
SERVICE BULLETIN

N° 139-685

DATE: July 13, 2022

REV. : /

TITLE

ATA 93 - AIRCRAFT SURVIVABILITY EQUIPMENT (ASE) MODIFICATION

REVISION LOG

First Issue

1. PLANNING INFORMATION

A. EFFECTIVITY

AW139 helicopters from S/N 41801 to S/N 41806.

B. COMPLIANCE

At Customer's option.

C. CONCURRENT REQUIREMENTS

N.A.

D. REASON

This Service Bulletin is issued in order to provide the necessary instruction on how to perform the FLIR variant for kit ASE P/N 3G5311A59011 and the ASE complete provision P/N 3G9350A08112.

E. DESCRIPTION

NOTE

Those helicopters that apply the current SB 139-685 are considered compliant also with SB 139-674, if not already applied.

This Service Bulletin consists in covering the delta between the ASE complete provision P/N 3G9350A08111 (currently installed on the helicopter) and the ASE complete provision P/N 3G9350A08112 to be installed.

Moreover, this Service Bulletin gives the instruction to perform the FLIR variant for kit ASE P/N 3G5311A59011 which consists in the installation of the closure plate P/N 3G5317A26355 and the left cover assy for FLIR (ASE) P/N 3G5331A63736 on the LH side.

F. APPROVAL

The technical content of this Service Bulletin is approved under the authority of DOA nr. EASA.21.J.005. For helicopters registered under other Aviation Authorities, before applying the Service Bulletin, applicable Aviation Authority approval must be checked within Leonardo Helicopters customer portal.

EASA states mandatory compliance with inspections, modifications or technical directives and related time of compliance by means of relevant Airworthiness Directives.

If an aircraft listed in the effectivity embodies a modification or repair not LHD certified and affecting the content of this Service Bulletin, it is responsibility of the Owner/Operator to obtain a formal approval by Aviation Authority having jurisdiction on the aircraft, for any adaptation necessary before incorporation of the present Service Bulletin.

G. MANPOWER

To comply with this Service Bulletin seventy (70) MMH are deemed necessary.

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

H. WEIGHT AND BALANCE

N.A.

I. REFERENCES

1) PUBLICATIONS

Following Data Modules refer to AMP:

<u>DATA MODULE</u>	<u>DESCRIPTION</u>	<u>PART</u>
DM01 39-A-00-20-00-00A-120A-A	Helicopter on ground for a safe maintenance	-
DM02 39-A-06-41-00-00A-010A-A	Access doors and panels - General data	-
DM03 39-A-20-10-08-00A-622A-A	Electrical contacts - Crimp	-
DM04 39-A-20-10-18-00A-691A-A	Electrical wires and cables - Marking	-
DM05 39-A-08-21-00-00A-028A-A	Level procedure - General	-

2) ACRONYMS & ABBREVIATIONS

AMDI	Aircraft Material Data Information
AMP	Aircraft Maintenance Publication
ASE	Aircraft Survivability Equipment
ATA	Air Transport Association
C/A	Cable Assy
DM	Data Module
DOA	Design Organization Approval
EASA	European Aviation Safety Agency
FLIR	Forward Looking Infra-Red

IPD	Illustrated Parts Data
ITEP	Illustrated Tool and Equipment Publication
LH	Leonardo Helicopters
MMH	Maintenance Man Hours
N.A.	Not Applicable
P/N	Part Number
S/N	Serial Number

3) ANNEX

N.A.

J. PUBLICATIONS AFFECTED

N.A.

K. SOFTWARE ACCOMPLISHMENT SUMMARY

N.A.

2. MATERIAL INFORMATION

A. REQUIRED MATERIALS

1) PARTS

#	P/N	ALTERNATIVE P/N	DESCRIPTION	Q.TY	LVL	NOTE	LOG P/N
1	3G9350A08112		ASE COMPLETE PROVISION	REF	.		-
2	3G5311A37812		ASE COMPLETE STRUCTURAL PROVISION	REF	..		-
3	3G5310P10112		FLIR 380HD STRUCTURAL VARIANT FOR ASE	REF	...		-
4	3G9350A10631		AFT cable cover assy	1	....	(3)(4)	139-685L1 139-685L2
5	3G9350A08651		Gasket	1	....	(3)(4)	139-685L1 139-685L2
6	3G9350A10431		FWD cable cover assy	1	....	(3)(4)	139-685L1 139-685L2
7	3G5311A37712		OPTICAL SENSOR STRUCTURAL PROVISION	REF	...		-
8	3G5317A98453	3G5317A98453M01	FWD LH optical sensor support	1	....	(3)(4)	139-685L1 139-685L2
9	3G5317A98553	3G5317A98553M01	FWD RH optical sensor support	1	....	(3)(4)	139-685L1 139-685L2
10	3G5317A97931		Optical sensor cover assy	2	....	(3)	139-685L1
11	3G5317A99631		Ring assy	2	....	(3)	139-685L1
12	3G5317A99451		Bushing	7	....	(3)	139-685L1
13	MS27039C1-08		Screw	7	....	(3)	139-685L1
14	3G5317A99551		Ring	2	....	(3)	139-685L1
15	A298A04TW05		Rivet	8	....	(3)(4)	139-685L1 139-685L2
16	MS27039-1-13		Screw	16	....	(3)	139-685L1
17	NAS1149F0332P		Washer	16	....	(3)	139-685L1
18	3G9350A08012		ASE ELECTRICAL C/A INSTALLATION	REF	..		-
19	A601A13B60		Bonding cable assy	2	...	(3)	139-685L1
20	NAS1802-08-10		Screw	2	...	(3)	139-685L1
21	NAS1149DN832H		Washer	4	...	(3)	139-685L1
22	MS21042L08		Nut	2	...	(3)	139-685L1
23	3G9A02A58402		ASE C/A (A2A584)	REF	...		-
24	A561A-T2-22		Wire	2 m	....	(3)	139-685L1
25	M39029/56-351		Electrical contact	4	....	(3)(4)	139-685L1 139-685L2
26	M39029/58-360		Electrical contact	4	....	(3)(4)	139-685L1 139-685L2
27	M23053/8-004-C		Insulation sleeving	4 m	....	(3)	139-685L1
28	D38999/46WD18SN		Electrical connector	1	....	(3)	139-685L1
29	A532A400-1502T		Backshell	1	....	(3)	139-685L1
30	3G9A02B57302		ASE C/A (A2B573)	REF	...		-
31	A561A-T2-22		Wire	1.5 m	....	(3)	139-685L1
32	M39029/56-351		Electrical contact	4	....	(3)(4)	139-685L1 139-685L2
33	M39029/58-360		Electrical contact	4	....	(3)(4)	139-685L1 139-685L2
34	M23053/8-004-C		Insulation sleeving	4 m	....	(3)	139-685L1
35	D38999/46WD18SN		Electrical connector	1	....	(3)	139-685L1
36	A532A400-1502T		Backshell	1	....	(3)	139-685L1
37	3G5311A59011		FLIR VARIANT FOR KIT ASE	REF	.		-

#	P/N	ALTERNATIVE P/N	DESCRIPTION	Q.TY	LVL	NOTE	LOG P/N
38	3G5311A58811		CLOSURE PLATE VARIANT FOR ASE	REF	..		-
39	3G5317A26355		Closure Plate	1	...	(3)(4)	139-685L1 139-685L2
40	3G5311A58911		LEFT COVER ASSY VARIANT FOR ASE	REF	..		-
41	3G5331A63736		Left cover assy for FLIR (ASE)	REF	...		-
42	3G5331A63755	3G5331A63755M01	Left cover assy for FLIR	1	....	(3)(4)	139-685L1 139-685L2

Refer also to IPD for the spares materials required to comply with the AMP DMs referenced in the accomplishment instructions.

2) CONSUMABLES

The following consumable materials, or equivalent, are necessary to accomplish this Service Bulletin:

#	SPEC./LHD CODE NUMBER	DESCRIPTION	Q.TY	NOTE	PART
43	199-05-002 Type, I Class 2	Adhesive EA9309NA (C231)	AR	(1)	-
44	AWMS05-001 Type I, Grade 2, Class B	Sealant MC-780 (C465)	AR	(1)	-
45	999-1700-41-203G	Extrusion nonmetallic	AR	(1)	-
46	199-05-152 Type I, Class 2	Adhesive RTV 732 (C126)	AR	(1)	-
47	A236A02AB	Edging	AR	(1) (2)	-
48	A582A08 or EN6049-006-08-5	Tubing braided	AR	(1) (2)	-

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

3) LOGISTIC MATRIX

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

LOGISTIC P/N	Q.TY (PER HELO)	NOTE	PART
139-685L1	1	(3)	-
139-685L2	1	(4)	-

NOTES

- (1) Item to be procured as local supply.
- (2) Indicated P/N refer to a specific size. The last digits can be different based on the actual required installation. Items to be ordered in meters.
- (3) Applicable to helicopters from S/N 41801 to S/N 41804 and S/N 41806.
- (4) Applicable to helicopter S/N 41805.

B. SPECIAL TOOLS

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

C. INDUSTRY SUPPORT INFORMATION

Customization.

3. ACCOMPLISHMENT INSTRUCTIONS

GENERAL NOTES

- a) Place an identification tag on all components that are re-usable, including the attaching hardware that has been removed to gain access to the modification area and adequately protect them until their later re-use.
 - b) Shape the cables in order to prevent interference with the structure and the other existing installations, using where necessary suitable lacing cords and plastic cable tiedown.
 - c) Exercise extreme care during drilling operations to prevent instruments, cables and hoses damage.
 - d) 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.
 - e) Let adhesive cure at room temperature for at least 24 hours unless otherwise specified.
 - f) All lengths are in mm.
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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-06-41-00-00A-010A-A and with reference to Figures 1 thru 12, remove all external panels, internal panels and internal liners as required to gain access to the area affected by the installation.
 3. With reference to Figure 7 View A, remove and retain for later reuse the left cover assy for FLIR P/N 3G5331A63735 and existing hardware.
 4. With reference to Figure 2 View A Was, remove and retain for later reuse the closure plate P/N 3G5317A26354 and existing hardware.
 5. With reference to Figure 2 View A Was, remove and retain for later reuse the cable cover assy P/N 3G9350A05234 and existing hardware from the left lower panel P/N 3P5331A54331.

NOTE

Perform step 6 only for helicopters from S/N 41801 to S/N 41804 and S/N 41806.

NOTE

Use the level to get the correct hole alignment needed for proper optical support installation.

6. With reference to Figures 1, 3 and 4, perform the upgrade of the optical sensor structural provision up to P/N 3G5311A37712 as described in the following procedure:
 - 6.1 In accordance with AMP DM 39-A-08-21-00-00A-028A-A, level the helicopter.
 - 6.2 With reference to Figure 1 View A Was, remove the RH cover P/N 3G5318A36051, n°7 screws P/N MS27039C1-06 and n°7 washers P/N NAS1149F0332P from the right lower panel. Retain washers for later reuse.
 - 6.3 With reference to Figure 1 View A Was and Detail B, remove the FWD LH optical sensor support reworked P/N 3G5315P09751, n°7 screws P/N MS27039C1-08, n°7 bushings P/N 3G5317A99451 and n°7 washers P/N NAS1149F0332P from the left lower panel P/N 3P5331A54331. Retain hardware for later reuse.
 - 6.4 With reference to Figure 4 View C1, perform the indicated cut out on the ring P/N 3G5317A99551, on the ring assy P/N 3G5317A99631 and on the FWD optical supports P/N 3G5317A98453 (LH) and P/N 3G5317A98553 (RH).
 - 6.5 With reference to Figure 3 View A-A and Figure 4 Section B-B, temporarily locate the FWD RH optical sensor support P/N 3G5317A98553 on the right lower panel P/N 3G5331A38331 and install n°7 bushings P/N 3G5317A99451 by means of the adhesive C231.
 - 6.6 With reference to Figure 4 View C1/C2 and Section D-D, install the ring P/N 3G5317A99551 and the ring assy P/N 3G5317A99631 by means of n°4 rivets P/N A298A04TW05. Install the optical sensor cover assy P/N 3G5317A97931 on the FWD RH optical sensor support P/N 3G5317A98553 by means of n°8 screws P/N MS27039-1-13 and n°8 washers P/N NAS1149F0332P.
 - 6.7 With reference to Figure 3 View A-A and Figure 4 Section B-B, install the FWD RH optical sensor support P/N 3G5317A98553 on the right lower panel P/N 3G5331A38331 by means of n°7 screws P/N MS27039C1-08 and n°7 existing washers P/N NAS1149F0332P previously removed at step 6.1. Apply the sealant MC-780 (C465) on the contour.
 - 6.8 With reference to Figure 3 View Looking Inboard Left Side, drill the hole Ø3.20 thru the lowest point of the FWD RH optical sensor support P/N 3G5317A98553 in accordance with the dimensions shown.

- 6.9 With reference to Figure 3 View A-A and Figure 4 Section B-B, temporarily locate the FWD LH optical sensor support P/N 3G5317A98453 on the left lower panel P/N 3P5331A54331 and install n°7 bushings P/N 3G5317A99451 by means of the adhesive C231.
- 6.10 With reference to Figure 4 View C1/C2 and Section D-D, install the ring P/N 3G5317A99551 and the ring assy P/N 3G5317A99631 by means of n°4 rivets P/N A298A04TW05. Install the optical sensor cover assy P/N 3G5317A97931 on the FWD LH optical sensor support P/N 3G5317A98453, by means of n°8 screws P/N MS27039-1-13 and n°8 washers P/N NAS1149F0332P.

NOTE

If necessary, install the following hardware to support the cables:

- NAS1802-2-30 SCREW
- NAS1149D0332J WASHER
- AW001CL505-N6 SUPPORT
- AW001CB08H CLAMP
- AW001CB06H CLAMP

- 6.11 With reference to Figure 3 View A-A and Figure 4 Section B-B, install the FWD LH optical sensor support P/N 3G5317A98453 on the left lower panel P/N 3P5331A54331 by means of n°7 existing screws P/N MS27039C1-08 and n°7 existing washers P/N NAS1149F0332P previously removed at step 6.3. Apply the sealant MC-780 (C465).
- 6.12 With reference to Figure 3 View Looking Inboard Left Side, drill the hole Ø3.20 thru the lowest point of the FWD LH optical sensor support P/N 3G5317A98453 in accordance with the dimensions shown.

NOTE

Perform steps from 7 to 11 only for helicopter S/N 41805.

7. With reference to Figure 9 View C, disconnect the connector A643P1 (C/A A2A584) from the FWD LH optical sensor cover assy side.
8. With reference to Figure 9 View B Becomes, disconnect from cover plate and stow the bonding cable P/N A601A13B60 and remove its fixing hardware (the screw P/N NAS1802-08-10, the nut P/N MS21042L08 and n°2 washers P/N NAS1149DN832H) from the FWD LH optical sensor cover assy side.
9. With reference to Figure 8 View A Becomes, disconnect the connector A652P1 (C/A A2B573) from the FWD RH optical sensor cover assy side.

10. With reference to Figure 8 View A Becomes, disconnect from cover plate and stow the bonding cable P/N A601A13B60 and remove its fixing hardware (the screw P/N NAS1802-08-10, the nut P/N MS21042L08 and n°2 washers P/N NAS1149DN832H) from the FWD RH optical sensor cover assy.

NOTE

Use the level to get the correct hole alignment needed
for proper optical support installation.

11. With reference to Figures 10 and 11, perform the upgrade of the optical sensor structural provision up to P/N 3G5311A37712 as described in the following procedure:
 - 11.1 In accordance with AMP DM 39-A-08-21-00-00A-028A-A, level the helicopter.
 - 11.2 With reference to Figure 10 View A-A and Figure 11 Section B-B, remove the FWD RH optical sensor support P/N 3G5317A98551, n°7 screws P/N MS27039C1-08, and n°7 washers P/N NAS1149F0332P from the right lower panel P/N 3G5331A38331. Retain hardware for later reuse.
 - 11.3 With reference to Figure 11 View C1/C2 and Section D-D, remove and retain for later reuse from the FWD RH optical sensor support P/N 3G5317A98551 the ring assy P/N 3G5317A99631, the optical sensor cover assy P/N 3G5317A97931, the fixing hardware (n°8 screws P/N MS27039-1-13 and n°8 washers P/N NAS1149F0332P) and the ring P/N 3G5317A99551; remove and discard n°4 fixing rivets P/N A298A04TW05.
 - 11.4 With reference to Figure 10 View A-A and Figure 11 Section B-B, remove the FWD LH optical sensor support P/N 3G5317A98451, n°7 screws P/N MS27039C1-08, and n°7 washers P/N NAS1149F0332P from the left lower panel P/N 3P5331A54331. Retain hardware for later reuse.
 - 11.5 With reference to Figure 11 View C1/C2 and Section D-D, remove and retain for later reuse from the FWD LH optical sensor support P/N 3G5317A98451 the ring assy P/N 3G5317A99631, the optical sensor cover assy P/N 3G5317A97931, the fixing hardware (n°8 screws P/N MS27039-1-13 and n°8 washers P/N NAS1149F0332P) and the ring P/N 3G5317A99551; remove and discard n°4 fixing rivets P/N A298A04TW05.
 - 11.6 With reference to Figure 11 View C1 and Section D-D, re-install the ring P/N 3G5317A99551 (previously removed at step 11.3) in the indicated position on the on the FWD RH optical sensor support P/N 3G5317A98553 by means of n°4 rivets P/N A298A04TW05.
 - 11.7 With reference to Figure 10 View A-A and Figure 11 Section B-B, temporarily locate the new FWD RH optical sensor support P/N 3G5317A98553 on the right lower

- panel P/N 3G5331A38331 and install n°7 bushings P/N 3G5317A99451 by means of the adhesive C231.
- 11.8 With reference to Figure 11 View C1 and Section D-D, re-install the ring P/N 3G5317A99551 (previously removed at step 11.3) and the ring assy P/N 3G5317A99631 in the indicated position on the FWD RH optical sensor support P/N 3G5317A98553 by means of n°4 rivets P/N A298A04TW05.
 - 11.9 With reference to Figure 10 View A-A and Figure 11 Section B-B, install the FWD RH optical sensor support P/N 3G5317A98553 on the right lower panel P/N 3G5331A38331 by means of n°7 existing screws P/N MS27039C1-08 and n°7 existing washers P/N NAS1149F0332P (previously removed at step 11.2). Apply the sealant MC-780 (C465) on the contour.
 - 11.10 With reference to Figure 11 View C2 and Section D-D, re-install the optical sensor cover assy P/N 3G5317A97931 on the FWD RH optical sensor support P/N 3G5317A98553 by means of n°8 screws P/N MS27039-1-13 and n°8 washers P/N NAS1149F0332P (previously removed at step 11.4).
 - 11.11 With reference to Figure 10 View Looking Inboard Left Side, drill the hole Ø3.20 thru the lowest point of the FWD RH optical sensor support P/N 3G5317A98553 in accordance with the dimensions shown.
 - 11.12 With reference to Figure 10 View A-A and Figure 11 Section B-B, temporarily locate the new FWD LH optical sensor support P/N 3G5317A98453 on the left lower panel P/N 3P5331A54331 and install n°7 bushings P/N 3G5317A99451 by means of the adhesive C231.
 - 11.13 With reference to Figure 11 View C1 and Section D-D, re-install the ring P/N 3G5317A99551 (previously removed at step 11.5) and the ring assy P/N 3G5317A99631 in the indicated position on the FWD LH optical sensor support P/N 3G5317A98453 by means of n°4 rivets P/N A298A04TW05.
 - 11.14 With reference to Figure 10 View A-A and Figure 11 Section B-B, install the FWD LH optical sensor support P/N 3G5317A98453 on the left lower panel P/N 3P5331A54331 by means of n°7 existing screws P/N MS27039C1-08 and n°7 existing washers P/N NAS1149F0332P (previously removed at step 11.4). Apply the sealant MC-780 (C465) on the contour.
 - 11.15 With reference to Figure 11 View C2 and Section D-D, re-install the optical sensor cover assy P/N 3G5317A97931 on the FWD LH optical sensor support P/N 3G5317A98453 by means of n°8 screws P/N MS27039-1-13 and n°8 washers P/N NAS1149F0332P (previously removed at step 11.5).
 - 11.16 With reference to Figure 10 View Looking Inboard Left Side, drill the hole Ø3.20 thru the lowest point of the FWD LH optical sensor support P/N 3G5317A98453 in

accordance with the dimensions shown.

NOTE

With reference to the following step, it is possible to obtain the cable cover assemblies P/N 3G9350A10431 and P/N 3G9350A10631 reworking the cable cover assy P/N 3G9350A05234.

12. With reference to Figure 5, perform the FLIR 380HD structural variant for ASE P/N 3G5310P10112 as described in the following procedure:
 - 12.1 With reference to Figure 5 View A, temporarily locate the aft cable cover assy P/N 3G9350A10631 on the left lower panel P/N 3P5331A54331 and countermark n°3 holes in accordance with the existing drain positions.
 - 12.2 With reference to Figure 5 View A, drill n°3 holes Ø9.50 thru the aft cable cover assy P/N 3G9350A10631.
 - 12.3 With reference to Figure 5 View A, install the gasket P/N 3G9350A08651 by means of the adhesive RTV 732 (C126).
 - 12.4 With reference to Figure 5 View A, install the aft cable cover assy P/N 3G9350A10631 on the left lower panel P/N 3P5331A54331 and on the FWD LH optical sensor support P/N 3G5317A98453 by means of existing hardware previously removed at step 5.
 - 12.5 With reference to Figure 5 View A, install the FWD cable cover assy P/N 3G9350A10431 on the left lower panel P/N 3P5331A54331 and on the FWD LH optical sensor support P/N 3G5317A98453 by means of existing hardware previously removed at step 5.

NOTE

With reference to the following step, it is possible to obtain the closure plate P/N 3G5317A26355 reworking the closure plate P/N 3G5317A26354.

13. With reference to Figure 6, perform the closure plate variant for ASE P/N 3G5311A58811 as described in the following procedure:
 - 13.1 With reference to Figure 6 View A, install the extrusion non-metallic P/N 999-1700-41-203G (length 55.0 mm) on the edge of the closure plate P/N 3G5317A26355 in accordance with the dimension shown by means of the adhesive RTV 732 (C126).
 - 13.2 With reference to Figure 6 View A, install the closure plate P/N 3G5317A26355 on the FWD and AFT cable covers assy by means of existing hardware previously

removed at step 4.

NOTE

Use the edging P/N A236A on edges which are liable to cause damage to cable assemblies or where abrasion may occur.

NOTE

Cover assy 3G5331A63736 can be obtained from the cover assy 3G5331A63735 OR from the cover assy P/N 3G5331A63755 from the cover assy and edging P/N A236A02AB.

14. With reference to Figure 7 View A, perform the left cover assy variant for ASE P/N 3G5311A58911 and install the left cover assy for FLIR (ASE) P/N 3G5331A63736 by means of existing hardware previously removed at step 3.

NOTE

Use the edging P/N A236A on edges which are liable to cause damage to cable assemblies or where abrasion may occur.

NOTE

Install the tubing braided P/N A582A where protection against chafing and prevention of contact with structure may occur, but the tubing protection is not substitute for good routing practice.

NOTE

When necessary, replace existing clamp with suitable clamp.

NOTE

To ensure a proper installation, it is allowed to use:

- clamps (diameter only) two dash greater or lesser than the nominal one;
- screws (length only) two dash shorter or longer than the nominal one;
- washers (thickness only) two dash greater or lesser than the nominal one.

15. With reference to Figures 8, 9 and 12, perform the upgrade of the ASE electrical C/A instl

up to P/N 3G9350A08012 as described in the following procedure:

NOTE

Perform steps 15.1 and 15.2 only for helicopters from S/N 41801 to S/N 41804 and S/N 41806.

- 15.1 With reference to Figures 9 and 12, modify the ASE C/A A2A584 as described in the following procedure:
 - 15.1.1 With reference to Figure 9 View C and Figure 12 Wiring Diagram, assemble the connector A643P1 by means of the electrical connector P/N D38999/46WD18SN and the backshell P/N A532A400-1502T.
 - 15.1.2 With reference to Figure 9 View B Was and Figure 12 Wiring Diagram, remove the wires marked as A337C22-S (WH and BL).
 - 15.1.3 With reference to Figure 9 View B Was and Figure 12 Wiring Diagram, remove the wires marked as A338C22-S (WH and BL).
 - 15.1.4 With reference to Figure 9 and 12 Wiring Diagram, cut n°1 wire P/N A561A-T2-22 of adequate length and lay down between the connector A643P1 and the connector P137.
 - 15.1.5 In accordance with AMP DM 39-A-20-10-08-00A-622A-A and with reference to Figure 12 Wiring Diagram and Table, perform the electrical connections between the connector A643P1 and the connector P137.
 - 15.1.6 In accordance with AMP DM 39-A-20-10-18-00A-691A-A and with reference to Figure 9 View B Becomes and Figure 12 Wiring diagram, mark wire as A337C22-S (WH and BL) by means of marker sleeve or laser marking.
 - 15.1.7 With reference to Figure 9 and 12 Wiring Diagram, cut n°1 wire P/N A561A-T2-22 of adequate length and lay down between the connector A643P1 and the connector P137.
 - 15.1.8 With reference to Figure 12 Wiring Diagram, install the insulation sleeveings P/N M23053/8-004-C on the end of the wires.
 - 15.1.9 In accordance with AMP DM 39-A-20-10-08-00A-622A-A and with reference to Figure 12 Wiring Diagram and Table, perform the electrical connections between the connector A643P1 and the connector P137.
 - 15.1.10 In accordance with AMP DM 39-A-20-10-18-00A-691A-A and with reference to Figure 9 View B Becomes and Figure 12 Wiring diagram, mark wire as A338C22-S (WH and BL) by means of marker sleeve or laser marking.

15.1.11 In accordance with AMP DM 39-A-20-10-18-00A-691A-A and with reference to Figure 9 and Figure 12 Wiring diagram, mark the cable assy so obtained as A2A584 by means of marker sleeve or laser marking.

15.1.12

15.2 With reference to Figure 9, secure the wires laid down at the previous step by means of existing hardware and lacing cords.

15.3 With reference to Figure 12 Wiring Diagram, perform the electrical connection of the connector A643P1 to the FWD LH optical sensor A643 receptacle.

NOTE

Perform step 15.4 only for helicopters from S/N 41801 to S/N 41804 and S/N 41806.

NOTE

With reference to the following step, if needed install P/N A636A01.

15.4 With reference to Figure 9 View B Becomes, install the bonding cable assy P/N A601A13B60 by means of the screw P/N NAS1802-08-10, the nut P/N MS21042L08 and n°2 washers P/N NAS1149DN832H.

NOTE

Perform step 15.5 only for helicopter from S/N 41805.

15.5 With reference to Figure 9 View B Becomes, connect the bonding cable assy P/N A601A13B60 (previously disconnected in step 8) by means of the screw P/N NAS1802-08-10, the nut P/N MS21042L08 and n°2 washers P/N NAS1149DN832H previously removed at step 8.

NOTE

Perform steps 15.6 and 15.7 only for helicopters from S/N 41801 to S/N 41804 and S/N 41806.

15.6 With reference to Figures 8 and 12, modify the ASE C/A A2B573 as described in the following procedure:

15.6.1 With reference to Figure 8 View A Becomes and Figure 12 Wiring Diagram, assemble the connector A652P1 by means of the electrical connector P/N D38999/46WD18SN and the backshell P/N A532A400-1502T.

15.6.2 With reference to Figure 8 View A Was and Figure 12 Wiring Diagram, remove the wires marked as A335D22-S (WH and BL).

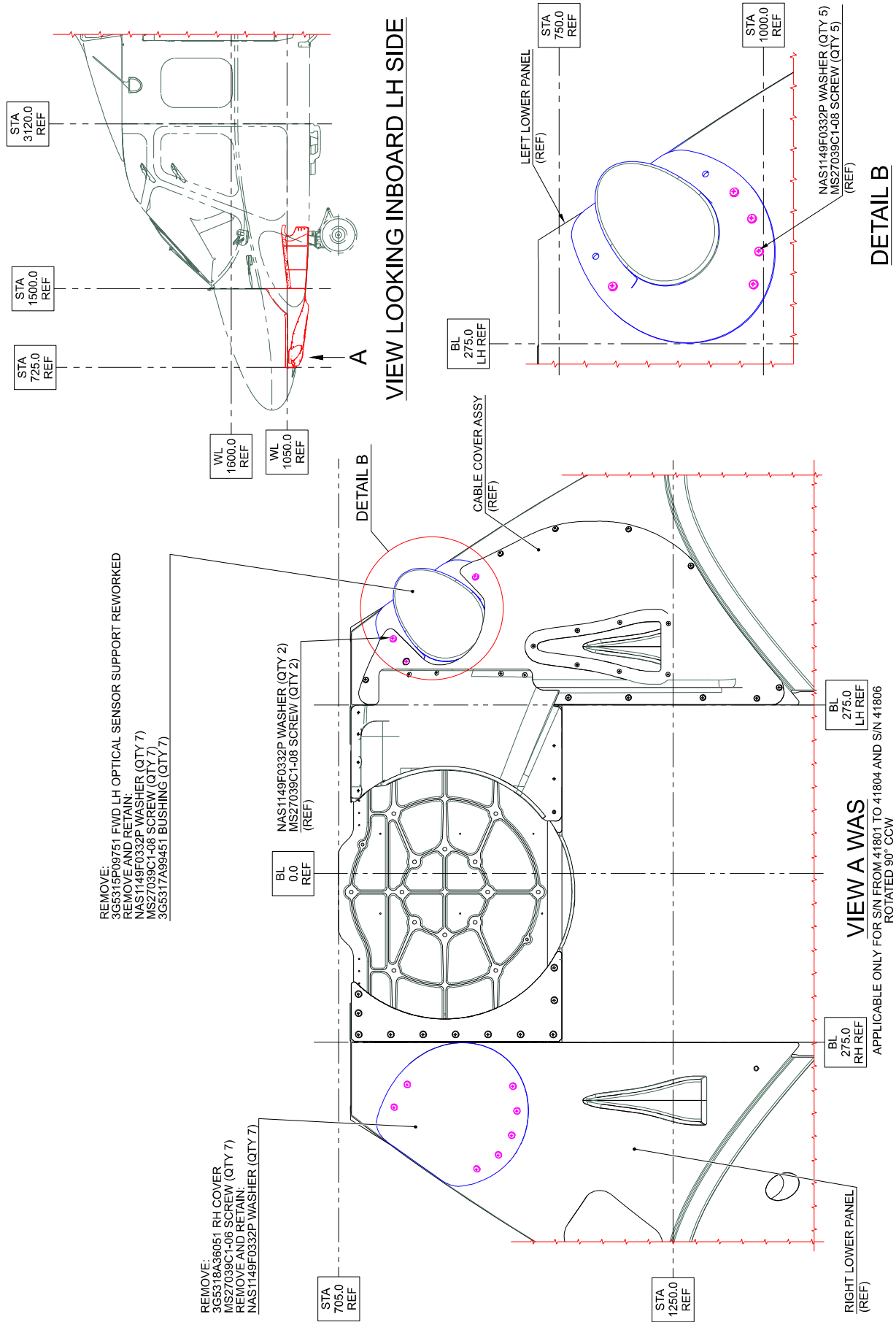
- 15.6.3 With reference to Figure 8 View A Was and Figure 12 Wiring Diagram, remove the wires marked as A336D22-S (WH and BL).
 - 15.6.4 With reference to Figure 9 and 12 Wiring Diagram, cut n°1 wire P/N A561A-T2-22 of adequate length and lay down between the connector A652P1 and the connector P107.
 - 15.6.5 In accordance with AMP DM 39-A-20-10-08-00A-622A-A and with reference to Figure 12 Wiring Diagram and Table, perform the electrical connections between the connector A652P1 and the connector P107.
 - 15.6.6 In accordance with AMP DM 39-A-20-10-18-00A-691A-A and with reference to Figure 8 View A Becomes and Figure 12 Wiring diagram, mark wire as A335D22-S (WH and BL) by means of marker sleeve or laser marking.
 - 15.6.7 With reference to Figure 12 Wiring Diagram, cut n°1 wire P/N A561A-T2-22 of adequate length and lay down between the connector A652P1 and the connector P107.
 - 15.6.8 With reference to Figure 12 Wiring Diagram, install the insulation sleeveings P/N M23053/8-004-C on the end of the wires.
 - 15.6.9 In accordance with AMP DM 39-A-20-10-08-00A-622A-A and with reference to Figure 12 Wiring Diagram and Table, perform the electrical connections between the connector A652P1 and the connector P107.
 - 15.6.10 In accordance with AMP DM 39-A-20-10-18-00A-691A-A and with reference to Figure 8 View A Becomes and Figure 12 Wiring diagram, mark wire as A336D22-S (WH and BL) by means of marker sleeve or laser marking.
 - 15.7 With reference to Figure 8, secure the wires laid down at the previous step by means of existing hardware and lacing cords.
 - 15.8 With reference to Figure 12 Wiring Diagram, perform the electrical connection of the connector A652P1 to the FWD RH optical sensor A652 receptacle.
- NOTE**
- With reference to the following step, if needed install P/N A636A01.
- 15.9 With reference to Figure 8 View A Becomes, reconnect the bonding cable assy P/N A601A13B60 by means of the screw P/N NAS1802-08-10, the nut P/N MS21042L08 and n°2 washers P/N NAS1149DN832H.
 - 15.10 Perform a pin-to-pin continuity check of all the electrical connections made.
16. In accordance with AMP DM 39-A-06-41-00-00A-010A-A, re-install all external panels,

internal panels and internal liners previously removed.

17. In accordance with weight and balance changes, update the Chart A (see Rotorcraft Flight Manual, Part II, section 6).
18. Return the helicopter to flight configuration and record for compliance with this Service Bulletin on the helicopter logbook.
19. Send the attached compliance form to the following mail box:

engineering.support.lhd@leonardo.com

As an alternative, gain access to My Communications section on Leonardo WebPortal and compile the “Service Bulletin Application Communication”.



APPLICABLE ONLY FOR S/N FROM 41801 TO 41804 AND S/N 41806

STRUCTURE AND SYSTEMS ARE PARTIALLY OMITTED FOR BETTER CLARITY PURPOSE

Figure 1

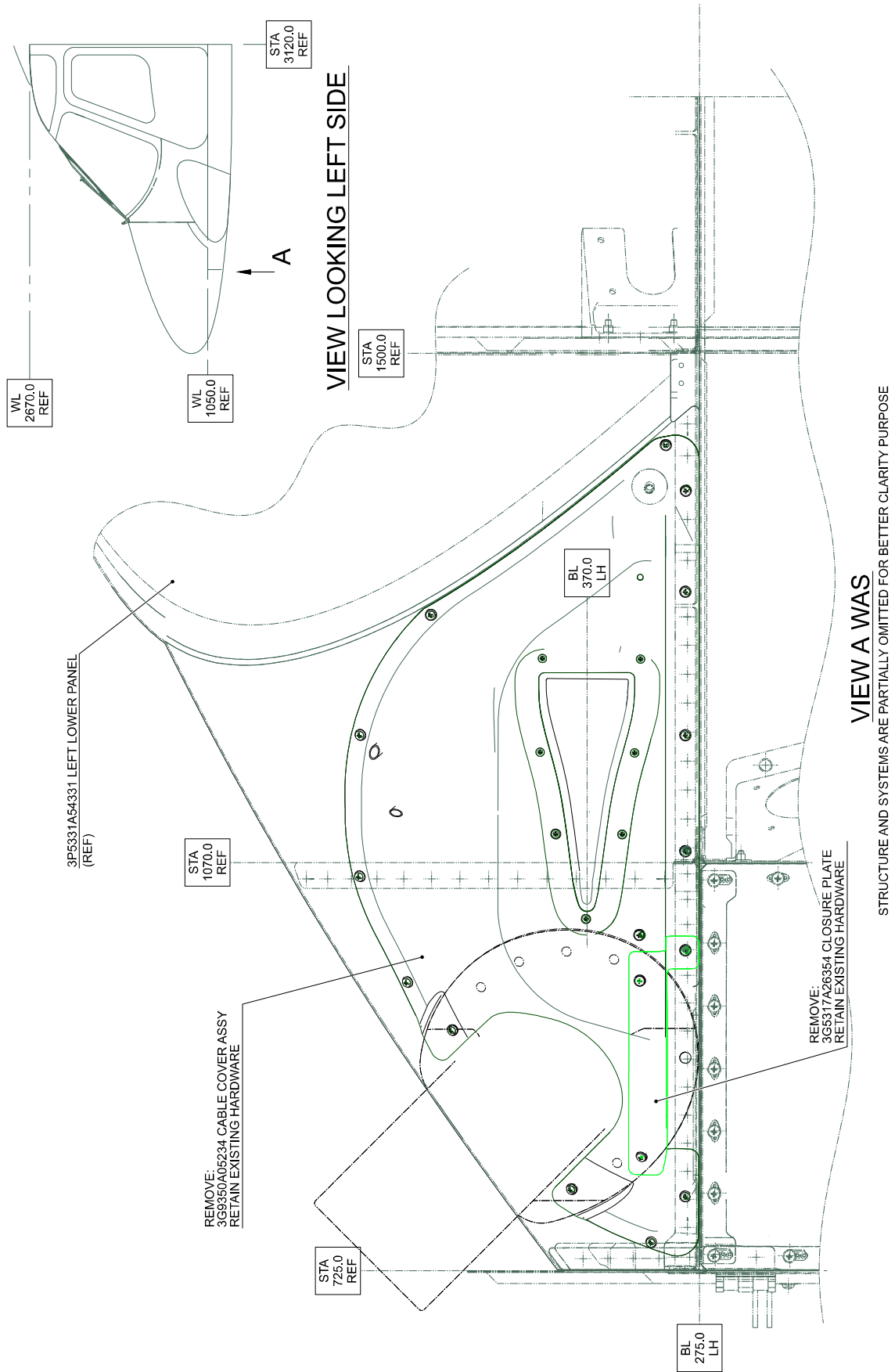


Figure 2

S.B. N°139-685
DATE: July 13, 2022
REVISION: /

OPTICAL SENSOR STRUCTURAL PROVISION
3G5311A37712

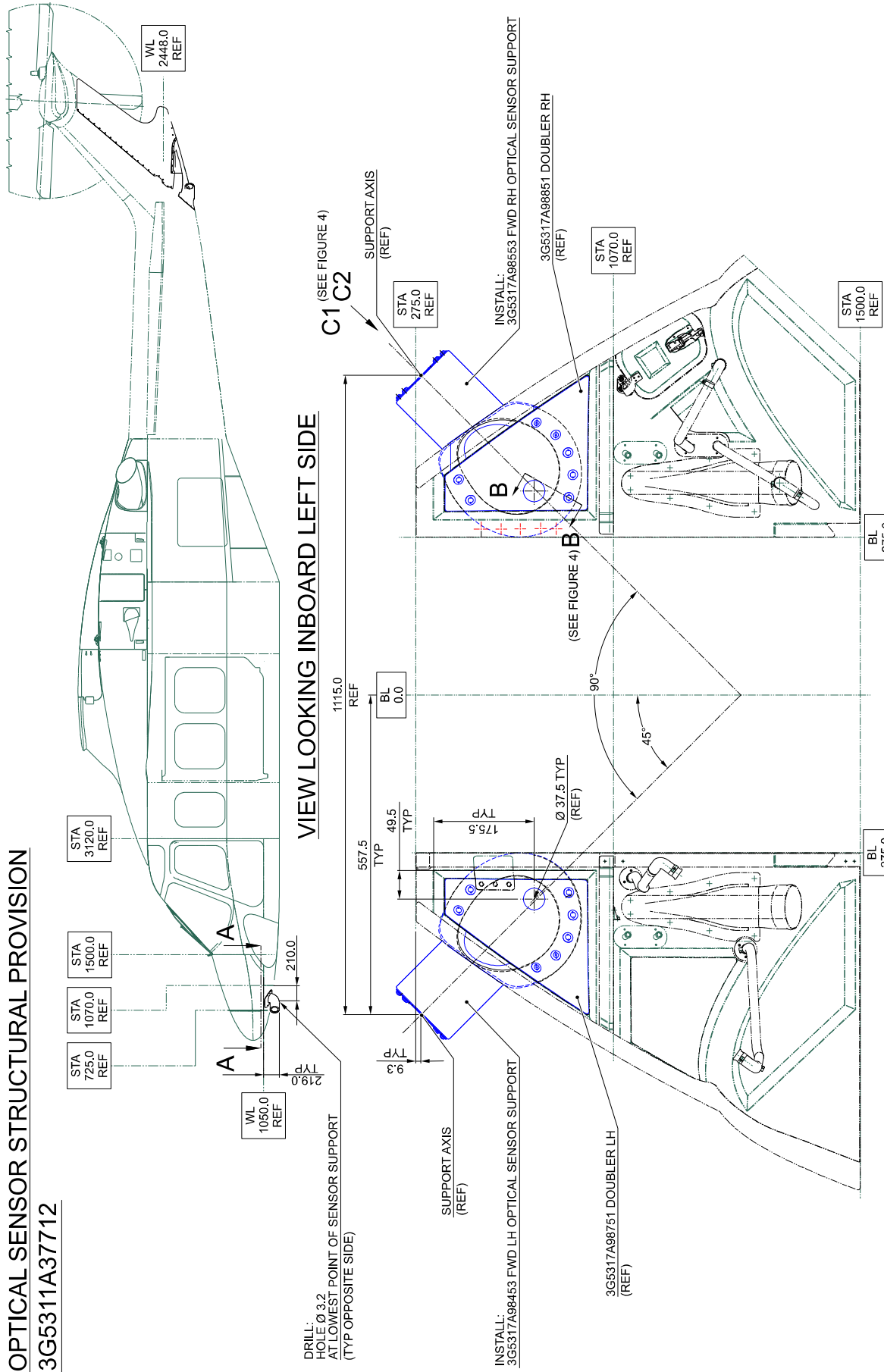


Figure 3

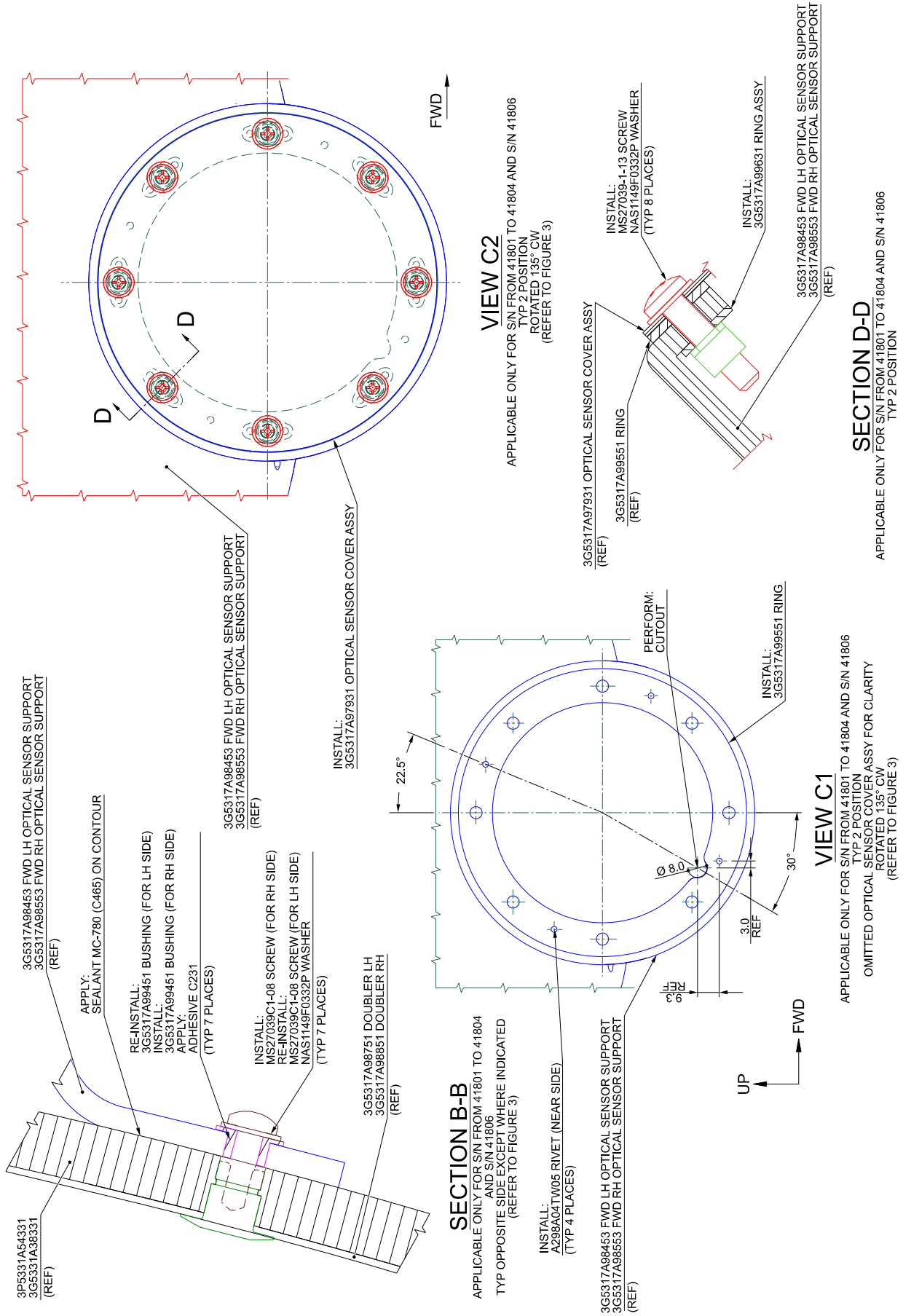


Figure 4

**FLIR 380HD STRUCTURAL VARIANT FOR ASE
3G5310P10112**

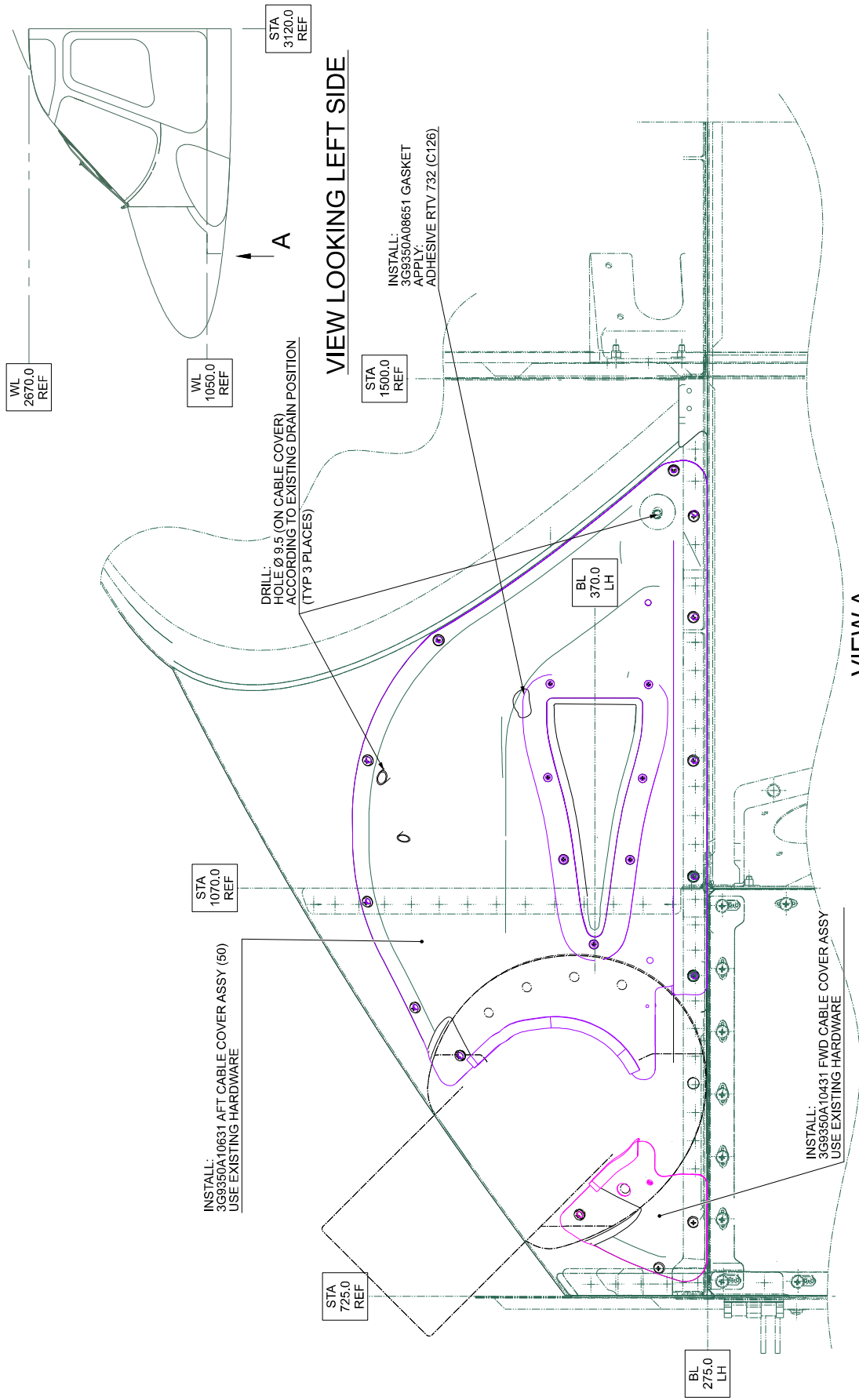


Figure 5

CLOSURE PLATE VARIANT FOR ASE
3G5311A58811

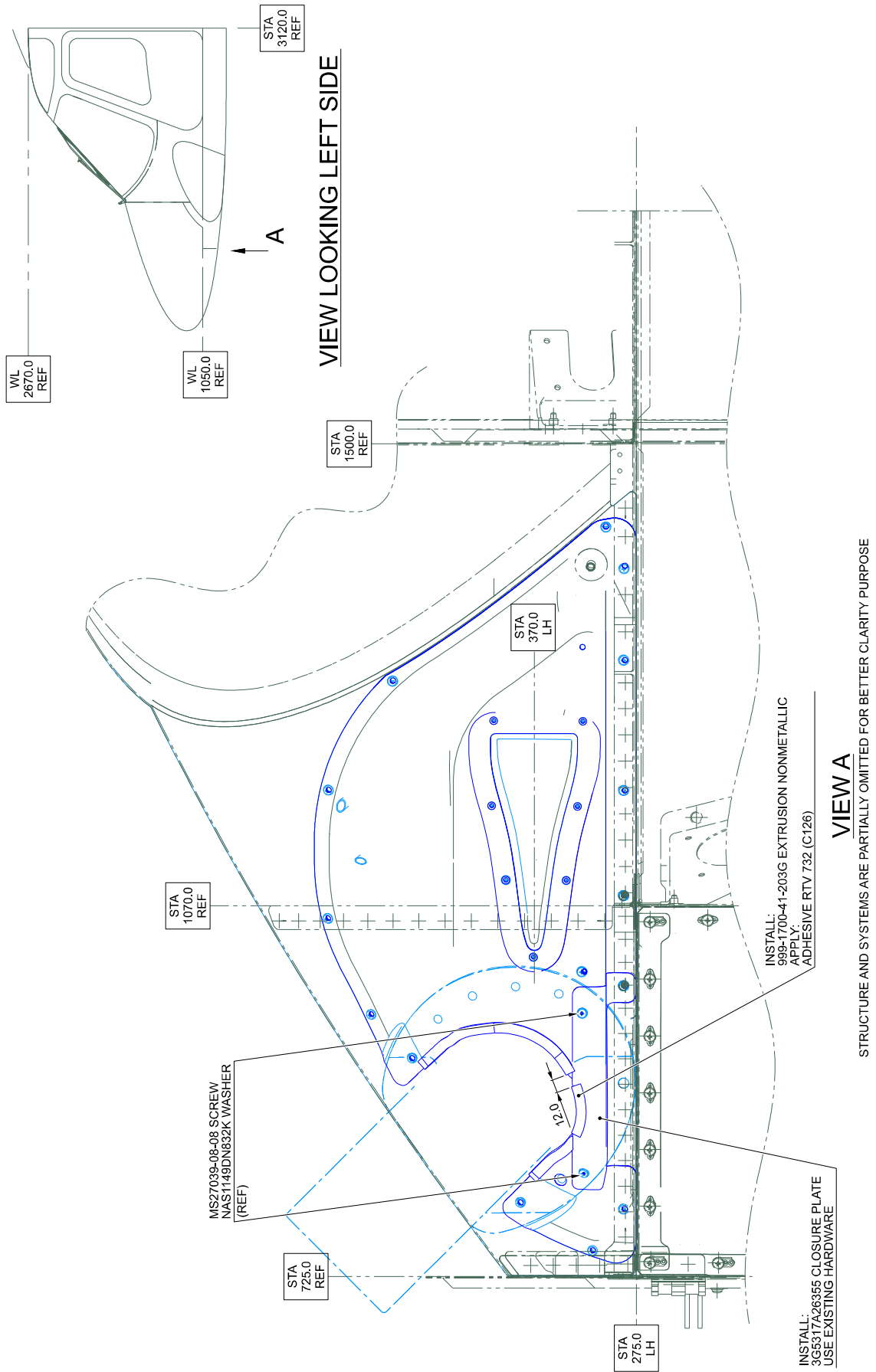


Figure 6

S.B. N°139-685
DATE: July 13, 2022
REVISION: /

LEFT COVER ASSY VARIANT FOR ASE
3G5311A58911

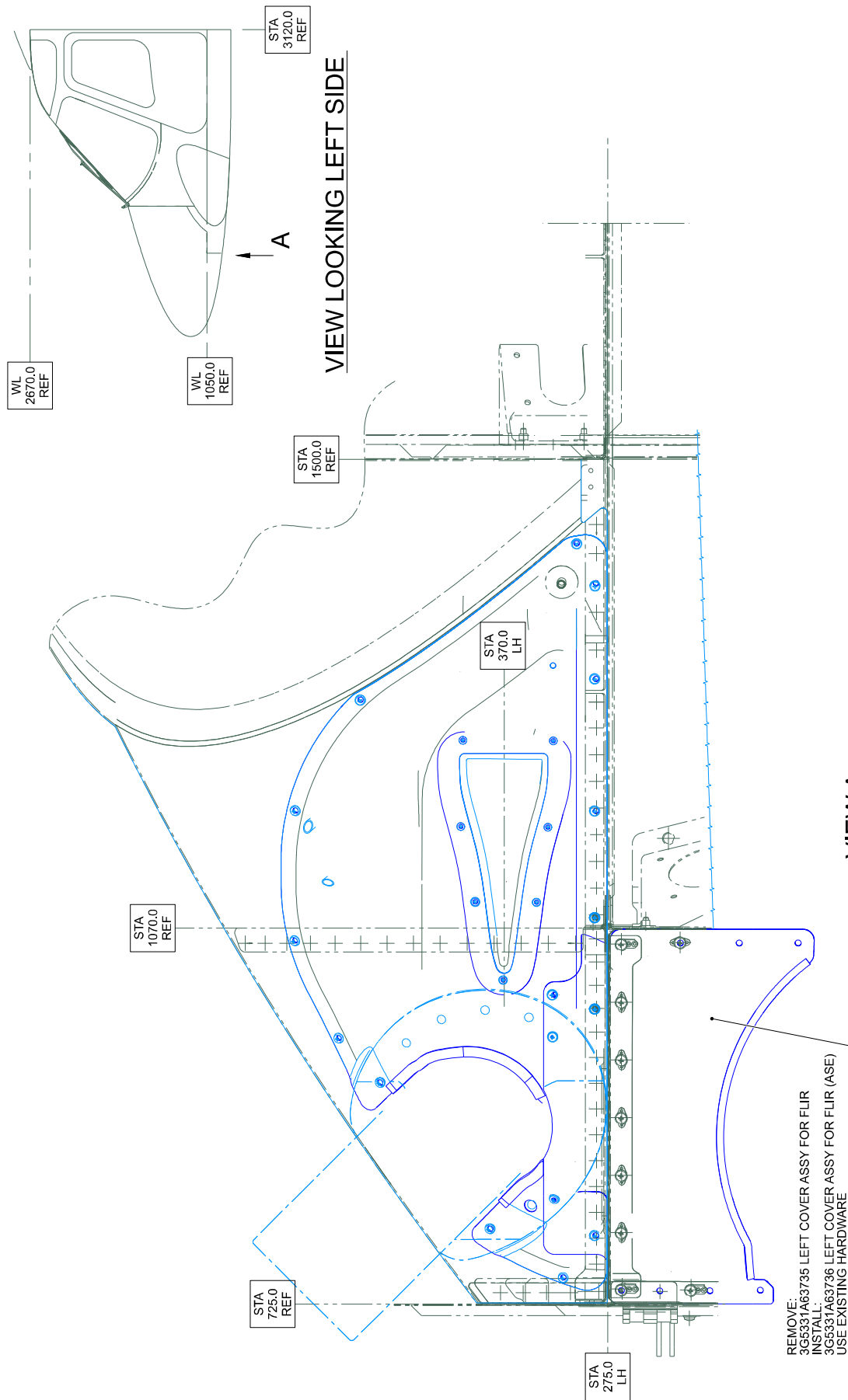


Figure 7

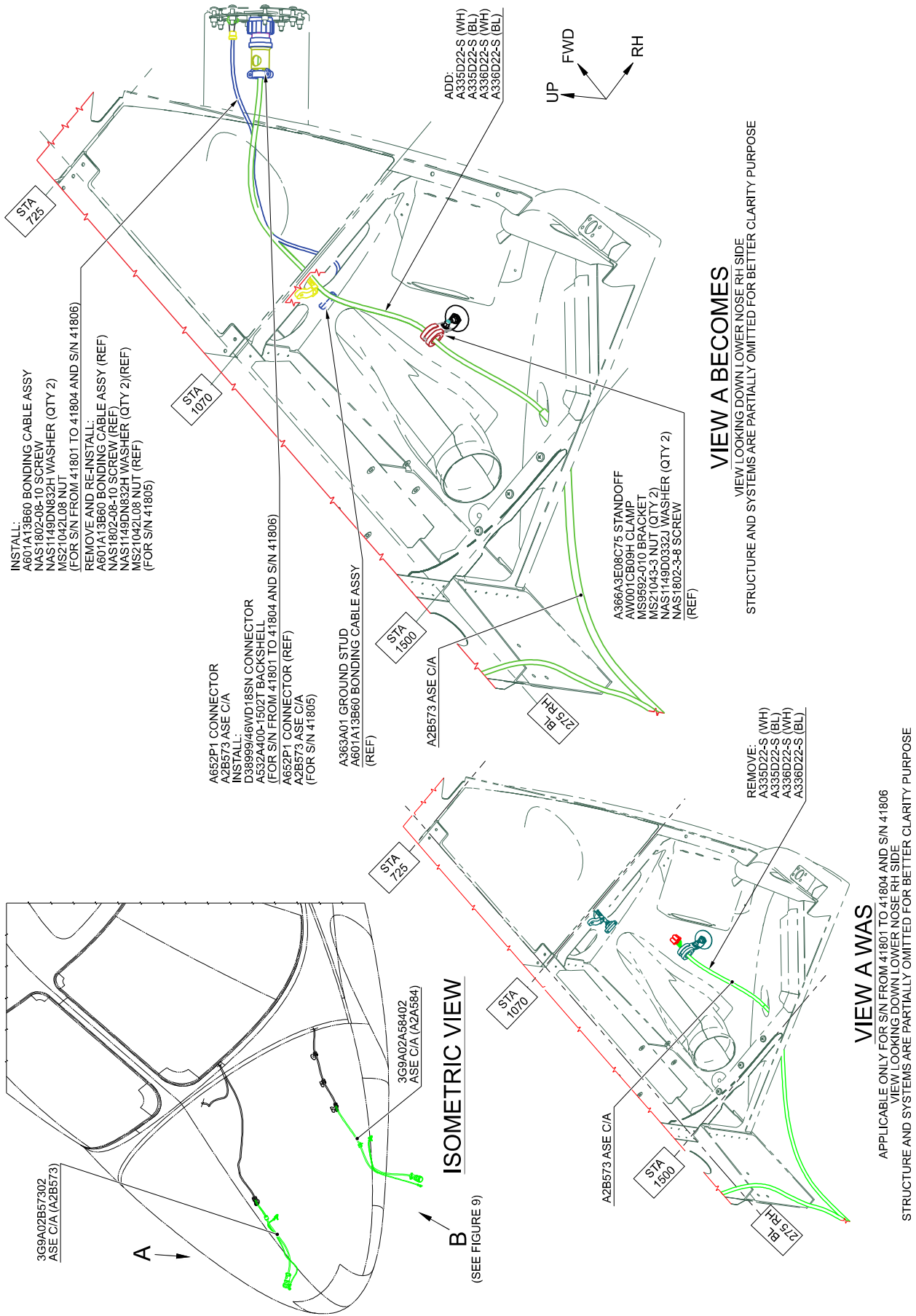


Figure 8

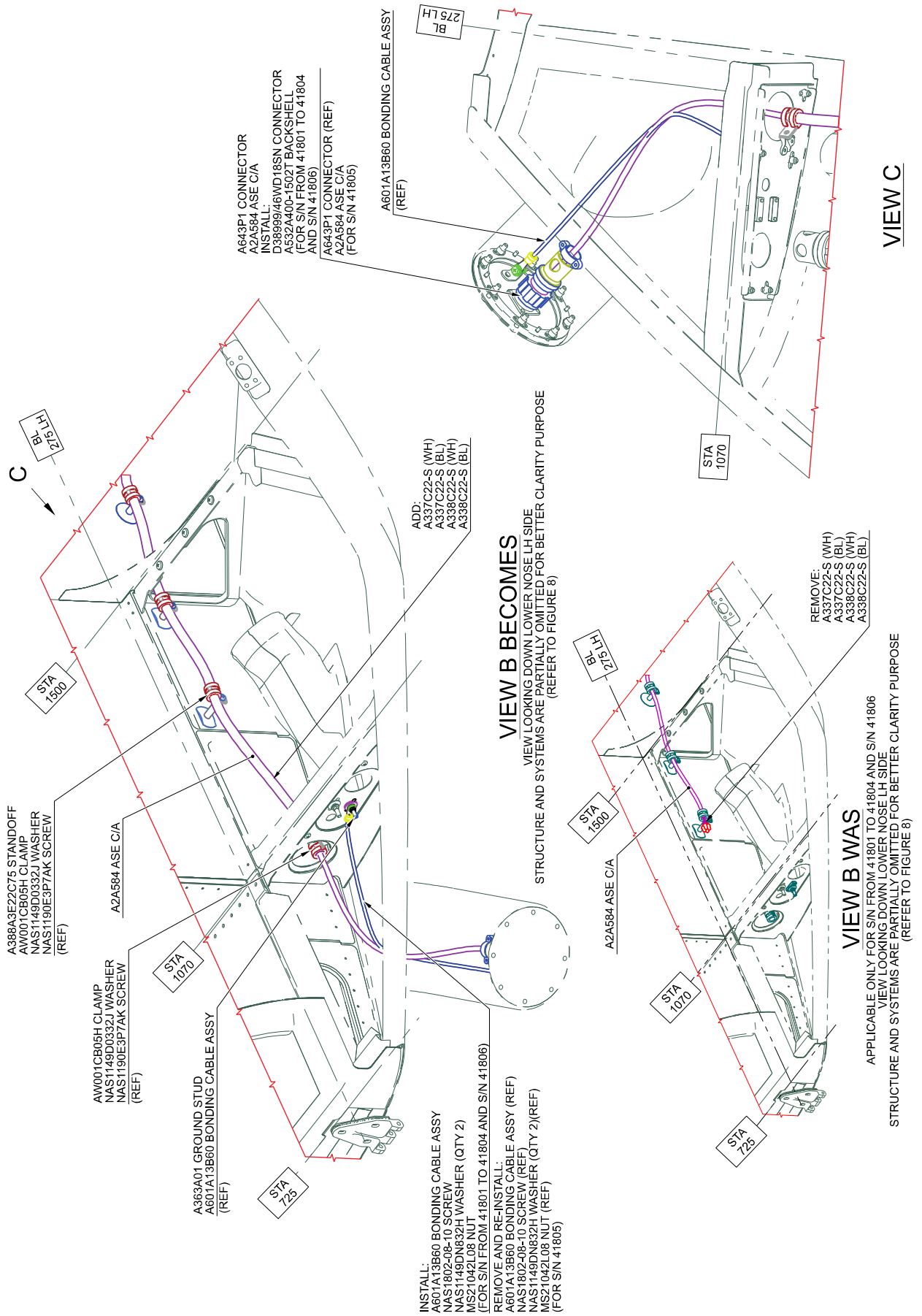


Figure 9

OPTICAL SENSOR STRUCTURAL PROVISION
3G5311A37712

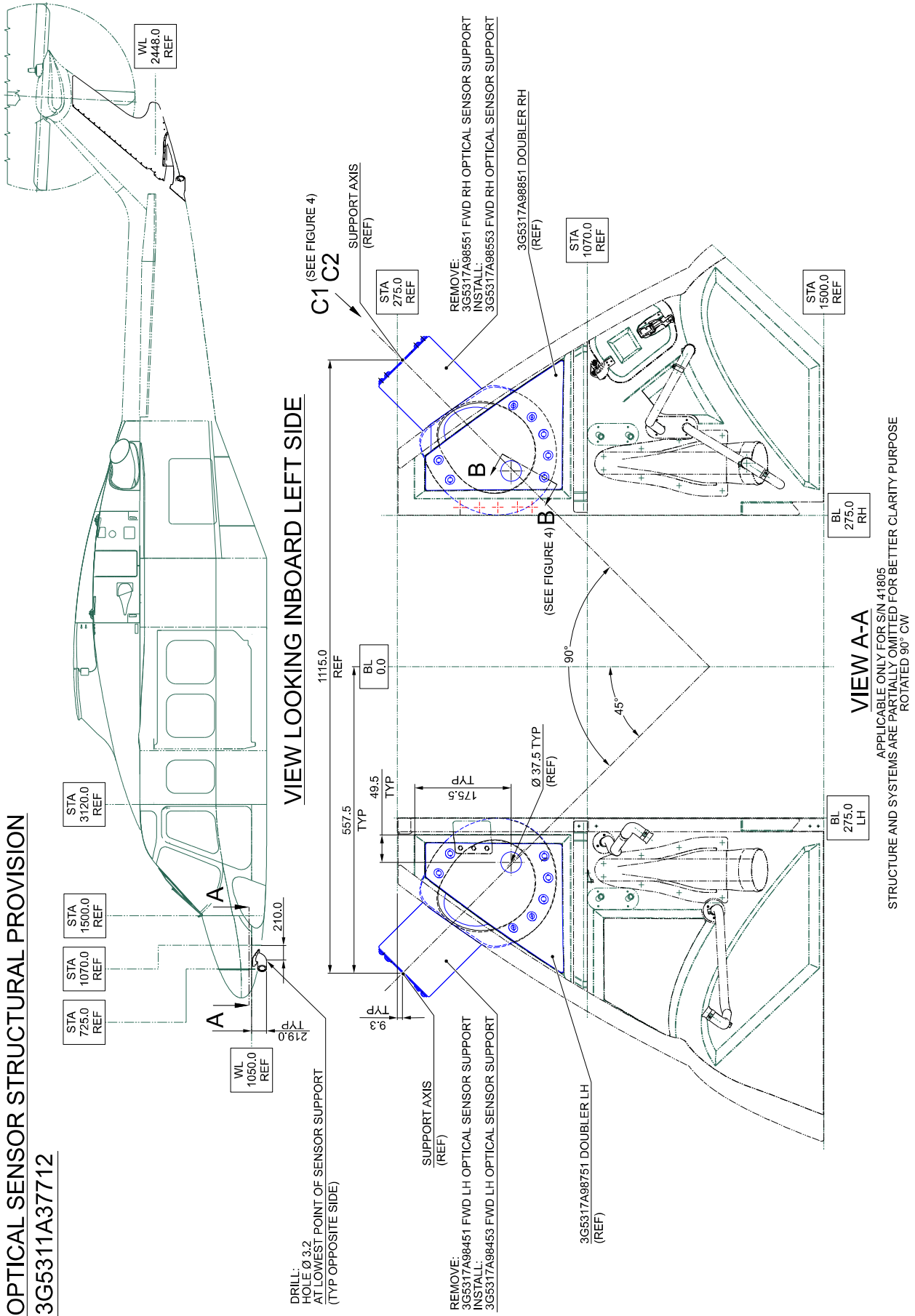


Figure 10

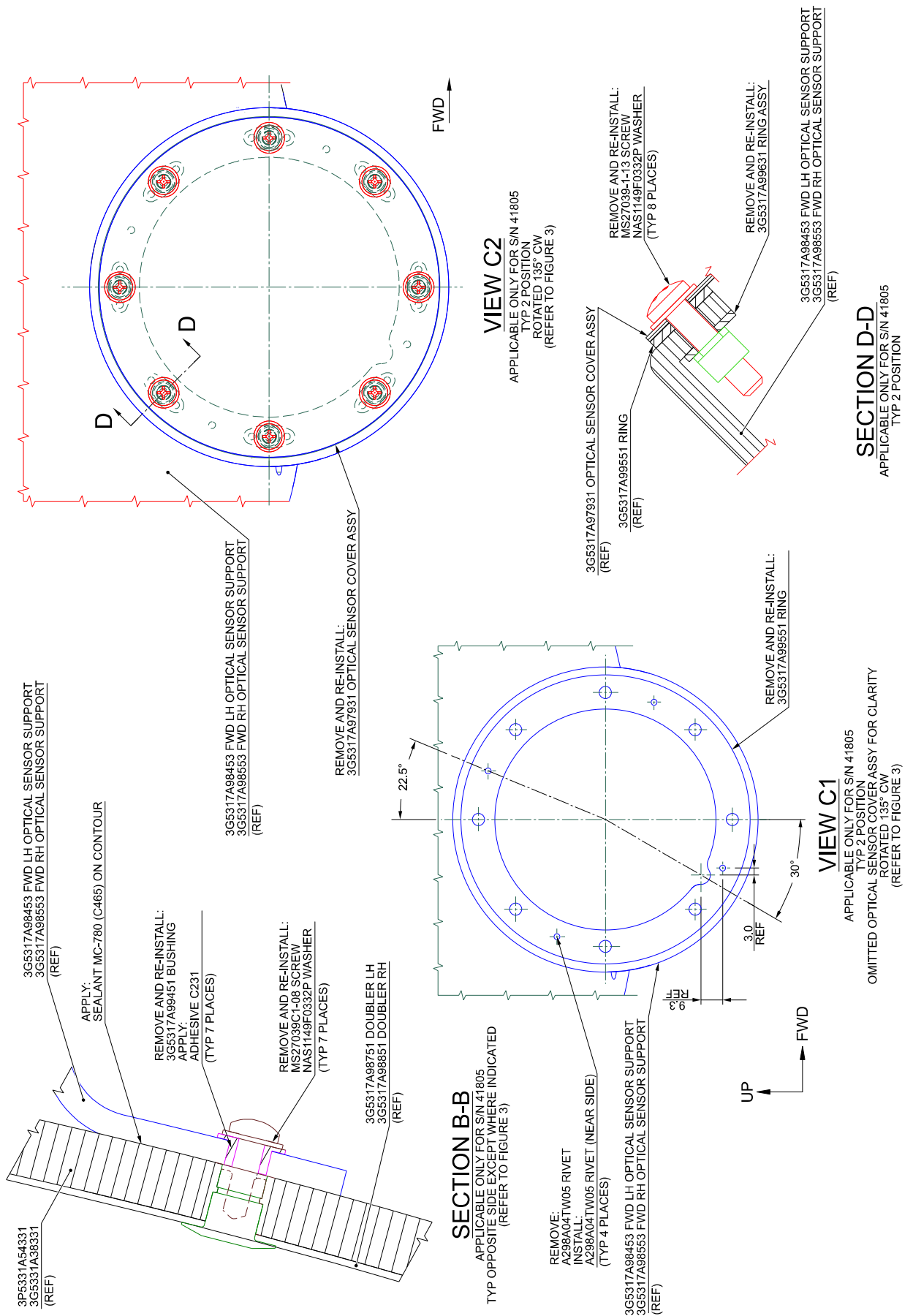
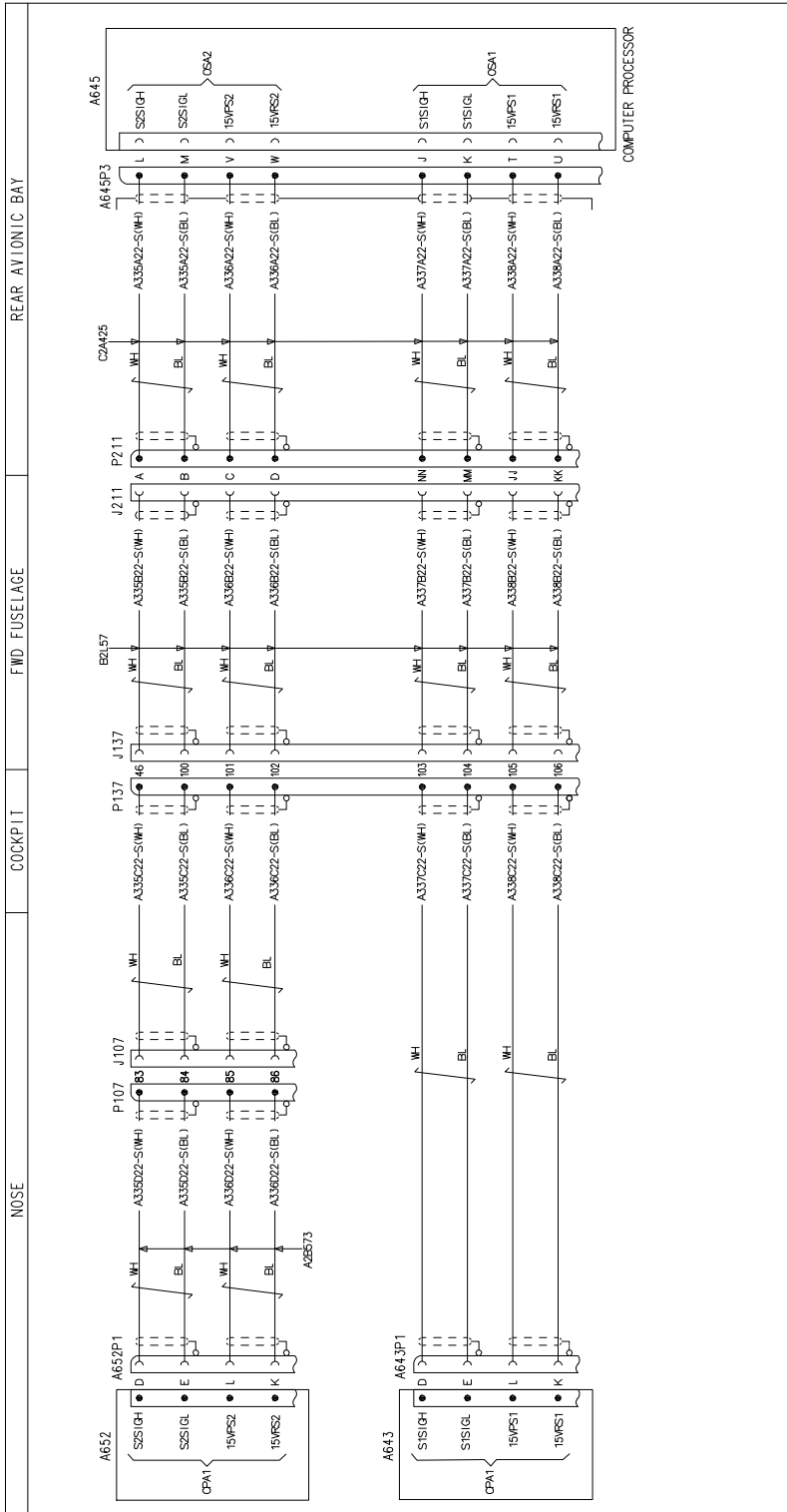


Figure 11



FUNCTIONAL NOTES

ALL CABLES ARE IN LOOM A2A584, UNLESS SPECIFIED.
 ALL CABLES ARE OF TYPE A661A12 22 UNLESS SPECIFIED

CABLE ASSY	WIRE		FROM REF-DES	ELECTRICAL CONTACT	TO REF-DES	ELECTRICAL CONTACT	INSULU TUBE
	ID	COLL.					
3G9A02A58402 (A2A584)	A337C22-S	WH	A643P1	M39029/56-351	P137	M39029/58-360	M23053/8-004-C
3G9A02A58402 (A2A584)	A338C22-S	BL	A643P1	M39029/56-351	P137	M39029/58-360	M23053/8-004-C
3G9A02B57302 (A2B573)	A335D22-S	WH	A643P1	M39029/56-351	P137	M39029/58-360	M23053/8-004-C
3G9A02B57302 (A2B573)	A338D22-S	BL	A652P1	M39029/56-351	P107	M39029/58-360	M23053/8-004-C
3G9A02B57302 (A2B573)	A338D22-S	WH	A652P1	M39029/56-351	P107	M39029/58-360	M23053/8-004-C

TABLE
 CRIMP ON WIRES THE ELECTRICAL CONTACT INDICATED

Figure 12

Please send to the following address: LEONARDO S.p.A. CUSTOMER SUPPORT & SERVICES - ITALY PRODUCT SUPPORT ENGINEERING & LICENSES DEPT. Via Giovanni Agusta, 520 21017 Cascina Costa di Samarate (VA) - ITALY Tel.: +39 0331 225036 Fax: +39 0331 225988	SERVICE BULLETIN COMPLIANCE FORM	Date:
Number:		
Revision:		

Customer Name and Address:	Telephone:
	Fax:
	B.T. Compliance Date:

Helicopter Model	S/N	Total Number	Total Hours	T.S.O.

Remarks:

Information:

We request your cooperation in filling this form, in order to keep out statistical data relevant to aircraft configuration up-to-date. The form should be filled in all its parts and sent to the above address or you can communicate the application also via Technical Bulletin Application Communication Section placed in Leonardo AW Customer Portal - MyCommunications Area. We thank you beforehand for the information given.