 **TOYOTA**  
**PRIUS**



**2004 Model**  
**2<sup>nd</sup> Generation**  
**Emergency Response Guide**



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04PRIUSERG REV – (12/15/06)

## Foreword

In May 2000, Toyota released the 1<sup>st</sup> generation Toyota Prius gasoline-electric hybrid vehicle in North America. Approximately 50,000 1<sup>st</sup> generation Prius were sold in the 2001 - 2003 model years. To educate and assist emergency responders in the safe handling of the 1<sup>st</sup> generation Prius hybrid technology, Toyota published the Prius Emergency Response Guide (M/N 00400-ERG02-0U).

With the release of the 2<sup>nd</sup> generation Prius in October 2003, this new 2004 model year Toyota Prius Emergency Response Guide was published for emergency responders. While many features from the 1<sup>st</sup> generation model are similar, emergency responders should recognize and understand the new, updated features of the 2<sup>nd</sup> generation Prius covered in this guide.

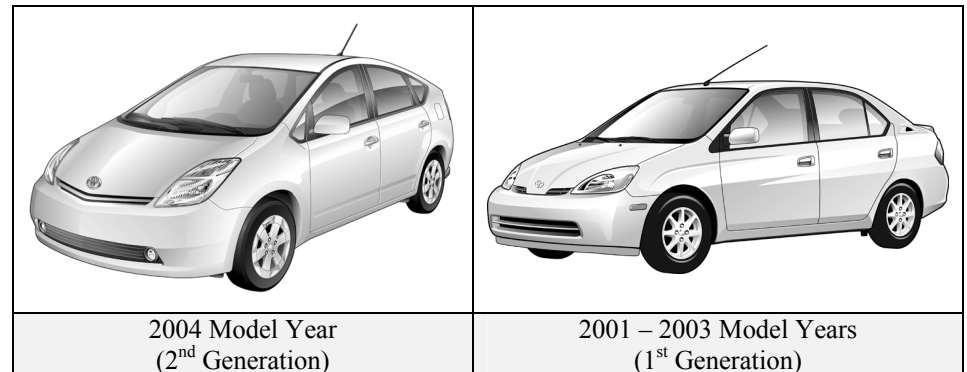
### 2<sup>nd</sup> Generation Prius New Features:

- Complete model change with a new exterior and interior design.
- Adoption of *Hybrid Synergy Drive* as the name for the Toyota Gasoline - Electric Hybrid System.
- *Hybrid Synergy Drive* includes a boost converter in the inverter assembly that boosts to 500-Volts the available voltage to the electric motor.
- The boost converter allows a reduction in the high voltage hybrid vehicle battery pack to 201-Volts.
- Addition of a high voltage 201-Volt motor driven air conditioning compressor.
- New electronic automatic transmission gearshift selector.
- Elimination of the conventional ignition switch with the new standard electronic key system and optional smart entry and start electronic key.
- Frontal airbags, optional side airbags for front occupants, and optional curtain shield airbags for front and rear occupants.

High voltage electrical safety remains an important factor in the emergency handling of the Prius *Hybrid Synergy Drive* system. It is important to recognize and understand the disabling procedures and warnings throughout the guide.

Additional topics contained in the guide include:

- Toyota Prius identification.
- Major *Hybrid Synergy Drive* component locations and descriptions.
- Extrication, fire, recovery, and additional emergency response information.
- Roadside assistance information.



By following the information in this guide, emergency responders should be able to mitigate a rescue involving the 2<sup>nd</sup> generation Prius hybrid vehicle safely.

**Note:**

Emergency Response Guides for select Toyota alternative fuel vehicles may be viewed at <http://techinfo.toyota.com>.

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## About the Prius

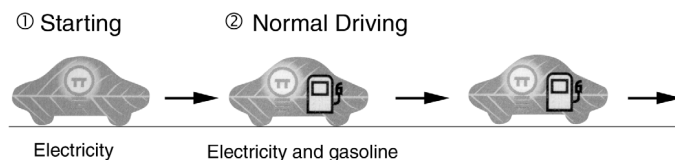
The Toyota Prius continues into its 2<sup>nd</sup> generation as a gasoline-electric hybrid vehicle. The gasoline-electric hybrid system has been renamed *Hybrid Synergy Drive*. *Hybrid Synergy Drive* means the vehicle contains a gasoline engine and an electric motor for power. Two energy sources are stored on board the vehicle:

1. Gasoline stored in the fuel tank for the gasoline engine.
2. Electricity stored in a high voltage Hybrid Vehicle (HV) battery pack for the electric motor.

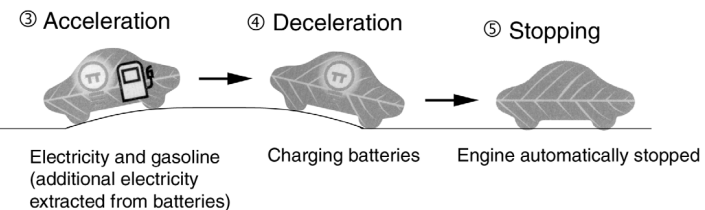
The result of combining these two power sources is increased fuel economy and reduced emissions. The gasoline engine also powers an electric generator to recharge the battery pack; unlike a pure all electric vehicle, the Prius never needs to be recharged from an external electric power source.

Depending on the driving conditions one or both sources are used to power the vehicle. The following illustration demonstrates how the Prius operates in various driving modes.

- ❶ On light acceleration at low speeds, the vehicle is powered by the electric motor. The gasoline engine is shut off.
- ❷ During normal driving the vehicle is powered mainly by the gasoline engine. The gasoline engine is also used to recharge the battery pack.



- ❸ During full acceleration, such as climbing a hill, both the gasoline engine and the electric motor power the vehicle.
- ❹ During deceleration, such as braking, the vehicle regenerates the kinetic energy from the front wheels to produce electricity that recharges the battery pack.
- ❺ While the vehicle is stopped, the gasoline engine and electric motor are off, however the vehicle remains on and operational.



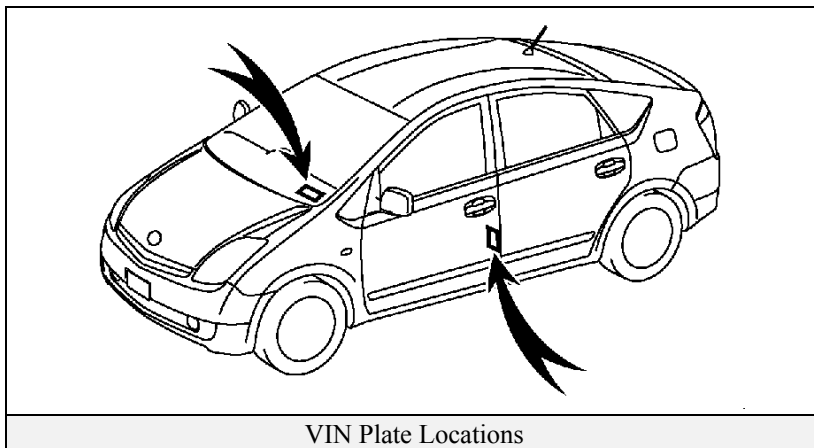
## Prius Identification

In appearance, the 2004 Prius is a 5-door hatchback. 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 cowl and driver door post.

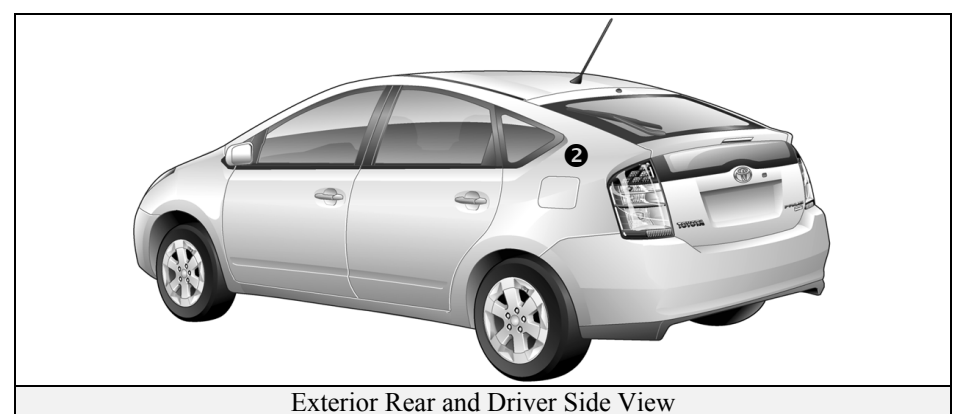
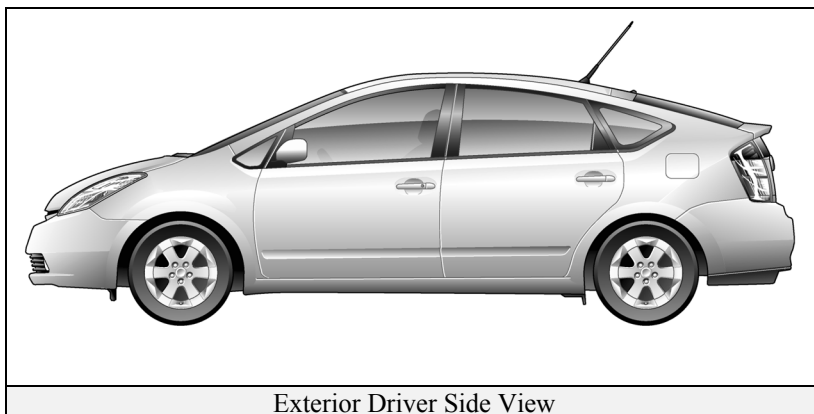
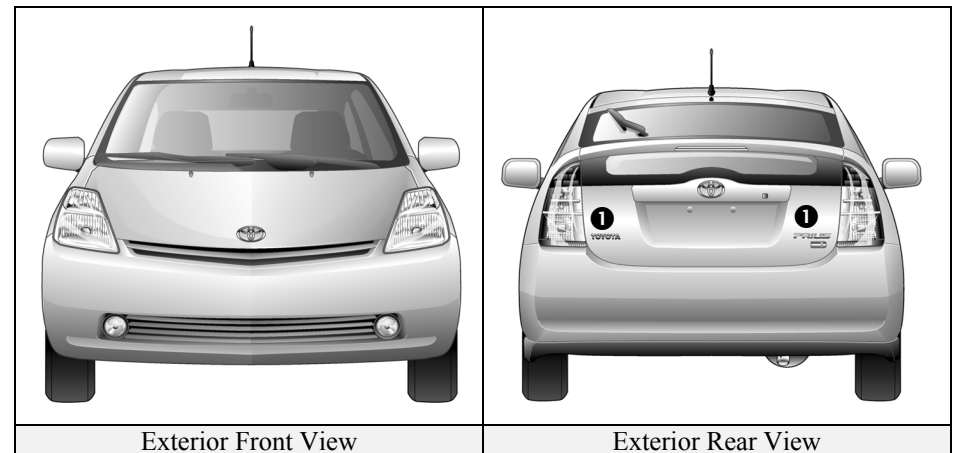
Example VIN: JTDKB20U840020208

(A Prius is identified by the first 6 alphanumeric characters **JTDKB2**)



### Exterior

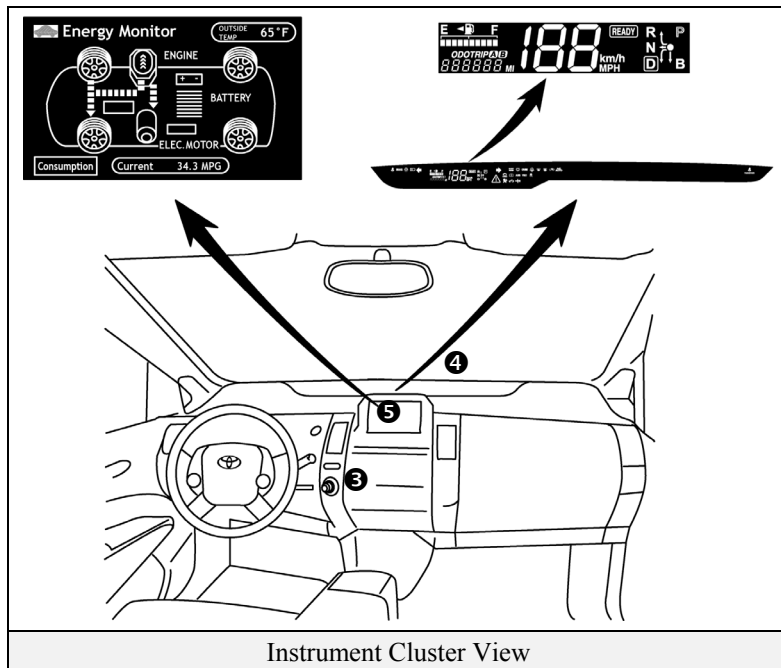
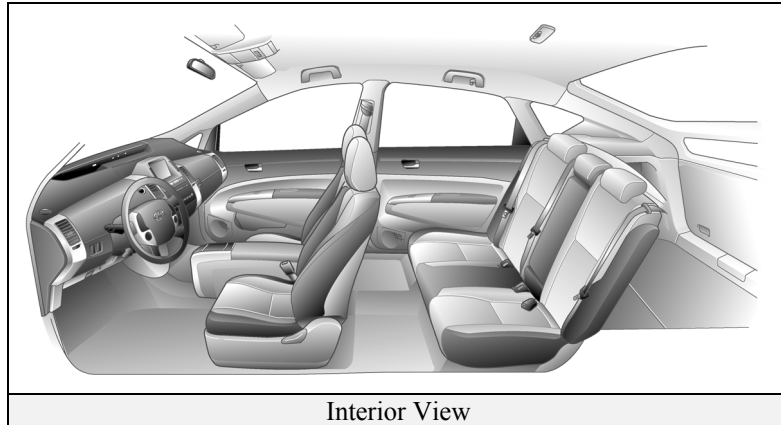
- 1 **TOYOTA PRIUS**  logos on rear hatchback door.
- 2 Gasoline fuel filler door located on driver side rear quarter panel.



## Prius Identification (Continued)

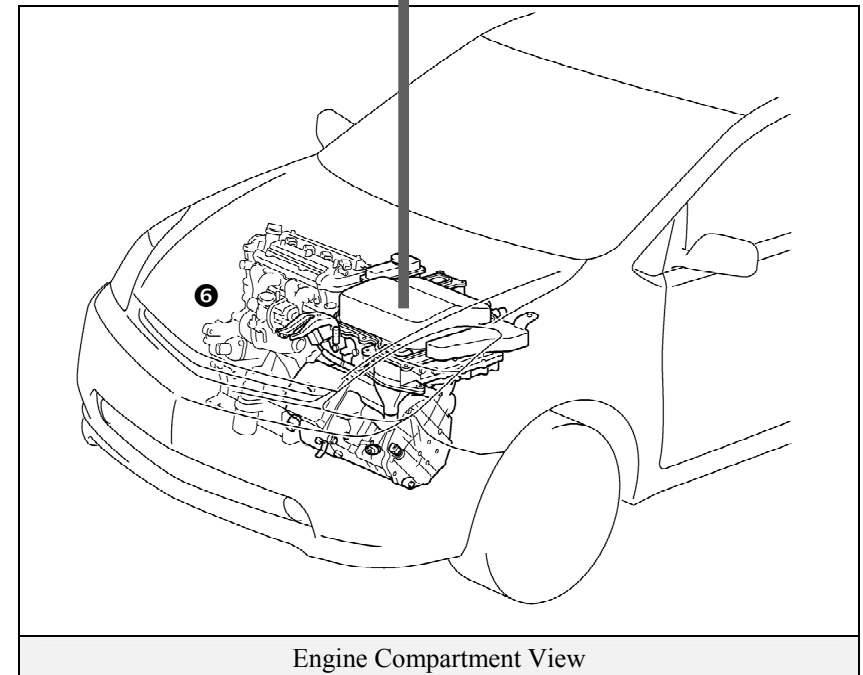
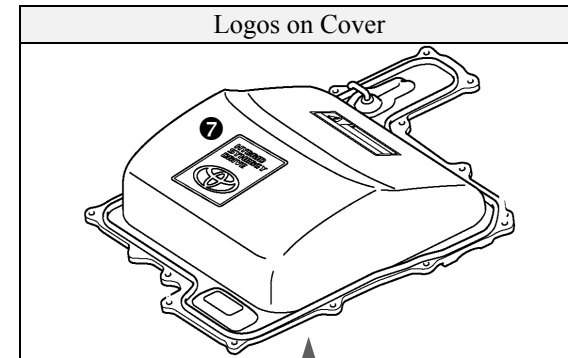
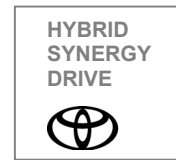
### Interior

- ③ Dashboard mounted automatic transmission gearshift selector.
- ④ Instrument cluster (speedometer, fuel gauge, **READY** light, warning lights) located in center dash and near the base of the windshield.
- ⑤ LCD monitor (fuel consumption, energy monitor, radio controls, A/C controls) located above the center dash.



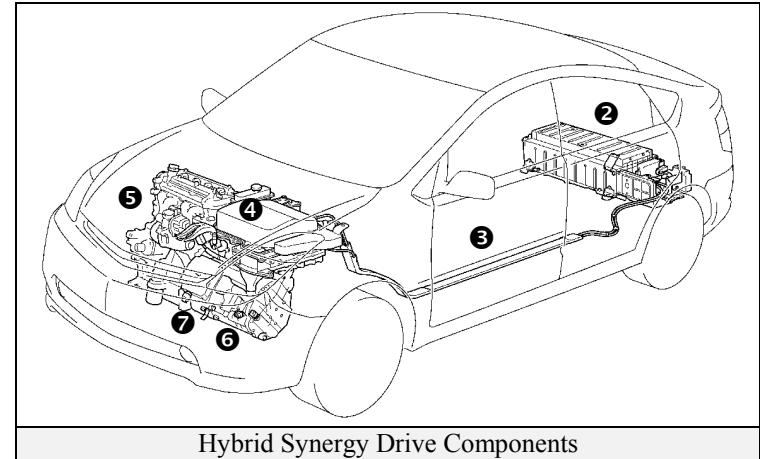
### Engine Compartment

- ⑥ 1.5 liter aluminum alloy gasoline engine.
- ⑦ High voltage inverter/converter assembly with the logos on the cover.

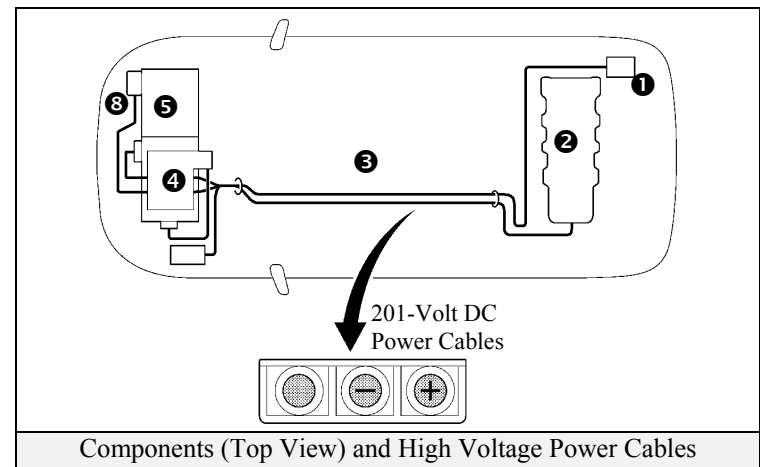


## Hybrid Synergy Drive Component Locations & Descriptions

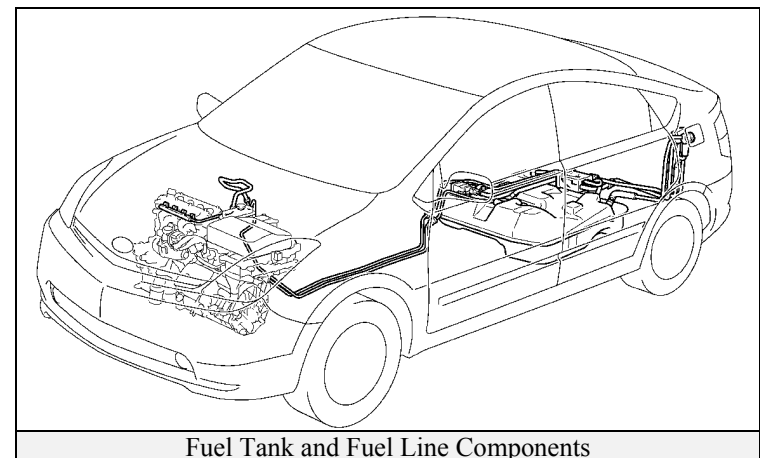
Component	Location	Description
12-Volt ❶ Auxiliary Battery	Cargo Area, Passenger Side	Low voltage lead-acid battery that controls all electrical equipment except electric motor, generator, inverter/converter, and A/C compressor.
Hybrid ❷ Vehicle (HV) Battery Pack	Cargo Area, Mounted to Cross Member and behind Rear Seat	201-Volt Nickel Metal Hydride (NiMH) battery pack consisting of 28 low voltage (7.2-volt) modules connected in series.
Power ❸ Cables	Under Carriage and Engine Compartment	Orange colored power cables carry high voltage Direct Current (DC) between the HV battery pack and inverter/converter. Also carries 3-phase Alternating Current (AC) between inverter/converter, motor, generator, and A/C compressor.
Inverter/ Converter ❹	Engine Compartment	Boosts and inverts the high voltage electricity from the HV battery pack to 3-phase AC electricity that drives the electric motor. The inverter/converter also converts AC electricity from the electric generator and motor (regenerative braking) to DC that recharges the HV battery pack.
Gasoline ❺ Engine	Engine Compartment	Provides two functions: 1) powers vehicle; 2) powers generator to recharge the HV battery pack. The engine is started and stopped under control of the vehicle computer.
Electric ❻ Motor	Engine Compartment	3-phase AC permanent magnetic electric motor contained in the transaxle. Used to power the vehicle.
Electric ❼ Generator	Engine Compartment	3-phase AC generator contained in the transaxle. Used to recharge the HV battery pack.
A/C ❸ Compressor	Engine Compartment	3-phase AC electrically driven motor compressor.
Fuel Tank ❾ and Fuel Lines	Undercarriage, Passenger Side	Fuel tank provides gasoline via a single fuel line to the engine. The fuel line is routed along passenger side under the floor pan.



Hybrid Synergy Drive Components



Components (Top View) and High Voltage Power Cables

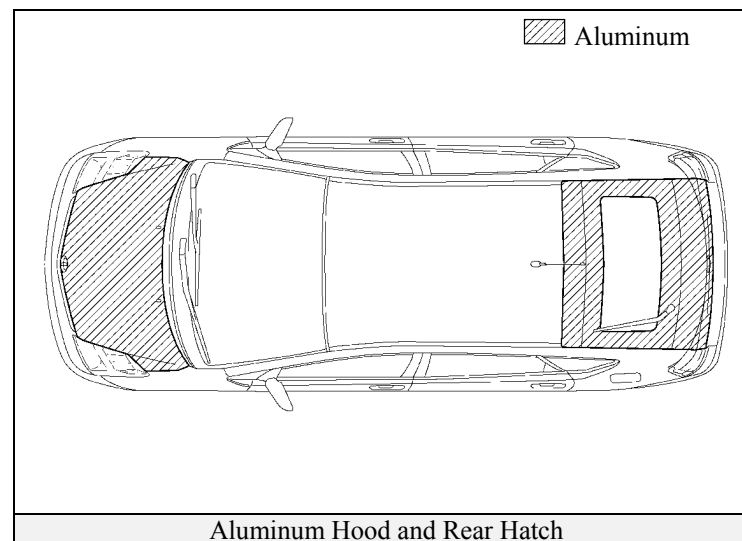
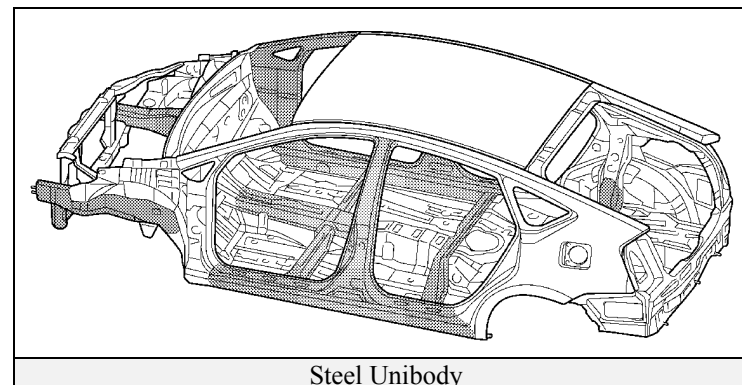


Fuel Tank and Fuel Line Components

## Hybrid Synergy Drive Component Locations & Descriptions (Continued)

### Key Specifications:

Gasoline Engine:	76 hp, 1.5 liter Aluminum Alloy Engine
Electric Motor:	67 hp, Permanent Magnet Motor
Transmission:	Automatic Only
HV Battery:	201-Volt Sealed NiMH
Curb Weight:	2,890 lbs
Fuel Tank:	11.9 gals
Miles Per Gallon:	60/51 mpg (City/Hwy)
Liters/100 km:	4.0/4.2 L/100 km (City/Hwy)
Frame Material:	Steel unibody
Body Material:	Steel panels except aluminum hood and rear hatch.





## Electronic Key

The 2004 Prius introduces a new electronic key as standard equipment.

Electronic key features:

- Wireless transmitter to lock/unlock the doors.
- Electronic key for starting.
- Hidden metal cut key to lock/unlock the doors from the driver exterior door lock.

### Door (Lock/Unlock)

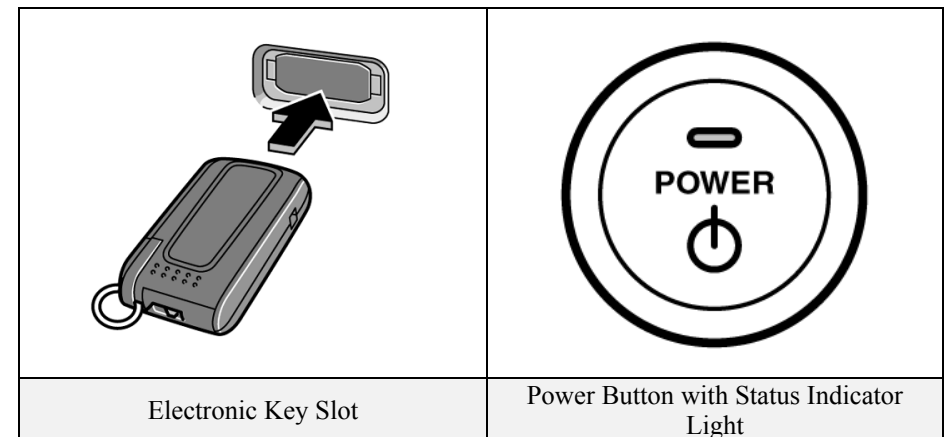
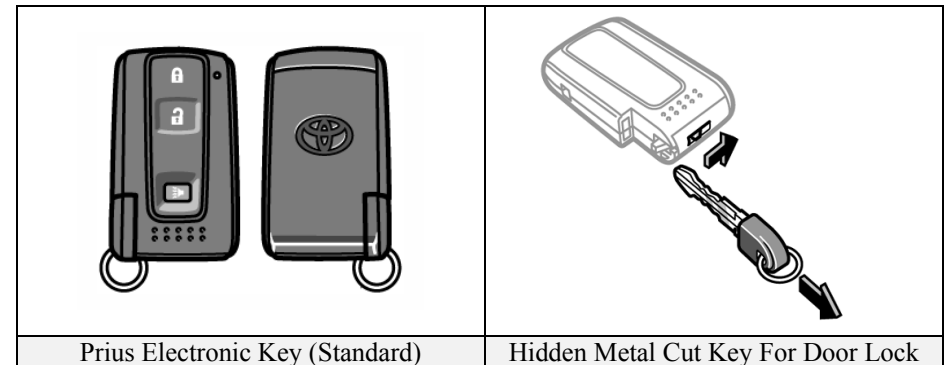
Two methods are available to lock/unlock the doors.

1. Pushing wireless electronic key lock/unlock buttons.
2. Inserting the hidden metal cut key in driver door lock and turning clockwise once unlocks the driver door, twice unlocks all doors. To lock all doors turn the key counter-clockwise once. Only the driver door contains an exterior door lock.

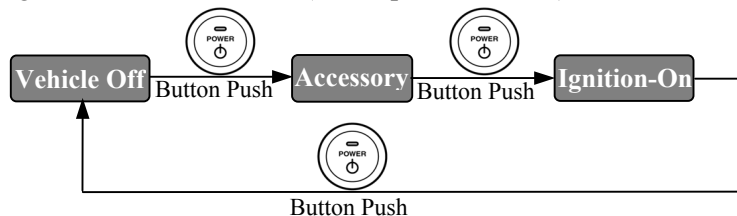
### Vehicle Starting/Stopping

The electronic key has replaced the conventional metal cut key, and an electronic key slot and power button have replaced the ignition switch.

- A standard electronic key as shown in the illustration is inserted into the electronic key slot.
- The electronic key slot does not rotate like a conventional ignition switch. Instead, a power button with an integral status indicator light is provided above the electronic key slot to cycle through the various ignition modes. With the brake pedal released, the first push of the power button operates the accessory mode, the second push operates the ignition-on mode, and the third push turns the ignition off again.



Ignition Mode Sequence (Brake pedal released):

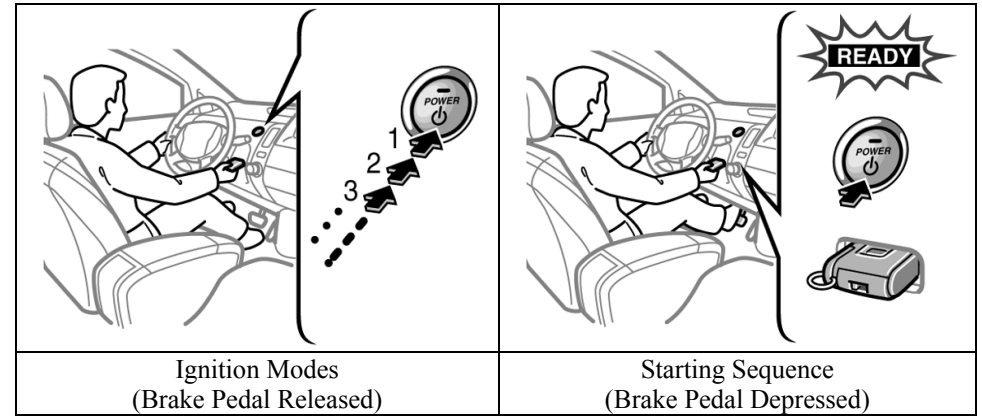


Ignition Mode	Power Button Indicator Light
Off	Off
Accessory	Green
Ignition-On	Amber
Vehicle Started (READY-On)	Off
Malfunction	Blinking Amber

## Electronic Key (Continued)

### Vehicle Starting/Stopping (Continued)

- Starting the vehicle takes priority over all other ignition modes and is accomplished by depressing the brake pedal and pushing the power button once. To verify the vehicle has started, the power button status indicator light is off and the **READY** light is illuminated in the instrument cluster.
- Once the vehicle has started and is on and operational (READY-on), the vehicle is shut off by bringing the vehicle to a complete stop and then depressing the power button once.
- The key slot prevents the electronic key from being removed while the vehicle is on and operational (READY-on) or in the ignition-on mode.



## Smart Entry & Start Electronic Key (Optional Equipment)

The Prius may be equipped with an optional *smart entry and start electronic key* that appears similar in function and design to the standard electronic key. However, the smart key contains a transceiver that communicates bi-directionally enabling the vehicle to recognize the smart key in close proximity to the vehicle. The system can lock or unlock doors without pushing smart key buttons and start the hybrid system without inserting the smart key into the electronic key slot.

### Smart key features:

- Passive (remote) function to lock/unlock the doors and start the vehicle.
- Wireless transmitter to lock/unlock the doors.
- Electronic key for starting.
- Hidden metal cut key to lock/unlock the doors from the driver door lock.

### Door (Lock/Unlock)

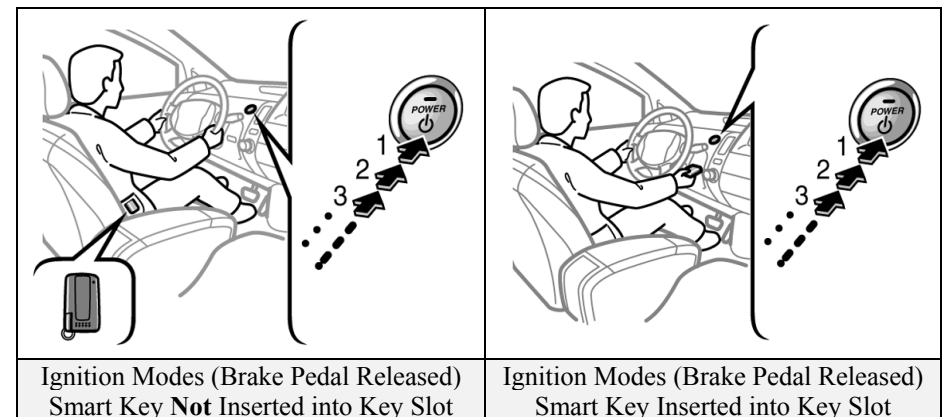
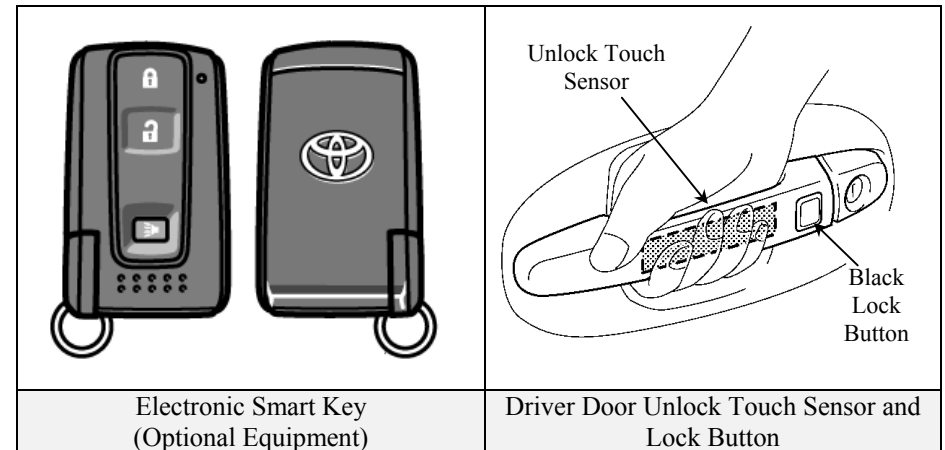
Three methods are available to lock/unlock the doors.

1. Pushing wireless smart key lock/unlock buttons.
2. Touching the sensor on the backside of either exterior front door handle, with the smart key in close proximity to the vehicle, unlocks the doors. Pushing the black button on the front door handle locks the doors.
3. Inserting the metal cut key in driver door lock and turning clockwise once unlocks the driver door, twice unlocks all doors. To lock all doors turn the key counter-clockwise once. Only the driver door contains an exterior door lock.

### Vehicle Starting/Stopping

The ignition modes and starting sequence are the same as the standard electronic key except the smart key does not have to be inserted into the electronic key slot.

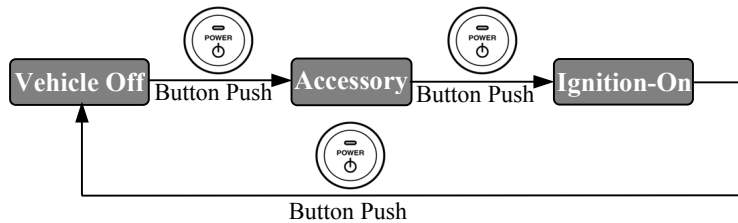
- The optional smart key as shown in the illustrations may be inserted into the electronic key slot or kept in close proximity to the vehicle.
- With brake pedal released, the first push of the power button operates the accessory mode, the second push operates the ignition-on mode, and the third push turns the ignition off again.



## Smart Entry & Start Electronic Key (Optional Equipment) (Continued)

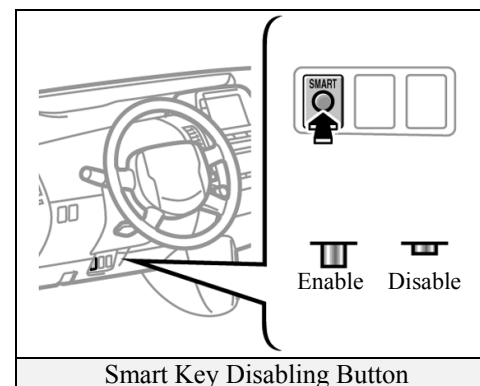
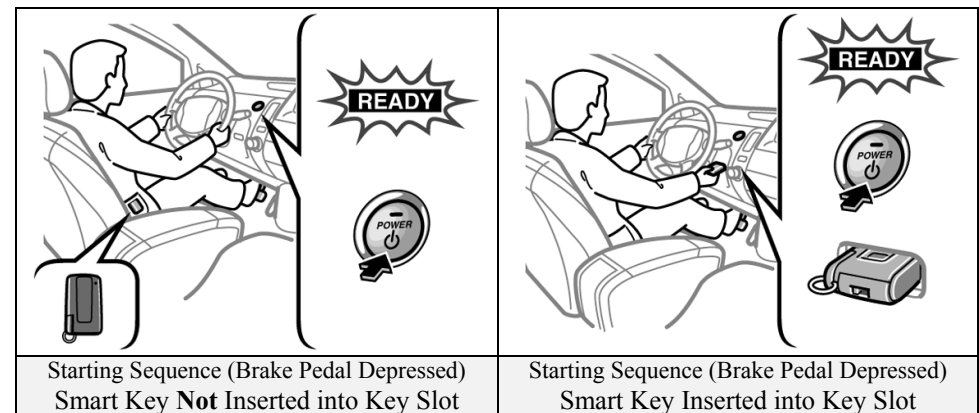
### Vehicle Starting/Stopping (Continued)

Ignition Mode Sequence (Brake pedal released):



Ignition Mode	Power Button Indicator Light
Off	Off
Accessory	Green
Ignition-On	Amber
Vehicle Started (READY-On)	Off
Malfunction	Blinking Amber

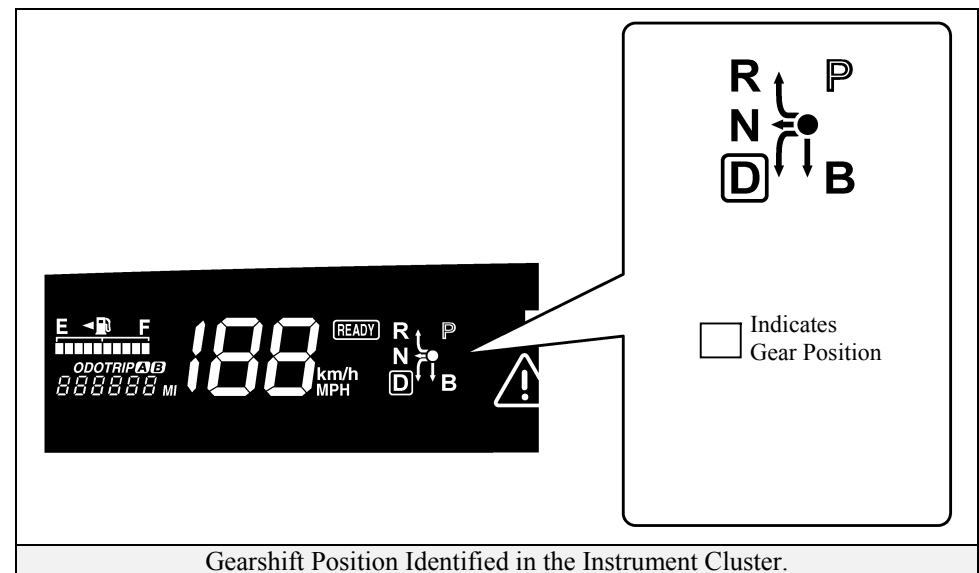
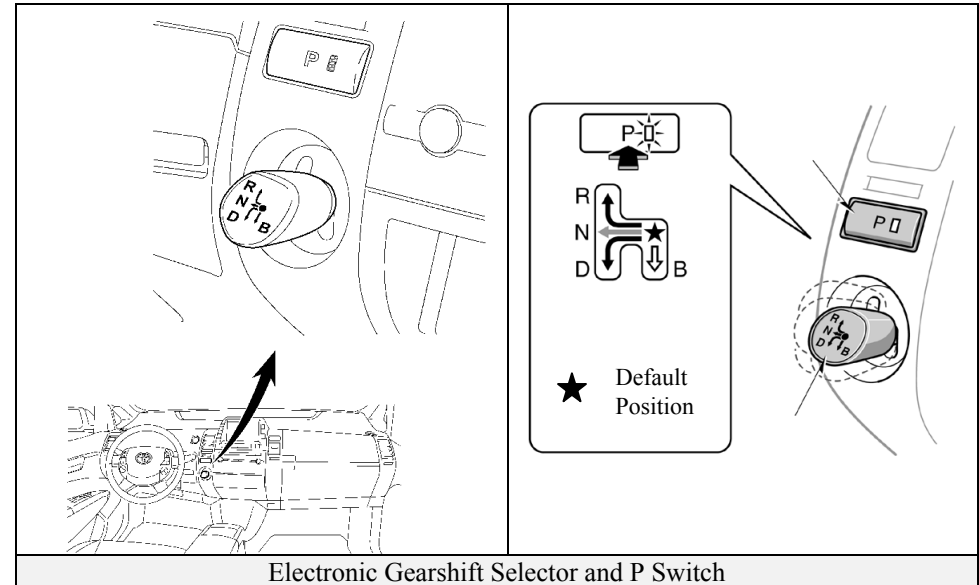
- Starting the vehicle takes priority over all other ignition modes and is accomplished by depressing the brake pedal and pushing the power button once. To verify the vehicle has started, the power button status indicator light is off and the **READY** light is illuminated in the instrument cluster.
- Once the vehicle has started and is on and operational (READY-on), the vehicle is shut off by bringing the vehicle to a complete stop and then depressing the power button once.
- Vehicles equipped with the optional smart key have a disabling button located beneath the steering column as shown in the illustration. When disabled, the smart key must be inserted into the key slot to enable the ignition modes or start the vehicle.
- The key slot prevents the electronic key from being removed while the vehicle is on and operational (READY-on) or in the ignition-on mode.



## Electronic Gearshift Selector

The Prius electronic gearshift selector is a newly developed momentary select shift-by-wire system that engages the transaxle in **R**everse, **N**eutral, **D**rive, or engine **B**rake modes.

- These modes may only be engaged while the vehicle is on and operational (READY-on), except for Neutral which may also be engaged while in the ignition-on mode. After selecting the gear position R, N, D, or B the transaxle remains in that position, identified on the instrument cluster, but the shift selector returns to a default position.
- Unlike a conventional vehicle, the electronic shift selector does not contain a park position. Instead, a separate **P** switch located above the shift selector engages the park position.
- When the vehicle is stopped, regardless of shift selector position, the electro-mechanical parking pawl is engaged to lock the transaxle into park by either depressing the **P** switch or pushing the power button to shut off the vehicle.
- Being electronic, the gearshift selector and the park systems depend on the low voltage 12-Volt auxiliary battery for power. If the 12-Volt auxiliary battery is discharged or disconnected, the vehicle cannot be started and cannot be shifted out of park.

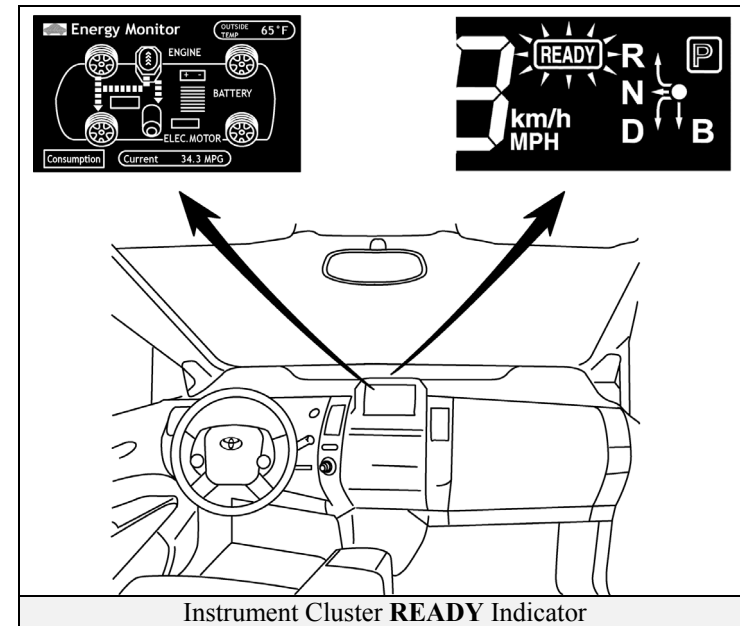


## Hybrid Synergy Drive Operation

Once the **READY** indicator is illuminated in the instrument cluster, 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 **READY** indicator provided in the instrument cluster. When lit, it informs the driver the vehicle is on and operational even though the gasoline engine may be off and the engine compartment is silent.

### Vehicle Operation

- With the Prius, the gasoline engine may stop and start at any time while the **READY** indicator is on.
- Never assume the vehicle is shut off just because the engine is off. Always look for the **READY** indicator status. The vehicle is shut off when the **READY** indicator is off.
- The vehicle may be powered by:
  1. The electric motor only.
  2. The gasoline engine only.
  3. A combination of both the electric motor and the gasoline engine.
- The vehicle computer determines the mode in which the vehicle operates to improve fuel economy and reduce emissions. The driver cannot manually select the mode.



## Hybrid Vehicle (HV) Battery Pack and Auxiliary Battery

The Prius contains a high voltage, Hybrid Vehicle (HV) battery pack and a low voltage auxiliary battery. The HV battery pack contains non-spillable, sealed Nickel Metal Hydride (NiMH) battery modules and the auxiliary battery is a typical automotive lead-acid type.

### HV Battery Pack

- The HV battery pack is enclosed in a metal case and is rigidly mounted to the cargo area floor pan cross member behind the rear seat. The metal case is isolated from high voltage and concealed by a cover in the cargo area.
- The HV battery pack consists of 28 low voltage (7.2-Volt) NiMH battery modules connected in series to produce approximately 201-Volts. Each NiMH battery module is non-spillable and sealed in a plastic case.
- The electrolyte used in the NiMH battery module is an alkaline of potassium and sodium hydroxide. The electrolyte is absorbed into the battery cell plates and will form a gel that will not normally leak, even in a collision.
- In the unlikely event the battery pack is overcharged, the modules vent gases directly outside the vehicle through a vent hose connected to each NiMH battery module.

HV Battery Pack	
Battery pack voltage	201-Volts
Number of NiMH battery modules in the pack	28
Battery pack weight	86 lbs/39 kg
NiMH battery module voltage	7.2-Volts
NiMH battery module dimensions	11 x 3/4 x 4 inches 27.9 x 1.9 x 10.1 cm
NiMH battery module weight	2.2 lbs/1 kg

### Components Powered by the HV Battery Pack

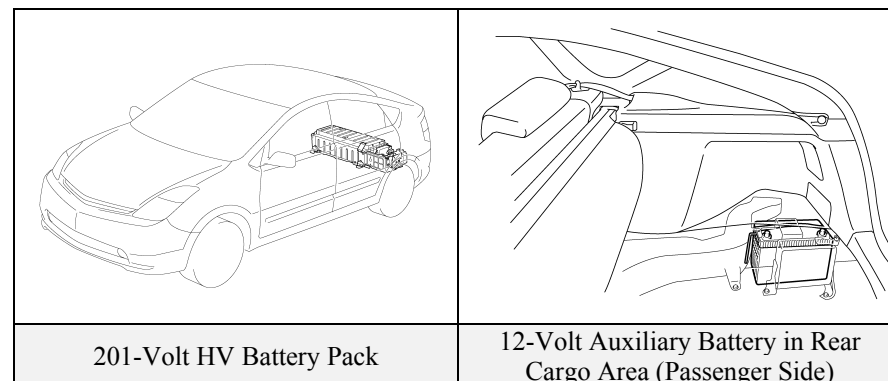
- Electric Motor
- Inverter/Converter
- A/C Compressor
- Electric Generator
- Power Cables

### HV Battery Pack Recycling

- The HV battery pack is recyclable. Contact the nearest Toyota dealer, or:  
United States: (800) 331-4331  
Canada: (888) Toyota 8 [(888)-869-6828]

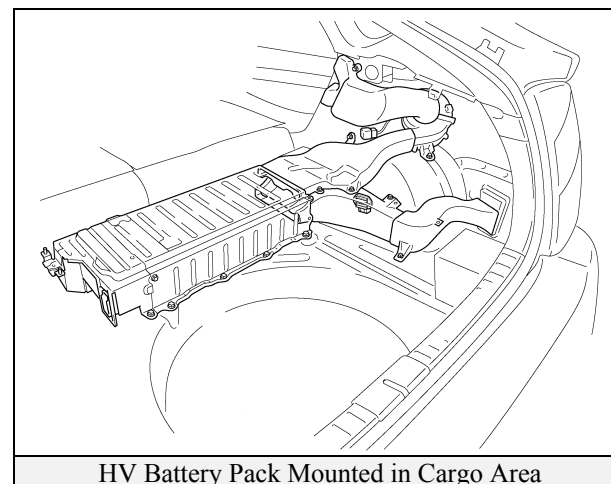
### Auxiliary Battery

- The Prius also contains a lead-acid 12-Volt battery. This 12-Volt auxiliary battery powers the vehicle electrical system similar to a conventional vehicle. As with other conventional vehicles, the auxiliary battery is grounded to the metal chassis of the vehicle.
- The auxiliary battery is located in the passenger side rear cargo area. It also contains a hose to vent gases outside the vehicle if overcharged.



201-Volt HV Battery Pack

12-Volt Auxiliary Battery in Rear Cargo Area (Passenger Side)



HV Battery Pack Mounted in Cargo Area

## High Voltage Safety



The HV battery pack powers the high voltage electrical system with DC electricity. Positive and negative high voltage power cables are routed from the battery pack, under the vehicle floor pan, to the inverter/converter. The inverter/converter contains a circuit that boosts the HV battery voltage from 201 to 500-Volts DC. The inverter creates 3-phase AC to power the motors in the engine compartment. Sets of 3 power cables are routed from the inverter to each high voltage motor (electric motor, electric generator, and A/C compressor). Occupants in the vehicle and emergency responders are separated from high voltage electricity by the following systems:

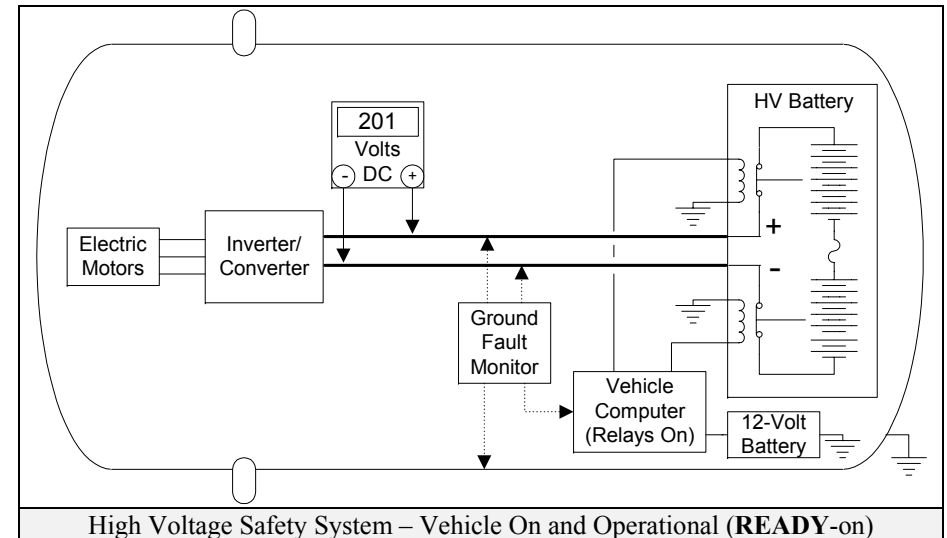
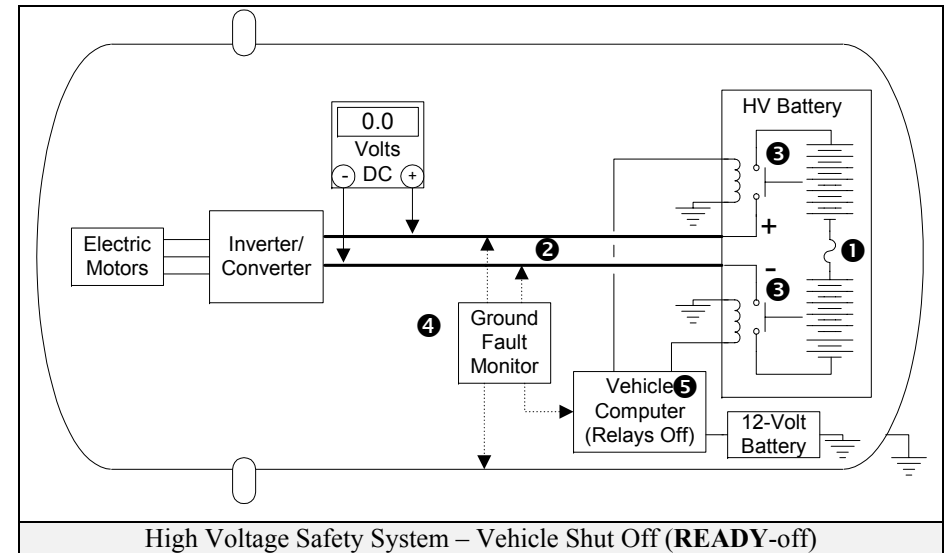
### High Voltage Safety System

- A high voltage fuse ❶ provides short circuit protection in the HV battery pack.
- Positive and negative high voltage power cables ❷ connected to the HV battery pack are controlled by 12-Volt normally open relays ❸. When the vehicle is shut off, the relays stop electricity flow from the HV battery pack.

#### WARNING:

- *Power remains in the high voltage electrical system for 5 minutes after the HV battery pack is shut off.*
- *Never touch, cut, or open any orange high voltage power cable or high voltage component.*

- Both positive and negative power cables ❷ are isolated from the metal chassis, so there is no possibility of shock by touching the metal chassis.
- A ground fault monitor ❹ continuously monitors for high voltage leakage to the metal chassis while the vehicle is running. If a malfunction is detected, the vehicle computer ❺ will illuminate the master warning light  in the instrument cluster and the hybrid warning light  in the LCD display.
- The HV battery pack relays will automatically open to stop electricity flow in a collision sufficient to activate the SRS airbags.





## SRS Airbags and Seat Belt Pretensioners

### Standard Equipment

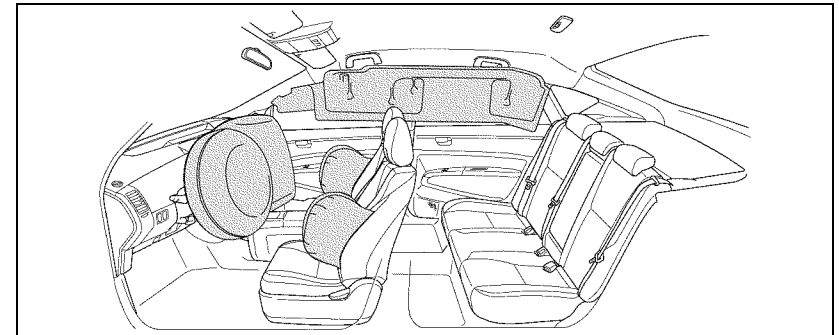
- Electronic frontal impact sensors (2) are mounted in the engine compartment ❶.
- Front seat belt pretensioners are mounted near the base of the B-pillar ❷.
- Frontal dual stage airbag for the driver ❸ is mounted in the steering wheel hub.
- Frontal dual stage airbag for the front passenger ❹ is integrated into the dashboard and deploys through the top of the dashboard.
- SRS computer ❺ is mounted on the floor pan underneath the center console. It also contains an impact sensor.

### Optional Side Impact Airbag Package

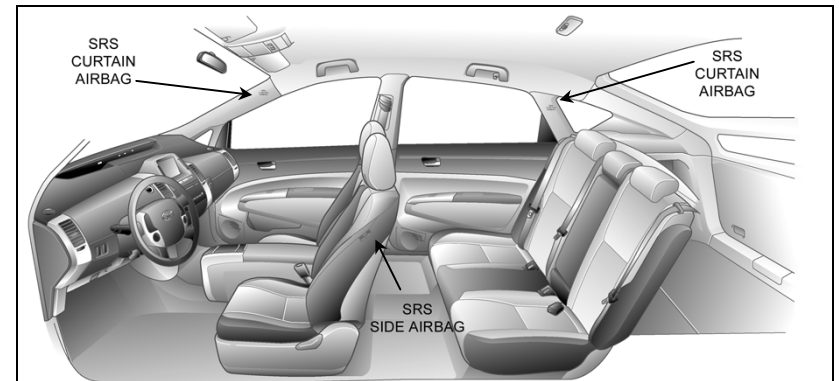
- Front electronic side impact sensors (2) are mounted near the base of the B-pillars ❻.
- Rear electronic side impact sensors (2) are mounted near the base of the C-pillars ❼.
- Front seat side impact airbags ❸ are mounted in the front seats.
- Curtain shield impact airbags ❾ are mounted along the outer edge inside the roof rails.

### WARNING:

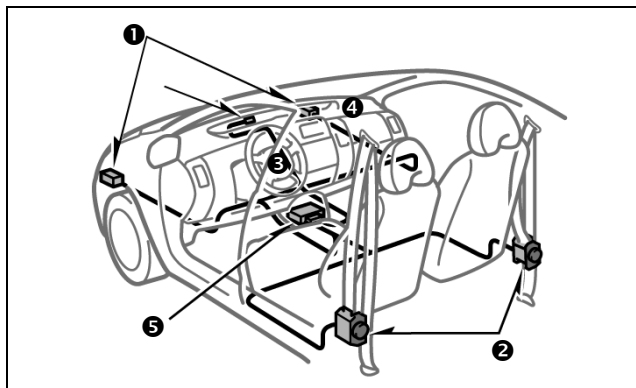
- *The SRS computer is equipped with a back up source that powers the SRS airbags up to 90 seconds after disabling the vehicle.*
- *The front seat side airbags and the curtain shield airbags may deploy independent of each other.*



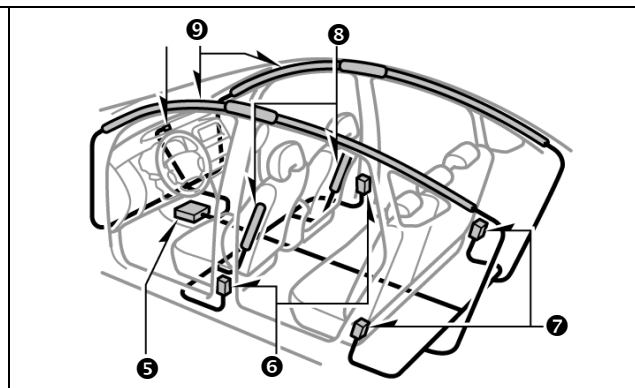
Frontal, Optional Front Seat Side, and Optional Curtain shield Airbags.



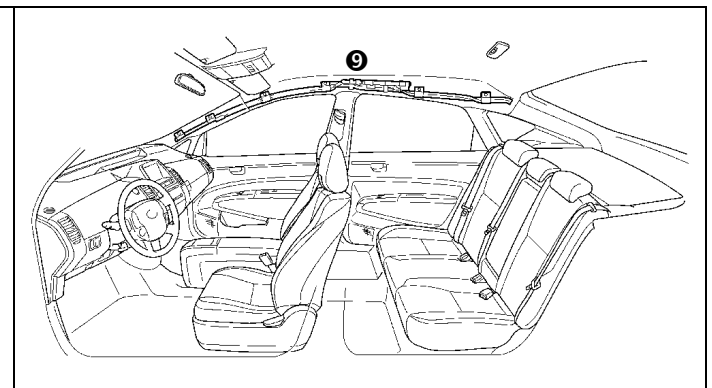
Front Seat and Curtain shield Airbag Identifiers



Standard Frontal Airbags and Seat Belt Pretensioners



Optional Front Seat and Curtain shield Airbags



Curtain shield Airbag Inflator in Roof Rail

## Emergency Response

On arrival, emergency responders should follow their standard operating procedures for vehicle incidents. Emergencies involving the Prius 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 Prius is shut off simply because it is silent.*
- *Always observe the instrument cluster for the **READY** indicator status to verify whether the vehicle is on or shut off.*

### Extrication

#### • Immobilize Vehicle

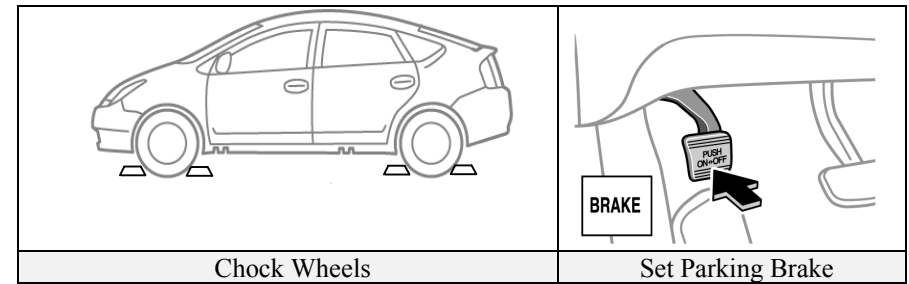
Chock wheels and set the parking brake.  
Push the **P** switch to engage park.

#### • Disable Vehicle

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

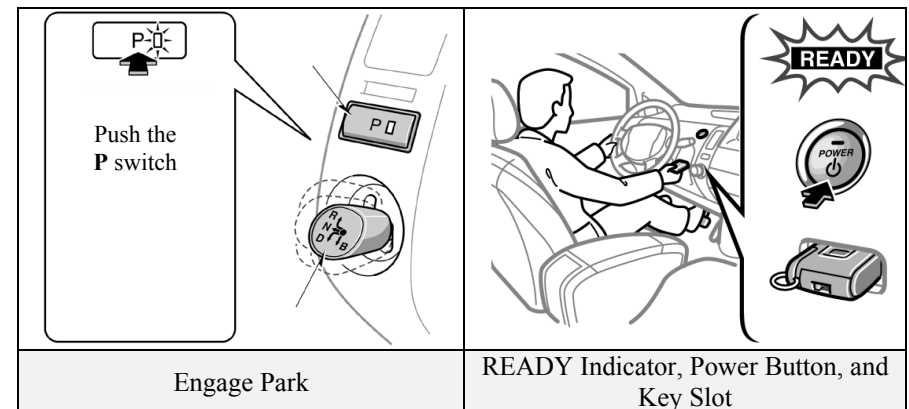
#### Procedure #1

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



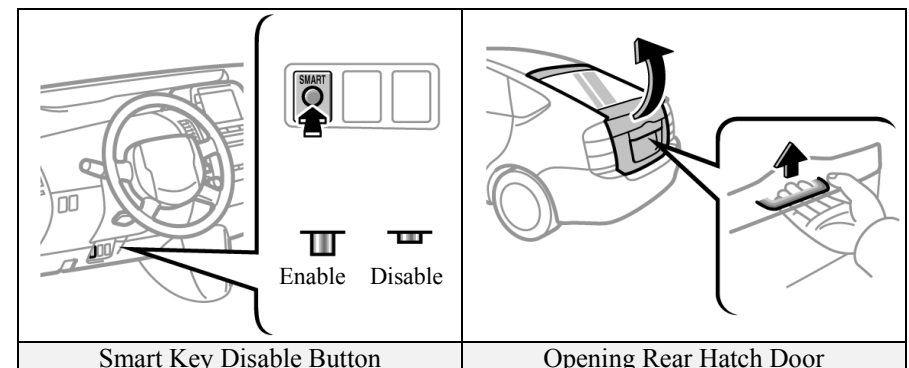
Chock Wheels

Set Parking Brake



Engage Park

READY Indicator, Power Button, and Key Slot



Smart Key Disable Button

Opening Rear Hatch Door

## Emergency Response (Continued)

### Extrication (Continued)

If the vehicle cannot be shut off by performing Procedure #1 on the previous page, perform extrication according to the following procedure.

- Accident Site Assessment

When rescue work can be attempted without cutting the vehicle body (by breaking the glass etc.) >>> Proceed to Case 1

When it is necessary to cut the vehicle body and there is time to shut off high-voltage circuits >>> Proceed to Case 2

When it is necessary to cut the vehicle body but there is no time to shut off high-voltage circuits >>> Proceed to Case 3

Case 1: When it is not necessary to cut orange-colored cables or the vehicle body

Orange-colored cables are high-voltage cables. Confirm that no orange-colored cables are exposed in the cabin before starting rescue work.

 **WARNING:**

- *If any orange-colored cables are exposed, refer to Case 2 and perform necessary procedures. If it is necessary to cut the vehicle body, refer to Case 2 and Case 3, and perform necessary procedures.*

## Emergency Response (Continued)

### Extrication (Continued)

**Case 2:** When it is necessary to cut the vehicle body and there is time to shut off high-voltage circuits

#### Procedure #1

1. Shut off high-voltage circuits:
  - a) Remove the 20A HEV fuse. (Yellow)
 If the HEV fuse cannot be removed, remove the rear No. 2 floor board and rear deck floor box. Then wear insulated gloves and slide the service plug lever up. (Sliding the service plug lever will trigger an interlock and shut off high-voltage circuits.)

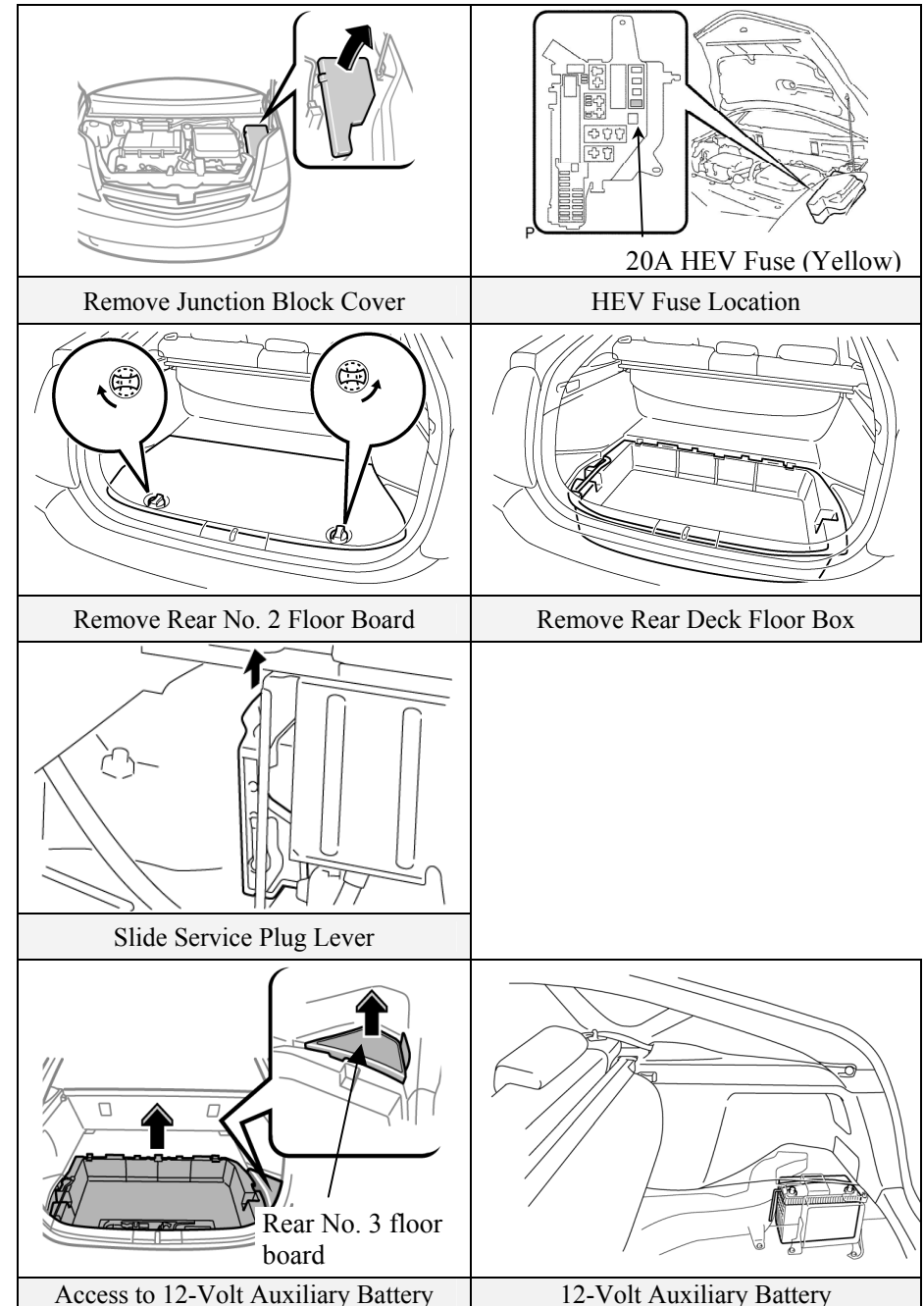
#### **⚠ WARNING:**

- *If the service plug is removed at this point, electrical arcing may occur, causing melted metal to splatter. To prevent burn injuries to rescue workers, do not remove the service plug immediately after sliding the lever up in the above operation.*

2. Shut off the airbag system.
  - a) Remove the rear No. 3 floor board.
  - b) Disconnect the 12-Volt auxiliary battery.

#### **⚠ WARNING:**

- *The SRS may remain powered for up to 90 seconds after the vehicle is shut off or after the 12-Volt auxiliary battery is disconnected.*



## Emergency Response (Continued)

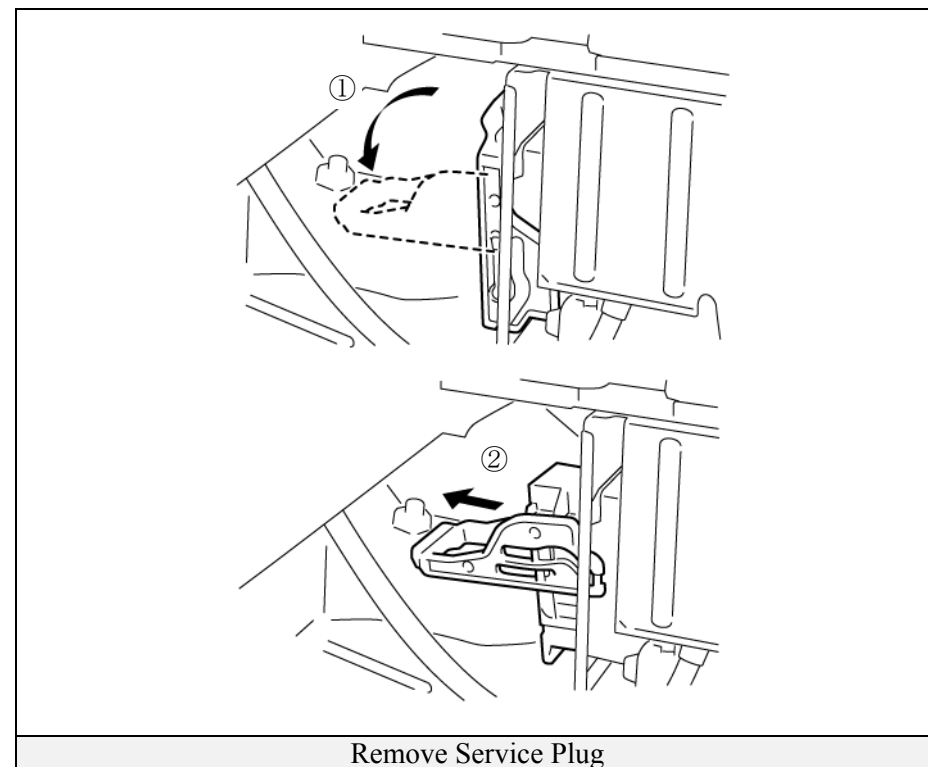
### Extrication (Continued)

3. Remove the service plug to disable the HV battery internal circuit.

**⚠ WARNING:**

- *High-voltage may still be present in some components or wiring for up to 5 minutes after the service plug is removed. (See page 20 for Location of High-voltage Components and Wiring.) When cutting high-voltage components or wiring, refer to Precautions when Cutting the Vehicle Body and start the cutting operation after high-voltage is completely discharged.*

If none of the above operations can be performed and it is necessary to cut the vehicle body but there is no time to shut off high-voltage circuits, proceed to Case 3.



## Emergency Response (Continued)

### Extrication (Continued)

Case 3: When it is necessary to cut the vehicle body but there is no time to shut off high-voltage circuits, or when any orange-colored cables are exposed

Confirm the following before cutting the vehicle body:

- I Precautions when Cutting the Vehicle Body
- II Location of High-voltage Components and Wiring
- III SRS Airbag System (Location of Airbags and Wiring)

#### I Precautions when Cutting the Vehicle Body

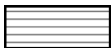
##### **WARNING:**

- *Use a hydraulic cutter to cut the vehicle body in order to prevent severe injury to rescue workers or passengers. When removing components, be careful not to touch any of the following areas or exposed orange-colored cables.*



Areas that may cause electrocution due to high-voltage:  
Do not cut these areas as this may cause electrocution due to high-voltage.

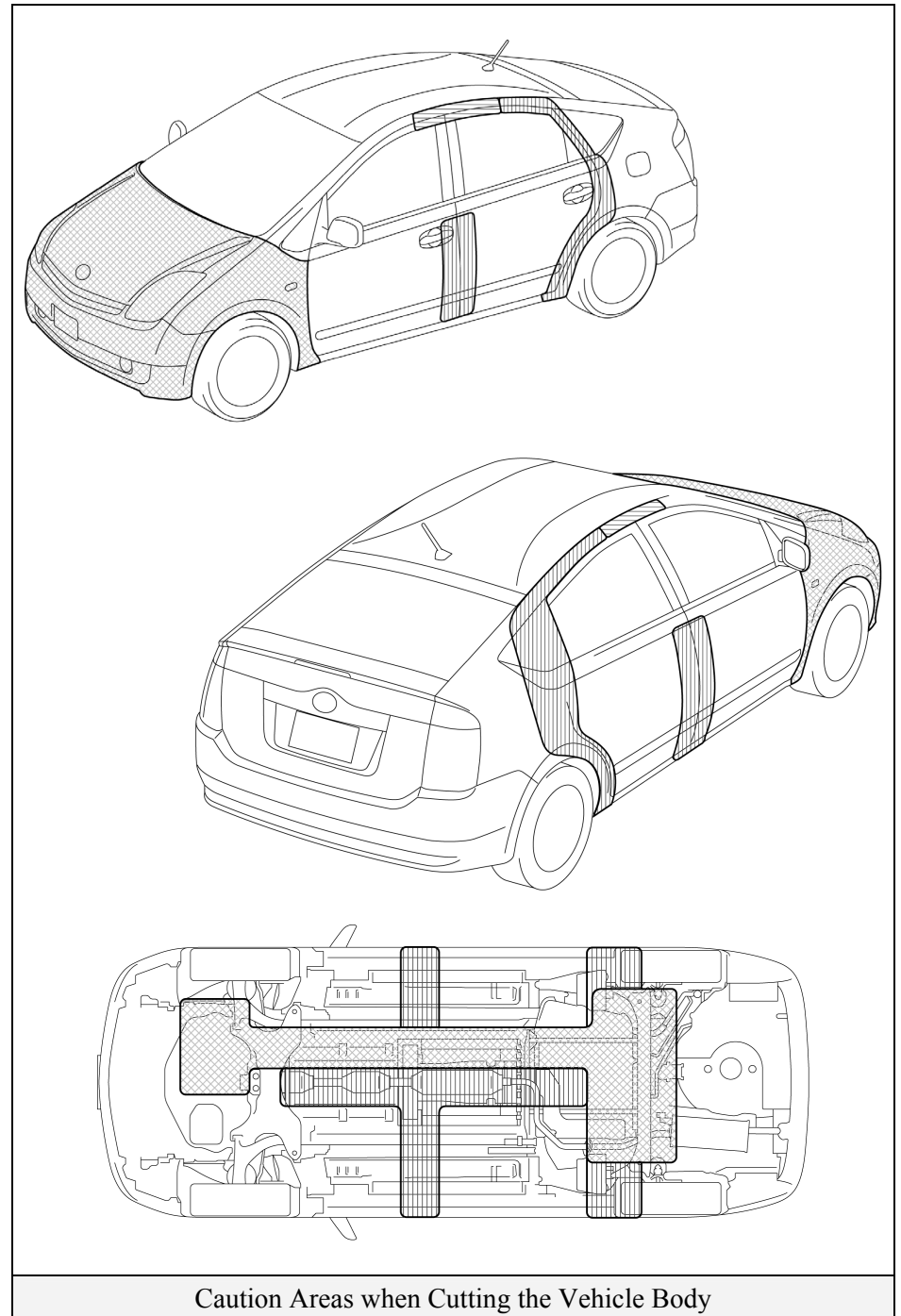
\* **Never** cut the HV battery.



Areas that may cause the curtain shield airbags to deploy:  
Do not cut these areas because it is the location of equipment that generates high-pressure gas to deploy the curtain shield airbags.



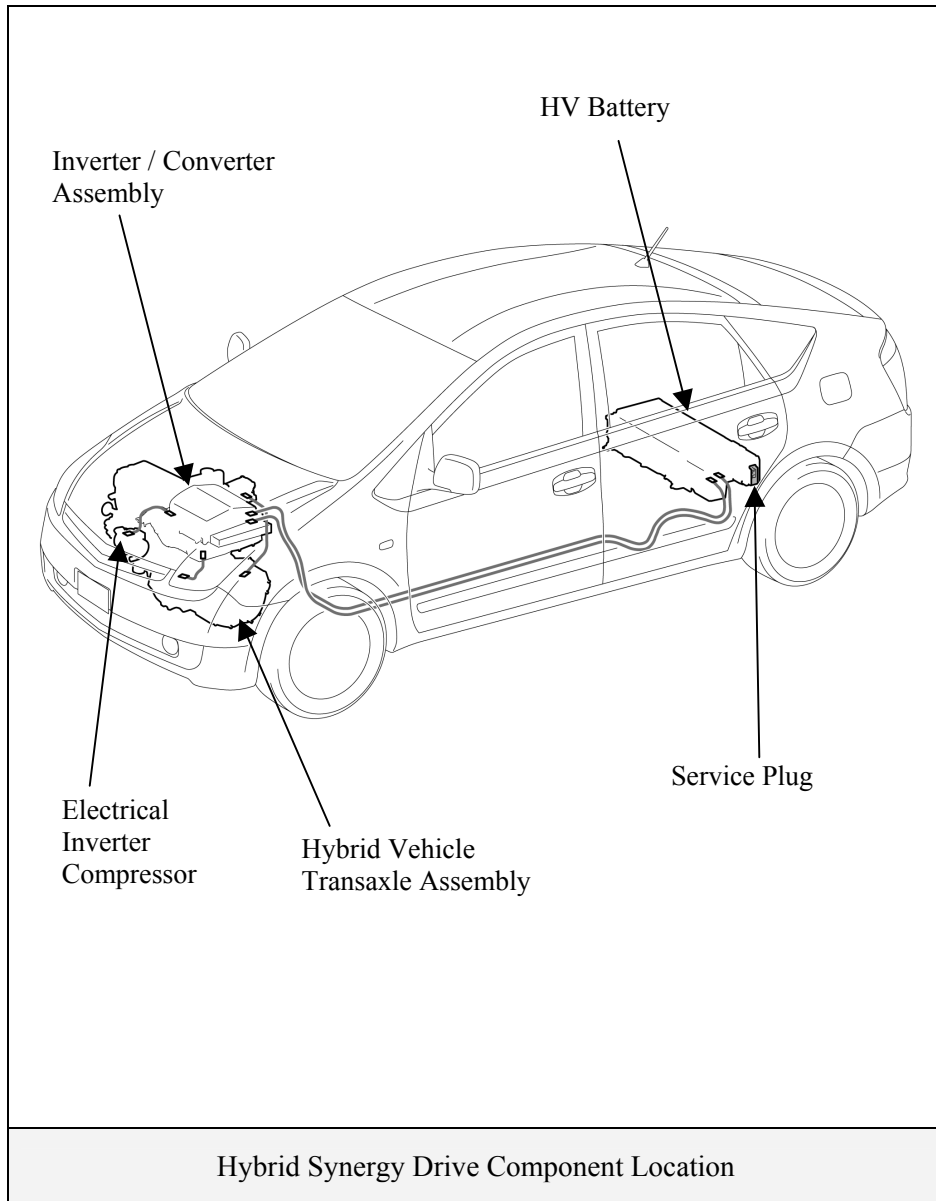
Areas that may cause the side airbags and curtain shield airbags to deploy:  
Do not cut these areas as this may cause the side airbags and curtain shield airbags to deploy due to a wiring short circuit or impact when cutting the vehicle.



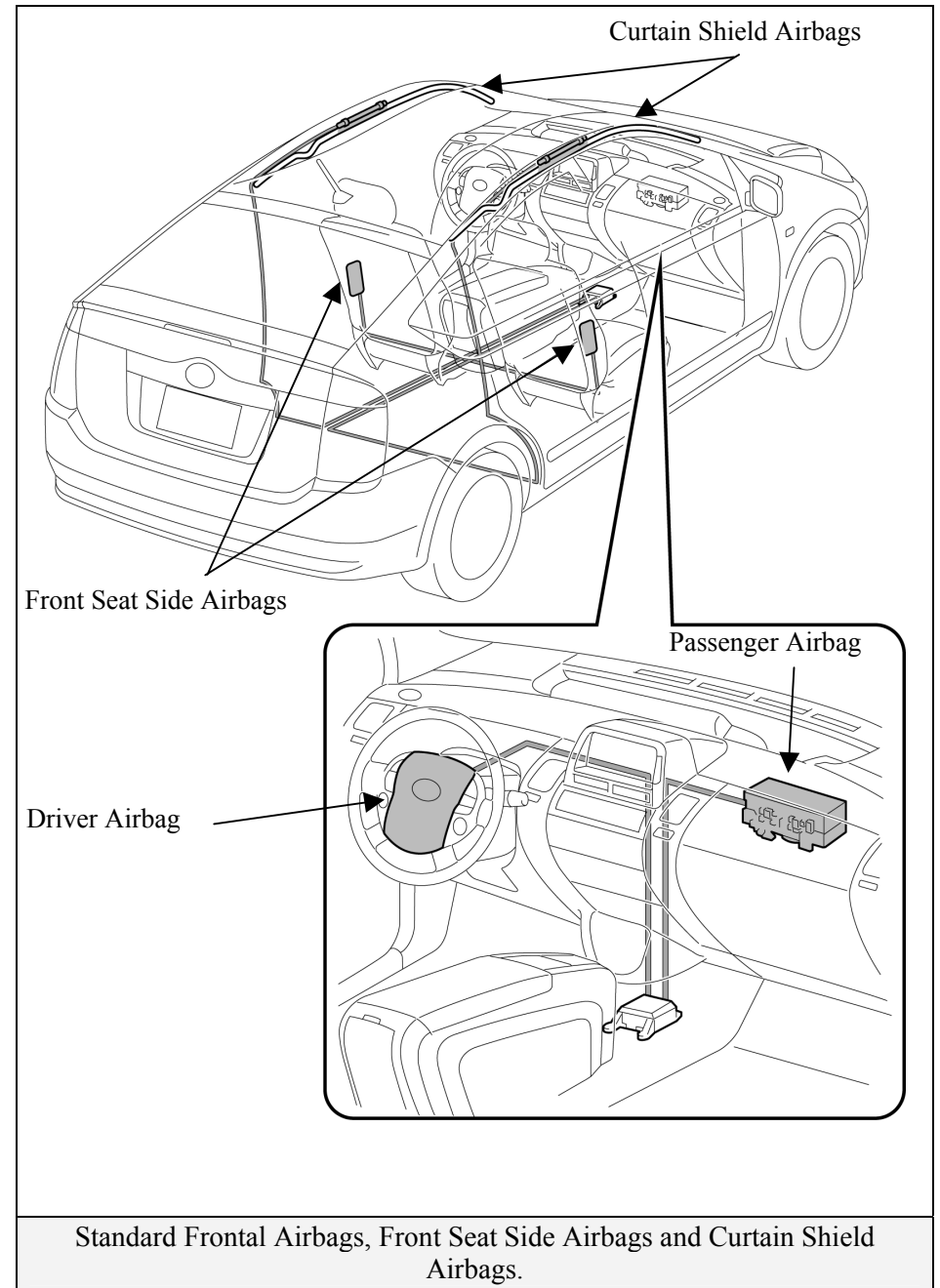
## Emergency Response (Continued)

### Extrication (Continued)

#### II Location of High-voltage Components and Wiring



#### III SRS Airbag System (Location of Airbags and Wiring)



## Emergency Response (Continued)

### Extrication (Continued)

- Stabilize Vehicle
  - Crib at (4) points directly under the front and rear pillars.
  - Do not place cribbing under the high voltage power cables, exhaust system, or fuel system.
- 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. Deployed front dual stage airbags automatically ignite both stages within a fraction of a second.

#### Door Removal/Displacement

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

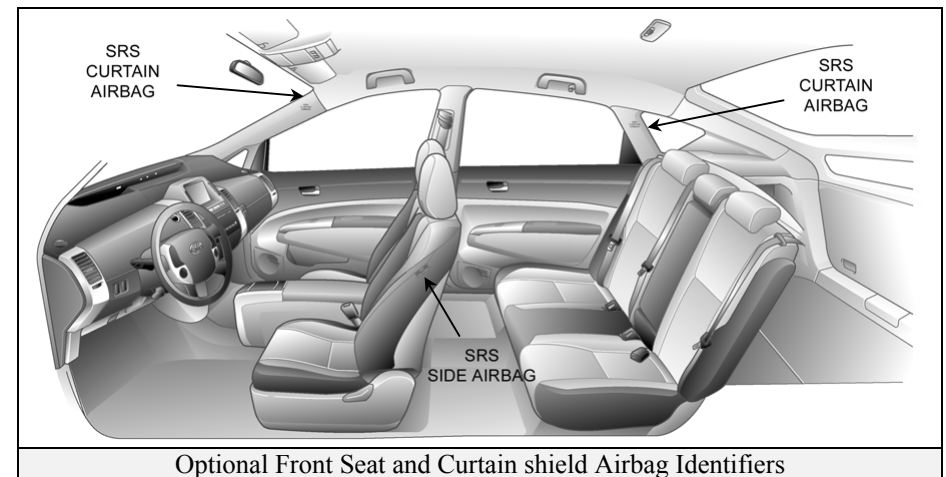
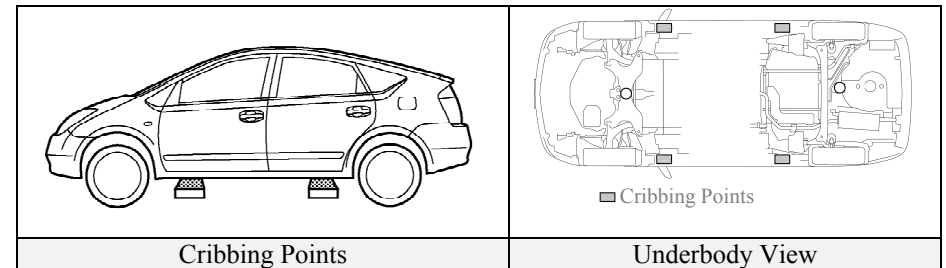
#### Roof Removal

The vehicle may contain optional curtain shield airbags. If equipped and undeployed, it is not recommended to remove or to displace the roof. Optional curtain shield airbags may be identified as illustrated.

#### Dash Displacement

The vehicle may contain optional curtain shield airbags. When equipped, do not remove or displace the roof during a dash displacement to avoid cutting into the airbags or inflators. As an alternative, dash displacement may be performed by using a Modified Dash Roll.

If not equipped with the optional curtain shield airbags, displace the dash by using a conventional dash roll, Modified Dash Roll, or jacking the dash.





## Emergency Response (Continued)

### Extrication (Continued)

#### Rescue Lift Air Bags

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

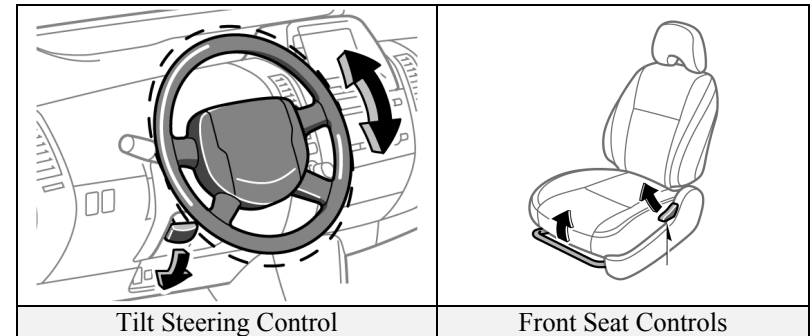
#### Repositioning Steering Wheel and Seat

Tilt steering and seat controls are shown in the illustration

### Fire

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

- **Extinguishing Agent**  
Water has been proven to be a suitable extinguishing agent.
- **Initial Fire Attack**  
Perform a fast, aggressive fire attack.  
Divert the runoff from entering watershed areas.  
  
Attack teams may not be able to identify a Prius until the fire has been knocked down and overhaul operations have commenced.
- **Fire in the HV Battery Pack**  
Should a fire occur in the NiMH HV battery pack, the incident commander will have to decide whether to pursue an offensive or defensive attack.



#### **WARNING:**

- *Potassium hydroxide and sodium hydroxide are key ingredients in the NiMH battery module electrolyte.*
- *The modules are contained within a metal case and access is limited to a small opening on the top.*
- *The cover should **Never** be breached or removed under any circumstances, including fire. Doing so may result in severe electrical burns, shock or electrocution.*

## Emergency Response (Continued)

### Fire (Continued)

When allowed to burn themselves out, the Prius NiMH battery modules burn rapidly and can quickly be reduced to ashes except for the metal alloy cell plates.

#### *Offensive Fire Attack*

Flooding the HV battery pack, located in the cargo area, with copious amounts of water at a safe distance will effectively control the HV battery pack fire by cooling the adjacent NiMH battery modules to a point below their ignition temperature. The remaining modules on fire, if not extinguished by the water, will burn themselves 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 NiMH battery modules 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, if not already done, immobilize and disable the vehicle. See illustrations on page 15.

- Immobilize Vehicle
  - Chock wheels and set the parking brake.
  - Push the **P** switch to engage park.
- Disable Vehicle
  - Performing either of the two procedures will shut the vehicle off and disable the HV battery pack, SRS airbags, and gasoline fuel pump.

### Recovery/Recycling NiMH HV Battery Pack

Clean up of the HV battery pack can be accomplished by the vehicle recovery crew without further concern from runoff or spill. For information regarding recycling of the HV battery pack, contact the nearest Toyota dealer, or:

United States: (800) 331-4331

Canada: (888) Toyota 8 [(888)-869-6828]

### Spills

The Prius contains the same common automotive fluids used in other Toyota vehicles, with the exception of NiMH electrolyte used in the HV battery pack. The NiMH battery electrolyte is a caustic alkaline (pH 13.5) that is damaging to human tissues. The electrolyte, however, is absorbed in the cell plates and will not normally spill or leak out even if a battery module is cracked. A catastrophic crash that would breach both the metal battery pack case and the plastic battery module would be a rare occurrence.

Similar to using baking soda to neutralize a lead-acid battery electrolyte spill, a dilute boric acid solution or vinegar is used to neutralize a NiMH battery electrolyte spill.

During an emergency, Toyota Material Safety Data Sheets (MSDS) may be requested by contacting:

United States: CHEMTREC at (800) 424-9300

Canada: CANUTEC at \*666 or (613) 996-6666 (collect)

- Handle NiMH Electrolyte Spills 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, latex or Nitrile gloves.
  - Apron suitable for alkaline.
  - Rubber boots.
- Neutralize NiMH Electrolyte
  - Use a boric acid solution or vinegar.
  - Boric acid solution - 800 grams boric acid to 20 liters water or 5.5 ounces boric acid to 1 gallon of water.

## Emergency Response (Continued)

### First Aid

Emergency responders may not be familiar with a NiMH 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 during an exposure.

#### **WARNING:**

*The NIMH battery electrolyte is a caustic alkaline (pH 13.5) that is damaging to human tissue.*

- Wear Personal Protective Equipment (PPE)  
Splash shield or safety goggles. Fold down helmet shields are not acceptable for acid or electrolyte spills.  
Rubber, latex or Nitrile gloves.  
Apron suitable for alkaline.  
Rubber boots.
- Absorption  
Perform gross decontamination by removing affected clothing and properly disposing of the garments.  
Rinse the affected areas with water for 20 minutes.  
Transport to the nearest emergency medical care facility.
- Inhalation Non-Fire Situations  
No toxic gases are emitted under normal conditions.

- Inhalation Fire Situations  
Toxic gases are given off as the by-product of combustion. All responders in the Hot Zone should wear the proper PPE for fire fighting including SCBA.  
Remove patient from the hazardous environment to a safe area and administer oxygen.  
Transport to the nearest emergency medical care facility.
- Ingestion  
Do not induce vomiting.  
Allow patient to drink large quantities of water to dilute electrolyte (Never give water to an unconscious person).  
If vomiting occurs spontaneously, keep patients head lowered and forward to reduce the risk of aspiration.  
Transport to the nearest emergency medical care facility.

### Submersion

Handle a Prius that is fully or partially submerged in water by disabling the HV battery pack, SRS airbags, and gasoline fuel pump.

- Remove vehicle from the water.
- Drain water from the vehicle if possible.
- Follow the immobilizing and disabling procedures on page 15.

## Roadside Assistance

The Prius utilizes an electronic gearshift selector and an electronic **P** switch for park. If the 12-Volt auxiliary battery is discharged or disconnected, the vehicle cannot be started nor can it be shifted out of park. If discharged, the 12-Volt auxiliary battery can be jump started to allow vehicle starting and shifting out of park. Most other roadside assistance operations may be handled like conventional Toyota vehicles.

Toyota Roadside Assistance is available during the basic warranty period by contacting:

United States: (877) 304-6495

Canada: (888) TOYOTA 8 [(888) 869-6828]

### Towing

The Prius is a front wheel drive vehicle and it **must** be towed with the front wheels off the ground. Failure to do so may cause serious damage to Hybrid Synergy Drive components.

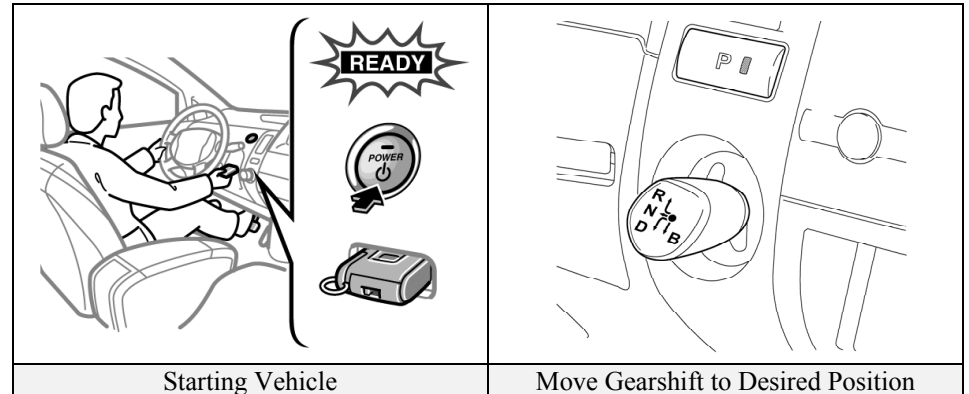
### Vehicle Operation

Refer to the Electronic Key section page 6 for vehicle starting/stopping and page 15 for vehicle disabling information.

- The vehicle may be shifted out of park into Neutral only in the ignition-on and READY-on modes.
- If the 12-Volt auxiliary battery is discharged, the vehicle will not start and shifting out of park is not possible. There is no manual override except to jump start the vehicle.

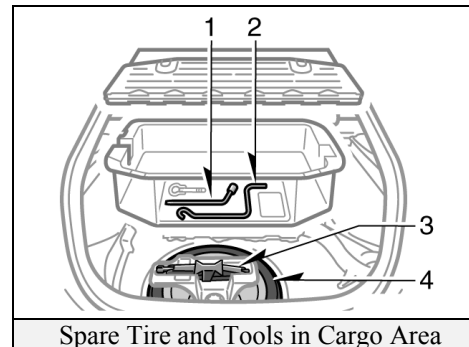
### Spare Tire

The spare tire, jack, and tools are provided in the cargo area as illustrated. The spare tire is for temporary use only (do not exceed 50 mph/80 kph).



Starting Vehicle

Move Gearshift to Desired Position



Spare Tire and Tools in Cargo Area

## Roadside Assistance (Continued)

### Jump Starting

The 12-Volt auxiliary battery may be jump started if the vehicle does not start and the instrument cluster gauges are dim or off after depressing the brake pedal and pushing the power button.

The 12-Volt auxiliary battery is located in the cargo area. The rear hatch door will not unlock or open if the auxiliary battery is discharged. Instead, an accessible remote 12-Volt auxiliary battery positive terminal is provided in the engine compartment junction block, as illustrated, for jump starting.

- Remove the junction block cover and connect the positive jumper cable to the positive terminal in the junction block.
- Connect the negative terminal to the ground nut.
- The high voltage HV battery pack cannot be jump started.

### Immobilizer & Anti-Theft Alarm

The vehicle comes standard with an electronic key immobilizer system. An anti-theft alarm is optional equipment.

- The vehicle may only be started with a learned immobilizer coded electronic key.
- To disable the optional alarm use the unlock button on the electronic key, unlock the driver door with the hidden metal cut key, or engage the ignition-on mode.

