

C 5.16.0.0 - Severe Scratches [CAT-4]

APPROXIMATE TIME PER SQUARE FOOT: 25+ minutes

Severe scratches on glass represent a high level of damage that goes beyond mere visibility or the ability to catch a fingernail. These scratches are characterized by the presence of chipping or small flecks of glass that are missing along the edges of the scratch, indicating a deeper impact on the glass surface. Such damage is not only visually apparent but also tactilely perceptible and can significantly affect both the aesthetic and structural integrity of the glass.

This type of damage is categorized as extreme due to the depth and severity of the scratches. It is crucial for technicians to meticulously assess and identify the deepest points of these scratches before commencing any restoration work. This careful evaluation is essential in ensuring that the restoration plan developed is comprehensive enough to effectively address the extent of the damage. The presence of chipping and glass flecks requires a nuanced approach in restoration, as these factors can complicate the process, necessitating precision and care to restore the glass effectively while avoiding further damage.



Fig. 51600A



Fig. 51600B

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. 51600C

Tool Checklist

- Corded, Variable Speed, Rotary Polisher (600-3000 RPM MINIMUM, 5/8-11 threaded spindle)
- Backing Pad
- Red 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)

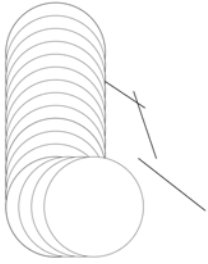


Fig. 51610A

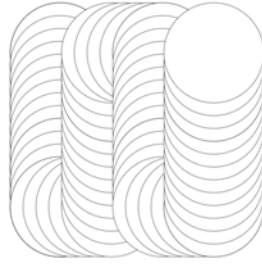


Fig. 51610B



Fig. 51610C

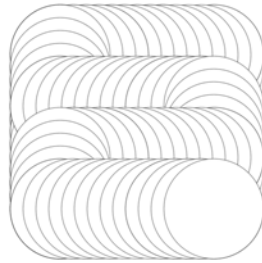


Fig. 51610D

C 5.16.1.0 - Step One: Abrasion utilizes a Red RenuDisk to quickly remove target damage.

1. Secure a Red 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 Red 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. 51610F



Fig. 51610G

Notes:

C 5.16.2.0 - 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.

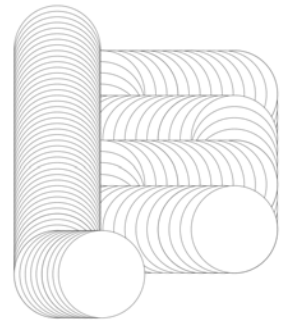


Fig. 51620A

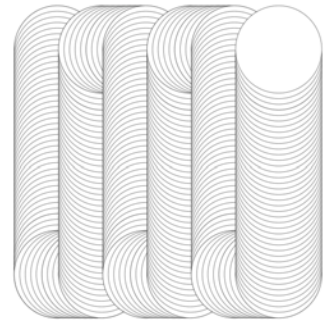


Fig. 51620B

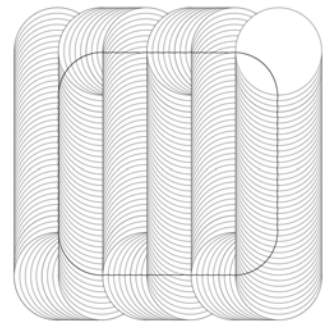


Fig. 51620C

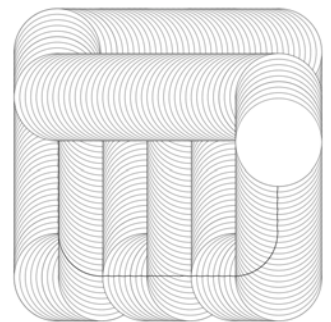


Fig. 51620D



Fig. 51620E



Fig. 51620F

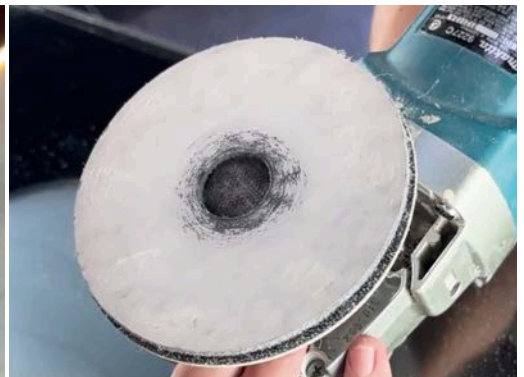


Fig. 51620G

