

EASA	AIRWORTHINESS DIRECTIVE
	<p>AD No.: 2013-0288</p> <p>Date: 06 December 2013</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 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].</p>	
<p>Design Approval Holder's Name: AIRBUS</p>	<p>Type/Model designation(s): A318, A319, A320 and A321 aeroplanes</p>
TCDS Number:	EASA.A.064
Foreign AD:	Not applicable
Supersedure:	This AD supersedes EASA AD 2011-0069R1 dated 11 April 2012, and EASA Emergency AD 2013-0132-E dated 25 June 2013.
ATA 32	Landing Gear – Main Landing Gear Door Actuator – Monitoring / Inspection / Replacement / Modification
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>Some operators reported slow operation of the main landing gear (MLG) door opening/closing sequence, leading to the generation of ECAM warnings during the landing gear retraction or extension sequence.</p> <p>Investigations showed that the damping ring and associated retaining ring of the MLG door actuator deteriorate. The resultant debris increases the friction inside the actuator which can be sufficiently high to restrict opening of the MLG door by gravity, during operation of the landing gear alternate (free-fall) extension system.</p> <p>This condition, if not corrected, could prevent the full extension and/or down locking of the MLG, possibly resulting in MLG collapse during landing or rollout and consequent damage to the aeroplane and injury to occupants.</p> <p>EASA AD 2006-0112R1 was issued to require repetitive inspections of the opening sequence of the MLG door in order to identify the defective actuators, and to introduce as an optional terminating action Airbus production Modification</p>

	<p>(MOD) 38274 and associated Service Bulletin (SB) A320-32-1338, which incorporate an improved retaining ring, located on the piston rod's extension end, and a new piston rod with machined shoulder to accommodate the thicker section of the modified retaining ring.</p> <p>After in-service introduction of the new MLG door actuator, Part Number (P/N) 114122012 (Post MOD 38274 – SB A320-32-1338), several operators reported failures of internal parts of the MLG door actuator. Investigations confirmed that these failures could result in slow extension of the actuator rod, delaying the MLG door operation, or possibly stopping just before the end of the stroke, preventing the door to reach the fully open position.</p> <p>EASA AD 2011-0069R1, which supersedes EASA AD 2006-0112R1, required an amendment of the applicable Airplane Flight Manual (AFM), repetitive checks of specific Centralized Fault Display System (CFDS) messages, repetitive inspections of the opening sequence of the MLG door actuator and, depending on findings, corrective action(s).</p> <p>Since that AD was issued, Airbus introduced a reinforced MLG door actuator P/N 114122014 (MOD 153655). Airbus issued SB A320-32-1407 containing instructions for in-service replacement of the affected MLG door actuators, or modification of the actuators to the new standard.</p> <p>In addition, following a recent occurrence with a gear extension problem, the result of additional analyses by Airbus revealed that the CFDS expected specific messages may not be generated and as a result, repetitive checks of messages are not effective for aeroplanes fitted with landing gear control interface unit (LGCIU) interlink communication ARINC 429 (applied in production through Airbus MOD 39303, or in service through Airbus SB A320-32-1409), in combination with LGCIUs 80-178-02-88012 or 80-178-03-88013 in both positions and at least one MLG door actuator pre MOD 153655 (SB A320-32-1407 – SB 114122-32-105) installed.</p> <p>Prompted by these findings, EASA issued Emergency AD 2013-0132-E to require identification of the affected aeroplanes to establish the configuration and, for those aeroplanes, repetitive inspections of the opening sequence of the MLG door actuator and, depending on findings, replacement of the MLG door actuator. That AD also provided an optional terminating action by disconnection of the interlink for certain LGCIUs, or in-service modification of the aeroplane through Airbus SB A320-32-1407 (equivalent to production MOD 153655).</p> <p>Since those ADs were issued, analyses performed by Airbus have revealed that the MLG door opening sequence inspection interval must be reduced, and that the (previously optional) terminating action must be made mandatory.</p> <p>For the reasons described above, this AD retains the requirements of EASA AD 2011-0069R1 and AD 2013-0132-E, which are superseded, but with reduced inspection intervals, and requires replacement or modification, as applicable, of the affected MLG door actuators as terminating action for the monitoring, repetitive checks and inspections.</p>
Effective Date:	20 December 2013
Required Action(s) and Compliance Time(s):	<p>Required as indicated, unless accomplished previously:</p> <p>Restatement of the requirements of EASA AD 2011-0069R1:</p> <p>Note 1: The inspection interval of paragraph (6) has been reduced, as compared to the requirements of EASA AD 2011-0069R1, and reference is made to the instructions of Airbus SB A320-32-1390 Revision 02.</p> <p><u>Operational procedure</u></p> <p>(1) Within 14 days after 02 May 2011 [the effective date of the original issue of EASA AD 2011-0069], amend the applicable AFM to incorporate the operational procedure as specified below, and thereafter, operate the</p>

aeroplane accordingly.

- If ECAM triggers the “L/G GEAR NOT DOWNLOCKED” warning, apply the following procedure:

Recycle landing gear.

- *If unsuccessful after 2 min:*

Extend landing gear by gravity.

Refer to ABN-32 L/G GRAVITY EXTENSION.

Inserting a copy of this AD into the AFM is an acceptable method to comply with the requirement of paragraph (1) of this AD.

Note 2: This operational procedure was introduced in a global AFM revision approved by EASA on 04 April 2011.

Note 3: For an aeroplane in a configuration as defined in paragraph (10) of this AD, some additional actions are required – see paragraph (15) of this AD to avoid duplication of actions.

Post Flight Report (PFR) Monitoring: Paragraphs (2) through (9) of this AD apply only to aeroplanes with a MLG door actuator installed, having a P/N as listed in Table 1 of this AD.

- (2) Within 14 days after 02 May 2011 [the effective date of the original issue of EASA AD 2011-0069], or before the accumulation of 800 FC since aeroplane first flight, whichever occurs later, monitor the PFR to check the CFDS messages triggered during the last 8 calendar days in accordance with the instructions of paragraph 4.2.1 of Airbus All Operator Telex (AOT) A320-32A1390.
- (3) Thereafter, at intervals not to exceed 8 calendar days or 5 FC, whichever occurs later, check the CFDS messages recorded during each interval in accordance with the instructions of paragraph 4.2.1 of Airbus AOT A320-32A1390.
- (4) If, during any of the PFR monitoring checks as required by paragraphs (2) and (3) of this AD, a pair of the specific CFDS messages as listed in paragraph 4.2.1 of Airbus AOT A320-32A1390 has been triggered by both Landing Gear Control and Indication Units (LGCIU) for the same flight, before next flight, inspect the door opening sequence of the affected doors of the MLG in accordance with the instructions of Airbus SB A320-32-1390 Revision 02.

Repetitive inspections of the door opening sequence of the Left Hand (LH) and Right Hand (RH) doors of the MLG in accordance with the instructions of Airbus SB A320-32-1390 Revision 02 are an acceptable alternative method of compliance for the actions required by paragraph (3) of this AD.

- (5) The use of an alternative method to check the list of CFDS messages (such as AIRMAN) is acceptable in lieu of the PFR monitoring required by paragraphs (2) and (3) of this AD, provided that this alternative method has been approved by the National Authority of the State of Registry of the aeroplane and that the list of the CFDS messages can be conclusively identified from that check.

MLG Door Actuator Opening Sequence Inspection

- (6) Within 800 FC after 02 May 2011 [the effective date of the original issue of EASA AD 2011-0069] and, thereafter, at intervals not to exceed 8 calendar days or 5 FC, whichever occurs later, without exceeding 425 FC since last inspection (previous interval as required by EASA AD 2011-0069R1), inspect the door opening sequence of the LH and RH doors of the MLG in accordance with the instructions of Airbus SB A320-32-1390 Revision 02.

In case an aeroplane is not operated for a period longer than 8 days, accomplish the next inspection as required by paragraph (6) of this AD before next flight.

- (7) If, during any inspection as required by paragraph (4) or (6) of this AD, as applicable, any discrepancy is found, before next flight, replace the affected MLG door actuator in accordance with the instructions of Airbus SB A320-32-1390 Revision 02.
- (8) MLG door opening sequence inspections and corrective actions, accomplished before the effective date of this AD in accordance with the instructions of Airbus AOT A320-32A1390, or those of Airbus SB A320-32-1390 at Revision 01, are acceptable to comply with the initial requirements of paragraphs (4), (6) and (7) of this AD, as applicable.

Restatement of the requirements of EASA AD 2013-0132-E:

Note 4: The inspection interval of paragraph (10) has been reduced, as compared to the requirements of EASA AD 2013-0132-E.

- (9) Before exceeding 800 FC since first flight of the aeroplane, or within 14 days after 27 June 2013 [the effective date of EASA AD 2013-0132-E], whichever occurs later, determine the configuration (modification status) of the aeroplane and identify the P/N of both LGCIU and MLG door actuators.

A review of the aeroplane delivery records or maintenance records is acceptable for compliance with the requirements of paragraph (1) of this AD, provided the aeroplane configuration and installed components can be conclusively determined from that review.

Table 1 – Affected Components

Component name	P/N
LGCIU	80-178-02-88012
	80-178-03-88013
MLG Door Actuator	114122006
	114122007
	114122009
	114122010
	114122011
	114122012

- (10) If, during the determination and identification as required by paragraph (9) of this AD, the configuration of the aeroplane is established as post-MOD 39303 or post-SB A320-32-1409 (Interlink communication ARINC 429 installed), **and** both LGCIU **and** at least one MLG door actuator are installed with a P/N as listed in Table 1 of this AD, within the compliance time as defined in paragraph (9) of this AD, and, thereafter, at intervals not to exceed 8 calendar days or 5 FC, whichever occurs later, inspect the door opening sequence of the LH and RH MLG doors in accordance with the instructions of Airbus Alert Operator Transmission (AOT) A32N001-13.

In case an aeroplane is not operated for a period longer than 8 days, accomplish the next inspection, as required by paragraph (10) of this AD, before next flight.

- (11) If, during any inspection as required by paragraph (10) of this AD, any discrepancy is found, before next flight, replace the affected MLG door actuator in accordance with the instructions of Airbus AOT A32N001-13.
- (12) An aeroplane on which the LGCIU interlink is disconnected (Airbus MOD 155522 applied in production, or modified in service in accordance with the

	<p>instructions of Airbus AOT A32N001-13), or on which MLG door actuators P/N 114122014 are installed on both LH and RH sides (Airbus MOD 153655 applied in production, or modified in service in accordance with the instructions of Airbus SB A320-32-1407) is not affected by the requirements of paragraphs (10) and (11) of this AD, provided that the aeroplane is not modified to a configuration as defined in paragraph (10) of this AD.</p> <p>Note 5: LGCIU interlink reconnection can be done after installation of MLG door actuators P/N 114122014 on both LH and RH sides.</p> <p>(13) Inspection of the door opening sequence of the LH and RH doors of the MLG of an aeroplane, as required by paragraph (10) of this AD, is an acceptable alternative method to comply with the requirements of paragraphs (2), (3) and (6) of this AD for that aeroplane.</p> <p>New requirements of this AD:</p> <p>(14) For aeroplanes with a MLG door actuator P/N 114122012 installed, within 12 months after the effective date of this AD, replace each P/N 114122012 MLG door actuator in accordance with the instructions of Airbus SB A320-32-1407, or modify each actuator in accordance with the instructions of General Electric (GE) SB 114122-32-105, as applicable.</p> <p>(15) For aeroplanes with a MLG door actuator installed, having a P/N as listed in Table 1 of this AD (except P/N 114122012, see paragraph (14) of this AD), within 24 months after the effective date of this AD, replace each MLG door actuator with a P/N 114122014 MLG door actuator in accordance with the instructions of Airbus SB A320-32-1407, or modify the actuator in accordance with the instructions of GE SB 114122-32-105, as applicable.</p> <p>(16) Modification of an aeroplane as required by paragraph (14) or (15) of this AD, as applicable, constitutes terminating action for all repetitive actions (PFR monitoring checks and inspections) required by this AD for that aeroplane.</p> <p>(17) Replacement of a MLG door actuator as required by paragraph (7) or (11) of this AD, or corrective actions as specified in paragraph (8) of this AD, do not constitute terminating action for the repetitive inspections required by paragraph (3) or (6) or (11) of this AD, unless MLG door actuators P/N 114122014 are installed on both LH and RH sides in accordance with the instructions of Airbus SB A320-32-1407 – see also paragraphs (10) and (11) of this AD.</p> <p>(18) An aeroplane on which MLG door actuators P/N 114122014 are installed on both LH and RH sides (Airbus MOD 153655 applied in production, or modified in service in accordance with the instructions of Airbus SB A320-32-1407 or GE SB 114122-32-105) is not affected by the requirements of paragraphs (2) to (15) of this AD, provided that since first flight, or since modification, as applicable, no MLG door actuator with a P/N as listed in Table 1 of this AD, has been installed on that aeroplane.</p> <p>(19) Do not install on any aeroplane a MLG door actuator, having a P/N as listed in Table 1 of this AD, as required by paragraph (19.1) or (19.2) of this AD, as applicable.</p> <p>(19.1) For aeroplanes that must comply with paragraph (14) or (15) of this AD: after modification of the aeroplane.</p> <p>(19.2) For aeroplanes that, on the effective date of this AD, do not have a MLG door actuator installed with a P/N as listed in Table 1 of this AD: from the effective date of this AD.</p>
Ref. Publications:	<p>Airbus AOT A320-32A1390 original issue dated 10 February 2011.</p> <p>Airbus SB A320-32-1390 Revision 01 dated 21 September 2011, or Revision 02 dated 23 October 2013.</p>

	<p>Airbus AOT A32N001-13 original issue dated 24 June 2013.</p> <p>Airbus SB A320-32-1409 original issue dated 19 March 2013.</p> <p>Airbus SB A320-32-1407 original issue dated 14 May 2013.</p> <p>GE SB 114122-32-105 original issue dated 17 January 2013.</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 21 August 2013 as PAD 13-125 for consultation until 18 September 2013, republished on 25 September 2013 as PAD 13-125R1 for consultation until 09 October 2013, and republished on 13 November 2013 as PAD 13-125R2 for consultation until 27 November 2013. 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, 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 – EIAS, Fax +33 5 61 93 44 51, E-mail: account.airworth-eas@airbus.com.

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