

EASA	AIRWORTHINESS DIRECTIVE
	AD No.: 2013-0107 Date: 17 May 2013 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 EU 748/2012, Part 21.A.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].	
Design Approval Holder's Name: AIRBUS	Type/Model designation(s): A340 aeroplanes
TCDS Number:	EASA.A.015
Foreign AD:	Not applicable
Supersedure:	None
ATA 27	Auto Flight / Flight Controls – Flight Control Primary Computer (FCPC) – Modification / Replacement
Manufacturer(s):	Airbus
Applicability:	Airbus A340-541, A340-542, A340-642 and A340-643 aeroplanes, all manufacturer serial numbers.
Reason:	An A330 aeroplane experienced a sudden nose down movement while in cruise. This event was preceded by an automatic autopilot disconnection, which triggered the “NAV IR1 FAULT” Electronic Centralised Aircraft Monitor (ECAM) Caution. Investigation results highlighted that at the 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 the sudden nose down movement. Further investigation results concluded that this event was caused by erroneous and undetected AoA values (spikes) generated by the ADIRU1. This condition, if not corrected, could lead to further similar occurrences, possibly resulting in loss of control of the aeroplane. To address this potential unsafe condition and as an interim solution, EASA issued Emergency AD 2009-0012-E to require implementation of an Aircraft Flight Manual (AFM) operational procedure, to isolate both the Inertial Reference (IR) and ADR in case a faulty IR is detected. Since that AD was issued, a final fix solution was developed, consisting of new

	FCPC software standards, which prevents the potential unsafe condition and cancels the AFM operational procedure required by EASA AD 2009-0012-E. Consequently, EASA issued AD 2011-0199R1 to require this software standard upgrade of the three FCPCs by either modification or replacement, for A330 and A340-200/-300 aeroplanes. Due to similar design, Airbus A340-500/-600 aeroplanes are also impacted by this issue, and Airbus developed Service Bulletin (SB) A340-27-5051 which gives instructions for a software standard upgrade of the three FCPCs, irrespective of ADIRU manufacturer. For the reasons described above, this AD requires a software standard upgrade of the three FCPCs for A340-500/-600 aeroplanes, which cancels the operational procedure imposed by EASA AD 2009-0012-E.
Effective Date:	31 May 2013
Required Action(s) and Compliance Time(s):	Required as indicated, unless accomplished previously: (1) Within 10 months after the effective date of this AD, modify or replace the three FCPCs to integrate software standard W12 on FCPC 2K2 hardware in accordance with the instructions of Airbus SB A340-27-5051. (2) After modification of an aeroplane as required by paragraph (1) of this AD, the operational procedures as imposed by EASA AD 2009-0012-E are no longer required for that aeroplane. (3) After modification of an aeroplane as required by paragraph (1) of this AD, do not install an FCPC on that aeroplane, unless the FCPC is 2K2 hardware with integrating software standard W12.
Ref. Publications:	Airbus SB A340-27-5051 original issue dated 16 July 2012. The use of later approved revisions of this document 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 28 November 2012 as PAD 12-155 for consultation until 26 December 2012, and re-published on 29 April 2013 as PAD 12-155R1 for additional consultation until 13 May 2013. No comments were received during the consultation period for PAD 12-155R1. The Comment Response Document related to PAD 12-155 can be found at http://ad.easa.europa.eu. 3. Enquiries regarding this AD should be referred to the Safety Information Section, Executive 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 – Airworthiness Office – EIAL; E-mail: airworthiness.A330-A340@airbus.com.