
SERVICE BULLETIN

N° 139-543

DATE: February 3, 2021

REV. : /

TITLE

ATA 71 – TUNNEL ASSY AND FIREWALLS RETROMOD

REVISION LOG

First Issue

1. PLANNING INFORMATION

A. EFFECTIVITY

Part I

All rear firewalls module assy P/N 3G7810A02031 or P/N 3G7810A02032 installed or kept in stock.

Part II

All AW139 helicopters equipped with tunnel assy P/N 3G7130A13431 and one of the following rear exhaust modules:

- P/N 3G7806P06831 rear exhaust module retro modification;
- P/N 3G7810A02033 rear firewalls module assy;
- P/N 3G7806P09131 rear exhaust module retro modification;
- P/N 3G7810P00331 rear firewalls module assy retromod;
- P/N 3G7810A02034 rear firewalls module assy;
- P/N 3G7810P01331 rear exhaust module retro modification.

B. COMPLIANCE

At Customer's option.

C. CONCURRENT REQUIREMENTS

N.A.

D. REASON

Part I

Provide the necessary instruction on how to perform the rear exhaust module retro modification P/N 3G7810P01331.

Part II

Provide the necessary instruction on how to perform the tunnel assy and firewalls retromod P/N 3G7130P01711.

E. DESCRIPTION

Following productive requirement on tunnel assy spare assy management, LHD has developed a dedicated firewall retromod to allow installation of new tunnel assy P/N 3G7130A13434 on helicopters previous equipped with tunnel assy P/N 3G7130A13431.

The rear exhaust module retro modification P/N 3G7810P01331 (Part I) has been developed to rework the existing rear firewalls module assy P/N 3G7810A02031 or P/N 3G7810A02032, making it compatible with tunnel assy P/N 3G7130A13434.

The tunnel assy and firewalls retromod P/N 3G7130P01711 (Part II) has been developed to modify firewall helicopter configuration, thus installing tunnel assy P/N 3G7130A13434 on helicopters previous equipped with tunnel assy P/N 3G7130A13431.

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 ten (10) MMH;

Part II: approximately twenty-two (22) MMH;

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

H. WEIGHT AND BALANCE

PART I

WEIGHT (Kg)		0.122
	ARM (mm)	MOMENT (Kgmm)
LONGITUDINAL BALANCE	7418	905
LATERAL BALANCE	0	0

PART II

WEIGHT (Kg)		0.34
	ARM (mm)	MOMENT (Kgmm)
LONGITUDINAL BALANCE	6929	2355.86
LATERAL BALANCE	0	0

I. REFERENCES

1) PUBLICATIONS

<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.	All
DM02 39-C-78-10-01-00A-520A-A	Rear exhaust module - Remove procedure	All
DM03 39-C-78-10-01-00A-720A-A	Rear exhaust module - Install procedure	II
DM04 39-C-78-10-01-01A-520A-B	Left/right ejector - Remove procedure	I
DM05 39-C-78-10-01-01A-720A-B	Left/right ejector - Install procedure	II
DM06 39-C-78-10-03-00A-520A-A	Left cover - Remove procedure	II
DM07 39-C-78-10-03-00A-720A-A	Left cover - Install procedure	II
DM08 39-C-78-10-04-00A-520A-A	Left exhaust duct - Remove procedure	II
DM09 39-C-78-10-04-00A-720A-A	Left exhaust duct - Install procedure	II
DM10 39-C-78-10-05-00A-520A-A	Right cover - Remove procedure	II
DM11 39-C-78-10-05-00A-720A-A	Right cover - Install procedure	II
DM12 39-C-78-10-06-00A-520A-A	Right exhaust duct - Remove procedure	II
DM13 39-C-78-10-06-00A-720A-A	Right exhaust duct - Install procedure	II

2) ACRONYMS

AMDI	Aircraft Material Data Information
AMP	Aircraft Maintenance Publication

DM	Data Module
DOA	Design Organization Approval
EASA	European Aviation Safety Agency
ITEP	Illustrated tool and equipment publication
LH	Leonardo Helicopters
MMH	Maintenance Man Hours
SB	Service Bulletin

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

#	P/N	ALTERNATIVE P/N	DESCRIPTION	Q.TY	LVL	NOTE	LOG P/N
1	3G7810P01331		REAR EXHAUST MODULE RETRO MODIFICATION	REF	.		-
2	3G7810A08951		Skin local enlarge cover rear LH	1	..		139-543L1
3	3G7810A09051		Skin local enlarge cover rear RH	1	..		139-543L1
4	3G7810P01451		Plate	4	..		139-543L1
5	3G7810P01551		Stiffener LH reworked	1	..		139-543L1
6	3G7810P01651		Stiffener RH reworked	1	..		139-543L1
7	MS20615-3M3		Rivet	0.1 kg	..		139-543L1
8	MS20615-3M3R		Rivet	12	..		139-543L1
9	MS20615-3M4		Rivet	0.1 kg	..		139-543L1
10	NAS1200M3-4		Rivet	0.1 kg	..		139-543L1

PART II

#	P/N	ALTERNATIVE P/N	DESCRIPTION	Q.TY	LVL	NOTE	LOG P/N
11	3G7130P01711		TUNNEL ASSY AND FIREWALLS RETROMOD	REF	.		-
12	3G7130A13434	3G7130A13434A	Tunnel Assy	1	..		139-543L2
13	3G7130A36331		Plate LH Assy	1	..		139-543L2
14	3G7130A36431		Plate RH Assy	1	..		139-543L2
15	NAS1200-3-3		Rivet	80	..		139-543L2

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
16	MIL-S-38249, Type I	Sealing Compound Proseal 700 (C032)	AR	(1)	I
17	Commercial	Scotch brite (C015)	AR	(1)	I

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

3) LOGISTIC MATRIX

In order to apply this Service Bulletin, the following Logistic P/N can be ordered in accordance with the applicable notes:

LOGISTIC P/N	Q.TY (PER HELO)	NOTE	PART
139-543L1	1		I
139-543L2	1		II

NOTE

(1) Item to be procured as local supply.

B. SPECIAL TOOLS

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

C. INDUSTRY SUPPORT INFORMATION

Configuration change.

3. ACCOMPLISHMENT INSTRUCTIONS

GENERAL NOTES

- a) 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.
- b) Exercise extreme care during drilling operations to prevent instruments, cables and hoses damage.
- c) After drilling, remove all swarf and sharp edges. Apply on bare metal a light film of primer unless the hole is used for ground connection.
- d) Let adhesive cure at room temperature for at least 24 hours unless otherwise specified.
- e) Exposed thread surface and nut must be protected using a layer of tectyl according to MIL-C-16173 grade I.
- f) All lengths are in mm.

PART I

NOTE

Skip steps 1 thru 3 if the rear firewalls module assy P/N 3G7810A02031 or P/N 3G7810A02032 is kept in stock.

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-C-78-10-01-00A-520A-A and with reference to Figure 1, remove the rear exhaust module from the helicopter. Retain the fixing hardware for later reuse.
3. In accordance with AMP DM 39-C-78-10-01-01A-520A-B and with reference to Figure 1, remove the LH rear ejector assy P/N 3G7810A02131 and RH rear ejector assy P/N 3G7810A02231 from the rear exhaust module. Retain the fixing hardware for later reuse.

NOTE

In order to avoid any damage on the helicopter, the following reworking procedure has to be performed on working bench.

4. With reference to Figures 1 thru 5, perform the rear exhaust module retro modification P/N 3G7810P01331 as described in the following procedure:
 - 4.1 With reference to Figure 1 and Figure 3 View E, temporarily locate the stiffener LH reworked P/N 3G7810P01551 and the stiffener RH reworked P/N 3G7810P01651 coordinating with existing holes on the mount rear exhausts LH P/N 3G7810A04651 and RH P/N 3G7810A05851. Countermark the positions of n°34 rivet holes on related mount rear exhausts.

NOTE

Trim the cut out areas using scotch brite (C015) in order to remove any burrs or scratches (Ref. steps 4.2 and 4.3).

- 4.2 With reference to Figure 2 Detail C, perform the indicated cut-outs of the mount rear exhaust LH P/N 3G7810A04651 and of the mount rear exhaust RH P/N 3G7810A05851 coordinating with stiffener LH reworked P/N 3G7810P01551 and stiffener RH reworked P/N 3G7810P01651.
- 4.3 With reference to Figure 2 Section B-B, perform the indicated cut-outs on bend plate LH P/N 3G7810A04351 and RH P/N 3G7810A05551 coordinating with skin local enlarge cover rear LH P/N 3G7810A08951 and RH P/N 3G7810A09051. If necessary, use Figure 5 to perform the cut, coordinating with mount rear exhaust existing holes.
- 4.4 With reference to Figure 2 Section B-B, drill out the indicated existing rivets.
- 4.5 With reference to Figure 3 View E and Figure 4 Section F-F and Section G-G, install stiffener LH reworked P/N 3G7810P01551 by means of n°6 rivets P/N MS20615-3M3R and n°11 rivets P/N NAS1200M3-4 on mount rear LH.
- 4.6 With reference to Figure 3 View E and Figure 4 Section F-F and Section G-G, install stiffener RH reworked P/N 3G7810P01651 by means of n°6 rivets P/N MS20615-3M3R and n°11 rivets P/N NAS1200M3-4 on mount rear RH.
- 4.7 With reference to Figure 3 View D and View H and Figure 4 Section J-J, temporarily locate the skin local enlarge cover rear LH P/N 3G7810A08951 and RH P/N 3G7810A09051 and the n°4 plates P/N 3G7810P01451. Countermark the positions of n°26 rivet holes of the skin local enlarge covers on bend plates.

NOTE

Apply sealant Proseal 700 (C032) on the mating surfaces of the skin local enlarge cover rear LH P/N 3G7810A08951 and RH P/N 3G7810A09051 and the n°4 plates P/N 3G7810P01451 before their installation (Ref. step 4.8).

- 4.8 With reference to Figure 3 View H and Figure 4 Section J-J, install skin local enlarge cover rear LH P/N 3G7810A08951 and RH P/N 3G7810A09051 and the n°4 plates P/N 3G7810P01451 by means of n°22 rivets P/N MS20615-3M3 and n°4 rivets P/N MS20615-3M4.
- 4.9 With reference to Figure 4 Section J-J, seal all around the edges of the skin local enlarge cover rear LH P/N 3G7810A08951 and RH P/N 3G7810A09051 and the n°4 plates P/N 3G7810P01451 by means of sealant Proseal 700 (C032).
5. With reference to Figure 1, remark the reworked rear exhaust module as P/N 3G7810P01331.
6. In accordance with weight and balance changes, update the Chart A (see Rotorcraft Flight Manual, Part II, section 6).
7. Return the helicopter to flight configuration and record for compliance with Part I of this Service Bulletin on the helicopter logbook.
8. 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

NOTE

Skip steps 1 and 2 only for helicopters that have been embodied Part II immediately after Part I of this Service Bulletin.

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-C-78-10-01-00A-520A-A, remove the existing rear exhaust module from the helicopter. Retain the fixing hardware for later reuse.
3. In accordance with AMP DM 39-C-78-10-03-00A-520A-A, remove the existing left cover from the helicopter. Retain the fixing hardware for later reuse.
4. In accordance with AMP DM 39-C-78-10-05-00A-520A-A, remove the existing right cover from the helicopter. Retain the fixing hardware for later reuse.
5. In accordance with AMP DM 39-C-78-10-04-00A-520A-A, remove the existing left exhaust duct from the helicopter. Retain the fixing hardware for later reuse.
6. In accordance with AMP DM 39-C-78-10-06-00A-520A-A, remove the existing right exhaust duct from the helicopter. Retain the fixing hardware for later reuse.
7. With reference to Figure 6, remove and discard the tunnel assy P/N 3G7130A13431 from the helicopter, unlocking the related turn locks.
8. With reference to Figure 8, remove and discard n°12 anchor nuts P/N A242ARD.

NOTE

Perform following steps 9 and 10 only for helicopters equipped with firewalls installation retromod P/N 3G7106P09111.

9. With reference to Figure 6 Section B-B, cut along cutting line shown to remove bracket assy mid port 3G7130A14032.
10. Repeat step 9 to remove bracket assy aft port P/N 3G7130A14231, bracket assy P/N 3G7130A14132 and bracket assy aft stbd P/N 3G7310A14331.
11. With reference to Figure 8, install plate LH assy P/N 3G7130A36331 and plate RH assy P/N 3G7130A36431 by means of n°80 rivets P/N NAS1200-3-4.
12. With reference to Figure 6, install tunnel assy P/N 3G7130A13434 by means of related turn locks.
13. With reference to Figures 9 and 10, check the clearances between tunnel assy and tail rotor drive as described in the following procedure:

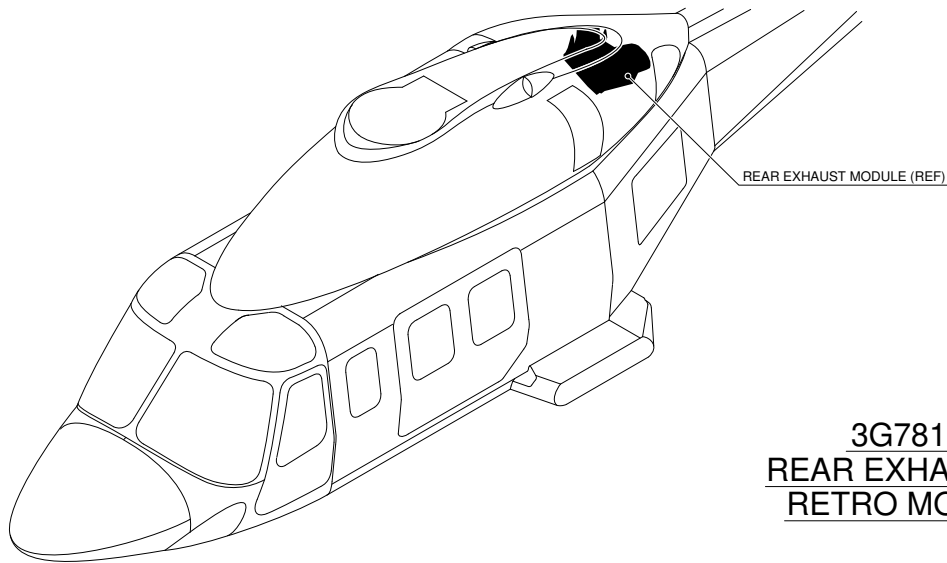
NOTE

The dimensions reported in Figures 11 Section K-K represent nominal clearances and are mandatory.

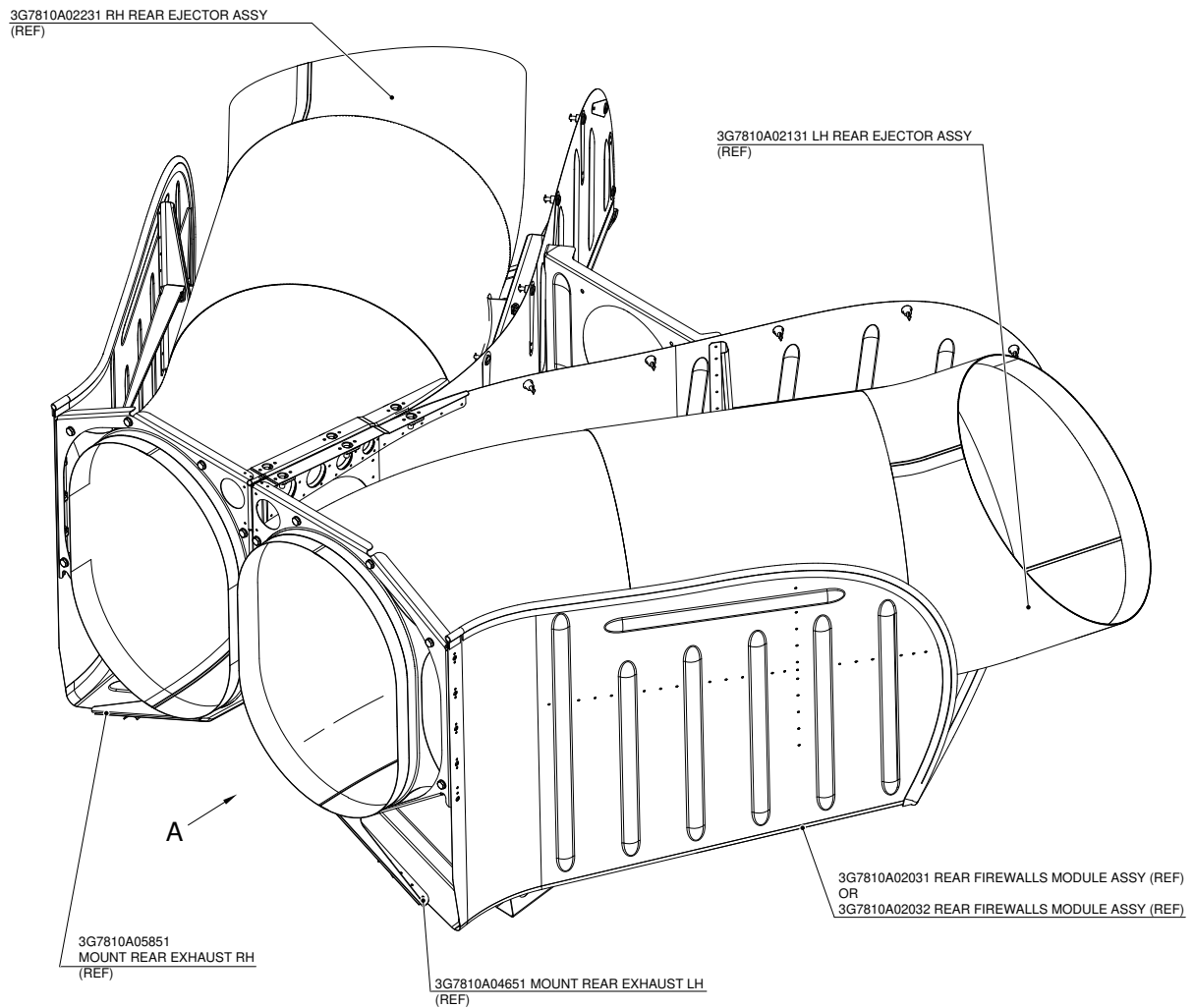
- 13.1 With reference to Figures 10 Section K-K, check the clearance between tunnel assy and tail rotor drive as indicated. If the minimum clearances are not met continue to the following step, otherwise skip to step 14.
- 13.2 With reference to Figures 9 View J and Figure 10 View L and Detail M, check the positions of the tunnel assy and the tail rotor drive as indicated. The allowed tolerance is +/- 2 mm. Go to step 13.1.
14. In accordance with AMP DM 39-C-78-10-04-00A-720A-A, install the previously removed left exhaust duct in its correct position on the helicopter.
15. In accordance with AMP DM 39-C-78-10-06-00A-720A-A, install the previously removed right exhaust duct in its correct position on the helicopter.
16. In accordance with AMP DM 39-C-78-10-03-00A-720A-A, install the previously removed left cover in its correct position on the helicopter.
17. In accordance with AMP DM 39-C-78-10-05-00A-720A-A, install the previously removed right cover in its correct position on the helicopter.
18. In accordance with AMP DM 39-C-78-10-01-01A-720A-B, if previously removed install LH rear ejector assy P/N 3G7810A02131 and RH rear ejector assy P/N 3G7810A02231 on the rear exhaust module.
19. In accordance with AMP DM 39-C-78-10-01-00A-720A-A, install the previously removed rear exhaust module in its correct position on the helicopter.
20. In accordance with weight and balance changes, update the Chart A (see Rotorcraft Flight Manual, Part II, section 6).
21. Return the helicopter to flight configuration and record for compliance with Part II of this Service Bulletin on the helicopter logbook.
22. 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".



3G7810P01331
REAR EXHAUST MODULE
RETRO MODIFICATION



ISOMETRIC VIEW
REAR EXHAUST MODULE

Figure 1

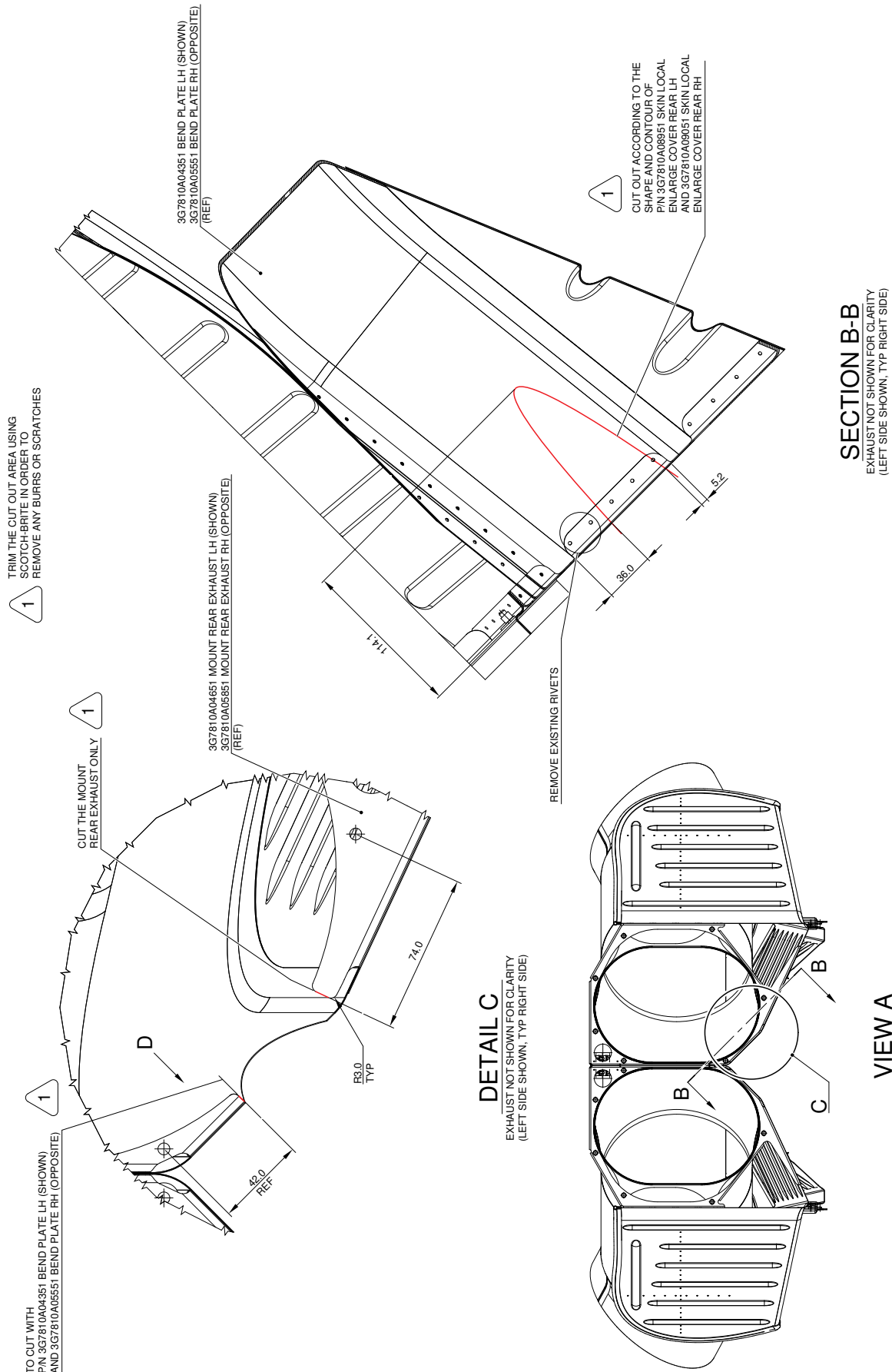


Figure 2

S.B. N°139-543
DATE: February 3, 2021
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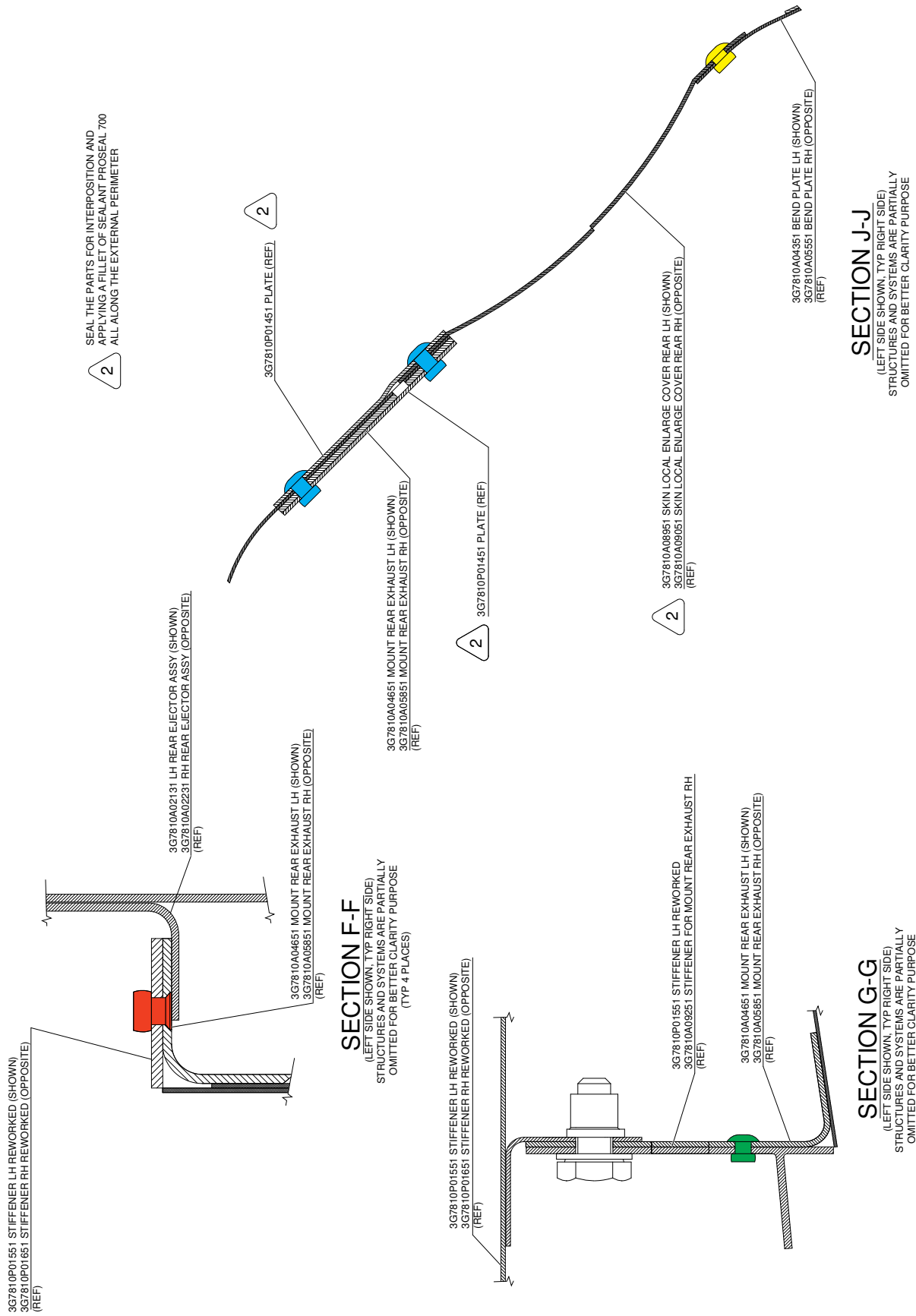


Figure 4

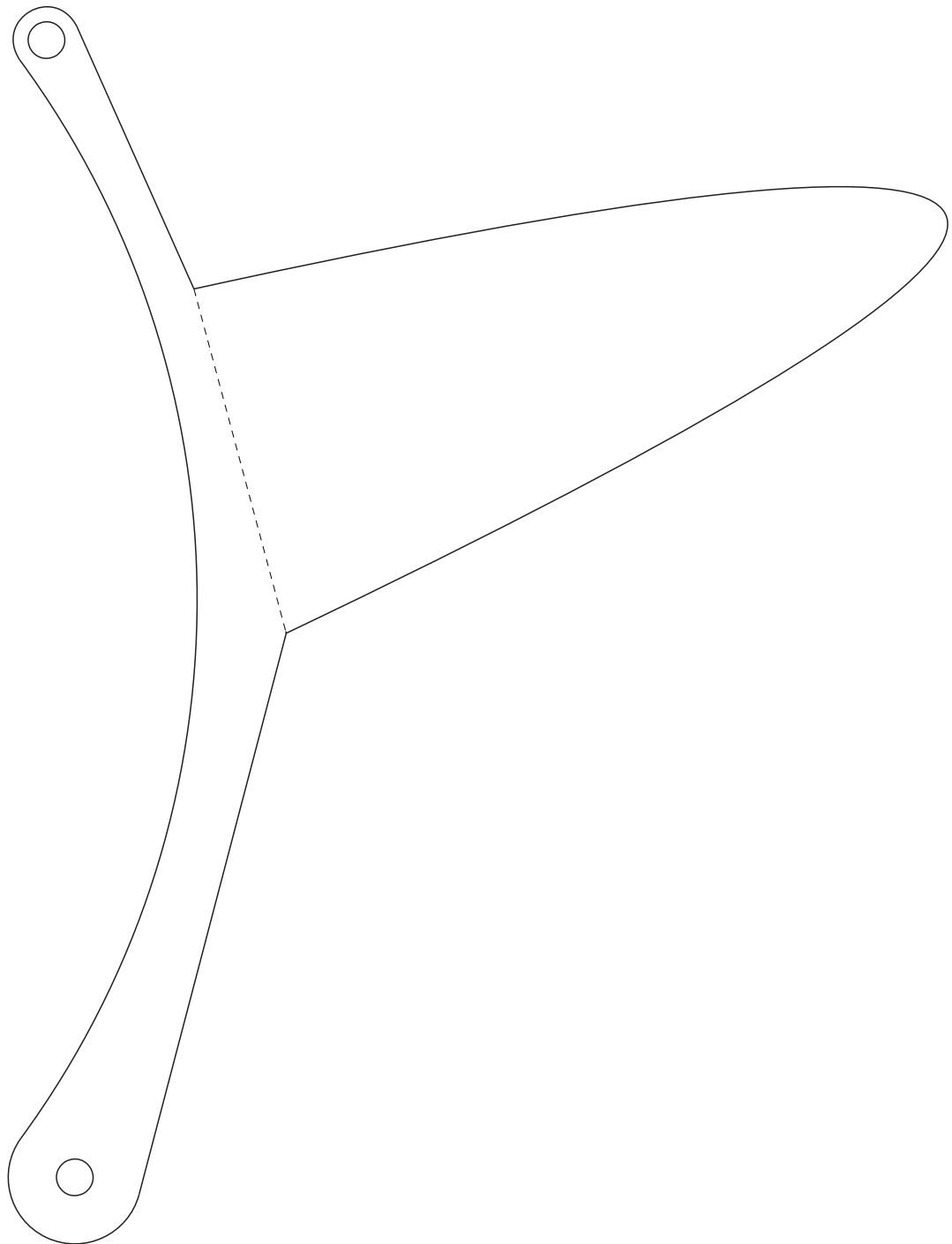
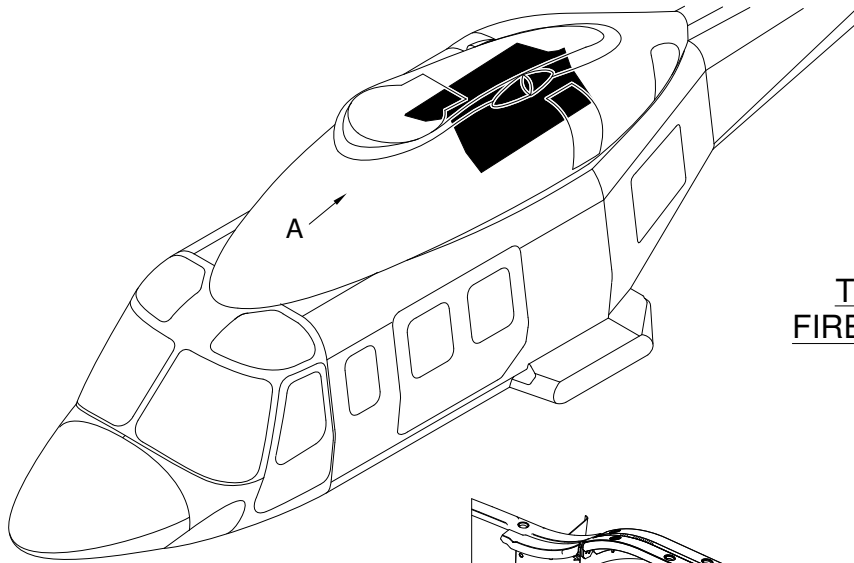
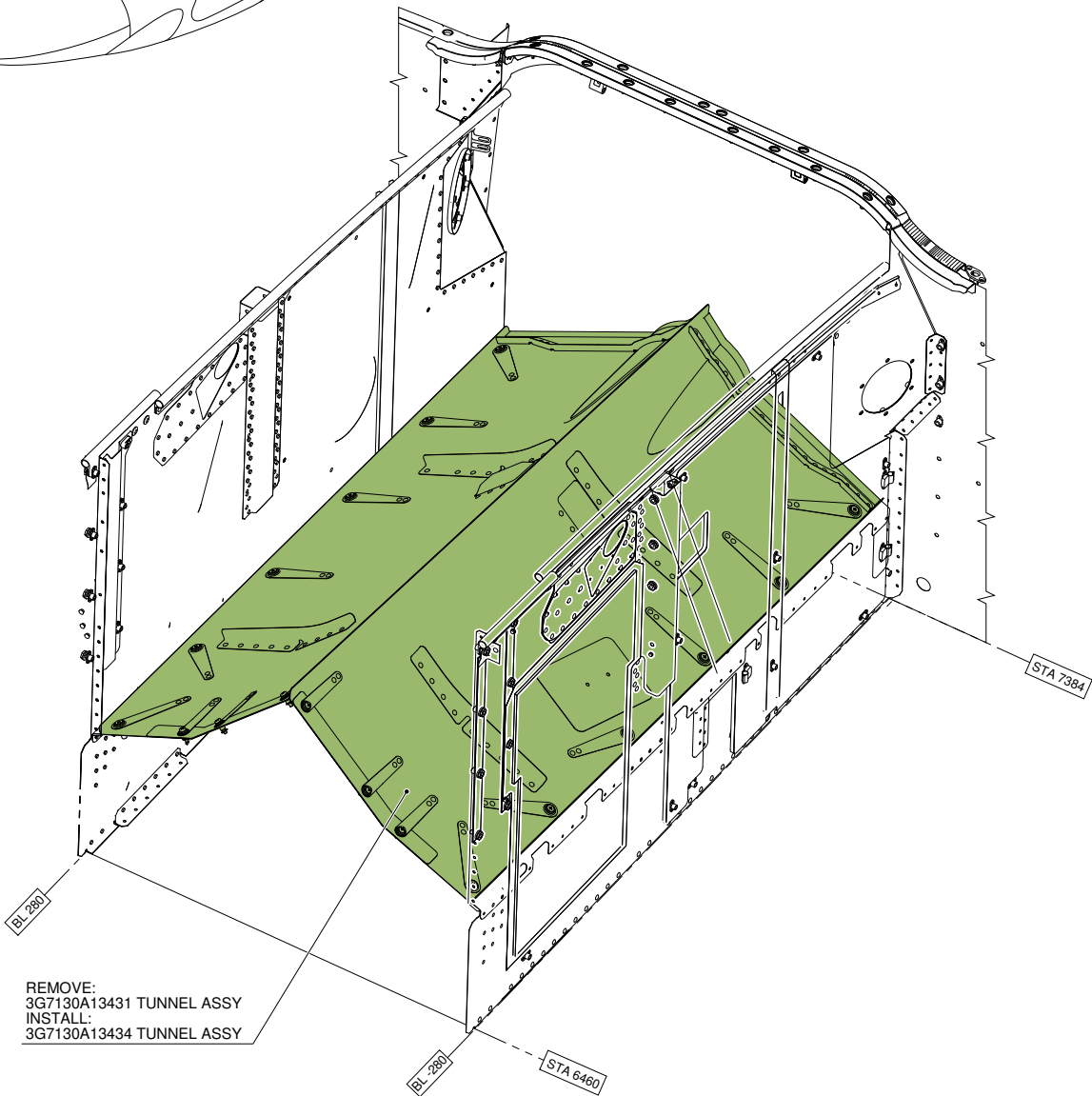


Figure 5



3G7130P01711
TUNNEL ASSY AND
FIREWALLS RETROMOD

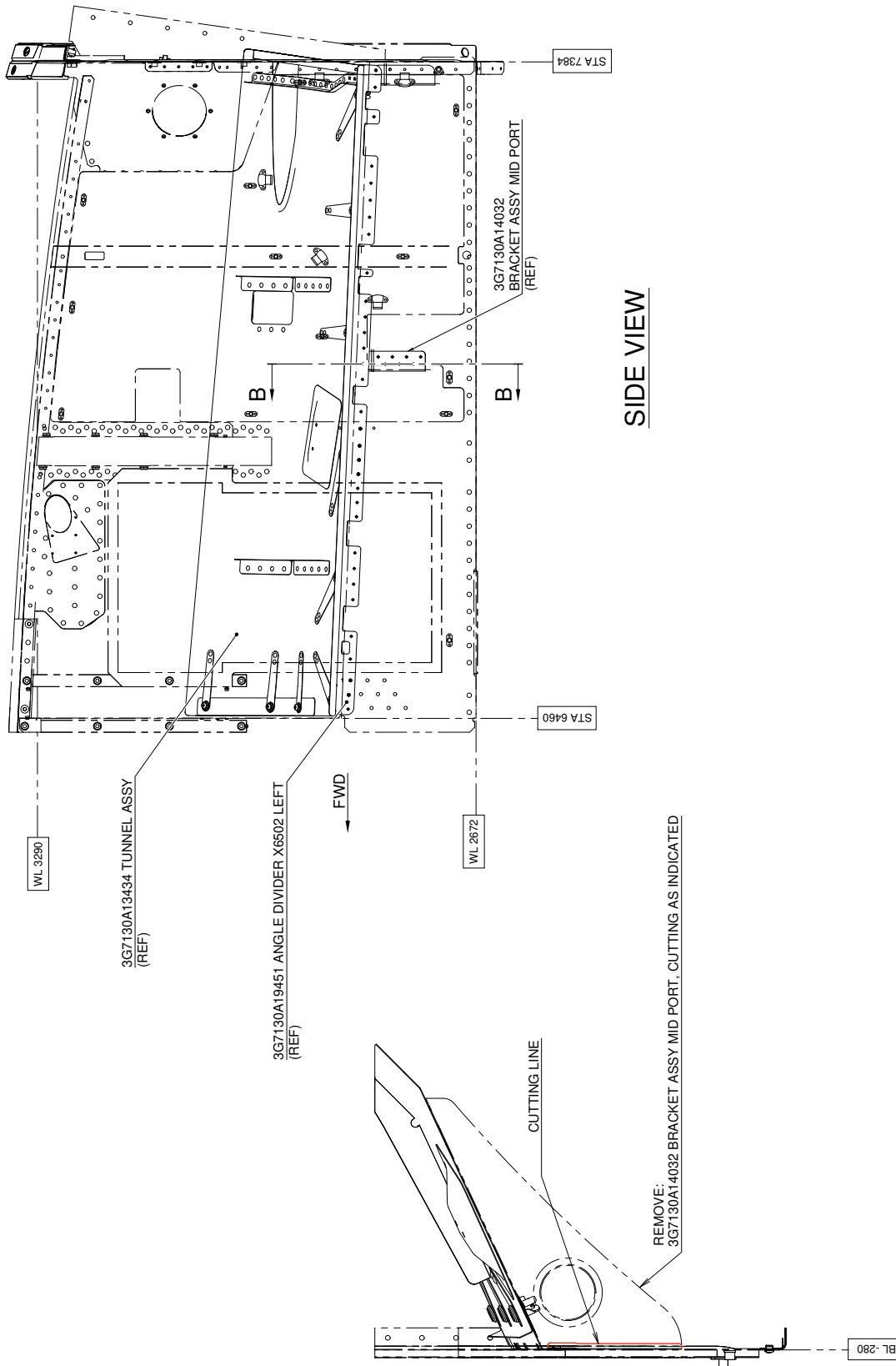


VIEW A

STRUCTURES AND SYSTEMS ARE PARTIALLY
OMITTED FOR BETTER CLARITY PURPOSE

Figure 6

S.B. N°139-543
DATE: February 3, 2021
REVISION: /



SECTION B-B

TYP. FOR 3G7130A14231 BRACKET ASSY AFT PORT.
3G7130A14132 BRACKET ASSY MID STBD. 3G7310A14331 BRACKET ASSY AFT STBD.
(APPLICABLE TO HELICOPTERS EQUIPPED WITH FIREWALLS INSTALLATION RETROMOD P/N 3G7106P09111)

Figure 7

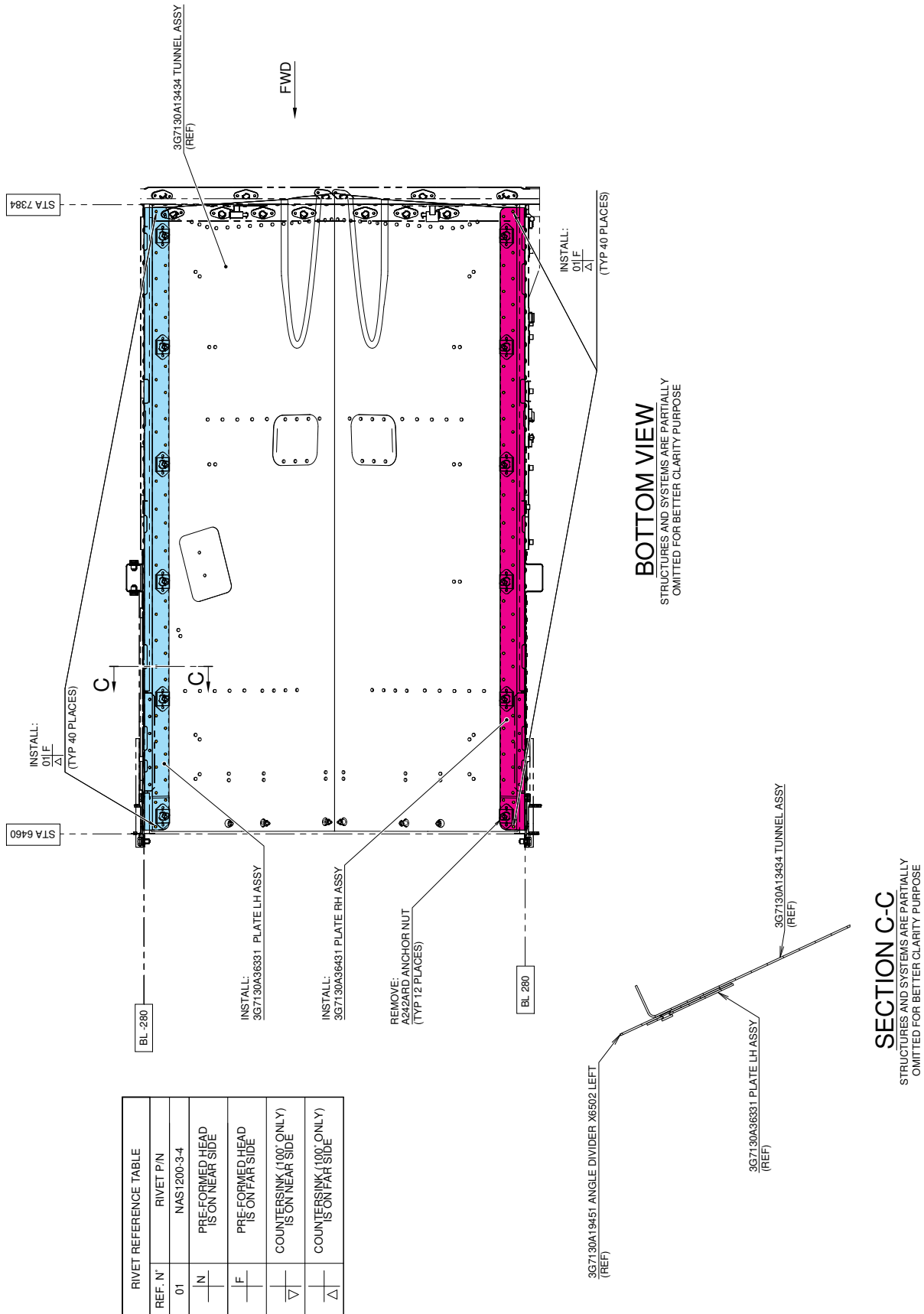
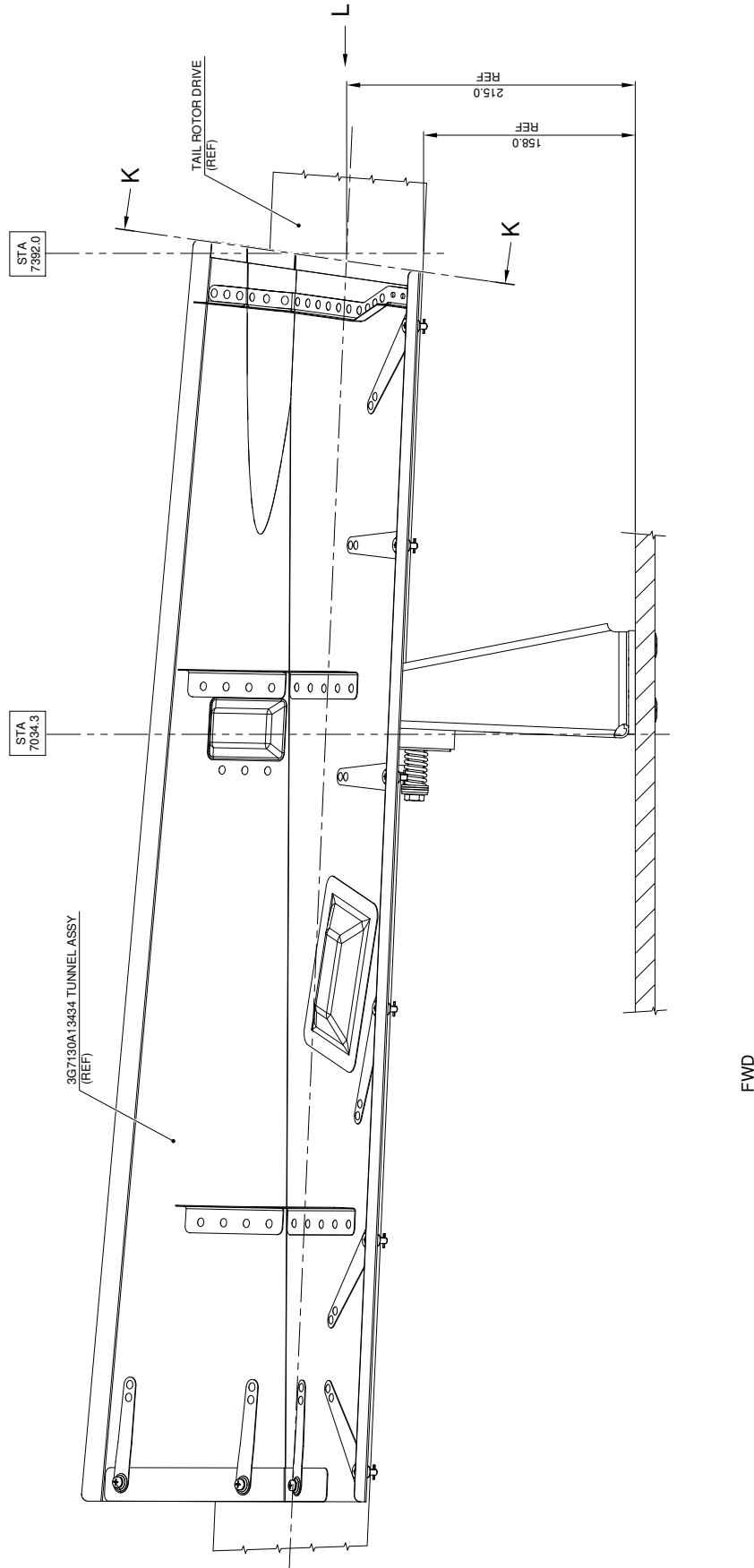
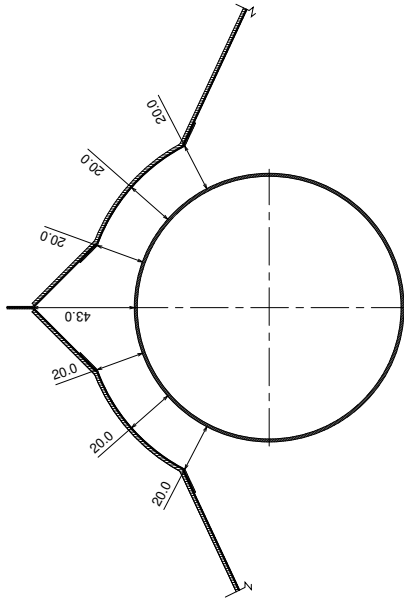


Figure 8



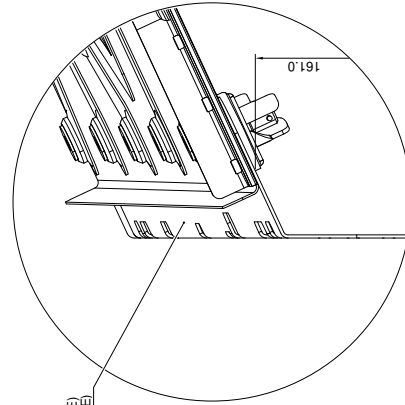
VIEW J
STRUCTURES AND SYSTEMS ARE PARTIALLY
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Figure 9



SECTION K-K

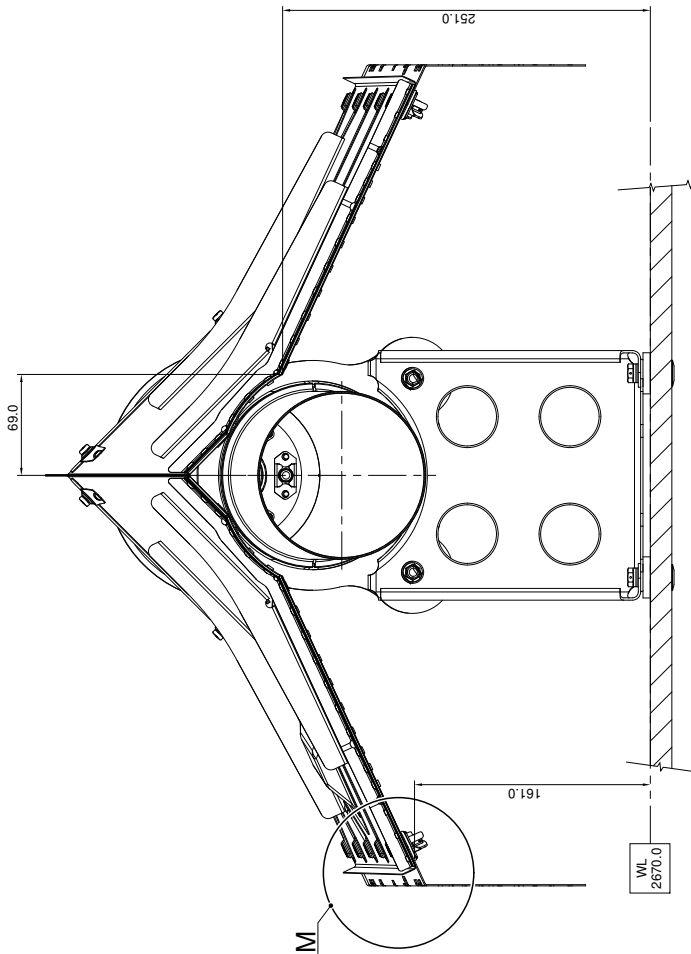
ONLY FOR CLEARANCE DIMENSIONS.
SECTION REPRESENT NOMINAL CLEARANCE BETWEEN TUNNEL
ASSY AN TAIL ROTOR DRIVE. IT IS OBTAINED FROM 3D MODEL.



DETAIL M

LH SIDE SHOWN, RH SIDE SYMMETRIC.
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3G7130A13832 ANGLE ASSY (LH SIDE)
3G7130A13832 ANGLE ASSY (RH SIDE)
(REF)



VIEW L

STRUCTURES AND SYSTEMS ARE PARTIALLY
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Figure 10

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.