EASA	PROPOSED AIRWORTHINESS DIRECTIVE
	PAD No. : 06-249 **Date: 16 November 2006**

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.

Type Approval Holder's Name :	**Type/Model designation(s) :**
AIRBUS SAS	A330 and A340-200 and -300 series

TCDS Numbers: EASA A.004, EASA A.015

Foreign AD: Not applicable.

Supersedure : DGAC AD F-2004-158 approved under EASA reference 2004-9778

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**
Manufacturer(s):	AIRBUS (formerly AIRBUS INDUSTRIE)
Applicability:	AIRBUS aircraft A330-200, A330-300, A340-200 and A340-300 series, all certified models and all serial numbers. The requirements of paragraphs 1, 2 and 4 of this Airworthiness Directive **(**AD) are not applicable to Airbus A330-200 aircraft on which AIRBUS modification 53969 or 54833 has been embodied in production or AIRBUS Service Bulletin (SB) A330-27-3134 or SB A330-27-3136 has been embodied in service. Reminder: It is the responsibility of the operator to ensure that any spare part that has been or could be installed on the aircraft does not invalidate the compliance of the aircraft with the requirements of this AD.
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 observed that one of the elevators was blocked in down position, the ECAM screen displaying “F/CTL PRIM 1 PITCH FAULT”. This situation was due to two independent failures, one of which was hidden, which occurred on one of the elevators. Investigations revealed that the origin of the blocking of the elevator in down position 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 and not announced to the flight crew. • **Incorrect PN for solenoid valve O-ring seals in IPC:** An incorrect O-ring seal PN 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 within several flight hours. In both cases, this situation if not detected could lead to the loss of an elevator on takeoff and, in the extreme case, reduce the controllability of the aircraft which is potentially critical. The aim of this new AD is to : - take over the requirements of AD F-2004-158, - render mandatory the terminating action for § 1, 2 and 4 of this AD by introducing new capped seals on solenoid valves for A330-200 only.
Effective Date:	[TBD – 14 days after final AD issue date]
Compliance:	**1. For elevator servo controls installed in damping position on A330-200 aircraft only:** Before the accumulation of 3,000 flight cycles (FC) by the servo control since new or 3,000 FC since the installation of the solenoid valve on the servo control or Within 700 flight hours (FH) from 09 October 2004 [effective date of the 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.

Compliance:	**2. For spare elevator servo controls which were installed on A330-200 aircraft the O-ring seals of which were not replaced as detailed in paragraph 1 of this AD:** Before installation on aircraft, replace the O-ring seals installed on the two spare servo control solenoid valves by new O-ring seals in accordance with AOT A330-27A3129 Revision 01. **3. For A330-200, A330-300, A340-200, A340-300 aircraft:** **3.1.** From 09 October 2004 [the effective date of the 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** *"On ground, before takeoff until takeoff power thrust setting, apply the following procedure:.* • *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* • *If successful* *Perform the normal pre-flight Flight Control check* • *If unsuccessful* *Return to the gate and require appropriate maintenance actions.* • *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".* **Note1:** 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 aircraft operations manual and their strict application by the flight crew meets the requirements of paragraph 3.1 of this directive. **3.2.** From 09 October 2004 [the effective date of the AD F-2004-158]: Introduce into the aircraft 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 will be introduced into the next general revision of the MMEL. **4. For all A330-200 aircraft which have received embodiment of AOT A330-27A3129 and which have not received embodiment of AOT A330-27A3129 Revision 01:** - Before the next flight, check the Part Numbers (PN) of the seals installed on the solenoid valve of the servocontrol of the elevator in damping position.

	- If the seals installed have PN MS28775-XXX or a PN 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 aircraft equipped with elevator servo controls Part Number (PN) SC4800-2/-4/-7/-8 or SC4800-7/-8 modified into SC4800-7A/-9 by embodiment in service of Service Bulletin AIRBUS (SB) A340-27-4083 or A330-27-3076:** Within 1,400 FH after 09 October 2004 [the effective date of the 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 the A330-200 aircraft covered by paragraph 1 of this AD), - in active position, by new O-ring seals PN NAS1611-XXX or PN NAS1611-XXXA in accordance with the instructions of SB A330-27A3131 or 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 SB A340-27-4083 or A330-27-3076:** Before installation on aircraft, replace the O-ring seals installed on the two spare servo control solenoid valves by new O-ring seals PN NAS1611-XXX or PN NAS1611-XXXA in accordance with the instructions of SB A330-27A3131 or A340-27A4130. **7. <u>Modification of elevator servo-controls installed on A330-200 aircraft</u>** Unless already accomplished, not later than 30 June 2008, modify the four elevator servo-controls in accordance with instructions defined in AIRBUS SB A330-27-3134. **Note 3**: Installation of modified servo-controls at all positions on A330-200 aircraft in accordance with instructions of SB A330-27-3134 cancels the inspection requirements as listed in paragraphs 1, 2 and 4 of this AD.
Ref. Publications:	AOT A330-27A3129 dated June 24, 2004 AOT A330-27A3129 Revision 01 dated July 16, 2004 AIRBUS SB A330-27A3131 AIRBUS SB A340-27A4130 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 A330-27-3134 or later approved revision thereof

Remarks :	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. The closing date for comments is 06 December 2006. 3. Enquiries regarding this AD should be referred to the AD Focal Point - 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.