

# On Target



For Ford and Lincoln wholesalers and the collision repair industry

## Lincoln Aviator® Sectioning Procedures Now Available



One of the key goals of Ford Motor Company pertaining to proper repairs for their vehicles is to have the correct repair information available to the trained technician prior to any repair work having begun on the vehicle.

One example of that dedication is the official *Ford Workshop Manual (WSM)*, which can be found at [FordServiceInfo.com](http://FordServiceInfo.com). The WSM is an invaluable resource for repairers, and it should be consulted frequently—before any repair work is started—as repair procedures can be updated or new procedures added at any time, which is the case here.

"We received field service requests for this type of repair," said Gerry Bonanni, senior damageability engineer for Ford. "We were happy to accommodate. This particular component is made of Boron steel and previously had to be completely replaced," continued Bonanni.

"Ford prides itself on designing and building its vehicles with repairers in mind and developing a sectioning repair option for this component—overall a far less invasive repair—allows technicians to save time and money."

The new procedure, **Rear-Side Member Section**—currently featuring a revision date of 10/23/24—is housed under **Section 501-30: Rear End Sheet Metal Repairs, Removal and Installation**. It applies to some 2020 - 2025 model-year Lincoln Aviator® and Ford Explorer® vehicles. Here, we provide examples of the repair utilizing the 2025 Aviator.

### Rear Side Member Section

#### Special Tools/Equipment

- Plasma cutter
- Air body saw
- 8 mm drill bit
- MIG/MAG welding equipment
- Spot-weld drill bit

Diagrams: left-hand side shown; right-hand side similar.

**WARNING:** Electric vehicles damaged by a crash may have compromised high-voltage safety systems and present a potential high-voltage electrical shock hazard. Exercise caution and wear appropriate personal protective equipment (PPE) safety gear, including high-voltage safety gloves and boots. Remove all metallic jewelry, including watches and rings. Isolate the high-voltage system as directed by the Ford Emergency Response Guide for the vehicle. Failure to follow these instructions may result in serious personal injury or death.

Before beginning any service procedure in this section, refer to safety sections as found in the WSM:

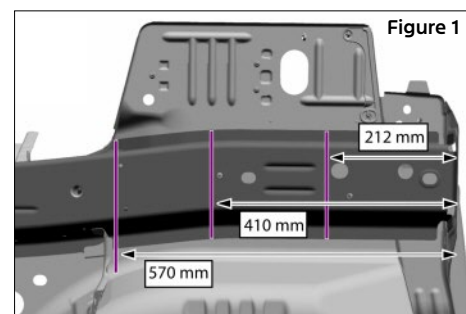
- Health and Safety Precautions (**Section 100-00: General Information, Description and Operation**)
- High-Voltage System Health and Safety Precautions – Overview (**Section 100-00: General Information, Description and Operation**)

Failure to follow this instruction may result in serious personal injury.

### Removal

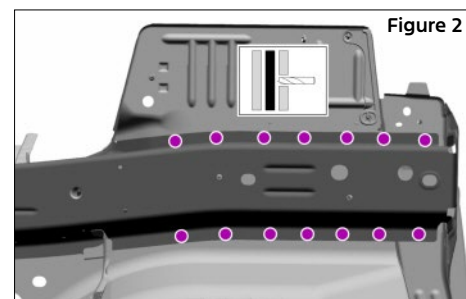
1. De-power the supplemental restraint system (SRS). (**Refer to Section 501-20B: Supplemental Restraint System, General Procedures**).
2. If required, dimensionally restore the vehicle to pre-accident condition. (**Refer to Section 501-26: Body and Frame**).

3. Remove the back panel reinforcement (refer to **Section 501-30: Back Panel and Reinforcement**).
4. Reposition the vehicle carpeting and wiring harness away from the working area.
5. Using the air body saw and plasma cutter, cut into the damaged areas. Cut locations depend on the severity of the damage (**Figure 1**).



"Ford offers three locations on the rail where it can be sectioned, based on the severity of the damage," said Bonanni. "If the damage exceeds these specific points on the rail, it cannot be repaired. A new one must be installed."

6. Use the spot-weld drill bit to prep the area for the repair (**Figures 2 and 3**).



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# Ford Provides Details on Plastic Repairs

Though much attention has been focused on the continually expanding role of high-strength and ultra-high-strength steel, high-strength aluminum and other exotic steels—and the repair methods and methodologies associated with them—Ford Motor Company would like to remind repairers of the equal importance of plastic component repairs, which, when performed properly, can create a robust and high-quality repair.

Gerry Bonanni, senior damageability engineer for Ford, has long advocated researching all vehicle repairs before any work has begun and this is especially true of plastic components, which include their own set of rules and guidelines to help ensure a proper repair.

“While a lot of attention continues to be placed on exotic steel repairs, which is good, it remains vitally important for repairers to research every aspect of the repair, which includes plastic components,” said Bonanni. “Repairers should take every opportunity to familiarize themselves with the official *Ford Workshop Manual*, which contains the necessary plastic component repair information available to them.”

Before any work is started, there are several considerations that will determine the viability of plastic repair procedures:

- Is the damage cosmetic or structural?
- Can the repair be conducted on the vehicle?
- Is the part readily available?
- Is component repair the most cost-effective method?
- Will the repair provide the fastest, highest-quality repair?

If it is determined that repair is a viable option, (typically, components with molded-in color or those with a textured finish are not considered repairable) repairers next need to identify the type(s) of plastic to be repaired. Some plastic components that are **not** from recycled plastic contain either a code or material designation molded into the part or a stamp indicating the plastic type. Proper identification of the diverse types of plastics is vital to selecting the appropriate repair method necessary to carry out high-quality plastic repairs. Though several types of plastic are used in Ford and Lincoln automotive applications, all plastics fall into two primary categories: thermosetting plastics, which are discussed below, and thermoplastics.

Thermosetting plastics are rigid or semi-rigid compounds made with a two-part thermosetting resin, which creates a chemical reaction that produces heat when combined, generating a cure that is *irreversible*. Because of this, thermosetting plastics will require the use of a two-part adhesive for repair.

2025 Ford Bronco®



Item	Description	Material
1	Front wheelhouse opening molding	Talc Filled Polypropylene (TFPP)
2	Rear wheelhouse opening molding	TFPP
3	Rear Park Lamp Housing	Acrylonitrile Butadiene Styrene (ABS)
4	Exterior Mirror	ABS

A burn test can be utilized to determine if the part is made of thermosetting plastic by applying an open flame to the corner of the damaged component. If the material crystallizes and becomes rigid, it is a thermosetting plastic.

Sheet-molded composite (SMC) is a type of thermosetting plastic similar but not identical to fiberglass, since it utilizes glass, nylon or other fibers in combination with thermosetting polyester resins. When fully cured, SMC—which Ford utilizes in such large-panel components as fenders, hoods, lift gates and quarter panels—is strong and rigid.

*On Target* plans to include details on thermoplastics in future volumes.

For more information, consult the *Ford Workshop Manual*—available at [FordServiceInfo.com](http://FordServiceInfo.com)—as it contains all the information repairers need to correctly identify each type of plastic and its correct, corresponding repair procedure. Repairers are reminded to check back often as repair procedures can change without notice.

Specific questions on the proper repair of any Ford or Lincoln vehicle can be submitted to the Ford Crash Parts Hotline at [cphelp@fordcrashparts.com](mailto:cphelp@fordcrashparts.com).

Additional information—including a list of Ford-approved adhesives, paint systems and more—can be found on [FordCrashParts.com](http://FordCrashParts.com).

# I-CAR® Celebrates Milestone 10,000 Gold Class Shops



I-CAR—the industry leader in technical educational programming—is proud to announce it has reached 10,000 Gold Class shops across the U.S., a milestone event resulting from

the close collaboration between I-CAR and automakers such as Ford Motor Company, which helps to amplify the value of the Gold Class designation and cement its status as the benchmark for collision repair excellence.

Gold Class-status repair shops represent the pinnacle of role-relevant collision repair education, recognizing shops committed to continuous learning and staying ahead of evolving vehicle technologies such as electric vehicles (EVs) and advanced driver-assistance systems (ADAS). These shops not only lead the industry in quality and safety, but also inspire confidence among technicians and consumers alike.

Established in 1990, I-CAR Gold Class was created as the industry's premier recognition for shops committed to excellence in training and vehicle repair. It has endured decades of evolving automotive

technology, enabling shops to meet the demands of ongoing technical advances. The rapid acceleration of change brought by emerging technologies in the last decade—such as ADAS, EVs and advanced materials—has only underscored the critical role of Gold Class in equipping repair professionals with the skills and knowledge needed to navigate this dynamic landscape.

Ford, a longstanding advocate of Gold Class, has been instrumental in showcasing its value. As part of the Ford Certified Collision Network (FCCN), 25 percent of the 10,000 Gold Class shops are integrated into its trusted ecosystem. Ford has further demonstrated its support by co-opting marketing efforts with I-CAR, prominently listing Gold Class shops on its shop search platform. This collaboration reinforces what Ford has recognized for years: Gold Class shops deliver industry-leading quality. Thanks to these efforts, thousands of shops now understand the significant edge that the Gold Class status brings to their operations.

*Continued on page 3*

# Rotunda Provides Details on A/C System Maintenance Tools



With warmer weather just around the corner, technicians are reminded that proper A/C maintenance is essential for optimal cooling performance. Ford Rotunda's one-stop shop of A/C flushing equipment includes tools recommended by Ford engineering for this purpose—such as tracer gases, an electronic sight glass tool and A/C system sealant detection kits—all of which help to make the job faster, easier and more effective.

Given the costs related to the newer 1234yf refrigerant, and the sensitive nature of electric compressors on electric vehicles (EVs) compared to the belt-driven compressors on internal combustion engine vehicles, technicians would benefit from learning of the uncommon tools available to them.

## Refrigerant Leak Detector

The Refrigerant Leak Detector is designed to detect special 5 percent Hydrogen gas (H<sub>2</sub>) / 95 percent Nitrogen (N<sub>2</sub>) tracer gas (forming gas).

H<sub>2</sub>/N<sub>2</sub> tracer gas is inexpensive and available in any industrial gas supply store. A vehicle that is suspected of having a refrigerant leak in the A/C system (regardless of the refrigerant

type) should first be tested with a refrigerant leak detector that is compliant with SAE Standard J2791 (for R134a refrigerant) or J2913 (for R1234yf refrigerant).

If a leak is detected, the source of the leak should be identified and marked, and the A/C system should be professionally and fully evacuated with an SAE-compliant refrigerant recovery and recycling machine. Following the professional evacuation of the A/C system, the leak source should be repaired. To test the quality of the repair, the A/C system should then be pressurized (charged) with no more than 50 psi of H<sub>2</sub>/N<sub>2</sub>.

Once the A/C system is charged, the D740 leak detector should be used to check the integrity of the leak source repair. If it is determined that the leak source is now leak-free, the H<sub>2</sub>/N<sub>2</sub> tracer gas may be vented to the atmosphere and the system can be professionally charged with the appropriate refrigerant gas. Using this method ensures that the expensive refrigerant gas is not lost in the atmosphere during the extensive service procedure.

## ESG4000

The ESG4000 Electronic Sightglass gives the AC service technician a real-time, non-invasive look inside a refrigerant system. It is an ideal time-saving troubleshooting tool for quickly checking the AC system's charge level and for detecting defective AC components without the need to connect AC hoses and gauges.

Additional features of the ESG4000 include:

- Optimizes refrigerant charge for maximum cooling
- Isolates defective AC components
- Aids in adjusting thermal expansion valves (TXV)
- Checks for refrigerant flood back
- Detects starved evaporators
- Operates on any metal tubing

Using ultrasonic technology, the ESG4000 responds and displays virtually in-sync with an actual sight glass as the refrigerant changes from a liquid or liquid/gas mixture to a complete gas state. The graphic LCD displays a simulated cross-section of the refrigerant tubing with animated circles (simulating bubbles) continually sweeping horizontally across the screen through the tubing, like an actual sight glass. This valuable tool allows the professional AC technician to conduct both preventive maintenance and to quickly solve difficult servicing problems.

## ACSD KIT

The easy-to-use A/C Sealant Detection Kit quickly lets you know if there is harmful sealant in the vehicle's A/C system, helping you prevent damage to valuable refrigerant recovery equipment. To protect your equipment, check every system for sealant before attempting recovery or repair.

For more information on this and other tools and equipment, visit [Rotunda Service Solutions](#).



## I-CAR® Celebrates Milestone 10,000 Gold Class Shops (continued)

To further support and increase the value of the Gold Class designation, I-CAR is launching some new initiatives, including exclusive promotional materials, digital assets and co-branded campaigns with Ford and other automakers—all aimed at equipping Gold Class shops with resources to amplify their visibility and reputation.

Additionally, I-CAR is expanding the scope of the Gold Class program by adding ADAS integration into the required roles to achieve and maintain Gold Class. This helps ensure repair professionals at every level are equipped to handle the

latest automotive technologies with precision and confidence. These enhancements align with I-CAR's mission to advance safety and repair quality across the industry.

The milestone of 10,000 Gold Class shops is a testament to the collective commitment of repair facilities, technicians and industry stakeholders nationwide who prioritize education and excellence. It also signals a new era of value creation, where relationships with OEMs like Ford highlight the critical role of training and certification in achieving repair excellence.

By bringing more value to the Gold Class designation, I-CAR is paving the way for a brighter, safer and more innovative future in collision repair, where shops, technicians and consumers all benefit from the highest standards in the industry.

For more information on Gold Class, visit [I-CAR.com/gold-class](#).

For Ford repair courses offered through I-CAR, visit [I-CAR.com/Ford](#).

# Ford Bronco® Raptor® – Front Bumper Details



*On Target* continues providing collision repair information specific to the Ford Bronco Raptor, this time focusing on the vehicle's front bumper.

All repair information for the Bronco Raptor is found inside the official *Ford Workshop Manual* entry for the Bronco. Any repair material specific to the Raptor will be called out.

Please note the following information is intended as a general guideline and may not be all-inclusive. For more in-depth repair information on this and other Ford and Lincoln vehicles, consult the *Ford Workshop Manual*, found at [FordServiceInfo.com](https://fordserviceinfo.com). Check back often as repair procedures can change without notice.

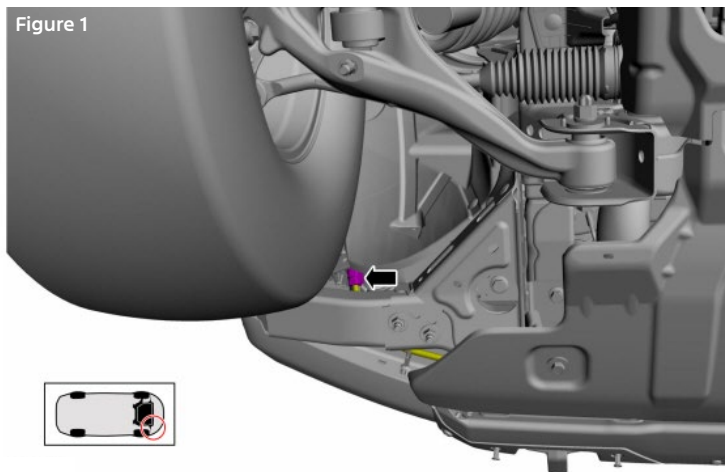
For the procedure on removing the vehicle's front bumper upper cover, refer to *On Target - 2023, Vol. 2*.

## Section 501-19: Bumpers – Removal and Installation

### Removal

NOTE: Removal steps in this procedure may contain installation details.

1. With the vehicle in neutral, position it on a hoist (refer to **Section 100-02: Jacking and Lifting, Description and Operation**).
2. For vehicles equipped with front parking aid or fog lights, disconnect the front bumper harness electrical connector (**Figure 1**).



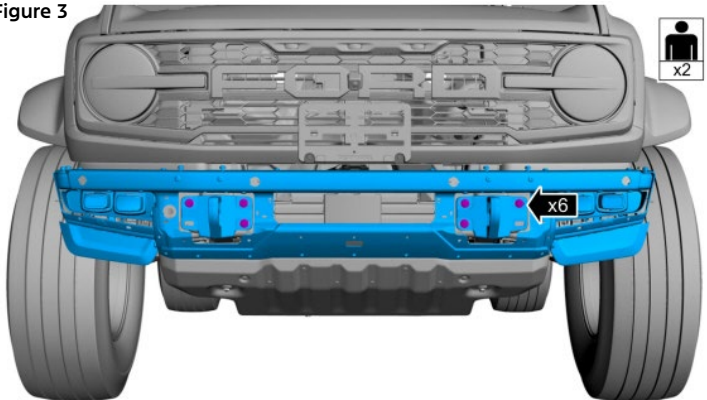
3. For all vehicles, remove the push pins, release the clips and remove the front bumper trim panel (**Figure 2**).

Figure 2



4. With the required help of another technician, remove the bolts and the front bumper. (Torque: 76 lb. ft. / 103 Nm) (**Figure 3**).

Figure 3



5. To install, reverse the removal procedure.

When replacing the front bumper on vehicles with front parking aid, check the alignment of the front parking aid sensors:

Azimuth System and Elevation System Check (Refer to **Section 413-13A: Parking Aid – Vehicles with Rear Parking Aid, General Procedures**).

If any sensor fails the check, diagnose the sensor fault. (Refer to **Section 413-13: Parking Aid, Diagnosis and Testing**).

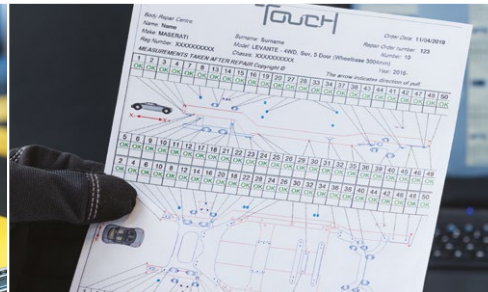
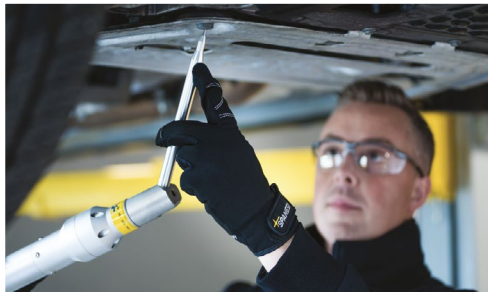
*On Target* plans to include more repair details on the Bronco and Bronco Raptor in future volumes.

For previous Bronco and Bronco Raptor repair material, consult all four *On Target* volumes for 2021, and volume 2 for 2022, all of which can be found on [FordCrashParts.com](https://fordcrashparts.com).

For more information on these, or any Ford or Lincoln vehicle, contact the Ford Crash Parts Hotline at [cphelp@fordcrashparts.com](mailto:cphelp@fordcrashparts.com) or visit I-CAR's RTS Portal at [RTS.i-car.com](https://RTS.i-car.com).



# Spanesi® Provides More 3D Measuring Tips



Courtesy of Jeramy Holloway, Director of Aftersales, Spanesi Americas

## Diagnose > Repair > Confirm

*On Target* provides the follow-up installment from Spanesi regarding the second and third steps in their process of helping repair technicians get the most out of their structural measuring equipment. For the first step in the process—diagnosis—refer to *On Target, 2024 - Vol. 4*.

### Step 2: The Repair

The vehicle is now in the repair bay and, if properly diagnosed in the first step, the repair technicians have a complete understanding of what is next and will repair or replace parts based on their findings, correcting all structural misalignment. There should be no surprises here if the proper time was taken to assess the vehicle's needs and plan accordingly, eliminating the potential for a mid-repair

supplement asking for additional parts and labor, or even worse, a mid-repair total loss.

Finish the repair while documenting important steps, as well as the end result, confident that not only will the parts fit, but that the advanced driver-assistance systems (ADAS) calibrations will be a success due to sensors and modules being fastened to a properly aligned structure.

**Q:** What terminology could we use to justify this step of the repair process?

**A:** "Re-align vehicle structure or structural parts to factory specifications."

### Step 3: Quality Check

The third and final step in the measuring process is the quality check. At this step, often someone other than the person who performed the structural re-alignment verifies that the work has been performed correctly. This could be completed by the reassembly department or often the same person who performed the STRUCTURAL PRE-SCAN or diagnosis. As this

person is making that final check, also known as the STRUCTURAL POST-SCAN, they are confirming that the repair they put into motion at the beginning was a success. The vehicle now has a clean bill of structural health and is ready to move to any final wheel alignment or calibration steps, after which it will be ready to be released to the customer.

**Q:** What kind of terminology could I use to justify this step on the estimate or bill of repair?

**A:** "Confirmation of structural realignment or post-repair structural alignment inspection."

By following this three-step process, repairers create a clear path for each individual vehicle that comes into their shop and uses their electronic three-dimensional measuring equipment, allowing technicians to efficiently deliver high-quality repairs to their customers.

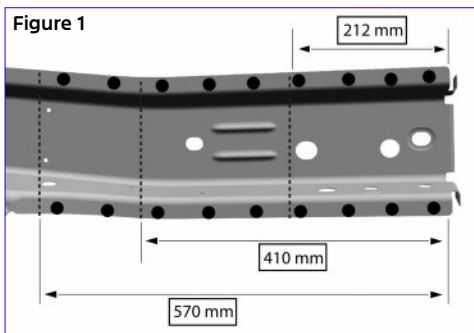
For more information, visit [spanesi-americas.com](http://spanesi-americas.com).

## Lincoln Aviator® Sectioning Procedures Now Available (continued)

### Installation

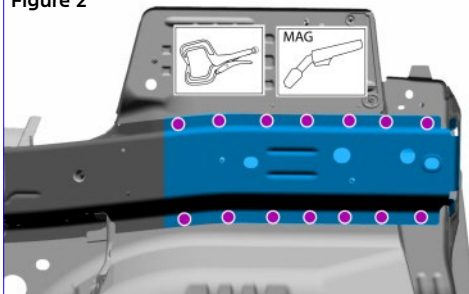
**NOTICE:** Electric vehicles contain an HVTB (high-voltage traction battery) system. Before cutting or welding near it, the HVTB must be removed to avoid heat damage.

1. Create a section piece from a service part, using the air body saw and 8 mm drill bit (Figure 1).



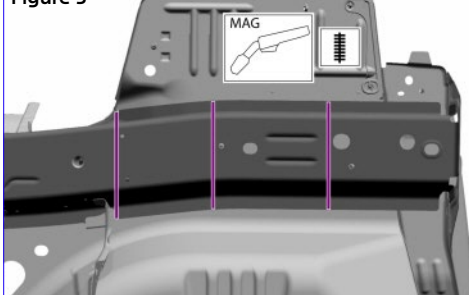
2. Install a 50 mm backer-plate to the vehicle's rear-side member before where the service part begins, using the MIG/MAG welding equipment. (Refer to **Section 501-25: Joining Techniques**) (Figure 2).

Figure 2



3. Continuing with the MIG/MAG welding equipment, weld at the appropriate section location (Figure 3).

Figure 3



4. Finish all sectioned areas using typical metal-finishing techniques.

5. Install the back panel and reinforcement. (Refer to **Section 501-30: Back Panel and Reinforcement**).

6. All seams must be sealed to production level; corrosion protection must also be reapplied (Refer to **Section 501-25: Body Repairs, General Information, Specifications**).

7. Repower the SRS. (Refer to **Section 501-20B: Supplemental Restraint System, General Procedures**).

8. Refinish using a Ford-approved paint system. Reposition the vehicle's carpet and wiring harness.

"Researching the repair ahead of time utilizing the WSM will make for a much more efficient repair," said Bonanni. "The WSM will also provide any updates/changes to the repair, as it is continuously updated—as this repair demonstrates—which is an additional step that aftermarket manuals may not take."

For more information on this, or any Ford or Lincoln vehicle repair, contact the Ford Crash Parts Hotline at [cphelp@fordcrashparts.com](mailto:cphelp@fordcrashparts.com) or visit [FordCrashParts.com](http://FordCrashParts.com) or I-CAR's RTS Portal at [RTS-i-car.com](http://RTS-i-car.com).

# 2025 Industry Events Calendar

April 28 - 29	<a href="#">AASP-MN Annual Meeting and Leadership Conference</a>	Prior Lake, MN
Apr. 30 - May 1	<a href="#">Collision Industry Conference</a> General Meeting	Richmond, VA
May 5 - 7	<a href="#">Women's Industry Network</a> Annual Conference	Orlando, FL
July 22	<a href="#">Collision Repair Education Foundation</a> Annual Golf Outing	Philadelphia, PA
July 23	<a href="#">Collision Industry Conference</a> General Meeting	Philadelphia, PA
Sept. 9 - 11	<a href="#">AGRR</a> Auto Glass Week™	Reno, NV
Sept. 12 - 13	<a href="#">ABAT</a> Trade Show	Allen, TX
Nov. 4	<a href="#">Collision Industry Conference</a> General Meeting	Las Vegas, NV
Nov. 4 - 6	<a href="#">Automotive Aftermarket Products Expo (AAPEX)</a>	Las Vegas, NV
Nov. 4 - 7	<a href="#">Specialty Equipment Market Association (SEMA) Show</a>	Las Vegas, NV



## On Target

Scheduled to be published four times a year, *On Target* aims to provide Ford and Lincoln dealership parts departments and independent collision repair shops with the technical information needed to deliver efficient, high-quality repairs to Ford and Lincoln vehicle owners.

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## The Crash Parts Corner



### Did You Know That ...

The official *Ford Workshop Manual*—found on [FordServiceInfo.com](#)—provides important details and procedures regarding proper windshield repairs and replacement. It should be referenced often as repair procedures can change without notice.

The procedures include detailed warnings and precautions, especially as it relates to properly preparing the substrate to which the glass will affix, and proper preparation of the adhesives. These are particularly important to note as they affect how the glass adheres to the vehicle and help to provide structural integrity. Some of the warnings include:

- New or re-used fixed glass must be installed within **two hours** of cutting the urethane adhesive. Cut or scraped urethane becomes oxidized and inactive beyond two hours, reducing the effectiveness of the repair bond.
- To avoid rust formation, use extreme care not to scratch the paint or primer, or damage the pinch weld during glass removal.
- Take precautions to prevent damage to other components when cutting urethane.
- Repair any corrosion found on the pinch weld. The pinch weld is a structural component of the vehicle. Corrosion left unrepaired may

reduce the structural integrity of the vehicle. Failure to follow this instruction may result in serious injury to the vehicle occupants.

- Avoid scratching the pinch weld. Repair all minor scratches and exposed metal on the pinch weld following manufacturer's instructions on the product being used. Use the same brand primer and urethane adhesive.
- Do not touch the adhesive surface as it impairs re-bonding; ensure the mating surfaces are clean and free of foreign material.

To ensure the correct OEM replacement glass is being utilized, visit the Carlex OEM replacement glass search tool at [Carlex.com/automotive-replacement-glass](#).

For more information on Ford OEM glass, including job aids, repair videos and more, visit [FordCrashParts.com/Glass](#).

For more information on the Ford Certified Glass Network, or to join the program, visit [Collision.Ford.com/FordCertifiedGlassNetwork](#) or call (833) 837-7694.



## On Target Digital

Download *On Target* for free at [FordCrashParts.com](#), or by clicking the Ford page on [OEM1Stop.com](#)



## Genuine Parting Thoughts

Have an idea? We'd love to hear from you. Your comments and article suggestions can be sent to [cphelp@fordcrashparts.com](mailto:cphelp@fordcrashparts.com).