LEONARDO HELICOPTERS

AgustaWestland Products

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| **Our Ref. :** | PSE/TQ/2021/41778 | **Date:** | 08 October 2021 |
| **From :** | LH Service Engineering | engineering.support.lhd@leonardocompany.com | |
| **TO :** | Bristow Helicopters<br>***Attn:*** Mr. David Ireland<br>david.ireland@bristowgroup.com | **Page :** | **1 / 7** |
| **SUBJECT :** | **AW189 S/N 92004 (TT 1880.01 FH): AMPI task 63-28 completion postponement** | | |

Dear Sir,

with reference to your request in Annex A, Leonardo Helicopters (LH) technical advice is as follows.

It is possible to postpone until November 22, 2021, the collector gear upper surface inspection recalled in AMPI Task 63-28, and in step 7 of AMP DM 89-A-63-20-00-00A-281A-A Main gearbox group - Scheduled inspections, provided that the remaining steps of AMP DM 89-A-63-20-00-00A-281A-A are successfully performed, except for deviations reported in Annex B.

Please be also informed that the above prescriptions must be considered valid only if the aircraft has been maintained in accordance with all Leonardo Helicopters mandatory recommendations, in addition to local authority requirements.

For any additional information do not hesitate to contact LH Service Engineering.

Best Regards,

Emanuele Bianchi
AW189 Chief Project Engineer

Antonio Parente
Service Engineering Area Manager

*The technical content of this document is approved under the authority of DOA no. EASA.21J.005. Please note that this document could be subject to approval from Local Airworthiness Authority, depending on the privileges granted to your organization.*



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# Annex A

**Da:** noreply@leonardocompany.onmicrosoft.com <noreply@leonardocompany.onmicrosoft.com>
**Inviato:** mercoledì 22 settembre 2021 18:58
**A:** Dave Ireland <david.ireland@bristowgroup.com>
**Cc:** Jon Watson <jonathan.watson@bristowgroup.com>; Graham Watt <graham.watt@bristowgroup.com>; ian pearson <ian.pearson@bristowgroup.com>; Chris Richards <chris.richards@bristowgroup.com>; Andrew Gardner <andrew.gardner@bristowgroup.com>; Dilwyn Williams <dilwyn.williams@bristowgroup.com>; Tim Lennon <timothy.lennon@bristowgroup.com>; James Strachan <James.strachan@bristowgroup.com>
**Oggetto:** Request PSE/TQ/2021/41778 in status Acceptance

Dear Dave Ireland,

Your request PSE/TQ/2021/41778 has been assigned to Marco Valerio D'Ambrosio and it is currently in status Acceptance.

Below the main information:

- Document ID: PSE/TQ/2021/41778
- Subject: Deviation from 8Y MGB inspections
- Priority: HIGH
- Helicopter S/N: NC0092004
- Helicopter Model: AW189
- Helicopter Line: AW189

Ticket Description:

Good afternoon LHD,

We have been carrying out the 8Y MGB inspections IAW 89-A-63-20-00-00A-281A-A and would like to share the following information on the inspections and ask for allowed deviations as specified in the word document attached.

Best Regards

**Word document attached:**

**AW189 SN:92004**
**G-MCGR**
**AF Hrs 1880:02**
**MGB PN:8G6320A00132 SN:V25-1**
**Hrs 1880:02**

**Main Gear box group scheduled inspections**
**AMP:89-A-63-20-00-00A-281A-A IETP Iss21 2021-06-02**
**Procedure step 1**
Data module request: "Do the steps that follow in order to inspect the main gearbox critical zones. Make sure that there is the total absence of corrosion"
BHL comment: We cannot accept "total absence of corrosion" because the inspection criteria only covers a GVI on visible parts.
For the same reason please revise step 9 and 10 of Requirements after job completion.

**89-A-63-20-00-02A-31AA-A Main gearbox group - Planetary reduction stage - Detailed inspection**
**Inspection step 2.1**

Data module request: "Examine the upper side of the planetary reduction stage through the hole of the oil filler cap. Make sure that there are no sign of corrosion on the parts that follow:

The mast plate

The five bolts

The spherical bearing of the five planet gears

The planet gears teeth

The ring gear teeth."

**BHL comment:**

With reference to highlighted parts above we can only check the ring teeth next to the oil filler cap using the support equipment listed on the procedure. I would like to add that the use of a boroscope helps fulfill the requirements, but care should be taken when moving gears.

**Inspection step 2.2**

Data module request: "Slowly move the number 1 drive shaft or the number 2 drive shaft to turn the mast. Do this in order to inspect the hidden surfaces of all the components."

BHL comment: Unachievable due to the preliminary requirements instruction to remove LH & RH Engines **AMP:89-A-63-20-00-00A-281A-A.** This can however be achieved by rotating the tail take off pinion.

**89-A-63-20-00-03A-31AA-A Main gearbox group - Left/right input module - Detailed inspection**

**Procedure step 2.1**

Data module request: "Examine the left input module through the hole of the oil cover. Make sure that there are no sign of corrosion on the parts that follow:

The internal and the external surfaces of the gear

The gear teeth

The bearing."

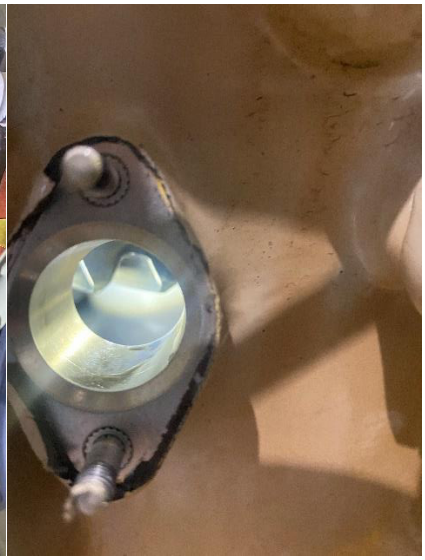
BHL comments: Please be advised that these parts can be inspected without the need to remove the oil cover. The removal of both shaft freewheels gives required access.

**89-A-63-20-00-05A-31BA-A Main gearbox group - Collector gear - Special detailed inspection**

**Procedure step 2.1**

"Insert the Boroscope into the main case through the hole of the removed rotor speed sensor."

**BHL comment:**
Please be advised that due to the positioning of the speed sensor housing only the lower side of the collector gear teeth can be inspected, as such there is no accessibility to any of the areas directed to by step 2.3. The speed sensor is physically below the collector gear installation. See below.



We have noticed that the collector gear bearing can be inspected by using a boroscope through the center of the mast and Tail take off bearing is accessible through the ECS cover/installation point. See below. Please note that care should be taken when moving gears with boroscope in use.

Step 2.4

Data module request: “Slowly move the number 1 or number 2 input flange to turn the mast. Do this in order to inspect the hidden surfaces of all the components.”

BHL comment:

Unachievable due to the preliminary requirements instruction to remove LH & RH Engines **AMP:89-A-63-20-00-00A-281A-A.** This can however be achieved by rotating the tail take off pinion.

**89-A-63-20-00-06A-31BA-A Main gearbox group - Second stage components - Special detailed inspection**

**Step 2.5**

Data module request: "Slowly move the number 1 or the number 2 input flange to turn the mast. Do this in order to inspect the hidden surfaces of all the components."

BHL comment:

Unachievable due to the preliminary requirements instruction to remove LH & RH Engines **AMP:89-A-63-20-00-00A-281A-A.** This can however be achieved by rotating the tail take off pinion.

# Annex B

Refer to AMP DM 89-A-63-20-00-00A-281A-A Main gearbox group - Scheduled inspections.

| Item # | AMP DM 89-A-63-20-00-00A-281A-A | Step description | Action to be performed | Deviation performed by Bristow | LH final evaluation |
|---|---|---|---|---|---|
| 1 | Step 4 | Do the detailed inspection of the planetary reduction stage (2) of the main gearbox group. Refer to 89-A-63-20-00-02A-31AA-A. | It is requested to slowly move the number 1 drive shaft or the number 2 drive shaft to turn the mast. | Achieved by rotating the tail take off pinion. | Deviation accepted. |
| 2 | Step 7 | Do the special detailed inspection of the collector gear (5) of the main gearbox group. Refer to 89-A-63-20-00-05A-31BA-A. | It is requested to gain access through the hole of the speed sensor to inspect with the borescope:<br>1. the collector gear roller bearing,<br>2. the tail take-off bearing,<br>3. the collector gear upper surface. | 1. Collector gear bearing inspection achieved by using a boroscope through the center of the mast.<br>2. Tail take-off bearing inspection achieved through the ECS cover/installation point.<br>3. Collector gear upper surface inspection not totally achieved due to inaccessibility. | 1. Collector gear bearing inspection deviation accepted.<br>2. Tail take-off bearing inspection deviation accepted.<br>3. Collector gear upper surface inspection to be postponed. It is possible to postpone the accomplishment of this inspection for 45 days, according to the further instructions that will be shared by LH Engineering Support. |
| 3 | Step 7 | Do the special detailed inspection of the collector gear (5) of the main gearbox group. Refer to 89-A-63-20-00-05A-31BA-A. | It is requested to slowly move the number 1 drive shaft or the number 2 drive shaft to turn the mast. | Achieved by rotating the tail take off pinion. | Deviation accepted. |
| 4 | Step 8 | Do the detailed inspection of the second stage components (6) of the main gearbox group. Refer to 89-A-63-20-00-06A-31BA-A. | Slowly move the number 1 or the number 2 input flange to turn the mast. | Achieved by rotating the tail take off pinion. | Deviation accepted. |