 LEONARDO MALAYSIA SDN.BHD.		WORK CARD		SERVICE ORDER NUMBER: 90025566		WORKCARD NUMBER: 2022/31763/004-05	
		TITLE: EASA AD NO.: 2021-0044R1 ISSUED: 12 MAY 2022 (ASB 139-661 DATE: MAY 9, 2022 REV.: B) - ATA 24 - OVERHEAD PANEL INSPECTION (PART II)		CUSTOMER: LEONARDO HELICOPTER ITALY (LHI)			
REGISTRATION: 9M-BGH	AIRFRAME HOURS: 300:40	#1 ENGINE	SERIAL NUMBER: PCE-KB1931	#2 ENGINE	SERIAL NUMBER: PCE-KB1885	APU	SERIAL NUMBER: N/A
SERIAL NUMBER: 31763	LANDINGS: 838		HOURS: 300:40		HOURS: 300:40		HOURS: 300:40


NO	SOURCE	TASK / REFERENCE	REMARKS	MECHANIC SIGN	* AH SIGN & STAMP	DATE
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NOTE: FOR FIGURE(S), REFER TO IETP / ENGINE MANUAL / AD / SB.

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) LET ADHESIVE CURE AT ROOM TEMPERATURE FOR AT LEAST 24 HOURS.
- d) 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.	SATISFACTORY NIL FINDINGS	<i>adh</i>	<i>adh</i> 	7/11/22
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<input type="checkbox"/> PARTS / MATERIAL USED / COMPONENT CHANGE RECORD HAVE BEEN RAISED AND ATTACHED.	<input type="checkbox"/> CALIBRATED / SPECIAL TOOLS RECORD SHEET HAVE BEEN RAISED AND ATTACHED.
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* APPROVAL HOLDER HAVE VERIFIED THAT ALL TOOLS, EQUIPMENT AND OTHER EXTRANEIOUS PART OF MATERIALS ARE CLEARED AND ALL TASKS OR INSPECTIONS HAVE BEEN CARRIED OUT TO THE REQUIRED STANDARD. TASK HAS BEEN PERFORMED I.A.W MAINTENANCE MANUAL SPECIFIED IN WORKPACK INDEX LM/QA/GEN/01.

NO	SOURCE	TASK / REFERENCE	REMARKS	MECHANIC SIGN	* AH SIGN & STAMP	DATE
2	-	<p>WITH REFERENCE TO FIGURE 1 AND FIGURE 2 GAIN ACCESS TO THE AFFECTED AREA AND PERFORM THE INSPECTION INSIDE THE OVERHEAD PANEL OF THE PROTECTIVE TAPE AS DESCRIBED IN THE FOLLOWING PROCEDURE:</p> <p>2.1 IN ACCORDANCE WITH THE APPLICABLE STEPS OF AMP DM 39-A-24-91-01-00A-520A-A AND WITH REFERENCE TO FIGURE 1 DETAIL A, OPEN THE CIRCUIT BREAKER PANEL ASSY WITHOUT REMOVING IT.</p>	<p>SATISFACTORY</p> <p>NIL FINDINGS</p>		 	<p>31/10/22</p>
		<p>NOTE</p> <p>WITH REFERENCE TO STEPS 2.2 THRU 2.7, IF THE TAPE SKY FLEX GSC-21-98330-012 GUA 4110-1 OR THE 3M 8560 POLYURETHANE PROTECTIVE TAPE ARE USED AS AN ALTERNATIVE N°3 LAYERS INSTEAD OF N°2 ARE APPLIED.</p> <p>NOTE</p> <p>WITH REFERENCE TO THE FOLLOWING STEP 2.2, IF NO FINDINGS ARE POINTED OUT IN THE TAPE CONDITION, SKIP TO STEP 2.6.</p> <p>2.2 WITH REFERENCE TO FIGURE 1 DETAIL A AND VIEW B, TO FIGURE 2 VIEW C AND VIEW D, CHECK FOR THE CONDITION OF THE N°2 LAYERS OF THE WHITE TAPE P/N AW005ME04T05305 (OR EQUIVALENT P/N LISTED IN CONSUMABLE LIST) ON N°10 ANCHOR NUTS P/N A407A3C2P (N°5 ON THE LH SIDE AND N°5 ON THE RH SIDE).</p>	<p>SATISFACTORY</p> <p>NIL FINDINGS</p> <p>TAPE < 3mm</p>		 	<p>31/10/22</p>

<input type="checkbox"/> PARTS / MATERIAL USED / COMPONENT CHANGE RECORD HAVE BEEN RAISED AND ATTACHED.	<input type="checkbox"/> CALIBRATED / SPECIAL TOOLS RECORD SHEET HAVE BEEN RAISED AND ATTACHED.
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* APPROVAL HOLDER HAVE VERIFIED THAT ALL TOOLS, EQUIPMENT AND OTHER EXTRANEIOUS PART OF MATERIALS ARE CLEARED AND ALL TASKS OR INSPECTIONS HAVE BEEN CARRIED OUT TO THE REQUIRED STANDARD. TASK HAS BEEN PERFORMED I.A.W MAINTENANCE MANUAL SPECIFIED IN WORKPACK INDEX LM/QA/GEN/01.

NO	SOURCE	TASK / REFERENCE	REMARKS	MECHANIC SIGN	* AH SIGN & STAMP	DATE
		<p>NOTE PERFORM THE FOLLOWING STEP 2.3 ONLY IF THE CHOSEN TAPE TO BE APPLIED IS WIDER THAN 30 MM.</p> <p>2.3 CUT THE TAPE IN A LONGITUDINAL WAY TO MAKE IT BE 30 MM WIDE.</p>	<p>NOT APPLICABLE</p> <p>TAPE < 30MM</p>	<p>N/A</p> 	<p>adl</p> 	31/10/22
		<p>NOTE APPLY ONLY ONE PIECE OF TAPE (TWO LAYERS) IN A CONTINUOUS WAY.</p> <p>NOTE PERFORM THE FOLLOWING STEP 2.4 ONLY IF YOU NEED TO REPLACE THE PROTECTIVE TAPE ON THE LH SIDE.</p> <p>2.4 WITH REFERENCE FIGURE 2 VIEW C, REMOVE N°2 LAYERS OF THE WHITE TAPE FROM THE ANCHOR NUTS AND APPLY IN THE SAME POSITION N°2 NEW LAYERS OF THE WHITE TAPE P/N AW005ME04T05305 (OR EQUIVALENT P/N LISTED IN CONSUMABLE LIST).</p>	<p>NOT APPLICABLE</p> <p>TAPE < 30MM</p>	<p>N/A</p>	<p>adl</p> 	21/10/22
		<p>NOTE PERFORM THE FOLLOWING STEP 2.5 ONLY IF YOU NEED TO REPLACE THE PROTECTIVE TAPE ON THE RH SIDE.</p> <p>2.5 WITH REFERENCE TO FIGURE 2 VIEW D, REPEAT STEP 2.4 FOR THE RH SIDE.</p>	<p>NOT APPLICABLE</p> <p>TAPE < 30MM</p>	<p>N/A</p>	<p>adl</p> 	31/10/22
		<p>NOTE WITH REFERENCE TO THE FOLLOWING STEP 2.6, IF NO FINDINGS ARE POINTED OUT IN THE TAPE CONDITION, SKIP TO STEP 2.10.</p>	-	-	-	-

PARTS / MATERIAL USED / COMPONENT CHANGE RECORD HAVE BEEN RAISED AND ATTACHED.

CALIBRATED / SPECIAL TOOLS RECORD SHEET HAVE BEEN RAISED AND ATTACHED.






* APPROVAL HOLDER HAVE VERIFIED THAT ALL TOOLS, EQUIPMENT AND OTHER EXTRANEIOUS PART OF MATERIALS ARE CLEARED AND ALL TASKS OR INSPECTIONS HAVE BEEN CARRIED OUT TO THE REQUIRED STANDARD. TASK HAS BEEN PERFORMED I.A.W MAINTENANCE MANUAL SPECIFIED IN WORKPACK INDEX LM/QA/GEN/01.

NO	SOURCE	TASK / REFERENCE	REMARKS	MECHANIC SIGN	* AH SIGN & STAMP	DATE
		2.6 WITH REFERENCE TO FIGURE 1 DETAIL A AND VIEW B, TO FIGURE 2 VIEW C AND VIEW D, CHECK FOR THE CONDITION OF THE N°2 LAYERS OF THE WHITE TAPE P/N AW005ME04T05305 (OR EQUIVALENT P/N LISTED IN CONSUMABLE LIST) ON EACH OF THE N°6 ANCHOR NUTS P/N A407A3C2P (N°3 ON THE LH SIDE AND N°3 ON THE RH SIDE).	SATISFACTORY NIL FINDINGS TAPE < 30mm	<i>act</i>	<i>act</i> 	31/11/22
		NOTE PERFORM THE FOLLOWING STEP 2.7 ONLY IF THE CHOSEN TAPE TO BE APPLIED IS WIDER THAN 30 MM.	NOT APPLICABLE TAPE < 30mm	NA <i>act</i>	<i>act</i> 	31/11/22
		2.7 CUT THE TAPE IN A LONGITUDINAL WAY TO MAKE IT BE 30 MM WIDE.				
		NOTE PERFORM THE FOLLOWING STEP 2.8 ONLY IF YOU NEED TO REPLACE THE PROTECTIVE TAPE ON THE LH SIDE.	NOT APPLICABLE NO REPLACEMENT REQUIRED	NA	<i>act</i> 	31/11/22
		2.8 WITH REFERENCE TO FIGURE 2 VIEW C, REMOVE N°2 LAYERS OF THE WHITE TAPE FROM THE ANCHOR NUT AND APPLY IN THE SAME POSITION N°2 NEW LAYERS OF THE WHITE TAPE P/N AW005ME04T05305 (OR EQUIVALENT P/N LISTED IN CONSUMABLE LIST). IF NECESSARY, REPEAT FOR ALL THE THREE ANCHOR NUTS.				
		NOTE PERFORM THE FOLLOWING STEP 2.9 ONLY IF YOU NEED TO REPLACE THE PROTECTIVE TAPE ON THE RH SIDE.	NOT APPLICABLE NO REPLACEMENT REQUIRED	NA	<i>act</i> 	31/11/22
		2.9 WITH REFERENCE TO FIGURE 2 VIEW D, REPEAT STEP 2.8 FOR THE RH SIDE.				

PARTS / MATERIAL USED / COMPONENT CHANGE RECORD HAVE BEEN RAISED AND ATTACHED.

CALIBRATED / SPECIAL TOOLS RECORD SHEET HAVE BEEN RAISED AND ATTACHED.


* APPROVAL HOLDER HAVE VERIFIED THAT ALL TOOLS, EQUIPMENT AND OTHER EXTRANEIOUS PART OF MATERIALS ARE CLEARED AND ALL TASKS OR INSPECTIONS HAVE BEEN CARRIED OUT TO THE REQUIRED STANDARD. TASK HAS BEEN PERFORMED I.A.W MAINTENANCE MANUAL SPECIFIED IN WORKPACK INDEX LM/QA/GEN/01.

NO	SOURCE	TASK / REFERENCE	REMARKS	MECHANIC SIGN	* AH SIGN & STAMP	DATE
		2.10 WITH REFERENCE TO FIGURE 1 DETAIL A AND VIEW B, CHECK FOR CHAFING DAMAGE OF THE CABLE HARNESS AND ENSURE THAT CLEARANCE EXISTS BETWEEN THE CABLE HARNESS AND THE ANCHOR NUTS P/N A407A3C2P AND/OR THE SCREWS AT THE INDICATED LOCATIONS FROM N°1 THRU N°16.	SATISFACTORY NIL FINDINGS	adh	adh 	31/10/22
		<p>NOTE</p> <p>IN CASE OF FINDINGS, PERFORM THE FOLLOWING STEP 2.11.</p> <p>NOTE</p> <p>CUSTOMER MUST CONTACT PRODUCT SUPPORT ENGINEERING (ENGINEERING.SUPPORT.LHD@LEONARDO.COM) IF SUPPORT IS NEEDED TO REPLACE THE CABLES OR FUSES AND/OR TO HAVE THE APPLICABLE WIRING DIAGRAMS.</p>	N/A NOT APPLICABLE NO REPLACEMENT REQUIRED	N/A	adh 	31/10/22
		2.11 WITH REFERENCE TO FIGURE 1 DETAIL A AND VIEW B, REMOVE AND REPLACE THE DAMAGED CABLES OR FUSES.				
		2.12 IN ACCORDANCE WITH THE APPLICABLE STEPS OF AMP DM 39-A-24-91-01-00A-720A-A AND WITH REFERENCE TO FIGURE 1 DETAIL A, CLOSE THE CIRCUIT BREAKER PANEL ASSY.	SATISFACTORY NIL FINDINGS	adh	adh 	31/10/22
3	-	IN CASE OF FINDINGS, CONTACT PRODUCT SUPPORT ENGINEERING (ENGINEERING.SUPPORT.LHD@LEONARDO.COM) TO REPORT ABOUT THE RESULTS OF THE INSPECTIONS REQUESTED BY STEP 2.	N/A NOT APPLICABLE NIL FINDINGS	N/A	adh 	31/10/22
4	-	RETURN THE HELICOPTER TO FLIGHT CONFIGURATION AND RECORD FOR COMPLIANCE WITH PART II OF THIS SERVICE BULLETIN ON THE HELICOPTER LOGBOOK.	SATISFACTORY RECORDED	adh	adh 	31/10/22

PARTS / MATERIAL USED / COMPONENT CHANGE RECORD HAVE BEEN RAISED AND ATTACHED.

CALIBRATED / SPECIAL TOOLS RECORD SHEET HAVE BEEN RAISED AND ATTACHED.

* APPROVAL HOLDER HAVE VERIFIED THAT ALL TOOLS, EQUIPMENT AND OTHER EXTRANEIOUS PART OF MATERIALS ARE CLEARED AND ALL TASKS OR INSPECTIONS HAVE BEEN CARRIED OUT TO THE REQUIRED STANDARD. TASK HAS BEEN PERFORMED I.A.W MAINTENANCE MANUAL SPECIFIED IN WORKPACK INDEX LM/QA/GEN/01.

NO	SOURCE	TASK / REFERENCE	REMARKS	MECHANIC SIGN	* AH SIGN & STAMP	DATE
5	-	SEND THE ATTACHED COMPLIANCE FORM TO THE FOLLOWING MAIL BOX: ENGINEERING.SUPPORT.LHD@LEONARDO.COM AS AN ALTERNATIVE, GAIN ACCESS TO MY COMMUNICATIONS SECTION ON LEONARDO WEBPORTAL AND COMPILE THE "SERVICE BULLETIN APPLICATION COMMUNICATION".	SATISFACTORY SEND THE ATTACHMENT.	<i>adh</i>	<i>adh</i> 	5/10/22

THIS COLUMN INTENTIONALLY LEFT BLANK

<input type="checkbox"/> PARTS / MATERIAL USED / COMPONENT CHANGE RECORD HAVE BEEN RAISED AND ATTACHED.	<input type="checkbox"/> CALIBRATED / SPECIAL TOOLS RECORD SHEET HAVE BEEN RAISED AND ATTACHED.
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* APPROVAL HOLDER HAVE VERIFIED THAT ALL TOOLS, EQUIPMENT AND OTHER EXTRANEIOUS PART OF MATERIALS ARE CLEARED AND ALL TASKS OR INSPECTIONS HAVE BEEN CARRIED OUT TO THE REQUIRED STANDARD. TASK HAS BEEN PERFORMED I.A.W MAINTENANCE MANUAL SPECIFIED IN WORKPACK INDEX LM/QA/GEN/01.



Airworthiness Directive

AD No.: 2021-0044R1

Issued: 12 May 2022

Note: This Airworthiness Directive (AD) is issued by EASA, acting in accordance with Regulation (EU) 2018/1139 on behalf of the European Union, its Member States and of the European third countries that participate in the activities of EASA under Article 129 of that Regulation.

This AD is issued in accordance with Regulation (EU) 748/2012, Part 21.A.3B. In accordance with Regulation (EU) 1321/2014 Annex I Part M.A.301, or Annex Vb Part ML.A.301, as applicable, the continuing airworthiness of an aircraft shall be ensured by accomplishing any applicable ADs. Consequently, no person may operate an aircraft to which an AD applies, except in accordance with the requirements of that AD, unless otherwise specified by the Agency [Regulation (EU) 1321/2014 Annex I Part M.A.303, or Annex Vb Part ML.A.303, as applicable] or agreed with the Authority of the State of Registry [Regulation (EU) 2018/1139, Article 71 exemption].

Design Approval Holder's Name: LEONARDO S.p.A.
Type/Model designation(s): AB139 and AW139 helicopters

Effective Date: Revision 1: 19 May 2022
 Original Issue: 12 February 2021

TCDS Number(s): EASA.R.006

Foreign AD: Not applicable

Revision: This AD revises EASA AD 2021-0044 dated 05 February 2021.

ATA 24 – Electrical Power – Overhead Panel – Inspection

Manufacturer(s):

Leonardo S.p.A. Helicopters, formerly Finmeccanica S.p.A, AgustaWestland S.p.A., Agusta S.p.A.; and AgustaWestland Philadelphia Corporation, formerly Agusta Aerospace Corporation

Applicability:

AB139 and AW139 helicopters, serial numbers (s/n) as identified in Appendix 1 of this AD.

Definitions:

For the purpose of this AD, the following definitions apply:

The ASB: Leonardo Alert Service Bulletin (ASB) 139-661.

Groups: Group 1 helicopters are those that are identified by s/n in Table 1 of Appendix 1 of this AD. Group 2 helicopters are those that are identified by s/n in Table 2 of Appendix 1 of this AD.

Reason:

An occurrence was reported of smoke and fire in the cockpit of an AW139 helicopter. The results of the initial technical investigation identified that the event was caused by a short circuit inside the overhead panel, due to chafing of electrical wiring.



This condition, if not detected and corrected, could lead to damaged electrical wiring, possibly resulting in a fire in the overhead panel and consequent loss of control of the helicopter.

To address this potential unsafe condition, Leonardo issued the ASB 139-661 (original issue) to provide instructions for inspecting the overhead panel cable harnesses, anchor nuts, screws and supports, to detect chafing. Consequently, EASA issued AD 2021-0044 to require, for certain helicopters, an initial one-time detailed inspection (DET) and, for all helicopters, repetitive inspections of the wiring inside the overhead panel, and, depending on findings, accomplishment of applicable corrective action(s).

Since that AD was issued, Leonardo introduced an improved configuration of the overhead panel, featuring the installation of blind anchor nuts, which minimises the risk of chafing between the harnesses and panel fasteners. For helicopters that have this improved configuration embodied in production, the repetitive inspections of the wiring are no longer necessary.

For the reason described above, this AD is revised to reduce the Applicability.

Required Action(s) and Compliance Time(s):

Required as indicated, unless accomplished previously:

Inspection(s):

- (1) For Group 1 helicopters: Within 25 flight hours (FH) after 12 February 2021 [the effective date of the original issue of this AD], accomplish a DET inside the overhead panel in accordance with the instructions of Part I of the ASB.
- (2) For Group 1 and Group 2 helicopters: Within the compliance time specified in Table 1 of this AD, as applicable, and, thereafter, at intervals not to exceed 300 FH or 12 months, whichever occurs first, accomplish a DET inside the overhead panel in accordance with the instructions of Part II of the ASB.

Table 1 – Paragraph (2) Initial Inspection

Group	Compliance Time
1	Within 300 FH or 12 months, whichever occurs first after the inspection as required by paragraph (1) of this AD
2	Within 300 FH or 12 months, whichever occurs first after 12 February 2021 [the effective date of the original issue of this AD]



Corrective Action(s):

- (3) If, during the inspection as required by paragraph (1) this AD, any discrepancy is detected as specified in the ASB, before next flight, accomplish the applicable corrective action(s), including application of a white protective tape on the anchor nuts, in accordance with the instructions of Part I of the ASB.
- (4) If, during the inspection as required by paragraph (1) this AD, no discrepancy is detected as specified in the ASB, before next flight, apply a white protective tape on the anchor nuts in accordance with the instructions of Part I of the ASB.
- (5) If, during any inspection as required by paragraph (2) of this AD, any discrepancy is detected as specified in the ASB, before next flight, accomplish the applicable corrective action(s) in accordance with the instructions of Part II of the ASB.

Terminating Action:

- (6) None.

Reporting:

- (7) Within 30 days after each DET as required by paragraph (1) or (2) of this AD, as applicable, report the results to Leonardo, when discrepancies are detected.

Ref. Publications:

Leonardo S.p.A. Helicopters ASB 139-661 original issue dated 04 February 2021 and Revision B dated 09 May 2022.

The use of later approved revisions of the above-mentioned document is acceptable for compliance with the requirements of this AD.

Remarks:

1. If requested and appropriately substantiated, EASA can approve Alternative Methods of Compliance for this AD.
2. Based on the required actions and the compliance time, EASA have decided to issue a Final AD with Request for Comments, postponing the public consultation process until after publication.
3. Enquiries regarding this AD should be referred to the EASA Safety Information Section, Certification Directorate. E-mail: ADs@easa.europa.eu.
4. Information about any failures, malfunctions, defects or other occurrences, which may be similar to the unsafe condition addressed by this AD, and which may occur, or have occurred on a product, part or appliance not affected by this AD, can be reported to the [EU aviation safety reporting system](#). This may include reporting on the same or similar components, other than those covered by the design to which this AD applies, if the same unsafe condition can exist or may develop on an aircraft with those components installed. Such components may be installed under an FAA Parts Manufacturer Approval (PMA), Supplemental Type Certificate (STC) or other modification.



5. For any question concerning the technical content of the requirements in this AD, please contact: Leonardo S.p.A. Helicopters. E-mail: cse.aw139.AW@leonardocompany.com.



Appendix 1

Table 1 - Group 1 Helicopters

s/n	Except s/n
31005 to 31927 inclusive	31789, 31792, 31800, 31803, 31814, 31836, 31899, 31900, 31901, 31902, 31903, 31907, 31916, 31917, 31919, 31921 and 31924
41001 to 41576 inclusive	41562, 41563 and 41574
41801 to 41806 inclusive	

Table 2 - Group 2 Helicopters

s/n
31789, 31792, 31800, 31803, 31814, 31836, 31899, 31900 to 31903 inclusive, 31907, 31916, 31917, 31919, 31921, 31924, 31928 to 31976 inclusive and 31999
41562, 41563, 41574 and 41577 to 41583 inclusive
41807 to 41810 inclusive



SERVICE BULLETIN**N° 139-661****ALERT****DATE:** February 4, 2021**REV. :** B - May 9, 2022

TITLE**ATA 24 – OVERHEAD PANEL INSPECTION****REVISION LOG**

Helicopters already compliant with Part I of the first issue of this Service Bulletin do not need to comply with the Part I of the revision A of this Service Bulletin.

Revision A of this Service Bulletin has been issued to:

- Introduce alternative tape P/Ns;
- Update fastener measurement procedure.

Revision B of this Service Bulletin has been issued to close the effectivity of the Part II.

Revision bars identify changes.

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

Part I:

All AB/AW139 helicopters from S/N 31005 thru S/N 31927, from S/N 41001 thru S/N 41576 and from S/N 41801 thru S/N 41806, except the S/Ns listed in table 1.

HELICOPTERS S/Ns		
31789	31899	31916
31792	31900	31917
31800	31901	31919
31803	31902	31921
31814	31903	31924
31836	31907	41562
41563	41574	

Table 1

Part II:

All AB/AW139 helicopters from S/N 31005 to S/N 31976 and 31999, from S/N 41001 to 41583 and from S/N 41801 to S/N 41810.

B. COMPLIANCE

Part I:

Within and not later than twenty-five (25) FH from the first issue date of this Service Bulletin.

Part II:

Every three hundred (300) FH or one (1) year whichever occurs first after the compliance with Part I of this Service Bulletin or after the first issue date of this Service Bulletin for those helicopters for which the Part I is not applicable.

C. CONCURRENT REQUIREMENTS

N.A.

D. REASON

This Service Bulletin is issued in order to prescribe an inspection of the overhead panel cable harnesses, anchor nuts, screws and supports, to locate potential chafing conditions.

E. DESCRIPTION

Part I of this Service Bulletin is developed to prescribe a one-off inspection inside the overhead panel, in order to check:

- the absence of chafing between the anchor nuts/screws and the cable harnesses;
- the correct lengths of the screws fixing the Circuit Breaker Panel and the lining panels prescribing, in case of findings, their replacement with new ones;
- the condition of the supports fixing the cable harnesses;
- the presence of a clearance of at least 10.0 mm between an anchor nut and the cable harnesses. In case the clearance is not respected, cable harnesses must be properly re-routed.

Moreover, this SB prescribes the application of a white protective tape on the anchor nuts in order to avoid chafing with the cable harnesses.

Part II of this Service Bulletin is developed to prescribe a recurrent inspection inside the overhead panel in order to check the tape condition and the absence of chafing.

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 LH 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 six (6) MMH if terminal boards bonding and/or cable harness rerouting are also required, otherwise approximately three (3) MMH;

Part II: approximately two (2) MMH;

MMH are based on hands-on time and can change with helicopter configuration, 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.	I, II
DM02 39-A-24-91-01-00A-520A-A	Circuit breaker panel - Remove procedure	I,II
DM03 39-A-24-91-01-00A-720A-A	Circuit breaker panel - Install procedure	I,II
DM04 39-A-20-10-19-00A-920A-A	Plastic loom support - Replacement	I

2) ACRONYMS & ABBREVIATIONS

AMP	Aircraft Maintenance Publication
AR	As Required
ATA	Air Transport Association
DM	Data Module
DOA	Design Organization Approval
EASA	European Aviation Safety Agency
FH	Flying Hours
LH	Leonardo Helicopter
MMH	Maintenance Man Hours
N.A.	Not Applicable
P/N	Part Number

3) ANNEX

N.A.

J. PUBLICATIONS AFFECTED

N.A.

K. SOFTWARE ACCOMPLISHMENT SUMMARY

N.A.

2. MATERIAL INFORMATION

A. REQUIRED MATERIALS

1) PARTS

N.A.

2) CONSUMABLES

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

#	SPEC./LH CODE NUMBER	DESCRIPTION	Q.TY	NOTE	PART
1	AMS3255 Class II Type II AW005ME04T05305	White tape (30 mm)	AR	(1)(2)(3) (7)(8)	I, II
2	MMM-A-132 Type 2, Class II Code No. 90000581	Adhesive EA9309.3NA (C021)	AR	(1)	I
3	Commercial	Lint-free cloth (C011)	AR	(1)	I
4	TT-N-95 Type II	Aliphatic naphtha (C059)	AR	(1)	I
5	AN525-10R9	Screw	AR	(1)(4)(5)	I
6	MS51958-63B	Screw	AR	(1)(4)(6)	I
7	Commercial	Abrasive pad (C015)	AR	(1)	I

3) LOGISTIC MATRIX

N.A.

NOTES

- (1) Item to be procured as local supply.
- (2) The different tape P/Ns listed below can be accepted as an alternative to the tape AW005ME04T05305:
 - GSC-21-99605-027;
 - GSC-21-98805-027;
 - 3M 8547 Polyurethane Protective Tape;
 - 3M 8663 Polyurethane Protective Tape;
 - 3M 8663HS Polyurethane Protective Tape;
 - 3M 8663DL Polyurethane Protective Tape;
 - 3M 8560 Polyurethane Protective Tape;
 - Sky flex GSC-21-98330-012 GUA 4110-1.

Provided that the tapes are ordered white or in an equivalent very light color.
- (3) The tapes P/N GSC-21-99604-027 and P/N AW005ME04T05505 can be considered as an alternative to the other tapes listed above provided that they are cut in the longitudinal direction to become 30 mm wide.
- (4) Item to be ordered only if necessary in accordance with the required screw length.

- (5) Instead of the screw P/N AN525-10R9, under the conditions described in the Accomplishment Instruction, it is possible to install the screw P/N AN525-10R10 or P/N AN525-10R8.
- (6) Instead of the screw MS51958-63B, under the conditions described in the Accomplishment Instruction, it is possible to install the screw P/N MS51958-62B, P/N MS51958-64B, P/N MS51958-65B.
- (7) Tapes 3M 8547, 3M 8663, 3M 8663HS Polyurethane Protective Tape have to be ordered 30 mm wide or, if ordered wider, longitudinally cut to reach a width of 30 mm.
- (8) If tapes P/N AW005ME04T05305 or P/N AW005ME04T05505 are ordered, order quantity 3 m.

B. SPECIAL TOOLS

N.A.

C. INDUSTRY SUPPORT INFORMATION

N.A.

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) Let adhesive cure at room temperature for at least 24 hours.
- d) 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. With reference to Figure 1 thru Figure 6, gain access to the affected area and perform the inspection of the overhead panel cable harnesses, anchor nuts, screws and supports as described in the following procedure:
 - 2.1 In accordance with the applicable steps of AMP DM 39-A-24-91-01-00A-520A-A and with reference to Figure 1 Detail A, open the circuit breaker panel assy without removing it.
 - 2.2 With reference to Figure 1 detail A and View B, remove the screws and the washer and check the screw length at the indicated locations from n°1 thru n°10 according to the following procedure:
 - 2.2.1 With the help of a caliper, measure the ceiling circuit breaker panel thickness near each screw location.

NOTE

Performing the following step 2.2.2, the screws have to be installed keeping the circuit breaker panel open.

- 2.2.2 Reinstall the screw and the washer removed in the step 2.2 in their location keeping the circuit breaker panel open.

2.2.3 Visually check that the number of thread pitches remained visible out of the anchor nut is between 2 and 4 after having subtracted the panel thickness value previously measured (refer to Figure 5).

2.2.4 If, when subtracted the panel thickness, less than 2 or more than 4 screw thread pitches remain visible, change the screw according to the following procedure:

NOTE

The fastener length is based on the total screw length excluding the screw head.

2.2.4.1 With reference to Figure 4, Table 2, measure the screw fastener length and verify the actual screw P/N installed.

NOTE

With reference to steps 2.2.4.2 thru 2.2.4.5 move up in the Table 2 row to find one grip less and move down in the Table 2 row to find one grip more.

2.2.4.2 With reference to Figure 4, Table 2, if less than 2 screw thread pitches more than the panel thickness previously measured remain visible, install one grip more than the identified screw.

2.2.4.3 With reference to Table 2, if more than 4 screw thread pitches more than the panel thickness previously measured remain visible, install one grip less than the identified screw.

2.2.4.4 Repeat steps 2.2.4.2 and 2.2.4.3 until the correct screw P/N is identified from Table 2 and the screw thread pitches visible from the anchor nut are 2, 3 or 4 more than the panel thickness previously measured.

2.2.4.5 If no screws from Table 2 satisfy the requirement of step 2.2.4.4 contact the Product Support Engineering (engineering.support.lhd@leonardo.com).

NOTE

Some liner configurations do not require the presence of screws at the locations from n°11 thru n°16.

2.3 With reference to Figure 1 detail A and View B, check the screws length at the indicated locations from n°11 thru n°16, if applicable, according to the following procedure:

2.3.1 Visually check that the number of thread pitches remained visible out of the anchor nut is between 2 and 4 (refer to Figure 6).

- 2.3.2 If less than 2 or more than 4 screw thread pitches remain visible, change the screw according to the following procedure:

NOTE

The fastener length is based on the total screw length excluding the screw head.

- 2.3.2.1 Remove the screw and the washer and with reference to Table 3, measure the screw fastener length and verify the actual screw P/N installed.

NOTE

With reference to steps 2.3.2.2 thru 2.3.2.5 move up in the Table 3 row to find one grip less and move down in the Table 3 row to find one grip more.

- 2.3.2.2 With reference to Table 3, if less than 2 screw thread pitches remain visible, install one grip more than the identified screw.
- 2.3.2.3 With reference to Table 3, if more than 4 screw thread pitches remain visible, install one grip less than the identified screw.
- 2.3.2.4 Repeat the visual check and the steps 2.3.2.2 and 2.3.2.3 until the correct screw P/N is identified from Table 3 and the screw thread pitches visible from the anchor nut are 2, 3 or 4.
- 2.3.2.5 If no screws from Table 3 satisfy the requirement of step 2.3.2.4 contact the Product Support Engineering (engineering.support.lhd@leonardo.com).

- 2.4 With reference to Figure 1 Detail A and View B, check for chafing damage of the cable harness and ensure that clearance exists between the cable harness and the anchor nuts P/N A407A3C2P and/or the screws at the indicated locations from n°1 thru n°16.

NOTE

In case of findings, perform the following step 2.5.

NOTE

Customer must contact Product Support Engineering (engineering.support.lhd@leonardo.com) if support is needed to replace the cables or fuses and/or to have the applicable Wiring Diagrams.

- 2.5 With reference to Figure 1 Detail A and View B, reroute or remove and replace the damaged cables or fuses.

NOTE

Figure 3 is for reference only.

- 2.6 With reference to Figure 1 View B and to Figure 3 Detail E, measure at the indicated location n°16, on the LH side, the clearance between the anchor nut P/N A407A3C2P and the cable harnesses including a check of the mutual position.

NOTE

Perform the following step 2.7 if the clearance is NOT at least 10.0 mm and/or if the cable harnesses is installed BELOW the anchor nut.

- 2.7 In accordance with the applicable steps of AMP DM 39-A-20-10-19-00A-920A-A and with reference to Figure 1 View B, move the existing support P/N A630A51 or P/N AW001CL001-N6, as applicable, and re-route the cable harnesses in order to respect the clearance of at least 10.0 mm and guarantee the installation ABOVE the anchor nut.
- 2.8 With reference to Figure 1 Detail A and View B, check that all the supports P/N A630A51 and P/N AW001CL001-N6, as applicable, on the LH and RH side are soundly bonded to the panel with no evidences of detachment or delamination.

NOTE

Perform the following step 2.9 in case of discrepancies found from the check of step 2.8.

- 2.9 With reference to Figure 1, replace the supports in the interested position according to the following procedure:
- 2.9.1 Cut and remove the strap from the bundle and move away the bundle from the work area as far as possible. Make sure that you do not cause damage to the wires during this operation.

NOTE

Perform the following step 2.9.2 only if the support is partially removed or detached.

- 2.9.2 With reference to Figure 1 Detail A and View B, carefully remove the bonded plastic support P/N A630A51 and/or P/N AW001CL001-N6 with an applicable plastic spatula. Make sure that you do not cause damage to the structure during this operation.
- 2.9.3 Rub the seat of the plastic support on the structure with the Abrasive pad (C015) to remove the unwanted sealant.

CAUTION

Make a selection of the solvent to use it on the different structure to prevent damage to the related surfaces.

- 2.9.4 Clean the seat surface with the Lint-free cloth (C011) and with Aliphatic naphtha (C059).

WARNING

BE CAREFUL WHEN YOU USE THE COMPRESSED AIR. DUST AND PARTICLES CAN CAUSE INJURY TO YOUR EYES. ALWAYS USE APPLICABLE PROTECTIVE GOGGLE.

- 2.9.5 Dry the seat surface with the compressed air until you remove all the solvent.
- 2.9.6 With reference to Figure 1 Detail A and View B, install the supports P/N A630A51 and/or P/N AW001CL001-N6, as applicable, according to the following procedure:
- 2.9.6.1 Prepare the correct quantity of Adhesive EA9309.3NA (C021) for the plastic support and the structure surface.
 - 2.9.6.2 If previously removed, re-install the cable harnesses to the supports P/N A630A51 and/or P/N AW001CL001-N6.
 - 2.9.6.3 Apply a thin layer of adhesive on the structure surface where the plastic support will be installed. Make sure that adhesive is located on an area not wider than the surface of the plastic support.
 - 2.9.6.4 Apply a thin layer of the adhesive on the mating surface of the plastic support.
 - 2.9.6.5 Put the plastic support on the structure and push the plastic support against the structure. Make sure that the bottom of the plastic support is fully against the structure.
 - 2.9.6.6 Let the plastic support in this position for the cure time of the adhesive.
 - 2.9.6.7 Make sure that the adhesive makes a continuous bead around the attached plastic support.
- 2.9.7 Put the bundle in its correct position on the plastic support and safety the bundle with the applicable tiedown strap.

NOTE

Perform the following step 2.10 only if the chosen tape is wider than 30 mm.

- 2.10 Cut the tape in a longitudinal way to make it be 30 mm wide.

NOTE

With reference to step 2.11, on LH and RH side apply only one piece of tape (two layers) in a continuous way.

NOTE

With reference to steps 2.11 and 2.12, if the tape Sky flex GSC-21-98330-012 GUA 4110-1 or the 3M 8560 Polyurethane Protective Tape are used as an alternative, apply n°3 layers instead of n°2.

- 2.11 With reference to Figure 1 Detail A and View B, to Figure 2 View C and View D, apply n°2 layers of the white tape P/N AW005ME04T05305 (or equivalent P/N listed in consumable list) on n°10 anchor nuts P/N A407A3C2P (n°5 on the LH side and n°5 on the RH side).
- 2.12 With reference to Figure 1 Detail A and View B, to Figure 2 View C and View D, apply n°2 layers of the white tape P/N AW005ME04T05305 (or equivalent P/N listed in consumable list) on each of the n°6 anchor nuts P/N A407A3C2P (n°3 on the LH side and n°3 on the RH side).
- 2.13 With reference to Figure 1 Detail A and View B, temporarily remove n°10 screws from their respective anchor nuts P/N A407A3C2P at the indicated locations from n°1 thru n°10.
- 2.14 In accordance with the applicable steps of AMP DM 39-A-24-91-01-00A-720A-A and with reference to Figure 1 Detail A, close the circuit breaker panel assy using the hardware removed in the previous step 2.13.
3. In case of findings, contact Product Support Engineering (engineering.support.lhd@leonardo.com) to report about the results of the inspections requested by step 2.
4. Return the helicopter to flight configuration and record for compliance with Part I of this Service Bulletin on the helicopter logbook.
5. Send the attached compliance form to the following mail box:

engineering.support.lhd@leonardo.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. With reference to Figure 1 and Figure 2 gain access to the affected area and perform the inspection inside the overhead panel of the protective tape as described in the following procedure:
 - 2.1 In accordance with the applicable steps of AMP DM 39-A-24-91-01-00A-520A-A and with reference to Figure 1 Detail A, open the circuit breaker panel assy without removing it.

NOTE

With reference to steps 2.2 thru 2.7, if the tape Sky flex GSC-21-98330-012 GUA 4110-1 or the 3M 8560 Polyurethane Protective Tape are used as an alternative n°3 layers instead of n°2 are applied.

NOTE

With reference to the following step 2.2, if no findings are pointed out in the tape condition, skip to step 2.6.

- 2.2 With reference to Figure 1 Detail A and View B, to Figure 2 View C and View D, check for the condition of the n°2 layers of the white tape P/N AW005ME04T05305 (or equivalent P/N listed in consumable list) on n°10 anchor nuts P/N A407A3C2P (n°5 on the LH side and n°5 on the RH side).

NOTE

Perform the following step 2.3 only if the chosen tape to be applied is wider than 30 mm.

- 2.3 Cut the tape in a longitudinal way to make it be 30 mm wide.

NOTE

Apply only one piece of tape (two layers) in a continuous way.

NOTE

Perform the following step 2.4 only if you need to replace the protective tape on the LH side.

- 2.4 With reference Figure 2 View C, remove n°2 layers of the white tape from the anchor nuts and apply in the same position n°2 new layers of the white tape P/N AW005ME04T05305 (or equivalent P/N listed in consumable list).

NOTE

Perform the following step 2.5 only if you need to replace the protective tape on the RH side.

- 2.5 With reference to Figure 2 View D, repeat step 2.4 for the RH side.

NOTE

With reference to the following step 2.6, if no findings are pointed out in the tape condition, skip to step 2.10.

- 2.6 With reference to Figure 1 Detail A and View B, to Figure 2 View C and View D, check for the condition of the n°2 layers of the white tape P/N AW005ME04T05305 (or equivalent P/N listed in consumable list) on each of the n°6 anchor nuts P/N A407A3C2P (n°3 on the LH side and n°3 on the RH side).

NOTE

Perform the following step 2.7 only if the chosen tape to be applied is wider than 30 mm.

- 2.7 Cut the tape in a longitudinal way to make it be 30 mm wide.

NOTE

Perform the following step 2.8 only if you need to replace the protective tape on the LH side.

- 2.8 With reference to Figure 2 View C, remove n°2 layers of the white tape from the anchor nut and apply in the same position n°2 new layers of the white tape P/N AW005ME04T05305 (or equivalent P/N listed in consumable list). If necessary, repeat for all the three anchor nuts.

NOTE

Perform the following step 2.9 only if you need to replace the protective tape on the RH side.

- 2.9 With reference to Figure 2 View D, repeat step 2.8 for the RH side.
- 2.10 With reference to Figure 1 Detail A and View B, check for chafing damage of the cable harness and ensure that clearance exists between the cable harness and the anchor nuts P/N A407A3C2P and/or the screws at the indicated locations from n°1 thru n°16.

NOTE

In case of findings, perform the following step 2. 11.

NOTE

Customer must contact Product Support Engineering (engineering.support.lhd@leonardo.com) if support is needed to replace the cables or fuses and/or to have the applicable Wiring Diagrams.

- 2.11 With reference to Figure 1 Detail A and View B, remove and replace the damaged cables or fuses.
- 2.12 In accordance with the applicable steps of AMP DM 39-A-24-91-01-00A-720A-A and with reference to Figure 1 Detail A, close the circuit breaker panel assy.
3. In case of findings, contact Product Support Engineering (engineering.support.lhd@leonardo.com) to report about the results of the inspections requested by step 2.
4. Return the helicopter to flight configuration and record for compliance with Part II of this Service Bulletin on the helicopter logbook.
5. Send the attached compliance form to the following mail box:

engineering.support.lhd@leonardo.com

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

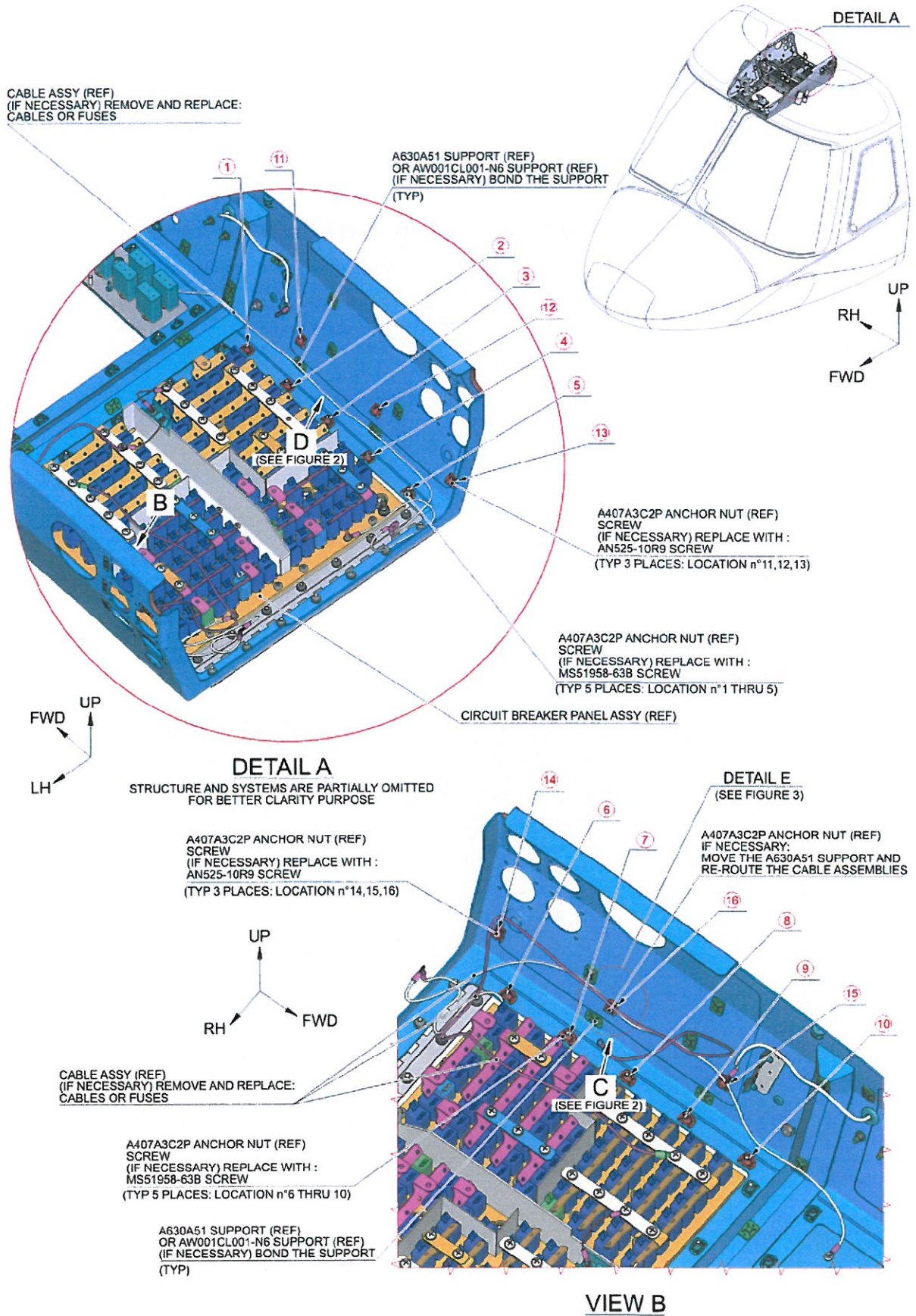


Figure 1

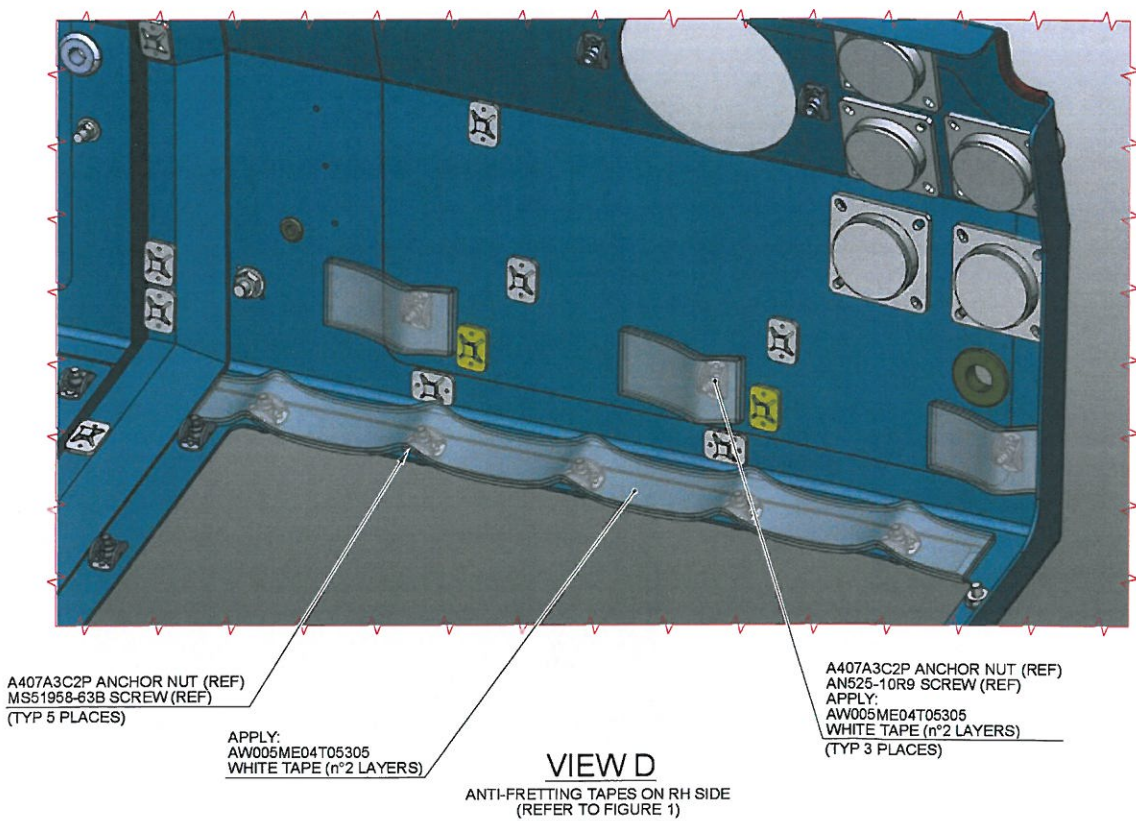
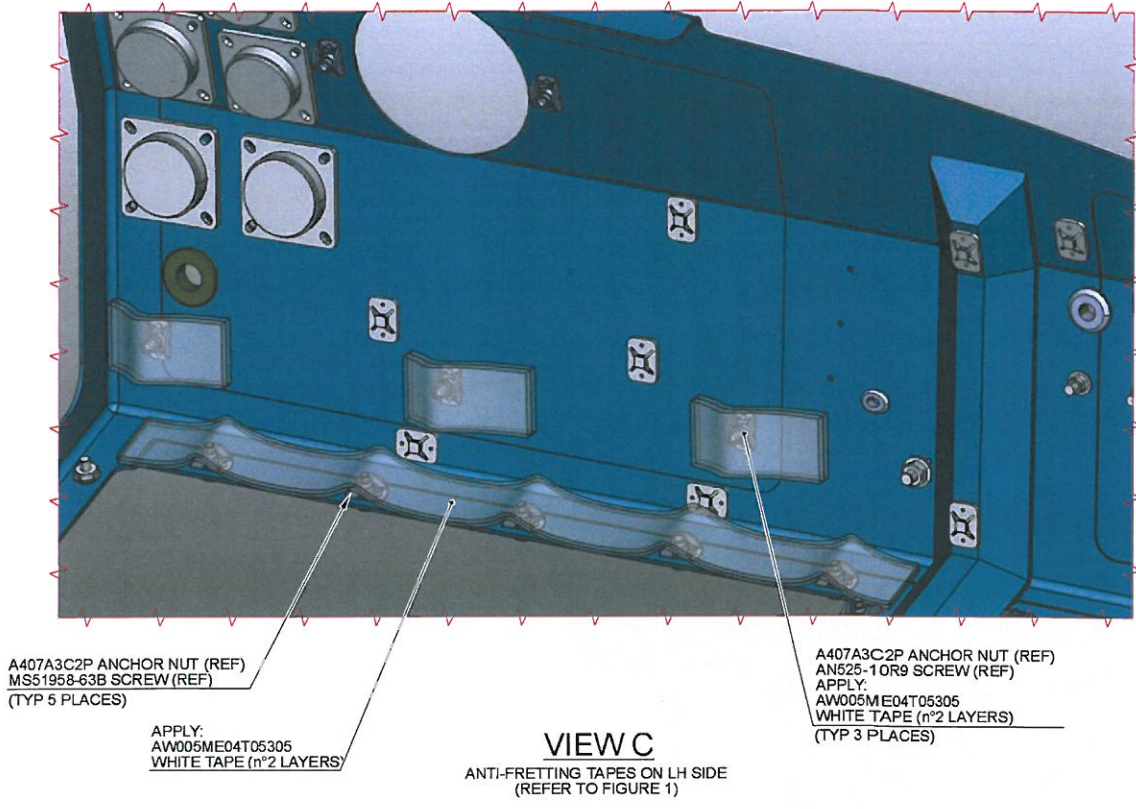
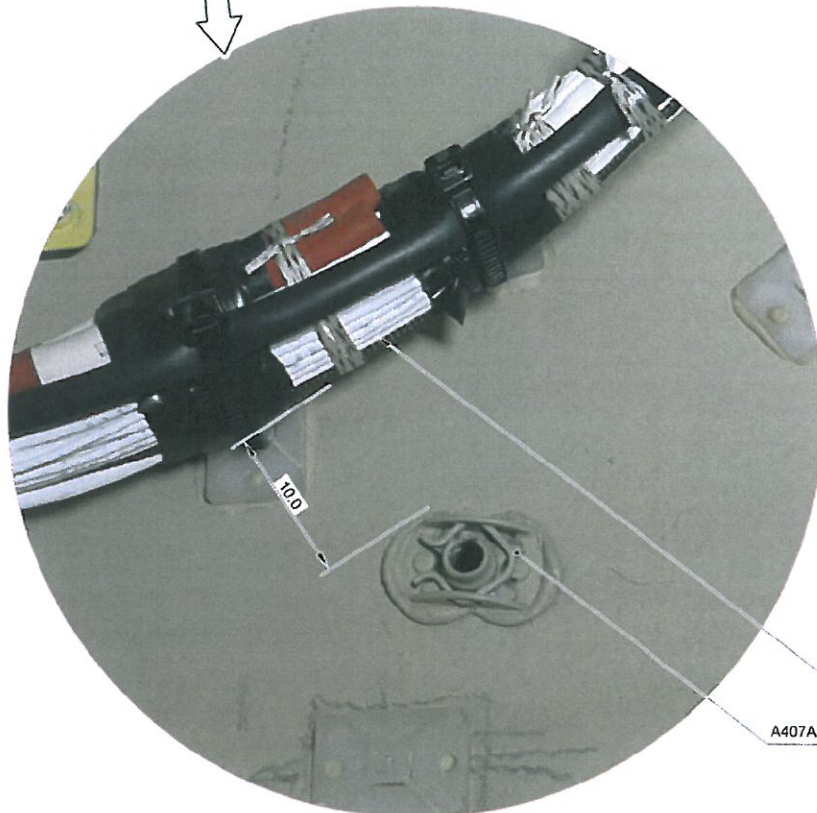
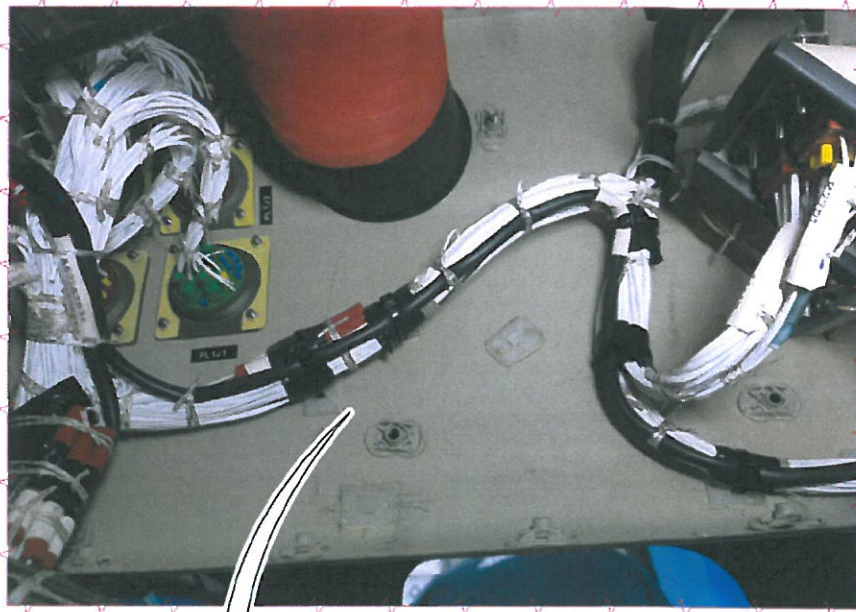


Figure 2



CABLE ASSY (REF)

A407A3C2P ANCHOR NUT (REF)

DETAIL E
(REFER TO FIGURE 1)

Figure 3

ID	SCREW P/N	MIN TOLERANCE	MAX TOLERANCE
1	MS51958-62B	10.34	11.13
2	MS51958-63B	11.91	12.70
3	MS51958-64B	15.09	15.88
4	MS51958-65B	18.26	19.05

TABLE 2

ID	SCREW P/N	MIN TOLERANCE	MAX TOLERANCE
1	AN525-10R8	11.91	13.49
2	AN525-10R9	13.49	15.06
3	AN525-10R10	15.09	16.66

TABLE 3

Figure 4

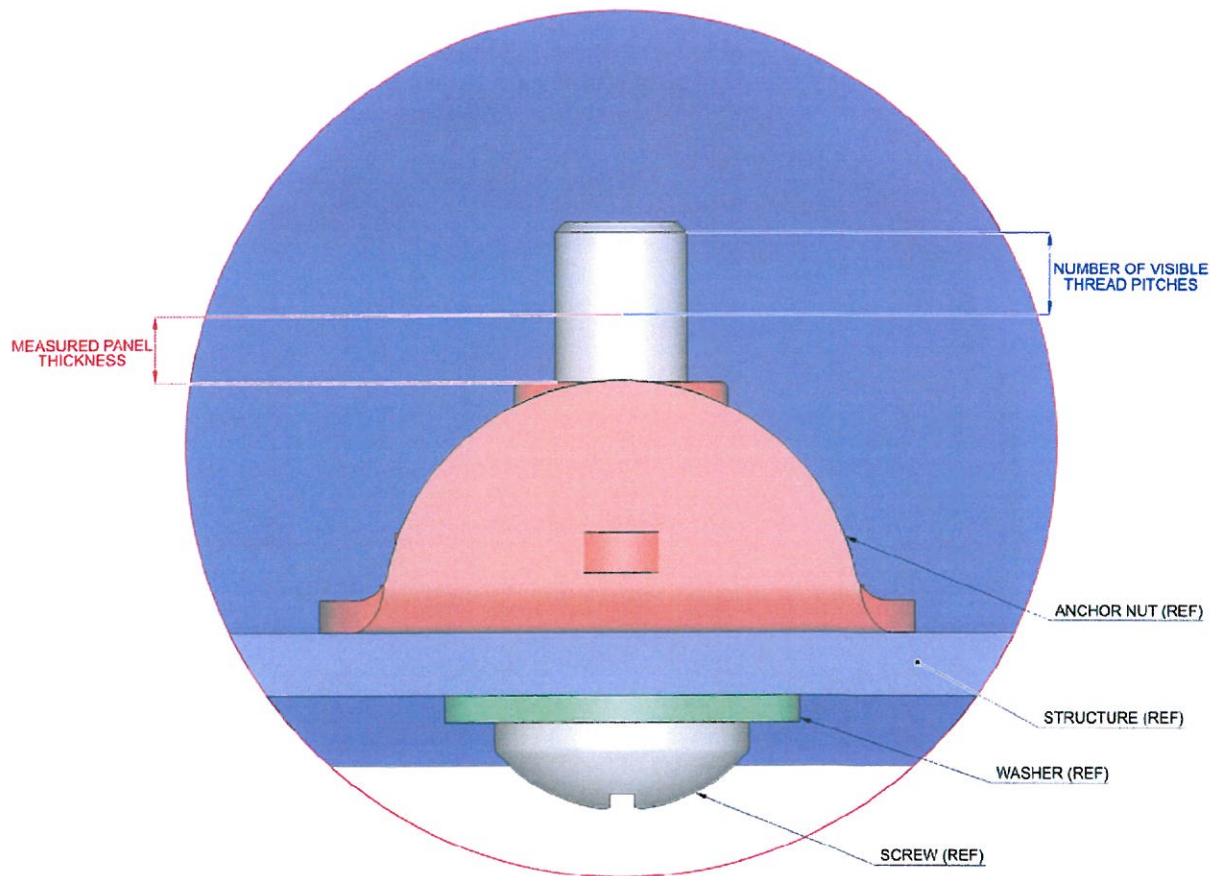


Figure 5

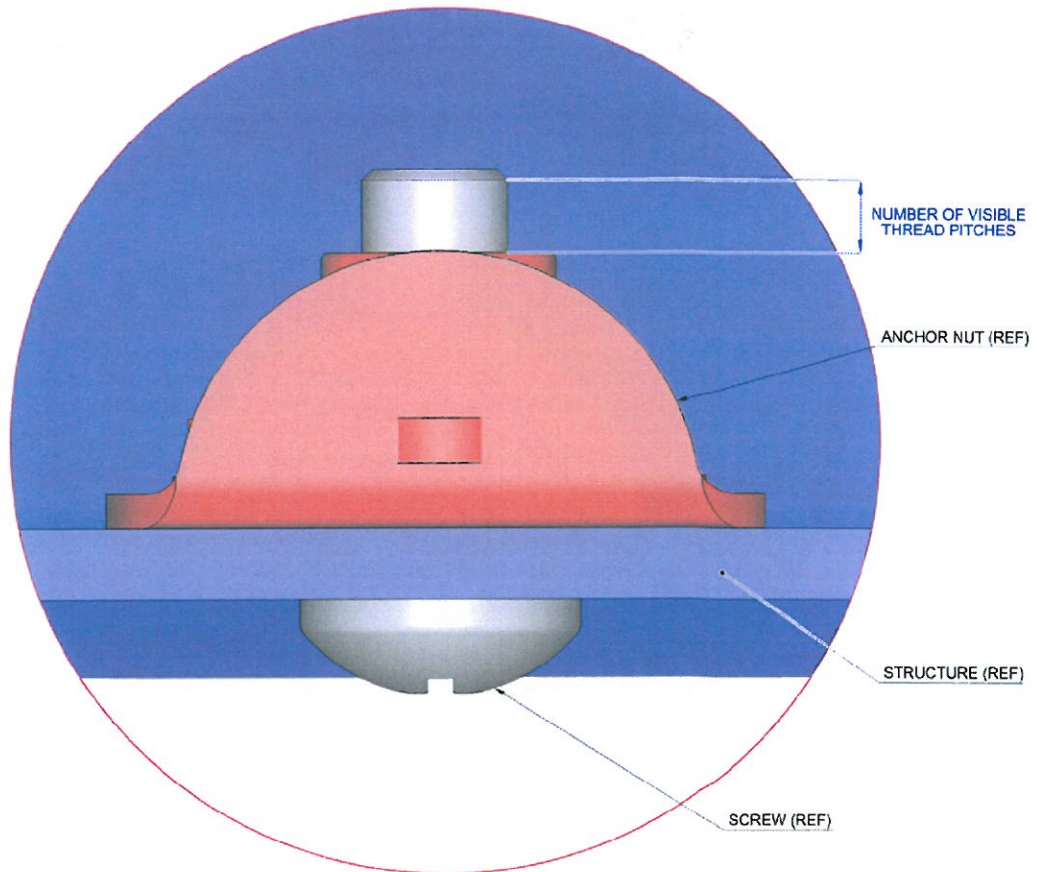


Figure 6


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: 31/10/22
	Number: ASB 139-661 (PART II)	
	Revision: B (9 MAY 22)	

Customer Name and Address: GALAXY AEROSPACE CM) SDN. BHD SUITE 11-14, MRO CENTRE MALAYSIA INTERNATIONAL AEROSPACE CENTRE SULTAN ABDUL AZIZ SHAH AIRPORT 47200 SUBANG, SELANGOR DARUL EHSAN MALAYSIA.	Telephone: Fax: B.T. Compliance Date:
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Helicopter Model	S/N	Total Number	Total Hours	T.S.O.
AW139	31763	838	300:40	n/a
 				
 				
 				
 				
 				

Remarks:

ASB 139-661 PART II REV B (9/5/22) HAS BEEN CARRIED OUT SATISFACTORILY.

NUR'ADU AZHARI *adh* 
 31/10/22

Information:

We request your cooperation in filling this form, in order to keep our 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.