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## **DEPARTMENT OF TRANSPORTATION**

### **Federal Aviation Administration**

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

**[Docket No. FAA-2011-0908; Directorate Identifier 2010-NM-251-AD; Amendment 39-16870; AD 2011-24-06]**

**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 an existing airworthiness directive (AD) that applies 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. This AD results from mandatory continuing airworthiness information (MCAI) originated by an aviation authority of another country to identify and correct an unsafe condition on an aviation product. The MCAI describes the unsafe condition as:

\* \* \* \* \*

\* \* \* BAE Systems (Operations) Limited amended Chapter 05-10-15 of the AMM [aircraft maintenance manual] to introduce a new hydraulic filter assembly life limit and to remove the tables containing the Mandatory Life Limitations (Landings) on the Bolts and Pins as the information is now included in the SSID [supplemental structural inspection document] which is already mandated by the same AD. In addition, BAE Systems amended Chapter 05-10-15 of the AMM to enable the use of RJ85 MLG [main landing gear] main fittings for lighter weight 146-200 aircraft using the same safe life of 50,000 Flight Cycles (FC) and the use of RJ100 MLG main fittings for lighter weight RJ85, 146-200 and 146-300 aircraft using the same safe life of 40,000 FC.

\* \* \* \* \*

The unsafe condition is fatigue cracking of certain structural elements which could adversely affect the structural integrity of these airplanes. We are issuing this AD to require actions to correct the unsafe condition on these products.

**DATES:** This AD becomes effective January 3, 2012.

The Director of the Federal Register approved the incorporation by reference of a certain publication listed in this AD as of January 3, 2012.

The Director of the Federal Register approved the incorporation by reference of a certain other publication listed in this AD as of June 25, 2010 (75 FR 28463, May 21, 2010).

**ADDRESSES:** You may examine the AD docket on the Internet at <http://www.regulations.gov> or in person at the U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE., Washington, DC.

**FOR FURTHER INFORMATION CONTACT:** Todd Thompson, Aerospace Engineer, International Branch, ANM-116, Transport Airplane Directorate, FAA, 1601 Lind Avenue SW., Renton, Washington 98057-3356; phone: (425) 227-1175; fax: (425) 227-1149.

## **SUPPLEMENTARY INFORMATION:**

### **Discussion**

We issued a notice of proposed rulemaking (NPRM) to amend 14 CFR part 39 to include an AD that would apply to the specified products. That NPRM was published in the Federal Register on August 26, 2011 (76 FR 53348), and proposed to supersede AD 2010-10-22, Amendment 39-16301 (75 FR 28463, May 21, 2010). That NPRM proposed to correct an unsafe condition for the specified products.

Since we issued AD 2010-10-22, Amendment 39-16301 (75 FR 28463, May 21, 2010), we have determined that new life limits on certain MLG components are necessary. The European Aviation Safety Agency (EASA), which is the Technical Agent for the Member States of the European Community, has issued EASA Airworthiness Directive 2010-0166, dated August 6, 2010 (referred to after this as "the MCAI"), to correct an unsafe condition for the specified products. The MCAI states:

The BAe 146/AVRO 146-RJ Aircraft Maintenance Manual (AMM) includes chapters 05-10 "Time Limits", 05-15 "Critical Design Configuration Control Limitations (CDCCL)–Fuel System Description and Operation" and 05-20 "Scheduled Maintenance Checks", some sub-chapters of which have been identified as requirements for continued airworthiness and [EASA] AD 2009-0215 [which corresponds to FAA AD 2010-10-22, Amendment 39-16301 (75 FR 28463, May 21, 2010)] was issued to require operators to comply with those instructions.

Since the issuance of that AD [2009-0215], BAE Systems (Operations) Limited has amended the AMM to remove the life limits on shock absorber assemblies, but not the individual shock absorber components, and amend the life limits on the different standards of Main Landing Gear (MLG) Up-Locks and MLG Door Up-Locks in sub-chapter 05-10-15. In addition BAE Systems has amended Chapter 05-10-15 of the AMM to introduce and amend life limits on MLG components.

For the reasons described above, this [EASA] AD amends the requirements of AD 2009-0215, which is superseded, and requires the implementation of the instructions, limitations, inspections and corrective measures as specified in the defined parts of Chapter 05 of the AMM at Revision 100.

The unsafe condition is fatigue cracking of certain structural elements which could adversely affect the structural integrity of these airplanes. You may obtain further information by examining the MCAI in the AD docket.

## **Comments**

We gave the public the opportunity to participate in developing this AD. We received no comments on the NPRM (76 FR 53348, August 26, 2011) or on the determination of the cost to the public.

## **Changes to the AD**

Since we issued the NPRM (76 FR 53348, August 26, 2011), we have reviewed EASA AD 2011-0048, dated March 18, 2011, which supersedes EASA AD 2010-0166, dated August 6, 2010, and has no substantive changes. The actions required by this AD correspond with the actions specified in EASA AD 2011-0048, dated March 18, 2011. We have revised the Summary and paragraphs (e) and (m) of this AD to refer to EASA AD 2011-0048, dated March 18, 2011. No other changes have been made to this AD.

## **Conclusion**

We reviewed the available data and determined that air safety and the public interest require adopting the AD with the changes described previously. We determined that these changes will not increase the economic burden on any operator or increase the scope of the AD.

## **Differences Between This AD and the MCAI or Service Information**

We have reviewed the MCAI and related service information and, in general, agree with their substance. But we might have found it necessary to use different words from those in the MCAI to ensure the AD is clear for U.S. operators and is enforceable. In making these changes, we do not intend to differ substantively from the information provided in the MCAI and related service information.

We might also have required different actions in this AD from those in the MCAI in order to follow our FAA policies. Any such differences are highlighted in a Note within the AD.

## **Costs of Compliance**

We estimate that this AD will affect about 2 products of U.S. registry.

The actions that are required by AD 2010-10-22, Amendment 39-16301 (75 FR 28463, May 21, 2010) and retained in this AD take about 2 work-hours per product, at an average labor rate of \$85 per work-hour. Required parts cost about \$0 per product. Based on these figures, the estimated cost of the currently required actions is \$170 per product.

We estimate that it will take about 1 work-hour per product to comply with the new 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 to the 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 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); 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.

We prepared a regulatory evaluation of the estimated costs to comply with this AD and placed it in the AD docket.

## **Examining the AD Docket**

You may examine the AD docket on the Internet at <http://www.regulations.gov>; or in person at the Docket Operations office between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains the NPRM (76 FR 53348, August 26, 2011), the regulatory evaluation, any comments received, and other information. The street address for the Docket Operations office (telephone (800) 647-5527) is in the ADDRESSES section. Comments will be available in the AD docket shortly after receipt.

## **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 Amendment 39-16301 (75 FR 28463, May 21, 2010) and adding the following new AD:



**2011-24-06 BAE SYSTEMS (Operations) Limited:** Amendment 39-16870. Docket No. FAA-2011-0908; Directorate Identifier 2010-NM-251-AD.

**Effective Date**

(a) This airworthiness directive (AD) becomes effective January 3, 2012.

**Affected ADs**

(b) This AD supersedes AD 2010-10-22, Amendment 39-16301 (75 FR 28463, May 21, 2010).

**Applicability**

(c) This AD applies 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; certificated in any category.

**Note 1:** This AD requires revisions to certain operator maintenance documents to include new actions (e.g., inspections) and/or Critical Design Configuration Control Limitations (CDCCLs). Compliance with these actions and/or CDCCLs is required by 14 CFR 91.403(c). For airplanes that have been previously modified, altered, or repaired in the areas addressed by this AD, the operator may not be able to accomplish the actions described in the revisions. In this situation to comply with 14 CFR 91.403(c), the operator must request approval of an alternative method of compliance (AMOC) according to paragraph (1)(1) of this AD. The request should include a description of changes to the required actions that will ensure the continued operational safety of the airplane.

**Subject**

(d) Air Transport Association (ATA) of America Code 05.

**Reason**

(e) The mandatory continuing airworthiness information (MCAI) states:

\* \* \* \* \*

\* \* \* BAE Systems (Operations) Limited amended Chapter 05-10-15 of the AMM [aircraft maintenance manual] to introduce a new hydraulic filter assembly life limit and to remove the tables containing the Mandatory Life Limitations (Landings) on the Bolts and Pins as the information is now included in the SSID [Supplemental Structural Inspection Document] which is already mandated by the same AD. In addition, BAE Systems amended Chapter 05-10-15 of the AMM to enable the use of RJ85 MLG [main landing gear] main fittings for lighter weight 146-200 aircraft using the same safe life of 50,000 Flight Cycles (FC) and the use of RJ100 MLG main fittings for lighter weight RJ85, 146-200 and 146-300 aircraft using the same safe life of 40,000 FC.

\* \* \* \* \*

## Compliance

(f) You are responsible for having the actions required by this AD performed within the compliance times specified, unless the actions have already been done.

### **Restatement of Certain Requirements of AD 2010-10-22, Amendment 39-16301 (75 FR 28463, May 21, 2010)**

#### **New Airworthiness Limitations Revisions**

(g) Within 90 days after June 25, 2010 (the effective date of AD 2010-10-22, Amendment 39-16301 (75 FR 28463, May 21, 2010)), revise the maintenance program, by incorporating Chapter 5 of the BAE SYSTEMS (Operations) Limited BAe146 Series/Avro 146-RJ Series AMM to incorporate new and more restrictive life limits for certain items and new and more restrictive inspections to detect fatigue cracking in certain structures, and to add fuel system critical design configuration control limitations (CDCCLs) to prevent ignition sources in the fuel tanks, in accordance with a method approved by the Manager, International Branch, ANM-116, Transport Airplane Directorate, FAA; or the European Aviation Safety Agency (EASA) (or its delegated agent).

#### **Note 2:**

Guidance on revising Chapter 5 of the BAE SYSTEMS (Operations) Limited BAe146 Series/Avro 146-RJ Series AMM, Revision 97, dated July 15, 2009, can be found in the applicable sub-chapters listed in Table 1 of this AD.

**Table 1–Applicable AMM Sub-Chapters**

<b>AMM Sub-chapter</b>	<b>Subject</b>
05-10-01	Airframe Airworthiness Limitations before Life Extension Programme
05-10-05 <sup>1</sup>	Airframe Airworthiness Limitations, Life Extension Programme Landings Life Extended
05-10-10 <sup>2</sup>	Airframe Airworthiness Limitations, Life Extension Programme Calendar Life Extended
05-10-15	Aircraft Equipment Airworthiness Limitations
05-10-17	Power Plant Airworthiness Limitations
05-15-00	Critical Design Configuration Control Limitations (CDCCL) - Fuel System Description and Operation
05-20-00 <sup>3</sup>	Scheduled Maintenance
05-20-01	Airframe Scheduled Maintenance – Before Life Extension Programme
05-20-05 <sup>1</sup>	Airframe Scheduled Maintenance – Life Extension Programme Landings Life Extended
05-20-10 <sup>2</sup>	Airframe Scheduled Maintenance – Life Extension Programme Calendar Life Extended

AMM Sub-chapter	Subject
05-20-15	Aircraft Equipment Scheduled Maintenance

<sup>1</sup>Applicable only to airplanes post-modification HCM20011A or HCM20012A or HCM20013A.

<sup>2</sup>Applicable only to airplanes post-modification HCM20010A.

<sup>3</sup>Paragraphs 5 and 6 only, on the Corrosion Prevention and Control Program (CPCP) and the Supplemental Structural Inspection Document (SSID).

**Note 3:** Sub-chapter 05-15-00 of the BAE SYSTEMS (Operations) Limited BAe146 Series/Avro 146-RJ Series AMM, is the CDCCL.

**Note 4:** Within Sub-chapter 05-20-00 of the BAE SYSTEMS (Operations) Limited BAe146 Series/Avro 146-RJ Series AMM, the relevant issues of the support documents are as follows: BAE SYSTEMS (Operations) Limited BAe 146 Series/Avro 146-RJ Corrosion Prevention and Control Program Document CPCP-146-01, Revision 3, dated July 15, 2008, including BAE SYSTEMS (Operations) Limited Temporary Revision (TR) 2.1, dated December 2008; and BAE SYSTEMS (Operations) Limited BAe146 Series Supplemental Structural Inspection Document SSID-146-01, Revision 1, dated June 15, 2009.

**Note 5:** Within Sub-chapter 05-20-01 of the BAE SYSTEMS (Operations) Limited BAe146 Series/Avro146-RJ Series AMM, the relevant issue of BAE SYSTEMS (Operations) Limited BAe 146/Avro 146-RJ Maintenance Review Board Report Document MRB 146-01, Issue 2, is Revision 15, dated March 2009 (mis-identified in EASA AD 2009-0215, dated October 7, 2009, as being dated May 2009).

**Note 6:** Notwithstanding any other maintenance or operational requirements, components that have been identified as airworthy or installed on the affected airplanes before revision of Chapter 5 of the AMM, as required by paragraph (g) of this AD, do not need to be reworked in accordance with the CDCCLs. However, once the ALS or AMM has been revised, future maintenance actions on these components must be done in accordance with the CDCCLs.

(h) Except as specified in paragraphs (i) and (j) of this AD: After the actions specified in paragraph (g) of this AD have been accomplished, no alternative inspections or inspection intervals may be approved for the structural elements specified in the documents listed in paragraph (g) of this AD.

(i) Modifying the main fittings of the main landing gear in accordance with Messier-Dowty Service Bulletin 146-32-171, dated August 11, 2009, extends the safe limit of the main landing gear main fitting from 32,000 landings to 50,000 landings on the main fitting.

## **New Requirements of This AD**

### **New Airworthiness Limitations Revisions**

(j) Within 90 days after the effective date of this AD, 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 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 MLG up-locks and door up-locks, and to introduce and amend life limits on MLG components. Incorporating the new life limits and inspections into the maintenance program terminates the

requirements of paragraph (g) of this AD for 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 AMM, Revision 104, dated April 15, 2011, and after incorporation has been done, the limitations required by paragraph (g) of this AD for 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 AMM, Revision 104, dated April 15, 2011, may be removed from the maintenance program.

### **No Alternative Actions, Intervals, and/or Critical Design Configuration Control Limitations (CDCCLs)**

(k) After accomplishing the revision required by paragraph (j) 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 (l)(1) of this AD.

### **FAA AD Differences**

**Note 7:** This AD differs from the MCAI and/or service information as follows: No differences.

### **Other FAA AD Provisions**

(l) The following provisions also apply to this AD:

(1) Alternative Methods of Compliance (AMOCs): The Manager, International Branch, ANM-116, 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 ATTN: Todd Thompson, Aerospace Engineer, International Branch, ANM-116, Transport Airplane Directorate, FAA, 1601 Lind Avenue SW., Renton, Washington 98057-3356; telephone (425) 227-1175; fax (425) 227-1149. 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. The AMOC approval letter must specifically reference this AD.

(2) Airworthy Product: For any requirement in this AD to obtain corrective actions from a manufacturer or other source, use these actions if they are FAA-approved. Corrective actions are considered FAA-approved if they are approved by the State of Design Authority (or their delegated agent). You are required to assure the product is airworthy before it is returned to service.

### **Related Information**

(m) Refer to MCAI EASA Airworthiness Directive 2011-0048, dated March 18, 2011; 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 AMM, Revision 104, dated April 15, 2011; and Messier-Dowty Service Bulletin 146-32-171, dated August 11, 2009; for related information.

## Material Incorporated by Reference

(n) You must use 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 do the applicable actions required by this AD, unless the AD specifies otherwise. If you do the optional modification specified in this AD, you must use Messier-Dowty Service Bulletin 146-32-171, dated August 11, 2009, to do those actions, unless the AD specifies otherwise. Only the transmittal letter and Chapter 05 List of Effective Pages contain the date of Revision 104 of the BAE Systems (Operations) Limited BAe 146 Series/Avro 146-RJ Series AMM.

(1) The Director of the Federal Register approved the incorporation by reference of 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 AMM, Revision 104, dated April 15, 2011, under 5 U.S.C. 552(a) and 1 CFR part 51.

(2) The Director of the Federal Register previously approved the incorporation by reference of Messier-Dowty Service Bulletin 146-32-171, dated August 11, 2009, on June 25, 2010 (75 FR 28463, May 21, 2010).

(3) For BAE Systems (Operations) Limited 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; Internet <http://www.baesystems.com/Businesses/RegionalAircraft/index.htm>.

(4) For Messier-Dowty service information identified in this AD, contact Messier-Dowty: Messier Services Americas, Customer Support Center, 45360 Severn Way, Sterling, Virginia 20166-8910; telephone (703) 450-8233; fax (703) 404-1621; Internet <https://techpubs.services/messier-dowty.com>.

(5) You may review copies of the service information at the 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.

(6) You may also review copies of the 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/code\\_of\\_federal\\_regulations/ibr\\_locations.html](http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html).

Issued in Renton, Washington, on November 8, 2011.

Kalene C. Yanamura,  
Acting Manager, Transport Airplane Directorate,  
Aircraft Certification Service.