



[4910-13-P]

**DEPARTMENT OF TRANSPORTATION**

**Federal Aviation Administration**

**14 CFR Part 39**

**[Docket No. FAA-2014-0006; Directorate Identifier 2013-NM-147-AD; Amendment 39-18519; AD 2016-10-08]**

**RIN 2120-AA64**

**Airworthiness Directives; Airbus Airplanes**

**AGENCY:** Federal Aviation Administration (FAA), Department of Transportation (DOT).

**ACTION:** Final rule.

**SUMMARY:** We are adopting a new airworthiness directive (AD) for all Airbus Model A330-200 Freighter, A330-200, A330-300, A340-200, A340-300, A340-500, and A340-600 series airplanes. This AD was prompted by the results of endurance qualification tests on the trimmable horizontal stabilizer actuator (THSA), which revealed a partial loss of the no-back brake (NBB) efficiency in specific load conditions. This AD requires inspecting certain THSAs to determine the number of total flight cycles the THSA has accumulated, and replacing the THSA if necessary. We are issuing this AD to detect and correct premature wear of the carbon friction disks on the NBB of the THSA. Such a condition could lead to reduced braking efficiency in certain load conditions and, in conjunction with the inability of the power gear train to keep the ball screw in its last commanded position, could result in uncommanded movements of the trimmable horizontal stabilizer (THS) and loss of control of the airplane.

**DATES:** This AD is effective [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

The Director of the Federal Register approved the incorporation by reference of certain publications listed in this AD as of [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

**ADDRESSES:** For service information identified in this final rule, contact Airbus SAS, Airworthiness Office – EAL, 1 Rond Point Maurice Bellonte, 31707 Blagnac Cedex, France; telephone +33 5 61 93 36 96; fax +33 5 61 93 45 80; email airworthiness.A330-A340@airbus.com; Internet <http://www.airbus.com>. You may view this referenced service information at the FAA, Transport Airplane Directorate, 1601 Lind Avenue SW., Renton, WA. For information on the availability of this material at the FAA, call 425-227-1221. It is also available on the Internet at <http://www.regulations.gov> by searching for and locating Docket No. FAA-2014-0006.

#### **Examining the AD Docket**

You may examine the AD docket on the Internet at <http://www.regulations.gov> by searching for and locating Docket No. FAA-2014-0006; 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 this AD, the regulatory evaluation, any comments received, and other information. The street address for the Docket Office (telephone 800-647-5527) is 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:** Vladimir Ulyanov, Aerospace Engineer, International Branch, ANM-116, Transport Airplane Directorate, FAA, 1601 Lind Avenue SW., Renton, WA 98057-3356; telephone 425-227-1138; fax 425-227-1149.

**SUPPLEMENTARY INFORMATION:**

**Discussion**

We issued a supplemental notice of proposed rulemaking (SNPRM) to amend 14 CFR part 39 by adding an AD that would apply to all Airbus Model A330-200 Freighter, A330-200, A330-300, A340-200, A340-300, A340-500, and A340-600 series airplanes. The SNPRM published in the Federal Register on December 23, 2015 (80 FR 79738) (“the SNPRM”). We preceded the SNPRM with a notice of proposed rulemaking (NPRM) that published in the Federal Register on February 3, 2014 (79 FR 6104) (“the NPRM”). The NPRM proposed to require inspecting certain THSAs to determine the number of total flight cycles the THSA has accumulated, and replacing the THSA if necessary. The NPRM was prompted by the results of endurance qualification tests on the THSA, which revealed a partial loss of the NBB efficiency in specific load conditions. The SNPRM proposed to revise the NPRM by adding airplanes to the proposed applicability, reducing the proposed compliance times for replacing affected TSHAs, and revising the definition of a serviceable THSA. We are issuing this AD to detect and correct premature wear of the carbon friction disks on the NBB of the THSA. Such a

condition could lead to reduced braking efficiency in certain load conditions and, in conjunction with the inability of the power gear train to keep the ball screw in its last commanded position, could result in uncommanded movements of the THS and loss of control of the airplane.

The European Aviation Safety Agency (EASA), which is the Technical Agent for the Member States of the European Union, has issued EASA Airworthiness Directive 2014-0257R1, dated May 29, 2015 (referred to after this as the Mandatory Continuing Airworthiness Information, or “the MCAI”), to correct an unsafe condition on all Airbus Model A330-200, A330-200 Freighter, A330-300, A340-200, and A340-300 series airplanes; and Model A340-500 and A340-600 series airplanes. The MCAI states:

During endurance qualification tests on Trimmable Horizontal Stabilizer Actuator (THSA) of another Airbus aeroplane type, a partial loss of the no-back brake (NBB) efficiency was experienced. Due to THSA design similarity on the A330/A340 fleet, a similar partial loss of the NBB efficiency was identified on THSA Part Number (P/N) 47147 as installed on A330-300 and A340-200/-300 aeroplanes, on THSA P/N 47172 as installed on A330-200/-300 and A340-200/-300 aeroplanes, and on THSA P/N 47175 as installed on A340-500/600 aeroplanes.

Investigation results concluded that this partial loss of braking efficiency in some specific aerodynamic load conditions was due to polishing and auto-contamination of the NBB carbon friction disks.

This condition, if not detected and corrected and in conjunction with the power gear train not able to keep the ball screw in its last commanded position, could lead to uncommanded movements of the THS, possibly resulting in loss of control of the aeroplane.

To address this potential unsafe condition, EASA issued AD 2013-0144

[[http://ad.easa.europa.eu/blob/easa\\_ad\\_2013\\_0144.zip/AD\\_2013-0144R1\\_2](http://ad.easa.europa.eu/blob/easa_ad_2013_0144.zip/AD_2013-0144R1_2)] to require replacement of each THSA that has exceeded 16,000 flight cycles (FC) in service, to be sent in shop for NBB carbon disk replacement.

Since that AD was issued, a need for clarification has been demonstrated, regarding the identification of the THSA 'affected' by this requirement.

For this reason, EASA AD 2013-0144 [[http://ad.easa.europa.eu/blob/easa\\_ad\\_2013\\_0144.zip/AD\\_2013-0144R1\\_2](http://ad.easa.europa.eu/blob/easa_ad_2013_0144.zip/AD_2013-0144R1_2)] was revised, confirming that this AD only affected those THSA identified by Part Number (P/N) in Airbus Alert Operator Transmission (AOT) A27L005-13. In addition, a note was added to make clear that the life limits as specified in the current revision of ALS Part 4 are still relevant for the affected THSA, as applicable to aeroplane model and THSA P/N.

Since EASA AD 2013-0144R1 [<http://ad.easa.europa.eu/ad/2013-0144R1>] was issued, further assessment of the ageing/endurance issue has resulted in the conclusion that there is a need to replace the NBB installed on the THSA.

Consequently, EASA issued AD 2014-0257 [[http://ad.easa.europa.eu/blob/EASA\\_AD\\_2014\\_0257\\_R1.pdf/AD\\_2014-0257R1\\_1](http://ad.easa.europa.eu/blob/EASA_AD_2014_0257_R1.pdf/AD_2014-0257R1_1)] which retained the requirements of EASA AD 2013-0144R1, which was superseded, and required removal from service of affected THSA. THSA should be sent in shop for NBB carbon disk replacement. This [EASA] AD affected additional THSA P/Ns when compared to EASA AD 2013-0144R1 and Airbus AOT A27L005-13.

Since that [EASA] AD was issued, it was determined that it is necessary to consider that the THSA removal for NBB disks replacement could also be calculated since last NBB disk replacement which was done in-shop.

This AD also adds Model A340-541 and A340-642 airplanes to the applicability. You may examine the MCAI in the AD docket on the Internet at <http://www.regulations.gov> by searching for and locating Docket No. FAA-2014-0006.

## **Comments**

We gave the public the opportunity to participate in developing this AD. We received no comments on the SNPRM or on the determination of the cost to the public.

## **Conclusion**

We reviewed the relevant data and determined that air safety and the public interest require adopting this AD as proposed except for minor editorial changes. We have determined that these minor changes:

- Are consistent with the intent that was proposed in the SNPRM for correcting the unsafe condition; and
- Do not add any additional burden upon the public than was already proposed in the SNPRM.

## **Related Service Information under 1 CFR part 51**

Airbus has issued the following service information, all dated July 15, 2014.

- Service Bulletin A330-27-3199 (for Model A330 series airplanes);
- Service Bulletin A340-27-4190 (for Model A340-200 and -300 series airplanes); and
- Service Bulletin A340-27-5062 (for Model A340-500 and -600 series airplanes).

The service information describes procedures for inspecting the THSA to determine the part number and replacing THSAs having certain part numbers with a new or serviceable part. This service information is reasonably available because the interested parties have access to it through their normal course of business or by the means identified in the ADDRESSES section.

## Costs of Compliance

We estimate that this AD affects 94 airplanes of U.S. registry.

We estimate the following costs to comply with this AD:

### Estimated costs

Action	Labor cost	Parts cost	Cost per product	Cost on U.S. operators
Inspection	3 work-hours X \$85 per hour = \$255	\$0	\$255	\$23,970

We estimate the following costs to do any necessary replacements that will be required based on the results of the required inspection. We have no way of determining the number of airplanes that might need these replacements:

### On-condition costs

Action	Labor cost	Parts cost	Cost per product
Replacement	23 work-hour X \$85 per hour = \$1,955	\$722,556	\$724,511

## 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 that this AD:

1. Is not a “significant regulatory action” under Executive Order 12866;
2. Is not a “significant rule” under the DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979);
3. Will not affect intrastate aviation in Alaska; and
4. 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.

### **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 adding the following new airworthiness directive (AD):

**2016-10-08 Airbus** Amendment 39-18519. Docket No. FAA-2014-0006; Directorate Identifier 2013-NM-147-AD.

#### **(a) Effective Date**

This AD is effective [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

#### **(b) Affected ADs**

None.

#### **(c) Applicability**

This AD applies to the Airbus airplanes, certificated in any category, identified in paragraphs (c)(1) through (c)(7) of this AD, all manufacturer serial numbers.

- (1) Model A330-201, -202, -203, -223, and -243 airplanes.
- (2) Model A330-223F and -243F airplanes.
- (3) Model A330-301, -302, -303, -321, -322, -323, -341, -342, and -343 airplanes.
- (4) Model A340-211, -212, and -213 airplanes.
- (5) Model A340-311, -312, and -313 airplanes.
- (6) Model A340-541 airplanes.

(7) Model A340-642 airplanes.

**(d) Subject**

Air Transport Association (ATA) of America Code 27, Flight Controls.

**(e) Reason**

This AD was prompted by the results of endurance qualification tests on the trimmable horizontal stabilizer actuator (THSA), which revealed a partial loss of the no-back brake (NBB) efficiency in specific load conditions. We are issuing this AD to detect and correct premature wear of the carbon friction disks on the NBB of the THSA. Such a condition could lead to reduced braking efficiency in certain load conditions and, in conjunction with the inability of the power gear train to keep the ball screw in its last commanded position, could result in uncommanded movements of the trimmable horizontal stabilizer and loss of control of the airplane.

**(f) Compliance**

Comply with this AD within the compliance times specified, unless already done.

**(g) Inspection to Determine THSA Part Number and Accumulated Total Flight Cycles**

Within 90 days after the effective date of this AD: Inspect the THSA to determine if it has a part number that is specified in paragraph (g)(1) or (g)(2) of this AD, and to determine the total number of flight cycles accumulated since the THSA's first installation on an airplane, or since the most recent NBB replacement. A review of airplane delivery or maintenance records is acceptable in lieu of this inspection if the part number of the THSA can be conclusively determined from that review.

(1) For Model A330-200 Freighter, A330-200, A330-300, A340-200 and A340-300 series airplanes: Part number (P/N) 47147-500, 47147-700, 47172-300, 47172-500, 47172-510, or 47172-520.

(2) For Model A340-500 and -600 series airplanes: P/N 47175-200, 47175-300, 47175-500, or 47175-520.

**(h) THSA Replacement for Airbus Model A330-200 Freighter, A330-200, A330-300, A340-200, and A340-300 series airplanes**

For Airbus Model A330-200 Freighter, A330-200, A330-300, A340-200, and A340-300 series airplanes having a THSA with a part number specified in paragraph (g)(1) of this AD: At the applicable time specified in paragraph (h)(1), (h)(2), or (h)(3) of this AD, replace each affected THSA with a serviceable THSA, in accordance with the Accomplishment Instructions of Airbus Service Bulletin A330-27-3199, dated July 15, 2014; or Airbus Service Bulletin A340-27-4190, dated July 15, 2014; as applicable.

Note 1 to paragraphs (h), (i), and (j) of this AD: The THSA life limits specified in Part 4 - Aging System Maintenance of the Airbus A330 and A340 Airworthiness Limitations Sections are still relevant, as applicable to airplane model and THSA part number.

(1) For a THSA that has accumulated or exceeded 20,000 total flight cycles since the THSA's first installation on an airplane, or since the most recent NBB replacement, whichever is later, as of the effective date of this AD: Within 6 months after the effective date of this AD.

(2) For a THSA that has accumulated or exceeded 16,000 total flight cycles, but less than 20,000 total flight cycles since the THSA's first installation on an airplane, or

since the most recent NBB replacement, whichever is later, as of the effective date of this AD: At the applicable time specified in paragraphs (h)(2)(i) and (h)(2)(ii) of this AD.

(i) For Model A330-200 Freighter, A330-200, and A330-300 series airplanes: Within 12 months after the effective date of this AD but without exceeding 20,000 total flight cycles.

(ii) For Model A340-200, and A340-300 series airplanes: Within 12 months after the effective date of this AD but without exceeding 20,000 total flight cycles.

(3) For a THSA that has accumulated less than 16,000 total flight cycles since first installation on an airplane, or since the most recent NBB replacement, whichever is later, as of the effective date of this AD: At the applicable time specified in paragraph (i) of this AD.

**(i) Replacement Times for Airbus Model A330-200 Freighter, A330-200, A330-300, A340-200, and A340-300 series airplanes with THSAs Having Less Than 16,000 Total Flight Cycles as of the Effective Date of this AD**

The requirements of this paragraph apply to Airbus Model A330-200 Freighter, A330-200, A330-300, A340-200, and A340-300 series airplanes having a THSA with a part number specified in paragraph (g)(1) of this AD that has accumulated less than 16,000 total flight cycles since first installation on an airplane, or since the most recent NBB replacement, whichever is later, as of the effective date of this AD. Not later than the date specified in paragraphs (i)(1), (i)(2), and (i)(3) of this AD, as applicable: For any THSA having reached or exceeded on that date the corresponding number of total flight cycles as specified in paragraphs (i)(1), (i)(2), and (i)(3) of this AD, as applicable, replace the THSA with a serviceable unit, in accordance with the Accomplishment Instructions

of Airbus Service Bulletin A330-27-3199, dated July 15, 2014; or Airbus Service Bulletin A340-27-4190, dated July 15, 2014; as applicable.

(1) As of 12 months after the effective date of this AD: The THSA flight-cycle limit (since first installation on an airplane, or since last NBB replacement, whichever occurs later) is 16,000 total flight cycles.

(2) As of July 31, 2017: The THSA flight-cycle limit (since first installation on an airplane, or since last NBB replacement, whichever occurs later) is 14,000 total flight cycles.

(3) As of July 31, 2018: The THSA flight-cycle limit (since first installation on an airplane, or since last NBB replacement, whichever occurs later) is 12,000 total flight cycles.

**(j) THSA Replacement for Airbus Model A340-500 and -600 series airplanes**

For Airbus Model A340-500 and A340-600 series airplanes having a THSA with a part number specified in paragraph (g)(2) of this AD: Not later than the date specified in paragraphs (j)(1), (j)(2), (j)(3), and (j)(4) of this AD, as applicable, for any THSA having reached or exceeded on that date the corresponding number of total flight cycles as specified in paragraphs (j)(1), (j)(2), (j)(3), and (j)(4) of this AD, as applicable, replace each affected THSA with a serviceable THSA, in accordance with the Accomplishment Instructions of Airbus Service Bulletin A340-27-5062, dated July 15, 2014.

(1) As of the effective date of this AD: The THSA flight-cycle limit (since first installation on an airplane, or since last NBB replacement, whichever occurs later) is 6,000 total flight cycles.

(2) As of April 30, 2017: The THSA flight-cycle limit (since first installation on an airplane, or since last NBB replacement, whichever occurs later) is 5,200 total flight cycles.

(3) As of April 30, 2018: The THSA flight-cycle limit (since first installation on an airplane, or since last NBB replacement, whichever occurs later) is 4,400 total flight cycles.

(4) As of April 30, 2019: The THSA flight-cycle limit (since first installation on an airplane, or since last NBB replacement, whichever occurs later) is 3,500 total flight cycles.

**(k) THSA Replacement Intervals for all Airbus Airplanes Identified in Paragraph (c) of this AD**

For any part installed, as required by this AD, having a part number identified in paragraph (g)(1) or (g)(2) of this AD: From the dates specified in paragraphs (i) and (j) of this AD, as applicable, and prior to exceeding the accumulated number of total flight cycles corresponding to each time, replace each affected THSA with a serviceable part, in accordance with the Accomplishment Instructions of the applicable service information identified in paragraphs (k)(1), (k)(2), and (k)(3) of this AD.

(1) Airbus Service Bulletin A330-27-3199, dated July 15, 2014.

(2) Airbus Service Bulletin A340-27-4190, dated July 15, 2014.

(3) Airbus Service Bulletin A340-27-5062, dated July 15, 2014.

**(l) Definition of Serviceable THSA**

For the purposes of this AD, a serviceable THSA is a THSA:

(1) Having a part number identified in paragraph (g)(1) or (g)(2) of this AD that has not exceeded any of the total accumulated flight cycles identified in paragraphs (i)(1) through (i)(3) of this AD, or paragraphs (j)(1) through (j)(4) of this AD, as applicable; or

(2) Having a part number that is not identified in paragraph (g)(1) or (g)(2) of this AD.

**(m) Parts Installation Limitation**

From each date specified in paragraphs (i)(1), (i)(2), and (i)(3) of this AD, and paragraphs (j)(1) through (j)(4) of this AD, as applicable, a THSA having a part number identified in paragraph (g)(1) or (g)(2) of this AD may be installed on any airplane, provided the THSA has not exceeded the corresponding number of accumulated total flight cycles.

**(n) Other FAA AD Provisions**

The following provisions also apply to this AD:

**(1) Alternative Methods of Compliance (AMOCs):** The Manager, International Branch, ANM-116, Transport Airplane Directorate, FAA, has the authority to approve AMOCs for this AD, if requested using the procedures found in 14 CFR 39.19. In accordance with 14 CFR 39.19, send your request to your principal inspector or local Flight Standards District Office, as appropriate. If sending information directly to the International Branch, send it to ATTN: Vladimir Ulyanov, Aerospace Engineer, International Branch, ANM-116, Transport Airplane Directorate, FAA, 1601 Lind

Avenue SW., Renton, WA 98057-3356; telephone 425-227-1138; fax 425-227-1149.

Information may be emailed to: 9-ANM-116-AMOC-REQUESTS@faa.gov. Before using any approved AMOC, notify your appropriate principal inspector, or lacking a principal inspector, the manager of the local flight standards district office/certificate holding district office. The AMOC approval letter must specifically reference this AD.

**(2) Contacting the Manufacturer:** For any requirement in this AD to obtain corrective actions from a manufacturer, the action must be accomplished using a method approved by the Manager, International Branch, ANM-116, Transport Airplane Directorate, FAA; or the European Aviation Safety Agency (EASA); or Airbus's EASA Design Organization Approval (DOA). If approved by the DOA, the approval must include the DOA-authorized signature.

**(3) Required for Compliance (RC):** If any service information contains procedures or tests that are identified as RC, those procedures and tests must be done to comply with this AD; any procedures or tests that are not identified as RC are recommended. Those procedures and tests that are not identified as RC may be deviated from using accepted methods in accordance with the operator's maintenance or inspection program without obtaining approval of an AMOC, provided the procedures and tests identified as RC can be done and the airplane can be put back in an airworthy condition. Any substitutions or changes to procedures or tests identified as RC require approval of an AMOC.

**(o) Related Information**

Refer to Mandatory Continuing Airworthiness Information (MCAI) EASA Airworthiness Directive 2014-0257R1, dated May 29, 2015, for related information. This MCAI may be found in the AD docket on the Internet at <http://www.regulations.gov> by searching for and locating Docket No. FAA-2014-0006.

**(p) Material Incorporated by Reference**

(1) The Director of the Federal Register approved the incorporation by reference (IBR) of the service information listed in this paragraph under 5 U.S.C. 552(a) and 1 CFR part 51.

(2) You must use this service information as applicable to do the actions required by this AD, unless this AD specifies otherwise.

(i) Airbus Service Bulletin A330-27-3199, dated July 15, 2014.

(ii) Airbus Service Bulletin A340-27-4190, dated July 15, 2014.

(iii) Airbus Service Bulletin A340-27-5062, dated July 15, 2014.

(3) For service information identified in this AD, contact Airbus SAS, Airworthiness Office – EAL, 1 Rond Point Maurice Bellonte, 31707 Blagnac Cedex, France; telephone +33 5 61 93 36 96; fax +33 5 61 93 45 80; email [airworthiness.A330-A340@airbus.com](mailto:airworthiness.A330-A340@airbus.com); Internet <http://www.airbus.com>.

(4) You may view this service information at the FAA, Transport Airplane Directorate, 1601 Lind Avenue SW., Renton, WA. For information on the availability of this material at the FAA, call 425-227-1221.

(5) You may view this service information that is incorporated by reference 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/cfr/ibr-locations.html>.

Issued in Renton, Washington, on May 9, 2016.

Michael Kaszycki,  
Acting Manager,  
Transport Airplane Directorate,  
Aircraft Certification Service.

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