
SERVICE BULLETIN

N° **139-725**

EMERGENCY ALERT

DATE: July 25, 2022

REV. : /

TITLE

ATA 64 – TAIL ROTOR DUPLEX BEARING INSPECTION AND REPLACEMENT

REVISION LOG

First Issue

An appropriate entry should be made in the aircraft log book upon accomplishment.
If ownership of aircraft has changed, please, forward to new owner.

1. PLANNING INFORMATION

A. EFFECTIVITY

Part I and Part II:

All AB139/AW139 helicopters installing tail rotor duplex bearings P/N 3G6430V00151, P/N 3G6430V00152 or P/N 3G6430V00153 that have less than 2400 FH and that have been removed and reinstalled on sliding control assembly P/N 3G6430A02531.

Part III:

All AB139/AW139 helicopters installing tail rotor duplex bearings P/N 3G6430V00151, P/N 3G6430V00152 or P/N 3G6430V00153 that have logged 2400 FH or more.

Part IV:

NOTE

Each letter A thru E of the list below identifies the affected components to be replaced in accordance with the compliance times, identified by the same letters in the list of the Compliance Part IV.

- A. All duplex bearings P/N 3G6430V00151, P/N 3G6430V00152 or P/N 3G6430V00153 that have less than 2400 FH and that have been removed and reinstalled on sliding control assembly P/N 3G6430A02531;
- B. All duplex bearings P/N 3G6430V00151, P/N 3G6430V00152 or P/N 3G6430V00153 that have less than 2400 FH and that have NOT been removed and reinstalled on sliding control assembly P/N 3G6430A02531;
- C. All duplex bearings P/N 3G6430V00151, P/N 3G6430V00152 or P/N 3G6430V00153 that have logged 2400 FH or more;
- D. All duplex bearings P/N 3G6430V00151, P/N 3G6430V00152 or P/N 3G6430V00153 kept in stock and that have been removed from a sliding control assembly P/N 3G6430A02531;
- E. All duplex bearings P/N 3G6430V00151, P/N 3G6430V00152 or P/N 3G6430V00153 that have been removed and reinstalled on a sliding control assembly P/N 3G6430A02531 kept in stock.

B. COMPLIANCE

Part I:

Before next flight and then every 10 FH until the bearing is replaced.

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Part II:

Within and not later than 10 FH after the issue of this Service Bulletin and then every 50 FH until the bearing is replaced.

Part III:

Before next flight and then every 5 FH until the bearing is replaced.

Part IV:

NOTE

Each letter A thru E below is the applicable compliance time for the components identified with the same letters in the list of Effectivity Part IV.

- A. Within and not later than 200 FH after the first application of Part II or before exceeding 2400 FH of the bearings whichever occurs first;
- B. When the bearings reach 2400 FH;
- C. Within and not later than 10 FH after the first application of Part III;
- D. Before next installation;
- E. Before next installation.

C. CONCURRENT REQUIREMENTS

N.A.

D. REASON

This Service Bulletin is issued in order to prescribe the inspection of the tail rotor duplex bearing P/N 3G6430V00151, P/N 3G6430V00152 or P/N 3G6430V00153 and its replacement when necessary.

E. DESCRIPTION

Leonardo Helicopters has developed this Service Bulletin following a reported occurrence of a tail rotor duplex bearing found damaged on an AW139. The investigation found that the bearing was removed and reinstalled on another sliding control assembly, even though AMP procedures do not allow reinstallation of a previously removed bearing.

The AW139 AMPI Chapter 5 DM 39-A-05-13-00-00A-028E-P will be revised to update the bearings Discard Time to 2400 FH.

Part I of this Service Bulletin applies to the helicopters installing tail rotor duplex bearings that have less than 2400 FH and that have been reinstalled on sliding control assembly

P/N 3G6430A02531 during application of AMPI Chapter 5 task 64-26 (2400 FH inspection) or AMPI Chapter 5 tasks 64-23 or 64-24 (4 Years inspection) or any other reason. Part I requires to apply a slippage mark between the PCR and the trunnion installed on the back-end of the TRA and to perform repetitive inspections for absence of rotation of the parts. If the inspection fails, the bearing must be replaced immediately. Part II of this Service Bulletin gives instructions to inspect the tail rotor duplex bearings that have less than 2400 FH and that have been reinstalled on sliding control assembly P/N 3G6430A02531 during application of AMPI Chapter 5 task 64-26 (2400 FH inspection) or AMPI Chapter 5 tasks 64-23 or 64-24 (4 Years inspection) or any other reason. Aim of the inspection is to check the bearings condition, absence of particles within bearing grease and to perform the roughness check. If any of the inspections fails, the bearing must be replaced immediately.

Part III of this Service Bulletin gives instructions to inspect the tail rotor duplex bearings that have logged 2400 FH or more, in order to check their condition and to perform an inspection for absence of rotation as described for Part I. If any of the inspections fails, the bearing must be replaced immediately.

Part IV of this Service Bulletin gives instructions to replace the bearings in accordance with the applicable compliance time.

F. APPROVAL

The technical content of this Service Bulletin is approved under the authority of DOA nr. EASA.21.J.005. For helicopters registered under other Aviation Authorities, before applying the Service Bulletin, applicable Aviation Authority approval must be checked within Leonardo Helicopters customer portal.

EASA states mandatory compliance with inspections, modifications or technical directives and related time of compliance by means of relevant Airworthiness Directives. If an aircraft listed in the effectivity embodies a modification or repair not LHD certified and affecting the content of this Service Bulletin, it is responsibility of the Owner/Operator to obtain a formal approval by Aviation Authority having jurisdiction on the aircraft, for any adaptation necessary before incorporation of the present Service Bulletin.

G. MANPOWER

To comply with this Service Bulletin the following MMH are deemed necessary:

Part I: approximately half (0.5) MMH if panel installation is not requested or one (1) MMH if requested; add approximately eight (8) MMH if bearing is replaced.

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Part II: approximately eight (8) MMH without bearing replacement or nine (9) MMH with bearing replacement.

Part III: approximately eight (8) MMH without bearing replacement or twelve (12) MMH with bearing replacement.

Part IV: approximately eight (8) MMH.

MMH are based on hands-on time and can change with personnel and facilities available.

H. WEIGHT AND BALANCE

N.A.

I. REFERENCES

1) PUBLICATIONS

Following Data Modules refer to AMP:

<u>DATA MODULE</u>	<u>DESCRIPTION</u>	<u>PART</u>
DM01 39-A-00-20-00-00A-120A-A	Helicopter on ground for a safe maintenance	I, II, III, IV
DM02 39-A-06-41-00-00A-010A-A	Access doors and panels - General data	I, III
DM03 39-A-20-00-00-00A-69CA-A	Assembled parts - Slippage Marks	I
DM04 39-A-64-31-04-00A-520A-A	Sliding control assembly - Remove procedure	I, II, III, IV
DM05 39-A-64-31-04-01A-320A-B	Duplex bearing (sliding control assembly) - Operation test	II
DM06 39-A-64-31-04-00A-720A-A	Sliding control assembly - Install procedure	I, II, III, IV
DM07 39-A-64-31-03-00A-520A-A	Cover - Remove procedure	III
DM08 39-A-64-31-03-00A-720A-A	Cover - Install procedure	III
DM09 39-A-64-31-04-01A-921A-B	Duplex bearing (sliding control assembly) - Replacement (remove and install a new item)	I, II, III, IV

2) ACRONYMS & ABBREVIATIONS

AMD I	Aircraft Material Data Information
AMP	Aircraft Maintenance Publication
AMPI	Aircraft Maintenance Planning Information
DM	Data Module
DOA	Design Organization Approval
EASA	European Aviation Safety Agency

FH Flight Hours
 IPD Illustrated Parts Data
 ITEP Illustrated Tools and Equipment Publication
 LHD Leonardo Helicopters Division
 MMH Maintenance Man Hours
 MMIR Maintenance Malfunction Inspection Report
 P/N Part Number
 PCR Pitch Control Rod
 S/N Serial Number
 TRA Tail Rotor Actuator

3) ANNEX

N.A.

J. PUBLICATIONS AFFECTED

AW139 AMPI Chapter 5.

K. SOFTWARE ACCOMPLISHMENT SUMMARY

N.A.

2. MATERIAL INFORMATION

A. REQUIRED MATERIALS

1) PARTS

PART I

#	P/N	ALTERNATIVE P/N	DESCRIPTION	Q.TY	LVL	NOTE	LOG P/N
1	3G6430V00153		Duplex bearing	1	.	(1)	-

PART II

#	P/N	ALTERNATIVE P/N	DESCRIPTION	Q.TY	LVL	NOTE	LOG P/N
2	3G6430V00153		Duplex bearing	1	.	(1)	-

PART III

#	P/N	ALTERNATIVE P/N	DESCRIPTION	Q.TY	LVL	NOTE	LOG P/N
3	3G6430V00153		Duplex bearing	1	.	(1)	-

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PART IV

#	P/N	ALTERNATIVE P/N	DESCRIPTION	Q.TY	LVL	NOTE	LOG P/N
4	3G6430V00153		Duplex bearing	1	.		-

Refer also to IPD for the spares materials required to comply with the AMP DMs referenced in the accomplishment instructions.

2) CONSUMABLES

The following consumable materials, or equivalent, are necessary to accomplish this Service Bulletin:

#	Spec./LHD code number	DESCRIPTION	Q.TY	NOTE	PART
5	TT-N-95-B / Code No. 531055030	Aliphatic Naphtha (C059)	AR	(2)	II, III
6	DX 70002	Marking paint (C263)	AR	(2)	I

Refer to AMDI for the consumable materials required to comply with the AMP DM referenced in the accomplishment instructions.

3) LOGISTIC MATRIX

N.A.

NOTE

- (1) Item required only in case its replacement is needed because of a failed inspection.
- (2) Item to be procured as local supply.

B. SPECIAL TOOLS

The following special tools, or equivalent, are necessary to accomplish this Service Bulletin:

#	P/N	DESCRIPTION	Q.TY	NOTE	PART
7	Commercial	Light source	1	(B1)	I
8	Commercial	Transparent container	1	(B1)	II, III
9	Commercial	Spatula	1	(B1)	II, III
10	Commercial	Magnet	1	(B1)	II, III
11	3G6405G04032	Tool kit, T/R duplex bearing removal/installation	1	(B2)	I, II, III, IV

Refer to ITEP for the special tools required to comply with the AMP DM referenced in the accomplishment instructions.

SPECIAL TOOLS NOTE

- (B1) Item to be procured as local supply.
- (B2) Item needed only if bearing replacement is required.

C. INDUSTRY SUPPORT INFORMATION

Owners/Operators who comply with the instructions of this Service Bulletin no later than the applicable date in the “Compliance” section will be eligible to receive required materials on free of charge basis, except for Consumable Materials and Special Tools.

NOTE: Customers who fail to comply with the instructions in this Service Bulletin before the compliance date are not eligible for the aforementioned special policy.

Please Issue relevant MMIR form to your Warranty Administration Dpt. including pictures of sliding control assembly P/N 3G6430A02531 log card, with indication of bearing FH, evidence of reinstallation of the bearing, if applicable, and the Inspection Report in Figure 4.

If the required documentation will not be provided, MMIR could be rejected.

3. ACCOMPLISHMENT INSTRUCTIONS

GENERAL NOTE

Place an identification tag on all components that are re-usable, including the attaching hardware that has been removed to gain access to the modification area and adequately protect them until their later re-use.

PART I

1. In accordance with AMP DM 39-A-00-20-00-00A-120A-A, prepare the helicopter on ground for a safe maintenance. Disconnect the battery, all electrical power sources and/or the external power supply.

NOTE

When the inspection is repeated the slippage mark will be present and the removal of the panels may not be necessary as visual access may be possible thru the panels grids.

2. In accordance with AMP DM 39-A-06-41-00-00A-010A-A and with reference to Figure 1, remove all external panels as required to gain access to the area affected by the inspection.
3. With reference to Figure 1 and Figure 2, perform the inspection for rotation between the parts according to the following procedure:
 - 3.1 If Part I is applied for the first time perform the inspection and the slippage marking application according to the following procedure, otherwise skip to step 3.2:
 - 3.1.1 With reference to Figure 2 views B1 and B2, check that the castellated holes of the trunnion are aligned with those of the pitch control rod that goes thru it and check that the cotter pin is perfectly straight and not bended by a rotation movement. If rotation is found skip to step 4.
 - 3.1.2 With reference to Figure 1 view A and in accordance with the applicable steps of AMP DM 39-A-20-00-00-00A-69CA-A apply a slippage mark on the mating edge between the trunnion and the pitch control rod on the rearward facing side, near the cotter pin.
 - 3.1.3 Skip to step 5.

NOTE

If necessary, a light source can be used to better lighten the inspection area when looking thru the panels grids.

- 3.2 If Part I has already been applied before, with reference to Figure 1 view A, check for the alignment of the slippage mark. If rotation is found proceed to step 4, otherwise skip to step 5.
4. Replace the duplex bearing in accordance with the following procedure:
 - 4.1 In accordance with AMP DM 39-A-64-31-04-00A-520A-A and with reference to Figure 3, remove the sliding control assembly from the helicopter.
 - 4.2 In accordance with AMP DM 39-A-64-31-04-01A-921A-B and with reference to Figure 3, replace the tail rotor duplex bearing with a new item and discard the removed one.
 - 4.3 In accordance with AMP DM 39-A-64-31-04-00A-720A-A and with reference to Figure 3, install the sliding control assembly on the helicopter.
 - 4.4 Send pictures of sliding control assembly P/N 3G6430A02531 log card, with indication of bearing FH, evidence of reinstallation of the bearing, if applicable, and the Inspection Report in Figure 4 thru technical query on Leonardo WebPortal or to Product Support Engineering (engineering.support.lhd@leonardo.com).
5. Return the helicopter to flight configuration and record for compliance with Part I of this Service Bulletin on the helicopter logbook.
6. Send the attached compliance form to the following mail box:
engineering.support.lhd@leonardo.com

As an alternative, gain access to My Communications section on Leonardo WebPortal and compile the "Service Bulletin Application Communication"

PART II

1. In accordance with AMP DM 39-A-00-20-00-00A-120A-A, prepare the helicopter on ground for a safe maintenance. Disconnect the battery, all electrical power sources and/or the external power supply.
2. In accordance with AMP DM 39-A-64-31-04-00A-520A-A and with reference to Figure 3, remove the sliding control assembly from the helicopter.

NOTE

To perform the inspection of the duplex bearing do not remove it from sliding control assembly P/N 3G6430A02531.

3. Perform the inspection of the duplex bearing in accordance with the following procedure:
 - 3.1 Inspect the visible parts of the duplex bearing (including the seals) for absence of wear, damages, corrosion; if present skip to step 4, otherwise proceed to step 3.2.
 - 3.2 Check the visible part of the duplex bearing for particles absence; if particles are present skip to step 4, otherwise proceed to step 3.3.
 - 3.3 Check for grease leakage on the visible part of the duplex bearing; if any leakage is present proceed to step 3.4, otherwise skip to step 3.6.
 - 3.4 Check if any particle is found in the grease leakage by finger touch; if present skip to step 4, otherwise proceed to step 3.5.
 - 3.5 Perform grease inspection for magnetic/metallic particles according to the following procedure:
 - 3.5.1 Put a small quantity of leaked grease using a small spatula in a transparent container.
 - 3.5.2 Add a solvent (aliphatic naphtha).
 - 3.5.3 Put a magnet on the bottom out side of the container.
 - 3.5.4 Check for presence of magnetic particles in the solution; if present skip to step 4, otherwise proceed to step 3.6.
 - 3.6 In accordance with AMP DM 39-A-64-31-04-01A-320A-B, perform the duplex bearing operation test and check for absence of roughness in its movement; if test fails proceed to step 4, otherwise skip to step 5.
4. Replace the duplex bearing in accordance with the following procedure:
 - 4.1 In accordance with AMP DM 39-A-64-31-04-01A-921A-B and with reference to Figure 3, replace the tail rotor duplex bearing with a new item and discard the removed one.
 - 4.2 Send pictures of sliding control assembly P/N 3G6430A02531 log card, with indication of bearing FH, evidence of reinstallation of the bearing and the

Inspection Report in Figure 4 thru technical query on Leonardo WebPortal or to Product Support Engineering (engineering.support.lhd@leonardo.com).

5. In accordance with AMP DM 39-A-64-31-04-00A-720A-A and with reference to Figure 3, install the sliding control assembly on the helicopter.
6. Return the helicopter to flight configuration and record for compliance with Part II of this Service Bulletin on the helicopter logbook.
7. Send the attached compliance form to the following mail box:

engineering.support.lhd@leonardo.com

As an alternative, gain access to My Communications section on Leonardo WebPortal and compile the “Service Bulletin Application Communication”.

PART III

1. In accordance with AMP DM 39-A-00-20-00-00A-120A-A, prepare the helicopter on ground for a safe maintenance. Disconnect the battery, all electrical power sources and/or the external power supply.
2. In accordance with AMP DM 39-A-64-31-03-00A-520A-A and with reference to Figure 3, remove the cover from the helicopter.
3. Perform the inspection of the duplex bearing in accordance with the following procedure:
 - 3.1 Inspect the visible parts of the duplex bearing (including the seals) for absence of wear, damages, corrosion; if present skip to step 6, otherwise proceed to step 3.2.
 - 3.2 Check the visible part of the duplex bearing for particles absence; if particles are present skip to step 6, otherwise proceed to step 3.3.
 - 3.3 Check for grease leakage on the visible part of the duplex bearing; if any leakage is present proceed to step 3.4, otherwise skip to step 4.
 - 3.4 Check if any particle is found by finger touch; if present skip to step 6, otherwise proceed to step 3.5.
 - 3.5 Perform grease inspection for magnetic/metallic particles according to the following procedure:
 - 3.5.1 Put a small quantity of leaked grease using a small spatula in a transparent container.
 - 3.5.2 Add a solvent (aliphatic naphtha).
 - 3.5.3 Put a magnet on the bottom out side of the container.
 - 3.5.4 Check for presence of magnetic particles in the solution; if present skip to step 6, otherwise proceed to step 4.
4. In accordance with AMP DM 39-A-06-41-00-00A-010A-A and with reference to Figure 1, remove all external panels as required to gain access to the area affected by the inspection.
5. With reference to Figure 2 views B1 and B2, perform the inspection for rotation between the parts by checking that the castellated holes of the trunnion are aligned with those of the pitch control rod that goes thru it and checking that the cotter pin is perfectly straight and not bended by a rotation movement. If rotation is found proceed to step 6, otherwise skip to step 7.
6. Replace the duplex bearing in accordance with the following procedure:
 - 6.1 In accordance with AMP DM 39-A-64-31-04-00A-520A-A and with reference to Figure 3, remove the sliding control assembly from the helicopter.
 - 6.2 In accordance with AMP DM 39-A-64-31-04-01A-921A-B and with reference to Figure 3, replace the tail rotor duplex bearing with a new item and discard the

removed one.

- 6.3 In accordance with AMP DM 39-A-64-31-04-00A-720A-A and with reference to Figure 3, install the sliding control assembly on the helicopter.
- 6.4 Send pictures of sliding control assembly P/N 3G6430A02531 log card, with indication of bearing FH, evidence of reinstallation of the bearing, if applicable, and the Inspection Report in Figure 4 thru technical query on Leonardo WebPortal or to Product Support Engineering (engineering.support.lhd@leonardo.com).
7. In accordance with AMP DM 39-A-06-41-00-00A-010A-A and with reference to Figure 1, reinstall all external panels previously removed in step 4.
8. In accordance with AMP DM 39-A-64-31-03-00A-720A-A and with reference to Figure 3, install the cover on the helicopter.
9. Return the helicopter to flight configuration and record for compliance with Part III of this Service Bulletin on the helicopter logbook.
10. Send the attached compliance form to the following mail box:

engineering.support.lhd@leonardo.com

As an alternative, gain access to My Communications section on Leonardo WebPortal and compile the "Service Bulletin Application Communication".

PART IV

NOTE

Perform step 1 only for bearings kept in stock; refer to letter D in the lists of Effectivity and Compliance Part IV.

1. If the duplex bearing is kept in stock, discard it. Skip to step 10.

NOTE

Perform step 2 only for bearings installed on sliding control assemblies kept in stock; refer to letter E in the lists of Effectivity and Compliance Part IV.

2. If the duplex bearing has been reinstalled on sliding control assy P/N 3G6430A02531 kept in stock, replace it with a new item in accordance with AMP DM 39-A-64-31-04-01A-921A-B and with reference to Figure 3. Skip to step 9.

NOTE

Perform steps 3 thru 10 for bearings installed on the helicopter; refer to letters A, B or C in the lists of Effectivity and Compliance Part IV.

3. In accordance with AMP DM 39-A-00-20-00-00A-120A-A, prepare the helicopter on ground for a safe maintenance. Disconnect the battery, all electrical power sources and/or the external power supply.
4. In accordance with AMP DM 39-A-64-31-04-00A-520A-A and with reference to Figure 3, remove the sliding control assembly from the helicopter.
5. In accordance with AMP DM 39-A-64-31-04-01A-921A-B and with reference to Figure 3, replace the tail rotor duplex bearing with a new item and discard the removed one.
6. In accordance with AMP DM 39-A-64-31-04-00A-720A-A and with reference to Figure 3, install the sliding control assembly on the helicopter.
7. Return the helicopter to flight configuration and record for compliance with Part IV of this Service Bulletin on the helicopter logbook.
8. Send pictures of sliding control assembly P/N 3G6430A02531 log card, with indication of bearing FH, evidence of reinstallation of the bearing, if applicable, and the Inspection Report in Figure 4 thru technical query on Leonardo WebPortal or to Product Support Engineering (engineering.support.lhd@leonardo.com).
9. Record for compliance with Part IV of this Service Bulletin on the sliding control assembly P/N 3G6430A02531 log card.
10. Send the attached compliance form to the following mail box:
engineering.support.lhd@leonardo.com

As an alternative, gain access to My Communications section on Leonardo WebPortal and compile the “Service Bulletin Application Communication”.

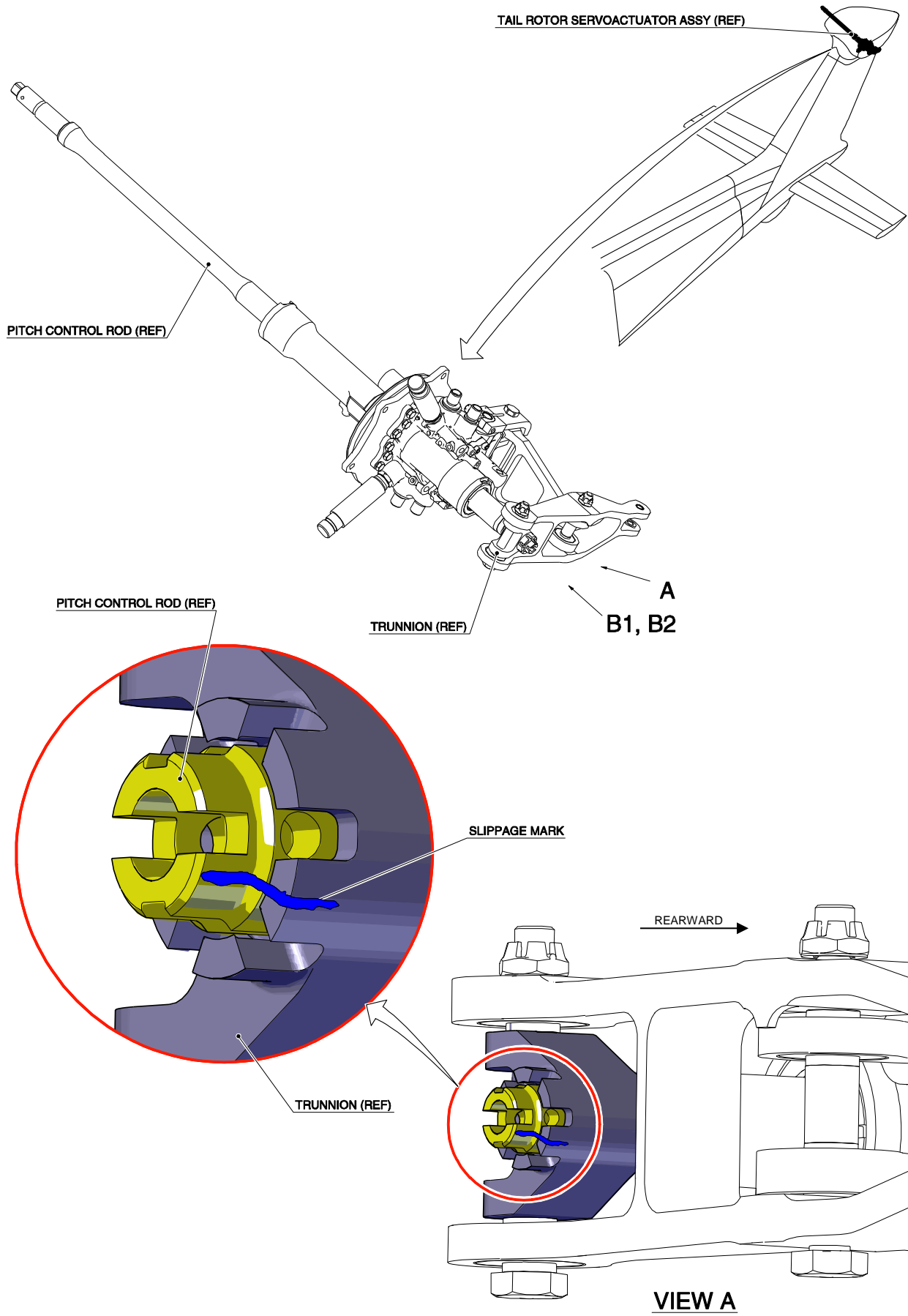
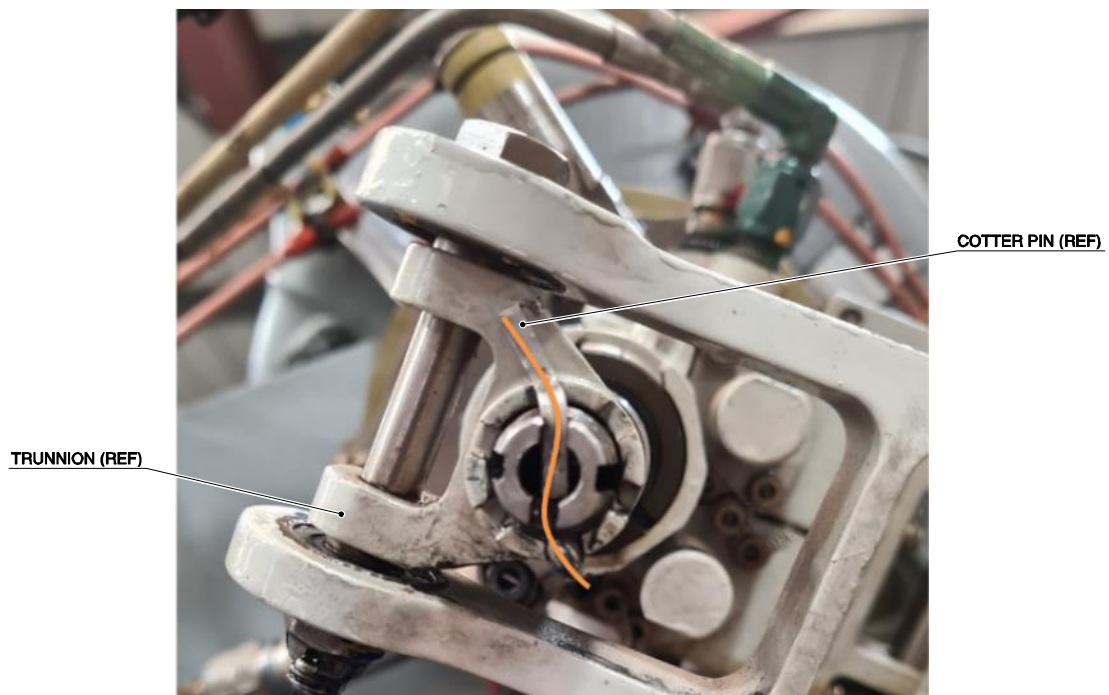


Figure 1



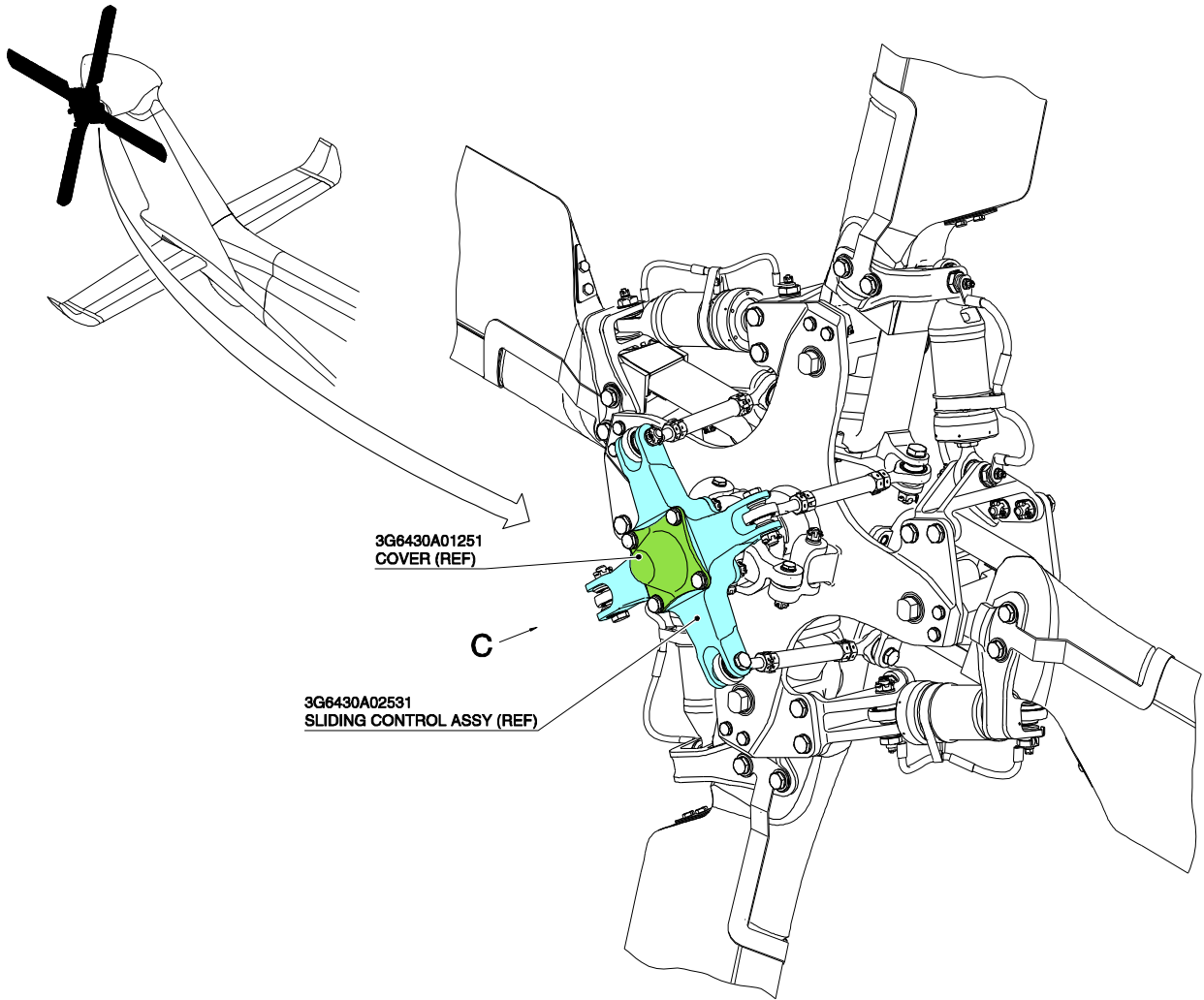
CORRECT COTTER PIN INSTALLATION WITH NO SIGN OF ROTATION
VIEW B1



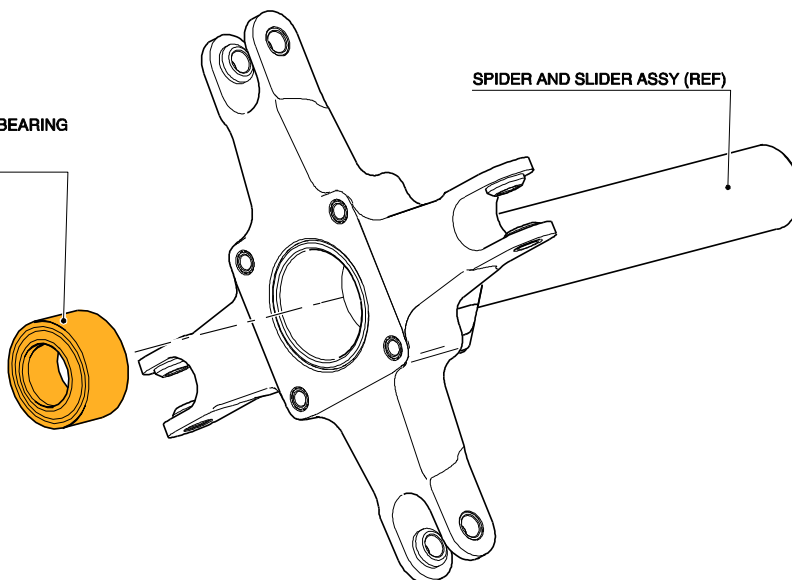
EVIDENCE OF ROTATION OF THE PITCH CONTROL ROD
VIEW B2

Figure 2

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REMOVE:
TAIL ROTOR DUPLEX BEARING
INSTALL:
NEW ITEM



VIEW C

STRUCTURES AND SYSTEMS ARE PARTIALLY
OMITTED FOR BETTER CLARITY PURPOSE

Figure 3

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Date			
Helicopter	S/N	FH	Landings
Sliding Control Assembly where bearing is installed	S/N	FH	
TR Duplex Bearing	P/N	S/N	FH
TR Duplex Bearing previously removed and reinstalled	YES		NO
	<input type="checkbox"/>		<input type="checkbox"/>

SB Part performed	Part I	Part II	Part III	Part IV				
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	A	B	C	D	E
				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
* For Part I, Part II or Part III please also fill the applicable parts of the table below. * For Part IV flag the Effectivity/Compliance applicable case.								

PROCEDURE STEP FAILED		DESCRIPTION OF FINDINGS
Part I Step 3 or Part III Step 5	<input type="checkbox"/>	
Parts II or III Step 3.1	<input type="checkbox"/>	
Parts II or III Step 3.2	<input type="checkbox"/>	
Parts II or III Step 3.4	<input type="checkbox"/>	
Parts II or III Step 3.5	<input type="checkbox"/>	
Part II Step 3.6	<input type="checkbox"/>	
Notes:		

Figure 4

