EASA	EMERGENCY AIRWORTHINESS DIRECTIVE
	AD No.: 2009-0012-E **Date: 15 January 2009** Note: This Emergency 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 :	**Type/Model designation(s) :**
AIRBUS	A330 and A340 Aircraft

TCDS Number :	EASA.A.004, EASA.A.015
Foreign AD :	Not applicable
Supersedure :	This AD supersedes EASA AD 2008-0225-E dated 18 December 2008

ATA 34	**Navigation – Air Data Inertial Reference Unit (ADIRU) – Operational Procedure**
Manufacturer(s):	AIRBUS (formerly AIRBUS INDUSTRIE)
Applicability:	AIRBUS A330 aircraft, models -201, -202, -203, -223, -243, -301, -302, -303, -321, -322, -323, -341, -342 and -343, all serial numbers if equipped with Northrop-Grumman (formerly Litton) ADIRUs Part Number (P/N) 465020-0303-03ZZ (with ZZ from 09 up to 16 inclusive). AIRBUS A340 aircraft, models -211, -212, -213, -311, -312, -313, -541, 542, -642 and -643, all serial numbers if equipped with Northrop-Grumman (formerly Litton) ADIRUs P/N 465020-0303-03ZZ (with ZZ from 09 up to 16 inclusive).
Reason:	An A330 aircraft experienced a sudden nose down order while in cruise. This order was preceded by an automatic autopilot disconnection and triggering of the "NAV IR1 FAULT" Electronic Centralised Aircraft Monitor (ECAM) Caution. Investigations highlighted that at time of the event the Air Data Reference 1 (ADR) part of ADIRU1 was providing erroneous and temporary wrong parameters in a random manner. This abnormal behaviour of the ADR1 led to several consequences such as unjustified stall and over speed warnings, loss of attitude information on Captain Primary Flight Display (PFD) and several ECAM warnings. Among the abnormal parameters, the provided Angle of Attack (AoA) value was such that the flight control computers commanded a sudden nose down aircraft movement, which constitutes an unsafe condition. At this stage of the investigation, the analysis of available data indicates that ADIRU 1 abnormal behaviour is likely to be at the origin of the event. Due to similar design, Airbus A340 aircraft are also impacted by this issue. In order to prevent the ADR from providing erroneous data to other aircraft

	systems, EASA AD 2008-0203-E was issued to require, in case faulty Inertial Reference (IR) is detected, to isolate both the IR and ADR by accomplishment of a modified Aircraft Flight Manual (AFM) operational procedure. Since that AD was issued, it has been reported that the "OFF" light did not illuminate in the cockpit after setting the IR and ADR pushbuttons to OFF. Investigation has determined that the ADIRU was indeed sometimes affected by another failure condition. To prevent such a failure, the operational procedure has been updated to instruct the flight crew to de-energize the ADIRU if the "OFF" light is not illuminated after setting the IR and ADR pushbuttons to OFF. Consequently, AD 2008-0225-E, which superseded AD 2008-0203-E, required accomplishment of the updated AFM operational procedure. Since this second AD was issued, a new in service event has been reported highlighting that, in some failure cases, even though the "OFF" light illuminates in the cockpit after setting the IR and ADR pushbuttons to OFF, the IR could keep providing erroneous data to other systems. In order to address all identified failure cases, de-energizing the affected ADIRU must be done by setting the IR mode rotary selector to OFF. Consequently, this AD, which supersedes AD 2008-0225-E, requires accomplishment of the updated AFM operational procedure.
Effective Date:	19 January 2009
Required Action(s) and Compliance Time(s):	Required as indicated: 1. From the effective date of this AD, apply the following operational procedure: - **NAV - IR 1 (2) (3) FAULT** Turn off the affected IR. Turn off the corresponding ADR. Set the affected IR mode rotary selector to OFF. Use AIR DATA switching as appropriate. Use ATT HDG switching as appropriate. - **NAV - IR 1+2 (2+3) (1+3) FAULT** *Note: Flight controls are in alternate law. Refer to F/CTL – ALTN LAW (chapter 4 of the AFM)* Turn off the affected IRs. Turn off the corresponding ADRs. Set the affected IR mode rotary selectors to OFF. Use AIR DATA switching as appropriate. Use ATT HDG switching as appropriate. Do not use speed brakes • If CG above 32%: Manually perform a forward fuel transfer from the trim tank. *Note: If trim tank pump is not available, do not perform manual forward fuel transfer while speed is at or below 270 kt or while in climb.* Note: This operational procedure is covered by the following Temporary Revisions (TR) of the AFM: A330 AFM TR 4.02.00/46 Issue 3 (OEB N°74/4) A340 AFM TR 4.02.00/54 Issue 3 (OEB N°88/4 and OEB N°89/4) 2. Incorporation of the appropriate AFM TR or inserting the above operational procedure or a copy of this AD into the AFM is acceptable to comply with the requirements of § 1 of this AD.
Ref. Publications:	AIRBUS A330 AFM TR 4.02.00/46 Issue 3 and AIRBUS A340 AFM TR 4.02.00/54 Issue 3,

	both approved by EASA on 13 January 2009. 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 safety assessment has requested not to implement the full consultation process and an immediate publication and notification. 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.