On Target



For Ford and Lincoln wholesalers and the collision repair industry

FORD PARTS

Ford Collaborates With State Farm on Certified Collision Network Locator

Ford Certified Collision Network (FCCN) shops are now recognized as such and can be identified using the State Farm Select Service® Repair Assistant Locator as Ford continues to enhance its certified network.

Rolled out in June, the initiative allows customers to find Select Service repairers in their area and see which ones are certified by Ford, using the Repair Assistant search tool found on StateFarm.com.

The locator identifies as many as 50 repair shops within 75 miles of the address provided and includes each shop's hours of operation. Results are presented in order of performance on the Select Service Program as determined by State Farm.

"The FCCN will provide regular updates on Select Service repairers that are currently certified by Ford," said Ford Collision Marketing Manager Dean Bruce. "Our alignment with State Farm will increase the visibility of the FCCN and continue our efforts to provide Ford and Lincoln owners with safe and proper repairs." State Farm plans to enhance the search tool soon by allowing customers to search by OEM certification if desired.

Contact your State Farm Select Service Network representative if you have any questions about the locator.

For more details on the FCCN and to apply to join the network, visit collision.ford.com/Ford CertifiedCollisionNetwork or call (833) 837-7694.



SEARCH TOOL

To find the search tool on StateFarm.com, click on "Claims" at the top of the page, then click on "Claims Help." From there, scroll to the bottom of the page and click on "Auto" and then "Repair Services." The "Find a Repair Shop" button will be in the middle of the next page. It can also be found here.

New Details on Upgraded Ford Diagnostic Scanning Equipment and Software

Courtesy of Ryan Hays, Rotunda Diagnostic Specialist

In a previous volume of *On Target* (2019 - Vol. 1), we provided updates on servicing Ford vehicles utilizing Ford diagnostic and scanning software and hardware, including overviews on Integrated Diagnostic Software (IDS), Vehicle Communication Module(s) (VCM and VCM II), Vehicle Measurement Module (VMM), Vehicle Communication & Measurement Module (VCMM), and the newer Ford Diagnostic & Repair System (FDRS). These are the only diagnostic tools that provide full OEM functionality to perform vehicle diagnostic testing,



module programming, and system calibrations on Ford and Lincoln vehicles.

IDS is Ford's OEM software developed to perform all the diagnostics you may need while servicing a Ford, Lincoln or Mercury vehicle, including pre- and post-repair DTC scans, module installation and reprogramming, key programming, and many other functions not available in generic scan tools. Rotunda's engineering team keeps customers up-to-date with routine bi-weekly software updates, and in some cases even provides updates in real-time. IDS will continue to be the go-to software for legacy Ford vehicles, including most models prior to the 2018 model year.

FDRS is the next-generation Ford Motor Company vehicle diagnostic software. It is designed for use with VCM II, VCM3, VCMM, and any J2534-compatible vehicle communications interface (VCI). FDRS provides complete dealership-level vehicle diagnostic coverage for current and future vehicle releases, is more user-friendly and provides more—and superior diagnostic capabilities than IDS.



This cloud-based system helps ensure technicians are provided the latest software every time. FDRS also utilizes the same licensing agreement as IDS at no additional cost and is fully compatible with VCM3 and VCMM but does **not** support legacy VCM I and VMM.

Released in 2020, **VCM3** is the big brother to the previously offered VCM II. With VCM3, you will experience all the capabilities of its predecessor with these new added benefits:

- Support for the Controller Area Network Flexible Data [rate] (CAN-FD).
 - » This upgrade prepares for the future of module CAN communication. CAN-FD has the potential to increase data transfer rates up to five times greater than current networks
- Support for J1708
 - » SAE J1708 is the communication standard that takes place on medium-duty vehicles
- Backup battery and power button

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One of our most technologically advanced offerings yet, the **VCMM** combines the functionality of VCM II and VMM. It also includes the capabilities of a four-channel oscilloscope, digital multimeter, vibration analyzer, driveline balancer and signal generator.

Another new, exciting tool is the **Ford TechPRO software**. TechPRO was released early last year and marks Ford's entry into **all-makes diagnostic software**. Utilizing VCM II, VCMM or VCM3, it allows technicians to analyze, diagnose and repair most vehicle makes and models, even those outside of the Ford family. (See compatibility chart.) Unlike some aftermarket competitors, there is no need to purchase any additional hardware—only an annual license fee.

Ford Rotunda remains the one-stop shop to find all the diagnostic tools needed to properly scan, diagnose and fix Ford, Lincoln and Mercury vehicles the first time.

To purchase diagnostic hardware, visit rotunda.service-solutions.com. Readers of *On Target* can use the PROMO CODE: **OnTarget** to get **\$250 off your order** (promo code good through March 31st, 2022).

For more information on diagnostic tool support, visit Motorcraftservice.com, and to access your IDS software licensing account—or to create one—click here.

For any additional questions on this, or the proper repair of any Ford or Lincoln vehicle, contact the Ford Crash Parts Hotline at cphelp@fordcrashparts.com.

Compatibility Chart

Generic OBD Test Modes O² Sense Test Freeze Frame Data OBC Data & Read DTCs Clear DTCs Pending DTCs VIN Read Permaner DTCs Manufacture Stellantis GM Honda Hyundai Mazda Nissan • Toyota Subaru BMW Mercedes-Benz 0 Volkswagen Volvo European Coverage



= Yes = No

Lane Keeping System: Camera Alignment

The in-depth overview of the Ford Lane Keeping System (LKS) concludes, with a focus on camera alignment.

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

For more information, consult Section 419-07: Lane Keeping System, Description and Operation.

Camera Alignment

Camera alignment is required for the lane keeping alert and lane keeping aid to function correctly. The procedure is initiated using the diagnostic scan tool and requires about 10 minutes of driving above 64 km/h (40 mph) on a flat, straight road with highly visible lane markings to complete.

NOTES

- The alignment completion is indicated on the diagnostic scan tool. If the alignment is unsuccessful, check the image processing module A (IPMA) (except Raptor) or the interior mirror (Raptor) for proper installation.
- NOTE: The FRONT CAMERA MALFUNCTION

 SERVICE REQUIRED message in the
 instrument panel cluster (IPC) disappears
 when the system is aligned.

The IPMA camera alignment procedure should be performed when any of the following occur:

Windshield replacement

- Change in tire size
- Suspension repair or alignment
- Front airbag deployment
- Interior mirror replacement (Raptor only)

COMPONENT DESCRIPTION

IPMA (Except Raptor)

The IPMA is located on the windshield, above the interior rear-view mirror. It communicates on the high-speed controller area-network 2 (HS-CAN2) and on vehicles equipped with the adaptive cruise control and collision warning system, and shares information with the cruise control module (CCM) on dedicated controller area network (CAN) circuits to assist the driver in avoiding a collision. The IPMA contains a forward-looking camera that is used to detect the position of the vehicle within the lane.

The IPMA requires programmable module installation (PMI) and camera alignment when replaced. For additional information on the collision warning system, refer to: Section 419-03C: Collision Warning and Collision Avoidance System, Description and Operation – Component Location.

IPMA (Raptor)

The IPMA is integral to the interior rear-view mirror. It communicates on the HS-CAN2 and contains a forward-looking camera that is used to detect the position of the vehicle within the lane.

The IPMA requires PMI and camera alignment when replaced.

IPMA Camera Heated-Windshield Element (Except Raptor)

The IPMA camera heated-windshield element is a resistive-type heater grid that is integrated into the windshield and located directly in front of the IPMA camera. It cannot be replaced separately from the windshield. Before replacing the windshield or the IPMA for an IPMA camera heated-windshield element concern, verify the integrity of the wiring, connectors and terminals.

Camera Windshield Defrost-Heater (Raptor)

The camera windshield defrost-heater is a resistive-type heater grid that is adhered to the inside of the windshield directly in front of the IPMA camera.

The camera windshield defrost-heater uses a jumper harness between the component and the vehicle harness. Before replacing the camera windshield defrost-heater or IPMA for a camera windshield defrost-heater concern, verify the integrity of the wiring, connectors and terminals on the jumper harness.

Lane Keeping System Switch

The LKS switch is an open, momentary-contact switch that, when pressed, grounds the LKS switch-input circuit from the IPMA.

For questions on this or the proper repair of any Ford or Lincoln vehicle, contact the Ford Crash Parts Hotline at cphelp@fordcrashparts.com.

SRS Airbag and Seatbelt Pretensioner System Details

On Target continues its detailed look at the supplemental restraint systems (SRS)—straight from the official *Ford Workshop Manual*—utilizing the 2020 F-150 as an example.

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

Section 501-20B: Supplemental Restraint System – Description and Operation

Airbag Second Stage Deployment Check

The driver and passenger front airbags each have two deployment stages. After an airbag deployment, it is possible that stage 1 has deployed, and stage 2 has not. If a front airbag has deployed, the front airbag must be remotely deployed using the appropriate airbag disposal procedure to make sure both stages have been deployed. For information on driver airbag and/or passenger airbag remote deployment, refer to Section 501-20B: Pyrotechnic Device Disposal (Editor's note: this topic will be detailed as the installments continue.)

SOS Post-Crash Alert System™

The SOS Post-Crash Alert System™ is controlled by the body control module (BCM) but initiated by the restraints control module (RCM).

When a deployment or fuel cutoff event occurs, the RCM sends a message on the high-speed controller area network 2 (HS-CAN2)—via the gateway module (GWM)—to the BCM. The BCM flashes the turn signal lamps and sounds the horn (except when 911 Assist™ is active) until it is turned off. The system can be turned off 10 seconds after a crash event by pressing the hazard switch. The BCM also unlocks the doors and illuminates the courtesy lamps after a crash event.

Vehicle Spin-out Detection

When internal RCM sensors detect that the vehicle has spun out, the BCM activates the hazard warning flashers and displays a message in the instrument panel cluster (IPC) to indicate the hazard warning flashers are activated due to the spin-out.



Extended Power Module

The battery energy control module B (BECMB) provides system voltage to the RCM and the occupant classification system module (OCSM) when the ignition is on. Additionally, the BECMB is designed to ensure that the RCM and OCSM remain powered on if the ignition is turned off while the vehicle is moving at a speed greater than 4 km/h (2.5 mph).

If the ignition is turned off while the vehicle is traveling at a speed above 4 km/h (2.5 mph), the BECMB maintains system voltage on the RCM and OCSM power supply circuits. Once the vehicle speed drops below the threshold while the ignition is off, the BECMB powers down the RCM and OCSM. If the vehicle speed rises above the threshold again, the BECMB does not reactivate the power supply to the RCM and OCSM. They remain off until the ignition is turned on again.

If a vehicle is parked with the ignition off, the BECMB does not provide power to the RCM and OCSM. If the vehicle begins to move while the ignition is still off, the BECMB does not power the RCM or OCSM.

When the vehicle has been started using the remote start feature (if equipped), the ignition status is off, but the BECMB powers the RCM in order to detect a collision and disable the fuel pump, if necessary.

Additional installments on SRS components and operation will continue in future volumes of *On Target*.

For questions on this or the proper repair of any Ford or Lincoln vehicle, contact the Ford Crash Parts Hotline at cphelp@fordcrashparts.com.

Blind Spot Information System (BLIS®) Details

On Target resumes its series on the Ford BLIS® feature, taking an in-depth look at BLIS® operations, including: how alerts are triggered, how the system works with a trailer attached, and other important details, all taken directly from the official *Ford Workshop Manual*.

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

For more information, consult Section 419-04: Side and Rear Vision – Description and Operation of the Ford Workshop Manual.

NOTE: If a trailer is electrically connected to the vehicle, the BLIS® is disabled. To activate BLIS® with trailer tow, with a trailer connected to the vehicle, the trailer must be selected, or the trailer information must be entered using the instrument panel cluster (IPC) message center.

The BLIS® provides alerts to the driver when the vehicle is in forward gear and speeds are greater than 8 km/h (5 mph).

The BLIS® can trigger an alert for vehicles that enter the blind zone from the rear or front, or that merge into the blind zone from the side. The exterior mirror BLIS®/cross traffic alert (CTA) LED illuminates in the right and/or left exterior mirror when a target is present. For vehicles that pass through the blind zone quickly—typically less than two seconds—the BLIS® may not trigger an alert.

If a turn signal is active while BLIS® has detected a target in the blind zone, the BLIS®/CTA LED flashes rapidly. When the turn signal is off, the BLIS® target warnings are a constant LED illumination.

NOTE: The BLIS® is not intended to detect parked vehicles, pedestrians, or objects such as fences, guard rails or trees.

Due to the nature of radar technology, false alerts—the LED illuminates with no target present—may occur under certain circumstances, such as sharp turns around a pole or building, jogging pedestrians or fast-moving shopping carts. False alerts are temporary and self-correcting, and a rate of up to three percent (three out of 100 targets) is considered normal operation.

Missed targets occur when a target is present, and the LED does not illuminate. A rate of up to one percent (one out of 100 targets) is considered normal operation.

Circumstances that can cause missed alerts include:

- Debris build-up or damage to the rear lamp assemblies
- Certain maneuvering of the vehicles entering and exiting the blind zone
- Vehicles passing through the blind zone at high rates of speed
- When several vehicles forming a convoy pass through the blind zone

In addition, the BLIS® may not detect an adjacent target immediately when the vehicle accelerates from a standing start with another vehicle alongside.

Additional information on BLIS®—as well as information on proper ADAS functionality, features and proper repairs—will continue in future installments of *On Target*.

For questions on this or the proper repair of any Ford or Lincoln vehicle, contact the Ford Crash Parts Hotline at cphelp@fordcrashparts.com or visit I-CAR's RTS Portal at RTS.i-car.com.

Ford Bronco™ and Bronco Sport Body Details

In previous installments (2021 -Vol. 1 and 2021 - Vol. 2), *On Target* began detailing vehicle-specific body construction on the allnew 2021 Ford Bronco Sport. We continue providing those details this time focusing on its roof and body-side outer panels—but this time, we also welcome the all-new, full-size Ford Bronco, detailing the makeup of some of its key exterior components.

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

For more information on both vehicles, refer to their specific entries found in Section 501-26: Body Repairs – Vehicle Specific Information and Tolerance Checks, Description and Operation and Section 501-25: Body Repairs – General Information, Specifications.

BRONCO SPORT

Roof (Figure 1)

Item	Description	Steel Type
1	Windshield header assembly	Dual Phase (DP) 800 steel
2	Roof bow Smart Steel	
3	Roof bow	Smart Steel
4	Roof bow	Smart Steel
5	Roof bow	Smart Steel
6	Rear header assembly	Boron Steel
7	Roof panel assembly	Mild Steel

Body-Side Outer Panels (Figure2)

Item	Description	Steel Type
1	Outer rocker panel	Mild Steel
2	Body side panel	Mild Steel
3	Outer quarter panel	Mild Steel
4	Door frame	Mild Steel







Front Floor (Figure 3)

Item	Description	Steel Type
1	Tunnel reinforcement	Dual Phase (DP) 800 steel
2	Crossmember assembly	Dual Phase (DP) 800 steel
з	Crossmember assembly	High-strength low-alloy steel (HSLA)
4	Bracket support	High-strength low-alloy steel (HSLA)
5	Crossmember assembly	High-strength low-alloy steel (HSLA)
6	Lower side member	Dual phase (DP) 800 steel
7	Floor pan assembly	High-strength low low-alloy (HSLA)
8	Bracket support	Mild steel
9	Spare tire carrier support	Dual Phase (DP) 800 steel
10	Lower side member extension	Dual Phase (DP) 800 steel
11	Side member floor	High-strength low-alloy steel (HSLA)

BRONCO

Body

The body of the 2021 Ford Bronco consists of the following:

- Fender apron brace (upper and lower) constructed of high-strength low-alloy (HSLA) 340 steel
- Body structure constructed of boron, dual phase (DP) and high-strength steels
- Roof panel reinforcements constructed of high-strength low-alloy (HSLA) and bake-hardened (BH) steel
- Bolted, removable front fenders, hinged doors and hood
- Body-side outer panels constructed of aluminum and bake-hardened steel

Bumper Beams

Bumper beams are typically constructed of high-strength (HS) or stronger class steel. If the bumper beam shows evidence of a kink or tear it is not repairable and must be replaced. The use of heat to repair these components is not allowed and will result in weakening the component. Minor damage may be corrected through cold straightening only.

On Target plans to include more construction details on the Bronco and Bronco Sport in future volumes, including sectioning guidelines.

For more information on the Bronco, Bronco Sport, or any Ford or Lincoln vehicle, contact the Ford Crash Parts Hotline at cphelp@fordcrashparts.com or visit I-CAR's RTS Portal at RTS.i-car.com.

Ford F-150 Full Box Assembly Build Procedure

In our previous issue (2021 - Vol. 2), we began detailing a new procedure on assembling an entire box assembly for the 2015–2020 Ford F-150.

This comprehensive procedure combines all 13 individual repair procedures—noted in the *Ford Workshop Manual* under Section 501-30: Rear End Sheet Repairs—into a chronological, step-by-step order. This specific build procedure can be found in **Section 501-30: Rear End Sheet Metal Repairs, General Procedures, Pickup Bed Assembly**, and is available on Motorcraftservice.com.

NOTE: To assure correct pickup bed component alignment, all steps must be performed working from a solid, stable and level support base.

Tailgate Bed Overhead Dimensions						
Item	5.5-Foot Pickup Bed	6-Foot Pickup Bed	8-Foot Pickup Bed			
1	1708 mm	1708 mm	1708 mm			

[8-foot pickup bed shown. 5.5-foot and 6-foot pickup beds similar.]



- 1. Remove the pickup bed and set aside (refer to Section 501-04: Pickup Bed and Platform Body, Removal and Installation).
- If required, dimensionally restore the vehicle to pre-damage condition (refer to Section 501-26: Body Repairs – Vehicle Specific Information and Tolerance Checks).
- 3. With the help of an assistant, place the new pickup bed floor panel on a stable base and on both sides, install and properly position and clamp the inner wheelhouse, using locking pliers. With a 6.5 mm drill bit, drill guide holes on both sides, then install the blind rivets (W707638-S900C) using a rivet gun. (Figure 1)



4. On both sides, apply metal bonding adhesive (TA-1, TA-1-B, 3M[™] 08115, Lord Fusor® 108B) and then install, properly position and clamp the <u>outer</u> wheelhouse. Use the 6.5 mm drill bit to make guide holes in the outer wheelhouse for the blind rivets. (Figure 2)



- Use 80–120-grit sandpaper to remove the e-coat and properly clean the outer wheelhouse and both inner side panels.
- Apply metal bonding adhesive to both inner side panels and clamp into proper position utilizing the 6.5 mm drill bit to prepare additional blind rivet guide holes, and then install the blind rivets. (Figure 3)



- Using 80–120 grit sandpaper, sand and clean the front edges of the inner side panels and the bottom and sides of the new front panel. Apply metal bonding adhesive to the inner side panels and floor panel.
- 8. Install and properly clamp the front panel into position and then install blind rivets after drilling guide holes. (Figure 4)



Figure 4

On Target plans to include more details on this procedure in future volumes. Questions on this, or the proper repair of any Ford or Lincoln vehicle, can be sent to cphelp@fordcrashparts.com.

I-CAR's Repairability Technical Support (RTS) Sees Tremendous Growth

Inquiries soar as industry seeks realtime repairability knowledge on wide selection of vehicle makes, models and repair complexity.

Averaging approximately 400 inquiries a month when it first launched in 2014, today the RTS receives more than five million page views a year. And the number of information requests keeps growing: activity related to the OEM Hybrid and Electric Vehicle Disable Search feature received a total of 687 hits in the first quarter of 2020; one year later that same feature has now received 32,353 hits, which helps underscore the importance of the RTS portal resource as many automakers including Ford—will soon launch more high-volume electrified vehicles.

"RTS is the industry's leading online resource designed to fill knowledge gaps with timely, factual information technicians can count on," said Scott VanHulle, I-CAR manager, repairability and technical support and OEM technical relations. "You can't perform a complete, safe and quality repair if you're doubting a critical step in a repair procedure or need clarification about something that may present as ambiguous."

When it comes to Ford vehicles, the "Ask I-CAR" inquiries have jumped 210 percent in the first quarter of 2021 compared to the prior quarter.

The RTS team also can reach out to the Ford service engineers if more information is needed as part of the "Linking Pin" services. These Ford engineering experts support repair questions on body, chassis, electrical, diagnostics, ADAS



and other systems on all Ford and Lincoln vehicles. These requests are then used by the engineers to update repair procedures as necessary to continuously improve the overall repair process.

"For our Ford Certified Collision Network (FCCN), the I-CAR RTS team is the 'Front Line' resource for collision repair support," said Ford Collision Marketing Manager Dean Bruce.

In addition to filling knowledge gaps within collision repair procedures, the RTS portal also continually researches OEM service sites to provide the most up-to-date information for the following databases: OEM Calibration Requirements Search; OEM Partial Part Replacement Search; and the OEM Hybrid and Electric Vehicle Disable Search.

"I-CAR continues to provide valuable support to the FCCN, as well as the industry," said Bruce. "Our collective industry feedback keeps RTS as relevant as possible."

Ultimately, the RTS portal is beneficial to anyone within the industry, and it supports I-CAR's mission of helping to ensure every person in the industry has the knowledge, skills and information to perform complete, safe and quality repairs.

I-CAR's RTS Portal can be found at RTS.i-car.com.

For more details on the FCCN, visit collision. ford.com/FordCertifiedCollisionNetwork.

Inside the Industry

SCRS Opposes SMART Act

The Society of Collision Repair Specialists (SCRS) has issued a position statement formally opposing the Congressional "Save Money on Auto Repair Transportation" (SMART) Act. The bill, introduced by Congressman Darrell Issa (R-CA), would reduce the length of time on automotive design patents from the current 14 years to 30 months.

In arguing against the bill, SCRS states, "Consumers deserve to be made whole after an accident-not just in appearance, but also in terms of value and safety. That includes using quality parts and following OEM repair procedures that have been vetted by the engineers who designed the vehicle and crash tested for validation. To most consumers, collision repairs should be about ensuring their vehicle is repaired to such a standard that should it be in a subsequent accident, its safety systems will operate the same as the day it left the factory. Every consumer expects a proper repair, and pushing for more affordable options at the behest of the bill payer and the imitation market could be deemed as a violation of consumer trust."

Large Counterfeit Parts Seizure

U.S. Customs and Border Protection recently seized nearly 5,700 counterfeit automotive parts in a raid near Philadelphia. The parts were imported from China and included headlights, taillights, grilles, rear bumper fascias, power mirrors, door locks, hinges, steering wheel switches and paint kits. The total value of the seizure, had the parts been genuine, was just under \$300,000.

Average Vehicle Age Hits All-Time High

The average age of all light vehicles in the U.S. is now 12.1 years, surpassing the 12-year threshold for the first time. That's according to IHS Markit, which reports the average jumped from 11.9 in 2020, due in large part to last year's pandemicinduced reduction in new-vehicle sales.

Association Increases its Footprint

The collision trade group formerly known as the Mississippi Collision Repair Association has changed its name to the Gulf States Collision Association, and has now opened its doors to repairers in Alabama and Louisiana in making the switch. Visit GulfStatesCollisionAssociation.com for more information.





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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On Target Digital

Download OnTarget 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

