



SMR Technologies

Fenwick, WV 26202

PNEUMATIC DE-ICER
REPAIR KIT INSTRUCTIONS

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Revisions

Date	Description of Change	Author	Approval
6/21/00	Rev 1 – Original issue	WSG	RLR
2/7/02	Rev 2 – Section 4.1, change PN from 2MA1913-01 to 4MA 1913-01	WSG	RLR
8/28/03	Rev 3 – Changes made to add Repair Kit # 2MA1419-02	CDL	RLR
3/4/2019	Rev 4 – Update Logo and remove B/E Aerospace throughout. Update from “Manufacturer’s Safety Data Sheet (MSDS)” to “Safety Data Sheet (SDS)” in Section 2.1. Clarify primer as 3M Primer #94 throughout. Update recommended shelf life for 3M Primer #94 from “12 Months (1 yr)” to “18 Months from the Date of Manufacture” and for Pressure Sensitive Adhesive on Patches from “24 Months (2yrs)” to “18 Months from the Date of Shipment” per current manufacturer’s technical datasheets. Add Appendix A and move sample labels from Section 6.1 to Appendix A.	DCD	DAB

TABLE OF CONTENTS

SECTION	PAGE
1.0 Introduction.....	1
2.0 Safety	1
3.0 Repair Limits.....	1
4.0 Material List	2
5.0 Repair Instructions.....	3
6.0 Kit Contents Label Information	3
7.0 Storage.....	4
Appendix A.....	5

1.0 **INTRODUCTION**

This publication provides information about material contents and installation procedures for the Pneumatic Deicer Repair Kit P/N 2MA1419-01 and P/N 2MA1419-02 used on SMR pneumatic de-icers installed and used on both General Aviation and Regional (commuter) Aircraft. P/N 2MA1419-01 repair kit is a direct replacement for the BF Goodrich repair kit P/N 74-451-AA. P/N 2MA1419-02 does not include the 3M Primer #94.

1.1 **PURPOSE**

The SMR Repair Kits are designed to make permanent patch repairs to all SMR Technologies pneumatic de-icers.

2.0 **SAFETY**

2.1 A Safety Data Sheet (SDS) is included in the 2MA1419-01 kit for the 3M Primer #94. The SDS must be on hand for environmental information as well as handling and/or mixing procedures. They are also available from the adhesive and solvent suppliers.

2.2 **WARNING**

Adhesives and solvent vapors are toxic and flammable. Use only in a well-ventilated area away from sparks and flames. Avoid prolonged breathing of vapors. Excessive exposure may cause dizziness or nausea. Seek fresh air immediately. Avoid contact with skin or eyes. Use solvent-resistant gloves to minimize skin exposure. Use safety glasses to minimize chance of eye contact. If eye contact occurs, flush eyes with water for 15 minutes and see a physician. If skin contact occurs, wash thoroughly with soap and water. If swallowed, do not induce vomiting; see a physician immediately.

3.0 **REPAIR LIMITS**

3.1 Permanent patch repairs are not recommended for the following damage:

1. Cut, tear or rupture exceeding $\frac{3}{4}$ " in length.
2. Cut, tear or rupture within $\frac{1}{8}$ " of a stitch line (on sewn de-icers).
3. Patch repairs are permissible for damage as described in (1) and (2) above temporarily, until a replacement can be scheduled, provided the part remains operational.

3.2 Recommended limits for application of patches for maximum operating efficiency of a pneumatic de-icer.

1. Three (3) small patches ($1\frac{1}{4}$ " x $2\frac{1}{2}$ ") per 12-inch square area.
2. Two (2) medium patches ($2\frac{1}{2}$ " x 5") per 12-inch square area.
3. One (1) large patch (5" x 10") per 12-inch square area.

4.0 **MATERIALS LIST**

4.1 Materials in repair kit 2MA1419-01:

<u>Part Number</u>	<u>Description</u>
2MA1419-07	½ pint 3M Primer #94
4MA1929-3	30 pcs. (Pkg.) small oval patch (1 ¼" x 2 ½")
4MA1929-2	30 pcs. (Pkg.) medium oval patch (2 ½" x 5")
4MA1929-1	10 pcs. (Pkg.) large oval patch (5" x 10")
2MA1419-06	3 pcs. (Pkg.) emery cloth, medium grit
4MA1913-01	1 ea. Patch Template/Sanding Shield

Materials in repair kit 2MA1419-02:

<u>Part Number</u>	<u>Description</u>
4MA1929-3	30 pcs. (Pkg.) small oval patch (1 ¼" x 2 ½")
4MA1929-2	30 pcs. (Pkg.) medium oval patch (2 ½" x 5")
4MA1929-1	10 pcs. (Pkg.) large oval patch (5" x 10")
2MA1419-06	3 pcs. (Pkg.) emery cloth, medium grit
4MA1913-01	1 ea. Patch Template/Sanding Shield

4.2 Required materials **not** supplied in kit. (Equivalent substitutes permitted)

<u>Description</u>	<u>Vendor/Part Number</u>
2" Rubber Roller, 1 ea.	SMR Technologies P/N 2MA1414-02
Cement brushes, ½" (2-ea. Pkg.)	SMR Technologies P/N 2MA1414-10
Detergent	Commercially available
Lint-free cloths	Commercially available
Cleaning solvent, (Toluene or Alcohol)	Commercially available
"Zip-loc" bag, plastic, (One-gallon size)	Commercially available

Note: ½ pint 3M Primer #94 is not supplied in repair kit 2MA1419-02

5.0 **REPAIR INSTRUCTIONS**

5.1 **CAUTION:**

Patches have **one-way stretch** across the **width** of the patch so that the patch will stretch as the de-icer is inflated. The patch must be installed with the length parallel to the de-icer tubes. Failure to do so may result in the patch lifting when the de-icer is inflated.

5.2 **CAUTION:**

Patch adhesive is temperature sensitive. For best results if temperature is less than 50 degrees F, warm de-icer surface prior to applying primer and warm installed patch while drying. To warm, hold a plastic bag filled with hot water on de-icer surface installed patch. Patch may not adhere if surface and installed patch are not warmed.

5.3 **NOTE:**

Patch must extend 1/2-inch minimum distance beyond the damaged area and may be trimmed for small areas.

5.4 Clean de-icer surface to be patched with hot water and detergent using a clean cloth to remove dirt, grease and silicone coating.

5.5 Sand de-icer surface with medium grit emery cloth or equivalent. Use patch template to outline damaged area and also use as a shield during sanding of the surface.

5.6 Wipe de-icer surface with a clean cloth dampened with cleaning solvent (Toluene or Alcohol) and allow drying.

5.7 Apply one coat of primer to de-icer surface and allow drying to touch (5 - 10 minutes).

5.8 Remove paper backing from patch and center patch over outlined primer area on the de-icer surface. Roll patch firmly with rubber roller.

5.9 Allow 30 minutes cure time before inflating de-icer.

6.0 **KIT CONTENTS LABEL INFORMATION**

6.1 A label, reference part number 2MA1419-10 or 2MA1419-11, is installed on the inside lid of the kit box for convenience of the user. The information includes Repair Limits, Material List and Repair Instructions. See Appendix A for sample labels.

7.0 **STORAGE/SHELF LIFE**

7.1 The life of the repair kit may be materially decreased by improper storage conditions.

7.2 Store repair kit in the original container away from direct sunlight, heat and excessive humidity.

7.3 Items in the repair kit having a recommended shelf life:

- 3M Primer #94 18 Months from the Date of Manufacture
- Pressure Sensitive
Adhesive on Patches 18 Months from the Date of Shipment

7.4 Ideal storage temperature is between 40° and 80°F (5 to 27°C).

Appendix A

Report No. 00-33-014
SMR Technologies
2MA1419-01 Pneumatic De-icer Repair Kit Instructions

Repair Limits

- a. **The repair kit is designed to make permanent patch repairs to all SMR Technologies pneumatic de-icers.**
- b. Permanent patch repairs are not recommended for the following damage:
1. Cut, tear or rupture exceeding $\frac{3}{4}$ " in length.
 2. Cut, tear or rupture within $\frac{1}{8}$ " of a stitch line (on sewn de-icers).
 3. Patch repairs are permissible for damage as described in (1) and (2) above temporarily, until a replacement can be scheduled, provided the part remains operational.
- c. Recommended limits for application of patches for maximum operating efficiency of a pneumatic de-icer.
- Three (3) small patches ($1\frac{1}{4}$ " x $2\frac{1}{2}$ ") per 12-inch square area.
 - Two (2) medium patches ($2\frac{1}{2}$ " x 5") per 12-inch square area.
 - One (1) large patch (5" x 10") per 12-inch square area.

Material List

- a. Materials in kit:

<u>Part Number</u>	<u>Description</u>
2MA1419-07	$\frac{1}{2}$ pint 3M Primer #94
4MA1929-3	30 pcs. (Pkg.) small oval patch ($1\frac{1}{4}$ " x $2\frac{1}{2}$ ")
4MA1929-2	30 pcs. (Pkg.) medium oval patch ($2\frac{1}{2}$ " x 5")
4MA1929-1	10 pcs. (Pkg.) large oval patch (5" x 10")
2MA1419-06	3 pcs. (Pkg.) emery cloth, medium grit
4MA1913-01	1 ea. Patch Template/Sanding Shield

- b. Required materials **not** supplied in kit. (Equivalent substitutes permitted)

<u>Description</u>	<u>Vendor/Part Number</u>
2" Rubber Roller, 1 ea.	SMR Technologies P/N 2MA1414-02
Cement brushes, $\frac{1}{2}$ " (2-ea. Pkg.)	SMR Technologies P/N 2MA1414-10
Detergent	Commercially available
Lint-free cloths	Commercially available
Cleaning solvent, (Toluene or Alcohol)	Commercially available
"Zip-loc" bag, plastic, (One gallon size)	Commercially available

Repair Instructions

CAUTION: Patches have one-way stretch across the width of the patch so that the patch will stretch as the de-icer is inflated. The patch must be installed with the length parallel to the de-icer tubes. Failure to do so may result in the patch lifting when the de-icer is inflated.

CAUTION: Patch adhesive is temperature sensitive. For best results if temperature is less than 50 degrees F, warm de-icer surface prior to applying primer and warm installed patch while drying. To warm, hold a plastic bag filled with hot water on de-icer surface installed patch. Patch may not adhere if surface and installed patch are not warmed.

NOTE: Patch must extend $\frac{1}{2}$ -inch minimum distance beyond the damaged area and may be trimmed for small areas.

1. Clean de-icer surface to be patched with hot water and detergent using a clean cloth to remove dirt, grease and silicone coatings.
2. Sand de-icer surface with medium grit emery cloth or equivalent. Use Patch template to outline damaged area and also use as a shield during sanding.
3. Wipe de-icer surface with a clean cloth dampened with cleaning solvent (Toluene or Alcohol) and allow drying.
4. Apply one coat of primer to de-icer surface and allow drying to touch (5 - 10 minutes).
5. Remove paper backing from patch and center patch over outlined primer area on the de-icer surface. Roll patch firmly with rubber roller.
6. Allow 30 minutes cure time before inflating de-icer.

Label P/N 2MA1419-10

Report No. 00-33-014
SMR Technologies
2MA1419-02 Pneumatic De-icer Repair Kit Instructions

Repair Limits

- a. **The repair kit is designed to make permanent patch repairs to all SMR Technologies pneumatic de-icers.**
- b. Permanent patch repairs are not recommended for the following damage:
1. Cut, tear or rupture exceeding $\frac{3}{4}$ " in length.
 2. Cut, tear or rupture within $\frac{1}{8}$ " of a stitch line (on sewn de-icers).
 3. Patch repairs are permissible for damage as described in (1) and (2) above temporarily, until a replacement can be scheduled, provided the part remains operational.
- c. Recommended limits for application of patches for maximum operating efficiency of a pneumatic de-icer.
- Three (3) small patches ($1\frac{1}{4}$ " x $2\frac{1}{2}$ ") per 12-inch square area.
 - Two (2) medium patches ($2\frac{1}{2}$ " x 5") per 12-inch square area.
 - One (1) large patch (5" x 10") per 12-inch square area.

Material List

- a. Materials in kit:

<u>Part Number</u>	<u>Description</u>
4MA1929-3	30 pcs. (Pkg.) small oval patch ($1\frac{1}{4}$ " x $2\frac{1}{2}$ ")
4MA1929-2	30 pcs. (Pkg.) medium oval patch ($2\frac{1}{2}$ " x 5")
4MA1929-1	10 pcs. (Pkg.) large oval patch (5" x 10")
2MA1419-06	3 pcs. (Pkg.) emery cloth, medium grit
4MA1913-01	1 ea. Patch Template/Sanding Shield

- b. Required materials **not** supplied in kit. (Equivalent substitutes permitted)

<u>Description</u>	<u>Vendor/Part Number</u>
2" Rubber Roller, 1 ea.	SMR Technologies P/N 2MA1414-02
Cement brushes, $\frac{1}{2}$ " (2-ea. Pkg.)	SMR Technologies P/N 2MA1414-10
Detergent	Commercially available
Lint-free cloths	Commercially available
Cleaning solvent, (Toluene or Alcohol)	Commercially available
"Zip-loc" bag, plastic, (One gallon size)	Commercially available
$\frac{1}{2}$ pint 3M Primer #94	Commercially available

Repair Instructions

CAUTION: Patches have one-way stretch across the width of the patch so that the patch will stretch as the de-icer is inflated. The patch must be installed with the length parallel to the de-icer tubes. Failure to do so may result in the patch lifting when the de-icer is inflated.

CAUTION: Patch adhesive is temperature sensitive. For best results if temperature is less than 50 degrees F, warm de-icer surface prior to applying primer and warm installed patch while drying. To warm, hold a plastic bag filled with hot water on de-icer surface installed patch. Patch may not adhere if surface and installed patch are not warmed.

NOTE: Patch must extend $\frac{1}{2}$ -inch minimum distance beyond the damaged area and may be trimmed for small areas.

1. Clean de-icer surface to be patched with hot water and detergent using a clean cloth to remove dirt, grease and silicone coatings.
2. Sand de-icer surface with medium grit emery cloth or equivalent. Use Patch template to outline damaged area and also use as a shield during sanding.
3. Wipe de-icer surface with a clean cloth dampened with cleaning solvent (Toluene or Alcohol) and allow drying.
4. Apply one coat of primer to de-icer surface and allow drying to touch (5 - 10 minutes).
5. Remove paper backing from patch and center patch over outlined primer area on the de-icer surface. Roll patch firmly with rubber roller.
6. Allow 30 minutes cure time before inflating de-icer.

Label P/N 2MA1419-11