

Temporary Maintenance Instruction TMI 139-548

Forward section - Main gearbox rod attachment structure - Detailed inspection

All AW139 Helicopters

The technical content of this document is approved under the authority of DOA nr. EASA.21J.005.

The present TMI will be evaluated for its introduction in the standard set of Technical Publication.

If no further notice is received, the present document expires on: September 29th 2022.

2021-09-29

Introduction

This TMI provides the instructions and requirements to perform the detailed inspection of the Main Gearbox Forward Reinforcement P/N 3P5333A12052.

The procedures contained in this TMI update and supersede the contents of the following Data Module: 39-A-53-10-00-00A-31AA-A Forward section - Main gearbox rod attachment structure - Detailed inspection.

The content of this TMI will be endorsed within the applicable Maintenance Manual at the earliest opportunity.

Forward section - Main gearbox rod attachment structure - Detailed inspection

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References

Table 1 References

Data Module	Title
39-A-00-00-00-00A-02AA-D	Maintenance publication - List of effectivity codes
39-A-00-20-00-00A-120A-A	Helicopter safety - Pre-operation (make helicopter safe for maintenance)
39-A-25-82-01-00A-520A-A	Left lining panel - Remove procedure
39-A-25-82-01-00A-720A-A	Left lining panel - Install procedure
39-A-25-82-02-00A-520A-A	Right lining panel - Remove procedure
39-A-25-82-02-00A-720A-A	Right lining panel - Install procedure
39-A-25-82-15-00A-520A-A	Top rear lining panel - Remove procedure
39-A-25-82-15-00A-720A-A	Top rear lining panel - Install procedure
39-A-63-32-01-00A-520A-A	Forward left fitting - Remove procedure
39-A-63-32-01-00A-720A-A	Forward left fitting - Install procedure
39-A-63-32-02-00A-520A-A	Aft left fitting - Remove procedure
39-A-63-32-02-00A-720A-A	Aft left fitting - Install procedure
39-A-63-32-03-00A-520A-A	Forward right fitting - Remove procedure
39-A-63-32-03-00A-720A-A	Forward right fitting - Install procedure
39-A-63-32-04-00A-520A-A	Aft right fitting - Remove procedure
39-A-63-32-04-00A-720A-A	Aft right fitting - Install procedure

Table 2 Access points

Access Panel / Door Id	Data Module
No Access Point	

Table 3 Zones

Access Panel / Door Id	Data Module
No Zones	

Preliminary Requirements

Required Conditions

Table 4 Required Conditions

Conditions	Data Module/Technical Publication
The helicopter must be safe for maintenance	39-A-00-20-00-00A-120A-A
The access panels/doors 150AT, 150BT, 151EL, 151BL, 152ER, 152CR, 161AL, 162AR, 160CL and 473AL must be removed/opened	39-A-06-41-00-00A-010A-A
The top rear lining panel must be removed	39-A-25-82-15-00A-520A-A
The left lining panel must be removed	39-A-25-82-01-00A-520A-A
The right lining panel must be removed	39-A-25-82-02-00A-520A-A

Support Equipment

Table 5 Support Equipment

Nomenclature	Identification No.	Qty
Platform, left	GG-01-00	1
Platform, right	GG-02-00	1
Magnifying glass (10 power)	ZZ-00-00	1
Mirror	ZZ-00-00	1
Light source	ZZ-00-00	1
Fiberscope	ZZ-00-00	1

Supplies

Table 6 Supplies

Nomenclature	Identification No.	Qty
Metallic tape	C221	AR

Spares

Table 7 Spares

Nomenclature
No Spares

Safety Conditions

No Safety Condition

Procedure

Note

1. To know the meaning of the effectivity code (or codes) shown in this data module, refer to [39-A-00-00-00-00A-02AA-D](#).
2. During this procedure use the [Magnifying glass \(10 power\) \(ZZ-00-00\)](#) , the [Mirror \(ZZ-00-00\)](#) , the [Light source \(ZZ-00-00\)](#) and the [Fiberscope \(ZZ-00-00\)](#) as necessary.

- 1 Put the [Platform, left \(GG-01-00\)](#) adjacent to the left side of the fuselage.
- 2 Put the [Platform, right \(GG-02-00\)](#) adjacent to the right side of the fuselage.
- 3 Open the left-top maintenance step (1, [Figure 1](#)).
- 4 Remove the six screws (2) that attach the inspection panel (3) to the internal panel (1M).
- 5 Do the [step 3](#) and [step 4](#) again for the right-top maintenance step.
- 6 Get access to the forward left fitting (5) of the Main Gearbox (MGB) mount rod on the upper deck.
 - 6.1 Examine the forward left fitting (5) for cracks, spalls and distortions.
 - 6.2 Examine the areas around the bushing (4) for cracks, spalls and distortions.
 - 6.3 Refer to [step 26](#) if you find that the forward left fitting (5) is damaged.
- 7 Examine the areas of the left-forward top plate (6) around the holes for the bolts (7) for cracks, spalls and distortions.
- 8 Refer to [step 27](#) if you find that the left-forward top plate (6) is damaged.
- 9 Refer to [Detail C](#) of [Figure 1](#) and do the steps that follow:
 - 9.1 Examine the heads of the pin-rivets (12) and the rivets (13) for signs of looseness.
 - 9.2 Examine the left-forward top plate (6) around the heads of the pin-rivets (12) and the rivets (13) for cracks that start from the fastener holes.
- 10 Refer to [step 27](#) if you find that fasteners (12) and (13) are loose and/or the left-forward top plate (6) is damaged.

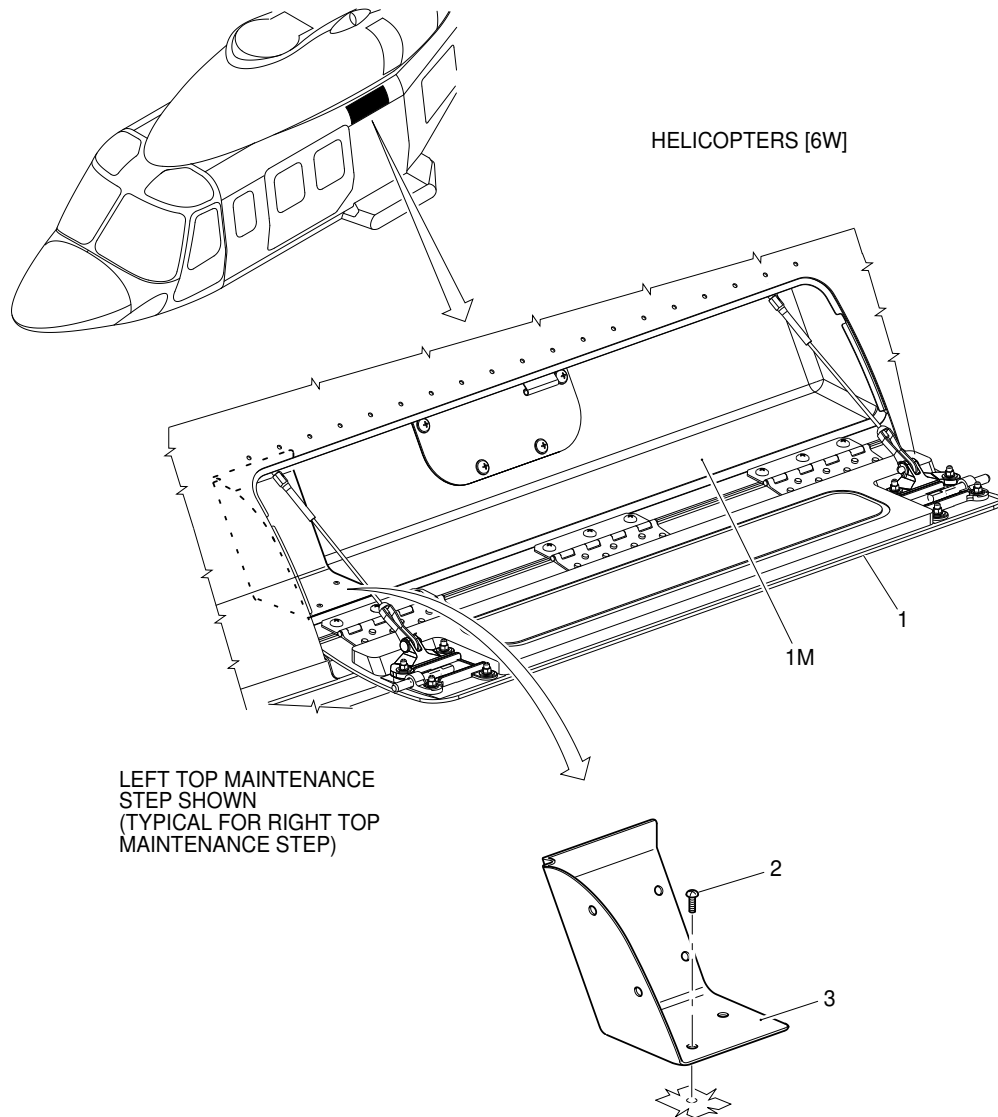
- 11 Get access to the MGB left reinforcement, at STA 4372.0, through the opening let by the removal of the access panel in the cabin.
- 11.1 Examine the MGB left reinforcement in the critical area for cracks, spalls and distortions. Refer to Details P and Q of [Figure 1](#).
- 11.2 Refer to [step 27](#) if you find that the MGB left reinforcement is damaged.
- 12 Get access to the aft left fitting (8) of the MGB mount rod on the upper deck.
- 12.1 Examine the aft left fitting (8) for cracks, spalls and distortions.
- 12.2 Examine the areas around the bushing (11) for cracks, spalls and distortions.
- 12.3 Refer to [step 26](#) if you find that the aft left fitting (8) is damaged.
- 13 Examine the areas of the left-aft top plate (9) around the holes for the bolts (10) for cracks, spalls and distortions.
- 14 Refer to [step 27](#) if you find that the left-aft top plate (9) is damaged.
- 15 Refer to [Detail D](#) of [Figure 1](#) and do the steps that follow:
- 15.1 Examine the heads of the pin-rivets (14) and the rivets (15) for sign of looseness.
- 15.2 Examine the left-aft top plate (9) around the heads of the pin-rivets (14) and the rivets (15) for cracks that start from the fastener holes.
- 16 Refer to [step 27](#) if you find that the fasteners (14) and (15) are loose and/or the left-aft top plate (9) is damaged.
- 17 Get access to the left side of the fuselage structure, at STA 3900, through the openings let by the removal of the access panels in the cabin.
- 18 Refer to [Detail C, Section E-E and Section F-F](#) of [Figure 1](#) and do the steps that follow:
- 18.1 Look the left-forward top plate (6) in the area of the nuts that attach the forward left fitting (5). This to see if the metallic tape strips are installed.
- 18.2 If the metallic tape strips are not installed, continue with [step 18.4](#).
- 18.3 If the metallic tape strips are installed:
- 18.3.1 Record the position and the dimensions of the metallic tape strips.
- 18.3.2 Remove the metallic tape strips from the structure.
- 18.4 Examine the three nuts that lock the three bolts (7) and the forward left fitting (5). Make sure that the cotter pins are correctly installed.

- 18.5 Examine the left-forward top plate (6) in the area of the three nuts that attach the forward left fitting (5). Make sure that there are no cracks that start from the fasteners holes.
- 18.6 Examine the heads/collars of the pin-rivets (16) and the heads of the rivets (17) for signs of looseness.
- 18.7 Examine the components of the structure around the heads/collars of the pin-rivets (16) and around the heads of the rivets (17) for cracks that starts from the fasteners holes.
- 18.8 Examine the flanges of the lightening holes (18) in the structure for cracks.
- 18.9 Refer to [step 27](#) if you find that:
- The fasteners (16) and (17) are loose
 - The components of the structure are damaged.
- 19 Get access to the left side of the fuselage structure, at STA 5700, through the openings let by the removal of:
- The access panels in the cabin
 - (Helicopters [6W]) The inspection panel (3).
- 20 Refer to [Detail D, Section G-G, Section H-H, Detail J, Detail K, Section L-L, Section M-M and Section N-N](#) of [Figure 1](#) and do the steps that follow:
- 20.1 Examine the four nuts that lock the four bolts (10) and the aft left fitting (8). Make sure that the cotter pins are correctly installed.
- 20.2 Examine the left-aft top plate (9) in the area of the four nuts that attach the aft left fitting (8). Make sure that there are no cracks that start from the fasteners holes.
- 20.3 Examine the heads/collars of the pin-rivets (19) and the heads of the rivets (20) for signs of looseness.
- 20.4 Examine the components of the structure around the heads/collars of the pin-rivets (19) and around the heads of the rivets (20) for cracks that starts from the fasteners holes.
- 20.5 Examine the flanges of the lightening holes (21) in the structure for cracks.
- 20.6 Refer to [step 27](#) if you find that:
- The fasteners (19) and (20) are loose
 - The components of the structure are damaged.
- 21 If removed (refer to [step 18.3](#)), apply again the metallic tape strips on the structure in the area of the nuts that attach the forward left fitting (5). Obey the instructions that follow:
- 21.1 Make the new metallic tape strips, of the necessary dimensions, from the [Metallic tape \(C221\)](#) .
- 21.2 Apply the metallic tape strips on the structure in the positions you recorded ([step 18.3.1](#)).
- 22 Put the inspections panel (3) in position on the internal panel ([1M](#)).

- 23 Attach the inspection panel (3) with the six screws (2).
- 24 Close the left-top maintenance panel (1).
- 25 Do [step 6](#) thru [step 24](#) again on the right side of the fuselage.
- 26 If damaged, replace the forward left (right) fitting (5) and the aft left (right) fitting (8). Refer to the data modules that follow:
 - [39-A-63-32-01-00A-520A-A](#) and [39-A-63-32-01-00A-720A-A](#) (forward left fitting)
 - [39-A-63-32-02-00A-520A-A](#) and [39-A-63-32-02-00A-720A-A](#) (aft left fitting)
 - [39-A-63-32-03-00A-520A-A](#) and [39-A-63-32-03-00A-720A-A](#) (forward right fitting)
 - [39-A-63-32-04-00A-520A-A](#) and [39-A-63-32-04-00A-720A-A](#) (aft right fitting).
- 27 Tell the Manufacturer if you find damage to the components of the structure or to the fasteners.

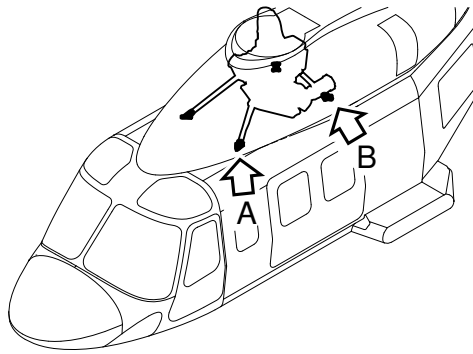
Requirements After Job Completion

- 1 Remove all the tools and the other items from the work area. Make sure that the work area is clean.
- 2 Install/close the access panels/doors 150AT, 150BT, 151EL, 151BL, 152ER, 152CR, 161AL, 162AR, 160CL and 473AL. Refer to [39-A-06-41-00-00A-010A-A](#)
- 3 Remove the platform from the left side of the fuselage.
- 4 Remove the platform from the right side of the fuselage.
- 5 Install the right lining panel. Refer to [39-A-25-82-02-00A-720A-A](#)
- 6 Install the left lining panel. Refer to [39-A-25-82-01-00A-720A-A](#)
- 7 Install the top rear lining panel. Refer to [39-A-25-82-15-00A-720A-A](#)



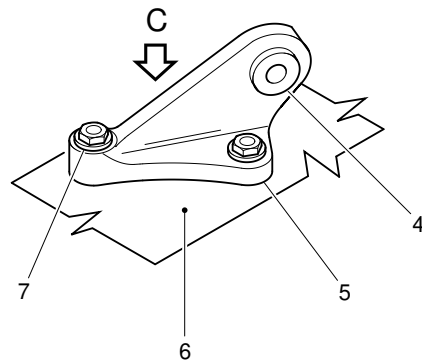
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Figure 1 (Sheet 1 of 9) Forward section - Main gearbox rod attachment structure - Detailed inspection

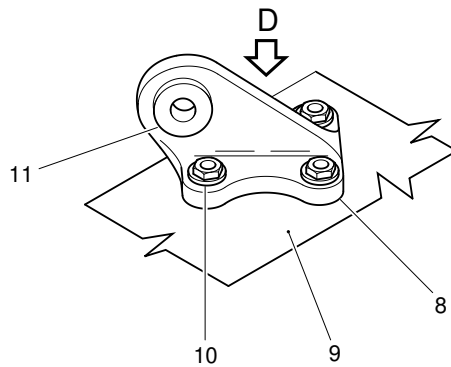


LEFT FITTINGS SHOWN
(TYPICAL FOR RIGHT FITTINGS)

A



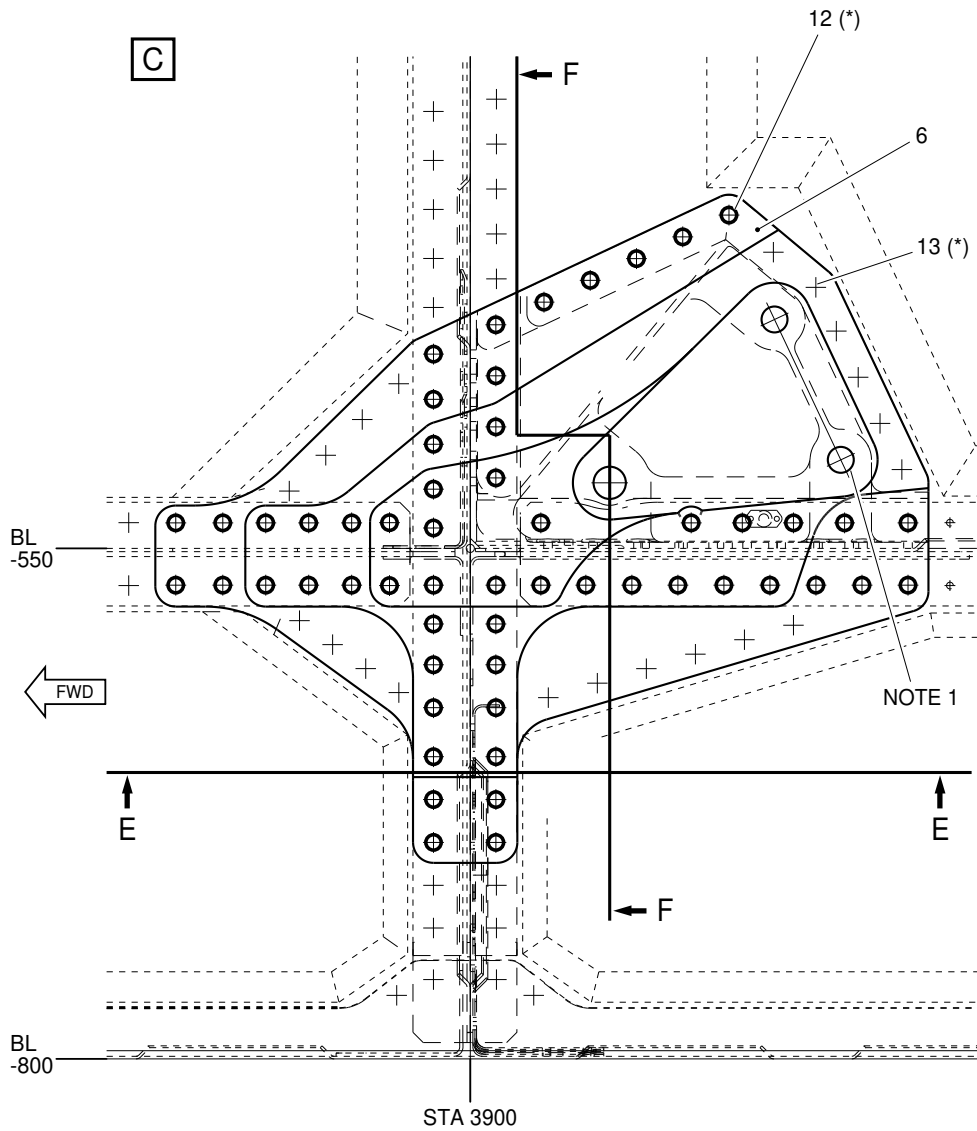
B



MAIN GEARBOX MOUNT
RODS NOT SHOWN
FOR CLARITY

ICN-39-A-531000-G-00001-03347-A-003-01

Figure 1 (Sheet 2 of 9) Forward section - Main gearbox rod attachment structure - Detailed inspection

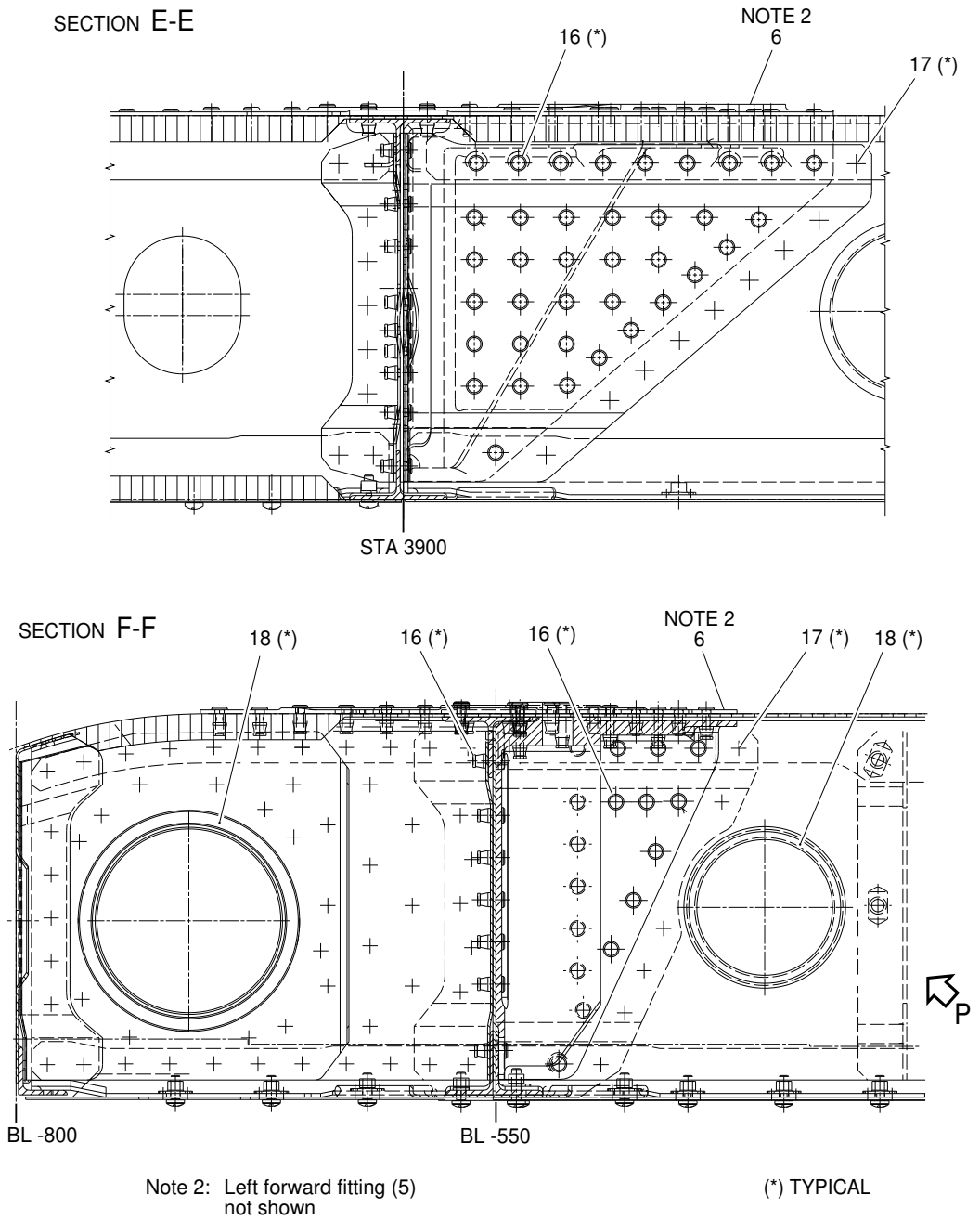


Note 1: Left forward fitting (5) not shown

(*) TYPICAL

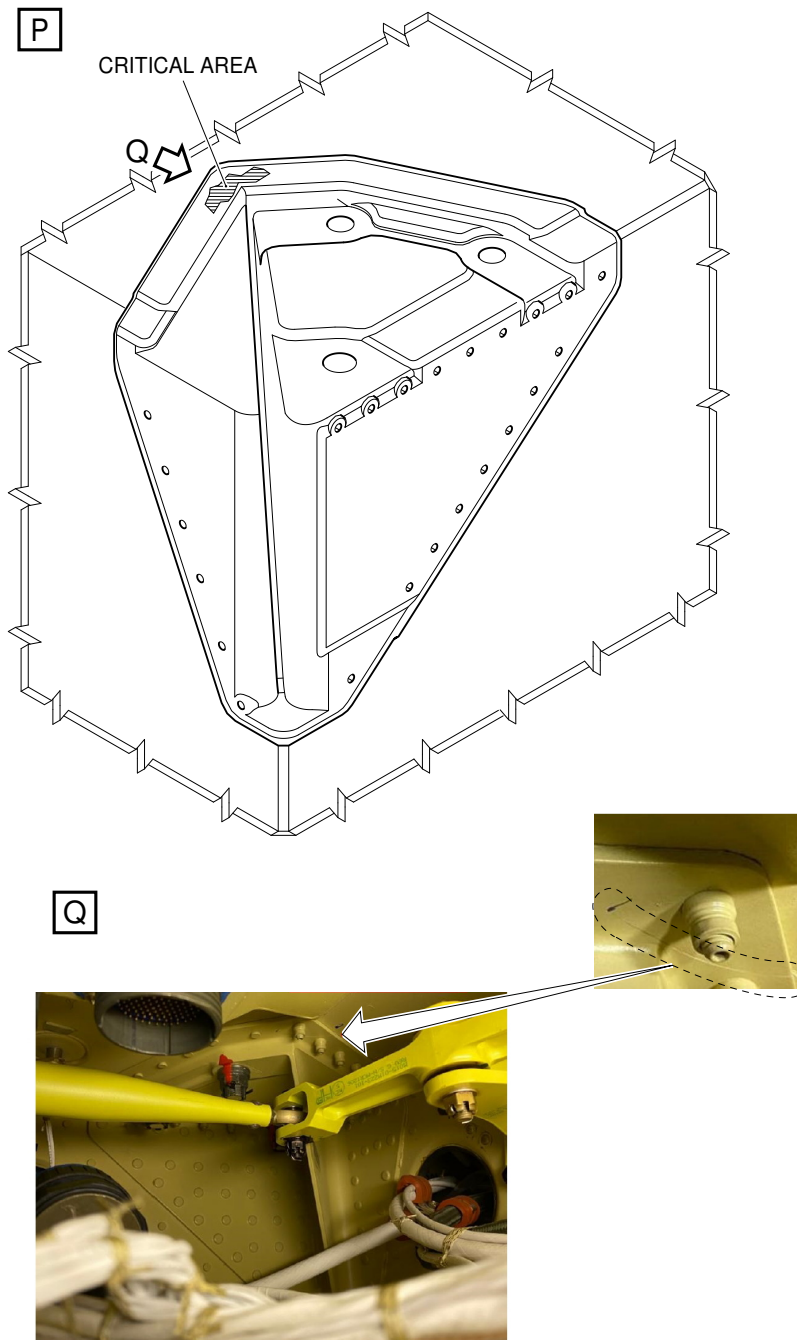
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Figure 1 (Sheet 3 of 9) Forward section - Main gearbox rod attachment structure - Detailed inspection



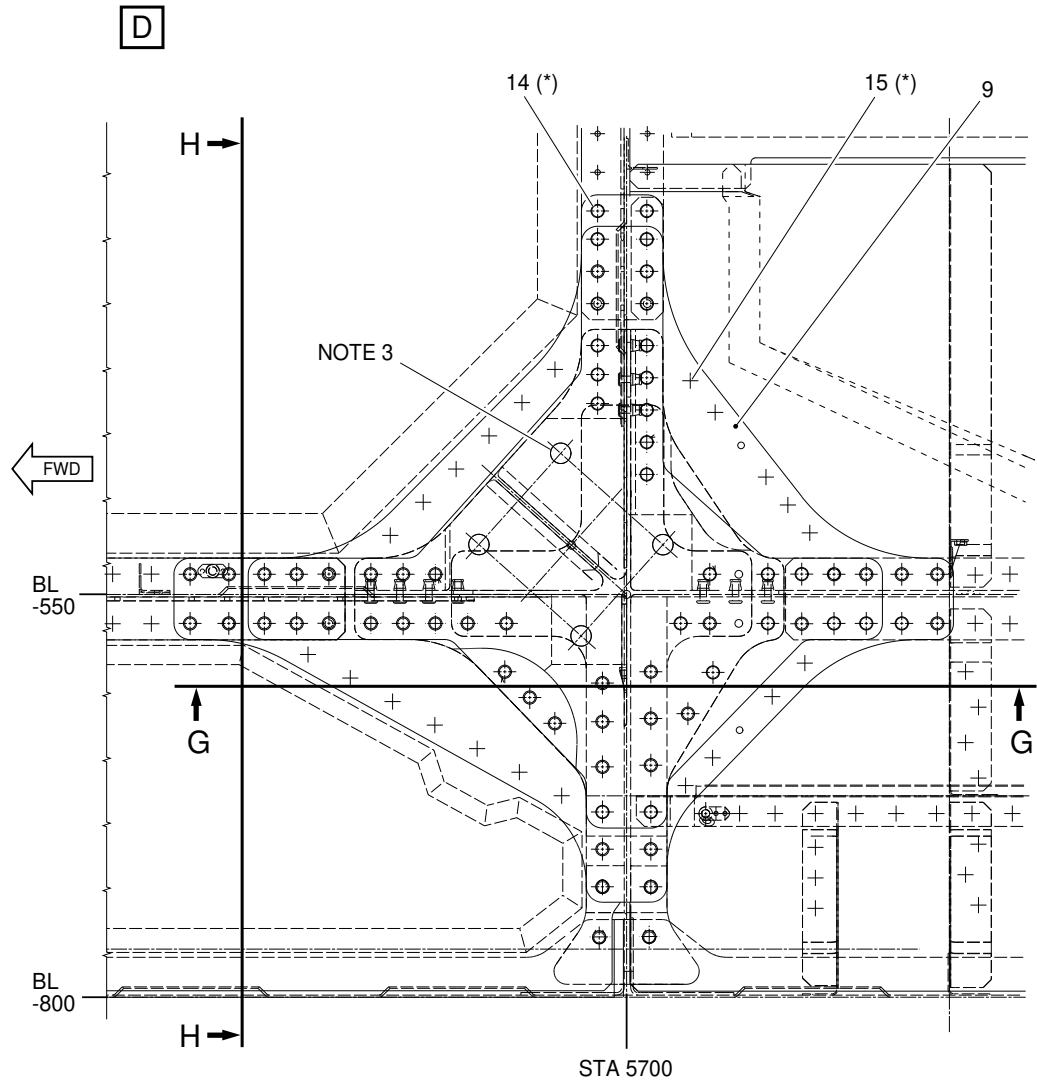
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Figure 1 (Sheet 4 of 9) Forward section - Main gearbox rod attachment structure - Detailed inspection



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Figure 1 (Sheet 5 of 9) Forward section - Main gearbox rod attachment structure - Detailed inspection

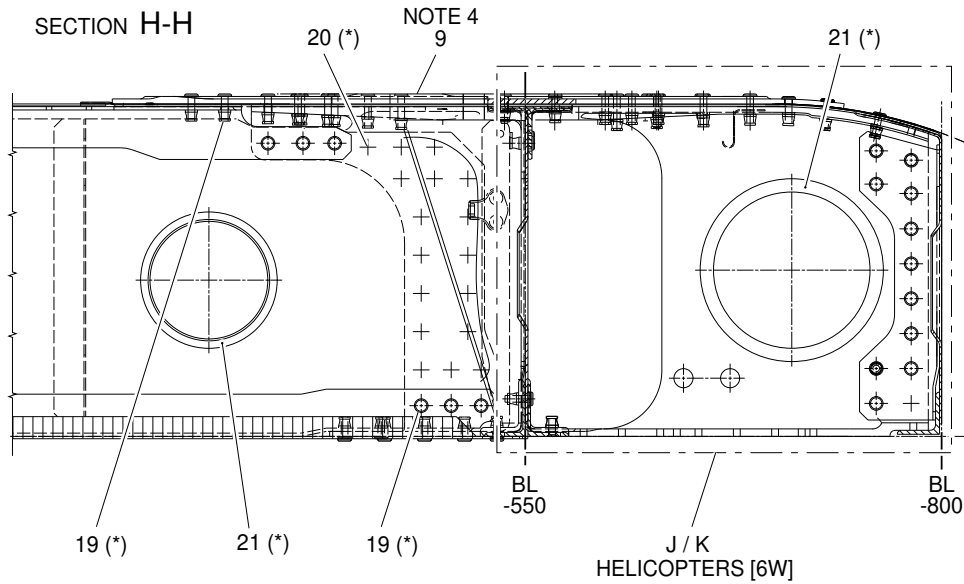
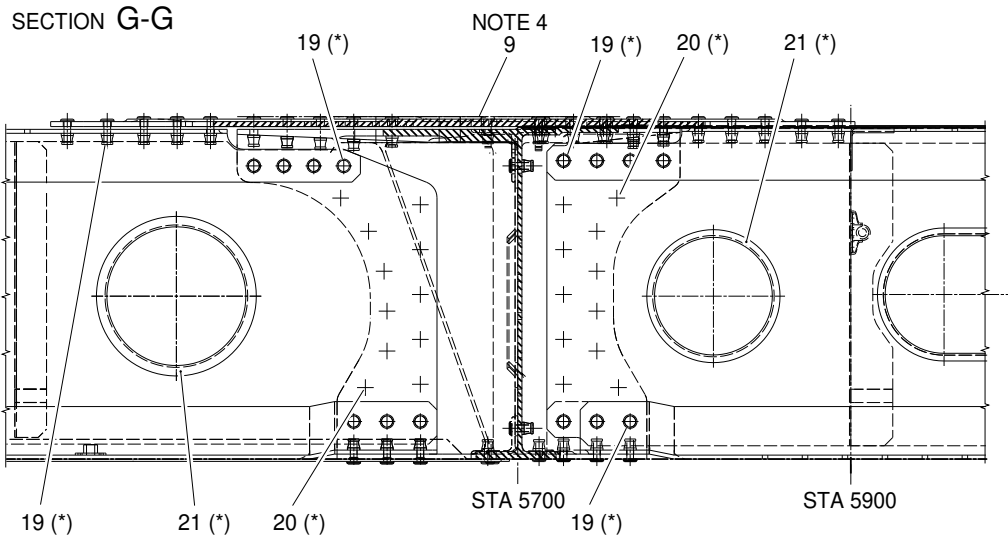


Note 3: Left aft fitting (8) not shown

(*) TYPICAL

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Figure 1 (Sheet 6 of 9) Forward section - Main gearbox rod attachment structure - Detailed inspection



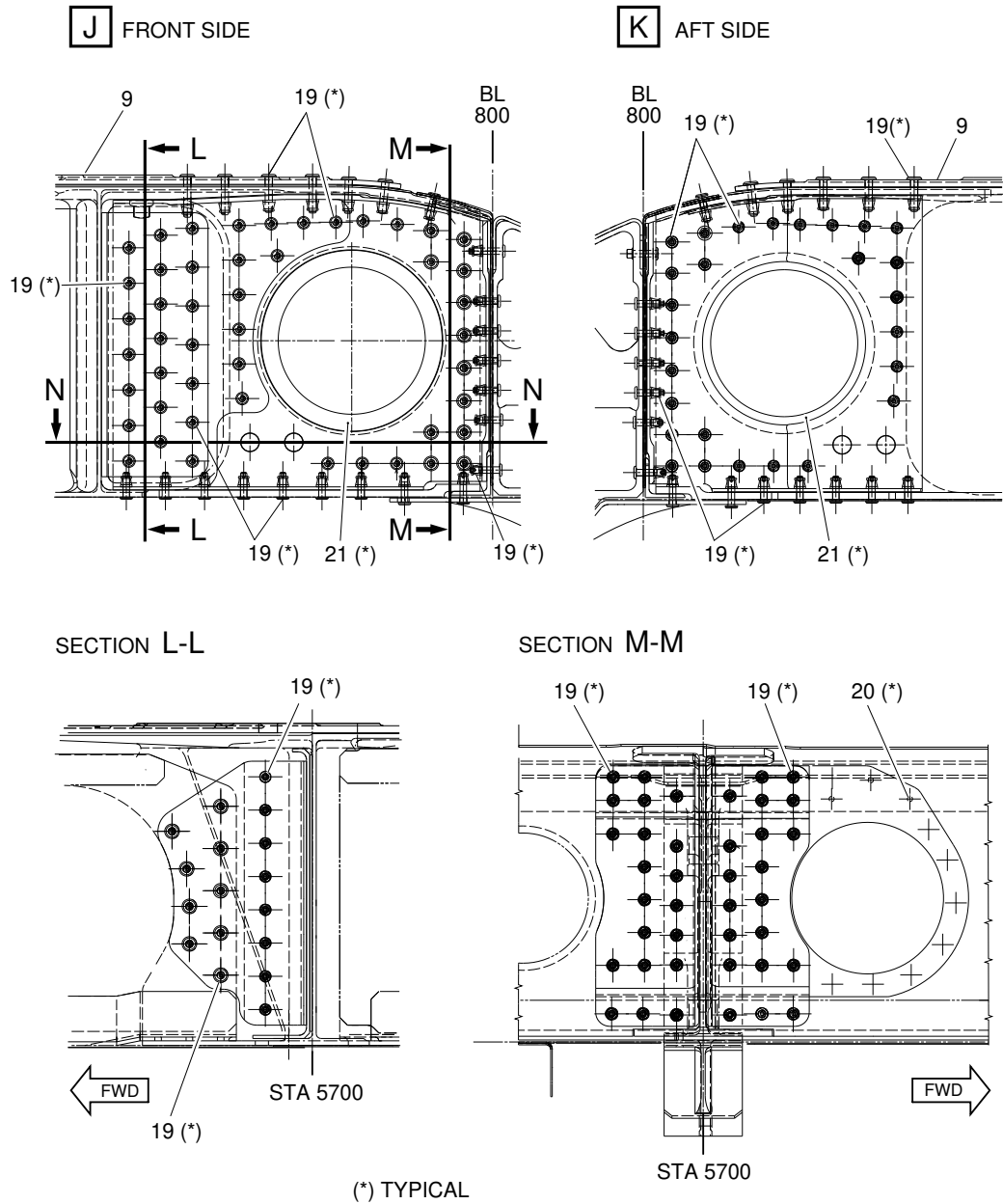
Note 4: Left aft fitting (8) not shown

(*) TYPICAL

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Figure 1 (Sheet 7 of 9) Forward section - Main gearbox rod attachment structure - Detailed inspection

HELICOPTERS [6W]

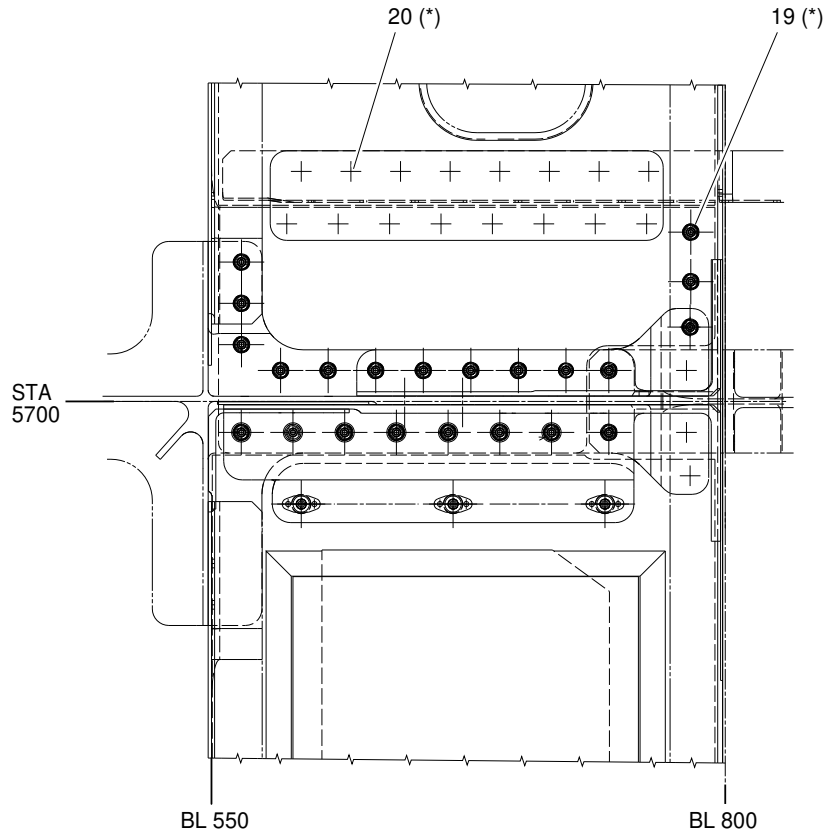


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Figure 1 (Sheet 8 of 9) Forward section - Main gearbox rod attachment structure - Detailed inspection

HELICOPTERS [6W]

SECTION N-N



(*) TYPICAL

ICN-39-A-531000-G-00001-12209-A-01-1

Figure 1 (Sheet 9 of 9) Forward section - Main gearbox rod attachment structure - Detailed inspection

End of Data Module