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| EASA | AIRWORTHINESS DIRECTIVE | |
|  | <p>AD No. : 2007-0011</p> <p>Date: 9 January 2007</p> | |
| <p>No person may operate an aircraft to which an Airworthiness Directive applies, except in accordance with the requirements of that Airworthiness Directive unless otherwise agreed with the Authority of the State of Registry.</p> | | |
| <p>Type Approval Holder's Name : AIRBUS SAS</p> | <p>Type/Model designation(s) : A330 and A340-200/-300 series</p> | |
| <p>TCDS Number : : EASA A.004, EASA A.015</p> | | |
| <p>Foreign AD : Not applicable.</p> | | |
| <p>Supersedure : DGAC AD F-2003-460 approved under EASA reference 2003-1885.</p> | | |
| <p>ATA 27</p> | <p>Flight controls - Elevator Servo Controls - Mode Selector Valve Position Transducer – Inspection / Replacement/ Modification</p> | |
| <p>Manufacturer(s):</p> | <p>AIRBUS (formerly AIRBUS INDUSTRIE)</p> | |
| <p>Applicability:</p> | <p>AIRBUS aircraft A330-200, A330-300, A340-200 and A340-300 series, all certified models and all serial numbers except those on which AIRBUS modification 50394 or 52195 or 53969 or 54833 has been embodied in production or AIRBUS Service Bulletin (SB) A330-27-3128 or SB A340-27-4129 or Goodrich VSB 4800-27-16 Revision 03 or SB A330-27-3136 or SB A340-27-4135 has been embodied in service.</p> <p>Reminder: It is the responsibility of the operator to ensure that any spare part that has been installed on the aircraft after delivery does not invalidate the compliance of the aircraft with the requirements of this Airworthiness Directive (AD).</p> | |
| <p>Reason:</p> | <p>Two cases of elevator dropped in full down position without ECAM warning have been reported on A330 aircraft. In both cases, the flight crew identified the anomaly while performing the pre-flight controls check.</p> <p>Some operators have reported cases of cracks or rupture, at damping position of the attachment lugs of the selector valve position transducer (MVT) responsible for mode change from active to passive. It resulted in displacement of the transducer leading to external leakage at the affected servo control.</p> <p>Before the hydraulic circuit is lost, the displacement of the transducer can result in an un-commanded switching of the damped servo control from damping to active mode, undetected by the flight control computers and unannounced to the flight crew. The servo control thereby applies a</p> | |

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| | <p>permanent nose down order that prevents the normal active servo control moving the affected elevator upwards.</p> <p>As there is no ECAM warning, this inoperative condition can only be identified by the absence of elevator surface movement on F/CTL ECAM page during the flight controls check.</p> <p>Once the hydraulic circuit is lost, the failed servo is no longer hydraulically supplied and normal elevator control is recovered through the normal active servo control.</p> <p>At take-off, the consequences of an inoperative elevator are potentially catastrophic, according to handling qualities and performance analysis, in the worst-case configuration (max take-off weight and forward CG position) runway length (computed through AFM) may not be sufficient to take-off.</p> <p>To detect this specific elevator failure mode and ensure reliable function of the elevator surfaces, this AD aims to :</p> <ul style="list-style-type: none"> - take over the requirements of AD F-2003-460, - mandate the upgrade of FCPC standard L18 on the three FCPC's installed on A340-200/-300 series to reinforce warning information to the flight crew in case of elevator loss of control due to unpredictable MVT rupture even with repetitive NDT inspection, - render mandatory the new MVT 200 as terminating action by replacement on the affected elevator servo controls in active and damping positions for Part Number (PN) SC4800-7A, PN SC4800-9, PN SC4800-10 with Serial Number (SN) up to 2324 included and PN SC4800-11 with SN up to 2324 included. - exclude from the applicability the aircraft fitted with PN SC4800-113 or SC4800-114 or SC4800-xx4. |
| Effective Date: | 23 January 2007 |
| Compliance: | <p>1. Operational procedures</p> <p>From 03 January 2004 [effective date of the AD F-2003-460], amend the current flight control check procedures as follows for one or both damping servo controls that have accumulated more than 1,000 flight cycles (FC) since new:</p> <p><u>PRIOR OR DURING TAXI :</u> FLIGHT CONTROLSCHECK</p> <p>“1. AT A CONVENIENT STAGE, PRIOR TO OR DURING TAXI, AND BEFORE ARMING THE AUTOBRAKE, THE PF SILENTLY APPLIES FULL LONGITUDINAL AND LATERAL SIDESTICK DEFLECTION. ON THE F/CTL PAGE, THE PNF CHECKS FULL TRAVEL OF ALL ELEVATORS AND ALL AILERONS, AND THE CORRECT DEFLECTION AND RETRACTION OF ALL SPOILERS. THE PNF CALLS OUT "FULL UP", "FULL DOWN", "NEUTRAL", "FULL LEFT", "FULL RIGHT", "NEUTRAL", AS EACH FULL TRAVEL/NEUTRAL POSITION IS REACHED.</p> <p>THE PF SILENTLY CHECKS THAT THE PNF CALLS ARE IN ACCORDANCE WITH THE SIDESTICK ORDER.</p> <p><i>NOTE: IN ORDER TO REACH FULL TRAVEL, FULL SIDESTICK</i></p> |

MUST BE HELD FOR A SUFFICIENT PERIOD OF TIME.

2. THE PF PRESSES THE PEDAL DISC PUSHBUTTON ON THE NOSEWHEEL TILLER, AND SILENTLY APPLIES FULL LEFT RUDDER, FULL RIGHT RUDDER, AND NEUTRAL. THE PNF CALLS OUT "FULL LEFT", "FULL RIGHT", "NEUTRAL", AS EACH FULL TRAVEL/NEUTRAL POSITION IS REACHED.
3. THE PNF APPLIES FULL LONGITUDINAL AND LATERAL SIDESTICK DEFLECTION, AND SILENTLY CHECKS FULL TRAVEL AND CORRECT SENSE OF ALL ELEVATORS AND ALL AILERONS, AND CORRECT DEFLECTION AND RETRACTION OF ALL SPOILERS, ON THE ECAM F/CTL PAGE."

Note 3: The task sharing between the PF and the PNF for the above flight control checks can be amended by each operator depending on its operational policy and local airworthiness requirements.

Note 2: The above listed procedure is included in the associated FCOM documentation and can be used to amend the flight control check procedure:

- A340 FCOM Vol.3 Rev.26 / Standard Operating Procedures 3.03.10 p3
- A330 FCOM Vol.3 Rev.19 / Standard Operating Procedures 3.03.10 p3

2. Inspection of each elevator servo control in damping position 3CS1 and 3CS2

2.1. Perform a dye penetrant inspection of the mode selector valve position transducer attachment lugs in accordance with the instructions of Airbus Service Bulletin (SB) A340-27A4119 Rev 02 or A330-27A3115 Rev 02, as applicable:

2.1.1. For each elevator servo control not yet dye penetrant inspected per Airbus All Operator Telex (AOT) A340-27A4119 Rev 01 or A330-27A3115 Rev 01 referenced in previous DGAC AD 2003-371, prior to the accumulation of 1,000 FC since new or within 350 FC after 03 January 2004 [effective date of the AD F-2003-460], whichever occurs later.

2.1.2. For each elevator servo control already dye penetrant inspected as per Airbus AOT A340-27A4119 Rev 01 or A330-27A3115 Rev 01 referenced in previous DGAC AD 2003-371, prior to the accumulation of 700 FC since the last dye penetrant inspection or prior to the accumulation of 1,350 FC since new, whichever occurs later.

Note 3: Paragraph 2.1.1 applies also to elevator servo controls only visually inspected per AOT A340-27A4119 Rev 01 or A330-27A3115 Rev 01 referenced in previous DGAC AD 2003-371.

2.2. Thereafter, at intervals not exceeding 350 FC, repeat the dye penetrant inspection of the mode selector valve position transducer attachment lugs in accordance with the instructions of Airbus SB A340 27A4119 Rev 02 or A330 27A3115 Rev 02, as applicable.

2.3. In case of any crack finding, before next flight, replace the transducer by a spare one or replace the elevator servo control in accordance with the instructions of Airbus SB A340-27A4119 Rev 02 or A330-27A3115 Rev 02, as applicable. Report any finding to Airbus, address indicated in the Remarks section of this directive.

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| | <p>Note 4: Action 1. of this AD is no longer required once both damping servo controls are repetitively inspected as required by paragraph 2.2. However, it is recommended to follow flight control check as procedure given in § 1. which has been introduced in FCOM documentation.</p> <p>3. Inspection of spare transducer or elevator servo control</p> <p>After 03 January 2004 [effective date of the AD F-2003-460], no person may install a spare transducer or a transducer fitted on a spare elevator servo control as replacement part on an aircraft, unless it has been inspected in accordance with the instructions of Airbus SB A340 27A4119 Rev 02 or A330 27A3115 Rev 02, as applicable.</p> <p>4. For A340-200/-300 only</p> <p>Unless already accomplished, not later than 28 February 2007, upgrade the three Flight Control Primary Computers (FCPC's) standard in accordance with instructions defined in Airbus SB A340-27-4131.</p> <p>5. Modification of elevator servo-controls installed on A330 and A340-200/-300 aircraft</p> <p>5.1. Elevator servo-controls PN SC4800-7A and PN SC4800-9</p> <p>Unless already accomplished, not later than 30 June 2008, modify the four elevator servo-controls in accordance with instructions defined in Airbus SB A330-27-3128 or SB A340-27-4129, as applicable.</p> <p>5.2. Elevator servo-controls PN SC4800-10 and PN SC4800-11</p> <p>Unless already accomplished, not later than 30 June 2008, identify the serial number (SN) of elevator servo controls Part Number (PN) SC4800-10 and SC4800-11.</p> <p>If SN is 2324 or below, before 30 June 2008, modify the elevator servo controls (active and damping) of both elevators (LH and RH) in accordance with instructions of Goodrich VSB 4800-27-16 Rev.03.</p> <p>The installation of the new reinforced mode valve transducer (MVT200) in the elevator servo controls as listed in paragraphs 5.1 and/or 5.2 cancels the repetitive inspections required by this AD.</p> <p>Note 5: Mode valve transducer MVT100 removed from servo-controls as required by paragraphs 5.1 and 5.2 of this directive must be discarded.</p> |
| <p>Ref. Publications:</p> | <p>AIRBUS AOT A340-27A4119 Rev 01 issued on September 25, 2003; AIRBUS AOT A330-27A3115 Rev 01 issued on September 25, 2003; AIRBUS SB A340-27A4119 Rev 02; AIRBUS SB A330-27A3115 Rev 02; AIRBUS SB A340-27-4131; AIRBUS SB A330-27-3128; AIRBUS SB A340-27-4129; and GOODRICH VSB 4800-27-16 Revision 03 or later approved revisions AIRBUS OIT/FOT SE 999.0149/03 issued on December 19, 2003</p> |

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| Remarks : | <ol style="list-style-type: none">1. If requested and appropriately substantiated the responsible EASA manager for the related product has the authority to accept Alternative Method of Compliance (AMOCs) for this AD.2. This AD was posted as PAD 06-248 on 16 November 2006 for consultation until 06 December 2007. No comments were received during the consultation period.3. Enquiries regarding this AD should be referred to the AD Focal Point - Certification Directorate, EASA. E-mail: ADs@easa.europa.eu4. For any question concerning the technical content of the requirements in this AD, please contact AIRBUS SAS –Airworthiness Office - EAL Fax: +33 5 61 93 45 80. |
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