



FORD F-150 Lightning

2022 - 2024

INFORMATION FOR FIRST AND SECOND RESPONDERS

EMERGENCY RESPONSE GUIDE



FORD F-150 LIGHTNING

ELECTRIC





FORD F-150 Lightning

2022 - 2024

CONTENTS

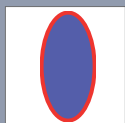
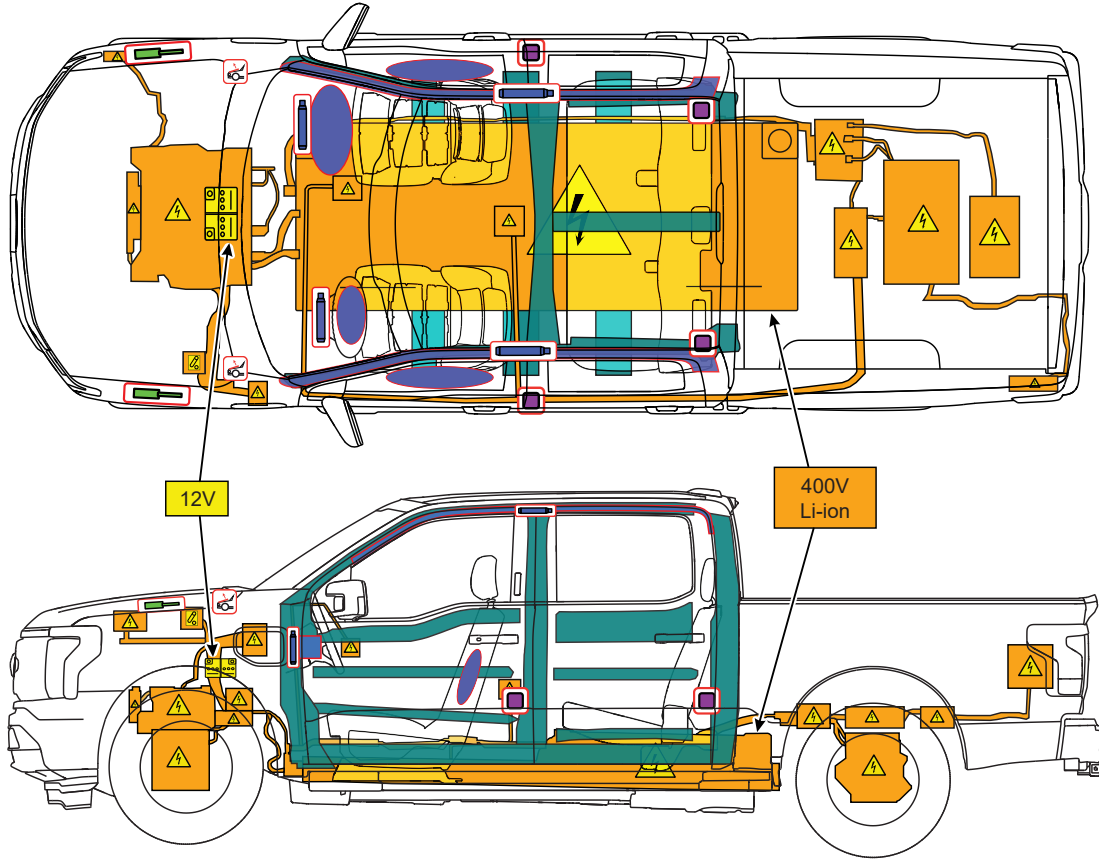
1. Identification / recognition	Page 4
2. Immobilization / stabilization / lifting	Page 7
3. Disable direct hazards / safety regulations	Page 11
4. Access to the occupants	Page 22
5. Stored energy / liquids / gases / solids	Page 31
6. In case of fire	Page 32
7. In case of submersion	Page 36
8. Towing / transportation / storage	Page 37
9. Important additional information	Page 41
10. Explanation of pictograms used	Page 41



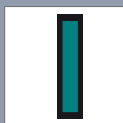


FORD F-150 Lightning

2022 - 2024



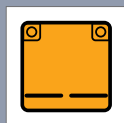
Airbag



Structural
Reinforce-
ments



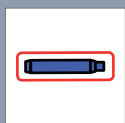
Control unit



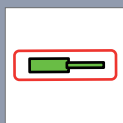
High-voltage
battery



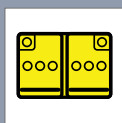
High-voltage
disconnection
point



Gas generator



Gas filled
spring device



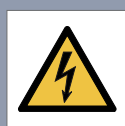
Battery



High-voltage
wire /
components



Seat belt
tensioner



High-Voltage
component





FORD F-150 Lightning

2022 - 2024

1. Identification / recognition



ELECTRIC VEHICLES DO NOT HAVE ENGINE NOISE. LACK OF ENGINE NOISE DOES NOT MEAN VEHICLE IS OFF. SILENT MOVEMENT OR INSTANT RESTART CAPABILITY EXISTS UNTIL VEHICLE IS FULLY SHUT DOWN. WEAR APPROPRIATE PPE.



1. Vehicle Identification Number (VIN)
2. Charging port driver's side only
3. Lightning badging on tailgate/bedside.

Vehicle Identification Number (VIN) Layout

The 8th position of the VIN identifies the vehicle's engine type as electric.

2022-2023 Model Year Vehicles:

- L - BEV Duel Electric Motor, Standard Battery #1
- V - BEV Duel Electric Motor, Extended Range Battery #2

2024 Model Year Vehicles

- 7 - Duel Electric Motor, Extended Range Battery #4 - Single onboard charging
- K - Duel Electric Motor, Standard Battery #1
- M - Duel Electric Motor, Extended Range Battery #2 - Dual onboard charging



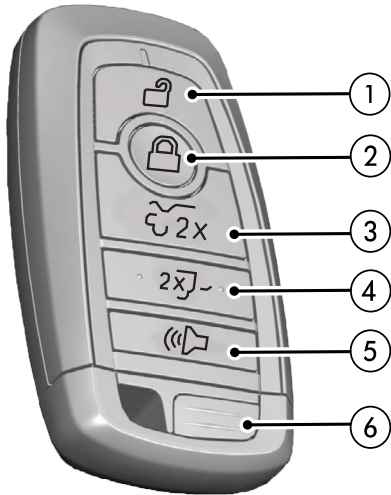


FORD F-150 Lightning

2022 - 2024

Keys

Key Fob - The key fob can be used to access various vehicle systems. The key fob buttons should be used as shown below.



1. Unlock - Press the button to unlock all doors.
2. Lock - Press the button to lock all doors.
3. Frunk - Press the button twice to open the frunk.
4. Tailgate - if equipped, press the button twice to open the tailgate
5. Panic Alarm - Press the button to sound the panic alarm.
6. Key Blade - Push the release button on the passive key to remove the key blade.

Phone as a Key - Phone as a key allows use of a smart phone in place of a passive key. Bluetooth® connection must be enabled. A phone can be used for the following functions:

- Remote locking and unlocking
- Passive entry and exit
- Passive start and drive the vehicle
- Remote start
- Memory function recall

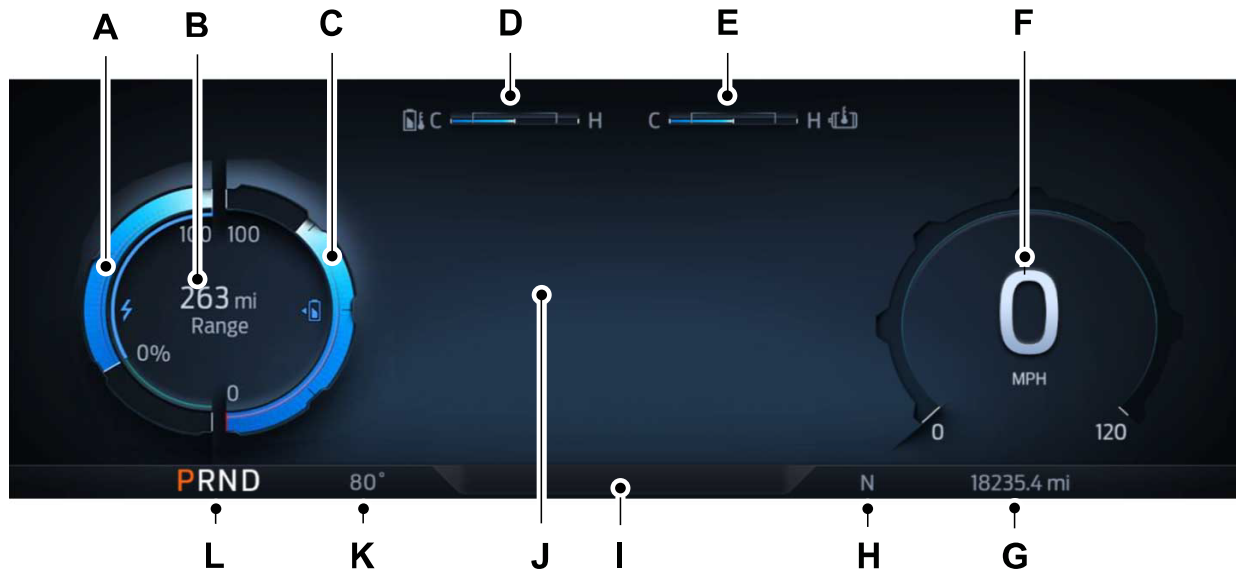




FORD F-150 Lightning

2022 - 2024

Instrument Cluster



A - Power gauge

B - Vehicle range display

C - High Voltage Battery Gauge

D - High Voltage Battery Temperature Gauge

E - Electric Motor Temperature Gauge

F - Speedometer

G - Odometer

H - Compass

I - Information Bar

J - Ambient Temperature

K - Gearshift Indicator





FORD F-150 Lightning

2022 - 2024

2. Immobilization / stabilization / lifting



DO NOT JACK ON THE BATTERY CRADLE OR HV BATTERY TRAY. FAILURE TO FOLLOW THESE INSTRUCTIONS MAY RESULT IN DAMAGE AND SERIOUS PERSONAL INJURY.



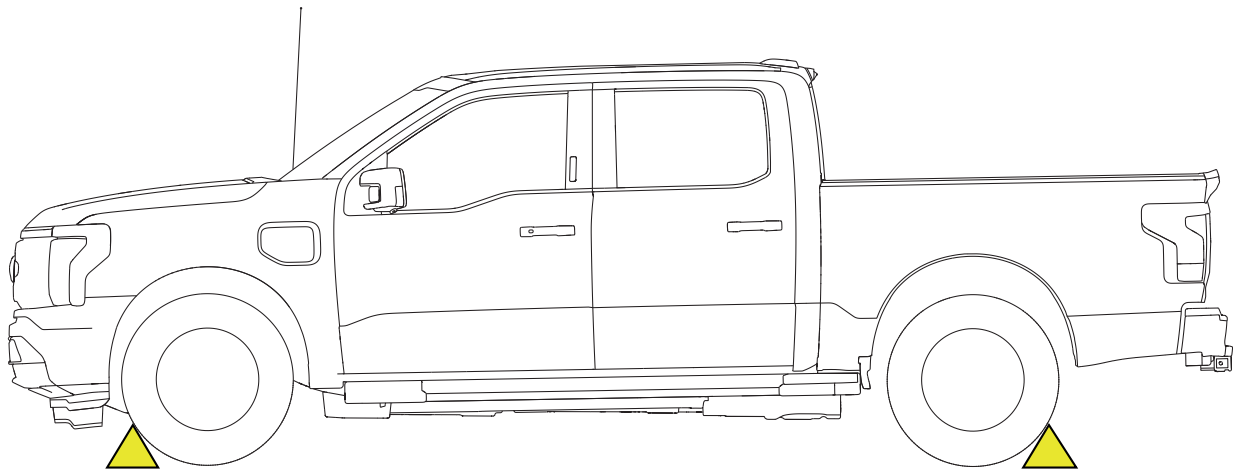
The High Voltage battery may not be used for lifting or stabilization. Damage to the battery pack may occur



Service of the high voltage system on this vehicle is restricted to qualified personnel. The required qualifications vary by region. Always observe local laws and legislative directives regarding electric vehicle service. Failure to follow this instruction may result in serious personal injury or death.



Use caution to ensure you never come into contact with the high voltage battery or other high voltage components while lifting or manipulating the vehicle.



1. Position Wheel And Tire Chocks to prevent vehicle movement.





FORD F-150 Lightning

2022 - 2024

NOTICE: The electric parking brake does not operate if the vehicle battery has run out of charge.

NOTE: The red warning lamp flashes during operation and illuminates when the parking brake is applied.

NOTE: You can apply the electric parking brake when the power is off.

NOTE: The electric parking brake could apply when you shift into park (P).

2. Put vehicle into Park position (1), ensure that the parking brake is engaged (2).



3. Shut vehicle off with the push button. Remove the key or PAAK (Phone As A Key) from the vehicle to prevent vehicle from turning back on.

4. Approach vehicle from the side to avoid the potential travel path.





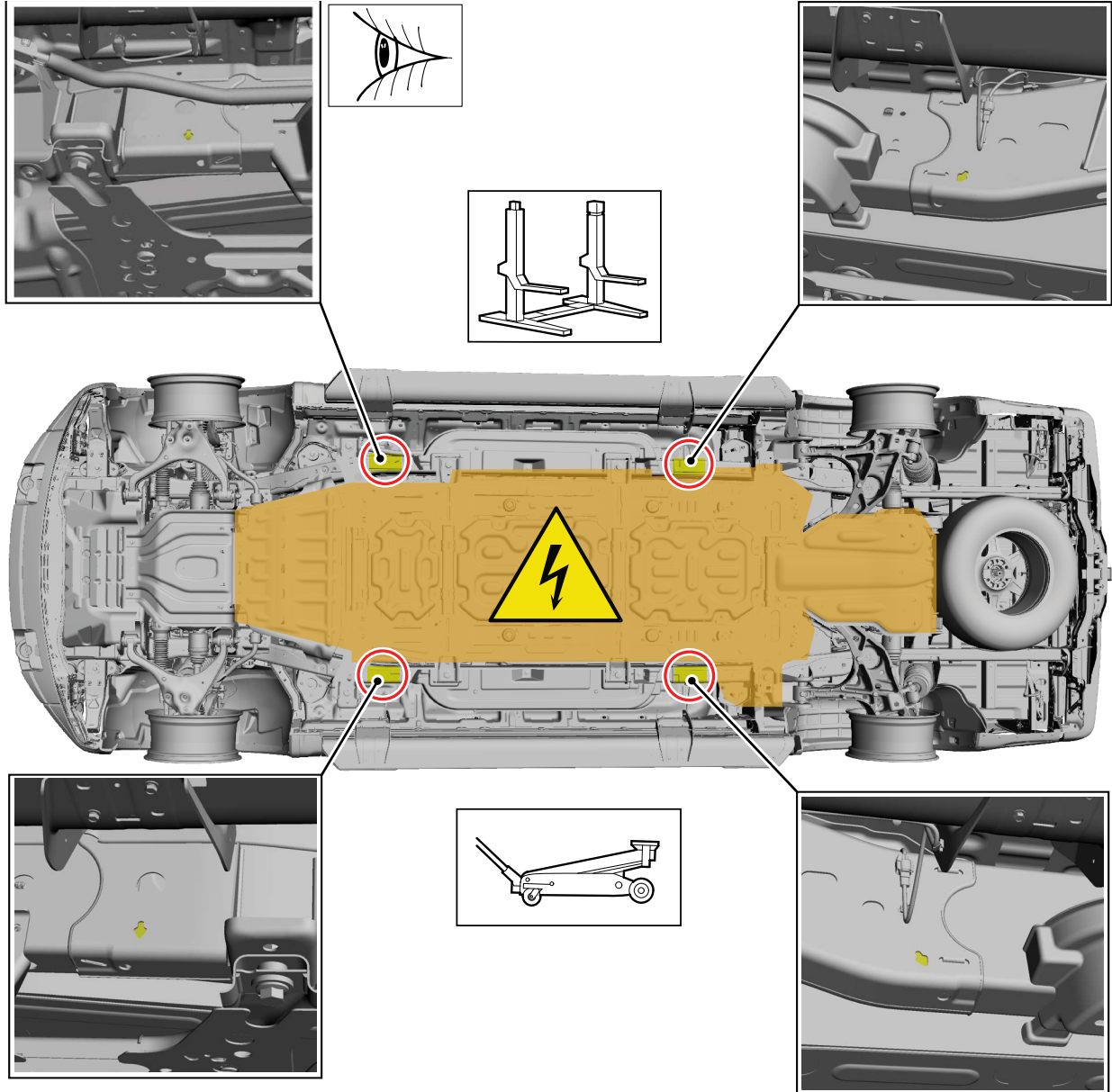
FORD F-150 Lightning

2022 - 2024

STABILIZATION / LIFTING POINTS

The high voltage battery is located behind an underbody air shield under the vehicle. When lifting or stabilizing only use the designated lift areas, as shown.

VEHICLES WITH AIR DEFLECTOR TYPE 1:

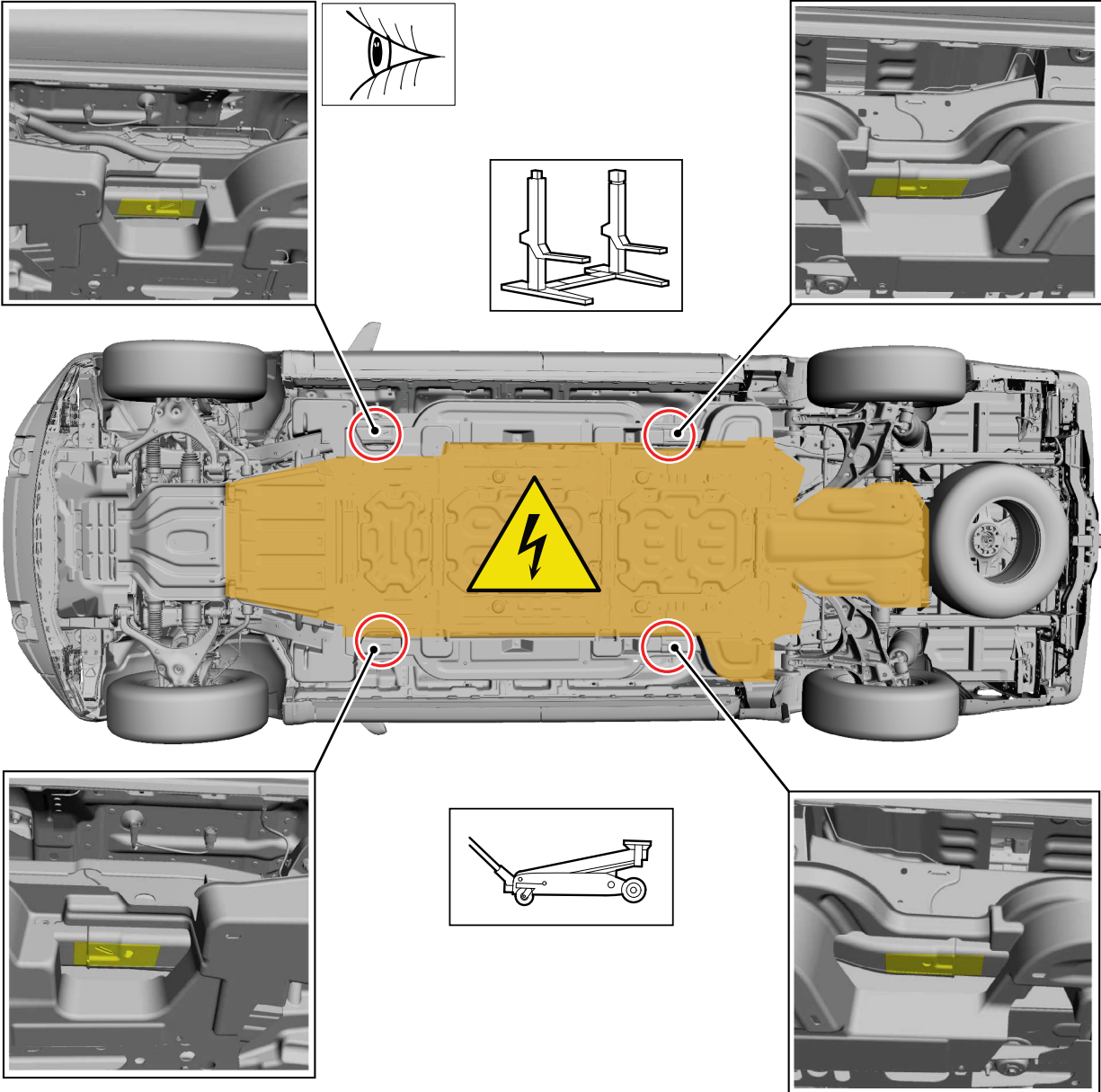




FORD F-150 Lightning

2022 - 2024

VEHICLES WITH AIR DEFLECTOR TYPE 2:





FORD F-150 Lightning

2022 - 2024

3. Disable direct hazards / safety regulations



To prevent the risk of high-voltage shock, always follow precisely all warnings and service instructions to depower the system. The high-voltage system utilizes high-voltage cables to its components and modules. The high-voltage cables and wiring are identified by orange harness tape or orange wire covering. All high-voltage components are marked with high-voltage warning labels with a high-voltage symbol. Failure to follow these instructions may result in serious personal injury or death.



DEPOWERING THE HIGH VOLTAGE SYSTEM DOES NOT DISSIPATE VOLTAGE INSIDE THE BATTERY, THE BATTERY PACK REMAINS LIVE AND DANGEROUS. CONTACT WITH THE HIGH VOLTAGE BATTERY PACK INTERNALS MAY RESULT IN SERIOUS PERSONAL INJURY OR DEATH.



Make sure to use any low voltage item before cutting or disconnecting the 12-volt battery, ONLY if it is safe to do so and may aid in access to the victim(s). This includes, but is not limited to, emergency brake, power seats and windows.

FRUNK OPENING PROCEDURES

Opening the Frunk from inside the vehicle:

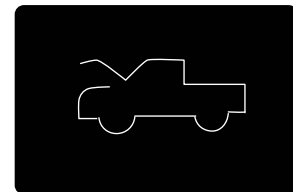
Make sure the vehicle is in park (P).

From the Instrument Panel Button:
Press the button to open the frunk.

Opening the Frunk from inside the vehicle using the touchscreen:

Make sure the vehicle is in park (P).

From the Instrument Panel Button:
From the settings menu, press Controls.
Press the frunk icon.





FORD F-150 Lightning

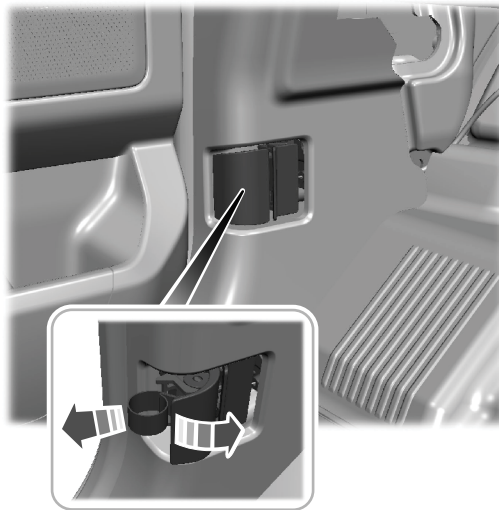
2022 - 2024

Manually Opening the Frunk from inside the vehicle:

NOTE: It is recommended that you only operate the frunk manually when the vehicle battery runs out of charge or the power frunk is faulty.

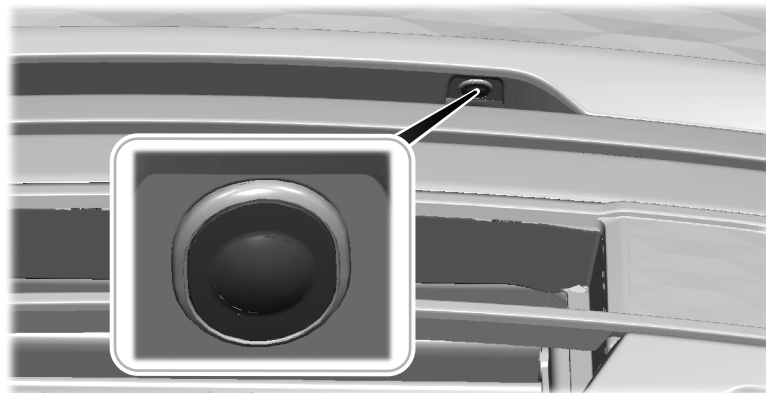
NOTE: Do not pull the service release strap if the vehicle is not in park.

1. Open the left-hand front door.
2. Open the access door.
3. Pull the service release strap from the panel to release the primary latch.
4. Pull the service release strap again to release the frunk.
5. Lift the frunk. The struts support the frunk.



Opening the Frunk from outside the vehicle:

Press and release the control button.





FORD F-150 Lightning

2022 - 2024

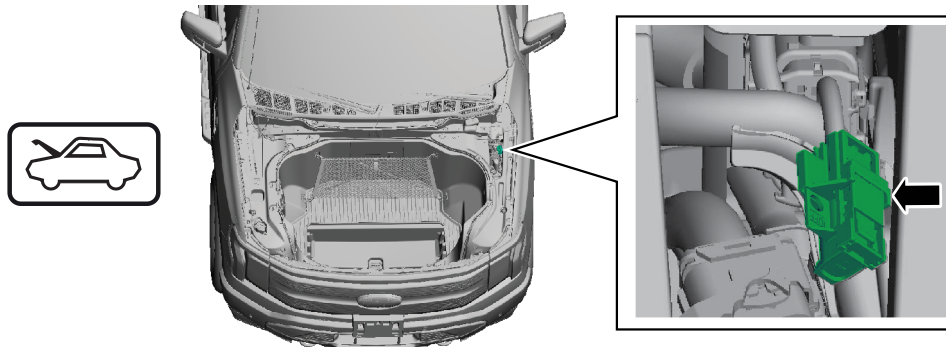
HIGH VOLTAGE SYSTEM DISABLE PROCEDURE

IMPORTANT:

- Under urgent situations perform Option 1.
- Under non-urgent situations perform Option 2.

OPTION 1 - Under urgent situations ONLY

1. Open the hood and locate the Low Voltage Service Disconnect.

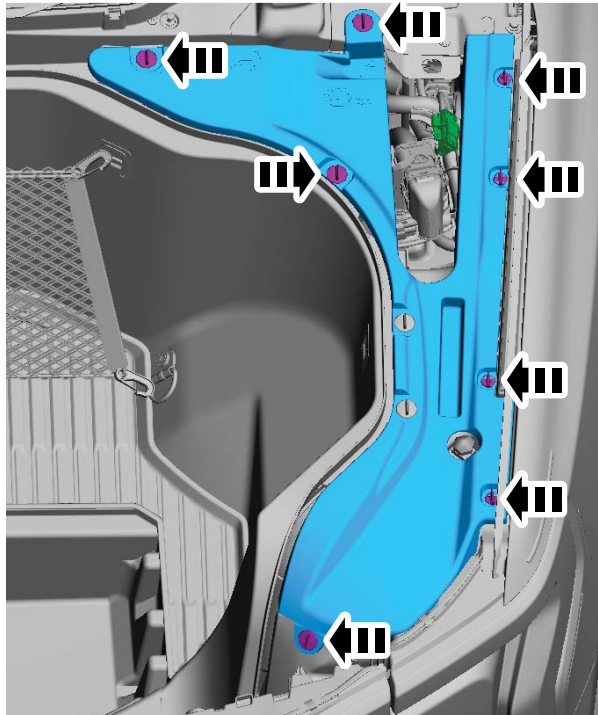




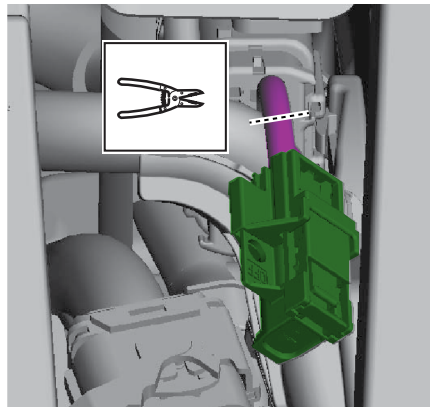
FORD F-150 Lightning

2022 - 2024

NOTE: If using a larger cutting tool, turn the hand screws to unlock and remove trim panel shown below.



2. Cut the wires and remove the Low Voltage Service Disconnect. Isolate the wires to prevent reconnection.



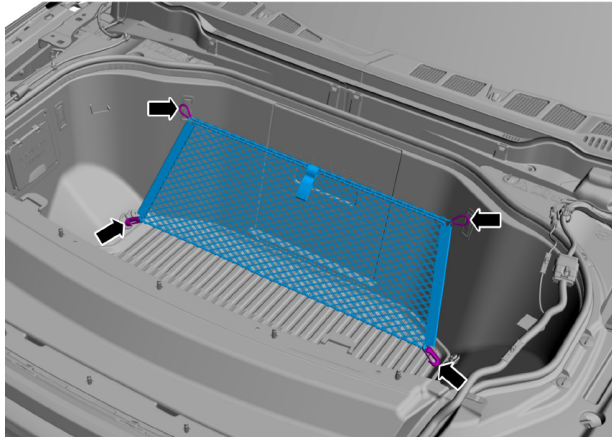


FORD F-150 Lightning

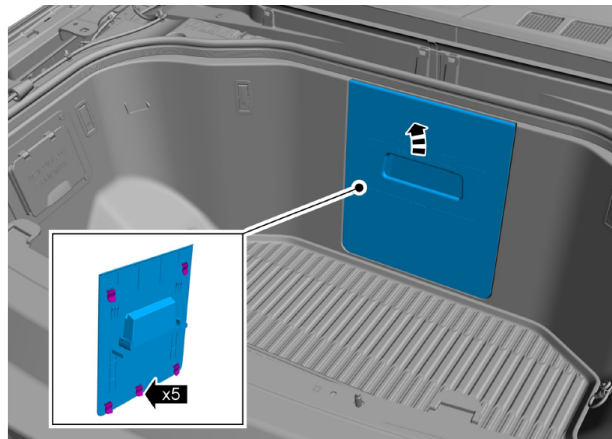
2022 - 2024

12 Volt Battery Disconnect - Disables Safety Restraint System (SRS)

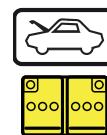
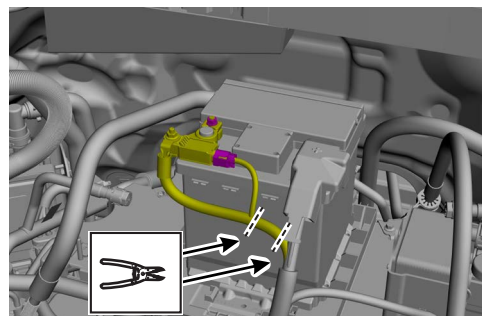
3. If equipped, remove the cargo retention net.



4. Remove the battery service door.



5. Locate the negative battery cable to ground. Cut the cable at two locations that are 3 in (7.6 cm) apart from each other. Isolate the cable to prevent reconnection.



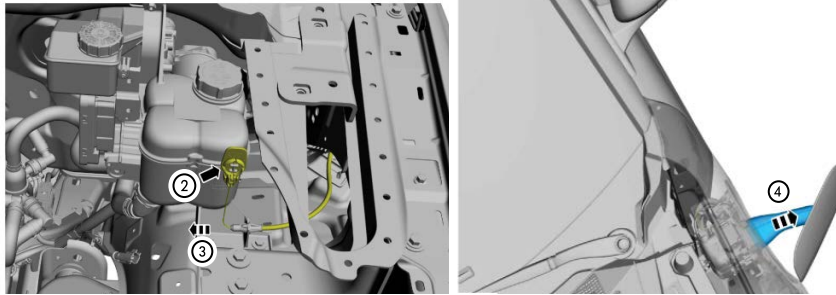


FORD F-150 Lightning

2022 - 2024

Emergency Release During Charging

1. Attempt to de-power the charging unit.
2. Detach the manual charge cord release cable tab from the degas bottle.
3. Pull the manual charge cord lock actuator release cable tab.
4. Disconnect the EVSE charge cord from the vehicle.



OPTION 2 - Under non-urgent situations

1. Ensure the vehicle transmission gear selector is in the PARK position. Check that the vehicle READY light is off to verify the high voltage system is disconnected. If the vehicle READY light is on, press the engine Start/Stop button to turn off the ignition.





FORD F-150 Lightning

2022 - 2024

Ensure that the Pro Power Onboard (PPO) System, if equipped, has been deactivated by following the steps below:

2. Vehicle must be powered down for AT LEAST 60 seconds before continuing the procedure.
3. Locate the 3 outlet locations on the vehicle. The outlets are in the frunk, cabin, and truck bed.

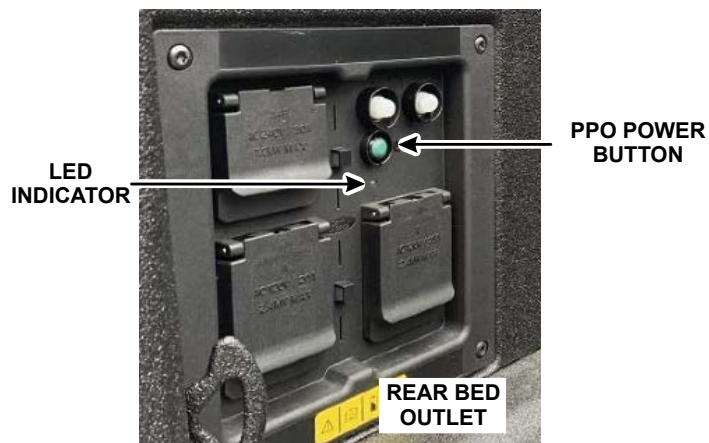
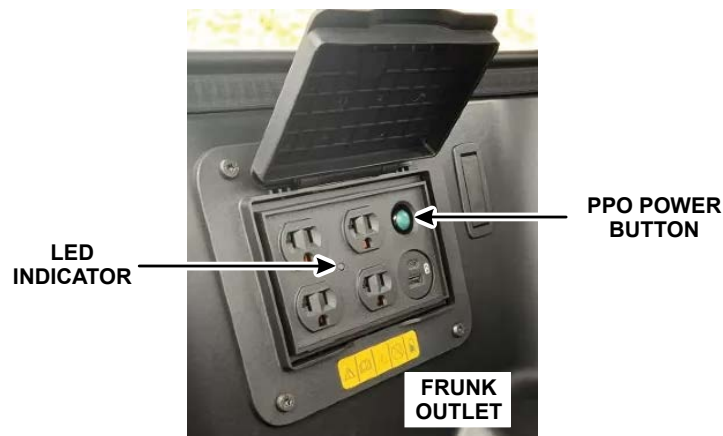
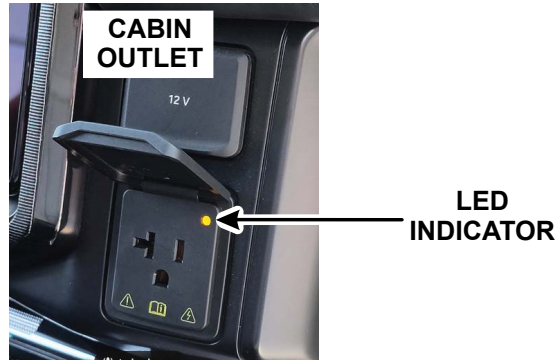




FORD F-150 Lightning

2022 - 2024

4. Verify that the PPO System is deactivated by checking that the LED indicators are deluminated.
5. If the PPO system is still active, press the PPO hard button in EITHER the bed OR the frunk of the vehicle. Pressing either button will deactivate the entire PPO system.
6. Wait at least 60 seconds for PPO system to be depowered.





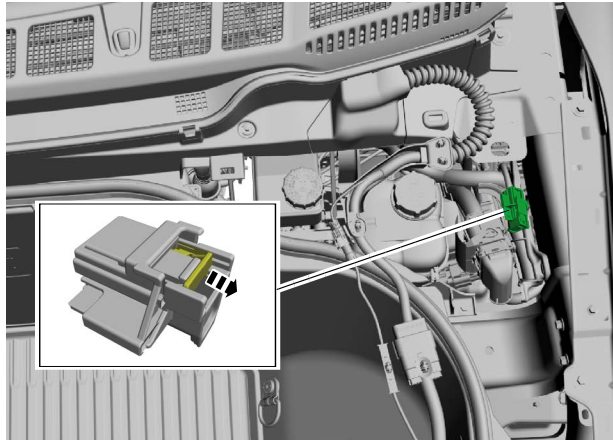
FORD F-150 Lightning

2022 - 2024

Low Voltage Service Disconnect (Disables High Voltage System)

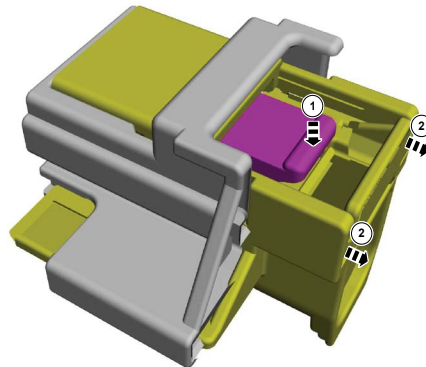
7. Open the hood.

8. Release the Connector Position Assurance (CPA) clip.



9. **NOTE:** The tab must be depressed prior to pushing the connector back in or damage to the connector may result.

Depress the tab while pulling the connector until the hole is completely visible on the top of the connector.



10. Insert a suitable tool inside the connector hole to prevent the connector from closing.



11. Wait a minimum of 5 minutes.



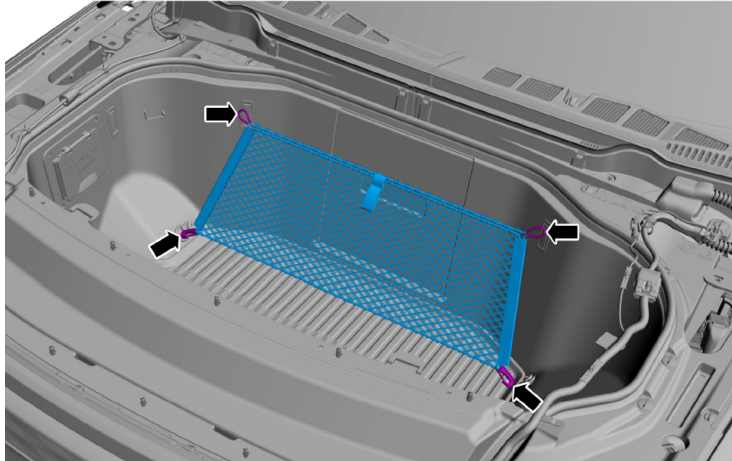


FORD F-150 Lightning

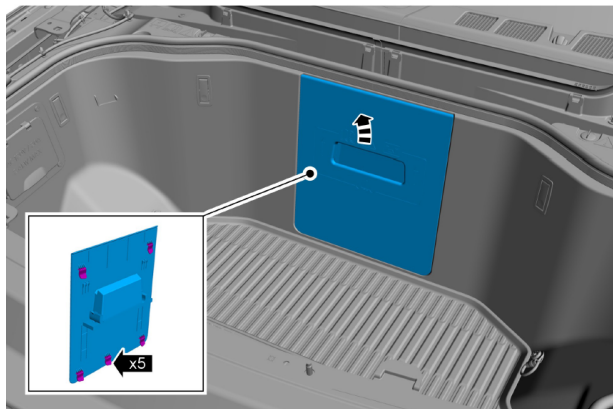
2022 - 2024

12 Volt Battery Disconnect - Disables Safety Restraint System (SRS)

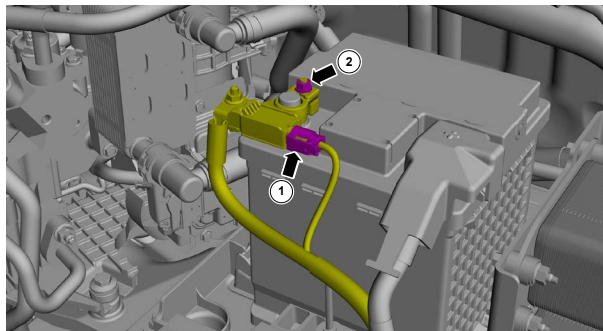
1. If equipped, remove the cargo retention net.



2. Remove the battery service door.



3. Loosen, but do not remove the nut. Position the negative battery cable aside.

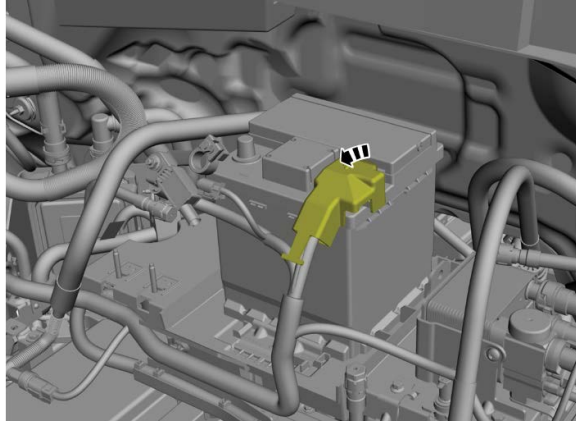




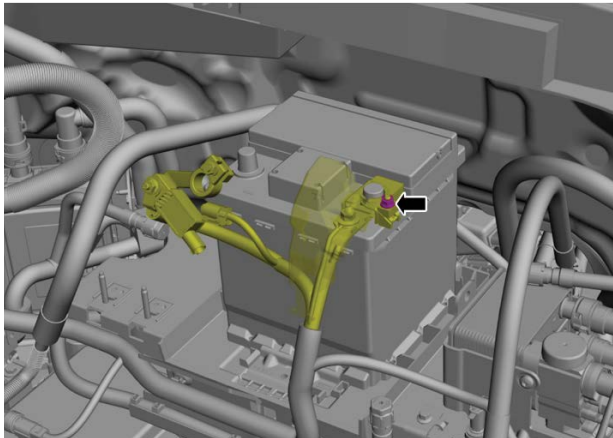
FORD F-150 Lightning

2022 - 2024

4. Position the positive battery cable terminal cover aside.



5. Loosen, but do not remove the nut. Position the positive battery cable aside.





FORD F-150 Lightning

2022 - 2024

4. Access to the occupants



WARNINGS:

DEPOWERING THE HIGH VOLTAGE SYSTEM DOES NOT DISSIPATE VOLTAGE INSIDE THE HIGH VOLTAGE BATTERY PACK, WHICH REMAINS LIVE AND DANGEROUS. IT IS CRITICAL TO UNDERSTAND THAT HIGH VOLTAGE CAN ALSO REMAIN PRESENT IN OTHER HIGH VOLTAGE COMPONENTS THROUGHOUT THE VEHICLE. DIRECT CONTACT WITH THE HIGH VOLTAGE BATTERY PACK INTERNALS OR INTERNALS OF ANY OTHER HIGH VOLTAGE COMPONENT MAY RESULT IN SERIOUS PERSONAL INJURY OR DEATH.

ELECTRIC VEHICLES DAMAGED BY A CRASH MAY HAVE COMPROMISED HIGH VOLTAGE SAFETY SYSTEMS AND PRESENT A POTENTIAL HIGH VOLTAGE ELECTRICAL SHOCK HAZARD. REMOVE ALL METALLIC JEWELRY, INCLUDING WATCHES AND RINGS. ISOLATE THE HIGH VOLTAGE SYSTEM AS DIRECTED BY THIS DOCUMENT. FAILURE TO FOLLOW THESE INSTRUCTIONS MAY RESULT IN SERIOUS PERSONAL INJURY OR DEATH. ALWAYS ASSUME THE VEHICLE'S HIGH VOLTAGE SYSTEM IS POWERED UP! Cutting, crushing, or touching High Voltage components can result in serious injury or death.

Never disassemble or tamper with seat belt deployable components, including pretensioners, load limiters and inflators. Tampering may cause an accidental deployment and result in personal injury or death.

Do not handle, move or change the original horizontal mounting position of the restraints control module (RCM) while the RCM is connected and the ignition switch is ON. Also, do not at any time, physically damage or impinge the RCM with a cutting or crushing operation while the 12-volt battery is connected. Failure to follow these instructions may result in the accidental deployment of the Safety Canopy or other undeployed inflatable restraints and cause serious personal injury or death.

Service and handling of Pyrotechnic Components is restricted to qualified personnel. The required qualifications vary by region. Always observe local laws and legislative directives regarding Pyrotechnic Components service and handling. Failure to follow this instruction may result in serious personal injury or death.

If occupant removal is necessary, always use caution when cutting near the vehicle High Voltage system components. Do not cut any of the High Voltage under vehicle or under hood cabling (all High Voltage cabling is orange). High voltage cabling runs underneath the vehicle, from the High Voltage battery under the left hand side of the vehicle to the underhood compartments. Refer to the diagram on page 25 for no cut zones.

NOTE: After a collision vehicle components may not function properly such as the steering wheel, power seats, and other electrical and mechanical components. If these components are not functioning properly and prevent access to occupants extraction may be required.





FORD F-150 Lightning

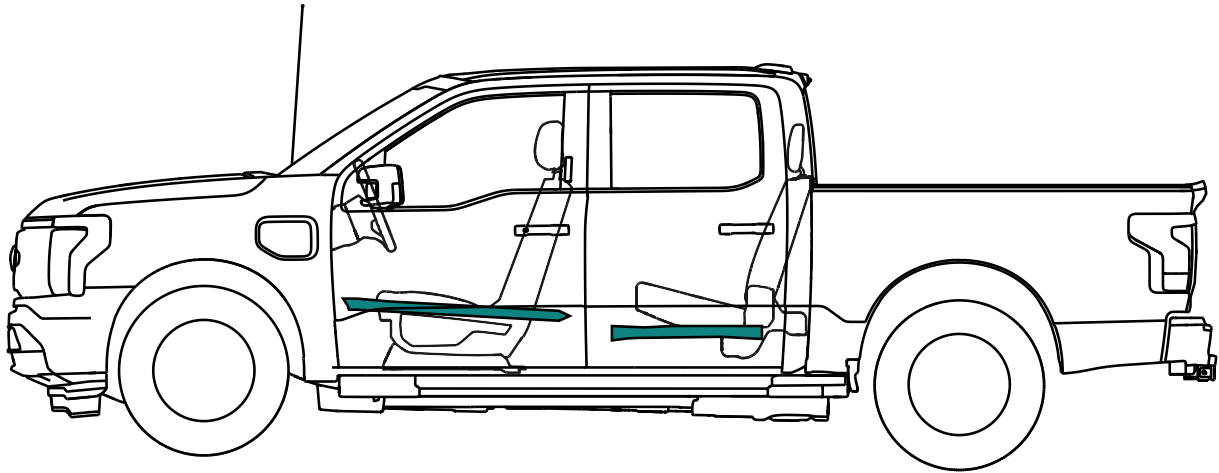
2022 - 2024

Vehicle Body

The vehicle body is comprised of various strengths of aluminum.

High Strength Zones

The door beams as shown below are made of high strength steel.



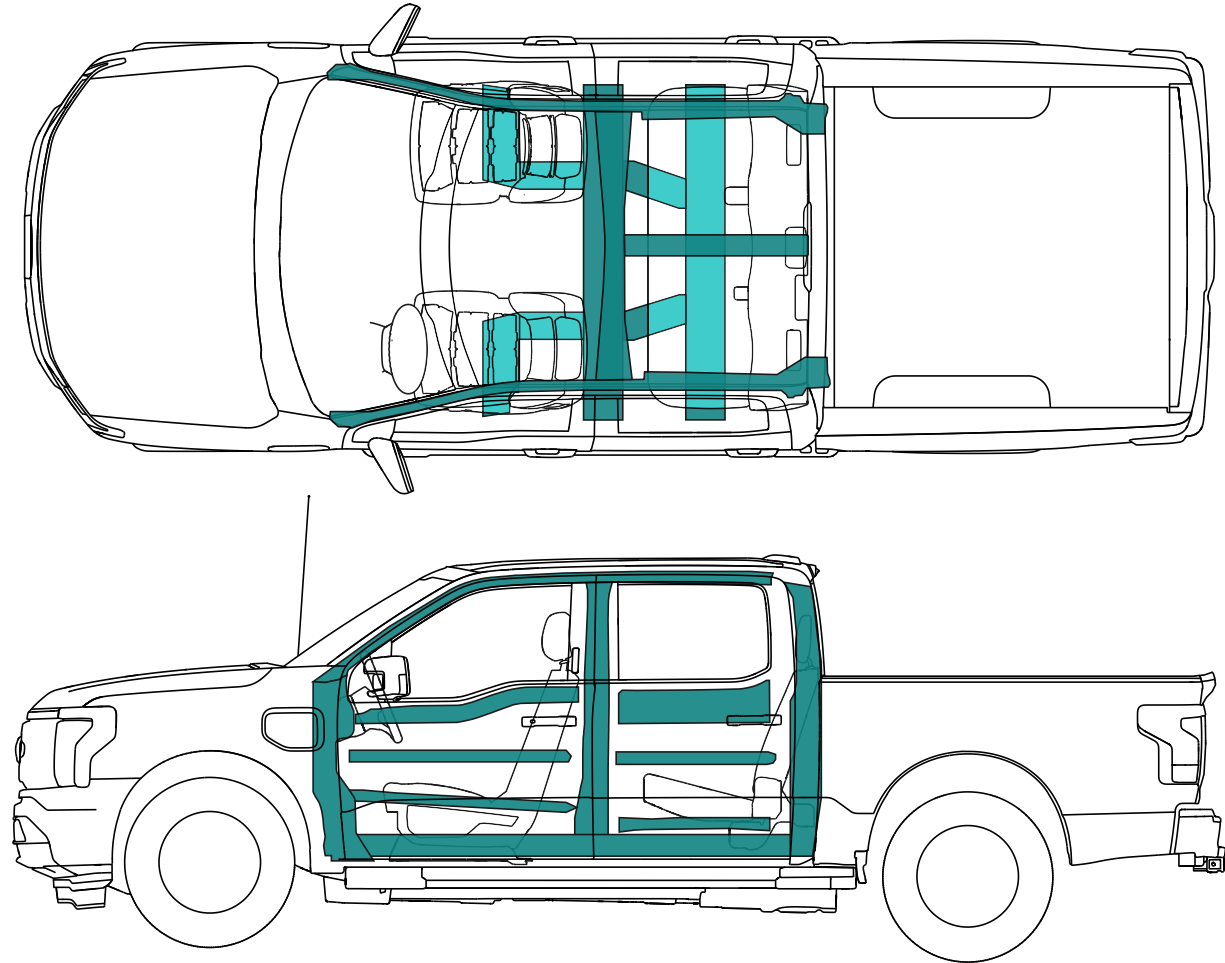


FORD F-150 Lightning

2022 - 2024

High Strength Zones (continued)

The B and C pillars, as well as the roof bow are made of stronger aluminum.
The floor tunnel is made of high-grade aluminum.



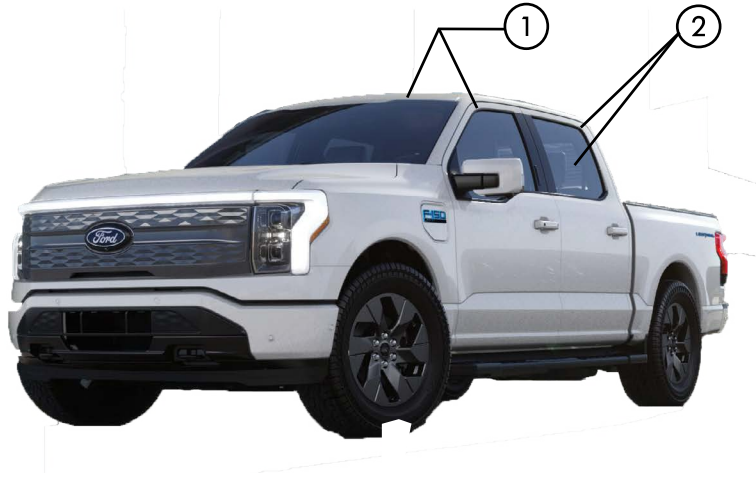


FORD F-150 Lightning

2022 - 2024

Windows - Identification

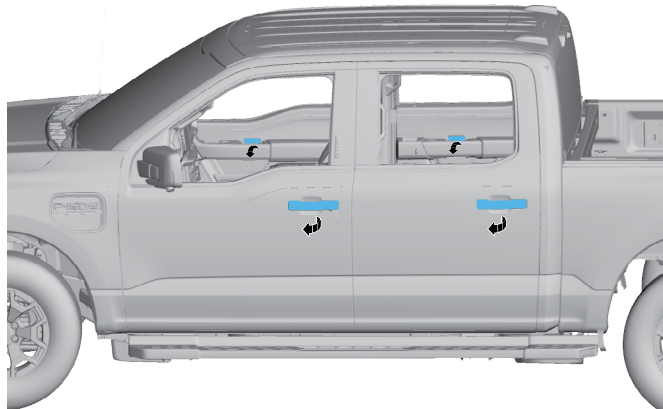
The windshield, front driver side window and front passenger side window are made of laminated safety glass (1). The rear glass, rear driver side window and rear passenger side window are made of tempered safety glass (2).



Doors and Door Handles

To operate the front doors from inside the vehicle:
Pull the interior door handle.

To operate the rear doors from inside the vehicle:
Pull the interior door handle twice to unlock and open the door. The first pull unlocks the door and the second pull opens the door.



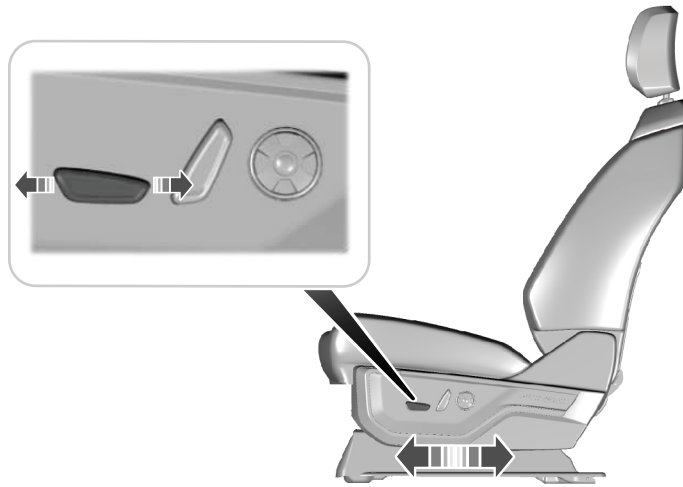


FORD F-150 Lightning

2022 - 2024

Driver's Seat Adjustments

See the image below for adjusting the seat backward and forward as well as the seat height.





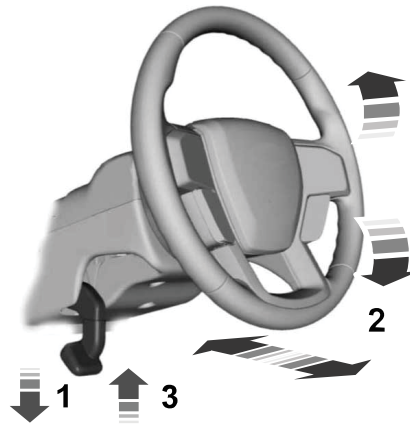
FORD F-150 Lightning

2022 - 2024

Steering Wheel Adjustments

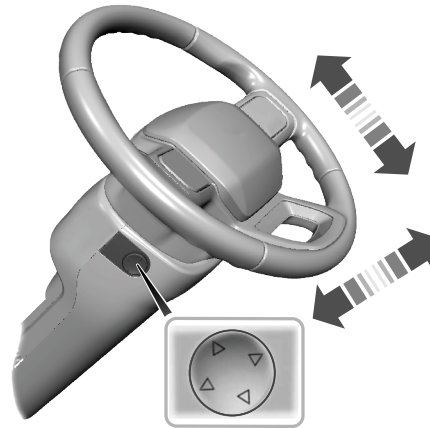
Adjusting the steering wheel with a manual adjustable steering column:

1. Unlock the steering column.
2. Adjust the steering wheel as needed.
3. Lock the steering column.



Adjusting the steering wheel with a power adjustable steering column:

1. Press the top or bottom of the control to move the steering wheel up or down.
2. Press the front or rear of the control to move the steering wheel in or out.





FORD F-150 Lightning

2022 - 2024

Occupant Restraint Systems

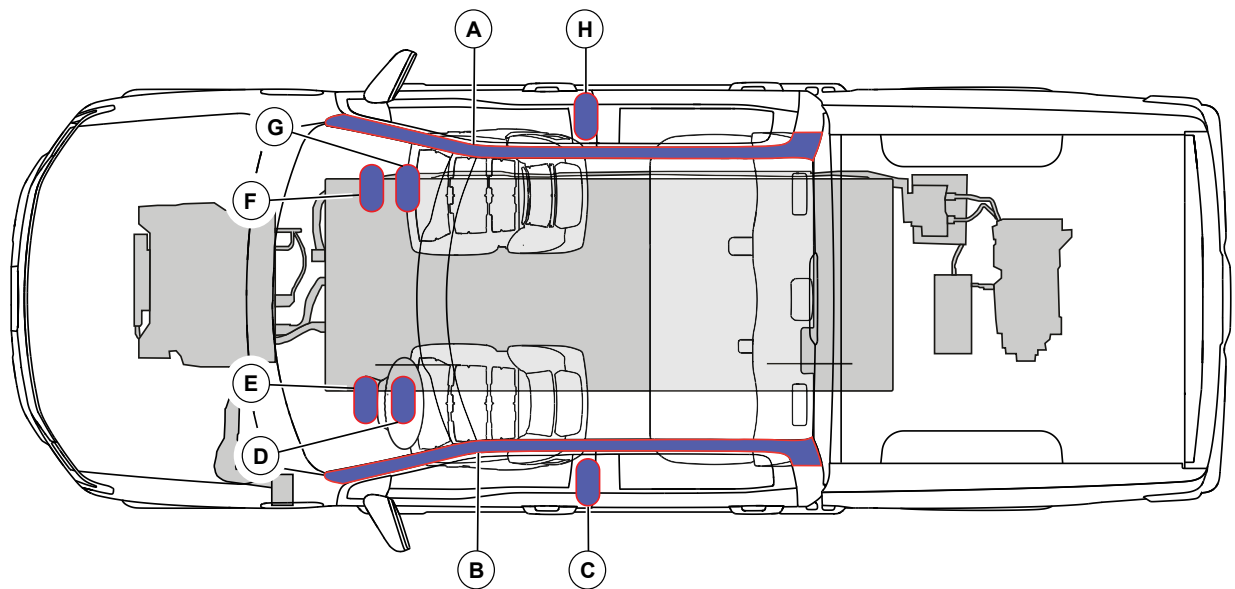


Airbags

The airbags are approximately located in the areas shown. Airbag information can be found on the sun visors as well.

When the RCM has deployed the safety restraint system component(s), the high-voltage system may be deactivated.

It should always be assumed that high voltage may still be present and no orange cables should be cut or breached. The high-voltage battery will also contain stored energy.



- A - Passenger side curtain airbag
- B - Driver side curtain airbag
- C - Driver side airbag
- D - Driver airbag
- E - Driver knee airbag (if equipped)
- F - Passenger knee airbag (if equipped)
- G - Passenger airbag
- H - Passenger side airbag





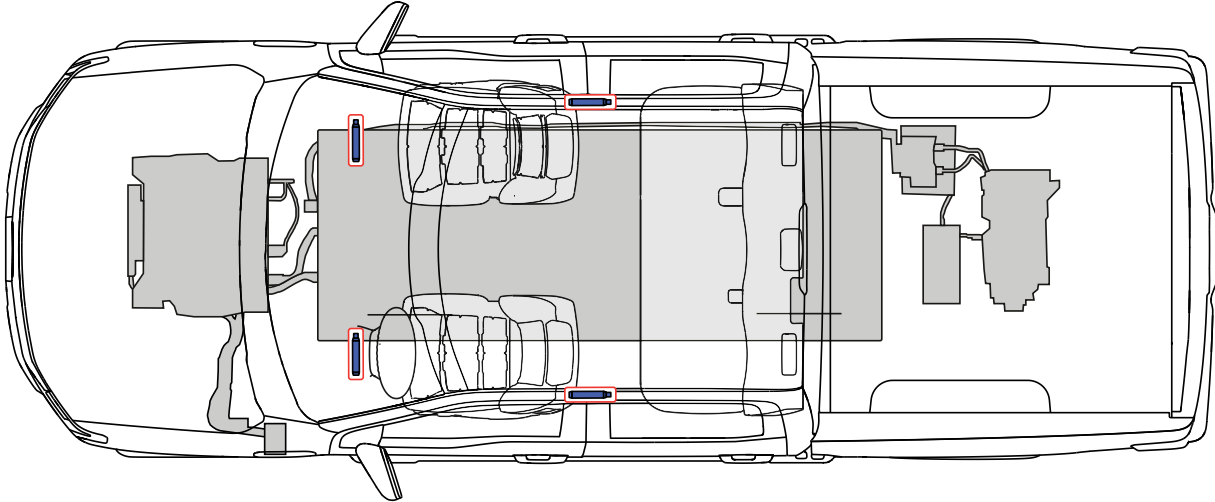
FORD F-150 Lightning

2022 - 2024



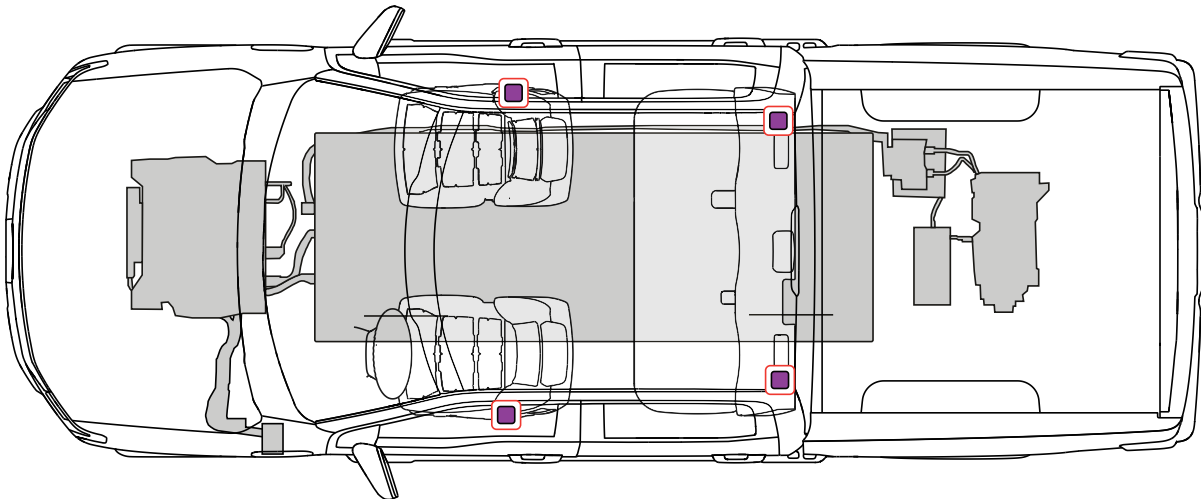
Stored Gas Inflators

The stored gas inflators are located in the B-pillar on the driver and passenger side as well as with the driver and passenger airbags.



Seatbelt Pretensioners

The seatbelt pretensioners are part of the restraint system.

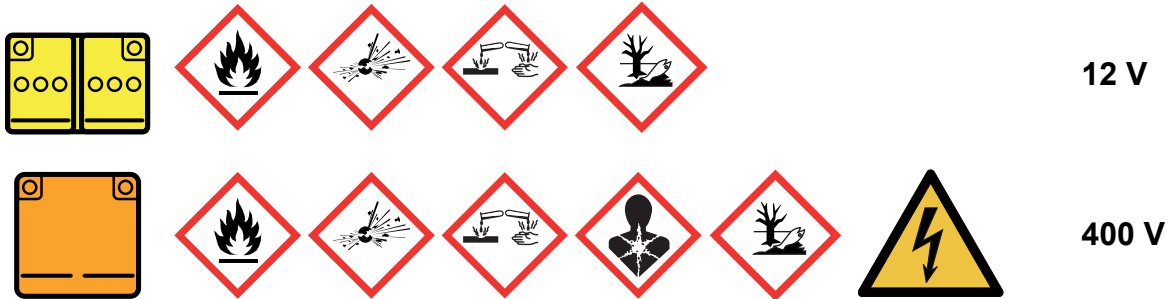




FORD F-150 Lightning

2022 - 2024

5. Stored energy / liquids / gases / solids



Refer to the vehicle overview illustration on Page 3, for location reference of the high voltage battery, 12-volt battery, and other vehicle component locations.





FORD F-150 Lightning

2022 - 2024

6. In case of fire



LITHIUM-ION BATTERIES CAN IGNITE SPONTANEOUSLY OR RE-IGNITE AFTER THE FIRE HAS BEEN EXTINGUISHED. WEAR APPROPRIATE PPE.



Follow Existing Training and Incident Commander Direction



WARNINGS:

ELECTRIC VEHICLES WITH DAMAGED HIGH VOLTAGE BATTERIES REQUIRE SPECIAL HANDLING PRECAUTIONS. INSPECT THE VEHICLE CAREFULLY FOR LEAKING BATTERY FLUIDS, SPARKS, FLAMES, AND GURGLING OR BUBBLING SOUNDS. CONTACT EMERGENCY SERVICES IMMEDIATELY IF ANY OF THESE PROBLEMS ARE OBSERVED. FAILURE TO FOLLOW THESE INSTRUCTIONS MAY RESULT IN A VEHICLE FIRE AND PERSONAL INJURY OR DEATH.

FIRES IN CRASH-DAMAGED ELECTRIC VEHICLES MAY EMIT TOXIC OR COMBUSTIBLE GASSES. SMALL AMOUNTS OF EYE, SKIN OR LUNG IRRITANTS MAY BE PRESENT. WEAR PERSONAL PROTECTIVE EQUIPMENT (PPE) AND SELF-CONTAINED BREATHING APPARATUS WHEN WORKING IN CLOSE PROXIMITY OR IN A CONFINED AREA, SUCH AS A TUNNEL OR GARAGE. VENTILATE THE VEHICLE INTERIOR BY OPENING VEHICLE WINDOWS OR DOORS. VENTILATE THE WORKING AREA. FAILURE TO FOLLOW THIS INSTRUCTION MAY RESULT IN SERIOUS PERSONAL INJURY OR DEATH.

DO NOT ATTEMPT TO DISCHARGE THE HV BATTERY.

White/light gray smoke from a HV battery contains chemicals which can be:

- Combustible where the smoke is exiting the battery vent location
- Explosive in a confined space environment (such as a small garage) with the correct mixture of air
- Toxic in short exposure durations

Forcing water into a HV battery which is NOT directly involved in a fire, or experiencing thermal runaway, may cause electrical shorting, electrical arcing, and initiate thermal runaway and fire within the battery.

HV battery thermal runaway events are VERY hot internally ($>200^{\circ}\text{C}/392^{\circ}\text{F}$) and may remain hot for hours or DAYS if left uninterrupted, possibly leading to:

- Continued thermal propagation and intensity increase.
- Active fire outside of the HV battery.

HV battery fire and thermal runaway often occur together. Both fire and temperature of the HV battery must be brought under control. If only the fire is extinguished but high temperatures persist, then thermal runaway may continue, and fire may resume.





FORD F-150 Lightning

2022 - 2024

The below sub-sections outline precautions and actions required in the event of a HV battery fire or thermal event.

1. Assess the Situation - Is the HV battery in a fire or experiencing thermal runaway?

When arriving on the scene of an electrified vehicle incident, first determine whether any observed fire or thermal runaway involves the HV battery via the following guidance:

Assessment of Flames -

If flames are coming from the bottom of the vehicle and/or the sides of the vehicle below the doors:

Then the HV battery IS likely involved.

If flames are not coming from the HV battery location, but are coming from the wheel wells:

Then the HV battery MAY BE involved. Seek additional information (assessment of smoke, sounds and temperatures).

If flames are not coming from the HV Battery location or wheel wells, but are coming from other such areas as the frunk or occupant compartment interior:

The HV battery is NOT likely involved.

Assessment of Smoke -

If there is jetting smoke lasting more than a few seconds and it is coming from the battery vicinity:

Then the HV Battery IS likely experiencing thermal runaway.

If substantial white/light gray smoke is seen:

Then the HV Battery IS likely experiencing thermal runaway.

If substantial dark gray/black smoke is seen:

Then the HV Battery MAY BE experiencing thermal runaway. Seek additional information (Assessment of sounds and temperature).

Assessment of Sounds -

If you hear several repetitive explosive, popping, percussive type sounds (possibly intermittent) then the HV Battery is likely experiencing thermal runaway.

NOTE: Other components with compressed gas or pyrotechnics such as gas struts and airbags may produce singular explosive sounds but will not cause several repetitive sounds.





FORD F-150 Lightning

2022 - 2024

Assessment of Temperatures -

If the HV Battery surface temperatures (or materials immediately covering the HV Battery) exceed 149°C (300°F) and there is not an external heat source near the HV Battery causing this then the HV Battery IS likely experiencing thermal runaway.



WARNING: A HV Battery with surface temperatures above 71°C (160°F) may remain at risk of resuming thermal runaway and a fire event.

NOTES:

- Thermal imaging cameras with target temperature measurement capability are well suited for surface temperature measurements from a distance with acceptable accuracy.
- Measurements of multiple surface locations are recommended to determine a HV battery is not at thermal risk to resume thermal runaway or fire.
- Use of a pole mounted thermal camera or tilting the vehicle may enable better measurements of the HV battery.
- There is a skid plate under the HV battery, and temperatures of the skid plate are not accurate assessments of battery case temperatures.

Assessment of the HV battery -

If the HV Battery IS likely involved in a fire or experiencing thermal runaway proceed to sub-section 2.

If the HV Battery MAY BE involved in a fire or experiencing thermal runaway then address the incident according to standard procedures, while continuing to monitor for indications of a HV Battery fire or thermal runaway.

If the HV Battery IS NOT likely involved in a fire or experiencing thermal runaway, then address the incident according to standard procedures.

2. Contain any active HV battery Fire and Thermal Runaway - ONLY if the HV battery is likely involved



WARNINGS:

Do not cut through the vehicle floor during this containment phase to gain access to a HV battery beneath. Emergency cutting above the HV battery risks additional damage to the HV battery and may increase the reaction severity.

Only when no ignition sources are present, ventilate any HV battery smoke from the occupant compartment or in a confined space that the vehicle is in, such as a garage. The battery vent smoke can be combustible and explosive in the correct concentrations. This may be best accomplished by simply opening doors or breaking window glass. Do not introduce an ignition source by cutting with a spark producing tool.

Resumption of thermal runaway and fire after containment actions remains possible. The likelihood of thermal runaway and fire is greater if water has entered the HV battery during the Containment of Fire and Thermal Runaway activities. Firefighting personnel should remain on scene and be prepared to resume containment activities until the actions in sub-section 2 have been completed and the Office in Charge (OIC) has deemed the vehicle safe for transport.





FORD F-150 Lightning

2022 - 2024

NOTES:

- HV batteries may be difficult to apply water to and cool and require several times more water than a conventional vehicle fire. Consider additional resources to establish a continuous, sustainable water supply.
- Thermal imaging cameras with target temperature measurement capability are well suited for surface temperature measurements from a distance with acceptable accuracy.
- Always use appropriate Firefighting Personal Protection Equipment (PPE) and/or Self-Contained Breathing Apparatus (SCBA) for protection from flames and toxic chemicals.

Once the HV Battery has been assessed as involved in fire or thermal runaway, the OIC should determine one of two strategies to address the situation.

1. Engage the HV Battery to extinguish any flames and cool all accessible surfaces

- a. Apply water onto the HV Battery
 - i. Direct application of water is best
 - ii. Tilting the vehicle may improve HV Battery access to apply water. Follow the precautions in Section 2 for Stabilization and Lifting Points.
- b. Continue to apply water for several minutes after any visible flames have been extinguished and the HV Battery surface has cooled below 66°C (150°F).
- c. Monitor HV battery case temperature with a thermal imager and alternate with water cooling if the temperature rebounds to above 66°C (150°F) in 20-minute intervals.
 - i. To assist in getting water into the HV Battery the frunk should be opened and the liner should be removed. The transmission tunnel is directly behind the 12-volt battery location. Water applied in this area can get down to the HV battery.
- d. Ventilate the vehicle interior: Open/remove doors, open/remove windows.

2. Allow the battery to burn itself out

- a. Alternatively, the incident may be quarantined and left to consume the battery rather than attempting to actively fight the fire.
 - i. This determination should be made by the OIC considering possible life, property, infrastructure and environmental exposures from heat OR byproducts of combustion.
 - ii. Water supply and application may still be necessary to protect exposures such as property or infrastructure.
 - iii. This method can reduce the possibility of a repeat incident with the same vehicle.





FORD F-150 Lightning

2022 - 2024

7. In case of submersion



WARNING:

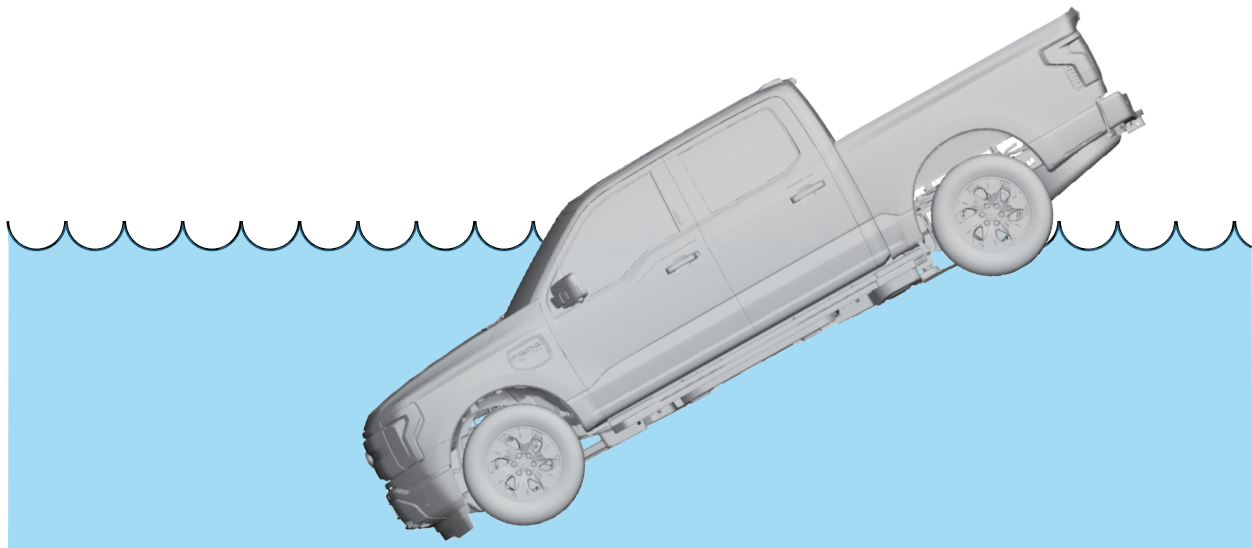
DAMAGED ELECTRIC VEHICLES SUBMERGED IN WATER PRESENT A POTENTIAL HIGH VOLTAGE ELECTRICAL SHOCK HAZARD. EXERCISE CAUTION AND WEAR APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT (PPE) INCLUDING HIGH VOLTAGE SAFETY GLOVES AND BOOTS. REMOVE ALL METALLIC JEWELRY, INCLUDING WATCHES AND RINGS. DO NOT ATTEMPT TO EXTRACT THE VEHICLE UNTIL THE HIGH VOLTAGE BATTERY HAS DISCHARGED INDICATED BY THE ABSENCE OF BUBBLING OR FIZZING. FAILURE TO FOLLOW THESE INSTRUCTIONS MAY RESULT IN SERIOUS PERSONAL INJURY OR DEATH.

If the vehicle is submerged in water, varying degrees of arcing/shorting within the battery will take place. Do not touch any High Voltage components or orange cables while removing the occupant(s). Do not remove the vehicle until you are sure the High Voltage battery is completely discharged. A submerged High Voltage battery may produce a fizzing or bubbling reaction to the water. If fizzing or bubbling is observed, the High Voltage battery will be discharged when the fizzing or bubbling has completely stopped. The battery should still be treated as if it is not discharged.

Battery Electric and Hybrid vehicles when submerged should only be handled while wearing the appropriate Personal Protective Equipment (PPE) for water rescue and vehicle extraction.

Vehicles that have been submerged in water may have potential risk of a high voltage electrical battery fire therefore should be handled with increased caution.

Once the vehicle has been removed from the water proceed to the high voltage disable procedure, as outlined in section 3 of this document.





FORD F-150 Lightning

2022 - 2024

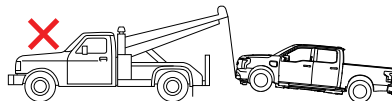
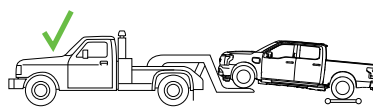
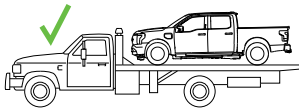
8. Towing / transportation / storage



LITHIUM-ION BATTERIES CAN IGNITE SPONTANEOUSLY OR RE-IGNITE AFTER THE FIRE HAS BEEN EXTINGUISHED. WEAR APPROPRIATE PPE.



If the vehicle has been involved in an accident or if the HV battery is damaged or unstable: Deactivate the high-voltage system (See Section 3). Do not store a severely damaged vehicle inside a structure or within 50 ft (15m) of any structure or vehicle.



Front Tow Hook



Moving Damaged Vehicles - Tow Truck Drivers

IMPORTANT! Be alert. There is a potential for delayed fire with damaged lithium-ion batteries.

NOTICE: Do not attempt to pull / tow vehicle with wheels on the ground as this may cause the vehicle to generate electricity and can cause potential damage.

Confirm that the HV System is disabled. Refer to Section 3 Disable Direct Hazards/Safety Regulations.

Follow the guidelines in the Wrecker Towing Guide



WARNING: DO NOT contact or apply loads to HV components. HV components on the vehicle are identified on Page 3.

In the event of damage to or fire involving an electric vehicle:

- Always assume the High Voltage battery and associated components are energized and fully charged.
- Exposed electrical components, wires, and High Voltage batteries present potential HV shock hazards.
- Venting/off-gassing High Voltage battery vapors are potentially toxic and flammable.
- Physical damage to the vehicle or High Voltage battery may result in immediate or delayed release of toxic and/or flammable gases and fire.





FORD F-150 Lightning

2022 - 2024

Notes for Transport Personnel:

- If you detect leaking fluids, sparks, smoke, flames, increased temperature, gurgling, popping or hissing noises from the High Voltage Battery compartment, call 911.
- The HV components equipped on this vehicle include protective designs and packaging to substantially reduce the risk of an electrical shock hazard. This remains true even if water is present on or near the vehicle and ground.
- Place vehicle into park (P), set the parking brake, turn off the vehicle, activate hazard lights, and remove the keys to a distance of at least 5m (16 ft) from the vehicle until loading.
- Prior to transporting a vehicle with a HV battery that has been involved in a fire, ensure that the vehicle interior has been ventilated by opening or removing doors and/or windows.
- Assess the vehicle structure (sheet metal body, chassis, driveline) to ensure it is safe and structurally capable of receiving rigging. Only use safe, capable structures for securing the vehicle. Do not place load on HV components.
- Rigging must not contact or apply force to HV components. Avoid winching or placing straps over or near HV components. Use non-conductive materials as needed.
- Refer to the vehicle owner manual or recovery guide to locate proper attachment and connection points and recommended transport methods.

1. Vehicle preparation for transport:

Drain residual water from the battery

If the vehicle is tilted at the conclusion of the fire containment activities, allow the vehicle to rest approximately level on the ground until the following two conditions are met:

5 minutes time on level ground have passed

Water is dripping from the battery bottom at no more than 1 drop per second

Once the water has drained on level ground, the towing personnel should prepare to winch the vehicle onto the truck/trolley.

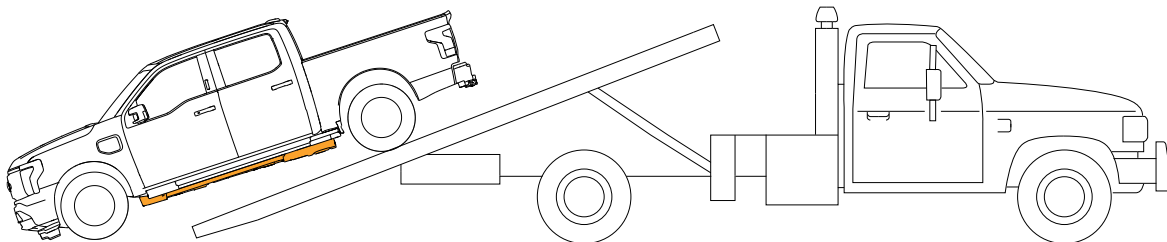
Begin winching the vehicle onto the truck/trolley, but stop when the vehicle is near the steepest slope it will achieve. See the Figure below.

Allow the vehicle to drain until the following two conditions are met:

5 minutes time while inclined have passed

Water is dripping from the battery bottom at no more than 1 drop per second

Complete the winching activity and secure the vehicle to the tow truck.





FORD F-150 Lightning

2022 - 2024

2. Vehicle transport:

Select a drive route for towing the vehicle from the incident scene to the location that meets the following criteria in the order presented:

- Avoid high traffic density
- Avoid the use of highway tunnels
- Reduce the degree of steep roads during transportation
- Reduce the transportation distance

Drive with gentle accelerations, decelerations and turns.

Vehicle Storage

Contact an authorized Ford or Lincoln Dealer as soon as possible as there may be additional steps necessary to secure, handle, and/or store the High Voltage battery and vehicle.

Do not store a severely damaged vehicle with a lithium-ion battery inside a structure, any enclosed container or within 15 m (50 ft) of any structure or vehicle.

Make sure the passenger and cargo compartments remain ventilated.

Prior to placing vehicle in storage, and while located in storage area/tow lot, continue to inspect vehicle for leaking fluids, sparks, smoke, flames, gurgling or bubbling sounds from the High Voltage battery and call 911 if any of these are detected.

Maintain clear access to stored vehicles for monitoring and emergency response if needed.

Do not place load on HV components. DO NOT ATTEMPT TO DISCHARGE THE HV BATTERY.

Securing straps must not contact or apply force to HV components. Avoid winching or placing straps over or near HV components. Use non-conductive materials as needed.

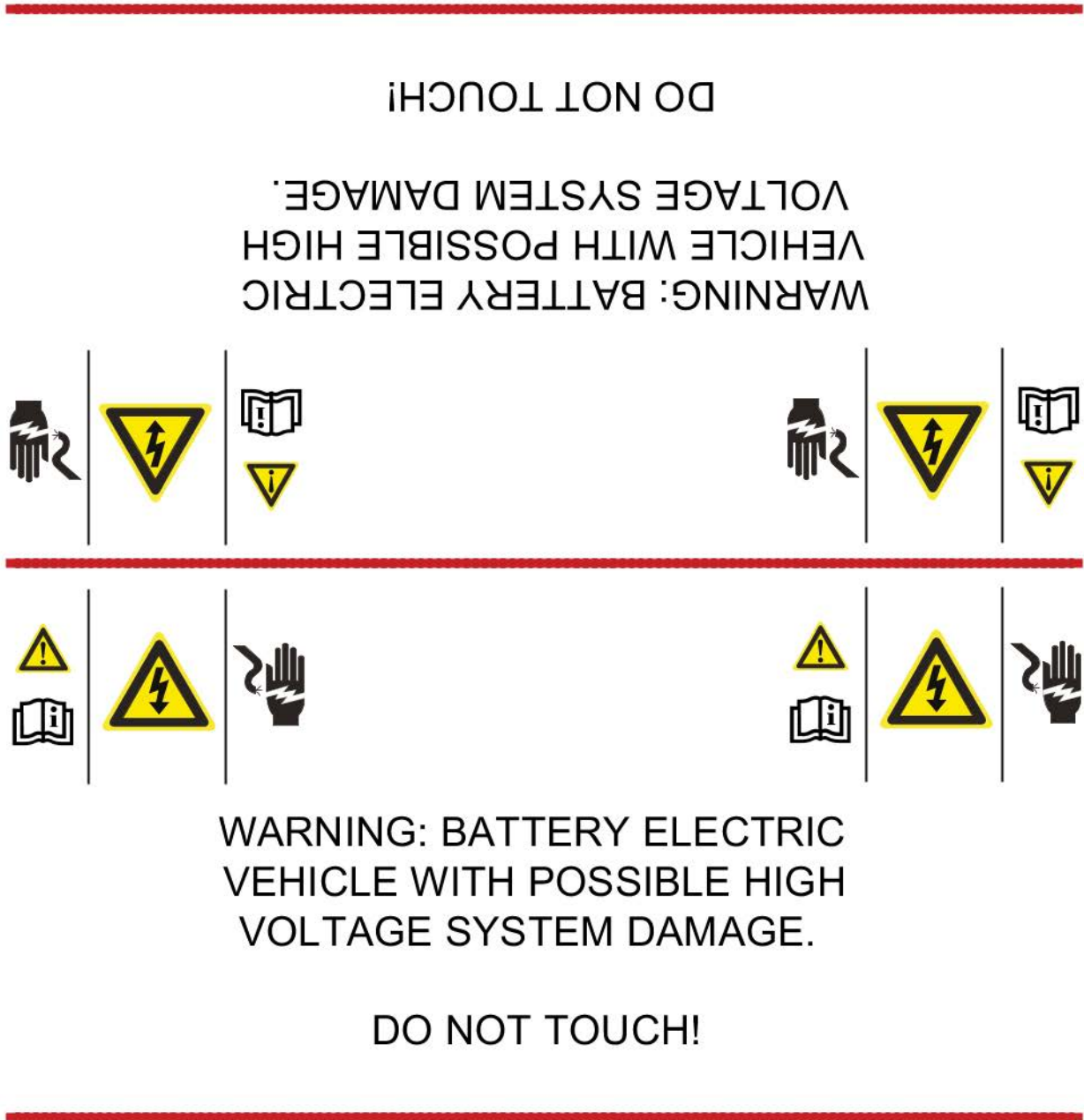




FORD F-150 Lightning

2022 - 2024

If the vehicle and/or battery High Voltage system is damaged, place a sign indicating that it is a battery electric vehicle with potentially dangerous High Voltage. See example below:





FORD F-150 Lightning

2022 - 2024

9. Important additional information

HV Battery transport:

DDR (Damaged, Defective, Recalled) HV batteries must satisfy special shipping regulations per Department of Transportation (DOT) and Transportation of Dangerous Goods (TDG) in the US and Canada markets.

DDR HV batteries must be transported in metal containers which have been certified for that purpose.

HV Battery storage:

HV batteries should be shipped to recyclers for disposal as soon as possible and stored for not more than 6 months. Consult with relevant authorities and fire safety experts to ensure compliance with regulations and the effectiveness of any fire suppression systems in place when HV batteries will be stored for a significant amount of time.

For First Responder Resources, refer to <https://www.ford.com/firstresponder/>

© Copyright 2025, Ford Motor Company. All rights reserved. This document may be reproduced in its entirety and distributed for emergency responder use only. It may not be excerpted for any purpose.

10. Explanation of pictograms used



Flammable



Explosive



Corrosives



Hazardous
to the
human health



Environmental
hazard



Electric
vehicle



Left-Hand
Drive



Use water
to extinguish
the fire



General
warning



Warning,
Electricity



Open
Hood/Frunk



Use infrared thermometer /
Thermal Infrared camera

