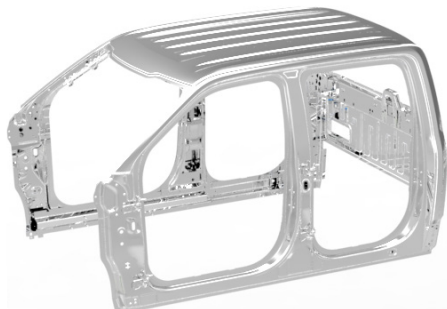




In this issue: • 2018 Ford Expedition Finish-Panel Repair • I-CAR Training Workshops Schedule
• Inside the Industry • Truckload Program Updates • Aftermarket Parts Testing

Ford Details Proper Roof Panel Repair (Part 1 – Removal)



As newer, exotic materials become increasingly common in today's vehicles, the use of OEM parts—and strict adherence to documented OEM repair procedures—is now more important than ever.

In the wake of the well-documented John Eagle Collision Center case (see [On Target - 2018, Vol. 1](#)), Ford Motor Company Senior Damageability Engineer Gerry Bonanni spoke with *On Target* regarding Ford-approved roof repair methods for its vehicles, using the 2015 – 2018 F-150 as an example, and beginning with the roof-removal process.

"Today's vehicles are more complicated than ever, with each component specifically designed and constructed to work together in a complex

sequence to ensure proper functionality and safety in the event of a collision," said Bonanni. "Any unauthorized changes to any one component can disrupt that carefully-engineered harmony and cause catastrophic results."

This specific vehicle repair—**Section 501-28: Roof Sheet Metal Repairs, Removal and Installation**—is found in the official Ford Workshop Manual, located on [Motorcraftservice.com](#).

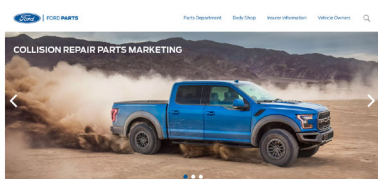
"Due to its nature, this is a complex and involved repair. The official Ford procedure, as found in the workshop manual, does a good job of walking repairers through it," said Bonanni. "But, repairers are always reminded to thoroughly research the repair as much as they can before they begin any repairs, so they can have their entire repair plan mapped out ahead of time."

"The fixed glass of the vehicle plays an important role in the overall strength of the roof and in ensuring a robust repair," continued Bonanni. "Repairers should also adequately protect all glass, exterior finish and interior trim from contamination during the entire repair."

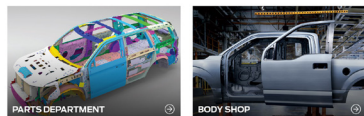
The procedure also includes a message about heat transference when working with aluminum body panels, noting:

CONTINUED ON PAGE 2

Ford Adds New Website Resource for Repairers



2018 IMPORTANT FORD COLLISION REPAIR NEWS & TECHNICAL INFORMATION



An issue frequently voiced by collision repairers in recent years is the availability of collision repair information. Ford Motor Company and other automakers understand that official OEM repair information is of utmost importance, especially given today's technologically advanced vehicles and materials, and the potentially tragic results of deviating from the OEM procedures to repair those vehicles.

Ford has responded to this concern by continually increasing the amount of collision repair information available through several websites, including: [Motorcraftservice.com](#), [OEMISTop.com](#), [Collision.Ford.com](#), and [CrashRepairInfo.com](#).

Now joining that list is a new site, [FordCrashParts.com](#). Built with repairers, refinishers, and others in the collision repair process in mind, [FordCrashParts.com](#) offers a wealth of helpful repair information, including: the recently updated position statements for Ford and Lincoln (see sidebar); instruction sheets for the F-150 and Super Duty; information on Ford's Collision Parts Truckload Program; and information on Ford's National Body Shop Program.

In addition, the site includes instructional advice on Ford-approved paint and adhesive systems, covering material from AkzoNobel, Axalta, BASF, PPG, Sherwin-Williams, Valspar, Lord-Fusor and 3M; glass-specific material from Carlite; and

Ford Updates Collision Position Statements

The rollout of [FordCrashParts.com](#) coincides with Ford Motor Company updating and consolidating its roster of official collision position statements, providing more direct, concise language in some cases, and re-emphasizing its strong focus on proper repairs and safety.

For example, its position statement on structural repairs now stresses the potential dangers if repairers veer away from Ford's approved OEM repair procedure, noting:

Ford Motor Company only approves repairs to structural components (including frames, rails, aprons and body panels) that are completed using Ford published repair procedures and Ford Original Equipment Parts. Failure to follow these instructions will adversely affect structural integrity and crash safety performance, which could result in serious personal injury to vehicle occupants in a crash.

In addition, Ford's positions dealing with "clip" repair procedures and the use of reconditioned/refinished wheels have been strengthened by removing potentially unclear language that may have allowed for misinterpretation.

The complete, updated list of position statements is available at [FordCrashParts.com](#) and [OEMISTOP.com](#)

For any questions, contact the Ford Crash Parts Hotline at cphelp@fordcrashparts.com.

aluminum-specific repair equipment lists from Ford's Rotunda site.

The website aims to be a user-friendly resource for repairers to locate the collision repair information they need, when they need it, and gives Ford another outlet to provide its most up-to-date repair information to the industry, helping to promote proper repairs and satisfied customers.

Suggestions on material you would like to see on this website can be sent to cphelp@fordcrashparts.com. Please visit the site and check back often for new content throughout the year.

Ford and I-CAR Roll Out Full Slate of Collision Repair Workshops

To help technicians keep up with today's increasingly complex and rapidly changing vehicle technology, materials and repair methods, I-CAR (the Inter-Industry Conference on Auto Collision Repair) and Ford have teamed up to offer a series of workshops covering probable vehicle repair scenarios they may encounter on Ford or Lincoln vehicles.

Providing an overview of Ford's collision concepts and philosophies, the workshops focus on technical repair information, repair strategies, procedures and calibrations, and specific vehicle features. The courses also give repairers a look at Ford's current product lineup, where they can obtain repair information (such as FordCrashParts.com and OEMIStop.com), position statements, tools, and body-construction materials, and other topics.

After a successful pilot program late last year, Ford and I-CAR embarked on a full series of 12 workshops this year, which began in mid-April in Seattle, and will conclude in late October in Arizona. Upcoming workshop dates and locations include:

August 29 – 30 (Houston, TX)

September 12 – 13 (Lewisville, TX)

September 26 – 27 (Marietta, GA)

October 10 – 11 (Sanford, FL)

October 24 – 25 (Chandler, AZ)

To register for a workshop or obtain more information, contact I-CAR's Stephanie Seligman at stephanie.seligman@i-car.com or (800) 422-7872 (ext. 289).

Repairers are also reminded that I-CAR's course on the 2018 Ford Expedition and Lincoln Navigator aluminum body repair (FO007E01— detailed in this issue of *On Target*) is currently available.



Roof Panel Repair

CONTINUED FROM PAGE 1

Aluminum body panels are highly receptive to heat transfer. With the extensive use of structural adhesives and non-structural sealers in vehicle construction, the potential of heat transfer could impact adhesives and sealers in non-associated panels during the repair process. Many repair areas that utilize structural adhesives may be separated after fastener removal by using a panel chisel along the joint/flange. Heat not exceeding 425°F may be used to loosen a bonded panel but should only be done when all panels in the joint will be replaced and new adhesive applied.

The repair procedure begins by detailing the tools, equipment and materials needed for removal, including:

- Scraper (for straight edges)
- Spherical Cutter
- Grinder
- Self-Piercing Rivet (SPR) Remover/Installer
- Belt sander
- Blind rivet gun
- Hot air gun
- Knife
- Air body saw

Removal Procedure

The procedure then details the removal of the old, damaged roof panel, noting that repairers must first power down the Supplemental Restraint System (SRS)—referring to Section 501-20B: Supplemental Restraint System, General Procedures. The following vehicle components can then be removed:

- **Headliner** (refer to Section 501-05: Interior Trim and Ornamentation)
- **Windshield and rear glass** (refer to Section 501-11: Glass, Frames and Mechanisms)
- **Center high-mount stop lamp** (refer to Section 417-01: Exterior Lighting)
- **Roof moldings** (refer to Section 501-08: Exterior Trim and Ornamentation)
- **Side-curtain airbag** (refer to Section 501-20B)
- **Satellite radio antenna** (refer to Sections 415-00A, 00B or 00D depending on configuration)

Following the workshop manual procedure, the original roof ditch sealer is removed, using a hot air gun and scraper. The SPR rivets at the front and rear of the original roof skin are then removed (**Figures 1 and 2**).

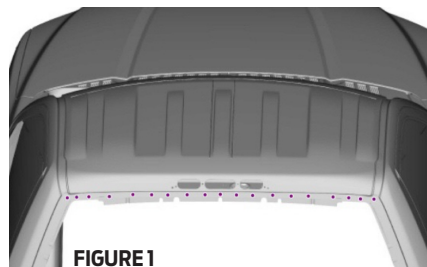


FIGURE 1

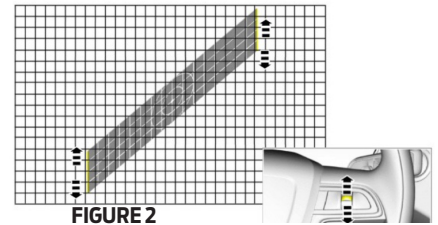


FIGURE 2

The next step directs where to cut the roof (inboard on the roof ditch), noting it must be done to the outer panel only, using the air body saw and spherical cutter (**Figure 3**).

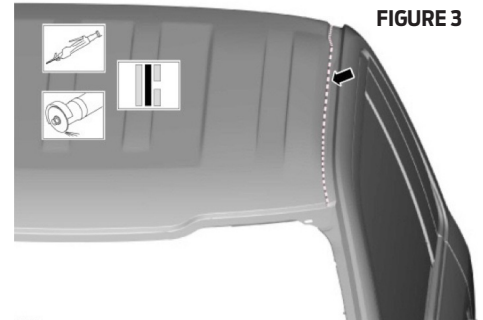


FIGURE 3

The roof bow foam must be cut from the original roof skin, trying to leave as much foam intact as possible on the roof bows. An excellent tool for this is the 3M Molding Removal #08978.

After the roof outer panel and the rear header panel are separated using a knife, the roof outer panel can then be removed from the vehicle, with the help of an assistant.

Using a grinder or air-chisel, carefully remove the remaining portion of the roof panel flange and laser-weld bead (**Figure 4**). Technicians are strongly advised to use caution to avoid thinning the metal in this area.

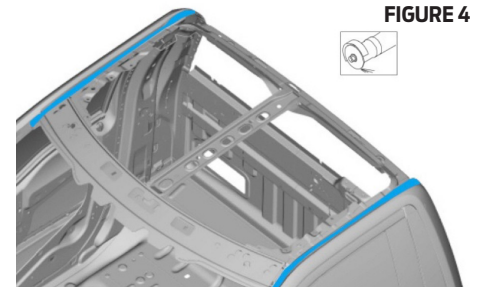


FIGURE 4

"After this step, the vehicle is ready to trial-fit and receive its new roof panel," said Bonanni.

In its next issue, *On Target* will cover the roof panel installation process, which includes removing the e-coat, utilizing proper metal-bonding adhesives, installing new SPRs (and other options available to the repairer) and finishing with the roof-ditch sealer.

For more information on this or the repair of any Ford or Lincoln vehicle, contact Gerry Bonanni at (313) 317-9000 or the Ford Crash Parts Hotline at: cphep@fordcrashparts.com. Additional repair information can be found on FordCrashParts.com and OEMIStop.com.

Feature Vehicle – 2018 Ford Expedition



Smart, capable and adaptable, the all-new 2018 Ford Expedition is redesigned from the inside out, now featuring a lightweight, high-strength, aluminum-alloy body that rides atop a redesigned high-strength steel frame. The spacious, comfortable interior features three rows of seating, room for up to eight adults and innovative storage — all wrapped in a modern, new design that conveys unstoppable capability.

Here are some important details on the 2018 Expedition, followed by valuable information on repairing the vehicle's moldings and appliques — instead of replacing them.

Capability / Powertrain

- 3.5L EcoBoost® V6 engine with up to an available 400 hp and 480 lb.-ft. of torque
- 10-speed automatic transmission with SelectShift® capability
- Active Grille Shutter System
- Driver-selectable Terrain Management System™ (TMS) with 7 drive modes * on 4WD models
- Heavy-Duty Trailer Tow Package * includes new electronic limited-slip rear differential (eLSD) and integrated trailer brake controller
- Redesigned high-strength steel frame

Performance / Handling

- Auto Start-Stop Technology
- 4-wheel disc with Anti-Lock Brake System (ABS)
- Rear-wheel drive
- Hill Descent Control™
- Intelligent Oil-Life Monitor®
- Electric power-assisted steering (EPAS) with pull-drift compensation



Safety / Security

- AdvanceTrac® with RSC® (Roll Stability Control™)
- Airbags — dual-stage front, front-seat side and Safety Canopy® System (incl. 3rd-row)
- Belt-Minder® — driver and front-passenger
- Brake Assist
- Individual Tire Pressure Monitoring System (TPMS) (excludes spare)
- Rear-view camera
- Safety belt pretensioners and load-limiting retractors (front)
- SecuriLock® Passive Anti-Theft System
- SOS Post-Crash Alert System™

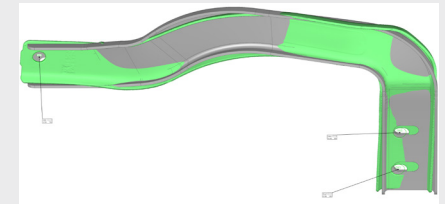
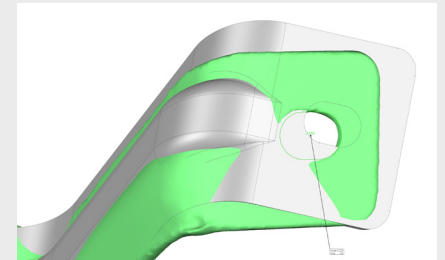
Body

- Aluminum and aluminum alloys
- Body cab structure constructed of aluminum
- Bolted, removable front fenders, hinged doors and hood constructed of aluminum
- Bonded and riveted aluminum body panels
- Mastic pads used on floor pan for sound deadening
- Standard and extended wheel-base models
- High-strength steel frame

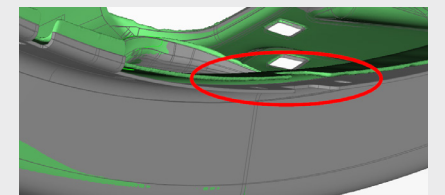
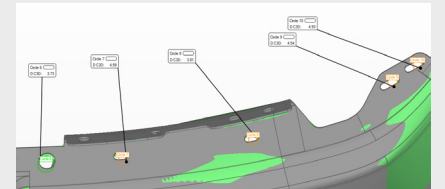


Aftermarket Parts Fail to Meet Ford Specs

Ford Motor Company asked an independent test lab to determine whether aftermarket copy versions of F-150 parts frequently replaced in a collision repair would meet Ford dimensional design specifications. The lab conducted laser scans of aftermarket front bumper brackets and a chrome front bumper for the 2012 F-150, and similar to the results of the aftermarket aluminum hood detailed in the last issue of *On Target*, the copy parts did not meet Ford specifications.



The laser scans show significant deviations from the specifications regarding guide-hole locations and length, as well as fluctuations in the curvature of the bracket wall in numerous locations (green areas).



The laser scans reveal areas where guide-hole locations and the curvature of the wall are outside Ford design specifications (green areas).

For more information on the importance of using the right parts and repair procedures, visit FordCrashParts.com or Collision.Ford.com.

Official Repair Procedures: 2018 Ford Expedition Finish-Panel Repair & 2017 Lincoln Continental Head Up Display Module

As part of our ongoing effort to help repairers make the proper repair the first time, we present another series of repairs straight from the official Ford Workshop Manual. This time, we look at the finish-panel repair on the new 2018 Ford Expedition, followed by distortional calibration for the head up display module on the 2017 Lincoln Continental.

Please note that the following illustrations are intended as a general guideline and are not all-inclusive. For more in-depth repair information on this and other Ford and Lincoln vehicles, consult the Ford Workshop Manual, which can be found at Motorcraftservice.com.

2018 Ford Expedition Finish-Panel Repair

NOTE: Moldings located on the front- and rear-window frames may experience minor scratches from vehicle shipment or car wash racks. The imperfections may be repaired instead of replaced by following the steps below. Scratches deep enough to cause a thumbnail to catch cannot be repaired and the entire component must be replaced.

For more information, consult Section 501-08: Exterior Trim and Ornamentation, General Procedures.

1. Clean the area with mild soap and water and dry the affected panels.
2. Apply protective masking to adjacent components.
3. Apply a small amount of clear-coat and plastic-formulated polishing compound (obtained locally) to a 3-inch polisher with an appropriate foam-pad attached.

NOTE: Do not allow the polishing compound to dry while polishing the component.

4. Thoroughly polish the component and reclean with mild soap and water. If after drying the scratches remain, continue to the next steps.
5. Choose a sandpaper grit appropriate to the severity of the scratch:
 - a. For very minor scratches, use a 3-inch/3000-grit sandpaper (obtained locally).
 - b. For minor scratches, use a 3-inch/1000-grit sandpaper.
 - c. For heavier scratches that do not catch a thumbnail when pulled across the scratch, use a 3-inch/800-grit sandpaper.
 - d. For any scratches that are too deep to remove with 800-grit sandpaper, component replacement is required.

NOTE: Do not remove more material than necessary or component replacement will be required.

6. Apply the appropriate sandpaper to a 3-inch Dual-Action (D/A) sander and carefully sand the component until all of the damage has been removed.

7. Use progressively finer sandpaper with the 3-inch D/A sander and repeat the process. Finish sanding with 3000-grit sandpaper.
8. Apply a small amount of clear-coat and plastic-formulated rubbing compound (obtained locally) to a 3-inch polisher with an appropriate foam-pad attached. Buff the component until the sanding scratches have been completely removed.

NOTE: Do not allow the rubbing compound to dry while polishing the component.

9. Apply a small amount of clear-coat and plastic-formulated polishing compound to a 3-inch polisher with an appropriate foam-pad attached. Polish the component until the buffing swirl marks are removed. Continue polishing the component until the original level of shine is present.
10. Apply a small amount of clear-coat and plastic-formulated hand glaze (obtained locally) to a soft, clean shop cloth and hand polish the component to remove the swirl marks left by the 3-inch polisher.

2017 Lincoln Continental Head Up Display Module

Distortional Calibration

Special Tools / Equipment

- HUD Eye Box (Rotunda Part #501-417)
- Calibration Target (Rotunda Part #501-418)

1. With the brake pedal in the rest position, press and hold the OK button on the steering wheel, press the Start button, and then release the OK button when the text "ETM" appears in the upper left-hand corner of the Head Up Display (HUD).

NOTE: If there are any warnings in the instrument cluster, the ETM inactive screen will appear in the windshield display. Press the OK button to clear each warning. If the OK button is pressed after all warnings are cleared, the HUD will exit ETM mode.

2. The HUD should now display the entry screen for engineering test mode. Press OK to enter the test mode main screen or press Return to exit the test mode main screen.
3. Position the driver-side and passenger-side sun visors so that they are facing the driver-side and passenger-side doors.
4. Set up the calibration target outside of the vehicle, positioning it level and centered in the driver's view at the edge of the front bumper.

5. Install the HUD eye box inside the vehicle. The HUD eye box should be placed on the dashboard directly behind the windshield (similar to how a sun visor would be placed) (**Figure 1**).

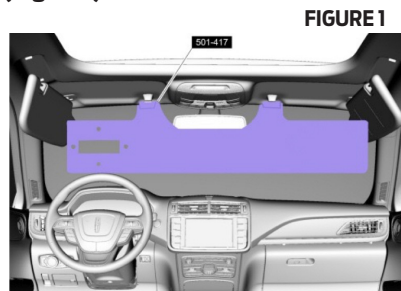


FIGURE 1

6. Select Center Vertical Adjustment menu item and press OK.
7. View the centering grid through the Cavity 1 hole in the HUD eye box (**Figure 2**).

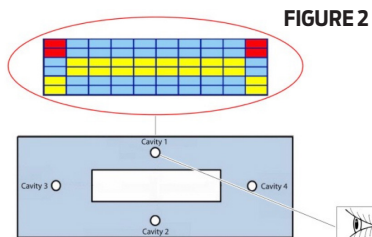


FIGURE 2

8. Adjust the alignment grid, using the UP/DOWN/OK button on the steering wheel, while viewing the grid through Cavity 1 in the HUD eye box until the top two grid lines are not seen (**Figure 3**).

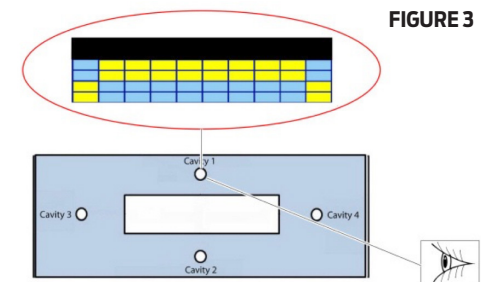


FIGURE 3

NOTE: Skip this step if the top two boxes of the HUD adjustment grid are not seen.

9. Adjust the alignment grid while viewing the grid through Cavity 2 in the HUD eye box until the bottom two grid lines are not seen. Press OK.

NOTE: Skip this step if the top two boxes of the HUD adjustment grid are not seen.

10. The remaining adjustments are carried out while being viewed through the large rectangular opening in the HUD eye box.

CONTINUED FROM PAGE 5

11. Select Rotational Adjustment menu item and press OK.
12. Adjust the alignment grid while viewing it through the HUD eye box until the grid is level and press OK.
13. Select Horizontal Distortion adjustment menu and press OK.
14. Select Trapezium. Determine if horizontal distortion is present. If horizontal distortion is not present, select OK and skip to step 17.
15. If horizontal distortion is present, identify the category (D – K) for the most severe distortion present in the displayed image (**Figure 4**).

FIGURE 4

- A. Horizontal
- B. Selector Level Up
- C. Selector Level Down
- D. Trapezium
- E. Cushion
- F. Smile
- G. Shear
- H. Asymmetrical Shear Horizontal Right
- I. Asymmetrical Cushion Horizontal Right
- J. Asymmetrical Shear Horizontal Left
- K. Asymmetrical Cushion Horizontal Left

	(A)	
	(B)	(C)
(D)		
(E)		
(F)		
(G)		
(H)		
(I)		
(J)		
(K)		

NOTE: Steps for shear horizontal distortion shown; all other horizontal distortion steps similar.

16. Using the Up and Down button, remove the horizontal distortion from the image (**Figure 5**). Press OK to save the adjustment. Press Return to exit to the previous menu.

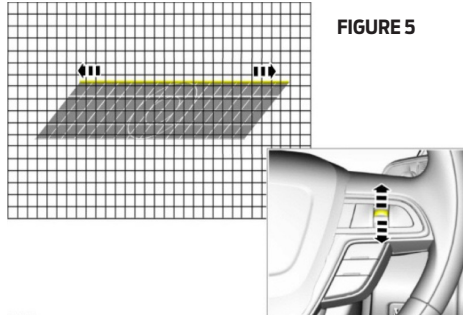


FIGURE 5

17. Select Vertical Distortion menu and press OK. Select Trapezium. Determine if vertical distortion is present. If vertical distortion is not present, select OK and skip to step 20.
18. If vertical distortion is present, identify the category of the most severe distortion present in the displayed image (similar to identifying horizontal distortion).
19. Using the Up and Down button, remove the vertical distortion from the image (**Figure 6**), then press OK.

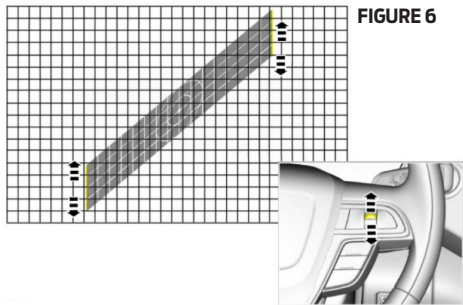


FIGURE 6

20. Press Return to exit back to the main menu.

For more information, this repair is detailed in **Section 419-03B: Collision Warning and Collision Avoidance System, General Procedures**.

On Target plans to include more repair information specific to HUD calibration in future issues, focusing on warping compare and service calibration reset.

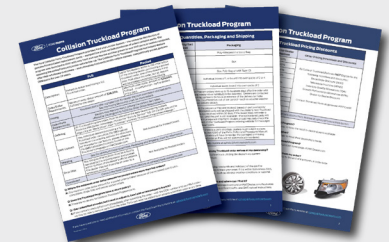
For additional questions,
 contact Ford Senior
 Damageability Engineer
 Gerry Bonanni
 at (313) 317-9000 or
 Ford Crash Parts Hotline:
cphelp@fordcrashparts.com.

Ford Revises Collision Truckload Program Documents

The Ford Collision Truckload Program has uploaded and reorganized some of its key program materials.

The revised documents include the Collision Truckload Program user guidelines, instructions for its DMS order upload feature, and a new, comprehensive instruction guide. The new, detailed information is intended to not only assist those new to the program, but also provide a refresher for longtime participants, as the documents now include information not available in previous versions.

The guidelines—offered as a three-page PDF file—offers a snapshot of the Truckload Program with useful information on the process of submitting your first order, order dollar requirements, packaging and ordering quantities, and other information.



The DMS order upload document—offered as a two-page PDF file—details step-by-step instructions for dealers to submit their single Truckload orders much faster.



The instruction guide—offered as a 21-page PDF file—covers every facet of the entire program, from setting up a dealer group, to placing your initial truckload order.

All of the documents are currently available on FMCDDealer.com, or can be requested by contacting the Ford Crash Parts Hotline at cphelp@fordcrashparts.com.

INSIDE THE INDUSTRY

ASA Reaffirms Endorsement of OEM Procedures

The Automotive Service Association's Collision Division Operations Committee has reaffirmed the association's long-standing position that OEM collision repair procedures should be used whenever they're available. The announcement came in response to a legislative proposal in Indiana earlier this year that would have put "generally accepted industry standards" on par with vehicle manufacturer repair procedures.

In making the pronouncement, ASA Collision Division Director Scott Benavidez said the association believes "that strictly adhering to OEM repair procedures is critical, not only for the safety of our customers, but also to protect ourselves from potential litigation. By attempting to equate undefined 'industry standards' to OEM procedures, we jeopardize the shop and the consumer if the repair does not perform as intended."

"Not-Included Operations" Charts Updated

The Automotive Service Association has released the newest versions of its "Not-Included Operations" charts, giving repairers a valuable resource to help them write more complete collision repair estimates. The charts are available free of charge at ASAshop.org, under the "Tools & Resources" tab.

Wiki Glossary for Collision Repair

In an effort to keep pace with the frequently changing terminology in the collision repair industry, the Collision Industry Conference has launched a new Wiki Glossary. Built by CIC's Definitions Committee, with the support of the Collision Industry Electronic Commerce Association, the online tool includes several sections and allows anyone to submit terminology additions or revisions to be considered by the committee. It's available at CIClink.com/wiki-glossary/.

Hurricanes Dampen Insurers' Net Income

Property/casualty insurers in the U.S. saw their collective net income slip to \$36.1 billion last year, a drop of 15.8 percent, as the effects of three major hurricanes—Harvey, Irma and Maria—were felt throughout the industry. That's according to ISO and the Property Casualty Insurers Association of America, which reports that despite that decline, favorable investment results allowed insurers to add \$51.7 billion to their overall surplus in 2017, pushing it to a new all-time high of \$752.5 billion.

Rhode Island Improves OEM Parts Law

Rhode Island has strengthened its already-robust crash parts disclosure and consent law. The new law, which took effect July 4, prohibits insurers from requiring the use of aftermarket parts on any vehicle less than four years old—increased from 30 months—without written consent of the customer, and now covers all parts, not just collision repair parts. The law also prohibits insurers from requiring repairers to use anything other than OEM repair procedures and now covers third-party claimants as well.

ASA President Resigns

The Automotive Service Association is searching for a new president and executive director, following the recent resignation of Dan Risley. Risley, who has led the organization for the last five years, announced he's accepted a position with CCC Information Services. ASA has begun its search for a new leader, and Risley has agreed to stay on in a consultant's role until the post is filled.

New Trial Scheduled in Avery-related Case

Trial is now scheduled to begin in early September in the class-action follow-up to the landmark *Avery v. State Farm* aftermarket parts case. The Illinois Supreme Court ruled recently the class will include all U.S. consumers (except those in Arkansas and Tennessee) who were insured by State Farm and had non-OEM crash parts installed on or specified for their vehicle between July 28, 1987 and February 24, 1998.

Plaintiffs allege that the insurer attempted to overturn the original ruling in the case by secretly recruiting Judge Lloyd Karmeier, then providing the bulk of the funding for his successful campaign for the state's highest court. Karmeier proved to be the deciding vote in the Court's 2005 decision to overturn the original \$1.05 billion ruling.

Body Shop Population Grows

The number of independent collision repair facilities increased to 33,950 in 2016, a bump of 302 from the previous year. That's according to the latest figures from the U.S. Census Bureau, which places the total number of employees at just over 227,000, an increase of 3.4 percent from 2015. The agency says the number of shops had declined by 161 the previous year.

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.

On Target can be downloaded free of charge from

FordCrashParts.com,

or by clicking the Ford page on

OEM1Stop.com.

ON TARGET

Scheduled to be published three 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.

Editor

Adam Gair

Contributors

Chris Caris

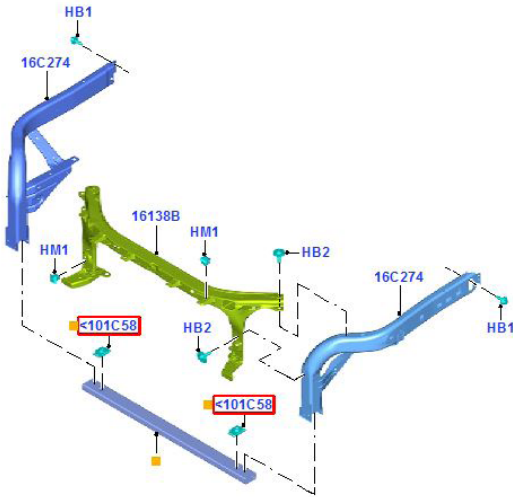
Kim Jennings

Steven Lubinski

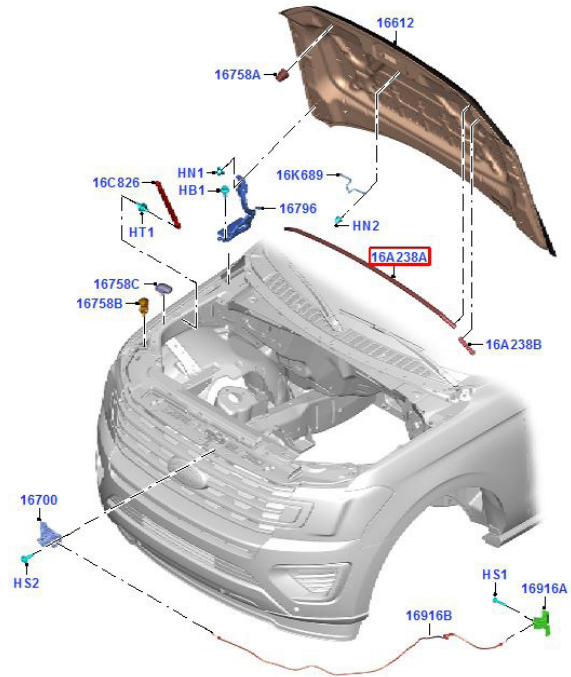
Andrea Presnell

Front Apron

■ = 16138A

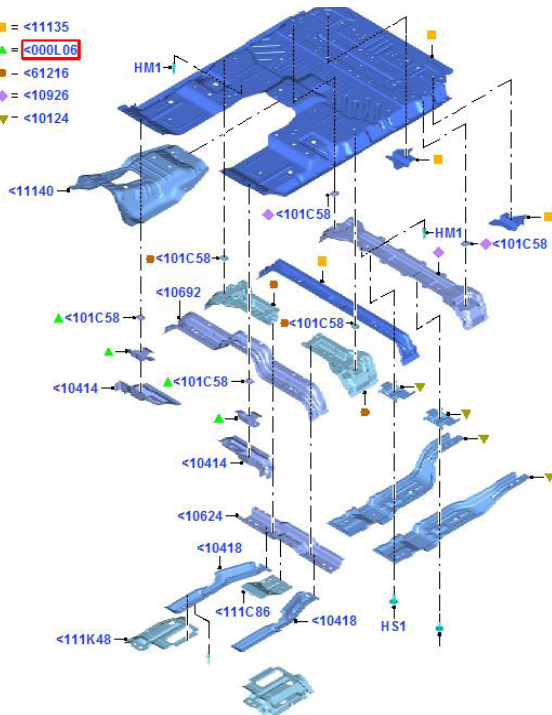


Hood



Front Floor Pan

■ = <11135
 ▲ = <000L06
 ● = <61216
 ◆ = <10926
 ▼ = <10124



Rear Bumper

■ = 17E855A
 ▲ = 17B861
 ● = 17B862
 ◆ = 17D942B

