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Technical Committee

Presented by:
Toby Chess & Kye Yeung, Co-Chairs



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The Good, the Bad & Ugly of Plastic Bumper Repair

Toby Chess and Kye Yeung
Denver, Colorado
April 2018



Is this Repairable?



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Is this Repairable?



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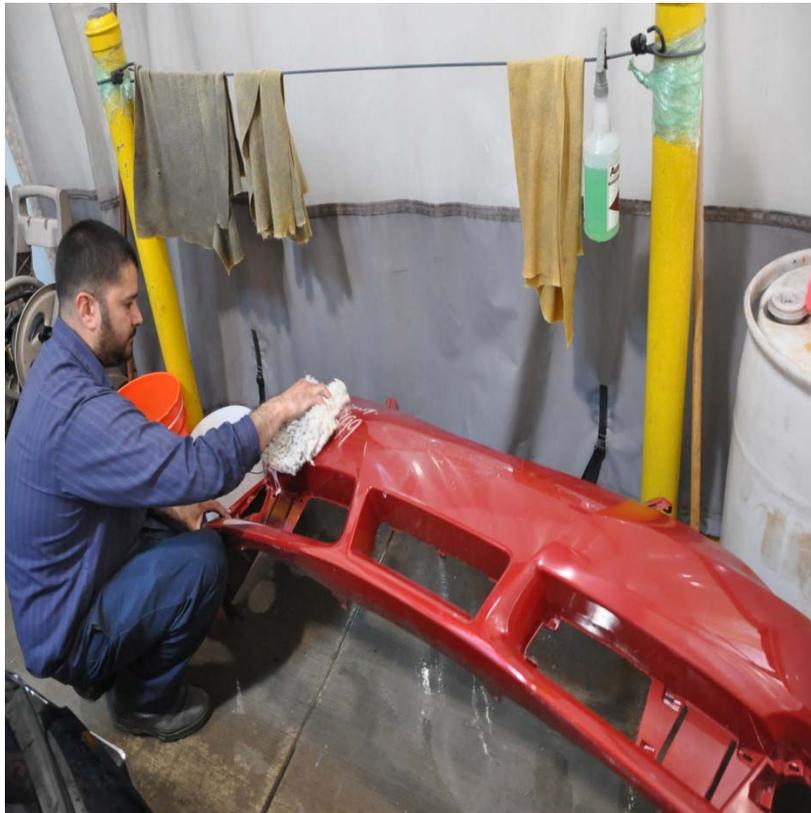
Is this Repairable?



Plastic Bumper Repair Using Adhesives



Single Side Bumper Repair – Wash both sides of the bumper with soap and water



Single Side Bumper Repair Clean with a wax & grease removed



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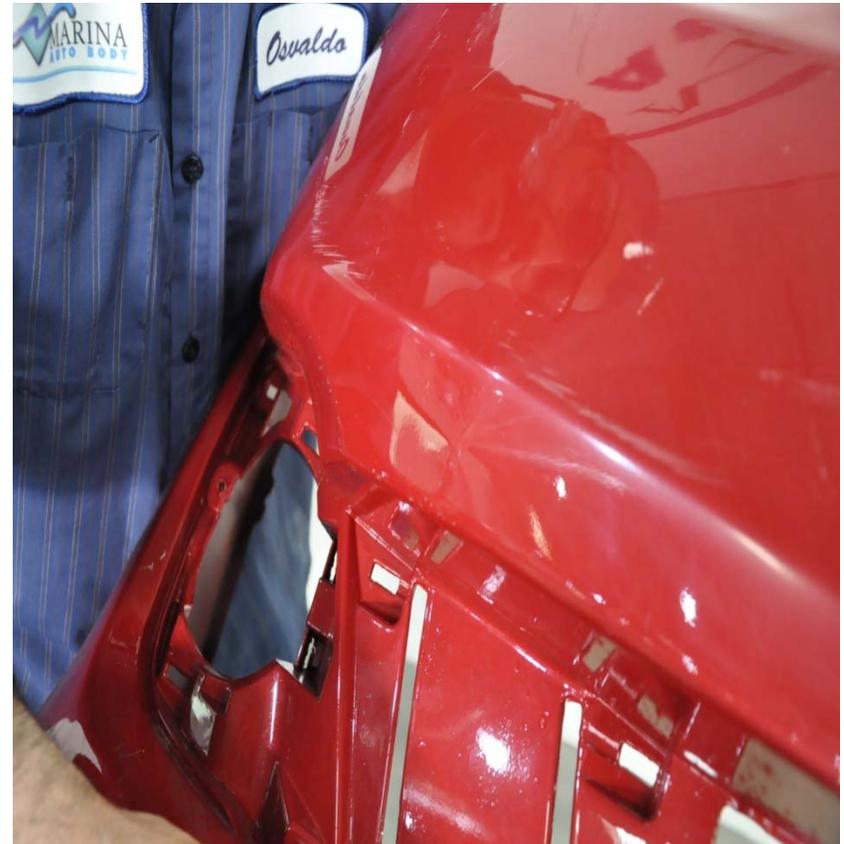
Single Side Bumper Repair-Heat with a short wave infrared light to remove dent



Single Side Bumper Repair -Push out the dent from the backside with a dolly



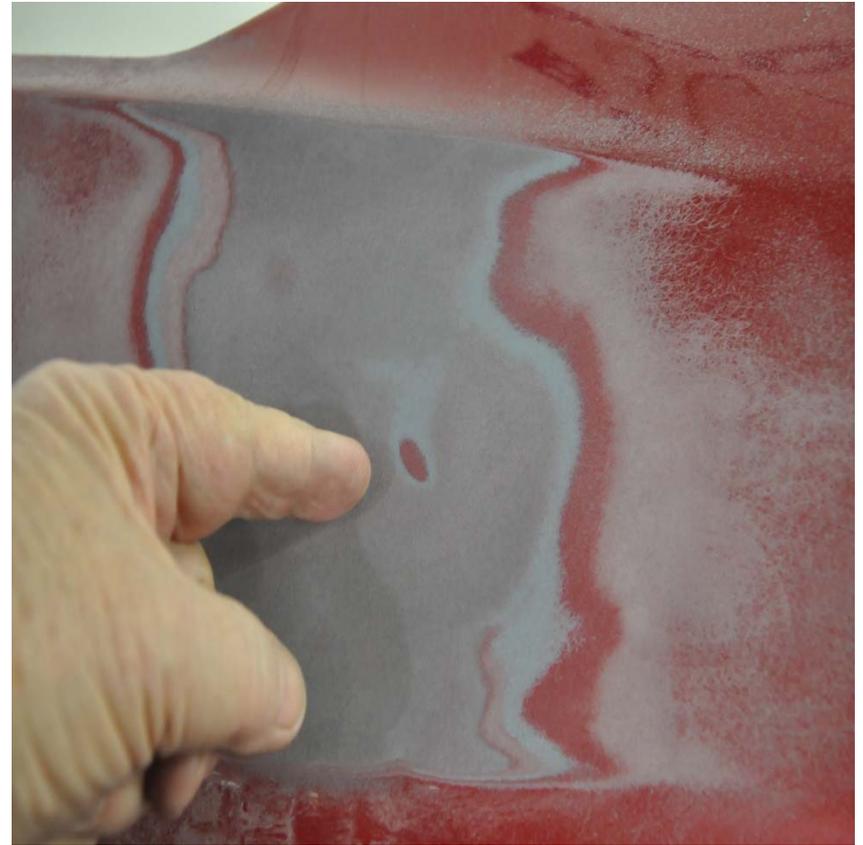
Single Side Bumper Repair-Reheat smaller area (still had a dent) and push out from backside



Single Side Bumper Repair-Cool repair area with water to harden up the soft plastic in place



Single Side Bumper Repair-Sand with 120 grit sand paper at low speed-Note low spot in bumper



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Single Side Bumper Repair-Clean the Repaired Area with Wax & Grease Remover.



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Single Side Bumper Repair--Apply a surface modifier (adhesion promoter)

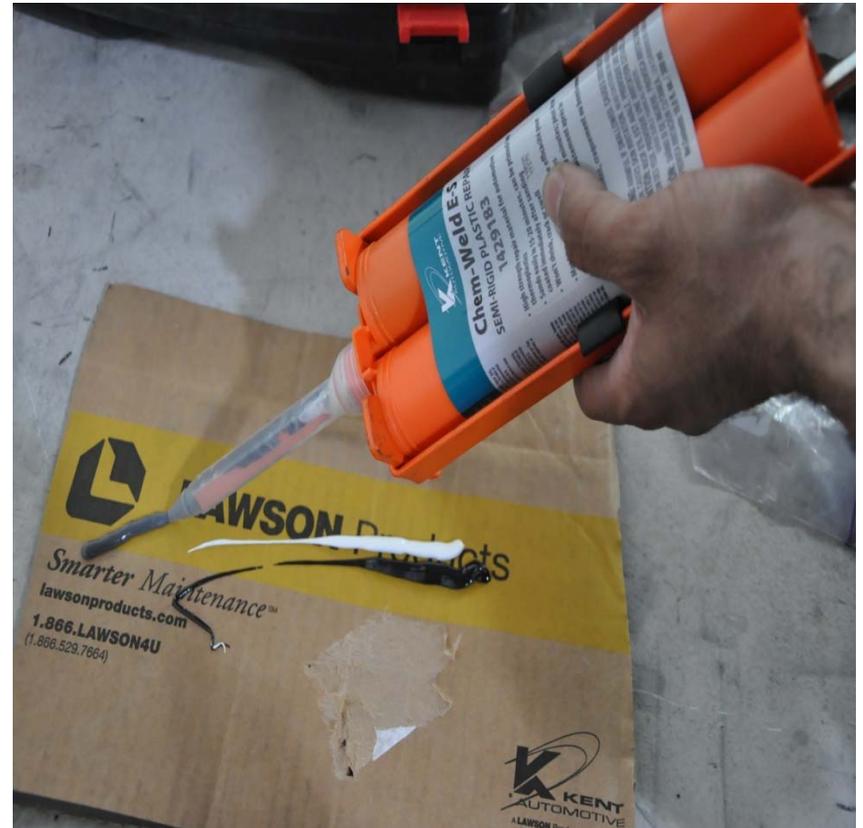
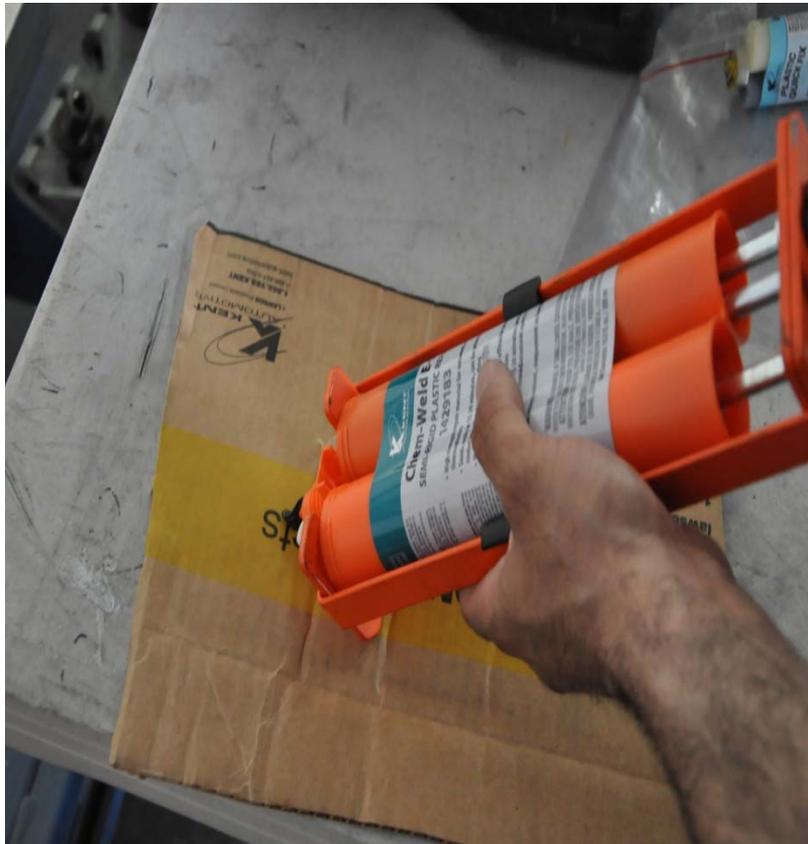


Adhesion promoter included in the two part epoxy.



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Single Side Bumper Repair-Equalize the 2 part material



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Single Side Bumper Repair-Spread material over the repaired area



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Single Side Bumper Repair-Sand repaired area with 220 grit sandpaper



Single Side Bumper Repair-Apply guide coat and check for low spots

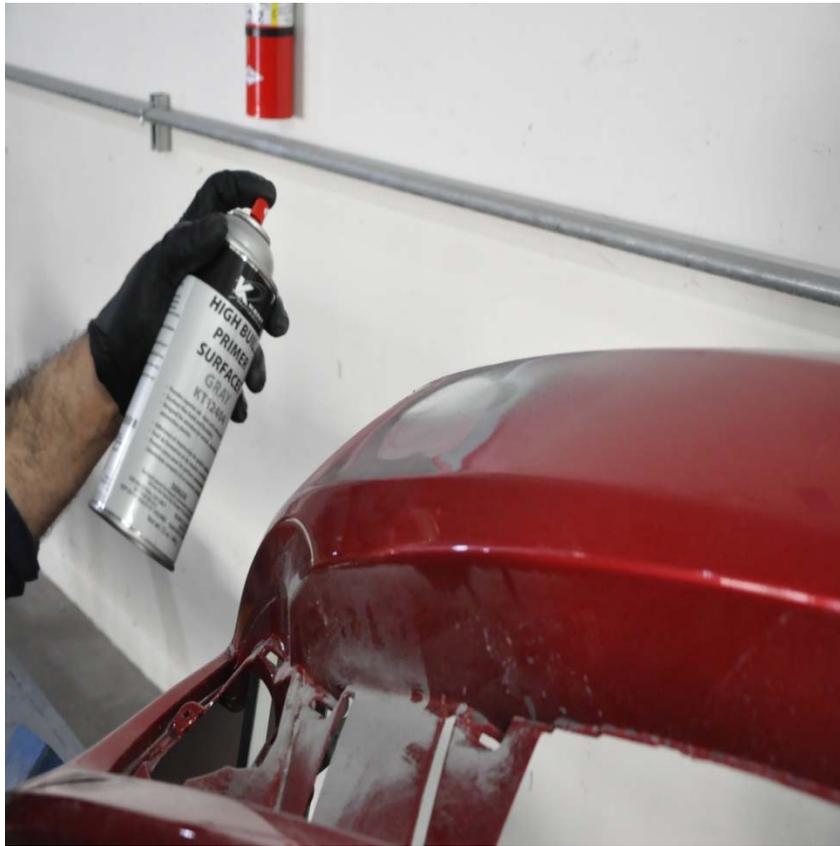


Single Side Bumper Repair-Clean again with wax & grease remover



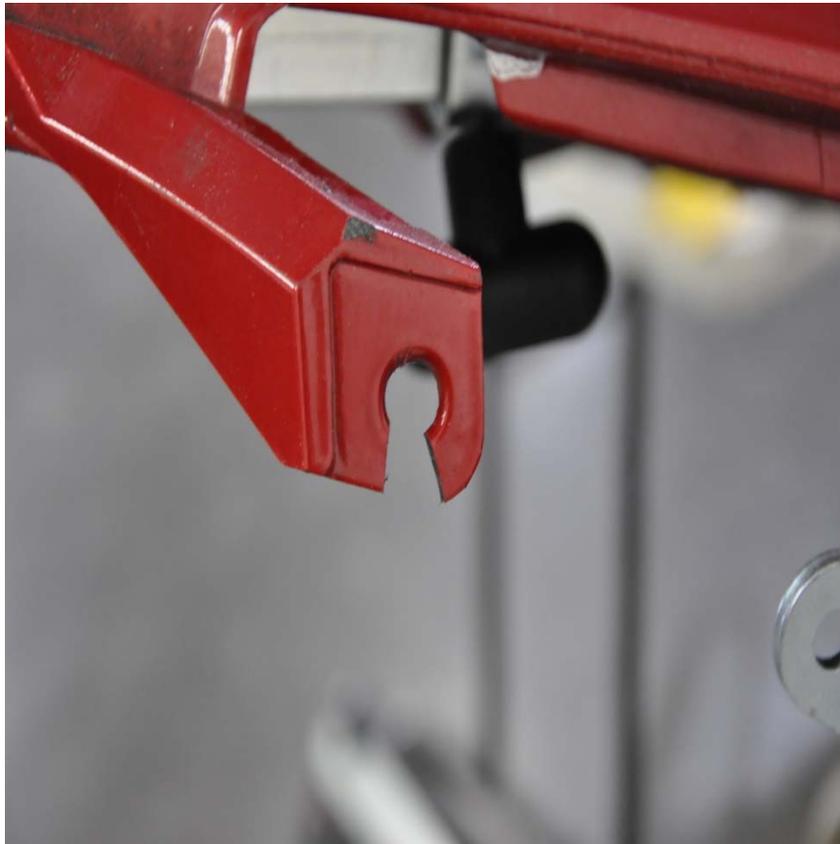
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Single Side Bumper Repair-Apply High Build Flexible Primer



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Bumper Tab Repair with Adhesives & a Hot Stapler-Sand Broken Tab with 120 Grit DA



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Bumper Tab Repair with Adhesives & a Hot Stapler-Clean Tab with Wax & Grease Remover

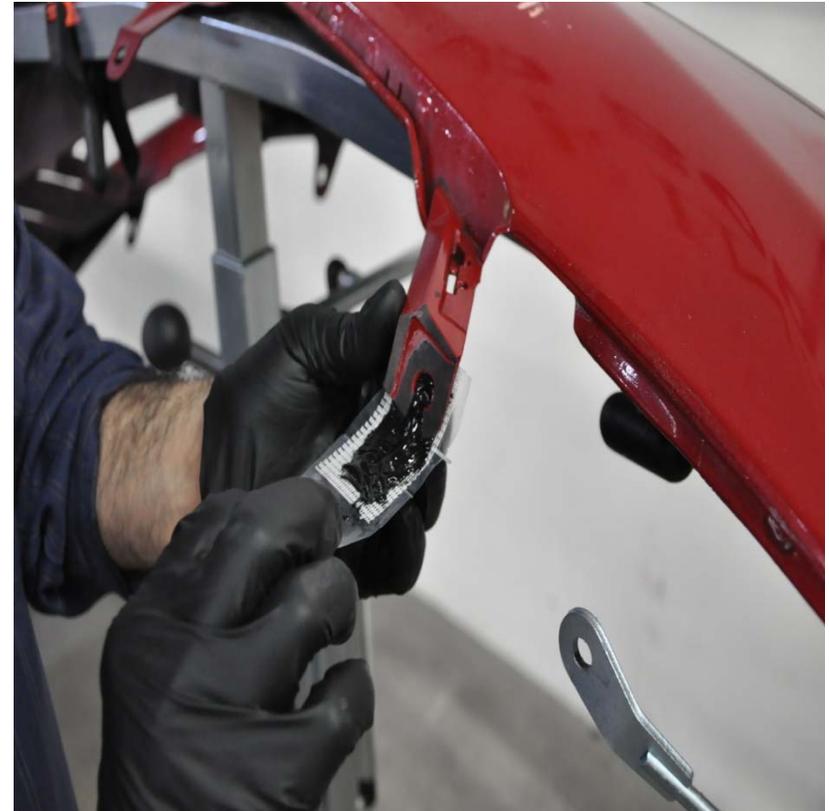


Bumper Tab Repair with Adhesives & a Hot Stapler-Equalize Two part Epoxy



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Bumper Tab Repair with Adhesives & a Hot Stapler-Apply Adhesive to reinforcement tape & fold over.

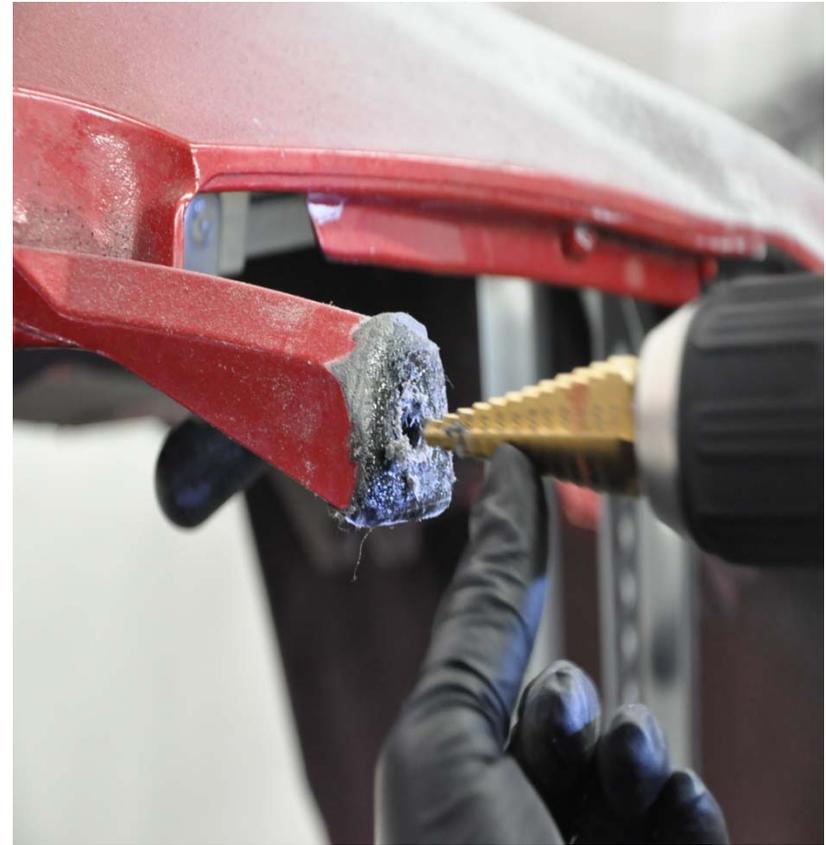


Bumper Tab Repair with Adhesives & a Hot Stapler-Use a hand seamier to flatten out the repair.



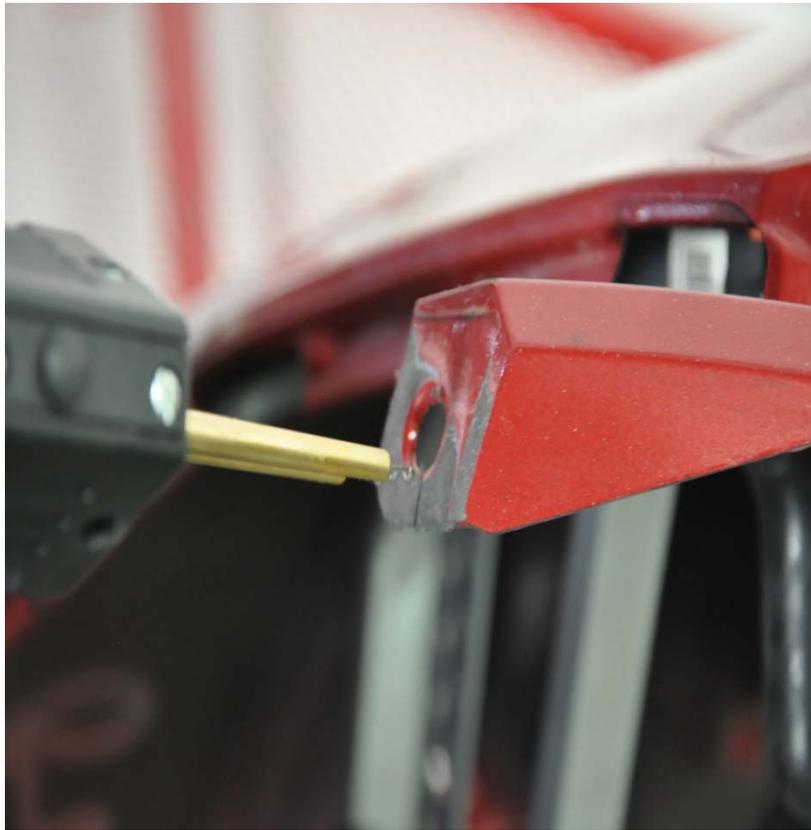
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Bumper Tab Repair with Adhesives & a Hot Stapler-Drill out the hole and finish sanding.



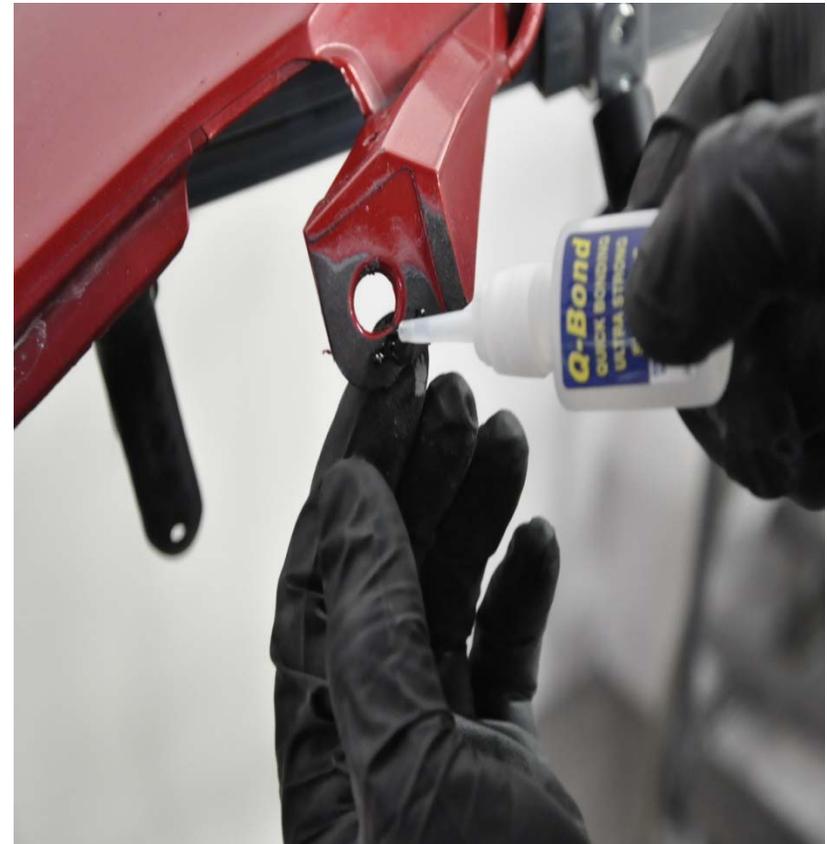
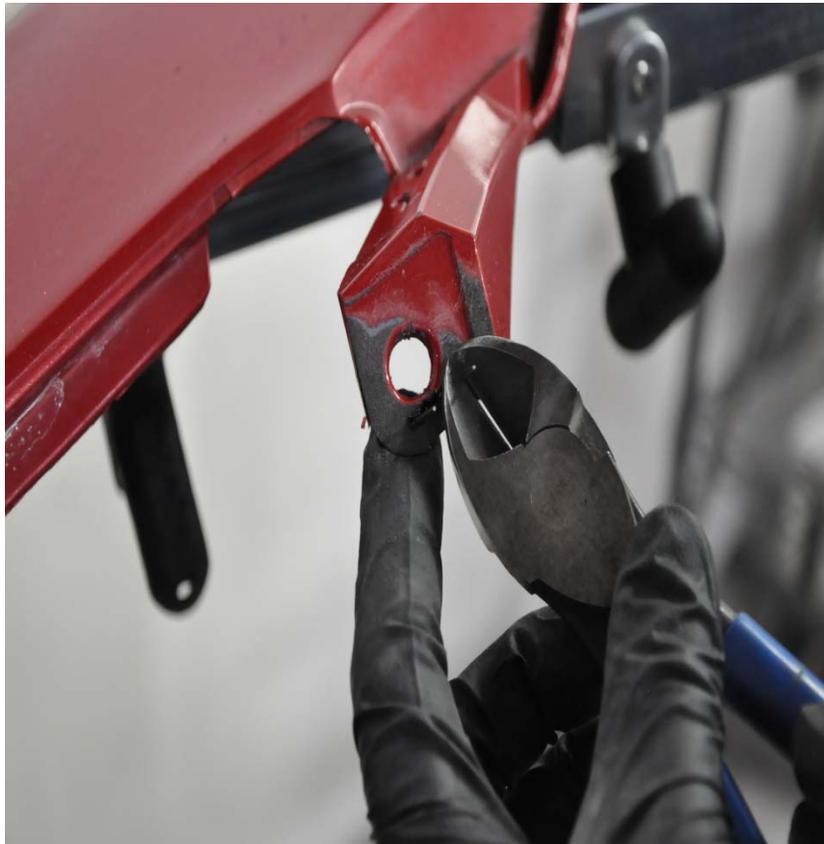
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Bumper Tab Repair with Adhesives & a Hot Stapler-



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Bumper Tab Repair with Adhesives & a Hot Stapler-



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Bumper Tab Repair with Adhesives & a Hot Stapler-Sand and Prime



General Rules for Two-Sided plastic repair



1. Wash the front and back with soap and water
2. Degrease the bumper repair area
3. Remove stressed plastic with heat
4. Remove paint on the outside of the bumper.
5. Abrade or Sand the backside of the bumper for two sided repair.
6. Clean again with wax and grease removed to remove mold release agent that has been exposed.
7. Apply a surface modifier (adhesion promoter) if required by product manufacturer.



Considerations for Repairing Plastic Bumpers



- Repair Cost vs OEM New
- Will repair allow from life time warranty
- Can the repairs be seen
- Will the repairs stand up to stress
- What does the OEM state about repairing their bumpers
- What is the availability of another bumper
- Warpage or memory
- Age of the vehicle
- Damage in area of parking sensor
- Bumper has been repaired before and/or repainted

Two Sided Bumper Repair



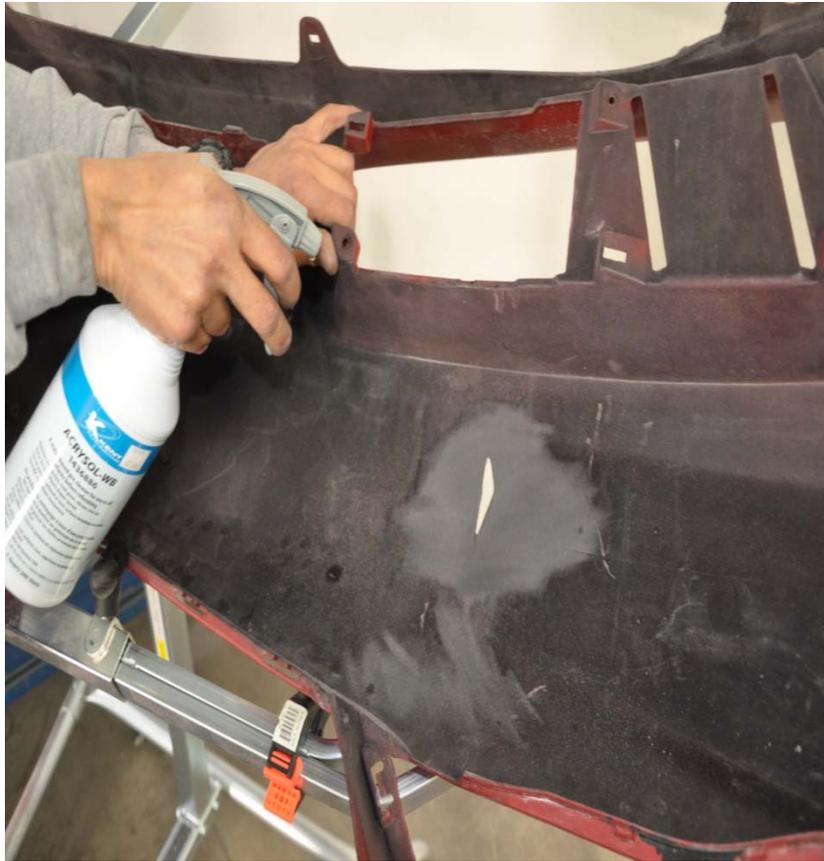
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Two Sided Bumper Repair-Sand front and backside with 80 Grit DA at low speeds in order so that the plastic does not melt. Taper the backside approximate $\frac{3}{4}$ inch.



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Two Sided Bumper Repair—Clean front and backside of bumper with wax & grease remover.

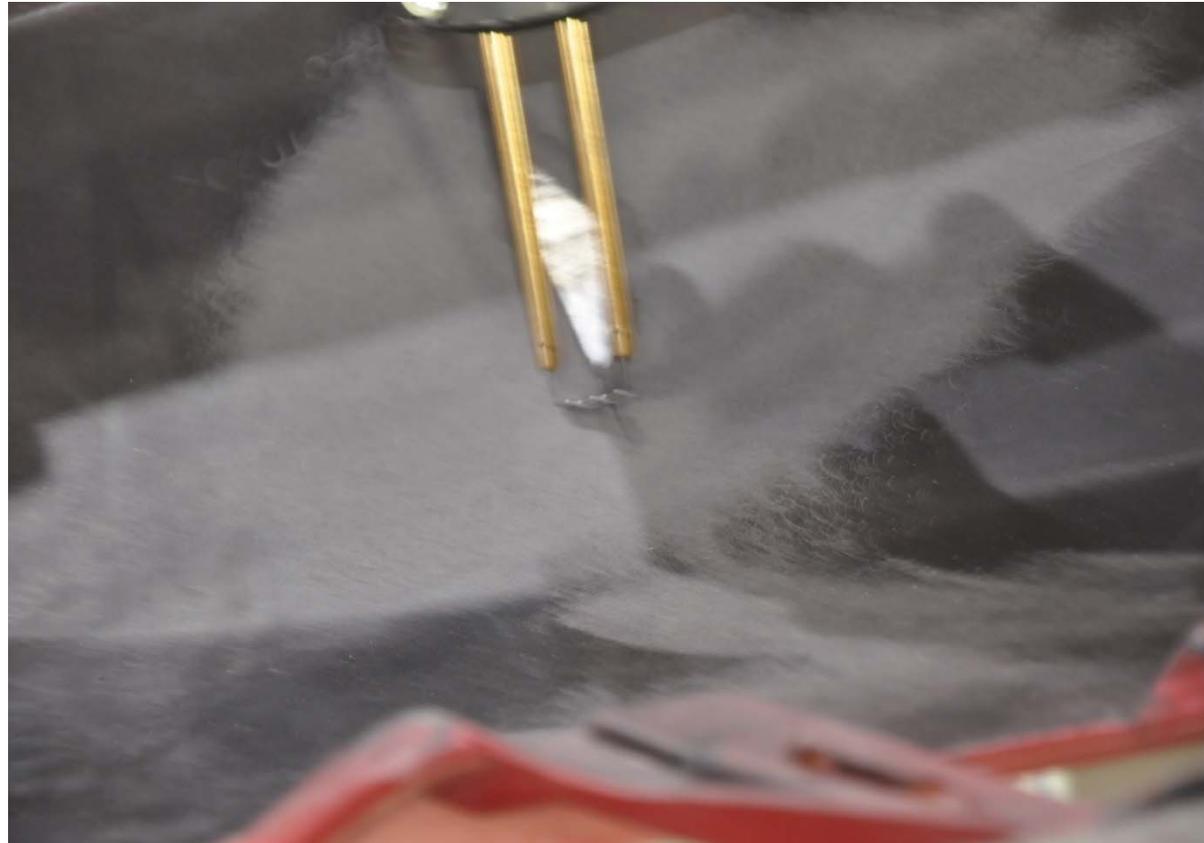


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Two Sided Bumper Repair-Apply aluminum tape with a spreader to the front side of the bumper



Two Sided Bumper Repair—Pin each end of the crack with a hot stapler.



Two Sided Bumper Repair-Apply adhesive to the hole on the backside and use spreader to force material into the hole.



Two Sided Bumper Repair-Place reinforcement tape over damaged area. Apply adhesive to the damaged area and use spreader to force adhesive into the reinforcement tape.



Two Sided Bumper Repair-Remove aluminum tape when adhesive is cured.



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Two Sided Bumper Repair-Sand front of the repaired area with 220 grit DA followed by cleaning with wax & grease remover.



Two Sided Bumper Repair-Apply finishing adhesive,allow to cure, sand with 220 grit DA and prime.



A few examples of Hot Staplers



***Dent Fix
Basic Unit***

***Kent Automotive
Hot Stapler Kit***

***Dent Fix
Deluxe Kit***



Nitrogen Plastic Welders



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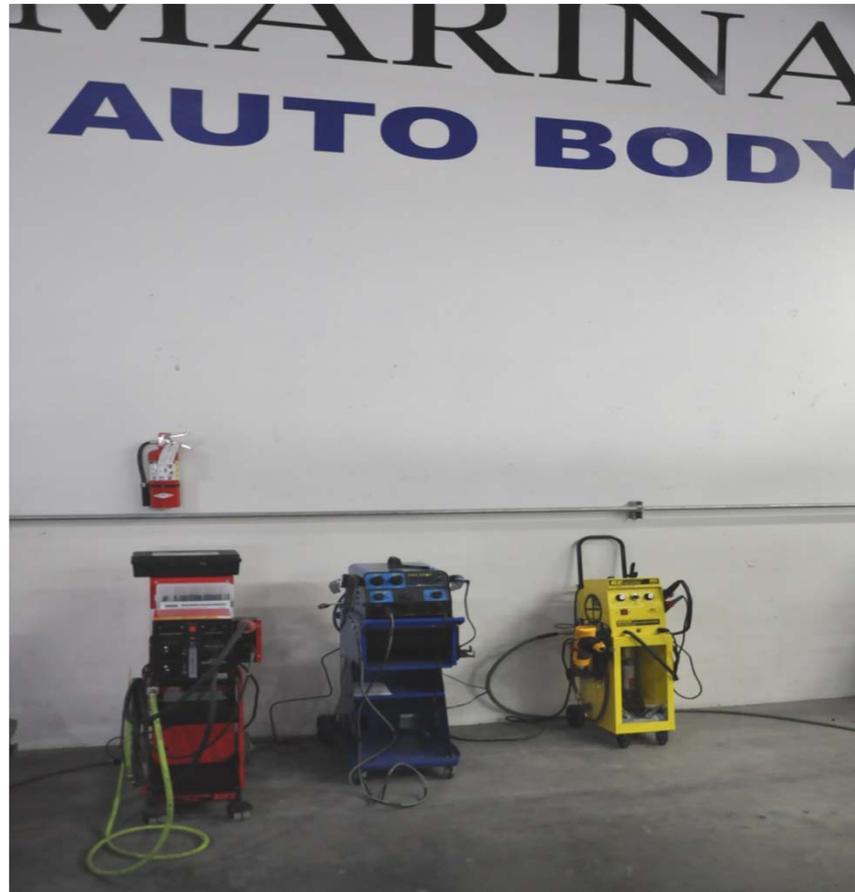
How Do Nitrogen Welders work



Nitrogen is used as a shielding gas to prevent the plastic from burning during the weld process — producing a strong, lasting weld. Compressed air is used to maintain consistent temperature between welds — the nitrogen is only activated when pulling the trigger so that it's not wasted between welds.



Overview of Nitrogen welders from Dent Fix, Polyvance and Prospot International



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Nitrogen Welders

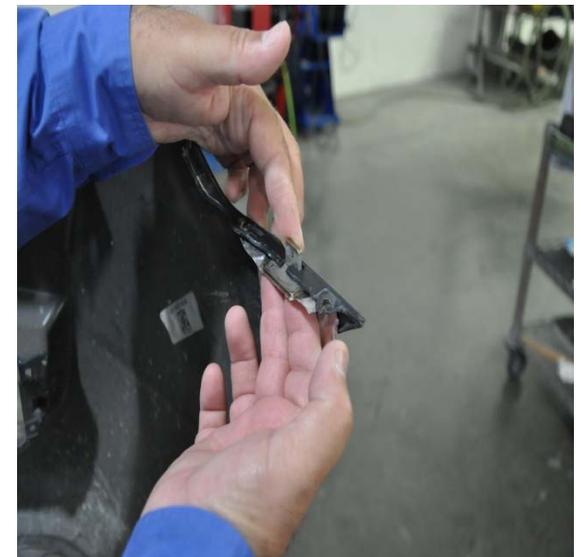


Nitrogen Bottle Plastic Welders

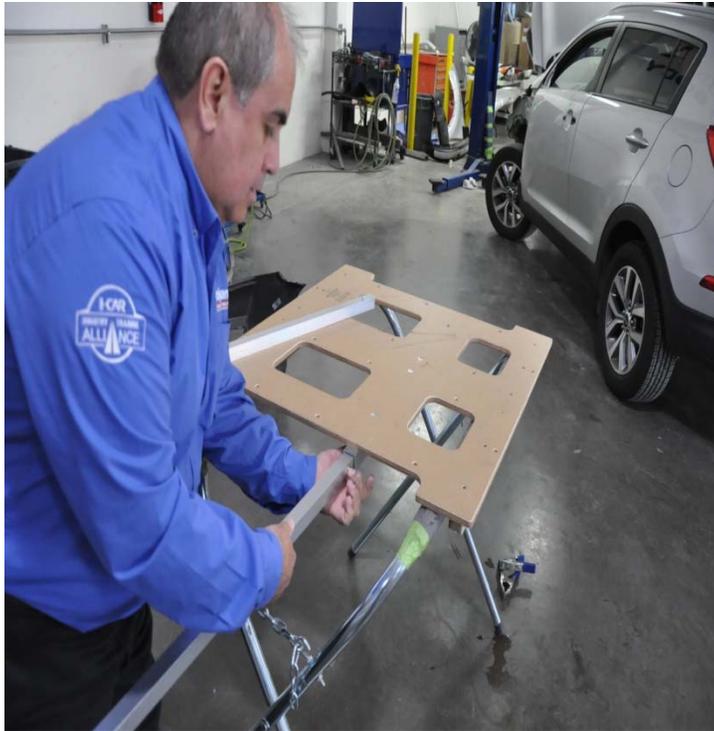


Nitrogen Generator Plastic Welders

Extra Features on the Nitrogen Welders-Bumper Pliers by Polyvance



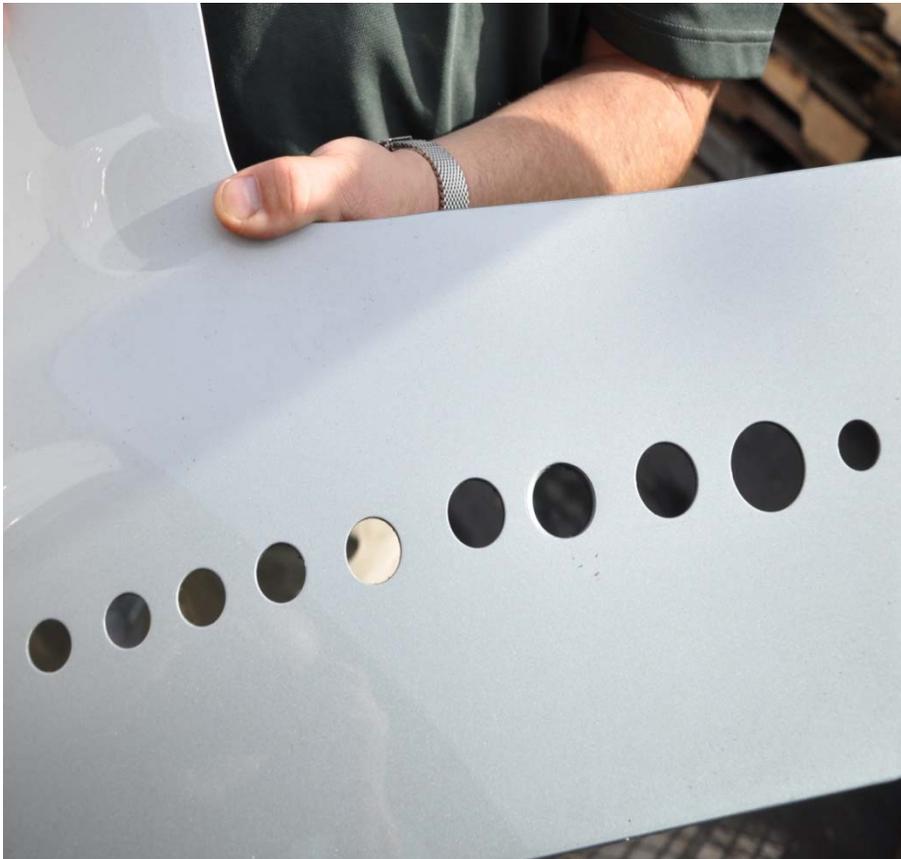
Extra Features on the Nitrogen Welders-Bumper-Bumper Mate work station that fits on a folding stand from Polyvance



Extra Features on the Nitrogen Welders-Bumper—
Equipment hooks, electrical outlets, and work
tray from DentFix.



Sensor Cutting Tool Kit from Dent Fix Corp



I-CAR Plastic Repair Classes Offered

PLA 03 Plastic and Composite Repair

Identify different types of plastics by their characteristics and determine the level of plastic identification that is required to perform a repair

Understand correct preparation procedures for plastics

Identify different types of plastics used on today's vehicles and the correct methods to repair each

Recognize proper adhesives for different repairs and when to use adhesion promoter

Perform one- and two-sided plastic adhesive repairs and mounting tab repairs

Understand the considerations around refinishing plastic parts

Identify the types of plastic welds in automotive applications

Identify welding equipment and its uses

Explain how hot air welds and airless welds are made

Identify differences between a fusion weld and an adhesion weld

Plastic Repair Hands-On Skills Development (NS105L01)

Light-weighting is here to stay and so is the use of plastics in automotive manufacturing. To ensure cars are repaired to pre-collision condition, technicians need to be up-to-date with modern plastic repair techniques. Participation in this hands-on, in-shop class will provide technicians the opportunity to practice their skills including several adhesive repairs as well as airless and hot air welding repairs



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I-CAR Alliance Classes offered



•Fusor Products	2 Credit Hours
•Kent Automotive	4 Credit Hours
•Polyvance	13 Credit Hours
•SEM Products	2 Credit Hours
•3 M	4 Credit Hours

