Leonardo S.p.A.
Via Giovanni Agusta, 520
21017 Cascina Costa di Samarate (VA) Italy
Tel.: +39 0331 229111 - Fax: +39 0331 229605/222595

AgustaWestland Products

SERVICE BULLETIN

N° 139-669

DATE: May 31, 2022

REV. : /

TITLE

ATA 23 - SATCOM FLIGHTCELL DZMX ELECTRICAL VARIANT INSTALLATION

REVISION LOG

First Issue

1. PLANNING INFORMATION

A. EFFECTIVITY

AW139 helicopter S/N 31872.

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 SATCOM Flightcell DZMX electrical variant P/N 3G4390P00912 and AUX O/H PNL retromod P/N 3G2460P01023.

E. DESCRIPTION

The SATCOM Flightcell DZMX electrical variant P/N 3G4390P00912 allows the user to transmit engine Start&Stop data through the SATCOM Flightcell DZMX P/N 4G4390F00811.

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 twenty (20) MMH are deemed necessary.

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

H. WEIGHT AND BALANCE

N.A.

I. REFERENCES

1) PUBLICATIONS

Following Data Modules refer to AMP:

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-A-11-00-01-00A-720A-A	Decal - Install procedure	-
DM04	39-A-20-10-08-00A-622A-A	Electrical contacts - Crimp	-
DM05	39-A-20-10-18-00A-691A-A	Electrical wires and cables - Marking	-
DM06	39-C-23-97-00-00A-320A-K	Airborne telephone system - Operation test	-
DM07	39-A-24-91-04-00A-920A-K	Integrally lighted panel - Replacement	-

2) ACRONYMS & ABBREVIATIONS

AMDI	Aircraft Material Data Information
AMP	Aircraft Maintenance Publication
AR	As Required
AUX	Auxiliary
DM	Data Module
DOA	Design Organization Approval
EASA	European Aviation Safety Agency
GND	Ground
IPD	Illustrated Part Data
ITEP	Illustrated tool and equipment publication
LH	Left Hand
LHD	Leonardo Helicopters Division
MMH	Maintenance Man Hours
N.A.	Not Applicable
O/H	Overhead

PNL	Panel
P/N	Part Number
SB	Service Bulletin
S/N	Serial Number

3) ANNEX

N.A.

J. PUBLICATIONS AFFECTED

AW139 IPD

AW139 AMP

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	**3G4390P00912**		**SATCOM FLIGHTCELL DZMX ELECTRICAL VARIANT**	**REF**	**.**		**-**
2	**3G9A01A73902**		**SATCOM FLIGHTCELL DZMX C/A (A1A739)**	**REF**	**..**		**-**
3	A556A-T22		Electrical wire	10 m	...		139-669L1
4	M12883/52-002		Socket	2	...		139-669L1
5	M39029/101-553		Electrical contact	6	...		139-669L1
6	M39029/56-351		Electrical contact	1	...		139-669L1
7	M39029/63-368		Electrical contact	1	...		139-669L1
8	ED300K22		Decal	1	..		139-669L1
9	ED300K23		Decal	1	..		139-669L1
10	ED300K53		Decal	1	..		139-669L1
11	ED300K55		Decal	1	..		139-669L1
12	M83536/6-025M		Relay	2	..		139-669L1
13	M39029/101-553		Electrical contact	4	..		139-669L1
14	**3G2460P01023**		**AUX O/H PNL RETROMOD**	**REF**	**.**		**-**
15	3G2490L05065		Illuminated NVIS panel AUX breaker	1	..		-
16	**3G9E01C30005**		**AUX CB PNL VARIANT C/A (E1C300)**	**REF**	**..**		**-**
17	A556A-T12		Electrical wire	5 m	...		139-669L1
18	A556A-T16		Electrical wire	5 m	...		139-669L1
19	MS25036-112		Terminal	2	...		139-669L1
20	MS25036-153		Terminal	1	...		139-669L1
21	MS25036-156		Terminal	1	...		139-669L1

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
22	A236A01AB	Edging	AR	(2)	-
23	A582A05 or EN6049-006-05-5	Tubing braided	AR	(1)(2)	-
24	A578A02-9	Marker Sleeve	AR	(2)	-
25	EN6049-006-13-5	Nomex	AR	(1)(2)	-

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

3) LOGISTIC MATRIX

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

LOGISTIC P/N	Q.TY (PER HELO)	NOTE	PART
139-669L1	1		-
3G2490L05065	1		-

NOTE

(1) Item to be procured as local supply.

(2) Indicated P/N refer to a specific size. The last digits can be different based on the actual required installation.

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

Product enhancement.

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

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

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

f) All lengths are in mm.

1. In accordance with AMP DM 39-A-00-20-00-00A-120A-A, prepare the helicopter on ground for a safe maintenance. Disconnect the battery, all electrical power sources and/or the external power supply.
2. In accordance with AMP DM 39-A-06-41-00-00A-010A-A and with reference to Figures 1 and 5, remove all external panels, internal panels and internal liners as required to gain access to the area affected by the installation.
3. With reference to Figures 1 thru 4 and Figures 7 and 8 wiring diagrams, perform the SATCOM flightcell DZMX electrical variant P/N 3G4390P00912 as described in the following procedure:
   - 3.1 With reference to Figure 4 View A-A, remove n°2 relays P/N M83536/2-028M (K22 and K23).
   - 3.2 With reference to Figure 7 wiring diagram (WAS), remove the electrical connection from pin A2 of K22P1 relay socket and from pin B2 of K53P1 relay socket.

3.3 With reference to Figure 4 View A-A, disconnect all existing electrical connections from the K22P1 and K23P1 relay sockets. Remove the relay sockets from the relative mounting track.

NOTE

Use edging P/N A236A on metallic edges which can damage cable assemblies and where abrasion may occur.

Use braided tubing P/N A582A where cable assemblies chafing or contact with structure may occur.

Lay down the cables assemblies following the existing route unless otherwise indicated on the figures.

Secure the cables by means of existing hardware. If necessary replace existing clamps with suitable clamps.

3.4 With reference to Figure 4 View A-A, reposition the K53 relay as shown in the figure.

3.5 In accordance with AMP DM 39-A-11-00-01-00A-720A-A and with reference to Figure 4 View A-A, install decal P/N ED300K53 in an adjacent area to the previously installed K53 relay.

NOTE

If necessary, use n°4 electrical contacts P/N M39029/101-553 during the repositioning of the K55 relay (Refer to Figure 8 wiring diagram).

3.6 With reference to Figure 4 View C-C, reposition the K55 relay as shown in the figure.

3.7 In accordance with AMP DM 39-A-11-00-01-00A-720A-A and with reference to Figure 4 View C-C, install decal P/N ED300K55 in an adjacent area to the previously installed K55 relay.

3.8 With reference to Figures 1 thru 4 and Figure 7 wiring diagram (BECOMES), assemble the SATCOM Flightcell DZMX C/A (A1A739) P/N 3G9A01A73902 as described in the following procedure:

3.8.1 With reference to Figure 3, 4 and Figure 7 wiring diagram, cut a wire P/N A556A-T22 of adequate length and lay down between K23P1 relay socket P/N M12883/52-002 and K22P1 relay socket P/N M12883/52-002.

3.8.2 In accordance with AMP DM 39-A-20-10-08-00A-622A-A and with reference to Figure 7 wiring diagram, crimp on wire an electrical contact P/N M39029/101-553 (K23P1 side) and an electrical contact P/N M39029/101-553 (K22P1 side) by means of proper crimping tool.

3.8.3 In accordance with AMP DM 39-A-20-10-18-00A-691A-A and with reference to Figure 7 wiring diagram, mark wire as R13562A22-G by means of marker sleeve P/N A578A.

3.8.4 With reference to Figure 2 thru 4 and Figure 7 wiring diagram, cut a wire P/N A556A-T22 of adequate length and lay down between A515P1 transceiver connector and K23P1 relay socket.

3.8.5 In accordance with AMP DM 39-A-20-10-08-00A-622A-A and with reference to Figure 7 wiring diagram, crimp on wire an electrical contact P/N M39029/63-368 (A515P1 side) and an electrical contact P/N M39029/101-553 (K23P1 side) by means of proper crimping tool.

3.8.6 In accordance with AMP DM 39-A-20-10-18-00A-691A-A and with reference to Figure 7 wiring diagram, mark wire as R13560A22-G by means of marker sleeve P/N A578A.

3.8.7 With reference to Figure 3, 4 and Figure 7 wiring diagram, cut a wire P/N A556A-T22 of adequate length and lay down between TB107P1 GND signal connector and K22P1 relay socket.

3.8.8 In accordance with AMP DM 39-A-20-10-08-00A-622A-A and with reference to Figure 7 wiring diagram, crimp on wire an electrical contact P/N M39029/56-351 (TB107P1 side) and an electrical contact P/N M39029/101-553 (K22P1 side) by means of proper crimping tool.

3.8.9 In accordance with AMP DM 39-A-20-10-18-00A-691A-A and with reference to Figure 7 wiring diagram, mark wire as R13561A22N-G by means of marker sleeve P/N A578A.

3.8.10 With reference to Figure 3, 4 and Figure 5 wiring diagram, cut a wire P/N A556A-T22 of adequate length and lay down between K22P1 relay socket and K53P1 relay socket.

3.8.11 In accordance with AMP DM 39-A-20-10-08-00A-622A-A and with reference to Figure 7 wiring diagram, crimp on wire an electrical contact P/N M39029/101-553 (K22P1 side) and an electrical contact P/N M39029/101-553 (K53P1 side) by means of proper crimping tool.

3.8.12 In accordance with AMP DM 39-A-20-10-18-00A-691A-A and with reference to Figure 7 wiring diagram, mark wire as G43A22-G-ME by means of marker sleeve P/N A578A.

3.9 With reference to Figures 2 thru 4 and Figure 7 wiring diagram (BECOMES), perform the electrical connections of SATCOM Flightcell DZMX C/A A1A739 between TB107P1 GND signal connector, A515P1 transceiver connector and the relay sockets K22P1, K23P1 and K53P1.

3.10 With reference to Figure 7 wiring diagram (BECOMES), restore the electrical connections, previously removed at step 3.3, to the relay sockets K22P1 and K23P1.

3.11 With reference to Figure 4 View A-A, install n°2 relays P/N M83536/6-025M on the relay sockets K22P1 and K23P1.

3.12 In accordance with AMP DM 39-A-11-00-01-00A-720A-A and with reference to Figure 4 View A-A, install n°2 decals P/N ED300K22 and P/N ED300K23 in an adjacent area to the previously installed relays K22 and K23.

4. With reference to Figures 5 and 6 and Figure 9 wiring diagram, perform the AUX O/H PNL retromod P/N 3G2460P01023 as described in the following procedure:

4.1 In accordance with AMP DM 39-A-24-91-04-00A-920A-K and with reference to Figure 6 View D-D, remove from the Overhead C/B panel the existing illuminated NVIS panel AUX breaker P/N 3G2490L05052 and install the new illuminated NVIS panel AUX breaker P/N 3G2490L05065.

4.2 With reference to Figure 9 wiring diagram (WAS), disconnect, remove or stow the electrical connections as required.

4.3 With reference to Figure 5 Detail A, remove bus bar P/N 1035685-22, screw P/N NAS1802-3-7, locking washer P/N MS35338-138 and washer P/N NAS1149D0332K from circuit breakers CB600 and CB516.

4.4 With reference to Figure 5 and Figure 9 wiring diagram (BECOMES), cut a wire P/N A556A-T16 of adequate length and lay down between circuit breaker CB516 and 28VDC main bus 1 W21D.

4.5 In accordance with AMP DM 39-A-20-10-08-00A-622A-A and with reference to Figure 9 wiring diagram (BECOMES), crimp on wire an electrical contact P/N MS25036-153 (CB516 side) and an electrical contact P/N MS25036-112 (W21D side) by means of proper crimping tool.

4.6 In accordance with AMP DM 39-A-20-10-18-00A-691A-A and with reference to Figure 9 wiring diagram (BECOMES), mark wire as 1020-16 by means of marker sleeve P/N A578A.

4.7 With reference to Figures 5, 6 and Figure 9 wiring diagram (BECOMES), cut a wire P/N A556A-T12 of adequate length and lay down between circuit breaker CB600 and terminal board TB511-2.

4.8 In accordance with AMP DM 39-A-20-10-08-00A-622A-A and with reference to Figure 9 wiring diagram (BECOMES), crimp on wire an electrical contact P/N MS25036-156 (CB600 side) and an electrical contact P/N MS25036-112 (TB511-2 side) by means of proper crimping tool.

4.9 In accordance with AMP DM 39-A-20-10-18-00A-691A-A and with reference to Figure 9 wiring diagram (BECOMES), mark wire as 610-12 by means of marker sleeve P/N A578A.

4.10 With reference to Figures 5 and 6 and Figure 9 wiring diagram (BECOMES), perform the electrical connections of AUX CB PNL variant C/A E1C300 between pin 1 of circuit breaker CB516 and 28VDC main bus 1 W21D and between terminal board TB511-2 and pin 1 of circuit breaker CB600.

5. Perform a pin-to-pin continuity check of all the electrical connections made.
6. In accordance with AMP DM 39-A-06-41-00-00A-010A-A, re-install all external panels, internal panels and internal liners previously removed.

NOTE

Operation test procedure for P/N 3G4390P00911 and P/N 3G4390P00912 are the same.
During Step 7, make sure to execute AMP DM steps to be performed in case P/N 3G4390P00911 is installed on the helicopter.

7. In accordance with AMP DM 39-C-23-97-00-00A-320A-K, perform the operation test of the airborne telephone system.
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 this Service Bulletin on the helicopter logbook.
10. Send the attached compliance form to the following mail box:

    engineering.support.lhd@leonardo.com

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

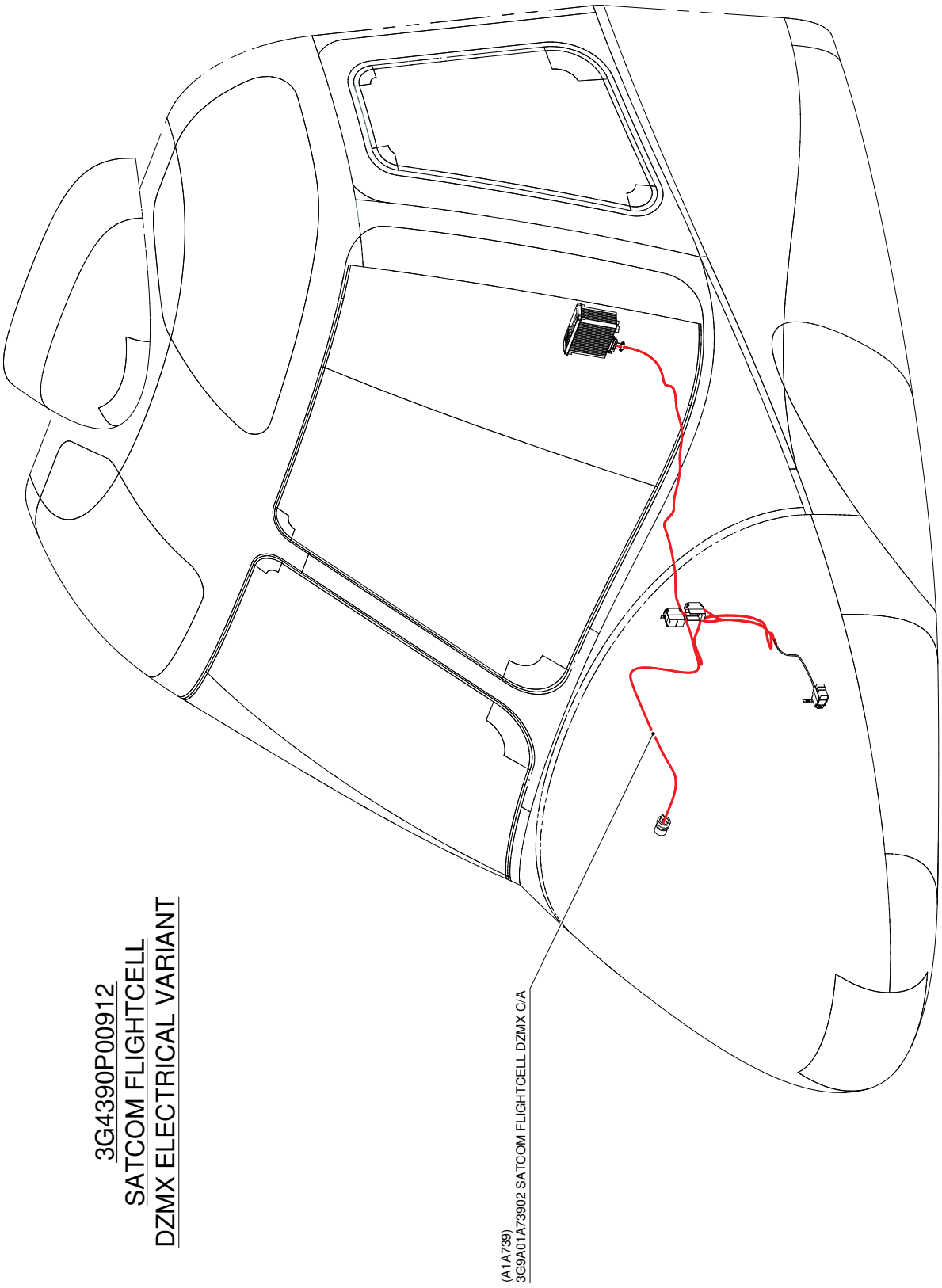

3G4390P00912
SATCOM FLIGHTCELL
DZMX ELECTRICAL VARIANT
(A1A739)
3G9A01A73902 SATCOM FLIGHTCELL DZMX C/A

Figure 1

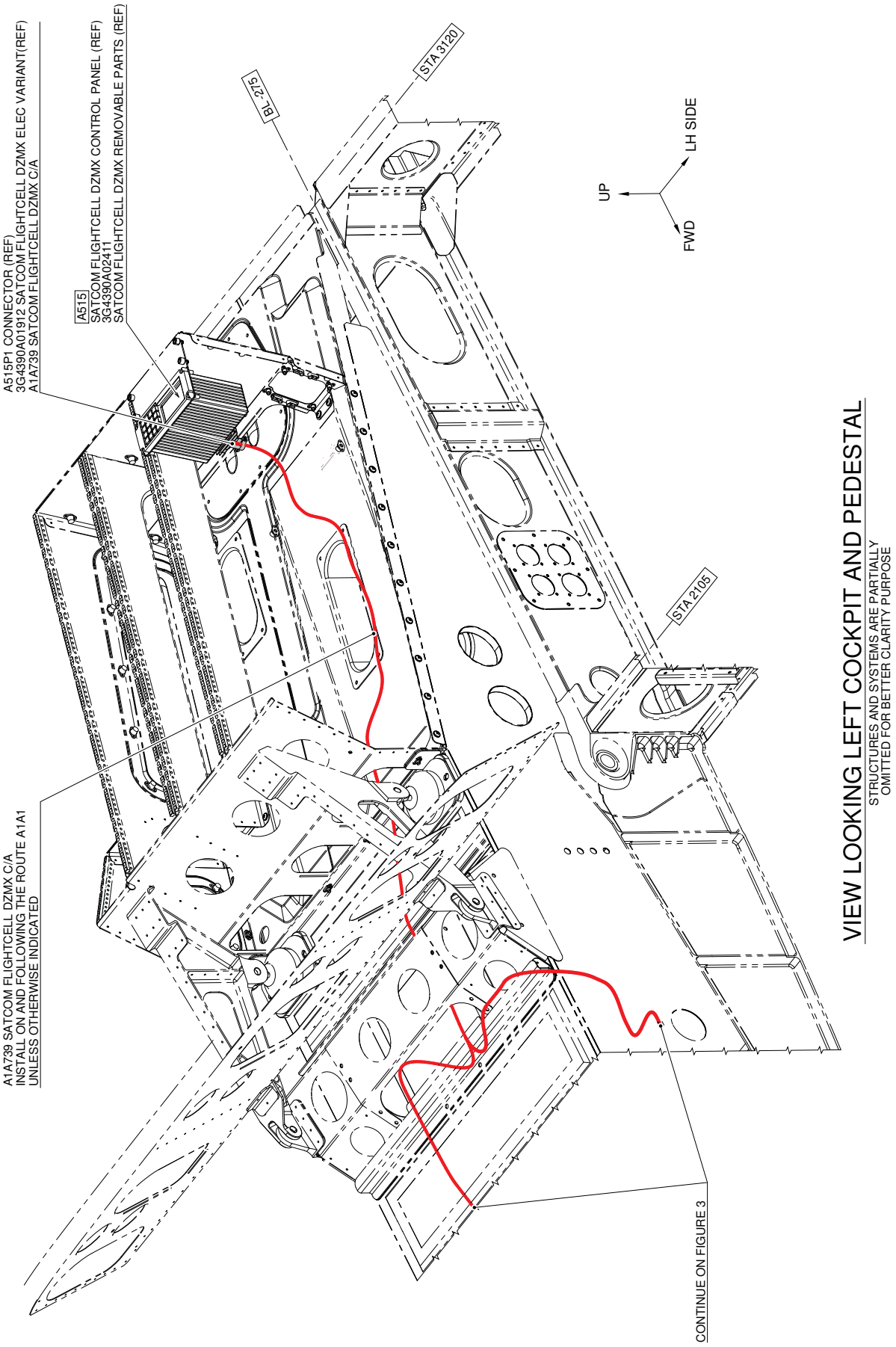

A515P1 CONNECTOR (REF)
3G4390A01912 SATCOM FLIGHTCELL DZMX ELEC VARIANT(REF)
A1A739 SATCOM FLIGHTCELL DZMX C/A
A515
SATCOM FLIGHTCELL DZMX CONTROL PANEL (REF)
3G4390A02411
SATCOM FLIGHTCELL DZMX REMOVABLE PARTS (REF)
BL 275
STA 3120
UP
LH SIDE
FWD
STA 2105
A1A739 SATCOM FLIGHTCELL DZMX C/A
INSTALL ON AND FOLLOWING THE ROUTE A1A1
UNLESS OTHERWISE INDICATED
CONTINUE ON FIGURE 3
VIEW LOOKING LEFT COCKPIT AND PEDESTAL
STRUCTURES AND SYSTEMS ARE PARTIALLY
OMITTED FOR BETTER CLARITY PURPOSE

Figure 2

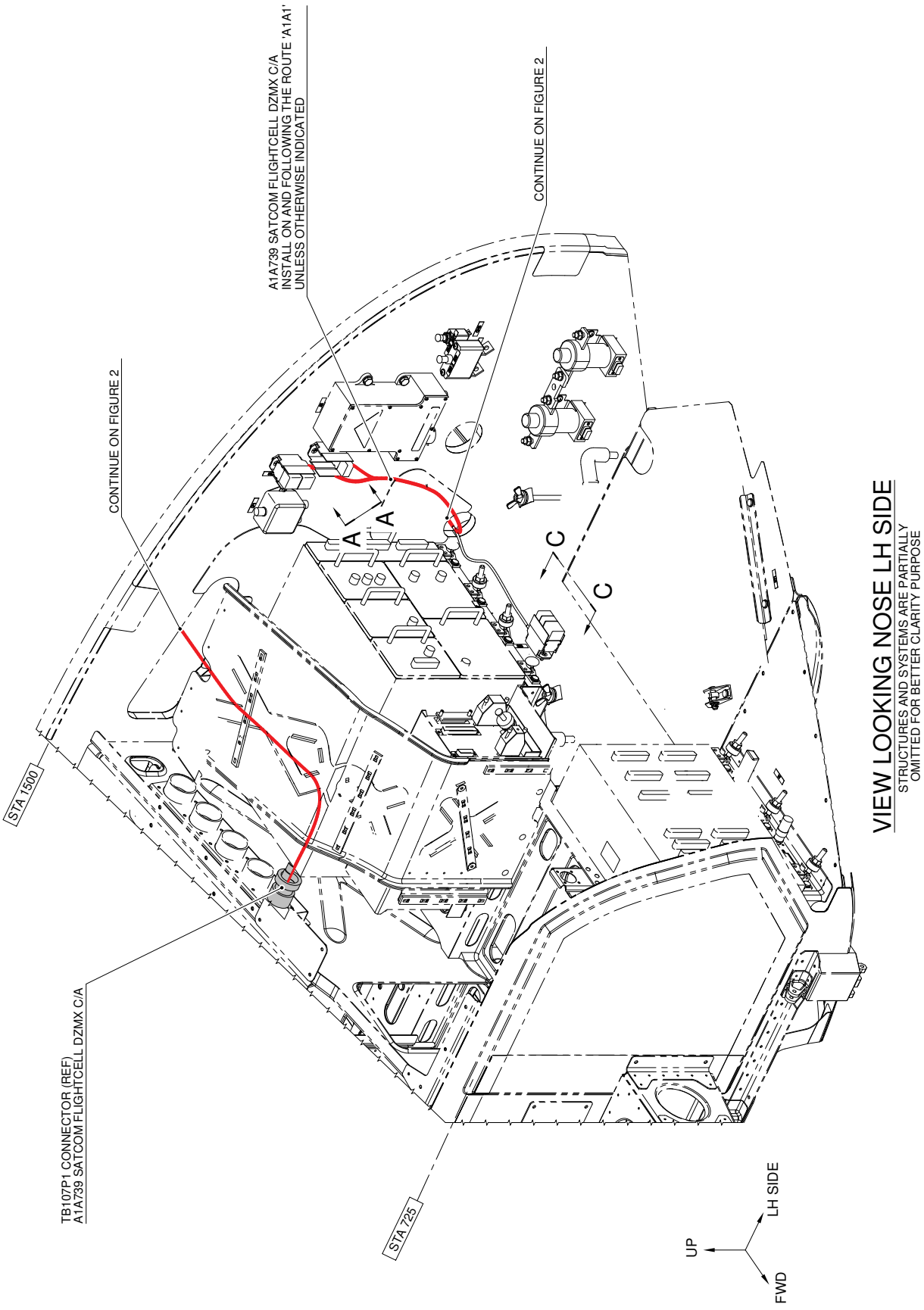

A1A739 SATCOM FLIGHTCELL DZMX C/A
INSTALL ON AND FOLLOWING THE ROUTE 'A1A1'
UNLESS OTHERWISE INDICATED
CONTINUE ON FIGURE 2
CONTINUE ON FIGURE 2
STA 1500
TB107P1 CONNECTOR (REF)
A1A739 SATCOM FLIGHTCELL DZMX C/A
STA 725
A
A
C
C
VIEW LOOKING NOSE LH SIDE
STRUCTURES AND SYSTEMS ARE PARTIALLY
OMITTED FOR BETTER CLARITY PURPOSE
UP
LH SIDE
FWD

Figure 3

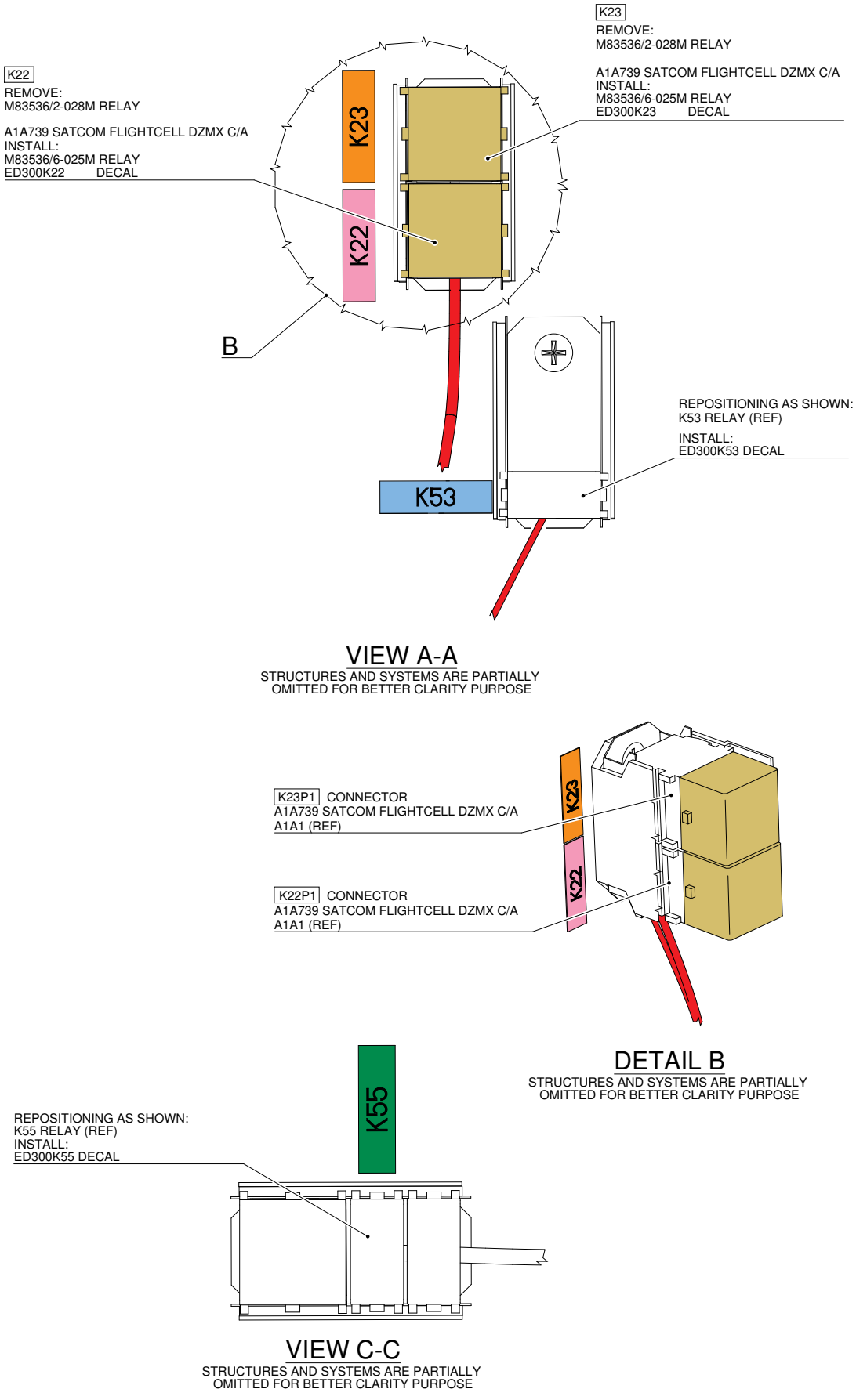
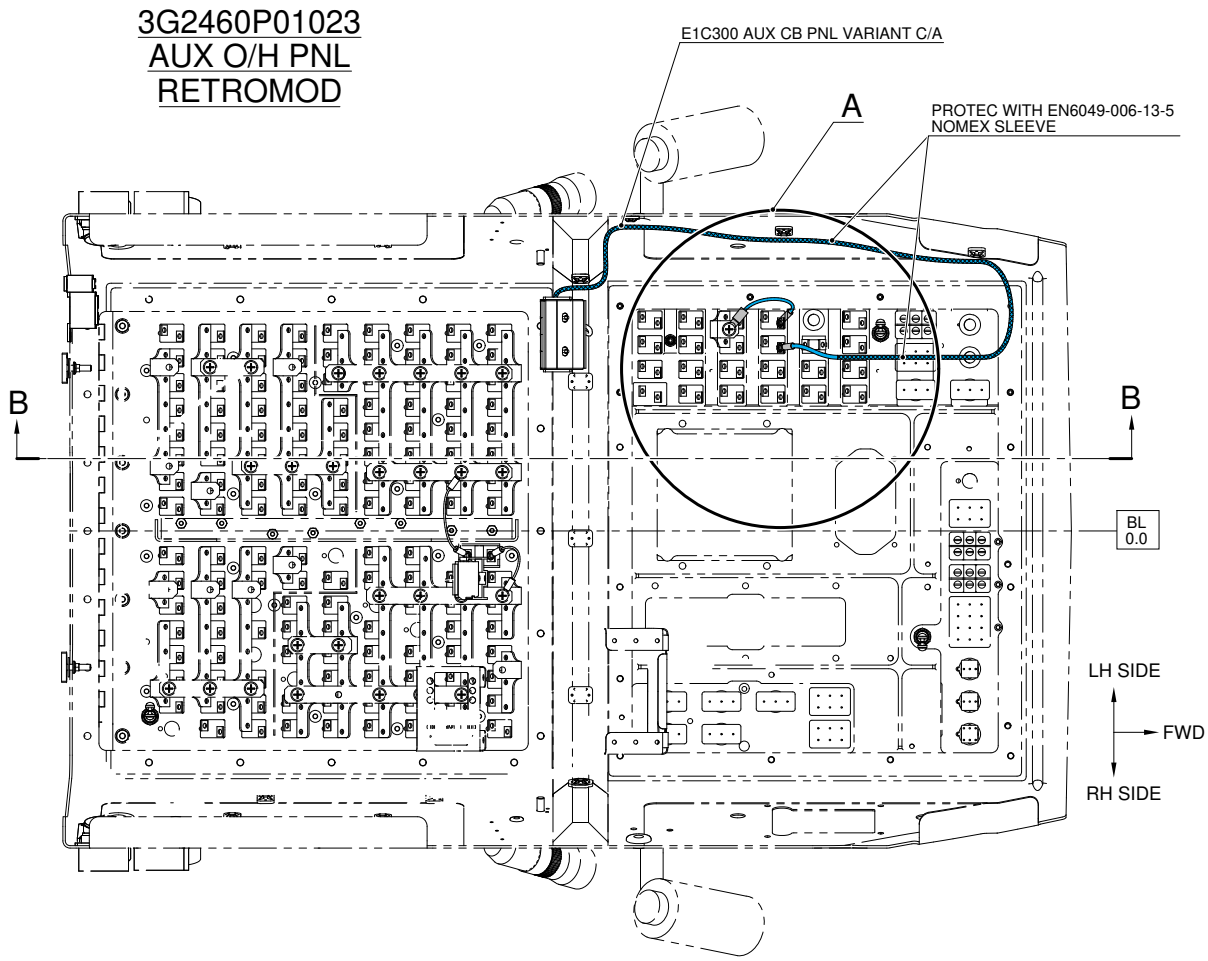
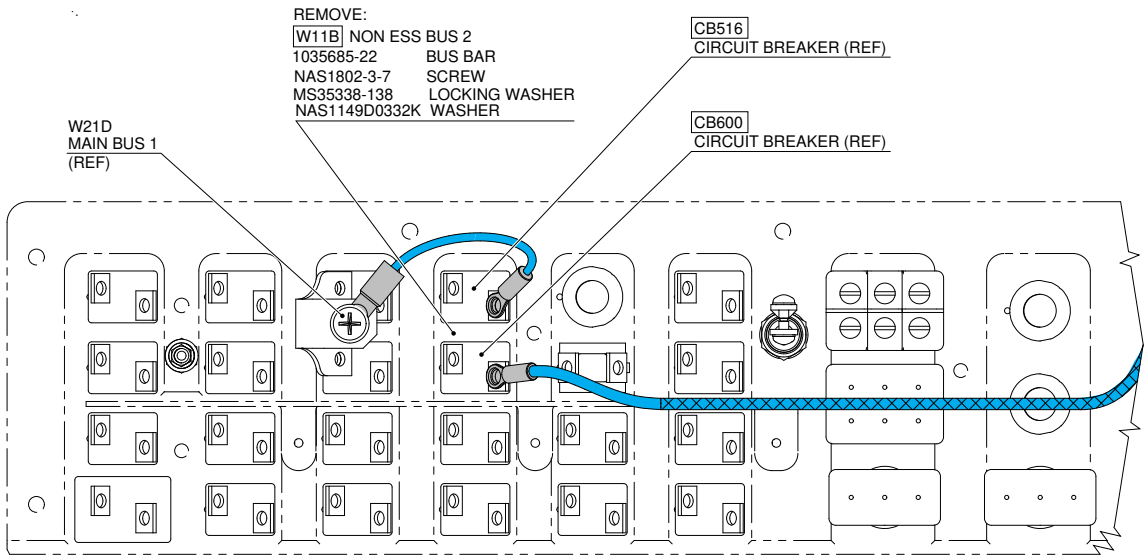

K22
REMOVE:
M83536/2-028M RELAY
A1A739 SATCOM FLIGHTCELL DZMX C/A
INSTALL:
M83536/6-025M RELAY
ED300K22 DECAL
K23
REMOVE:
M83536/2-028M RELAY
A1A739 SATCOM FLIGHTCELL DZMX C/A
INSTALL:
M83536/6-025M RELAY
ED300K23 DECAL
K23
K22
B
K53
REPOSITIONING AS SHOWN:
K53 RELAY (REF)
INSTALL:
ED300K53 DECAL
VIEW A-A
STRUCTURES AND SYSTEMS ARE PARTIALLY
OMITTED FOR BETTER CLARITY PURPOSE
K23P1 CONNECTOR
A1A739 SATCOM FLIGHTCELL DZMX C/A
A1A1 (REF)
K22P1 CONNECTOR
A1A739 SATCOM FLIGHTCELL DZMX C/A
A1A1 (REF)
K23
K22
DETAIL B
STRUCTURES AND SYSTEMS ARE PARTIALLY
OMITTED FOR BETTER CLARITY PURPOSE
REPOSITIONING AS SHOWN:
K55 RELAY (REF)
INSTALL:
ED300K55 DECAL
K55
VIEW C-C
STRUCTURES AND SYSTEMS ARE PARTIALLY
OMITTED FOR BETTER CLARITY PURPOSE

Figure 4



VIEW LOOKING DOWN O/H PANEL

STRUCTURES AND SYSTEMS ARE PARTIALLY
OMITTED FOR BETTER CLARITY PURPOSE



DETAIL A

STRUCTURES AND SYSTEMS ARE PARTIALLY
OMITTED FOR BETTER CLARITY PURPOSE

Figure 5

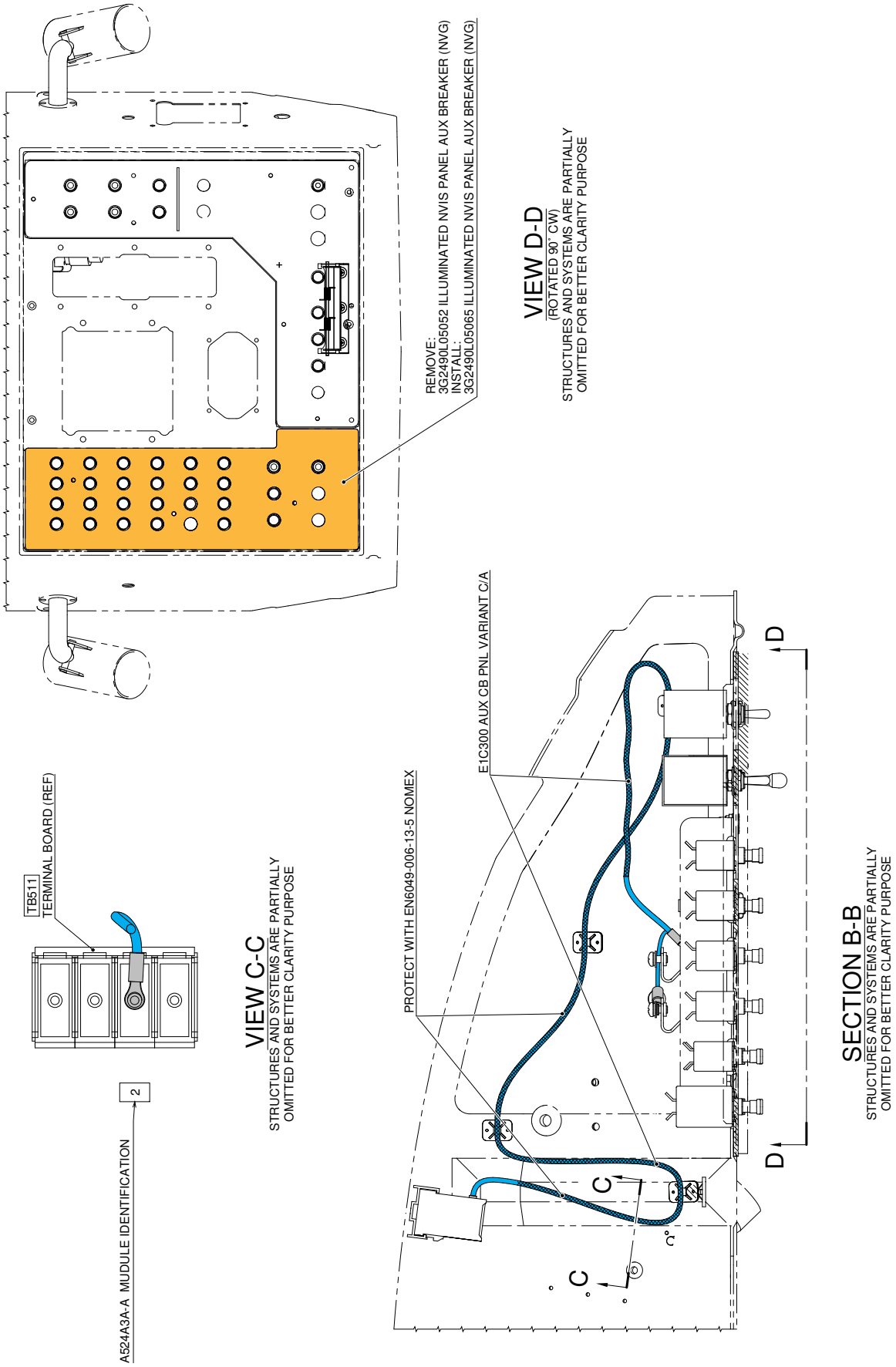

REMOVE:
3G2490L05052 ILLUMINATED NVIS PANEL AUX BREAKER (NVG)
INSTALL:
3G2490L05065 ILLUMINATED NVIS PANEL AUX BREAKER (NVG)
VIEW D-D
(ROTATED 90° CW)
STRUCTURES AND SYSTEMS ARE PARTIALLY
OMITTED FOR BETTER CLARITY PURPOSE
E1C300 AUX CB PNL VARIANT C/A
PROTECT WITH EN6049-006-13-5 NOMEX
D
D
C
C
SECTION B-B
STRUCTURES AND SYSTEMS ARE PARTIALLY
OMITTED FOR BETTER CLARITY PURPOSE
TB511
TERMINAL BOARD (REF)
VIEW C-C
STRUCTURES AND SYSTEMS ARE PARTIALLY
OMITTED FOR BETTER CLARITY PURPOSE
2
A524A3A-A MUDULE IDENTIFICATION

Figure 6

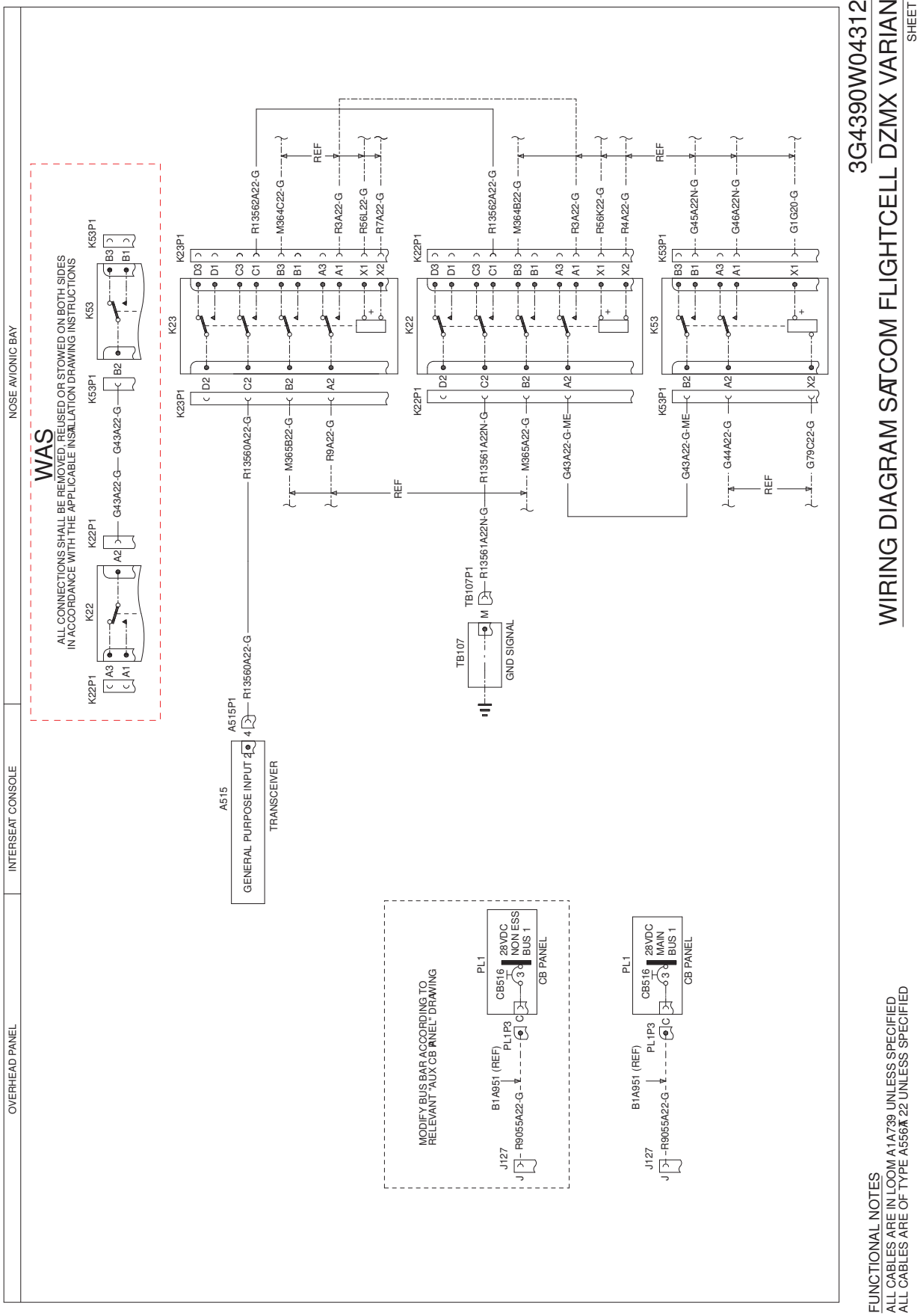
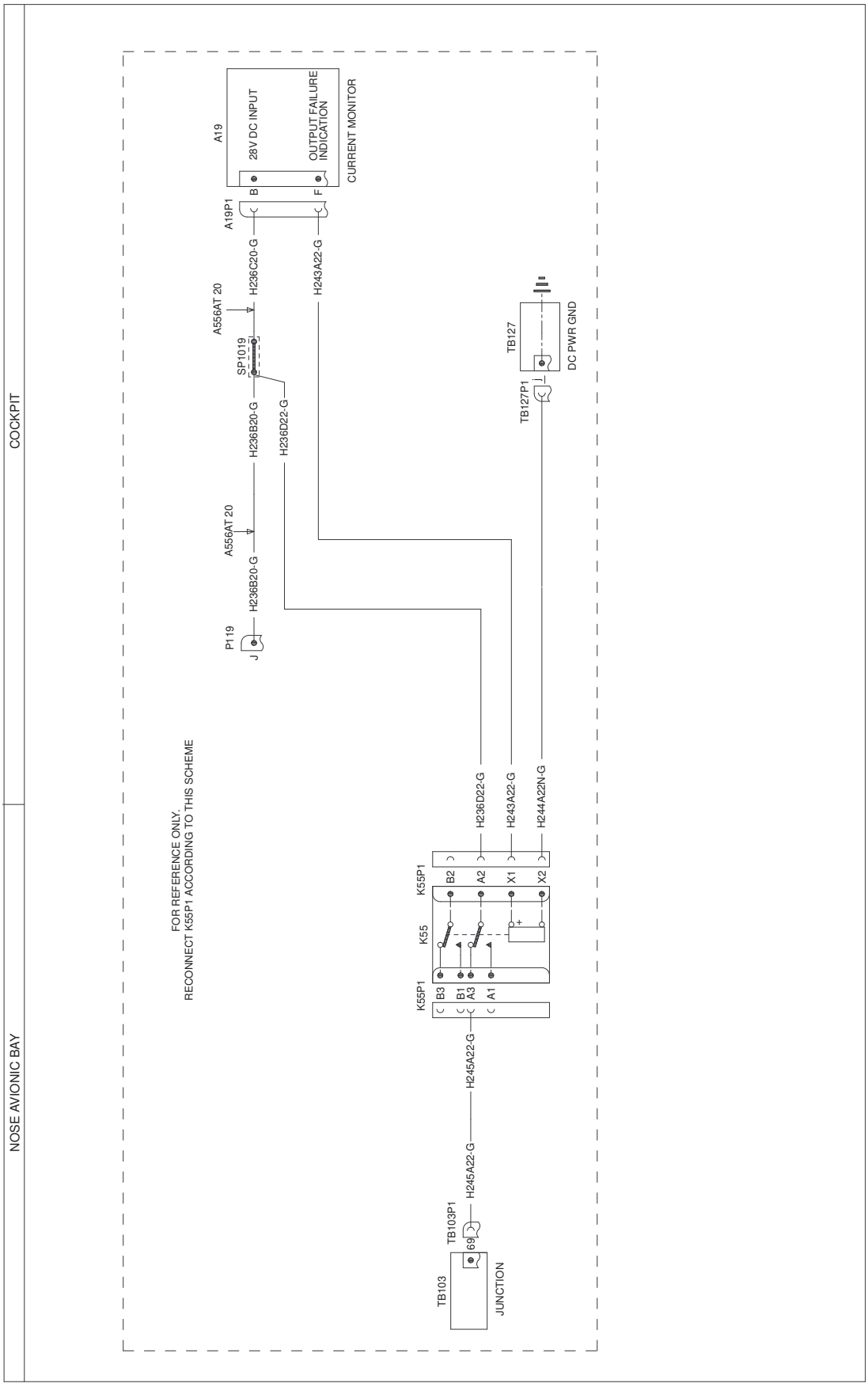

OVERHEAD PANEL
INTERSEAT CONSOLE
NOSE AVIONIC BAY
WAS
ALL CONNECTIONS SHALL BE REMOVED, REUSED OR STOWED ON BOTH SIDES IN ACCORDANCE WITH THE APPLICABLE INSTALLATION DRAWING INSTRUCTIONS
K22
K22P1
K53
K53P1
G43A22-G
A515
A515P1
GENERAL PURPOSE INPUT
TRANSCEIVER
R13560A22-G
TB107
TB107P1
GND SIGNAL
R13561A22N-G
K23
K23P1
K22
K22P1
K53
K53P1
R13562A22-G
M364C22-G
R3A22-G
R56L22-G
R7A22-G
M365B22-G
R9A22-G
M364B22-G
R56K22-G
R4A22-G
G45A22N-G
G46A22N-G
G1G20-G
REF
M365A22-G
G43A22-G-ME
G44A22-G
G79C22-G
MODIFY BUS BAR ACCORDING TO RELEVANT "AUX CB PANEL" DRAWING
PL1
CB516
28VDC NON ESS BUS 1
CB PANEL
PL1P3
B1A951 (REF)
J127
R9055A22-G
28VDC MAIN BUS 1
3G4390W04312
WIRING DIAGRAM SATCOM FLIGHTCELL DZMX VARIANT
SHEET 1
FUNCTIONAL NOTES
ALL CABLES ARE IN LOOM A1A739 UNLESS SPECIFIED
ALL CABLES ARE OF TYPE A556 22 UNLESS SPECIFIED

Figure 7



3G4390W04312
WIRING DIAGRAM SATCOM FLIGHTCELL DZMX VARIANT
SHEET 2

Figure 8

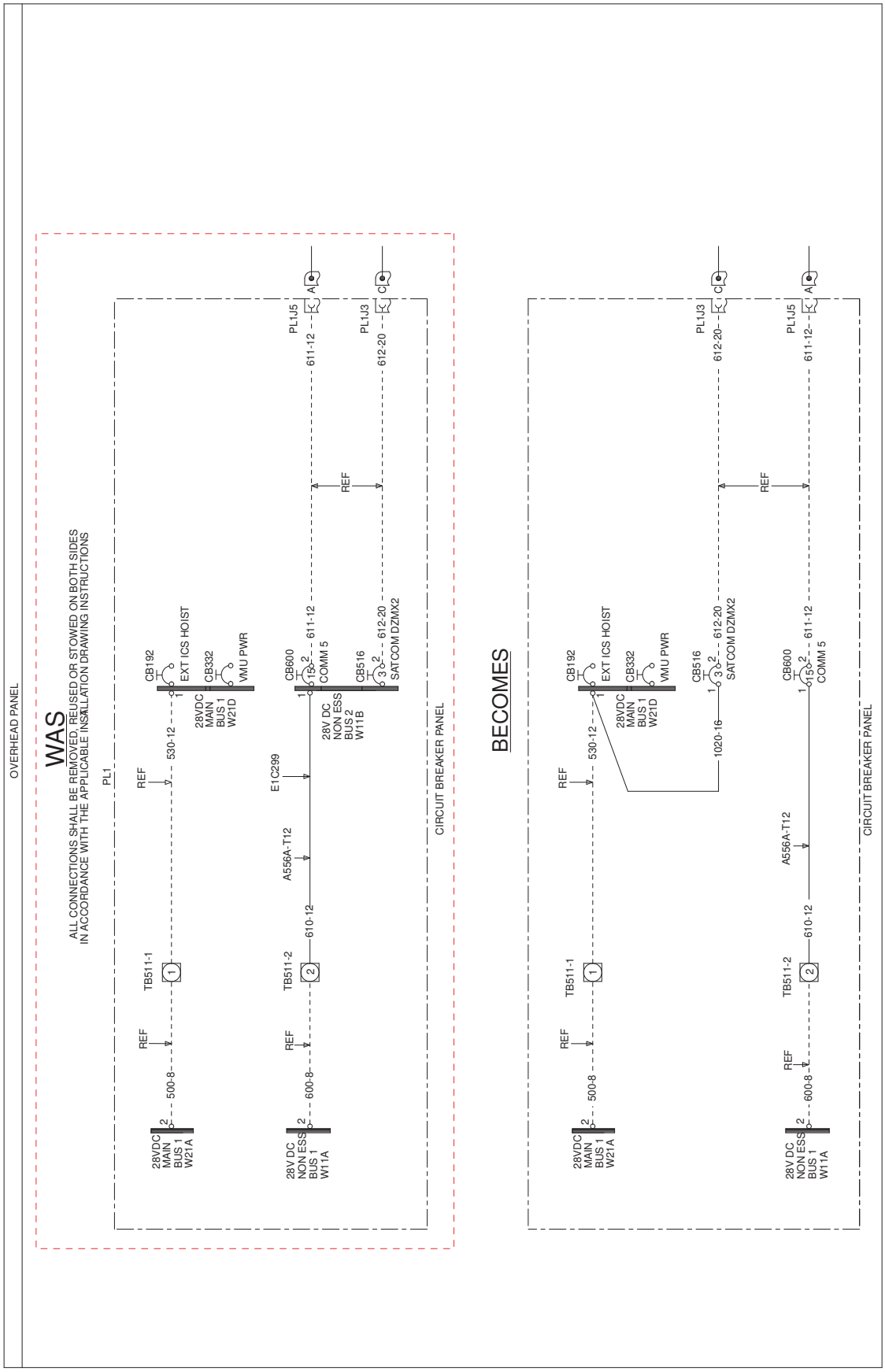

3G2460W08523
WIRING DIAGRAM AUX CB PNL VARIANT
OVERHEAD PANEL
WAS
ALL CONNECTIONS SHALL BE REMOVED, REUSED OR STOWED ON BOTH SIDES IN ACCORDANCE WITH THE APPLICABLE INSTALLATION DRAWING INSTRUCTIONS
PL1
REF
TB511-1
530-12
CB192
EXT ICS HOIST
CB332
VMU PWR
28VDC MAIN BUS 1 W21D
500-8
28VDC MAIN BUS 1 W21A
E1C299
A556A-T12
TB511-2
610-12
CB600
611-12
COMM 5
28V DC NON ESS BUS 2 W11B
CB516
612-20
SATCOM DZMX2
600-8
28V DC NON ESS BUS 1 W11A
PL1J5
PL1J3
CIRCUIT BREAKER PANEL
BECOMES
1020-16
FUNCTIONAL NOTES
ALL CABLES ARE IN LOOME1C300 UNLESS SPECIFIED
ALL CABLES ARE OF TYPEA556A-T16 UNLESS SPECIFIED

Figure 9

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.