DELTA KITS

CERTIFICATION GUIDE

TRAINING and **CERTIFICATION GUIDE**

THE CHOICE OF
TECHNICIANS WORLDWIDE

CONTINUOUS LEARNING & **PROFESSIONAL DEVELOPMENT**

ARE REQUIRED TO STAY COMPETITIVE AND ABREAST OF NEW DEVELOPMENTS

EXPERIENCE

THE DELTA DIFFERENCE

Thank you for your interest in Delta Kits professional windshield repair and headlight restoration products. Delta Kits has many satis ed customers around the world, and we appreciate the opportunity to show you why. Delta Kits is, and always has been, at the forefront of the market since the company's inception in 1984. We do this by selling only the highest quality products in the industry, and backing that up with exceptional service and support.

QUALITY PRODUCTS

Our industry leading tools, resins, and equipment are prferred by professional windshield repair and headlight restoration technicians worldwide and are respected for quality, durability, and ease of use.

PROVEN RESULTS

Our windshield repair and headlight restoration products are used by over 10,000 customers in over 75 countries. Let us also grow your revenue and profit. We also provide a 30 day money back guarantee.

INDUSTRY EXPERTS

Our team of award winning windshield repair experts has almost 70 years combined experience as educators, technicians, and leaders in the industry - setting a standard of excellence for auto glass repair.

CERTIFIED TRAINING

In today's working environment, continuous learning and professional development are required to stay competitive and abreast of new developments. This is especially so in the windshield repair industry. Windshield repair training through Delta Kits is an investment in your career that offers many tangible benefits. Windshield Repair can launch a new career, broaden your area of expertise or be used as a refresher for your work. It can demonstrate your commitment to your profession, show continued mastery of your field, and offer greater recognition and credibility from your peers, within your company or in today's competitive job market.

STAY CONNECTED WITH US

Connect with Us
Visit us at deltakits.com to learn more about Delta Kits products, view our monthly specials, and browse our extended gallery of instructional videos.

The Wise Crack Newsletter
You can sign up for our monthly newsletter, The Wise Crack, the industry's most widely circulated windshield repair newsletter. It includes helpful windshield repair tips, product specials, news and marketing advice.

Windshield-Repair-Forum.com
Join the conversation at the world's largest windshield repair forum. Talk to fellow technicians, ask questions, get advice, and discuss industry trends, all at windshield-repair-forum.com.

Windshield Referral.com
Promote your business for FREE at windshieldreferral.com where prospective customers can search for your service by city, state or company name on any search engine.

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WINDSHIELD REPAIR MARKET POTENTIAL

POTENTIAL MARKET:
There are over 248 million vehicles on the road today which puts the estimated number of vehicles with repairable windshield damage between 24 and 30 million. With an average price per windshield repair of $55, the total annual market for windshield repair is between $1.3 and $1.6 billion.

PROFIT:
Windshield repair is a highly profitable service with low up front and marginal costs. The cost per windshield repair is $0.97.

SIMPLICITY:
For such a valuable service, windshield repair is easy to learn and easy to deliver with online video training or hands on training and free technical support from Delta Kits.

WINDSHIELD REPAIR PROVIDES VALUE & CUSTOMER CONVENIENCE
A repair takes minutes and costs less than a replacement.

RESTORES THE STRUCTURAL INTEGRITY OF THE WINDSHIELD

RETAINS THE ORIGINAL FACTORY SEAL WHICH AVOIDS LEAKS

ENHANCES THE COSMETIC APPEARANCE OF THE WINDSHIELD

PROTECTS THE ENVIRONMENT BY KEEPING LAMINATED GLASS OUT OF LANDFILLS

PROMOTIONAL & CUSTOMER RETENTION VALUE:
Because of the low marginal cost of windshield repair, some businesses offer it as a courtesy service to their best customers or in promotional campaigns to attract new customers.However, if you choose to implement windshield repair into your business, it will increase your bottom line and add to the value you can provide customers.

www.deltakits.com | 800.548.8332 | info@deltakits.com

WINDSHIELD REPAIR SYSTEM PROFIT SHEET

If you repair just one windshield per day, five days per week, you will generate $14,300 in annual income. Repair ten windshields per day and you'll generate $143,000 in annual income!

Generate $10,000 in revenue by investing in a $1,275 system before having to re-supply!

Average repairs with included resin (2 oz. inital supply 36021)*	200
National average revenue per repair	x $55
Gross Income	$11,000

Gross Income	$11,000
Retail price of 36021 Windshield Repair System(12/13)	- $1585
Gross Proft (before restocking)	$9415

Cost of resupply order for minimum 200 repairs*	$245
Average number of repairs from resupply order	÷ 252
Average cost per repair (*actual average cost is .97)	$1.00*

National average revenue per repair	$55
Average supply cost per repair	-$1.00
Profit x 4 Repairs/HR = $216 per hour	$54.00

*Based on 7 drops per repair (MagniBond) and 1 drop per repair (Pit Resin).
Approximately 1500 drops per ounce (MagniBond) and 245 drops per bottle (Pit Resin).
**Calculations do not include labor cost and are intended for illustration only.
Results vary by user depending on sales & marketing efforts of each individual, as well as the level of skill developed.

WHAT IS WINDSHIELD REPAIR?

WINDSHIELD REPAIR IS A PERMANENT PROCESS THAT

Windshield repair is a permanent process that removes air from the break and fills it with a curable, optically matched resin.

Windshield repair resin is an organic (carbon-based) material that seals the break when it is cured.

BENEFITS OF WINDSHIELD REPAIR

99% of repairs are successful

Environmentally friendly

Restores structural integrity of the glass

Enhances the cosmetic appearance

Cost Effective

Typically insurance companies waive comprehensive deductibles

Fast! In most cases a windshield can be repaired in 15 minutes or less but replacing a windshield can take several hours.

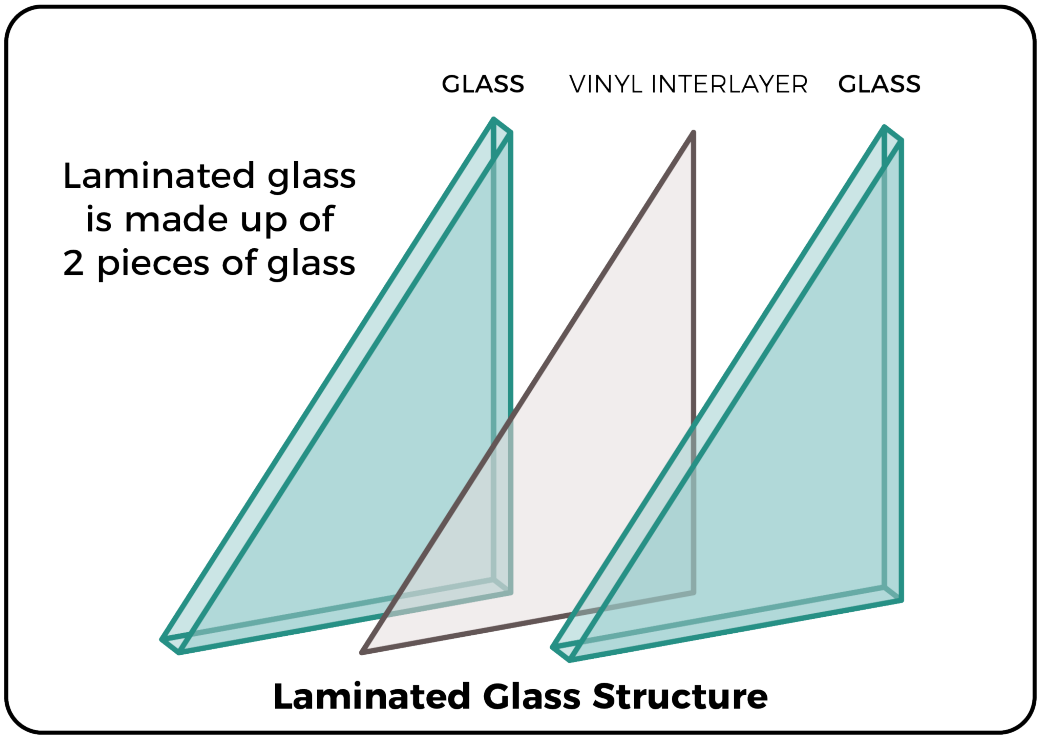
AUTOMOTIVE GLASS TYPES

LAMINATED GLASS

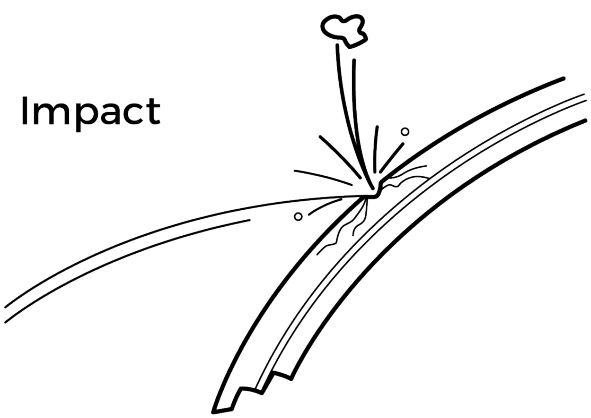
TEMPERED GLASS

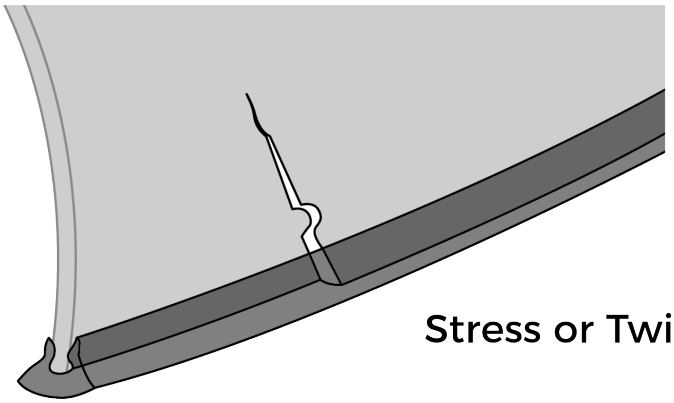
LAMINATED GLASS:
Laminated glass is a type of safety glass that holds together when shattered. In the event of breaking, it is held in place by an interlayer, typically of polyvinyl butyral (PVB) between its two or more layers of glass.

TEMPERED GLASS:
Tempered glass is meant to shatter into jagged shards when broken, tempered glass fractures into small, relatively harmless pieces.



Laminated Glass Structure





WINDSHIELD REPAIR DAMAGE OCCURS BY IMPACT AND STRESS

TYPES OF WINDSHIELD REPAIR DAMAGE

BULLS EYE
Damage that is marked by a separated cone in the outer layer of glass that results in a dark circle with an impact point. Can be repaired if diameter is no larger than one inch (25mm).

STAR BREAK
Damage that exhibits a series of short cracks or legs that emanate from the impact point. Having damage no larger than 3 inches (75 mm).

COMBINATION BREAK
Damage with multiple characteristics, i.e. star within a bulls eye. Providing neither break having a measurement greater than 3 inches (75 mm).

UNDERSTANDING ROLAGS™

Repair of Laminated Automotive Glass Standard

The Repair of Laminated Automotive Glass Standard (ROLAGS™) represents the windshield repair industry's statement of best practices as compiled under ANSI guidelines by a "balanced" committee of windshield repair system manufacturers, glass manufacturers, windshield repair and replacement retail practitioners, trade associations and other "interested parties".

ROLAGS contains an industry consensus of recommended terminology, definitions, process and procedures. These recommendations reflect the expertise of a Standards Development Committee (SDC) with combined experience of several hundred years and many thousands of practical windshield repairs among its members.

THE ROLAGS STANDARD HAS 11 SECTIONS AND IS 9 PAGES LONG:

1. Introduction

2. Purpose

3. Scope

4. Glossary of Repair Terminology

5. Other Related Terminology

6. Damage Types and Repairable Terminology

7. Repair Limitations

8. Process to Be Followed by the Repair Technician

9. Inspection of the Repair's Quality by the Technician

10. Training of the Repair Technician

11. Performance Requirements for the Repair of Laminated Auto Glass

WINDSHIELD REPAIR PREPARATION

INSPECTING THE DAMAGE

Before starting any repair it is important to assess the damage so that you know what you're dealing with before you begin. If the damage is repairable, be sure to explain to your customer that there is a risk of the damage spreading during the repair process due to the fact that broken glass is inherently unstable. It is also important for your customer to understand that a completed repair will not make the damage disappear and that a scar will always be visible. Remember that the number one goal of windshield repair is to restore the structural integrity of the glass, not make the damage completely vanish.

CHECKING FOR HYDROPHOBIC COATINGS

Check for hydrophobic coatings that repel water as these coatings will prevent the pit resin from adhering. To check for these coatings, spray a small amount of water on an area of the windshield away from the damage and see if it beads up. If it does, there is a coating on the glass.

There are two ways to effectively remove these coatings. First, scrub the area of the repair with 0000 steel wool until you see the coating ball up. Secondly, if your system included a moisture evaporator, use it to apply heat to the damaged area for 15 seconds to burn the coating off.

CHECK FOR MOISTURE IN THE BREAK

Moisture in a break appears as a grey shadow that can be manipulated by applying pressure with your probe. If moisture is present, apply heat with moisture evaporator for 15 seconds. You should see the water boil and evaporate through the impact point.

CHECK THE TEMPERATURE OF THE GLASS

Ideally the glass temperature should be between 70 and 100 degrees Fahrenheit (21 to 38 degrees Celcius) before repairing.

If the glass is too hot, it can be cooled by opening the cabin windows, turning cool air on through the defrost vents, or moving the vehicle into the shade. You can also use the heat exchanger to spot cool a small area of the glass.

If the glass is too cold, it can be warmed by turning warm air on through the defrost vents, bringing it indoors, or using a hair dryer.

Use an infrared thermometer to gauge the temperature of the glass both before and during the repair process.

COMPLETING A REPAIR

With the inspection and preparation completed it's now time to begin the actual repair. We'll go through the process stepVbyVstep for a standard repair and show each step in detail.

CLEAN PIT USING SCRIBE AND BRUSH/BLOWER

Begin by taking your scribe or spring hammer and gently clean the pit of loose glass and use the brush or blower to remove any debris that remains.

MOUNT BRIDGE WITH VACUUM CUP ABOVE DAMAGE

Next, take the bridge assembly and make sure that the adjusting screws and injector barrel are retracted so as not to interfere with the vacuum cup setting completely on the glass.

Make sure the adjusting slot is centered so that you have the maximum range if any adjustments are necessary once the bridge has been attached to the windshield.

Orient the bridge so that the vacuum cup is above or to the side of the damage to prevent resin from coming into contact with the rubber and damaging it. Also make sure that the injector is facing you for easy access.

The B300 will be attached by activating the pump and the B250 by flipping the locking lever to the horizontal position. Try and center the injector end seal hole directly over the pit when placing the bridge on the glass. You can check the injector's orientation by looking down the barrel or by using a centering tool and making small adjustments until the injector is correctly positioned.

PROPER LEVELING OF THE BRIDGE AND TIGHTENING OF THE INJECTOR

When the bridge is properly positioned screw the injector barrel down until the end seal just touches the glass and then advance it one half turn more.

Screw the leveling screws down until they just touch the glass. You will then advance the leveling screws and additional two turns.

The goal is to uniformly compress the end seal against the glass. The amount of the end seal visible between the glass and injector barrel should be equal all the way around.

Another way to check the compression of the end seal is to measure the distance between the glass and the bridge plate with a ruler. Each of the three corners of the bridge should be within 1/8" of each other. Remember, this is a general guideline and may vary depending on the curvature of the glass.

LOAD THE INJECTOR WITH INJECTION RESIN

Be sure to get .2 ml of resin to the bottom of the injector so it fills the end seal.

PUT THE INJECTOR PLUNGER INTO THE VACUUM POSITION (PISTON RETRACTED)

and screw it into the barrel until it stops. DO NOT OVER TIGHTEN.

PUT THE INJECTOR INTO THE PRESSURE CYCLE AND APPLY A SLIGHT AMOUNT OF THUMB PRESSURE

Leave in the pressure cycle for approximately 5 minutes and return to the vacuum cycle for 30 seconds.

In general, the pressure and vacuum cycles should break down as follows, though more may be necessary. Two to four cycles is the average.

CYCLE 1 PRESSURE: 5 MINUTES AND VACUUM: 30 SECONDS
CYCLE 2 PRESSURE: 2 MINUTES AND VACUUM: 30 SECONDS
CYCLE 3 PRESSURE: 2 MINUTES

Always end your repair on a pressure cycle as this will insure that the break is filled completely. Keep repeating cycles until you see no more black, green, or shiny pockets in the break, as these indicate air.

INSPECT THE BREAK FROM MULTIPLE DIRECTIONS

Before removing the bridge assembly from the glass, inspect the break from multiple directions to insure all the air has been removed. Air may not be visible from certain angles so this step is crucial.

APPLICATION OF PIT RESIN & CURING TAB

Remove the bridge and cover the injector to protect it from ambient UV light. Place one drop of pit resin just below the pit making sure there are no air bubbles present. If you see air bubbles use a straight pin to pop them. Use the curing tab to push the pit resin into the pit and lay it flat. DO NOT push on the curing tab as this will force the pit resin you just applied out of the pit.

CURE THE REPAIR

Using your curing lamp, expose the finished repair to UV light for a period of 5 minutes.

SCRAPING REPAIR FLUSH

Remove the curing tab and, with a new razor blade held at a 90 degree angle to the glass, use firm and quick strokes to scrape the resin flush with the surface of the glass. This will prevent the resin from interfering with the wipers.

POLISH THE PIT

Finally, apply a drop of pit polish to the finished repair and rub vigorously until the pit shines. This will improve the cosmetic appearance of the repair.

CLEANING YOUR EQUIPMENT

INJECTOR ASSEMBLY

Do not turn the injector upside down during the removal or cleaning process

Use denatured alcohol to clean the injector assembly between uses to prevent resin from curing in the equipment.

CHANGE END SEALS APPROXIMATELY EVERY TEN REPAIRS

Do not turn the injector upside down during the removal or cleaning process
Change end seals approximately every ten repairs.

CARE OF BRIDGE VACUUM CUP

A dirty or damaged vacuum cup will interfere with the bridge staying on the glass. Do not allow resin to contact the vacuum cup and wash it periodically with warm water or denatured alcohol.

TEST YOUR KNOWLEDGE

1. At what angle should you hold the razor blade to scrape after the resin has been cured?

2. How long do you cure the resin before scraping?

3. What is recommended to cure the resin?

4. What type of automotive glass is repairable?

5. How often should you replace the end seal?

6. What is the preferred working glass temperature range?

7. What do you use to clean your equipment after the repair?

8. What personal protective equipment should be used while performing a windshield repairs?

9. How do you check for moisture within the repair site?

10. When moisture is present how do you remove it?

11. Ideally where should the vehicle be located when doing a repair?

12. How do you remove Rain-X?

13. Why use a new razor blade for every repair?

14. Why is Pit Polish used?

15. Once a windshield has been repaired, it has been restored to pre-damage condition?

ANSWERS

1. **90 Degree Angle**
2. **5 minutes**
3. **Pit Resin**
4. **Laminated Glass**
5. **Every 10 repairs**
6. **70 to 100 degrees**
7. **Denatured alcohol**
8. **Saftey glasses, nitrile gloves or a barrier cream**
9. **Probe the damage**
10. **Moisture evaporator**
11. **Indoors**
12. **Moisture evaporator or (0000) steel wool**
13. **To avoid scratching the glass and to get a smooth surface**
14. **To polish out the white blemish**
15. **False**