Temporary Maintenance Instruction
TMI109-464 Rev. C

Main rotor blade assy –
Replacement of the trim tab

A109C / A109K2 / A109E /
A109S / AW109SP/SP-REGA /
A109LUH / A109LUHS / A109LUHNZ /
A109LUHAG / A109LUHAP / A109LUHN /
A109LOH / A119 / AW119MKII
Helicopters

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The present TMI will be evaluated for its introduction in the standard set of Technical Publication.
If no further notice is received, the present document expires on: January 28th, 2022.

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Introduction

The aim of this document is to give information on the replacement of the trim tab installed on the main rotor blade P/N 709-0103-01 and P/N 709-0104-01.

Rev C of this TMI is published in order to extend the expiration date.

The content of this TMI will be approved in the applicable Overhaul Manual at the next revision.

Main rotor blade assy – Replacement of the trim tab

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References

Table 1 References

Data Module	Title
MM - Section 62-11 ([1])	Main rotor blades
OM - Section 20-10-00 ([1])	Surface Treatment
TMI109-433	Main Rotor Blade Assy – Static Balancing

([1]) Applicable to A109E Helicopters. For the other helicopter models refer to the applicable Section or Data Module of the Maintenance Manual/Overhaul Manual.

Preliminary requirements

Required conditions

Table 2 Required conditions

Condition	Data Module/Technical Publication
Main Rotor Blade removed from the helicopter	Section 62-11 ([1])

([1]) Applicable to A109E Helicopters. For the other helicopter models refer to the applicable Section or Data Module of the Maintenance Manual.

Support equipment

Table 3 Support equipment

Nomenclature	Identification No.	Qty
1. Heat gun	Local Supply	1
2. Spatula (flexible - rounded corners)	Local supply	1
3. Heating blanket	Local supply	A.R.
4. Hammer (steel), voids detection	109-3101-58-1	1
5. Hammer (aluminum), voids detection	109-3101-58-2	1
6. Vacuum bag	Local supply	1
7. Thermocouple	Local supply	A.R.
8. Grinding wheel	Local supply	1

Supplies

Table 4 Supplies

Nomenclature	Identification No.	Qty
1. Cloth (soft lint-free)	Commercial	A.R.
2. Solvent ([2])	Isopropyl Alcohol, Aliphatic naphtha (TT-N-95B), MEK (MIL-M-81351 / TT-M-261 / ASTM-D740) or Elixair SkySolv	A.R.
3. Abrasive paper (or cloth)	P-P-101 (all grits)	A.R.
4. Structural adhesive film ([2])	AWMS08-001, Type I, Form 292K / AF163-2K.06	A.R.
5. Structural adhesive film ([2])	AWMS08-001, Type I, Form 292U / AF163-2U.06	A.R.
6. Tape (Aluminum)	Commercial	A.R.
7. Graphite (Pre-cured)	A155A004D	A.R.
8. Tape (polyester – adhesive)	3M 8402	A.R.
9. Sealing compound ([2])	AWMS05-001 Type I, Class B, Grade 2 / Naftoseal MC-780 Class B	A.R.
10. Tape (Teflon)	Commercial	A.R.

Table 4 Supplies

Nomenclature	Identification No.	Qty
11. Non-adhesive nylon peel-ply	Precision Fabrics Group, Inc. Code 51789 S&HS Wt. 1.90 oz/yd2 min.	A.R.
12. Chemical conversion coating ([2])	MIL-DTL-81706, Class 1A / Alodine 1200	A.R.
13. Sodium dichromate ([2])	A-A-59123	A.R.
14. Primer ([2])	AWMS08-001, Class II / EC3924B or alternatively EC3960	A.R.
15. Polyethylene (film)	Commercial	A.R.
16. Alkaline cleaner ([2])	Oakite 61B / Altrex / Turco 4215 / Turco 4215NCLT	A.R.
17. Sulphuric acid ([2])	Commercial	A.R.
18. Structural adhesive film ([2])	AWMS08-001, Type I, Form 146U / AF163-2U.03	A.R.

Spares

Table 5 Spares

Nomenclature	Identification No.	Qty
1. Trim tab assy	109G6210A01-101	1
2. Tab (lower surface)	109G6210A01-103	1
3. Tab (upper surface)	109G6210A01-105	1
4. Oversize trim tab assy	109G6210Z01-101 (Alternative)	1
5. Oversize tab (lower surface)	109G6210Z01-103 (Alternative)	1
6. Oversize tab (upper surface)	109G6210Z01-105 (Alternative)	1
7. Metallic mesh	709-0103-05-111	A.R.
8. Metallic mesh (treated)	709-0103-05-111A1	A.R.

Safety conditions

WARNING

THE CONSUMABLE MATERIALS IDENTIFIED BY "([2])" ARE DANGEROUS MATERIALS. BEFORE USE, MAKE SURE TO KNOW:

- THE SAFETY PRECAUTIONS AND FIRST AID INSTRUCTIONS PRINTED ON THE LABEL ON THE CONTAINER THE MATERIAL WAS SUPPLIED IN.
- THE SAFETY PRECAUTIONS AND FIRST AID INSTRUCTIONS ON THE MATERIAL SAFETY DATA SHEET.
- THE LOCAL SAFETY REGULATIONS.

ALSO MAKE SURE THAT THE APPLICABLE FIRST AID MATERIALS ARE AVAILABLE.

Procedure

Note 1

Only the Design Authority or an authorized repair center can do this procedure.

Note 2

([1]) Applicable to A109E Helicopters. For the other helicopter models refer to the applicable Section or Data Module of the Maintenance Manual/Overhaul Manual.

1. Weigh the blade and record the value.

CAUTION

Do not use rotating machines for sanding but only vibrating machines or hand sand.

2. Carefully remove finish from the trim tab and surrounding area by sanding with gradually finer Abrasive paper (Supply Ref. 3) from 120 grit, through 220 grit and finally 320 grit (see Fig 2).

3. Protect the blade skin (upper side and lower side) from the heat with 50 mm wide Tape (Aluminum) (Supply Ref. 6) as shown in Fig 2.

CAUTION

You must not exceed the temperature limit of 160°C to prevent damage to the graphite layers of the blade skin.

4. Lightly heat with a Heat gun (Support equipment Ref. 1) while you remove the damaged tab at the same time with a Spatula (flexible - rounded corners) (Support equipment Ref. 2) (see Fig 3).

Note 1

If necessary, remove the other tab too, refer to Step 4. Or, inspect the adhesive on the remaining tab, refer to Step 5.

Note 2

If a composite repair patch is already present, remove the other tab too. Refer to Step 4.

5. Examine the adhesive on the inner surface of the remaining tab to make sure that it is present on the whole surface. If there are areas of missing adhesive greater than 1 cm^2 remove the tab, refer to Step 4.

6. Remove the Tape (Aluminum) (Supply Ref. 6) from the blade skin (upper side and lower side).

CAUTION

During sanding be careful not to damage the stiffener (layer of glass fiber), the surface of the blade skin (layers of uni-directional graphite) and the metallic mesh. Use gradually finer abrasive paper near the blade skin surface.

Note 1

It is permitted to keep halos of adhesive, shown by a light red color on the stiffener surface (see Fig 4), to ensure the integrity of the underlying composite surfaces. Do not remove the layer of glass fiber.

Note 2

If present, be careful not to damage the the adhesive on the other tab.

7. Remove the red adhesive from the blade with Abrasive paper (Supply Ref. 3), grit 180 - 240. Make sure that you do not cause damage to the blade skin surfaces underneath.

8. Wipe clean with a Cloth (soft lint-free) (Supply Ref. 1) moistened with Solvent (Supply Ref. 2) and let the part dry for at least 30 minutes.

9. Examine the blade skin, refer to the conditions that follow:

9.1. Blade skin without a composite repair patch. Inspect the unpainted blade skin for damage. If you find damage to the blade skin, do as follows:

Note 1

Refer to Maintenance Manual (Section 62-11) ([1]) for the permitted limits.

Note 2

Smaller damage within the limits below are permitted without application of the patch:

— maximum chordwise dimension: 5 mm;

— minimum distance from trim tab edge (chordwise): at least 20 mm;

— minimum distance from trim tab edge (spanwise): at least 25 mm.

9.1.1. If one tab is present, remove it. Refer to Step 4.

9.1.2. Prepare the surface to bond a composite repair patch, refer to Step 10.

9.1.3. Repair the area with a graphite (pre-cured) patch, refer to Step 11.

9.2. Blade skin with a composite repair patch. Inspect the unpainted blade skin and the patch for damage or for debondings with the Hammer (aluminum) (Support equipment Ref. 5). If you find damage, do as follows:

Note

Debondings of the patch are not permitted. If you find debondings, remove the pathch and apply a new one.

9.2.1. Remove the patch as follows:

CAUTION

During removal and sanding make sure not to damage the surfaces below.
Use gradually finer abrasive paper near the blade surface.

9.2.1.1. Remove the patch with a portable Grinding wheel (Support equipment Ref. 8). Stop immediately when you see the red adhesive layer.

9.2.1.2. Remove the old red adhesive following instructions in Step 7.

9.2.2. Prepare the surface to bond a new composite repair patch, refer to Step 10.

9.2.3. Apply a new graphite (pre-cured) patch, refer to Step 11.

10. Prepare the blade skin surface for the subsequent bonding, as follows:

Note

You must do the bonding within 72 hours from surface preparation.

10.1. Wipe clean with a Cloth (soft lint-free) (Supply Ref. 1) moistened with Solvent (Supply Ref. 2) and let the part dry for at least 30 minutes.

CAUTION

During sanding be careful not to damage the carbon fibers of the blade skin and the layer of glass fiber of the stiffener.

10.2. Lightly sand the bonding surface of the blade skin with Abrasive paper (Supply Ref. 3), grit 100 or finer, as preparation for bonding.

10.3. Wipe the residual traces of abrasive with a dry clean Cloth (soft lint-free) (Supply Ref. 1).

10.4. Wipe clean with a Cloth (soft lint-free) (Supply Ref. 1) moistened with Solvent (Supply Ref. 2). Do not put the solvent directly on the surfaces.

10.5. Let the part dry in the air for at least 30 minutes and protect surfaces with a Polyethylene (film) (Supply Ref. 15).

CAUTION

Always wear clean white dry gloves when you handle the trim tab and the blade to prevent contamination of the bonding surfaces.

11. If required after inspection in Step 9, apply a repair patch as follows (see Fig 8):

Note

Make sure that the patch provides a minimum overlap of 25 mm to the damage.

11.1. Remove the nylon peel-ply from the new Graphite (pre-cured) (Supply Ref. 7) patch.

11.2. Contour the patch complying with the minimum dimensions shown in Fig 8 (see View A) to ensure an overlap of 25 mm to the damage to be repaired.

11.3. Prepare the bonding surface of the patch following the same procedure done for the blade skin (Step 10).

11.4. Cut one layer of Structural adhesive film (Supply Ref. 4) and one layer of Structural adhesive film (Supply Ref. 5) having the shape of the patch and 5 mm overlap.

11.5. Apply the adhesive layers onto the damage to be repaired as shown in Fig 8. Make sure that they are in perfect contact with the blade skin trailing edge.

11.6. Apply the repair patch on the adhesive layers. Make sure that it is in perfect contact with the blade skin trailing edge.

11.7. Cure the adhesive and the composite repair patch, refer to Step 14.

11.8. Do a tap inspection with the Hammer (aluminum) (Support equipment Ref. 5). No unbondings are permitted after repair. If necessary remove the patch and start over.

11.9. Prepare the patch surface for the subsequent bonding following the same procedure done for the blade skin (Step 10).

Note

If you applied a composite repair patch for the first time, install a new oversize trim tab, go to Step 13. Or, continue with Step 12.

12. Apply the new trim tab on the blade with one of the following procedures:

— One tab (standard only): Step 12.1;

— Two tabs (standard or oversize): Step 12.2;

— Trim tab assembly (standard or oversize): Step 12.3.

12.1. Installation of one tab only (see Fig 5):

12.1.1. If there are areas with missing adhesive on the remaining tab and they are less than 1 cm^2 (refer to inspection in Step 5), repair as follows:

12.1.1.1. Lightly sand the repair area with Abrasive paper (Supply Ref. 3), grit 180 - 240.

12.1.1.2. Restore the Chemical conversion coating (Supply Ref. 12) by brush on exposed aluminum surfaces of the tab. Refer to Overhaul Manual (Section 20-10-00) ([1]).

12.1.1.3. Restore the layer of Primer (Supply Ref. 14) with a brush. Apply a uniform layer, at ambient temperature, to get a thickness between 0,0010 and 0,0025 mm.

12.1.1.4. Cure the primer at ambient temperature for at least 120 minutes.

12.1.1.5. Apply patches of Structural adhesive film (Supply Ref. 5) on the areas with missing adhesive.

12.1.2. Prepare the bonding surface of the remaining tab following the same procedure done for the blade skin (Step 10).

12.1.3. If not present, apply a strip of Tape (polyester – adhesive) (Supply Ref. 8) as shown in Fig 5.

12.1.4. Cut the adhesives:

— one layer of Structural adhesive film (Supply Ref. 4) and one layer of Structural adhesive film (Supply Ref. 5) having the shape of the tab and 5 mm overlap towards the blade skin;

— one layer of Structural adhesive film (Supply Ref. 4) having the shape of the tab plus an overlap to cover the tab thickness.

Note

To obtain a correct bonding, it is permitted to use an additional layer of Structural adhesive film (Supply Ref. 18), limited to the contact area between the tab and the blade's upper/lower surface.

12.1.5. Apply the adhesive layers on the blade skin and on the remaining tab as shown in Fig 5.

Note

Make sure that the new spare parts comply with the Shelf life limits.

12.1.6. Put the new Tab (lower surface) (Spare Ref. 2) or the new Tab (upper surface) (Spare Ref. 3) onto the remaining tab as shown in Fig 5. Take extreme care not to damage the external coat of primer.

Note

Correctly position the new tab aligning its boundary with the opposed tab. You must comply with the misalignment tolerances shown in Fig 5 all around the tab.

12.1.7. Apply the layer of Structural adhesive film (Supply Ref. 4) on the external surface of the new tab.

12.1.8. Apply Non-adhesive nylon peel-ply (Supply Ref. 11) on the external layer of adhesive.

12.1.9. If necessary, apply Tape (Teflon) (Supply Ref. 10) in different locations to keep the tab in the correct position.

12.2. Installation of two tabs (see Fig 6):

12.2.1. Cut the adhesives:

— one layer of Structural adhesive film (Supply Ref. 4) and one layer of Structural adhesive film (Supply Ref. 5) having the shape of the part bonded to the blade skin and 5 mm overlap;

— one layer of Structural adhesive film (Supply Ref. 4) and one layer of Structural adhesive film (Supply Ref. 5) having the shape of the protruding part;

— two layers of Structural adhesive film (Supply Ref. 4) having the shape of the tab plus an overlap to cover the tab thickness.

Note

To obtain a correct bonding, it is permitted to use an additional layer of Structural adhesive film (Supply Ref. 18), limited to the contact area between the tab and the blade's upper/lower surface.

12.2.2. Apply the layers of adhesive on the blade skin as shown in Fig 6. Make sure that they are in perfect contact with the blade skin trailing edge and centered on the STA shown in Fig 1.

12.2.3. Apply the layers of adhesive on the protruding part of one tab as shown in Fig 6.

12.2.4. Apply one strip of Tape (polyester – adhesive) (Supply Ref. 8) as shown in Fig 6.

Note

Make sure that the new spare parts comply with the Shelf life limits.

12.2.5. Put the new Tab (lower surface) (Spare Ref. 2) or (Spare Ref. 5) and the new Tab (upper surface) (Spare Ref. 3) or (Spare Ref. 6) on the adhesive layers applied on the blade skin. Take extreme care not to damage the external coat of primer.

Note

Correctly position both tabs on the blade’s trailing edge, perfectly centered on the STA (see Fig 1) and at the indicated distance from the trailing edge line (see Fig 6). You must comply with the misalignment tolerances all around the tabs.

12.2.6. Apply the layers of Structural adhesive film (Supply Ref. 4) on the external surfaces of the new tabs.

12.2.7. Apply Non-adhesive nylon peel-ply (Supply Ref. 11) on the external layers of adhesive.

12.2.8. If necessary, apply Tape (Teflon) (Supply Ref. 10) in different locations to keep the tabs in the correct position.

12.3. Installation of the trim tab assembly (see Fig 7):

12.3.1. Remove the peel-ply from the bonding surfaces of the new Trim tab assy (Spare Ref. 1) or of the new Oversize trim tab assy (Spare Ref. 4).

12.3.2. Prepare the bonding surfaces of the new trim tab assy following the same procedure done for the blade skin (Step 10).

12.3.3. Cut one layer of Structural adhesive film (Supply Ref. 4) and one layer of Structural adhesive film (Supply Ref. 5) having the shape of the part bonded to the blade skin and 5 mm overlap.

12.3.4. Apply the layers of adhesive on the blade skin as shown in Fig 7. Make sure that they are in perfect contact with the blade skin trailing edge and centered on the STA shown in Fig 1.

12.3.5. Put the new Trim tab assy (Spare Ref. 1) or the new Oversize trim tab assy (Spare Ref. 4) on the blade skin trailing edge.

Note

Correctly position the new trim tab assy on the blade's trailing edge, perfectly centered on the STA (see Fig 1) and at the indicated distance from the trailing edge line (see Fig 7).

12.3.6. If necessary, apply Tape (Teflon) (Supply Ref. 10) in different locations to keep the trim tab assy in the correct position.

13. Apply the new oversize trim tab on the repaired blade skin for the first time with one of the following procedures:

— Two tabs: Step 13.1;

— Trim tab assembly: Step 13.2.

13.1. Installation of two tabs (see Fig 9):

13.1.1. Put in the install position the new Oversize tab (lower surface) (Spare Ref. 5) and the new Oversize tab (upper surface) (Spare Ref. 6) and secure them with Tape (Teflon) (Supply Ref. 10). Take extreme care not to damage the external coat of primer.

13.1.2. Determine the dimension of the new Metallic mesh (Spare Ref. 7) that you must apply on the existing one to provide 10 - 15 mm overlap (see Fig 9).

Note

If you use the new Metallic mesh (treated) (Spare Ref. 8) be careful not to damage the external coat of primer.

13.1.3. Take the new metallic mesh and cut it to the recorded dimension.

Note

If a new Metallic mesh (treated) (Spare Ref. 8) is available do Step 13.1.5. If a new but not treated metallic mesh is available, do Step 13.1.4.

13.1.4. Prepare the new Metallic mesh (Spare Ref. 7) for bonding, as follows:

13.1.4.1. Clean all surfaces with a Cloth (soft lint-free) (Supply Ref. 1) moistened with Solvent (Supply Ref. 2) at ambient temperature.

13.1.4.2. Do alkaline cleaning with Alkaline cleaner (Supply Ref. 16), refer to the related manufacturer's instructions. After alkaline cleaning fully rinse the part. We recommend to rinse in a tank with tap water for at least 5 minutes, then put fully in deionized water at a temperature less than 70 °C for 2 to 4 minutes.

CAUTION

Do not treat parts more than twice in the etching solution.

13.1.4.3. Immerse the part for 1 to 2 minutes at a temperature of 57 to 63 °C in a solution of Sulphuric acid (Supply Ref. 17) mixed 25 to 35% by volume, with water.

Note 1

Do not start the time until the gaseous phase starts to react on the part.

Note 2

To start the pickling reaction, you can apply direct current (dc) to activate the part. Do as follows:

— The part must act as cathode (-), with the anode (+) provided by a piece of stainless steel (that covers the length of the parts);

— Apply direct current (dc) at 0,1 - 0,2 A/dm^2 until the chemical attack starts (generally between 10 seconds and 2 minutes);

— Cut off current when the chemical attack has started.

Or, you can rub the surfaces of the parts with a piece of carbon steel, while in the pickling solution. You must remove the carbon steel, as soon as the chemical reaction starts.

Note 3

Parts shall be either rinsed or immersed in the de-smutting bath, immediately after its removal from the solution.

13.1.4.4. Rinse in deionized water at ambient temperature for 5 minutes.

13.1.4.5. Immerse the part for 1 to 5 minutes at a temperature of 60 to 71 °C in a solution of Sulphuric acid (Supply Ref. 17) at 22 to 28% by weight and Sodium dichromate (Supply Ref. 13) at 2 to 4% (by weight).

13.1.4.6. Fully rinse in deionized water, at ambient temperature, for at least 5 minutes.

13.1.4.7. Immerse part in deionized water, at a temperature from ambient to 70 °C maximum, for 1 to 3 minutes.

13.1.4.8. Dry the part in a room with filtered hot air circulation at a temperature between ambient and 70 °C maximum, for 10 to 20 minutes (the necessary until the parts are dry).

13.1.4.9. Do a visual inspection of the surfaces for uniformity of treatment. Variations in color, appearing as light and dark areas and slight water stains are permitted.

13.1.4.10. Apply a uniform layer of Primer (Supply Ref. 14), at ambient temperature, on the surfaces to be bonded to get a thickness between 0,0010 and 0,0025 mm.

13.1.4.11. Cure the primer at ambient temperature for 30 minutes, then for 55 to 65 minutes at a temperature between 115 and 125 °C.

13.1.5. Remove the new tabs from the blade.

13.1.6. Cut the adhesives:

— one layer of Structural adhesive film (Supply Ref. 4) having the shape of the part bonded to the blade skin;

— one layer of Structural adhesive film (Supply Ref. 5) having the shape of the part bonded to the blade skin plus the shape of the new metallic mesh to be applied, and 5 mm overlap constant all around;

— one layer of Structural adhesive film (Supply Ref. 4) and one layer of Structural adhesive film (Supply Ref. 5) having the shape of the protruding part;

— two layers of Structural adhesive film (Supply Ref. 4) having the shape of the tab plus an overlap to cover the tab thickness.

Note

To obtain a correct bonding, it is permitted to use an additional layer of Structural adhesive film (Supply Ref. 18), limited to the contact area between the tab and the blade's upper/lower surface.

13.1.7. Apply the layers of adhesive on the blade skin as shown in Fig 9. Make sure that they are in perfect contact with the blade skin trailing edge and centered on the STA shown in Fig 1.

13.1.8. Apply the layers of adhesive on the protruding part of a tab as shown in Fig 9.

13.1.9. Apply a strip of Tape (polyester – adhesive) (Supply Ref. 8) as shown in Fig 9.

Note

Make sure that the new spare parts comply with the Shelf life limits.

13.1.10. Put the new Oversize tab (lower surface) (Spare Ref. 5) and the new Oversize tab (upper surface) (Spare Ref. 6) on the adhesive layers applied to the blade skin. Take extreme care not to damage the external coat of primer.

Note

Correctly position both tabs on the blade's trailing edge, perfectly centered on the STA (see Fig 1) and at the indicated distance from the trailing edge line (see Fig 9). You must comply with the misalignment tolerances all around the tabs.

13.1.11. Put the new metallic mesh on the adhesive, at a distance of 0 - 1 mm from the tabs, and overlapping the existing mesh on the blade (upper side and lower side).

13.1.12. Apply the layers of Structural adhesive film (Supply Ref. 4) on the external surfaces of the new tabs.

13.1.13. Apply Non-adhesive nylon peel-ply (Supply Ref. 11) on the external adhesive layers.

13.1.14. If necessary, apply Tape (Teflon) (Supply Ref. 10) in different locations to keep the tab in the correct position.

13.2. Installation of the trim tab assembly (see Fig 10):

13.2.1. Put in the install position the new Oversize trim tab assy (Spare Ref. 4) and secure it with Tape (Teflon) (Supply Ref. 10).

13.2.2. Determine the dimension of the new Metallic mesh (Spare Ref. 7) that you must apply on the existing one to provide 10 - 15 mm overlap (see Fig 10).

Note

If you use the new Metallic mesh (treated) (Spare Ref. 8) be careful not to damage the external coat of primer.

13.2.3. Take the new metallic mesh and cut it to the recorded dimension.

Note

If a new Metallic mesh (treated) (Spare Ref. 8) is available do Step 13.2.5. If a new but not treated metallic mesh is available, do Step 13.2.4.

13.2.4. Prepare the new Metallic mesh (Spare Ref. 7) for bonding, refer to Step 13.1.4.

13.2.5. Remove the new oversize trim tab assy from the blade.

13.2.6. Prepare the bonding surfaces of the new oversize trim tab assy following the same procedure done for the blade skin (Step 10).

13.2.7. Cut the adhesives:

— one layer of Structural adhesive film (Supply Ref. 4) having the shape of the part bonded to the blade skin;

— one layer of Structural adhesive film (Supply Ref. 5) having the shape of the part bonded to the blade skin plus the shape of the new metallic mesh to be applied, and 5 mm overlap constant all around.

13.2.8. Apply the layers of adhesive on the blade skin as shown in Fig 10. Make sure that they are in perfect contact with the blade skin trailing edge and centered on the STA shown in Fig 1.

13.2.9. Put the new Oversize trim tab assy (Spare Ref. 4) on the blade skin trailing edge.

Note

Correctly position the new oversize trim tab assy on the blade's trailing edge, perfectly centered on the STA (see Fig 1) and at the indicated distance from the trailing edge line (see Fig 10).

13.2.10. Put the new metallic mesh on the adhesive, at a distance of 0 - 1 mm from the trim tab assy, and overlapping the existing mesh on the blade (upper side and lower side).

13.2.11. If necessary, apply Tape (Teflon) (Supply Ref. 10) in different locations to keep the trim tab assy in the correct position.

14. Cure the adhesive as follows:

14.1. Apply the Thermocouple (Support equipment Ref. 7) on the blade skin and secure them with Tape (Teflon) (Supply Ref. 10).

14.2. Apply the Heating blanket (Support equipment Ref. 3).

14.3. Prepare and apply the Vacuum bag (Support equipment Ref. 6).

14.4. Cure at:

— TEMPERATURE: 104 to 110 °C;

— TIME: at least 120 minutes;

— PRESSURE: 0,7 to 1,5 kg/cm^2.

Note 1

Make sure that the pressure over the entire bonding area is constant during the cure cycle.

Note 2

The cure time starts when the repair area gets the necessary temperature for curing.

14.5. Remove the vacuum bag.

14.6. Remove the heating blanket(s).

14.7. Remove the thermocouple(s).

15. If present, remove the Non-adhesive nylon peel-ply (Supply Ref. 11) from the external surfaces of the trim tab.

16. If applied, remove the Tape (Teflon) (Supply Ref. 10).

17. Blend possible adhesive squeeze out all around the tabs with Abrasive paper (Supply Ref. 3), grit 240 - 320, leaving a bead of adhesive.

18. Check for the correct positioning of the trim tab assy on the blade.

19. Do a tap inspection with the Hammer (steel) (Support equipment Ref. 4) for correct bonding. Refer to Maintenance Manual (Section 62-11) ([1]) for the permitted limits.

20. Inspect the external surfaces of the trim tab to find areas with missing adhesive. If you find them restore the Chemical conversion coating (Supply Ref. 12) by brush on exposed aluminum surfaces of the tab. Refer to Overhaul Manual (Section 20-10-00) ([1]).

21. Apply a bead of Sealing compound (Supply Ref. 9) as shown in Fig 11.

22. Restore the blade surface finish. Refer to Maintenance Manual (Section 62-11) ([1]).

23. Weigh the blade and record the value on the blade log card.

Note

Only if a new composite repair patch was not applied:

- If the final weight differs from the weight recorded in Step 1 less than 5 grams, it is not necessary to do the static balance.
- If you find previous annotations in the blade log card, make sure that the cumulative weight variation is not more than 5 grams. If the values is greater, do the final blade static balance, refer to Step 24.

24. Do the final M/R blade static balance. Refer to TMI109-433.

Requirements after job completion

1. Install the main rotor blade on helicopter. Refer to Maintenance Manual (Section 62-11) ([1]).

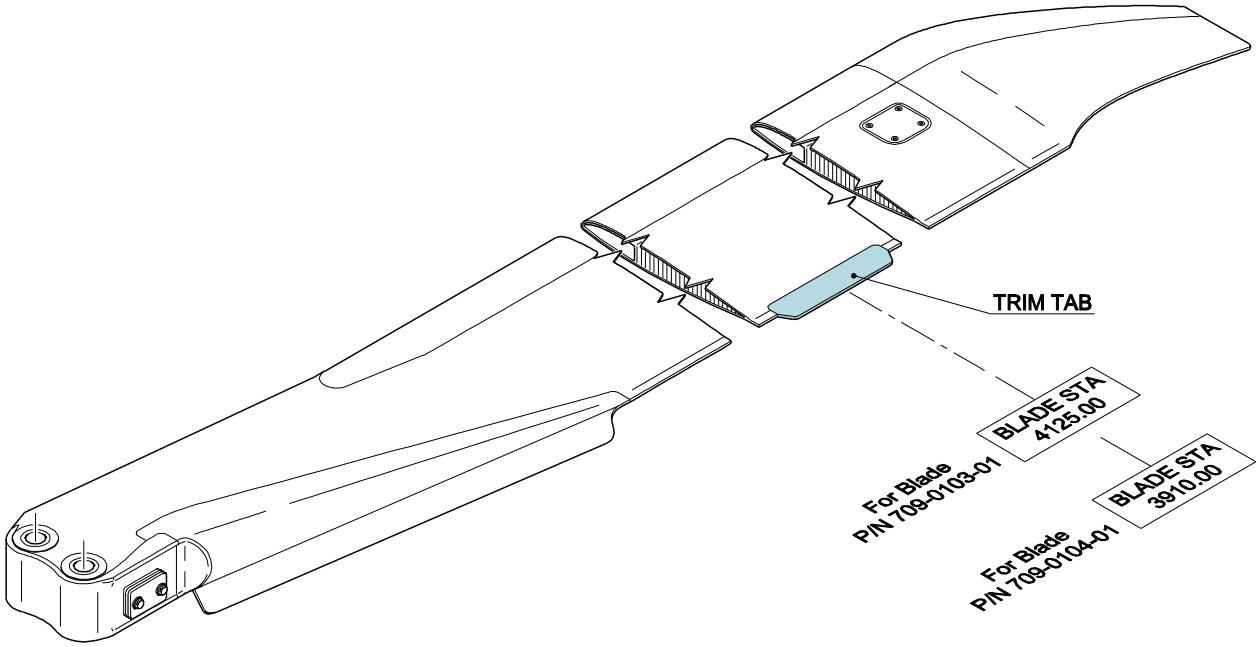


Figure 1 – Main rotor blade – Trim tab.

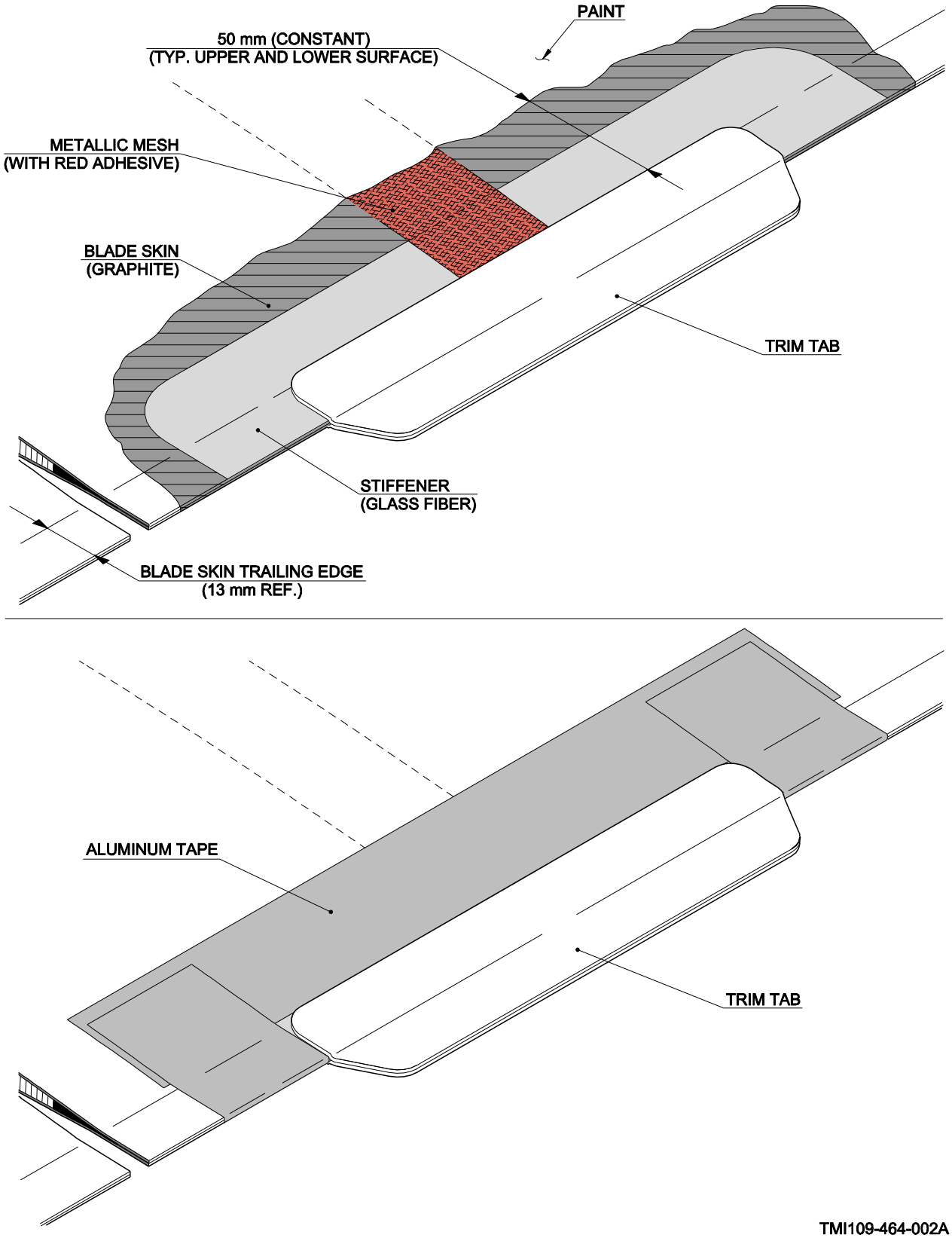


Figure 2 – Main rotor blade - Replacement of the trim tab (paint removal and blade skin protection).

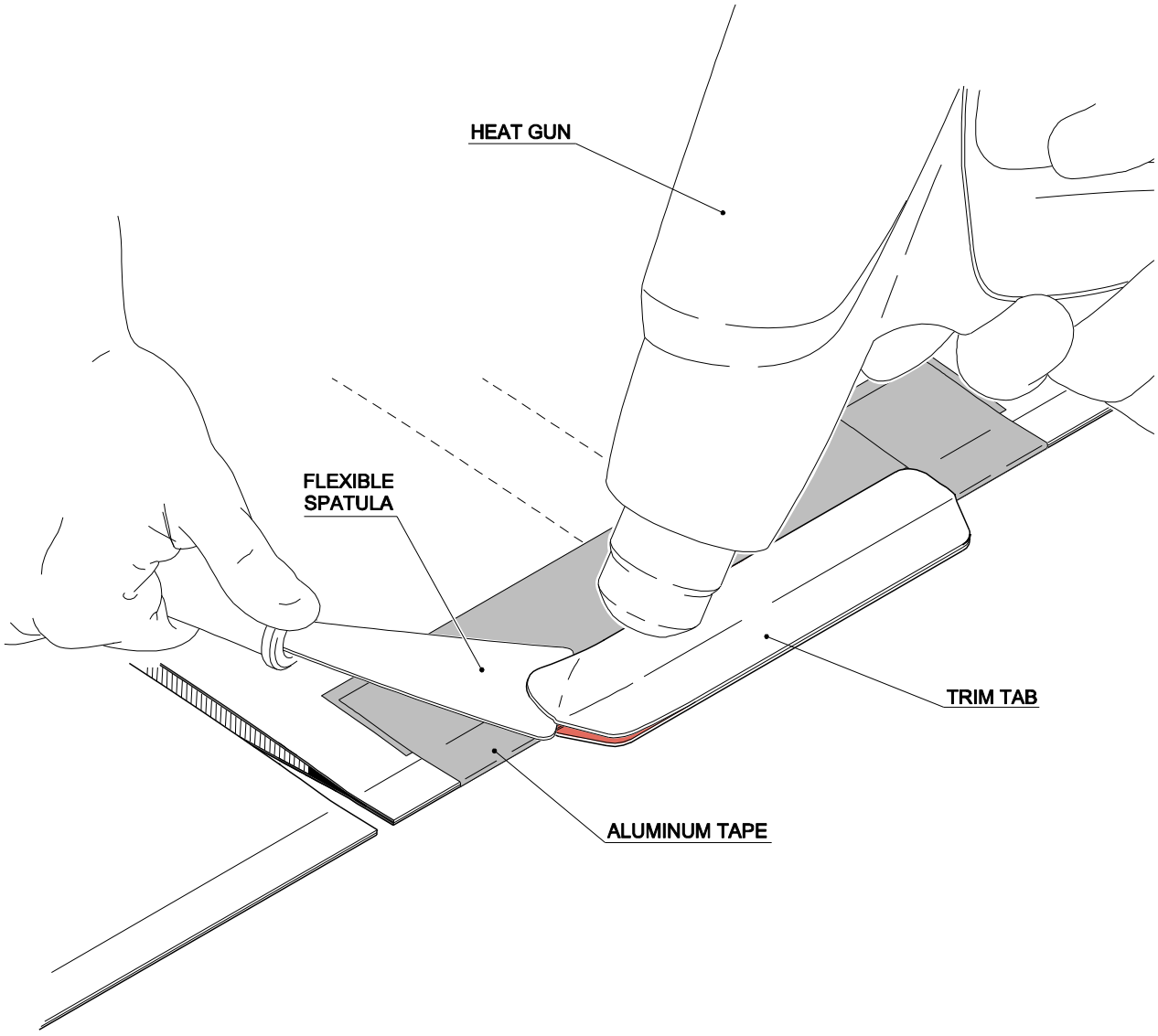


Figure 3 – Main rotor blade - Replacement of the trim tab (removal).

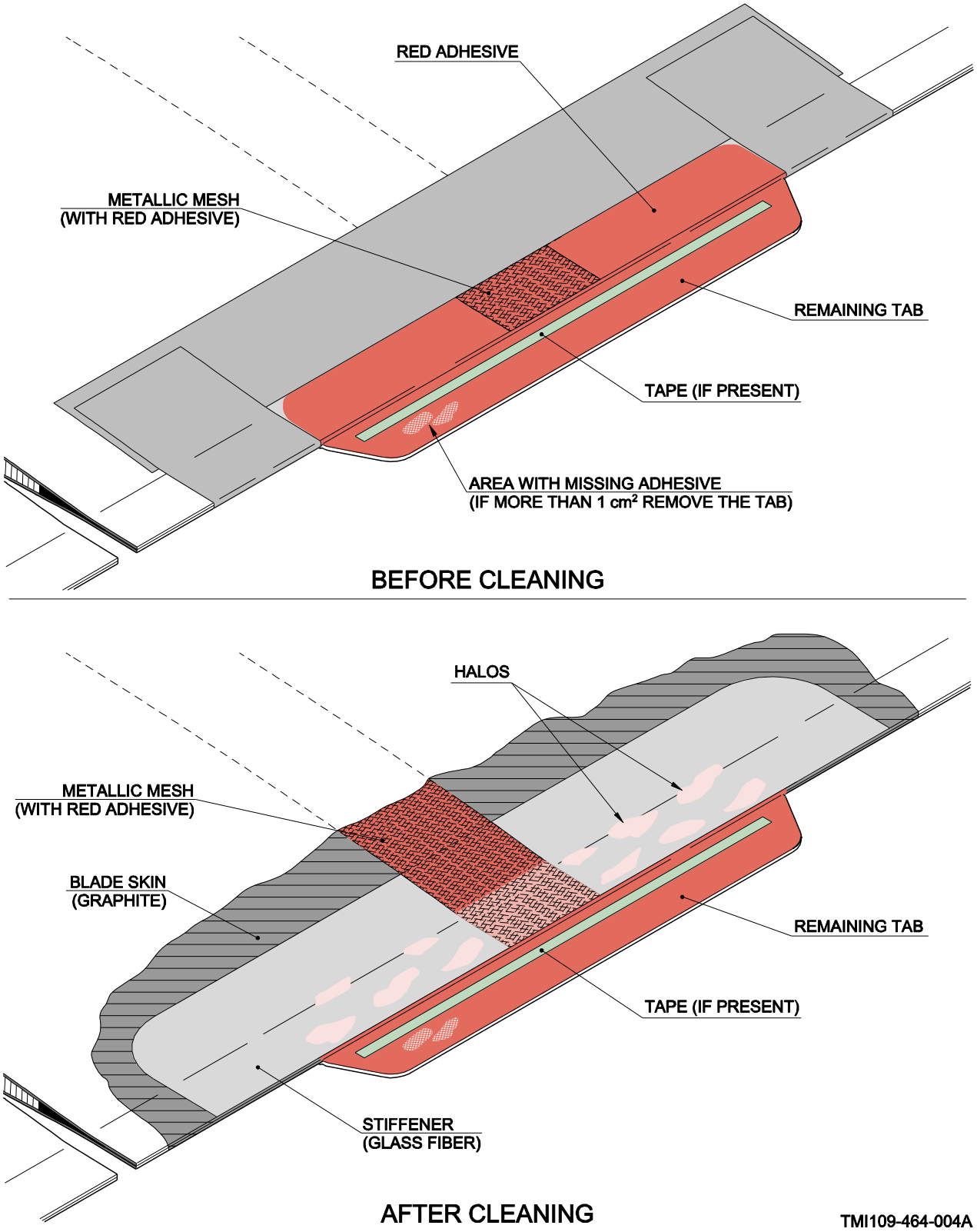


Figure 4 – Main rotor blade - Replacement of the trim tab (blade skin cleaning).

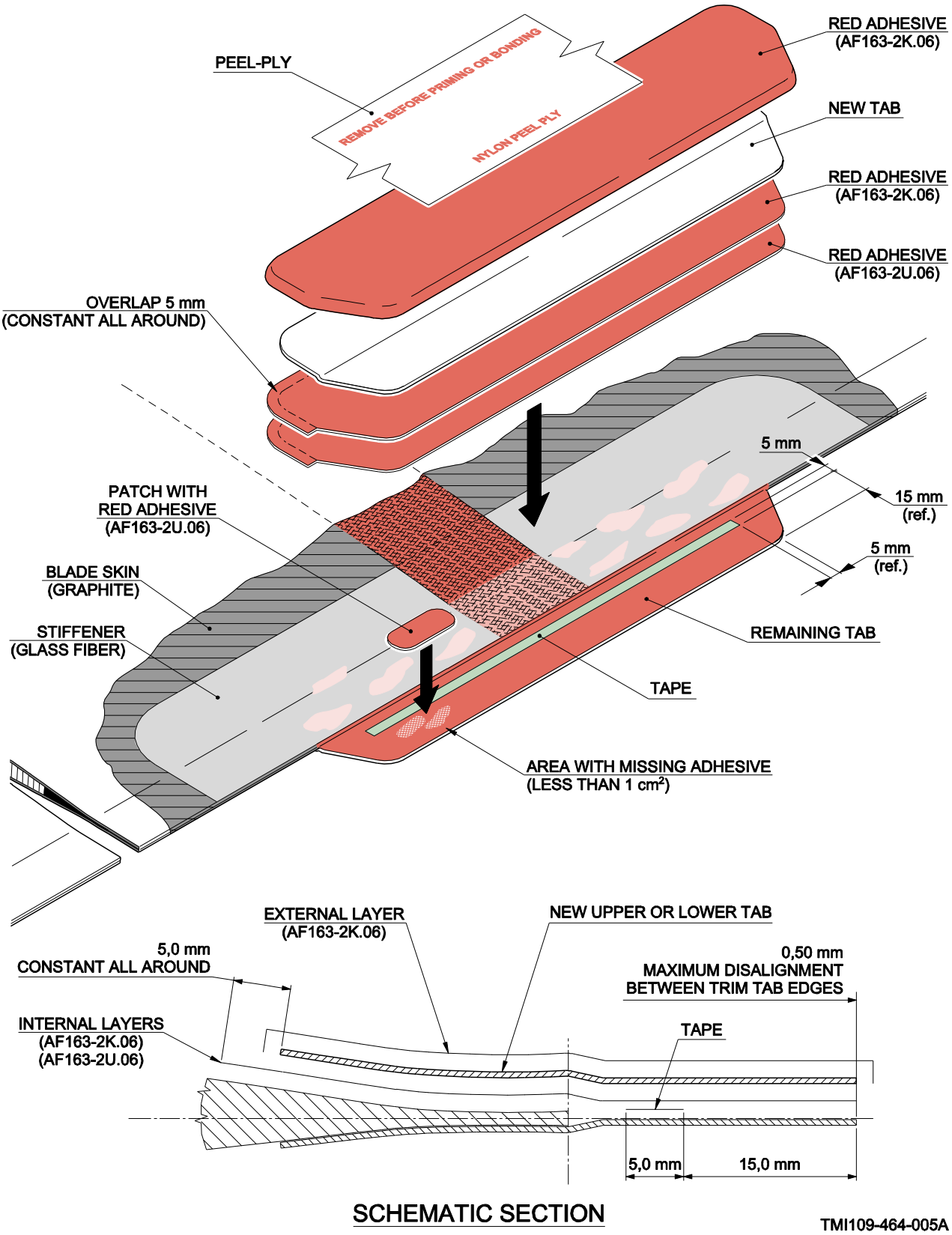


Figure 5 – Main rotor blade - Replacement of the trim tab (one tab installation).

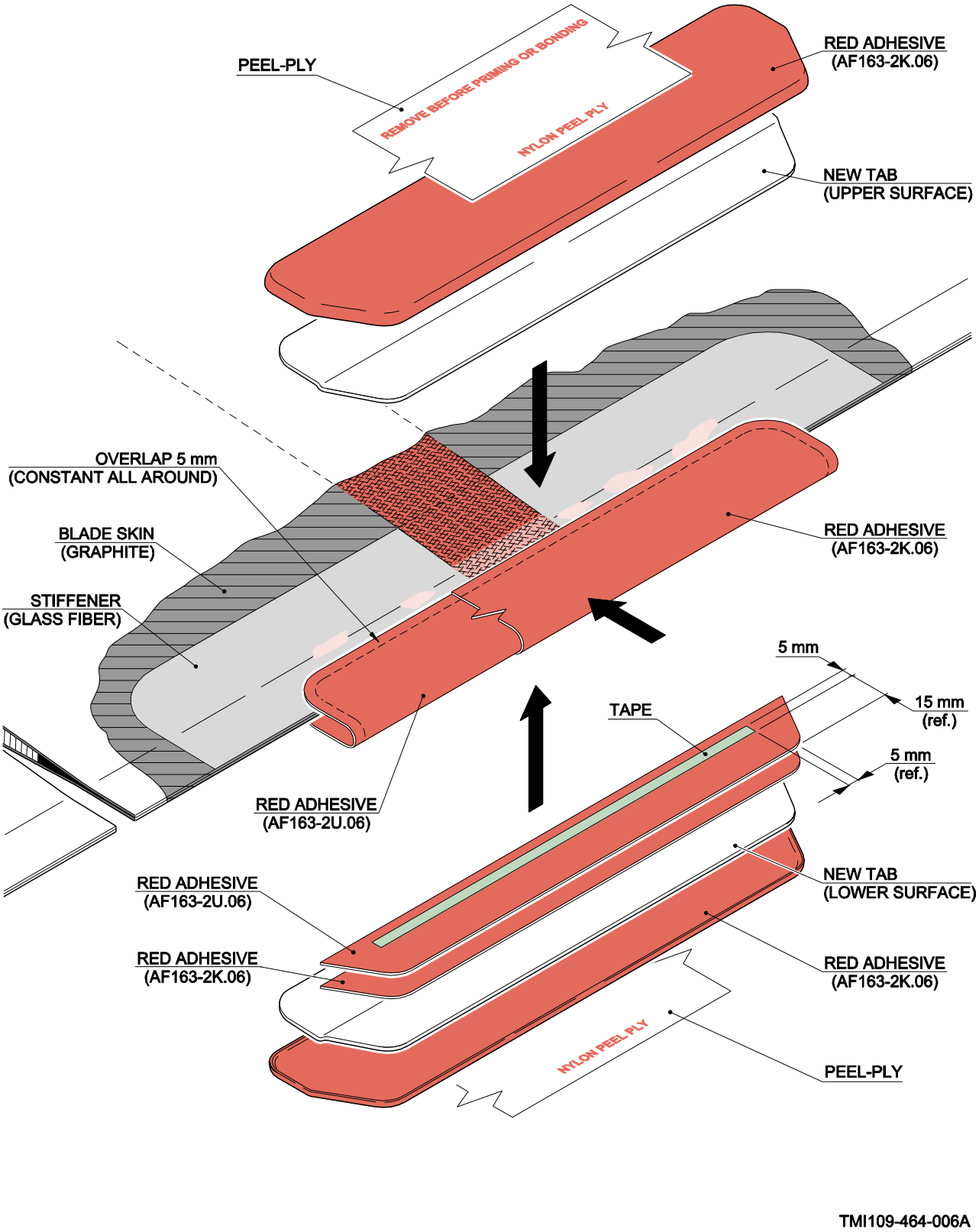
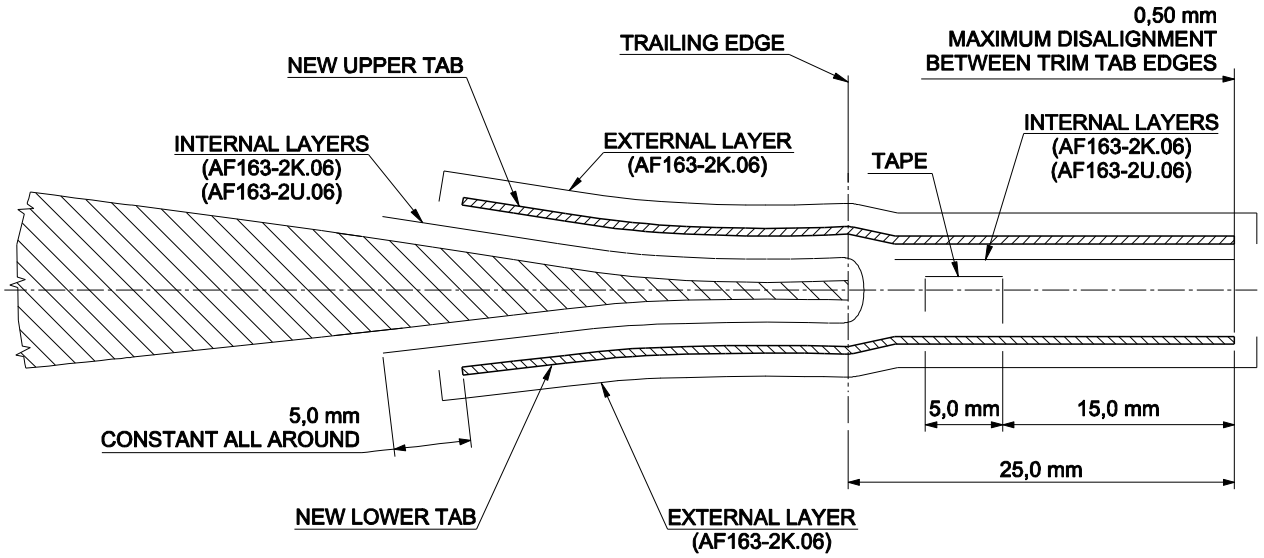
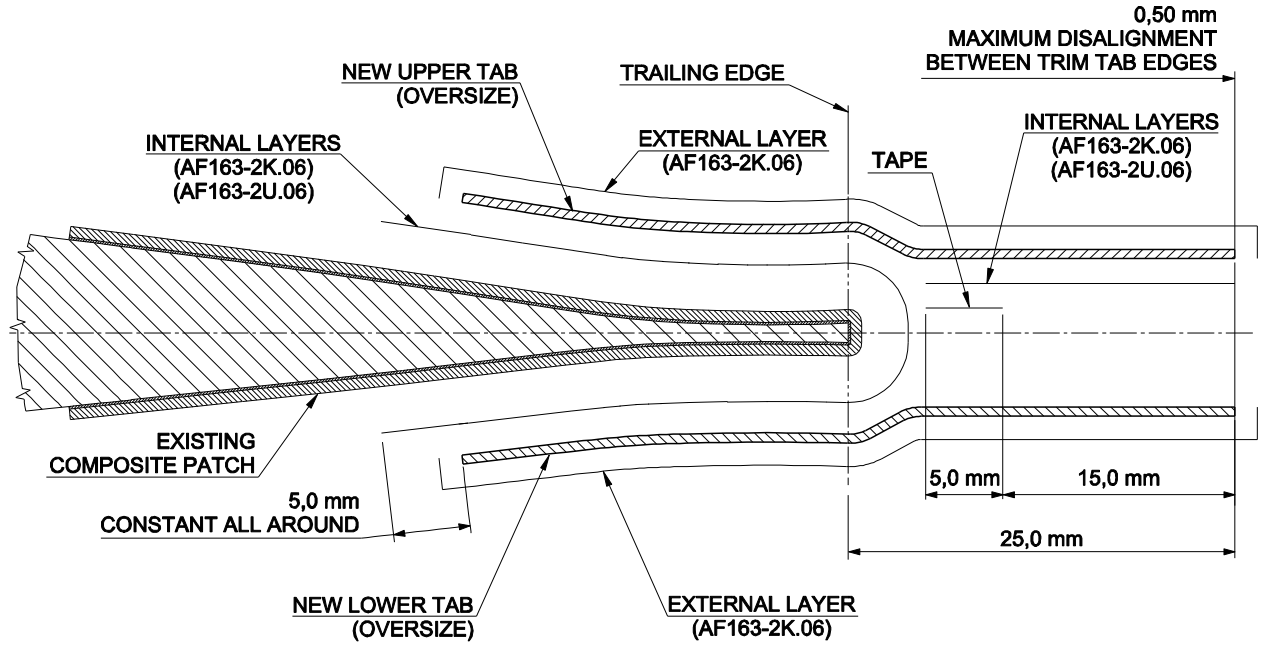


Figure 6 – Main rotor blade - Replacement of the trim tab (two tabs installation) (sheet 1 of 2).



WITHOUT COMPOSITE PATCH



WITH COMPOSITE PATCH (ALREADY PRESENT)

SCHEMATIC SECTIONS

TMI109-464-007A

Figure 6 – Main rotor blade - Replacement of the trim tab (two tabs installation) (sheet 2 of 2).

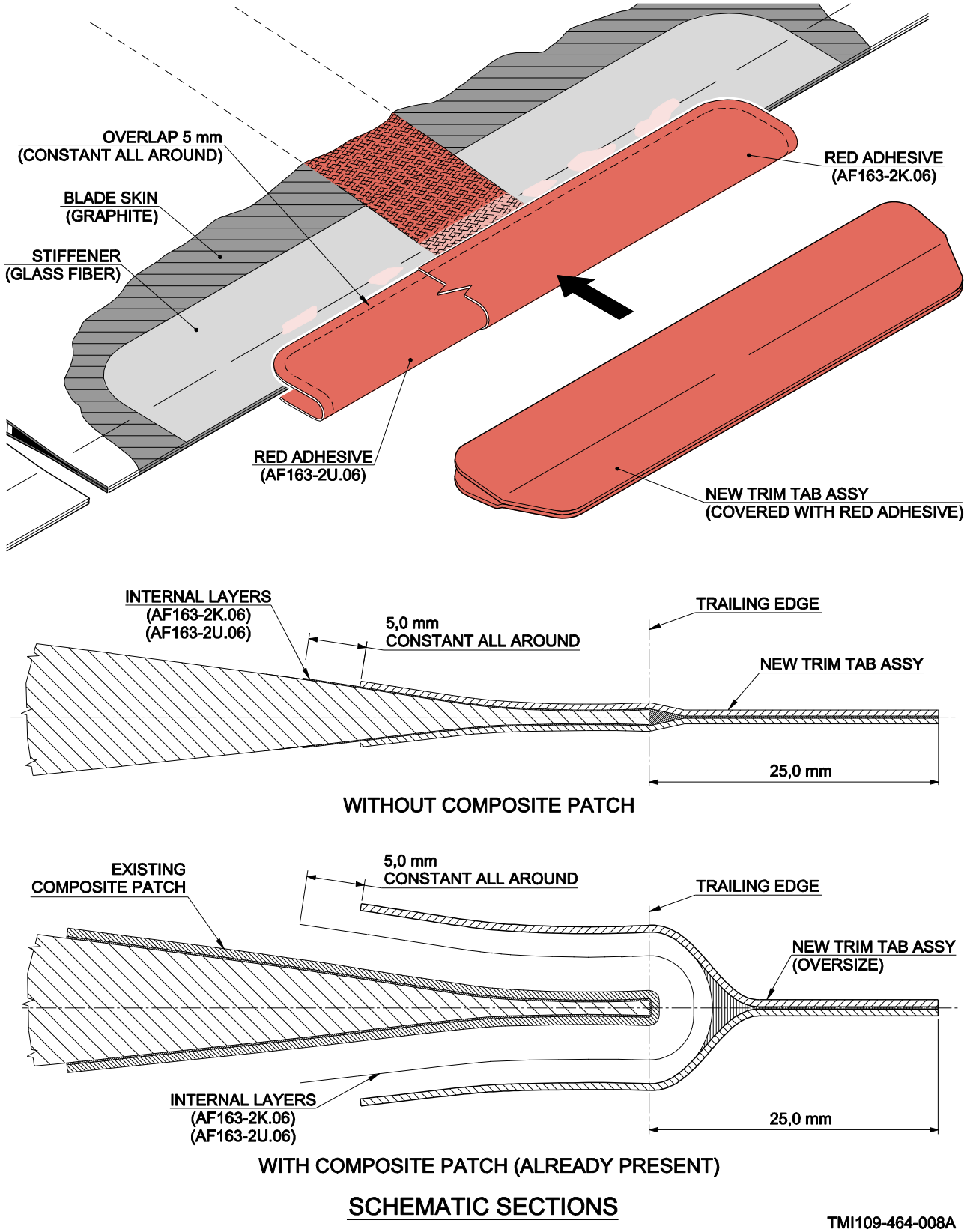


Figure 7 – Main rotor blade - Replacement of the trim tab (assembly installation).

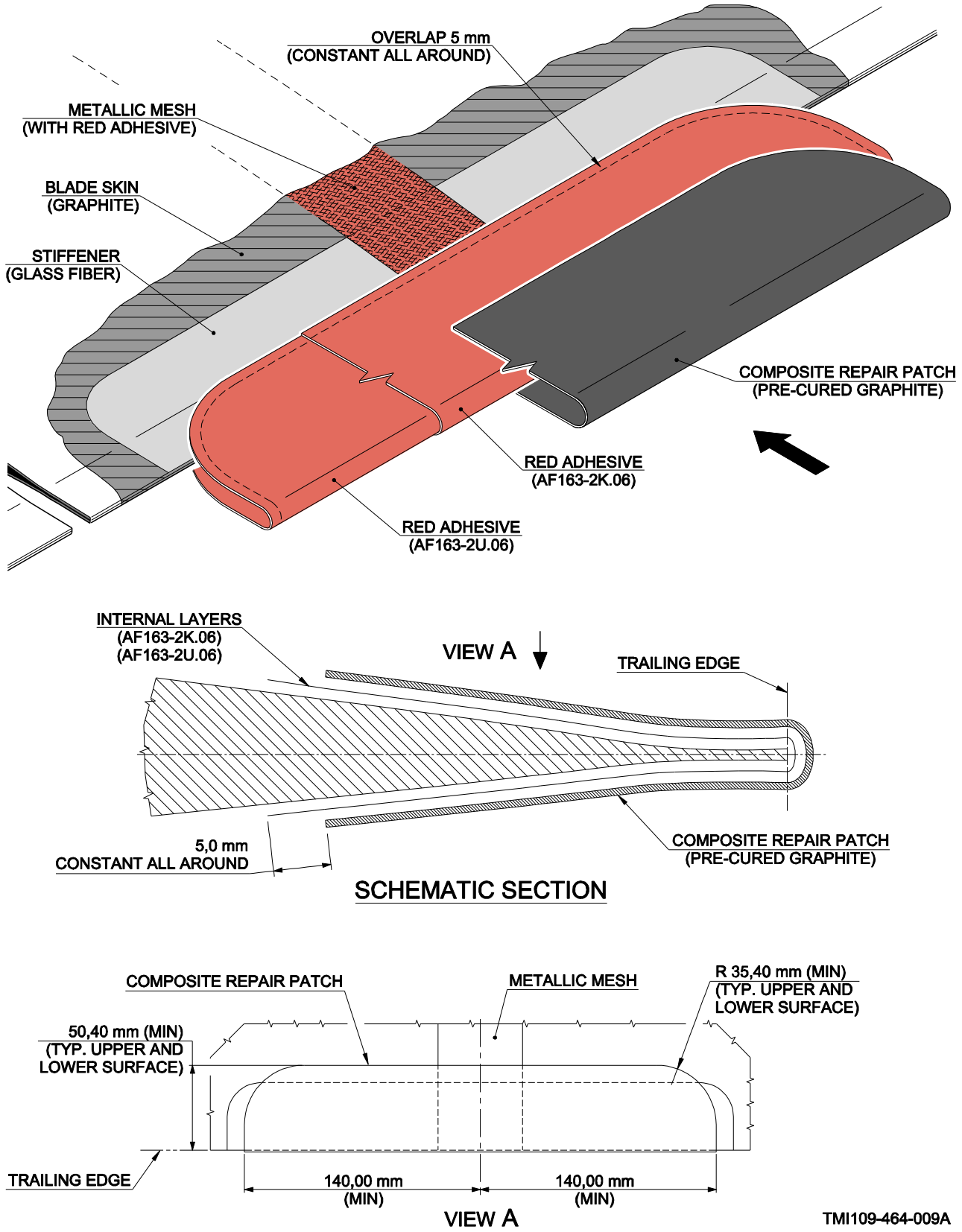


Figure 8 – Main rotor blade - Replacement of the trim tab (composite repair patch installation).

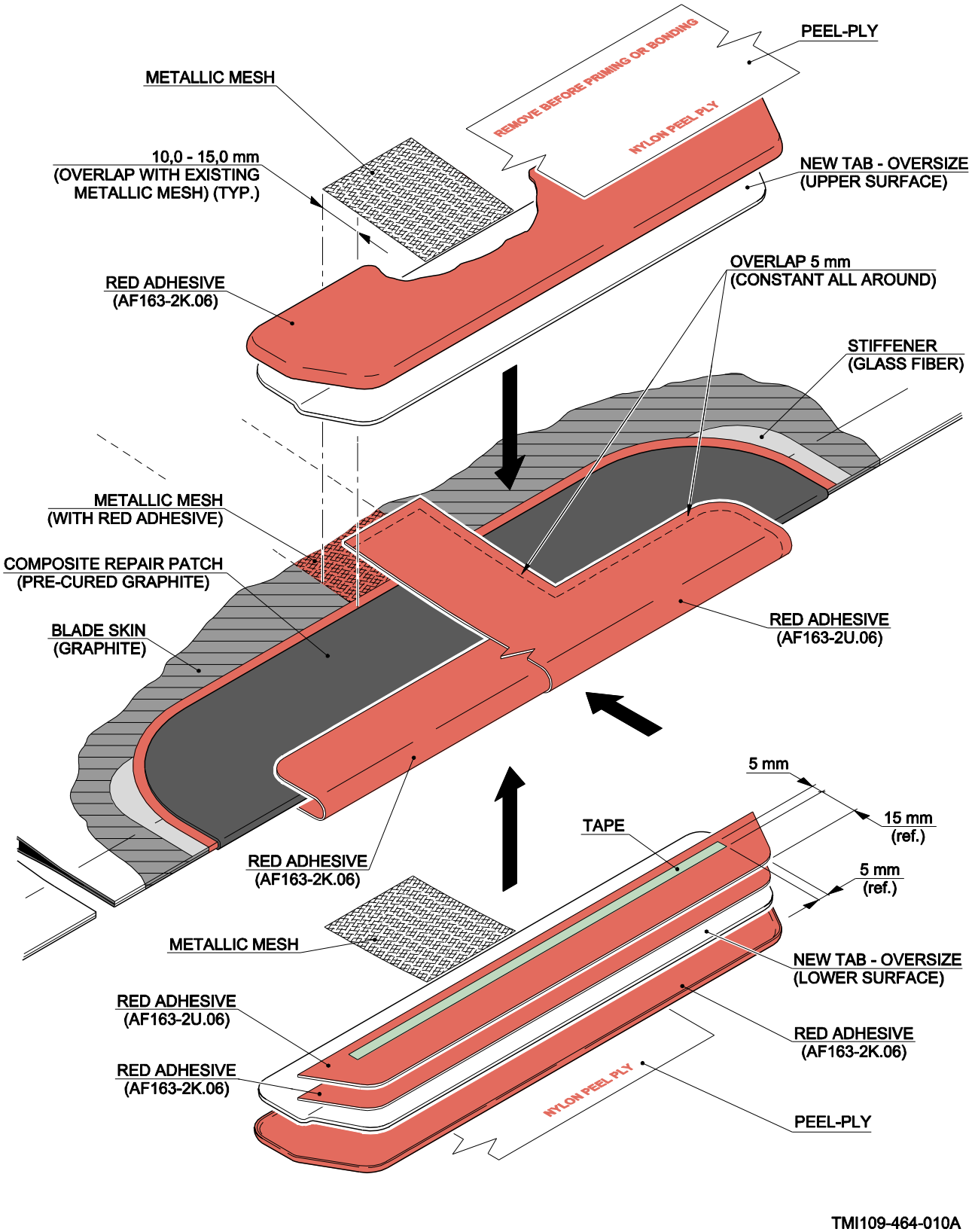


Figure 9 – Main rotor blade - Replacement of the trim tab (two tabs installation on repaired blade skin) (sheet 1 of 2).

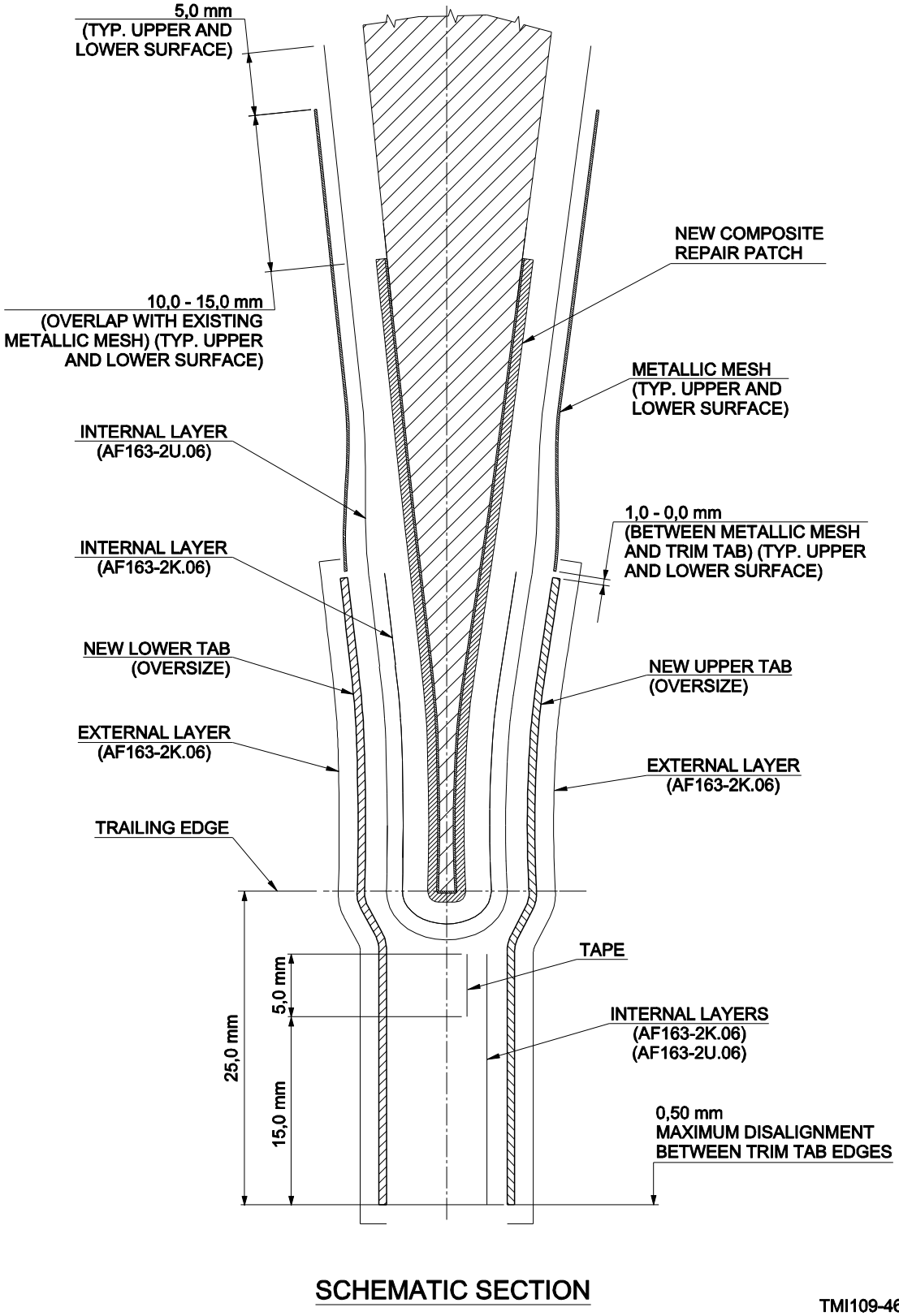


Figure 9 – Main rotor blade - Replacement of the trim tab (two tabs installation on repaired blade skin) (sheet 2 of 2).

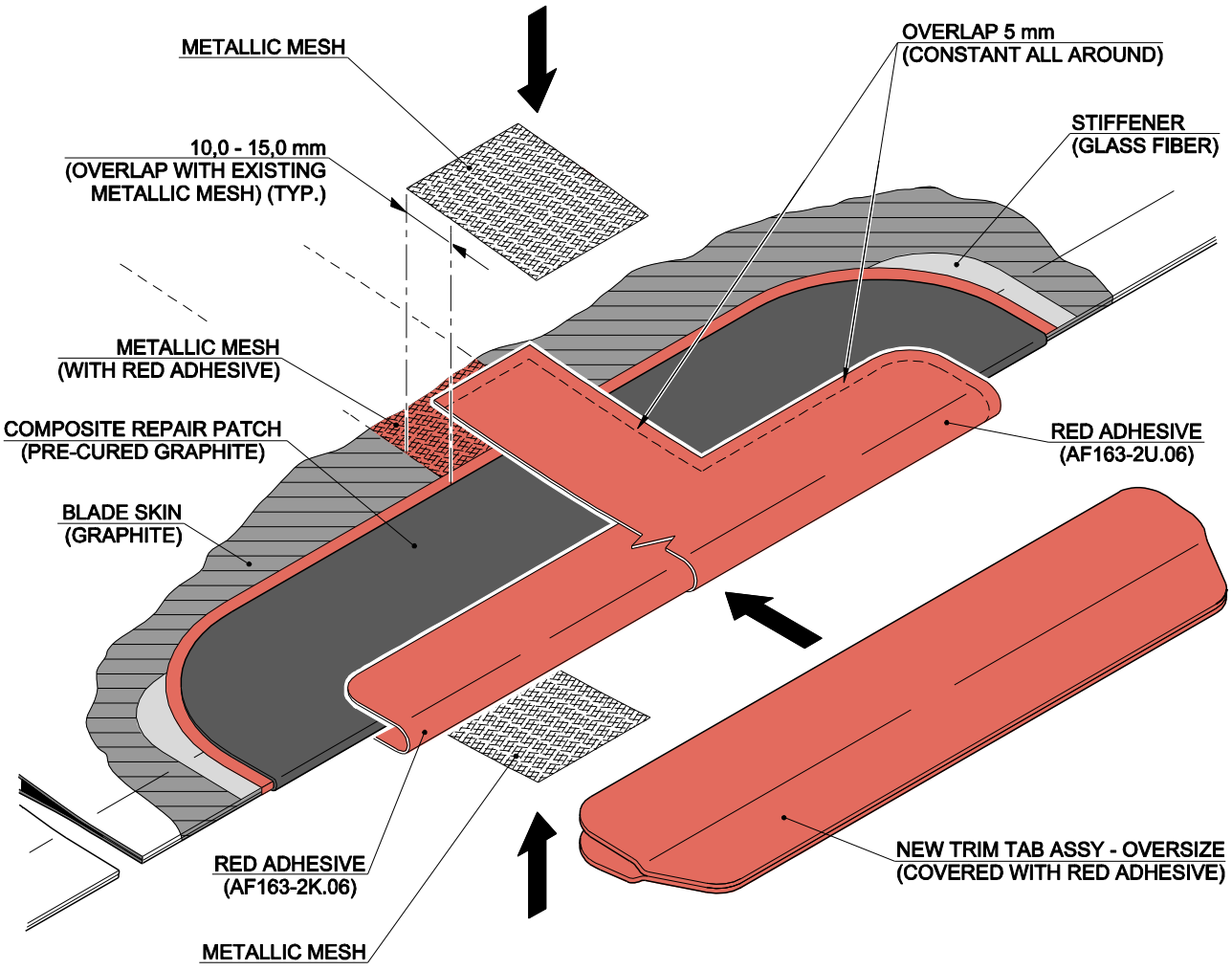


Figure 10 – Main rotor blade - Replacement of the trim tab (assembly installation on repaired blade skin) (sheet 1 of 2).

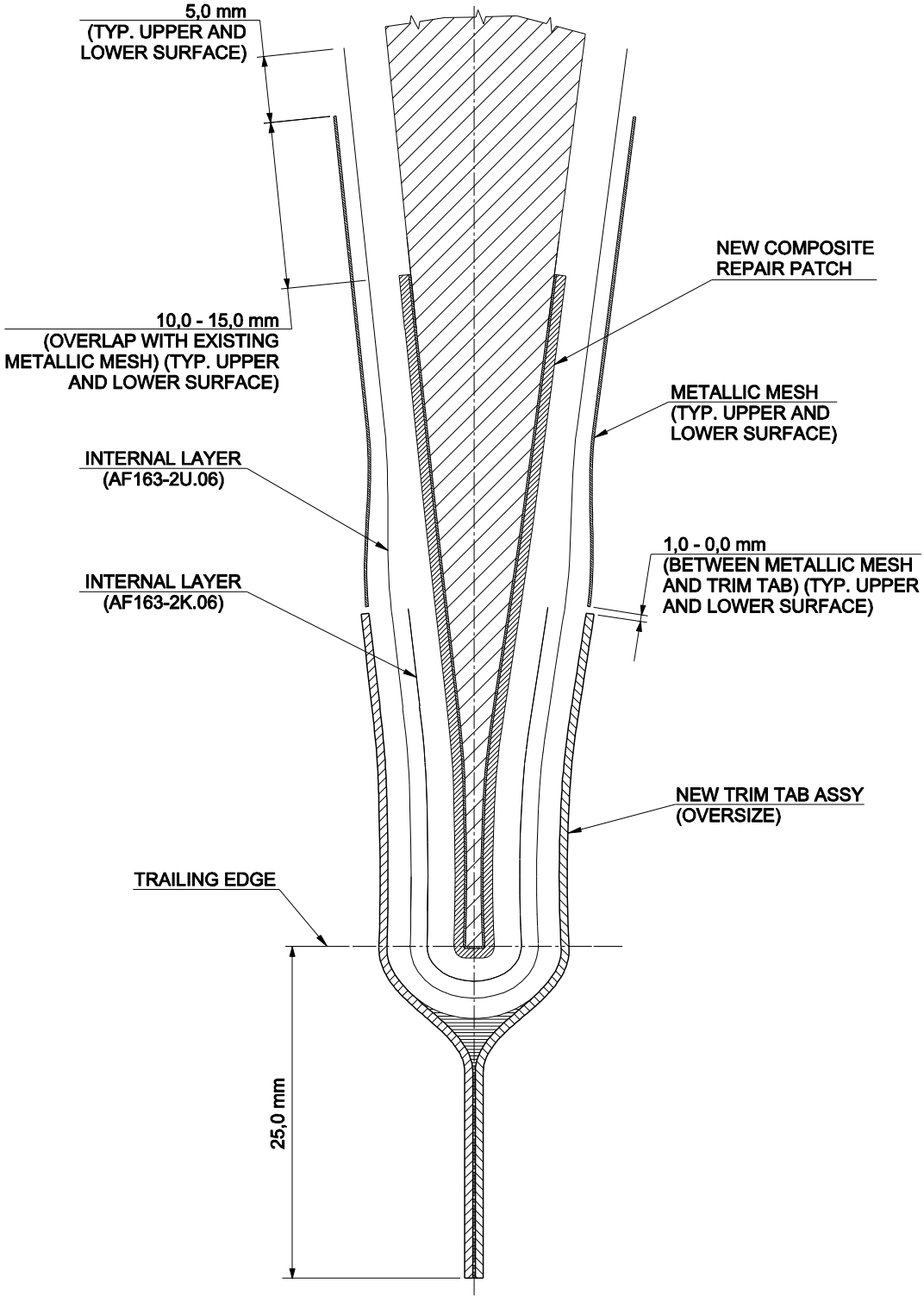


Figure 10 – Main rotor blade - Replacement of the trim tab (assembly installation on repaired blade skin) (sheet 2 of 2).

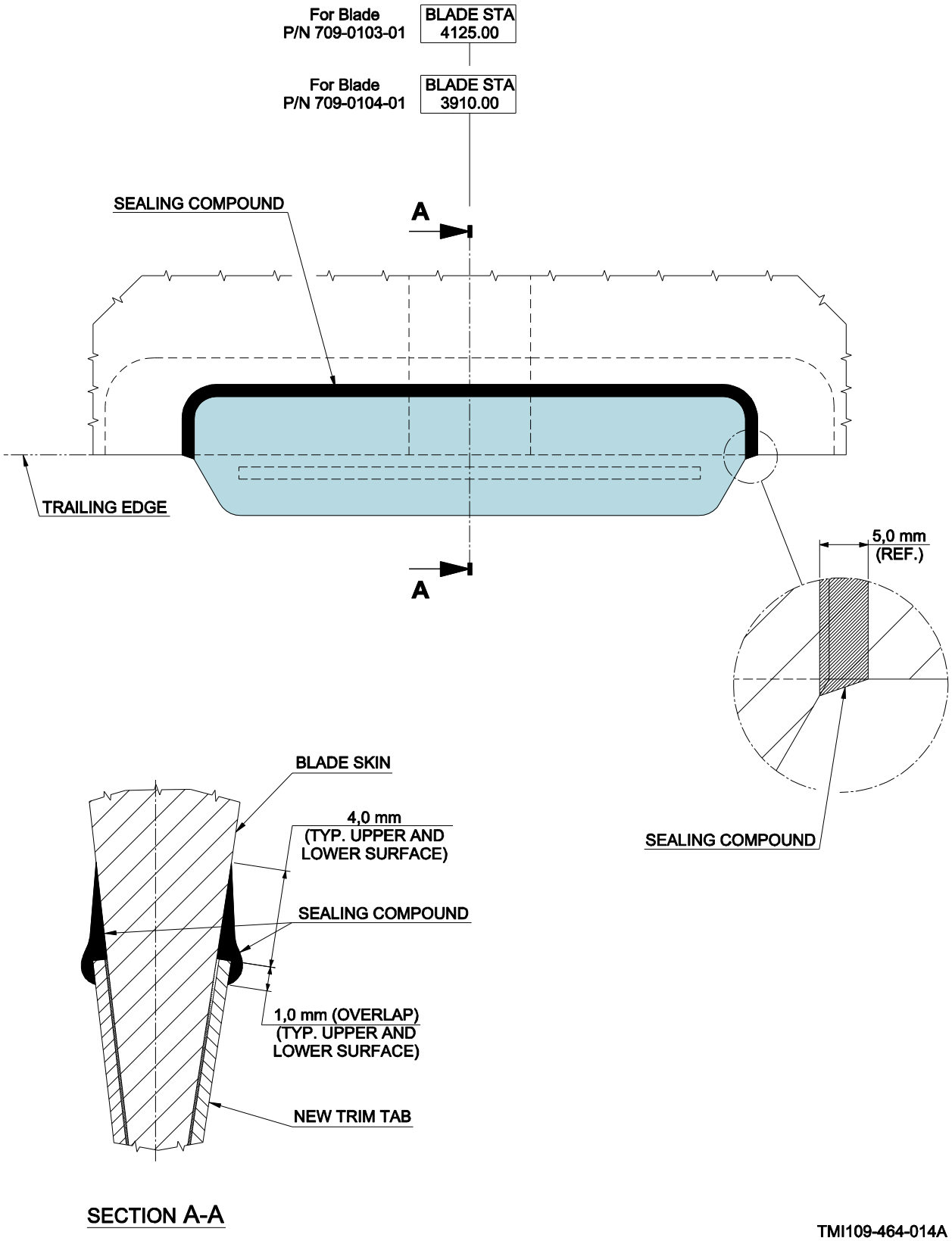


Figure 11 – Main rotor blade - Replacement of the trim tab (sealing).