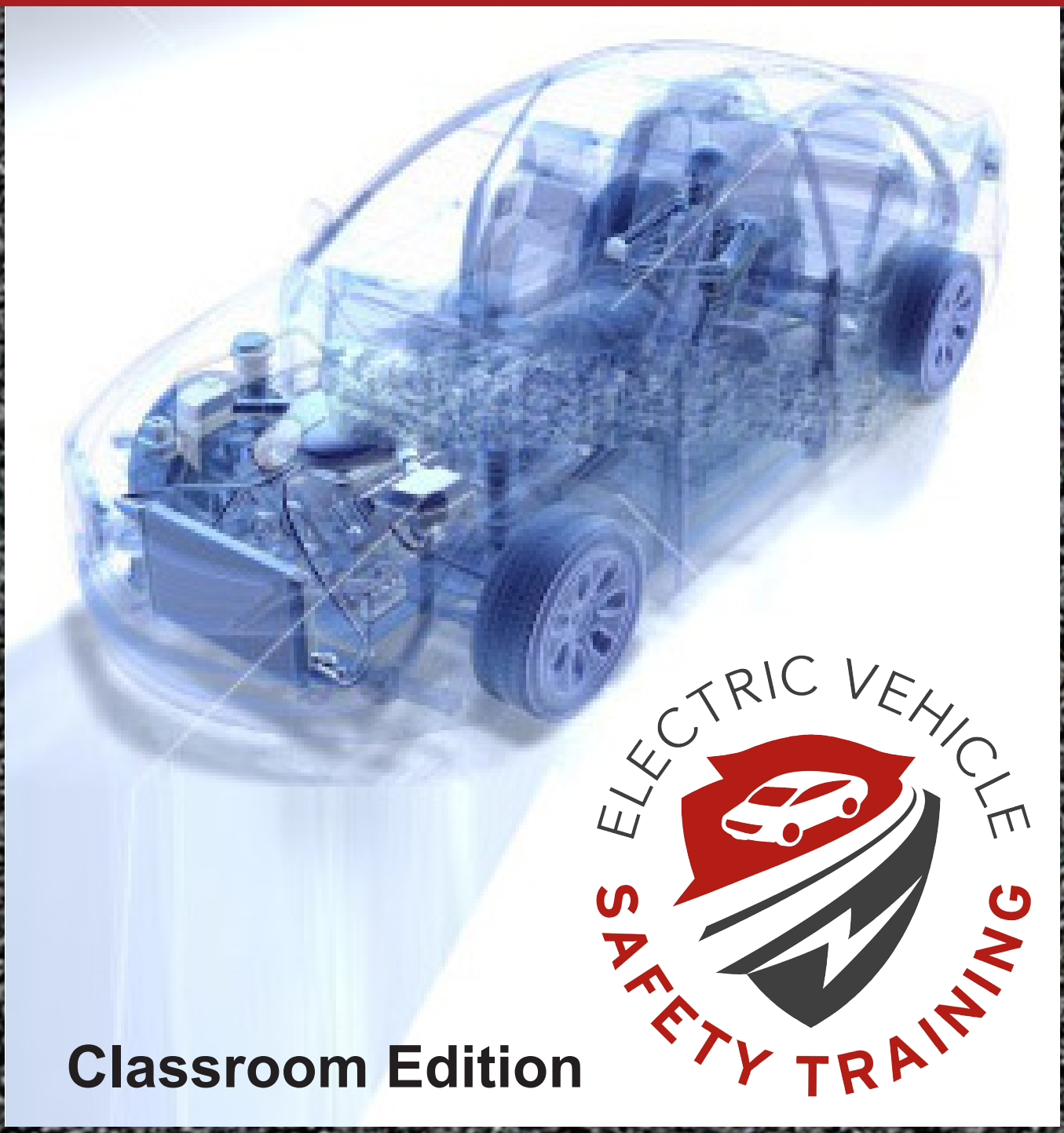
Electric Vehicle Safety Training is a project of the National Fire Protection Association

NFPA

Electric Vehicle Emergency Field Guide



ELECTRIC VEHICLE SAFETY TRAINING

Classroom Edition

PREFACE

The NFPA Electric Vehicle Emergency Field Guide is intended as a quick reference field manual for first responders to use on scene or as a study guide to provide essential information on incident response when dealing with electric or hybrid-electric vehicles.

The Emergency Field Guide provides an intuitive, easy-to-use, quick reference guide, covering all current makes and models of hybrid and electric passenger cars. It contains vehicle-specific information drawn from manufacturer Emergency Response Guides, as well as generic guidance on initial response procedures and situations such as vehicle fire, submersion and spills.

The National Fire Protection Association is a not-for-profit safety codes and standards organization. In 2010, in conjunction with a U.S. Department of Energy grant, NFPA began developing the Electric Vehicle Safety Training for First Responders program. Through this program, NFPA has demonstrated its commitment to developing and improving safety training and standards for first responders with regard to electric and hybrid vehicles. This Emergency Field Guide is but one aspect of the resulting program, developed through partnerships with both auto manufacturers and emergency service agencies.

This guide was developed using current fire-rescue service best practices and incorporating instructions and guidance from auto and battery manufacturers. However, due to the inherently dangerous and unpredictable nature of rescue operations, NFPA claims no responsibility for either the manufacturer instructions contained herein, or unforeseen circumstances that may create rare exceptions to the general safety-related guidance provided.

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INITIAL PROCEDURES FOR INCIDENTS INVOLVING HYBRID AND ELECTRIC VEHICLES

IDENTIFY ⇨ IMMOBILIZE ⇨ DISABLE

IDENTIFY VEHICLE

ALWAYS ASSUME THE VEHICLE IS SOME TYPE OF HYBRID, ELECTRIC OR ALTERNATIVE FUELED VEHICLE UNTIL PROVEN OTHERWISE.

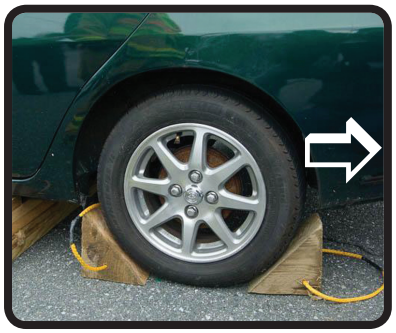
- Look for external badging indicating a hybrid or electric vehicle.
- Badging may be hidden in a crash or fire so alternative identification methods may need to be used.
- Determine vehicle's make, model and year to access more specific vehicle information found in this guide.

IMMOBILIZE

ALL VEHICLES SHOULD BE IMMOBILIZED PRIOR TO WORKING AROUND THEM.

HYBRID AND ELECTRIC VEHICLES MAY APPEAR TO BE SHUT DOWN EVEN WHEN THEY ARE NOT DUE TO THE POTENTIAL LACK OF ENGINE NOISE

- Approach the vehicle from its sides to stay out of the potential path of travel and



1. Chock the Wheels



2. Set Parking Brake



3. Place Vehicle in Park

DISABLE

PRIMARY SHUTDOWN METHOD

1. Turn of the vehicle's ignition
2. Disconnect 12v battery

SOME VEHICLES MAY USE A PROXIMITY KEY.
IF KEY CAN BE LOCATED REMOVE IT TO 16' FROM VEHICLE.
IF IT CANNOT BE LOCATED IT WILL BE DISABLED
ONCE THE 12V BATTERY IS DISCONNECTED

SECONDARY SHUTDOWN METHOD (if you cannot access the ignition)

- Consult the vehicle specific page in this guide for further information

GENERAL PROCEDURES FOR FIRE SUPRESSION

Firefighting personnel should extinguish hybrid and electric vehicle fires using proper vehicle firefighting practices as recommended by the NFPA and in accordance with the department SOPs/SOGs.

PERSONAL PROTECTIVE EQUIPMENT

All firefighting personnel should wear full Personal Protective Equipment and Self Contained Breathing Apparatus as required at all vehicle fires.

RECOMMENDED EXTINGUISHING AGENTS

Utilize firefighting agents recommended for typical vehicle fires. Manufacturers typically recommend copious amounts of water as the best means to extinguish a hybrid or electric vehicle fire.

RECOMMENDED EXTINGUISHING TACTICS

A standard *offensive* attack is generally recommended for vehicle fires that do not involve the high voltage battery or in situation where exposures are present.

A *defensive* attack is generally recommended in the event the high voltage battery becomes involved in fire and there are no exposures. Allowing the battery to burn itself out has shown to be an effective means to handle the situation. Since the battery is sealed, the direct application of water onto the burning cells is all but impossible. Allowing the battery pack to burn out is often the most prudent course of action. Firefighters should continue to control the fire around the area of the battery pack as well as protect any exposures from a defensive position. A thermal camera can be useful in determining when the fire has burned itself out.

If the battery pack fire needs to be extinguished, copious amounts of water must be applied to the battery case. The goal is to cool the adjacent battery cells to a point below their ignition temperatures. The remaining cells on fire if not extinguished by the water will burn themselves out.

The electrolyte in the high voltage battery is flammable but will not explode.

When opening the hood be careful not to drive any tools such as a halligan bar blindly into the hood. This could potentially pierce the inverter/converter unit typically located in the engine compartment.

VEHICLES CONNECTED TO A CHARGING STATION

In the event that a vehicle connected to charging station becomes involved in fire, treat the incident as an energized electrical fire and shut down the electrical circuit supplying the charging unit before applying water. Extinguishers classified for Class C energized electrical applications can also be utilized.

OVERHAUL OPERATIONS

- Immobilize and disable the vehicle if it has not already been done
- Never disconnect or contact any exposed high voltage components or wiring
- Never breach or remove the high voltage battery. Doing so may result in severe electrical burns, shock and/or electrocution.



GENERAL PROCEDURES FOR WATER SUBMERSION

If submerged or partially submerged in water, electric and hybrid vehicles are specifically designed to pose no risk of electrical shock from simply touching the vehicle. Additionally, their electrical systems are designed to not energize the surrounding water.

RESPONSE PROCEDURE

- In the event there are victims in the submerged vehicle, follow normal department operating procedures for their removal.
- Do not touch any high-voltage components or wiring
- If possible, remove the vehicle from the water and follow standard disabling procedures

A submerged high-voltage battery may produce a fizzing or bubbling reaction. The high-voltage battery will be discharged when the fizzing or bubbling has completely stopped. In fresh water this process produces hydrogen and oxygen which so venting of the passenger compartment may be necessary to reduce the gas buildup. In salt water chlorine can also be produced.



SUBMERSION

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GENERAL PROCEDURES FOR SPILL HAZARDS

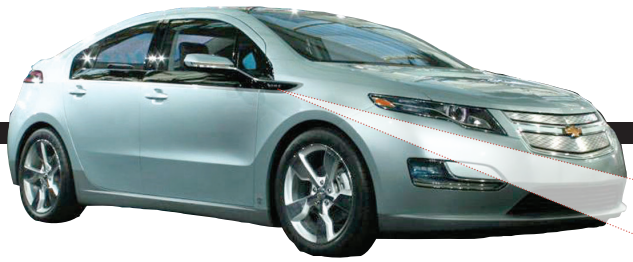
Hybrid vehicles contain the same common automotive fluids used in other vehicles. Electric vehicles do not typically contain fluids used in internal combustion engines. Utilize standard departmental procedures for these fluids.

The cells contained within the high voltage batteries are very similar in nature to a dry cell battery and do not contain large amounts of a liquid electrolyte. In the unlikely event that the battery module is breached and an individual cell is crushed or damaged there is only the potential for a few drops of the material to be released.

Depending on the battery type the electrolyte is likely to be corrosive in nature and precautions, including the use of appropriate PPE, should be taken to protect responders from exposure. Departmental policies for handling corrosive materials should be followed.



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CRASH/EXTRICATION

IMMOBILIZE/DISABLE VEHICLE

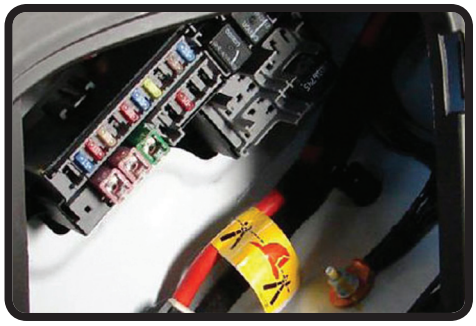
Conduct Standardized Immobilization Procedures

To disable the 12-Volt power:

1. Press the Start button on the center instrument panel to turn OFF the ignition.
2. Cut the 12V positive battery cable at the yellow tag cut position. The cable is identified by the yellow First Responder tag. The tag is located behind the left rear closeout panel in the rear compartment of the vehicle.



Start Button



Cut through the red positive low voltage cable on each side of the tag to remove a section of the cable to ensure the cables cannot inadvertently reconnect.

⚠ After disabling 12 volt power, wait 1 minute to allow any un-deployed air bag reserve energy to dissipate.

EXTRICATION

DO NOT CUT

- Orange high voltage 360-Volt cables.
- Center tunnel area or the area under the rear seats. The 360 volt battery is installed in this area.
- Roof rails near the lift gate hinge. Side curtain air bag inflators and lift gate hold open struts are located in this area.
- Front seat back on the outboard area, contains side air bags.
- B-pillar near the rocker contains the seat belt retractor pretensioner.

⚠ The outboard area of the front seat lower frame houses an additional seat belt pretentioner.

SEE REVERSE FOR DIAGRAM



(continued)

CRASH/EXTRICATION

VEHICLE COMPONENTS

- The fuel tank is behind the T-shaped Battery pack, in front of the rear axle.
- The **12-Volt battery** is located behind the left rear closeout panel in the rear compartment of the vehicle.

The high voltage battery is T-shaped and located in the central tunnel area and under the rear seats.

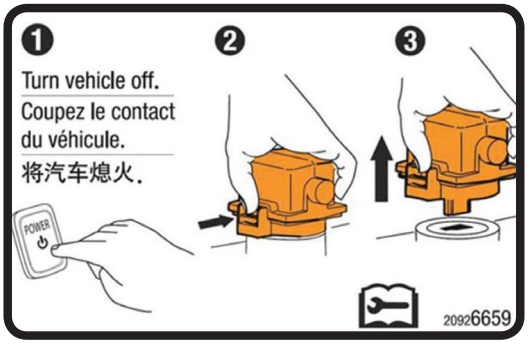
Exact drain down times are unknown, avoid breaching any high voltage lines until at least 10 minutes after disabling procedures have been completed.

AIRBAG LOCATIONS

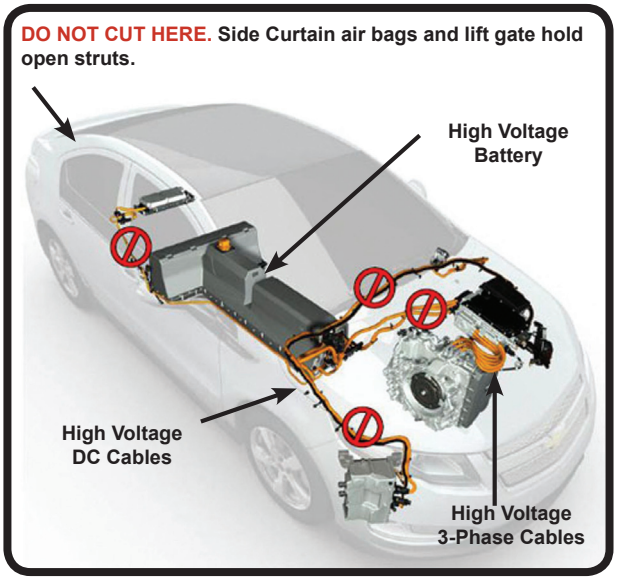
- Seat mounted side air bags
- Knee air bags
- Driver and passenger frontal air bags
- Roof rail air bags

PRE-TENSIONERS

- Located at the base of the B-pillars and on the outboard area of the front seat lower frame.



Manual High Voltage Disconnect Located Under Center Console



Do Not Cut Areas

SPECIAL CONCERNS

In the event a Volt is involved in an incident while the battery charger is plugged in for charging the battery, remove the charge cord from the car using the charger cord handle at the charge port in the left front fender. If that cannot be accomplished, the electrical power to the charge cord should be terminated at the source.



CRASH/EXTRICATION

IMMOBILIZE/DISABLE VEHICLE

Conduct Standardized Immobilization Procedures

STANDARD PROCEDURE

1. Turn the ignition off. By turning the ignition off, the main contactors of the high voltage battery are opened and the discharge of the capacitors is initiated.
2. Disconnect or cut the **12-volt battery** negative cable. The **12-volt battery** is located beneath the vehicle. The **12-volt battery** cables/low-voltage disconnect can be accessed in the engine compartment. The low-voltage disconnect is located adjacent to the air cleaner on the driver side of the engine.



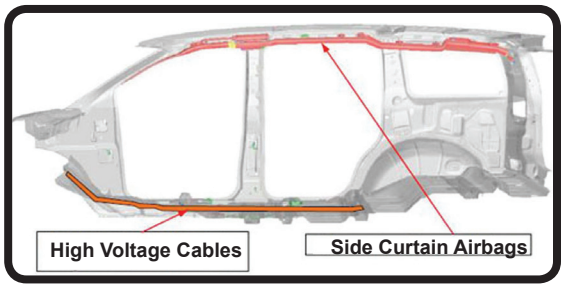
Ignition Switch



12v Battery Disconnect

EXTRICATION

High Voltage (HV) cables are bright orange colored. Never cut or disconnect any high voltage cables.



Do NOT Cut Zones

VEHICLE COMPONENTS

- **12v battery** is located beneath the vehicle. Quick disconnect is located adjacent to the air cleaner on the driver side of the engine.

2010-11

HYBRID
TWO MODE HEMI



(continued)

CRASH/EXTRICATION

VEHICLE COMPONENTS
(continued)

The High Voltage (HV) battery pack is located under the second row passenger seats and runs the full length of the second row seats.

* The service disconnect is located on the driver side front of the high voltage battery module.

- After five minutes, the passive discharge of the high voltage system is completed.

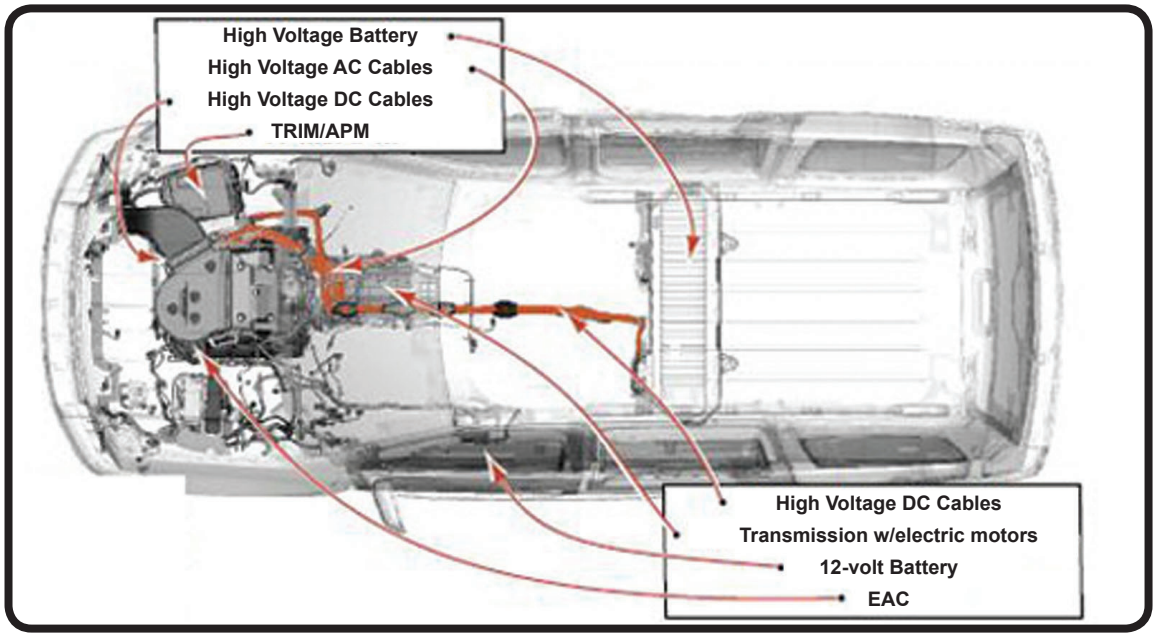
The SRS may remain powered for up to two minutes after the vehicle is disabled.



HV System Disconnect



HV System Disconnect





CRASH/EXTRICATION

IMMOBILIZE/DISABLE VEHICLE

Conduct Standardized Immobilization Procedures

STANDARD PROCEDURE

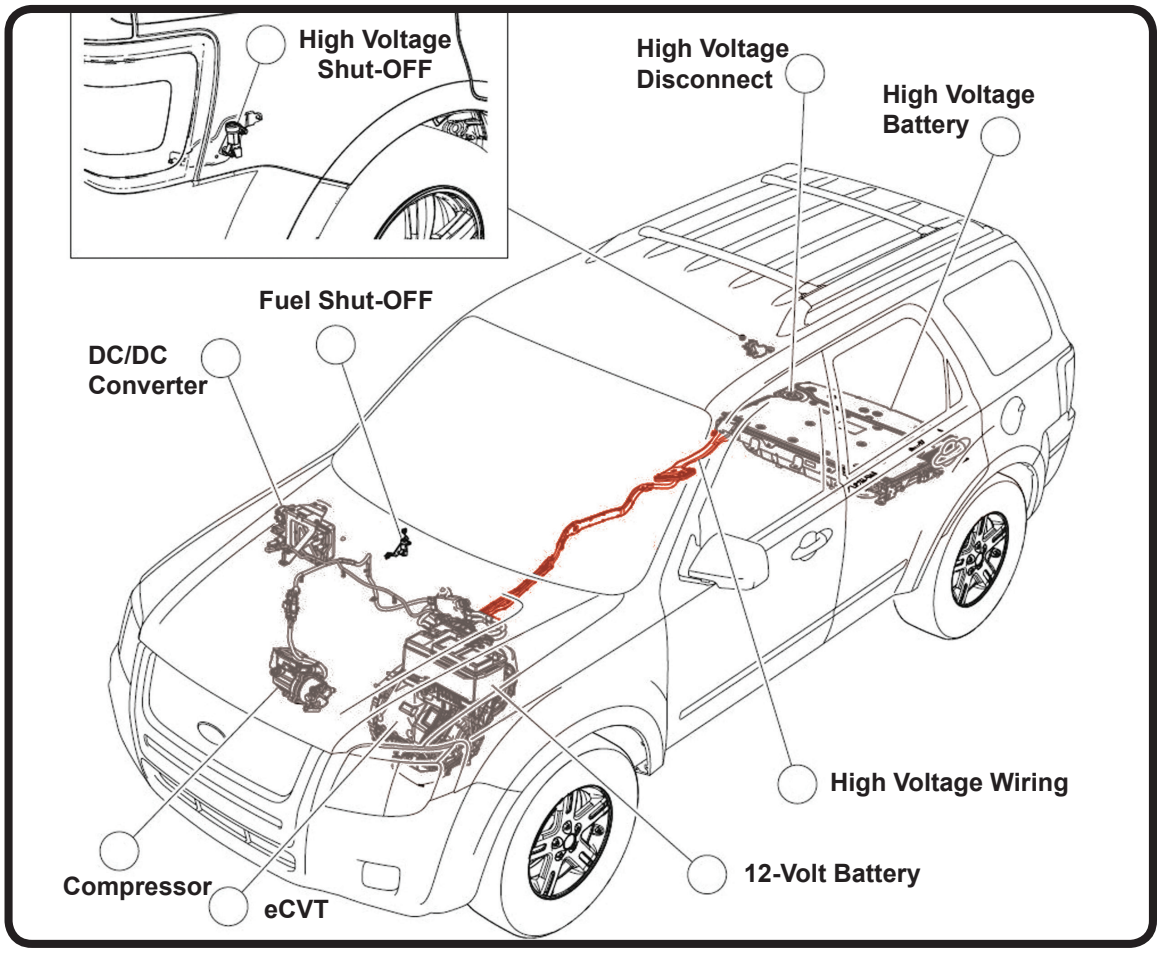
Removing the ignition key or turning the key to the OFF position will disconnect the high voltage system.

ALTERNATIVE PROCEDURE

1. Disconnect the negative cable from the **12-volt battery**.
2. If possible, remove the high voltage service disconnect.

EXTRICATION

Orange-colored High Voltage (HV) lines are covered in insulation and are located along the floor panel through the length of the vehicle.





(continued)

CRASH/EXTRICATION

VEHICLE COMPONENTS

- **12v Battery** is located in the engine compartment on the driver's side.

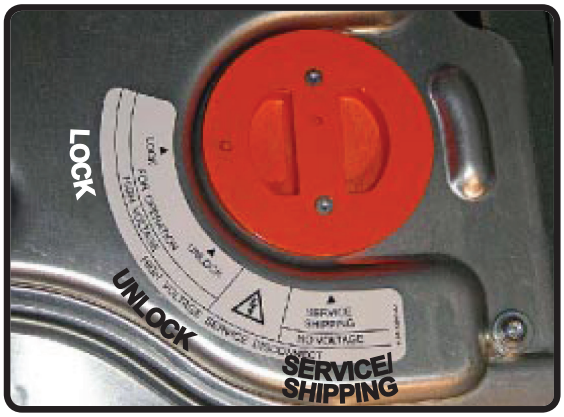
The High Voltage (HV) battery pack is located in the cargo area, under the carpet.

- High Voltage (HV) service disconnect switch is located on top of the HV battery, passenger side.
- Remove the High Voltage (HV) service disconnect switch by turning it counterclockwise to the UNLOCK position and place the switch in SERVICE/SHIPPING position. This disconnects the High Voltage (HV) system.

Exact drain down times are not known; do not breach high voltage lines for at least 10 minutes and SRS components for at least 3 minutes after disabling vehicle.



HV Battery Pack **HV Service Disconnect Switch**



High-Voltage Service Disconnect Switch Shown in LOCK position.



CRASH/EXTRICATION

IMMOBILIZE/DISABLE VEHICLE

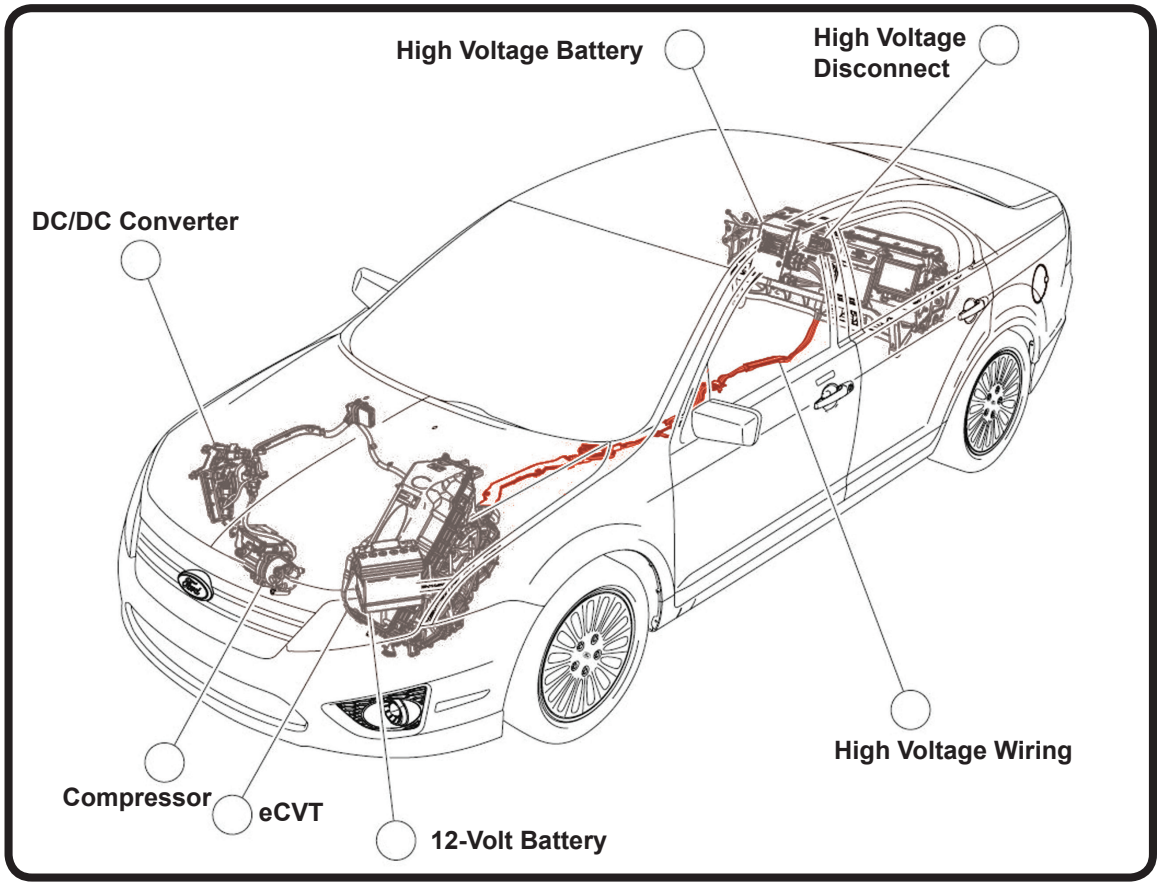
Conduct Standardized Immobilization Procedures

STANDARD PROCEDURE

Removing the ignition key or turning the key to the OFF position will disconnect the high voltage system. If the above step cannot be accomplished, follow the alternative procedure.

ALTERNATIVE PROCEDURE

1. Disconnect the negative cable from the **12-volt battery**.
2. Locate the seat backrest latch release levers (2) in the rear storage area between the high-voltage battery and the body sheet metal.
3. Push the release lever toward the outboard side of the vehicle.
4. If possible, remove the high voltage service disconnect.





(continued)

CRASH/EXTRICATION

EXTRICATION

Orange-colored High Voltage (HV) lines are covered in insulation and are located along the floor panel through the length of the vehicle.

VEHICLE COMPONENTS

- **12v Battery** is located in the engine compartment on the driver's side.

The High Voltage (HV) battery pack is located behind the rear seatback.

- Removing the High Voltage (HV) service disconnect will disconnect the High Voltage (HV) from the vehicle.



High-Voltage Disconnect



CRASH/EXTRICATION

IMMOBILIZE/DISABLE VEHICLE

Conduct Standardized Immobilization Procedures

STANDARD PROCEDURE

1. Turn the ignition key to OFF.
2. Remove the 12-volt (+) positive battery cable from the battery post (engine compartment, driver's side).
3. Ensure the terminal cannot contact the battery post.



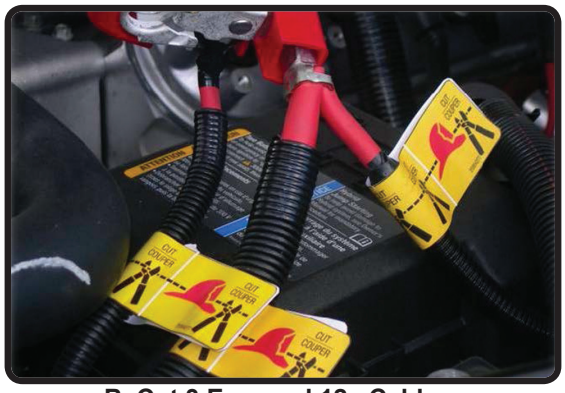
1. Key Position



2. Remove 12v Cable

ALTERNATE PROCEDURE
(If the ignition key is not accessible)

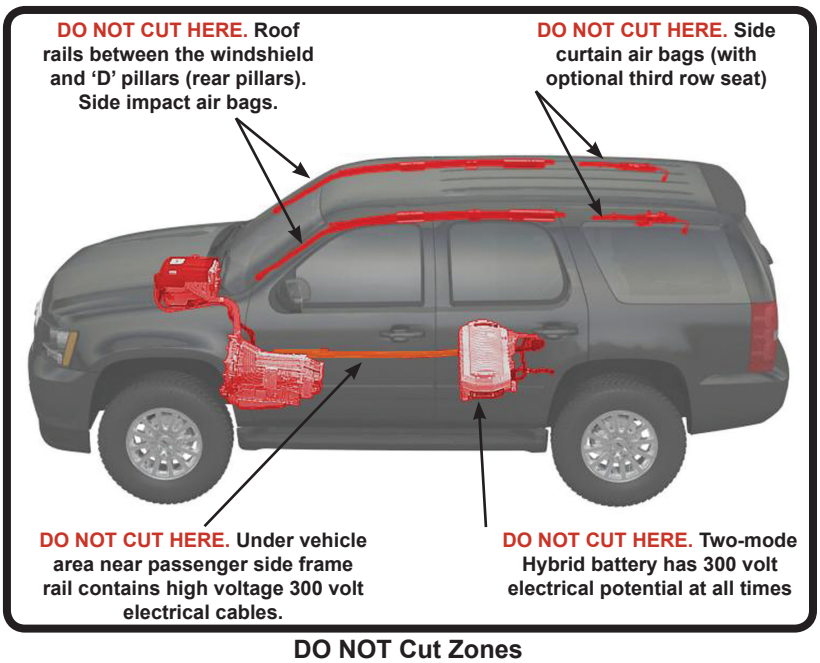
1. Disconnect the 12-volt positive (+) battery cable (engine compartment, driver's side).
2. Cut all three exposed 12-volt positive cables identified by the yellow First Responder labels.



B. Cut 3 Exposed 12v Cables

EXTRICATION

Do NOT cut the orange high voltage cables; cutting these cables can result in serious injury or death.



DO NOT Cut Zones



(continued)

CRASH/EXTRICATION

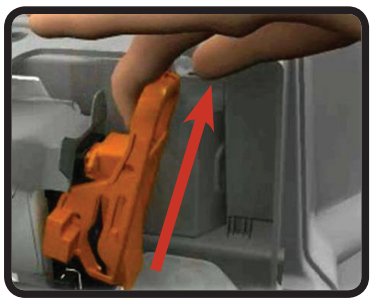
VEHICLE COMPONENTS

- **12v battery** is located in the engine compartment on the driver's side.

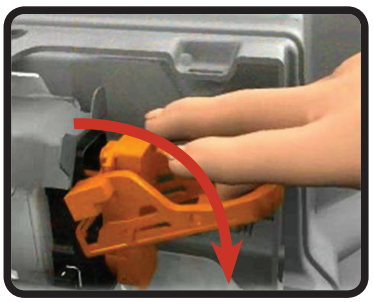
High Voltage (HV) battery is located under the second row rear seat sub-floor.



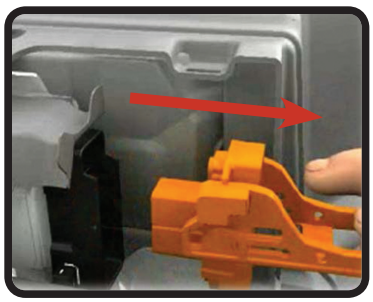
300V Hybrid Battery Manual Disconnect



1. Pull Up



2. Pull Down



3. Pull Out

Exact high voltage drain down time is not known; do not breach high voltage lines for at least 10 minutes.

- After disabling 12-volt power, wait at least 10 seconds to allow any un-deployed airbag reserve energy to dissipate.



CRASH/EXTRICATION

IMMOBILIZE/DISABLE VEHICLE

Conduct Standardized Immobilization Procedures

STANDARD PROCEDURE

To turn off the engine and the electric motor and to turn off power to the airbags and seat belt tensioners, turn the ignition switch off.

If the above step cannot be accomplished, follow the alternative procedure.

ALTERNATE PROCEDURE

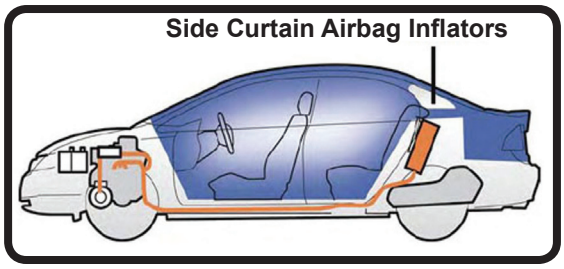
Cut both negative **12v battery** cables and remove the main fuse.



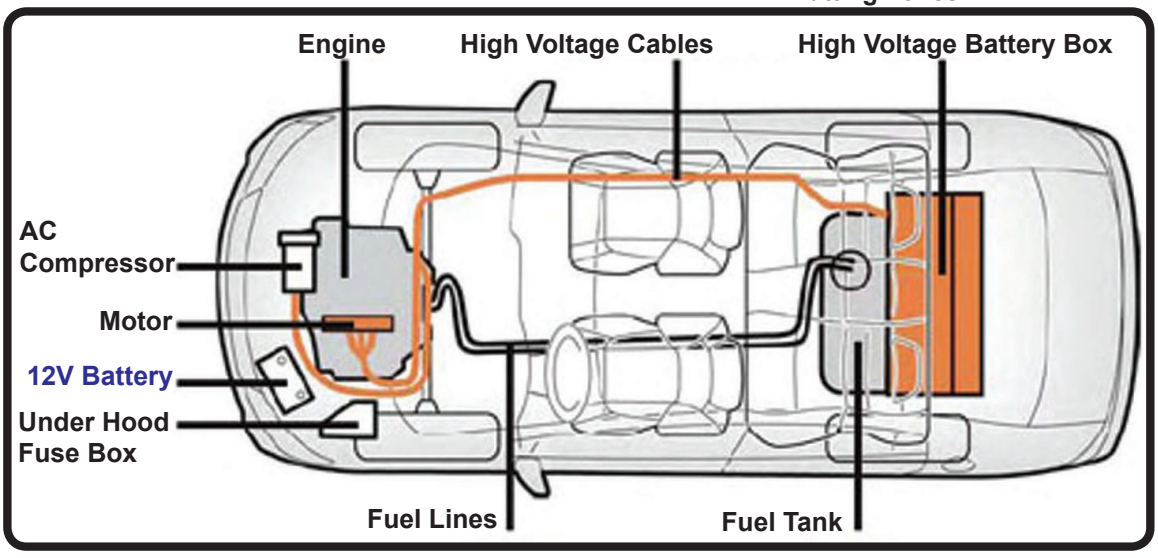
Key Position

EXTRICATION

Orange colored cables carry High Voltage (HV) and are routed under the vehicle inside sturdy orange plastic protective shields. Cables close to the exhaust system are protected by a metal thermal shield covers.



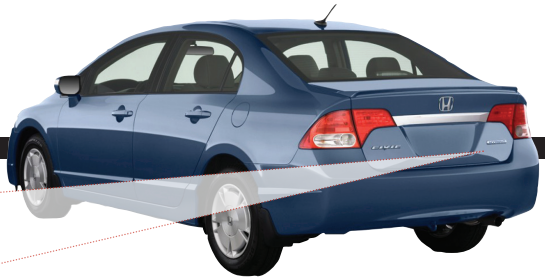
Cutting Zones



System Overview

2006-11

HYBRID



(continued)

CRASH/EXTRICATION

VEHICLE COMPONENTS

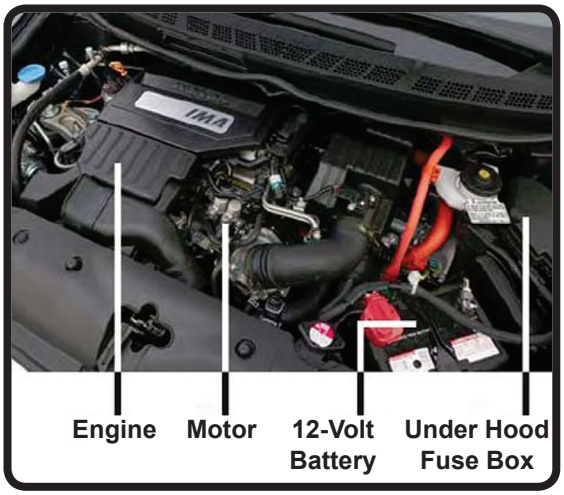
- The fuel tank is located in the undercarriage, behind the rear seats.
- **12v Battery** is located in the engine compartment

High Voltage (HV) battery is located in the rear seat-backs

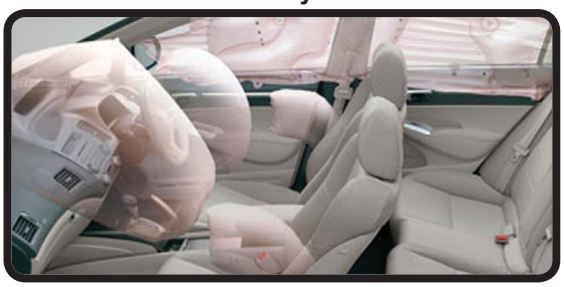
Exact high voltage drain down time is not known; do not breach high voltage lines for at least 10 minutes after disconnecting high voltage battery pack. To SRS system has a deactivation time of 3 minutes.

– After SRS has been deactivated, no other SRS modules should pose a risk.

- Pretensioners are mounted on driver and front passenger seatbelts.



12-Volt Battery Location



Air Bag Locations



CRASH/EXTRICATION

IMMOBILIZE/DISABLE VEHICLE

Conduct Standardized Immobilization Procedures

STANDARD PROCEDURE

1. Confirm the stats of READY indicator in the instrument cluster.
2. If the READY indicator is illuminated, the vehicle is on and operational. Shut off the vehicle by pushing the power button once.
3. The vehicle is already shut off if the instrument cluster lights and READY indicator are NOT illuminated. Do NOT push the power button because the vehicle may start.
4. Remove the electronic key from the key slot.
5. Keep the smart key at least 3.3 feet (1 meter) away from the vehicle.
6. If the electronic key cannot be removed from the key slot or if the electronic key cannot be found, disconnect the 12-volt auxiliary battery in the rear cargo area.

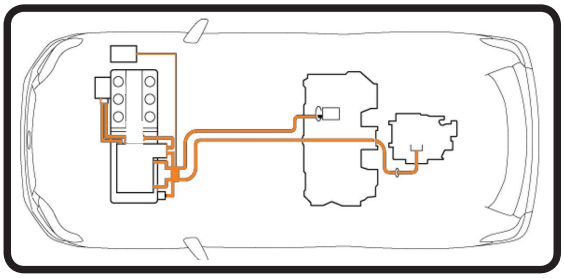
ALTERNATE PROCEDURE

1. Disconnect the 12-volt auxiliary battery in the rear cargo area.
2. Remove the driver side fuse box cover in the engine compartment.
3. Remove the green fuse in the engine compartment fuse box. If the correct fuse cannot be recognized, pull all of the fuses in the fuse box.

NOTE: Before disconnecting the 12-volt auxiliary battery, if necessary, lower the windows, unlock the doors and open the hatch as required. Once the 12-volt auxiliary battery is disconnected, power controls will not operate.

EXTRICATION

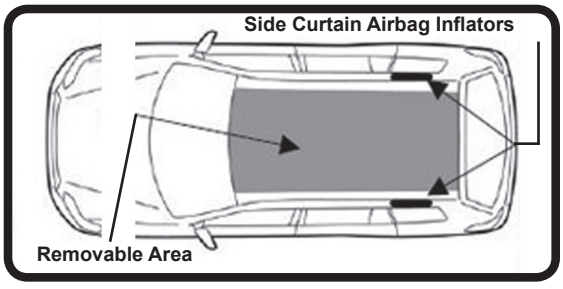
Orange colored cables carry High Voltage (HV). Lines run in Undercarriage and Engine Compartment.



High Voltage Power Cables

VEHICLE COMPONENTS

- Roof Removal Area.

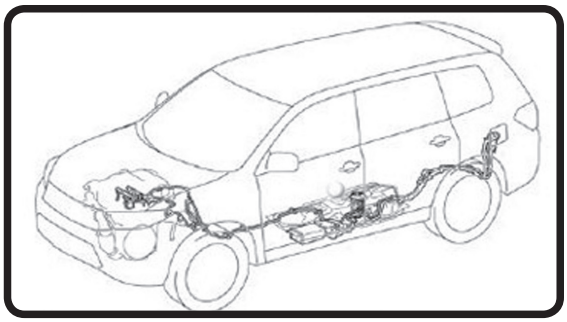


Roof Removal Area



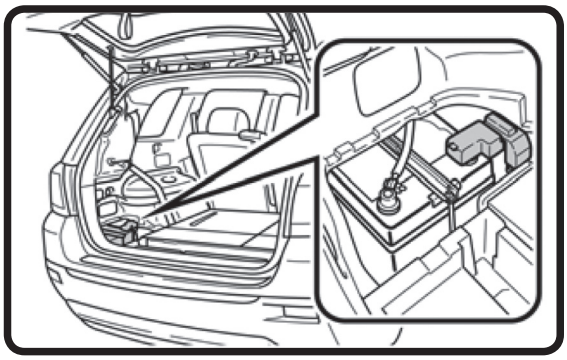
CRASH/EXTRICATION *(continued)*

- The fuel line is routed along center of vehicle under the floor pan.



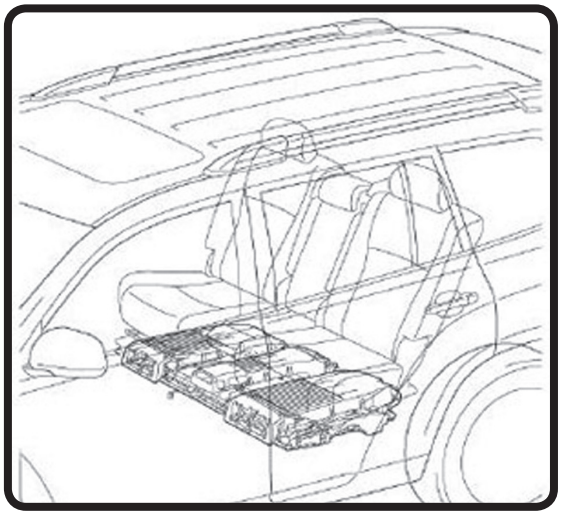
Fuel Tank and Fuel Lines

- 12v Auxiliary Battery is located in the Engine Compartment (2008-2010 Models).
- 12v Auxiliary Battery is located in the Cargo Area (2011 Models).



12V Auxiliary Battery (2011 Model)

High Voltage (HV) Battery is located in the cabin area, mounted to cross member, and under the second row seat.



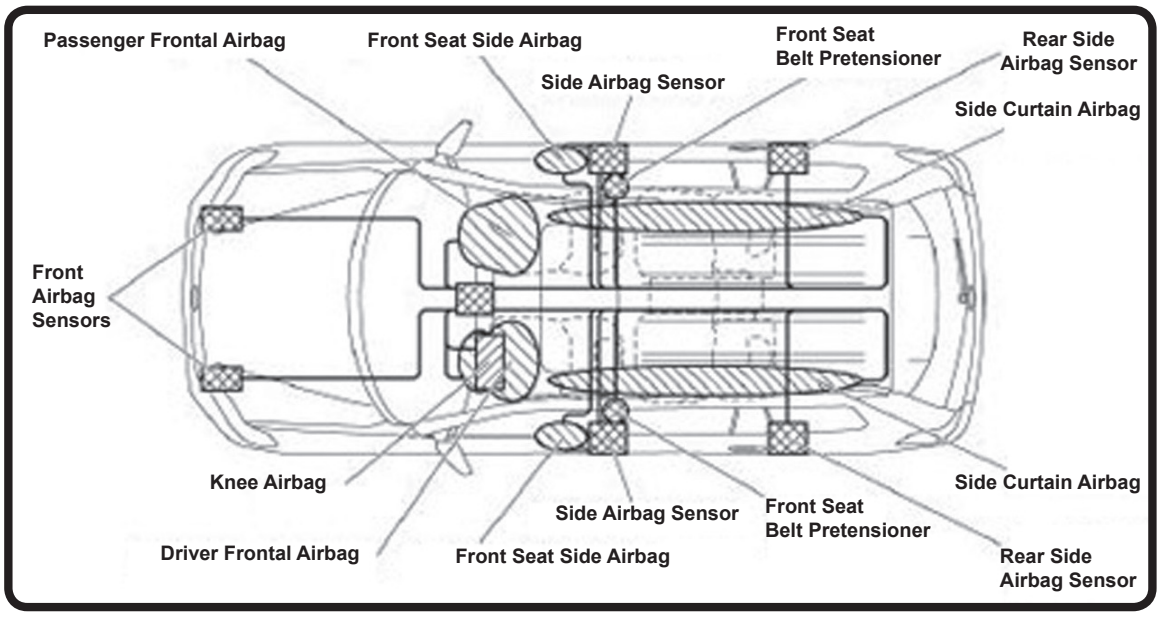
High Voltage Battery Pack



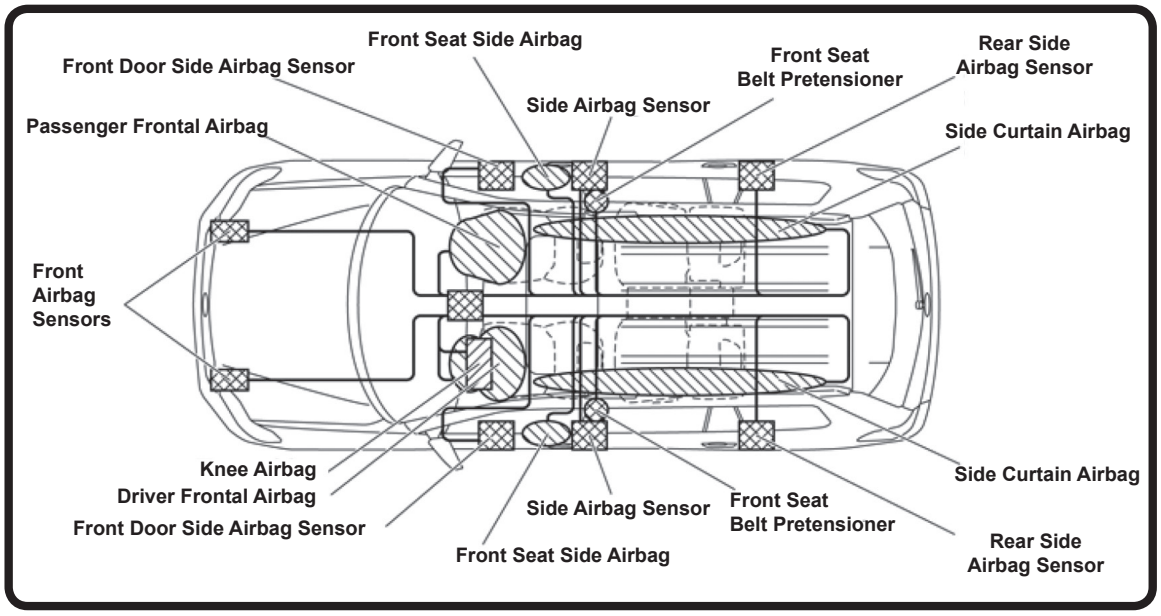
CRASH/EXTRICATION *(continued)*

VEHICLE COMPONENTS
(continued)

The high voltage system may remain powered for up to 10 minutes after the vehicle is shut off or disabled.



SRS System (2008-10 Model)

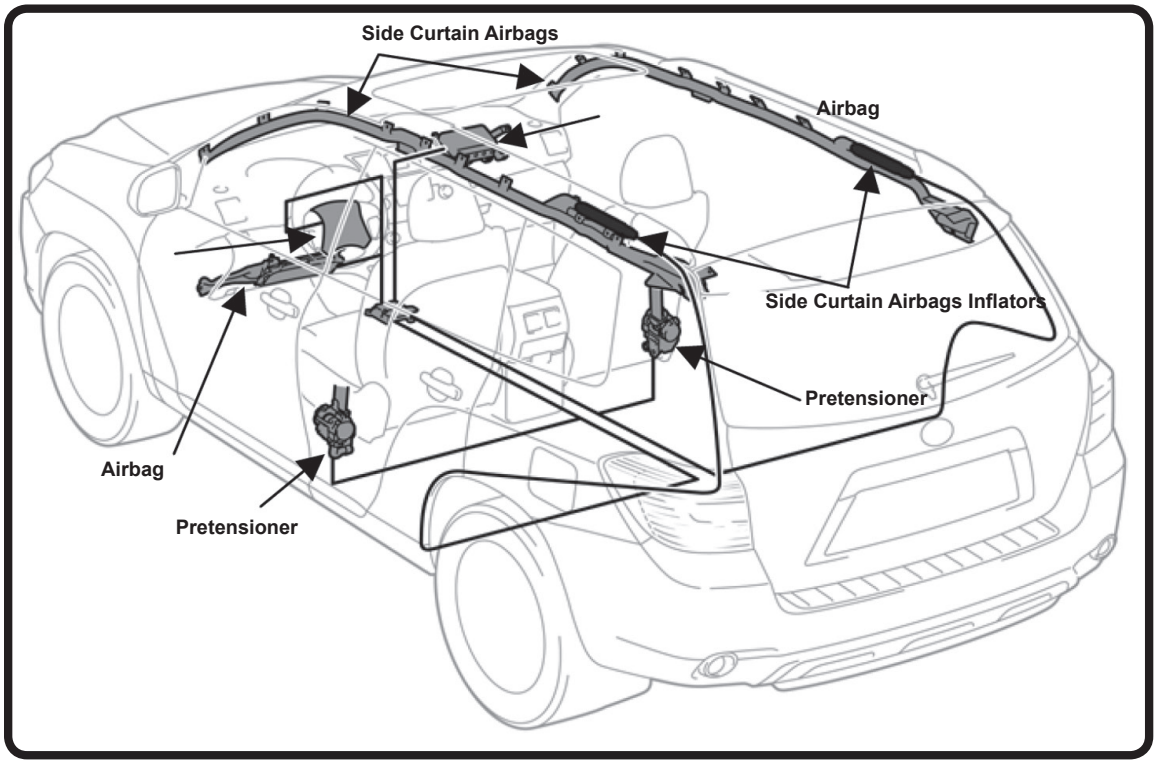


SRS System (2011 Model)



(continued) CRASH/EXTRICATION

The SRS may remain powered for up to 90 seconds after the vehicle is shut off or disabled.



Standard Frontal Airbags, Seat Belt Pretensiners, Knee Airbag, Side Curtain Airbags

Front seat belt pretensioners are mounted near the base of the B-Pillars.



CRASH/EXTRICATION

IMMOBILIZE/DISABLE VEHICLE

Conduct Standardized Immobilization Procedures

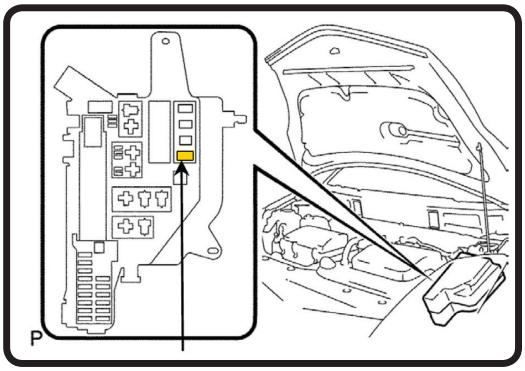
Performing either of the following two procedures will shut the vehicle off and disable the high voltage battery pack, SRS airbags, and gasoline fuel pump.

STANDARD PROCEDURE

1. Confirm the stats of READY indicator in the instrument cluster.
2. If the READY indicator is illuminated, the vehicle is on and operational. Shut off the vehicle by pushing the power button once.
3. The vehicle is already shut off if the instrument cluster lights and READY indicator are NOT illuminated. Do NOT push the power button because the vehicle may start.
4. Remove the electronic key from the slot.
5. If equipped, disable the smart key button underneath the steering column.
6. Keep the electronic key at least 16 feet (5 meters) away from the vehicle.
7. If the electronic key cannot be removed from the key slot or if the electronic key cannot be found, disconnect the 12-volt auxiliary battery in the rear cargo area.

ALTERNATE PROCEDURE

1. Disconnect the 12-volt auxiliary battery in the rear cargo area.
2. Remove the HEV fuse (20A yellow) in the engine compartment junction block as illustrated. When in doubt, pull all four fuses in the fuse block.



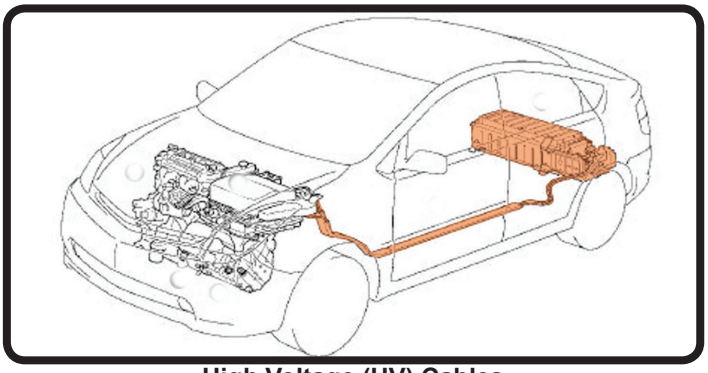
HEV Fuse 20A

NOTE: Before disconnecting the 12-volt auxiliary battery, if necessary, lower the windows, unlock the doors and open the hatch as required. Once the 12-volt auxiliary battery is disconnected, power controls will not operate.

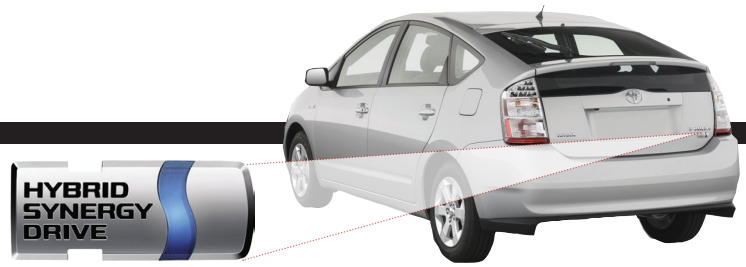
EXTRICATION

Do Not cut orange colored High Voltage (HV) lines, located in under carriage and engine compartment.

- The fuel tank is located in the rear of the vehicle, fuel line is routed along passenger side under the floor pan.



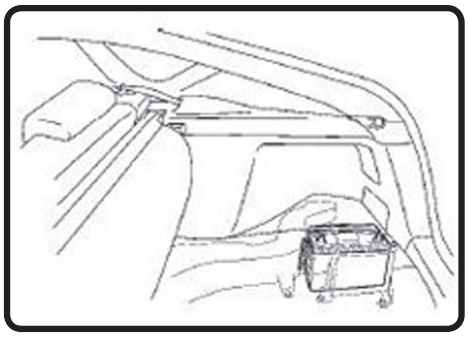
High Voltage (HV) Cables



(continued)

CRASH/EXTRICATION

VEHICLE COMPONENTS



12-Volt Auxiliary Battery

- **12v battery** is located in the rear cargo area, passenger side.

High Voltage (HV) battery is located in the rear cargo area, mounted to cross member, behind rear seat.

– Power remains in the high voltage electrical system for 5 minutes after the high voltage battery pack is shut off.

The SRS computer is equipped with a backup source that powers the SRS airbags up to 90 seconds after disabling the vehicle.

AIRBAG LOCATIONS

STANDARD - Frontal dual stage airbag for the driver is mounted in the steering wheel hub. Frontal dual stage airbag for the front passenger is integrated into the dashboard and deploys through the top of the dashboard.

OPTIONAL - Front seat side impact airbags are mounted in the front seats. Curtain shield side impact airbags are mounted along the outer edge inside the roof rails.

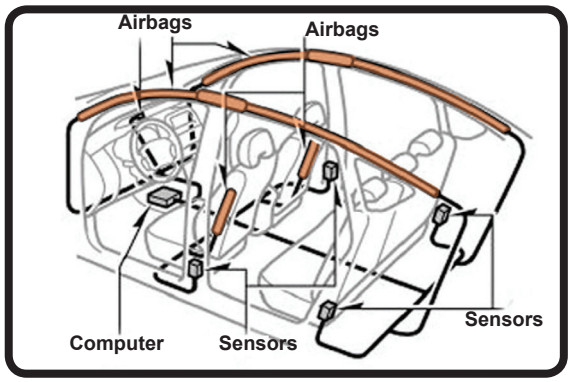
NOTE: The front seat side airbags and the curtain shield side airbags may deploy independent of each other.

MODULE LOCATIONS

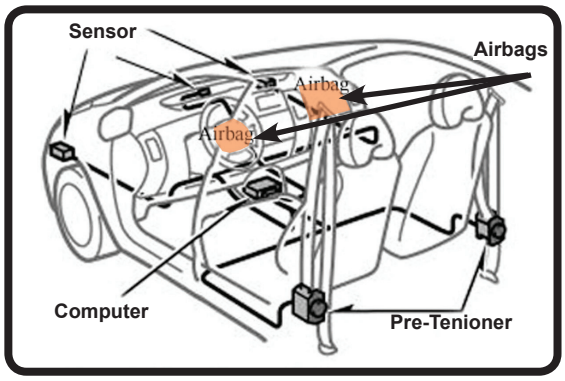
- Electronic frontal impact sensors (2) are mounted in the engine compartment.
- Front electronic side impact sensors (2) are mounted near the base of the B-pillars.
- Rear electronic side impact sensors (2) are mounted near the base of the C-pillars.

PRE-TENSIONERS

- Front seat belt pretensioners are mounted near the base of the B-pillar.



Optional Front Seat and Side Airbags



Standard Frontal Airbags and Pre-Tensioners



CRASH/EXTRICATION

IMMOBILIZE/DISABLE VEHICLE

Conduct Standardized Immobilization Procedures

Performing either of the following two procedures will shut the vehicle off and disable the high voltage battery pack, SRS, gasoline fuel pump, and optional remote air conditioning system.

STANDARD PROCEDURE

1. Confirm the stats of READY indicator in the instrument cluster.
2. If the READY indicator is illuminated, the vehicle is on and operational. Shut off the vehicle by pushing the power button once.
3. The vehicle is already shut off if the instrument cluster lights and READY indicator are NOT illuminated. Do NOT push the power button because the vehicle may start.
4. Remove the electronic key from the slot.
5. Keep the electronic key at least 16 feet (5 meters) away from the vehicle.
6. Disconnect the 12-volt auxiliary battery under the cover in the cargo area to prevent accidental restarting of the vehicle and operation of the optional remote air condition system.

ALTERNATE PROCEDURE

1. Open the hood.
2. Remove the fuse box cover.
3. Remove the IGCT fuse (30 A green colored) and AM2 fuse (7.5A orange colored) in the engine compartment fuse box (refer to illustration). If the correct fuse cannot be recognized, pull all fuses in the fuse box.



IGCT and AM2 Fuse Location In Engine Compartment Fuse Box

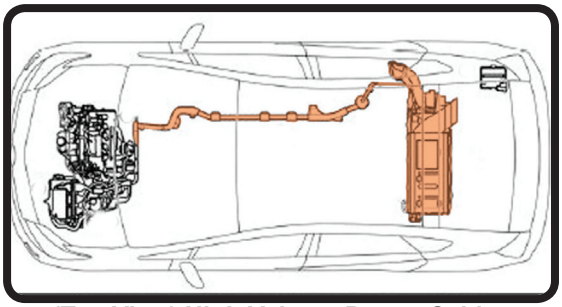
4. Disconnect the 12-volt auxiliary battery under the cover in the cargo area.

*NOTE: B*efore disconnecting the 12-volt auxiliary battery, if necessary, lower the windows, unlock the doors and open the hatch as required. Once the 12-volt auxiliary battery is disconnected, power controls will not operate.

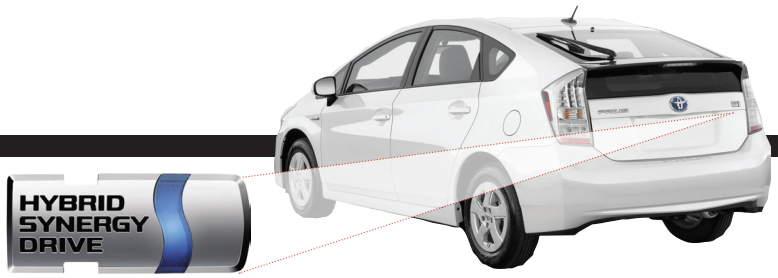
EXTRICATION

Do Not cut orange colored High Voltage (HV) power cables, routed from the battery pack, under the vehicle floor pan, to the inverter/converter.

- The fuel line is routed in the center of the undercarriage.



(Top View) High Voltage Power Cables



(continued)

CRASH/EXTRICATION

VEHICLE COMPONENTS

- Fuel tank is located in the undercarriage in the center.
- **12v battery** is located in the cargo area on the passenger side.

⚠ The SRS may remain powered for up to 90 seconds after the vehicle is shut off or disabled. The high voltage system may remain powered for up to 10 minutes after the vehicle is shut off or disabled.

AIRBAG LOCATIONS

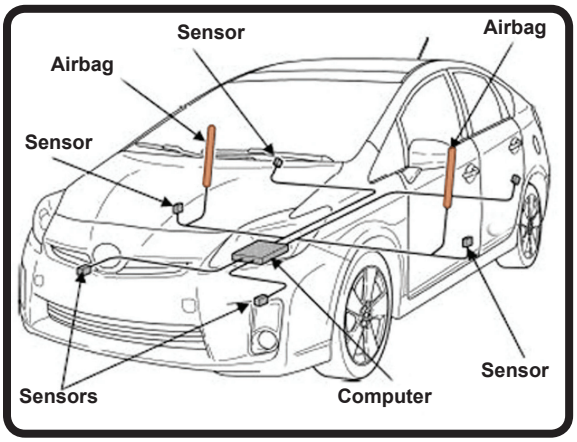
- Frontal driver airbag is mounted in the steering wheel hub.
- Frontal passenger airbag is integrated into the dashboard and deploys through the top.
- Front seat side airbags (2) are mounted in front seatbacks.
- Side curtain airbags (2) are mounted along the outer edge inside the roof rails.
- Driver knee airbag is mounted on the lower portion of the dash.

MODULE LOCATIONS

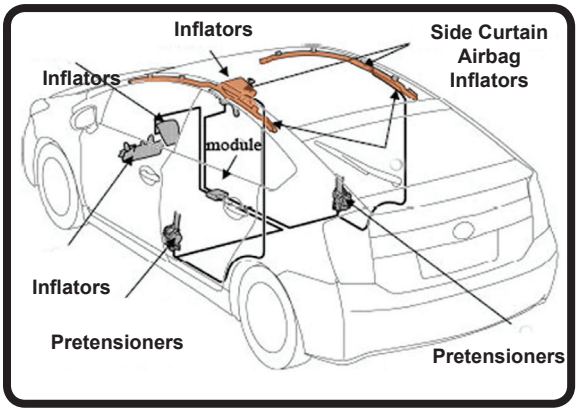
- Electronic frontal impact sensors (2) are mounted in the engine compartment.
- The SRS computer, which contains an impact sensor, is mounted on the floor pan underneath the instrument panel, forward of the shift lever.
- Front electronic side impact sensors (2) are mounted near the base of the B-pillars.
- Rear electronic side impact sensors (2) are mounted near the base of the C-pillars.

PRE-TENSIONERS

Front seat belt pretensioners are mounted near the base of the B-pillar.



Electronic Impact Sensors and Side Airbags



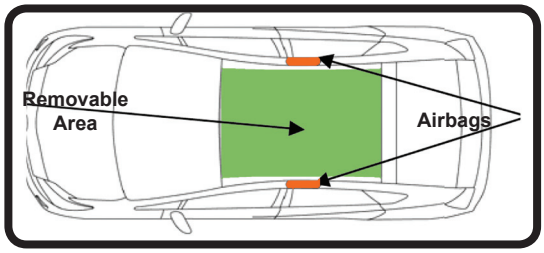
Frontal Airbags, Seat Belt Pretensioners, Knee Airbag, Side Curtain Airbags

CRASH/EXTRICATION

SPECIAL CONCERNS

ROOF REMOVAL

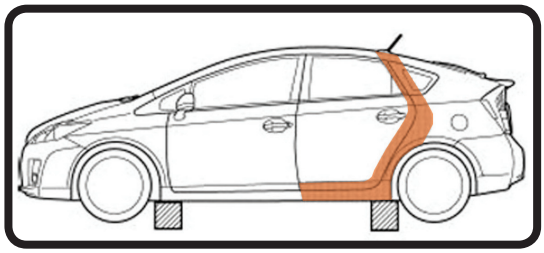
- The Prius is equipped with side curtain airbags. If the side curtain airbags are undeployed, ***total*** roof removal is **NOT RECOMMENDED**.
- If side curtain airbags are undeployed, patient access through the roof can be performed, by cutting the roof center section in between the roof rails.



Removable Roof Area

ROOF REMOVAL WITH SOLAR PANEL *(OPTIONAL)*

- Prius models equipped with the optional solar panel have an output wire bundled with the side curtain airbag wire harness, routed along the driver side (C) pillar.


Before Cutting the Shaded Area, Disable the Solar Panel

- This output wire is energized when the solar panel surface is exposed to light energy. Do not cut the shaded area until disabling the 27 Volt solar panel.

⚠ Cutting the roof center section may result in cutting into the optional solar panel and energized output wire. The solar panel output wire has a high arc potential.

Disabling 27 Volt Solar Panel

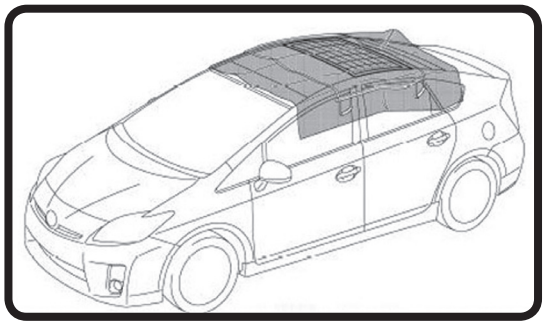
There is an optional 27-volt solar panel located on the rear potion of the roof.

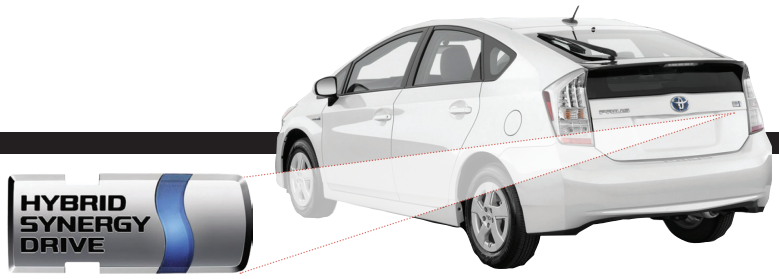
⚠ The solar panel output wire is not electrically connected to the 12 volt auxiliary battery, SRS airbags, or the High Voltage (HV) battery. The solar panel output will not back feed power to these circuits.

OPTION 1

- Disable solar panel output by covering the entire panel with a material that blocks sunlight.
- Either use two separate layers or one layer folded over the other.

⚠ Even a small amount of sunlight will allow the solar panel to generate power. Once the solar panel is disabled, the output in the energized wire drops immediately.

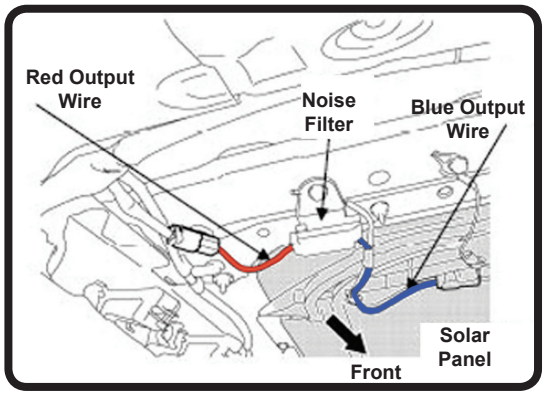

Disable By Covering The Entire Solar Panel



CRASH/EXTRICATION *(continued)*

OPTION 2

1. Remove the headliner above the driver side rear passenger area.
2. Identify the red or blue output wire from under the solar panel.
3. Disconnect the connector or cut the red **or** blue wire to disable power output.



Option 2 - Disconnect or Cut Red or Blue Output Wire

ACKNOWLEDGEMENTS

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