

Temporary Maintenance Instruction TMI 139-177 (Rev. D)

Firewall Assy P/N 3P7119A00134 & Sub Components Replacement

**AW139 S/N 31006, 31025, 31218, 41003
and 41269**

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: **May 17, 2020.***

2019-05-17

Introduction

The purpose of the this TMI is to describe the procedure for performing the replacement (removal and installation) of the Firewall Assy P/N 3P7119A00134 and individual firewalls from the assy.

Firewall Assy P/N 3P7119A00134 & Sub Components Replacement

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References

Table 1: References

Data Module	Title
39-A-00-20-00-00A-120A-A	Helicopter safety - Make the helicopter safe for maintenance
39-A-07-11-00-00A-028A-A	Helicopter - Lift on jacks

Table 2: Access Point

Access Panel / Door Id	Data Module
No Access Point	

Table 3: Zones

Zone ID	Data Module
No Zones	

Preliminary requirements

Required conditions

Table 4 Required conditions

Condition	Data Module/Technical Publication
The helicopter must be safe for maintenance	39-A-00-20-00-00A-120A-A

Support equipment

Table 5 Support Equipment

Nomenclature	Identification No.	Qty
None		

Supplies

Table 6 Supplies

Nomenclature	Identification No.	Qty
Proseal 700 (C032)	MIL-S-38249, Type I, A+B	AR
Proseal 890 B2 (C066)	MIL-S-8802, Class C	AR

Aliphatic Naphtha (C059)	TT-N-95-B	AR
Rivets	AS46789-405 - Local Supply	AR
Rivets	AS46789-407 - Local Supply	AR
Rivets	AS46789-409 - Local Supply	AR
Rivets	AS46791-407 - Local Supply	AR
Rivets	AS46791-409 - Local Supply	AR
Rivets	MS20427M3-3 - Local Supply	AR
Rivets	MS20615-4M3 - Local Supply	AR
Rivets	MS20615-4M4 - Local Supply	AR
Rivets	MS20615-4M4R- Local Supply	AR
Rivets	MS20615-4M5 - Local Supply	AR
Rivets	MS20615-4M5R - Local Supply	AR
Rivets	MS20470AD4-4-5 - Local Supply	AR
Rivets	AGS4719-407 - Local Supply	AR
Rivets	AGS4719-411 - Local Supply	AR
Rivets	AGS4719-405 - Local Supply	AR
Rivets	AGS4719-409 - Local Supply	AR
Rivets	MS20615-4M3R - Local Supply	AR
Rivets	AS46789-512 - Local Supply	AR
Rivets	AGS4719-407 - Local Supply	AR
Rivets	MS20615-3M4R - Local Supply	AR

Spares

Table 4: Spares

Nomenclature	Identification No.	Qty
As needed, refer to the procedure and figures		

Safety conditions

WARNING

The materials that follow are dangerous. Before you do this procedure, make sure that you know all the safety precautions and first aid instructions for these materials:

- Pro-seal 700 ([Supply Ref. 1](#))
- Pro-seal 890 B2 ([Supply Ref. 2](#))
- Aliphatic Naphtha ([Supply Ref. 3](#))

Procedure

NOTES:

- Place an identification tag on all components that are reusable, including the attaching hardware that has been removed to gain access to the modification area and adequately protect them until their later re-use.
 - Exercise extreme care during drilling operations to prevent instruments, cables and hosing damage. 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.
 - Before rivet installation in places where fasteners were just removed, check hole diameter and if necessary install oversized rivets. If necessary install rivets with different grips.
 - Use aliphatic naphtha to degrease. Cleaned surfaces shall be allowed to air dry for at least 30 minutes before bonding.
 - All dimensions are in mm.
1. Remove the following components in accordance with the referenced AMP Data Module:
 - 1.1. No.1 Engine Access door AMP – 39-A-71-11-01-00A-520A-A
 - 1.2. No.2 Engine Access door AMP – 39-A-71-11-02-00A-520A-A
 - 1.3. Top forward Cowling AMP – 39-A-71-11-03-00A-520A-A
 - 1.4. Top Aft Cowling AMP – 39-A-71-11-04-00A-520A-A
 - 1.5. LH Aft Cowling AMP – 39-A-71-11-05-00A-520A-A
 - 1.6. RH Aft Cowling AMP – 39-A-71-11-06-00A-520A-A
 - 1.7. No. 1 Engine AMP – 39-A-71-02-01-00A-520A-A
 - 1.8. No. 2 Engine AMP – 39-A-71-02-02-00A-520A-A
 - 1.9. No. 1 Tail pipe AMP – 39-A-78-10-01-00A-520A-A
 - 1.10. No. 2 Tail pipe AMP – 39-A-78-10-02-00A-520A-A

CAUTION

Support tailboom with stand to avoid preload on the structure.

- 1.11. With reference to IPD (see DM 39-A-76-11-00-010-941A-A) and AMP (see DM 39-A-76-11-03-00A-520A-A and DM 39-A-76-11-04-00A-520A-A) disconnect and remove No. 1 and No, 2 Power Control Cables P/N 3G7610V00532.
- 1.12. No. 1 Tail Rotor Drive Shaft AMP 39-A-65-11-01-00A-520A-A
- 1.13. Top baffle AMP - 39-A-71-33-12-00A-921A-A A (remove and install the same item if not damaged)
- 1.14. Right Baffle AMP - 39-A-71-33-11-00A-921A-A (remove and install the same item if not damaged)
- 1.15. Right Cover AMP - 39-A-71-33-02-00A-520A-A
- 1.16. Left Cover AMP - 39-A-71-33-03-00A-520A-A
- 1.17. Right Shell AMP - 39-A-71-33-04-00A-520A-A
- 1.18. Left Shell AMP - 39-A-71-33-05-00A-520A-A
- 1.19. Bottom sill AMP - 39-A-71-33-10-00A-921A-A (remove and install the same item if not damaged)
- 1.20. Take pictures to help record the exact configuration existing and then remove No. 1 Engine Fire Detection System AMP - 39-A-26-11-01-00A-520A-A and related cable as shown in IPD - 39-A- 26-11-00-010-941A-A
- 1.21. Take pictures to help record the exact configuration existing and then remove No. 2 Engine Fire Detection System AMP - 39-A-26-10-00-00A-320A-A and related cable as shown in IPD - 39-A- 26-12-00-010-941A-A
- 1.22. No.1 Fire extinguisher bottle AMP – 39-A-26-21-01-00A-520A-A
- 1.23. No.1 Check tee AMP – 39-A-26-21-02-00A-520A-A
- 1.24. No.2 Fire extinguisher bottle AMP – 39-A-26-22-01-00A-520A-A
- 1.25. No.2 bottle bracket AMP – 39-A-26-22-04-00A-520A-A
- 1.26. No.2 Check tee AMP – 39-A-26-22-02-00A-520A-A
- 1.27. Take pictures to help record the exact configuration existing and then remove Number 1 fire extinguishing tubes IPD - 39-A-26-21-00-010-941A-A NUMBER 1 FIRE EXTINGUISHING INSTL. Refer also to AMP - 39-A-26-21-00-00A-310A-A Number 1 fire extinguishing installation – Tubes - General visual inspection for guidelines.
- 1.28. Take pictures to help record the exact configuration existing and then remove Number 2 fire extinguishing tubes IPD - 39-A-26-22-00-010-941A-A NUMBER 2 FIRE EXTINGUISHING INSTL. Refer also to AMP - 39-A-26-22-00-00A-310A-A Number 2 fire extinguishing installation – Tubes - General visual inspection for guidelines.

NOTE:

The firewall assy P/N 3P7119A00134 consist of the following firewalls: 3P7119A00332, 3P7119A00432, 3P7119A02732, 3P7119A02832, 3P7119A03133, 3P7119A03233, 3P7119A03532, 3P7119A04031, 3P7119A03931,

NOTE:

For the following steps, if you are only removing a firewall from the firewall assembly, apply these steps for that section only. No need to remove the whole assy.

2. By means of plastic spatula, remove sealant from rivets head all around firewall assy and clean the area with Aliphatic Naphtha.

CAUTION

USING METALLIC SPATULA SHALL CAUSE DAMAGE TO UPPER DECK SKIN

NOTE:

- The removal of angles and clamping rings is only applicable if they are attached to the firewall that you need to remove.
 - For Rivet Replacement refer to 39-A-51-41-00-00A-010A-A and 39-A-51-41-01-00A-010A-A
3. With reference to Figure 4, drill out rivets that install LH and RH angles (P/N 3P7110A20152 and P/N 3P7110A20252) on firewall assy.
 4. With reference to Figure 6, drill out rivets that install Clamping Rings P/N 3P7119A04732, 3P7119A04832, 3P7119A04432 and 3P7119A04332 (STA 6815 and STA 6388)
 5. With reference to Figure 7, drill out rivets that install LH and RH angles (P/N 3P7110A20351 and P/N 3P7110A20451) on firewall assy.
 6. With reference to Figure 6 drill out rivets that install LH and RH Longeron Firewall P/N 3P7119A03133 and P/N 3P7119A03233 (STA ± 280.0)

CAUTION

BEFORE PROCEEDING TO THE NEXT STEP VERIFY THAT FIREWALL IS NO ENGAGED WITH OTHER COMPONENTS/HARDWARE

7. By means of plastic spatula, carefully remove Firewall Assy or individual firewall from upper deck
8. Thoroughly clean the upper deck area or individual firewall area from sealant and dirt to ease installation of new Firewall Assy or individual firewall.
9. Check rivets holes for condition.

NOTE:

Where elongated or damaged holes are found drill for oversized holes in accordance with ASRP (see DM 39-A-51-41-01-00A-010A-A).

10. Put new Firewall Assy or individual firewall in its position, restoring its previous configuration.

CAUTION

VERIFY HOLES ALIGNMENT BETWEEN FIREWALL ASSY AND UPPER DECK OR INDIVIDUAL FIREWALL AND THE SECTION WHERE IT WILL BE INSTALLED

NOTES:

- DURING ASSEMBLING BELOW MENTIONED PARTS & SUBASSY WITH FUSELAGE IN FIREWALLS AREA SHALL BE USED SEALING PROSEAL 890 FOR INTERLAYER SEALING & DIPPING RIVETS: 3P7110A031/03232, 3P7110A033/03432, 3P7110A04531, 3P7110A201/20252, 3P7110A203/20451, 3P7110A221/22251, 3P7110A225/22651, 3P7110A227/22851, 3P7110A229/23051, 3P7110A233/23451, 3P7119A00134.
- AIR-TIGHT SEALING OF FIREWALLS, UPPER COWLING AND ENGINE COWLINGS ZONES SHALL BE PERFORMED AFTER ASSEMBLING THE ASSYS BY APPLYING THE SEALANT (SEE DIAGRAMS "Y" AND "Z" Figure 17): - ONTO THE EDGES OF BONDED PARTS - PROSEAL 700; - ONTO THE RIVETED JOINTS FROM SIDE OF ENGINE COMPARTMENT - PROSEAL 700; - ONTO THE SCREW JOINTS FROM SIDE OF ENGINE COMPARTMENT - PROSEAL 700; - IN THE OPEN CORNERS OF CLOSED PROFILES BEING THE RESULT OF CONNECTING THE PARTS - PROSEAL 700. THE A/M METHOD OF AIR-TIGHT SEALING REFERS TO THE FOLLOWING PARTS AND ASSYS: 3P7110A031/03232, 3P7110A033/03432, 3P7110A04531, 3P7110A165/16651, 3P7110A167/16851, 3P7110A169/17051, 3P7110A171/17251, 3P7110A173/17451, 3P7110A175/17651, 3P7110A177/17851, 3P7110A201/20252, 3P7110A203/20451, 3P7113A00134, 3P7114A00134, 3P7117A00133, 3P7119A00134, 3P7800A00132.
- BELOW MENTIONED PARTS WILL BE INSTALLED WITH PROSEAL 890 FOR INTERLAYER SEALING & DIPPING RIVETS: 3P7110A101/10252, 3P7110A113/11451, 3P7110A131/13251, 3P7110A151/15251, 3P7110A153/15451, 3P7110A159/16051, 3P7110A161/16251, 3P7110A181/18251.
- INSTALL BELOW MENTIONED PARTS WITH INTERLAYER SEALING WITH PROSEAL 890: 3P7110A12051, 3P7110A12152, 3P7110A12351, 3P7110A12451, 3P7110A12551, 3P7110A12651, 3P7110A12751, 3P7110A12851, 3P7110A12951, 3P7800A14151, 3P7800A14251. APPLY PROSEAL 700 TO SEAL THE BOLT HEADS AND SCREWS HEADS (IN FRONT COWLING AND REAR COWLING ZONE).
- LOCATION OF THE FORWARD COWLING 3P7111A00133 SHALL BE ADJUSTED BY MEANS OF:
 - PEEL WASHERS (SHIM): - 3P7111A12251 AND 3P7111A12351 IN THE SEATS AAP101CH5; 3P7111A15151 IN THE FORWARD SUPPORTS 3P7111A051/05231; - 3P7111A15151 IN THE REAR SUPPORTS 3P7111A06131/06231;
 - RETAINERS AAP141CH160;
 - HOLDERS OF FM4 LATCHES.
- LOCATIONS OF THE ENGINE COWLINGS 3P7113A00134 AND 3P7114A00134 SHALL BE ADJUSTED BY MEANS OF PEEL WASHERS (SHIM): - 3P7110A30651 LOCATED IN THE HOLDERS OF ASSY P/N 3P7110A03132/03232/03332/03432; - 3P7113A12552 AND

3P7117A12252 LOCATED UNDER THE HINGE BRACKETS

NOTE:

The installation of angles and clamping rings is only applicable if they were removed in previous steps

11. With reference to Figure 6, install rivets on LH and RH Longeron Firewall P/N 3P7119A03133 and P/N 3P7119A03233 (STA ± 280.0)
12. With reference to Figure 7, install rivets on LH and RH angles (P/N 3P7110A20351 and P/N 3P7110A20451) on firewall assy.
13. With reference to Figure 6, install rivets on Clamping Rings P/N 3P7119A04732, 3P7119A04832, 3P7119A04432 and 3P7119A04332 (STA 6815 and STA 6388)
14. With reference to Figure 4, install rivets on LH and RH angles (P/N 3P7110A20152 and P/N 3P7110A20252) on firewall assy.
15. Install the following components in accordance with the referenced AMP Data Module:
 - a. Number 2 fire extinguishing tubes IPD - 39-A-26-22-00-010-941A-A NUMBER 2 FIRE EXTINGUISHING INSTL. Refer also to AMP - 39-A-26-22-00-00A-310A-A Number 2 fire extinguishing installation - Tubes - General visual inspection for guidelines
 - b. Number 1 fire extinguishing tubes IPD - 39-A-26-21-00-010-941A-A NUMBER 1 FIRE EXTINGUISHING INSTL. Refer also to AMP - 39-A-26-21-00-00A-310A-A Number 1 fire extinguishing installation - Tubes - General visual inspection for guidelines.
 - c. No.2 Check tee AMP – 39-A-26-22-02-00A-720A-A
 - d. No.2 bottle bracket AMP – 39-A-26-22-04-00A-720A-A
 - e. No.2 Fire extinguisher bottle AMP – 39-A-26-22-01-00A-720A-A
 - f. No.1 Check tee AMP – 39-A-26-21-02-00A-720A-A
 - g. No.1 Fire extinguisher bottle AMP – 39-A-26-21-01-00A-720A-A
 - h. No. 2 Engine Fire Detection System AMP - 39-A-26-11-01-00A-720A-A and related cable as shown in IPD - 39-A-26-12-00-010-941A-A
 - i. No. 1 Engine Fire Detection System AMP - 39-A-26-11-01-00A-720A-A and related cable as shown in IPD - 39-A-26-11-00-010-941A-A
 - j. Bottom sill AMP - 39-A-71-33-10-00A-921A-A (remove and install the same item if not damaged)
 - k. Left Shell AMP - 39-A-71-33-05-00A-720A-A
 - l. Right Shell AMP - 39-A-71-33-04-00A-720A-A

- m. Left Cover AMP - 39-A-71-33-03-00A-720A-A
- n. Right Cover AMP - 39-A-71-33-02-00A-720A-A
- o. Right Baffle AMP - 39-A-71-33-11-00A-921A-A (remove and install the same item if not damaged)
- p. Top baffle AMP - 39-A-71-33-12-00A-921A-A A (remove and install the same item if not damaged)
- q. No. 1 Tail Rotor Drive Shaft damper AMP 39-A-65-11-09-00A-720A-A
- r. With reference to IPD (see DM 39-A-76-11-00-010-941A-A) and AMP (see DM 39-A-76-11-02-00A-720A-A and 39-A-76-11-03-00A-720A-A) install No. 1 and No, 2 Power Control Cables P/N 3G7610V00532
- s. No. 1 Tail pipe AMP – 39-A-78-10-01-00A-720A-A
- t. No. 2 Tail pipe AMP – 39-A-78-10-02-00A-720A-A
- u. No. 1 Engine AMP – 39-A-71-02-01-00A-720A-A
- v. No. 2 Engine AMP – 39-A-71-02-02-00A-720A-A
- w. Top Aft Cowling AMP – 39-A-71-11-04-00A-720A-A
- x. No.1 Engine Access door AMP – 39-A-71-11-01-00A-720A-A
- y. No.2 Engine Access door AMP – 39-A-71-11-02-00A-720A-A

16. Return the helicopter to flyable configuration

Requirements after job completion

1. Remove all the tools and the other items from the work area.
2. Make sure that the work area is clean.
3. Return aircraft to flight configuration.

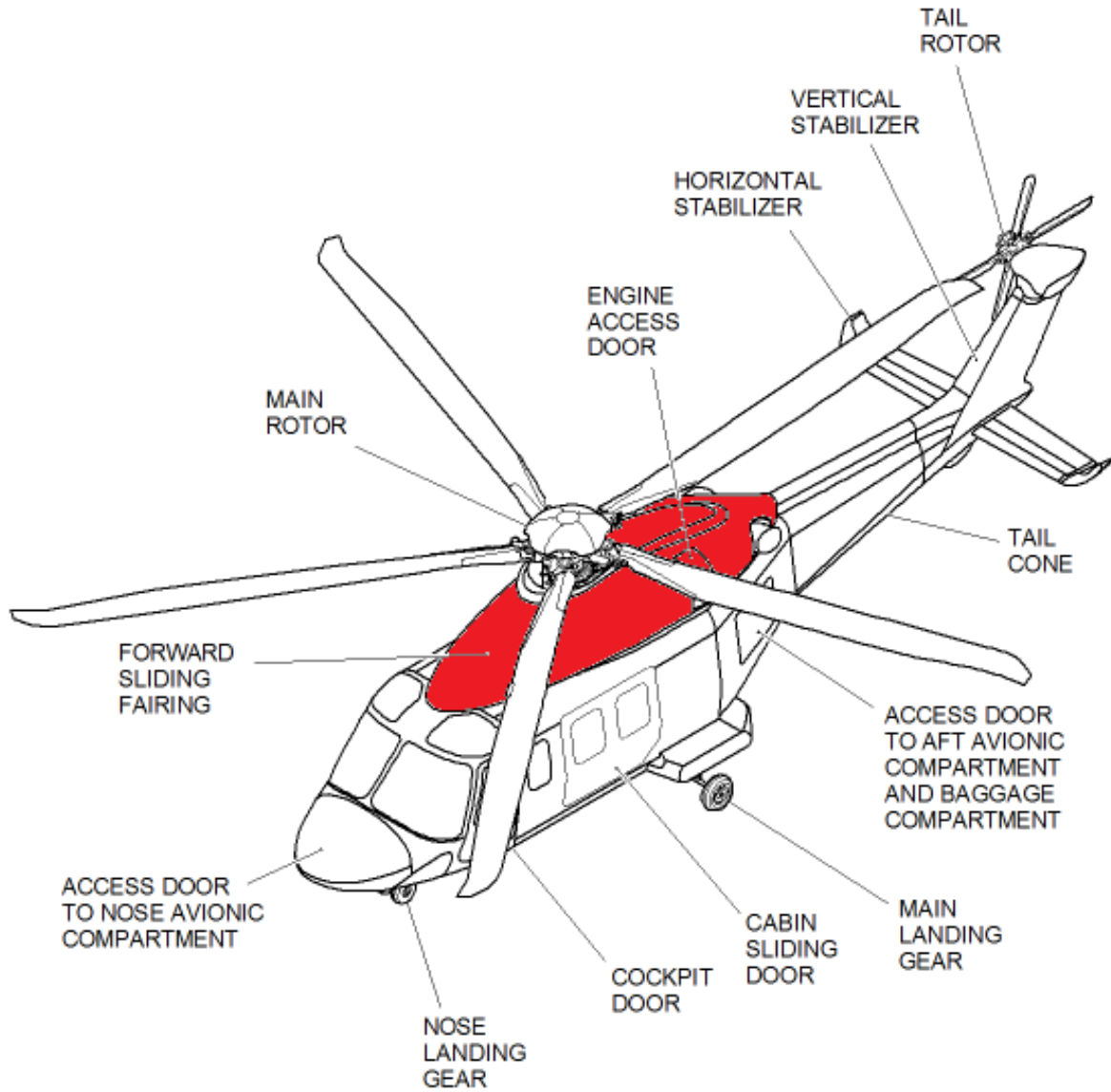


Figure 1- Work Area

NOTE: The numerical values in red in the following figures indicate the correspondent spare number.

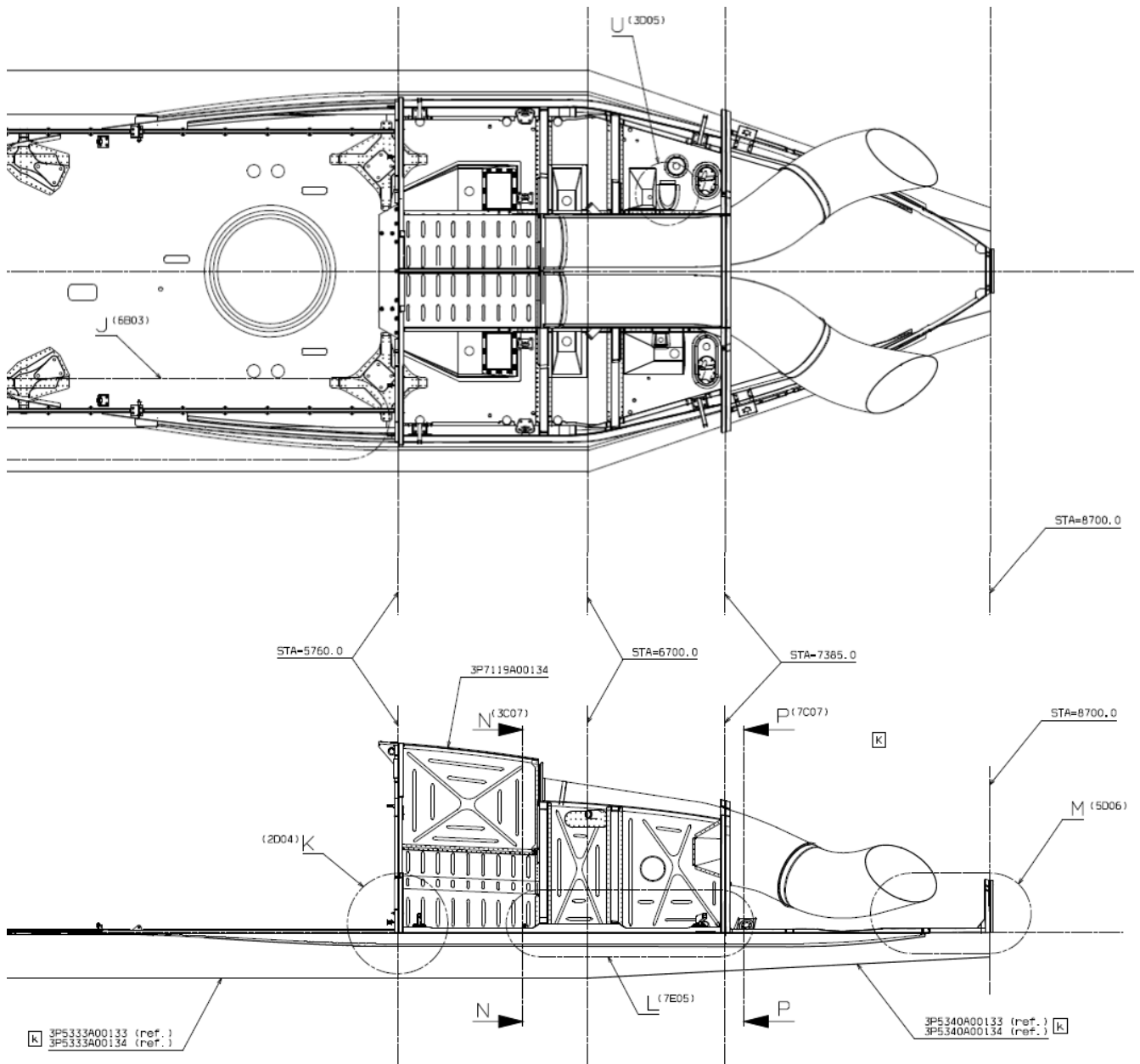


Figure 2 – Firewall Assembly

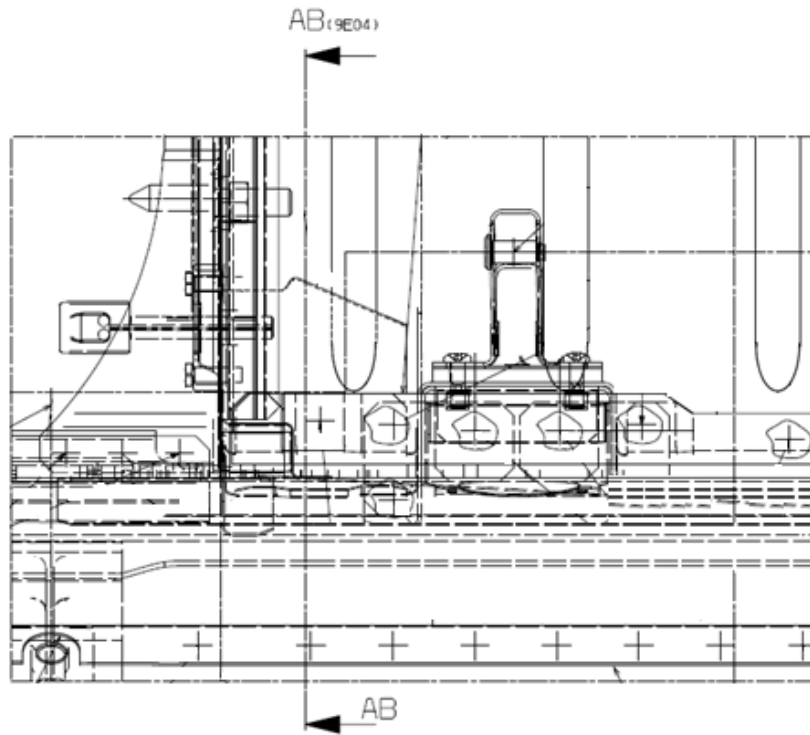


Figure 3 – Detail K from Fig 2.

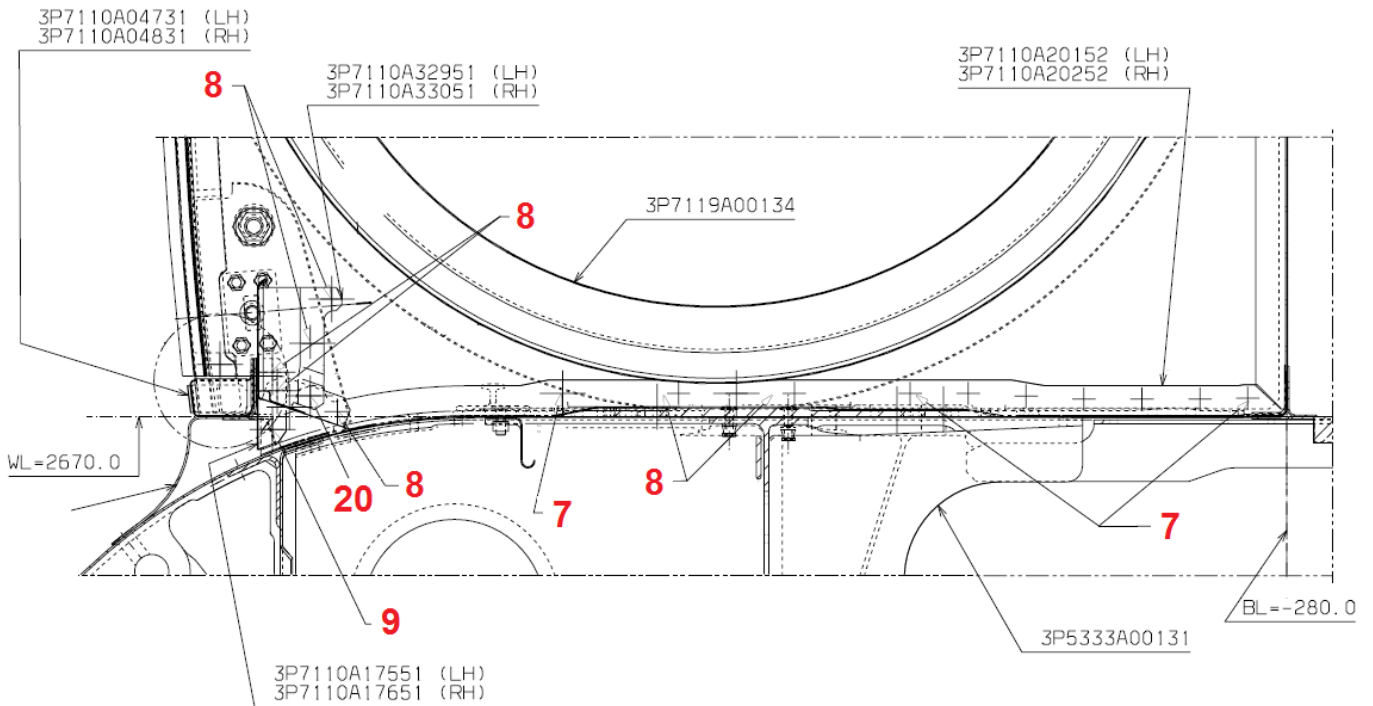


Figure 4 – Section AB-AB from Fig 3

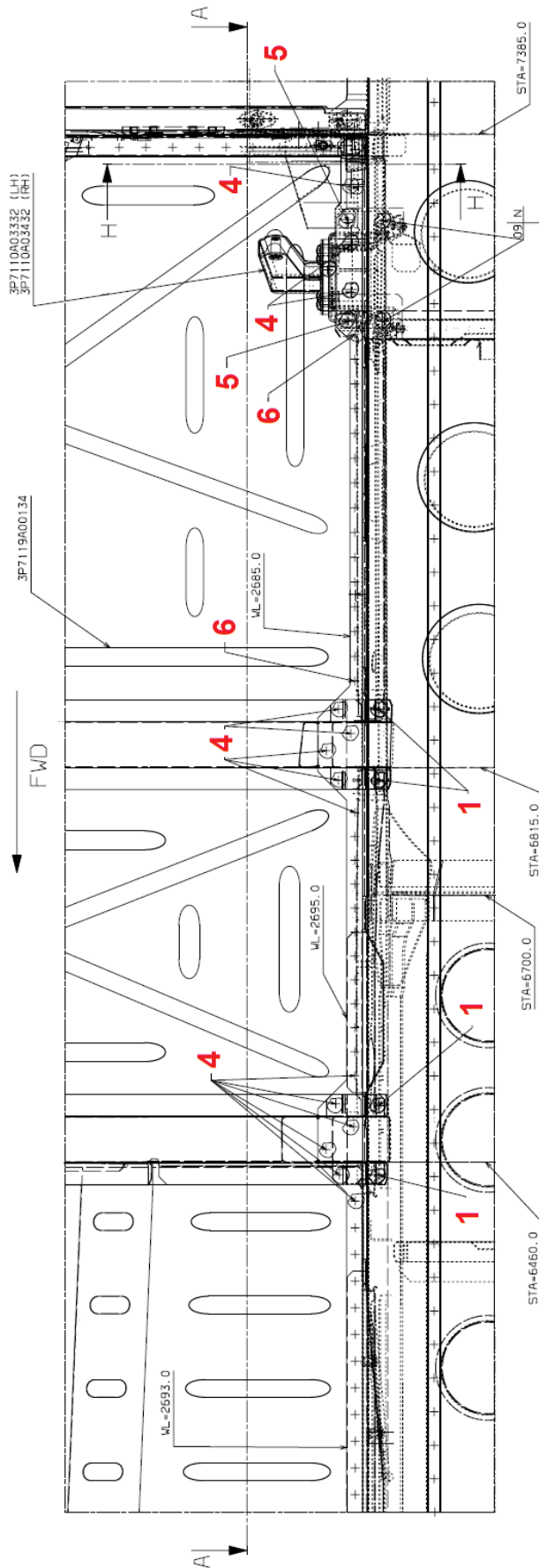


Figure 5 – Detail L from Fig. 2.

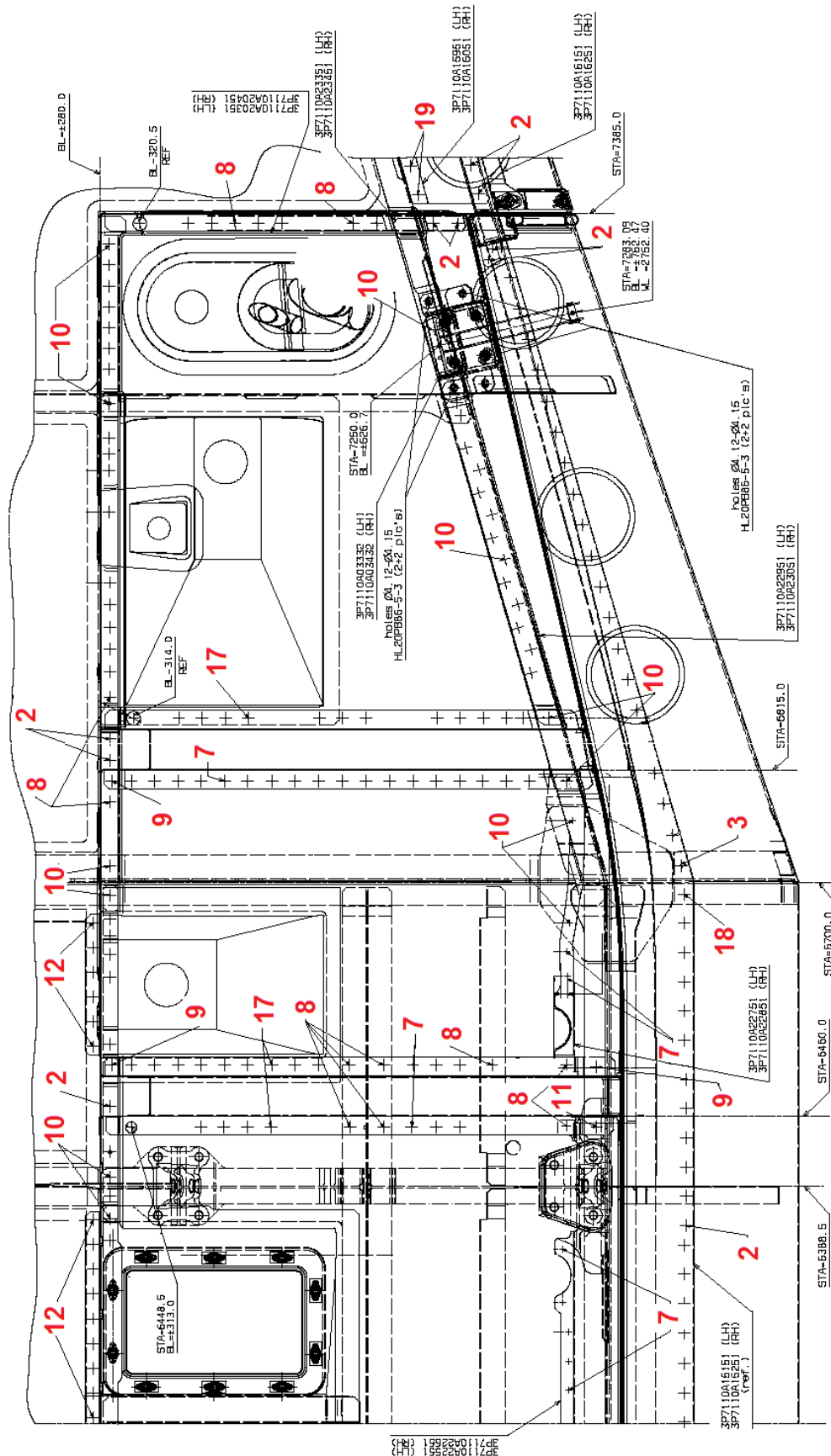


Figure 6 – View A-A from Fig 5.

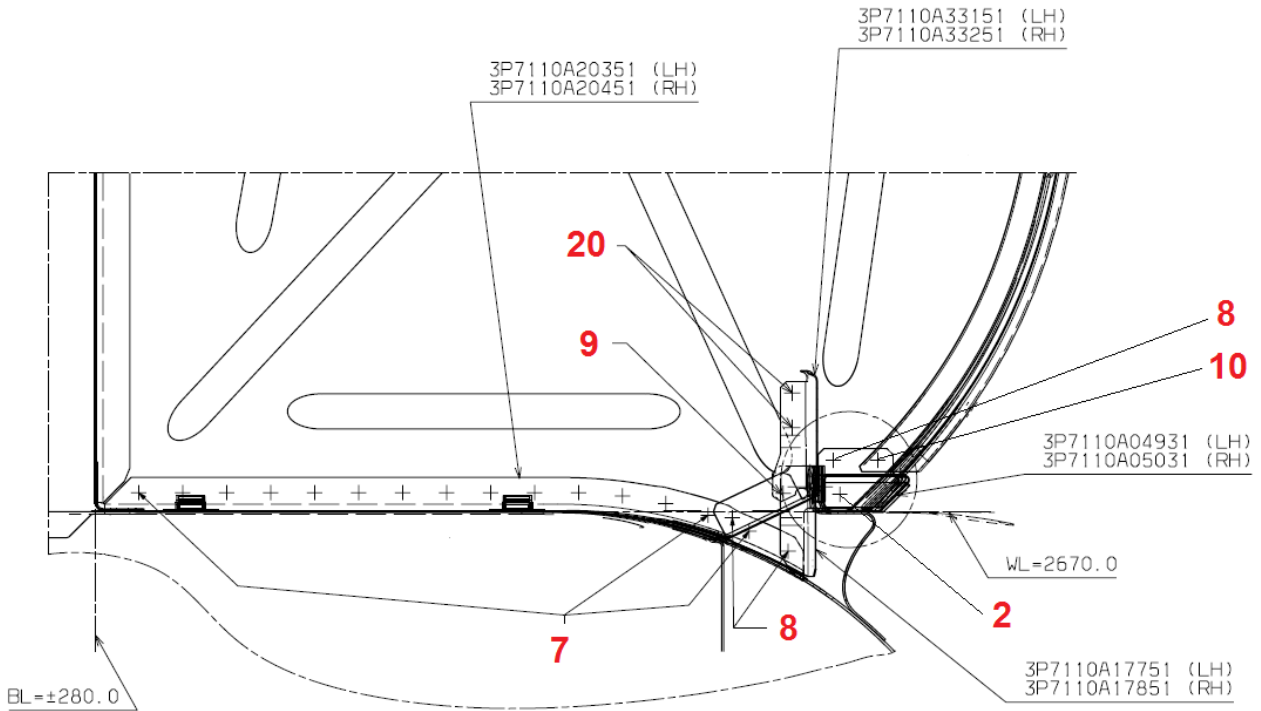


Figure 7 – View H-H from Fig. 5.

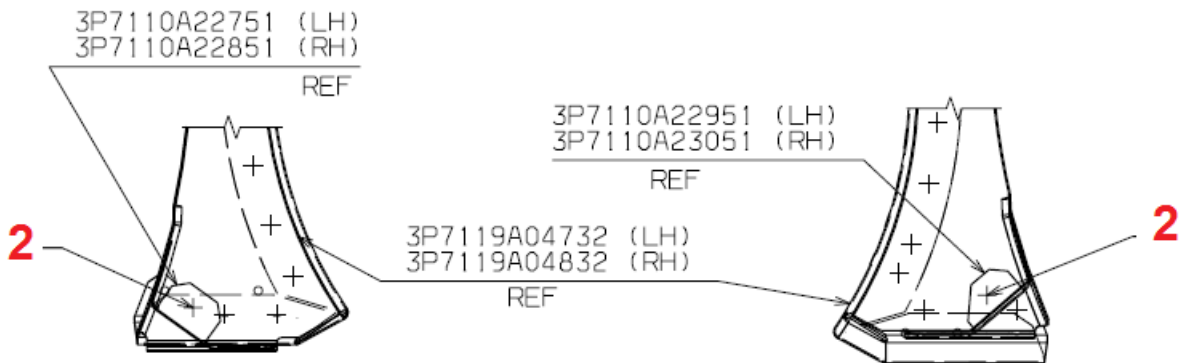


Figure 8 – Clamping Rings

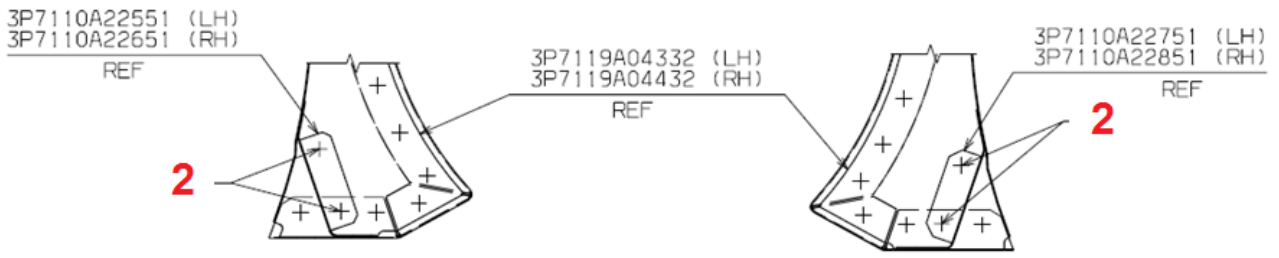


Figure 9 – Clamping Rings

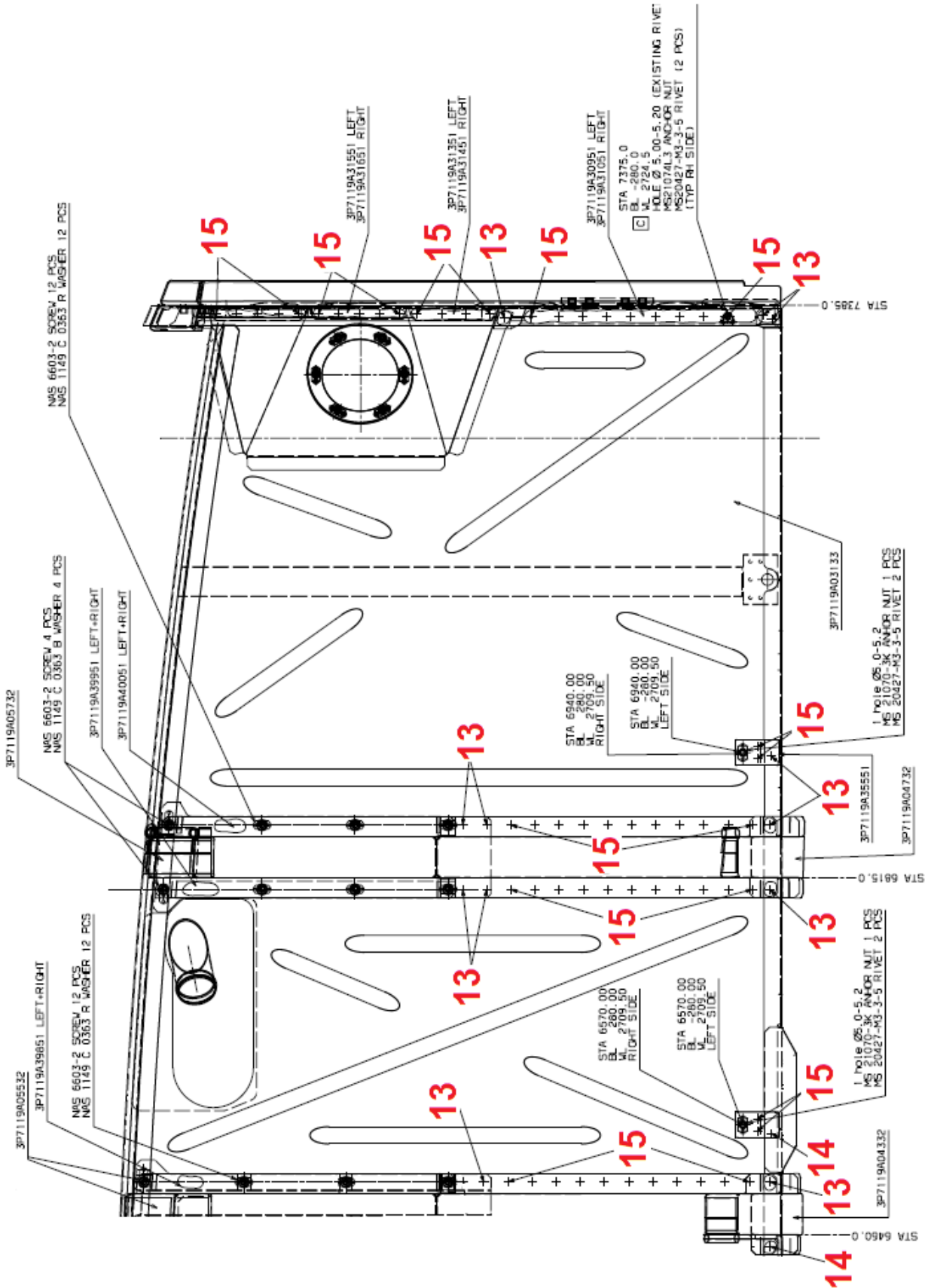


Figure 10 – Left and Right Longeron Firewall (P/N 3P7119A03133 & 3P7119A03233)

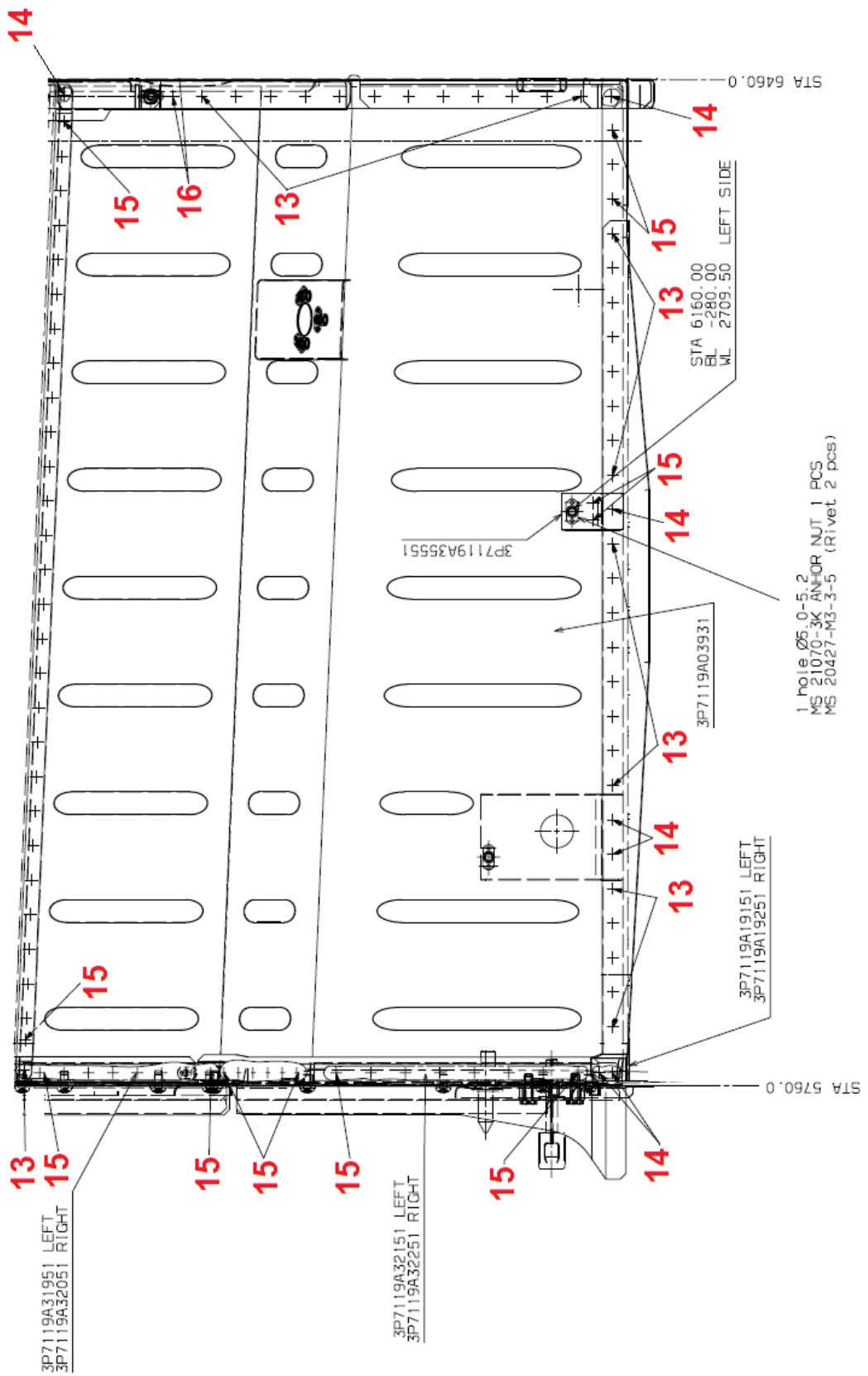


Figure 11 – Firewall P/N 3P7119A03931

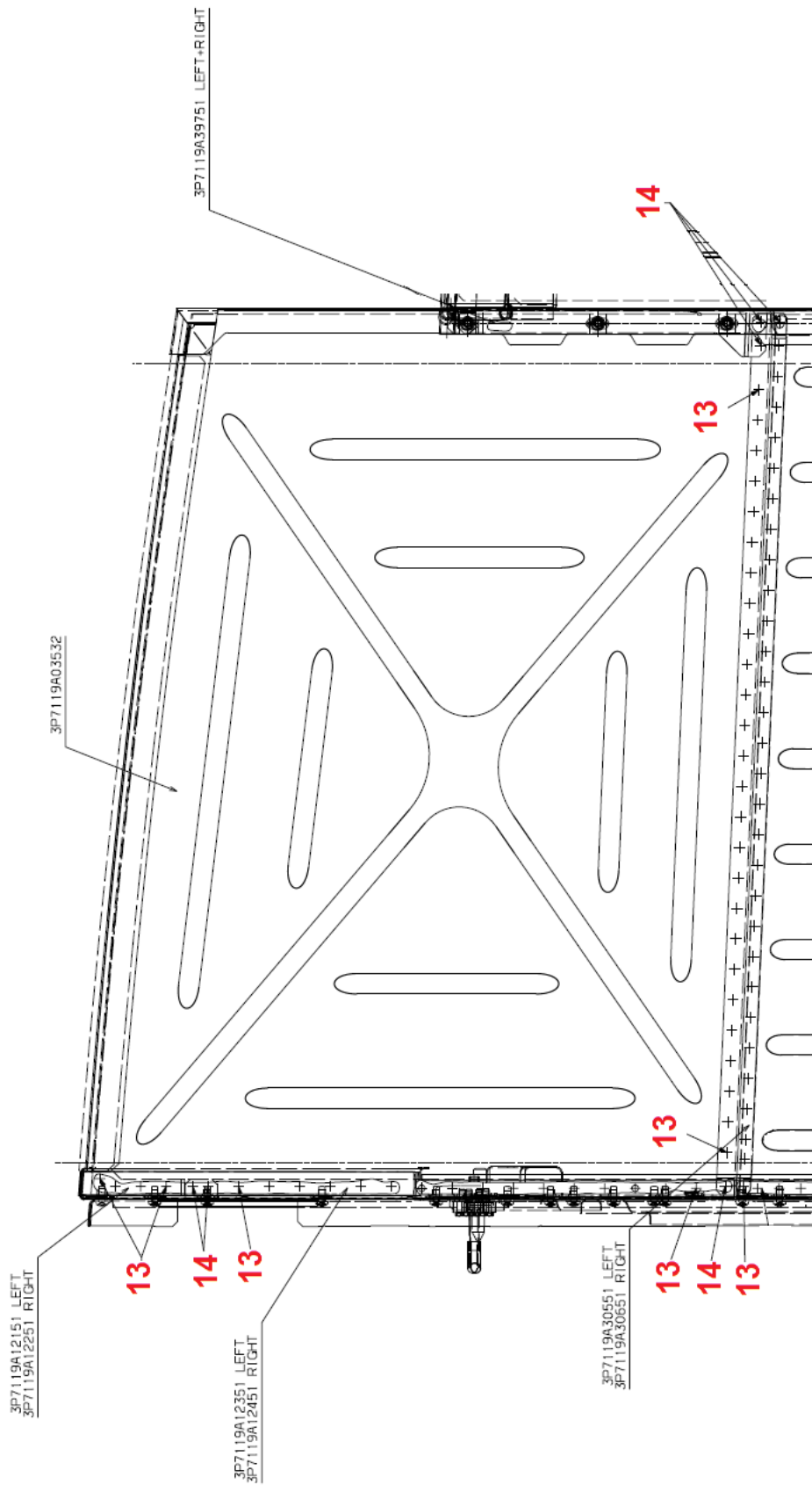


Figure 12 – Center Firewall P/N 3P7119A03532

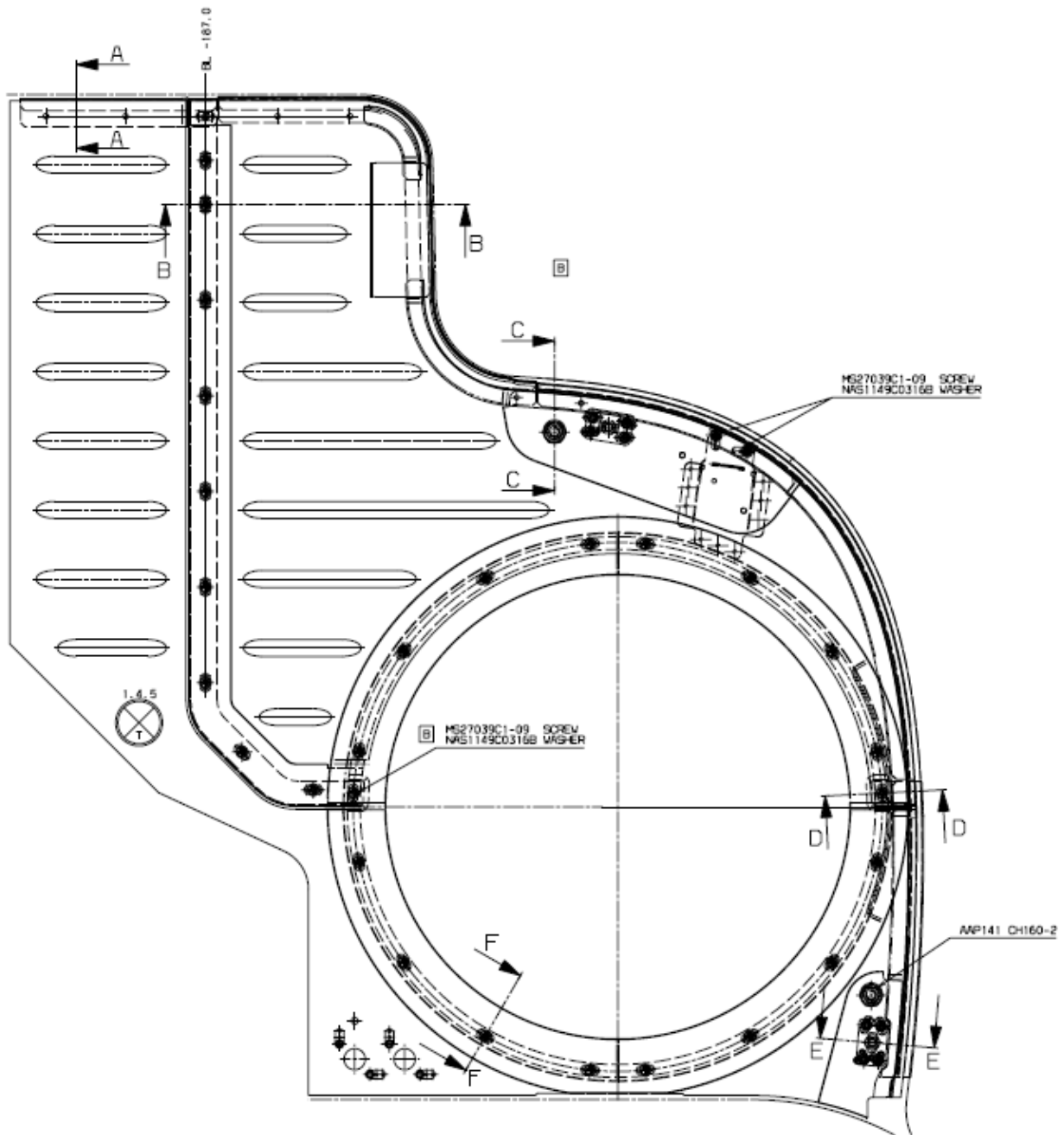


Figure 13 – Right Front Firewall P/N 3P7119A00432

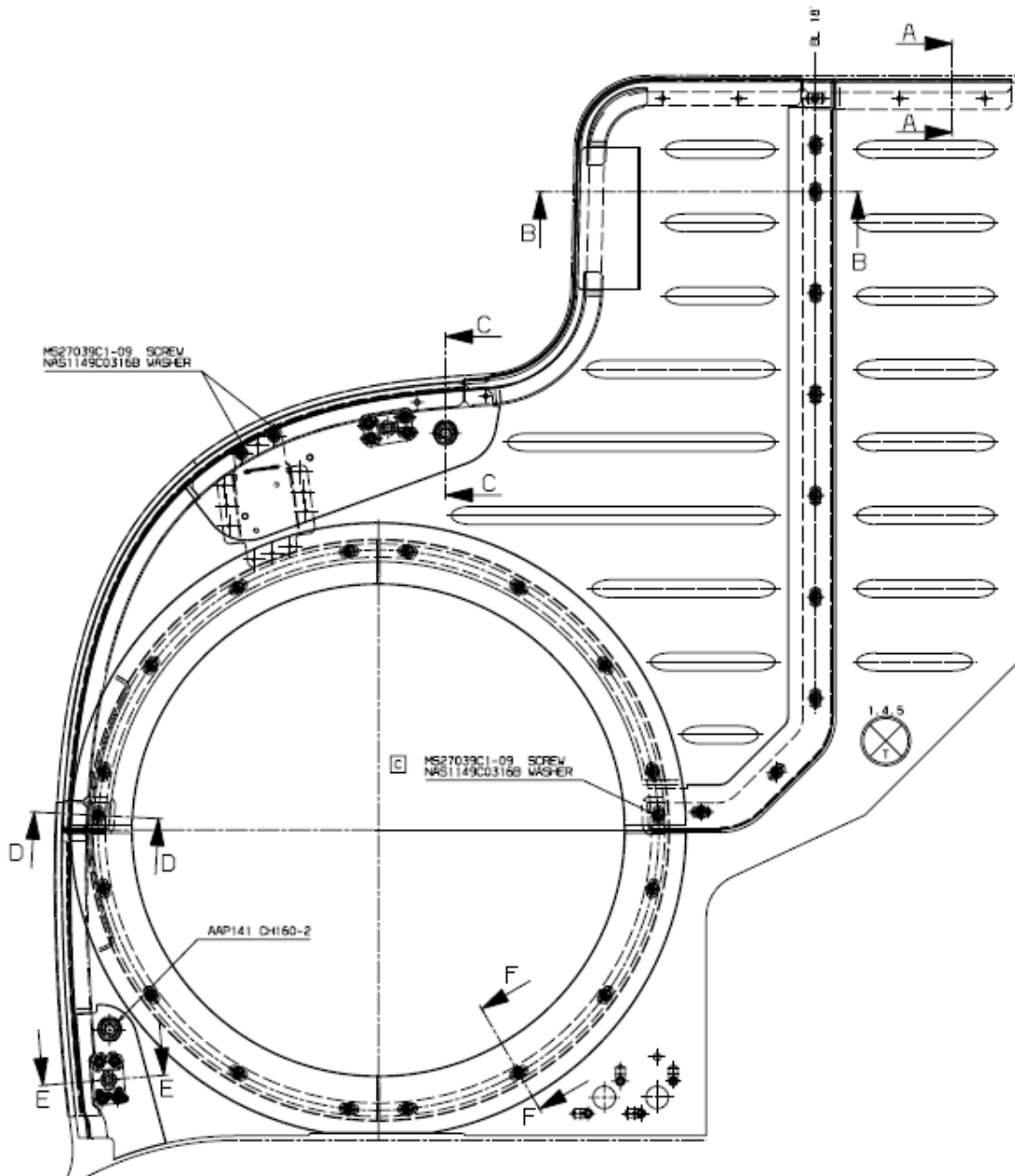


Figure 14 – Left Front Firewall P/N 3P7119A00332

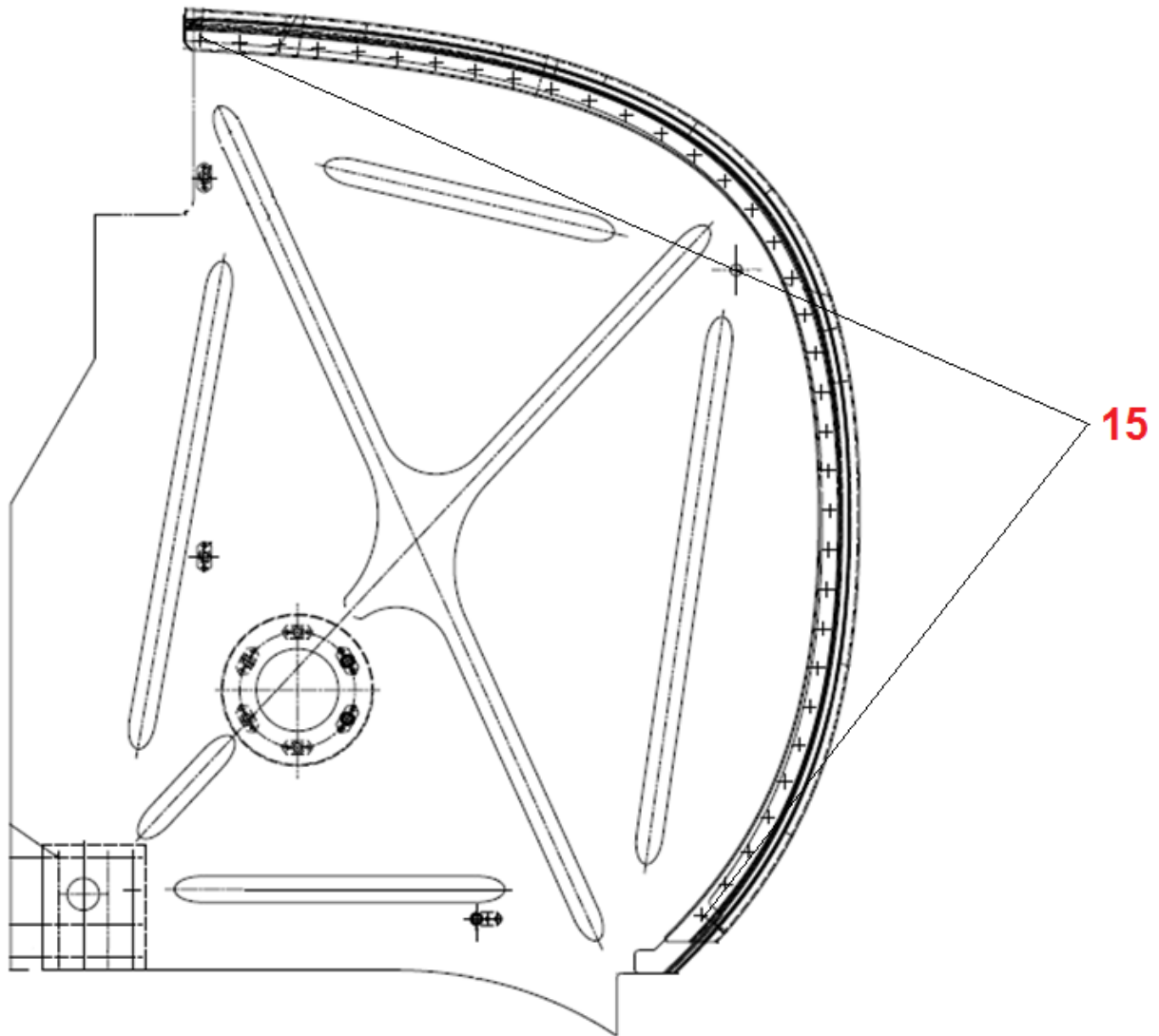


Figure 15 –Right Rear Firewall P/N 3P7119A02832

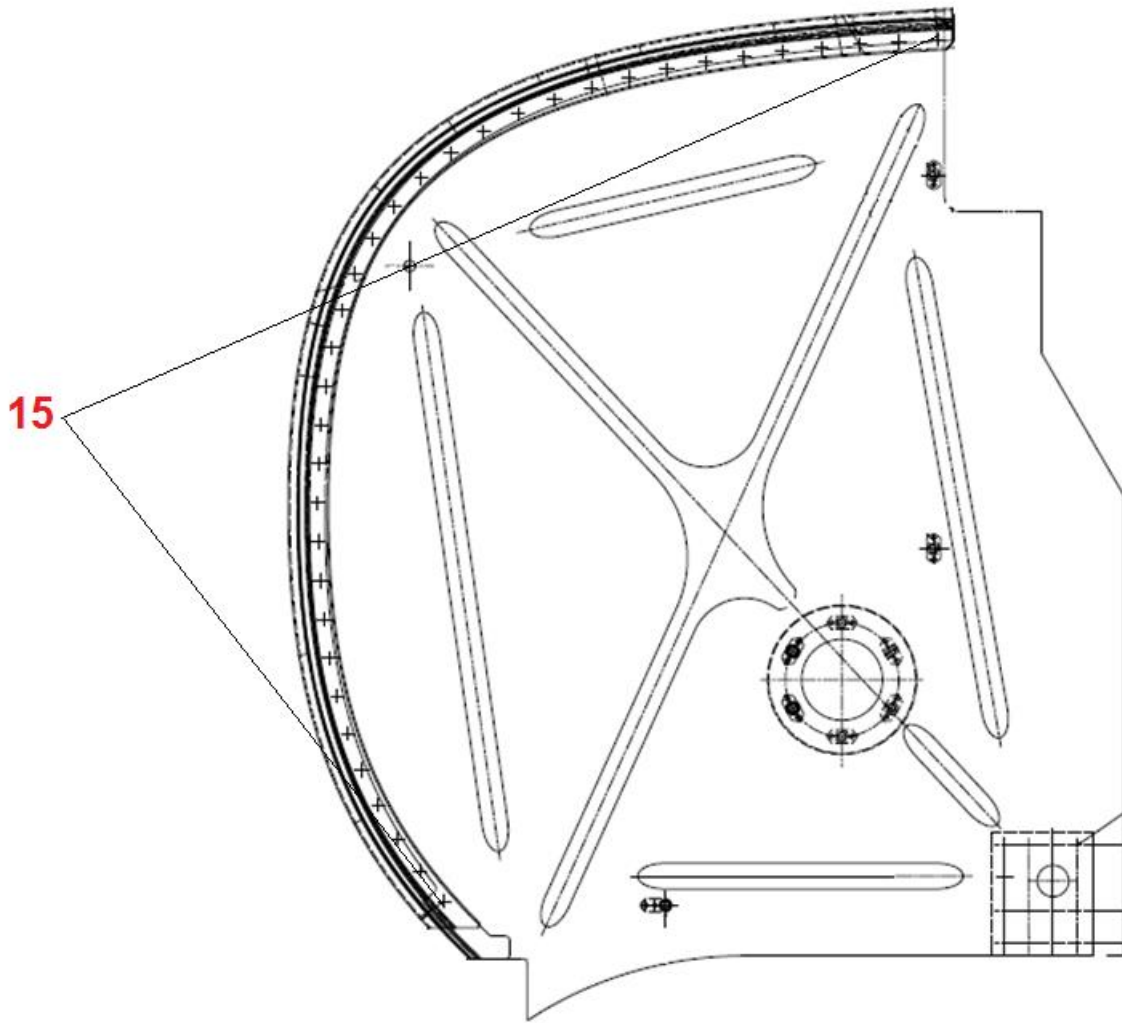
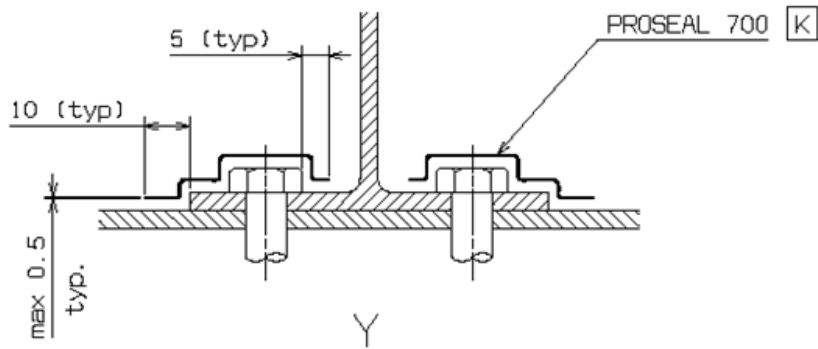
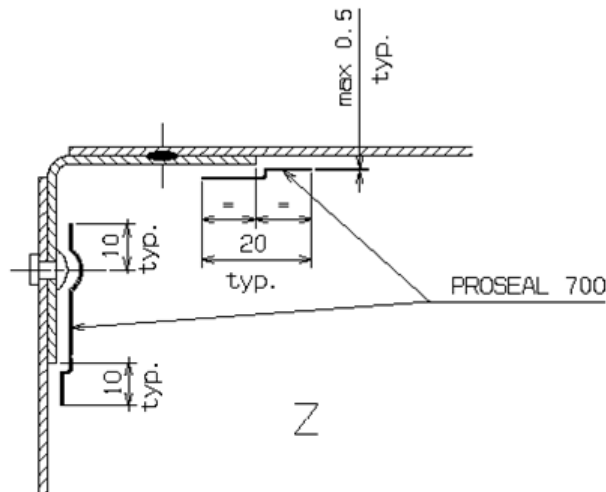


Figure 16 – Left Rear Firewall P/N 3P7119A02732



(scheme of sealing of thread joints of firewalls, upper cowling & engine cowlings inside of engine compartment)



(scheme of sealing of rivet & welding joints of firewalls, upper cowling & engine cowlings inside of engine compartment)

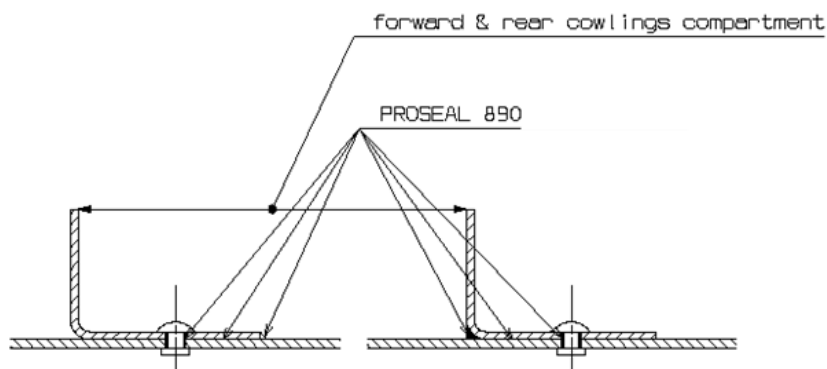


Figure 17 – Sealant Application