
SERVICE BULLETIN

N° **189-095**

OPTIONAL

DATE: April 6, 2018

REV. : A - October 9, 2024

TITLE

ATA 97 - DIGITAL VIDEO CARGO HOOK CAMERA

REVISION LOG

Helicopters already compliant with previous issues of this Service Bulletin do not need any additional action.

Revision A of this Service Bulletin has been issued to introduce alternative Cable Assy Productive P/Ns.

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

1. PLANNING INFORMATION

A. EFFECTIVITY

AW189 helicopters S/N 49017 and S/N 49020.

B. COMPLIANCE

At Customer's option.

C. CONCURRENT REQUIREMENTS

N.A.

D. REASON

This Service Bulletin is issued in order to provide all necessary instructions on how to visualize Cargo and Hook video signals on MFD Pilot and to install the kit cargo hook camera removable parts.

LH issued this SB for the following reason:

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

E. DESCRIPTION

PART I

Describes all necessary instructions on how to perform the Dual Video Camera Cargo Hook retromod P/N 8G9770P00111.

This modification consists of reworking of existing cable assemblies of the Cargo-Hook cameras to match the requirement of visualization of both Cargo and Hook video signals on MFD Pilot.

PART II

Describes all necessary instructions on how to install the kit cargo hook camera removable parts.

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 Maintenance-Man-Hours (MMH) are deemed necessary:

Part I: approximately thirty (30) MMH.

Part II: approximately thirty (30) MMH.

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

N.A

PART II

P/N 8G9770A05111 DVC FULL EQUIPMENT INSTALLATION

WEIGHT (Kg)		1,271
	ARM (mm)	MOMENT (Kgmm)
LONGITUDINAL BALANCE	3290	4181,6
LATERAL BALANCE	424	627,9

P/N 8G9770A05411 DUAL VIDEO CAMERA (HOOK) EQUIPMENT

WEIGHT (Kg)	0,466	
	ARM (mm)	MOMENT (Kgmm)
LONGITUDINAL BALANCE	3340	1556,4
LATERAL BALANCE	438	204,1

I. REFERENCES

I.1 PUBLICATIONS

Following Data Modules refer to AMP:

<u>DATA MODULE</u>	<u>DESCRIPTION</u>	<u>PART</u>
DM01 89-A-00-20-00-00A-120A-A	Helicopter safety. Pre-operation (make helicopter safe for maintenance).	I, II
DM02 89-A-11-00-01-00A-720A-A	Decal Install procedure.	II
DM03 89-A-31-11-05-00A-520A-A	Instrument panel - Remove procedure	I
DM04 89-A-31-11-05-00A-720A-A	Instrument panel - Install procedure	I
DM05 89-A-25-21-01-00A-520A-A	Cabin seat - Remove procedure.	II
DM06 89-A-25-21-01-00A-720A-A	Cabin seat - Install procedure.	II
DM07 89-B-25-21-01-00A-520A-A	Cabin seat - Remove procedure.	II
DM08 89-B-25-21-01-00A-720A-A	Cabin seat - Install procedure.	II
DM09 89-A-25-22-01-00A-520A-A	Cabin seat - Remove procedure.	II
DM10 89-A-25-22-01-00A-720A-A	Cabin seat - Install procedure.	II
DM11 89-A-25-23-01-00A-520A-A	Cabin seat - Remove procedure.	II
DM12 89-A-25-23-01-00A-720A-A	Cabin seat - Install procedure.	II
DM13 89-A-52-43-10-00A-520A-A	Access panels (cabin) - Remove procedure.	II
DM14 89-A-52-43-10-00A-720A-A	Access panels (cabin) - Install procedure.	II
DM15 89-A-97-55-04-00A-720A-A	Power Supply PS18 - Install Procedure.	II

<u>DATA MODULE</u>	<u>DESCRIPTION</u>	<u>PART</u>
DM16 89-A-52-43-07-00A-540A-A	Access doors (fastener lock) - Open for access procedure	II
DM17 89-A-52-43-07-00A-740A-A	Access doors (fastener lock) – Close after access procedure	II

I.2 ACRONYMS & ABBREVIATIONS

AMP	Aircraft Maintenance Publication
APU	Auxiliary Power Unit
CAM	Camera
CCD	Cursor Control Display
CNTR	Control
DOA	Design Organization Approval
DC	Direct Current
DM	Data Module
EASA	European Union Aviation Safety Agency
ENG	Engine
FWD	Forward
GND	Ground
HC	Helicopter
LH	Left
LHD	Leonardo Helicopters Division
LRU	Line Replaceable Unit
MFD	Multi-Function Display
MLG	Main Landin Gear
MMH	Maintenance Man Hours
N.A.	Not Applicable
PFD	Primary Flight Display
PLT	Pilot
P/N	Part Number
PNL	Panel
SB	Service Bulletin
SEL	Selection
S/N	Serial Number
VDC	Voltage Direct Current
WOW	Weight on Wheel

I.3 ANNEX

Annex A Dual Cargo Hook Camera Functional Test.

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	8G9770P00111		DUAL VIDEO CAMERA (CARGO HOOK) RETROMOD KIT	REF	.		
2	7528G6314-9	7528G6314-9-E629	Wire	5 m	..	(1)	-
3	A578A01-9		Marker Sleeve	3	..	(1)	-
4	M39029/56-348		Electrical contact	7	..		-
5	A590A03		Ferule, Shielded Cable	2	..		-
6	D-181-1222-90/9		Ferule, Coax Cable	3	..		-
7	A556A-T22		Wire	5 m	..	(2)	-
8	A579A03		Marker Band	1	..	(2)	-

PART II

#	P/N	ALTERNATIVE P/N	DESCRIPTION	Q.TY	LVL	NOTE	LOG P/N
9	8G9770F00111		KIT DUAL VIDEO CAMERA (CARGO HOOK)	REF	.		
10	8G9770A05411		DVC EQUIPMENT INSTALLATION	REF	..		
11	ED300PS18		Decal	1	...		-
12	ED300PS19		Decal	1	...		-
13	NAS1802-04-6		Screw	8	...		-
14	NAS620C4LP		Washer	8	...		-
15	RPS-77E		Power supply	2	...		-
16	8G9770A05111		DVC FULL EQUIPMENT INSTALLATION	REF	..		
17	8G9770A05211		DUAL VIDEO CAMERA (HOOK) EXT C/A INSTALLATION	REF	...		
18	8G9B02A15802	8G9B02A15802A1R or 8G9B02A15802A2R	Dual Video Camera cargo hook C/A (B2A158)	1	....		-
19	8G9B02B14202	8G9B02B14202A1R or 8G9B02B14202A2R	Dual Video Camera cargo hook C/A (B2B142)	1	....		-
20	AW001CB03H		Clamp, loop	1	....		-
21	AW001CL002C-X1		Support, electrical cable	1	....		-
22	AW001TL3A06T		Anchor nut	1	....		-
23	AW002FT103		Grommet, rubber	1	....		-
24	NAS1149D0332J		Washer, flat	1	....		-
25	NAS1802-3-9		Screw, machine	1	....		-
26	8G9770A05311		DUAL VIDEO CAMERA (HOOK) EQUIPMENT INSTALLATION	REF	...		
27	ED300DS113		Decal	1	....		-
28	ED300DS114		Decal	1	....		-
29	NAS620C10LP		Washer	8	....		-
30	NAS6703-5		Bolt	8	....		-
31	RPC-651ER/3,0		Utility camera	2	....		-
32	8G9770A05611		DUAL VIDEO CAMERA	REF	...		

#	P/N	ALTERNATIVE P/N	DESCRIPTION	Q.TY	LVL	NOTE	LOG P/N
(HOOK) STRUCTURAL INSTALLATION							
33	8G9770A05831		Camera bracket assy	1	....		-
34	8G9770A05931		Camera bracket assy	1	....		-
35	8G9770A06131		Camera fairing assy	1	....		-
36	MS27039-1-07		Screw	20	....		-

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:

#	P/N	DESCRIPTION	Q.TY	NOTE	PART
37	199-05-002 Type I, Class 2 / Code No. 900000581	Adhesive Hysol EA9309.3NA (C021)	AR	(4)	II
38	AW001CK01HS	Cable-tie	2		II
39	M81824/1-1	Splice	1	(4)	II

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

N.A.

NOTE

- (1) These items will be supplied as part of production P/N 8G9770P00111A2R.
- (2) These items will be supplied as part of production P/N 8G9770P00111A3R.
- (3) Applicable to all helicopters.
- (4) Item to be procured as local supply.

B. SPECIAL TOOLS

The following special tools, or equivalent, are necessary to accomplish this Service Bulletin:

#	P/N	DESCRIPTION	Q.TY	NOTE	PART
40	110-6B	Electrical power supply (28 VDC) (BB-01-00)	1	(B1)	
41	TALL5160M1A690B	Bondimeter	1	Local supply	
42	commercial	DC Voltmeter Tester	1	Local supply	I

#	P/N	DESCRIPTION	Q.TY	NOTE	PART
41	3G3200G00131	MLG microswitches test box (Weight on wheels positions) (AJ-0200)		Local supply (B2)	

Refer also 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 NOTE

(B1) P/N GB713-045-600 or -700 may be supplied as a valid alternative.

(B2) P/N 3G3205G00731 may be supplied as a valid alternative.

C. INDUSTRY SUPPORT INFORMATION

N.A.

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.
- c) During the installation of bonding braids or components requiring grounding, clean the surface structure in order to obtain a good ground contact.
- d) 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.
2. In accordance with AMP DM 89-A-31-11-05-00A-520A-A, remove the instrument panel from helicopter.
3. With reference to Figure 2, perform the dual video camera (cargo hook) retromod P/N 8G9770P0011 as described in the following procedure:
 - 3.1 With reference to Figure 2 and Figure 6 wiring diagram, remove the wires connected to the pins 19, 2 and 3 of the MFD co-pilot connector A95P3.
 - 3.2 With reference to Figure 2 and Figure 7 wiring diagram, perform the electrical connection to the pins 2 and 3 of connector A95P3 by means of n°1 splice P/N D-181-1222-90/9, n°2 electrical contact P/N M39029/56-348 and n°1 ferrule P/N A590A03.
 - 3.3 With reference to Figure 2 and Figure 7 wiring diagram, perform the electrical connection between pins 4, 5 and 20 of the MFD pilot connector A42P3 and pins 9, 10 of the MFD co-pilot connector A95P3 as described in the following procedure:
 - 3.3.1 With reference to Figure 2 and Figure 7 wiring diagram, cut of an adequate length the wire P/N 7528G6314-9 to ensure the electrical connection between MFD pilot connector A42P3 and MFD co-pilot connector A95P3.
 - 3.3.2 With reference to Figure 2 and Figure 7 wiring diagram, mark

P/N 9770-002, P/N 9770-005 and P/N 9770-006 on the wire P/N 7528G6314-9 by means of n°3 marker sleeve P/N A578A01-9.

3.3.3 With reference to Figure 2 and Figure 7 wiring diagram, perform electrical connection between the cable previously assembled and n°2 splices P/N D-181-1222-90/9.

3.3.4 With reference to Figure 2 and Figure 7 wiring diagram, perform electrical connection between the cable previously assembled and MFD pilot connector A42P3 and MFD co-pilot connector A95P3 by means of n°5 electrical contacts P/N M39029/56-348.

4. Perform a pin to pin continuity check.
5. In accordance with AMP DM 89-A-31-11-05-00A-720A-A, re-install the instrument panel on the helicopter.
6. In accordance with weight and balance changes, update the Chart A (see Rotorcraft Flight Manual, Part II, section 6).
7. Return the helicopter to flight configuration and record for compliance with Part I of this Service Bulletin on the helicopter logbook.
8. Gain access to My Communications section on [Leonardo Customer Portal](#) and compile the "Service - Technical Bulletin Application".

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 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.
2. In accordance with aircraft configuration and AMP DM 89-A-25-21-01-00A-520A-A or AMP DM 89-A-25-22-01-00A-520A-A or DM 89-A-25-23-01-00A-520A-A or DM 89-B-25-21-01-00A-520A-A, remove the passenger cabin seats.
3. In accordance with aircraft configuration and AMP DM 89-A-52-43-10-00A-520A-A remove floor panels 221A or 222E.
4. With reference to Figure 3 view C, perform the dual video camera (hook) equipment installation P/N 8G9770A05411 as described in the following procedure:
 - 4.1 In accordance with AMP DM 89-A-97-55-04-00A-720A-A and with reference to Figure 3 view C, install power supply P/N RPS-77E by means of n°4 washers P/N NAS620C4LP and n°4 screws P/N NAS1802-04-6.
 - 4.2 In accordance with AMP DM 89-A-11-00-01-00A-720A-A and with reference to Figure 3 view C, install the decal P/N ED300PS18 in an area adjacent to the power supply.
 - 4.3 In accordance with AMP DM 89-A-97-55-04-00A-720A-A and with reference to Figure 3 view C, install power supply P/N RPS-77E by means of n°4 washers P/N NAS620C4LP and n°4 screws P/N NAS1802-04-6.
 - 4.4 In accordance with AMP DM 89-A-11-00-01-00A-720A-A and with reference to Figure 3 view C, install the decal P/N ED300PS19 in an area adjacent to the power supply.
 - 4.5 Perform the following procedure to update the power supply wiring:
 - 4.5.1 In accordance with AMP DM 89-A-52-43-07-00A-540A-A, open the access door 165D.
 - 4.5.2 With reference to Figure 9 Wiring diagram, get access to the sectioning connector J207 and remove wire 101 from pin X.
 - 4.5.3 With reference to Figure 9 Wiring diagram, remove wire 100 from pin X of sectioning connector P207 and from pin D of REPU 3 connector Q3PA6.
 - 4.5.4 With reference to Figure 9 Wiring diagram, disconnect wire 105 from pin R of sectioning connector J107. Cut wire 105 in a suitable position near sectioning connector in order to install splice SP2499.
 - 4.5.5 With reference to Figure 10 Wiring diagram, cut a piece of wire P/N A556A-T22 of adequate length and lay down wire between splice SP2499 and sectioning connector J207. Identify the new wire by means

- of sleeve P/N A578A01-9. Crimp wires 100 101 and 105 by means of Splice P/N M81824/1-1.
- 4.5.6 With reference to Figure 10 Wiring diagram, perform electrical connection at pin R of Sectioning connector J107.
 - 4.5.7 Perform a pin-to-pin test of the connection performed.
 - 4.5.8 In accordance with AMP DM 89-A-52-43-07-00A-740A-A, close the access door 165D.
5. With reference to Figures 3 thru 5, perform the dual video camera (hook) full equipment installation P/N 8G9770A05111 as described in the following procedure:
- 5.1 With reference to Figure 3 view D, install camera bracket assy P/N 8G9770A05831 by means of n°6 washers P/N NAS1149D0332K and n°6 screws P/N MS27039-1-07.
 - 5.2 With reference to Figure 3 view D, install camera bracket assy P/N 8G0770A05931 by means of n°6 washers P/N NAS1149D0332K and n°6 screws P/N MS27039-1-07.
 - 5.3 With reference to Figure 4 view E, install n°2 utility camera
 - 5.4 P/N RCP-651ER/3,0 on the previously installed camera bracket assemblies by means of n°8 bolts P/N NAS6703-5 and n°8 washers P/N NAS620C10LP.
 - 5.5 With reference to Figure 3 detail D1, install on camera bracket assy P/N 8G9770A05831 the electrical cable support P/N AW001CL002C-X1 and grommet P/N AW002FT103 by means of EA9309.3NA adhesive (C021) and cable-tie P/N A629A01HS.
 - 5.6 With reference to Figure 3 detail D1, install on camera bracket assy P/N 8G9770A05831 the anchor nut right angle P/N AW001TL3A06T and clamp P/N AW001CB03H by means of washer P/N NAS1149D0332J, screw P/N NAS1802-3-9 and EA9309.3NA adhesive (C021).
 - 5.7 With reference to Figure 4, 5 view F and Figure 8 wiring diagram, perform the electrical connection of cable assy P/N 8G9B02B14202 (B2B142) between power supply connector PS18P7 and video camera DS114 connector DS114P1.
 - 5.8 With reference to Figure 4 and Figure 8 wiring diagram, perform the electrical connection of cable assy P/N 8G9B02A15802 (B2A158) between power supply connector PS19P7 and video camera DS113 connector DS113P1.
 - 5.9 In accordance with AMP DM 89-A-97-55-04-00A-720A-A and with reference to Figure 5, install camera fairing assy P/N 8G9770A06131 by means on n°8 washers P/N NAS1149D0332K and n°8 screws P/N MS27039-1-07.
6. In accordance with Annex A, perform the dual cargo hook camera functional test.
7. In accordance with aircraft configuration and AMP DM 89-A-52-43-10-00A-720A-A, re-

install floor panel 221A or 222E.

8. In accordance with aircraft configuration and AMP DM 89-A-25-21-01-00A-720A-A or AMP DM 89-A-25-22-01-00A-720A-A or AMP DM 89-A-25-23-01-00A-720A-A or AMP DM 89-B-25-21-01-00A-720A-A, re-install the passenger cabin seats.
9. In accordance with weight and balance changes, update the Chart A (see Rotorcraft Flight Manual, Part II, section 6).
10. Return the helicopter to a ready to flight configuration and record for compliance with Part II of this Service Bulletin on the helicopter logbook.
11. Gain access to My Communications section on [Leonardo Customer Portal](#) and compile the "Service - Technical Bulletin Application".

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

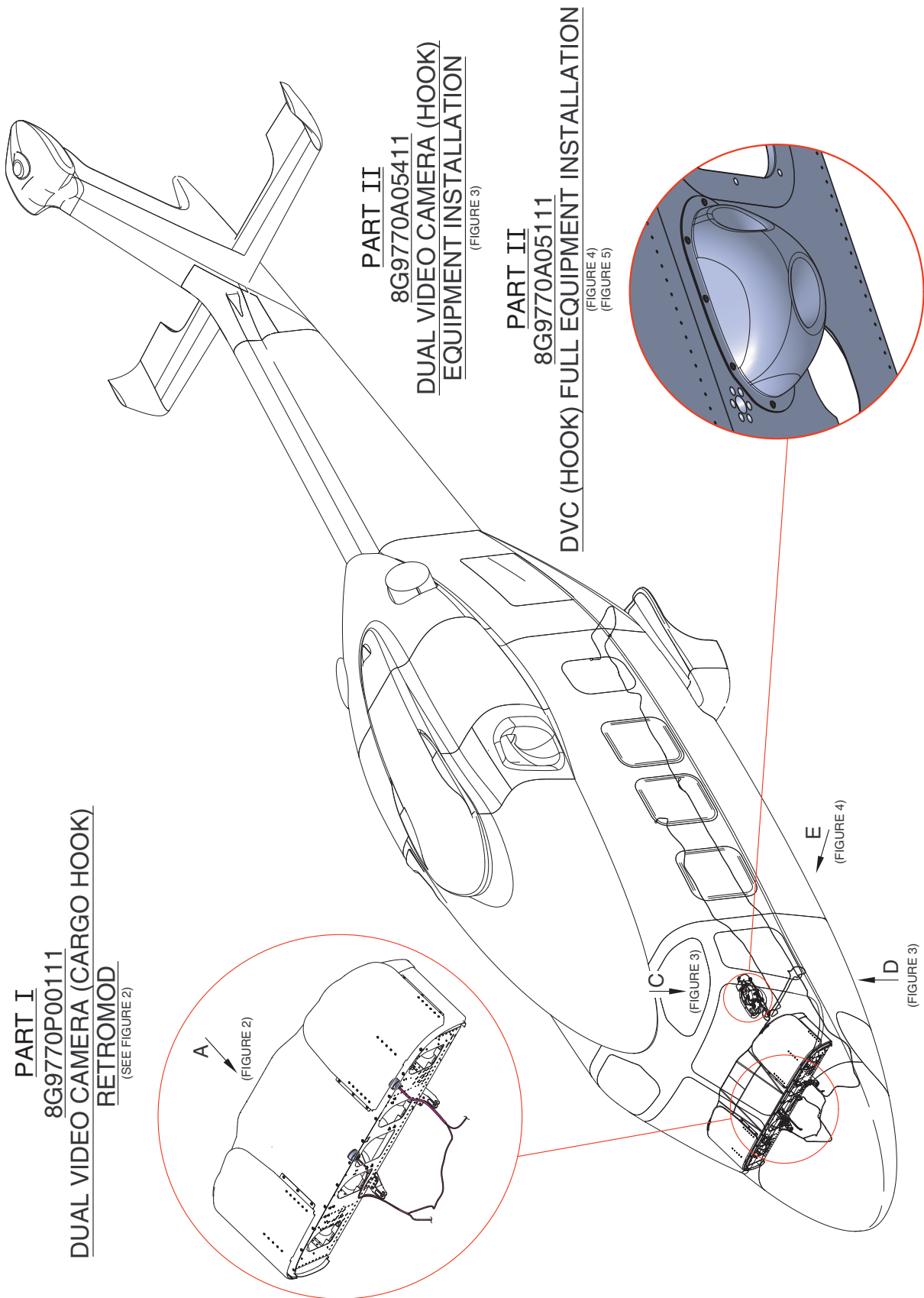


Figure 1

PART I
8G9770P00111
DUAL VIDEO CAMERA (CARGO HOOK)
RETROMOD

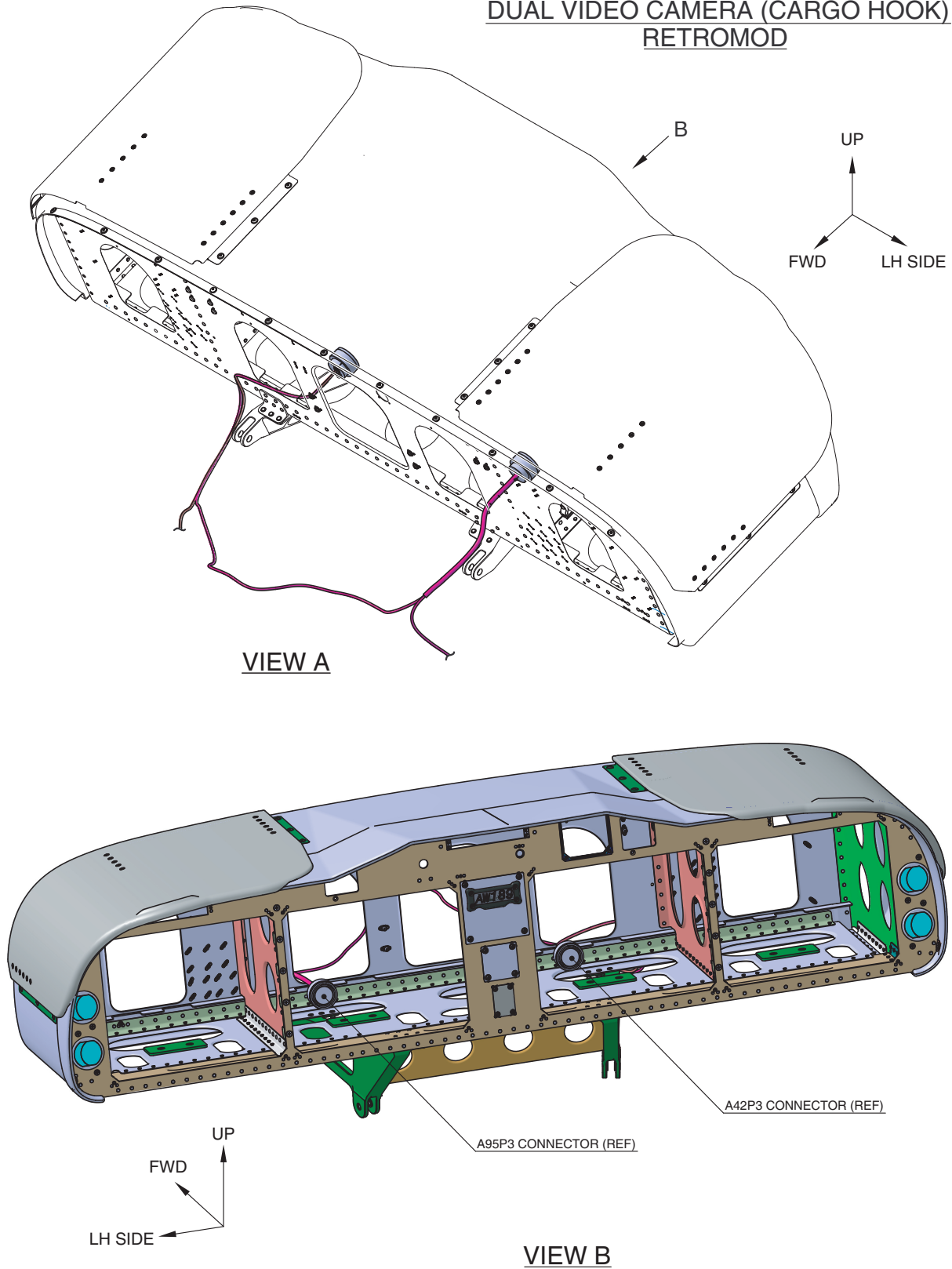
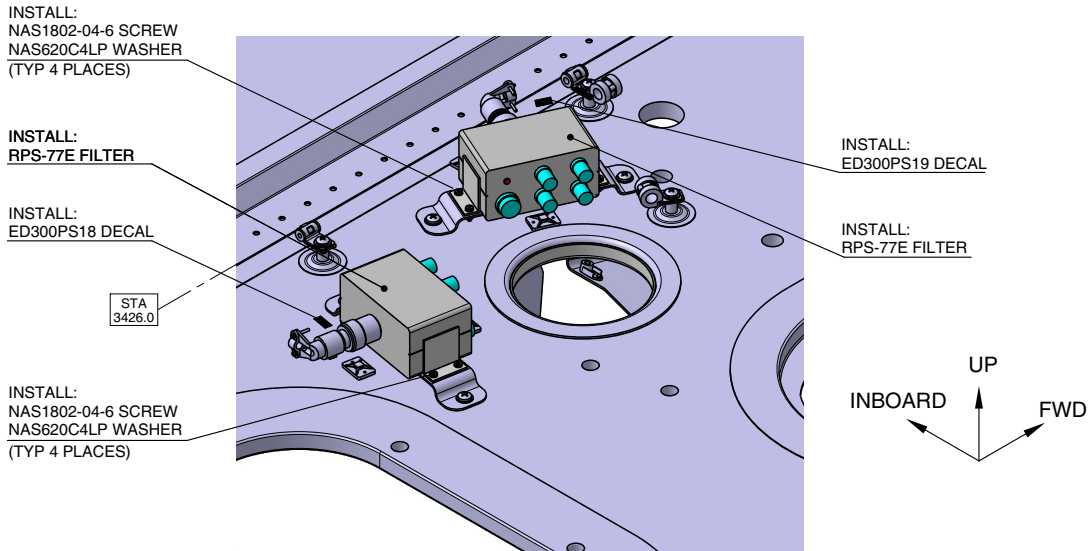


Figure 2

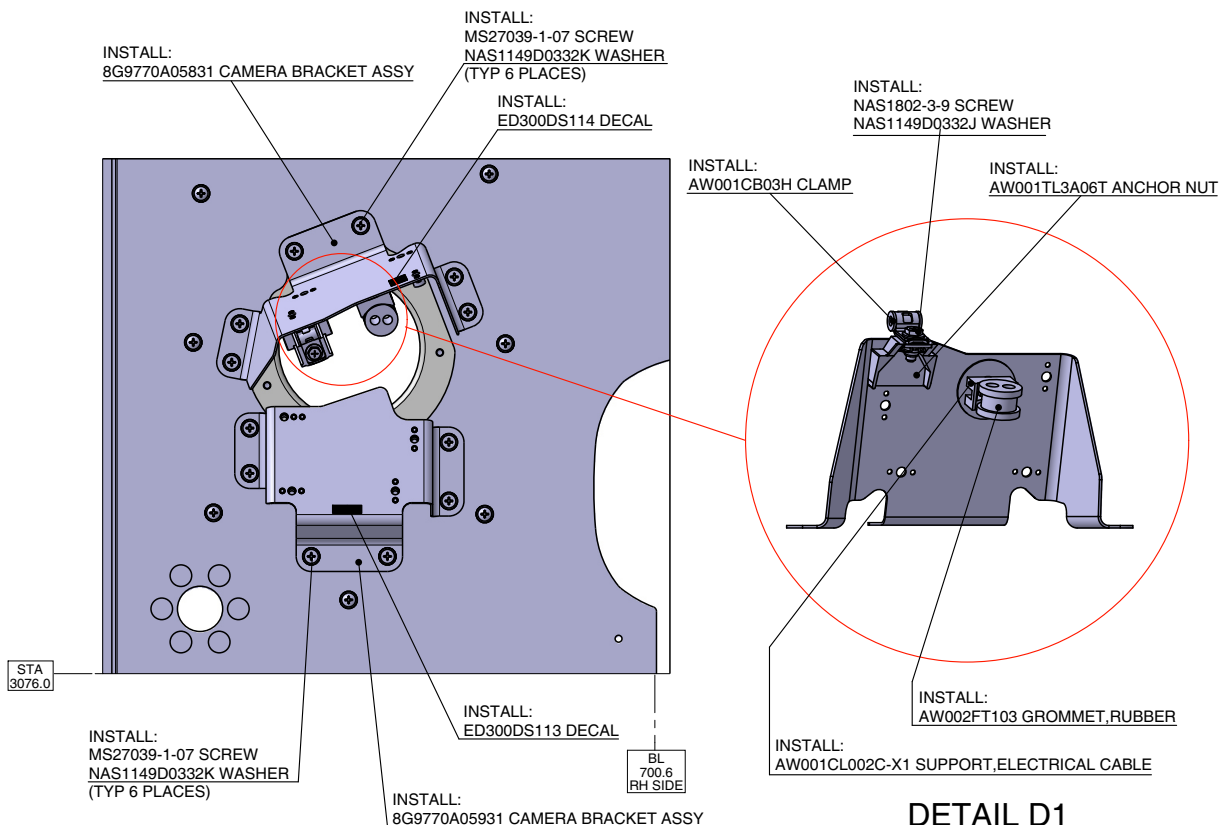
S.B. N°189-095 OPTIONAL
DATE: April 6, 2018
REVISION: A - October 9, 2024

PART II



VIEW C
RH SIDE ISOVIEW

8G9770A05411
DUAL VIDEO CAMERA (HOOK)
EQUIPMENT INSTALLATION



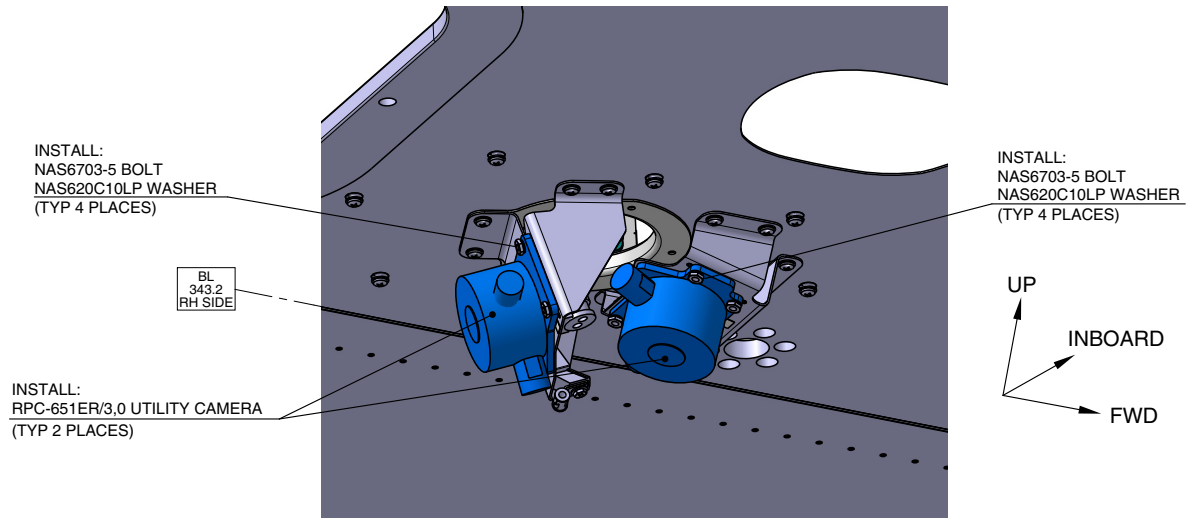
DETAIL D1

VIEW D
(FOR CLARITY SYSTEMS ARE OMITTED)

8G9770A05111
DVC (HOOK) FULL EQUIPMENT INSTALLATION

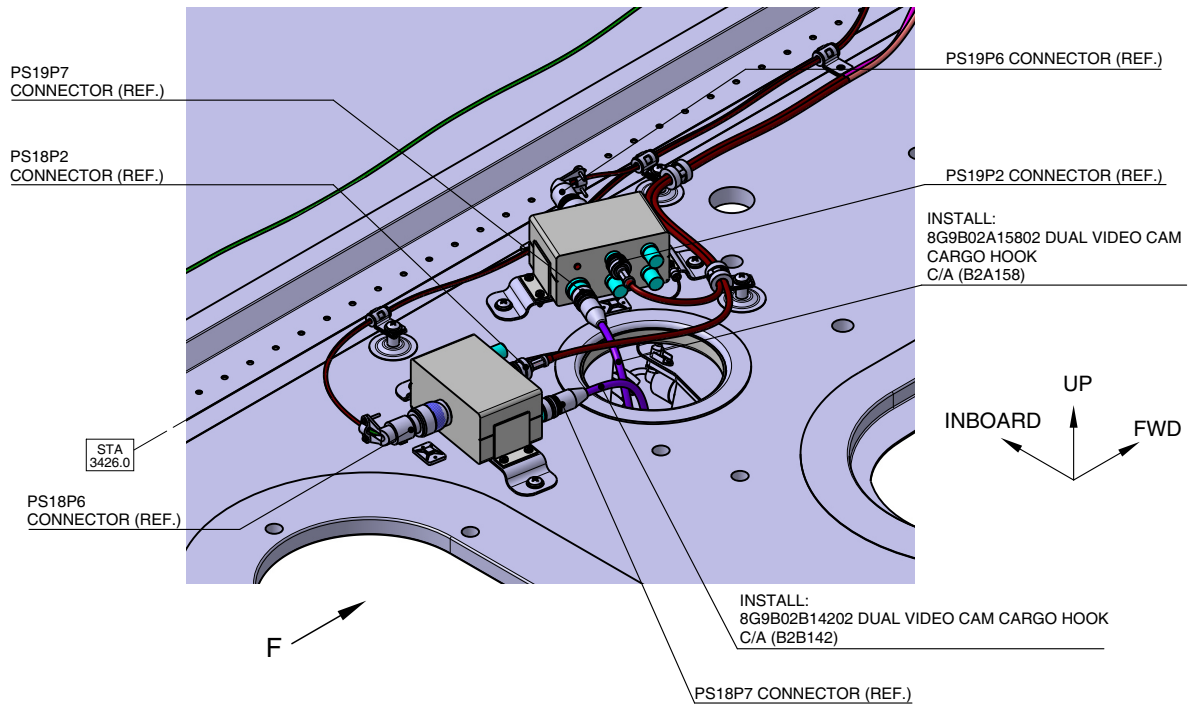
Figure 3

PART II



VIEW E

(8G9770A06131 CAMERA FAIRING OMITTED FOR CLARITY)

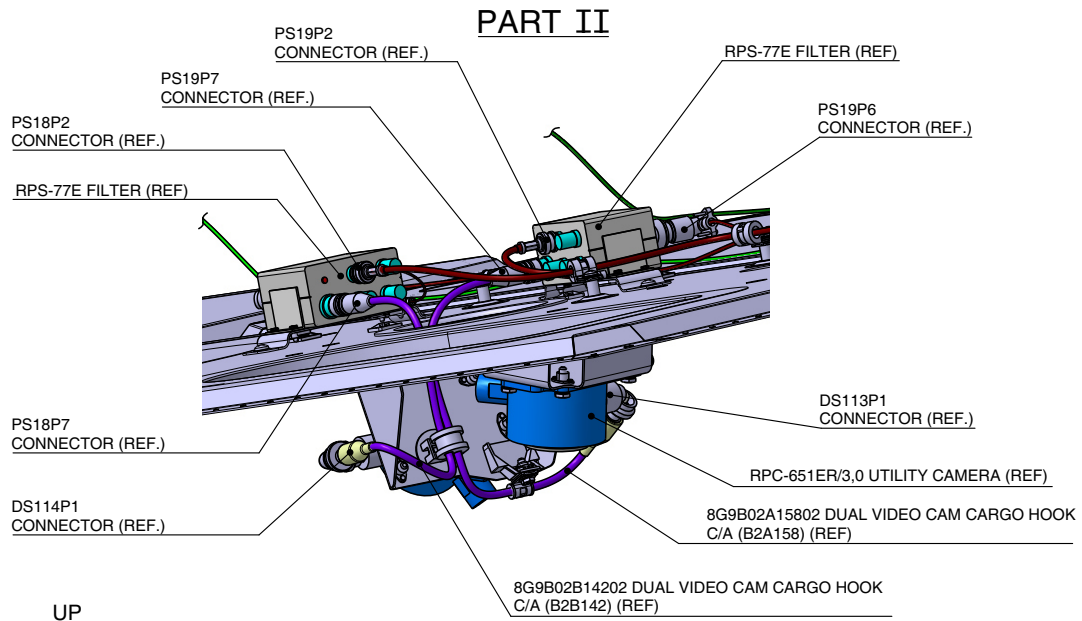


VIEW LOOKING DOWN FLOOR AREA

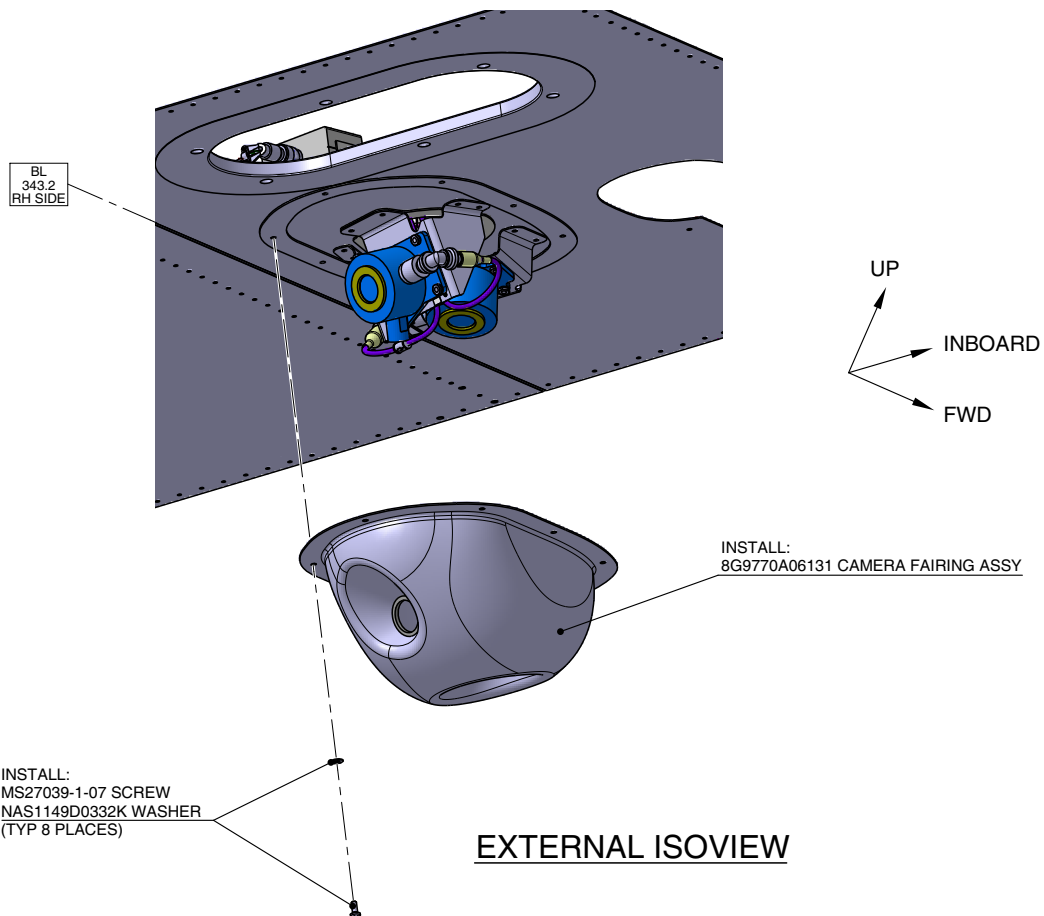
**8G9770A05111
DVC (HOOK) FULL EQUIPMENT INSTALLATION**

Figure 4

S.B. N°189-095 OPTIONAL
DATE: April 6, 2018
REVISION: A - October 9, 2024

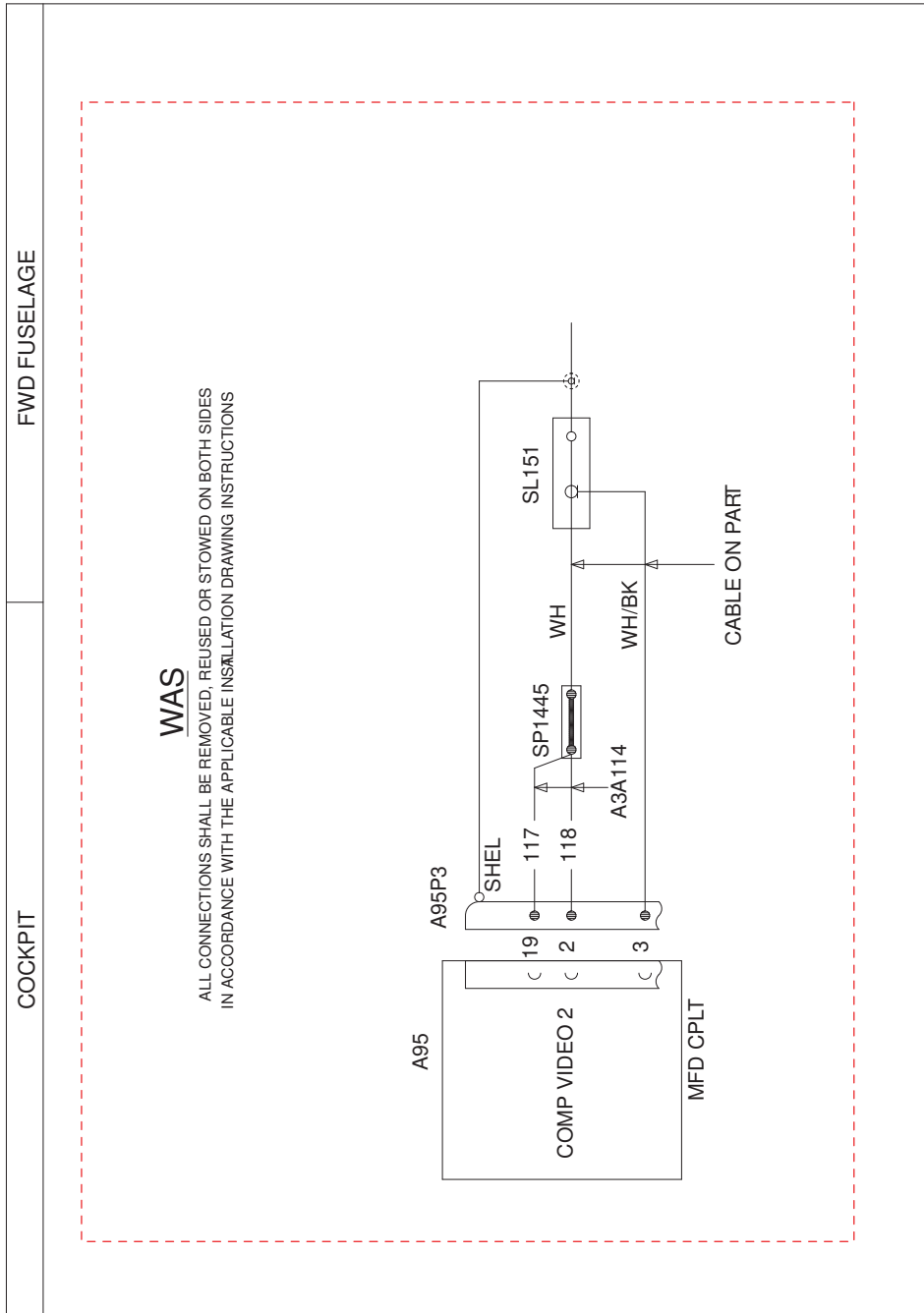


VIEW F
(8G9770A06131 CAMERA FAIRING OMITTED FOR CLARITY)



8G9770A05111
DVC (HOOK) FULL EQUIPMENT INSTALLATION

Figure 5



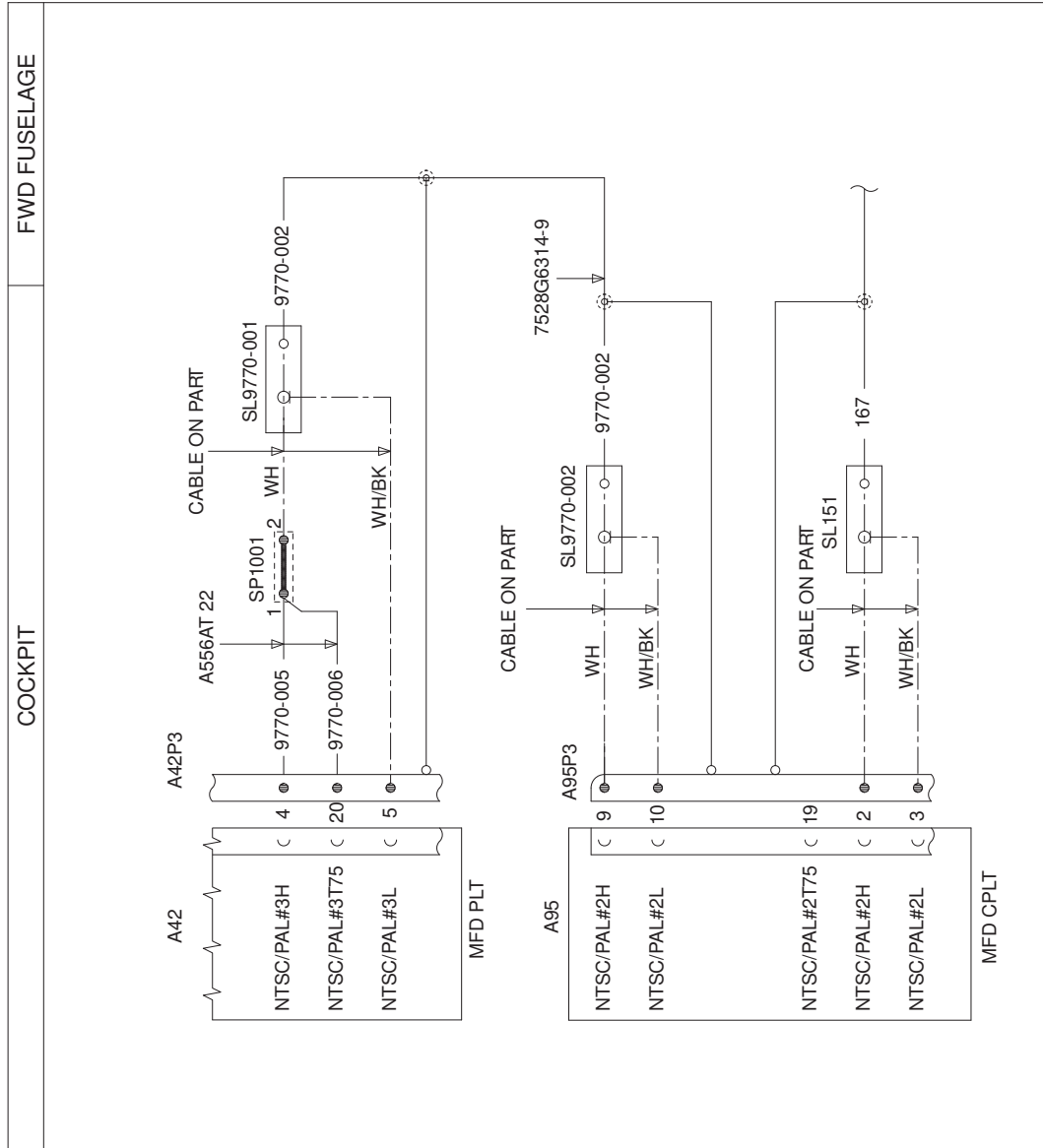
WAS

ALL CONNECTIONS SHALL BE REMOVED, REUSED OR STOWED ON BOTH SIDES
IN ACCORDANCE WITH THE APPLICABLE INSTALLATION DRAWING INSTRUCTIONS

FUNCTIONAL NOTES
ALL CABLES ARE OF TYPEA556AT 22 UNLESS SPECIFIED

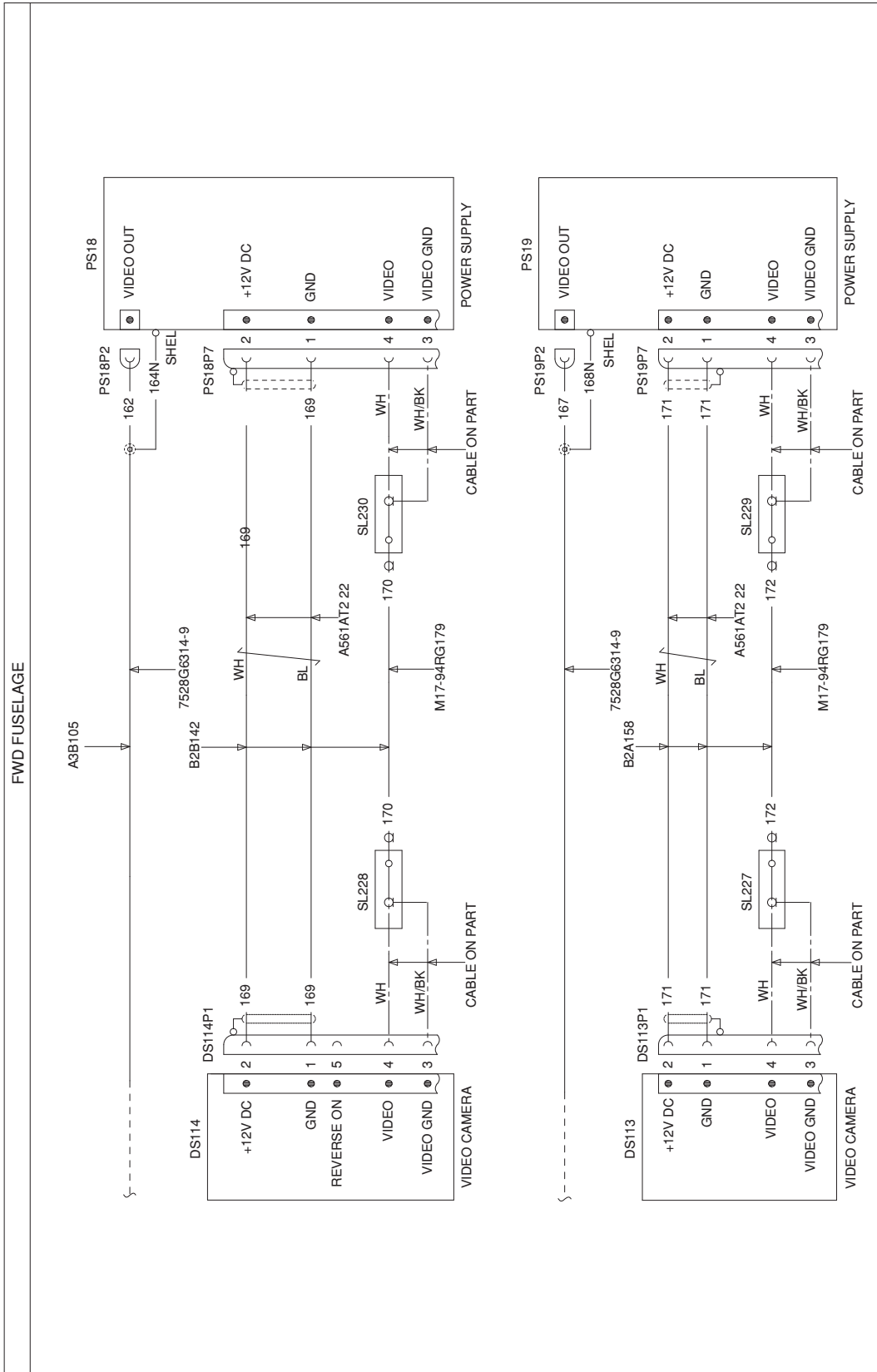
Figure 6

S.B. N°189-095 OPTIONAL
DATE: April 6, 2018
REVISION: A - October 9, 2024



FUNCTIONAL NOTES
ALL CABLES ARE IN LOOM A1A334 UNLESS SPECIFIED
ALL CABLES ARE OF TYPE A556AT 22 UNLESS SPECIFIED

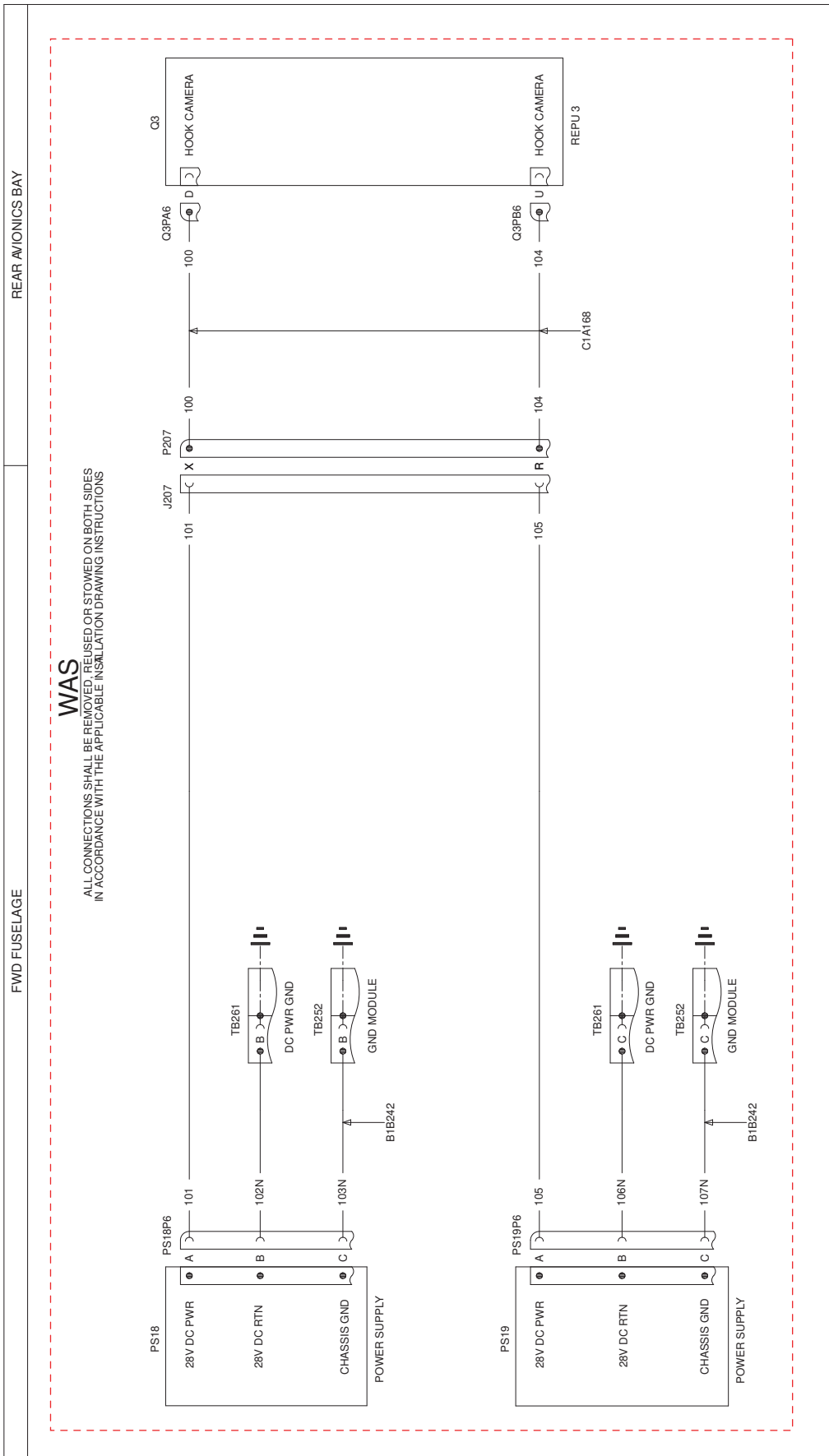
Figure 7



8G9770W00202
DUAL VIDEO CAMERA (CARGO HOOK)
WIRING DIAGRAM

FUNCTIONAL NOTES
ALL CABLES ARE IN LOOM A3A114 UNLESS SPECIFIED
ALL CABLES ARE OF TYPE A556AT 22 UNLESS SPECIFIED
CABLE IDENT: EVERY WIRE NUMBER IS PRECEDED BY THE ATA 100 DESCRIPTION 9770 AND FOLLOWED BY WIRE SIZE AND EMC CODE.

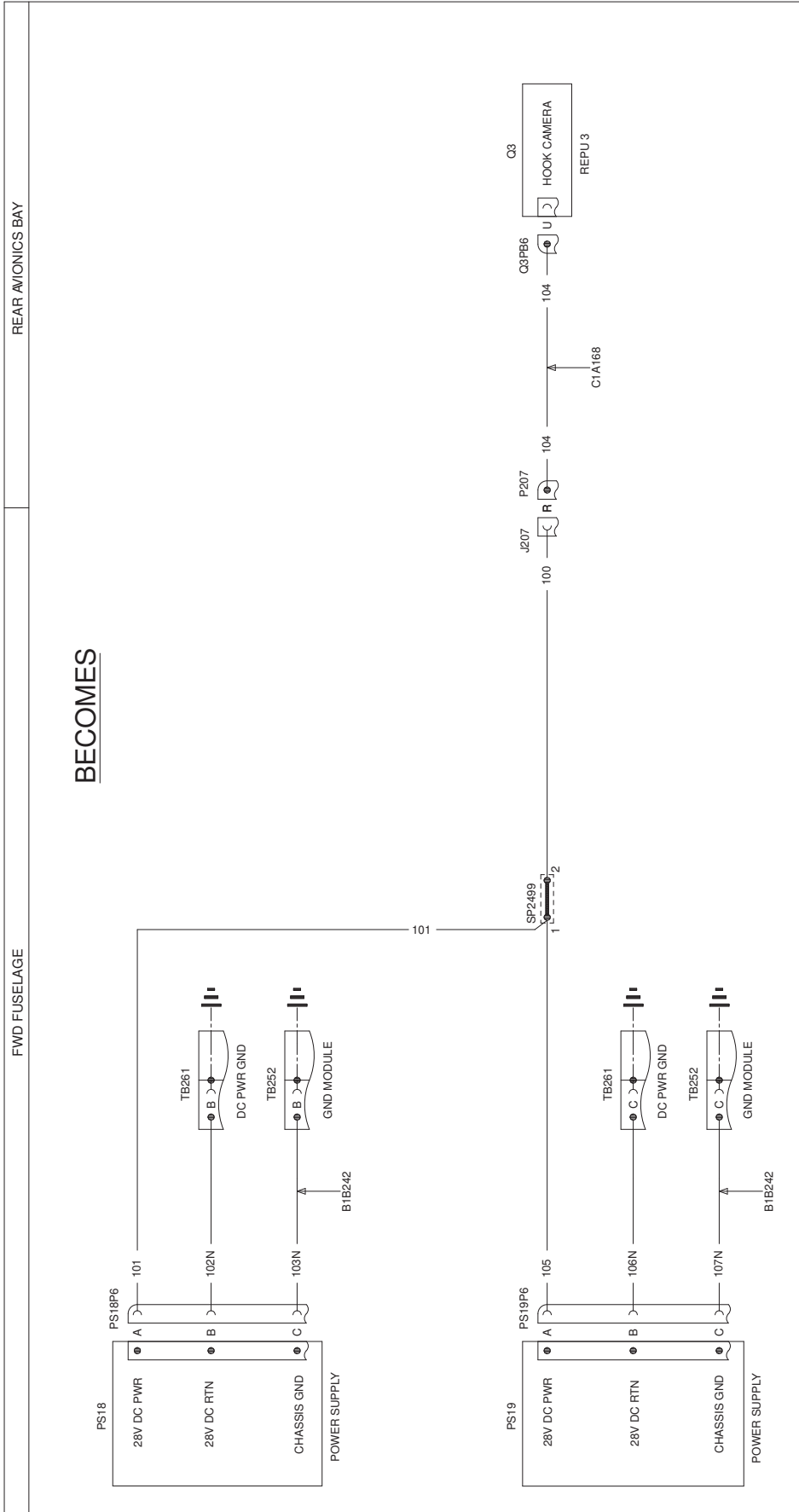
Figure 8



8G9770W00201
WIRING DIAGRAM VIDEO CAMERA (CARGO HOOK)
SHEET 1

FUNCTIONAL NOTES
ALL CABLES ARE IN LOOMB1A238 UNLESS SPECIFIED
ALL CABLES ARE OF TYPEA556AT 22 UNLESS SPECIFIED

Figure 9



8G9770W00201
WIRING DIAGRAM VIDEO CAMERA (CARGO HOOK)
SHEET 1

FUNCTIONAL NOTES
ALL CABLES ARE IN LOOMB1A238 UNLESS SPECIFIED
ALL CABLES ARE OF TYPEA556AT 22 UNLESS SPECIFIED

Figure 10

S.B. N°189-095 OPTIONAL
DATE: April 6, 2018
REVISION: A - October 9, 2024

ANNEX A

DUAL CARGO HOOK CAMERA FUNCTIONAL TEST

1 PRELIMINARY TESTS

1.1 TEST PREREQUISITES

- 1.1.1 Before all the test procedures verify that the External Power Bench is operative and set to the appropriate Voltage (28 VDC);
- 1.1.2 During the test with helicopter, both ENG 1 & 2 selector installed on ENG CNTR PNL called “ENG MODE” are in OFF position;
- 1.1.3 Verify on APU CNTR PNL that the “CRANK” switch is in OFF position & the “SEL MODE” switch is in OFF position.

1.2 ELECTRICAL CIRCUIT BREAKERS CONFIGURATION

- 1.2.1 Select “ON” the electrical generation system by the DC external power and check the following CBs configuration:

Device	Check
E-IOM 1	ON
E-IOM 2	ON
Primary Function Display Pilot	ON
Primary Function Display Copilot	ON
Multifunctional Display Pilot	ON
Multifunctional Display Copilot	ON
HOOK CAM	OFF

1.3 COCKPIT DISPLAY SYSTEM SETTING

Phase	Operations	Check	Pass/Fail
1	Verify that the helicopter is electrically powered off		
2	Connect the WOW switches simulator to the proper connector and set them to GND position.		
3	Electrically power on the helicopter avionics.		
4	Verify that the displays (PFDs and MFDs) are powered.		
5	Move the CCD Pilot cursor to MFD Pilot display.		

Phase	Operations	Check	Pass/Fail
6	On PLT MFD press B1+B9 bezels (see figure A1) for more than 2 seconds	Verify the Maintenance Page is displayed	
7	Press B3 bezel to access to SETTING pages	Verify that SETTING TABLE page is displayed	
8	Press T1 +T8 Bezel keys for more than 2 seconds	Verify that DU enters in EDIT mode. "EDIT MODE" amber message is displayed.	
9	Use the CCD to focus in parameter table on COMPO2 – POSITION parameter and press the CCD SEL button	Verify that the value become modifiable (amber color).	
10	Change the value to VIDx, where "x" is a progressive number that depends on already video channel set, and press the CCD SEL button.		
11	Use the CCD to focus in parameter table on COMPO2 – NAME parameter and press the CCD SEL button	Verify that the value become modifiable (amber color).	
12	Change the name with CARGO CAM(*) and press the CCD SEL button		
13	Use the CCD to focus in parameter table on COMPO2 – FORMAT parameter and press the CCD SEL button		
14	Change the FORMAT in NTSC and press the CCD SEL button		
15	Use the CCD to focus in parameter table on COMPO3 – POSITION parameter and press the CCD SEL button	Verify that the value become modifiable (amber color).	

Phase	Operations	Check	Pass/Fail
16	Change the value to VIDx, where “x” is a progressive number that depends on already video channel set, and press the CCD SEL button.		
17	Use the CCD to focus in parameter table on COMPO3 – NAME parameter and press the CCD SEL button	Verify that the value become modifiable (amber color).	
18	Change the name with HOOK CAM(*) and press the CCD SEL button		
19	Use the CCD to focus in parameter table on COMPO3 – FORMAT parameter and press the CCD SEL button		
20	Change the FORMAT in NTSC and press the CCD SEL button		
21	Press SAVE Bezel key	Verify that the “EDIT MODE” message is replaced by “CONFIRM SAVE” message and “CONFIRM” button is displayed above B5 bezel key.	
22	Press CONFIRM Bezel key (within 5 seconds)	Verify that “SENDING” annunciation is displayed and that EDIT mode is exited and replaced by DISPLAY mode.	
23	Press B9 bezels and CONFIRM to return to Maintenance page	Verify that Maintenance page is displayed	
24	Press B9 bezels to exit Maintenance page		
25	Move the CCD Copilot cursor to MFD Copilot display.		
26	On CPLT MFD press B1+B9 bezels for more than 2 seconds	Verify the Maintenance Page is displayed	
27	Press B3 bezel to access to SETTING pages	Verify that SETTING TABLE page is displayed	

Phase	Operations	Check	Pass/Fail
28	Press T1 +T8 Bezel keys for more than 2 seconds	Verify that DU enters in EDIT mode. “EDIT MODE” amber message is displayed.	
29	Use the CCD to focus in parameter table on COMPO3 – POSITION parameter and press the CCD SEL button	Verify that the value become modifiable (amber color).	
30	Change the value to VIDx, where “x” is a progressive number that depends on already video channel set, and press the CCD SEL button.		
31	Use the CCD to focus in parameter table on COMPO3 – NAME parameter and press the CCD SEL button	Verify that the value become modifiable (amber color).	
32	Change the name with HOOK CAM(*) and press the CCD SEL button		
33	Use the CCD to focus in parameter table on COMPO3 – FORMAT parameter and press the CCD SEL button		
34	Change the FORMAT in NTSC and press the CCD SEL button		
35	Press SAVE Bezel key	Verify that the “EDIT MODE” message is replaced by “CONFIRM SAVE” message and “CONFIRM” button is displayed above B5 bezel key.	
36	Press CONFIRM Bezel key (within 5 seconds)	Verify that “SENDING” annunciation is displayed and that EDIT mode is exited and replaced by DISPLAY mode.	
37	Press B9 bezels and CONFIRM to return to Maintenance page	Verify that Maintenance page is displayed	
38	Press B9 bezels to exit Maintenance page		

(*) The outer CCD knob shall be used to select the character to modify and the modifiable character is underlined, while the inner knob shall be used to change the value of the modifiable character (clock wise to increase value, counter clock wise to decrease value) proposing the following character values: 'A' to 'Z' '0' to '9', ' ' (space).

2 FUNCTIONAL TEST

2.1 BONDING TEST

Phase	OPERATIONS	CHECK
1	Verify that the helicopter is electrically powered off	
2	Disconnect the HC external grounding cable	
3	Disconnect the connectors of the LRU under test (PS18, PS19, DS114, DS 113)	
4	Measure the ohmic value between the LRU (connector or dedicated pad) and the local ground and record the measured value in the following table.	

LRU	LIMIT VALUE (mΩ)
POWER SUPPLY PS18	10
POWER SUPPLY PS19	10
CAMERA DS113	5
CAMERA DS114	5

2.2 INSTALLATION CHECK

- 2.2.1 Power ON the helicopter by using the external power bench (set to 28VDC).
- 2.2.2 Power ON the helicopter by using the external power bench (set to 28VDC).
- 2.2.3 Connect the voltmeter to the positive (+) and negative (-) Pins of the IDENTs connectors.
- 2.2.4 Push the dedicated CB bezel key to select the relative CB status to "ON" on ECDU CB/MISC page and check the value of 28VDC indicated each time.

2.2.5 Once the test finished, select the CB status to “OFF” on ECDU CB/MISC page, disconnect the voltmeter and reconnect the HOOK CAMERAS system connectors.






2.3 POWER SUPPLY CHECK

Phase	Operation / Check	PASS / FAIL
1	Check that PS18P6 and PS19P6 connectors are disconnected.	
2	Check with a Voltmeter 0V presence between Pin A (+) & B (-) on PS18P6.	
3	Check with a Voltmeter 0V presence between Pin A (+) & B (-) on PS19P6.	
4	Push ON CB/HOOK CAM	
5	Check with a Voltmeter 28V presence between Pin A (+) & B (-) on PS18P6.	
6	Check with a Voltmeter 28V presence between Pin A (+) & B (-) on PS19P6.	
7	Pull OFF CB/HOOK CAM	
8	Check that pin B on PS18P6 connector is GND	
9	Check that pin C on PS18P6 connector is GND	
10	Check that pin B on PS19P6 connector is GND	
11	Check that pin C on PS19P6 connector is GND	
12	Reconnect PS18P6 and PS19P6 connectors.	



2.4 VIDEO CAMERA POWER SUPPLY CHECK

Phase	Operation / Check	PASS / FAIL
1	Connect PS18P7 and PS19P7 connectors.	
2	Check that DS114P1 and DS113P1 connectors are disconnected.	
3	Check with a Voltmeter 0V presence between Pin 2 (+) & 1 (-) on DS114P1.	
4	Check with a Voltmeter 0V presence between Pin 2 (+) & 1 (-) on DS113P1.	
5	Push ON CB/HOOK CAM	
6	Check with a Voltmeter 12V presence between Pin 2 (+) & 1 (-) on DS113P1	
7	Check with a Voltmeter 12V presence between Pin 2 (+) & 1 (-) on DS114P1	
8	Pull OFF CB/HOOK CAM	

2.5 HOOK CAMERA FUNCTIONAL TEST

Phase	Operations	Check	PASS / FAIL
1	Push ON CB/HOOK CAM		
2	On PLT MFD push the "VIDEO" button and select the Cargo camera video input.	Check that on PLT MFD the Cargo Camera is correctly displayed.	
3	On PLT MFD push the "SET" button.	Check that "BRT" and "CRST" regulation bezel appears.	
4	On PLT MFD select: 	Check that on PLT MFD is possible to optimize the Brightness of the Video displayed.	
5	On PLT MFD select: 	Check that on PLT MFD is possible to optimize the Contrast of the Video displayed.	
6	On PLT MFD push the "VIDEO" button and select the Hook camera video input.	Check that on PLT MFD the Hook Camera is correctly displayed.	
7	On PLT MFD push the "SET" button.	Check that "BRT" and "CRST" regulation bezel appears.	
8	On PLT MFD select: 	Check that on PLT MFD is possible to optimize the Brightness of the Video displayed.	
9	On PLT MFD select: 	Check that on PLT MFD is possible to optimize the Contrast of the Video displayed.	
10	On CPLT MFD push the "VIDEO" button and select the Hook camera video input.	Check that on CPLT MFD the Hook Camera is correctly displayed.	
11	On CPLT MFD push the "SET" button.	Check that "BRT" and "CRST" regulation bezel appears.	
12	On CPLT MFD select: 	Check that on CPLT MFD is possible to optimize the Brightness of the Video displayed.	

ANNEX A

13	On CPLT MFD select:  CRST 	Check that on CPLT MFD is possible to optimize the Contrast of the Video displayed.	
14	Pull OFF CB CB/HOOK CAM		

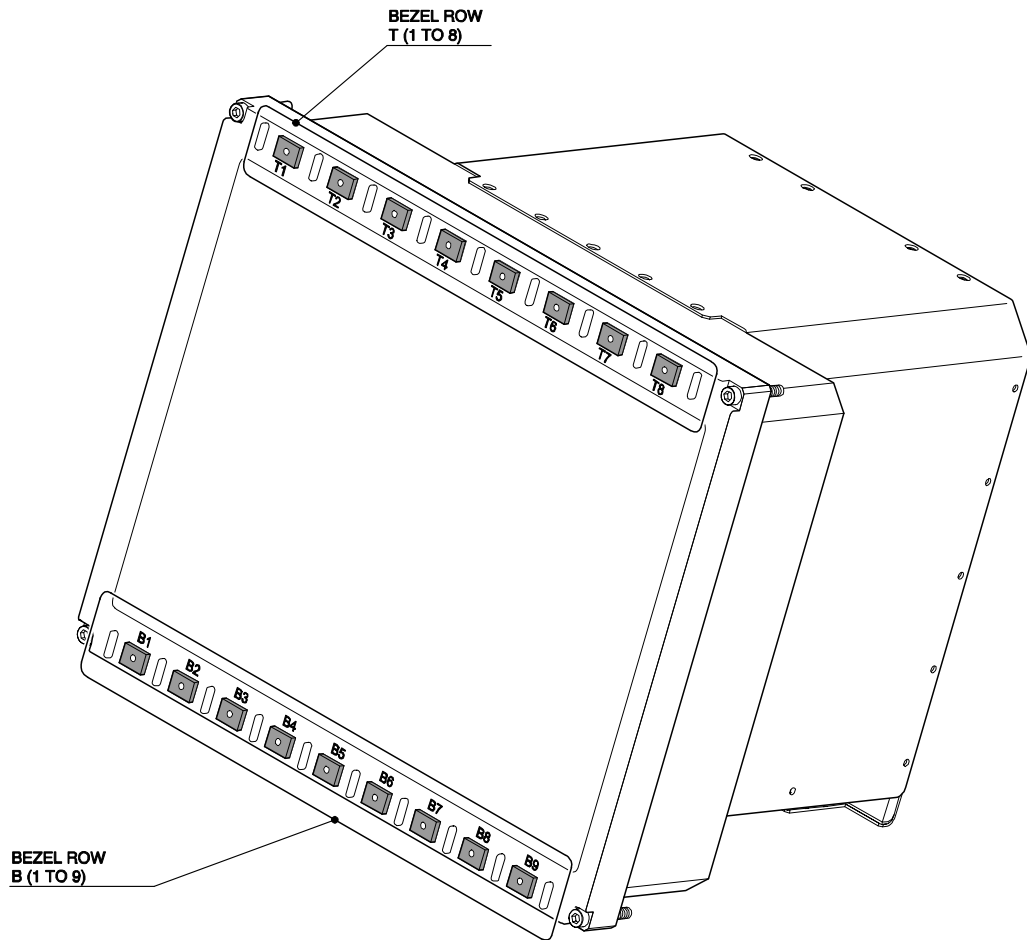


Figure A1

Please send to the following address:		SERVICE BULLETIN COMPLIANCE FORM		Date:
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		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.				