



Civil Aviation Authority

AIRWORTHINESS DIRECTIVE



Number: G-2021-0016

Issue date: 17 December 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:

BAE SYSTEMS (OPERATIONS) LTD

Type/Model Designation(s):

BAe146 and AVRO 146-RJ aeroplanes

Effective Date:	31 December 2021
TCDS:	EASA.A.182 BA29
Foreign AD (if applicable):	N/A
Supersedure:	This AD supersedes EASA AD 2007-0305 dated 20 December 2007

ATA 53 - Fuselage - Left Hand Nose Landing Gear Well Sidewall & Retraction Jack Attachment – Inspection

Manufacturer(s):

BAE Systems (Operations) Ltd, British Aerospace plc, British Aerospace (Commercial Aircraft) Ltd, British Aerospace (Operations) Ltd, British Aerospace Regional Aircraft Ltd, British Aerospace Regional Aircraft trading as AVRO International Aerospace.

Applicability:

BAe 146 and AVRO 146-RJ aeroplanes all models all serial numbers.
Except: those subject to the applicable Supplementary Structural Inspection Document (SSID) programme. That is aircraft pre: HCM20012A or HCM20013A or HCM20014A or HCM20313A or HCM20314A or HCM20315A.

Definitions:

For the purpose of this AD, the following definitions apply:

ISB 53-152 Revision 8: refers to BAE Systems (Operations) Ltd Inspection Service Bulletin (ISB) 53-152 Revision 8 with title: To inspect for cracking in bore and along face of the retraction jack attachment boss in the left-hand nose landing gear sidewall.

Reason:

Evidence of cracking has been found on several in-service aeroplanes in the bore and along the face of the retraction jack attachment boss on the left-hand nose landing gear (NLG) sidewall. Undetected cracking of the NLG sidewall could ultimately lead to explosive decompression of the fuselage near to the flight crew (since the NLG sidewall forms part of the nose fuselage pressure shell) leading to significant structural damage to the airframe and/or incapacitation of the flight crew.

The unsafe condition identified comprises:

A substantial reduction in structural strength margins and a significant reduction in the ability of the flight crew to perform their duties.

The UK CAA issued AD 015-10-98 in response to the original issue of the ISB.

The revisions made by BAE Systems (Operations) Ltd to Inspection Service Bulletin (ISB) 53-152 at Revision 3 were considered by EASA to be substantive and as a result, EASA issued AD 2007-0305 dated 20 December 2007, superseding UK CAA AD 015-10-98.

The effectivity of ISB 53-152 until Revision 8, was limited to aeroplanes not modified in accordance with torque tightening modification HCM01641A, which was embodied at production. Recently BAE Systems (Operations) Ltd has received report of two aeroplanes with cracks at the NLG retraction jack attachment boss, post modification HCM01641A and as such, not subject to the requirements of EASA AD 2007-0305 dated 20 December 2007. As a result of these two findings and further analysis, BAE Systems (Operations) Ltd revised ISB 53-152 to Revision 8. This revision extends the effectivity to all BAe 146 and AVRO 146-RJ aeroplanes. (Except: those aircraft subject to the applicable Supplementary Structural Inspection Document (SSID)).

The revisions made by BAE Systems (Operations) Ltd to Inspection Service Bulletin (ISB) 53-152 at Revision 3 were considered by EASA to be substantive and as a result, EASA issued AD 2007-0305 dated 20 December 2007, superseding UK CAA AD 015-10-98.

The effectivity of ISB 53-152 until Revision 8, was limited to aeroplanes not modified in accordance with torque tightening modification HCM01641A, which was embodied at production. Recently BAE Systems (Operations) Ltd has received report of two aeroplanes with cracks at the NLG retraction jack attachment boss, post modification HCM01641A and as such, not subject to the requirements of EASA AD 2007-0305 dated 20 December 2007. As a result of these two findings and further analysis, BAE Systems (Operations) Ltd revised ISB 53-152 to Revision 8. This revision extends the effectivity to all BAe 146 and AVRO 146-RJ aeroplanes. (Except: those aircraft subject to the applicable Supplementary Structural Inspection Document (SSID)).

ISB 53-152 Revision 8 introduces new inspection requirements (on aeroplanes not previously inspected) and this requires a superseding AD to be issued, to include the required inspection of these aircraft. Additionally, previous revisions of ISB 53-152 included provision for continued operation "provided that no more than one crack is evident and does not exceed 0.67 in (17 mm) from bore". The CAA's position is to no longer accept continued operation with known cracks. This policy is aligned with that of the FAA & EASA. BAE Systems (Operations) Ltd had previously been advised of this policy position by EASA and ISB 53-152 had been revised at Revision 8 to withdraw this option of continued operation with known cracks and this is reflected in this AD.

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

Required as indicated unless previously accomplished:

Inspection(s):

- (1) From the effective date of this AD, accomplish the inspections and follow-up corrective actions as necessary, at the thresholds and intervals specified in BAE Systems (Operations) Ltd ISB 53-152 Revision 8.

Noting the following:

Within D Compliance (1)(a) where ISB 53-152 Revision 8 states:

“For aircraft which have completed more than 7375 flights (FC), inspect within 625 FC from receipt of this bulletin.”

This is it to be read as:

“For aircraft which have completed more than 7375 flights (FC), inspect within 625 FC from the effective date of this AD.”

Attention is drawn to the following new requirement introduced by this AD:

From the effective date of this AD, aircraft which were allowed to continue to operate with one crack, in accordance with the requirements of ISB 53-152 para.1.D.(2).(a) or para.1.D.(2).(b) at Revision 7, or earlier, must accomplish a terminating action/repair (see Corrective Action(s) below) within 2600 flights of the last inspection. Aircraft that have exceeded 2600 flights since last inspection will require a terminating action/repair, (see Corrective Action(s) below) before next flight. (ISB.53-152 at Revision 8 para. D. Compliance, section (2)(a) or (2)(b) refer).

Corrective Action(s):

- (2) If, during any inspection(s) as required by paragraph (1) of this AD, discrepancies are detected, before next flight, rectify as described in ISB 53-152 Revision 8 or perform an alternative approved repair/replacement requirement.

Credit:

- (3) Inspections and rectifications actions previously carried out in accordance with ISB 53-152 Revision 6 or later satisfy the requirements of this AD. However, this AD withdraws the return to service with an identified single crack that was permitted by EASA AD 2007-0305.

EASA AD 2007-0305 dated 20 December 2007 and ISB 53-152 at revisions prior to Revision 8, allowed return to service without repair/replacement if, the detected defect was limited to a single crack of maximum defined dimensions (para.1.D.(2).(a) or para.1.D.(2).(b) of ISB 53-152 at Revision 7 or earlier refers). This AD withdraws that as an acceptable option.

Terminating Action:

- (4) The AD is applicable to all aircraft (see Applicability) that are not subject to the SSID programme. However, note the following: carrying out any of the three closing actions in ISB 53-153 Revision 8, Options B & C and for part number HC537L0002-006 sidewalls (Modification HCM01672D only) Option F in Table 1 means that no further inspections are required until the aircraft enters the SSID programme. Previous accomplishment of Option B, C or F using an earlier revision of the ISB 53-152 is also considered as acceptable.

Reference Publications:

BAE Systems (Operations) Ltd ISB 53-152 Revision 8, dated 19 February 2018.

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

Remarks:

1. This AD was posted on 8 October 2021 as PAD 1986 for consultation until 7 November 2021. The Comment Response Document (CRD) has been published at the same time as the AD, on our website page [List of UK Airworthiness Directives from 1 January 2021](#). Once the AD is incorporated into the [CAP 747: Mandatory Requirements for Airworthiness](#), the CRD can be requested via email Continued.Airworthiness@caa.co.uk
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