
AIRWORTHINESS DIRECTIVE

On the effective date specified below, and for the reasons set out in the background section, the CASA delegate whose signature appears below revokes Airworthiness Directive (AD) AD/A330/95 Amdt 1 and issues the following AD under subregulation 39.001(1) of CASR 1998. The AD requires that the action set out in the requirement section (being action that the delegate considers necessary to correct the unsafe condition) be taken in relation to the aircraft or aeronautical product mentioned in the applicability section: (a) in the circumstances mentioned in the requirement section; and (b) in accordance with the instructions set out in the requirement section; and (c) at the time mentioned in the compliance section.

Airbus Industrie A330 Series Aeroplanes

AD/A330/95 Amdt 2	Air Data Inertial Reference Unit Operational Procedure	3/2009 TX
------------------------------	---	----------------------

Applicability: A330 aircraft, models -201, -202, -203, -223, -243, -301, -302, -303, -321, -322, -323, -341, -342 and -343, all serial numbers, equipped with Northrop-Grumman (formerly Litton) Air Data Inertial Reference Unit (ADIRU) Part Number (P/N) 465020-0303-03ZZ (with ZZ from 09 up to 16 inclusive).

Requirement: 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 must be set 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 selector must be set 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 1: This operational procedure is covered by Temporary Revision (TR) of the Aircraft Flight Manual (AFM) A330 AFM TR 4.02.00/46 Issue 3 (OEB N°74/4).

Incorporation of the AFM TR or inserting the above operational procedure or a copy of this Directive into the AFM is acceptable to comply with the requirements of this Directive.

Note 2: EASA Emergency AD 2009-0012-E refers.

Airbus Industrie A330 Series Aeroplanes

AD/A330/95 Amdt 2 (continued)

Compliance: Before 19 January 2009.

This Amendment becomes effective on 18 January 2009.

Background: 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 ADIRU 1 abnormal behaviour is likely at the origin of the event.

In order to prevent the ADR from providing erroneous data to other aircraft systems, the original issue of this Directive required, in case faulty Inertial Reference (IR) is detected, to isolate both the IR and ADR by accomplishment of the modified AFM operational procedure.

Since that Directive 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, this Amendment required accomplishment of the updated AFM operational procedure.

Since Amendment 1 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 Amendment, requires accomplishment of the updated AFM operational procedure.

Airbus Industrie A330 Series Aeroplanes

AD/A330/95 Amdt 2 (continued)

The original issue of this Directive became effective on 20 November 2008.

Amendment 1 of this Directive became effective on 22 December 2008.

A handwritten signature in black ink, appearing to read 'James Coyne', with a stylized flourish at the end.

James Coyne
Delegate of the Civil Aviation Safety Authority

16 January 2009