

A/C TYPE EC 155B  
 A/C REGN 9M-SAB S/N6583  
 TYPE OF CHECK \_\_\_\_\_



EUROCOPTER SOUTH EAST ASIA PTE LTD  
 48 Loyang Way Singapore 508740  
 Company Registration No.: 197702516C

NO: **17524** FORM NO: M/003  
 JOB NO. \_\_\_\_\_  
 PAGE \_\_\_\_\_ OF \_\_\_\_\_


DEFECT AND RECTIFICATION WORKSHEET/CERTIFICATE OF RELEASE TO SERVICE

ITEM NO.	REPORTED BY DATE	DEFECT/WORK REQUIRED	ACTION TAKEN	COMPONENT CHANGES		G.I.N.NO. OR O/HAUL REPORT NO.	MAN HOURS	MECH	LIC/ APP NO. DATE
				S/N OFF	S/N ON				
1	WONG	TO CARRY OUT ASB 67A004	ASB 67A004 CARRIED OUT.				8		
	20/10/04	(COLL. LOW PITCH VALUE REDUCTION).	AFTER ADJUSTMENT, COLL LOW PITCH WITH YEL SLEEVE AT 12° - 1° 56'						
		[REF. ADF-2004-013(A)RI]	WITH YEL SLEEVE AT 192° - 1° 25'						
			MEAN VALUE - 1° 40'						
			RESULT 'SATIS'.						
			COLL HIGH PITCH CHECKED. FOUND WITH YEL SLEEVE AT 12° - 11° 42'						
			WITH YEL SLEEVE AT 192° - 11° 14'						
			MEAN VALUE - 11° 28'						
			RESULT 'SATIS'						
			P/N 365A27-8219-00 ASSY COLL PITCH LOCKING (1)			M0424/04			
			365A27-3425-20 LOCKWASHER (1)			M0308/04			
			(MOD 0767B62 EMBODIED)						

*Handwritten notes:*  
 23/10/04  
 A172  
 23/10/04

THE WORK RECORDED ABOVE HAS BEEN CARRIED OUT IN ACCORDANCE WITH THE FOLLOWING REQUIREMENTS FOR THE TIME BEING IN FORCE AND IN THAT RESPECT THE AIRCRAFT/ EQUIPMENT IS CONSIDERED FIT FOR RELEASE TO SERVICE:

- SINGAPORE AIR NAVIGATION ORDER
- MALAYSIAN CIVIL AVIATION REGULATIONS
- JAR 145 NO : F-04E
- MANUFACTURER'S PUBLICATIONS

	<b>AIRWORTHINESS DIRECTIVE</b> <b>No F-2004-013 R1</b>		Distribution : <b>A</b>	Issue date : May 26, 2004	Page : 1 / 2
	Direction générale de l'aviation civile France  <input checked="" type="checkbox"/> on behalf of EASA, the Primary Airworthiness Authority for the affected product.  <input type="checkbox"/> as the Registration Airworthiness Authority for the affected aircraft.	This Airworthiness Directive is published by the DGAC :		Translation of «Consigne de Navigabilité» of same number. In case of difficulty, reference should be made to the French issue.	
GSAC Publication	<b>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.</b>				
Corresponding foreign Airworthiness Directive(s) : <b>Not applicable</b>		Airworthiness Directive(s) replaced : <b>F-2004-013 original issue</b>			
Person in charge of airworthiness : <b>EUROCOPTER</b>		Type(s) : <b>EC 155 helicopters</b>			
Type certificate(s) No. <b>86</b> TCDS No. <b>159</b>					
ATA Chapter(s) : <b>67</b>	Subject : <b>Rotor flight controls - Prohibition of intentional auto-rotation</b>				

**1. EFFECTIVITY :**

EUROCOPTER EC 155 B and B1 helicopters, all serial numbers, before embodiment of modification No. 0767B62 described in EUROCOPTER EC 155 Alert Service Bulletin No. 67A004.

**Note :**

This Airworthiness Directive is intended for flight crews and maintenance personnel.

**2. REASONS :**

This Airworthiness Directive (AD) is issued following the discovery (during a certification flight) of the possibility of exceeding the left lateral servocontrol jackstall limit in the event of a pressure drop in the RH hydraulic system during autorotation. This exceedance may result in a sudden and unwanted movement of the cyclic stick to the right and of the collective lever upward.

Revision 1 of this AD :


- covers the conversion of Alert Telex No. 67A005 into an Alert Service Bulletin (ASB) with the same reference number, and with no change to the technical content,
- renders the embodiment of MOD 0767B62, described in ASB No. 67A004, mandatory.

**3. MANDATORY ACTIONS AND COMPLIANCE TIMES :**

**3.1.**

The following measures were rendered mandatory as of the effective date of the original issue of this AD :

Intentional auto-rotation flights are prohibited. Consequently, a torque above or equal to 10 %

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(i.e. approximately 5 % per engine, in twin engine flight) must be maintained during descent.

**3.2.** The following measures are rendered mandatory from the effective date of Revision 1 of this AD :

**3.2.1.**

At the latest within 6 months, comply with the instructions specified in § 2 of the referenced ASB No. 67A004.

This measure cancels the requirements specified in § 3.1 above.

**3.2.2.** Replace the components listed in § 3.1.C of the referenced ASB, held as spares.

**4. REFERENCE PUBLICATIONS :**

EUROCOPTER EC 155 Alert Service Bulletins No. 67A005 and No. 67A004 (Any subsequent approved revisions to these ASBs are acceptable).

**5. EFFECTIVE DATES :**

**Original issue :** Upon receipt of the emergency AD, issued on January 19, 2004

**Revision 1 :** June 05, 2004.

**6. REMARK :**

For any questions concerning the technical content of the requirements in this AD, please contact :

EUROCOPTER (STXI) - Aéroport de Marseille Provence, 13725 Marignane Cedex - France

Phone : +33 (0)4 42 85 97 97 - Fax : +33 (0)4 42 85 99 46

E-mail : Directive.technical-support@eurocopter.com

**7. APPROVAL :**

This AD is approved under EASA reference No 2004-5341 dated May 17, 2004.



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*AWM/027/01 #47*

ALERT SERVICE BULLETIN EC155

EUROCOPTER  
DIRECTION TECHNIQUE SUPPORT  
13725 MARGNANE CEDEX FRANCE

CIVIL VERSION(S): B, B1

# ALERT SERVICE BULLETIN

**No. 67A004**

**SUBJECT :** ROTORS FLIGHT CONTROL  
Collective low pitch value reduction

Corresponds to MOD 0767B62

LIST OF APPROVED REVISIONS	REVISION No. 0 APPROVED
Not applicable	Date: April 19, 2004



## 1. PLANNING INFORMATION

### 1.A. EFFECTIVITY

#### 1.A.1. Helicopters

Helicopters, types EC155, versions B and B1, pre-MOD No. 0767B62.

#### 1.A.2. Component(s) affected

Collective stop flight controls, locking assembly (P/N: 365A27-8202-00).

### 1.B. ASSOCIATED REQUIREMENTS

Not applicable.

### 1.C. REASON

To change the collective low pitch value in order to reinstate the clearance for voluntary autorotation flight. Compliance with this Alert Service Bulletin supersedes the prescriptions in Alert Service Bulletin No. 67A005.

This Alert Service Bulletin will form the subject of an airworthiness directive from DGAC.

### 1.D. DESCRIPTION

Due to the identification of a risk of abrupt displacement of cyclic stick to the right and collective lever upwards further to an RH hydraulic system failure in autorotation, EUROCOPTER has issued the Alert Service Bulletin No. 67A005 whose object is to prohibit voluntary autorotation.

This modification consists of:

- Changing the low pitch stop rigging from  $-2^{\circ} 39'$  to  $-1^{\circ} 45'$ .
- Replacing the "low pitch" collective lever lockplate by a new lockplate set to the new rigging.



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## 1.E. COMPLIANCE

Eurocopter renders compliance with this Alert Service Bulletin mandatory.

### 1.E.1. At the works

#### 1.E.1.a. On aircraft

Compliance date: As of 01 January 2004.

#### **NOTE**

*This date is for reference purposes. Refer to the aircraft Certificate of Conformity (or RIC - Individual Inspection Log Book) to identify the actual modification status of the aircraft*

#### 1.E.1.b. On spares

Not applicable.

### 1.E.2. Retrofit action (on the operator's site)

#### 1.E.2.a. On aircraft

By the operator(s): Compliance with paragraph 2 within 6 months as from receipt of this Alert Service Bulletin.

#### 1.E.2.b. On spares

By replacement of stocked items.

## 1.F. APPROVAL

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

### 1.F.1. Approval of modifications

The information or instructions relate to Aircraft Modification Approval Form (FAM) No. 0767B62 issue 2 which was approved on March 08, 2004 by DGAC.

### 1.F.2. Approval of Alert Service Bulletin

The technical information contained in this Alert Service Bulletin No. 67A004 Revision 0 was approved on April 19, 2004 under the authority of DGAC Design Organisation Approval No. F.JA01.



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## 1.G. MANPOWER

- Qualification: 2 Mechanics.
- Time: 8 hours approximately.

## 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

Refer to Standard Practices Manual (MTC):

Work Cards: 20.02.05.404, 20.07.02.201, 20.07.03.404,  
20.07.03.408 and 20.07.03.413.

Refer to Aircraft Maintenance Manual (AMM):

Tasks: 08-20-00-821, 24-00-00-481, 24-00-00-911, 29-00-00-911, 62-10-00-061,  
62-20-00-821 and 67-10-00-821.

Refer to Flight Manual (FLM):

- EC155 B, section 2.2, RR11C.
- EC 155 B1, section 2.2, RR4C.

## 1.L. OTHER DOCUMENTS CONCERNED

- Aircraft Maintenance Manual (AMM).
- Illustrated Part Catalog (IPC).



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## 1.M. INTERCHANGEABILITY AND MIXABILITY OF PARTS

### 1.M.1. Interchangeability

The collective pitch locking assembly (P/N: 365A27-8219-00) is not functionally interchangeable with locking assembly P/N: 365A27-8202-00.

### 1.M.2. Mixability

Not applicable.



## 2. ACCOMPLISHMENT INSTRUCTIONS

### 2.A. GENERAL

- Comply with general electrical instructions as per Task 24-00-00-911 (AMM).
- Assembly by bolts and nuts as per Work Card 20.02.05.404 (MTC).
- Helicopter parked in repair facility or workshop as per Work Card 20.07.02.201 (MTC).
- Instructions for maintenance interventions on hydraulic systems as per Work Card 20.07.03.404 (MTC).
- Guidelines for visual cleanliness check as per Work Card 20.07.03.408 (MTC).
- General instructions applicable to flight control and engine control rods and links as per Work Card 20.07.03.413 (MTC).

### 2.B. OPERATIONAL PROCEDURE

**WARNING**

**DO NOT BOARD AIRCRAFT OR STAY IN THE WORK AREA  
DURING AIRCRAFT JACKING.  
OPERATE THE JACKS WITH CARE.**

#### 2.B.1. Preliminary steps

- Remove main blades as per Task 62-10-00-061 (AMM).

**NOTE 1**

*Do not reinstall pins on rotor head during rigging.*

- Remove upholstery, access panels and all items as required for correct access to the various work zones.

#### 2.B.2. Procedure

##### 2.B.2.a. Setting rotor mast in vertical position

- Jack aircraft as per Task 08-20-00-821 (AMM), in keeping with the following recommendations:
- The aft jack must feature a maximum extended height of ca. 500 mm.
  - Both side jacks must feature large extension capacity.
  - Set aircraft 4° nose up in order to preset the rotor mast to vertical position:
    - . Clinometer (E) located on cabin floor along X.
  - Locate clinometer (E) as per Figure 1 detail A at yellow damper (j).



## NOTE 2

*The operator must always face the clinometer when reading values. Keep clinometer (E) in position during entire vertical positioning of the mast.*

- Rotate rotor to set clinometer (E) in position X1 as per Figure 1 detail B.
- Adjust side jacks in order to obtain 0° reading on clinometer (E).
- Rotate rotor to set clinometer (E) in position X2 as per Figure 1 detail B.
- Record value and adjust side jacks in order to obtain medium setting (X2-X1)/2.
- Secure side jacks.
- Rotate rotor to set clinometer (E) in position Y1 as per Figure 1 detail B.
- Adjust aft jack in order to obtain 0° reading on clinometer (E).
- Rotate rotor to set clinometer (E) in position Y2 as per Figure 1 detail B.
- Record value and adjust aft jack in order to obtain medium setting (Y2-Y1)/2.
- Secure aft jack.
- Rotate rotor to ensure that in positions X1, X2, the reading difference on clinometer (E) is comprised within +/- 0° 5' tolerance.
- Rotate rotor to ensure that in positions Y1, Y2, the reading difference on clinometer (E) is comprised within +/- 0° 5' tolerance.

### 2.B.2.b. Low pitch stop rigging post-MOD 0767B62 (Figures 1 and 2)

Procedure:

## NOTE 3

*Before any system pressurization (which must be obtained slowly and gradually), ensure that all flight control rods are correctly connected. Also ensure that no rigging or locking tooling is in place (unless required).*

- Connect hydraulic ground power unit and pressurize on RH side or LH side.
- Energize aircraft electrical system as per Task 24-00-00-481 (AMM).
- Lock pitch and roll channels on mixing unit, using pitch locking tab (R), (P/N: 365A94-2762-00) and roll locking tab (S), (P/N: 365A94-2770-00 for aircraft post-MOD 0767B55) and (S1), (P/N: 365A94-2761-00 for aircraft pre-MOD 0767B55) as per Figure 2.
- Locate tooling (U) on yellow sleeve as per Figure 1 detail C.
- Locate clinometer (E) on tooling (U) and secure.
- Measure incidence angles on clinometer on yellow sleeve in the following positions:
  - . Sleeve forward W = 12°.
  - . Sleeve rearward W = 192°.

## NOTE 4

For the definitions of azimuth positions "W", refer to Task 67-10-00-821 (AMM).

Adjustment:

- Set collective lever to low pitch in order to obtain a collective pitch of  $-1^{\circ}45'$  or  $-9'$  (yellow sleeve, mean value recorded on azimuths  $12^{\circ}$  and  $192^{\circ}$ ) on clinometer (E).
- Secure lever in this position via the friction lock.
- Replace lockwasher (a) by washer (2).
- Bring setting screw (b) into contact on collective lever pin.
- Tighten locknut as per Work Card 20.02.05.404 (MTC).

2.B.2.c. Adjustment checks

- Carry out checks with clinometer (E).
- Ensure that the values in table below are correct in Low pitch and High pitch modes.

Check collective pitch variations for aircraft pre- and post-MOD 0767B55 and post-MOD 0767B62

Type of check	Collective lever position	Yellow sleeve position		Tolerances to be met
		W = $12^{\circ}$ (FWD)	W = $192^{\circ}$ (RWD)	
Collective pitch variation	Low pitch	A =	B =	$-1^{\circ}36' \geq (A+B)/2 \geq -1^{\circ}54'$
	High pitch	C =	D =	$10^{\circ}30' \leq (C+D)/2 \leq 11^{\circ}30'$

- After obtaining the values prescribed in this table, fold back lockwasher (2) onto the fitting and the locknut as per Figure 2
- Jack down the aircraft to its landing gears as per Task 08-20-00-821 (AMM).

2.B.2.d. Installing the collective pitch locking assembly (Figure 3)

- Remove lockplate (a) and retain bolts (b) and washers (c).
- Install locking assembly (1) and secure without tightening, by means of bolts (b) and washers (c).

2.B.2.e. Adjusting the collective pitch lockplate (Figure 3)

- Pressurize the RH or LH hydraulic system.
- Adjust the lockplate so that the collective lever can be unlocked by exercising a pressure comprised between 11 and 14 daN on the pilot's collective lever grip, by means of spring balance (P), as per Figure 3 detail 1.
- Check that play  $J = 3$  mm is effective between the collective lever pin and the lockplate angle, as per Figure 3.
- Tighten both bolts (b).



### 2.B.3. Functional tests

- Remove pins, locking tools and all other tools used for the various rigging and check operations.
- Pressurize the aircraft hydraulic system, in keeping with safety instructions, as per Task 29-00-00-911 (AMM).
- Check free travel of the cyclic and collective controls.
- Manoeuvre the flight controls throughout their travel, slowly and without interruption. During these manoeuvres, check that the plays are maintained in the work area.

### 2.B.4. Final steps

- Disconnect the hydraulic ground power unit.
- Carry out a visual appearance check as per Work Card 20.07.03.408 (MTC).
- Reinstall the upholstery, the panels, as well as all items previously removed (paragraph 2.B.1.)
- Restore aircraft to flight condition.
- Reinstall main blades as per Task 62-10-00-061 (AMM).

### 2.B.5. Complementary tests

As required, carry out a dynamic balancing of the main rotor as per Task 62-20-00-821 (AMM).

### 2.B.6. Spares

Not applicable.

#### 2.B.6.a. Retrofitting of spare part stocks

Not applicable.

#### 2.B.6.b. Replacement of spare part stocks

On customer's request.



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## 2.C. IDENTIFICATION

Record compliance with this Alert Service Bulletin 67A004 Revision 0 and embodiment of MOD 0767B62 in the aircraft documents.

## 2.D. OPERATING AND MAINTENANCE INSTRUCTIONS

### 2.D.1. Operating instruction(s)

Refer to Flight Manual (FLM), Rush Revision RR11C (EC155B) and RR4C (EC155B1), section 2.2.

### 2.D.2. Maintenance instruction(s)

Not applicable.

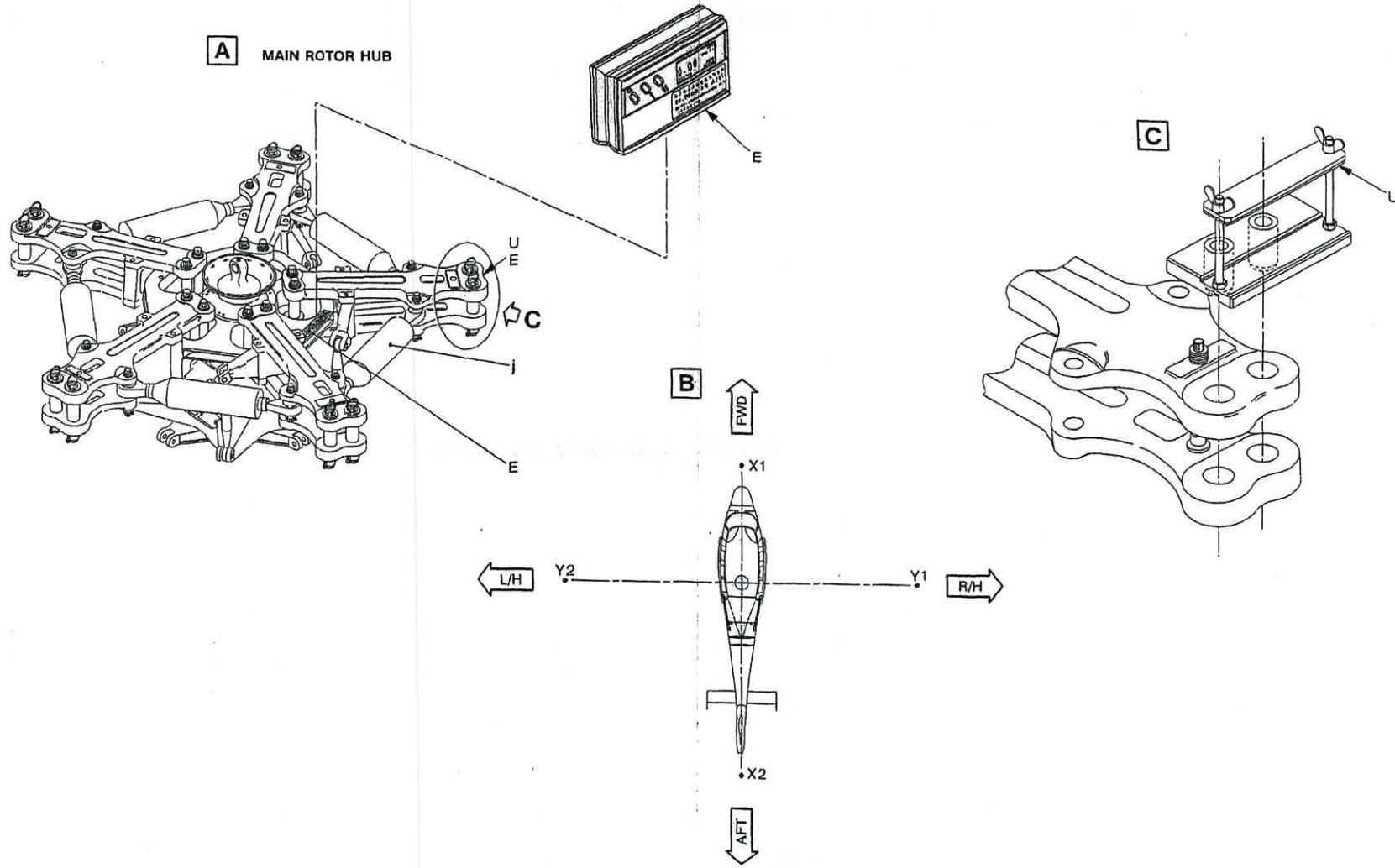


Figure 1

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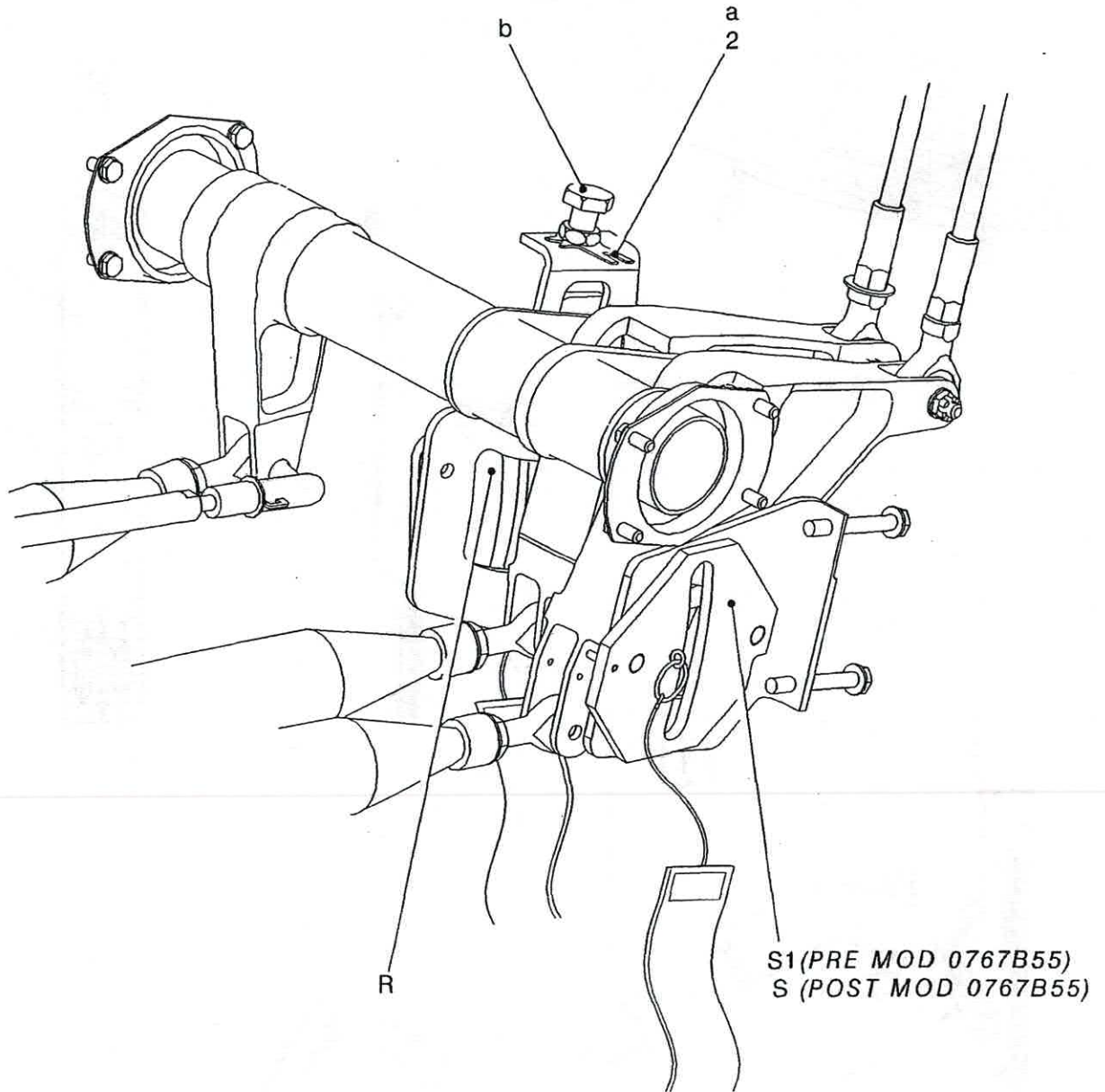


Figure 2



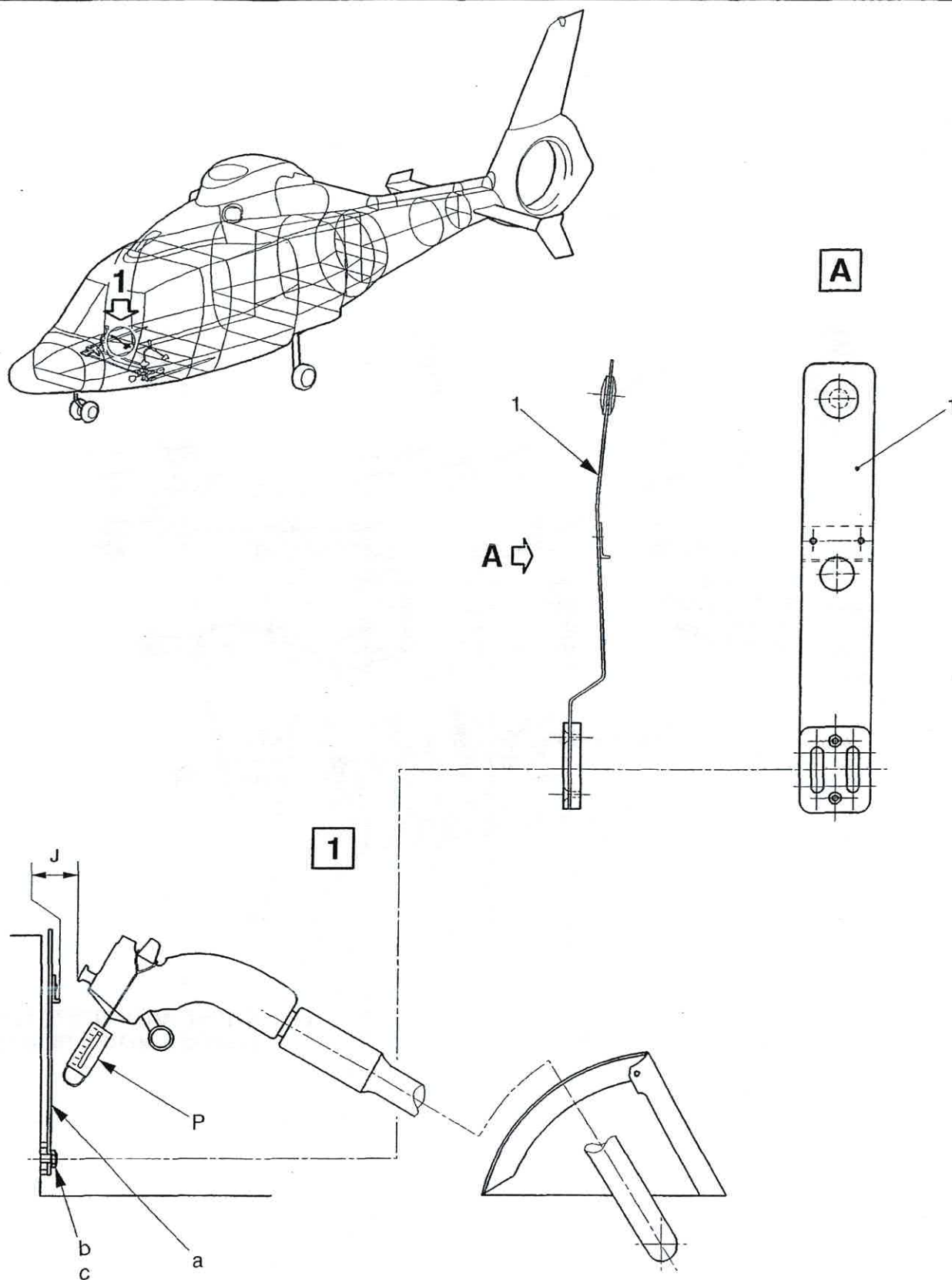


Figure 3



**3. MATERIAL INFORMATION**

**3.A. MATERIAL: COST - AVAILABILITY**

The material will be delivered free of charge upon customer's request.

**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 P/N (in MPN)	Qty	Item	Key Word	Former P/N	Instructions Disposition
365A27-8219-00	1	1	Assembly, collective pitch locking	365A27-8202-00	To be scrapped
365A27-3425-20	1	2	Lockwasher		To be scrapped

**3.C.2. Material to be ordered separately**

Not applicable.

**3.C.3. Material delivered by the customer**

Not applicable.



3.C.4. Tooling

Refer to Work Cards and to Tasks mentioned in paragraph 2.

New P/N	Qty	Item	Key Word	Former P/N	Instructions Disposition
365A94-2762-00	1	R	Tab, pitch mixing unit		
365A94-2770-00	1	S	Tab, roll mixing unit (post-MOD 0767B55)		
365A94-2761-00	1	S1	Tab, roll mixing unit (pre-MOD 0767B55)		
703A94-0003-00	1	E	Clinometer, electronic		
365A94-2772-20	1	U	Support, clinometer		
	1	P	Spring balance		

**NOTE**

*Make sure that tabs (R), (S) or (S1) and support (U) are comprised in flight control kit (P/N: 365A94-2781-01).*

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

3.D.1. Kit to be ordered

Not applicable.

**3.E. RE-IDENTIFIED PARTS**

Not applicable.

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

For any information, contact the Customer Support Sales Department.



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### 3.G. PROCUREMENT CONDITIONS

Order the required quantity

from

EUROCOPTER  
Etablissement de Marignane  
Direction VENTES Service Client  
S.V.  
13725 MARIIGNANE 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.*



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**4. APPENDICES**

Not applicable.