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° 139-630

DATE: January 19, 2021

REV. : /

TITLE

ATA 46 – COMPLETION OF KIT PRIMUS EPIC® PHASE 8 SOFTWARE RELEASE INSTALLATION

REVISION LOG

First Issue

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

AW139 helicopter S/N 31869.

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 complete the “PRIMUS EPIC®” Phase 8 Software Release installation on a helicopter (currently in Phase 7) already equipped with relevant provision (P/N 3G4600A14611).

E. DESCRIPTION

“PRIMUS EPIC®” Flight Software Release 8 adds new functionalities with respect to previous versions of the Primus Epic S/W.

The major functionalities introduced by Phase 8 S/W are the followings:

- The Flight Path Symbol (FPS) is introduced on the Primary Flight Display (PFD) to represent the actual path angle of the aircraft. The legacy layout of the PFD is modified with an expansion of the pitch scale and the introduction of a full Blue over Brown (BoB) format. The existing symbology has been adjusted in size, transparency and location to adapt to the BoB format, the optional background terrain depiction and the FPS movements.
- The Interactive NAVigation (INAV) is a feature to display the own ship position and flight plan on an enhanced map integrated into the Multi-Function Display (MFD). The map can display selectable DB-based layers representing terrain, obstacles, geopolitical boundaries and other elements as airways, airspaces, airports, navaids, roads and railroads. It is also integrated with the optional Weather Radar, EGPWS and TCAS. Moreover a 2-D representation of the terrain and obstacles can be displayed inside the Horizontal Situation Indicator (HSI) of the PFD.
- The Custom Approach is introduced as an assistance function to reduce pilot workload allowing fully automated approaches to any navigation database or pilot entered waypoint. Custom Approaches can be set with or without a final

level segment under radar height based AFCS control. Custom approaches without a final level segment are intended for over land operations under VFR rules (VFR approaches). Custom approaches with a final level segment are intended for off-shore operations according to relevant operational rules. Off-Shore approaches functionality is introduced as an optional feature on customer request, enabled via option file.

- The Flight Plan Upload/Download is a functionality introduced to allow the export of single FMS flight plans to external memory devices and the import of flight plans created off-helicopter into the custom database.
- The reduced SAR leg length is introduced to lower (down to 0.2 NM) the minimum selectable length of the legs for the creeping ladder and expanded square search patterns (previously not lower than 0.5NM).
- The continued PERF on landing is a function of the FMS introduced to preserve specific performance data and calculations after landing, eliminating the limitation to have to re-initialize the parameters prior to the next take off.
- The Synthetic Vision System (SVS) is introduced as an optional feature on customer request, enabled via option file. It consists in a selectable DB-based 3-D perspective representation of the external scene, integrated in the Primary Flight Display (PFD) and intended to enhance awareness of terrain, obstacles, airports and heliports. When combined with the SVS, the FPS provides a conformal representation of the aircraft track with respect to the scene represented.

Phase 8 Software installation requires the following components as prerequisite:

- the helicopter must be equipped with EGPWS computer P/N 965-1595-034 (if the optional EGPWS kit is already installed).
- Cursor Control Devices CC-701 P/N F99-05405-SL (copilot CCD non NVIS), F99-05406-SL (pilot CCD non NVIS), F99-05459-SL (copilot CCD NVIS) and F99-05460-SL (pilot CCD NVIS);
- the DLMU-W P/N G7229-012.

NOTE

Supplement n°101 and 102 of RFM (Rotorcraft Flight Manual) is dedicated to EPIC S/W Phase 8 Specific Functions and it contains information about limitations, procedures and performance data.

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 approximately one hundred sixty (160) 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)	7.8	
	ARM (mm)	**MOMENT (Kgmm)**
LONGITUDINAL BALANCE	3367	26262.6
LATERAL BALANCE	95	741

I. REFERENCES

1) PUBLICATIONS

DATA MODULE		**DESCRIPTION**	**PART**
DM01	39-A-00-00-00-00A-750A-A	Helicopter - Options and setting file - Load software procedure	-
DM02	39-A-00-20-00-00A-120A-A	Helicopter on ground for a safe maintenance	-
DM03	39-A-06-41-00-00A-010A-A	Access doors and panels - General data	-
DM04	39-A-11-00-01-00A-720A-A	Decal – Install procedure	-
DM05	39-A-20-10-08-00A-622A-A	Electrical contacts – Crimp	
DM06	39-A-20-10-18-00A-691A-A	Electrical wires and cables – Marking	-

DATA MODULE		DESCRIPTION	PART
DM07	39-B-31-61-05-00A-520A-A	Number 1 cursor control device - Remove procedure	-
DM08	39-B-31-61-05-00A-720A-A	Number 1 cursor control device - Install procedure	-
DM09	39-B-31-61-06-00A-520A-A	Number 2 cursor control device - Remove procedure	-
DM10	39-B-31-61-06-00A-720A-A	Number 2 cursor control device - Install procedure	-
DM11	39-A-34-43-01-00A-520A-K	EGPWS computer - Remove procedure	-
DM12	39-A-34-43-01-00A-720A-K	EGPWS computer - Install procedure	-
DM13	39-C-34-43-00-00A-320A-K	Enhanced ground proximity warning system - Operation test	-
DM14	39-A-46-21-01-00A-520A-K	Data management unit - Remove procedure	-
DM15	39-A-34-15-00-00A-320A-A	Air data system - Operation test	-

2) ACRONYMS

ADF	Automatic Direction Finding
ADI	Attitude Display System
ADM	Air Data Module
ADS	Air Data System
ADS-B	Automatic Dependent Surveillance - Broadcast
AFCS	Automatic Flight Control System
AHRS	Attitude and Heading Reference System
AHRU	Attitude and Heading Reference Unit
AMDI	Aircraft Material Data Information
AMP	Aircraft Maintenance Publication
APM	Aircraft Personality Module
ASCB-D	Avionics Standard Communications Bus D version
CAS	Crew Alerting System
CB	Circuit Breaker
CCD	Cursor Control Device
CIO	Control I/O
CMC	Central Maintenance Computer
DAB	Digital Audio Bus
DB	Data Base
DEOS	Digital Engine Operative
DFTS	Digital Flight Test Suite

DG	Digital Gyro
DH	Decision Height
DLS	Data Loader System
DM	Data Module
DME	Distance Measuring Equipment
DMU	Data Management Unit
DOA	Design Organization Approval
EASA	European Aviation Safety Agency
EDS	Electronic Display System
EEC	Electronic Engine Control
EGPWS	Enhanced Ground Proximity Warning System
FADEC	Full Authority Digital Engine Control
FDR	Flight Data Recorder
FD	Flight Director
FMS	Flight Management System
GPS	Global Positioning System
GS	Glide Slope
GUI	Graphical User Interface
HIS	Horizontal Situation Indicator
ICS	Inter Communication System
IM	Inner Marker
IP	Internet Protocol
IPD	Illustrated Part Data
ITEP	Illustrated tool and equipment publication
LAN	Local Area Network
L-ASCB	Left Avionics Standard Communication Bus
LDI	Loadable Diagnostic Information
LED	Light Emitting Diode
LH	Left Hand
LRM	Line Replaceable Module
LRU	Line Replacement Unit
MAU	Modular Avionics Unit
MB	Marker Beacon
MCDU	Multifunction Control Display Unit
MFD	Multi-Function Display
MM	Middle Marker
MMH	Maintenance Man Hours

MRC	Modular Radio Cabinet
NIC	Network Interface Controller
NIM	Network Interface Module
OAT	Outside Air Temperature
OBS	Omni-Bearing Selector
OM	Outer Marker
PA	Public Address
PAST	Pilot-Activated Self-Test
PBA	Push-button Annunciator
PFD	Primary Flight Display
POST	Power-on-Self-Test
R-ASCB	Right Side Avionics Standard Communication
RH	Right Hand
RI	Remote Instrument
RSB	Radio System Bus
SB	Service Bulletin
SLDB	Separately Loaded Databases
S/W	Software
TIU	Terminal Interface Unit
VHF	Very High Frequency
VOR	VHF Omnibearing Range
VS	Vertical Speed
WOW	Weight On Wheel
WX	Weather Radar

3) ANNEX

Annex A	PRIMUS EPIC® software release 8 installation procedure
Annex B	Avionic system Primus Epic Phase 8 S/W load ATP

J. PUBLICATIONS AFFECTED

N.A.

K. SOFTWARE ACCOMPLISHMENT SUMMARY

Software to be updated:

Primus Epic Option File

2. MATERIAL INFORMATION

A. REQUIRED MATERIALS

1) PARTS

#	P/N	ALTERNATIVE P/N	DESCRIPTION	Q.TY	LVL	NOTE	LOG P/N
1	**3G4600A14811**		**PRIMUS EPIC PHASE 8 ELECTRICAL INSTALLATION C/A**	**REF**	**.**		-
2	**3G9A01A66601**		**PRIMUS EPIC PHASE 8 electrical installation C/A (A1A666)**	**REF**	**..**	**(5)**	-
3	**3G9A01A68401**		**PRIMUS EPIC PHASE 8 electrical installation C/A (A1A684)**	**REF**	**..**		-
4	A556A-T24		Electrical wire	4 m	…		139-630L1
5	M81824/1-1		Splice	3	…		139-630L1
6	M39029/63-368		Electrical contact	7	…		139-630L1
7	**3G9A01A68501**		**PRIMUS EPIC PHASE 8 electrical installation C/A (A1A685)**	**REF**	**..**		-
8	A556A-T22		Electrical wire	1 m	…		139-630L1
9	A556A-T24		Electrical wire	4 m	…		139-630L1
10	M81824/1-1		Splice	3	…		139-630L1
11	M39029/63-368		Electrical contact	7	…		139-630L1
12	**3G9A01A68601**		**PRIMUS EPIC PHASE 8 electrical installation C/A (A1A686)**	**REF**	**..**		-
13	A556A-T24		Electrical wire	4 m	…		139-630L1
14	M81824/1-1		Splice	3	…		139-630L1
15	M39029/63-368		Electrical contact	7	…		139-630L1
16	**3G9A01A68701**		**PRIMUS EPIC PHASE 8 electrical installation C/A (A1A687)**	**REF**	**..**		-
17	A556A-T24		Electrical wire	4 m	…		139-630L1
18	M81824/1-1		Splice	3	…		139-630L1
19	M39029/63-368		Electrical contact	7	…		139-630L1
20	**3G9A01B61901**		**PRIMUS EPIC PHASE 8 electrical installation C/A (A1B619)**	**REF**	**..**	**(6)**	-
21	A556A-T20		Electrical wire	1 m	…		139-630L1
22	M81824/1-1		Splice	1	…		139-630L1
23	M39029/58-364		Electrical contact	1	…		139-630L1
24	**3G9A01B63201**		**PRIMUS EPIC PHASE 8 electrical installation C/A (A1B632)**	**REF**	**..**		-
25	A556A-T24		Electrical wire	4 m	…		139-630L1
26	M81824/1-1		Splice	3	…		139-630L1
27	M39029/63-368		Electrical contact	7	…		139-630L1
28	**3G9A01B63301**		**PRIMUS EPIC PHASE 8 electrical installation C/A (A1B633)**	**REF**	**..**		-
29	A556A-T22		Electrical wire	1 m	…		139-630L1
30	A556A-T24		Electrical wire	4 m	…		139-630L1
31	M81824/1-1		Splice	3	…		139-630L1
32	M39029/57-354		Electrical contact	7	…		139-630L1
33	**3G9A01B63401**		**PRIMUS EPIC PHASE 8 electrical installation C/A (A1B634)**	**REF**	**..**		-

#	P/N	ALTERNATIVE P/N	DESCRIPTION	Q.TY	LVL	NOTE	LOG P/N
34	A556A-T24		Electrical wire	4 m	…		139-630L1
35	M81824/1-1		Splice	3	…		139-630L1
36	M39029/63-368		Electrical contact	7	…		139-630L1
37	**3G9A01B63501**		**PRIMUS EPIC PHASE 8 electrical installation C/A (A1B635)**	**REF**	**..**		-
38	A556A-T24		Electrical wire	3 m	…		139-630L1
39	M81824/1-1		Splice	2	…		139-630L1
40	M39029/63-368		Electrical contact	5	…		139-630L1
41	**3G9B01B99601**		**PRIMUS EPIC PHASE 8 electrical installation C/A (B1B996)**	**REF**	**..**	**(6)**	-
42	A556A-T20		Electrical wire	2,5 m	…		139-630L1
43	M81824/1-1		Splice	1	…		139-630L1
44	M39029/56-352		Electrical contact	1	…		139-630L1
45	A523A-A02		Electrical contact	1	…		139-630L1
46	**3G9B01L10401**		**PRIMUS EPIC PHASE 8 electrical installation C/A (B1L104)**	**REF**	**..**	**(6)**	-
47	M81824/1-1		Splice	1	…		139-630L1
48	F99-05405-SL		CC-701 CPLT CCD	1	..		139-630L1
49	F99-05406-SL		CC-701 PLT CCD	1	..		139-630L1
50	**3G4600A00619**		**PRIMUS EPIC System Software Installation**	**REF**	**..**		-
51	DM60000218-004		Performance Database CD	1	…	(1) (3)	139-630L1
52	DM60003561-61600		Option file CD	1	…	(1) (4)	139-630L1
53	MM7030191-013		Operational Software CD	1	…	(1) (2)	139-630L1
54	TM7035294-108		Tool CD	1	…	(1) (2)	139-630L1
55	MM7035985-00807		CMC LDI S/W	1	…	(1)	139-630L1
56	**3G4620A01211**		**DMU TO DLMU-W PHASE 8 RETROMOD**	**REF**	**.**		-
57	**3G9A01B65901**		**DMU to DLMU-W PHASE 8 retromod C/A (A1B659)**	**REF**	**..**	**(5)**	-
58	**3G9A02A64501**		**DMU to DLMU-W PHASE 8 retromod C/A (A2A645)**	**REF**	**..**		-
59	AW002WC01-24		Electrical wire	20 m	…		139-630L1
60	M24308/2-291Z	M24308/2-291	Electrical connector	1	…		139-630L1
61	557T110M6F05C		Electrical backshell	1	…		139-630L1
62	M39029/57-354		Electrical contact	28	…		139-630L1
63	M39029/63-368		Electrical contact	12	…		139-630L1
64	**3G9A02A64601**		**DMU to DLMU-W PHASE 8 retromod C/A (A2A646)**	**REF**	**..**	**(5)**	-
65	**3G9A02B62301**		**DMU to DLMU-W PHASE 8 retromod C/A (A2B623)**	**REF**	**..**		-
66	AW002WC01-24		Electrical wire	16 m	…		139-630L1
67	M39029/57-354		Electrical contact	20	…		139-630L1
68	M39029/63-368		Electrical contact	12	…		139-630L1
69	**3G9A02B62401**		**DMU to DLMU-W PHASE 8 retromod C/A (A2B624)**	**REF**	**..**	**(5)**	-
70	ED300PL186		Decal	1	..		139-630L1
71	G7229-012		DLMU-W	1	..		139-630L1
72	7031364-807		Backshell	4	..		139-630L1
73	M24308/2-289F	M24308/2-289 or DD62F0OOOO or DD62S00000/AA	Connector	4	..		139-630L1
74	965-1595-034		EGPWS computer	1	.		139-630L1

2) CONSUMABLES

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

#	Spec./LHD code number	DESCRIPTION	Q.TY	NOTE	PART
75	A236A	Edging	AR	(8)	-
76	A582A	Braided Tubing	AR	(8)	-
77	A578A	Marker sleeve	AR	(8)	-

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
139-630L1	1		-

NOTES

(1) This item is part of Honeywell PRIMUS EPIC® S/W CD package.

(2) S/W is part of CD P/N. To upload S/W EB7030191-00113 use tools CD TM7035294-108. Refer to the table below to identify the proper coupling between S/W and CD P/Ns:

S/W P/N	CD P/N
EB7030191-00113	MM7030191-013
PS7035985-00807	MM7035985-00807

(3) This item has to be provided only if the helicopter is equipped with kit LGS Increased Gross Weight 7000kg P/N 4G0000F00311.

(4) Refer to software accomplishment summary paragraph.

(5) This item is not provided because it is already installed on the helicopter.

(6) This item is obtained reworking cable assembly already installed on the helicopter.

(7) As alternative it is possible to use P/N 557E110M6F05C instead of P/N 557T110M6F05C.

(8) 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
78	110-6B or GB713-045-700	Electrical power supply (28 VDC) (BB-01-00)	1		-
79		Laptop computer	1	(B1) (B5)	-

#	P/N	DESCRIPTION	Q.TY	NOTE	PART
80		Ethernet LAN Cat 5 or Cat 6 cable	1		-
81	CEA 046-139-A01-1 or equivalent	WOW simulator kit	1	(B5)	-
82		iNAV Database	1	(B2) (B4)	-
83		Terrain Database		(B3) (B4)	-
84		Multimeter	1	(B5)	-
85		Headset kit	1	(B5)	-
86		Hydraulic bench	1	(B5)	-
87	704-2617-001	LAPTOP-EGPWS Processor Interface Cable Assembly (GJ-20-00)	1		-
88	951-0386-001 or 951-0386-002	EGPWS smart cable (GJ-21-00)	1		-

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

SPECIAL TOOLS NOTES

(B1) Minimum requirements for the laptop PC:

- Windows 7, Windows 8 or Windows 10
- 256 MB RAM;
- CD-ROM driver

(B2) The iNAV Database CD, which is valid only for 28 days, shall be delivered or downloaded from http://ads.honeywell.com. Every 28 days the Database expires and an updated release shall be installed. Refer to Annex A of this SB (paragraph 3.4.4) for download procedure.

(B3) The TERRAIN DATABASE is valid for the same time period as the EGPWS database. The Terrain Database shall be downloaded from website http://ads.honeywell.com. The schedule for periodical updates of Terrain Database is available on website http://ads.honeywell.com. The last available release shall be installed. Refer to Annex A of this SB (paragraph 3.4.4) for download procedure.

(B4) Update your Honeywell subscriptions for Phase 8 through the Database Services Accounts dsa@honeywell.com channel, before performing the download of the required file from the Honeywell website.

(B5) To be provided as local supply.

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.

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.

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-B-31-61-05-00A-520A-A and with reference to Figure 6, remove the CPLT cursor control device (PL7) P/N 7026883-902 from the interseat console.
3. In accordance with AMP DM 39-B-31-61-06-00A-520A-A and with reference to Figure 6, remove the PLT cursor control device (PL23) P/N 7026883-902 from the interseat console.
4. In accordance with AMP DM 39-A-46-21-01-00A-520A-K and with reference to Figure 13, remove the DMU (PL69) P/N G7225-002 from the interseat console.

5. In accordance with AMP DM 39-A-06-41-00-00A-010A-A, remove the access panel 180AL.
6. In accordance with AMP DM 39-A-34-43-01-00A-520A-K, remove the EGPWS computer P/N 965-1595-030.

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.

Secure the cables by means of existing fixing hardware.

If necessary, replace existing clamps with suitable clamps.

If the cap end assemblies are protected and stowed, remove the tie straps and the sleeves.

7. In accordance with AMP DM 39-A-06-41-00-00A-010A-A and with reference to Figures 1 thru 8, gain access to the area affected by the installation and perform the electrical connection as described in the following procedure:
   - 7.1 With reference to Figure 8 and Figure 14 wiring diagram, remove cap ends CE2058 and CE2059.
   - 7.2 With reference to Figure 8 and Figures 14 wiring diagram, remove existing electrical connection between pin X of sectioning connector J100 and pin 1 of fuse F266.
   - 7.3 With reference to Figure 8 and Figures 18 wiring diagram (BECOMES), cut wire P/N A556A-T20 of adequate length and lay down between sectioning connector J100 pin U and fuse F266 following the existing route as shown.
   - 7.4 In accordance with AMP DM 39-A-20-10-08-00A-622A-A and with reference to Figure 18 wiring diagram (BECOMES), crimp on wire electrical contact P/N M39029/56-352 (J100 side) and electrical contact P/N A523A-A02 (F266 side) by means of proper crimping tool.
   - 7.5 In accordance with AMP DM 39-A-20-10-18-00A-691A-A and with reference to Figure 18 wiring diagram (BECOMES), mark wire as indicated by means of marker sleeves P/N A578A02-9.
   - 7.6 With reference to Figure 18 wiring diagram, perform the electrical connection of wire ID U7801A20-G to pin U of sectioning connector J100 and to pin 1 of fuse F266.

7.7 With reference to Figure 8, Figure 14 wiring diagram and Figure 18 wiring diagram, cut wire ID U32A22-G near the connector PL1P6 and perform the electrical connection between wire ID U32A22-G and wire ID U7660A22-G by means of splice P/N M81824/1-1 (SP20974).

7.8 With reference to Figure 8, Figure 14 wiring diagram and Figure 18 wiring diagram, cut wire ID U38A22-G near the connector PL1P9 and perform the electrical connection between wire ID U38A22-G and wire ID U7663A22-G by means of splice P/N M81824/1-1 (SP20973).

7.9 In accordance with AMP DM 39-A-20-10-18-00A-691A-A and with reference to Figure 18 wiring diagram (BECOMES), re-mark wires as indicated by means of marker sleeves P/N A578A02-9.

7.10 With reference to Figure 7 and Figure 14 wiring diagram, remove cap ends CE1271, CE1272, CE1273 and CE1274.

7.11 With reference to Figure 6 and Figure 14 wiring diagram, disconnect the electrical connection from pin X of sectioning connector P100.

7.12 With reference to Figure 6 and Figure 18 wiring diagram, cut wire P/N A556A-T20 of adequate length and lay down between sectioning connector P100 pin U and splice P/N M81824/1-1 (SP10632) following the existing route as shown.

7.13 In accordance with AMP DM 39-A-20-10-08-00A-622A-A and with reference to Figure 18 wiring diagram, crimp on wire electrical contact P/N M39029/58-364 (P100 side) by means of proper crimping tool.

7.14 In accordance with AMP DM 39-A-20-10-18-00A-691A-A and with reference to Figure 18 wiring diagram, mark wires as indicated between splice SP10632, sectioning connectors P100 and P121, CCD connectors PL23P1 and PL7P1 by means of marker sleeves P/N A578A02-9.

7.15 With reference to Figures 6 and 7, Figure 18 wiring diagram, perform the electrical connection to splice SP10632, sectioning connector P100, PLT CCD connector PL23P1 and CPLT CCD connector PL7P1.

7.16 With reference to Figure 7 and Figures 17 and 19 wiring diagrams, reposition the following electrical connection of PLT CCD connector PL23P1:

- Wire ID U136B24-G from pin 10 to pin 4;
- Wire ID U147A24-G from pin 11 to pin 5;
- Wire ID U148A24-G from pin 15 to pin 31;
- Wire ID U149A24-G from pin 13 to pin 10.
- Wire ID U137B24-G from pin 14 to pin 30.

7.17 With reference to Figure 4 and 7, Figure 15 wiring diagram, remove cap ends CE1283, CE1284, CE1285, CE1286, CE1287 and CE1288.

7.18 With reference to Figure 4, remove n°2 backshells P/N 7031364-806 and replace with n°2 backshells P/N 7031364-807.

7.19 With reference to Figure 29, rework n°2 backshells P/N 7031364-807 by means of n°2 screw P/N 0919-13, n°2 terminal P/N 093-1, n°2 strap P/N 2504695-4 and n°2 adapter P/N 7029582-300.

7.20 With reference to Figures 4 and 7, Figure 19 wiring diagram, perform the electrical connection to PLT CCD connector PL23P1, PLT PFD connector A30P2 P/N M24308/2-289 (backshell P/N 7031364-807) and PLT MFD connector A42P2 P/N M24308/2-289 (backshell P/N 7031364-807).

7.21 With reference to Figure 7 and Figures 17 and 20 wiring diagrams, reposition the following electrical connection of CPLT CCD connector PL7P1:

- Wire ID U109A24-G from pin 11 to pin 5;
- Wire ID U110A24-G from pin 15 to pin 31;
- Wire ID U111A24-G from pin 13 to pin 10;
- Wire ID U120B24-G from pin 10 to pin 4;
- Wire ID U121B24-G from pin 14 to pin 30.

7.22 With reference to Figures 5 and 7, Figure 16 wiring diagram, remove cap ends CE1297, CE1298, CE1299, CE1300, CE1301 and CE1302.

7.23 With reference to Figure 5, remove n°2 backshells P/N 7031364-806 and replace with n°2 backshells P/N 7031364-807.

7.24 With reference to Figure 29, rework n°2 backshells P/N 7031364-807 by means of n°2 screw P/N 0919-13, n°2 terminal P/N 093-1, n°2 strap P/N 2504695-4 and n°2 adapter P/N 7029582-300.

7.25 With reference to Figures 5 and 7, Figure 20 wiring diagram, perform the electrical connection to CPLT CCD connector PL7P1, CPLT PFD connector A31P2 P/N M24308/2-289 (backshell P/N 7031364-807) and CPLT MFD connector A95P2 P/N M24308/2-289 (backshell P/N 7031364-807).

NOTE

Make sure that splices SP10542, SP10543 and SP10544 are positioned inside backshell of MAU 1 connector A1-NICP1 (Ref. Figure 3).

7.26 With reference to Figure 3 and Figure 21 wiring diagram, remove the electrical connections from MAU 1 connector A1-NICP1 as indicated and replaces as required. Use n°3 splices P/N M81824/1-1, n°7 electrical contacts P/N M39029/63-368 and wires P/N A556A-T24 as required. Mark wires as indicated by means of marker sleeves P/N A578A02-9.

NOTE

Make sure that splices SP10545, SP10546 and SP10547 are positioned inside backshell of MAU 2 connector A2-NICP1 (Ref. Figure 2).

7.27 With reference to Figure 2 and Figure 21 wiring diagram, remove the electrical connections from MAU 2 connector A2-NICP1 as indicated and replaces as required. Use n°3 splices P/N M81824/1-1, n°7 electrical contacts P/N M39029/63-368 and wires P/N A556A-T24 as required. Mark wires as indicated by means of marker sleeves P/N A578A02-9.

NOTE

Make sure that splices SP10548, SP10549 and SP10550 are positioned inside backshell of MRC 1 connector A7-6P3 (Ref. Figure 3).

7.28 With reference to Figure 3 and Figure 22 wiring diagram, remove the electrical connections from MRC 1 connector A7-6P3 as indicated and replaces as required. Use n°3 splices P/N M81824/1-1, n°7 electrical contacts P/N M39029/57-354 and wires P/N A556A-T22 and P/N A556A-T24 as required. Mark wires as indicated by means of marker sleeves P/N A578A02-9.

NOTE

Make sure that splices SP10551, SP10552 and SP10553 are positioned inside backshell of MRC 2 connector A8-6P3 (Ref. Figure 2).

7.29 With reference to Figure 2 and Figure 22 wiring diagram, remove the electrical connections from MRC 2 connector A8-6P3 as indicated and replaces as required. Use n°3 splices P/N M81824/1-1, n°7 electrical contacts P/N M39029/57-354 and wires P/N A556A-T22 and P/N A556A-T24 as required. Mark wires as indicated by means of marker sleeves P/N A578A02-9.

NOTE

Make sure that splices SP10554, SP10555 and SP10556 are positioned inside backshell of MFD PLT connector A42P3 (Ref. Figure 4).

7.30 With reference to Figure 4 and Figure 23 wiring diagram, remove the electrical connections from MFD PLT connector A42P3 as indicated and replaces as required. Use n°3 splices P/N M81824/1-1, n°7 electrical contacts P/N M39029/63-368 and wires P/N A556A-T24 as required. Mark wires as indicated by means of marker sleeves P/N A578A02-9.

NOTE

Make sure that splices SP10557 and SP10558 are positioned inside backshell of PFD PLT connector A30P3 (Ref. Figure 4).

7.31 With reference to Figure 4 and Figure 23 wiring diagram, remove the electrical connections from PFD PLT connector A30P3 as indicated and replaces as required. Use n°2 splices P/N M81824/1-1, n° 5 electrical contacts P/N M39029/63-368 and wires P/N A556A-T24 as required. Mark wires as indicated by means of marker sleeves P/N A578A02-9.

NOTE

Make sure that splices SP10562, SP10563 and SP10564 are positioned inside backshell of MFD CPLT connector A95P3 (Ref. Figure 5).

7.32 With reference to Figure 5 and Figure 24 wiring diagram, remove the electrical connections from MFD CPLT connector A95P3 as indicated and replaces as required. Use n°3 splices P/N M81824/1-1, n°7 electrical contacts P/N M39029/63-368 and wires P/N A556A-T24 as required. Mark wires as indicated by means of marker sleeves P/N A578A02-9.

NOTE

Make sure that splices SP10559, SP10560 and SP10561 are positioned inside backshell of PFD CPLT connector A31P3 (Ref. Figure 5).

7.33 With reference to Figure 5 and Figure 24 wiring diagram, remove the electrical connections from PFD CPLT connector A31P3 as indicated and replaces as required. Use n°3 splices P/N M81824/1-1, n°7 electrical contacts P/N M39029/63-368 and wires P/N A556A-T24 as required. Mark wires as indicated by means of marker sleeves P/N A578A02-9.

8. In accordance with AMP DM 39-A-06-41-00-00A-010A-A and with reference to Figures 9 thru 13, gain access to the area affected by the installation and perform DMU to DLMU-W PHASE 8 retromod P/N 3G4620A01211 as described in the following procedure:

8.1 With reference to Figures 10, 12 and 13, Figures 27 and 28 wiring diagrams, assemble the DMU to DLMU-W PHASE 8 retromod C/A P/N 3G9A02A64501 (A2A645) as described in the following procedure:

8.1.1 Cut n°5 wires P/N AW002WC01-24 of adequate length and lay down between the following connectors following the existing route as shown:

- DLMU-W connector PL186P3 P/N M24308/2-291Z (backshell P/N 557T110M6F05C);
- MAU 1 connectors A1-NICP1 and A1-9P1;
- PFD CPLT connector A31P3;
- MRC 1 connector A7-6P1;
- MFD CPLT connector A95P3.

8.1.2 In accordance with AMP DM 39-A-20-10-08-00A-622A-A, crimp on wires by means of proper crimping tool the following electrical contacts:

- n°20 electrical contact P/N M39029/57-354 (PL186P3 side);
- n°4 electrical contact P/N M39029/63-368 (A1-NICP1 side);
- n°4 electrical contact P/N M39029/57-354 (A1-9P1 side);
- n°4 electrical contact P/N M39029/63-368 (A31P3 side);
- n°4 electrical contact P/N M39029/57-354 (A7-6P1 side);
- n°4 electrical contact P/N M39029/63-368 (A95P3 side);

8.1.3 In accordance with AMP DM 39-A-20-10-18-00A-691A-A, mark wires as indicated by means of marker sleeves P/N A578A03-9.

8.2 With reference to Figures 11 thru 13, Figures 27 and 28 wiring diagrams, assemble the DMU to DLMU-W PHASE 8 retromod C/A P/N 3G9A02B62301 (A2B623) as described in the following procedure:

8.2.1 Cut n°4 wires P/N AW002WC01-24 of adequate length and lay down between the following connectors following the existing route as shown:

- DLMU-W connector PL186P3;
- MAU 2 connector A2-NICP1;
- PFD PLT connector A30P3;
- MRC 2 connector A8-6P1;
- MFD PLT connector A42P3.

8.2.2 In accordance with AMP DM 39-A-20-10-08-00A-622A-A, crimp on wires by means of proper crimping tool the following electrical contacts:

- n°16 electrical contact P/N M39029/57-354 (PL186P3 side);
- n°4 electrical contact P/N M39029/63-368 (A2-NICP1 side);
- n°4 electrical contact P/N M39029/63-368 (A30P3 side);
- n°4 electrical contact P/N M39029/57-354 (A8-6P1 side);
- n°4 electrical contact P/N M39029/63-368 (A42P3 side);

8.2.3 In accordance with AMP DM 39-A-20-10-18-00A-691A-A, mark wires as indicated by means of marker sleeves P/N A578A03-9.

8.3 With reference to Figures 10, 12 and 13, Figures 27 and 28 wiring diagrams, perform the electrical connections of C/A A2A645 previously assembled between DLMU-W connector PL186P3, MAU 1 connectors A1-NICP1 and A1-9P1, PFD CPLT connector A31P3, MRC 1 connector A7-6P1 and MFD CPLT connector A95P3.

8.4 With reference to Figures 11 thru 13, Figures 27 and 28 wiring diagrams, perform the electrical connections of C/A A2B623 previously assembled between DLMU-W connector PL186P3, MAU 2 connectors A2-NICP1, PFD PLT connector A30P3, MRC 2 connector A8-6P1 and MFD PLT connector A42P3.

8.5 With reference to Figure 13, Figures 25 and 26 wiring diagrams, re-identify DMU connector PL69P1 as DLMU-W connector PL186P1.

9. Perform a pin-to-pin continuity check of all the electrical connections made.
10. With reference to Figure 13, install the DLMU-W P/N G7229-012 on the interseat console and connect its connectors PL186P1 and PL186P3.
11. In accordance with AMP DM 39-A-11-00-01-00A-720A-A and with reference to Figure 13, install decal P/N ED300PL186 in an area adjacent to previously installed DLMU-W.
12. In accordance with AMP DM 39-B-31-61-05-00A-720A-A and with reference to Figure 6, install the CPLT cursor control device P/N F99-05405-SL on the interseat console.
13. In accordance with AMP DM 39-B-31-61-06-00A-720A-A and with reference to Figure 6, install the PLT cursor control device P/N F99-05406-SL on the interseat console.
14. In accordance with AMP DM 39-A-34-43-01-00A-720A-K, install the EGPWS computer P/N 965-1595-034.

NOTE

In order to comply with following step 15, update your Honeywell subscriptions for Phase 8 through the Database Services Accounts dsa@honeywell.com channel, before performing the download of the required file from the Honeywell website.

15. In accordance with Annex A and with reference to Figure 3, perform the installation of the PRIMUS EPIC® software release 8.
16. In accordance with AMP DM 39-A-00-00-00-00A-750A-A, load the new Option File.
17. In accordance with Annex B, perform the avionic system PRIMUS EPIC PHASE 8 S/W load acceptance test procedure.
18. In accordance with AMP DM 39-C-34-43-00-00A-320A-K, perform the EGPWS operation test.

19. In accordance with AMP DM 39-A-34-15-00-00A-320A-A, perform the air data system operational test.
20. In accordance with weight and balance changes, update the Chart A (see Rotorcraft Flight Manual, Part II, section 6).
21. Return the helicopter to flight configuration and record for compliance with this Service Bulletin on the helicopter logbook.
22. 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”.

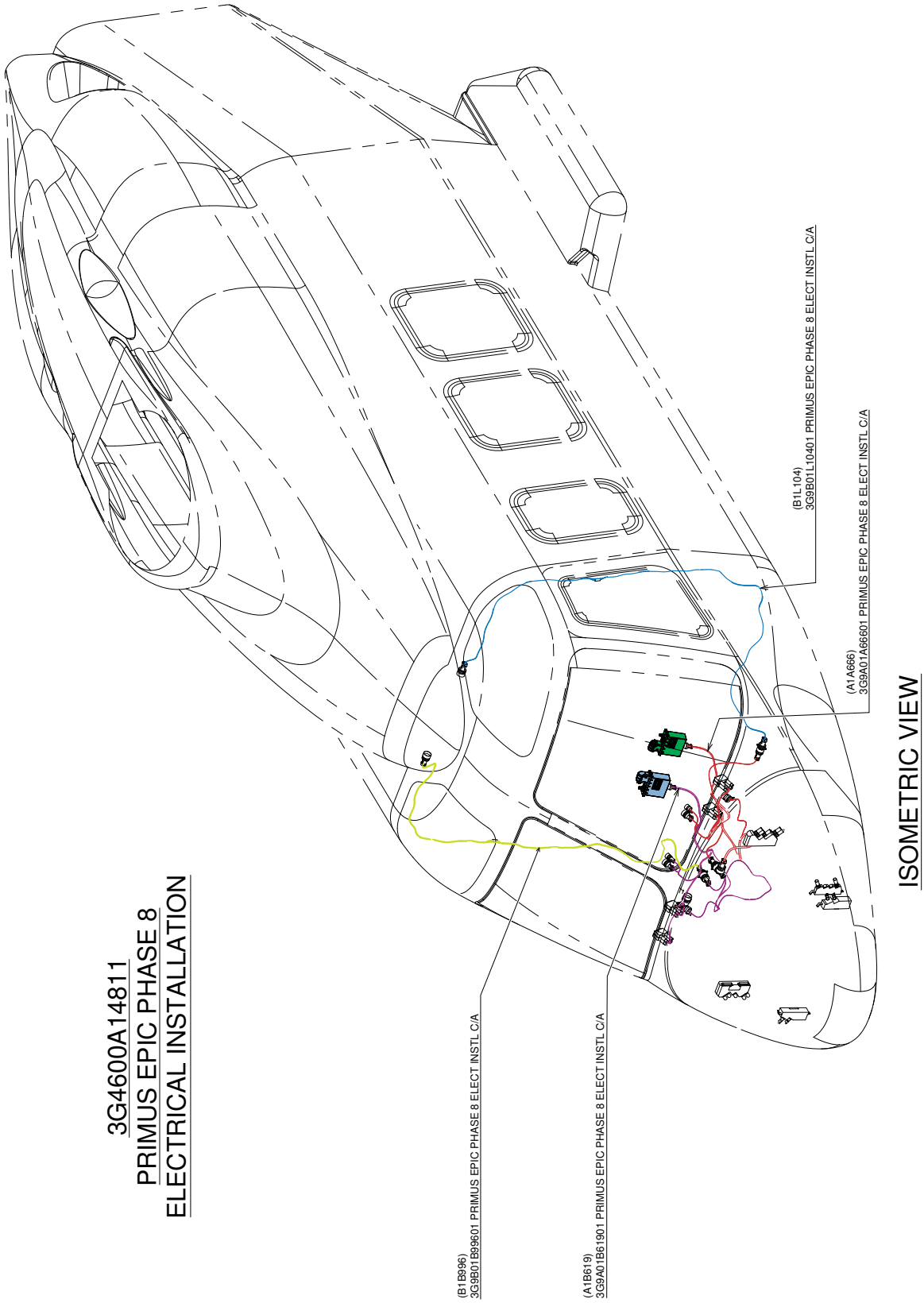

3G4600A14811
PRIMUS EPIC PHASE 8
ELECTRICAL INSTALLATION
ISOMETRIC VIEW
(B1L104)
3G9B01L10401 PRIMUS EPIC PHASE 8 ELECT INSTL C/A
(A1A666)
3G9A01A66601 PRIMUS EPIC PHASE 8 ELECT INSTL C/A
(B1B996)
3G9B01B99601 PRIMUS EPIC PHASE 8 ELECT INSTL C/A
(A1B619)
3G9A01B61901 PRIMUS EPIC PHASE 8 ELECT INSTL C/A

Figure 1

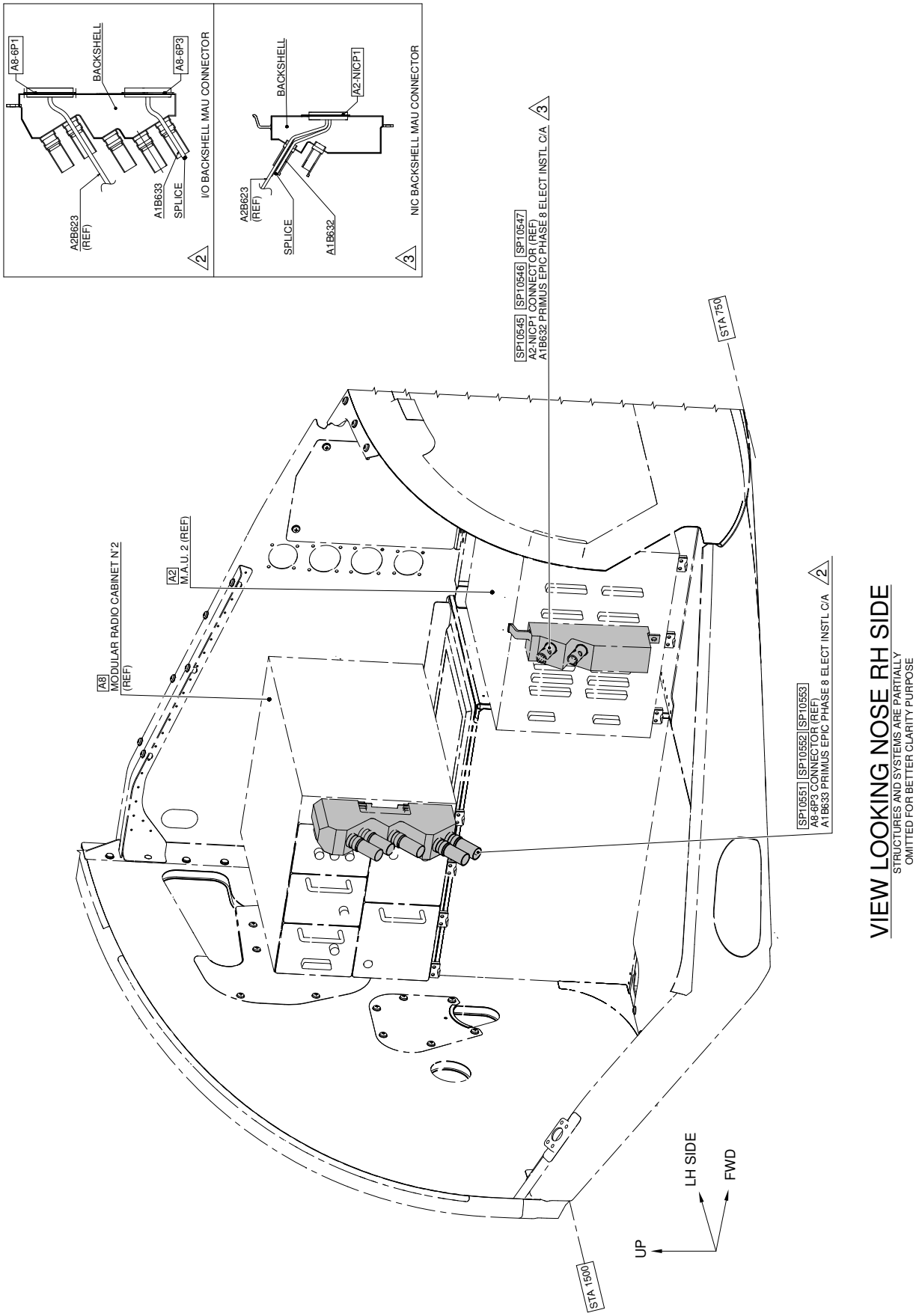

A8-6P1
BACKSHELL
A8-6P3
A2B623 (REF)
A1B633
SPLICE
I/O BACKSHELL MAU CONNECTOR
2
BACKSHELL
A2-NICP1
A2B623 (REF)
SPLICE
A1B632
NIC BACKSHELL MAU CONNECTOR
3
SP10545 SP10546 SP10547
A2-NICP1 CONNECTOR (REF)
A1B632 PRIMUS EPIC PHASE 8 ELECT INSTL C/A
3
STA 750
A2
M.A.U. 2 (REF)
A8
MODULAR RADIO CABINET N°2
(REF)
SP10551 SP10552 SP10553
A8-6P3 CONNECTOR (REF)
A1B633 PRIMUS EPIC PHASE 8 ELECT INSTL C/A
2
STA 1500
LH SIDE
FWD
UP
VIEW LOOKING NOSE RH SIDE
STRUCTURES AND SYSTEMS ARE PARTIALLY
OMITTED FOR BETTER CLARITY PURPOSE

Figure 2

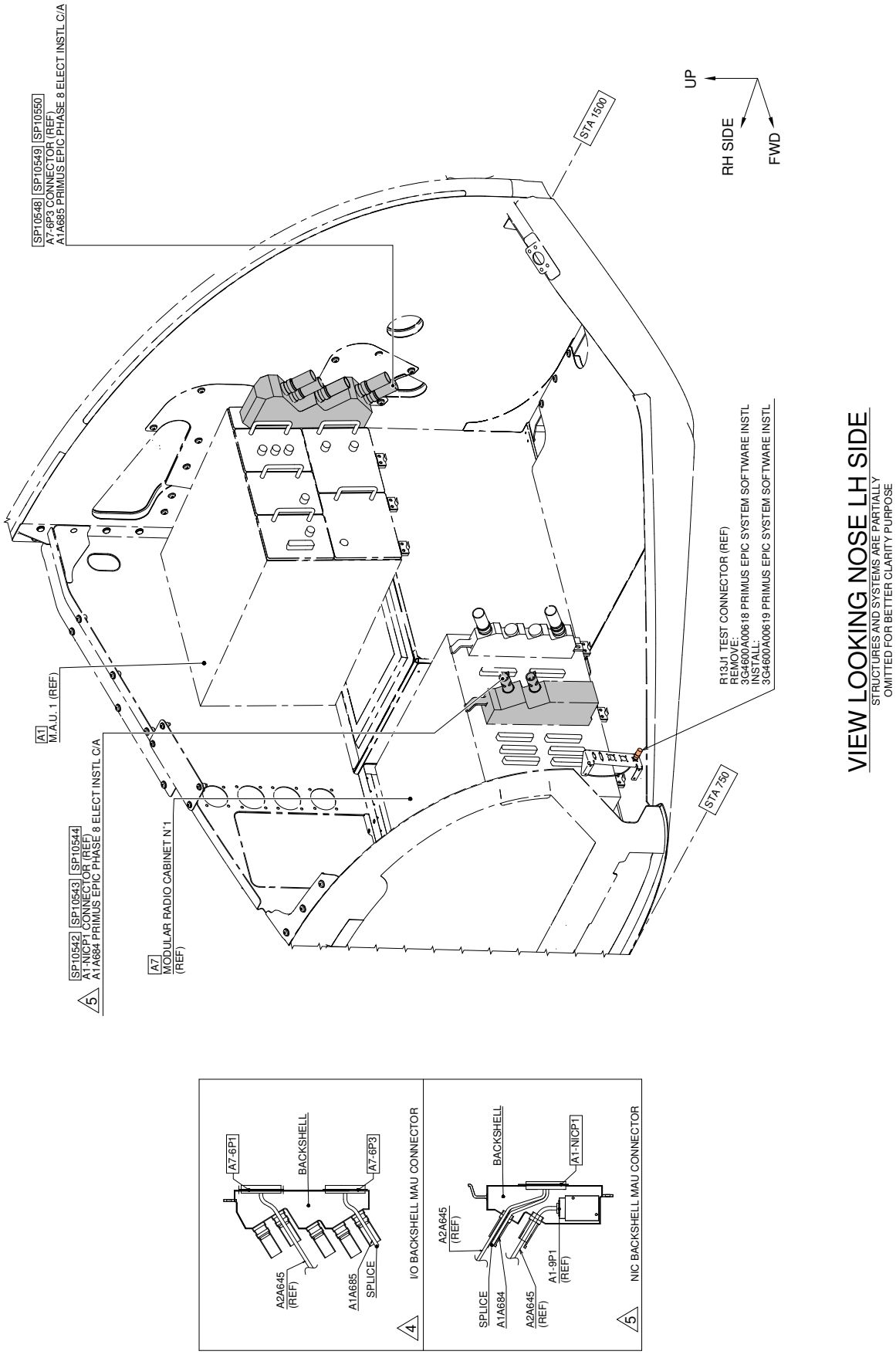

VIEW LOOKING NOSE LH SIDE
STRUCTURES AND SYSTEMS ARE PARTIALLY OMITTED FOR BETTER CLARITY PURPOSE
UP
RH SIDE
FWD
STA 1500
STA 750
SP10548 SP10549 SP10550
A7-6P3 CONNECTOR (REF)
A1A685 PRIMUS EPIC PHASE 8 ELECT INSTL C/A
A1
M.A.U. 1 (REF)
SP10542 SP10543 SP10544
A1-NICP1 CONNECTOR (REF)
A1A684 PRIMUS EPIC PHASE 8 ELECT INSTL C/A
5
A7
MODULAR RADIO CABINET N°1
(REF)
R13J1 TEST CONNECTOR (REF)
REMOVE:
3G4600A00618 PRIMUS EPIC SYSTEM SOFTWARE INSTL
INSTALL:
3G4600A00619 PRIMUS EPIC SYSTEM SOFTWARE INSTL
A7-6P1
BACKSHELL
A7-6P3
A2A645
(REF)
A1A685
SPLICE
4
I/O BACKSHELL MAU CONNECTOR
A2A645
(REF)
BACKSHELL
A1-NICP1
SPLICE
A1A684
A2A645
(REF)
A1-9P1
(REF)
5
NIC BACKSHELL MAU CONNECTOR

Figure 3

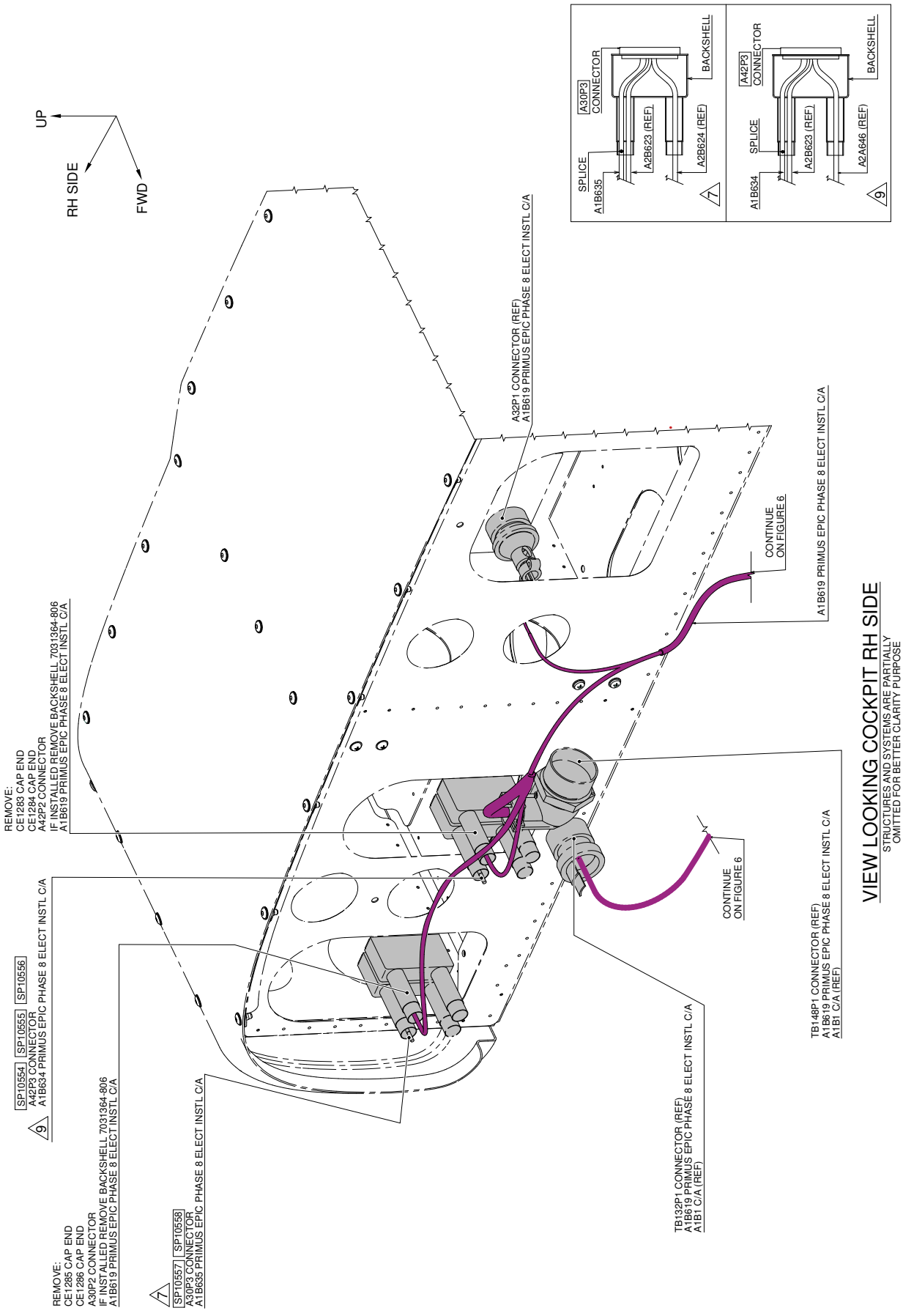

UP
RH SIDE
FWD
A32P1 CONNECTOR (REF)
A1B619 PRIMUS EPIC PHASE 8 ELECT INSTL C/A
A1B619 PRIMUS EPIC PHASE 8 ELECT INSTL C/A
CONTINUE ON FIGURE 6
CONTINUE ON FIGURE 6
REMOVE:
CE1283 CAP END
CE1284 CAP END
A42P2 CONNECTOR
IF INSTALLED REMOVE BACKSHELL 7031364-806
A1B619 PRIMUS EPIC PHASE 8 ELECT INSTL C/A
9
SP10554 SP10555 SP10556
A42P3 CONNECTOR
A1B634 PRIMUS EPIC PHASE 8 ELECT INSTL C/A
REMOVE:
CE1285 CAP END
CE1286 CAP END
A30P2 CONNECTOR
IF INSTALLED REMOVE BACKSHELL 7031364-806
A1B619 PRIMUS EPIC PHASE 8 ELECT INSTL C/A
7
SP10557 SP10558
A30P3 CONNECTOR
A1B635 PRIMUS EPIC PHASE 8 ELECT INSTL C/A
TB132P1 CONNECTOR (REF)
A1B619 PRIMUS EPIC PHASE 8 ELECT INSTL C/A
A1B1 C/A (REF)
TB148P1 CONNECTOR (REF)
A1B619 PRIMUS EPIC PHASE 8 ELECT INSTL C/A
A1B1 C/A (REF)
VIEW LOOKING COCKPIT RH SIDE
STRUCTURES AND SYSTEMS ARE PARTIALLY OMITTED FOR BETTER CLARITY PURPOSE
7
SPLICE
A1B635
A30P3 CONNECTOR
A2B623 (REF)
A2B624 (REF)
BACKSHELL
9
A1B634
SPLICE
A42P3 CONNECTOR
A2B623 (REF)
A2A646 (REF)
BACKSHELL

Figure 4

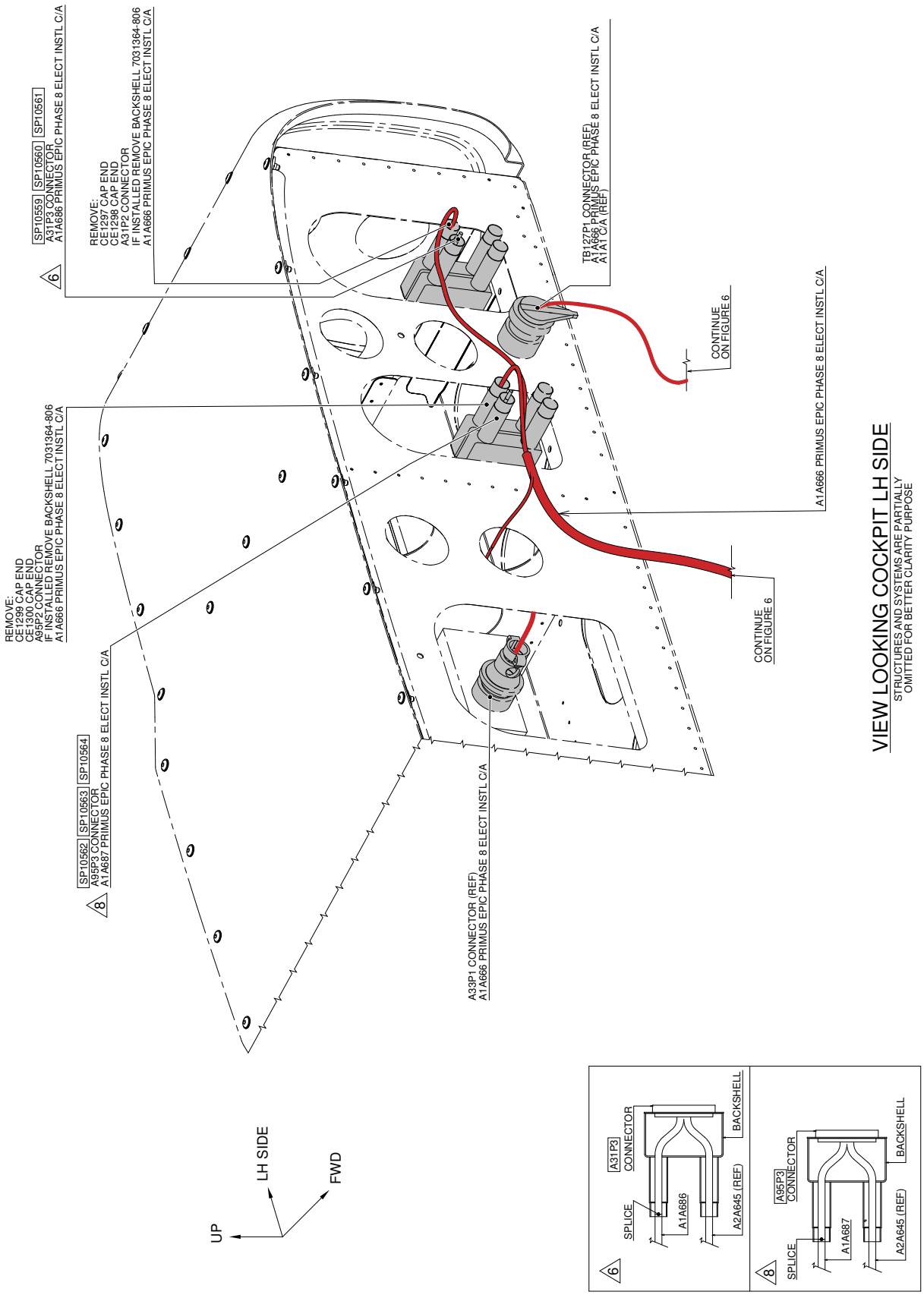

VIEW LOOKING COCKPIT LH SIDE
STRUCTURES AND SYSTEMS ARE PARTIALLY OMITTED FOR BETTER CLARITY PURPOSE
6
SP10559 SP10560 SP10561
A31P3 CONNECTOR
A1A686 PRIMUS EPIC PHASE 8 ELECT INSTL C/A
REMOVE:
CE1297 CAP END
CE1298 CAP END
A31P2 CONNECTOR
IF INSTALLED REMOVE BACKSHELL 7031364-806
A1A666 PRIMUS EPIC PHASE 8 ELECT INSTL C/A
TB127P1 CONNECTOR (REF)
A1A666 PRIMUS EPIC PHASE 8 ELECT INSTL C/A
A1A1 C/A (REF)
CONTINUE ON FIGURE 6
A1A666 PRIMUS EPIC PHASE 8 ELECT INSTL C/A
REMOVE:
CE1299 CAP END
CE1300 CAP END
A95P2 CONNECTOR
IF INSTALLED REMOVE BACKSHELL 7031364-806
A1A666 PRIMUS EPIC PHASE 8 ELECT INSTL C/A
8
SP10562 SP10563 SP10564
A95P3 CONNECTOR
A1A687 PRIMUS EPIC PHASE 8 ELECT INSTL C/A
A33P1 CONNECTOR (REF)
A1A666 PRIMUS EPIC PHASE 8 ELECT INSTL C/A
CONTINUE ON FIGURE 6
UP
LH SIDE
FWD
6
SPLICE
A1A686
A2A645 (REF)
A31P3 CONNECTOR
BACKSHELL
8
SPLICE
A1A687
A2A645 (REF)
A95P3 CONNECTOR
BACKSHELL

Figure 5

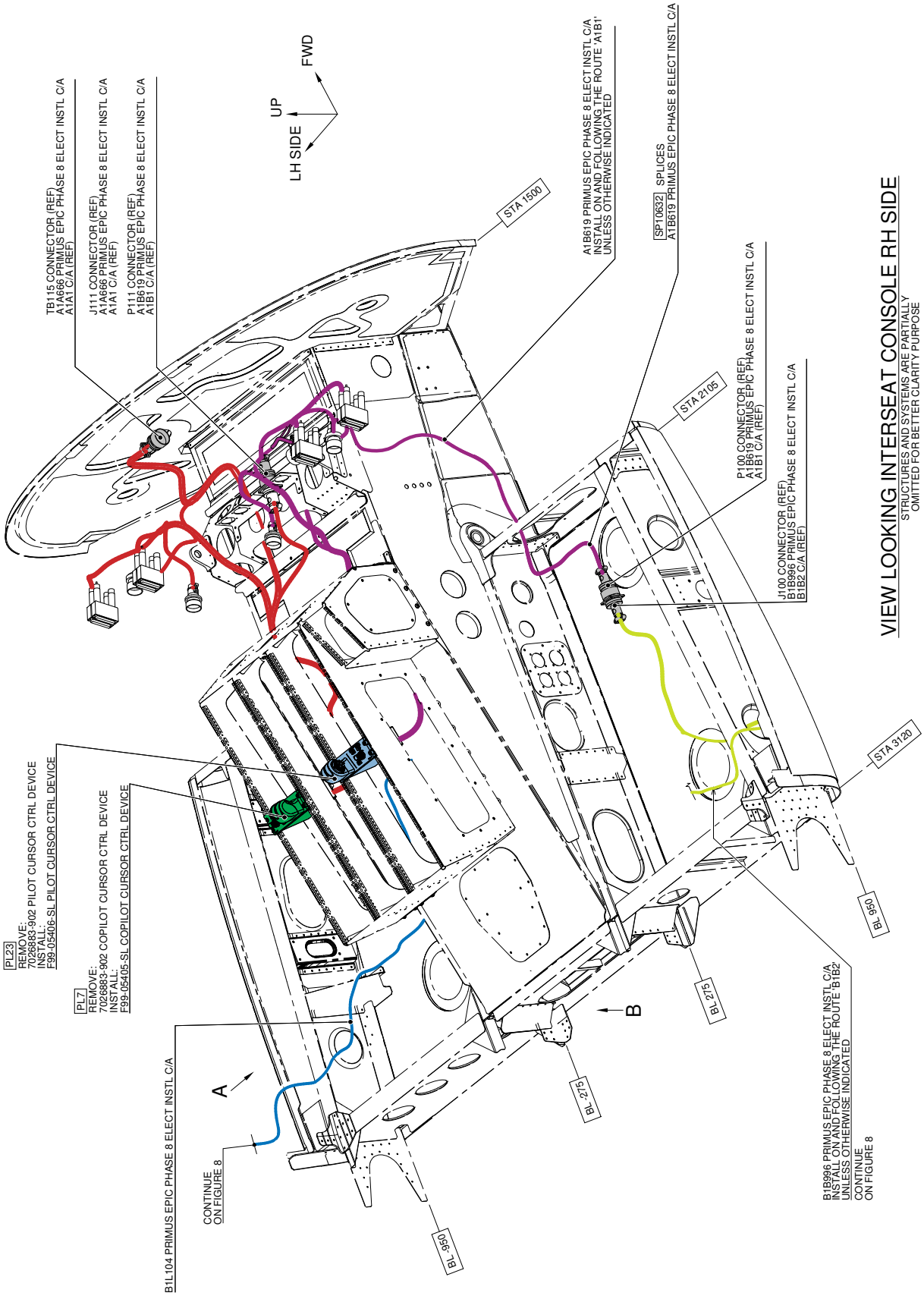

VIEW LOOKING INTERSEAT CONSOLE RH SIDE
STRUCTURES AND SYSTEMS ARE PARTIALLY OMITTED FOR BETTER CLARITY PURPOSE
UP
FWD
LH SIDE
STA 1500
STA 2105
STA 3120
BL 275
BL 950
A
B
TB115 CONNECTOR (REF)
A1A66 PRIMUS EPIC PHASE 8 ELECT INSTL C/A
A1A1 C/A (REF)
J111 CONNECTOR (REF)
A1A66 PRIMUS EPIC PHASE 8 ELECT INSTL C/A
A1A1 C/A (REF)
P111 CONNECTOR (REF)
A1B619 PRIMUS EPIC PHASE 8 ELECT INSTL C/A
A1B1 C/A (REF)
A1B619 PRIMUS EPIC PHASE 8 ELECT INSTL C/A
INSTALL ON AND FOLLOWING THE ROUTE 'A1B1'
UNLESS OTHERWISE INDICATED
SP10632 SPLICES
A1B619 PRIMUS EPIC PHASE 8 ELECT INSTL C/A
P100 CONNECTOR (REF)
A1B619 PRIMUS EPIC PHASE 8 ELECT INSTL C/A
A1B1 C/A (REF)
J100 CONNECTOR (REF)
B1B996 PRIMUS EPIC PHASE 8 ELECT INSTL C/A
B1B2 C/A (REF)
PL23
REMOVE:
7026883-902 PILOT CURSOR CTRL DEVICE
INSTALL:
F99-05406-SL PILOT CURSOR CTRL DEVICE
PL7
REMOVE:
7026883-902 COPILOT CURSOR CTRL DEVICE
INSTALL:
F99-05405-SL COPILOT CURSOR CTRL DEVICE
B1L104 PRIMUS EPIC PHASE 8 ELECT INSTL C/A
CONTINUE
ON FIGURE 8
B1B996 PRIMUS EPIC PHASE 8 ELECT INSTL C/A
INSTALL ON AND FOLLOWING THE ROUTE 'B1B2'
UNLESS OTHERWISE INDICATED
CONTINUE
ON FIGURE 8

Figure 6

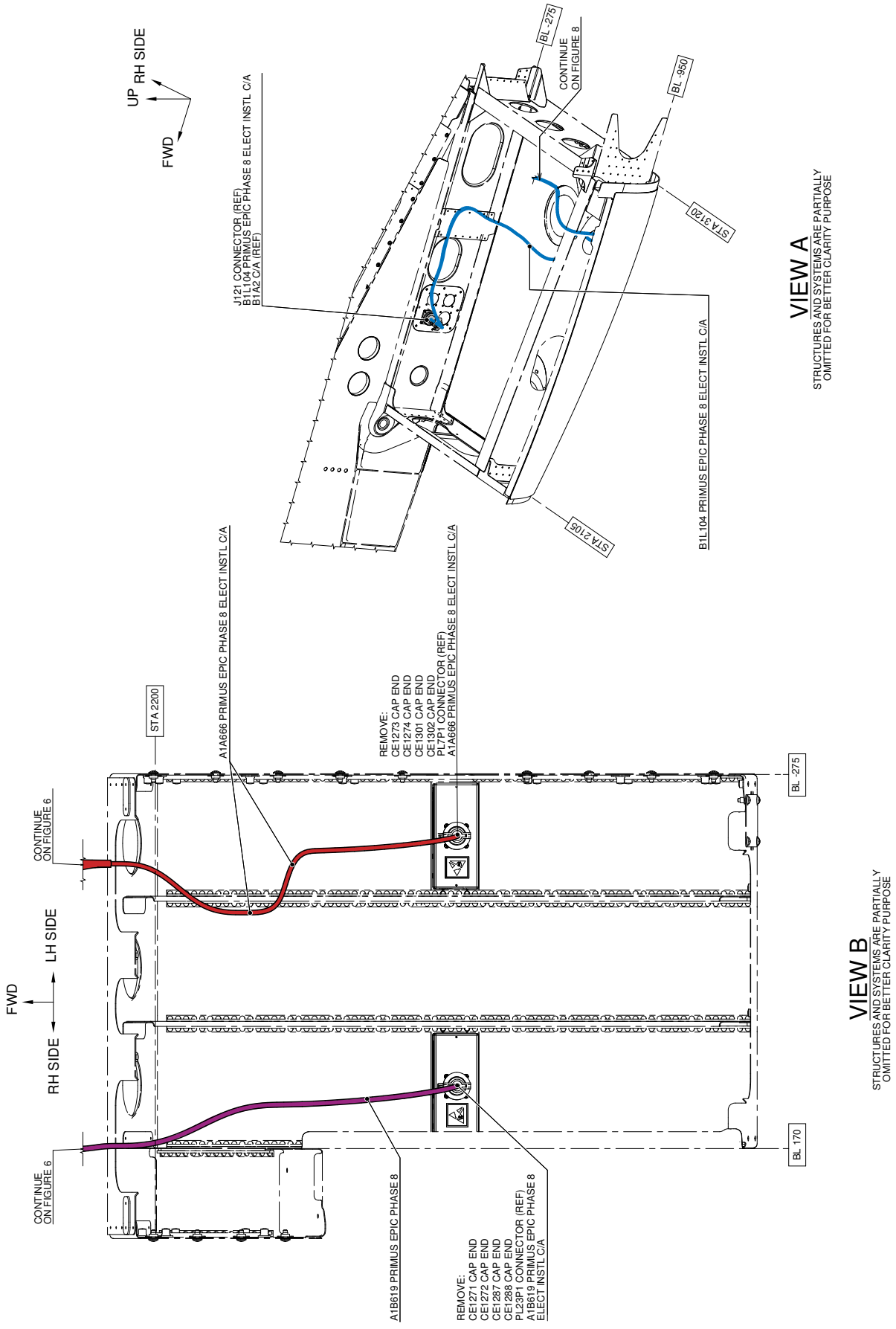

UP
RH SIDE
FWD
J121 CONNECTOR (REF)
B1L104 PRIMUS EPIC PHASE 8 ELECT INSTL C/A
B1A2 C/A (REF)
BL -275
CONTINUE
ON FIGURE 8
BL -950
STA 3120
STA 2105
B1L104 PRIMUS EPIC PHASE 8 ELECT INSTL C/A
VIEW A
STRUCTURES AND SYSTEMS ARE PARTIALLY
OMITTED FOR BETTER CLARITY PURPOSE
A1A666 PRIMUS EPIC PHASE 8 ELECT INSTL C/A
REMOVE:
CE1273 CAP END
CE1274 CAP END
CE1301 CAP END
CE1302 CAP END
PL7P1 CONNECTOR (REF)
A1A666 PRIMUS EPIC PHASE 8 ELECT INSTL C/A
STA 2200
BL -275
CONTINUE
ON FIGURE 6
FWD
LH SIDE
RH SIDE
BL 170
CONTINUE
ON FIGURE 6
A1B619 PRIMUS EPIC PHASE 8
ELECT INSTL C/A
REMOVE:
CE1271 CAP END
CE1272 CAP END
CE1287 CAP END
CE1288 CAP END
PL23P1 CONNECTOR (REF)
A1B619 PRIMUS EPIC PHASE 8
ELECT INSTL C/A
VIEW B
STRUCTURES AND SYSTEMS ARE PARTIALLY
OMITTED FOR BETTER CLARITY PURPOSE

Figure 7

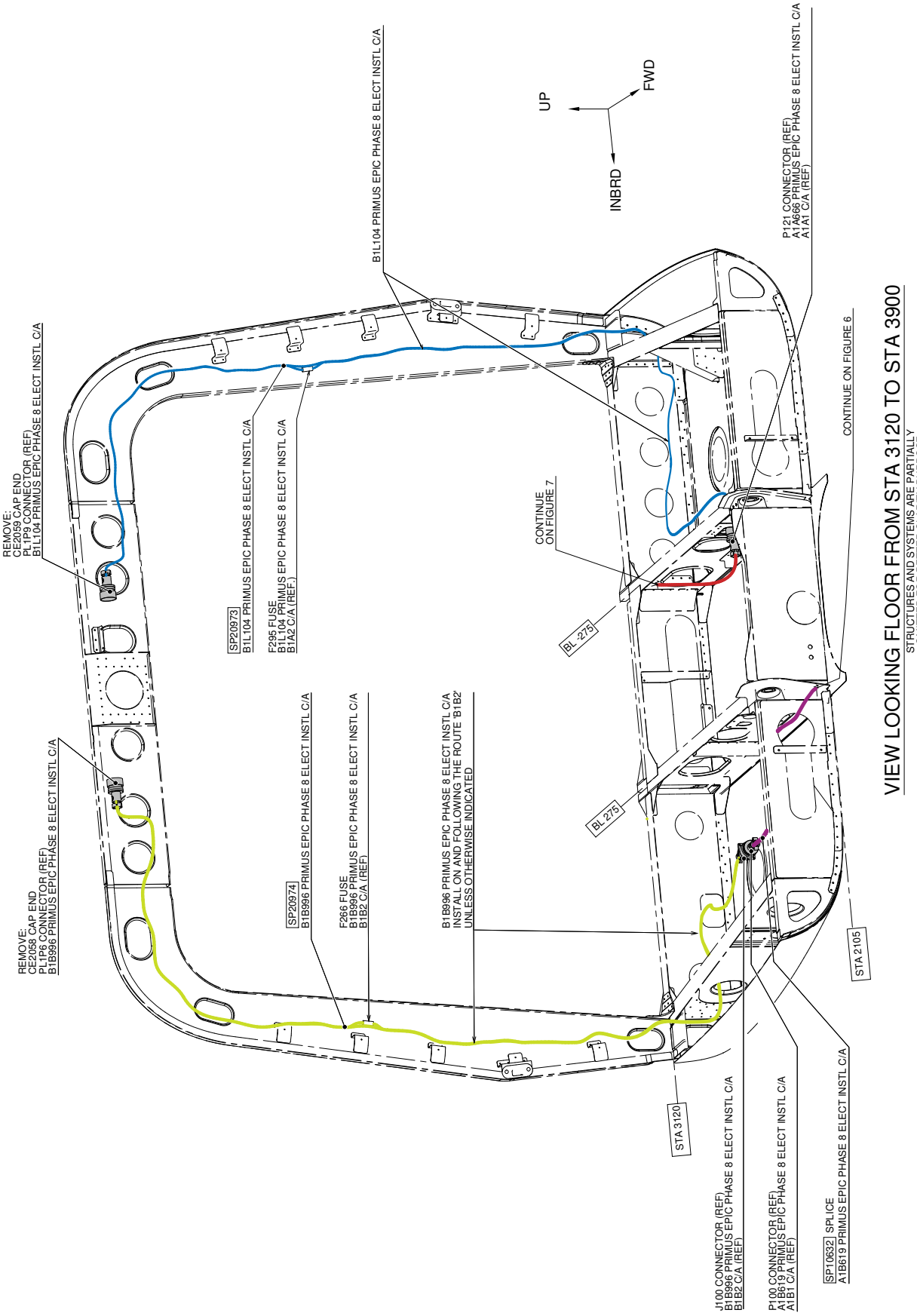

VIEW LOOKING FLOOR FROM STA 3120 TO STA 3900
STRUCTURES AND SYSTEMS ARE PARTIALLY OMITTED FOR BETTER CLARITY PURPOSE
UP
FWD
INBRD
B1L104 PRIMUS EPIC PHASE 8 ELECT INSTL C/A
P121 CONNECTOR (REF)
A1A666 PRIMUS EPIC PHASE 8 ELECT INSTL C/A
A1A1 C/A (REF)
CONTINUE ON FIGURE 6
CONTINUE ON FIGURE 7
REMOVE:
CE2099 CAP END
P1L1P9 CONNECTOR (REF)
B1L104 PRIMUS EPIC PHASE 8 ELECT INSTL C/A
SP20973
B1L104 PRIMUS EPIC PHASE 8 ELECT INSTL C/A
F295 FUSE
B1L104 PRIMUS EPIC PHASE 8 ELECT INSTL C/A
B1A2 C/A (REF.)
BL 275
REMOVE:
CE2058 CAP END
PL1P6 CONNECTOR (REF)
B1B996 PRIMUS EPIC PHASE 8 ELECT INSTL C/A
SP20974
B1B996 PRIMUS EPIC PHASE 8 ELECT INSTL C/A
F266 FUSE
B1B996 PRIMUS EPIC PHASE 8 ELECT INSTL C/A
B1B2 C/A (REF)
B1B996 PRIMUS EPIC PHASE 8 ELECT INSTL C/A
INSTALL ON AND FOLLOWING THE ROUTE 'B1B2'
UNLESS OTHERWISE INDICATED
BL 275
STA 2105
STA 3120
J100 CONNECTOR (REF)
B1B996 PRIMUS EPIC PHASE 8 ELECT INSTL C/A
B1B2 C/A (REF)
P100 CONNECTOR (REF)
A1B619 PRIMUS EPIC PHASE 8 ELECT INSTL C/A
A1B1 C/A (REF)
SP10632 SPLICE
A1B619 PRIMUS EPIC PHASE 8 ELECT INSTL C/A

Figure 8

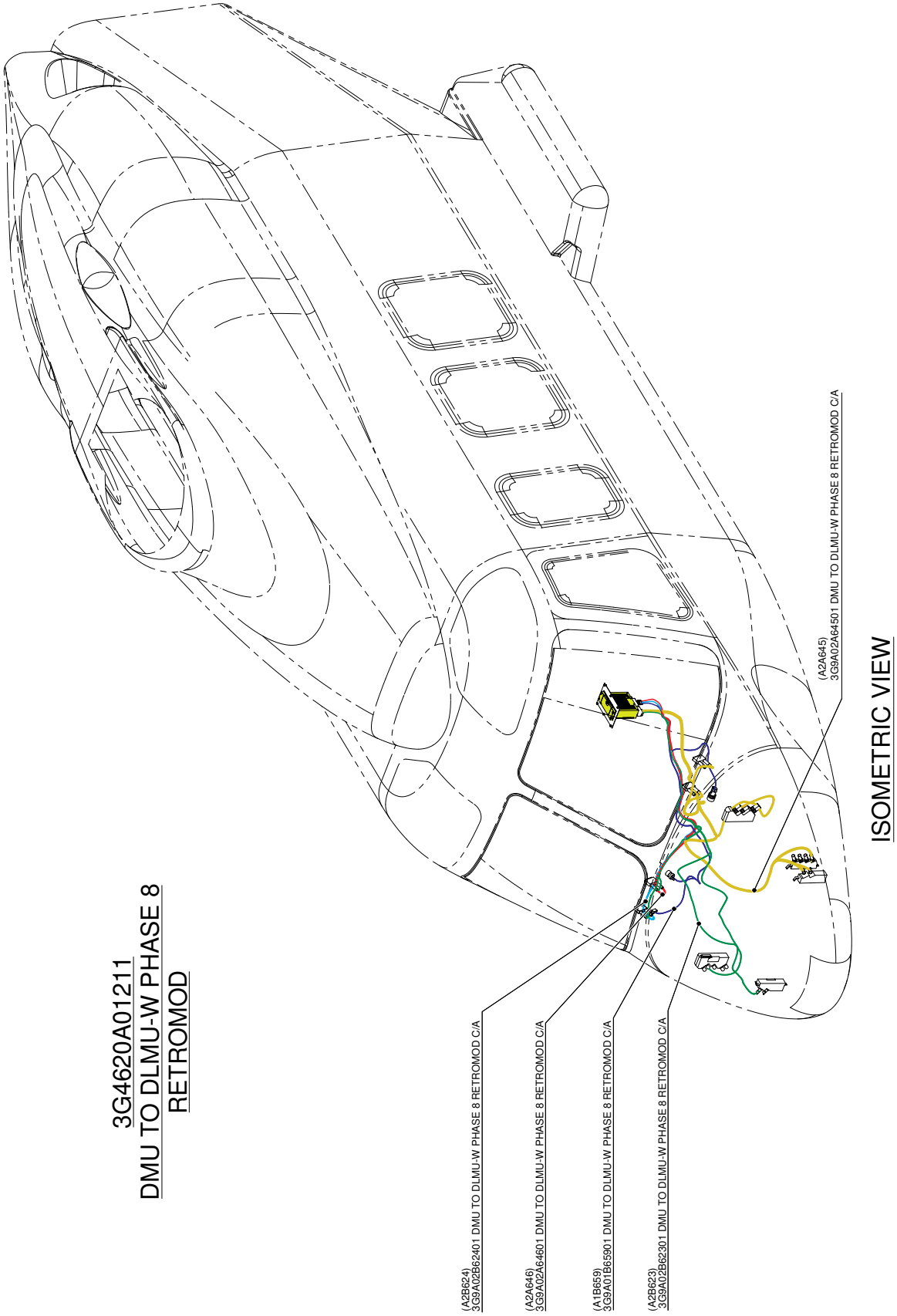

3G4620A01211
DMU TO DLMU-W PHASE 8
RETROMOD
ISOMETRIC VIEW
(A2A645)
3G9A02A64501 DMU TO DLMU-W PHASE 8 RETROMOD C/A
(A2B624)
3G9A02B62401 DMU TO DLMU-W PHASE 8 RETROMOD C/A
(A2A646)
3G9A02A64601 DMU TO DLMU-W PHASE 8 RETROMOD C/A
(A1B659)
3G9A01B65901 DMU TO DLMU-W PHASE 8 RETROMOD C/A
(A2B623)
3G9A02B62301 DMU TO DLMU-W PHASE 8 RETROMOD C/A

Figure 9

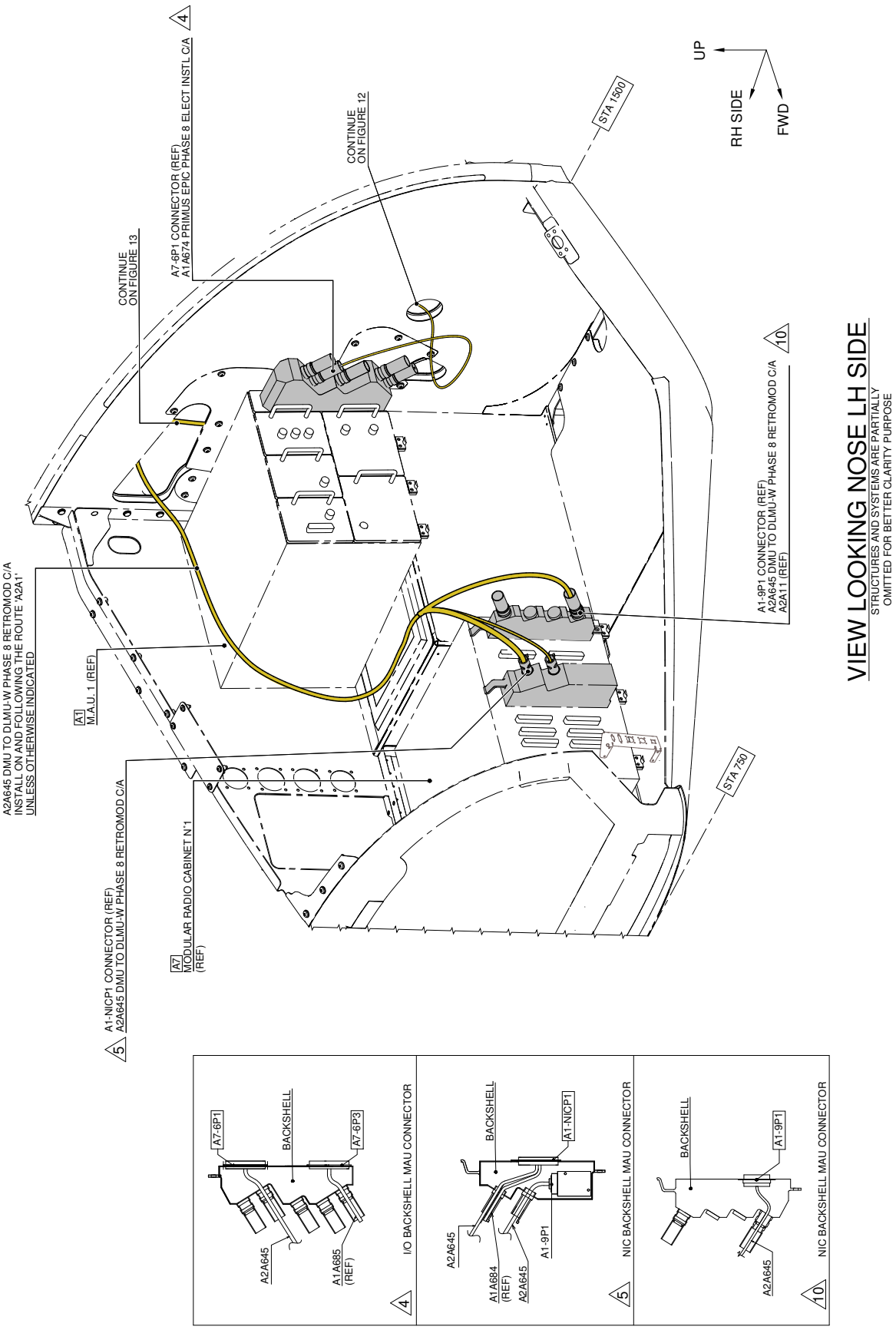

VIEW LOOKING NOSE LH SIDE
STRUCTURES AND SYSTEMS ARE PARTIALLY OMITTED FOR BETTER CLARITY PURPOSE
UP
RH SIDE
FWD
STA 1500
STA 750
CONTINUE ON FIGURE 12
CONTINUE ON FIGURE 13
4 A7-6P1 CONNECTOR (REF) A1A674 PRIMUS EPIC PHASE 8 ELECT INSTL C/A
10 A1-9P1 CONNECTOR (REF) A2A645 DMU TO DLMU-W PHASE 8 RETROMOD C/A A2A11 (REF)
A2A645 DMU TO DLMU-W PHASE 8 RETROMOD C/A INSTALL ON AND FOLLOWING THE ROUTE 'A2A1' UNLESS OTHERWISE INDICATED
A1 M.A.U. 1 (REF)
5 A1-NICP1 CONNECTOR (REF) A2A645 DMU TO DLMU-W PHASE 8 RETROMOD C/A
A7 MODULAR RADIO CABINET N°1 (REF)
A7-6P1
BACKSHELL
A7-6P3
A2A645
A1A685 (REF)
4 I/O BACKSHELL MAU CONNECTOR
BACKSHELL
A1-NICP1
A2A645
A1A684 (REF)
A2A645
A1-9P1
5 NIC BACKSHELL MAU CONNECTOR
BACKSHELL
A1-9P1
A2A645
10 NIC BACKSHELL MAU CONNECTOR

Figure 10

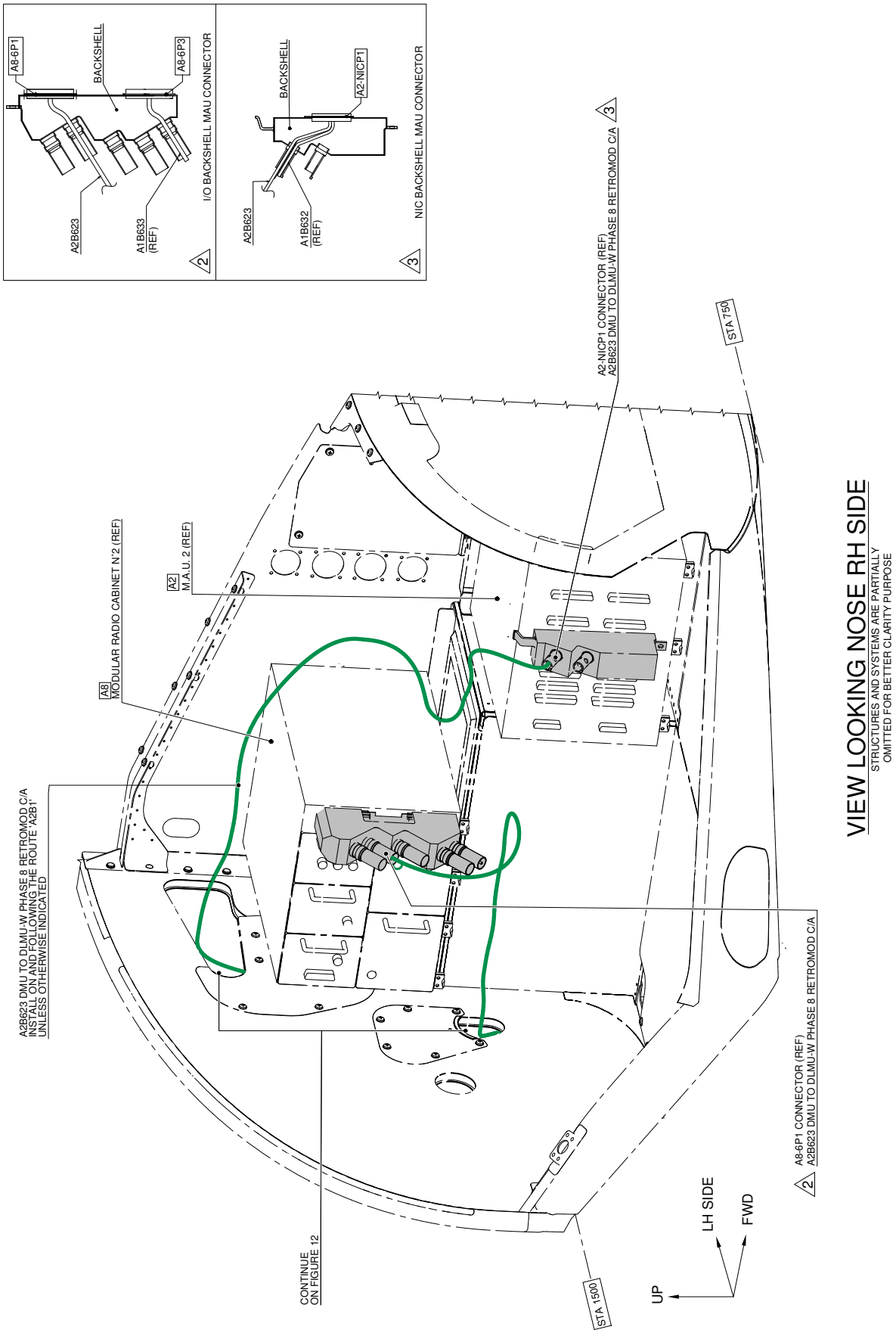

A8-6P1
BACKSHELL
A8-6P3
A2B623
A1B633 (REF)
2 I/O BACKSHELL MAU CONNECTOR
BACKSHELL
A2-NICP1
A2B623
A1B632 (REF)
3 NIC BACKSHELL MAU CONNECTOR
A2-NICP1 CONNECTOR (REF)
A2B623 DMU TO DLMU-W PHASE 8 RETROMOD C/A
3
STA 750
A8 MODULAR RADIO CABINET N°2 (REF)
A2 M.A.U. 2 (REF)
A2B623 DMU TO DLMU-W PHASE 8 RETROMOD C/A
INSTALL ON AND FOLLOWING THE ROUTE 'A2B1'
UNLESS OTHERWISE INDICATED
CONTINUE
ON FIGURE 12
2 A8-6P1 CONNECTOR (REF)
A2B623 DMU TO DLMU-W PHASE 8 RETROMOD C/A
STA 1500
UP
LH SIDE
FWD
VIEW LOOKING NOSE RH SIDE
STRUCTURES AND SYSTEMS ARE PARTIALLY
OMITTED FOR BETTER CLARITY PURPOSE

Figure 11

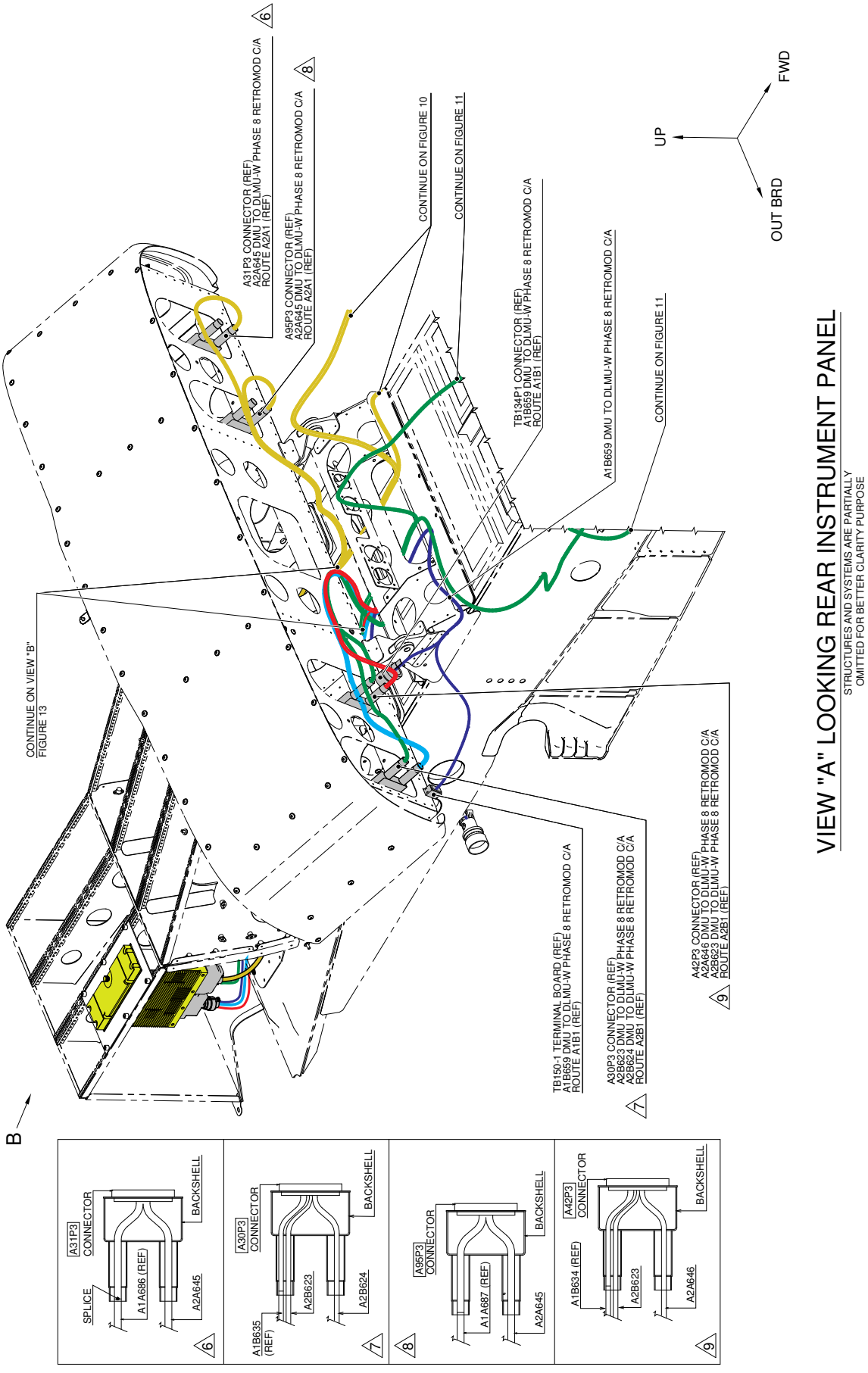

VIEW "A" LOOKING REAR INSTRUMENT PANEL
STRUCTURES AND SYSTEMS ARE PARTIALLY OMITTED FOR BETTER CLARITY PURPOSE
FWD
UP
OUT BRD
A31P3 CONNECTOR (REF)
A2A645 DMU TO DLMU-W PHASE 8 RETROMOD C/A
ROUTE A2A1 (REF)
A95P3 CONNECTOR (REF)
A2A645 DMU TO DLMU-W PHASE 8 RETROMOD C/A
ROUTE A2A1 (REF)
CONTINUE ON FIGURE 10
CONTINUE ON FIGURE 11
TB134P1 CONNECTOR (REF)
A1B659 DMU TO DLMU-W PHASE 8 RETROMOD C/A
ROUTE A1B1 (REF)
A1B659 DMU TO DLMU-W PHASE 8 RETROMOD C/A
CONTINUE ON FIGURE 11
CONTINUE ON VIEW "B"
FIGURE 13
TB150-1 TERMINAL BOARD (REF)
A1B659 DMU TO DLMU-W PHASE 8 RETROMOD C/A
ROUTE A1B1 (REF)
A30P3 CONNECTOR (REF)
A2B623 DMU TO DLMU-W PHASE 8 RETROMOD C/A
A2B624 DMU TO DLMU-W PHASE 8 RETROMOD C/A
ROUTE A2B1 (REF)
A42P3 CONNECTOR (REF)
A2A646 DMU TO DLMU-W PHASE 8 RETROMOD C/A
A2B623 DMU TO DLMU-W PHASE 8 RETROMOD C/A
ROUTE A2B1 (REF)
B
A31P3 CONNECTOR
SPLICE
A1A686 (REF)
A2A645
BACKSHELL
A30P3 CONNECTOR
A1B635 (REF)
A2B623
A2B624
BACKSHELL
A95P3 CONNECTOR
A1A687 (REF)
A2A645
BACKSHELL
A42P3 CONNECTOR
A1B634 (REF)
A2B623
A2A646
BACKSHELL

Figure 12

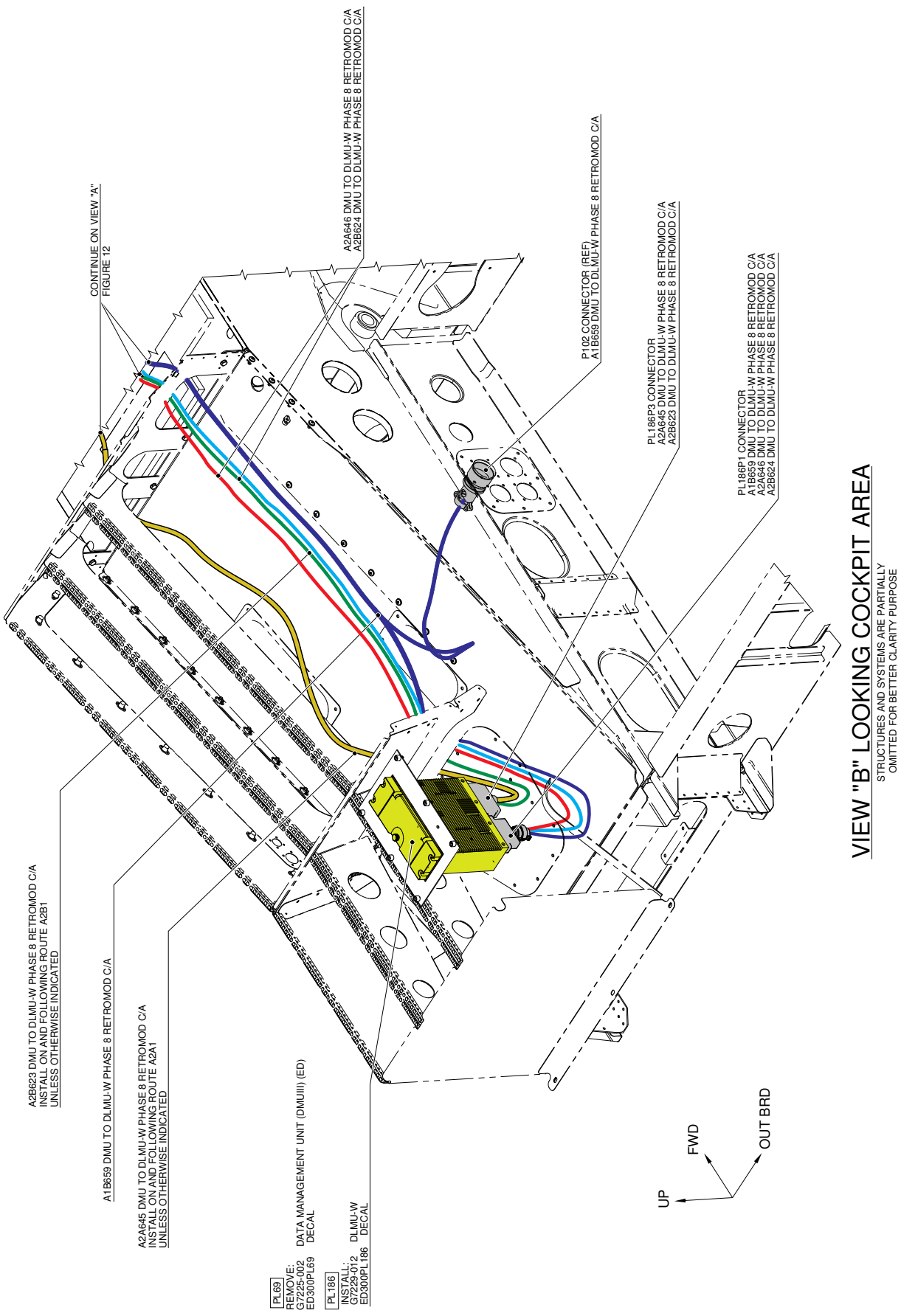
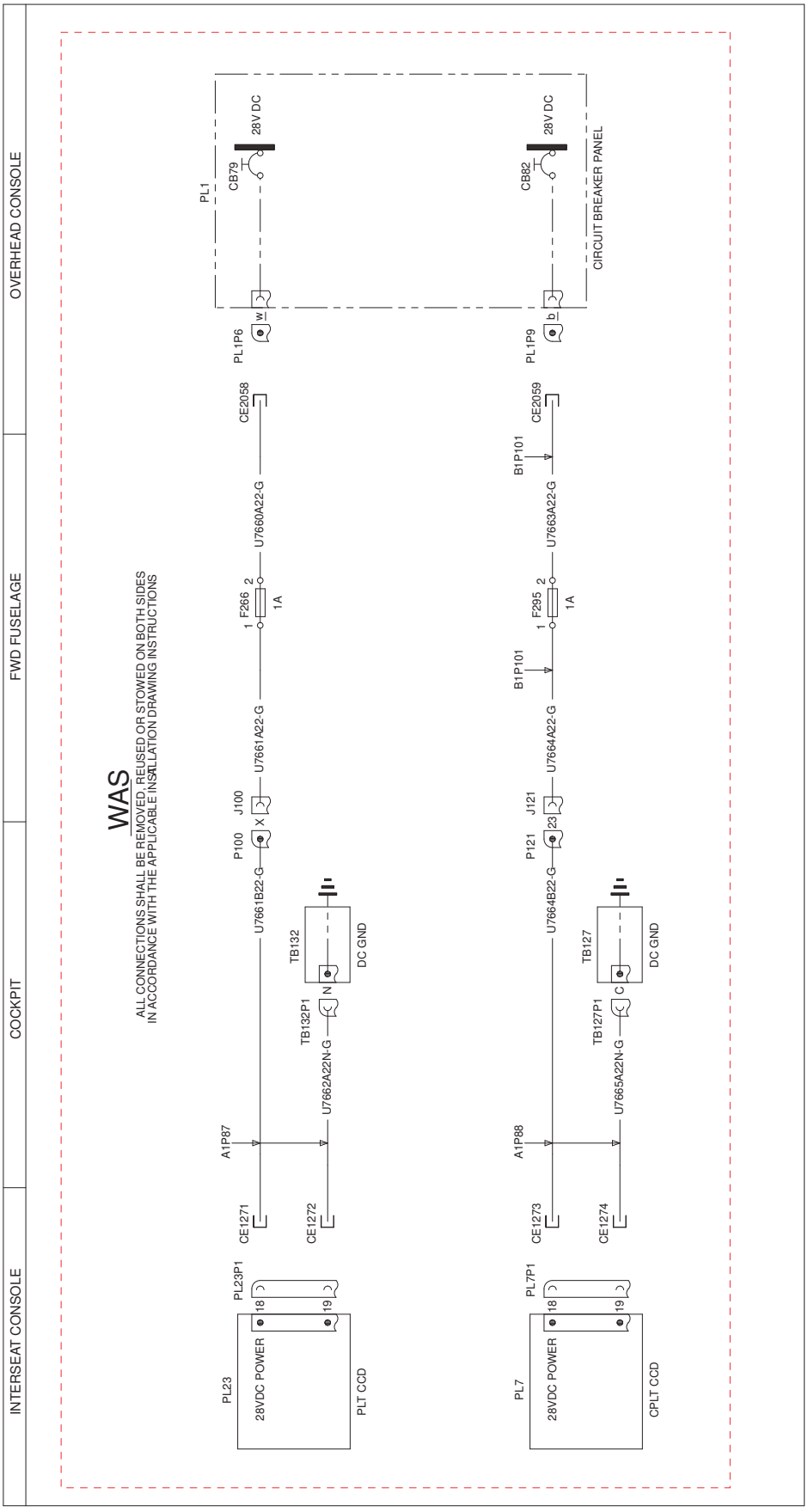

VIEW "B" LOOKING COCKPIT AREA
STRUCTURES AND SYSTEMS ARE PARTIALLY OMITTED FOR BETTER CLARITY PURPOSE
CONTINUE ON VIEW "A" FIGURE 12
A2A646 DMU TO DLMU-W PHASE 8 RETROMOD C/A
A2B624 DMU TO DLMU-W PHASE 8 RETROMOD C/A
P102 CONNECTOR (REF)
A1B659 DMU TO DLMU-W PHASE 8 RETROMOD C/A
PL186P3 CONNECTOR
A2A645 DMU TO DLMU-W PHASE 8 RETROMOD C/A
A2B623 DMU TO DLMU-W PHASE 8 RETROMOD C/A
PL186P1 CONNECTOR
A1B659 DMU TO DLMU-W PHASE 8 RETROMOD C/A
A2A646 DMU TO DLMU-W PHASE 8 RETROMOD C/A
A2B624 DMU TO DLMU-W PHASE 8 RETROMOD C/A
A2B623 DMU TO DLMU-W PHASE 8 RETROMOD C/A
INSTALL ON AND FOLLOWING ROUTE A2B1
UNLESS OTHERWISE INDICATED
A1B659 DMU TO DLMU-W PHASE 8 RETROMOD C/A
A2A645 DMU TO DLMU-W PHASE 8 RETROMOD C/A
INSTALL ON AND FOLLOWING ROUTE A2A1
UNLESS OTHERWISE INDICATED
PL69
REMOVE:
G7225-002 DATA MANAGEMENT UNIT (DMUIII) (ED)
ED300PL69 DECAL
PL186
INSTALL:
G7229-012 DLMU-W
ED300PL186 DECAL
UP
FWD
OUT BRD

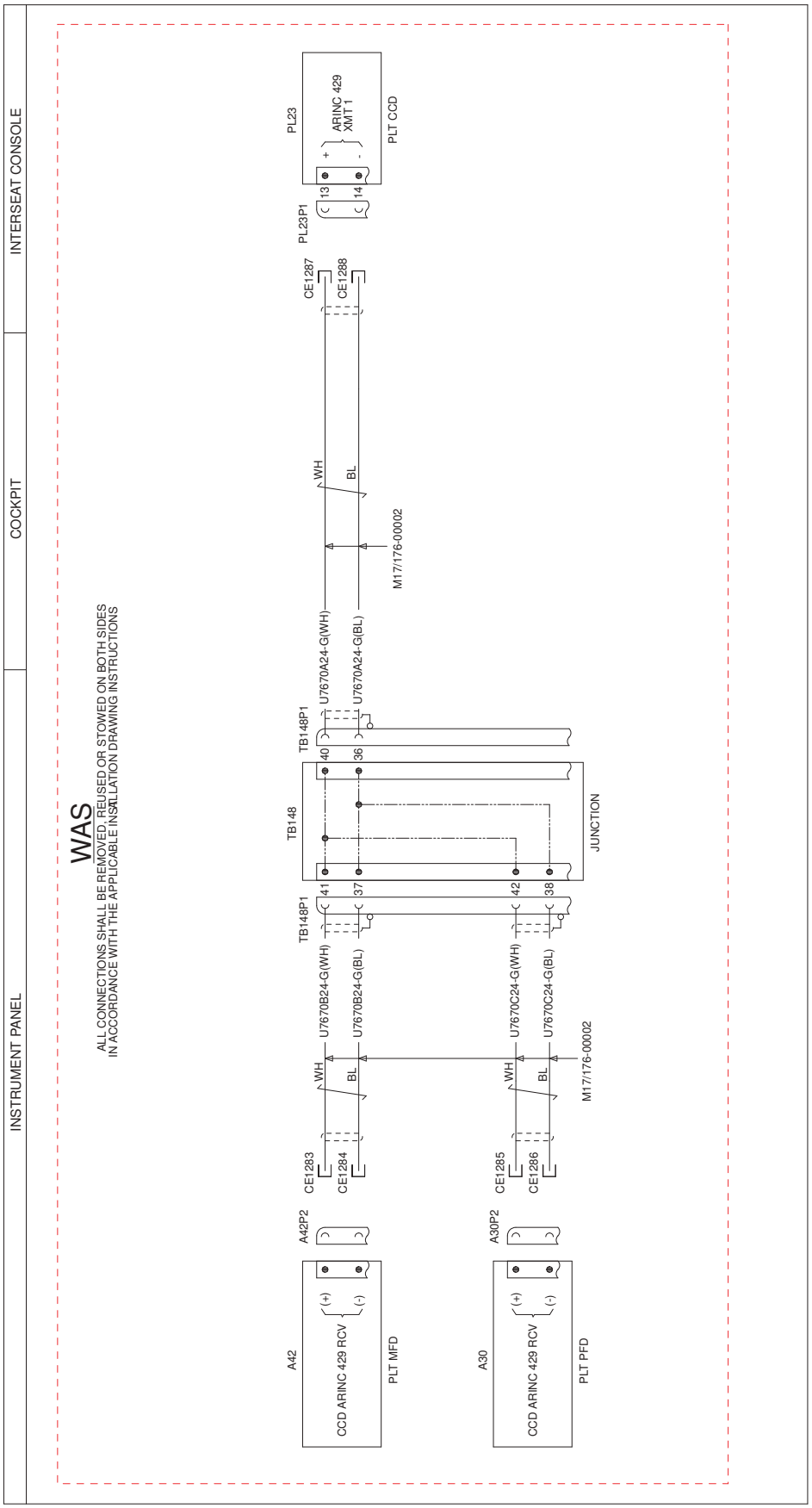
Figure 13



3G4600W14111
WIRING DIAGRAM PRIMUS EPIC PHASE 8 ELECT INSTI
SHEET 1

FUNCTIONAL NOTES
ALL CABLES ARE IN LOOM B1P100 UNLESS SPECIFIED
ALL CABLES ARE OF TYPE A556AT 22 UNLESS SPECIFIED

Figure 14



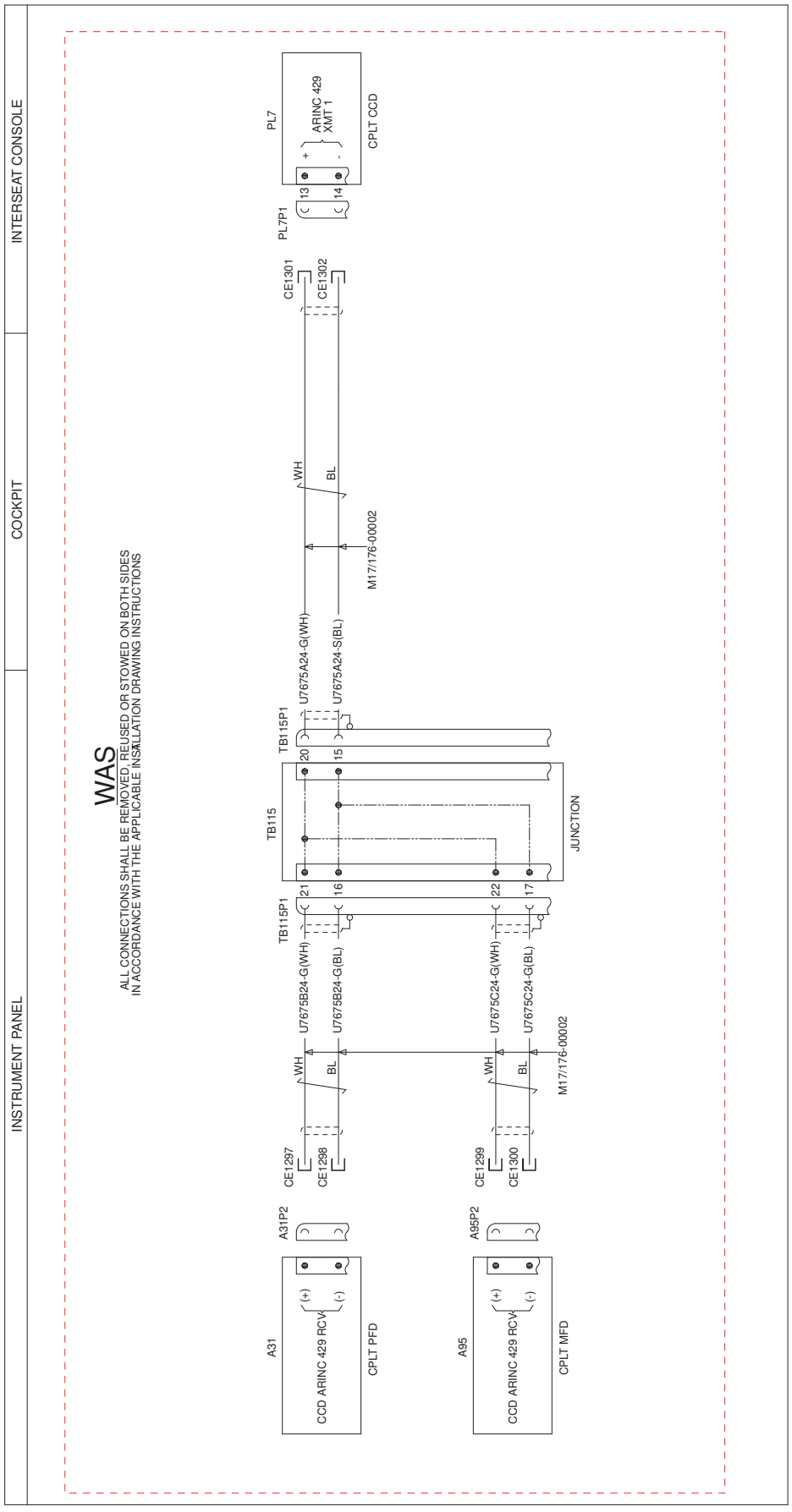
3G4600W14111

WIRING DIAGRAM PRIMUS EPIC PHASE 8 ELECT INSTI

SHEET 2

FUNCTIONAL NOTES
ALL CABLES ARE IN LOOMA1B611 UNLESS SPECIFIED
ALL CABLES ARE OF TYPE A556AT 24 UNLESS SPECIFIED

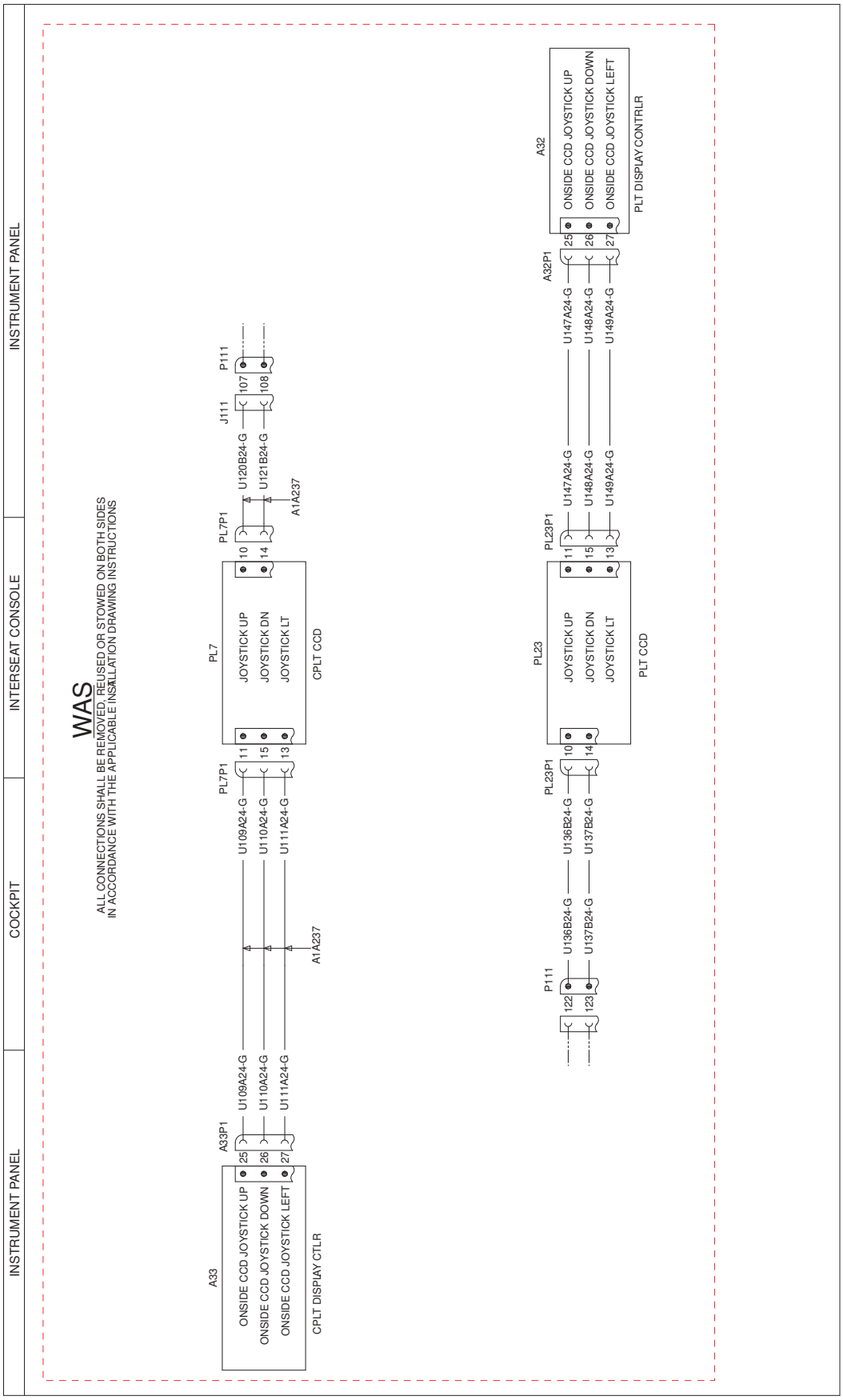
Figure 15



3G4600W14111
WIRING DIAGRAM PRIMUS EPIC PHASE 8 ELECT INST
SHEET 3

FUNCTIONAL NOTES
ALL CABLES ARE IN LOOMA1A655 UNLESS SPECIFIED
ALL CABLES ARE OF TYPEA556AT 24 UNLESS SPECIFIED

Figure 16



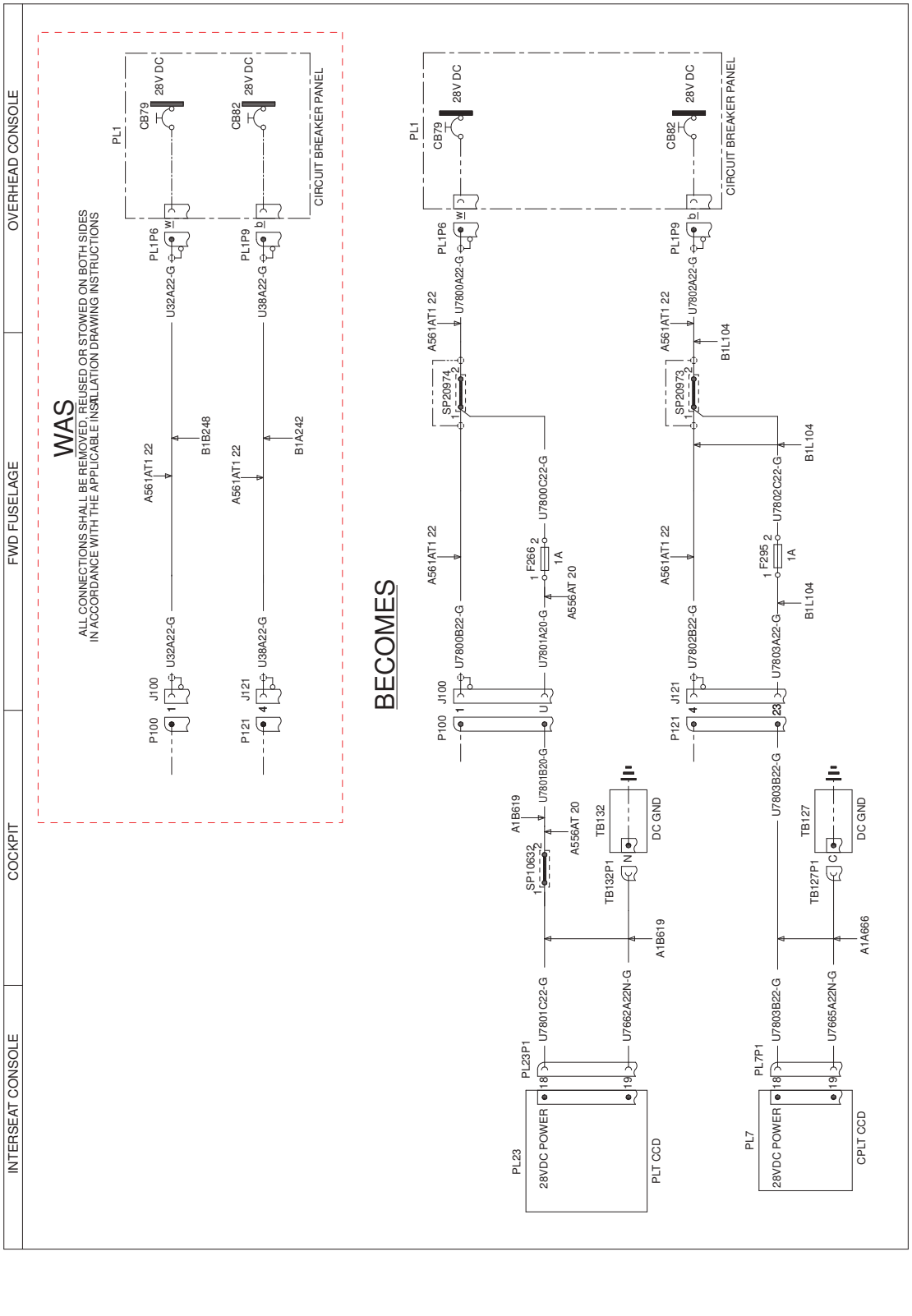
3G4600W14111

WIRING DIAGRAM PRIMUS EPIC PHASE 8 ELECT INST

SHEET 7

FUNCTIONAL NOTES
ALL CABLES ARE IN LOOM A1B241 UNLESS SPECIFIED
ALL CABLES ARE OF TYPE A556AT 24 UNLESS SPECIFIED

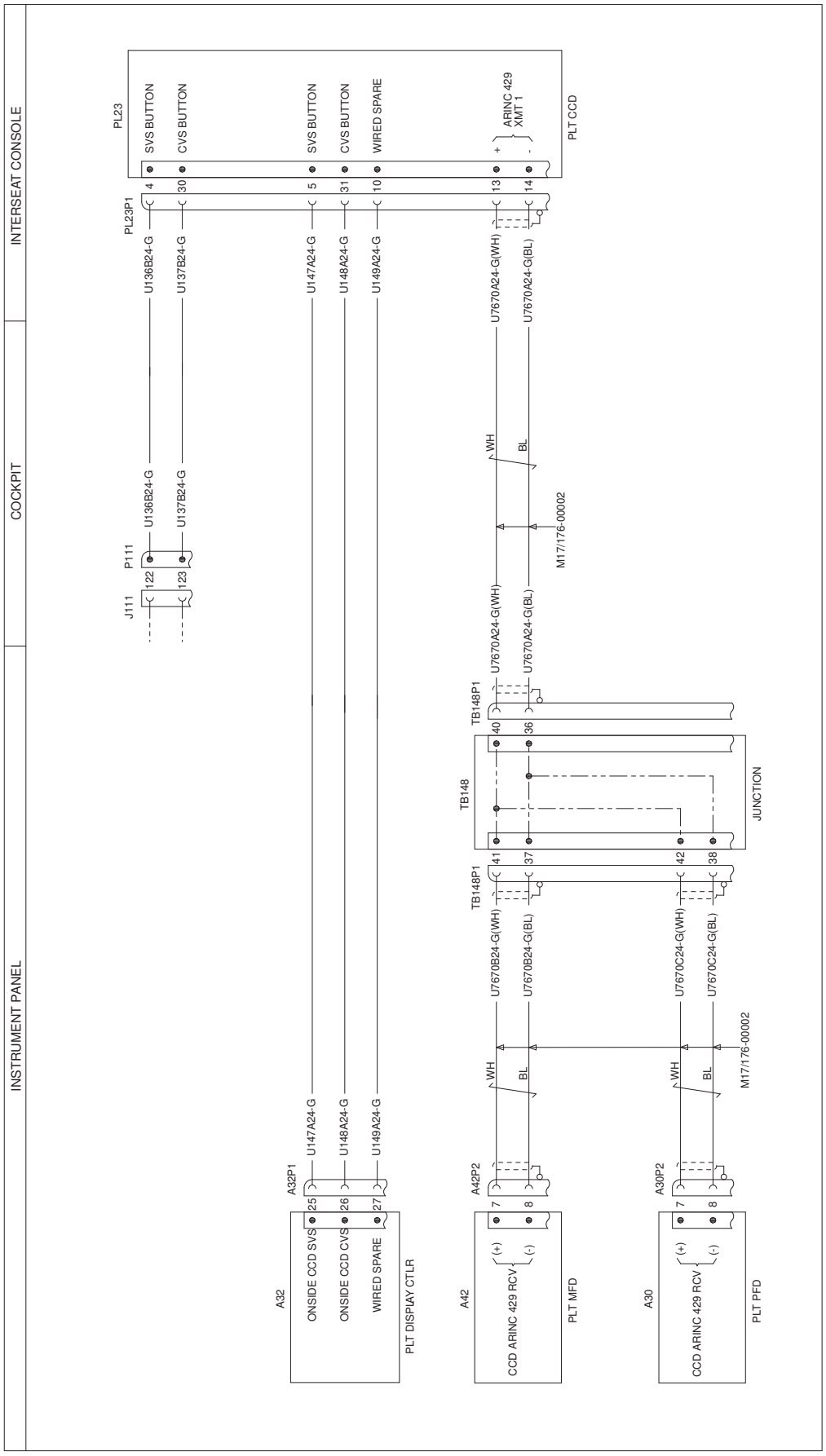
Figure 17



3G4600W14111
WIRING DIAGRAM PRIMUS EPIC PHASE 8 ELECT INST
SHEET 8

FUNCTIONAL NOTES
ALL CABLES ARE IN LOOMB1B996 UNLESS SPECIFIED
ALL CABLES ARE OF TYPEA556AT 22 UNLESS SPECIFIED

Figure 18



3G4600W14111

WIRING DIAGRAM PRIMUS EPIC PHASE 8 ELECT INST

SHEET 9

FUNCTIONAL NOTES
ALL CABLES ARE IN LOOM A1B619 UNLESS SPECIFIED
ALL CABLES ARE OF TYPE A556AT 24 UNLESS SPECIFIED

Figure 19

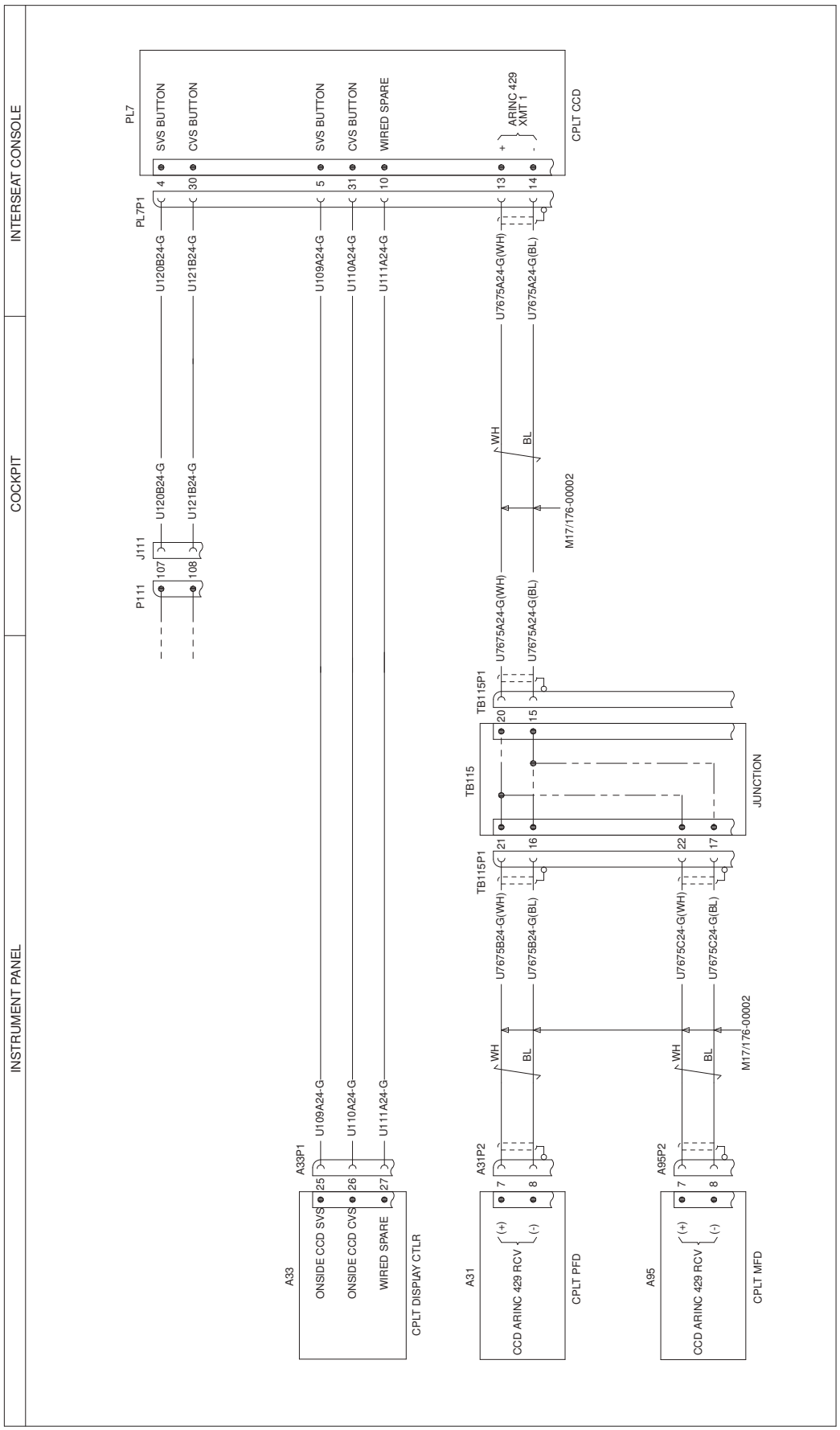

INSTRUMENT PANEL
COCKPIT
INTERSEAT CONSOLE
3G4600W14111
WIRING DIAGRAM PRIMUS EPIC PHASE 8 ELECT INST
SHEET 10
PL7
SVS BUTTON
CVS BUTTON
WIRED SPARE
ARINC 429 XMT 1
CPLT CCD
PL7P1
U120B24-G
U121B24-G
U109A24-G
U110A24-G
U111A24-G
U7675A24-G(WH)
U7675A24-G(BL)
P111
J111
M17/176-00002
TB115P1
TB115
JUNCTION
U7675B24-G(WH)
U7675B24-G(BL)
U7675C24-G(WH)
U7675C24-G(BL)
M117/176-00002
A33
A33P1
ONSIDE CCD SVS
ONSIDE CCD CVS
WIRED SPARE
CPLT DISPLAY CTLR
A31
A31P2
CCD ARINC 429 RCV
CPLT PFD
A95
A95P2
CPLT MFD
WH
BL
FUNCTIONAL NOTES
ALL CABLES ARE IN LOOMA1A666 UNLESS SPECIFIED
ALL CABLES ARE OF TYPEA556AT 24 UNLESS SPECIFIED

Figure 20

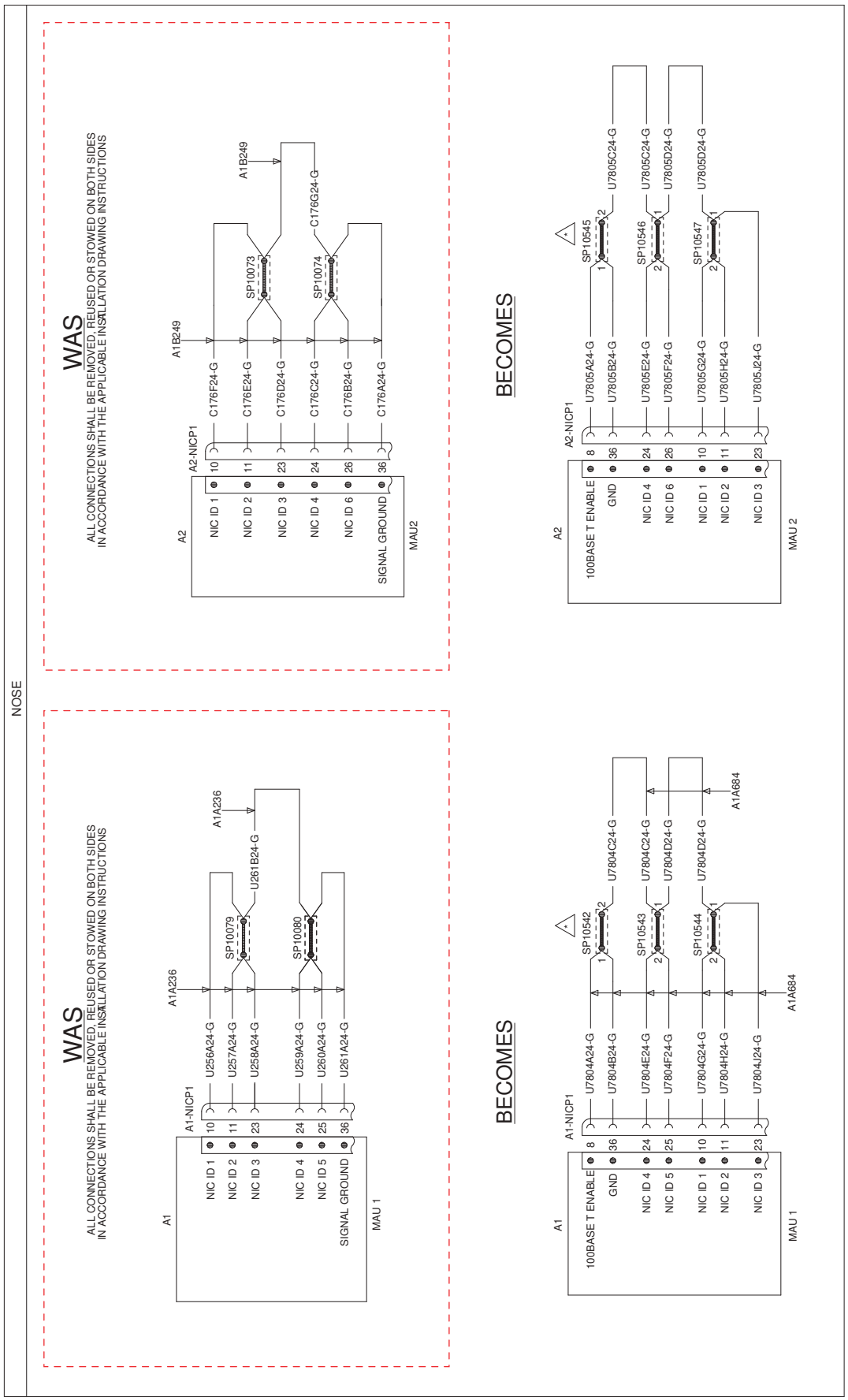

NOSE
WAS
ALL CONNECTIONS SHALL BE REMOVED, REUSED OR STOWED ON BOTH SIDES IN ACCORDANCE WITH THE APPLICABLE INSTALLATION DRAWING INSTRUCTIONS
A1
A1-NICP1
NIC ID 1
NIC ID 2
NIC ID 3
NIC ID 4
NIC ID 5
SIGNAL GROUND
MAU 1
A1A236
U256A24-G
U257A24-G
U258A24-G
U259A24-G
U260A24-G
U261A24-G
SP10079
SP10080
U261B24-G
BECOMES
100BASE T ENABLE
GND
NIC ID 4
NIC ID 6
NIC ID 1
NIC ID 2
NIC ID 3
U7804A24-G
U7804B24-G
U7804E24-G
U7804F24-G
U7804G24-G
U7804H24-G
U7804J24-G
U7804C24-G
U7804D24-G
SP10542
SP10543
SP10544
A1A684
WAS
ALL CONNECTIONS SHALL BE REMOVED, REUSED OR STOWED ON BOTH SIDES IN ACCORDANCE WITH THE APPLICABLE INSTALLATION DRAWING INSTRUCTIONS
A2
A2-NICP1
SIGNAL GROUND
MAU2
A1B249
C176F24-G
C176E24-G
C176D24-G
C176C24-G
C176B24-G
C176A24-G
SP10073
SP10074
C176G24-G
BECOMES
U7805A24-G
U7805B24-G
U7805E24-G
U7805F24-G
U7805G24-G
U7805H24-G
U7805J24-G
U7805C24-G
U7805D24-G
SP10545
SP10546
SP10547
ENSURE SPLICES ARE POSITIONED INSIDE BACKSHELL OF CONNECTORS A1-NICP1 & A2-NICP1
FUNCTIONAL NOTES
ALL CABLES ARE IN LOOM A1B632 UNLESS SPECIFIED
ALL CABLES ARE OF TYPE A56AT 24 UNLESS SPECIFIED

Figure 21

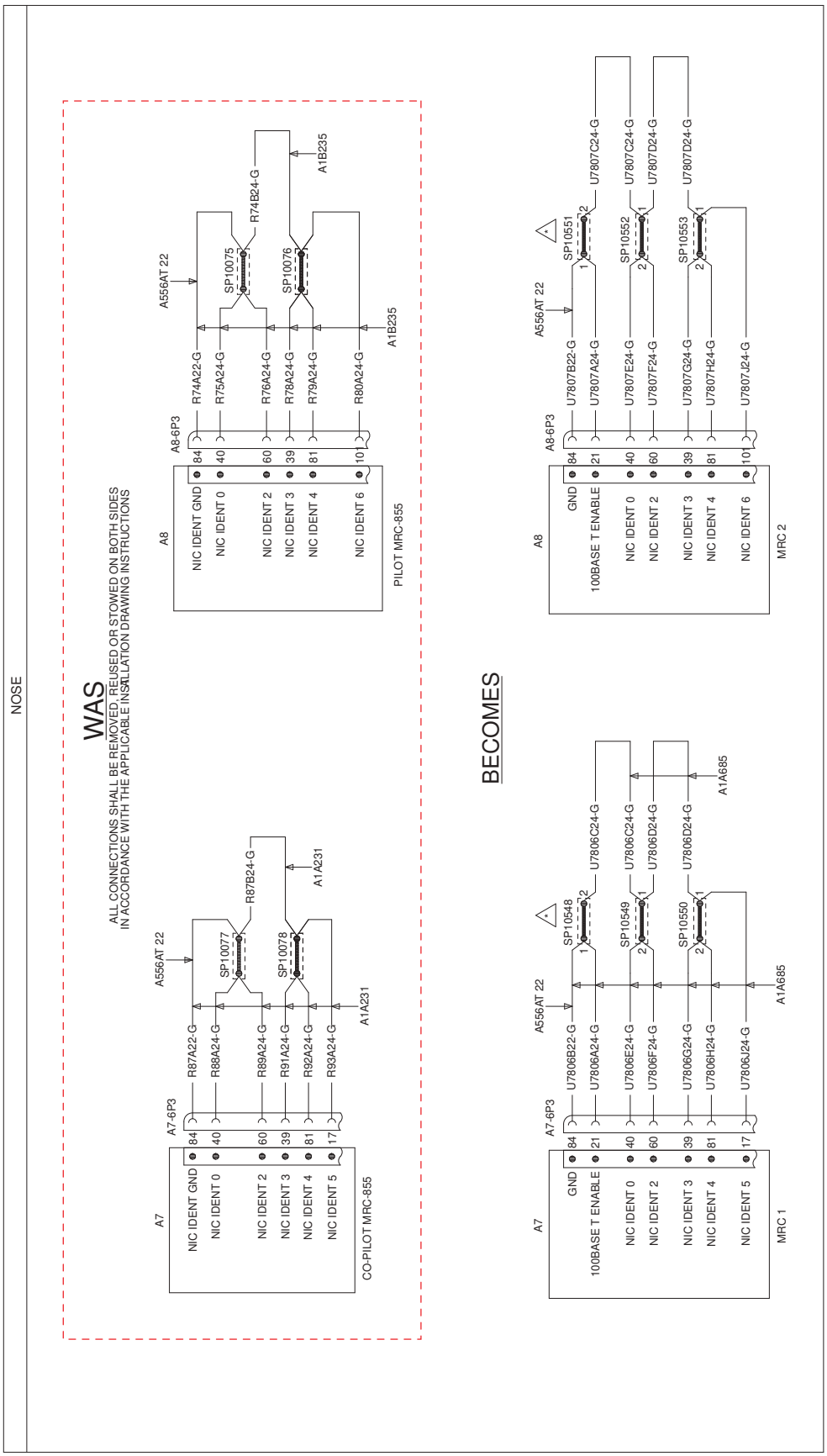

NOSE
WAS
ALL CONNECTIONS SHALL BE REMOVED, REUSED OR STOWED ON BOTH SIDES IN ACCORDANCE WITH THE APPLICABLE INSTALLATION DRAWING INSTRUCTIONS
A7
A7-6P3
NIC IDENT GND
NIC IDENT 0
NIC IDENT 2
NIC IDENT 3
NIC IDENT 4
NIC IDENT 5
CO-PILOT MRC-855
A556AT 22
SP10077
SP10078
R87B24-G
A1A231
R87A22-G
R88A24-G
R89A24-G
R91A24-G
R92A24-G
R93A24-G
A8
A8-6P3
NIC IDENT GND
NIC IDENT 0
NIC IDENT 2
NIC IDENT 3
NIC IDENT 4
NIC IDENT 6
PILOT MRC-855
SP10075
SP10076
R74B24-G
A1B235
R74A22-G
R75A24-G
R76A24-G
R78A24-G
R79A24-G
R80A24-G
BECOMES
GND
100BASE T ENABLE
MRC 1
MRC 2
U7806B22-G
U7806A24-G
U7806E24-G
U7806F24-G
U7806G24-G
U7806H24-G
U7806J24-G
U7806C24-G
U7806D24-G
SP10548
SP10549
SP10550
A1A685
U7807B22-G
U7807A24-G
U7807E24-G
U7807F24-G
U7807G24-G
U7807H24-G
U7807J24-G
U7807C24-G
U7807D24-G
SP10551
SP10552
SP10553
ENSURE SPLICES ARE POSITIONED INSIDE BACKSHELL OF CONNECTORS A7-6P3 & A8-6P3
FUNCTIONAL NOTES
ALL CABLES ARE IN LOOM A1B633 UNLESS SPECIFIED
ALL CABLES ARE OF TYPE A556AT 24 UNLESS SPECIFIED
3G4600W14111
WIRING DIAGRAM PRIMUS EPIC PHASE 8 ELECT INST
SHEET 15

Figure 22

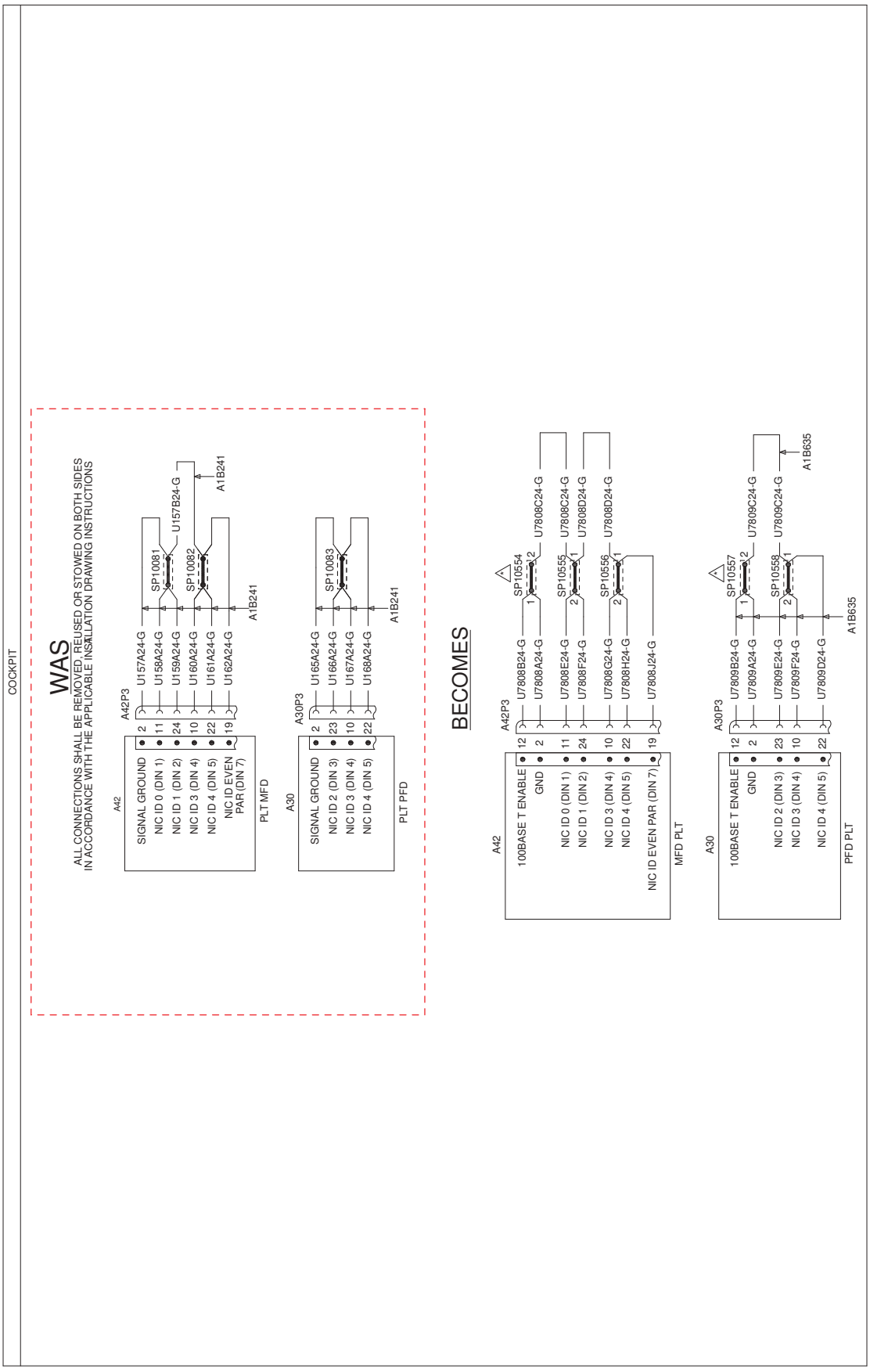

COCKPIT
WAS
ALL CONNECTIONS SHALL BE REMOVED, REUSED OR STOWED ON BOTH SIDES IN ACCORDANCE WITH THE APPLICABLE INSTALLATION DRAWING INSTRUCTIONS
A42
SIGNAL GROUND
NIC ID 0 (DIN 1)
NIC ID 1 (DIN 2)
NIC ID 3 (DIN 4)
NIC ID 4 (DIN 5)
NIC ID EVEN PAR (DIN 7)
PLT MFD
A42P3
2
11
24
10
22
19
U157A24-G
U158A24-G
U159A24-G
U160A24-G
U161A24-G
U162A24-G
SP10081
SP10082
U157B24-G
A1B241
A1B241
A30
SIGNAL GROUND
NIC ID 2 (DIN 3)
NIC ID 3 (DIN 4)
NIC ID 4 (DIN 5)
PLT PFD
A30P3
2
23
10
22
U165A24-G
U166A24-G
U167A24-G
U168A24-G
SP10083
A1B241
BECOMES
A42
100BASE T ENABLE
GND
NIC ID 0 (DIN 1)
NIC ID 1 (DIN 2)
NIC ID 3 (DIN 4)
NIC ID 4 (DIN 5)
NIC ID EVEN PAR (DIN 7)
MFD PLT
A42P3
12
2
11
24
10
22
19
U7808B24-G
U7808A24-G
U7808E24-G
U7808F24-G
U7808G24-G
U7808H24-G
U7808J24-G
SP10554
SP10555
SP10556
U7808C24-G
U7808C24-G
U7808D24-G
U7808D24-G
A30
100BASE T ENABLE
GND
NIC ID 2 (DIN 3)
NIC ID 3 (DIN 4)
NIC ID 4 (DIN 5)
PFD PLT
A30P3
12
2
23
10
22
U7809B24-G
U7809A24-G
U7809E24-G
U7809F24-G
U7809D24-G
SP10557
SP10558
U7809C24-G
U7809C24-G
A1B635
A1B635
ENSURE SPLICES ARE POSITIONED INSIDE BACKSHELL OF CONNECTORS A42P3 & A30P3
FUNCTIONAL NOTES
ALL CABLES ARE IN LOOM A1B634 UNLESS SPECIFIED
ALL CABLES ARE OF TYPE A556AT 24 UNLESS SPECIFIED
3G4600W14111
WIRING DIAGRAM PRIMUS EPIC PHASE 8 ELECT INST
SHEET 16

Figure 23

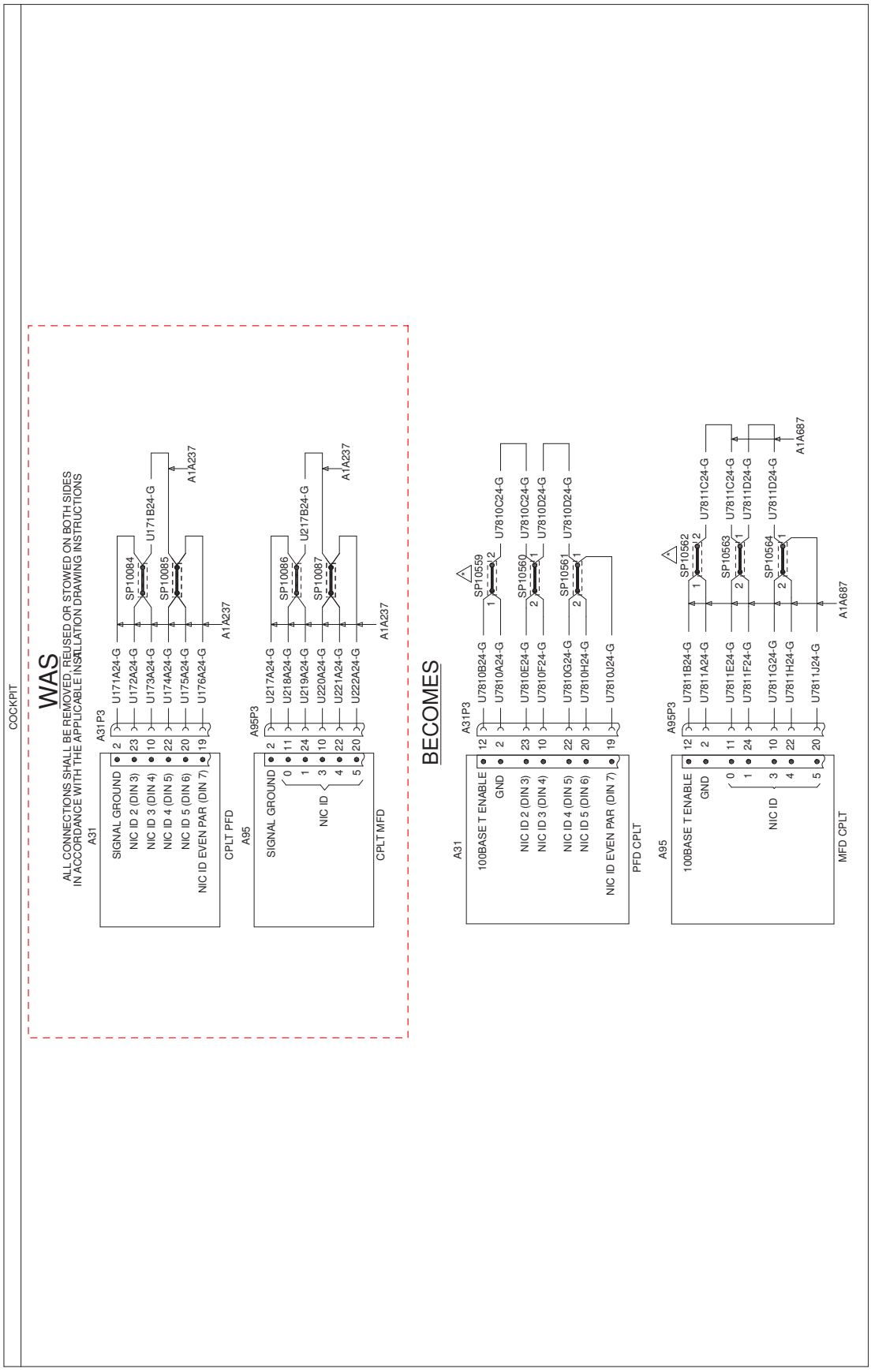
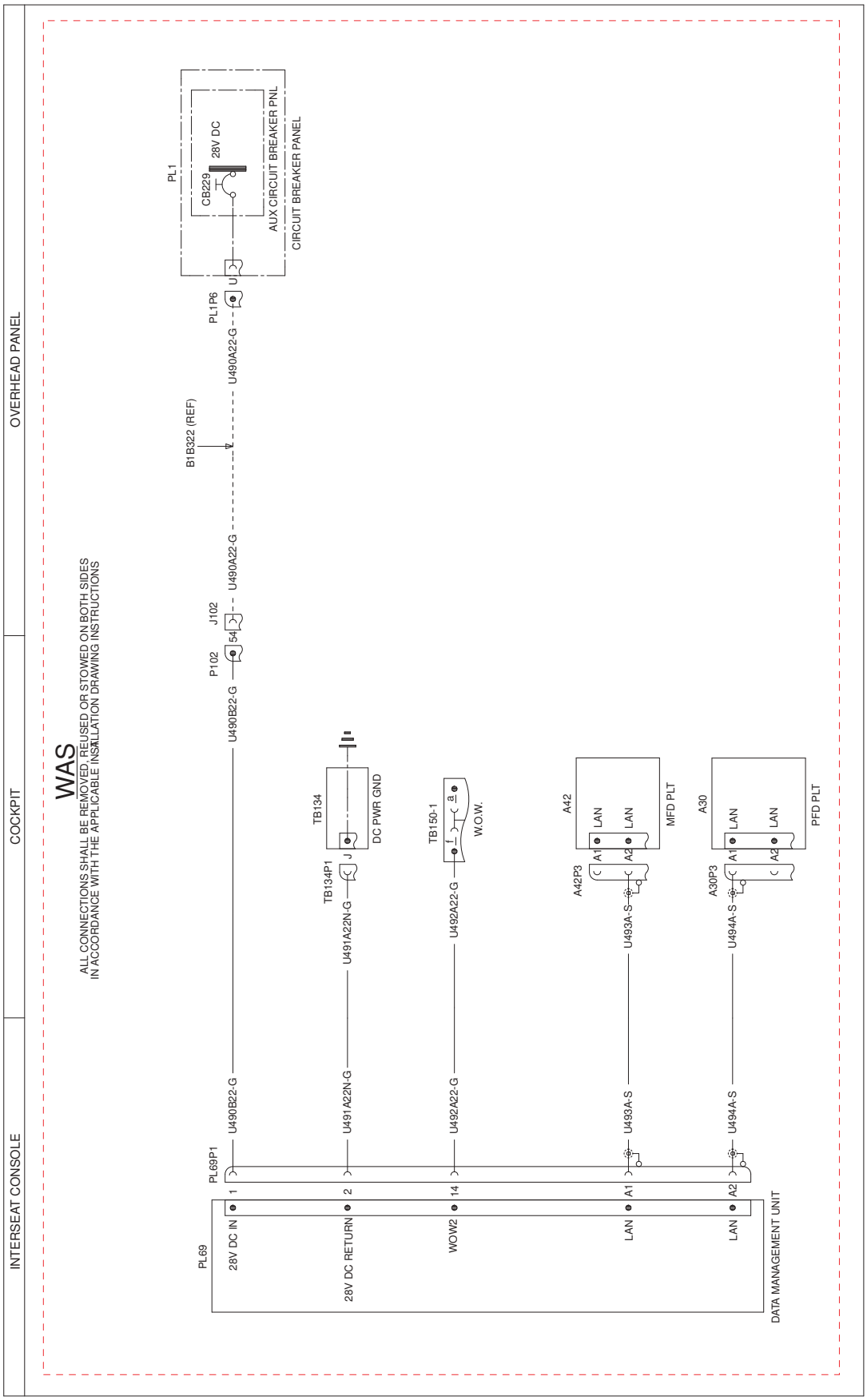


Figure 24

S.B. N°139-630
DATE: January 19, 2021
REVISION: /



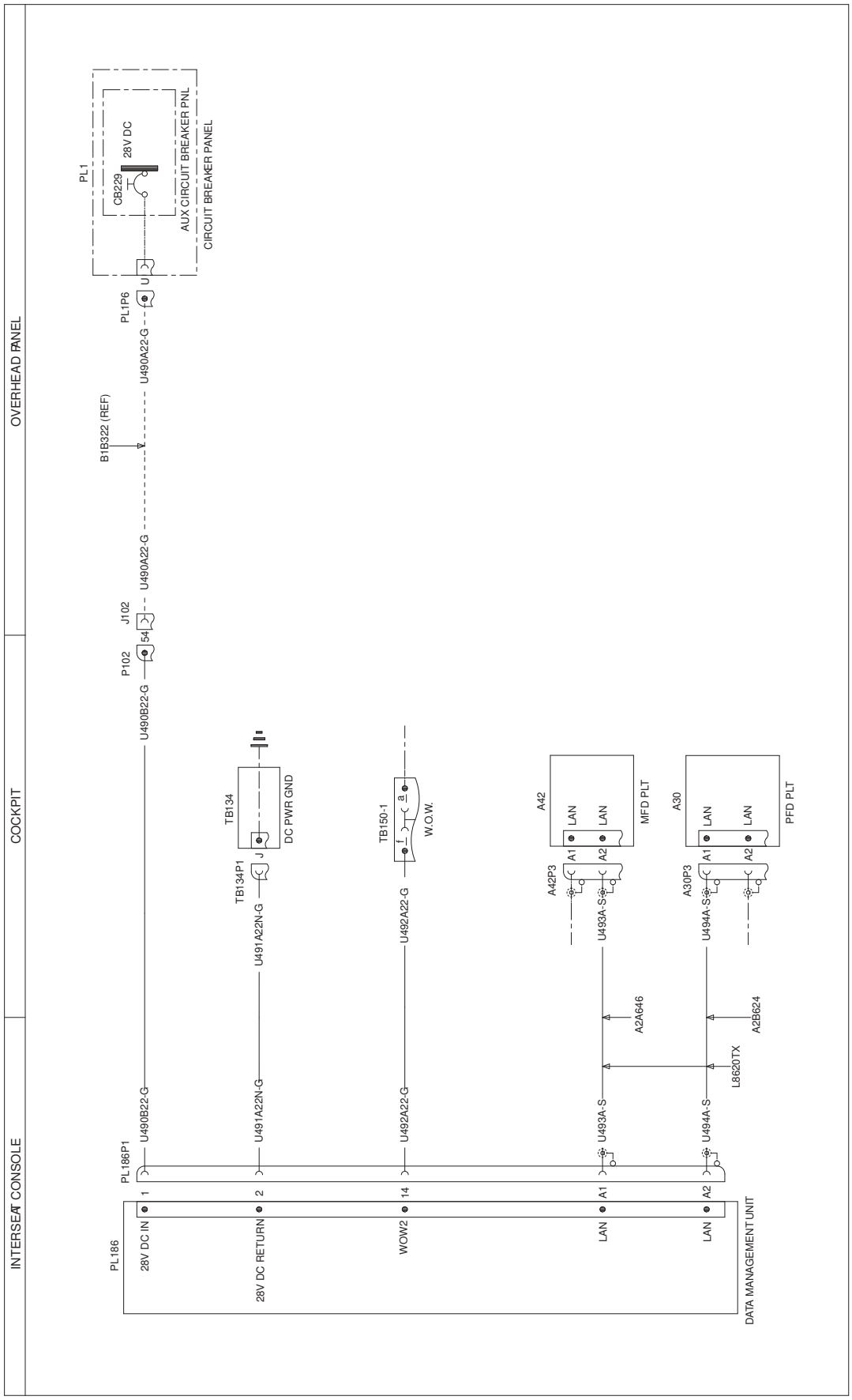
3G4620W01711

WIRING DIAGRAM DMU TO DLMU-W PHASE 8 RETROMOD

SHEET 1

FUNCTIONAL NOTES

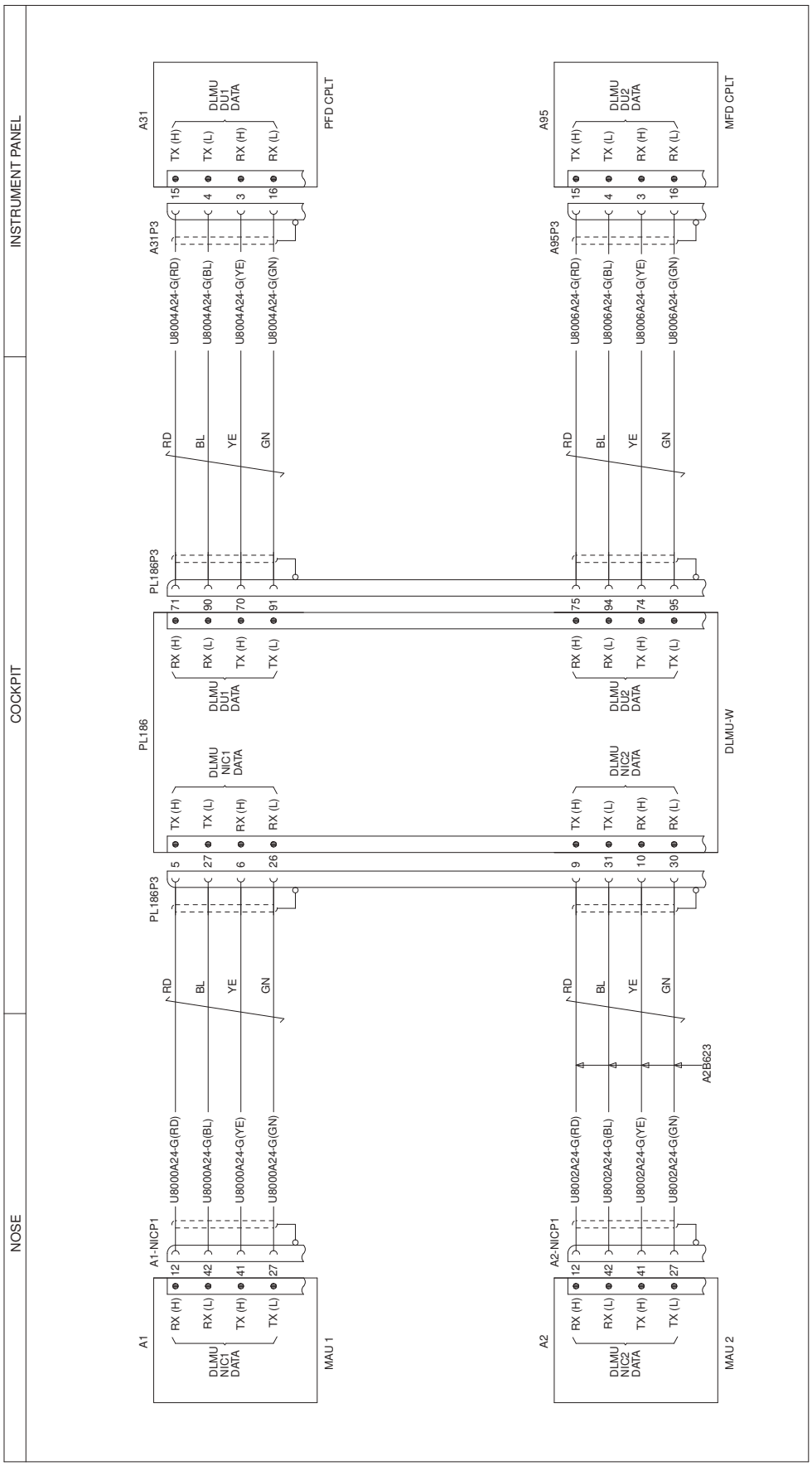
Figure 25



3G4620W01711
WIRING DIAGRAM DMU TO DLMU-W PHASE 8 RETROMOD
SHEET 2

FUNCTIONAL NOTES
ALL CABLES ARE INLOOM A1B659 UNLESS SPECIFIED
ALL CABLES ARE OF TYPE A556A-T22 UNLESS SPECIFIED

Figure 26



3G4620W01711
WIRING DIAGRAM DMU TO DLMU-W PHASE 8 RETROMOD
SHEET 3

FUNCTIONAL NOTES
ALL CABLES ARE IN LOOM A2A645 UNLESS SPECIFIED
ALL CABLES ARE OF TYPE AW002WC01-24 UNLESS SPECIFIED

Figure 27

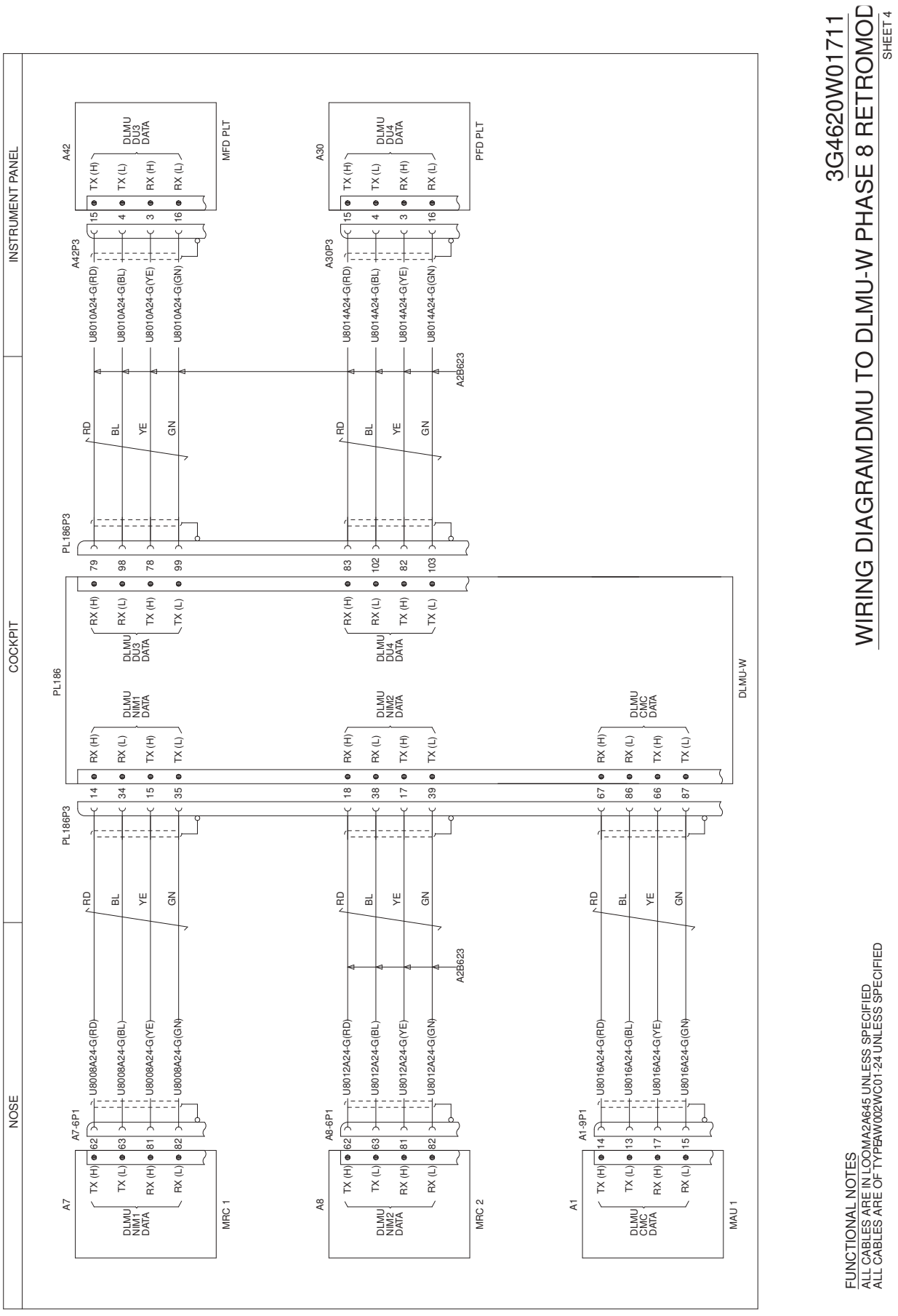

3G4620W01711
WIRING DIAGRAM DMU TO DLMU-W PHASE 8 RETROMOD
SHEET 4
NOSE
COCKPIT
INSTRUMENT PANEL
A42
A30
A42P3
A30P3
PL186P3
PL186
A2B623
A7-6P1
A8-6P1
A1-9P1
A7
A8
A1
MFD PLT
PFD PLT
MRC 1
MRC 2
MAU 1
DLMU-W
DLMU DU3 DATA
DLMU DU4 DATA
DLMU NM1 DATA
DLMU NM2 DATA
DLMU CMC DATA
TX (H)
TX (L)
RX (H)
RX (L)
RD
BL
YE
GN
U8010A24-G(RD)
U8010A24-G(BL)
U8010A24-G(YE)
U8010A24-G(GN)
U8014A24-G(RD)
U8014A24-G(BL)
U8014A24-G(YE)
U8014A24-G(GN)
U8008A24-G(RD)
U8008A24-G(BL)
U8008A24-G(YE)
U8008A24-G(GN)
U8012A24-G(RD)
U8012A24-G(BL)
U8012A24-G(YE)
U8012A24-G(GN)
U8016A24-G(RD)
U8016A24-G(BL)
U8016A24-G(YE)
U8016A24-G(GN)
FUNCTIONAL NOTES
ALL CABLES ARE IN LOOM A2A645 UNLESS SPECIFIED
ALL CABLES ARE OF TYPE AW002WC01-24 UNLESS SPECIFIED

Figure 28

7031364-807
BACKSHELL ASSEMBLY
REWORK

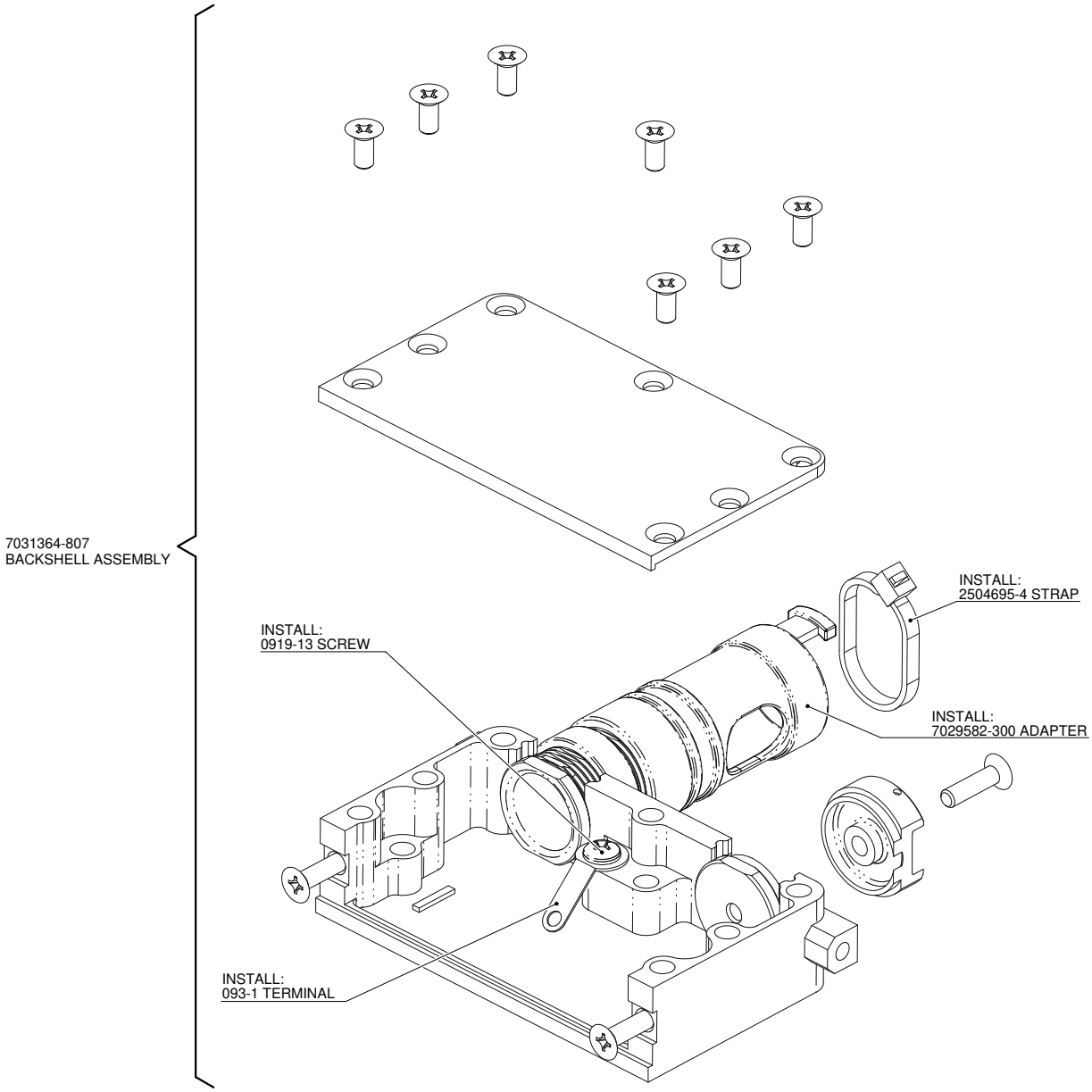


Figure 29

ANNEX A

PRIMUS EPIC® SOFTWARE RELEASE 8

INSTALLATION PROCEDURE

3. SOFTWARE INSTALLATION PROCEDURE

This Installation Procedure describes the steps necessary to upload the Primus Epic SW onboard the helicopter.
Alternatively, for Leonardo Assembly Lines only, the Primus Epic SW upload can be performed on a bench including items to be loaded and by following a dedicated procedure (refer to the document PEN-INS-7825 Rev 2 at paragraph 2.1).
The Production Instruction "P2259 "AW139 SW LOAD PROCEDURE WITH DEDICATED LOADER BENCH" Rev. B is an example of procedure for such purposes. It is anyway highlighted that loading the SW of the bench does not allow to check the integrity of aircraft LAN, which must be checked via different methods (e.g. ping all modules).

3.1 TOOLING REQUIRED

The following equipment is required for the software installation:

(1) DC External Power Bench (28VDC)

(2) Computer with:

- Windows 7, Windows 8 or Windows 10
- 256 MB RAM,
- CD-ROM Driver;

(3) Ethernet LAN Cat 5 or Cat 6 cable

(4) WOW SIMULATOR kit (CDA 046 139 A01 1 or equivalent)

(5) PRIMUS – EPIC® Software package CD dedicated to the helicopter

(6) Multimeter

WARNING: The computer used for the software uploading on the helicopter should not be used for other tasks and an efficient anti-virus software shall be installed and kept updated.

3.2 PROCEDURE PREREQUISITES

(1) The electrical wiring harness shall have been successfully tested for proper isolation resistance, electrical voltage and continuity between end points (DMM/CID). In the event of a system failure or system malfunction, perform a pin to pin check (the applicable wiring diagrams are ref. in Table 2.1-2) to confirm that all wires terminate in their proper position, the power and ground are applied only where required and all data/audio bus connections are shielded and properly grounded.

(2) The wiring harness shall have been successfully tested for proper bonding (ref. 139S083CD002 – ATP Bonding System).

(3) The electrical DC generation system shall have been successfully tested and shall be properly functioning (ref. 139C213CD001 – ATP DC Generation System).

(4) Verify that Power Supply is present on DLM/LHW (refer to paragraph 1.5 of 139C/500CD001/03 - AW139 PRIMUS EPIC PHASE 8 AVIONIC SYSTEM ACCEPTANCE TEST PROCEDURE).

(5) Before starting with the procedure, make a visual inspection of the proper installation of the avionic equipment listed in Table 3.2-1.

(6) Verify that all the electrical power supply CBs are pushed IN.

(7) Verify that the "LDG GEAR CONTR" CB (28) is pushed IN.

(8) Verify that at least the PRIMUS EPIC® SYSTEM devices CBs are pushed IN.

(9) During the procedure keep at least one AUX battery plugged to avoid damages to the DMU module in MAU in case of external power loss.

(10) Switch on the External Power Bench connected to the a/c external power door. Ensure the External Power Bench is operative and set to the appropriate voltage (28 VDC ± 5%).

(11) If the helicopter is not WOW, connect the WOW simulator on switches to the relevant connectors, set them to the GND position and electrically reset the system. The SW update procedure cannot be performed with helicopter in air.

(12) During all ATPs Tests, disconnect if installed, the wires from the Fire extinguishing bottles and stow them properly (E1- MTR1 & MTR2, E2- MTR1 & MTR2).

(13) If other Electro-Explosive Devices (EEDs) are fitted, ensure that they are electrically disconnected.

Table 3.3-1 PRIMUS EPIC® Avionic System Installation Check

DEVICE	CHECKED	DEVICE	CHECKED
MAU1		**MAU2**	
MAU1 RACK		MAU2 RACK	
POWER SUPPLY MODULE (PS)		POWER SUPPLY MODULE (PS)	
CUSTOM IO (CSIO)		CUSTOM IO (CSIO)	
CONTROL IO (CIO) OR VIDEO CONTROL IO NETWORK INTERFACE CONTROLLER (NIC) / PROC		CONTROL IO (CIO) NETWORK INTERFACE CONTROLLER (NIC) / PROC	
ACTUATOR IO SLOT 5-6 (AIOP-A)		ACTUATOR IO SLOT 5-6 (AIOP-A)	
ACTUATOR IO SLOT 7-8 (AIOP-B)		ACTUATOR IO SLOT 7-8 (AIOP-B)	
CENTRAL MAINTENANCE COMPUTER (CMC)		GPS MODULE (*)	
MRC1		**MRC2**	
MRC1 RACK		MRC2 RACK	
MRC1 NIM		MRC2 NIM	
COMM1 MODULE (*) NAV1 MODULE (*) (OPTIONAL) 2ND DME MODULE (*)		COMM2 MODULE (*) NAV2 MODULE (*) DME MODULE (*)	
(OPTIONAL) 2ND XPDR MODULE (*)		XPDR MODULE (*)	
(OPTIONAL) 2ND ADF MODULE (*)		ADF MODULE (*)	
DISPLAYS			
COPILOT PFD		PILOT PFD	
COPILOT MFD		PILOT MFD	
COPILOT MCDU (*)		PILOT MCDU (*)	
CONTROLLERS			
COPILOT DISPLAY CTRL (*)		PILOT DISPLAY CTRL (*)	
COPILOT REMOTE INSTR CTRL (*)		PILOT REMOTE INSTR CTRL (*)	
COPILOT CCP (*) COPILOT AUDIO PANEL (*) ELEV CONTROL PANEL (*)		PILOT CCP (*) PILOT AUDIO PANEL (*) DLMUHW	

(*): The modules indicated with asterisk are parts of the system but not necessary for the software installation (no field loadable software is resident in them). The Software Installation procedure can be done even if these parts are not installed on the helicopter.

Table 3.2-2: PRIMUS EPIC 2 Avionic System Circuit Breakers Setting.

C/B (RATING)	Condition	Verified
MAL CMC (2 AMPS)	PUSH IN	
MAL 1 PRI & AUX (20 AMPS)	PUSHED IN	
MAL 2 PRI & AUX (20 AMPS)	PUSHED IN	
MFD P_T (5 AMPS)	PUSHED IN	
MFD CP_T (5 AMPS)	PUSH IN	
P_D P_T (15 AMPS)	PUSH IN	
PFD CP_T(15 AMPS)	PUSHED IN	
MRS1-WHF1 (**) (10 AMPS)	PUSHED IN	
MRS2-WHF2 (**) (10 AMPS)	PUSHED IN	
P_D CONT & CPLT (**) (1 AMPS)	PUSH IN	
MRS1 NAV1 (**) (3 AMPS)	PUSHED IN	
MRS2 NAV2 (**)(3 AMPS)	PUSHED IN	
MRS1 – N_V (5 AMPS)	PUSHED IN	
MRS2 – N_V (5 AMPS)	PUSHED IN	
MRS2-X-FDR (**) (3 AMPS)	PUSH IN	
MCDU P_T (**) (5 AMPS)	PUSHED IN	
MCDU CP_T (**) (5 AMPS)	PUSHED IN	
AP-FD1 (FD**) (5 AMPS)	PUSHED IN	
AP- D2 (FD2) (5 AMPS)	PUSH IN	
P_D CONT & CPLT (**) (1 AMPS)	PUSH IN	
MRS2-AHRS (**) (3 AMPS)	PUSHED IN	
MRS2-DMF (**) (5 AMPS)	PUSHED IN	
DLWL-W (3 AMPS)	PUSH IN	

(**): Push in the breaker indicated with one double star only if the relevant module is already installed (ref. Table 3.2-1).

3.3 CONNECTION TO THE HELICOPTER

Two steps are required to make the connection to the helicopter Local Area Network (LAN) from a PC.
First, physically connect the PC to the helicopter LAN and then configure the PC's LAN settings to communicate with the EPIC® LAN.

3.3.1 WIRED CONNECTION

1. Power on the computer.
2. Connect the PC to the aircraft Lan by means of a CAT 5/6 Ethernet cable. The cable shall be plugged into the DLMU RJ45 connector (shown in picture below) on one side and to the PC lan receptacle on the other side.

3.3.2 COMPUTER SETTING

3. From the START button select "Settings (Impostazioni)" ➔ "Control Panel (Pannello di Controllo)" ➔ "Network (Rete e connessioni remote)".
4. Right click on the "Local Area Connection (Connessione alla rete locale)" being used to connect to the aircraft, then select "Properties (Proprietà)".
5. Scroll down the window and highlight "Internet Protocol (TCP/IP) (Protocollo Internet (TCP/IP))", select Properties button.
6. A window similar to Figure 3-1 will appear. Select the "Use the following IP address" button and enter the IP address 192.168.200.201 and the Subnet mask 255.255.0.0.

7 Ensure the TODL software is installed on the Computer (from Tools CD or from http://ads.honeywell.com[2] website, in the section Honeywell Forge Electronic Library) before proceeding with the S/W installation on the helicopter.

Primus Epic SW Version	Loading TOOLS CD P/N
Phase 6 SW Load	TM7035294-108

If following programs are not installed, launch the "AW139 Tools CD.exe" program supplied on the Tools CD and install them:

- APM Restoration Tool
- APM Settings Tool
- CMC Remote Terminal Tool

Figure 3-1: Internet Protocol Properties window

NOTE: refer to Appendix C for the installation.

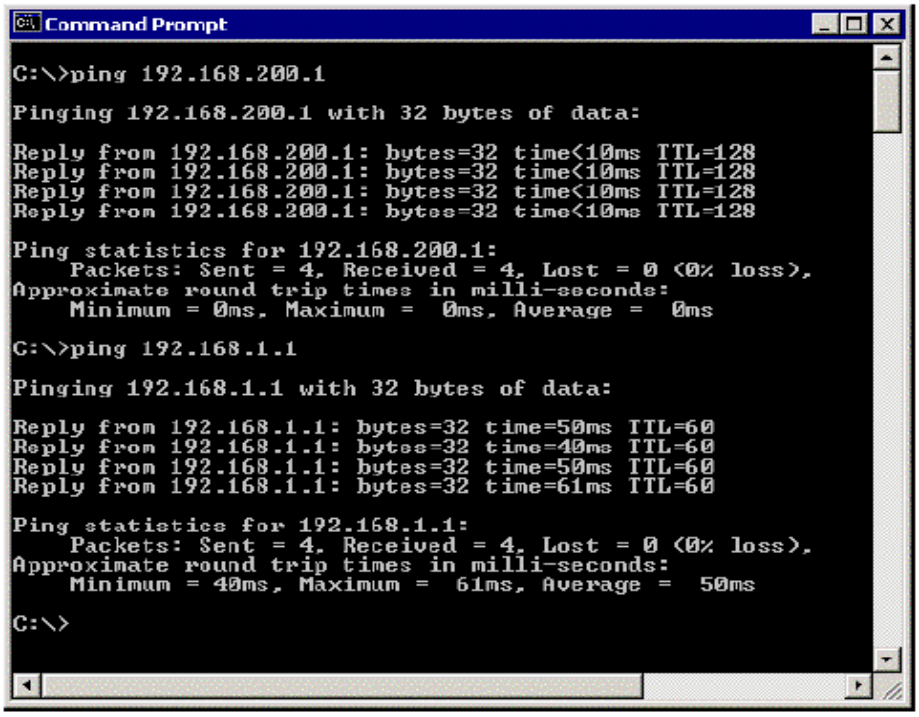
[2] On http://ads.honeywell.com website, for each downloaded item, the relevant CoC is available.

3.3.3 SETTING RECORDING

1. Verify that the helicopter is set on GND (WOW on GND).
2. Connect the PC to the helicopter LAN.
3. To verify that the LAN works properly, open the DOS command window and type the command “ping 192.168.200.201” and press Enter. The response should be as depicted in the Figure below; otherwise the LAN integrity should be checked (LAN cable termination resistors equal to 50-55 Ohm measured at the opposite termination side).

CAUTION

Power off the helicopter, before checking LAN integrity.



Ping Positive Response

4. By mean of the AMP Setting Tool (amp.exe), open the file “settings.def” provided in the Operational S/W CD – Primus Epic current release.
5. Select “Get AMP List” to fulfill the “setting.def” file with the current aircraft settings.

NOTE

If you accomplish “Get AMP List” and the AMP file is corrupted, use the AMP restoration tool of the Primus Epic Loading tools.

6. Select “Binary File” and save current aircraft settings.
7. By mean of the AMP Setting Tool (amp.exe) open the file “settings.def” provided in the Operational S/W CD – Primus Epic Phase current release and take note of the settings.

NOTE

The settings recording in step 7 can be used for reference only during the installation of the PRIMUS EPIC® Flight Software release 8. Some parameters recorded may change during the setting file installation procedure (Paragraph 3.4.2).

3.4 FULL LOAD

3.4.1 PRIMUS EPIC® FLIGHT SOFTWARE INSTALLATION PROCEDURE

WARNING. A power interruption or a ground to flight transition during the Flight Software installation may damage the under uploading LRUs. Do not power off the system during the flight software installation.

1 Verify that the helicopter is set on GND (WOW on GND).

2 Connect the PC to the helicopter LAN.

3 Power on the helicopter by mean the EXT PWR switch.

4 In order to verify that the LAN works properly, open the DOS command window and type the following ping commands by typing 'ping **IP Address**' and press Enter.

Unit	IP Address	Check
Co-Pilot PFD	192.168.3.1	☐
Co-Pilot MFD	192.168.4.1	☐
Pilot MFD	192.168.36.1	☐
Pilot PFD	192.168.35.1	☐
NIC1	192.168.1.1	☐
NIC2	192.168.33.1	☐
NIM1	192.168.2.1	☐
NIM2	192.168.34.1	☐
CMC	192.168.1.228	☐

The response should be as depicted in the Figure 3-2 below, otherwise the LAN integrity should be checked.

Power off the helicopter, before checking the LAN integrity.

Figure 3-2: Ping Positive Response

5 Insert the "Flight Software" CD in the computer CD player.

6 Launch the CMC RT tool and click on 'DATA LOADER'.

7 Wait until PRE-LOADING DRIVES annunciation is removed.

8. Select the "FULL LOAD" option

*Figure 3-3: Data Loader Main Menu CMC Remote Terminal (**only for reference**)*

(**NOTE**: If SW in the CD is in a compressed format, extract the whole SW package on an available drive and select the DR file from it, using CMC RT page)

9. Browse the CD or the directory on the pc where the Operational SW CD content has been copied, choose the DR loaded file, click on "SELECT FILE"

*Figure 3-4: Select DR File (**for reference only**)*

10. Verify that the configuration check procedure starts and the 'Configuration Check' window (see Figure 3-5) appears on the screen. During the configuration check, the "% COMPLETE" of the process will be shown and a report will be listed in the page.

Figure 3-5: Configuration check (in progress...)

11. On completion of the configuration checks, the estimated load time, along with the computed error codes, will be displayed in the Configuration Check Complete page.

Figure 3-6: Configuration check complete with failure reporting

12. If any error has been detected, repeat the Configuration Check procedure. If the problem persists fix the problem (i.e. replace the failed component) and repeat the Configuration Check.

13. If no error has been found on the Configuration Check Complete page, press the 'START LOAD' softkey.

14. The page System Load Status will be visualized and the loading percentage starts running.

15. At the end of the loading process the software installation log will be displayed in System Load Status page.

16. If no error has been found, the process has been successfully completed.

17. If any error has been detected during the installation proceed as indicated:

    - If 2 or more modules fail the installation, perform a full load installation.
    - If 1 or 2 modules fail the installation, click Retry option (Par.5.5) or reset the system and proceed with the 'START LOAD' Procedure (see Figure 3-27 and Par. 6).

18. Repeat the procedure until the SW has been successfully uploaded into all the LRUs (no error reported). If the malfunction persists (more than 3 process failures), try to follow PRIMUS EPIC Troubleshooting Tips, attached into Appendix A.
    Contact Honeywell support personnel if necessary.

19. Recycle the power.

20. Verify on the MFD SYSTEM page that the indicated SW P/N is correct.

3.4.2 SETTINGS FILE INSTALLATION PROCEDURE

NOTE 1 Do not interrupt the power during the Settings File Installation operations. A power before completion of the operation will create an inconsistency in the APM that will prevent the associated NIC from powering on in normal flight mode.

NOTE 2 If it's not the first SW upload on the aircraft, it's recommended to try finding the setting.txt relevant to the setting.cr installed (if not possible either open the Sys Config tab on MFD and take note of the parameters or use the APM Restoration Tool.exe to store the current configuration)

1 Verify that the helicopter is set on GND (WOW on GND)

2 Connect the PC to the helicopter LAN.

3 Power on the helicopter by mean the "EXT PWR" switch.

4 To verify that the LAN works properly, open the DOS command window and type the command following commands

- "ping 192.168.1.1"
- "ping 192.168.33.1"
- "ping 192.168.2.1"
- "ping 192.168.34.1"

After each ping command press enter,

For each command the response should be as depicted in the Figure 3-2, otherwise the LAN integrity of the specific LAN connection (between the DLMU W and the specific LRU) should be checked.

<u>Before checking the LAN integrity, power off the helicopter.</u>

5 Insert the "Flight Software" CD dedicated to the helicopter into the computer CD driver or ensure the corresponding software package is stored in an available drive in unzipped format

6 Launch the APM Settings Tool.exe (Figure 3-8)

<u>NOTE:</u> Prior to launching the APM Settings Tool.exe, ensure that the computer is running on Admin mode.

7 Select the settings.def file provided in the "Flight Software" CD via the browse button

8 Press the *Open* button

9 Press one of the following (Figure 3-9):

Load from Definition File button to select the PC stored definition file as the source of default data. This option is for creation of APM settings from scratch

Or

Load from a Binary File button to select an existing APM settings binary file as the source file and browse to select this file. This option is for creation of APM settings from an existing setting file stored on the laptop

Or

Get APM List button to copy the APM setting file connected to a helicopter that already has APM settings loaded on. This option is for creation of APM settings from those loaded on the aircraft

10. Enter the data as described into PHASE 3 APM settings (from Figure 3-11 to Figure 3-17)
11. Select Create binary file and save creation settings in a folder on the PC in use
12. Launch the CMC RT tool and click on 'DATA LOADER'
13. Wait until PRE LOADING DRIVES annunciation is removed.
14. Use arrow keys to navigate cursor box to the AVAILABLE DRIVES, select ENTER
15. Use arrow keys to navigate to HARD DRIVE of your PC, select ENTER
16. Use arrow keys to navigate to the folder that was created for storing the APM Settings file, select ENTER
17. Select APM Settings file [DR_PN] and press ENTER – it will highlight in green
18. Click on SELECT FILE
19. Configuration Check in Progress for each module will be displayed.
20. When Configuration Check is complete, CONFIG CHECK COMPLETE will be posted and estimated load times are displayed
21. Click on START LOAD button on right-hand side of RT
22. Complete status of each module and any errors will be displayed. Data Load complete when percent complete is 100%
23. On the MFD navigate to System > Sys Config > validate displayed Settings parameter values
24. If the APM Settings file was successfully loaded proceed to Loading the APM Options file.

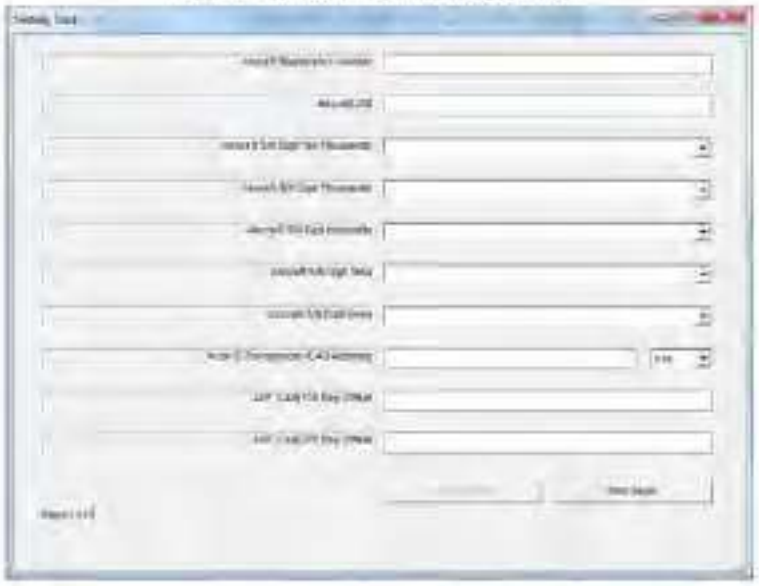
Figure 3-7: Setting File Installation – File Selection (*for reference only*)

Figure 3-8: APM Settings Tool Startup Screen – Definition File Selection

Figure 3-9: Settings and Rigging file selection menu

PHASE 8 APM Settings:

Figure 3-10: Page 1/8 of Data Entry Screen



Aircraft Registration Number: insert the TAIL ID

Aircraft S/N: Insert serial number. PAY ATTENTION: the serial number inserted will have to match with the aircraft s/n reported on the Option file (C2) (see § 3.4 Step: 8

Mode S Transponder ICAO Address: Insert the MODE S ICAO 24 bit transponder address or the new assigned address

NOTE 1: default value for this field is 000000. If this value is not changed transponder will fail

NOTE 2: in case of unknown MODE S ICAO address for Italy use 000000

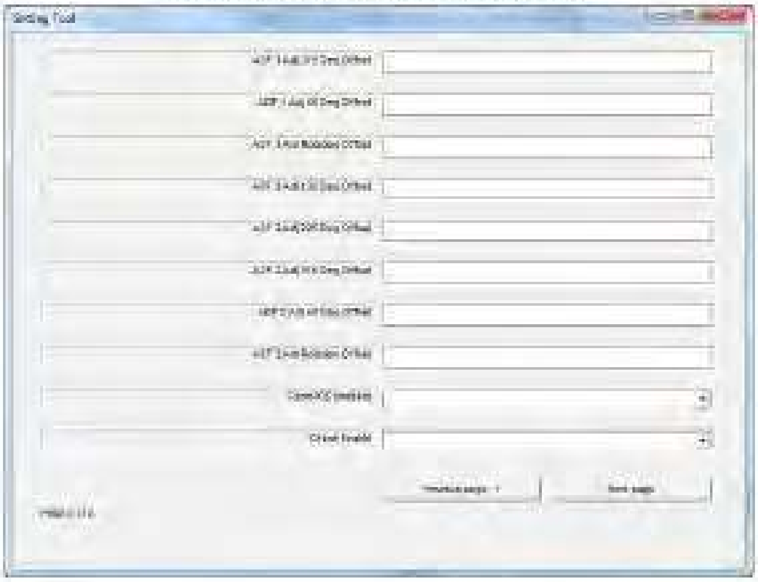
NOTE 3: Hex Box need to be changed to Decimal

ADF x Adj y Deg Offset:

If it's the first SAW installation don't insert any value.

Otherwise insert the values previously recorded.

Figure 3-11: Page 2/6 of Data Entry Screen



ADF x Ant Rotation Offset:

If it's the first SW installation don't insert any value

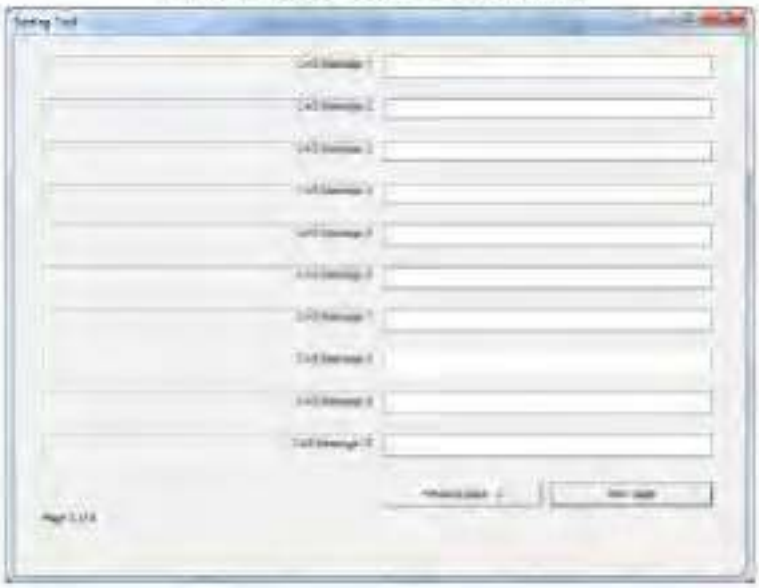
Otherwise insert the values previously uploaded

Cabin ICS Installed:

Block1 and Block2 P/N 7511900-90201, -9060X, -90001	Block3 P/N 7511900-99001, -99201
To be selected if the CA 800 Audio panel is installed in the cabin or another ICS is installed (i.e. EMS or 137AX Cameli)	**ALWAYS SELECTED**

Chime Enable: Select "Enable" only if the chime system is installed into the cabin.

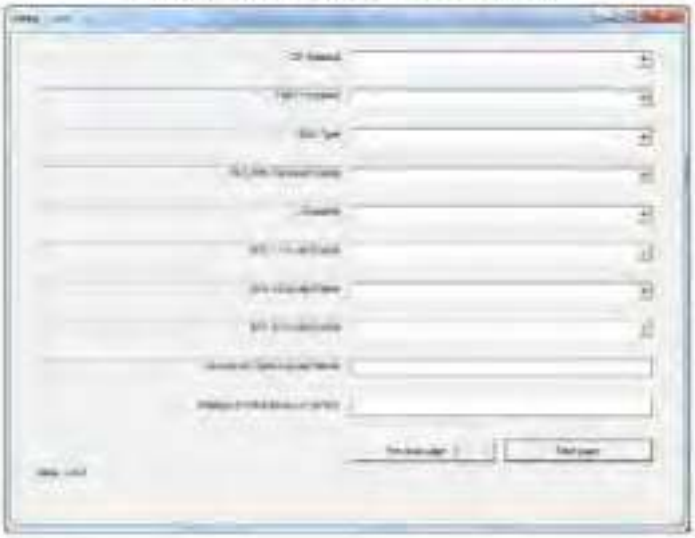
Figure 3-12: Page 3/8 of Data Entry Screen



CAS Message x: Insert the following text messages:

CAS MSG N.	LONG NOSE	SHORT NOSE
1	ISOLD_1 ON	
2	NOSE FAN 1 OFF	AVNX FAN1 OFF
3	PA OFF	PA OFF
4	NOSE FAN 2 OFF	AVNX FAN2 OFF
5	ICING	
6	PARK BRK LVL	
7	Legacy system: N LDG LT2 SEL Enhanced system: AMP ON (only if Trakka LX searchlight) OR IR LAMP ON (if 3G3340P01 "1 TRAKKA NVS VARIANT is installed)	RH LDG LT2 SEL
8	Legacy system: L T LDG LT2 SEL Enhanced system: RADAR TX ON (only if radar Calumet is installed)	LH LDG LT2 SEL
9	150 FT AL RAD INHIB	150 FT AL RAD INHIB
10	CHECK WWL	CHECK WWL

Figure 3-12: Page 4/8 of Data Entry Screen



DF Installed: Only if DF is installed

DMU 1 Installed: Select "Installed"

DMU Type: Select "DLMU-W (Wireless)"

FMS DMU Database Enable: Select "Enable"

LX Installed: Only if Lightning Sensor System is installed

NAV x Audio Enable:

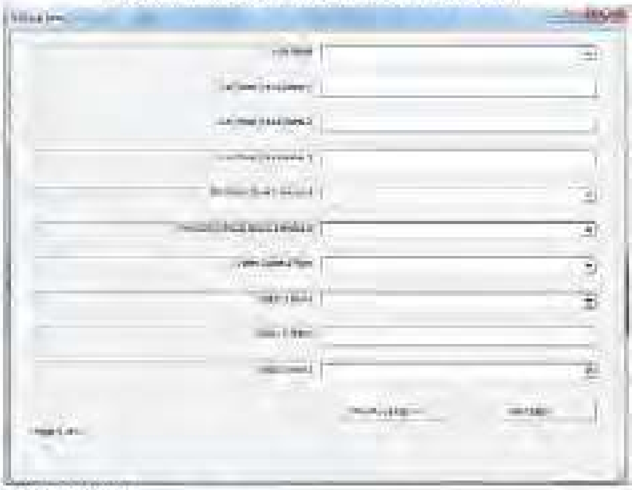
Block2 P/N 7511000-08001, -08801	Block3 P/N 7511000-09001, -09201
NAV A2 Enable only if DF is installed	NAV A2 Enable only if DF is installed NAV A1 Enable only if Auxiliary Audio System (AUX 1) is installed (Passenger Briefing system) NAV B1 Enabled only if Auxiliary Audio System (AUX 2) is installed (not used)

Num of Cockpit Audio Panels:

Block1 and Block2 P/N 7511000-08201, -08801, -08801 Insert the total number of AV900s installed	Block3 P/N 7511000-09001, -09201 Insert "2" if number of AV900 installed is 2 or greater than 2 Insert "3" if 3 AV900 are installed

Displayed Video Sources Number: Insert "8"

Figure 3-14: Page 5/8 of Data Entry Screen



FMS Mode: Set "MCDU control"
(other options available: "0" = single, "1" = Dual, "2" = Independent)
Rib Video Menu Name x:
Insert the name of the source installed as indicated in the **Table 1** **<u>OR</u>** **Table 2** **<u>OR</u>** **Table 3** **<u>OR</u>** **Table 4** below, depending on the video customization.

<u>NOTE:</u>

- **Table 1** is usually applicable to all aircrafts but the ones indicated below
- **Table 2** is applicable only to:
  all aircrafts upgrading from Ph4, Ph5, Ph6 to Ph8;
  31556, 31555, 31564 aircrafts in case of installation of Phase 8;
  all aircrafts manufactured for Bristow UK SAR (AD14355), UAE SAR (AN16100), Chungnam Fire Department (CN803308) and Malta Armed Force (AN15970) Work Orders in case of installation of Phase 8.
- **Table 3** is applicable only to
  aircrafts in CNVVF (AN16722) work **<u>in case customization 3G4600A18811 is installed</u>**
- **Table 4** is applicable only to
  aircrafts in Guardia di Finanza Work Order (AN16511 and AD14683) **<u>in case the kit 4G9310F01411 is installed</u>**

TABLE 1

SOURCES CONFIGURATION						SETTINGS		
						Rib Video Menu Name x		
SkyForce Installed	Euronav Installed	Radar Telephonics OR Radar Gabbiano Installed	OPLS Installed	VMU Installed		x=1	x=2	x=3
				✓	➨	—	—	—
✓					➨	DIGITAL MAP	—	—
	✓				➨	—	—	—
	✓			✓	➨	DIGITAL MAP	—	—
		✓		✓	➨	NOT USED	NOT USED	RADAR
		✓			➨	—	—	—
			✓	✓	➨	NOT USED	OPLS	—
			✓		➨	—	—	—
✓		✓		✓	➨	DIGITAL MAP	NOT USED	RADAR
	✓	✓		✓	➨	DIGITAL MAP	NOT USED	RADAR
✓			✓	✓	➨	DIGITAL MAP	OPLS	—
	✓		✓	✓	➨	DIGITAL MAP	OPLS	—
		✓	✓	✓	➨	NOT USED	OPLS	RADAR
✓		✓	✓	✓	➨	DIGITAL MAP	OPLS	RADAR
	✓	✓	✓	✓	➨	DIGITAL MAP	OPLS	RADAR

TABLE 2

SOURCES CONFIGURATION						SETTINGS		
						Rib Video Menu Name x		
SkyForce Installed	Euronav Installed OR both Euronav and 2nd Euronav Installed	Radar Telephonics OR Radar Gabbiano Installed	OPLS Installed	VMU Installed		x=1	x=2	x=3
				✓	➨	---	---	---
✓					➨	DIGITAL MAP	---	---
	✓				➨	---	---	---
	✓			✓	➨	DIGITAL MAP	---	---
		✓		✓	➨	RADAR	---	---
		✓			➨	---	---	---
			✓	✓	➨	OPLS	---	---
			✓		➨	---	---	---
✓		✓		✓	➨	GRAPHICS	---	---
	✓	✓		✓	➨	GRAPHICS	---	---
✓			✓	✓	➨	GRAPHICS	---	---
	✓		✓	✓	➨	GRAPHICS	---	---
		✓	✓	✓	➨	GRAPHICS	---	---
✓		✓	✓	✓	➨	GRAPHICS	---	---
	✓	✓	✓	✓	➨	GRAPHICS	---	---

TABLE 3

SOURCES CONFIGURATION (*)				SETTINGS		
				Rib Video Menu Name x		
SkyForce Installed	OPLS Installed	VMU Installed		x=1	x=2	x=3
✓	✓	✓	➜	OPLS	DIGITAL MAP	

(*) Euronav DWMP, Telephonics and Gabbiano Radar not applicable

TABLE 4

SOURCES CONFIGURATION (*)						SETTINGS		
						Rib Video Menu Name x		
SkyForce Installed	Gabbiano Radar Installed	OPLS Installed	Three Cameras Installed	VMU Installed		x=1	x=2	x=3
✓	✓	✓	✓	✓	➜	DIGITAL MAP	OPLS	HYPER SPECTR

(*) Euronav DWMP and Telephonics Radar not applicable

Rib Video Switch Installed: only 1 Rib Box or VMU is installed

TAWS ENHANCED MODE ENABLED: "Enable" or "Disable". See the bullets below

- If EGPWS is not installed, select "DISABLE";
- If EGPWS-030 is installed, select "ENABLE";
- If EGPWS-034 is installed and:
  - If APM Option fmsCustomApproachAutoRHAStdEnable is set to "ENABLE" (independently from FD configuration), select "ENABLE";
  - If APM Option fmsCustomApproachAutoRHAStdEnable is set to "DISABLE",
    - FD configuration is ENHANCED (kit p/n 4G2210F00411) or SAR (kit p/n 4G2210F00111) select "ENABLE";
    - FD configuration is BASIC (kit p/n 4G2210F00511) and:
      - OFFSHORE MODE is required by work order (see EGPWS note in Work Order) select "ENABLE";

        OFFSHORE MODE is not required by work order (see EGPWS note in Work Order) select "DISABLE";
      - No note is specified in the Work Order for EGPWS, select "DISABLE".

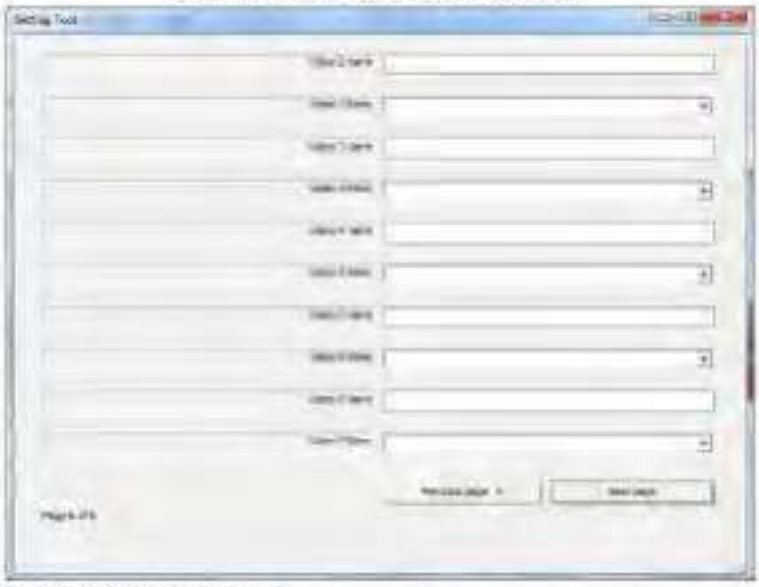
Video Camera Type: NTSC or PAL

Video x Menu: insert "enable" depending on the cameras installed

Video x Name: If enabled insert the relevant name as indicated below:

Only If Simplex GI tank is installed		Only If CARGO HOOK Cameras or both Simplex GI tank and CARGO HOOK Cameras are installed	
X	Name	X	Name
1	Tail Boom Camera	1	Hook Camera OR Cargo Camera depending on actual helicopter video customization
2	Fast Stores Camera	2	Cargo Camera OR Hook Camera depending on actual helicopter video customization
3	FLIR Camera	3	FLIR Camera
4	HVS Camera	4	HVS Camera
5	Hoist Camera	5	Hoist Camera
6	Cabin Camera	6	Cabin Camera
7	--	7	--
8	FLIR Camera	8	FLIR Camera

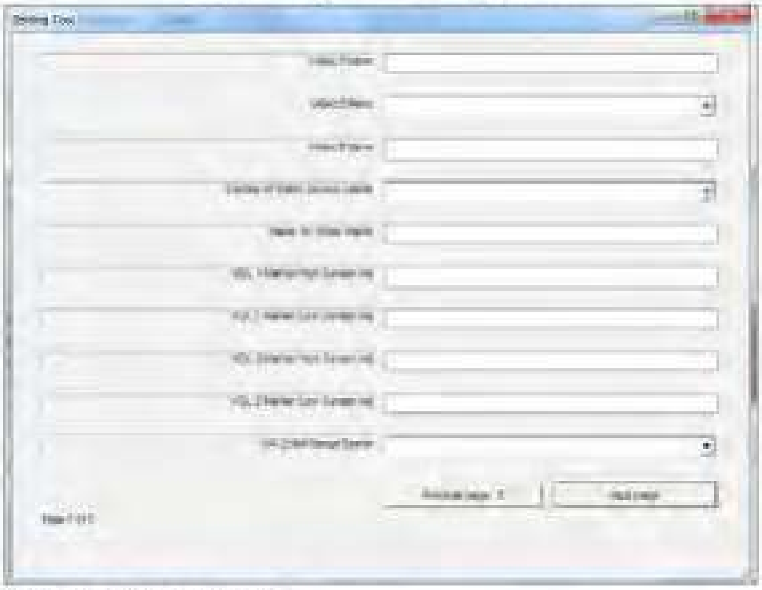
Figure 3-15: Page 6/6 of Data Entry Screen



Video x Menu: refer to previous pages.

Video x Name: refer to previous pages.

Figure 3-16: Page 7/8 of Data Entry Screen



Video x Menu: refer to previous pages.

Video x Name: refer to previous pages.

Display of Video Source Labels: Select 'Enable'

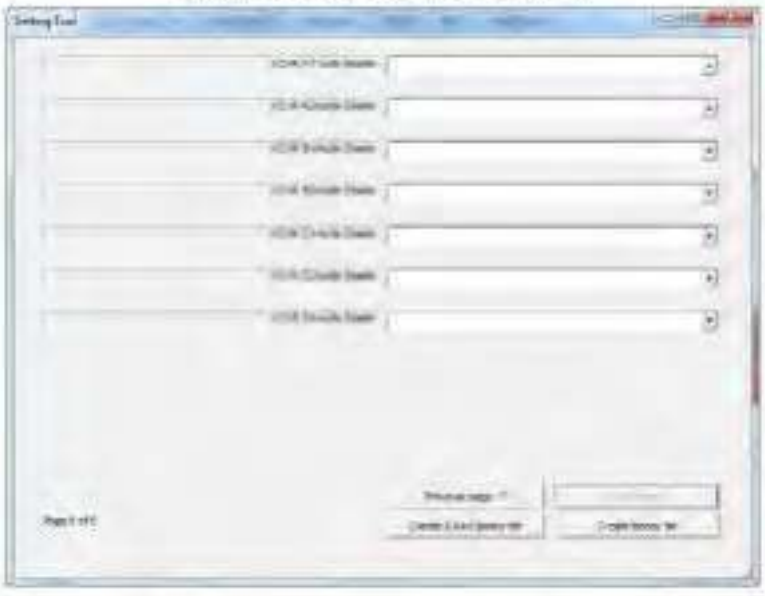
Name for Video Matrix: Insert 'Cameras'

VDL x Marker High Sensor Adj: Don't insert any value

VDL x Marker Low Sensor Adj: Don't insert any value

WX 25NM Range Enable: Only if Radar 680 with 2.5 NM range is installed (panel 7008471-680 installed into Interseat console)

Figure 3-17: Page 8/8 of Data Entry Screen



XCVR xAudio Enable: Enable only the transceiver of the relevant MRC (1 2) that is used (See the following tables).

XCVR C2 Audio Enabled

Block1 and Block2	Block3
Always Selected	Selected only if UNL2 is installed.

XCVRA1	I
XCVRA2	COM3
XCVRB1	UNL
XCVRB2	FA

Audio Panels with Block 1 Software

XCVRA1	III
XCVRA2	COM3
XCVRB1	HOIST
XCVRB2	COM4
XCVRC1	FONE

Audio Panels with Block 2 Software

XCVRA1	III
XCVRA2	COM3
XCVRB1	HOIST
XCVRB2	COM4
XCVRC1	FONE 1
XCVRC2	FONE 2
XCVRD1	COM5

Audio Panels with Block 3 Software

3.4.3 OPTIONS FILE INSTALLATION PROCEDURE

NOTE1. Each helicopter must have a dedicated Options CD defining the proper helicopter configuration and recorded in the applicable Work Order (Commessa di Vendita).

NOTE2 Do not interrupt the power during the Option File installation operations. A power failure during the operation will create an inconsistency in the APM that will prevent the associated NCTH from powering up in normal flight mode.

1 Verify that the helicopter is set on GND (WOW on GND).

2 Connect the PC to the helicopter LAN.

3 Power up the helicopter by means the 'EXT PWR' switch.

4 To verify that the LAN works properly, open the DOS command window and type the command following commands:

- 'ping 192.168.1.1'
- 'ping 192.168.33.1'
- 'ping 192.168.2.1'
- 'ping 192.168.34.1'

After each ping command press enter.

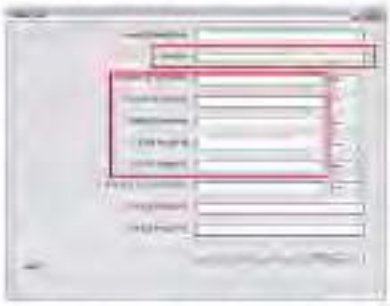
For each command the response should be as described in the Figure 3-2 otherwise the LAN integrity of the specific LAN connection (between the GUMUHW and the specific Line Unit) should be checked.

Before check the LAN integrity, the helicopter has to be powered off

5 Two procedures are available in order to install the option file:

- Using Option CD (follow steps 6, 7 and from 15 to the end of paragraph)
- Downloading the option file from https://apmweb.honeywell.com/apmweb/ (follow from step 8 to the end of paragraph)

6 Before start the installation procedure take note the Security Code and check the matching between Aircraft S/N reported on Option CD and Aircraft S/N entered during Setting File installation procedure (Figure 3-18, Page 1/8 of Data Entry Screen). (see below)



7 Insert the "Options" CD dedicated to the helicopter into the computer CD driver. (go to step 15)

8. From https://apmweb.honeywell.com/apmweb/, insert User ID and password in order to access to APM services:

9. Click on "View/Download Certificate of Conformance PDF" icon accordingly to the Option file order.

10. Check the correctness of option file part number (DM60000685-xxxxx or DM60004869-xxxxx as per tables from 2.3-1 to 2.3-5)

Description material
TT60000685-09996 Ref. DM60000685-09996

for reference only

the A/C part number.

AC SN #
31000

for reference only

and take note of Security Code:

SC
8846F3ED

for reference only

Then, save a copy of Certificate of Conformance (CoC)

Honeywell

30-NOV-2012

APM Web Delivery Certificate of Conformance

Add Type	Order #	Customer #	Address
Ship To	[illegible]	[illegible]	Ferraro Davide AGUSTAWESTLAND SPA Amministrazione E.Finanza, Via Giovanni Agusta 520, Cascina Costa Di Samarate VA, ITALY, 21017

Qty	Order #	PO #	Ref #	Description material	SC	AC SN #
1	[illegible]	[illegible]		[illegible]	8846F3ED	31000

ECCN=7E994;Schedule B=8523.49.2020

Certificate Of Conformance:

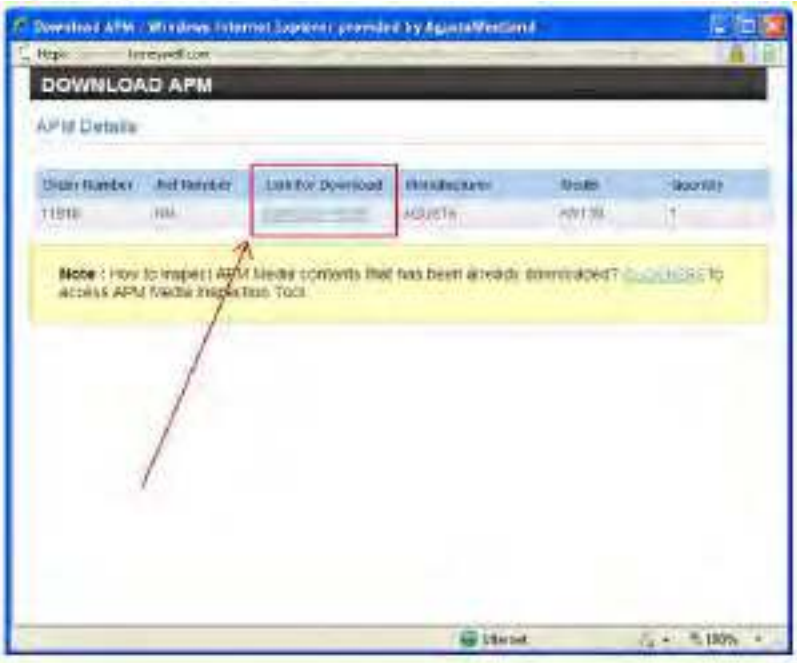
I hereby certify that the supplies or services listed herein were shipped as shown in the quantities and [illegible] for in this above cited purchase order and were in all respects in accordance with applicable specifications. And that all processes conform to DO-200A Standards for Processing Aeronautical Data.

for reference only

Erin Nicholas
[illegible]

11. Return on "View Status & Delivery" web page and click on "Download APM files" icon:

12. Click on option file part number link:



13. Check the A/C serial number and the Security Code, then click on "I Agree":

14. Select "Download APM" and save it into a folder:

15. Launch the CMC RT tool and click on "DATA LOADER"

16. Select the "FULL LOAD" option.

17. Select, from the DLS INSTALLATION FUNCTION Browse window, the file preceded by the wording "[DR-PN]"

18. In the "TERMS AND CONDITIONS" page, select "I ACCEPT" option (the option changes color to green as indicated below) and the select "ENTER CODE"

19. In the green box, insert the authorization code (reported on CD as indicated below or that one noted during download from web site procedure) and select "ENTER"

20. If the typed code is correct, verify that the following page is displayed for few seconds and then the configuration check process starts autonomously

21 At the end of the CONFIGURATION CHECK, select 'START LOAD'

22. If Option File loading is unsuccessful, perform a "Retry" operation. Refer to Section 3.5 for more details.

3.4.4 INAV AND TERRAIN DATABASE INSTALLATION PROCEDURE

3.4.4.1 INAV DATABASE LOADING

1. From http://ads.honeywell.com website download the iNAV database named:

AW8 AW139YYCCRRR

where YY = year, CC = cycle, RRR = revision (for example: AW1392009001 represents revision **001** of the Nav DB for PRIMUS EPIC phase 6 delivered for cycle **09** in **2020**).

Figure 3-19: iNAV DB selection

2. Select the "FULL LOAD" option.
3. From the DLS INSTALLATION FUNCTION browse window and select the file:

[DR-PN]: 139-8-3CC

where CC = cycle.

4. Select the "FULL LOAD" option.
5. Select "START LOAD" to install the iNavDB.

Figure 3-20: iNAV DB selection **(for reference only)**

6. If iNAV Database loading is unsuccessful, perform a *"Retry"* (refer to Section 3.5 for more details)

3.4.4.2 TERRAIN DATABASE LOADING

1. Access http://ads.honeywell.com website, browse to **TerrDB (EGPWS)**, select the applicable terrain database among those available under **Regional Terrain Server** and download it.

Figure 3-21: Terrain Database selection on Honeywell's website (for reference only)

Figure 3-22: Regional Terrain selection on Honeywell's website (for reference only)

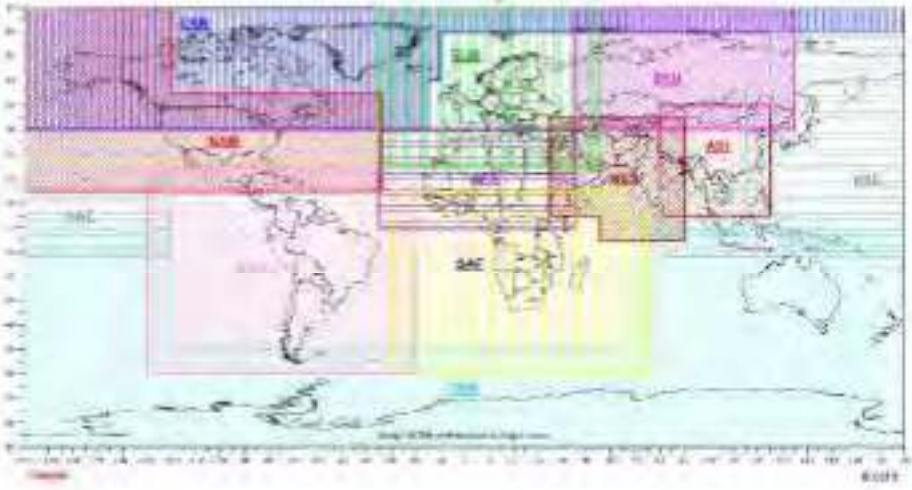
A set of 11 regional Terrain Databases is available for downloading, each one covering the same area as the corresponding EGPWS Mark XXII Terrain Database. Available terrain databases are listed below:

- North America (NAM)
- South America (SAM)
- Europe (EUR)
- Eastern Europe (EEU)

- Africa (AFR)
- Pacific (PAC)
- Asia (ASI)
- South Pacific (SPA)
- Middle East (MES)
- Canada (CAN)
- South Africa (SAF)

Refer to Figure 3-23 below for a visual representation of available Terrain Database Regions.

Figure 3-23 Terrain Database Regions



The P/N of the Terrain Database is DC690024**XX**-0YYY where **XX** represents the region identifier and **YYY** is the Cycle Version. A list of Regional Terrain Databases with the corresponding region identifier "**XX**" can be found in Table 2.3-3.

NOTE: New Terrain Databases are released periodically. Verify the schedule for Terrain Database (Server) availability in order to ensure that the most recent version is always loaded on the aircraft.

Figure 3-24: Release schedule for Terrain Databases

2. Insert the media containing the Terrain Database (if available) into laptop drive. Alternatively, store the database file locally on the laptop.
3. From the CMC MAIN MENU page, click on DATA LOADER button.
4. Click on FULL LOAD button on right-hand side of RT.
5. Use arrows to navigate cursor box to the Terrain Database [DR_PN] on the media drive or local drive, and press ENTER – it will highlight in green.
6. Click on SELECT FILE.
7. Configuration Check in Progress for the module will be displayed.
8. When Configuration Check is complete CONFIG CHECK COMPLETE posted and estimated load times are displayed.
9. Click on START LOAD button on right-hand side of RT.
10. When loading is finished, the DLS will display a summary of Percent Complete, status of the module, time remaining, and any errors will be displayed. Data Load complete when percent complete is 100%.
11. If Terrain Database loading is unsuccessful, contact a Help (refer to Section 3.5 for more details).

3.4.5 PERFORMANCE DATABASE INSTALLATION PROCEDURE

1. Insert the "PERF DATABASE" CD into the computer CD driver.
2. Launch CMC RT tool and select the "FULL LOAD" option.
3. From the DLS INSTALLATION FUNCTION Browse window, select the file FMS_ACDB_AGST_60000218-003 or

   FMS_ACDB_AGST_60000218-004 (if Kit 4G0000F00311 "LGS Increased Gross Weight 7000Kg" is installed) or

   FMS_ACDB_AGST_60000218-002 (Legacy DB)

Figure 3-25 Perf DB – File Selection (for reference only)

4. Select "SELECT FILE" to install the PERF DB.

3.4.6 CMC LDI SOFTWARE LOAD

NOTE before uploading new CMC LDI SW, mind to download the CMC data (if CMC data are already present), in order to avoid to lose them.

1. Extract the correct LDI SW from the CD to a folder on the computer.

Primus EPIC SW Version	LDI SW to be loaded	CD containing LDI SW
Phase 8	PGT035985-00807	MM7035985-00807

or download the correct LDI SW from http://ads.honeywell.com website. Select Honeywell Forge Electronic Library, and download the correct LDI SW.

(Only for reference)

2. On CMC Remote Terminal Select the "FULL LOAD" option.
3. From the DLS INSTALLATION FUNCTION Browse window, select the correct file LDI [DR-PN].

Figure 3-26: LDI – File Selection (*for reference only*)

4. Select 'START LOAD' to install the LDI Software.

3.5 RETRY OPTION

1 In the event there were any loading errors while attempting to load the Operational SW, APM Options/Settings or any database, click on RETRY button located on the bottom of the window (see Figure below).

(Only for reference)

2 The DLS will perform a Configuration Check again, this time only for the modules that were not successfully loaded previously.

3 Select Start Load after the Configuration check completes.

4 Loading of the remaining module starts automatically and displays percent complete and status (see an example in Figure below).

(Only for reference)

3.6 PRIMUS EPIC® TARGET LOAD INSTALLATION PROCEDURE

Note: TARGET LOAD installation procedure could be executed either with a PC connected to the helicopter LAN (as described in par. 3.4 for the "FULL LOAD installation") or on MFD CMC page as described below.

Be aware that a TARGET LOAD through MFD CMC is only possible with the following limitations:

- The onboard CMC DLS cannot be used for full loads of operational software.
- The onboard CMC DLS cannot be used to load the CMC module or the MIC1 module.
- The onboard CMC DLS cannot be used to load the Terrain DB on any display.
- The onboard CMC DLS should not be used to load the DU on which the CMC maintenance page is displayed because the display will blank when the LRM is loaded.
- The onboard DLS should only be used for target loading individual modules related to a maintenance action or for loading databases in the event a RTPC is not available.

1 Select the 'System' button on MHD menu bar;

2 Select 'Maintenance' option to display the CMC page;

3 Click on 'DATA LOADER';

4 Wait for the end of preloading phase;

5 Select 'TARGET LOAD';

6 Browse drives and select the desired *.IR-PN file (depending upon the SW part to be loaded with the Target Load procedure);

7 Select LRM to load (green colored);

8 Press 'NEXT' softkey and then wait for the end of Configuration Check;

9 If no error has been found, press 'START LOAD' softkey;

10 Wait for the message 'LOADING SEQUENCE COMPLETE';

Figure 3-27: Target Load (for reference only)

3.7 VALIDATION OF S/W SYSTEM INSTALLATION

1. Recycle the power
2. Verify none of the following caution is present in CAS list:
   - SYS CONFIG FAIL
   - AV DNLG FAULT
   - 1/2/3/4 DU DB DGRD
3. Verify none of the following STATUS message is present in CAS list:
   - 1/2/3/4 DU DB OLD
4. Verify "VALIDATE CONFIG" caution is present in CAS list
5. Scroll SYSTEM drop down menu and select "Sys Config" sub menu
6. Before pressing "ENTER" on Configuring Window page 1 verify the following field are correctly filled in:
   - Top Level System Part Number (Operational SW)
   - Configuration Part Number (APM Options)
7. In Database Config 8 pages (from 2 to 9) verify the following fields are correctly filled in.

   In particular, verify the P/N is correct for the following DBs
   - FMS 1 NAV (INAV DB)
   - FMS 2 NAV (INAV DB)
   - FMS 1 A/C PERF (Performance DB)
   - FMS 2 A/C PERF (Performance DB)
   - DU 1 FMS NAV (INAV DB)
   - DU 2 FMS NAV (INAV DB)
   - DU 3 FMS NAV (INAV DB)
   - DU 4 FMS NAV (INAV DB)
   - DMC 1 DB

   Additionally, verify that effectivity cycle (Sys Config pages from 2 to 9) is correct for the following DBs
   - DU 1 AIRPORT COMM
   - DU 2 AIRPORT COMM
   - DU 3 AIRPORT COMM
   - DU 4 AIRPORT COMM

---

[1] In case the CAS is present, the affected (corrupted) Database shall be identified through the System Configuration page on MFD. Then, the loading procedure shall be repeated on the affected display making sure that the file used for loading is correct.
[2] In case the STATUS message is present, the affected (outdated) Database shall be identified through the System Configuration page on MFD. Then, the loading procedure shall be repeated on the affected display making sure that the file used for loading has current validity.

- DU 1 AIRPORT TEXT
- DU 2 AIRPORT TEXT
- DU 3 AIRPORT TEXT
- DU 4 AIRPORT TEXT
- DU 1 AIRSPACE
- DU 2 AIRSPACE
- DU 3 AIRSPACE
- DU 4 AIRSPACE
- DU 1 AIRWAYS
- DU 2 AIRWAYS
- DU 3 AIRWAYS
- DU 4 AIRWAYS
- DU 1 ENROUTE COMM
- DU 2 ENROUTE COMM
- DU 3 ENROUTE COMM
- DU 4 ENROUTE COMM
- DU 1 GEOPOLITICAL
- DU 3 GEOPOLITICAL
- DU 3 GEOPOLITICAL
- DU4 GEOPOLITICAL
- DU 1 NAVIGATION DATA
- DU 2 NAVIGATION DATA
- DU 3 NAVIGATION DATA
- DU 4 NAVIGATION DATA
- DU 1 OBSTACLES
- DU 2 OBSTACLES
- DU 3 OBSTACLES
- DU 4 OBSTACLES
- DU 1 TRANSPORT CITIES
- DU 2 TRANSPORT CITIES
- DU 3 TRANSPORT CITIES
- DU 4 TRANSPORT CITIES

Following Terrain Database shall be verified for correct P/N and applicability region (Sys Config pages 8 and 9)

- DU 1 TERRAIN (Terrain DB)

- DU 2 TERRAIN (Terrain DB)
- DU 3 TERRAIN (Terrain DB)
- DU 4 TERRAIN (Terrain DB)

8 Return to Configuring Window page 1 and press ENT-R

9 Ex. from Configuring Window page and verify "VALIDATE CONFIG" is no longer displayed

4. PROCEDURE SUMMARY

PROCEDURE SUMMARY *A/C N°* _____

139G4600M004

PRIMUS EPIC® SOFTWARE INSTALLATION PROCEDURE

REF.	DESCRIPTION OPERATOR	DATE	REMARKS
3.1	TOOLING REQUIRED		
3.2	PRECAUTIONS AND REQUIREMENTS		
3.3	CONNECTION TO THE HELICOPTER		
3.4.1	PRIMUS EPIC FLIGHT SOFTWARE INSTALLATION PROCEDURE		
3.4.2	AS-1 INSTALLATION PROCEDURE		
3.4.3	OPTIONS INSTALLATION PROCEDURE		
3.4.4	NAV AND TERRAIN DATABASE INSTALLATION PROCEDURE		
3.4.5	PERFORMANCE DATABASE INSTALLATION PROCEDURE		
3.4.6	CMDS DISPENSER SOFTWARE LOAD		
3.7	VALIDATION OF S/W SYSTEM INSTALLATION		

Engineering dept signature (if required):

Quality dept approval:

APPENDIX A

Extract of Service Information Letter

PRIMUS EPIC Troubleshooting Tips, Lessons Learned, and Reference for Loading Databases and Operational Software

Publication Number D2014100000044 - Rev 1

Honeywell
SERVICE INFORMATION LETTER

F. PRIMUS EPIC Loading Tips

(1) Full Software Load Sequence

(a) A full load should only be necessary whenever new software/database updates are made available to the operators.

(b) When performing a full load with all software, the recommended loading sequence is below but refer to AMM for proper loading sequence:

- Operational software
- Aircraft personality module (APM) settings and rigging
- APM options
- Aircraft database (ACDB)
- Subscribed databases, Navigation, Charts, EGPWM Threat/Envelope Modulation and Terrain Server.

  NOTE: Databases supplied may be delivered by USB, DVD or CD, or the Internet. The exact database deliveries will be based on aircraft configuration.
- Airline modifiable information (AMI)
- Electronic checklist (ECL)
- Programmable crew alerting system (CAS) messages
- Loadable diagnostic information (LDI)/aircraft condition monitoring function (ACMF).

(c) Perform the instructions in Paragraph 1.F.(10) after loading all software/data during a full load instead of after each software component is loaded. This will aid in determining if any modules need to be target loaded due to any load errors.

(2) Recommended Operational SW Media Full Load Procedure

NOTE: Refer to the applicable AMM for approved procedures.

(a) Ensure the operational software media or in the remote terminal.

NOTE: Refer to Paragraph 1.D. and Paragraph 1.E.(7).

- Select "FULL LOAD".
- Under the media drive select the directory file part number (DN-PN) file.

  NOTE: Refer to Paragraph 1.D.
- Press Enter and confirm file is annunciated in green text.
- Select "SELECT FILE".
- Confirm message "Config Check Complete" (May take several minutes).
- Select "START LOAD".
- Confirm message "Load Complete" (May take several minutes).
- Note any module loading errors, and perform a "RETRY" on the modules that failed to load during the full loads.

Honeywell

SERVICE INFORMATION LETTER

- Perform a Full Load with the appropriate software media in the sequence as indicated on the previous page.
- Go to the Software Load Check section.

(7) Recommended Procedure for Subscribed Navigation Database Update

<u>NOTE:</u> Refer to Subscribed Navigation Database Distribution, Paragraph 2.F. and the applicable AMM for approved procedures.

(a) Navigation, Airspace & Communication, EGPWS Threat and Envelope Modulation Data

- Ensure the media containing the Subscribed NAV Database is in the remote terminal. Refer to Paragraph 1.E.(7).
- Prior to loading, see the Epic Load Instructions document included with each disk cycle as a hard copy for any database changes or limitations. Additionally this document is stored on the Navigation Database media as Epic Load Instructions.txt.
- Select "FULL LOAD"
- Scroll to the drive where the media is installed.
- Select the NavDB DR-FIC file.
- Press Enter and confirm the file is annunciated in green.
- Select "SELECT FILE"
- Confirm message "Config Check Complete" (may take several minutes)

<u>NOTE:</u> Any files that display "ALREADY LOADED" after the Configuration check have not changed since the previous cycle of the software media and will not be updated.

(b) Select "START LOAD" to ensure all required files are updated.

- Confirm message "Load Complete" (may take several minutes)
- Note any module loading errors, and perform a "RETRY" on the modules that failed to load during the full loads.
- Select "DLS MENU"
- If the EGPWM Threat Data and EGPWM Envelope Mod files need to be loaded/updated repeat the above steps.
- Repeat the Full Load procedure until all changed DR files have been loaded.
- Go to the Software Load Check section.

(8) Recommended Procedure for Subscribed Charts Database Update with "Standard Charts" "Charts Option"(Loading to the AGMs and PCMCIA/SD Card)

<u>NOTE:</u> Refer to the applicable AMM for approved procedures. For the Charts option, but not the "Paperless" option, the Charts database must be loaded to the DMUs PCMCIA memory cards using the DMU CD drive. (512 MB minimum PCMCIA memory card).

(a) The Subscribed database can be updated as follows:

Publication Number [illegible]

Honeywell

SERVICE INFORMATION LETTER

- Ensure the DMU LEDs are green before inserting Subscribed Charts media, PCMCIA (DMU-2) or SD card (DMU-3).

  NOTE: Aircraft equipped with DMU3 cannot load file chart media files from a disk. The files must reside on a USB stick. If a USB stick is unavailable, use the alternate load procedure in Paragraph 2.D.

- Ensure the Subscribed Charts media is installed in the Data Management Unit.
- Ensure the proper slot is populated with the correct capacity card with label side up (minimum 2GB capacity). The DMU-2 uses the upper PCMCIA slot, and the DMU-3 uses SD Slot 1. Both storage media types should be formatted to FAT32.

  NOTE: The PCMCIA card will need to be erased if previously used to store data other than the charts database.

- If using a DMU-3, close and secure the DMU door before starting the software load.
- Select "FULL LOAD" from the remote terminal.
- Verify DMU select the Charts [DR-PN] file (weight on wheels [WOW] input to DMU required).
- Press Enter and confirm file is annunciated in green.
- Select "SELECT FILE".
- Confirm message "Config Check Complete" (may take several minutes).
- Select "START LOAD".
- Confirm message "Load Complete" (may take several minutes).
- Note any module loading errors, and perform a "RETRY" on the modules that failed to load during the full loads.
- Go to the Software Load Check section.

(d) **Recommended Procedure for Subscribed Charts Media Database Update with "Electronic Charts" "Paperless Option" (Loading to the AGMs Only)**

NOTE: Refer to the applicable AMM for approved procedures.

(e) The Subscribed charts media database can be updated as follows:

- Ensure the Subscribed Charts media is in the appropriate remote terminal drive.
  - Refer to Paragraph 1.D. and Paragraph 1.E.(7).
- Select "FULL LOAD".
- Scroll to the drive where the Charts media is installed.
- Select the Charts [DR-PN] file.
- Press Enter and confirm file is annunciated in green.
- Select "SELECT FILE".
- Confirm message "Config Check Complete" (May take several minutes).
- Select "START LOAD".
- Confirm message "Load Complete" (May take several minutes).

Honeywell
SERVICE INFORMATION LETTER

- Note any module loading errors, and perform a "RETRY" on the modules that failed to load during the full load.
- Go to the Software Load Check section.

(6) Recommended Procedure for Subscribed Terrain Server Database Update.

NOTE: May take several hours to load. Refer to the applicable AMM for approved procedures.

(a) The subscribed navigation database can be updated as follows:

- Ensure the subscribed media is in the appropriate remote terminal drive.
  - Refer to Preliminary Procedures.
- Select "FULL LOAD".
- Select the drive where the card is installed.
- Select the EGPWM Terrain [DB.Fil] file.
- Press Enter and confirm file is presented in green.
- Select "SELECT FILE".
- Confirm message "Config Check Complete" (May take several minutes).
- Select "START LOAD".
- Confirm message "Load Complete" (May take several minutes).
- Note any module loading errors, and perform a "RETRY" on the modules that failed to load during the full load.
- Go to the Software Load Check section.

(7) Recommended Target Load

(a) Target Load is intended for loading software using the remote terminal into modules that have been removed and replaced in the Modular Avionics Units or NIMs, or whenever a Target Load is required after a Full Load has generated load errors.

1. Module Replacement: Follow the entire Target Load procedure for the replaced module.
2. Software Loading Error: Perform the Target Load procedure using the software (SW) media that failed during the previous Full Load procedure.
3. Multiple modules can be target loaded simultaneously with the following procedure:
   - Select each module with a single click to turn the LRM name green.
   - Re-"selecting" a previously selected module will de-select it.
   - Select the "Next" button to begin the configuration check.
   - After configuration is successful select "Start load".

NOTE: Cycle aircraft power (remove power for a minimum of 2 minutes) before beginning a target load resulting from loading errors. Remember that the Preliminary Procedures will need to be performed whenever power is cycled. Multiple Target Loads can be performed without the need to cycle power for each load.

Publication Number: D28141000S44

(c) Recommended Target Load Procedure

NOTE: Refer to the applicable AMM for approved procedures.

(a) If loading from a disk, insert the disk into the DMU, or KT CD/DVD-ROM drive. Select the "TARGET LOAD" button.

(b) Select a DR-PN file by browsing the directory of the desired media and highlighting the desired DR-PN file to load by pressing Enter to turn the filename green.

(c) Select the "SELECT FILE". Select the desired LRM(s) from the list of LRMs identified by DLS as being associated with the selected DR-PN file by scrolling to the LRM(s) and pressing Enter to turn the LRM name green.

(d) Select the "NEXT" button to begin the configuration check process. Wait for "CONFIG CHECK COMPLETE" message and an estimated load time upon completion of the configuration check process.

(e) Select the "START LOAD" button to begin the actual load process. Wait for "LOAD COMPLETE" message when it has completed the load process.

(2) Primus Epic System Files That Can Be Loaded Using the DLS

(a) APM Settings Database.

1 (1 user selectable DR-PN file) This database defines aircraft unique settings controlled by the OEM and/or operator. This database may be loaded using DLS from a distribution disk provided by the OEM or set interactively on the aircraft using the APM Settings Tool provided by Honeywell.

(b) APM Options Database.

1 (1 user selectable DR-PN file). This database defines aircraft unique installed options. This database may be distributed by Honeywell or the OEM depending on OEM agreements.

(c) CMC LDI Database.

1 (1 user selectable DR-PN file). This database defines the CMC maintenance operation. The CMC is an option that may not be installed on all aircraft. This database may be distributed by Honeywell or the OEM depending on OEM agreements.

(d) ECL Database.

1 (1 user selectable DR-PN file). This is a program specific database. This database defines the pilot's checklist. This database is created and distributed by the aircraft OEM.

(e) AMI Database.

1 (1 user selectable DR-PN file) This database is used by the Communication Management Function (CMF). CMF is an option that may not be installed on all aircraft. This database is distributed by Honeywell or AFIS service provider.

Honeywell

SERVICE INFORMATION LETTER

(f) CMC ACMF

1 (1 user selectable DR-PN files. This database defines data for the aircraft condition monitoring function. This database is distributed by Honeywell. This database may be distributed by Honeywell or the OEM depending on OEM agreements.

(g) CMC Master Minimum Equipment List (MMEL)

1 (1 user selectable DR-PN files. This is a program specific database. This database is distributed by the OEM.

(h) Fault Codes

1 (1 user selectable DR-PN files. This is a program specific database. This database is distributed by the OEM.

(i) Status and Consequences

1 (1 user selectable DR-PN files. This is a program specific database. This database is distributed by the OEM.

(j) Electronic Photo Book

1 (1 user selectable DR-PN files. This is a program specific database. This database is distributed by the OEM.

(k) Aircraft / Performance Database

1 (1 user selectable DR-PN file). This database defines aircraft performance characteristics for the FMS. This database may be distributed by Honeywell or the OEM depending on OEM agreements.

(10) Recommended Software Load Check

NOTE: Refer to the applicable AMM for approved procedures.

(a) A software load check can be performed as follows:

- Go to Main Menu.
- Reset aircraft power upon completing all SW loads. (Allow at least 2 minutes before reapplying power. During this period do NOT remove the CMC back shell.)
- Note that the CMC remote terminal application now is showing "CMC CONNECTION FAILED. CONNECTING TO 192.168.200.1"
- Wait a minimum of 5 minutes before proceeding to allow the CMC to completely power up.
- Confirm that the CMC remote terminal application is now showing "CMC MENU"
- Enable (if applicable) Ground Maintenance Test Switch.
- Select CMC from the Map drop-down menu.
- Select the CMS tab at the bottom of the display.
- If a flashing CONFIRM button is present, refer to Paragraph 1.D. to verify the configuration is correct:
  - If correct, then select CONFIRM.
  - If incorrect, contact OEM technical operations.

- Verify the data displayed for the parameters shown in Table 3. Use the Page Up/Page Down buttons to verify the data displayed on multiple pages.

Table 3. CMS Checks

CMS Parameter Name	Notes / Actions
Aircraft Type Aircraft Serial Number Aircraft Transponder Code Aircraft Registration Number Top Level System Part Number Top Level System Mod Status Configuration Part Number	Function of options selected
Flight management system (FMS) 1 Nav FMS 2 Nav FMS 3 Nav (FMS 3 may be optional)	For missing or amber data, see Subscribed Navigation Database Load Procedure
FMS 1 Aircraft FMS 2 Aircraft FMS 3 Aircraft (FMS 3 may be optional)	Check for missing or amber data
FMS 1 Custom FMS 2 Custom FMS 3 Custom (FMS 3 may be optional)	Refer to CMM Manual for backup and load procedures
ECL 1 Checklist	Check for missing data.
CMC 1 LDI CMC 1 ACMF OEM	Check for missing or amber data.
CMF 1 AMI CMF 2 AMI	Check for missing or amber data.

- Select the DB CONFIG box at the bottom of the display.
- Ensure all DB are valid for actual date and note color displayed for the parameters shown in Table 4.
- Use the Page Up/Page Down buttons to verify the data displayed on multiple pages.

Table 4. DB Config

Database Name / Source	Notes / Actions
Airport Comm / INDS Media Airport Text / INDS Media Special Use Airspace / INDS Media Airways / INDS Media En Route Comm / INDS Media Geopolitical / INDS Media Grid MORA / INDS Media Obstacles / INDS Media FMS dop of next page / INDS Media	Check for missing or amber data.
Charts / INDS Media	For missing or amber data, see Subscribed Charts Database Load Procedure

Publication Number D201410000044

Honeywell

SERVICE INFORMATION LETTER

Table 4. DB Config (Cont)

Database Name / Source	Notes / Actions
Terrain Threat / HIDS Media	Check for missing or amber data
Terrain Server / HIDS Media	HIDS media or amber data, see Subscribed ECP/WM Terrain Database Load Procedure
Electronic Checklist / ECL Disk	For missing data, see Subscribed Navigation Database or Charts Database Load Procedure as applicable
Programmable Message List / Prog CAS Disk	Check for missing or amber data

(b) Aircraft with "Standard Charts" (Data loaded to PCMCIA/SD card). Refer to Table 5 and Table 6.

- DMU PCMCIA/SD Card Chart Validation:
  - Select Charts from Map dropdown menu.
  - If the Charts Revision page is not displayed then it must be selected from the display unit (DU) Charts page upper left drop down menu.
  - At the top of the charts revision page verify "Dataset Start Date" is displayed in white after validation (Note: initially, the date will be displayed in amber until the data set is validated) and the date for the current cycle is shown.
  - If the "Dataset Start Date" remains amber verify that the Subscribed Charts Database is current and perform the target load.

Table 5. DMU PCMCIA Card Chart Validation

LRM	Database Name / Source	Notes / Actions
DMU PCMCIA	Charts / HDS Media	For missing or amber data, refer to Recommended Target Load Procedure, Paragraph 1.F.(8)

- Verify FMS Navigation Data as follows:
  - Enter navigation screen.
  - Verify the date range below "ACTIVE NDB" is current and displayed in green (not amber).

Honeywell
SERVICE INFORMATION LETTER

- Repeat this process for the other FMS(s).
- If the "ACTIVE NDB" appears in amber proceed to the Target Load.

Table 6. LRM Database Name / Source

LRM	Database Name / Source	Notes / Actions
Processor (PROC) hosting FMS1 Processor (PROC) hosting FMS2 Processor (PROC) hosting FMS3	World3-3XX / INDS Media SAAAR-3XX / INDS Media YYY-3XX / INDS Media [1]	For missing or amber data, refer to Recommended Target Load Procedure, Paragraph 1.F.(6)

NOTES:

1. YYY3XX equals a Custom Nav DB.
2. Database name will vary based on the installed navigation database. Refer to OEM documentation for exact naming convention.

- Missing data or data shown in amber indicates a possible expired database or database out of configuration. Reload the data for those LRMs indicating the error.
  - A single Green or Amber indication under a database header indicates that all LRMs have the same load status for the indicated database.
  - If the database date ranges are correct, but the data is shown in amber, go to the Troubleshooting Tab for NIC/PROC Battery Check.
- Database Mismatch Display
  - A mixture of Green and Amber date ranges or filenames under a database header indicates a mixture of successful and unsuccessful database loads. The first display represents AGM 1 or EGPWM 1, the second display represents AGM 2 or EGPWM 2, etc.
    - A green filename or date range displayed on the Database Configuration Page indicates Nav database is successfully loaded on the AGM or EGPWM.
    - An amber dashed line indicates the LRM is not functioning or not in Normal Mode.
    - An amber 'XXXNo FileXXX' or 'XXXBad FileXXX' indicates the database is not properly loaded on the LRM.
    - An amber file name or date range indicates the database is not current.
- Select the CMC button on the bottom left of the display to return to the CMC Main Menu.
- Select Extended Maintenance.
- Select Member System Status.
- Select the ATA Chapter Headers (22, 23, 31, or 34) shown in Blue.
- Target load SW for any LRMs (MAU modules or MRC NIMs) shown with a status of NO COMM.
- Return to Main Menu.
- Select System Diagnostics.
- Scroll to and select Indicating/Recording Systems.
- Scroll to and select Configuration Monitor Function 1 OR 2.

Honeywell

SERVICE INFORMATION LETTER

- Scroll to and select Configuration Monitor Tool
- Verify APM 1, 2, 3, and 4 are valid. If not, target load the invalid APMs
- System Configuration Status will list any LRMs which CMS has determined to have mismatched hardware or software
  - For software mismatches, target load any MAU modules or MRC HRMs flagged as out of configuration
  - Replace the module for hardware mismatches
- Deactivate the Ground Maintenance Test Switch
- Select CMC top right of the Display and then select the desired menu option
- If no SW load errors are present, disconnect RT coax cable and re-install 50 Ohm termination resistor on aircraft connector
- Monitor the System Diagnostics-Indicating /Recording Systems- LAN Summary page for 60 seconds after installing the termination resistors to verify functionality
- Perform Return To Service Procedures in accordance with the OEM Aircraft Maintenance Manual
- All OEM return to service procedures must be strictly observed.

(2) Lessons Learned

(1) DLS

- Ensure modules and backshells are seated correctly during installation in the MAU cabinet. Modules with EMI fingers must be properly located on the module connector bracket. Refer to the OEM AMM for torque values for each module and backshell. Improperly seated module or jack screws/backshells that are not torqued properly can result in marginal LAN performance.

  NOTE: Some OEMs may not specify torque requirements, in that case refer to the instructions included with each module.

- Do not open more than one CMC/RT DLS session at a time
- Ensure the correct version of RT/DLS is configured and used
- Disable wireless LAN connections. These can interfere with DLS and need to be disabled
- It is recommended before loading, use Cyberkit Ping to check LAN connectivity and LAN health
- Remember that an all green bar indication on the CMC LAN summary page is only an indication that the LAN is not open. LAN health can be verified with the Cyberkit Ping. Ensure the correct HOST file is loaded by using the PRIMUS EPIC Maintenance Utilities tool.
- Disable firewalls/anti-virus programs
- Use the following procedure to check the remote terminal connection hardware for intermittent problems: Ensure the correct HOST file is loaded by using the PRIMUS EPIC Maintenance Utilities tool first, then open Command prompt window / Ping [illegible] -t -l 1480. While monitoring the ping session for "Request Timed Out", move or jiggle the coax cable, [illegible] connection, termination resistor to determine if the connection hardware is intermittent. Hit Control C to stop ping command.
- Ensure Laptop is connected to clean power source. Running laptop on battery or aircraft power is not recommended. Corruption can occur if power is lost.

30 Apr 2015
Revision 1, 14 Dec 2015 Page 29

Publication Number D201410000044

Honeywell
SERVICE INFORMATION LETTER

- Laptop re-boot and/or aircraft power reset may be necessary for certain problems
- Full LAN inspection procedures can be found in the CMM AMM

RT Loading Problems Notes

- For RT versions below ST 4 and laptops with dual core processors require the following setup: Disable Core Multi-Processing in the laptop BIOS
- Before the software is loaded the DLS program will execute a configuration check on the target modules. These checks will normally be completed in less than 5 minutes. If the configuration check takes too long (more than 15 minutes) then cancel the check and restart the laptop. Aircraft power reset may also be necessary
- Before the remote terminal software will allow the DLS program to load software to the aircraft, it must verify that the aircraft is not in an in-air condition
- Verify that all on-ground criteria are met. This includes WOW, airspeed less than 50 knots, and throttle levers at idle. If these conditions are valid but the remote terminal still believes the aircraft is in-air, use the following procedure: Open LAN by disconnecting yellow Ethernet cable from laptop / open RT / select data load / proceed with normal DLS load procedures until start load step / reconnect LAN / continue the remaining data loading step in DLS
- If the load time hangs for more than 30 minutes subsequent to the configuration check then cancel the load. Restart the laptop and restart the configuration check. Note: This may also require an aircraft power cycle
- If the RT automatically closes it may be necessary to flush the laptop before a subsequent loading attempt

DMU

- The correct subscribed media must be in the DMU for loading the charts PCMCIA card (DMU-2 uses the upper PCMCIA slot and DMU-3 uses SD Slot 1) when updating the Charts on aircraft with "Standard Charts" (data is loaded to the PCMCIA/SD card)
- The LEDs indicate the device mount state and should be green before an attempt is made to remove or insert any media. Removing media prior to green could cause corruption or truncation on open files
- Erase the PCMCIA card if it has been used to store media other than charts
- Make sure the PCMCIA card is installed with the label on the top for correct orientation
- Ensure that the DMU door is fully closed when loading any software from the DMU
- If the DMU CD/DVD-ROM cannot be seen from the RT check the WOW ground input to the DMU
- For Charts Uncopyable on the ground, check LAN Summary page for DMU LAN transmit status. If red, try resetting the DMU circuit breaker (CB)
- "Retrieving Charts" message - Retrieving Chart appears as soon as the chart application determines it needs to load data for a new chart (i.e. before any LAN activity occurs). The message stays up until the chart is successfully loaded or a

Publication Number D2014300000-44

detectable error occurs. Loading very slowly or getting stuck partway through a transfer will not be detected as an error.

- "Chart Not Available" message - The AOM cannot connect to the DMU / The DMU refuses the download attempt (perhaps because the DMU charts window is not set or the PCMCIA flash card is missing or one of the key DMU files is missing or has a cyclic redundancy check (CRC) / The load manager completed but failed the CRC check (possibly corrupted) / An error occurred when the chart rendering library built the chart map a display list (very rare) / An error occurred while displaying the charts display list (rare).

(d) Onboard CMC DLS Considerations

(1) The following limitations apply to the onboard CMC based DLS:

- The onboard CMC DLS cannot be used for full kinds of operational software.
- The onboard CMC DLS requires that at least one MRC analog HIC be available in order to obtain system configuration and loading information (the master loading file [MLF]).
- The onboard CMC DLS cannot be used to load the CMC module or the MC module in the channel which it resides.
- The onboard CMC DLS should not be used to load the DU or AOM on which the CMC maintenance page is displayed because the display will blank when the LRM is locked.
- The onboard DLS is limited to the DMU or DLMU and the Database Modules (DBMs) on the database backup LRM) media sources. The onboard DLS should only be used for target loading individual modules related to a maintenance action or for loading databases in the event a RT PC is not available.

H. Troubleshooting Tips

(1) During the course of data loading, the user may encounter problems at various stages of the data loading process. This troubleshooting section is divided into the following subsections, which represent the primary steps in the data loading process. In each subsection, known problems often encountered during that step are documented, with a solution/corrective action for each.

- Communications Problems
- DLS SW Loading Problems
- Software Load Check Problems

Honeywell
SERVICE INFORMATION LETTER

CAUTION: SWAPPING PRIMUS EPIC MODULES SHOULD NOT BE ATTEMPTED AT ANY TIME DURING THE DATA LOADING PROCESS

CAUTION: ENSURE MODULES AND BACKSHELLS ARE SEATED CORRECTLY DURING INSTALLATION IN THE MAU CARRIER. MODULES WITH EMI FINGERS MUST BE PROPERLY LOCATED ON THE MODULE CONNECTOR BRACKET. REFER TO THE OEM AMM FOR TORQUE VALUES FOR EACH MODULE AND BACKSHELL. IMPROPERLY SEATED MODULE OR JACK SCREWS/BACKSHELLS THAT ARE NOT TORQUED PROPERLY CAN RESULT IN MARGINAL LAN PERFORMANCE. NOTE: SOME OEMS MAY NOT SPECIFY TORQUE REQUIREMENTS. IN THIS CASE REFER TO THE INSTRUCTIONS INCLUDED WITH EACH MODULE.

(a) Missing Data Loader Prompt

1 Symptom

- When "DATA LOADER" button is not displayed on the CMC remote terminal.

2 Cause

- The CMC cannot determine that it is on the ground and defaults to its in-air display, where data loading is not allowed.

3 Action

- Confirm that all the Ramp Setup conditions have been met:
  - Aircraft On Ground WOW
  - Throttles must be set to full idle or cut off and remain in this configuration throughout the loading process
  - Airspeed is available and less than 50 knots
  - All MAU and NIM circuit breaker (CB)s in, with power being applied for a minimum of 10 minutes prior to beginning a data load.
- Cycle all MAU and NIM circuit breakers (CB)s
- Wait 10 minutes
- Confirm "Data Loader" button is now displayed.
- Return to Preliminary Load Procedures.

(b) CMC CONNECTION FAILED. CONNECTING TO 192.168.200.1

1 Symptom

- "CMC CONNECTION FAILED. CONNECTING TO 192.168.200.1" is displayed instead of the CMC Main Menu. Note: This symptom could also be caused by an unloaded or failed CMC.
- "Ping/FTP Communication Fail" is seen during the DLS Config Check on all modules that are trying to be loaded.

2 Cause

- There is an open or a short somewhere in the Aircraft LAN. Refer to Figure 11.

Publication Number 0201410000044

3 Action

- Confirm LAN integrity by using Cyberkit. Refer to Paragraph 2.B.
- Confirm remote terminal LAN Cable is wired properly.
- Confirm remote terminal network settings are configured to OEM factory settings.
- Confirm all hardware with LAN interface is installed. If not installed a LAN jumper must be installed.
- Check LAN resistance is between 54 and 56 ohms.
- Confirm all LAN bulkhead connectors are properly terminated.
- Confirm LAN is now operative by using Cyberkit Ping as well as the MS-DOS ping command. Refer to Paragraph 2.E.
- Return to Waterway Load Procedure.

Publication Number 00514180003048

Honeywell

SERVICE INFORMATION LETTER

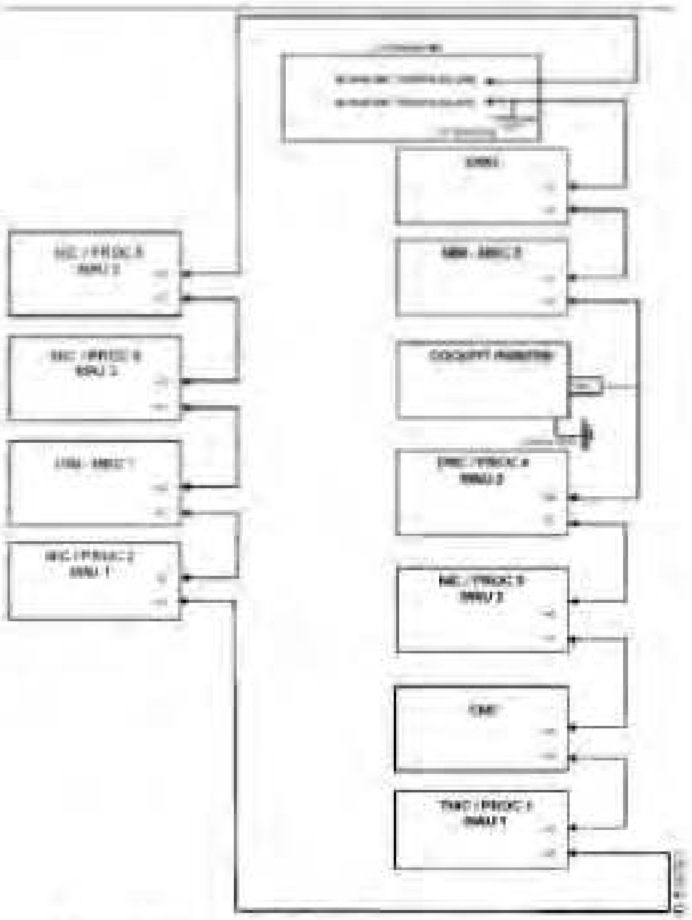


Figure 11. (Sheet 1 of 1) Gulfstream PlaneView LAN Routing Example

NOTE: Refer to AMM for actual LAN schematic.

Honeywell
SERVICE INFORMATION LETTER

(c) Any type of system configuration CAS message after data loading.

1 Symptom

- Any type of system configuration CAS message after data loading. For example, "System Config Fail" amber CAS message is active.

2 Cause

- This type of CAS Message may be caused by one of the following:
  - A change in operational software has occurred, and the CONFIRM button on the CMS display has not been pressed.
  - A hardware or software mismatch has been detected by CMC.

3 Action

- Confirm the data on the CMS display per the checklist procedure in the AMM. Verify on the Configuration Page of the CMC.
- Check for hardware or software mismatches per the Software Load Check Procedure (Configuration Monitor Test).
- Continue with Load Check.

(d) Software Configuration Check Takes Too Long

1 Symptom

- The Software Configuration Check takes an unusually long amount of time (> 30 minutes) and never finishes.

2 Cause

- A communication error has occurred between the remote terminal computer and the MAU Modules.

3 Action

- Cancel the Configuration Check and restart the remote terminal computer.
- Cycle aircraft power.
- Wait 10 minutes.
- Restart Preliminary Procedures.

(e) DLS Fails to Recognize the software media on Full or Target Load Screen When installed in DMU Drive / RT Laptop CD/DVD-ROM

1 Action

- The DLS may have trouble reading the media. Eject the disk and ensure the media has no physical damages and the disks are clean and free of scratches, dirt, or smudges.
- When using the DMU, open the DMU door and allow the two light emitting diodes (LED) to turn green before any media is removed or inserted. Place the software media into the DMU. Close the DMU door completely before the software is accessed. If the door is not closed, the media will not be accessible by DLS.
- Ping the DMU. Make sure the aircraft LAN is operational by using Cyberlink Ping.

Publication Number 03114100010AB

- Make sure the target software [DR-PN] file is displayed under the remote terminal DMU Drive / RT Laptop CD/DVD-ROM on the media selection screen.
- If not, the disk may be corrupt and needs to be replaced.
- On the media selection screen, verify that the [DR-PN] file is displayed under the DMU Drive / RT Laptop CD/DVD-ROM. If the [DR-PN] file is not present there may be a problem with the DVD drive in the DMU / DVD drive in the RT laptop.
- If the failure persists call OEM or Honeywell for troubleshooting advice.

(f) DMU/PCMCIA Card Load Failure - Notes

1 Action

- After a successful load of the Charts a xxBAD FILExx is displayed in the DMU field of the Charts section of the DR Configuration page. This is not a failure. The message can be cleared with a power cycle of the aircraft.
- Recommended PCMCIA configuration for both DMU 2 slots is 2 GB, FAT32 formatted.
- If the PCMCIA has previously had the Charts files loaded manually, or the following message is displayed on DLS: "PCMCIA Cannot Accept Load", make sure the charts.bin, charts.ini (sometimes displayed as charts.cfg), and chfiles.txt files on the PCMCIA card are not read only, as this can result in future attempts to load the card using DLS to fail. The files' properties can be checked by installing the PCMCIA card in the laptop and access the files with Windows Explorer. Right click each file and check its properties. Remove the check from the read only box if it is checked in the attributes section of the properties screen.

(g) DMU/PCMCIA Card Load Failure - Fault Isolation

1 Action

- If the chart files fail to load to the PCMCIA card, verify that the card is properly seated in the slot closest to the DMU CD/DVD drive. Also verify that 2 LED lights indicate green and that the DMU door is securely shut. If all these conditions are true, cycle the DMU circuit breaker and attempt a target load of the media to the PCMCIA.
- If the PCMCIA card failed to load, remove it from the DMU and insert it into the laptop and navigate to the PCMCIA card (normally called as Removable Disk (E:)). Delete all files on the PCMCIA card. Eject the PCMCIA card from the laptop, and reinstall it in the DMU. Reinstall the laptop PCMCIA LAN card. Wait 1 minute and restart the CMC console terminal program. Target load the PCMCIA card with the charts data. If the software load fails again call the OEM or Honeywell for assistance.

Publication Number D231493000044

Honeywell
SERVICE INFORMATION LETTER

(h) Charts Data Fails to Load to One or More AGMs

1 Action

- If any AGM fails to load let the system remain idle for 10 minutes before doing anything. This idle time is critical as it will allow the flash memory reclamation that is in progress on the AGM to complete. After the idle period, cycle the power on the aircraft.
- After the power cycle, wait 5 minutes after power has been applied again to the aircraft for the CMC to come online. Target load the Charts update to the failed module. If failure continues call OEM or Honeywell for troubleshooting advice.

(i) AGM Load Failure Fault Isolation

1 Action

- If any portion of the files from the Charts or FMS NAV were loaded before the failure occurred, wait 30 minutes before doing anything to the system. This idle time is critical, as it will allow the flash memory reclamation that is in progress to complete. After the idle period, cycle the power on the aircraft.
- Wait 10 minutes after power has been applied again to the aircraft for the CMC to come online. Check CAS for the following messages: [Database Config], [AGMx Fail], [MALxx Fail], or [ ] any AGMs are red X'ed. If any of these messages are present, open the CMC Maint Menu page on the remote terminal. Navigate to Extended Maintenance-Member System Status - 31 Indicating Reporting Systems. Make a note of any modules that are indicated in blue - No Comm. Target load the operating software to the indicated AGM and/or NIC/PROC modules. After the completion of the software load, cycle power to the aircraft. Wait 10 minutes and apply power again. After 10 minutes check the Member System Status page on the CMC again. Make sure that all the modules in ATA 31 are white.
- If successful, target load the Charts update to the affected AGMs that previously failed.
- If the module has still not loaded, continue to next step.
- Run Cyberyak Ping per Paragraph 2.B. and verify AGMs.
- Repeat the ping command. If the suspect module still does not respond to the ping request it indicates a possible LAN issue or a bad module.
- If the ping request times out, it could indicate a possible LAN issue or a bad module. Cycle the primary and secondary circuit breakers for the MAU channel that houses the non-responsive

Publication Number: D2314000000044

Honeywell
SERVICE INFORMATION LETTER

module for 1 minute. Once power has been restored, wait 5 minutes and attempt to ping the module again.

- If the module continues to fail to ping, swap the suspect AGM with one of the working AGMs. Attempt to ping the module in its new location. If the AGM responds, load the operating software to the relocated AGMs. If the software loads successfully, cycle power to the aircraft. Wait 5 minutes and reapply power. After 10 minutes perform a target load of all navigation and chart data to the relocated AGMs. If the software load fails again call the OEM or Honeywell for further assistance.

(j) Verification of Proper Database Software Loading Notes

1. How to verify Charts loaded properly on the PCMCIA card:
   - Select Charts on Cockpit Display. Select Charts Revision. The date in the upper portion of the Charts Revision page will turn from amber to white if the revision date matches the AGMs charts header. If the date remains amber, then the loaded AGM/PCMCIA revisions do not agree. Reload charts.
2. How to verify charts loaded properly in the AGMs:
   - Check DB Config page for revision; should be displayed in green.
3. How to verify the navigation database (NDB) loaded properly in the FMS:
   - Check FMS Display page for NDB cycle.
4. How to verify the NDB loaded properly in the AGMs:
   - Check navigation on DB Config Page and FMS on DB Config Page. FMS data on DB Config Page is displayed in green.
5. What is displayed if one DB differs from another on the DB Config page?
   - If all modules agree, then one date range per header is displayed in green. If one or more disagree, then the DB loaded in each module is displayed in order from AGM1 thru AGM4. This will let the operator easily identify which module needs to be reloaded. The EGPWM Terrain Server and Terrain Threat files can be verified on DB Config Page.

(k) Charts Fail to Print

1 Action

- There is a bmp file that the CMC uses to print charts, and in a print condition will not be available until the CMC has become fully operational. Wait at least 5 minutes after power on before attempting to print a chart. Cycle power to the aircraft if the charts fail to print. If the print request continues to fail, follow the CMC Chart Data target load procedure per the OEM AMM procedure. If the print failure continues, check the LAN wiring between the CMC and the printer as outlined in OEM AMM.

(l) Successful Load of Previously Failed Software

1 Action

- Continue to load the software to any remaining modules that failed. Cycle aircraft power once the software has been successfully loaded. Wait 1 minute after power up and verify that the proper database software has successfully loaded to each module. Open the Database Configuration page and confirm that there is one green date range in each of the fields. Open the Charts page and attempt to bring up a chart.

(m) Charts Inaccessible

1 Action

- If Charts are loaded successfully but are not available, go to the Charts Revision page. Look at the world map. If you do not see the black dots, which represent discs, there may be an issue with the account serial number. The account serial number is a 16 digit code. The most common causes for serial number issues are:
  - The serial number is not recognized on the current media cycle
  - Operators have allowed their subscription to expire
  - The subscription may not have been updated when aircraft was transferred between operators
- If the correct serial number is displayed on the Charts Revision page, but charts are still not accessible, the corrective action is to have the operator contact Jeppesen to get the new subscription key code. Jeppesen can supply a temporary 10 digit access code for the current cycle while their account is updated.
- Losing the 16 digit Charts serial number at each power up can sometimes be resolved by entering 16 zeros into the serial number field. Repeat this 4 times. This resets the serial number and displays eleven dashes in the serial number field. When the dashes are displayed, reenter the Charts serial number. If it remains necessary to reenter the serial number at each power up, this is usually indicative of a LAN issue.

(c) Database date range is correct, but the data is shown in arrows (NIC/PROC BATTERY CHECK)

1 Symptom

- The date range on the DB CONFIG display is correct, but the data is shown in arrows.

2 Cause

- The battery on NIC/PROC 1 or 4, which drives the 2 system clocks, is dead.

3 Action

- Confirm the failure by making sure one of the following maintenance messages is active (CMC Main Menu under "Maintenance Messages," "active," ATA 31-41) with the following words:
  - NTC
  - BATTERY FAULT.
- Remove and replace NIC/PROC 1 and/or NIC/PROC 4.
- Load new NIC/PROC per the Target Load Procedure for the NIC/PROC.
- Continue with Load Check.

(d) Selected file(s) shows SELECT FILE

1 Symptom

- After highlighting the file to download in green and clicking on SELECT FILE, the SELECT FILE button turns inverse video.

2 Cause

- A load error has been encountered preventing the data load to continue.

3 Action

- Scroll to the file being loaded.
- Press ENTER.
- Any load errors present will be shown below the file.
- Follow the Troubleshooting Procedures in this section to resolve the load error.

(e) DLD SW Loading Problems

1 Error/Event Codes and Descriptive Text

2 During the course of DLD operation the user may encounter errors associated with the media selected and/or system errors. Each error message displayed to the user contains a general description of the problem along with recommended troubleshooting actions. This information along with other errors/events that are not displayed to the user is written to the log file. Table 7, Table 8, and Table 9 show a subset of errors/events contained in the log files to determine the content

Publication Number 0201410000044

- Browse Screen Messages
- Configuration Check and Loading Error Messages
- Configuration Check and Loading Status Messages

Table 7. DLS Browse Screen Messages

Error Message	Action(s)
Unavailable	- Ensure DMU is installed - Ensure power is applied - Ensure media is properly installed - Ensure LAN is operational - Select "Prev Screen" and reselect load type - If not resolved, exit DLS, cycle power, wait 1-2 minutes, retry
DMU Door Open	- Ensure DMU door is closed and secured with locking screw - Select "Prev Screen" and reselect load type
No Media Installed	- Normal, if user did not place a media in the DMU - If media is installed, ensure media is properly installed - Select "Prev Screen" and reselect load type
No Active DBM Modules	- Ensure the DBM is installed and there is power to the module - If not resolved, exit DLS, cycle power to the system, wait 1-2 minutes, retry

NOTE: If the displayed DP-PNs are not what were expected to be on the installed software media, selecting the DLS main menu will refresh the media contents.

Table 8. Configuration Check Error Messages

Error Message	Action(s)
CMC/RT Host Resource Issue	If loading from RT - check available disk space and ensure at least 50M free - target load LRM If data source is DBM or DMU - Target load LRM - Cycle power and target load LRM - Check LAN activity - Replace LRM and reload
DMU Communication Error	Ensure DMU power and LAN connections

Publication Number: D28141GRB04

Honeywell
SERVICE INFORMATION LETTER

Table 8. Configuration Check Error Messages (Cont)

Error Message	Action(s)
Flash Load Fail/Media Detect	- Verify media format - Target load LRM - Cycle power and target load LRM - Check LAN activity - Replace LRM and reload - Request new copy of media
Flash Programming Failure	- Target load LRM - Cycle power and target load LRM - Check LAN activity - Replace LRM and reload
FTP Communication Failure	- Run Cyberylit Ping per Paragraph 2.B.
Host Resource/Media Detect	- If loading from RT, check available disk space and ensure at least 50M free - Target load LRM - Cycle power and target load LRM - Check LAN activity - Request new copy of media
H/W Initializing, Do not cycle power	Do nothing. (Wait for DLS to continue (max 45 minutes)
HW Part Number Mismatch	Replace LRM and reload
Insufficient space on PCMCIA (also applies to SD cards)	- Delete files from PCMCIA/HD1 - Replace PCMCIA/SD1
Internal DLS Failure	If loading from RT - reboot PC and retry operation - uninstall / reinstall RT software and retry operation If loading from CMC - Cycle system power and retry - Reload CMC module using PC/RT and retry operation - Replace CMC module, load operational software and retry operation
Media incompatible/failure	- Request correct version of media - Request new copy of media
Master Loading File (MLF) Version Not Supported	Ensure that version of DLS being used is compatible with operational software
Module Configuration Error	Reload operational software on module and retry database load
PCMCIA Cannot Accept Load	Ensure that PCMCIA/SD card and files are not 'read only' and retry

Publication number 0201410000344

Honeywell
SERVICE INFORMATION LETTER

Table 6. Configuration Check Error Messages (Cont)

Error Message	Action(s)
PCMCIA Card Not Installed	- Ensure PCMCIA/SD Card is installed (DMU-2 uses the upper PCMCIA slot and DMU-3 uses SD Slot 1) - Ensure PCMCIA/SD is firmly installed and DMU displays two green LEDs
Ping/FTP Communication Fail	- Run Cyberkit Ping per Paragraph 2.B
Source Media Defective	- If media was delivered then request new copy of media - If media was created using IDM check for correct formatting
Source Media Incompatible	Request correct version of media
Source/System Incompatible	Request correct version of media
System Out of Config	Reload operational software and retry
System Software Incompatible	Reload operational software and retry
System Status Is "In Air"	Ensure Epic system is on ground (per aircraft specific requirements)
Timing NICs Not Responding	- Refer to Paragraph 5.E.(8) - Cycle power & retry - Check LAN activity - Run Cyberkit Ping per Paragraph 2.B. - Check/troubleshoot timing NICs

Table 8. Status Messages

Status Message	Meaning
Nothing To Load	DLS has determined that the DR-PN selected does not contain any files to be loaded for a module on a selected LRM. (This is a final message in the configuration check and no further status will be reported for the module)
Already Loaded	DLS has determined that the DR-PN selected is already loaded on the module. (This is a final message in the configuration check and no further status will be reported for the module)
Start Config Check	The configuration check process for the module has begun. (This message may be displayed for a significant period of time.)
Load Estimate XX:YY:ZZ	The load estimate for the module is XX hours, YY minutes and ZZ seconds (Note: Adding the individual load times for the individual modules may not add up to the total estimate that DLS provides since DLS may do loading in parallel)

Publication Number D201410000044

Table 8: Status Messages (Cont)

Status Message	Meaning
Running Flash Loader	DLS has begun the process of programming an OPS software image into Flash. (This message may be displayed for a significant period of time.)
Flash Load Success	DLS has completed the process of programming the OPS software image into Flash.
Final Config Check Complete	Final configuration check is complete.
Transfer file no [X] (Y file)	DLS is loading individual files to the module. X is a counter of which file (sequentially) is being loaded. Y is the extension of the file being loaded.
Retry [X] to load file	An error was detected in the loading of an individual file and a retry is being attempted by DLS. X is a counter of the attempts that are done automatically.
Load Success	The module was successfully loaded with all applicable files from the DR-Pn selected. This is a final status message for loading and no further messages will be displayed for the module.

NOTE: Some messages are only displayed for a short period of time and may not always be visible to the operator depending on the screen update rate. Several that could be displayed for a significant period of time are indicated.

(g) Troubleshooting - When All Else Fails

1. Any error messages generated during a Data Download session will be stored in Log Files on the remote terminal.
2. These messages can be reviewed by the OEM or Honeywell to aid in determining the best course of action to complete the download operation.
3. Locate the File Folder "C:\DlsWork" in the main directory of the hard drive of the remote terminal that was used to download software.
4. Send the contents of this folder as an attachment in an email to the OEM or Honeywell Aerospace Technical Support.

   Email: Aerotechsupport@honeywell.com
5. Along with the log file, the following information should also be provided.
   - Date and Time of
     - When software load began
     - When failure occurred
     - When DLS session ended
   - Platform (i.e. AgustaWestland (AW139), Cessna (Sovereign), Dassault (F2000, FTX, F900), Embraer (E170/175, E190/195), Gulfstream (G450, G550 and G650), Hawker Beechcraft 4000)

Publication Number: D2014 10000041

- version of DLS being used
- Error message number or message text displayed on the DLS page
- LRM which failed to load
- SW version loaded on the system
- SW version being loaded
- Name of person reporting problem, Phone Number

Publication Number D2014.16000044

In order to check the proper communication to IRU modules, operator may ping them using the IP address list reported below.

HOST NAMES

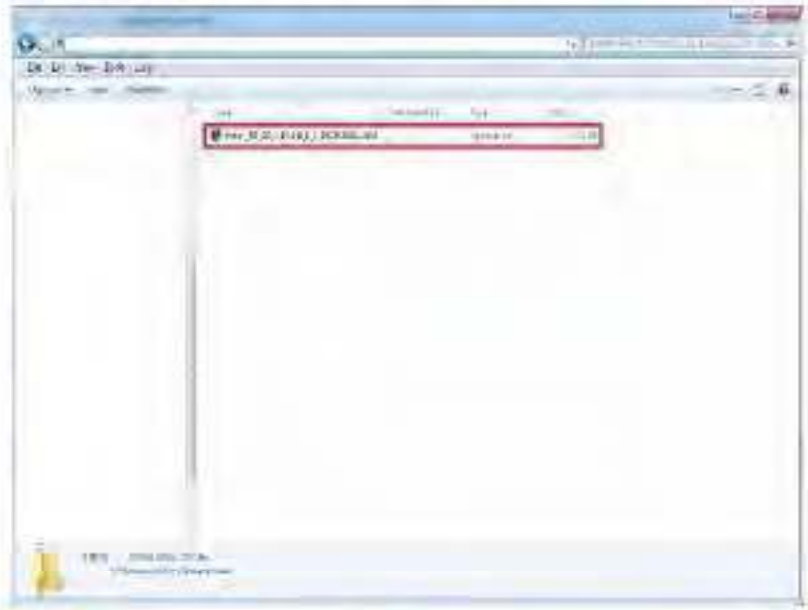
192.168.1.1	NIC1
192.168.1.10	PROC1 (P/N [illegible])
192.168.100.1	PROC1PM (P/N [illegible])
192.168.1.17	CIO1
192.168.1.15	CSIO1
192.168.1.33	AIOPA1
192.168.1.35	AIOPB1
192.168.200.1	CMC
192.168.2.1	RNIC1
192.168.2.16	RPROC1 (Not applicable to P/N [illegible])
192.168.33.1	NIC2
192.168.33.10	PROC2 (P/N [illegible])
192.168.100.33	PROC2PM (P/N [illegible])
192.168.33.17	CIO2
192.168.33.18	CSIO2
192.168.33.33	AIOPA2
192.168.33.35	AIOPB2
192.168.34.1	RNIC2
192.168.34.16	RPROC2 (Not applicable to P/N [illegible])
192.168.3.1	DUNIC1
192.168.3.15	DUPROC1
192.168.4.1	DUNIC2
192.168.4.18	DUPROC2
192.168.36.1	DUNIC3
192.168.36.16	DUPROC3
192.168.35.1	DUNIC4
192.168.35.16	DUPROC4

APPENDIX C

Remote Terminal And Data Loading System Installation Procedure

RT AND DLS INSTALLATION

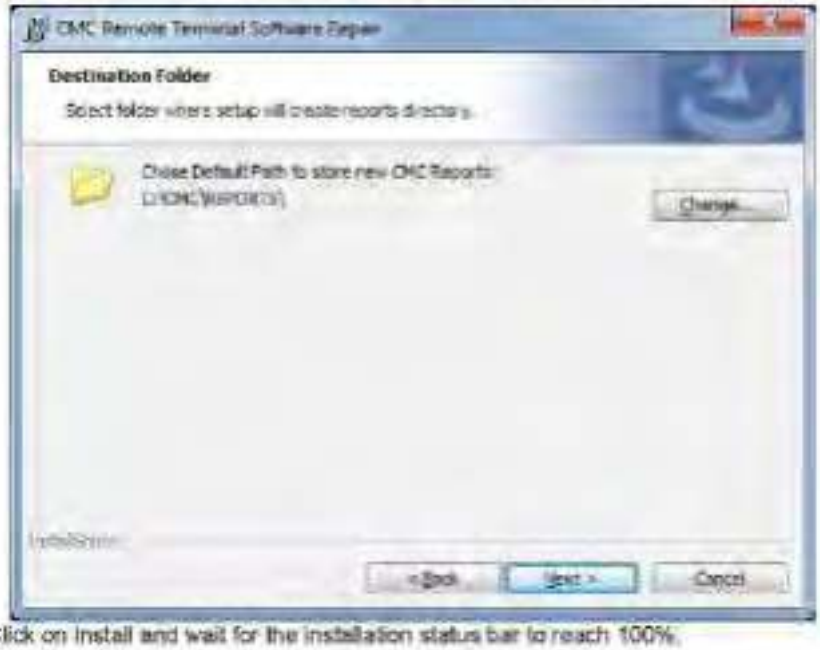
(1) Open the CMC Remote Terminal Software Setup by double clicking on the Installation Wizard Icon, then click on "Next"



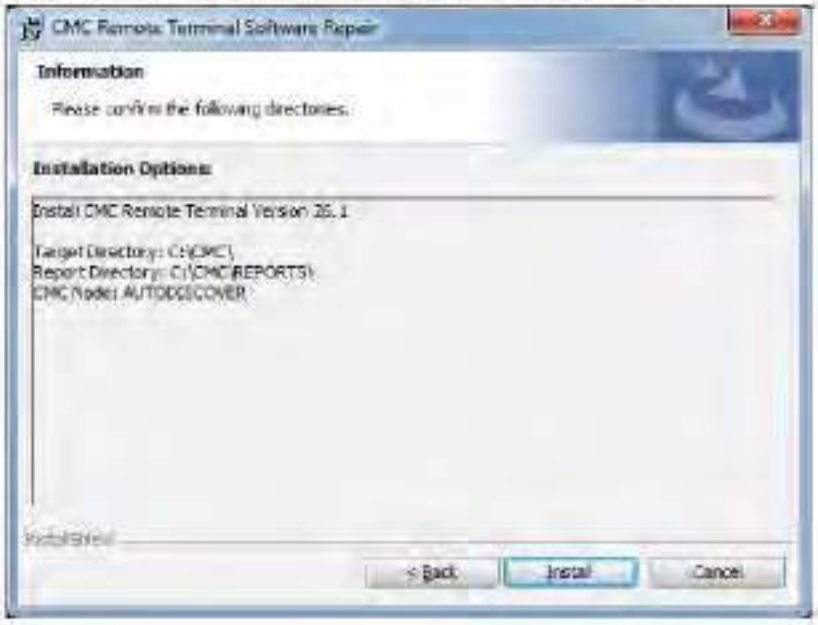
(2) Click again on 'Next'.

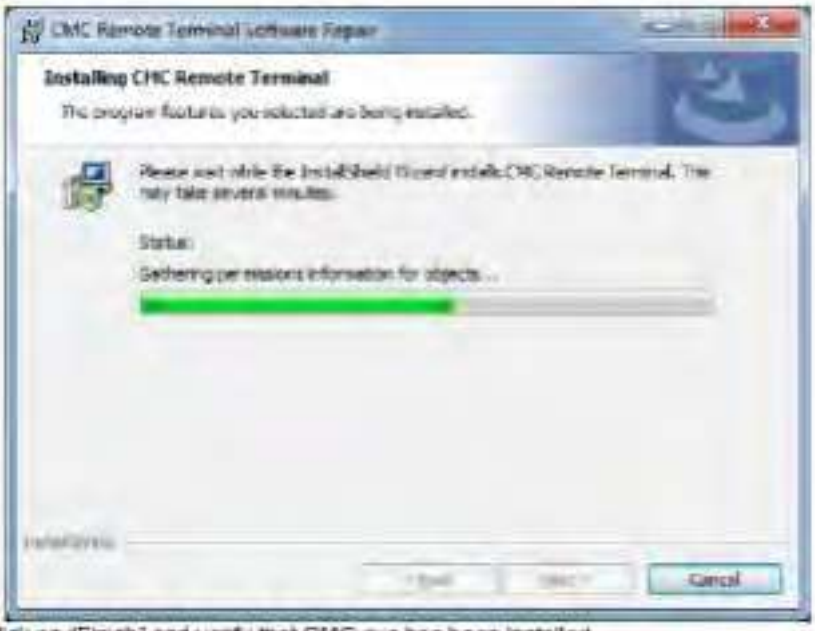
(3) Accept the terms in the license agreement and click on 'Next'.

(4) Select the destination folder where CMC reports will be stored.



(5) Click on Install and wait for the installation status bar to reach 100%.





(6) Click on "Finish" and verify that CMC.exe has been installed.

ANNEX B

AVIONIC SYSTEM PRIMUS EPIC PHASE 8

S/W LOAD ACCEPTANCE TEST PROCEDURE

5 SYSTEM TESTS

After loading the Primus EPIC 8 SW release on a production helicopter, perform all tests prescribed in the paragraphs 6, 7, 8, and 9, to check the correctness of the new SW release installation.

The test procedures are divided into the following sections:

- 5.1 Test Prerequisites and Safety Provisions
- 6.1 Engine OFF
  - 6.1.1 Radio - Navigation Functions
  - 6.1.2 AFCS Functions
  - 6.1.3 Alarms generation (Warnings & Cautions)
- 6.2 Engine ON
  - 6.2.1 Alarm generation
- 7 System Parameters Display
- 8 Control Panels Functions
- 9 Additional tests for PRIMUS EPIC SW rel. 8
  - 9.1 Generic checks
  - 9.1 Options file additional checks
  - 9.3 Settings file additional checks
  - 9.4 SW and Database Load Test

5.1 Test prerequisites and safety provision

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

(1) Before executing all the test procedures, verify that the External Power Bench is operative and set to the appropriate Voltage (28 VDC).
(2) During all the test procedure keep the AUX battery plugged to preserve the CMC module.
(3) Before starting with the test procedure, make a visual inspection of the proper installation of the under test avionic equipment.
(4) S/W installation procedure successfully completed, including Option file, Setting files and all databases (Ref. Doc. 139G4600M005 - Primus EPIC Software Installation Procedure for Phase 6).
(5) Pull Out 1-2 START and 1-2 IGN CBs.
(6) Power on the helicopter and verify that:
  (6.1) The Caution "SYS CONFIG FAIL" is not displayed in the CAS list.
  (6.2) The Caution "AVIONIC FAULT" is not displayed in the CAS list.
(7) Enter the SYS CONFIG page on the MFD and visual check that the Top Level System Drawing P/N is compliant with the applicable S/W installation drawings.
(8) In the SYS CONFIG page verify that the required SETTINGS have been installed.

NOTE

Spurious caution "AVIONIC FAULT" may be displayed on ground if associated to certain Fault Codes, as documented in the Service Information Letter in ref.[1] Section 3.2 for more information.
Disregard test point (5.2) if conditions in ref.[1] Section 3.2 are met.

For safety provision:

- Disconnect during installation the plug connectors from the fire extinguishing bottles and suitably stow.
- For other Electro Explosive Devices (EED) are fitted ensure that they are electrically disconnected.
- When required for continuity testing a low voltage tester may be used.
- When it is required testing of pins and sockets of plug and receptacles connectors, contact is to be made by means of the correct mating socket or pin.
- Jumper wire circuits/services must be used any other form of probe.

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

5.2 Tools required

- DC external power (28Vdc)
- WOW simulation switch kit
- Two headsets
- Hydraulic bench

Instruments precision: ± 2% min.

6 PRIMUS EPIC PHASE 8 S/W TESTS

6.1 Engine OFF

Following paragraphs (6.1.1, 6.1.2 and 6.1.3) report tests to be executed with ENG NF OFF

6.1.1 Radio Navigation functions

System	TEST	ATP REFERENCE	RESULTS PASS	RESULTS FAIL	Note
ICS	ICS communication with 2 headsets (1 preview out of the helicopter) *	[illegible]	☐	☐	
ICS	ICS communication with 2 headsets (AUDIO panel in BKUP mode) *	[illegible]	☐	☐	
ICS	[illegible] *	[illegible]	☐	☐	
VHF 1, 2	Setting control of the radios (MCDU's and CCD's on PFD) and communication with an external radio *	[illegible]	☐	☐	
VHF 1, 2	Set radios in Emergency mode and perform a communication with an external radio (with both MAUs OFF verify both MCDU's in BKUP mode) *	[illegible]	☐	☐	
XPDR 1, 2 (normal mode)	Check the correct functionality with an external source and verify proper indication are displayed *	[illegible]	☐	☐	XPDR1: If installed
XPDR 2 (MCDU 2 backup mode - MAU 2 OFF)	In BKUP mode check the correct functionality (set MAU2 OFF and verify the control of XPDR2 is available on MCDU 2 in backup page) **NOTE**: XPDR1 is displayed on MCDU2 backup page instead of XPDR2	—	☐	☐	
FMS 1, 2	Initialize FMS position; create and activate a flight plan *	[illegible]	☐	☐	

* Same test procedure reported in reference ATP

NOTE: Only qualitative tests are required for Radio & NAV equipment.

6.1.2 AFCS functions

System	TEST	ATP REFERENCE	RESULTS PASS	RESULTS FAIL	Note
AFCS	Apply Hydraulic bench. Set AP 1&2 off. Visualize FLT CTRL page. Press TEST button on AP control panel. Press and release SAS REL button on cyclic stick	[illegible]	☐	☐	1-2 AP FAIL result momentarily appear on CAS List when TEST button is pressed.

*Mind to do not press SAS REL button twice

6.1.3 Alarm generation

6.1.3.1 Warning messages

<u>NOTE:</u> For each Warning Message generated, verify that the relevant aural warning is generated in the headset.

ENGINE SYSTEM

Message	Settings	ATP Reference	RESULTS PASS	RESULTS FAIL
1 ENG FIRE	Press 1 ENG FIRE on the TEST PANEL *	139G2100D001	☐	☐
2 ENG FIRE	Press 2 ENG FIRE on the TEST PANEL *	139G2100D001	☐	☐
1 ENG OUT	Pull Out 1 EEC CB (No. EEC 1 FAIL CB) *	139G7510D002	☐	☐
1 EEC FAIL			☐	☐
2 ENG OUT	Pull Out 2 EEC CB (No. EEC 2 FAIL CB) *	139G7510D002	☐	☐
2 EEC FAIL			☐	☐

* Same test procedure reported in reference ATP

MISCELLANEOUS SYSTEM

Message	Settings	ATP Reference	RESULTS PASS	RESULTS FAIL
BAG FIRE	Press BAG FIRE on TEST PANEL *	139G2500D001	☐	☐

* Same test procedure reported in reference ATP

6.1.3.2 Caution messages

ENGINE SYSTEM

Message	Settings	ATP Reference	RESULTS PASS	RESULTS FAIL
1 ENG CHIP	Press 1 ENG CHIP on the TEST Panel *	139G7510D002	☐	☐
2 ENG CHIP	Press 2 ENG CHIP on the TEST Panel *	139G7510D002	☐	☐
1 FIRE DET	Press 1 ENG FIRE on the TEST Panel *	139G2100D001	☐	☐
2 FIRE DET	Press 2 ENG FIRE on the TEST Panel *	139G2500D001	☐	☐
1-2 ECL FAIL	Pull out the GOV CONTR CB *	139G7510D002	☐	☐
1 ECL POS	Move the 1 ECL out of flight position *	139G7510D002	☐	☐
2 ECL POS	Move the 2 ECL out of flight position *	139G7510D002	☐	☐
1 EEC DATA (see note (*) below)	Pull Out 1 EEC CB (Not EEC 1 FAIL CB) *	139G7510D002	☐	☐
2 EEC DATA (see note (*) below)	Pull Out 2 EEC CB (Not EEC 2 FAIL CB) *	139G7510D002	☐	☐

(*) On CAS list "AVIONIC FAULT" caution is displayed, too.

* Same test procedure reported in reference ATP

FUEL SYSTEM

Message	Settings	ATP Reference	RESULTS	
			PASS	FAIL
1 FCU FAIL (see note 2 below)	Pull Out 1 FCU CB *	139G3200C001	☐	☐
2 FCU FAIL (see note 2 below)	Pull Out 2 FCU CB *	139G3200C001	☐	☐
1 FUEL PUMP	Initial conditions: SOV1, SOV2, PUMP1 and PUMP2 in ON position (no FUEL PUMP caution in CAS list) Switch OFF the Pump 1 * See FUEL NOTE below	139G3100C001	☐	☐
2 FUEL PUMP	Initial conditions: SOV1, SOV2, PUMP1 and PUMP2 in ON position (no FUEL PUMP caution in CAS list) Switch OFF the Pump 2* See FUEL NOTE below	139G3200C001	☐	☐

* On CAS list "2 FUEL LOW", "2 FUEL LOW FAIL" and "AVIONIC FAULT" cautions are displayed, too.
* On CAS list "1 FUEL LOW", "1 FUEL LOW FAIL" and "AVIONIC FAULT" cautions are displayed, too.
* Same test procedure reported in reference ATP

FUEL NOTE: At the end of the test switch both fuel pumps OFF and wait until fuel pressure readout displays 0.0 Bar. Then switch OFF both SOV valves

ELECTRICAL SYSTEM

Message	Settings	ATP Reference	RESULTS	
			PASS	FAIL
BUS TIE OPEN	BUS TIE switch with EXT PWR OFF, Battery Master ON, MAIN Battery ON and AUX Battery ON (Same test procedure reported in Ref. ATP)	139G4100C001	☐	☐
EXT PWR NOW	Open EXT PWR Door *	139G4100C001	☐	☐
MAIN BATT OFF	Supply A/C with external power and select BATT MASTER switch to ON position. Now select MAIN BATT switch to ON position *	139G4100C001	☐	☐
AUX BATT OFF	Supply A/C with external power and select BATT MASTER switch to ON position. Now select AUX BATT switch to ON position *	139G4400C001	☐	☐
BATT OFF LINE	Supply A/C with external power and select BATT MASTER switches to OFF position. *	139G4400C001	☐	☐

* Same test procedure reported in reference ATP

TRANSMISSION SYSTEM

Message	Settings	ATP Reference	RESULTS PASS	RESULTS FAIL
CHIP DET UNIT (see note [1] below)	Pull Out TRANS CHIP BURNER CB *	139G6300E001	☐	☐
MGB OIL LOW	Press MGB OIL LOW button on the TEST control Panel *	139G6300E001	☐	☐
IGB OIL LOW	Press IGB OIL LOW button on the TEST control Panel *	139G6300E001	☐	☐
TGB OIL LOW	Press TGB OIL LOW button on the TEST control Panel *	139G6300E001	☐	☐

[1] On CAS list "AVIONIC FAULT" caution is displayed, too.

* Same test procedure reported in reference ATP

HYDRAULIC SYSTEM

Message	Settings	ATP Reference	RESULTS PASS	RESULTS FAIL
NOSEWHL UNLK	Unlock the Nose wheel on Landing Gear Control Panel *	139G3200E001	☐	☐
ROTOR BRK FAIL	Ensure 1 START and 1 IGN CB are pulled OUT. Ensure the Rotor Brake is engaged, set ENG 1&2 in IDLE *	139G6520E002	☐	☐

* Same test procedure reported in reference ATP

MISCELLANEOUS SYSTEM

Message	Settings	ATP Reference	RESULTS PASS	RESULTS FAIL
1 PITOT FAIL	Switch ON 1 Pitot and Pull out 1 Pitot Fail Cpt CB *	139G4630E003	☐	☐
2 PITOT FAIL	Switch ON 2 Pitot and Pull out 2 Pitot Fail Pil CB *	139G4630E003	☐	☐
COCKPIT DOOR	OPEN Cockpit Door *	139G4630E003	☐	☐
CABIN DOOR	OPEN Cabin Door *	139G4630E003	☐	☐
BAG DOOR	OPEN Bag Door *	139G4630E003	☐	☐
1 WOW FAIL	Set Left WOW switch on air *	139G4630E003	☐	☐
2 WOW FAIL	Set Right WOW switch on air *	139G4630E003	☐	☐
PARK BRK PRESS & PARK BRK ON	<u>If tank accumulator installed:</u> Pull and turn brake lever and check "PARK BRK PRESS" appears momentarily and "PARK BRK ON" advisory appears. Turn brake lever back and check "PARK BRK ON" caution appears momentarily *	139G4630E003	☐	☐
	<u>If tank accumulator not installed:</u> Pull and turn brake lever and check "PARK BRAKE PRESS" appears. Press the pedals, check "PARK BRAKE PRESS" disappears and "PARK BRK ON" advisory appears. Turn brake lever back and check "PARK BRK ON" caution appears momentarily *		☐	☐

* Same test procedure reported in reference ATP

NOTE: Following additional <u>miscellaneous caution</u> tests have to be executed only if the relevant source is installed

MISCELLANEOUS SYSTEM

Message	Settings	ATP Reference	RESULTS	
			PASS	FAIL
FLOAT ARM	Arm the Flotation System *	[illegible]	☐	☐
HOOK ARM	Arm the HOOK System *	139G3591D001	☐	☐
HOOK OPEN	Open the HOOK using the normal procedure *	[illegible]	☐	☐
ICE LIM	Push in both CHA and CHB IPS circuit breakers*.	[illegible]	☐	☐
ICE CONDITION	Push in both CHA and CHB IPS circuit breakers*.	[illegible]	☐	☐
1-2 ICE DET OFF	Check ICE DET switch is OFF *.	[illegible]	☐	☐
1-2 ICE DET FAIL	Check ICE DET switch is ON *	[illegible]	☐	☐
IPS FAIL	Push in both CHA and CHB IPS circuit breakers*.	[illegible]	☐	☐
HOIST CUT ARM	Arm Hoist CUT switch *	[illegible]	☐	☐
1 WSHLD HTR FAIL	Ref. Heated Windshield ATP	139G3500D002	☐	☐
2 WSHLD HTR FAIL	Ref. Heated Windshield ATP	[illegible]	☐	☐
1 WSHLD HTR DEGR	Ref. Heated Windshield ATP	[illegible]	☐	☐
2 WSHLD HTR DEGR	Ref. Heated Windshield ATP	[illegible]	☐	☐

* Same test procedure reported in reference ATP

AVIONICS SYSTEM

Message	Settings	ATP Reference	RESULTS	
			PASS	FAIL
1 AP OFF (see note (A) below)	a) Verify "1-2 AP OFF" is displayed in CAS list b) Press AP1 and AP2 buttons on AP Control Panel c) Verify 1-2 AP OFF disappears d) Press AP1 button on Control Panel *	[illegible]	☐	☐
2 AP OFF (see note (B) below)	a) Verify 1-2 AP OFF is displayed in CAS list b) Press AP1 and AP2 buttons on AP Control Panel c) Verify "1-2 AP OFF" disappears d) Press AP2 button on Control Panel *	[illegible]	☐	☐
1 AP FAIL	Pull Out AP ... CBs *	[illegible]	☐	☐
2 AP FAIL	Pull Out AP ... CBs *	[illegible]	☐	☐
ATT OFF	On AP Control Panel press AP1 and AP2 buttons and then press SAS button *	[illegible]	☐	☐
AFCS DEGRADED	On AP Control Panel press AP1 and AP2 buttons and then pull out AP STBY CB *	[illegible]	☐	☐
1 GPS FAIL	Pull out 2 - GPS CB (Same test procedure reported in Ref. ATP)	139G4500D002	☐	☐

(A) On CAS list "AFCS DEGRADED" caution is displayed, too.
(B) On CAS list "AFCS DEGRADED" caution is displayed, too.

AVIONICS SYSTEM

Message	Settings	ATP Reference	RESULTS PASS	RESULTS FAIL
1 FMS FAIL	Pull out MAU 1 CBs	—	☐	☐
1 ADS FAIL			☐	☐
1 AP FAIL			☐	☐
AVIONIC FAULT			☐	☐
AWG FAIL	Pull out MAU 2 CBs	—	☐	☐
2 FMS FAIL			☐	☐
2 ADS FAIL			☐	☐
2 AP FAIL			☐	☐
AVIONIC FAULT			☐	☐
2 GPS FAIL (if 2nd GPS is installed)(*)			☐	☐
SYS CONFIG FAIL	This caution must not be displayed	—	☐	☐
1,2,3,4 AUDIO FAIL	Verify number of AV900 installed and pull out relevant CB	—	☐	☐
5,6,7,8 AUDIO FAIL	Verify number of AV900 installed and pull out relevant CB	—	☐	☐
FDR FAIL CVR FAIL	Set WOW switch in ground position, push in both FDR CB and FDR AUX PWR CB and set both engines to OFF. Pull out both FDR CB and FDR AUX PWR CB and set engine 1 to IDLE • If FDR [illegible] is installed, both cautions appear immediately • If FDR [illegible] is installed, both cautions appear after 10 minutes (Same test procedure reported in Ref. ATP)	[illegible]	☐	☐
1 AHRS FAIL	Pull Out AHRS 1 CB *	[illegible]	☐	☐
2 AHRS FAIL	Pull Out AHRS 2 CB *	[illegible]	☐	☐

(*) If 2nd GPS is NOT installed only "GPS FAIL" is displayed when MAU2 CBs are pulled out.
* Same test procedure reported in reference ATP

6.2 Engine ON

Following paragraphs report tests which shall be executed with ENGINE ON.

6.2.1 Alarm generation

6.2.1.1 Warning messages

ENGINE SYSTEM

Message	Settings	RESULTS	
		PASS	FAIL
1 ENG IDLE	At NR/RPM 100% NR with ENG 1 in IDLE and ENG 2 in FLIGHT gently pull collective to generate the 1 ENG IDLE warning and back collective to 0%	☐	☐
2 ENG IDLE	At NR/RPM 100% NR with ENG 1 in FLIGHT and ENG 2 in IDLE gently pull collective to generate the 2 ENG IDLE warning and back collective to 0%	☐	☐

TRANSMISSION SYSTEM

Message	Settings	RESULTS	
		PASS	FAIL
[illegible]	Verify the warning is displayed on ground and removed after engine cont	☐	☐
MGB OIL PRESS	Verify the warning is displayed on ground and removed after engine cont	☐	☐

ELECTRICAL SYSTEM

Message	Settings	RESULTS	
		PASS	FAIL
[illegible] DC GEN	With both engine running, both generators ON and external power ready, set the BAT PWR switch to ON and verify that "1-2 DC GEN" warning displays	☐	☐

6.2.1.2 Caution messages

ELECTRICAL SYSTEM

NOTE: pay attention, the following Electrical System test is not considered "PASS" if the operator just check the 1-2 DC GEN **warning**.
1 DC GEN and 2 DC GEN **Cautions** shall be verified one by one.

Message	Settings	RESULTS PASS	RESULTS FAIL
1 DC GEN	With both engine running, DC generator 2 ON, DC generator 1 OFF, verify that 1 DC GEN caution displays	☐	☐
2 DC GEN	With both engine running, DC generator 1 ON, DC generator 2 OFF, verify that 2 DC GEN caution displays	☐	☐

HYDRAULIC SYSTEM

Message	Settings	RESULTS PASS	RESULTS FAIL
1 HYD OIL PRESS	Verify the Caution is displayed on ground and removed after engine start	☐	☐
2 HYD OIL PRESS	Verify the Caution is displayed on ground and removed after engine start	☐	☐
EMER LDG PRESS	Verify the Caution is displayed on ground and removed after engine start	☐	☐
HYD UTIL PRESS	Verify the Caution is displayed on ground and removed after engine start	☐	☐
1 HYD PUMP	Verify the Caution is displayed on ground and removed after engine start	☐	☐
2 HYD PUMP	Verify the Caution is displayed on ground and removed after engine start	☐	☐
4 HYD PUMP	Verify the Caution is displayed on ground and removed after engine start	☐	☐
1 SERVO	Verify the Caution is displayed on ground and removed after engine start	☐	☐
2 SERVO	Verify the Caution is displayed on ground and removed after engine start	☐	☐

7 SYSTEM PARAMETERS DISPLAY

The following tables are applicable to Primus EPIC Phase 0 SW release and must be verified on both Pilot
and Copilot MFDs/PFDs

A/C ON GROUND WITH ENGINES OFF

PARAMETER	NORMAL	PASS	FAIL	MAU 1 OFF*	PASS	FAIL	MAU 2 OFF**	PASS	FAIL	NOTE
NG1 (MFD)	0	☐	☐	0	☐	☐	0	☐	☐	
NG2 (MFD)	0	☐	☐	0	☐	☐	0	☐	☐	
ITT1 (MFD)	0	☐	☐	0	☐	☐	0	☐	☐	
ITT2 (MFD)	0	☐	☐	0	☐	☐	0	☐	☐	
TQ1 (MFD)	0	☐	☐	0	☐	☐	0	☐	☐	
TQ2 (MFD)	0	☐	☐	0	☐	☐	0	☐	☐	
NG1 ANALOGUE (MFD)	0	☐	☐		☐	☐	0	☐	☐	Sel analog data
NG2 ANALOGUE (MFD)	0	☐	☐	0	☐	☐	–	☐	☐	Sel analog data
ITT1 ANALOGUE (MFD)(*)	0	☐	☐	–	☐	☐	0	☐	☐	Sel analog data
ITT2 ANALOGUE (MFD)(*)	0	☐	☐	0	☐	☐	–	☐	☐	Sel analog data
TQ1 ANALOGUE (MFD)	0	☐	☐	–	☐	☐	0	☐	☐	Sel analog data
TQ2 ANALOGUE (MFD)	0	☐	☐	0	☐	☐	–	☐	☐	Sel analog data
ENG OIL PRESS1 (MFD)	0	☐	☐		☐	☐	0	☐	☐	
ENG OIL PRESS2 (MFD)	0	☐	☐	0	☐	☐	–	☐	☐	
ENG OIL TEMP1 (MFD)	OAT ±2	☐	☐	–	☐	☐	OAT ±2	☐	☐	
ENG OIL TEMP2 (MFD)	OAT ±2	☐	☐	OAT ±2	☐	☐	–	☐	☐	
MGB OIL PRESS (MFD)	0	☐	☐		☐	☐	0	☐	☐	
MGB OIL TEMP (MFD)	OAT ±2	☐	☐		☐	☐	OAT ±2	☐	☐	
IGB OIL TEMP (MFD)	OAT ±2	☐	☐	OAT ±2	☐	☐	–	☐	☐	
TGB OIL TEMP (MFD)	OAT ±2	☐	☐	OAT ±2	☐	☐	–	☐	☐	
FUEL PRESS 1 (MFD)	0	☐	☐	–	☐	☐	0	☐	☐	
FUEL PRESS 2 (MFD)	0	☐	☐	0	☐	☐	–	☐	☐	
HYD OIL PRESS 1 (MFD)	0	☐	☐	–	☐	☐	0	☐	☐	
HYD OIL PRESS 2 (MFD)	0	☐	☐	0	☐	☐	–	☐	☐	
HYD OIL TEMP 1 (MFD)	OAT ±2	☐	☐	–	☐	☐	OAT ±2	☐	☐	
HYD OIL TEMP 2 (MFD)	OAT ±2	☐	☐	OAT ±2	☐	☐		☐	☐	
MAIN BUS 1 (MFD)	28 ±2	☐	☐	28 ±2	☐	☐	–	☐	☐	
MAIN BUS 2 (MFD)	28 ±2	☐	☐	–	☐	☐	28 ±2	☐	☐	
ESS BUS 1 (MFD)	28 ±2	☐	☐	–	☐	☐	28 ±2	☐	☐	
ESS BUS 2 (MFD)	28 ±2	☐	☐	28 ±2	☐	☐	–	☐	☐	
DC GEN LOAD 1 (MFD) (1)	0	☐	☐		☐	☐	0	☐	☐	
DC GEN LOAD 2 (MFD) (1)	0	☐	☐	0	☐	☐	–	☐	☐	

(1) For these records a flickering residual value around 0, is allowed

(*) For these records a flickering record between 0 and another 5% is allowed provided that ITT ANALOGUE value equals ITT value when Engine is ON

* 1 MAU DISPLAYED on PFD bottom left

** 2 MAU DISPLAYED on PFD bottom left

PARAMETER	NORMAL	PASS	FAIL	MAU 1 OFF**	PASS	FAIL	MAU 2 OFF**	PASS	FAIL	NOTE
MAIN BATT LOAD (MFD) (*)	D	☐	☐	C	☐	☐	--	☐	☐	
AUX BATT LOAD (MFD) (*)	D	☐	☐		☐	☐	C	☐	☐	
OAT 1 (PFD)	OA	☐	☐		☐	☐	(OAT 1 visual)	☐	☐	
OAT 2 (PFD)	OA	☐	☐	(OAT 2 visual)	☐	☐		☐	☐	
FUEL QUANTITY (MFD)***	QTY	☐	☐	QTY	☐	☐	QTY	☐	☐	
FUEL QTY LEFT (MFD)***	LQTY	☐	☐	LQTY	☐	☐	LQTY	☐	☐	
FUEL QTY RIGHT (MFD)***	RQTY	☐	☐	RQTY	☐	☐	RQTY	☐	☐	
FUEL FLOW LEFT (MFD)		☐	☐		☐	☐		☐	☐	
FUEL FLOW RIGHT (MFD)		☐	☐		☐	☐		☐	☐	
NR (PFD/MFD)	D	☐	☐	C	☐	☐	C	☐	☐	
NF1 (PFD/MFD)	D	☐	☐	C	☐	☐	C	☐	☐	
NF2 (PFD/MFD)	D	☐	☐	C	☐	☐	C	☐	☐	
PI (PFD pilot)	D	☐	☐	C	☐	☐	C	☐	☐	
PI (PFD copilot)	D	☐	☐	C	☐	☐	C	☐	☐	
NR (PFD/MFD) ANALOGUE	D	☐	☐	C	☐	☐	C	☐	☐	Set analog cals
NF1 (MFD) ANALOGUE	D	☐	☐	--	☐	☐	C	☐	☐	Set analog cals
NF2 (MFD) ANALOGUE	D	☐	☐	C	☐	☐	--	☐	☐	Set analog cals
PI (PFD pilot) ANALOGUE	--	☐	☐	--	☐	☐	--	☐	☐	Set analog cals
PI (PFD copilot) ANALOGUE		☐	☐		☐	☐		☐	☐	Set analog cals
AHRS HDG 1	HDG1	☐	☐	HDG1	☐	☐	HDG1	☐	☐	
AHRS HDG 2	HDG2	☐	☐	HDG2	☐	☐	HDG2	☐	☐	
AHRS ROLL 1	ROLL1	☐	☐	ROLL1	☐	☐	ROLL1	☐	☐	
AHRS ROLL 2	ROLL2	☐	☐	ROLL2	☐	☐	ROLL2	☐	☐	
AHRS PITCH 1	PITCH1	☐	☐	PITCH1	☐	☐	PITCH1	☐	☐	
AHRS PITCH 2	PITCH2	☐	☐	PITCH2	☐	☐	PITCH2	☐	☐	
ADS IAS 1	0 ± 20	☐	☐	A	☐	☐	0 ± 20	☐	☐	
ADS IAS 2	0 ± 20	☐	☐	0 ± 20	☐	☐	A	☐	☐	
ADS BARO ALT 1	ALT1	☐	☐	--	☐	☐	ALT1	☐	☐	
ADS BARO ALT 2	ALT2	☐	☐	ALT2	☐	☐		☐	☐	
ADS1 DIGITAL AND ANALOGUE INDICATIONS	ADS1	☐	☐	A	☐	☐	ADS1	☐	☐	
ADS2 DIGITAL AND ANALOGUE INDICATIONS	ADS2	☐	☐	ADS2	☐	☐	A	☐	☐	
RADIO ALTIMETER 1	RA 1	☐	☐	RA 2	☐	☐	RA 1	☐	☐	
RADIO ALTIMETER 2	RA 2	☐	☐	RA 2	☐	☐	RA 1	☐	☐	

(*) For these records a flickering readout value around 0 is allowed

*1 MAU DISPLAYED on PFD bottom left

** 2 MAU DISPLAYED on PFD bottom left

***Use FQU1 and FQU2 shall be positive in.

A/C ON GROUND WITH BOTH ENGINES IN FLIGHT

PARAMETER	NORMAL	PASS	FAIL	NOTE
NG1 (MFD)	NG1	☐	☐	
NG2 (MFD)	NG2	☐	☐	
ITT1 (MFD)	ITT1	☐	☐	
ITT2 (MFD)	ITT2	☐	☐	
TQ1 (MFD)	TQ1	☐	☐	
TQ2 (MFD)	TQ2	☐	☐	
NG1 ANALOGUE (MFD)	NG1	☐	☐	Self-testing data
NG2 ANALOGUE (MFD)	NG2	☐	☐	Self-testing data
ITT1 ANALOGUE (MFD)	ITT1	☐	☐	Self-testing data
ITT2 ANALOGUE (MFD)	ITT2	☐	☐	Self-testing data
TQ1 ANALOGUE (MFD)	TQ1	☐	☐	Self-testing data
TQ2 ANALOGUE (MFD)	TQ2	☐	☐	Self-testing data
ENG OIL PRESS1 (MFD)	EOP1	☐	☐	
ENG OIL PRESS2 (MFD)	EOP2	☐	☐	
ENG OIL TEMP1 (NTU)	EOT1	☐	☐	
ENG OIL TEMP2 (NTU)	EOT2	☐	☐	
MGB OIL PRESS (MFD)	MGBP	☐	☐	
MGB OIL TEMP (MFD)	MGBT	☐	☐	
TGB OIL TEMP (NTU)	TGBT	☐	☐	
TGB OIL TEMP (NTU)	TGBT	☐	☐	
FUEL PRESS 1 (MFD)	FUELP1	☐	☐	
FUEL PRESS 2 (MFD)	FUELP2	☐	☐	
HYD OIL PRESS 1 (MFD)	HYDP1	☐	☐	
HYD OIL PRESS 2 (MFD)	HYDP2	☐	☐	
HYD OIL TEMP 1 (MFD)	HYDT1	☐	☐	
HYD OIL TEMP 2 (MFD)	HYDT2	☐	☐	
MAIN BUS 1 (MFD)	28 V	☐	☐	
MAIN BUS 2 (MFD)	28 V	☐	☐	
ESS BUS 1 (NTU)	28 V	☐	☐	
ESS BUS 2 (NTU)	28 V	☐	☐	
DC GEN LOAD 1 (NTU)	GENL1	☐	☐	
DC GEN LOAD 2 (NTU)	GENL2	☐	☐	
MAIN BATT LOAD (MFD)	MBATTL	☐	☐	
AUX BATT LOAD (MFD)	ABATTL	☐	☐	

PARAMETER	NORMAL	PASS	FAIL	NOTE
OAT 1 (PFD)	OAT1	☐	☐	
OAT 2 (PFD)	OAT2	☐	☐	
FUEL QUANTITY (MFD)	QTY	☐	☐	
FUEL QTY LEFT (MFD)	LQTY	☐	☐	
FUEL QTY RIGHT (MFD)	RQTY	☐	☐	
FUEL FLOW LEFT (MFD)	LFF	☐	☐	
FUEL FLOW RIGHT (MFD)	RFF	☐	☐	
NR (PFD/MFD)	100%	☐	☐	
NF1 (PFD/MFD)	100%	☐	☐	
NF2 (PFD/MFD)	100%	☐	☐	
P1 (PFD pilot)	P1t	☐	☐	
P1 (PFD copilot)	P1c	☐	☐	
NR (PFD/MFD) ANALOGUE	100%	☐	☐	See analog data
NF1 (MFD) ANALOGUE	100%	☐	☐	See analog data
NF2 (MFD) ANALOGUE	100%	☐	☐	See analog data
P1 (PFD pilot) ANALOGUE	P1t	☐	☐	See analog data
P1 (PFD copilot) ANALOGUE	P1c	☐	☐	See analog data

Verify that all the displayed values are valid and inside normal operating limits

8 CONTROL PANELS FUNCTIONS

System	TEST	Results PASS	Results FAIL	Note
Display Controller	Check the correct functionality of all controller buttons	☐	☐	
Remote Instrument Controller	Check the correct functionality of all controller buttons	☐	☐	
CMC	Verify maintenance PAGE can be opened on MFD (on ground only)	☐	☐	
FMS	Create a flight plan. Press LNAV pushbutton on Display Controller and verify that the selected FMS is displayed on PFD as Navigation Source. Verify the relevant Flight Plan is displayed on both MFD (MAP/PLAN page) and PFD (on HSI in MAP Format).	☐	☐	
Dimming Display	Display dimming	☐	☐	
REV Panel	Power off ADS 1 and on copilot side, verify the following failure indications: Airspeed, Vertical Speed and Altitude. Switch REV panel on ADS 1 and verify the same failures on pilot side	☐	☐	"ADS 1" air data source annunciation is displayed
	Power off ADS 2 and on pilot side, verify the following failure indications: Airspeed, Vertical Speed and Altitude. Switch REV panel on ADS 2 and verify the same failures on copilot side	☐	☐	"ADS 2" air data source annunciation is displayed
	Power off AHRS 1 and on copilot side, verify the following failure indications: Attitude and Heading. Switch REV panel on AHRS 1 and verify the same failures on pilot side	☐	☐	"AHRS 1" air data source annunciation is displayed
	Power off AHRS 2 and on pilot side, verify the following failure indications: Attitude and Heading. Switch REV panel on AHRS 2 and verify the same failures on copilot side	☐	☐	"AHRS 2" air data source annunciation is displayed
	Verify PFD/MFD correct reversionary	☐	☐	
Copilot Display	Reset REV Panel to NORMAL position Set WOW in air Pull Out PFD CPLT CB and verify MFD CPLT in reversionary Pull Out MFD CPLT CB and verify PFD CPLT in reversionary Push in PFD CPLT and MFD CPLT CBs.	☐	☐	
Pilot Display	Set WOW in air Pull Out PFD PLT CB and verify MFD PLT in reversionary Pull Out MFD PLT CB and verify PFD PLT in reversionary Push in PFD PLT and MFD PLT CBs.	☐	☐	
"TEST" Panel/WOW Test	Check all the aural warnings are correctly played	☐	☐	

9 ADDITIONAL TESTS

9.1 Generic Checks

System	TEST	RESULTS		Note
		PASS	FAIL	
Display	A/C on Ground with engines OFF. Check the [illegible] indicator is centred on both PFDs.	☐	☐	
Kit Increased Gross Weight 6800 kg	Verify you're able to set weights in order to obtain GROSS WT = 6401 kg in the PERFORMANCE INIT-KG 3/3 page. Set weights in order to obtain 6801 Kg and verify "EXCEEDS MAX GROSS WEIGHT" message is displayed on MCDU. Furthermore, you're not able initiate from (CONFIRM INIT line key is not displayed).	☐	☐	
Kit Increased Gross Weight 7000 kg	Verify you're able to set weights in order to obtain GROSS WT = 6401 kg in the PERFORMANCE INIT-KG 3/3 page. Set weights in order to obtain 7001 Kg and verify "EXCEEDS MAX GROSS WEIGHT" message is displayed on MCDU. Furthermore, you're not able initiate from (CONFIRM INIT line key is not displayed).	☐	☐	

9.2 Option File additional check

NOTE: If some test results "FAIL", verify correspondence between aircraft configuration and APM Options. If required, reload the correct option file as necessary.

System	TEST	RESULTS		Note
		PASS	FAIL	
2nd ADF Parameter: adf2Installed	If the 2nd ADF is installed on MRC 1, verify the 1-2 ADF selection is available on the MCDU and AW900 and both ADF 1 and ADF 2 are selectable on both PFDs (press BRG buttons on Display Controller).	☐	☐	
	If the 2nd ADF is not installed, verify the 1-2 ADF selection is not available on the MCDU and only ADF 2 is selectable on both PFDs. Pressing ADF 1 on the AW900 "NO FUNCT" is displayed.	☐	☐	
2nd DME Parameter: dme2Installed numDME	If the 2nd DME is installed on MRC 1, verify the 1-2 DME selection is available on the MCDU NAV / POS SENSORS / VOR/DME page and on the AW900.	☐	☐	
	If the 2nd DME is not installed, verify the 1-2 DME selection is not available on the MCDU.	☐	☐	
ADSB-Out Parameter: adsBOutEnable	If the XPDR installed enables ADSB-Out function (i.e. p/n 751-402 ...), verify the ADSB Out indication is displayed on the XPDR MCDU RADIO page.	☐	☐	Ensure that GPS 2 is on navigation or differential mode
	If the XPDR installed does not enable ADSB-Out function (i.e. p/n 751-400 ...), verify that no ADSB Out indications are displayed on the XPDR MCDU RADIO page.	☐	☐	
2nd XPDR Parameter: xpdr2Installed	If the 2nd XPDR is installed on MRC 1, verify the 1-2 XPDR selection is available on the MCDU RADIO page and displayed on PFDs.	☐	☐	
	If the 2nd XPDR is not installed on MRC 1, verify the 1-2 XPDR selection is not available on the MCDU RADIO page and only XPDR is displayed on PFDs.	☐	☐	

System	TEST	RESULTS PASS	RESULTS FAIL	Note
WX P880 or WX P701 Parameter: wxInstalled wxType	If the WX P880 (or WX P701) is installed, ensure that the WX display is selectable on both PFDs and MFDs, perform a WX test and verify the video is correctly displayed on both PFDs and MFDs	☐	☐	
	If the WX P880 (or WX P701) is installed in the aircraft, selection of the corresponding item shall be removed from the sequence of the WX/TAWS pushbutton on the display controller. If both WX P880 (or WX P701) and EGPWS are not installed in the aircraft, selection of this button shall display the "NO WX/TAWS INSTALL" CAS message for 5 seconds.	☐	☐	
EGPWS Parameter: egpwsIfInstalled	If the Honeywell EGPWS Mark XXII is installed, ensure that the TAWS display is selectable on both PFDs and MFDs, verify the video is correctly displayed on both PFDs and MFDs and no failure indications are present	☐	☐	
	If EGPWS Mark XXII is not installed in the aircraft, selection of the corresponding item shall be removed from the sequence of the WX/TAWS pushbutton on the display controller. If both weather radar (WX P880 or WX P701) and EGPWS are not installed in the aircraft, selection of this button shall display the "NO WX/TAWS INSTALL" CAS message for 5 seconds.	☐	☐	
Video Module Parameter: videoModuleIfInstalled	If the MAU Video Module is installed, ensure that the available video sources are selectable on both MFDs and correctly displayed	☐	☐	
	If the MAU Video Module is not installed, ensure that the video sources are not selectable on both MFDs	☐	☐	
TCAS I or TCAS II Parameter: tcasIfInstalled	If the Honeywell TCAS I or TCAS II is installed, ensure that the TCAS display is selectable on both MFDs, ensure TCAS FAIL is not displayed on the PFD (exception only for IFF transponder installed if IFF is in OFF state).	☐	☐	
	If the Honeywell TCAS I or TCAS II is not installed, ensure that the TCAS display is not selectable on both MFDs, ensure TCAS FAIL is not displayed on the PFDs	☐	☐	
Windshield Heater Parameter: iceProtectionSystem	If a windshield heater is installed, power on the system and check 1(2) WSHLD HTR ON advisory appears on CAS list	☐	☐	
3rd AV900 cabin Parameter: audioPan3Installed	If a 3rd AV900 is installed in the cabin, pull out 3rd AV900 CB and verify "3 AUDIO FAIL" appears on CAS list	☐	☐	
4th AV900 cabin Parameter: audioPan4Installed	If a 4th AV900 is installed in the cabin, pull out 4th AV900 CB and verify "4 AUDIO FAIL" appears on CAS list	☐	☐	
5th AV900 cabin Parameter: audioPan5Installed	If a 5th AV900 is installed in the cabin, pull out 5th AV900 CB and verify "5 AUDIO FAIL" appears on CAS list	☐	☐	
6th AV900 cabin Parameter: audioPan6Installed	If a 6th AV900 is installed in the cabin, pull out 6th AV900 CB and verify "6 AUDIO FAIL" appears on CAS list	☐	☐	
7th AV900 cabin Parameter: audioPan7Installed	If a 7th AV900 is installed in the cabin, pull out 7th AV900 CB and verify "7 AUDIO FAIL" appears on CAS list	☐	☐	
8th AV900 cabin Parameter: audioPan8Installed	If a 8th AV900 is installed in the cabin, pull out 8th AV900 CB and verify "8 AUDIO FAIL" appears on CAS list	☐	☐	

System	TEST	RESULTS PASS	RESULTS FAIL	Note
	If • No video source is installed, OR • only VMU is installed, OR • only EURONAV is installed, OR • only RADAR (Telephonics or Gabbiano) is installed, OR • only OPLS is installed, then no "GRAPHICS" menu shall be displayed	☐	☐	
	If • only SKYFORCE is installed, OR • only EURONAV AND VMU are installed then 'DIGITAL MAP' is visualized in the menu	☐	☐	
	If • OPLS AND VMU are installed then 'NOT USED' AND 'OPLS' are visualized in the menu	☐	☐	For aircrafts reported in NOTE1 below, only 'OPLS' is visualized
	If • SKYFORCE AND OPLS AND VMU are installed, OR • EURONAV AND OPLS AND VMU are installed then 'DIGITAL MAP' AND 'OPLS' are visualized in the menu	☐	☐	For aircrafts reported in NOTE1 below, only 'GRAPHICS' is visualized For aircrafts reported in NOTE2 below, then 'OPLS' AND 'DIGITAL MAP' are visualized in the menu
RMI Video switch Parameter: rsumfdhVideoSwitch	If • RADAR (Telephonics or Gabbiano) AND VMU are installed then 'NOT USED' AND 'NOT USED' AND 'RADAR' are visualized in the menu	☐	☐	For aircrafts reported in NOTE1 below, only 'RADAR' is visualized
	If • RADAR (Telephonics or Gabbiano) AND OPLS AND VMU are installed then 'NOT USED' AND 'OPLS' AND 'RADAR' are visualized in the menu	☐	☐	For aircrafts reported in NOTE1 below, only 'GRAPHICS' is visualized
	If • SKYFORCE AND RADAR (Telephonics or Gabbiano) AND VMU are installed, OR • EURONAV AND RADAR (Telephonics or Gabbiano) AND VMU are installed then 'DIGITAL MAP' AND 'NOT USED' AND 'RADAR' are visualized in the menu	☐	☐	For aircrafts reported in NOTE1 below, only 'GRAPHICS' is visualized
	If • SKYFORCE AND RADAR (Telephonics or Gabbiano) AND OPLS AND VMU are installed, OR • EURONAV AND RADAR (Telephonics or Gabbiano) AND OPLS AND VMU are installed then 'DIGITAL MAP' AND 'OPLS' AND 'RADAR' are visualized in the menu	☐	☐	For aircrafts reported in NOTE1 below, only 'GRAPHICS' is visualized
	If • SKYFORCE AND RADAR (Telephonics or Gabbiano) AND OPLS AND ITIES AND VMU are installed then 'DIGITAL MAP' AND 'OPLS' AND 'HYPER SPECTR' are visualized in the menu	☐	☐	
CAT A Parameter: cwADisplayInhibit	On PFD, verify 8 CAT A labels will be displayed (HELIPAD, SHORT FIELD, CLEAR AREA, ELEV HELIPAD, SKIP HELIPAD and MANUAL)	☐	☐	
EAPS Parameter: eapsInstalled	If EAPS is installed, initiate perf data (PERF INIT page) and on MCDU PERF DATA 4/4 verify 'YES' under EAPS INSTALLED line key	☐	☐	

System	TEST	RESULTS		Note
		PASS	FAIL	
HF Parameter: hfInstalled numHFCom	A/C on ground in open space. If the Honeywell HF KHF1050 is installed, verify the HF page is present on the MCDU RADIO 2/2 page	☐	☐	
	If the HF KHF1050 is not installed, verify the HF page is not present on the MCDU RADIO 2/2 page	☐	☐	
TCAS type Parameter: tcasType	If TCAS I is installed, on TCAS/XPDR 2/2 MCDU page verify the following TCAS/XPDR modes are displayed: TA, ALT ON, ALT OFF	☐	☐	
	If TCAS II is installed, on TCAS/XPDR 2/2 MCDU page verify the following TCAS/XPDR modes are displayed: TA/RA, TA, ALT ON, ALT OFF	☐	☐	
Landing Lights Parameter: landingLightsType	If landingLightsType = Legacy system, power on right light and verify 'LANDING LT ON' advisory on CAS list then power on left light and verify 'SEARCH LT ON' advisory on CAS list	☐	☐	
	If landingLightsType = Enhanced system, power on right light and verify 'LANDING LT RH ON' advisory on CAS list then power on left light and verify 'LANDING LT LH ON' advisory on CAS list	☐	☐	
Synthetic Vision Parameter: svsInstalled	If svsInstalled=Not installed, press SVS pushbutton on the CCD and verify 'SVS NOT INSTALLED' Advisory Message is displayed.	☐	☐	
	If svsInstalled=Installed, press SVS pushbutton on the CCD and verify 3-D terrain is enabled or, if GPS Position is not available, SVS annunciation on ADI toggles between SVS OFF and SVS POS.	☐	☐	
Custom Approach Parameter: fmsCustomApproachAuRNAVSoftE	If fmsCustomApproachAuRNAVSoftE=Disabled, create a flight plan and activate it. On MCDU DIR pushbutton and then CS APPR at 5R LSK. Verify that 3L LSK is blank.	☐	☐	
	If fmsCustomApproachAuRNAVSoftE=Enabled, create a flight plan and activate it. On MCDU DIR pushbutton and then CS APPR at 5R. Verify that "RNP LVL SEG" parameter appears at 3L LSK.	☐	☐	

NOTE1:
- all aircrafts updating from Ph 4, Ph 5 or Ph6 to Ph 8
- aircrafts 31558, 31563 and 31564 if updated to Ph8
- all aircrafts included into BRISTOW UK SAR (AD14356), UAE SAR (AN16100), CHUNGNAM FIRE DEPARTMENT (ON90308) and MALTA ARMED FORCE (AN15870) Works Orders if updated to Ph8

NOTE2:
- all aircrafts in [illegible] (AN15727) Work Order in basic configuration [illegible] is installed and if updated to Ph8

NOTE: if some test results "**FAIL**", re-load correct option file.

9.3 Settings File additional check

System	TEST	RESULTS		Note
		PASS	FAIL	
Cabin ICS Parameter: Cabin ICS Installed	If a Cabin ICS is installed, execute a cabin CALL and verify the cabin ICS is properly working If AV 900 BLOCK 3 audio panel (P/N 7511860-99301, -99201) is installed verify CABIN ICS installed = 1 on SYS CONFIG page	☐	☐	
	If a Cabin ICS is not installed, press CAB on both AV900 and verify "NO FUNCT" is displayed	☐	☐	
COM 3 Parameter: XCVR A2 Audio Enabled	If a third COM is installed, press the COM 3 button on both the AV900 and verify pushbutton light is illuminated.	☐	☐	
	If a third COM is not installed, press COM 3 MIC on both AV900 and verify "NO FUNCT" is displayed	☐	☐	

System	TEST	RESULTS PASS	RESULTS FAIL	Note
COM 4 Parameter: XCVR B2 Audio Enabled	If AV900 Block 2 or 3 is installed and a fourth COM is installed, press the COM 4 button on both the AV900 and verify pushbutton light is illuminated.	☐	☐	
	If AV900 Block 2 or 3 is installed and a fourth COM is not installed, press COM 4 MIC on both AV900 and verify "NO FUNCT" is displayed	☐	☐	
COM 5 Parameter: XCVR D1 Audio Enabled	If AV900 Block 3 is installed and a fifth COM is installed, press the COM 5 button on both the AV900 and verify pushbutton light is illuminated.	☐	☐	
	If AV900 Block 3 is installed and a fifth COM is not installed, press COM 5 MIC on both AV900 and verify "NO FUNCT" is displayed	☐	☐	
AUX 1 Parameter: NAV A1 Audio Enabled	If AV900 Block 3 is installed and a receiver connected to AUX 1 is installed, press the AUX 1 button on both the AV900 and verify pushbutton light is illuminated	☐	☐	
	If AV900 Block 3 is installed and a receiver connected to AUX 1 is not installed, press AUX 1 MIC on both AV900 and verify "NO FUNCT" is displayed	☐	☐	
AUX 2 Parameter: NAV B1 Audio Enabled	If AV900 Block 3 is installed and a receiver connected to AUX 2 is installed, press the AUX 2 button on both the AV900 and verify pushbutton light is illuminated.	☐	☐	
	If AV900 Block 3 is installed and a receiver connected to AUX 2 is not installed, press AUX 2 MIC on both AV900 and verify "NO FUNCT" is displayed	☐	☐	
FONE Parameter: XCVR C1 Audio Enabled	If AV900 Block 1 or 2 is installed and if a SATCOM is installed, press the FONE button on both the AV900 and verify pushbutton light is illuminated.	☐	☐	
	If AV900 Block 1 or 2 is installed and if a SATCOM is not installed, press FONE on both the AV900 and verify "NO FUNCT" is displayed	☐	☐	
FONE 1 Parameter: XCVR C1 Audio Enabled	If AV900 Block 3 is installed and a SATCOM is installed, press the FONE 1 button on both the AV900 and verify pushbutton light is illuminated.	☐	☐	
	If AV900 Block 3 is installed and no SATCOM is installed, press FONE 1 on both the AV900 and verify "NO FUNCT" is displayed	☐	☐	
FONE 2 Parameter: XCVR C2 Audio Enabled	If AV900 Block 3 is installed and a SATCOM is installed, press the FONE 2 button on both the AV900 and verify pushbutton light is illuminated.	☐	☐	
	If AV900 Block 3 is installed and SATCOM connected to FONE 2 is not installed, press FONE 2 on both the AV900 and verify "NO FUNCT" is displayed	☐	☐	
HOIST Parameter: XCVR B1 Audio Enabled	If AV900 Block 2 or 3 is installed ICS HOIST POLYCOM is installed, press the HOIST button on both the AV900 and verify pushbutton light is illuminated.	☐	☐	
	If AV900 Block 2 or 3 is installed ICS HOIST POLYCOM is not installed, press HOIST on both the AV900 and verify "NO FUNCT" is displayed	☐	☐	
DF Parameter: DF Installed	If AV900 Block 3 is installed and a receiver connected to DF is installed, press the DF button on both the AV900 and verify pushbutton light is illuminated.	☐	☐	
	If AV900 Block 3 is installed and a receiver connected to DF is not installed, press DF MIC on both AV900 and verify "NO FUNCT" is displayed	☐	☐	
HF Parameter: XCVR A1 Audio Enabled	A/C on ground in open space. If the Honeywell HF KHF1050 is installed, press the HF button on both the AV900 verify pushbutton light is illuminated	☐	☐	
	If the HF KHF1050 is not installed, press HF on both AV900 and verify "NO FUNCT" is displayed	☐	☐	
Lightning Sensor System Parameter: LSS Installed	If LSS is installed, the "WX" of menu item shall change to "Weather LSS"	☐	☐	

System	TEST	RESULTS		Note
		PASS	FAIL	
FMS Parameter: FMS mode	On MCDU NAV 3/2 MAINTENANCE 1/3 pages, verify that DUAL is displayed under both ACTIVE MODE and SELECTED MODE labels	☐	☐	
EGPWS Parameter: TAWS ENHANCED MODE ENABLED	If EGPWS Mark XXII is not installed verify TAWS ENHANCED MODE ENABLED = DISABLE Selection of the corresponding item shall be removed from the sequence of the XXX/TAWS pushbutton on the display controller. If both [illegible] are not installed in the aircraft, selection of this button shall display the "NOT [illegible] INSTALL" CAS message for 3 seconds.	☐	☐	
	If EGPWS Mark XXII is installed and APM Option fmsCustomApproachAutoRNAVBodEnable is set to "ENABLE" (ref. to Section 9.2), then verify TAWS ENHANCED MODE ENABLED = ENABLE (irrespective of FD configuration) Ensure that the TAWS display is selectable on both PFDs and MFDs, verify the video is correctly displayed on both PFDs and MFDs and no failure indications are present and verify OFFSHORE option is displayed on MCDU Menu/TAWS page	☐	☐	
	If EGPWS Mark XXII is installed APM Option fmsCustomApproachAutoRNAVBodEnable is set to "DISABLE" (ref. to Section 9.2), and FD configuration is ENHANCED (kit p/n 4G2210F00411) or SAR (kit p/n 4G2210F00111) verify TAWS ENHANCED MODE ENABLED = ENABLE Ensure that the TAWS display is selectable on both PFDs and MFDs, verify the video is correctly displayed on both PFDs and MFDs, no failure indications are present and verify SAR and OFFSHORE options are displayed on MCDU Menu/TAWS page	☐	☐	
	If either: • EGPWS Mark XXII [illegible] is installed [illegible] • EGPWS Mark XXII [illegible] is installed and APM Option fmsCustomApproachAutoRNAVBodEnable is set to "DISABLE" (ref. to Section 9.2), FD configuration is BASIC (kit p/n 4G2210F00511) and OFFSHORE MODE is required by work order then, verify TAWS ENHANCED MODE ENABLED = ENABLE. Ensure that the TAWS display is selectable on both PFDs and MFDs, verify the video is correctly displayed on both PFDs and MFDs and no failure indications are present and verify OFFSHORE option is displayed on MCDU Menu/TAWS page	☐	☐	
	If EGPWS Mark XXII [illegible] is installed APM Option fmsCustomApproachAutoRNAVBodEnable is set to "DISABLE" (ref. to Section 9.2), FD configuration is BASIC (kit p/n 4G2210F00511) and OFFSHORE MODE is not required or not specified by work order, verify TAWS ENHANCED MODE ENABLED = DISABLE Ensure that the TAWS display is selectable on both PFDs and MFDs, verify the video is correctly displayed on both PFDs and MFDs, no failure indications are present and verify only basic options (LOW ALT) are displayed on MCDU Menu/TAWS page	☐	☐	

NOTE: if some test results "**FAIL**", re-load correct settings file.

9.4

9.4 SW and Database Load Test

TEST	RESULT PASS	RESULT FAIL
On MFD, open the System ➡ Sys Config page (1/022) and verify the Top Level System Part Number is **EB7030191-00113** (see fig below for reference only) 	☐	☐
Verify on Sys Config page (7/022) the LDI SW is the correct one **PS7035985-00807** (see fig below for reference only) 	☐	☐
Verify that: • **FMS 1 NAV** and **FMS 2 NAV** (on MFD System ➡ Sys Config 002/022 page) • **NDB** (on MCDU NAV ➡ NAV IDENT 1/1 page) are equal to: **AW139-8-XCC**	☐	☐

TEST	RESULT PASS	RESULT FAIL
where X is a private code and CC = cycle (see fig below for reference only)  		
Verify that one the following PERF DB on Sys Config page (2022) is installed: **60000218-003** **OR** **60000218-004** (If Kit 4G0000F00311 LGS Increased Gross Weight 7000Kg is installed) **OR** **60000218-002** (Legacy DB) (see fig below for reference only) 	☐	☐
In Database Config ID pages (from 2 to 9) verify the following fields are correctly filled in. In particular, verify the P/N is correct for the following DBs : • FMS 1 NAV • FMS 2 NAV • FMS 1 A/C PERF • FMS 2 A/C PERF • DU 1 FMS NAV • DU 2 FMS NAV • DU 3 FMS NAV • DU 4 FMS NAV	☐	☐

TEST	RESULT	
	PASS	FAIL
• GMC 1 LDI		
Verify that effectivity cycle (Sys Config pages 2 to 8) is current for the following DBs: • DU 1 AIRPORT COMM • DU 2 AIRPORT COMM • DU 3 AIRPORT COMM • DU 4 AIRPORT COMM • DU 1 AIRPORT TEXT • DU 2 AIRPORT TEXT • DU 3 AIRPORT TEXT • DU 4 AIRPORT TEXT • DU 1 AIRSPACE • DU 2 AIRSPACE • DU 3 AIRSPACE • DU 4 AIRSPACE • DU 1 AIRWAYS • DU 2 AIRWAYS • DU 3 AIRWAYS • DU 4 AIRWAYS • DU 1 EN ROUTE COMM • DU 2 EN ROUTE COMM • DU 3 EN ROUTE COMM • DU 4 EN ROUTE COMM • DU 1 GEOPOLITICAL • DU 2 GEOPOLITICAL • DU 3 GEOPOLITICAL • DU4 GEOPOLITICAL • DU 1 NAVIGATION DATA • DU 2 NAVIGATION DATA • DU 3 NAVIGATION DATA • DU 4 NAVIGATION DATA • DU 1 OBSTACLES • DU 2 OBSTACLES • DU 3 OBSTACLES • DU 4 OBSTACLES • DU 1TRANSPORT CITIES • DU 2 TRANSPORT CITIES • DU 3 TRANSPORT CITIES • DU 4 TRANSPORT CITIES	☐	☐
Verify following Terrain Database for correct P/N (Sys Config pages 8 and 9) and applicability region • DU 1 TERRAIN • DU 2 TERRAIN • DU 3 TERRAIN • DU 4 TERRAIN	☐	☐

10 TEST RESULTS

139G0630D011 AVIONIC SYSTEM PRIMUS EPIC PH8 SW LOAD ACCEPTANCE TEST PROCEDURE				
REF.	DESCRIPTION	OPERATOR	DATE	REMARKS
5.1	Test prerequisites and safety provision			
5.2	Tools required			
6.1.3	Alarm generation (ENG OFF)			
6.2.1	Alarm generation (ENG ON)			
6.1.1	Radio Navigation functions			
6.1.2	AFCS functions			
7	SYSTEM PARAMETERS DISPLAY			
8	CONTROL PANELS FUNCTIONS			
9.1	Screens Checks			
9.2	Option File additional check			
9.3	Settings File additional check			
9.4	SW and Database Load Test			
Engineering dpt signature (if required):				
Quality dpt approval:				

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.