On Target

For Ford and Lincoln wholesalers and the collision repair industry

FORD PARTS

VOLUME 1 - 2016

2016 Mustang Offers Exciting New Developments for Consumers and Repairers

The most recent-version of the iconic Ford Mustang features a sleek, modern design and is loaded with smart technologies, but it also features greater use of ultra-high-strength steel (UHSS) than the previous generation.

In addition to key details on the current-generation Mustang, *On Target* also spoke with Ford Senior Damageability Engineer Gerry Bonanni, who offers information that will be critical for repairers to know when the current model enters their shops.

The current-generation Ford Mustang (which includes the 2015 and 2016 vehicle model years) not only includes a host of new safety and driver-convenience technologies, but also features a more rigid structure thanks to the increased use of ultra-high-strength steel (UHSS).

Vehicle Highlights:

- Offers sophisticated design clearly inspired by 50 years of Mustang heritage evolved to attract a wider array of customers and expand global market availability
- Now available with three engines, offering broader choice of power
- A fully independent suspension sets performance and dynamic benchmarks for the brand, with superb handling, more precise steering control and enhanced ride comfort
- Interior features improved ergonomics and controls executed with upgraded materials and craftsmanship

Engines:

- 3.7-liter V6 (300 hp, 280 lb.-ft. torque)
- 2.3-liter EcoBoost® (310 hp,* 320 lb.-ft. torque*)
- 5.0-liter V8 (435 hp,* 400 lb.-ft. torque*)

** Tested with 93-octane fuel*

Transmissions:

- Six-speed SelectShift® automatic
- Six-speed manual

Construction:

- Unitized, welded steel body with aluminum hood and front fenders

Body Styles:

- Fastback
- Convertible

Safety Features:

- AdvanceTrac® electronic stability control
- Eight airbags (fastback models), including industry-first passenger knee airbag system packaged inside the glove box door
- MyKey® programmable vehicle key with support for up to four fobs
- Individual tire pressure monitoring system
- Adaptive collapsible steering column

Selectable Drive Modes:

On a twisty back road or a weekend track day, the driver can tap the toggle switch on the console to quickly adjust steering effort, engine response, and transmission and electronic stability control settings, using the available selectable drive modes to create your perfect Mustang.

Continued on page 3

Ford Safety Tech

Smarter Headlights

Ford Motor Company has announced that it is developing new, highly-advanced lighting technologies aimed at helping to make nighttime driving easier, particularly in unknown or poorly lit areas with sharp curves.

In this issue...

Ford's **Camera-Based Advanced Front Lighting System**—developed at Ford's European Research and Innovation Centre in Aachen, Germany—widens the headlights' beam to help better illuminate potential hazards at intersections and roundabouts. In a further evolutionary step, the system also utilizes GPS information to brighten unfamiliar bends and dips in a chosen route—it stores that information and will automatically adapt to better light the way the next time the driver takes that route. If GPS information is not available, a forward-facing camera in the rear-view mirror detects lane markings to predict the road's curvature, using the information to light the area more effectively.

Another lighting technology currently in development is called **Spot Lighting**, which

Continued on page 4

The Camera-Based Advanced Front Lighting System, developed by Ford of Europe, widens headlight beams to brighten curves, roundabouts and intersections.

Repair Procedure: 2015 F-150 Front Door-Skin Panel Installation

As part of our ongoing effort to help repairers make the proper repair the first time, we're presenting certain repairs straight from the official ***Ford Workshop Manual***. This time we look at the installation of the front door-skin panel for the 2015 F-150. (For the removal process, please see *On Target* – 2015, Vol. 3.)

Special Tools / General Equipment and Materials

- Self-piercing rivet (SPR) remover/installer
- Blind rivet gun
- Locking pliers
- Dedicated aluminum-repair hammer and dolly
- Metal Bonding Adhesive TA-1, 3M™ 08115, Fusor® 108B
- Seam Sealer TA-2-B
- Fusor® Flexible Foam Repair, Fusor® 121, 3M™ 08463

Left-hand side of repair shown; right-hand side similar. Regular Cab shown in diagrams; SuperCab and SuperCrew similar.

NOTICE: Do not install SPR fasteners directly in old SPR fastener location. SPR fasteners must be installed adjacent to the original location. Failure to follow this direction may compromise the structural integrity of the repair.

NOTE: Solid rivets or blind rivet fasteners may be used in place of SPR fasteners after enlarging the existing holes to 6.5mm.

Repair Procedures

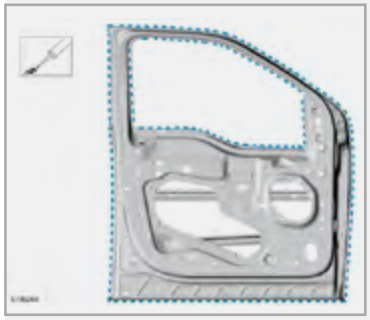
1. Using a hammer and dolly dedicated to aluminum repair, straighten any door shell distortion as necessary.
2. Using 80-grit sandpaper, sand to remove all adhesive as well as the e-coat from the contact area and mating surface, and clean.
3. Apply the metal bonding adhesive, TA-1, 3M™ 08115, Fusor® 108B (See story below).
4. Using the locking pliers, install, clamp and partially close the flange. Remove the clamp after partially closing the flange and then install the door on the vehicle, checking for proper fit and alignment.
5. Using the self-piercing rivet remover/installer or the blind rivet gun, install the 10 fasteners (refer to Section 501-25: Body Repairs – General Information, General Procedures).

NOTE: Specific details, including but not limited to fastener and adhesive information, is included in the Instruction Sheet for each service part (found in the service part packaging). Instruction Sheets can also be found on the PTS (Professional Technician Society) website, located under the Service Tips for this vehicle.

6. Remove the door from the vehicle and smooth any residual adhesive squeeze-out into the seam to act as a sealer.
7. To complete the flanging process, sand and clean the area and apply a Ford-approved primer to the flange area.
8. All seams must be sealed to production level (use Seam Sealer TA-2-B).
9. Refinish the door shell flange using a Ford-approved paint system.
10. Install the door (refer to Front Door – Regular Cab/Super Crew, Section 501-03: Body Closures, Removal and Installation & Front Door – Super Cab, Section 501-03: Body Closures, Removal and Installation).
11. Apply NVH foam as indicated (using Fusor® Flexible Foam Repair Fusor® 121 / 3M™ 08463).
12. Install a butyl NVH patch as indicated.
13. Sand and refinish the exterior repair area using a Ford-approved paint system.
14. Install the weather stripping, exterior door handle, mirror, window glass and door trim.
15. Align the door as necessary (refer to Front Door Alignment – Regular Cab/Super Crew: Section 501-03: Body Closures, General Procedures & Front Door Alignment – Super Cab: Section 501-03: Body Closures, General Procedures).

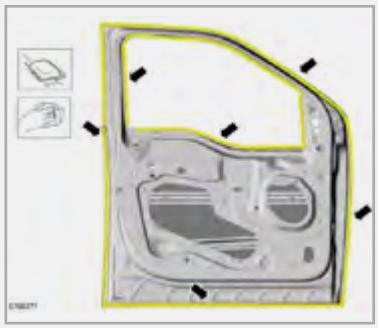
Notes:

- The illustrations are intended as a general guideline and are not all-inclusive.
- For more in-depth repair information, for this and other Ford vehicles, please consult the *Ford Workshop Manual*, located at ***Motorcraftservice.com***.
- For additional questions, contact Ford Senior Damageability Engineer Gerry Bonanni at (313) 317-9000 or the Ford Crash Parts Hotline at ***cphelp@fordcrashparts.com***.



Step 3

Step 5



Step 7

Step 11

Structural Adhesive Tips from Fusor® Repair Adhesives

As the use of structural adhesives continues to expand in automobile manufacturing, it's more important than ever that repairers adhere to both OEM and adhesive manufacturer guidelines when making collision repairs. To help guide your way, *On Target* spoke with Fusor® Repair Adhesives about some of the most important points to remember when it comes to using two-component or "2K" products.

- Check the product date code to ensure material is not expired.
- Plungers, which push the adhesive out of the cartridge, need to be leveled by expending a small amount of material prior to attaching the mixing nozzle.
- After leveling, and just before applying the adhesive, the mixing nozzle should be purged to ensure a properly mixed product is applied. Simply expend about a mixer's length of adhesive bead as waste and begin the actual application.
- Apply adhesives to clean, freshly sanded or ground surfaces. Oxidation can form quickly so this should be performed just prior to adhesive application and panel installation.
- Acrylic adhesives cure quickly, which improves cycle time. Cured material will have a tacky

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Mustang Offers New Features

Continued from page 1

Performance:

The fully independent front and rear suspension provides drivers with improved dynamic capabilities, feel and comfort over any road surface, compared to the previous generation. The available performance packages for Mustang EcoBoost and GT add optimized summer tires for superior grip** and some of the most capable Mustang brakes ever for stopping power to match the upgraded engines.

Body Structure Components:

- High-strength low-alloy (HSLA), dual-phase (DP), Boron and mild steels
- Coupe and convertible body styles
- Aluminum hood
- Steel luggage compartment lid
- Body-side outer panels constructed of mild steel
- Dual-phase steel (DP) in select body structure components
- Bolted, removable front fenders, hinged doors and hood
- Aluminum front fenders
- Ultra-high-strength steel (UHSS) front and rear bumper beam
- Underbody components constructed of mild, Boron and high-strength steels
- Mastic pads used on floor pan for sound deadening

Repair-Specific Design Changes

"The next-generation Mustang is a really exciting, totally new vehicle," said Gerry Bonanni, Ford's senior damageability engineer. "Not only does it feature all-new exterior styling and an all-new interior, it also manages to increase the strength of the overall vehicle while decreasing the weight, a specific challenge that was encountered during the redesign of the vehicle."

Bonanni noted that one of the specific differences between the 2014 Mustang and the 2015/16 Mustang is the increased use of ultra-high-strength-steel (UHSS), which helped make for a more rigid structure, while increasing chassis bracing—also new to the current-generation model—helped overall rigidity as well.

"Speaking of UHSS," said Bonanni, "Repairers will find the material throughout the entire front structure of the vehicle and it is critical that repairers consult all service publications and the Ford Workshop Manual to develop a repair plan before any repair is started."

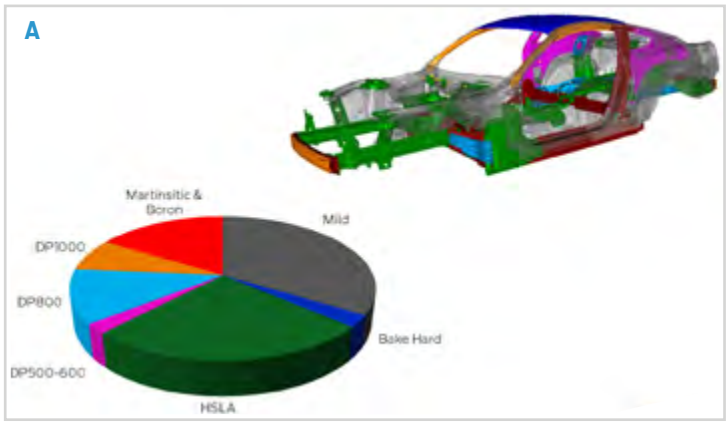
Additional changes included the rear frame rails, which switched from HSLA (high-strength, low-alloy) 350 to DP (dual-phase) 800 steel to allow for the independent rear suspension, while the A-pillars now use DP 1000 steel instead of HSLA 350, as part of the effort to help reduce overall vehicle weight and help increase overall strength. One more change of note regarding the A-pillar is its shift to a hydroformed tube, beginning with the 2015 Mustang convertible, which is a Ford first.

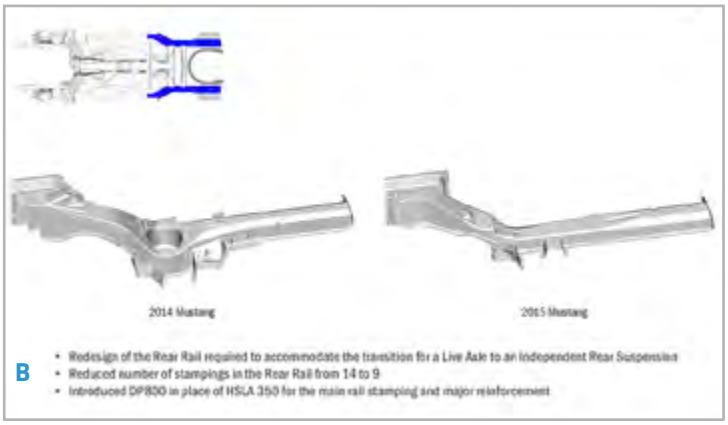
"From a design and repair point of view," said Bonanni, "it is crucially important for repairers to note the increased use of DP and Boron steels as well as the increased number of laser-welds utilized throughout the vehicle."

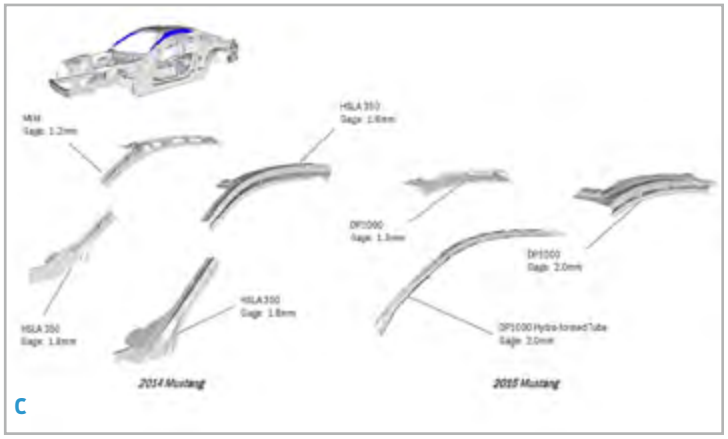
Given these significant structural and material changes from the previous-generation Mustang, Bonanni re-emphasizes the extreme importance of thoroughly researching all repairs before any work is done to help ensure a high-quality repair.

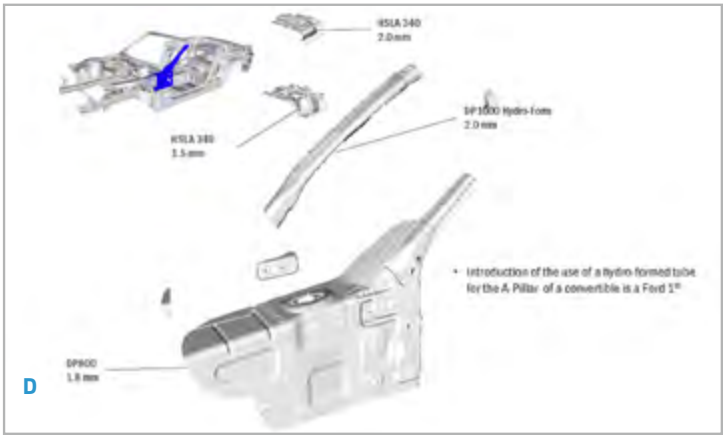
For more repair information on the new Mustang or any Ford or Lincoln vehicle, please contact the Ford Crash Parts Hotline at ***cphelp@fordcrashparts.com*** or Gerry Bonanni at (313) 317-9000.

***Ford does not recommend using summer tires when temperatures drop to approximately 40º F or below (depending on tire wear and environmental conditions), or in snow/ice conditions. If the vehicle must be driven in these conditions, Ford recommends using all-season or snow tires.*









A. The current-generation Mustang includes an increased use of ultra-high-strength and other steels utilized throughout the vehicle.

B. A specific change from the previous-generation Mustang includes the rear frame rails, which switched from HLSA 350 steel to DP 800 steel.

C. The A-pillars on the current Mustang also switched, from HLSA 350 steel to DP 1000 steel.

D. Beginning with the 2015 Mustang convertible, the A-pillars use hydroformed tubes, a first for Ford Motor Company.

Structural Adhesive Tips

Continued from page 2

surface, which must be wiped off.

- Epoxy adhesives generally have a two-step application process where the first step is to apply a small amount of adhesive and spread it over all bare surfaces; and step-two is to come back and apply the bonding bead and assemble the panels.
- Adhesive squeeze-out should be removed or tooled while still wet.
- Mechanical fasteners, such as rivets, should be installed while the adhesive is still wet and the panels can mate tightly.
- Product work times are based on shop temperature, which are typically quoted in the 70ºF-75ºF range. During hotter weather the 2K adhesives cure quicker and in cooler weather more slowly. A good rule-of-thumb is that for a 20ºF increase in shop temperature, the work time will be reduced by one-half. So at about 90ºF, the technician can expect to have only about one-half of the published amount. On the other hand, if the shop were at 50ºF, then the work time would be nearly doubled. The most challenging environments are above 100ºF, where the work time may only be one-quarter of the published amount!

Repairers are reminded that understanding and following the repair process are imperative to delivering complete, high-quality repairs the first time, and the points listed above are not a substitute for thoroughly reviewing and following material instructions and standard operating procedures.

For more information on this or other Fusor® products, materials or procedures, please contact your Fusor® representative, visit ***fusor.com*** or call 1-800-234-FUSOR (3876).

Smarter Headlights

Continued from page 1

Ford's Camera-Based Advanced Front Lighting System uses GPS information and a forward-facing camera to better illuminate bends and dips on a chosen route, with the navigation system storing the road information for the next time the drive takes the same route.

utilizes an infrared camera in the front grille to simultaneously locate and track up to eight people and bigger animals at a range of up to 120 meters.

The system will be able to spotlight two hazards for the driver with a spot and a stripe on the road surface, illuminated by two special LED lamps instead of the fog lights. The highlighted objects are displayed on the screen inside the car, marked in a red or yellow frame, according to the proximity of the object and the level of danger presented.

"Camera-Based Advanced Front Lighting can help make it easier for the driver to travel at night in unfamiliar surroundings, and to more easily see unexpected hazards. At roundabouts, for example, our system will help the driver to clearly see the exits—and check if cyclists and pedestrians are crossing the road," said Michael Koherr, research engineer, Lighting Systems, Ford of Europe. "Spot Lighting can help make potential hazards in the road ahead more easily visible to the driver—whether that is a pedestrian, a cyclist, or even a large animal."

While Spot Lighting is in the early testing and development phase, Ford expects the Camera-Based Advanced Front Lighting System to be available to customers in the near future.

INSIDE THE INDUSTRY

Traffic Fatalities Up in 2015; VMT Hits New High

The first nine months of 2015 saw the number of traffic deaths on U.S. roadways jump 9.3 percent when compared to the same period the year before. That's according to the National Highway Traffic Safety Administration, which estimates more than 26,000 died in accidents through September, with regional increases ranging from 2 to 20 percent. If it continues for the remainder of 2015, the increased number of highway deaths would be a stark departure from the recent trend, which has seen traffic deaths drop 22 percent from 2000 to 2014.

Meanwhile, the number of vehicle miles traveled (VMT) in the U.S. reached a record 253.2 billion miles in November. The U.S. Department of Transportation says that's a 4.3 percent increase for the month, while the total number of miles for the 12 months ending in November hit 3.14 trillion, an increase of 3.6 percent from the same period a year ago.

NHTSA Adds AEB to its Ratings

The National Highway Traffic Safety Administration says it will add automotive emergency braking (AEB) as a recommended technology for its 5-star crash rating system starting with the 2018 model year. The move follows the commitment from 10 automakers to make AEB systems a standard feature on their vehicles at some point in the future. The Insurance Institute for Highway Safety says 1 percent of all 2015 vehicles offered AEB as standard equipment, while it was an option on 26 percent.

Increasing Vehicle Age Expected to Slow

The average age of all vehicles in the U.S., which has climbed significantly since 2007 to its current 11.5 years, will see a slow-down over the next five years. That's according to IHS Automotive, which predicts the average age will see only another five percent increase through 2020. During that time, however, the number of vehicles 12-plus years old will jump 15 percent to approximately 76 million, up from just 35 million in 2002. The overall slow-down will result as the number of vehicles five years old and newer is expected to increase 24 percent during that time.

Insurance Claims Satisfaction

A new study finds insurance companies acting in the best interest of their customers is the top factor in determining customer satisfaction with the auto insurance claims process. That's according to the "2015 TeleTech P & C Customer Satisfaction Survey," which asked more than 300 consumers about the claims process. "Insurance company acted in my best interest" was listed as the number one factor by 11.4 percent of those surveyed, followed by initial filing of the claim (8.0 percent) and getting issues resolved the first time (7.4 percent).

F-150 Offers Advanced Aerodynamics

Previously touted as the toughest, smartest, most capable truck Ford has ever built, the current generation F-150 is also one of the most aerodynamically efficient trucks thanks in-part to new aero curtains that reduce wind drag by guiding airflow across the front wheels.

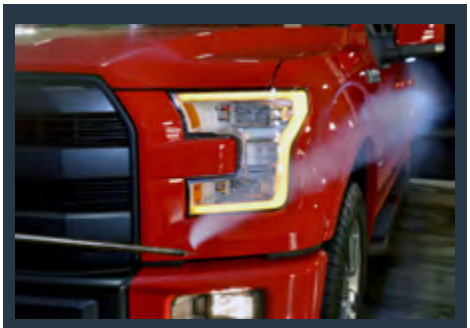
Air curtain technology, which first debuted on the 2015 Ford Mustang, allows air to flow through a vent underneath the headlamps and out around the wheel. By optimizing the aerodynamic design of F-150, Ford designers and engineers reduced drag to help it have best-in-class gasoline fuel economy, with an EPA-estimated rating of 19 mpg city and 26 mpg highway when equipped with the 2.7-liter EcoBoost® V6 engine.*

"With the 2015 F-150, an extensive amount of time was spent running aerodynamic simulations and doing wind tunnel tests," said Rob Lietz, Ford technical expert in applied computational fluid dynamics. "Major advances in our computational fluid dynamics capability let us quickly see how we could improve airflow while maintaining the tough truck looks expected from F-150."

It's not obvious to the eye, but rotating wheels are a major source of drag. Enclosing the wheels in skirts to smooth the flow isn't necessarily practical or attractive—especially on a vehicle as hardworking as F-150. So Lietz and his team adopted a different approach.

Horizontal slots underneath the headlamps channel air from the front of the truck through ducting to openings in the wheel wells, directing it across the outer surface of the wheel and tire. The wall of high-speed air works much like a skirt to reduce drag, while still leaving the alloy wheels fully exposed.

*EPA-estimated fuel economy rating of 19 city/26 hwy/22 combined mpg, 2.7L EcoBoost® V6, 4x2. Actual mileage will vary. Class is Full-Size Pickups under 8,500 lbs. GVWR.



Other F-150 aerodynamic efficiency improvements include:

- **Flush-mounted windshield helps eliminate the need for molding that would disrupt smooth airflow**
- **Tailgate top is designed to act as a spoiler, giving air that flows off the roof a place to land before smoothly trailing off, helping to reduce turbulence behind the truck**
- **Cargo box is narrower than the cab—with no reduction in box volume—which helps enhance airflow, while a trim piece helps prevent air from getting trapped between the cab and box**
- **Rear corners, including taillamps, are precisely angled so air breaks off cleanly, helping to reduce turbulence behind the truck**
- **Ducts under the headlamps channel air through to the wheelhousing and helps reduce the wake generated from the wheel**

Legislative Watch

GOV. ENTITY	BILL NUMBER	BILL STATUS AND DESCRIPTION
Aftermarket Parts		
MI	HB 4344	**Passed House.** Prohibits use of non-OE parts during vehicle warranty period without consent unless they meet or exceed OEM-comparable standards as verified by a nationally recognized testing agency, or no OEM or verified part is available.
MD	HB 1258	Prohibits insurers from requiring aftermarket parts for two years without consent. After that, only certified aftermarket parts are allowed without consent.
NH	SB 436	Prohibits insurers from specifying use of aftermarket parts for first five years or 50,000 miles. Also prohibits use of aftermarket parts on leased vehicles if the lease says that such use will diminish the vehicle's residual value.
Patents		
US	HR 1057	**Subcomm. hearing held in February.** Reduces length of design patents on crash parts from 14 years to 30 months.
Counterfeit Airbags		
NJ	SB 2174	**Signed into law Nov. 2015.** Prohibits manufacture, sale or installation of counterfeit or nonfunctional airbags
WA	SB 6160	**Passed House and Senate.** Prohibits sale and installation of counterfeit airbags.
Digital Photos		
DE	Regulation	Revised regulation would allow use of digital images by appraisers to prepare estimates.
PA	HB 1638	**Passed House.** Would eliminate requirement for physical inspections to prepare an estimate, allowing use of photos and videos.
VA	SB 193	**Signed into law March 1.** Allows estimates to be prepared using digital photos and videos. Takes effect July 1.
Labor Rates		
MS	SB 2187	**Died in comm.** Prohibits shops from charging labor rates above the national average without approval by the state insurance commissioner. Identical to HB 834.
OK	HB 3132	Requires insurers to conduct annual labor rate surveys with collision repair and glass facilities.

2016 INDUSTRY EVENTS CALENDAR

Apr. 14 AASP-MN Annual Meeting Minneapolis, MN www.aaspmn.org

Apr. 19 – 20 SCRS Industry Week Seattle, WA www.scrs.com

Apr. 20 – 21 CIC Meeting Seattle, WA www.ciclink.com

Aug. 9 – 10 CIC Meeting Anaheim, CA www.ciclink.com

Aug. 10 CREF Annual Golf Outing Yorba Linda, CA www.cref.org

Aug. 9 – 13 International Autobody Congress and Exposition (NACE) Anaheim, CA www.naceexpo.com

Oct. 27 – 30 ATRA Powertrain Expo Las Vegas, NV www.powertrainexpo.com

Nov. 1 – 2 CIC Meeting, Las Vegas, NV www.ciclink.com

Nov. 1 – 3 Automotive Aftermarket Products Expo (AAPEX) Las Vegas, NV www.aapexshow.com

Nov. 1 – 4 Specialty Equipment Market Association (SEMA) Show Las Vegas, NV www.semashow.com

SHARE YOUR THOUGHTS

The purpose of **On Target** is to provide Ford and Lincoln dealership parts departments and independent collision repair shops with the general and technical information needed to deliver efficient, high-quality repairs to Ford, Lincoln and Mercury vehicle owners. In addition, information on parts wholesaling policies and procedures, and collision repair industry activities will also be featured. **On Target** is scheduled to be published three times a year.

Your comments and article ideas are welcome. You can contact **On Target** through e-mail at: *cphelp@fordcrashparts.com*.

Additional copies of **On Target** are available through Ad Creator or *FMCDealer.com*. Independent collision repair shops should contact their Ford or Lincoln wholesaling dealer. **On Target** is also available free of charge at *Motorcraft.com* under technical resources / quick guides.

On Target

Produced for Ford and Lincoln wholesaling dealers and their collision repair customers.

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George Gilbert

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FORD **PARTS**

Dealership Information

Crash Parts Order Form

Use this form to provide us with the information necessary to make certain we deliver the right parts on time ... the first time!

The information below can be found on the certification label located on the driver's-side door jamb.
If the vehicle is damaged in this area provide us with the Vehicle ID# located on the driver's-side front corner of the dashboard.

VEHICLE ID#	(Need all 17 Digits)				
TRIM CODE		**YEAR**		**DAMAGE AREA (Circle)**	
MLDG. CODE		**MAKE**		FRONT	REAR
BODY CODE		**PHONE:**	( )	LEFT SIDE	RIGHT SIDE
CONTACT:		**SHOP:**		UNDERBODY	LEFT / RIGHT

2015-16 FORD **MUSTANG**

Date Ordered:

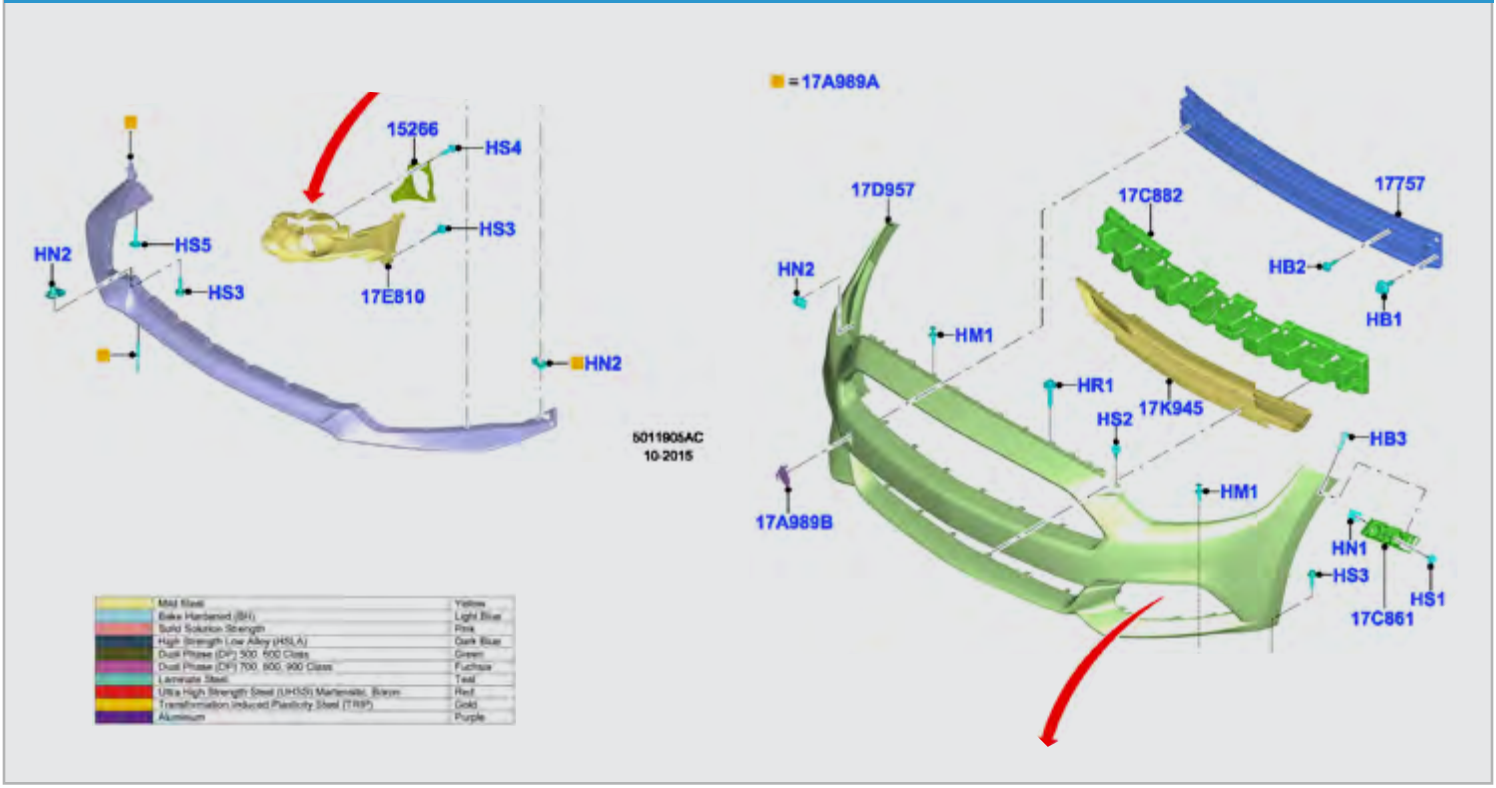
PARTS ORDER

Date Needed:

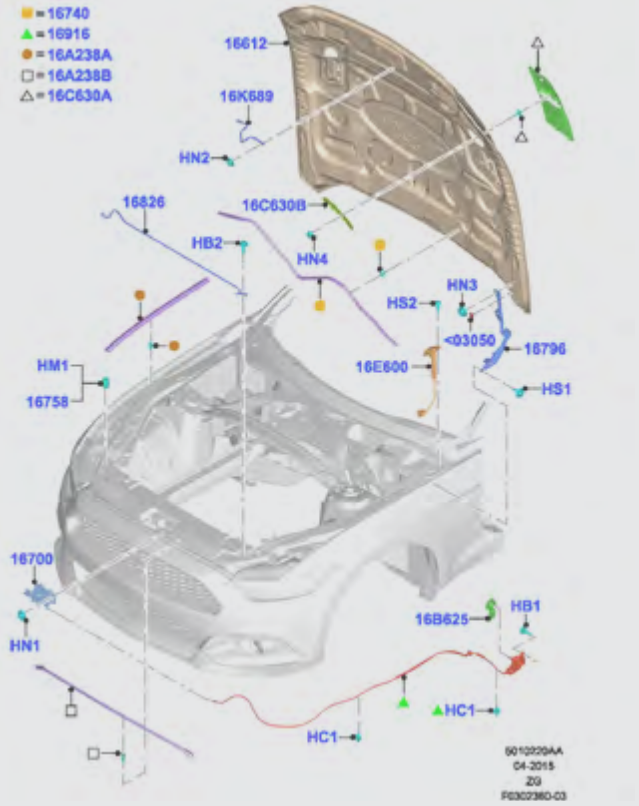
QUANTITY	PART NUMBER / PART DESCRIPTION

NOTE: Refer to vehicle diagrams for part identification and numbers.

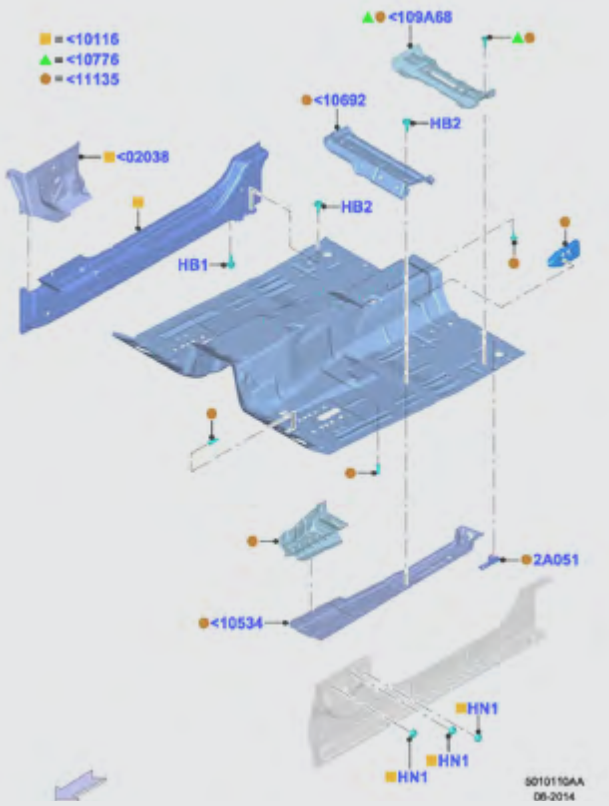
Front Bumper



Hood



Front Floor Pan



Rear Floor Pan

Rear Bumper