

# AIRWORTHINESS DIRECTIVE

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*Inspection and/or modifications described below are mandatory. No person may operate a product to which this Airworthiness Directive applies except in accordance with the requirements of this Airworthiness Directive.*

Translation of 'Consigne de Navigabilité' ref. : 2001-607(B)  
In case of any difficulty, reference should be made to the French original issue.

## AIRBUS INDUSTRIE

### A330 aircraft

A330/PW4000 - Engine mount - Inspection and modification of barrel nuts MP 159 (ATA 71)

#### APPLICABILITY:

AIRBUS INDUSTRIE A330 aircraft, models -223, -321, -322 and -323, all serial numbers, fitted with engine aft mount barrel nuts and bolts P/N 51U670.

**Note 1:** Aircraft on which AIRBUS INDUSTRIE modification 49419 in production or AIRBUS INDUSTRIE Service Bulletin (SB) A330-71-3015 (or PRATT & WHITNEY SB PW4G-100-71-23) in service has been embodied are not concerned by this Airworthiness Directive (AD).

**Note 2:** The nuts and bolts concerned by this AD, also referenced as MP 159, were installed in production through AIRBUS INDUSTRIE modification 46948 or in service through AIRBUS INDUSTRIE Service Bulletin (SB) A330-71-3012.

**Note 3:** The aircraft models concerned by this AD are equipped with PW 4000 engines.

#### REASONS:

Several cases of engine aft mount nut cracks have been reported on A330 aircraft equipped with PW4000 engines.

Cracks on more than one nut would significantly affect the integrity of the engine / pylon aft mount assembly, i.e. of the engine mechanical retention.

It was found that the cause of these cracks was a static failure due to the combination of overtorque and the use of anti-seize compound instead of engine oil.

AD 2001-022(B) R1 dealing with the same subject is superseded by this AD.

The purpose of this AD is to restate the inspections and torques of unmodified MP 159 nuts and bolts, rendered mandatory by AD 2001-022(B) R1 until the barrel nuts concerned are replaced by modified nuts. The new design one-piece nuts have an increased strength, which makes it possible to use anti-seize compound.

**COMPLIANCE:**

The following actions are rendered mandatory:

**A- FOR THE AIRCRAFT OF AN OPERATOR WHO HAS IDENTIFIED CRACKED BARREL NUT(S) ON AT LEAST ONE AIRCRAFT OF THE FLEET, BY APPLICATION OF TAD No. T2000-523-134(B), OR TAD n° T2001-022(B), OR AD No. 2001-022(B) R1.**

1. The first inspection had to be accomplished before the next flight following the effective date of T.A.D No. T2000-523-134(B), in accordance with the instructions of paragraph 4.2.1 of the referenced AOT(\*). Technical ferry flight back to a maintenance base capable of accomplishing the required inspection was allowed.

Following this first inspection, inspections must be repeated according to paragraphs 2 to 5 below.

2. For aircraft for which the last inspection of the barrel nuts was a visual inspection (as per paragraph 4.2.1.1 of the referenced AOT(\*)), or for aircraft on which at least one aft mount barrel nut removal/installation was performed, take the following actions:
  - Unless already accomplished with any Revision of the referenced AOT(\*), perform a boroscope inspection, in accordance with the instructions of paragraph 4.2.1.2 of AOT A330-71A3014 Revision 4, before accumulating 25 flight cycles from January 12, 2001 (date of issue of AOT A330-71A3014 Revision 2).
  - Repeat the boroscope inspection at intervals not exceeding 50 flight cycles.
3. For aircraft for which the last inspection of the barrel nuts was a boroscope inspection (in accordance with paragraph 4.2.1.2 of the referenced AOT(\*)):
  - Repeat the boroscope inspection at intervals not exceeding 50 flight cycles in accordance with the instructions of paragraph 4.2.1.2 of AOT A330-71A3014 Revision 4.
4. After any barrel nut removal/installation (further to visual inspection, engine change, nut replacement due to cracks, or replacement of a nut by a new one), the following inspections are mandatory:
  - Perform a boroscope inspection, in accordance with the instructions of paragraph 4.2.1.2 of AOT A330-71A3014 Revision 4 before the next flight.
  - Repeat the boroscope inspection at intervals not exceeding 50 flight cycles.
5. Perform a boroscope inspection in accordance with the instructions of paragraph 4.2.1.2 of AOT A330-71A3014 Revision 4, before the next flight after one of the following events: hard landing, excessive turbulence, engine bird strike or foreign object damage leading the affected engine to exceed the N1 vibration advisory level, engine stall, engine side loads, in accordance with paragraph 4.1.1.4 of AOT A330-71A3014, Revision 4.

Should such an event be encountered, technical ferry flight back to a maintenance base capable of accomplishing the required inspection is allowed.

6. Unless already accomplished, before April 17, 2001, or within 3 months following the first identification of damaged barrel nuts on the concerned fleet, whichever comes later:

Replace the 4 barrel nuts of each engine mount by new MP 159 barrel nuts.

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After installation of the new nuts:

- Perform a boroscope inspection, in accordance with the instructions of paragraph 4.2.1.2 of AOT A330-71A3014 Revision 4 before the next flight.
- Perform another boroscope inspection in accordance with the instructions of paragraph 4.2.1.2 of AOT A330-71A3014 Revision 4, before accumulating 50 flight cycles.
- Repeat this boroscope inspection at intervals not exceeding 300 flight cycles,  
or
- replace the 4 nuts and bolts of each engine mount by INCO718 nuts and bolts, provided the associated engine is not equipped with a kevlar fan case (post modification 47218 or post SB A330-72-3006).

**B- FOR THE AIRCRAFT OF AN OPERATOR WHO HAS NOT IDENTIFIED ANY DAMAGE ON THE FLEET, IN THE FRAMEWORK OF TAD No. T2000-523-134(B) OR TAD No. T2001-022(B) OR AD No. 2001-022(B) R1:**

1. The first inspection had to be accomplished before the next flight following the effective date of TAD No. T2000-523-134(B), in accordance with the instructions of paragraph 4.2.1 of the referenced AOT(\*). Technical ferry flight back to maintenance base capable of accomplishing the required inspection was allowed.

Following this first inspection, inspections must be repeated according to paragraphs 2 to 5 below.

2. After any barrel nut removal and installation (further to visual inspection or change of engine, or nut replacement due to cracks, or replacement of a nut by a new one), the following inspections are mandatory:
  - Perform a boroscope inspection in accordance with the instructions of paragraph 4.2.1.2 of AOT A330-71A3014 Revision 4, before the next flight.
  - Perform another boroscope inspection in accordance with the instructions of paragraph 4.2.1.2 of AOT A330-71A3014 Revision 4, before accumulating 50 flight cycles.
  - Repeat this boroscope inspection at intervals not exceeding 300 flight cycles.
3. For aircraft on which the barrel nuts have not been subjected to a visual inspection:
  - Repeat the boroscope inspection in accordance with the instructions of paragraph 4.2.1.2 of AOT A330-71A3014 Revision 4, at intervals not exceeding 50 flight cycles, until a visual inspection is performed in accordance with the instructions of paragraph 4.2.1.1 of the referenced AOT(\*)
4. For aircraft on which the barrel nuts have been subjected to a visual inspection:
  - 4.1. If the last inspection was a visual inspection performed in accordance with paragraph 4.2.1.1 of the referenced AOT(\*):
    - Perform a boroscope inspection in accordance with the instructions of paragraph 4.2.1.2 of AOT A330-71A3014 Revision 4, before accumulating 25 flight cycles from January 12, 2001 (date of issue of AOT A330-71A3014 Revision 2).
    - Repeat this inspection at intervals not exceeding 300 flight cycles.
  - 4.2. If the last inspection was a boroscope inspection performed in accordance with paragraph 4.2.1.2 of the referenced AOT(\*):
    - Repeat this boroscope inspection in accordance with the instructions of paragraph 4.2.1.2 of AOT A330-71A3014 Revision 4 at intervals not exceeding 300 flight cycles.

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5. Perform a boroscope inspection in accordance with the instructions of paragraph 4.2.1.2 of AOT A330-71A3014 Revision 4, before the next flight after one of the following events: hard landing, excessive turbulence, engine bird strike or foreign object damage leading the affected engine to exceed the N1 vibration advisory level, engine stall, engine side loads, as defined in paragraph 4.1.1.4 of AOT A330-71A3014 Revision 4.

Should such an event be encountered, technical ferry flight back to a maintenance base capable of accomplishing the inspection required is allowed.

**C- IN ALL CASES WHEN MP 159 BARREL NUTS AND BOLTS ARE INSTALLED AFTER REMOVAL:**

Install MP 159 nuts and MP 159 bolts in accordance with the torque range and lubrication instructions given in paragraph 4.2.1.1(h) of AOT A330-71A3014 Revision 4.

**Comments:**

1. The torque values applicable to INCO718 bolts and nuts are lower than those of MP 159. For any INCO718 bolt/nut installation, refer to the instructions of paragraph 4.2.2(c) of AOT A330-71A3014 Revision 5.
2. Mixing INCO718 (pre-mod 46948) hardware with MP 159 (post-mod 46948) hardware on a same engine is strictly forbidden.

This remark is valid for each engine (LH and RH).

**D- MODIFICATION OF MP159 NUTS**

Before August 31, 2002, replace all MP 159 nuts of the aft engine mounts by modified nuts (P/N 52U629) in accordance with the instructions of AIRBUS INDUSTRIE SB A330-71-3015.

This action puts an end to the inspection requirements of paragraphs A and B of this AD.

(\*) AOT A330-71A3014 Revision 0, 1, 2, 3, or 5.

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**REF.:** AIRBUS INDUSTRIE AOT A330-71A3014 of December 08, 2000  
AIRBUS INDUSTRIE AOT A330-71A3014 Rev. 1 of December 22, 2000  
AIRBUS INDUSTRIE AOT A330-71A3014 Rev. 2 of January 11, 2001  
AIRBUS INDUSTRIE AOT A330-71A3014 Rev. 3 of January 17, 2001  
AIRBUS INDUSTRIE AOT A330-71A3014 Rev. 4 of April 10, 2001  
AIRBUS INDUSTRIE AOT A330-71A3014 Rev. 5 of October 03, 2001  
AIRBUS INDUSTRIE Service Bulletin A330-71-3015  
(Any later approved revision is acceptable).

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This AD replaces AD 2001-022(B) which is cancelled.

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**EFFECTIVE DATE : DECEMBER 22, 2001**