



GS 450h

Gasoline-Electric

Hybrid Synergy Drive

HYBRID VEHICLE DISMANTLING MANUAL



Foreword

This guide was developed to educate and assist dismantlers in the safe handling of the Lexus GS450h gasoline-electric hybrid vehicle. GS450h dismantling procedures are similar to other 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 GS450h, as they may not be familiar to dismantlers.

High voltage electricity powers an electric motor, generator, electric inverter compressor (for air conditioner) and inverter. All other conventional automotive electrical devices such as the headlights, radio, power steering, and gauges are powered from a separate 12 Volt battery. Numerous safeguards have been designed into the GS450h to help ensure the high voltage, approximately 288 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 laptop computers, cell phones, 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 GS450h identification.
- Major hybrid component locations and descriptions.

By following the information in this guide, dismantlers will be able to handle the GS450h hybrid-electric vehicle as safely as the dismantling of a conventional gasoline engine automobile.

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About the GS450h

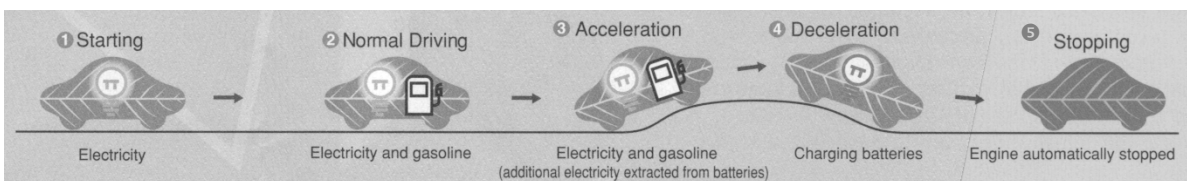
The GS450h sedan joins the RX400h as a hybrid model for Lexus. *Hybrid Synergy Drive* means that the vehicle contains a gasoline engine and an electric motor for power. The two hybrid power sources are stored on board the vehicle:

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 GS450h 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 GS450h 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.
- 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 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.



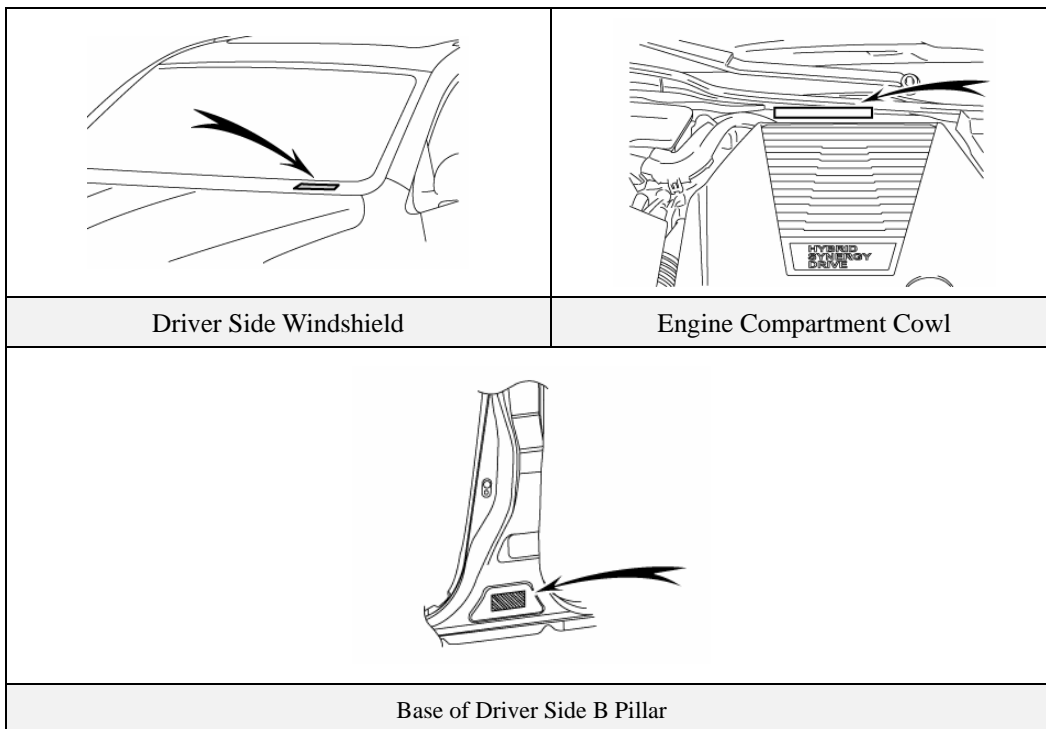
GS450h Identification

In appearance, the 2007 GS450h is nearly identical to the conventional, non-hybrid Lexus GS430 / 300. The GS450h 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, driver door pillar, and engine compartment.

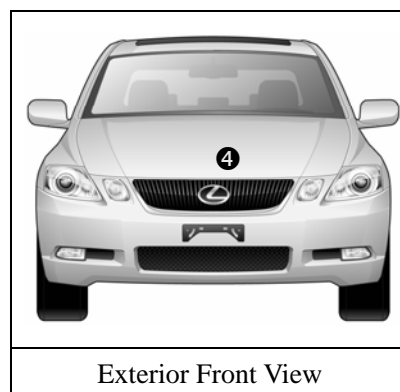
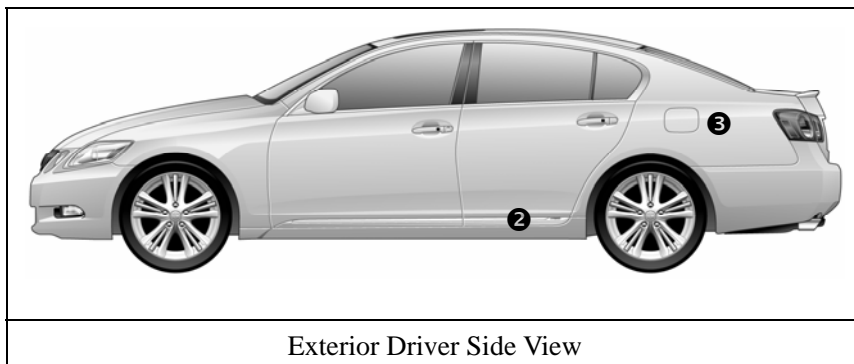
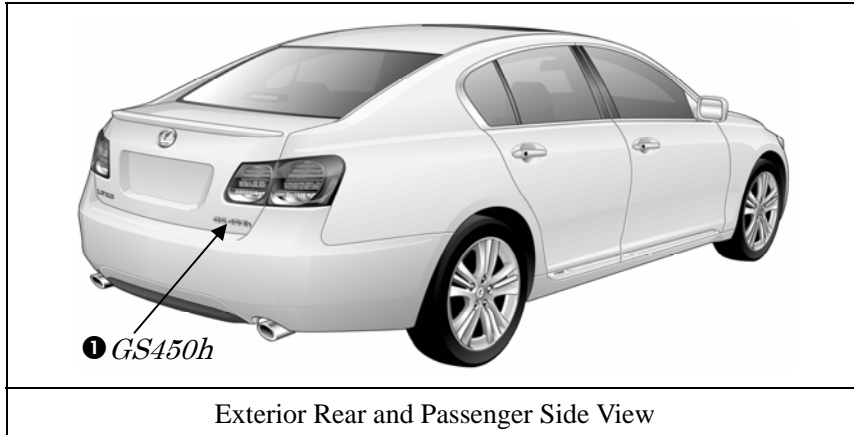
Example VIN: JTHBC96S840020208

A GS450h is identified by the first 6 alphanumeric characters;
JTHBC9.



Exterior

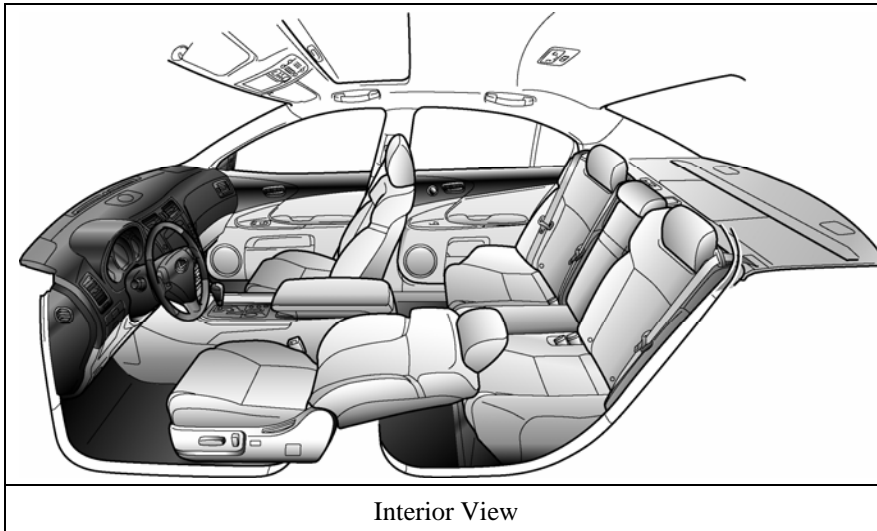
- ❶ *GS450h* logo on the trunk.
- ❷ *HYBRID* logos on the rear door moulding.
- ❸ Gasoline fuel filler door located on left side quarter panel.
- ❹ Lexus logo on the radiator grille.



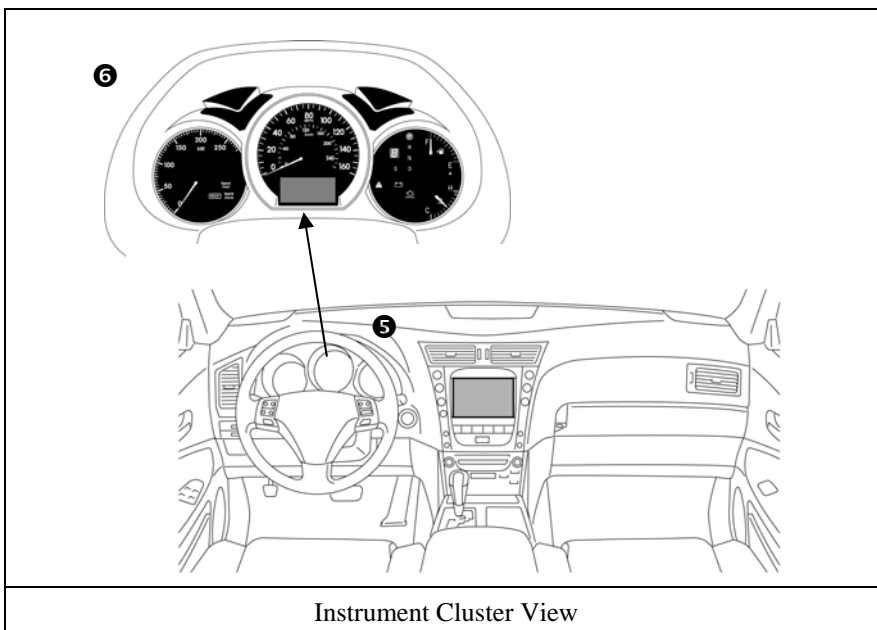
GS450h Identification (Continued)

Interior

- ⑤ Instrument cluster (speedometer, fuel gauge, warning lights) located in the dash behind the steering wheel, is different than the one on the conventional, non-hybrid GS430/300.
- ⑥ In place of a tachometer, a power meter showing KW output is used.



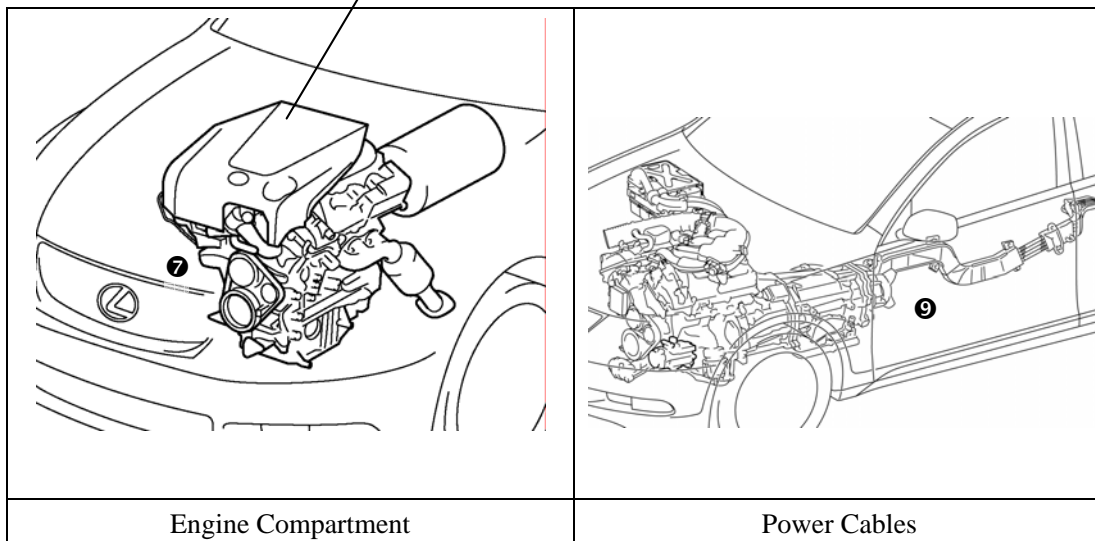
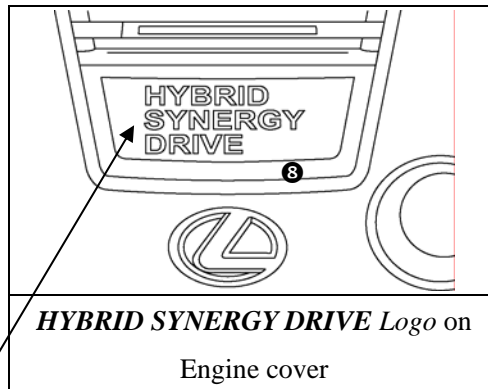
Interior View



Instrument Cluster View

Engine Compartment

- ⑦ 3.5liter aluminum alloy gasoline engine.
- ⑧ Engine assembly with logo on the cover.
- ⑨ Orange colored high voltage power cables.



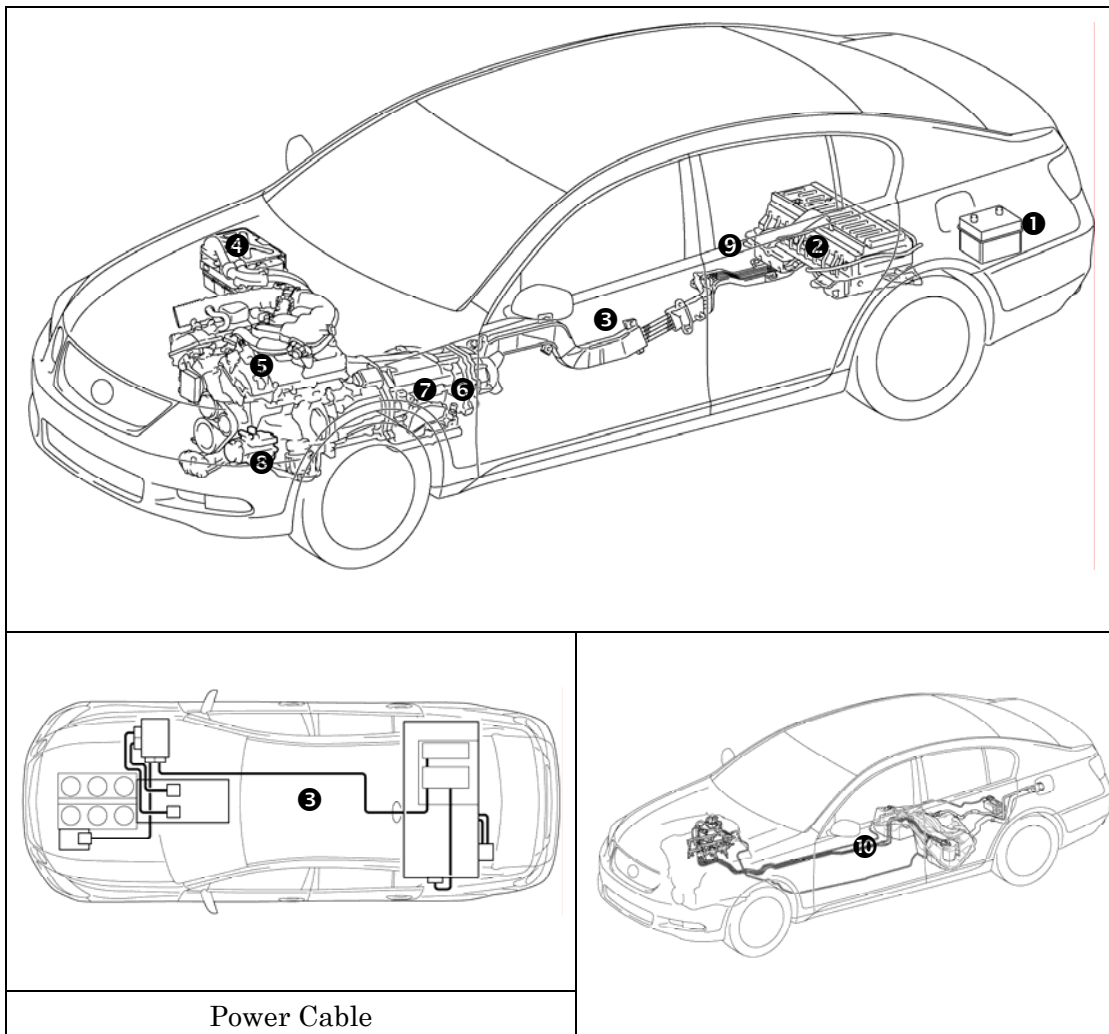
Hybrid Component Locations & Descriptions

Component	Location	Description
12 Volt Auxiliary Battery ❶	Trunk	A lead-acid battery that supplies power to the low voltage devices.
Hybrid Vehicle (HV) Battery Pack ❷	Trunk Area, Mounted to Cross Member and behind Rear Seat	288 Volt Nickel Metal Hydride (NiMH) battery pack consisting of 40 low voltage (7.2 Volt) modules connected in series.
Power Cables ❸	Under Carriage and Engine Compartment	Orange colored power supply 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, electrical 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.
Gasoline Engine ❺	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 Generator ❻	Transmission	3-phase high-voltage AC generator that is contained in the transmission and recharges the HV battery pack.
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.
A/C Compressor ❸	Engine Compartment	3-phase high voltage AC electrically driven motor compressor.
DC-DC Converter ❾	Trunk under HV Battery Pack	Converts 288 Volts from the HV battery pack to 12 Volts for low voltage vehicle power.
Fuel Tank and Fuel Lines ❿	Undercarriage, Driver Side and Center	The fuel tank provides gasoline via fuel lines to the engine. The fuel lines are routed along the driver side and center tunnel under the floor pan.

Specifications

- Gasoline Engine: 292 hp (218 KW), 3.5 liter Aluminum Alloy Engine
- Electric Motor: 197 hp (147 KW), Permanent magnet Motor.
- Transmission: Automatic Only
- HV Battery: 288 Volt Sealed NiMH Battery
- Curb Weight: North America: 4,134 lbs / 1,875 kg
Europe: 4112 – 4,225 lbs / 1,865 – 1,930 kg
- Fuel Tank: 17.2 gals / 65 liters
- Body Material: Steel Panels

This illustration is for LHD.



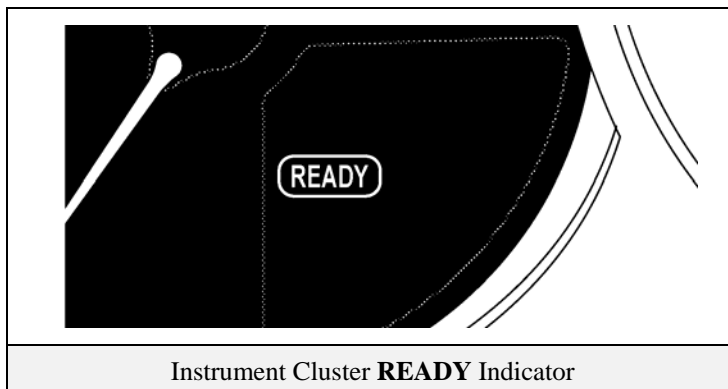
Hybrid Synergy Drive Operation

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 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 GS450h, 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. 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.



Instrument Cluster **READY** Indicator

Hybrid Vehicle (HV) Battery Pack and Auxiliary Battery

The GS450h contains 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 securely mounted in the trunk area behind the rear seat. The metal case is isolated from high voltage and concealed by fabric covers.
- The HV battery pack consists of 40 low voltage (7.2 Volt) NiMH battery modules connected in series to produce approximately 288 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 mixture of potassium and sodium hydroxide. The electrolyte is absorbed into the battery cell plates and forms a gel that will not normally leak, even in a collision.
- In the unlikely event that the battery pack is overcharged, the modules vent gases directly outside the vehicle through a vent hose.

HV Battery Pack	
Battery pack voltage	288 V
Number of NiMH battery modules in the pack	40
NiMH battery module voltage	7.2 V
NiMH battery module dimensions	5 x 1 x 11 in. (118 x 20 x 276 mm)
NiMH module weight	2.3 lbs (1.0 kg)
NiMH battery Pack dimensions	13 x 37 x 19 in. (340 x 955 x 485 mm)
NiMH battery Pack weight	145.5 lbs (66 kg)

Components to Which High Voltage is Applied

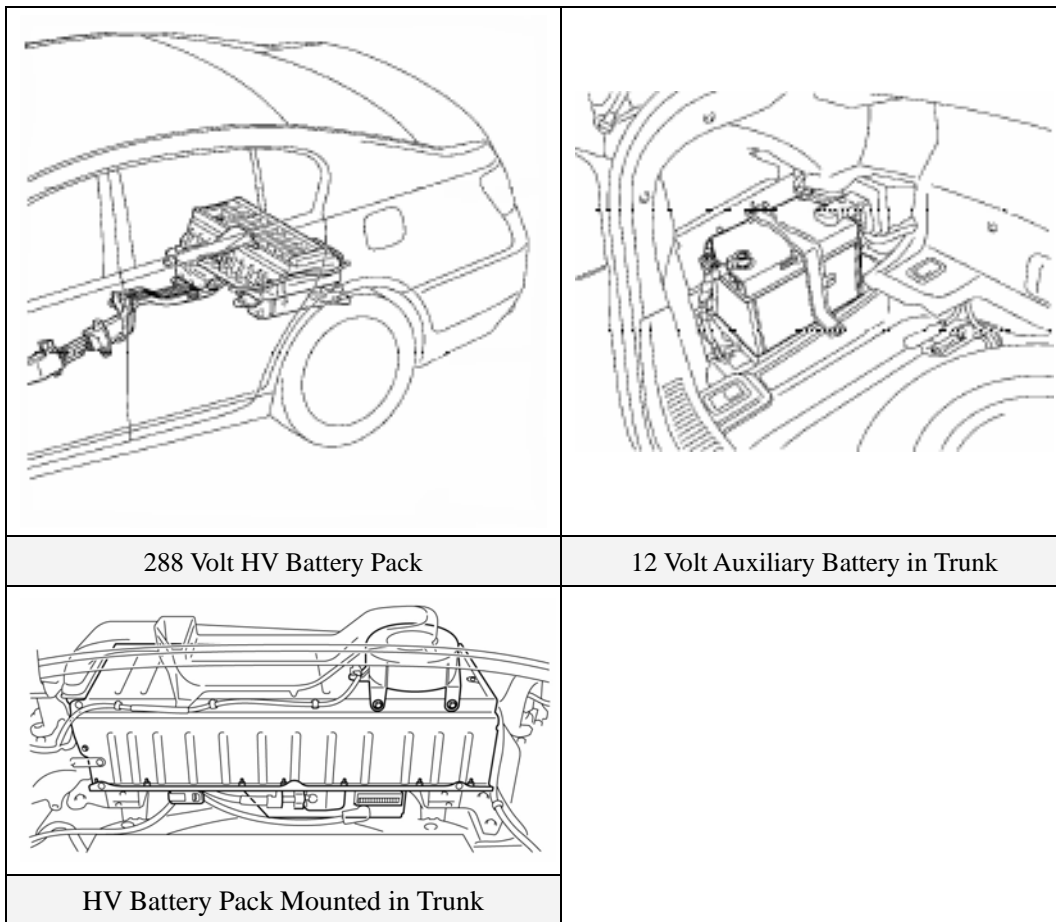
- Electric Motor
- Inverter/Converter
- A/C Compressor
- Power Cables
- DC-DC Converter
- Electric Generator

HV Battery Pack Recycling

- The HV battery pack is recyclable. Contact your Lexus Distributor as mentioned on HV battery Caution Label (see the page 29) or the nearest Lexus dealer.

Auxiliary Battery

- The GS450h 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 trunk area.



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 passenger side propeller shaft and transmission tunnel to the inverter/converter. The inverter/converter contains a circuit that boosts the HV battery voltage from 288 to 650 Volts DC. The inverter creates 3-phase AC to power the motor and generator located in the transmission. Power cables are routed from the inverter to each high-voltage motor (electrical motor, electric generator, and A/C compressor). The following systems 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 electricity flow from leaving the HV battery pack.



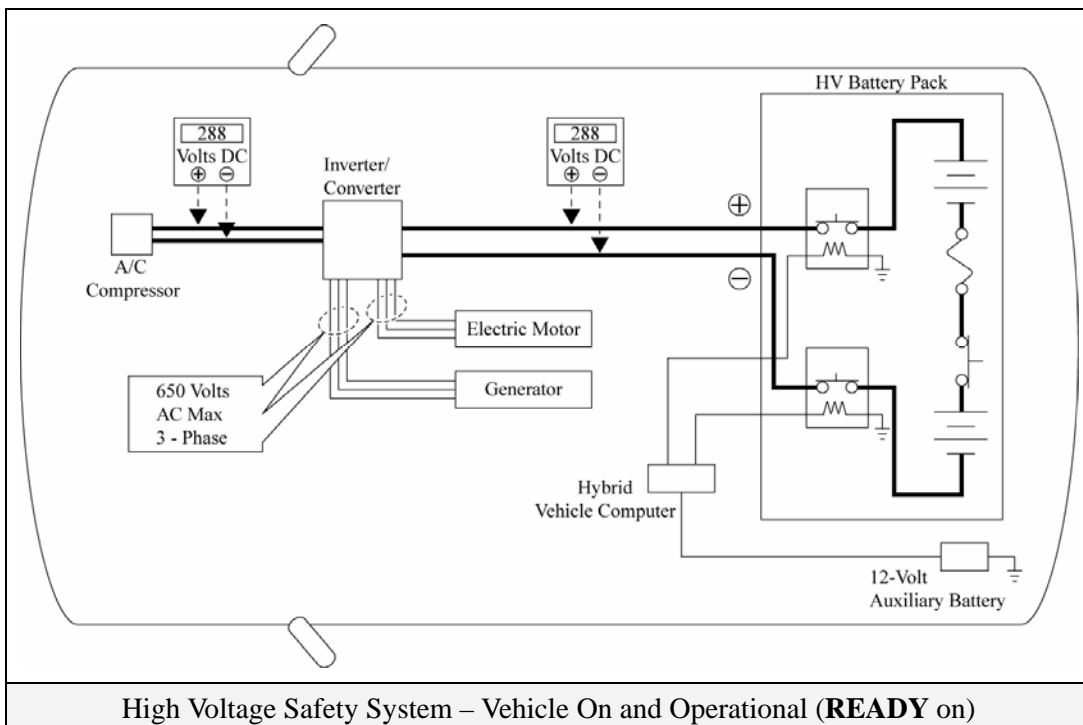
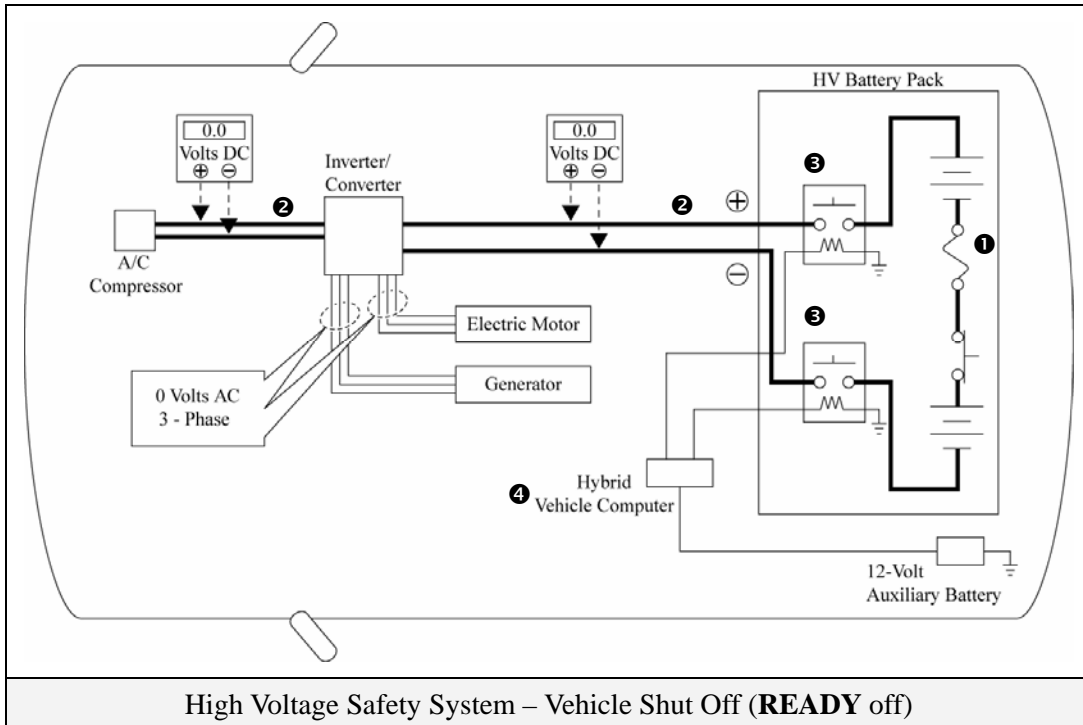
WARNING:

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.

Service Plug

- The high-voltage circuit is cut by removing service plug (See page 15).



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 (insulated gloves, rubber gloves, safety goggles, and safety shoes).
- Vinyl tape for insulation.
- Before wearing insulated the vehicle gloves, make sure that they are not cracked, ruptured, torn, or damaged in any other way. Do not wear wet insulated gloves.

Spillage

The GS450h contains the same common automotive fluids used in other non-hybrid Lexus 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 the use of baking soda to neutralize a lead-acid battery electrolyte spill, a dilute boric acid solution or vinegar can be used to neutralize a NiMH battery electrolyte spill.

In an emergency, Lexus Material Safety Data Sheets (MSDS) are available by contacting:

- Handle NiMH electrolyte Spills Using The following Personal Protective Equipment (PPE):
 - Splash shield or safety goggles. Folding down helmet shields is not acceptable for alkaline spillage.
 - 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.

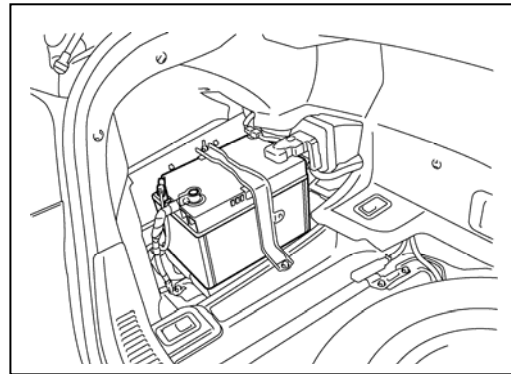
Dismantling a vehicle



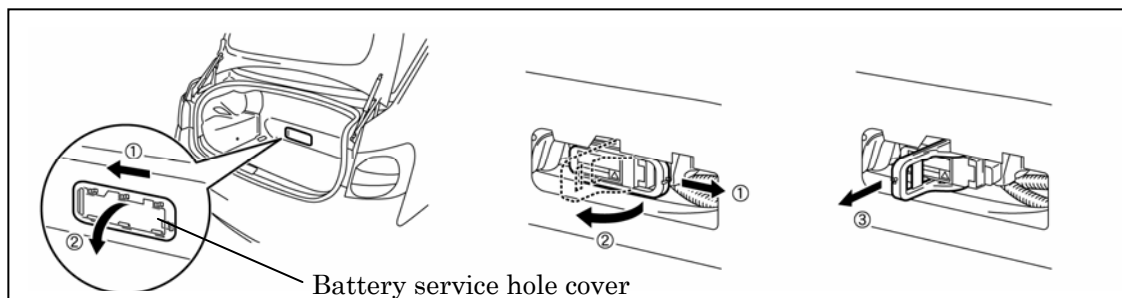
WARNING:

- *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 any high voltage component.*

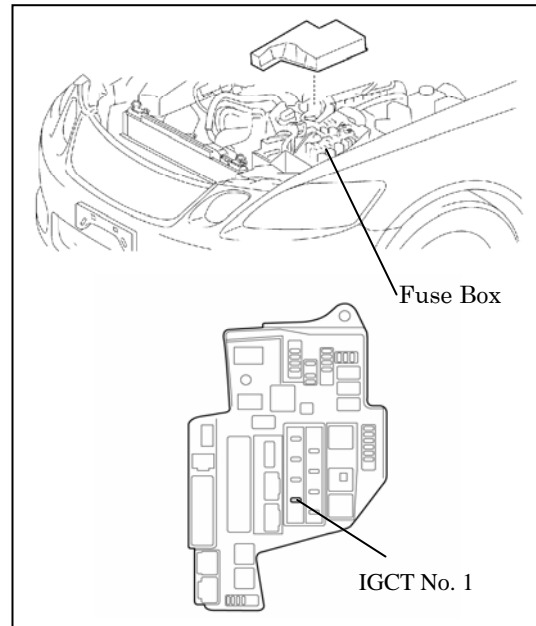
1. Shut off ignition. Then disconnect the negative (-) terminal of the auxiliary battery.



2. Remove the service plug grip.
 - a) Wear insulated gloves and raise the service plug grip as shown in the illustration. Then, remove the service plug grip.
 - b) Apply electrical tape to the socket of the service plug grip to insulate it.



3. Carry the removed service plug in your pocket to prevent other staff from reinstalling it while you are dismantling the vehicle.
4. Make other staff aware that a high-voltage system is being dismantled by using the following sign: CAUTION: HIGH VOLTAGE. DO NOT TOUCH DURING OPERATION (see page 17).
5. If the service plug cannot be removed due to damage to the rear portion of the vehicle, remove the IGCT No. 1 fuse (20A: Yellow colored).



Caution:

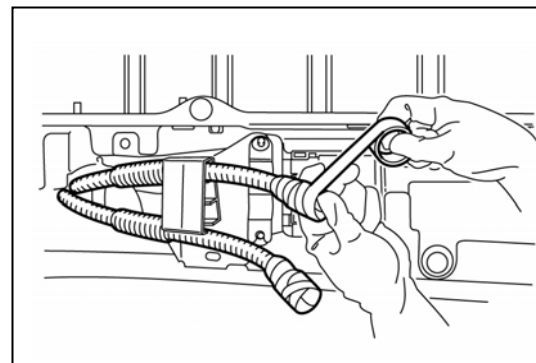
This operation shuts off the HV system.

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, remove it and continue the procedure.

6. After disconnecting or exposing a high-voltage connector or terminal, insulate it immediately using insulation tape. Before touching a bare high-voltage terminal, wear insulated gloves.
7. 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.



- a) If the electrolyte adheres to 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.
- b) 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.

8. Remove the parts by following the procedures which are similar to the Toyota vehicles with exception of HV battery. As for the removal of HV battery, refer to the following pages.

Person in charge: _____

**CAUTION:
HIGH VOLTAGE. DO
NOT TOUCH DURING
OPERATION**

**CAUTION:
HIGH VOLTAGE. DO
NOT TOUCH DURING
OPERATION**

Person in charge: _____

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roof of the vehicle in service.

Removal of HV battery

HV battery removal



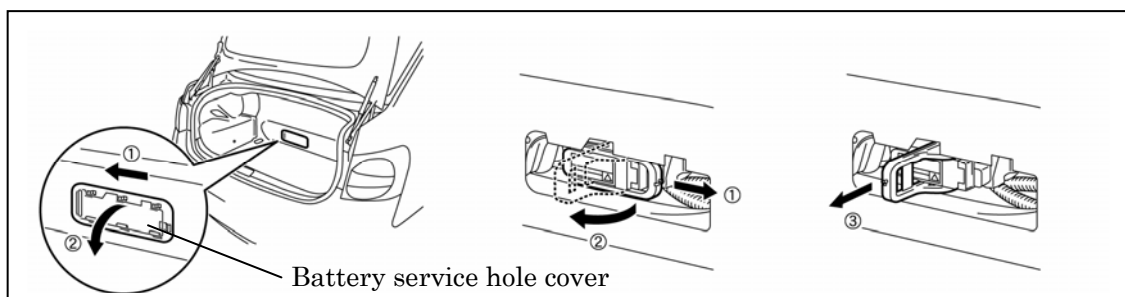
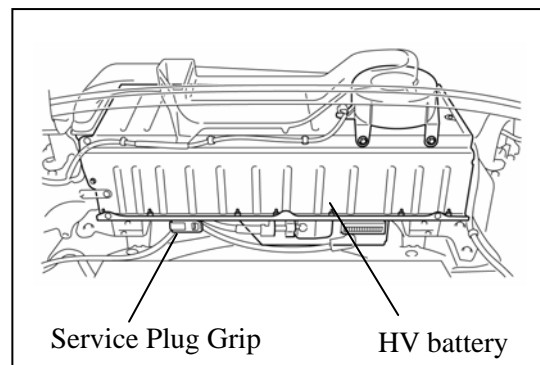
WARNING:

- *Be sure to wear insulated gloves when handling high-voltage parts.*
- *Even if the vehicle is shut off and the relay is off, be sure to remove the service plug grip before performing any steps.*
- *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.*
- *Make sure that the tester reading is 0 V before touching any high-voltage terminals which are not insulated.*

1. Disconnect the cable from the auxiliary battery negative terminal.

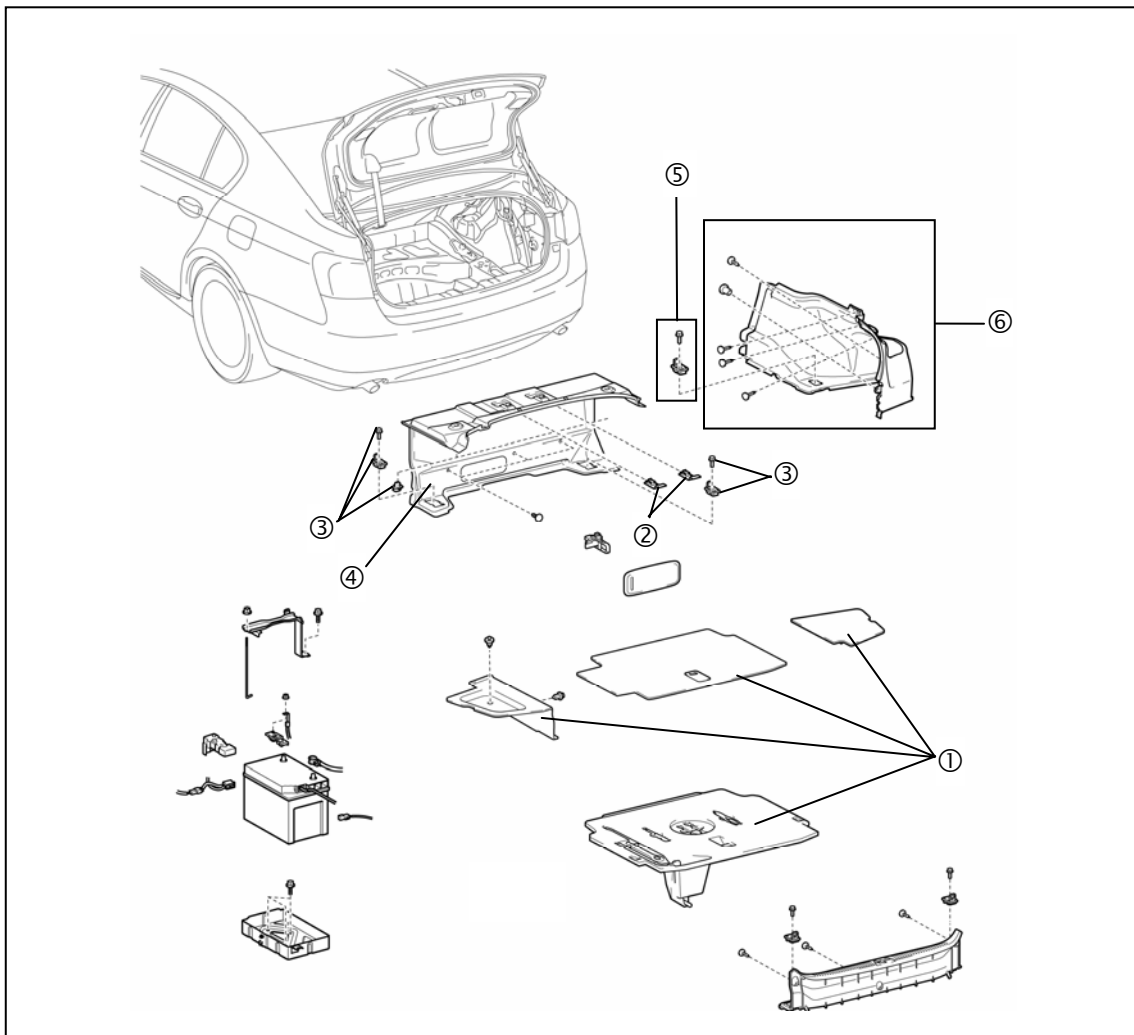
2. Remove the service plug grip.

- a) Remove the battery service hole cover.
- b) Wear insulated gloves and raise the service plug grip as shown in the illustration. Then, remove the service plug grip.
- c) Apply electrical tape to the socket of the service plug grip to insulate it.

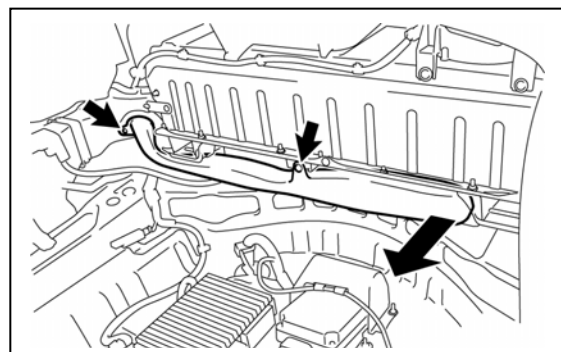


3. Remove the luggage floor mat, tool box, luggage compartment front trim cover, and luggage compartment inner cover RH.

- ① Remove the floor mat, tool box and service hole cover.
- ② Detach the hook.
- ③ Remove the rope hook, bolts and hooks.
- ④ Remove the luggage compartment front trim cover.
- ⑤ Remove the bolt and hook.
- ⑥ Remove the 3 clips and inner cover RH.

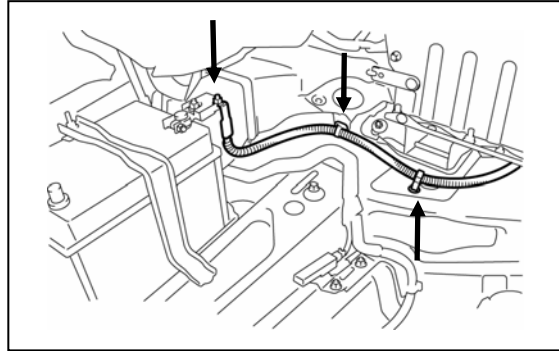


4. Remove the 2 clips and No. 3 HV battery exhaust duct.

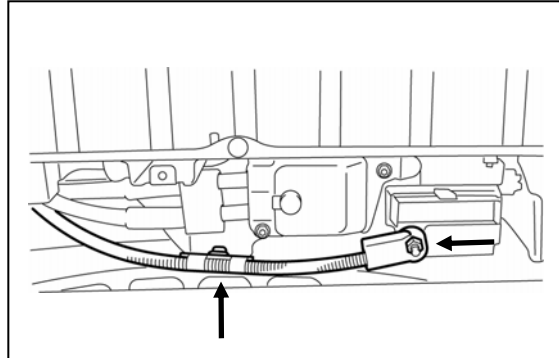


5. Disconnect the frame wire.

- a) Remove the nuts and 2 clamps, and disconnect the frame wire (battery positive cable).

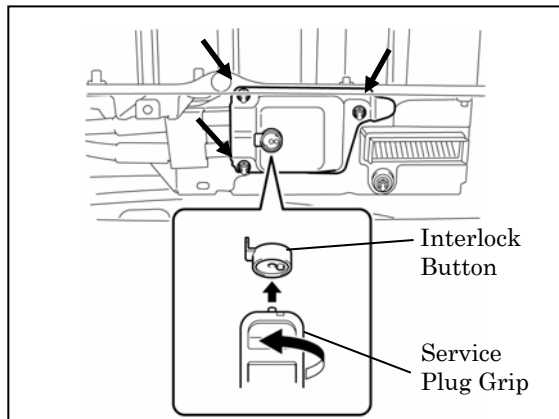


- d) Remove the nut and clamp, and disconnect the frame wire (AMD cable).

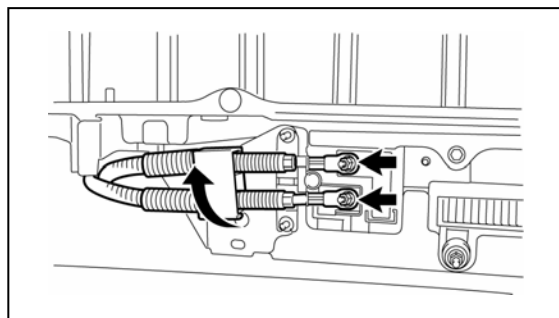


- e) Using the service plug grip, release the interlock button.

- f) Remove the 3 nuts and battery cover.

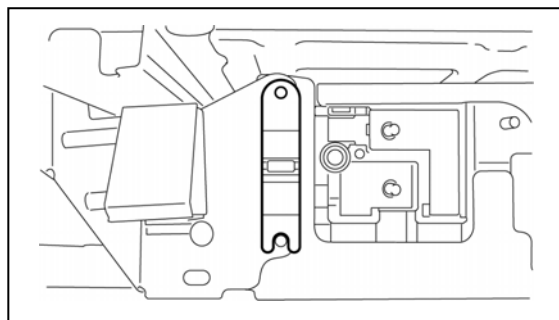


- g) Remove the 2 nuts and clamp, and disconnect the frame wire (High Voltage cable).

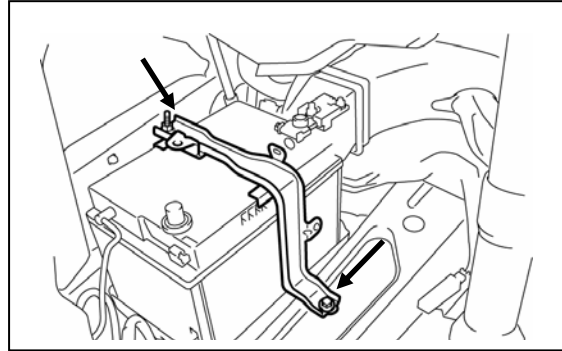


- h) Remove the battery shield contact.

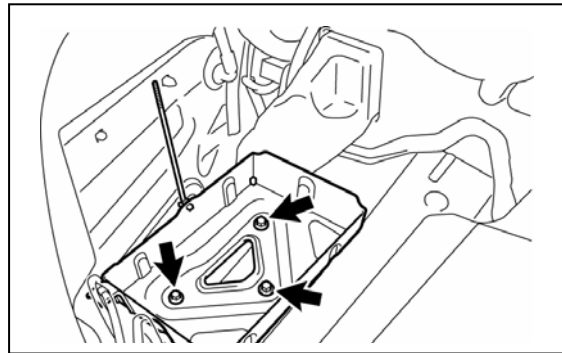
Caution:
Insulate the terminals that the high voltage cable was connected to using something such as insulating tape.



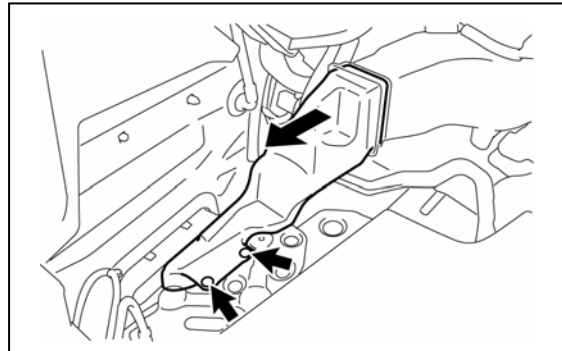
6. Remove the auxiliary battery.
 - a) Remove the nut, bolt, and battery clamp.
 - b) Remove the auxiliary battery.



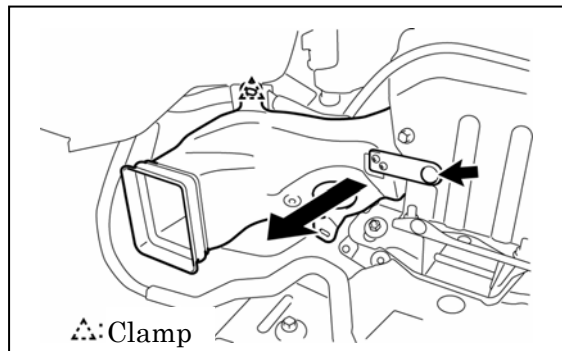
7. Remove the 3 bolts and battery carrier.



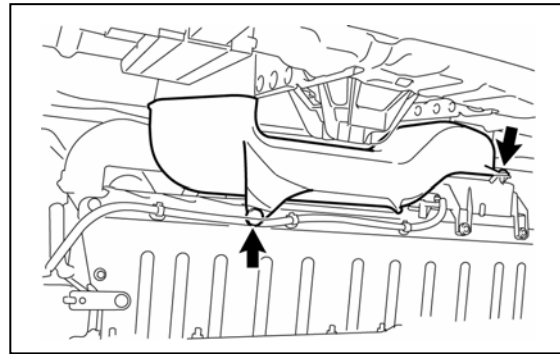
8. Remove the 2 clips and No. 2 HV battery exhaust duct.



9. Remove the clips, connector clamp, and No. 1 HV battery exhaust duct.

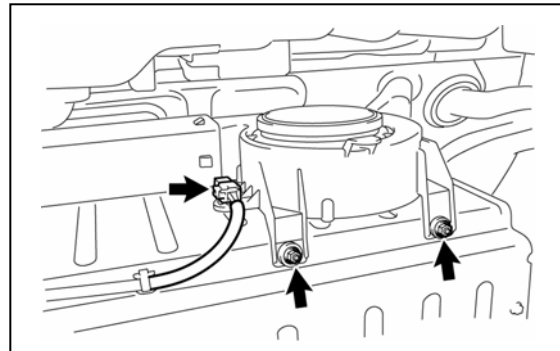


10. Remove the 2 clips and No. 2 HV battery intake duct.

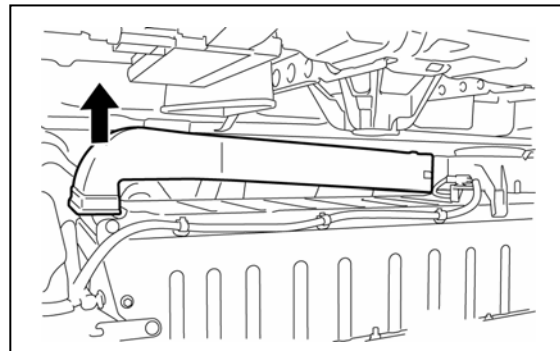


11. Remove the battery cooling blower assembly.

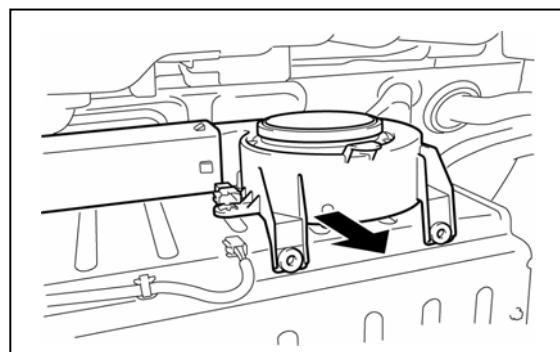
a) Remove the 2 nuts and battery connector.



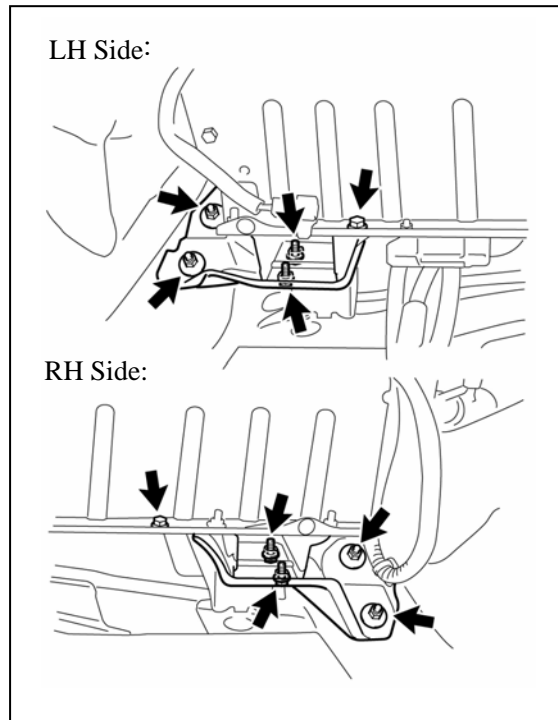
b) Separate the No. 3 HV battery intake duct from the No. 4 HV battery intake duct.



c) Remove the battery cooling blower assembly with the No. 3 HV battery intake duct from the HV battery.

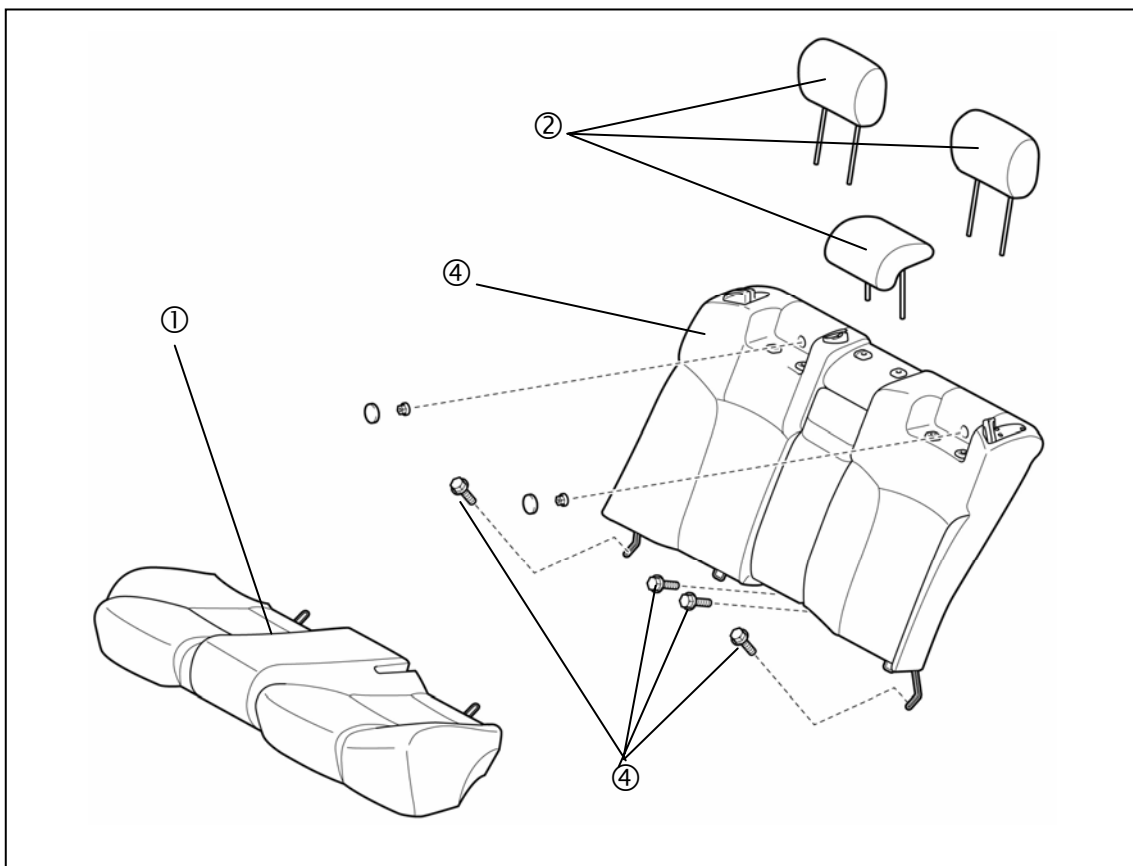


12. Remove the 6 bolts, 4 nuts, and 2 battery carrier bracket.

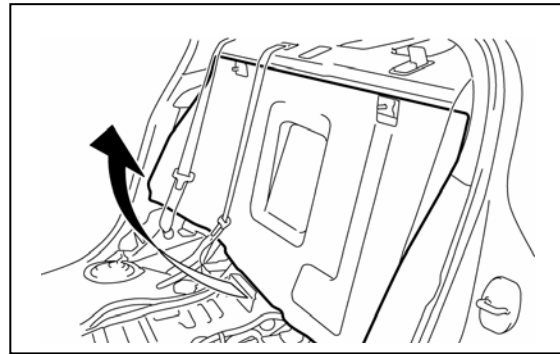


13. Remove the seat back assembly.

- ① Remove the seat cushion assembly.
- ② Remove the headrest assemblies LH, center, and RH.
- ③ Remove the 4 bolts.
- ④ Remove the seat back assembly.

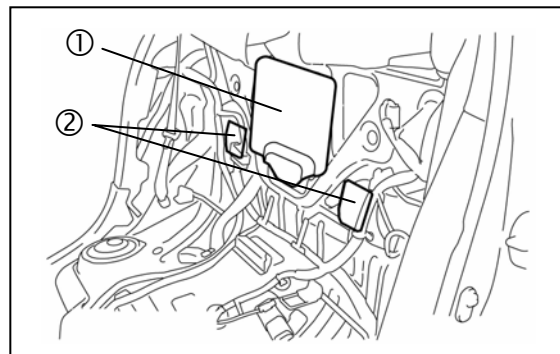


14. Remove the No. 1 room partition pad as shown in the illustration.



15. Remove the upper back panel corner plate RH and upper roof side inner cover.

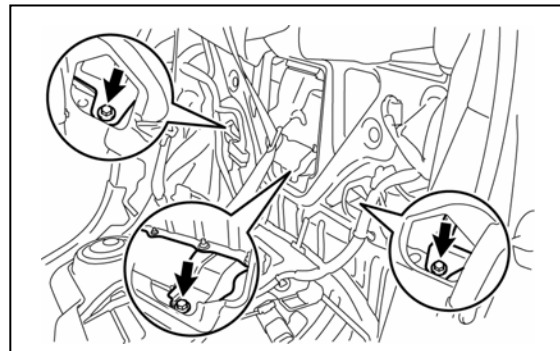
- ① Release the 6 claws and remove the upper back panel corner plate RH.
- ② Remove the 2 upper roof side inner covers.



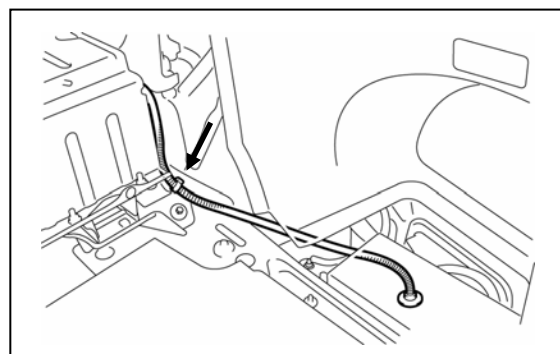
16. Install the tool box and luggage compartment floor mat.

17. Remove the HV battery.

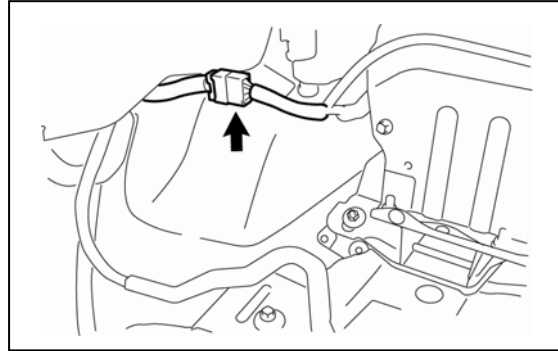
- a) Remove the 3 bolts from the HV battery.



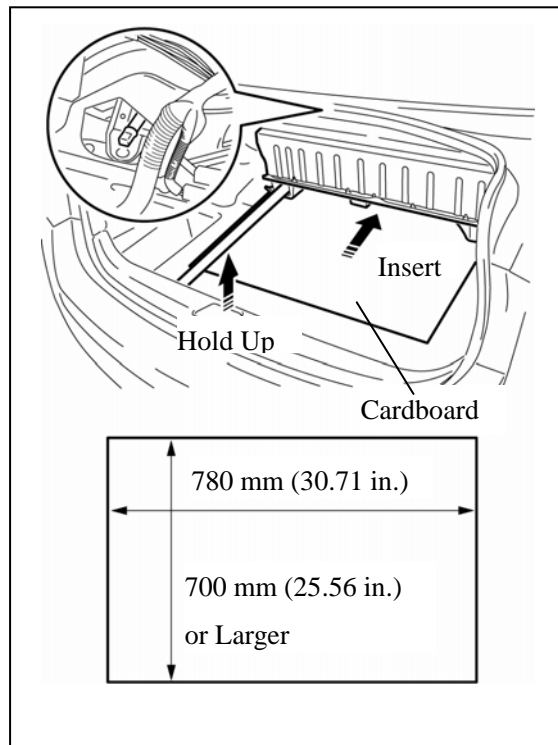
- b) Remove the clamp grommet and battery room ventilation hose.



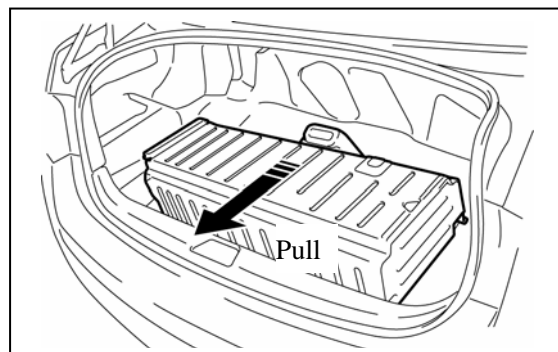
- c) Disconnect the battery pack wire.



- d) Prepare a piece of cardboard of 780 mm (30.71 in.) x 700 mm (27.56 in.) or larger.
e) Using an extension bar (1000 mm) to hold up the HV battery, insert the cardboard until it cannot be inserted and farther.



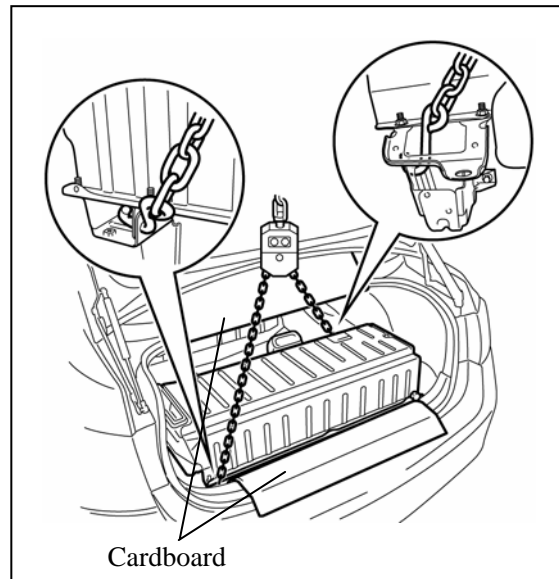
- f) Pull the HV battery together with the cardboard toward the rear of the vehicle.



- g) Using an engine sling device, remove the HV battery while tilting the HV battery 45° at the rear end.

Caution:

Make sure that the HV battery is not tilted more than 80°.










18. The HV battery pack is recyclable. Contact your Lexus distributor which is found on the HV Battery Caution Label or contact the nearest Lexus Dealer. (See the next page).

Caution:








After removing the HV battery, do not connect the service plug to the HV battery.

HV Battery Caution Label









1. For U.S.A.

⚠ DANGER								
High Voltage Inside / Alkaline Electrolyte								
<p>To avoid injuries, burns or electric shocks:</p> <ul style="list-style-type: none"> • Never disassemble this battery unit or remove its covers. -Service by Qualified Technician. - • Avoid contact alkaline electrolyte with eyes, skin or clothes. In event of accident, flush with water and get medical help immediately. • Keep children away from this unit. • Do not puncture or impact on this unit when operating forklift, or expose to open flame or incinerate, or expose to liquids when storing this unit, as excessive heat may generate fire and electrolyte may leak out. 								
To the Qualified EV Technicians:								
Be sure to read the Repair Manual when servicing or replacing the battery.								
HV Battery Recycling Information								
<ul style="list-style-type: none"> • Please transport this battery in accordance with all applicable laws. • Be sure to consult your dealer or the following address for replacing and disposing of this battery. 								
Residents in U. S. A.			Residents in PUERTO RICO					
♦ TOYOTA MOTOR SALES U. S. A. INC. TORRANCE CAL. 90501 Phone: 1-800-331-4331			♦ SERVCO PACIFIC INC. HONOLULU HAWAII 96813 Phone: 808-839-2273			♦ TOYOTA DE PUERTO RICO HATO REY, PUERTO RICO Phone: 787-751-1000		
B								

2. For CANADA

⚠ DANGER								
High Voltage Inside / Alkaline Electrolyte								
Haute tension à l' intérieur / Electrolyte alcalin								
<p>To avoid injuries, burns or electric shocks:</p> <ul style="list-style-type: none"> • Never disassemble this battery unit or remove its covers. -Service by Qualified Technician. - • Avoid contact alkaline electrolyte with eyes, skin or clothes. In event of accident, flush with water and get medical help immediately. • Keep children away from this unit. • Do not puncture or impact on this unit when operating forklift, or expose to open flame or incinerate, or expose to liquids when storing this unit, as excessive heat may generate fire and electrolyte may leak out. <p>Afin d' éviter des blessures et brûlures et tout chocs électriques:</p> <ul style="list-style-type: none"> • Ne jamais démonter cet ensemble batterie ni enlever ses couvercles. -Confier l' entretien à un technicien qualifié. - • Eviter tout contact de l' électrolyte alcalin avec les yeux la peau ou les vêtements. En cas d' accident, rincer à l' eau et contacter un médecin immédiatement. • Garder cet ensemble hors de portée des enfants. • Ne pas percer cet ensemble et ne pas lui faire subir d' impact lors de l' utilisation du chariot élévateur. Ne pas l' exposer à une flamme vive ni l' incinérer. Ne pas l' exposer à un liquide lors du stockage. Une chaleur excessive pourrait provoquer un incendie et l' électrolyte pourrait fuir. 								
To the Qualified EV Technicians:								
A l' attention des techniciens spécialistes en véhicules électriques:								
Be sure to read the Repair Manual when servicing or replacing the battery. Veiller à lire le manuel de réparation lors de l' entretien ou du remplacement de la batterie.								
HV Battery Recycling Information								
Information sur le recyclage de batterie de véhicule hybride								
<ul style="list-style-type: none"> • Please transport this battery in accordance with all applicable laws. • Be sure to consult your dealer or the following address for replacing and disposing of this battery. • Prière de transporter cette batterie conformément à toutes les lois applicables. • Pour le remplacement et la mise au reout de cette batterie, veiller à consulter un votre concessionnaire ou se renseigner à adresse suivante. 								
TOYOTA CANADA INC. ONE TOYOTA PLACE SCARROROLGH ONTARIO M1H 1H9 Phone: 1-888-TOYOTA-8 (1-888-869-6828) URL: www.toyota.ca								C

3. For EUROPE and others

 DANGER       	
<p align="center">High Voltage Inside / Alkaline Electrolyte Haute tension à l' intérieur / Electrolyte alcalin</p>	
<p>To avoid injuries, burns or electric shocks: •Never disassemble this battery unit or remove its covers. -Service by Qualified Technician. -</p> <ul style="list-style-type: none"> ● Avoid contact alkaline electrolyte with eyes, skin or clothes. In event of accident, flush with water and get medical help immediately. ● Keep children away from this unit. ● Do not puncture or impact on this unit when operating forklift, or expose to open flame or incinerate, or expose to liquids when storing this unit, as excessive heat may generate fire and electrolyte may leak out. <p>Afin d' éviter des blessures et brûlures et tout chocs électriques: •Ne jamais démonter cet ensemble batterie ni enlever ses couvercles. -Confier l' entretien à un technicien qualifié. -</p> <ul style="list-style-type: none"> ● Eviter tout contact de l' électrolyte alcalin avec les yeux la peau ou les vêtements. En cas d' accident, rincer à l' eau et contacter un médecin immédiatement. ● Garder cet ensemble hors de portée des enfants. ● Ne pas percer cet ensemble et ne pas lui faire subir d' impact lors de l' utilisation du chariot élévateur. Ne pas l' exposer à une flamme vive ni l' incinérer. Ne pas l' exposer à un liquide lors du stockage. Une chaleur excessive pourrait provoquer un incendie et l' électrolyte pourrait fuir. 	
<p align="center">To the Qualified EV Technicians: A l' attention des techniciens spécialistes en véhicules électriques:</p> <p align="center">Be sure to read the Repair Manual when servicing or replacing the battery. Veiller à lire le manuel de réparation lors de l' entretien ou du remplacement de la batterie.</p>	
<p align="center">HV Battery Recycling Information Information sur le recyclage de batterie de véhicule hybride</p> <ul style="list-style-type: none"> ● Please transport this battery in accordance with all applicable laws. ● Be sure to consult your dealer or your national distributor as mentioned in your Dealer Guide-Book for replacing and disposing of this battery. <p align="center">● Prière de transporter cette batterie conformément à toutes les lois applicables. ● Pour le remplacement et la disposition de cette batterie, se rassurer de consulter un votre concessionnaire ou distributeur national comme mentionnées dans le guide des concessionnaires.</p>	
