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AgustaWestland Products

SERVICE BULLETIN

OPTIONAL

N° 189-308

DATE: March 20, 2024

REV. : /

TITLE

ATA 97 – DIGITAL VIDEO RECORDER (DVR) & VIDEO MANAGEMENT UNIT (VMU) RE1 KIT INSTALLATION

REVISION LOG

First Issue

1. PLANNING INFORMATION

A. EFFECTIVITY

Part I and Part II

AW189 helicopters S/N 49054 and from S/N 49064 to S/N 49067.

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 installation of the “kit Digital Video Recorder (DVR) & Video Management Unit (VMU) RE1” P/N 8G9700F00311.

Leonardo Helicopters (LH) issued this SB for the following reason:

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

E. DESCRIPTION

The “kit Digital Video Recorder (DVR) & Video Management Unit (VMU) RE1” P/N 8G9700F00311 consists in the installation of the VMU RE1 (A365), related to the conversion, distribution and the recording of the following cameras and systems displayed on both MFDs and Mission Console display:

- HOOK camera;
- CARGO camera;
- TAIL camera;
- HOIST camera;
- FLIR Turret;

- Radar GABBIANO;
- Cabin PC.

Part I of this Service Bulletin provides the necessary instructions on how to perform the installation of the "DVR and VMU RE1 structural provision collector" P/N 8G5310A50111, the "DVR and VMU RE1 electrical provision collector" P/N 8G9700A01811 and the "DVR and VMU electrical replacement" P/N 8G9700A01511.

Part II of this Service Bulletin provides the necessary instructions on how to perform the "DVR & VMU equipment installation" P/N 8G9700A01611, that consist of the installation of the Video Management Unit RE1 (A365), including the "VMU RE1" P/N 257.017-002 and the "VMU RE1 mounting tray" P/N 255.002-001.

F. APPROVAL

If an aircraft listed in the effectivity embodies a modification or repair not Leonardo Helicopters (LH) 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 thirty-two (32);

Part II: approximately sixteen (16).

MMH are based on hands-on time and can change with helicopter configuration, personnel and facilities available. MMH are not comprehensive of the overall hours necessary to get access to work areas and to remove all the equipment that interferes with the application of the prescribed instructions.

H. WEIGHT AND BALANCE

PART I

WEIGHT (kg)	1.6	
	ARM (mm)	**MOMENT (kg·mm)**
LONGITUDINAL BALANCE	6415.1	10264.2
LATERAL BALANCE	-680.2	-1088.3

PART II

WEIGHT (kg)	4.3	
	ARM (mm)	**MOMENT (kg·mm)**
LONGITUDINAL BALANCE	7048.6	30309
LATERAL BALANCE	-710.6	-3055.6

I. REFERENCES

I.1 PUBLICATIONS

Following Data Modules refer to AMP:

DATA MODULE		DESCRIPTION	PART
DM01	89-A-00-20-00-00A-120A-A	Helicopter safety – Pre-operation (make helicopter safe for maintenance)	I, II
DM02	89-A-06-41-00-00A-010A-A	Access doors and panels – General data	I, II
DM03	89-A-11-00-01-00A-720A-A	Decal – Install procedure	II
DM04	89-C-31-33-01-00A-720A-A	Video-audio management and recorder unit – Install procedure	II
DM05	89-C-31-33-02-00A-720A-A	Mounting tray – Install procedure	II

Following Data Modules refer to CSPP:

DATA MODULE		DESCRIPTION	PART
DM06	CSPP-A-20-10-13-00A-622A-D	Electrical contacts – Crimp	I

Following Data Modules refer to AWDP:

DATA MODULE		DESCRIPTION	PART
DM07	89-B-31-31-00-00A-051A-A	Enhanced Airborne Flight Recorder (EAFR) system – Wiring diagram	I

I.2 ACRONYMS & ABBREVIATIONS

AMDI	Aircraft Material Data Information
AMP	Aircraft Maintenance Publication
ATA	Air Transport Association
ATP	Acceptance Test Procedure
AVCAB	Avionic Cabinet
AWDP	Aircraft Wiring Data Publication
C/A	Cable Assembly
CSPP	Common Standard Practices Publication
DM	Data Module

DOA Design Organization Approval

DVR Digital Video Recorder

IPD Illustrated Part Data Publication

ITEP Illustrated Tools and Equipment Publication

LH / LHS Left Hand Side

LWR Lower

MMH Maintenance Man Hours

N.A. Not Applicable

P/N Part Number

SB Service Bulletin

S/N Serial Number

SSD Solid State Drive

VMU Video Management Unit

I.3 ANNEX

Annex A AW189 VIDEO CUSTOMIZATION ACCEPTANCE TEST PROCEDURE

J. PUBLICATIONS AFFECTED

N.A.

K. SOFTWARE ACCOMPLISHMENT SUMMARY

N.A.

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	**8G9700F00311**		**KIT DVR AND VMU RE1**	**REF**	**.**		**-**
2	**8G5310A50111**		**DVR AND VMU RE1 STRUCT PROV COLL**	**REF**	**..**		**-**
3	**8G5310A49911**		**DVR & VMU STRUCTURAL PROVISIONS**	**REF**	**...**		**-**
4	NAS1832-3-3		Insert	4	....		189-308L1
5	NAS1836-3-10		Insert	2	....		189-308L1
6	MS20426AD3-5A		Rivet	0.1 kg	....		189-308L1
7	NAS1149DN832K		Washer	1	....		189-308L1
8	NAS1802-3-11		Screw	4	....		189-308L1
9	NAS1802-3-8		Screw	1	....		189-308L1
10	MS35206-242		Screw	1	....		189-308L1
11	MS21042-3		Nut	1	....		189-308L1
12	MS35206-244		Screw	1	....		189-308L1
13	NAS1149D0316J		Washer	1	....		189-308L1
14	NAS1149D0332K		Washer	6	....		189-308L1
15	A537A01AA01-0380		Cable lightning conductor assy	1	....		189-308L1
16	A363A01		Terminal assy	1	....		189-308L1
17	8G9700A01331	8G9700A01332	Connector bracket assy	1	....		-
18	8G9700A00751	8G9700A00751A	Pad	1	....		189-308L1
19	8G9700A00851	8G9700A00851A	Pad	1	....		189-308L1
20	8G9700A01051		Face plate	1	....		189-308L1
21	8G4600A02331		Bracket assy	1	....		189-308L1
22	8G9700A01151	8G9700A01151A	Bonding strip	1	....		189-308L1
23	**8G5315A53511**		**LHS AVIONIC CABINET COVER INSTALLATION**	**REF**	**...**		**-**
24	8G5315A53831	8G5315A53831P	AFT panel assy dished LH	1	....	(1)	189-308L1
25	**8G5310A46411**		**LHS AVIONIC CABINET STRUCT PROV**	**REF**	**....**		**-**
26	8G2580A35831		Liner FWD LH baggage bay assy	1	.....		189-308L1
27	8G5315A53631	8G5315A53631P	LH AVCAB lower angle assy	1	.....	(1)	189-308L1
28	NAS1791C3-2		Anchor nut	1	.....		189-308L1
29	NAS1097AD3-4A		Rivet	0.1 kg	.....		189-308L1
30	A407A3C2P		Anchor nut	4	.....		189-308L1
31	A428A3C07		Screw	1	.....		189-308L1
32	AW002FB-R		Turnlock fastener	2	.....		189-308L1
33	MS27039-0804		Screw	4	.....		189-308L1
34	MS27039-1-08		Screw	1	.....		189-308L1
35	MS27039-1-10		Screw	6	.....		189-308L1
36	NAS1097AD3-5A		Rivet	0.1 kg	.....		189-308L1
37	NAS1149D0316K		Washer	1	.....		189-308L1
38	NAS1149F0332P		Washer	10	.....		189-308L1
39	NAS9303B-5-03		Rivet	1	.....		189-308L1
40	**8G9700A01811**		**DVR AND VMU RE1 ELECTRICAL PROV COLL**	**REF**	**..**		**-**

#	P/N	ALTERNATIVE P/N	DESCRIPTION	Q.TY	LVL	NOTE	LOG P/N
41	**8G9700A01711**		**DVR & VMU ICS INTERFACE C/A INSTL**	**REF**	**...**		**-**
42	8G9C22A25401	8G9C22A25401A1R	DVR & VMU ICS interface C/A (C2A254)	1	....		189-308L1
43	**8G9700A01411**		**DVR & VMU C/A INSTL**	**REF**	**...**		**-**
44	8G9C22A25301	8G9700A01411A1R	DVR & VMU C/A (C2A253)	1	....		189-308L1
45	8G9C21A36401		DVR & VMU C/A (C1A364)	1	....		189-308L1
46	8G9B22A32001	8G9B22A32001A1R	DVR & VMU C/A (B2A320)	1	....		189-308L1
47	8G9A22A36901	8G9A22A36901A1R	DVR & VMU C/A (A2A369)	1	....		189-308L1
48	AW001CL001-N6		Support	3	....		189-308L1
49	D38999/33W17R		Electrical connector cover	1	....		189-308L1
50	M85049/95-18A		Connector bracket	1	....		189-308L1
51	NAS1149DN416J		Washer	4	....		189-308L1
52	NAS1802-04-7		Screw	4	....		189-308L1
53	**8G9700A01511**		**DVR & VMU ELECTRICAL REPLACEMENT**	**REF**	**..**		**-**
54	AW001CL001-N6		Support	3	...		189-308L1
55	M23053/8-004-C		Insulation sleeving	10 m	.		189-308L1
56	M39029/56-348		Electrical Contact	16	.		189-308L1
57	M39029/58-360		Electrical Contact	8	.		189-308L1
58	M39029/58-363		Electrical Contact	5	.		189-308L1
59	M39029/56-351		Electrical Contact	4	.		189-308L1
60	MS25036-103		Electrical Contact	1	.		189-308L1
61	A523A-A02		Electrical Contact	2	.		189-308L1

PART II

#	P/N	ALTERNATIVE P/N	DESCRIPTION	Q.TY	LVL	NOTE	LOG P/N
62	**8G9700F00311**		**KIT DVR AND VMU RE1**	**REF**	**.**		**-**
63	**8G9700A01611**		**DVR & VMU EQPT INSTL**	**REF**	**..**		**-**
64	257.017-002		Video Management Unit RE1	1	...		189-308L2
65	255.002-001		Video Management Unit RE1 mounting tray	1	...		189-308L2
66	257.030-003		DVR Disk (SSD)	1	...		189-308L2
67	257.029-062M		Configuration disk (SSD)	1	...		189-308L2
68	NAS1802-3-5		Screw	1	...		189-308L2
69	NAS1802-3-8		Screw	4	...		189-308L2
70	LN9038K04010		Screw	1	...		189-308L2
71	AW003TY0525TA		Washer	1	...		189-308L2
72	LN9025-0410L		Washer	1	...		189-308L2
73	NAS1149D0316J		Washer	5	...		189-308L2
74	ED300A365		Decal	1	...		189-308L2
75	A601A03B0120	A601A3B12	Bonding Cable Assy	1	...		189-308L2

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

Refer also to Annex A for the spares materials required to comply with this Service Bulletin.

A.2 CONSUMABLES

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

#	SPEC./LH CODE NUMBER	DESCRIPTION	Q.TY	NOTE	PART
76	Code No. 999999999000017301	Corrosion inhibitor Ardrox AV 40 (C551)	AR	(2)	I, II
77	199-05-002 TY I, CL 2 Code No. 900000581	Adhesive Hysol EA9309NA (C231)	AR	(2)	I
78	MIL-PRF-23377, Type I, Class C2 Code No. 900005211	Epoxy Primer (C042)	AR	(2)	I
79	199-05-002 TY II, CL 2 Code No. 900004603	Adhesive EA 934NA AERO (C397)	AR	(2)	I
80	Code No. 999999999000008841	Conductive sealant PR1764 B2 (C240)	AR	(2)	I
81	AWMS05-001 TY 1, CL C, GR 1 Code No. 999999999000009231	Sealant MC-780B-2 (C354)	AR	(2)	I
82	AWMS05-001 TY 1, CL B1/2, GR 2 Code No. 999999999000005965	Sealing compound MC-780 (C465)	AR	(2)	I
83	AWMS05-001 TY I, CL C, GR 2 Code No. 999999999000009854	Sealing compound MC-780 C-2 (C465)	AR	(2)	I
84	Code No. 999999999000017311	Jointing compound Cor-Ban 27L (C075)	AR	(2)	I
85	DTD 900, 4488A Code No. 900001846	Jointing compound JC5A (C001)	AR	(2)	I
86	NASM21266	Edging	AR	(2)	I
87	Code No. 999999999000001675	Adhesive CB200-40 (C356)	AR	(2)	I
88	A236AXXAB	Edging	AR	(3)	I
89	EN6049-003-XX-5	Tubing braided	AR	(2) (4)	I
90	EN6049-006-XX-5	Tubing braided	AR	(2) (4)	I

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

Refer also to Annex A for the consumable materials required to comply with this Service Bulletin.

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
189-308L1	1		Part I
8G9700A01331 or 8G9700A01332	1		
189-308L2	1		Part II

NOTES

(1) The alternative P/N is the grey version.

(2) Item to be procured as local supply.

(3) Item to be ordered in qty. 1.2 m or multiples. The XX digits (01, 02, 03 or 04) of P/N A236AXXAB can be different based on the actual helicopter configuration.

(4) The XX digits can vary depending on the actual helicopter configuration.

B. SPECIAL TOOLS

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

Refer also to Annex A for the special tools required to comply with this Service Bulletin.

SPECIAL TOOLS NOTES

N.A.

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) During the installation of bonding braids or components requiring grounding, clean the surface structure in order to obtain a good ground contact.

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

g) Exposed thread surface and nut must be protected using a layer of tectyl according to MIL-C-16173 grade I.

h) All lengths are in mm.

PART I

1. In accordance with AMP DM 89-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

Unless otherwise specified and except for electrical bonding areas, in low/medium indirect/direct exposure zones perform the installation of structural parts and riveted vendor components as follow:

- apply a layer of sealant MC-780 (C465) on all faying surfaces;
- wet assemble fixing fasteners using sealant MC-780 (C465).

NOTE

Unless otherwise specified and except for electrical bonding areas, in low/medium indirect/direct exposure zones perform the installation of bolted structural parts and bolted vendor parts by means of jointing compound Cor-Ban 27L (C075) or jointing compound JC5A (C001):

- apply a layer of jointing compound on all faying surface;
- wet assemble fixing fasteners by means of jointing compound. Apply under the head and on the shank of fasteners; for fasteners with a torque apply under the head only.

2. In accordance with AMP DM 89-A-06-41-00-00A-010A-A and with reference to Figures 1 thru 6, remove all external panels, internal panels and internal liners as required to gain access to the area affected by the installation and perform the DVR and VMU RE1 Structural Provision COLL P/N 8G5310A50111 as described in the following procedure:

CAUTION

Be careful not to over tighten fasteners installation, to avoid excessive compression of the gasket/tapes and a rippling effect on the thin structure. This creates a space for water and moisture to enter the joints.

2.1 In accordance with AMP DM 89-A-06-41-00-00A-010A-A and with reference to Figures 1 and 2, remove all external panels, internal panels and internal liners as required to gain access to the area affected by the installation and perform the LHS avionic cabinet cover installation P/N 8G5315A53511 as described in the following procedure:

2.1.1 With reference to Figure 1 View A, if installed, remove and retain the upper access cover assy P/N 8G5315A47831 from the LH aft panel assy P/N 8G5315A27431.

2.1.2 With reference to Figure 1 View A, remove and store the following components (retain existing hardware for later reuse):

- LH aft panel assy P/N 8G5315A27431;
- Lower inboard angle assy P/N 8G5315A04631;
- LH AVCAB LWR aft angle assy P/N 8G5315A07432;
- Liner FWD LH baggage bay P/N 8G2580A57451.

NOTE

Unless otherwise specified, in all levels direct exposure zones and medium level indirect exposure zones (except engine and APU bays), protect all removable fasteners that are not fully coated with polyurethane paint, by means of corrosion inhibitor Ardrox AV 40 (C551).

2.1.3 With reference to Figures 1 and 2 perform the LHS Avionic cabinet structural provision P/N 8G5310A46411 as described in the following procedure:

2.1.3.1 With reference to Figure 2 View B, remove the rivet P/N A297A05TW03 from the LH middle panel assy P/N 8G5340A14931.

2.1.3.2 With reference to Figure 2 View B, countersink 100° the existing hole up to Ø7.26.

2.1.3.3 With reference to Figure 2 View B, install the rivet P/N NAS9303B-5-03 in the indicated position on the LH middle panel assy P/N 8G5340A14931.

2.1.3.4 With reference to Figure 2 View B, remove n°4 rivets P/N A297A05TW03 from the LH middle panel assy P/N 8G5340A14931.

2.1.3.5 With reference to Figure 2 View B, enlarge n°4 holes up to Ø5.326÷5.446 thru the LH middle panel assy P/N 8G5340A14931 and up to Ø6.20÷6.35 thru the STA7200 bulkhead angle P/N 4F5340A26352 and the strap P/N 4F5340A31852.

2.1.3.6 With reference to Figure 2 View C, prepare the surface for bonding and install n°4 anchor nuts P/N A407A3C2P on the STA7200

bulkhead angle P/N 4F5340A26352 by means of adhesive Hysol EA9309NA (C231).

2.1.3.7 With reference to Figure 1 View A and Figure 2 Detail E, temporarily locate the LH avionic cabinet lower angle assy P/N 8G5315A53631 on the LHS avionic cabinet sidewall angle P/N 8G5315A19052 and countermark n°1 hole-position on the LH avionic cabinet lower angle assy.

2.1.3.8 With reference to Figure 2 Detail E, drill n°1 hole Ø6.20÷6.35 previously countermarked thru the LH avionic cabinet lower angle assy P/N 8G5315A53631.

2.1.3.9 With reference to Figure 2 Detail E, drill n°2 hole-rivets Ø2.5 in accordance with the anchor nut P/N NAS1791C3-2 thru the LH avionic cabinet lower angle assy P/N 8G5315A53631.

2.1.3.10 With reference to Figure 2 Detail E, install the anchor nut P/N NAS1791C3-2 on the LH avionic cabinet lower angle assy P/N 8G5315A53631 by means of n°2 rivets P/N NAS1097AD3-4A and the sealing compound MC-780 C (C465).

2.1.3.11 With reference to Figure 1 View A, install the LH avionic cabinet lower angle assy P/N 8G5315A53631 on the LH middle panel assy P/N 8G5340A14931 and the LH FWD floor panel assy P/N 8G5340A26231 by means of n°6 screws P/N MS27039-1-10, n°4 screws P/N MS27039-0804 and n°10 washers P/N NAS1149F0332P.

2.1.3.12 With reference to Figure 1 View D, fix the LH avionic cabinet lower angle assy P/N 8G5315A53631 to the LHS avionic cabinet sidewall angle P/N 8G5315A19052 by means of the screw P/N A428A3C07.

2.1.3.13 With reference to Figure 1 View A, install the FWD LH baggage bay liner P/N 8G2580A35831 on the LHS avionic cabinet sidewall angle P/N 8G5315A19052 and the LH middle panel assy P/N 8G5340A14931 by means of the existing hardware previously removed.

2.1.3.14 With reference to Figure 1 View A, install n°2 turnlock fasteners P/N AW002FB-R on the FWD LH baggage bay liner P/N 8G2580A35831 by means of n°4 rivets P/N NAS1097AD3-5A.

NOTE

In case of holes' misalignment, it is allowed to enlarge the hole of the FWD LH baggage bay liner P/N 8G2580A35831 to align it to the hole of the LH avionic cabinet lower angle assy P/N 8G5315A53631.

2.1.3.15 With reference to Figure 1 View D, fix the FWD LH baggage bay liner P/N 8G2580A35831 to the LH avionic cabinet lower angle assy P/N 8G5315A53631 by means of the screw P/N MS27039-1-08 and the washer P/N NAS1149D0316K.

2.1.4 With reference to Figure 1 View A, install the LH aft panel assy dished P/N 8G5315A53831 in position in the avionic cabinet by means of existing fasteners.

2.1.5 With reference to Figure 1 View Looking Rear Avionic Bay, re-install the upper access cover assy P/N 8G5315A47831 on the LH AFT panel assy dished P/N 8G5315A53831 by means of existing fasteners if previously removed.

2.2 With reference to Figures 3 thru 6, perform the DVR & VMU structural provision P/N 8G5310A49911 as described in the following procedure:

2.2.1 With reference to Figure 4 View B, remove the protective finish from the indicated surfaces of the LH upper shelf assy P/N 8G5310A38011 and prepare the surface for bonding.

2.2.2 With reference to Figure 4 View B, install the pad P/N 8G9700A00751 and the pad P/N 8G9700A00851 on the LH upper shelf assy P/N 8G5310A38011 in the indicated positions by means of adhesive Hysol EA9309NA (C231).

2.2.3 With reference to Figure 4 View B, drill n°4 holes Ø14.25÷14.38 thru the upper skin and honeycomb of the LH upper shelf assy P/N 8G5310A38011 and thru the pads previously installed in accordance with the dimensions shown.

2.2.4 With reference to Figure 4 View B, install n°4 inserts P/N NAS1832-3-3 on the LH upper shelf assy P/N 8G5310A38011 by means of adhesive EA 934NA AERO (C397).

2.2.5 With reference to Figure 4 View B, drill n°2 holes Ø11.48÷11.61 thru the upper skin and honeycomb of the LH upper shelf assy P/N 8G5310A38011.

2.2.6 With reference to Figure 4 View B, install n°2 inserts P/N NAS1836-3-10 on the LH upper shelf assy P/N 8G5310A38011 by means of adhesive EA 934NA AERO (C397).

2.2.7 With reference to Figure 5 View C and View D, prepare the mating surfaces for electrical bonding and install the bonding strip P/N 8G9700A01151 on the connector bracket assy P/N 8G9700A01331 by means of the screw P/N MS35206-244 and the washer P/N NAS1149DN832K. Bond using conductive sealant PR1764 B2 (C240) and the sealing compound MC-780 (C465).

2.2.8 With reference to Figure 4 View E, remove the protective finish from the indicated surfaces of the LH upper cowling provision P/N 4F5310A08412 and prepare the surface for bonding in accordance with the dimensions shown.

2.2.9 With reference to Figure 5 View C, install the bonding strip P/N 8G9700A01151 and the connector bracket assy P/N 8G9700A01331 on the LH upper cowling provision P/N 4F5310A08412 by means of adhesive EA9309NA (C231).

2.2.10 With reference to Figure 5 View C, prepare the surface for electrical bonding and install the bonding strip P/N 8G9700A01151 on the LH upper shelf assy P/N 8G5310A38011 by means of the screw P/N MS35206-242 and the washer P/N NAS1149D0316J. Bond using conductive sealant PR1764 B2 (C240) and the sealing compound MC-780 (C465).

NOTE

The resistance measured must not exceed the value of 2.5 milliohms.

2.2.11 Perform the bonding test between the LH upper shelf assy P/N 8G5310A38011 and the connector bracket assy P/N 8G9700A01331 by means of the test meter. Record the resistance measured.

2.2.12 With reference to Figure 6 View G, remove the protective finish from the indicated surface of the LH upper longeron P/N 8G5340A10651 and prepare the surface for bonding.

2.2.13 With reference to Figure 6 View G, install the bracket assy P/N 8G4600A02331 on the LH upper longeron P/N 8G5340A10651 by means of adhesive Hysol EA9309NA (C231).

2.2.14 With reference to Figure 6 View F, prepare the mating surfaces of the face plate P/N 8G9700A01051 and the bracket assy P/N 8G4600A02331 for electrical bonding.

2.2.15 With reference to Figure 6 View F, dry assemble the face plate P/N 8G9700A01051 on the bracket assy P/N 8G4600A02331 by means of n°4 screws P/N NAS1802-3-11 and n°4 washers P/N NAS1149D0332K. Apply one coat of epoxy primer MIL-PRF-23377 (C042) on the installed parts.

2.2.16 With reference to Figure 3 View A, drill the hole Ø5.33÷5.45 thru the bracket connector P/N 8G5315A19253 in accordance with the dimensions shown.

2.2.17 With reference to Figure 6 View F, remove locally the protective finish and install the terminal assy P/N A363A01 on the bracket connector P/N 8G5315A19253 by means of n°2 rivets P/N MS20426AD3-5A.

2.2.18 With reference to Figure 6 View F, install the cable lightning conductor assy P/N A537A01AA01-0380 and fix one end to the bracket assy P/N 8G4600A02331 by means of the screw P/N NAS1802-3-8, n°2 washers P/N NAS1149D0332K and the nut P/N MS21042-3 and the other end to the bracket connector P/N 8G5315A19253 by means of the existing hardware of the terminal assy P/N A363A01.

NOTE

The resistance measured must not exceed the value of 2.5 milliohms.

2.2.19 Perform the bonding test between the face plate P/N 8G9700A01051 and the bracket connector P/N 8G5315A19253 by means of the test meter. Record the resistance measured.

NOTE

Use the edging P/N A236A and P/N NASM21266 on edges which are liable to cause damage to cable assemblies or where abrasion may occur.

NOTE

Install the tubing braided P/N EN6049-003 and/or P/N EN6049-006 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:

- 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 AMP DM 89-A-06-41-00-00A-010A-A and with reference to Figures 7 thru 10 and 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 DVR and VMU RE1 electrical provision coll P/N 8G9700A01811 as described in the following procedure:

3.1 With reference to Figure 10 and to Figure 14 Wiring Diagram, perform the DVR & VMU ICS interface C/A INSTL P/N 8G9700A01711 as described in the following procedure:

3.1.1 With reference to Figure 10 View D, lay down the DVR & VMU ICS interface C/A (C2A254) P/N 8G9C22A25401 on the existing routes unless otherwise indicated on the figures.

3.1.2 With reference to Figures 10 View D, secure the cable assembly laid down at the previous step by means of existing hardware and lacing cords.

NOTE

For connection "9700-134-24S" C/A C24254 to terminal board TB309/4, close shields with family shield 0002 to connection "3130-573-22S" C/A C2A184 shown in AWDP DM 89-B-31-31-00-00A-051A-A Figure 1 Enhanced Airborne Flight Recorder (EAFR) system – Wiring diagram (Sheet 4 of 7).

3.1.3 In accordance with CSPP DM CSPP-A-20-10-13-00A-622A-D and with reference to Figure 14 Wiring Diagram and Figure 15 Table 5, perform

the electrical connection of the C/A C2A254 to the terminal board TB309/4.

3.2 With reference to Figure 4 and Figures 7 thru 10, perform the DVR & VMU C/A Instl P/N 8G9700A01411 as described in the following procedure:

3.2.1 With reference to Figure 4 View B, install n°3 supports P/N AW001CL001-N6 in the indicated positions of the LH upper shelf assy P/N 8G5310A38011 by means of adhesive CB200-40 (C356).

3.2.2 With reference to Figure 12 Wiring Diagram WAS, remove the WH and BL wires marked as 9700-241-24S of the C/A A2A133 from the helicopter.

3.2.3 With reference to Figures 7 thru 10, lay down the following cable assemblies on the existing routes unless otherwise indicated on the figures:

- 8G9C22A25301 DVR & VMU C/A (C2A253);
- 8G9C21A36401 DVR & VMU C/A (C1A364);
- 8G9B22A32001 DVR & VMU C/A (B2A320);
- 8G9A22A36901 DVR & VMU C/A (A2A369).

3.2.4 With reference to Figures 7 thru 10, secure the cable assemblies laid down at the previous step by means of existing hardware and lacing cords.

3.2.5 In accordance with CSPP DM CSPP-A-20-10-13-00A-622A-D and with reference to Figure 13 Wiring Diagram and Figure 15 Table 4, perform the electrical connection of the C/A C1A364 to the terminal GS339 and connector Q3PA6.

3.2.6 In accordance with CSPP DM CSPP-A-20-10-13-00A-622A-D and with reference to Figure 13 Wiring Diagram and Figure 15 Table 3, perform the electrical connection of the C/A B2A320 to the connector J219 and connector J193.

3.2.7 In accordance with CSPP DM CSPP-A-20-10-13-00A-622A-D and with reference to Figure 13 Wiring Diagram and Figure 15 Table 2, perform the electrical connection of the C/A C2A253 to the connector P219.

NOTE

Only for S/N 49054, it is allowed to repair the hole of the bracket connector P/N 8G5315A19253 with wrong dimension by means of an Al-Aly plate and to rework it in accordance with the correct connector J359 size, to fit it.

3.2.8 With reference to Figure 10 View D, connect the connector J359 (C/A C2A253) to the bracket connector P/N 8G5315A19253.

3.2.9 With reference to Figure 10 View D, install the electrical connector cover P/N D38999/33W17R on the connector J359 by means of the connector bracket P/N M85049/95-18A, n°4 screws P/N NAS1802-04-7 and n°4 washers P/N NAS1149DN416J.

3.2.10 In accordance with CSPP CSPP-A-20-10-13-00A-622A-D and with reference to Figure 12 Wiring Diagram and Figure 15 Table 1, perform the electrical connection of the C/A A2A369 to the connector A1P5, the connector P193, the connector TB147P1 and the connector TB105P1.

4. With reference to Figure 4, perform the DVR & VMU electrical replacement P/N 8G9700A01511 as described in the following procedure:

4.1 With reference to Figure 4 View E, install n°2 supports P/N AW001CL001-N6 in the indicated positions of the LH upper cowling provision P/N 4F5310A08412 by means of adhesive CB200-40 (C356).

4.2 With reference to Figure 4 View B, install n°1 support P/N AW001CL001-N6 in the indicated position of the LH upper shelf assy P/N 8G5310A38011 by means of adhesive CB200-40 (C356).

NOTE

Perform the following step only if Part II is not intended to be embodied immediately after Part I.

5. With reference to Figure 10 View D, secure and stow the connectors A365-HMI, A365-DATA and A365-POWER on the n°2 supports P/N AW001CL001-N6 located on the LH upper cowling provision P/N 4F5310A08412 and the support P/N AW001CL001-N6 located on the LH upper shelf assy P/N 8G5310A38011.
6. Perform a pin-to-pin continuity check of all the electrical connections made.
7. In accordance with AMP DM 89-A-06-41-00-00A-010A-A, re-install all external panels, internal panels and internal liners previously removed.
8. In accordance with weight and balance changes, update the Chart A (see Rotorcraft Flight Manual, Part II, section 6).

9. Return the helicopter to flight configuration and record for compliance with Part I of this Service Bulletin on the helicopter logbook.
10. 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

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

    AWPC.Engineering.Support@leonardocompany.us

PART II

1. In accordance with DM 89-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

Unless otherwise specified, in all levels direct exposure zones and medium level indirect exposure zones (except engine and APU bays), protect all removable fasteners that are not fully coated with polyurethane paint, by means of corrosion inhibitor Ardrox AV 40 (C551).

2. In accordance with DM 89-A-06-41-00-00A-010A-A and with reference to 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 DVR and VMU equipment installation P/N 8G9700A01611 as described in the following procedure:

   2.1 With reference to Figure 11 and in accordance with AMP DM 89-C-31-33-01-00A-720A-A, install the video management unit RE1 mounting tray P/N 255.002-001 on the LH upper shelf assy P/N 8G5310A38011 by means of n°4 screws P/N NAS1802-3-8 and n°4 washers P/N NAS1149D0316J.

   2.2 With reference to Figure 11 and in accordance with AMP DM 89-C-31-33-02-00A-720A-A, install the video management unit RE1 (A365) P/N 257.017-002 on the video management unit RE1 mounting tray P/N 255.002-001.

   2.3 With reference to Figure 11, install the bonding cable assy P/N A601A03B0120 and fix one end to the LH upper shelf assy P/N 8G5310A38011 by means of the screw P/N NAS1802-3-5, the washer P/N AW003TY0525TA and the washer P/N NAS1149D0316J

   2.4 With reference to Figure 11, install the other end of the bonding cable assy P/N A601A03B0120 to the video management unit RE1 mounting tray P/N 255.002-001 by means of the screw P/N LN9038K04010 and the washer P/N LN9025-0410L.

   2.5 In accordance with AMP DM 89-A-11-00-01-00A-720A-A and with reference to Figure 11, install the decal P/N ED300A365 on the LH upper shelf assy P/N 8G5310A38011 in an area adjacent the VMU A365.

NOTE

Perform the following step only if Part II has NOT been performed immediately after Part I.

2.6 With reference to Figure 10 View D, free the connectors A365-HMI, A365-DATA and A365-POWER from the supports P/N AW001CL001-N6.

2.7 With reference to Figure 11 and Figure 14 Wiring Diagram, perform the electrical connection of the connector A365-HMI (C2A254) to the video management unit RE1 (A365) P/N 257.017-002.

2.8 With reference to Figure 11 and Figure 13 Wiring Diagram, perform the electrical connection of the connector A365-DATA (C2A253) to the video management unit RE1 (A365) P/N 257.017-002.

NOTE

To fix the connector A365-POWER to the video management unit RE1 (A365) P/N 257.017-002 use the threaded inserts installing them inside the connector backshell.

2.9 With reference to Figure 11 and Figure 13 Wiring Diagram, perform the electrical connection of the connector A365-POWER (C1A364) to the video management unit RE1 (A365) P/N 257.017-002.

2.10 In accordance with the applicable step of Annex A, install the DVR disk P/N 257.030-003 and the configuration disk (SSD) P/N 257.029-062M.

2.11 Perform a pin-to-pin continuity check of all the electrical connections made.

3. In accordance with AMP DM 89-A-06-41-00-00A-010A-A, re-install all external panels, internal panels and internal liners previously removed.
4. In accordance with Annex A, perform the AW189 video customization ATP.
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 II 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:

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

   AWPC.Engineering.Support@leonardocompany.us

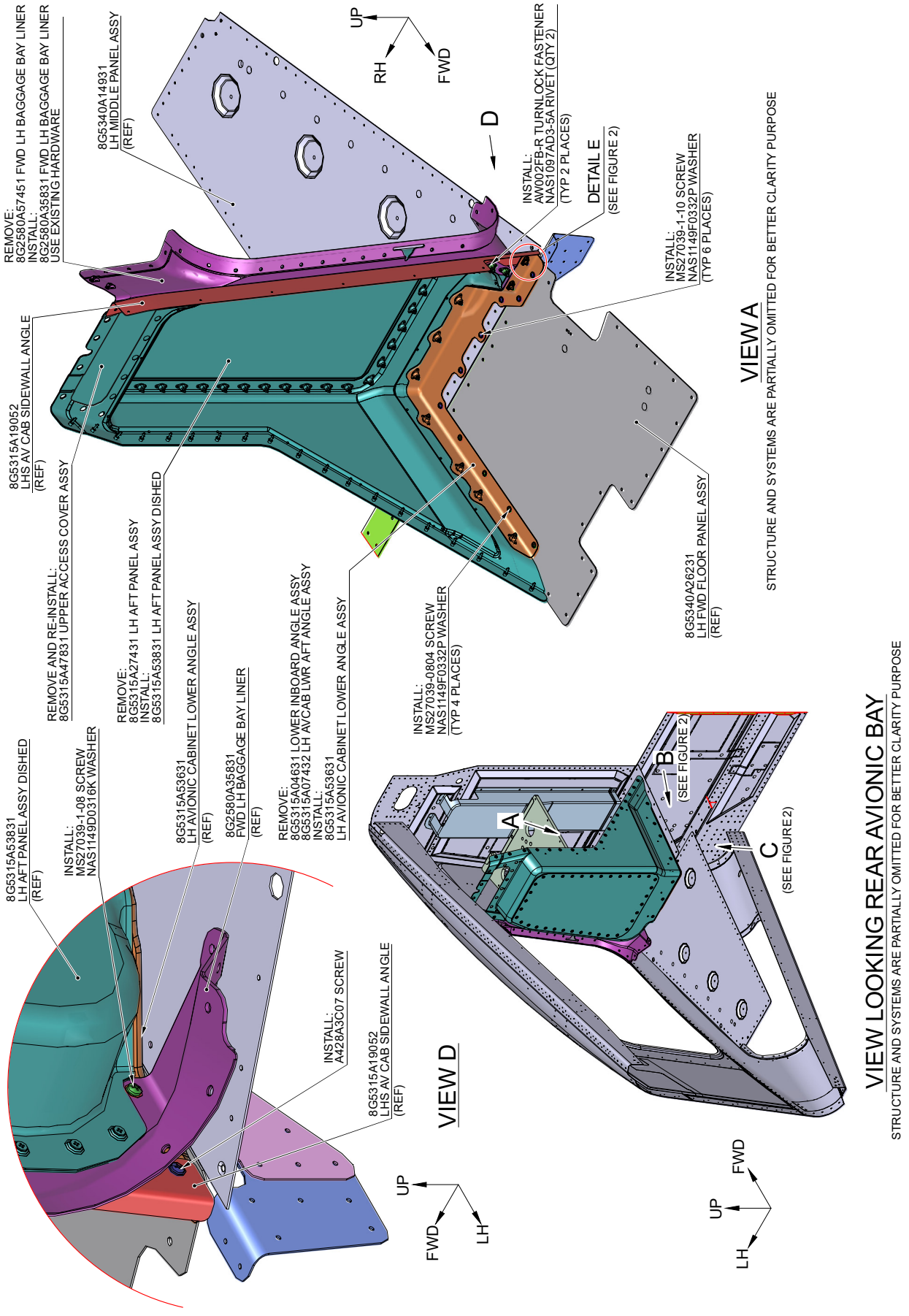

REMOVE:
8G2580A57451 FWD LH BAGGAGE BAY LINER
INSTALL:
8G2580A35831 FWD LH BAGGAGE BAY LINER
USE EXISTING HARDWARE
8G5340A14931
LH MIDDLE PANEL ASSY
(REF)
UP
RH
FWD
D
INSTALL:
AW002FB-R TURNLOCK FASTENER
NAS1097AD3-5A RIVET (QTY 2)
(TYP 2 PLACES)
DETAIL E
(SEE FIGURE 2)
INSTALL:
MS27039-1-10 SCREW
NAS1149F0332P WASHER
(TYP 6 PLACES)
8G5315A19052
LHS AV CAB SIDEWALL ANGLE
(REF)
REMOVE AND RE-INSTALL:
8G5315A47831 UPPER ACCESS COVER ASSY
REMOVE:
8G5315A27431 LH AFT PANEL ASSY
INSTALL:
8G5315A53831 LH AFT PANEL ASSY DISHED
8G5315A53831
LH AFT PANEL ASSY DISHED
(REF)
INSTALL:
MS27039-1-08 SCREW
NAS1149D0316K WASHER
8G5315A53631
LH AVIONIC CABINET LOWER ANGLE ASSY
(REF)
8G2580A35831
FWD LH BAGGAGE BAY LINER
(REF)
REMOVE:
8G5315A04631 LOWER INBOARD ANGLE ASSY
8G5315A07432 LH AVCAB LWR AFT ANGLE ASSY
INSTALL:
8G5315A53631
LH AVIONIC CABINET LOWER ANGLE ASSY
INSTALL:
MS27039-0804 SCREW
NAS1149F0332P WASHER
(TYP 4 PLACES)
8G5340A26231
LH FWD FLOOR PANEL ASSY
(REF)
VIEW A
STRUCTURE AND SYSTEMS ARE PARTIALLY OMITTED FOR BETTER CLARITY PURPOSE
A
B
(SEE FIGURE 2)
C
(SEE FIGURE 2)
INSTALL:
A428A3C07 SCREW
8G5315A19052
LHS AV CAB SIDEWALL ANGLE
(REF)
VIEW D
UP
FWD
LH
UP
FWD
LH
VIEW LOOKING REAR AVIONIC BAY
STRUCTURE AND SYSTEMS ARE PARTIALLY OMITTED FOR BETTER CLARITY PURPOSE

Figure 1

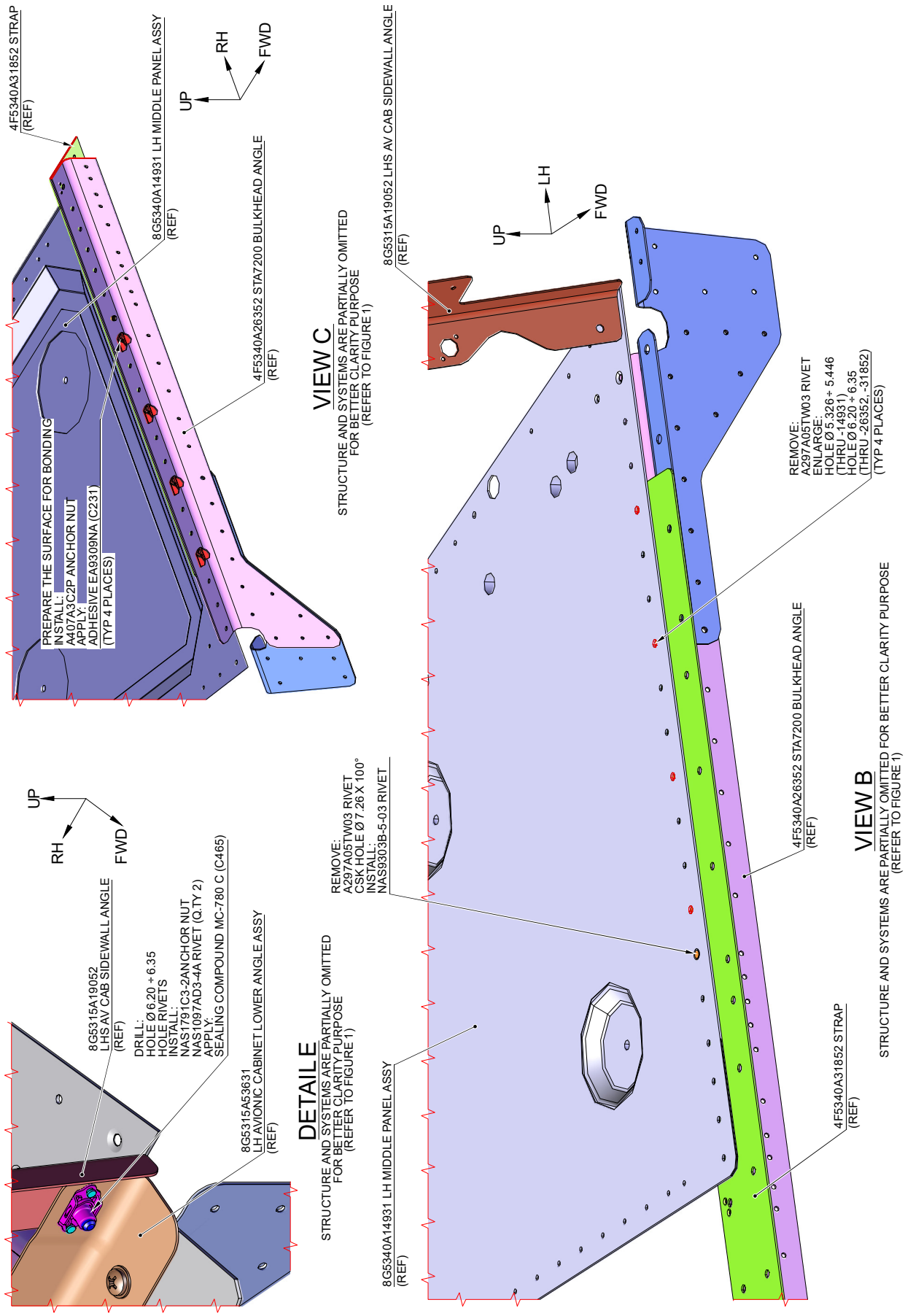

4F5340A31852 STRAP
(REF)
8G5340A14931 LH MIDDLE PANEL ASSY
(REF)
UP
RH
FWD
4F5340A26352 STA7200 BULKHEAD ANGLE
(REF)
PREPARE THE SURFACE FOR BONDING
INSTALL:
A407A3C2P ANCHOR NUT
APPLY:
ADHESIVE EA9309NA (C231)
(TYP 4 PLACES)
VIEW C
STRUCTURE AND SYSTEMS ARE PARTIALLY OMITTED
FOR BETTER CLARITY PURPOSE
(REFER TO FIGURE 1)
8G5315A19052 LHS AV CAB SIDEWALL ANGLE
(REF)
UP
LH
FWD
REMOVE:
A297A05TW03 RIVET
ENLARGE:
HOLE Ø 5.326 ÷ 5.446
(THRU -14931)
HOLE Ø 6.20 ÷ 6.35
(THRU -26352, -31852)
(TYP 4 PLACES)
UP
RH
FWD
8G5315A19052
LHS AV CAB SIDEWALL ANGLE
(REF)
DRILL:
HOLE Ø 6.20 ÷ 6.35
HOLE RIVETS
INSTALL:
NAS1791C3-2ANCHOR NUT
NAS1097AD3-4A RIVET (Q.TY 2)
APPLY:
SEALING COMPOUND MC-780 C (C465)
8G5315A53631
LH AVIONIC CABINET LOWER ANGLE ASSY
(REF)
DETAILE
STRUCTURE AND SYSTEMS ARE PARTIALLY OMITTED
FOR BETTER CLARITY PURPOSE
(REFER TO FIGURE 1)
REMOVE:
A297A05TW03 RIVET
CSK HOLE Ø 7.26 X 100°
INSTALL:
NAS9303B-5-03 RIVET
4F5340A26352 STA7200 BULKHEAD ANGLE
(REF)
VIEW B
STRUCTURE AND SYSTEMS ARE PARTIALLY OMITTED FOR BETTER CLARITY PURPOSE
(REFER TO FIGURE 1)
8G5340A14931 LH MIDDLE PANEL ASSY
(REF)
4F5340A31852 STRAP
(REF)

Figure 2

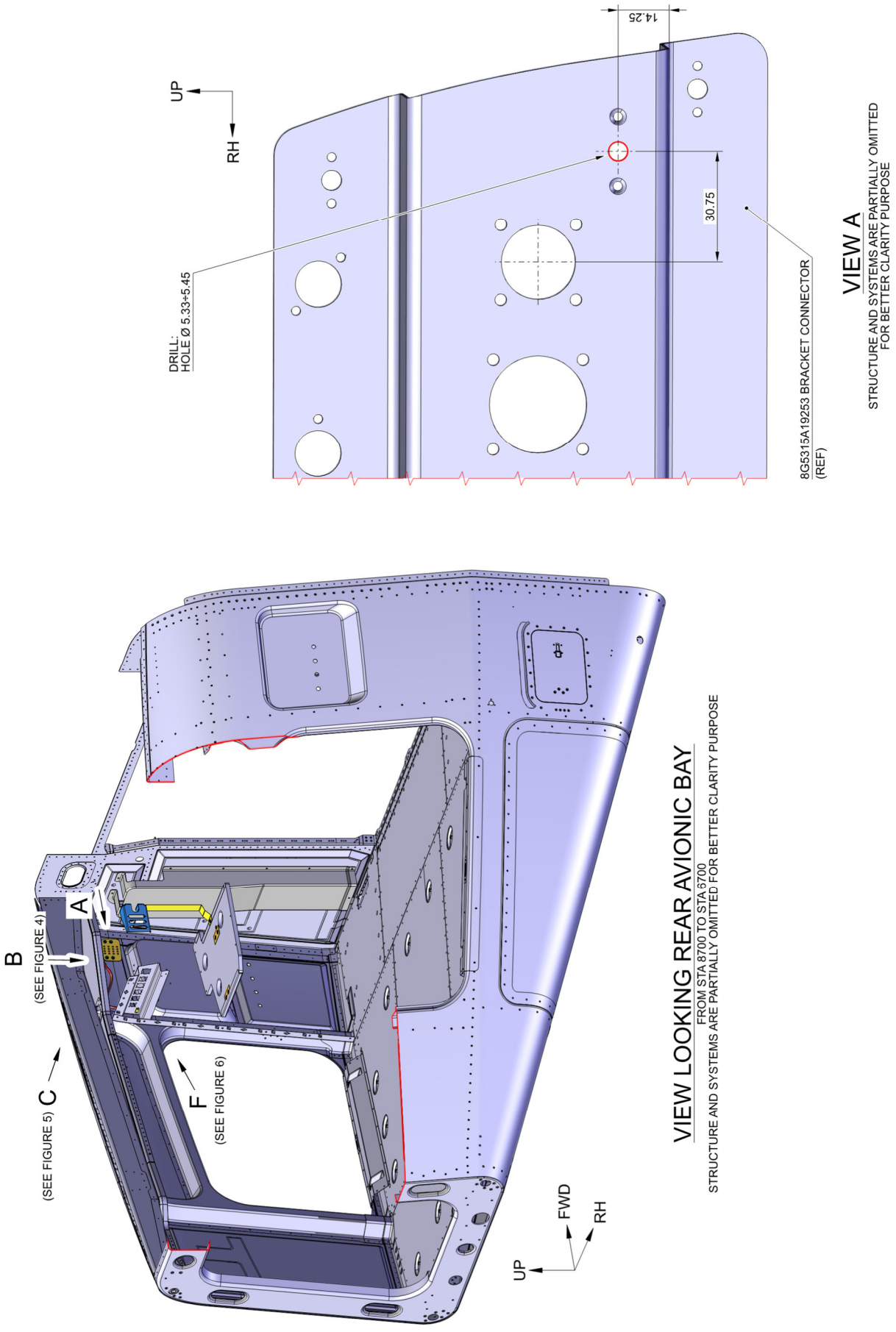

14.25
UP
RH
30.75
DRILL:
HOLE Ø 5.33÷5.45
8G5315A19253 BRACKET CONNECTOR
(REF)
VIEW A
STRUCTURE AND SYSTEMS ARE PARTIALLY OMITTED
FOR BETTER CLARITY PURPOSE
A
B
(SEE FIGURE 4)
C
(SEE FIGURE 5)
F
(SEE FIGURE 6)
UP
FWD
RH
VIEW LOOKING REAR AVIONIC BAY
FROM STA 8700 TO STA 6700
STRUCTURE AND SYSTEMS ARE PARTIALLY OMITTED FOR BETTER CLARITY PURPOSE

Figure 3

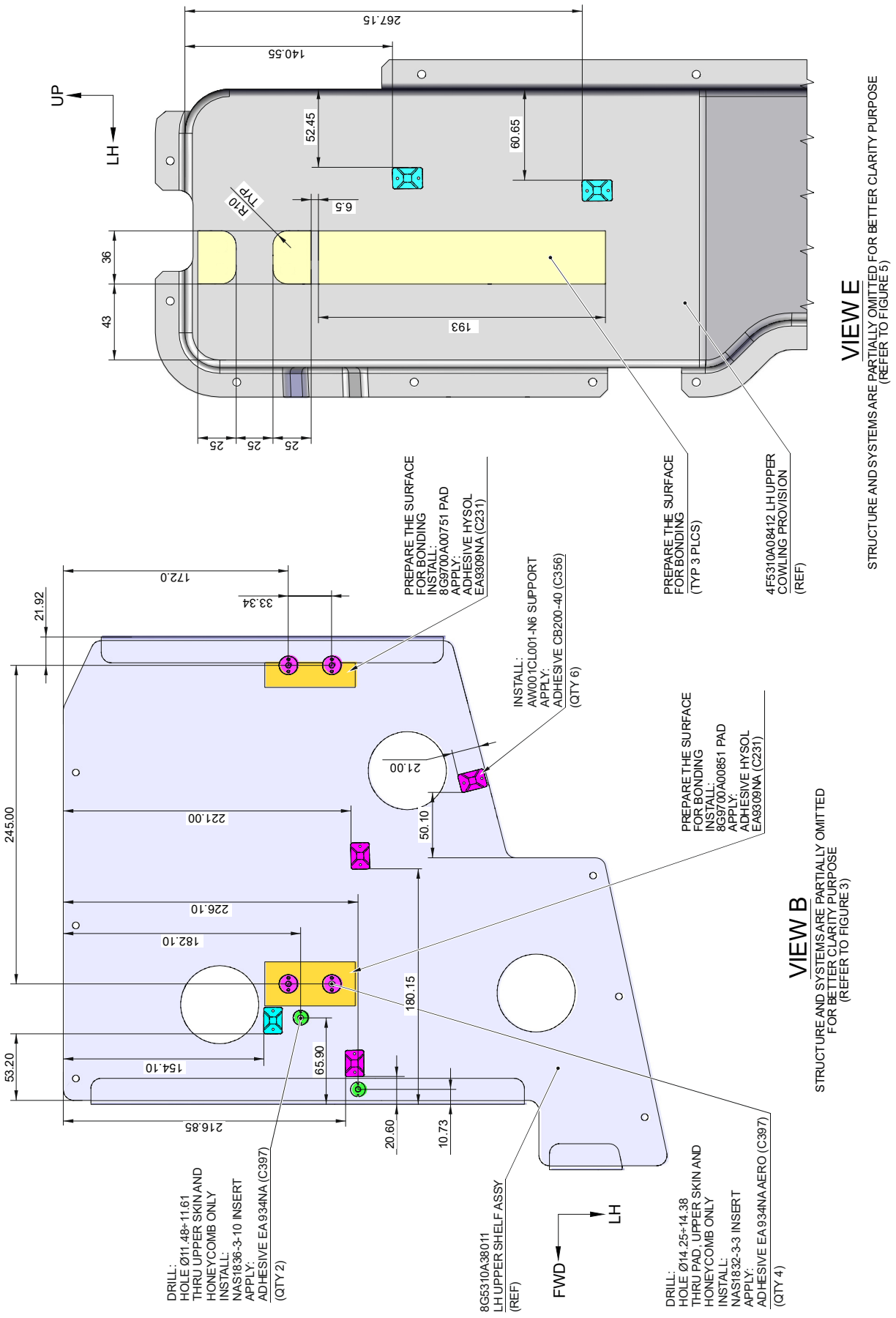

VIEW E
STRUCTURE AND SYSTEMS ARE PARTIALLY OMITTED FOR BETTER CLARITY PURPOSE
(REFER TO FIGURE 5)
VIEW B
STRUCTURE AND SYSTEMS ARE PARTIALLY OMITTED
FOR BETTER CLARITY PURPOSE
(REFER TO FIGURE 3)
UP
LH
FWD
PREPARE THE SURFACE
FOR BONDING
INSTALL:
8G9700A00751 PAD
APPLY:
ADHESIVE HYSOL
EA9309NA (C231)
PREPARE THE SURFACE
FOR BONDING
(TYP 3 PLCS)
4F5310A08412 LH UPPER
COWLING PROVISION
(REF)
INSTALL:
AW001CL001-N6 SUPPORT
APPLY:
ADHESIVE CB200-40 (C356)
(QTY 6)
PREPARE THE SURFACE
FOR BONDING
INSTALL:
8G9700A00851 PAD
APPLY:
ADHESIVE HYSOL
EA9309NA (C231)
DRILL:
HOLE Ø11.48÷11.61
THRU UPPER SKIN AND
HONEYCOMB ONLY
INSTALL:
NAS1836-3-10 INSERT
APPLY:
ADHESIVE EA 934NA (C397)
(QTY 2)
8G5310A38011
LH UPPER SHELF ASSY
(REF)
DRILL:
HOLE Ø14.25÷14.38
THRU PAD, UPPER SKIN AND
HONEYCOMB ONLY
INSTALL:
NAS1832-3-3 INSERT
APPLY:
ADHESIVE EA 934NA AERO (C397)
(QTY 4)
267.15
140.55
52.45
60.65
6.5
R10 TYP
36
43
193
25
25
25
172.0
33.34
21.92
245.00
21.00
221.00
50.10
226.10
182.10
180.15
53.20
154.10
65.90
216.85
20.60
10.73

Figure 4

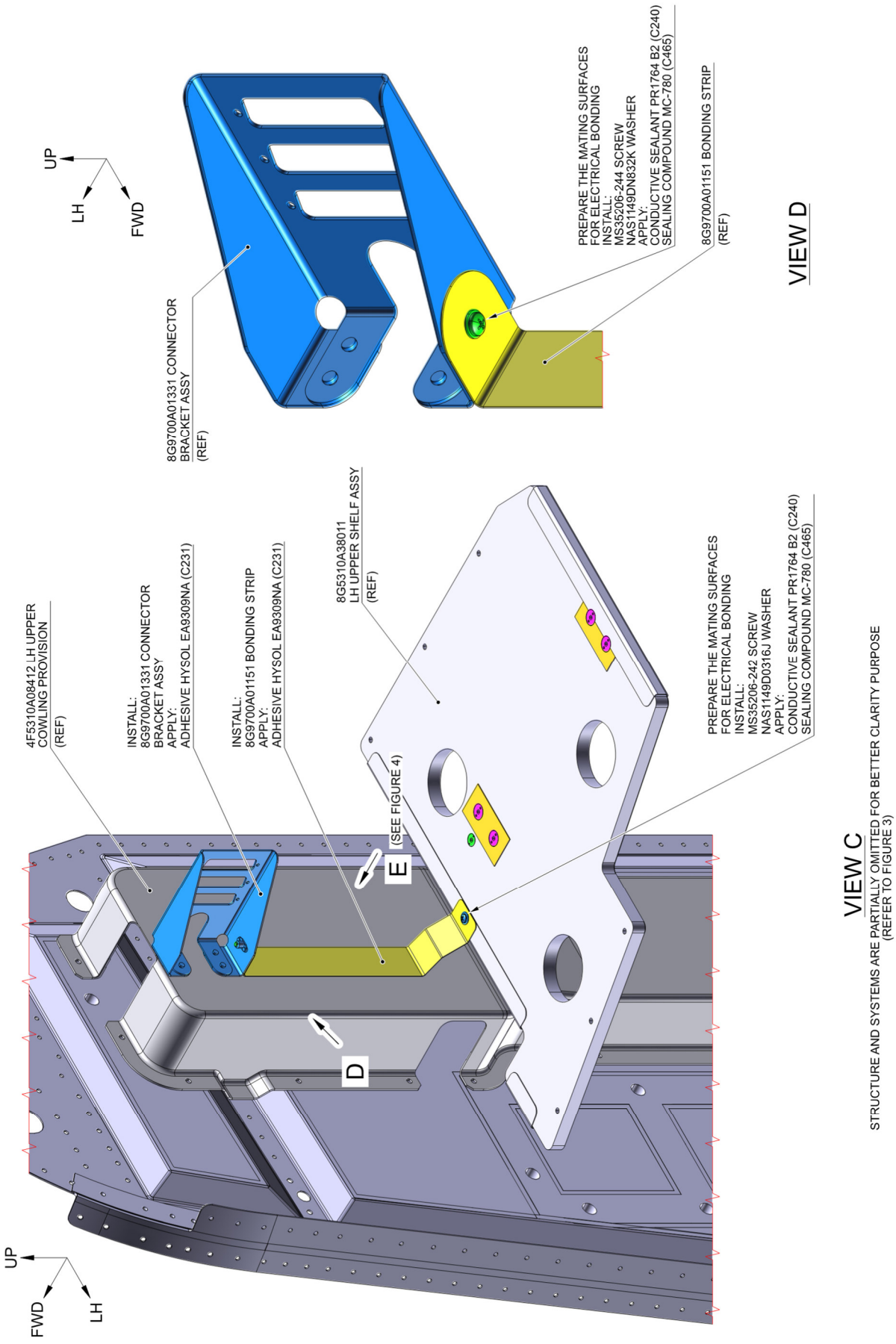

UP
LH
FWD
8G9700A01331 CONNECTOR
BRACKET ASSY
(REF)
PREPARE THE MATING SURFACES
FOR ELECTRICAL BONDING
INSTALL:
MS35206-244 SCREW
NAS1149DN832K WASHER
APPLY:
CONDUCTIVE SEALANT PR1764 B2 (C240)
SEALING COMPOUND MC-780 (C465)
8G9700A01151 BONDING STRIP
(REF)
VIEW D
4F5310A08412 LH UPPER
COWLING PROVISION
(REF)
INSTALL:
8G9700A01331 CONNECTOR
BRACKET ASSY
APPLY:
ADHESIVE HYSOL EA9309NA (C231)
INSTALL:
8G9700A01151 BONDING STRIP
APPLY:
ADHESIVE HYSOL EA9309NA (C231)
8G5310A38011
LH UPPER SHELF ASSY
(REF)
(SEE FIGURE 4)
E
D
PREPARE THE MATING SURFACES
FOR ELECTRICAL BONDING
INSTALL:
MS35206-242 SCREW
NAS1149D0316J WASHER
APPLY:
CONDUCTIVE SEALANT PR1764 B2 (C240)
SEALING COMPOUND MC-780 (C465)
VIEW C
STRUCTURE AND SYSTEMS ARE PARTIALLY OMITTED FOR BETTER CLARITY PURPOSE
(REFER TO FIGURE 3)
UP
FWD
LH

Figure 5

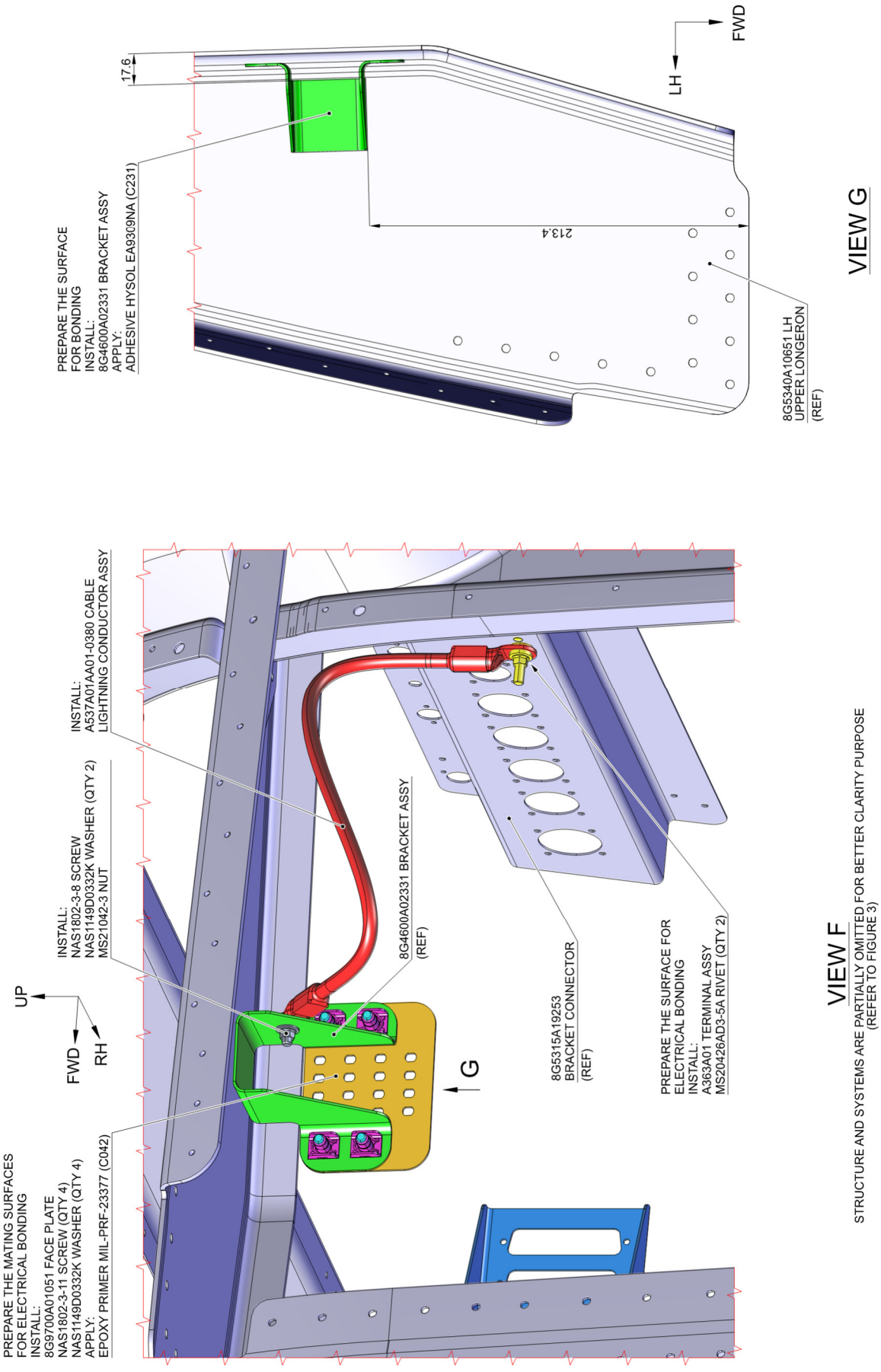

FWD
LH
17.6
213.4
PREPARE THE SURFACE
FOR BONDING
INSTALL:
8G4600A02331 BRACKET ASSY
APPLY:
ADHESIVE HYSOL EA9309NA (C231)
8G5340A10651 LH
UPPER LONGERON
(REF)
VIEW G
UP
FWD
RH
INSTALL:
NAS1802-3-8 SCREW
NAS1149D0332K WASHER (QTY 2)
MS21042-3 NUT
INSTALL:
A537A01AA01-0380 CABLE
LIGHTNING CONDUCTOR ASSY
8G4600A02331 BRACKET ASSY
(REF)
G
8G5315A19253
BRACKET CONNECTOR
(REF)
PREPARE THE SURFACE FOR
ELECTRICAL BONDING
INSTALL:
A363A01 TERMINAL ASSY
MS20426AD3-5A RIVET (QTY 2)
PREPARE THE MATING SURFACES
FOR ELECTRICAL BONDING
INSTALL:
8G9700A01051 FACE PLATE
NAS1802-3-11 SCREW (QTY 4)
NAS1149D0332K WASHER (QTY 4)
APPLY:
EPOXY PRIMER MIL-PRF-23377 (C042)
VIEW F
STRUCTURE AND SYSTEMS ARE PARTIALLY OMITTED FOR BETTER CLARITY PURPOSE
(REFER TO FIGURE 3)

Figure 6

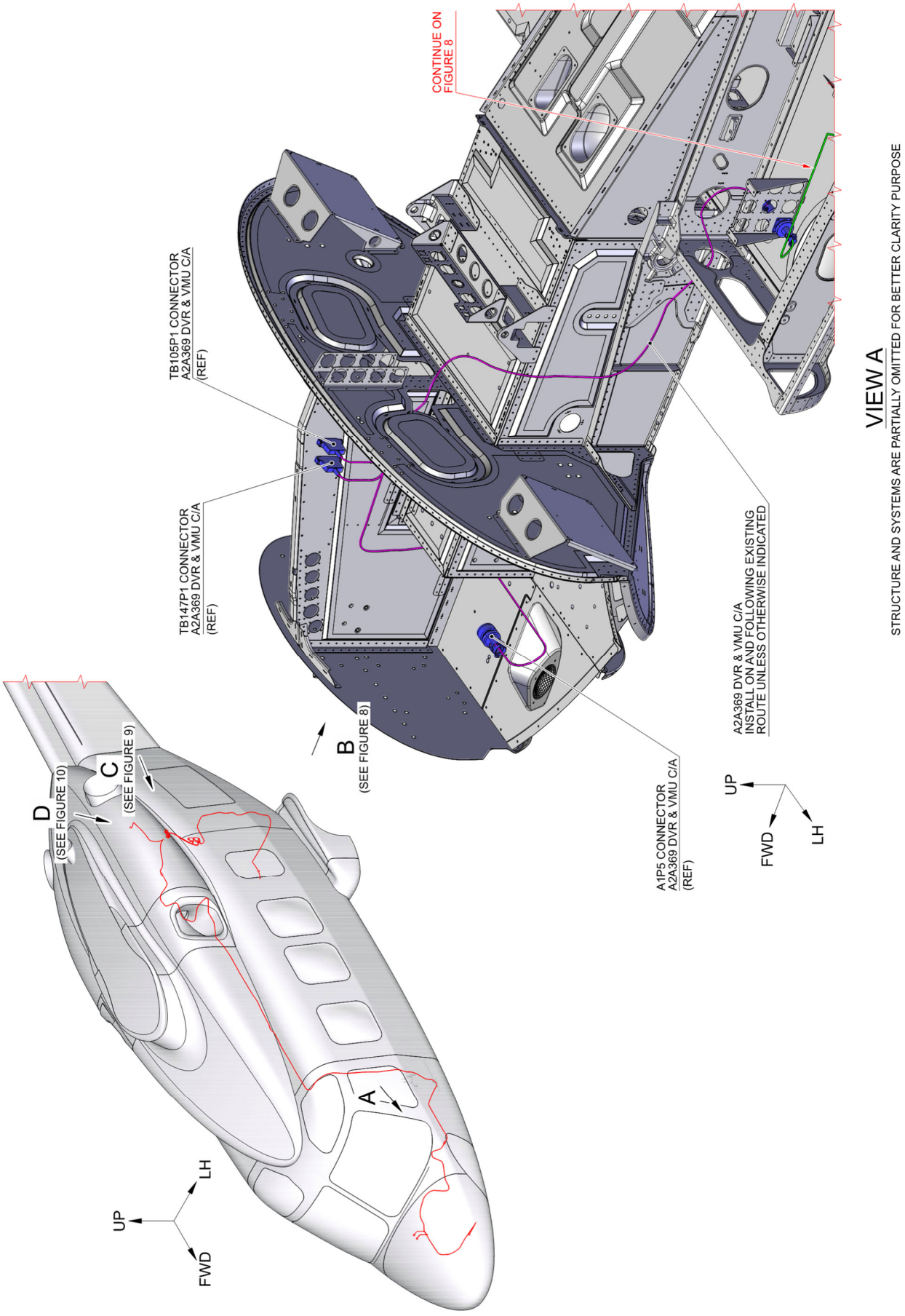

CONTINUE ON FIGURE 8
TB105P1 CONNECTOR A2A369 DVR & VMU C/A (REF)
TB147P1 CONNECTOR A2A369 DVR & VMU C/A (REF)
A2A369 DVR & VMU C/A INSTALL ON AND FOLLOWING EXISTING ROUTE UNLESS OTHERWISE INDICATED
A1P5 CONNECTOR A2A369 DVR & VMU C/A (REF)
B (SEE FIGURE 8)
C (SEE FIGURE 9)
D (SEE FIGURE 10)
A
UP
FWD
LH
VIEW A
STRUCTURE AND SYSTEMS ARE PARTIALLY OMITTED FOR BETTER CLARITY PURPOSE

Figure 7

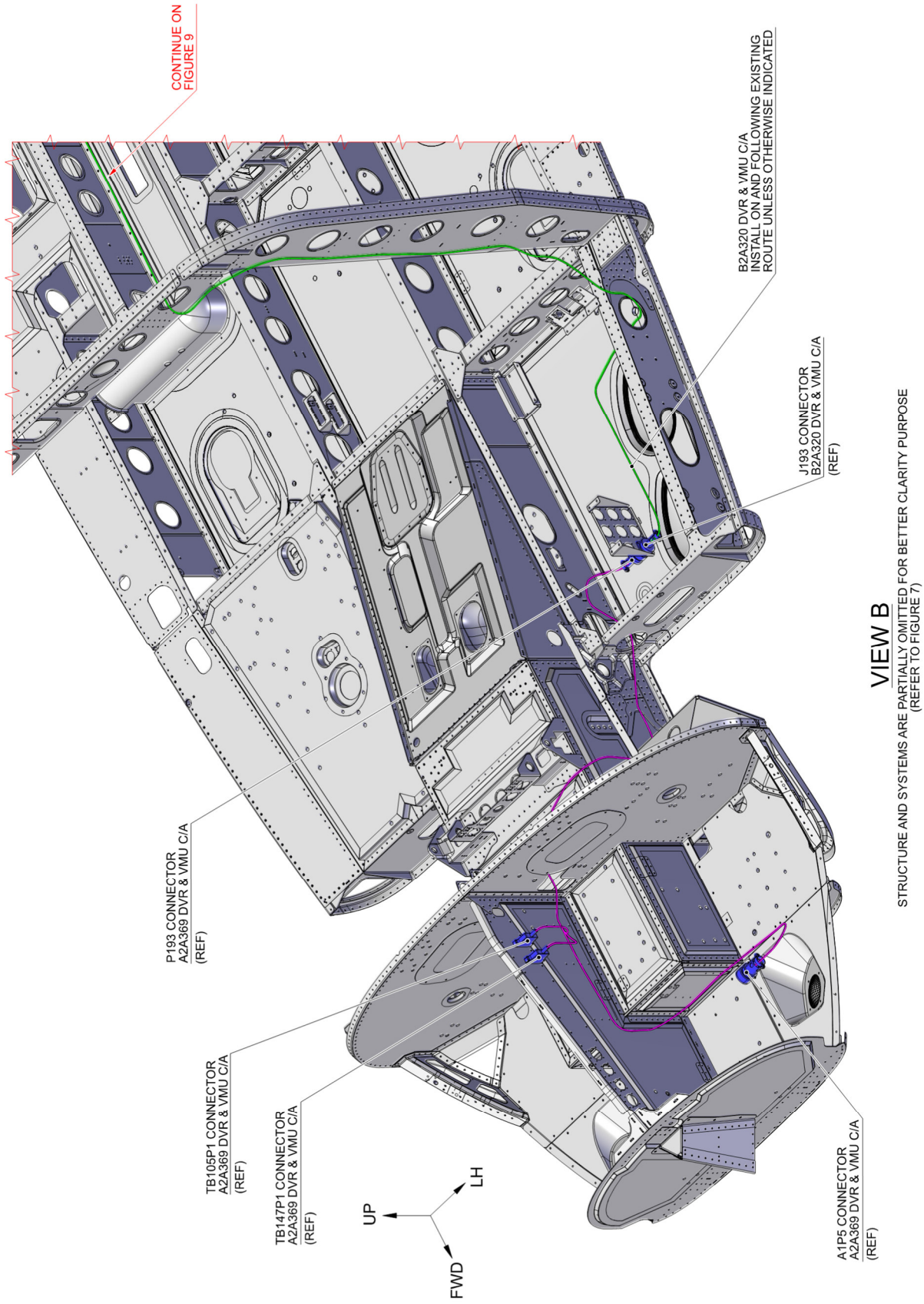

CONTINUE ON FIGURE 9
B2A320 DVR & VMU C/A INSTALL ON AND FOLLOWING EXISTING ROUTE UNLESS OTHERWISE INDICATED
J193 CONNECTOR B2A320 DVR & VMU C/A (REF)
P193 CONNECTOR A2A369 DVR & VMU C/A (REF)
TB105P1 CONNECTOR A2A369 DVR & VMU C/A (REF)
TB147P1 CONNECTOR A2A369 DVR & VMU C/A (REF)
A1P5 CONNECTOR A2A369 DVR & VMU C/A (REF)
UP
LH
FWD
VIEW B
STRUCTURE AND SYSTEMS ARE PARTIALLY OMITTED FOR BETTER CLARITY PURPOSE
(REFER TO FIGURE 7)

Figure 8

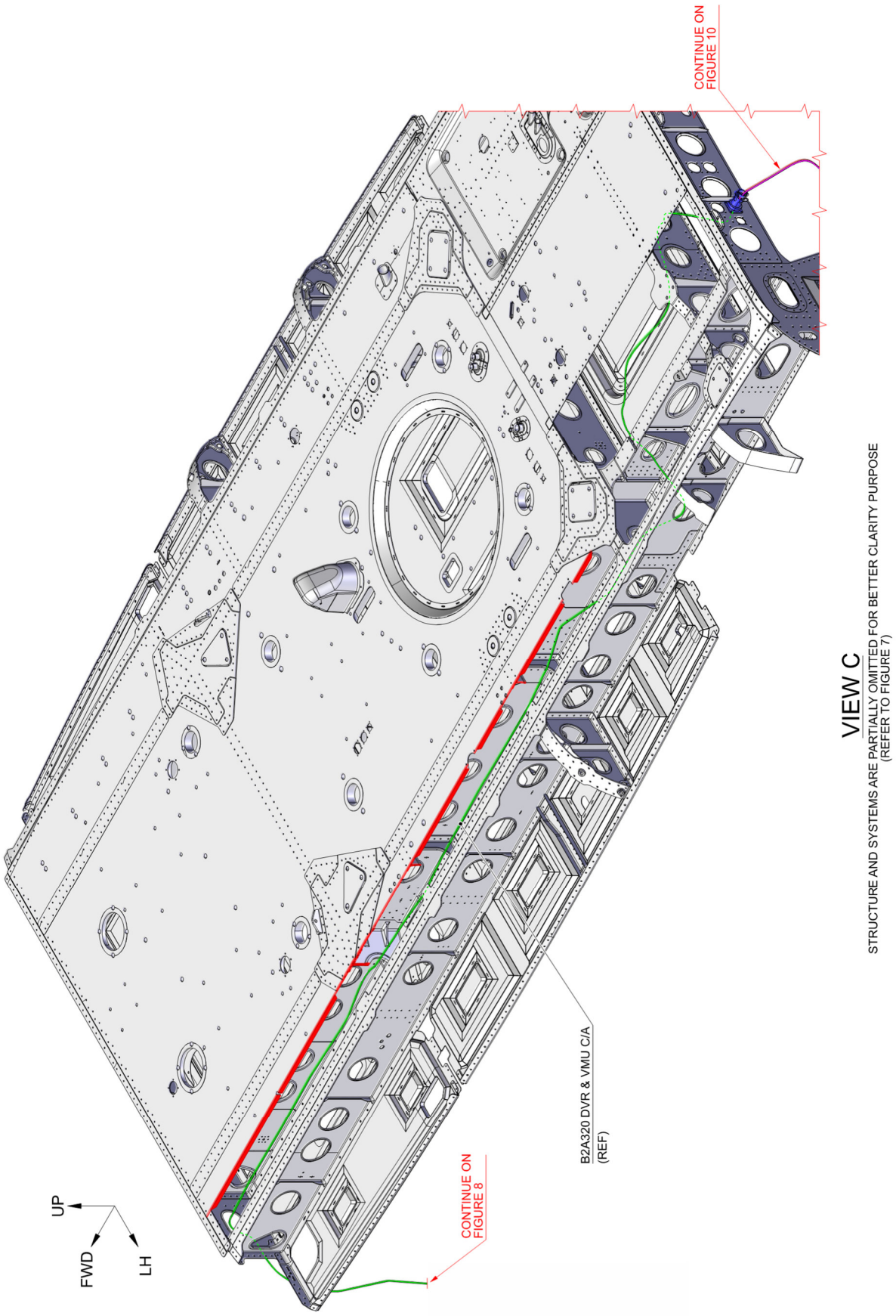

CONTINUE ON FIGURE 10
VIEW C
STRUCTURE AND SYSTEMS ARE PARTIALLY OMITTED FOR BETTER CLARITY PURPOSE
(REFER TO FIGURE 7)
B2A320 DVR & VMU C/A
(REF)
CONTINUE ON FIGURE 8
UP
FWD
LH

Figure 9

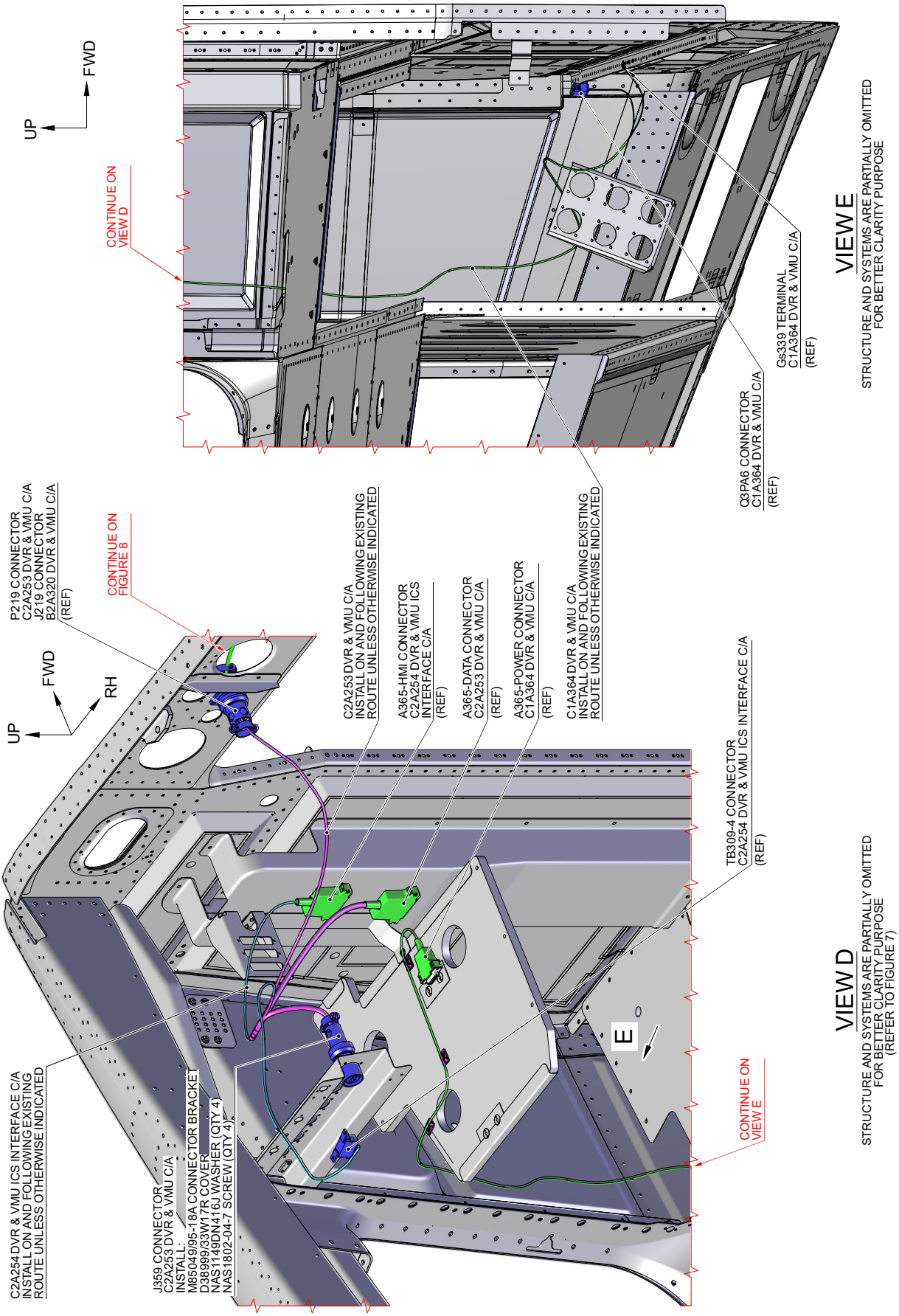
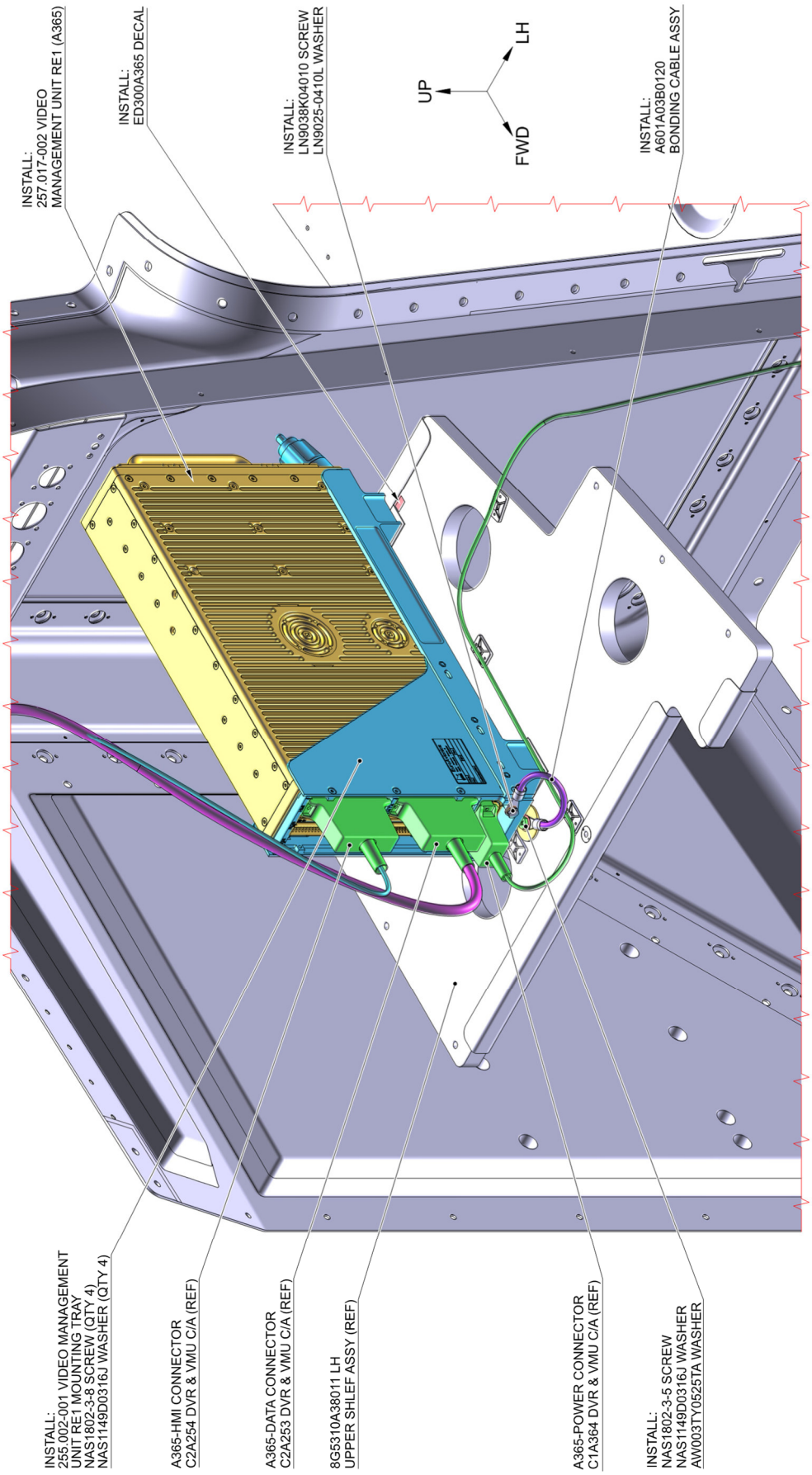

UP
FWD
CONTINUE ON VIEW D
VIEW E
STRUCTURE AND SYSTEMS ARE PARTIALLY OMITTED FOR BETTER CLARITY PURPOSE
Gs339 TERMINAL C1A364 DVR & VMU C/A (REF)
Q3PA6 CONNECTOR C1A364 DVR & VMU C/A (REF)
UP
FWD
RH
P219 CONNECTOR C2A253 DVR & VMU C/A J219 CONNECTOR B2A320 DVR & VMU C/A (REF)
CONTINUE ON FIGURE 8
C2A253 DVR & VMU C/A INSTALL ON AND FOLLOWING EXISTING ROUTE UNLESS OTHERWISE INDICATED
A365-HMI CONNECTOR C2A254 DVR & VMU ICS INTERFACE C/A (REF)
A365-DATA CONNECTOR C2A253 DVR & VMU C/A (REF)
A365-POWER CONNECTOR C1A364 DVR & VMU C/A (REF)
C1A364 DVR & VMU C/A INSTALL ON AND FOLLOWING EXISTING ROUTE UNLESS OTHERWISE INDICATED
TB309-4 CONNECTOR C2A254 DVR & VMU ICS INTERFACE C/A (REF)
E
CONTINUE ON VIEW E
VIEW D
STRUCTURE AND SYSTEMS ARE PARTIALLY OMITTED FOR BETTER CLARITY PURPOSE (REFER TO FIGURE 7)
C2A254 DVR & VMU ICS INTERFACE C/A INSTALL ON AND FOLLOWING EXISTING ROUTE UNLESS OTHERWISE INDICATED
J359 CONNECTOR C2A253 DVR & VMU C/A
INSTALL:
M85049/95-18A CONNECTOR BRACKET
D38999/33W17R COVER
NAS1149DN416J WASHER (QTY 4)
NAS1802-04-7 SCREW (QTY 4)

Figure 10



VIEW LOOKING LH AVIONIC CABINET
STRUCTURE AND SYSTEMS ARE PARTIALLY OMITTED FOR BETTER CLARITY PURPOSE

Figure 11

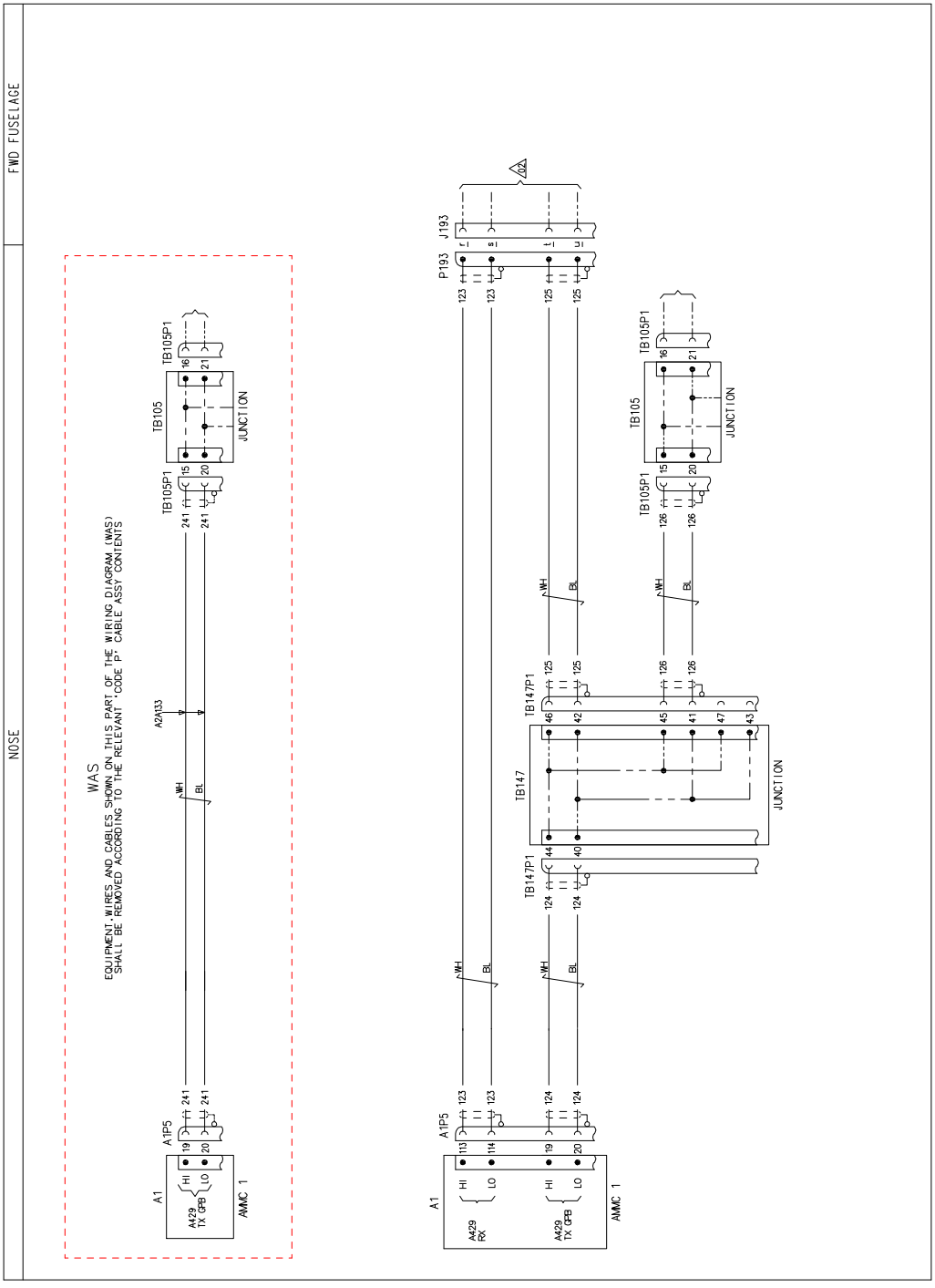

NOSE
FWD FUSELAGE
DRAWING REF. KEY
SHEET NO. 02
WAS
EQUIPMENT WIRES AND CABLES SHOWN ON THIS PART OF THE WIRING DIAGRAM (WAS) SHALL BE REMOVED ACCORDING TO THE RELEVANT "CODE P" CABLE ASSY CONTENTS
A1
AMMC 1
A1P5
A429 TX GPB
A429 RX
HI
LO
TB105
TB105P1
JUNCTION
TB147
TB147P1
A2A33
P193
J193
WH
BL
FUNCTIONAL NOTES
ALL CABLES ARE IN LOOM A2A369 UNLESS SPECIFIED
ALL CABLES ARE OF TYPE A561A12 24 UNLESS SPECIFIED
CABLE IDENT.: EVERY WIRE NUMBER IS PRECEDED BY THE ATA 100 DESCRIPTION 9700 AND FOLLOWED BY WIRE SIZE AND EMC CODE.

Figure 12

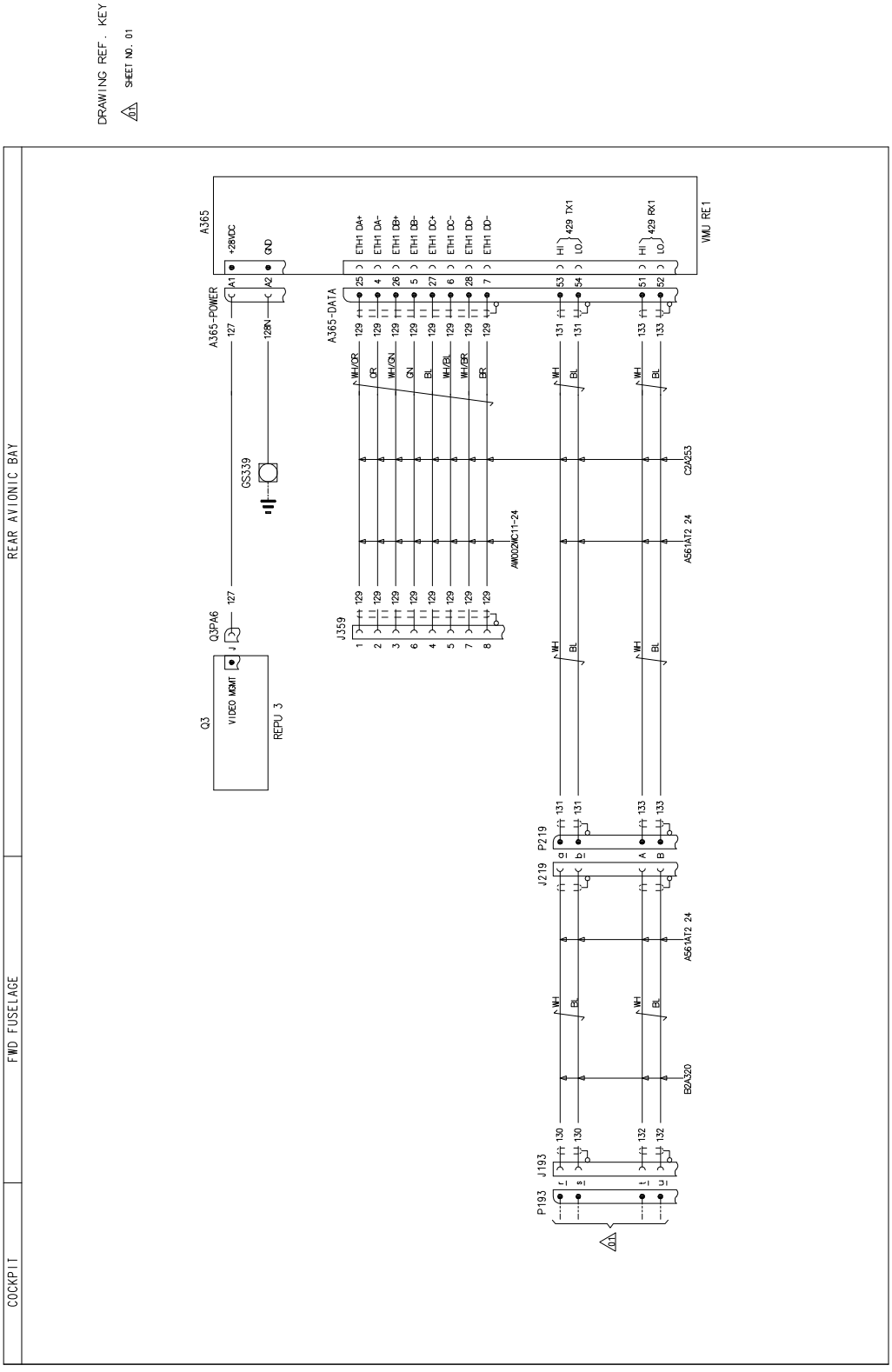

DRAWING REF. KEY
SHEET NO. 01
COCKPIT
FWD FUSELAGE
REAR AVIONIC BAY
A365
A365-POWER
A365-DATA
VMU RE1
Q3
VIDEO MGMT
REPU 3
Q3PA6
GS339
J359
P219
J219
P193
J193
FUNCTIONAL NOTES
ALL CABLES ARE IN LOOM C1A364 UNLESS SPECIFIED.
ALL CABLES ARE OF TYPE A56A1 20 UNLESS SPECIFIED
CABLE IDENT: EVERY WIRE NUMBER IS PRECEDED BY THE ATA 100 DESCRIPTION 9700 AND FOLLOWED BY WIRE SIZE AND EMC CODE.

Figure 13

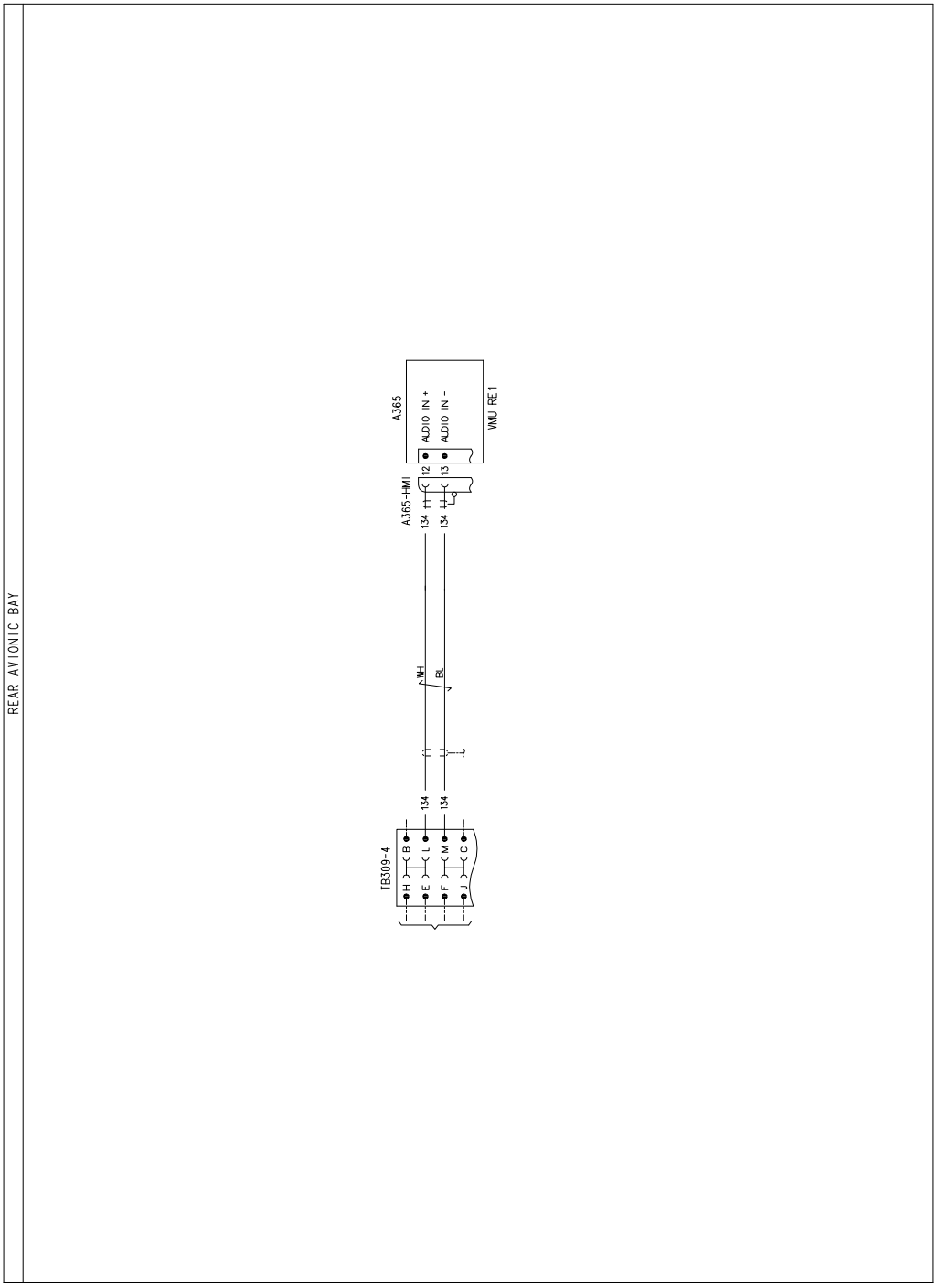

8G9700W00501
WIRING DIAGRAM DVR & VMU INTERFACE
SHEET 1
REAR AVIONIC BAY
TB309-4
H
E
F
J
B
L
M
C
134
134
A365-HMI
12
13
A365
ADIO IN +
ADIO IN -
VMU RE1
FUNCTIONAL NOTES
ALL CABLES ARE IN LOOM C2A254 UNLESS SPECIFIED
ALL CABLES ARE OF TYPE AS61AT2 24 UNLESS SPECIFIED
CABLE IDENT:- EVERY WIRE NUMBER IS PRECEDED BY THE ATA 100 DESCRIPTION 9700 AND FOLLOWED BY WIRE SIZE AND EMC CODE.

Figure 14

DVR & VMU C/A (A2A369) P/N 8G9A22A36901

CABLE ASSY	REF-DES	PIN	CONTACT P/N	INSULATION SLEEVING
A2A369	A1P5	113	M39029/56-348	-
A2A369	P193	R	M39029/58-360	-
A2A369	A1P5	114	M39029/56-348	-
A2A369	P193	S	M39029/58-360	-
A2A369	A1P5	19	M39029/56-348	-
A2A369	TB147P1	44	M39029/56-348	-
A2A369	A1P5	20	M39029/56-348	-
A2A369	TB147P1	40	M39029/56-348	-
A2A369	TB147P1	42	M39029/56-348	-
A2A369	P193	U	M39029/58-360	-
A2A369	TB147P1	46	M39029/56-348	-
A2A369	P193	T	M39029/58-360	-
A2A369	TB147P1	41	M39029/56-348	-
A2A369	TB105P1	20	M39029/56-348	-
A2A369	TB147P1	45	M39029/56-348	-
A2A369	TB105P1	15	M39029/56-348	-

TABLE 1

DVR & VMU C/A (C2A253) P/N 8G9C22A25301

CABLE ASSY	REF-DES	PIN	CONTACT P/N	INSULATION SLEEVING
C2A253	P219	a	M39029/58-363	-
C2A253	A365-DATA	53	M39029/58-360	-
C2A253	P219	b	M39029/58-363	-
C2A253	A365-DATA	54	M39029/58-360	-
C2A253	P219	A	M39029/58-363	-
C2A253	A365-DATA	51	M39029/58-360	-
C2A253	P219	B	M39029/58-363	-
C2A253	A365-DATA	52	M39029/58-360	-

TABLE 2

DVR & VMU C/A (B2A320) P/N 8G9B22A32001

CABLE ASSY	REF-DES	PIN	CONTACT P/N	INSULATION SLEEVING
B2A320	J193	r	M39029/56-348	-
B2A320	J219	a	M39029/56-351	-
B2A320	J193	s	M39029/56-348	-
B2A320	J219	b	M39029/56-351	-
B2A320	J193	t	M39029/56-348	-
B2A320	J219	A	M39029/56-351	-
B2A320	J193	u	M39029/56-348	-
B2A320	J219	B	M39029/56-351	-

TABLE 3

DVR & VMU C/A (C1A364) P/N 8G9C21A36401

CABLE ASSY	REF-DES	PIN	CONTACT P/N	INSULATION SLEEVING
C1A364	GS339	*	MS25036-103	-
C1A364	Q3PA6	J	M39029/58-363	-

TABLE 4

DVR & VMU ICS INTERFACE C/A (C2A254) P/N 8G9C22A25401

CABLE ASSY	REF-DES	PIN	CONTACT P/N	INSULATION SLEEVING
C2A254	TB309/4	L	A523A-A02	M23053/8-004-C
C2A254	TB309/4	M	A523A-A02	M23053/8-004-C

TABLE 5

Figure 15

ANNEX A

AW189 VIDEO CUSTOMIZATION
ACCEPTANCE TEST PROCEDURE

4 SYSTEM TEST

4.1 SUB-SYSTEM DEVICES UNDER TEST

Verify the part numbers in the table for the KIT Video Distribution and Switching unit components ☐

DEVICE	P/N	QTY	Supplier	NOTE	CHECK
RE1 - Video Management Unit	257.017-002	1	Hensoldt Avionics	Only IF Installed KIT 8G9700F00311	
Control Panel (CP)	378129-005	2	LASS	Only IF Installed KIT 8G9370F00311	
Turret-FLIR Unit (TFU)	3290004-949	1	FLIR Systems	Only IF Installed KIT 8G9350F00511	

DEVICE	P/N	QTY	Supplier	NOTE	CHECK
Power supply (for cameras)	RPS-77E	4	SEKAI	Only IF Installed KIT 8G9750F00611	
Cabin PC	DAQMAG2-5A8B1001	1	GE Intelligent Solutions	Only IF Installed KIT 8G4620F00511	
Mission Display	727-1902/01	2	LED	Only IF Installed KIT 8G4620F00511	
DVR Disk (SSD)	257.030-003	1	Hensoldt Avionics	Only IF Installed KIT 8G9700F00311	
RE1 Config Disk (SSD) AW149 MNL SAR Config	257.029-058M	1	Hensoldt Avionics	Only IF Installed KIT 8G9700F00311 AND KIT MNL SAR CUSTOMIZATION (8G2520F07611 or 8G2520F07911 or 8G2520F08411)	
RE1 Config Disk (SSD) AW149 MNL TT Config	257.029-062M	1	Hensoldt Avionics	Only IF Installed KIT 8G9700F00311 AND KIT MNL TT CUSTOMIZATION (8G2520F06311 or 8G2520F08511)	

4.2 SAFETY PROVISIONS

- 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
Not handle and operate plug/receptacle connectors with voltage presence.

4.3 TEST EQUIPMENTS

DC external Power (28VDC-3KW Min)
DC voltmeter (range 0 – 32 Vdc)
Bond Tester type AOIP OM 16 (milliohm meter) or equivalent.
Jumpers
WOW simulator switch
Straight Ethernet Cable
A PC with

- Windows XP or above
- Ethernet Port
- Microsoft Explorer or equivalent web browser software
- Filezilla
- VLC
- Admin User

4.4 TEST PREREQUISITES

The following requirements shall be fulfilled prior to proceeding with the test procedures described within this document:

1. Visually verify the proper installation of the units listed in the table in §4.1. ☐
2. Check the correct mechanical installation and fixing; Check the Electrical wires installation; Check that all the connectors are properly plugged and fastened. ☐
3. Verify that cable connections are without abrasion or damage ☐
4. The electrical wiring harness shall have been successfully tested for proper isolation resistance, electrical voltage strength and continuity between end points (pin-to-pin check) (DIT-MCO) **NOTE:** In the event of a system failure or malfunction perform a pin-to-pin check to confirm that all wires terminate in their proper location, the power and ground are applied only where required, and all data bus connections are shielded and properly grounded. ☐
5. The following system shall be operative: EPGDS, ECDUs, AMMS and CDS. ☐
6. Ensure that AW189 Avionic Phase 8 software or successive is installed. ☐
7. Verify on the MCDU Option List page that VIDEO SWITCH option is equal to VMU ☐
8. Before all the test procedures verify that the External Power Bench is operative and set to the appropriate Voltage (28 VDC). ☐
9. Check that all the switches are selected to OFF or to the position normal of the Aircraft being parked. ☐
10. Ensure that all PDUs Circuit Breakers are OFF/OUT except the “EXT PWR” CB (5A) ☐
11. During the test with helicopter, both ENG 1 & 2 selector installed on ENG CNTR PNL called “ENG MODE” are in OFF position. ☐

NOTE: The tests are performed step by step for allow the single check of each single function.

Execution Notes (Failures description, etc):

4.5 INSTALLATION CHECKS

THE FOLLOWING CHECK CAN BE AVOIDED ONLY IF THE AIRCRAFT HARNESS HAS BEEN TESTED WITH DITMCO.

In the following tests push "IN" or trip "OUT" as required step by step, avoiding to handle and operate on connectors with voltage presence:

4.5.1 CDS to RE1 VIDEO CABLE CHECK (SAR & TT Configuration)

Power OFF DVAR CB, the MFD CPLT and MFD PLT using the related CB’s ☐
Disconnect the A95P4, A42P4, A359P_OUT2; A359P_OUT4; A359P_OUT1 AND A359P_OUT3 connectors ☐

Verify the continuity between the listed couple of pins.

A95P4 (pin E) and A365P_SDI(A3) ☐
A42P4 (pin E) and A365P_SDI(A4) ☐

Connect he A95P4, A42P4 and A365P_SDI connectors ☐
Power ON MFD PLT and MFD CPLT using the related CB's ☐

4.5.2 RADAR to CDS CABLE CHECK (SAR & TT Configuration)

Power OFF DVAR CB and RADAR GABBIANO using the related CB's ☐
Disconnect the PL40P2 and PL40P3 connectors ☐

Verify the continuity between the listed couple of pins.

PL40P3 and A95P4 ☐
PL40P2 and A42P4 ☐

Connect the PL40P2 and PL40P3 connectors ☐

4.5.3 RADAR to MISSION CONSOLE VIDEO CABLE CHECK (IF INSTALLED SAR Configuration)

Power OFF MISSION CONSOLE and RADAR GABBIANO using the related CB's ☐
Disconnect the PL219P2, PL219P3, A274P8 and A273P8 connectors ☐

Verify the continuity between the listed couple of pins.

PL219P2 and A273P8 ☐
PL219P3 and A274P8 ☐

Connect the PL219P2, PL219P3, A274P8 and A273P8 connectors ☐
Power ON RADAR GABBIANO and MISSION CONSOLE using the related CB's ☐

4.5.4 FLIR STAR SAFIRE to RE1 VIDEO CABLE CHECK & MISSION CONSOLE (IF INSTALLED SAR Configuration)

Power OFF FLIR, the MISSION CONSOLE and DVAR using the related CB's ☐
Disconnect the A124P2, A365P_SDI, A273P7, A274P6, A273P6, A274P10 and A274P7 connectors ☐

Verify the continuity between the listed couple of pins.

A124P2 (pin A) and A365P_SDI(A5) ☐
A124P2 (pin D) and A273P7 ☐
A124P2 (pin B) and A274P7 ☐
A124P2 (pin C) and A274P6 ☐
A273P6 and A274P10 ☐

Connect the A124P2, A365P_SDI, A273P7, A274P6, A273P6, A274P10 and A274P7 connectors ☐
Power ON FLIR using the related CB's ☐

4.5.5 VMU to MISSION CONSOLE VIDEO CABLE CHECK (IF INSTALLED SAR Configuration)

Disconnect the A257P3, A274P9 and A365P_SDI connectors ☐

Verify the continuity between the listed couple of pins.

A257P3 (pin r) and A365P_SDI(A6) ☐
A365P_SDI(A2) and A274P9 ☐

Connect the A257P3, A274P9 and A365P_SDI connectors ☐

4.5.6 VMU to RESCUE HOIST CAM VIDEO CABLE CHECK (IF INSTALLED KIT 8G9700A00311 and 8G9750A03411 - SAR Configuration)

Power OFF RESCUE HOIST CAM using the related CB's ☐
Disconnect the PS200P2 and A365P_RGB_IN connectors ☐

Verify the continuity between the listed couple of pins.

PS200P2 and A365P_RGB_IN (pin 8) ☐

Connect the PS200P2 and A365P_RGB_IN connector ☐
Power ON RESCUE HOIST CAM using the related CB's ☐

4.5.7 Video Customization without VMU (IF INSTALLED KIT 8G4600A02211)

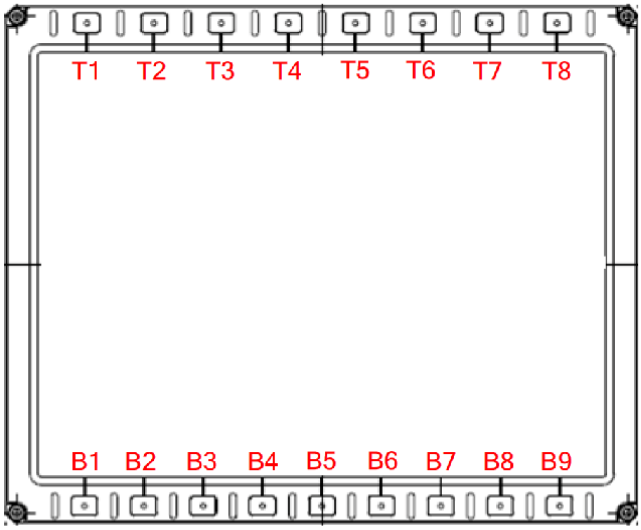
Verify the continuity between the listed couple of pins.

J3019 and A359P_OUT3A ☐
A359P_IN1A and A359P_OUT1A ☐
A359P_IN2A and A359P_OUT2A ☐
A359P_IN3A and A359P_OUT4A ☐

Execution Notes (Failures description, etc):

5 VIDEO CONFIGURATION

5.1 CDS SETTING



STEP	OPERATION	CHECK
1.	Ensure that the 28VDC External Power Bench and the on-board avionics are powered ON	☐
2.	Enter the Maintenance Page on CPLT MFD (DU2) by pressing B1+B9 bezel keys for more than 2 seconds	☐
3.	Press the B3 Bezel key to enter the SETTINGS page. A table will be shown.	
4.	Press T1 + T8 Bezel keys for more than 2 seconds. "EDIT MODE" shall be displayed allowing the table editing.	☐
5.	On Pilot/Co-pilot side press the "left/right arrow" button to focus into the table. The table will be highlighted with yellow colour.	☐
6.	Use the CCD to set the following parameters on the first column, under **SMPTE 1:** • POSITION: **VID1** • SRC NAME: • FORMAT: **1080p30** • GAMA: **1.0** (default) • V-OFFSET: **95** • H-OFFSET: **0** • L-crop: **0** • R-crop: **0** • U-crop: **0** • D-crop: **0**	☐

STEP	OPERATION	CHECK
7.	Use the CCD to set the following parameters on the first column, under **SMPTE 2:** • POSITION: **VID2** • SRC NAME: • FORMAT: **720p60** • GAMA: **1.0** (default) • V-OFFSET: **0** • H-OFFSET: **35** • L-crop: **240** • R-crop: **240** • U-crop: **40** • D-crop: **35**	☐
8.	Use the CCD to set the following parameters on the first column, under **COMPO1:** • POSITION: **VID3** • SRC NAME: • FORMAT: **NTSC** • GAMA: **1.0** (default) • V-OFFSET: **0** • H-OFFSET: **0** • L-crop: **0** • R-crop: **0** • U-crop: **0** • D-crop: **0**	☐
9.	Use the CCD to set the following parameters on the first column, under **COMPO2:** • POSITION: **VID5** • SRC NAME: • FORMAT: **NTSC** • GAMA: **1.0** (default) • V-OFFSET: **0** • H-OFFSET: **0** • L-crop: **0** • R-crop: **0** • U-crop: **0** • D-crop: **0**	☐
10.	Use the CCD to set the following parameters on the first column, under **COMPO3:** • POSITION: **VID4** • SRC NAME: • FORMAT: **NTSC** • GAMA: **1.0** (default) • V-OFFSET: **0** • H-OFFSET: **0** • L-crop: **0** • R-crop: **0** • U-crop: **0** • D-crop: **0**	☐
11.	Press SAVE bezel key and see if the “EDIT MODE“ message is replaced by “CONFIRM SAVE“ message.	☐
12.	Confirm pressing the bezel key under CONFIRM label. “SENDING“ annunciation message is displayed.	☐
13.	Using the bezel key B7 select the DU3 (PLT MFD), repeat the steps listed from 4 to 12 and then press EXIT – CONFIRM – EXIT to return to the display normal mode view.	☐

5.2 RE1 Software Version Check (Only IF Installed SAR CONFIG. – 8G2520F07611 or 8G2520F07911 or 8G2520F08411)

STEP	OPERATION	CHECK
1.	Ensure that the 28VDC External Power Bench and the on-board avionics are powered ON	☐
2.	Download from SAP the .zip file associated to this ATP and save it in the PC or Laptop. The file contains the Software Version required for the AW149_MNL configuration of the RE1.	
3.	Copy the files downloaded in the USB key formatted in FAT32. Note: Make sure that the files downloaded are not saved in a folder on the USB flash drive	
4.	Power on the Mission Displays and select the PLAYBACK page on the Upper or Lower Mission display	
5.	Access to the Avionic Rear Bay and remove the Front Cover of the RE1	
6.	Connect a keyboard to the USB port (1 or 2) **Note:** Use an extension USB cable in order to operate with the Keyboard and analyze the operations executed on the Mission Display installed in the Cabin.	
7.	Press F1 and then using the Arrow keys, select the TAB ABOUT in the pop-up Menù displayed	
8.	Verify the SW version reported in the ABOUT ERS page. IF the SW Version is equal to **v1.0.37-7357-g42068b0** jump to the STEP 15, OTHERWISE perform the next step.	
9.	Connect the USB key to the RE1 USB port (2 or 1).	
10.	Wait unit the RE1 Operating Software shuts down automatically	
11.	Remove the USB flash drive from the RE1	
12.	Restart the RE1 using the CB DVAR (ECDU)	
13.	After the restart, using the keyboard press the F1 button and then using the Arrow keys, select the TAB ABOUT in the pop-up Menù displayed	
14.	Verify that the SW installed is equal to **v1.0.37-7357-g42068b0**	
15.	Disconnect the Keyboard and Restart the RE1 (DVAR CB)	

6 VMU VIDEO AND RECORDING TEST

6.1 VMU VIDEO AND RECORDING (KIT 8G9700F00311) TEST (IF Installed TT Configuration)

6.1.1 COCKPIT DISPLAY FUNCTIONAL TEST

Verify that the following systems are powered ON and Operative and then perform the check reported in the table below:

- RADAR GABBIANO TN-20 (P/N 8G9370F00311)
- FLIR STAR SAFIRE (P/N 8G9350F00511)

STEP	OPERATION	CHECK
1.	Ensure that the 28VDC External Power Bench and the on-board avionics are powered ON	☐

STEP	OPERATION	CHECK
2.	On the CPLT MFD (DU2), using the CCD, open the VIDEO MENU and verify that the following info/field are displayed: • MODE (menu) • FLIR (selected at power-up) • PLAYBACK • RADAR	☐
3.	Using the CCD selects (one for time) the videos listed in the VIDEO MENU and verify that the videos and the video name displayed is coherently with the videos selected.	☐
4.	Using the CCD open the MODE sub-menu (in the VIDEO MENU) and select the DUAL video mode	☐
5.	Using the CCD selects two of the videos listed in the VIDEO MENU and verify that the videos displayed and the videos name are coherently with the videos selected.	☐
6.	Using the CCD open the MODE sub-menu (in the VIDEO MENU) and select the FULL video mode and close the VIDEO MENU	☐
7.	Press the bezel T4 (several times) and verify that the video displayed and the video name reported in the center of the page are coherently	☐
8.	On the PLT MFD (DU3), using the CCD, open the VIDEO MENU and verify that the following info/field are displayed: • MODE (menu) • FLIR (selected at power-up) • PLAYBACK • RADAR	☐
9.	Using the CCD selects (one for time) the videos listed in the VIDEO MENU and verify that the videos and the video name displayed is coherently with the videos selected.	☐
10.	Using the CCD open the MODE sub-menu (in the VIDEO MENU) and select the DUAL video mode	☐
11.	Using the CCD selects two of the videos listed in the VIDEO MENU and verify that the videos displayed and the videos name are coherently with the videos selected.	☐
12.	Using the CCD open the MODE sub-menu (in the VIDEO MENU) and select the FULL video mode and close the VIDEO MENU	☐
13.	Press the bezel T4 (several times) and verify that the video displayed and the video name reported in the center of the page are coherently	☐

6.1.2 RECORDING TEST

STEP	Description	Check
1.	Ensure that the 28VDC External Power Bench and the on-board avionics are powered ON.	☐
2.	On the CPLT MCDU access to the MSN page and select DVR → RECORD sub-page	☐
3.	Verify that the Free Space available is greater than 10GB	☐
4.	Access to the REC CH SEL sub-page and perform the following operation: • set to ON the channels CH1 (FLIR) • Press the CONFIRM SEL button • Press START on the RECORD button	☐

STEP	Description	Check
5.	Wait few minutes (e.g. 5 minutes) perform the following operation in the DVR page: • Press **SET EVM** • Press **JPG**	☐
6.	Wait few minutes (e.g. 5 minutes) perform the following operation in the DVR page: • Set **AUDIO** to **UNMUTE** • Press **JPG** • Press **SET EVM** • Use the PLT or CPLT headset (in order to record voice)	☐
7.	Wait few minutes (e.g. 5 minutes) perform the following operation in the DVR page: • Set **AUDIO** to **MUTE** • Press **JPG** • Press **SET EVM**	☐
8.	Wait few minutes (e.g. 5 minutes) perform the following operation in the DVR page: • Set **TIMESTAMP** to **OFF** • Set **AUDIO** to **UNMUTE** • Press **JPG** • Press **SET EVM** • Press **STOP** on the RECORD button	☐
9.	Wait 2 minutes and then press **REMOVE EVM** (in order to delete the last EVM created)	☐
10.	On the PLT MCDU access to the MSN page and select the DVR → PLAYBACK page	☐
11.	Press the **PB CH SEL** button and select the CH1 (FLIR)	☐
12.	On the MFD CPLT select in the VIDEO Menu the PLAYBACK video name	☐
13.	IF the Mission Console (P/N 8G4620F00511) is NOT installed skip to the step **20**	☐
14.	On the Upper Mission Display press the MENU button and using the arrows (UP/DW LT/RT) select the VIDEO MENU	☐
15.	Select the SDI 4 source and press ENT. Verify that the PLAYBACK camera is displayed	☐
16.	Press **PLAY** button (in order to start the video) and verify that the video displayed on the CPLT MFD and Upper Mission Display is coherently with the operation executed.	☐
17.	Press the FF button (for several times) and verify that the MCDU report the info 1x; 2x; 4x; 8x and then 1x … and verify that the video displayed on the CPLT MFD and Upper Mission Display is coherently with the operation executed.	☐
18.	Press the REW button (for several times) and verify that the MCDU report the info 1x; 2x; 4x; 8x and then 1x … and verify that the video displayed on the CPLT MFD and Upper Mission Display is coherently with the operation executed.	☐
19.	Press the PAUSE button (in order to STOP the video) and verify that the video displayed on the CPLT MFD and Upper Mission Display is coherently with the operation executed	☐
20.	Press the PLAY button and verify that the video displayed on the CPLT MFD is coherently with the operation executed	☐

STEP	Description	Check
21.	Press Next EVM and verify that the video displayed on the CPLT MFD is coherently with the operation executed	☐
22.	Press Next EVM and verify that the video displayed on the CPLT MFD is coherently with the operation executed	☐
23.	Press Prev. EVM (after ten seconds) and verify that the video displayed on the CPLT MFD is coherently with the operation executed	☐
24.	Press **JPG** button (in order to perform a screenshot of all cameras active) Note: the feedback is reported only on the MCDU (no error)	☐
25.	Access to the REC CH Page and set to **OFF** the channel 1 and then press CONFIRM SEL button	☐
26.	Connect a Laptop to the ETH Port located on the front side of the RE1 using an Ethernet Cable Note: In order to access to the ETH Port the Rear bay cover and the RE1 front panel shall be removed.	☐
27.	Power ON the Laptop and set the following IP address, verify that in the properties of the Local Area Network Connection under the Network Connection menu: **IP Address: 192.168.1.101** **Subnet Mask: 255.255.255.0**	☐
28.	Open Filezilla, set the following data and then press Quickconnect: **Host: sftp://192.168.1.10** **Username: user** **Password: user** Note: Ignore “unknowk host key warning	☐
29.	In the right side of filezilla are reported the folder of the RV1 SSD while on the left side shall be selected the destination folder.	☐
30.	On the right side, select and download some files (double click on the file selected) and then open the file selected downloaded in the destination folder using a video player (e.g. VLC) for the video files and Photo player (e.g. Photo) for the Screenshot and verify that the files recorded are coherently with the operation executed.	☐
31.	Power OFF and disconnect the laptop from the Maintenance Port	☐

6.2 VMU VIDEO AND RECORDING (KIT 8G9700F00311) TEST (IF Installed SAR CONFIGURATION)

6.2.1 COCKPIT DISPLAY FUNCTIONAL TEST

Verify that the following systems are powered ON and Operative and then perform the check reported in the table below:

- RADAR GABBIANO TN-20 (P/N 8G9370F00311)
- FLIR STAR SAFIRE (P/N 8G9350F00511)
- MISSION CONSOLE (P/N 8G4620F00511)
- RESCUE HOIST CAM (P/N 8G9750F00611

STEP	OPERATION	CHECK
1.	Ensure that the 28VDC External Power Bench and the on-board avionics are powered ON	☐
2.	On the CPLT MFD (DU2), using the CCD, open the VIDEO MENU and verify that the following info/field are displayed: • MODE (menu) • FLIR (selected at power-up) • CABIN PC • HOIST CAM • PLAYBACK • RADAR	☐
3.	Using the CCD selects (one for time) the videos listed in the VIDEO MENU and verify that the videos and the video name displayed is coherently with the videos selected.	☐
4.	Using the CCD open the MODE sub-menu (in the VIDEO MENU) and select the DUAL video mode	☐
5.	Using the CCD selects two of the videos listed in the VIDEO MENU and verify that the videos displayed and the videos name are coherently with the videos selected.	☐
6.	Perform the same operation selecting another couple of video names and verify that the videos displayed and the videos name are coherently with the videos selected.	☐
7.	Using the CCD open the MODE sub-menu (in the VIDEO MENU) and select the QUAD video mode	☐
8.	Using the CCD open the MODE sub-menu (in the VIDEO MENU) and select the FULL video mode and close the VIDEO MENU	☐
9.	Press the bezel T4 (several times) and verify that the video displayed and the video name reported in the center of the page are coherently	☐
10.	On the PLT MFD (DU3), using the CCD, open the VIDEO MENU and verify that the following info/field are displayed: • MODE (menu) • FLIR (selected at power-up) • CABIN PC • HOIST CAM • PLAYBACK • RADAR	☐
11.	Using the CCD selects (one for time) the videos listed in the VIDEO MENU and verify that the videos and the video name displayed is coherently with the videos selected.	☐
12.	Using the CCD open the MODE sub-menu (in the VIDEO MENU) and select the DUAL video mode	☐
13.	Using the CCD selects two of the videos listed in the VIDEO MENU and verify that the videos displayed and the videos name are coherently with the videos selected.	☐
14.	Perform the same operation selecting another couple of video names and verify that the videos displayed and the videos name are coherently with the videos selected.	☐
15.	Using the CCD open the MODE sub-menu (in the VIDEO MENU) and select the QUAD video mode	☐
16.	Using the CCD selects two of the videos listed in the VIDEO MENU and verify that the videos displayed and the videos name are coherently with the videos selected.	☐
17.	Using the CCD open the MODE sub-menu (in the VIDEO MENU) and select the FULL video mode and close the VIDEO MENU	☐

STEP	OPERATION	CHECK
18.	Press the bezel T4 (several times) and verify that the video displayed and the video name reported in the center of the page are coherently	☐

6.2.2 MISSION DISPLAY FUNCTIONAL TEST (IF Installed KIT 8G4620F00511)

STEP	OPERATION	CHECK
1.	Ensure that the 28VDC External Power Bench and the on-board avionics are powered ON	☐
2.	On the Upper Mission Display press the CYCLE (several times if necessary) button and select the SINGLE LAYOUT MODE	☐
3.	On the Upper Mission Display press the MENU button and using the arrows (UP/DW LT/RT) select the VIDEO MENU	☐
4.	Select the POS 1 source and press ENT. Verify that the FLIR HD1 camera is displayed	☐
5.	On the Upper Mission Display press the MENU button and using the arrows (UP/DW LT/RT) select the VIDEO MENU	☐
6.	Select the POS 2 source and press ENT. Verify that the FLIR HD3 camera is displayed	☐
7.	On the Upper Mission Display press the MENU button and using the arrows (UP/DW LT/RT) select the VIDEO MENU	☐
8.	Select the POS 3 source and press ENT. Verify that the RADAR camera is displayed	☐
9.	On the Upper Mission Display press the MENU button and using the arrows (UP/DW LT/RT) select the VIDEO MENU	☐
10.	Select the POS 4 source and press ENT. Verify that the PLAYBACK camera is displayed	☐
11.	On the Lower Mission Display press the CYCLE (several times if necessary) button and select the SINGLE LAYOUT MODE	☐
12.	On the Lower Mission Display press the MENU button and using the arrows (UP/DW LT/RT) select the VIDEO MENU	☐
13.	Select the POS 1 source and press ENT. Verify that the FLIR HD1 camera is displayed	☐
14.	On the Lower Mission Display press the MENU button and using the arrows (UP/DW LT/RT) select the VIDEO MENU	☐
15.	Select the POS 2 source and press ENT. Verify that the FLIR HD2 camera is displayed	☐
16.	On the Lower Mission Display press the MENU button and using the arrows (UP/DW LT/RT) select the VIDEO MENU	☐
17.	Select the POS 3 source and press ENT. Verify that the RADAR camera is displayed	☐
18.	On the Upper Mission Display press the MENU button and using the arrows (UP/DW LT/RT) select the VIDEO MENU	☐
19.	Select the POS 4 source and press ENT. Verify that the PLAYBACK camera is displayed	☐

6.2.3 RECORDING TEST

STEP	Description	Check
1.	Ensure that the 28VDC External Power Bench and the on-board avionics are powered ON.	☐
2.	On the CPLT MCDU access to the MSN page and select the VMU sub-page	☐
3.	Verify that the Free Space available is greater than 10GB	☐
4.	Access to the REC CH SEL sub-page and perform the following operation: • set to ON the channels CH1 (FLIR), and CH3 (HOIST CAM) • Press the CONFIRM SEL button	☐
5.	Wait few minutes (e.g. 5 minutes) perform the following operation in the DVR page: • Press **SET EVM** • Press **JPG**	☐
6.	Wait few minutes (e.g. 5 minutes) perform the following operation in the DVR page: • Enter in the **REC CH SEL** page and press **REC ALL** button and then **CONFIRM SEL** • Set **AUDIO** to **UNMUTE** • Press **JPG** • Press **SET EVM**	☐
7.	Wait few minutes (e.g. 5 minutes) perform the following operation in the DVR page: • Set **AUDIO** to **MUTE** • Press **JPG** • Press **SET EVM**	☐
8.	Wait few minutes (e.g. 5 minutes) perform the following operation in the DVR page: • Enter in the **REC CH SEL** page and set to **OFF** the channels CH2 (CABIN PC) and CH3 (HOIST CAM), then press **CONFIRM SEL** • Set **AUDIO** to **UNMUTE** • Press **JPG** • Press **SET EVM**	☐
9.	Wait 2 minutes and then press **DEL EVM** (in order to delete the last EVM created)	☐
10.	On the PLT MCDU access to the MSN page and select the VMU sub-page	☐
11.	Press the **PB CH SEL** button and select the CH1 (FLIR)	☐
12.	On the MFD CPLT select in the VIDEO Menu the PLAYBACK video name	☐
13.	On the Upper Mission Display press the MENU button and using the arrows (UP/DW LT/RT) select the VIDEO MENU	☐
14.	Select the POS 4 source and press ENT. Verify that the PLAYBACK camera is displayed	☐
15.	Press **PLAY** button (in order to start the video) and verify that the video displayed on the CPLT MFD and Upper Mission Display is coherently with the operation executed.	☐
16.	Press the FF button (for several times) and verify that the MCDU report the info 1x; 2x; 4x; 8x and then 1x … and verify that the video displayed on the CPLT MFD and Upper Mission Display is coherently with the operation executed.	☐

STEP	Description	Check
17.	Press the REW button (for several times) and verify that the MCDU report the info 1x; 2x; 4x; 8x and then 1x … and verify that the video displayed on the CPLT MFD and Upper Mission Display is coherently with the operation executed.	☐
18.	Press the PAUSE button (in order to STOP the video) and verify that the video displayed on the CPLT MFD and Upper Mission Display is coherently with the operation executed	☐
19.	Press the PLAY button and verify that the video displayed on the CPLT MFD is coherently with the operation executed	☐
20.	Press Next EVM and verify that the video displayed on the CPLT MFD is coherently with the operation executed	☐
21.	Press Next EVM and verify that the video displayed on the CPLT MFD is coherently with the operation executed	☐
22.	Press Prev. EVM and verify that the video displayed on the CPLT MFD is coherently with the operation executed	☐
23.	Press the **PB CH SEL** button and select the CH3 (HOIST CAM)	☐
24.	Press **PLAY** button (in order to start the video) and verify that the video displayed on the CPLT MFD is coherently with the operation executed.	☐
25.	Press **JPG** button (in order to perform a screenshot of all cameras active)	☐
26.	Access to the REC CH Page and set to **OFF** all channels	☐
27.	Connect a Laptop to the ETH Port located on the front side of the RE1 using an Ethernet Cable Note: In order to access to the ETH Port the Rear bay cover and the RE1 front panel shall be removed.	☐
28.	Power ON the Laptop and set the following IP address, verify that in the properties of the Local Area Network Connection under the Network Connection menu: **IP Address: 192.168.1.101** **Subnet Mask: 255.255.255.0**	☐
29.	Open Filezilla, set the following data and then press Quickconnect: **Host: sftp://192.168.1.10** **Username: user** **Password: user** Note: Ignore “unknowk host key warning	☐
30.	In the right side of filezilla are reported the folder of the RV1 SSD while on the left side shall be selected the destination folder.	☐
31.	On the right side, select and download some files (double click on the file selected) and then open the file selected downloaded in the destination folder using a video player (e.g. VLC) for the video files and Photo player (e.g. Photo) for the Screenshot and verify that the files recorded are coherently with the operation executed.	☐
32.	Power OFF and disconnect the laptop from the Maintenance Port	☐

6.3 VIDEO CUSTOMIZATION WITHOUT VMU (KIT 8G9700F00111) TEST (IF Installed 8G4600A02211 and removed KIT 8G9700F00111)

Verify that the following systems are powered ON and Operative and then perform the check reported in the table below:

- RADAR GABBIANO TN-20 (P/N 8G9370F00311)
- FLIR STAR SAFIRE (P/N 8G9350F00511)

STEP	OPERATION	CHECK
1.	Ensure that the 28VDC External Power Bench and the on-board avionics are powered ON	☐
2.	On the CPLT MFD (DU2), using the CCD, open the VIDEO MENU and select the RADAR video source. Verify that the video and the video name displayed are coherently with the video source selected.	☐
3.	On the CPLT MFD (DU2), using the CCD, open the VIDEO MENU and select the FLIR video source. Verify that the video and the video name displayed are coherently with the video source selected	☐
4.	On the PLT MFD (DU3), using the CCD, open the VIDEO MENU and select the RADAR video source. Verify that the video and the video name displayed are coherently with the video source selected.	☐
5.	On the PLT MFD (DU3), using the CCD, open the VIDEO MENU and select the FLIR video source. Verify that the video and the video name displayed are coherently with the video source selected	☐

7 INITIAL CONDITION RESTORING

Using either the pilot or co-pilot ECDU, select the CB page. Set all relevant virtual circuit breakers to OUT.	☐
Switch OFF the aircraft Electrical Power Distribution System.	☐
Disconnect the 28Vdc ground power source from the aircraft.	☐

8 TEST RESULT

TEST RESULT SUMMARY H/C N°: 189G46000D002 AW189 MNL VIDEO CUSTOMIZATION ATP				
REF.	**DESCRIPTION**	**OPERATOR**	**DATE**	**REMARKS**
4.1	Sub-System Devices Under Test			
4.2	Safety Provisions			
4.3	Test Equipment			
4.4	Test Prerequisites			
4.5	Installation Checks			
4.5.1	CDS to VMU Video Cable Check (SAR & TT Configuration)			
4.5.2	RADAR to CSD Cable Check (SAR & TT Configuration)			
4.5.3	RADAR to Mission Console Video Cable Check (IF installed SAR Configuration)			
4.5.4	FLIR STAR SAFIRE to RE1 VIDEO CABLE CHECK & MISSION CONSOLE (IF Installed SAR Configuration)			
4.5.5	VMU to Mission Console Video Cable Check (IF Installed SAR Configuration)			
4.5.6	VMU to RESCUE HOIST CAM VIDEO CABLE CHECK (IF INSTALLED KIT 8G9700A00311 and 8G9750A03411 - SAR Configuration)			
4.5.7	Video Customization without VMU (IF Installed KIT 8G4600A02211)			
5	VIDEO CONFIGURATION			
5.1	CDS SETTING			
5.2	RE1 Software Version Check			
6	VMU Video and Recording Test			
6.1	VMU VIDEO AND RECORDING (KIT 8G9700F00311) TEST (IF Installed TT Configuration)			
6.1.1	COCKPIT DISPLAY FUNCTIONAL TEST			
6.1.2	RECORDING TEST			
6.2	VMU VIDEO AND RECORDING (KIT 8G9700F00311) TEST (IF Installed SAR CONFIGURATION)			
6.2.1	COCKPIT DISPLAY FUNCTIONAL TEST			
6.2.2	MISSION DISPLAY FUNCTIONAL TEST (IF Installed KIT 8G4620F00511)			
6.2.3	RECORDING TEST			
6.3	VIDEO CUSTOMIZATION WITHOUT VMU (KIT 8G9700F00111) TEST (IF installed 8G4600A02211 and removed KIT 8G9700F00111)			
Engineering dept. signature(if required):----------				
Quality dept. approval:----------				

(*) Specify whether DIMCO or ATP have been carried out to cover Power Supply checks.

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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.