EASA	AIRWORTHINESS DIRECTIVE
	PAD No.: 14-161 **Date: 31 October 2014** Note: This Proposed Airworthiness Directive (PAD) is issued by EASA, acting in accordance with Regulation (EC) No 216/2008 on behalf of the European Community, its Member States and of the European third countries that participate in the activities of EASA under Article 66 of that Regulation.

In accordance with the EASA Continuing Airworthiness Procedures, the Executive Director is proposing the issuance of an EASA Airworthiness Directive (AD), applicable to the aeronautical product(s) identified below.
All interested persons may send their comments, referencing the PAD Number above, to the e-mail address specified in the 'Remarks' section, prior to the consultation closing date indicated.

Design Approval Holder's Name:	**Type/Model designation(s):**
BAE SYSTEMS (Operations) Ltd	Jetstream Series 3100 and 3200

TCDS Number:	EASA.A.191
Foreign AD:	Not applicable
Supersedure:	This AD supersedes EASA AD 2013-0206 dated 09 September 2013.

ATA 32	**Landing Gear – Main Landing Gear – Modification / Inspection / Repair / Replacement**
Manufacturer(s):	British Aerospace PLC, British Aerospace (Commercial Aircraft) Ltd, British Aerospace Regional Aircraft Ltd, Jetstream Aircraft Ltd and British Aerospace (Operations) Ltd.
Applicability:	Jetstream Series 3100 and 3200 aeroplanes, all models, all serial numbers.
Reason:	Several cases of stress corrosion cracking of DTD 5094 standard Main Landing Gear (MLG) cylinders has been reported on Jetstream Series 3200 and 3100 aeroplanes. Prompted by these findings, The United Kingdom (UK) Civil Aviation Authority (CAA) issued AD 003-01-86 to require visual and non-destructive testing (NDT) inspections of the MLG assembly cylinder attachment spigot housing in accordance with BAE Systems (Operations) Ltd SB 32-A-JA851226. In 2012 an additional occurrence of Jetstream 3100 MLG failure after landing was reported, the subsequent investigation revealed stress corrosion cracking of the yoke pintle housing as a root cause of the MLG failure. Consequently EASA issued EASA AD 2013-0208 to require inspection of the MLG in accordance with BAE Systems (Operations) Ltd SB 32-A-JA851226 Revision 5 or later approved revisions to detect any crack, however, SB 32-A-JA851226 did not apply to aeroplanes equipped with MLG cylinders manufactured from L161 material, since that is not susceptible to stress corrosion. In order to prevent corrosion damage, which may lead to cracking, BAE Systems (Operations) Ltd issued SB 32-JM7862 to address degradation of the surface protection by placing a special washer over the forward face of the MLG spigot housing, which rotates with the spigot housing. EASA issued AD 2013-0206 to require

	modification of the left hand (LH) and right hand (RH) MLG in accordance with this SB. In 2014, a further event was reported, where the LH MLG of a Jetstream 3100 aeroplane collapsed during landing, this resulted in the aeroplane departing from the runway. The accident is still under investigation by the UK Air Accident Investigation Branch. Preliminary results of the investigation determined that cracking, which caused the MLG collapse, was initiated from a corrosion pit at the top outer edge of the forward spigot housing and extended along the top of the spigot housing. The spigot housing material was DTD 5094. The affected LH MLG had been modified in accordance with BAE Systems (Operations) Ltd SB 32-JM7862 Revision 1. Further investigation discovered that the instructions provided in BAE Systems (Operations) Ltd SB 32-JM7862 Revision 1 did not effectively prevent stress corrosion cracking because, under certain circumstances, it allows the rotation of the special washer and consequent damage of the end face of the spigot housing. This condition, if not corrected, could lead to structural failure of the MLG, possibly resulting in loss of control of the aeroplane during take-off or landing runs. To address this potential unsafe condition, BAE Systems (Operations) Ltd issued SB 32-JM7862 Revision 2 to clarify the orientation of the spigot bearing cap, later revised to SB 32-JM7862 Revision 3 to ensure the spigot bearing cap is correctly positioned. Additionally, BAE Systems (Operations) Ltd issued SB 32-A-JA140940 to provide inspection instructions to detect migration of the special washer and any potential corrosion resulting from that unwanted migration for MLG installations modified earlier in accordance with BAE Systems (Operations) Ltd SB 32-JM7862 up to Revision 2. For the reasons described above, this AD partially retains the requirements of EASA AD 2013-0206, which is superseded, and requires a one-time inspection of pre-SB 32-JM7862 Revision 3 MLG installations and, depending on findings, applicable corrective action(s).
Effective Date:	[TBD: 14 days after final AD issue date]
Required Action(s) and Compliance Time(s):	Required as indicated, unless accomplished previously: (1) Within the compliance time as specified in paragraph 1.N of BAE Systems (Operations) Ltd SB 32-JM7862, modify the installation of the LH and RH MLG at the forward spigot in accordance with the instructions of BAE Systems (Operations) Ltd SB 32-JM7862 Revision 3 (2) Modification of a LH or RH MLG, before the effective date of this AD, in accordance with the instructions of BAE Systems (Operations) Ltd SB 32-JM7862 at Revision 1 or Revision 2, is acceptable to comply with the requirements of paragraph (1) of this AD for that MLG. (3) **For aeroplanes that, before the effective date of this AD, have been modified in accordance with the instructions of paragraph 2.B. of BAE Systems SB32-JM7862 Revision 2:** Within the compliance time as defined in Table 1 of this AD, depending on MLG configuration, visually inspect the LH and RH MLG to detect migration of a special washer in accordance with the instruction of Part 1 of BAE Systems SB 32-A-JA140940.

Table 1 – Visual Inspection

MLG configuration	Compliance Time (after the effective date of this AD, whichever occurs first)
Equipped with DTD5094 cylinder	200 flight cycles (FC) or 2 months
Equipped with L161 cylinder	600 FC or 6 months

(4) If, during the inspection, as required by paragraph (3) of this AD, evidence of migration of the special washer is detected, within the compliance time as defined in Table 1 of this AD, accomplish all the actions on the MLG cylinder, LH and/or RH, as applicable, in accordance with the instructions of Part 2 of BAE Systems SB 32-A-JA140940.

(5) If during the inspection, as required by paragraph (3) of this AD, no evidence of migration of the special washer is detected, before next flight, apply a witness paint over the special washer tab and onto the MLG spigot housing (LH and RH MLG) in accordance with the instruction of Part 1 of BAE Systems SB 32-A-JA140940.

(6) **For aeroplanes that, before the effective date of this AD, have been modified in accordance with the instructions of paragraph 2.B. of BAE System SB32-JM7862 Revision 1:**

Within the compliance time as defined in Table 1 of this AD, depending on MLG configuration, accomplish all the actions on the MLG cylinder, LH and/or RH, as applicable, in accordance with the instructions of Part 2 of BAE Systems SB 32-A-JA140940.

(7) If, during any of the actions as required by paragraph (4) or (6) of this AD, as applicable, any wear, corrosion or damage (as defined in BAE Systems SB 32-A-JA140940) is detected, before next flight, accomplish all the corrective actions, including application of a witness paint, in accordance with the instructions of Part 2 of BAE Systems SB 32-A-JA140940.

(8) Within 45 days but not earlier than 30 days, or within 30 FC but not earlier than 20 FC after accomplishment of action as required by paragraph (3) or (6) of this AD, whichever occurs first, inspect the witness paint applied as required by paragraph (5) or (7) of this AD in accordance with the instructions of Part 3 of BAE Systems SB 32-A-JA140940.

(9) If, during the inspection as required by paragraph (8) of this AD, damaged paint is detected, before next flight, contact BAE Systems (Operations) Ltd to obtain approved repair instructions and within the compliance time indicated in those instructions accomplish the repair accordingly, including any maintenance tasks derived from the provided repair design.

(10) From the effective date of this AD, installation of a LH or RH MLG on an aeroplane is allowed, provided the MLG has passed the inspections as required by this AD.

Ref. Publications:

BAE Systems (Operations) Ltd 32-A-JA140940 original issue, dated 03 October 2014.

BAE Systems (Operations) Ltd 32-JM7862 Revision 1 dated 07 May 2013, or Revision 2 dated 13 June 2014, or Revision 3 dated 03 October 2014.

The use of later approved revisions of these documents is acceptable for compliance with the requirements of this AD.

Remarks:	1. This Proposed AD will be closed for consultation on 28 November 2014. 2. Enquiries regarding this PAD should be referred to the Safety Information Section, Certification Directorate, EASA. E-mail: ADs@easa.europa.eu. 3. For any question concerning the technical content of the requirements in this PAD, please 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.