EUROCOPTER
DIRECTION TECHNIQUE SUPPORT
13725 MARIGNANE CEDEX FRANCE

CIVIL VERSION(S): E,F,F1,F2,N

# ALERT SERVICE BULLETIN

## No. 55.00.11

SUBJECT: **STABILIZERS**

Improvement and/or monitoring of upper and lower fin attachments

Corresponds to MOD 073288

| REVISION No. | DATE OF APPROVAL | DATE OF ISSUE |
|---|---|---|
| Revision 0<br>Revision 1<br>Revision 2 | On: January 17, 2006<br>On: June 21, 2006<br>On: February 28, 2008 | 2006.01.20<br>2006.06.21<br>2008.02.28 |



*This document is available on the internet: www.eurocopter.com/techpub*

# 1. PLANNING INFORMATION

## 1.A. EFFECTIVITY

1.A.1. Helicopters/Installed equipment

Upper and lower fins, pre- or post-MOD 073288 and pre-MOD 073330 (see NOTE 2).

***NOTE 1***

*Refer to the aircraft individual inspection record (RIC) or the aircraft log book to identify the actual configuration of the aircraft.*

***NOTE 2***

*The upper and lower fins post-MOD 073330 are not concerned by the instructions of this ALERT SERVICE BULLETIN.*

1.A.2. Non-installed equipment

Not applicable.

## 1.B. ASSOCIATED REQUIREMENTS

Not applicable.

## 1.C. REASON

To improve the attachment of the upper and lower fins on the tail boom:

For helicopters pre-MOD 073288 by,
- the installation of longer screws, compatible with the various setting thicknesses between the tail boom and the fin mounting fitting,
- safetying of the attachment screws,
  . a check of the tightening torque, replacement of the upper fin attachment screws and a check of the upper fin splice every 110 flying hours.

For helicopters post-MOD 073288 by,
- a check of the tightening torque, replacement of the upper fin attachment screws and a check of the upper fin splice every 110 flying hours.

Revision 0 of this ALERT SERVICE BULLETIN formed the subject of an EASA Airworthiness Directive. Compliance with the measures in this ALERT SERVICE BULLETIN will cancel the requirements of AS355 ALERT SERVICE BULLETIN No. 05.00.44.

Revision 1 of this ALERT SERVICE BULLETIN which will form the subject of Revision 1 of the EASA Airworthiness Directive completes the procedure for replacing the upper and lower fin mounting fitting attachment screws by applying a bead of sealing product around the screw heads in order to ensure a sealed assembly.

Revision 1 of this ALERT SERVICE BULLETIN does not affect compliance with Revision 0, but completes the operational procedure.

Revision 2 of this ALERT SERVICE BULLETIN informs users that compliance with MOD 073330 cancels compliance with the instructions of this ALERT SERVICE BULLETIN.

This ALERT SERVICE BULLETIN will be covered by an EASA Airworthiness Directive.

## 1.D. DESCRIPTION

ALERT TELEX No. 05.00.44 was issued following two cases of cracks found in the spar of the upper fin on AS355 N helicopters. This ALERT TELEX introduced periodic monitoring to ensure that there is no crack in the spars of the upper and lower fins.
Since this ALERT TELEX was issued, EUROCOPTER has continued analyses which have revealed that, according to the required setting value, the length of the upper and lower fin mounting fitting attachment screws may not enable optimum safetying of the attachment.
EUROCOPTER has therefore defined modification 073288 which consists in:
- replacing the original attachment screws with longer screws, P/No. 22126BV060032L, in order to take into account the various setting thicknesses.
- adding screw safetying with lock-wire. The double safetying is necessary because failure of the attachment can lead to loss of the fin.

These analyses have also shown that the introduction of these new screws (post-MOD 073288) on these helicopter versions, does not by itself ensure the security of the fins. For this reason, and in addition to this modification, EUROCOPTER renders the periodic replacement of these screws and the checks defined in this ALERT SERVICE BULLETIN, mandatory.
EUROCOPTER is continuing analyses in order to define a modification aimed at canceling these checking requirements, as soon as possible.
ALERT TELEX No. 05.00.44 will be converted into an ALERT SERVICE BULLETIN, with the same reference number, in order to specify that compliance with this ALERT SERVICE BULLETIN cancels the periodic monitoring in the fin spars.

Revision 2
EUROCOPTER has defined MOD 073330, which increases:
- the hole diameter for the screws attaching the upper and lower fins in order to reduce the risk of forced fitting,
- the fatigue strength of the fin attachments through the use of modified washers and special bolts with higher heads.

Compliance with this modification cancels compliance with the instructions of this ALERT SERVICE BULLETIN.

## 1.E. COMPLIANCE

EUROCOPTER renders compliance with the measures in this ALERT SERVICE BULLETIN, mandatory.

1.E.1. Compliance at the works

1.E.1.a. On helicopters/installed equipment: - Embodiment of MOD 073288 as from July 01, 2004.
- On the helicopter, before delivery, apply a bead of sealing product around the heads of the upper and lower fin mounting fitting attachment screws.

***NOTE 3***

*This date is given for reference purposes only. Refer to the aircraft individual inspection record (or RIC) to identify the actual modification status of the aircraft.*

1.E.1.b. Non-installed equipment: Not applicable.

1.E.2. Compliance in service: By the operator.

1.E.2.a. On helicopters/installed equipment

1) For helicopters which do not embody MOD 073288 on receipt of this ALERT SERVICE BULLETIN:

- Comply once with paragraph 2.B.2. (MOD 073288) within 110 flying hours as from receipt of revision 0 of this ALERT SERVICE BULLETIN dated January 20, 2006,
then,
. comply with paragraph 2.B.3. every 110 flying hours.

2) For helicopters which embody MOD 073288 on receipt of this ALERT SERVICE BULLETIN:

a) On helicopters modified in compliance with Revision 0 of this ALERT SERVICE BULLETIN dated January 20, 2006:

- Apply a bead of sealing product (5) around the heads of the upper and lower fin mounting fitting attachment screws within 25 flying hours as from receipt of this ALERT SERVICE BULLETIN issued on the date indicated at the foot of the page,
then,
. comply with paragraph 2.B.3. at the scheduled 110-flying-hour limit, then every 110 flying hours.

b) On helicopters not modified in compliance with Revision 0 of this ALERT SERVICE BULLETIN dated January 20, 2006:

- Comply with paragraph 2.B.3. within 110 flying hours as from receipt of Revision 0 of this ALERT SERVICE BULLETIN dated January 20, 2006,
then,
. comply with paragraph 2.B.3. every 110 flying hours.

1.E.2.b. Non-installed equipment: Not applicable.

## 1.F. APPROVAL

Approval is limited to civil version helicopters subject to an Airworthiness Certificate.

1.F.1. Approval of the modifications

The information or instructions relate to change: MOD 073288, which was approved on September 16, 2005, through modification approval form FAM 073288 edition 2, under the authority of EASA Design Organisation Approval No. 21J.056.

1.F.2. Approval of the ALERT SERVICE BULLETIN

The technical information contained in Revision 0 of this ALERT SERVICE BULLETIN was approved on January 17, 2006 under the authority of EASA Design Organisation Approval No. 21J.056.

The technical information contained in Revision 1 of this ALERT SERVICE BULLETIN was approved on June 21, 2006 under the authority of EASA Design Organisation Approval No. 21J.056.

The technical information contained in Revision 2 of this ALERT SERVICE BULLETIN was approved on February 28, 2008 under the authority of EASA Design Organisation Approval No. 21J.056.

## 1.G. MANPOWER

- Qualification: Structural technician or mechanic.

- Time for the operations: Approximately 2 hours.

## 1.H. WEIGHT AND BALANCE

Negligible.

## 1.I. EFFECT ON ELECTRICAL LOADS

Not applicable.

## 1.J. SOFTWARE MODIFICATION EMBODIMENT STATE

Not applicable.

## 1.K. REFERENCES

Standard Practices Manual (MTC) Work Cards: 20.02.05.404, 20.02.06.402, 20.02.09.601, 20.05.01.211, 20.05.01.222.

Maintenance Manual (MET) Work Cards: 24.00.00.301, 55.00.00.402.

Repair Manual (MRR) Work Card: 55.20.10.777.

## 1.L. OTHER DOCUMENTS CONCERNED

Maintenance Manual (MET).
Maintenance Program (PRE).

## 1.M. INTERCHANGEABILITY AND MIXABILITY OF PARTS

1.M.1. Interchangeability

Not affected.

1.M.2. Mixability

Mixing is prohibited. The attachment screws for the upper and lower fins must be post-MOD 073288.

## 2. ACCOMPLISHMENT INSTRUCTIONS

### 2.A. GENERAL

Not applicable.

### 2.B. OPERATIONAL PROCEDURE

2.B.1. Preliminary steps

Install suitable access equipment.

2.B.2. Embodiment of MOD 073288

2.B.2.a. Replacement of the upper fin attachment screws

As per Figure 1:
- Remove the sealing product around the fin fitting (d).
- Remove the 2 screws (a) and washers (b) attaching the fin.
- Retain the washers (b) and discard the screws (a).
- Check whether setting peel washers (c) are installed under the fitting (d):

. if setting peel washers (c) are installed,
- check that the fitting (d) is correctly seated on the existing peel washers; if this is not the case,
. remove the peel washers (c) and follow the procedure below.

. if there are no setting peel washers (c),
- check the clearance between the fin and the skin of the tail boom as per MET Work Card 55.00.00.402, and if fin setting is necessary:
. define the thickness of the peel shims (2) to be installed according to the measured clearance, as per MET Work Card 55.00.00.402,
. install and bond the peel shims (2) to the skin of the tail boom with adhesive (7).

2.B.2.a.1. Procedure for installing the screws (1)

- Coat the shanks of screws (1) with Mastinox (6) as per MTC Work Card 20.05.01.211.
- Install the 2 screws (1) equipped with washers (b).
- Tighten the screws (1) to a dry torque value of 0.85 to 1.05 daN.m.
- Safety the screws (1) with lock-wire (3) as per MTC Work Card 20.02.06.402.
- Run a bead of sealing product (5) around the fitting (d) of the fin and around the screw heads (1), as per MTC Work Card 20.05.01.222.

2.B.2.b. Replacement of the lower fin attachment screws

Replace the fin attachment screws (a) with screws (1) and set the fin where necessary in accordance with the procedure described in paragraph 2.B.2.a.

2.B.3. Check of the tightening torque, of the upper fin splice and replacement of the attachment screws

As per Figures 1 and 2:

- Remove the lock-wire from the two fin attachment screws (a).
- Check the tightening torque of each screw (a) as per MTC Work Card MTC 20.02.05.404.
- Make sure there is no crack or loosened rivet in the reinforcement splice (9).

2.B.3.a. Interpretation of the results:

1) If a crack is detected in the reinforcement splice (9),
   - remove and replace the upper fin as per MET Work Card 55.00.00.402,
   - discard the two screws (a),
   - install 2 screws (1) equipped with washers (b) in accordance with the procedure described in paragraph 2.B.2.a.1.
   - inform the EUROCOPTER Customer Technical Support Operations Department (STXV) by:
     . Tel.: +33 (0)4.42.85.97.03
     . Fax: +33 (0)4.42.85.99.66

2) If the tightening torque of one of the two upper fin attachment screws (a) is less than 80% of the minimum torque value and/or if there is a loosened rivet in the reinforcement splice (9),
   - remove the tail cone and the tail light cut-off connector (refer to MET Work Card 24.00.00.301 before removing the tail light cut-off connector).

   - Make sure that there is no crack in the upper fin spar (8) in the tail boom (10) attachment area. If in doubt, perform a dye penetrant crack detection inspection as per MTC Work Card 20.02.09.601.

     . If there is a crack in the spar,
       - remove and replace the upper fin as per MET Work Card 55.00.00.402,
       - discard the two screws (a),
       - install 2 screws (1) equipped with washers (b) in accordance with the procedure described in paragraph 2.B.2.a.1.,
       - inform the EUROCOPTER Customer Technical Support Operations Department (STXV) by:
         . Tel.: +33 (0)4.42.85.97.03
         . Fax: +33 (0)4.42.85.99.66

     . If there is a loosened rivet,
       - remove the upper fin as per MET Work Card 55.00.00.402,
       - replace the loosened rivet(s) as per MRR Work Card 55.20.10.777,
       - install the upper fin as per MET Work Card 55.00.00.402,
       - discard the two screws (a),
       - install 2 screws (1) equipped with washers (b) in accordance with the procedure described in paragraph 2.B.2.a.1.,
       - inform the EUROCOPTER Customer Technical Support Operations Department (STXV) by:
         . Tel.: +33 (0)4.42.85.97.03
         . Fax: +33 (0)4.42.85.99.66

     . If there is no crack and no loosened rivet,
       - leave as is,
       - install the tail light cut-off connector and the tail cone,
       - remove the two screws (a) and washers (b),
       - discard the two screws (a),
       - install 2 screws (1) equipped with washers (b) in accordance with the procedure described in paragraph 2.B.2.a.1.

3) If the tightening torque of the two fin attachment screws (a) is equal to or more than 80% of the minimum torque value and if there is no crack and no loosened rivet in the reinforcement splice (9),
- remove the 2 screws (a) and washers (b),
- discard the two screws (a),
- install 2 screws (1) equipped with washers (b) in accordance with the procedure described in paragraph 2.B.2.a.1.

2.B.4. Final steps

Return the aircraft to flight configuration.
Remove the access equipment.

## 2.C. IDENTIFICATION

Record the following in the aircraft documents:
- embodiment of MOD 073288,
- initial compliance with paragraph 2.B.3. of this ALERT SERVICE BULLETIN.

## 2.D. OPERATING AND MAINTENANCE INSTRUCTIONS

Not applicable.

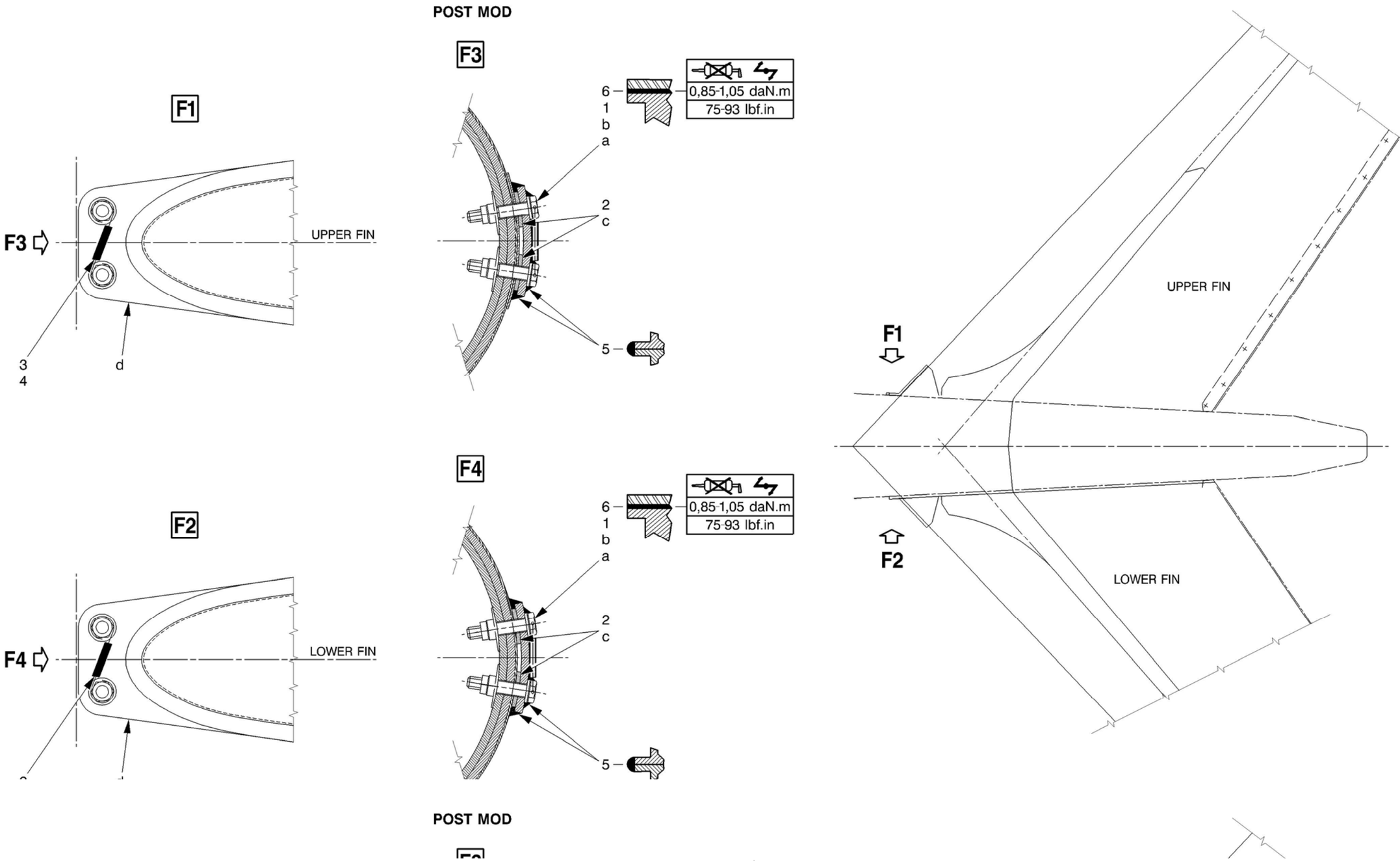

F1
F3
UPPER FIN
3
4
d
POST MOD
F3
6
1
b
a
2
c
5
0,85-1,05 daN.m
75-93 lbf.in
F1
UPPER FIN
F2
LOWER FIN
F2
F4
LOWER FIN
POST MOD
F4

Figure 1

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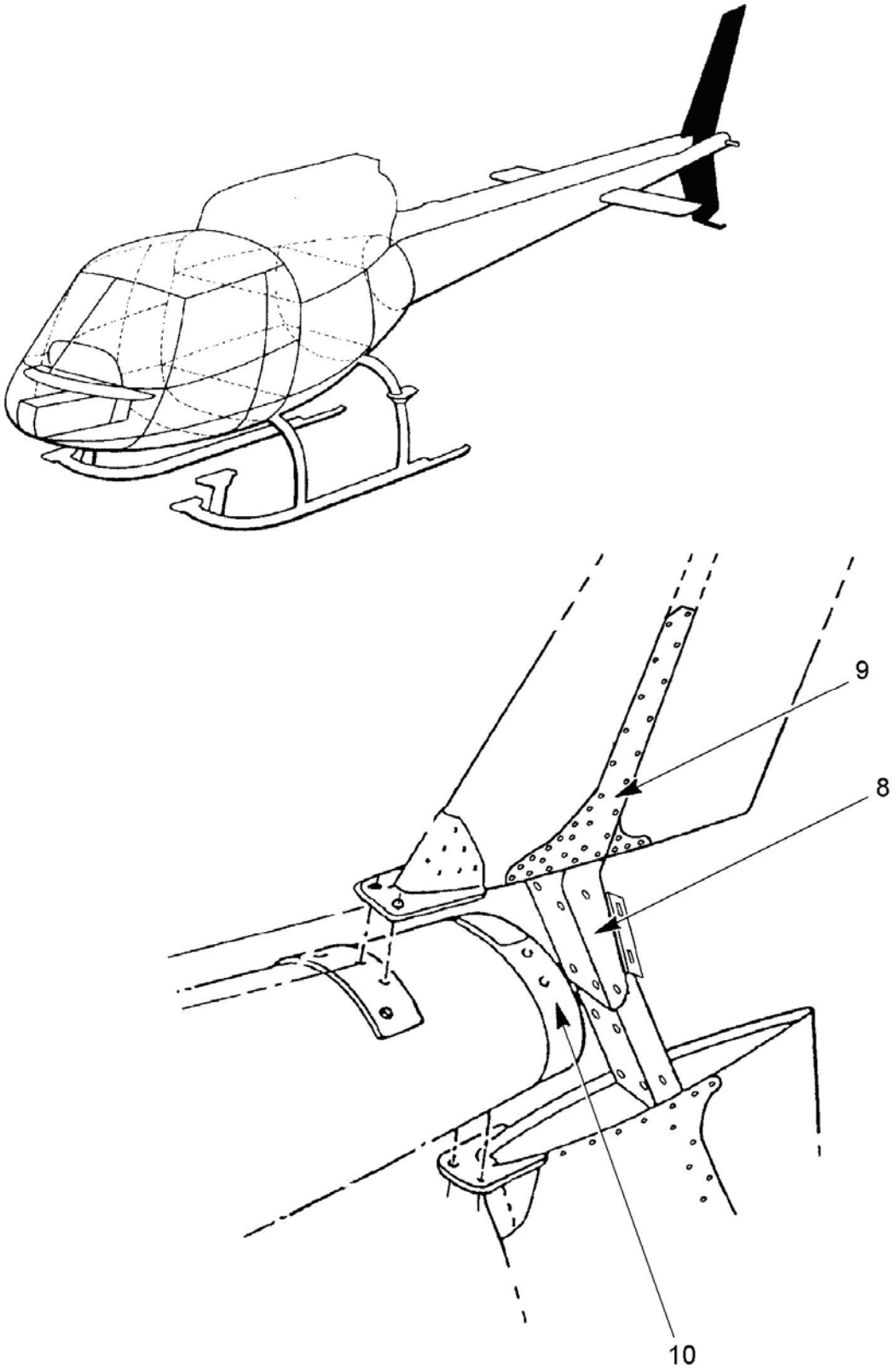



Figure 2

# 3. MATERIAL INFORMATION

## 3.A. MATERIAL: COST - AVAILABILITY

The 4 screws 22126BV060032L will be delivered free of charge on the customer's order.

## 3.B. INFORMATION CONCERNING INDUSTRIAL SUPPORT

Not applicable.

## 3.C. MATERIAL REQUIRED FOR EACH AIRCRAFT, ENGINE/COMPONENTS

3.C.1. Kit or component(s) to be ordered

| New Part Number | Qty | Item | Key Word | Former Part Number | Instructions Disposition |
|---|---|---|---|---|---|
| 22126BV060032L | 4 | 1 | Hexagonal head screw | | |

3.C.2. Material to be ordered separately

| New Part Number | Qty | Item | Key Word | Former Part Number | Instructions Disposition |
|---|---|---|---|---|---|
| 350A14003020 | AR | 2 | Peel washer | | |
| GAINE2,5X3,5 | AR | 4 | Sheath | | |

3.C.3. Product(s) to be ordered separately

The materials identified by an asterisk "*" or required for compliance with the tasks and/or work cards listed in paragraph 1.K., can be ordered from the INTERTURBINE company,
Website: http://www.itlogistics.de
Phone: +49.41.91.809.300
AOG: +49.41.91.809.444

| Part Number | Qty | Item | Key Word |
|---|---|---|---|
| "*" EN3628-0,8 | AR | 3 | Lock-wire |
| "*" PR1771B2SEMK654 | AR | 5 | Sealing product |
| "*" MASTINOX 6856 K | AR | 6 | Sealant |
| "*" DHS172-171.20 | AR | 7 | Adhesive AW106 |

### 3.D. MATERIAL REQUIRED FOR EACH SPARE PART

Not applicable.

### 3.E. RE-IDENTIFIED PARTS

Not applicable.

### 3.F. TOOLING: COST - AVAILABILITY

For any information, contact the Sales and Customer Relations Department of the EUROCOPTER Network.

### 3.G. PROCUREMENT CONDITIONS

Order the required quantities (unless otherwise specified)

from

EUROCOPTER
Etablissement de Marignane
Direction Ventes et Relations Client
ECR
13725 MARIGNANE CEDEX
FRANCE

***NOTE 1***

*On the purchase order, please specify the mode of transport, the destination and the serial numbers of the aircraft to be modified.*

***NOTE 2***

*For ALERT SERVICE BULLETINS, order by:*
*Telex: HELICOP 410 969F*
*Fax: +33 (0)4.42.85.99.96.*

## 4. APPENDIX

Not applicable.