

EASA	AIRWORTHINESS DIRECTIVE
	AD No.: 2010-0081 Date: 27 April 2010 Note: This Airworthiness Directive (AD) is issued by EASA, acting in accordance with Regulation (EC) No 216/2008 on behalf of the European Community, 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 EC 1702/2003, Part 21A.3B. In accordance with EC 2042/2003 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 [EC 2042/2003 Annex I, Part M.A.303] or agreed with the Authority of the State of Registry [EC 216/2008, Article 14(4) exemption].	
Type Approval Holder's Name : AIRBUS	Type/Model designation(s) : A330 and A340-200/-300 aeroplanes
TCDS Number :	EASA.A.004, EASA.A.015
Foreign AD :	Not applicable
Supersedure :	This AD supersedes EASA AD 2007-0009 dated 09 January 2007.
ATA 27	Flight Controls - Elevator Servo Controls Solenoid Valve O-ring Seals - Replacement & Airplane Flight Manual / Master MEL - Temporary Revision & Flight Controls - Elevator Servo Controls - Modification & Flight Controls - Primary and Secondary Computers - Modification
Manufacturer(s):	Airbus (formerly Airbus Industrie)
Applicability:	Airbus A330-201, A330-202, A330-203, A330-223, A330-243, A330-301, A330-302, A330-303, A330-321, A330-322, A330-323, A330-341, A330-342 and A330-343 aeroplanes, all manufacturer serial numbers. Airbus A340-211, A340-212, A340-213, A340-311, A340-312 and A340-313 aeroplanes, all manufacturer serial numbers. The requirements of paragraphs (1), (2) and (4) of the Required action and Compliance Time section of this AD are not applicable to Airbus A330-200 aeroplane on which Airbus modification 53969 or 54833 has been embodied in production. The requirements of paragraphs (3.1) and (8) of the Required action and Compliance Time section of this AD are not applicable to: - Airbus A330-200/-300 aeroplanes on which both Airbus modifications 53468 and 55697 have been embodied in production, and

	- Airbus A340-200/-300 aeroplanes on which both Airbus modifications 55879 and 55697 have been embodied in production.
Reason:	This AD deals with the two following points: Case of an elevator blocked in down position due to two independent failures one of which is hidden: Each elevator is controlled by two servo controls. In normal operation: - one servo control in active mode controlled by PRIM 1 (Green servo control), - one servo control in damping mode (Yellow or Blue servo control) monitored by PRIM 2. Change from active mode to damped mode is obtained by means of a mode selector which is controlled by two identical solenoid valves housed on the servo control. The sealing of each solenoid valve is ensured by four O-ring seals. During pre-flight control checks, the flight crew of an A330-200 aeroplane observed that one of the elevators was blocked in down position, the ECAM screen displaying "F/CTL PRIM 1 PITCH FAULT". This condition was due to two independent failures, one of which was dormant, which occurred on one of the elevators. Investigations revealed that the origin of the elevator malfunction was due to the inability of the Yellow servo control to switch to active mode. This inability: - was caused by an internal hydraulic leak due to the deterioration of an O-ring seal on a solenoid valve, - was not detected by the PRIM 2 computer nor announced to the flight crew. Incorrect Part Number (P/N) for solenoid valve O-ring seals in IPC: An incorrect O-ring seal P/N in IPC 27-34-51-1 could have led to the installation of O-ring seals incompatible with the hydraulic fluid, causing them to deteriorate. These conditions if not detected could lead to the loss of an elevator on takeoff and, potentially reduce the controllability of the aeroplane.. The aim of EASA AD 2007-0009 was to : - take over the requirements of AD F-2004-158, and - require the terminating action for § (1), (2) and (4) of this AD by introducing new capped seals on solenoid valves for A330-200 only. This new AD retains the requirements of EASA AD 2007-0009, which is superseded, and requires the embodiment of the latest software standard on the three Flight Control Primary Computers (FCPC) and on the two Flight Control Secondary Computers (FCSC), which cancels the operational requirements of paragraph (3.1) of this AD.
Effective Date:	11 May 2010

Required action(s) and Compliance Time(s):	Required as indicated, (1) For elevator servo controls installed in damping position on A330-200 aeroplanes only: Before the accumulation of 3 000 flight cycles (FC) by the servo control since first installation on an aeroplane or 3 000 FC since the installation of the solenoid valve on the servo control or Within 700 flight hours (FH) after 09 October 2004 [effective date of AD F-2004-158], whichever occurs later: Unless already accomplished, replace the O-ring seals installed on the two solenoid valves of each servo control by new O-ring seals in accordance with Airbus All Operator Telex (AOT) A330-27A3129 Revision 01. (2) For spare elevator servo controls which were installed on an A330-200 aeroplane whose O-ring seals were not replaced as required in paragraph (1) of this AD: Before installation on an aeroplane, replace the O-ring seals installed on the two spare servo control solenoid valves by new O-ring seals in accordance with Airbus AOT A330-27A3129 Revision 01. (3) For A330-200, A330-300, A340-200, A340-300 aeroplanes: (3.1) After 09 October 2004 [effective date of AD F-2004-158], amend the Airplane Flight Manual (AFM) to include the following operational procedure: Undetected Elevator Control Loss in case of Dual Failure <i>"On ground, before takeoff until takeoff power thrust setting, apply the following procedure:</i> • <i>In the case of a F/CTL PRIM 1 FAULT, or F/CTL PRIM 1 PITCH FAULT Select the PRIM 1 switch to OFF then ON to perform a FCPC PRIM 1 reset</i> • <i>If successful Perform the normal pre-flight Flight Control check</i> • <i>If unsuccessful Return to the gate and require appropriate maintenance actions.</i> • <i>In the case of a F/CTL ELEV SERVO FAULT or HYD G SYS LO PR Return to the gate and require appropriate maintenance actions".</i> (3.2) The incorporation of Airbus Flight Manual temporary revision 4.02.00/25 issue 02 (A330) or 4.02.00/40 issue 02 (A340) or inserting a copy of this AD into the aeroplane operations manual and their strict application by the flight crew meets the requirements of paragraph (3.1) of this AD. (3.3) After 09 October 2004 [effective date of AD F-2004-158]: Introduce into the aeroplane Minimum Equipment List (MEL) the following temporary revisions relevant to the TC holder's MMEL:
---	---

- SECTION 01: A330 MMEL TR No. 01-27/01K issue 01
- SECTION 01: A330 MMEL TR No. 01-27/02K issue 01 (WV 50 series A330 fitted with Rudder Fly-by-wire)
- SECTION 01: A340 MMEL TR No. 01-27/01M issue 01
- SECTION 01: A340 MMEL TR No. 01-27/02M issue 01 (WV 50 series A340 fitted with Rudder Fly-by-wire),

and comply with the instructions contained therein.

Note 2: These MMEL TRs have been introduced into the general revision of the MMEL.

(4) For all A330-200 aeroplanes which have been modified in accordance with the instructions of AOT A330-27A3129 and which have not been modified in accordance with the instructions of AOT A330-27A3129 Revision 01:

- Unless accomplished previously, before the next flight after 09 October 2004 [effective date of the AD F-2004-158], check the Part Numbers (P/N) of the seals installed on the solenoid valve of the servocontrol of the elevator in damping position.
- If the seals installed have P/N MS28775-XXX or a P/N that cannot be identified, replace them before the next flight by the following seals:
 - IPC 27-34-51-1 item 130: NAS1611-011 or NAS1611-011A
 - IPC 27-34-51-1 item 140: NAS1611-012 or NAS1611-012A
 - IPC 27-34-51-1 item 150: NAS1611-013 or NAS1611-013A

(5) For A330-200, A330-300, A340-200, A340-300 aeroplanes equipped with elevator servo controls P/N SC4800-2/-4/-7/-8 or SC4800-7/-8 modified into SC4800-7A/-9 by embodiment in service of Airbus Service Bulletin (SB) A340-27-4083 or SB A330-27-3076:

Unless already accomplished,

Within 1 400 FH after 09 October 2004 [effective date of AD F-2004-158], replace the O-ring seals installed on the two solenoid valves of each elevator servo control:

- in damping position (except for A330-200 aeroplanes which have to comply with paragraph (1) of this AD),
- in active position,

by new O-ring seals P/N NAS1611-XXX or P/N NAS1611-XXXA in accordance with the instructions of Airbus SB A330-27A3131 or SB A340-27A4130.

(6) For the spare elevator servo controls SC 4800-2/-4/-7/-8 or SC4800-7/-8 modified into SC4800-7A/-9 by embodiment in service of Airbus SB A340-27-4083 or SB A330-27-3076:

Before installation on an aeroplane, replace the O-ring seals installed on the two spare servo control solenoid valves by new O-ring seals P/N NAS1611-XXX or P/N NAS1611-XXXA in accordance with the instructions of Airbus SB A330-27A3131 or SB A340-27A4130.

(7) Modification of elevator servo-controls installed on A330-200 aeroplanes

	Unless already accomplished, no later than 30 June 2008, modify the four elevator servo-controls in accordance with the instructions of Airbus SB A330-27-3134. (8) Unless accomplished previously, Within 24 months after the effective date of this AD, modify - the three FCPCs in accordance with the instructions of Airbus SB A330-27-3144 or Airbus SB A330-27-3148 or SB A340-27-4144 or SB A340-27-4148, as applicable to the aeroplane model, and - Both FCSCs in accordance with the instructions of SB A330-27-3146 or SB A330-27-3145 or SB A340-27-4146 or SB A340-27-4145, as applicable to the aeroplane model. (9) According to the aeroplane configuration, accomplishment of the following SBs instructions cancels the operational requirements of paragraph (3.1) of this AD: - SB A330-27-3144 and SB A330-27-3145, or - SB A330-27-3144 and SB A330-27-3146, or - SB A330-27-3148 and SB A330-27-3145, or - SB A330-27-3148 and SB A330-27-3146, or - SB A340-27-4144 and SB A340-27-4145, or - SB A340-27-4144 and SB A340-27-4146, or - SB A340-27-4148 and SB A340-27-4145, or - SB A340-27-4148 and SB A340-27-4146. (10) Installation of modified servo-controls at all positions on A330-200 aeroplanes in accordance with the instructions of Airbus SB A330-27-3134 or SB A330-27-3136 cancels the requirements of paragraphs (1), (2) and (4) of this AD.
Ref. Publications:	Airbus All Operator Telex A330-27A3129 dated June 24, 2004 Airbus All Operator Telex A330-27A3129 Revision 01 dated July 16, 2004 A330 AFM TR 4.02.00/25 issue 02 A340 AFM TR 4.02.00/40 issue 02 A330 MMEL TR N° 01-27/01K issue 01 A330 MMEL TR N° 01-27/02K issue 01 A340 MMEL TR N° 01-27/01M issue 01 A340 MMEL TR N° 01-27/02M issue 01 Airbus Service Bulletin A330-27A3131 Airbus Service Bulletin A340-27A4130 Airbus Service Bulletin A330-27-3134 at original issue Airbus Service Bulletin A330-27-3136 at original issue Airbus Service Bulletin A330-27-3144 at original issue Airbus Service Bulletin A330-27-3145 at original issue Airbus Service Bulletin A330-27-3146 at original issue Airbus Service Bulletin A330-27-3148 at original issue Airbus Service Bulletin A340-27-4144 at original issue Airbus Service Bulletin A340-27-4145 at original issue Airbus Service Bulletin A340-27-4146 at original issue Airbus Service Bulletin A340-27-4148 at original issue. 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. This AD was posted on 17 February 2010 as PAD 10-018 for consultation until 17 March 2010. The Comment Response Document can be found at http://ad.easa.europa.eu/ . 3. Enquiries regarding this AD should be referred to the Airworthiness Directives, Safety Management & Research Section, Certification Directorate, EASA. E-mail: ADs@easa.europa.eu. 4. 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. E-mail: airworthiness.A330-A340@airbus.com .
----------	--

Revised