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## **DEPARTMENT OF TRANSPORTATION**

### **Federal Aviation Administration**

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

**[Docket No. FAA-2010-0056; Directorate Identifier 2009-CE-051-AD; Amendment 39-16259; AD 2010-08-04]**

**RIN 2120-AA64**

**Airworthiness Directives; British Aerospace Regional Aircraft Model HP.137 Jetstream Mk.1, Jetstream Series 200, Jetstream Series 3101, and Jetstream Model 3201 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) for the products listed above. This AD results from mandatory continuing airworthiness information (MCAI) issued 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:

Cracks have been found in the NLG steering jack piston rod adjacent to the eye-end. This was caused by excessive torque which had been applied to the eye-end during assembly of the unit. Severe cracking, if not detected and corrected, can cause the jack to fail during operation, which may lead to loss of directional control of the aeroplane during critical phases of take-off and landing.

We are issuing this AD to require actions to correct the unsafe condition on these products.

**DATES:** This AD becomes effective May 19, 2010.

On May 19, 2010, the Director of the Federal Register approved the incorporation by reference of British Aerospace Jetstream Series 3100 & 3200 Service Bulletin No. 32-JA030644, Revision No. 1, dated August 19, 2008; British Aerospace Jetstream Series 3100 & 3200 Service Bulletin No. 32-JM5414, dated August 6, 2004; and APPH Ltd. Bulletin 32-77, dated October 2003, listed in this AD.

As of June 26, 2007 (72 FR 28587, May 22, 2007), the Director of the Federal Register approved the incorporation by reference of BAE Systems British Aerospace Jetstream Series 3100 & 3200 Service Bulletin 32-JA030644, dated October 6, 2003; and APPH Ltd. Service Bulletin 32-76, Revision 1, dated August 2003, listed in this AD.

As of May 22, 2003 (68 FR 16195, April 3, 2003), the Director of the Federal Register approved the incorporation by reference of British Aerospace Jetstream Series 3100 & 3200 Service Bulletin No. 32-JA020741, dated November 2, 2002.

**ADDRESSES:** You may examine the AD docket on the Internet at <http://www.regulations.gov> or in person at the 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:** Taylor Martin, Aerospace Engineer, FAA, Small Airplane Directorate, 901 Locust, Room 301, ACE-112, Kansas City, Missouri 64106; telephone: (816) 329-4138; fax: (816) 329-4090.

## **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 January 21, 2010 (75 FR 3418), and proposed to supersede AD 2007-10-14, Amendment 39-15055 (72 FR 28587, May 22, 2007). That NPRM proposed to correct an unsafe condition for the specified products. The MCAI states that:

Cracks have been found in the NLG steering jack piston rod adjacent to the eye-end. This was caused by excessive torque which had been applied to the eye-end during assembly of the unit. Severe cracking, if not detected and corrected, can cause the jack to fail during operation, which may lead to loss of directional control of the aeroplane during critical phases of take-off and landing.

To address this unsafe condition, the UK CAA issued AD 003-11-2002 (which references BAE Systems Service Bulletin (SB) 32-JA020741), requiring an inspection for cracks and a measurement of the release torque of the piston rod end fitting to determine a new safe life (remaining fatigue life) for individual units. The revised safe life was calculated in accordance with the formula provided in associated APPH Ltd (the NLG Jack manufacturer) SB 32-76.

Following the completion of testing, APPH determined that the remaining fatigue life needed further reduction and published inspection criteria and a revised formula for calculating the piston safe life. This calculation and a revised end fitting tightening torque are contained in APPH SB 32-76 Revision 1. As a result, pistons which were previously calculated to have significant remaining life could possibly be unserviceable.

In response to this development, BAE Systems issued SB 32-JA030644 so that a revised calculation could be performed to establish the safe life of NLG steering jack pistons. Where not previously accomplished, the SB also recognised the need to inspect the piston for cracking and to measure the torque loading of the piston to eye-end joint so that safe life calculation could be performed. This SB superseded the earlier SB 32-JA020741 that produced an overly optimistic assessment of the component's safe life. The CAA UK issued AD G-2004-0029, superseding AD 003-11-2002, to require the accomplishment of these corrective actions.

Subsequent to the original issue of BAE Systems SB 32-JA030644, APPH introduced a modified unit (optionally installed on aeroplanes by application of BAE Systems SB 32-JM5414) that incorporates a strengthened piston with a defined safe life. This safe life is not calculated in accordance with the instructions of BAE Systems SB 32-JA030644, but is already declared in BAE Systems SB 32-JA981042, currently at revision 7. In response to requests for clarification, BAE Systems has revised SB 32-JA030644 to exclude those aeroplanes from the 'Effectivity' that have the modified steering jack assembly installed in accordance with BAE modification JM5414.

For the reasons described above, this new AD retains the requirements of UK CAA AD G-2004-0029, which is superseded, and confirms that for aeroplanes incorporating BAE modification JM5414, no further action is required.

## **Comments**

We gave the public the opportunity to participate in developing this AD. We received no comments on the NPRM 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 the AD as proposed.

## **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 FAA policies. Any such differences are highlighted in a Note within the AD.

## **Costs of Compliance**

We estimate that this AD will affect 190 products of U.S. registry. We also estimate that it will take about 2 work-hours 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 to the U.S. operators to be \$32,300, or \$170 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 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 Management Facility between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains the NPRM, the regulatory evaluation, any comments received, and other information. The street address for the Docket 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 39-15055 (72 FR 28587; May 22, 2007), and adding the following new AD:



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**2010-08-04 British Aerospace Regional Aircraft:** Amendment 39-16259; Docket No. FAA-2010-0056; Directorate Identifier 2009-CE-051-AD.

**Effective Date**

- (a) This airworthiness directive (AD) becomes effective May 19, 2010.

**Affected ADs**

- (b) This AD supersedes AD 2007-10-14, Amendment 39-15055.

**Applicability**

- (c) This AD applies to Model HP.137 Jetstream Mk.1, Jetstream Series 200, Jetstream Series 3101, and Jetstream Model 3201 airplanes, all serial numbers, that are:
  - (1) Equipped with steering jack part number (P/N) 6182-2, P/N 6182-3, or P/N 6182-4; and
  - (2) Certificated in any category.

**Subject**

- (d) Air Transport Association of America (ATA) Code 32: Landing Gear.

**Reason**

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

Cracks have been found in the NLG steering jack piston rod adjacent to the eye-end. This was caused by excessive torque which had been applied to the eye-end during assembly of the unit. Severe cracking, if not detected and corrected, can cause the jack to fail during operation, which may lead to loss of directional control of the aeroplane during critical phases of take-off and landing.

To address this unsafe condition, the UK CAA issued AD 003-11-2002 (which references BAE Systems Service Bulletin (SB) 32-JA020741), requiring an inspection for cracks and a measurement of the release torque of the piston rod end fitting to determine a new safe life (remaining fatigue life) for individual units. The revised safe life was calculated in accordance with the formula provided in associated APPH Ltd (the NLG Jack manufacturer) SB 32-76.

Following the completion of testing, APPH determined that the remaining fatigue life needed further reduction and published inspection criteria and a revised formula for calculating the piston safe life. This calculation and a revised end fitting tightening torque are contained in APPH SB 32-76 Revision 1. As a result, pistons which were previously calculated to have significant remaining life could possibly be unserviceable.

In response to this development, BAE Systems issued SB 32-JA030644 so that a revised calculation could be performed to establish the safe life of NLG steering jack pistons. Where not previously accomplished, the SB also recognised the need to inspect the piston for cracking and to measure the torque loading of the piston to eye-end joint so that safe life calculation could be performed. This SB superseded the earlier SB 32-JA020741 that produced an overly optimistic assessment of the component's safe life. The CAA UK issued AD G-2004-0029, superseding AD 003-11-2002, to require the accomplishment of these corrective actions.

Subsequent to the original issue of BAE Systems SB 32-JA030644, APPH introduced a modified unit (optionally installed on aeroplanes by application of BAE Systems SB 32-JM5414) that incorporates a strengthened piston with a defined safe life. This safe life is not calculated in accordance with the instructions of BAE Systems SB 32-JA030644, but is already declared in BAE Systems SB 32-JA981042, currently at revision 7. In response to requests for clarification, BAE Systems has revised SB 32-JA030644 to exclude those aeroplanes from the 'Effectivity' that have the modified steering jack assembly installed in accordance with BAE modification JM5414.

For the reasons described above, this new AD retains the requirements of UK CAA AD G-2004-0029, which is superseded, and confirms that for aeroplanes incorporating BAE modification JM5414, no further action is required.

## **Actions and Compliance**

(f) Unless already done, do the following actions:

(1) For airplanes where the actions in British Aerospace Jetstream Series 3100 & 3200 Service Bulletin No. 32-JA020741, dated November 2, 2002 (APPH Ltd. Service Bulletin 32-76, Revision 1, dated August 2003), have not already been done:

(i) Within 2 months after June 26, 2007 (the effective date retained from AD 2007-10-14), inspect the steering jack piston rod, check the torque of the end fitting, and determine the safe life of the steering jack piston rod following BAE Systems British Aerospace Jetstream Series 3100 & 3200 Service Bulletin 32-JA030644, dated October 6, 2003. You may do the actions required in this paragraph following paragraph 2, Part 1 of British Aerospace Jetstream Series 3100 & 3200 Service Bulletin No. 32-JA030644, Revision No. 1, dated August 19, 2008, to comply with this AD.

(ii) If the piston rod is found cracked or unserviceable during the inspection required in paragraph (f)(1)(i) of this AD, before further flight, remove the steering jack and replace it with a serviceable unit.

(2) For airplanes where the actions in BAE British Aerospace Jetstream Series 3100 & 3200 Service Bulletin No. 32-JA020741, dated November 2, 2002 (APPH Ltd. Service Bulletin 32-76, Revision 1, dated August 2003), have already been done:

(i) Within 3 months after June 26, 2007 (the effective date retained from AD 2007-10-14), recalculate the safe life of the steering jack piston rod and re-torque the piston rod eye-end following BAE Systems British Aerospace Jetstream Series 3100 & 3200 Service Bulletin 32-JA030644, dated October 6, 2003. You may do the actions required in this paragraph following paragraph 2, Part 2 of British Aerospace Jetstream Series 3100 & 3200 Service Bulletin No. 32-JA030644, Revision No. 1, dated August 19, 2008, to comply with this AD.

(ii) If the piston rod is found unserviceable during the inspection required in paragraph (f)(2)(i) of this AD, before further flight, remove the steering jack and replace it with a serviceable unit.

(3) For airplanes equipped with steering jack part number (P/N) 6182-2, P/N 6182-3, or P/N 6182-4 incorporating Strike-off 4, installed by BAE Systems modification JM5414 (refer to British Aerospace Jetstream Series 3100 & 3200 Service Bulletin No. 32-JM5414, dated August 6, 2004; and

APPH Ltd. Bulletin 32-77, dated October 2003): the actions specified in paragraph (f)(1), (f)(1)(i), (f)(1)(ii), (f)(2), (f)(2)(i), or (f)(2)(ii) of this AD are not required.

(4) For all airplanes: After June 26, 2007 (the effective date retained from AD 2007-10-14), do not install a steering jack piston rod with P/N 6182-2, P/N 6182-3, or P/N 6182-4, unless it has been inspected and the safe life recalculated following BAE Systems British Aerospace Jetstream Series 3100 & 3200 Service Bulletin 32-JA030644, dated October 6, 2003. You may inspect and recalculate the safe life of the steering jack piston rod following paragraph 2 of British Aerospace Jetstream Series 3100 & 3200 Service Bulletin No. 32-JA030644, Revision No. 1, dated August 19, 2008, to comply with this AD.

## **FAA AD Differences**

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

## **Other FAA AD Provisions**

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

(1) Alternative Methods of Compliance (AMOCs): The Manager, Standards Office, FAA, has the authority to approve AMOCs for this AD, if requested using the procedures found in 14 CFR 39.19. Send information to ATTN: Taylor Martin, Aerospace Engineer, FAA, Small Airplane Directorate, 901 Locust, Room 301, Kansas City, Missouri 64106; telephone: (816) 329-4138; fax: (816) 329-4090. Before using any approved AMOC on any airplane to which the AMOC applies, notify your appropriate principal inspector (PI) in the FAA Flight Standards District Office (FSDO), or lacking a PI, your local FSDO.

(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.

(3) Reporting Requirements: For any reporting requirement in this AD, under the provisions of the Paperwork Reduction Act (44 U.S.C. 3501 et seq.), the Office of Management and Budget (OMB) has approved the information collection requirements and has assigned OMB Control Number 2120-0056.

## **Related Information**

(h) Refer to MCAI European Aviation Safety Agency (EASA) AD No.: 2009-0135, dated June 23, 2009; British Aerospace Jetstream Series 3100 & 3200 Service Bulletin No. 32-JA020741, dated November 2, 2002; BAE Systems British Aerospace Jetstream Series 3100 & 3200 Service Bulletin 32-JA030644, dated October 6, 2003; British Aerospace Jetstream Series 3100 & 3200 Service Bulletin No. 32-JA030644, Revision No. 1, dated August 19, 2008; British Aerospace Jetstream Series 3100 & 3200 Service Bulletin No. 32-JM5414, dated August 6, 2004; APPH Ltd. Service Bulletin 32-76, Revision 1, dated August 2003; and APPH Ltd. Service Bulletin 32-77, dated October 2003, for related information.

## **Material Incorporated by Reference**

(i) You must use British Aerospace Jetstream Series 3100 & 3200 Service Bulletin No. 32-JA020741, dated November 2, 2002; BAE Systems British Aerospace Jetstream Series 3100 & 3200 Service Bulletin 32-JA030644, dated October 6, 2003; British Aerospace Jetstream Series 3100 & 3200 Service Bulletin No. 32-JA030644, Revision No. 1, dated August 19, 2008; British Aerospace Jetstream Series 3100 & 3200 Service Bulletin No. 32-JM5414, dated August 6, 2004; APPH Ltd.

Service Bulletin 32-76, Revision 1, dated August 2003; and APPH Ltd. Service Bulletin 32-77, dated October 2003, to do the actions required by this AD, unless the AD specifies otherwise.

(1) The Director of the Federal Register approved the incorporation by reference of British Aerospace Jetstream Series 3100 & 3200 Service Bulletin No. 32-JA030644, Revision No. 1, dated August 19, 2008; British Aerospace Jetstream Series 3100 & 3200 Service Bulletin No. 32-JM5414, dated August 6, 2004; and APPH Ltd. Bulletin 32-77, dated October 2003, under 5 U.S.C. 552(a) and 1 CFR part 51.

(2) On June 26, 2007 (72 FR 28587, May 22, 2007), the Director of the Federal Register previously approved the incorporation by reference of BAE Systems British Aerospace Jetstream Series 3100 & 3200 Service Bulletin 32-JA030644, dated October 6, 2003; and APPH Ltd. Service Bulletin 32-76, Revision 1, dated August 2003.

(3) On May 22, 2003 (68 FR 16195, April 3, 2003), the Director of the Federal Register previously approved the incorporation by reference of British Aerospace Jetstream Series 3100 & 3200 Service Bulletin No. 32-JA020741, dated November 2, 2002.

(4) For service information identified in this AD, contact BAE Systems (Operations) Ltd, Customer Information Department, Prestwick International Airport, Ayrshire, KA9 2RW, Scotland, United Kingdom; Telephone +44 1292 675207, Facsimile +44 1292 675704; E-mail: [RApublications@baesystems.com](mailto:RApublications@baesystems.com).

(5) You may review copies of the service information incorporated by reference for this AD at the FAA, Central Region, Office of the Regional Counsel, 901 Locust, Kansas City, Missouri 64106. For information on the availability of this material at the Central Region, call (816) 329-3768.

(6) You may also review copies of the service information incorporated by reference for this AD 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 Kansas City, Missouri, on March 31, 2010.

Steven R. Thompson,  
Acting Manager, Small Airplane Directorate,  
Aircraft Certification Service.