



## Airworthiness Directive

**AD No.:** 2012-0175R2

**Issued:** 02 February 2016

Note: This Airworthiness Directive (AD) is issued by EASA, acting in accordance with Regulation (EC) 216/2008 on behalf of the European Union, its Member States and of the European third countries that participate in the activities of EASA under Article 66 of that Regulation.

This AD is issued in accordance with Regulation (EU) 748/2012, Part 21.A.3B. In accordance with Regulation (EU) 1321/2014 Annex I, Part M.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 by the Agency [Regulation (EU) 1321/2014 Annex I, Part M.A.303] or agreed with the Authority of the State of Registry [Regulation (EC) 216/2008, Article 14(4) exemption].

### Design Approval Holder's Name:

AIRBUS

### Type/Model designation(s):

A318, A319, A320 and A321 aeroplanes

**Effective Date:** Revision 2: 04 February 2016  
 Revision 1: 21 January 2014  
 Original issue: 21 September 2012

**TCDS Number(s):** EASA.A.064

**Foreign AD:** Not applicable

**Revision:** This AD revises EASA AD 2012-0175R1 dated 07 January 2014.

## ATA 27 – Flight Controls – Trimmable Horizontal Stabilizer Actuator Ballscrew Lower Splines – Inspection / Replacement

### Manufacturer(s):

Airbus (formerly Airbus Industrie)

### Applicability:

Airbus A318-111, A318-112, A318-121, A318-122, A319-111, A319-112, A319-113, A319-114, A319-115, A319-131, A319-132, A319-133, A320-211, A320-212, A320-214, A320-215, A320-216, A320-231, A320-232, A320-233, A321-111, A321-112, A321-131, A321-211, A321-212, A321-213, A321-231 and A321-232 aeroplanes, all manufacturer serial numbers.

### Reason:

Some Trimmable Horizontal Stabilizer Actuators (THSA), Part Number (P/N) 47147-500 fitted on A330/A340 aeroplanes were found with corrosion, affecting the ballscrew lower splines between the tie bar and the screw-jack. The affected ballscrew is made of steel and anti-corrosion protection is ensured, except on both extremities (upper and lower splines) where Molykote is applied.

The results of the technical investigations identified that the corrosion was caused by a combination of contact/friction between the tie bar and the inner surface of the ballscrew leading to the removal



of Molykote (corrosion protection) at the level of the tie bar splines, humidity ingress initiating surface oxidation starting from areas where Molykote is removed, and water retention in THSA lower part leading to corrosion spread out and to the creation of a brown deposit (iron oxide).

The results of the technical investigations also concluded that the ballscrews of THSA P/N 47145-XXX (where XXX stands for a specific numerical value), installed on A320 family aeroplanes, might be affected by this corrosion issue.

This condition, if not detected and corrected, may lead, in case of ballscrew rupture, to loss of transmission of THSA torque loads from the ballscrew to the tie-bar, prompting THSA blowback, possibly resulting in loss of control of the aeroplane.

Prompted by these findings, EASA issued AD 2012-0175 (later revised to exclude a new THSA P/N 47145-168, which is not affected) to require repetitive detailed inspections of the ballscrew lower splines of the affected THSA to detect corrosion and, depending on findings, the accomplishment of applicable corrective actions.

Since EASA AD 2012-0175R1 was issued, new P/N THSA have been developed by UTC Aerospace Systems (UTAS, formerly Goodrich) that are not affected by the corrosion issue addressed by this AD. Airbus issued SB A320-27-1222 to provide corresponding aeroplane modification instructions. Consequently, this AD is further revised to include a full list (Appendix 1 of this AD) of affected THSA. Installation of any other P/N THSA not listed in appendix 1 constitutes terminating action for the repetitive inspections required by this AD: at the issue date of the revision 2 of this AD, the THSA P/N 47145-148, P/N 47145-168, P/N 47145-248 and P/N 47145-268 are certified and known to be not affected by the corrosion issue addressed by this AD.

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

Required as indicated, unless accomplished previously:

- (1) Initially, within the compliance time indicated in Table 1 of this AD, and thereafter at intervals not to exceed 24 months, accomplish a detailed inspection of the ballscrew of each THSA having a P/N listed in Appendix 1 of this AD, in accordance with the instructions of Airbus Service Bulletin (SB) A320-27-1214.

Table 1 – Initial THSA inspection

<b>Compliance Time</b> (whichever occurs later, <b>A</b> or <b>B</b> )	
<b>A</b>	Before accumulating 22 years (see Note 1 of this AD)
<b>B</b>	Within 3 months after 21 September 2012 [the effective date of the original issue of this AD]

Note 1: For the purpose of this AD, the definition of THSA first flight is the THSA “entry into service date” as listed in Goodrich SB 47145-27-16. If the THSA P/N is not listed in Goodrich SB 47145-27-16, the THSA first flight is the manufacturing date engraved on the THSA identification plate.



- (2) If, during any inspection as required by paragraph (1) of this AD, corrosion is found, within the applicable compliance time as defined in Paragraph 1.E.(2) of Airbus SB A320-27-1214, accomplish the applicable corrective actions (additional inspections of the affected THSA ballscrew, followed by replacement of the affected THSA) in accordance with the instructions of Airbus SB A320-27-1214. Within 90 days after an inspection where corrosion is found, report the results to Airbus.
- (3) Replacement of a THSA as required by paragraph (2) of this AD does not constitute terminating action for the repetitive inspections as required by paragraph (1) of this AD, except as specified in paragraph (5) of this AD.
- (4) From 21 September 2012 [the effective date of the original issue of this AD], do not install on any aeroplane a THSA having a P/N listed in Appendix 1 of this AD, unless the part has not yet accumulated 22 years since its first flight, or unless it has been determined that the THSA is classified as Type 1 (no corrosion) at the time of installation, in accordance with criteria defined in Airbus SB A320-27-1214, and on the condition that, following installation, the THSA is inspected and, depending on findings, corrected as required by this AD.
- (5) Installation on an aeroplane of a THSA having a P/N not listed in Appendix 1 of this AD constitutes terminating action for the repetitive inspections as required by paragraph (1) of this AD for that aeroplane, provided the installation is accomplished in accordance with approved aircraft modification instructions.  
Using the instructions of Airbus SB A320-27-1222 to replace an affected THSA is an acceptable method to modify an aeroplane.
- (6) An aeroplane on which Airbus modification 154170 (installation of THSA P/N 47145-168 with improved ballscrew design) and/or modification 156952 (installation of THSA P/N 47145-268 fitted with improved ballscrew design and Electrical Load Sensing Device -ELSD) has been embodied in production is not affected by the requirements of paragraphs (1) of this AD, provided that it is determined that no THSA with a P/N as listed in Appendix 1 of this AD is installed on that aeroplane.

**Ref. Publications:**

Airbus SB A320-27-1214 original issue dated 23 February 2012.

Airbus SB A320-27-1222 original issue dated 17 July 2015.

Goodrich SB 47145-27-16 original issue dated 07 November 2011.

UTAS SB 47145-27-18 original issue dated 31 March 2015.

UTAS SB 47145-27-20 original issue dated 16 July 2015.

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



**Remarks:**

1. If requested and appropriately substantiated, EASA can approve Alternative Methods of Compliance for this AD.
2. The original issue of this AD was posted on 04 June 2012 as PAD 12-057 for consultation until 18 June 2012. The Comment Response Document can be found at <http://ad.easa.europa.eu>.
3. Enquiries regarding this AD should be referred to the EASA Safety Information Section, Certification Directorate. E-mail: [ADs@easa.europa.eu](mailto:ADs@easa.europa.eu).
4. For any question concerning the technical content of the requirements in this AD, please contact: AIRBUS – Airworthiness Office – EIAS, Fax +33 5 61 93 44 51, E-mail: [account.airworth-eas@airbus.com](mailto:account.airworth-eas@airbus.com).



## Appendix 1 – Affected P/N 47145-XXX THSA

<b>P/N – no ELSD</b>	<b>P/N with ELSD (post-UTAS SB 47145-27-20)</b>
47145-021	
47145-030	
47145-031	
47145-032	
47145-033	
47145-034	
47145-035	
47145-036	
47145-037	
47145-050	
47145-051	
47145-052	
47145-053	
47145-054	
47145-055	
47145-056	
47145-057	
47145-121	
47145-130	47145-230
47145-131	47145-231
47145-132	47145-232
47145-133	47145-233
47145-134	47145-234
47145-135	47145-235
47145-136	47145-236
47145-137	47145-237
47145-140	47145-240
47145-141	47145-241
47145-142	47145-242
47145-143	47145-243
47145-144	47145-244
47145-145	47145-245
47145-146	47145-246



## Appendix 1 – Affected P/N 47145-XXX THSA (continued)

<b>P/N – no ELSD</b>	<b>P/N with ELSD (post-UTAS SB 47145-27-20)</b>
47145-147	47145-247
47145-150	47145-250
47145-151	47145-251
47145-152	47145-252
47145-153	47145-253
47145-154	47145-254
47145-155	47145-255
47145-156	47145-256
47145-157	47145-257
47145-160	47145-260
47145-161	47145-261
47145-162	47145-262
47145-163	47145-263
47145-164	47145-264
47145-165	47145-265
47145-166	47145-266
47145-167	47145-267

