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Push Bumpers

Ford Motor Company understands it may be desirable to install a push bumper mounted on the front of emergency vehicles. The installation of push bumpers may adversely affect certain safety systems and/or performance aspects of your vehicle. You should consider the following when deciding whether to install a push bumper, the type of push bumper, and the appropriate installation.

Effect on Driver Assist Features

Driver assist features require sensors and cameras to monitor areas around the vehicle. Some push bumper designs may block or restrict the ability of the sensors and cameras to monitor the area around the vehicle. This could prevent the driver assist feature(s) from performing as designed and provide the intended safety benefit.

Effect on Air Bag Deployment

Different push bumper designs may each have unique deformation characteristics in a crash situation that may or may not affect the deployment of air bags. Without the benefit of crash tests on vehicles equipped with push bumpers (there are a number of different styles available), it is the opinion of Ford Motor Company that installation of some push bumpers could affect the timing of the air bag deployment. Use of a push bumper that mounts solely to the vehicle's bumper should not have a significant effect on air bag deployment.

Effect on Weight Distribution

The balance and weight distribution of a vehicle is carefully planned to achieve optimal stability, handling, and braking. Push bumpers can change this weight distribution by adding excessive weight to the front of the vehicle. There are many different styles of push bumpers available. Depending on the mounting and weight of the push bumper to be installed, it could have an adverse effect on the handling of a vehicle. Always verify the vehicle ride height after the addition of a push bumper. Adjust the ride weight if the measurements are not within specifications.

Effect on Air Flow

The powertrain cooling system on a vehicle relies on proper airflow through the radiator to keep the powertrain at its proper operating temperature. When adding a push bumper to a vehicle, make sure this airflow is not obstructed, especially when light and sirens are mounted on the push bumper. Reduced airflow could put additional strain on the cooling system and shorten the operational life of the related components. Elevated temperatures may also result in a reduced performance mode of operation intended to prevent temperature increase that may operate in a reduced power mode. During the installation process, keep the placement of components away from the grille area of the vehicle. For any components mounted in the grille area above the bumper, use factory-installed locations and do not exceed sizing of factory-installed components to maintain required airflow. Do not mount equipment below the bumper in front of the lower front fascia opening.

Vehicle Interior Partitions

Ford Motor Company understands it may be desirable to install partitions between certain areas inside the vehicle. The installation of partitions may adversely affect certain safety systems and/or occupants and K-9 passengers. You should consider the following when deciding whether to install a partitions, the type of partition, and the appropriate installation.

Effect on Air Bag Deployment

Care must be taken when selecting and installing partitions to prevent the partition from restricting the deployment path of air bags, routing of air bag wiring to the air bags and aftermarket police equipment (examples include, lights, siren, radios, antenna, video, etc.) wiring that may use the same routing path and restrict/prevent air bags from deploying. If the partition restricts the deployment path, the air bag may not fully deploy and/or its rate of deployment changed such that it will not provide the designed protection for the vehicle. Damage to the wiring and/or connectors that control the deployment of the air bags may prevent the air bag from deploying either fully or at the intended timing.

Occupant Protection

For air bags to perform as designed, a vehicle upfit must not affect the as-designed full deployment and timing of deployment. Federal Motor Vehicle Safety Standards (FMVSS) and Canadian Motor Vehicle Safety Standards (CMVSS) provide information regarding occupant area requirements. FMVSS/CMVSS requirements should be consulted when selecting and installing a partition and the occupant area created. Occupant safety can also be affected by contact with a hard surface (i.e., steel, etc.) or with aftermarket partitions and equipment, as a result of, for example, traffic collision, emergency response-type driving conditions, etc.

Occupant Comfort

The design of the partition may affect air flow from the vehicle climate control (heating/cooling) system if air flow inside the vehicle is restricted. Vehicle climate control venting can be considered with the design of the partition for temperature considerations.

Section 6: Mounting

Interior Equipment Mounting

⚠ WARNING:
Interior trim panels should not be used for mounting police equipment.

Seatbelt Opperation

⚠ WARNING:
The partition and the installation hardware of the partition must not interfere with the proper operation of the safety belt, safety belt retractor, side impact sensor and the safety belt height adjusters. Failure to follow these instructions may result in personal injury.

Siren and Grille Lights

NOTICE:
Do not modify the cooling system. High voltage vehicle components may be damaged if any cooling system modifications are attempted.

The cooling system relies on proper airflow through the radiator to keep components at their proper operating temperature. When adding sirens and grille lights to a vehicle, make sure this airflow is not obstructed. Reduced airflow could put additional strain on the cooling system and shorten the operational life of related components. The cooling system also cools the electric motors and electronics. If the coolant exceeds certain temperatures, the components will attempt to protect themselves by limiting the power and torque available. During the installation process, keep the placement of components away from the grille area of the vehicle.

Mounting Equipment to the Vehicle

- Do not mount equipment to the high voltage (orange) wiring/cables, the high voltage cover or the HVTB cooling plenum.
- Do not mount equipment on the instrument panel between the driver and passenger airbags due to deployment variability.
- Do not mount equipment on the instrument panel between the driver and the pedals, between the door and the console area due to knee airbag deployment variability.
- Do not mount equipment obstructing the HVTB service disconnect located under the hood, LH side of the engine compartment.
- Do not remove or block the HVTB cooling plenum or ducts. These components are necessary for the proper cooling of the HVTB.
- Do not cover any warning or vehicle labels.
- ***NOTICE:***
  The side impact sensors are tuned to excite based on their mass (including wiring), as well as the host sheet metal. Any alteration to these components must be avoided. Additions such as padding, wire connectors, retainers, tape or fasteners of any kind should not be used. All fasteners in this predominantly sheet metal environment should be made of steel or a non-conductive plastic to guarantee retention and longevity. If any part of a steel fastener is exposed to a wet area, it should be plated to resist corrosion.
- Do not mount equipment to the A, B, C, or D-pillars.
- Do not mount equipment on the headliner within 200 mm (8 in) of the side edges.
- Do not mount equipment above the beltline within 200 mm (8 in) of the side glass from the A-pillar leading edge to the rear edge of the D-pillar.
- Do not mount equipment on the headliner along the siderails.
- Do not install a partition, divider or equipment that spans the vehicle above the beltline.

Airbag, Safety Restraint System and Side Impact Sensor Component Description and Location

The safety belt retractors are located in the base of the B-pillars. The pretensioner located in the retractor is referred to as the safety belt retractor pretensioner. In the event the Restraints Control Module (RCM) senses an impact, pretensioners provide improved occupant protection by rapidly removing slack from the safety belt. Removing slack from the safety belt helps to properly position the occupant and allows for maximum effectiveness of the safety belts and the airbags.

- Do not use the safety belt retractor bolts for mounting the partition.
- Do not mount any partition hardware on the inboard side of the B-pillar within the bottom 305 mm (12 in).
- Do not mount any partition hardware that will interfere with the proper sealing of the door.
- Do not mount any police hardware to block and/or reduce the design intent function of driver safety systems such as auto emergency brakeing camera if equipped.

Section 6: Mounting

NOTE:
The effectiveness of all safety system sensing equipment should be reviewed duirng the upfit process to ensure design intent function.

The side impact sensors are located in the front doors and C-pillars; one sensor in each door and in each C-pillar. The location and orientation are critical for the correct operation of all the impact sensors. Do not use the attachment bolts of the impact sensors to mount any equipment.

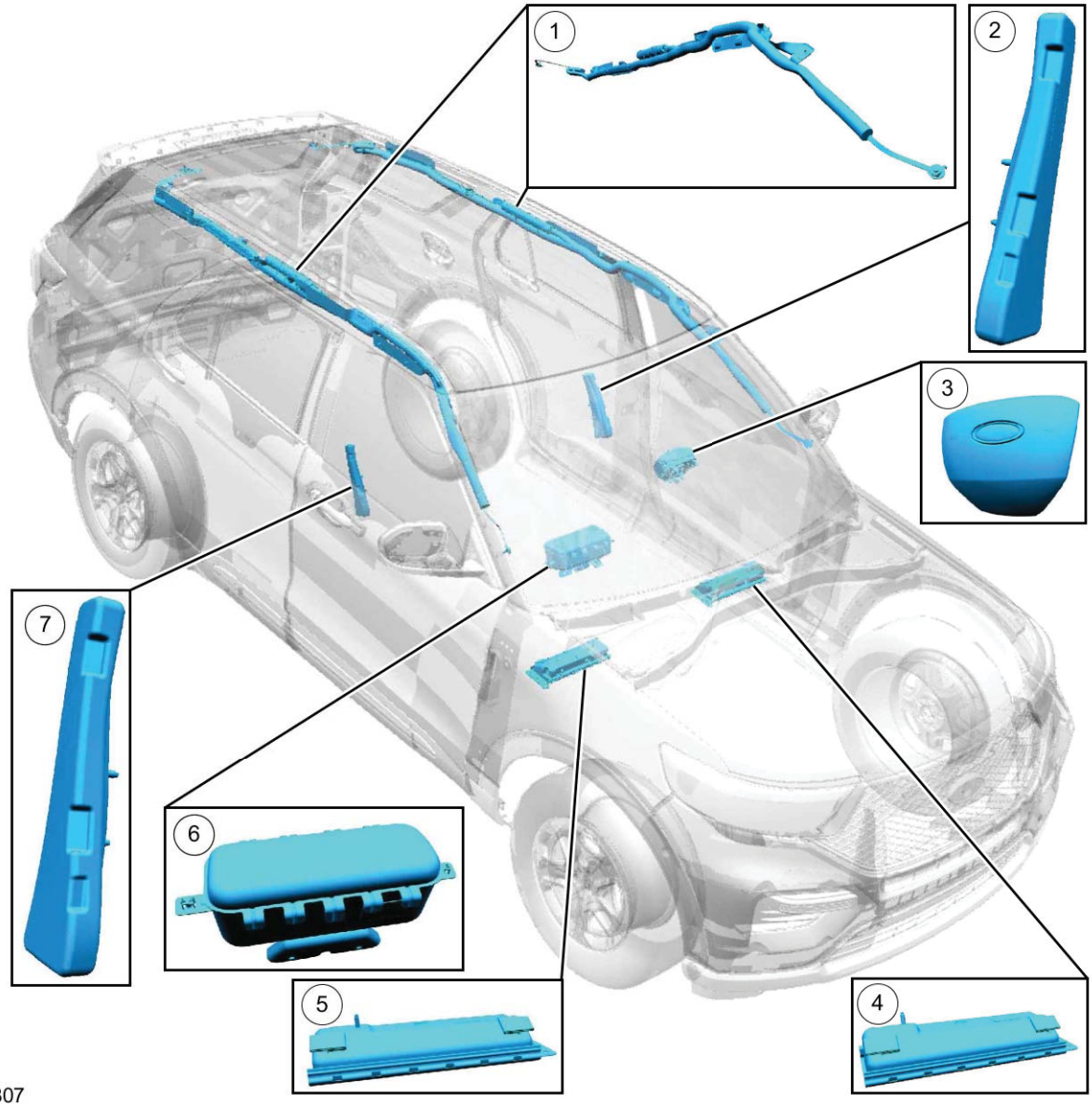
The RCM is mounted under the front of the center console. The RCM orientation is critical for proper operation of the restraint systems. Do not relocate or use the RCM mounting bolts for attachment purposes of any equipment.

Various safety restraints exist within the vehicle, the restraint system includes various modules, sensors, retractors, airbags and the safety belt systems. Refer to the workshop manual for more detail on the safety restraint system.

NOTE:
If OEM rear seat belt, buckles and pre-tensioner cannot be used as design intent, retaining and securing them will prevent OEM warning notifications to occupants, but the vehicle modifier is responsible for providing an alternative safety restraints system that meets FMVSS requirements.

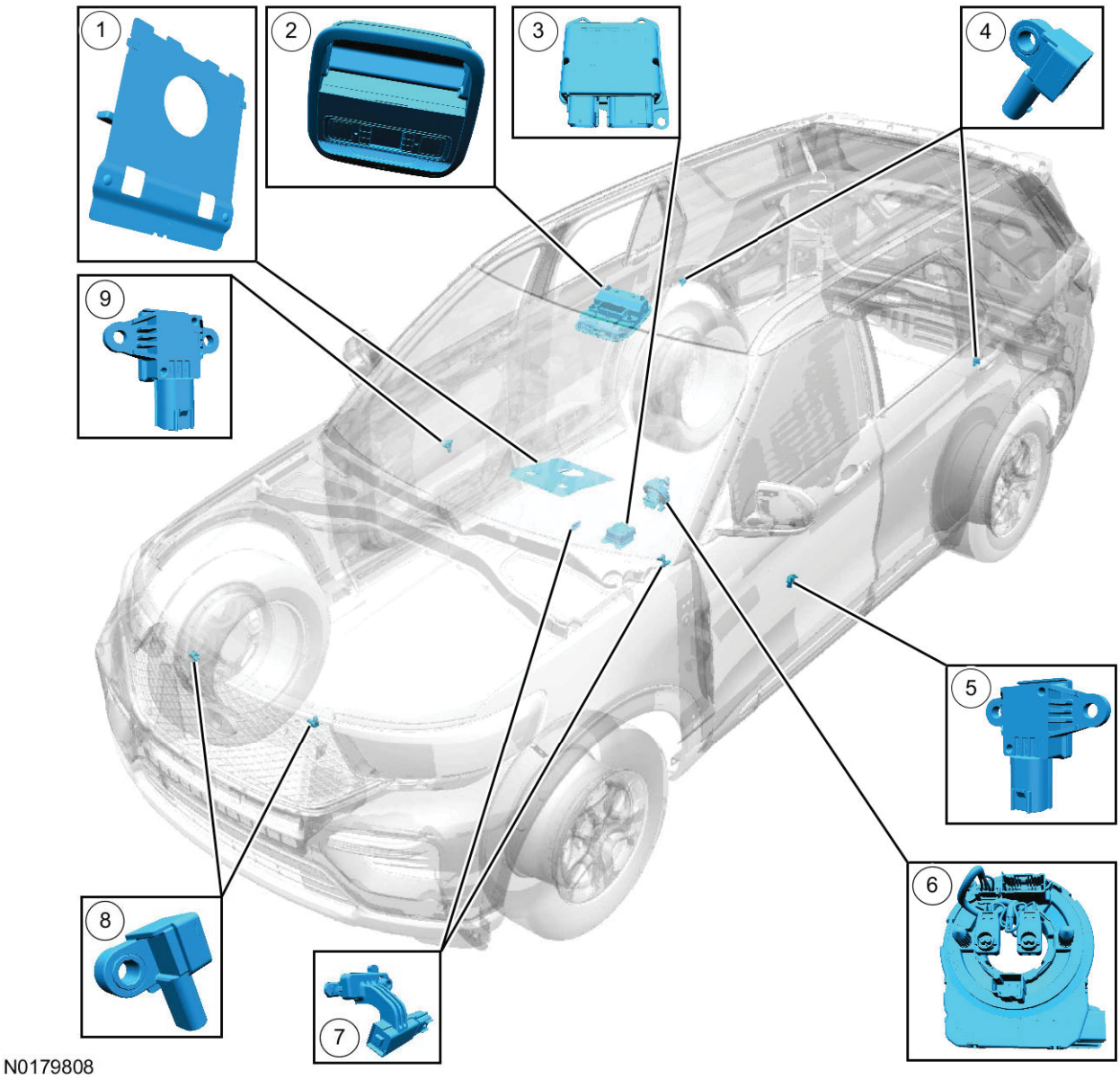
Section 6: Mounting

NOTE:
Airbag, safety restraint system and side impact sensor component location shown below.



Item	Description
1	Driver and passenger side curtain airbag
2	Driver side airbag
3	Driver airbag
4	Driver knee airbag
5	Passenger knee airbag
6	Passenger airbag (includes canister vent)
7	Passenger side airbag

Section 6: Mounting

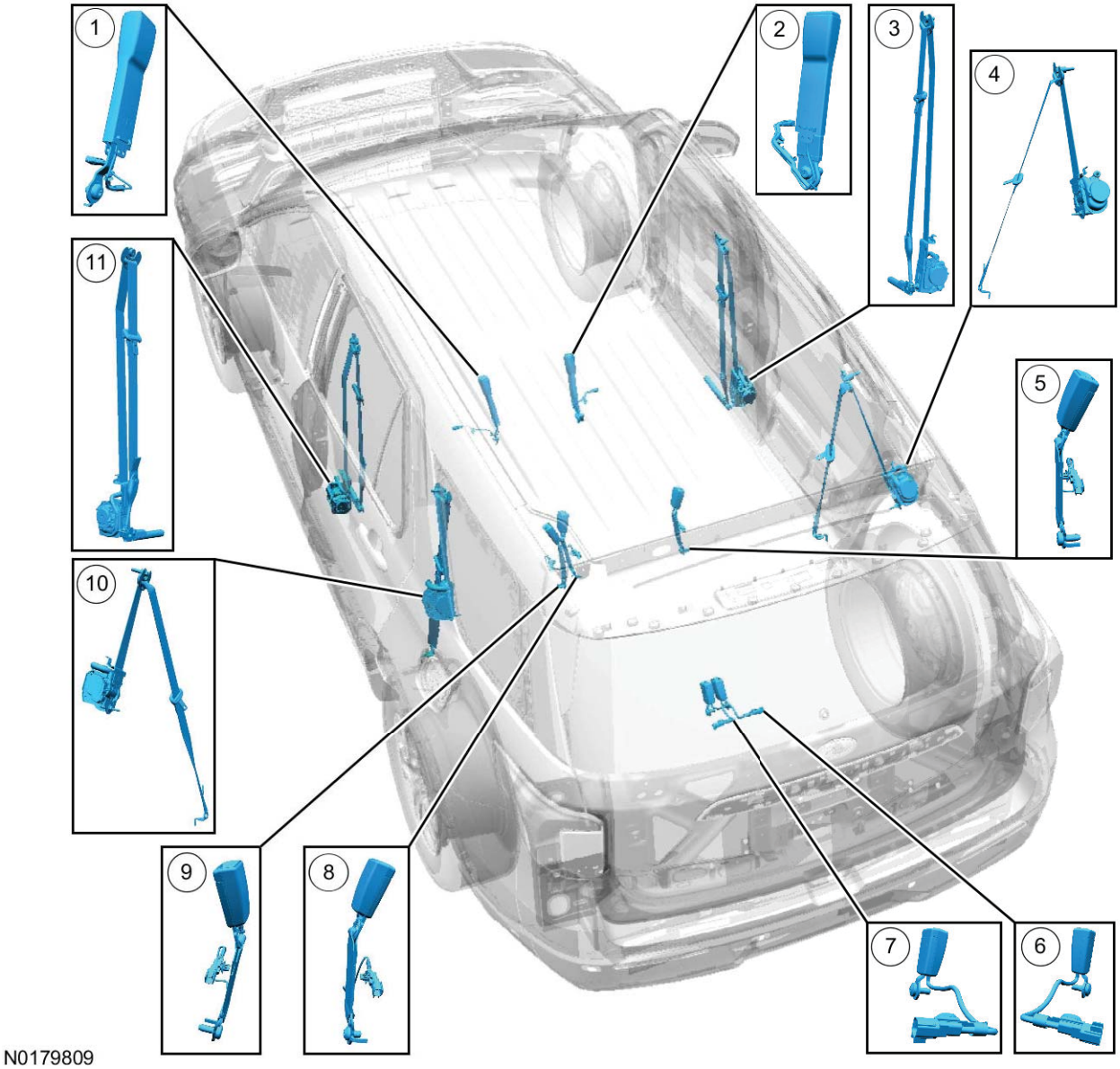


Item	Description
1	OCSM (occupant classification system module) (includes OCS (occupant classification system) sensor and gel-filled bladder)
2	Overhead console (includes PAD (passenger airbag deactivation) indicator)
3	RCM (restraints control module)
4	Driver and passenger C-pillar side impact sensors
5	Driver front door side impact sensor
6	Clockspring

Section 6: Mounting

(Continued)

7	Seat position sensors
8	Driver and passenger front impact severity sensors
9	Passenger front door side impact sensor



Item	Description
1	Driver seatbelt buckle (includes buckle sensor)
2	Front passenger seatbelt buckle (includes buckle sensor and Belt Tension Sensor (BTS)

Section 6: Mounting

(Continued)

3	Front passenger seatbelt retractor (includes retractor pretensioner, retractor load limiter and anchor pretensioner)
4	Second row passenger side outer seatbelt retractor (includes retractor pretensioner)
5	Second row passenger side outer seatbelt buckle (includes seatbelt buckle switch)
6	Third row passenger side seatbelt buckle (includes seatbelt buckle switch)
7	Third row driver side seatbelt buckle (includes seatbelt buckle switch)
8	Second row center seatbelt buckle (if equipped) (includes seatbelt buckle switch)
9	Second row driver side outer seatbelt buckle (includes seatbelt buckle switch)
10	Second row driver side outer seatbelt retractor (includes retractor pretensioner)
11	Driver seatbelt retractor (includes retractor pretensioner)

Airbag Deployment Interference

⚠ WARNING:
Do not place objects or mount equipment in front of the airbag module cover or in the front seat area; this is to avoid contact with a deploying airbag. Placing objects on or over the airbag inflation area may cause those objects to be propelled by the airbag. Failure to follow these instructions may result in personal injury.

⚠ WARNING:
Dash, tunnel or console-mounted equipment should be placed only within their specified zone. Failure to follow this instruction may result in personal injury.

⚠ WARNING:
Do not mount equipment between the side of the front seat and the door trim that would block deployment of the side airbag. Failure to follow this instruction may result in personal injury.

⚠ WARNING:
Do not mount equipment on the instrument panel between the driver and the pedal area, between the door and the console that may come in contact with or block a deploying knee airbag. Failure to follow this instruction may result in personal injury.

⚠ WARNING:
Do not attempt to service, repair or modify the airbag supplemental restraint systems (SRS) or its fuses. See your Ford or Lincoln dealer. Failure to follow this instruction may result in personal injury.

⚠ WARNING:
Modifications to the front end of the vehicle, including frame, bumper, front end body structure, tow hooks and B-pillar surrounding parts may affect the performance of the airbag sensors, increasing the risk of injury. Do not modify the front end of the vehicle.

⚠ WARNING:
Do not place objects or mount equipment on or near the headliner at the siderail that may come into contact with a deploying Safety Canopy® System. Failure to follow this instruction may increase the risk of personal injury in the event of a collision.

Section 6: Mounting

⚠ WARNING:
Do not attempt to service, repair or modify the Safety Canopy® System, its fuses, the A, B, C, or D-pillar trim, or the headliner on a vehicle containing a Safety Canopy® System. See your Ford or Lincoln dealer.

⚠ WARNING:
To reduce risk of injury, do not obstruct or place objects in the deployment path of the inflatable Safety Canopy® System.

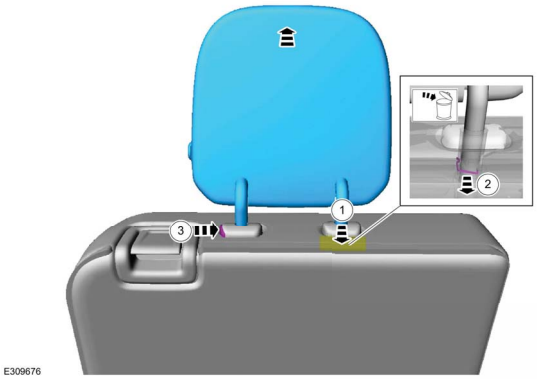
NOTICE:
The side impact sensors are tuned to excite based on their mass (including wiring), as well as the host sheet metal. Any alteration to these components must be avoided. Additions, such as padding, wire connectors, retainers, tape or fasteners of any kind should not be used. All fasteners in this predominantly sheet metal environment should be made of steel or a non-conductive plastic to guarantee retention and longevity. If any part of a steel fastener is exposed to a wet area, it should be plated to resist corrosion.

Driver/passenger airbags affect the way equipment can be mounted in vehicles. Any surfaces that could come into contact with an airbag during deployment must not damage the airbag or alter its deployment path. Sharp edges, corners or protrusions could damage the nylon airbag material and reduce the effectiveness of the airbag. Do not mount or place any objects in the deployment path of an airbag. Airbags must be allowed to fully deploy without restriction. The deployment of airbags is not compatible with any configuration of equipment mounting that places objects in the airbag deployment path. Equipment mounted or placed in the deployment area of an airbag will reduce the effectiveness of the airbag, damage the airbag and potentially damage or dislodge the equipment.

Airbag deployment drawings are provided in Section 7. Consult the drawings before equipment is installed inside the passenger compartment to make sure that the mounted equipment does not interfere with airbag deployment.

Front Seat Headrest

1. Remove the outboard seat head restraint.
   a. Push down on the outboard seat backrest cover to gain access to the outboard seat head restraint retaining clip.
   b. Remove and discard the outboard seat head restraint retaining clip.
   c. Push the outboard seat headrest restraint release button.



Seat Attaching Bolts

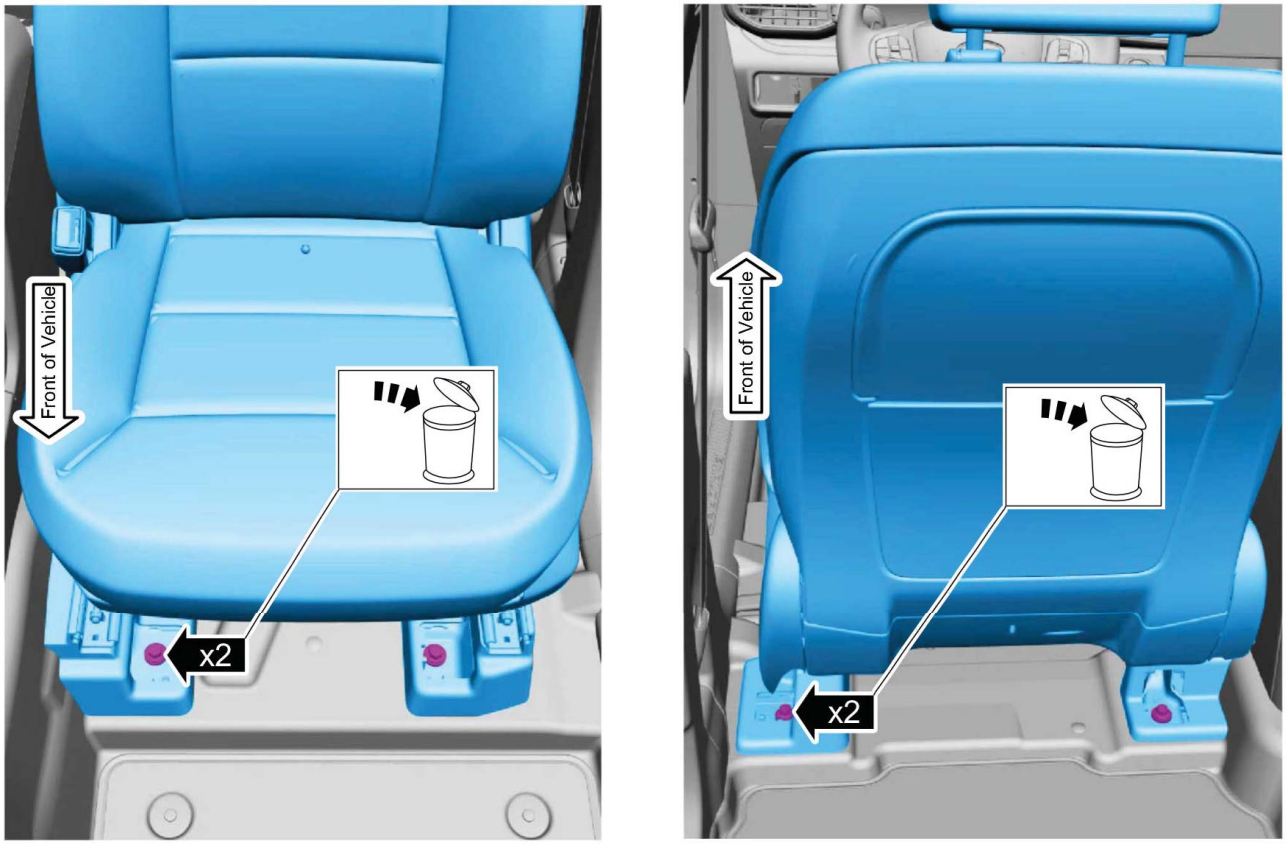
The vehicle safety belts and seat assemblies are factory installed in their correct location. Seat attaching bolts are not to be used as attachment points for any equipment. Front seat bolts are to be discarded when removed (one time use). Any added material between the seat attaching bolt and the seat frame could have unpredictable effects on the seat bolt torque. If the safety belts are removed for any reason, all of the appropriate attaching hardware must be hand started and then tightened to the correct torque specifications as per the Workshop Manual. Proper operation must be verified before returning the vehicle to service.

NOTE:
The retainers shown below are one time use. If removed, replace with a new retainer.

Front Seat

Section 6: Mounting

Front Seat



N0180476

Section 6: Mounting

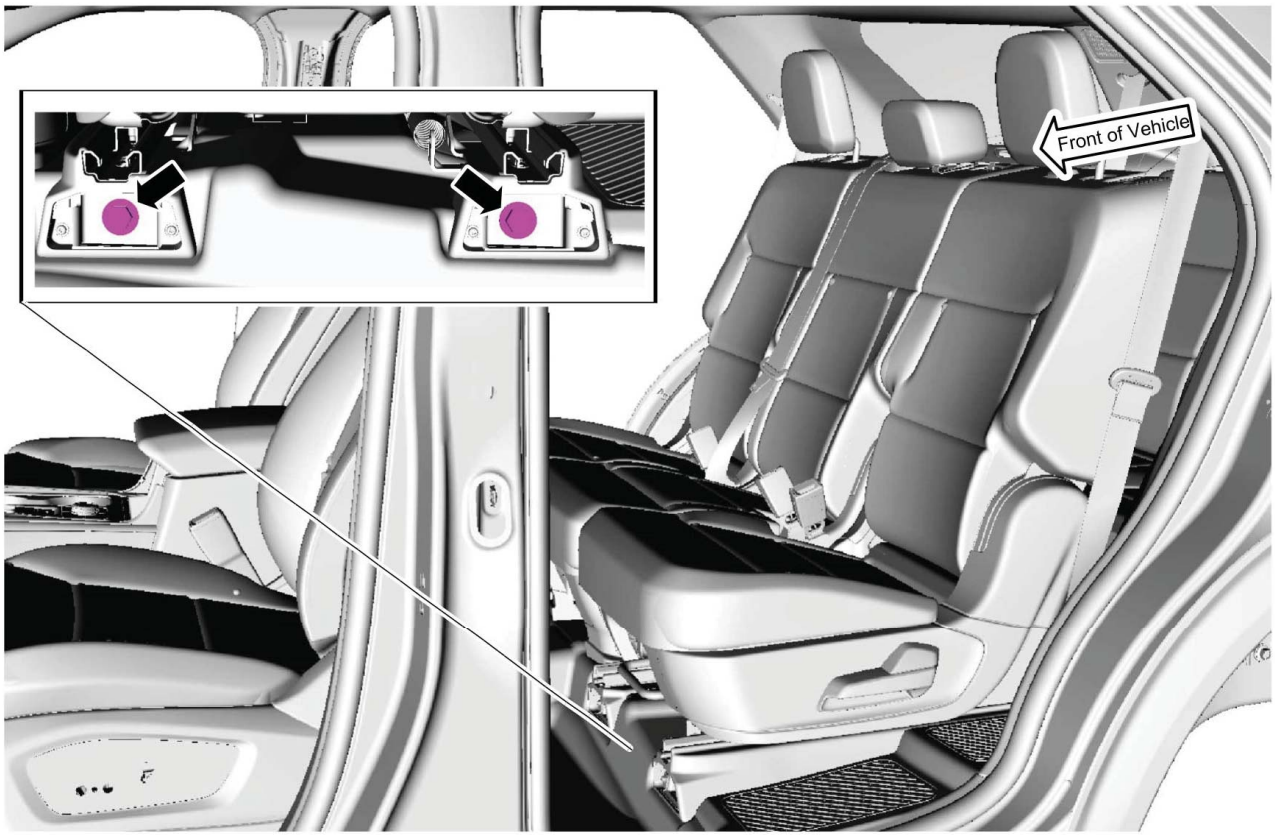
NOTE:
If removed torque the bolts in the following sequence.

1. 35 lb.ft (47 Nm)
2. 35 lb.ft (47 Nm)
3. 35 lb.ft (47 Nm)
4. 35 lb.ft (47 Nm)

N0180477

Section 6: Mounting

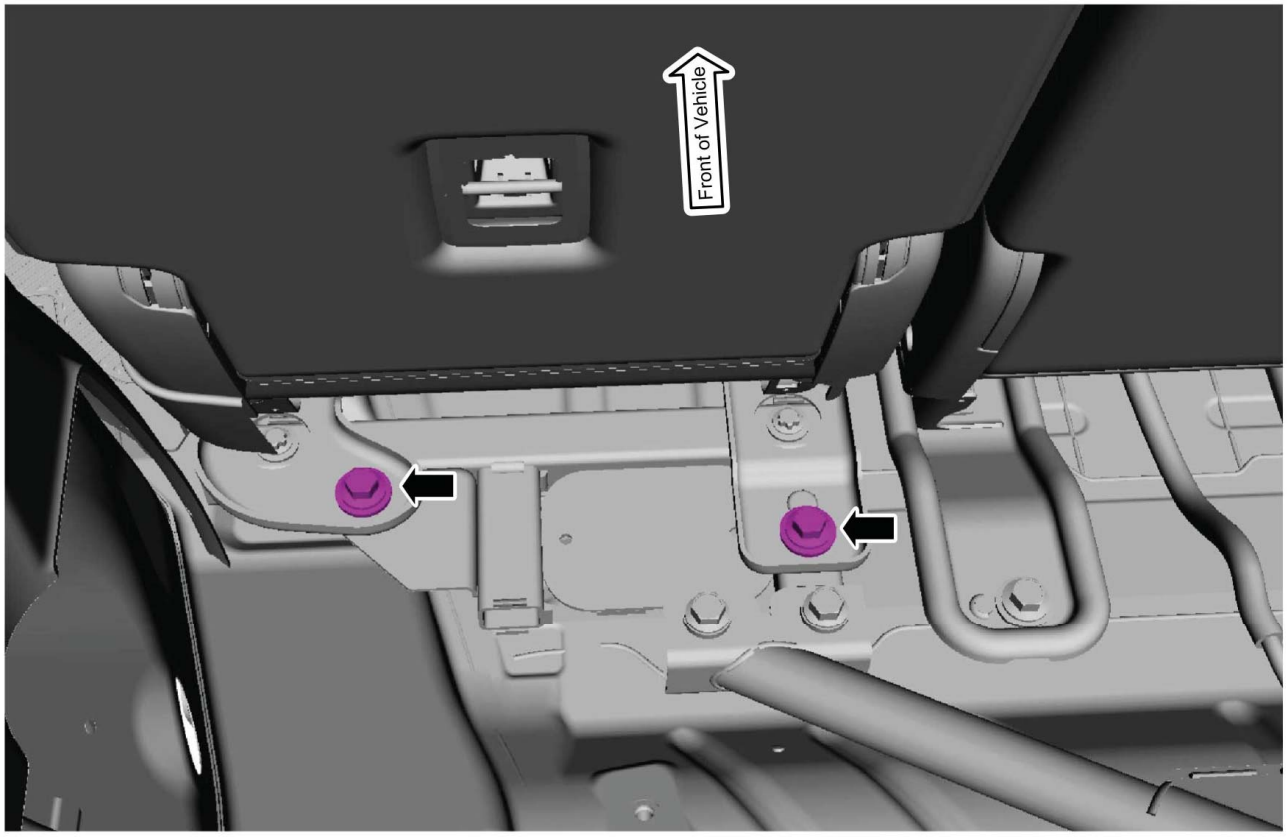
Rear Outboard Seat



N0180478

If removed, torque to 33lb.ft (45 Nm)

Section 6: Mounting

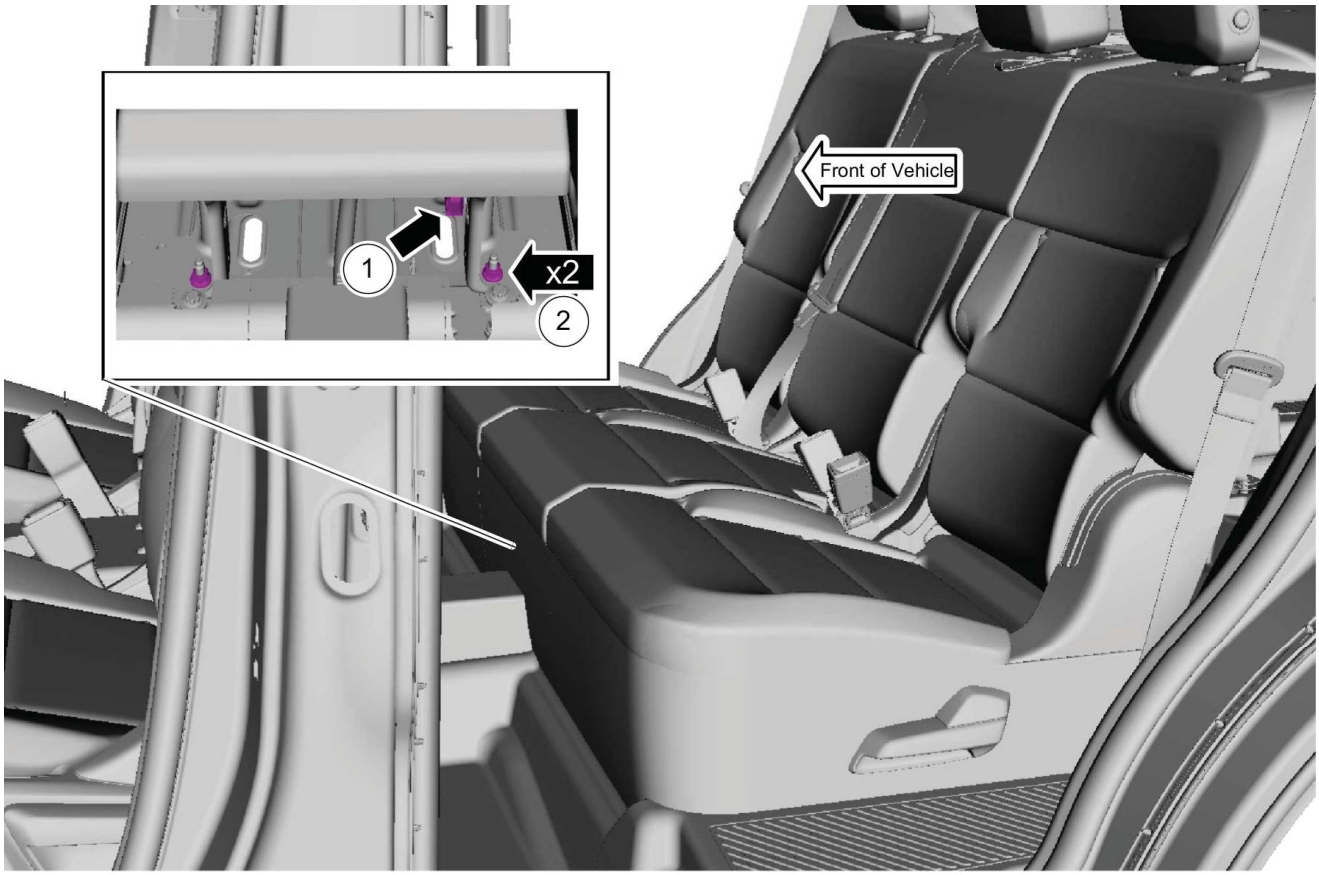


N0180479

If removed, torque to 33 lb.ft (45 Nm)

Section 6: Mounting

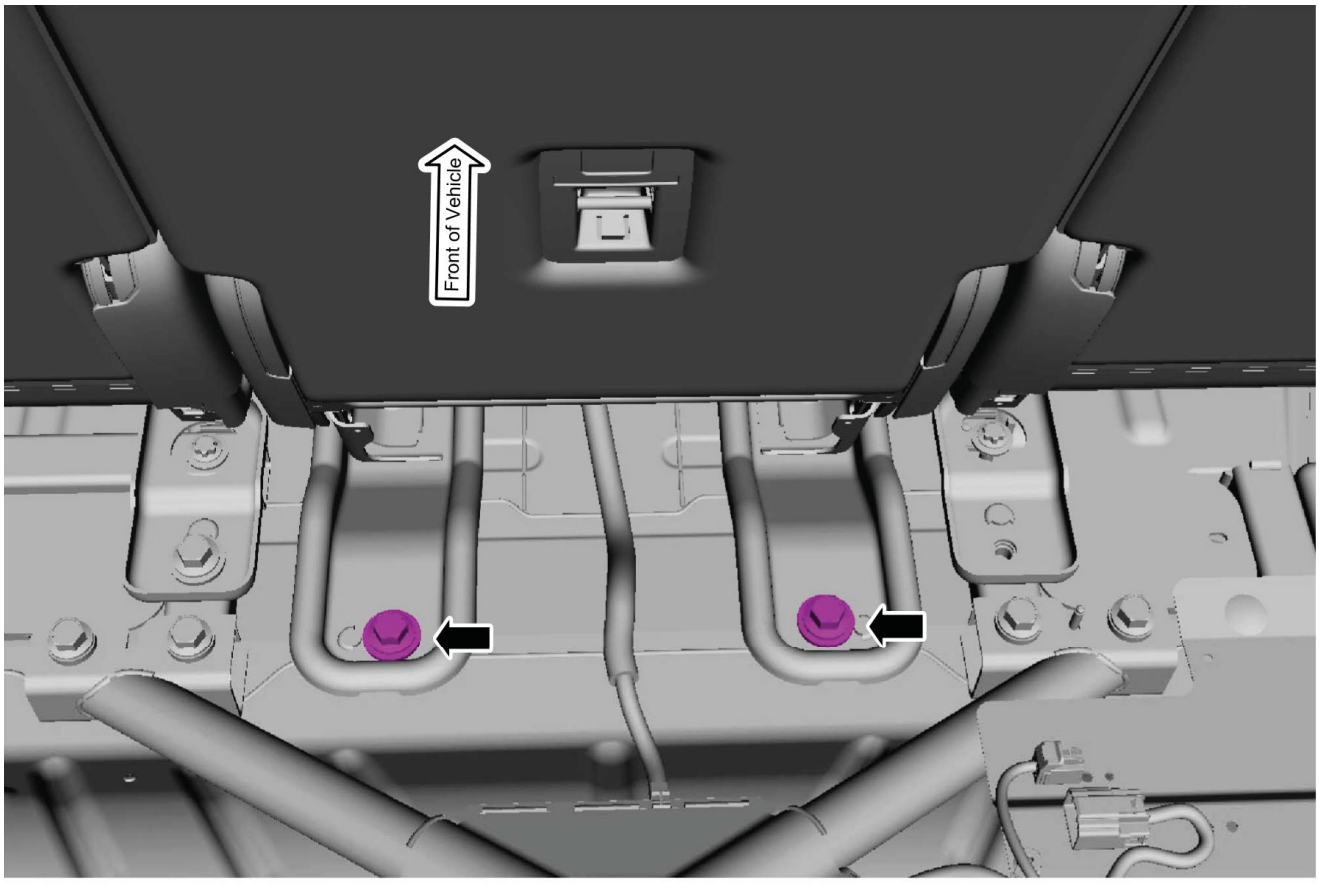
Rear Center Seat



N0180480

If removed, torque to 33lb.ft (45 Nm)

Section 6: Mounting



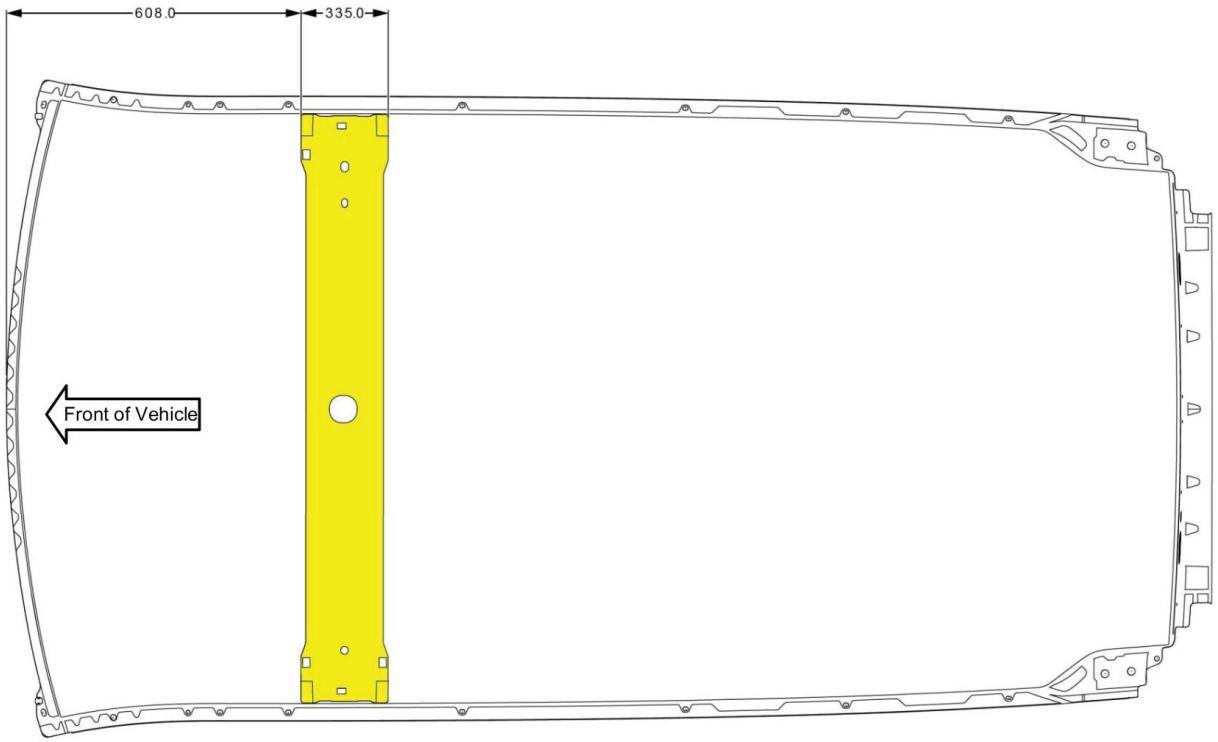
N0180481

If removed, torque to 33lb.ft (45 Nm)

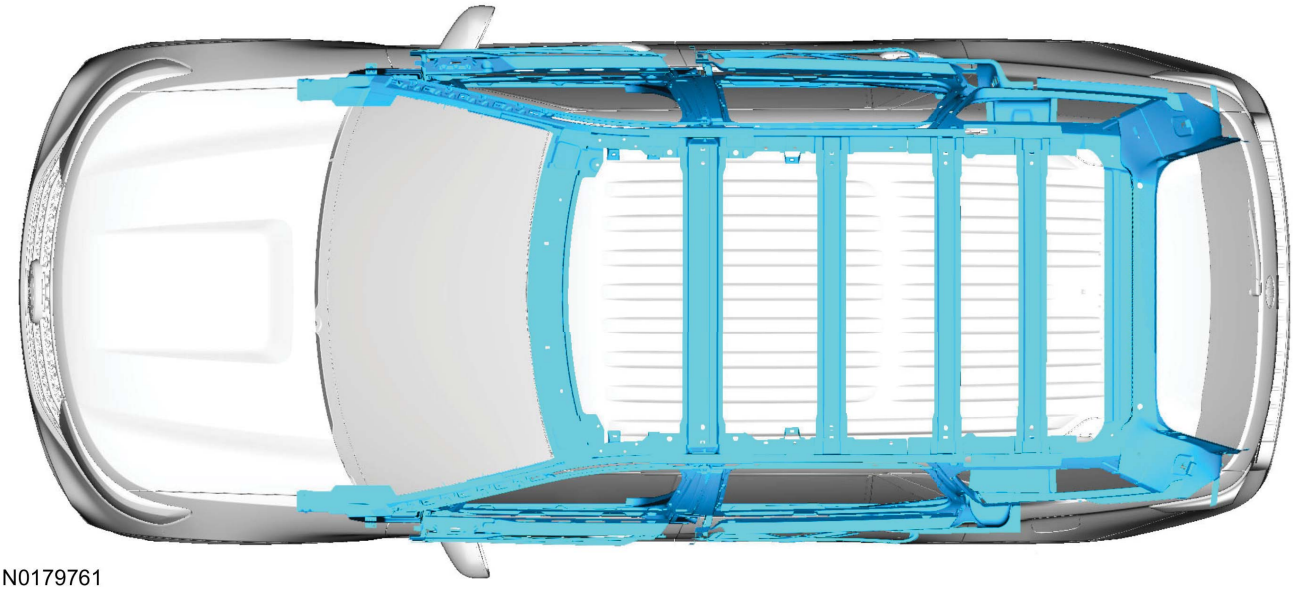
Section 6: Mounting

Roof Bow Locations

TOP OF ROOF VIEW WITH FORWARD MOST ROOF BOW HIGHLIGHTED (DIMENSIONS)



N0179842



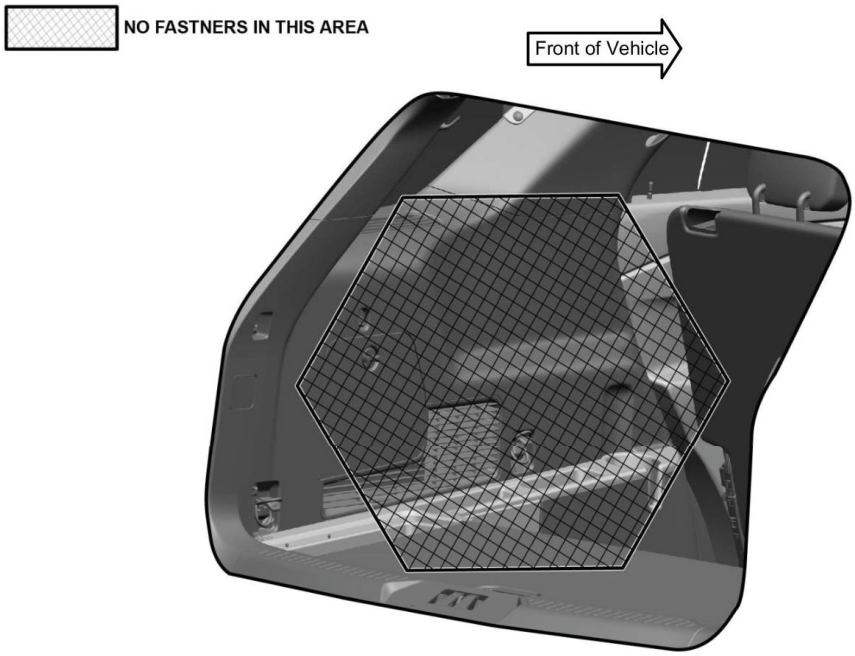
N0179761

Section 6: Mounting

Cargo Area View

Driver side of cargo area shown no fasteners should be attached to passenger side of cargo area also.

VIEW LOOKING FORWARD INTO REAR OF U625 DRIVER/PASSENGER SIDES TO HIGHLIGHT AREAS UPFITTERS ARE TO AVOID USING FASTENERS



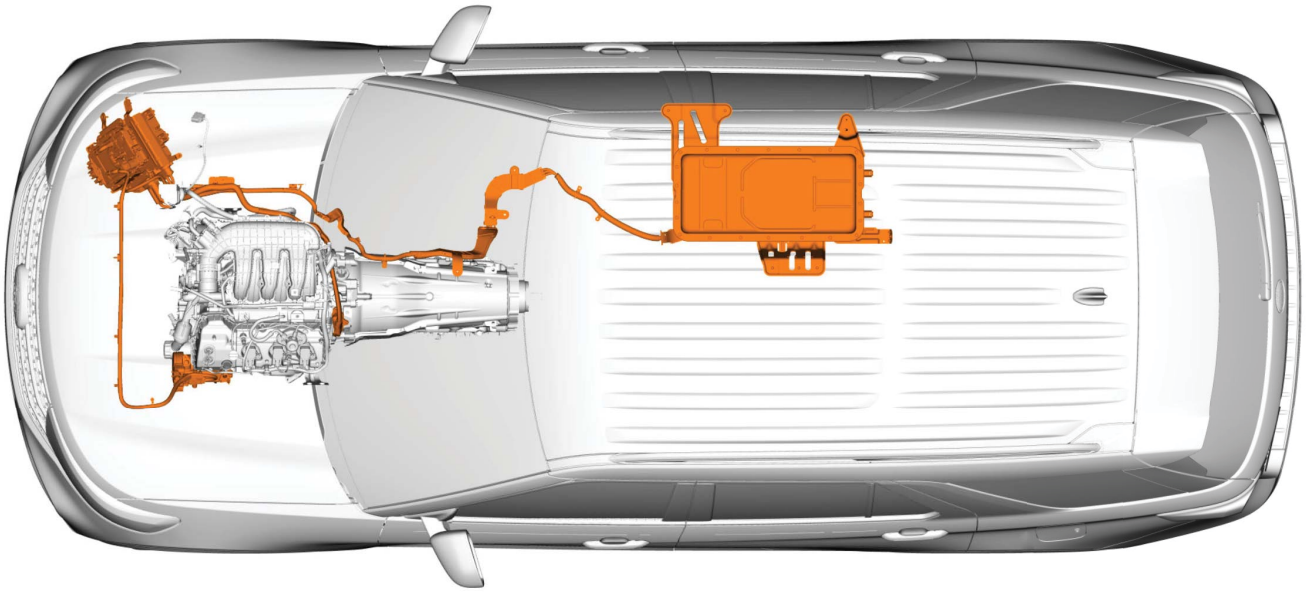
N0180482

Areas to Avoid When Choosing Mounting Locations

The following illustrations show locations to avoid when choosing components mounting locations, these locations include: High Voltage Components and Cables, Fuel System Components, Brake System Components, and Exhaust Components. To avoid personal injury or damage to vehicle systems avoid drilling or mounting of components in these areas.

Section 6: Mounting

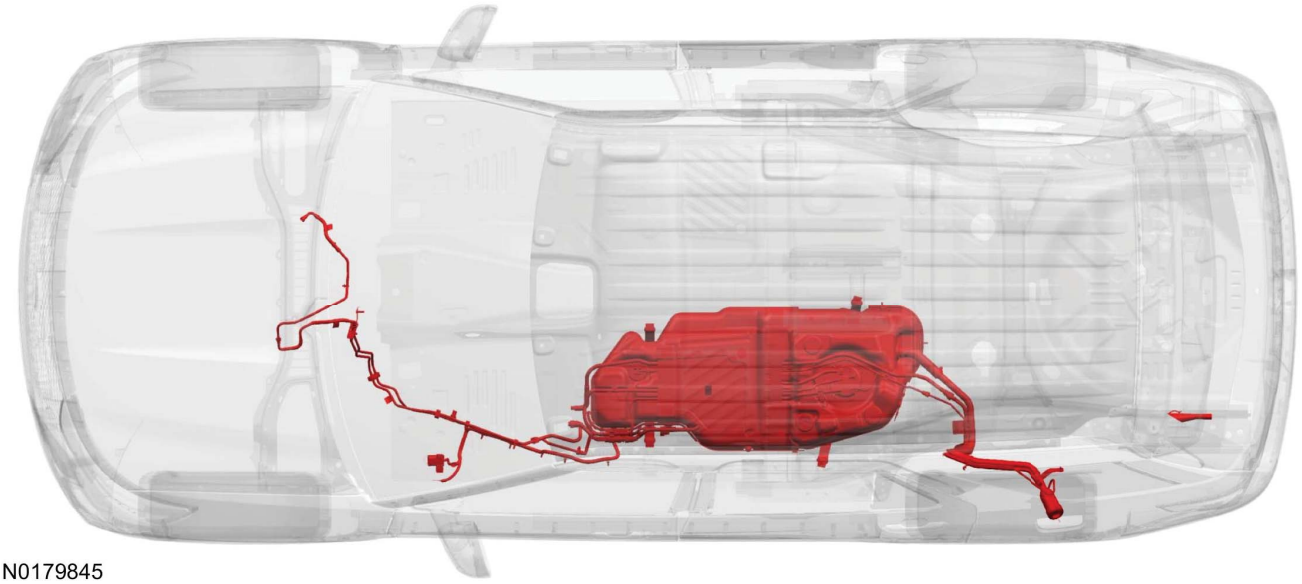
High Voltage System Components



N0180458

Fuel System Components

FUEL SYSTEM COMPONENTS HIGHLIGHTED

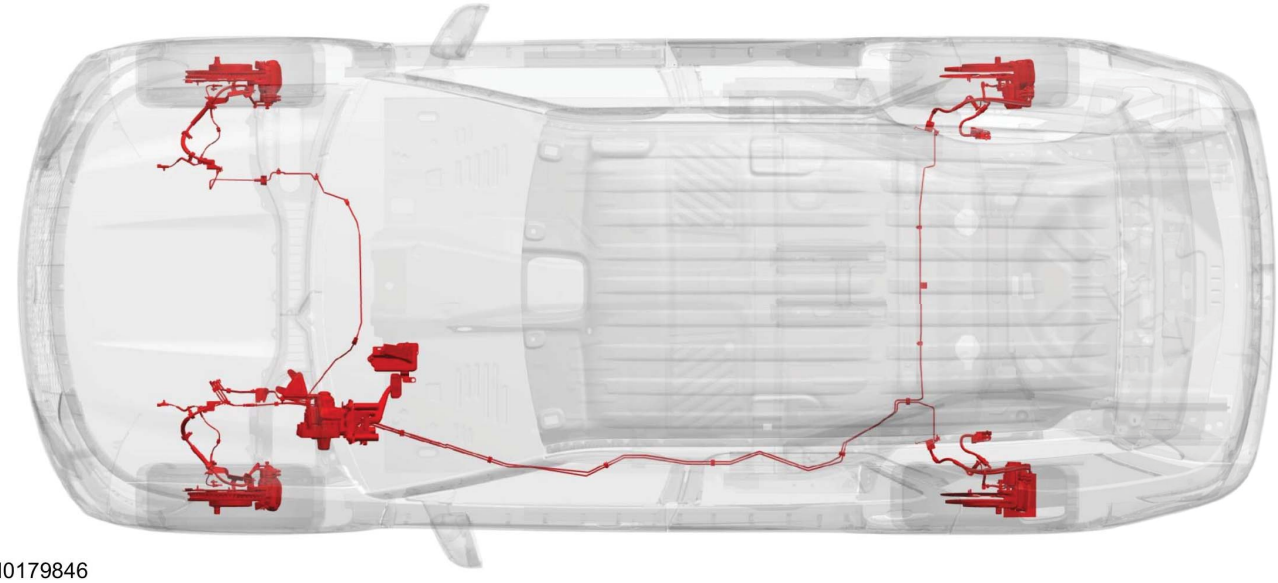


N0179845

Section 6: Mounting

Brake System Components

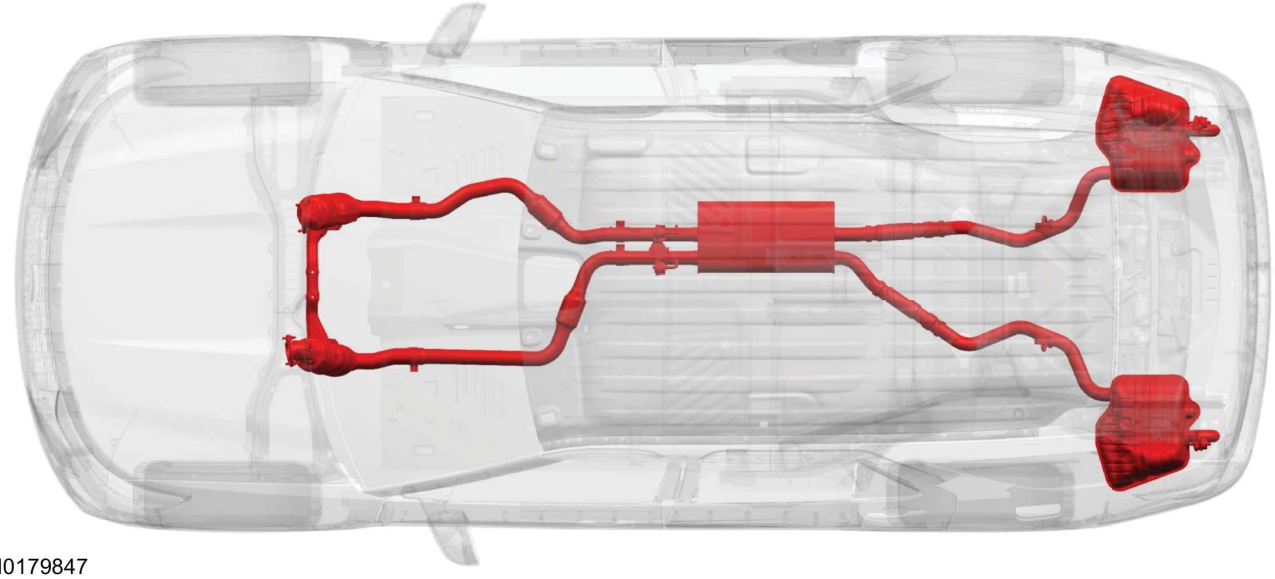
BRAKE SYSTEM COMPONENTS HIGHLIGHTED



N0179846

Exhaust System Components

EXHAUST SYSTEM COMPONENTS HIGHLIGHTED



N0179847

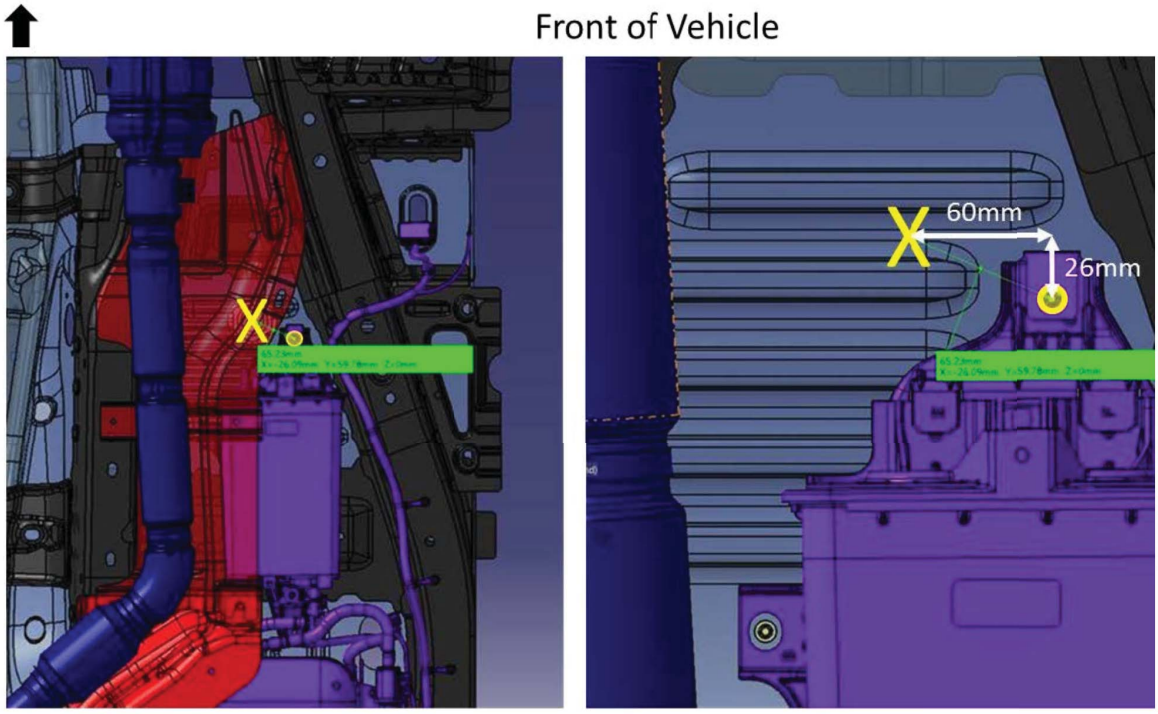
Section 6: Mounting

Floor Drain

2nd row passenger side V-Drains are not feasible on the Police Interceptor Utility Hybrid due to the FHEV battery location.

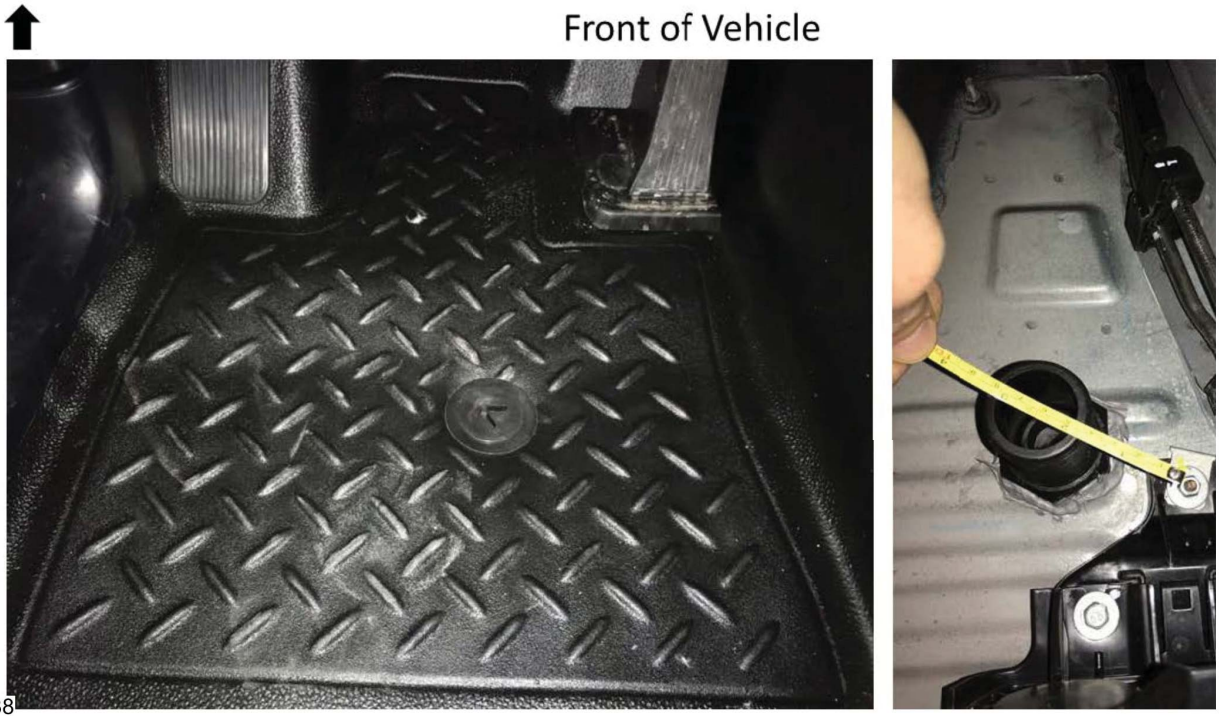
Driver's Footwell

Measure 60 mm (2.4 inches) inboard and 26 mm (1 inch) forward of the front mounting stud of evaporator canister. Center the hole on flat between floor pan ribs, as seen in the images below. All holes should be drilled from the underside of the vehicle, starting with a small pilot hole, and then moving to the appropriately sized hole saw.



N0182537

Section 6: Mounting

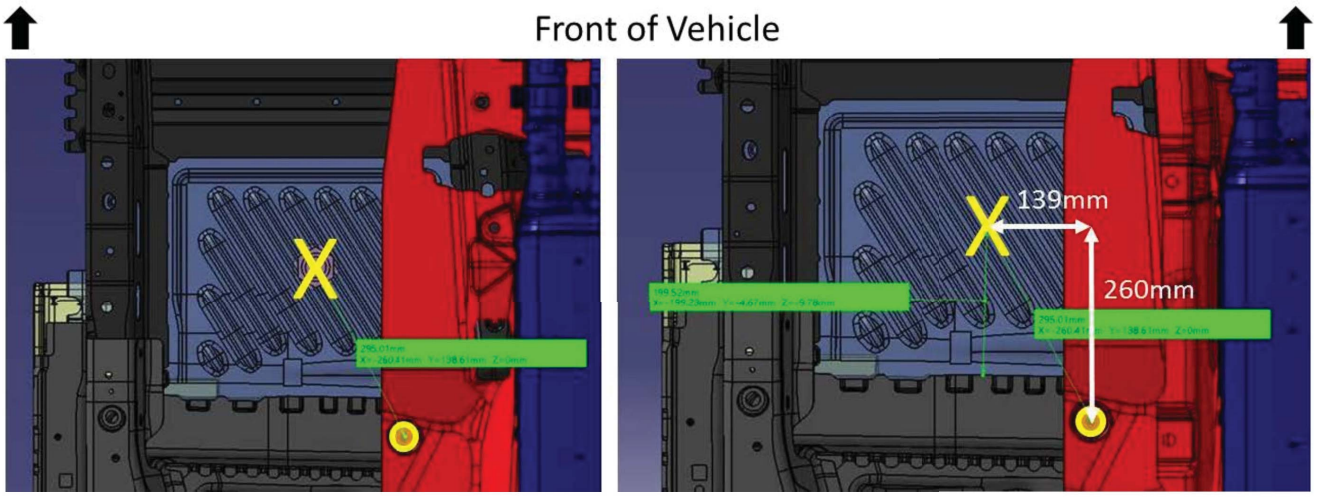


N0182538

2nd Row RHS Footwell (3.3L and 3.0L gas models ONLY)

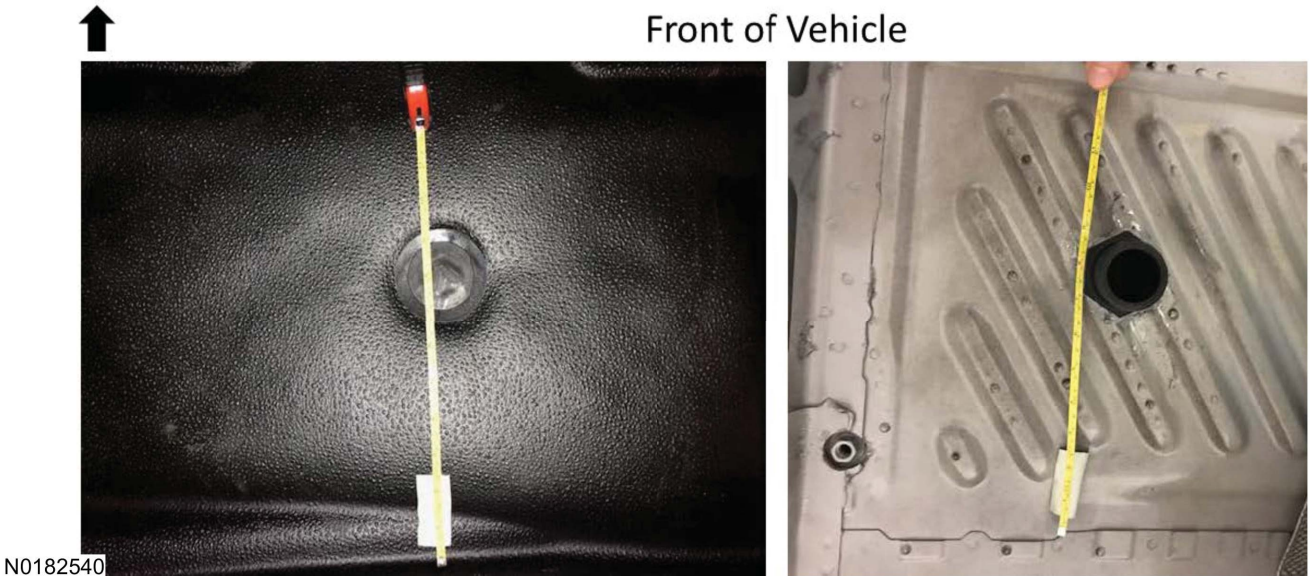
Measure 139 mm (5.5 inches) outboard and 260 mm (10.2 inches) forward of the identified heat shield stud. Center the hole on flat between floor pan ribs, as seen in the images below. All holes should be drilled from the underside of the vehicle, starting with a small pilot hole, and then moving to the appropriately sized hole saw.

NOTE:
2nd row passenger side footwell drain not feasible on hybrid models due to FHEV battery location



N0182539

Section 6: Mounting



N0182540