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AgustaWestland Products

SERVICE BULLETIN

N° 189-296

DATE: July 23, 2021

REV. : /

TITLE

ATA 21 - HEATING DUCT REAR AVIONIC BAY INSPECTION

REVISION LOG

First Issue

1. PLANNING INFORMATION

A. EFFECTIVITY

AW189 helicopters from S/N 49007 to S/N 49075 (S/N's 49024, 49036, 49040, 49041 and 49071 excluded), from S/N 89001 to S/N 89012 (S/N's 89005 and 89006 excluded) and from S/N 92001 to S/N 92010.

B. COMPLIANCE

Within 400 flight hours or 12 months whichever occurs first from receipt of this Service Bulletin.

C. CONCURRENT REQUIREMENTS

N.A.

D. REASON

This Service Bulletin is issued in order to give the required instruction to improve the installation of the Heating System Duct P/N 70688A010001 through the application of the Retromod P/N 8G2140P02111 and to, contemporarily, prescribe a one-off inspection for condition of this duct.

E. DESCRIPTION

On few AW189 helicopters, a malfunction of the Heating System occurred. The following investigations identified the cause of the events in a damage sustained by the Heating System Duct P/N 70688A010001.

For this reason, LHD issue this SB to improve the installation of this duct by mean of both the repositioning of an existing P-clamp and the introduction of an additional fixing point. This SB also prescribes a check for condition of the affected duct and, in case of finding, its replacement.

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 ten (10) MMH are deemed necessary. 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:

DATA MODULE		DESCRIPTION	PART
DM01	89-A-00-20-00-00A-120A-A	Helicopter on ground for a safe maintenance	-
DM02	89-A-06-41-00-00A-010A-A	Access doors and panels - General data	-
DM03	89-A-25-80-00-00A-010A-A	Insulation and lining - General data	-
DM04	89-A-21-40-09-00A-520A-A	Jet pump - Remove procedure	-
DM05	89-A-21-40-09-00A-720A-A	Jet pump - Install procedure	-
DM06	89-A-20-10-16-02A-920A-A	Bonded studs - Replacement	-
DM07	89-A-20-00-00-00A-711A-A	Threaded fasteners - Tighten procedure	-
DM08	89-A-21-90-00-00A-320A-A	Integrated environmental control system (ECS) kit - Operation test	-
DM09	89-A-21-40-00-00A-320A-A	Heating system - Operation test	-

2) ACRONYMS & ABBREVIATIONS

AMDI	Aircraft Material Data Information
AMP	Aircraft Maintenance Publication
DM	Data Module
DOA	Design Organization Approval
EASA	European Aviation Safety Agency

ECS	Environmental Control System
IPD	Illustrated Parts Data
ITEP	Illustrated Tool and Equipment Publication
LHD	Leonardo Helicopters Division
MMH	Maintenance Man Hours
N.A.	Not Applicable
P/N	Part Number
S/N	Serial Number
SB	Service Bulletin

3) ANNEX

N.A.

J. PUBLICATIONS AFFECTED

- AW189 Aircraft Maintenance Publication (AMP)
- AW189 Illustrated Parts Data Publication (IPD)

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	**8G2140P02111**		**AFTBAY HEATING DUCT**	**REF**	**.**		**-**
2	A366A3E10C	A366A3E10C75 or A366A3E12C or A366A3E12C75	Stud	1	..		-
3	AS21919DG56	AS21919DF56	P-Clamp	1	..	(1)	-
4	AW001CK06HS		Tiedown strap	1	..		-
5	AW001CL003CT-X1	AW001CL002C-X1	Support	1	..		-
6	70688A010001		Heating system duct	AR	..	(2)	-
7	AN3C4A		Bolt	AR	..	(2)	-
8	AW001CK06HS	A629A06HS	Tiedown strap	AR	..	(2)	-
9	AN3C3A		Bolt	AR	..	(2)	-
10	AS21919WDF08		Clamp	AR	..	(2)	-
11	NAS1922-0350-3H		Clamp	AR	..	(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
12	EE267-02-075B	Adhesive tape	AR	(3) (5)	-
13	CB200-40 (C356)	Adhesive	AR	(4) (5)	-
14	MS21042L3	Nut	AR	(5)	-
15	NAS1149C0332R	Washer	AR	(5)	-

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.

NOTES

(1) If heating duct P/N 70688A010001 replacement is necessary, proceed to order three P-clamp P/N AS21919DG56 (or alternative P/N AS21919DF56).

(2) This item shall be provided when Product Support Engineering confirms the replacement of the heating system duct.

(3) As alternative, it is possible to use Senior Aerospace F6286 or F6289, Orcotape OT16-A or OT-157TN, Jehier KB42 or KB73.

(4) As alternative, it is possible to use Permabond F241 (C249).

(5) Item to be provided as local supply.

B. SPECIAL TOOLS

The following special tools, or equivalent, are necessary to accomplish this Service Bulletin:

#	P/N	DESCRIPTION	Q.TY	NOTE	PART
16	Commercial	Boroscope	1	(B1)	-
17	Commercial	Torque wrench	1	(B1)	-

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

SPECIAL TOOLS NOTE

(B1) Item to be procured as local supply.

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 necessary replacements on free of charge basis.

As reported on step 3.1 / step 3.2 / step 4.2 of the Accomplishment Instructions, please Issue relevant MMIR form to your Warranty Administration Dpt only when Product Support Engineering confirms the replacement of the duct.

Please note that “Product Support Engineering’s approvals” is mandatory to evaluate your request, otherwise MMIR could be rejected.

Consumables, Special Tools, and materials required by AMP DM recalled in this SB are not included in the aforementioned policy.

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

c) All lengths are in mm.

d) Exposed thread surface and nut must be protect using a layer of tectyl according to MIL-C-16173 grade I.

1. In accordance with AMP DM 89-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 89-A-06-41-00-00A-010A-A and with reference to Figure 1 get access on the right side of the baggage compartment by removing all necessary panels, liners, fixing hardware and avionics equipment installed next to right-hand afterward heating system duct area.

NOTE

With reference to the following procedure, refer to AMP DM 89-A-20-00-00-00A-711A-A for standard torque values.

3. With reference to Figure 1, perform the visual inspection of the heating system duct P/N 70688A010001 as described in the following procedure:

   3.1 With reference to Figure 1 View A, check the external surface of the duct P/N 70688A010001 for condition. In case of finding, take a picture of the damaged area and contact Product Support Engineering (engineering.support.lhd@leonardocompany.com) to receive further instructions.

NOTE

Pay attention not to apply an excessive strength with the hands while performing the following steps.

   3.2 With reference to Figure 1 Detail B, check the joints by touch between the second

and third rigid bends with the adjacent flexible ducts for any relative movement / rotation (no movement / rotation is allowed). In case of findings, take a picture of the damaged area and contact Product Support Engineering (engineering.support.lhd@leonardocompany.com) to receive further instructions.

4. Perform a detailed inspection of the inner surface of the duct P/N 70688A010001 as follows:

   4.1 In accordance with applicable steps of AMP DM 89-A-21-40-09-00A-520A-A and with reference to Figure 3:

   - Loosen the screw of the clamp that attach the duct to the jet pump;
   - Carefully move away the duct from the jet pump;
   - Remove the clamp from the duct in order to expose to the sight the inlet of the duct.

   4.2 Insert the boroscope through the exposed inlet of the duct and check the bonding between the second and third rigid bends with the adjacent flexible ducts for condition (no separation is allowed). In case of any finding, take a picture of the damaged area and contact Product Support Engineering (engineering.support.lhd@leonardocompany.com) to receive further instructions.

   4.3 Remove the boroscope from the duct.

   4.4 In accordance with applicable steps of AMP DM 89-A-21-40-09-00A-720A-A and with reference to Figure 3:

   - Install the clamp on the duct;
   - Move the duct in its position on the jet pump;
   - Torque the screw of the clamp to 2.3 thru 3.4 N m (20 thru 30 lbf in) by means of a Torque wrench.

5. With reference to Figure 2 Detail C, check the position of the existing P-clamp P/N AS21919DG56 as follows:

   5.1 Check, by gently compressing by hand, if the clamp P/N AS21919DG56 is installed correctly at the end of the second rigid bend (between the second rigid bend and the flexible duct at location 2). If the clamp is NOT correctly installed proceed with following step 5.2, otherwise go to step 6.

   5.2 With reference to Figure 2 Detail C, remove the clamp P/N AS21919DG56, the nut P/N MS21042L3 and the washer P/N NAS1149C0332R from the heating system duct P/N 70688A010001 at location n°1. Retain the clamp, the nut and the washer for later reuse if in good condition.

   5.3 In accordance with AMP DM 89-A-20-10-16-02A-920A-A and with reference to

Figure 2 Detail C, remove the existing stud P/N A366A3E10C from the panel at location 1.

NOTE

When applying the tape, be sure to apply it on the second rigid bend only. Taped areas cannot exceed 20÷25 wide.

5.4 With reference to Figure 2 detail C, identify the location 2 on the second rigid bend (between the second rigid bend and the flexible duct) by gently compressing the duct by hand and mark the position on the second rigid bend by using three layers of adhesive tape P/N EE267-02-075B.

NOTE

Pay particular attention not to load the joint between the second rigid bend and the flexible duct in any way.

5.5 With reference to Figure 2 Detail C, temporarily locate the clamp P/N AS21919DG56 on the taped area and countermark the location 2 of the stud P/N A366A3E10C on the panel.

5.6 In accordance with AMP DM 89-A-20-10-16-02A-920A-A and with reference to Figure 2 Detail C, install the new stud P/N A366A3E10C on the panel at location 2 by means of the adhesive CB200-40 (C356).

5.7 In accordance with AMP DM 89-A-20-00-00-00A-711A-A and with reference to Figure 2 Detail C, install the clamp P/N AS21919DG56 on the heating system duct P/N 70688A010001 at location n°2 by means of the nut P/N MS21042L3 and the washer P/N NAS1149C0332R. Tighten the nut to the standard torque value.

6. With reference to Figure 2 Detail D, install the tiedown strap P/N AW001CK06HS on the third rigid bend only as described in the following procedure:

NOTE

When applying the tape, be sure to apply it on the third rigid bend only. Taped areas cannot exceed 20÷25 wide.

6.1 With reference to Figure 2 detail D, identify the location 3 on the third rigid bend (between the third rigid bend and the flexible duct) by gently compressing the duct by hand and mark the position on the third rigid bend by using three layers of adhesive tape P/N EE267-02-075B.

6.2 With reference to Figure 2 Detail D, temporarily locate the new tiedown strap P/N AW001CK06HS on the taped area and countermark the location 3 of the support P/N AW001CL002C-X1 on the panel.

6.3 With reference to Figure 2 Detail D, install the new support P/N AW001CL002C-X1 on the panel at location n°3 by means of the adhesive CB200-40 (C356).

6.4 With reference to Figure 2 Detail D, install the tiedown strap P/N AW001CK06HS on the heating system duct P/N 70688A010001 at location 3.

NOTE

Perform step 7 only if the duct has been found damaged during step 3 or 4 and only if Product Support Engineering has confirmed the replacement of the Heating system duct P/N 70688A010001.

7. In accordance with AMP DM 89-A-25-80-00-00A-010A-A and with reference to Figure 3, gain access to the work area as required and replace the heating system duct P/N 70688A010001 as described in the following procedure:

7.1 In accordance with applicable steps of AMP DM 89-A-21-40-09-00A-520A-A and with reference to Figure 3 View A, remove the clamp P/N NAS1922-0350-3H that connects the duct to the jet pump and carefully move away the duct from the jet pump.

7.2 With reference to Figure 3 View A, remove the bolt P/N AN3C3A, the nut P/N MS21042L3, n°2 washers P/N NAS1149C0332R and clamps P/N AS21919DG56 and P/N AS21919WDF08.

7.3 With reference to Figure 3 View A, remove n°2 tiedown strap P/N A629A06HS.

7.4 With reference to Figure 3 View A, remove the bolt P/N AN3C4A, the washer P/N NAS1149C0332R, the clamp P/N AS21919DG56 and the clamp P/N NAS1922-0350-3H from the heating system duct.

7.5 With reference to Figure 2 Detail C, remove the nut P/N MS21042L3, the washer P/N NAS1149C0332R, the clamp P/N AS21919DG56 from the heating system duct.

7.6 With reference to Figures 1 and 3, locate the new heating system duct P/N 70688A010001 on the right position.

7.7 In accordance with applicable steps of AMP DM 89-A-21-40-09-00A-720A-A and with reference to Figure 3 View A,

- Install the clamp P/N NAS1922-0350-3H on the upper end of the heating duct;
- Move the duct on its position on the jet pump;
- Torque the screw of the clamp to 2.3 thru 3.4 Nm (20 thru 30 lbf in) by means of a Torque wrench.

7.8 With reference to Figure 3 View A, install the clamp P/N AS21919DG56 and the

clamp P/N AS21919WDF08 by means of the bolt P/N AN3C3A, the nut P/N MS21042L3 and n°2 washers P/N NAS1149C0332R. Tighten the nut to the standard torque value.

7.9 With reference to Figure 3 View A, install n°2 tiedown straps P/N A629A06HS on the heating system duct.

7.10 With reference to Figure 3 View A, install the clamp P/N AS21919DG56 to the bracket by means of the bolt P/N AN3C4A and the washer P/N NAS1149C0332R.

7.11 With reference to Figure 3, install the clamp P/N NAS1922-0350-3H that connects the heating system duct to the duct-rigid.

7.12 Apply steps 5.3 thru 6.4 to install clamp P/N AS21919DG56 and tiedown strap P/N AW001CK06HS.

8. In accordance with AMP DM 89-A-06-41-00-00A-010A-A and with reference to Figure 1 and 3, re-install all necessary panels, liners, fixing hardware and avionic equipment previously removed.
9. Remove all the tools and other items from the work area.
10. Perform the system Operation Test in accordance with the applicable AMP DM:
    - 89-A-21-90-00-00A-320A-A, Integrated environmental control system (ECS) kit - Operation test, or
    - 89-A-21-40-00-00A-320A-A, Heating system - Operation test.
11. Return the helicopter to flight configuration and record for compliance with this Service Bulletin on the helicopter logbook.
12. 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”.

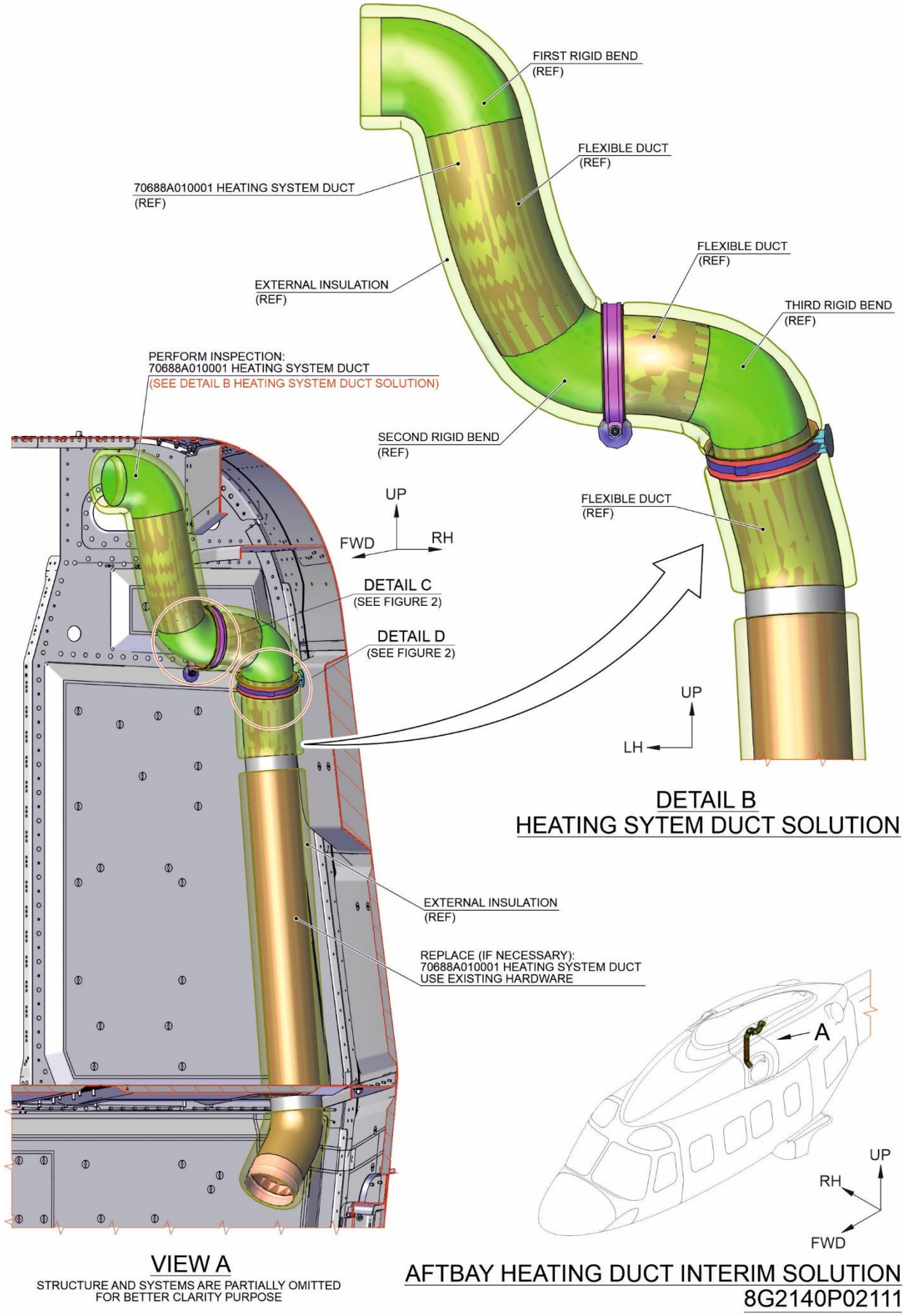
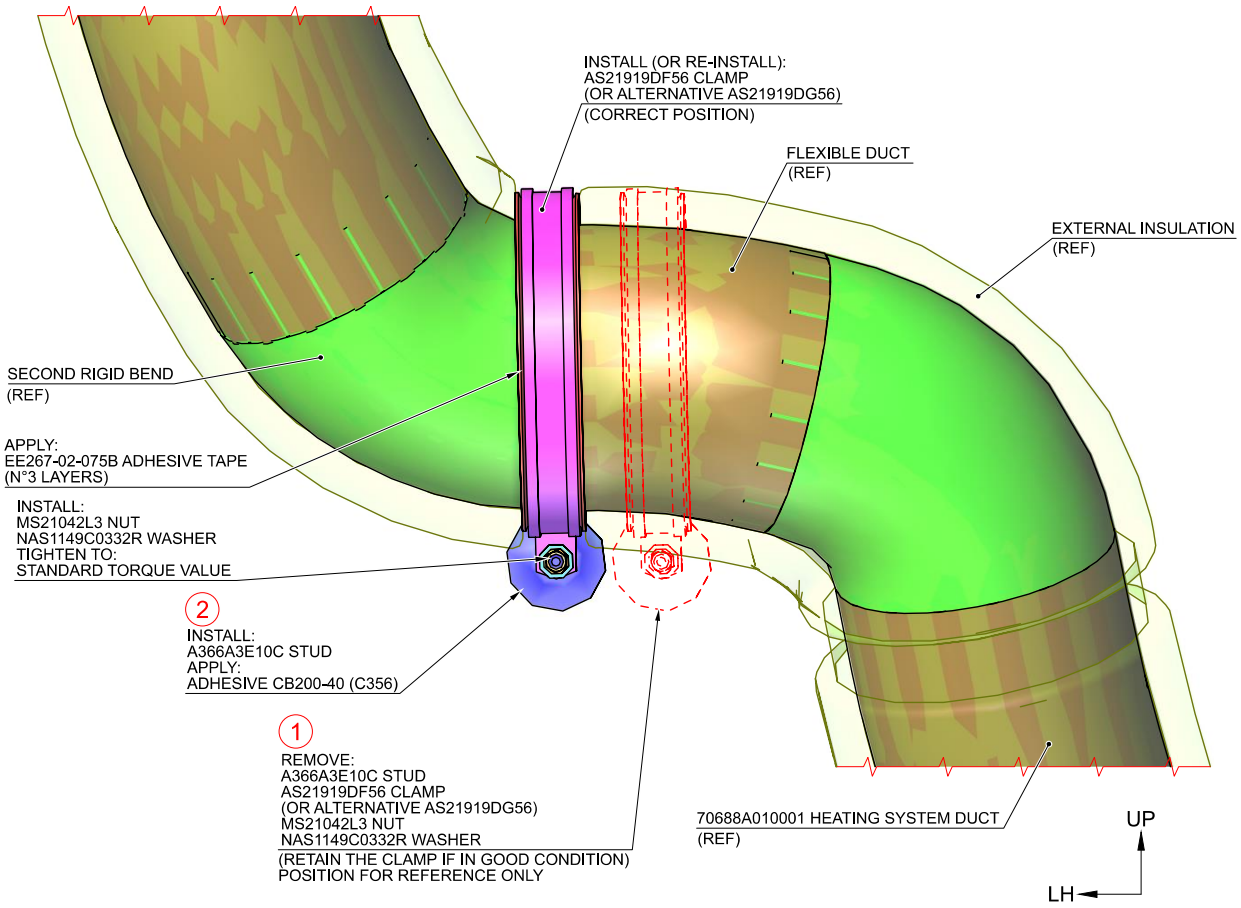
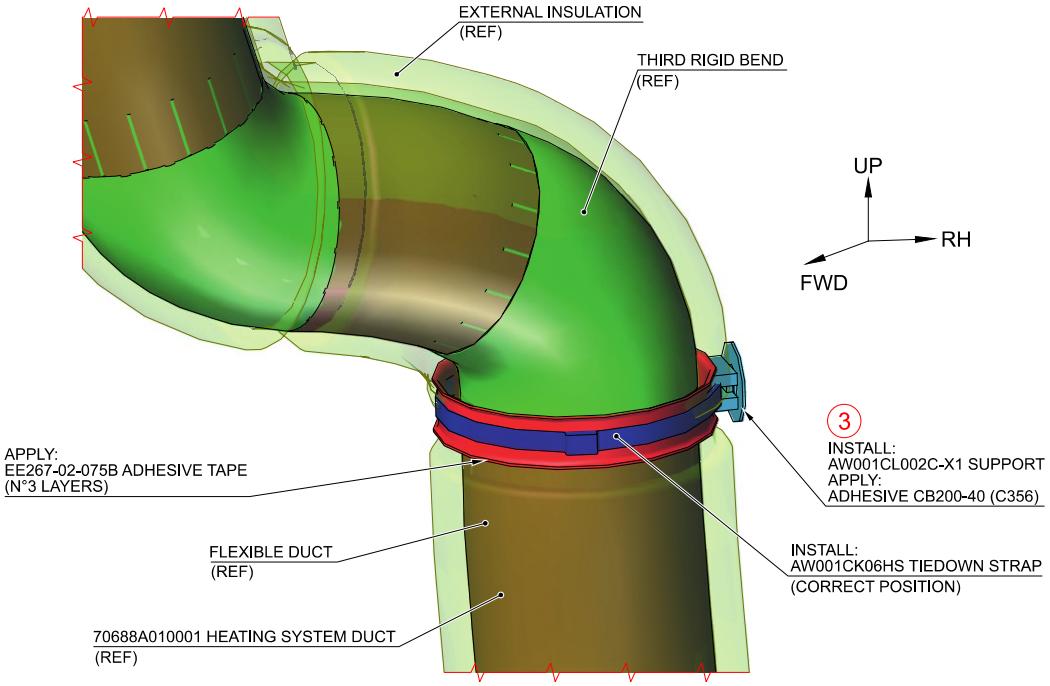

FIRST RIGID BEND
(REF)
FLEXIBLE DUCT
(REF)
70688A010001 HEATING SYSTEM DUCT
(REF)
FLEXIBLE DUCT
(REF)
EXTERNAL INSULATION
(REF)
THIRD RIGID BEND
(REF)
PERFORM INSPECTION:
70688A010001 HEATING SYSTEM DUCT
(SEE DETAIL B HEATING SYSTEM DUCT SOLUTION)
SECOND RIGID BEND
(REF)
UP
FWD
RH
FLEXIBLE DUCT
(REF)
DETAIL C
(SEE FIGURE 2)
DETAIL D
(SEE FIGURE 2)
UP
LH
DETAIL B
HEATING SYTEM DUCT SOLUTION
EXTERNAL INSULATION
(REF)
REPLACE (IF NECESSARY):
70688A010001 HEATING SYSTEM DUCT
USE EXISTING HARDWARE
A
UP
RH
FWD
VIEW A
STRUCTURE AND SYSTEMS ARE PARTIALLY OMITTED
FOR BETTER CLARITY PURPOSE
AFTBAY HEATING DUCT INTERIM SOLUTION
8G2140P02111

Figure 1



DETAIL C

INSTALL PARTS ONLY IF THE CLAMP IS NOT LOCATED IN THE CORRECT POSITION
(REFER TO FIGURE 1)



DETAIL D

(REFER TO FIGURE 1)

Figure 2

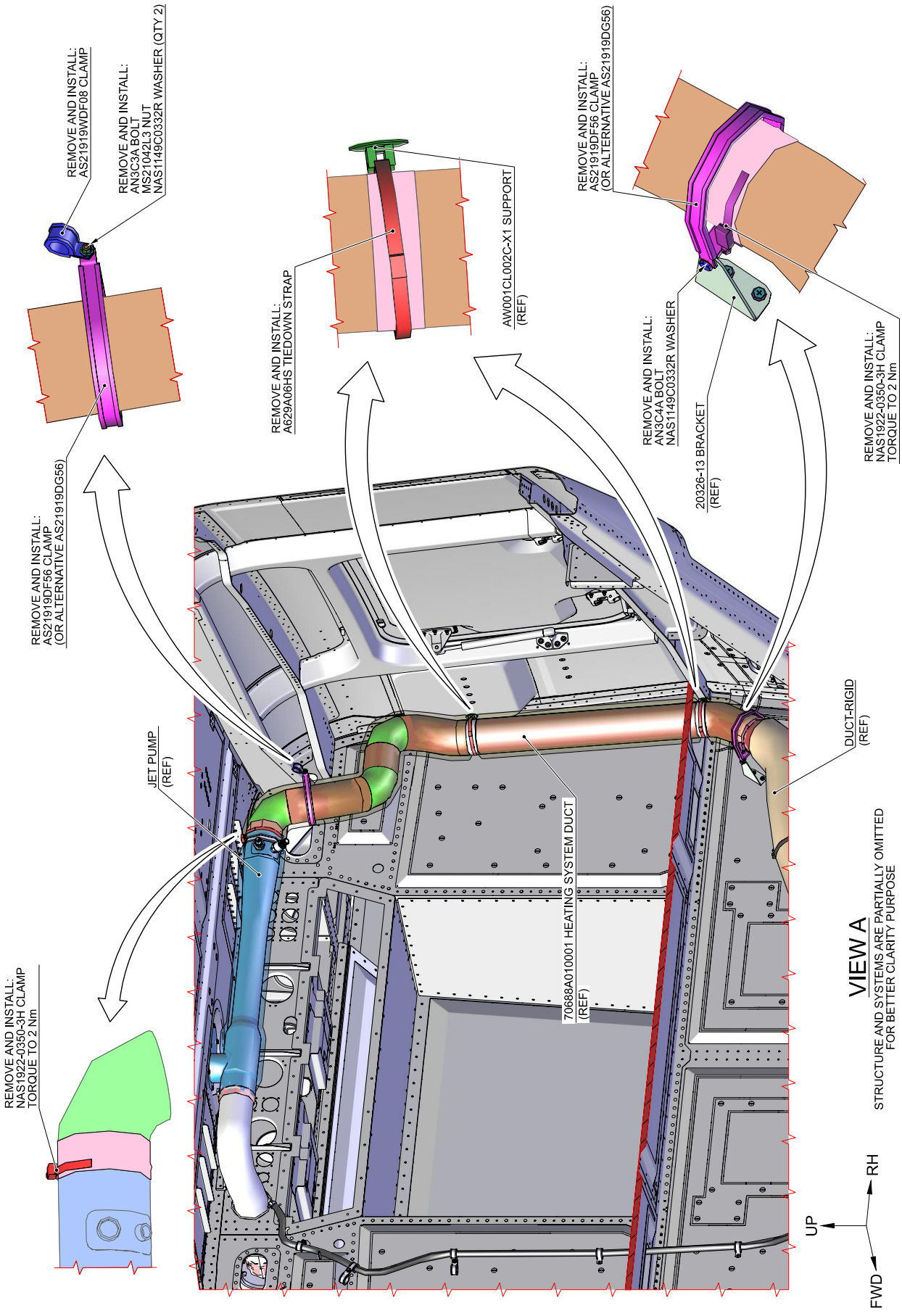

REMOVE AND INSTALL:
AS21919WDF08 CLAMP
REMOVE AND INSTALL:
AN3C3A BOLT
MS21042L3 NUT
NAS1149C0332R WASHER (QTY 2)
REMOVE AND INSTALL:
AS21919DF56 CLAMP
(OR ALTERNATIVE AS21919DG56)
REMOVE AND INSTALL:
A629A06HS TIEDOWN STRAP
AW001CL002C-X1 SUPPORT
(REF)
REMOVE AND INSTALL:
AS21919DF56 CLAMP
(OR ALTERNATIVE AS21919DG56)
REMOVE AND INSTALL:
AN3C4A BOLT
NAS1149C0332R WASHER
20326-13 BRACKET
(REF)
REMOVE AND INSTALL:
NAS1922-0350-3H CLAMP
TORQUE TO 2 Nm
JET PUMP
(REF)
DUCT-RIGID
(REF)
70688A010001 HEATING SYSTEM DUCT
(REF)
REMOVE AND INSTALL:
NAS1922-0350-3H CLAMP
TORQUE TO 2 Nm
VIEW A
STRUCTURE AND SYSTEMS ARE PARTIALLY OMITTED
FOR BETTER CLARITY PURPOSE
UP
RH
FWD

Figure 3

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.