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AgustaWestland Products

SERVICE BULLETIN

N° 139-674

DATE: June 16, 2021

REV. : /

TITLE

ATA 93 - AIRCRAFT SURVIVABILITY EQUIPMENT (ASE) RETROMOD

REVISION LOG

First Issue

An appropriate entry should be made in the aircraft log book upon accomplishment.
If ownership of aircraft has changed, please, forward to new owner.

1. PLANNING INFORMATION

A. EFFECTIVITY

AW139 helicopters from S/N 41801 thru S/N 41806.

B. COMPLIANCE

Within and not later than 50 flight hours or 6 months whichever occurs first after the issue of this Service Bulletin.

C. CONCURRENT REQUIREMENTS

N.A.

D. REASON

This Service Bulletin is issued in order to provide the necessary instruction on how to perform the ASE FWD optical sensor structural provision retromod P/N 3G5310P22711 and the ASE electrical variant P/N 3G9350P03111.

E. DESCRIPTION

In order to prevent possible aerodynamic interference of the ASE forward optical sensors, new retro modifications have been developed, one structural (P/N 3G5310P22711) and one avionic/electrical (P/N 3G9350P03111).

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 forty (40) MMH are deemed necessary.

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

H. WEIGHT AND BALANCE

WEIGHT (kg)	1.05	
	ARM (mm)	**MOMENT (kgmm)**
LONGITUDINAL BALANCE	1640	1722
LATERAL BALANCE	202	212.1

I. REFERENCES

1) PUBLICATIONS

Following Data Modules refer to AMP:

DATA MODULE		DESCRIPTION	PART
DM01	39-A-00-20-00-00A-120A-A	Helicopter on ground for a safe maintenance.	-
DM02	39-A-06-41-00-00A-010A-A	Access door panel remove procedure.	-

2) ACRONYMS & ABBREVIATIONS

AMDI	Aircraft Material Data Information
AMP	Aircraft Maintenance Publication
ASE	Aircraft Survivability Equipment
DM	Data Module
DOA	Design Organization Approval
EASA	European Aviation Safety Agency
FWD	Forward
ITEP	Illustrated Tool and Equipment Publication
LHD	Leonardo Helicopters Division
MMH	Maintenance Man Hours
P/N	Part Number
S/N	Serial Number

3) ANNEX

N.A.

J. PUBLICATIONS AFFECTED

N.A.

K. SOFTWARE ACCOMPLISHMENT SUMMARY

N.A.

2. MATERIAL INFORMATION

A. REQUIRED MATERIALS

1) PARTS

#	P/N	ALTERNATIVE P/N	DESCRIPTION	Q.TY	LVL	NOTE	LOG P/N
1	**3G9350P03111**		**ASE ELECT C/A INSTALLATION VARIANT**	**REF**	**.**		**-**
2	A583A2610W		Cap	8	..		-
3	**3G5310P22711**		**ASE FWD OPTICAL SENSOR STR PROV RETROMOD**	**REF**	**.**		**-**
4	3G5318A36051		RH cover	1	..	(1)	-
5	MS27039C1-06		Screw	7	..		-
6	3G5315P09751		FWD LH optical sensor support reworked	REF	..	(2)	-

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
7	EN6049-006-08-5	Nomex	AR	(3)	-
8	900004953	Tie strap	AR	(3)	-
9	AWMS05-001 TY I, CL B, GR 2	Sealant MC-780 B-2 (C465)	AR	(3)	-
10	AWTR033	Fiberglass 20823 1200 (C557)	AR	(3)	-
11	199-05-002 TY II, CL 3	Adhesive EA956NA (C193)	AR	(3)	-

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

3) LOGISTIC MATRIX

N.A.

NOTE

(1) RH cover P/N 3G5318A36051 can be obtained from raw material with following properties: 2024 aluminum alloy, dimensions 250 mm x 300 mm, thickness 1.27 mm.

(2) Item to be obtained reworking the existing FWD LH optical sensor support P/N 3G5317A98451.

(3) Item to procured as local supply.

B. SPECIAL TOOLS

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

C. INDUSTRY SUPPORT INFORMATION

Owners/Operators who comply with the instructions of this Service Bulletin no later than the applicable date in the “Compliance” section will be eligible to receive REQUIRED MATERIALS on free of charge basis, except for Consumable Materials and Special Tools.

NOTE: Customers who fail to comply with the instructions in this Service Bulletin before the compliance date are not eligible for the aforementioned special policy.

Please Issue relevant MMIR form to your Warranty Administration Dpt.

3. ACCOMPLISHMENT INSTRUCTIONS

GENERAL NOTES

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

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

c) 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) All lengths are in mm.

1. In accordance with AMP DM 39-A-00-20-00-00A-120A-A, prepare the helicopter on ground for a safe maintenance. Disconnect the battery, all electrical power sources and/or the external power supply.
2. In accordance with AMP DM 39-A-06-41-00-00A-010A-A and with reference to Figure 1, Figure 2 and Figure 5 gain access to area affected by the installation and perform the ASE electrical C/A installation variant P/N 3G9350P03111 as described in the following procedure:

NOTE

Perform steps 2.1 and 2.2 only for the S/N 41801.

2.1 With reference to Figure 2 View looking down lower nose LH side and View A, remove the bonding cable assy P/N A601A3B60, the screw P/N NAS1802-08-8, the nut P/N MS21042L08 and n°2 washers P/N NAS1149DN832H from the LH optical sensor A643 and the ground stud.

2.2 With reference to Figure 2 View looking down lower nose RH side, remove the bonding cable assy P/N A601A3B60, the screw P/N NAS1802-08-8, the nut P/N MS21042L08 and n°2 washers P/N NAS1149DN832H from the lower nose RH side from the RH optical sensor A652 and the ground stud.

NOTE

Perform steps 2.3 and 2.4 only for the S/N 41802 thru S/N 41804.

2.3 With reference to Figure 2 View looking down lower nose LH side and View A, remove the bonding cable assy P/N A601A3B60, the screw P/N NAS1802-3-8, the nut P/N MS21042L3 and n°2 washers P/N NAS1149D0332J from the LH optical sensor A643 and the ground stud.

2.4 With reference to Figure 2 View looking down lower nose RH side, remove the bonding cable assy P/N A601A3B60, the screw P/N NAS1802-3-8, the nut P/N MS21042L3 and n°2 washers P/N NAS1149D0332J from the lower nose RH side from the RH optical sensor A652 and the ground stud.

NOTE

Perform steps 2.5 and 2.6 only for the S/N 41805 and S/N 41806.

2.5 With reference to Figure 2 View looking down lower nose LH side and View A, remove the bonding cable assy P/N A601A13B60, the screw P/N NAS1802-08-10, the nut P/N MS21042L08 and n°2 washers P/N NAS1149DN832H from the LH optical sensor A643 and the ground stud.

2.6 With reference to Figure 2 View looking down lower nose RH side, remove the bonding cable assy P/N A601A13B60, the screw P/N NAS1802-08-10, the nut P/N MS21042L08 and n°2 washers P/N NAS1149DN832H from the lower nose RH side from the RH optical sensor A652 and the ground stud.

2.7 With reference to Figure 1 View looking down lower nose LH side and Figure 2 View A and and Figure 5 Wiring Diagram, disconnect the connector A643P1 of the C/A A2A584 from the FWD LH optical sensor (A643).

2.8 With reference to Figure 2 View A, remove the connector A643P1 (connector P/N D38999/46WD18SN and backshell P/N A532A400-1502T) from the C/A A2A584.

2.9 With reference to Figure 1 View looking down lower nose LH side and Figure 5 Wiring Diagram, cut of adequate length the wires marked as A337C22-S (WH), A337C22-S (BL), A338C22-S (WH) and A338C22-S (BL) of the C/A A2A584.

2.10 With reference to Figure 1 View looking down lower nose LH side and Detail A,

install n°4 caps P/N A583A2610W on the end of the wires previously cut.

2.11 With reference to Figure 1 Detail A, stow and protect the end of the wires by means of the nomex P/N EN6049-006-08-5 and the tie strap P/N 900004953.

2.12 With reference to Figure 1 View looking down lower nose RH side and Figure 5 Wiring Diagram, disconnect the connector A652P1 of the C/A A2B573 from the FWD RH optical sensor (A652).

2.13 With reference to Figure 2 View looking down lower nose RH side, remove the connector A652P1 (connector P/N D38999/46WD18SN and backshell P/N A532A400-1502T) from the C/A A2B573.

2.14 With reference to Figure 1 View looking down lower nose RH side and Figure 5 Wiring Diagram, cut of adequate length the wires marked as A335D22-S (WH), A335D22-S (BL), A336D22-S (WH) and A336D22-S (BL) of the C/A A2B573.

2.15 With reference to Figure 1 View looking down lower nose RH side and Detail A, install n°4 caps P/N A583A2610W on the end of the wires previously cut.

2.16 With reference to Figure 1 Detail A, stow and protect the end of the wires by means of the nomex P/N EN6049-006-08-5 and the tie strap P/N 900004953.

NOTE

It is possible to fabricate the RH cover P/N 3G5318A36051 installed in following step from raw material, if necessary.

3. In accordance with AMP DM 39-A-06-41-00-00A-010A-A and with reference to Figures 3 and 4, perform the ASE FWD optical sensor structural provision retromod P/N 3G5310P22711 as described in the following procedure:

3.1 With reference to Figure 3 View A, remove the FWD RH optical sensor support P/N 3G5317A98551, the ring assy P/N 3G5317A99631, the optical sensor cover assy P/N 3G5317A97931, the ring P/N 3G5317A99551 and the existing hardware from the structure. Retain n°7 washers P/N NAS1149F0332P for later reuse.

3.2 With reference to Figure 3 View A, temporarily locate the RH cover P/N 3G5318A36051 on the structure and countermark n°7 hole positions in accordance with the existing insert locations.

3.3 With reference to Figure 3 View A, drill n°7 holes Ø5.10÷5.35 thru the RH cover P/N 3G5318A36051.

3.4 With reference to Figure 3 View A, install the RH cover P/N 3G5318A36051 on the structure by means of n°7 screws P/N MS27039C1-06 and n°7 existing washers P/N NAS1149F0332P previously removed.

3.5 With reference to Figure 3 View A, apply the sealant MC-780 B-2 (C465) all around

the RH cover P/N 3G5318A36051.

NOTE

If necessary, remove the cable cover assy to allow the removal of the FWD LH optical sensor support.

3.6 With reference to Figure 3 View A and Detail B, remove the FWD LH optical sensor support P/N 3G5317A98451, the ring assy P/N 3G5317A99631, the optical sensor cover assy P/N 3G5317A97931, the ring P/N 3G5317A99551 and the existing hardware from the structure. Retain the FWD LH optical sensor support P/N 3G5317A98451 and retain n°7 screws P/N MS27039C1-08, n°7 washers P/N NAS1149F0332P and n°7 bushings P/N 3G5317A99451 for later reuse.

3.7 With reference to Figure 4, perform the FWD LH optical sensor support reworked P/N 3G5315P09751 as described in the following procedure:

3.7.1 With reference to Figure 4 Was, Becomes and Schematic Section A-A, perform the indicated cut-out of the FWD LH optical sensor support P/N 3G5317A98451 in accordance with the dimensions shown.

3.7.2 With reference to Figure 4 Schematic Section A-A, prepare the inside and outside indicated surface.

3.7.3 With reference to Figure 4 Schematic Section A-A, apply n°6 plies of the fiberglass C557 on the cut-out edges (external side) of the FWD LH optical sensor support P/N 3G5317A98451. Bond with adhesive C193.

3.7.4 Cover the repair with release film and squeeze out to remove trapped air and excess resin.

NOTE

Maintain the pressure until the resin is cured. When cure is complete remove the material covering the repair.

3.7.5 Vacuum bag the repair area and apply vacuum pressure.

3.7.6 Clean and blend by sanding lightly and ensuring no damage to the fibers occurs.

3.7.7 With reference to Figure 4 Iso View, remark the FWD LH optical sensor support P/N 3G5317A98451 as the FWD LH optical sensor support reworked P/N 3G5315P09751.

NOTE

If previously removed, re-install the cable cover assy by means of existing hardware.

3.8 With reference to Figure 3 View A and Detail B, install the FWD LH optical sensor support reworked P/N 3G5315P09751 in the same position by means of existing

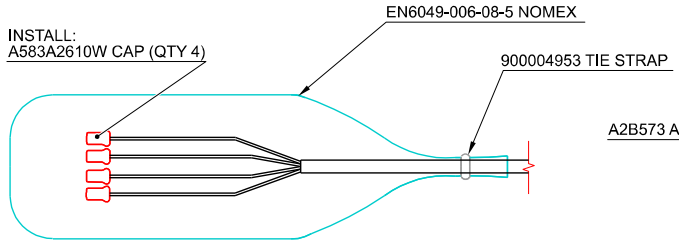
hardware previously removed: n°7 screws P/N MS27039C1-08, n°7 washers P/N NAS1149F0332P and n°7 bushings P/N 3G5317A99451.

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 this Service Bulletin on the helicopter logbook.
6. Send the attached compliance form to the following mail box:

   engineering.support.lhd@leonardocompany.com

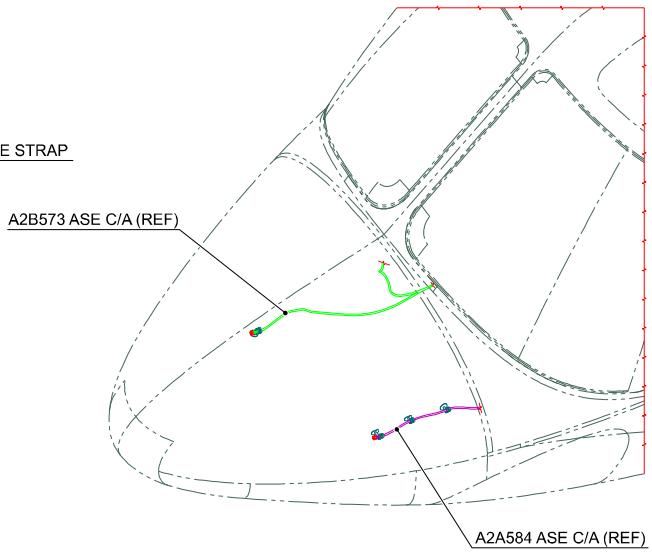
   As an alternative, gain access to My Communications section on Leonardo WebPortal and compile the “Service Bulletin Application Communication”.

ASE ELECT C/A INSTL VARIANT 3G9350P03111

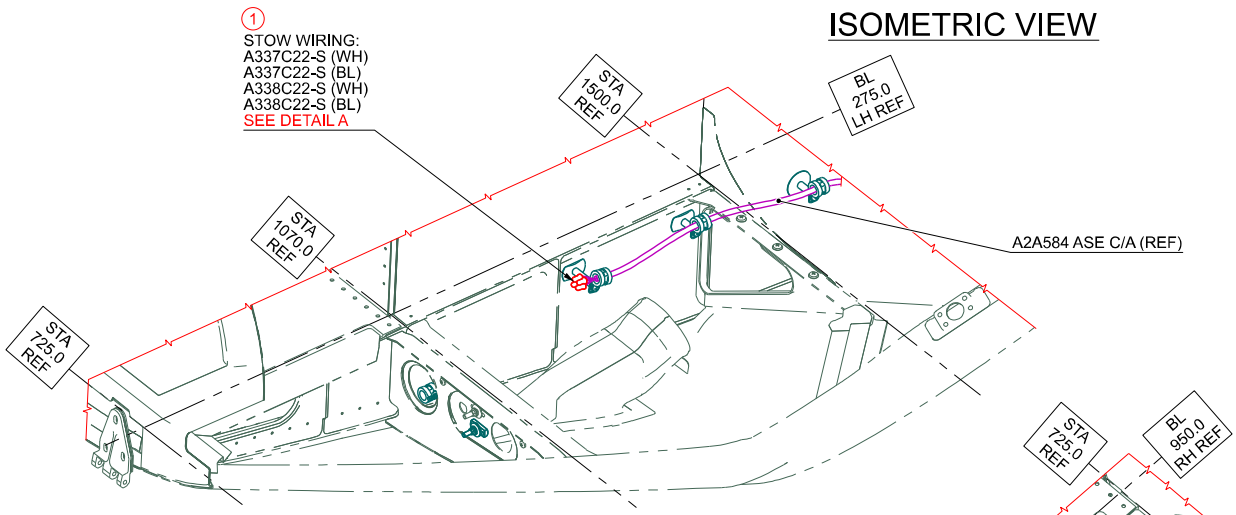


INSERT THE CONNECTOR ASSEMBLY INTO THE PROTECTIVE PLUG. COVER WITH NOMEX FIBRE SLEEVE AND USE THE CABLE STRAPS TO TIE UP SLEEVE FIRMLY TO THE CONNECTOR CABLING. USE CABLE STRAPS TO FIX THE CONNECTOR ASSY TO THE CABLE LOOM OR SUPPORT.

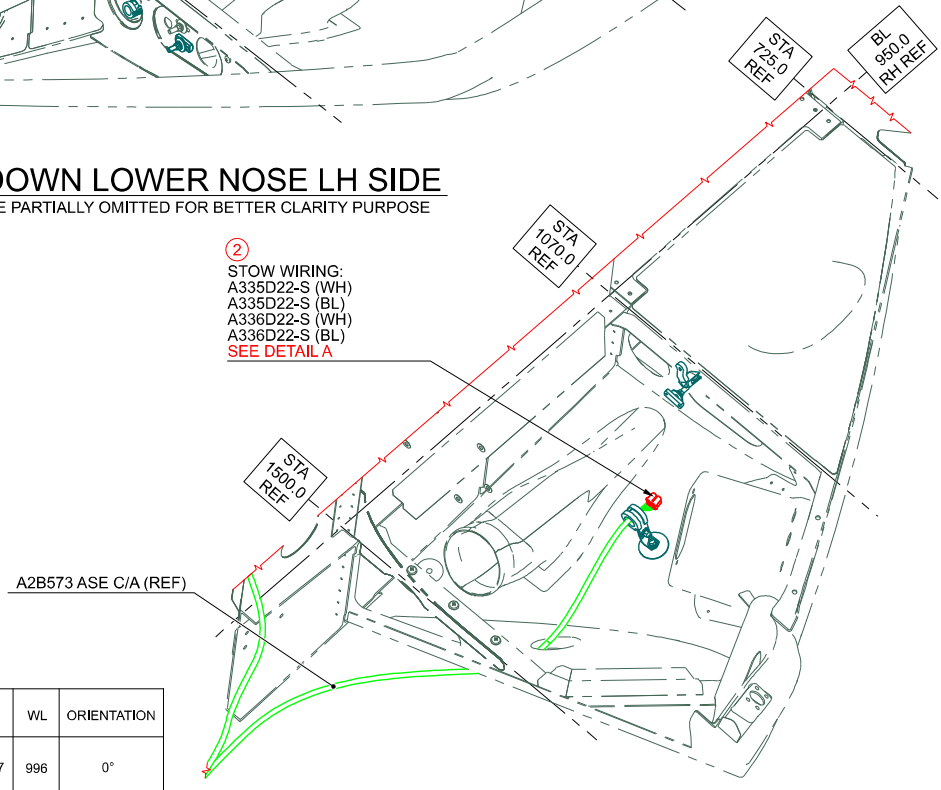
DETAIL A
(TYP 2 PLACES)



ISOMETRIC VIEW



VIEW LOOKING DOWN LOWER NOSE LH SIDE
STRUCTURE AND SYSTEMS ARE PARTIALLY OMITTED FOR BETTER CLARITY PURPOSE



LOCATION NUMBER	PART. NUMBER	STA	BL	WL	ORIENTATION
1	A388A3E22C75 (REF)	1327	-277	996	0°
2	A366A3E08C75 (REF)	1213	485	930	0°

VIEW LOOKING DOWN LOWER NOSE RH SIDE
STRUCTURE AND SYSTEMS ARE PARTIALLY OMITTED FOR BETTER CLARITY PURPOSE

Figure 1

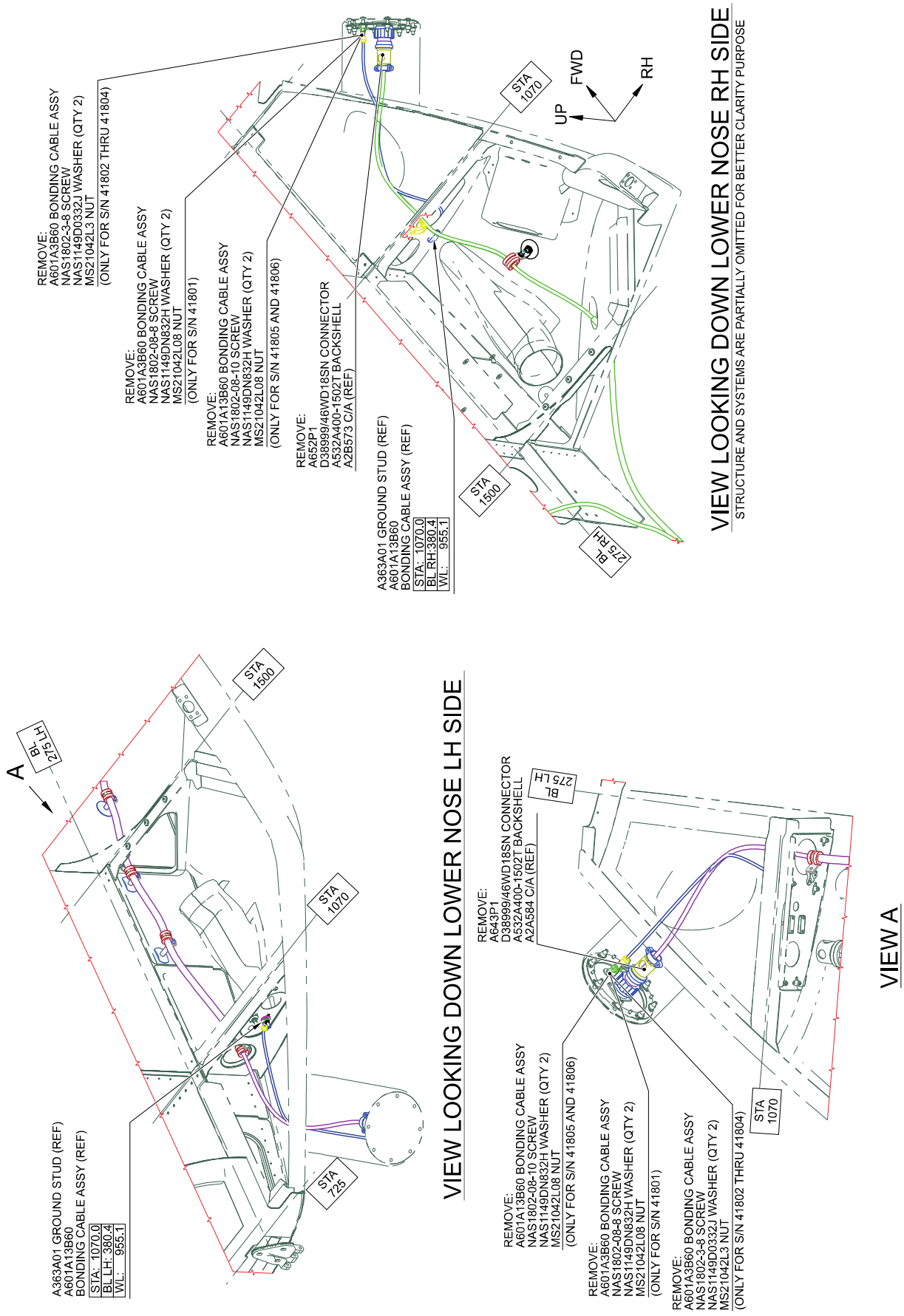
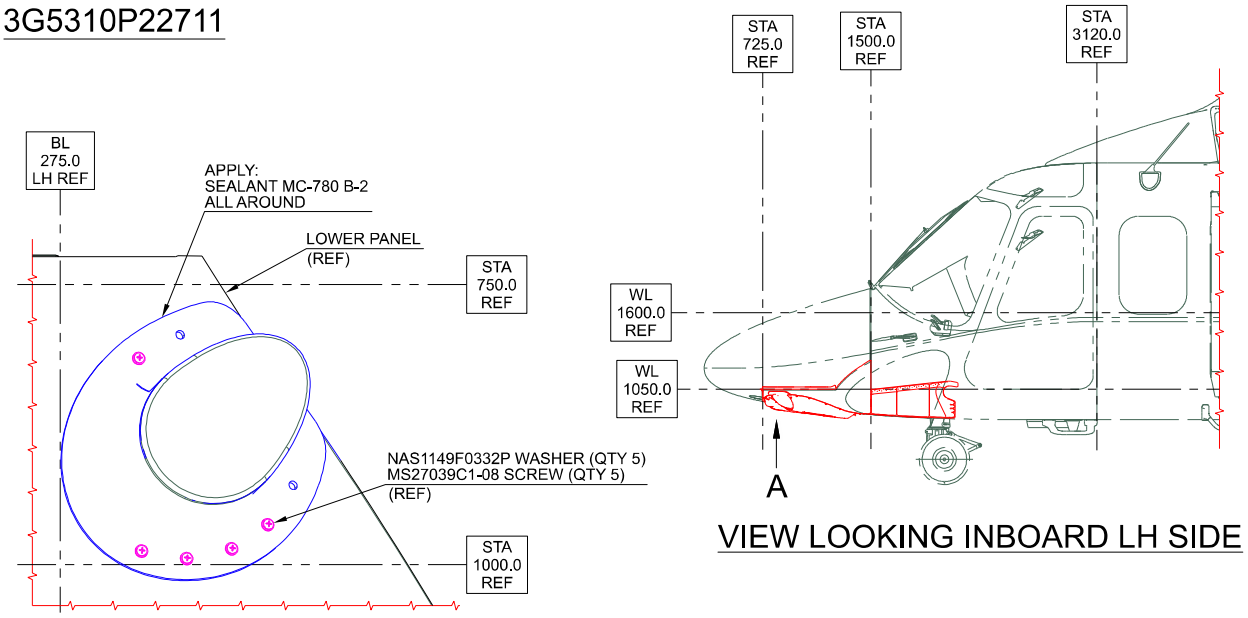

REMOVE:
A601A3B60 BONDING CABLE ASSY
NAS1802-3-8 SCREW
NAS1149D0332J WASHER (QTY 2)
MS21042L3 NUT
(ONLY FOR S/N 41802 THRU 41804)
REMOVE:
A601A3B60 BONDING CABLE ASSY
NAS1802-08-8 SCREW
NAS1149DN832H WASHER (QTY 2)
MS21042L08 NUT
(ONLY FOR S/N 41801)
REMOVE:
A601A13B60 BONDING CABLE ASSY
NAS1802-08-10 SCREW
NAS1149DN832H WASHER (QTY 2)
MS21042L08 NUT
(ONLY FOR S/N 41805 AND 41806)
REMOVE:
A652P1
D38999/46WD18SN CONNECTOR
A532A400-1502T BACKSHELL
A2B573 C/A (REF)
A363A01 GROUND STUD (REF)
A601A13B60
BONDING CABLE ASSY (REF)
STA: 1070.0
BL LH: 380.4
WL: 955.1
STA 1500
STA 1070
STA 1500
BL 275 RH
UP
FWD
RH
VIEW LOOKING DOWN LOWER NOSE RH SIDE
STRUCTURE AND SYSTEMS ARE PARTIALLY OMITTED FOR BETTER CLARITY PURPOSE
A
BL 275 LH
STA 1500
STA 1070
STA 725
A363A01 GROUND STUD (REF)
A601A13B60
BONDING CABLE ASSY (REF)
STA: 1070.0
BL LH: 380.4
WL: 955.1
VIEW LOOKING DOWN LOWER NOSE LH SIDE
REMOVE:
A643P1
D38999/46WD18SN CONNECTOR
A532A400-1502T BACKSHELL
A2A584 C/A (REF)
BL 275 LH
REMOVE:
A601A13B60 BONDING CABLE ASSY
NAS1802-08-10 SCREW
NAS1149DN832H WASHER (QTY 2)
MS21042L08 NUT
(ONLY FOR S/N 41805 AND 41806)
REMOVE:
A601A3B60 BONDING CABLE ASSY
NAS1802-08-8 SCREW
NAS1149DN832H WASHER (QTY 2)
MS21042L08 NUT
(ONLY FOR S/N 41801)
REMOVE:
A601A3B60 BONDING CABLE ASSY
NAS1802-3-8 SCREW
NAS1149D0332J WASHER (QTY 2)
MS21042L3 NUT
(ONLY FOR S/N 41802 THRU 41804)
STA 1070
VIEW A

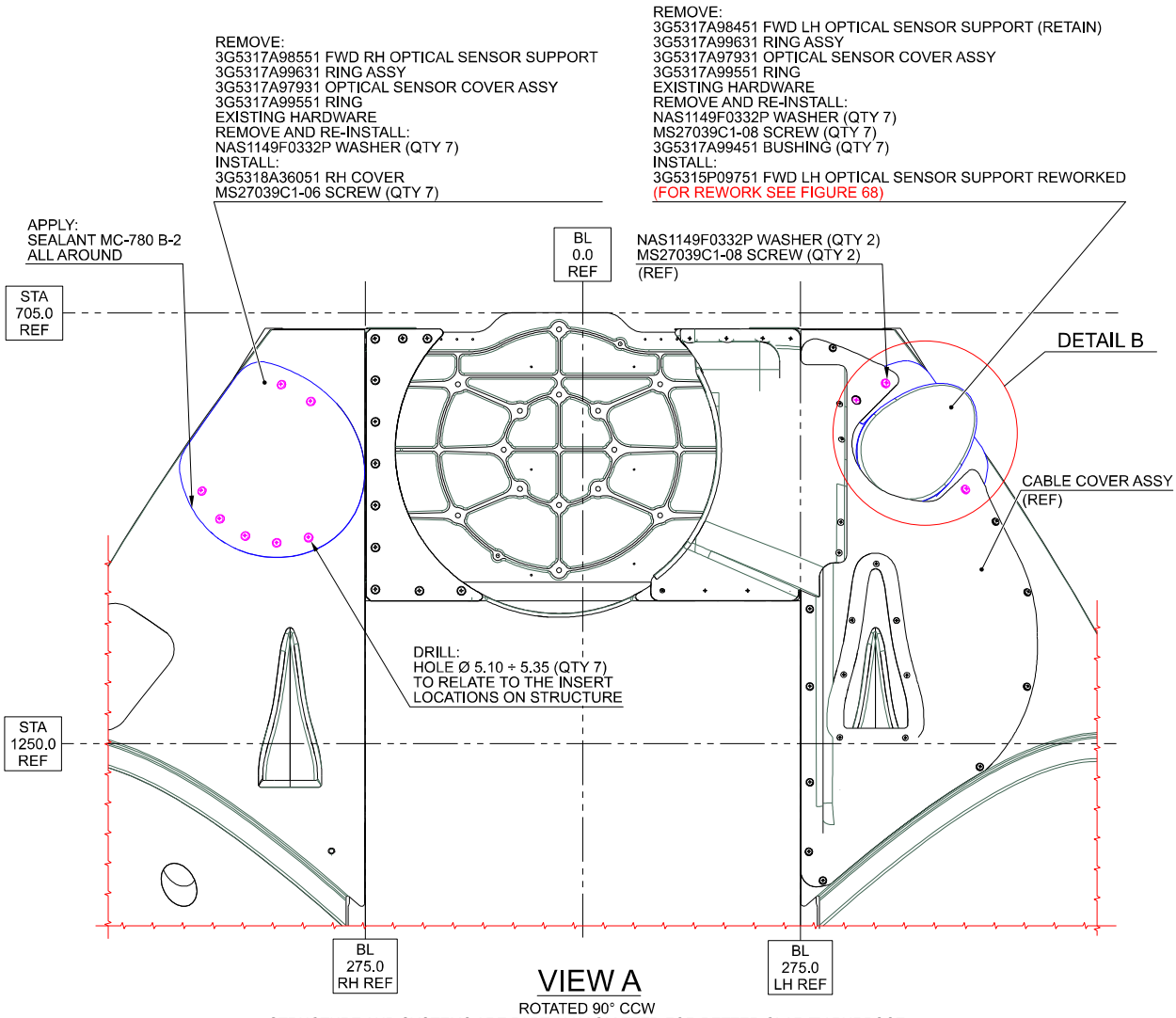
Figure 2

ASE FWD OPTICAL SENSOR STR PROVISION RETROMOD
3G5310P22711



VIEW LOOKING INBOARD LH SIDE

DETAIL B



VIEW A
ROTATED 90° CCW
STRUCTURE AND SYSTEMS ARE PARTIALLY OMITTED FOR BETTER CLARITY PURPOSE

Figure 3

FWD LH OPTICAL SENSOR SUPPORT REWORKED
3G5315P09751

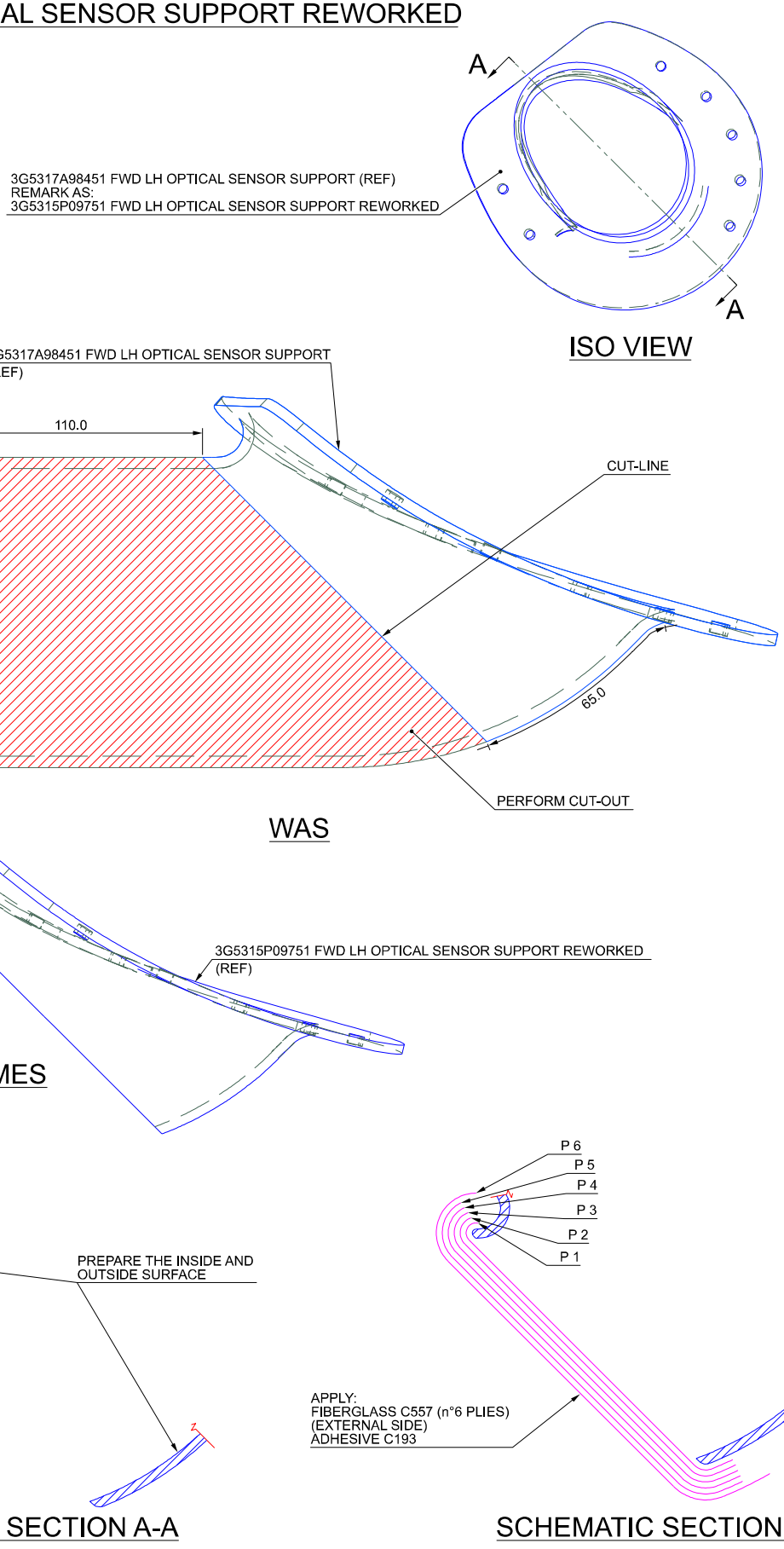


Figure 4

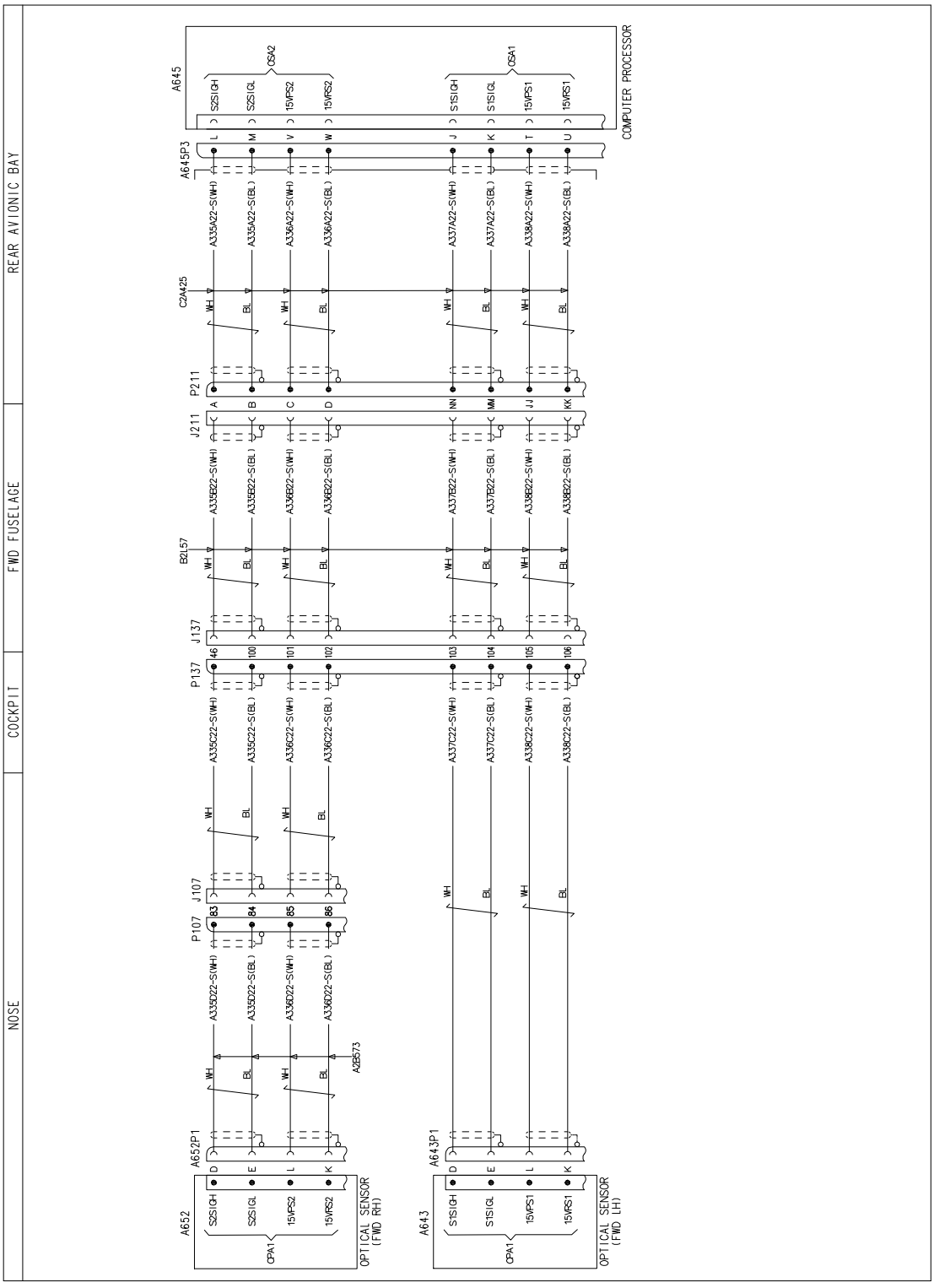

NOSE
COCKPIT
FWD FUSELAGE
REAR AVIONIC BAY
A645
COMPUTER PROCESSOR
S2SIGH
S2SIGL
15VPS2
15VRS2
S1SIGH
S1SIGL
15VPS1
15VRS1
CSA2
CSA1
A645P3
C2A425
P211
J211
B2157
P137
J137
P107
J107
A652
A652P1
OPTICAL SENSOR (FWD RH)
A643
A643P1
OPTICAL SENSOR (FWD LH)
CPA1
A28573
FUNCTIONAL NOTES
ALL CABLES ARE IN LOOM A2A584 UNLESS SPECIFIED
ALL CABLES ARE OF TYPE AS61A12 22 UNLESS SPECIFIED

Figure 5

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.