Civil Aviation Authority

AIRWORTHINESS DIRECTIVE

Number: G-2021-0015

Issue date: 24 November 2021

Note: In this Airworthiness Directive, references to EU regulations are to those regulations as retained and amended in UK domestic law under the European Union (Withdrawal) Act 2018 and are referenced as "UK Regulation (EU) year/number or UK Regulation (EU) No. number/year".

This Airworthiness Directive (AD) is issued by the UK CAA in accordance with UK Regulation (EU) No. 748/2012 Part 21.A.3B, acting as the Authority of the State of Design for the affected product(s), under Article 34 of the Air Navigation Order 2016 (ANO) and UK Regulation (EU) 2018/1139.

In accordance with UK Regulation (EU) No. 1321/2014 Annex I (Part-M), M.A.301 / Annex VB (Part-ML), ML.A.301, the continuing airworthiness of an aircraft shall be ensured by accomplishing any applicable ADs. Consequently, no person may operate an aircraft to which an AD applies, except in accordance with the requirements of that AD, unless otherwise specified or agreed by the CAA [Part-M, M.A.303 / Part-ML, ML.A.303].

Type Approval Holder's Name:	**Type/Model Designation(s):**
BAE SYSTEMS (OPERATIONS) LTD	Jetstream 3100 & 3200 aeroplanes

Effective Date:	08 December 2021
TCDS:	EASA.A.191
Foreign AD (if applicable):	N/A
Superseded AD:	This AD supersedes EASA AD 2017-0053 dated 24 March 2017

ATA 32 - Landing Gear – Main Landing Gear / Pintle to Cylinder Interface – Inspection

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.

Definitions:

For the purpose of this AD, the following definition applies:

The SB: BAE Systems (Operations) Ltd SB 32-JA960142

Reason:

Cracks were found during early fatigue testing and in service on the main landing gear (MLG) main fitting at the pintle to cylinder interface.

This condition if not detected and 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 unsafe condition, BAE Systems (Operations) Ltd published several Service Bulletins (ISB) which, in 1996, were consolidated into a single bulletin, SB 32-JA960142, to provide instructions for inspection. CAA issued AD 005-03-96 accordingly to require repetitive inspections of the MLG.

In 2014 a crack was found which was below the critical crack length, but unusually large compared to similar cracks previously found in service. Further investigation into the subject determined that the existing inspection intervals remain valid but also showed that the assumed detectable defect size of a 1.27mm (0.05 in) crack could not be guaranteed using the then defined accomplishment instructions for a high frequency eddy current (HFEC) or fluorescent dye penetrant (FDP) inspection.

Consequently, BAE Systems (Operations) Ltd issued SB 32-JA960142 Revision 4, which provided an improved procedure for HFEC and FDP inspection to ensure the detection of cracks of 1.27 mm (0.05 in) length.

In response to this revision, EASA issued AD 2017-0053 (corrected 24 March 2017) addressing the need for revised inspection procedures.

Recently, an operator performing AD 2017-0053 (referencing SB 32-JA960142 rev 4) identified 3 crack indications (13 mm, 3 mm & 8 mm) in close proximity, the total length of which was approximately 38 mm. This was an unusual report based of reported findings over the 24 years since the SB was initially released. In depth laboratory investigation of the discrepant part was undertaken, which found that the material was to specification and the cracks were fatigue in nature. The investigation was unable to establish a reason for the cracks being different in nature to those previously reported.

In response, a further damage tolerance analysis was performed, which identified the need to reduce the repeat inspection interval defined in AD 2017-0053. That is, a reduction from a repeat of 1,200 flight cycles (FC) to a repeat of 900 FC.

For the reasons described above, this AD retains the requirements of CAA UK AD 005-03-96 (superseded by EASA AD) and EASA AD 2017-0053 (superseded by this CAA AD) and requires the accomplishment of repetitive inspections in accordance with new repetitive inspection requirements.

Required Action(s) and Compliance Time(s):

Required as indicated, unless accomplished previously:

Inspections(s):

(1) Refer to the following to establish initial and repeat inspections. (Since publication of BAE Systems (Operations) Ltd SB 32-JA960142 Revision 5, it has been identified that reference to prior accomplishment of historic Service Bulletins can be simplified. SB 32-JA960142 Revision 5 makes reference to prior accomplishment of SB 32-A-JA941245 & SB 32-JA93043, since these Service Bulletins have been superseded by SB 32-A-JA960142 for over twenty years, reference to prior accomplishment has been deleted from the AD requirements. No credit can be taken for prior accomplishment of requirements defined within SB 32-A-JA941245 & SB 32-JA93043).

Note: all references to landing gear 'landings' refer to the accumulated landings the gear has sustained since entry of the gear into service or the subsequently accumulated landings since the last inspection.

(1.1) If the landing gear has not exceeded 7850 landings and has not previously been inspected in accordance with SB 32-JA960142 at Revision 3 or higher, then inspect in accordance with the Accomplishment Instructions defined within paragraph 2 of SB 32-JA960142 at Revision 5 at or before 8000 landings since entry of the landing gear into service.

(1.2) If the landing gear has exceeded 7850 landings, and has not previously been inspected in accordance with SB 32-JA960142 at Revision 3 or higher, then inspect in accordance with the Accomplishment Instructions defined within paragraph 2 of SB 32-JA960142 at Revision 5 within 150 landings from the effective date of this AD.

(1.3) If the landing gear has previously been inspected in accordance with SB 32-JA960142 at Revision 3 or higher and the landing gear has accumulated 750 landings or more from last inspection, then inspect in accordance with the Accomplishment Instructions defined within paragraph 2 SB 32-JA960142 at Revision 5 within 150 landings from the effective date of this AD but not to exceed 1200 landings from last inspection.

(1.4) If the landing gear has previously been inspected in accordance with SB 32-JA960142 at Revision 3 or higher, and the landing gear has not accumulated 750 landings from last inspection then inspect in accordance with the Accomplishment Instructions defined within paragraph 2 of SB 32-JA960142 at Revision 5 at or before 900 landings from last inspection.

(1.5) In all cases, repeat the inspection in SB 32-JA960142 at Revision 5 or higher within 900 landings thereafter.

Credit:

(2) Inspections and corrective action(s) on an aeroplane, accomplished before the effective date of this AD in accordance with the instructions of BAE Systems (Operations) Ltd SB 32-JA960142 at Revision 5, Revision 4 or Revision 3 are acceptable to comply with the requirements of this AD for that aeroplane.

Terminating Action:

(3) None.

Reference Publications:

BAE Systems (Operations) Ltd SB 32-JA960142 Revision 3 dated 31 August 2016, Revision 4 dated 21 October 2016 and Revision 5 dated 13 December 2019
BAE Systems (Operations) Ltd Alert SB 32-A-JA941245
BAE Systems (Operations) Ltd SB 32-A-JA930343

The use of later approved revisions of BAE Systems (Operations) Ltd SB 32-JA960142 is acceptable for compliance with the requirements of this AD.

Remarks:

(1) This AD was posted on 07 October 2021 as PAD 1984 for consultation until 06 November 2021. No comments were received during the consultation period.

(2) If requested and appropriately substantiated, CAA can approve Alternative Methods of Compliance for this AD.

(3) Information about any failures, malfunctions, defects or other occurrences, which may be similar to the unsafe condition addressed by this AD, and which may occur, or have occurred on a product, part or appliance not affected by this AD, can be reported to the CAA aviation safety reporting system. This may include reporting on the same or similar components, other than those covered by the design to which this AD applies, if the same unsafe condition can exist or may develop on an aircraft with those components installed. Such components may be installed under an FAA Parts Manufacturer Approval (PMA), Supplemental Type Certificate (STC) or other modification.

(4) Enquiries regarding this Airworthiness Directive should be referred to: Continued.Airworthiness@caa.co.uk

(5) For any question concerning the technical content of the requirements in this AD, please contact: BAE Systems (Operations) Ltd, Customer Technical Support Department, Prestwick International Airport, Ayrshire, KA9 2RW, Scotland, United Kingdom; E-mail: RaEngliaison@baesystems.com