Temporary Maintenance Instruction

TMI 139-422 Rev B

Rear Fuselage RH Lower Fitting at STA 8700 P/N 3P5340A14053 – Replacement Procedure

AW139 Helicopters S/Ns: 31209, 31312, 41254, 41292

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: ***August 15th, 2021.***

2020-08-15

Introduction

This TMI provides the instructions and requirements for the replacement of AW139 Rear Fuselage RH Lower Fitting at STA 8700, P/N: 3P5340A14053.

Rear Fuselage RH Lower Fitting at STA 8700 P/N 3P5340A14053– Replacement Procedure

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Table 1 References

Data Module	Title
39-A-00-20-00-00A-120A-A	Helicopter safety - Pre-operation (make helicopter safe for maintenance)
39-A-53-40-00-00A-520A-A	Tail section (structure) - Remove procedure
39-A-53-40-00-00A-520B-A	Tail section (system components installed) - Remove procedure
39-A-53-40-00-00A-720B-A	Tail section (system components installed) - Install procedure
39-A-53-40-00-00A-720A-A	Tail section (structure) - Install procedure
39-A-71-11-03-00A-520A-A	Top forward cowl - Remove procedure
39-A-71-11-03-00A-720A-A	Top forward cowl - Install procedure
39-A-71-11-04-00A-520A-A	Top aft cowl - Remove procedure
39-A-71-11-04-00A-720A-A	Top aft cowl - Install procedure
39-A-71-11-05-00A-520A-A	Left aft cowl - Remove procedure
39-A-71-11-05-00A-720A-A	Left aft cowl - Install procedure
39-A-71-11-06-00A-520A-A	Right aft cowl - Remove procedure
39-A-71-11-06-00A-720A-A	Right aft cowl - Install procedure
39-A-52-44-02-00A-520A-A	Baggage compartment access panels - Remove procedure
39-A-52-44-02-00A-720A-A	Baggage compartment access panels - Install procedure
39-A-25-83-06-00A-520A-A	Right lining panel - Remove procedure
39-A-25-83-06-00A-720A-A	Right lining panel - Install procedure

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
Helicopter safety - Pre-operation (make helicopter safe for maintenance)	39-A-00-20-00-00A-120A-A

Support equipment

Table 5 Support Equipment

Nomenclature	Identification No.	Qty.
1. Positioning and Drilling Tool Kit	3G5350A00133A005A	1

Supplies

Table 6 Supplies

Nomenclature	Identification No.	Qty.
1. Adhesive EA9309.3NA	C021	AR
2. Adhesive MIL-S-81733 Ty. 2 Cl. B2, PR1436G	500215763	AR
3. Sealing Compound MIL-S-81733 Ty. 1 Cl. 2	900004549	AR
4. Aliphatic Naphtha	C059	AR

Spares

Table 7 Support Equipment		
Nomenclature	Identification No.	Qty
1. Lower Right Bracket	3P5340A14053*	1
2. Hi-Lok Pin	HL20RB-6-5	6
3. Hi-Lok Pin	HL20PB-6-5 (as alternate)	6
4. Hi-Lok Pin	HL19PB-6-5	6
5. Hi-Lok Pin	HL19PB-6-4	2
6. Hi-Lok Collar	HL86PB-6	14

***** 3P5340A14053A (comes with pilot holes for installation) or 3P5340A14053B (without pilot holes) could be used as alternate. The main hole for tailboom attachment is undersized.

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:

- Adhesive (Supply Ref. 1**)**
- Adhesive (Supply Ref. 2**)**
- Sealing Compound (Supply Ref. 3**)**
- Aliphatic Naphtha (Supply Ref. 4**)**

Procedure

NOTES;

a. *Exercise extreme care during drilling operations to prevent damage to adjacent structures, instruments, components, cables, and hoses.*
b. *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.*
c. *Before installing new Hi-Loks check the holes condition; if the holes condition is not suitable it is necessary to use oversized Hi-Loks.*

d. Perform an integrity check of all items removed. If deemed necessary, discard the item and replace with new item.

e. Use Aliphatic Naphtha (Supply Ref. 4) to clean and degrease surfaces. All cleaned surfaces must air dry for at least 30 minutes.

f. All lengths and dimensions are in millimetres (mm).

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-A-71-11-03-00A-520A-A, remove the Top Forward Cowling.
3. In accordance with AMP DM 39-A-71-11-04-00A-520A-A, remove the Top Aft Cowling.
4. In accordance with AMP DM 39-A-71-11-05-00A-520A-A, remove the LH Aft Cowling.
5. In accordance with AMP DM 39-A-71-11-06-00A-520A-A, remove the RH Aft Cowling.
6. In accordance with AMP DM 39-A-53-40-00-00A-520A-A (Structure) or 39-A-53-40-00-00A-520B-A (Dressed), remove the Tail Assy from the Rear Fuselage and place it on a suitable cradle.
7. With reference to Figure 5, and in accordance with aircraft configuration, remove the Framing, P/N: 3P7110A18351.
8. In accordance with AMP DM 39-A-25-83-06-00A-520A-A, remove the Right Lining Panel.
9. In accordance with AMP DM 39-A-52-44-02-00A-520A-A, remove the Baggage Compartment Access Panel.
10. Install the positioning and drilling tool kit P/N: 3G5350A00133A005A on the frame at STA 8700, centering the plate in points 1-2-3-4-6 (See Figure 1) and lock it using the spindles PART 14. In order to guarantee the beat on the boss, install the no spot faced shims/washers PART 20 (insert as shown in Figure 3), between the positioning and drilling tool kit P/N: 3G5350A00133A005A, Support Equip Ref.1, plate and the rear fuselage.
11. With a depth micrometer, take the distance to the Lower Right Bracket P/N: 3P5340A14053 rear surface and the drilling tool kit P/N: 3G5350A00133A005A, refer to Figure 2; the tool shown in Figure 2 is not the correct tool to be used. Take and record measurements at the 12-3-6-9 o'clock positions. The measurements have to be stored.
12. Remove the Lower Right Bracket P/N: 3P5340A14053, refer to Figures 7-9.
13. Clean the affected area and parts from remaining sealant and adhesive.

NOTES;

a. If necessary, working on bench, ream the fitting hole to initial diameter of 11.0 mm.

b. Insert between bracket P/N: 3P5340A14053 and plate P/N: 3G5350A00133A005A the shim PART 18 (insert as shown in Figure 3).

14. Connect the new Lower Right Bracket P/N: 3P5340A14053 to the drilling tool kit 3G5350A00133A005A, fix it with the spindle PART 21 and special bushing PART 23 (see Figure 4) to ensure orthogonal displacement.

15. Countermark installation holes on new Lower Right Bracket P/N: 3P5340A14053.

NOTES;

a. *For the cold working activity the standard tool 4-3-N (chart IV in BT139-015, Appendix A) shall be available.*
b. *Apply sealing compound MIL-PRF-81733 mixture of TY 1 and TY II on rivet shank (50% 50%)*
c. *Before rivet installation in places where fasteners were just removed, check holes diameter and, if necessary, install oversized rivets.*

16. Working on the bench, rework aluminium alloy bracket P/N: 3P5340A14053 with the cold working process, following the standard procedure reported in BT139-015, Appendix A. Final hole's diameter shall be 4.775/4.788 mm.

17. Fix new bracket P/N: 3P5340A14053 to the helicopter's structure according to Figures 7-9. Bond the part with Adhesive (Supply Ref. 1).

18. Install Hi-Lok fasteners as indicated in Figure 7-9.

19. Verify that the measurement taken in Step 12, between the Lower Right Bracket P/N: 3P5340A14053 rear surface and the drilling tool kit P/N: 3G5350A00133A005A, is respected. If necessary, level off and deburr the boss on the Middle Left Bracket P/N: 3P5340A14053.

NOTE;

Maximum tolerance allowable is 0.1mm on the face of the boss, with respect to the measurements taken prior to bracket removal.

20. Through the plate of the positioning and drilling tool kit P/N: 3G5350A00133A005A, ream the new Lower Right Bracket P/N: 3P5340A14053 hole to 11.80 mm in diameter using the reamer and the special bushing PART 13.

21. Ream the fitting hole to 12.3-12.6 mm in diameter using reamer and the special bushing PART 13.

22. Perform reaming of the fitting hole to its final diameter of 12.72 (+0/+0.030) mm, use the bushing PART 13.

23. Remove the positioning and drilling tool kit P/N: 3G5350A00133A005A from the frame at STA 8700.

24. With reference to Figure 5, install Framing P/N: 3P7110A18351 by means of the indicated hardware and rivets; refer to Figure 6, or, depending on configuration, by means of existing hardware.

25. In accordance with AMP DM 39-A-53-40-00-00A-720B-A (Dressed) or 39-A-53-40-00-00A-720A-A (Structure), as applicable, install the tailboom.

26. In accordance with AMP DM 39-A-71-11-05-00A-720A-A, install the LH Aft Cowling.

27. In accordance with AMP DM 39-A-71-11-06-00A-720A-A, install the RH Aft Cowling.

28. In accordance with AMP DM 39-A-71-11-04-00A-720A-A, install the Top Aft Cowling.
29. In accordance with AMP DM 39-A-71-11-03-00A-720A-A, install the Top Forward Cowling.
30. In accordance with AMP DM 39-A-52-44-02-00A-720A-A, install the Baggage Compartment Access Panel.
31. In accordance with AMP DM 39-A-25-83-06-00A-720A-A, install the Right Lining Panel.

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.

FIGURES

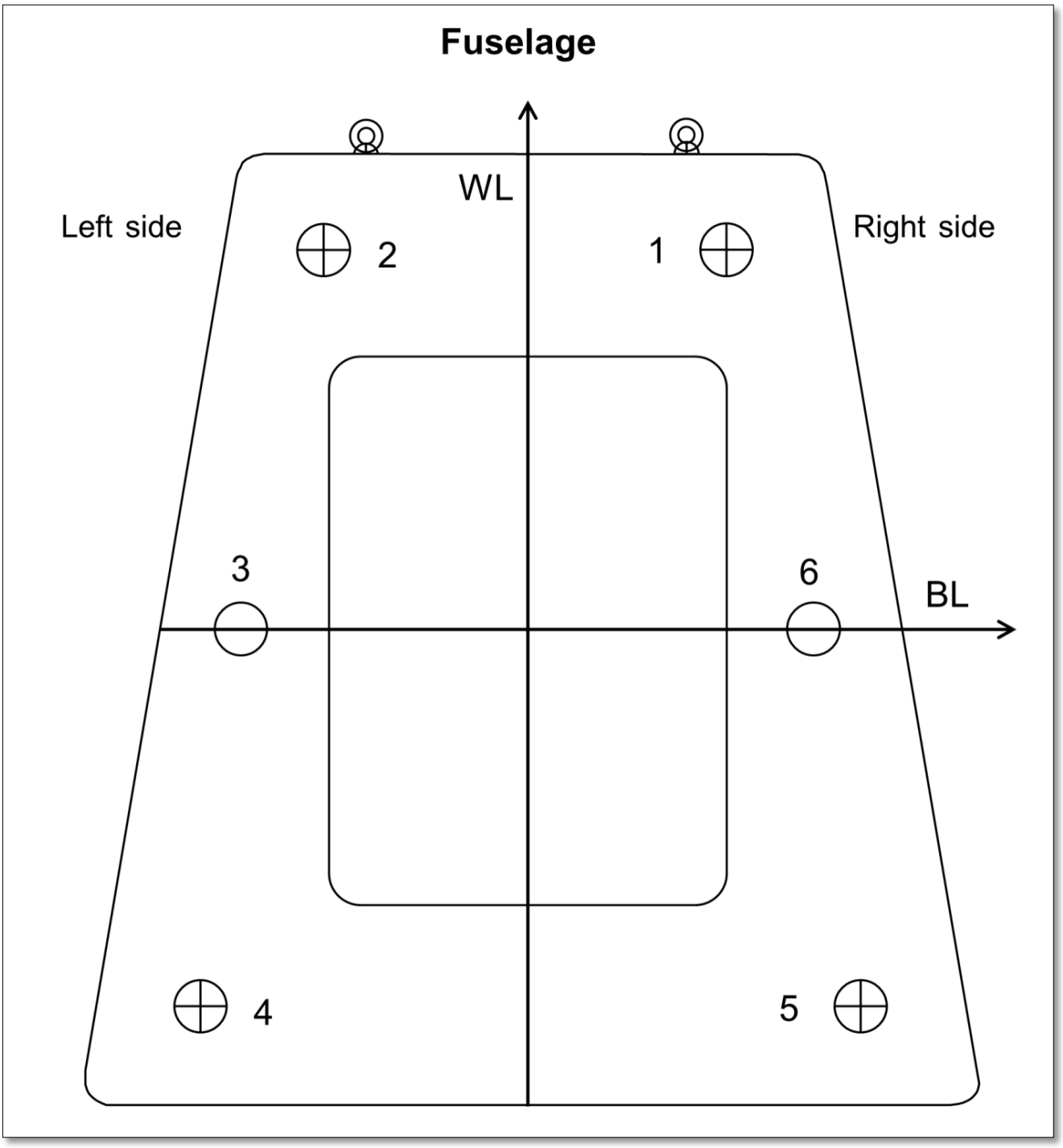

Figure 1 – Positioning and Drilling Tool Kit P/N: 3G5350A00133A005A

Figure 2 – Measuring Distance

Figure 3 – Installing the No Spot Faced Shims and Washers

Figure 4 – Connecting the New Lower Right Bracket

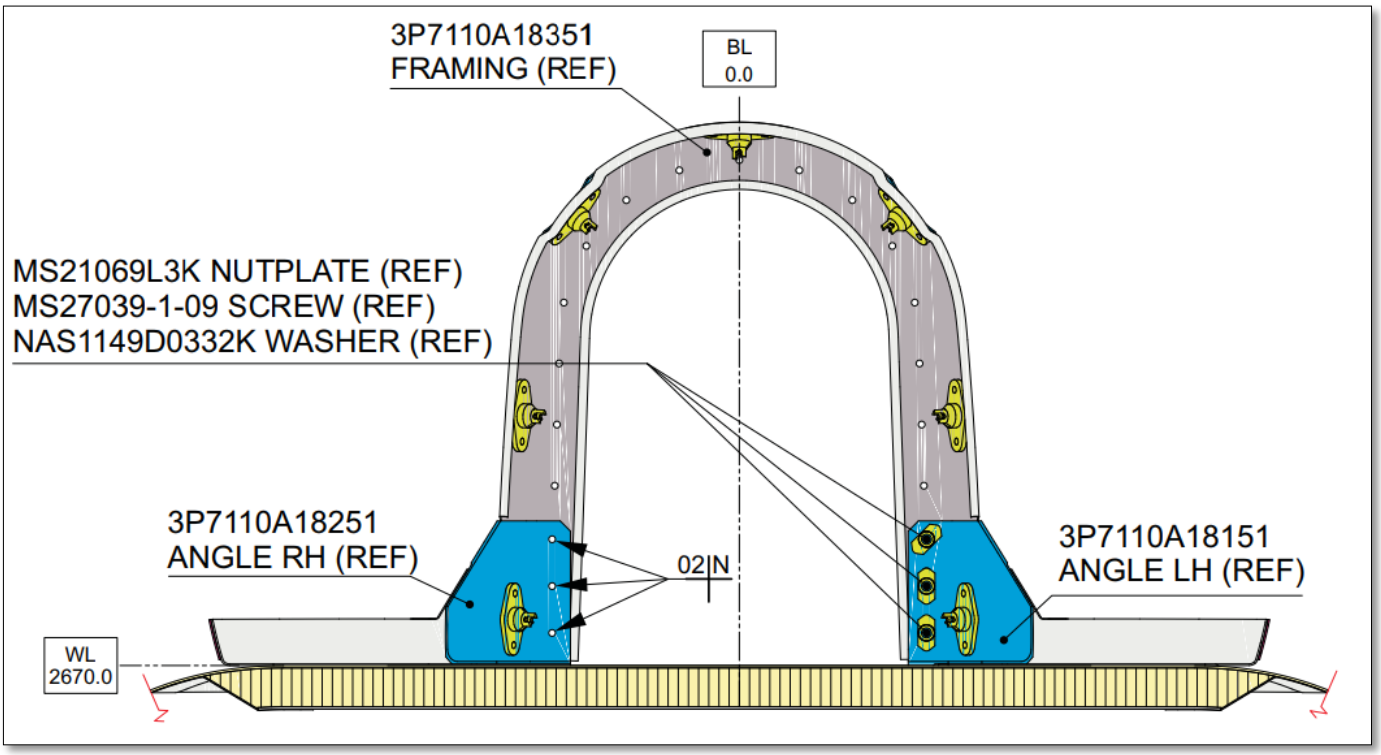

Figure 5 – Removing the Framing P/N: 3P7110A18351

RIVET CODE IN ACCORDANCE WITH NTA018R
CODICE RIVETTO SECONDO NTA018R

REF. NUMBER/ NUMERO DI RIFERIMENTO | ORIENTATION/ ORIENTAMENTO

COUNTERSINK/ TIPO DI SVASATURA | BLANK/ LASCIARE LIBERO

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.

NOTA:
DISTANZA DEL BORDO DALL'ASSE ECCETTO COME INDICATO

NON-COMPOSITO
TESTA UNIVERSALE 2 VOLTE IL DIAMETRO DEL GAMBO.
TESTA SVASATA 2.5 VOLTE IL DIAMETRO DEL GAMBO.

COMPOSITO
TESTA UNIVERSALE 2.5 VOLTE IL DIAMETRO DEL GAMBO.
TESTA SVASATA 3 VOLTE IL DIAMETRO DEL GAMBO.

REF No/ No RIF	RIVET PART NUMBER/ NUMERO PEZZO RIVETTO	REF No/ No RIF	RIVET PART NUMBER/ NUMERO PEZZO RIVETTO	REF No/ No RIF	RIVET PART NUMBER/ NUMERO PEZZO RIVETTO
01	MS20426AD4	10	MS20470AD5	19	A297A05TW04
02	MS20470AD4	11	NAS9301BNS-4-02		
03	AS46789-405	12	NAS9301BNS-4-03		
04	AS46789-407	13	A298A04TW02		
05	AS46789-409	14	NAS9302BNS-4-04		
06	MS20427M3-4	15	A297A04TW03		
07	M7885/3-4-02	16	A298A04TW03		
08	A298A05TW03	17	A298A04TW04		
09	AGS4720-407	18	NAS1399C3-2		

Figure 6 – Rivet Codes

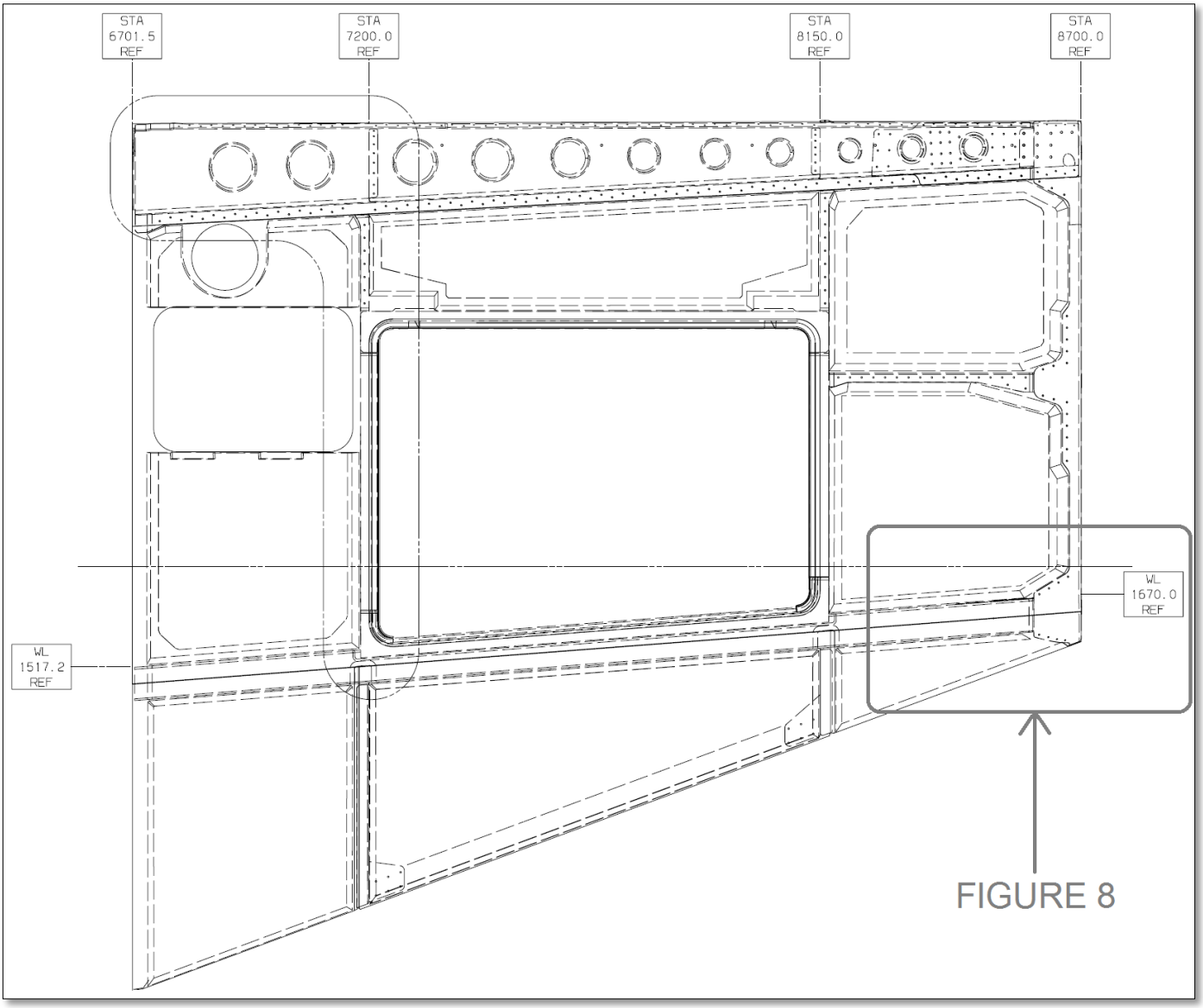

Figure 7 – Rear Fuselage Assembly

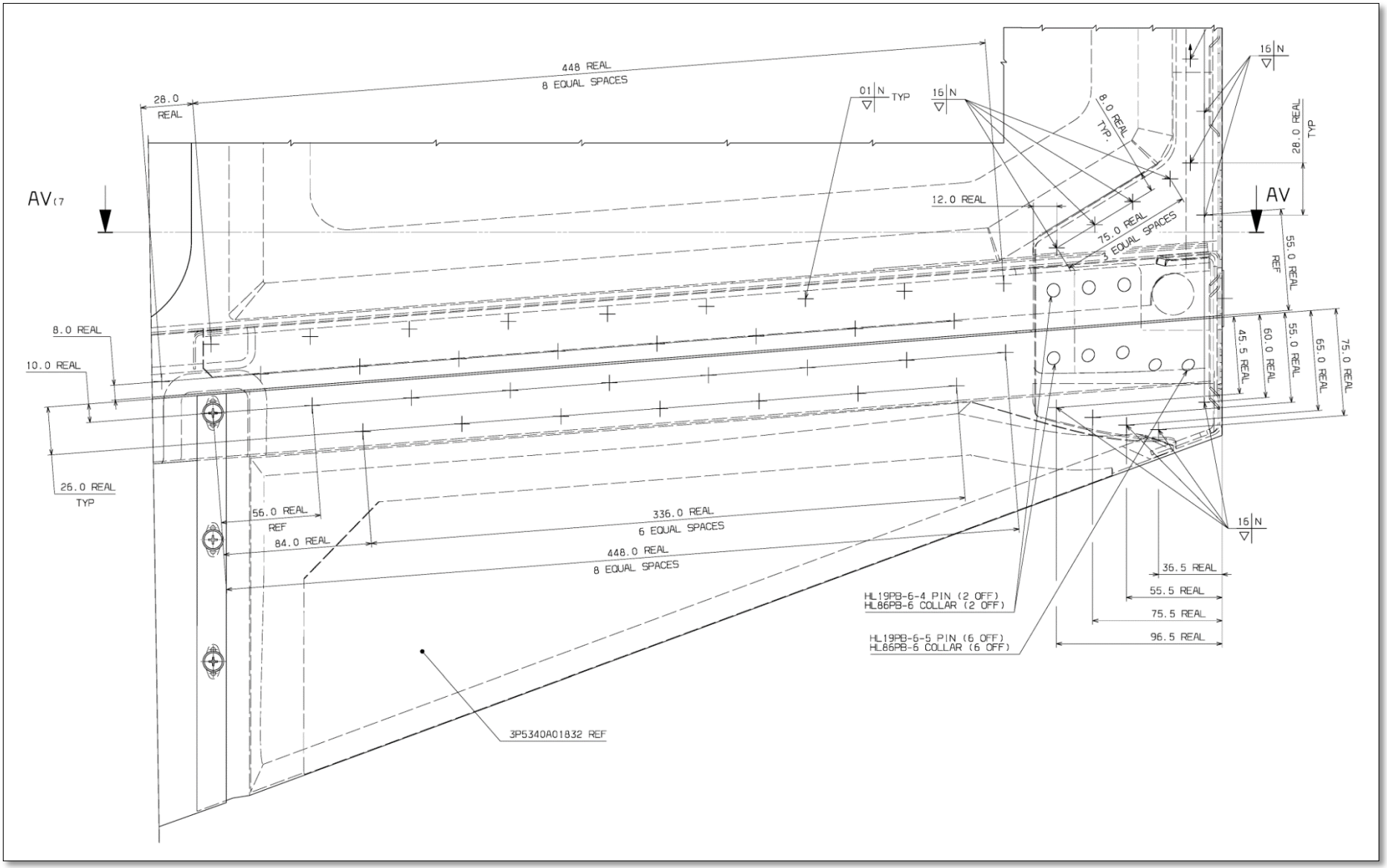

Figure 8 – Rear Fuselage Assembly Detail

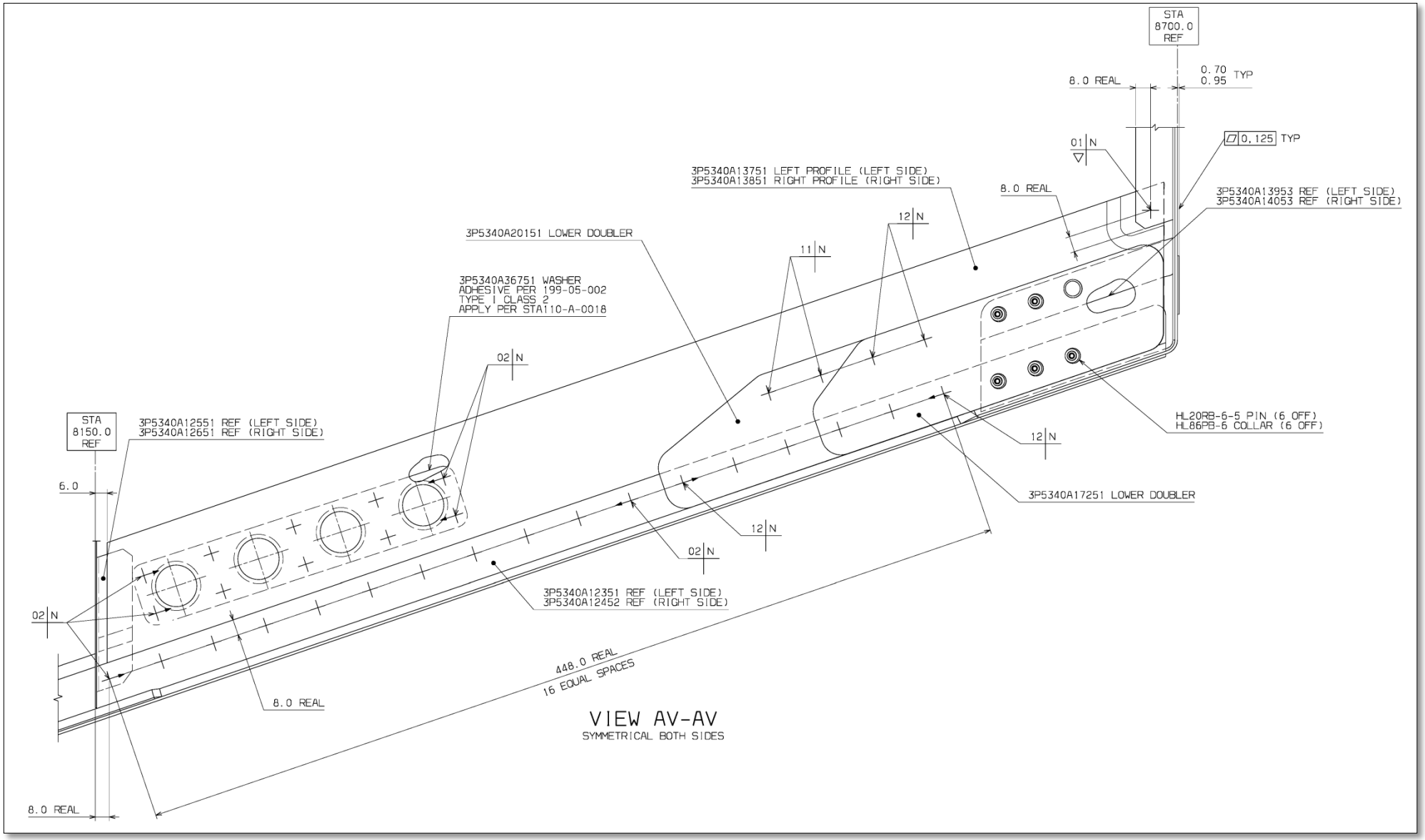

Figure 9 – Rear Fuselage Assembly Detail