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|  | AIRWORTHINESS DIRECTIVE No F-2003-433 R1 | | Distribution: B | Issue date: July 07, 2004 | Page : 1/5 |
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| Corresponding foreign Airworthiness Directive(s): Not applicable | | | Airworthiness Directive(s) replaced: F-2003-433 original issue | | |
| Person in charge of airworthiness: AIRBUS SAS | | | Type(s): A330 aircraft | | |
| Type certificate(s) No. A.004 TCDS No A.004 | | | | | |
| ATA chapter: 32 | | Subject: Landing gear - Nose wheel steering limits | | | |

1. EFFECTIVITY:

AIRBUS A330 aircraft models -201, -202, -203, -223, -243, -301, 302, -303, -321, -322, -323, -341, -342 and -343, all serial numbers.

2. REASONS:

This Airworthiness Directive (AD) was prompted by an incident that occurred in August 1998 when the right hand main landing gear (MLG) of an A340 aircraft fractured at Landing.

Investigation revealed a fatigue crack initiation located in the upper part of the MLG main fitting cylindrical barrel. This fatigue crack results from high steering and/or high towing angles when turning the aircraft.

It was determined that all A330 and A340 MLG of any standard to date could be affected.

This condition, if not corrected, could ultimately lead to a possible MLG failure on ground.

Several mandatory actions, covering the maintenance and operations aspects by MLG configuration, have been launched through AD 1998-473-083 R5 for A330-300 and AD 1999-160-096 R3 for A330-200.


This new simplified AD is introduced to take into account:

- the results of the first actions required by AD 1998-473-083 R5 and 1999-160-096 R3 which must have been complied with since March 31, 2002.
- new available modifications introducing HYBRID MLG.

The aim for Revision 1 of this AD is to extend the effectivity to the new models A330-302 and A330-303, recently certified.

3. MANDATORY ACTIONS AND COMPLIANCE TIMES:

To prevent the possible failure of a MLG resulting from fatigue crack propagation, the following measures are rendered mandatory from the effective date of this AD at original issue:

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3.1. Configuration 1: A330-300 aircraft fitted with "BASIC" Main Strut and Dressings PNs 201254001-xxx to 201254032-xxx which have not received "HYBRID" modifications:

- pre-MOD 50113/SB A330-32-3146 (Main fitting - strike 94), and
- pre MOD 50115/SB A330-32-3150 (Torque links - strike 97),

These aircraft have not received in production neither modification 43029 (GROWTH main fitting) nor modification 47487 (SCALLOPED GROWTH main fitting).

A) Maintenance:

1. Braking/Steering Control Unit (BSCU) standard (std) 8C or 9B:

Unless already accomplished, modify the aircraft steering system in accordance with the following AIRBUS Service Bulletin (SB):

- A330-32-3092 (Mod 46863) - BSCU std 8C which limits the nose wheel steering (NWS) angle to a maximum of 65° during powered turns, or
- A330-32-3166 (Mod 51393) - BSCU std 9B which limits the NWS angle to a maximum of 65° during powered turns.

Note1: When BSCU std 8C or 9B is installed, the NWS angle is limited for self-powered turns. The flight crew cannot override the 65° limitation controlled by the BSCU.

Note 2: For aircraft on which the tiller modification (Mod 46804/SB A330-32-3091) has been performed, the breakable stop limiting the NWS angle to 65° must be removed in accordance with SB A330-32-3093 (Mod 47349).

2. ACMS software:

ACMS recording of NWS angle exceedances is no longer required.

3. Nose landing gear (NLG) doors markings:

Unless accomplished previously, install markings of the 60° steering angle limitation on NLG doors in accordance with AIRBUS Note 957.4055/98 or SB A330-32-3089 (Mod 46769).

Note 3: If markings are installed on the NLG fittings in addition to the NLG doors markings, they must be installed in accordance with SB A330-32-3100 (Mod 47318).

4. Inspection requirement:

MLG inspection in accordance with the procedure specified in SB A330-32A3088 is no longer required.

B) Operations:

1. Towing and Pushback:

Aircraft Towing and Pushback Steering angle is limited to a maximum of 60° using the procedure described in AIRBUS FOT 999.0099/98 Rev 2 of November 23, 1998.

2. Powered Taxi:

- Do not exceed a 65° steering limit during taxi and powered turns.
- Do not use differential braking during taxi or turning at speeds less than 20 kts,
- No braked pivot turn is allowed,
- Do not use asymmetric thrust to tighten turns. Asymmetric thrust is only authorized during turns at high NWS angles to initiate the turn and keep the aircraft moving during the turn.

3.2. Configuration 2: A330-300 aircraft fitted with Main Strut and Dressings PNs 201254001-xxx to 201254036-xxx that have received "HYBRID" modifications:

- post MOD 50113/SB A330-32-3146 (Main fitting - strike 94), and
- post MOD 50115/SB A330-32-3150 (Torque links – strike 97).

These aircraft have not received in production neither modification 43029 (GROWTH main fitting) nor modification 47487 (SCALLOPED GROWTH main fitting).

A330-200 and A330-300 aircraft fitted with "GROWTH" or "SCALLOPED GROWTH" Main Strut and Dressings PNs 201489001-xxx to 201489004-xxx. These aircraft have received on production either modification 43029 (GROWTH main fitting) or modification 47487 (SCALLOPED GROWTH main fitting).

Note4: "HYBRID" MLG shall not be fitted to an A330/A340 equipped with "GROWTH" or "SCALLOPED GROWTH" MLG.

A) Maintenance:


1. BSCU std 8B/8C/8D/9A/9B:

Unless already accomplished, modify the aircraft steering system in accordance with one of the following SB:

- A330-32-3115 (Mod 47500) - BSCU std 8D which limits the NWS angle to a maximum of 72° during powered turns, or
- A330-32-3149 (Mod 50214) - BSCU std 9A which limits the NWS angle to a maximum of 72° during powered turns, or
- A330-32-3092:
 - Mod 46863: applicable to A330-300 only - BSCU std 8C which limits the NWS angle to a maximum of 65° during powered turns, or
 - Mod 46810: applicable to A330-200 only - BSCU std 8B which limits the NWS angle to a maximum of 60° during powered turns, or
- A330-32-3166 (Mod 51393) - BSCU std 9B which limits the NWS angle to a maximum of 65° during powered turns.

Note 5: When BSCU std 8B, 8C, 8D, 9A or 9B is installed, the NWS angle is limited for self-powered turns. The flight crew cannot override the angle limitation value which depends on the installed BSCU standard:

| Installed BSCU standard | NWS angle limitation for self-powered turns |
|-------------------------|---|
| 8D or 9A | 72° |
| 8C or 9B | 65° |
| 8B | 60° |

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Note 6: For A330-300 aircraft on which the tiller modification (46804/SB A330-32-3091) has been performed, the breakable stop limiting the NWS angle to 65° must be removed in accordance with SB A330-32-3093 (Mod 47349).

2. ACMS software:

ACMS recording of NWS angle exceedences is no longer required.

3. NLG doors markings:

Unless accomplished previously, install markings of the steering angle limitation on NLG doors in accordance with one of the following instructions of:

- SB A330-32-3089 (Mod 46769) or AIRBUS Note 957.4055/98 which installs markings for maximum towing/pushback turning angles (+/-60°), or
- SB A330-32-3120 (Mod 47701) which installs markings for maximum towing/pushback turning angles (+/-65°).

Note 7: If markings are installed on the NLG fittings in addition to the NLG doors markings, they must be installed in accordance with SB A330-32-3100 (Mod 47318) for 60° or with SB A330-32-3121 (Mod 47734) for 65°.

Consistent angles (60° or 65°) must be used for the NLG main fitting and door markings.

4. Inspection requirement:

MLG inspection in accordance with the procedure specified in SB A330-32A3088 is no longer required.


B) Operations:

1. Towing and pushback:

Aircraft towing and pushback steering angle is limited to a maximum of 60 (or 65° depending on the NLG doors markings installed in accordance with the above paragraph A) 3. of this AD), using the procedure described in AIRBUS FOT 999.0099/98 Rev 2 of November 23, 1998.

2. Powered taxi:

- Do not exceed a 72° steering limit during taxi and powered turns.
- No braked pivot turn is allowed.
- Do not use asymmetric thrust to tighten turns. Asymmetric thrust is only authorized during turns at high NWS angles to initiate the turn and keep the aircraft moving during the turn.

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4. REFERENCE PUBLICATIONS:

AIRBUS Service Bulletin A330-32A3088
 AIRBUS Service Bulletin A330-32-3089
 AIRBUS Service Bulletin A330-32-3091
 AIRBUS Service Bulletin A330-32-3092
 AIRBUS Service Bulletin A330-32-3093
 AIRBUS Service Bulletin A330-32-3100
 AIRBUS Service Bulletin A330-32-3115
 AIRBUS Service Bulletin A330-32-3120
 AIRBUS Service Bulletin A330-32-3121
 AIRBUS Service Bulletin A330-32-3146
 AIRBUS Service Bulletin A330-32-3149
 AIRBUS Service Bulletin A330-32-3150
 AIRBUS Service Bulletin A330-32-3166
 AIRBUS FOT 999.0099/98 Revision 2 dated November 23, 1998
 (Any further approved revision of these SB or FOT is acceptable).
 AIRBUS Note 957.4055/98.

5. EFFECTIVE DATES:

Original issue : December 20, 2003
Revision 1 : July 17, 2004

6. REMARK:

For questions concerning the technical contents of this AD's requirements, contact:
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7. APPROVAL:

This AD Revision is approved under EASA reference No 2004-7040 dated June 29, 2004.