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AgustaWestland Products

SERVICE BULLETIN

N° 139-548

DATE: September 19, 2019

REV. : A - February 24, 2021

TITLE

ATA 30 – LH VERNIER ICE DETECTOR WITH LIGHT

REVISION LOG

The Rev. A of this SB supersedes the first issue dated September 19, 2019. Helicopters that have complied with previous issue of this SB do not need any additional action.

Rev. A is issued in order to:

- include production P/N 3G9A01A45801A1R and P/N 3G9A01A45801A10R as alternative to P/N 3G9A01A45801.
- Replace logistic P/N 139-548L1 and 139-548L2 respectively with P/N 139-548L4 and 139-548L5;

Revision bars identify changes.

1. PLANNING INFORMATION

A. EFFECTIVITY

Part I: All AW139 helicopters from S/N 31201 to S/N 31398 and from S/N 41201 to S/N 41293.

Part II: All AW139 helicopters from S/N 31400 to S/N 31699 and from S/N 41300 to S/N 41499.

Part III: All AW139 helicopters from S/N 31201 to S/N 31398 and from S/N 41201 to S/N 41293. All AW139 helicopters from S/N 31400 to S/N 31699 and from S/N 41300 to S/N 41499.

B. COMPLIANCE

At Customer's option.

C. CONCURRENT REQUIREMENTS

N.A.

D. REASON

This Service Bulletin is issued to provide all necessary instructions to perform the installation of kit Vernier ice detector LH with light P/N 4G3080F00311.

E. DESCRIPTION

The primary components of the kit Vernier ice detector LH are:

- The ice accretion meter;
- The lightning protection box;
- The ice accretion meter support;
- The VAM ON/OFF switch;
- The VAM circuit breaker.

The ice accretion meter includes two blades that have a graduated scale that shows millimeters. The blades are installed parallel to the direction of flight.

When an ice condition occurs, the ice collects on the blades of the ice accretion meter. The graduated scale on the blades of the ice accretion meter shows the quantity of ice on the helicopter structure.

The VAM ON/OFF switch controls the lighting of the ice accretion meter. When the switch is set to ON the light of the ice accretion meter comes on. When the switch is set to OFF the light of the ice accretion meter goes off.

The lightning protection box gives protection in case of lightning strike on the ice accretion meter.

Part I provides all necessary instructions on how to perform complete provision P/N 3G3080A01311, Part II provides all necessary instructions on how to perform complete provision P/N 3G3080A01312 and Part III provides all necessary instructions on how to perform the installation of the removable parts P/N 3G3080A01211.

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 MMH are deemed necessary:

Part I: approximately eighty (80) MMH;

Part II: approximately eighty (80) MMH;

Part III: approximately three (3) MMH.

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

H. WEIGHT AND BALANCE

PART I

WEIGHT (Kg)	1.938	
	ARM (mm)	**MOMENT (Kgmm)**
LONGITUDINAL BALANCE	3229.0	6257.8
LATERAL BALANCE	-472.9	-916.5

PART II

WEIGHT (Kg)		2.028
	ARM (mm)	**MOMENT (Kgmm)**
LONGITUDINAL BALANCE	3213.0	6516.0
LATERAL BALANCE	-479.4	-972.2

PART III

WEIGHT (Kg)		1.210
	ARM (mm)	**MOMENT (Kgmm)**
LONGITUDINAL BALANCE	2010.0	2432.1
LATERAL BALANCE	-1064.0	-1287.4

I. REFERENCES

1) PUBLICATIONS

DATA MODULE		DESCRIPTION	PART
DM01	39-A-00-20-00-00A-120A-A	Helicopter on ground for a safe maintenance	I, II, III
DM02	39-A-06-41-00-00A-010A-A	Access doors and panels - General data procedure	I, II, III
DM03	39-A-30-84-01-00A-720A-K	Ice accretion meter - Install procedure	III
DM04	39-A-24-91-04-00A-920A-K	Integrally lighted panel - Replacement	I, II
DM05	39-A-30-84-02-00A-720A-K	Lightning protection box - Install procedure	I, II
DM06	39-A-30-84-00-00A-320A-K	Ice accretion meter installation - operation test	III
DM07	39-A-30-84-03-00A-720A-K	Support - Install procedure	III

2) ACRONYMS

AMDI	Aircraft Material Data Information
AMP	Aircraft Maintenance Publication
CB	Circuit Breaker
DM	Data Module
DOA	Design Organization Approval
EASA	European Aviation Safety Agency
FCC	Flight Control Computer
ITEP	Illustrated Tools and Equipment Publication
LH	Left Hand
LHD	Leonardo Helicopters Division

MMH	Maintenance-Man-Hours
RH	Right Hand
SB	Service Bulletin

3) ANNEX

N.A.

J. PUBLICATIONS AFFECTED

N.A.

K. SOFTWARE ACCOMPLISHMENT SUMMARY

N.A.

2. MATERIAL INFORMATION

A. REQUIRED MATERIALS

1) PARTS

PART I

#	P/N	ALTERNATIVE P/N	DESCRIPTION	Q.TY	LVL NOTE	LOG P/N
1	**4G3080F00311**		**KIT ICE DETECTOR LH SIDE WITH LIGHT**	**REF**	**.**	**-**
2	**3G3080A01311**		**VERNIER ICE DETECTOR LH SIDE COMPLETE PROVISION**	**REF**	**..**	**-**
3	**3G3080A01111**		**VERNIER ICE DETECTOR LH SIDE ELECT INSTL**	**REF**	**...**	**-**
4	3G9A01A45801	3G9A01A45801A1R	Vernier ice det LH side C/A (A1A458)	1	....	139-548L4
5	4G3060V00552		Tail lightning protection box	1	....	139-548L4
6	A10099		Clamp	2	....	139-548L4
7	A363A01		Stud	3	....	139-548L4
8	A388A3E08C		Standoff	1	....	139-548L4
9	A388A3E08C75		Standoff	1	....	139-548L4
10	A537A01AA01-0600		Cable lightning conductor assy	1	....	139-548L4
11	A575A-A108	AW002XM108A	Tubular braid	3 m	....	139-548L4
12	A601A230	A601A2B30	Earthing cable	1	....	139-548L4
13	AW001CL001-N6		Electrical support	1	....	139-548L4
14	ED300GS1901		Decal	1	....	139-548L4
15	M23053/5-110-0		Insulation sleeving	3 m	....	139-548L4
16	M85049/93-06		Adapter	2	....	139-548L4
17	MS21919WDG3	AS21919WDG03	Clamp	2	....	139-548L4
18	MS21919WDG6	AS21919WDG06	Clamp	3	....	139-548L4
19	MS25036-108		Terminal lug	2	....	139-548L4
20	NAS1149D0332J		Washer	10	....	139-548L4
21	NAS1190E3P5AK		Screw	2	....	139-548L4
22	NAS1801-3-12		Screw	1	....	139-548L4
23	NAS1801-3-6		Screw	1	....	139-548L4
24	NAS1801-3-8		Screw	2	....	139-548L4
25	NAS1802-3-10		Screw	4	....	139-548L4
26	NAS43DD3-16N		Spacer	1	....	139-548L4
27	PAN6480K04	VG95343T05D004A	Sleeve	3 m	....	139-548L4
28	ED300A422		Decal	1	....	139-548L4
29	ED300GS155		Decal	1	....	139-548L4
30	ED300GS157		Decal	1	....	139-548L4
31	A414A02V209E1		Support	1		139-548L4
32	**3G5306P37311**		**RETROMOD FOR VERNIER ICE DETECTOR**	**REF**	**...**	**-**
33	3G5316A70131		Bracket assy	1	....	139-548L4
34	3G5320A13351		LH cover	1	....	139-548L4
35	MS20426AD3-7		Rivet	0.1 kg	....	139-548L4
36	MS21069L3		Nut	1	....	139-548L4
37	MS27039-1-05		Screw	6	....	139-548L4
38	NAS1149D0316K		Washer	2	....	139-548L4
39	NAS1149D0332K		Washer	4	....	139-548L4

#	P/N	ALTERNATIVE P/N	DESCRIPTION	Q.TY	LVL	NOTE	LOG P/N
40	NAS1832-3-3		Insert	4	....		139-548L4
41	NAS1832C3-4M		Insert	3	....		139-548L4
42	3G2490LXXXXX		Integrally-lighted AUX C/B panel	1	.	(1)	-
43	A556A-T20		Wire	2 m	.		139-548L4
44	M39029/1-102		Electrical contact	2	.		139-548L4
45	M39029/56-351		Electrical contact	1	.		139-548L4
46	MS25036-103		Terminal lug	1	.		139-548L4
47	252-8554-000		Ferrule	2	.		139-548L4
48	ED300CB390		Decal	1	.		139-548L4
49	MS27723-23		Switch	1	.		139-548L4
50	MS3320-3		Circuit breaker	1	.		139-548L4
51	A523A-A05		Electrical contact	1	.		139-548L4
52	M39029/58-365		Electrical contact	4	.		139-548L4
53	A523A-A07		Electrical contact	1	.		139-548L4
54	M39029/56-353		Electrical contact	1	.		139-548L4
55	M39029/58-363		Electrical contact	1	.		139-548L4

PART II

#	P/N	ALTERNATIVE P/N	DESCRIPTION	Q.TY	LVL	NOTE	LOG P/N
56	**4G3080F00311**		**KIT ICE DETECTOR LH SIDE WITH LIGHT**	**REF**	**.**		**-**
57	**3G3080A01312**		**VERNIER ICE DETECTOR LH SIDE COMPLETE PROVISION**	**REF**	**..**		**-**
58	**3G3080A01112**		**VERNIER ICE DETECTOR LH SIDE ELECT INSTL**	**REF**	**...**		**-**
59	3G9A01A45801	3G9A01A45801A10R	Vernier ice det LH side C/A (A1A458)	1	....		139-548L5
60	4G3060V00552		Tail lightning protection box	1	....		139-548L5
61	A10099		Clamp	2	....		139-548L5
62	A236A02AB		Nonmetallic channel	1.2 m	....		139-548L5
63	A363A01		Stud	3	....		139-548L5
64	A388A3E08C		Standoff	1	....		139-548L5
65	A388A3E08C75		Standoff	1	....		139-548L5
66	A537A01AA01-0600		Cable lightning conductor assy	1	....		139-548L5
67	A575A-A108	AW002XM108A	Tubular braid	3 m	....		139-548L5
68	A582A05	EN6049-006-05-5	Self-wrap braid	3 m	....		139-548L5
69	A601A3B40		Earthing cable	1	....		139-548L5
70	AW001CB03H		Clamp	2	....		139-548L5
71	AW001CB06H		Clamp	2	....		139-548L5
72	AW001CB10H		Clamp	1	....		139-548L5
73	AW001CL001-N6		Electrical support	1	....		139-548L5
74	ED300GS155		Decal	1	....		139-548L5
75	ED300GS157		Decal	1	....		139-548L5
76	ED300GS1901		Decal	1	....		139-548L5
77	M23053/5-110-0		Insulation sleeving	3 m	....		139-548L5
78	M85049/93-06		Adapter	2	....		139-548L5
79	MS25036-108		Terminal lug	2	....		139-548L5
80	NAS1149D0332J		Washer	9	....		139-548L5
81	NAS1190E3P6AK		Screw	1	....		139-548L5
82	NAS1190E3P7AK		Screw	1	....		139-548L5
83	NAS1802-3-10		Screw	4	....		139-548L5
84	NAS1802-3-13		Screw	1	....		139-548L5
85	NAS1802-3-6		Screw	1	....		139-548L5
86	NAS1802-3-8		Screw	2	....		139-548L5

#	P/N	ALTERNATIVE P/N	DESCRIPTION	Q.TY	LVL	NOTE	LOG P/N
87	NAS43DD3-16N		Spacer	1	….		139-548L5
88	PAN6480K04	VG95343T05D004A	Sleeve	3 m	….		139-548L5
89	ED300A422		Decal	1	….		139-548L5
90	**3G5306P37311**		**RETROMOD FOR VERNIER ICE DETECTOR**	**REF**	**…**		**-**
91	3G5316A70131		Bracket assy	1	….		139-548L5
92	3G5320A13351		LH cover	1	….		139-548L5
93	MS20426AD3-7		Rivet	0.1 kg	….		139-548L5
94	MS21069L3		Nut	1	….		139-548L5
95	MS27039-1-05		Screw	6	….		139-548L5
96	NAS1149D0316K		Washer	2	….		139-548L5
97	NAS1149D0332K		Washer	4	….		139-548L5
98	NAS1832-3-3		Insert	4	….		139-548L5
99	NAS1832C3-4M		Insert	3	….		139-548L5
100	3G2490LXXXXX		Integrally-lighted AUX C/B panel	1	.	(1)	-
101	A556A-T20		Wire	1 m	.		139-548L5
102	M39029/1-102		Electrical contact	2	.		139-548L5
103	M39029/56-351		Electrical contact	1	.		139-548L5
104	MS25036-103		Terminal lug	1	.		139-548L5
105	252-8554-000		Ferrule	2	.		139-548L5
106	ED300CB390		Decal	1	.		139-548L5
107	MS27723-23		Switch	1	.		139-548L5
108	MS3320-3		Circuit breaker	1	.		139-548L5
109	A523A-A05		Electrical contact	1	.		139-548L5
110	M39029/58-365		Electrical contact	4	.		139-548L5
111	A523A-A07		Electrical contact	1	.		139-548L5
112	M39029/56-353		Electrical contact	1	.		139-548L5
113	M39029/58-363		Electrical contact	1	.		139-548L5

PART III

#	P/N	ALTERNATIVE P/N	DESCRIPTION	Q.TY	LVL	NOTE	LOG P/N
114	**4G3080F00311**		**KIT ICE DETECTOR LH SIDE WITH LIGHT**	**REF**	**.**		**-**
115	**3G3080A01211**		**VERNIER ICE DETECTOR LH SIDE REMOVABLE PARTS**	**REF**	**..**		**-**
116	3G5320A13432		Ice accretion meter LH support assy	1	…		139-548L3
117	ATL7740-002		Unit Vernier LH	1	…		139-548L3
118	ED300A399		Decal	1	…		139-548L3
119	MS27039C1-14		Screw	4	…		139-548L3
120	NAS1149C0332R		Washer	4	…		139-548L3

2) CONSUMABLES

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

#	Spec./LHD code number	DESCRIPTION	Q.TY	NOTE	PART
121	MMM-A-132 Type 1, Class 3 Code No. 900004603 199-05-002 Type II, Class 2	Adhesive EA934NA (C057)	AR	(2)	I, II
122	AMS-S-8802 Type II, Class B-2	Sealant Proseal 890 (C004) or MC780	AR	(2)	I, II

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
139-548L4	1		Part I
3G2490LXXXXX	1	(1)	
139-548L5	1		Part II
3G2490LXXXXX	1	(1)	
139-548L3	1		Part III

NOTES

(1) 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.

(2) Item to be procured as local supply.

B. SPECIAL TOOLS

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

C. INDUSTRY SUPPORT INFORMATION

Customization

3. ACCOMPLISHMENT INSTRUCTIONS

GENERAL NOTES

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

b) Exercise extreme care during drilling operations to prevent instruments, cables and hoses damage.

c) 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.

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

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

f) Let the adhesive cure at room temperature for at least 24 hours, unless otherwise specified.

g) All lengths are in mm.

PART I

1. In accordance with AMP DM 39-A-00-20-00-00A-120A-A prepare the helicopter on ground for a safe maintenance. Disconnect the battery, all electrical power sources and/or the external power supply.
2. In accordance with AMP DM 39-A-06-41-00-00A-010A-A and with reference to Figure 1 and 2, gain access to the area affected by the installation and perform retromod for Vernier ice detector P/N 3G5306P37311 as described in the following procedure:
   - 2.1 With reference to Figure 1 Detail C and Figure 2 Section F-F, perform the indicated cut-out on the shell assy.
   - 2.2 With reference to Figure 2 View D, remove the material as indicated from the shell assy.
   - 2.3 With reference to Figure 2 Section F-F, restore the surface finish by means of adhesive EA934NA.
   - 2.4 With reference to Figure 1 Detail C, temporarily locate the LH cover

P/N 3G5320A13351 on the shell assy and countermark n°2 insert holes in the indicated positions.

2.5 With reference to Figure 1 Section E-E, drill n°2 insert holes Ø14.25÷14.38 thru the shell assy structure in the previously countermarked positions.

2.6 With reference to Figure 1 Section E-E, install n°2 inserts P/N NAS1832C3-4M by means of adhesive EA934NA.

2.7 With reference to Figure 1 Detail C, enlarge existing holes on the LH cover P/N 3G5320A13351 until Ø4.90÷5.03 to match with insert positions.

2.8 With reference to Figure 2 View D, drill n°1 insert hole Ø14.25÷14.38 thru the structure in the indicated position.

2.9 With reference to Figure 2 View D, install n°1 insert P/N NAS1832C3-4M by means of adhesive EA934NA.

NOTE

Perform following steps 2.10 and 2.11 only if Part III will not be applied immediately after Part I.

2.10 With reference to Figure 1 Detail C and Section E-E, install the LH cover P/N 3G5320A13351 by means of n°2 screws P/N MS27039-1-05 and n°2 washers P/N NAS1149D0316K.

2.11 With reference to Figure 1 Section E-E, seal all around the LH cover P/N 3G5320A13351 by means of proseal 890.

2.12 With reference to Figure 2 View G, drill n°1 hole Ø5.15÷5.28 thru the structure in the indicated position.

2.13 With reference to Figure 2 View G, install n°1 anchor nut P/N MS21069L3 by means of n°2 rivets P/N MS20426AD3-7.

2.14 With reference to Figure 2 View H, Detail J and Section K-K, temporarily locate the bracket P/N 3G5316A70131 in the indicated position, countermark and drill n°4 insert holes Ø14.25÷14.38.

2.15 With reference to figure 2 Section K-K, install n°4 inserts P/N NAS1832-3-3 by means of adhesive EA934NA.

2.16 With reference to figure 2 View H, install the bracket P/N 3G5316A70131 on the structure by means of n°4 screws P/N MS27039-1-05 and n°4 washers P/N NAS1149D0332K.

3. In accordance with AMP DM 39-A-06-41-00-00A-010A-A and with reference to Figure 3 thru 5, gain access to the area affected by the installation and perform Vernier ice detector LH electrical installation P/N 3G3080A01111 as described in the following procedure:

3.1 With reference to Figure 4, Figure 5 and table on Figure 10, route the Vernier ice

det LH C/A P/N 3G9A01A45801 (A1A458) and the cable lightning conductor assy P/N A537A01AA01-0600; secure the cables by means of existing hardware and lacing cords.

3.2 With reference to Figure 4, install the electrical support P/N AW001CL001-N6 for the C/A A1A458 in position 1.

3.3 With reference to Figure 5 View D, install n°2 supports P/N A363A01 (GS155 and GS157) in positions 6 and 7; apply decals P/N ED300GS155 and P/N ED300GS157.

3.4 With reference to Figure 4, install in position 2 the clamp P/N MS21919WDG3 by means of the stud P/N A388A3E08C, the washer P/N NAS1149D0332J and the screw P/N NAS1190E3P5AK.

3.5 With reference to Figure 4 View A, install the clamp P/N MS21919WDG3 on the C/A A1A458 by means of the standoff P/N A388A3E08C75, the washer P/N NAS1149D0332J and the screw P/N NAS1190E3P5AK.

3.6 With reference to Figure 4 Detail B, install the support P/N A414A02V209E1 in the indicated position by means of existing hardware and relocate the connectors HP17J1 and HP17P1.

3.7 With reference to Figure 4 View A and in accordance with AMP DM 39-A-30-84-02-00A-720A-K, install the tail lightning protector box P/N 4G3060V00552 on the bracket P/N 3G5316A70131 by means of n°4 screws P/N NAS1802-3-10 and n°4 washers P/N NAS1149D0332J.

3.8 With reference to Figure 4 View A, if necessary apply decal P/N ED300A422.

3.9 With reference to Figure 4 View A, install the stud P/N A363A01 (GS1901) in the indicated position and apply decal P/N ED300GS1901 in an adjacent area.

3.10 With reference to Figure 4 View A, install the bonding cable P/N A601A230.

3.11 With reference to Figure 5 View D and Detail E, install n°2 adapters P/N M85049/93-06.

3.12 With reference to Figure 5 View D and Detail E, wrap an adequate length of tubular braid P/N A575A-A108 all around the cable as shown.

3.13 With reference to Figure 5 View D and Detail E, install: n°2 clamps P/N A10099, n°2 pieces of adequate length of flat metal braid and n°2 terminal lugs P/N MS25036-108.

3.14 With reference to Figure 5 View D and Detail E, wrap an adequate length of insulation sleeving P/N M23053/5-110-0 all around the cable as shown and fix it using lacing cords.

3.15 With reference to Figure 5 View D, remove the existing screw and install the clamp P/N MS21919WDG6 on the cable lightning conductor assy

P/N A537A01AA01-0600 by means of the washer P/N NAS1149D0332J and the screw P/N NAS1801-3-8.

3.16 With reference to Figure 5 View D, remove the existing screw and install the clamp P/N MS21919WDG6 on the cable lightning conductor assy P/N A537A01AA01-0600 by means of the washer P/N NAS1149D0332J, the spacer P/N NAS43DD3-16N and the screw P/N NAS1801-3-12.

3.17 With reference to Figure 5 View D, install the terminal lug of the cable lightning conductor assy P/N A537A01AA01-0600 by means of the washer P/N NAS1149D0332J and the screw P/N NAS1801-3-8.

3.18 With reference to Figure 5 View D, install the terminal lug of the cable lightning conductor assy P/N A537A01AA01-0600 on the ground stud GS157.

3.19 With reference to Figure 5 View C, install the clamp P/N MS21919WDG6 on the cable by means of the screw P/N NAS1801-3-6.

3.20 With reference to Figure 5 View C, protect the cables with tubing heatshrinkable P/N PAN6480K04.

3.21 With reference to Figure 5 View C, install the terminal lugs of the cable lightning conductor assy P/N A537A01AA01-0600 by means of the existing screw.

3.22 With reference to Figure 4, 5 and Figure 9 wiring diagram, perform the electrical connection of C/A A1A458 to the connector PL1P9, to TRLB A422 and to TB1055..

4. Modify the auxiliary CB panel on the overhead panel, as described in the following procedure:

NOTE

Customer must contact Leonardo Helicopters PSE (engineering.support.lhd@leonardocompany.com) at least 3 months in advance of embodiment date of this Service Bulletin in order to collect the exact W/D applicable to helicopter configuration.

4.1 In accordance with AMP DM 39-A-24-91-04-00A-920A-K, remove the existing integrally-lighted panel from the Overhead AUX CB panel and install the new integrally-lighted panel P/N 3G2490LXXXXX.

4.2 With reference to Figure 8 View A, install circuit breaker P/N MS3320-3 CB390 (VAM) in the indicated position on the new integrally-lighted panel 3G2490LXXXXX; apply the decal P/N ED300CB390 in an adjacent area.

4.3 Perform the electrical connection between pin 2 of CB390 and pin 2 of switch S275 by means of A556A-T20 wire. Use terminal lug P/N MS25036-103 for pin 2 of CB390 and electrical contact P/N M39029/1-102 with ferrule

P/N 252-8554-000 for pin 2 of S275.

4.4 Perform the electrical connection between pin 3 of switch S275 and pin B of connector PL1J9 by means of A556A-T20 wire. Use electrical contact P/N M39029/1-102 with ferrule P/N 252-8554-000 for pin 3 of S275 and electrical contact P/N M39029/56-351 for pin B of PL1J9.

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

5. In accordance with weight and balance changes, update the Chart A (see Rotorcraft Flight Manual, Part II, section 6).
6. Return the helicopter to flight configuration and record for compliance with Part I of this Service Bulletin on the helicopter logbook.
7. Send the attached compliance form to the following mail box:

engineering.support.lhd@leonardocompany.com

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

PART II

1. In accordance with AMP DM 39-A-00-20-00-00A-120A-A prepare the helicopter on ground for a safe maintenance. Disconnect the battery, all electrical power sources and/or the external power supply.
2. In accordance with AMP DM 39-A-06-41-00-00A-010A-A and with reference to Figure 1 and 2, gain access to the area affected by the installation and perform retromod for Vernier ice detector P/N 3G5306P37311 as described in the following procedure:
   - 2.1 With reference to Figure 1 Detail C and Figure 2 Section F-F, perform the indicated cut-out on the shell assy.
   - 2.2 With reference to Figure 2 View D, remove the material as indicated from the shell assy.
   - 2.3 With reference to Figure 2 Section F-F, restore the surface finish by means of sealant EA934NA.
   - 2.4 With reference to Figure 1 Detail C, temporarily locate the LH cover P/N 3G5320A13351 on the shell assy and countermark n°2 insert holes in the indicated positions.
   - 2.5 With reference to Figure 1 Section E-E, drill n°2 insert holes Ø14.25÷14.38 thru the shell assy structure in the previously countermarked positions.
   - 2.6 With reference to Figure 1 Section E-E, install n°2 inserts P/N NAS1832C3-4M by means of adhesive EA934NA.
   - 2.7 With reference to Figure 1 Detail C, enlarge existing holes on the LH cover P/N 3G5320A13351 until Ø4.90÷5.03 to match with insert positions.
   - 2.8 With reference to Figure 2 View D, drill n°1 insert hole Ø14.25÷14.38 thru the structure in the indicated position.
   - 2.9 With reference to Figure 2 View D, install n°1 insert P/N NAS1832C3-4M by means of adhesive EA934NA.

NOTE

Perform following steps 2.10 and 2.11 only if Part III will not be applied immediately after Part I.

   - 2.10 With reference to Figure 1 Detail C and Section E-E, install the LH cover P/N 3G5320A13351 by means of n°2 screws P/N MS27039-1-05 and n°2 washers P/N NAS1149D0316K.
   - 2.11 With reference to Figure 1 Section E-E, seal all around the LH cover P/N 3G5320A13351 by means of proseal 890.
   - 2.12 With reference to Figure 2 View G, drill n°1 hole Ø5.15÷5.28 thru the structure in the indicated position.

2.13 With reference to Figure 2 View G, install n°1 anchor nut P/N MS21069L3 by means of n°2 rivets P/N MS20426AD3-7.

2.14 With reference to Figure 2 View H, Detail J and Section K-K, temporarily locate the bracket P/N 3G5316A70131 on the indicated surface, countermark and drill n°4 insert holes Ø14.25÷14.38.

2.15 With reference to figure 2 Section K-K, install n°4 inserts P/N NAS1832-3-3 by means of the adhesive EA934NA.

2.16 With reference to figure 2 View H, install the bracket P/N 3G5316A70131 on the structure by means of n°4 screws P/N MS27039-1-05 and n°4 washers P/N NAS1149D0332K.

3. In accordance with AMP DM 39-A-06-41-00-00A-010A-A and with reference to Figure 3, 6 and 7, gain access to the area affected by the installation and perform Vernier ice detector LH electrical installation P/N 3G3080A01112 as described in the following procedure:

3.1 With reference to Figure 6, Figure 7 and table on Figure 10, route the Vernier ice det LH C/A P/N 3G9A01A45801 (A1A458) and the cable lightning conductor assy P/N A537A01AA01-0600; secure the cables by means of existing hardware and lacing cords.

3.2 With reference to Figure 7, install n°2 studs P/N A363A01 (GS155 and GS157) in the indicated positions; apply decals P/N ED300GS155 and P/N ED300GS157.

3.3 With reference to Figure 6, install the plastic support P/N AW001CL001-N6 in the indicated position.

3.4 With reference to Figure 6 Detail B, remove the standoff P/N A388A3E08C and the screw P/N NAS1190E3P6AK; remove and retain for later reuse the clamp P/N AW001CB04H and the washer P/N NAS1149D0332J.

3.5 With reference to Figure 6 View A, install a new standoff P/N A388A3E08C, the clamp P/N AW001CB03H and the screw P/N NAS1190E3P7AK; reinstall the clamp P/N AW001CB04H and the washer P/N NAS1149D0332J.

3.6 With reference to Figure 6 View A, install the standoff P/N A388A3E08C75, the clamp P/N AW001CB03H, the screw P/N NAS1190E3P6AK and the washer P/N NAS1149D0332J.

3.7 With reference to Figure 6 View A, remove the bonding cable P/N A601A230.

3.8 With reference to Figure 6 View A and in accordance with AMP DM 39-A-30-84-02-00A-720A-K, install the tail lightning protector box P/N 4G3060V00552 on the bracket P/N 3G5316A70131 by means of n°4 screws P/N NAS1802-3-10 and n°4 washers P/N NAS1149D0332J.

3.9 With reference to Figure 6 View A, if necessary apply decal P/N ED300A422.

3.10 With reference to Figure 6 View A, install the stud P/N A363A01 (GS1901) in the indicated position and apply decal P/N ED300GS1901 in an adjacent area.

3.11 With reference to Figure 6 View A, install the bonding cable P/N A601A3B40.

3.12 With reference to Figure 7 and Figure 5 Detail E, install n°2 adapters P/N M85049/93-06.

3.13 With reference to Figure 7 and Figure 5 Detail E, wrap an adequate length of tubular braid P/N A575A-A108 all around the cable as shown.

3.14 With reference to Figure 7 and Figure 5 Detail E, install: n°2 clamps P/N A10099, n°2 pieces of adequate length of flat metal braid and n°2 terminal lugs P/N MS25036-108.

3.15 With reference to Figure 7 and Figure 5 Detail E, wrap an adequate length of insulation sleeving P/N M23053/5-110-0 all around the cable as shown and fix it using lacing cords.

3.16 With reference to Figure 7, remove the existing screw and install the clamp P/N AW001CB06H on the cable lightning conductor assy P/N A537A01AA01-0600 by means of the washer P/N NAS1149D0332J and the screw P/N NAS1802-3-8.

3.17 With reference to Figure 7, remove the existing screw and install the clamp P/N AW001CB10H on the cable lightning conductor assy P/N A537A01AA01-0600 by means of the washer P/N NAS1149D0332J, the spacer P/N NAS43DD3-16N and the screw P/N NAS1802-3-13.

3.18 With reference to Figure 7, install the terminal lug of the cable lightning conductor assy P/N A537A01AA01-0600 by means of the washer P/N NAS1149D0332J and the screw P/N NAS1802-3-8.

3.19 With reference to Figure 7, install the terminal lug of the cable lightning conductor assy P/N A537A01AA01-0600 on the ground stud GS157.

3.20 With reference to Figure 7 Detail C, install the clamp P/N AW001CB06H on the cable by means of the screw P/N NAS1802-3-6 and the washer P/N NAS1149D0332J.

3.21 With reference to Figure 7 Detail C, protect the cables with tubing heatshrinkable P/N PAN6480K04.

3.22 With reference to Figure 7 Detail C, install the terminal lugs of the cable lightning conductor assy P/N A537A01AA01-0600 by means of the existing screw.

3.23 With reference to Figure 6, 7 and Figure 9 wiring diagram, perform the electrical connection of C/A A1A458 to the connector PL1P9, to TRLB A422 and to TB1055.

4. Modify the auxiliary CB panel on the overhead panel, as described in the following procedure:

NOTE

Customer must contact Leonardo Helicopters PSE (engineering.support.lhd@leonardocompany.com) at least 3 months in advance of embodiment date of this Service Bulletin in order to collect the exact W/D applicable to helicopter configuration.

4.1 With reference with AMP DM 39-A-24-91-04-00A-920A-K, remove the existing integrally-lighted panel from the Overhead AUX CB panel and install the new integrally-lighted panel P/N 3G2490LXXXXX.

4.2 With reference to Figure 8 View A, install circuit breaker P/N MS3320-3 CB390 (VAM) in the indicated position on the new integrally-lighted panel 3G2490LXXXXX; apply the decal P/N ED300CB390 in an adjacent area.

4.3 Perform the electrical connection between pin 2 of CB390 and pin 2 of switch S275 by means of A556A-T20 wire. Use terminal lug P/N MS25036-103 for pin 2 of CB390 and electrical contact P/N M39029/1-102 with ferrule P/N 252-8554-000 for pin 2 of S275.

4.4 Perform the electrical connection between pin 3 of switch S275 and pin B of connector PL1J9 by means of A556A-T20 wire. Use electrical contact P/N M39029/1-102 with ferrule P/N 252-8554-000 for pin 3 of S275 and electrical contact P/N M39029/56-351 for pin B of PL1J9.

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

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

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

7. Send the attached compliance form to the following mail box:

engineering.support.lhd@leonardocompany.com

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

PART III

1. In accordance with AMP DM 39-A-00-20-00-00A-120A-A prepare the helicopter on ground for a safe maintenance. Disconnect the battery, all electrical power sources and/or the external power supply.
2. In accordance with AMP DM 39-A-06-41-00-00A-010A-A and with reference to Figure 8, gain access to the area affected by the installation and perform Vernier ice detector LH side removable parts P/N 3G3080A01211 as described in the following procedure:

NOTE

Perform following step 2.1 only if Part III has been applied immediately after Part I or Part II.

2.1 With reference to Figure 8, remove the existing hardware from the cover P/N 3G5320A13351; remove the cover from helicopter.

2.2 With reference to Figure 8 and in accordance with AMP DM 39-A-30-84-03-00A-720A-K, install the ice accretion meter support P/N 3G5320A13432 on the structure.

2.3 With reference to Figure 8 and in accordance with AMP DM 39-A-30-84-01-00A-720A-K, install the ice accretion meter P/N ATL 7740-002 on the structure; apply decal P/N ED300A399 in an adjacent area.

2.4 In accordance with AMP DM 39-A-30-84-00-00A-320A-K, perform the operation test of ice accretion meter installation.

3. In accordance with weight and balance changes, update the Chart A (see Rotorcraft Flight Manual, Part II, section 6).
4. Return the helicopter to flight configuration and record for compliance with Part III of this Service Bulletin on the helicopter logbook.
5. 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”.

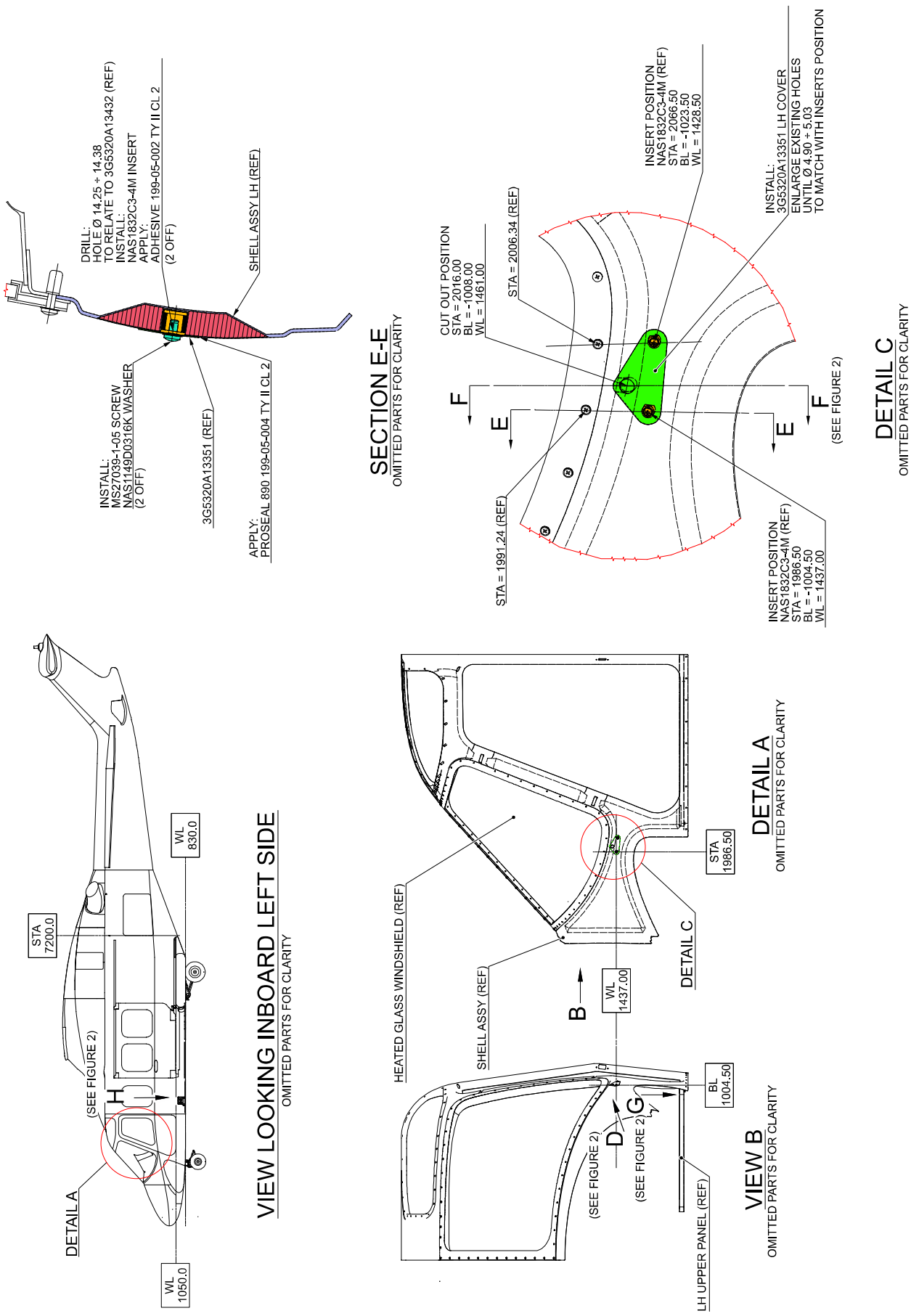

DRILL:
HOLE Ø 14.25 ÷ 14.38
TO RELATE TO 3G5320A13432 (REF)
INSTALL:
NAS1832C3-4M INSERT
APPLY:
ADHESIVE 199-05-002 TY II CL 2
(2 OFF)
SHELL ASSY LH (REF)
INSTALL:
MS27039-1-05 SCREW
NAS1149D0316K WASHER
(2 OFF)
3G5320A13351 (REF)
APPLY:
PROSEAL 890 199-05-004 TY II CL 2
SECTION E-E
OMITTED PARTS FOR CLARITY
CUT OUT POSITION
STA = 2016.00
BL = -1008.00
WL = 1461.00
STA = 2006.34 (REF)
INSERT POSITION
NAS1832C3-4M (REF)
STA = 2066.50
BL = -1023.50
WL = 1428.50
INSTALL:
3G5320A13351 LH COVER
ENLARGE EXISTING HOLES
UNTIL Ø 4.90 ÷ 5.03
TO MATCH WITH INSERTS POSITION
STA = 1991.24 (REF)
INSERT POSITION
NAS1832C3-4M (REF)
STA = 1986.50
BL = -1004.50
WL = 1437.00
(SEE FIGURE 2)
DETAIL C
OMITTED PARTS FOR CLARITY
STA 7200.0
WL 830.0
(SEE FIGURE 2)
DETAIL A
WL 1050.0
VIEW LOOKING INBOARD LEFT SIDE
OMITTED PARTS FOR CLARITY
HEATED GLASS WINDSHIELD (REF)
SHELL ASSY (REF)
STA 1986.50
DETAIL A
OMITTED PARTS FOR CLARITY
DETAIL C
WL 1437.00
BL 1004.50
(SEE FIGURE 2)
(SEE FIGURE 2)
LH UPPER PANEL (REF)
VIEW B
OMITTED PARTS FOR CLARITY

Figure 1

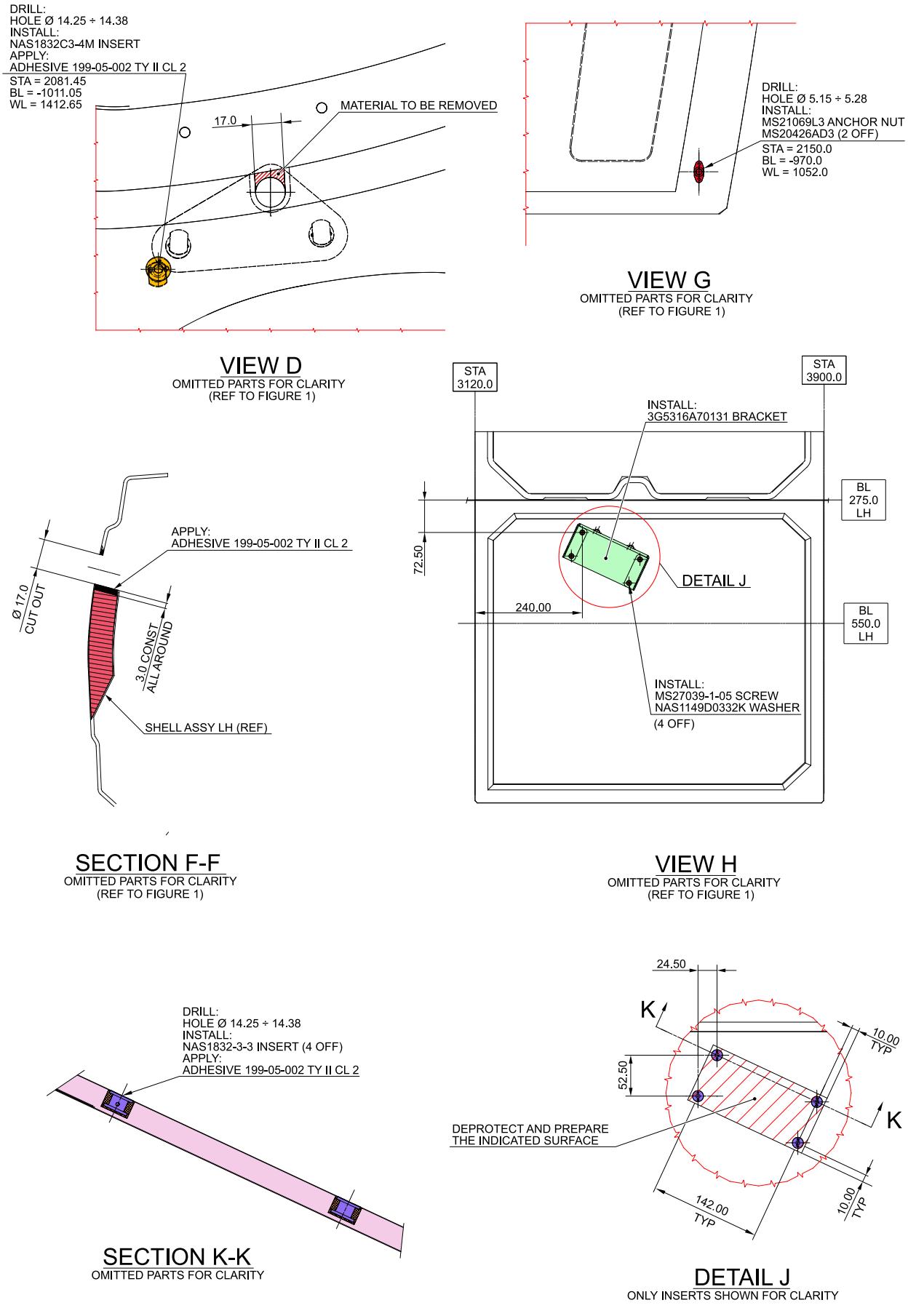
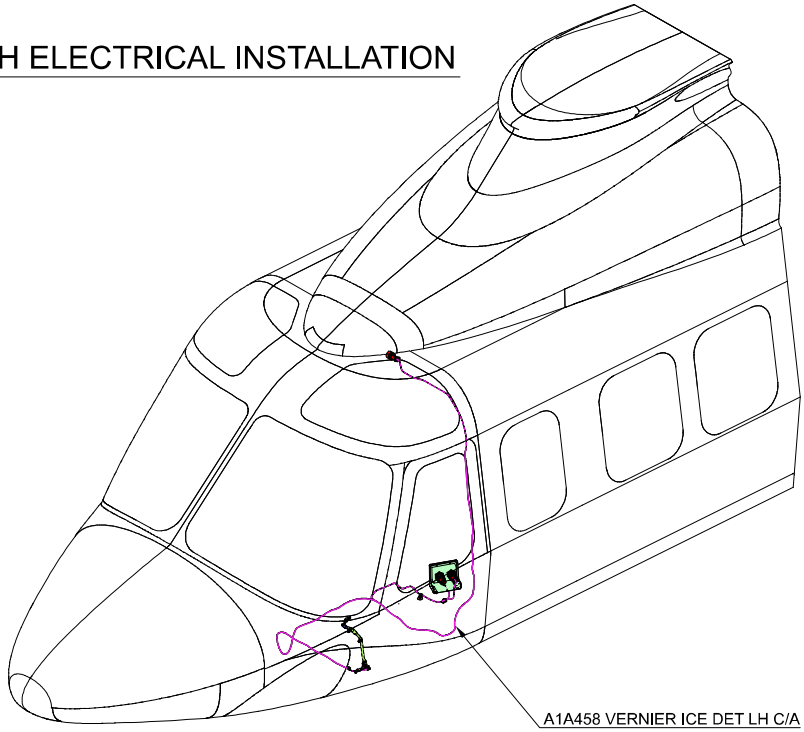

DRILL:
HOLE Ø 14.25 ÷ 14.38
INSTALL:
NAS1832C3-4M INSERT
APPLY:
ADHESIVE 199-05-002 TY II CL 2
STA = 2081.45
BL = -1011.05
WL = 1412.65
17.0
MATERIAL TO BE REMOVED
VIEW D
OMITTED PARTS FOR CLARITY
(REF TO FIGURE 1)
DRILL:
HOLE Ø 5.15 ÷ 5.28
INSTALL:
MS21069L3 ANCHOR NUT
MS20426AD3 (2 OFF)
STA = 2150.0
BL = -970.0
WL = 1052.0
VIEW G
OMITTED PARTS FOR CLARITY
(REF TO FIGURE 1)
APPLY:
ADHESIVE 199-05-002 TY II CL 2
Ø 17.0
CUT OUT
3.0 CONST
ALL AROUND
SHELL ASSY LH (REF)
SECTION F-F
OMITTED PARTS FOR CLARITY
(REF TO FIGURE 1)
STA
3120.0
STA
3900.0
INSTALL:
3G5316A70131 BRACKET
BL
275.0
LH
72.50
DETAIL J
240.00
BL
550.0
LH
INSTALL:
MS27039-1-05 SCREW
NAS1149D0332K WASHER
(4 OFF)
VIEW H
OMITTED PARTS FOR CLARITY
(REF TO FIGURE 1)
DRILL:
HOLE Ø 14.25 ÷ 14.38
INSTALL:
NAS1832-3-3 INSERT (4 OFF)
APPLY:
ADHESIVE 199-05-002 TY II CL 2
SECTION K-K
OMITTED PARTS FOR CLARITY
24.50
K
10.00
TYP
52.50
K
DEPROTECT AND PREPARE
THE INDICATED SURFACE
142.00
TYP
10.00
TYP
DETAIL J
ONLY INSERTS SHOWN FOR CLARITY

Figure 2

3G3080A01111
VERNIER ICE DETECTOR LH ELECTRICAL INSTALLATION



3G3080A01112
VERNIER ICE DETECTOR LH SIDE ELECTRICAL INSTALLATION

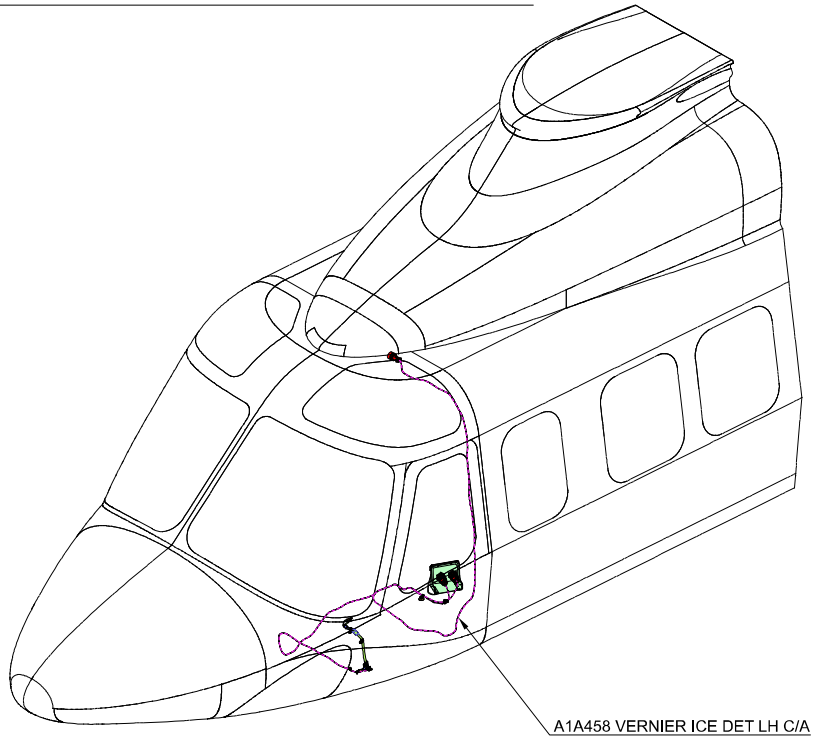
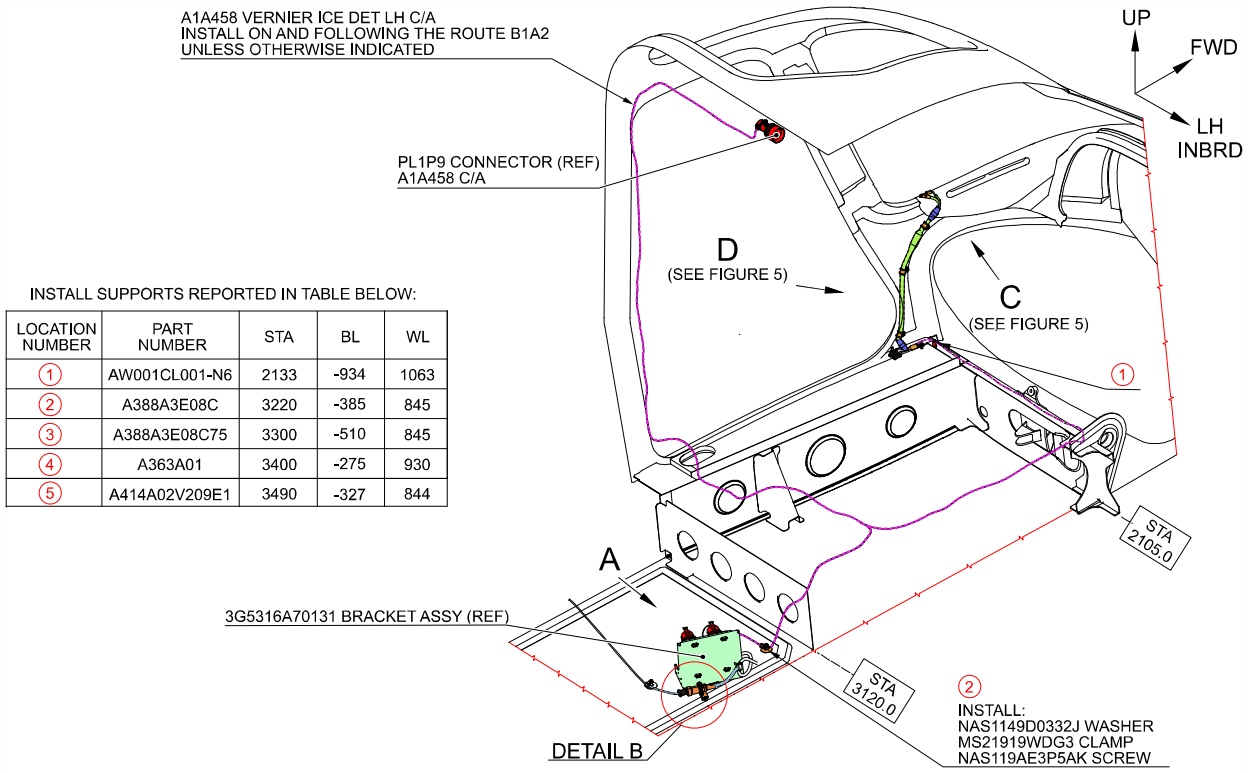
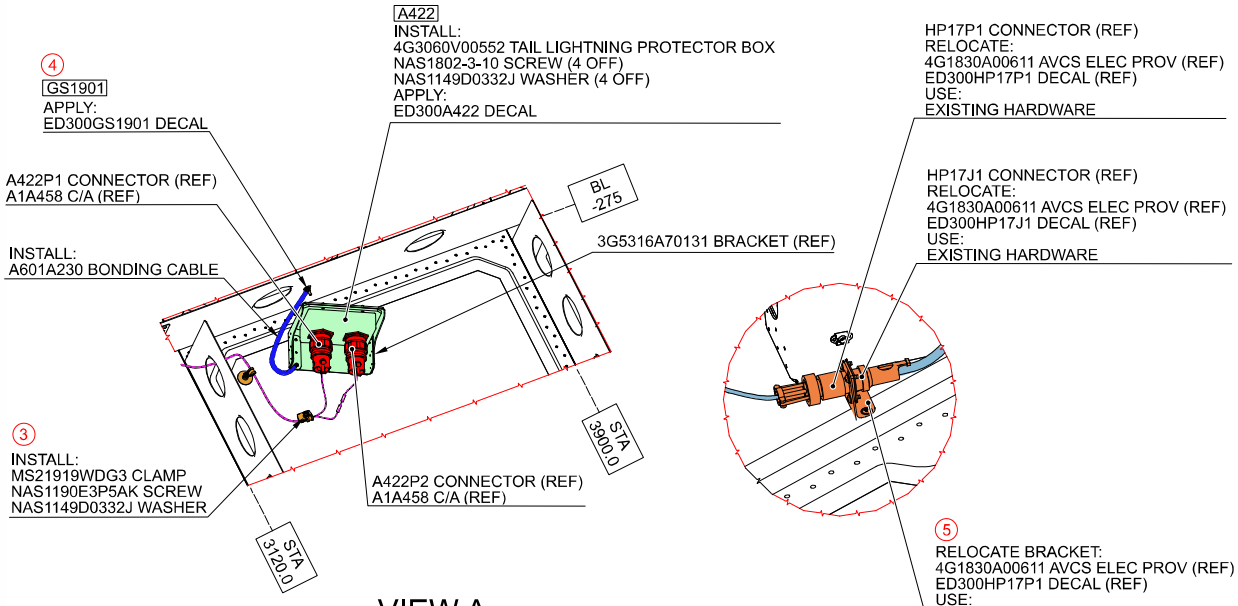


Figure 3



VIEW LOOKING FROM STA 1500 TO STA 3120 (LH SIDE)
OMITTED PARTS FOR CLARITY

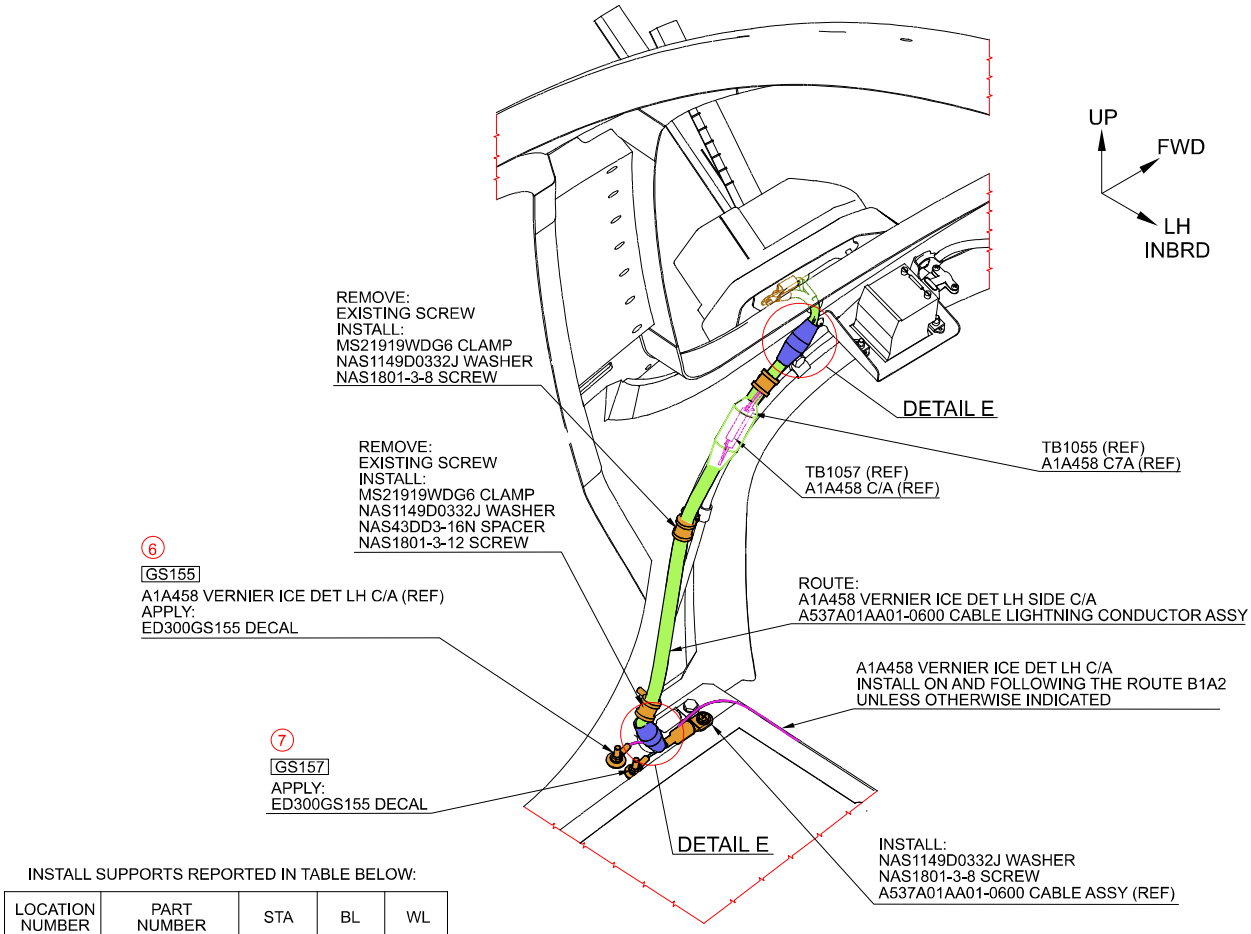


VIEW A
OMITTED PARTS FOR CLARITY

DETAIL B
OMITTED PARTS FOR CLARITY

3G3080A01111
VERNIER ICE DETECTOR LH ELECTRICAL INSTALLATION

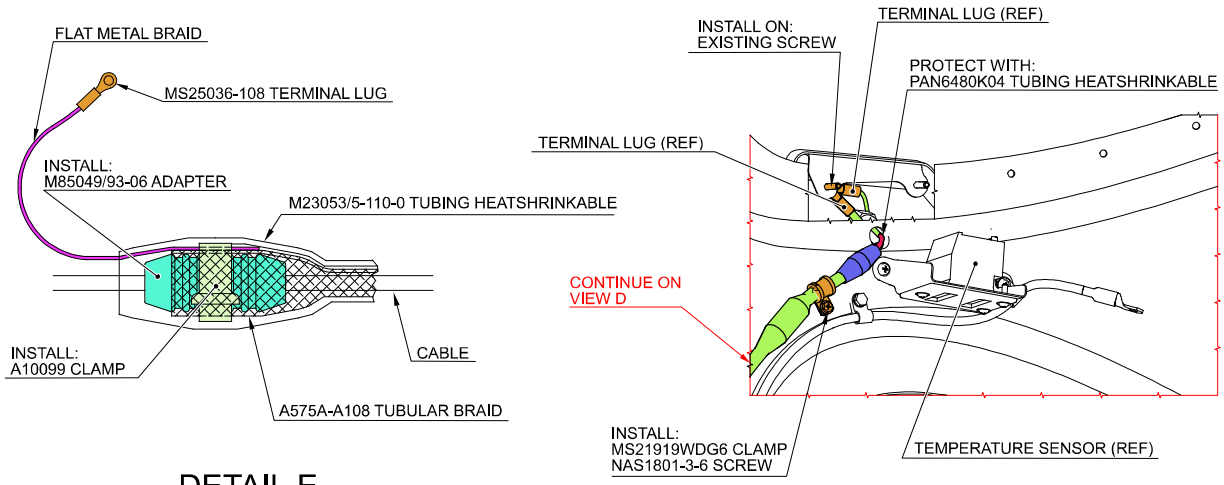
Figure 4



INSTALL SUPPORTS REPORTED IN TABLE BELOW:

LOCATION NUMBER	PART NUMBER	STA	BL	WL
6	A363A01	2231	-1000	1052
7	A363A01	2231	-981	1052

VIEW D
OMITTED PARTS FOR CLARITY
(REF TO FIGURE 4)

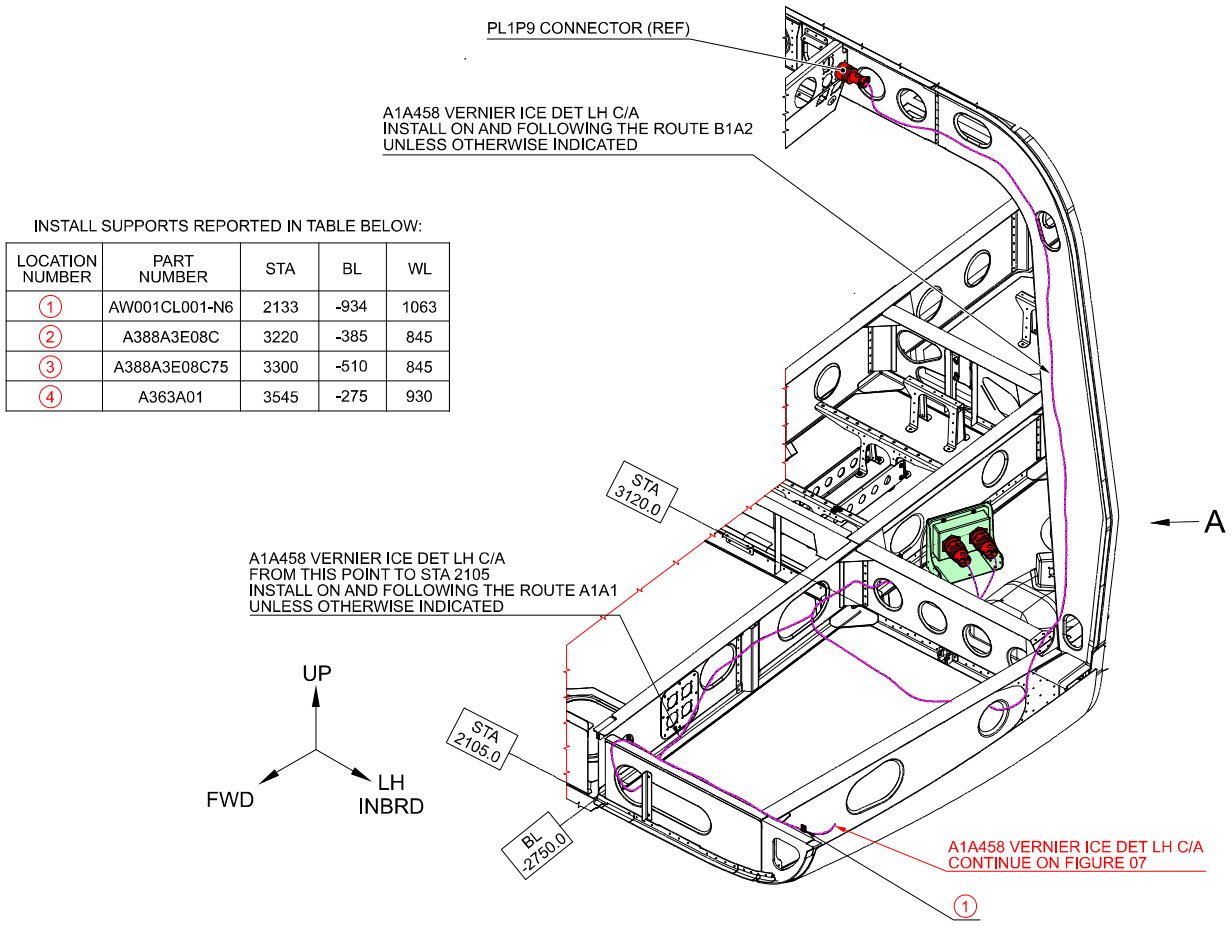


DETAIL E
OMITTED PARTS FOR CLARITY
(REF TO FIGURE 5, 7)
(TYP 2 PLCS)

VIEW C
OMITTED PARTS FOR CLARITY
(REF TO FIGURE 4)

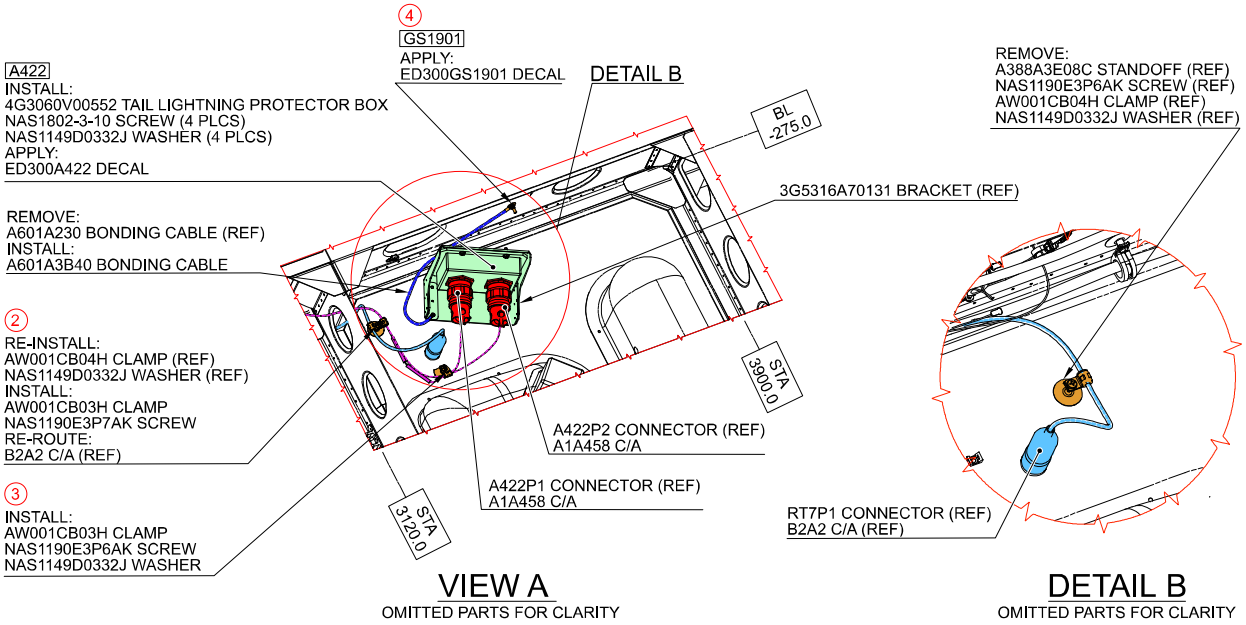
3G3080A01111
VERNIER ICE DETECTOR LH ELECTRICAL INSTALLATION

Figure 5



LOCATION NUMBER	PART NUMBER	STA	BL	WL
1	AW001CL001-N6	2133	-934	1063
2	A388A3E08C	3220	-385	845
3	A388A3E08C75	3300	-510	845
4	A363A01	3545	-275	930

VIEW LOOKING FROM STA 2105 TO STA 3120 (LH SIDE)
OMITTED PARTS FOR CLARITY

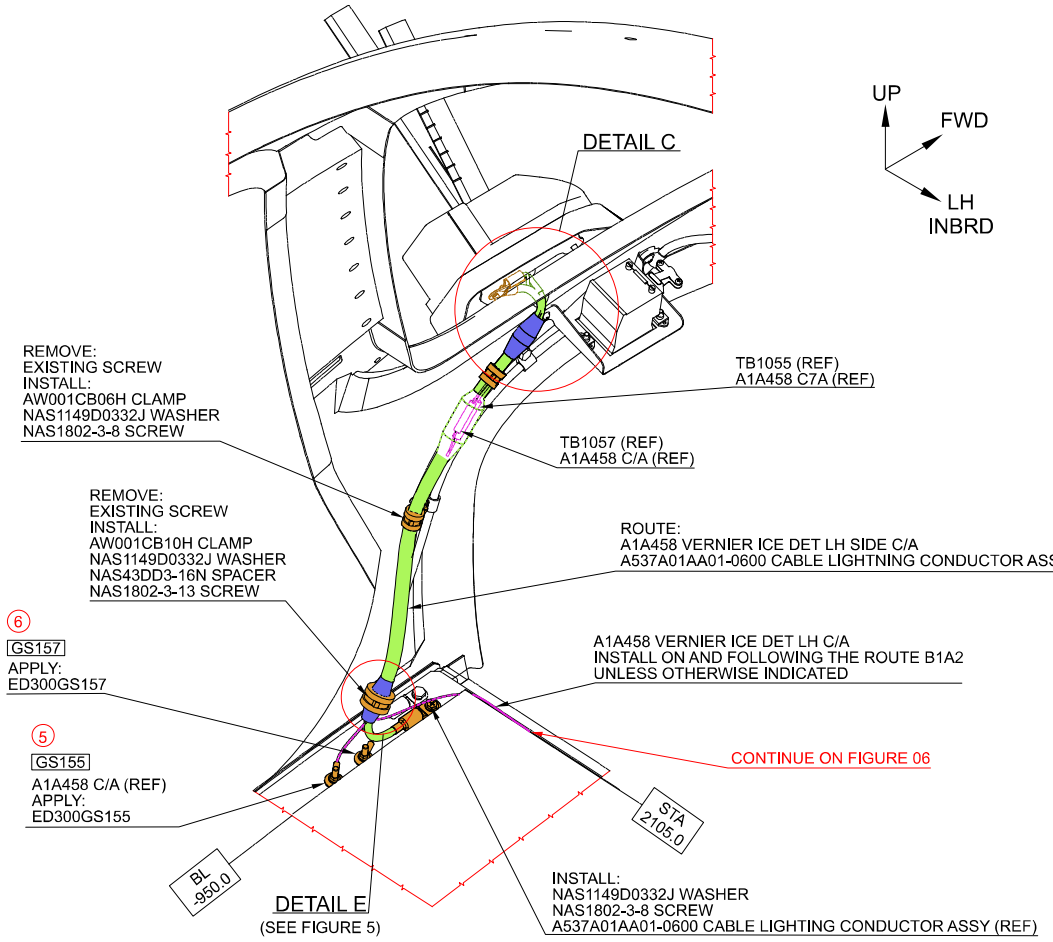


VIEW A
OMITTED PARTS FOR CLARITY

DETAIL B
OMITTED PARTS FOR CLARITY

3G3080A01112
VERNIER ICE DETECTOR LH SIDE ELECTRICAL INSTALLATION

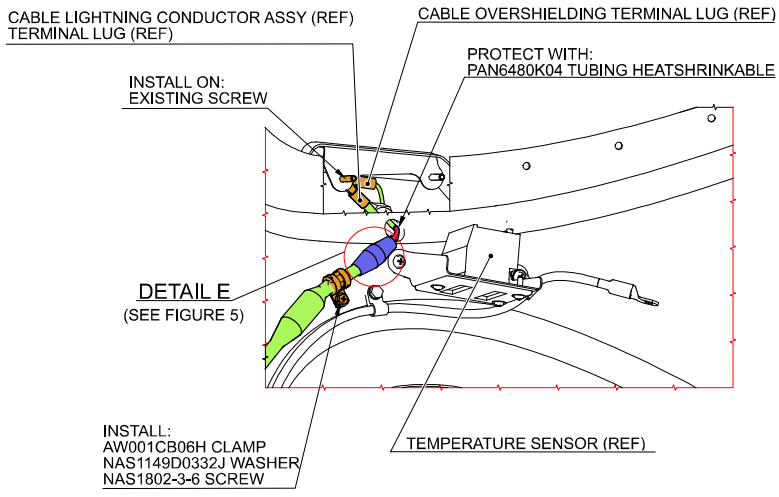
Figure 6



VIEW LOOKING LH SIDE WINDSHIELD
OMITTED PARTS FOR CLARITY

INSTALL SUPPORTS REPORTED IN TABLE BELOW:

LOCATION NUMBER	PART NUMBER	STA	BL	WL
5	A363A01	2265	-986	1052
6	A363A01	2231	-981	1052



DETAIL C
OMITTED PARTS FOR CLARITY

3G3080A01112
VERNIER ICE DETECTOR LH SIDE ELECTRICAL INSTALLATION

Figure 7

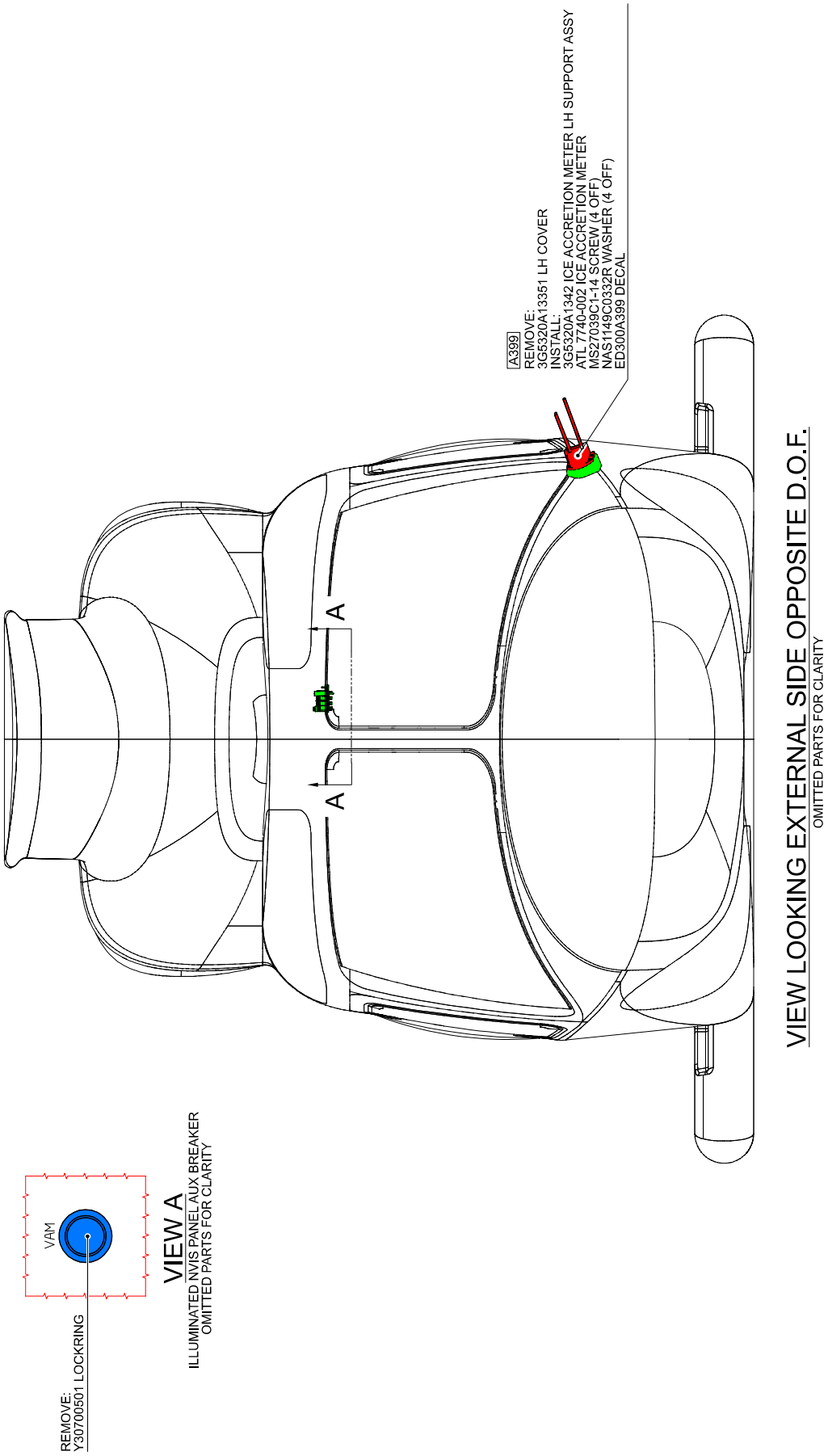

A399
REMOVE:
3G5320A13351 LH COVER
INSTALL:
3G5320A1342 ICE ACCRETION METER LH SUPPORT ASSY
ATL 7740-002 ICE ACCRETION METER
MS27039C1-14 SCREW (4 OFF)
NAS1149C0332R WASHER (4 OFF)
ED300A399 DECAL
A
A
VIEW LOOKING EXTERNAL SIDE OPPOSITE D.O.F.
OMITTED PARTS FOR CLARITY
3G3080A01211
VERNIER ICE DETECTOR LH SIDE REMOVABLE PARTS
VAM
REMOVE:
Y30700501 LOCKRING
VIEW A
ILLUMINATED NVIS PANEL AUX BREAKER
OMITTED PARTS FOR CLARITY

Figure 8

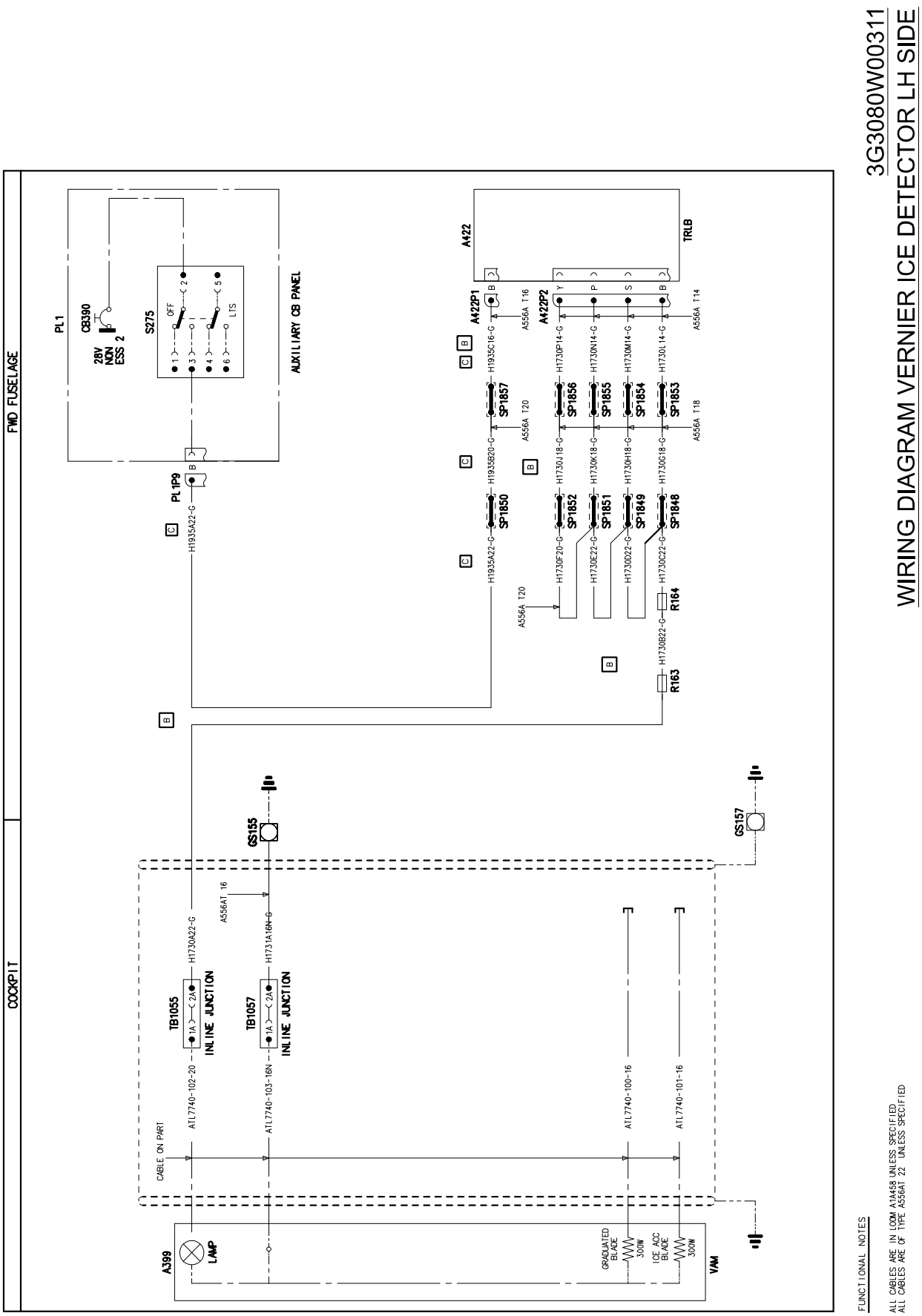

3G3080W00311
WIRING DIAGRAM VERNIER ICE DETECTOR LH SIDE
FWD FUSELAGE
COCKPIT
AUXILIARY CB PANEL
PL1
CB390
28V NON ESS 2
S275
OFF
LTS
PL1P9
A422
TRLB
A422P1
A422P2
SP1857
SP1856
SP1855
SP1854
SP1853
SP1850
SP1852
SP1851
SP1849
SP1848
R164
R163
GS155
GS157
TB1055
TB1057
INLINE JUNCTION
A399
LAMP
VAM
GRADUATED BLADE 300W
ICE ACC BLADE 300W
CABLE ON PART
FUNCTIONAL NOTES
ALL CABLES ARE IN LOOM A114458 UNLESS SPECIFIED
ALL CABLES ARE OF TYPE AS56A1 22 UNLESS SPECIFIED

Figure 9

Cable Assy	Wire	From Ref Des	Electrical Contact	To Ref Des	Electrical Contact
3G9A01A45801	H1730A22-G	TB1055	A523A-A05	R163	N.A.
	H1730L14-G	A422P2	M39029/58-365	SP1853	N.A.
	H1730M14-G	A422P2	M39029/58-365	SP1854	N.A.
	H1730N14-G	A422P2	M39029/58-365	SP1855	N.A.
	H1730P14-G	A422P2	M39029/58-365	SP1856	N.A.
	H1731A16N-G	TB1057	A523A-A07	GS155	N.A.
	H1935A22-G	SP1850	N.A.	PL1P9	M39029/58-363
	H1935C16-G	A422P1	M39029/56-353	SP1857	N.A.

Figure 10

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.