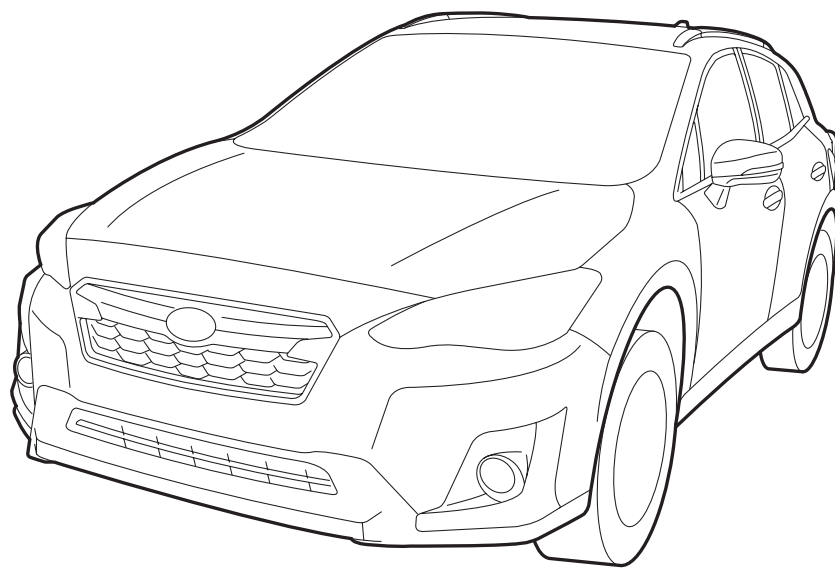


CROSSTREK Hybrid

Hybrid 2019 Model



Emergency Response Guide



SUBARU

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Foreword

SUBARU released the 2019 CROSSTREK gasoline-electric plug-in hybrid vehicle in North America in late 2018. SUBARU has prepared this Emergency Response Guide to educate and assist emergency responders in the safe handling of the CROSSTREK Hybrid technology.

Except where noted in this guide, the basic vehicle system and features for the CROSSTREK Hybrid are the same as those on the conventional, non-hybrid CROSSTREK.

High voltage electricity powers the drive motor, generator, electric compressor assembly, and inverter with converter assembly. All other automotive electrical devices such as the headlights, radio, and gauges are powered from a separate battery (12 V). Numerous safeguards have been designed into the CROSSTREK Hybrid to help ensure the high voltage, approximately 351.5 Volt, Lithium-ion (Li-ion) battery is kept safe and secure in an accident.

The CROSSTREK Hybrid utilizes the following electrical systems:

- Nominal 351.5 Volts DC
- Nominal 12 Volts DC

CROSSTREK Hybrid Features:

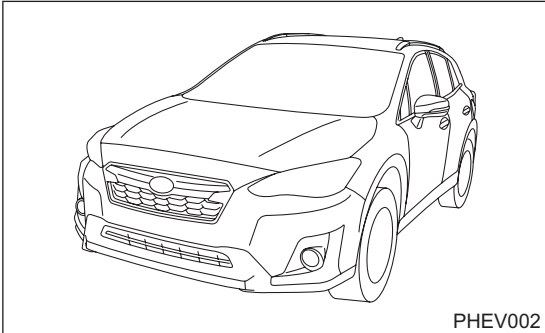
- An electric vehicle charger cable assembly rated at 120 Volts.
- An onboard battery charger with a 120 Volt /240 Volt AC input and 351.5 Volt DC output.
- A boost converter in the inverter with converter assembly that boosts the available voltage to the drive motor to 650 Volts.
- An HV battery rated at 351.5 Volts.
- A high voltage drive motor rated at 351.5 Volts.
- A high voltage motor driven electric compressor assembly rated at 351.5 Volts and remote climate control system.
- A body electrical system rated at 12 Volts, negative chassis ground.
- Supplemental Restraint System (SRS) - frontal airbags, a driver knee airbag, front seat side airbags, side curtain airbags and seat belt pretensioners.

High voltage electrical safety remains an important factor in the emergency handling of the CROSSTREK Hybrid. It is important to recognize and understand the disabling procedures and warnings throughout this guide.

Additional topics in this guide include:

- CROSSTREK Hybrid identification.
- Hybrid system component locations and descriptions.
- Extrication, fire, recovery, and additional emergency response information.

▼ 2019 Model Year CROSSTREK Hybrid



- Roadside assistance information.

This guide is intended to assist emergency responders in the safe handling of a CROSSTREK Hybrid vehicle during an incident.

Emergency Response Guides for SUBARU hybrid vehicles may be viewed at:

[U.S.A]

<http://techinfo.subaru.com>

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About the CROSSTREK Hybrid

The CROSSTREK Hybrid is the gasoline-electric hybrid vehicle for SUBARU. Two power sources are stored on board the vehicle:

1. Gasoline stored in the fuel tank for the gasoline engine.
2. Electricity stored in a large capacity externally chargeable high voltage HV battery for the drive motor.

Depending on the driving conditions one or both sources are used to power the vehicle. The following information explains how the CROSSTREK Hybrid operates in various driving modes.

Plug-In EV (Electric Vehicle) Mode:

- (1) Utilizing the electric vehicle charger cable assembly connected to a 120 Volt outlet, the vehicle's HV battery can be charged within 5 hours.
If a 240 Volt outlet is used, the HV battery can be charged within approximately 2 hours.
- (2) When the HV battery is sufficiently charged, the vehicle will fundamentally operate in EV mode for approximately 17 miles (28 km).
- (3) If the vehicle exceeds approximately 65 mph (105 km/h) or accelerates suddenly when traveling in EV mode, the gasoline engine and drive motor work together to power the vehicle.

When the HV battery is discharged the vehicle operates in HV mode

HV (Hybrid Vehicle) Mode:

- (4) During light acceleration at low speeds, the vehicle is powered by the drive motor. The gasoline engine is shut off.
- (5) During normal driving, the vehicle is powered mainly by the gasoline engine. The gasoline engine also powers the generator to charge the HV battery.
- (6) During full acceleration, such as climbing a hill, both the gasoline engine and the drive motor power the vehicle.
- (7) During deceleration, such as when braking, the vehicle regenerates kinetic energy from the wheels to produce electricity that charges the HV battery.
- (8) While the vehicle is stopped, the gasoline engine and drive motor may be off, however the system remains on and operational.

Note:

While the vehicle is stopped, the gasoline engine may restart depending on conditions.

CROSSTREK Hybrid Identification

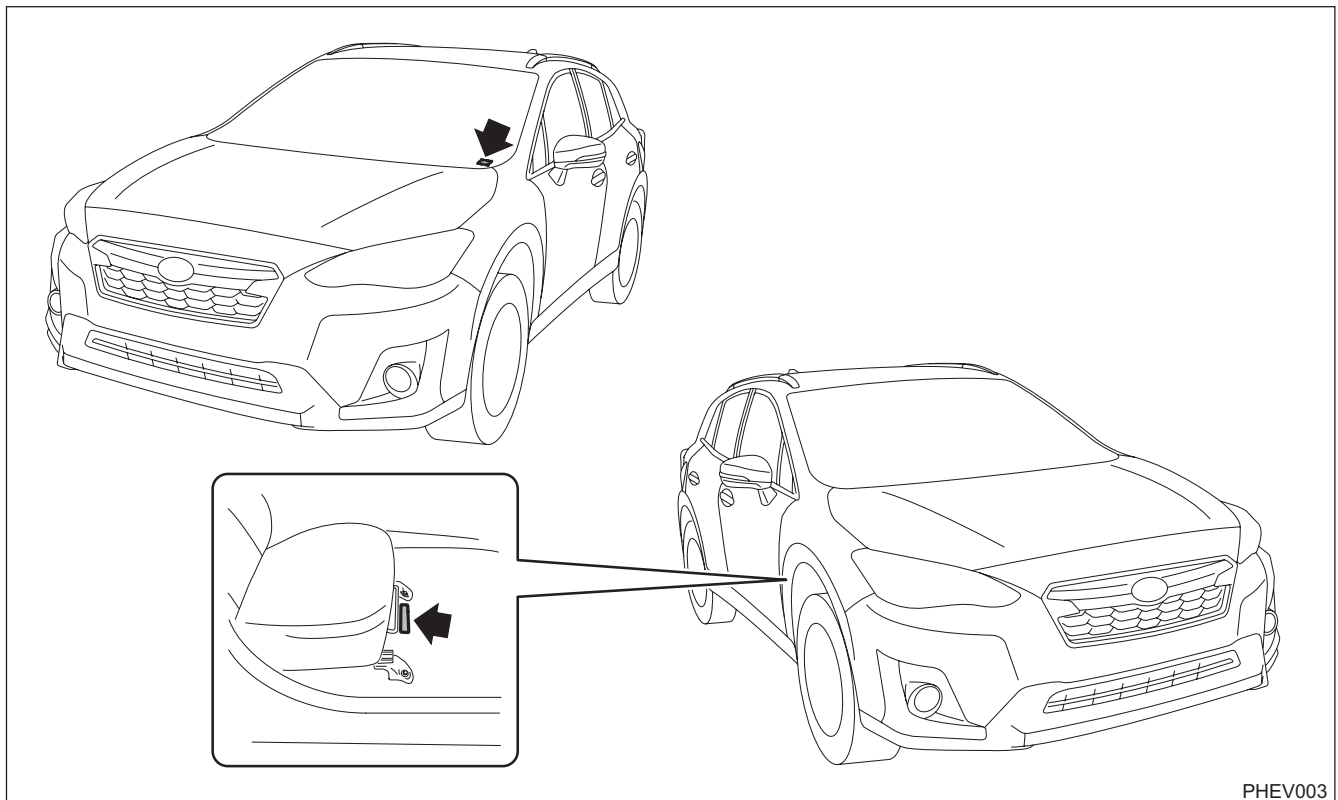
In appearance, the 2019 model year CROSSTREK Hybrid is nearly identical to the conventional, non-hybrid SUBARU CROSSTREK. The CROSSTREK Hybrid is a 5-door Sports Utility Vehicle (SUV). Exterior, interior, and engine compartment illustrations are provided to assist in identification.

The alphanumeric 17 character Vehicle Identification Number (VIN) is provided in the front windshield and passenger side floor.

Example VIN: **JF2GTD**-XXXXXX

CROSSTREK Hybrid is identified by the first 6 alphanumeric characters **JF2GTD**.

▼ Driver Side Windshield and Passenger Side Floor



CROSSTREK Hybrid Identification (Continued)

Exterior

CROSSTREK

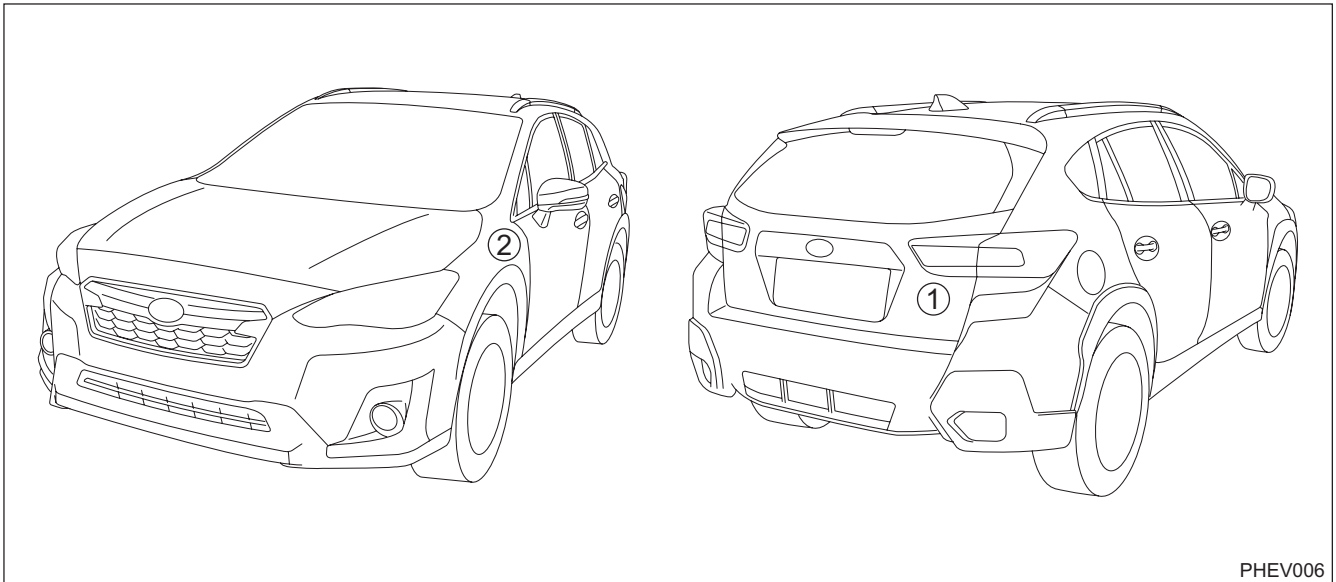
- ① logo on the right side of the rear gate.



- ② logo on each front fender.



▼ Exterior Front and Rear View



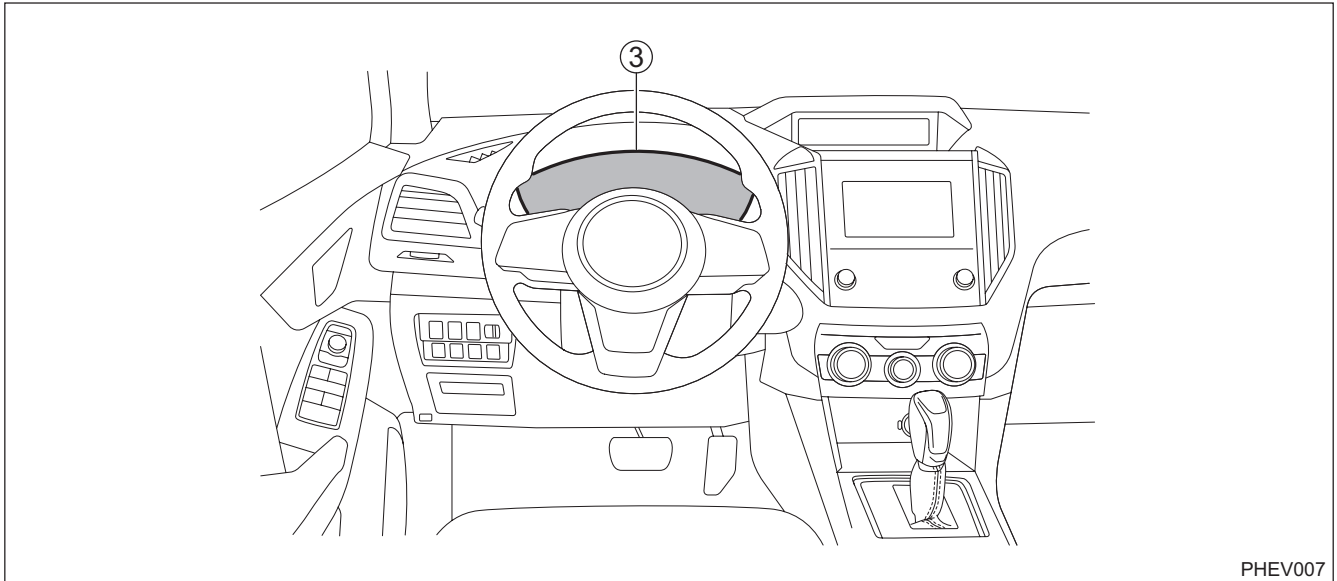
PHEV006

CROSSTREK Hybrid Identification (Continued)

Interior

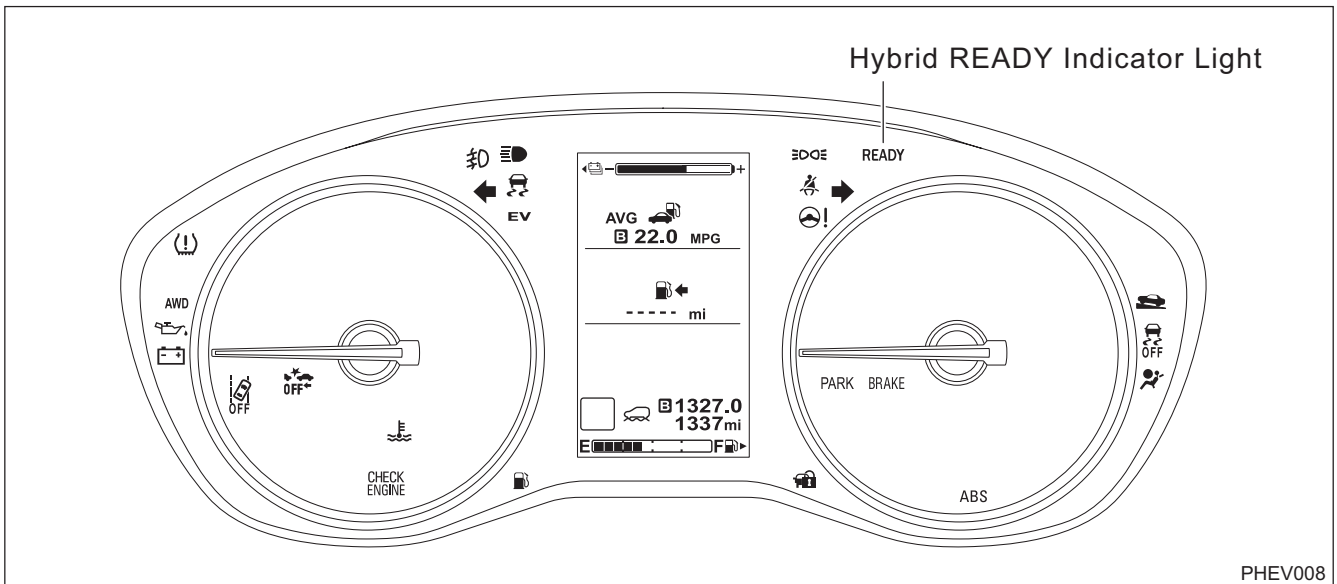
- ③ Combination meter (hybrid READY indicator light) located in the dash behind the steering wheel.

▼ Interior View



PHEV007

▼ Combination Meter



PHEV008

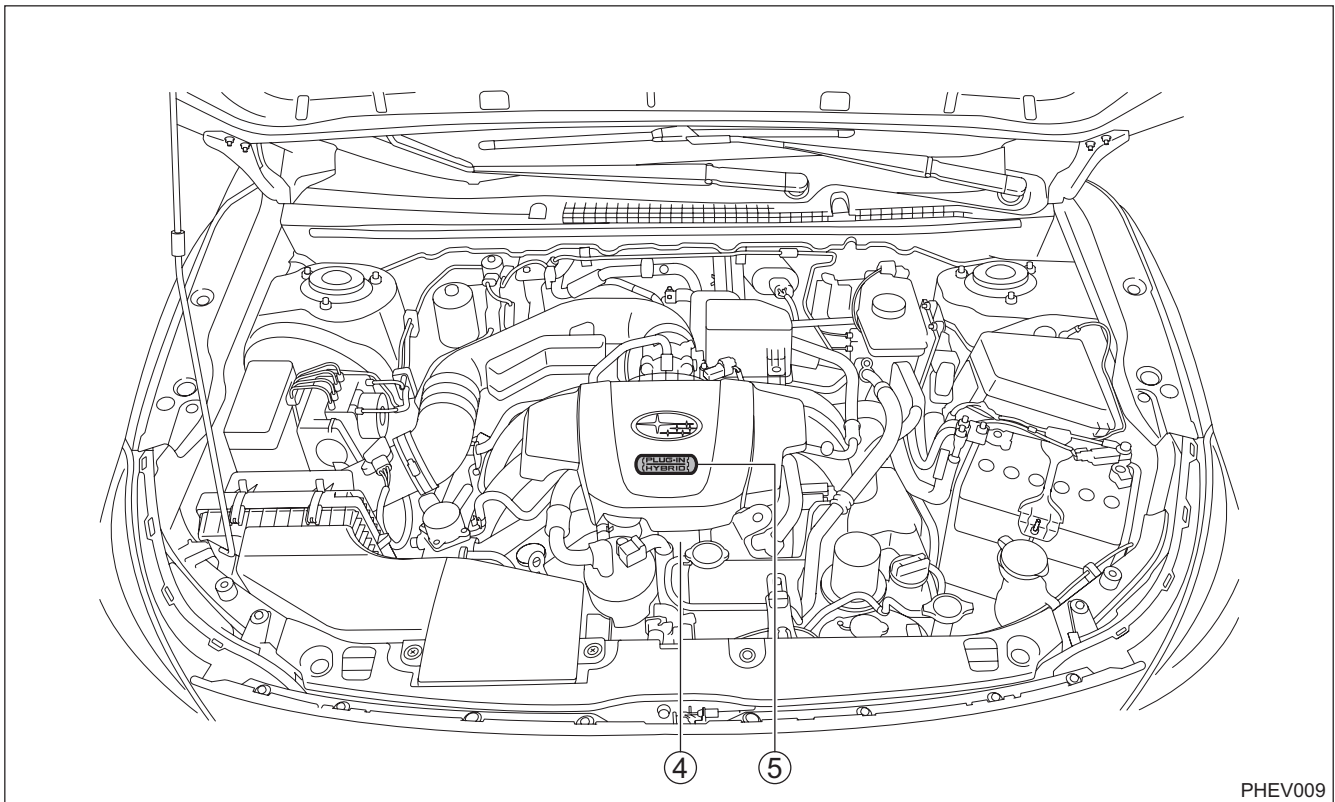
The illustration above is a typical example. For some models, the combination meter may be slightly different than that shown in the illustration.

CROSSTREK Hybrid Identification (Continued)

Engine Compartment

- ④ 2.0-liter aluminum alloy gasoline engine.
- ⑤ PLUG-IN HYBRID Logo on the engine cover.

▼ Engine Compartment View



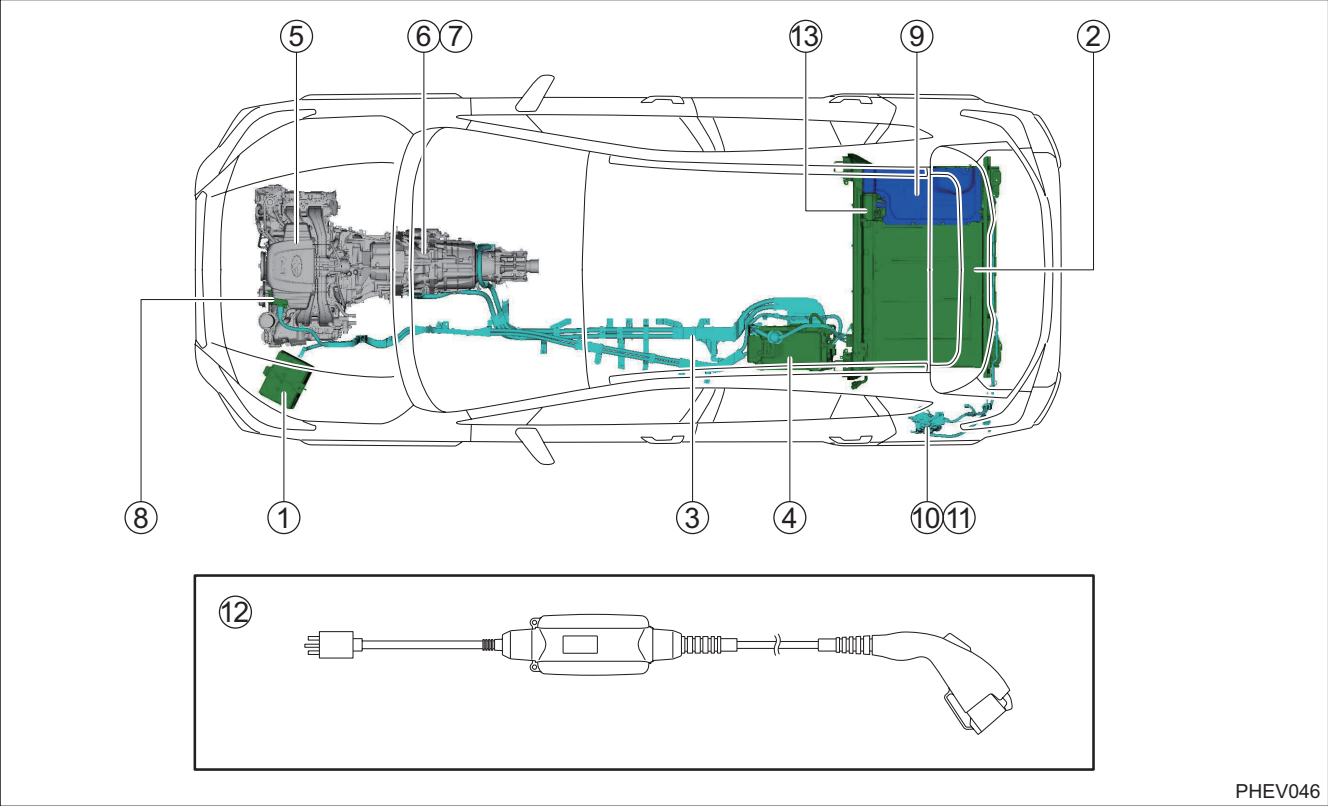
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Hybrid System Component Locations & Descriptions

Component	Location	Description
① Battery (12 V)	Engine Compartment	A lead-acid battery that supplies power to the low voltage devices.
② HV Battery	Cargo Area	351.5 Volt Lithium-ion (Li-ion) battery pack consisting of 3.7 Volt cells connected in a series circuit.
③ Power cable assembly	Undercarriage, Engine Compartment, Cargo Area and Left side Rear Quarter Panel	The following components are connected via orange colored power cables: <ul style="list-style-type: none"> • Electric compressor assembly and inverter with converter assembly • Drive motor/generator and inverter with converter assembly • HV battery and inverter with converter assembly • Charging inlet and electric vehicle charger assembly
④ Inverter with Converter Assembly	Under Rear Seat	Boosts and converts the high voltage electricity from the HV battery assembly to 3-phase AC electricity that drives the electric motor. The inverter/converter also converts AC electricity from the electric generator and electric motor (regenerative braking) to DC that charges the HV battery assembly.
⑤ Gasoline Engine	Engine Compartment	Provides two functions: <ol style="list-style-type: none"> 1) Powers vehicle. 2) Powers drive motor to charge the HV battery. The engine is started and stopped under control of the vehicle computer.
⑥ Drive Motor	Undercarriage	3-phase high voltage AC electric motor contained in the transmission. It is used to power the wheels.
⑦ Generator	Undercarriage	3-phase high voltage AC generator built into the transmission which charges the HV battery and supplies power to the drive motor via the inverter with converter assembly while driving under high load.
⑧ Electric Compressor Assembly	Engine Compartment	3-phase high voltage AC motor driven compressor.

Hybrid System Component Locations & Descriptions (Continued)

▼ Components (Top View) and Power Cables

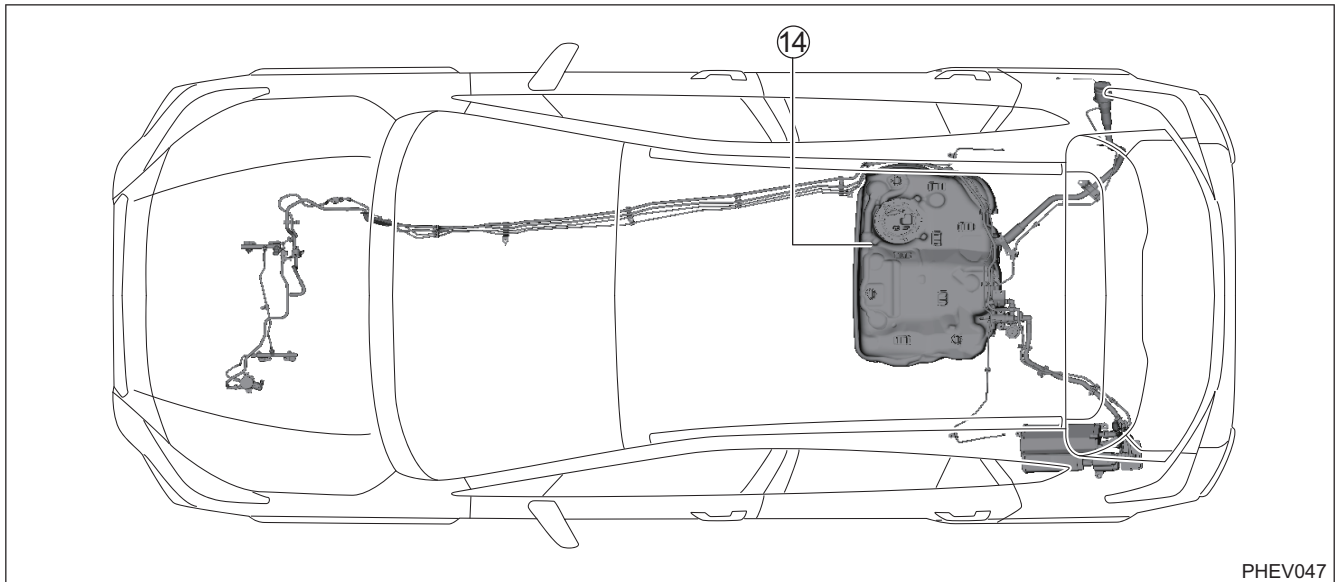


PHEV046

Hybrid System Component Locations & Descriptions (Continued)

Component	Location	Description
⑨ Electric Vehicle Charger Assembly	Cargo Area	Boosts the AC power supplied from an external power source and converts it to DC to charge the HV battery.
⑩ Charging Inlet	Left side Rear Quarter Panel	Connects to the electric vehicle charger cable assembly charge connector. Supplies the electrical power from an external power source to the vehicle.
⑪ Charging Indicator	Charging Inlet	Illuminates during plug-in charging, flashes during a malfunction or remote battery charging timer setting and turns off when plug-in charging completes.
⑫ Electric Vehicle Charger Cable Assembly	Left side Rear Quarter Panel	Connects to the charge inlet and supplies power from an external power source to the vehicle.
⑬ Service Plug	Cargo Area, Located on the right side of the HV Battery	Used to disable the high voltage system.
⑭ Fuel Tank and Fuel Line	Undercarriage and right side in Cabin	The fuel line is routed through the cabin on the right side of the vehicle.

▼ Fuel Tank and Fuel Line



PHEV047

Hybrid System Component Locations & Descriptions (Continued)

Key Specifications

Gasoline Engine : 103 kW (139 hp), 2.0-liter Aluminum Alloy Engine

Electric Motor : 88 kW (118 hp), Permanent Magnet Synchronous Motor

Transmission : Automatic Only (continuously variable transmission)

HV Battery : 351.5 Volt Sealed Li-ion Battery

Curb Weight : 3,726 ~ 3,766 lbs/1,690 ~ 1,708 kg

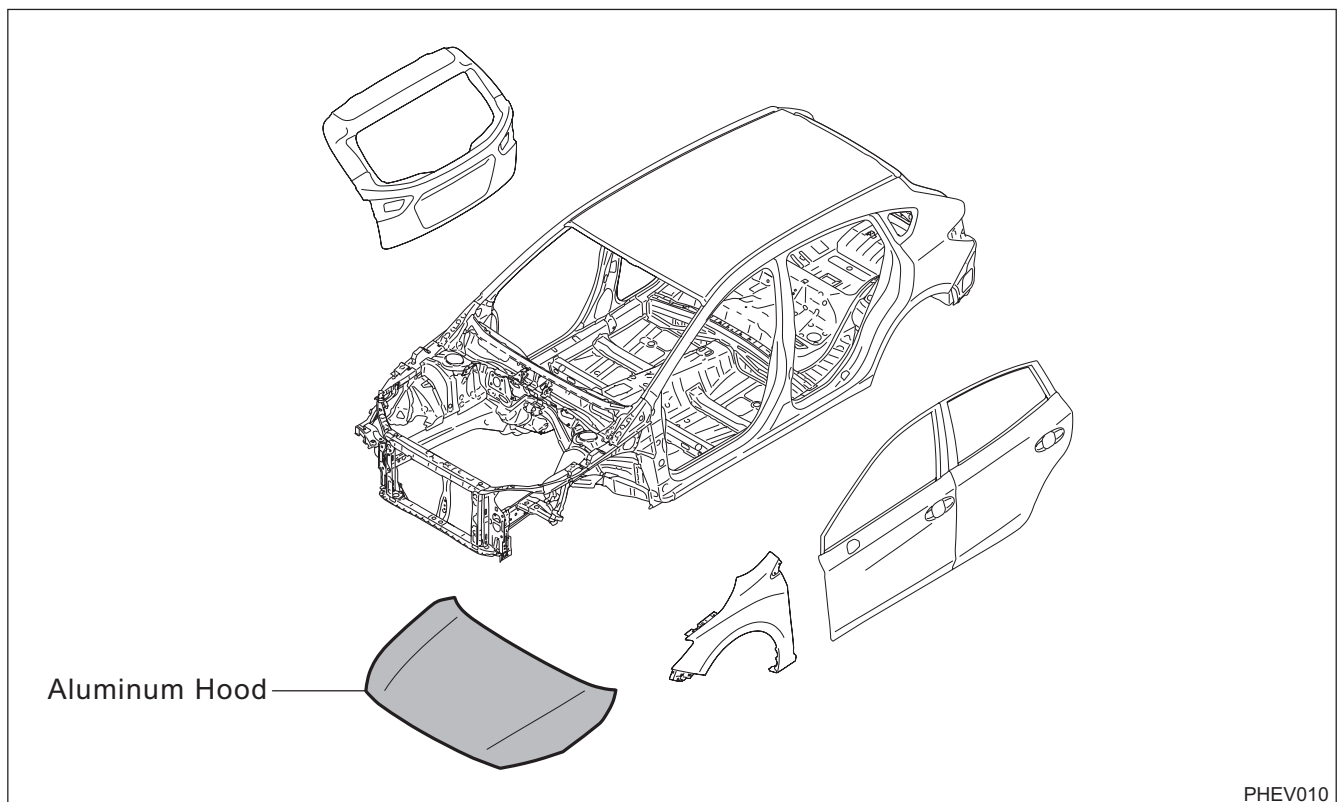
Fuel Tank : 13.2 gals/50.0 liters

Frame Material : Steel Unibody

Body Material : Steel Panels except for Aluminum Hood

Seating Capacity : 5 Occupants

▼ Steel Unibody



PHEV010

Keyless Access with Push-button Start System

The keyless access with push-button start system allows you to perform the following functions when you are carrying the access key.

- Locking and unlocking of the doors and rear gate.
- Starting and stopping the hybrid system.
- Arming and disarming the alarm system.

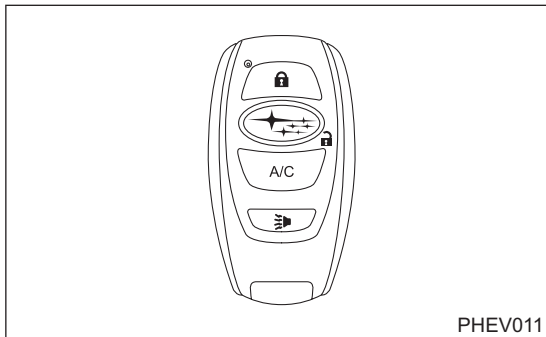
Locking and unlocking by the remote keyless entry system can also be controlled with the buttons on the access key.

A mechanical key is attached to each access key. The mechanical key is used for the following operations.

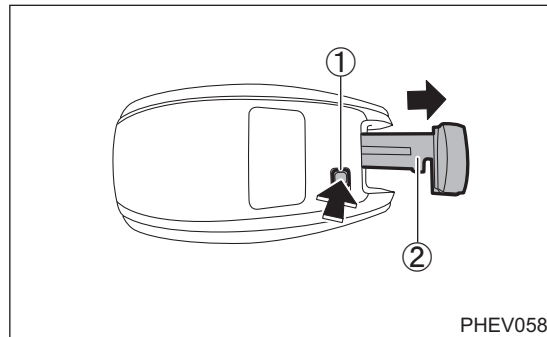
- Locking and unlocking the driver's door.
- Locking and unlocking the glove box.

While pressing the release button of the access key, take out the mechanical key.

▼ Access Key



▼ Mechanical Key



① Release Button

② Mechanical Key

Locking and Unlocking with “Keyless Access” Entry Function

■ Operating Ranges

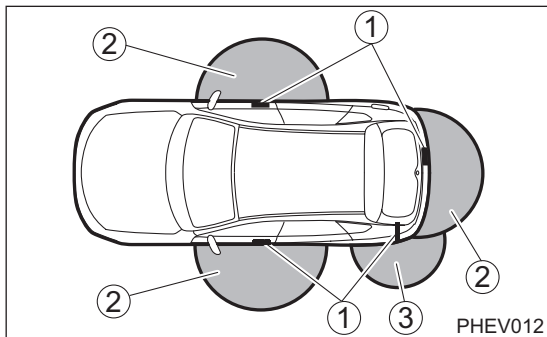
The operating ranges of the door and rear gate locking/unlocking functions are approximately 16 to 32 in (40 to 80 cm) from the respective door handles, the rear gate ornament and charge port door.

When the access key is within either of the operating ranges of the front doors, the LED indicator on the access key flashes. When the keyless access functions are disabled, the LED indicator does not flash unless a button on the access key is pressed.

Note:

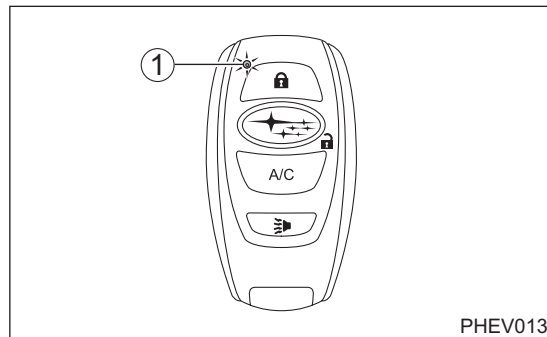
- If the access key is placed too close to the vehicle body, the keyless access function may not operate properly. If it does not operate properly, repeat the operation from farther away.
- When you lock the doors and rear gate using the keyless access function, turn the push-button ignition switch off. It is not possible to lock the doors and rear gate using the keyless access function when the push-button ignition switch is on the “ACC” or “ON” position.

▼ Operating Ranges



- ① Antenna ② Operating Range
③ Operating Range of Charge Port Door

▼ LED Indicator



- ① LED Indicator

Locking and Unlocking with “Keyless Access” Entry Function (Continued)

■ Unlocking

Carry the access key, and grip the door handle.

- When the driver’s door handle is gripped, the driver’s door unlock.
- When the front passenger’s door handle is gripped, all doors and the rear gate unlock. Also, an electronic chirp will sound twice and the hazard warning flashers will flash twice.

Note:

- If the door handle is gripped with a gloved hand, the door lock may not be released.
- If the setting was changed, gripping the driver’s door handle unlocks all doors and the rear gate.

■ Opening Rear Gate

Carry the access key, and press the rear gate opener button. Either only the rear gate will unlock, or all doors will unlock. Also, an electronic chirp will sound twice and the hazard warning flashers will flash twice.

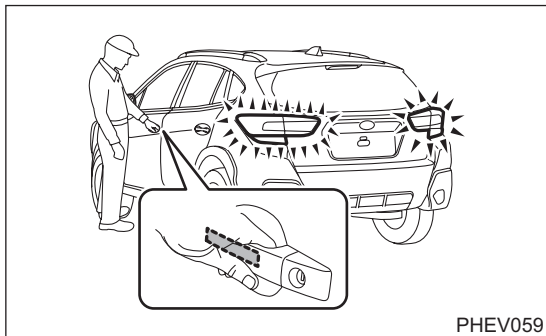
■ Locking with the Door Lock Sensor

Carry the access key, close all doors including the rear gate and touch the door lock sensor on the door handle. All doors including the rear gate will be locked. Also, an electronic chirp will sound once and the hazard warning flashers will flash once.

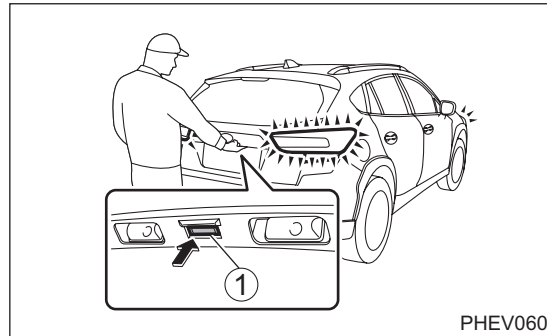
■ Locking with the Rear Lock Button

Carry the access key, close all doors including the rear gate and press the rear lock button. The rear gate and all doors will be locked. Also, an electronic chirp will sound once and the hazard warning flashers will flash once.

▼ Unlocking

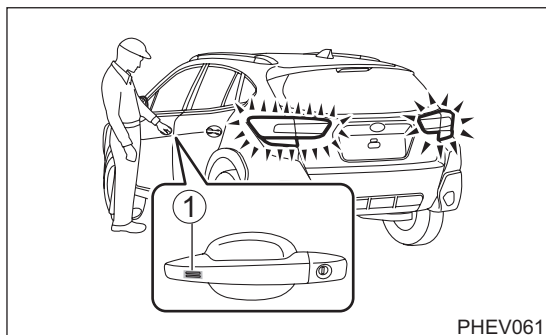


▼ Opening Rear Gate



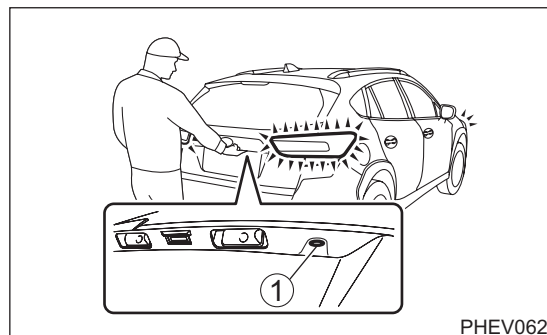
① Rear Gate Opener Button

▼ Locking with the Door Lock Sensor



① Door Lock Sensor

▼ Locking with the Rear Lock Button



① Rear Lock Button

Remote Keyless Entry System

■ Transmitter

The access key is used as the transmitter for the remote keyless entry system.

The remote keyless entry system has the following functions.

- Locking and unlocking the doors (and rear gate) without a key.

The operable distance of the remote keyless entry system is approximately 10 meters (30 feet).

However, this distance will vary depending on environmental conditions. The system's operable distance will be shorter in areas near a facility or electronic equipment emitting strong radio waves such as a power plant, broadcast station, TV tower, or remote controller of home electronic appliances.

Note:

The remote keyless entry system will not be activated when the push-button ignition switch is in any position other than the "OFF" position.

■ Locking the Doors

Press the lock/arm button to lock all doors and rear gate. An electronic chirp will sound once and the hazard warning flashers will flash once.

If any of the doors (or the rear gate) is not fully closed, an electronic chirp will sound five times and the hazard warning flashers will flash five times to alert you that the doors (or the rear gate) are not properly closed. When you close the door, it will automatically lock and then an electronic chirp will sound once and the hazard warning flashers will flash once.

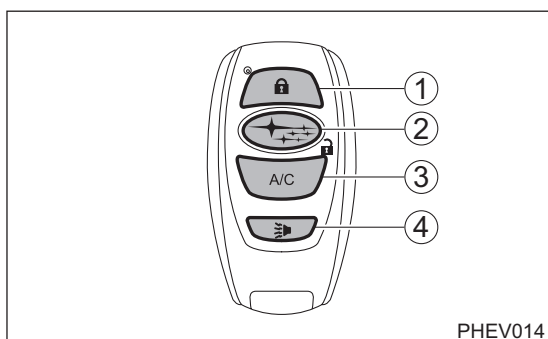
■ Unlocking the Doors

Press the unlock/disarm button to unlock the driver's door. An electronic chirp will sound twice and the hazard warning flashers will flash twice. To unlock all doors and the rear gate, briefly press the unlock/disarm button a second time within 5 seconds.

Note:

If the interval between the first and second presses of the unlock/disarm button (for unlocking of all of the doors and the rear gate) is extremely short, the system may not respond.

▼ Access Key



① Lock/Arm Button

② Unlock/Disarm Button

③ A/C Button

④ PANIC Button

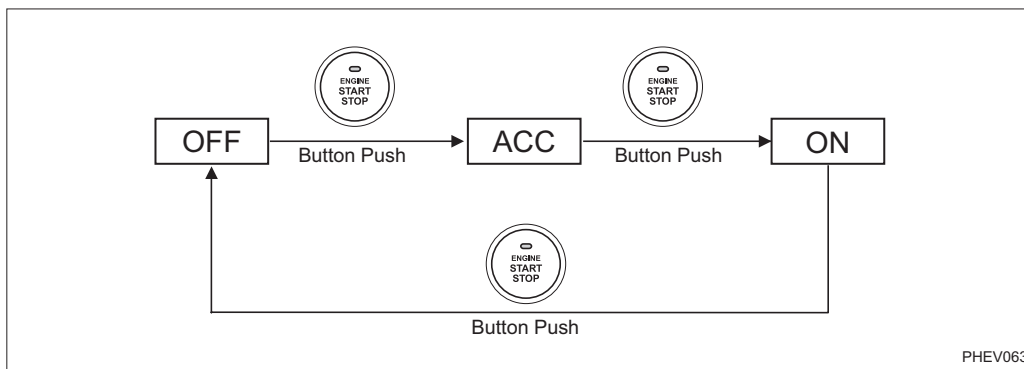
Vehicle Starting/Stopping

The access key has replaced the conventional mechanical key, and the push-button ignition switch with operation indicator has replaced the ignition switch.

The access key only needs to be in proximity to the vehicle to allow the system to function.

- With the brake pedal released, the first push of the push-button ignition switch operates the “ACC” position, the second push operates the “ON” position, and the third push turns it OFF again.

Power Status Sequence (brake pedal released):



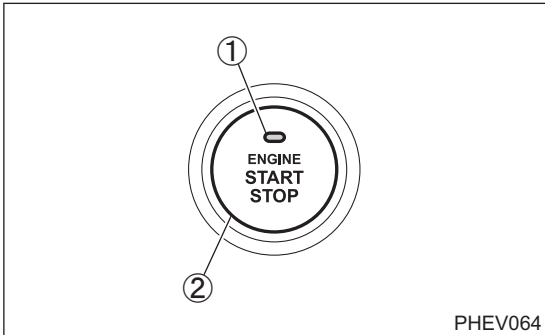
- Starting the vehicle takes priority over all other ignition modes. When the push-button ignition switch is pushed once while depressing the brake pedal, the hybrid system will start. To verify the hybrid system has started, check that the operation indicator is off and the hybrid READY indicator light is illuminated in the combination meter.
- If the internal access key battery is dead, use the following method to start the vehicle.
 1. Hold the access key with the buttons facing you, and touch the push-button ignition switch with it.
 2. When the communication between the access key and the vehicle is completed, a chime (ding) will sound. At the same time, the status of the push-button ignition switch changes to either of the following.
 - When the keyless access with push-button start system is deactivated: “ACC”
 - Under other conditions: “ON”
- Once the vehicle has started and is on and operational (hybrid READY indicator light-ON), the vehicle is shut off by bringing the vehicle to a complete stop and then depressing the push-button ignition switch once.
- To shut off the vehicle before coming to a stop in an emergency, perform any one of the following two procedures:
 - Press and hold the push-button ignition switch for 3 seconds or longer.
 - Press the push-button ignition switch briefly 3 times or more in succession.

These procedures may be useful at an accident scene in which the hybrid READY indicator light is on, Park position cannot be selected, and the wheels remain in motion.

Keyless Access with Push-button Start System (Continued)

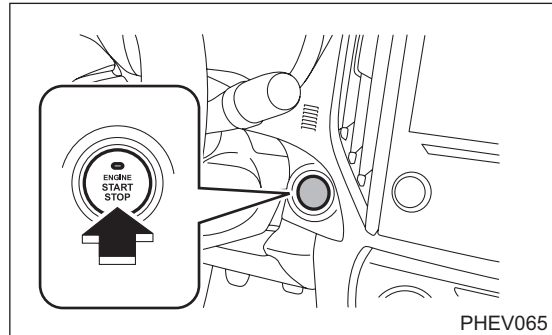
Power status	Operation Indicator color	Operation
OFF	Turned off	Power is turned off.
ACC	Orange	The following systems can be used: audio and accessory power outlet.
ON	Orange (while hybrid system is stopped)	All electrical systems can be used.
	Turned off (while hybrid system is running)	

▼ Push-button Ignition Switch with Operation Indicator

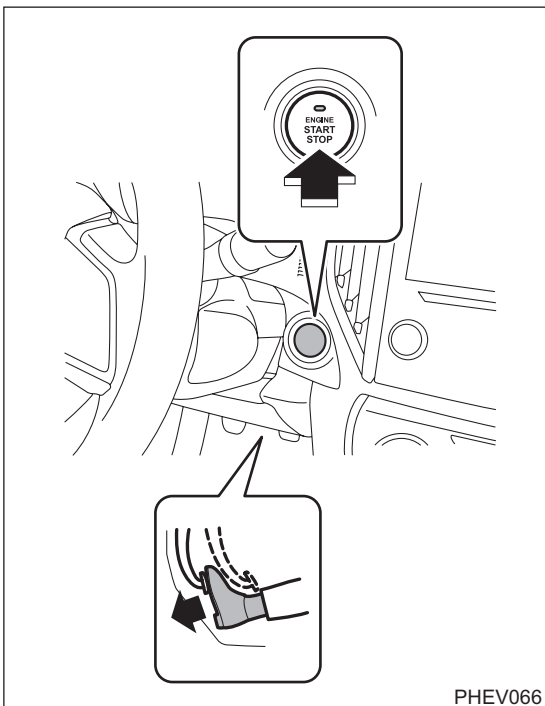


- ① Operation Indicator
- ② Push-button Ignition Switch

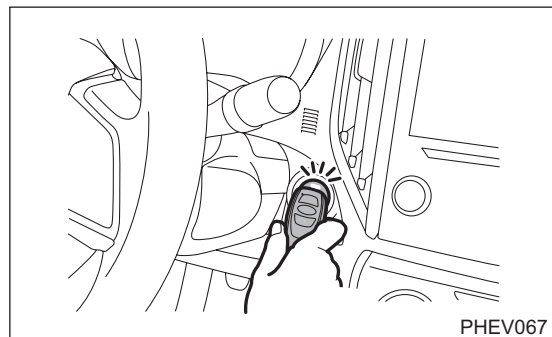
▼ Power Status Sequence (Brake Pedal Released)



▼ Starting Sequence (Brake Pedal Depressed)



▼ Access Key Recognition (When Access Key Battery is Dead)



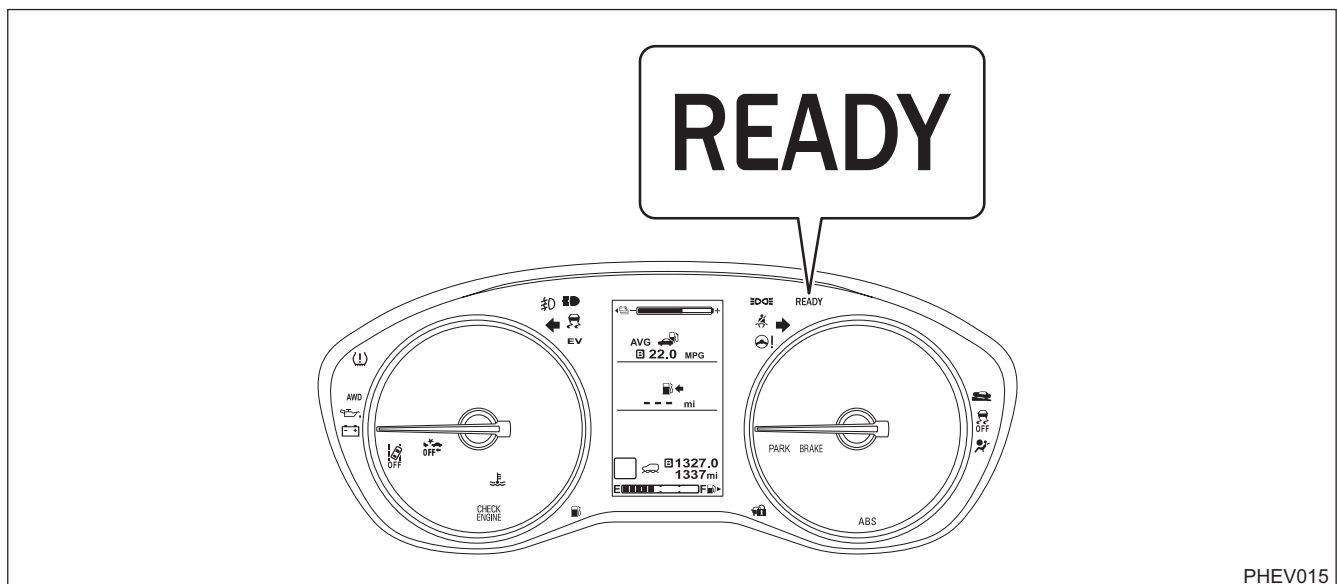
Hybrid System Operation

Once the hybrid READY indicator light is illuminated in the combination meter, the vehicle may be driven. However, the gasoline engine does not idle like a typical automobile and will start and stop automatically. It is important to recognize and understand the hybrid READY indicator light provided in the combination meter. When lit, it informs the driver that the vehicle is on and operational even though the gasoline engine may be off and the engine compartment is silent.

Vehicle Operation

- With the CROSSTREK Hybrid, the gasoline engine may stop and start at any time while the hybrid READY indicator light is on.
- Never assume that the vehicle is shut off just because the engine is off. Always look for the hybrid READY indicator light status. The vehicle is shut off when the hybrid READY indicator light is off.
- The vehicle may be powered by:
 1. The drive motor only.
 2. A combination of both the drive motor and the gasoline engine.

▼ Combination Meter Hybrid READY Indicator Light

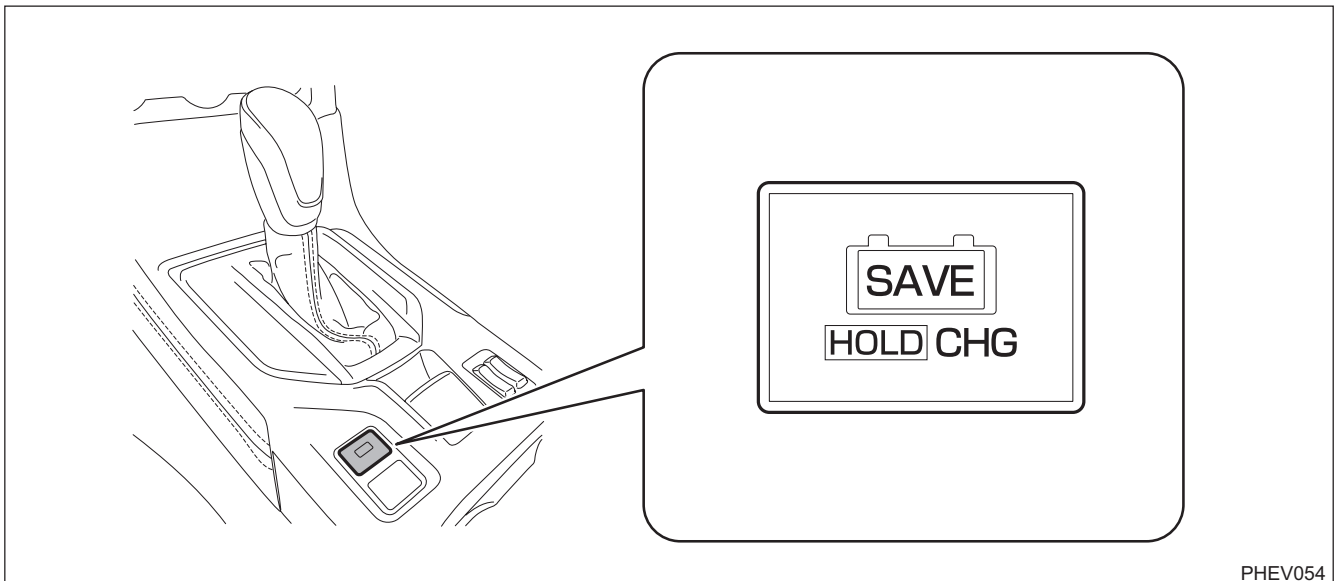


The illustration above is a typical example. For some models, the combination meter may be slightly different than that shown in the illustration.

Hybrid System Operation (Continued)

- The operation mode of the hybrid system can be switched between normal mode, hybrid battery save mode, and hybrid battery charge mode by operating the hybrid mode switch.
 1. Normal Mode: Depending on the driving conditions and the charge level of the HV battery, the system automatically switches between supplying the drive force with only the drive motor, or with both the drive motor and engine.
 2. Hybrid Battery Save Mode: In this mode, the vehicle operates in a way that maintains the charge level of the HV battery.
 3. Hybrid Battery Charge Mode: In this mode, electricity generated by the gasoline engine can be used to charge the HV battery.

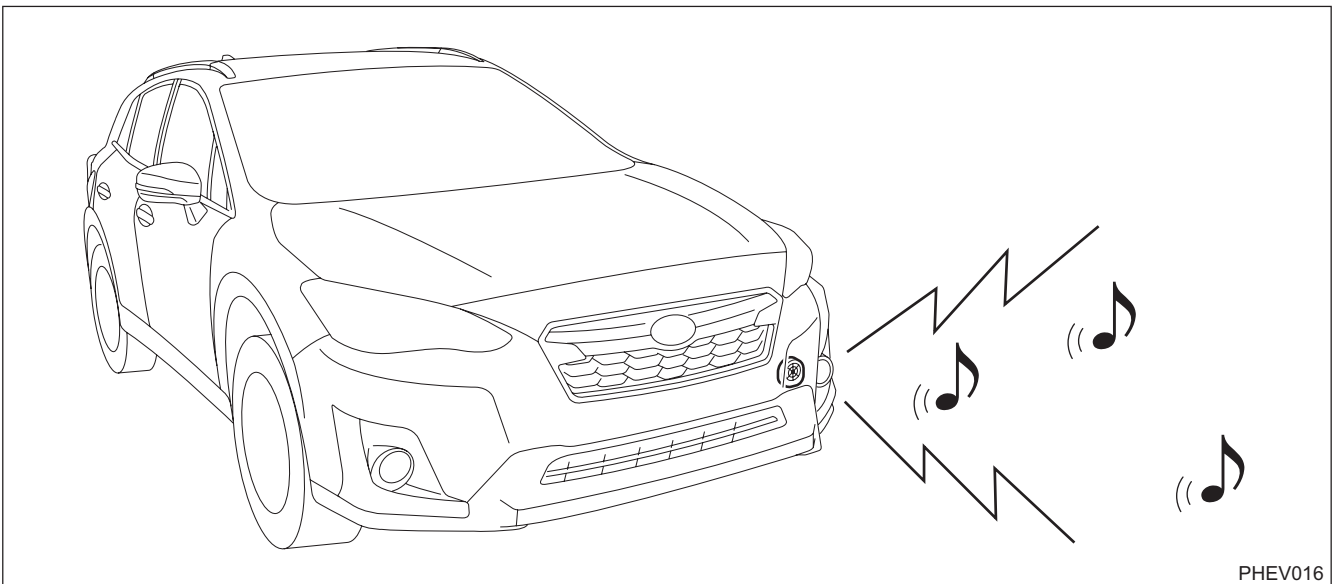
▼ Hybrid Mode Switch



Pedestrian Alert System

A feature on the CROSSTREK Hybrid is the pedestrian alert system that emits a sound when the vehicle is driven using only the electric motor at speeds less than 22 mph (36 km/h), or when the vehicle is stationary and the select lever is in a position other than Park. The sound is intended to notify pedestrians that the vehicle is approaching.

▼ Pedestrian Alert System



HV Battery

The CROSSTREK Hybrid features an HV battery that contains sealed Lithium-ion (Li-ion) battery cells.

HV Battery

- The HV battery assembly is enclosed in a metal case and is rigidly mounted in the lower part of the cargo area behind the rear seat. The metal case is isolated from high voltage and concealed by a cargo area panel in the cabin area.
- The HV battery assembly consists of 3.7 Volt Li-ion battery cells connected in series circuit to produce approximately 351.5 Volts. Each Li-ion battery cell is non-spillable and contained in a sealed metal case.
- The electrolyte used in the Li-ion battery cells is a flammable organic electrolyte. The electrolyte is absorbed into the battery cell separator and will not normally leak, even in a collision.

HV Battery	
HV battery voltage	351.5 V
Number of Li-ion battery cells in the battery	95 (19 cells×5 modules)
Li-ion battery cell voltage	3.7 V
HV battery dimensions	29X40X16 in (735X1004X406 mm)
HV battery weight	309 lbs (140 kg)

Note: Values in inches have been rounded

Components Powered by the HV Battery

- Drive Motor
- Inverter with Converter Assembly
- Power Cable Assembly
- Electric Compressor Assembly
- Generator

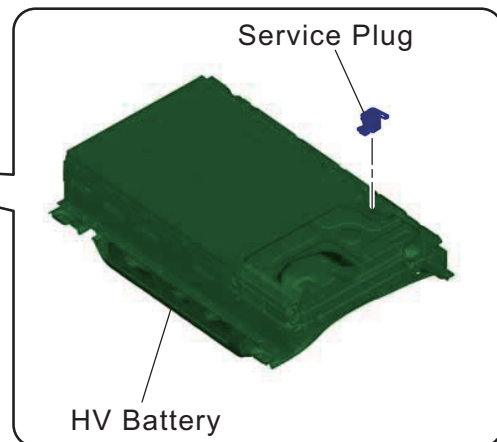
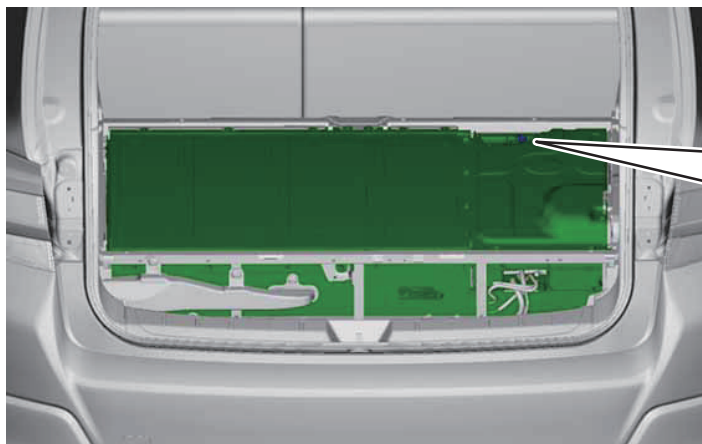
HV Battery Recycling

- The HV battery is recyclable. Contact the nearest SUBARU dealer.

[Residents in U.S.A]

SOA Customer Dealer Service : <http://www.subaru.com/customer-support.html>

▼ HV Battery



PHEV048

Plug-In Charge System

The plug-in charge system uses an on-board charger to convert AC power supplied via the electric vehicle charger cable assembly to DC power that can be used to charge the HV battery. The charging system uses refined charging control to ensure battery durability and prevent fires due to overcharging.

The utility power supplied by the electric vehicle charger cable assembly is converted by the electric vehicle charger assembly to the approximately 351.5 Volts DC used to charge the HV battery.

CROSSTREK Hybrid vehicles for North America are supplied with a electric vehicle charger cable assembly designed to allow charging from a 120 Volt AC NEMA 5-15R receptacle. The maximum current flow during charging is 12 A.

Note:

The CROSSTREK Hybrid is compatible with aftermarket chargers or Electric Vehicle Supply Equipment (EVSE), which is compliant with SAE J1772, available from different manufacturers other than SUBARU. Some EVSE's are available with 240 Volt input for quicker charging.

Safety Concerns

Since the operation of the plug-in charge system allows high voltage electrical flow when the vehicle is shut off, it is important to recognize how the system is activated, deactivated, and disabled.

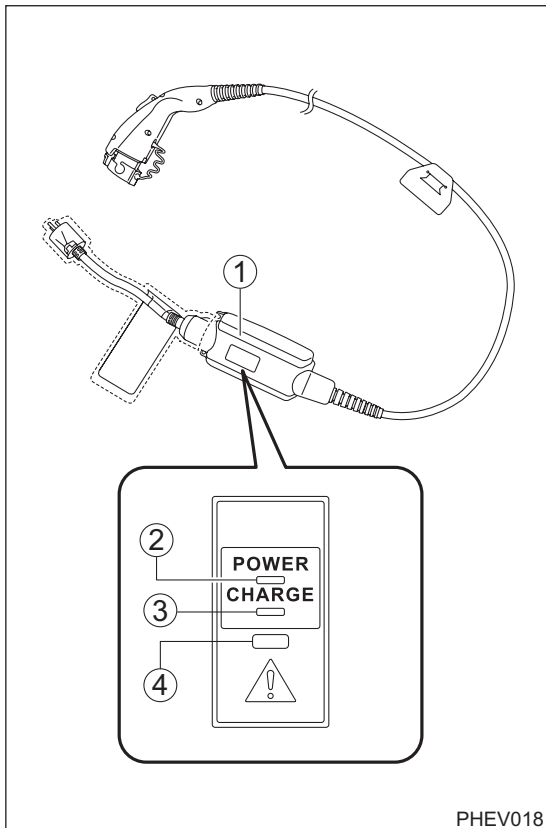
■ System Activation

The following steps provide a simplified explanation on how to charge the vehicle.

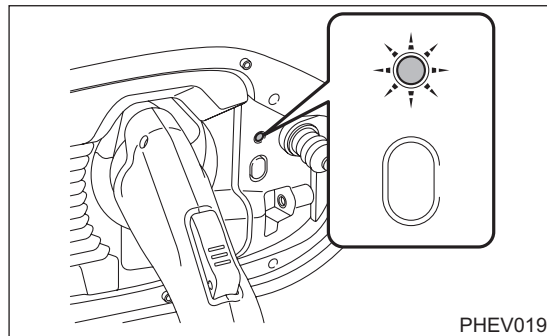
1. Confirm that the vehicle is off and select lever is in the Park position.
2. Connect the electric vehicle charger cable assembly to a suitable 120 Volt wall receptacle.
3. Check that the power indicator of the electric vehicle charger cable assembly CCID (Charging Circuit Interrupting Device) is illuminated.
4. Connect the electric vehicle charger cable assembly to the vehicle charging inlet connector.
5. Confirm that the vehicle's charge indicator illuminates.

When charging, the high voltage cables are energized. Utility electricity flows from the charging inlet, its voltage is then boosted and it is provided to the HV battery and electric compressor assembly (when remote climate control system is operating). Charging normally completes approximately 5 hours and will stop automatically.

▼ Electric Vehicle Charger Cable Assembly



▼ Charging Indicator



- ① CCID
- ② Power Indicator
- ③ Charge Indicator
- ④ Error Warning Indicator

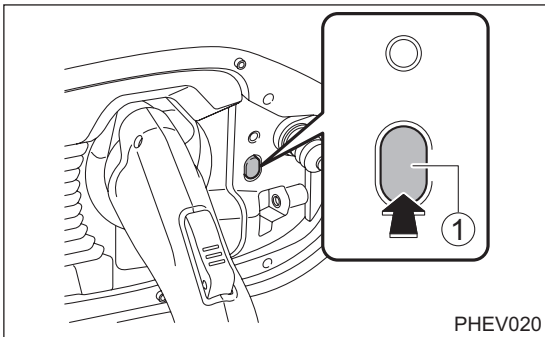
Plug-In Charge System (Continued)

■ System Deactivation

The following steps explain how to stop charging.

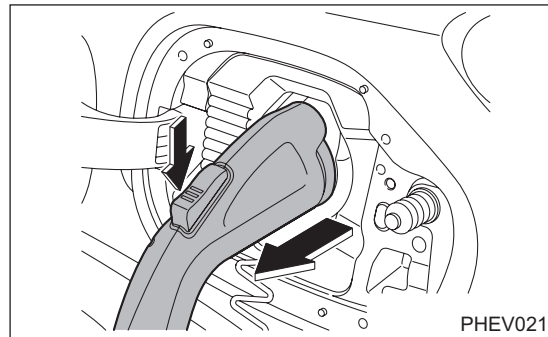
1. If the charge connector is locked, press the charge cable connector lock switch while carrying the access key.
If the cable cannot be pulled out, refer to page 64.
2. Disconnect the charge connector from the vehicle. To disconnect it, push the lock release button on the top of the connector and pull it away from the vehicle.
3. Close the charge inlet door.
4. Disconnect the plug of the electric vehicle charger cable assembly from the electrical outlet.
When the charging system is deactivated, power cable assemblies are de-energized and the high voltage electrical flow stops in the electric vehicle charger cable assembly and vehicle.

▼ Charge Cable Connector Lock Switch

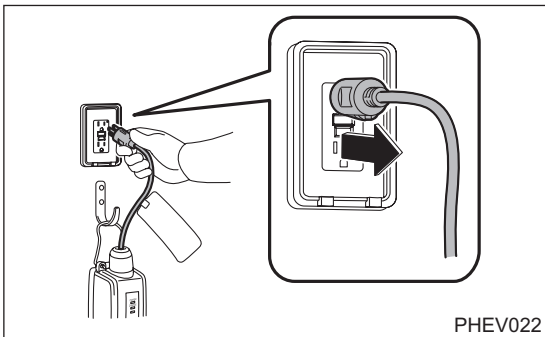


① Charging Cable Connector Lock Switch

▼ Disconnect Charge Connector



▼ Disconnect Electric Vehicle Charger Cable Assembly



⚠ WARNING:

- The high voltage system, including the charging system, may remain powered for up to 10 minutes after the vehicle is shut off, disabled, or charging stops. To prevent serious injury or death from severe burns or electric shock, avoid touching, cutting, or breaching any orange high voltage power cable or high voltage component.
- Do not touch any exposed internal components or damaged areas of high voltage electrical components or wire harnesses. If it is necessary to touch high voltage electrical components or wire harnesses, always use insulated tools and safety equipment, and cover damaged areas with insulation tape.

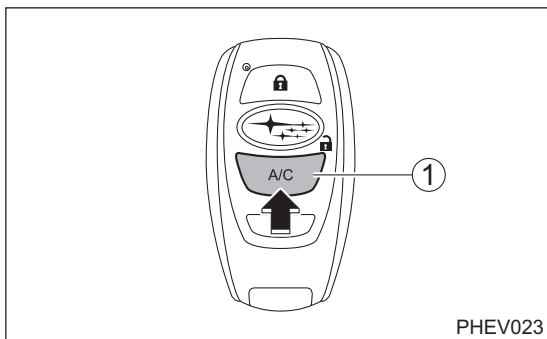
■ System Disabling

To disable the charging system, disconnect the battery (12 V) after performing the above deactivation procedure.

Remote Climate Control System

The remote climate control system is similar to a remote engine start system used in a conventional gasoline vehicle to precondition the vehicle interior while the vehicle is parked. Unlike a conventional gasoline vehicle, the CROSSTREK Hybrid does not start the gasoline engine. Instead it utilizes the energy stored in the HV battery to operate the high voltage electric compressor assembly to air condition the vehicle interior. The system is activated remotely by pushing the access key A/C button or smartphone and will operate for up to 10 minutes when certain conditions are met.

▼ Access Key



① A/C Button

Safety Concerns

Since the operation of the remote climate control system allows high voltage electrical flow, it is important to recognize how the system is activated, deactivated, and disabled.

■ System Activation

When the remote climate control system is activated, power cable assemblies are energized and high voltage electricity flows from the HV battery to the electric compressor assembly. The system is operating when all of the following conditions occur:

- The shift position is in the Park position.
- Air is flowing from the interior vehicle vents, and the blower fan noise may be heard.

■ System Deactivation

When the system is deactivated, the power cable assemblies are de-energized and high voltage electrical flow stops from the HV battery. The system is deactivated when any one of the following conditions occur:

- After about 10 minutes of operation.
- When the HV battery charge level is low.
- When a door is opened, or the hood is opened.
- Shift state has changed from Park position.
- The A/C button of the access key has been pressed twice.

■ System Disabling

To disable the remote climate control system, press the push button ignition switch as necessary, check that the READY indicator is turned off and stop the vehicle. Second, disconnect the battery (12 V). After performing these two steps, the remote climate control system will be disabled and will not activate even if the access key A/C button is pushed.

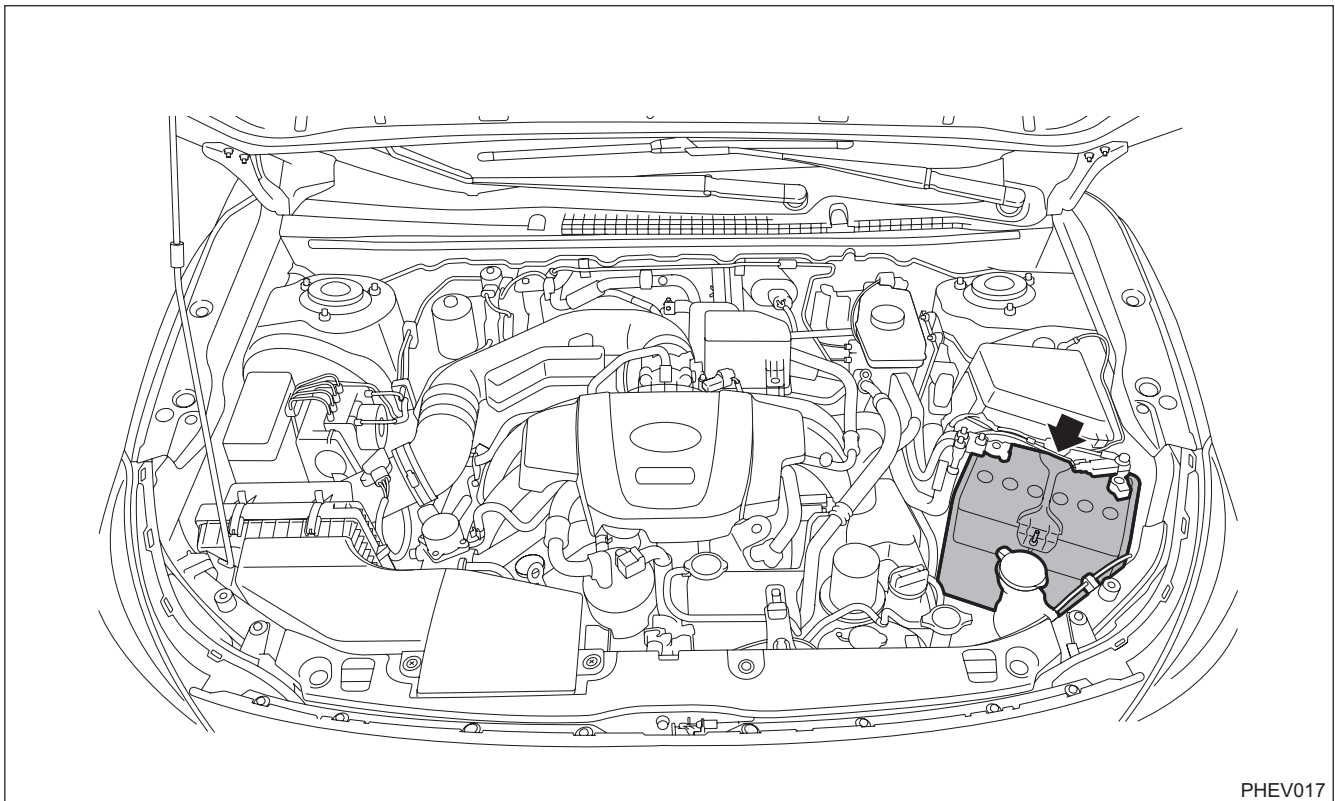
Low Voltage Battery

The CROSSTREK Hybrid contains a sealed lead-acid battery (12 V).

Battery (12 V)

- The battery (12 V) powers the vehicle's electrical system similar to a conventional vehicle. As with conventional vehicles, the negative terminal of the battery (12 V) is grounded to the metal chassis of the vehicle.
- The battery (12 V) is located in the driver side of the engine compartment.

▼ Battery (12 V)



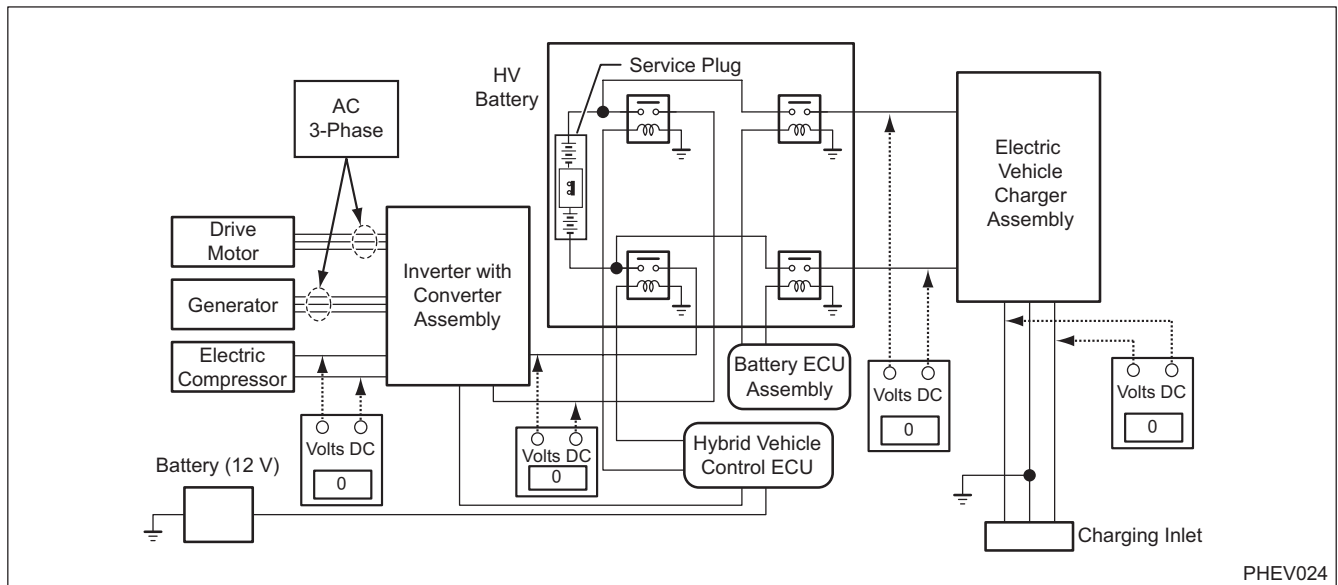
PHEV017

High Voltage Safety

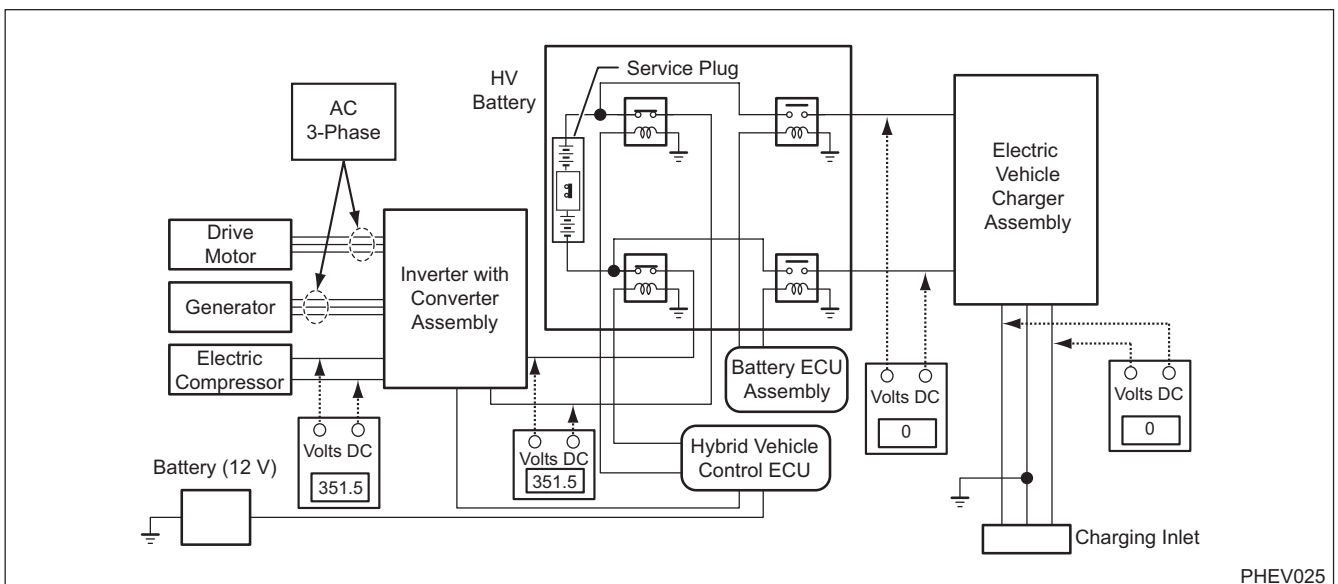
The high voltage safety system is designed to help keep occupants in the vehicle and emergency responders safe from high voltage electricity.

High Voltage Safety System

▼ Vehicle Shut Off (Hybrid READY Indicator Light-OFF)



▼ Vehicle On and Operational (Hybrid READY Indicator Light-ON)



High Voltage Safety System (Continued)

There are several Safety Systems incorporated into the SUBARU CROSSTREK Hybrid vehicle designed to prevent injury from contact with high voltage.

1. The cases and covers which are placed on the high voltage system equipment, battery and wiring are incorporated to help prevent inadvertent contact with those components by humans.
2. The high voltage system is completely isolated from the vehicle body. However, if a situation occurs where the insulation or integrity is damaged, as in a collision, there are provisions to automatically disconnect the components from the HV battery.
3. Disconnecting high voltage from the HV battery to the system.

Note:

Even after the high voltage battery is disconnected by any method, the high voltage system can remain powered for up to 10 minutes.

There are two methods of disconnecting the high voltage from the battery to the system:

- **MANUAL OPERATION:**

By removing the service plug located on the HV battery case. Use of insulated rubber gloves is required for this operation even if the HV battery has been isolated.

- **AUTOMATIC OPERATION:**

- Turning off the push button ignition switch
- Impact sensors will automatically isolate the HV battery when a collision is detected.

Note:

When the impact sensors are activated, the high voltage system remains disconnected until the system is reset by a SUBARU technician using the SUBARU Select Monitor. The vehicle, unless damaged severely, may be driven in a limited manner using the gasoline engine only during this time.

4. The high voltage components are either labeled or orange colored to help identify them. The power cables and connectors are identified by their orange color. Additionally, the battery and other components are labeled with High Voltage warnings and handling precautions. Always stay clear of orange cables and connectors, and other high voltage components. Always adhere to the warnings on these components. The use of insulated rubber gloves is required when working on or near these components.

 **WARNING:**

- *The high voltage system, including the charging system, may remain powered for up to 10 minutes after the vehicle is shut off, disabled, or charging stops. To prevent serious injury or death from severe burns or electric shock, avoid touching, cutting, or breaching any orange high voltage power cable or high voltage component.*
- *Do not touch any exposed internal components or damaged areas of high voltage electrical components or wire harnesses. If it is necessary to touch high voltage electrical components or wire harnesses, always use insulated tools and safety equipment, and cover damaged areas with insulation tape.*

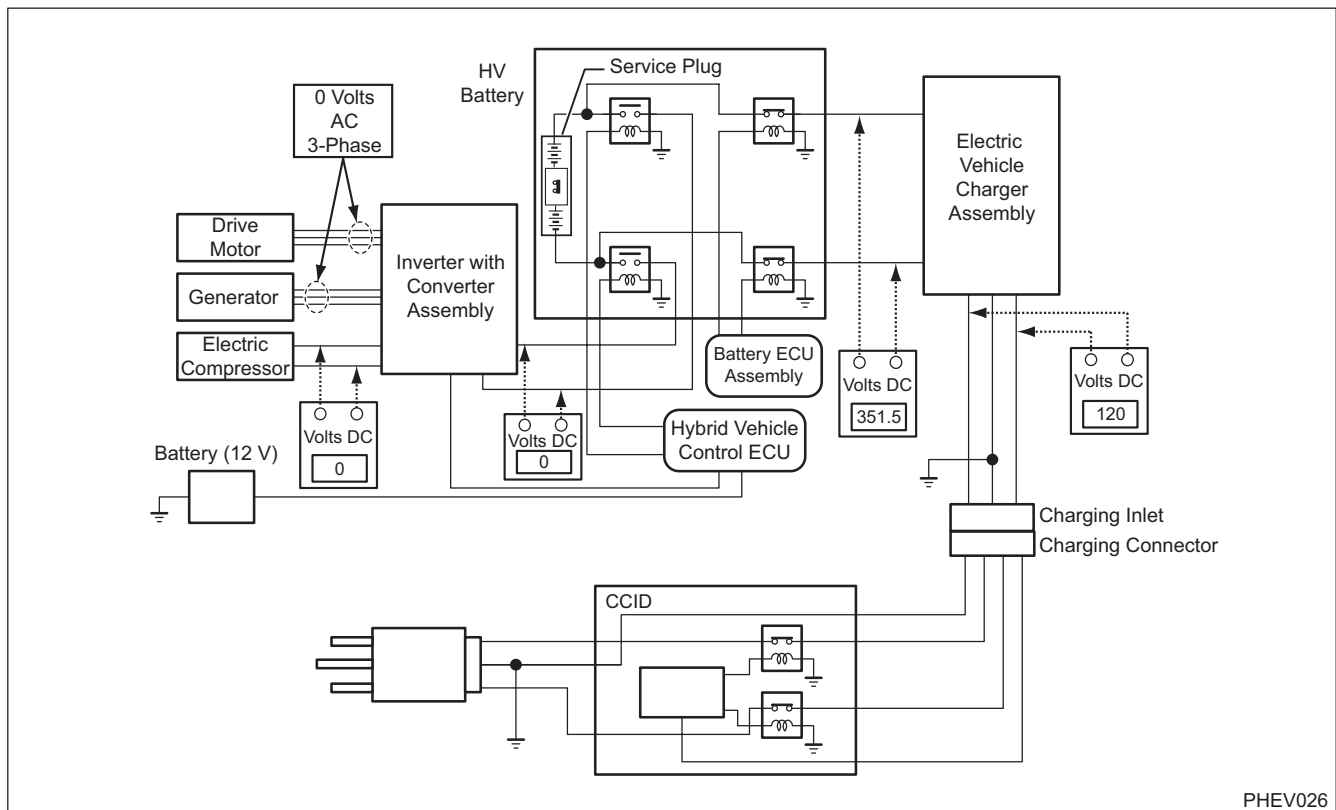
Plug-In Charge Safety

The HV battery can be charged using power from an external power outlet. AC power is supplied to the charging inlet by the electric vehicle charger cable assembly and sent to the electric vehicle charger assembly. There are basically 2 circuits in the electric vehicle charger assembly: One is an AC/DC converter circuit and the other is a booster circuit used to boost the charger input voltage to 351.5 Volts. DC power from the electric vehicle charger assembly is used to charge the HV battery. To provide information about the charging status, the electric vehicle charger assembly illuminates the charging indicator in the charging inlet during charging.

The plug-in charge safety system is intended to help keep vehicle occupants and emergency responders safe from high voltage electricity.

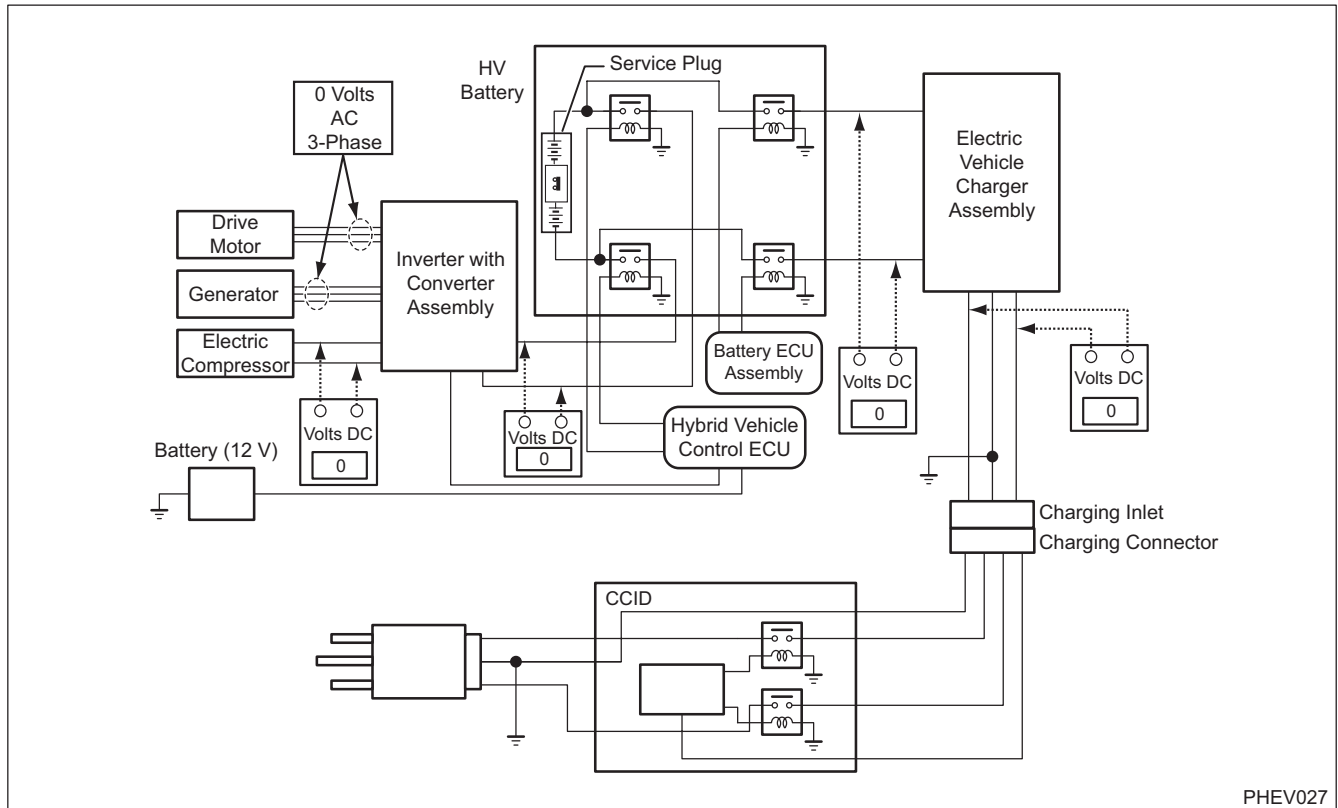
Plug-In Charge Safety System

▼ Plug-In Charge (Charging)



Plug-In Charge Safety (Continued)

▼ Plug-In Charge (Charge Completed or Malfunctioning)



Plug-In Charge Safety (Continued)

1. The electric vehicle charger assembly and hybrid vehicle control ECU assembly monitor the charging system using information sent by various sensors.
If the hybrid vehicle control ECU and battery ECU assembly detect a malfunction, charging will be suspended, the relay of the HV battery will be opened and the charging indicator will flash to indicate the malfunction.
2. The electric vehicle charger assembly is connected to the HV battery via a high voltage direct power source cable. High voltage DC power is controlled using a charge relay, the HV system main relay and CCID (Charging Circuit Interrupting Device) relay. The charge relay, HV system main relay and CCID relay stop the supply of power to the vehicle when the vehicle is not charging or the remote climate control system is not operating.
3. As the high voltage cables and AC cables are isolated from the vehicle body, high voltage flows through the cables and not through the vehicle body. As the metal vehicle body is isolated from any high voltage components, it is safe to touch.
4. The vehicle is constantly monitored for high voltage leakage to ground or to the vehicle body during charging. If a malfunction is detected, the electric vehicle charger cable assembly CCID (Charging Circuit Interrupting Device) illuminates the error warning indicator.
5. The electric vehicle charger cable assembly CCID (Charging Circuit Interrupting Device) has a power indicator, error warning indicator and charging indicator. The power indicator illuminates when the electric vehicle charger cable assembly is connected to a 120 Volt outlet.

WARNING:

- *The high voltage system, including the charging system, may remain powered for up to 10 minutes after the vehicle is shut off, disabled, or charging stops. To prevent serious injury or death from severe burns or electric shock, avoid touching, cutting, or breaching any orange high voltage power cable or high voltage component.*
- *Do not touch any exposed internal components or damaged areas of high voltage electrical components or wire harnesses. If it is necessary to touch high voltage electrical components or wire harnesses, always use insulated tools and safety equipment, and cover damaged areas with insulation tape.*

SRS Airbags & Seat Belt Pretensioners

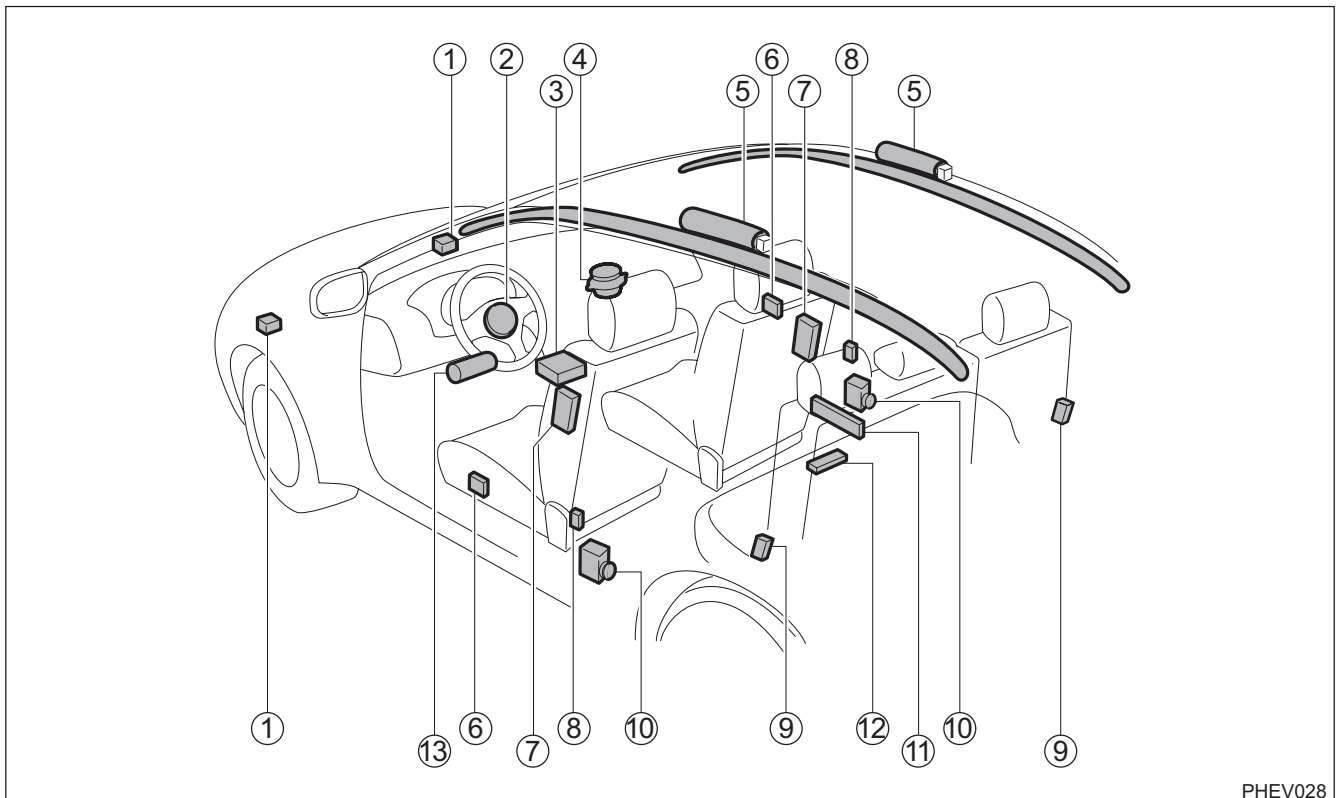
Standard Equipment

- Front sub sensors (2) ① are mounted in the engine compartment as illustrated.
- Frontal airbag module (driver's side) ② is mounted in the center position of the steering wheel.
- The airbag control module ③, which contains an impact sensor is mounted on the floor pan underneath the instrument panel.
- Frontal airbag module (passenger's side) ④ is integrated into the dashboard and deploys through the top of the dashboard.
- Curtain airbag modules ⑤ are mounted along the outer edge inside the roof rails.
- Front door impact sensors (2) ⑥ are mounted inside the base of the front doors.
- Side airbag modules ⑦ are mounted in the front seatbacks.
- Side airbag sensors (2) ⑧ are mounted near the base of the center pillars.
- Curtain airbag sensors (2) ⑨ are mounted near the rear wheel house.
- Seat belt pretensioners ⑩ are mounted near the base of the center pillars.
- Lap belt pretensioner ⑪ is mounted near the base of the passenger side center pillar.
- Satellite safing sensor ⑫ is mounted under the rear center seat.
- Knee airbag module ⑬ is mounted on the bottom of the steering column.

⚠ WARNING:

The SRS may remain powered for up to 60 seconds after the vehicle is shut off or disabled. To prevent serious injury or death from unintentional SRS deployment, avoid breaching the SRS components.

▼ SRS Airbags & Seat Belt Pretensioners



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Standard Equipment (Continued)

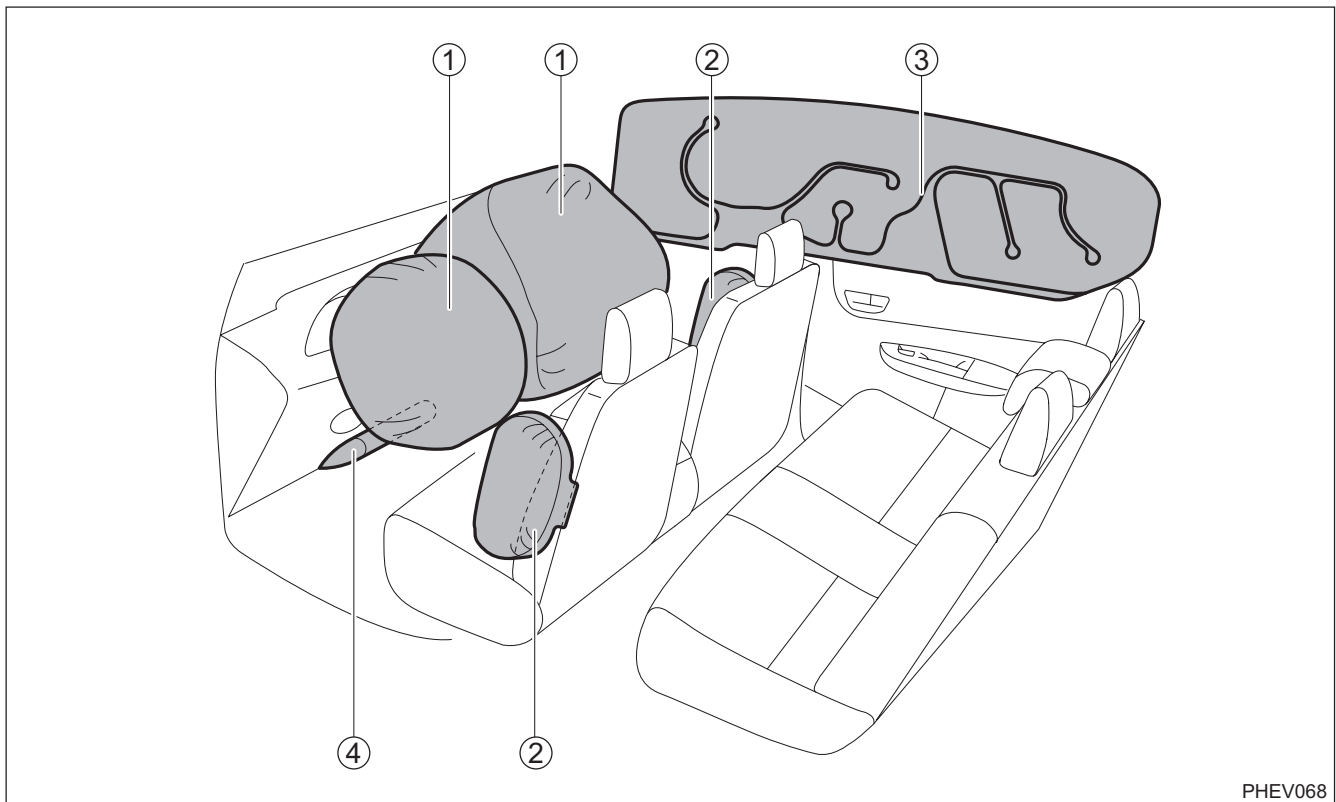
Note:

The front seatback mounted side airbags and the curtain airbags may deploy independently of each other.

The knee airbag (driver's side only) is designed to deploy simultaneously with the frontal airbag. The CROSSTREK Hybrid is equipped with a standard front passenger occupant detection system that may prohibit the deployment of the front passenger frontal airbag. If the front passenger occupant detection system prohibits deployment during an SRS event, the passenger SRS will not re-arm nor deploy.

Electronic side impact sensors are installed in each front door to aid in side collision detection accuracy.

▼ Frontal, Knee, Side, Curtain Airbags



PHEV068

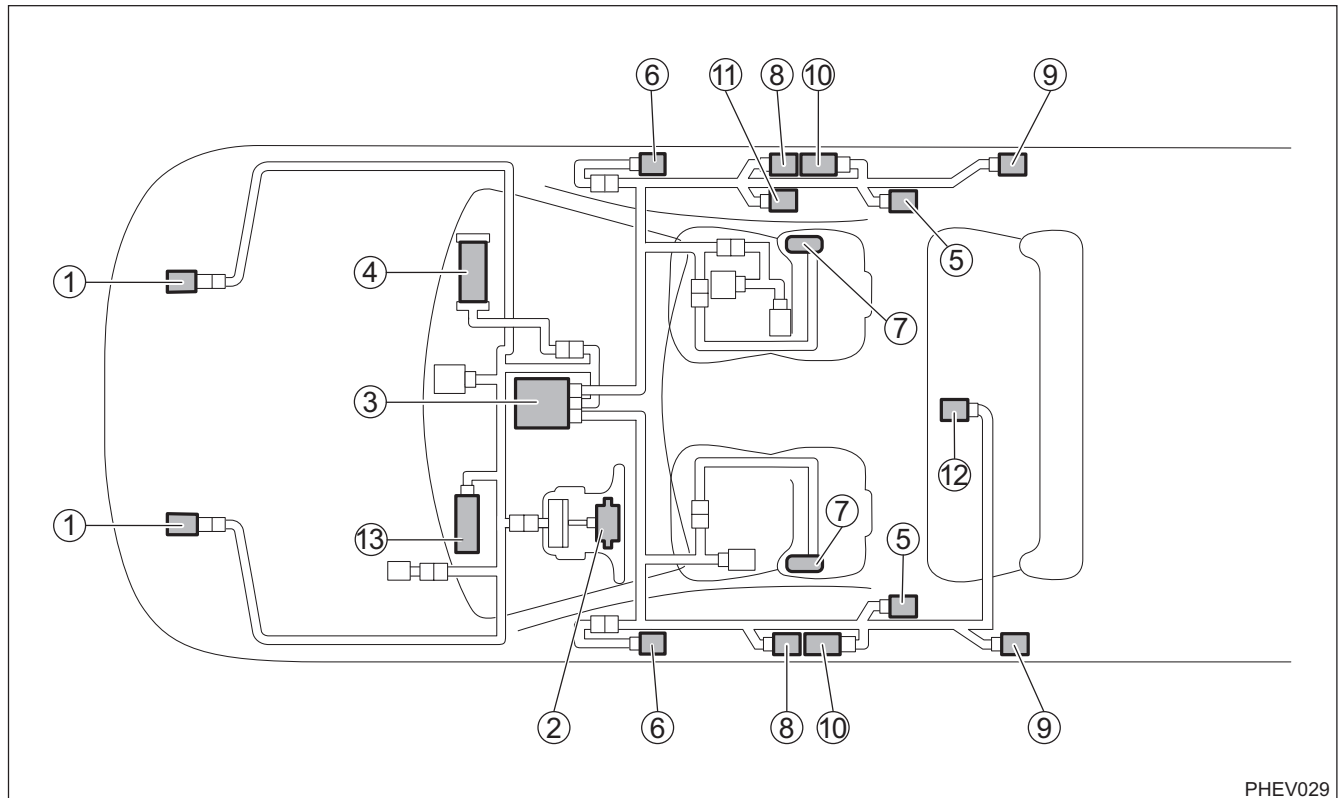
- ① Frontal Airbag
- ② Side Airbag

- ③ Curtain Airbag
- ④ Knee Airbag

SRS Airbags & Seat Belt Pretensioners (Continued)

Standard Equipment (Continued)

▼ Airbag System Wiring



PHEV029

- | | |
|--|---------------------------|
| ① Front Sub Sensors | ⑧ Side Airbag Sensors |
| ② Frontal Airbag Module (Driver's Side) | ⑨ Curtain Airbag Sensors |
| ③ Airbag Control Module | ⑩ Seat Belt Pretensioners |
| ④ Frontal Airbag Module (Passenger's Side) | ⑪ Lap Belt Pretensioner |
| ⑤ Curtain Airbag Modules | ⑫ Satellite Safing Sensor |
| ⑥ Front Door Impact Sensors | ⑬ Knee Airbag Module |
| ⑦ Side Airbag Modules | |

Emergency Response

On arrival, emergency responders should follow their standard operating procedures for vehicle incidents. Emergencies involving the CROSSTREK Hybrid may be handled like other automobiles except as noted in these guidelines for Extrication, Fire, Overhaul, Recovery, Spills, First Aid, and Submersion.

 **WARNING:**

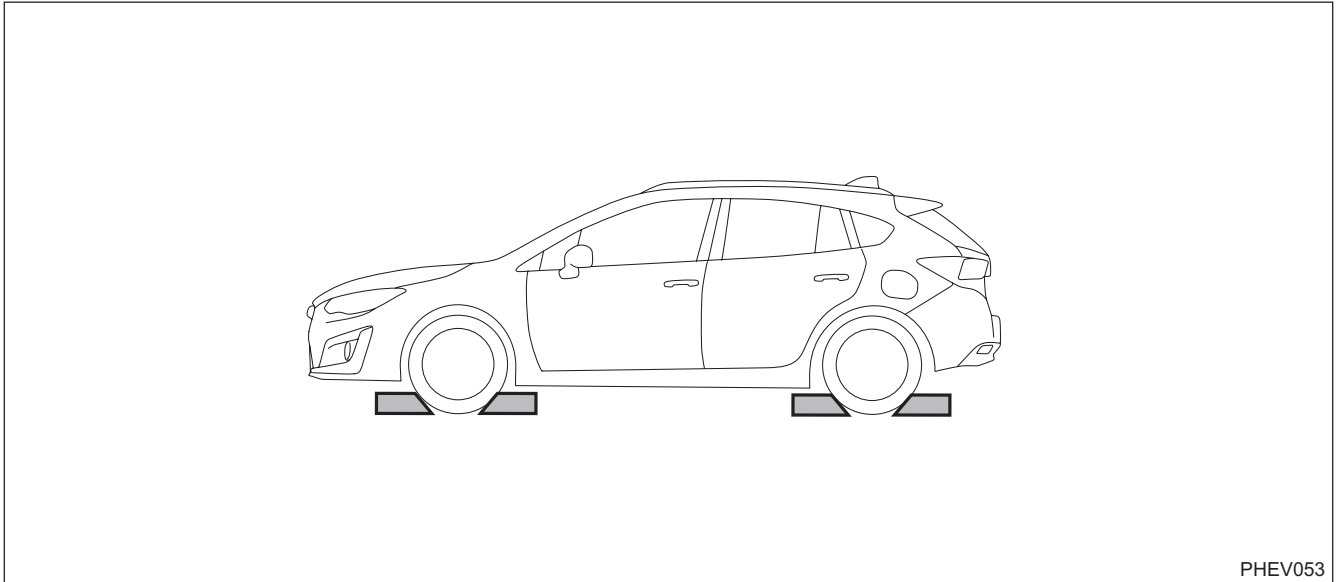
- *Never assume the CROSSTREK Hybrid is shut off simply because it is silent.*
- *Always observe the combination meter for the hybrid READY indicator light status to verify whether the vehicle is on or shut off. The vehicle is shut off when the hybrid READY indicator light is off.*
- *Failure to shut off and disable the vehicle before emergency response procedures are performed may result in serious injury or death from the unintentional deployment of the SRS or severe burns and electric shock from the high voltage electrical system.*
- *An HV battery may cause a vehicle fire after some time for possible short circuits inside due to the impact of collision or electrical corrosion. To store a vehicle equipped with an HV battery, choose a well-ventilated place at least 49.2 feet (15 meters) away from other objects.*

Extrication

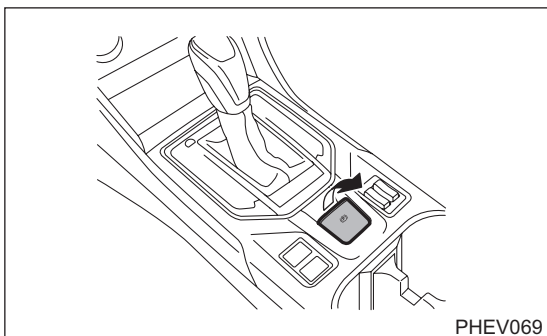
■ Immobilize Vehicle

Chock wheels and set the parking brake.
Shift the select lever to the Park position.

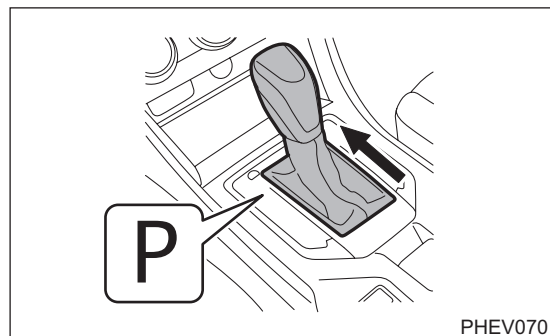
▼ Chock Wheels



▼ Set Parking Brake



▼ Select Lever in Park



Extrication (Continued)

■ Disable Vehicle

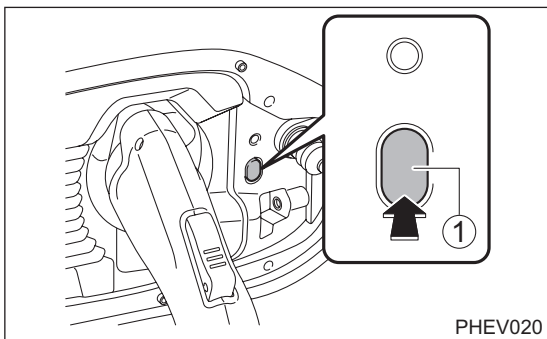
Perform these steps first if the electric vehicle charger cable assembly is connected to the vehicle.

1. If the charge connector is locked, press the charge cable connector lock switch while carrying the access key.

If the cable cannot be pulled out, refer to page 64.

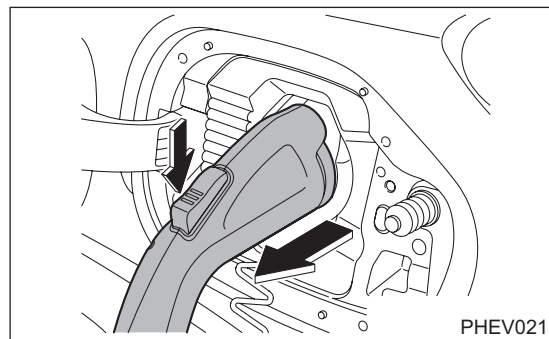
2. Disconnect the charge connector from the vehicle. To disconnect it, push the lock release button on the top of the connector and pull it away from the vehicle.
3. Close the charge inlet door.
4. Disconnect the plug of the electric vehicle charger cable assembly from the electrical outlet.

▼ Charge Cable Connector Lock Switch

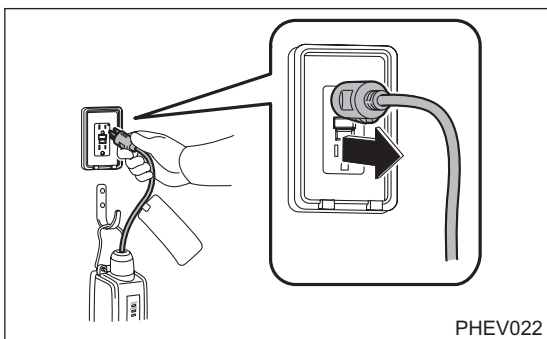


① Charging Cable Connector Lock Switch

▼ Disconnect Charge Connector



▼ Disconnect Electric Vehicle Charger Cable Assembly



Performing either of the following procedures will shut the vehicle off and disable the HV battery, SRS, gasoline fuel pump, and remote climate control system.

Extrication (Continued)

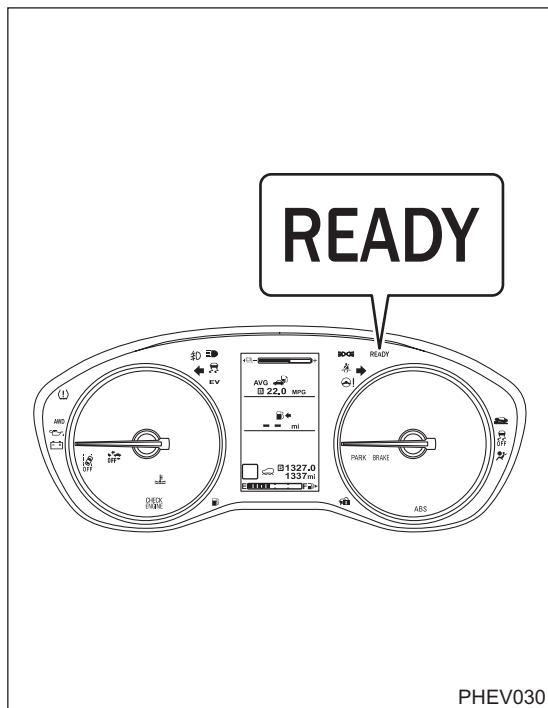
Procedure #1

Note:

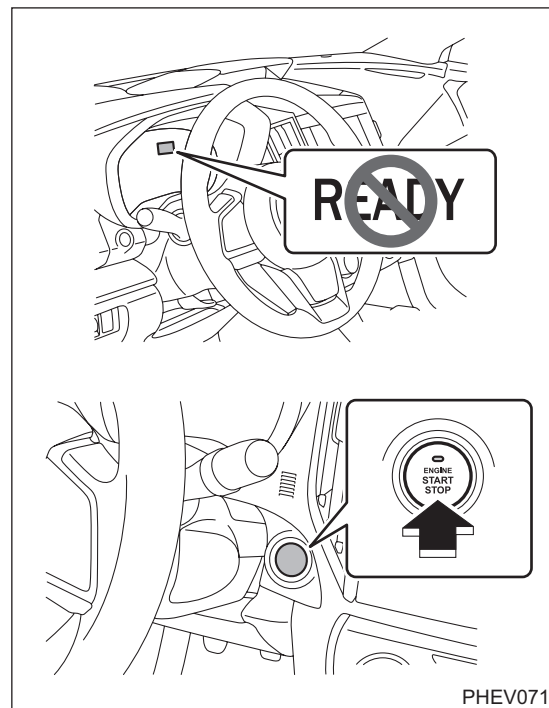
Before shutting off the vehicle and disconnecting the battery (12 V), if necessary, lower the windows, unlock the doors and open the rear gate as required. Once the battery (12 V) is disconnected, power controls will not operate.

1. Confirm the status of the hybrid READY indicator light in the combination meter.
2. If the hybrid READY indicator light is illuminated, the vehicle is on and operational. Shut off the vehicle by moving the select lever to the P position and pushing the push-button ignition switch once.
3. The vehicle is already shut off if the combination meter lights and the hybrid READY indicator light are not illuminated. Do not push the push-button ignition switch because the vehicle may start.
4. If the access key is easily accessible, keep it at least 16 feet (5 meters) away from the vehicle.

▼ Hybrid READY Indicator Light



▼ Shut Off Vehicle (Hybrid READY Indicator Light-OFF)



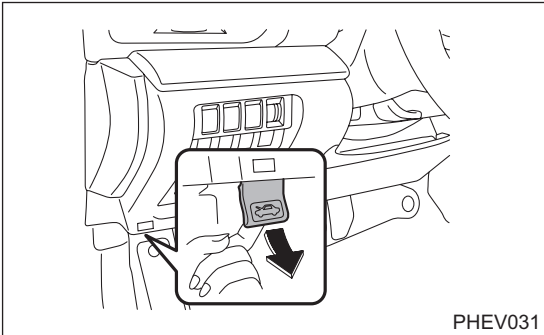
The illustration above is a typical example. For some models, the combination meter may be slightly different than that shown in the illustration.

Emergency Response (Continued)

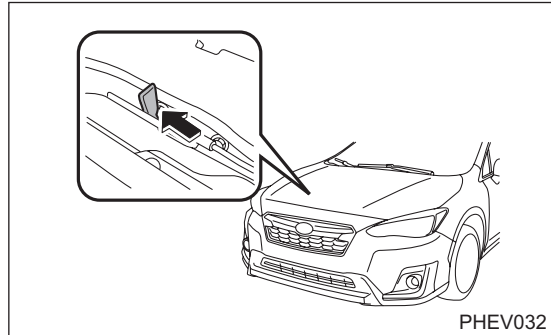
Extrication (Continued)

5. Open the hood.
6. Disconnect the battery ground terminal of the battery (12 V) in the engine compartment.

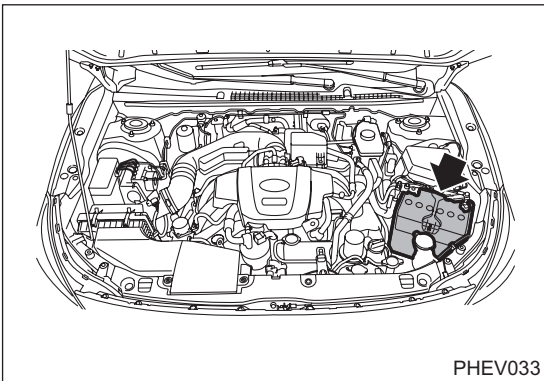
▼ Hood Latch Release



▼ Hood Release Knob



▼ Battery (12 V)



Extrication (Continued)

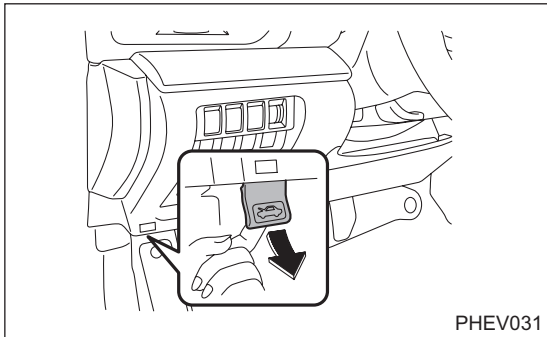
Procedure #2 (Alternate if push-button ignition switch is inaccessible)

Note:

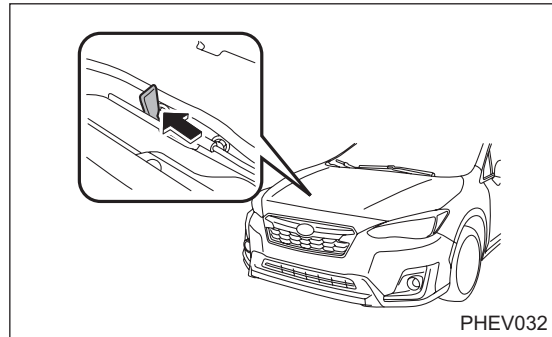
Before shutting off the vehicle and disconnecting the battery (12 V), if necessary, lower the windows, unlock the doors and open the rear gate as required. Once the battery (12 V) is disconnected, power controls will not operate.

1. Open the hood.

▼ Hood Release Knob



▼ Hood Latch Release

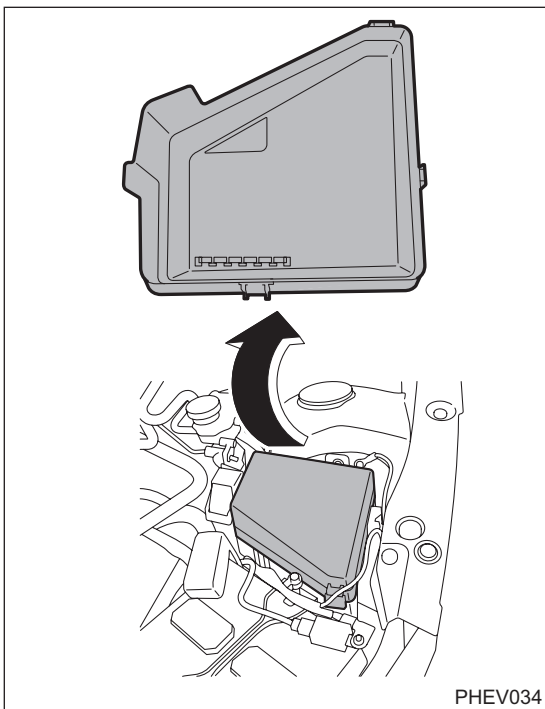


Emergency Response (Continued)

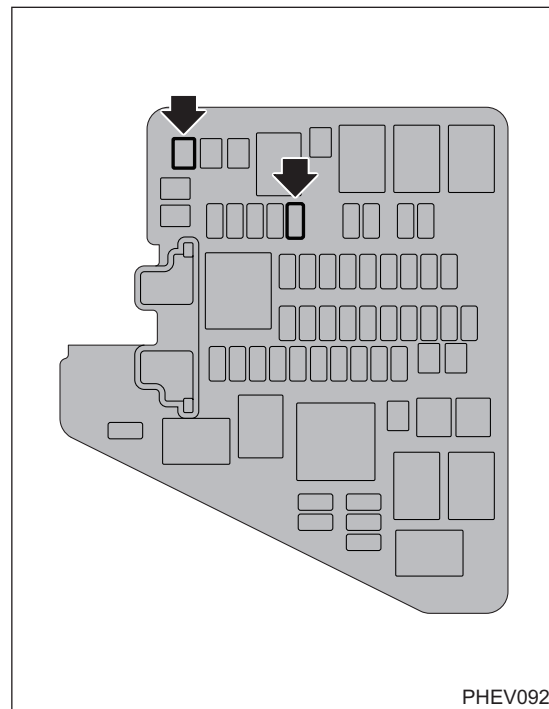
Extrication (Continued)

2. Remove the fuse box cover.
3. Remove the SBF No. 6 fuse (30 A) and IGCT SCENE fuse (30 A) in the engine compartment fuse box (refer to illustration). If the correct fuse cannot be recognized, pull all fuses in the fuse box.
4. Disconnect the battery ground terminal of the battery (12 V) in the engine compartment.

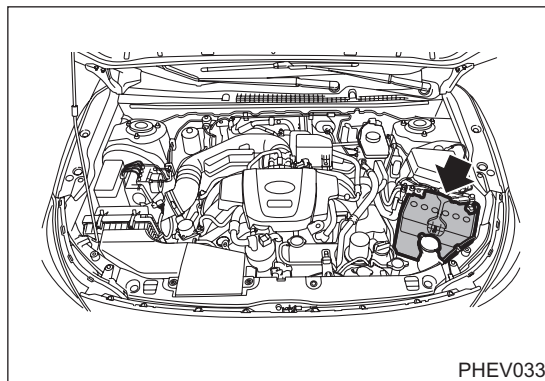
▼ Fuse Box Cover



▼ SBF No. 6 Fuse (30 A) and IGCT SCENE Fuse (30 A) in Engine Compartment Fuse Box



▼ Battery (12 V)



Emergency Response (Continued)

Extrication (Continued)

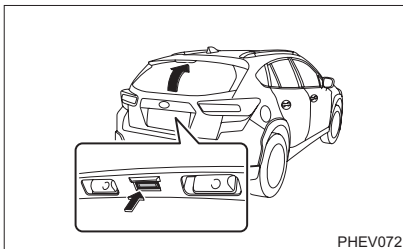
Procedure#3 (If procedures 1 and 2 cannot be implemented and insulated rubber gloves can be used)

Note:

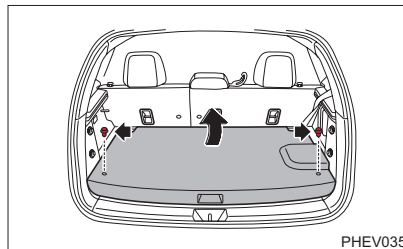
Before shutting off the vehicle and disconnecting the battery (12 V), if necessary, lower the windows, unlock the doors and open the rear gate as required. Once the battery (12 V) is disconnected, power controls will not operate.

1. Open the rear gate, disengage the clips and hooks and remove the cargo area cover.
2. Unscrew the bolt, disengage the clip and remove the service plug cover.
3. Wear insulated rubber gloves and then remove the service plug (refer to illustration).
 - ① Slide the lever toward rear of vehicle.
 - ② Raise the lever until it is vertical.
 - ③ Pull the lever upward and remove the service plug from the HV battery holder.

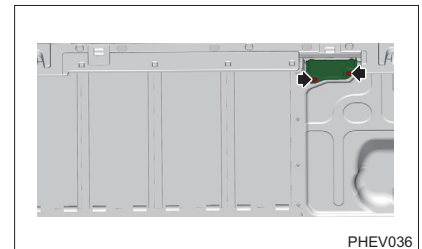
▼ Rear Gate Opener Button



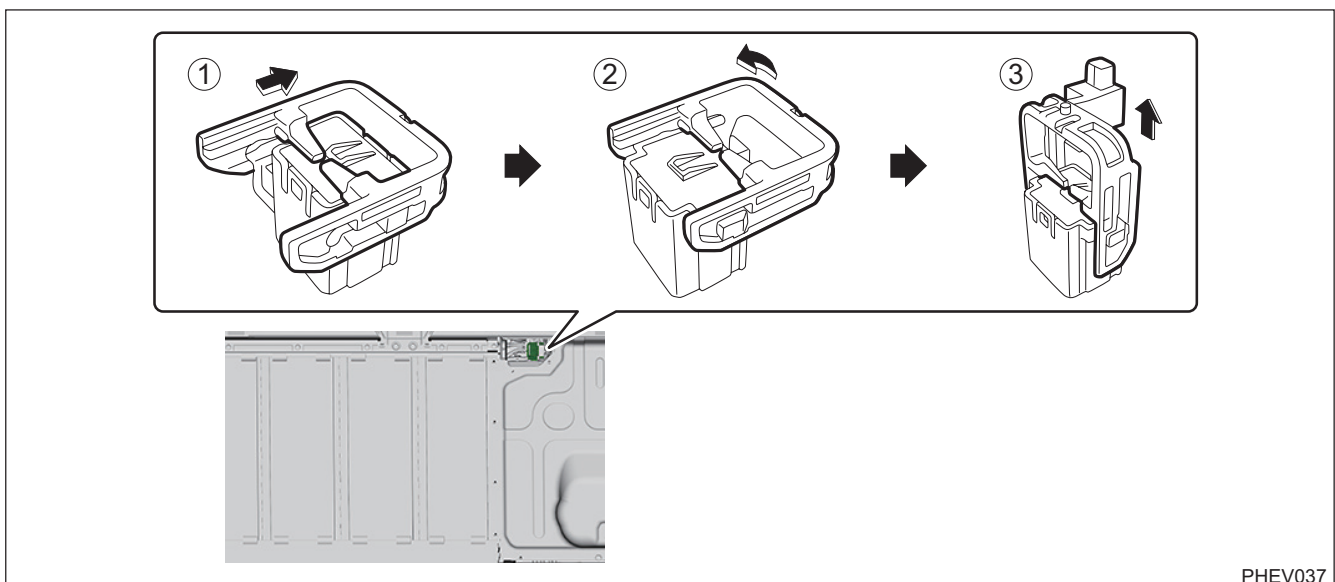
▼ Cargo Area Cover



▼ Service Plug Cover



▼ Service Plug



Emergency Response (Continued)

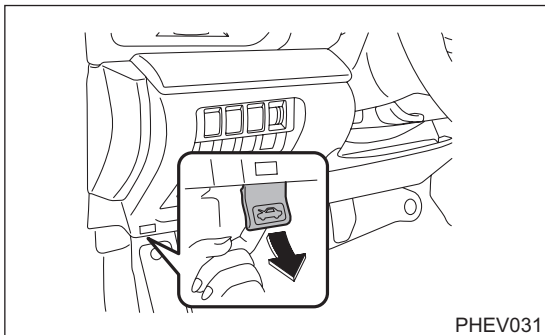
Extrication (Continued)

4. Open the hood.
5. Disconnect the battery ground terminal of the battery (12 V) in the engine compartment.

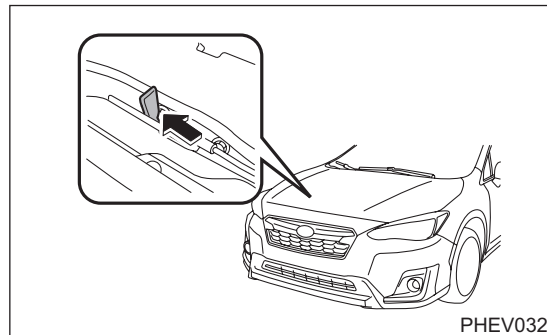
WARNING:

- You must wear insulated rubber gloves to prevent serious injury or death from severe burns or electric shock.
- Be sure to carry the service plug on your person after you remove it to prevent another person from re-connecting it by mistake.
- The high voltage system may remain powered for up to 10 minutes after the vehicle is shut off or disabled. To prevent serious injury or death from severe burns or electric shock, avoid touching, cutting, or breaching any orange colored power cable or high voltage component.
- Before touching any high voltage parts, wiring, terminals or connector after the service plug has been removed, wait more than 10 minutes for the high voltage charge in the condenser to dissipate.
- The SRS may remain powered for up to 60 seconds after the vehicle is shut off or disabled. To prevent serious injury or death from unintentional SRS deployment, avoid breaching the SRS components.
- If none of the disabling procedures can be performed, proceed with caution as there is no assurance that the high voltage electrical system, SRS, or fuel pump are disabled.
- When the person(s) in charge of handling the damaged vehicle is away from the vehicle, other person(s) may accidentally touch the vehicle and be electrocuted, resulting in severe injury or death. To avoid this danger, display a "HIGH VOLTAGE. DO NOT TOUCH DURING OPERATION" sign to warn others (print and use page 68 of this guide).

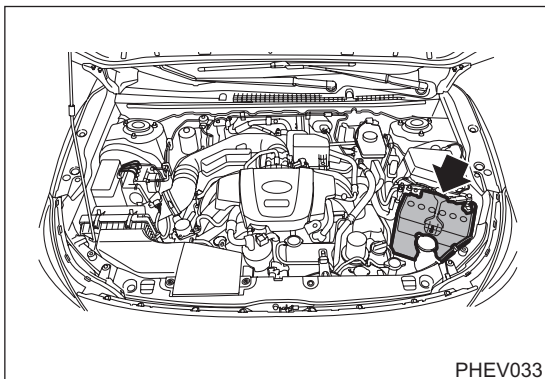
▼ Hood Release Knob



▼ Hood Latch Release



▼ Battery (12 V)



Emergency Response (Continued)

Extrication (Continued)

■ Stabilize Vehicle

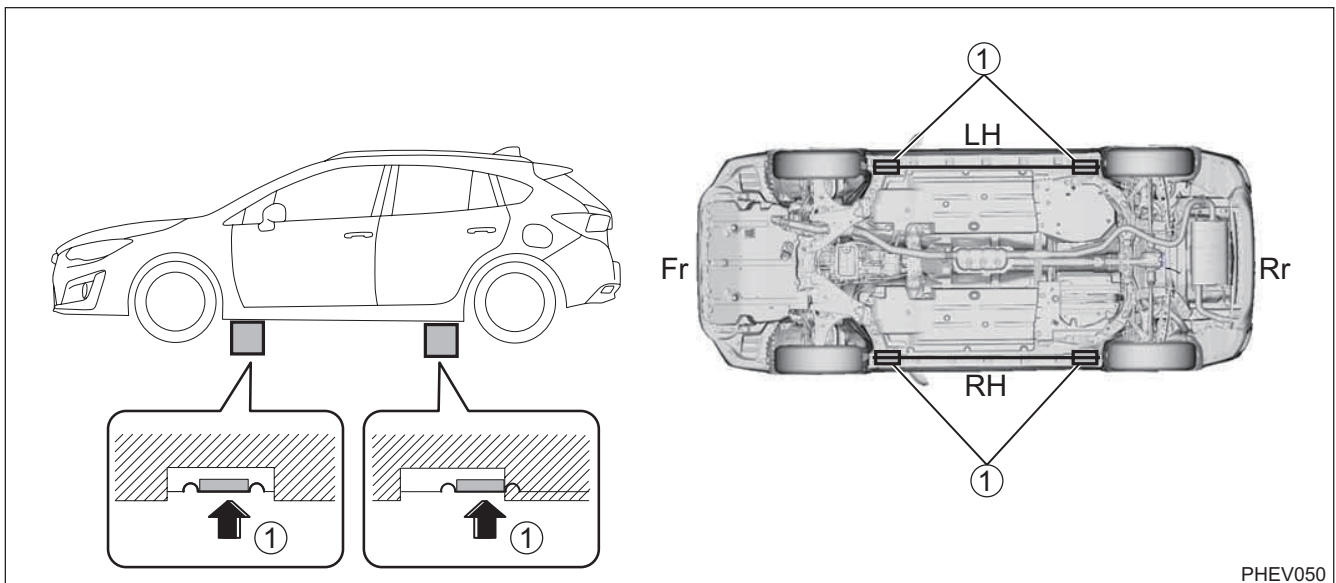
Crib at (4) points directly under the front and side sills.

Do not place cribbing under the orange colored power cables, exhaust system, or fuel system.

Note:

The CROSSTREK Hybrid is equipped with a tire pressure monitoring system that by design prevents pulling the valve stem with integral transmitter from the wheel. Snapping the valve stem with pliers or removing the valve cap and valve core will release the air in the tire.

▼ Cribbing Points

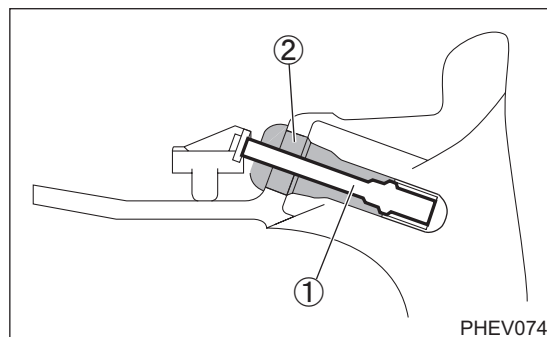


① Cribbing Points

▼ Valve Stem with Integral Transmitter



▼ Valve Stem with Integral Transmitter Installed on Wheel



① Metal

② Rubber

Extrication (Continued)

■ Access Patients

Glass Removal

Use normal glass removal procedures as required.

SRS Awareness

Responders need to be cautious when working in close proximity to undeployed airbags and seat belt pretensioners. Front airbags automatically deploy within a fraction of a second of being triggered.

Door Removal/Displacement

Doors can be removed by conventional rescue tools such as hand, electric, and hydraulic tools. In certain situations, it may be easier to pry back the vehicle body to expose and unbolt the hinges.

Note:

To prevent accidental airbag deployment when performing front door removal/displacement, ensure the vehicle is shut off and the battery (12 V) is disconnected.

Roof Removal

The CROSTREK Hybrid is equipped with curtain airbags.

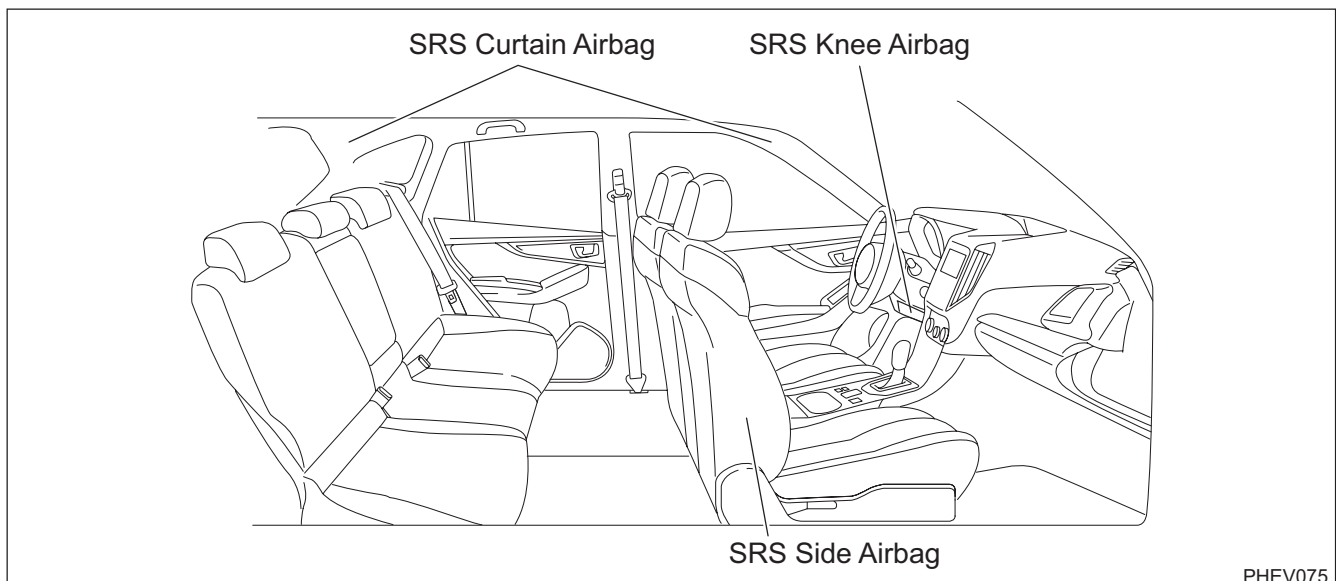
When undeployed, total roof removal is not recommended.

Patient access through the roof can be performed by cutting the roof center section inboard of the roof rails as illustrated. This would avoid breaching the curtain airbags, inflators, and wiring harness.

Note:

The curtain airbags may be identified as illustrated on this page (additional component details on page 32).

▼ Side, Curtain, and Knee Airbag Identifiers



Extrication (Continued)

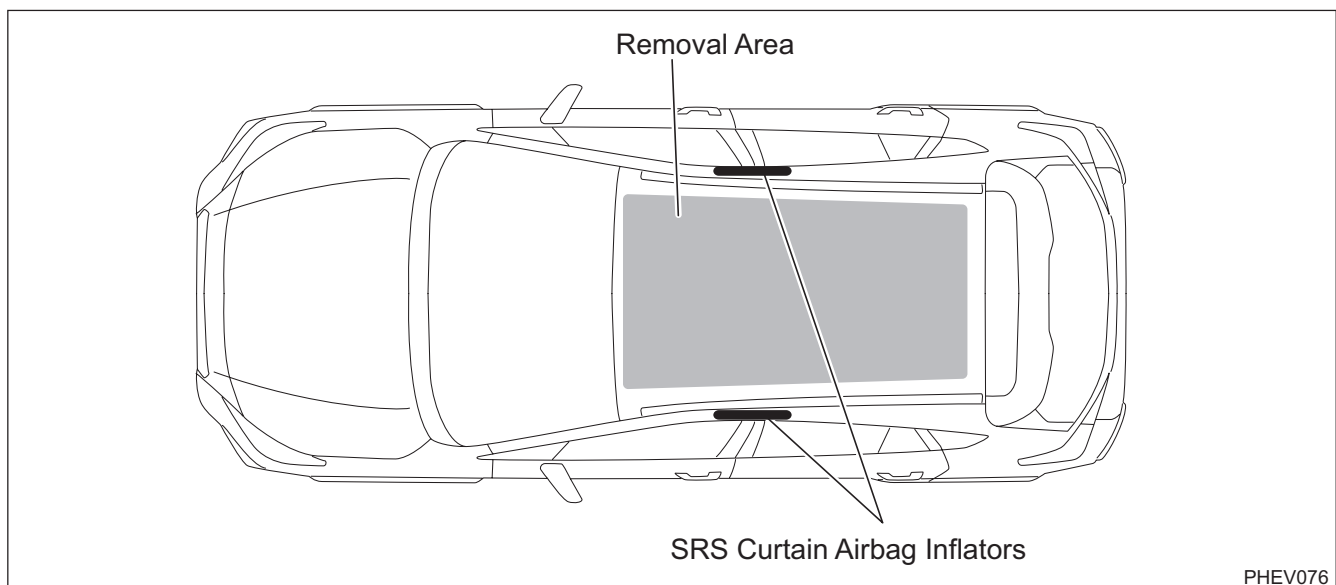
Dash Displacement

The CROSSTREK Hybrid is equipped with curtain airbags. When undeployed, total roof removal is not recommended to avoid breaching the side curtain airbags, inflators, and wiring harness. As an alternative, dash displacement may be performed by using a "Modified Dash Roll Technique".

Rescue Lift Airbags

Responders should not place cribbing or rescue lift airbags under the orange colored power cables, exhaust system, or fuel system.

▼ Roof Removal Area

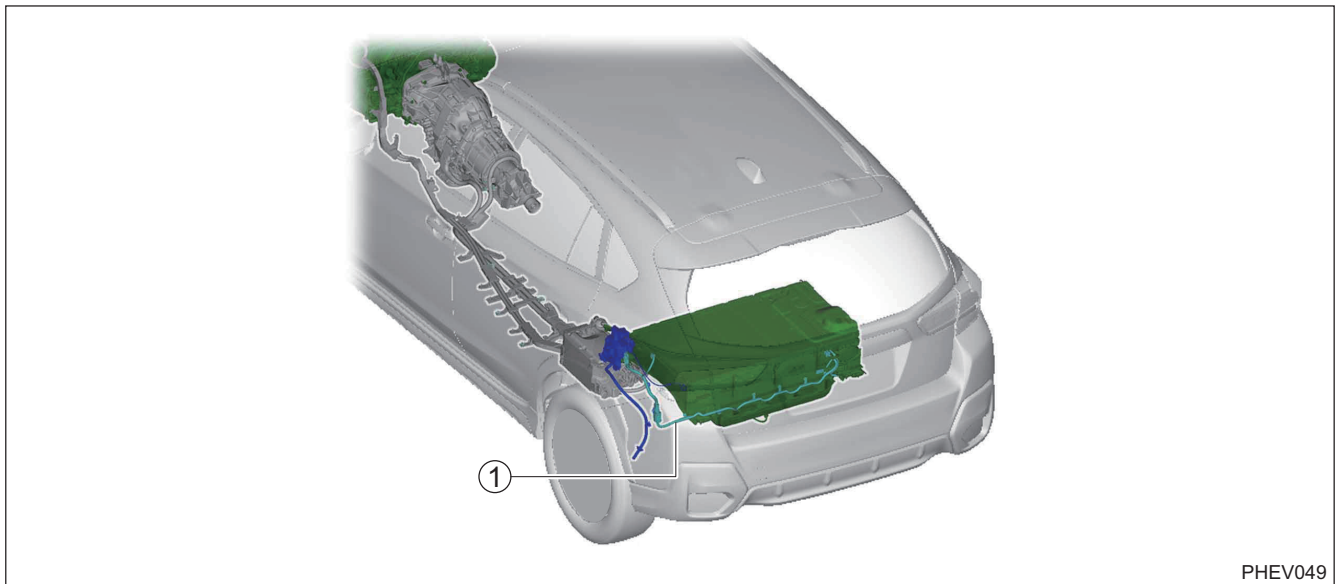


Extrication (Continued)

Note:

The CROSSTREK Hybrid has an orange power cable that is energized during charging. The charging inlet cable is routed along the rear side of the HV battery to the left side rear quarter panel.

▼ Charging Inlet Cable



PHEV049

① Charging Inlet Cable

Extrication (Continued)

Repositioning Steering Wheel and Front Seat

Telescopic steering wheel and seat controls are shown in the illustrations.

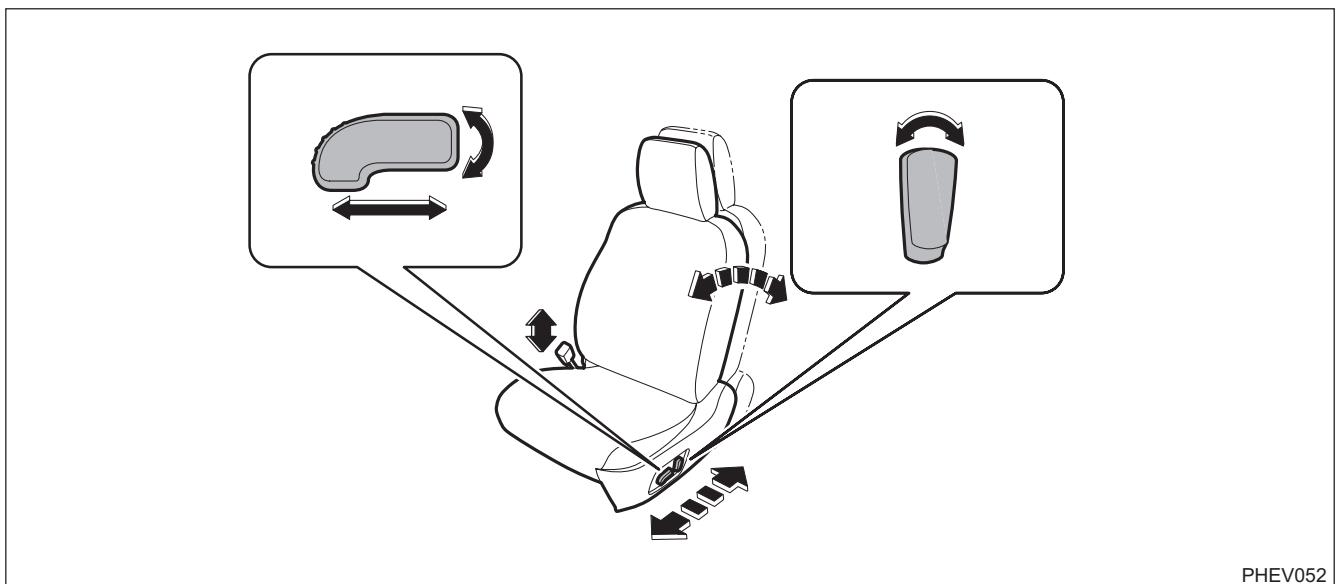
Note:

The following operations of the power seat cannot be performed when the battery (12 V) is disconnected.

Head Restraint Removal

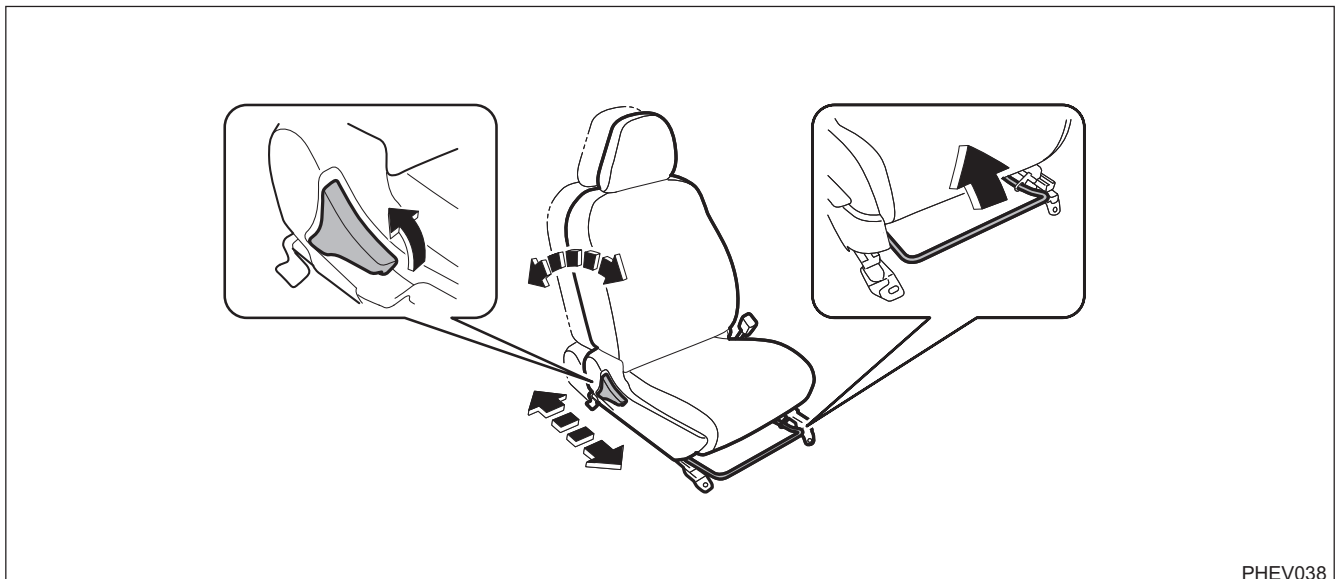
Push the release button and lift to remove the head restraint.

▼ Driver's Seat Controls



PHEV052

▼ Passenger's Seat Controls

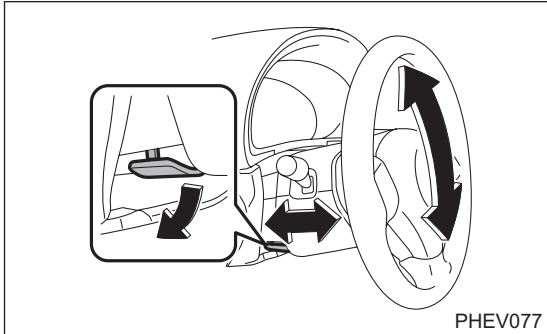


PHEV038

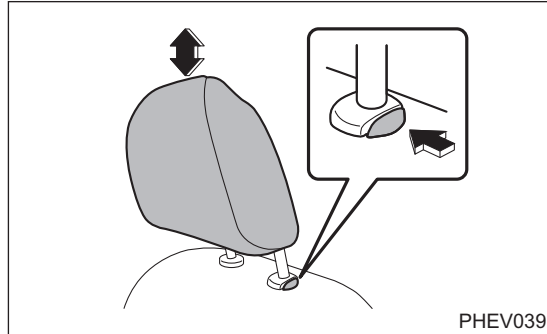
Emergency Response (Continued)

Extrication (Continued)

▼ Tilt and Telescoping Control



▼ Remove the Head Restraint



Notes at the time of vehicle cutting

⚠ WARNING:

- Do not touch orange colored power cables, and high voltage parts to prevent serious injury and death from severe burns or electric shock. If you must touch them, you must wear insulated rubber gloves and insulate any exposed terminals or wires using an insulating tape.
- When cutting the vehicle, only use hydraulic or sparkless cutters or serious injury or death to the rescuer and/or passenger could occur.
- If you must perform work on or near the SRS, please confirm that 60 seconds have elapsed since the vehicle was shut off or the battery ground terminal of the battery (12 V) was disconnected because the SRS airbag system may remain powered for up to 60 seconds.

Extrication (Continued)



Location where electrical shock by high voltage may occur.

Do not cut because of the risk of electrical shocks from high voltage.



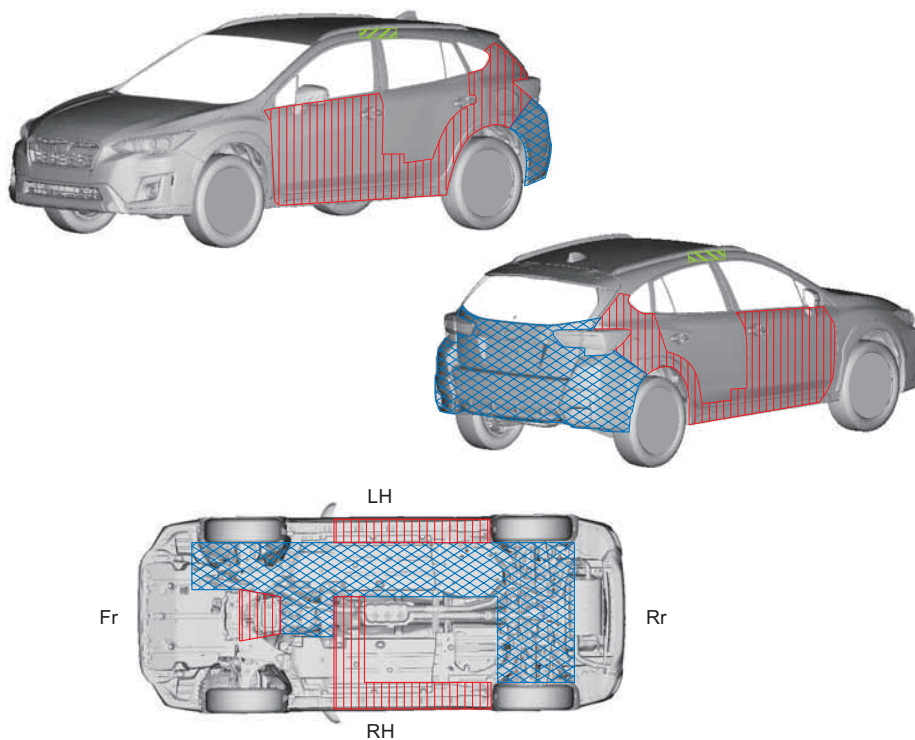
Location where the curtain airbag may deploy.

Do not cut because there is equipment which generates high pressure gas for curtain airbag deployment in this location but if the curtain airbag has already deployed, it is possible to cut.



Location where the side airbag and the curtain airbag may deploy.

Do not cut in this area because the side airbag and curtain airbag may deploy by short circuit or impact. But if more than 60 seconds has elapsed since disconnecting the ground terminal of the battery (12 V), it is OK to cut in this area.



PHEV051

Fire

Approach and extinguish a fire using proper vehicle fire fighting practices as recommended by NFPA, IFSTA, or the National Fire Academy (U.S.A).

■ Extinguishing Agent

Water has been proven to be a suitable extinguishing agent.

■ Initial Fire Attack

Perform a fast, aggressive fire attack.

Divert the runoff to prevent it from entering watershed areas.

Attack teams may not be able to identify a CROSSTREK Hybrid until the fire has been knocked down and overhaul operations have commenced.

■ Fire When Vehicle Charging

When extinguishing a fire when charging, the vehicle and electric vehicle charger cable assembly may come in contact with water. As soon as possible, shut off the power to the electrical outlet before disconnecting the electric vehicle charger cable assembly. Perform the electric vehicle charger cable assembly disconnection procedure contained in the Extrication section on page 37.

■ Fire in the HV Battery

Should a fire occur in the Li-ion HV battery, attack crews should utilize a water stream or fog pattern to extinguish any fire within the vehicle except for the HV battery.

WARNING:

- *Burning batteries may irritate the eyes, nose, and throat. To prevent injury wear personal protective equipment suitable for organic solvents including SCBA.*
- *The battery cells are contained within a metal case and accessibility is limited.*
- *To avoid serious injury or death from severe burns or electric shock, never breach or remove the HV battery assembly cover under any circumstance including fire.*
- *If only a small amount of water is used to extinguish a fire, a short circuit may occur in the high voltage battery, causing the fire to reignite.*

When allowed to burn themselves out, the CROSSTREK Hybrid Li-ion battery cells burn rapidly and can quickly be reduced to ashes except for the metal component.

Emergency Response (Continued)

Offensive Fire Attack

Normally, flooding a Li-ion HV battery with copious amounts of water at a safe distance will effectively control the HV battery fire by cooling the adjacent Li-ion battery cells to a point below their ignition temperature. The remaining cells on fire, if not extinguished by the water, will burn themselves out.

However, flooding the CROSSTREK Hybrid HV battery is *not* recommended due to the battery case design and location preventing the responder from properly applying water through the available vent openings safely. Therefore, it is recommended that the incident commander allow the CROSSTREK Hybrid HV battery to burn itself out.

Defensive Fire Attack

If the decision has been made to fight the fire using a defensive attack, the fire attack crew should pull back a safe distance and allow the Li-ion battery cells to burn themselves out. During this defensive operation, fire crews may utilize a water stream or fog pattern to protect exposures or to control the path of smoke.

Overhaul

During overhaul, immobilize and disable the vehicle if not already done. Refer to illustrations on page 35. The HV battery cover should never be breached or removed under any circumstances including fire. Doing so may result in severe electrical burns, shock, or electrocution.

■ Immobilize Vehicle

Chock wheels and set the parking brake.
Shift the select lever to the Park position.

■ Disable Vehicle

Perform these steps first if the electric vehicle charger cable assembly is connected to the vehicle. Refer to illustrations on page 37.

1. If the charge connector is locked, press the charge cable connector lock switch while carrying the access key.
If the cable cannot be pulled out, refer to page 64.
2. Disconnect the charge connector from the vehicle. To disconnect it, push the lock release button on the top of the connector and pull it away from the vehicle.
3. Close the charge inlet door.
4. Disconnect the plug of the electric vehicle charger cable assembly from the electrical outlet.

Performing either of the following procedures will shut the vehicle off and disable the HV battery, SRS, gasoline fuel pump, and remote climate control system.

Overhaul (Continued)

Procedure #1

Note:

Before shutting off the vehicle and disconnecting the battery (12 V), if necessary, lower the windows, unlock the doors and open the rear gate as required. Once the battery (12 V) is disconnected, power controls will not operate.

1. Confirm the status of the hybrid READY indicator light in the combination meter.
2. If the hybrid READY indicator light is illuminated, the vehicle is on and operational. Shut off the vehicle by moving the select lever to the P position and pushing the push-button ignition switch once.
3. The vehicle is already shut off if the combination meter lights and the hybrid READY indicator light are not illuminated. Do not push the push-button ignition switch because the vehicle may start.
4. If the access key is easily accessible, keep it at least 16 feet (5 meters) away from the vehicle.
5. Open the hood.
6. Disconnect the battery ground terminal of the battery (12 V) in the engine compartment.

Procedure #2 (Alternate if push-button ignition switch is inaccessible)

Note:

Before shutting off the vehicle and disconnecting the battery (12 V), if necessary, lower the windows, unlock the doors and open the rear gate as required. Once the battery (12 V) is disconnected, power controls will not operate.

1. Open the hood.
2. Remove the fuse box cover.
3. Remove the SBF No. 6 fuse (30 A) and IGCT SCENE fuse (30 A) in the engine compartment fuse box as illustrated on page 41. If the correct fuse cannot be recognized, pull all fuses in the fuse box.
4. Disconnect the battery ground terminal of the battery (12 V) in the engine compartment.

Overhaul (Continued)

Procedure#3 (If procedures 1 and 2 cannot be implemented and insulated rubber gloves can be used)

Note:

Before shutting off the vehicle and disconnecting the battery (12 V), if necessary, lower the windows, unlock the doors and open the rear gate as required. Once the battery (12 V) is disconnected, power controls will not operate.

1. Open the rear gate, disengage the clips and hooks and remove the cargo area cover. Refer to illustrations on page 42.
2. Unscrew the bolt, disengage the clip and remove the service plug cover.
3. Wear insulated rubber gloves and then remove the service plug.
 - (1) Slide the lever toward rear of vehicle.
 - (2) Raise the lever until it is vertical.
 - (3) Pull the lever upward and remove the service plug from the HV battery holder.
4. Open the hood.
5. Disconnect the battery ground terminal of the battery (12 V) in the engine compartment.

 **WARNING:**

- You must wear insulated rubber gloves to prevent serious injury or death from severe burns or electric shock.
- Be sure to carry the service plug on your person after you remove it to prevent another person from re-connecting it by mistake.
- The high voltage system may remain powered for up to 10 minutes after the vehicle is shut off or disabled. To prevent serious injury or death from severe burns or electric shock, avoid touching, cutting, or breaching any orange colored power cable or high voltage component.
- Before touching any high voltage parts, wiring, terminals or connector after the service plug has been removed, wait more than 10 minutes for the high voltage charge in the condenser to dissipate.
- The SRS may remain powered for up to 60 seconds after the vehicle is shut off or disabled. To prevent serious injury or death from unintentional SRS deployment, avoid breaching the SRS components.
- If none of the disabling procedures can be performed, proceed with caution as there is no assurance that the high voltage electrical system, SRS, or fuel pump are disabled.
- When the person(s) in charge of handling the damaged vehicle is away from the vehicle, other person(s) may accidentally touch the vehicle and be electrocuted, resulting in severe injury or death. To avoid this danger, display a "HIGH VOLTAGE. DO NOT TOUCH DURING OPERATION" sign to warn others (print and use page 68 of this guide).

Recovering/Recycling of HV Battery

Clean up of the HV battery can be accomplished by the vehicle recovery crew without further concern of runoff or spillage. For information regarding recycling of the HV battery, contact the nearest SUBARU dealer.

[Residents in U.S.A]

SOA Customer Dealer Service : <http://www.subaru.com/customer-support.html>

Spills

The CROSSTREK Hybrid contains the same common automotive fluids used in other non-hybrid SUBARU vehicles, with the exception of the Li-ion electrolyte used in the HV battery. The electrolyte used in the Li-ion battery cells is a flammable organic electrolyte. The electrolyte is absorbed into the battery cell separators, even if the battery cells are crushed or cracked, it is unlikely that liquid electrolyte will leak. Any liquid electrolyte that leaks from a Li-ion battery cell quickly evaporates.

WARNING:

- *The Li-ion battery contains organic electrolyte. Only a small amount may leak from the batteries which may irritate the eyes, nose, throat, and skin.*
- *Contact with the acidic vapor caused by the reaction of the electrolyte with moisture may irritate the nose and throat.*
- *To avoid injury by coming in contact with the electrolyte or acidic vapor, wear personal protective equipment for organic electrolyte including SCBA or protective mask for acidic vapors.*

In an emergency, the Li-ion battery part number G9028-47060 manufacturer's Material Safety Data Sheet (MSDS) is available. Please refer to the attached document.

Handle Li-ion electrolyte spills require using the following Personal Protective Equipment (PPE):

Splash shield or safety goggles. Fold down helmet shields are not acceptable for acid or electrolyte spills.

Rubber gloves or gloves suitable for organic solvents.

Apron suitable for organic solvents.

Rubber boots or boots suitable for organic solvents.

Protective mask for acidic vapors or SCBA.

Absorbent:

Suitable absorbent for an organic solvent.

First Aid

Emergency responders may not be familiar with a Li-ion electrolyte exposure when rendering aid to a patient. Exposure to the electrolyte is unlikely except in a catastrophic crash or through improper handling. Utilize the following guidelines in the event of exposure.

■ **Wear Personal Protective Equipment (PPE)**

Splash shield or safety goggles. Fold down helmet shields are not acceptable for acid or electrolyte spills.

Rubber gloves or gloves suitable for organic solvents.

Apron suitable for organic solvents.

Rubber boots or boots suitable for organic solvents.

Protective mask for acidic vapors or SCBA.

■ **Absorption**

Perform gross decontamination by removing affected clothing and properly disposing of the garments.

Rinse the affected areas with water for 20 minutes.

Transport patients to the nearest emergency medical care facility.

■ **Inhalation in Non-Fire Situations**

Contact with the acidic vapor caused by reaction of the electrolyte with moisture may irritate the nose and throat. In severe cases such as confined spaces, move exposed patients to a well ventilated area.

Transport patients to the nearest emergency medical care facility.

■ **Inhalation in Fire Situations**

Toxic gases are given off as by-products of combustion. All responders in the Hot Zone should wear the proper PPE for fire fighting including SCBA.

Move a patient from the hazardous environment to a safe area and administer oxygen.

Transport patients to the nearest emergency medical care facility.

■ **Ingestion**

Do not induce vomiting, unless instructed by the doctor.

If vomiting occurs naturally, avoid aspiration.

Transport patients to the nearest emergency medical care facility.

Submersion

Do not touch the service plug, high voltage parts and wiring to prevent electric shock when the vehicle is submerged.

Please shut off the hybrid system using the “Emergency Response” procedure beginning on page 35 after completely pulling the vehicle out of the water.

■ Access Patients

Use the “Emergency Response” procedure beginning on page 35 to stabilize the vehicle and shut off the hybrid system and then perform a rescue operation.

■ Vehicle Recovery

If a hybrid vehicle is fully or partially submerged in water, emergency responders may not be able to determine if the vehicle has been automatically disabled. Orange colored power cables, service plug and high voltage components should never be touched, cut or breached. The CROSSTREK Hybrid may be handled by following these recommendations:

WARNING:

- *To prevent serious injury or death, shut off the utility circuit supplying power to the charge cable assembly before disconnecting it if the electric vehicle charger cable assembly are submerged in water.*
- *A vehicle that has been submerged in water poses a threat of vehicle fire after some time for possible short circuit due to electrical corrosion (wiring and circuit boards to corrode in an electrochemical reaction with water). To store a vehicle that has been submerged in water, choose a well-ventilated place at least 49.2 feet (15 meters) away from other objects.*
- *To prevent a vehicle fire, avoid turning the push button ignition switch of a submerged vehicle to ACC or ON.*

Perform these steps first if the electric vehicle charger cable assembly is connected to the vehicle. Refer to illustrations on page 37.

1. If the charge connector is locked, press the charge cable connector lock switch while carrying the access key.
If the cable cannot be pulled out, refer to page 64.
2. Disconnect the charge connector from the vehicle. To disconnect it, push the lock release button on the top of the connector and pull it away from the vehicle.
3. Close the charge inlet door.
4. Disconnect the plug of the electric vehicle charger cable assembly from the electrical outlet.
5. Remove the vehicle from the water.
6. Drain the water from the vehicle if possible.
7. Follow the immobilizing and disabling procedures on page 35.

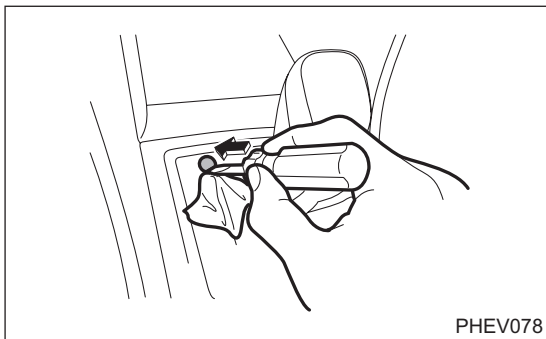
Roadside Assistance

Roadside assistance for the SUBARU CROSSTREK Hybrid may be handled like conventional SUBARU vehicles except as noted in the following pages.

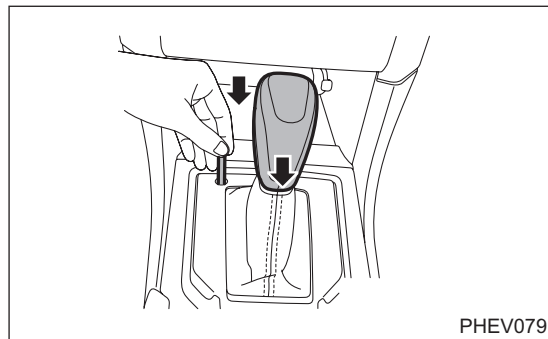
Select Lever

- Similar to many SUBARU vehicles, the CROSSTREK Hybrid uses a select lever as shown in the illustration.
- If the battery (12 V) is dead or the battery ground terminal of the battery (12 V) has been disconnected, the select lever cannot be moved out of the Park position.
- If the select lever cannot be moved out of Park position, a shift lock release button is provided under the cover near the select lever as shown in the illustration.
- Unlock the shift lock with the brake pedal depressed.

▼ Remove the Cover



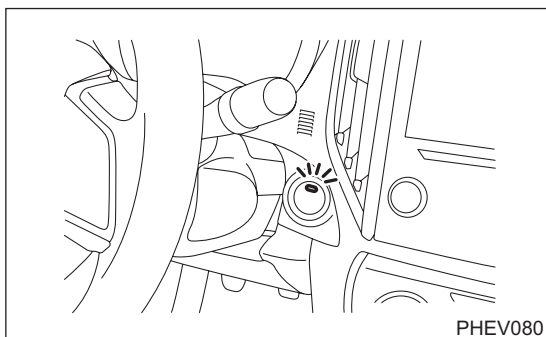
▼ Push in Shift Lock Release



Steering Lock

- If the battery (12 V) is dead, the steering lock touch sensitive release is cancelled. After jump starting the battery (12 V) in the engine compartment, you can cancel the steering lock by touching the steering wheel. See the instructions and illustrations on page 66 for more details.
- If the operation indicator is flashing in green, the hybrid system start procedure was performed, but the steering is still locked. While turning the steering wheel right and left slightly, depress the brake pedal and push the push-button ignition switch.

▼ Operation Indicator



Towing

If towing is necessary, it is best done by SUBARU dealer or a commercial towing service. Observe the following procedures for safety.

⚠ WARNING:

- *Never tow AWD models with the front wheels raised off the ground while the rear wheels are on the ground, or with the rear wheels raised off the ground while the front wheels are on the ground. This will cause the vehicle to spin away due to the operation or deterioration of the center differential.*
- *If the vehicle needs to be towed, do so with all wheels raised. If the wheels connected to the electric motor (traction motor) are on the ground when towing, the electric motor may continue to generate electricity. This may cause a fire.*

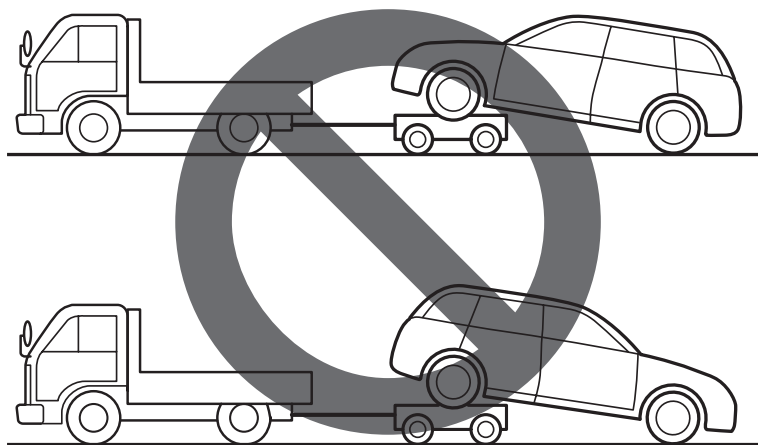
■ Towing hook and tie-down hooks/holes

The towing hooks should be used only in an emergency (e.g., to free a stuck vehicle from mud, sand or snow).

Note:

- Use only the specified towing hook and tie-down hook. Never use suspension parts or other parts of the body for towing or tie-down purposes.
- To prevent deformation to the front bumper and the towing hook, do not apply excessive lateral load to the towing hook.

▼ Prohibited Methods



PHEV081

Towing (Continued)

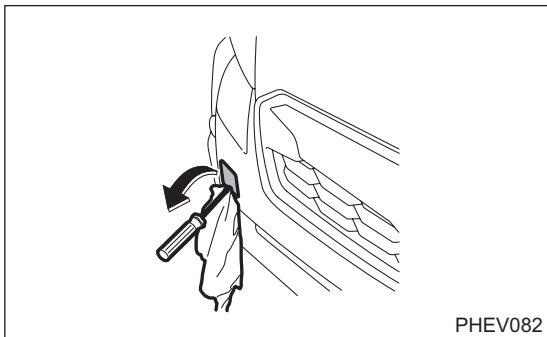
Front towing hook:

1. Take the towing hook and screwdriver out of the tool bucket. Take out the jack handle from under the driver's seat.
2. Cover the tip of a flat-head screwdriver with vinyl tape or cloth so that it will not scratch the bumper. Insert the flat-head screwdriver into the cutout of the cover and pry open the cover.
3. Screw the towing hook into the threaded hole until its thread can no longer be seen.
4. Tighten the towing hook securely using the jack handle and wheel nut wrench.
After towing, remove the towing hook from the vehicle and stow it in the tool bucket. Fit the towing hook cover on the bumper.

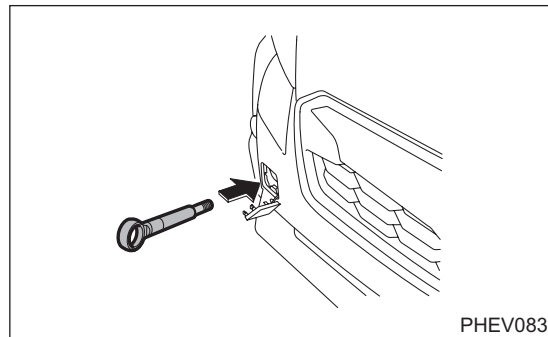
WARNING:

- Do not use the towing hook for purposes other than towing the vehicle.
- Be sure to remove the towing hook after towing. Leaving the towing hook mounted on the vehicle could interfere with proper operation of the SRS airbag system when a collision is detected. (refer to page 28 for more details).

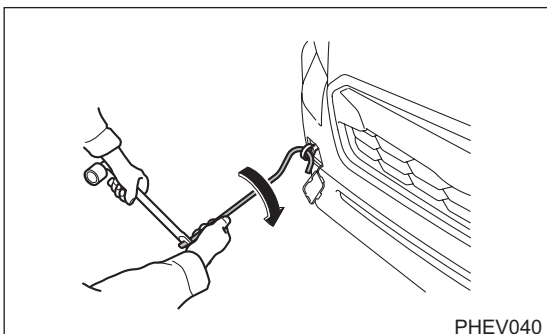
▼ Front Towing Hook Cover



▼ Front Towing Hook Mounting Location



▼ Front Towing Hook Installation



Towing (Continued)

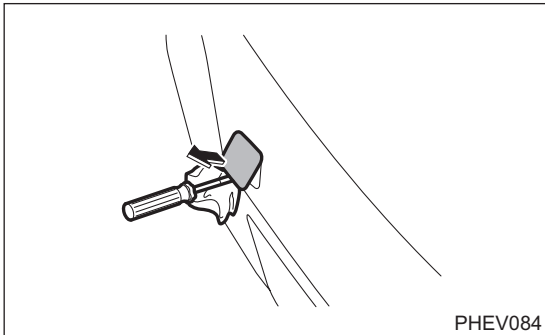
Rear towing hook:

1. Take the towing hook and screwdriver out of the tool bucket. Take out the jack handle from under the driver's seat.
 2. Pry off the cover on the rear bumper using a screwdriver, and you will find a threaded hole for attaching the towing hook.
 3. Screw the towing hook into the threaded hole until its thread can no longer be seen.
 4. Tighten the towing hook securely using the jack handle and wheel nut wrench.
- After towing, remove the towing hook from the vehicle and stow it in the tool bucket. Fit the towing hook cover on the bumper.

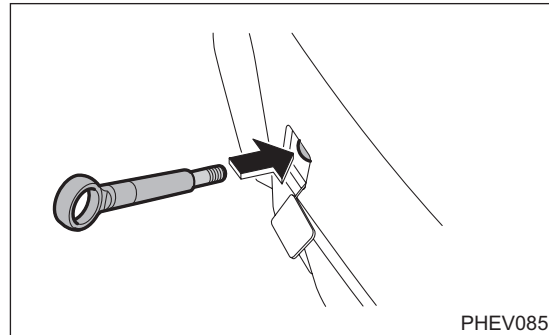
WARNING:

- Do not use the towing hook for purposes other than towing the vehicle.
- Be sure to remove the towing hook after towing. Leaving the towing hook mounted on the vehicle could interfere with proper operation of the SRS airbag system when a collision is detected. (refer to page 28 for more details).

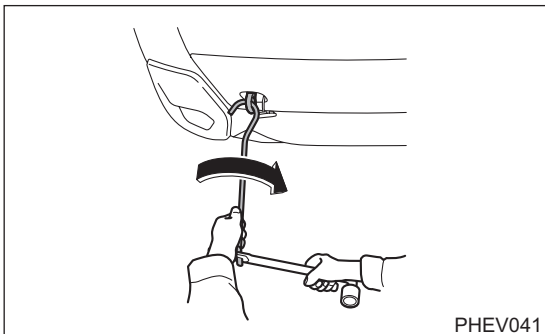
▼ Rear Towing Hook Cover



▼ Rear Towing Hook Mounting Location



▼ Rear Towing Hook Installation



Towing (Continued)

Front tie-down hooks:

The front tie-down hooks are located between each of the front tires and the front bumper.

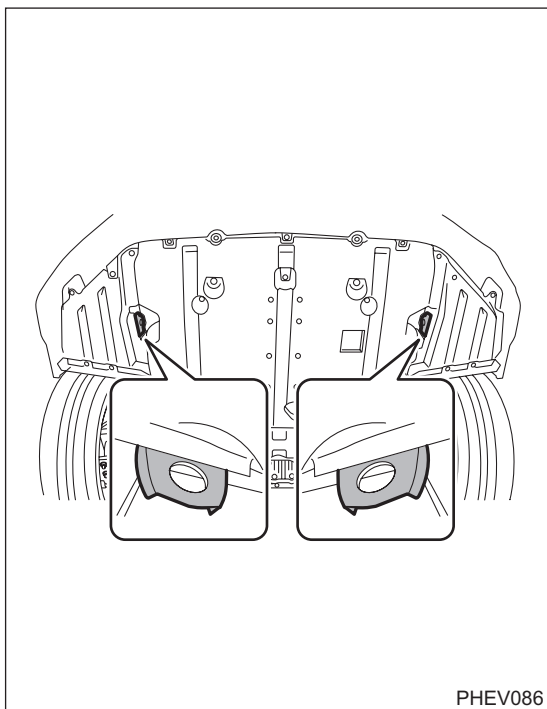
Rear tie-down holes:

The rear tie-down holes are located near each of the jack-up reinforcements.

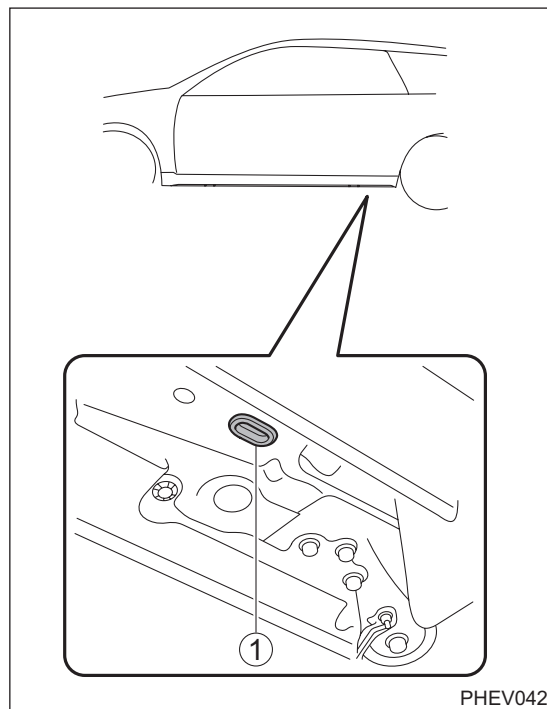
⚠ WARNING:

Use the rear tie-down holes only for downward anchoring. If they are used to anchor the vehicle in any other direction, cables may slip out of the holes, possibly causing a dangerous situation.

▼ Front Tie-down Hooks



▼ Rear Tie-down Holes



① Rear Tie-down Hole

Towing (Continued)

■ Using a flat-bed truck

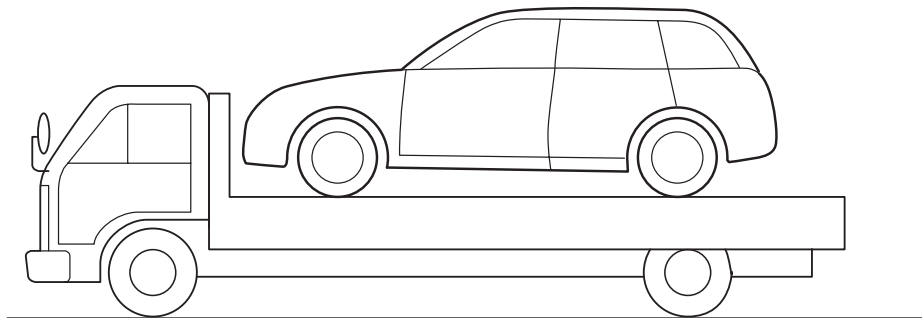
This is the best way to transport the vehicle. Use the following procedures to ensure safe transportation.

1. Shift the select lever into the Park position.
2. Apply the parking brake.
3. Secure the vehicle onto the carrier properly with safety chains. Each safety chain should be equally tightened and care must be taken not to pull the chains so tightly that the suspension bottoms out.

Note:

If the vehicle has a bumper under guard be careful not to scrape them when placing the vehicle on the carrier and when removing the vehicle from the carrier.

▼ Using a Flat-bed Truck



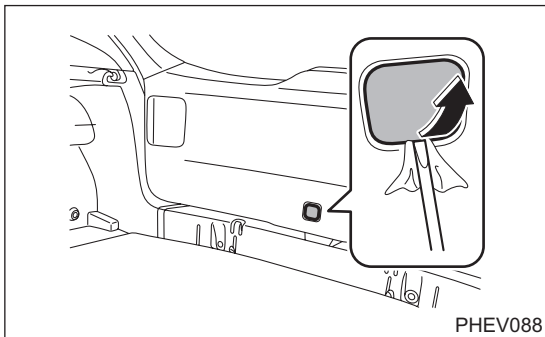
PHEV087

Rear Gate

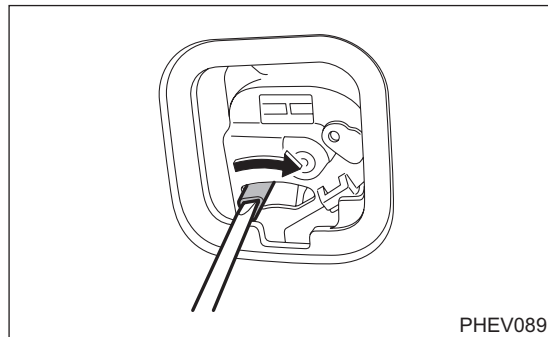
In the event that you cannot open the rear gate by operating the rear gate opener button, you can open it from inside the cargo area.

1. Remove the access cover at the bottom-center of the rear gate trim.
2. Locate the rear gate open lever behind the rear gate trim panel. Never operate the rear gate open lever with fingers because doing so may cause an injury. Always use a flat blade screwdriver or similar tool.
3. To open the rear gate, move the lever to the right using a flat blade screwdriver or similar tool.

▼ Remove the Access Cover



▼ Turn the Lever

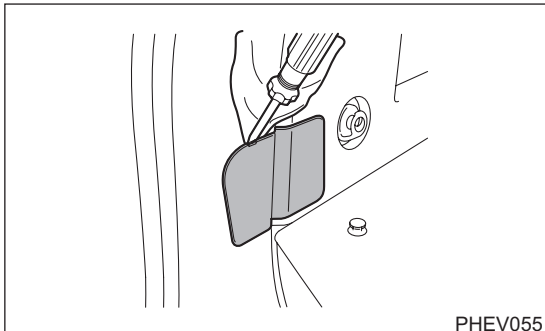


Electric Vehicle Charger Cable Assembly

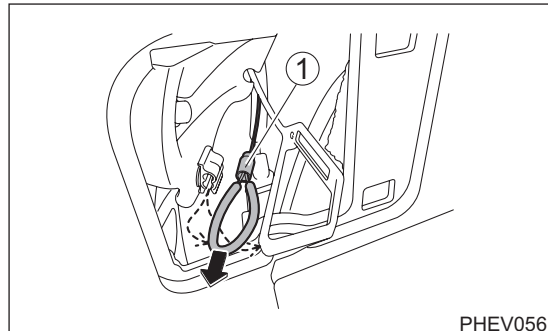
In the event that you cannot remove the electric vehicle charger cable assembly, you can remove it from inside the cargo area.

1. Remove the access cover at the bottom of the rear left trim using a flathead screwdriver wrapped with vinyl tape or a cloth.
2. Pull the cable (yellow) to release the charge cable.

▼ Remove the Access Cover



▼ Pull the Cable



① Cable (yellow)

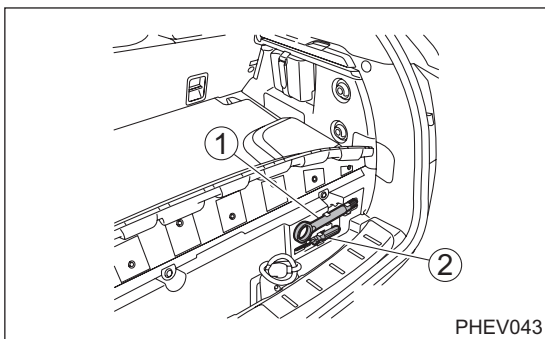
Roadside Assistance (Continued)

Maintenance Tools

CROSSTREK Hybrid Maintenance Tool List:

- Jack (If equipped)
- Jack handle
- Screwdriver
- Towing hook (eye bolt)
- Wheel nut wrench
- Air compressor
- Sealant bottle

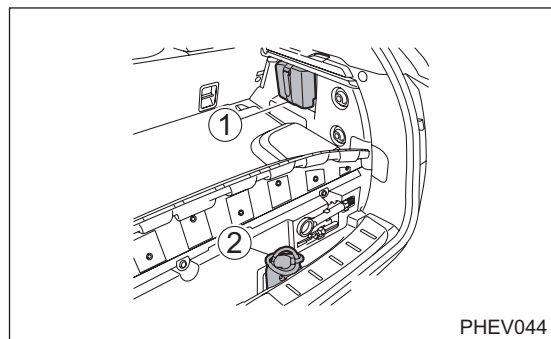
▼ Tool Locations



PHEV043

- ① Towing Hook (Eye Bolt)
- ② Screwdriver

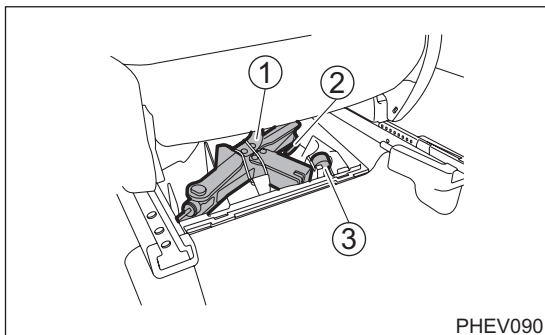
▼ Flat Tire Repair Kit Locations



PHEV044

- ① Air Compressor
- ② Sealant Bottle

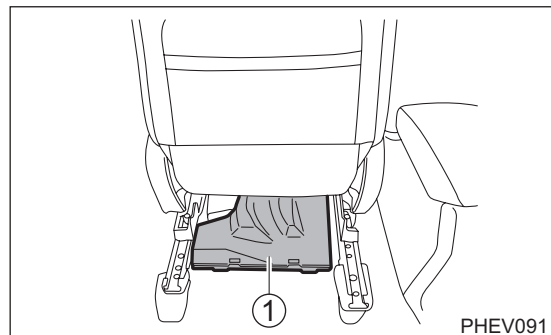
▼ Tool Locations



PHEV090

- ① Jack (If equipped)
- ② Jack Handle
- ③ Wheel Nut Wrench

▼ To Take Out the Tools



PHEV091

- ① Open the lid under the driver's seat.

Jump Starting

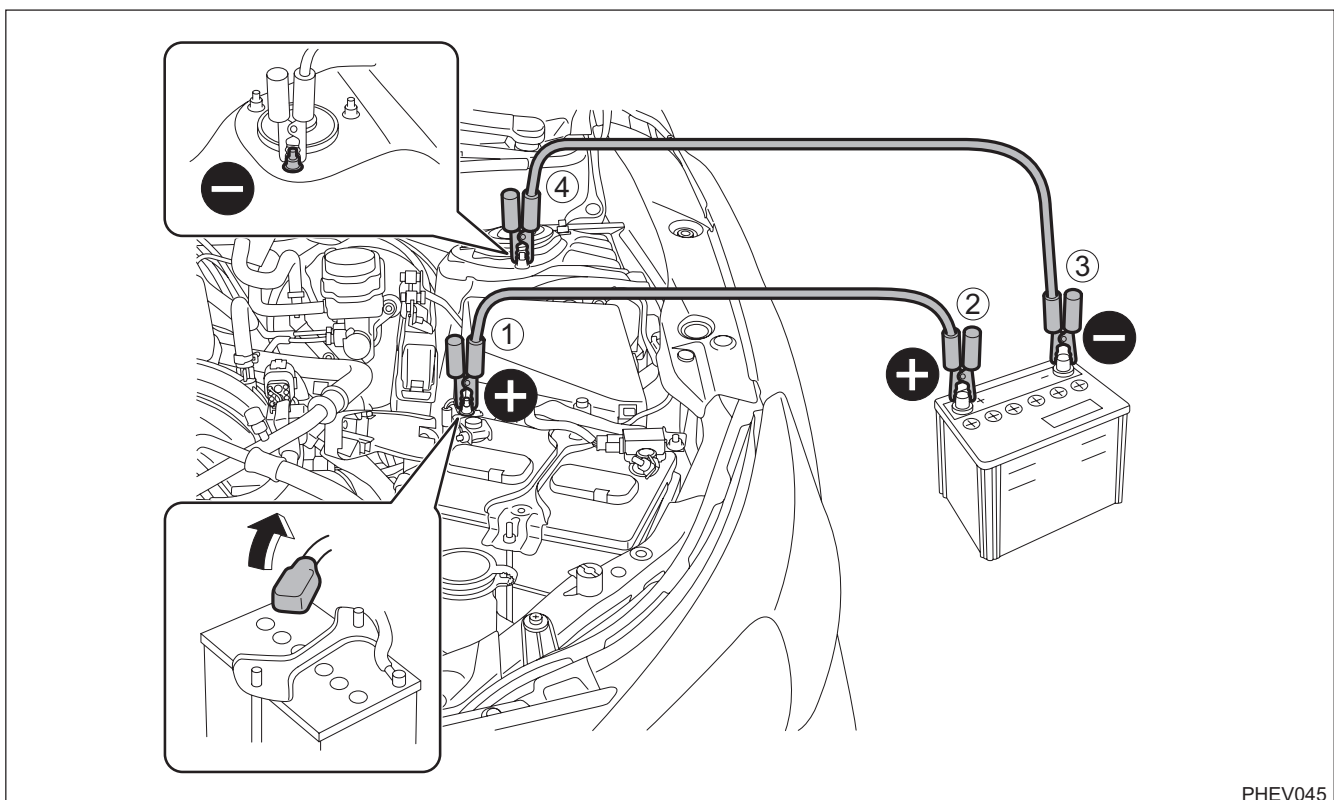
The battery (12 V) may be jump started if the vehicle does not start and the combination meter is dim or off after depressing the brake pedal and pushing the push-button ignition switch.

The battery (12 V) is located in the driver side of the engine compartment.

■ Jump Starting a Dead Battery (12 V)

1. Make sure the booster battery is 12 Volts and the negative terminal is grounded.
2. If the booster battery is in another vehicle, do not let the two vehicles touch.
3. Turn off all unnecessary lights and accessories.
4. Connect the jumper cables exactly in the sequence described:
 - ① Connect one jumper cable to the positive (+) terminal on the battery (12 V).
 - ② Connect the other end of the jumper cable to the positive (+) terminal of the booster battery.
 - ③ Connect one end of the other cable to the negative (-) terminal of the booster battery.
 - ④ Connect the other end of the cable to the strut mounting nut of the vehicle being jumped.Make sure that the cables are not near any moving parts and that the cable clamps are not in contact with any other metal.
5. Start the engine of the vehicle with the booster battery and run it at moderate speed. Then start the hybrid system of the vehicle that has the discharged battery.
6. When finished, carefully disconnect the cables in exactly the reverse order.

▼ Jump Starting a Dead Battery (12 V)



PHEV045

Jump Starting (Continued)



After the battery (12 V) is discharged or replaced, initialization of the steering lock system may be required to start the hybrid system. In this case, perform the following procedure to initialize the steering lock.

- (1) Push the push-button ignition switch to the "OFF" position.
- (2) Open and close the driver's door.
- (3) Wait for approximately 10 seconds.

When the steering is locked, the initialization is completed.

High Voltage Caution Label

HIGH VOLTAGE CAUTION LABEL

Person in charge: _____	
CAUTION: HIGH VOLTAGE. DO NOT TOUCH DURING OPERATION	
 CAUTION: HIGH VOLTAGE. DO NOT TOUCH DURING OPERATION	
Person in charge: _____	
Copy this page and put it after folding on the roof of the vehicle in service.	

PHEV057