

## C 5.8.0.0 - Metallic Rub [CAT-2]

**APPROXIMATE TIME PER SQUARE FOOT: 12 - 15 minutes**

Metallic rub damage on glass typically arises when soft metals, such as aluminum or iron, come into contact with and are dragged across the glass surface. While these marks may initially appear to be scratches etched into the glass, they are often more accurately described as micro-deposits of metal that have become embedded within the surface structure of the glass. This kind of damage is especially common in environments where aluminum ladders are frequently used or where decorative ironwork is installed near glass surfaces.

The visual appearance of metallic rub damage can be deceptive; what seems like a scratch might actually be a thin layer of metal transferred to the glass. Addressing this type of damage requires a careful approach that focuses on removing the metallic deposits without causing additional scratches to the glass surface. The restoration process often involves the use of specialized compounds designed to lift and dissolve these metal deposits, thereby restoring the clarity and integrity of the glass without compromising its structural strength.

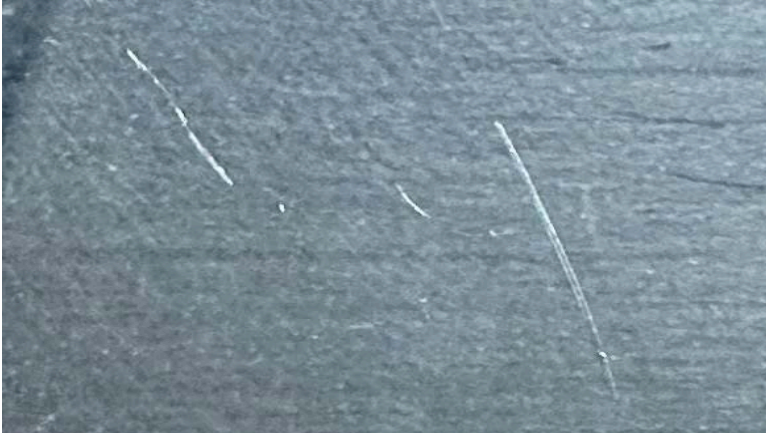


Fig. 5800A



Fig. 5800B

**IMPORTANT NOTE:** During the glass restoration process, it's crucial to closely monitor the temperature of the glass pane. The heat generated from grinding or polishing can increase the risk of thermal stress, potentially leading to cracks or breakage. To effectively manage this risk, it is recommended to use a non-contact thermometer, a tool available at most hardware stores. This allows for accurate and safe temperature measurements without interrupting the workflow.

Regular monitoring of the temperature differential between the repair area and the rest of the pane is key to preventing thermal damage. Should the temperature in the work area rise significantly, pause the restoration and allow the glass to cool. Immediate cessation of work and allowing the pane to return to a normal temperature range is necessary if overheating occurs. For specific temperature guidelines and detailed procedures on managing thermal expansion, please refer to section C 3.1.1.0 - Thermal Expansion.

TEMPERATURE ADVISORY	Delta	Maximum Temperature
Annealed	+80°F Δ	N/A
Tempered	+120°F Δ	N/A
Laminate- Annealed	+80°F Δ	145°F
Laminate- Tempered	+120°F Δ	145°F
Mirrored	+80°F Δ	N/A

Fig. 5800C

### Tool Checklist

- Corded, Variable Speed, Rotary Polisher (600-3000 RPM MINIMUM, 5/8"-11 threaded spindle)
- Backing Pad
- Black RenuDisk(s)
- Grey RenuDisk(s)

- Polishing Felt
- Polishing Compound
- Rasp
- IR Thermometer

### Workspace Checklist

- Power Access
- Workbenches, ladders, scaffolding, lifts, etc. (If Applicable)
- Masking Tools

- Drop Clothes/ Tarps/ Waste Receptacles
- Temperature Control Tools (If Applicable)

### Damage Assessment Checklist

- Confirm Glass Type
- Confirm Damage Type
- Inspect Glass System Integrity (Framing, Glazing, Etc.)

- Inspect Glass Pane Integrity (Cracks, Chips, etc.)
- Identify Damage Location(s)

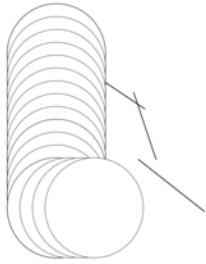


Fig. 5810A



Fig. 5810B

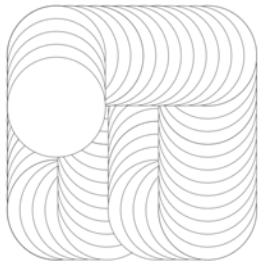


Fig. 5810C

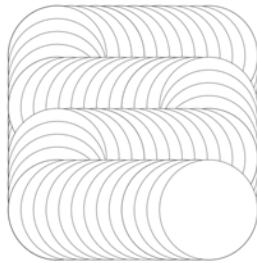


Fig. 5810D

**C 5.8.1.0 - Step One: Abrasion** utilizes a Black RenuDisk to quickly remove target damage.

1. Secure a Black RenuDisk to the designated backing pad.
2. Adjust the polisher to operate at a rotational speed of 1800 RPM.
3. Engage the polisher's power trigger, and trigger lock.
4. Align the RenuDisk surface directly above the glass's damaged area, ensuring that the disk remains parallel to the glass pane.
5. Employ a systematic abrasion approach by guiding the RenuDisk in alternating horizontal and vertical paths across the damaged area. This action should form a precise cross-hatch pattern. Maintaining uniform pressure, continue abrading until all damage has been removed.
6. Disengage the RenuDisk from the glass pane.
7. Disengage the polisher's power trigger. Ensure the disk is stationary.
8. Detach the Black RenuDisk.
9. Continue to [Step Two: Pre-Polish].

**NOTE:** Over the course of the abrasion, glass stock will accumulate on the RenuDisk surface. It may be necessary to periodically unplug the disk surface to maintain optimal performance. To do this:

- Disengage the polisher, ensuring the disk is stationary.
- Utilize the flat, non-aggressive face of the rasp file or wire brush.
- Gentle tapping motions on the RenuDisk surface will dislodge glass stock that has accumulated during operation. Refrain from brushing.

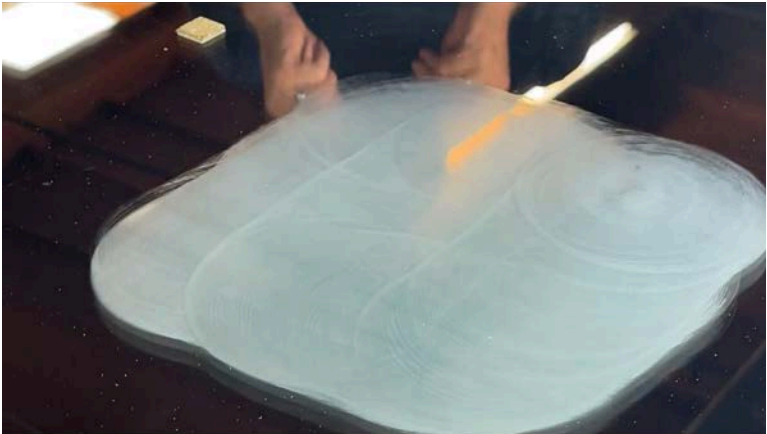


Fig. 5810E



Fig. 5810F

**Notes:**

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**C 5.8.2.0 - Step Two: Pre-Polish** is broken down into two distinct sub-steps: **Mid Speed**, and **High Speed Pre-Polish**. Each sub-section utilizes the same Grey RenuDisk to refine, feather, and expand the established work area.

### MID SPEED PRE-POLISH

1. Attach a new Grey RenuDisk to the designated backing pad.
2. Adjust the polisher to operate at a rotational speed of 1800 RPM.
3. Engage the polisher's power trigger, and trigger lock.
4. Align the RenuDisk surface to overlap the top left corner of the established work area by approximately  $\frac{1}{2}$  the diameter of the RenuDisk, ensuring that the disk remains parallel to the glass pane.
5. Employ a systematic abrasion approach by guiding the RenuDisk in alternating horizontal and vertical paths, expanding the established work area created in Step One by approximately  $\frac{1}{2}$  the diameter of the RenuDisk. This action should form a precise cross-hatch pattern. Maintain uniform pressure.
6. When the work area has been fully refined, expanded, and made uniform edge to edge, cease cleaning the Grey RenuDisk. At the end of the Mid Speed Pre-Polish subsection, it is necessary to allow the glass stock being removed from the pane to accumulate on the surface of the Grey RenuDisk.
7. Disengage the RenuDisk from the glass pane.
8. Disengage the polisher's power trigger.
9. Ensure the Grey RenuDisk surface is completely coated in glass stock.
10. Continue to High Speed Pre-Polish.

**NOTE:** Over the course of the Mid Speed Pre-Polish, glass stock will accumulate on the RenuDisk surface. If the RenuDisk is clogged, and further refinement/ expansion of the established work area is required, it may be necessary to clean the Grey RenuDisk and continue the Mid Speed Pre-Polish. To maintain optimal performance of the Grey RenuDisk:

- Disengage the polisher's power trigger. Ensure the disk is stationary.
- Utilize the non-aggressive face of the rasp file or wire brush.
- Administer gentle tapping motions on the RenuDisk surface. Refrain from brushing.

### High Speed Pre-Polish

1. Adjust the polisher to operate at a rotational speed of 3000 RPM.
2. Engage the polisher's power trigger, and trigger lock.
3. Align the RenuDisk surface to overlap the top left corner of the established work area by approximately  $\frac{1}{2}$  the diameter of the RenuDisk, ensuring that the disk remains parallel to the glass pane.
4. Employ a systematic abrasion approach by guiding the RenuDisk in alternating horizontal and vertical paths, expanding the established work area created in Step One by approximately  $\frac{1}{2}$  the diameter of the RenuDisk. This action should form a precise cross-hatch pattern. Maintain uniform pressure.
5. Disengage the RenuDisk from the glass pane.
6. Disengage the polisher's power trigger. Ensure the disk is stationary.
7. Remove the Grey RenuDisk.
8. Continue to: [Step Three: Polish].

**NOTE:** The Grey RenuDisk surface should maintain full glass stock accumulation during the entirety of the High Speed Pre-Polish subsection. No disk maintenance should be required.

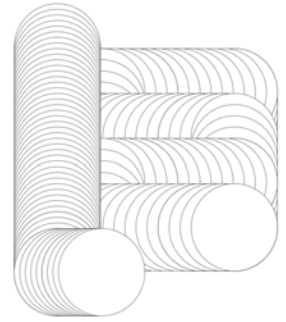


Fig. 5820A

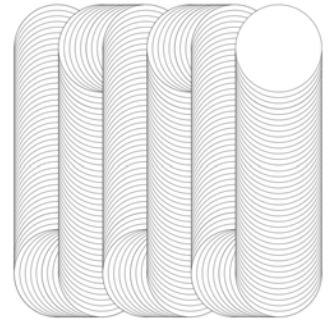


Fig. 5820B

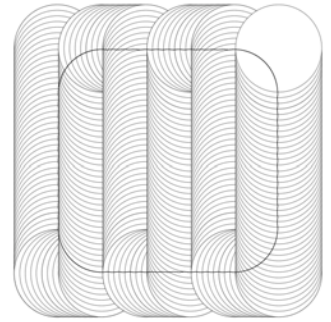


Fig. 5820C

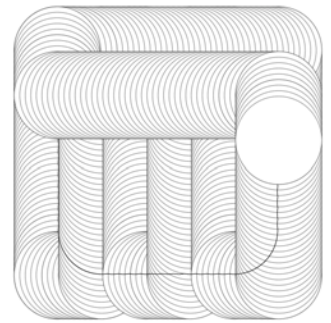


Fig. 5820D



Fig. 5820E



Fig. 5820F

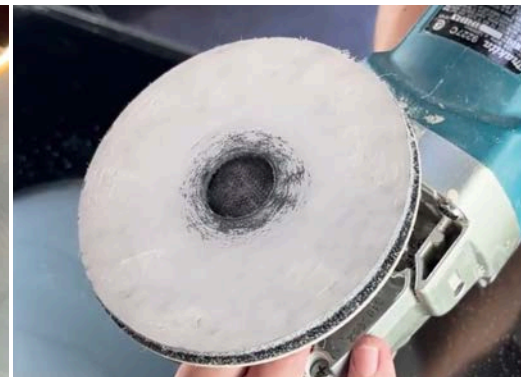


Fig. 5820G

**C 5.8.3.0 - Step Three: Polish utilizes the Polishing Felt and Polishing Compound to restore glass to full luster.**

1. Secure the polishing felt to the designated backing pad.
2. Using the rasp file, abrade the polishing felt surface gently. This helps elevate the natural fibers of the felt for enhanced polishing ease and efficiency.
3. Vigorously agitate the bottle prior to each application to ensure homogeneous distribution of the polishing compound. Apply Polish Compound directly to the felt's surface.
4. Adjust the polisher to operate at a rotational speed of 600 RPM.
5. Align the polishing felt surface to overlap the top left corner of the established work area by approximately 1/2 the diameter of the polishing felt, ensuring that the disk remains parallel to the glass pane.
6. Engage the polisher's power trigger, and trigger lock.
7. Disperse the polish uniformly across the entirety of the work area.
8. Employ a systematic polishing approach by guiding the polishing felt in alternating horizontal and vertical paths, expanding the established work area created in Step Two by approximately 1/2 the diameter of the RenuDisk. This action should form a precise cross-hatch pattern. Maintain uniform pressure. Continue the polishing process until all of the Polishing Compound has been worked into the glass.
9. Inspect the entire work area, checking for any remnants of haze from multiple angles. Pay particular attention to the edges and corners of the work area. If any remnants remain, begin Step Three again.
10. When the pane has been adequately restored, clean the glass using any standard glass cleaning technique to remove excess Polishing Compound.

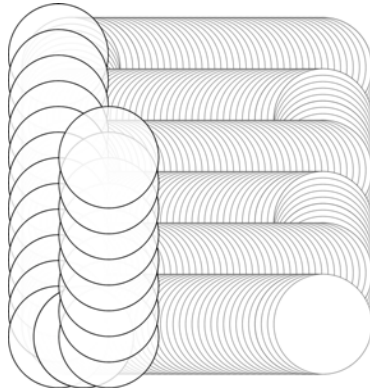


Fig. 5830A

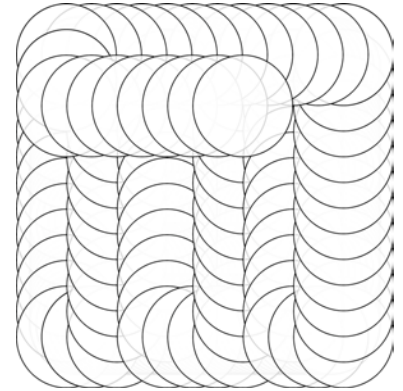


Fig. 5830B



Fig. 5830C

Fig. 5830D



Fig. 5830E



Fig. 5830F

**Notes:**

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