SURE SHOT™

WINDSHIELD REPAIR KIT INSTRUCTIONS

KIT2200A, KIT2200J, KIT2200M

APPRENTICE KIT INCLUDES:

1. CARRYING CASE
2. UV LAMP (LMP2001 SHOWN)
3. MYLAR® SHEETS
4. PEN LIGHT
5. BREAK CLEANING BRUSH
6. INSERT SEALS
7. SCRIBE
8. INJECTOR ASSEMBLY
9. O-RINGS
10. RAZOR BLADES
11. INSPECTION MIRROR
12. BOTTLE (FOR ALCOHOL)
13. PIT FILLER
14. PIT POLISH
15. REPAIR RESINS
16. REPAIR FIXTURE

(SEE PAGE 9 FOR OTHER KITS)

KIT2200A (APPRENTICE KIT) SHOWN

Preparing to Use the Kit

NOTE: This kit is intended for use in compliance with the ANSI/NWRA/ROLAGS 001 Standard. Users should be trained in all relevant industry and regulatory standards applicable in their region before attempting to repair windshields.

1. Park the vehicle in shade, if possible. Otherwise, shade the repair area with an appropriate sun screen (such as KIT1044 [fig. 1], sold separately), to prevent premature curing of Repair Resin.

Figure 1

2. Suitable glass temperatures for performing a repair are 40° – 85° F (5° – 30° C). Verify that the glass is not too hot or too cold before starting.

3. Protect the vehicle from resin (see Caution 1) and tool damage using an appropriate cover (such as HDW5523 [fig. 2], sold separately).

Figure 2

CAUTION

CAUTION 1: If resin contacts the paint, do not wipe it off; cure the resin with the UV lamp (see "Curing the Resin") and carefully peel it off.

Wear appropriate personal protective equipment and follow trade association guidelines.

4. Test the UV Lamp. It may not produce a strong beam, even in low-light conditions. However, at least a slight glow should be visible on either side of the lamp when attached. If not, see Note 8 under "Curing the Resin".

5. Clean the glass by spraying isopropyl alcohol on a soft cloth and wiping the repair area. Do not spray directly on the break (see Note 1).

Figure 3

NOTE 1: If moisture is present, dry the break with a moisture evaporator (such as TLS5000 [fig. 3], sold separately).

6. Remove loose glass fragments and dirt from the impact point, using the Scribe and/or Break Cleaning Brush.

About the Repair Fixture

The Repair Fixture (fig. 4) has a Suction Cup with a Locking Lever. Once the cup is attached to the glass, it securely holds the Support Arm, Injector Assembly (or Scribe), and Balance Screw during the repair. A Barrel Nut secures the support arm to the suction cup.

1. INJECTOR ASSEMBLY
   1.1. PISTON
   1.2. RESIN CHAMBER
   1.3. LOCKING RING
   1.4. INSERT SEAL
2. LOCKING LEVER
3. BARREL NUT
4. BALANCE SCREW
5. SUPPORT ARM
6. SUCTION CUP
7. SCRIBE

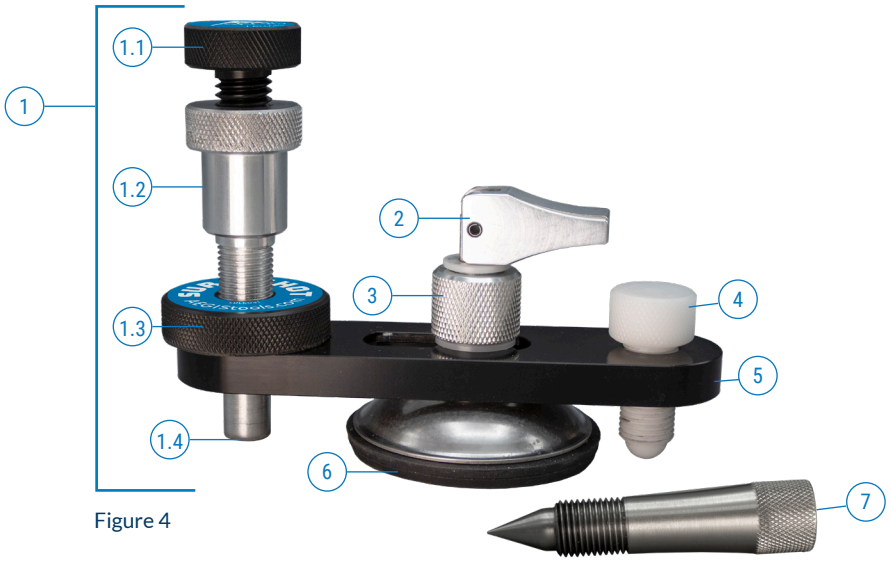


Figure 4

About the Scribe

The Scribe (fig. 5) has a dual purpose:

- It may be used to remove glass fragments and dirt from the impact point.
- It may be used to precisely align the Repair Fixture over the impact point (see next section).

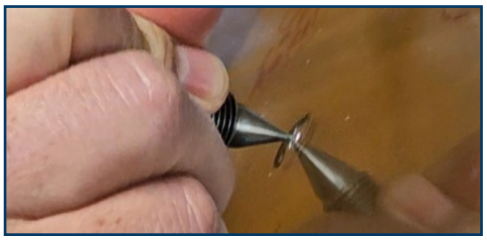


Figure 5

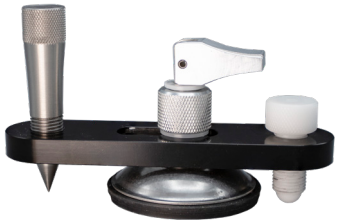
Setting Up the Fixture

1. Clean the Inspection Mirror (fig. 6). Then attach it to the inside of the windshield in a position that provides a clear view of the break during the repair.

2. Install the Injector Assembly (or Scribe*) and Balance Screw in the holes of the Support Arm (fig. 7). Make sure they do not protrude more than 1/4" (6 mm) from the bottom of the support arm. This prevents them from interfering with the set-up.

3. With the Locking Lever of the Suction Cup in the unlocked position (*perpendicular* to cup face), place the Repair Fixture against the glass.

Figure 6



(Repair Fixture shown with Scribe installed)

Figure 7

4. Position the Resin Chamber (or scribe*) over the break (fig. 8). Then hold the suction cup firmly against the glass and move the locking lever to the locked position (*parallel* to cup face).

5. Adjust the support arm by loosening the Barrel Nut and sliding the arm until the chamber (or scribe*) is positioned directly over the impact point.

6. Verify that the impact point aligns with the chamber opening (or scribe's point*) (fig. 9). Then tighten the barrel nut and remove the injector assembly (or scribe*) from the support arm.

* Use of Scribe is optional. See "About Scribe" for intended use.

Figure 8

Figure 9

Preparing the Injection Assembly

1. Remove the Insert Seal from the Resin Chamber. Inspect them for dirt or resin buildup and clean them as necessary (see Note 2 and "Cleaning the Components").

2. Screw the Piston into the chamber until finger-tight (fig. 10).

NOTE 2: Typically, an insert seal lasts for 50-60 repairs. Replace it when needed.

Figure 10

Applying the Resin

NOTE: Only use resins in a well-ventilated area, and avoid contact with skin and eyes (see "Additional Safety Information").

1. Choose the best Repair Resin for the application (fig. 11), based on the type of break (see Note 3 and Caution 2 and Caution 3):

Figure 11

- Crack Filler (LIQ2017) works well on most types of breaks, including those with tight cracks.
- Extreme II (LIQ2013) is our thinnest resin, providing better flow for filling the most difficult breaks or working in cool temperatures.

2. ***Gently*** turn the resin bottle over a few times times, to mix. Then remove the cap.
3. Position the Injector Assembly so the chamber's small cupped opening faces upward. Then dispense resin into the opening until resin fills the cup (fig. 12).
4. Retract the Piston, to draw the resin further into the chamber and remove air from it (see Note 4).
5. Reinsert the Insert Seal. Then retighten the piston until resin is visible at the insert seal's opening (fig. 13).
6. Screw the injector assembly into the Support Arm until you feel the insert seal contact the glass (fig. 14). Then tighten the assembly another 1/4 turn (see Caution 4).
7. Tighten the injector assembly's Locking Ring against the support arm (fig. 15).

NOTE 3: Check the resin's expiration date. Do not use expired resin.

CAUTION 2: Do not combine different resins; contamination will occur.

CAUTION 3: Resin can damage the suction cup and greatly reduce its service life.

NOTE 4: A loaded Resin Chamber must be free of air for the repair system to operate effectively.

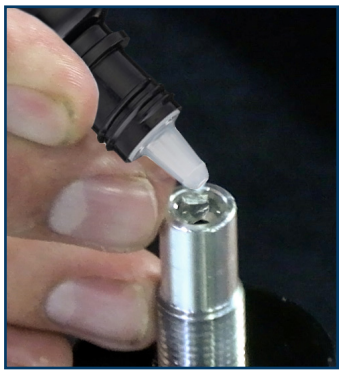


Figure 12

Figure 13

CAUTION 4: An effective seal is critical: If the Insert Seal is too loose, leaks can result during the pressure or vacuum cycles; if the Insert Seal is too tight, this can cause the break to expand, or pinch off cracks and prevent them from being filled.

Figure 14

Figure 15

Pressure and Vacuum Cycles

1. **First Pressure Cycle:** Turn the Piston clockwise to apply pressure and inject Repair Resin into the break (see Caution 5, and Tip 1). Maintain pressure for 1 minute or longer, depending on the size of the break.

2. **Vacuum Cycle:** Turn the Piston counterclockwise, to generate vacuum, drawing out any trapped air and trace amounts of moisture from the break. Maintain vacuum for 1 minute or longer, depending on the size of the break. More vacuum is generated with each counterclockwise turn; complete up to 10 turns, as necessary.

3. **Second Pressure Cycle:** Turn the piston clockwise again until you can feel slight pressure. Any remaining outer tips of a break should fill with resin. Maintain pressure for 1-2 minutes.

4. If necessary, repeat vacuum and pressure cycles to make sure the break is filled completely (see Note 5).

CAUTION 5: Too much pressure increases the risk of losing the seal, causing the break to expand, or causing the windshield to delaminate. If you feel more than a slight amount of pressure, back off the pressure immediately.

TIP 1: If no resin is filling the break after you've turned the piston to inject it, you may need to replace the O-Rings on the piston. Typically, a set of O-rings should last about 200 repairs.

NOTE 5: Air within a break will appear as a black spot. Unfilled areas will cast a shadow when a light shines on the break. Additional vacuum cycles will remove this trapped air. Use several short vacuum cycles, followed by short pressure cycles.

Curing the Resin

TIP: If a repaired crack extends beyond the diameter of the seal, cure with the UV Lamp for 1 minute ***while the Repair Fixture is in place***.

1. Remove the Repair Fixture from the glass.

2. Quickly place a Mylar® Sheet over the break, to contain the resin.

Figure 16

3. Turn on the UV Lamp (fig. 16, option LMP2007 shown) and place it over the break for 1 to 7 minutes, depending on the lamp used. Cured resin is hard, with a light surface film; uncured resin is wet to the touch (see Caution 6 and Notes 6, 7 and 8).

CAUTION 6: Wear eye protection when using a UV lamp. Excessive exposure can cause permanent eye damage.

NOTE 6: Larger Mylar® sheets (HDW3010, sold separately) can be used, as well.

NOTE 7: Curing times vary, depending on the model of UV lamp used.

NOTE 8: If the UV lamp does not appear to be working, consult the lamp instructions, when applicable. In the case of LMP2001, replace the batteries or, if the resin still does not cure, replace the bulb (LMP5000).

Finishing the Repair

1. Lift a corner of the Mylar® Sheet in order to gently peel it away, using a Razor Blade if needed.
2. Remove excess Repair Resin by holding a razor blade perpendicular to the glass and applying smooth, fast strokes, without lifting the blade off the surface.
3. Remove the Inspection Mirror.
4. Clean the repair area with isopropyl alcohol and a soft cloth. If needed, finish the surface as directed in "Filling and Polishing a Pit".

Filling and Polishing a Pit

1. Apply a drop of Pit Filler on the windshield just above the pit, allowing it to flow slowly into the pit without trapping any air. Apply a Mylar® Sheet to prevent the pit filler from flowing down the glass. Make sure the pit is filled completely.
2. Cure the pit filler with the UV Lamp. Then remove the Mylar® sheet, as previously directed. Curing takes 1-7 minutes, depending on the lamp used.
3. If needed, remove excess pit filler with the Razor Blade, as previously directed.
4. Polish the surface with Pit Polish and a soft cloth or a buffing wheel (such as DRL2025 [fig.17], sold separately).

Figure 17

Repairing a Crack

Certain cracks require drilling a pathway to inject the Repair Resin (see Caution 7). In such cases, we recommend using a Hi-Speed Rotary Tool (such as option PWR5400 [fig. 18] or PWR5070, sold separately) and a Carbide Bur (such as option DRL2021 [fig. 19], or DRL2031, sold separately).

For cracks shorter than 2" (<5 cm), drill a small hole in the center, making sure it intersects with the crack.

For cracks 2" to 6" (5 cm to 15 cm), up to three holes may be required: one at each end and a third in the center, if the crack is not completely filled from the ends.

For cracks longer than 6" (>15 cm), AEGIS recommends using the Long Crack Repair Kit (KIT1036), sold separately.

CAUTION

CAUTION 7: Do not drill into the plastic interlayer between the glass layers.

Figure 18

Figure 19

Figure 20

Follow the repair procedures previously described. Set up the Repair Fixture to place the Resin Chamber over each drilled opening. Observe the crack from an angle, so you can see the resin filling the void. Cover the crack with Mylar® Sheets (or extra-large sheets HDW3010 [fig. 20], sold separately) as the break fills, to prevent air from re-entering the crack.

Cleaning the Components

Clean the following components daily or more often, as needed.

1. Remove the Injector Assembly from the Repair Fixture. Disassemble it and clean off any Repair Resin from both the Piston and the Resin Chamber, using isopropyl alcohol and an appropriate brush (such as Chamber Cleaning Brush FIX2004, sold separately). Then wipe them clean with a lint-free cloth.
2. Remove the Insert Seal and use a cloth dampened with isopropyl alcohol to remove any resin. Gently rub and pat it dry.
3. Use isopropyl alcohol to remove resin from all other components of the Repair Fixture ***except the Suction Cup***. Then wipe them clean with a lint-free cloth.
4. Use soapy water and a clean, lint-free cloth to clean the face of the Suction Cup.

Tips for Best Results

- Inexperienced personnel should perform practice repairs on a scrap windshield before repairing a customer's vehicle. Their technique and results should improve with each attempt.
- Do not use lubricants on Insert Seals, as contamination of Repair Resin may result.
- Larger breaks usually require longer vacuum and pressure cycles.

Additional Safety Information

- Read all Repair Resin labels and Safety Data Sheets provided.
- If resin gets on your skin, wash thoroughly with soap and water.
- If resin gets in your eyes, flush them with water for 15 minutes and seek medical attention immediately.
- If you swallow any resin, drink 2 glasses of water and seek medical attention immediately.

Parts and Supplies

PART NO.	DESCRIPTION
DRL2021	CARBIDE BURS (10 QTY)
DRL2025	BUFFING WHEEL
DRL2031	CROSS-CUT TAPERED BURS (5 QTY)
HDW3000	MYLAR SHEETS, 1.25” (3.175 CM) SQUARE (100 QTY)
HDW3010	MYLAR SHEETS, 2.362” (6 CM) SQUARE (100 QTY)
HDW5015	PENLIGHT
HDW5041	SCRIBE
HDW5042	BREAK CLEANING BRUSH
HDW5410	RAZOR BLADES (100 QTY)
HDW5523	FENDER COVER
FIX2004	CHAMBER CLEANING BRUSH
FIX2200	INJECTOR ASSEMBLY
KIT1036	LONG CRACK REPAIR KIT
KIT1044	UV SUN SCREEN

PART NO.	DESCRIPTION
LIQ2013	EXTREME II RESIN, 15 ML BOTTLE
LIQ2017	CRACK FILLER RESIN, 15 ML BOTTLE
LIQ2022	PIT FILLER
LIQ2030	PIT POLISH
LIQ3000	4-OZ BOTTLE (FOR DISPENSING ISOPROPYL ALCOHOL)
LMP2001	UV LAMP (FOR APPRENTICE KIT)
LMP2007	UV LAMP (FOR JOURNEYMAN KIT)
LMP2008	UV LAMP (FOR MASTER KIT)
LMP5000	UV LIGHT BULB (FOR LMP2001)
MIR2004	INSPECTION MIRROR
PWR5400	HI-SPEED ROTARY TOOL WITH ACCESSORIES, MINI
PWR5070	HI-SPEED ROTARY TOOL WITH ACCESSORIES, DREMEL®
SBX2017	INSERT SEALS (10 QTY)
SBX2019	O-RINGS (12 QTY)
TLS5000	MOISTURE EVAPORATOR

KIT2200J
Journeyman Kit includes:

- APPRENTICE KIT*
- UV LAMP (LMP2007)

KIT2200M
Master Kit includes:

- JOURNEYMAN KIT*
- HI-SPEED MINI ROTARY TOOL W/ ACCESORIES (PWR5400)
- CARBIDE BURS (10 QTY) (DRL2021)
- UV LAMP (LMP2008)

* except for upgrades, as noted

Limited Warranty

AEGIS Tools International® products are warranted to be free from defects in manufacturing or materials for 1 year from the date of purchase. Read the Warranty Return Form at aegistools.com for important details about the warranty.

If a problem develops during the warranty period, follow the instructions below to obtain warranty service. If inspection shows that the product has a defect, AEGIS will repair or replace the product without charge.

To Obtain Warranty Service or Repair Service

For customers in the U.S. and Canada: Go to the Warranty page at aegistools.com and click the applicable link. Alternatively, you may contact AEGIS Tools International (see contact information).

For customers in all other localities: Contact AEGIS Tools International (see contact information) or your dealer for assistance.

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