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SERVICE BULLETIN

N° **139-708**

**OPTIONAL**

DATE: June 23, 2023

REV. : /

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**TITLE**

**ATA 97 - KIT HOIST BREEZE HD CAMERA P/N 4G9750F01211 INSTALLATION**

**REVISION LOG**

First Issue

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An appropriate entry should be made in the aircraft log book upon accomplishment.  
If ownership of aircraft has changed, please, forward to new owner.

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# 1. PLANNING INFORMATION

## A. EFFECTIVITY

AW139 helicopters from S/N 31400 to S/N 31699, from S/N 41300 to S/N 41499, from S/N 31700 onwards and from S/N 41501 onwards equipped with the kit hoist P/N 3G2591A00714.

## B. COMPLIANCE

At Customer's option.

## C. CONCURRENT REQUIREMENTS

N.A.

## D. REASON

This Service Bulletin is issued to provide all the necessary information on how to perform the installation of the kit hoist breeze HD camera P/N 4G9750F01211.

LH issued this SB for the following reason:

Helicopter Reliability/Maintainability	
Product Improvement	
Obsolescence	
Customization	✓
Product/Capability Enhancement	

## E. DESCRIPTION

Leonardo Helicopters has developed this Service Bulletin to perform the installation of the hoist breeze HD camera kit P/N 4G9750F01211.

Part I of this Service Bulletin provides the necessary instructions on how to perform the installation of the complete provision P/N 3G9750A05011, composed of:

- the structural provision P/N 3G5311A55511;
- the electrical provision P/N 3G9750A05311.

Part I also provides the necessary instructions on how to perform the installation of the fixed parts P/N 3G9750A05111, that includes the video distribution module (A791) and the video format converter (A792).

Part II of this Service Bulletin provides the necessary instructions on how to perform the installation of the removable parts P/N 3G9750A05211, including the further structural provision P/N 3G5311A55611, n°1 cable assembly and the hoist breeze HD camera (A760).

Part II also describes the procedure to replace the O/H AUX CB panel and install the hoist HD camera circuit breaker CB712 and the switch S453.

## 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, the following MMH are deemed necessary:

Part I: approximately eighty (80)

Part II: approximately thirty (30)

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

## H. WEIGHT AND BALANCE

### PART I

WEIGHT (kg)	ARM (mm)	MOMENT (kgmm)
LONGITUDINAL BALANCE	4882	9764
LATERAL BALANCE	-211	-422

**PART II**

<b>WEIGHT (kg)</b>	<b>ARM (mm)</b>	<b>MOMENT (kgmm)</b>
		0.53
<b>LONGITUDINAL BALANCE</b>	4062	2152.86
<b>LATERAL BALANCE</b>	1554	823.62

**I. REFERENCES**

**I.1 PUBLICATIONS**

Following Data Modules refer to AMP:

<b><u>DATA MODULE</u></b>	<b><u>DESCRIPTION</u></b>	<b><u>PART</u></b>
DM01 39-A-00-20-00-00A-120A-A	Helicopter on ground for a safe maintenance.	I, II
DM02 39-A-06-41-00-00A-010A-A	Access doors and panels - General data	I, II
DM03 39-A-20-10-09-00A-920A-A	Bonded studs - replacement	I
DM04 39-A-20-10-08-00A-622A-A	Electrical contacts - crimp	I
DM05 39-A-11-00-01-00A-720A-A	Decal - install procedure	I, II
DM06 39-A-24-91-04-00A-920A-K	Integrally lighted panel - replacement	II
DM07 39-A-46-20-00-00A-750A-A	Processing and integrating - Options and setting file - Load software procedure	II

**I.2 ACRONYMS & ABBREVIATIONS**

AMDI	Aircraft Material Data Information
AMP	Aircraft Maintenance Publication
ATP	Acceptance Test Procedure
AUX	Auxiliary
AW	AgustaWestland
C/A	Cable Assembly
CB	Circuit Breaker
CPLT	Co-Pilot
DC	Direct Current
DM	Data Module
DOA	Design Organization Approval
EASA	European Aviation Safety Agency
EED	Electro-Explosive Device
FWD	Forward
HD	High Definition
ITEP	Illustrated Tools and Equipment Publication

LH	Leonardo Helicopters
LRU	Line Replaceable Unit
MFD	Multifunction Display
MMH	Maintenance Man Hours
N.A.	Not Applicable
O/H	Overhead
PLT	Pilot
POSDI	Power Over Serial Digital Interface
P/N	Part Number
SB	Service Bulletin
S/N	Serial Number
S/W	Software
VDC	Voltage Direct Current
VDM	Video Distribution Module

### **I.3 ANNEX**

Annex A Hoist breeze HD camera acceptance test procedure

## **J. PUBLICATIONS AFFECTED**

N.A.

## **K. SOFTWARE ACCOMPLISHMENT SUMMARY**

Software to be updated:

Primus Epic Option File

Option File P/N is depending upon helicopter configuration that can be different from the one reported in relevant helicopter “Commissa di Vendita”. Customer must contact Product Support Engineering ([engineering.support.lhd@leonardo.com](mailto:engineering.support.lhd@leonardo.com)) to request the correct Option File at least three months in advance from the scheduled embodiment of this Service Bulletin.

## 2. MATERIAL INFORMATION

### A. REQUIRED MATERIALS

#### A.1 PARTS

##### PART I

#	P/N	ALTERNATIVE P/N	DESCRIPTION	Q.TY	LVL	NOTE	LOG P/N
1	4G9750F01211		KIT HOIST BREEZE HD CAMERA	REF	.		-
2	3G9750A05011		HOIST BREEZE HD CAMERA COMPLETE PROVISION	REF	..		-
3	3G5311A55511		HOIST BREEZE HD CAMERA STRUCTURAL PROVISION	REF	...		-
4	NAS1832-3-4M		Insert	4	....		139-708L1
5	NAS1832-3-5		Insert	4	....		139-708L1
6	3G9750A05311		HOIST BREEZE HD CAMERA ELECTRICAL PROVISION	REF	...		-
7	3G9B01L22001		Hoist Breeze C/A (B1L220)	1	....		139-708L1
8	3G9B01R10501		Hoist Breeze C/A (B1R105)	1	....		139-708L1
9	3G9B02B79801		Hoist Breeze C/A (B2B798)	1	....		139-708L1
10	3G9B02B79901		Hoist Breeze C/A (B2B799)	1	....		139-708L1
11	3G9B02L24001		Hoist Breeze C/A (B2L240)	1	....		139-708L1
12	A366A3E24C		Stud	1	....		139-708L1
13	A366A3E32C		Stud	2	....		139-708L1
14	A366A3E32C75		Stud	1	....		139-708L1
15	A388A3E06C		Standoff	1	....		139-708L1
16	A631A01A		Spacer	25	....		139-708L1
17	AW001CB03H		Clamp	1	....		139-708L1
18	AW001CL001-N6		Support	1	....		139-708L1
19	AW001CL005A01-X1		Support	1	....		139-708L1
20	AW001CL504D-N6		Support	1	....		139-708L1
21	AW001CL510C-N6		Support	1	....		139-708L1
22	AW002FT102		Grommet	45	....		139-708L1
23	AW002FT503		Grommet	10	....		139-708L1
24	ED300J2503		Decal	2	....		139-708L1
25	MS25281-R12		Clamp	10	....		139-708L1
26	MS25281-R6		Clamp	18	....		139-708L1
27	NAS1190E3P25AK		Screw	3	....		139-708L1
28	NAS1190E3P28AK		Screw	7	....		139-708L1
29	NAS1190E3P29AK		Screw	1	....		139-708L1
30	NAS1190E3P42AK		Screw	2	....		139-708L1
31	NAS1802-3-28		Screw	2	....		139-708L1
32	NAS1802-3-30		Screw	2	....		139-708L1
33	NAS1802-3-32		Screw	3	....		139-708L1
34	NAS1802-3-34		Screw	1	....		139-708L1
35	NAS1802-3-35		Screw	1	....		139-708L1
36	NAS1802-3-39		Screw	1	....		139-708L1
37	NAS1802-3-42		Screw	1	....		139-708L1
38	NAS1802-3-9		Screw	1	....		139-708L1
39	NAS43DD3-60N		Spacer	2	....		139-708L1
40	NAS43DD3-64N		Spacer	3	....		139-708L1
41	NAS43DD3-75N		Spacer	12	....		139-708L1
42	NAS43DD3-90N		Spacer	1	....		139-708L1

#	P/N	ALTERNATIVE P/N	DESCRIPTION	Q.TY	LVL	NOTE	LOG P/N
<b>43</b>	<b>3G9750A05111</b>		<b>HOIST BREEZE HD CAMERA FIXED PARTS</b>	<b>REF</b>	<b>..</b>		<b>-</b>
44	850-0000234-000		Video Distribution Module	1	...		139-708L1
45	A601A3B90		Bonding Cable Assy	1	...		139-708L1
46	A631A01A		Support	3	...		139-708L1
47	ED300A758		Decal	1	...		139-708L1
48	ED300A759		Decal	1	...		139-708L1
49	NAS1149D0332J		Washer	8	...		139-708L1
50	NAS1802-3-8		Screw	8	...		139-708L1
51	VX-4003-200		Video Format Converter	1	...		139-708L1
52	M39029/56-351		Electrical contact	3	.		139-708L1
53	A523A-A05		Electrical contact	1	.		139-708L1
54	M39029/58-363		Electrical contact	2	.		139-708L1
55	FCC4102D		Electrical contact	1	.		139-708L1
56	M39029/56-348		Electrical contact	2	.		139-708L1

## **PART II**

#	P/N	ALTERNATIVE P/N	DESCRIPTION	Q.TY	LVL	NOTE	LOG P/N
<b>57</b>	<b>4G9750F01211</b>		<b>KIT HOIST BREEZE HD CAMERA</b>	<b>REF</b>	<b>.</b>		<b>-</b>
<b>58</b>	<b>3G9750A05211</b>		<b>HOIST BREEZE HD CAMERA REMOVABLE PARTS</b>	<b>REF</b>	<b>..</b>		<b>-</b>
<b>59</b>	<b>3G5311A55611</b>		<b>HOIST BREEZE HD CAMERA EXTERNAL STRUCTURAL PROVISION</b>	<b>REF</b>	<b>...</b>		<b>-</b>
60	3G5318A36331	3G5318A36331M01	FWD cover hoist assy	1	....		139-708L2
61	3G9B12B13911		Hoist Breeze C/A (B2B139)	1	...		139-708L2
62	800-0000277-000		POSDI Puck Camera	1	...		139-708L2
63	AW001CL001-N6		Support	1	...		139-708L2
64	AW001CL006AT01-X1		Support	1	...		139-708L2
65	AW002FT102		Grommet	5	...		139-708L2
66	ED300A760		Decal	1	...		139-708L2
67	MS25281-R6		Clamp	1	...		139-708L2
68	NAS1149D0332J		Washer	4	...		139-708L2
69	NAS1802-3-10		Screw	4	...		139-708L2
70	3G2490LXXXXX		AUX CB integrally lighted panel	1	.	(1)	139-708L2
71	MS3320-3		Circuit breaker	1	.		139-708L2
72	MS27722-23		Switch	1	.		139-708L2
73	MS25036-149		Electrical contact	1	.		139-708L2
74	M39029/1-102		Electrical contact	2	.		139-708L2
75	M39029/56-351		Electrical contact	1	.		139-708L2
76	ED300S453		Decal	1	.		139-708L2
77	ED300CB712		Decal	1	.		139-708L2
78	DM60003561-XXXXX		Software	1	.	(2) (3)	-

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

### **A.2 CONSUMABLES**

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

#	SPEC./LHD CODE NUMBER	DESCRIPTION	Q.TY	NOTE	PART
79	199-05-002 TY II, CL 2	Adhesive EA 934NA AERO (C397)	AR	(4)	I

#	SPEC./LHD CODE NUMBER	DESCRIPTION	Q.TY	NOTE	PART
80	Commercial	Adhesive CB200-40 (C356)	AR	(4)	I
81	AW001CK03LC	Lacing cord	AR	(4)	I
82	EN6049-006-25-5	Self-wrap braided Nomex sleeving	AR	(4)	I
83	A236A01AB	Edging	AR	(4) (5)	I, II
84	A582A05 or EN6049-006-05-5	Nomex braided tubing	AR	(4) (5)	I, II
85	67N19X15M-0 or EE267-02-075B	Tape	AR	(4)	I, II

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

### A.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
139-708L1	1		Part I
139-708L2	1		
3G2490LXXXXX	1	(1)	Part II
DM60003561-XXXXX	1	(2) (3)	

### NOTE

- (1) The P/N is not properly completed because it is depending on the helicopter configuration. Customers must contact Product Support Engineering ([engineering.support.lhd@leonardo.com](mailto:engineering.support.lhd@leonardo.com)) to request the new auxiliary CB panel at least three months in advance from the scheduled application of this Service Bulletin.
- (2) This software will not be supplied; as specified by Information Letter AW139-20-105, it will be available for download, along with relevant certification document, in "My Software" sub-section of Leonardo Customer Portal website <https://customerportal.leonardocompany.com>.
- (3) Refer to software accomplishment summary paragraph.
- (4) Item to be procured as local supply.
- (5) Indicated P/N refer to a specific size. The last digits can be different based on the actual required installation.

### B. SPECIAL TOOLS

Refer 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 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) During the installation of bonding braids or components requiring grounding, clean the surface structure to obtain a good ground contact.
- f) Let adhesive cure at room temperature for at least 24 hours unless otherwise specified.
- g) All lengths are in mm.

#### **PART I**

1. In accordance with 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 DM 39-A-06-41-00-00A-010A-A and with reference to Figures 1 thru 9, remove all external panels, internal panels and internal liners as required to gain access to the area affected by the installation and perform the hoist breeze HD camera complete provision P/N 3G9750A05011 as described in the following procedure:
  - 2.1 Perform the structural provision P/N 3G5311A55511 as described in the following procedure:
    - 2.1.1 With reference to Figure 2 Section B-B, drill n° 4 insert holes  $\varnothing$  14.25÷14.38 thru the external skin and the honeycomb structure of

- the lower panel assy P/N 3G5315A43431 in accordance with the dimensions shown.
- 2.1.2 With reference to Figure 2 Section D-D, install n°4 inserts P/N NAS1832-3-4M on the lower panel assy P/N 3G5315A43431 by means of adhesive EA 934NA Aero (C397).
  - 2.1.3 With reference to Figure 2 Section B-B, prepare the indicated surface of the lower panel assy P/N 3G5315A43431 for electrical bonding in accordance with the dimensions shown.
  - 2.1.4 With reference to Figure 2 Section C-C, drill n° 4 insert holes  $\varnothing$  14.25÷14.38 thru the external skin and the honeycomb structure of the FWD upper bonded panel assy P/N 3G5333A09631 in accordance with the dimensions shown.
  - 2.1.5 With reference to Figure 2 Section E-E, install n°4 inserts P/N NAS1832-3-5 on the FWD upper bonded panel assy P/N 3G5333A09631 by means of adhesive EA 934NA Aero (C397).
  - 2.1.6 With reference to Figure 2 Section C-C, prepare the indicated surface of the FWD upper bonded panel assy P/N 3G5333A09631 for electrical bonding in accordance with the dimensions shown.
  - 2.1.7 With reference to Figure 3 Detail A, unscrew the n°8 screws P/N MS27039C1-08, then remove the n°8 screws, the n°8 washers P/N NAS1149C0332J and the connector cover P/N 3G5315A69851.
  - 2.1.8 With reference to Figure 3 Detail A, remove the FWD connector support assy P/N 3G5315A67731 from the helicopter.
  - 2.1.9 With reference to Figure 3 View G, drill the hole  $\varnothing$  12.83÷12.95 thru the FWD connector support assy P/N 3G5315A67731 in accordance with the dimensions shown.
  - 2.1.10 With reference to figure 3 Detail A, re-install the FWD connector support assy P/N 3G5315A67731 and the connector cover P/N 3G5315A69851 on the helicopter by means of the n°8 screws P/N MS27039C1-08 and the n°8 washers P/N NAS1149C0332J previously removed.

**NOTE**

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

**NOTE**

Install the braided tubing P/N A582A as a protection against chafing where contact with the structure may occur. The tubing protection is not a substitute for good routing practice.

**NOTE**

When necessary, replace an existing clamp with a suitable one.

**NOTE**

Primary supporting devices shall be of adequate size to hold the wires (harnesses) in place without damaging the wires insulation or degrading the performance of optical or RF cables. If a clamp is too large to properly grip the harness and the next smaller size would crush the harness, tapes type 67N19X15M-0 (or equivalent) may be used to provide a proper fit in the clamp or as filler under the clamp. Build up with tape only to the point that the original clamp provides the necessary grip.

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

- wires/harnesses clamps (diameter only) two dash greater or lesser than the nominal one;
- bolts (length only) two dash shorter or longer 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;
- spacers (length only) two dash shorter or longer than the nominal one.

- 2.2 Perform the electrical provision P/N 3G9750A05311 as described in the following procedure:
- 2.2.1 With reference to Figure 6 View looking nose floor, install the electrical support P/N AW001CL001-N6 on the existing bracket in accordance with the dimensions reported on the table.
  - 2.2.2 With reference to Figure 8 View looking roof, install the electrical support P/N AW001CL504D-N6 on the roof structure in accordance with the dimensions reported on the table.
  - 2.2.3 In accordance with AMP DM 39-A-20-10-09-00A-920A-A and with reference to Figure 8 View looking roof, install the standoff P/N A388A3E06C on the roof structure in accordance with the dimensions reported on the table.
  - 2.2.4 In accordance with AMP DM 39-A-20-10-09-00A-920A-A and with reference to Figure 8 View looking roof, remove the existing support from the indicated position and install n°1 click bond stud P/N A366A3E24C.
  - 2.2.5 In accordance with AMP DM 39-A-20-10-09-00A-920A-A and with reference to Figure 8 View looking roof, remove the existing supports from the indicated positions and install n°2 click bond studs P/N A366A3E32C.
  - 2.2.6 In accordance with AMP DM 39-A-20-10-09-00A-920A-A and with reference to Figure 8 View looking roof, remove the existing support from the indicated position and install n°1 click bond stud P/N A366A3E32C75.
  - 2.2.7 With reference to Figure 9 View C, remove the existing click bond stud P/N A366A3E08C and install the support P/N AW001CL510C-N6 by means of adhesive CB200-40 (C356) in accordance with the dimensions reported on the table.
  - 2.2.8 With reference to Figure 9 View C, install the support P/N AW001CL005A01-X1 in accordance with the dimensions reported on the table.
  - 2.2.9 With reference to Figures 4 thru 9, lay down the following cable assemblies on the existing routes unless otherwise indicated on the figures:
    - Hoist Breeze C/A (B1L220)
    - Hoist Breeze C/A (B1R105)

- Hoist Breeze C/A (B2B798)
  - Hoist Breeze C/A (B2B799)
  - Hoist Breeze C/A (B2L240)
- 2.2.10 With reference to Figures 4 thru 9, secure the cable assemblies laid down at the previous step by means of the existing hardware and lacing cords.
- 2.2.11 With reference to Figure 5 View looking nose, install n°5 grommets P/N AW002FT102 and n°5 spacers P/N A631A01A on the C/A B2L240.
- 2.2.12 In accordance with AMP DM 39-A-20-10-08-00A-622A-A and with reference to Figure 5 and Figure 17 Wiring Diagram, perform the electrical connection of the C/A B2L240 to the connector A1-3P3.
- 2.2.13 With reference to Figure 6 View looking nose floor, install n°7 grommets P/N AW002FT102 and n°7 spacers P/N A631A01A on the C/A B2L240.
- 2.2.14 With reference to Figure 6 View looking nose floor, install the spacer P/N NAS43DD3-90N, the grommet P/N AW002FT102 and the clamp P/N MS25281-R6 on the C/A B2L240 by means of the screw P/N NAS1802-3-34.
- 2.2.15 With reference to Figure 6 View looking nose floor, install n°2 grommets P/N AW002FT102 and n°2 clamps P/N MS25281-R6 on the C/A B2L240 by means of n°2 screws P/N NAS1190E3P42AK.
- 2.2.16 With reference to Figure 6 View looking nose floor, install the grommet P/N AW002FT102 and the clamp P/N MS25281-R6 on the C/A B2L240 by means of the screw P/N NAS1802-3-42.
- 2.2.17 With reference to Figure 6 View looking nose floor, install the grommet P/N AW002FT102 on the C/A B2L240 and the electrical support P/N AW001CL001-N6 previously installed.
- 2.2.18 With reference to Figure 6 View looking nose floor, install the spacer P/N NAS43DD3-60N, the grommet P/N AW002FT102 and the clamp P/N MS25281-R6 on the C/A B2L240 by means of the screw P/N NAS1802-3-32.
- 2.2.19 With reference to Figure 7 View looking cabin, install n°8 grommets P/N AW002FT102 and n°8 spacers P/N A631A01A on the C/A B2L240.
- 2.2.20 With reference to Figure 7 View looking cabin, install n°2 spacers P/N NAS43DD3-75N, n°2 grommets P/N AW002FT102 and n°2 clamps P/N MS25281-R6 on the C/A B2L240 by means of the n°2 screws P/N NAS1802-3-32.

- 2.2.21 With reference to Figure 7 View looking cabin, install the spacer P/N NAS43DD3-75N, the grommet P/N AW002FT102 and the clamp P/N MS25281-R6 on the C/A B2L240 by means of the screw P/N NAS1190E3P29AK.
- 2.2.22 With reference to Figure 7 View looking cabin, install the spacer P/N NAS43DD3-75N, the grommet P/N AW002FT102 and the clamp P/N MS25281-R6 on the C/A B2L240 by means of the screw P/N NAS1802-3-30.
- 2.2.23 With reference to Figure 7 View looking cabin, install n°3 spacers P/N NAS43DD3-75N, n°3 grommets P/N AW002FT102 and n°3 clamps P/N MS25281-R6 on the C/A B2L240 by means of n°3 screws P/N NAS1190E3P28AK.
- 2.2.24 In accordance with AMP DM 39-A-20-10-08-00A-622A-A and with reference to Figure 7 and Figure 16 Wiring Diagram, perform the electrical connection of the C/A B1L220 to the connector J203.
- 2.2.25 In accordance with AMP DM 39-A-20-10-08-00A-622A-A and with reference to Figure 7 and Figure 16 Wiring Diagram, perform the electrical connection of the C/A B1R105 to the connector P203 and the connector PL1P10.
- 2.2.26 With reference to Figure 8 View looking roof, install the spacer P/N NAS43DD3-75N, the grommet P/N AW002FT102 and the clamp P/N MS25281-R6 on the C/A B2L240 by means of the screw P/N NAS1802-3-39.
- 2.2.27 With reference to Figure 8 View looking roof, install the spacer P/N NAS43DD3-75N, the grommet P/N AW002FT102 and the clamp P/N MS25281-R6 on the C/A B2L240 by means of the screw P/N NAS1190E3P28AK.
- 2.2.28 With reference to Figure 8 View looking roof, install the n°3 spacers P/N NAS43DD3-75N, the n°3 grommets P/N AW002FT503 and the n°3 clamps P/N MS25281-R12 on the C/A B2B799 and the C/A B2L240 by means of the n°3 screws P/N NAS1190E3P28AK.
- 2.2.29 With reference to Figure 8 View looking roof, install the n°2 spacers P/N NAS43DD3-64N, the n°2 grommets P/N AW002FT503 and the n°2 clamps P/N MS25281-R12 on the C/A B2B799 and the C/A B2L240 by means of the n°2 screw P/N NAS1190E3P25AK.
- 2.2.30 With reference to Figure 8 View looking roof, install the spacer P/N NAS43DD3-60N, the grommet P/N AW002FT503 and the clamp

- P/N MS25281-R12 on the C/A B2B799 and the C/A B2L240 by means of the screw P/N NAS1802-3-35.
- 2.2.31 With reference to Figure 8 View looking roof, install the spacer P/N NAS43DD3-64N, the grommet P/N AW002FT503 and the clamp P/N MS25281-R12 on the C/A B2B799 and the C/A B2L240 by means of the screw P/N NAS1802-3-30.
- 2.2.32 With reference to Figure 8 View looking roof, install the n°2 grommets P/N AW002FT503 and the n°2 clamps P/N MS25281-R12 on the C/A B2B799 and the C/A B2L240 by means of the n°2 screws P/N NAS1802-3-28.
- 2.2.33 With reference to Figure 8 View looking roof, install the grommet P/N AW002FT503, the clamp P/N MS25281-R12 and the clamp P/N AW001CB03H on the C/A B2B799, the C/A B2L240 and the C/A B1L220 by means of the screw P/N NAS1190E3P25AK.
- 2.2.34 With reference to Figure 8 View looking roof and Figure 9 Detail B, install n°1 screw P/N NAS1802-3-9 and stow the connector A759P2 by means of Nomex aramid fibre P/N EN6049-006-25-5 and n°1 tie strap P/N AW001CK03LC.
- 2.2.35 With reference to Figure 8 View looking roof and Figure 9 Detail A, stow the connector A759P1 by means of an adequate protective plug, Nomex aramid fibre P/N EN6049-006-25-5 and n°1 tie strap P/N AW001CK03LC.
- 2.2.36 With reference to Figure 8 View looking roof, install n°2 spacers P/N A631A01A and n°2 grommets P/N AW002FT102 on the C/A B2B799.
- 2.2.37 With reference to Figure 8 View looking roof, install n°4 grommets P/N AW002FT102 and n°4 clamps P/N MS25281-R6 on the C/A B2B799 and the click bond studs previously installed.
- 2.2.38 In accordance with AMP DM 39-A-20-10-08-00A-622A-A and with reference to Figure 8 and Figure 16 Wiring Diagram, perform the electrical connection of the C/A B1L220 to the connector TB209P1.
- 2.2.39 In accordance with AMP DM 39-A-20-10-08-00A-622A-A and with reference to Figure 8 and Figure 16 Wiring Diagram, perform the electrical connection of the C/A B2L240 to the connector A759P1.
- 2.2.40 With reference to Figure 9 View C, install n°2 grommets P/N AW002FT102 and n°2 spacers P/N 631A01A on the C/A B1R105, the C/A B2B798 and the C/A B2B799.

- 2.2.41 With reference to Figure 9 View C, install n°2 grommets P/N AW002FT102 and n°1 spacer P/N 631A01A on the C/A B2B798.
- 2.2.42 With reference to Figure 9 View C and Detail A, stow the connector A758P1 by means of an adequate protective plug, Nomex aramid fibre P/N EN6049-006-25-5 and n°1 tie strap P/N AW001CK03LC.
- 2.2.43 With reference to Figure 9 View C and Detail B, stow the connector A758PCH1 by means of Nomex aramid fibre P/N EN6049-006-25-5 and n°1 tie strap P/N AW001CK03LC.
- 2.2.44 With reference to Figure 9 View C and Detail B, stow the connector A758PCAM by means of Nomex aramid fibre P/N EN6049-006-25-5 and n°1 tie strap P/N AW001CK03LC.
- 2.2.45 In accordance with AMP DM 39-A-20-10-08-00A-622A-A and with reference to Figure 9 and Figure 16 Wiring Diagram, perform the electrical connection of the C/A B1R105 to the connector TB208P1 and the terminal board TB210.
- 2.2.46 Perform a pin-to-pin continuity check of all the electrical connections made.
- 2.2.47 In accordance with AMP DM 39-A-11-00-01-00A-720A-A and with reference to Figure 8 View looking roof, apply the decal P/N ED300J2503 on both sides of the structure near the connector J2503.



**NOTE**

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

**NOTE**

Install the braided tubing P/N A582A as a protection against chafing where contact with the structure may occur. The tubing protection is not a substitute for good routing practice.

**NOTE**

When necessary, replace an existing clamp with a suitable one.

**NOTE**

Primary supporting devices shall be of adequate size to hold the wires (harnesses) in place without damaging the wires insulation or degrading the performance of optical or RF cables. If a clamp is too large to properly grip the harness and the next smaller size would crush the harness, tapes type 67N19X15M-0 (or equivalent) may be used to provide a proper fit in the clamp or as filler under the clamp. Build up with tape only to the point that the original clamp provides the necessary grip.

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

- wires/harnesses clamps (diameter only) two dash greater or lesser than the nominal one;
- bolts (length only) two dash shorter or longer 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;
- spacers (length only) two dash shorter or longer than the nominal one.

3. In accordance with DM 39-A-06-41-00-00A-010A-A and with reference to Figure 10

and Figure 11, remove all external panels, internal panels and internal liners as required to gain access to the area affected by the installation and perform the hoist breeze HD camera fixed parts installation as described in the following procedure:

- 3.1 With reference to Figure 11 View looking secondary bay, install the video format converter P/N VX-4003-200 (A759) on the lower panel assy P/N 3G5315A43431 by means of n°4 washers P/N NAS114900332J and n°4 screws P/N NAS1802-3-8.
- 3.2 In accordance with AMP DM 39-A-11-00-01-00A-720A-A and with reference to Figure 11 View looking secondary bay, apply the decal P/N ED300A759 on the structure near the video format converter P/N VX-4003-200 (A759).
- 3.3 With reference to Figure 11 View looking secondary bay, install the bonding cable assy P/N A601A3B90 and connect one end on to the helicopter structure and the other end to the video format converter P/N VX-4003-200 (A759).
- 3.4 With reference to Figure 11 View looking secondary bay, install n°3 spacers P/N A631A01A on the bonding cable assy P/N A601A3B90 and the existing cable assemblies in accordance with the positions indicated.
- 3.5 With reference to Figure 10 Detail B and Figure 11 View looking secondary bay, remove the protective plug, the Nomex aramid fibre P/N EN6049-006-25-5 and the tie strap P/N AW001CK03LC from the connector A759P1.
- 3.6 With reference to Figure 10 Detail C and Figure 11 View looking secondary bay, remove the Nomex aramid fibre P/N EN6049-006-25-5 and the tie strap P/N AW001CK03LC from the connector A759P2.
- 3.7 With reference to Figure 11 View looking secondary bay, connect the connector A759P1 and the connector A759P2 to the video format converter P/N VX-4003-200 (A759).
- 3.8 With reference to Figure 11 View looking roof RH side, install the video distribution module P/N 850-0000234-000 (A758) on the FWD upper bonded panel assy P/N 3G5333A09631 by means of n°4 washers P/N NAS1149D0332J and n°4 screws P/N NAS1802-3-8.
- 3.9 In accordance with AMP DM 39-A-11-00-01-00A-720A-A and with reference to Figure 11 View looking roof RH side, apply the decal P/N ED300A758 on the structure near the video distribution module P/N 850-0000234-000 (A758).
- 3.10 With reference to Figure 10 Detail B and Figure 11 View looking roof RH side, remove the protective plug, the Nomex aramid fibre P/N EN6049-006-25-5 and the tie strap P/N AW001CK03LC from the connector A758P1.
- 3.11 With reference to Figure 10 Detail C and Figure 11 View looking roof RH side, remove the Nomex aramid fibre P/N EN6049-006-25-5 and the tie strap

P/N AW001CK03LC from the connector A758PCH1.

- 3.12 With reference to Figure 10 Detail C and Figure 11 View looking roof RH side, remove the Nomex aramid fibre P/N EN6049-006-25-5 and the tie strap P/N AW001CK03LC from the connector A758PCAM.
- 3.13 With reference to Figure 11 View looking roof RH side, connect the connector A758P1, the connector A758PCH1 and the connector A758PCAM to the video distribution module P/N 850-0000234-000 (A758).
4. 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.
5. In accordance with weight and balance changes, update the Chart A (see Rotorcraft Flight Manual, Part II, section 6).
6. Return the helicopter to flight configuration and record for compliance with Part I of this Service Bulletin on the helicopter logbook.
7. Gain access to My Communications section on Leonardo WebPortal and compile the "Service Bulletin Application Communication".

As an alternative, send the attached compliance form to the following mail box:

[engineering.support.lhd@leonardo.com](mailto:engineering.support.lhd@leonardo.com)

and (for North, Central and South America) also to:

[AWPC.Engineering.Support@leonardocompany.us](mailto:AWPC.Engineering.Support@leonardocompany.us)

## **PART II**

1. In accordance with 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.

### **NOTE**

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

### **NOTE**

Install the braided tubing P/N A582A as a protection against chafing where contact with the structure may occur. The tubing protection is not a substitute for good routing practice.

### **NOTE**

When necessary, replace an existing clamp with a suitable one.

### **NOTE**

Primary supporting devices shall be of adequate size to hold the wires (harnesses) in place without damaging the wires insulation or degrading the performance of optical or RF cables. If a clamp is too large to properly grip the harness and the next smaller size would crush the harness, tapes type 67N19X15M-0 (or equivalent) may be used to provide a proper fit in the clamp or as filler under the clamp. Build up with tape only to the point that the original clamp provides the necessary grip.

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

- wires/harnesses clamps (diameter only) two dash greater or lesser than the nominal one;
- bolts (length only) two dash shorter or longer 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;
  - spacers (length only) two dash shorter or longer than the nominal one.
2. In accordance with DM 39-A-06-41-00-00A-010A-A and with reference to Figures 12 thru 15, remove all external panels, internal panels and internal liners as required to gain access to the area affected by the installation and perform the hoist Breeze HD camera removable parts installation P/N 3G9750A05211 as described in the following procedure:
- 2.1 Perform the external structural provision P/N 3G5311A55611 as described in the following procedure:
- 2.1.1 With reference to Figure 12 Right side view, remove the existing attaching hardware and the FWD cowling assy P/N 3G2591A01232 from the hoist structure.
- 2.1.2 With reference to Figure 12 Right side view, install the FWD cover hoist assy P/N 3G5318A36331 by means of the existing attaching hardware previously removed.
- 2.2 With reference to Figure 15 View A, install the electrical support P/N AW001CL001-N6 on the hoist structure in accordance with the dimensions reported on the table.
- 2.3 With reference to Figure 15 View A, install the electrical support P/N AW001CL006AAT01-X1 on the hoist structure in accordance with the dimensions reported on the table.
- 2.4 With reference to Figure 14 View looking external hoist and Figure 14 View A, lay down the cable assembly hoist breeze HD camera EXT C/A (B2B139) on the existing route unless otherwise indicated on the figures.
- 2.5 With reference to Figure 14 View looking external hoist, install n°2 grommets P/N AW002FT102 on the C/A B2B139.
- 2.6 With reference to Figure 14 View looking external hoist, connect the connector P503 to the connector J2503.
- 2.7 With reference to Figure 14 View A, install n°3 grommets P/N AW002FT102 and n°1 clamp P/N MS25281-R6 on the C/A B2B139.
- 2.8 With reference to Figure 15 View B, install the POSDI puck camera P/N 800-0000277-000 (A760) on the hoist structure by means of n°4 washers P/N NAS1149D0332J and n°4 screws P/N NAS1802-3-10.
- 2.9 With reference to Figure 15 View B, connect the connector A760P1 to the POSDI puck camera P/N 800-0000277-000 (A760).

- 2.10 In accordance with AMP DM 39-A-11-00-01-00A-720A-A and with reference to Figure 15 View B, apply the decal P/N ED300A760 on the hoist structure near the POSDI puck camera P/N 800-0000277-000 (A760).
3. Modify the Auxiliary CB panel, located on the overhead panel, as described in the following procedure:

**NOTE**

Customer must contact Product Support Engineering ([engineering.support.lhd@leonardo.com](mailto:engineering.support.lhd@leonardo.com)) at least 3 months in advance of embodiment date of this Service Bulletin to receive information on the exact W/D applicable to the helicopter.

- 3.1 In accordance with AMP DM 39-A-24-91-04-00A-920A-K, remove the existing integrally lighted panel from the overhead CB panel and install the new integrally lighted panel P/N 3G2490LXXXXX.
- 3.2 Install n°1 circuit breaker P/N MS3320-3 (CB712) in the position indicated as Hoist HD camera on the new integrally lighted panel P/N 3G2490LXXXXX.
- 3.3 Install n°1 switch P/N MS27722-23 (S453) on the new integrally lighted panel P/N 3G2490LXXXXX.
- 3.4 With reference to Figure 16 Wiring Diagram, perform the electrical connection between the circuit breaker CB712 pin 2 and the switch S453 pin 2 by means of electrical wire P/N A556A-T20. Use the terminal lug P/N MS25036-149 for the pin 2 of the circuit breaker CB712 and the electrical contact P/N M39029/1-102 for the pin 2 of the switch S453.
- 3.5 With reference to Figure 16 Wiring Diagram, perform the electrical connection between the switch S453 pin 3 and the sectioning connector PL1J10 pin N by means of electrical wire P/N A556A-T20. Use the electrical contact P/N M39029/1-102 for the pin 3 of the switch S453 and the electrical contact P/N M39029/56-351 for the pin N of the connector PL1J10.
- 3.6 With reference to Figure 16 Wiring Diagram, perform the electrical connection of the circuit breaker CB712 pin 1 to the 28V DC NON-ESS BUS 2.
- 3.7 In accordance with AMP DM 39-A-11-00-01-00A-720A-A, apply the decal P/N ED300CB712 in an area adjacent to the circuit breaker P/N MS3320-3 (CB712) previously installed.
- 3.8 In accordance with AMP DM 39-A-11-00-01-00A-720A-A, apply the decal P/N ED300S453 in an area adjacent to the switch P/N MS27722-23 (S453) previously installed.

- 3.9 Perform a pin-to-pin continuity check of all the electrical connections previously performed.
- 3.10 With reference to Figure 10 Detail A, remove the lockout ring P/N AW001YC01RED from the hoist HD camera circuit breaker CB712.
4. 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.

**NOTE**

Customer must contact AW139 Product Support Engineering [engineering.support.lhd@leonardo.com](mailto:engineering.support.lhd@leonardo.com) to request the correct Option File at least three months in advance from the scheduled application of this Service Bulletin

5. In accordance with AMP DM 39-A-46-20-00-00A-750A-A, ensure that the applicable Option File has been installed for the S/W kit installation.
6. In accordance with Annex A, perform the hoist breeze HD camera acceptance test procedure.
7. In accordance with weight and balance changes, update the Chart A (see Rotorcraft Flight Manual, Part II, section 6).
8. Return the helicopter to flight configuration and record for compliance with Part II of this Service Bulletin on the helicopter logbook.
9. Gain access to My Communications section on Leonardo WebPortal and compile the "Service Bulletin Application Communication".

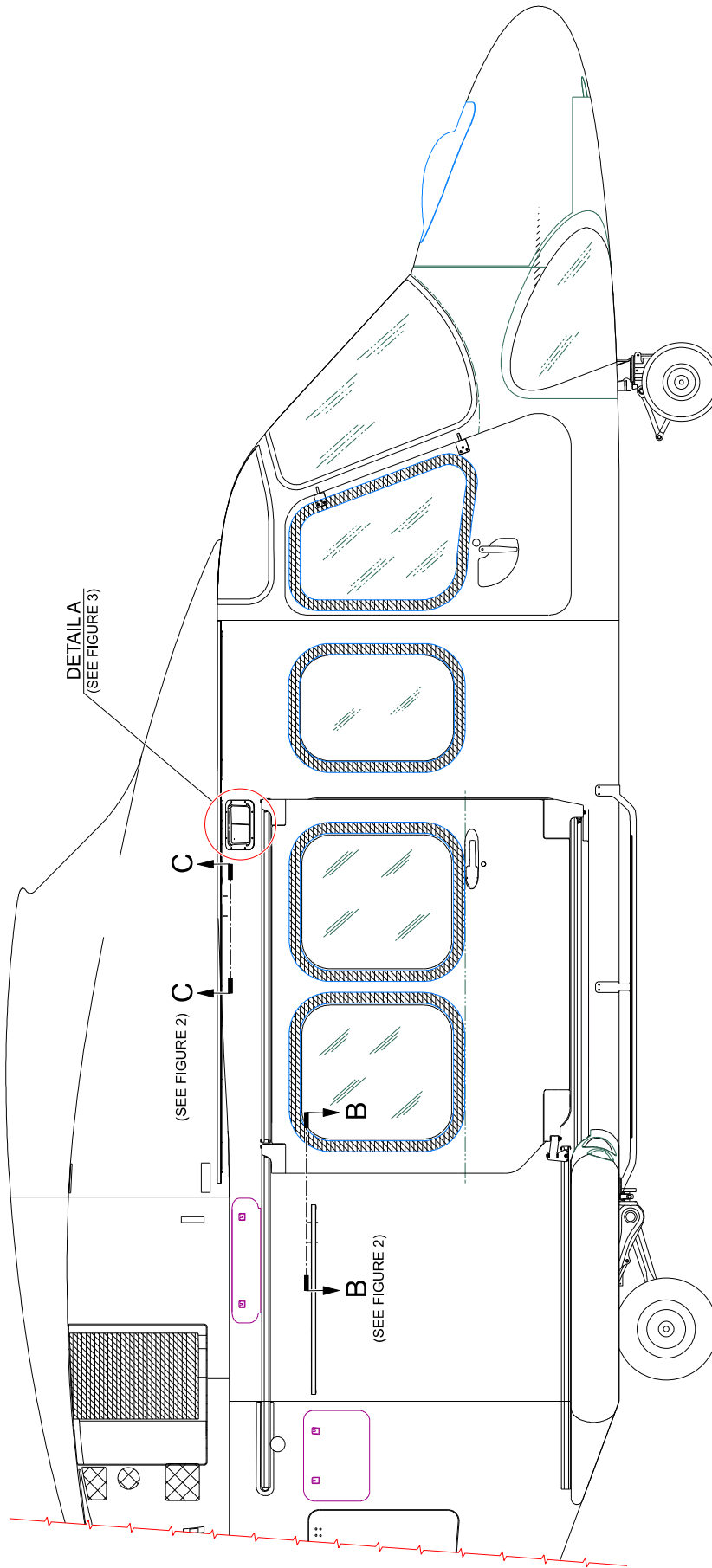
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and (for North, Central and South America) also to:

[AWPC.Engineering.Support@leonardocompany.us](mailto:AWPC.Engineering.Support@leonardocompany.us)

**HOIST BREEZE HD CAMERA STRUCTURAL PROVISION**  
**3G5311A55511**

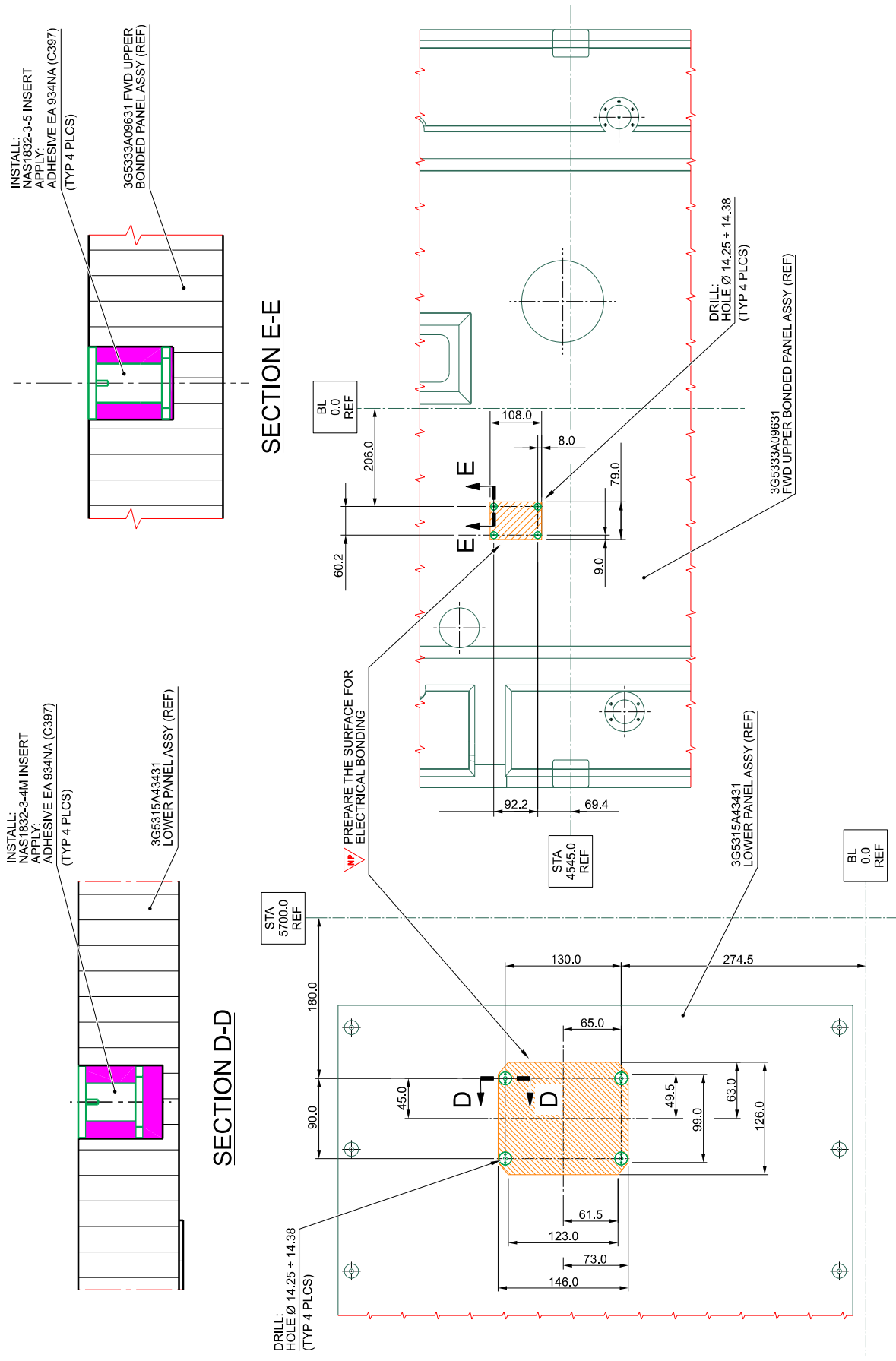


**Figure 1**

**VIEW LOOKING INBOARD**

RH SIDE  
STRUCTURE AND SYSTEMS ARE PARTIALLY OMITTED FOR BETTER CLARITY PURPOSE

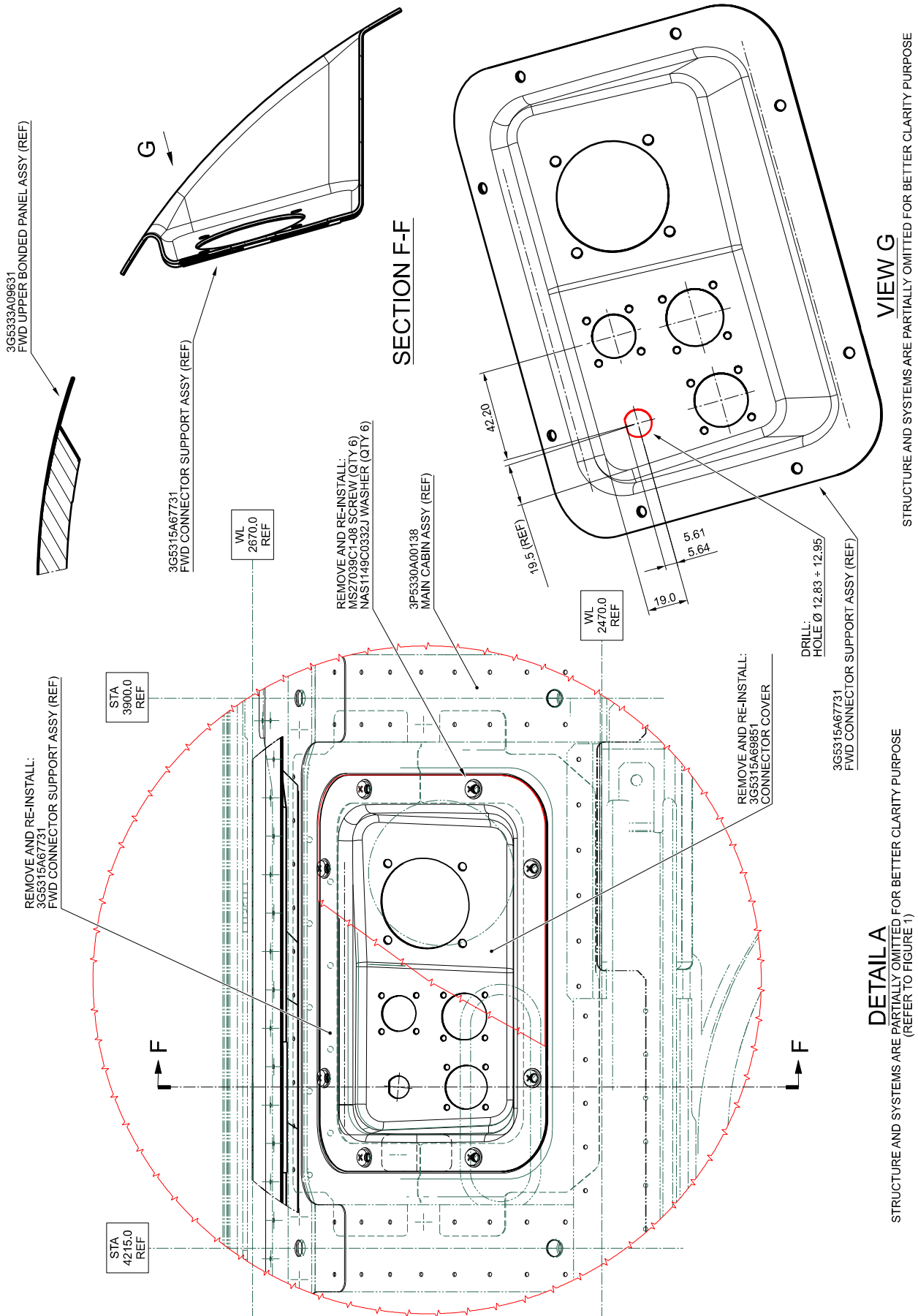




**SECTION C-C**  
 STRUCTURE AND SYSTEMS ARE PARTIALLY OMITTED FOR BETTER CLARITY PURPOSE  
 (REFER TO FIGURE 1)

**SECTION B-B**  
 STRUCTURE AND SYSTEMS ARE PARTIALLY OMITTED FOR BETTER CLARITY PURPOSE  
 (REFER TO FIGURE 1)

**Figure 2**

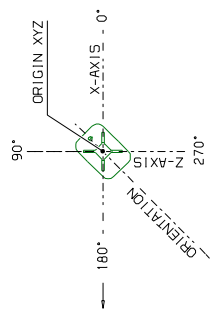


**Figure 3**

S.B. N°139-708 OPTIONAL  
DATE: June 23, 2023  
REVISION: /

1	2	3	4	5	6	7	8	9
USE EXISTING HARDWARE	USE EXISTING HARDWARE	USE EXISTING HARDWARE	USE EXISTING HARDWARE	USE EXISTING HARDWARE	USE EXISTING HARDWARE	USE EXISTING HARDWARE	USE EXISTING HARDWARE	USE EXISTING HARDWARE

ORIENTATION OF CABLE SUPPORTS  
DIAGRAM IS BASIC FOR ORIENTATION OF  
ALL CABLE SYSTEMS IN RELATIONSHIP  
TO A/C AXIS SYSTEM. FOR  
ORIENTATION OFF SUPPORT SEE  
COORDINATE TABLE



XYZ INDICATES WHERE GIVEN COORDINATES  
ARE LOCATED ON SUPPORT. SEE COORD. TABLE  
LOCATION OF SUPPORT CAN BE BONDED WITH IN ±5 MM OF  
GIVEN COORDINATES. UNLESS OTHERWISE MENTIONED,  
GIVEN VALUE. UNLESS OTHERWISE MENTIONED.

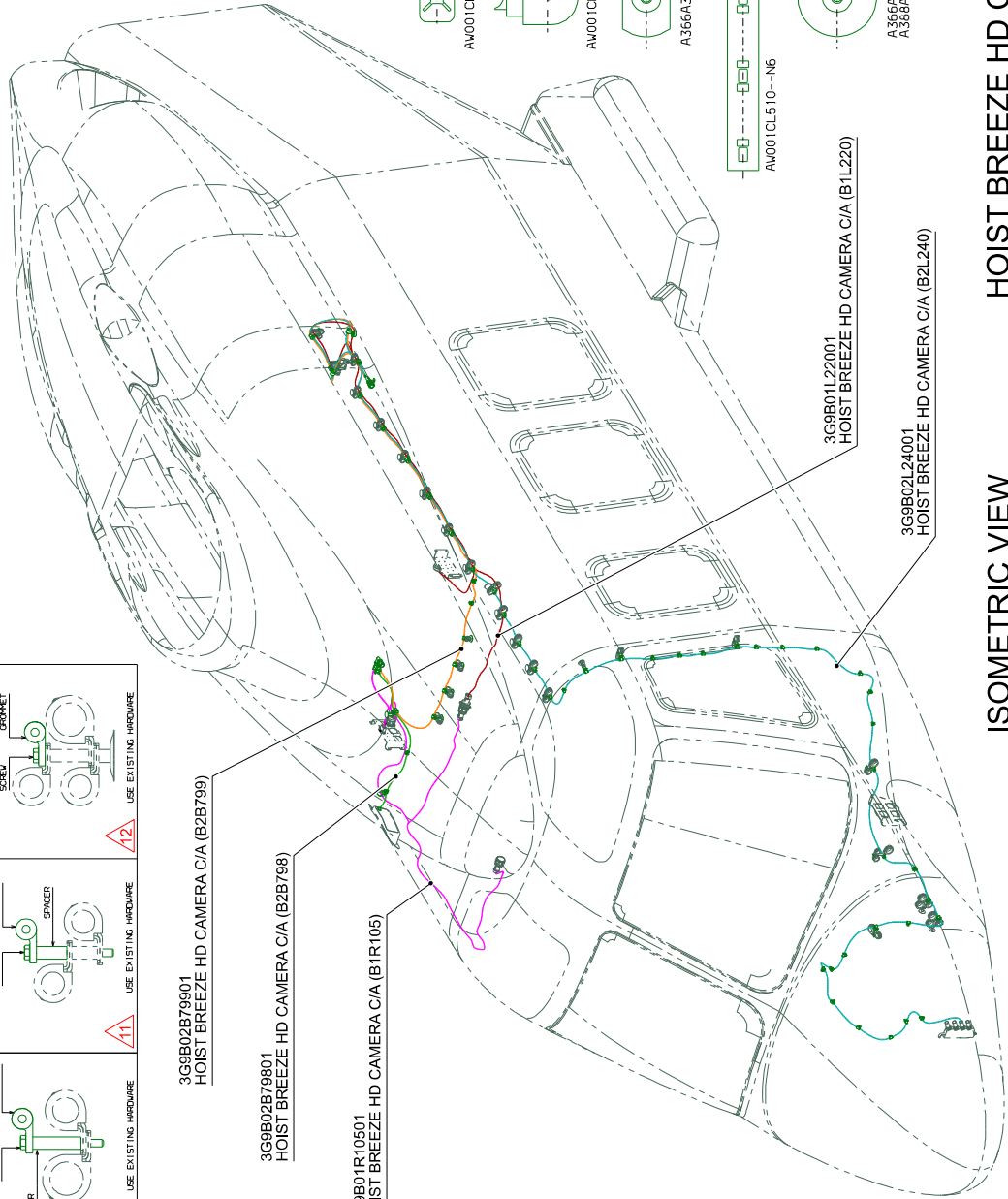
XYZ INDICATES WHERE GIVEN COORDINATES  
ARE LOCATED ON SUPPORT. SEE COORD. TABLE  
LOCATION OF SUPPORT CAN BE BONDED WITH IN ±5 MM OF  
GIVEN COORDINATES. UNLESS OTHERWISE MENTIONED,  
ORIENTATION OF SUPPORT CAN BE BONDED WITH IN ±5°. OF  
GIVEN VALUE. UNLESS OTHERWISE MENTIONED.

XYZ INDICATES WHERE GIVEN COORDINATES  
ARE LOCATED ON SUPPORT. SEE COORD. TABLE  
LOCATION OF SUPPORT CAN BE BONDED WITH IN ±5 MM OF  
GIVEN COORDINATES. UNLESS OTHERWISE MENTIONED,  
ORIENTATION OF SUPPORT CAN BE BONDED WITH IN ±5°. OF  
GIVEN VALUE. UNLESS OTHERWISE MENTIONED.

XYZ INDICATES WHERE GIVEN COORDINATES  
ARE LOCATED ON SUPPORT. SEE COORD. TABLE  
SUPPORT SHALL BE LOCATED WITHIN ±5 MM OF  
GIVEN COORDINATES. UNLESS OTHERWISE MENTIONED,  
ORIENTATION OF SUPPORT SHALL BE WITHIN ±5°. OF  
GIVEN VALUE. UNLESS OTHERWISE NOTED.

XYZ INDICATES WHERE GIVEN COORDINATES  
ARE LOCATED ON SUPPORT. SEE COORD. TABLE  
SUPPORT SHALL BE LOCATED WITHIN ±5 MM OF  
GIVEN COORDINATES.  
ORIENTATION OF SUPPORT SHALL BE WITHIN ±5°. OF  
GIVEN VALUE UNLESS OTHERWISE NOTED.

- AV001CL001--N6
- AV001CL005---
- A366A3E--C75
- AV001CL510--N6
- A366A3E--C
- A366A3E--C

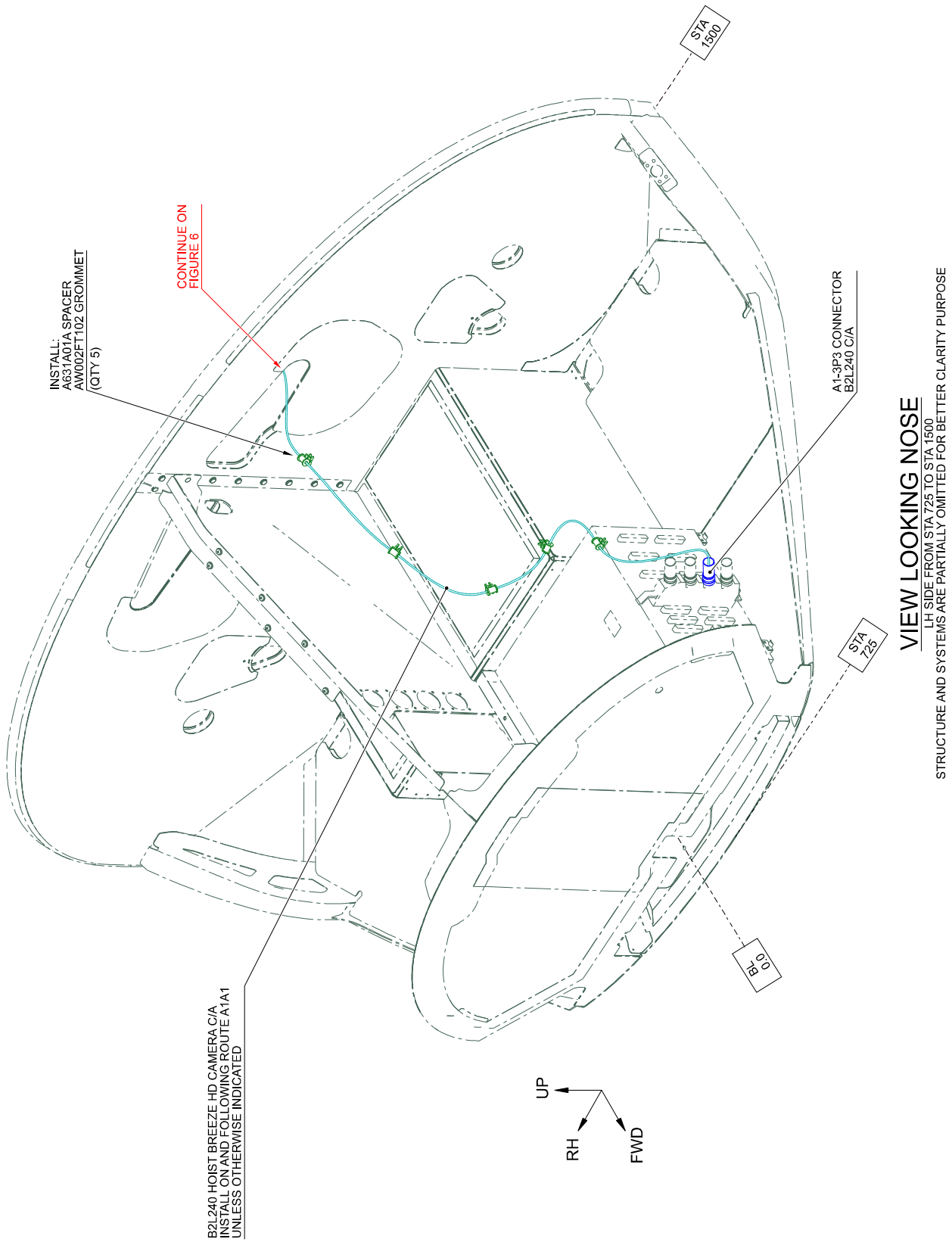


3G9750A05311

HOIST BREEZE HD CAMERA ELECTRICAL PROVISION

ISOMETRIC VIEW

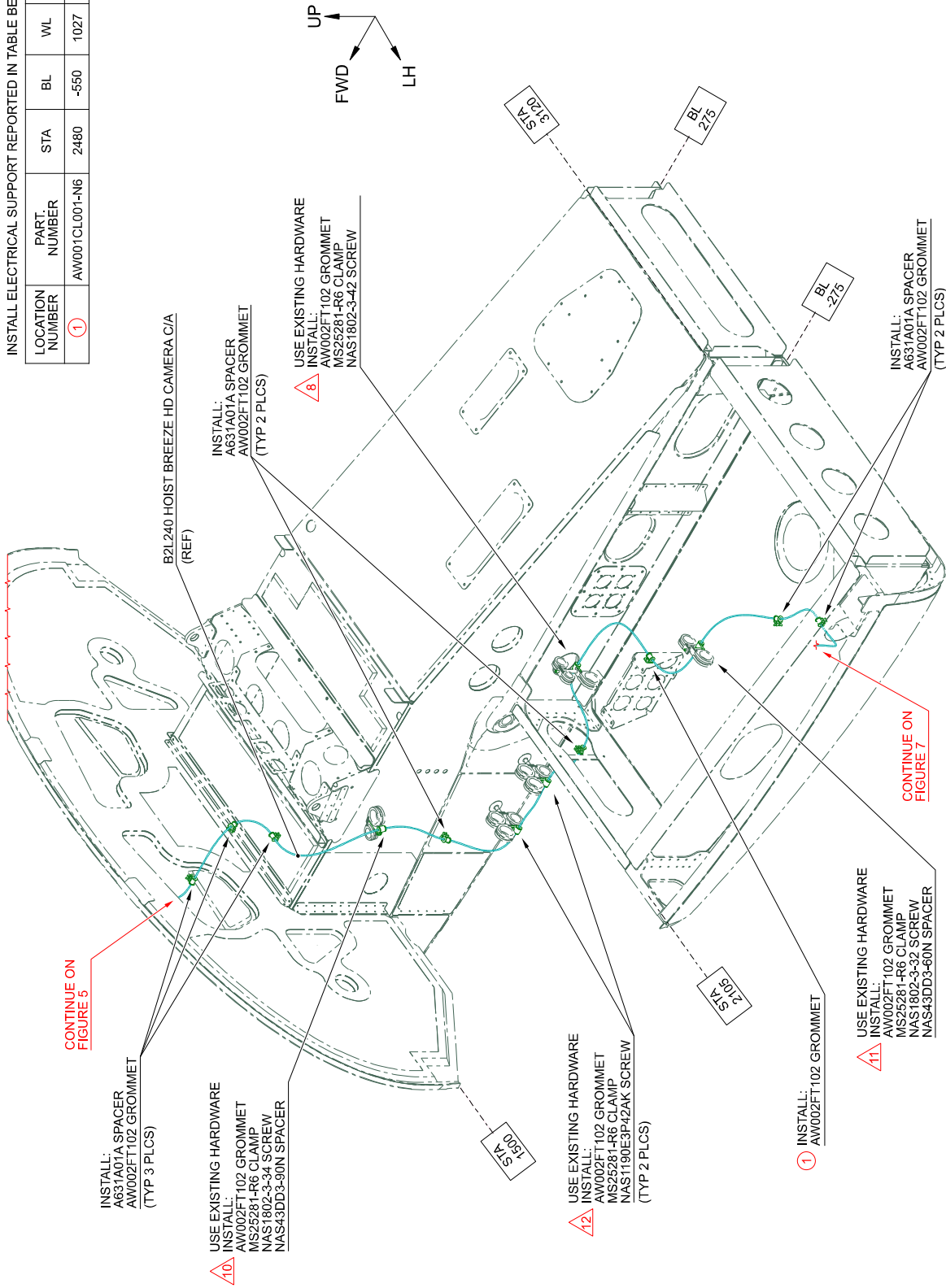
Figure 4



**Figure 5**

INSTALL ELECTRICAL SUPPORT REPORTED IN TABLE BELOW:

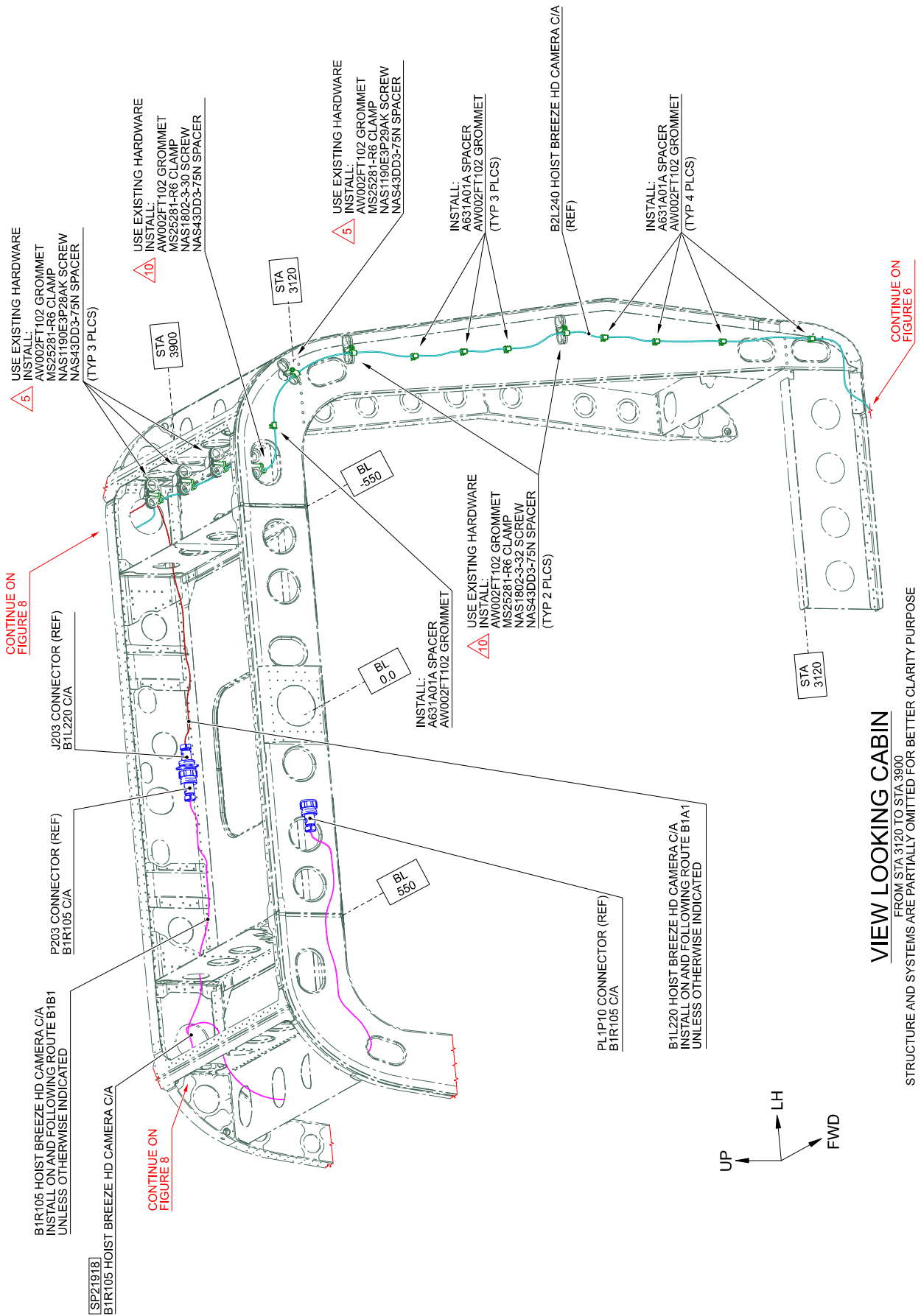
LOCATION NUMBER	PART NUMBER	STA	BL	WL	ORIENTATION
①	AW001CL001-N6	2480	-550	1027	0°



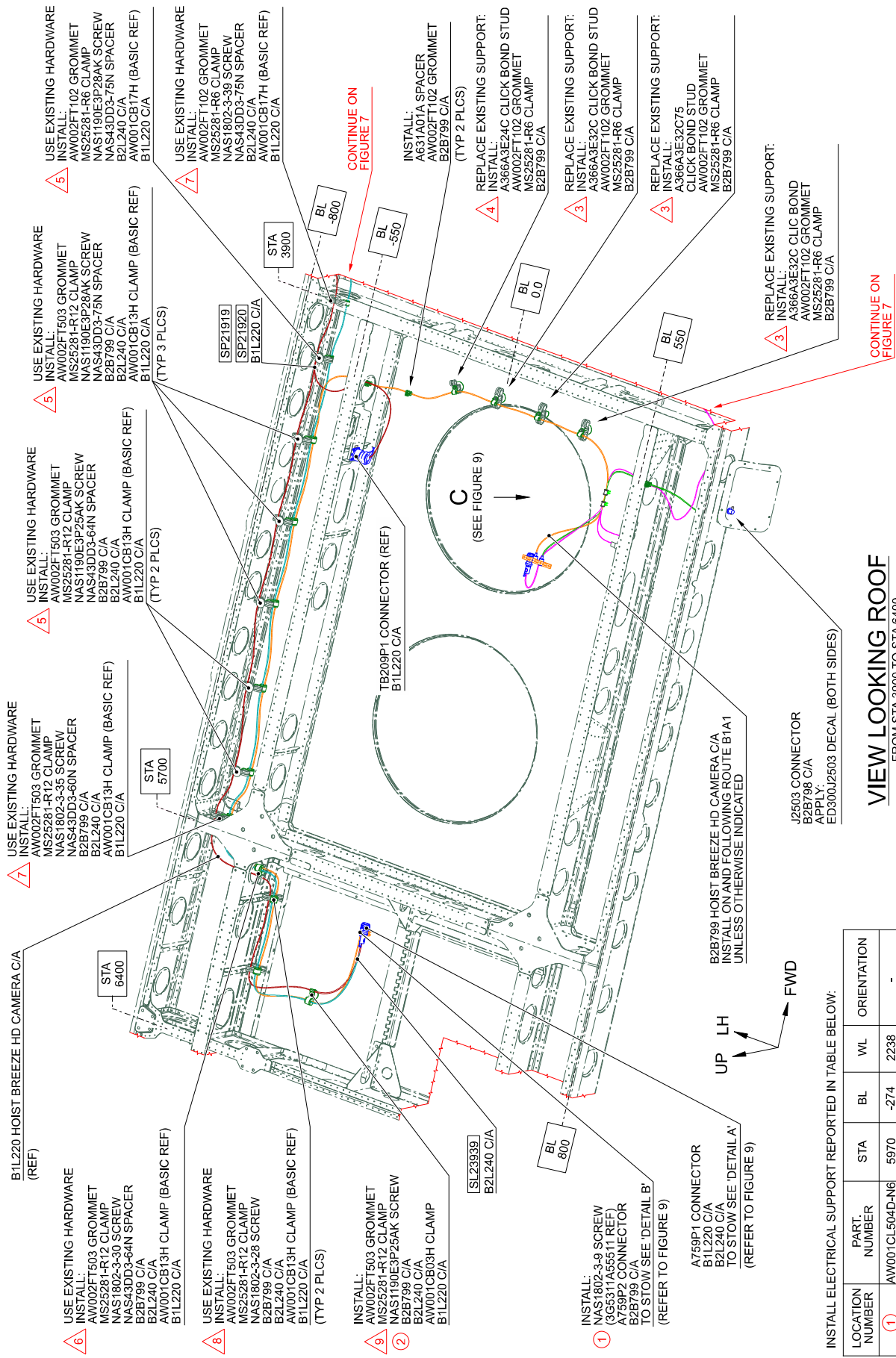
**VIEW LOOKING NOSE FLOOR**

LH SIDE FROM STA 1500 TO STA 3120  
STRUCTURE AND SYSTEMS ARE PARTIALLY OMITTED FOR BETTER CLARITY PURPOSE

Figure 6



**Figure 7**



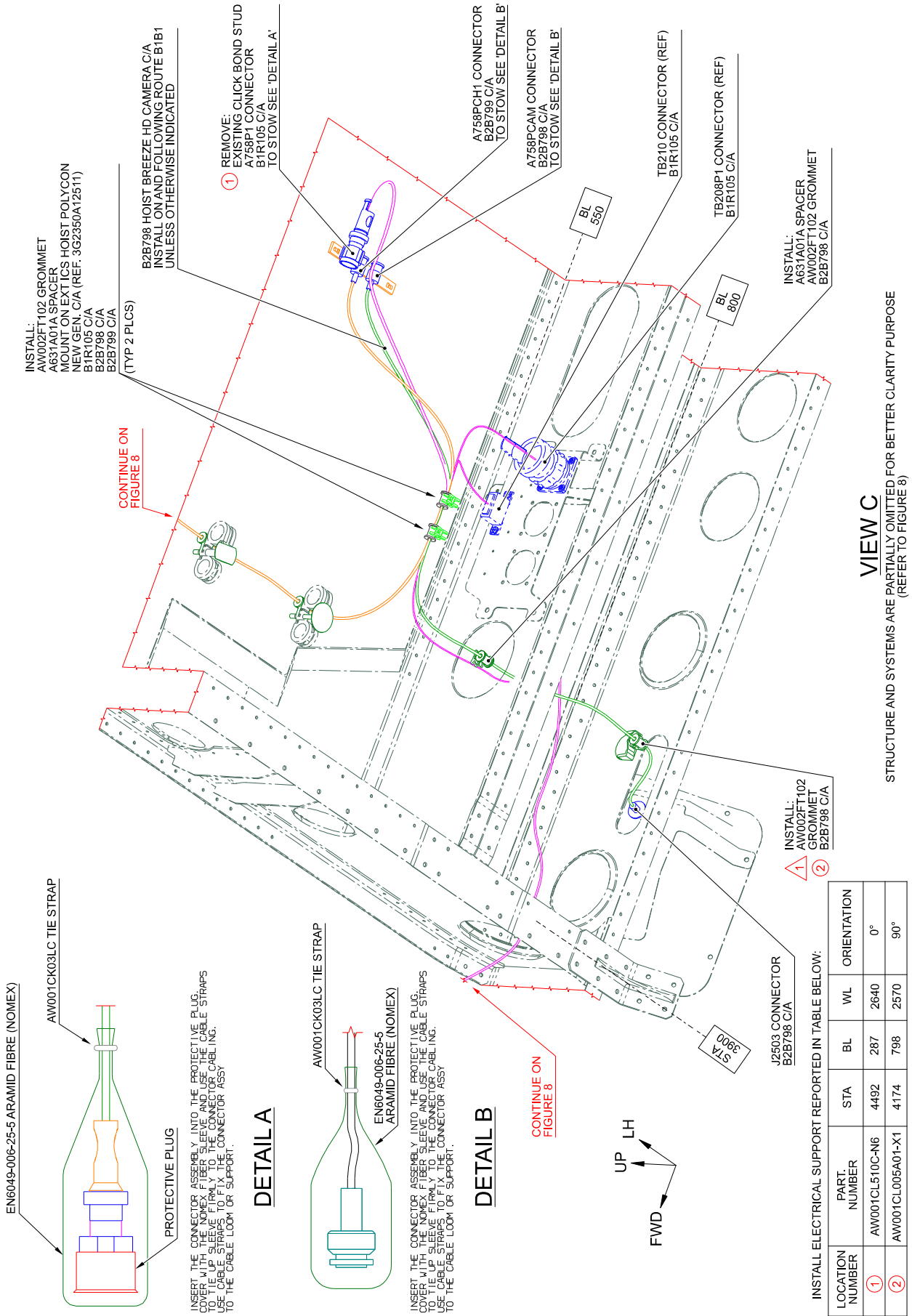
**VIEW LOOKING ROOF**

FROM STA. 3900 TO STA 6400  
STRUCTURE AND SYSTEMS ARE PARTIALLY OMITTED  
FOR BETTER CLARITY PURPOSE

INSTALL ELECTRICAL SUPPORT REPORTED IN TABLE BELOW:

LOCATION NUMBER	PART. NUMBER	STA	BL	WL	ORIENTATION
①	AW001CL504D-N6	5970	-274	2238	-
②	A388A3E06C	6228	-415	2240	-

**Figure 8**

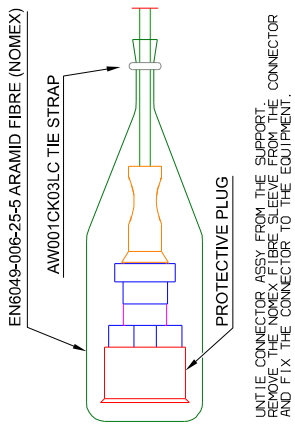


**VIEW C**  
STRUCTURE AND SYSTEMS ARE PARTIALLY OMITTED FOR BETTER CLARITY PURPOSE (REFER TO FIGURE 8)

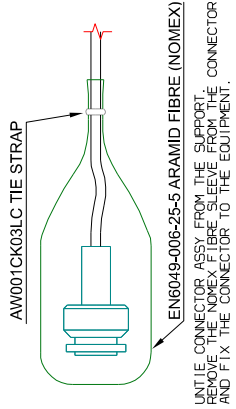
**Figure 9**



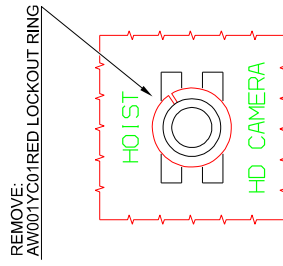
**HOIST BREEZE HD CAMERA FIXED PARTS**  
**3G9750A05111**



**DETAIL B**

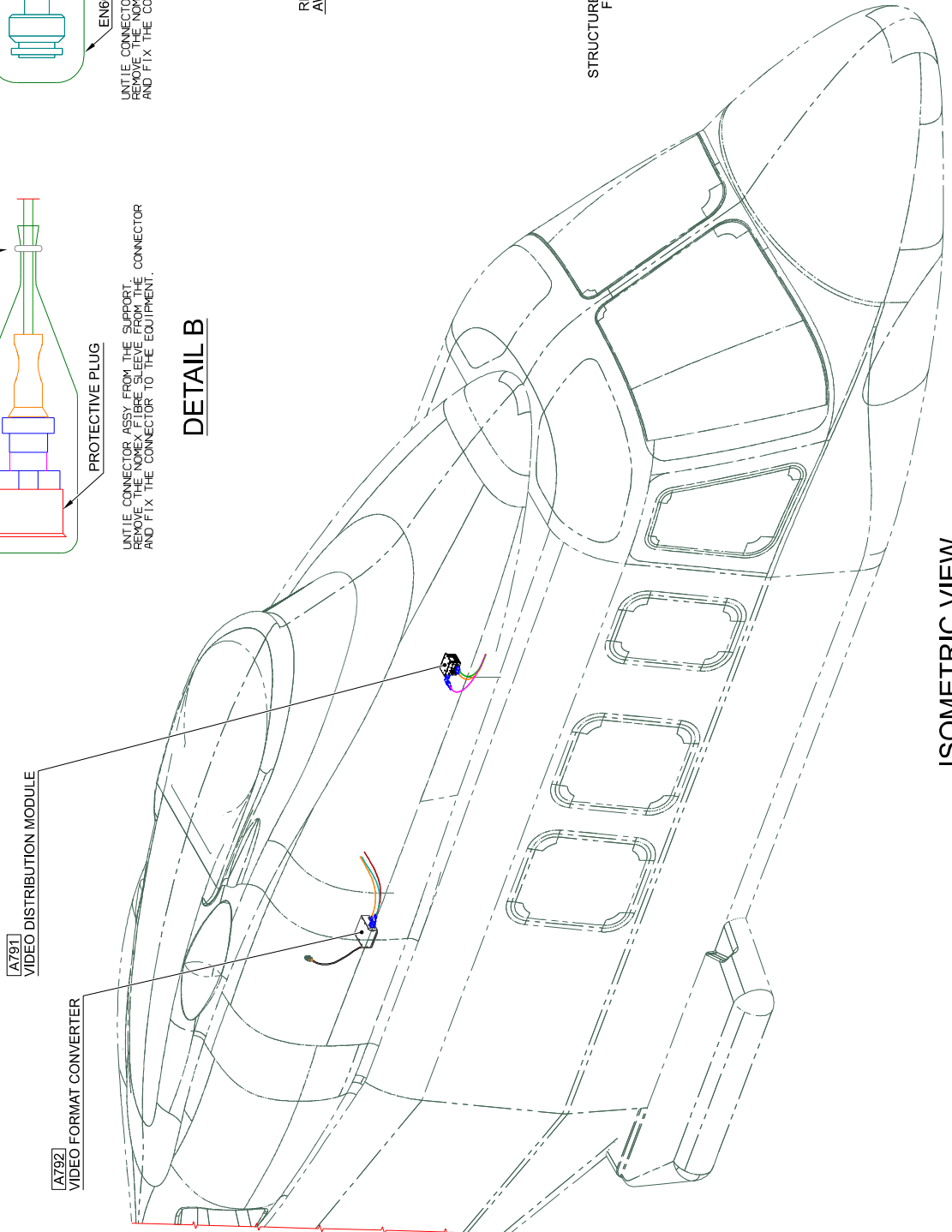


**DETAIL C**



**DETAIL A**

STRUCTURE AND SYSTEMS ARE PARTIALLY OMITTED FOR BETTER CLARITY PURPOSE

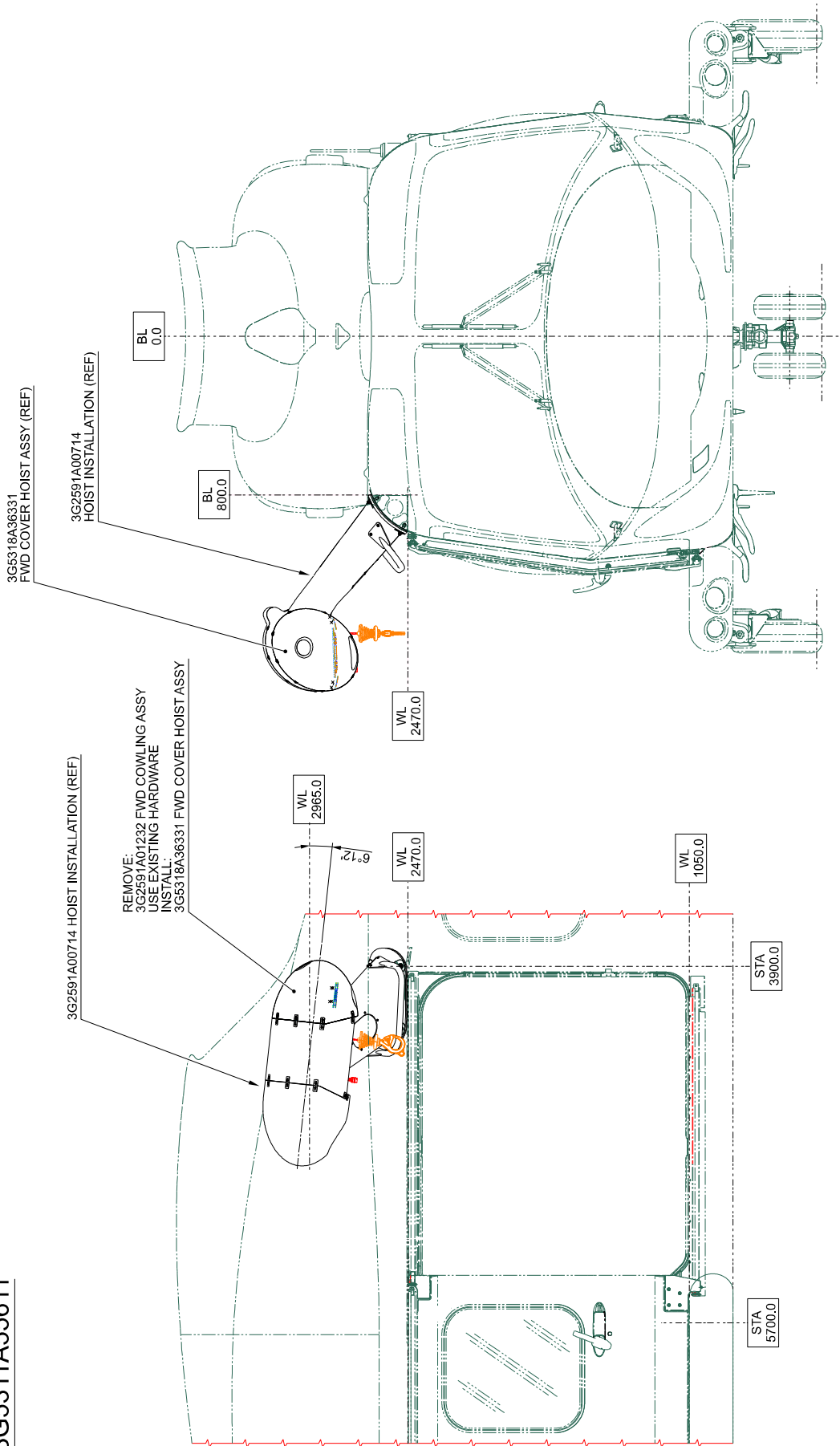


**ISOMETRIC VIEW**

**Figure 10**



**HOIST BREEZE HD CAMERA EXTERNAL STRUCTURAL PROVISION**  
**3G5311A55611**



**FRONT VIEW**

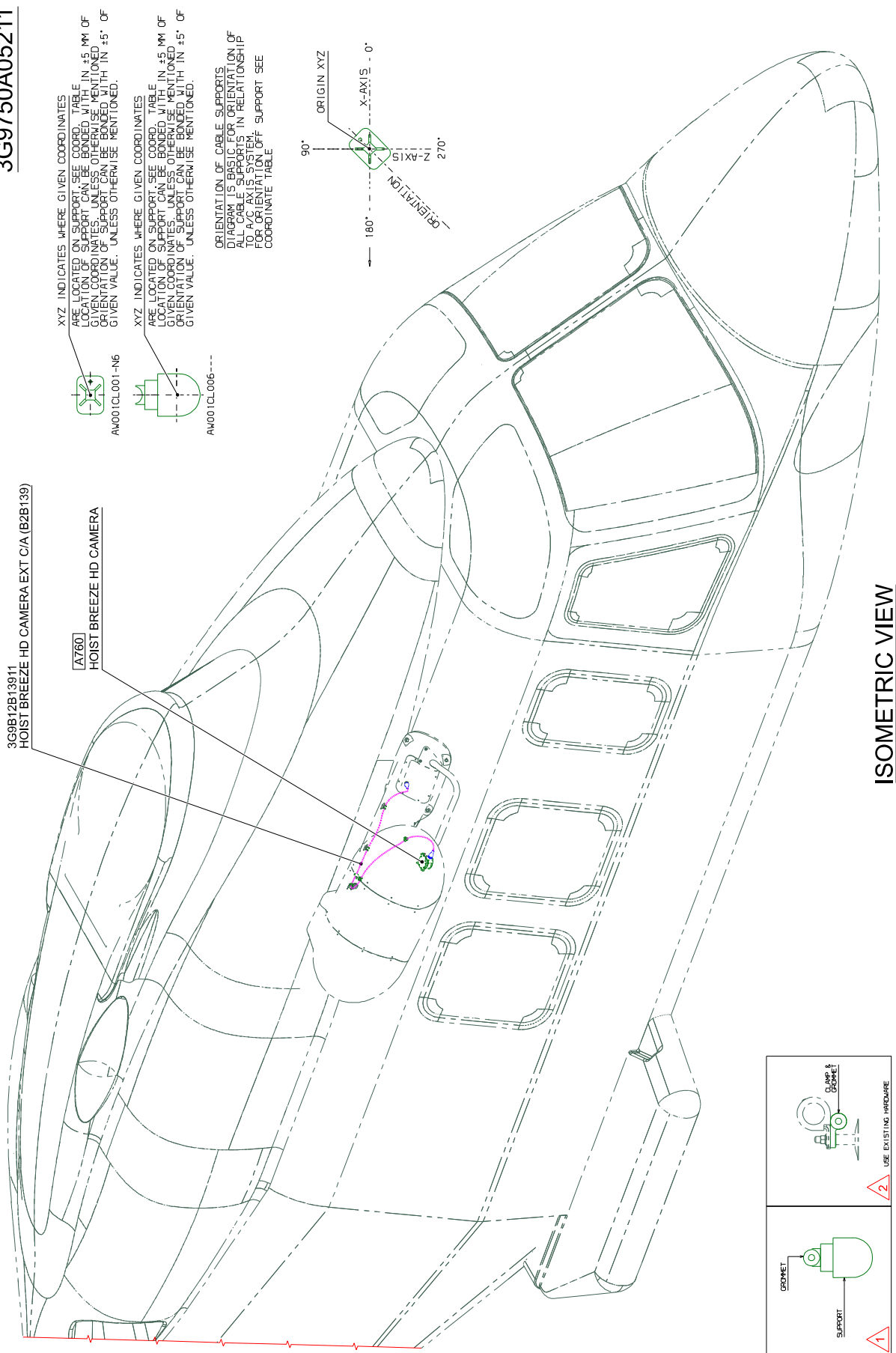
STRUCTURE AND SYSTEMS ARE PARTIALLY OMITTED  
FOR BETTER CLARITY PURPOSE

**RIGHT SIDE VIEW**

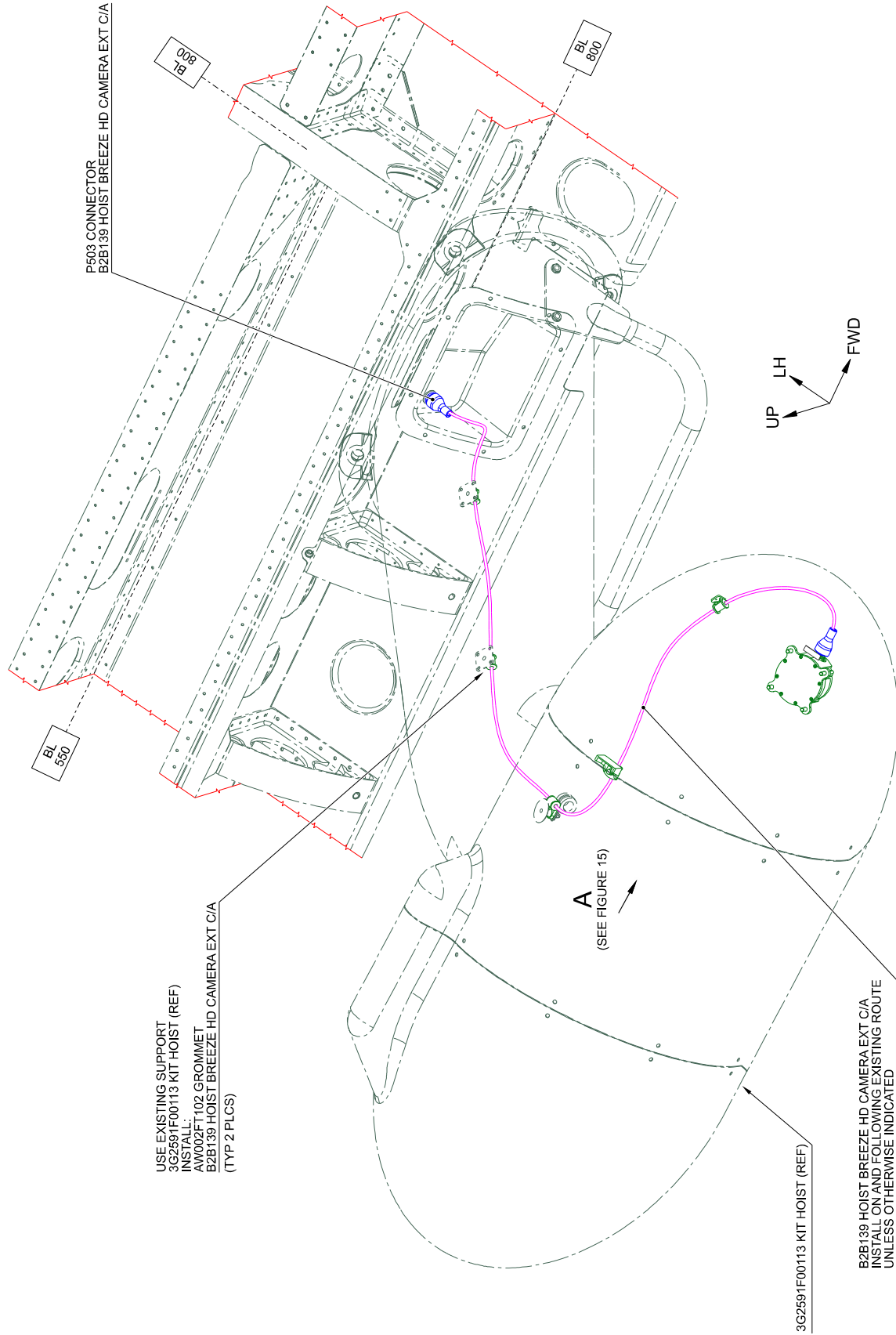
STRUCTURE AND SYSTEMS ARE PARTIALLY OMITTED  
FOR BETTER CLARITY PURPOSE

**Figure 12**

**HOIST BREEZE HD CAMERA REMOVABLE PARTS**  
**3G9750A05211**



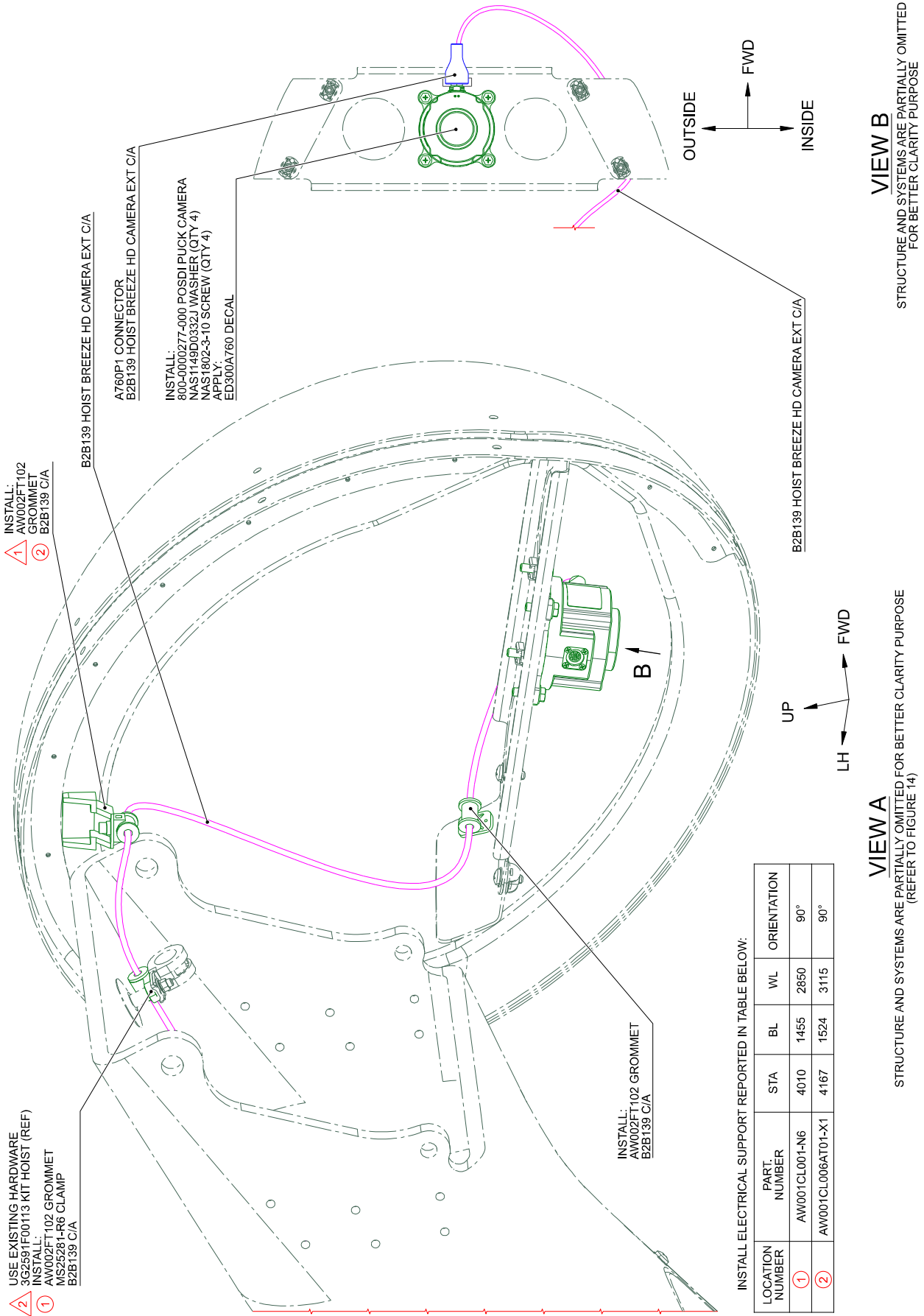
**Figure 13**



**VIEW LOOKING EXTERNAL HOIST**

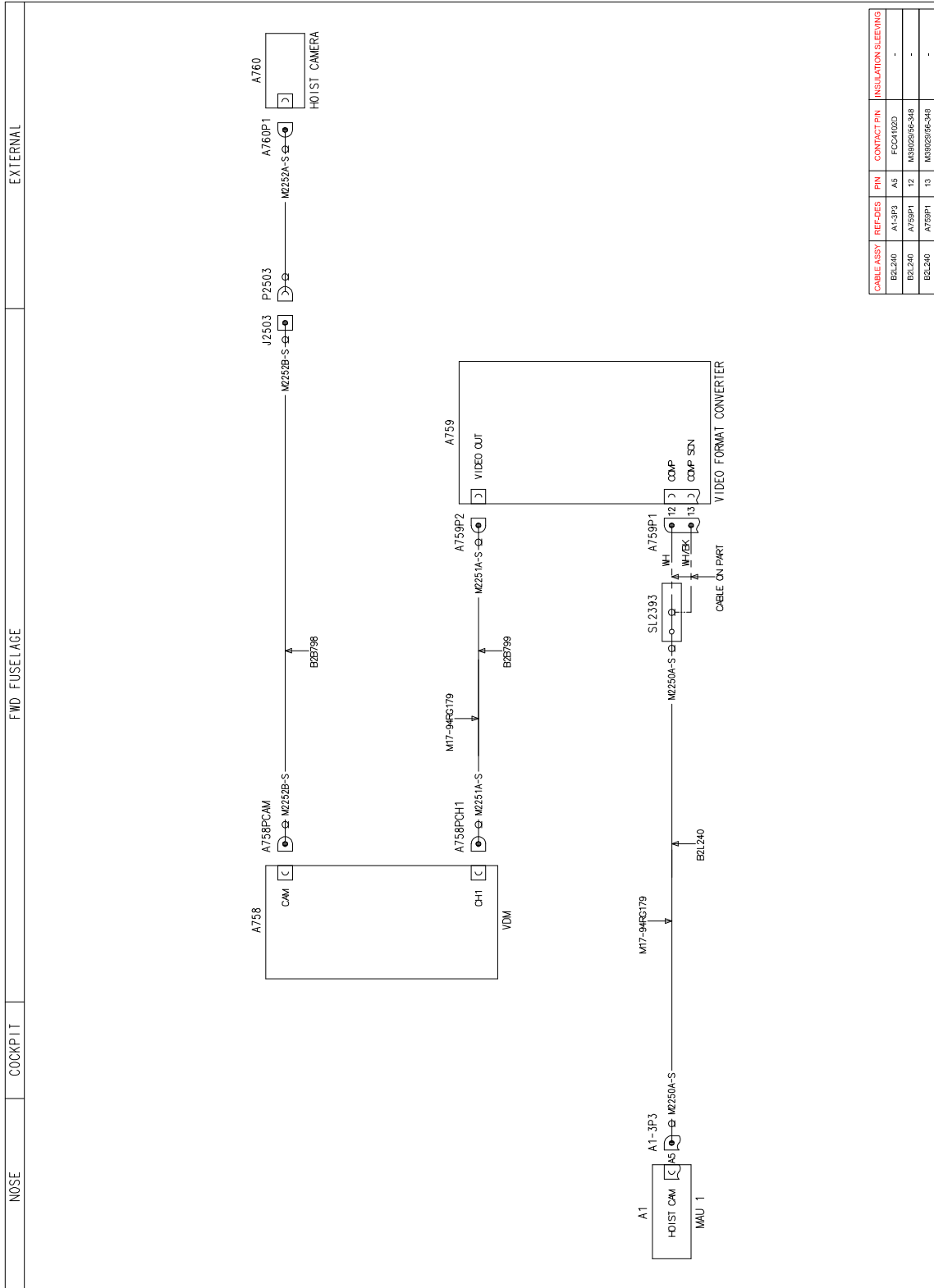
STRUCTURE AND SYSTEMS ARE PARTIALLY OMITTED FOR BETTER CLARITY PURPOSE

**Figure 14**



**Figure 15**





**3G9750W02611**  
**WIRING DIAGRAM HOIST BREEZE HD CAMERA**  
SHEET 2 OF 2

FUNCTIONAL NOTES  
ALL CABLES ARE IN LOOM B2B800 UNLESS SPECIFIED  
ALL CABLES ARE OF TYPE V76261 UNLESS SPECIFIED

**Figure 17**



# ANNEX A

## HOIST BREEZE HD CAMERA ACCEPTANCE TEST PROCEDURE

## 6 SYTEM TEST

### 6.1 SUB-SYTEM DEVICES UNDER TEST

Verify the REF. DES. of the components of the KIT HOIST BREEZE HD CAMERA P/N 4G9750F01211:

Unit	Unit REF. DES.	Qty.	Check
PoSIDI CAMERA	A760	1	<input type="checkbox"/>
Video Distribution Module	A758	1	<input type="checkbox"/>
Video Format Converter	A759	1	<input type="checkbox"/>

### 6.2 SAFETY PROVISIONS

Before performing the ground test procedure, verify the following requirements:

For the purpose of checking electrical signals by direct contact at electrical connector (plugs or receptacles) pins and sockets, contact is to be made by means of the appropriate mating pin or socket. Under no circumstances shall any other sort of probe be utilized.	<input type="checkbox"/>
During all ATPs Tests, disconnect if installed, the wires from the Fire extinguishing bottles and stow them properly (E1- MTR1 & MTR2, E2- MTR1 & MTR2).	<input type="checkbox"/>
If other Electro-Explosive Devices (EEDs) are fitted, ensure that they are electrically disconnected.	<input type="checkbox"/>
Electrical connector plugs and receptacles not to be connected, disconnected, or otherwise handled when electrical power is applied to the connector in question.	<input type="checkbox"/>

- When required, for continuity testing a low voltage tester may be used.
- When it is required testing at pins and sockets of plug and receptacles connectors, contact is to be made by means of the correct mating socket or pin.
- Under no circumstances must be used any other form of probe.

No electrical Power Supply applied to the aircraft before starting with the Test Procedure

### 6.3 TEST EQUIPMENTS

DC external Power (28VDC-3KW Min)

DC voltmeter (range 0 - 32 VDC)

Low Voltage continuity tester

Shorting Leads

**6.4 TEST PREREQUISITES**

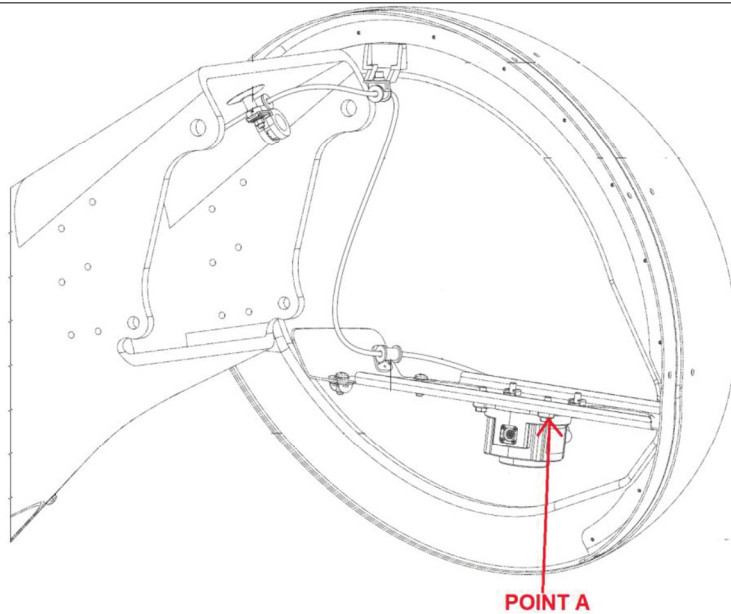
This ATP shall be performed after successful completion of the following:

- PRIMUS EPIC SOFTWARE INSTALLATION PROCEDURE FOR PHASE 7 or PHASE 8 (ref 139G4600M004 PRIMUS EPIC SOFTWARE INSTALLATION PROCEDURE FOR PHASE 7 or 139G4600M005PRIMUS EPIC SOFTWARE INSTALLATION PROCEDURE FOR PHASE 8.

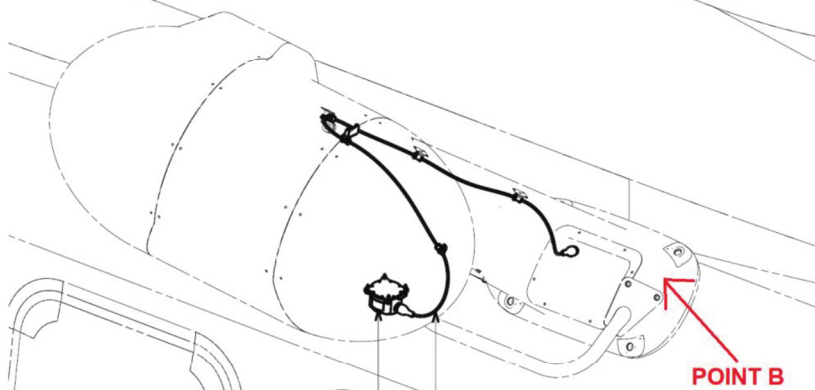
**6.5 PRELIMINARY CHECKS**

**6.5.1 BONDING CHECKS**

1.	Verify the following circuit breaker are OUT: <table border="1" style="margin-left: 20px; border-collapse: collapse; width: 60%;"> <thead> <tr> <th style="width: 40%;">Circuit Breaker</th> <th style="width: 20%;">Circuit Breaker REF. DES.</th> <th style="width: 40%;">CHECK</th> </tr> </thead> <tbody> <tr> <td>HOIST HD CAMERA</td> <td>CB712</td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> </tbody> </table>	Circuit Breaker	Circuit Breaker REF. DES.	CHECK	HOIST HD CAMERA	CB712	<input type="checkbox"/>	□														
Circuit Breaker	Circuit Breaker REF. DES.	CHECK																				
HOIST HD CAMERA	CB712	<input type="checkbox"/>																				
2.	Disconnect all connectors from LRUs under test: <table border="1" style="margin-left: 20px; border-collapse: collapse; width: 60%;"> <thead> <tr> <th style="width: 40%;">Unit</th> <th style="width: 60%;">Unit REF. DES.</th> </tr> </thead> <tbody> <tr> <td>PoS DI CAMERA</td> <td>A760</td> </tr> <tr> <td>VDM</td> <td>A758</td> </tr> <tr> <td>VIDEO FORMAT CONVERTER</td> <td>A759</td> </tr> </tbody> </table>	Unit	Unit REF. DES.	PoS DI CAMERA	A760	VDM	A758	VIDEO FORMAT CONVERTER	A759	□												
Unit	Unit REF. DES.																					
PoS DI CAMERA	A760																					
VDM	A758																					
VIDEO FORMAT CONVERTER	A759																					
3.	Verify values of resistances don't exceed limits reported below: <table border="1" style="margin-left: 20px; border-collapse: collapse; width: 100%;"> <thead> <tr> <th style="width: 15%;">Unit</th> <th style="width: 15%;">Unit REF. DES.</th> <th style="width: 15%;">Expected value [mΩ]</th> <th style="width: 15%;">Measured value [mΩ]</th> <th style="width: 40%;">Reference Point</th> </tr> </thead> <tbody> <tr> <td>VDM</td> <td>A758</td> <td style="text-align: center;">≤ 2.5</td> <td></td> <td>Local Structure</td> </tr> <tr> <td>Video Format Converter</td> <td>A759</td> <td style="text-align: center;">≤ 10</td> <td></td> <td>Local Structure in the vicinity of Ground Stud GS2147</td> </tr> <tr> <td>PoS DI CAMERA</td> <td>A760</td> <td style="text-align: center;">≤ 15</td> <td></td> <td>Measurement between Point A and Point B (ref Figure 6-1 and Figure 6-2)</td> </tr> </tbody> </table> <p style="text-align: center; margin-top: 5px;"><b>Table 6-1 Bonding Measurement</b></p>	Unit	Unit REF. DES.	Expected value [mΩ]	Measured value [mΩ]	Reference Point	VDM	A758	≤ 2.5		Local Structure	Video Format Converter	A759	≤ 10		Local Structure in the vicinity of Ground Stud GS2147	PoS DI CAMERA	A760	≤ 15		Measurement between Point A and Point B (ref Figure 6-1 and Figure 6-2)	□
Unit	Unit REF. DES.	Expected value [mΩ]	Measured value [mΩ]	Reference Point																		
VDM	A758	≤ 2.5		Local Structure																		
Video Format Converter	A759	≤ 10		Local Structure in the vicinity of Ground Stud GS2147																		
PoS DI CAMERA	A760	≤ 15		Measurement between Point A and Point B (ref Figure 6-1 and Figure 6-2)																		



**Figure 6-1 BONDING MEASUREMENT POINT A BREEZE HOIST CAMERA**



**Figure 6-2 BONDING MEASUREMENT POINT B BREEZE HOIST CAMERA**

4. Re-connect all connectors of LRUs under test



### 6.5.2 CIRCUIT BREAKER'S RATING CHECK

1. Verify the correct rating of the following Circuit Breaker:	<input type="checkbox"/>						
<table border="1"> <thead> <tr> <th>CB REF. DES.</th> <th>CB NAME</th> <th>CB RATING [A]</th> </tr> </thead> <tbody> <tr> <td>CB712</td> <td>HOIST HD CAMERA</td> <td>3</td> </tr> </tbody> </table>	CB REF. DES.	CB NAME	CB RATING [A]	CB712	HOIST HD CAMERA	3	
CB REF. DES.	CB NAME	CB RATING [A]					
CB712	HOIST HD CAMERA	3					
<b>Table 6-2 CIRCUIT BREAKER'S RATING</b>							

### 6.5.3 INSTALLATION AND POWER SUPPLY CHECKS

1. Power ON the helicopter by using the external power bench (set to 28VDC).	<input type="checkbox"/>								
2. Verify that HOIST HD CAMERA CB (CB712) is OUT and HOIST CAMERA SWITCH ON/OFF (S453) is set to OFF.	<input type="checkbox"/>								
3. Disconnect connector A758P1 and A759P1.	<input type="checkbox"/>								
4. Verify the grounding of the following pins:	<input type="checkbox"/>								
<table border="1"> <tr> <td>A758P1-2</td> <td><input type="checkbox"/></td> <td>A759P1-3</td> <td><input type="checkbox"/></td> </tr> <tr> <td>A758P1-3</td> <td><input type="checkbox"/></td> <td>A759P1-4</td> <td><input type="checkbox"/></td> </tr> </table>	A758P1-2	<input type="checkbox"/>	A759P1-3	<input type="checkbox"/>	A758P1-3	<input type="checkbox"/>	A759P1-4	<input type="checkbox"/>	
A758P1-2	<input type="checkbox"/>	A759P1-3	<input type="checkbox"/>						
A758P1-3	<input type="checkbox"/>	A759P1-4	<input type="checkbox"/>						
5. Verify the voltage between the A758P1 pin1(+) and A758P1 pin 2(-) is 0VDC.	<input type="checkbox"/>								
6. Verify the voltage between the A759P1 pin1(+) and A759P1 pin 3(-) is 0VDC.	<input type="checkbox"/>								
7. Verify the voltage between the A759P1 pin2(+) and A759P1 pin 4(-) is 0VDC.	<input type="checkbox"/>								
8. Power ON the helicopter by using the external power	<input type="checkbox"/>								
9. Push IN the HOIST HD CAMERA Circuit Breaker (CB712).	<input type="checkbox"/>								
10. Set to ON the HOIST CAMERA SWITCH ON/OFF (S453).	<input type="checkbox"/>								
11. Verify the voltage between the A758P1 pin1(+) and A758P1 pin 2(-) is 28VDC.	<input type="checkbox"/>								
12. Verify the voltage between the A759P1 pin1(+) and A759P1 pin 3(-) is 28VDC.	<input type="checkbox"/>								
13. Verify the voltage between the A759P1 pin2(+) and A759P1 pin 4(-) is 28VDC.	<input type="checkbox"/>								
14. Set to OFF the HOIST CAMERA SWITCH ON/OFF (S453).	<input type="checkbox"/>								
15. Verify the voltage between the A758P1 pin1(+) and A758P1 pin 2(-) is 0VDC.	<input type="checkbox"/>								
16. Verify the voltage between the A759P1 pin1(+) and A759P1 pin 3(-) is 0VDC.	<input type="checkbox"/>								
17. Verify the voltage between the A759P1 pin2(+) and A759P1 pin 4(-) is 0VDC.	<input type="checkbox"/>								
18. Pull OUT the HOIST HD CAMERA Circuit Breaker (CB712)	<input type="checkbox"/>								
19. Re-connect connector A758P1	<input type="checkbox"/>								

**6.6 HOIST HD CAMERA FUNCTIONAL CHECK**

<p>1. Set the HOIST HD CAMERA Circuit Breaker (CB712) OUT.</p>	<p><input type="checkbox"/></p>
<p>2. Set to OFF the HOIST CAMERA SWITCH ON/OFF (S453).</p>	<p><input type="checkbox"/></p>
<p>3. On the Video Distribution Module (A758) verify that the POWER LED placed next to connector P1 (Figure 6-3 below) is OFF.</p> <div data-bbox="427 584 1145 1043" data-label="Diagram"> </div> <p style="text-align: center;"><b>Figure 6-3 PWR LED</b></p>	<p><input type="checkbox"/></p>
<p>4. On the Video Distribution Module (A758) verify that the PoSDI STATUS LED placed next to connector CAM (Figure 6-4 below) is OFF.</p> <div data-bbox="316 1205 1246 1686" data-label="Diagram"> </div> <p style="text-align: center;"><b>Figure 6-4 PoSDI STATUS LED</b></p>	<p><input type="checkbox"/></p>
<p>5. Set the HOIST HD CAMERA CB (CB712) IN and verify HOIST CAMERA SWITCH ON/OFF (S453) is set to OFF.</p>	<p><input type="checkbox"/></p>

6.	On the Video Distribution Module (A758) verify that the POWER LED (Figure 6-3 above) is OFF.	<input type="checkbox"/>
7.	On the Video Distribution Module (A758) verify that the STATUS LED (Figure 6-4 above) is OFF.	<input type="checkbox"/>
8.	Set to ON the HOIST CAMERA SWITCH ON/OFF (S453).	<input type="checkbox"/>
9.	On the Video Distribution Module (A758) verify that the POWER LED (Figure 6-3 above) is ON.	<input type="checkbox"/>
10.	On the Video Distribution Module (A758) verify that the STATUS LED (Figure 6-4 above) is ON.	<input type="checkbox"/>
11.	Using the Cursor Control Device, select the Hoist Camera on both PLT and CPLT MFDs.	<input type="checkbox"/>
12.	On the PLT and CPLT MFD, verify that the hoist video camera image is correctly shown.	<input type="checkbox"/>
13.	Set to OFF the HOIST CAMERA SWITCH ON/OFF (S453).	<input type="checkbox"/>
14.	Pull OUT the HOIST HD CAMERA Circuit Breaker (CB712).	<input type="checkbox"/>

## 7 INITIAL CONDITION RESTORING

Set all relevant circuit breakers to OUT.

## 8 TEST RESULT

139G9750D013 AW139 CABIN PC ACCEPTANCE TEST PROCEDURE				
<i>REF.</i>	<i>DESCRIPTION</i>	<i>OPERATOR</i>	<i>DATE</i>	<i>REMARKS</i>
<i>a</i>	SUB-SYSTEM DEVICES UNDER TEST			
<i>b</i>	SAFETY PROVISIONS			
<i>c</i>	TEST EQUIPMENTS			
<i>d</i>	TEST PREREQUISITES			
<i>e</i>	PRELIMINARY CHECKS			
<i>f</i>	HOIST HD CAMERA FUNCTIONAL CHECK			
7	INITIAL CONDITION RESTORING			
<i>Engineering dpt signature (if required):</i>				
<i>Quality dpt approval:</i>				



## APPENDIX A - IN SERVICE TESTING

The aim of this section is to provide technical advice regarding the methods of testing systems in-service or subsequent to the initial build as defined in this ATP. This advice does not constitute part of the formal clearance of the rotorcraft.

### TEST AFTER THE REPLACEMENT OF THE COMPONENTS

It is recommended that this ATP could be used in-service following the replacement of electrical system components as Relays, Indicators, Switches, etc, as a first step, but to complete the test it should be in conjunction with the final ATP (Electrical and Mechanical) which clarify the system before the next flight.

COMPONENT REPLACED	TEST REQUIRED
Video Distribution Module	6.5.1 (only regarding affected LRU), 6.6
Ruggedized PoSDI Color Camera	6.5.1 (only regarding affected LRU), 6.6
Video Format Converter	6.5.1 (only regarding affected LRU), 6.6

COMPONENT RE-INSTALLED	TEST REQUIRED
Video Distribution Module	6.5.1 (only regarding affected LRU), 6.6
Ruggedized PoSDI Color Camera	6.5.1 (only regarding affected LRU), 6.6
Video Format Converter	6.5.1 (only regarding affected LRU), 6.6

