	AIRWORTHINESS DIRECTIVE No F-2005-098	Distribution: B	Issue date: June 22, 2005	Page : 1/4
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: **F-2004-086 cancelled by its Revision 1**
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: **Landing gear - Main landing gear - Inspection of retraction actuator piston rod**

1. EFFECTIVITY:

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

Note 1: Aircraft which have received application of the AIRBUS Service Bulletin (SB) A330-32-3173 at original issue or at Revision 01 are still concerned by this new Airworthiness Directive (AD).

2. REASONS:

Reminder of the reasons given in AD F-2003-458 and F-2004-086 R1 :

During an approach phase, the flight crew of an A330 aircraft had to perform a free-fall extension of the LH main landing gear (MLG).

Rupture of the LH MLG retraction actuator piston rod was found near to the rod attachment point. The inspection revealed the presence of corrosion and of many cracks at the location of the rupture.

This rupture led to a non-damped extension of the landing gear. Fully extended, the landing gear assembly was submitted to high loads compromising its structural integrity.

This situation, if uncontrolled, could lead during extension and landing to a potentially dangerous event.

A new incident of the same type as previously described in AD F-2003-458, has occurred on an in-service aircraft and has led the manufacturer to determine a weekly visual inspection schedule of the visible chromed area of the retraction actuator piston rod.

Note 2: As previously advised AIRBUS and MESSIER-DOWTY are currently developing an ultrasonic inspection for this chromed area not introduced in this AD.

Further to AD F-2004-086 R1, it has been determined that the presence of water in the internal volume of the piston rod can lead to the formation of ice which presents a potential source of stress in the material of the rod.

All previous inspection requirements of AD F-2004-086 R1 remain applicable, with the addition of a procedure to remove fluid from the internal volume of the rod and prevent further accumulation by re-sealing the vent hole.

This new AD:

- takes over the requirements of AD F-2003-458 and AD F-2004-086 R1,
- mandates the removal of fluid from the internal volume of the piston rod and the reporting of the drainage to the manufacturer.

3. MANDATORY ACTIONS AND COMPLIANCE TIMES:

From the effective date of this AD, the following measures are rendered mandatory for retraction actuator piston rods PN 114256309 or PN 114256321 as soon as they have accumulated three years use in service:

Unless already accomplished,

3.1. Detailed visual inspection of the retraction actuator piston rod

For each concerned retraction actuator not yet visually inspected in accordance with AIRBUS SB A330-32-3173 at Rev. 01 or Rev. 02, at the latest when it reaches the three years old in service usage,

or,

for each concerned retraction actuator that has already been visually inspected in accordance with AIRBUS SB A330-32-3173 Rev. 01 or Rev. 02, within 8 days from the last visual inspection performed in accordance with SB A330-32-3173 Rev. 01 or Rev. 02

3.1.1. Conduct the visual inspection of the accessible chromed area of the piston rod in fully extended position to search for cracks in accordance with the instructions defined in AIRBUS SB A330-32-3173 Rev. 02.

3.1.2. If the results of the inspection defined in § 3.1.1. indicate the presence of one or more cracks, replace the retraction actuator before the next flight in accordance with the instructions defined in AIRBUS SB A330-32-3173 Rev. 02.

3.1.3. Repeat this visual inspection at intervals not exceeding 8 calendar days in accordance with the instructions defined in AIRBUS SB A330-32-3173 Rev. 02 and, if applicable, replace the retraction actuator.

3.2. Drain the fluid from the piston rod and seal the vent hole:

For each concerned retraction actuator not yet inspected by AIRBUS SB A330-32-3173 at original issue or Rev. 01 or Rev. 02, at the latest when it reaches the three years old in service usage,

or,

for each concerned retraction actuator already inspected by AIRBUS SB A330-32-3173 at original issue or at Rev. 01 or Rev. 02, within 1,750 flight hours, 315 flight cycles or 5 months from the date of the last inspection performed in accordance with AIRBUS SB A330-32-3173 at original issue or at Rev. 01 or Rev. 02 whichever occurs first,

3.2.1. Conduct the procedure to drain fluid from the retraction actuator piston rod internal volume and seal the vent hole in accordance with the instructions defined in AIRBUS SB A330-32-3173 Rev. 02.

3.2.2. Repeat the draining and the sealing of the vent hole at an interval not exceeding 4,200 flight hours or 12 months whichever occurs first, in accordance with the instructions defined in AIRBUS SB A330-32-3173 Rev. 02.

3.3. Detailed visual and ultrasonic inspection of the piston rod:

For each concerned retraction actuator not yet inspected by AIRBUS SB A330-32-3173 at original issue or Rev. 01 or Rev. 02, at the latest when it reaches the three years old in service usage,

or,

for each concerned retraction actuator already inspected by AIRBUS SB A330-32-3173 at original issue or at Rev. 01 or Rev. 02 within 1,400 flight hours, 250 flight cycles or 4 months from the date of the last inspection performed in accordance with AIRBUS SB A330-32-3173 at original issue or at Rev. 01 or Rev. 02 whichever occurs first,

3.3.1. Conduct the visual inspection of the visible chromed area of the piston rod in fully extended position to search for cracks in accordance with the instructions defined in AIRBUS SB A330-32-3173 Rev. 02.

3.3.2. If the results of the inspection defined in § 3.3.1. indicate the presence of one or more cracks, replace the retraction actuator before the next flight in accordance with the instructions defined in AIRBUS SB A330-32-3173 Rev. 02.

3.3.3. If the results of the inspection defined in § 3.3.1. do not indicate the presence of any crack, conduct an ultrasonic inspection of the retraction actuator piston rod end in accordance with the instructions defined in AIRBUS SB A330-32-3173 Rev. 02.

3.3.4. If the results of the inspection defined in § 3.3.3. give an indication above 90% FSH (Full Screen Height) and between 5 and 7 in Time Base, replace the retraction actuator before the next flight.

3.3.5. If the results of the inspection defined in § 3.3.3. give an indication between 75% and 90% FSH and between 5 and 7 in Time Base, replace the retraction actuator at latest within the next 10 flight cycles.

3.3.6. If the results of the inspection defined in § 3.3.3. give an indication below 75% FSH and between 5 and 7 in Time Base, repeat the inspections defined in § 3.3. at intervals not exceeding 1,400 flight hours or 250 flight cycles or 4 months, since the previous inspection, whichever occurs first.

3.4. In all cases, report the results of the ultrasonic inspection (regardless of findings) and of the retraction actuator piston rod draining upon completion of the task in accordance with the instructions defined in AIRBUS SB A330-32-3173 Rev. 02. Report also the visual inspection results whenever the replacement of the retraction actuator is required in accordance with the instructions defined in AIRBUS SB A330-32-3173 Rev. 02.

Note 3: Any retraction actuator piston rod PN 114256309 or 114256321, installed as a replacement, new or used, must be submitted to the mandatory actions described in § 3 of this AD at the stated thresholds and intervals.

4. REFERENCE PUBLICATION:

AIRBUS Service Bulletin A330-32-3173 Rev. 02
(Any later approved revision of this SB is acceptable).

5. EFFECTIVE DATE:

July 02, 2005.

6. REMARK:

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

AIRBUS SAS - Office of Airworthiness - Fax: 33 5 61 93 45 80.

7. APPROVAL:

This AD is approved under EASA reference No 2005-5887 dated June 14, 2005.