477, November 29, 2011), and adding the following new AD:



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**2017-12-08 BAE Systems (Operations) Limited:** Amendment 39-18923; Docket No. FAA-2016-4220; Directorate Identifier 2015-NM-076-AD.

**(a) Effective Date**

This AD is effective July 20, 2017.

**(b) Affected ADs**

This AD replaces AD 2011-24-06, Amendment 39-16870 (76 FR 73477, November 29, 2011) (“AD 2011-24-06”).

**(c) Applicability**

This AD applies to BAE Systems (Operations) Limited Model BAe 146-100A, -200A, and -300A airplanes; and Model Avro 146-RJ70A, 146-RJ85A, and 146-RJ100A airplanes; certificated in any category; all serial numbers.

**(d) Subject**

Air Transport Association (ATA) of America Code 05, Periodic Inspections.

**(e) Reason**

This AD was prompted by a determination that new or revised structural inspection requirements are necessary. We are issuing this AD to detect and correct fatigue cracking of certain structural elements, which could adversely affect the structural integrity of the airplane.

**(f) Compliance**

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

**(g) Retained Airworthiness Limitations Revisions of the Shock Absorber Assemblies, With No Changes**

This paragraph restates the requirements of paragraph (j) of AD 2011-24-06, with no changes. Within 90 days after January 3, 2012 (the effective date of AD 2011-24-06), revise the maintenance program, by incorporating Subject 05-10-15, “Aircraft Equipment Airworthiness Limitations” of Chapter 05, “Time Limits/Maintenance Checks,” of the BAE Systems (Operations) Limited BAe 146 Series/Avro 146-RJ Series Aircraft Maintenance Manual (AMM), Revision 104, dated April 15, 2011, to remove life limits on shock absorber assemblies, but not the individual shock absorber components, amend life limits on main landing gear (MLG) up-locks and door up-locks, and to introduce and amend life limits on MLG components. Accomplishing the actions required by paragraph (i) of this AD terminates the actions required by this paragraph.

**(h) Retained No Alternative Actions, Intervals, and/or Critical Design Configuration Control Limitations (CDCCLs), With No Changes**

This paragraph restates the requirements of paragraph (k) of AD 2011-24-06, with no changes. Except as specified in paragraph (i) of this AD: After accomplishing the revision required by paragraph (g) of this AD, no alternative actions (e.g., inspections), intervals, and/or CDCCLs may be used, unless the actions, intervals, and/or CDCCLs are approved as an alternative method of compliance (AMOC) in accordance with the procedures specified in paragraph (k)(1) of this AD.

**(i) New Revision to the Maintenance or Inspection Program**

Within 90 days after the effective date of this AD: Revise the maintenance or inspection program, as applicable, to incorporate new and revised limitations, tasks, thresholds, and intervals using a method approved by the Manager, International Branch, ANM-116, Transport Airplane Directorate, FAA. Accomplishing the actions required by this paragraph terminates the actions required by paragraph (g) of this AD.

Note 1 to paragraph (i) of this AD: An additional source of guidance for the actions specified in paragraph (i) of this AD can be found in BAe 146/AVRO 146-RJ Airplane Maintenance Manual, Revision 112, dated October 15, 2013.

Note 2 to paragraph (i) of this AD: An additional source of guidance for the actions specified in paragraph (i) of this AD can be found in Corrosion Prevention Control Program (CPCP) Document No. CPCP-146-01, Revision 4, dated September 15, 2010.

Note 3 to paragraph (i) of this AD: An additional source of guidance for the actions specified in paragraph (i) of this AD can be found in Supplemental Structural Inspections Document (SSID) Document No. SSID-146-01, Revision 2, dated August 15, 2012.

Note 4 to paragraph (i) of this AD: An additional source of guidance for the actions specified in paragraph (i) of this AD can be found in Maintenance Review Board Report Document No. MRB 146-01, Issue 2, Revision 19, dated August 2012.

Note 5 to paragraph (i) of this AD: An additional source of guidance for the actions specified in paragraph (i) of this AD can be found in BAE Systems (Operations) Limited Inspection Service Bulletin ISB.53-237, Revision 1, dated April 2, 2013.

**(j) New No Alternative Actions, Intervals, and/or CDCCLs**

After accomplishment of the revision required by paragraph (i) of this AD, no alternative actions (e.g., inspections), intervals, and/or CDCCLs may be used, unless the actions, intervals, and/or CDCCLs are approved as an AMOC in accordance with the procedures specified in paragraph (k)(1) of this AD.

**(k) Other FAA AD Provisions**

The following provisions also apply to this AD:

(1) Alternative Methods of Compliance (AMOCs): The Manager, International Branch, ANM-116, Transport Airplane Directorate, 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 International Branch, send it to the attention of the person identified in paragraph (l)(2) of this AD. Information may be emailed to: 9-ANM-116-AMOC-REQUESTS@faa.gov. 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.

(2) Contacting the Manufacturer: As of the effective date of this AD, for any requirement in this AD to obtain corrective actions from a manufacturer, the action must be accomplished using a method approved by the Manager, International Branch, ANM-116, Transport Airplane Directorate, FAA; or the European Aviation Safety Agency (EASA); or BAE Systems (Operations) Limited's EASA Design Organization Approval (DOA). If approved by the DOA, the approval must include the DOA-authorized signature.

**(l) Related Information**

(1) Refer to Mandatory Continuing Airworthiness Information (MCAI) EASA Airworthiness Directive 2014-0071, dated March 19, 2014, for related information. This MCAI may be found in the AD docket on the Internet at <http://www.regulations.gov> by searching for and locating Docket No. FAA-2016-4220.

(2) For more information about this AD, contact Todd Thompson, Aerospace Engineer, International Branch, ANM-116, Transport Airplane Directorate, FAA, 1601 Lind Avenue SW., Renton, WA 98057-3356; telephone 425-227-1175; fax 425-227-1149.

**(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 this AD specifies otherwise.

(3) The following service information was approved for IBR on January 3, 2012 (76 FR 73477, November 29, 2011).

(i) Subject 05-10-15, "Aircraft Equipment Airworthiness Limitations" of Chapter 05, "Time Limits/Maintenance Checks," of the BAE Systems (Operations) Limited BAe 146 Series/Avro 146-RJ Series Aircraft Maintenance Manual, Revision 104, dated April 15, 2011.

(ii) Reserved.

(4) For service information identified in this AD, contact BAE Systems (Operations) Limited, Customer Information Department, Prestwick International Airport, Ayrshire, KA9 2RW, Scotland, United Kingdom; telephone +44 1292 675207; fax +44 1292 675704; email [RApublications@baesystems.com](mailto:RApublications@baesystems.com); Internet <http://www.baesystems.com/Businesses/RegionalAircraft/index.htm>.

(5) You may view this 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.

(6) 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 June 2, 2017.  
Michael Kaszycki,  
Acting Manager, Transport Airplane Directorate,  
Aircraft Certification Service.