Windshield Repair Instruction Manual

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- 1.4. Improves visibility and appearance
- 1.5. Cost effective
- 1.6. Fast
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2. Types of breaks

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- 2.2. Star
- 2.3. Combination break
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- 2.5. Crack
- 2.6. Other names sometimes used to describe damage

3. Repair limitations

- 3.1. Cite/include information from ROLAGS?
- 3.2. Laminated glass & bug that indicates this
- 3.3. Define delamination and show picture of example

4. Equipment introduction

*Note that type of equipment will vary based on the system that was purchased.

*DKI employee to due introduction

- 4.1. Scribe/spring hammer
- 4.2. Brush/blower
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4.10. Pit resin

4.11. Curing tabs/strips/film

4.12. UV light

4.13. Razor blade

4.14. Pit polish

5. Safety

5.1. Resin contains acrylic acid and other chemicals that may be harmful

5.1.1. Always wear hand and eye protection

5.1.1.1. Nitrile (NOT LATEX) glove &/or barrier cream

5.1.1.2. Safety glasses

5.1.2. Read safety information included on MSDS sheets for proper first aid

5.1.3. Clean resin spills with warm soap and water immediately and before it has a chance to dry

5.1.3.1. If not on paint, denatured alcohol may also be used to clean spills

5.1.3.2. A hood protector is a great tool for protecting the client's paint job from spills

6. Preparation for repairing

6.1. Inspecting the damage

6.1.1. Driver's Primary Viewing Area (DPVA) (National Glass Association, 2007)

6.1.1.1. 12 inches wide (300 mm wide);

6.1.1.2. Centered on the driver's position;

6.1.1.3. Extending from the top to the bottom of the wiper sweep.

6.2. Setting customer's expectations

6.2.1. Go over benefits of repair

6.2.2. Explain that the damage will not disappear and that a scar will be visible

6.2.2.1. At least 80% cosmetic improvement

6.3. Check for rain-x/hydroponic coatings and how to address

6.3.1. Steel wool or moisture evaporator

6.3.1.1. Why liquid chemicals are not recommended

6.4. Check temperature and how to address
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    6.5.2.1. Hazards of using an open flame and excessive heat

7. Completing a repair

7.1. Clean pit using scribe or drill and brush/blower
7.2. Mount bridge with vacuum cup above damage
  7.2.1. Show lever and pump style bridges being mounted to glass
  7.2.2. Be sure injector and adjustment screws are in uppermost position before attaching to the glass.
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7.4. Leveling bridge & proper tightening of injector and leveling screws
  7.4.1. ½ turn on injector, 2 complete turns on leveling screws
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    7.7.1.3. Place in pressure cycle
    7.7.1.4. Place in vacuum cycle
  7.7.2. I-100S (as an aside on a piece of practice glass)
    7.7.2.1. Piston into barrel

7.7.2.2. Screw in to pressure cycle

7.7.2.3. Screw out to vacuum cycle

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  9.2.3. Hold drill at angle to glass and brace with both hands
  9.2.4. Gently touch bur to glass to begin drilling
  9.2.5. As a pit is created, adjust the drill until it is at a 90 degree angle to the glass
  9.2.6. Slowly rotate the drill clockwise to allow glass dust to be expelled from the hole
  9.2.7. Check depth often

10. Repair of cracks

10.1. Types of cracks:
  10.1.1. Short cracks: 6 inches or less
  10.1.2. Long cracks: more than 6 inches
  10.1.3. Stress cracks: any crack that extends from an edge and does not have an impact point
10.2. Crack repair procedure: this is the basic procedure to follow for best results when repairing cracks longer than 3 inches.

10.2.1. Locate the end of the crack and drill a hole about 1/32" past the end. Be careful not to use too much pressure, which could cause the crack to "run". A popular option is to drill about half way through the top layer of glass and use a spring hammer to create a small bulls-eye at the end of the crack. The bulls-eye works well to terminate the crack and the spring hammer has a built in depth gauge so you drill to the proper depth every time

10.2.2. Drill the origin of the crack if necessary to allow resin to flow into the break. If the origin is from a rock chip it is usually not necessary to drill

10.2.3. Attach the bridge assembly to the glass, at the origin or the end of the crack.

10.2.3.1. If the end goes to the edge of the glass, locate the bridge at the origin.

10.2.3.2. If the crack has an angle of 10° or more, the bridge should be positioned at the top of the crack to take advantage of gravity for quicker filling. However, if any part of a vertical crack has less than a 10° angle it is best to start at the bottom and work up.

10.2.3.3. If resin is allowed to run over the crack rather than pushed through the crack, air is likely to be trapped within the crack and can be very difficult to remove

10.2.4. Using the pressure and vacuum cycles the crack will begin to fill but will usually stop within 1 to 3 inches from the point of initiation.

10.2.5. At this point make sure the injector is in the pressure position and leave it in that position for the remainder of the repair process. (Note: If filling from a drill hole only the pressure cycle should be used to fill a single crack. Alternating between pressure and vacuum on long cracks may introduce new air into the crack.)

10.2.6. Place a drop of resin ^1/32" behind where the resin stops and another ¼" to ½" of the crack should fill. When the crack again stops filling, add another drop 1/32" behind where it stopped and continue this process until all the air has been pushed out the end of the crack.

10.2.6.1. It is important not to rush the process to avoid trapping air bubbles in the finished crack. Alternative methods may also allow air bubbles to be trapped within the resin in the crack. Crack expanders and/or thumb pressure, as well as heat, are not recommended unless the basic method is not successful.

10.2.7. As the crack begins to fill, cover each 3" section of the filled crack with curing tape to keep air from being sucked back into the crack.

10.2.8. When the crack is completely filled, use pit resin to fill the drilled hole and the origin pit, then cure. Cure the crack itself for a minimum of 5 minutes to assure a permanent bond.

10.2.8.1. Be careful not to apply any significant pressure to the glass as the bridge is removed and the light attached. (Use of the new flex tool and a long crack light recommended.

10.2.9. Scrape all resin from the surface of the crack. Always scrape in the direction the crack runs. Do not scrape across the crack.

10.2.10. Polish the areas where pit resin was used and the repair is complete.

10.3. Cracks will always be visible from certain angles and in certain lighting conditions even after being successfully filled and cured. Because of the stress on long cracks and the inherent problems in repairing them (i.e. accessing the edge of the glass), the success rate is approximately 25% lower than the success rate of the average windshield repair. Customers should be made aware of these facts before any long crack repair is attempted.