

AerFusion eco[®] Repair Procedure

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Repairs can be done on AerFusion eco Non-Textile Flooring (NTF) using the Schneller AerFusion[®] eco welding cord. Advantages of using the welding rod application are as follows:

- Quick application during short turn-around times
- Instant & durable sealing
- No curing time
- Custom color match of seam to NTF

Face-side welding is performed using an electronic-variable speed and temperature hot air gun with a welding nozzle, using a 4mm (0.157") diameter AerFusion[®] eco rod. This welding rod is available in a variety of colors.

Four (4) different types of repair procedures are presented in this Bulletin:

- 1) Rectangular Patch
- 2) Circular Patch
- 3) Joint Welding
- 4) Minor Scratch Repair

The repair procedures described in this document can be applied to NTF installation bonded on a rigid laminate backing as well as to conventionally installed NTF with no laminate backing.

Tools & Materials Required

- Schneller Non-Textile Flooring
- Straight Edge
- Masking Tape
- Nashua[®] 324A Heat Insulating Material Tape (i.e. Aluminum Tape)
- AerFusion[®] eco Welding Rod (Available from Schneller)
- Welding Equipment Kit (Available from Schneller):
 - Leister Hot Jet S Heat Welding Tool
 - 4mm Round Welding Nozzle
 - Knife (for removing excess bead)
 - Sharp Razor Knife
 - 3M[™] Scotch-Grip[™] Plastic Adhesive 1099
 - Standard Flooring Nozzle
 - Hand-grooving Tool with Blade
 - Brass Nozzle Cleaning Brush

It is recommended to always practice the desired welding rod repair procedure on extra material prior to actual installation on an aircraft.

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Rectangular Patch

NTF Preparation:

- 1) Clean the existing mat with a mild cleaning solution. Allow the mat to completely dry.
- 2) For rectangular patches, use a straight edge or metal template and a sharp razor knife to cut required patch size around damaged area. The NTF should be cut so that the seam is located between two rows of “buttons”, if applicable. For the ease of handling, minimum recommended patch sizes should not fall below 15 x 15mm (6 x 6”) for rectangular patches.
- 3) Completely remove the damaged AerFusion[®] eco. Fixed depth knives can be used if needed.
- 4) Remove damaged top polymer layer (see Figure 1). If required, use a heat gun to assist in removal.

Patch Preparation & Installation:

- 5) Using a straight edge and a sharp razor knife, cut a patch from matching excess NTF material. The patch should be cut smaller than the area removed so that an approximate 1.5-2.0mm (.060 -.080”) gap is left between the NTF installation and the repair patch.
- 6) Apply 3M[™] Scotch-Grip[™] Plastic Adhesive 1099 uniformly to backside of polymer patch to hold down material.
- 7) Carefully position patch in place, leaving a 1.5-2.0mm
- 8) (.060 -.080”) gap between the edges of the patch and the installed flooring as illustrated in Figure 2. Press gently to ensure a good bonding to underlying material.



Figure 1

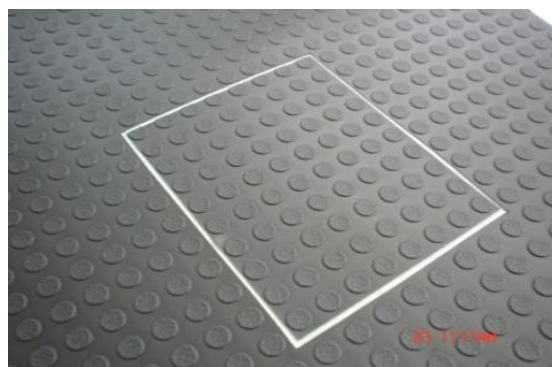


Figure 2

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Rectangular Patch (cont.)

Insulating Tape Application

- 9) Using an insulating tape (i.e. aluminum foil), run a strip along each edge of the material to be welded. Make sure to leave strips around the corners of the patch uncovered (see Figure 3). Careful attention needs to be taken to ensure that tape does not fall within the gap. This tape will help to minimize any gloss effects or damage caused by heat from the hot air gun during the welding process.

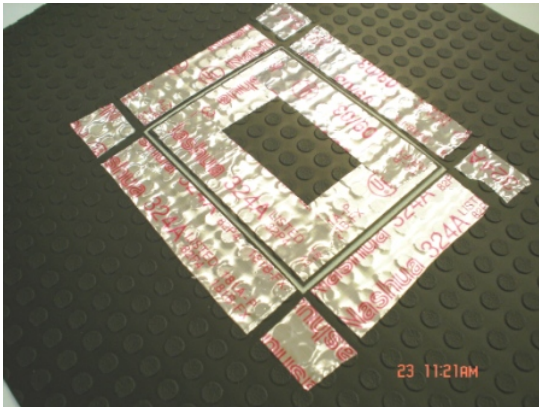


Figure 3

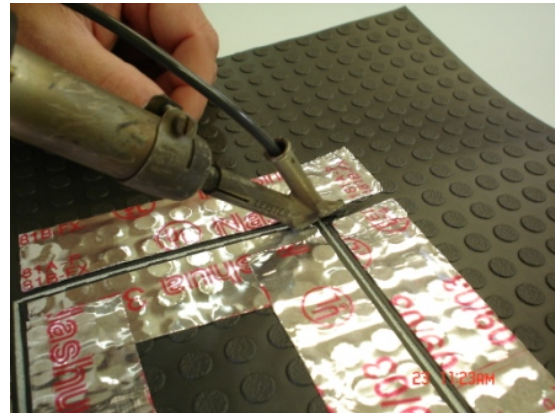


Figure 4

Welding

- 10) Depending on the exact model and type of welding equipment, it may have a temperature and air velocity setting. These conditions will vary depending on the application and operator. A suggested starting point using the recommended welding equipment (Leister model, Hot Jet S) is to have the temperature set at 5.5 and the air flow adjusted to 2.5.
- 11) Prior to installation on an aircraft, practice on an extra piece of NTF to ensure that the welding gun has reached the adequate application temperature.
- 12) As the welding process starts, position the welding rod 15 mm (.050") ahead of a corner joint (see Figure 4). This will result in the welding rod overlapping crosswise around the joints of the patch and guarantee maximum sealing of the NTF.
- 13) Move smoothly along the edges with the base of the nozzle parallel with the floor. Go as slowly as possible (without "burning") to ensure the rod "softens" to provide for maximum adhesion. If the welding rod begins to "burn", increase the rate of movement along the joint.

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Rectangular Patch (cont.)

Welding (cont.)

- 14) Before moving on to the perpendicular edges, trim off excess welding rod at the end of the seam to ensure a smooth transition from edge to edge (see Figure 5).
- 15) Make sure to overlap the welding rod across the joints of the patch to guarantee the best possible seal (see Figure 6).

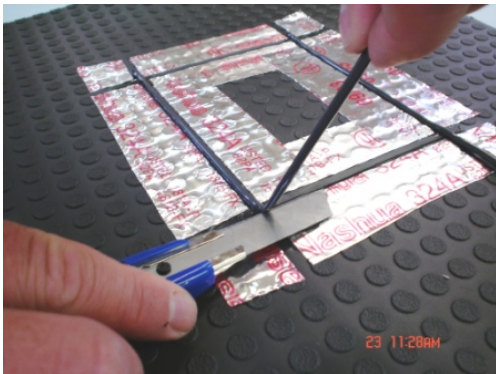


Figure 5



Figure 6

Finishing

- 16) If necessary, locally heat-up welding rod around the seam joints. Press down warm welding rod around the seam joints using the metal guide (see Figure 7).
- 17) Once the material has cooled, use a hand-grooving tool and guide (see Figure 8) to remove excess welding cord. This will provide for a uniform height and appearance.



Figure 7



Figure 8

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Rectangular Patch (cont.)

- 18) Allow to cool to room temperature, and then remove insulating tape from the finished mat (see Figure 9).

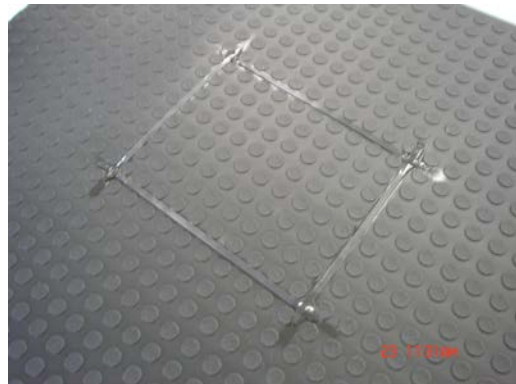


Figure 9

Circular Patch

In contrast to rectangular patches, circular patches minimize the amount of joint welding and reduce it to one starting and stopping point. Circular patching requires the operator to be able to completely move around the damaged area in one continuous, circular motion.

- 1) Follow the same instructions as for the rectangular patch, except for the following changes:
- 2) For circular patches, use an adjustable circular cutting tool (e.g. compass type tool) with sharp razor knife attached to cut required patch size around damaged area. For the ease of handling, minimum recommended patch sizes should not fall below a 10mm (4") radius for circular patches.
- 3) Using the same circular cutting tool, cut a patch from matching excess NTF material. The patch should be cut smaller than the area removed so that an approximate 1.5-2.0mm (.060-.080") gap is left between the NTF installation and the repair patch.
- 4) The finished patch is illustrated in Figure 10 and 11.

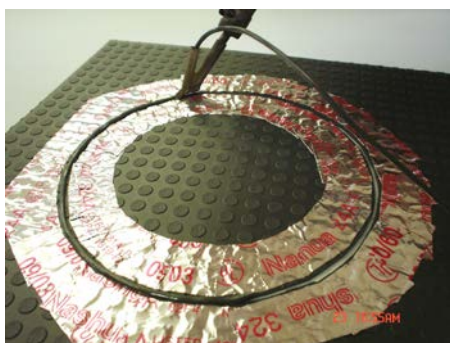


Figure 10



Figure 11

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Joint Welding

When working in confined spaces, it might become necessary to stop the welding process in-between and continue from the other side. Due to the thermoplastic nature of the welding rod, it is possible to stop and continue the welding process in-between. However, to ensure the best possible seam, joint welding should be minimized whenever possible.

For a successful joint weld, the following procedures should be observed:

- 1) Use the preparation and welding procedures described above.
- 2) To stop the welding process in-between, remove the heat gun instantly from the seam and feed the remaining welding rod quickly through the speed nozzle.
- 3) Using a sharp razor knife, trim off excess welding cord at the joint to ensure a smooth transition from edge to edge.
- 4) Once the material has cooled, use a hand grooving tool and guide (as shown in Figure 8) to remove excess welding cord. This will provide for a uniform height and appearance.
- 5) Starting from the opposite side, weld the NTF material from the other direction until the joint is reached. Continue an additional 15 mm (.050") after joint before stopping the welding process (See Figure 12).
- 6) Again, once the material has cooled, use a hand grooving tool and guide to remove excess welding cord from the other direction.
- 7) If necessary, locally heat up welding rod around the joint. Press down warm welding rod around the seam joints using the metal guide (see Figure 7).
- 8) Allow to cool to room temperature, and then remove insulating tape from the finished mat (see Figure 13).



Figure 12



Figure 13

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Minor Scratch Repair

Isolated cut damage to the vinyl top layer (See Figure 14) can be repaired by local welding.

Insulating tape application:

- 1) Using an insulating tape (i.e. aluminum foil); run a strip along each edge of the material to be welded. Careful attention needs to be taken to ensure that tape does not fall within the gap. This tape will help to minimize any gloss effects or damage caused by the heat from the hot air gun during the welding process.

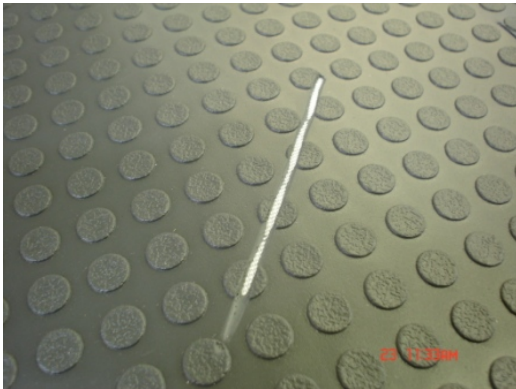


Figure 14



Figure 15

Welding:

- 2) Depending on the exact model and type of welding equipment, it may have a temperature and air velocity setting. These conditions will vary depending on the application and operator. A suggested starting point using the recommended welding equipment (Leister model, Hot Jet S) is to have the temperature set at 5.5 and the air flow adjusted to 2.5.
- 3) Prior to installation on an aircraft, practice on an extra piece of NTF to ensure that the welding gun has reached the adequate application temperature.
- 4) Move smoothly along the edges with the base of the nozzle parallel with the floor (See Figure 15). Go as slowly as possible (without “burning”) to ensure the rod “softens” to provide for maximum adhesion. If the welding rod begins to “burn”, increase the rate of movement along the joint.

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Minor Scratch Repair (cont.)

- 5) Once the material has cooled, use a hand grooving tool and guide (See Figure 16) to remove excess welding cord. This will provide for a uniform height and appearance.



Figure 16



Figure 17

Finishing:

- 6) If necessary, locally heat up welding rod around the seam joints. Press down warm welding rod around the seam joints using the metal guide (See Figure 17).
- 7) Allow to cool to room temperature, and then remove insulating tape from the finished mat (See Figure 18).



Figure 18