



Airworthiness Directive

AD No.: 2021-0259

[Correction: 22 November 2021]

Issued: 17 November 2021

Note: This Airworthiness Directive (AD) is issued by EASA, acting in accordance with Regulation (EU) 2018/1139 on behalf of the European Union, its Member States and of the European third countries that participate in the activities of EASA under Article 129 of that Regulation.

This AD is issued in accordance with Regulation (EU) 748/2012, Part 21.A.3B. In accordance with Regulation (EU) 1321/2014 Annex I, Part M.A.301, the continuing airworthiness of an aircraft shall be ensured by accomplishing any applicable ADs. Consequently, no person may operate an aircraft to which an AD applies, except in accordance with the requirements of that AD, unless otherwise specified by the Agency [Regulation (EU) 1321/2014 Annex I, Part M.A.303] or agreed with the Authority of the State of Registry [Regulation (EU) 2018/1139, Article 71 exemption].

Design Approval Holder's Name:

LEONARDO S.p.A.

Type/Model designation(s):

AB139 and AW139 helicopters

Effective Date: 24 November 2021

TCDS Number(s): EASA.R.006

Foreign AD: Not applicable

Supersedure: None

ATA 53 – Fuselage – Tail Gearbox Fitting – Inspection / Replacement

Manufacturer(s):

Leonardo S.p.A. Helicopters, formerly Finmeccanica S.p.A, AgustaWestland S.p.A., Agusta S.p.A.; and AgustaWestland Philadelphia Corporation, formerly Agusta Aerospace Corporation

Applicability:

AB139 and AW139 helicopters, all serial numbers.

Definitions:

For the purpose of this AD, the following definitions apply:

Affected part: Tail gear box (TGB) fittings, having Part Number (P/N) 3G5351A01151 or P/N 3G5351A01152.

The ASB: Leonardo Alert Service Bulletin (ASB) 139-686.

Reason:

During a scheduled inspection of an AW139 helicopter, a large crack was detected on the inner forward-right side of the TGB fitting P/N 3G5351A01151.

The investigation results have revealed that previous scheduled inspections on the inner forward-right side of the TGB fitting were accomplished possibly without the use of a borescope.



This condition, if not detected and corrected, could lead to crack propagation up to critical length, reducing the capability to sustain loads from the TGB and tail rotor and possibly resulting in reduced control of the helicopter.

To address this potential unsafe condition, Leonardo issued the ASB, as defined in this AD, providing instructions to inspect the affected part using a borescope.

Additionally, Leonardo intends to amend data module 39-A-53-40-00-00A-31AC-A of the AW139 Maintenance Publication Manual to use the borescope during the inspection of the inner areas of the TGB fitting.

For the reason described above, this AD requires a one-time inspection of the affected part and, depending on findings, replacement.

This AD is republished to correct the data module reference in its Reason section.

Required Action(s) and Compliance Time(s):

Required as indicated, unless accomplished previously:

Inspection:

- (1) Within the compliance time specified in Table 1 of this AD, as applicable, inspect, using a borescope, the affected part in accordance with the instructions of Section 3 Part I of the ASB.

Table 1 – TGB Fitting Inspection

Flight Hours (FH) accumulated by the affected part (on the effective date of this AD)	Compliance Time
3 000 or more since first installation on a helicopter	Within 25 FH after the effective date of this AD
Less than 3 000 since first installation on a helicopter	Within 25 FH after the affected part accumulates 3 000 FH since first installation on a helicopter

Corrective Action(s):

- (2) If, during the inspection as required by paragraph (1) this AD, a crack or any discrepancy is detected, replace the affected part in accordance with the instructions of Section 3 Part II of the ASB.

Reporting:

- (3) Within 30 days after the inspection as required by paragraph (1) of this AD, report the results to Leonardo, in case a crack or any discrepancy is detected. This can be accomplished in accordance with the instructions of Section 3 Part I of the ASB.



Part(s) Installation:

- (4) From the effective date of this AD it is allowed to (re)install on any helicopter an affected part, provided it is inspected as required by paragraph (1) of this AD.

Ref. Publications:

Leonardo S.p.A. Helicopters ASB 139-686 original issue dated 08 November 2021.

The use of later approved revisions of the above-mentioned document is acceptable for compliance with the requirements of this AD.

Remarks:

1. If requested and appropriately substantiated, EASA can approve Alternative Methods of Compliance for this AD.
2. Based on the required actions and the compliance time, EASA have decided to issue a Final AD with Request for Comments, postponing the public consultation process until after publication.
3. Enquiries regarding this AD should be referred to the EASA Safety Information Section, Certification Directorate. E-mail: ADs@easa.europa.eu.
4. Information about any failures, malfunctions, defects or other occurrences, which may be similar to the unsafe condition addressed by this AD, and which may occur, or have occurred on a product, part or appliance not affected by this AD, can be reported to the [EU aviation safety reporting system](#). This may include reporting on the same or similar components, other than those covered by the design to which this AD applies, if the same unsafe condition can exist or may develop on an aircraft with those components installed. Such components may be installed under an FAA Parts Manufacturer Approval (PMA), Supplemental Type Certificate (STC) or other modification.
5. For any question concerning the technical content of the requirements in this AD, please contact: Leonardo S.p.A. Helicopters. E-mail: engineering.support.lhd@leonardocompany.com.



SERVICE BULLETIN

N° 139-686

ALERT

DATE: November 8, 2021

REV. : /

TITLE

ATA 53 – TAIL GEAR BOX FITTING INSPECTION

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

All AB/AW139 helicopters installing TGB fittings P/N 3G5351A01151 or P/N 3G5351A01152 with more than 3000 FH.

NOTE

During the installation of a new/repared tail boom assembly, verify the applicability of this SB on the TGB fitting installed on the tail boom.

B. COMPLIANCE

Part I:

Within and not later than 25 (twenty-five) FH after the issue date of this Service Bulletin.

Part II:

Immediately after compliance with Part I, if evidence of cracks is found during the inspection.

C. CONCURRENT REQUIREMENTS

N.A.

D. REASON

This Service Bulletin is issued in order to provide the necessary instruction on how to perform a detailed inspection of the TGB fitting.

E. DESCRIPTION

This Service Bulletin prescribes a detailed inspection of the TGB fitting in order to detect potential cracks. If cracks are found, the Service Bulletin prescribes the immediate replacement of the component.

Part I prescribes the detailed inspection of RH and FWD parts of the TGB fitting with the mandatory use of a borescope.

Part II prescribes the TGB fitting replacement in case of findings found during the application of the Part I.

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 Maintenance-Man-Hours (MMH) are deemed necessary:

Part I: approximately four (4) MMH;

Part II: approximately thirty-six (36) MMH.

Maintenance-Man-Hours 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
DM02 39-A-52-44-01-00A-520A-A	Access panels - Remove procedure.	II
DM03 39-A-52-44-01-00A-720A-A	Access panels - Install procedure.	II

Following Data Modules refer to ASRP:

<u>DATA MODULE</u>	<u>DESCRIPTION</u>	<u>PART</u>
DM04 39-A-53-52-07-00A-920A-D	Tail gearbox fitting - Replacement	II

2) ACRONYMS & ABBREVIATIONS

AMDI	Aircraft Material Data Information
AMP	Aircraft Maintenance Publication
AMPI	Aircraft Maintenance Planning Information
ASRP	Aircraft Structural Repair Publication
DM	Data Module
DOA	Design Organization Approval
EASA	European Aviation Safety Agency
FH	Flight Hours
FWD	Forward
LHD	Leonardo Helicopters
MMH	Maintenance Man Hours
P/N	Part Number
S/N	Serial Number
TGB	Tail Gear Box

3) ANNEX

N.A.

J. PUBLICATIONS AFFECTED

N.A.

K. SOFTWARE ACCOMPLISHMENT SUMMARY

N.A.

2. MATERIAL INFORMATION

A. REQUIRED MATERIALS

1) PARTS

PART I

N.A.

PART II

#	P/N	ALTERNATIVE P/N	DESCRIPTION	Q.TY	LVL	NOTE	LOG P/N
1	3G5351A01152		TGB fitting	1	.	(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
2	CCC-C-440, Class I	Cheesecloth (C028)	AR		I
3	TT-N-95-B Code No. 531055030	Aliphatic Naphtha (C059)	AR		I
4	P-D-680, Type II or MIL-PRF-680B, Type II	Cleaning solvent (C010)	AR		I

Refer also 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) For helicopters installing the fitting P/N 3G5351A01151 it is possible also to install P/N 3G5351A01151 as a valid alternative to P/N 3G5351A01152.

B. SPECIAL TOOLS

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

#	P/N	DESCRIPTION	Q.TY	NOTE	PART
5	RMGE-DS-06-2010-LH or approved alternative	Platform left (GG-01-00)	1	(B1)	I, II
6	RMGE-SL-06-2010-RH or approved alternative	Platform right (GG-02-00)	1	(B1)	I, II

#	P/N	DESCRIPTION	Q.TY	NOTE	PART
7	Commercial	Borescope	1	(B1)	I
8	Commercial	Flash light	1	(B1)	I
9	3G5305G12331	Tool TGB/IGB fitting inst	1	(B2) (B3)	II

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

SPECIAL TOOLS NOTES

- (B1) Item to be procured as a local supply.
- (B2) Tool P/N 3G5305G12331 is required to perform Part II and may be supplied as part of tool P/N 3G5350G00831.
- (B3) Please contact Leonardo Helicopters Division order administration to request the tools supply on loan. As soon as the present Service Bulletin is implemented the tools supplied on loan shall be promptly returned to Leonardo Helicopters Division.

C. INDUSTRY SUPPORT INFORMATION

In ref. to PART II application:

As reported on PART I step 3, only if Product Support Engineering confirms the replacement, please Issue relevant MMIR form to your Warranty Administration Dpt. Please note that “Product Support Engineering’s approvals” is mandatory to evaluate your request, otherwise MMIR could be rejected.

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

3. ACCOMPLISHMENT INSTRUCTIONS

GENERAL NOTES

- a) Place an identification tag on all components that are re-usable, including the attaching hardware removed to gain access to the modification area and adequately protect them until their later re-use.
- b) Exposed thread surface and nut must be protected using a layer of tectyl according to MIL-C-16173 grade I.

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.
2. Put the platform (GG-01-00), or an approved alternative, adjacent to the left side of the fuselage.
3. Put the platform (GG-02-00), or an approved alternative, adjacent to the right side of the fuselage
4. In accordance with AMP DM 39-A-52-44-01-00A-520A-A, remove the access panels 360AL, 360AT and 360CT to get access to the right side of the fin.

NOTE

With reference to the following step, the use of borescope is mandatory to comply with the required inspection.

5. With reference to Figures 1 and 2 perform, with the use of a borescope, a detailed inspection for cracks of the RH and FWD sides of the TGB fitting (area delimited by circles in Figure 1) in accordance to the following procedure:
 - 5.1 Properly illuminate the area to inspect (if necessary use a flash light).
 - 5.2 Clean the area to inspect with the Cheesecloth (C028) and the Aliphatic naphtha (C059) or Cleaning solvent (C010).
 - 5.3 With reference to Figure 1 View C and View D, accurately examine the outer surfaces of the forward and right side of TGB fitting body above the horizontal row of fastener holes (area delimited by circles in figure), making sure there are not cracks or damage.
 - 5.4 Accurately examine the area around the vertical and horizontal row of fastener

holes (refer also to Figure 2 “View looking forward side of TGB fitting”) of the inner forward side of the tail gearbox attachment-fitting.

- 5.5 Accurately examine the area around the vertical and horizontal row of fastener holes (refer also to Figure 2 “View looking right side of TGB fitting”) of the inner right side of the tail gearbox attachment-fitting.
6. In case of any finding resulting from the inspection required by step 5, take a picture of the crack and of the involved area and contact Product Support Engineering (engineering.support.lhd@leonardocompany.com) to send photos of the cracks. Record for compliance with Part I of this Service Bulletin on the helicopter logbook and immediately proceed with Part II.
7. In accordance with AMP DM 39-A-52-44-01-00A-720A-A, reinstall the access panels 360AL, 360AT and 360CT.
8. Remove the platforms from the fuselage sides.
9. Return the helicopter to flight configuration and record for compliance with Part I of this Service Bulletin on the helicopter logbook.
10. Send the attached compliance form to the following mail box:

engineering.support.lhd@leonardocompany.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.

NOTE

With reference to step 2, apply ASRP DM 39-A-53-52-07-00A-920A-D also to install P/N 3G5351A01151, if required.

2. In accordance with ASRP DM 39-A-53-52-07-00A-920A-D replace the damaged TGB fitting with a new one.
3. In accordance with AMP DM 39-A-52-44-01-00A-720A-A, install all the access panels previously removed.
4. Remove the platforms from the fuselage sides.
5. Return the helicopter to flight configuration and record for compliance with Part II of this Service Bulletin on the helicopter logbook.
6. Send the attached compliance form to the following mail box:

engineering.support.lhd@leonardocompany.com

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

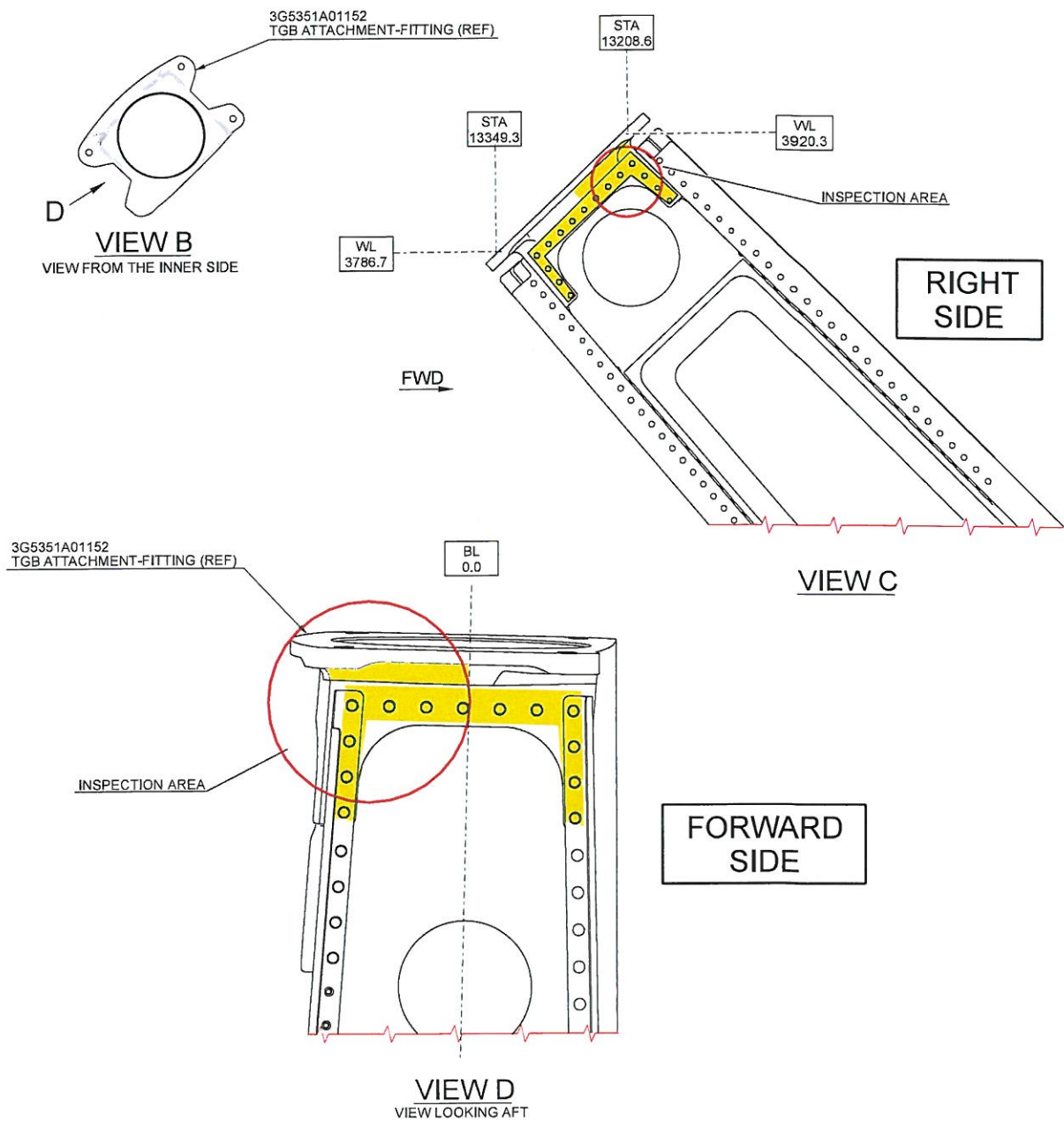
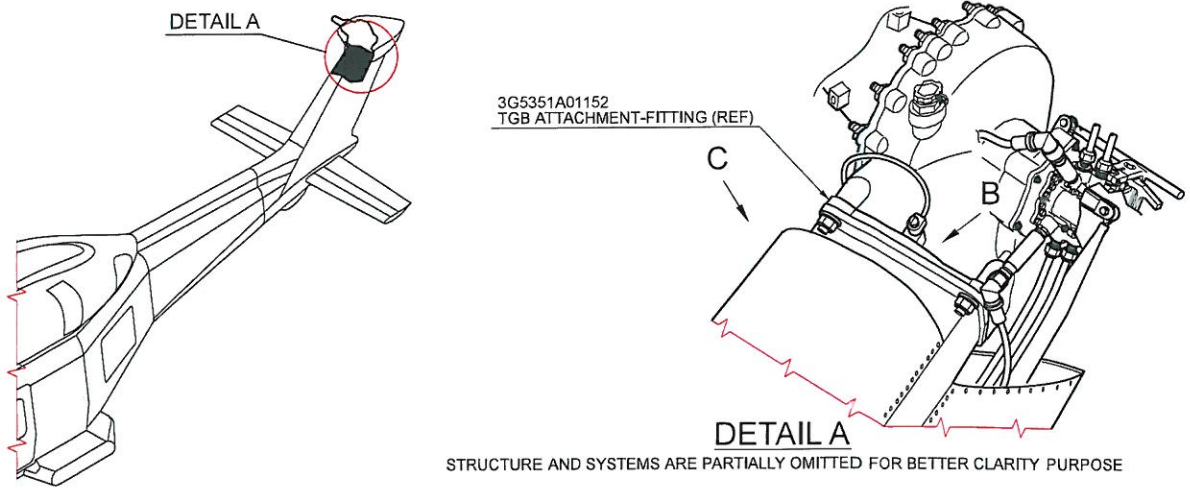
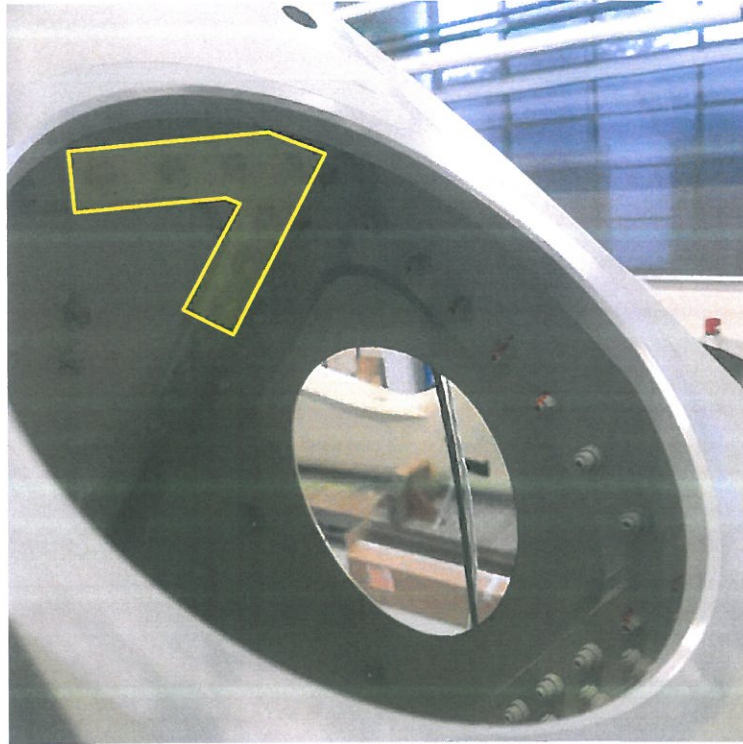
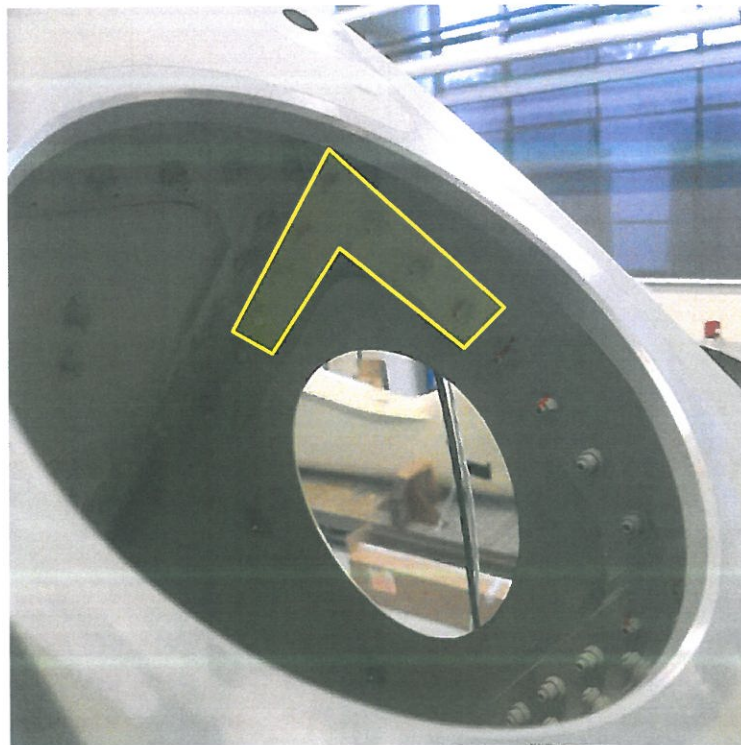


Figure 1



VIEW LOOKING FORWARD SIDE OF TGB FITTING
(FOR REFERENCE ONLY)



VIEW LOOKING RIGHT SIDE OF TGB FITTING
(FOR REFERENCE ONLY)

Figure 2

Please send to the following address: LEONARDO S.p.A. CUSTOMER SUPPORT & SERVICES - ITALY PRODUCT SUPPORT ENGINEERING & LICENSES DEPT. Via Giovanni Agusta, 520 21017 Cascina Costa di Samarate (VA) - ITALY Tel.: +39 0331 225036 Fax: +39 0331 225988	SERVICE BULLETIN COMPLIANCE FORM	Date:
	Number:	
	Revision:	

Customer Name and Address:	Telephone:
	Fax:
	B.T. Compliance Date:

Helicopter Model	S/N	Total Number	Total Hours	T.S.O.

Remarks:

Information:

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 or you can communicate the application also via Technical Bulletin Application Communication Section placed in Leonardo AW Customer Portal - MyCommunications Area. We thank you beforehand for the information given.