



適航指令發布單

Airworthiness Directive Issuance Form

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| 民航局AD編號 AD Number | CAA-2015-05-014 | 發布日期 Date issued | 2015/5/29 |
| 適用之航空產品 Applied to (models, serial numbers or part numbers, as applicable) | 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. | | |
| 主旨摘要 | Navigation – Angle of Attack Sensors – Replacement | | |
| 民航局 CAA <input type="checkbox"/> 本國產品 Native products <input type="checkbox"/> 其他個案 Other | 設計國民航主關機構 Original Authorities <input type="checkbox"/> FAA <input type="checkbox"/> Germany LBA <input checked="" type="checkbox"/> EASA <input type="checkbox"/> CAA-NL <input type="checkbox"/> Brazil <input type="checkbox"/> UK CAA <input type="checkbox"/> Transport Canada Civil Aviation <input type="checkbox"/> Japan CAB <input type="checkbox"/> DGAC <input type="checkbox"/> CAA of Israel <input type="checkbox"/> Other _____ | | |
| | 設計國AD編號 Original AD number | 2015-0087 | |
| | 1. 直接採用原AD之內容?(Is the original AD directly adopted?) <input checked="" type="checkbox"/> 是(Yes) <input type="checkbox"/> 否(No) ___ a. 生效日期另訂為(Re-specify the effective date as) : _____ b. 執行時限另訂為(Re-specify the compliance time or period as) : _____ 2. 使用人是否需要將AD執行結果向民航局提出報告?(Do Users need to report the status of compliance to the CAA?) <input type="checkbox"/> 是(Yes) <input checked="" type="checkbox"/> 否(No) | | |
| 備註 Note | ATA 34. This AD supersedes EASA AD 2012-0236R1 dated 17 December 2012, AD 2013-0022 dated 01 February 2013, and Emergency AD 2014-0266-E(CAA-2014-12-005) dated 09 December 2014. Ref. Publications: Airbus SB A320-34-1415 Revision 03 dated 08 July 2010. Airbus SB A320-34-1444 original issue dated 07 October 2009, or Revision 01 dated 17 March 2011. and Airbus SB A320-34-1452 original issue dated 29 January 2010. and Airbus SB A320-34-1564 original issue dated 25 January 2013. and Airbus SB A320-34-1610 original issue dated 31 March 2015. and 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. and Thales SB C16291A-34-009 original issue dated 10 September 2009, or Revision 01 dated 07 January 2010. and Airbus AFM A320 TR 502 issue 1, EASA approved 05 December 2014. | | |
| 註： 1. AD內容後附。 2. 航空器產品使用人得向民航局提出豁免、替代符合方法、執行時限之展延之申請。 3. 如有任何問題，請聯絡交通部民用航空局初始適航科。Tel：(02)2349-6331-3, Fax：(02)2545-8464, e-mail：adcaa@mail.caa.gov.tw Note： 1. The AD text is enclosed. 2. Exemption, an alternative method of compliance or adjustment of the compliance time may be proposed to the CAA for approval. 3. For further information, please contact Civil Aeronautics Administration on Tel：(02)2349-6331-3, Fax：(02)2545-8464, e-mail：adcaa@mail.caa.gov.tw | | | |

| EASA | AIRWORTHINESS DIRECTIVE | |
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|  | <p>AD No.: 2015-0087</p> <p>Date: 22 May 2015</p> <p>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.</p> | |
| <p>This AD is issued in accordance with EU 748/2012, Part 21.A.3B. In accordance with EU 1321/2014 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 [EU 1321/2014 Annex I, Part M.A.303] or agreed with the Authority of the State of Registry [EC 216/2008, Article 14(4) exemption].</p> | | |
| <p>Design Approval Holder's Name: AIRBUS</p> | <p>Type/Model designation(s): A318, A319, A320 and A321 aeroplanes</p> | |
| <p>TCDS Number: EASA.A.064</p> | | |
| <p>Foreign AD: Not applicable</p> | | |
| <p>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.</p> | | |
| ATA 34 | Navigation – Angle of Attack Sensors – Replacement | |
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| <p>Manufacturer(s):</p> | <p>Airbus (formerly Airbus Industrie)</p> | |
| <p>Applicability:</p> | <p>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.</p> | |
| <p>Reason:</p> | <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> | |

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| | <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 EASA AD 2012-0236R1, AD 2013-0022 (partially), and 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: | 01 June 2015 |
| Required Action(s) and Compliance Time(s): | <p>Required as indicated, unless accomplished previously:</p> <p>Restatement of the requirements of EASA AD 2012-0236R1:</p> <p>(1) For aeroplanes fitted with Thales Avionics 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 Service Bulletin (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 in Thales Avionics SB C16291A-34-007 Revision 04: within 3 months after 23 November 2012 [the effective date of EASA AD 2012-0236 at original issue], 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>Partial Restatement of the requirements of EASA AD 2013-0022:</p> <p>(5) Within 5 months after 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 paragraph (5) 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 Aircraft Flight Manual (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 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, as applicable.

Table 1 – AOA Sensors Replacement

| Aeroplanes (all models) | Compliance Time (after the effective date of this AD) |
|-----------------------------------|---|
| A318 and A321 | 7 months |
| A319 and A320 | 22 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 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 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.
- (17) For an aeroplane on which Thales P/N C16291AA and/or 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 2 of this AD on that aeroplane.
- (18) After modification of an aeroplane as required by paragraph (10) of this AD, do not install any AOA sensor with a P/N as listed in Table 2 of this AD on that aeroplane, with the exception that it remains allowed to install a UTAS P/N 0861ED AOA sensor in the standby position of that aeroplane.

Table 2 – AOA Sensors

| 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.

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| Ref. Publications: | <p>Airbus SB A320-34-1415 Revision 03 dated 08 July 2010.</p> <p>Airbus SB A320-34-1444 original issue dated 07 October 2009, or 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"> 1. If requested and appropriately substantiated, EASA can approve Alternative Methods of Compliance for this AD. 2. This AD was posted on 15 April 2015 as PAD 15-041 for consultation until 29 April 2015. The Comment Response Document can be found at http://ad.easa.europa.eu. 3. Enquiries regarding this AD should be referred to the Safety Information 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 – Airworthiness Office – EIAS; Fax +33 5 61 93 44 51; E-mail: account.airworth-eas@airbus.com. |

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).