


<b>EASA</b>	<b>NOTIFICATION OF A PROPOSAL TO ISSUE AN AIRWORTHINESS DIRECTIVE</b>	
	<b>PAD No.: 15-041</b>	
	<b>Date: 15 April 2015</b>	
<p>Note: This Proposed Airworthiness Directive (PAD) 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.</p>		
<p>In accordance with the EASA Continuing Airworthiness Procedures, the Executive Director is proposing the issuance of an EASA Airworthiness Directive (AD), applicable to the aeronautical product(s) identified below. All interested persons may send their comments, referencing the PAD Number above, to the e-mail address specified in the 'Remarks' section, prior to the consultation closing date indicated.</p>		
<b>Design Approval Holder's Name:</b>		<b>Type/Model designation(s):</b>
AIRBUS		A318, A319, A320 and A321 aeroplanes
TCDS Number:	EASA.A.064	
Foreign AD:	Not applicable	
Supersedure:	This AD supersedes EASA AD 2012-0236R1 dated 17 December 2012, AD 2013-0022 dated 01 February 2013, and Emergency AD 2014-0266-E dated 09 December 2014.	
<b>ATA 34</b>	<b>Navigation – Angle of Attack Sensors – Replacement</b>	
Manufacturer(s):	Airbus (formerly Airbus Industrie)	
Applicability:	Airbus A318-111, A318-112, A318-121, A318-122, A319-111, A319-112, A319-113, A319-114, A319-115, A319-131, A319-132, A319-133, A320-211, A320-212, A320-214, A320-215, A320-216, A320-231, A320-232, A320-233, A321-111, A321-112, A321-131, A321-211, A321-212, A321-213, A321-231 and A321-232 aeroplanes, all manufacturer serial numbers.	
Reason:	<p>An occurrence was reported where an Airbus A321 aeroplane encountered a blockage of two Angle of Attack (AOA) probes during climb, leading to activation of the Alpha Protection (Alpha Prot) while the Mach number increased. The flight crew managed to regain full control and the flight landed uneventfully.</p> <p>When Alpha Prot is activated due to blocked AOA probes, the flight control laws order a continuous nose down pitch rate that, in a worst case scenario, cannot be stopped with backward sidestick inputs, even in the full backward position. If the Mach number increases during a nose down order, the AOA value of the Alpha Prot will continue to decrease. As a result, the flight control laws will continue to order a nose down pitch rate, even if the speed is above minimum selectable speed, known as VLS.</p> <p>This condition, if not corrected, could result in loss of control of the aeroplane.</p> <p>Investigation results indicated that A320 family aeroplanes equipped with certain UTC Aerospace (UTAS, formerly known as Goodrich) AOA sensors, or equipped with certain SEXTANT/THOMSON AOA sensors, appear to have a</p>	

	<p>greater susceptibility to adverse environmental conditions than aeroplanes equipped with the latest Thales AOA sensor, Part Number (P/N) C16291AB, which was designed to improve A320 aeroplane AOA indication behaviour in heavy rain conditions.</p> <p>EASA has determined that replacement of these AOA sensors is a necessary precautionary measure to improve the safety level of the aeroplane.</p> <p>For the reasons described above, this AD retains the requirements of the EASA AD 2012-0236R1, EASA AD 2013-0022 (partially), and EASA AD 2014-0266-E, which are superseded, and requires modification of the aeroplanes by replacement of the affected P/N sensors, and, after modification, prohibits (re-)installation of those P/N AOA sensors. This AD also requires repetitive detailed visual inspections (DET) and functional heating tests of certain Thales AOA sensors and provides an optional terminating action for those inspections.</p>
Effective Date:	[TBD: 14 days after final AD issue date]
Required Action(s) and Compliance Time(s):	<p>Required as indicated, unless accomplished previously:</p> <p><b>Restatement of the requirements of EASA AD 2012-0236R1:</b></p> <p>(1) For aeroplanes fitted with P/N C16291AA AOA sensors: within 12 months after 27 October 2011 [the effective date of EASA AD 2011-0203], replace each P/N C16291AA AOA sensor installed on the aeroplane, if identified to have a s/n as listed in Thales Avionics SB C16291A-34-007 Revision 04, in accordance with the instructions of Airbus SB A320-34-1452.</p> <p>A review of aeroplane maintenance records is acceptable to determine the P/N and s/n of the installed AOA sensors, provided the P/N and s/n of the installed AOA sensors can be conclusively identified from that review.</p> <p>(2) For aeroplanes fitted with P/N C16291AB AOA sensors with s/n listed the Thales Avionics SB C16291A-34-007 Revision 04: within 3 months after 23 November 2012 [the effective date of the original issue of the EASA AD 2012-0236R1], replace each P/N C16291AB AOA sensor installed on the aeroplane, in accordance with the instructions of Airbus SB A320-34-1452, unless it can be demonstrated by maintenance records that the affected AOA sensor has passed the inspection in accordance with the instructions of Thales Avionics SB C16291A-34-007 Revision 01.</p> <p>(3) An aeroplane on which Airbus modification (mod) 150006 (installation of AOA sensors P/N C16291AB) or mod 26934 (installation of AOA sensors P/N 0861ED) has been embodied in production is not affected by the requirements of paragraphs (1) and (2) of this AD, provided it is determined that no AOA sensor has been replaced on that aeroplane since its date of manufacture.</p> <p>(4) From 23 November 2012 [the effective date of EASA AD 2012-0236 at original issue], do not install on any aeroplane a P/N C16291AA or P/N C16291AB AOA sensor having a s/n as listed in Thales Avionics SB C16291A-34-007 Revision 04, unless it has passed the inspection in accordance with the instructions of Thales Avionics SB C16291A-34-007 Revision 01, or in accordance with the instructions of Thales Avionics SB C16291A-34-009 Revision 01.</p> <p><b>Partial Restatement of the requirements of EASA AD 2013-0022:</b></p> <p>(5) Within 5 months after the 15 February 2013 [the effective date of EASA AD 2013-0022], remove from service all AOA sensor conic plates P/N F3411060200000 and P/N F3411060900000 and install AOA sensor flat plates, as required by paragraph (5.1) or (5.2) of this AD.</p> <p>(5.1) P/N D3411013520200 in accordance with the instructions of Airbus SB A320-34-1564.</p>

(5.2) P/N D3411007620000, or P/N D3411013520000, in accordance with approved aeroplane modification instructions.

- (6) An aeroplane on which Airbus mod. 154863 (installation of AOA sensor flat plate) and mod. 154864 (Coating protection) have been embodied in production is not affected by the requirements of paragraphs (5) and (6) of this AD, provided that, since first flight, no AOA sensor conic plate P/N F3411060200000 or P/N F3411060900000 has been installed on that aeroplane.
- (7) From 15 February 2013 [the effective date of EASA AD 2013-0022], do not install on any aeroplane an AOA sensor conic plate having P/N F3411060200000 or P/N F3411060900000, and do not use on any aeroplane an AOA protection cover P/N 98D34203003000.

**Restatement of the requirements of EASA Emergency AD 2014-0266-E:**

- (8) Before next flight after 11 December 2014 [the effective date of EASA Emergency AD 2014-0266-E], amend the applicable AFM by inserting a copy of Airbus AFM A320 TR 502 "Abnormal V alpha Prot", issue 1.
- Alternatively, amending the applicable AFM can be accomplished by inserting of a copy of Appendix 1 of this AD into the Section Emergency Procedures.
- (9) Concurrent with the AFM amendment as required by paragraph (8) of this AD, inform all flight crews and, thereafter, operate the aeroplane accordingly.

**New requirements of this AD:**

- (10) For aeroplanes on which only UTAS (formerly Goodrich) P/N 0861ED or P/N 0861ED2 AOA sensors are installed, within the compliance time defined in Table 1 of this AD, as applicable, replace the Captain and First Officer AOA sensors with Thales P/N C16291AB AOA sensors in accordance with the instructions of Airbus SB A320-34-1610.
- (11) For aeroplanes on which SEXTANT/THOMSON P/N 45150320 or P/N 16990568 AOA sensors are installed, within the compliance time defined in Table 1 of this AD, as applicable, replace each SEXTANT/THOMSON P/N 45150320 and P/N 16990568 AOA sensor with a Thales P/N C16291AB AOA sensor in accordance with the instructions of Airbus SB A320-34-1444 Revision 01, as applicable.

Table 1 – AOA Sensors Replacement

<b>Aeroplanes</b> (all models)	<b>Compliance Time</b> (after the effective date of this AD)
A318 and A321	6 months
A319 and A320	21 months

- (12) For an aeroplane on which one or more Thales P/N C16291AA AOA sensors are installed, before exceeding 5 200 flight hours (FH) accumulated by each Thales AOA sensor since its first installation on an aeroplane, or within 6 months after the effective date of this AD, whichever occurs later, and thereafter at intervals not to exceed 2 000 FH, accomplish a DET and a functional heating test of each P/N C16291AA AOA sensor in accordance with the instructions of Airbus SB A320-34-1415 Revision 03.

- (13) If, during any DET or functional heating test as required by paragraph (12) of this AD, discrepancies are detected, before next flight, replace all affected AOA sensors with Thales P/N C16291AA AOA sensors that have passed a DET and a functional heating test in accordance with the instructions of Airbus SB A320-34-1415 Revision 03, or with Thales P/N C16291AB AOA sensors, in accordance with the instructions of Airbus SB A320-34-1415 Revision 03.
- (14) An aeroplane with Airbus modification (mod) 150006 (installation of Thales P/N C16291AB AOA sensors) but without mod 26934 (installation of UTAS P/N 0861ED AOA sensors) embodied in production is not affected by the requirements of paragraphs (10) through (13) of this AD, provided it is determined that no AOA sensor having a P/N as listed in Table 2 of this AD has been installed on that aeroplane since its date of manufacture.
- (15) Modification of an aeroplane by replacing each Thales P/N C16291AA AOA sensor with a Thales P/N C16291AB AOA sensor in accordance with the instructions of Airbus SB A320-34-1444 at Revision 01 constitutes terminating action for the repetitive DET and functional heating tests as required by paragraph (12) of this AD for that aeroplane.

**Conditions for installation of an AOA sensor on an aeroplane:**

- (16) For an aeroplane on which only Thales P/N C16291AB AOA sensors are installed, from the effective date of this AD, or after optional modification of the aeroplane as specified in paragraph (15) of this AD, as applicable, do not install a Thales P/N C16291AA AOA sensor on that aeroplane at that position.
- (17) For an aeroplane on which Thales P/N C16291AA and Thales P/N C16291AB AOA sensors are installed, from the effective date of this AD, or after modification of the aeroplane as required by paragraph (11) of this AD, as applicable, do not install any AOA sensor with a P/N as listed in Table 1 of this AD on that aeroplane.
- (18) After modification of an aeroplane as required by paragraph (10) of this AD, it is allowed to install a UTAS AOA sensor with a P/N as listed in Table 1 of this AD in the standby position of that aeroplane.

Table 2

AOA Sensor Manufacturer	P/N
SEXTANT/THOMSON	45150320
	16990568
UTAS (formerly Goodrich)	0861ED
	0861ED2

- (19) Installation of AOA sensors having a P/N approved after the effective date of this AD is equal to compliance with the requirements of paragraph (10) or (11) of this AD, as applicable, provided the conditions as specified in paragraphs (19.1) and (19.2) of this AD are met.
- (19.1) The AOA sensor P/N must be approved by EASA, or approved under Airbus DOA; and
- (19.2) The installation must be accomplished in accordance with aeroplane modification instructions approved by EASA, or approved under Airbus DOA.

Ref. Publications:	<p>Airbus SB A320-34-1415 Revision 03 dated 08 July 2010.</p> <p>Airbus SB A320-34-1444 Revision 01 dated 17 March 2011.</p> <p>Airbus SB A320-34-1452 original issue dated 29 January 2010.</p> <p>Airbus SB A320-34-1564 original issue dated 25 January 2013.</p> <p>Airbus SB A320-34-1610 original issue dated 31 March 2015.</p> <p>Thales SB C16291A-34-007 Revision 01 dated 03 December 2009, or Revision 02 dated 16 December 2011, or Revision 03 dated 10 April 2012, or Revision 04 dated 11 October 2012.</p> <p>Thales SB C16291A-34-009 original issue dated 10 September 2009, or Revision 01 dated 07 January 2010.</p> <p>Airbus AFM A320 TR 502 issue 1, EASA approved 05 December 2014.</p> <p>The use of later approved revisions of these documents is acceptable for compliance with the requirements of this AD.</p>
Remarks:	<ol style="list-style-type: none"> <li>1. This Proposed AD will be closed for consultation on 29 April 2015.</li> <li>2. Enquiries regarding this PAD should be referred to the Safety Information Section, Certification Directorate, EASA. E-mail: <a href="mailto:ADs@easa.europa.eu">ADs@easa.europa.eu</a>.</li> <li>3. For any question concerning the technical content of the requirements in this PAD, please contact: AIRBUS – Airworthiness Office – EIAS; Fax +33 5 61 93 44 51; E-mail: <a href="mailto:account.airworth-eas@airbus.com">account.airworth-eas@airbus.com</a>.</li> </ol>

## Appendix 1 – AFM Procedure

- **At any time, with a speed above VLS, if the aircraft goes to a continuous nose down pitch rate that cannot be stopped with backward sidestick inputs, immediately:**

Keep on one ADR.

Turn off two ADRs.

- **If the Alpha Max strip (red) hides completely the Alpha Prot strip (black and amber) in a stabilized wings-level flight path (without an increase in load factor):**

Keep on one ADR.

Turn off two ADRs.

*In case of dispatch with one ADR inoperative, switch only one ADR to OFF.*

**CAUTION** RISK OF ERRONEOUS DISPLAY OF THE VSW STRIP (RED AND BLACK)

Consider using the Flight Path Vector (FPV).

- **If the Alpha Prot strip (black and amber) rapidly moves by more than 30 kt during flight maneuvers (with an increase in load factor), with AP ON and speed brakes retracted:**

Keep on one ADR.

Turn off two ADRs.

*In case of dispatch with one ADR inoperative, switch only one ADR to OFF.*

**CAUTION** RISK OF ERRONEOUS DISPLAY OF THE VSW STRIP (RED AND BLACK)

Consider using the Flight Path Vector (FPV).