C 5.7.0.0 - Cleaning Abrasives [CAT-2]

APPROXIMATE TIME PER SQUARE FOOT: 15 - 20 minutes

Damage caused by cleaning abrasives is a common issue in glass care, often resulting from the use of abrasive sponge materials or steel wool during cleaning processes. Notably, while white abrasive sponge materials are generally safe for glass, the green and blue variants can frequently cause scratches. These abrasive-induced scratches typically manifest as spider web-like patterns, characterized by swirls or omnidirectional marks. Although these scratches may not be detectable by a fingernail, they often become more pronounced and visible under direct sunlight.

In professional window cleaning, steel wool of grade 0000 is frequently employed to remove organic materials that have adhered to glass surfaces. While this fine grade of steel wool usually does not scratch glass surfaces under dry conditions, its interaction with water can lead to rapid oxidation, forming iron oxide (FeO_2). Iron oxide is notably harder than glass, which can result in scratches similar to those caused by scrub sponges.

In the restoration of glass surfaces damaged by cleaning abrasives, the approach must be twofold: removing the superficial scratches and ensuring the complete eradication of any residual abrasive particles. This process requires a careful balance of techniques to effectively diminish the appearance of the scratches while maintaining the structural integrity of the glass, especially when dealing with the microscopic abrasions that are less perceptible to touch but visually apparent.

Fig. 5700A

Fig. 5700B

Fig. 5700C

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℉ Δ	N/A
Tempered	+120℉ Δ	N/A
Laminate- Annealed	+80℉ Δ	145℉
Laminate- Tempered	+120℉ Δ	145℉
Mirrored	+80℉ Δ	N/A

Fig. 5700D

Tool Checklist

- [ ] Corded, Variable Speed, Rotary Polisher (600-3000 RPM MINIMUM, ⅝-11 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)

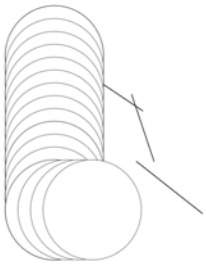

Fig. 5710A

Fig. 5710B

Fig. 5710C

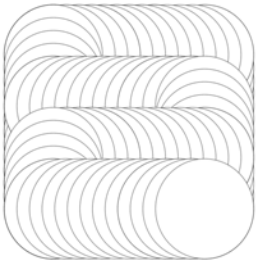

Fig. 5710D

C 5.7.1.0 - 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 unclog 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.**

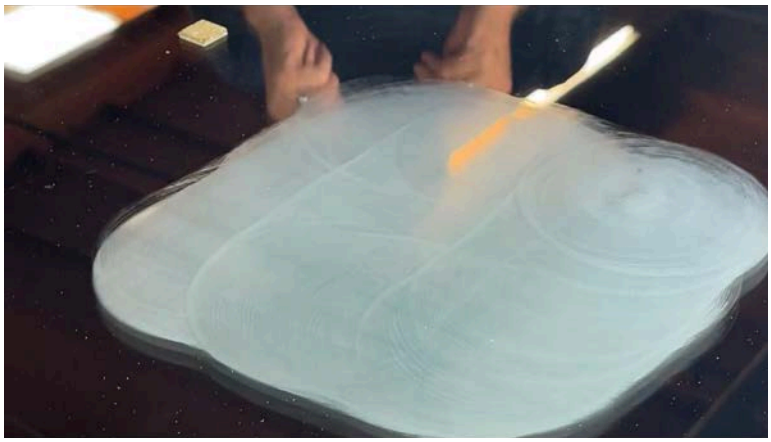

Fig. 5710E

Fig. 5710F

Notes:

C 5.7.2.0 - 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 ½ 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 ½ 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 work area by approximately ½ 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 ½ 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.

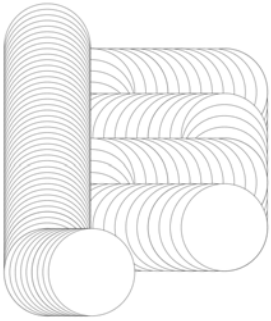
Fig. 5720A

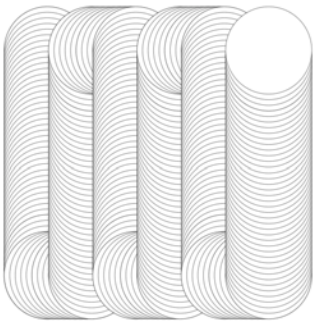
Fig. 5720B

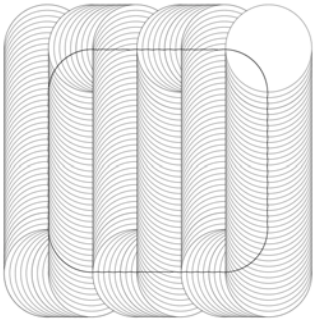
Fig. 5720C

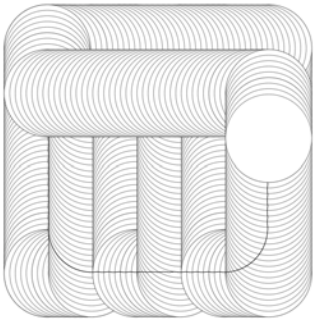
Fig. 5720D


Fig. 5720E

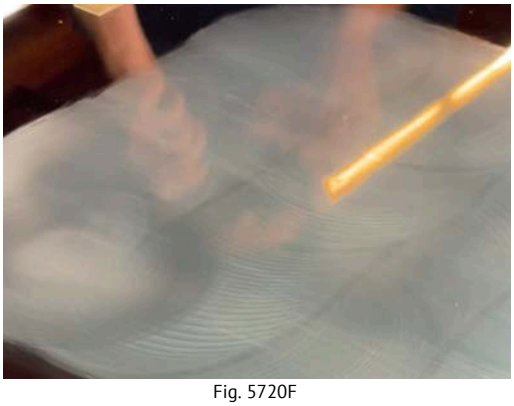
Fig. 5720F

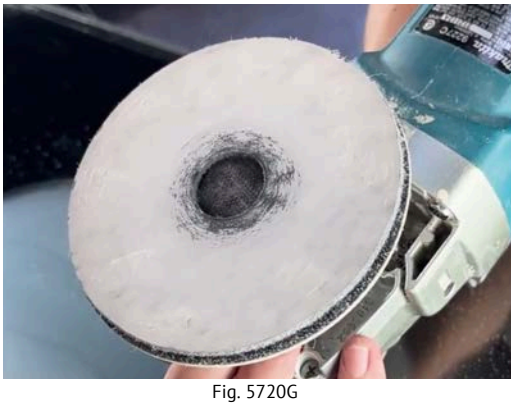
Fig. 5720G

C 5.7.3.0 - 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 ½ 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 ½ 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.

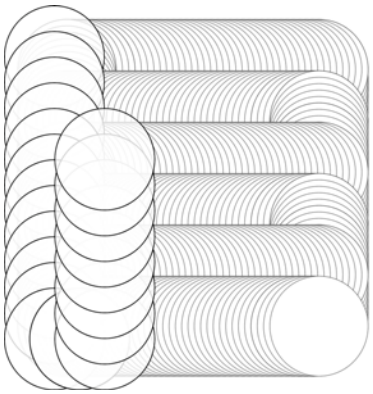

Fig. 5730A

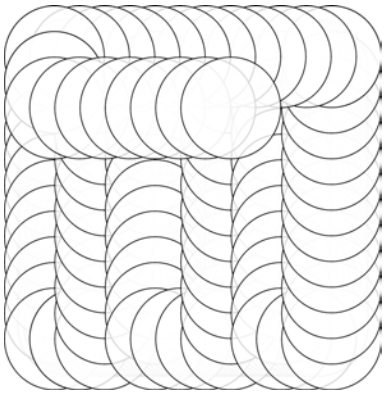

Fig. 5730B

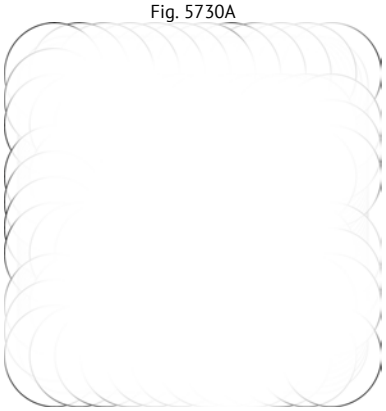

Fig. 5730C

Fig. 5730D

Fig. 5730E

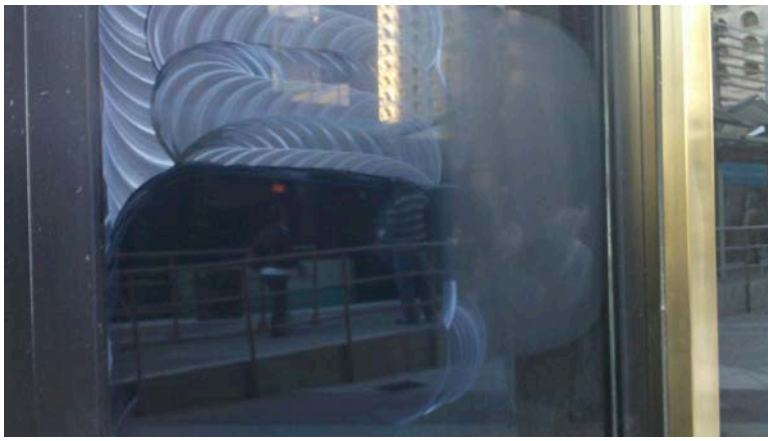

Fig. 5730F

Notes: