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AgustaWestland Products

SERVICE BULLETIN

N° 139-575

DATE: April 26, 2021

REV. : /

TITLE

ATA 23 – COMMUNICATION CUSTOMIZATION RETROMOD

REVISION LOG

First Issue

1. PLANNING INFORMATION

A. EFFECTIVITY

AW139 helicopter S/N 31154.

B. COMPLIANCE

At Customer's option.

C. CONCURRENT REQUIREMENTS

This Service Bulletin must be applied in conjunction with Service Bulletin 139-578.

D. REASON

This Service Bulletin is issued in order to provide the necessary instructions on how to perform the communication customization retro mod P/N 3G2310P03511.

E. DESCRIPTION

This Service Bulletin provides all necessary instructions to perform the modification on the ICS Pax and Radio Motorola electrical wirings to allow the connection of the Radio Motorola.

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 sixteen (16) MMH are deemed necessary.

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

H. WEIGHT AND BALANCE

WEIGHT (kg)	0.352	
	ARM (mm)	**MOMENT (kgmm)**
LONGITUDINAL BALANCE	3066	1079.23
LATERAL BALANCE	236	83.07

I. REFERENCES

1) PUBLICATIONS

Following Data Modules refer to AMP:

DATA MODULE		DESCRIPTION	PART
DM01	39-A-00-20-00-00A-120A-A	Helicopter on ground for a safe maintenance	-
DM02	39-A-06-41-00-00A-010A-A	Access doors and panels - General data	-
DM03	39-G-23-53-00-00A-320A-K	Cabin audio system - Operation test (8Pax configuration)	-
DM04	39-B-23-53-00-00A-320A-K	Cabin audio system - Operation test (16Pax configuration)	-
DM05	39-B-31-61-00-00A-320A-A	Central display system - Operation test	-
DM06	39-A-23-10-00-00A-320B-A	Speech communications - VHF COM tuning - Operation test	-
DM07	39-A-20-10-08-00A-622A-A	Electrical contacts - Crimp	-
DM08	39-A-20-10-18-00A-691A-A	Electrical wires and cables - Marking	-

2) ACRONYMS & ABBREVIATIONS

AMDI	Aircraft Material Data Information
AMP	Aircraft Maintenance Publication
DM	Data Module
DOA	Design Organization Approval
EASA	European Aviation Safety Agency
ICS	Intercommunication System
ITEP	Illustrated Tool and Equipment Publication
LH	Leonardo Helicopters Division
MMH	Maintenance-Man-Hours

P/N	Part Number
S/N	Serial Number
VHF	Very High Frequency

3) ANNEX

N.A.

J. PUBLICATIONS AFFECTED

N.A.

K. SOFTWARE ACCOMPLISHMENT SUMMARY

N.A.

2. MATERIAL INFORMATION

A. REQUIRED MATERIALS

1) PARTS

#	P/N	ALTERNATIVE P/N	DESCRIPTION	Q.TY	LVL	NOTE	LOG P/N
1	**3G2310P03511**		**COMMUNICATION CUSTOMIZATION RETROMOD**	**REF**	**.**		
2	**3G9B02B75201**		**COMMUNICATION CUSTOMIZATION C/A**	**REF**	**..**	**(1)**	
3	A556A-T22		Wire	2 m	…		139-575L1
4	A523A-A02		Electrical contact	6	…		139-575L1
5	A596A04		Junction in-line	1	…		139-575L1
6	AW001YD03		Diode	1	…		139-575L1
7	M39029/57-354		Electrical contact	5	…		139-575L1
8	M81824/1-1		Splice	5	…		139-575L1
9	RLR20C3600GR		Resistor	1	…		139-575L1

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

2) CONSUMABLES

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

#	SPEC./LHD CODE NUMBER	DESCRIPTION	Q.TY	NOTE	PART
10	A236A01AB	Edging	1.2 m	(2)	-
11	EN6049-006-05-5	Tubing braided	AR	(2)	-

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

3) LOGISTIC MATRIX

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

LOGISTIC P/N	Q.TY (PER HELO)	NOTE	PART
139-575L1	1	-	-

NOTE

(1) The C/A is obtained reworking the existing wires on the helicopter and adding new ones.

(2) Item to be procured as local supply.

B. SPECIAL TOOLS

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

C. INDUSTRY SUPPORT INFORMATION

Customization.

3. ACCOMPLISHMENT INSTRUCTIONS

GENERAL NOTES

a) Place an identification tag on all components that are re-usable, including the attaching hardware that has been removed to gain access to the modification area and adequately protect them until their later re-use.

b) Protect properly all the equipment not removed from area affected by the modification during installation procedure.

c) Shape the cables in order to prevent interference with the structure and the other existing installations, using where necessary suitable lacing cords.

1. In accordance with AMP DM 39-A-00-20-00-00A-120A-A prepare the helicopter on ground for a safe maintenance. Disconnect the battery, all electrical power sources and/or the external power supply.

NOTE

Reusable wires of existing C/A can be cut to the appropriate length in accordance with the figures.

NOTE

Lay down and install new wires following existing route unless otherwise indicated.

2. In accordance with AMP DM 39-A-06-41-00-00A-010A-A and with reference to Figures 1 thru Figure 7, gain access to the affected area and perform the communication customization retro mod P/N 3G2310P03511 and consequently the communication customization C/A P/N 3G9B02B75201 as described in the following procedure:

   2.1 In accordance with AMP DM 39-A-20-10-18-00A-691A-A and with reference to Figures 6 and 7 Wiring Diagram, remark the existing wires R10314A22-S and R1031A22-S of C/A B2B197 respectively as R116B22-S-ME and R120A22-S-ME by means of marker sleeves.

   2.2 In accordance with AMP DM 39-A-20-10-18-00A-691A-A and with reference to Figure 6 Wiring Diagram, remark the existing wires R10311A22-S(BL) and R10311A22-S(WH) of C/A B2B197 respectively as R115B22-S-ME(BL) and R110B22-S-ME(WH) by means of marker sleeves.

   2.3 With reference to Figure 2 and Figure 6 Wiring Diagram “WAS”, disconnect from

the pins 82, 83 and 86 of connector A8-6P3 the existing wires marked as R1571A22-S(WH), R1571A22-S(BL) and R1575A22-S.

2.4 In accordance with AMP DM 39-A-20-10-18-00A-691A-A and with reference to Figure 6 Wiring Diagram, remark the disconnected wires R1571A22-S(WH), R1571A22-S(BL) and R1575A22-S respectively as R114B22-S-ME(WH), R114B22-S-ME(BL) and R117A22-S-ME by means of marker sleeves.

2.5 With reference to Figure 2 and Figure 6 Wiring Diagram “BECOMES”, cut n°4 wires P/N A556A-T22 of adequate length and lay down n°1 wire between connector A8-6P3 and splice SP0056-ME, n°1 wire between connector A8-6P3 and splice SP0057-ME, n°1 wire between connector A8-6P3 and splice SP0058-ME and n°1 wire between splice SP0058-ME and diode CR003-ME.

2.6 In accordance with AMP DM 39-A-20-10-08-00A-622A-A and with reference to Figure 6 Wiring Diagram “BECOMES”, crimp n°1 electrical contact P/N M39029/57-354 on each wire (A8-6P3 side) by means of proper crimping tool.

2.7 In accordance with AMP DM 39-A-20-10-18-00A-691A-A and with reference to Figure 6 Wiring Diagram “BECOMES”, mark n° 4 wires respectively as R114A22-S-ME, R115A22-S-ME, R116A22-S-ME and R116C22-S-ME by means of marker sleeves.

2.8 With reference to Figure 2 and Figure 6 Wiring Diagram “BECOMES”, perform electrical connection of wires marked as R114A22-S-ME, R115A22-S-ME and R116A22-S-ME to the pins 82, 83 and 86 of the connector A8-6P3.

2.9 With reference to Figure 2 and Figure 6 Wiring Diagram “BECOMES”, perform electrical connection between wires marked as R114A22-S-ME, R114B22-S-ME(WH) and R115B22-S-ME(WH) by means of splice SP0056-ME P/N M81824/1-1.

2.10 With reference to Figure 2 and Figure 6 Wiring Diagram “BECOMES”, perform electrical connection between wires marked as R115A22-S-ME, R114B22-S-ME(BL) and R115B22-S-ME(BL) by means of splice SP0057-ME P/N M81824/1-1.

2.11 With reference to Figure 2 and Figure 6 Wiring Diagram “BECOMES”, perform electrical connection between wires marked as R116A22-S-ME, R116B22-S-ME and R116C22-S-ME by means of splice SP0058-ME P/N M81824/1-1.

2.12 In accordance with AMP DM 39-A-20-10-08-00A-622A-A and with reference to Figure 2 and Figure 6 Wiring Diagram “BECOMES”, crimp n°1 electrical contact P/N A523A-A02 on the wire R116C22-S-ME (CR003-ME side) by means of proper crimping tool and perform electrical connection to the diode CR003-ME P/N AW001YD03.

2.13 With reference to Figure 2 and Figure 6 Wiring Diagram “BECOMES”, cut n°1 wire P/N A556A-T22 of adequate length and lay down between diode CR003-ME and junction in-line TB011ME.

2.14 In accordance with AMP DM 39-A-20-10-18-00A-691A-A and with reference to Figure 6 Wiring Diagram “BECOMES”, mark the wire as R116D22-S-ME by means of marker sleeves.

2.15 In accordance with AMP DM 39-A-20-10-08-00A-622A-A and with reference to Figure 2 and Figure 6 Wiring Diagram “BECOMES”, crimp n°2 electrical contacts P/N A523A-A02 on the wire R116D22-S-ME (n°1 CR003-ME side and n°1 TB011ME side) by means of proper crimping tool.

2.16 With reference to Figure 2 and Figure 6 wiring diagram “BECOMES, perform electrical connection of wire marked as R116D22-S-ME to the junction in-line TB011ME P/N A596A04 and to the diode CR003-ME P/N AW001YD03.

2.17 In accordance with AMP DM 39-A-20-10-08-00A-622A-A and with reference to Figure 2 and Figure 6 Wiring Diagram “BECOMES”, crimp n°1 electrical contact P/N A523A-A02 on the wire R117A22-S-ME (TB011ME side) by means of proper crimping tool and perform electrical connection to the junction in-line TB011ME P/N A596A04.

2.18 In accordance with AMP DM 39-A-20-10-08-00A-622A-A and with reference to Figure 2 and Figure 6 Wiring Diagram “BECOMES”, crimp n°1 electrical contact P/N A523A-A02 on each cables on part (TB011ME side) of resistor R003-ME P/N RLR20C3600GR by means of proper crimping tool and perform electrical connection to the junction in-line TB011ME P/N A596A04.

2.19 In accordance with AMP DM 39-A-20-10-18-00A-691A-A and with reference to Figure 7 Wiring Diagram, remark the existing wires R10312A22-S(WH) and R10312A22-S(BL) of C/A B2B750 respectively as R119B22-S-ME(WH) and R119B22-S-ME(BL) by means of marker sleeves.

2.20 With reference to Figure 2 and Figure 7 Wiring Diagram “WAS”, disconnect from the pins 77 and 78 of connector A8-6P1 respectively the existing wires marked as R1572A22-S(WH) and R1572A22-S(BL).

2.21 In accordance with AMP DM 39-A-20-10-08-00A-622A-A and with reference to Figure 7 Wiring Diagram, remark the disconnected wires R1572A22-S(WH) and R1572A22-S(BL) respectively as R118B22-S-ME(WH) and R118B22-S-ME(BL) by means of marker sleeves.

2.22 With reference to Figure 2 and Figure 7 Wiring Diagram “BECOMES”, cut n°2 wires P/N A556A-T22 of adequate length and lay down n°1 wire between connector A8-6P1 and splice SP0059-ME and n°1 wire between connector A8-6P1 and splice

SP0060-ME.

2.23 In accordance with AMP DM 39-A-20-10-08-00A-622A-A and with reference to Figure 7 Wiring Diagram “BECOMES”, crimp n°1 electrical contact P/N M39029/57-354 on each wire (A8-6P1 side) by means of proper crimping tool.

2.24 In accordance with AMP DM 39-A-20-10-18-00A-691A-A and with reference to Figure 7 Wiring Diagram “BECOMES”, mark n° 2 wires respectively as R118A22-S-ME and R119A22-S-ME by means of marker sleeves.

2.25 With reference to Figure 2 and Figure 7 Wiring Diagram “BECOMES”, perform electrical connection of wires marked as R118A22-S-ME and R119A22-S-ME to the pins 77 and 78 of the connector A8-6P1.

2.26 With reference to Figure 2 and Figure 7 Wiring Diagram “BECOMES”, perform electrical connection between wires marked as R118A22-S-ME, R118B22-S-ME(WH) and R119B22-S-ME(WH) by means of splice SP0059-ME P/N M81824/1-1.

2.27 With reference to Figure 2 and Figure 7 Wiring Diagram “BECOMES”, perform electrical connection between wires marked as R119A22-S-ME, R118B22-S-ME(BL) and R119B22-S-ME(BL) by means of splice SP0060-ME P/N M81824/1-1.

2.28 In accordance with AMP DM 39-A-20-10-18-00A-691A-A and with reference to Figures 1 thru 7, mark the cable assembly so obtained as B2B752 by means of marker sleeves.

NOTE

Use the edging P/N A236A01AB on edges which are liable to cause damage to cable assemblies or where abrasion may occur.

NOTE

Install the tubing braided P/N EN6049-006-05-5 where protection against chafing and prevention of contact with structure may occur, but the tubing protection is not substitute for good routing practice.

2.29 With reference to Figures 1 thru 5, secure the wires of C/A B2B752 laid down in the previously steps by means of existing hardware.

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

3. In accordance with AMP DM 39-G-23-53-00-00A-320A-K (8Pax configuration) or with AMP DM 39-B-23-53-00-00A-320A-K (16Pax configuration) perform the ICS operational test.

4. In accordance with AMP DM 39-B-31-61-00-00A-320A-A (central display system) and DM 39-A-23-10-00-00A-320B-A (speech communications- VHF COM tuning) perform the operational check.
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 this Service Bulletin on the helicopter logbook.
7. Send the attached compliance form to the following mail box:

   engineering.support.lhd@leonardocompany.com

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

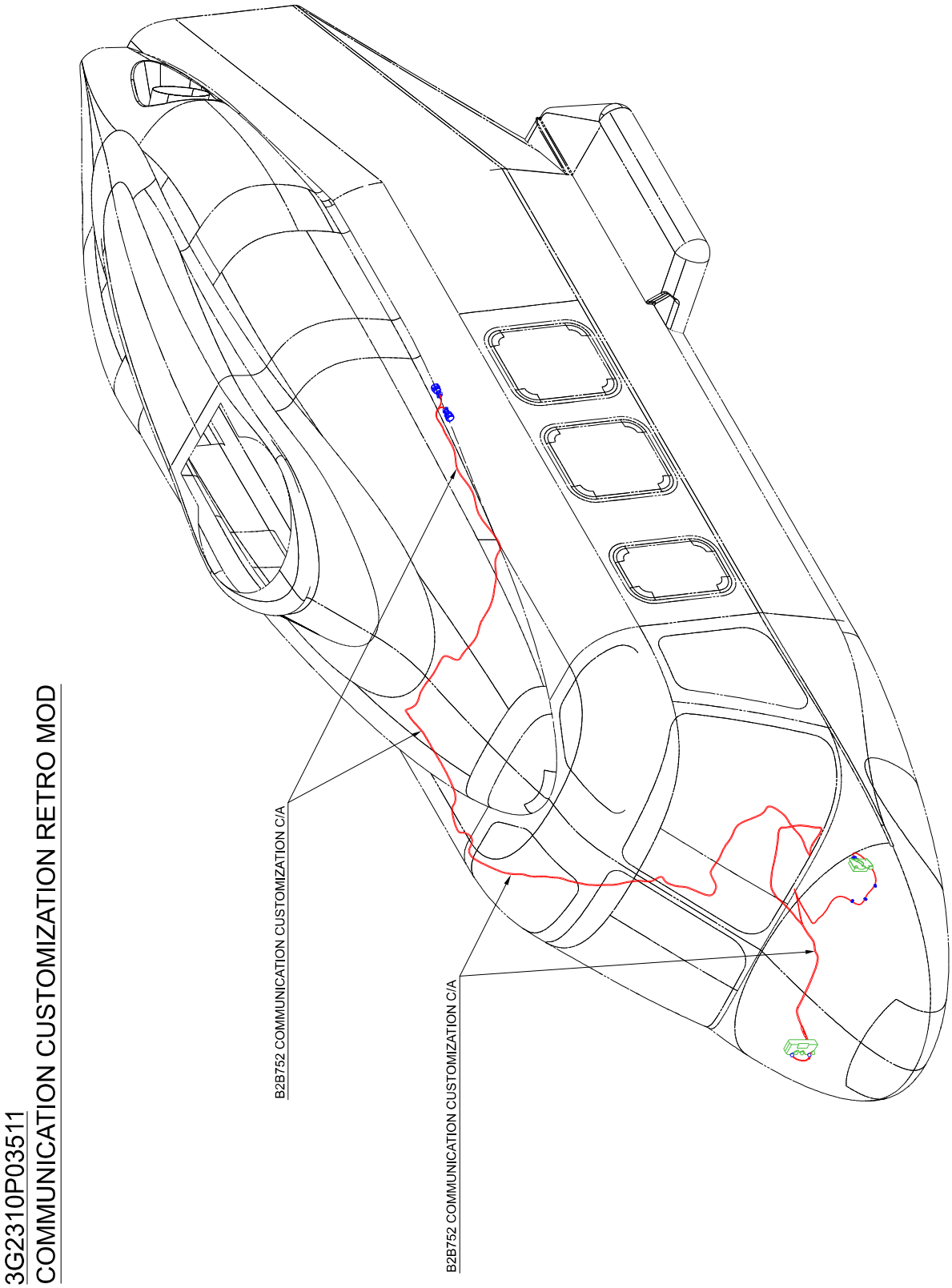
3G2310P03511
COMMUNICATION CUSTOMIZATION RETRO MOD
B2B752 COMMUNICATION CUSTOMIZATION C/A
B2B752 COMMUNICATION CUSTOMIZATION C/A

Figure 1

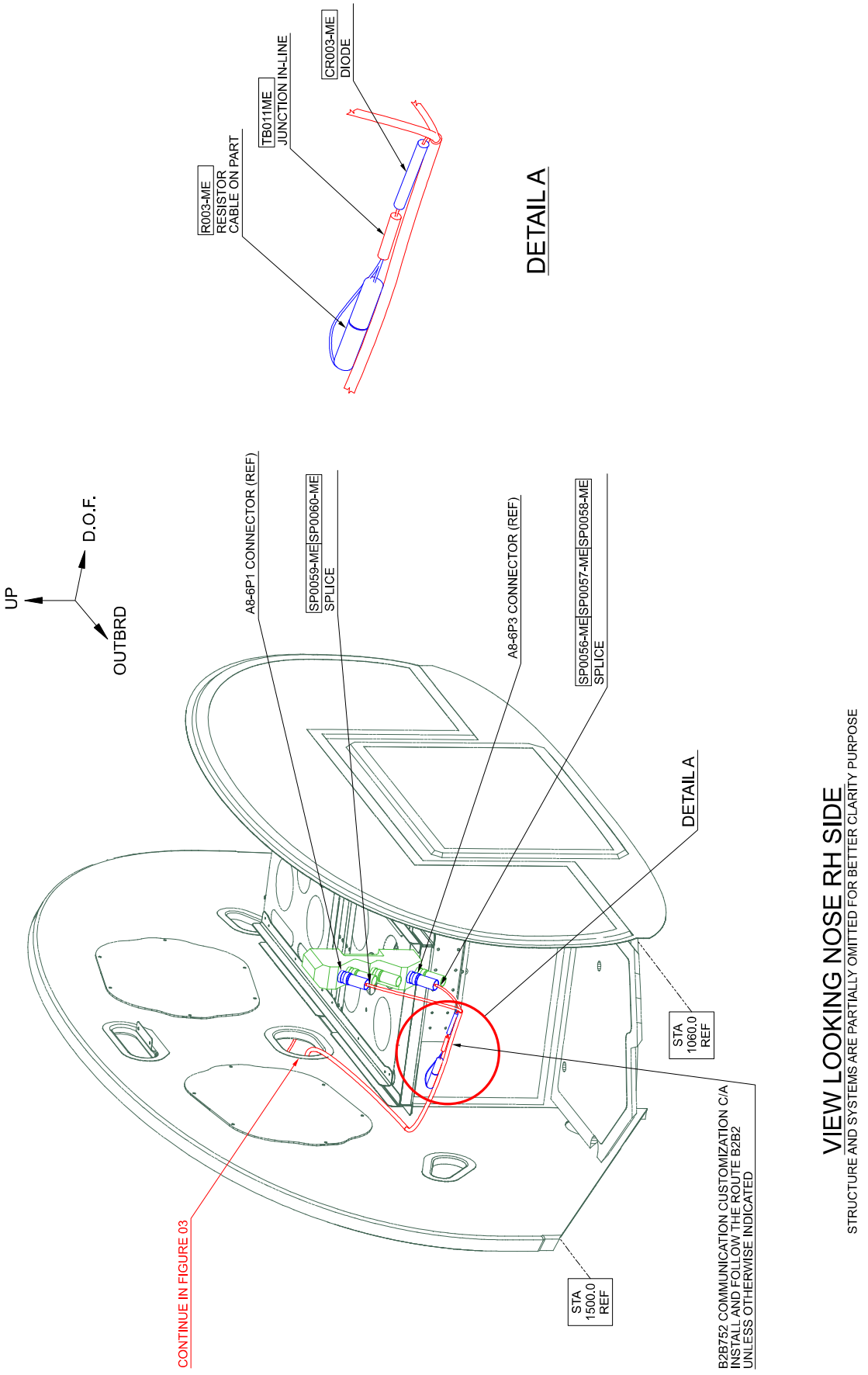
R003-ME
RESISTOR
CABLE ON PART
TB011ME
JUNCTION IN-LINE
CR003-ME
DIODE
DETAIL A
UP
D.O.F.
OUTBRD
A8-6P1 CONNECTOR (REF)
SP0059-ME SP0060-ME
SPLICE
A8-6P3 CONNECTOR (REF)
SP0056-ME SP0057-ME SP0058-ME
SPLICE
DETAIL A
STA
1060.0
REF
CONTINUE IN FIGURE 03
STA
1500.0
REF
B2B752 COMMUNICATION CUSTOMIZATION C/A
INSTALL AND FOLLOW THE ROUTE B2B2
UNLESS OTHERWISE INDICATED
VIEW LOOKING NOSE RH SIDE
STRUCTURE AND SYSTEMS ARE PARTIALLY OMITTED FOR BETTER CLARITY PURPOSE

Figure 2

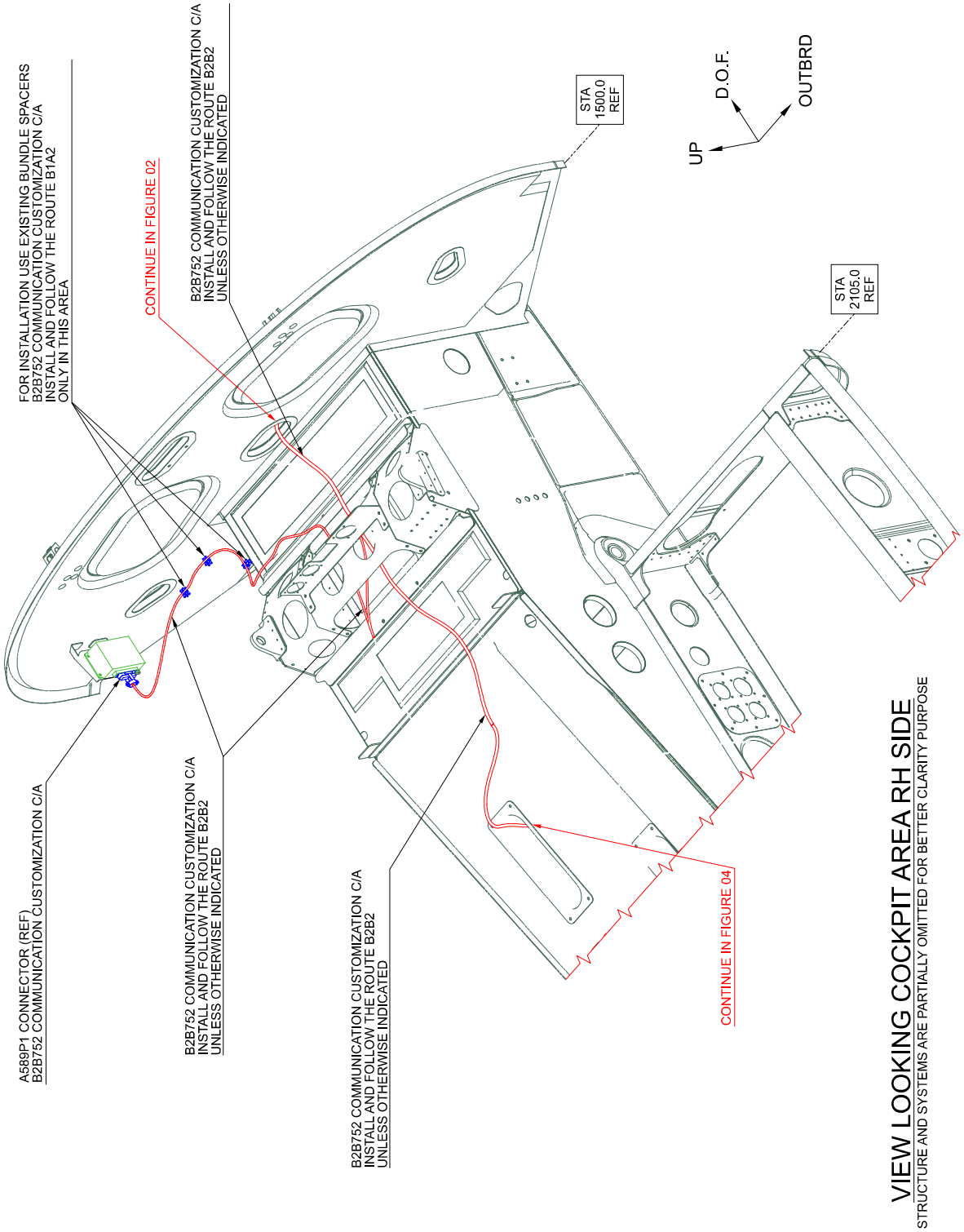
FOR INSTALLATION USE EXISTING BUNDLE SPACERS
B2B752 COMMUNICATION CUSTOMIZATION C/A
INSTALL AND FOLLOW THE ROUTE B1A2
ONLY IN THIS AREA
CONTINUE IN FIGURE 02
B2B752 COMMUNICATION CUSTOMIZATION C/A
INSTALL AND FOLLOW THE ROUTE B2B2
UNLESS OTHERWISE INDICATED
STA
1500.0
REF
UP
D.O.F.
OUTBRD
STA
2105.0
REF
A589P1 CONNECTOR (REF)
B2B752 COMMUNICATION CUSTOMIZATION C/A
B2B752 COMMUNICATION CUSTOMIZATION C/A
INSTALL AND FOLLOW THE ROUTE B2B2
UNLESS OTHERWISE INDICATED
B2B752 COMMUNICATION CUSTOMIZATION C/A
INSTALL AND FOLLOW THE ROUTE B2B2
UNLESS OTHERWISE INDICATED
CONTINUE IN FIGURE 04
VIEW LOOKING COCKPIT AREA RH SIDE
STRUCTURE AND SYSTEMS ARE PARTIALLY OMITTED FOR BETTER CLARITY PURPOSE

Figure 3

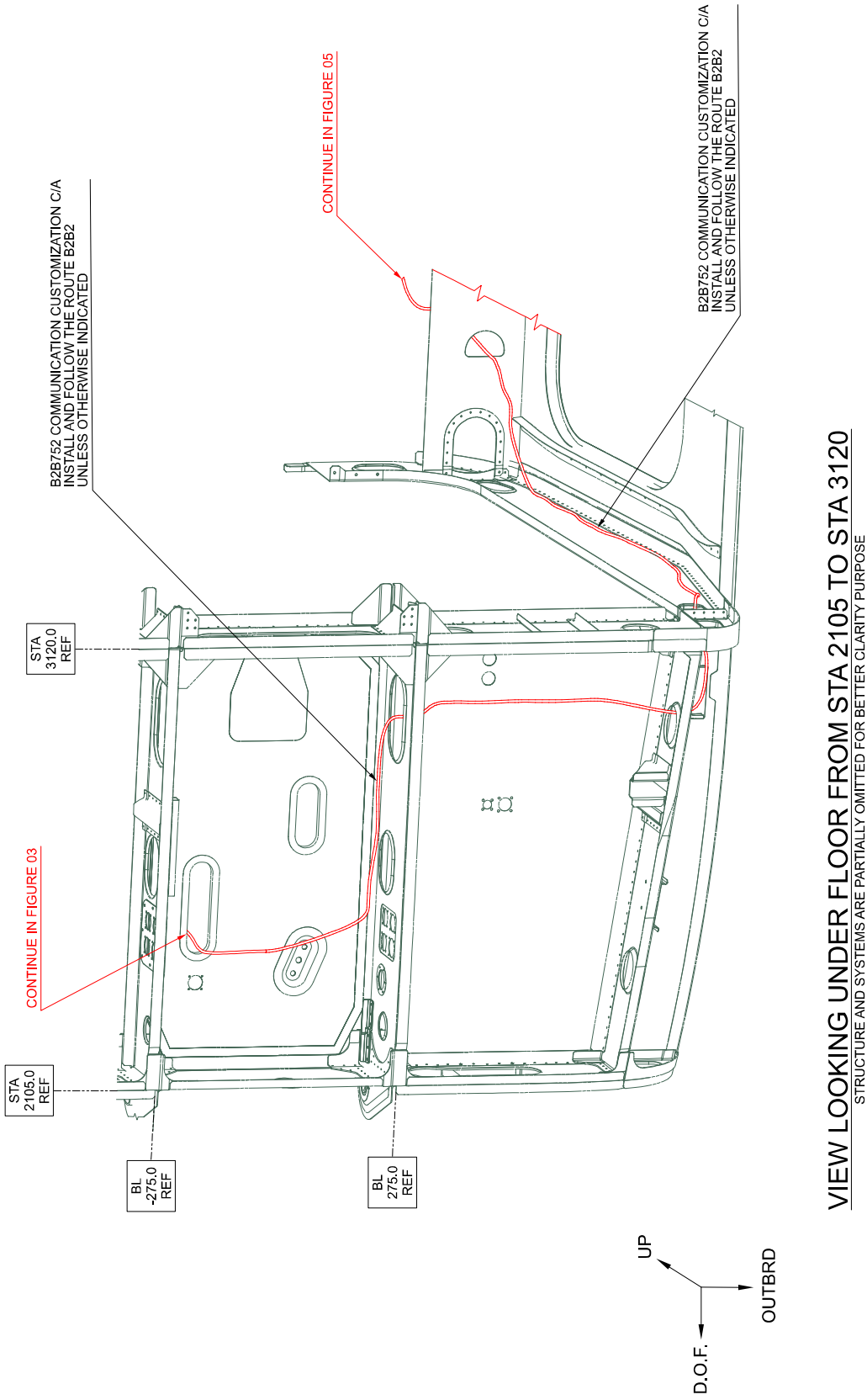
VIEW LOOKING UNDER FLOOR FROM STA 2105 TO STA 3120
STRUCTURE AND SYSTEMS ARE PARTIALLY OMITTED FOR BETTER CLARITY PURPOSE
B2B752 COMMUNICATION CUSTOMIZATION C/A
INSTALL AND FOLLOW THE ROUTE B2B2
UNLESS OTHERWISE INDICATED
B2B752 COMMUNICATION CUSTOMIZATION C/A
INSTALL AND FOLLOW THE ROUTE B2B2
UNLESS OTHERWISE INDICATED
CONTINUE IN FIGURE 05
CONTINUE IN FIGURE 03
STA 3120.0 REF
STA 2105.0 REF
BL -275.0 REF
BL 275.0 REF
UP
OUTBRD
D.O.F.

Figure 4

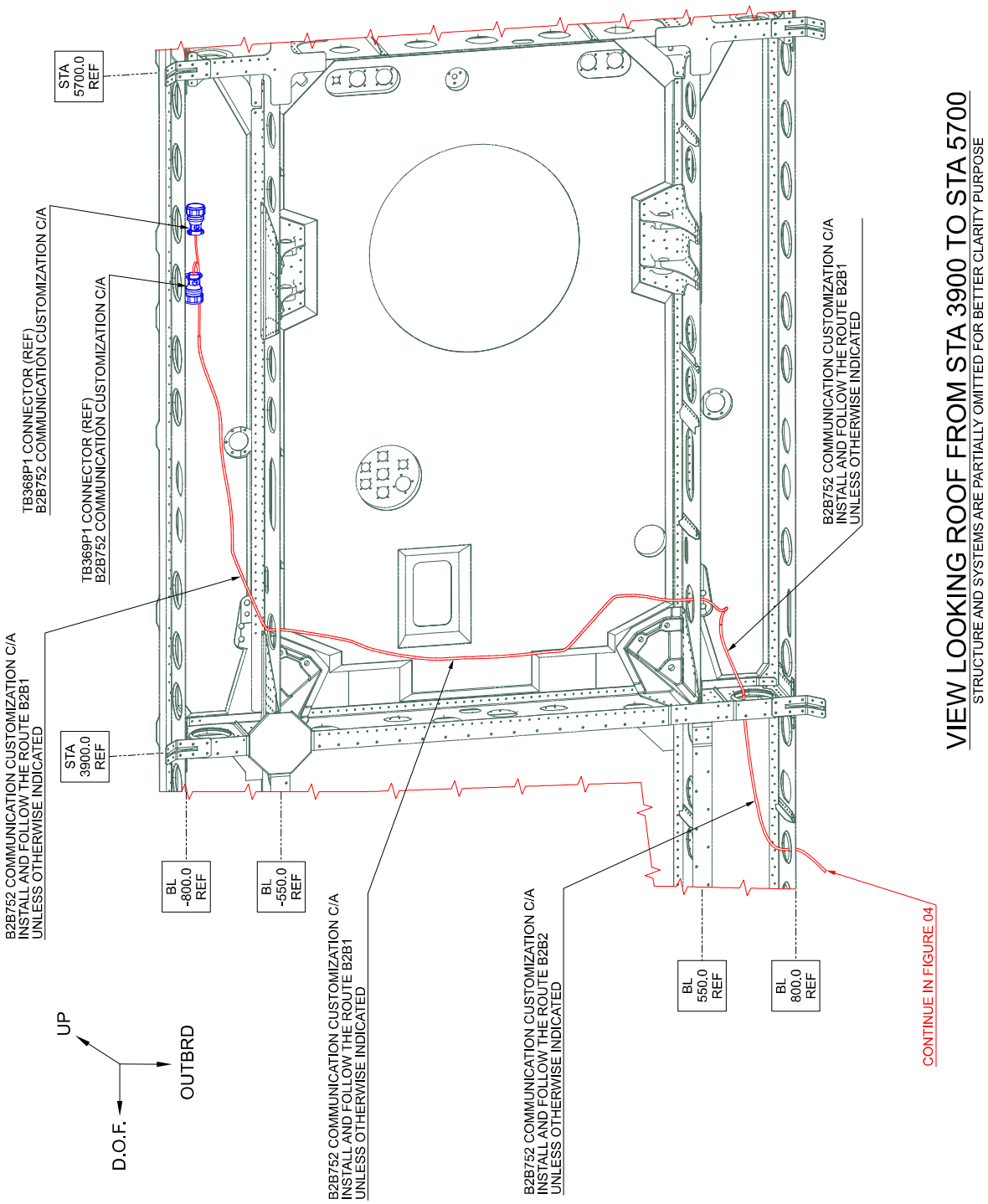
VIEW LOOKING ROOF FROM STA 3900 TO STA 5700
STRUCTURE AND SYSTEMS ARE PARTIALLY OMITTED FOR BETTER CLARITY PURPOSE
STA 5700.0 REF
STA 3900.0 REF
TB368P1 CONNECTOR (REF)
B2B752 COMMUNICATION CUSTOMIZATION C/A
TB369P1 CONNECTOR (REF)
B2B752 COMMUNICATION CUSTOMIZATION C/A
B2B752 COMMUNICATION CUSTOMIZATION C/A
INSTALL AND FOLLOW THE ROUTE B2B1
UNLESS OTHERWISE INDICATED
B2B752 COMMUNICATION CUSTOMIZATION C/A
INSTALL AND FOLLOW THE ROUTE B2B1
UNLESS OTHERWISE INDICATED
B2B752 COMMUNICATION CUSTOMIZATION C/A
INSTALL AND FOLLOW THE ROUTE B2B2
UNLESS OTHERWISE INDICATED
BL -800.0 REF
BL -550.0 REF
BL 550.0 REF
BL 800.0 REF
UP
OUTBRD
D.O.F.
CONTINUE IN FIGURE 04

Figure 5

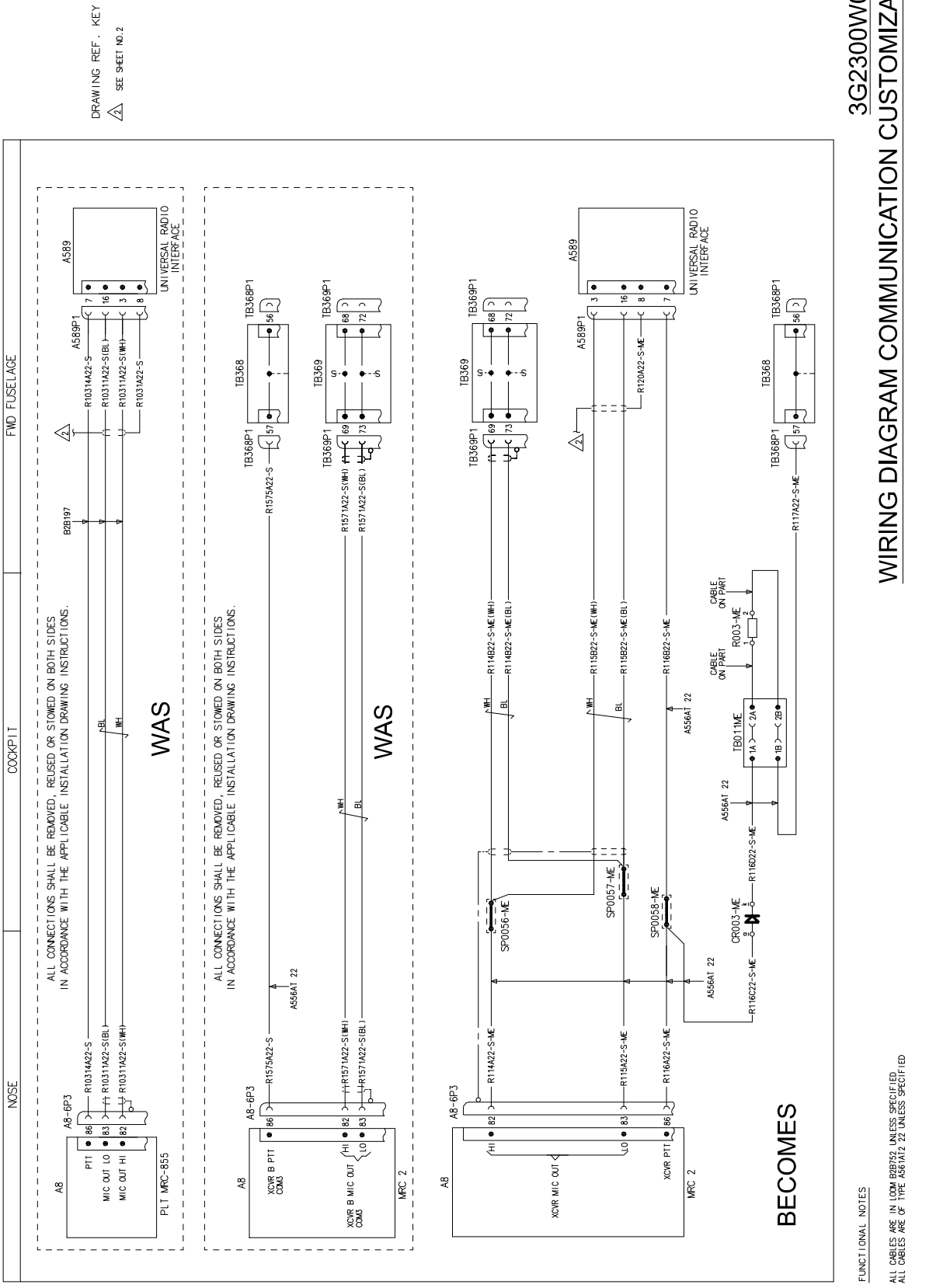
3G2300W01101
WIRING DIAGRAM COMMUNICATION CUSTOMIZATION
SHEET 1
NOSE
COCKPIT
FWD FUSELAGE
DRAWING REF. KEY
2 SEE SHEET NO.2
ALL CONNECTIONS SHALL BE REMOVED, REUSED OR STOWED ON BOTH SIDES IN ACCORDANCE WITH THE APPLICABLE INSTALLATION DRAWING INSTRUCTIONS.
WAS
BECOMES
A8
A8-6P3
PTT
MIC OUT LO
MIC OUT HI
PLT MRC-855
B2B197
A589
A589P1
UNIVERSAL RADIO INTERFACE
R10314A22-S
R10311A22-S(BL)
R10311A22-S(WH)
R1031A22-S
TB368
TB368P1
TB369
TB369P1
R1575A22-S
R1571A22-S(WH)
R1571A22-S(BL)
A556AT 22
XCVR B PTT COM3
XCVR B MIC OUT COM3
MRC 2
R114B22-S-ME(WH)
R114B22-S-ME(BL)
R115B22-S-ME(WH)
R115B22-S-ME(BL)
R116B22-S-ME
R120A22-S-ME
R117A22-S-ME
R114A22-S-ME
R115A22-S-ME
R116A22-S-ME
SP0056-ME
SP0057-ME
SP0058-ME
CR003-ME
R116D22-S-ME
TB011ME
R003-ME
CABLE ON PART
XCVR MIC OUT
XCVR PTT
FUNCTIONAL NOTES
ALL CABLES ARE IN LOOM B2B352 UNLESS SPECIFIED
ALL CABLES ARE OF TYPE AS61AT2 22 UNLESS SPECIFIED

Figure 6

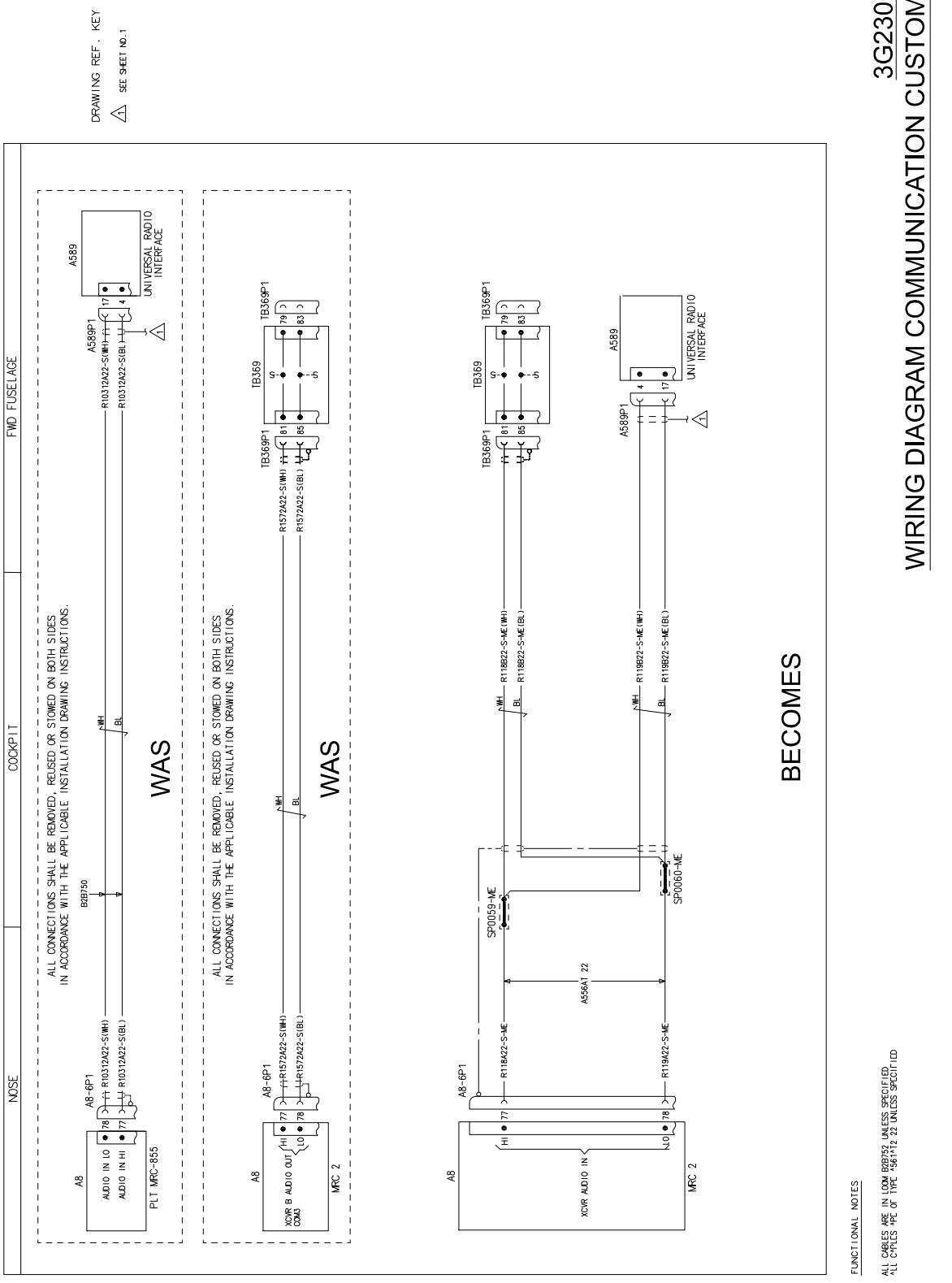
3G2300W01101
WIRING DIAGRAM COMMUNICATION CUSTOMIZATION
SHEET 2
NOSE
COCKPIT
FWD FUSELAGE
DRAWING REF. KEY
SEE SHEET NO.1
ALL CONNECTIONS SHALL BE REMOVED, REUSED OR STOWED ON BOTH SIDES IN ACCORDANCE WITH THE APPLICABLE INSTALLATION DRAWING INSTRUCTIONS.
WAS
A8
A8-6P1
B2B750
AUDIO IN LO
AUDIO IN HI
PLT MRC-855
R10312A22-S(WH)
R10312A22-S(BL)
A589
A589P1
UNIVERSAL RADIO INTERFACE
ALL CONNECTIONS SHALL BE REMOVED, REUSED OR STOWED ON BOTH SIDES IN ACCORDANCE WITH THE APPLICABLE INSTALLATION DRAWING INSTRUCTIONS.
WAS
TB369
TB369P1
R1572A22-S(WH)
R1572A22-S(BL)
XCVR B AUDIO OUT
COM3
MRC 2
BECOMES
SP0059-ME
SP0060-ME
R118B22-S-ME(WH)
R118B22-S-ME(BL)
R119B22-S-ME(WH)
R119B22-S-ME(BL)
R118A22-S-ME
R119A22-S-ME
A556A1 22
XCVR AUDIO IN
FUNCTIONAL NOTES
ALL CABLES ARE IN LOOM B2B752 UNLESS SPECIFIED.
ALL CABLES ARE OF TYPE M81741/2 22 UNLESS SPECIFIED

Figure 7

LEONARDO
HELICOPTERS

AgustaWestland Products

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.