

Aluminum Repair Procedures



Aluminum Repair Matrix

	<i>Corrosion Prevention and Protection</i>	<i>Surface Preparation</i>	<i>Heat Usage</i>	<i>Metal Working</i>
Personal Protective Equipment <small>Please note that you need to read and understand each product label and SDS for important health and safety information regarding PPE. This section relates only to not cross-contaminating surfaces, not to the full PPE gear required for each type of repair.</small>	Wear latex, nitrile or fabric gloves dedicated to aluminum repair to prevent surface contamination from skin contact. See #1 on chart to right.	Wear latex, nitrile or fabric gloves dedicated to aluminum repair to prevent surface contamination from skin contact. See #1 on chart to right.		Wear latex, nitrile or fabric gloves dedicated to aluminum repair to prevent surface contamination from skin contact. See #1 on chart to right.
Shop Environment	Use segregated repair areas for aluminum repairs according to OEM recommendation and follow all OSHA guidelines.	Use segregated repair areas for aluminum repairs according to OEM recommendation and follow all OSHA guidelines.		Use segregated repair areas for aluminum repairs according to OEM recommendation.
Hand Tools	Use separate hand tools designed for aluminum repairs (e.g., hammers, dolleys, clamps, files, drill bits, saw blades, etc.).	Use separate hand tools designed for aluminum repairs (e.g., hammers, dolleys, clamps, files, drill bits, saw blades, etc.).	Heat is recommended when straightening aluminum to avoid over stretching and cracking of the panel. Aluminum has a much lower melting point than steel and care must be taken to avoid permanent damage. Generally, a propane torch is sufficient to reach the 400°F area. It's best to follow OEM recommendations for specific temperatures.	Use separate hand tools designed for aluminum repairs (e.g., hammers, dolleys, clamps, files, drill bits, saw blades, etc.).
Pneumatic Tools	Use air tools dedicated to aluminum repairs OR tools that have been thoroughly cleaned with compressed air to remove any steel particles. See #2 on chart to right.	Use air tools dedicated to aluminum repairs OR tools that have been thoroughly cleaned with compressed air to remove any steel particles. See #2 on chart to right.		Use air tools dedicated to aluminum repairs OR tools that have been thoroughly cleaned with compressed air to remove any steel particles. See #2 on chart to right.
Abrasives	Use separate piece of abrasive on dissimilar substrates. See #2 on chart to right.	Do not use grinding or sanding abrasives coarser than grade 80.		Do not use grinding or sanding abrasives coarser than grade 80.
Adhesives	Apply and spread adhesives to cover all prepared metal surfaces. Use wipes dedicated to aluminum substrates. Ensure proper squeeze out and tooling of squeeze out to cover all metal surfaces.	Prepare bonding surfaces using grade 80 abrasive or equivalent Scotch-Brite™ abrasive grade. See #4 on chart to right.	Replace: Use heat to de-bond observing OEM temperature limits. Repair: Use caution when applying heat near bonded joints to avoid bond failures. See #3 on chart to right.	Use caution when heating the panel near bonded joints. See #5 on chart to right.
Sealers	Follow standard surface preparation procedures. Use wipes dedicated to aluminum substrates. Apply tight coat into seam. Tool to match OEM appearance.	Follow product use recommendations for DTM or non-DTM seam sealers.		
Coatings	Follow standard surface preparation procedures. Use wipes dedicated to aluminum substrates. Apply 3M™ Rust Fighter-I to panel interior prior to final assembly.	Remove loose debris, abrade and properly clean prior to coating application.		Apply 3M™ Rust Fighter-I to panel interior prior to final assembly.
Filler & Glaze	Follow standard surface preparation procedures. Use wipes dedicated to aluminum substrates. Apply filler or glaze within 1 hour. See #4 on chart to right.	Prepare surface using grade 80 abrasive or equivalent Scotch-Brite™ graded abrasives. See #4 on chart to right.		Prepare surface using grade 80 abrasive or equivalent Scotch-Brite™ abrasive grade. See #4 on chart to right.

1	Skin contact with open substrates can leave contamination that leads to corrosion.
2	Cleaning tools thoroughly and using separate abrasive will help prevent the possibility of galvanic corrosion caused by incidental contact of dissimilar metals.
3	To de-bond 3M™ Panel Bonding adhesive, panel must be heated to above 400°F.
4	Oxidation forms immediately on exposed aluminum. Accumulated oxidation is detrimental to bond strength. After 1 hour of exposure, re-abrade aluminum surface to maximize bond strength.
5	Panel bond adhesive degradation begins at 300°F or higher. Use caution and heat indicators to monitor panel temperature when applying heat near bonded joints.

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For ordering information, contact your 3M Sales Representative

Note: Statements and recommendations within this matrix should be considered general practices. Follow specific OEM recommendations, when they exist.

