	AIRWORTHINESS DIRECTIVE No F-2005-210	Distribution: B	Issue date: December 21, 2005	Page : 1/3
Direction générale de l'aviation civile France GSAC publication	This Airworthiness Directive is published by the DGAC on behalf of EASA, Airworthiness Authority of the State of Design for the affected product, part or appliance.		*Translation of « Consigne de Navigabilité » of same number.* *In case of difficulty, reference should be made to the French issue.*	
	No person may operate an aircraft to which an Airworthiness Directive applies, except in accordance with the requirements of that Airworthiness Directive, unless otherwise agreed with the Authority of the State of Registry.			

Corresponding foreign Airworthiness Directive(s): **Not applicable**	Airworthiness Directive(s) replaced: **2001-504 cancelled by its Revision 6**
Person in charge of airworthiness: **AIRBUS SAS**	Type(s): **A330 aircraft**
Type certificate(s) No. **EASA.A.004** TCDS No **EASA.A.004**	
ATA chapter: **32**	Subject: **Nose landing gear - Inspection and modification of the nose wheel steering system - Rotating sleeve**

1. EFFECTIVITY :

AIRBUS A330 aircraft, models -201, -202, -203, -223, -243, -301, -302, -303, -321, -322, -323, -341, -342 and -343, all serial numbers except those having received both AIRBUS modifications 51381 and 53073 in production or AIRBUS Service Bulletins (SB) A330-32-3164 and A330-32-3192 in service.

2. REASONS :

2.1. An operator of A340 aircraft reported a failure of the nose wheel steering (NWS) system.

Investigations found abnormal wear of the gear teeth of the RVDT gearbox and the driving gear ring preventing correct operation of the NWS system.

In addition, chrome flaking and extensive corrosion of the nose landing gear (NLG) main fitting barrel was found under the NWS rotating sleeve.

The subsequent analyses conducted on grease samples showed the presence of water in significant quantities.

The wear of the gear teeth of the RVDT gearbox and the driving gear ring was caused by the abrasive effect of metallic particles in the grease. These metallic particles from corroded areas had been carried by the grease during the normal lubrication of the rotating sleeve.

This presence of water could freeze the grease and thus jam the gearboxes.

This situation, if not corrected, could cause the aircraft to deviate from its steered direction and/or allow an uncontrolled corrosion propagation of the main fitting barrel.

2.2. Airworthiness Directive (AD) 2001-504 dealing with the same subject was issued to render mandatory inspections for corrosion under nose wheel steering system-rotating sleeve.

Revision 1 of the AD was issued in order to clarify the paragraph 3.1.

Revision 2 of the AD was issued in order to precise the applicable effective date.

Revision 3 of the AD was issued was to extend the field applicability of this AD to the new A330-201 model.

Revision 4 of the AD was issued :

- to introduce an alternative to the repetitive inspection of the grease and the gear teeth of the RVDT gearbox, with a higher interval, and also
- introduces inspection methodology for LG with modification 51381 or AIRBUS SB A330-32-3164 (addition of seal to prevent the migration of grease in the RVDT gearboxes).

Revision 5 of the AD was issued to extend the field applicability to the new A330-302 and A330-303 models.

2.3. This new AD takes over the requirements of AD 2001-504 R5 and mandates AIRBUS SB:

- A330-32-3164, associated to AIRBUS modification 51381 (addition of seal within rotating steering collar)
- A330-32-3192, associated to AIRBUS modification 53073 (addition of new steering collar and bushes to improve greasing).

The embodiment of both AIRBUS SB cancels the repetitive inspections required by this AD.

3. MANDATORY ACTIONS AND COMPLIANCE TIMES :

3.1. For aircraft on which AIRBUS modification 51381 has not been embodied in production (AIRBUS SB A330-32-3164 in-service)

Unless already accomplished,

- within 5 years following the NLG installation (new or overhauled, if major overhaul already accomplished),

or

- within 700 flight hours from October 27, 2001 (effective date of AD 2001-504 at original issue),

whichever occurs later,

3.1.1. Perform inspection of the grease and the gear teeth of the RVDT gearbox and the driving gear ring and depending on the results, carry out the corrective actions in accordance with the instructions of AIRBUS SB A330-32-3134.

3.1.2. Repeat this inspection at intervals not exceeding 8 months.

or,

3.1.3. Perform an inspection of the chrome on the bearing surface of the NLG main fitting barrel under the rotating sleeve, in accordance with the instructions of AIRBUS SB A330-32-3134.

3.1.4. Repeat this inspection at intervals not exceeding 18 months.

Note 1: If the last inspection performed is the inspection defined in paragraph 3.1.1. then the following inspection is to be carried out within 8 months whatever its type is (inspection of the grease or inspection of the chrome on the bearing surface).
If the last inspection performed is the inspection defined in paragraph 3.1.3., then the following inspection is to be carried out within 18 months, whatever its type is (inspection of the grease or inspection of the chrome on the bearing surface).

3.2. For aircraft on which AIRBUS modification 51381 has been embodied in production (AIRBUS SB A330-32-3164 in-service) and modification 53073 not embodied In production (AIRBUS SB A330-32-3192 in service)

Unless already accomplished,

Within 5 years following the NLG installation (new or overhauled, if major overhaul already accomplished), or within 5 years from accomplishment of AIRBUS SB A330-32-3164:

3.2.1. Carry out an inspection of the chrome on the bearing surface in the NLG main fitting barrel under the rotating sleeve in accordance with the instructions of AIRBUS SB A330-32-3134.

3.2.2. Repeat this inspection at intervals not exceeding 18 months.

3.3. Modification

Unless already accomplished,

- for pre overhauled NLG's, not later than 10 years following NLG first flight,
- for post overhauled NLG's, not later than 5 years from NLG overhaul or not later than 15 years since NLG first flight, whichever occurs first,

modify the NLG in accordance with instructions of AIRBUS SB A330-32-3164 (AIRBUS modification 51381 in production) and AIRBUS SB A330-32-3192 (AIRBUS modification 53073 in production).

Note 2: The embodiment of both AIRBUS SB A330-32-3164 and A330-32-3192 or application of AIRBUS SB A330-32-3192 when AIRBUS modification 51381 is embodied in production, cancels the repetitive inspections required by this AD.

4. REFERENCE PUBLICATIONS:

AIRBUS Service Bulletin A330-32-3164
AIRBUS Service Bulletin A330-32-3192
AIRBUS Service Bulletin A330-32-3134
(Any later approved revision of these SB is acceptable).

5. EFFECTIVE DATE:

December 31, 2005

6. REMARK:

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

AIRBUS SAS - Office of Airworthiness - EAL - Fax : 33 5 61 93 45 80 or 33 5 61 93 44 51

7. APPROVAL:

This AD is approved under EASA reference No 2005-6436 dated December 13, 2005.