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AgustaWestland Products

SERVICE BULLETIN

**N° 139-464**

**DATE:** February 25, 2021

**REV. :** /

# TITLE

**ATA 93 - INSTALLATION OF KIT SKYFORCE DIGITAL MAP**

# 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

All AW139 helicopters from S/N 31700 onwards and from S/N 41501 onwards.

## B. COMPLIANCE

At Customer's option.

## C. CONCURRENT REQUIREMENTS

As prerequisite, the Video Module Interface kit P/N 4G9310F00211 must be already installed on the helicopter.

## D. REASON

This Service Bulletin is issued to provide the necessary instructions to perform the installation of the kit Digital MAP Skyforce P/N 3G9310F00112.

## E. DESCRIPTION

Leonardo Helicopter has developed this Service Bulletin to provide all necessary instructions to perform the installation of Skyforce structural and electrical provision (Part I), and the equipment installation P/N 4G9310A00711 (Part II).

## F. APPROVAL

The technical content of this Service Bulletin is approved under the authority of DOA nr. EASA.21.J.005. For helicopters registered under other Aviation Authorities, before applying the Service Bulletin, applicable Aviation Authority approval must be checked within Leonardo Helicopters customer portal.

EASA states mandatory compliance with inspections, modifications or technical directives and related time of compliance by means of relevant Airworthiness Directives.

If an aircraft listed in the effectivity embodies a modification or repair not LHD certified and affecting the content of this Service Bulletin, it is responsibility of the Owner/Operator to obtain a formal approval by Aviation Authority having jurisdiction on the aircraft, for any adaptation necessary before incorporation of the present Service Bulletin.

## G. MANPOWER

To comply with this Service Bulletin the following Maintenance-Man-Hours (MMH) are deemed necessary:

Part I: approximately two-hundreds and forty (240) MMH.

Part II: approximately thirty-two (32) MMH.

Maintenance-Man-Hours are based on hands-on time and can change with personnel and facilities available.

## H. WEIGHT AND BALANCE

**PART I**

| **WEIGHT (Kg)** | 5.10 | |
|---|---|---|
| | **ARM (mm)** | **MOMENT (Kgmm)** |
| **LONGITUDINAL BALANCE** | 5499 | 28044.9 |
| **LATERAL BALANCE** | -433 | -2208.3 |

**PART II**

| **WEIGHT (Kg)** | 5.68 | |
|---|---|---|
| | **ARM (mm)** | **MOMENT (Kgmm)** |
| **LONGITUDINAL BALANCE** | 6640 | 37715.2 |
| **LATERAL BALANCE** | -357 | -2027.76 |

## I. REFERENCES

### 1) PUBLICATIONS

Following Data Modules refer to AMP:

| **DATA MODULE** | | **DESCRIPTION** | **PART** |
|---|---|---|---|
| DM01 | 39-A-00-20-00-00A-120A-A | Helicopter on ground for a safe maintenance. | I, II |
| DM02 | 39-A-24-91-04-00A-920A-K | Integrally-lit panel installation | II |
| DM03 | 39-C-34-57-00-00A-320A-K | Skyforce DMAP system operational check | II |

### 2) ACRONYMS & ABBREVIATIONS

| | |
|---|---|
| AMMC | Aircarft & Mission Management Computer |
| CB | Circuit Breaker |
| CDS | Cockpit Display System |
| CTRL | Control |
| VFR | Visual Flight Rules |

### 3) ANNEX

N.A.

## J. PUBLICATIONS AFFECTED

N.A.

## K. SOFTWARE ACCOMPLISHMENT SUMMARY

Software to be updated:

Primus Epic Option File.

Option File P/N is depending upon helicopter configuration that can be different from the one reported in relevant helicopter “Commessa di Vendita”. Customer must contact Product Support Engineering (engineering.support.lhd@leonardocompany.com) to request the correct Option File at least three months in advance from the scheduled embodiment of this Service Bulletin.

# 2. MATERIAL INFORMATION

## A. REQUIRED MATERIALS

**NOTE**

A new auxiliary CB panel is required to apply this Service Bulletin. Customer must contact AW139 Customer Support Engineering (engineering.support.lhd@leonardocompany.com) to request the new CB panel at least three months in advance from the scheduled application of this Service Bulletin.

### 1) PARTS

**PART I**

| # | P/N | ALTERNATIVE P/N | DESCRIPTION | Q.TY | LVL | NOTE | LOG P/N |
|---|---|---|---|---|---|---|---|
| **1** | **3G5310A42211** | | **DIGITAL MAP STRUCTURAL PROVISION** | **REF** | **.** | | |
| 2 | 3G5315A20532 | | Processor support assy | 1 | .. | | 139-464L1 |
| 3 | 3G5315A21735 | | Controller support assy | 1 | .. | (1) | - |
| 4 | A254AP10C1 | | Plug | 8 | .. | | 139-464L1 |
| 5 | A254AS10D08 | | Sleeve | 8 | .. | | 139-464L1 |
| 6 | MS24694-C58 | | Screw | 8 | .. | | 139-464L1 |
| 7 | MS21069L04K | | Nutplate | 4 | .. | | 139-464L1 |
| 8 | NAS1097AD3-4 | | Rivet | 0.1kg | .. | | 139-464L1 |
| 9 | NAS1832C3-4 | | Insert | 4 | .. | | 139-464L1 |
| 10 | MS27039-1-04 | | Screw | 4 | .. | | 139-464L1 |
| 11 | NAS1149D0332J | | Washer | 4 | .. | | 139-464L1 |
| 12 | 3G5315A41731 | | Antenna support assy | 1 | .. | (2)(3) | - |
| 13 | NAS1720H4L2A | | Rivet | 20 | .. | | 139-464L1 |
| 14 | 999-0065-05-36 | | Washer | 20 | .. | | 139-464L1 |
| 15 | MS21069L3 | | Nutplate | 4 | .. | | 139-464L1 |
| 16 | NAS1097U3-4 | | Rivet | 8 | .. | | 139-464L1 |
| 17 | 3G5315A42051 | | Cover | 1 | .. | | 139-464L1 |
| 18 | MS27039-1-07 | | Screw | 4 | .. | | 139-464L1 |
| 19 | NAS1149D0316K | | Washer | 4 | .. | | 139-464L1 |
| **20** | **4G9310A00214** | | **DIGITAL MAP SKYFORCE ELECTRICAL PROVISION** | **REF** | **.** | | |
| 21 | 3G9A01A26222 | 4G9310A00214A1R | DMAP C/A (A1A262) | 1 | .. | (4) | 139-464L1 |
| 22 | 3G9A02A24722 | | DMAP C/A (A2A247) | 1 | .. | (4) | 139-464L1 |
| 23 | 3G9A02B24822 | | DMAP C/A (A2B248) | 1 | .. | (4) | 139-464L1 |
| 24 | 3G9B01A29422 | | DMAP C/A (B1A294) | 1 | .. | | 139-464L1 |
| 25 | 3G9B02A22922 | | DMAP C/A (B2A229) | 1 | .. | | 139-464L1 |
| 26 | 3G9B02B38122 | | DMAP C/A (B2B381) | 1 | .. | | 139-464L1 |
| 27 | 3G9C01A22122 | 4G9310A00214A2R | DMAP C/A (C1A221) | 1 | .. | (5) | 139-464L1 |
| 28 | 3G9C02A21522 | | DMAP C/A (C2A215) | 1 | .. | (5) | 139-464L1 |
| 29 | 3G9C02A21622 | | DMAP C/A (C2A216) | 1 | .. | (5) | 139-464L1 |
| 30 | 3G9C03B21222 | | DMAP C/A (C3B212) | 1 | .. | | 139-464L1 |
| 31 | 3G9D03B20322 | | DMAP C/A (D3B203) | 1 | .. | | 139-464L1 |

| # | P/N | ALTERNATIVE P/N | DESCRIPTION | Q.TY | LVL | NOTE | LOG P/N |
|---|---|---|---|---|---|---|---|
| 32 | A388A3E08C | | Electrical support | 2 | .. | | 139-464L1 |
| 33 | A388A3E20C | | Electrical support | 6 | .. | | 139-464L1 |
| 34 | A630A31 | AW001CL000A-X3 | Electrical support | 6 | .. | | 139-464L1 |
| 35 | A630A3BT | AW001TL3A08T | Electrical support | 1 | .. | | 139-464L1 |
| 36 | A631A01A | | Spacer | 6 | .. | | 139-464L1 |
| 37 | A631A02A | | Spacer | 4 | .. | | 139-464L1 |
| 38 | AW001CL002C-X2 | | Electrical support | 1 | .. | | 139-464L1 |
| 39 | MS21919WDG2 | AS21919WDG02 | Clamp | 7 | .. | | 139-464L1 |
| 40 | MS21919WDG7 | AS21919WDG07 | Clamp | 3 | .. | | 139-464L1 |
| 41 | MS21919WDG8 | AS21919WDG08 | Clamp | 2 | .. | | 139-464L1 |
| 42 | AW001TL3A08T | | Electrical support | 1 | .. | | 139-464L1 |
| 43 | AW002FT102 | | Electrical support | 15 | .. | | 139-464L1 |
| 44 | DCC-01 | | Cap | 3 | .. | | 139-464L1 |
| 45 | DCC-02 | | Cap | 1 | .. | | 139-464L1 |
| 46 | DCC-04 | | Cap | 1 | .. | | 139-464L1 |
| 47 | ED300GS1A | | Decal | 2 | .. | | 139-464L1 |
| 48 | ED300GS1B | | Decal | 2 | .. | | 139-464L1 |
| 49 | ED300GS1C | | Decal | 1 | .. | | 139-464L1 |
| 50 | ED300J357 | | Decal | 1 | .. | | 139-464L1 |
| 51 | EN2139-03010 | | Washer | 5 | .. | | 139-464L1 |
| 52 | EN3759-030010R | EN3759-030010A | Screw | 5 | .. | | 139-464L1 |
| 53 | MS35206-243 | | Screw | 16 | .. | | 139-464L1 |
| 54 | MS90376-14Y | | Cap | 1 | .. | | 139-464L1 |
| 55 | MS90376-8R | | Cap | 3 | .. | | 139-464L1 |
| 56 | NAS1149D0332J | | Washer | 12 | .. | | 139-464L1 |
| 57 | NAS1149DN832J | | Washer | 16 | .. | | 139-464L1 |
| 58 | NAS1190E3P18AK | | Screw | 1 | .. | | 139-464L1 |
| 59 | NAS1190E3P22AK | | Screw | 2 | .. | | 139-464L1 |
| 60 | NAS1190E3P4AK | | Screw | 2 | .. | | 139-464L1 |
| 61 | NAS1190E3P5AK | | Screw | 2 | .. | | 139-464L1 |
| 62 | NAS1802-3-10 | | Screw | 1 | .. | | 139-464L1 |
| 63 | NAS1802-3-12 | | Screw | 1 | .. | | 139-464L1 |
| 64 | NAS1802-3-24 | | Screw | 1 | .. | | 139-464L1 |
| 65 | NAS1802-3-4 | | Screw | 5 | .. | | 139-464L1 |
| 66 | NAS43DD3-28N | | Spacer | 1 | .. | | 139-464L1 |
| 67 | NAS43DD3-48 | NAS43DD3-48N | Spacer | 1 | .. | | 139-464L1 |
| 68 | NAS43DD3-64N | | Spacer | 3 | .. | | 139-464L1 |
| 69 | NAS43DD3-90N | | Spacer | 1 | .. | | 139-464L1 |
| 70 | OB2109-002 | | Rack | 1 | .. | | 139-464L1 |
| 71 | MS3320-10 | | Circuit breaker | 1 | | | 139-464L1 |
| 72 | MS3320-3 | | Circuit breaker | 1 | | | 139-464L1 |
| 73 | ED300CB164 | | Decal | 1 | | | 139-464L1 |
| 74 | ED300CB175 | | Decal | 1 | | | 139-464L1 |
| 75 | 3G2490LXXXXX | | Panel integrally lighted aux breaker | 1 | | (6) | - |
| **76** | **3G9310P01211** | | **DMAP SKYFORCE AND GPS VARIANT** | **REF** | **.** | | **-** |
| **77** | **3G5310A52011** | | **GPS SIGNAL STRUCTURAL PROVISION** | **REF** | **..** | | **-** |
| 78 | NAS1836-08-13 | | Insert | 2 | … | (7) | 139-464L2 |
| 79 | 3G9C03C23502 | | DMAP 2nd GPS variant C/A (C3C235) | 1 | .. | (7) | 139-464L2 |
| 80 | 3G9C03C23601 | 3G9C03C23602 | DMAP 2nd GPS variant C/A (C3C236) | 1 | .. | (7) | 139-464L2 |
| 81 | 3G9C03C23702 | | DMAP 2nd GPS variant C/A (C3C237) | 1 | .. | (7) | 139-464L2 |
| 82 | 7-397-3-3 | | Splitter | 1 | .. | (7) | 139-464L2 |

| # | P/N | ALTERNATIVE P/N | DESCRIPTION | Q.TY | LVL | NOTE | LOG P/N |
|---|---|---|---|---|---|---|---|
| 83 | 999-7000-07-105 | | Terminal | 1 | .. | (7) | 139-464L2 |
| 84 | A388A3E06C | | Kolek gwintowany | 1 | .. | (7) | 139-464L2 |
| 85 | A388A3E24C | | Standoff | 1 | .. | (7) | 139-464L2 |
| 86 | A631A01A | | Spacers for cable bundles | 6 | .. | (7) | 139-464L2 |
| 87 | AW001CB05H | | Clamp | 7 | .. | (7) | 139-464L2 |
| 88 | AW001CB08H | | Clamp | 1 | .. | (7) | 139-464L2 |
| 89 | AW001CL001-N6 | | Support | 2 | .. | (7) | 139-464L2 |
| 90 | AW002FT102 | | Grommet | 2 | .. | (7) | 139-464L2 |
| 91 | AW002FT401 | | Grommet | 6 | .. | (7) | 139-464L2 |
| 92 | ED300CP23 | | Decal | 1 | .. | (7) | 139-464L2 |
| 93 | ED300J376B | | Decal | 2 | .. | (7) | 139-464L2 |
| 94 | NAS1149D0332J | | Washer | 4 | .. | (7) | 139-464L2 |
| 95 | NAS1149DN832J | | Washer | 2 | .. | (7) | 139-464L2 |
| 96 | NAS1190E3P22AK | | Washer | 1 | .. | (7) | 139-464L2 |
| 97 | NAS1190E3P26AK | | Screw | 2 | .. | (7) | 139-464L2 |
| 98 | NAS1190E3P5AK | | Screw | 2 | .. | (7) | 139-464L2 |
| 99 | NAS1190E3P6AK | | Screw | 1 | .. | (7) | 139-464L2 |
| 100 | NAS1802-08-5 | | Screw | 2 | .. | (7) | 139-464L2 |
| 101 | NAS1802-3-28 | | Screw | 1 | .. | (7) | 139-464L2 |
| 102 | NAS43DD3-52N | | Spacer | 1 | .. | (7) | 139-464L2 |
| 103 | NAS43DD3-70N | | Spacer | 2 | .. | (7) | 139-464L2 |
| 104 | NAS43DD3-75N | | Spacer | 1 | .. | (7) | 139-464L2 |
| 105 | NAS43DD3-89N | | Spacer | 1 | .. | (7) | 139-464L2 |
| 106 | A523A-A02 | | Electrical contact | 1 | . | | 139-464L1 |
| 107 | A523A-A05 | | Electrical contact | 3 | . | | 139-464L1 |
| 108 | A523A-A07 | | Electrical contact | 1 | . | | 139-464L1 |
| 109 | M39029/56-348 | | Electrical contact | 30 | . | | 139-464L1 |
| 110 | M39029/56-351 | | Electrical contact | 30 | . | | 139-464L1 |
| 111 | M39029/56-353 | | Electrical contact | 4 | . | | 139-464L1 |
| 112 | M39029/57-354 | | Electrical contact | 19 | . | | 139-464L1 |
| 113 | M39029/58-360 | | Electrical contact | 26 | . | | 139-464L1 |
| 114 | M39029/58-363 | | Electrical contact | 32 | . | | 139-464L1 |
| 115 | M39029/58-364 | | Electrical contact | 2 | . | | 139-464L1 |
| 116 | M39029/63-368 | | Electrical contact | 2 | . | | 139-464L1 |
| 117 | M81824/1-2 | | Splice | 1 | . | | 139-464L1 |
| 118 | MS25036-149 | | Terminal lug | 2 | . | | 139-464L1 |
| 119 | A556A-T16 | | Wire | 1 m | . | | 139-464L1 |
| 120 | A556A-T20 | | Wire | 1 m | . | | 139-464L1 |

## PART II

| # | P/N | ALTERNATIVE P/N | DESCRIPTION | Q.TY | LVL | NOTE | LOG P/N |
|---|---|---|---|---|---|---|---|
| **121** | **4G9310A00711** | | **DIGITAL MAP SKYFORCE EQUIPMENT INSTALLATION** | **REF** | **.** | | **-** |
| **122** | **3G9310P02311** | | **DIGITAL MAP SKYFORCE ELECT VARIANT** | **REF** | **..** | | **-** |
| 123 | 3G9310A17831 | | Switch DMAP panel assy | 1 | ... | | 139-464L3 |
| 124 | 3G9C02A41401 | 3G9310P02311A1R | DMAP reader Skyforce (C2A414) | 1 | ... | | 139-464L3 |
| 125 | 3G9C02A41501 | | DMAP reader Skyforce (C2A415) | 1 | ... | | 139-464L3 |
| 126 | AW001CL008-CM | | Support | 1 | ... | | 139-464L3 |
| 127 | 071-01553-0200 | S67-1575-132 | Gps antenna | 1 | .. | (2) | - |
| 128 | 3G9310V00152 | 3G9310V00552 | Digital map control panel NVG (Interseat console) | 1 | .. | | 139-464L3 |

| # | P/N | ALTERNATIVE P/N | DESCRIPTION | Q.TY | LVL | NOTE | LOG P/N |
|---|---|---|---|---|---|---|---|
| 129 | 3G9310V00251 | | Digital map remote switching | 1 | .. | | 139-464L3 |
| 130 | OB2106-003 | | Control panel | 1 | .. | | 139-464L3 |
| 131 | OB2101-004 | | Processor (Observer) | 1 | .. | | 139-464L3 |
| 132 | OB2700-XXX | | Hard disk solid state drive (for customer-specific MAP) | 1 | .. | (9) | - |
| 133 | 999-0065-11-47 | | Washer | 4 | .. | | 139-464L3 |
| 134 | ED300A103 | | Decal | 1 | .. | | 139-464L3 |
| 135 | ED300A104 | | Decal | 1 | .. | | 139-464L3 |
| 136 | ED300A110 | | Decal | 1 | .. | | 139-464L3 |
| 137 | ED300E26 | | Decal | 1 | .. | | 139-464L3 |
| 138 | ED300PL43 | | Decal | 1 | .. | | 139-464L3 |
| 139 | MS35190-257 | | Screw | 4 | .. | | 139-464L3 |
| 140 | MS35206-215 | | Screw | 4 | .. | | 139-464L3 |
| 141 | MS35206-247 | | Screw | 4 | .. | | 139-464L3 |
| 142 | NAS1149DN432J | | Washer | 4 | .. | | 139-464L3 |
| **143** | **3G9310A08311** | | **DIGITAL MAP SKYFORCE SOFTWARE INSTALLATION** | **REF** | **.** | | **-** |
| 144 | OB2400-XXX | | SD Card (operating software and standard MAP) | 1 | .. | (9) | - |
| 145 | Primus Epic Option File | | Option File | 1 | . | (10)(11) | - |

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

## 2) CONSUMABLES

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

| # | Spec./LHD code number | DESCRIPTION | Q.TY | NOTE | PART |
|---|---|---|---|---|---|
| 146 | 20644-1200 | Glassfiber 8H Satin (EC934X2) | AR | (12) | I |
| 147 | MMM-A-132 Type 1, Class 3 199-05-002 Type II, Class II | Adhesive EA934NA (C057) | AR | (12) | I |
| 148 | MMM-A-132, Type 2, Class II 199-05-002 Type I, Class II. | Adhesive EA9309.3NA (C021) | AR | (12) | I |
| 149 | MIL-S-8802, Type II, class B2 | Sealant Proseal 890 (C153) | AR | (12) | I,II |

## 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 |
|---|---|---|---|
| 139-464L1 | 1 | | Part I |
| 3G5315A21735 | 1 | (1) | |
| 3G5315A41731 | 1 | (2)(3) | |
| 3G2490LXXXXX | 1 | (6) | |
| 139-464L2 | 1 | (7) | |
| 139-464L3 | 1 | | Part II |
| 071-01553-0200 | 1 | (2) | |
| OB2700-XXX | 1 | (9) | |
| OB2400-XXX | 1 | (9) | |
| Primus Epic Option File | 1 | (10)(11) | |

**NOTE**

(1) Component to be ordered only if helicopter is not already equipped with one of the listed AVCS kits:

- P/N 4G1830F00511
- P/N 4G1830F00512
- P/N 4G1830F00611
- P/N 4G1830F00612
- P/N 4G1830F00711
- P/N 4G1830F00712.

(2) Component to be ordered if the kit 2nd antenna GPS P/N 4G3450F00911 or kit 2nd GPS P/N 4G3450F00611 or kit 2nd GPS SBAS P/N 4G3450F00613 is not already installed on the helicopter.

(3) Component to be ordered if the helicopter is equipped with cowling P/N 3G5355A00634.

(4) The component is included within the provided productive P/N 4G9310A00214A1R.

(5) The component is included within the provided productive P/N 4G9310A00214A2R.

(6) The P/N is not properly completed because it is depending on the helicopter configuration. Customers must contact AW139 Product Support Engineering (engineering.support.lhd@leonardocompany.com to request the new auxiliary CB panel at least three months in advance from the scheduled application of this Service Bulletin.

(7) Component to be ordered if the helicopter is not equipped with kit Video Management Unit P/N 4G9310F00611.

(8) Component to be ordered if the helicopter is NVG compatible.

(9) The indicated P/N is not properly completed because it depends on software version and region maps. Customers must contact AW139 Product Support Engineering (engineering.support.lhd@leonardocompany.com) to request the correct P/N at least three months in advance from the scheduled application of this Service Bulletin.

(10) Option File P/N is depending upon helicopter configuration that can be different from the one reported in relevant helicopter “Commessa di Vendita” Customers must contact AW139 Product Support Engineering (engineering.support.lhd@leonardocompany.com) to request the correct Option File at least three months in advance from the scheduled application of this Service Bulletin.

(11) This software will not be supplied; as specified by Information Letter AW139-20-105, it will be available for download, along with relevant certification document, in “My Software” sub-section of Leonardo AW Customer Portal website https://leonardo.agustawestland.com.

(12) Item to be procured as local supply.

## B. SPECIAL TOOLS

N.A.

## C. INDUSTRY SUPPORT INFORMATION

Customization.

# 3. ACCOMPLISHMENT INSTRUCTIONS

## GENERAL NOTES

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

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

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 protect using a layer of tectyl according to MIL-C-16173 grade I.

h) All lengths are in mm.

## PART I

1. In accordance with 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. Gain access to the area affected by the installation and perform the structural provision P/N 3G5310A42211 as described in the following procedure:
   2.1 With reference to Figure 2 Sections B-B and C-C, drill n°8 holes Ø8.20 and install n°8 plugs P/N A254AP10C1 and n°8 sleeves P/N A254AS10D08 by means of adhesive EA934NA (C054). Coordinate hole positions with processor support assy P/N 3G5315A20532.

2.2 With reference to Figure 2 Sections B-B and C-C, install the processor support assy P/N 3G5315A20532 by means of n°8 screws MS24694 C58.

2.3 With reference to Figure 2 Sections E-E and F-F, drill n°4 holes Ø3.26÷3.38 in the indicated positions and install n°4 nutplates P/N MS21069L04K by means of n°8 rivets P/N NAS1097AD3-4.

2.4 With reference to Figure 3 View G, if not already installed remove existing support assy and install support assy P/N 3G5315A21735 by means of existing hardware.

**NOTE**

Perform the following step 3 only if helicopter is not equipped with kit 2nd antenna GPS P/N 4G3450F00911 or kit 2nd GPS P/N 4G3450F00611 or kit 2nd GPS SBAS P/N 4G3450F00613.

**NOTE**

Perform the following step 3 only if helicopter is equipped with tail rotor shaft cowling P/N 3G5355A00635.

3. Perform the antenna GPS structural provision as described in the following procedure:

3.1 With reference to Figure 3 View K, drill a hole Ø31.8 through tail rotor shaft cowling assy in the indicated position.

3.2 With reference to Figure 3 View K, drill n°4 holes Ø 4.90 ÷ 5.03 through tail rotor shaft cowling and bonding layer and install n°4 nutplates P/N MS21069L3 in the indicated positions by means of n°8 rivets P/N NAS1097U3-4.

3.3 With reference to Figure 3 install the cover P/N 3G5315A42051 by means of n°4 screws P/N MS27039-1-07 and n°4 washers P/N NAS1149D0316K. Seal the edge by means of sealant Proseal 890 (C153).

**NOTE**

Perform the following steps 4 and 5 only if helicopter is not equipped with kit 2nd antenna GPS P/N 4G3450F00911 or kit 2nd GPS P/N 4G3450F00611 or kit 2nd GPS SBAS P/N 4G3450F00613 and kit Video Management Unit P/N 4G9310F00611.

4. Perform the DMAP Skyforce and GPS variant P/N 3G9310P01211 as described in the following procedure:

4.1 Perform the GPS signal variant structural provision P/N 3G5310A52012 as described in the following procedure:

4.1.1 With reference to Figure 4 View A and Section B-B, drill n°2 holes Ø11.48÷11.61 in the indicated position of the LH lower avionic bay panel and install n°4 inserts P/N NAS1836-08-13 by means of adhesive EA934NA (C054). Coordinate insert hole positions with splitter P/N 7-397-3-3.

4.1.2 With reference to Figure 4 Detail C, remove the panel protective finish in the indicated position coordinating with splitter P/N 7-397-3-3.

4.2 With reference to Figure 18 wiring diagram, remove and discard or stow coax cable assembly C3A205 installed between 2nd Antenna GPS relevant sectioning connector J376B and 2ndGPS Unit A179.

4.3 With reference to Figure 4 Detail D, install one splitter P/N 7 397-3-3 in the indicated position by means of n°2 washers P/N NAS1149DN832J, n°2 screw P/N NAS1802-08-5. Apply decal P/N ED300CP23.

4.4 With reference to Figure 4 Detail D, bond n°2 electrical supports P/N AW001CL001-N6 in the indicated positions by means adhesive EA9309.3NA.

4.5 With reference to Figure 5, bond an electrical support P/N A388A3E20C and an electrical support P/N AW001TL3A06 in the indicated positions by means adhesive EA9309.3NA.

4.6 With reference to Figure 5 View Rear, remove existing hardware and install a clamp P/N AS21919WDG03 by means of screw P/N NAS1802-3-9 and washer P/N NAS1149D0332J.

4.7 With reference to Figure 5 View Rear, remove existing hardware and install a clamp P/N AW001CB05H by means of screw P/N NAS1190E3P4AK.

4.8 With reference to Figure 5 View Rear, install a clamp P/N AW001CB05H by means of screw P/N NAS1190E3P5AK and washer P/N NAS1149D0332J.

4.9 With reference to Figure 5 View Rear, install a clamp P/N AW001CB05H and spacer P/N NAS43DD3-75N by means of screw P/N NAS1801-3-28.

4.10 With reference to Figure 5 View Rear, remove existing hardware and install a clamp P/N AW001CB05H and a spacer P/N NAS43DD3-64N by means of a screw P/N NAS1190E3P22AK and a washers P/N NAS1149D0332J.

4.11 With reference to Figure 5 View Rear, remove existing hardware and install n°2 clamps P/N AW001CB05H and n°2 spacers P/N NAS43DD3-70N by means of n°2 screws P/N NAS1190E3P26AK and n°2 washers P/N NAS1149D0332J.

4.12 With reference to Figure 5 View A-A, remove existing spacer and install a spacer

P/N NAS43DD3-90N and a clamp P/N AW001CB05H by means of existing hardware.

4.13 With reference to Figure 5, route the following cables:

- 3G9C03C23502 DMAP 2nd GPS variant C/A (C3C235)
- 3G9C03C23602 DMAP 2nd GPS variant C/A (C3C236)
- 3G9C03C23702 DMAP 2nd GPS variant C/A (C3C237)

Secure the coaxial cables means of existing hardware.

4.14 With reference to Figure 5 Rear View, apply n° 2 decals P/N ED300J376B, on both side the panel nearby the J376B connector.

4.15 With reference to Figure 5 View Rear, install n°2 grommets P/N AW002FT102 and n°2 spacers P/N A631A01A in the indicated positions.

4.16 With reference to Figure 5 Views A-A and REAR, install n°4 grommets P/N 999-1700-03-1 and n°4 spacers P/N A631A01A in the indicated positions.

4.17 With reference to Figure 4 Detail D5 and Figure 18 wiring diagram, plug the C/A C3C235 to 2nd GPS connector and CP3P2 GPS splitter connector.

4.18 With reference to Figure 4 Detail D, Figure 5 and Figure 18 wiring diagram, plug the C/A C3C236 to P376 connector and to CP3P1 GPS splitter connector.

4.19 With reference to Figure 4 Detail D, Figure 5 and Figure 18 wiring diagram, plug the C/A C3C237 to CP3P3 GPS splitter connector.

5. Perform DMAP Skyforce electrical provision as described in the following procedure:

5.1 With reference to Figure 8, bond an electrical support P/N AW001CL002C-X2 in the indicated position by means adhesive EA9309.3NA (C021).

5.2 With reference to Figure 10, bond n°6 electrical supports P/N A3630A31, n°2 electrical supports P/N A388A3E08C and an electrical support P/N A3630A3BT in the indicated positions by means adhesive EA9309.3NA (C021).

5.3 With reference to Figure 10 View Rear, install clamp P/N MS21919WDG2 in the indicated position by means of spacer P/N NAS43DD3-64N, washer P/N NAS1149D0332J and screw P/N NAS1190E3P22AK.

5.4 With reference to Figure 10 View Rear, install clamp P/N MS21919WDG7 in the indicated position by means of washer P/N NAS1149D0332J and screw P/N NAS1190E3P5AK.

5.5 With reference to Figure 10 View B-B, install clamp P/N MS21919WDG7 and clamp P/N MS21919WDG8 in the indicated position by means of spacer P/N NAS43DD3-48, washer P/N NAS1149D0332J and screw P/N NAS1190E3P18AK.

5.6 With reference to Figure 10 View C-C, install DMAP rack P/N OB2109-002 by means of n°16 washers P/N NAS1149DN832J and n°16 screws P/N MS35206-

243.

5.7 With reference to Figure 10 View C-C, install clamp P/N MS21919WDG7 and clamp P/N MS21919WDG8 in the indicated position by means of washer P/N NAS1149D0332J and screw P/N NAS1802-3-10.

5.8 With reference to Figure 10 View D-D, install protective rubber P/N A236A03AB in the indicated position of DMAP processor support assy.

5.9 With reference to Figure 11, bond an electrical support P/N A388A3E20C in the indicated positions by means adhesive EA9309.3NA (C021).

5.10 With reference to Figure 11, install n°2 clamps P/N MS21919WDG2 in the indicated positions by means of n°2 screws P/N NAS1190E3P4AK.

5.11 With reference to Figure 11, install clamp P/N MS21919WDG2 in the indicated position by means of screw P/N NAS1190E3P5AK and washer P/N NAS1149D0332J.

5.12 With reference to Figure 11, install clamp P/N MS21919WDG2 in the indicated position by means of spacer P/N NAS43DD3-64N and screw P/N NAS1801-3-24.

5.13 With reference to Figure 11, remove existing spacer and install clamp P/N MS21919WDG2 in the indicated position by means of spacer P/N NAS43DD3-90N and existing screw.

5.14 With reference to Figure 11, install clamp P/N MS21919WDG2 in the indicated position by means of spacer P/N NAS43DD3-64N, screw P/N NAS1190E3P22AK and washer P/N NAS1149D0332J.

5.15 With reference to Figures 7 to 12, route the following cables:

- 3G9A01A26222 DMAP C/A (A1A262)
- 3G9A02A24722 DMAP C/A (A2A247)
- 3G9A02B24822 DMAP C/A (A2B248)
- 3G9B01A29422 DMAP C/A (B1A294)
- 3G9B02A22922 DMAP C/A (B2A229)
- 3G9B02B38122 DMAP C/A (B2B381)
- 3G9C01A22122 DMAP C/A (C1A221)
- 3G9C02A21522 DMAP C/A (C2A215)
- 3G9C02A21622 DMAP C/A (C2A216)
- 3G9C03B21222 DMAP C/A (C3B212)

Secure the coaxial cables means of existing hardware.

5.16 With reference to Figure 8 Interseat console View, install cap P/N DCC-01 and stow PL43P1 connector.

5.17 With reference to Figure 10 View Rear, install n°2 caps P/N MS90376 8R and

stow connectors A104P1 and A104P4.

5.18 With reference to Figure 10 View Rear, install cap P/N DCC-04 and stow A104SK1 connector.

5.19 With reference to Figure 10 View B-B, install n°2 caps P/N DCC-01 and stow connectors A110P1 and A110P2.

5.20 With reference to Figure 10 View B-B, install cap P/N DCC-02 and stow connector A110P3.

5.21 With reference to Figure 10 View C-C, install cap P/N MS39012/25-0009 and stow connector A103P2.

5.22 With reference to Figure 10 View C-C, install cap P/N DCC-02 and stow connector A103P1.

5.23 With reference to Figure 10 View C-C, install n°4 grommets P/N 9 AW002FT102, n°3 spacers P/N A631A02A and a spacer P/N A631A01A in the indicated positions.

5.24 With reference to Figure 10 View D-D, apply n°2 decals P/N ED300GS1A, n°2 decals P/N ED300GS1B and a decal n°2 decals P/N ED300GS1C in the indicated positions.

5.25 With reference to Figure 11, install n°4 grommets P/N AW002FT102 and n°4 spacers P/N A631A01A in the indicated positions.

**NOTE**

Perform the following steps 6.26 to 6.30 only if helicopter is not equipped with kit 2nd antenna GPS P/N 4G3450F00911 or kit 2nd GPS P/N 4G3450F00611 or kit 2nd GPS SBAS P/N 4G3450F00613.

5.26 With reference to Figure 12, route the following cable:

- 3G9D03B20322 DMAP C/A (D3B203)

Secure the coaxial cables means of existing hardware.

5.27 With reference to Figure 12 View Tail, install n°3 clamps P/N MS21919WDG3 in the indicated position by means of existing hardware.

5.28 With reference to Figure 12 View Tail, install n°5 clamps P/N MS21919WDG3 in the indicated position by means of n°5 screws P/N NAS1801-3-4 and n°5 washers P/N NAS1149D0332J.

5.29 With reference to Figure 12 View Tail, install clamps P/N MS21919WDG3 and P/N MS21919WDG3 in the indicated positions by means of spacer P/N NAS43DD3-28N, screws P/N NAS1801-3-12 and washer

P/N NAS1149D0332J.

5.30 With reference to Figure 12 View Tail, install cap P/N MS90376-14Y and stow connector P/N E26P1

5.31 With reference to Figure 7 and Figure 14 Wiring diagram, perform the electrical connection to A2-1P1 connector by means of n°2 electrical contacts P/N M39029/57-354.

5.32 With reference to Figure 7 and Figure 14 Wiring diagram, perform the electrical connection to TB106P1 connector by means of n°2 electrical contacts P/N M39029/56-348.

5.33 With reference to Figure 7 and Figures 14 and 18 Wiring diagram, disconnect, remove or stow indicated wires and perform the electrical connection to A1-9P1 connector by means of n°8 electrical contacts P/N M39029/57-354.

5.34 With reference to Figure 7 and Figures 14 and 17 Wiring diagram, disconnect, remove or stow indicated wires and perform the electrical connection to A1-3P4 connector by means of n°8 electrical contacts P/N M39029/57-354.

5.35 With reference to Figure 7 and Figure 14 Wiring diagram, perform the electrical connection to A1-3P1 connector by means of electrical contact P/N M39029/57-354.

5.36 With reference to Figure 8 and Figure 13 Wiring diagram, perform the electrical connection to PL1P7 connector by means of n°2 electrical contacts P/N M39029/58-364.

5.37 With reference to Figure 8 and Figure 13 Wiring diagram, perform the electrical connection to PL1P9 connector by means of n°2 electrical contacts P/N M39029/58-363.

5.38 With reference to Figure 8 and Figure 14 Wiring diagram, perform the electrical connection to P113 connector by means of n°2 electrical contacts P/N M39029/58-360.

5.39 With reference to Figure 8 and Figure 14 Wiring diagram, perform the electrical connection to J113 connector by means of n°2 electrical contacts P/N M39029/56-348.

5.40 With reference to Figure 8 and Figures 13 and 14 Wiring diagram, perform the electrical connection to P133 connector by means of n°22 electrical contacts P/N M39029/58-360.

5.41 With reference to Figure 8 and Figures 13 and 14 Wiring diagram, perform the electrical connection to J133 connector by means of n°22 electrical contacts P/N M39029/56-348.

5.42 With reference to Figure 8 and Figures 13 Wiring diagram, perform the electrical

connection to TB129/3 by means of electrical contact P/N A523A-A05.

5.43 With reference to Figure 8 and Figures 13 Wiring diagram, perform the electrical connection to TB133 by means of electrical contact P/N A523A A02.

5.44 With reference to Figure 8 and Figures 13 and 14 Wiring diagram, perform the electrical connection to J117 connector by means of n°2 electrical contacts P/N M39029/56-348.

5.45 With reference to Figure 9 and Figures 13 and 14 Wiring diagram, perform the electrical connection to P117 connector by means of n°2 electrical contacts P/N M39029/63-368.

5.46 With reference to Figure 9 and Figures 13 and 14 Wiring diagram, perform the electrical connection to J217 connector by means of n°2 electrical contacts P/N M39029/56-351.

5.47 With reference to Figure 9 and Figures 13 and 14 Wiring diagram, perform the electrical connection to J219 connector by means of n°22 electrical contacts P/N M39029/56-351.

5.48 With reference to Figure 9 and Figure 14 Wiring diagram, perform the electrical connection to P205 connector by means of n°2 electrical contacts P/N M39029/58-363.

5.49 With reference to Figure 10 and Figure 14 Wiring diagram, perform the electrical connection to P217 connector by means of n°2 electrical contacts P/N M39029/58-363.

5.50 With reference to Figure 10 and Figures 13 and 14 Wiring diagram, perform the electrical connection to P219 connector by means of n° 22 electrical contacts P/N M39029/58-363.

5.51 With reference to Figure 10 and Figures 13 and 14 Wiring diagram, perform the electrical connection to P207 connector by means of n°4 electrical contacts P/N M39029/58-363.

5.52 With reference to Figure 10 and Figures 13 and 14 Wiring diagram, perform the electrical connection to J207 connector by means of n°4 electrical contacts P/N M39029/56-351.

5.53 With reference to Figure 11 and Figure 13 Wiring diagram, perform the electrical connection to TB305 by means of n°2 electrical contacts P/N A523A-A05.

5.54 With reference to Figure 12 and Figure 14 Wiring diagram, perform the electrical connection to J205 connector by means of n°2 electrical contacts P/N M39029/56-351.

5.55 With reference to Figure 12 and Figure 14 Wiring diagram, perform the electrical connection to J118 connector by means of n°2 electrical contacts

P/N M39029/56-348.

5.56 With reference to Figure 12 and Figure 14 Wiring diagram, perform the electrical connection to P118 connector by means of n°2 electrical contacts P/N M39029/58-360.

5.57 Modify the auxiliary C/B panel on the overhead panel, as described in the following procedure:

**NOTE**

Customer must contact AW139 PSE at least 3 months in advance of embodiment date of this Service Bulletin in order to collect the exact W/D applicable to helicopter.

5.57.1 With reference to AMP DM 39-A-24-91-04-00A-920A-K, remove from the Overhead C/B panel the existing integrally-lit panel and install the new integrally-lit panel P/N 3G2490LXXXXX.

5.57.2 Install one circuit breaker CB164 P/N MS3320-10 on the MAIN BUS 2 in the position indicated as DIGITAL MAP on the new integrally-lit panel P/N 3G2490LXXXXX. Apply decal P/N ED300CB164.

5.57.3 Install one circuit breaker CB175 P/N MS3320-1 on the MAIN BUS 2 in the position indicated as DIGITAL MAP CTL on the new integrally-lit panel P/N 3G2490LXXXXX. Apply decal P/N ED300CB175.

5.57.4 Perform the electrical connection between Pin 2 of CB164 and Pin F of connector PL1J7 by means of a piece of cable A556A-T16 of adequate length, terminal lug P/N°MS25036-149 and electrical contact P/N M39029/56-353.

5.57.5 Perform the electrical connection between Pin U of connector PL1J7 and Pin E of TB504 by means of a piece of cable A556A T16 of adequate length and electrical contacts P/N M39029/56-353 and P/N A523A-A07.

5.57.6 Perform the electrical connection between Pin 2 of CB175 and Pins e and f of connector PL1J9 by means of n°3 pieces of cable A556A T20 of adequate length, a terminal lug P/N MS25036-149 n°2 electrical contacts P/N M39029/56-353 and a splice P/N M81824/1-2.

5.58 Perform a pin-to-pin test of all the electrical connection made.

6. In accordance with weight and balance changes, update the Chart A (see Rotorcraft Flight Manual, Part II, section 6).

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

8. 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”.

**PART II**

1. In accordance with 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. Perform the Skyforce DMAP equipment installation P/N 4G9310A00711 as described in the following procedure:
   - 2.1 With reference to Figure 19 View Interseat console, remove existing plate assy P/N 999-0500-85-237, apply decal P/N ED300PL43 and install the DMAP control panel P/N 3G9310V00152 or P/N 3G9310V00552.
   - 2.2 With reference to Figure 19 View Rear, install the A103 processor P/N OB2101-004. Apply decal P/N ED300A103.
   - 2.3 With reference to Figure 19 View Rear, plug the connectors A110P1, A110P2 and A110P3 and install the A110 DMAP switch P/N 3G9310V00251 by means of n°4 washers P/N 999-0065-11-47, n°4 washer P/N NAS1149DN432J and n°4 screws P/N MS35206-215. Apply decal P/N ED300A110.
   - 2.4 With reference to Figure 19 View LH rear avionic bay, install the control panel P/N OB2106-003 and data cartridge P/N OB2700-XXX. Apply decal P/N ED300A104.
   - 2.5 With reference to Figure 21, assemble the switch DMAP panel assy P/N 3G9310A17831 as shown.
   - 2.6 With reference to Figure 20 View A, install the switch DMAP panel assy P/N 3G9310A17831.
   - 2.7 With reference to Figure 20, perform the DMAP Skyforce reader electrical variant as described in the following procedure:
     - 2.7.1 With reference to Figure 22 wiring diagram, remark the indicated wires U443A and U444A respectively into U7200A and U7201A.
     - 2.7.2 With reference to Figure 23 wiring diagram, disconnect remove or stow the following wires.
       - U447A
       - U448A
       - U449A
       - U450A
       - U451A
       - U452A
       - U453A
       - U454A

- U455A
- U456A
- U480A

2.7.3 With reference to Figure 20, View B install an electrical support P/N AW001CL008-CM in the indicated position by means of EA9309.3NA adhesive.

2.7.4 With reference to Figure 20, route the DMAP reader C/A C2A414 and C2A415 following the existing routes.

2.7.5 With reference to Figure 24 wiring diagram, perform the electrical connection to connector A103PA by means of n°3 pins P/N M39029/12-149.

2.7.6 With reference to Figure 24 wiring diagram, perform the electrical connection to connector A103P1 by means of n°4 pins P/N 05-20-110-0-00GAD.

2.7.7 With reference to Figure 24 wiring diagram, perform the electrical connection to connector A104P1 by means of n°12 pins P/N M39029/57-354 and n°2 terminal lugs P/N MS25036-148.

2.7.8 With reference to Figure 20 View B and Figure 23 wiring diagram, perform electrical connection between marked wires U7202A(WH), U7204B(WH) and U7204C(WH) by means of splice P/N M81824/1-1.

2.7.9 With reference to Figure 20 View B and Figure 23 wiring diagram, perform electrical connection between marked wires U7202A(BL), U7204B(BL) and U7204C(BL) by means of splice P/N M81824/1-1.

2.7.10 With reference to Figure 24 wiring diagram, perform the electrical connection to switch S363 by means of n°2 pins P/N M39029/1-102.

2.7.11 With reference to Figure 24 wiring diagram, perform the electrical connection to terminal board TB305 by means of pin P/N A523A-A02.

**NOTE**

Perform the following step 2.6 only if helicopter is not equipped with kit 2nd antenna GPS P/N 4G3450F00911 or kit 2nd GPS P/N 4G3450F00611 or kit 2nd GPS SBAS P/N 4G3450F00613.

2.8 With reference to Figure 19 View Tail cowling, remove the existing plate assy, apply the decal P/N ED300E26 and install the GPS antenna P/N 071-01620-0200 by means n°4 screws P/N MS35190-257. Seal the edge by means of

sealant Proseal 890.

2.9 With reference to Figure 19 View A-A, remove the lock-rings from the DIGITAL MAP and DIGITAL MAP CTL circuit breakers.

3. In accordance with AMP DM 39-C-34-57-00-00A-320A-K, perform the Skyforce DMAP system operational check.
4. In accordance with weight and balance changes, update the Chart A (see Rotorcraft Flight Manual, Part II, section 6).
5. Return the helicopter to flight configuration and record for compliance with Part II of this Service Bulletin on the helicopter logbook.
6. 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”.

# KIT DIGITAL MAP SKYFORCE

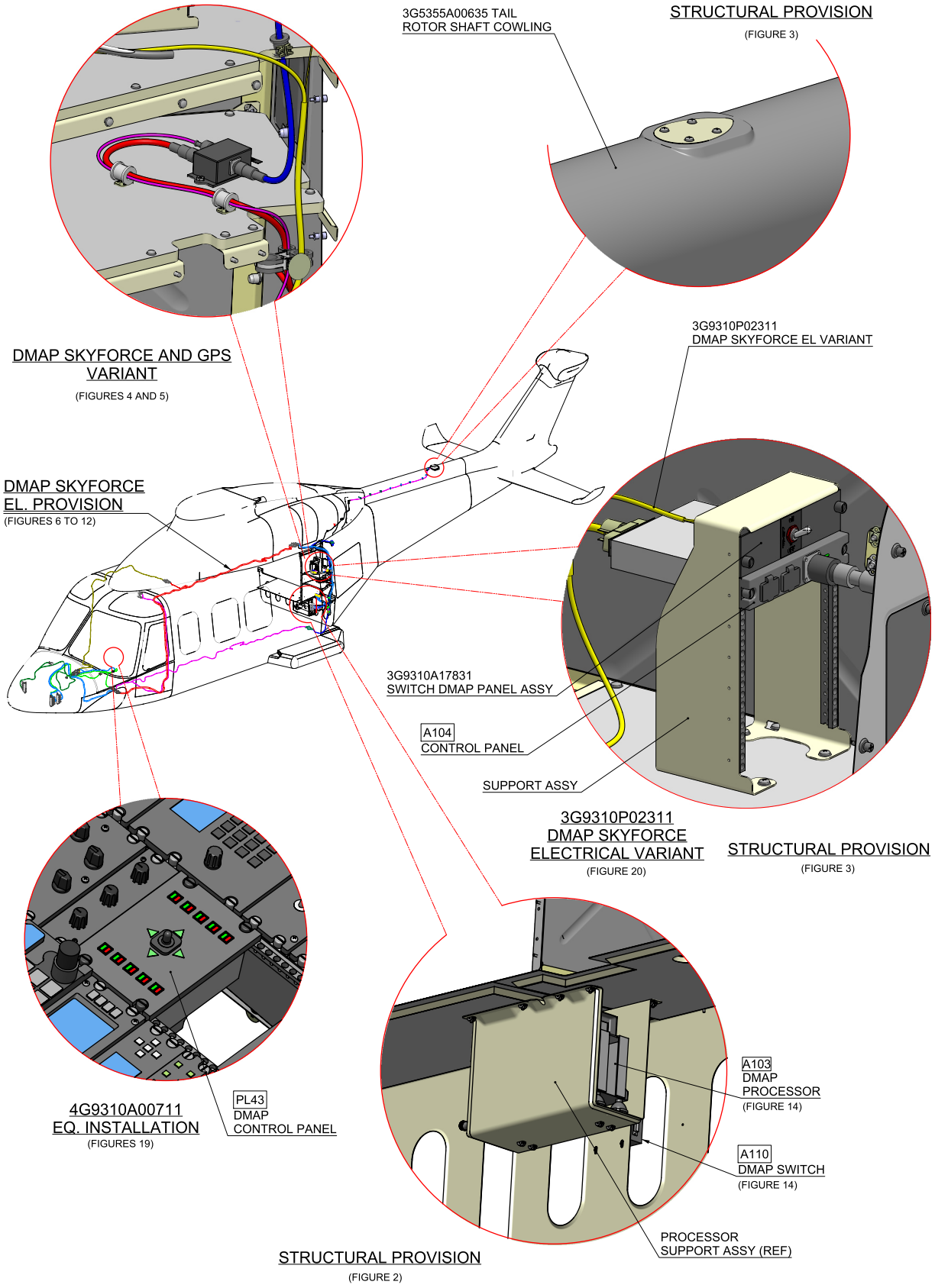



**Figure 1**

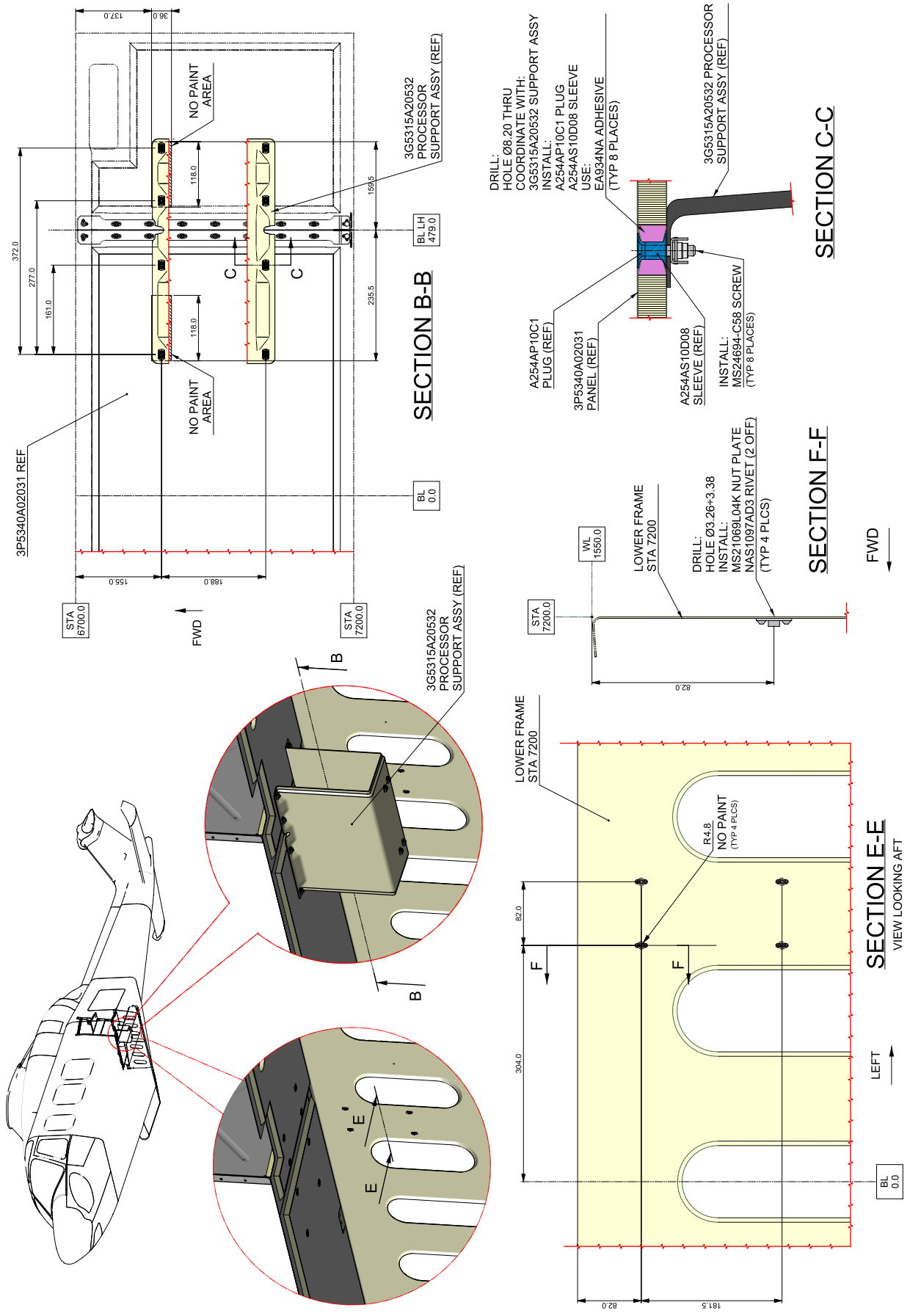

SECTION B-B
SECTION C-C
SECTION F-F
SECTION E-E
VIEW LOOKING AFT
NO PAINT AREA
3G5315A20532 PROCESSOR SUPPORT ASSY (REF)
3P5340A02031 REF
STA 6700.0
STA 7200.0
FWD
BL LH 479.0
BL 0.0
DRILL: HOLE Ø8.20 THRU COORDINATE WITH: 3G5315A20532 SUPPORT ASSY
INSTALL: A254AP10C1 PLUG A254AS10D08 SLEEVE
USE: EA934NA ADHESIVE (TYP 8 PLACES)
A254AP10C1 PLUG (REF)
3P5340A02031 PANEL (REF)
A254AS10D08 SLEEVE (REF)
INSTALL: MS24694-C58 SCREW (TYP 8 PLACES)
WL 1550.0
LOWER FRAME STA 7200
DRILL: HOLE Ø3.26÷3.38
INSTALL: MS21069L04K NUT PLATE NAS1097AD3 RIVET (2 OFF) (TYP 4 PLCS)
LEFT
R4.8
NO PAINT (TYP 4 PLCS)

**Figure 2**

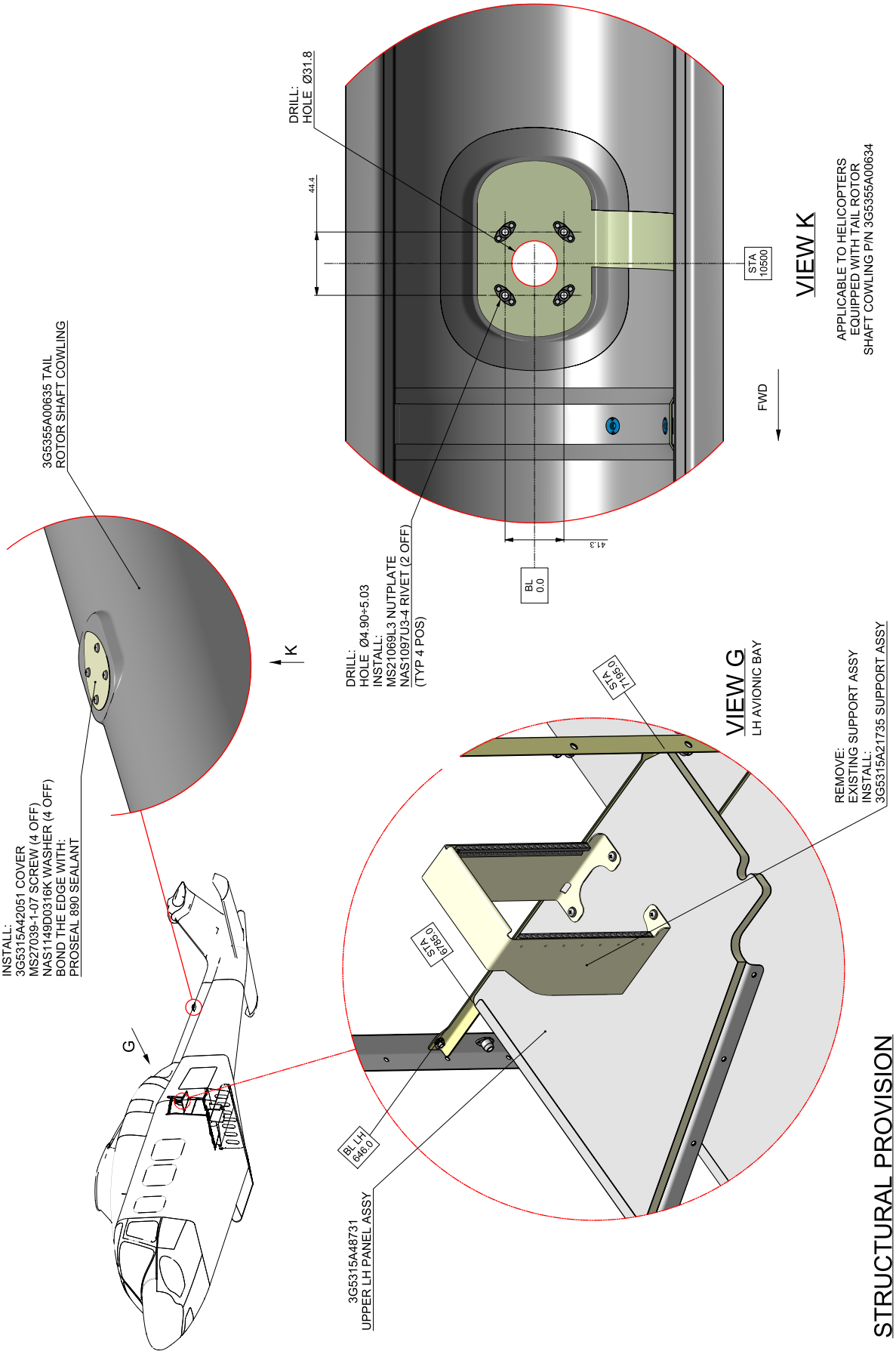

DRILL:
HOLE Ø31.8
44.4
STA
10500
VIEW K
APPLICABLE TO HELICOPTERS
EQUIPPED WITH TAIL ROTOR
SHAFT COWLING P/N 3G5355A00634
FWD
3G5355A00635 TAIL
ROTOR SHAFT COWLING
DRILL:
HOLE Ø4.90÷5.03
INSTALL:
MS21069L3 NUTPLATE
NAS1097U3-4 RIVET (2 OFF)
(TYP 4 POS)
41.3
BL
0.0
K
INSTALL:
3G5315A42051 COVER
MS27039-1-07 SCREW (4 OFF)
NAS1149D0316K WASHER (4 OFF)
BOND THE EDGE WITH:
PROSEAL 890 SEALANT
G
STA
795.0
VIEW G
LH AVIONIC BAY
REMOVE:
EXISTING SUPPORT ASSY
INSTALL:
3G5315A21735 SUPPORT ASSY
STA
878.0
BL LH
646.0
3G5315A48731
UPPER LH PANEL ASSY
STRUCTURAL PROVISION

**Figure 3**

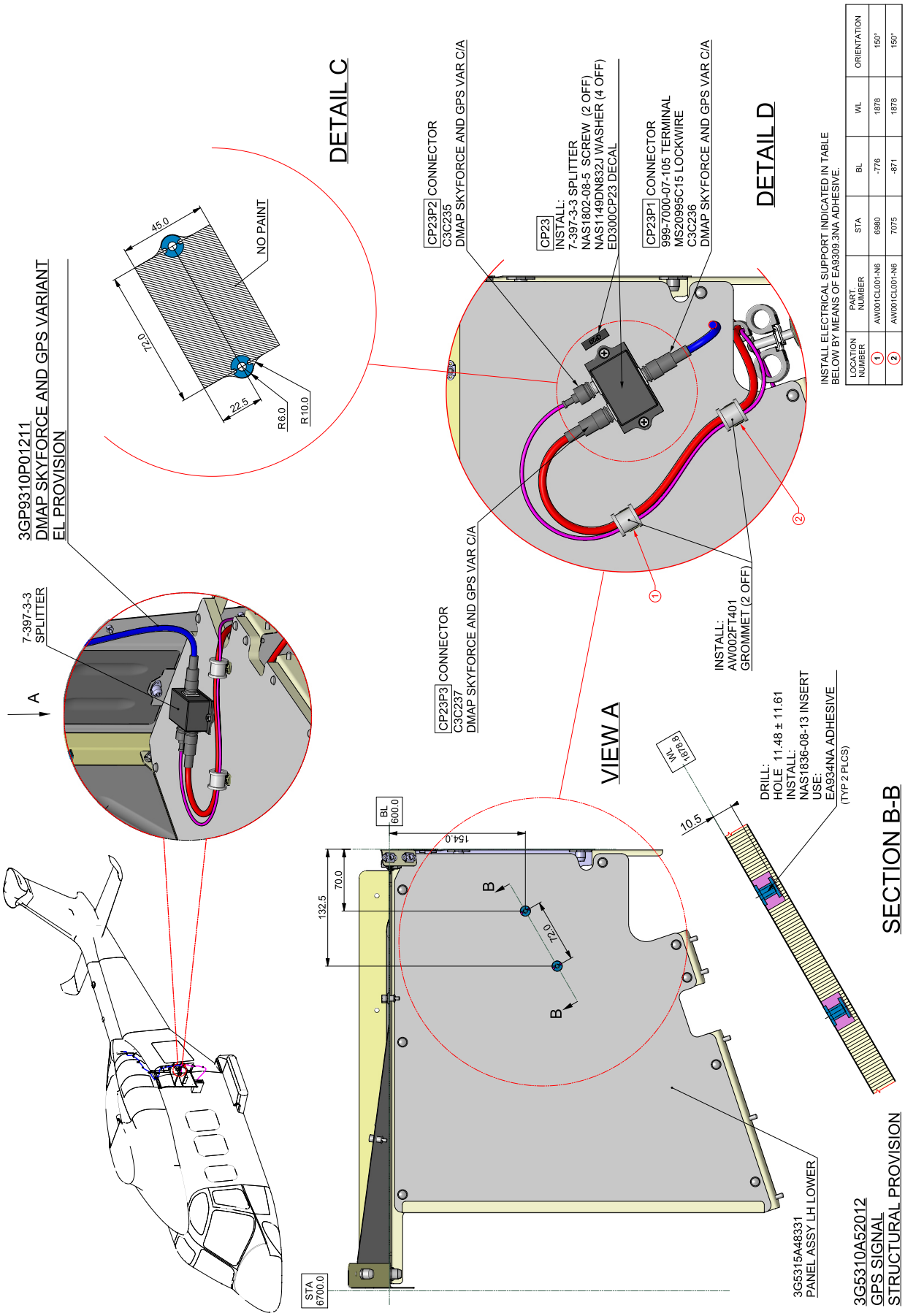
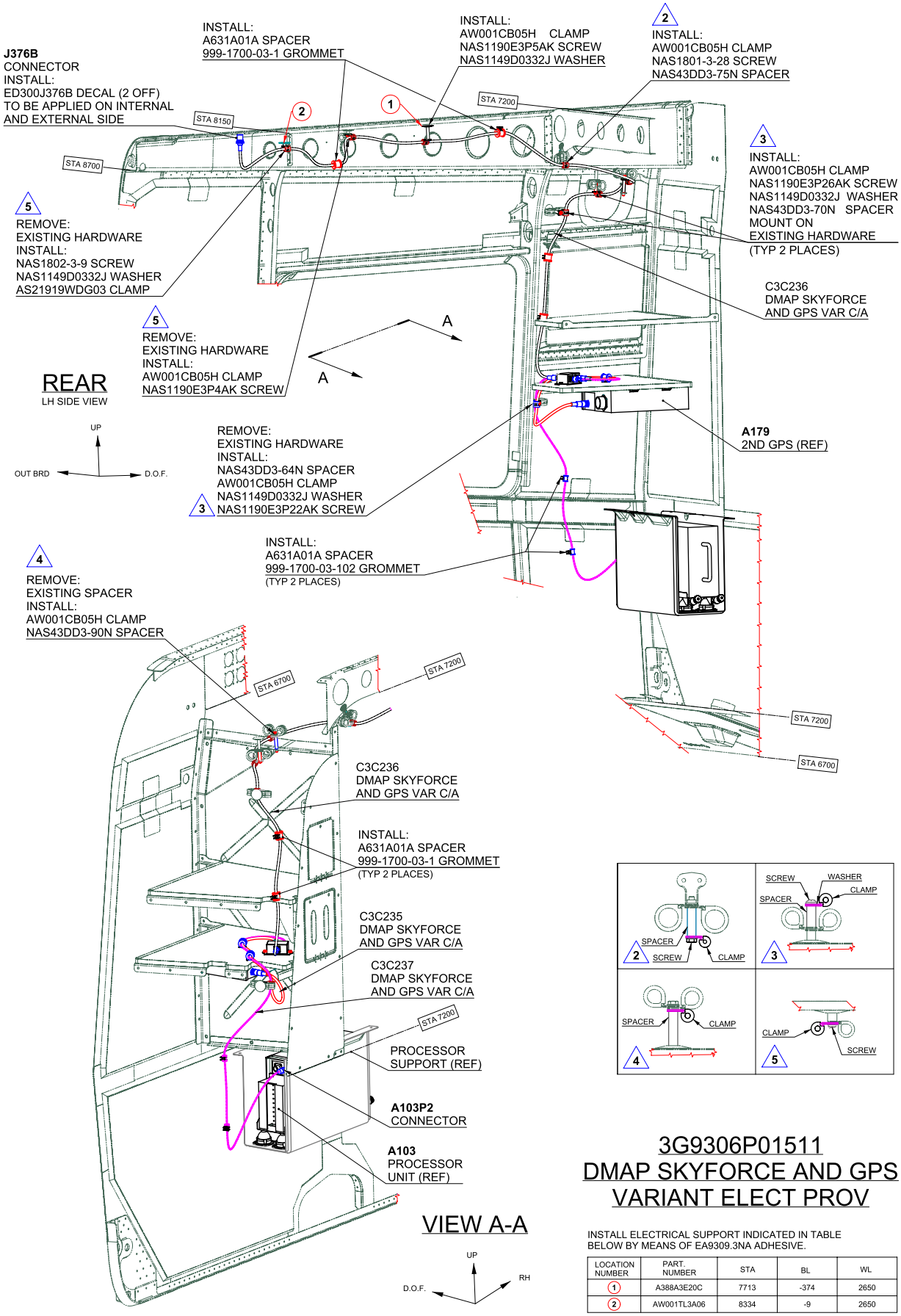

3GP9310P01211
DMAP SKYFORCE AND GPS VARIANT
EL PROVISION
7-397-3-3
SPLITTER
A
DETAIL C
45.0
72.0
22.5
R6.0
R10.0
NO PAINT
CP23P2 CONNECTOR
C3C235
DMAP SKYFORCE AND GPS VAR C/A
CP23
INSTALL:
7-397-3-3 SPLITTER
NAS1802-08-5 SCREW (2 OFF)
NAS1149DN832J WASHER (4 OFF)
ED300CP23 DECAL
CP23P1 CONNECTOR
999-7000-07-105 TERMINAL
MS20995C15 LOCKWIRE
C3C236
DMAP SKYFORCE AND GPS VAR C/A
DETAIL D
INSTALL ELECTRICAL SUPPORT INDICATED IN TABLE
BELOW BY MEANS OF EA9309.3NA ADHESIVE.
LOCATION NUMBER
PART NUMBER
STA
BL
WL
ORIENTATION
1 AW001CL001-N6 6980 -776 1878 150°
2 AW001CL001-N6 7075 -871 1878 150°
CP23P3 CONNECTOR
C3C237
DMAP SKYFORCE AND GPS VAR C/A
INSTALL:
AW002FT401
GROMMET (2 OFF)
VIEW A
BL 600.0
154.0
70.0
132.5
B
72.0
B
STA 6700.0
WL 1878
10.5
DRILL:
HOLE 11.48 ± 11.61
INSTALL:
NAS1836-08-13 INSERT
USE:
EA934NA ADHESIVE
(TYP 2 PLCS)
SECTION B-B
3G5315A48331
PANEL ASSY LH LOWER
3G5310A52012
GPS SIGNAL
STRUCTURAL PROVISION

**Figure 4**




## 3G9306P01511
## DMAP SKYFORCE AND GPS VARIANT ELECT PROV

INSTALL ELECTRICAL SUPPORT INDICATED IN TABLE BELOW BY MEANS OF EA9309.3NA ADHESIVE.

| LOCATION NUMBER | PART. NUMBER | STA | BL | WL |
|---|---|---|---|---|
| 1 | A388A3E20C | 7713 | -374 | 2650 |
| 2 | AW001TL3A06 | 8334 | -9 | 2650 |

..

**Figure 5**

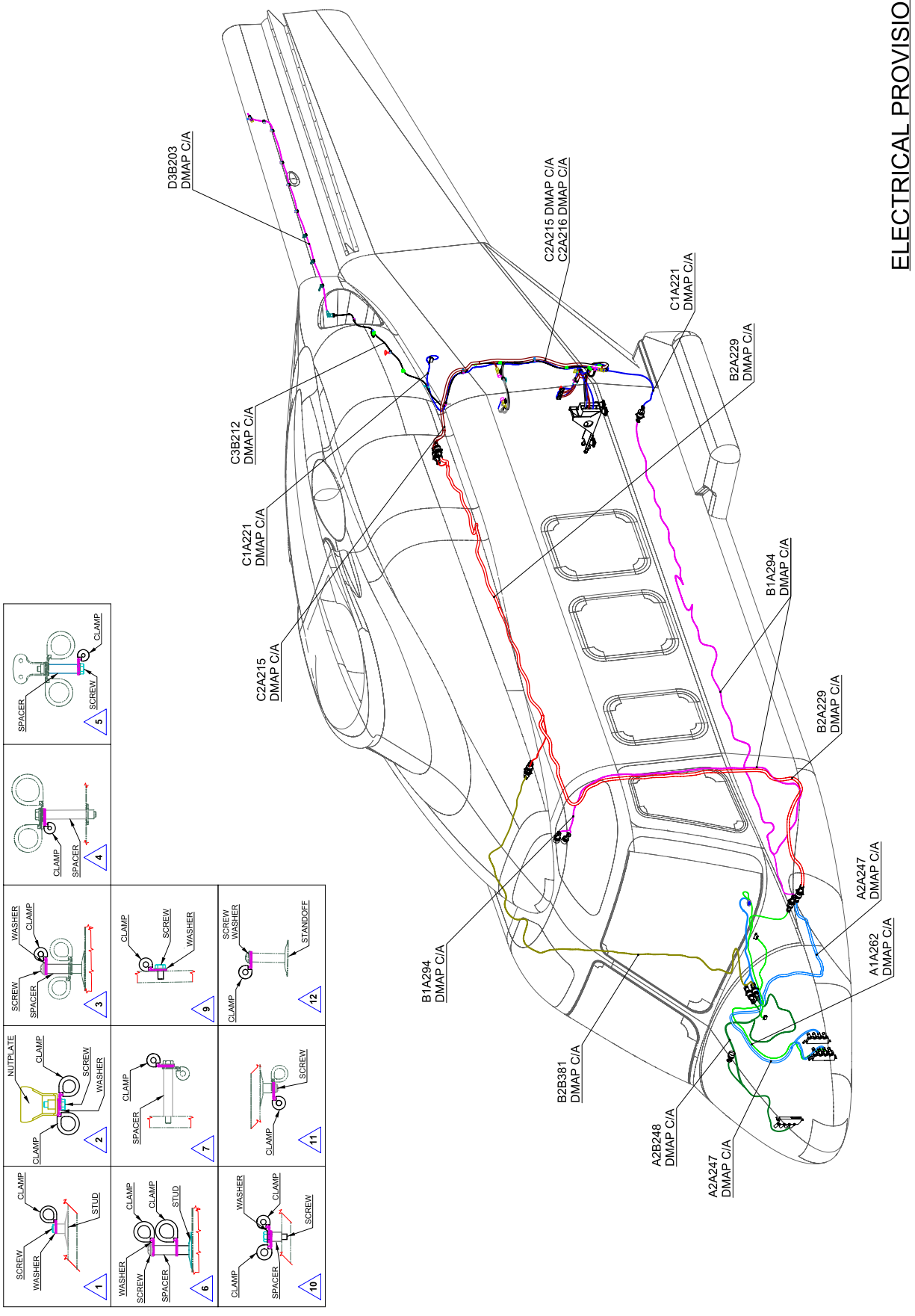

D3B203
DMAP C/A
C2A215 DMAP C/A
C2A216 DMAP C/A
C1A221
DMAP C/A
B2A229
DMAP C/A
C3B212
DMAP C/A
C1A221
DMAP C/A
C2A215
DMAP C/A
B1A294
DMAP C/A
B2A229
DMAP C/A
A2A247
DMAP C/A
A1A262
DMAP C/A
B1A294
DMAP C/A
B2B381
DMAP C/A
A2B248
DMAP C/A
A2A247
DMAP C/A
1
2
3
4
5
6
7
9
10
11
12

**Figure 6**

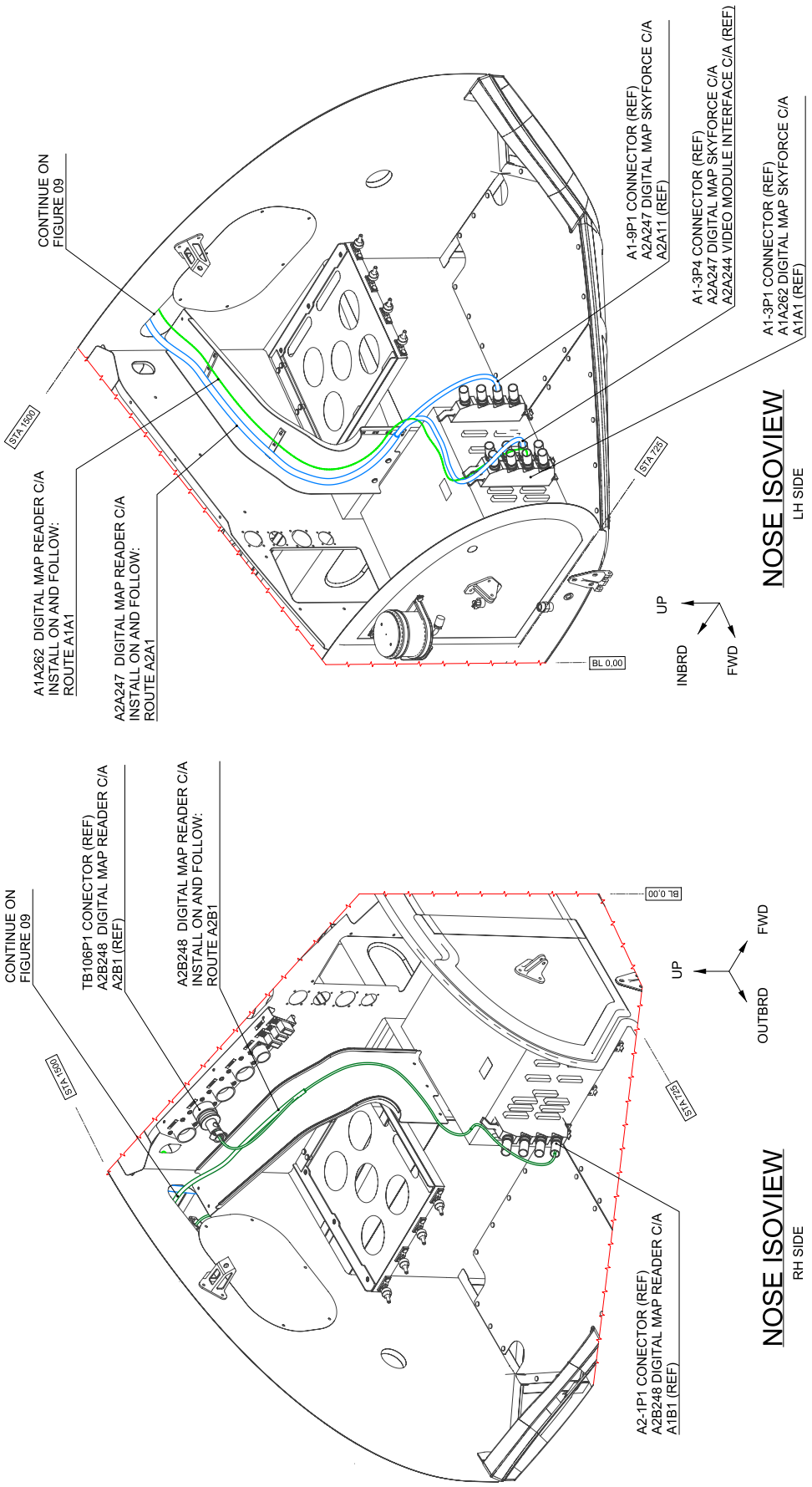
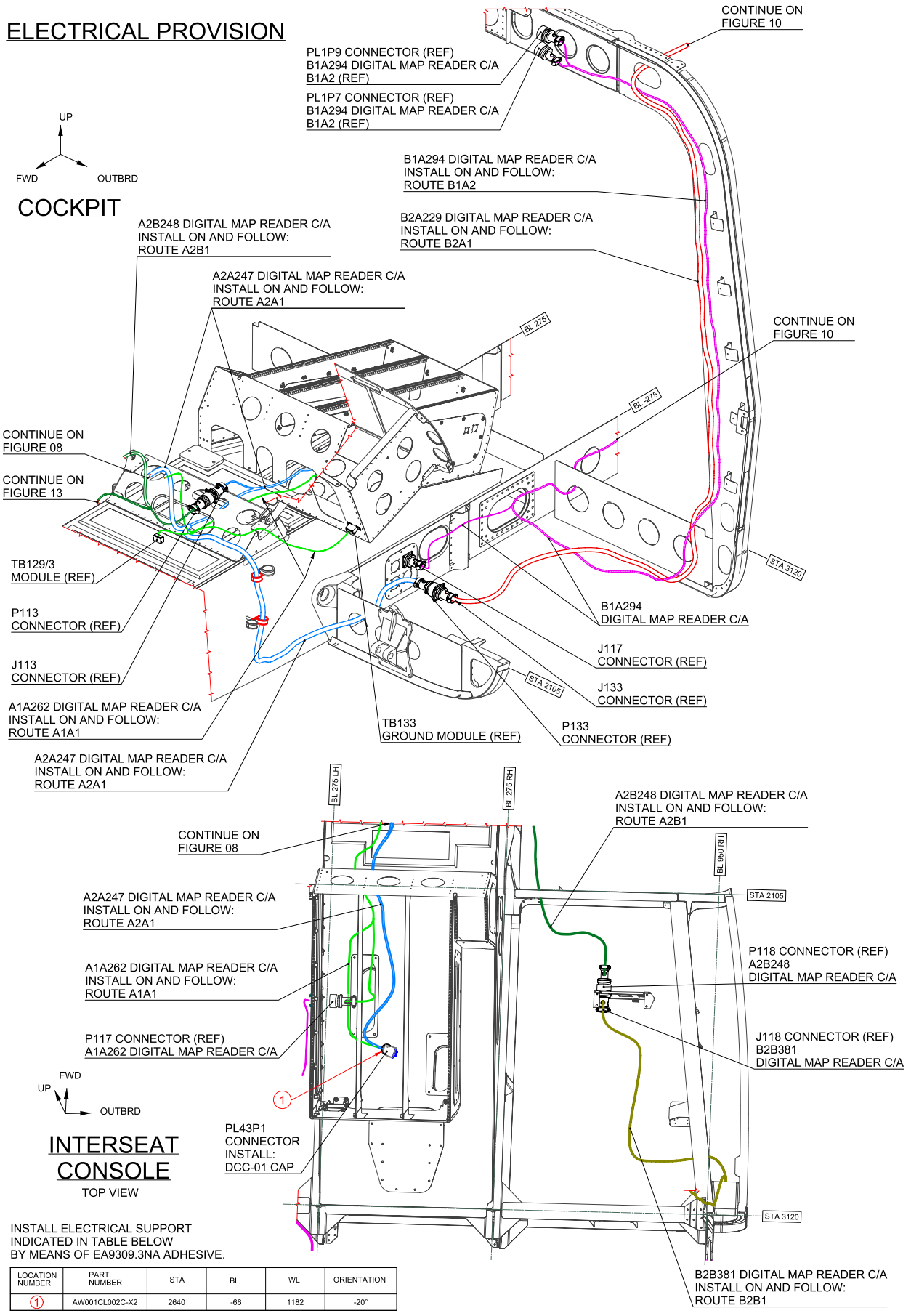

ELECTRICAL PROVISION
NOSE ISOVIEW
LH SIDE
CONTINUE ON
FIGURE 09
STA 1500
A1A262 DIGITAL MAP READER C/A
INSTALL ON AND FOLLOW:
ROUTE A1A1
A2A247 DIGITAL MAP READER C/A
INSTALL ON AND FOLLOW:
ROUTE A2A1
A1-9P1 CONNECTOR (REF)
A2A247 DIGITAL MAP SKYFORCE C/A
A2A11 (REF)
A1-3P4 CONNECTOR (REF)
A2A247 DIGITAL MAP SKYFORCE C/A
A2A244 VIDEO MODULE INTERFACE C/A (REF)
A1-3P1 CONNECTOR (REF)
A1A262 DIGITAL MAP SKYFORCE C/A
A1A1 (REF)
STA 725
BL 0.00
UP
INBRD
FWD
NOSE ISOVIEW
RH SIDE
CONTINUE ON
FIGURE 09
TB106P1 CONECTOR (REF)
A2B248 DIGITAL MAP READER C/A
A2B1 (REF)
A2B248 DIGITAL MAP READER C/A
INSTALL ON AND FOLLOW:
ROUTE A2B1
BL 0.00
UP
FWD
OUTBRD
STA 725
A2-1P1 CONECTOR (REF)
A2B248 DIGITAL MAP READER C/A
A1B1 (REF)

**Figure 7**




| LOCATION NUMBER | PART NUMBER | STA | BL | WL | ORIENTATION |
|---|---|---|---|---|---|
| 1 | AW001CL002C-X2 | 2640 | -66 | 1182 | -20° |

**Figure 8**

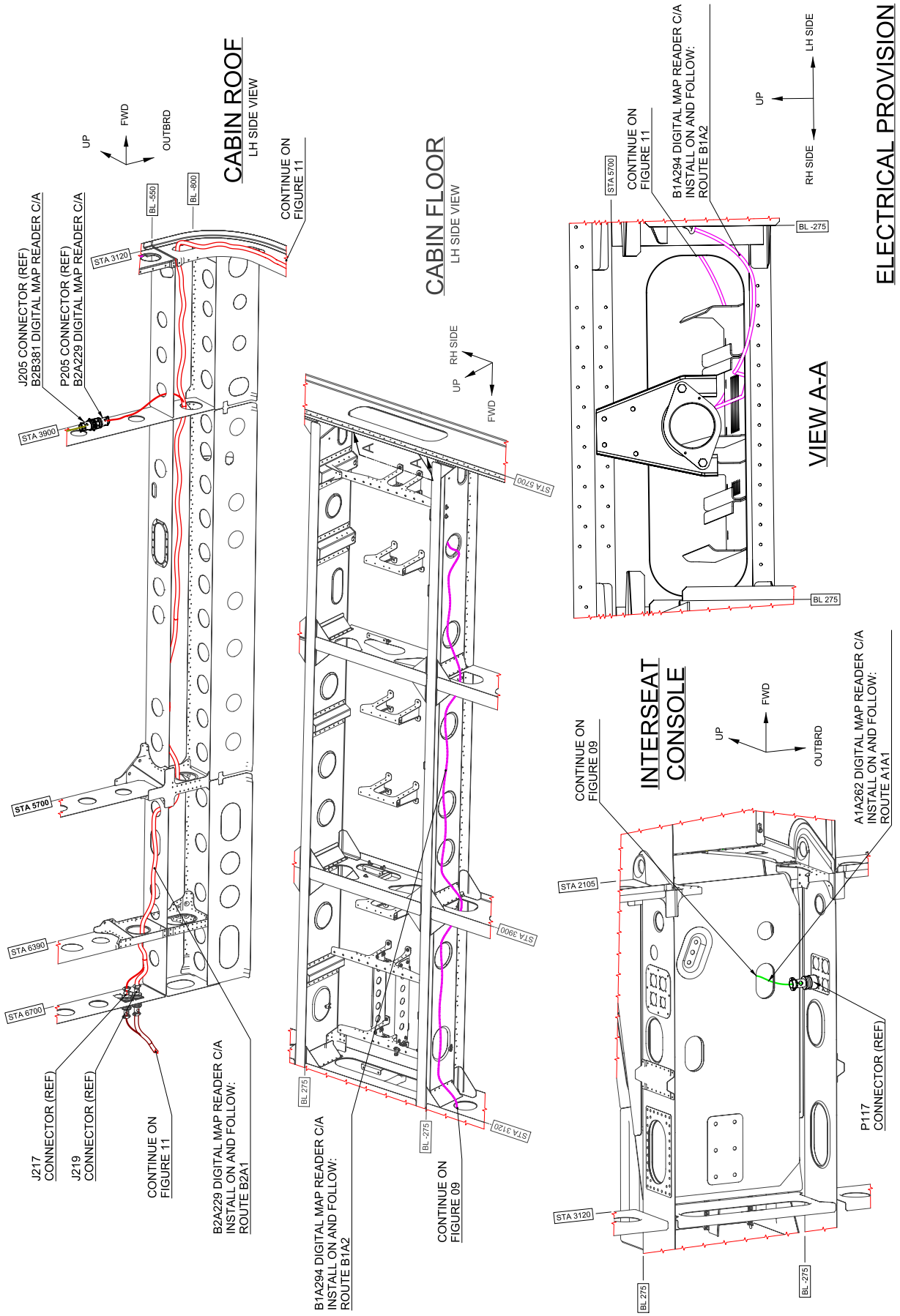
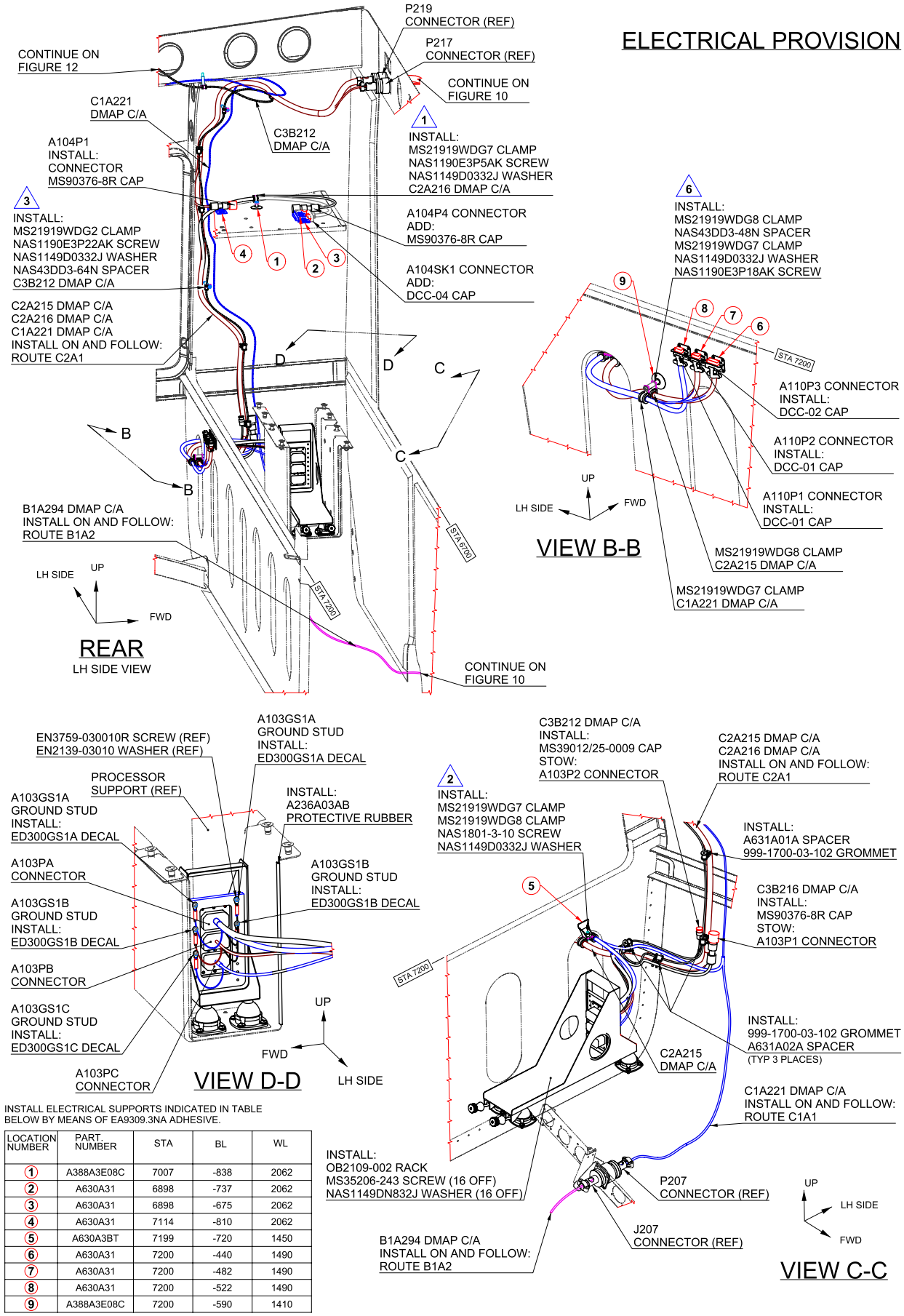

ELECTRICAL PROVISION
CABIN ROOF
LH SIDE VIEW
CONTINUE ON FIGURE 11
J205 CONNECTOR (REF) B2B381 DIGITAL MAP READER C/A
P205 CONNECTOR (REF) B2A229 DIGITAL MAP READER C/A
STA 3900
STA 3120
STA 6390
STA 6700
STA 5700
BL -550
BL -800
UP
FWD
OUTBRD
J217 CONNECTOR (REF)
J219 CONNECTOR (REF)
CONTINUE ON FIGURE 11
B2A229 DIGITAL MAP READER C/A INSTALL ON AND FOLLOW: ROUTE B2A1
CABIN FLOOR
LH SIDE VIEW
UP
RH SIDE
FWD
STA 5700
STA 3900
STA 3120
BL 275
BL -275
CONTINUE ON FIGURE 09
B1A294 DIGITAL MAP READER C/A INSTALL ON AND FOLLOW: ROUTE B1A2
VIEW A-A
CONTINUE ON FIGURE 11
B1A294 DIGITAL MAP READER C/A INSTALL ON AND FOLLOW: ROUTE B1A2
UP
LH SIDE
RH SIDE
BL -275
BL 275
INTERSEAT CONSOLE
CONTINUE ON FIGURE 09
UP
FWD
OUTBRD
A1A262 DIGITAL MAP READER C/A INSTALL ON AND FOLLOW: ROUTE A1A1
STA 2105
STA 3120
BL 275
BL -275
P117 CONNECTOR (REF)

**Figure 9**

## ELECTRICAL PROVISION




INSTALL ELECTRICAL SUPPORTS INDICATED IN TABLE BELOW BY MEANS OF EA9309.3NA ADHESIVE.

| LOCATION NUMBER | PART NUMBER | STA | BL | WL |
|---|---|---|---|---|
| 1 | A388A3E08C | 7007 | -838 | 2062 |
| 2 | A630A31 | 6898 | -737 | 2062 |
| 3 | A630A31 | 6898 | -675 | 2062 |
| 4 | A630A31 | 7114 | -810 | 2062 |
| 5 | A630A3BT | 7199 | -720 | 1450 |
| 6 | A630A31 | 7200 | -440 | 1490 |
| 7 | A630A31 | 7200 | -482 | 1490 |
| 8 | A630A31 | 7200 | -522 | 1490 |
| 9 | A388A3E08C | 7200 | -590 | 1410 |

**Figure 10**

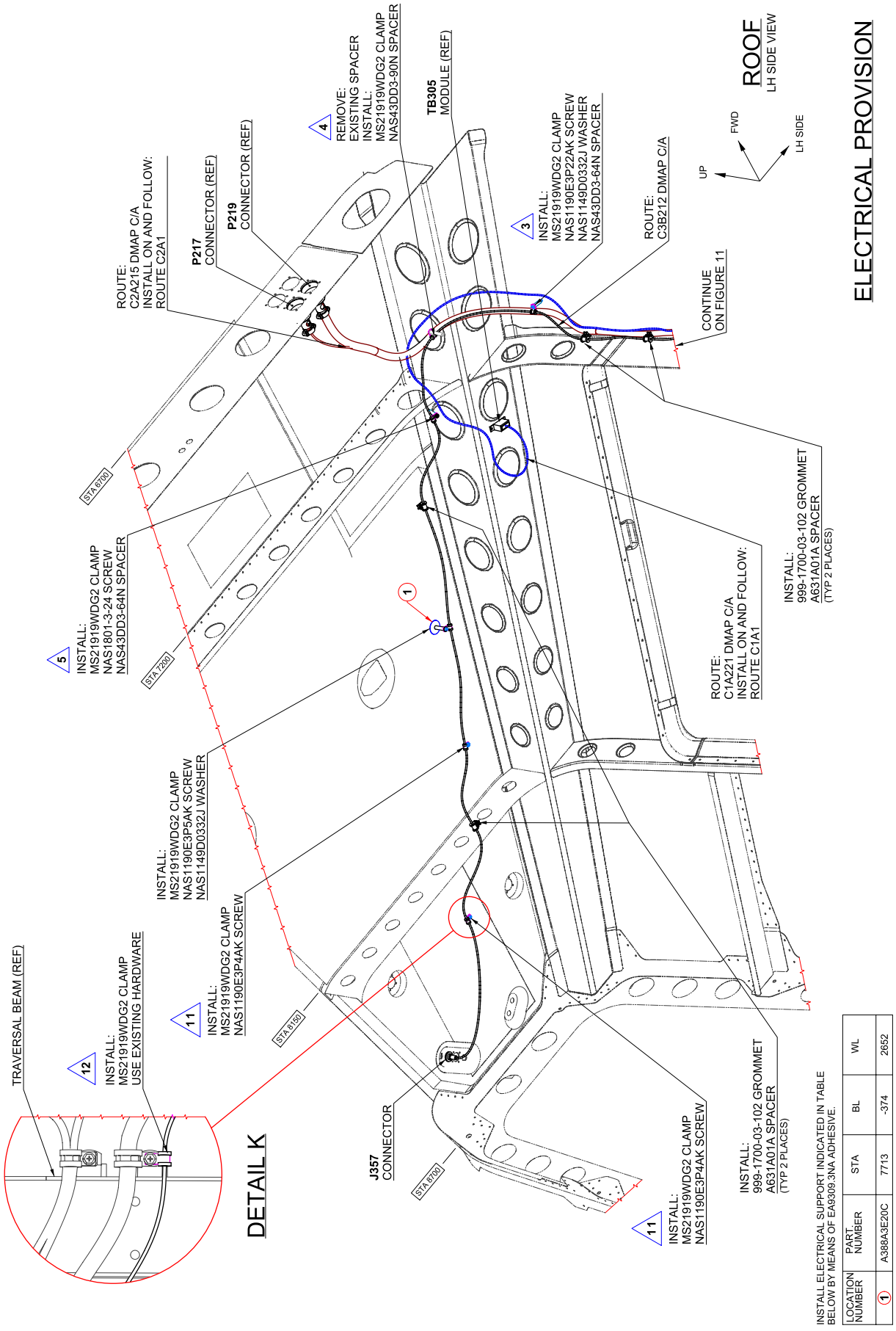

ELECTRICAL PROVISION
ROOF
LH SIDE VIEW
UP
FWD
LH SIDE
ROUTE:
C2A215 DMAP C/A
INSTALL ON AND FOLLOW:
ROUTE C2A1
P217
CONNECTOR (REF)
P219
CONNECTOR (REF)
4
REMOVE:
EXISTING SPACER
INSTALL:
MS21919WDG2 CLAMP
NAS43DD3-90N SPACER
TB305
MODULE (REF)
3
INSTALL:
MS21919WDG2 CLAMP
NAS1190E3P22AK SCREW
NAS1149D0332J WASHER
NAS43DD3-64N SPACER
ROUTE:
C3B212 DMAP C/A
CONTINUE
ON FIGURE 11
INSTALL:
999-1700-03-102 GROMMET
A631A01A SPACER
(TYP 2 PLACES)
ROUTE:
C1A221 DMAP C/A
INSTALL ON AND FOLLOW:
ROUTE C1A1
5
INSTALL:
MS21919WDG2 CLAMP
NAS1801-3-24 SCREW
NAS43DD3-64N SPACER
STA 6700
STA 7200
STA 8150
STA 8700
1
INSTALL:
MS21919WDG2 CLAMP
NAS1190E3P5AK SCREW
NAS1149D0332J WASHER
11
INSTALL:
MS21919WDG2 CLAMP
NAS1190E3P4AK SCREW
12
INSTALL:
MS21919WDG2 CLAMP
USE EXISTING HARDWARE
TRAVERSAL BEAM (REF)
DETAIL K
J357
CONNECTOR
11
INSTALL:
MS21919WDG2 CLAMP
NAS1190E3P4AK SCREW
INSTALL:
999-1700-03-102 GROMMET
A631A01A SPACER
(TYP 2 PLACES)
INSTALL ELECTRICAL SUPPORT INDICATED IN TABLE
BELOW BY MEANS OF EA9309.3NA ADHESIVE.
LOCATION NUMBER
PART NUMBER
STA
BL
WL
1
A388A3E20C
7713
-374
2652

**Figure 11**

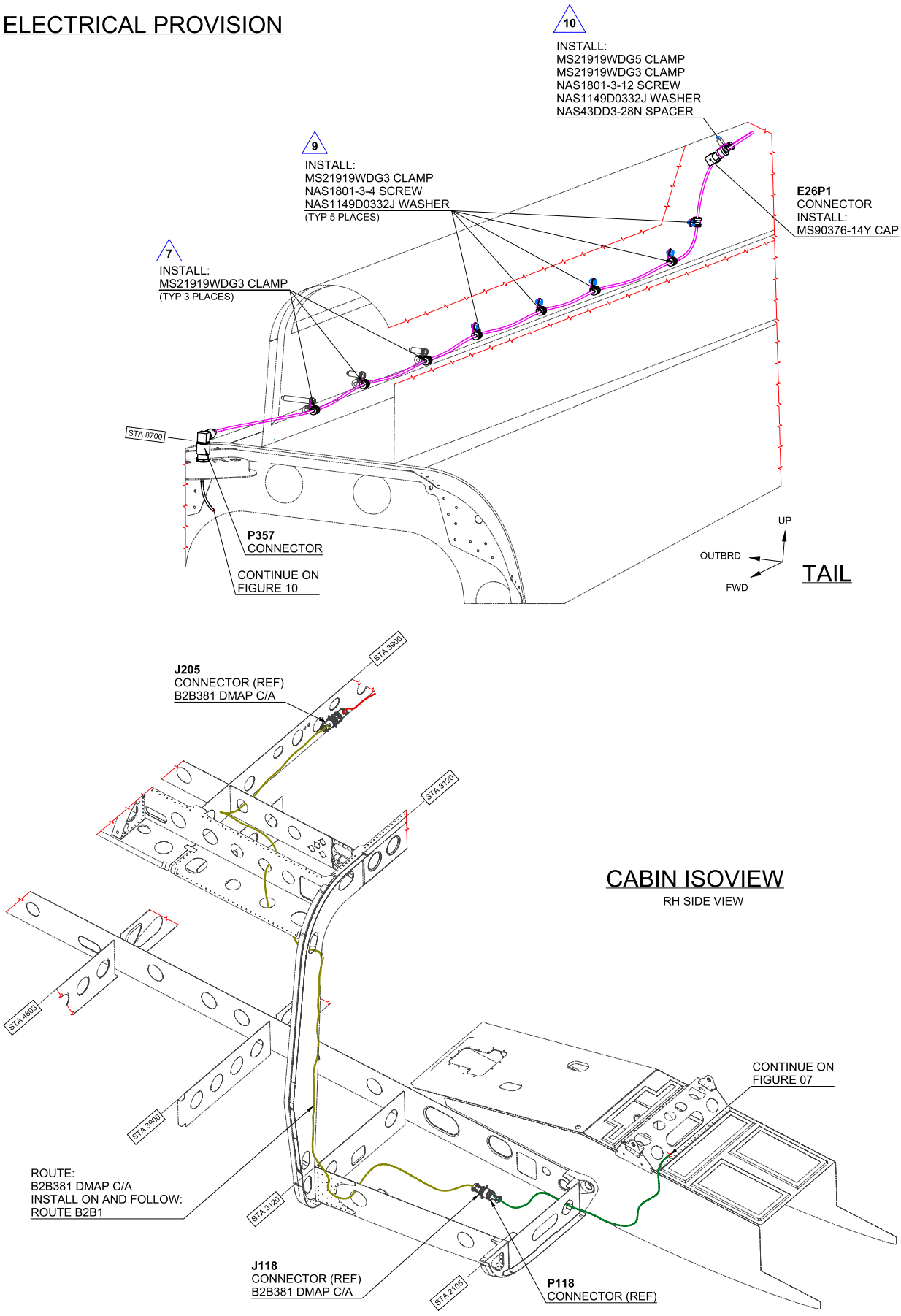

10
INSTALL:
MS21919WDG5 CLAMP
MS21919WDG3 CLAMP
NAS1801-3-12 SCREW
NAS1149D0332J WASHER
NAS43DD3-28N SPACER
9
INSTALL:
MS21919WDG3 CLAMP
NAS1801-3-4 SCREW
NAS1149D0332J WASHER
(TYP 5 PLACES)
E26P1
CONNECTOR
INSTALL:
MS90376-14Y CAP
7
INSTALL:
MS21919WDG3 CLAMP
(TYP 3 PLACES)
STA 8700
P357
CONNECTOR
CONTINUE ON
FIGURE 10
UP
OUTBRD
FWD
TAIL
STA 3900
J205
CONNECTOR (REF)
B2B381 DMAP C/A
STA 3120
STA 4803
STA 3900
ROUTE:
B2B381 DMAP C/A
INSTALL ON AND FOLLOW:
ROUTE B2B1
STA 3120
J118
CONNECTOR (REF)
B2B381 DMAP C/A
STA 2105
P118
CONNECTOR (REF)
CONTINUE ON
FIGURE 07
CABIN ISOVIEW
RH SIDE VIEW

**Figure 12**

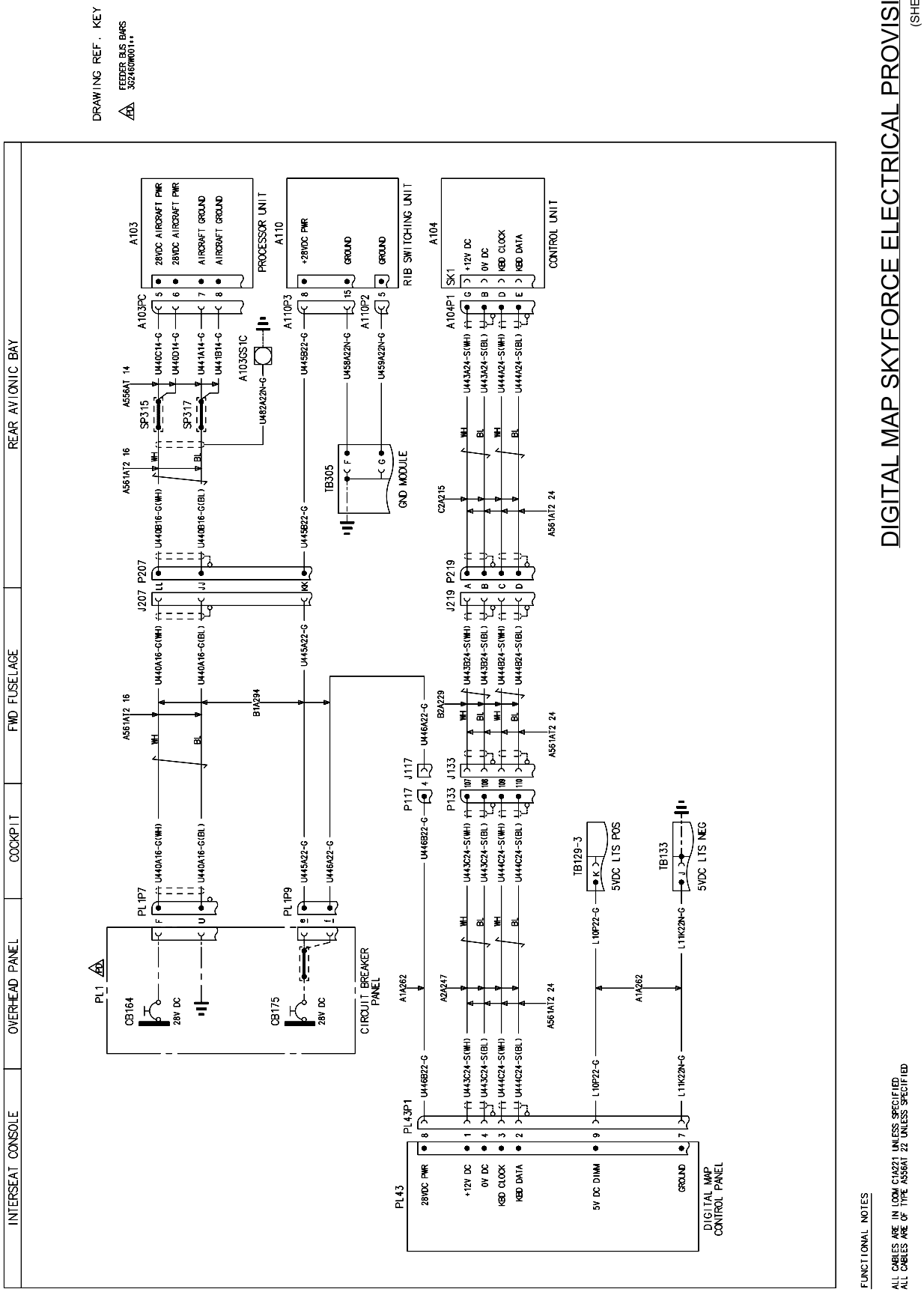

DIGITAL MAP SKYFORCE ELECTRICAL PROVISION
(SHEET 1)
DRAWING REF. KEY
FEEDER BUS BARS 3022400M0011
INTERSEAT CONSOLE
OVERHEAD PANEL
COCKPIT
FWD FUSELAGE
REAR AVIONIC BAY
PROCESSOR UNIT A110
R1B SWITCHING UNIT
CONTROL UNIT
GND MODULE
CIRCUIT BREAKER PANEL
DIGITAL MAP CONTROL PANEL
28VDC AIRCRAFT PWR
AIRCRAFT GROUND
+28VDC PWR
GROUND
+12V DC
0V DC
KBD CLOCK
KBD DATA
5VDC LTS POS
5VDC LTS NEG
5V DC DIMM
FUNCTIONAL NOTES
ALL CABLES ARE IN LOOM C1A221 UNLESS SPECIFIED
ALL CABLES ARE OF TYPE A556AT 22 UNLESS SPECIFIED

**Figure 13**

# DIGITAL MAP SKYFORCE ELECTRICAL PROVISION

(SHEET 2)

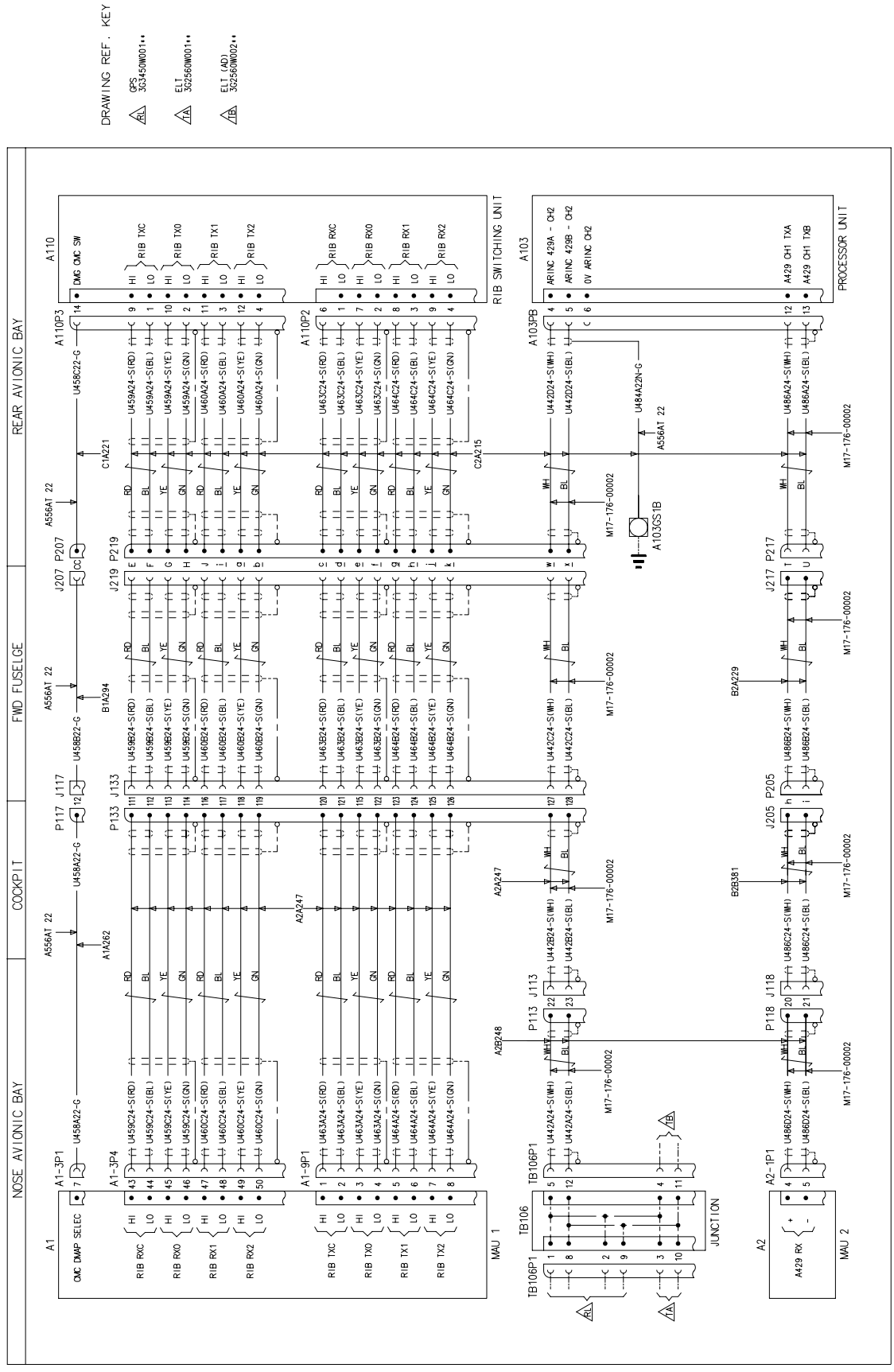



**Figure 14**

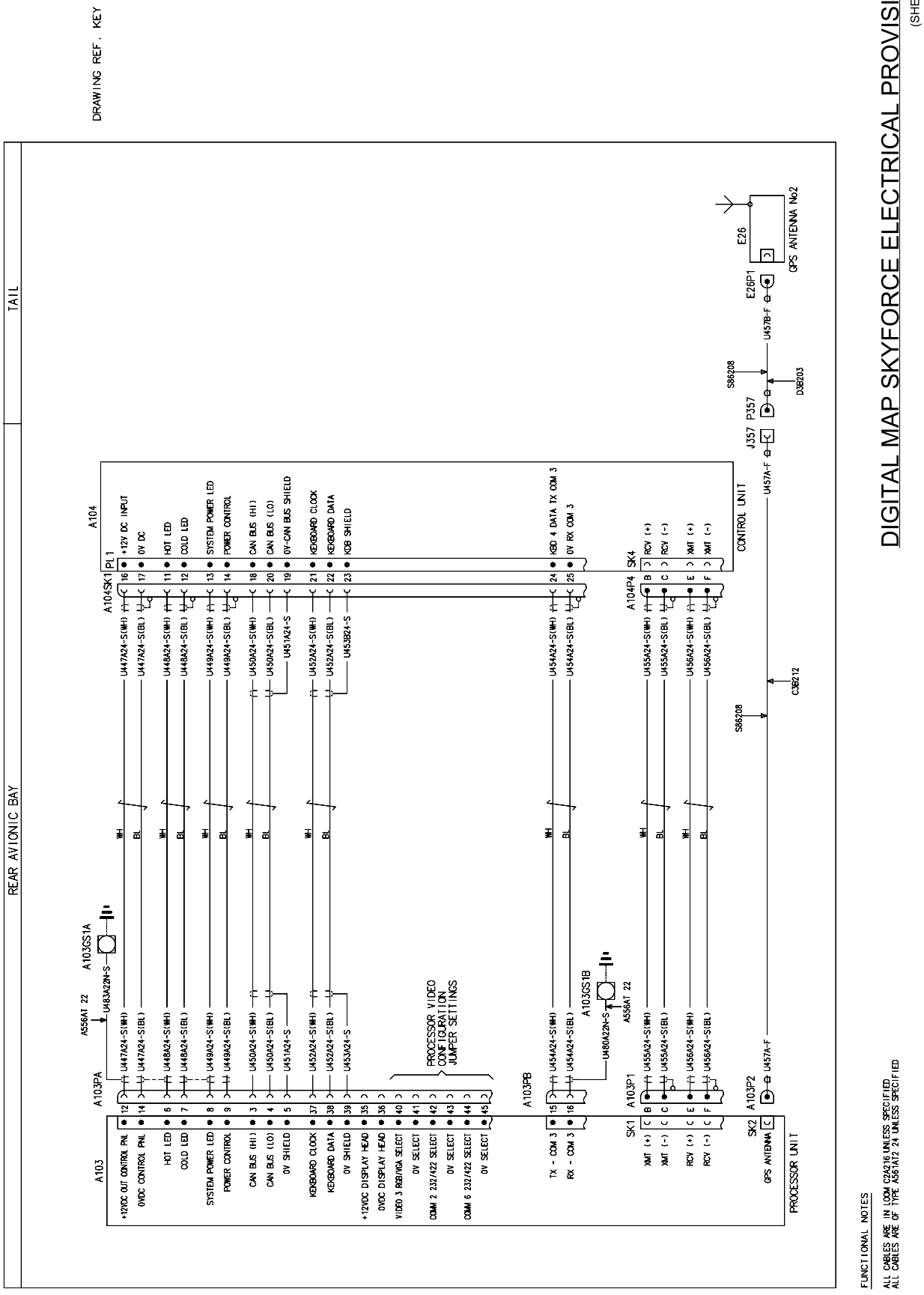

DIGITAL MAP SKYFORCE ELECTRICAL PROVISION
(SHEET 3)
DRAWING REF. KEY
REAR AVIONIC BAY
TAIL
A103
PROCESSOR UNIT
A103PA
A103PB
A103P1
A103P2
A103GS1A
A103GS1B
A556AT 22
A104
A104SK1
A104P4
SK4
CONTROL UNIT
J357 P357
S86208
D38203
E26
E26P1
GPS ANTENNA No2
C38212
PROCESSOR VIDEO CONFIGURATION JUMPER SETTINGS
FUNCTIONAL NOTES
ALL CABLES ARE IN LOOM C24016 UNLESS SPECIFIED.
ALL CABLES ARE OF TYPE AS81472 24 UNLESS SPECIFIED

**Figure 15**

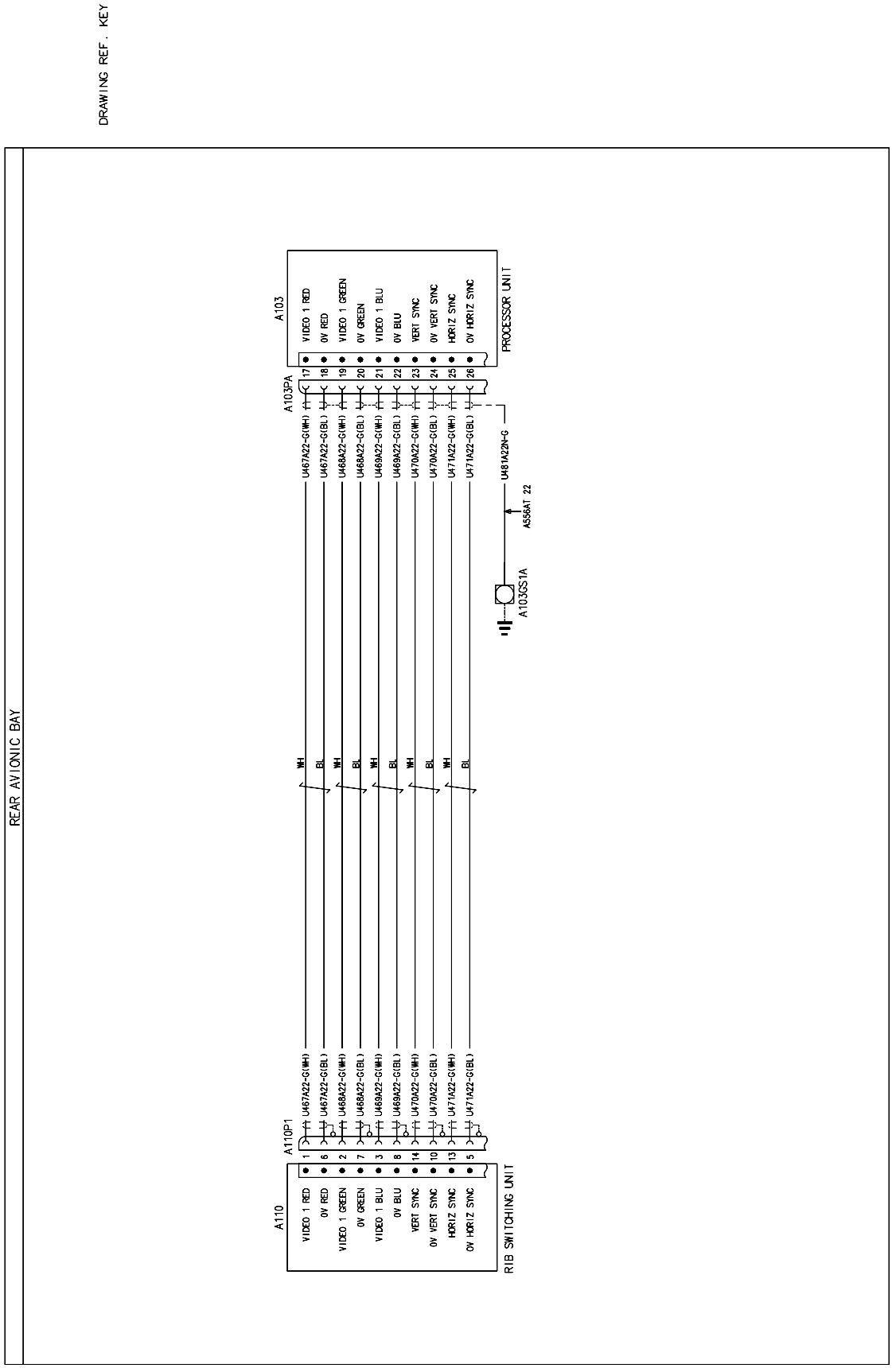

DRAWING REF. KEY
DIGITAL MAP SKYFORCE ELECTRICAL PROVISION
(SHEET 4)
REAR AVIONIC BAY
A110
A110P1
RIB SWITCHING UNIT
VIDEO 1 RED
0V RED
VIDEO 1 GREEN
0V GREEN
VIDEO 1 BLU
0V BLU
VERT SYNC
0V VERT SYNC
HORIZ SYNC
0V HORIZ SYNC
U467A22-G(WH)
U467A22-G(BL)
U468A22-G(WH)
U468A22-G(BL)
U469A22-G(WH)
U469A22-G(BL)
U470A22-G(WH)
U470A22-G(BL)
U471A22-G(WH)
U471A22-G(BL)
WH
BL
A103PA
A103
PROCESSOR UNIT
U481A22N-G
A556AT 22
A103GS1A
FUNCTIONAL NOTES
ALL CABLES ARE IN LOOM C1A221 UNLESS SPECIFIED
ALL CABLES ARE OF TYPE A561A12 22 UNLESS SPECIFIED

**Figure 16**

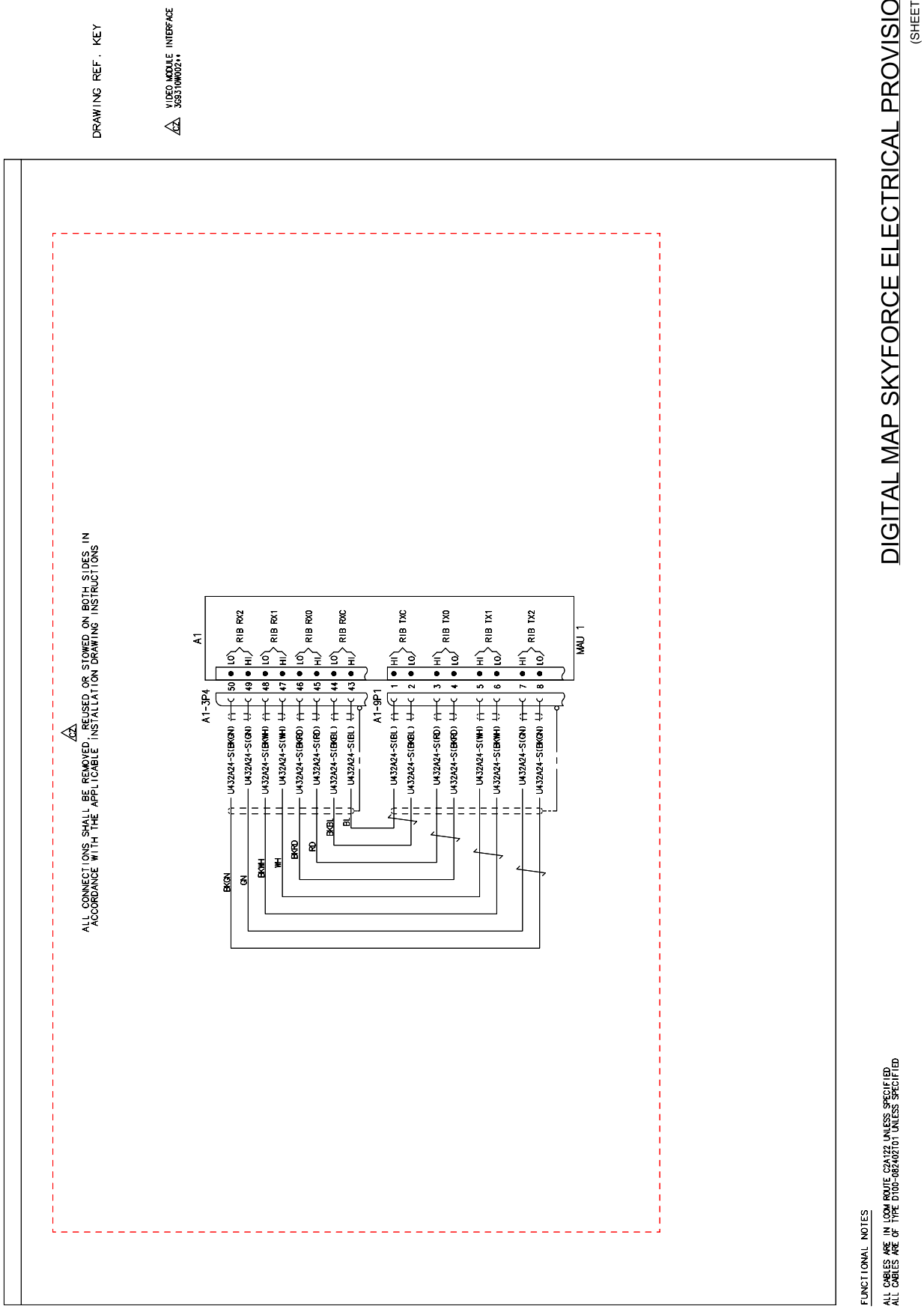

DIGITAL MAP SKYFORCE ELECTRICAL PROVISION
(SHEET 5)
DRAWING REF. KEY
VIDEO MODULE INTERFACE
3G9310M0022**
ALL CONNECTIONS SHALL BE REMOVED, REUSED OR STOWED ON BOTH SIDES IN ACCORDANCE WITH THE APPLICABLE INSTALLATION DRAWING INSTRUCTIONS
A1
A1-3P4
A1-9P1
MAU 1
RIB RX2
RIB RX1
RIB RX0
RIB RXC
RIB TXC
RIB TX0
RIB TX1
RIB TX2
BKGN
GN
BKMH
WH
BKRD
RD
BKBL
BL
FUNCTIONAL NOTES
ALL CABLES ARE IN LOOM ROUTE C2A122 UNLESS SPECIFIED
ALL CABLES ARE OF TYPE D100-08240101 UNLESS SPECIFIED

**Figure 17**

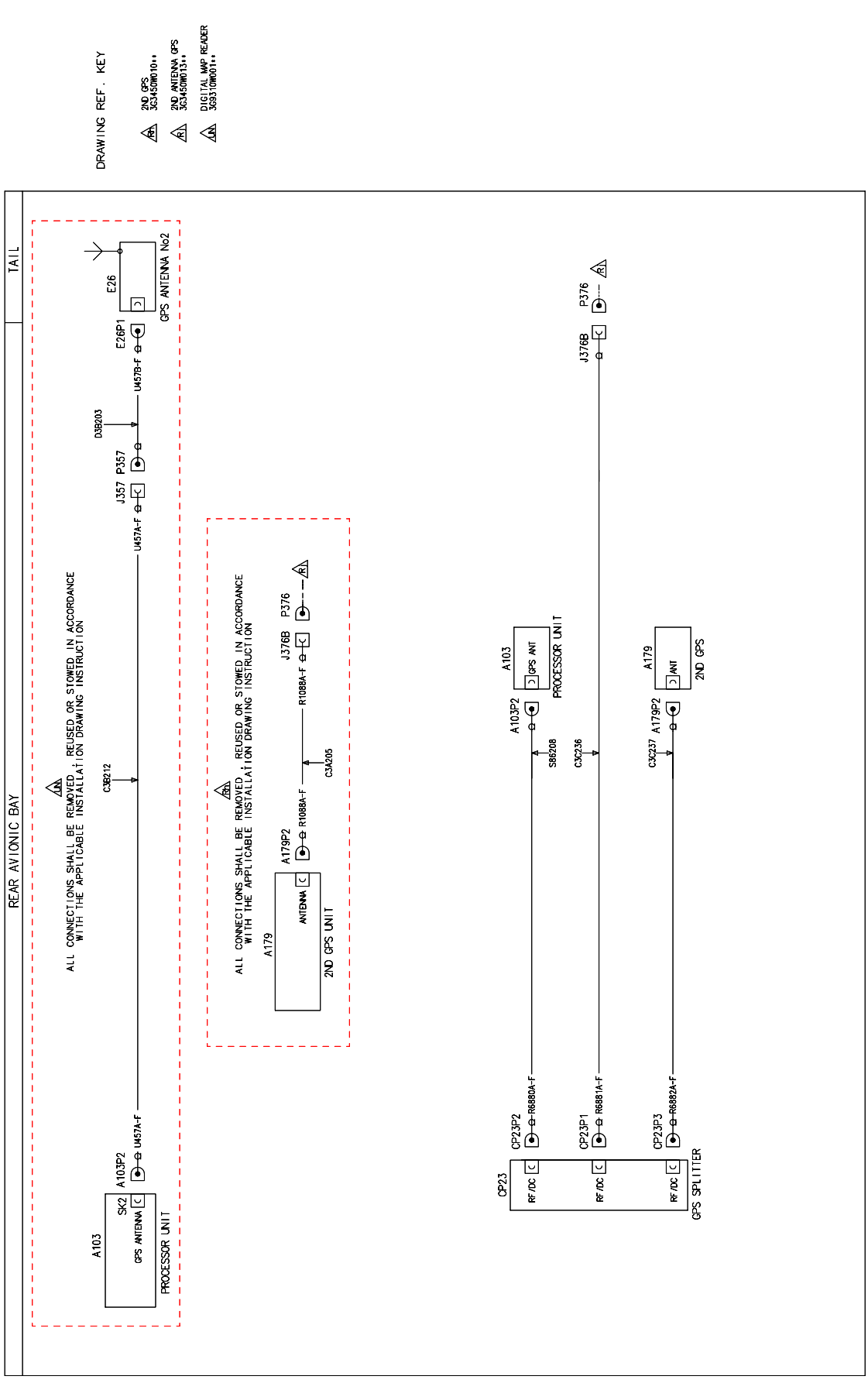

3G9306P01511
DMAP SKYFORCE AND GPS VARIANT EL.PROVISION
(SHEET 1)
DRAWING REF. KEY
2ND GPS 3G3450M010**
2ND ANTENNA GPS 3G3450M013**
DIGITAL MAP READER 3G9310M001**
TAIL
REAR AVIONIC BAY
ALL CONNECTIONS SHALL BE REMOVED, REUSED OR STOWED IN ACCORDANCE WITH THE APPLICABLE INSTALLATION DRAWING INSTRUCTION
A103
SK2
GPS ANTENNA
PROCESSOR UNIT
A103P2
U457A-F
C3B212
J357
P357
D3B203
U457B-F
E26P1
E26
GPS ANTENNA No2
ALL CONNECTIONS SHALL BE REMOVED, REUSED OR STOWED IN ACCORDANCE WITH THE APPLICABLE INSTALLATION DRAWING INSTRUCTION
A179
ANTENNA
2ND GPS UNIT
A179P2
R1088A-F
C3A205
J376B
P376
A103
GPS ANT
PROCESSOR UNIT
A103P2
S86208
C3C236
J376B
P376
A179
ANT
2ND GPS
C3C237
A179P2
CP23
RF/DC
CP23P2
R6880A-F
CP23P1
R6881A-F
CP23P3
R6882A-F
GPS SPLITTER
FUNCTIONAL NOTES
ALL CABLES ARE IN LOOM C3C235 UNLESS SPECIFIED
ALL CABLES ARE OF TYPE S33141 UNLESS SPECIFIED

**Figure 18**

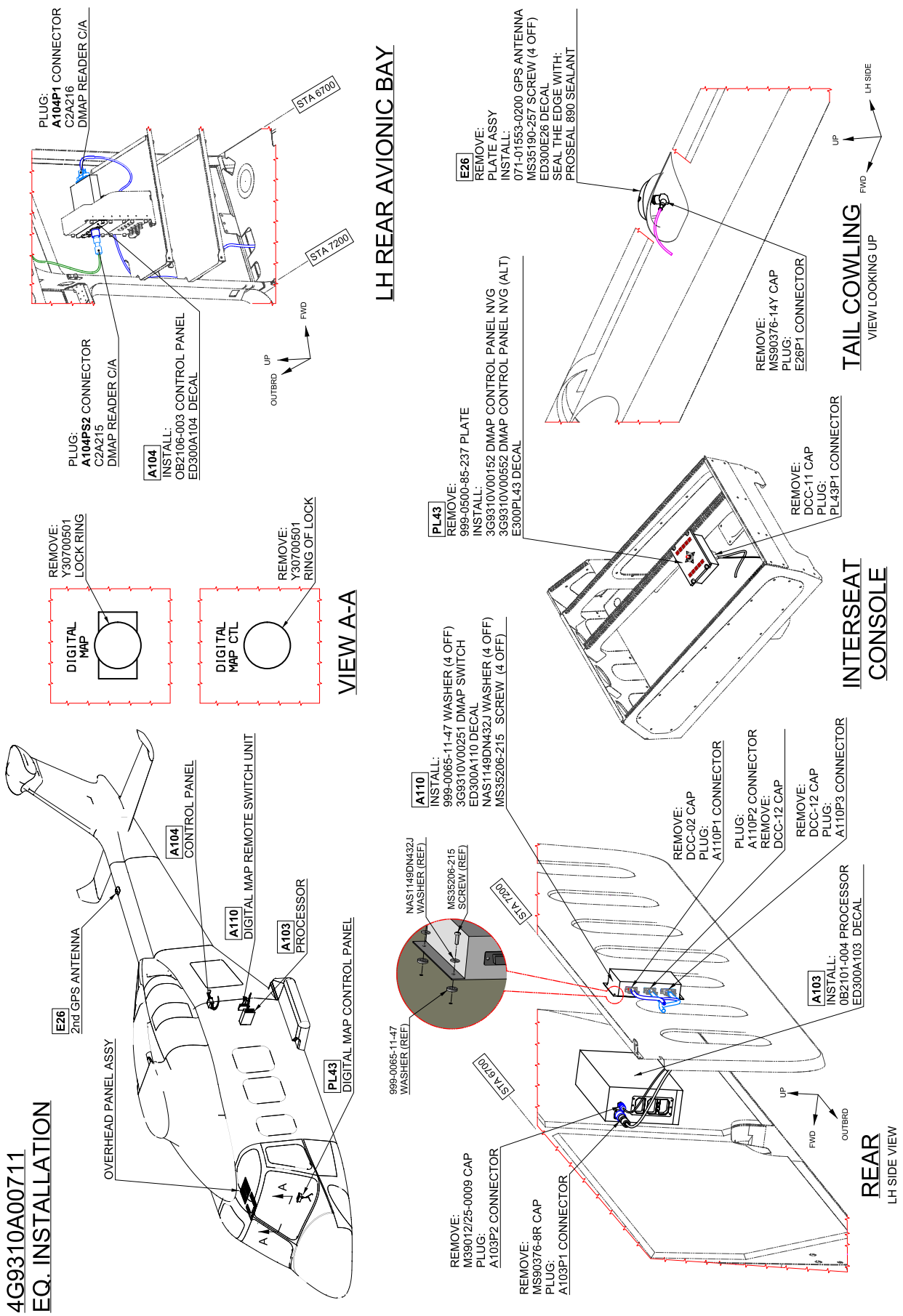

4G9310A00711
EQ. INSTALLATION
OVERHEAD PANEL ASSY
E26
2nd GPS ANTENNA
A104
CONTROL PANEL
A110
DIGITAL MAP REMOTE SWITCH UNIT
A103
PROCESSOR
PL43
DIGITAL MAP CONTROL PANEL
A
A
VIEW A-A
REMOVE:
Y30700501
LOCK RING
DIGITAL MAP
REMOVE:
Y30700501
RING OF LOCK
DIGITAL MAP CTL
LH REAR AVIONIC BAY
PLUG:
A104P1 CONNECTOR
C2A216
DMAP READER C/A
PLUG:
A104PS2 CONNECTOR
C2A215
DMAP READER C/A
A104
INSTALL:
OB2106-003 CONTROL PANEL
ED300A104 DECAL
STA 6700
STA 7200
UP
OUTBRD
FWD
PL43
REMOVE:
999-0500-85-237 PLATE
INSTALL:
3G9310V00152 DMAP CONTROL PANEL NVG
3G9310V00552 DMAP CONTROL PANEL NVG (ALT)
E300PL43 DECAL
A110
INSTALL:
999-0065-11-47 WASHER (4 OFF)
3G9310V00251 DMAP SWITCH
ED300A110 DECAL
NAS1149DN432J WASHER (4 OFF)
MS35206-215 SCREW (4 OFF)
NAS1149DN432J
WASHER (REF)
MS35206-215
SCREW (REF)
999-0065-11-47
WASHER (REF)
STA 7200
STA 6700
REMOVE:
M39012/25-0009 CAP
PLUG:
A103P2 CONNECTOR
REMOVE:
MS90376-8R CAP
PLUG:
A103P1 CONNECTOR
REMOVE:
DCC-02 CAP
PLUG:
A110P1 CONNECTOR
PLUG:
A110P2 CONNECTOR
REMOVE:
DCC-12 CAP
REMOVE:
DCC-12 CAP
PLUG:
A110P3 CONNECTOR
A103
INSTALL:
0B2101-004 PROCESSOR
ED300A103 DECAL
UP
FWD
OUTBRD
REAR
LH SIDE VIEW
REMOVE:
DCC-11 CAP
PLUG:
PL43P1 CONNECTOR
INTERSEAT
CONSOLE
E26
REMOVE:
PLATE ASSY
INSTALL:
071-01553-0200 GPS ANTENNA
MS35190-257 SCREW (4 OFF)
ED300E26 DECAL
SEAL THE EDGE WITH:
PROSEAL 890 SEALANT
REMOVE:
MS90376-14Y CAP
PLUG:
E26P1 CONNECTOR
TAIL COWLING
VIEW LOOKING UP
UP
FWD
LH SIDE

**Figure 19**

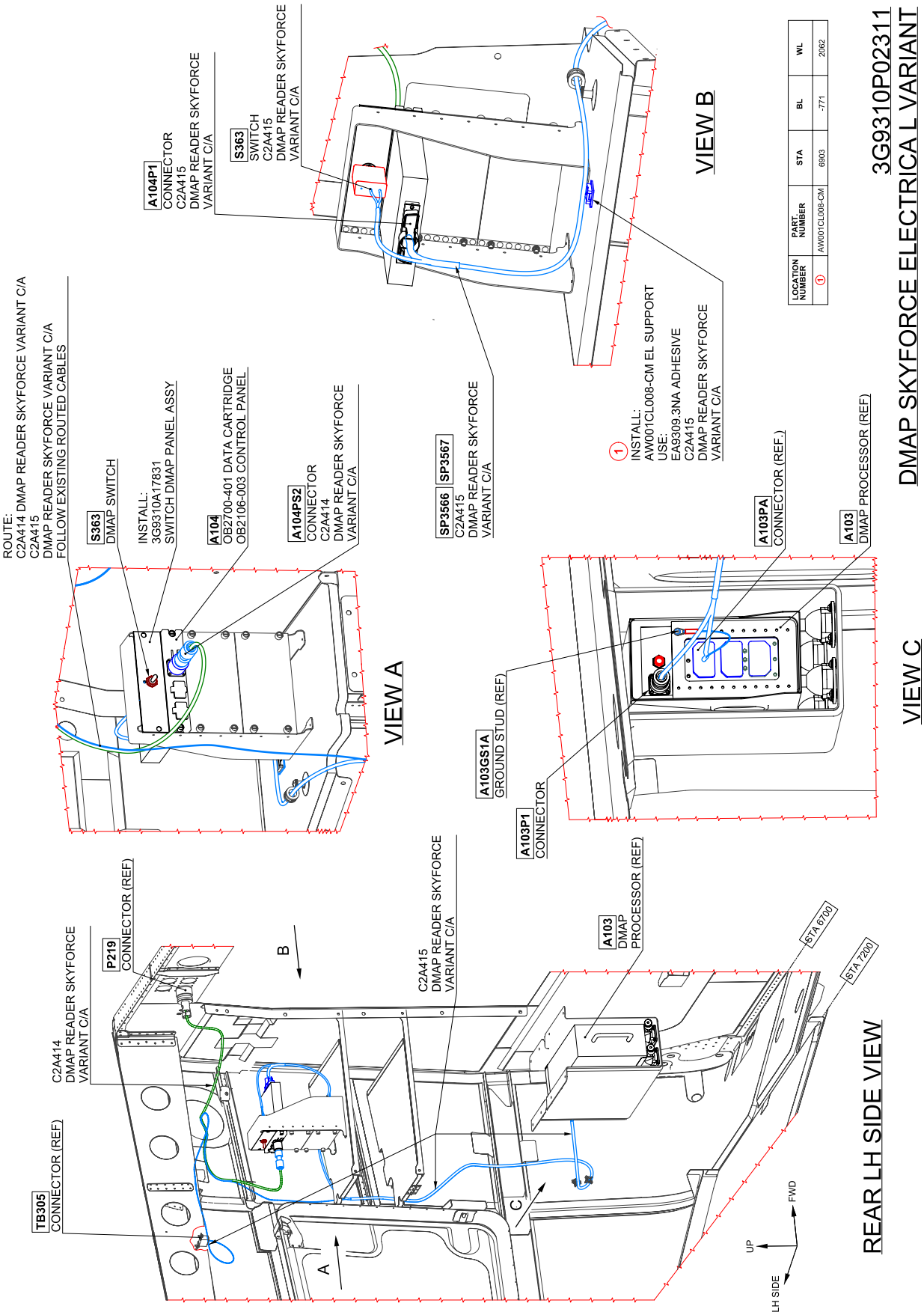

3G9310P02311
DMAP SKYFORCE ELECTRICA L VARIANT
REAR LH SIDE VIEW
VIEW A
VIEW B
VIEW C
ROUTE:
C2A414 DMAP READER SKYFORCE VARIANT C/A
C2A415
DMAP READER SKYFORCE VARIANT C/A
FOLLOW EXISTING ROUTED CABLES
S363
DMAP SWITCH
INSTALL:
3G9310A17831
SWITCH DMAP PANEL ASSY
A104
OB2700-401 DATA CARTRIDGE
OB2106-003 CONTROL PANEL
A104PS2
CONNECTOR
C2A414
DMAP READER SKYFORCE
VARIANT C/A
A104P1
CONNECTOR
C2A415
DMAP READER SKYFORCE
VARIANT C/A
S363
SWITCH
C2A415
DMAP READER SKYFORCE
VARIANT C/A
SP3566 SP3567
C2A415
DMAP READER SKYFORCE
VARIANT C/A
1
INSTALL:
AW001CL008-CM EL SUPPORT
USE:
EA9309.3NA ADHESIVE
C2A415
DMAP READER SKYFORCE
VARIANT C/A
LOCATION NUMBER
PART NUMBER
STA
BL
WL
1
AW001CL008-CM
6903
-771
2062
A103PA
CONNECTOR (REF.)
A103
DMAP PROCESSOR (REF)
A103G1A
GROUND STUD (REF)
A103P1
CONNECTOR
TB305
CONNECTOR (REF)
C2A414
DMAP READER SKYFORCE
VARIANT C/A
P219
CONNECTOR (REF)
C2A415
DMAP READER SKYFORCE
VARIANT C/A
A103
DMAP
PROCESSOR (REF)
STA 6700
STA 7200
A
B
C
UP
FWD
LH SIDE

**Figure 20**

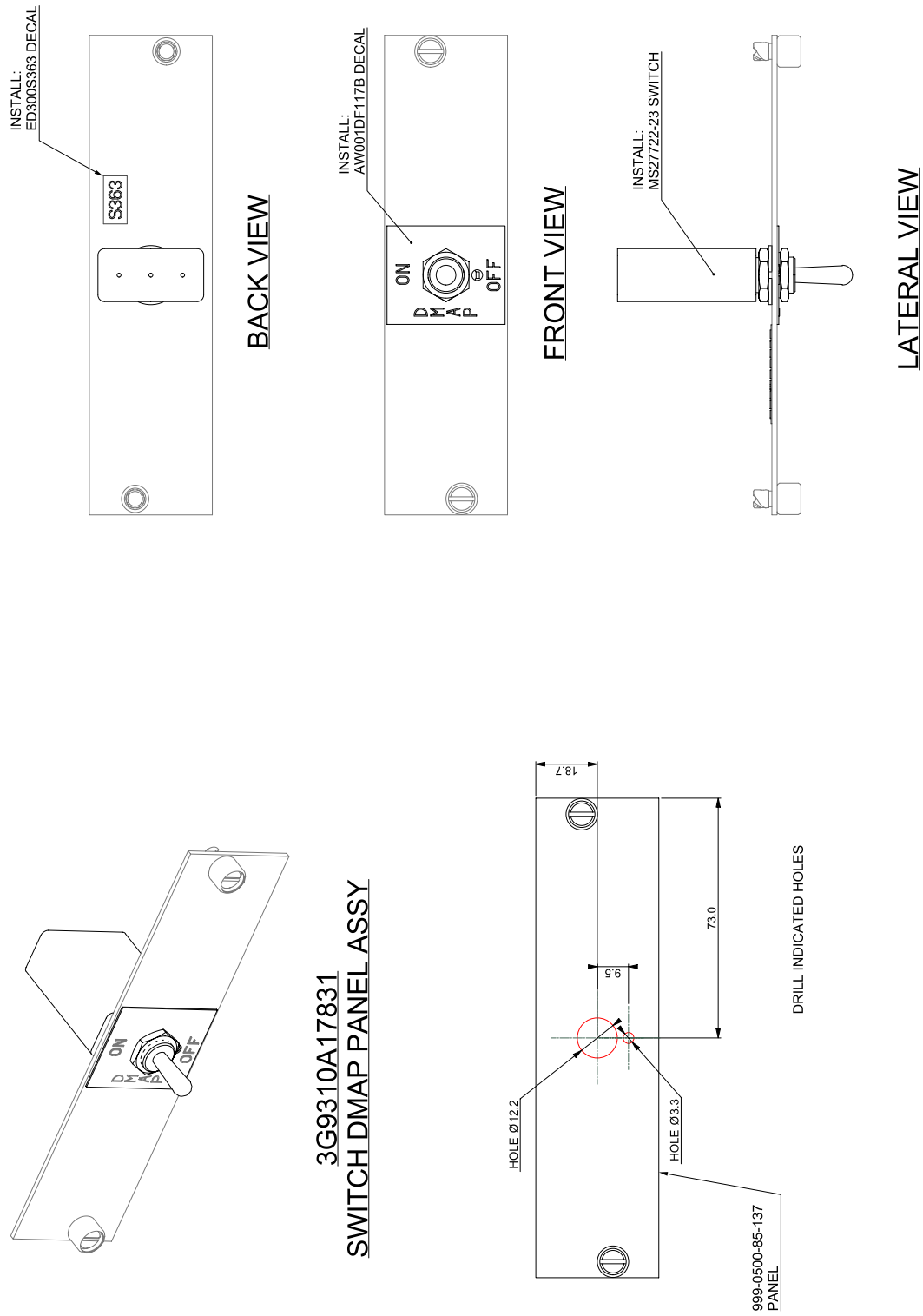

INSTALL:
ED300S363 DECAL
S363
BACK VIEW
INSTALL:
AW001DF117B DECAL
ON
DMAP
OFF
FRONT VIEW
INSTALL:
MS27722-23 SWITCH
LATERAL VIEW
3G9310A17831
SWITCH DMAP PANEL ASSY
18.7
73.0
9.5
HOLE Ø12.2
HOLE Ø3.3
DRILL INDICATED HOLES
999-0500-85-137
PANEL

**Figure 21**

3G9310P02311

DMAP READER SKYFORCE VARIANT

(SHEET 1)

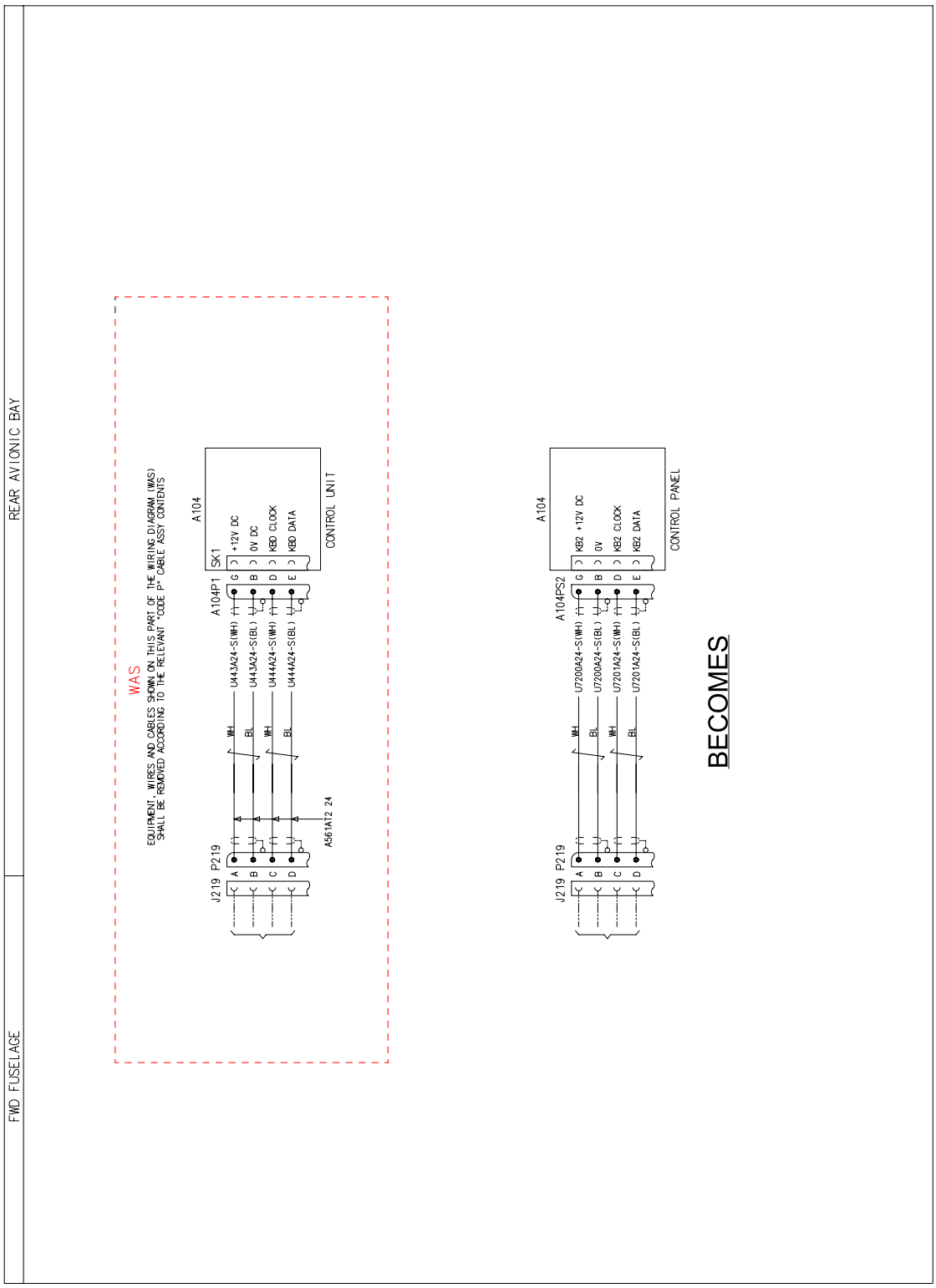
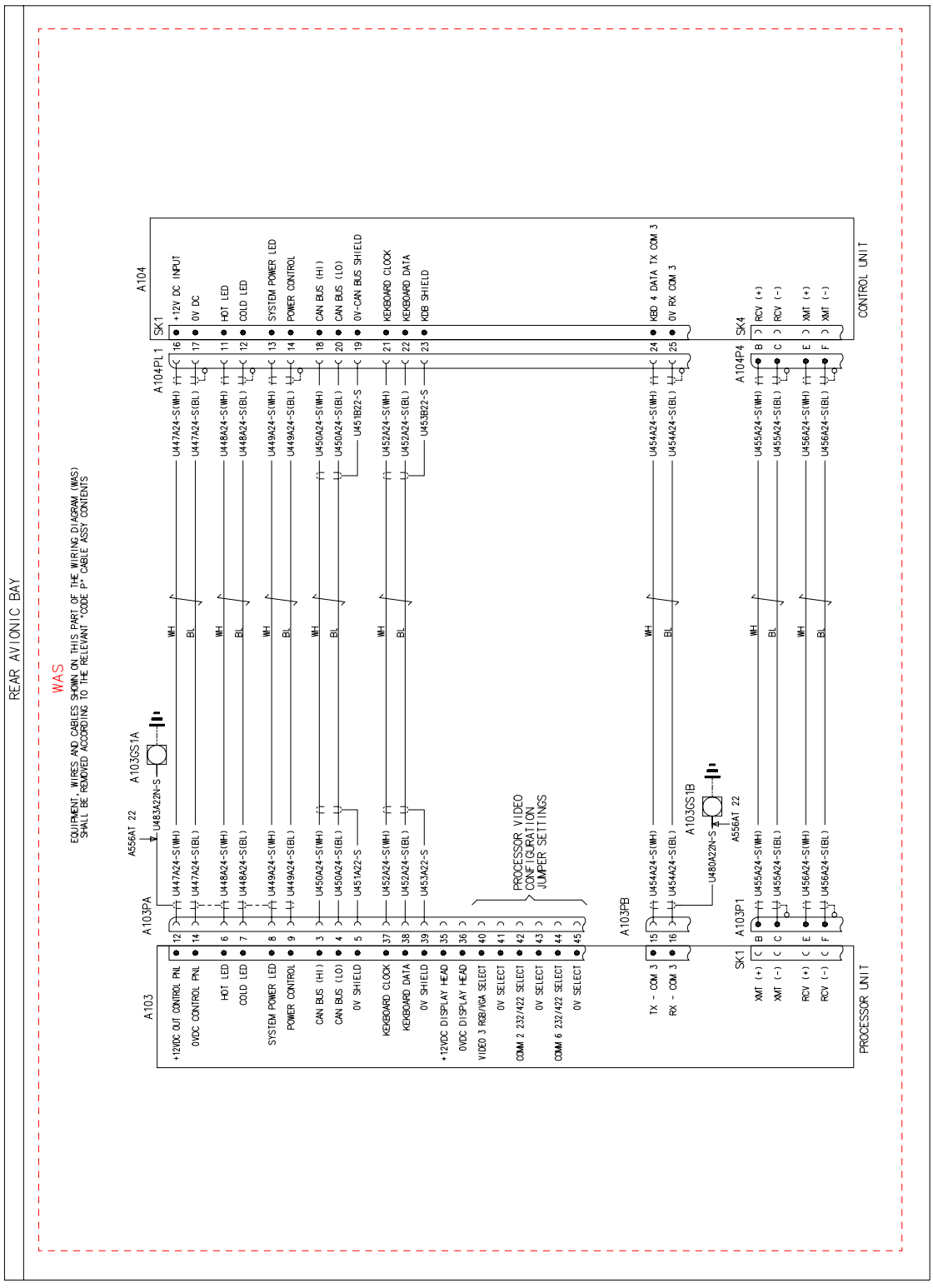



**Figure 22**

3G9310P02311

DMAP READER SKYFORCE VARIANT

(SHEET 2)




FUNCTIONAL NOTES

ALL CABLES ARE IN LOOM C2P6 UNLESS SPECIFIED.
ALL CABLES ARE OF TYPE A561AT2 24 UNLESS SPECIFIED

**Figure 23**

3G9310P02311

DMAP READER SKYFORCE VARIANT (SHEET 3)

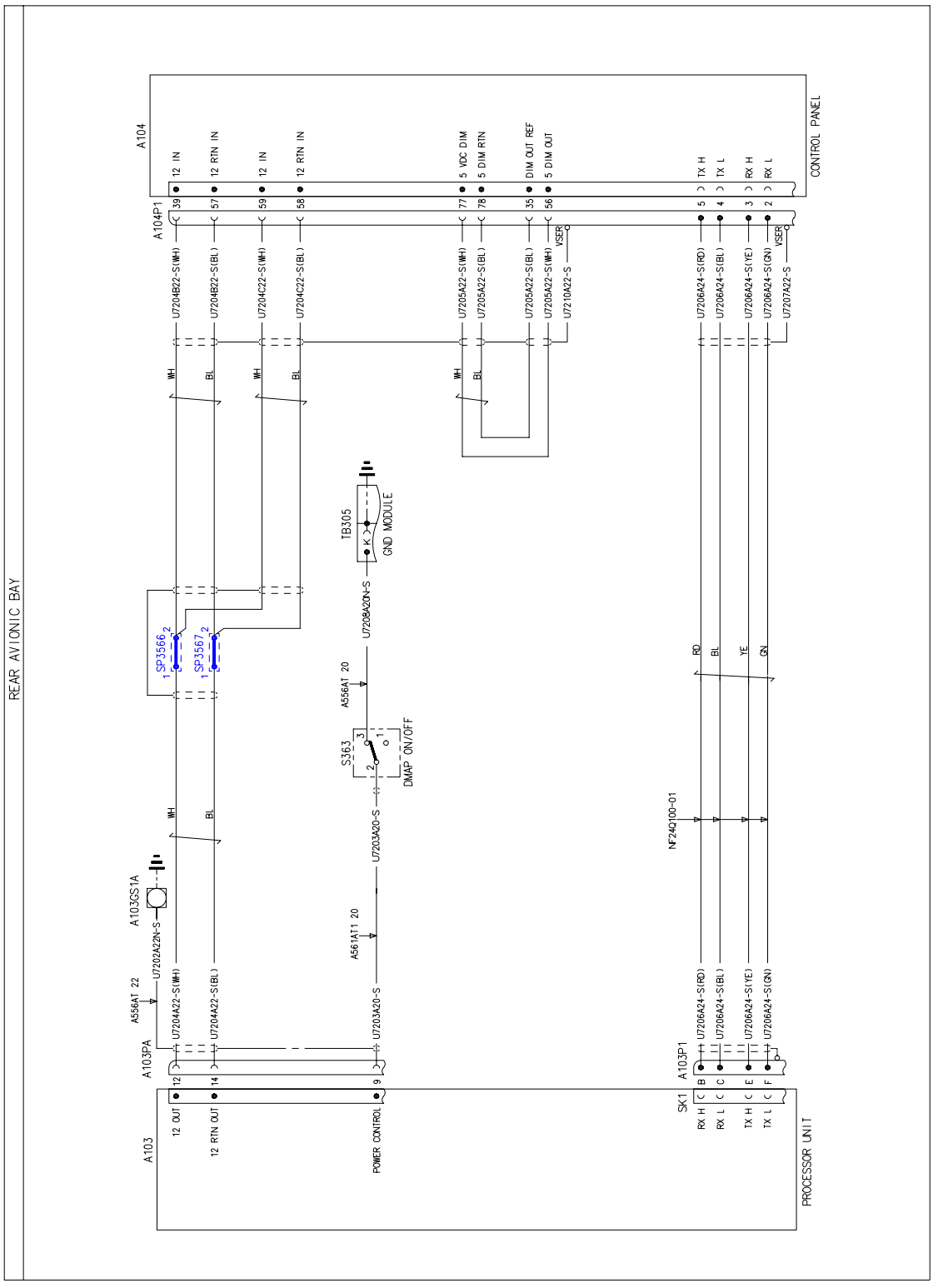



**Figure 24**

LEONARDO
HELICOPTERS

AgustaWestland Products

| Please send to the following address:<br><br>**LEONARDO S.p.A.**<br>**CUSTOMER SUPPORT & SERVICES - ITALY**<br><br>**PRODUCT SUPPORT ENGINEERING & LICENSES DEPT.**<br>Via Giovanni Agusta, 520<br>21017 Cascina Costa di Samarate (VA) - ITALY<br>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. |
|---|---|---|---|---|
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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.