Temporary Maintenance Instruction
TMI 139-475 (Rev.E)

Engine LH/RH Reinforcement
P/N 3P5333A15352 / 3P5333A15452
Replacement Procedure

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: *April 7th 2023.*

2022-04-07

Introduction

This TMI provides the instructions and requirements to replace the AW139 Engine LH/RH reinforcement P/N 3P5333A15352 / 3P5333A15452.

Rev E of this TMI is published in order to extend its applicability to all AW139 and introduces the new spare part ENGINE R/H REINFORCEMENT P/N 3P5333A15452M02 and ENGINE L/H REINFORCEMENT P/N 3P5333A15352M02.

Engine LH/RH Reinforcement P/N 3P5333A15352 / 3P5333A15452 Replacement Procedure

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References

Table 1 References

Data Module	Title
1 - 39-A-00-20-00-00A-120A-A	Helicopter safety - Make the helicopter safe for maintenance
2 - 39-A-62-11-01-00A-520A-A	Main rotor blade - Remove procedure
3 - 39-A-62-22-00-00A-520A-A	Main rotor head - Remove procedure
4 - 39-A-63-20-00-00A-520A-A	Main gearbox group - Remove procedure
5 - 39-A-71-02-01-00A-520A-A	Number 1 engine - Remove procedure
6 - 39-A-71-02-02-00A-520A-A	Number 2 engine - Remove procedure
7 - 39-A-71-22-01-00A-520A-A	Number 1 engine bracket - Remove procedure
8 - 39-A-71-22-03-00A-520A-A	Number 2 engine bracket - Remove procedure
9 - 39-A-53-40-00-00A-520A-A	Tail section (structure) - Remove procedure
10 - 39-A-20-40-01-00A-66AA-A	Tubes – Repair procedure
11 - 39-A-53-40-00-00A-720A-A	Tail section (structure) - Install procedure
12 - 39-A-71-22-03-00A-720A-A	Number 2 engine bracket - Install procedure
13 - 39-A-71-22-01-00A-720A-A	Number 1 engine bracket - Install procedure
14 - 39-A-71-02-02-00A-720A-A	Number 2 engine - Install procedure
15 - 39-A-71-02-01-00A-720A-A	Number 1 engine - Install procedure
16 - 39-A-63-20-00-00A-720A-A	Main gearbox group - Install procedure
17 - 39-A-62-22-00-00A-720A-A	Main rotor head - Install procedure
18 - 39-A-62-11-01-00A-720A-A	Main rotor blade - Install procedure

Preliminary Requirements

Required conditions

Table 3 Required conditions

Conditions	Data
1 - The helicopter must be safe for maintenance	39-A-00-20-00-00A-120A-A
2 - The main rotor blades must be removed	39-A-62-11-01-00A-520A-A
3 - The main rotor head must be removed	39-A-62-22-00-00A-520A-A
4 - The main gear box group must be removed	39-A-63-20-00-00A-520A-A
5 - The number 1 engine must be removed	39-A-71-02-01-00A-520A-A
6 - The number 2 engine must be removed	39-A-71-02-02-00A-520A-A
7 - The number 1 engine outboard bracket must be removed	39-A-71-22-01-00A-520A-A

8 - The number 2 engine outboard bracket must be removed	39-A-71-22-03-00A-520A-A
9 - The tail section (structure) must be removed	39-A-53-40-00-00A-520A-A

Support equipment

Table 3 Support Equipment

Nomenclature	Identification No.	Qty
1 - Scope assy holder engine mock-up	P/N 3G6310H00111A651A	1
2 - Engine optical sight adapter	P/N 3G6310H00111A651A	1
3 - Alignment telescope outside dia 57.14	P/N TEC06-147	1
4 - Intermediate target dia 57.14	P/N TEC 06-148	1
5 - Data processing software: AW139_MGB_ENG_INSTL_V.10	T1396300S1A686A	1
6 - Crosshead/Trm special bolt	4G6310H00851A651A (1)	1
7 - Positioning tool	Local supply	1

Note (1): To be used with accessory drive kit 4G6320F00211

Supplies

Table 4 Supplies

Nomenclature	Identification No.	Qty
1 - RIVET	MS20615-4M4	AR
2 - RIVET	MS20615-5M5R	AR
3 - RIVET	MS20615-5M7R	AR
4 - RIVET	MS20470-AD5-8	AR
5 - RIVET	MS20470-AD5-9-5	AR
6 - RIVET	MS20470-AD5-10	AR
7 - RIVET	MS20470-AD4-6	AR
8 - RIVET	MS20470-AD5-9	AR
9 - RIVET	MS20615-4M3	AR
10 - RIVET	MS20615-4M3R	AR
11 - RIVET	MS20615-4M4R	AR
12 - RIVET	MS20615-4M5R	AR
13 - RIVET	MS20427M4-4	AR
14 - SEALANT	MC 780 Type I, Class C (C465)	AR
15 - SEALANT	Proseal 700 Type I (C032)	AR
16 - SEALANT	CS-1900 Type I (C032)	AR
17 – Solvent	Aliphatic naphtha (C059)	AR

Note: For hardware related to repair, check the relevant applicable repair document.

Spares

Table 5 Spares

Nomenclature	Identification No.	Qty
1 - Engine left reinforcement	P/N 3P5333A15352	1
2 - Engine right reinforcement	P/N 3P5333A15452	1

Note: Engine reinforcement productive P/N 3P5333A15352M01 / 3P5333A15452M01 or 3P5333A15352M02 / 3P5333A15452M02 can be provided as alternative to the technical P/N 3P53333A15352 / 3P53333A15452.

Safety conditions

WARNINGS

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:

- **Solvent (Supplies Ref. 17)**
- **Sealant (Supplies Ref. 14, Supplies Ref. 15, Supplies Ref. 16).**

Procedure

NOTES:

A. Place an identification tag on all the re-usable components, 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. Shape the cables in order to prevent interference with the structure and the other existing installations, using where necessary suitable lacing cords.

C. During drilling operations pay extreme attention in order to prevent instruments, cables and hosing damage. After drilling, clean the area and remove sharp edges. Apply on bare metal a light film of primer unless the hole is used for ground connection.

D. Before installing new rivets check for holes condition; if holes condition is not suitable use oversize rivets. If necessary install rivets with different grips.

E. Perform cold working on Aluminium Alloy structure holes for fasteners type "Hi-Lok".

F. All riveting and de-riveting in accordance with the IETP ASRP.

G. All Hi-Lok fasteners installed and removed in accordance with IETP ASRP.

H. Use aliphatic naphtha to degrease. Cleaned surfaces shall be allowed to air dry for at least 30 minutes before bonding.

I. Let adhesive cure at room temperature for at least 24 hours unless otherwise specified.

J. All dimensions are in mm.

K. During the application of the subsequent procedure, in order to receive additional information to get access to the work area, if needed, contact the Manufacturer.

Note:
The steps below are referred to the right side

1. Get access to the area.
2. Remove part of the firewall located at STA 6460 by de-riveting (ref. Figure 6).
3. Remove thermal blanket and fire wire loom as required.
4. Remove the hardware that connects the engine support to the structure.
5. With reference to Figure 1, cut upper deck skin, water deflector and outboard curved skin according to repair schemes in Appendix B.
6. Remove nuts connecting drain forward and rearward scuppers with skin.
7. Remove rivets connecting upper deck skin and outboard curved skin to the structure in order to have access to the engine reinforcement support.
8. With reference to Figure 2, cut drain line 65mm aft of rear scupper tune and tee section and remove.
9. With reference to Figure 3, remove rivets as required to loosen structure and mount.
10. With reference to Figure 4, remove bracket holding the drain line.
11. With reference to Figure 5, remove triangular gusset frame (it is possible to maintain the lateral L-profile attached) underneath outboard curved skin by de-riveting. Figure 6 and Figure 8 show disassembled and removed parts.
12. With reference to Figure 9, remove profile running afterwards at BL 675.
13. With reference to Figure 7, manufacture a Positioning tool (Ref. Support Equipment 7) to copy the original position of the mount within the airframe.
14. Remove the right engine reinforcement.
15. Temporarily install the new P/N 3P5333A15452 (Ref. Spares 2).
16. Using the positioning tool, report on the new component the holes.
17. Remove the new reinforcement.
18. Clean and deburr holes. Also clear the work area of any contaminants.
19. With reference to Figure 9 to Figure 12, partially install the right engine reinforcement P/N 3P5333A15452 at STA 6388.
20. Position drain line, repair according to AMP DM 39-A-20-40-01-00A-66AA-A.
21. With reference to figures from Figure 13 to Figure 18, install the triangular gusset frame and the attached angular at STA 6388.
22. With reference to figures from Figure 13 to Figure 18, install the bracket P/N 3P5315A01051.

23. With reference to figures from Figure 19 to Figure 22, install the pipe assy P/N 3G7170A11031.
24. With reference to figures from Figure 19 to Figure 22,, install the pipe assy P/N 3G7170A14632.
25. With reference to figures from Figure 9 to Figure 12 and repair schemes in Appendix B, install profile running afterwards at BL 675.
26. With reference to figures from Figure 9 to Figure 12 and repair schemes in Appendix B, complete installation of the right engine reinforcement P/N 3P5333A15452 at STA 6388.
27. Repair upper deck skin, water deflector and outboard curved skin according to repair schemes in Appendix B.
28. Repeat the procedure from step 1 to 27 for the left engine reinforcement P/N 3P5333A15352.
29. With reference to figures from Figure 23 to Figure 30, install the firewall removed at step 2.
30. In applying AMP DM 39-A-71-22-01-00A-720A-A / DM 39-A-71-22-03-00A-720A-A to install the engine fittings, proceed as follows:
    30.1 With reference to Figure 10 and Figure 31, apply MC 780 Type I, Class C sealant (Ref. Supplies 14) by interposition between:
        30.1.1 Engine reinforcement and cover P/N 3P5333A14351;
        30.1.2 Cover and shim P/N 3P5333A14251;
        30.1.3 Shims and engine fittings.\
    30.2 With reference to Figure 31, cover the bolts heads with Proseal 700 Type I (Ref. Supplies 15) or CS-1900 Type I sealant (Ref. Supplies 16).

Requirement after job completion

1. Perform the Alignment check procedure as described in Annex A
2. Return the helicopter to flight configuration.

Figure 1

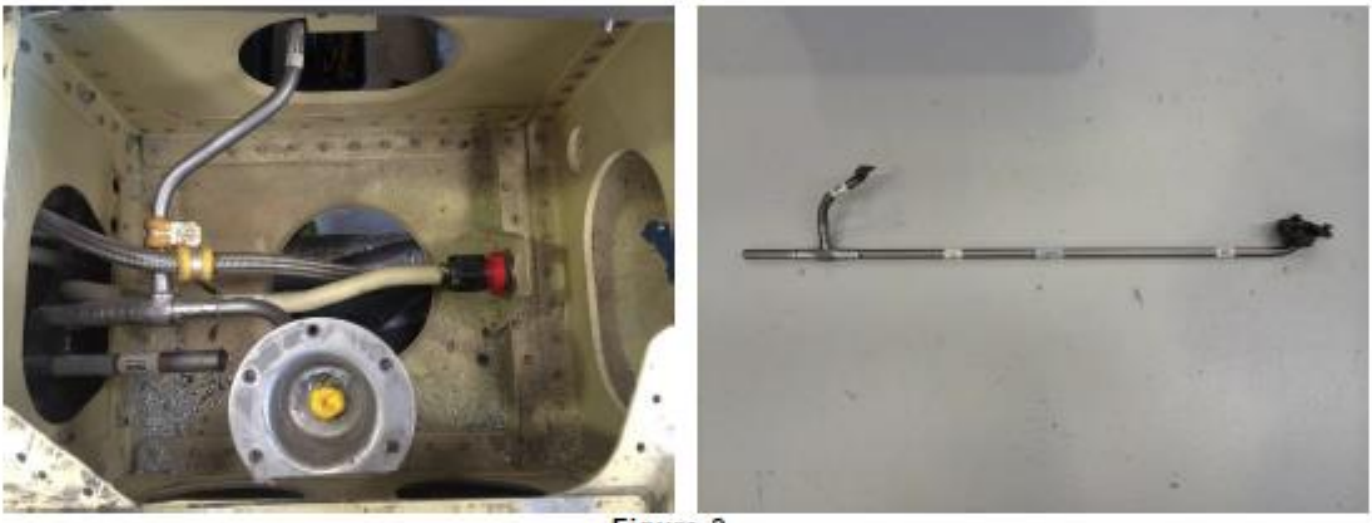


Figure 2

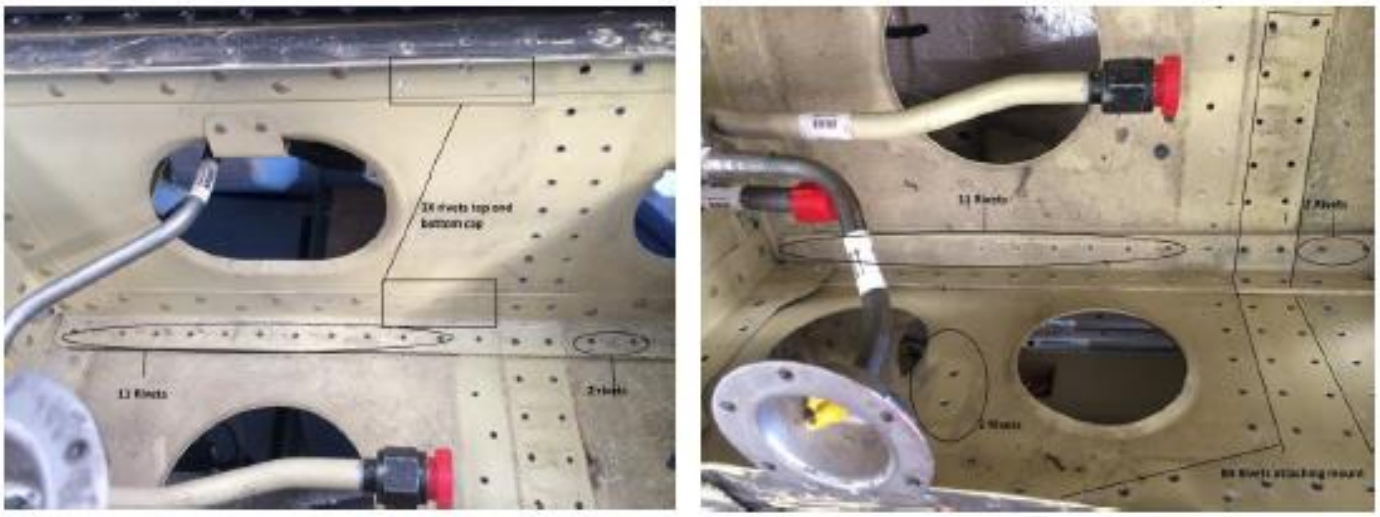


Figure 3

Figure 4

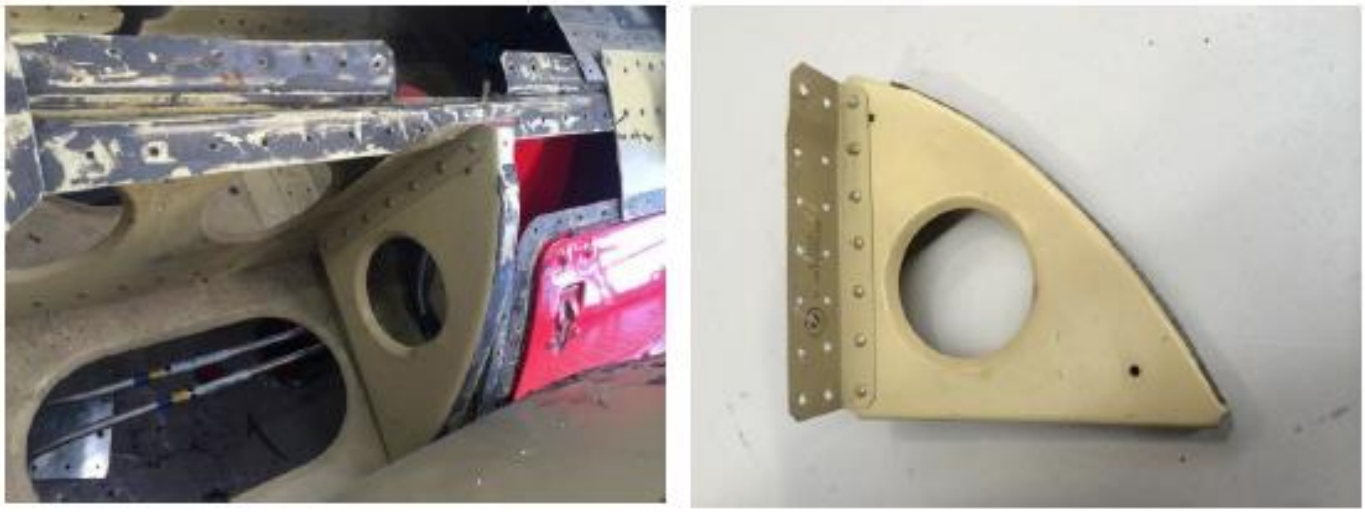


Figure 5

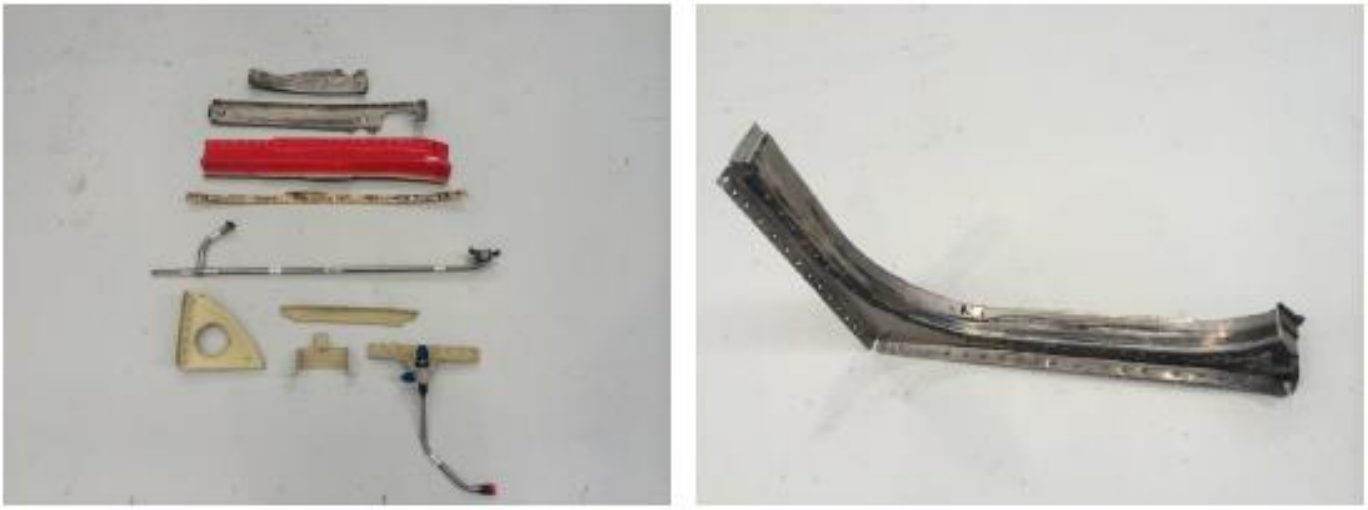


Figure 6

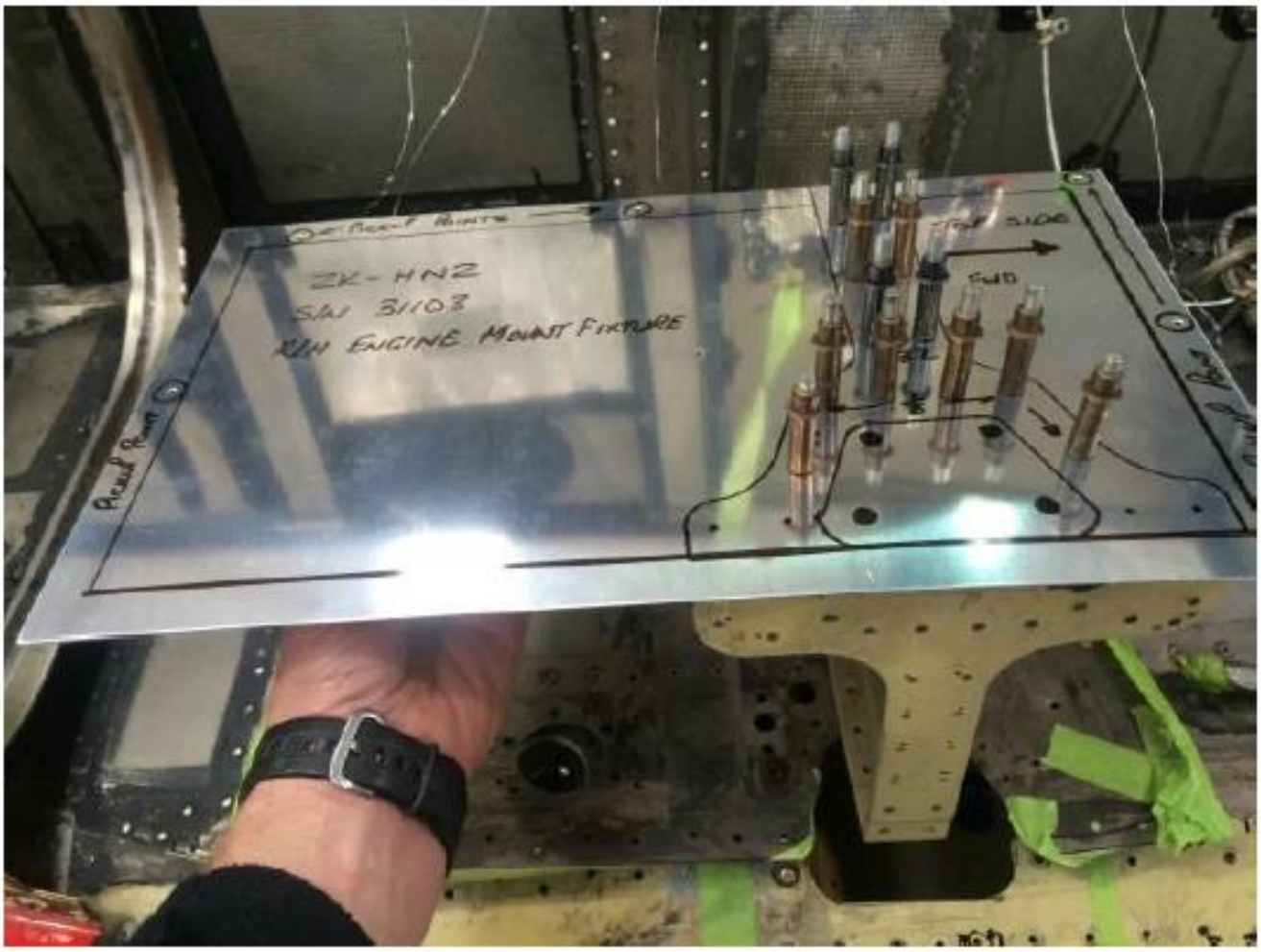


Figure 7

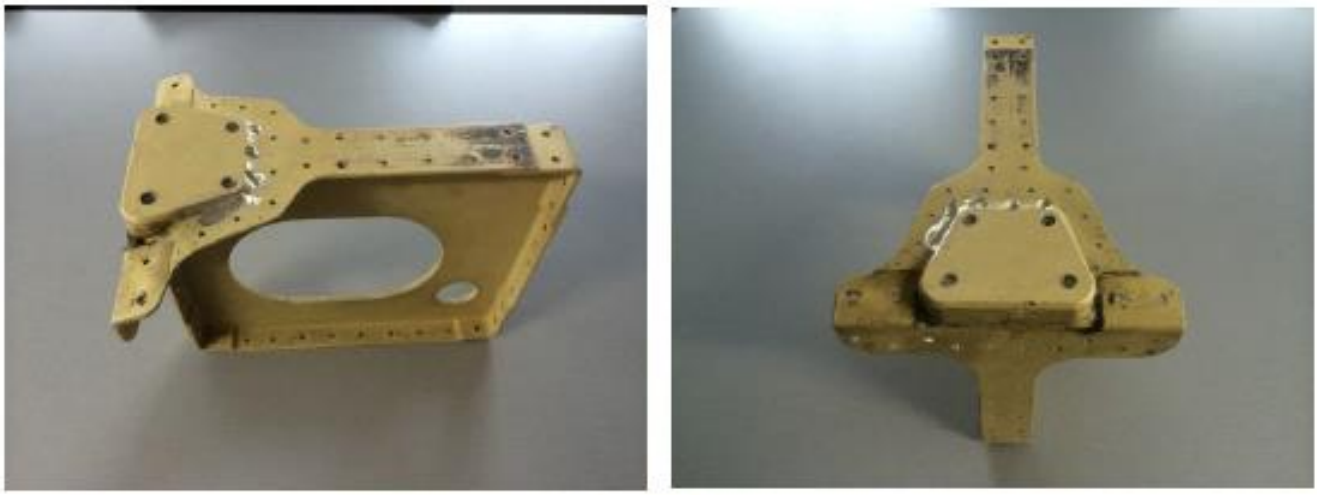


Figure 8

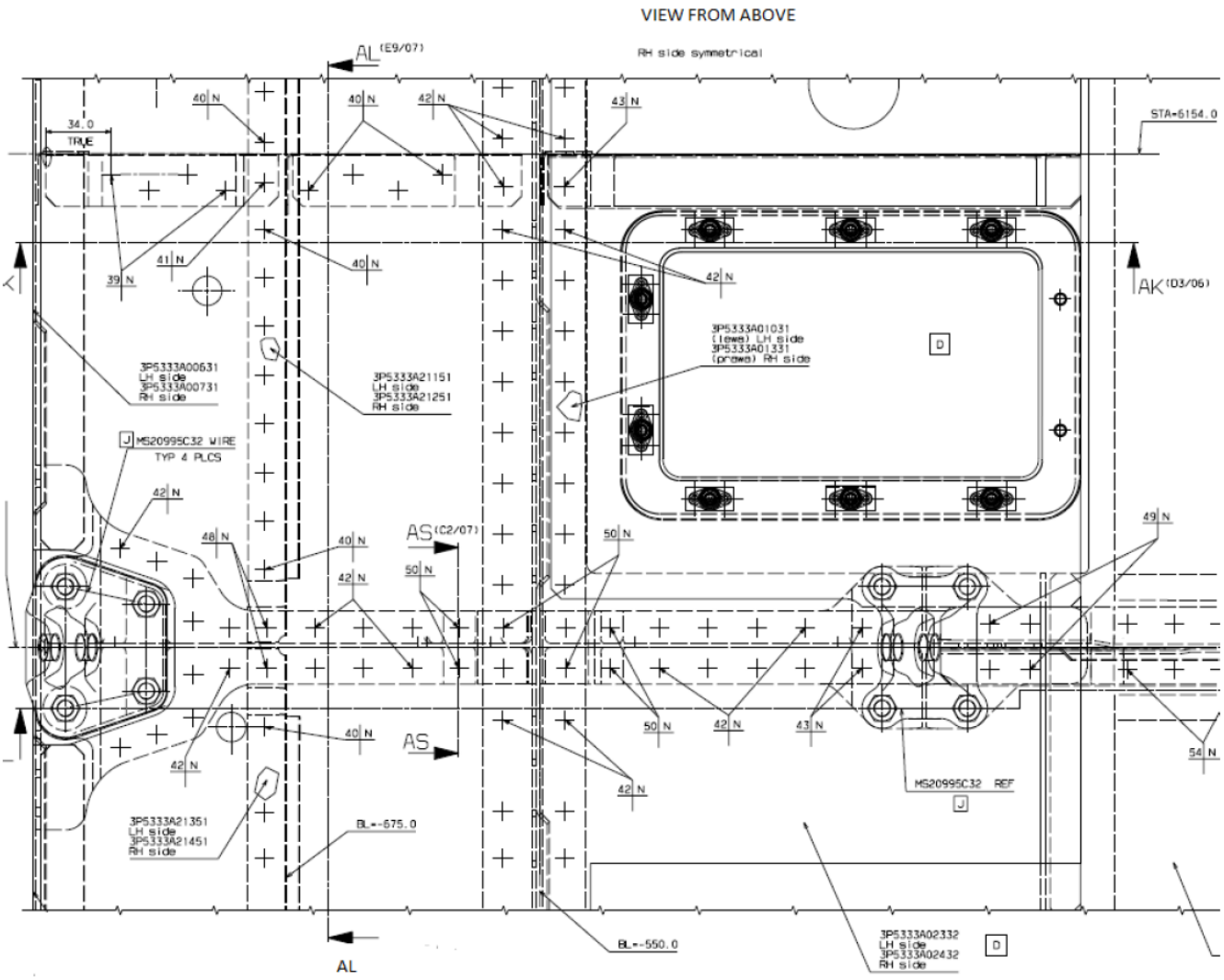

VIEW FROM ABOVE
RH side symmetrical
AL (E9/07)
AK (03/06)
AS (C2/07)
AS
AL
STA=6154.0
34.0
TRUE
3P5333A00631
LH side
3P5333A00731
RH side
3P5333A21151
LH side
3P5333A21251
RH side
3P5333A01031
(lewa) LH side
3P5333A01331
(prawa) RH side
MS20995C32 WIRE
TYP 4 PLCS
MS20995C32 REF
3P5333A21351
LH side
3P5333A21451
RH side
BL=-675.0
BL=-550.0
3P5333A02332
LH side
3P5333A02432
RH side

Figure 9

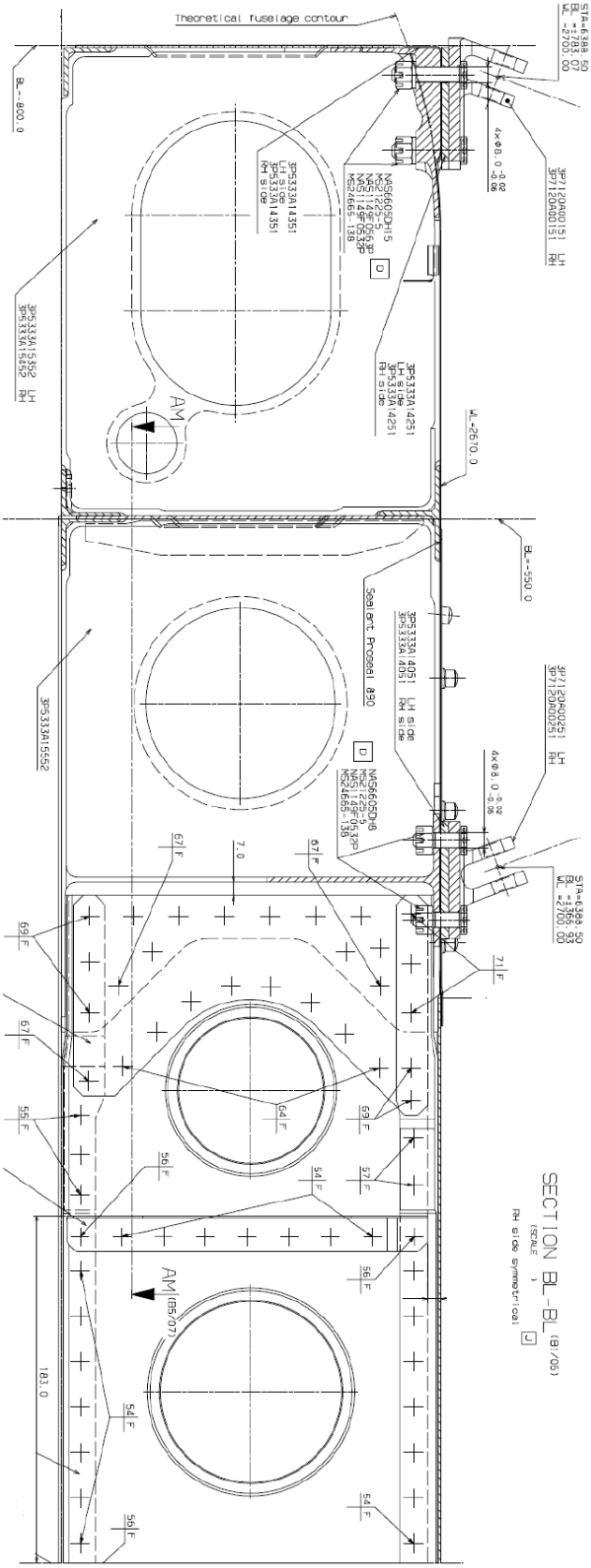

Theoretical fuselage contour
SECTION BL-BL (BJ/05)
(SCALE 1)
RH side symmetrical
AM
AM (B5/07)
Sealant Proseal 890
7.0
183.0

Figure 10

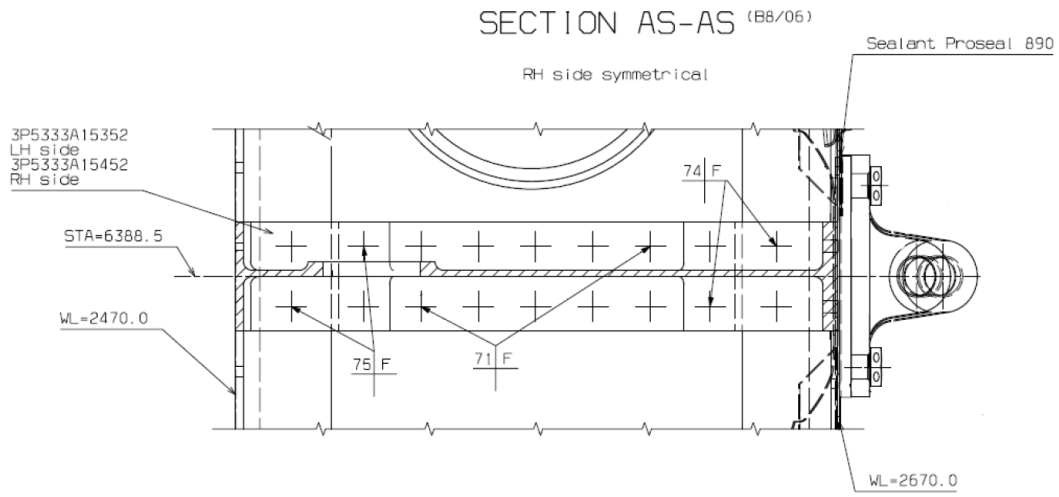


Figure 11

Rivets list for Figures from Figure 9 to Figure 11

REF.No	RIVET PART NUMBER	REF.No	RIVET PART NUMBER
35	MS20426 AD5-8	63	
36	MS20426 AD5-8-5	64	MS20470 AD5-4-5
37		65	MS20470 AD5-5
38		66	MS20470 AD5-5-5
39	MS20615-4M3R	67	MS20470 AD5-6
40	MS20615-4M4	68	MS20470 AD5-6-5
41	MS20615-4M4R	69	MS20470 AD5-7
42	MS20615-4M5	70	MS20470 AD5-7-5
43	MS20615-4M5R	71	MS20470 AD5-8
44		72	MS20470 AD5-8-5
45		73	MS20470 AD5-9
46		74	MS20470 AD5-9-5
47		75	MS20470 AD5-10
48	MS20615-5M6R	76	
49	MS20615-5M7	77	
50	MS20615-5M7R	78	
51		79	
52		80	AS46789-512
53	MS20470 AD4-4	81	
54	MS20470 AD4-4-5	82	
55	MS20470 AD4-5	83	MS20470 E4-6
56	MS20470 AD4-5-5	84	
57	MS20470 AD4-6	85	
58	MS20470 AD4-6-5	86	MS20470 E5-5-5
59		87	MS20470 E5-7
60		88	MS20470 E5-7-5
61		89	MS20470 E5-9
62		90	

H

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		18	MS20426 AD4-5-5
02		19	
03		20	
04	MS20426 AD3-3-5	21	
05	MS20426 AD3-4	22	
06	MS20426 AD3-4-5	23	
07	MS20426 AD3-5	24	
08	MS20426 AD3-5-5	25	
09	MS20426 AD3-6	26	
10		27	
11	MS20426 AD3-7	28	
12		29	
13		30	
14		31	MS20426 AD5-6
15		32	MS20426 AD5-6-5
16		33	MS20426 AD5-7
17	MS20426 AD4-5	34	MS20426 AD5-7-5

Figure 12

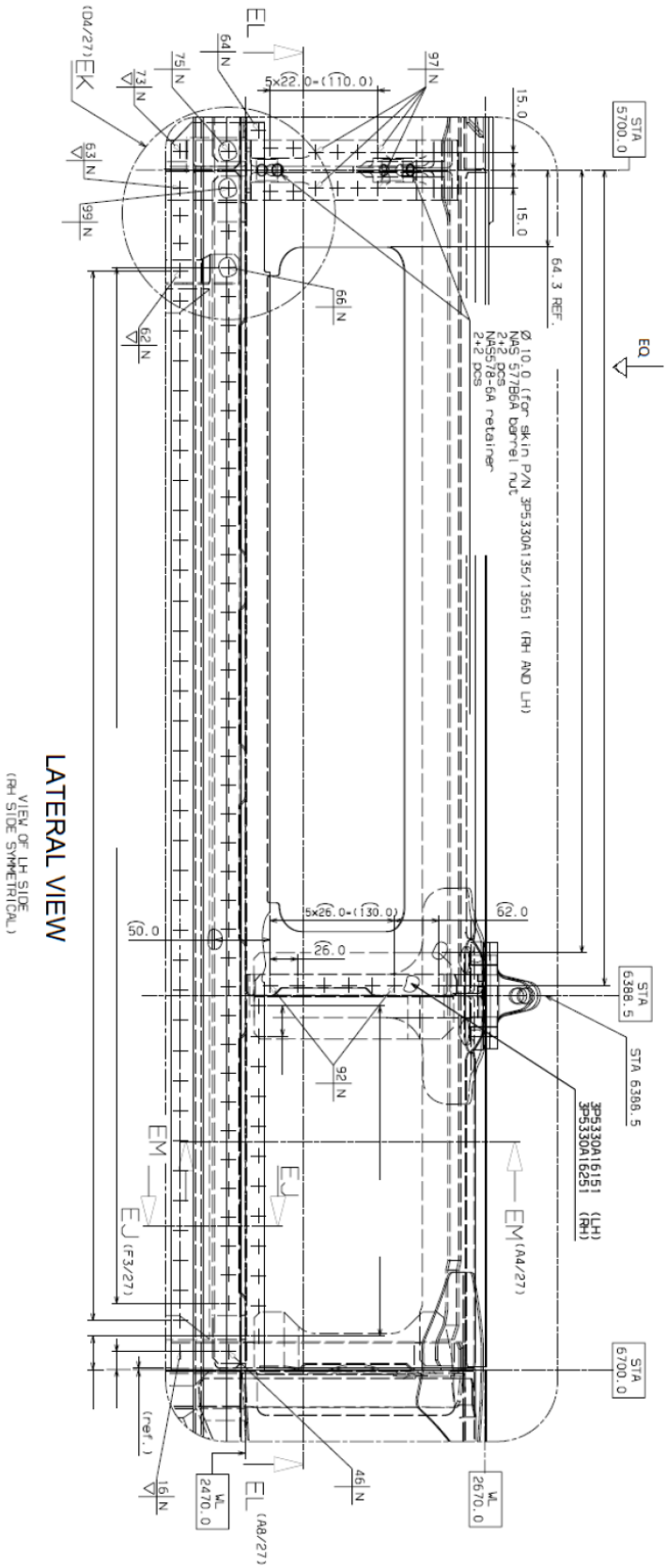

LATERAL VIEW
VIEW OF LH SIDE
(RH SIDE SYMMETRICAL)
STA 5700.0
STA 6388.5
STA 6700.0
WL 2470.0
WL 2670.0
EQ
EL
EK
EM
EJ
5x22.0=(110.0)
5x26.0=(130.0)
64.3 REF.
Ø 10.0 (for skin P/N 3P5330A135/13651 (RH AND LH)
NAS 577B6A barrel nut
24 pos
NAS578-6A retainer
24 pos
3P5330A16151 (LH)
3P5330A16251 (RH)

Figure 13

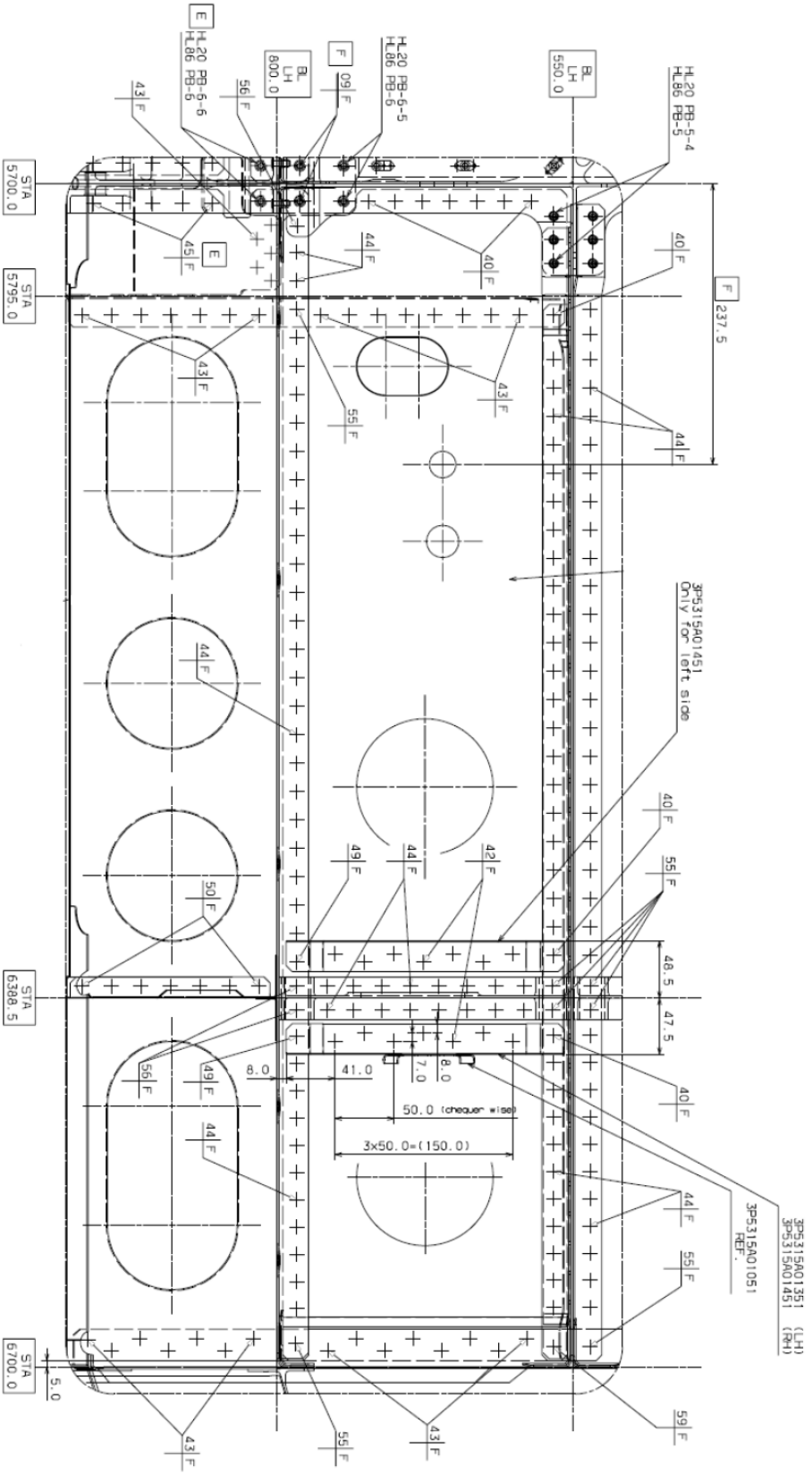

STA 5700.0
STA 5795.0
STA 6388.5
STA 6700.0
237.5
48.5
47.5
8.0
41.0
7.0
8.0
50.0 (cheque wise)
3x50.0=(150.0)
5.0
3P5315A01451 Only for left side
3P5315A01051 REF.
3P5315A01351 (LH) 3P5315A01451 (RH)

Figure 14

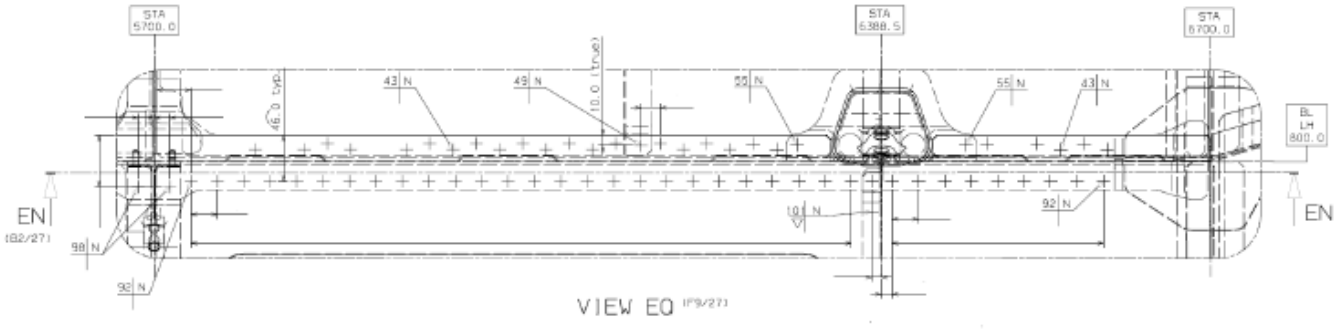


Figure 15

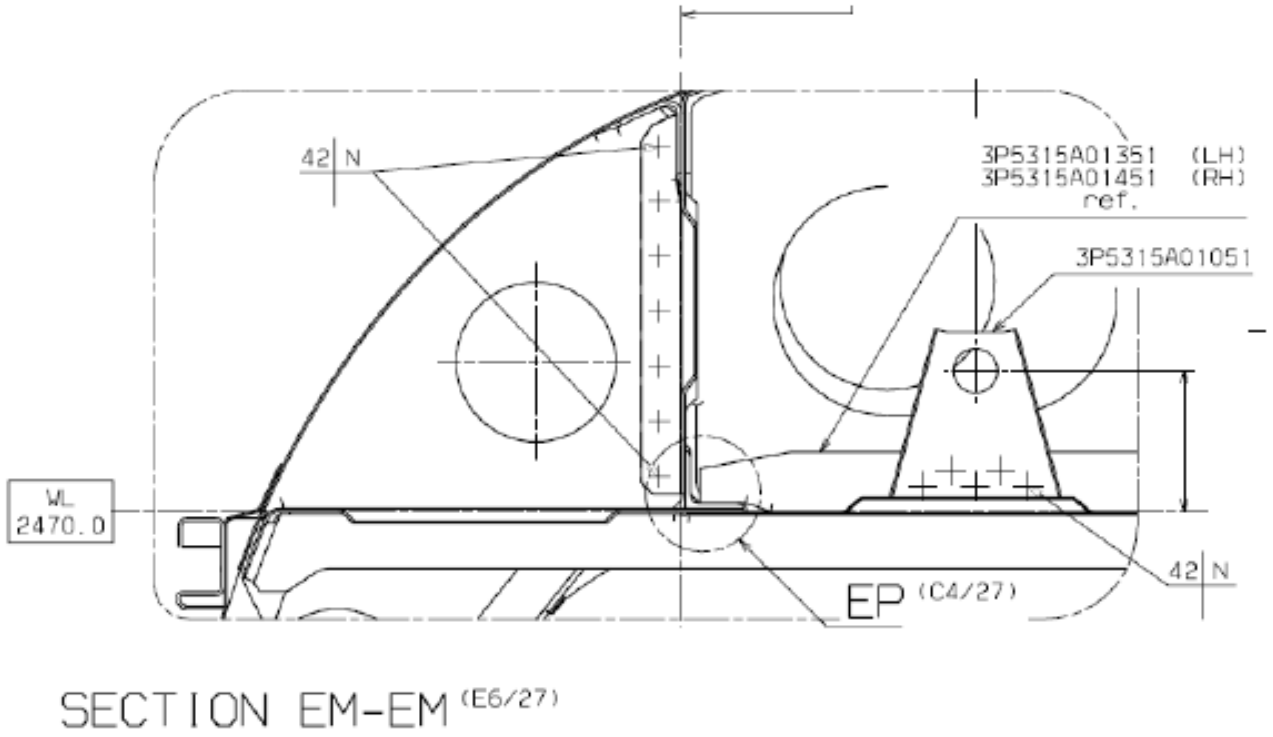


Figure 16

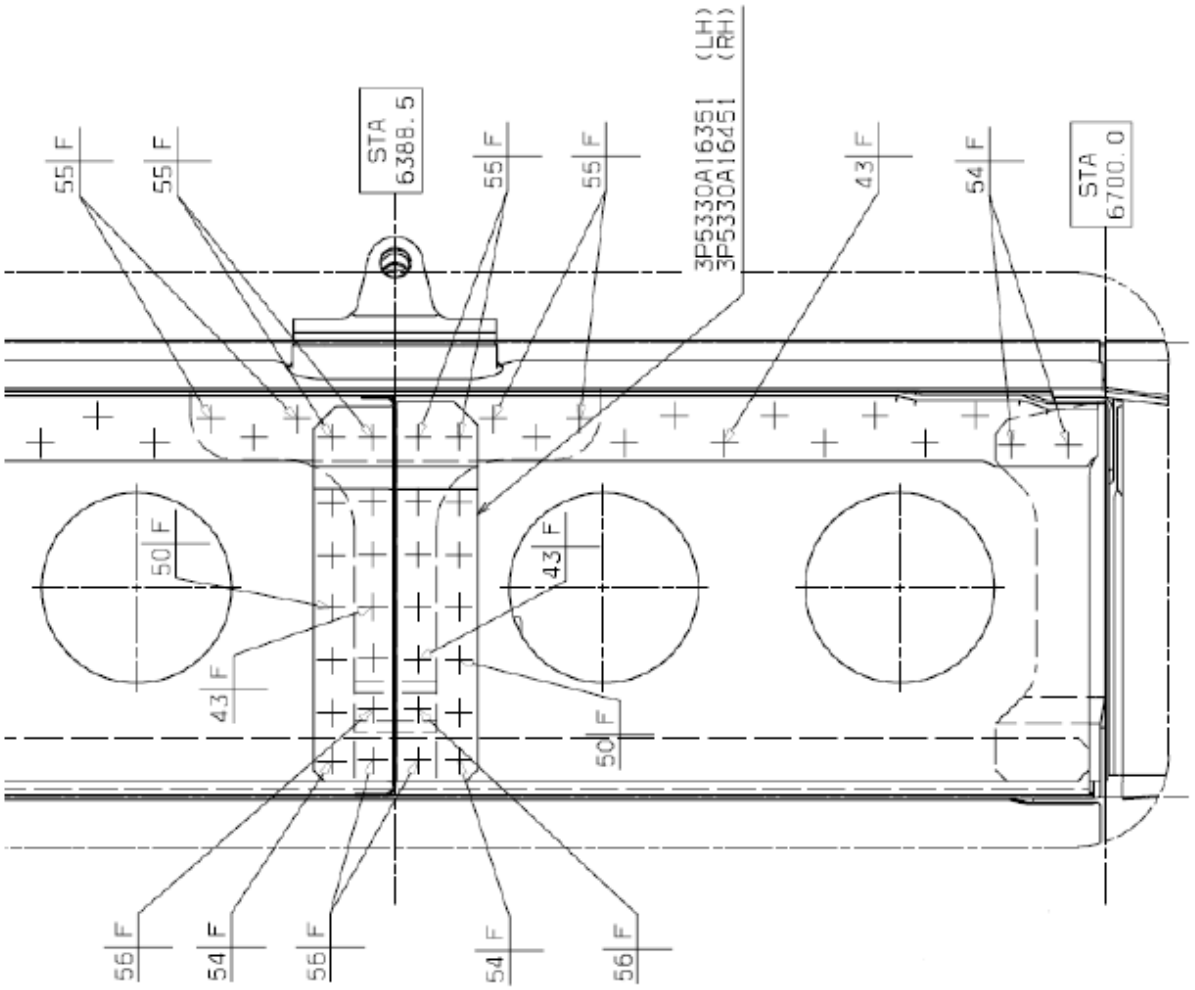

STA 6388.5
STA 6700.0
3P5330A16351 (LH)
3P5330A16451 (RH)
55 F
55 F
55 F
55 F
43 F
54 F
50 F
43 F
43 F
50 F
56 F
54 F
56 F
54 F
56 F
SECTION EN-EN (F0/27)

Figure 17

Rivets list for Figures from Figure 13 to Figure 17

REF. No	RIVET PART NUMBER	REF. No	RIVET PART NUMBER	
01	MS20426 AD3-2	56	MS20470 AD5-9	
02	MS20426 AD3-3	57	MS20470 AD5-10	
03	MS20426 AD3-4	58	MS20470 AD5-6-5	
04	MS20426 AD3-5	59	MS20470 AD5-7-5	
05	MS20426 AD3-6	60	MS20470 AD5-11	
06	MS20426 AD3-5-5	61	AGS4720-407	
07	MS20426 AD3-7-5	62	AGS4720-409	
08	MS90354S0605	63	AGS4720-411	
09	MS90354S0608	64	AGS4719-407	
10	MS20426 AD4-4-5	65	MS20615-4M5	
11	MS20426 AD4-3	66	AGS4719-409	
12	MS20426 AD4-4	67	AS46789-407	
13	MS20426 AD4-5	68	AS46789-409	D
14	MS20426 AD4-6	69	AS46789-411	
15	MS20426 AD4-7	70	AS46789-512	
16	MS20426 AD4-8	71	AS46791-407	
17	MS20426 AD4-5-5	72	AS46791-409	
18	MS20426 AD4-6-5	73	AS46791-411	
19	MS20426 AD4-9	74	AS46791-413	
20		75	AS46789-514	
21	MS20426 AD5-4	76	MS20427M4-4	
22	MS20426 AD5-5	77	MS20427M4-4-5	
23	MS20426 AD5-6	78	MS20427M4-5	
24	MS20426 AD5-7	79	MS20427M4-5-5	
25	MS20426 AD5-8	80	MS20427M4-6	
26	MS20426 AD5-9	81	MS20427M4-7	
27	MS20426 AD5-10	82	MS20615-5M6R	
28		83	MS20615-5M7	
29		84	MS20615-5M7R	
30		85	NAS1097AD4-5	
31	MS20470 AD3-3	86	NAS1097AD4-5-5	C
32	MS20470 AD3-4	87	NAS1097AD4-7	
33	MS20470 AD3-5	88	NAS1097AD5-5	
34	MS20470 AD3-6	89	NAS1097AD5-8	
35	MS20470 AD3-7	90	NAS1097U4-5	
36		91	NAS1097U4-7	
37		92	M7885/2-4-02	
38		93	M7885/2-4-03	
39	MS20470 AD4-7-5	94	M7885/2-4-04	
40	MS20470 AD4-6-5	95	AS46789-413	
41	MS20470 AD4-3	96	MS20615-4M8	
42	MS20470 AD4-4	97	M7885/2-5-03	
43	MS20470 AD4-5	98	M7885/2-5-04	
44	MS20470 AD4-6	99	M7885/2-5-05	
45	MS20470 AD4-7	100		
46	MS20470 AD4-8	101	M7885/3-4-02	
47	MS20470 AD4-9	102	M7885/3-4-03	
48	MS20470 AD4-10	103	M7885/3-4-04	B
49	MS20470 AD4-5-5	104		
50	MS20470 AD4-4-5	105		
51	MS20470 AD5-4	106	M7885/3-5-03	
52	MS20470 AD5-5	107	M7885/3-5-04	
53	MS20470 AD5-6	108	M7885/3-5-05	
54	MS20470 AD5-7	109	M7885/3-5-06	
55	MS20470 AD5-8	110	AS46789-415	

Figure 18

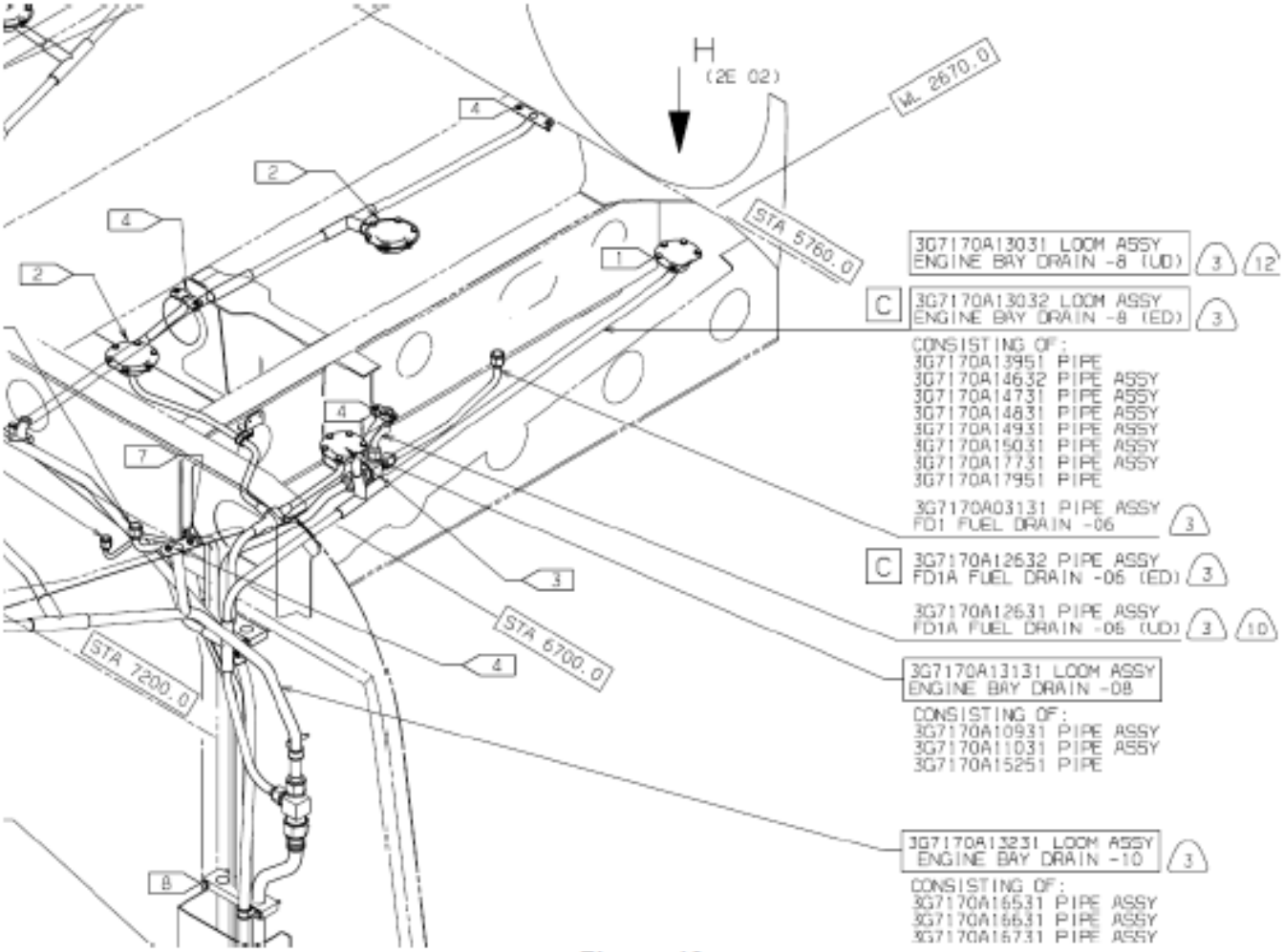


Figure 19

C 4 5 3	MS27039C0806	BOLT	QTY 5
	NAS1802-3-6	BOLT	ALT
	NAS1149CN832R	WASHER	QTY 5

Figure 20

C 4 5 1	NAS1802-08-6	BOLT	QTY 2
	MS27039C0806	BOLT	QTY 3
	NAS1802-3-6	BOLT	ALT
	NAS1149CN832R	WASHER	QTY 5

Figure 21

C B 4 5 4	MS27039C0808	BOLT	QTY 2
	NAS1802-3-8	BOLT	ALT
	NAS1149CN832R	WASHER	QTY 2

Figure 22

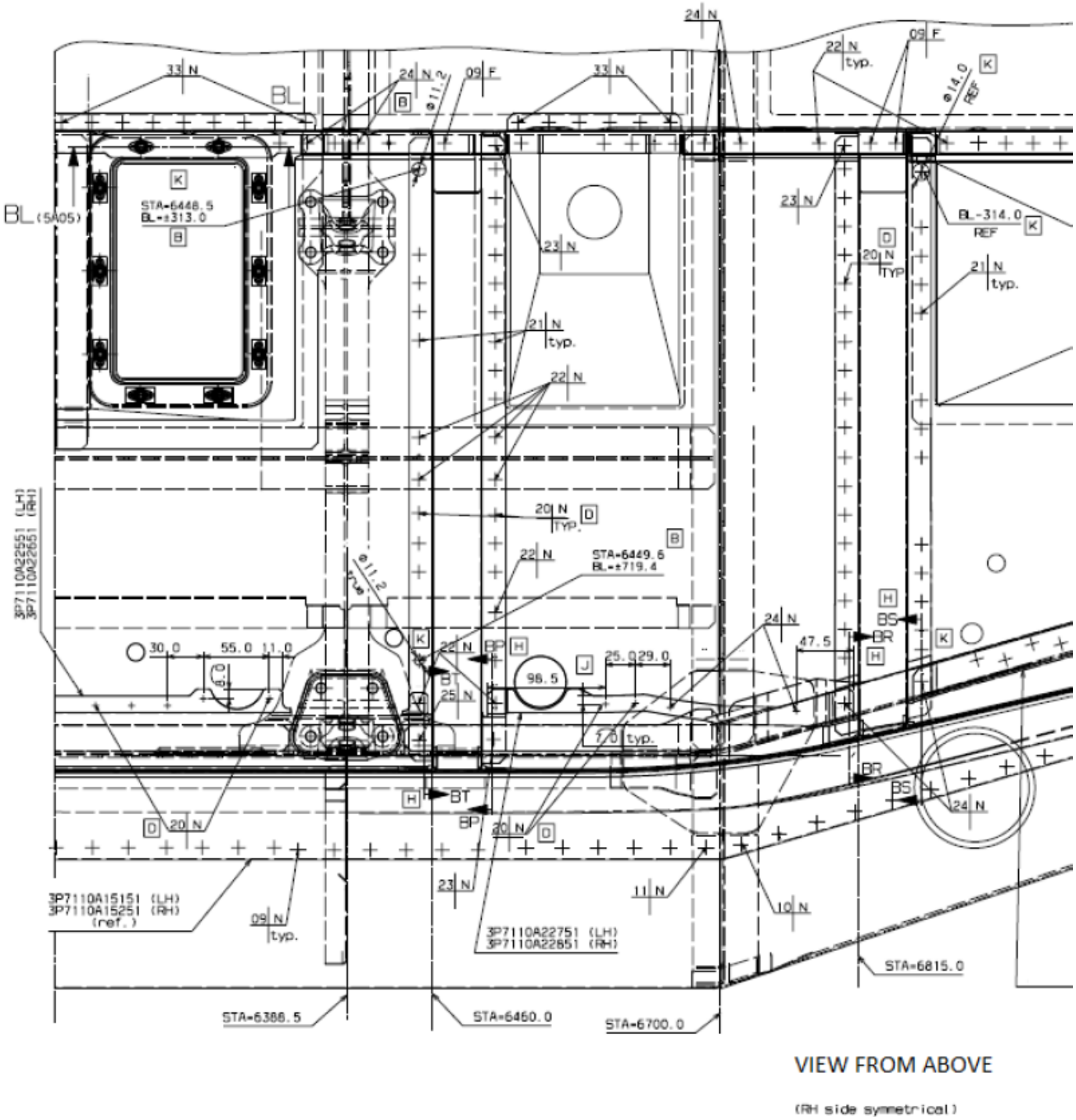

BL (5A05)
STA=6448.5
BL=±313.0
STA=6449.6
BL=±719.4
BL-314.0
REF
3P7110A22551 (LH)
3P7110A22651 (RH)
3P7110A15151 (LH)
3P7110A15251 (RH)
(ref.)
3P7110A22751 (LH)
3P7110A22851 (RH)
STA=6386.5
STA=6450.0
STA=6700.0
STA=6815.0
VIEW FROM ABOVE
(RH side symmetrical)

Figure 23

Rivets list for Figure 23

TABELA NITOW WG NTA018R
RIVET CODE IN ACCORDANCE WITH NTA018R

NR KOLEJNY/ REF. NUMBER | POLOZENIE LBA/ ORIENTATION
NIT WPUSZCZANY/ COUNTERSINK | PUSTE POLE/ BLANK

UWAGA:
ODLEGLOSC SRODKA NITOWEGO OD KRAWEDZI O ILE NIE ZWYMIAROWANO NA RYSUNKU
MATERIALY NIE KOMPOZYTOWE
LEB WYPUKLY 2 D
LEB WPUSZCZANY 2,5 D
MATERIALY KOMPOZYTOWE
LEB WYPUKLY 2,5 D
LEB WPUSZCZANY 3 D

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.

NR KOL/ REF.No	NORMA NITA/ RIVET PART NUMBER	NR KOL/ REF.No	NORMA NITA/ RIVET PART NUMBER
1	AGS 4719-405	8	AS 46789-405
2	AGS 4719-407	9	AS 46789-407
3	AGS 4719-409	10	AS 46789-409
4	AGS 4719-411	11	AS 46789-512
5	A298A04TW02	12	AS 46791-407
6	AGS 4720-407	13	AS 46791-409
7		14	

NR KOL/ REF.No	NORMA NITA/ RIVET PART NUMBER	NR KOL/ REF.No	NORMA NITA/ RIVET PART NUMBER
15	MS20427M3-3 D	33	MS20470AD4-4-5
16	MS20427M4-3-5	34	MS20470AD4-5
17		35	MS20470AD4-5-5
18	MS20427M4-4-5	36	MS20470AD4-6
19	MS20427M4-5	37	
20	MS20615-4M3 D	38	NAS9307MP4-02 B
21	MS20615-4M3R	39	
22	MS20615-4M4	40	M7885/2-4-03
23	MS20615-4M4R	41	
24	MS20615-4M5	42	
25	MS20615-4M5R	43	
26	MS20426AD4-3-5	44	M7885/2-5-04
27	MS20426AD4-4	45	
28	MS20426AD4-4-5	46	M7885/2-5-06
29	MS20426AD4-5	47	
30	MS20426AD4-5-5	48	MS20615-3M4R E
31	MS20470AD4-3-5	49	MS20615-4M6R
32		50	

Figure 24

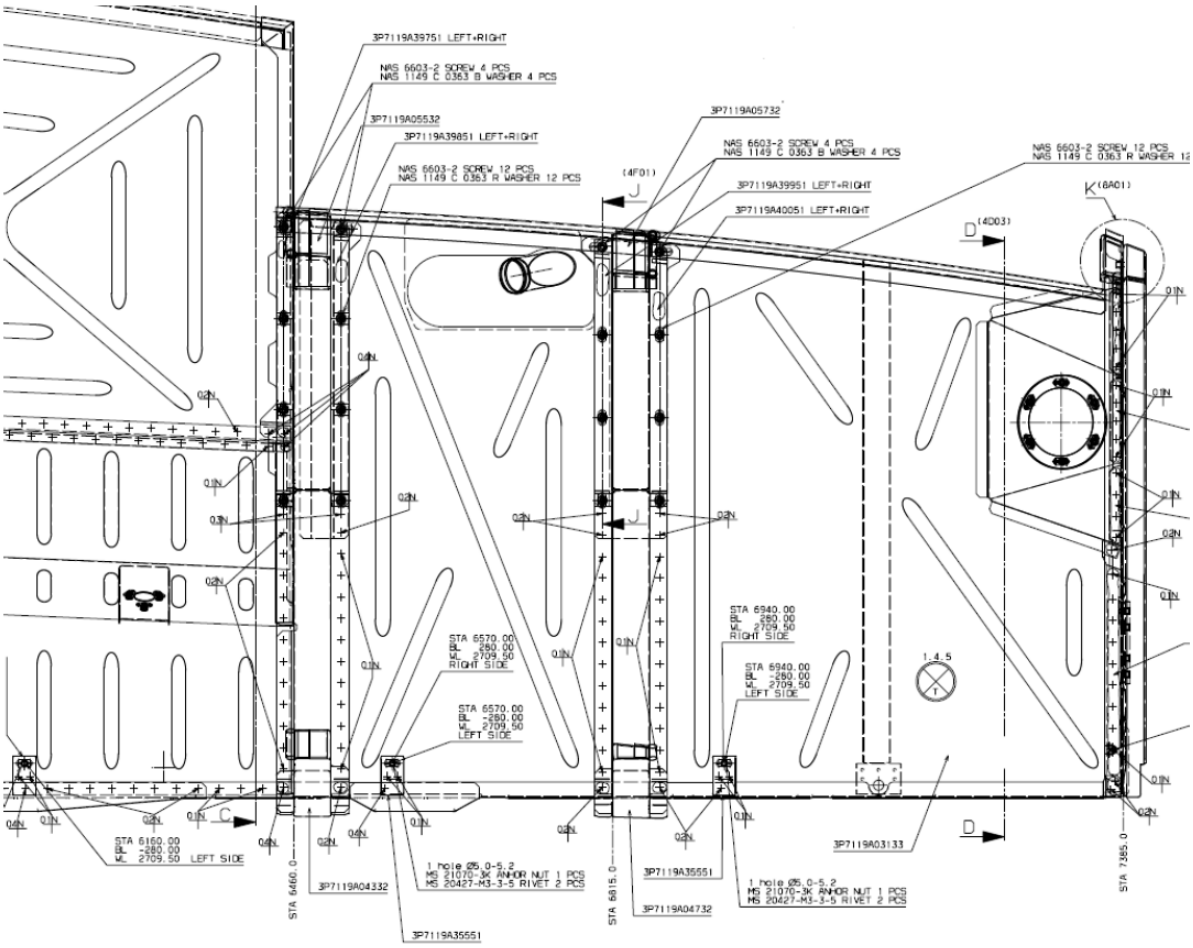

3P7119A39751 LEFT+RIGHT
NAS 6603-2 SCREW 4 PCS
NAS 1149 C 0363 B WASHER 4 PCS
3P7119A05532
3P7119A39851 LEFT+RIGHT
NAS 6603-2 SCREW 12 PCS
NAS 1149 C 0363 R WASHER 12 PCS
3P7119A05732
NAS 6603-2 SCREW 4 PCS
NAS 1149 C 0363 B WASHER 4 PCS
3P7119A39951 LEFT+RIGHT
3P7119A40051 LEFT+RIGHT
NAS 6603-2 SCREW 12 PCS
NAS 1149 C 0363 R WASHER 12
(4F01)
(6A01)
(4D03)
STA 6570.00
BL 280.00
WL 2709.50
RIGHT SIDE
STA 6570.00
BL -280.00
WL 2709.50
LEFT SIDE
STA 6940.00
BL 280.00
WL 2709.50
RIGHT SIDE
STA 6940.00
BL -280.00
WL 2709.50
LEFT SIDE
STA 6160.00
BL -280.00
WL 2709.50 LEFT SIDE
STA 6460.0
STA 6815.0
STA 7385.0
3P7119A04332
3P7119A04732
3P7119A35551
3P7119A35551
3P7119A03133
1 hole Ø5.0-5.2
MS 21070-3K ANHOR NUT 1 PCS
MS 20427-M3-3-5 RIVET 2 PCS
1 hole Ø5.0-5.2
MS 21070-3K ANHOR NUT 1 PCS
MS 20427-M3-3-5 RIVET 2 PCS
1.4.5

Figure 25

Rivets list for Figure 25

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 ECETTO COME INDICATO

NON-COMPOSITO
TESTA UNIVERSALE 2 VOLTE IL DIAMETRO DEL GAMBO.
TESTA SVASATA 2 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
1	MS20615-4M3		
2	MS20615-4M3R		
3	MS20427M4-4		
4	MS20615-4M4		
5	MS20615-4M5		
6	MS20615-4M4R		

Figure 26

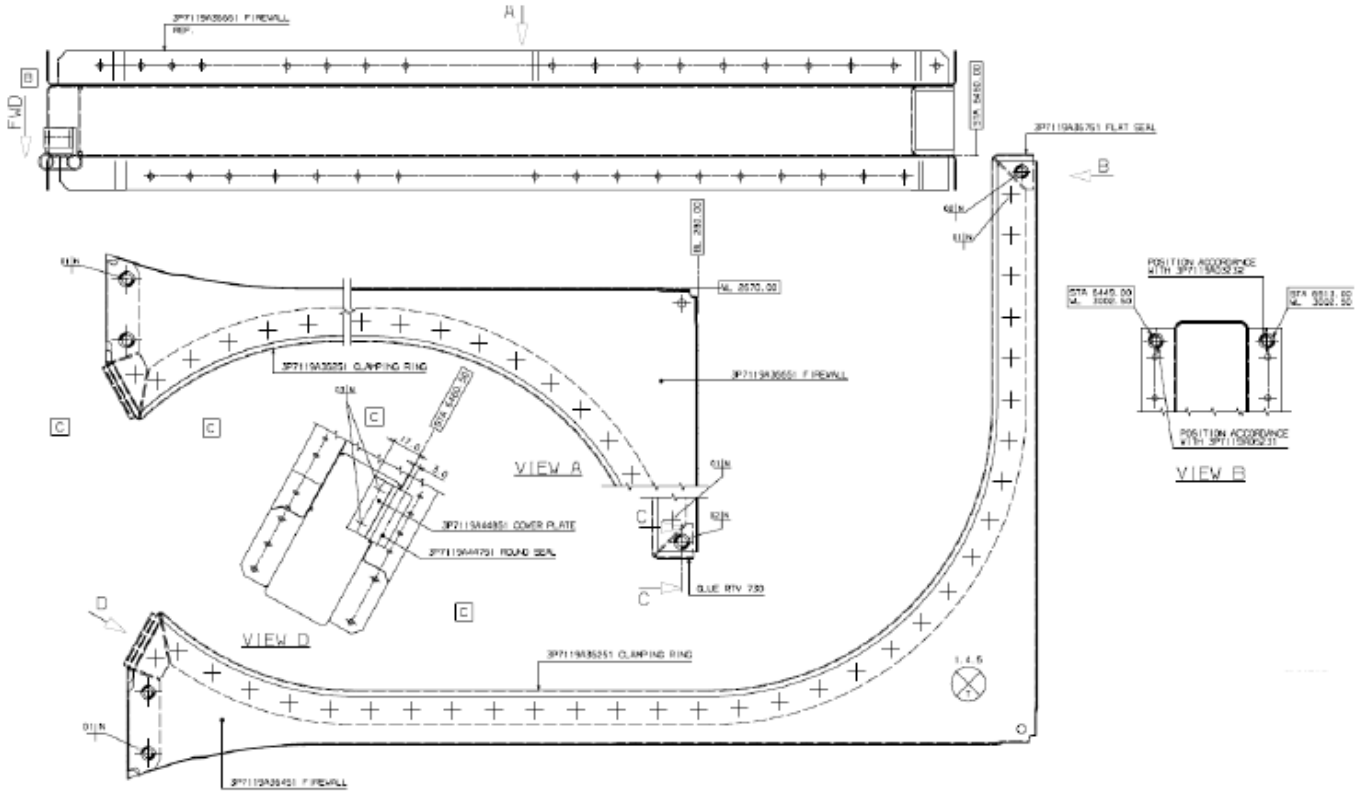


Figure 27 (RH SIDE ONLY)

Rivets list for Figure 27

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 EGETTO COME INDICATO

NON-COMPOSITO
TESTA UNIVERSALE 2 VOLTE IL DIAMETRO DEL GAMBO.
TESTA SVASATA 2 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
01	MS20615-4M3		
02	MS20427M4-4		
03	AS46791-407		

Figure 28

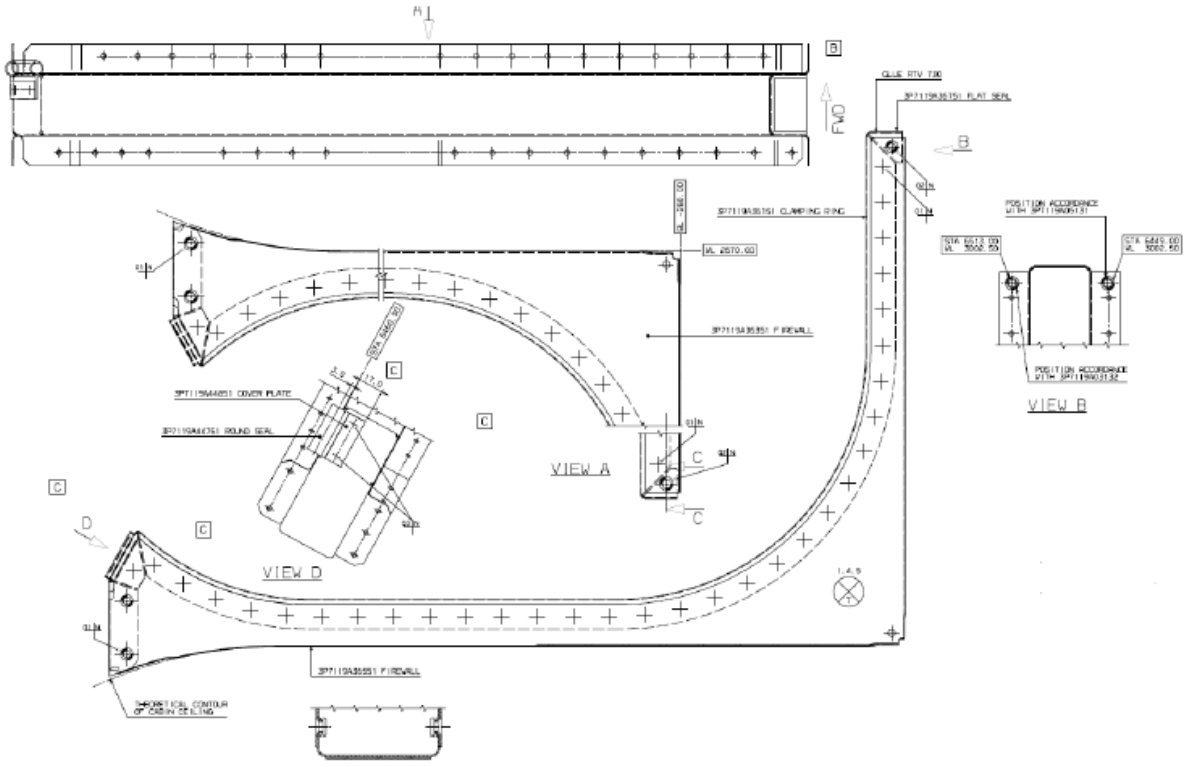


Figure 29 (LH SIDE ONLY)

Rivets list for Figure 29

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 ECETTO COME INDICATO

NON-COMPOSITO
TESTA UNIVERSALE 2 VOLTE IL DIAMETRO DEL GAMBO.
TESTA SVASATA 2 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
01	MS20615-4M3		
02	MS20427M4-4		
03	AS46791-407		

Figure 30

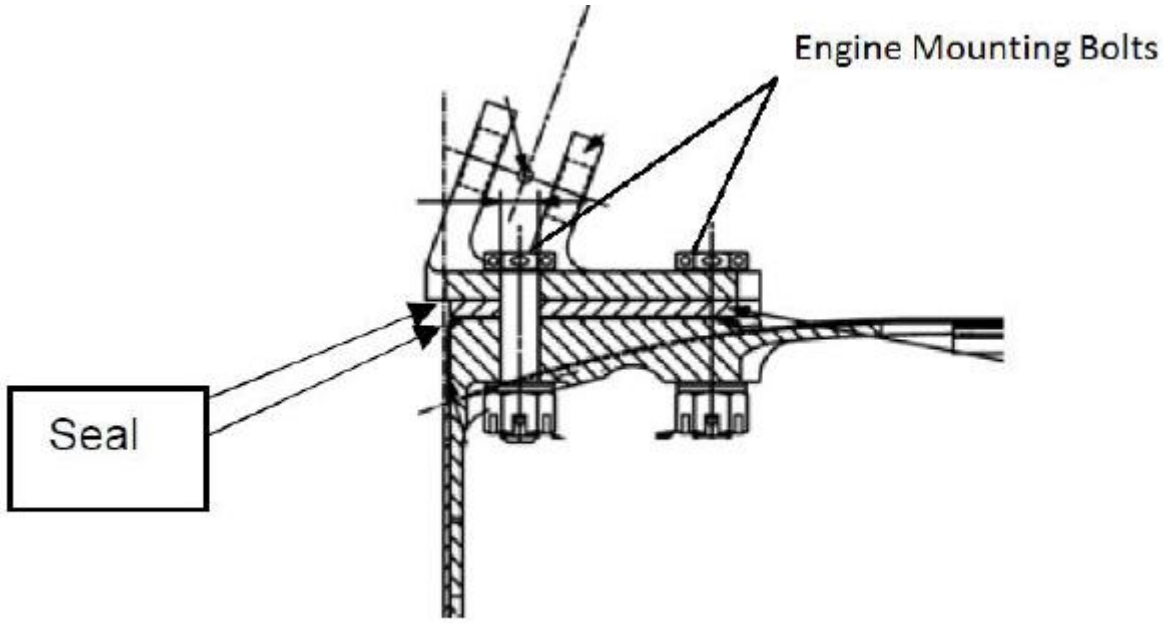
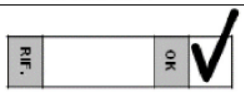
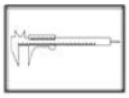


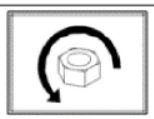
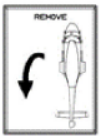
Figure 31

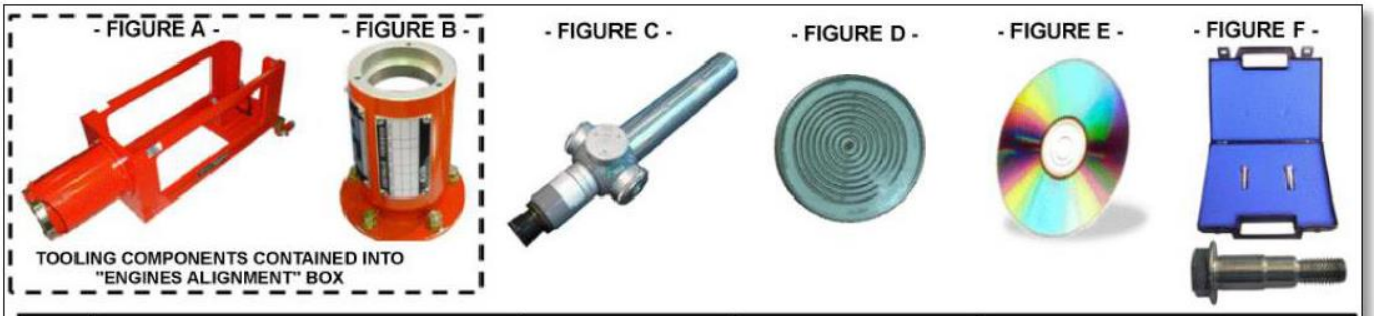
Annex A

Alignment Check

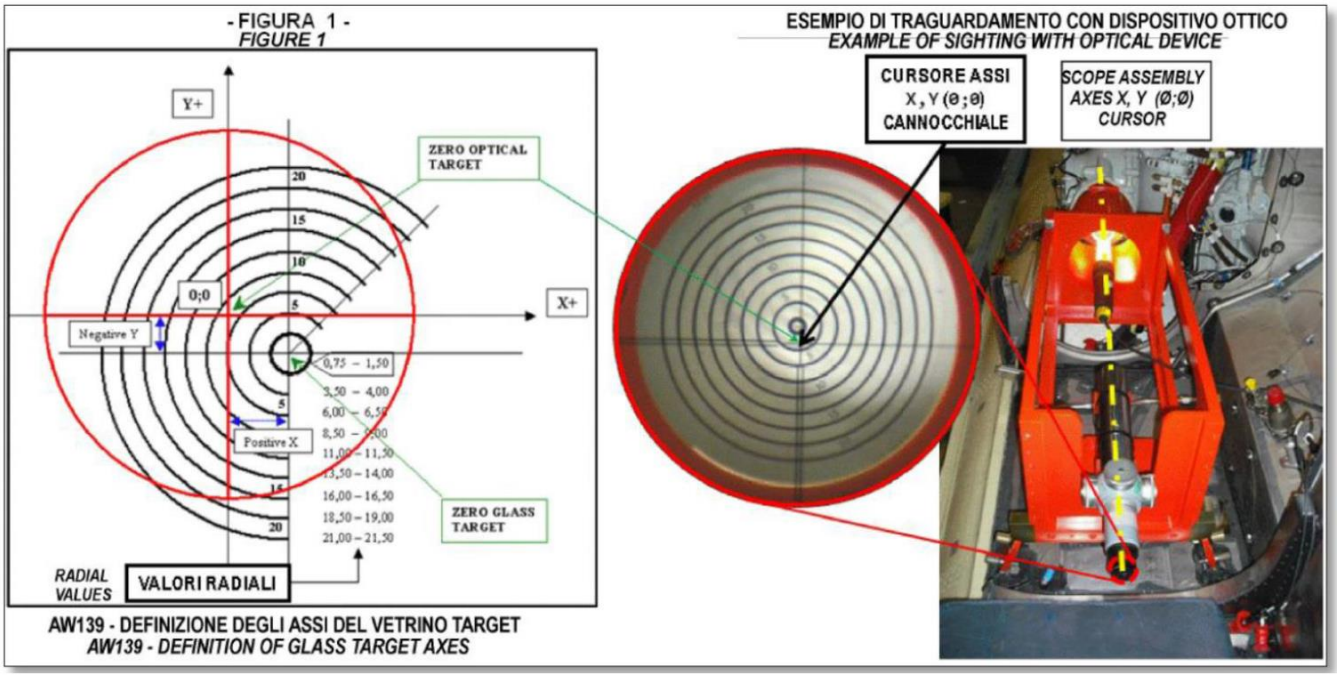
LEGENDA SIMBOLI UTILIZZATI - *UTILIZED SYMBOLS LEGEND*

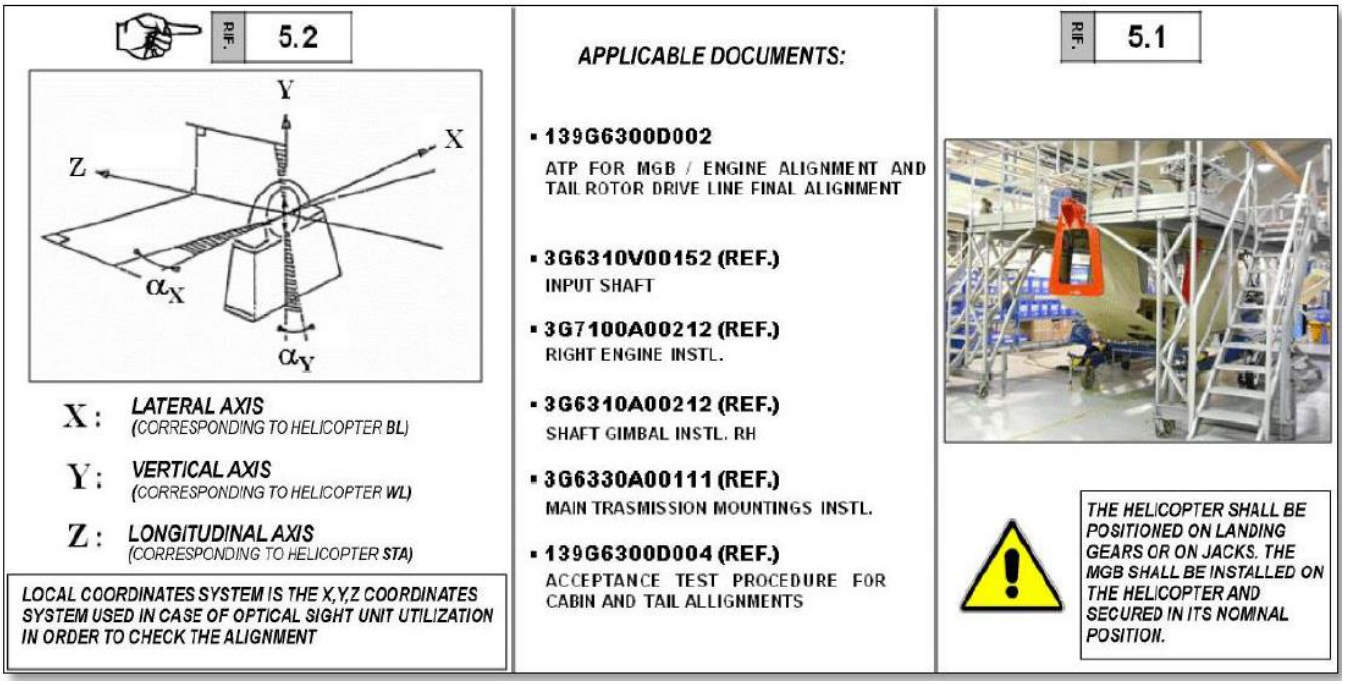
SIMBOLO *SYMBOL*	DESCRIZIONE *DESCRIPTION*
	INSERIRE FLAG SE OK, OPPURE AD OPERAZIONE ESEGUITA *ENTER FLAG IF OK , OR UPON OPERATION COMPLETION*
	ATTENZIONE *WARNING*
	FORWARD
	NOTA *NOTE*
	REGISTRARE *RECORD*
	MISUARE *MEASURE*

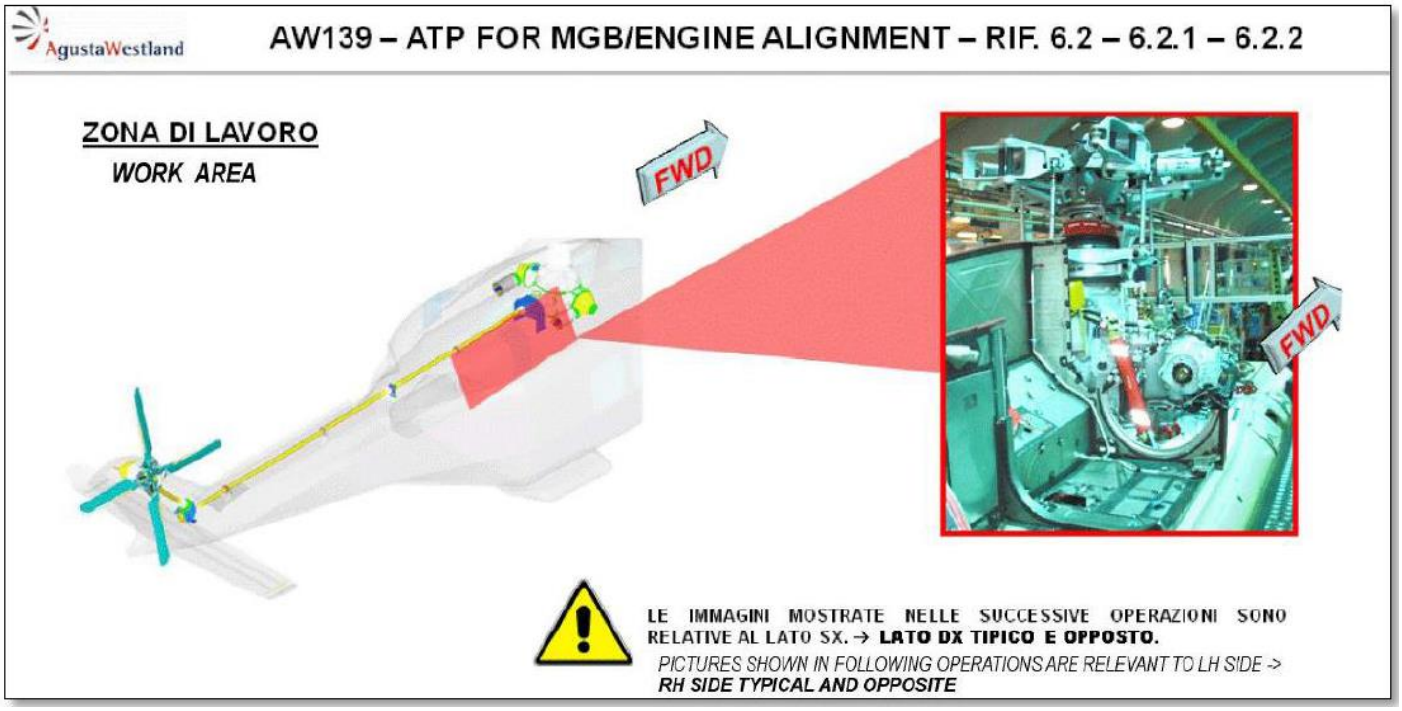
SIMBOLO *SYMBOL*	DESCRIZIONE *DESCRIPTION*
	SERRARE SENZA CONTROLLO DI COPPIA *TIGHTEN WITHOUT TORQUE VALUE*
	ALLENTARE *LOOSEN*
	RIMUOVERE *REMOVE*
	INSTALLARE *INSTALL*

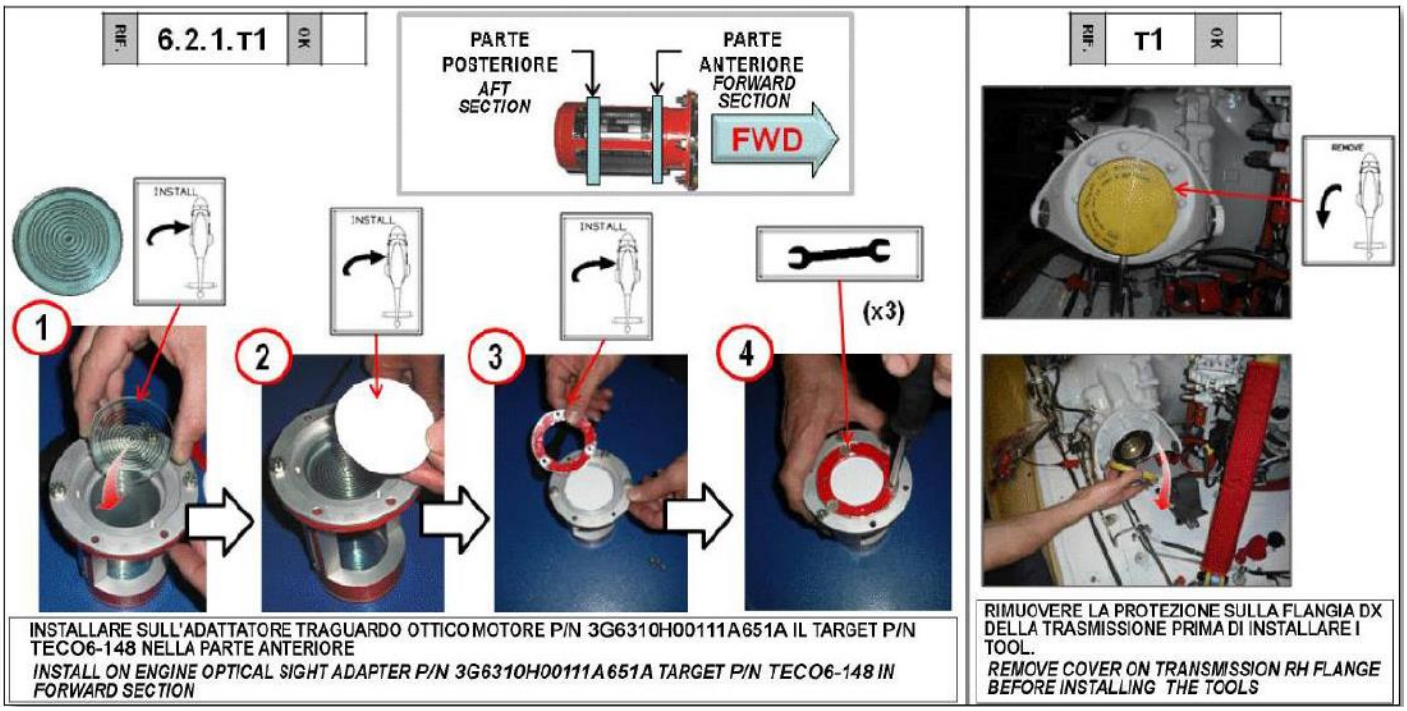


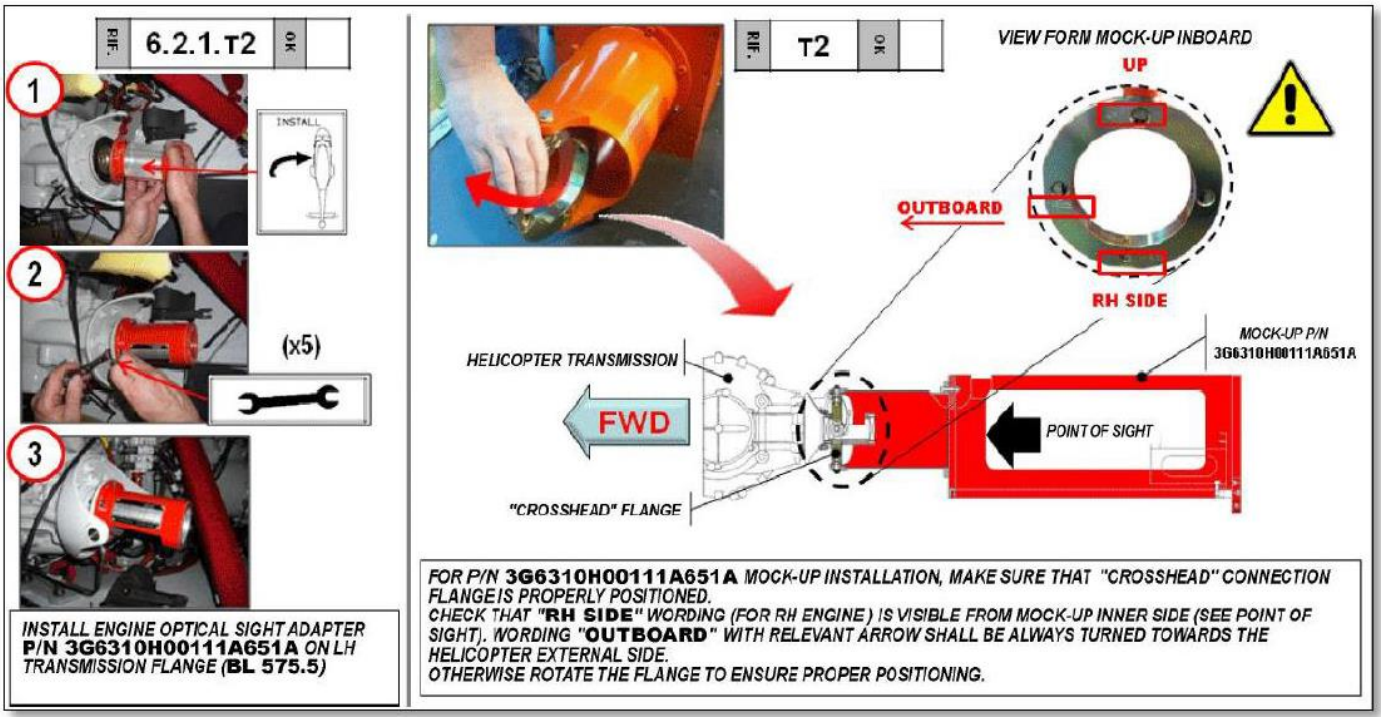
RIF. FIG.	DESCRIPTION	P/N	S/N	NOTE
A	*SCOPE ASSY HOLDER ENGINE MOCK-UP*	3G6310H00111A651A		*DETECT ENGINE MOCK-UP S/N*
B	*ENGINE OPTICAL SIGHT ADAPTER*			*DETECT ENGINE OPTICAL SIGHT ADAPTER S/N*
C	*ALIGNMENT TELESCOPE OUTSIDE DIA 57.14*	TECO6-147		
D	*INTERMEDIATE TARGET DIA 57.14*	TECO6-148		
E	*DATA PROCESSING SOFTWARE: AW139_MGB_ENG_INSTL_V.10*	T1396300S1A686A		
F	*CROSSHEAD/TRM SPECIAL BOLT*	4G6310H00851A651A		*TO BE USED WITH ACCESSORY DRIVE KIT 4G6320F00211*

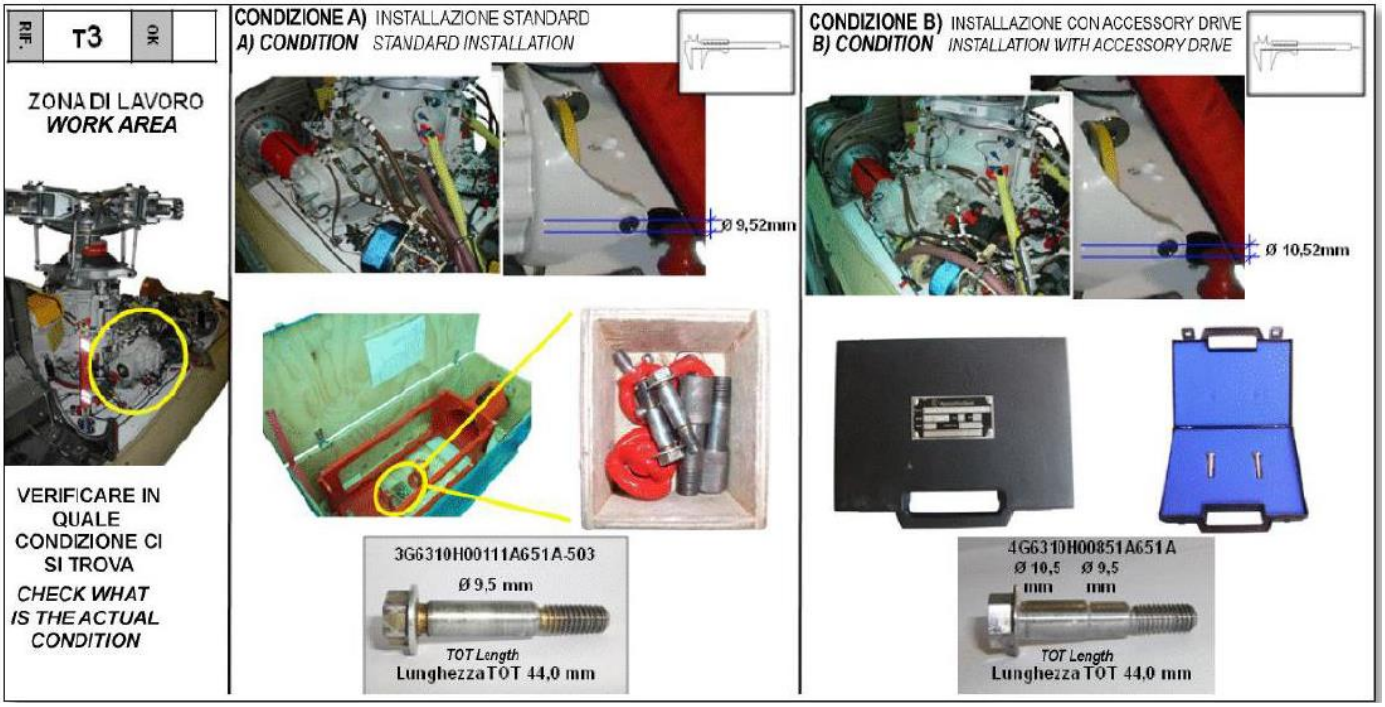

- FIGURA 1 -
FIGURE 1
Y+
ZERO OPTICAL TARGET
20
15
10
5
0;0
X+
Negative Y
0,75 – 1,50
3,50 – 4,00
6,00 – 6,50
8,50 – 9,00
11,00 – 11,50
13,50 – 14,00
16,00 – 16,50
18,50 – 19,00
21,00 – 21,50
Positive X
ZERO GLASS TARGET
RADIAL VALUES
VALORI RADIALI
AW139 - DEFINIZIONE DEGLI ASSI DEL VETRINO TARGET
AW139 - DEFINITION OF GLASS TARGET AXES
ESEMPIO DI TRAGUARDAMENTO CON DISPOSITIVO OTTICO
EXAMPLE OF SIGHTING WITH OPTICAL DEVICE
CURSORE ASSI X, Y (ø;ø) CANNOCCHIALE
SCOPE ASSEMBLY AXES X, Y (Ø;Ø) CURSOR


RIF. 5.2
Y
Z
X
α_X
α_Y
X: LATERAL AXIS
(CORRESPONDING TO HELICOPTER BL)
Y: VERTICAL AXIS
(CORRESPONDING TO HELICOPTER WL)
Z: LONGITUDINAL AXIS
(CORRESPONDING TO HELICOPTER STA)
LOCAL COORDINATES SYSTEM IS THE X,Y,Z COORDINATES SYSTEM USED IN CASE OF OPTICAL SIGHT UNIT UTILIZATION IN ORDER TO CHECK THE ALIGNMENT
APPLICABLE DOCUMENTS:
▪ 139G6300D002
ATP FOR MGB / ENGINE ALIGNMENT AND TAIL ROTOR DRIVE LINE FINAL ALIGNMENT
▪ 3G6310V00152 (REF.)
INPUT SHAFT
▪ 3G7100A00212 (REF.)
RIGHT ENGINE INSTL.
▪ 3G6310A00212 (REF.)
SHAFT GIMBAL INSTL. RH
▪ 3G6330A00111 (REF.)
MAIN TRASMISSION MOUNTINGS INSTL.
▪ 139G6300D004 (REF.)
ACCEPTANCE TEST PROCEDURE FOR CABIN AND TAIL ALLIGNMENTS
RIF. 5.1
THE HELICOPTER SHALL BE POSITIONED ON LANDING GEARS OR ON JACKS. THE MGB SHALL BE INSTALLED ON THE HELICOPTER AND SECURED IN ITS NOMINAL POSITION.


AgustaWestland
AW139 – ATP FOR MGB/ENGINE ALIGNMENT – RIF. 6.2 – 6.2.1 – 6.2.2
ZONA DI LAVORO
WORK AREA
FWD
FWD
LE IMMAGINI MOSTRATE NELLE SUCCESSIVE OPERAZIONI SONO RELATIVE AL LATO SX. → LATO DX TIPICO E OPPOSTO.
PICTURES SHOWN IN FOLLOWING OPERATIONS ARE RELEVANT TO LH SIDE -> RH SIDE TYPICAL AND OPPOSITE


RIF. 6.2.1.T1 OK
PARTE POSTERIORE AFT SECTION
PARTE ANTERIORE FORWARD SECTION
FWD
INSTALL
(x3)
1
2
3
4
INSTALLARE SULL'ADATTATORE TRAGUARDO OTTICO MOTORE P/N 3G6310H00111A651A IL TARGET P/N TECO6-148 NELLA PARTE ANTERIORE
INSTALL ON ENGINE OPTICAL SIGHT ADAPTER P/N 3G6310H00111A651A TARGET P/N TECO6-148 IN FORWARD SECTION
RIF. T1 OK
REMOVE
RIMUOVERE LA PROTEZIONE SULLA FLANGIA DX DELLA TRASMISSIONE PRIMA DI INSTALLARE I TOOL.
REMOVE COVER ON TRANSMISSION RH FLANGE BEFORE INSTALLING THE TOOLS


RIF. 6.2.1.T2 OK
1
2
3
INSTALL
(x5)
INSTALL ENGINE OPTICAL SIGHT ADAPTER P/N 3G6310H00111A651A ON LH TRANSMISSION FLANGE (BL 575.5)
RIF. T2 OK
VIEW FORM MOCK-UP INBOARD
UP
OUTBOARD
RH SIDE
MOCK-UP P/N 3G6310H00111A651A
HELICOPTER TRANSMISSION
FWD
POINT OF SIGHT
"CROSSHEAD" FLANGE
FOR P/N 3G6310H00111A651A MOCK-UP INSTALLATION, MAKE SURE THAT "CROSSHEAD" CONNECTION FLANGE IS PROPERLY POSITIONED.
CHECK THAT "RH SIDE" WORDING (FOR RH ENGINE) IS VISIBLE FROM MOCK-UP INNER SIDE (SEE POINT OF SIGHT). WORDING "OUTBOARD" WITH RELEVANT ARROW SHALL BE ALWAYS TURNED TOWARDS THE HELICOPTER EXTERNAL SIDE.
OTHERWISE ROTATE THE FLANGE TO ENSURE PROPER POSITIONING.


RIF. T3 OK
ZONA DI LAVORO
WORK AREA
VERIFICARE IN QUALE CONDIZIONE CI SI TROVA
CHECK WHAT IS THE ACTUAL CONDITION
CONDIZIONE A) INSTALLAZIONE STANDARD
A) CONDITION STANDARD INSTALLATION
Ø 9,52mm
3G6310H00111A651A-503
Ø 9,5 mm
TOT Length
LunghezzaTOT 44,0 mm
CONDIZIONE B) INSTALLAZIONE CON ACCESSORY DRIVE
B) CONDITION INSTALLATION WITH ACCESSORY DRIVE
Ø 10,52mm
4G6310H00851A651A
Ø 10,5 mm
Ø 9,5 mm
TOT Length
LunghezzaTOT 44,0 mm

ENTER FLAG IN BOX CORRESPONDING TO THE "INSTALLATION" TYPE

☐ **A) CONDITION**

STANDARD MGB/CROSSHEAD INSTALLATION (WITHOUT ACCESSORY DRIVE KIT)

BOLTS TO BE USED TO LINK ENGINE MOCK-UP TO STANDARD MGB

BOLTS INCLUDED IN KIT FOR ENGINES ALIGNMENT 3G6310H00111A651A

☐ **B) CONDITION**

MGB+ACCESSORY DRIVE/CROSSHEAD INSTALLATION

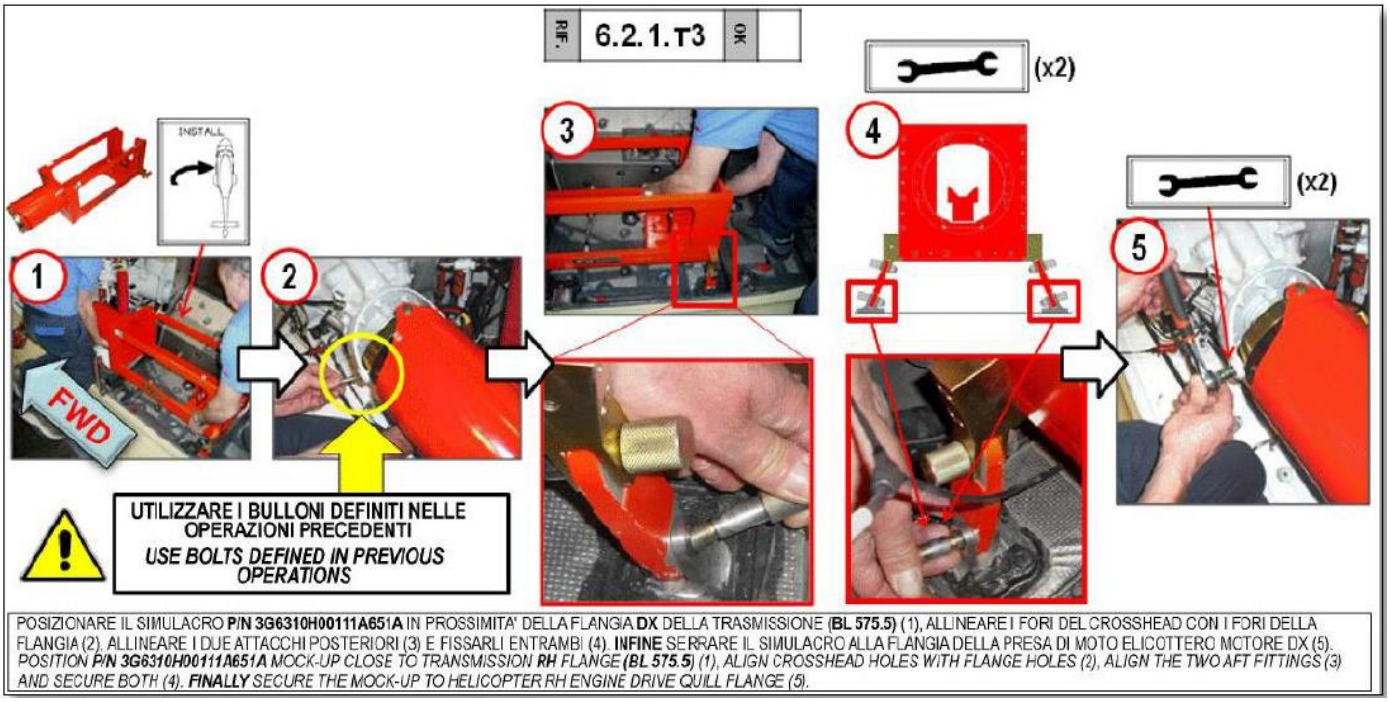
BOLTS TO BE USED TO LINK ENGINE MOCK-UP TO MGB + ACCESSORY DRIVE, IDENTIFIED BY FOLLOWING PRODUCTION P/Ns:

☐4G6320F00212A3

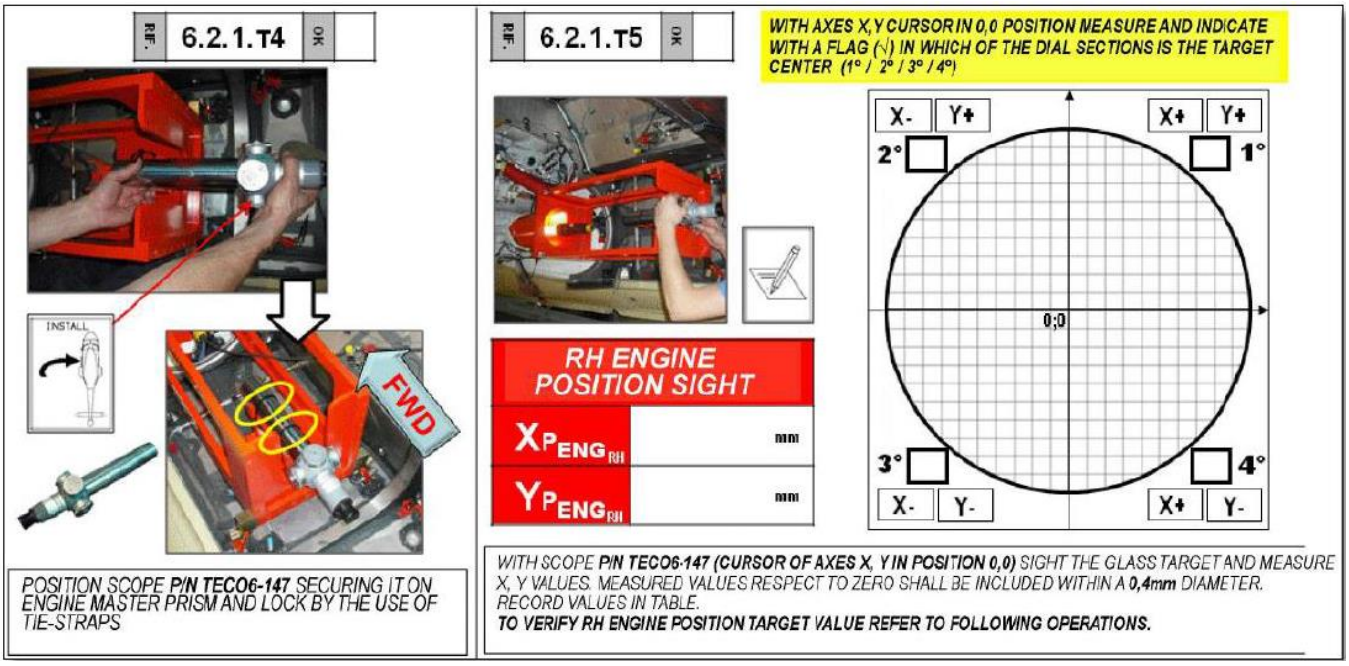
☐4G6320F00212A4

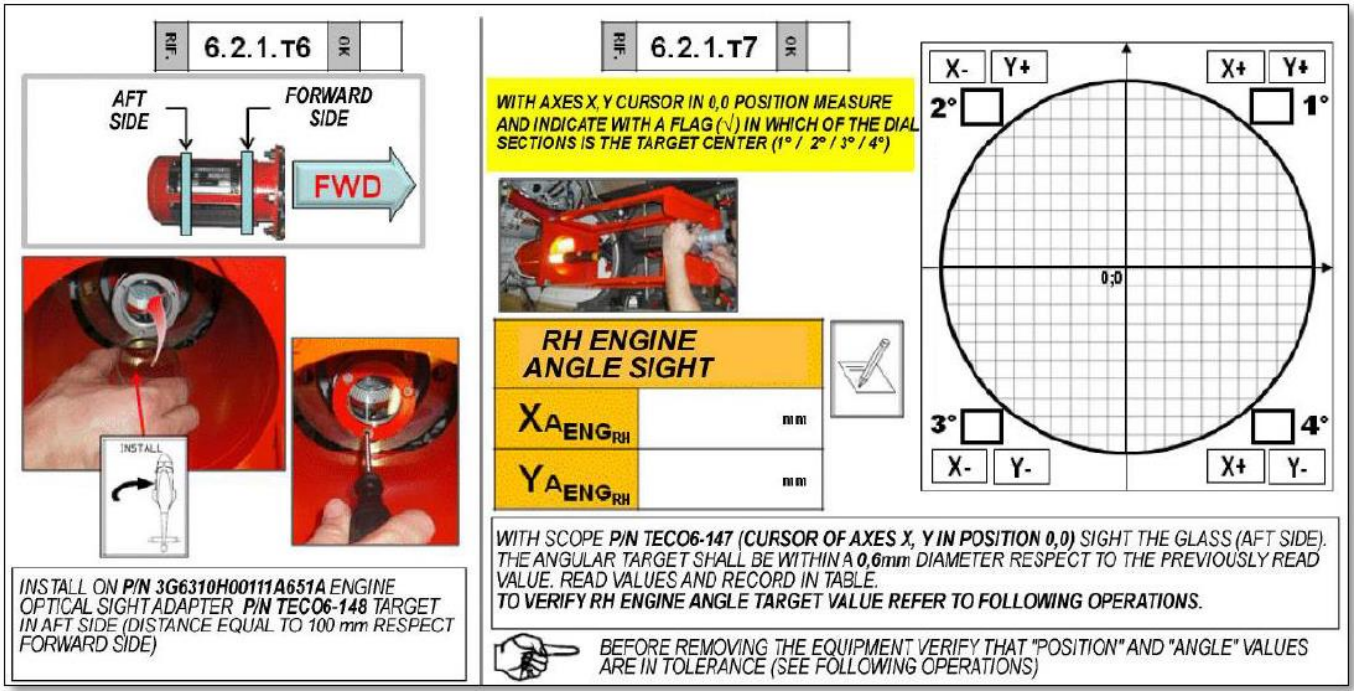
SPECIFY WHICH MGB IS INSTALLED

NOTIFY ANY DIFFERENT P/Ns



POSIZIONARE IL SIMULACRO **P/N 3G6310H00111A651A** IN PROSSIMITA' DELLA FLANGIA **DX** DELLA TRASMISSIONE **(BL 575.5)** (1), ALLINEARE I FORI DEL CROSSHEAD CON I FORI DELLA FLANGIA (2). ALLINEARE I DUE ATTACCHI POSTERIORI (3) E FISSARLI ENTRAMBI (4). **INFINE** SERRARE IL SIMULACRO ALLA FLANGIA DELLA PRESA DI MOTO ELICOTTERO MOTORE DX (5).
*POSITION **P/N 3G6310H00111A651A** MOCK-UP CLOSE TO TRANSMISSION **RH** FLANGE **(BL 575.5)** (1), ALIGN CROSSHEAD HOLES WITH FLANGE HOLES (2), ALIGN THE TWO AFT FITTINGS (3) AND SECURE BOTH (4). **FINALLY** SECURE THE MOCK-UP TO HELICOPTER RH ENGINE DRIVE QUILL FLANGE (5).*


RIF. 6.2.1.T4 OK
INSTALL
FWD
POSITION SCOPE P/N TECO6-147 SECURING IT ON ENGINE MASTER PRISM AND LOCK BY THE USE OF TIE-STRAPS
RIF. 6.2.1.T5 OK
WITH AXES X,Y CURSOR IN 0,0 POSITION MEASURE AND INDICATE WITH A FLAG (√) IN WHICH OF THE DIAL SECTIONS IS THE TARGET CENTER (1° / 2° / 3° / 4°)
RH ENGINE POSITION SIGHT
XPENGRH mm
YPENGRH mm
X- Y+
X+ Y+
2°
1°
0;0
3°
4°
X- Y-
X+ Y-
WITH SCOPE P/N TECO6-147 (CURSOR OF AXES X, Y IN POSITION 0,0) SIGHT THE GLASS TARGET AND MEASURE X, Y VALUES. MEASURED VALUES RESPECT TO ZERO SHALL BE INCLUDED WITHIN A 0,4mm DIAMETER. RECORD VALUES IN TABLE.
TO VERIFY RH ENGINE POSITION TARGET VALUE REFER TO FOLLOWING OPERATIONS.


RIF. 6.2.1.T6 OK
AFT SIDE
FORWARD SIDE
FWD
INSTALL
INSTALL ON P/N 3G6310H00111A651A ENGINE OPTICAL SIGHT ADAPTER P/N TECO6-148 TARGET IN AFT SIDE (DISTANCE EQUAL TO 100 mm RESPECT FORWARD SIDE)
RIF. 6.2.1.T7 OK
WITH AXES X, Y CURSOR IN 0,0 POSITION MEASURE AND INDICATE WITH A FLAG (√) IN WHICH OF THE DIAL SECTIONS IS THE TARGET CENTER (1° / 2° / 3° / 4°)
RH ENGINE ANGLE SIGHT
XAENGRH mm
YAENGRH mm
X- Y+
X+ Y+
2°
1°
0;0
3°
4°
X- Y-
X+ Y-
WITH SCOPE P/N TECO6-147 (CURSOR OF AXES X, Y IN POSITION 0,0) SIGHT THE GLASS (AFT SIDE). THE ANGULAR TARGET SHALL BE WITHIN A 0,6mm DIAMETER RESPECT TO THE PREVIOUSLY READ VALUE. READ VALUES AND RECORD IN TABLE.
TO VERIFY RH ENGINE ANGLE TARGET VALUE REFER TO FOLLOWING OPERATIONS.
BEFORE REMOVING THE EQUIPMENT VERIFY THAT "POSITION" AND "ANGLE" VALUES ARE IN TOLERANCE (SEE FOLLOWING OPERATIONS)

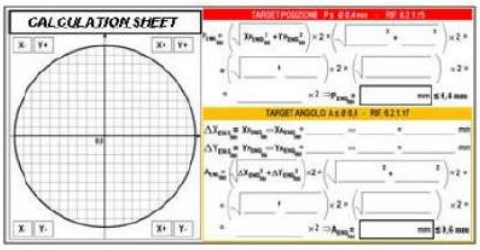
ENTER THE FLAG IN BOX CORRESPONDING TO THE "ANALYSIS" TYPE THAT WILL BE CARRIED OUT

☐ **RH ENGINE ALIGNMENT DATA ANALYSIS USING P/N T1396300S1A686A SOFTWARE**

IN THE EVENT THAT TO VERYFY THE ALIGNMENT GOOD QUALITY IT HAS BEEN UTILIZED THE SOFTWARE P/N T1396300S1A686A, ASK FOR THE INTERVENTION OF A QUALITY OPERATOR AND PERFORM OPERATIONS 121 AND 131.

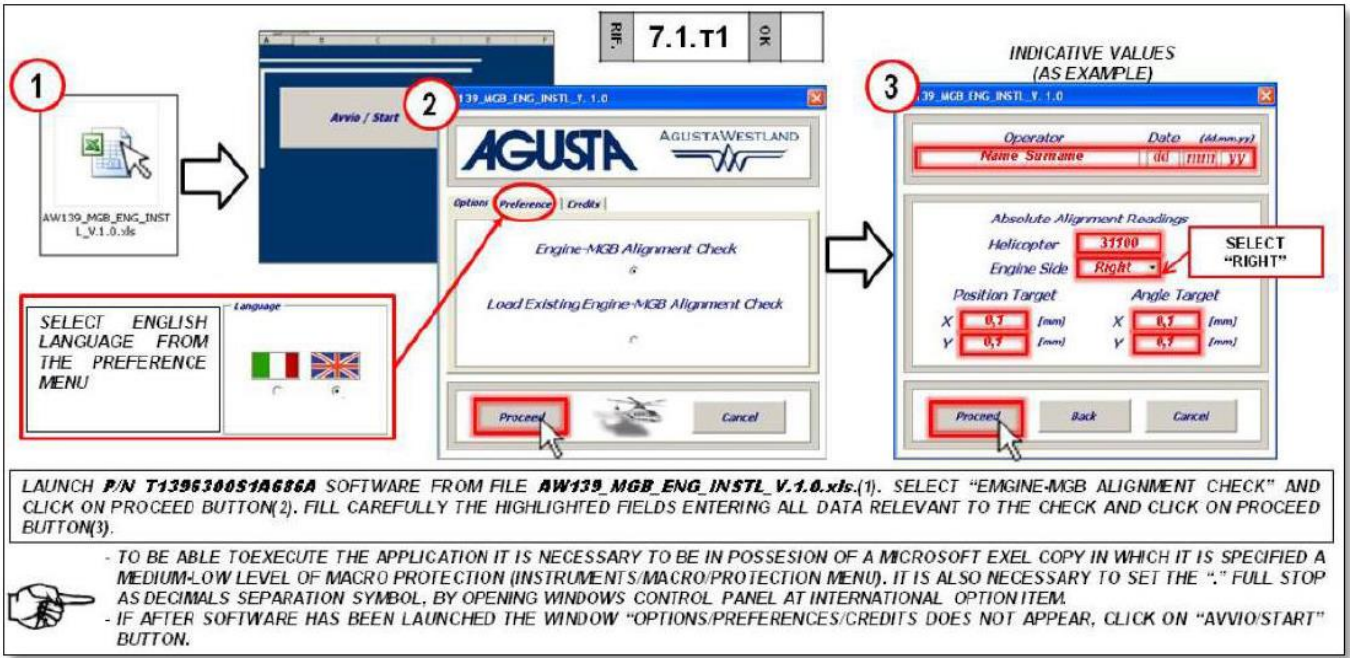
RECOMMENDED OPTION

☐ **RH ENGINE ALIGNMENT DATA ANALYSIS USING CALCULATION SHEET**



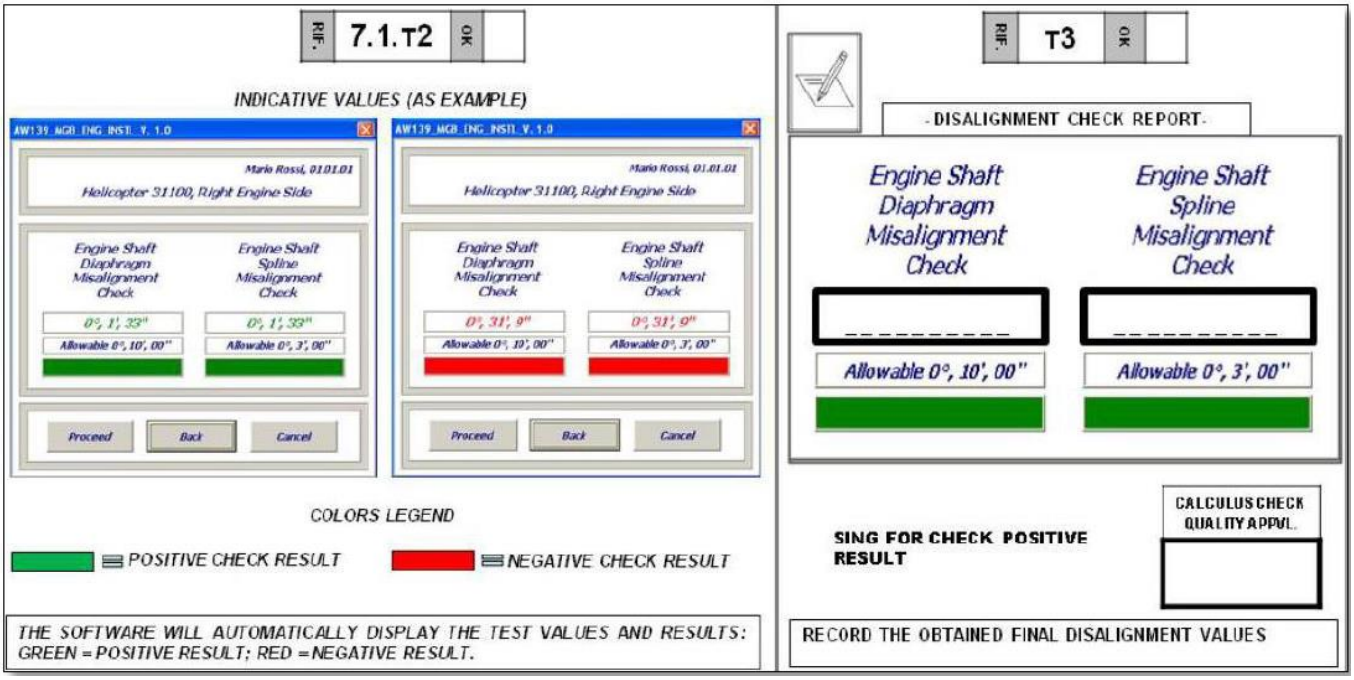
IF CALCULATION SOFTWARE P/N T1396300S1A686A CANNOT BE UTILIZED, REFER TO THE CALCULATION SHEET IN OPERATION 140.

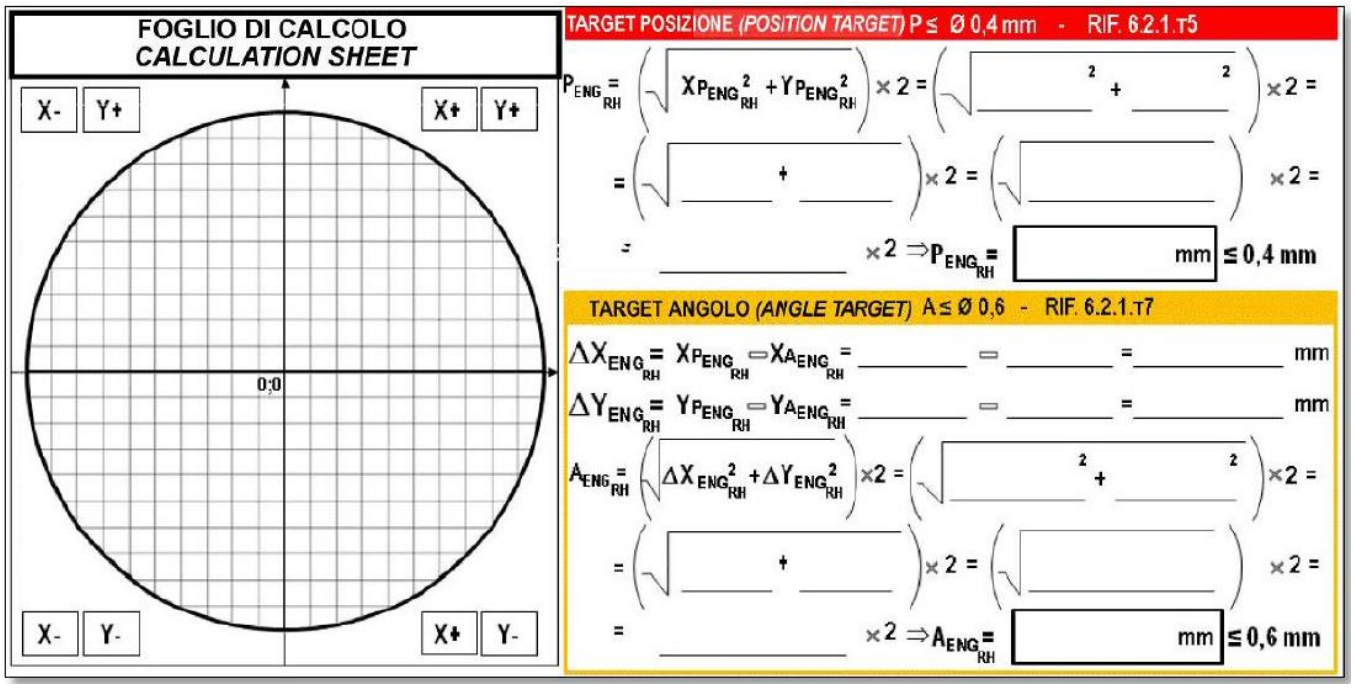
HAVE CALCULATIONS CERTIFIED BY A QUALITY OPERATOR

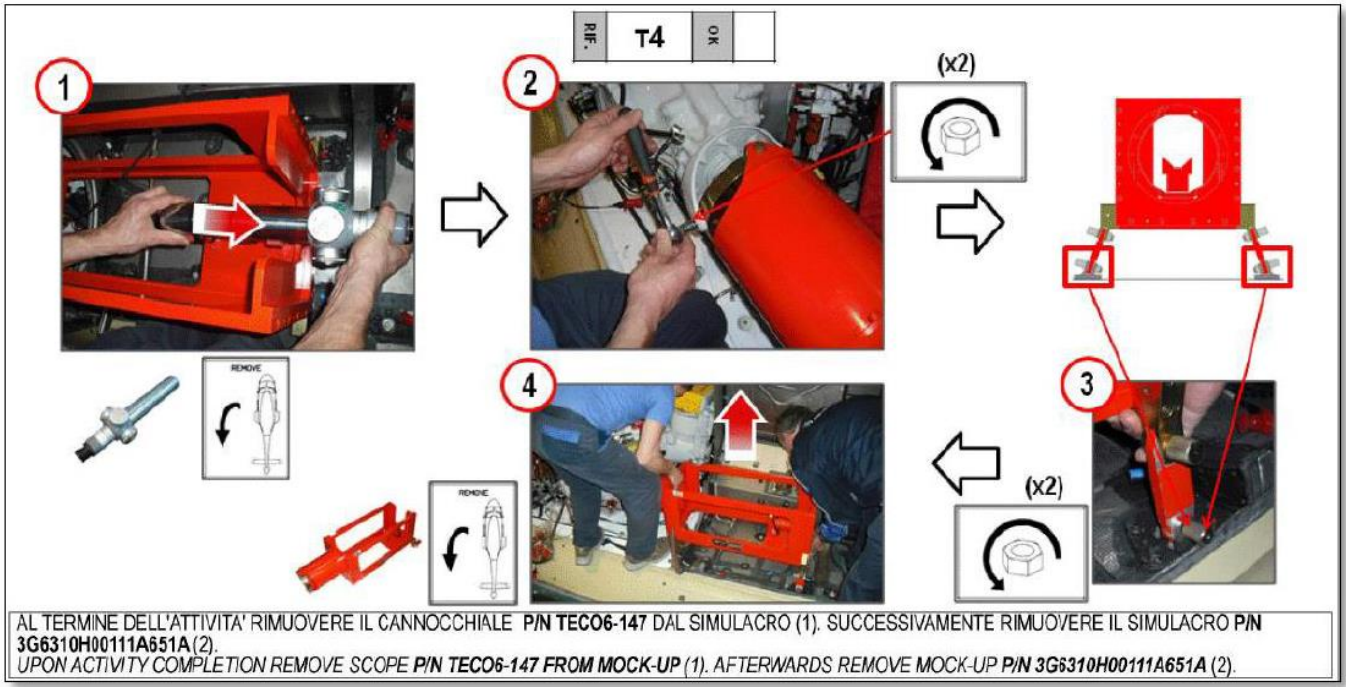


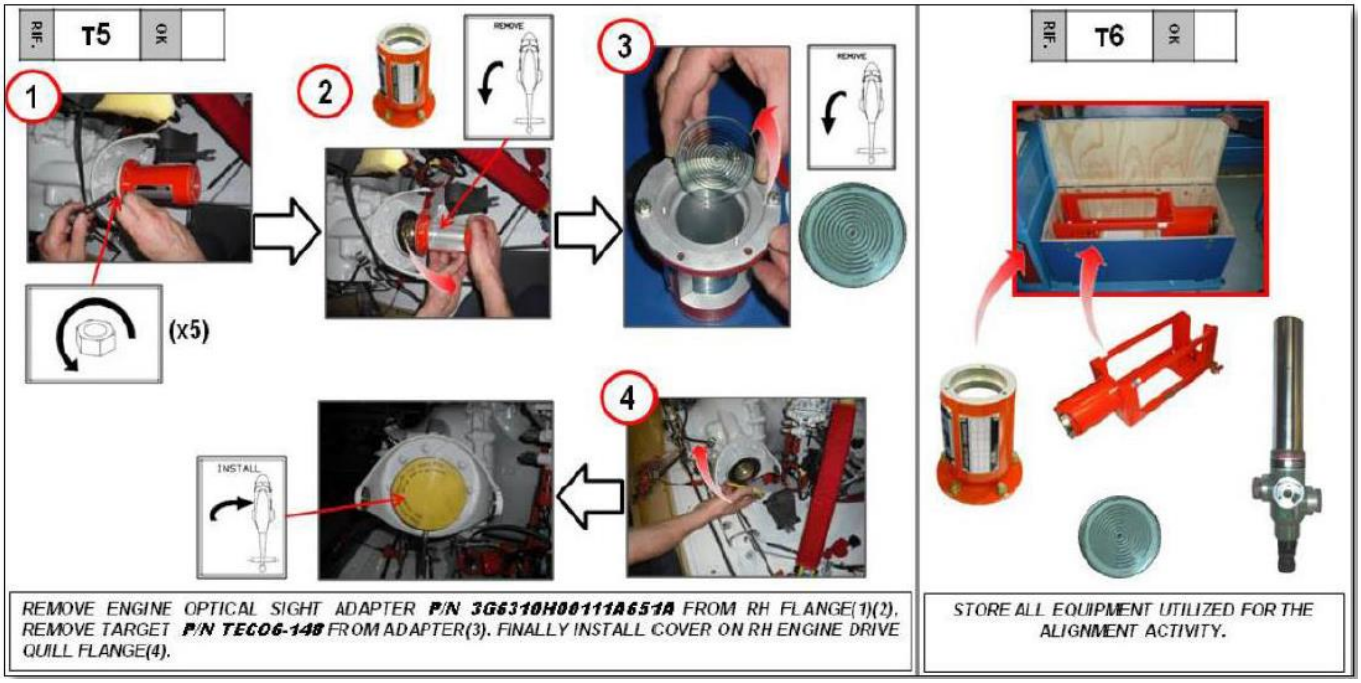
LAUNCH **P/N T1396300S1A686A** SOFTWARE FROM FILE **AW139_MGB_ENG_INSTL_V.1.0.xls**.(1). SELECT "EMGINE-MGB ALIGNMENT CHECK" AND CLICK ON PROCEED BUTTON(2). FILL CAREFULLY THE HIGHLIGHTED FIELDS ENTERING ALL DATA RELEVANT TO THE CHECK AND CLICK ON PROCEED BUTTON(3).

- TO BE ABLE TOEXECUTE THE APPLICATION IT IS NECESSARY TO BE IN POSSESION OF A MICROSOFT EXEL COPY IN WHICH IT IS SPECIFIED A MEDIUM-LOW LEVEL OF MACRO PROTECTION (INSTRUMENTS/MACRO/PROTECTION MENU). IT IS ALSO NECESSARY TO SET THE "." FULL STOP AS DECIMALS SEPARATION SYMBOL, BY OPENING WINDOWS CONTROL PANEL AT INTERNATIONAL OPTION ITEM.
- IF AFTER SOFTWARE HAS BEEN LAUNCHED THE WINDOW "OPTIONS/PREFERENCES/CREDITS DOES NOT APPEAR, CLICK ON "AVVIO/START" BUTTON.


RIF. 7.1.T2 OK
INDICATIVE VALUES (AS EXAMPLE)
Mario Rossi, 01.01.01
Helicopter 31100, Right Engine Side
Engine Shaft Diaphragm Misalignment Check
Engine Shaft Spline Misalignment Check
0°, 1', 33"
Allowable 0°, 10', 00"
Allowable 0°, 3', 00"
0°, 31', 9"
Proceed
Back
Cancel
COLORS LEGEND
POSITIVE CHECK RESULT
NEGATIVE CHECK RESULT
THE SOFTWARE WILL AUTOMATICALLY DISPLAY THE TEST VALUES AND RESULTS: GREEN = POSITIVE RESULT; RED = NEGATIVE RESULT.
RIF. T3 OK
- DISALIGNMENT CHECK REPORT -
Engine Shaft Diaphragm Misalignment Check
Engine Shaft Spline Misalignment Check
Allowable 0°, 10', 00"
Allowable 0°, 3', 00"
SING FOR CHECK POSITIVE RESULT
CALCULUS CHECK QUALITY APPVL.
RECORD THE OBTAINED FINAL DISALIGNMENT VALUES


FOGLIO DI CALCOLO
CALCULATION SHEET
X- Y+
X+ Y+
0;0
X- Y-
X+ Y-
TARGET POSIZIONE (POSITION TARGET) P ≤ Ø 0,4 mm - RIF. 6.2.1.T5
TARGET ANGOLO (ANGLE TARGET) A ≤ Ø 0,6 - RIF. 6.2.1.T7
mm ≤ 0,4 mm
mm ≤ 0,6 mm


RIF. T4 OK
1
2
(x2)
3
4
(x2)
REMOVE
REMOVE
AL TERMINE DELL'ATTIVITA' RIMUOVERE IL CANNOCCHIALE P/N TECO6-147 DAL SIMULACRO (1). SUCCESSIVAMENTE RIMUOVERE IL SIMULACRO P/N 3G6310H00111A651A (2).
UPON ACTIVITY COMPLETION REMOVE SCOPE P/N TECO6-147 FROM MOCK-UP (1). AFTERWARDS REMOVE MOCK-UP P/N 3G6310H00111A651A (2).


RIF. T5 OK
1
2
3
4
(x5)
REMOVE
REMOVE
REMOVE
INSTALL
REMOVE ENGINE OPTICAL SIGHT ADAPTER P/N 3G6310H00111A651A FROM RH FLANGE(1)(2). REMOVE TARGET P/N TECO6-148 FROM ADAPTER(3). FINALLY INSTALL COVER ON RH ENGINE DRIVE QUILL FLANGE(4).
RIF. T6 OK
STORE ALL EQUIPMENT UTILIZED FOR THE ALIGNMENT ACTIVITY.

Annex B

NOTES:

Ⓐ 1) LH/RH FWD EXTERNAL DOUBLER MATERIAL: PLATE CRES 301 CONDITION 1/4H AMS5517 THICKNESS 0.41 MM.

Ⓐ 2) LH/RH FWD INTERNAL DOUBLER MATERIAL: PLATE CRES 301 CONDITION 1/4H AMS5517 THICKNESS 0.64 MM.

Ⓐ 3) LH/RH AFT EXTERNAL DOUBLER MATERIAL: PLATE CRES 301 CONDITION 1/4H AMS5517 THICKNESS 0.41 MM.

Ⓐ 4) LH/RH AFT INTERNAL DOUBLER MATERIAL: PLATE CRES 301 CONDITION 1/4H AMS5517 THICKNESS 0.64 MM.

5) RIVETING PROCEDURE I.A.W. 39-A-51-41-01-00A-010A-A

6) UNLESS OTHERWISE STATED BREAK SHARP EDGES WITH RADIUS 0,13±0,38 MM.

7) ADAPT PIECES DURING INSTALLATION.

8) DEBURR ALL HOLES AND BREAK SHARP EDGES WITH RADIUS 0.13±0.38 MM

9) FOR BONDING PROCEDURE REFER TO 39-A-51-62-00-00A-010A-A

10) APPLY PRIMER UNLESS OTHERWISE STATED I.A.W. 39-A-51-61-01-00A-010A-A

Paolo Angelo Fedele - Head of Repair Design - AgustaWestland

For _____ S/N _____ T.T _____

Part Name _____

P/N _____ S/N _____ T.T _____

This is a _____ repair approved with ref.to NTR- _____

Authorized signature as per DOA manual C750-02-002

This repair design approval only covers design aspects and excludes workmanship aspects.
It has been prepared for a specific helicopter or component based on original AgustaWestland Type Certificate and solely on the basis of the information supplied to AgustaWestland. This Repair Approval is not to be used for any other helicopter or component or any other purposes than for which it was supplied without the written approval of AgustaWestland DOA

REVISION: Ⓐ DATE: 18/07/2014

EXTENDED APPLICABILITY TO LH SIDE

AgustaWestland
A Finmeccanica Company

REPAIR ENGINEERING

TITLE:

Ⓐ RH/LH PROFILE WL 2670.0 REPAIR

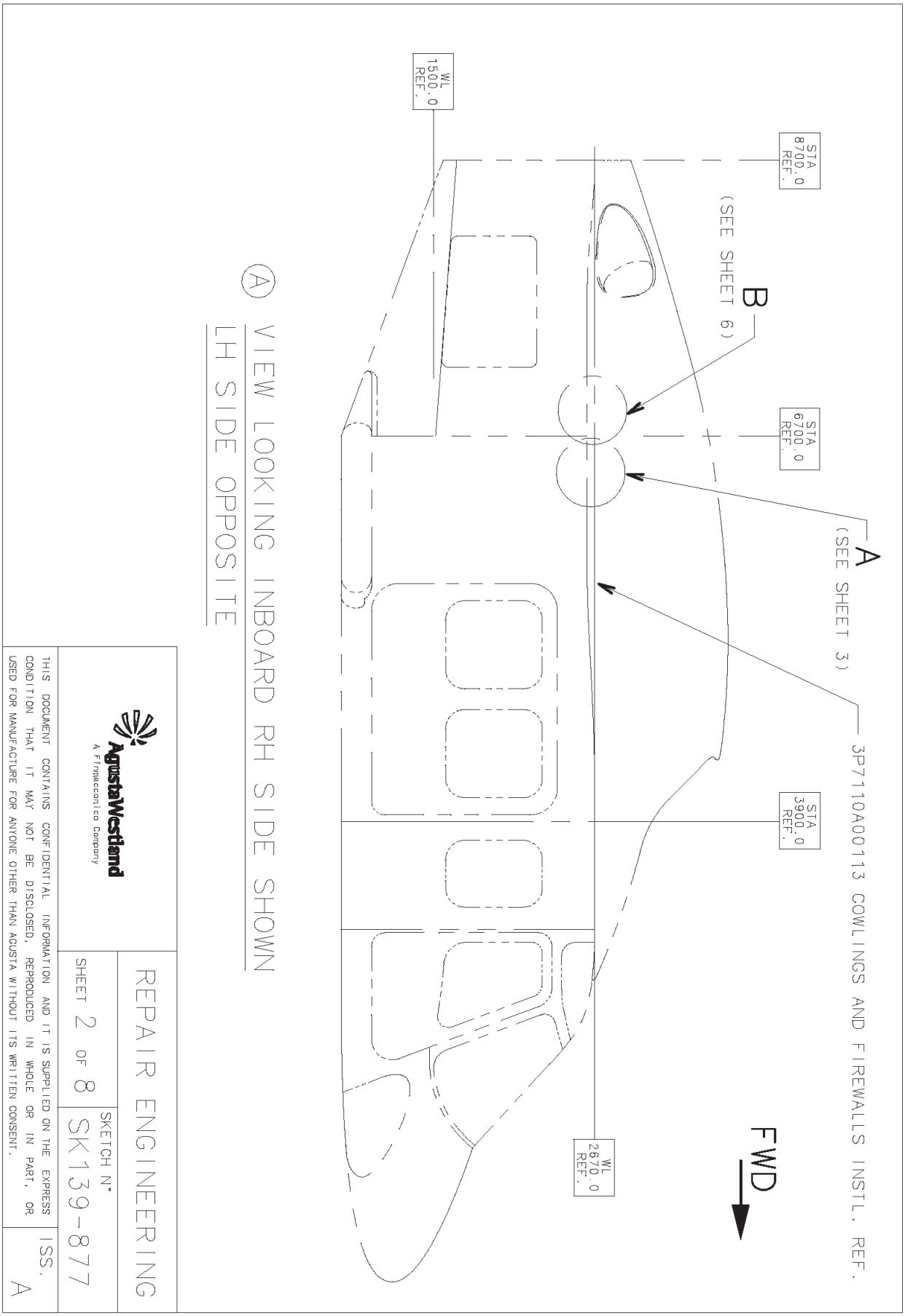
GROUP ENGINEER: P. FEDELE

DATE: 09/04/2014

SHEET 1 OF 8

SKETCH N° SK139-877

ISS. A


3P7110A00113 COWLINGS AND FIREWALLS INSTL. REF.
A
(SEE SHEET 3)
B
(SEE SHEET 6)
STA 8700.0 REF.
STA 6700.0 REF.
STA 3900.0 REF.
WL 1500.0 REF.
WL 2670.0 REF.
FWD
Ⓐ VIEW LOOKING INBOARD RH SIDE SHOWN
LH SIDE OPPOSITE
AgustaWestland
A Finmeccanica Company
REPAIR ENGINEERING
SHEET 2 OF 8
SKETCH N°
SK139-877
ISS.
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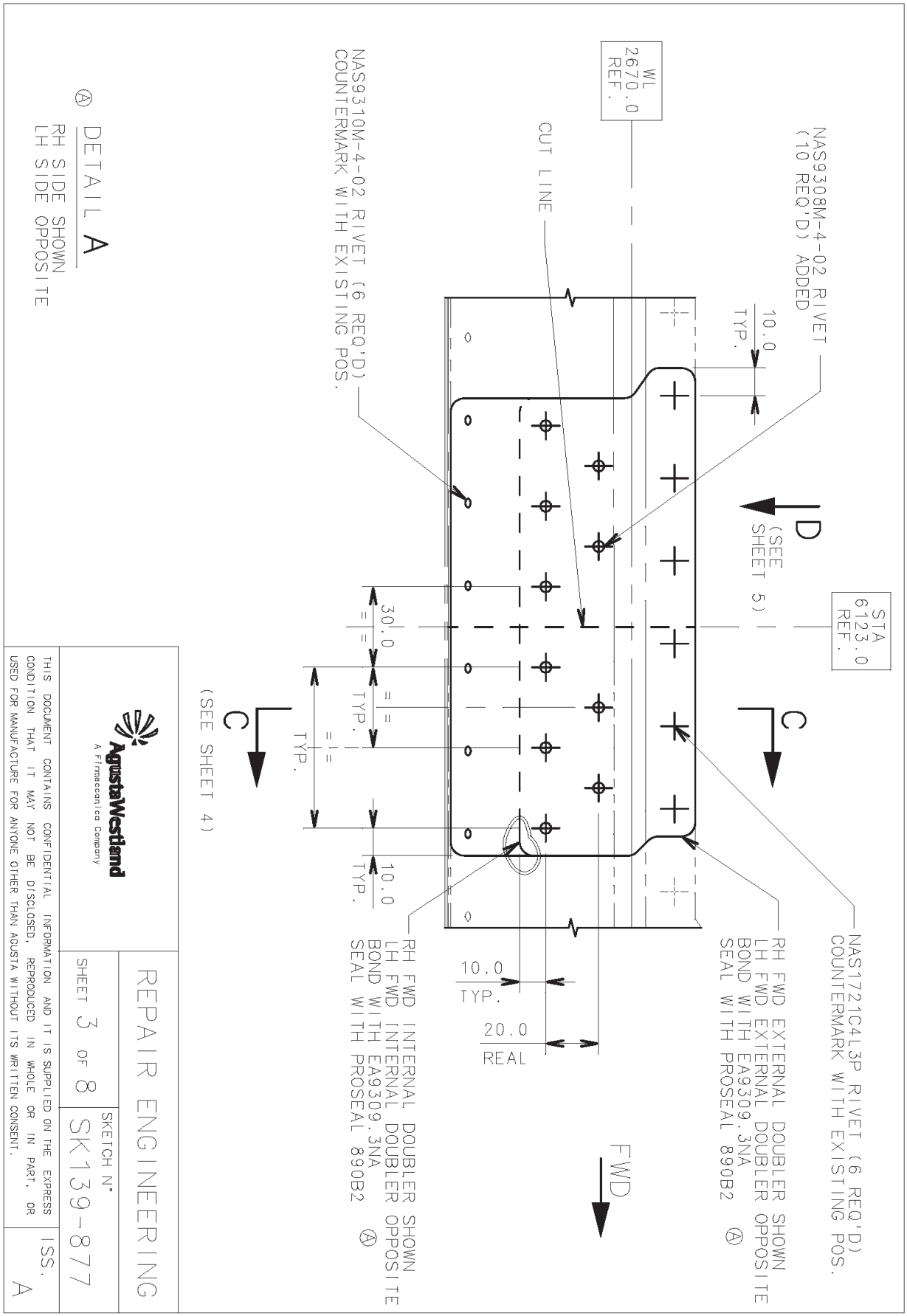
NAS9308M-4-02 RIVET
(10 REQ'D) ADDED
10.0
TYP.
D
(SEE
SHEET 5)
WL
2670.0
REF.
CUT LINE
STA
6123.0
REF.
C
NAS9310M-4-02 RIVET (6 REQ'D)
COUNTERMARK WITH EXISTING POS.
30.0
TYP.
C
(SEE SHEET 4)
10.0
TYP.
20.0
REAL
NAS1721C4L3P RIVET (6 REQ'D)
COUNTERMARK WITH EXISTING POS.
RH FWD EXTERNAL DOUBLER SHOWN
LH FWD EXTERNAL DOUBLER OPPOSITE
BOND WITH EA9309.3NA
SEAL WITH PROSEAL 890B2 Ⓐ
RH FWD INTERNAL DOUBLER SHOWN
LH FWD INTERNAL DOUBLER OPPOSITE
BOND WITH EA9309.3NA
SEAL WITH PROSEAL 890B2 Ⓐ
FWD
Ⓐ DETAIL A
RH SIDE SHOWN
LH SIDE OPPOSITE
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SHEET 3 OF 8
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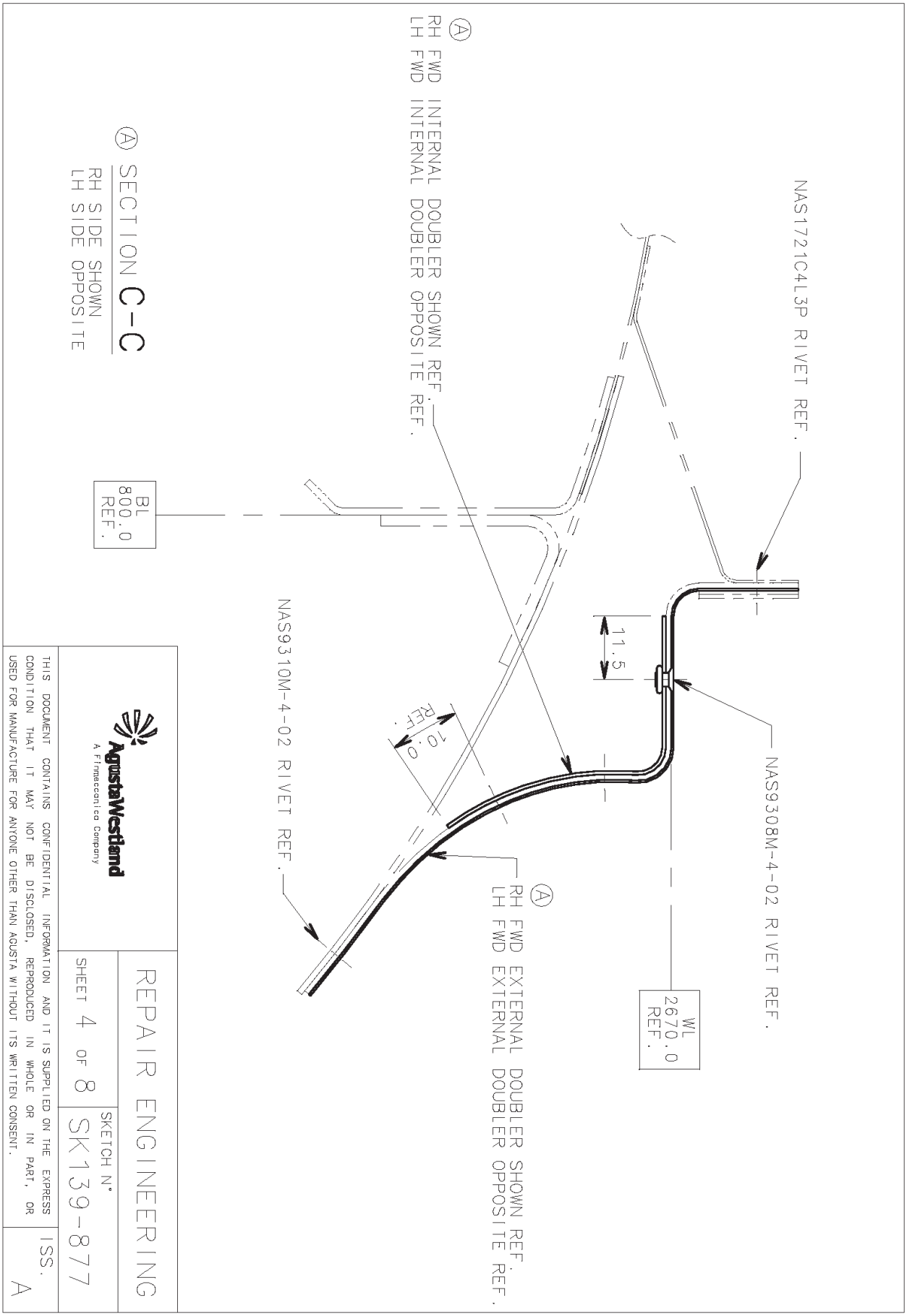
NAS1721C4L3P RIVET REF.
NAS9308M-4-02 RIVET REF.
NAS9310M-4-02 RIVET REF.
Ⓐ RH FWD INTERNAL DOUBLER SHOWN REF.
LH FWD INTERNAL DOUBLER OPPOSITE REF.
Ⓐ RH FWD EXTERNAL DOUBLER SHOWN REF.
LH FWD EXTERNAL DOUBLER OPPOSITE REF.
BL 800.0 REF.
WL 2670.0 REF.
11.5
10.0 REF.
Ⓐ SECTION C-C
RH SIDE SHOWN
LH SIDE OPPOSITE
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SHEET 4 OF 8
SKETCH N°
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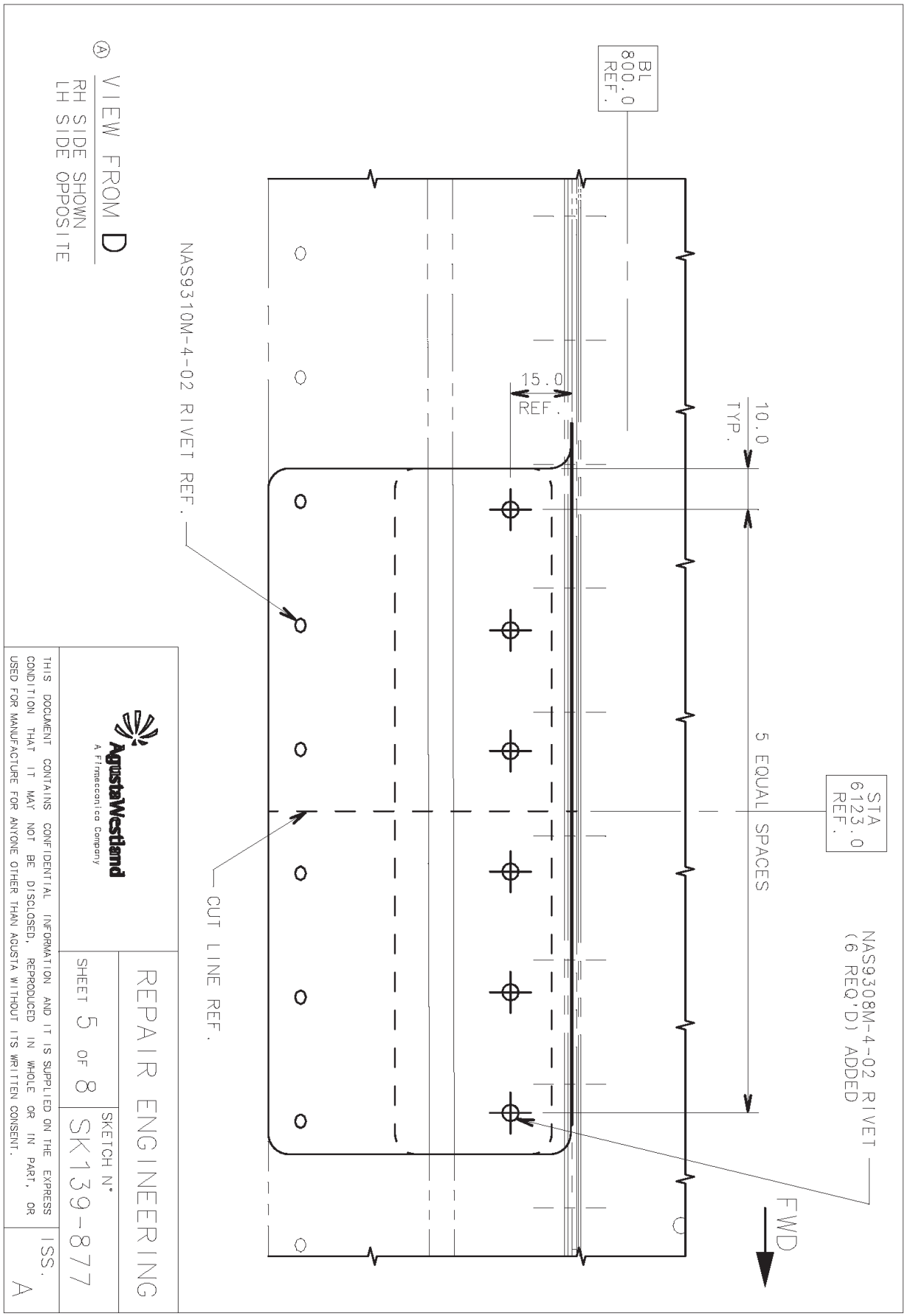
BL 800.0 REF.
15.0 REF.
10.0 TYP.
5 EQUAL SPACES
STA 6123.0 REF.
NAS9308M-4-02 RIVET (6 REQ'D) ADDED
FWD
NAS9310M-4-02 RIVET REF.
CUT LINE REF.
Ⓐ VIEW FROM D
RH SIDE SHOWN
LH SIDE OPPOSITE
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SHEET 5 OF 8
SKETCH N°
SK139-877
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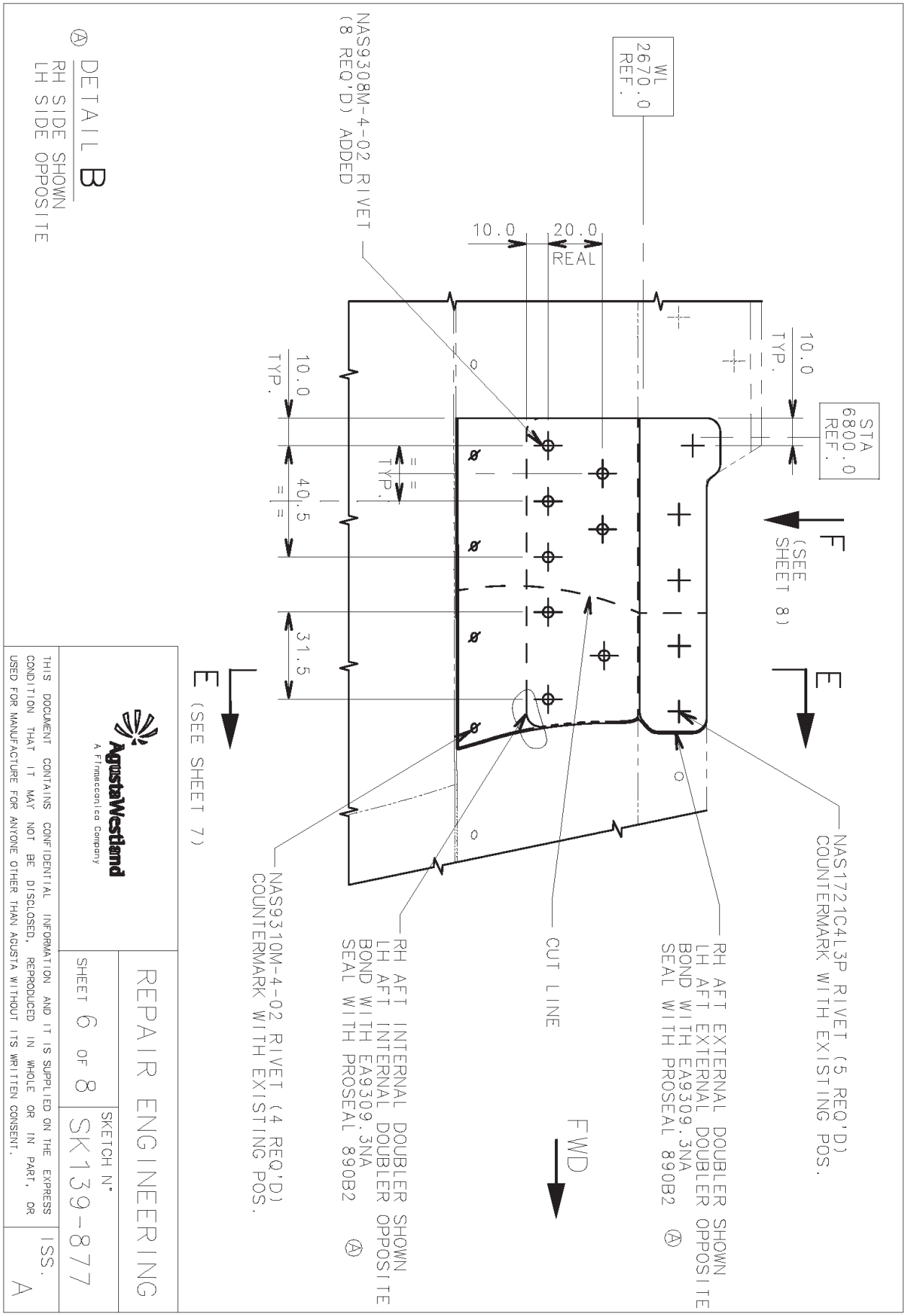
WL 2670.0 REF.
STA 6800.0 REF.
10.0 TYP.
10.0 20.0 REAL
NAS9308M-4-02 RIVET (8 REQ'D) ADDED
10.0 TYP.
40.5
31.5
F (SEE SHEET 8)
E
E (SEE SHEET 7)
NAS1721C4L3P RIVET (5 REQ'D) COUNTERMARK WITH EXISTING POS.
RH AFT EXTERNAL DOUBLER SHOWN
LH AFT EXTERNAL DOUBLER OPPOSITE
BOND WITH EA9309.3NA
SEAL WITH PROSEAL 890B2 Ⓐ
CUT LINE
FWD
RH AFT INTERNAL DOUBLER SHOWN
LH AFT INTERNAL DOUBLER OPPOSITE
BOND WITH EA9309.3NA
SEAL WITH PROSEAL 890B2 Ⓐ
NAS9310M-4-02 RIVET (4 REQ'D) COUNTERMARK WITH EXISTING POS.
Ⓐ DETAIL B
RH SIDE SHOWN
LH SIDE OPPOSITE
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REPAIR ENGINEERING
SHEET 6 OF 8
SKETCH N°
SK139-877
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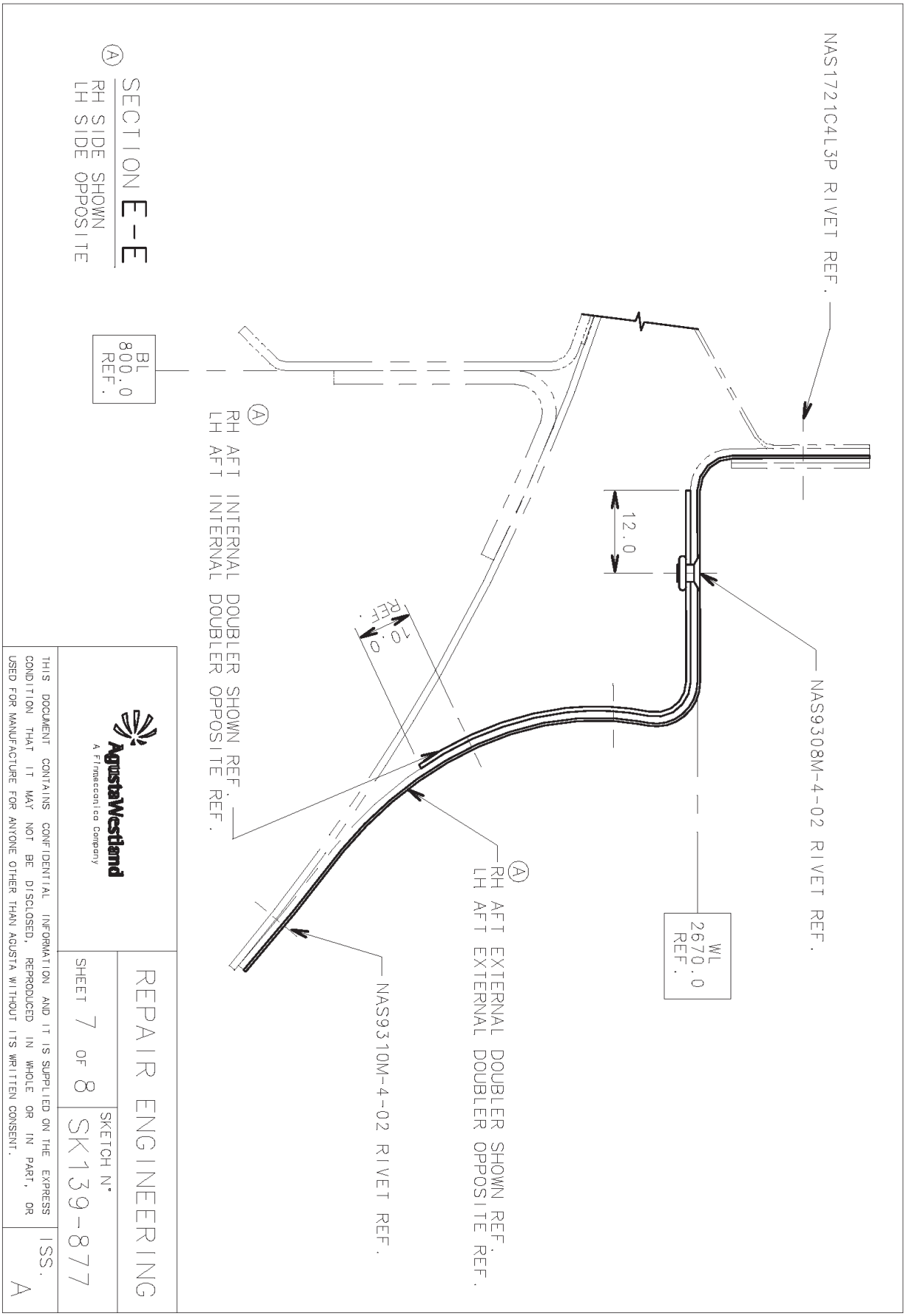
NAS1721C4L3P RIVET REF.
SECTION E-E
RH SIDE SHOWN
LH SIDE OPPOSITE
BL 800.0 REF.
RH AFT INTERNAL DOUBLER SHOWN REF.
LH AFT INTERNAL DOUBLER OPPOSITE REF.
12.0
12.0 REF.
NAS9308M-4-02 RIVET REF.
WL 2670.0 REF.
RH AFT EXTERNAL DOUBLER SHOWN REF.
LH AFT EXTERNAL DOUBLER OPPOSITE REF.
NAS9310M-4-02 RIVET REF.
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SHEET 7 OF 8
SKETCH N°
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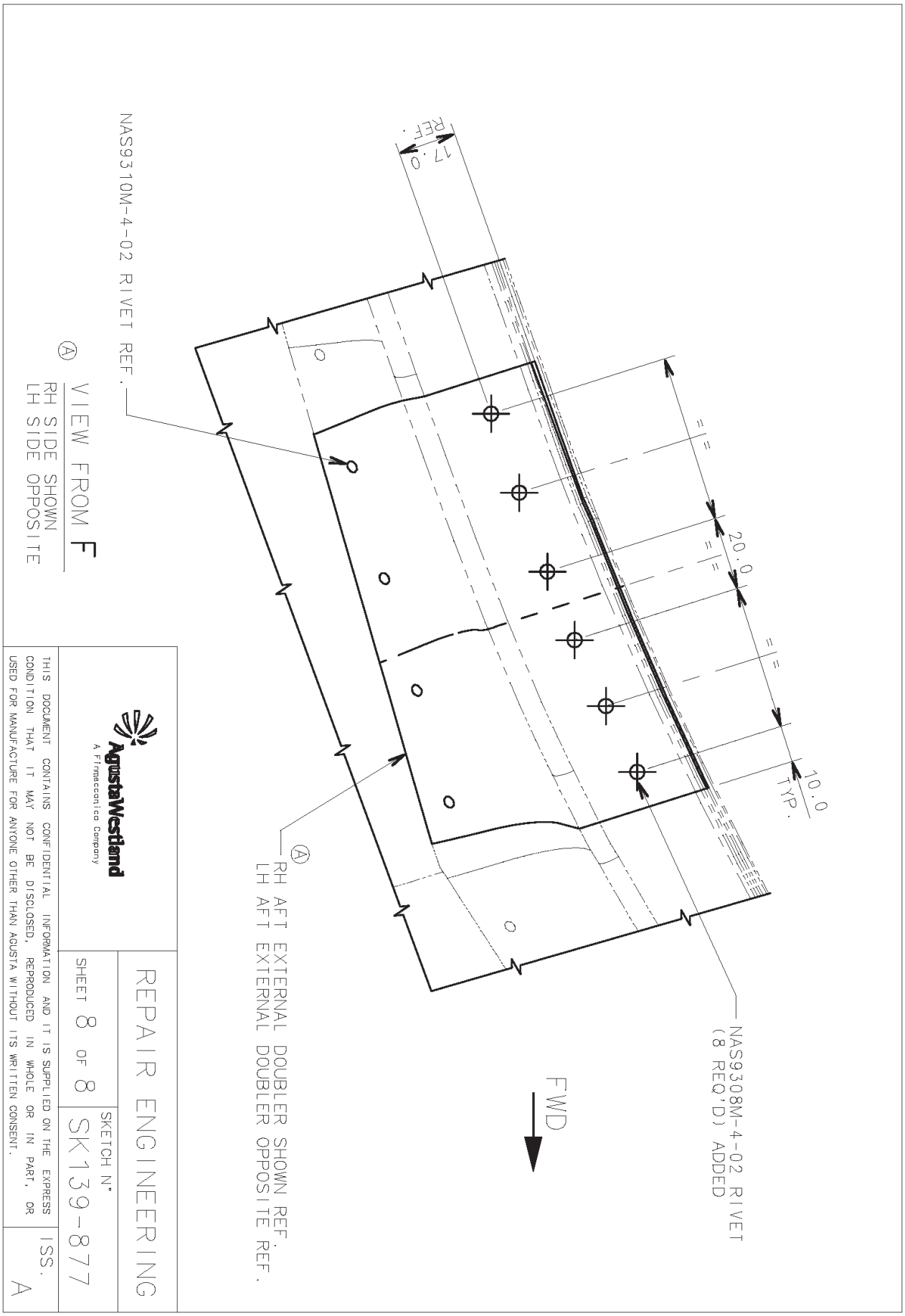
NAS9310M-4-02 RIVET REF.
Ⓐ VIEW FROM F
RH SIDE SHOWN
LH SIDE OPPOSITE
17.0 REF.
20.0
10.0 TYP.
Ⓐ
RH AFT EXTERNAL DOUBLER SHOWN REF.
LH AFT EXTERNAL DOUBLER OPPOSITE REF.
FWD
NAS9308M-4-02 RIVET
(8 REQ'D) ADDED
AgustaWestland
A Finmeccanica Company
REPAIR ENGINEERING
SHEET 8 OF 8
SKETCH N°
SK139-877
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NOTES:

1) LH/RH UPPER DOUBLER MATERIAL: PLATE CRES 301 CONDITION 1/4H AMS5517 THICKNESS 0.64 MM.
2) LH/RH DOUBLER MATERIAL: PLATE CRES 301 CONDITION 1/4H AMS5517 THICKNESS 0.51 MM.
3) DEBURR ALL HOLES AND BREAK SHARP EDGES WITH RADIUS 0,13÷0,38 MM.
4) ADAPT PIECES DURING INSTALLATION.
5) RIVETING PROCEDURE I.A.W. CSRP-A-51-41-00-00A-663A-D
6) TREAT BARE ALUMINIUM SURFACES I.A.W. CSRP-A-51-21-06-00A-644A-D
7) FOR BONDING PROCEDURE REFER TO CSRP-A-51-22-00-00A-028A-D
8) APPLY PRIMER I.A.W. CSRP-A-51-21-02-00A-028A-D

Paolo Angelo Fedele - Head of Repair Design - Finmeccanica Helicopter Division
For S/N T.I
Part Name
P/N S/N T.T
This is a repair approved with ref. to NTR-

Authorized signature as per COA manual C750-02-002
This repair design approval only covers design aspects and excludes workmanship aspects. It has been prepared for a specific helicopter or component, based on original Finmeccanica Helicopter Division Type Certificate and solely on the basis of the information supplied to Finmeccanica Helicopter Division. This repair Approval is not to be used for any other helicopter or component or any other purposes than for which it was supplied without the written approval of Finmeccanica Helicopter Division DOA.

FINMECCANICA
HELICOPTER DIVISION

REPAIR ENGINEERING

TITLE:

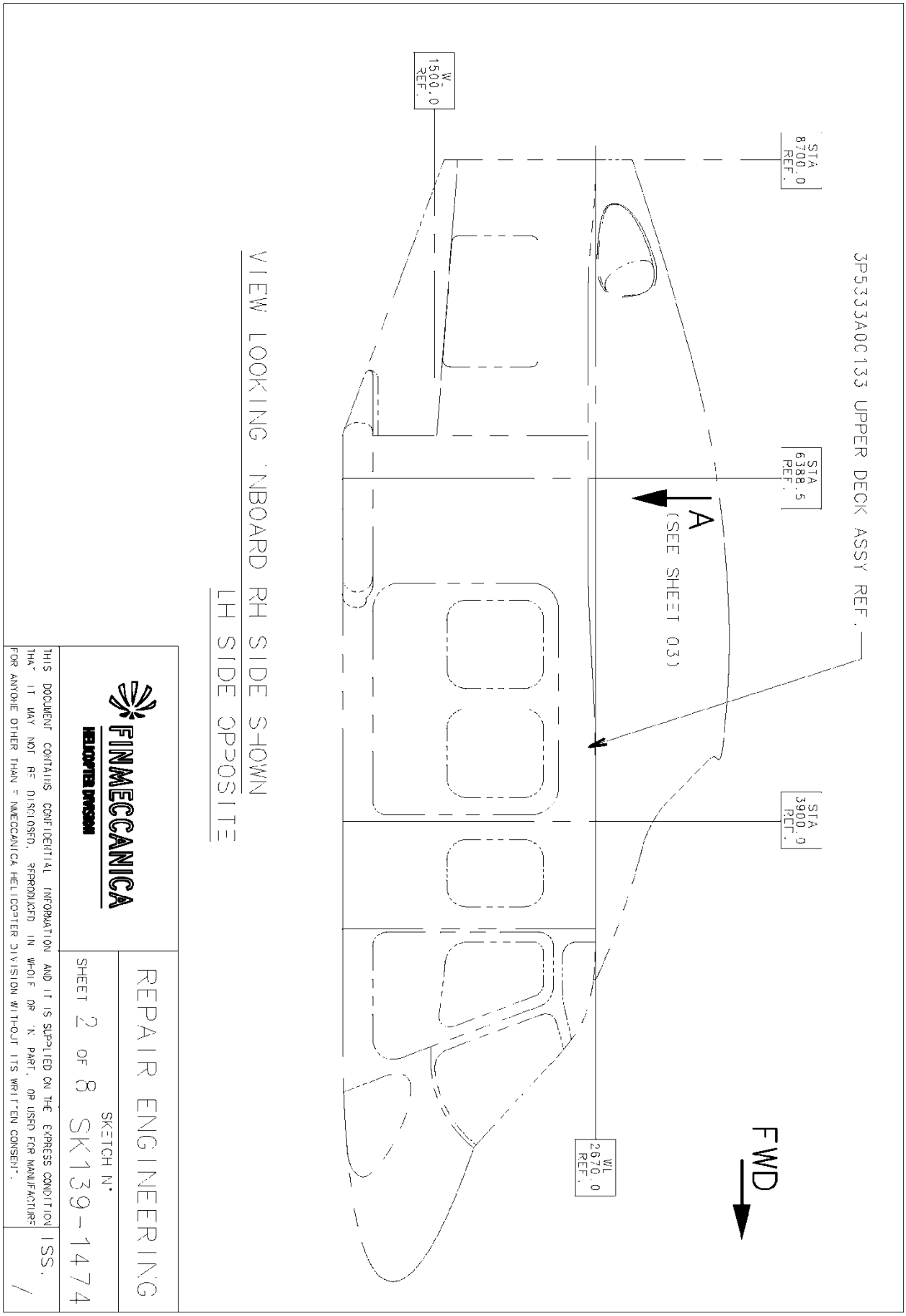
UPPER DECK ASSY REPAIR

GROUP ENGINEER: P. FEDELE
DATE: 13/09/2016

SHEET 1 OF 8

SKETCH N° SK139-1474

ISS. /


3P5333A0C133 UPPER DECK ASSY REF.
STA 8700.0 REF.
STA 6388.5 REF.
STA 3900.0 REF.
W 1500.0 REF.
WL 2670.0 REF.
A
(SEE SHEET 03)
FWD
VIEW LOOKING INBOARD RH SIDE SHOWN
LH SIDE OPPOSITE
FINMECCANICA
HELICOPTER DIVISION
REPAIR ENGINEERING
SKETCH N°
SHEET 2 OF 8 SK139-1474
ISS.
/
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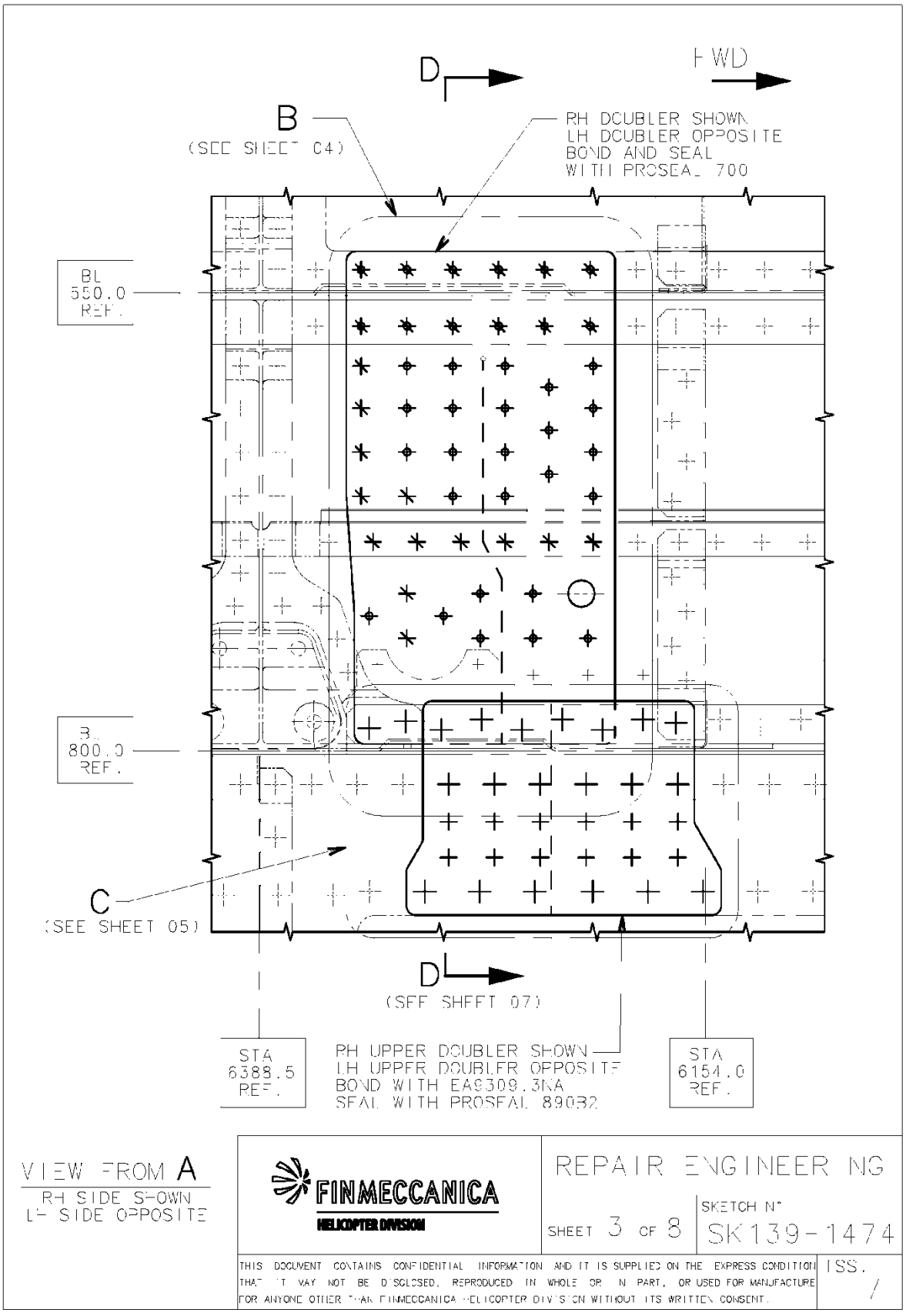
D
FWD
B
(SEE SHEET 04)
RH DOUBLER SHOWN
LH DOUBLER OPPOSITE
BOND AND SEAL
WITH PROSEAL 700
BL
550.0
REF.
B.
800.0
REF.
C
(SEE SHEET 05)
D
(SEE SHEET 07)
STA
6388.5
REF.
RH UPPER DOUBLER SHOWN
LH UPPER DOUBLER OPPOSITE
BOND WITH EA9309.3NA
SEAL WITH PROSEAL 890B2
STA
6154.0
REF.
VIEW FROM A
RH SIDE SHOWN
LH SIDE OPPOSITE
FINMECCANICA
HELICOPTER DIVISION
REPAIR ENGINEERING
SHEET 3 OF 8
SKETCH N°
SK139-1474
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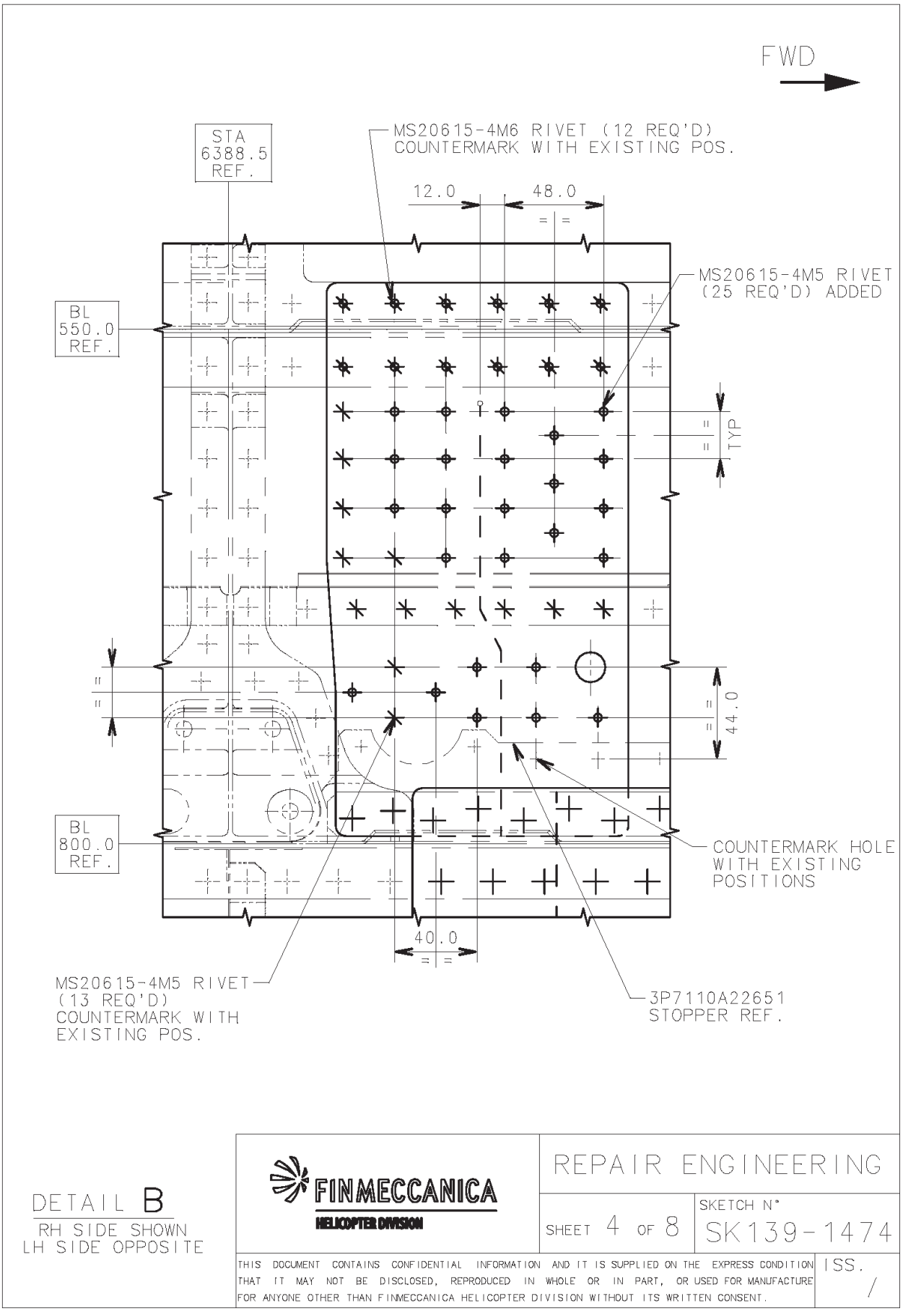
ISS.
/



DETAIL B
RH SIDE SHOWN
LH SIDE OPPOSITE

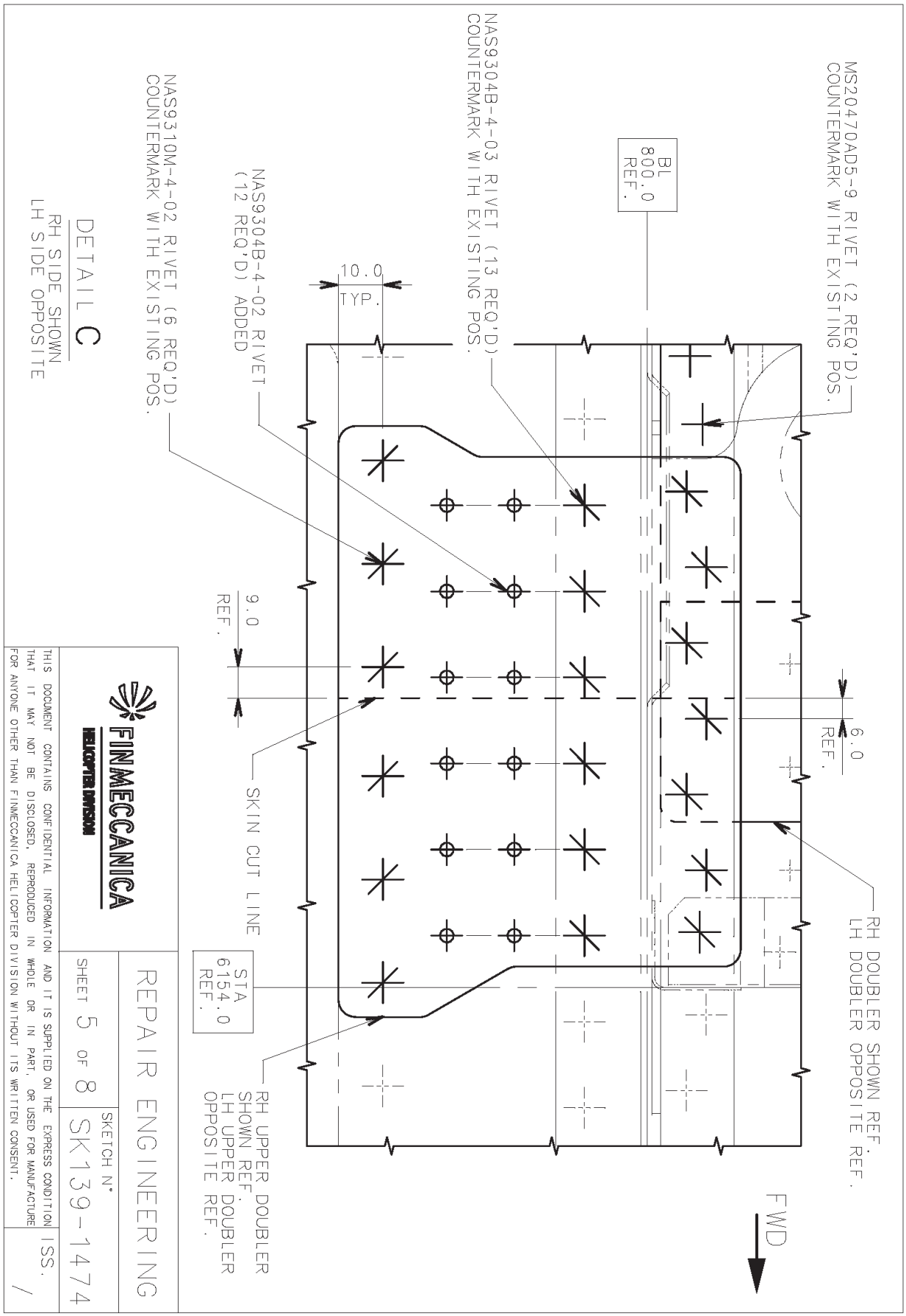
FINMECCANICA
HELICOPTER DIVISION

REPAIR ENGINEERING

SHEET 4 OF 8

SKETCH N°
SK139-1474

ISS. /


MS20470AD5-9 RIVET (2 REQ'D)
COUNTERMARK WITH EXISTING POS.
NAS9304B-4-03 RIVET (13 REQ'D)
COUNTERMARK WITH EXISTING POS.
NAS9304B-4-02 RIVET
(12 REQ'D) ADDED
NAS9310M-4-02 RIVET (6 REQ'D)
COUNTERMARK WITH EXISTING POS.
BL
800.0
REF.
10.0
TYP.
9.0
REF.
6.0
REF.
SKIN CUT LINE
STA
6154.0
REF.
RH UPPER DOUBLER
SHOWN REF.
LH UPPER DOUBLER
OPPOSITE REF.
RH DOUBLER SHOWN REF.
LH DOUBLER OPPOSITE REF.
FWD
DETAIL C
RH SIDE SHOWN
LH SIDE OPPOSITE
FINMECCANICA
HELICOPTER DIVISION
REPAIR ENGINEERING
SHEET 5 OF 8
SKETCH N°
SK139-1474
ISS.
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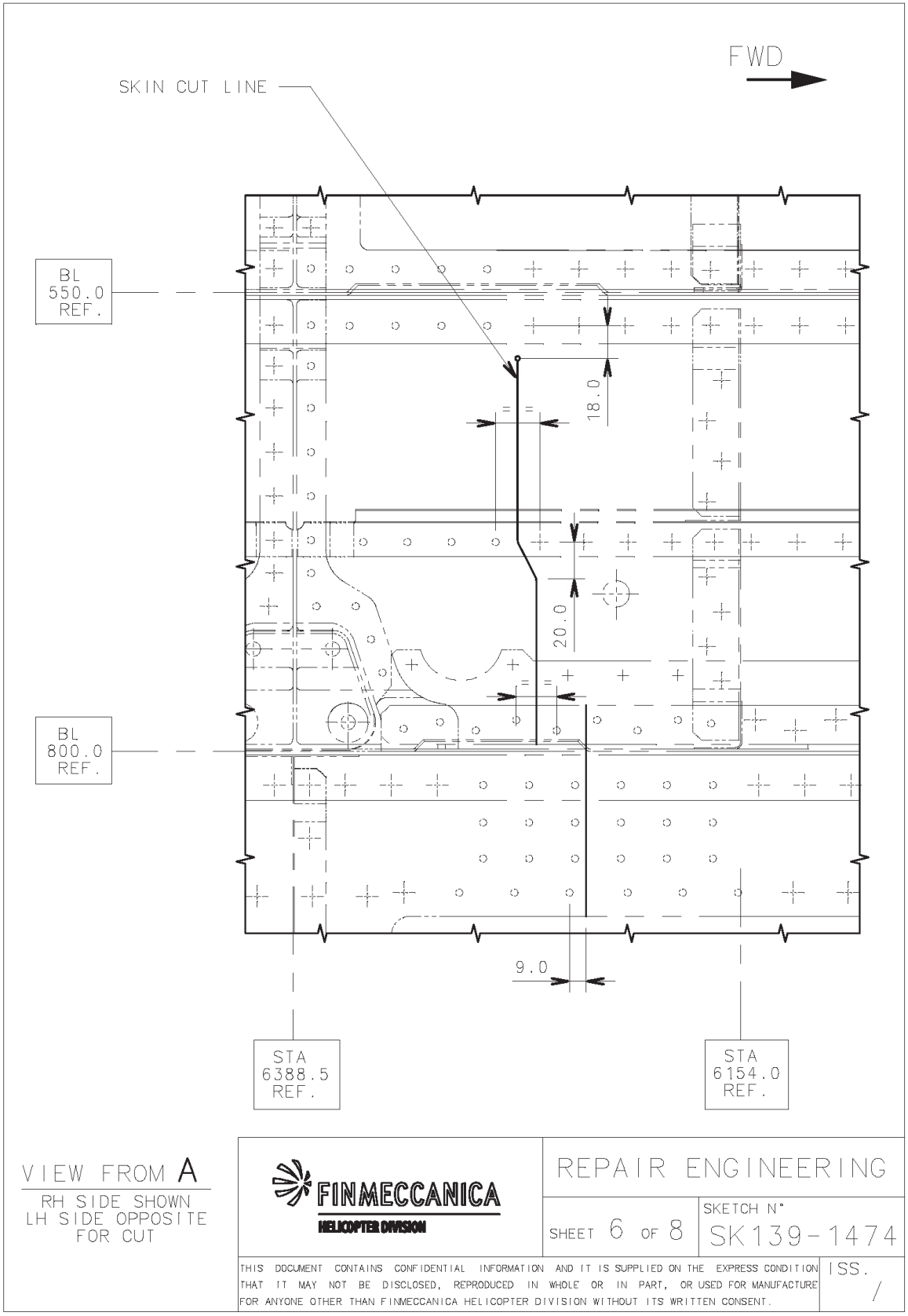
FWD
SKIN CUT LINE
BL 550.0 REF.
BL 800.0 REF.
18.0
20.0
9.0
STA 6388.5 REF.
STA 6154.0 REF.
VIEW FROM A
RH SIDE SHOWN
LH SIDE OPPOSITE FOR CUT
FINMECCANICA
HELICOPTER DIVISION
REPAIR ENGINEERING
SHEET 6 OF 8
SKETCH N°
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ISS.
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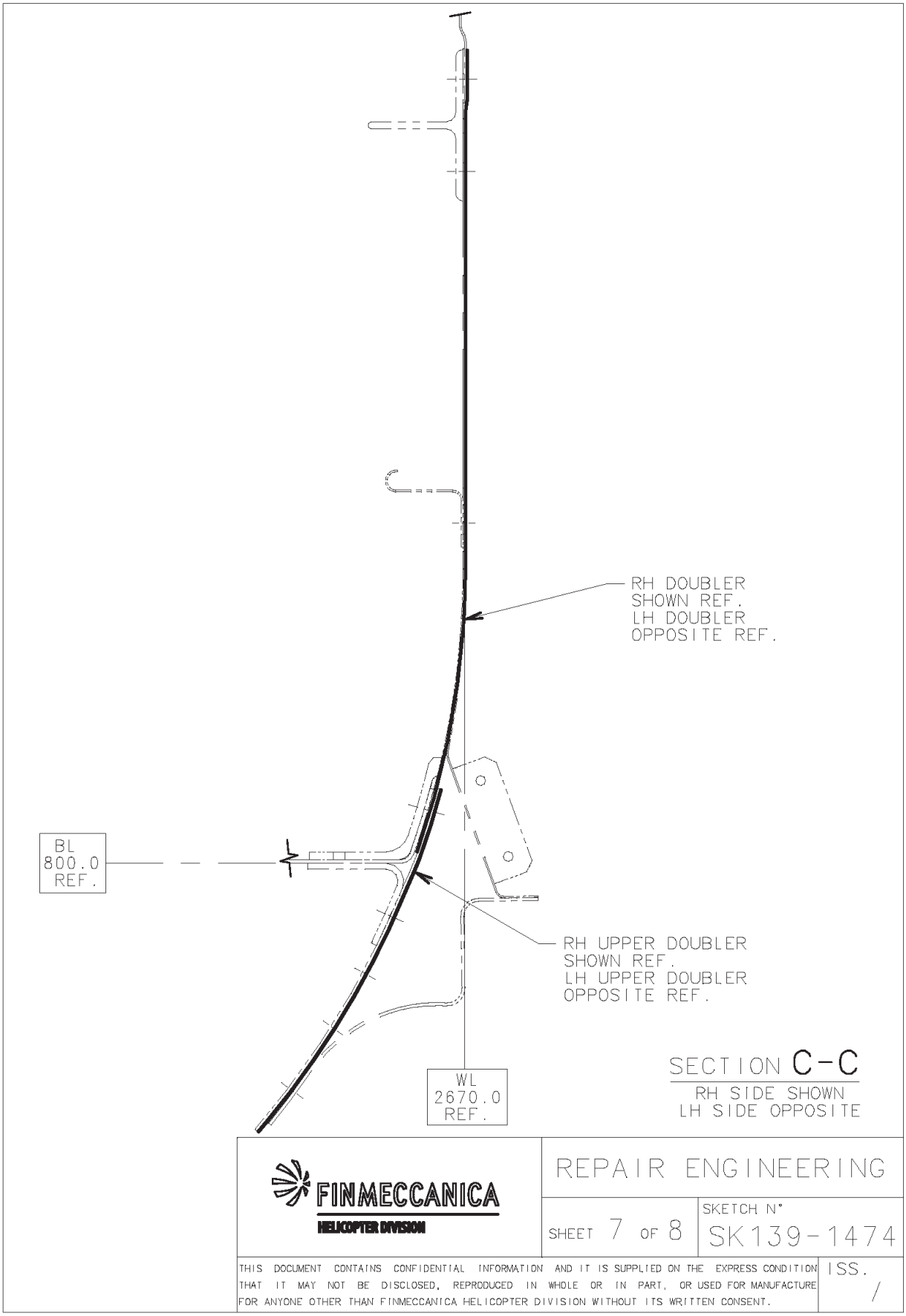
RH DOUBLER
SHOWN REF.
LH DOUBLER
OPPOSITE REF.
BL
800.0
REF.
RH UPPER DOUBLER
SHOWN REF.
LH UPPER DOUBLER
OPPOSITE REF.
WL
2670.0
REF.
SECTION C-C
RH SIDE SHOWN
LH SIDE OPPOSITE
FINMECCANICA
HELICOPTER DIVISION
REPAIR ENGINEERING
SHEET 7 OF 8
SKETCH N°
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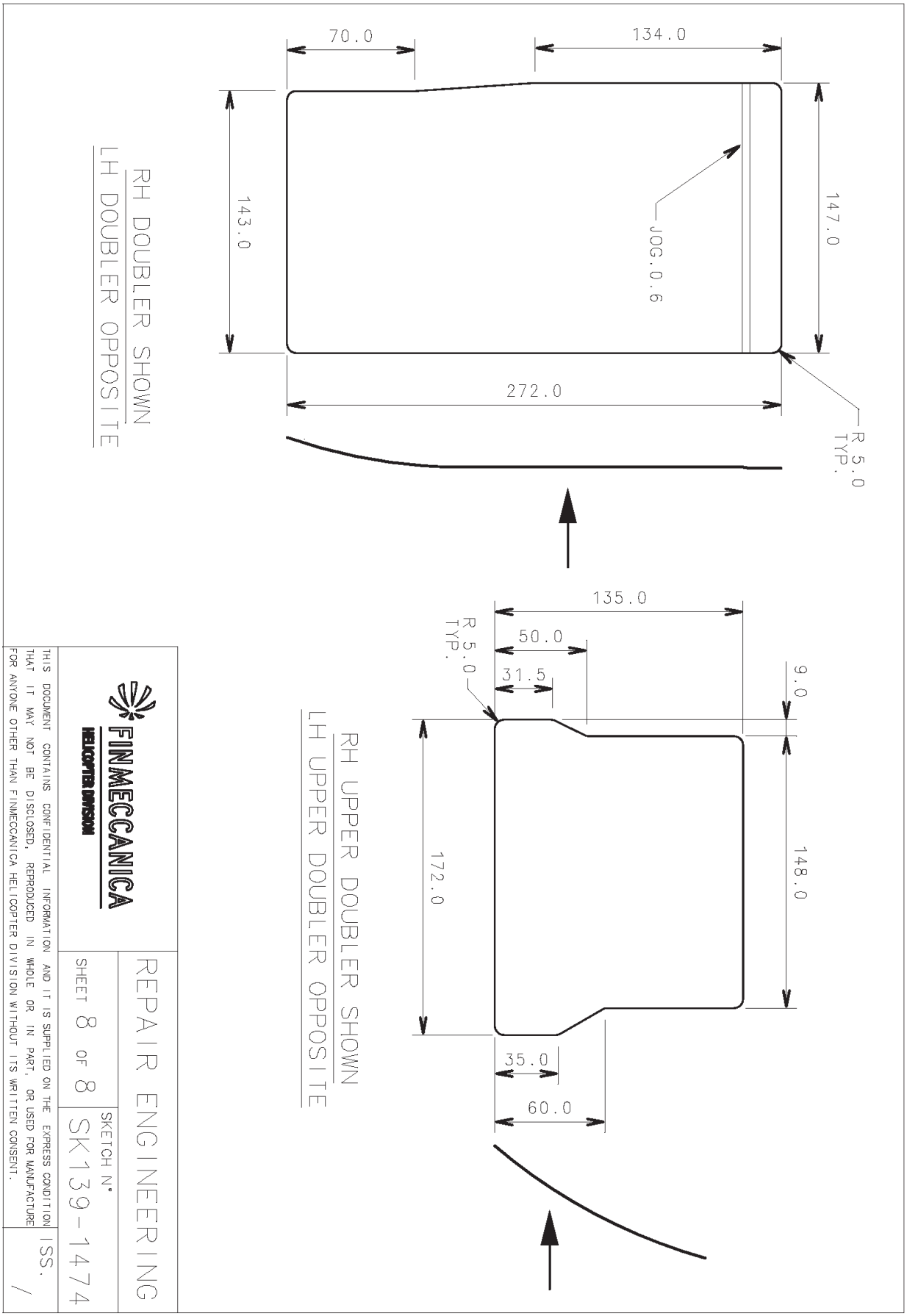
70.0
134.0
143.0
147.0
JOG.0.6
272.0
R 5.0 TYP.
RH DOUBLER SHOWN
LH DOUBLER OPPOSITE
135.0
50.0
31.5
R 5.0 TYP.
9.0
172.0
148.0
35.0
60.0
RH UPPER DOUBLER SHOWN
LH UPPER DOUBLER OPPOSITE
FINMECCANICA
HELICOPTER DIVISION
REPAIR ENGINEERING
SHEET 8 OF 8
SKETCH N°
SK139-1474
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