
BOLLETTINO TECNICO

The technical content of this document is approved
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N° **109SP-087**

DATE February 27, 2015

REV. A

Compliance with
this Bollettino is:

MANDATORY

SUBJECT: TAIL ROTOR PITCH CONTROL LINK ASSY P/N 109-0130-05-117.

REASON: Perform an inspection of the subject link assy for excessive friction of the spherical bearing.

HELICOPTERS AFFECTED:

PART I^ and PART II^:

All Agusta AW109SP helicopters that install the tail rotor pitch control link assy P/N 109-0130-05-117 which have accumulated less than 100 (one hundred) FH since their overhaul and all tail rotor pitch control link assy P/N 109-0130-05-117 which have accumulated less than 100 (one hundred) FH since their overhaul (e.g. spherical bearing replacement) and present in stock.

NOTE

If it is not possible to determine if or when the link has been overhauled, the link is affected by this Bollettino Tecnico.

COMPLIANCE:

PART I^:

Before the next flight.

PART II^:

Within and not later than 5 (five) flight hours from the date of issuance of this Bollettino Tecnico.

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

NOTE

Tail Rotor Pitch Control links in stock shall perform point 3 of PART II^ before their installation.

DESCRIPTION:

A case of in-flight seizure of the tail rotor pitch control link assy P/N 109-0130-05-117 has been reported on an A119MkII helicopter.

The incident did not cause harm to the occupants nor damage to the helicopter.

The seizure is compatible with the effects coming from an excessive friction on one of the spherical bearings of the link; the spherical bearing was replaced on the link during the overhaul performed few flight hours before by a Part-145.

The possibility that other overhauled links install spherical bearings with excessive friction cannot be excluded; the speed at which the link fails in such conditions is so to require an action on the in-service fleet to grant the continued airworthiness.

This Bollettino is issued in order to provide the necessary instructions to perform an inspection of the overhauled links P/N 109-0130-05-117, which have accumulated less than 100FH since their overhaul, as follows:

PART I^: Check the spherical bearings of the links installed on the helicopter for presence of corrosion and freedom of movement.

PART II^: Check the torsion value force of the spherical bearings of the links and perform a visual inspection for cracks of the stem by means of a magnifying glass. Perform, if dictated, an inspection of the stem for cracks with the liquid penetrant method.

REQUIRED MANPOWER:

The following estimated manpower hours are required for compliance with this Bollettino:

PART I^: Negligible.

PART II^: 1,5 (one and half) hours for each link assy.

WARRANTY:

Should the inspection deem that the tail rotor pitch control lever is to be replaced in accordance to the present Bollettino Tecnico, Customer will be eligible to receive replacement part on a "free of charge basis", with the exception of Consumable Materials.

Issue relevant (M)aintenance (M)alfunction (I)nformation (R)eport to your Warranty Administration Dpt., which shall provide the (R)eturn (M)aterial (A)uthorization to return removed part to AgustaWestland, as AW property.

REQUIRED MATERIALS:

PART I^:

N. A.

PART II^:

The following consumable materials are necessary for the compliance:

<u>SPECIFICATION</u>	<u>DENOMINATION</u>	<u>Q.TY</u>
TT-N-95 type 2	Aliphatic naphtha (cod. 531055030)	A.R.

In case the required inspection gives negative results, the following material are necessary for the compliance:

<u>P/N</u>	<u>DENOMINATION</u>	<u>Q.TY</u>
109-0130-05-117	TR Pitch Control Link Assy	A.R.

SPECIAL TOOLS:

<u>Description</u>	<u>Part Number</u>
Dynamometer	Local Supply
10x Magnifying Glass	Local Supply

WEIGHT AND BALANCE CHANGES:

N. A.

REFERENCES:

AW109SP Air Vehicle Maintenance Publication n° 0B-A-AMP-00-X.

PUBLICATIONS AFFECTED:

N. A.

COMPLIANCE INSTRUCTIONS:

(See figure 1).

PART I^:

1. With the links installed on the helicopter, inspect around attaching points of pitch links for evidence of corrosion in accordance with the procedures given in the AW109SP Air Vehicle Maintenance Publication n. 0B-A-AMP-00-X. In case corrosion is found, replace the link with a serviceable one with the same P/N.
2. With the links installed on the helicopter, manually verify the links rotation. The links rotation on the spherical bearings have to be possible.
3. In case, during the manual verification, a rotation resistance and/or binding has occurred, immediately perform the PART II^ of this Bollettino.
4. Record compliance with PART I^ of this Bollettino in the helicopter log book.

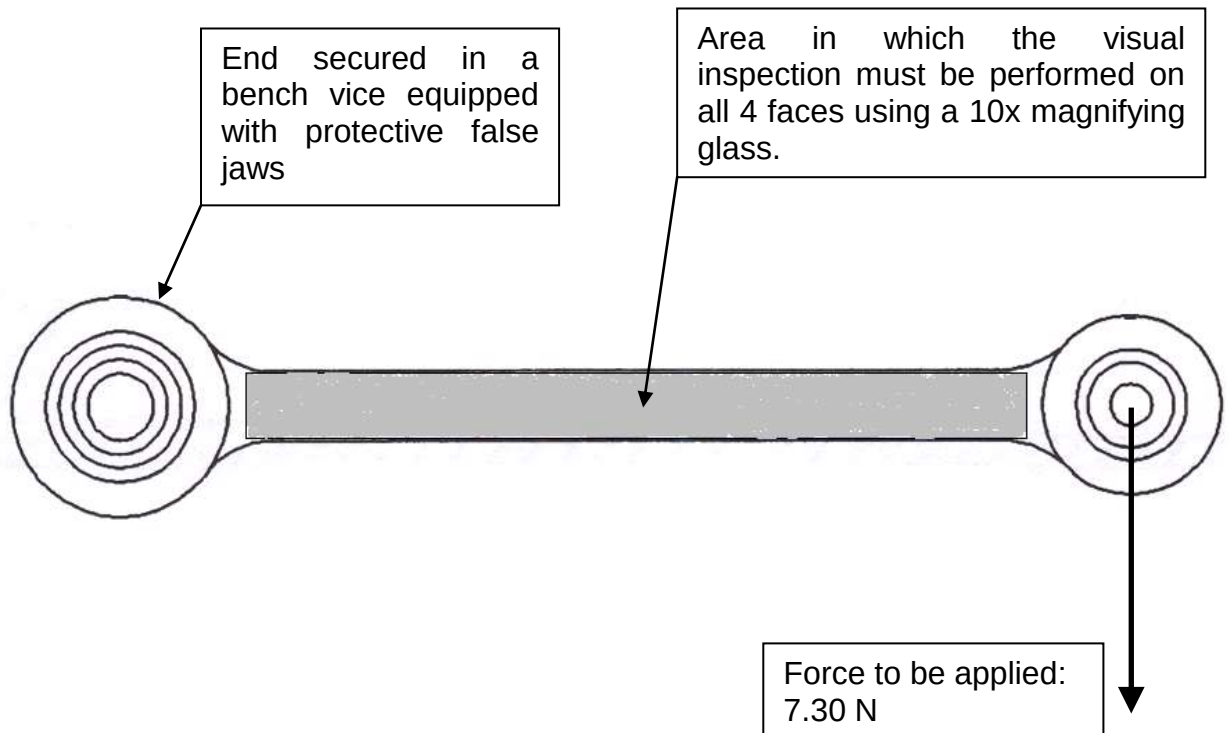
PART II^:

1. Prepare the helicopter on ground for a safe maintenance, disconnect any power source.
2. Remove the links from the helicopters in accordance with the procedures given in the AW109SP Air Vehicle Maintenance Publication n. 0B-A-AMP-00-X.
3. Secure the larger spherical bearing of the link in a bench vice equipped with protective false jaws.
 - 3.1. At the other end apply a dynamometer on the spherical bearing and perform the check of the torsion value force for the spherical bearing rotation as shown in figure 1.
 - 3.2. In the same manner perform the check of the necessary torsion value force for the smaller link spherical bearing rotation as shown in figure 1.
 - 3.3. Check that the force torsion value is lower than 7.30 N for both the spherical bearings. In case a force torsion value above the limits is detected, even if in only one of the spherical bearings, it is necessary to replace the link with a serviceable one with the same P/N. Proceed with point 7.
 - 3.4. In case both force torsion values are inside the limits at point 3.3., proceed with point 4.
4. Carefully clean the link stem using aliphatic naphtha or equivalent with a soft non metallic bristle brush, exercising care to protect the two spherical bearings.
5. Perform a visual inspection of the stem for cracks using a 10x magnifying glass (see figure 1 for the affected area).

CAUTION

In case of doubt for presence of cracks, it is necessary to perform a liquid penetrant inspection of the affected area as reported in Annex 1.

6. If no cracks are found, reinstall the links on the helicopter in accordance with the procedures given in the AW109SP Air Vehicle Maintenance Publication n. 0B-A-AMP-00-X. Otherwise, replace the link with a serviceable one with the same P/N.
7. Return the helicopter in a ready to flight condition.
8. Record compliance with PART II^ of this Bollettino in the helicopter log book.



Indicative picture.
The force value must be verified on both
spherical bearings.

LINK ASSY P/N 109-0130-05-117

FIGURE 1

ANNEX 1

Liquid penetrant inspection:

CAUTION

This inspection must be performed by personnel qualified at least at level II in the liquid penetrant method, in conformity with the international standards EN4179 or NAS410.

In case the above mentioned personnel is not available by the Customer, set aside the link and send it to AgustaWestland S.p.A. or to a Laboratory certified to perform liquid penetrant inspections.

Required Material

All following materials shall comply with SAE-AMS2644 requirements and shall be listed in the relevant QPL:

- Liquid penetrant of Type 1, Method C and level 2 of sensitivity,
- Class 2 solvent,
- Developer form “d”.

- Aluminum adhesive tape;
- Paint stripper I.A.W. TT-R-2918 spec., Type I;
- Some clean, dry cloth;
- A clean and dry hair pencil.

NDT Process

For lighting conditions and other penetrant process requirements, the inspection shall comply with the requirements of ASTM E 1417.

Compliance Instructions

1. Protect the two spherical bearings using Aluminum adhesive tape.
2. In the area suspected of cracks presence, carefully and totally remove the paint and the primer, for an area sufficient

to reveal the point to be inspected. For this purpose use the paint stripper.

3. The paint stripper must be left to act for sufficient time. The chemical action shall be made easier by scrubbing with a soft bristle brush.

CAUTION

The use of any other mechanical tool, like scrapers or scotch-brite or others are forbidden.

4. The surface to be inspected must be carefully cleaned and completely free from any residual of paint and/or paint stripper or contaminants. Remove any residual of contaminants using a clean soft brush and cloth or towel paper and class 2 solvent.

NOTE

This operation shall be performed very carefully; any contaminant left on the surface can prevent the penetrant to detect cracks.

5. After the solvent is completely evaporated perform the penetrant inspection as follows:

NOTE

The link, the penetrant and the ambient shall be in a temperature range between 15 and 45 °C.

- 5.1. Apply the penetrant with a clean and dry hair pencil on the area to be inspected and leave it for not less than 30 minutes of penetration dwell time.
- 5.2. Remove the excess of penetrant firstly with a clean and dry cloth and then with a cloth dampened with class 2 solvent.

NOTE

The cloth must not be soaked with solvent and especially avoid to apply the solvent directly on the link.

- 5.3. Darken the part up to 20 lux maximum and then light it with the black light. (1,200 $\mu\text{W}/\text{cm}^2$)

- 5.4. Repeat the removal of the penetrant excess with a clean cloth dampened with class 2 solvent until all background fluorescence has been completely removed.
- 5.5. After the solvent is completely evaporated, apply a thin and uniform layer of the developer. Before the application, vigorously shake the developer can for at least 1 minute.

CAUTION

In case of any developer sagging, the part shall be carefully cleaned and the whole process repeated.

- 5.6. After 10 minutes of developer dwell time, examine carefully the area.

CAUTION

Before starting the examination, the operator must adapt his sight to darkness for at least 1 minute and during examination he cannot wear sunglasses or photo chromatic lenses.

- 5.7. Carefully verify in the suspected area in order to confirm the crack presence.
- 5.8. At the end of the inspection, carefully clean the part from any residual of the products used with a clean cloth soaked with class 2 solvent and with soft brush.
6. Restore the primer and the finish paint in accordance with the procedures given in the applicable Maintenance Manual.
7. Remove the Aluminum adhesive tape from the two spherical bearings.

Prego spedire a questo indirizzo: <i>Please send to the following address:</i> AGUSTAWESTLAND s.p.A. CUSTOMER SUPPORT & SERVICES - ITALY PRODUCT SUPPORT ENGINEERING DPT. Via del Gregge, 100 21015 Lonate Pozzolo (VA) - ITALY Tel.: +39 0331 664905 Fax: +39 0331 664684		MODULO APPLICAZIONE BOLLETTINO TECNICO <i>TECHNICAL BULLETIN COMPLIANCE FORM</i>		Data: <i>Date:</i>
		Numero: <i>Number:</i>		
		Revisione: <i>Revision:</i>		
Denominazione Cliente ed Indirizzo: <i>Customer Name and Address:</i>			Telefono: <i>Telephone:</i>	
			Fax:	
			Data Applicazione B.T.: <i>B.T. Compliance Date:</i>	
Modello Elicottero <i>Helicopter Model</i>	S/N	Matricola <i>Tail Number</i>	Ore Totali <i>Total Hours</i>	Ore D.U.R. <i>T.S.O.</i>
Note: <i>Remarks:</i>				
Informazioni: <i>Information:</i> Al fine di gestire le varianti alla configurazione base, in relazione all'emissione del Bollettino Tecnico, preghiamo di voler compilare il presente modulo in tutte le sue parti e spedirlo all'indirizzo sopra indicato. Si ringrazia per la gentile collaborazione data. We request your cooperation in filling this form, in order to keep out statistical data relevant to aircraft configuration up-to-date. The form should be filled in all its parts and sent to the above address. We thank you beforehand for the information given.				