
SERVICE BULLETIN

N° **139-605**

DATE: June 4, 2020

REV. : A - March 9, 2021

TITLE

ATA 32 - ELECTRICAL WHEEL BRAKE CABLE ASSY REPLACEMENT

REVISION LOG

Revision A of this Service Bulletin cancels and supersedes the first issue dated June 4, 2020. Helicopters already compliant with previous issues of this Service Bulletin do not need any additional action.

Revision A is issued to update connections of a cable interfacing with electrical wheel brake cable assy.

Revision bars identify changes.

1. PLANNING INFORMATION

A. EFFECTIVITY

AB139/AW139 helicopters equipped with kit powered parking brake module P/N 3G3240F00111 from S/N 31005 to S/N 31888 (except S/N 31007) and from S/N 41001 to S/N 41333 (except S/N 41237).

All AB139/AW139 helicopters that have accomplished Service Bulletin 139-137 before its revision C, dated October 17, 2019.

B. COMPLIANCE

Within and not later than six (6) months after the first issue of this Service Bulletin, for helicopters equipped with kit low speed landing aural warning P/N 4G2350F01512.

Within and not later than twelve (12) months after first the issue of this Service Bulletin, for helicopters NOT equipped with kit low speed landing aural warning P/N 4G2350F01512.

C. CONCURRENT REQUIREMENTS

N.A.

D. REASON

This Service Bulletin is issued to provide the necessary instruction for the replacement of a wheel brake cable assy, that causes improper operation of low speed landing aural warning kit.

E. DESCRIPTION

This Service Bulletin has been developed as consequence of a misalignment of A1B6 wheel brake cable assy with current design configuration. Its incorrect connections could lead to improper operation of low speed landing aural warning kit.

For this reason, helicopters equipped with kit powered parking brake module P/N 3G3240F00111 need the replacement of the subject cable assy.

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.

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

G. MANPOWER

To comply with this Service Bulletin approximately nine (9) MMH are deemed necessary (NLG doors removal and installation not included).

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

H. WEIGHT AND BALANCE

N.A.

I. REFERENCES

1) PUBLICATIONS

Following Data Modules refer to AMP:

<u>DATA MODULE</u>	<u>DESCRIPTION</u>	<u>PART</u>
DM01 39-A-00-20-00-00A-120A-A	Helicopter on ground for a safe maintenance	-
DM02 39-A-06-41-00-00A-010A-A	Access doors and panels - General data	-
DM03 39-A-52-81-01-00A-520A-K	Left nose landing gear door - Remove procedure	-
DM04 39-A-52-81-01-00A-720A-K	Left nose landing gear door - Install procedure	-
DM05 39-A-52-81-02-00A-520A-K	Right nose landing gear door - Remove procedure	-
DM06 39-A-52-81-02-00A-720A-K	Right nose landing gear door - Install procedure	-
DM07 39-B-32-42-00-00A-320A-K	Wheel brake system - Operation test	-

2) ACRONYMS & ABBREVIATIONS

AMD	Aircraft Material Data Information
AMP	Aircraft Maintenance Publication
DM	Data Module
FH	Flight Hours
IPD	Illustrated Parts Data

ITEP Illustrated Tool and Equipment Publication
MMH Maintenance Man Hours
MMIR Maintenance Malfunction Information Report
NLG Nose Landing Gear
WBPEM Wheel Brake Parking and Emergency Module

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	3G9A11B00601A2R		Electrical wheel brake C/A (A1B6)	1		(1)	-
2	3G9A11B00611A2R		Electrical wheel brake C/A (A1B6)	1		(2)	-
3	A574A01-01		Heat-shrinkable elbow boot	1		(3)	-
4	A574A02-01		Heat-shrinkable elbow boot	1		(3)	-

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
5	EN6049-006-05-5	Nomex sleeve	AR	(4)	-

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) Applicable to AB139/AW139 helicopters from S/N 31005 to S/N 31157 and from S/N 41001 to S/N 41023.
- (2) Applicable to AW139 helicopters from S/N 31201 to S/N 31888, and from S/N 41201 to S/N 41333.
- (3) To be used on helicopters equipped with NLG doors kit P/N 3G5280F00111.
- (4) 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

WARRANTY: 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.
 - c) During the installation of bonding braids or components requiring grounding, clean the surface structure in order to obtain a good ground contact.
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. If the helicopter is equipped with NLG doors kit, in accordance with AMP DM 39-A-52-81-01-00A-520A-K and DM 39-A-52-81-02-00A-520A-K remove the left and right NLG doors.

NOTE

Perform following steps 3 and 4 on AB139/AW139 helicopters from S/N 31005 to S/N 31157 and from S/N 41001 to S/N 41023.

3. In accordance with AMP DM 39-A-06-41-00-00A-010A-A and with reference to Figures 1 and 2, gain access to the area affected by the replacement and perform the following procedure:
 - 3.1 With reference to Figures 1 and 2, remove and discard the existing A1B6 electrical wheel brake C/A. Retain existing hardware for later reuse.

NOTE

Use nomex sleeve P/N EN6049-006-05-5 to protect the cable assembly.

- 3.2 With reference to Figures 1 and 2, lay down the A1B6 electrical wheel brake C/A P/N 3G9A11B00601A2R following the existing route and secure the cables using the existing hardware.

- 3.3 With reference to Figures 2 and 7, if the helicopter is equipped with NLG doors kit P/N 3G5280F00111, install a heatshrinkable elbow boot P/N A574A01-01 or P/N A574A02-01 on AP254P1 connector in lieu of the straight boot, in order to avoid any interference between connector boot and NLG actuator.
- 3.4 With reference to Figure 2, connect pressure switch LH connector S75P1, WBPEM connector A254P1, sectioning connectors J172, J171 and P170 of the A1B6 electrical wheel brake C/A P/N 3G9A11B00601A2R.
4. With reference to Figure 2 and to Figure 8 wiring diagram, check the modification made according to the following procedure:
 - 4.1 Disconnect P172 connector from J172 connector.
 - 4.2 Press switch S54.
 - 4.3 Make sure that there is continuity between pin E and pin F of J172 connector when switch S54 is activated.
 - 4.4 Connect P172 connector to J172 connector.

NOTE

Perform following steps 5 and 6 on AW139 helicopters from S/N 31201 to S/N 31888 and from S/N 41201 to S/N 41333.

Refer to Figures 3 and 4 for AW139 helicopters from S/N 31201 to S/N 31398, and from S/N 41201 to S/N 41293.

Refer to figures 5 and 6 for AW139 helicopters from S/N 31400 to S/N 31888 and from S/N 41300 to S/N 41333.

5. In accordance with AMP DM 39-A-06-41-00-00A-010A-A and with reference to Figures 3 thru 6, gain access to the area affected by the replacement and perform the following procedure:
 - 5.1 With reference to Figures 3 thru 6, remove and discard the existing A1B6 electrical wheel brake. Retain existing hardware for later reuse.

NOTE

Use nomex sleeve P/N EN6049-006-05-5 to protect the cable assembly.

- 5.2 With reference to Figures 4 or 6, lay down the A1B6 electrical wheel brake C/A P/N 3G9A11B00611A2R following the existing route and secure the cables using the existing hardware.

- 5.3 With reference to Figures 4 (or 6) and 7, if the helicopter is equipped with NLG doors kit P/N 3G5280F00111, install a heatshrinkable elbow boot P/N A574A01-01 or P/N A574A02-01 on AP254P1 connector in lieu of the straight boot, in order to avoid any interference between connector boot and NLG gear actuator.
- 5.4 With reference to Figures 4 or 6, connect pressure switch LH connector S75P1, WBPEM connector A254P1, sectioning connectors J150, J156 and P154 of the A1B6 electrical wheel brake C/A P/N 3G9A11B00611A2R.

NOTE

The following steps 5.5 thru 5.8 are applicable **ONLY** to AW139 helicopters from S/N 31201 to S/N 31888 and from S/N 41201 to S/N 41333 not equipped with Primus Epic Phase 7 or successive versions.

- 5.5 Disconnect connector P150 from connector J150.
- 5.6 With reference to Figure 9 wiring diagram (WAS), using an electrical tester, check if pin E and pin Y of the connector P150 are short-circuited.
- 5.7 If pin E and pin Y of the connector P150 are short-circuited, perform the following procedure otherwise proceed with step 5.8:
 - 5.7.1 With reference to Figure 9 wiring diagram (BECOMES), remove the electrical connection of wire ID G153C20-G (C/A A1B317) from pin E of the connector P150.
 - 5.7.2 Stow wire ID G153C20-G using an applicable cap.
- 5.8 Connect connector P150 to connector J150.
6. With reference to Figure 4 (or 6) and to Figure 8 wiring diagram, check the modification made according to the following procedure:
 - 6.1 Disconnect P150 connector from J150 connector.
 - 6.2 Press switch S54.
 - 6.3 Make sure that there is continuity between pin E and pin F of J150 connector when switch S54 is activated.
 - 6.4 Connect P150 connector to J150 connector.
7. In accordance with AMP DM 39-B-32-42-00-00A-320A-K perform the operation check of the wheel brake system.
8. If the helicopter is equipped with NLG doors kit, in accordance with AMP DM 39-A-52-81-01-00A-720A-K and DM 39-A-52-81-02-00A-720A-K install the left and right NLG doors.
9. Return the helicopter to flight configuration and record for compliance with this Service

Bulletin on the helicopter logbook.

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

engineering.support.lhd@leonardocompany.com

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

3G3240A18812 (REF)
ELECTRICAL WHEEL BRAKE CABLE ASSY
INSTALLATION

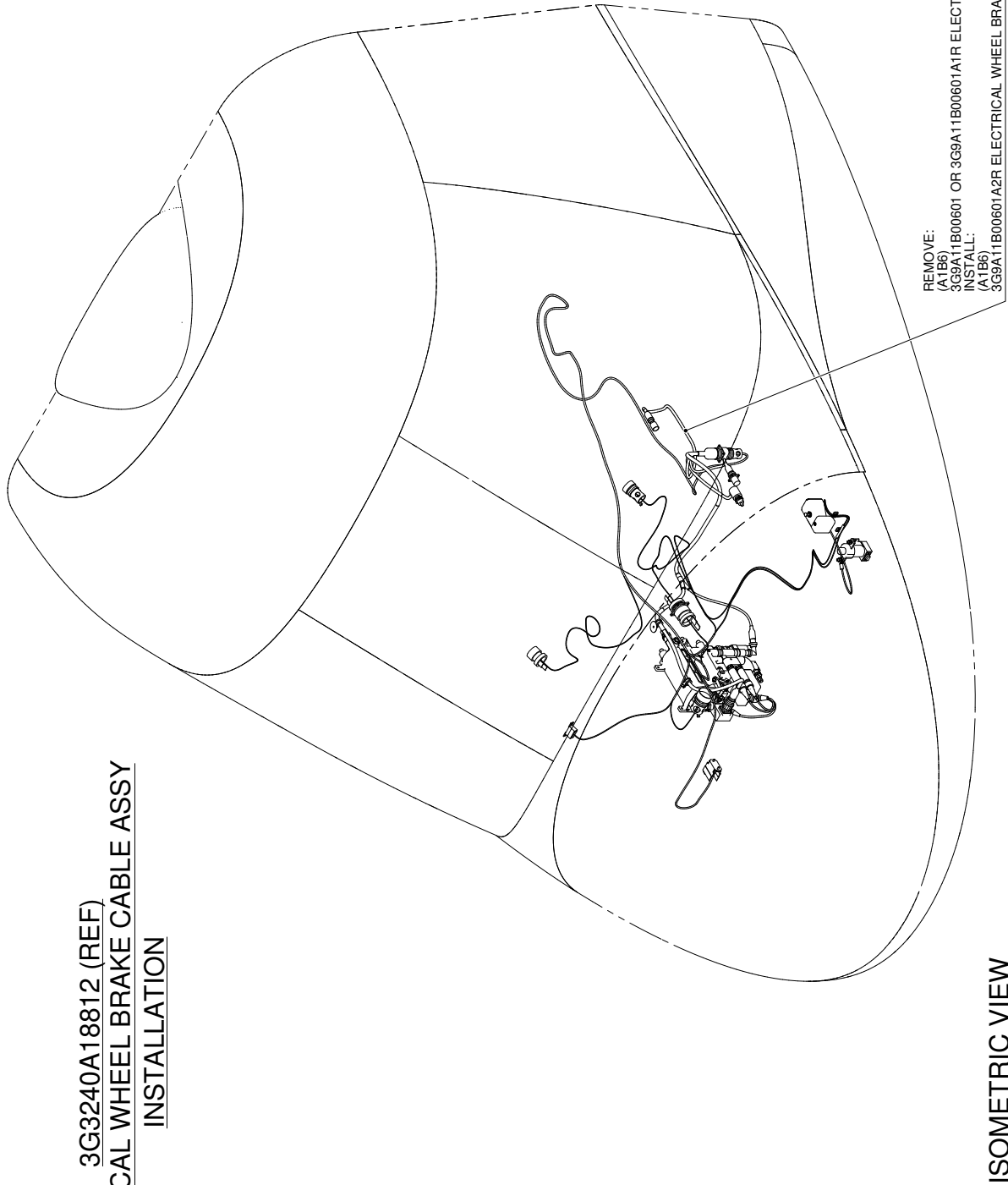


Figure 1

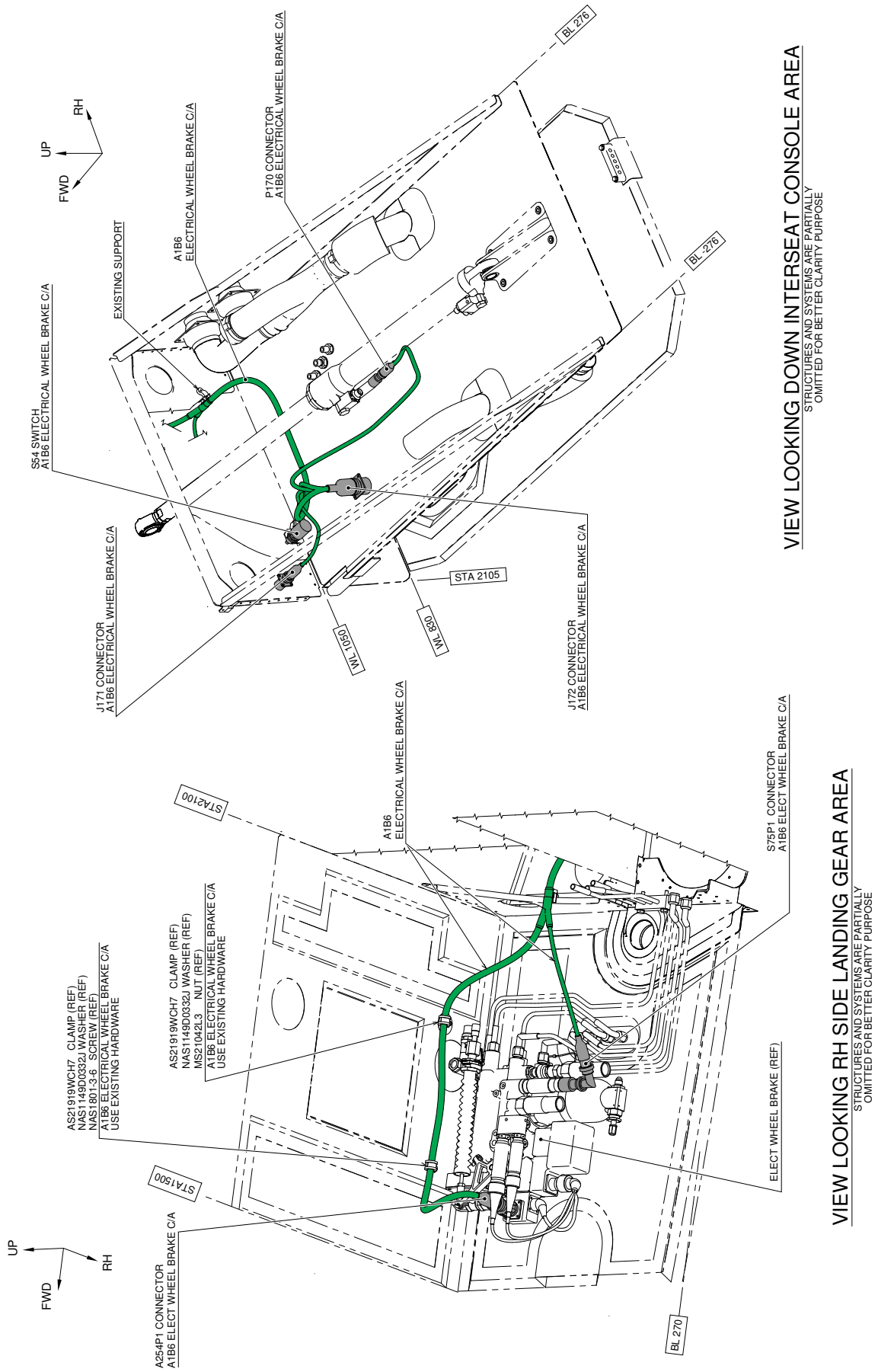
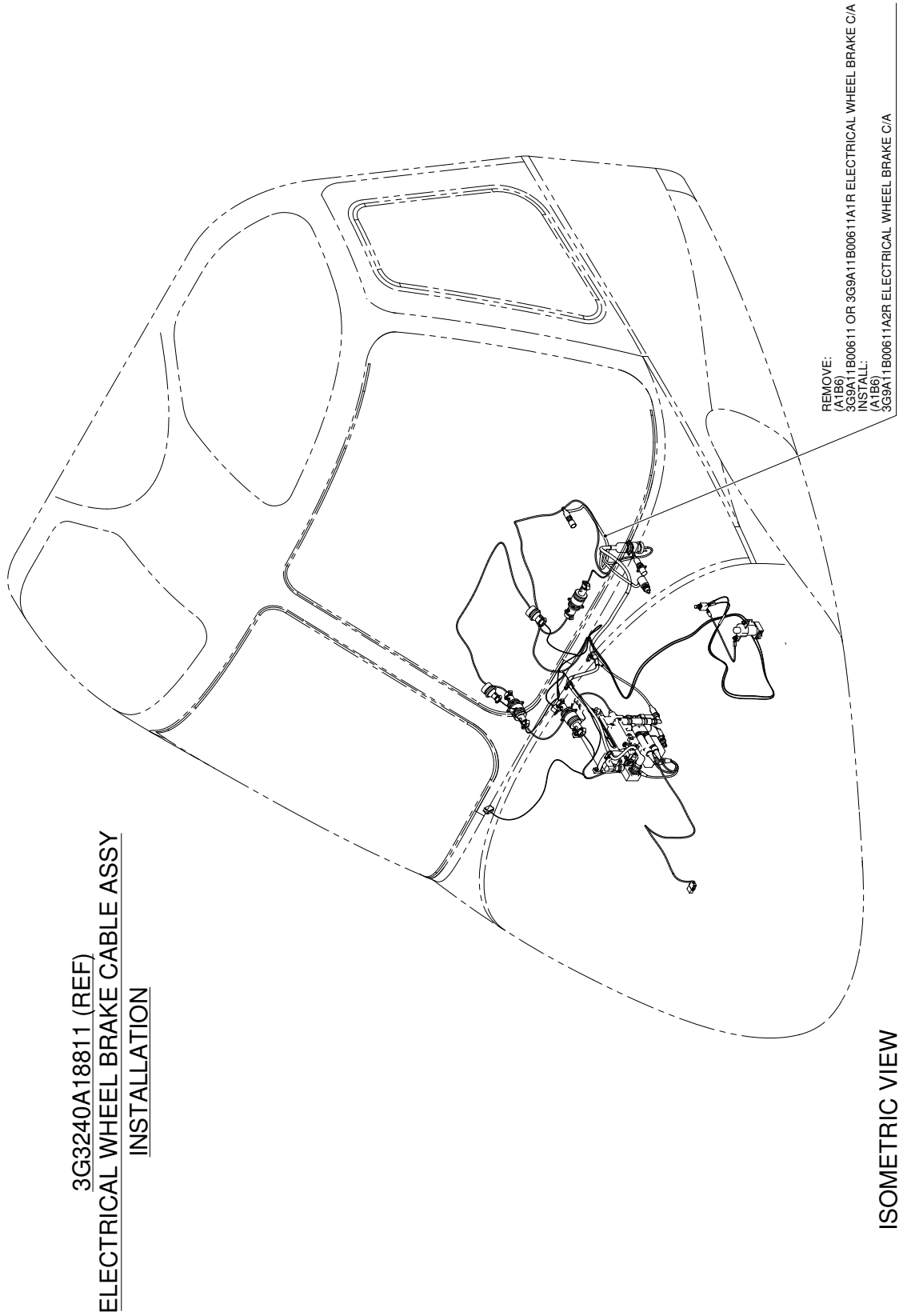


Figure 2



3G3240A18811 (REF)
ELECTRICAL WHEEL BRAKE CABLE ASSY
INSTALLATION

ISOMETRIC VIEW

Figure 3

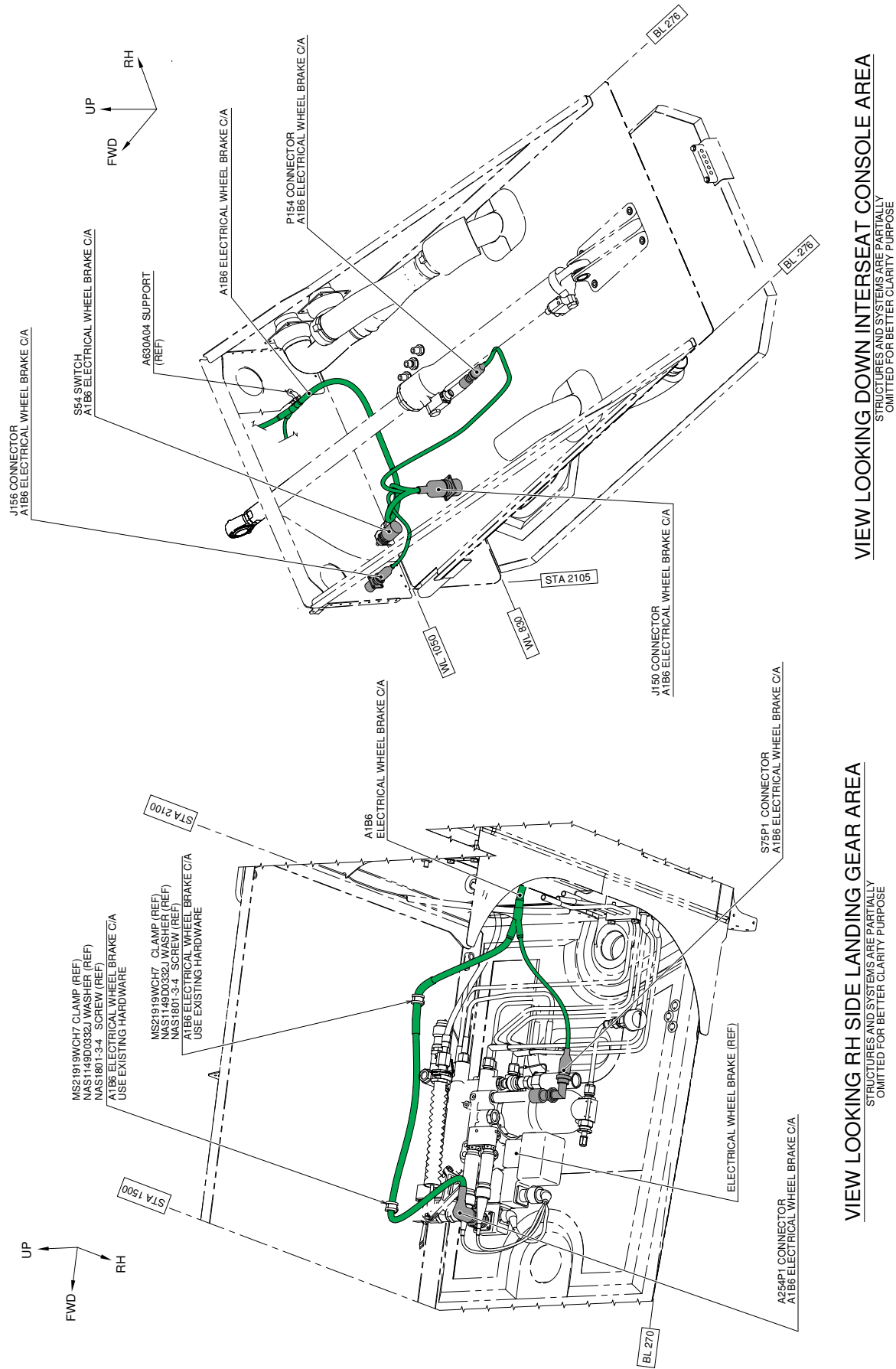


Figure 4

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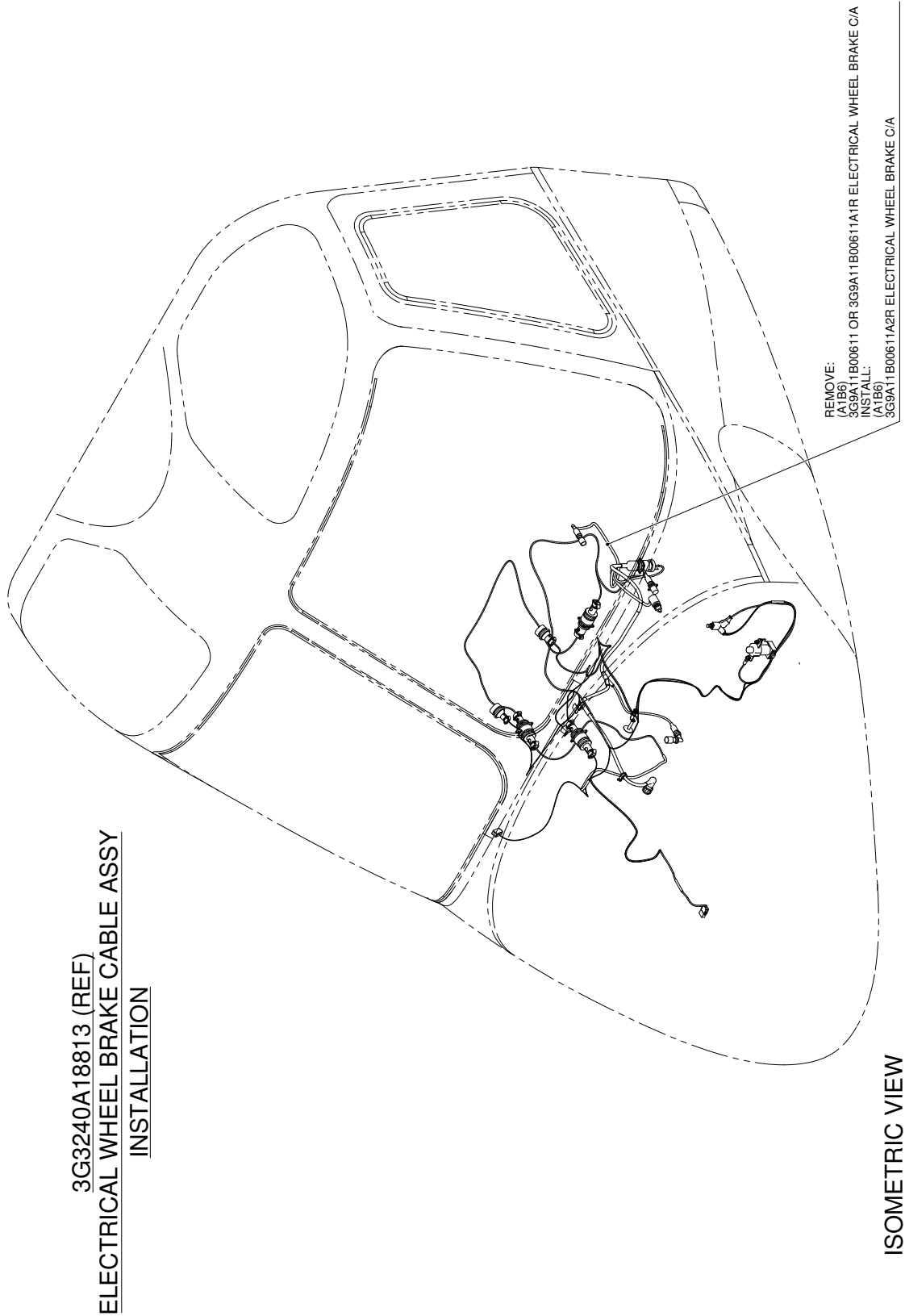


Figure 5

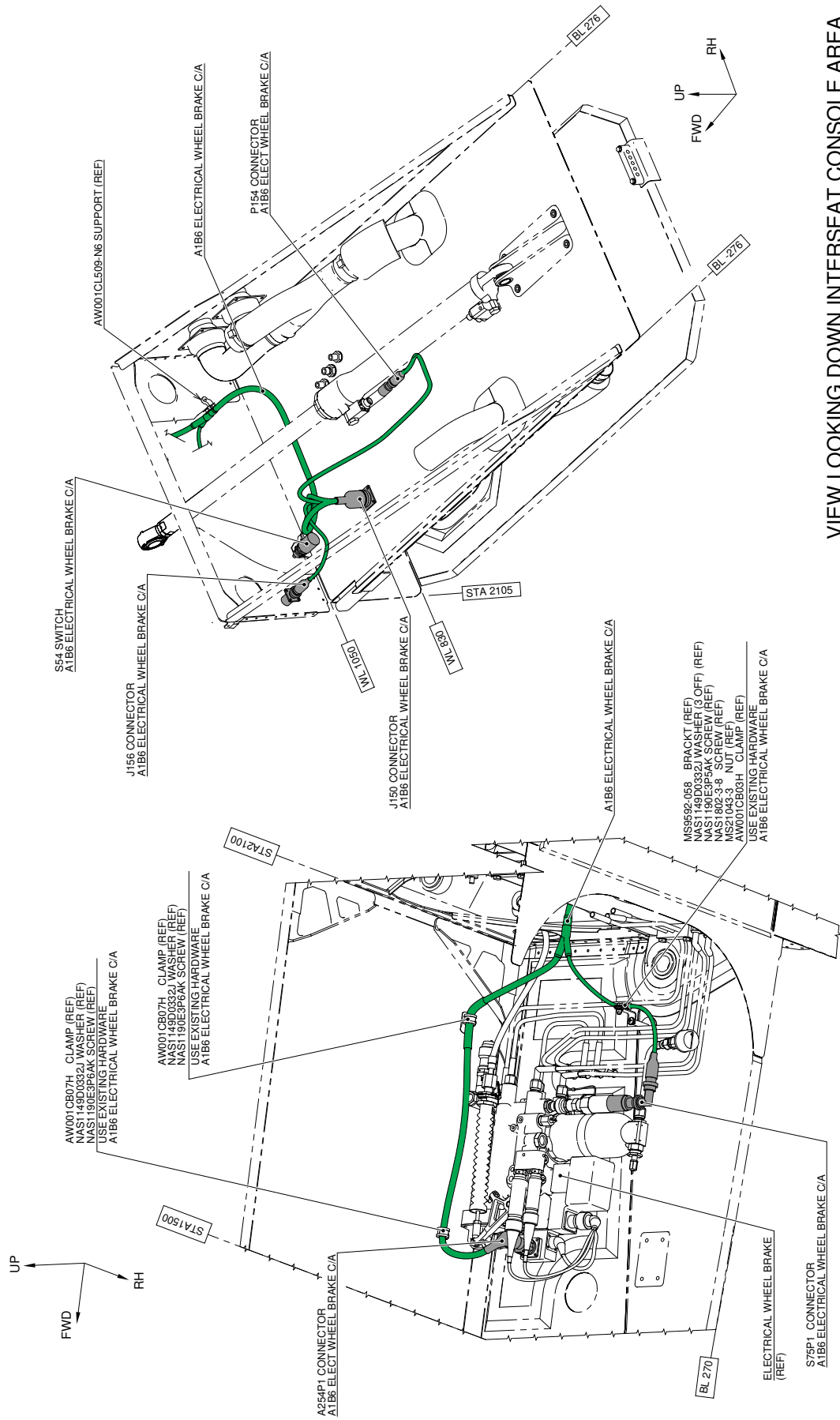


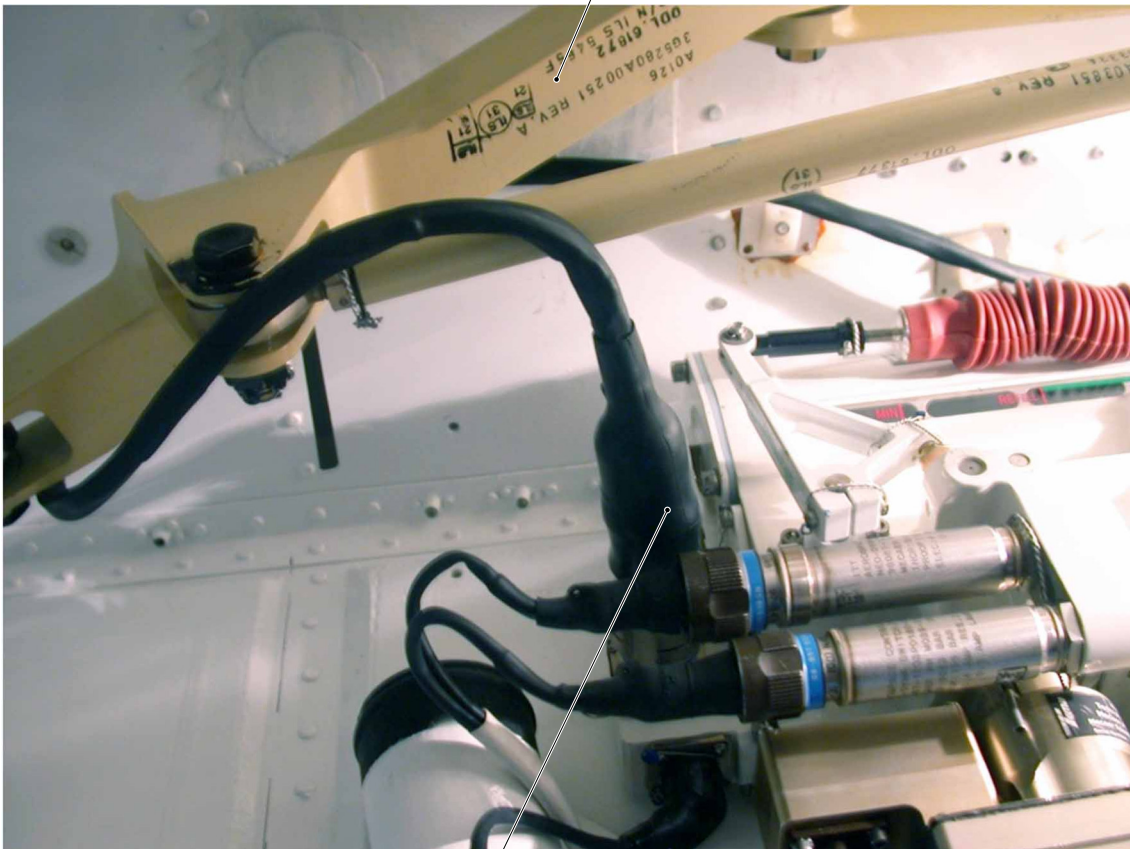
Figure 6

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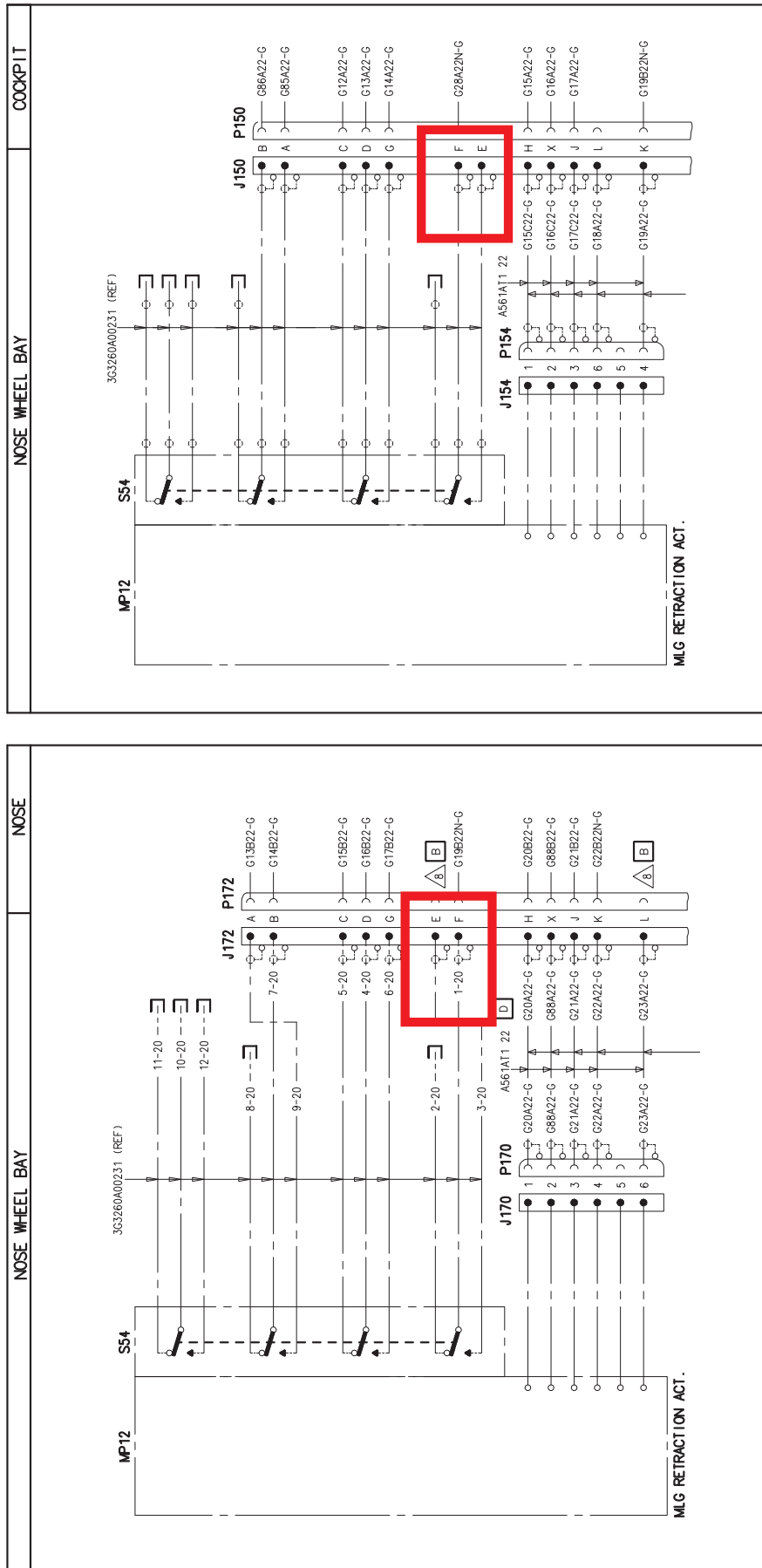
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NOSE LANDING GEAR DOORS KIT P/N 3G5280F00111
(REF)



A254P1 CONNECTOR
A1B6 ELECTRICAL WHEEL BRAKE C/A

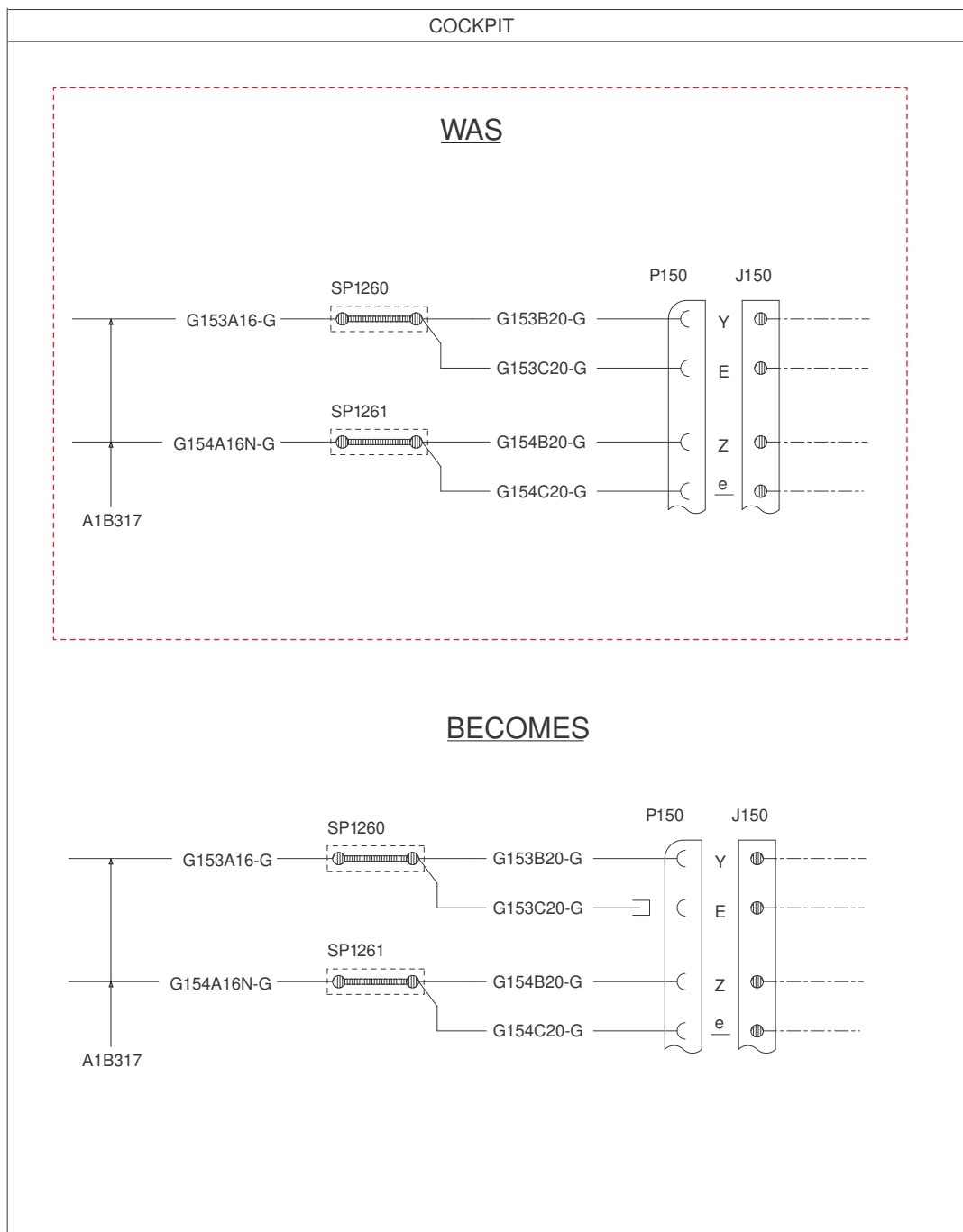
Figure 7



AW139 HELICOPTERS
 FROM S/N 31201 TO S/N 31888 AND
 FROM S/N 41201 TO S/N 41333

AB139/AW139 HELICOPTERS
 FROM S/N 31005 TO S/N 31157 AND
 FROM S/N 41001 TO S/N 41023

Figure 8



APPLICABLE TO AW139 HELICOPTERS
 FROM S/N 31201 TO S/N 31888 AND FROM S/N 41201 TO S/N 41333
 NOT EQUIPPED WITH PRIMUS EPIC PHASE 7 OR SUCCESSIVE VERSIONS.

Figure 9

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.