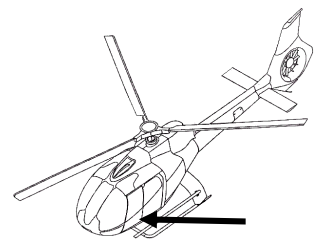



Civil version(s): B4, T2

# ALERT SERVICE BULLETIN

**SUBJECT: ROTOR FLIGHT CONTROLS - Collective Pitch Control**

**Adjustment of Low Pitch Locking on pilot's Collective Pitch Control**



<b>For the attention of</b>	
	/

Revision No.	Date of issue
Revision 0	2016-02-23

**Summary:**

Check and adjust if necessary the clearance between the tab hook and the low pitch locking pin of the pilot's collective pitch stick.

**Compliance:**

Airbus Helicopters renders compliance with this ALERT SERVICE BULLETIN mandatory, except for paragraph 3.D.

## **1. PLANNING INFORMATION**

### **1.A. EFFECTIVITY**

#### **1.A.1. Helicopters/installed equipment or parts**

All EC130 B4 and T2 helicopters.

#### **1.A.2. Non-installed equipment or parts**

Not applicable.

### **1.B. ASSOCIATED REQUIREMENTS**

Not applicable.

### **1.C. REASON**

During the autorotation phase of an acceptance flight, when the pilot pushed the collective pitch stick to the low pitch position, he felt a jamming sensation in the stick. After pushing the collective pitch stick, he freed the stick by pulling on it.

Analysis of this incident has demonstrated that the locking tab hook is extremely close to the low pitch locking pin and that a fold in the boot may have entered the space between these two parts.

In order to prevent this type of event from occurring, the solution consists in ensuring a minimal clearance of 5 mm (.196 in) between the tab hook and the locking pin.

Airbus Helicopters renders mandatory the check and, if necessary, the adjustment of the clearance between the tab hook and the pilot's collective pitch stick locking pin in its low pitch position.

### **1.D. DESCRIPTION**

This ALERT SERVICE BULLETIN consists in checking and, if necessary, adjusting the clearance between the tab hook and the low pitch locking pin of the pilot's collective pitch stick.

### **1.E. COMPLIANCE**

#### **1.E.1. Compliance at H/C manufacturer level**

Not applicable.

### 1.E.2. Compliance in service

The work on the helicopter is to be performed by the operator.

Helicopters/installed equipment or parts:

Comply with paragraphs 3.A. to 3.C. of this ALERT SERVICE BULLETIN within 165 flying hours or 3 months (whichever comes first) following receipt of this ALERT SERVICE BULLETIN issued on the date indicated at the bottom of the page.

Non-installed equipment or parts:

Not applicable.

### 1.F. APPROVAL

Approval of modifications:

Not applicable



Approval of this document:

The technical information contained in this Service Bulletin Revision 0 was approved on February 22, 2016 under the authority of EASA Design Organization Approval No. 21J.056 for helicopters of civil versions subject to an Airworthiness Certificate.

### 1.G. MANPOWER



For compliance with this ALERT SERVICE BULLETIN, Airbus Helicopters recommends the following personnel qualifications:

Qualification: 1 Mechanical Engineering Technician.



The time for the operations is given for information purposes, for a standard configuration.

Time for the operations: approximately 30 minutes to measure the clearance,  
approximately 2 hours to perform the adjustment and final steps.

### 1.H. WEIGHT AND BALANCE

Not applicable.

### 1.I. POWER CONSUMPTION

Not applicable.

### 1.J. SOFTWARE UPGRADES/UPDATES

Not applicable.

**1.K. REFERENCES**

The documents required for compliance with this ALERT SERVICE BULLETIN are as follows:

- Aircraft Maintenance Manual (AMM):
  - . AMM: 29-00-00, 2-1: Hydraulic power supply on the ground - General
  - . AMM: 29-00-00, 3-1: General Safety Instructions - Hydraulic Power System
  - . AMM: 67-00-00, 3-1: General Safety Instructions - Flight Controls - Rotor flight controls
  - . AMM: 67-10-00, 4-1: Removal / Installation - Servo-control Input Rod (Dual Hydraulic System) - Main rotor Flight control
  - . AMM: 67-12-00, 5-2: Adjustment - Fine Pitch Engagement Collective Pitch Control
- Standard Practices Manual (MTC):
  - . Work Card: 20.02.05.404: Joining by bolts and nuts

**1.L. OTHER AFFECTED PUBLICATIONS**

Airbus Helicopters will modify the following document with respect to this ALERT SERVICE BULLETIN:

Aircraft Maintenance Manual (AMM).

**1.M. PART INTERCHANGEABILITY OR MIXABILITY**

Not applicable.

**2. EQUIPMENT OR PARTS INFORMATION****2.A. EQUIPMENT OR PARTS: PRICE - AVAILABILITY - PROCUREMENT**

Not applicable.

**2.B. LOGISTIC INFORMATION**

Not applicable.

**2.C. EQUIPMENT OR PARTS REQUIRED PER HELICOPTER/COMPONENT**

Consumables to be ordered separately:

As per the Work Cards and Tasks specified in this ALERT SERVICE BULLETIN:

The consumables can be ordered separately from the INTERTURBINE AVIATION LOGISTICS company.

Website: <http://www.interturbine.com>

Telephone: +49.41.91.809.300

AOG: +49.41.91.809.444

Special tools:

<b>Designation</b>	<b>Qty</b>	<b>Tool P/N or equivalent</b>	<b>Item</b>
Shim	1	Off the shelf	zz
Ruler	1	Off the shelf	yy
Spring scale	1	Off the shelf	xx

**2.D. EQUIPMENT OR PARTS TO BE RETURNED**

Not applicable.

### 3. ACCOMPLISHMENT INSTRUCTIONS

#### 3.A. GENERAL

Read and comply with the general hydraulic safety instructions as per AMM Task 29-00-00, 3-1.  
Read and comply with the general Flight Control safety instructions as per AMM Task 67-00-00, 3-1.

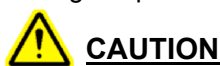
#### 3.B. WORK STEPS

##### 3.B.1. Preliminary steps

- Remove and/or open all cowlings, panels, doors and equipment as required for access to the various work areas.
- Either: energize one of the two hydraulic systems as per AMM Task 29-00-00, 2-1.
- Or: disconnect the actuating rods at the servocontrols as per AMM Task 67-10-00, 4-1.

##### 3.B.2. Procedure (Figure 1)

- Detach and raise the protective boot along the pilot's collective pitch stick.



**IF THE ACTUATING RODS HAVE BEEN DISCONNECTED ENSURE THAT THEY DO NOT INTERFERE WITH THE SURROUNDING ELEMENTS WHEN THE COLLECTIVE PITCH STICK IS MANIPULATED.**

- Using a shim (zz) (or ruler (yy)) (for example), measure and record the minimum clearance value (J) between the edge of pilot's collective pitch stick tab hook (a) and the edge of locking pin (b), (see Figure 1 below) when moving the pilot's collective pitch stick in the low pitch area.

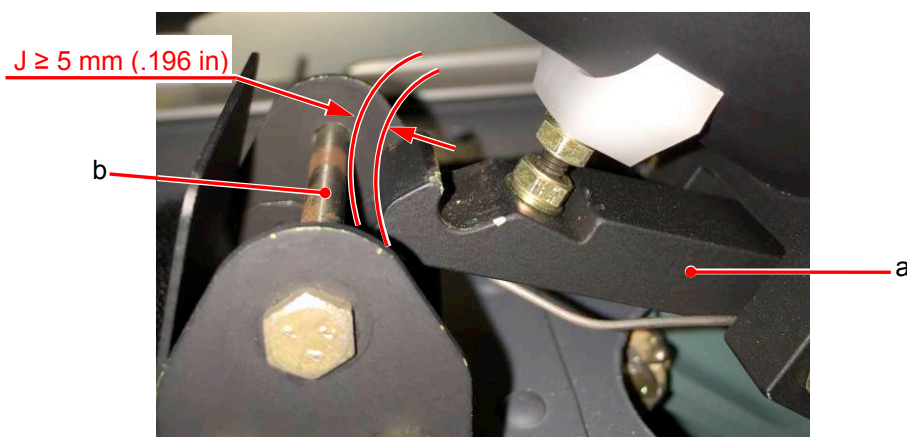


Figure 1

##### Interpretation of the results:

- If the clearance value (J) is equal to or more than 5 mm (.196 in.), carry out the final steps as per paragraph 3.B.6.
- If the clearance value (J) is less than 5 mm (.196 in.), readjust as per paragraph 3.B.3.

### 3.B.3. Adjusting the clearance between tab (a) and locking pin (b) (Figures 1 and 4)

- Loosen bolts (c) (Detail C or F, Figure 4).
- Adjust the longitudinal position of locking pin (b) using the horizontal slots of support (e) of locking pin (b) in order to ensure a minimal clearance (J) of 5 mm (.196 in). (Figure 1, page 6/11).
- Tighten bolts (c) (Detail C or F, Figure 4) as per MTC Work Card 20.02.05.404.

### 3.B.4. Tests (Figures 1, 2 and 4)

- Slide tube (f) (Detail A or D, Figure 4) forwards and check that tab (a) (Detail B or E) engages correctly on locking pin (b) (Detail C or F).
- If this is not the case:
  - .. loosen nuts (g),
  - .. adjust the height of locking pin (b) using the vertical slots of support (e),
  - .. torque-tighten nuts (g) as per Detail C or F,
  - .. lock the collective pitch stick in the "low pitch" position.
- Using a spring balance (xx) positioned in the middle of the twist grip, push the pilot's collective stick downwards (see Figure 2 below) and check that tab (a) (Figure 4, Detail B or E) releases correctly from locking pin (b) (Detail C or F) at a load of more than 110 N (24.72 lbf).



Figure 2

- . If this is not the case:
  - .. adjust the vertical position of locking pin (b):
    - ... loosen nuts (g),
    - ... adjust the height of locking pin (b) using the vertical slots of support (e),
    - ... torque-tighten nuts (g) as per Detail C or F.
  - . If this is not sufficient:
    - .. adjust the inclination of tab (a) (Detail B or E) using adjustment screw (d).
- After adjusting, ensure that the minimum clearance value (J) between the edge of tab (a) of the pilot's collective pitch stick and the edge of locking pin (b) (Figure 1, page 6/11) when moving the pilot's collective pitch stick in the low pitch area is still at least 5 mm (.196 in).

### 3.B.5. Final steps following tests (Figure 3)

- Install and attach the protective boot on the pilot's collective pitch stick.
- In order to ensure that no boot folds have entered the space between the locking tab and the low pitch locking pin:
  - . check the locking of the pilot's collective pitch stick in low pitch position,
- and
- . check, under the floor, the contact between low pitch stop screw (h) and collective pitch stick (j)  
(see Figure 3 below).

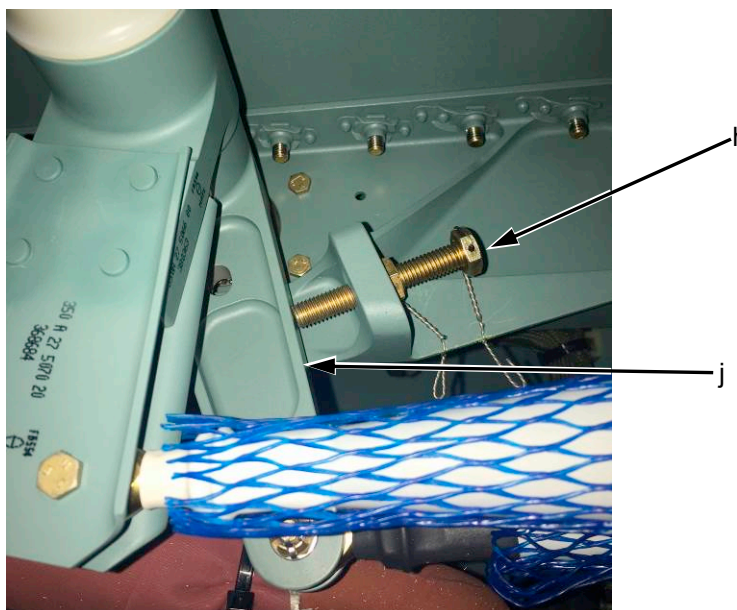


Figure 3

### 3.B.6. Final steps

- Shut off power to the hydraulic system as per AMM Task 29-00-00, 2-1.
- or
- Attach the actuating rods to the servocontrols as per AMM Task 67-10-00, 4-1.
- Install and/or close all cowlings, panels and doors and equipment removed and/or opened during the preliminary steps (paragraph 3.B.1.).

## 3.C. COMPLIANCE CONFIRMATION

Compliance with this document:

Record compliance with this ALERT SERVICE BULLETIN, with its revision number, in the helicopter documents.



### 3.D. OPERATING AND MAINTENANCE INSTRUCTIONS

#### Operating instructions:

Not applicable.

#### Maintenance instructions:

For any intervention requiring compliance with AMM Task 67-12-00, 5-2, and pending its update, Airbus Helicopters recommends adjusting the low pitch locking in accordance with the following procedure:

#### Adjustment of the low pitch locking:

- Either: energize one of the two hydraulic systems as per AMM Task 29-00-00, 2-1.
- Or: disconnect the actuating rods at the servocontrols as per AMM Task 67-10-00, 4-1.



#### **CAUTION**

**IF THE ACTUATING RODS HAVE BEEN DISCONNECTED ENSURE THAT THEY DO NOT INTERFERE WITH THE SURROUNDING ELEMENTS WHEN THE COLLECTIVE PITCH STICK IS MANIPULATED.**

- Detach and raise the protective boot along the pilot's collective pitch stick.
- When the collective pitch stick is in the low pitch position:
  - Loosen bolts (c).
  - Adjust the longitudinal position of locking pin (b) (Detail C or F, Figure 4) using the horizontal slots of support (e) of locking pin (b) in order to ensure a minimal clearance (J) of 5 mm (.196 in.) (Figure 1, page 6/11) when moving the pilot's collective pitch stick in the low pitch area.
  - Tighten bolts (c) as per MTC Work Card 20.02.05.404.
  - Slide tube (f) (Detail A or D, Figure 4) forwards and check that tab (a) (Detail B or E) engages correctly on locking pin (b) (Detail C or F).
  - If this is not the case:
    - .. loosen nuts (g),
    - .. adjust the height of locking pin (b) using the vertical slots of support (e),
    - .. torque-tighten nuts (g) as per Detail C or F.
- Using a spring balance (xx), push the pilot's collective pitch stick downwards (Figure 2, page 7/11) and check that tab (a) (Detail B or E, Figure 4) detaches correctly from locking pin (b) (Detail C or F) at a load of more than 110 N (24.72 lbf).
  - . If this is not the case:
    - .. adjust the vertical position of locking pin (b):
      - ... loosen nuts (g),
      - ... adjust the height of locking pin (b) using the vertical slots of support (e),
      - ... torque-tighten nuts (g) as per Detail C or F.
    - And, if necessary,
      - .. djust the inclination of tab (a) (Detail B or E) using adjustment screw (d).
- Check that tab (a) can still lock on locking pin (b) (Detail C or F).

- After adjustment:
  - . ensure that the minimum clearance value (J) between the edge of tab (a) of the pilot's collective pitch stick and the edge of locking pin (b) (Figure 1, page 6/11) when moving the pilot's collective pitch stick in the low pitch area is still at least 5 mm (.196 in).
- Install and attach the protective boot on the pilot's collective pitch stick.
- In order to ensure that no boot folds have entered the space between the locking tab and the low pitch locking pin:
  - . check the locking of the pilot's collective pitch stick in low pitch position,and
  - . check, under the floor, the contact between low pitch stop screw (h) and collective pitch stick (j) (Figure 3, page 7/11).

The Aircraft Maintenance Manual (AMM) will incorporate these instructions in a future revision. Refer to the Aircraft Maintenance Manual (AMM) once these instructions have been incorporated.

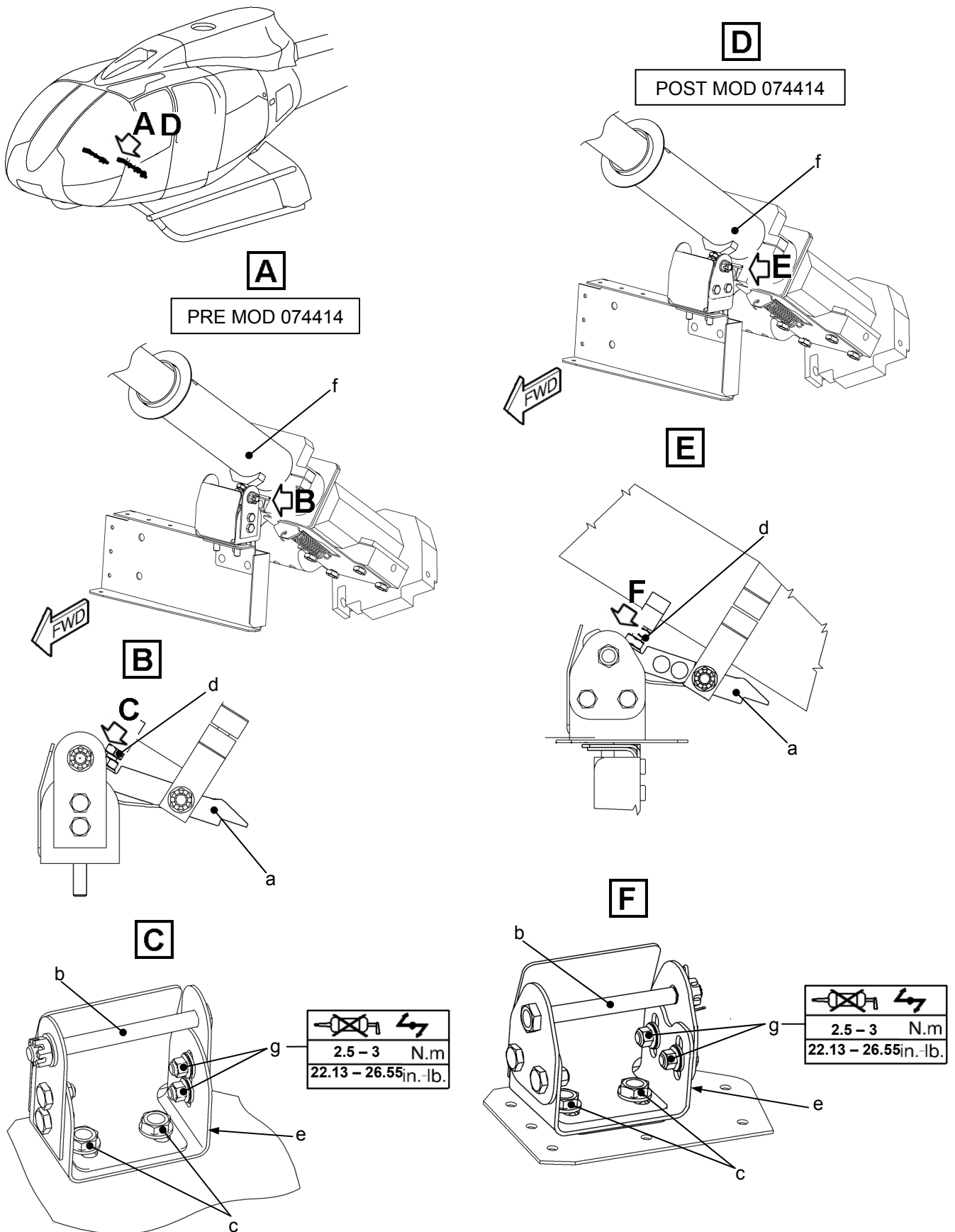


Figure 4: Low pitch locking