



# IS300h

*Gasoline-Electric*

*Hybrid Synergy Drive*

## ***HYBRID VEHICLE DISMANTLING MANUAL***



## Foreword

This guide was developed to educate and assist dismantlers in the safe handling of Lexus IS300h gasoline-electric hybrid vehicles. IS300h dismantling procedures are similar to other non-hybrid Lexus vehicles with the exception of the high voltage electrical system. It is important to recognize and understand the high voltage electrical system features and specifications of the Lexus IS300h, as they may not be familiar to dismantlers.

High voltage electricity powers the A/C compressor, electric motor, generator, and inverter/converter. All other conventional automotive electrical devices such as the head lights, radio, and gauges are powered from a separate 12 Volt auxiliary battery. Numerous safeguards have been designed into the IS300h to help ensure the high voltage, approximately 230.4 Volt, Nickel Metal Hydride (NiMH) Hybrid Vehicle (HV) battery pack is kept safe and secure in an accident.

The NiMH HV battery pack contains sealed batteries that are similar to rechargeable batteries used in some battery operated power tools and other consumer products. The electrolyte is absorbed in the cell plates and will not normally leak out even if the battery is cracked. In the unlikely event the electrolyte does leak, it can be easily neutralized with a dilute boric acid solution or vinegar. High voltage cables, identifiable by orange insulation and connectors, are isolated from the metal chassis of the vehicle.

Additional topics contained in the guide include:

- Lexus IS300h identification.
- Major hybrid component locations and descriptions.

By following the information in this guide, dismantlers will be able to handle IS300h hybrid-electric vehicles as safely as the dismantling of a conventional gasoline engine automobile.

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## About the IS300h

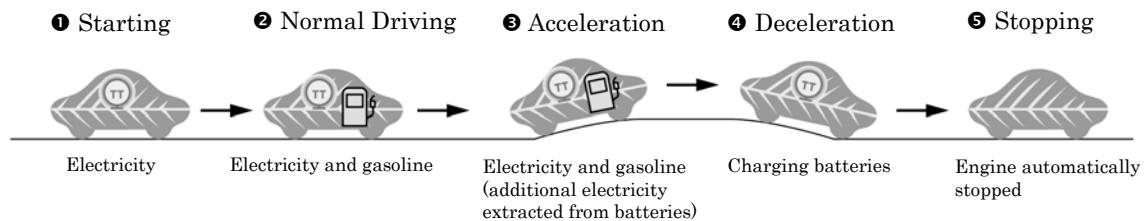
The IS300h 4-door sedan joins the hybrid model for Lexus. Lexus Hybrid Drive means that the vehicle contains a gasoline engine and an electric motor for power. The two hybrid power sources are stored on board the vehicle:

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 improved 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 IS300h 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 IS300h operates in various driving modes.

- ❶ During 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 also powers the generator to recharge the battery pack and to drive the motor.
- 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 when braking, the vehicle regenerates kinetic energy from the rear 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.



## IS300h Identification

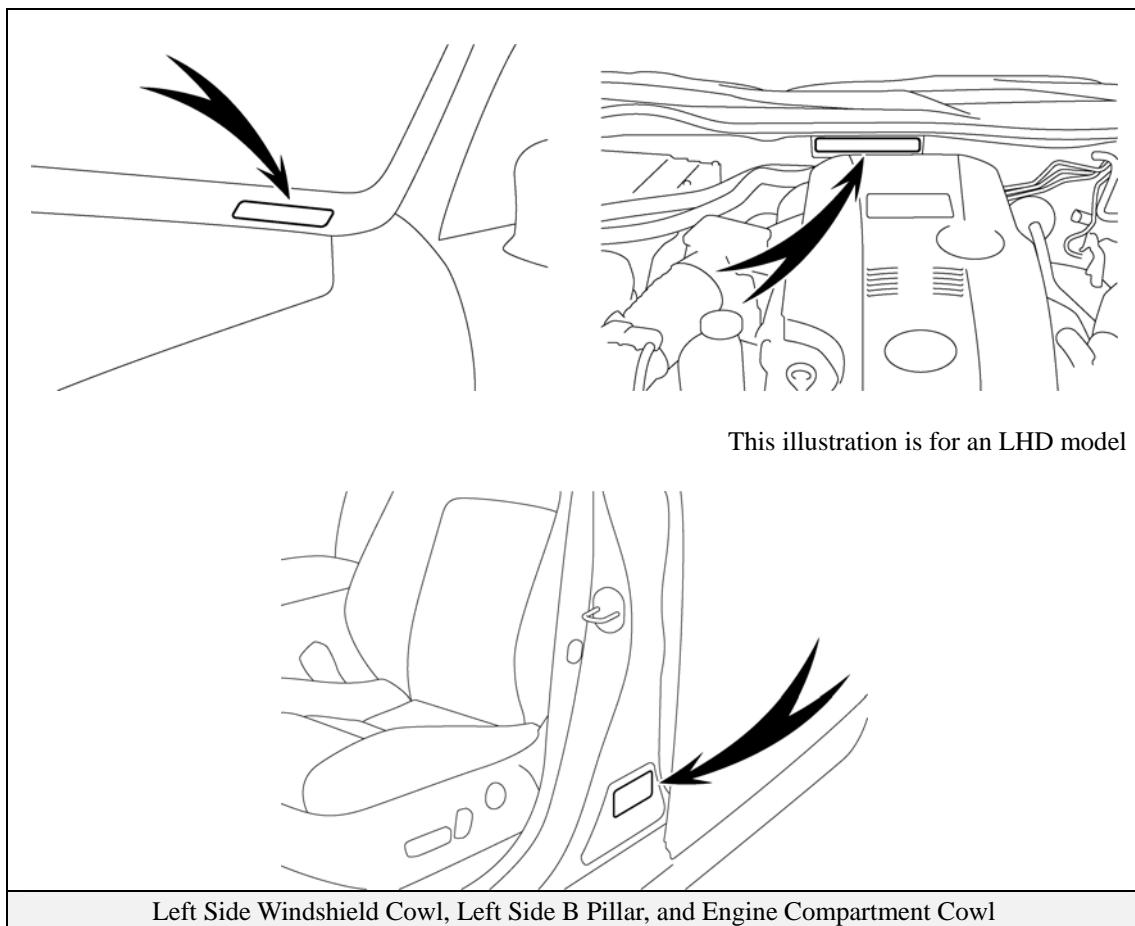
In appearance, the 2014 model year IS300h is nearly identical to the conventional, non-hybrid Lexus IS350/250. The IS300h is a 4-door sedan. Exterior, interior, and engine compartment illustrations are provided to assist in identification.

The alphanumeric 17 character Vehicle Identification Number (VIN) is provided in the front windshield cowl, engine compartment, and on the left side B pillar.

Example VIN: JTHBH1D22000101 (with Rear Seat Side Airbag)


JTHBH5D22000101 (without Rear Seat Side Airbag)

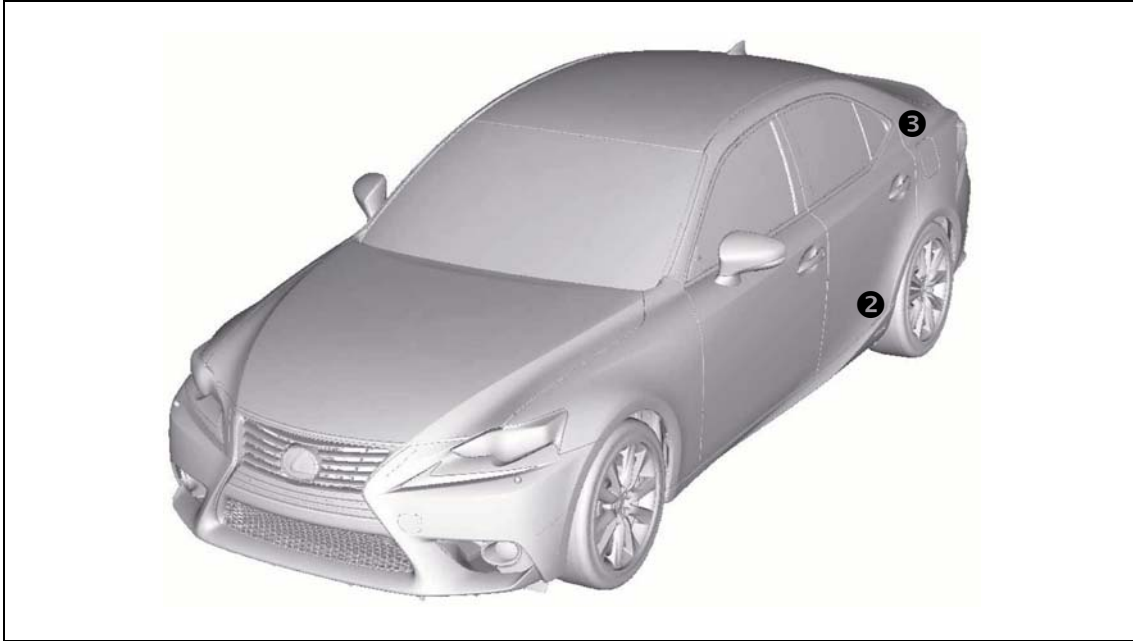
An IS300h is identified by the first 8 alphanumeric characters **JTHBH1D2** or **JTHBH5D2**.



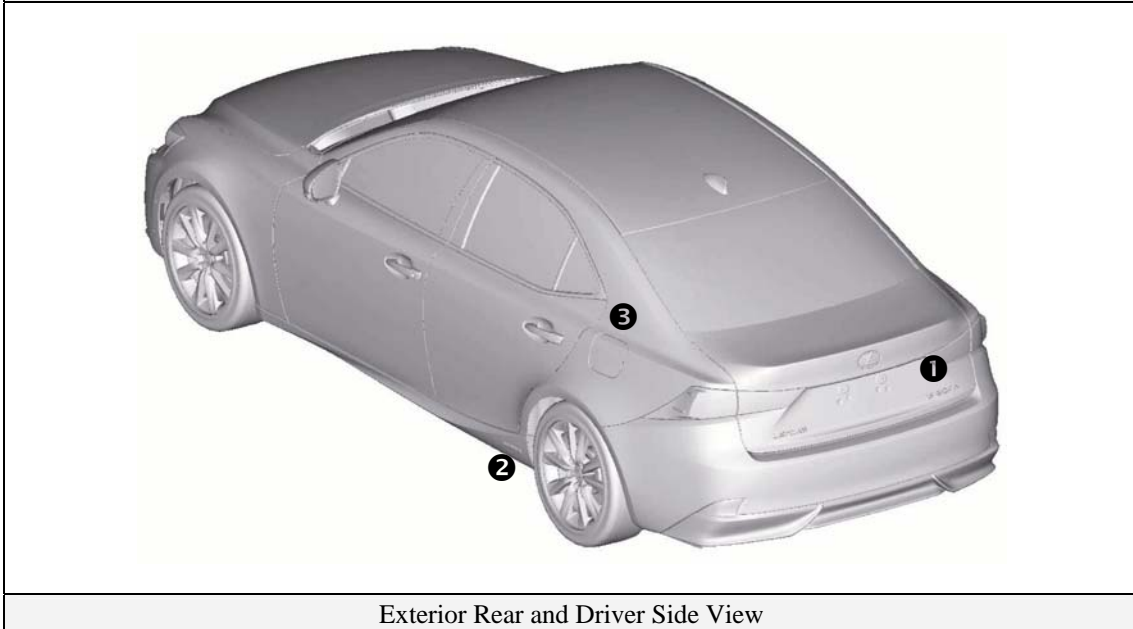
## IS300h Identification (Continued)

### Exterior

- ❶ IS300h logo on the trunk.
- ❷  logos on the rocker moldings.
- ❸ Gasoline fuel filler door located on the left side rear quarter panel.



Exterior Front and Driver Side View



Exterior Rear and Driver Side View

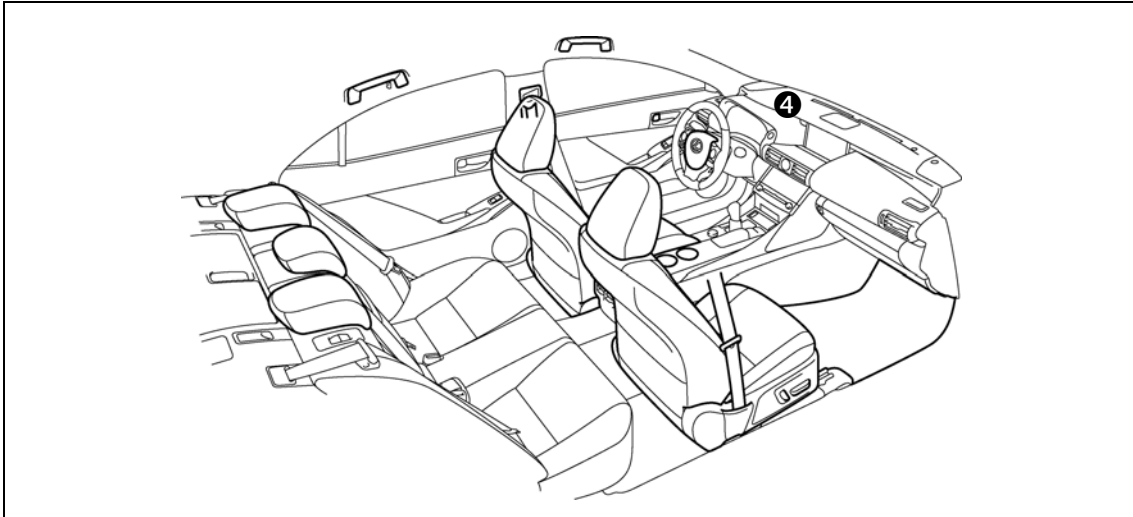
## IS300h Identification (Continued)

### Interior

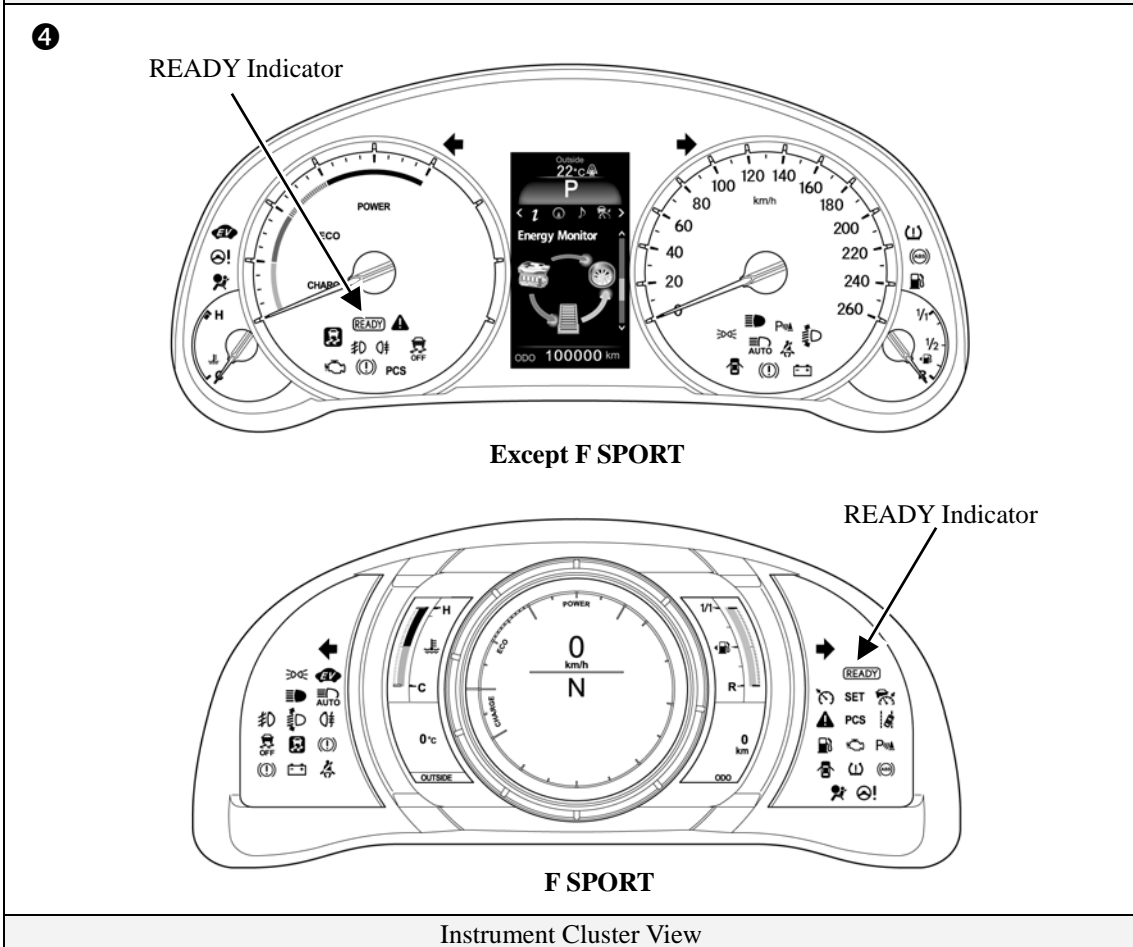
- ④ The instrument cluster (**READY** indicator and warning lights) located in the dash behind the steering wheel, is different than the one on the conventional, non-hybrid IS350/250.

### Hint:

If the vehicle is shut off, the instrument cluster gauges will be “blacked out”, not illuminated.



Interior View



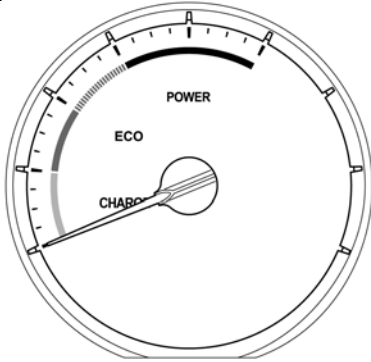


## IS300h Identification (Continued)

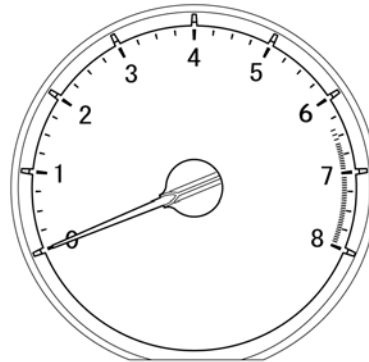
- 5 A switchable gauge in the instrument cluster showing either a hybrid system indicator or a tachometer depending on driving mode.

5

Except F SPORT



Hybrid System Indicator

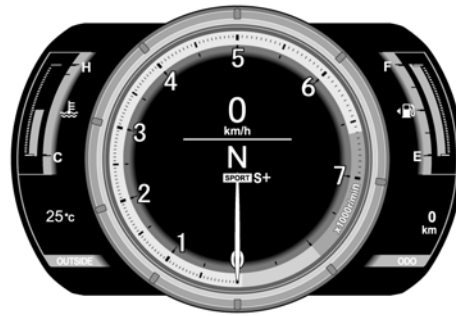


Tachometer

F SPORT



Hybrid System Indicator



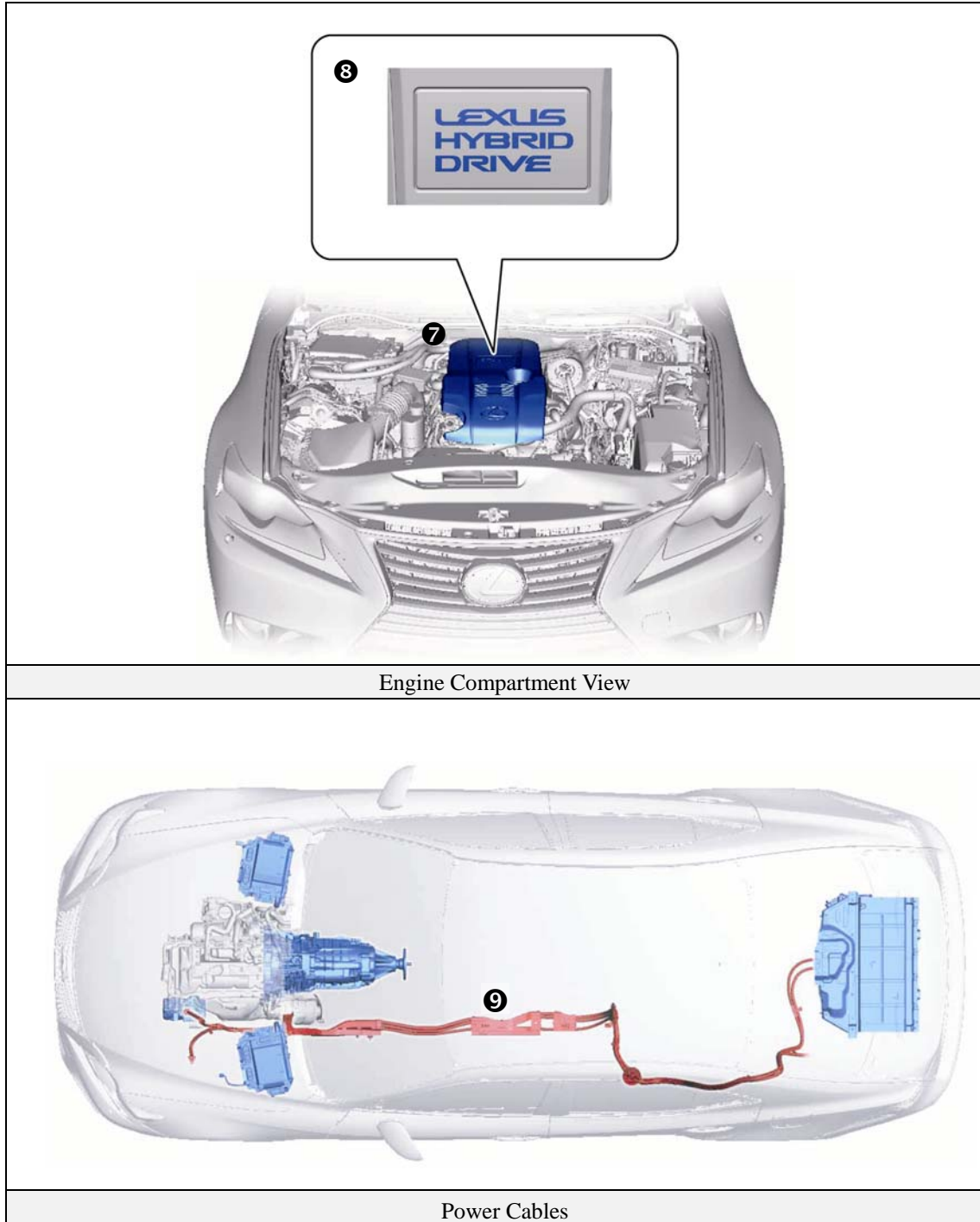
Tachometer

Instrument Cluster View

## IS300h Identification (Continued)

### Engine Compartment

- ⑦ 2.5-liter aluminum alloy gasoline engine.
- ⑧ Logo on the plastic engine cover.
- ⑨ Orange colored high voltage power cables.



## Hybrid Component Locations & Descriptions

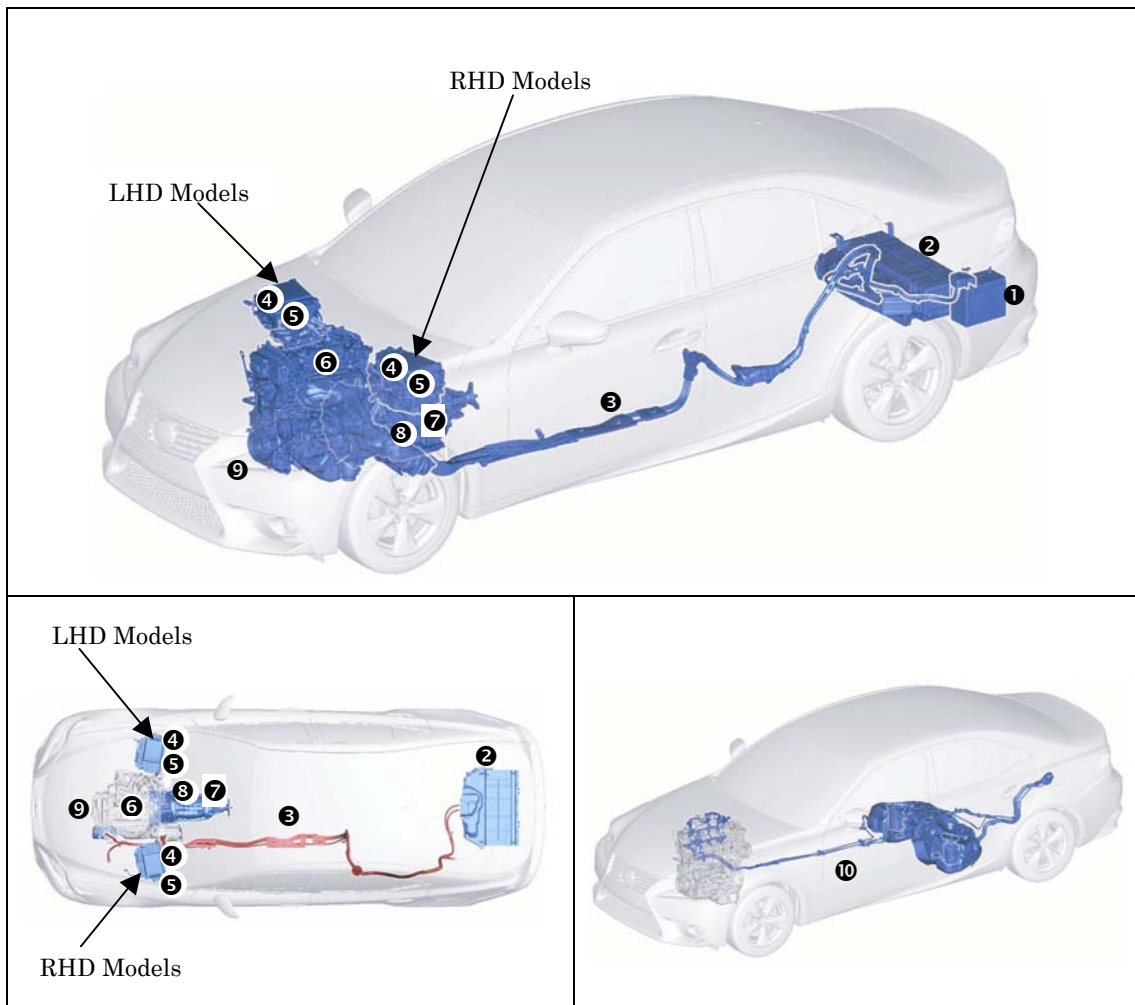
Component	Location	Description
12 Volt Auxiliary Battery ❶	Left Side of Trunk	A lead-acid battery that supplies power to the low voltage devices.
Hybrid Vehicle (HV) Battery Pack ❷	Trunk Area, Mounted to Spare Tire Area	230.4 Volt Nickel Metal Hydride (NiMH) battery pack consisting of 32 low voltage (7.2 Volt) modules connected in series.
Power Cables ❸	Undercarriage and Engine Compartment	Orange colored power cables carry high voltage Direct Current (DC) between the HV battery pack, inverter/converter, and A/C compressor. These cables also carry 3-phase Alternating Current (AC) between the inverter/converter, electric motor, and generator.
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 electric motor (regenerative braking) to DC that recharges the HV battery pack.
DC-DC Converter for 12 Volt Auxiliary Battery ❺	Inverter/Converter	Converts 230.4 Volts from the HV battery pack to 12 Volts for low voltage vehicle power.
Gasoline Engine ❻	Engine Compartment	Provides two functions: 1) Powers the vehicle. 2) Powers the generator to recharge the HV battery pack. The engine is started and stopped under control of the vehicle computer.
Electric Motor ❼	Transmission	3-phase high voltage AC permanent magnet electric motor contained in the transmission and drives the rear wheels through the propeller shaft.
Electric Generator ❸	Transmission	3-phase high voltage AC generator that is contained in the transmission and recharges the HV battery pack.
A/C Compressor (with Inverter) ❾	Engine Compartment	3-phase high voltage AC electrically driven motor compressor.
Fuel Tank and Fuel Line ❿	Undercarriage, Left Side and Center	The fuel tank provides gasoline via a fuel line to the engine. The fuel line is routed along the left side and center tunnel under the floor pan.

\*Numbers in the component column apply to the illustrations on the following page.

# Hybrid Component Locations & Descriptions (Continued)

## Specifications

- Gasoline Engine: 178 hp (133 kW), 2.5-liter Aluminum Alloy Engine
- Electric Motor: 141 hp (105 kW), Permanent Magnet Motor
- Transmission: Automatic Only
- HV Battery: 230.4 Volt Sealed NiMH-Battery
- Curb Weight: 3,571 - 3,792 lbs/1,620 - 1,720 kg
- Fuel Tank: 17 gals/66 liters
- Frame Material: Steel Unibody
- Body Material: Steel Panels except for Aluminum Engine Hood
- Seating Capacity: 5 passenger

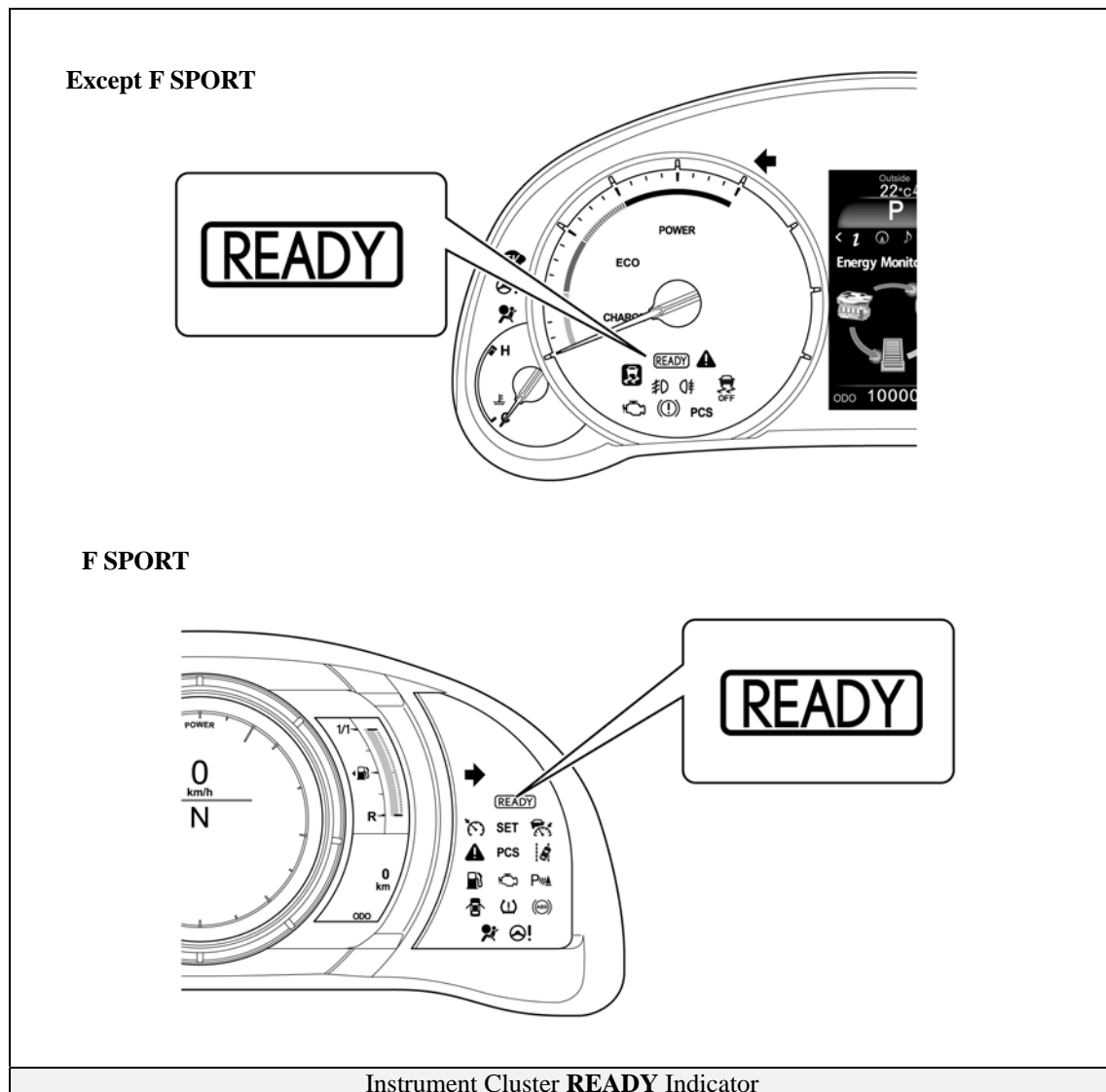


## Lexus Hybrid Drive Operation

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 illuminated, 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 IS300h, the gasoline engine may stop and start at any time while the **READY** indicator is on.
- Never assume that 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. A combination of both the electric motor and the gasoline engine.



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

The IS300h features a high voltage Hybrid Vehicle (HV) battery pack that contains sealed Nickel Metal Hydride (NiMH) battery modules.

### HV Battery Pack

- The HV battery pack is enclosed in a metal case and is rigidly mounted to the [spare tire](#) area. The metal case is isolated from high voltage and concealed by fabric covers in the trunk.
- The HV battery pack consists of 32 low voltage (7.2 Volt) NiMH battery modules connected in series to produce approximately 230.4 Volts. Each NiMH battery module is non-spillable and sealed in a metal case.
- The electrolyte used in the NiMH battery module is an alkaline mixture of potassium and sodium hydroxide. The electrolyte is absorbed into the battery cell plates and will not normally leak, even in a collision.

HV Battery Pack	
Battery pack voltage	230.4 V
Number of NiMH battery modules in the pack	32
NiMH battery module voltage	7.2 V
NiMH battery module dimensions (Width x Length x Height)	10.9 x 0.8 x 4.2 in (276 x 20 x 106 mm)
NiMH module weight	2.3 lbs (1.0 kg)
NiMH battery pack dimensions (Width x Length x Height)	29.4 x 21.3 x 9.1 in (748 x 540 x 231.5 mm)
NiMH battery pack weight	109 lbs (49.5 kg)

Note: Values in inches have been rounded

### Components Powered by the HV Battery Pack

- Electric Motor
- Electric Generator
- Inverter/Converter
  - DC-DC Converter for 12 Volt Auxiliary Battery
- Power Cables
- A/C Compressor

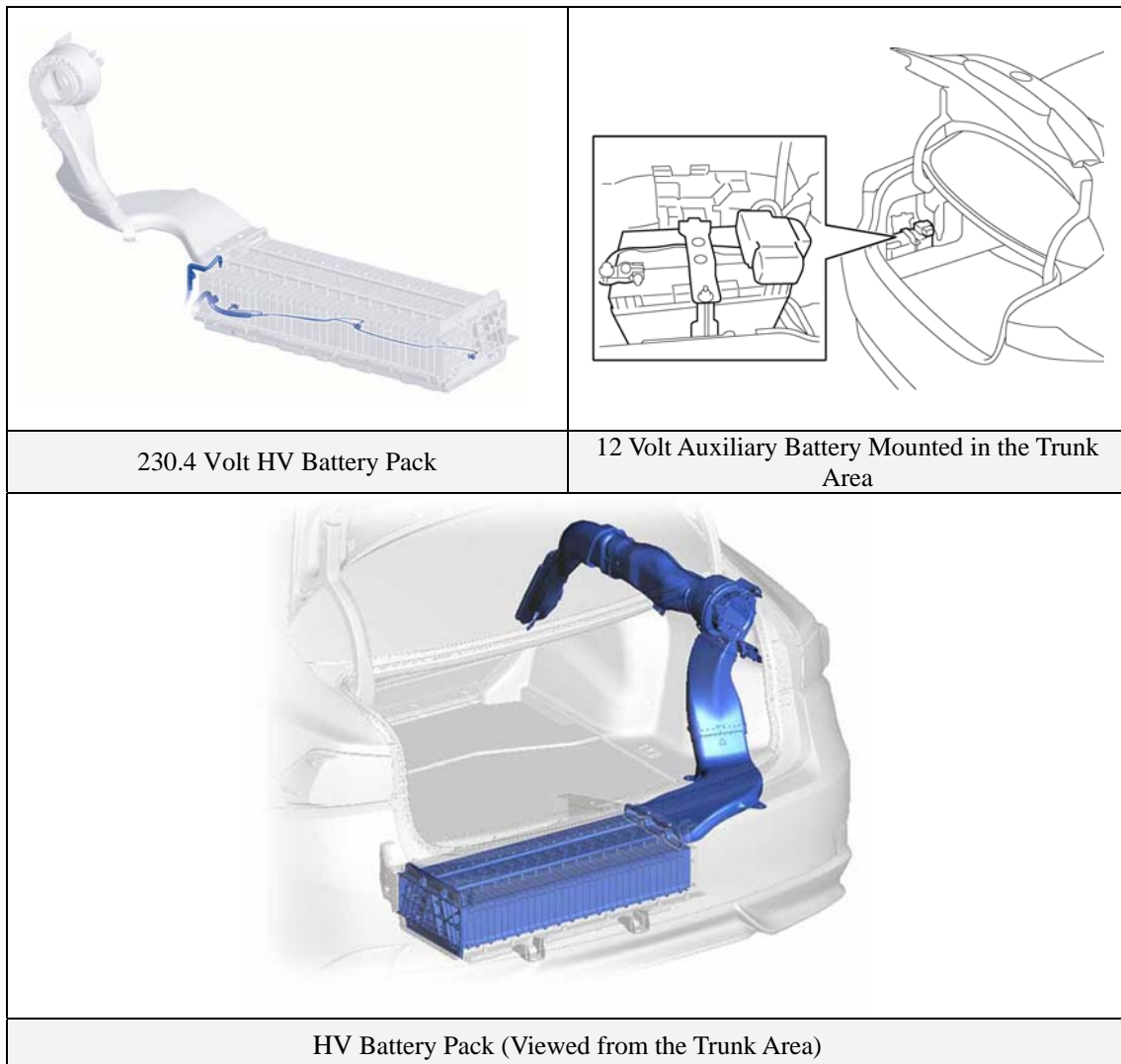
## Hybrid Vehicle (HV) Battery Pack and Auxiliary Battery (Continued)

### HV Battery Pack Recycling

- The HV battery pack is recyclable. Contact either your Lexus Distributor as mentioned on HV battery Caution Label (see page 36) or the nearest Lexus dealer.

### Auxiliary Battery

- The IS300h contains a sealed 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 negative terminal of the auxiliary battery is grounded to the metal chassis of the vehicle.
- The auxiliary battery is located in the trunk area. It is concealed by a fabric cover on the left side in the rear quarter panel well.



## High Voltage Safety

The HV battery pack powers the high voltage electrical system with DC electricity. Positive and negative orange colored high voltage power cables are routed from the battery pack, under the vehicle floor pan, routed along the propeller shaft and transmission tunnel to the inverter/converter. The inverter/converter contains a circuit that boosts the HV battery voltage from 230.4 to 650 Volts DC. The inverter/converter creates 3-phase AC to power the motor. Power cables are routed from the inverter/converter to each high voltage motor (electric motor, electric generator, and A/C compressor). The following systems are intended to help keep occupants in the vehicle and emergency responders safe from high voltage electricity:


### 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 electrical flow from leaving the HV battery pack.



#### **WARNING:**

- ***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 opening any orange high voltage power cable or high voltage component.***

- Both positive and negative power cables ❷\* are insulated from the metal chassis, so there is no possibility of electric shock when 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 hybrid vehicle computer ❹\* will illuminate the master warning light  in the instrument cluster and indicate “Check Hybrid System” on the multi-information display.
- The HV battery pack relays will automatically open to stop electricity flow in a collision sufficient to activate the SRS.

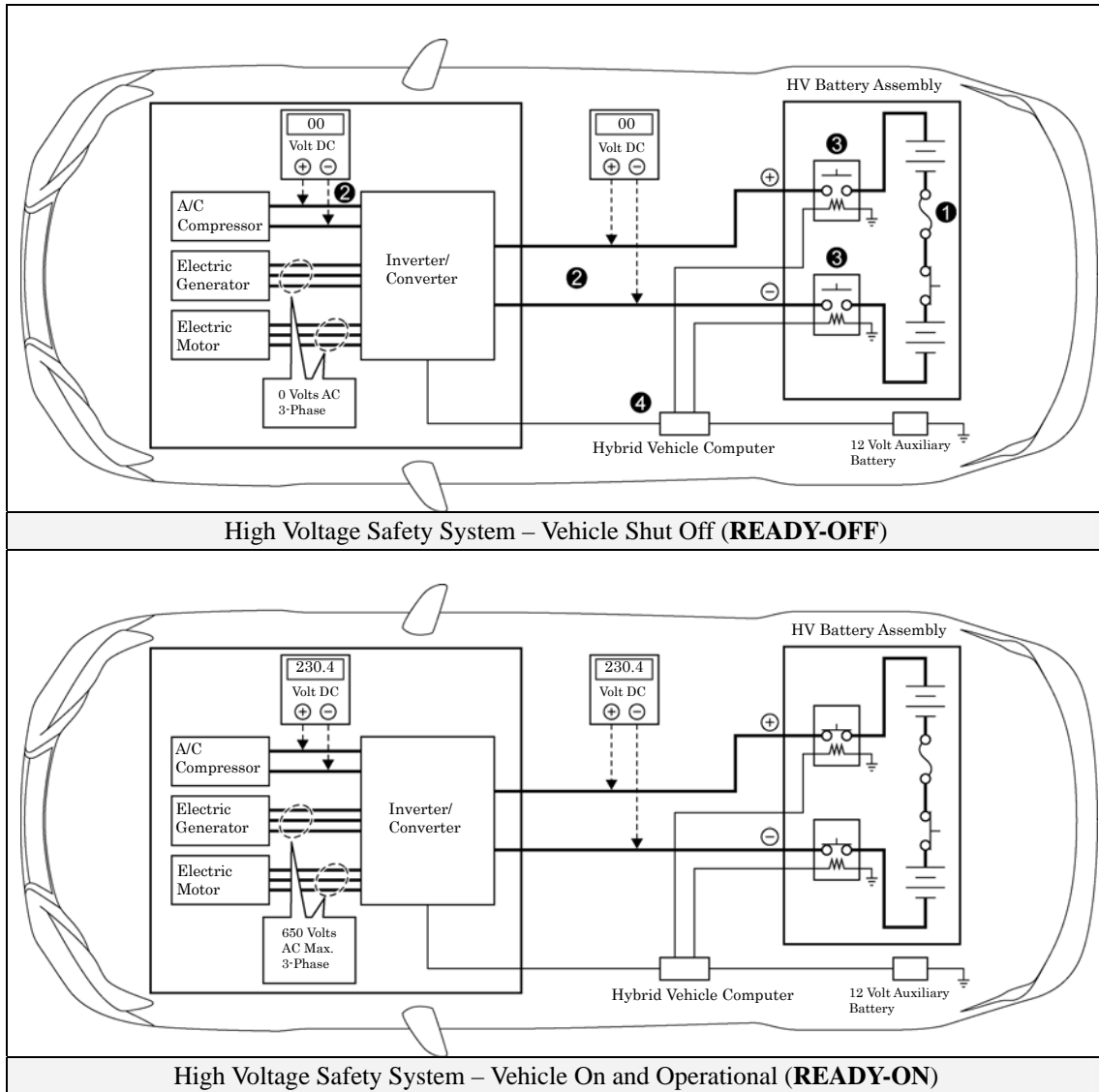
\*Numbers apply to the illustration on the following page.



## High Voltage Safety (Continued)

### Service Plug Grip

- The high-voltage circuit is cut by removing the service plug grip (see page 16).



## Precaution to be observed when dismantling the vehicle



### **WARNING:**

- *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 opening any orange high voltage power cable or high voltage component.*

### Necessary Items

- Protective clothing such as insulated gloves (electrically insulated), rubber gloves, safety goggles, and safety shoes.
- Insulating tape such as electrical tape that has a suitable electrical insulation rating.
- Before wearing insulated gloves, make sure that they are not cracked, ruptured, torn, or damaged in any way. Do not wear wet insulated gloves.
- An electrical tester that is capable of measuring DC 750 Volts or more.

## Spills

The IS300h contains the same common automotive fluids used in other non-hybrid Lexus vehicles, with the exception of the 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 a metal battery module would be a rare occurrence.

A caustic alkaline is at the opposite end of the pH scale from a strong acid. A safe (neutral) substance is approximately in the middle of this scale. Adding a weak acidic mixture, such as a dilute boric acid solution or vinegar, to the caustic alkaline electrolyte will cause the electrolyte to be neutralized. This is similar but opposite to the use of baking soda to neutralize a lead-acid battery electrolyte spill.

A Lexus Product Safety Data Sheets (PSDS) is attached to this document.

- Handle NiMH electrolyte spills using the following Personal Protective Equipment (PPE):
  - Splash shield or safety goggles. A fold down face shield is 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.

## Dismantling the vehicle

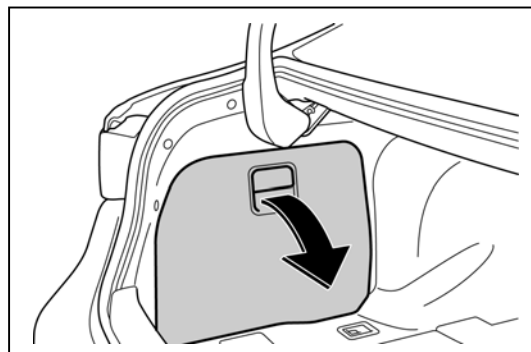
The following 3 pages contain general instructions for use when working on an IS300h. Read these instructions before proceeding to the HV battery removal instructions on page 20.



### **WARNING:**

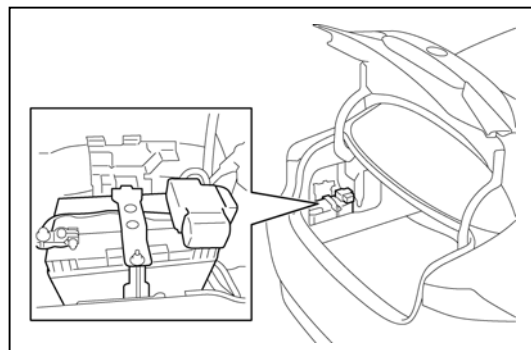
- **The high voltage system may remain powered for up to 10 minutes after the vehicle is shut off or disabled. To prevent serious injury or death from severe burns or electric shock, avoid touching, cutting, or opening any orange high voltage power cable or any high voltage component.**

1. Shut off the ignition (**READY** indicator is off).  
Then disconnect the cable from the auxiliary battery negative (-) terminal.
  - (1) Remove the luggage trim service hole cover.

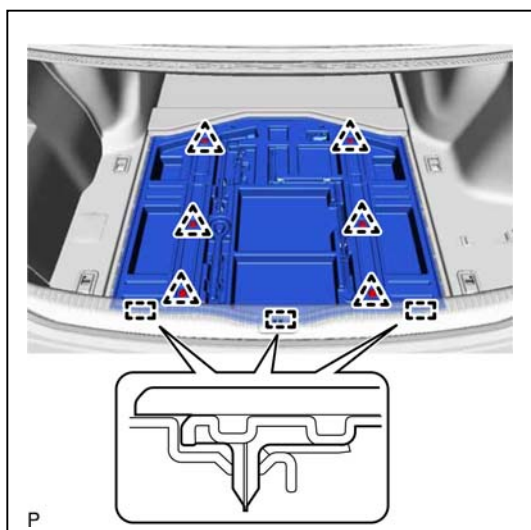


- (2) Disconnect the battery negative terminal.

2. Remove the luggage compartment floor mat.

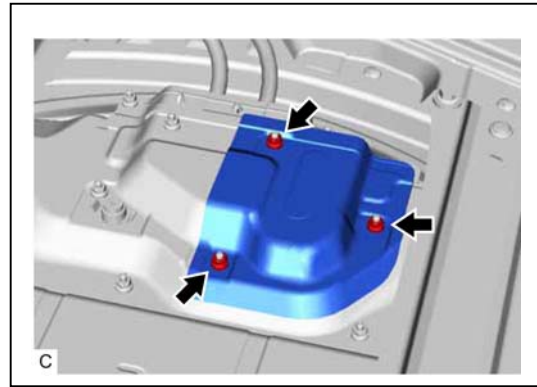


3. Remove the luggage compartment trim box.
  - (1) Remove the 6 clips.
  - (2) Disengage the 3 guides and remove the luggage compartment trim box.



4. Remove the No. 5 hybrid vehicle battery shield panel.

- (1) Remove the 3 nuts and No. 5 hybrid battery shield panel from the HV battery.



5. Remove the service plug grip.

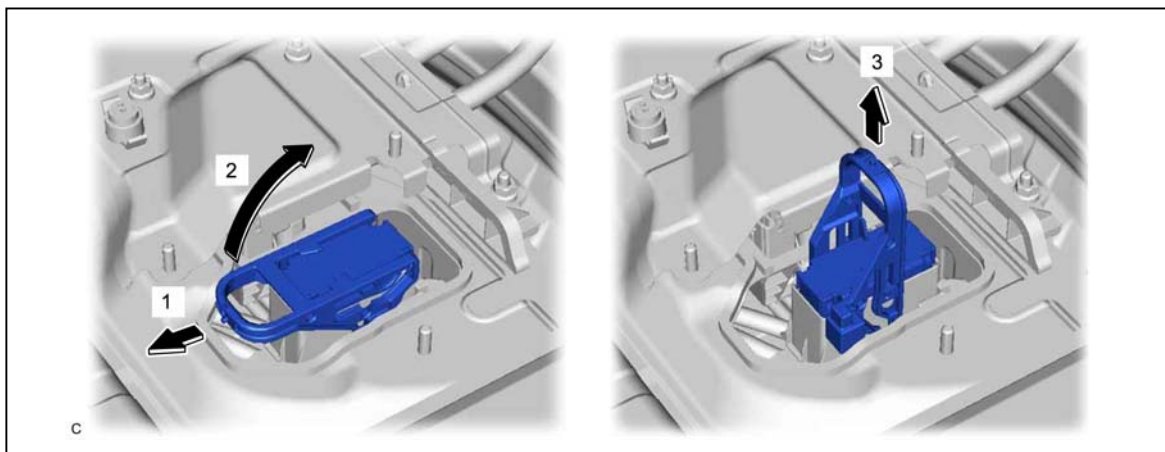
**Caution:**

- **Wear insulated gloves.**
- **Remove the service plug grip to interrupt the high voltage circuit.**
- **Keep the removed service plug grip in your pocket to prevent other technicians from accidentally reconnecting it while you are servicing the vehicle.**
- **All the high voltage wiring connectors are orange.**
- **After removing the service plug grip, do not touch the high voltage connectors or terminals for 10 minutes.**

**Hint:**

Waiting for at least 10 minutes is required to discharge the high voltage capacitor inside the inverter with converter assembly.

- (1) Wear insulated gloves and remove the service plug grip after sliding the lever of the service plug grip as shown in the illustration.

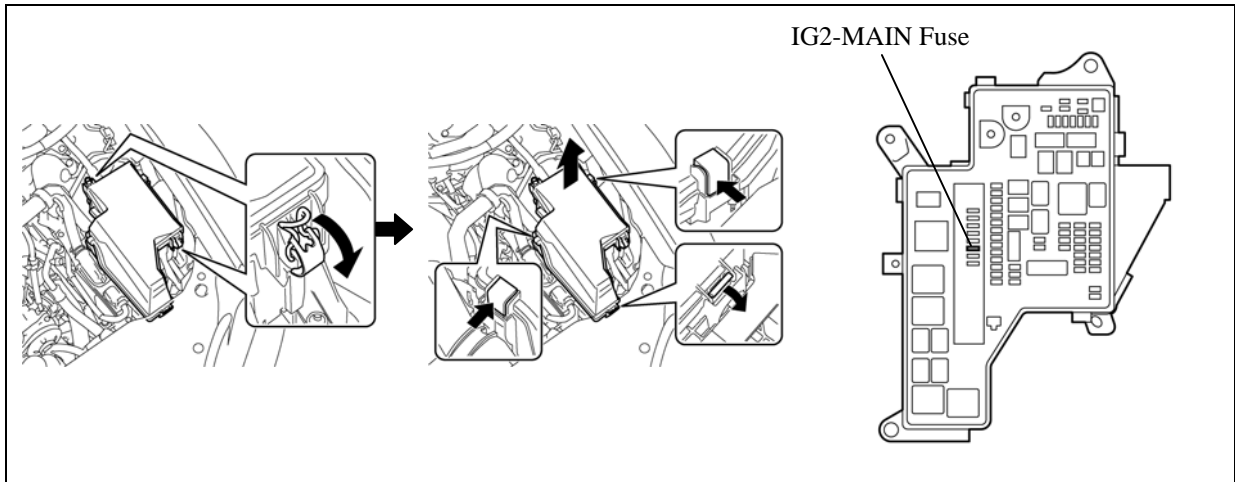


6. Make other staff aware that a high-voltage system is being dismantled by using the following sign: CAUTION: HIGH-VOLTAGE. DO NOT TOUCH. (see page 19).

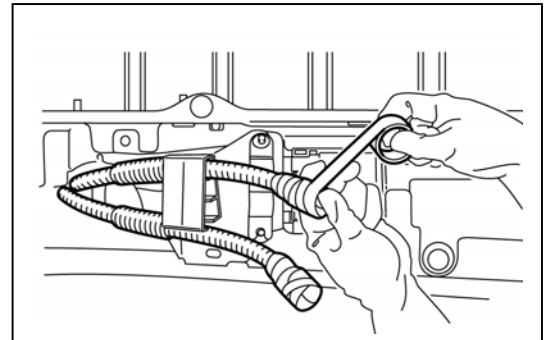
7. If the service plug grip cannot be removed due to damage to the vehicle, remove the **IG2-MAIN** fuse (20A).

**Caution:**

**This operation shuts off the HV system. Be sure to wear insulated gloves because high voltage is not shut off inside the HV battery. When it is possible to remove the service plug grip, remove it and continue the procedure.**



8. After disconnecting or exposing a high-voltage connector or terminal, insulate it immediately using insulating tape. Before disconnecting or touching a bare high-voltage terminal, wear insulated gloves.



9. Check the HV battery and nearby area for leakage. If you find any liquid, it may be strong alkaline electrolyte. Wear rubber gloves and goggles and neutralize the liquid using a saturated boric acid solution or vinegar. Then wipe up the liquid using waste rags etc.
10. If the electrolyte comes into contact with your skin, wash the skin immediately using a saturated boric acid solution or a large amount of water. If the electrolyte adheres to any article of clothing, take the clothing off immediately.
11. If the electrolyte comes into contact with your eye(s), call out loudly for help. Do not rub your eye(s). Instead, wash the eye(s) with a dilute boric acid solution or a large amount of water and seek medical care.
12. With the exception of the HV battery, remove parts by following procedures which are similar to conventional Lexus vehicles. For the removal of the HV battery, refer to the following pages.

Person in charge: \_\_\_\_\_

**CAUTION:**  
**HIGH-VOLTAGE.**  
**DO NOT TOUCH.**

**CAUTION:**  
**HIGH-VOLTAGE.**  
**DO NOT TOUCH.**

Person in charge: \_\_\_\_\_

When performing work on the HV system, fold this sign and  
put it on the roof of the vehicle.

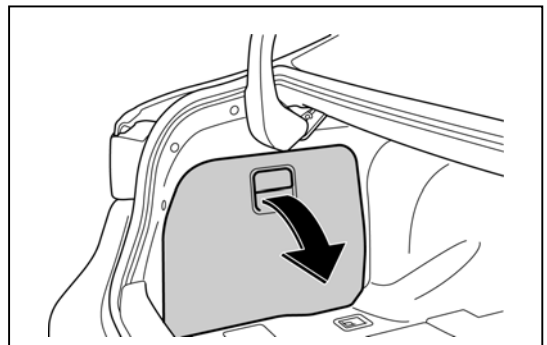
## Removal of HV battery



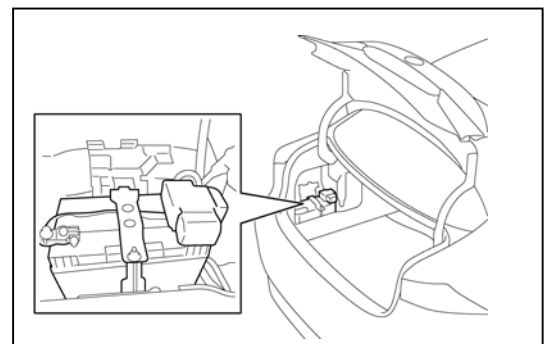
### **WARNING:**

- **Be sure to wear insulated gloves when handling high-voltage parts.**
- **Even if the vehicle is shut off and the relays are off, be sure to remove the service plug grip before performing any further work.**
- **Power remains in the high voltage electrical system for 10 minutes even after the HV battery pack is shut off because the circuit has a condenser that stores power.**
- **Make sure that the tester reading is 0 V before touching any high-voltage terminals which are not insulated.**
- **The SRS may remain powered for up to 90 seconds after the vehicle is shut off or disabled. To prevent serious injury or death from unintentional SRS deployment, avoid cutting the SRS components.**

1. SHUT OFF IGNITION (READY indicator is off)
2. REMOVE LUGGAGE TRIM SERVICE HOLE COVER



3. REMOVE 12 V AUXILIARY BATTERY
  - (1) Open the auxiliary battery terminal cap.
  - (2) Loosen the nut, and disconnect the cable from the positive (+) auxiliary battery terminal.
  - (3) Disconnect the auxiliary battery hose.
  - (4) Loosen the nut and remove the bolt.
  - (5) Remove the auxiliary battery clamp.
  - (6) Remove the auxiliary battery.

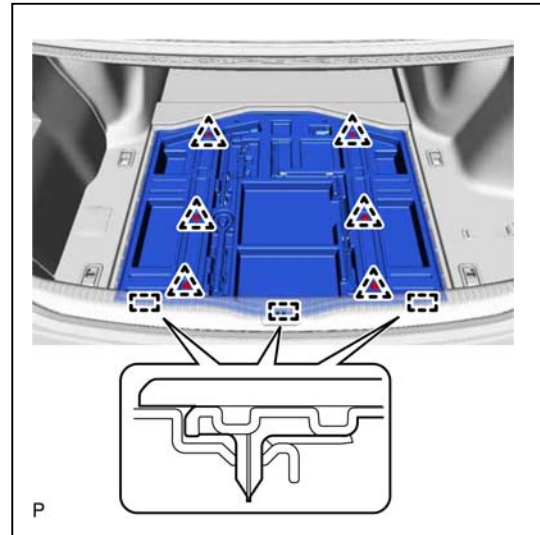


4. REMOVE LUGGAGE COMPARTMENT FLOOR MAT



## 5. REMOVE LUGGAGE COMPARTMENT TRIM BOX

- (1) Remove the 6 clips.
- (2) Disengage the 3 guides and remove the luggage compartment trim box.



## 6. REMOVE NO. 5 HYBRID BATTERY SHIELD PANEL

- (1) Remove the 3 nuts and No. 5 hybrid battery shield panel from the HV battery.

## 7. REMOVE SERVICE PLUG GRIP

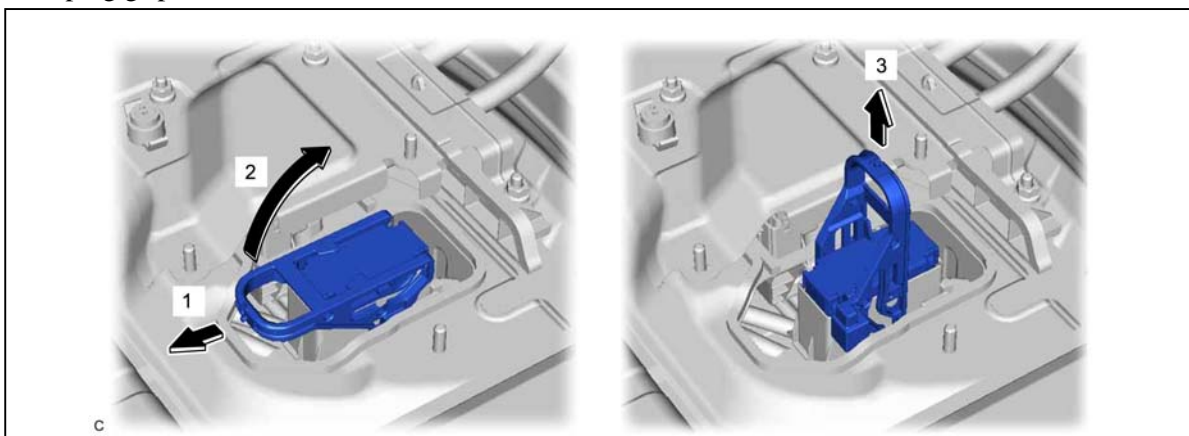
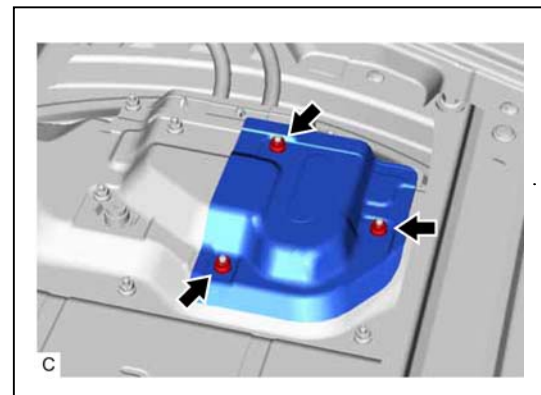
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- **All the high voltage wiring connectors are orange.**
- **After removing the service plug grip, do not touch the high voltage connectors or terminals for 10 minutes.**

### Hint:

Waiting for at least 10 minutes is required to discharge the high voltage capacitor inside the inverter with converter assembly.

- (1) Wear insulated gloves and remove the service plug grip after sliding the lever of the service plug grip as shown in the illustration.

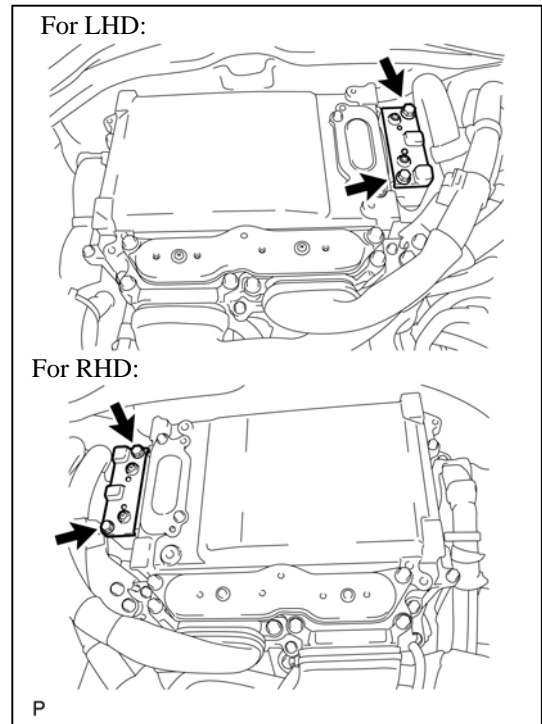


## 8. REMOVE CONNECTOR COVER ASSEMBLY

**Caution:**

**Wear insulated gloves.**

- (1) Remove the 2 bolts and connector cover assembly from the inverter with converter assembly.



## 9. CHECK TERMINAL VOLTAGE

**Caution:**

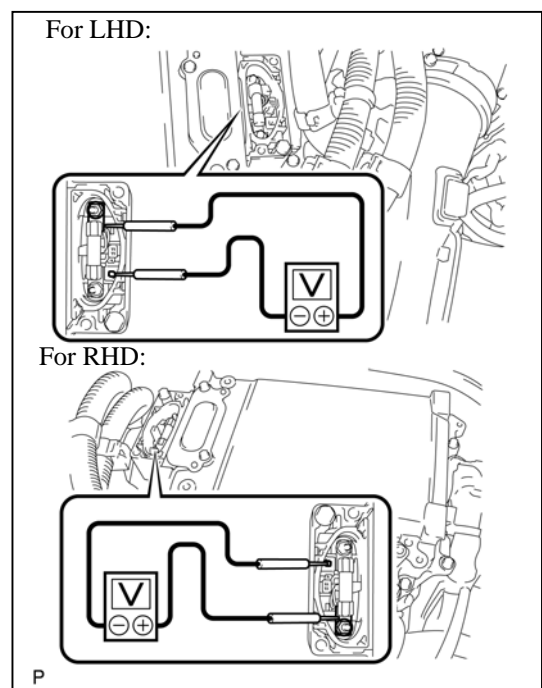
**Wear insulated gloves.**

- (1) Using a voltmeter, measure the voltage between the terminals of the 2 phase connectors.

**Standard voltage: 0 V**

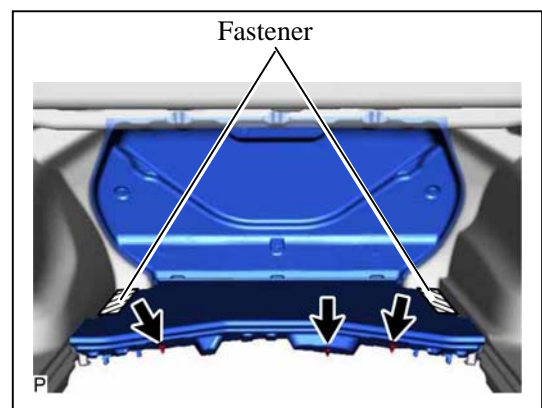
**Hint:**

Use a measuring range of DC 750 V or more on the voltmeter.

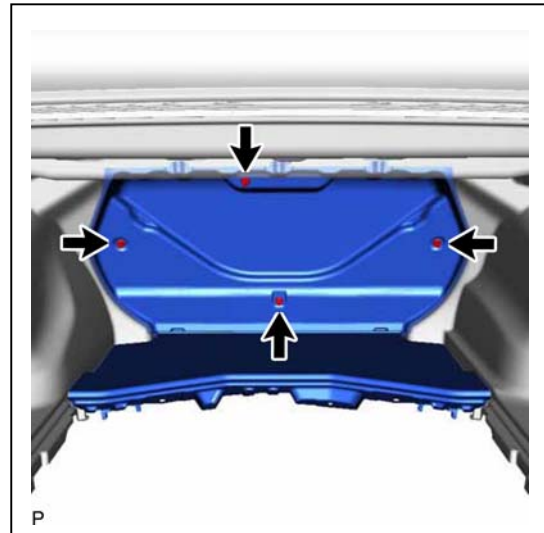


## 10. REMOVE FRONT LUGGAGE COMPARTMENT TRIM COVER (for Fixed Seat Type)

- (1) Remove the 3 clips.
- (2) Disengage the 2 fasteners.

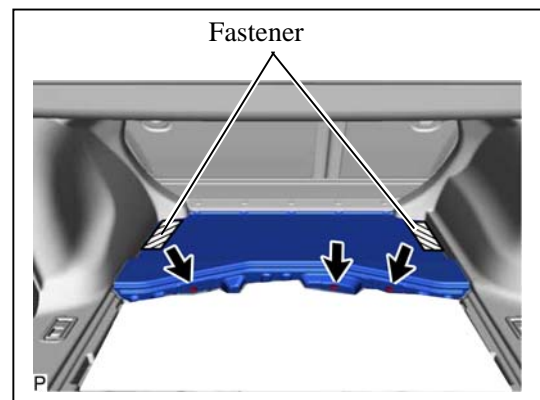


- (3) Remove the 4 clips and front luggage compartment trim cover.



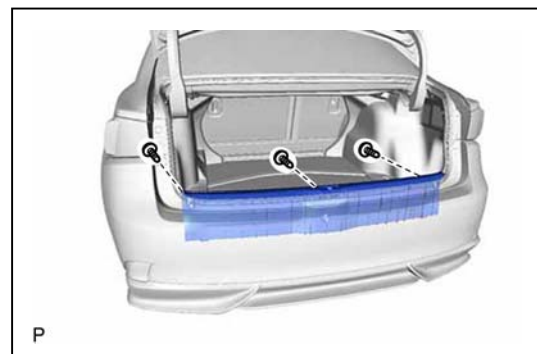
### 11. REMOVE FRONT LUGGAGE COMPARTMENT TRIM COVER (for Fold Down Seat Type)

- (1) Remove the 3 clips.  
(2) Disengage the 2 fasteners and remove the front luggage compartment trim cover.

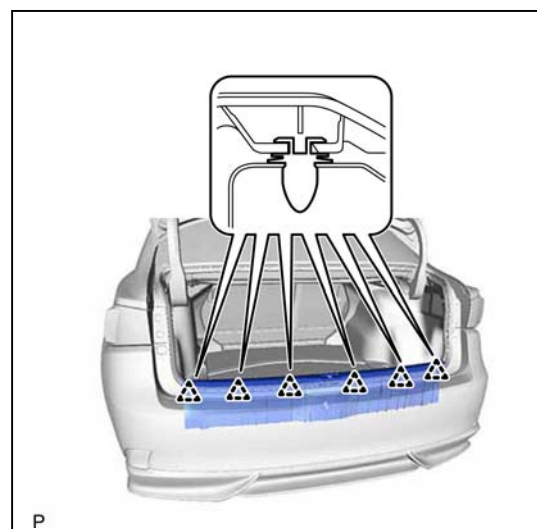


### 12. REMOVE REAR LUGGAGE COMPARTMENT TRIM COVER

- (1) Using a clip remover, remove the 3 clips.



- (2) Disengage the 6 clips and remove the rear luggage compartment trim cover.



### 13. REMOVE REAR SEAT CUSHION

#### ASSEMBLY

- (1) Lift up the front edge of the rear seat cushion assembly as shown in the illustration and disengage the 2 hooks on the front side of the rear seat cushion frame from the rear seat cushion lock hooks.

#### Notice:

**Be sure to hold the part of the seat cushion assembly directly next to the rear seat cushion lock hooks when lifting it up.**

**Lifting a different part of the cushion may deform the rear seat cushion frame.**

- (2) Disengage the 2 hooks on the rear side of the rear seat cushion frame from the child restraint seat anchor bracket hooks.
- (3) Pass the rear seat inner belt assembly through the rubber band of the rear seat cushion assembly.
- (4) Pass the 2 rear seat inner belts through the rear seat cushion assembly and remove the rear seat cushion assembly.

### 14. REMOVE REAR SEAT HEADREST

#### ASSEMBLY

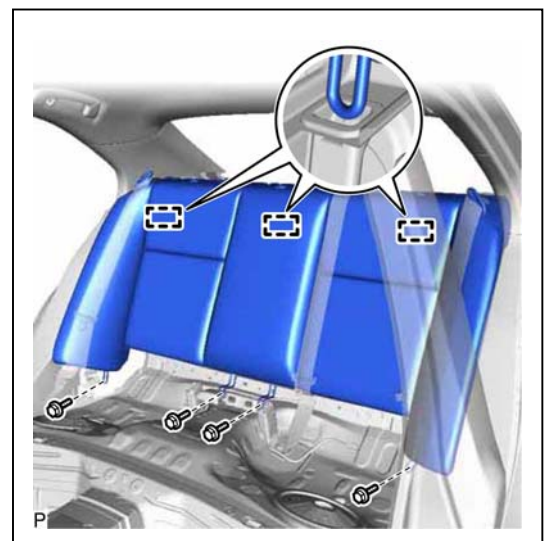
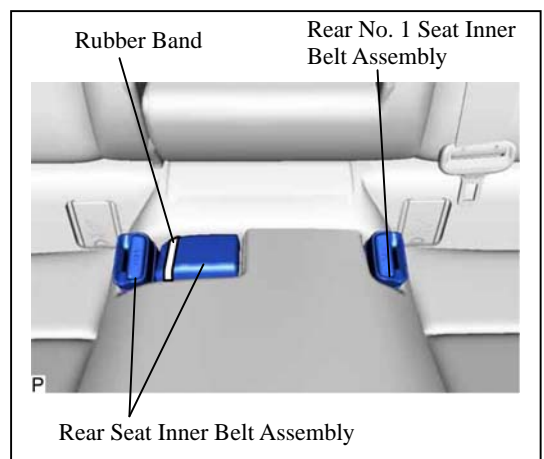
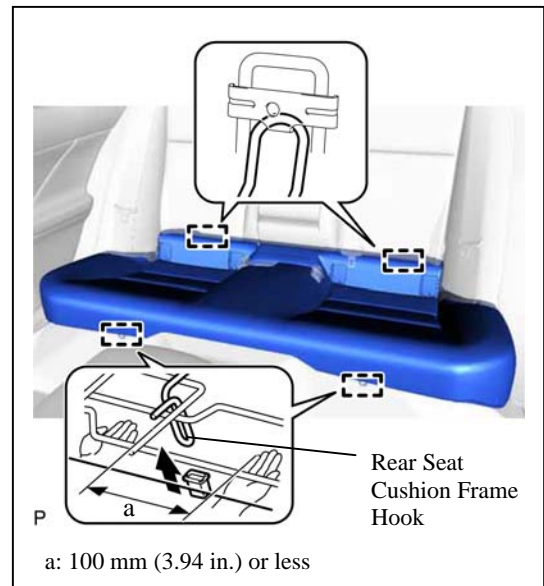
- (1) Remove the 2 rear seat headrest assemblies.

### 15. REMOVE REAR SEAT CENTER HEADREST ASSEMBLY

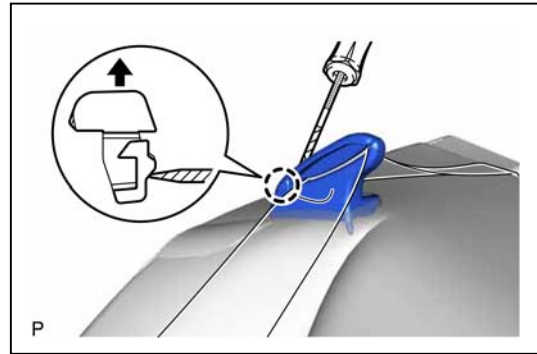
### 16. REMOVE REAR SEATBACK ASSEMBLY

(for Fixed Seat Type)

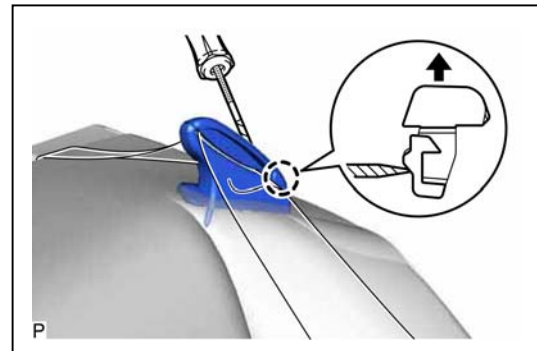
- (1) Remove the 4 bolts.
- (2) Disengage the 3 hooks.



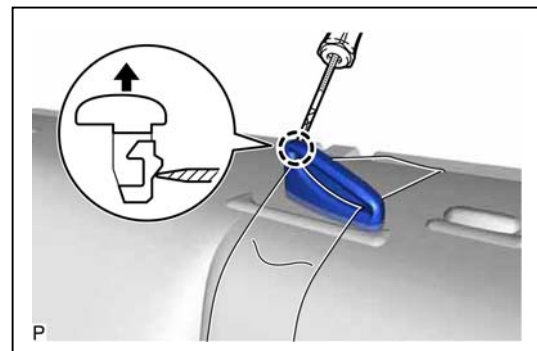
- (3) Using a screwdriver, disengage the claw of the rear seat shoulder belt guide RH as shown in the illustration.
- (4) Disconnect the rear seat 3 point type outer belt assembly RH from the rear seat shoulder belt guide RH.



- (5) Using a screwdriver, disengage the claw of the rear seat shoulder belt guide LH as shown in the illustration.
- (6) Disconnect the rear seat 3 point type outer belt assembly LH from the rear seat shoulder belt guide LH.

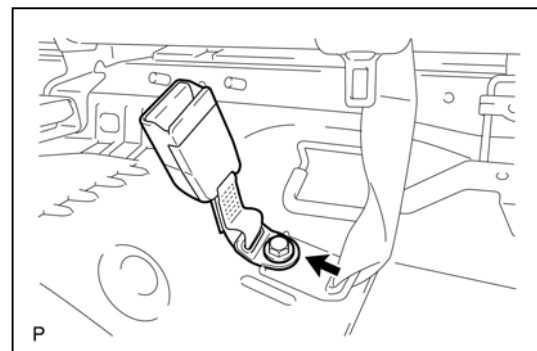


- (7) Using a screwdriver, disengage the claw of the rear seat center shoulder belt guide as shown in the illustration.
- (8) Disconnect the rear seat inner with center belt assembly LH from the rear seat center shoulder belt guide.
- (9) Remove the rear seatback assembly.



**17. REMOVE REAR NO. 1 SEAT INNER BELT ASSEMBLY LH (for Fold Down Seat Type)**

- (1) w/ Rear Seat Belt Warning:
  - a) Disengage the clamp.
  - b) Disconnect the connector.
- (2) Remove the bolt and rear No. 1 seat inner belt assembly LH.





## 18. REMOVE REAR SIDE SEATBACK

### ASSEMBLY RH (for Fold Down Seat Type)

- (1) w/ Rear Seat Side Airbag
  - a) Disconnect the airbag connector.

**Notice:**

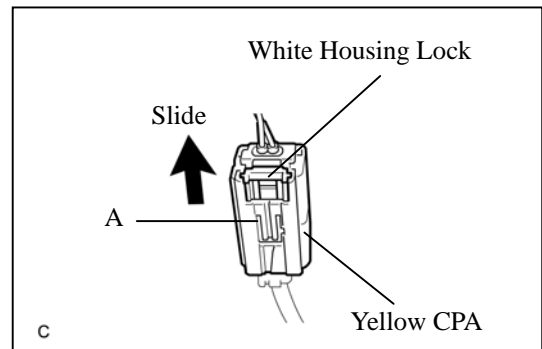
**When disconnecting any airbag connector, take care not to damage the airbag wire harness.**

- b) Push down the white housing lock and slide the yellow CPA. (At this time, the connector cannot be disconnected yet.)
- c) Push down the white housing lock again and disconnect the connector.

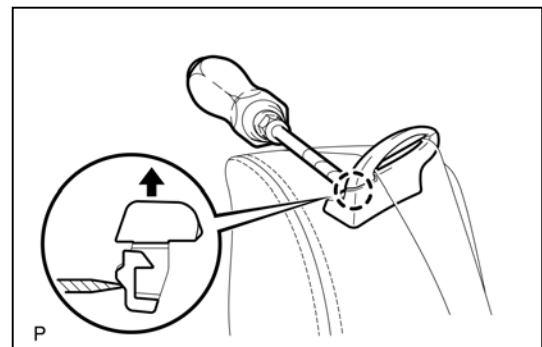
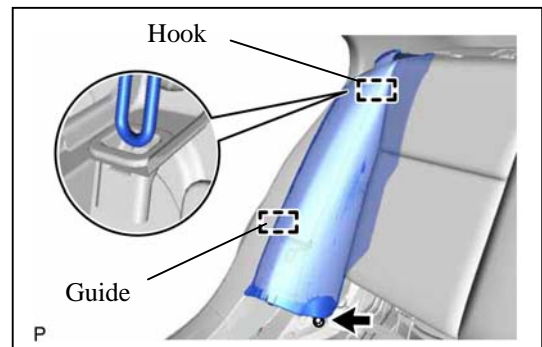
**Notice:**

**Do not push down the part (A) shown in the illustration when disconnecting the connector.**

- (2) Remove the bolt.
- (3) Disengage the guide and hook.



- (4) Using a screwdriver, disengage the claw as shown in the illustration.
- (5) Disconnect the rear seat 3 point type outer belt assembly RH from the rear seat shoulder belt guide RH.
- (6) Remove the rear side seatback assembly RH.



## 19. REMOVE REAR SIDE SEATBACK

### ASSEMBLY LH (for Fold Down Seat Type)

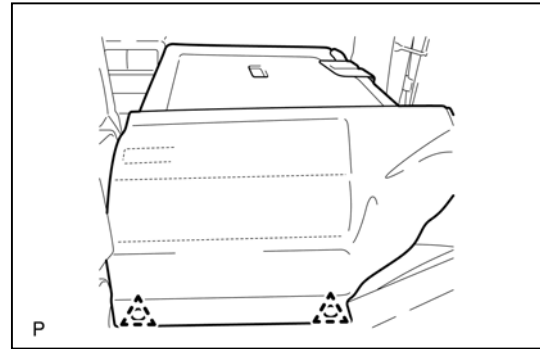
**Hint:**

**Use the same procedure as for the RH side.**

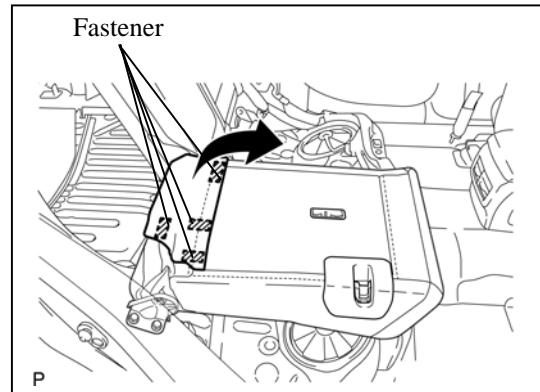
## 20. REMOVE REAR SEATBACK ASSEMBLY

RH (for Fold Down Seat Type)

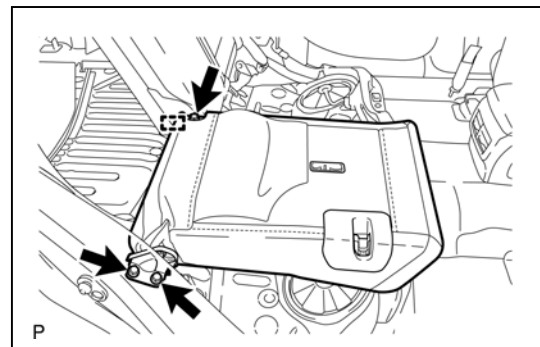
- (1) Fold the rear seatback assembly RH forward.
- (2) Disengage the 2 clips.



- (3) Disengage the 4 fasteners as shown in the illustration.



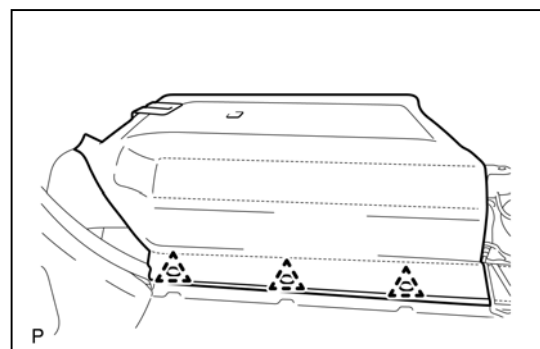
- (4) Remove the 3 bolts.
- (5) Disengage the guide to remove the rear seatback assembly RH.



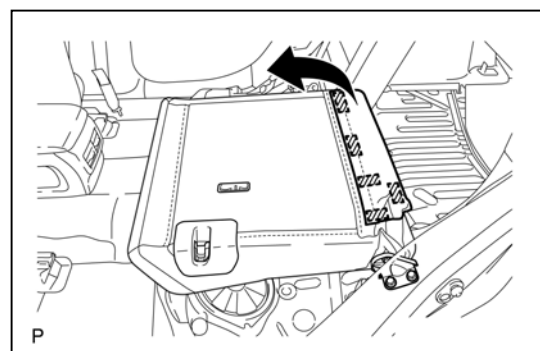
## 21. REMOVE REAR SEATBACK ASSEMBLY

LH (for Fold Down Seat Type)

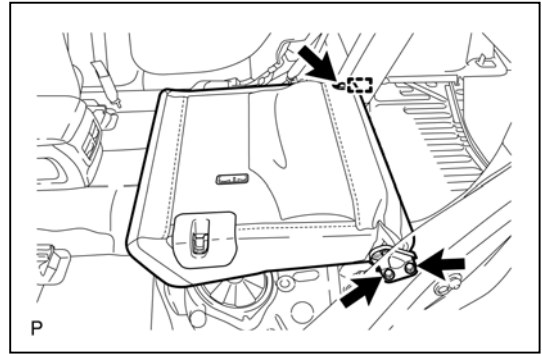
- (1) Fold the rear seatback assembly LH forward.
- (2) Disengage the 3 clips.



- (3) Disengage the 5 fasteners as shown in the illustration.

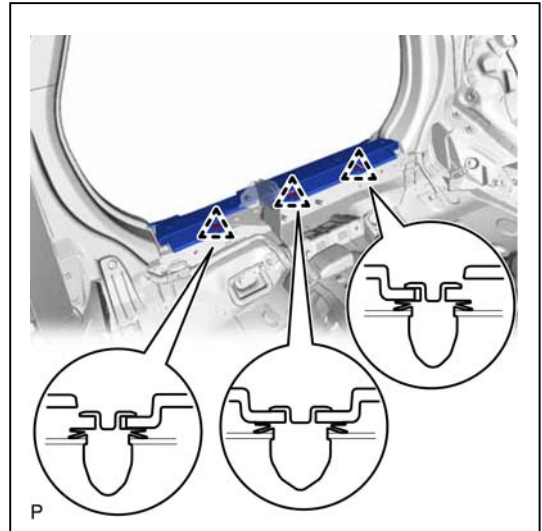


- (4) Remove the 3 bolts.
- (5) Disengage the guide to remove the rear seatback assembly LH.



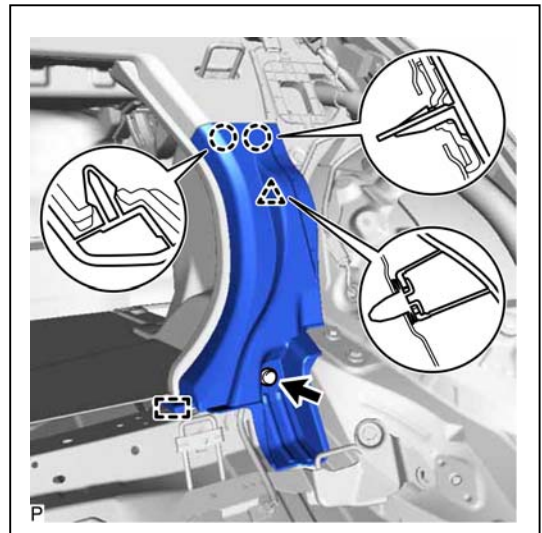
**22. REMOVE REAR SEAT SUB FLOOR PANEL (for Fold Down Seat Type)**

- (1) Disengage the 3 clips to remove the rear seat sub floor panel.



**23. REMOVE NO. 2 ROOM PARTITION COVER (for Fold Down Seat Type)**

- (1) Remove the clip.
- (2) Disengage the 2 claws and clip.
- (3) Disengage the guide to remove the No. 2 room partition cover.



**24. REMOVE NO. 1 ROOM PARTITION COVER (for Fold Down Seat Type)**

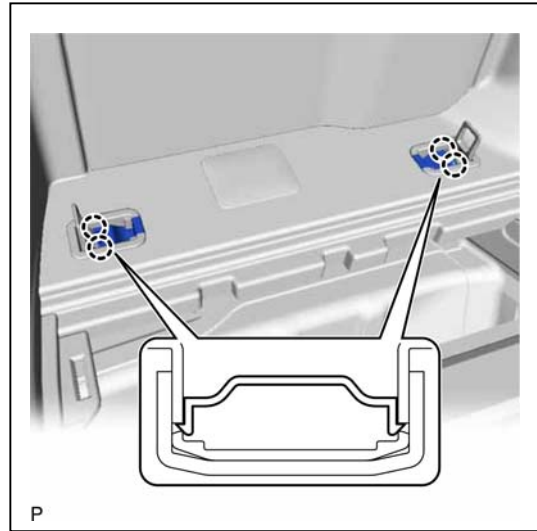
**Hint:**

Use the same procedure as for the No. 2 room partition cover.

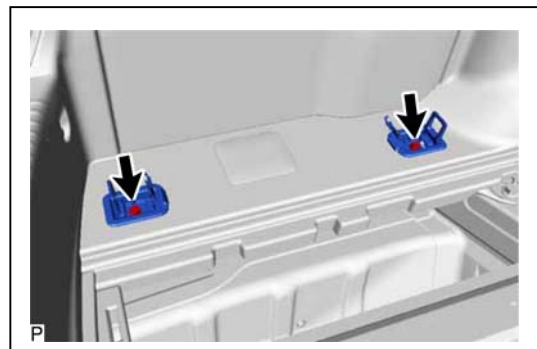


## 25. REMOVE LUGGAGE COMPARTMENT TRIM COVER LH

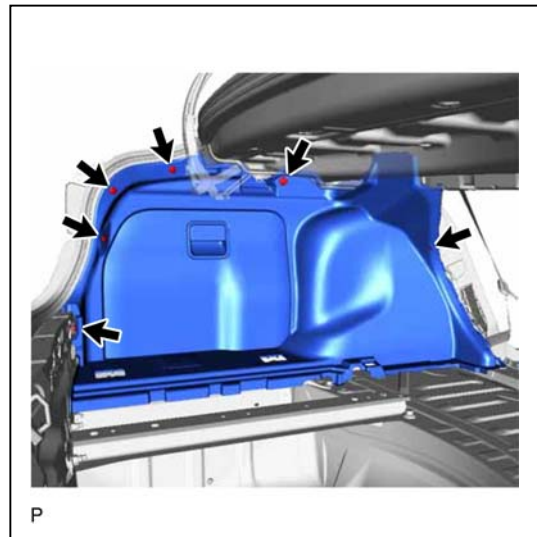
- (1) Disengage the 4 claws and open the 2 covers.



- (2) Remove the 2 bolts and 2 rope hook assembly.



- (3) Remove the 6 clips.

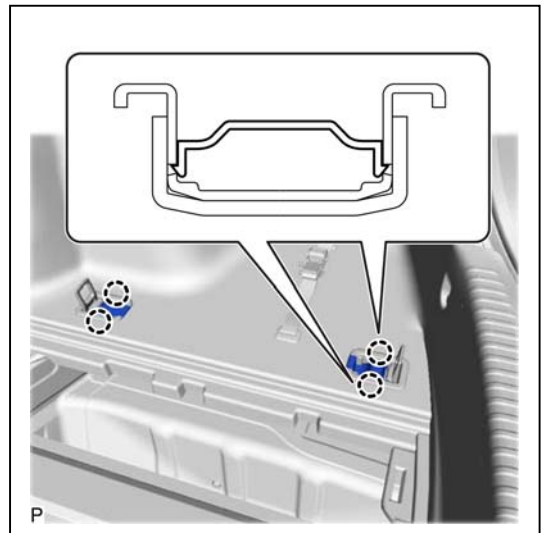


- (4) Disengage the clip.
- (5) Disengage the guide and remove the luggage compartment trim cover LH.

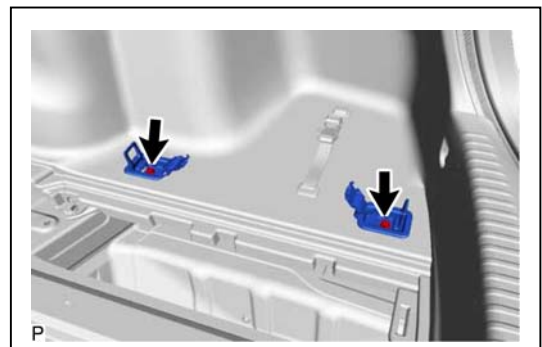


**26. REMOVE LUGGAGE COMPARTMENT TRIM COVER RH**

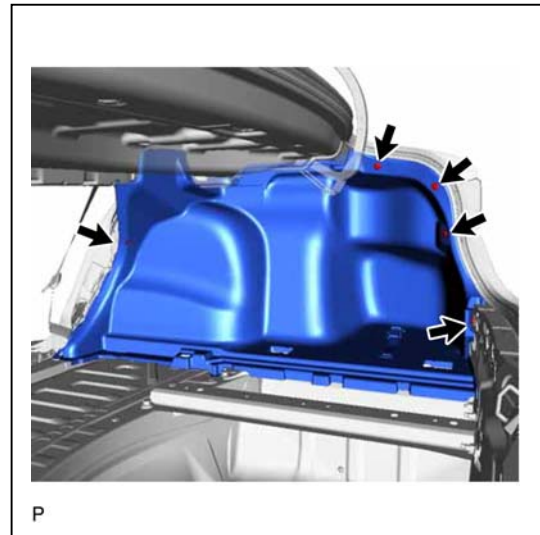
- (1) Disengage the 4 claws and open the 2 covers.



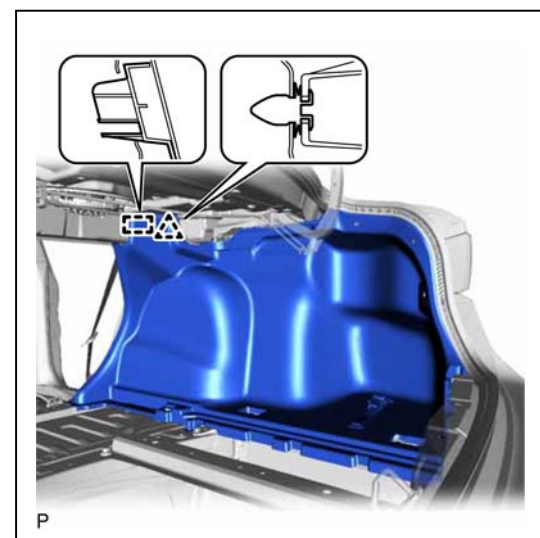
- (2) Remove the 2 bolts and 2 rope hook assembly.



- (3) Remove the 5 clips.

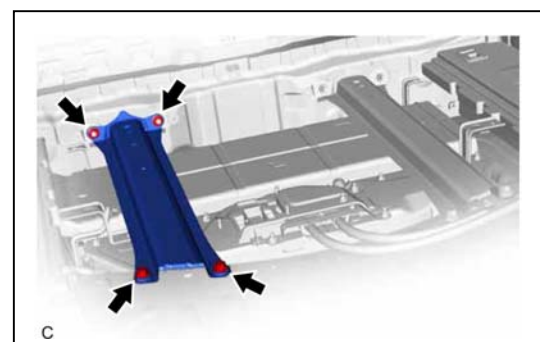


- (4) Disengage the clip.
- (5) Disengage the guide and remove the luggage compartment trim cover RH.



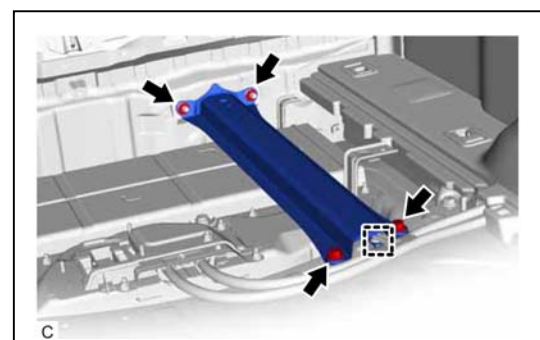
## 27. REMOVE REAR NO. 1 FLOOR CROSSMEMBER BRACE RH

- (1) Remove the 2 bolts, 2 nuts and rear No. 1 floor crossmember brace RH.



## 28. REMOVE REAR NO. 1 FLOOR CROSSMEMBER BRACE LH

- (1) Disengage the clamp from the rear No. 1 floor crossmember brace LH.
- (2) Remove the 2 bolts, 2 nuts and rear No. 1 floor crossmember brace LH.



## 29. REMOVE NO. 4 HYBRID BATTERY SHIELD PANEL

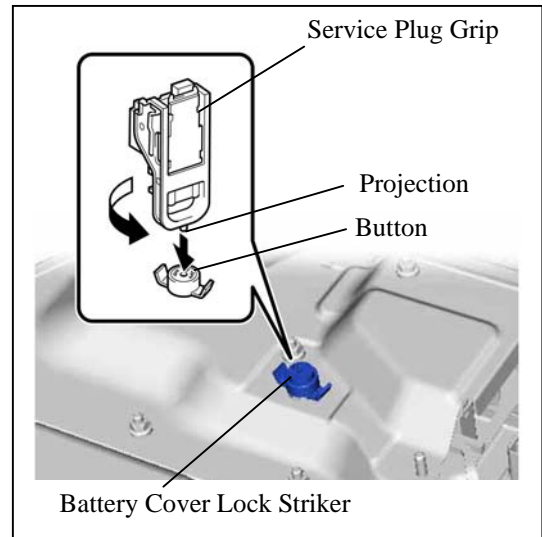
**Caution:**

**Wear insulated gloves.**

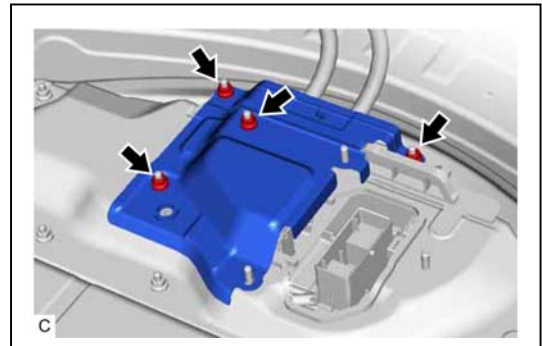
- (1) Using the service plug grip, remove the battery cover lock striker from the No. 4 hybrid battery shield panel.

**Hint:**

Insert the projection of the service plug grip, turn the button of the battery cover lock striker counterclockwise, and release the lock.



- (2) Remove the 4 nuts and No. 4 hybrid battery shield panel.

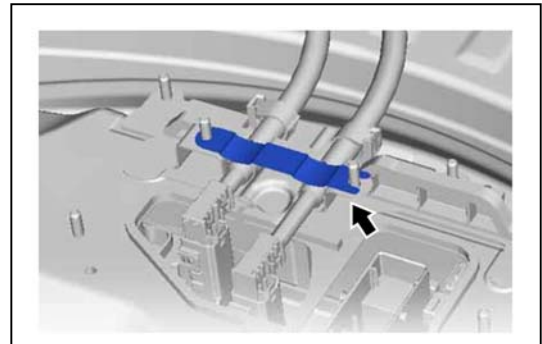


## 30. DISCONNECT FRAME WIRE

**Caution:**

**Wear insulated gloves.**

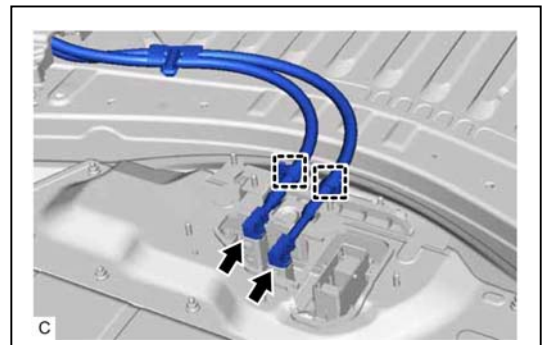
- (1) Remove the earth terminal from the upper hybrid battery cover sub-assembly.



- (2) Disengage the 2 clamps from the upper hybrid battery cover sub-assembly.
- (3) Disconnect the 2 frame wire connectors from the hybrid battery terminal block.

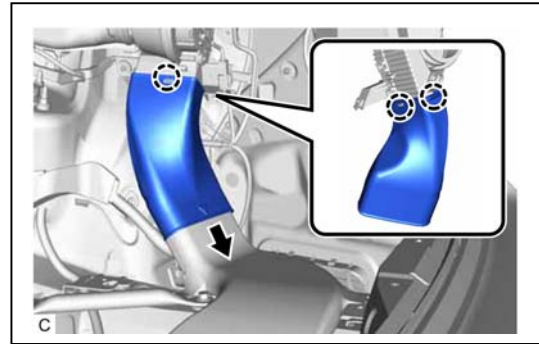
**Notice:**

**Insulate the disconnected connectors with insulating tape.**



### 31. SEPARATE NO. 3 HYBRID BATTERY INTAKE DUCT

- (1) Disengage the 3 claws.
- (2) Slide the No. 3 hybrid battery intake duct to separate the No. 3 hybrid battery intake duct from the battery cooling blower assembly as shown in the illustration.

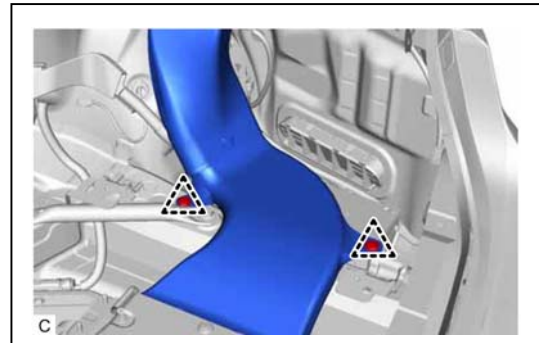


### 32. REMOVE NO. 4 HYBRID BATTERY INTAKE DUCT

**Caution:**

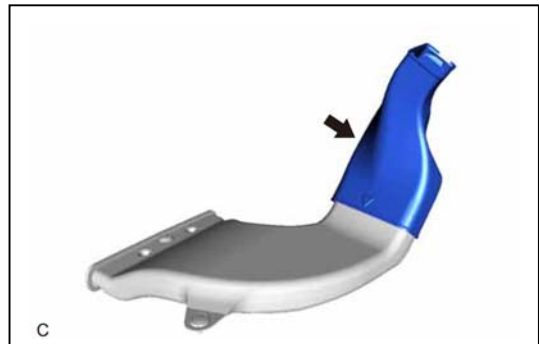
**Wear insulated gloves.**

- (1) Remove the 2 clips, No. 4 hybrid battery intake duct and No. 3 hybrid battery intake duct from the HV battery.



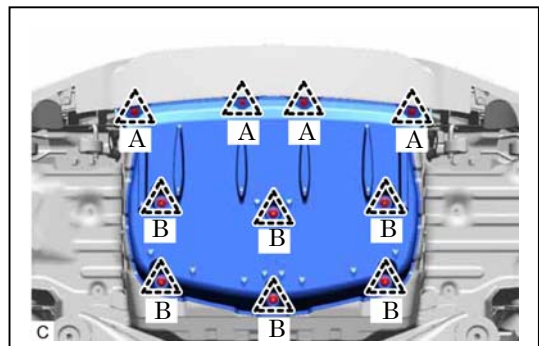
### 33. REMOVE NO. 3 HYBRID BATTERY INTAKE DUCT

- (1) Remove the No. 3 hybrid battery intake duct from the No. 4 hybrid battery intake duct.



### 34. REMOVE NO. 1 FLOOR UNDER COVER ASSEMBLY

- (1) Remove the 4 clips (A) from the No. 1 floor under cover assembly.
- (2) Disengage the 6 clips (B) and remove the No. 1 floor under cover assembly.

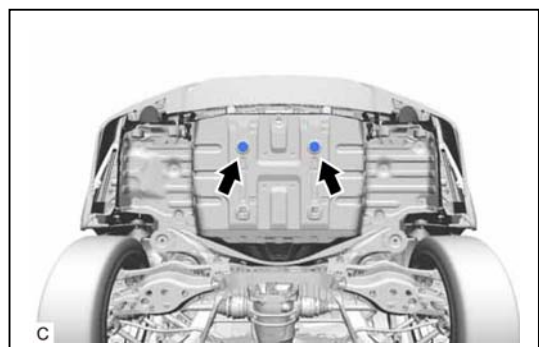


### 35. REMOVE HV BATTERY

**Caution:**

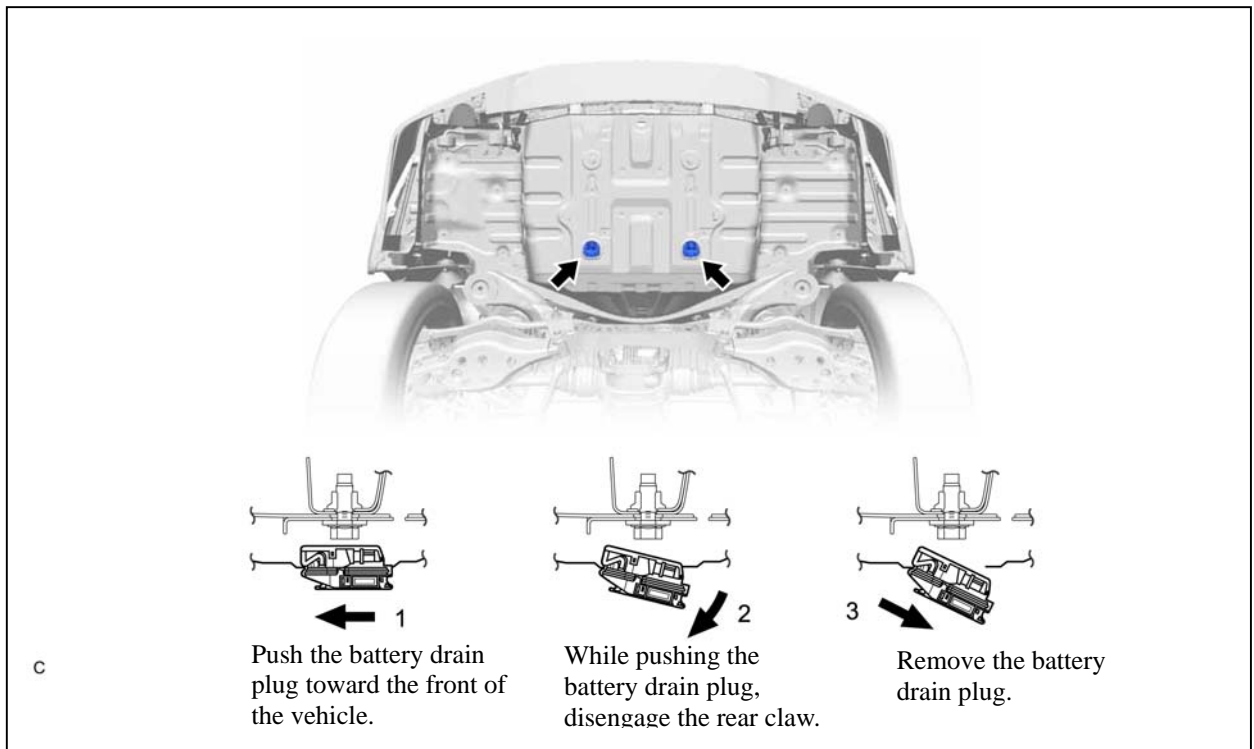
**Wear insulated gloves.**

- (1) Remove the 2 grommets.

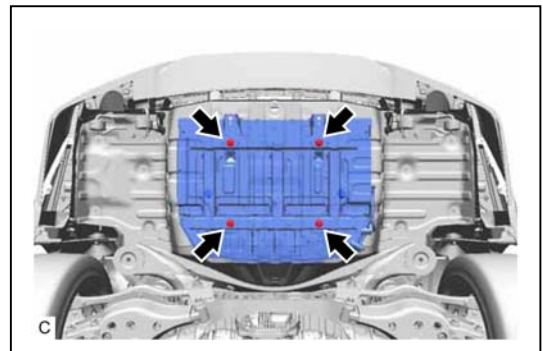




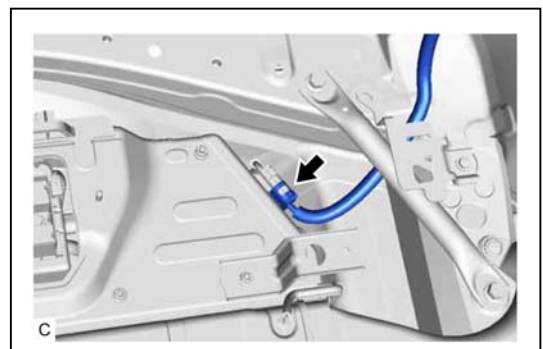
- (2) Remove the 2 battery drain plugs as indicated by the arrows, in the order shown in the illustration.



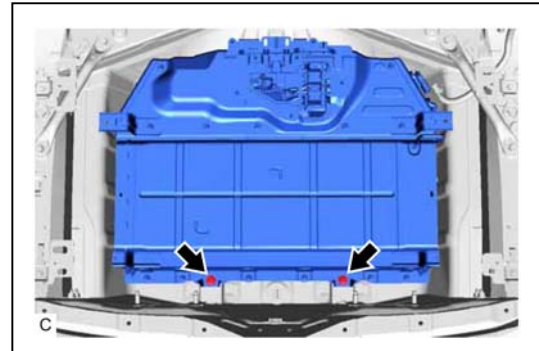
- (3) Remove the 4 bolts.



- (4) Disconnect the HV battery connector.



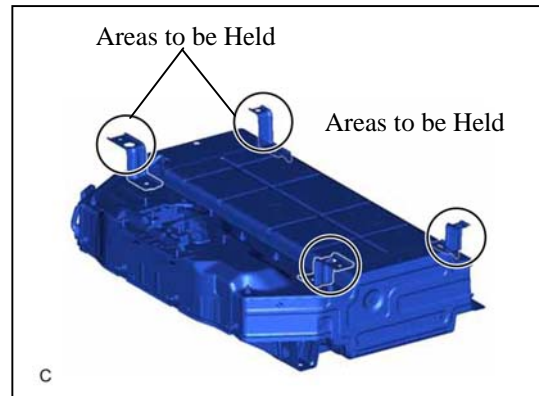
(5) Remove the 2 bolts.



(6) Hold the areas shown in the illustration and remove the HV battery.

**Notice:**

- To prevent the wire harness from being caught, make sure to bundle the wire harness using insulating tape or equivalent.
- Use cardboard or other similar material to protect the HV battery and vehicle body from damage.
- Since the HV battery is very heavy, 2 people are needed to remove the HV battery. When removing the HV battery, do not damage the parts around it.
- When removing the HV battery from the vehicle, do not allow it to contact the vehicle.
- When removing/installing/moving the HV battery, make sure not to tilt it more than 80°.



(7) The HV battery pack is recyclable. Contact your Lexus distributor (if included on the HV battery caution label) or contact the nearest Lexus dealer (see next page for samples of the HV battery caution label).

**Caution:**

**After removing the HV battery, do not reinstall the service plug grip to the HV battery.**

# HV Battery Caution Label

Except Russia:

	<b>ОПАСНО</b>	<b>Высокое напряжение/щелочной электролит</b>
	<p>При работе с аккумуляторной батареей соблюдайте следующие меры предосторожности. Несоблюдение мер предосторожности может привести к пожару, поражению электрическим током или смертельному исходу. Попадание щелочного электролита в глаза, на кожу или одежду может вызвать слепоту или проблемы с кожей. В случае попадания электролита следует промыть пораженный участок водой и немедленно обратиться за медицинской помощью. ●Никогда не разбирайте, не модифицируйте аккумуляторную батарею и не снимайте с нее крышку. (Осуществляйте обслуживание аккумуляторной батареи у дилера или специалиста надлежащей квалификации.) ●Не выбрасывайте аккумуляторную батарею на свалку, если это противоречит законодательству. Это может привести к загрязнению окружающей среды, серьезному вреду для здоровья или смертельному исходу. ●Избегайте прокола аккумуляторной батареи или ударов по ней. ●Не оставляйте аккумуляторную батарею вблизи открытого огня. ●Не подвергайте аккумуляторную батарею воздействию воды. ●Не подпускайте детей к аккумуляторной батарее.</p>	
	<p><b>Для квалифицированных технических специалистов, специалистов по перевозкам и разборке</b>                  Перед обслуживанием или заменой аккумуляторной батареи ознакомьтесь с руководством по ремонту.                  Перед транспортировкой или разборкой аккумуляторной батареи проконсультируйтесь у дилера или местного дистрибьютора.</p>	
	<p><b>Информация об Утилизации аккумуляторной батареи HV (гибридного автомобиля)</b>                  ●Транспортировка аккумуляторной батареи должна осуществляться в соответствии со всеми применимыми законами.                  ●Консультации по замене и утилизации аккумуляторной батареи осуществляются дилером или местным дистрибьютором.</p>	

Russia:

	<b>DANGER</b>	<b>High Voltage Inside / Alkaline Electrolyte</b>	<b>Haute tension à l'intérieur / Electrolyte alcalin</b>
	<p>Observe the following precautions when you handle this battery unit. If you do not conform to those, it may result in a fire, an electrical shock and death in the worst case. Leakage of alkaline electrolyte may cause blindness or skin problems, if alkaline electrolyte comes into contact with your eyes, skins or clothes. In event of accident, flush with water and get medical help immediately.                  ●Never disassemble, convert, or divert this battery unit or remove its covers. (Please have the battery serviced by your dealer or a Qualified Technician.) ●Do not dump this unit illegally. It may result in pollution, death or serious injury. ●Do not puncture or expose this unit to Impact. ●Keep this unit away from a fire. ●Do not water this unit. ●Keep children away from this unit.</p>		<p>Respecter les mesures de précaution suivantes lorsque vous manipulez cette batterie. Le non-respect de ces mesures peut provoquer un incendie ou une décharge électrique et entraîner la mort dans les cas les plus graves. Une fuite d'électrolyte alcalin peut entraîner la cécité ou des problèmes dermatologiques si l'électrolyte alcalin entre en contact avec les yeux, la peau ou les vêtements. En cas d'accident, rincer abondamment à l'eau et consulter immédiatement un médecin. ●Ne jamais démonter, convertir ou diverter cette batterie, ou enlever ses couvercles (Veillez à faire entretenir la batterie par votre concessionnaire ou un technicien qualifié.) ●Ne pas jeter cette batterie de manière illégale. Cela pourrait polluer l'environnement, provoquer de graves blessures ou entraîner la mort. ●Ne pas percer cette batterie ou l'exposer à des impacts. ●Tenir cette batterie éloignée du feu. ●Ne pas mouiller cette batterie. ●Gardez lurs de parties des enfants.</p>
	<p><b>To Qualified Technicians, Haulers, Dismantlers</b>                  Be sure to read the Repair Manual when servicing or replacing this unit.                  Please consult your dealer or your national distributor when hauling or dismantling this unit.</p>		<p><b>A l'attention des techniciens qualifiés, transporteurs, démonteurs</b>                  Veillez à lire le manuel de réparation lors de l'entretien ou du remplacement de cette batterie.                  Veillez à consulter votre concessionnaire ou votre distributeur national lorsque vous transportez ou démontez cette batterie.</p>
	<p><b>HV Battery Recycling Information</b>                  ●Please transport this unit in accordance with all applicable laws.                  ●Consultations about replacing and disposing this battery unit are accepted in your dealer or your national distributor.</p>		<p><b>Informations concernant le recyclage des batteries des HV (Véhicules Hybrides):</b>                  ●Veillez à transporter cette batterie dans le respect des lois applicables.                  ●Vous pouvez consulter votre concessionnaire ou votre distributeur national pour savoir comment remplacer ou éliminer cette batterie.</p>