Temporary Maintenance Instruction
TMI 139-426 Rev. B

Left and Right Panel Assembly – Replacement – 3P5338A01532A1 and 3P5338A01632A1

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: November ***2th, 2021.***

2020-11-02

Introduction

The purpose of this Temporary Maintenance Instruction is to describe the procedure to replace the P/N 3P5338A01532A1 Left Panel Assembly and the P/N 3P5338A01632A1 Right Panel Assembly.

Left and Right Panel Assembly – Replacement – 3P5338A01532A1 and 3P5338A01632A1

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References

Table 1 References

Data Module	Title
39-A-00-20-00-00A-120A-A	Helicopter must be safe for maintenance
39-A-53-40-00-00A-520A-A	Tail Section Structure - Remove procedure
39-A-63-60-00-00A-520A-A	Main Gear Box and Main Rotor Head Group - Remove procedure
39-A-63-60-00-00A-520A-A	Left Exhaust Duct - Remove procedure
39-B-78-10-07-00A-520A-A	Right Exhaust Duct - Remove procedure
39-A-71-02-01-00A-520A-A	Number 1 Engine - Remove procedure
39-A-71-02-02-00A-520A-A	Number 2 Engine - Remove procedure
39-A-52-12-01-00A-520A-A	Left Cabin Door - Remove procedure
39-A-52-13-01-00A-520A-A	Left Cabin Door Stop - Remove procedure
39-A-28-11-01-00A-520A-A	Number 1 tank - Remove procedure
39-A-28-11-01-00B-520A-K	Number 1 tank - Remove procedure
39-A-28-11-01-00C-520A-K	Number 1 tank - Remove procedure
39-A-28-11-02-00A-520A-A	Number 2 tank - Remove procedure
39-A-28-11-02-00B-520A-K	Number 2 tank - Remove procedure

Preliminary requirements

Required conditions

Table 2 Required conditions

Condition	**Data Module/Technical Publication**
Helicopter must be safe for maintenance	39-A-00-20-00-00A-120A-A
Tail Section Structure - Remove procedure	39-A-53-40-00-00A-520A-A
Main Gear Box and Main Rotor Head Group - Remove procedure	39-A-63-60-00-00A-520A-A
Left Exhaust Duct - Remove procedure	39-B-78-10-06-00A-520A-A
Right Exhaust Duct - Remove procedure	39-B-78-10-07-00A-520A-A
Number 1 Engine - Remove procedure	39-A-71-02-01-00A-520A-A
Number 2 Engine - Remove procedure	39-A-71-02-02-00A-520A-A
Left Cabin Door - Remove procedure	39-A-52-12-01-00A-520A-A

Left Cabin Door Stop must be removed	39-A-52-13-01-00A-520A-A
Number 1 tank - Remove procedure	39-A-28-11-01-00A-520A-A
Number 1 tank - Remove procedure	39-A-28-11-01-00B-520A-K
Number 1 Fuel Tank - Remove procedure	39-A-28-11-01-00C-520A-K
Number 2 tank - Remove procedure	39-A-28-11-02-00A-520A-A
Number 2 tank - Remove procedure	39-A-28-11-02-00B-520A-K
Threaded fasteners - Tighten procedure	39-A-20-00-00-00A-711A-A

Support equipment

Table 3 Support Equipment

Nomenclature	Identification No.	Qty
1. Grip Gauge	Local Supply	1
2. Plastic Scrapper	Local Supply	1
3. Cleaning Cloth	Local Supply	A.R.
4. Bond Tester	DUCTER Type D201 (or equivalent)	1
5. Temporary Fasteners	Cleco – Local Supply	A.R.
6. Heat Gun	Local Supply	1
7. Putty Knife	Local Supply	1

Supplies

Table 4 Supplies

Nomenclature	Identification No.	Qty
1. Rivet	A297A04TW02	A.R.
2. Rivet	A297A04TW03	A.R.
3. Clipping	A366A3E22C75	2
4. Rivet, Blind	AGS4720-407	A.R.
5. Rivet, Blind	AGS4720-409	A.R.
6. Rivet, Blind	AGS4720-411	A.R.
7. Rivet, Blind	AGS4719-407	A.R.
8. Rivet, Blind	AGS4719-409	A.R.
9. Rivet, Blind	AS46789-407	A.R.

10.	Rivet, Blind	AS46789-514	A.R.
11.	Rivet, Blind	AS46791-407	A.R.
12.	Rivet, Blind	AS46791-409	A.R.
13.	Rivet, Blind	AS46791-411	A.R.
14.	Rivet, Blind	AS46791-407	A.R.
15.	Pin	HL19PB-5-6	2
16.	Pin	HL19PB-5-7	1
17.	Collar	HL86PB-5	3
18.	Rivet, Blind	M7885/2-4-02	A.R.
19.	Rivet, Blind	M7885/2-5-03	A.R.
20.	Rivet, Blind	M7885/2-5-05	A.R.
21.	Rivet, Blind	M7885/3-4-02	A.R.
22.	Rivet, Blind	M7885/3-4-03	A.R.
23.	Rivet, Blind	M7885/3-5-03	A.R.
24.	Rivet, Blind	M7885/3-5-04	A.R.
25.	Rivet, Blind	M7885/3-5-05	A.R.
26.	Rivet, Blind	M7885/3-5-06	A.R.
27.	Rivet, Solid, Csk	MS20426AD3-2	A.R.
28.	Rivet, Solid, Csk	MS20426AD3-5	A.R.
29.	Rivet, Solid, Csk	MS20426AD4-5	A.R.
30.	Rivet, Solid, Csk	MS20426AD4-6	A.R.
31.	Rivet, Solid, Csk	MS20426AD4-7	A.R.
32.	Rivet, Solid, Csk	MS20426AD4-8	A.R.
33.	Rivet, Solid, Csk	MS20426AD4-5-5	A.R.
34.	Rivet, Solid, Csk	MS20426AD5-7	A.R.
35.	Rivet, Solid, Csk	MS20426AD5-8	A.R.
36.	Rivet, Solid, Csk	MS20426AD5-9	A.R.
37.	Rivet, Solid	MS20470AD4-4	A.R.
38.	Rivet, Solid	MS20470AD4-6	A.R.
39.	Rivet, Solid	MS20470AD4-8	A.R.
40.	Rivet, Solid	NAS1097AD5-5	A.R.
41.	Dome Nutplate	NAS1474A3	8
42.	Sealing Compound(*)	ProSeal 890 B2	A.R.
43.	Surface Treatment(*)	Alodine 1200	A.R.
44.	Cleaning Solvent(*)	MEK	A.R.
45.	Plexi-Glass	1.6mm	A.R.

Spares

Table 5 Support Equipment

Nomenclature	Identification No.	Qty
1. Left Panel Assembly	3P5338A01532A1	1
2. Right Panel Assembly	3P5338A01632A1	1

Safety conditions

WARNING

THE CONSUMABLE MATERIALS IDENTIFIED BY "(*)" ARE DANGEROUS MATERIALS. BEFORE USE, MAKE SURE TO KNOW:

- THE SAFETY PRECAUTIONS AND FIRST AID INSTRUCTIONS PRINTED ON THE LABEL ON THE CONTAINER THE MATERIAL WAS SUPPLIED IN.
- THE SAFETY PRECAUTIONS AND FIRST AID INSTRUCTIONS ON THE MATERIAL SAFETY DATA SHEET.
- THE LOCAL SAFETY REGULATIONS.

ALSO MAKE SURE THAT THE APPLICABLE FIRST AID MATERIALS ARE AVAILABLE.

GENERAL NOTES

- Place an identification tag on all components that are re-usable, including the attaching hardware that has been removed to gain access to the work area and adequately protect them until their later re-use.
- Exercise extreme care during drilling operations to prevent instruments, components, cables and hose damage.
- After drilling, remove all swarf and sharp edges. Apply on bare metal a light film of primer unless the hole is used for grounding connections.
- During rivet drill out and removal operations, to prevent and eliminate the presence Foreign Object Debris (FOD), protect adequately the area around the work area and to prevent FOD infiltrating installed components and instruments.
- Take detailed digital photographs of aircraft configuration prior and during work being performed. This will aide in maintaining aircraft configuration during reassembly and reinstallation of components and systems.

- Before installing new rivets check the holes condition; if the holes condition is not suitable it is necessary to use oversized rivets.
- Perform an integrity check of all items removed. If deemed necessary, discard the item and replace with new item.
- Use Cleaning Solvent (Supply Ref. 44) to clean surfaces. All cleaned surfaces must air dry for at least 30 minutes.
- Let adhesives cure at room temperature for at least 24 hours unless otherwise specified.
- All lengths and dimensions are in millimetres (mm).

Procedure

1. Get access to the Work Area (Figure 1):
   1.1. Remove any optional or after-market equipment that is installed in the general work area which will be impacted by the removal of the existing Left Panel Assembly.
   1.2. Carefully protect and reposition any wires or wire bundles that will be impacted by the removal of the existing Left Panel Assembly.
2. Remove the 3P5330A31132 LH Fairing Assembly (Fig. 13) as follows:
   2.1. Remove paint and expose NAS517-3-X screws around the perimeter of the Fairing Figure 13 (Detail J) at twelve places.
   2.2. Remove 3P5330A31132 Fairing Assembly and hardware (Fig. 13, Detail J)
3. Remove upper and lower cabin door track in accordance with Figure 3 (Section A2), Figure 8 (Detail F) and Figure 9 (Detail G).
4. Remove existing Left Panel Assembly as follows:
   4.1. Expose and remove fasteners used to secure the existing left panel assembly to the fuselage in accordance with the Figure 3 (Detail A), Figure 4 (Detail B), Figure 5 (Detail C) and Figure 7 (Detail E).
   4.2. Remove necessary fasteners of overlapping skins to gain access to all the edges of left panel assembly in accordance with Figure 8 (Detail F) and Figure 10 (Detail H).
   4.3. With all the fasteners removed, use a Heat Gun (Support Equip. 6) to soften the adhesive and carefully work a Putty Knife (Support Equip. 7) around the perimeter of the panel to break the seal between the panel and the fuselage.
   4.4. Once removed, retain old panel to serve as a template.

4.5. Using Cleaning Solvent (Supplies Ref. 44), Plastic Scrapper (Support Equip. 2) and lint –free Cleaning Cloth (Support Equip. 3), clean and prepare all surfaces for installation of new Left Panel Assembly (Spares Equip. 1).

5. Manufacture drilling template as follows:

5.1. Cut to size a piece of Plexi-Glass (Supply Ref. 106) (Figure 14) that is large enough to cover the whole surface area of the removed panel.

5.2. Shape the plexi-glass to match the contour of the removed panel.

5.3. Drill template to match rivet holes of removed panel.

6. Install new Left Panel Assembly (Spares Equip. 1) as follows:

6.1. Fit and position new panel.

6.2. With new Left Panel Assembly (Spares Equip. 1) in place, counter drill accessible fastener holes to match existing fuselage while installing Temporary Fasteners (Support Equip. 5) as necessary.

6.3. Remove new Left Panel Assembly (Spares Equip. 1) from aircraft.

6.3.1. Using Temporary Fasteners (Support Equip. 5) fasten template onto new Left Panel Assembly (Spares Equip. 1) and drill fastener holes that were previously inaccessible on the helicopter.

6.4. Apply Surface Treatment (Supply Ref. 43) to all reworked and exposed surfaces.

6.5. Reinstall new Left Panel Assembly (Spares Equip. 1) while using Temporary Fasteners (Support Equip. 5) and countersink required holes.

6.6. Remove new Left Panel Assembly (Spares Equip. 1), deburr and remove sharp edges.

6.7. Apply Sealing Compound (Supply Ref. 42) to mating surfaces and install new Left Panel Assembly (Spares Equip. 1) securing in place using Temporary Fasteners (Support Equip. 5).

6.8. All blind rivets are to be installed “wet”.

6.9. Install all fasteners using a Grip Gage (Support Equip. 1) to check length of blind fasteners.

6.10. Install Dome Nutplates (Supply Ref. 41) per Figure 9 (Detail G).

6.11. Remove cover plate from old left panel assembly and drill plate to new Left Panel Assembly (Spares Ref. 1) per Figure 6 (Detail D).

6.12. Deburr, clean and apply Sealing Compound (Supply Ref. 42) to mating surfaces and install fasteners.

7. Install clippings per Figure 11 and Figure 12 (Detail I).

8. Reinstall upper door track as follows:

   8.1. Using Temporary Fasteners (Support Equip. 5) put upper track in place on upper row of rivet holes per Figure 8 (Detail F).

   8.2. Drill lower row of rivet holes per Figure 8 (Detail F).

   8.3. Remove track and clean area with Cleaning Solvent (Supplies Ref. 104).

   8.4. Using Temporary Fasteners (Support Equip. 5) put upper track in place and apply Sealing Compound (Supply Ref. 42).on all faying surfaces.

   8.5. Install screws previously removed in the forward end of the track.

   8.6. Use a Grip Gage (Support Equip. 1) determine fastener length.

9. Install lower door track per Figure 9 (Detail G).

10. Install the 3P5330A31132 LH Fairing Assembly (Fig. 13, Detail J) using the NAS517-3-X screws, standard torque, removed during the accomplishment of the previous step 2.

11. In accordance with Annex A perform an electrical bonding check between the Left Panel Assembly (Spares Ref. 1), the main fuselage structure and electrical generator grounds.

12. In case the replacement of the Right Panel assembly (Spares Ref. 2) is required, proceed with the instructions reported from step 1 to 9, except steps 2 and 10.

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 and free of foreign object debris.
3. Return aircraft to flight configuration.

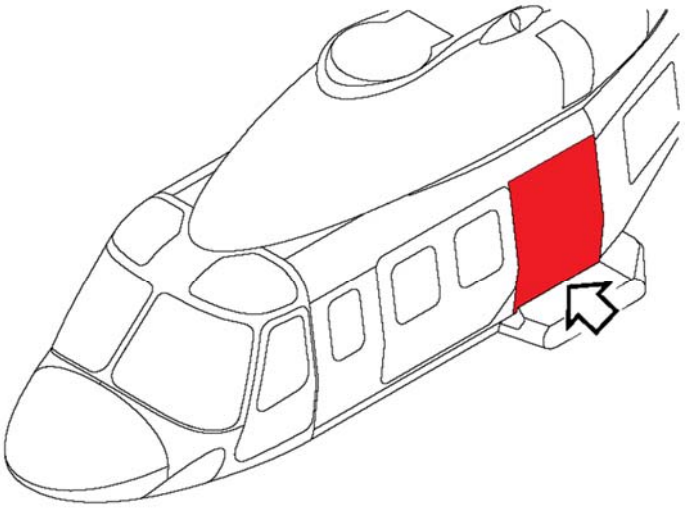


Figure 1 – Work Area - Left Panel Assembly – Opposite for the right side.

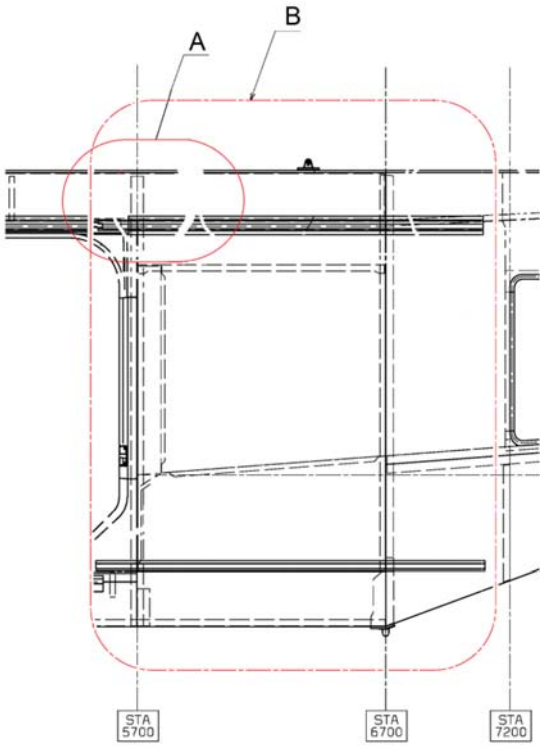


Figure 2 – Main View – Looking Inboard

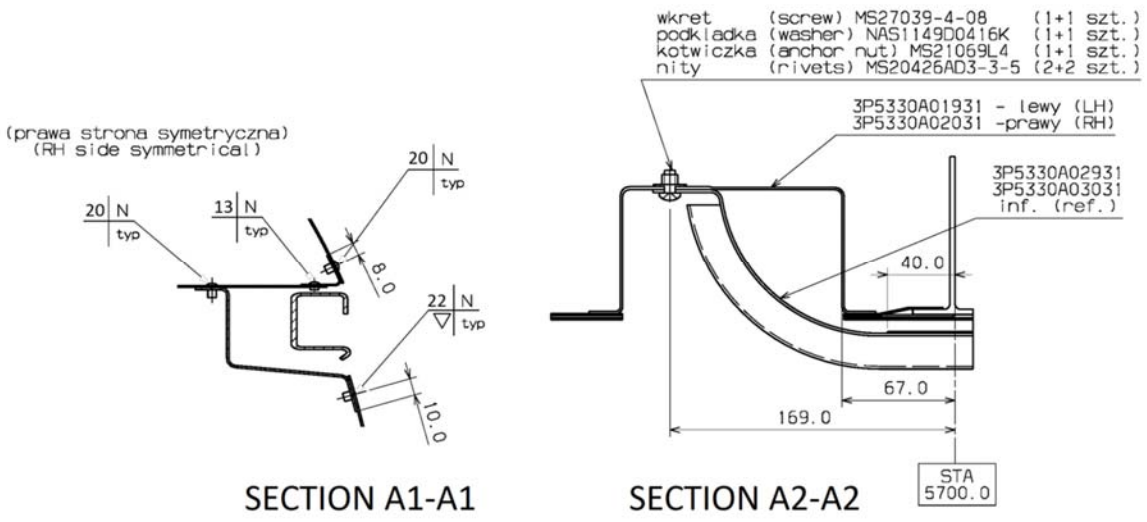


Figure 3 – Detail A

(See Figure 16 for Rivet Code)

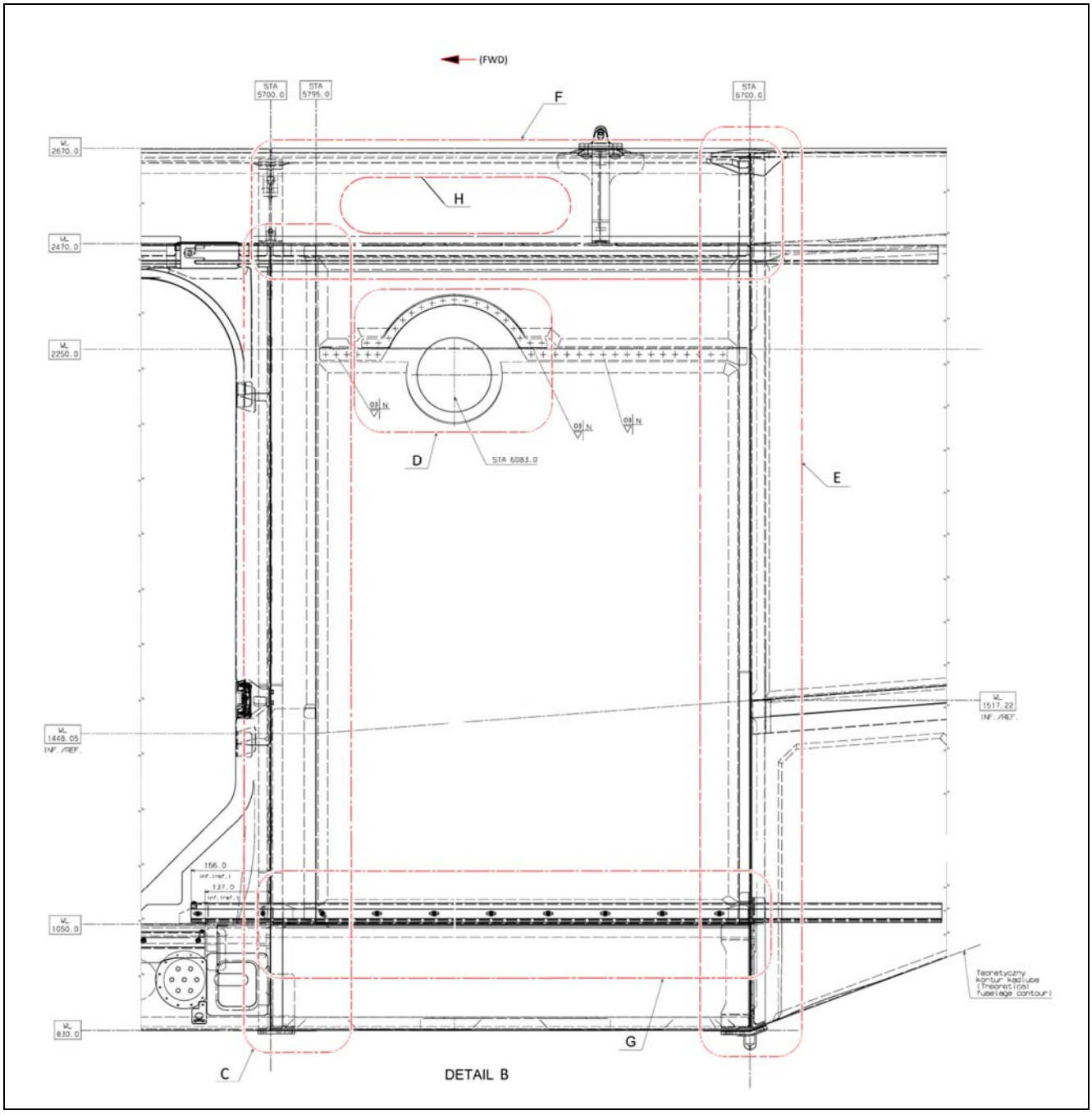


Figure 4 – Detail B

(See Figure 16 for Rivet Code)

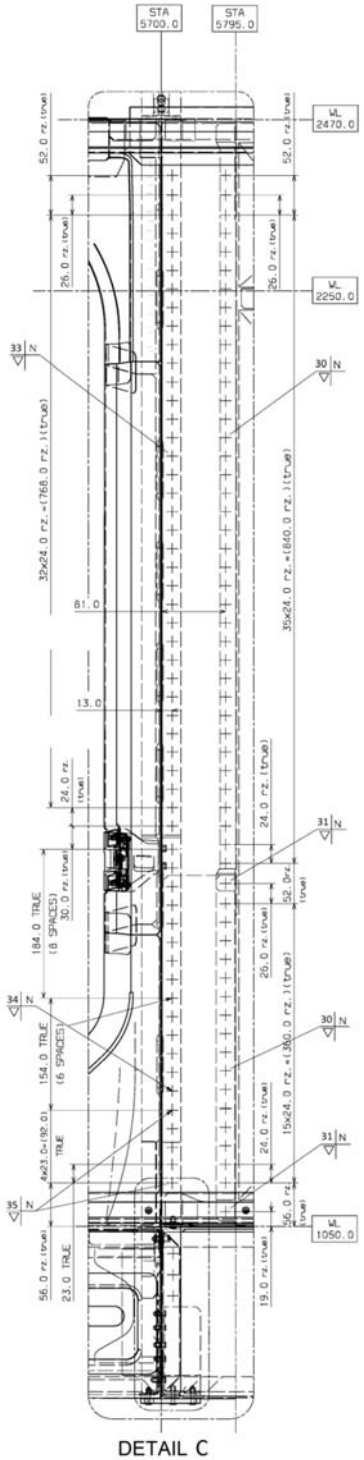
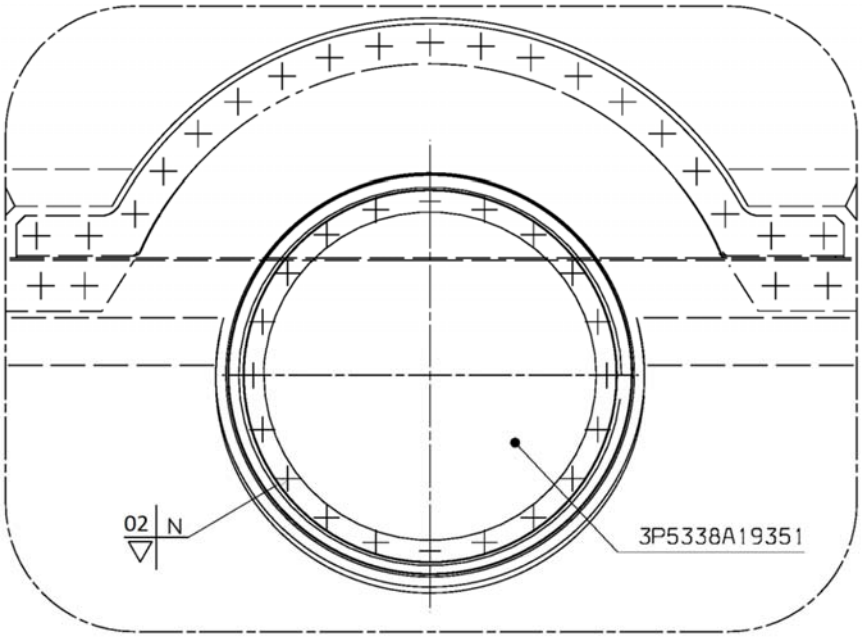


Figure 5 – Detail C

(See Figure 16 for Rivet Code)



DETAIL D

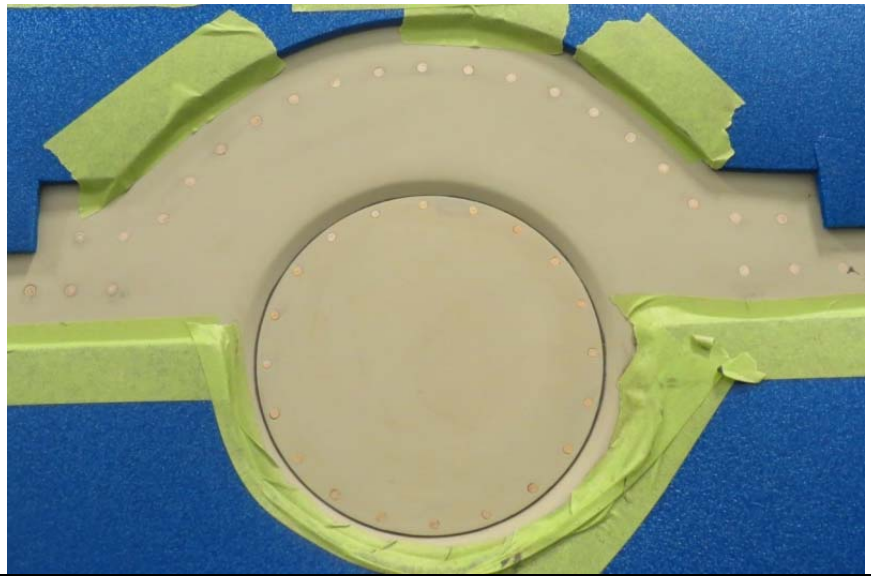


Figure 6 – Detail D

(See Figure 16 for Rivet Code)

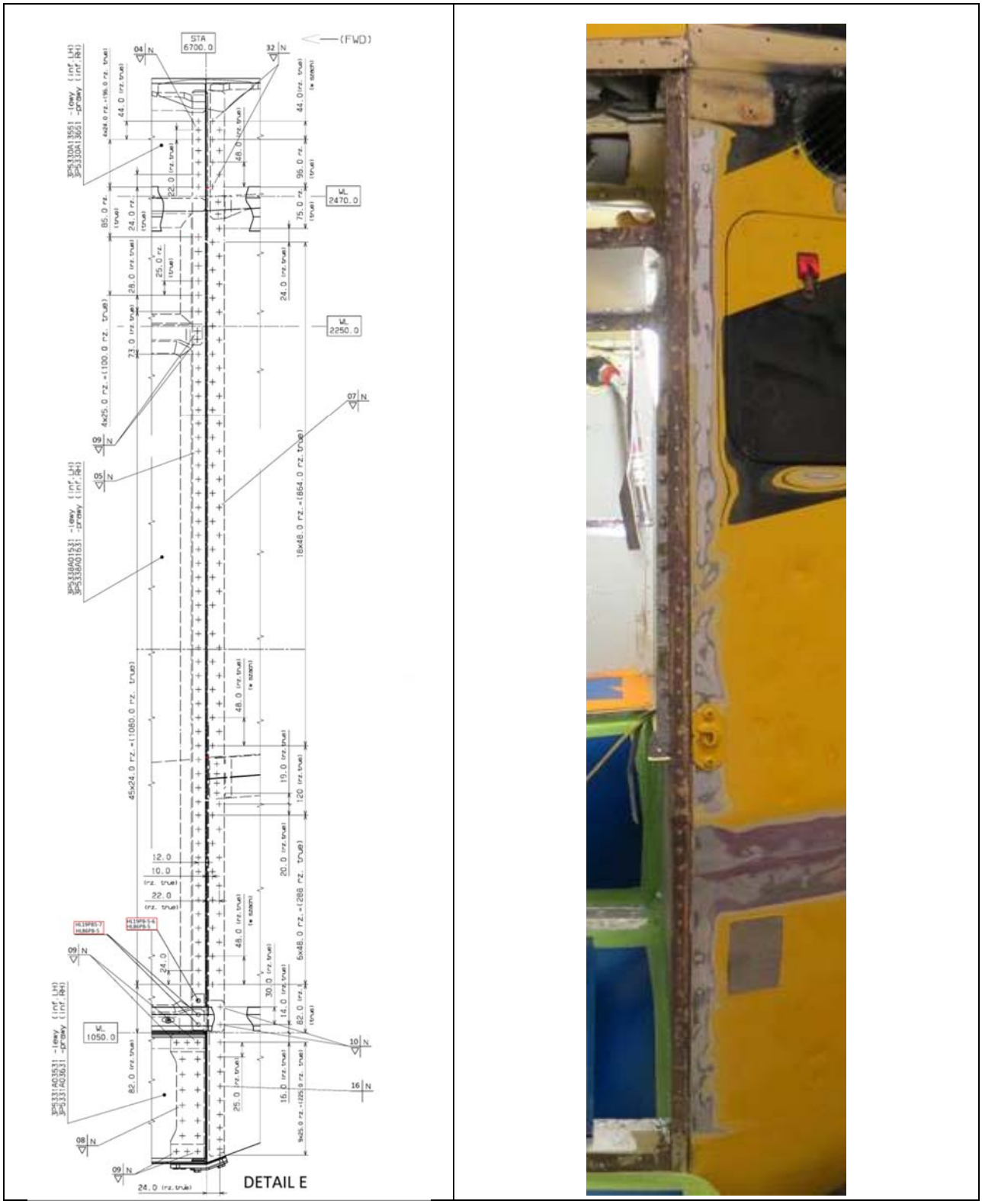


Figure 7 – Detail E

(See Figure 16 for Rivet Code)

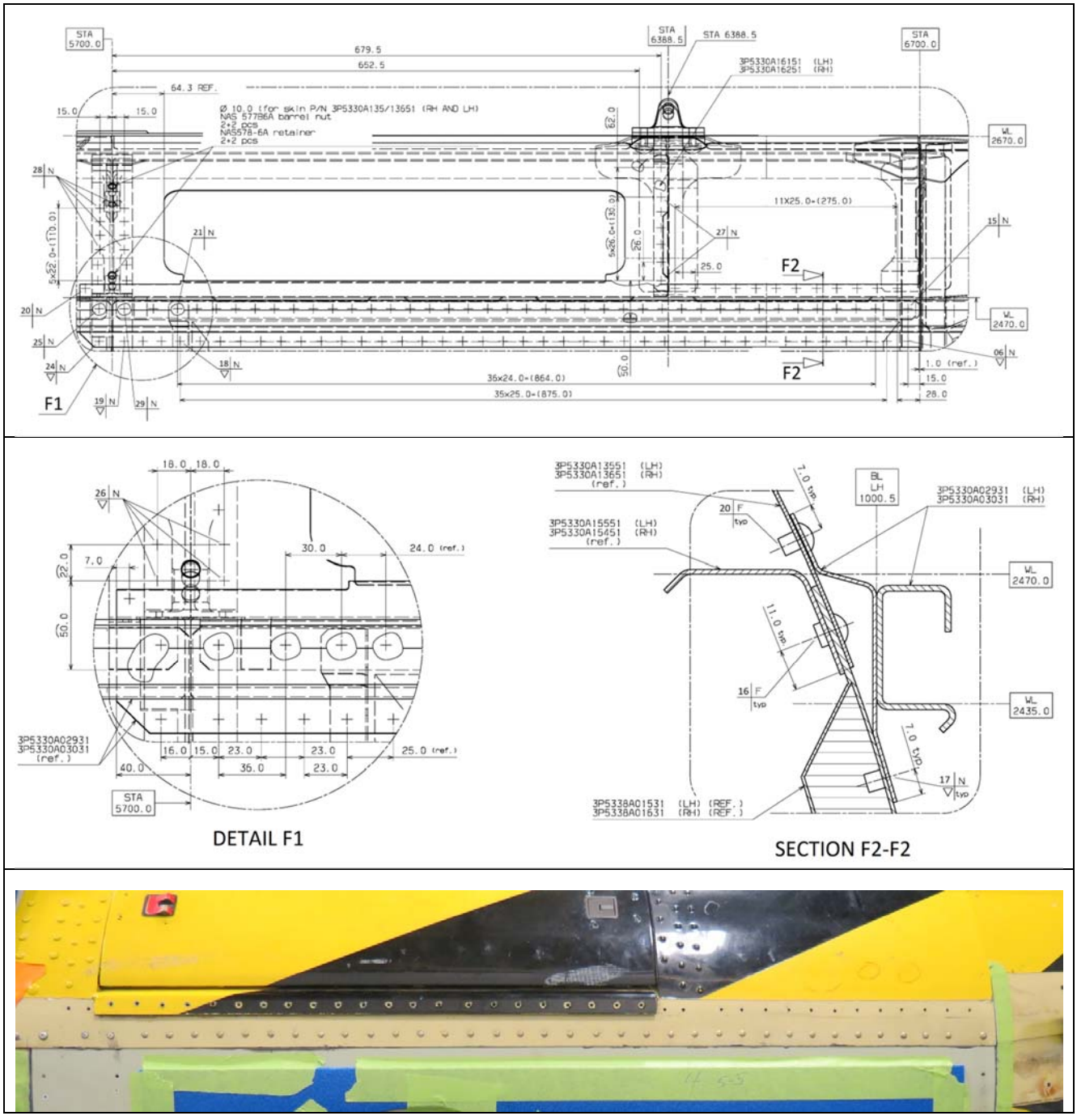


Figure 8 – Detail F

(See Figure 16 for Rivet Code)

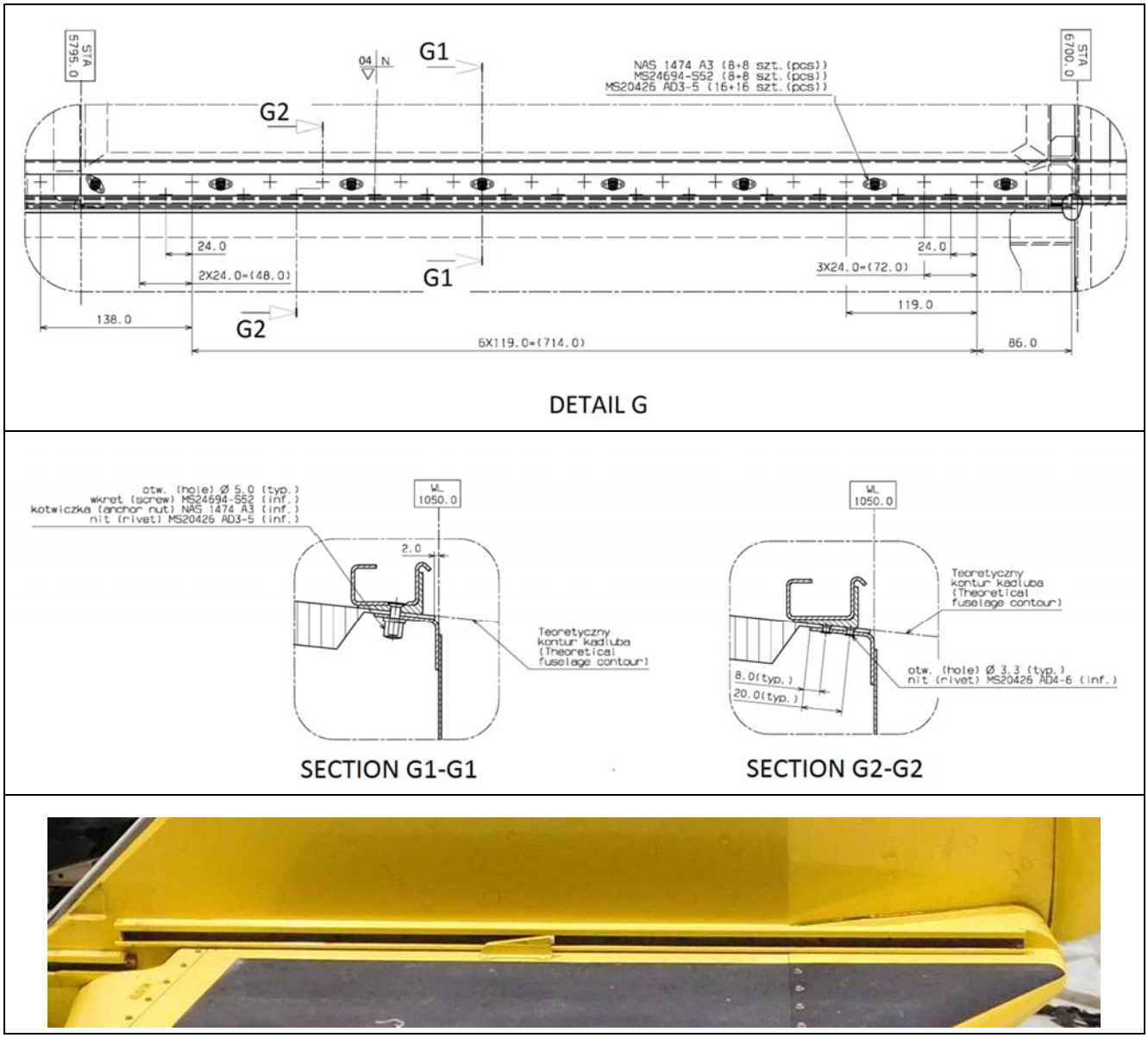


Figure 9 – Detail G

(See Figure 16 for Rivet Code)

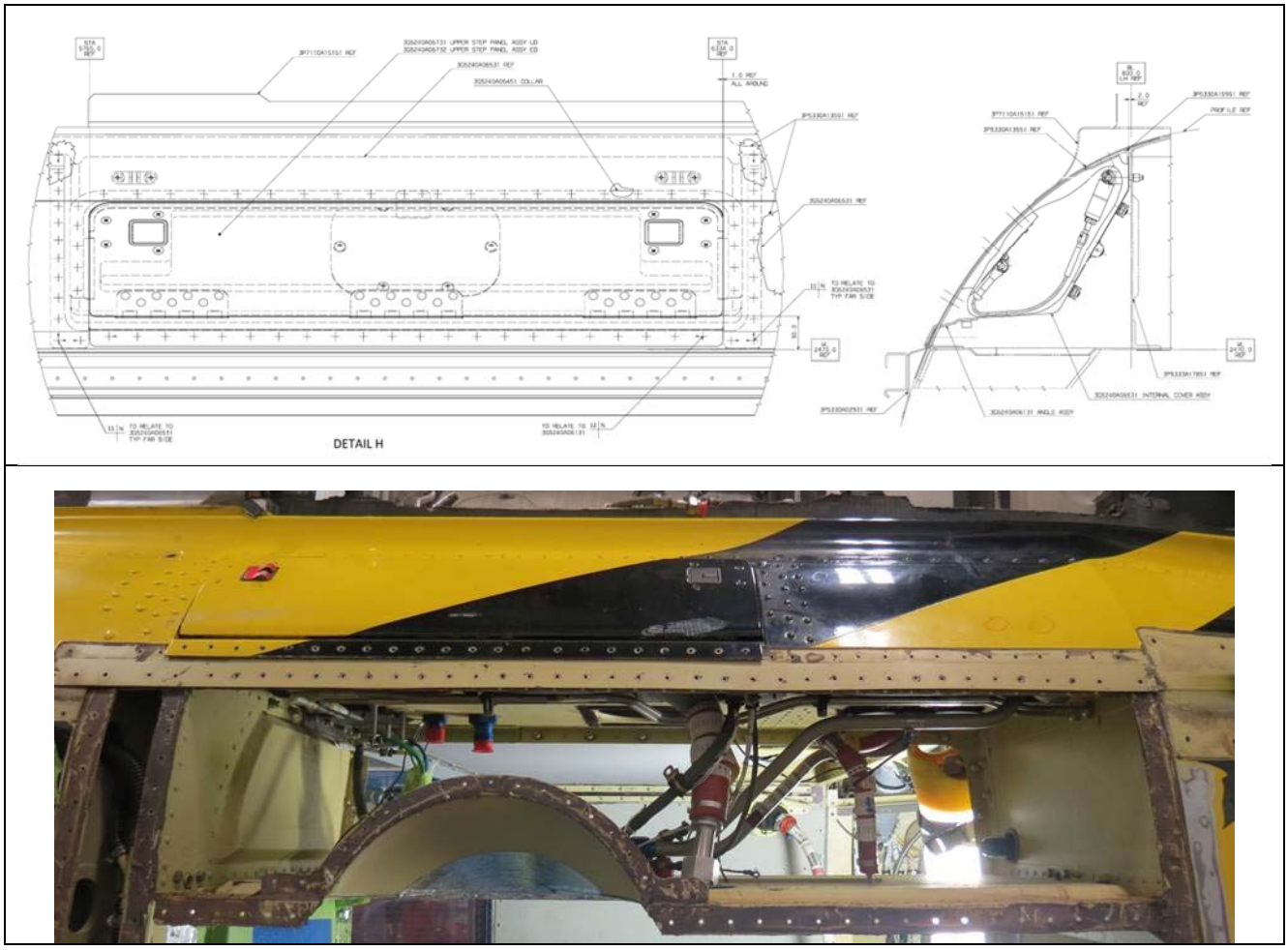


Figure 10 – Detail H

(See Figure 16 for Rivet Code)

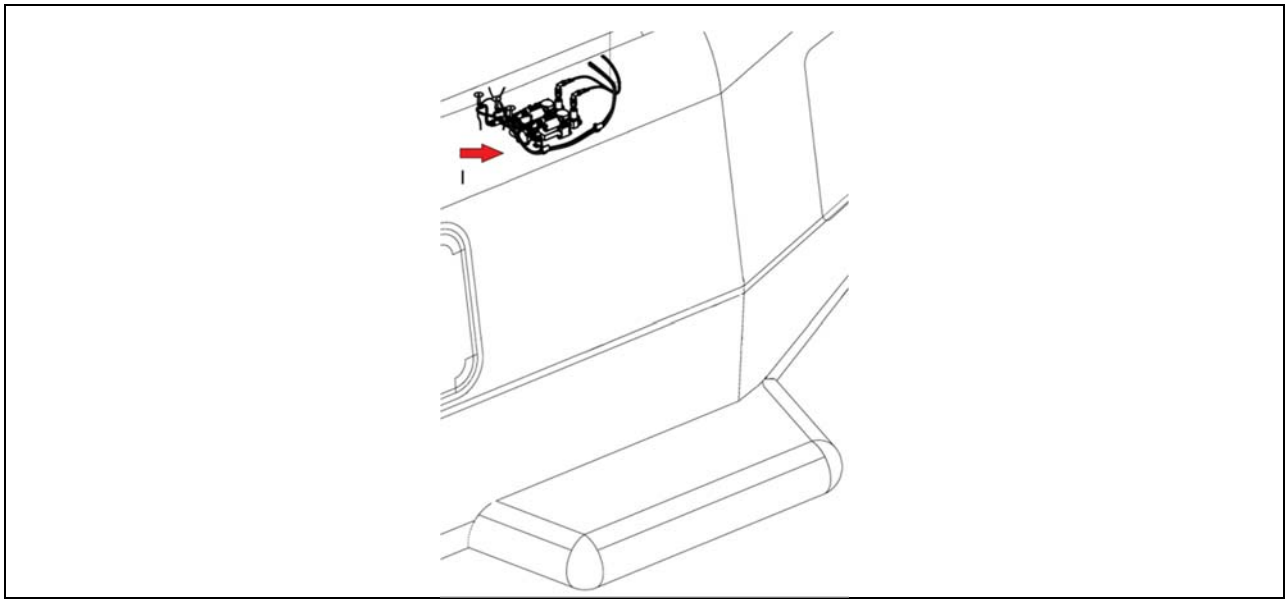


Figure 11 – Clippings Main View

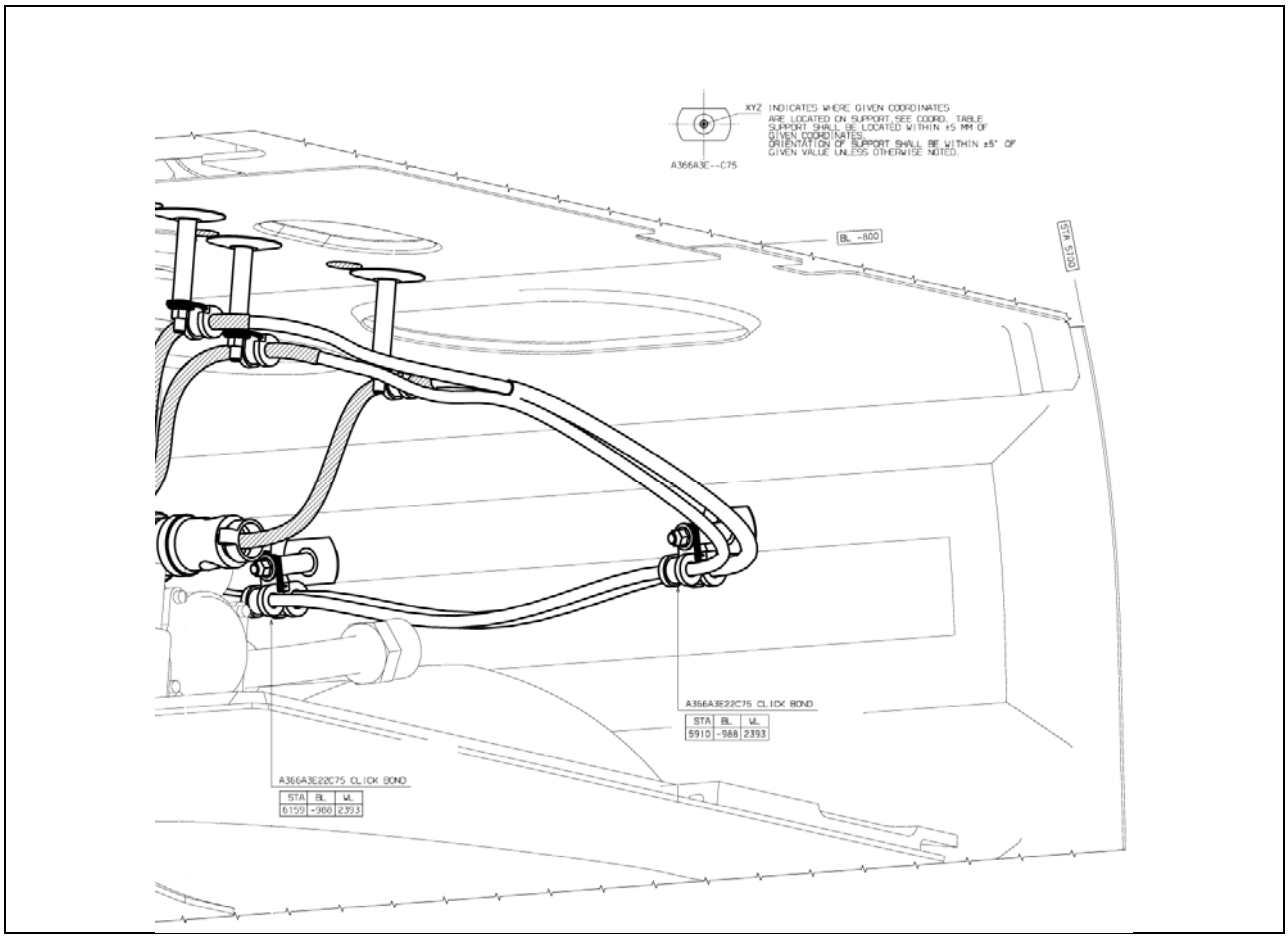
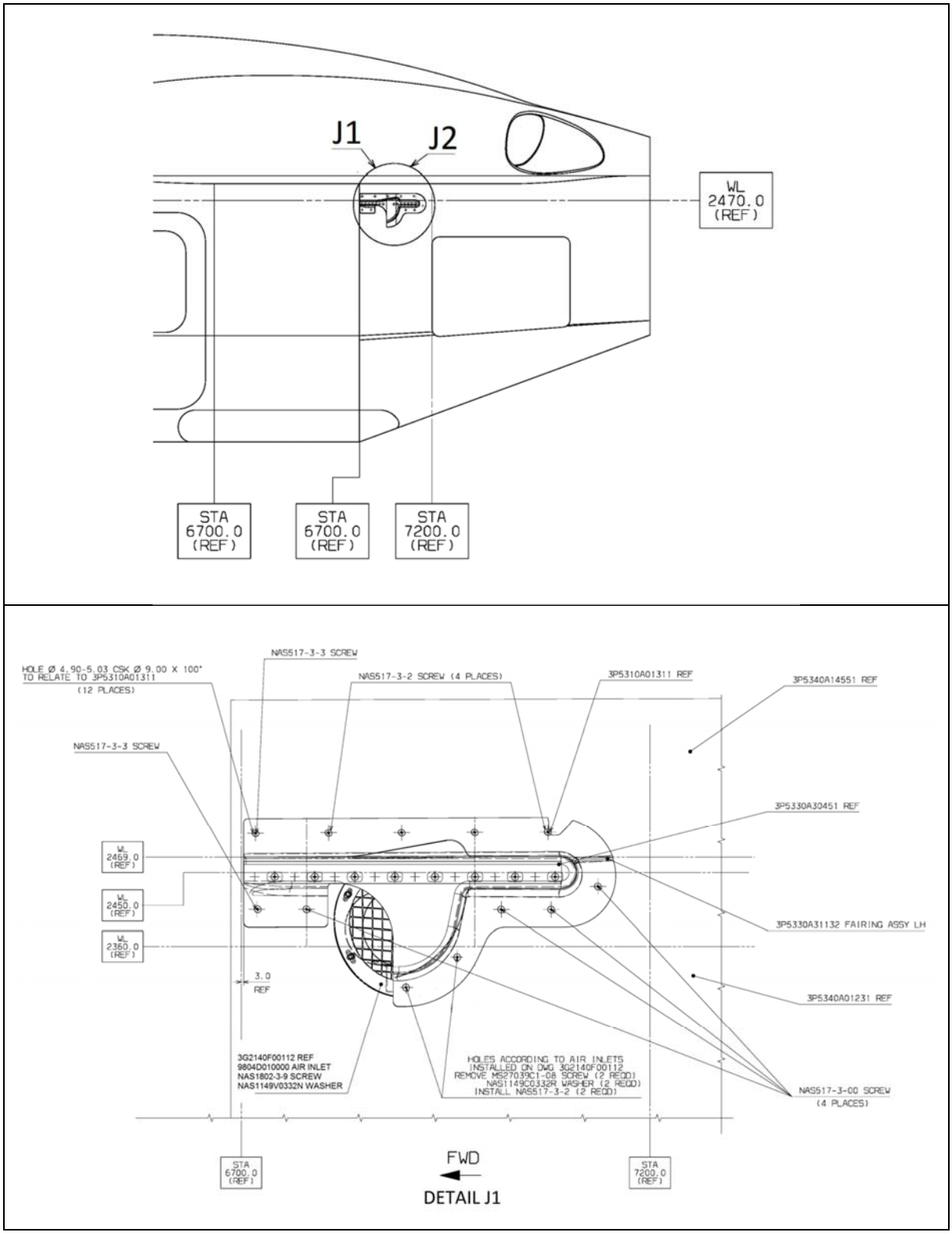


Figure 12 – Detail I


J1
J2
WL 2470.0 (REF)
STA 6700.0 (REF)
STA 6700.0 (REF)
STA 7200.0 (REF)
HOLE Ø 4.90-5.03 CSK Ø 9.00 X 100° TO RELATE TO 3P5310A01311 (12 PLACES)
NAS517-3-3 SCREW
NAS517-3-2 SCREW (4 PLACES)
3P5310A01311 REF
3P5340A14551 REF
NAS517-3-3 SCREW
3P5330A30451 REF
WL 2459.0 (REF)
WL 2450.0 (REF)
WL 2360.0 (REF)
3.0 REF
3P5330A31132 FAIRING ASSY LH
3P5340A01231 REF
3G2140F00112 REF
9804D010000 AIR INLET
NAS1802-3-9 SCREW
NAS1149V0332N WASHER
HOLES ACCORDING TO AIR INLETS INSTALLED ON DWG 3G2140F00112
REMOVE MS27039C1-08 SCREW (2 REQD)
NAS1149C0332R WASHER (2 REQD)
INSTALL NAS517-3-2 (2 REQD)
NAS517-3-00 SCREW (4 PLACES)
STA 6700.0 (REF)
FWD
STA 7200.0 (REF)
DETAIL J1

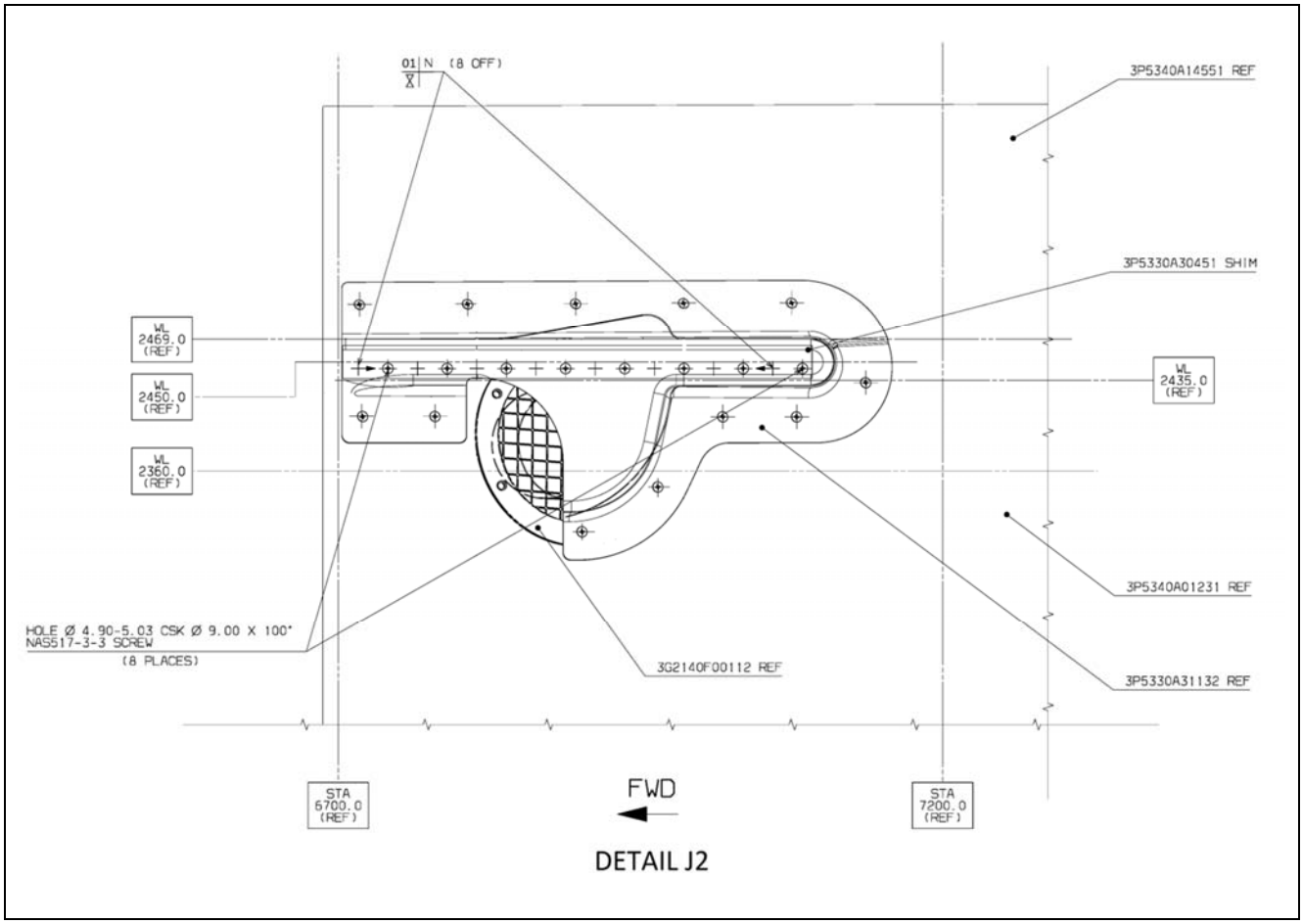


Figure 13 – Detail J

(See Figure 16 for Rivet Code)

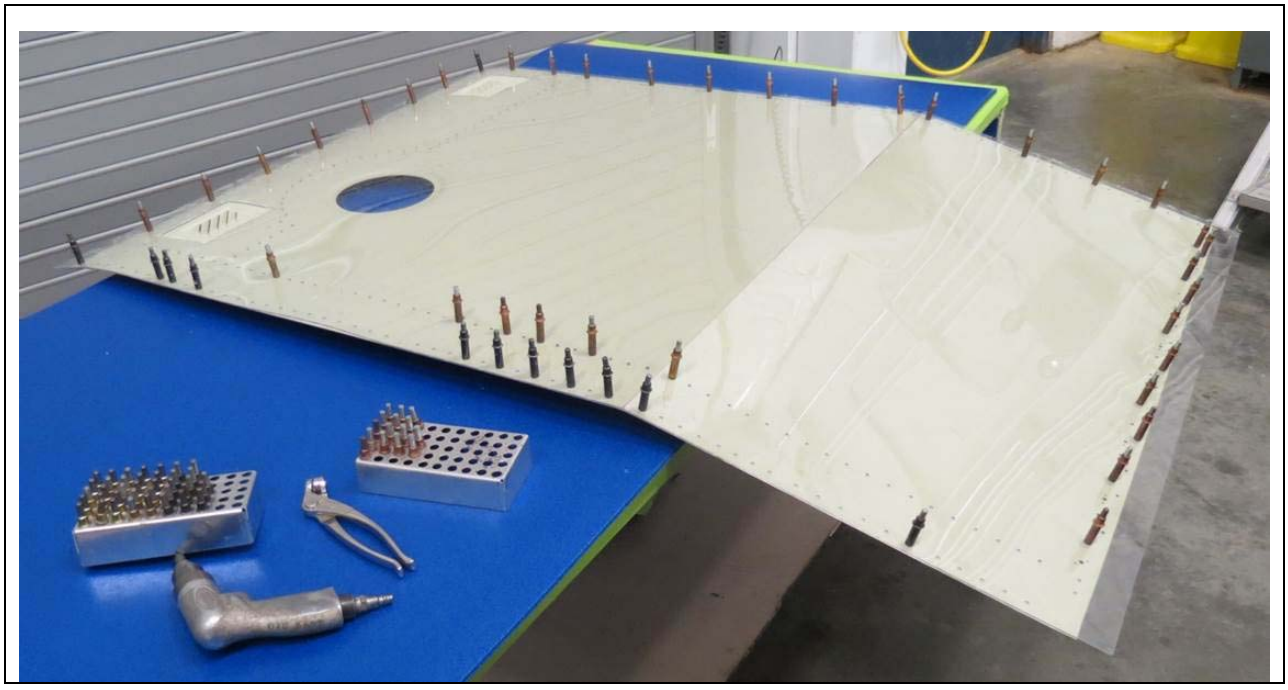


Figure 14 – Plexi-Glass Template

Figure 15 – Left Panel Assembly Installed

RIVET CODE IN ACCORDANCE WITH NTA018R

REF. NUMBER | ORIENTATION

COUNTERSINK | BLANK

NOTE:
EDGE DISTANCE FROM CENTRELINE EXCEPT WHERE INDICATED OTHERWISE

NON-COMPOSITE
UNIVERSAL HEAD 2 TIMES SHANK DIA.
COUNTERSINK HEAD 2,5 TIMES SHANK DIA.

COMPOSITE
UNIVERSAL HEAD 2,5 TIMES SHANK DIA.
COUNTERSINK HEAD 3 TIMES SHANK DIA.

REF. No	RIVET PART NUMBER	REF. No	RIVET PART NUMBER
01	MS20426 AD3-2	26	NAS1097AD5-5
02	MS20426 AD3-5	27	M7885/2-4-02
03	MS20426 AD4-5	28	M7885/2-5-03
04	MS20426 AD4-6	29	M7885/2-5-05
05	MS20426 AD4-7	30	M7885/3-4-02
06	MS20426 AD4-8	31	M7885/3-4-03
07	MS20426 AD4-5-5	32	M7885/3-5-03
08	MS20426 AD5-7	33	M7885/3-5-04
09	MS20426 AD5-8	34	M7885/3-5-05
10	MS20426 AD5-9	35	M7885/3-5-06
11	A297A04TW02	36	
12	A297A04TW03	37	
13	MS20470 AD4-4	38	
14	MS20470 AD4-6	39	
15	MS20470 AD4-8	40	
16	MS20470 AD4-5-5	41	
17	AGS4720-407	42	
18	AGS4720-409	43	
19	AGS4720-411	44	
20	AGS4719-407	45	
21	AGS4719-409	46	
22	AS46791-407	47	
23	AS46791-409	48	
24	AS46791-411	49	
25	AS46789-514	50	

Figure 16 - Rivet Codes

ANNEX A

ELECTRICAL BONDING CHECK

ELECTRICAL BONDING CHECK:

Perform the electrical bonding check of the refurbished area of the rear fuselage structure in accordance with the following procedure:

1. TEST EQUIPMENT:
   1.1. The test meter will be calibrated Bond Tester (Support Equip. 4) or equivalent.
   1.2. The test meter shall have the following probes:
   - Duplex probes with rounded contacts points (0.8 mm minimum radius – recommended)
   - Single probes with rounded contact points (0.8 mm minimum radius) if the use of duplex probes is not possible due to accessibility issues.

NOTE: Sharp probes must not be used to avoid damages to the structure surface.

NOTE: During measurements, the structure under test shall be housed in a non-conductive fixture or laid down on non-conductive supports.

2. CHECK PROCEDURE:

   2.1. The electrical bonding for the Left Panel Assembly (Spares Ref. 1) requires that low resistance paths be verified at a few key locations of the airframe.

   - Measurements between the designated test points.
   - Comparison between the measured resistance and the acceptable resistance limit.
   - If measured resistance exceed the limit of the Step 3 that follows, corrective actions shall be implemented and measurements shall be repeated.
   - Acceptable values shall be reported in the appropriate table that follows.

3. ACCEPTABLE CRITERIA:

   3.1. Maximum resistance value allowed for the primary structure is 2.5 mΩ.

4. UPPER DECK PANEL BONDING MEASUREMENT:

   For Left Panel Assembly (Spares Ref. 1) electrical resistance paths shall be measured between the following test points:

   4.1. Between the Left Panel Assembly (Spares Ref. 1) bonding strip and the starter generator Ground Brackets. (Identified as GS3 and GS4 for short nose A/C and GS300 and GS301 for Long Nose A/C) (Refer to Figure xx for details).

   4.2. Between the Left Panel Assembly (Spares Ref. 1) bonding strip and the forward frame at STA 5700, P/N 3P5338A00333 and aft frame at STA 6700, P/N 3P5338A01331 (Refer to Figure xx for details).

5. TEST RESULT SUMMARY:

5.1. The four electrical bonding measurements shall be reported in the following table:

Left panel

TEST POINT	MEASUREMENT (mΩ)	OPERATOR	DATE
#1			
#2			
#3			
#4			

Right panel

TEST POINT	MEASUREMENT (mΩ)	OPERATOR	DATE
#1			
#2			
#3			
#4			