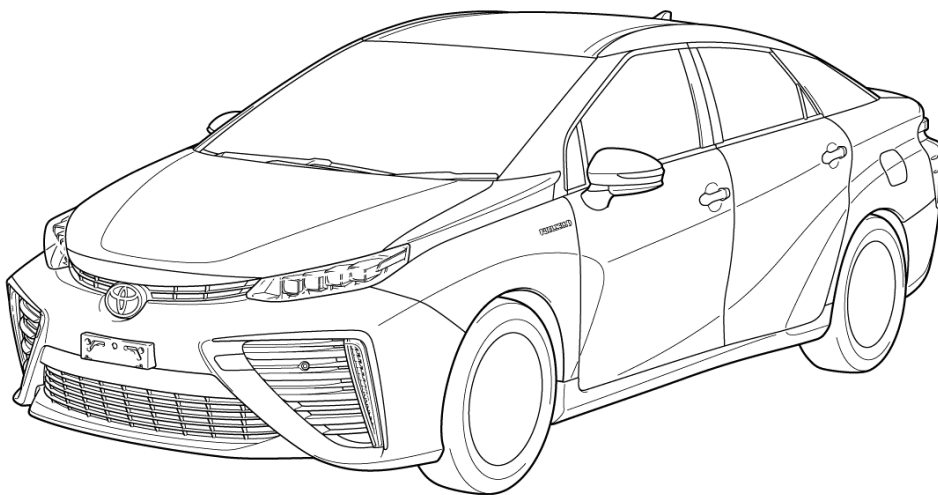




# MIRAI

*Fuel Cell Vehicle*

# ***FUEL CELL VEHICLE DISMANTLING MANUAL***



**Revised**

## Foreword

This guide was developed to educate and assist dismantlers in the safe handling of Toyota MIRAI fuel cell vehicle. MIRAI dismantling procedures are similar to other non-fuel cell Toyota vehicles with the exception of the fuel cell system. It is important to recognize and understand the fuel cell system features and specifications of the Toyota MIRAI fuel cell vehicle, as they may not be familiar to dismantlers.

A fuel cell vehicle efficiently delivers the hydrogen and air (oxygen) necessary for electrical generation to the fuel cell, generates electrical energy, and uses that electrical energy to drive the traction motors that propel the vehicle.

High voltage electricity powers the FC air compressor with motor assembly, compressor with motor assembly, FC converter assembly, FC stack assembly, FC cooling water pump assembly, FC water and hydrogen pump inverter assembly, FCV transaxle with motor assembly and inverter with converter assembly. 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 MIRAI to help ensure the high voltage, approximately 244.8 Volt, Nickel Metal Hydride (NiMH) Fuel Cell Vehicle (EV) battery assembly is kept safe and secure in an accident.

The NiMH EV battery 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:

- Toyota MIRAI identification.
- Major fuel cell vehicle component locations and descriptions.

By following the information in this guide, dismantlers will be able to handle MIRAI fuel cell vehicles as safely as the dismantling of a conventional non-fuel cell automobile.

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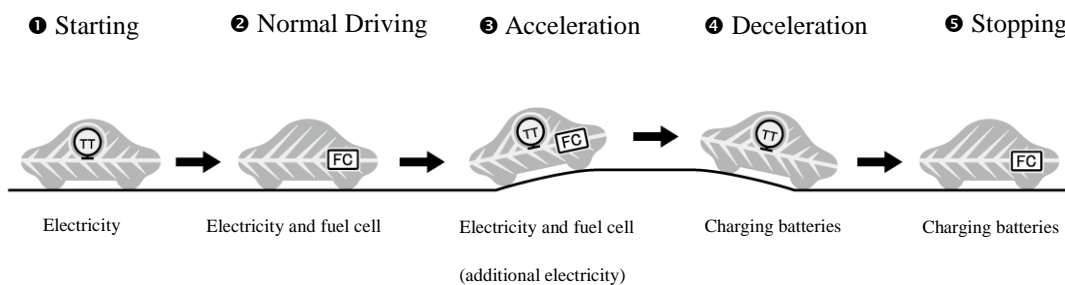
## About the MIRAI

The MIRAI 4-door sedan is the first fuel cell for Toyota. The Toyota FC System (TFCS) which combines hybrid technology with fuel cell technology such as the Toyota FC stack and high pressure hydrogen tank.

In the fuel cell vehicle, the electric power from the FC stack assembly and EV battery are distributed in an optimal way according to a variety of driving conditions, realizing excellent vehicle performance including smooth starting and acceleration. also, during deceleration the traction motor operates as a regenerative brake to convert braking force into electrical energy that is used for charging the EV battery or powering FC related auxiliary components such as the FC air compressor with motor assembly.

The following illustration demonstrates how the MIRAI operates in various driving modes.

- ① Under normal conditions, when the vehicle starts to move, the traction motors are powered by electrical energy from the EV battery.
- ② During steady driving, electrical energy from the FC stack assembly is used to drive the traction motor.
- ③ During acceleration, the electrical power from the FC stack assembly is increased, the boost ratio of the FC converter assembly is made larger, and additional electrical energy is supplied from the EV battery to accelerate the vehicle.
- ④ By using the driving force transmitted through the wheel to spin the traction motor, kinetic energy is converted to electrical energy and used to charge the EV battery, or used by FC auxiliary equipment such as the FC air compressor with motor assembly.
- ⑤ When the vehicle is stopped and the SOC is low, the FC stack assembly will generate electricity and charge the EV battery.



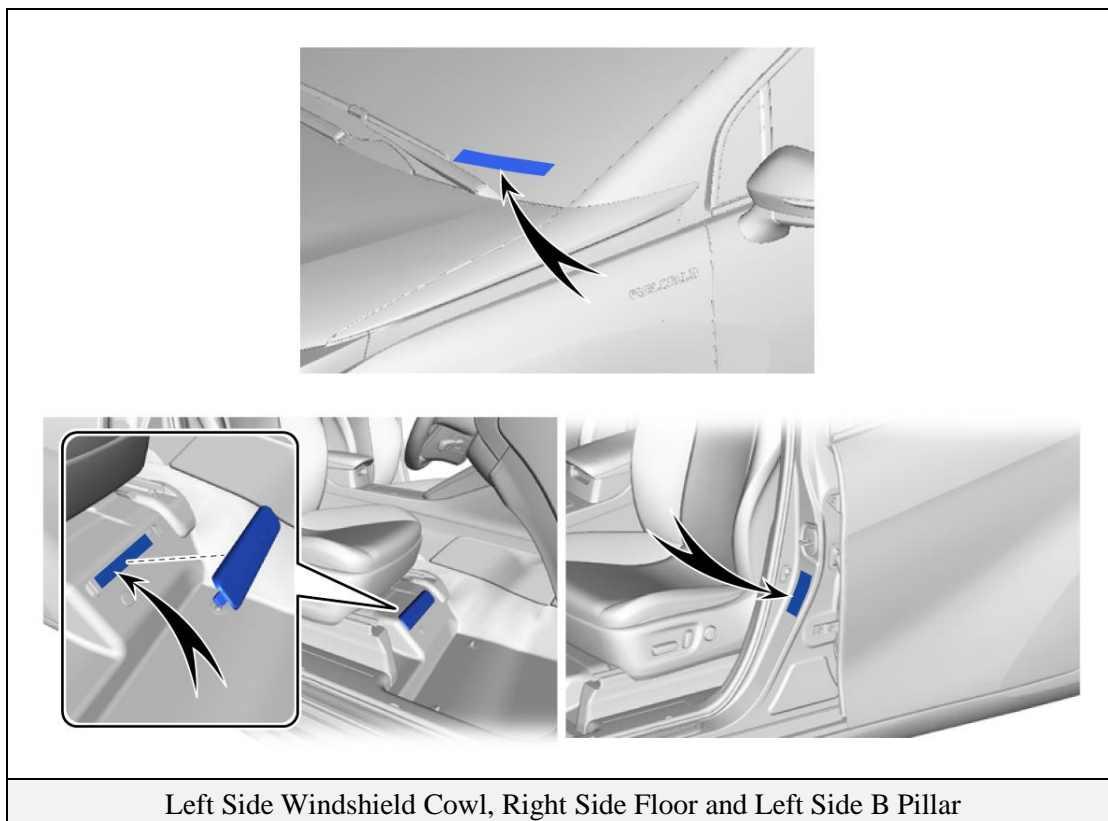
## MIRAI Identification

The MIRAI is a 4-door sedan. Exterior, interior, and engine compartment illustrations are provided to assist in identification.

The alphanumeric 15 character Vehicle Identification Number (VIN) is provided in the front windshield cowl, under the right side front seat, and on the left side B pillar.

Example VIN: JTDBVRBDA000101

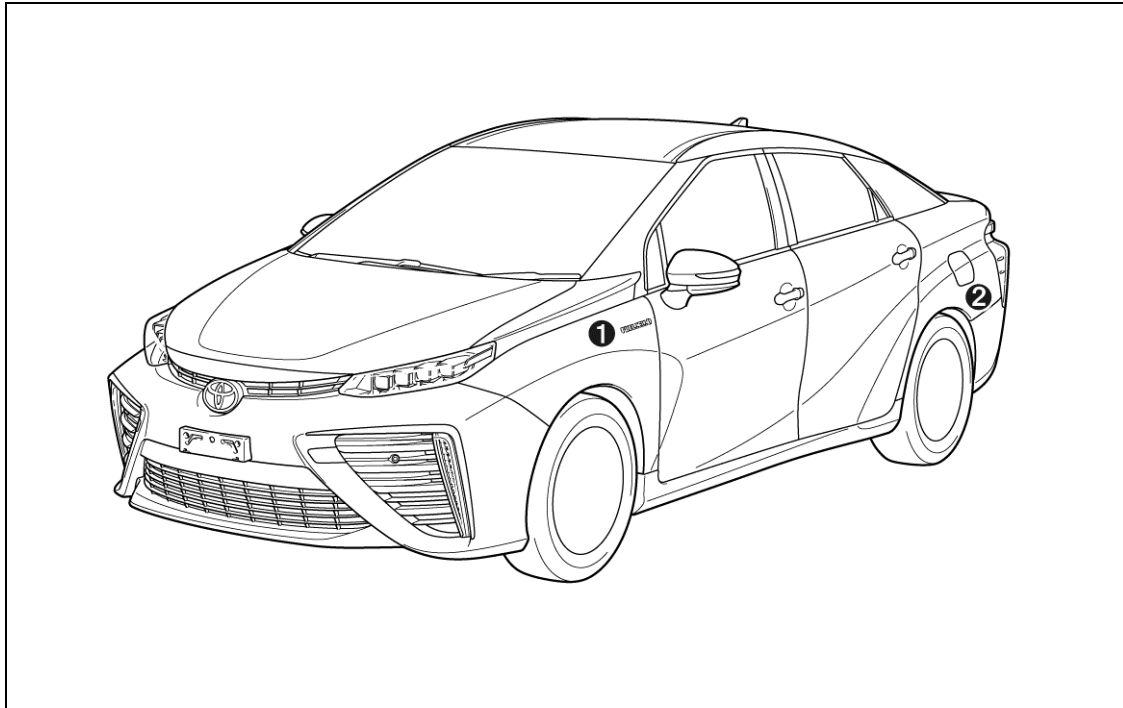
A MIRAI is identified by the first 8 alphanumeric characters **JTDBVRBD**.



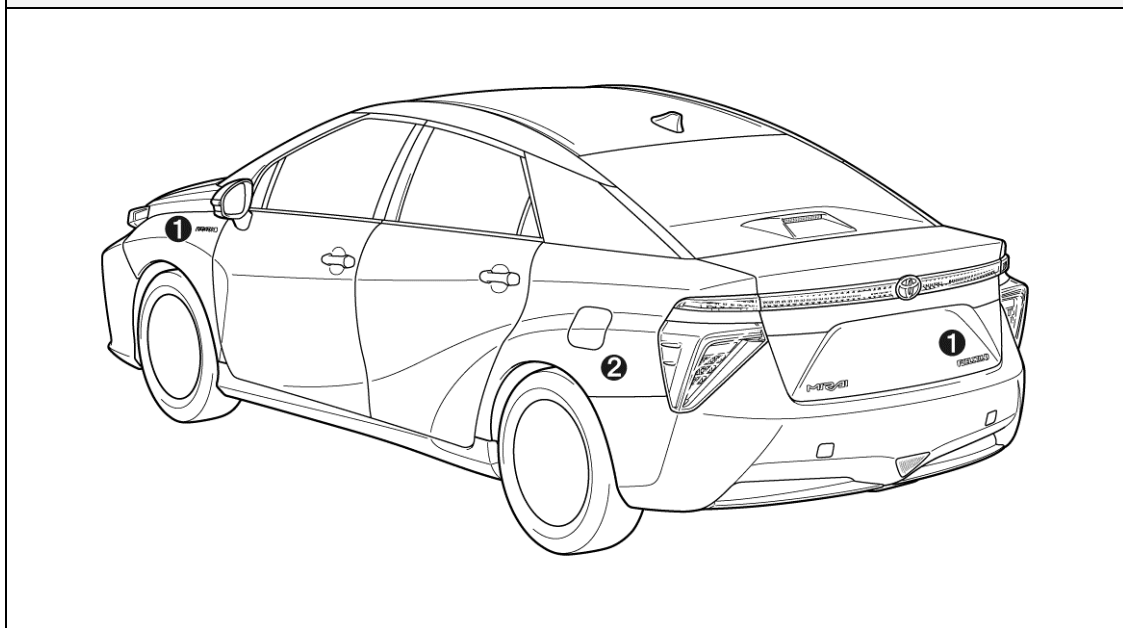
## MIRAI Identification (Continued)

### Exterior

- ❶ FUELCELLID logos on the trunk and each front fender.
- ❷ Hydrogen fuel filler door located on left side rear quarter panel.



Exterior Front and Left Side View



Exterior Rear and Left Side View

# MIRAI Identification (Continued)

## Interior

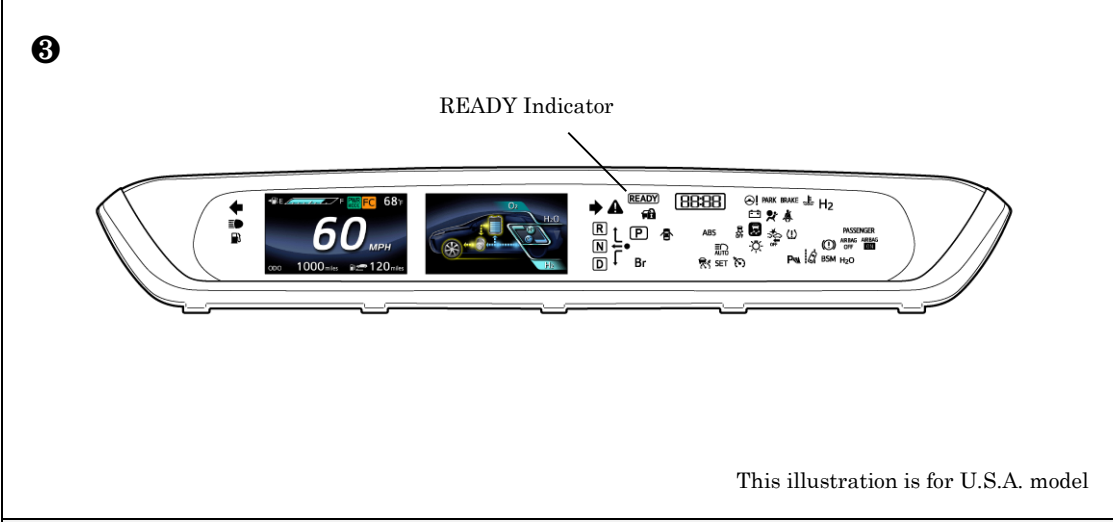
- ③ The combination meter (FC system indicator, **READY** indicator and warning lights) located in center of the instrument panel.

**Hint:**

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



Interior View



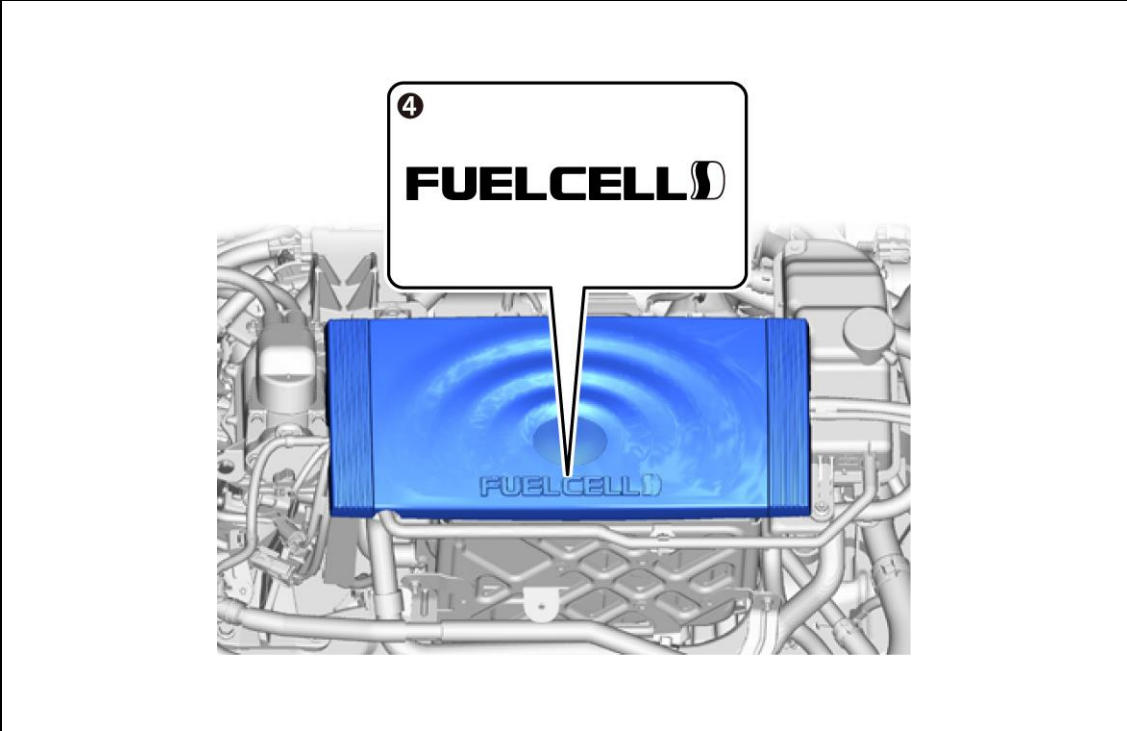
Combination Meter View



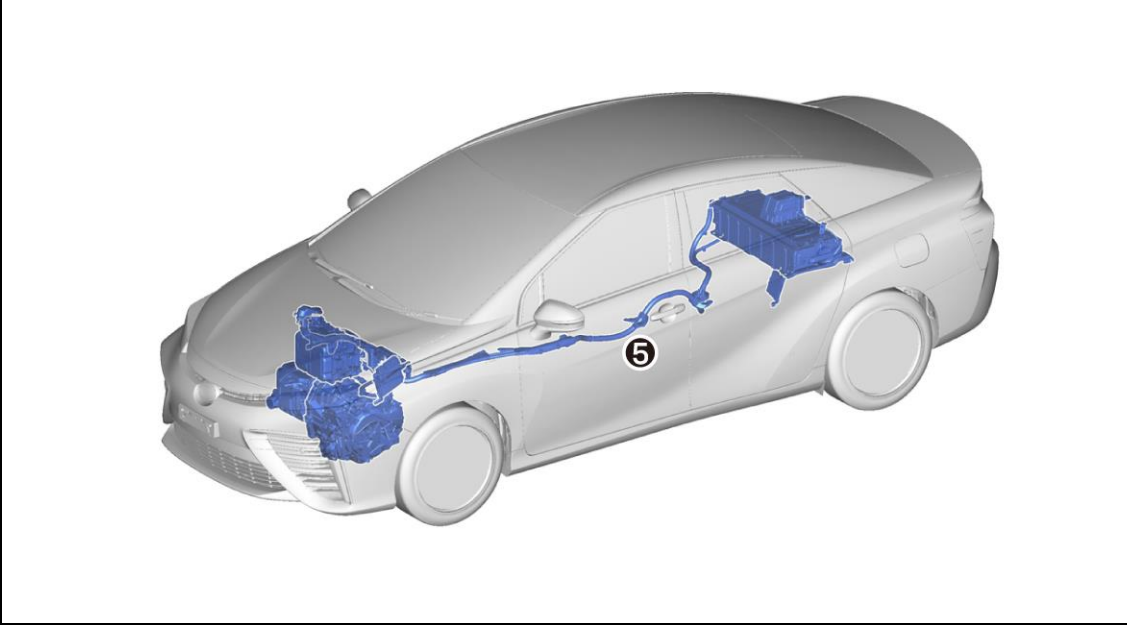
# MIRAI Identification (Continued)

## Motor Compartment

- ④ FUEL CELL Logo on the plastic upper inverter cover.
- ⑤ Orange colored high voltage power cables.



Motor Compartment View



Power Cable

## Fuel Cell Vehicle Component Locations & Descriptions

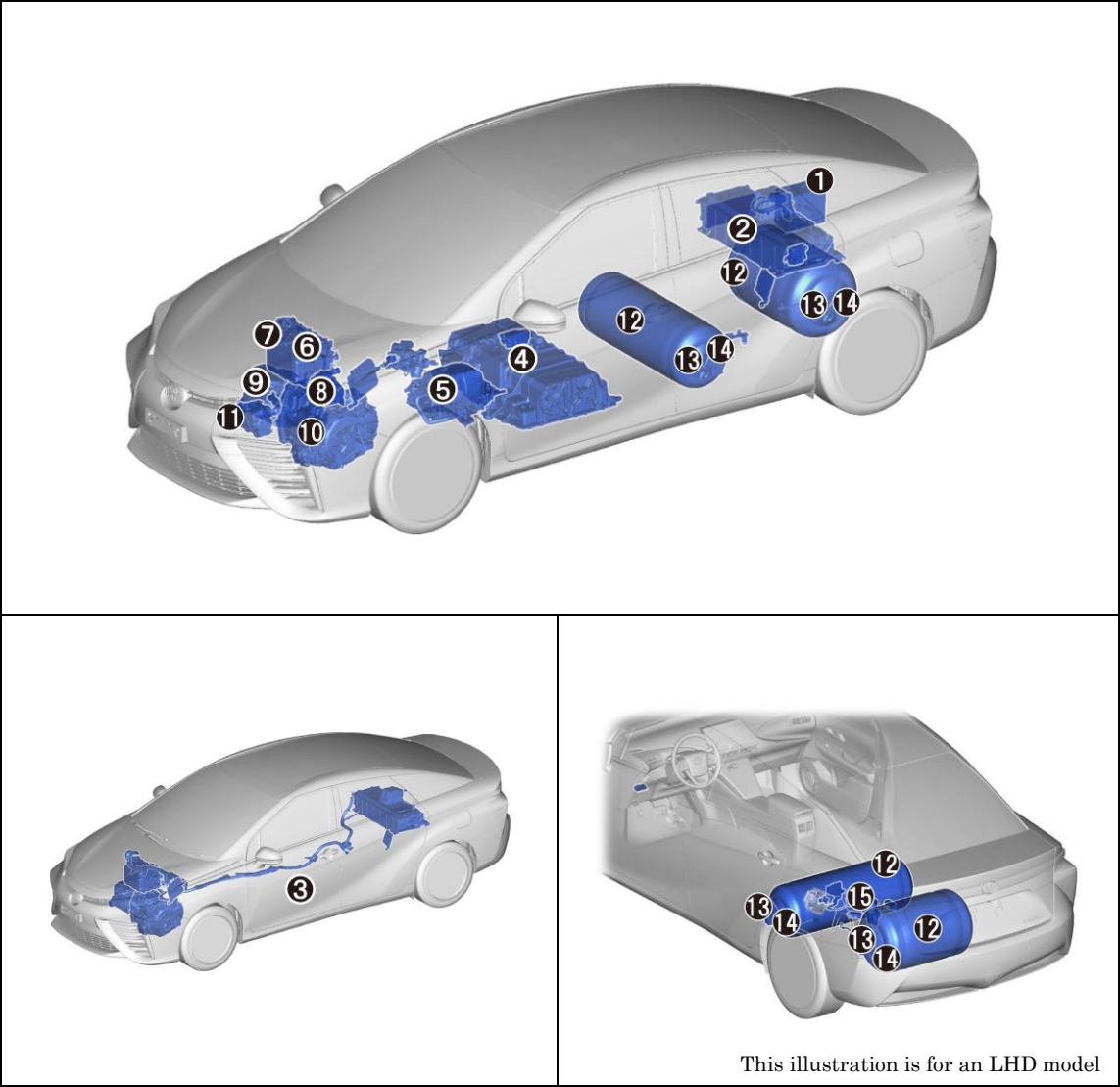
Component	Function
12 Volt Auxiliary Battery ❶	A lead-acid battery that supplies power to the low voltage devices.
EV Battery ❷	244.8 Volt Nickel Metal Hydride (NiMH) battery pack consisting of 34 low voltage (7.2 Volt) modules connected in series.
Power Cable ❸	<ul style="list-style-type: none"> <li>• Orange colored power cable is a high voltage, high current electrical line.</li> <li>• It is primarily used between the EV battery and FC inverter input junction block assembly, between the inverter with converter assembly and FC air compressor with motor assembly, and between the inverter with converter assembly and FC converter assembly.</li> </ul>
FC Stack Assembly ❹	Generates electrical energy by causing a chemical reaction between hydrogen fuel from the hydrogen tank and oxygen from the FC air compressor with motor assembly.
FC Converter Assembly ❺	<ul style="list-style-type: none"> <li>• Boosts the voltage of the electrical energy generated in the FC stack assembly to a maximum of DC 650 Volt.</li> <li>• According to requests from the EV control ECU, connects and disconnects the FC main relay and controls the electric power to match the value specified by the electric power request.</li> </ul>
Inverter with Converter Assembly ❻	Based on the requested output value from the EV control ECU, controls the electrical power provided to the traction motor and FC air compressor with motor assembly.
DC-DC Converter ❼	Steps down the voltage of the high voltage system to approximately DV 14 Volt and provides it to accessory components and the 12 Volt auxiliary battery.
FC Cooling Water Pump Assembly ❽	Circulates the FC stack coolant, which cools the FC stack assembly and the air compressed by the FC air compressor with motor assembly.
FC Air Compressor with Motor Assembly ❾	<ul style="list-style-type: none"> <li>• Supercharges the air that has passed the air cleaner and provides it to the FC stack assembly.</li> <li>• Driven by the inverter of the inverter with converter assembly.</li> </ul>
FCV Transaxle with Motor Assembly ❿	Based on driving conditions, uses the electrical energy from the FC stack assembly and the electrical energy from the EV battery assembly to generate driving force. Also, uses regenerative braking to generate electricity when decelerating.
Compressor with Motor Assembly ⓫	3-phase high voltage AC electrically driven motor compressor.
Hydrogen Tank ⓬	Employs a hydrogen tank made chiefly of carbon fiber reinforced plastic that can with stand high pressure of 70 MPa (713.8 kgf/cm <sup>2</sup> , 10150 psi).
Hydrogen Tank Valve Assembly ⓭	Installed to each hydrogen tank, and opens and closes the hydrogen channels.
Hydrogen Tank Temperature Sensor ⓮	Detects the hydrogen fuel temperature inside the hydrogen tank and transmits it to the hydrogen fuel control ECU.
Hydrogen Supply Regulator Assembly ⓯	Installed between the hydrogen tank and FC stack assembly, and reduces the pressure of the hydrogen fuel from the hydrogen tank to between 1.0 MPa and 1.5 MPa (10.2 kg/cm <sup>2</sup> to 15.3 kg/cm <sup>2</sup> , 145 psi to 218 psi).

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

# Fuel Cell Vehicle Component Locations & Descriptions (Continued)

## Specifications

- Electric Motors: 123 kW
- EV Battery: 244.8 Volt Sealed NiMH Battery
- Curb Weight: 1,850 kg / 4078 lb
- Frame Material: Steel Unibody
- Body Material: Steel Panels except for Aluminum Hood
- Seating Capacity: 4 passenger



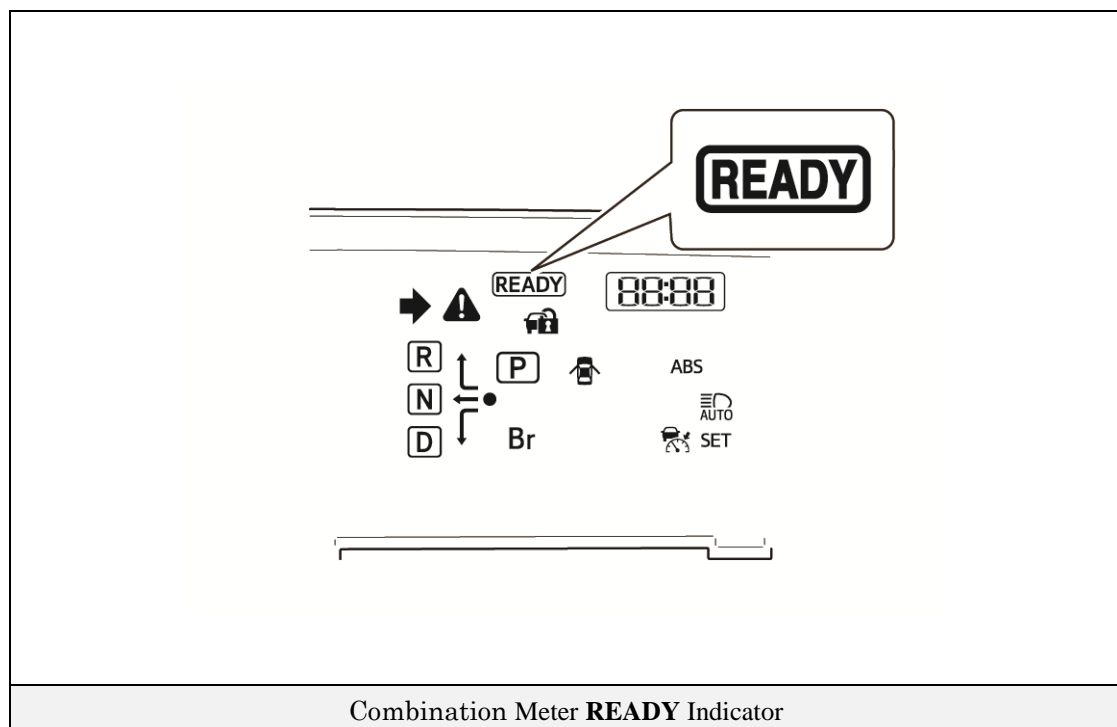
## Fuel Cell Vehicle Operation

Once the **READY** indicator is illuminated in the combination meter, the vehicle may be driven. When starting and stopping, the FC main relay built into the FC stack and the hydrogen tank valve installed to the hydrogen tank are actuated, which causes an operating sound to be heard.

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 motor compartment is silent.

### Vehicle Operation

- With the MIRAI, the system is operational while the **READY** indicator is on.
- Never assume that the vehicle is shut off just because the motor compartment is silent. Always look for the **READY** indicator status. The vehicle is shut off when the **READY** indicator is off.



## EV Battery and Auxiliary Battery

The MIRAI features a high voltage EV battery that contains sealed Nickel Metal Hydride (NiMH) battery modules.

### EV Battery

- The EV battery is enclosed in a metal case and is rigidly mounted to the luggage room in the rear seat back. The metal case is isolated from high voltage and concealed by fabric covers in the trunk.
- The EV battery consists of 34 low voltage (7.2 Volt) NiMH battery modules connected in series to produce approximately 244.8 Volts. Each NiMH battery module is non-spill able 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.

EV Battery	
Battery assembly voltage	244.8 V
Number of NiMH battery modules in the battery	34
NiMH battery module voltage	7.2 V

### Components Powered by the EV Battery

- FCV Transaxle with Motor Assembly
- FC Water and Hydrogen Pump inverter Assembly
- FC Air Compressor with Motor Assembly
- Inverter with Converter Assembly
  - DC-DC Converter for 12 Volt Auxiliary Battery
- Power Cable
- Compressor with Motor Assembly
- FC Cooling Water Pump Assembly
- FC Stack Assembly

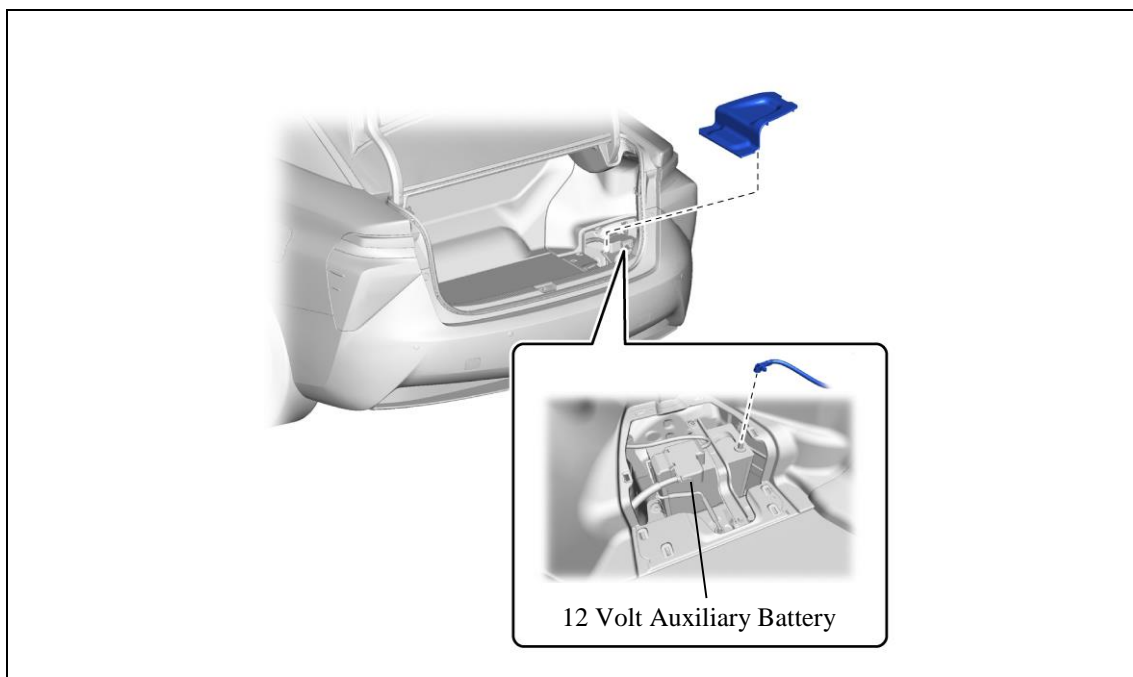
## EV Battery and Auxiliary Battery (Continued)

### EV Battery Recycling

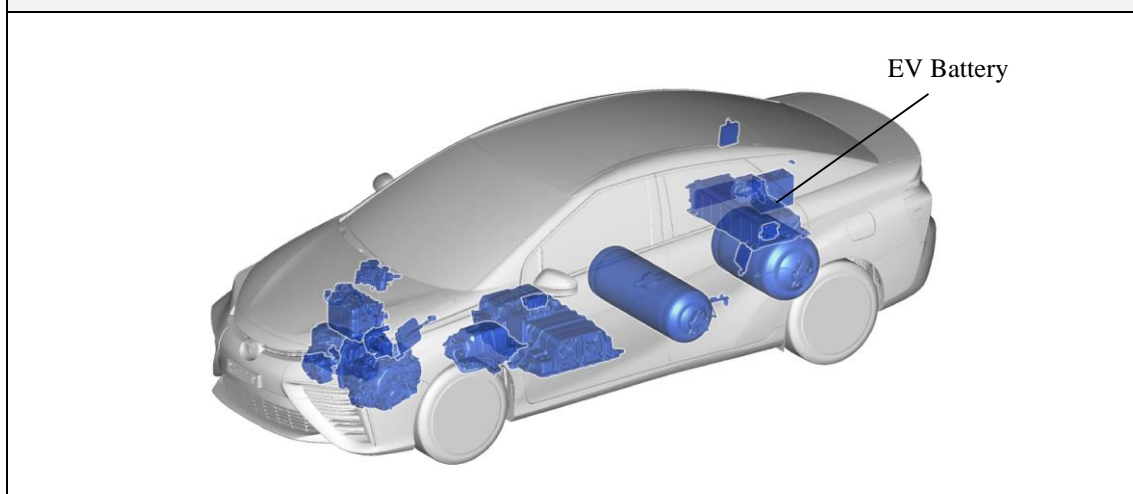
- The EV battery is recyclable. Contact either your Toyota distributor as mentioned on EV battery Caution Label (see page 136) or the nearest Toyota dealer.

### Auxiliary Battery

- The MIRAI also 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 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 right side in the rear quarter panel well.



12 Volt Auxiliary Battery Mounted in Trunk Area (Right Side)



EV Battery

## Hydrogen Safety

### About Hydrogen

Hydrogen can be produced using a number of primary energy sources other than petroleum, such as natural gas or ethanol. Also, solar power or wind power can be used to produce hydrogen from water.

### Characteristics of Hydrogen

Compared to gasoline, hydrogen has disadvantages such as "easy leakage due to small molecular size", "odorless and colorless and thus difficult to detect", and "highly flammable at a wide range of concentrations". However, it also has advantages such as "easily dispersed due to low specific gravity", "does not easily auto ignite due to high ignition temperature", and due to the wide detonation concentration range, "does not easily explode" unless confined in an enclosed space together with oxygen.

Item	Hydrogen	Natural Gas	Gasoline	Hydrogen Characteristics
Molecular Weight	2	16	106	Leaks easily
Coloring / Odor	None	Colorless / Odorant can be added	Yes	Difficult to detect leaks
Flammability Concentration Range	4.0 - 74.5%	5.3 - 15.0%	1.0 - 7.6%	Burns readily
Detonation Concentration Range	18.3 - 59%	6.3 - 13.5%	1.1 - 3.3%	Does not readily explode
Specific Gravity (air= 1)	0.07	0.55	3.4 - 4.0	Easily dispersed
Ignition Temperature	527(°C)	540(°C)	228(°C)	Difficult to ignite

## Hydrogen Safety (Continued)

### Basic Safety Concepts for Hydrogen System Components

Prevent Leaks	Difficult-to-leak Design	The connection portions of hydrogen fuel piping have been designed with a strong focus on leak prevention.
	Selection of Materials	Appropriate materials have been selected with regard to hydrogen embrittlement
Detect and Stop	Equip with Hydrogen Detector	In the unlikely event that a hydrogen leak occurs, the hydrogen detector detects the leaked hydrogen and the hydrogen tank valve operates to prevent a large leak of hydrogen fuel.
	Equip with Collision Sensor	If the vehicle receives an impact that is judged to be a collision, the hydrogen tank valve operates to prevent a large leak of hydrogen fuel.
Prevent Accumulation of Leaked Hydrogen		In the unlikely event that hydrogen fuel leaks out, the vehicle is designed to prevent the leaked hydrogen from remaining inside.
Keep Ignition Sources Away		The vehicle is designed so that potential ignition sources are not located near the hydrogen system.

#### **Caution**

**Fuel cell vehicles use high pressure hydrogen fuel at 70 MPa, and improper handling can cause hydrogen leakage possibly resulting in vehicle fires or explosions.**



## High Voltage Safety

The EV battery powers the high voltage electrical system with DC electricity. The power cable is a high voltage, high current electrical line. It is primarily used between the EV battery and FC inverter input junction block assembly, between the inverter with converter assembly and FC air compressor with motor assembly, and between the inverter with converter assembly and FC control ECU. To enable technicians to visually distinguish between the high voltage power cable and the normal low voltage electrical lines, the power cable and its corrugated tube have been standardized with an orange color.

The inverter with converter contains a circuit that boosts the EV battery voltage from 244.8 to 650 Volts DC. The inverter with converter creates 3-phase AC to power the motors.

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 EV battery.
- Positive and negative high voltage power cables ❷\* connected to the EV battery and FC stack assembly are controlled by 12 Volt normally open relays ❸\*. When the vehicle is shut off, the relays stop electricity flow from leaving the EV battery.



#### **WARNING:**

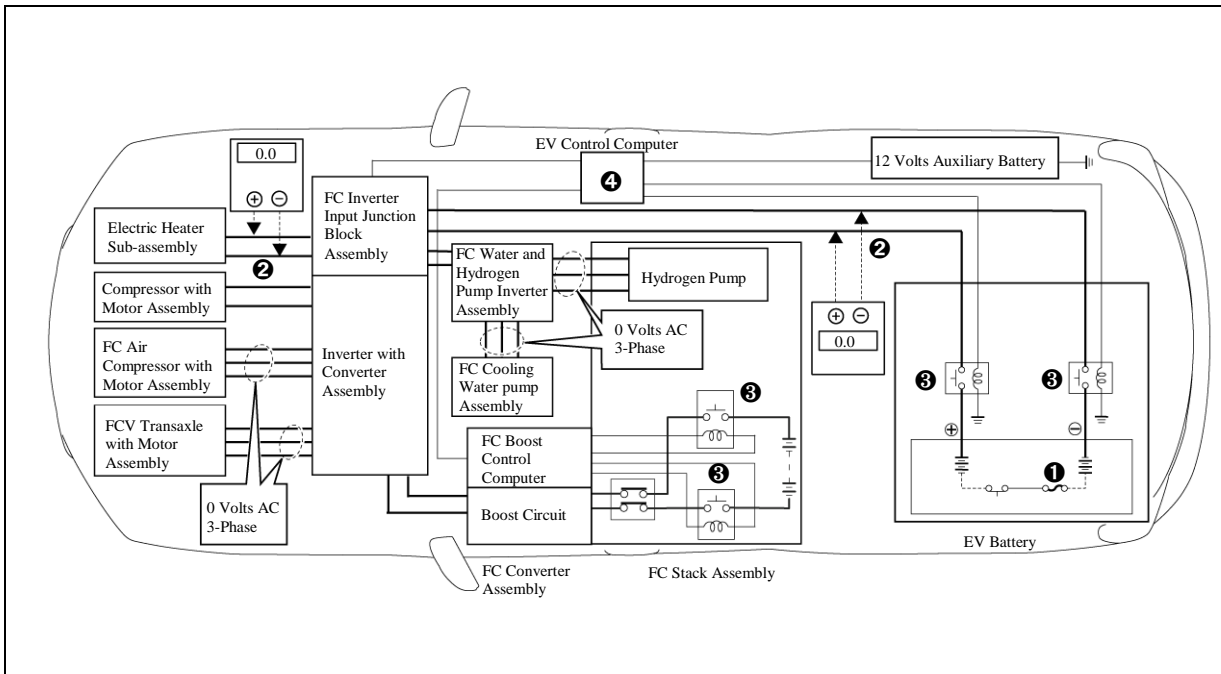
- ***The high voltage system may remain powered for up to 10 minutes after the vehicle is shut off or disabled. To prevent serious injury or death from severe burns or electric shock, avoid touching, cutting, or opening any orange high voltage power cable or high voltage component.***

- Both positive and negative power cables ❷\* are insulated from the metal body. High voltage electricity flows through these cables and not through the metal vehicle body. The metal vehicle body is safe to touch because it is insulated from the high voltage components.
- 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 EV control computer ❺\* will illuminate the master warning light  in the instrument cluster and indicate “FC System Malfunction” on the multi-information display.
- The EV battery relays will automatically open to stop electricity flow in a collision sufficient to activate the SRS.

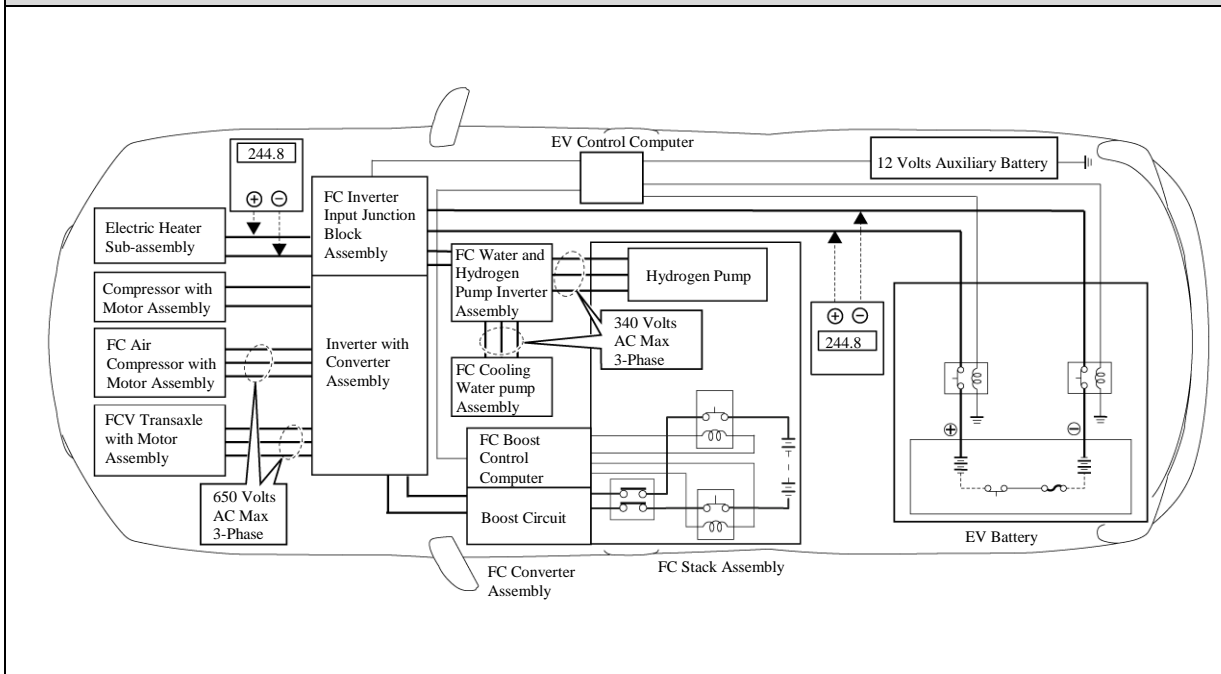
# High Voltage Safety (Continued)

## Service Plug Grip

- The high voltage circuit is cut by removing the service plug grip (see page 78).



## High Voltage Safety System – Vehicle Shut Off (READY-OFF)



## High Voltage Safety System – Vehicle On and Operational (READY-ON)

## 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.*
- *When discharging pressurized hydrogen gas from the from the hydrogen tank assembly, do not perform the procedure in an indoor area with poor ventilation.*
- *Do not install or remove any hydrogen system components without first performing depressurization procedures.*

### **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 MIRAI contains the same common automotive fluids used in other non-hybrid Toyota vehicles, with the exception of the NiMH electrolyte used in the EV battery. 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 metal 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.

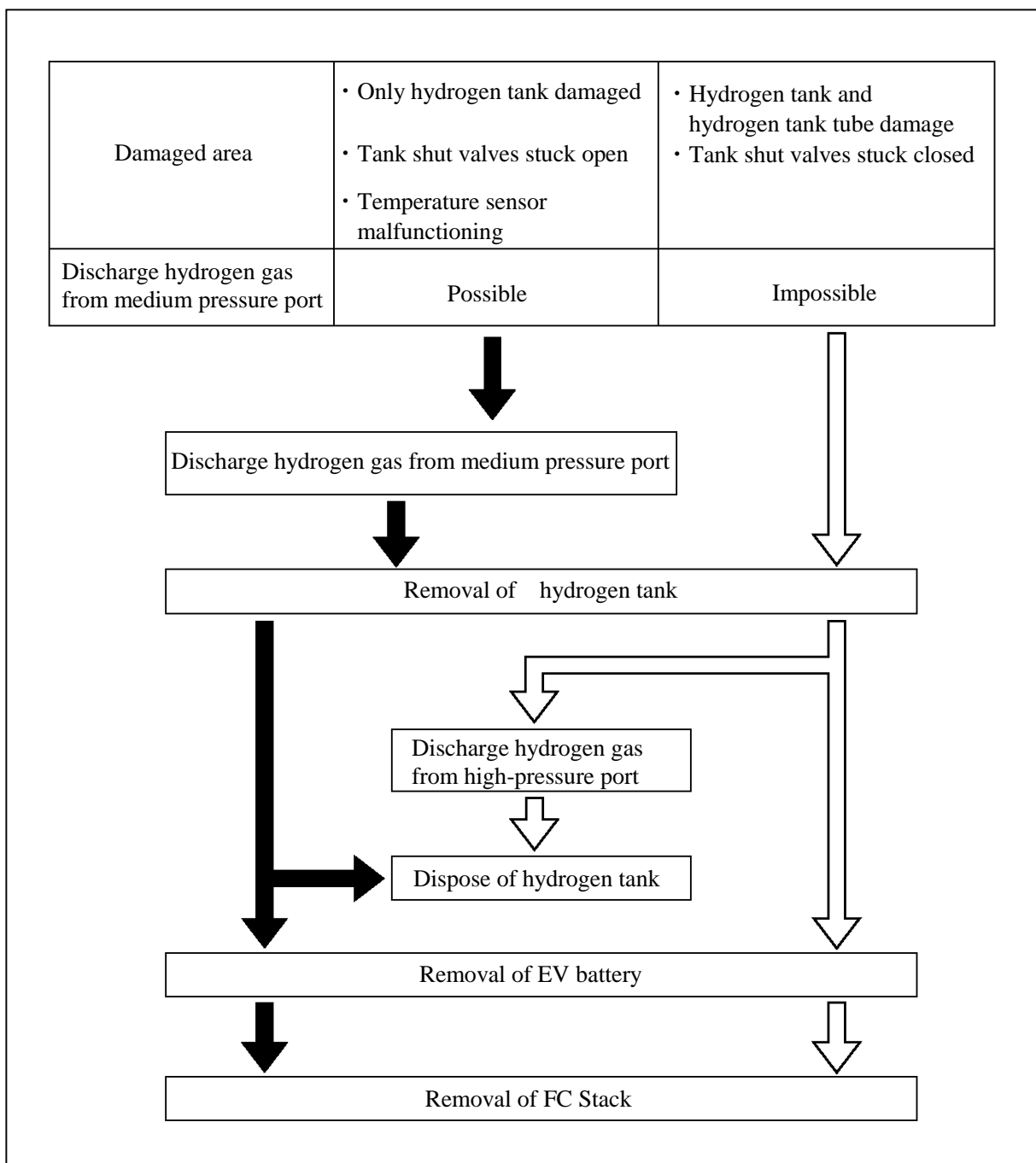
- Handle NiMH electrolyte spills using the following Personal Protective Equipment (PPE):
  - Splash shield or safety goggles. A fold down face shield is not acceptable for acid or electrolyte spills.
  - Rubber, latex or nitrile gloves.
  - Apron suitable for alkaline.
  - Rubber boots.
  
- Neutralize 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

### Caution

- The hydrogen tanks contain high-pressure hydrogen.
- Never dismantle a vehicle without first removing and depressurizing the hydrogen tanks. Failure to observe this precaution may lead to serious injury or death caused by high-pressure gas.

### Conditions for Determining Whether Gas can be Discharged from Medium Pressure Port and How to Proceed with Work



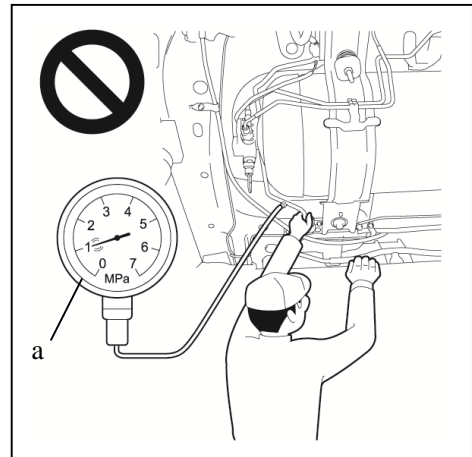
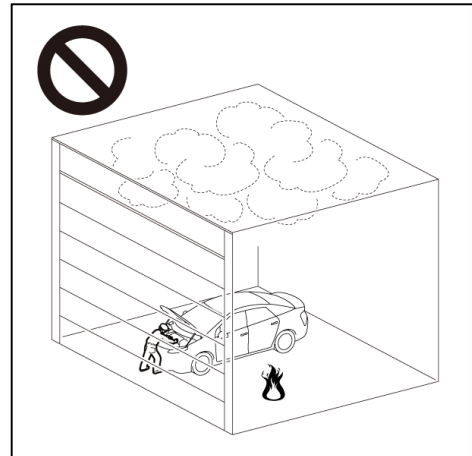
## Dismantling the vehicle (Continued)

### Discharge Hydrogen Gas from Medium Pressure Port

The following 5 pages contain general instructions for use when working on a MIRAI. Read these instructions before proceeding to the discharge hydrogen gas from medium pressure port instructions on page 23.

#### Caution:

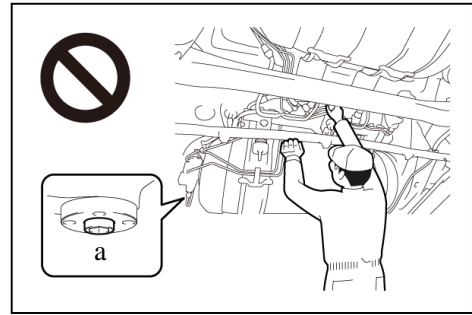
- Work procedures must be performed in an area with good ventilation (airflow) where hydrogen gas will not accumulate, and flames or other things that could act as ignition sources must not be present.
- Accumulated hydrogen gas could ignite, resulting in a serious accident.
- Do not remove any hydrogen system components without first performing depressurization procedures.
- The highly pressurized hydrogen gas inside the hydrogen tank assembly could blow out, resulting in a serious accident.



a

When inside of piping is pressurized

- Do not perform depressurization procedures when the manual valve of the hydrogen tank assembly is open.
- The highly pressurized hydrogen gas inside the hydrogen tank assembly could blow out, resulting in a serious accident.

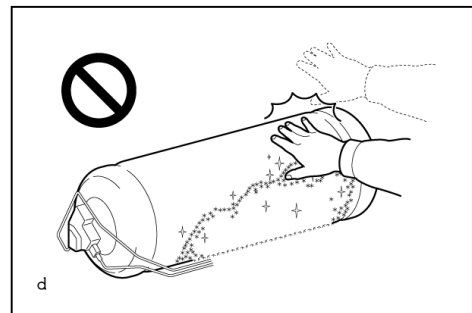


a	Manual Valve Open
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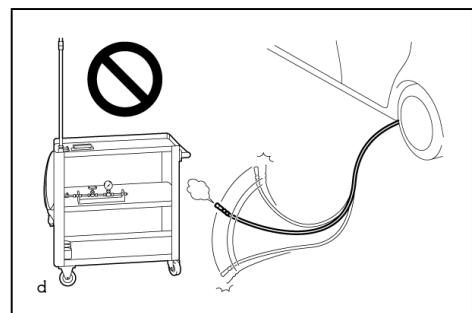
- When performing depressurization, do not perform procedures by hand without wearing protective glasses and gloves.
- The highly pressurized hydrogen gas inside the hydrogen tank assembly could blow out, resulting in a serious accident.



- While discharging pressurized hydrogen gas, the temperature inside the tank decreases and frost may form on the outside. Do not touch tanks, piping, or SST (hydrogen venting tool) when frost has formed on them.
- Touching tanks, piping, or SST (hydrogen venting tool) on which frost has formed could result in burn-like injuries due to frostbite.



- When opening the tank shut valve and applying pressure to the SST (hydrogen venting tool), stay away from the SST (flexible hose).
- If the SST (flexible hose) comes off, you could be struck by the loose end of the SST (flexible hose), causing a serious accident.



**Notice:**

- After turning the power switch off, waiting time may be required before disconnecting the cable from the negative (-) auxiliary battery terminal. Therefore, make sure to read the disconnecting the cable from the negative (-) auxiliary battery terminal notices before proceeding with work.
- When performing depressurization, do not open or close any parts of the hydrogen gas piping except for the following:
  - Adjustment bolt of the hydrogen tank assembly manual valve
  - Tank shut valve of the hydrogen tank assembly
  - Nut of the hydrogen supply regulator assembly medium pressure leak check port
- Place signs [HIGH PRESSURE GAS WORK IN PROGRESS - DO NOT TOUCH!], etc. to warn other technicians to be cautious. (An example sign is included, so make a copy and use it.)



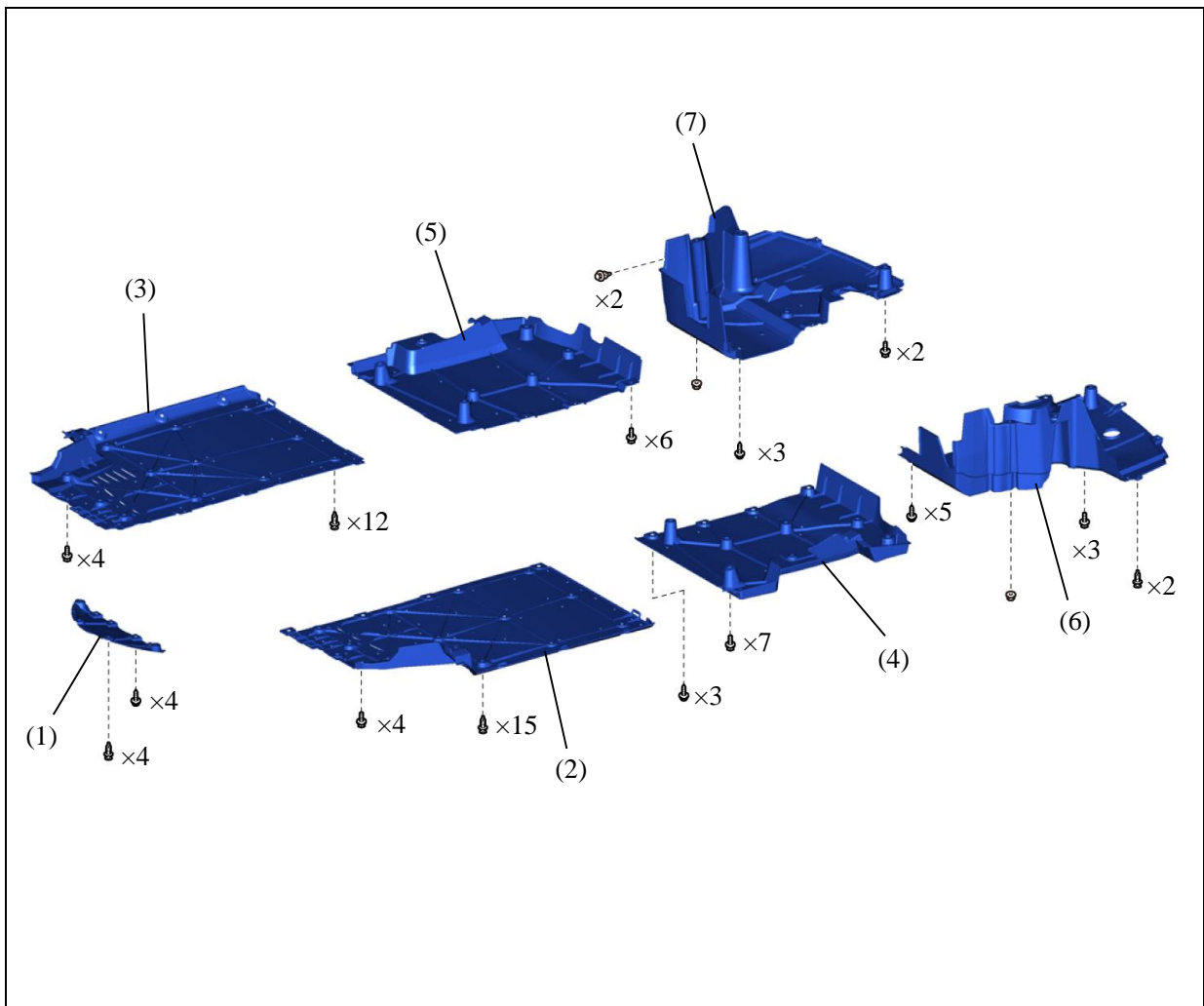
<hr/> <b>Person in charge:</b> <hr/>
<b>DO NOT TOUCH. HIGH-PRESSURE GAS CAUTION:</b>
<b>CAUTION: HIGH-PRESSURE GAS DO NOT TOUCH.</b>
<b>Person in charge:</b> <hr/>

Place signs [HIGH PRESSURE GAS WORK IN PROGRESS - DO NOT TOUCH!], etc. to warn other technicians to be cautious. (An example sign is included, so make a copy and use it.)

- When the vehicle is parked with the power switch off, if the FC control ECU judges that the FC stack temperature will go below 0° C (32° F), it activates the FC air compressor, hydrogen pump and FC cooling water pump for a maximum of 180 seconds and drains water from the FC stack assembly. When performing inspection or repairs with the power switch off (not on (IG) or on (READY)), disconnect the cable from the negative (-) auxiliary battery terminal before performing work.

## 1. REMOVE NO. 1 FLOOR UNDER COVER

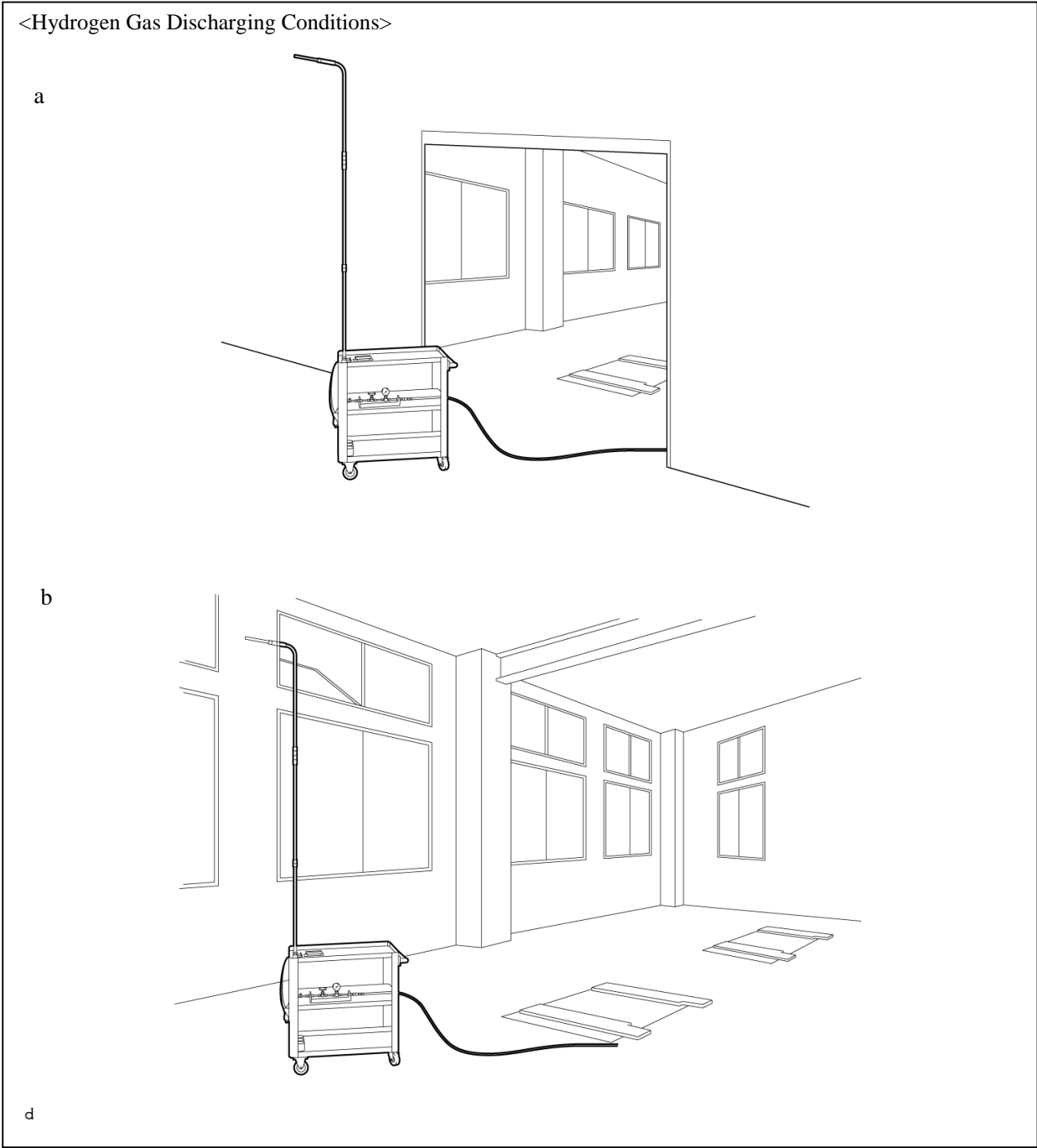
- (1) Remove the No. 2 motor under cover.
- (2) Remove the front floor cover LH.
- (3) Remove the front floor cover RH.
- (4) Remove the front floor center cover LH.
- (5) Remove the front floor center cover RH.
- (6) Remove the No. 2 floor under cover.
- (7) Remove the No. 1 floor under cover.



2. PREPARE SST (HYDROGEN VENTING TOOL)

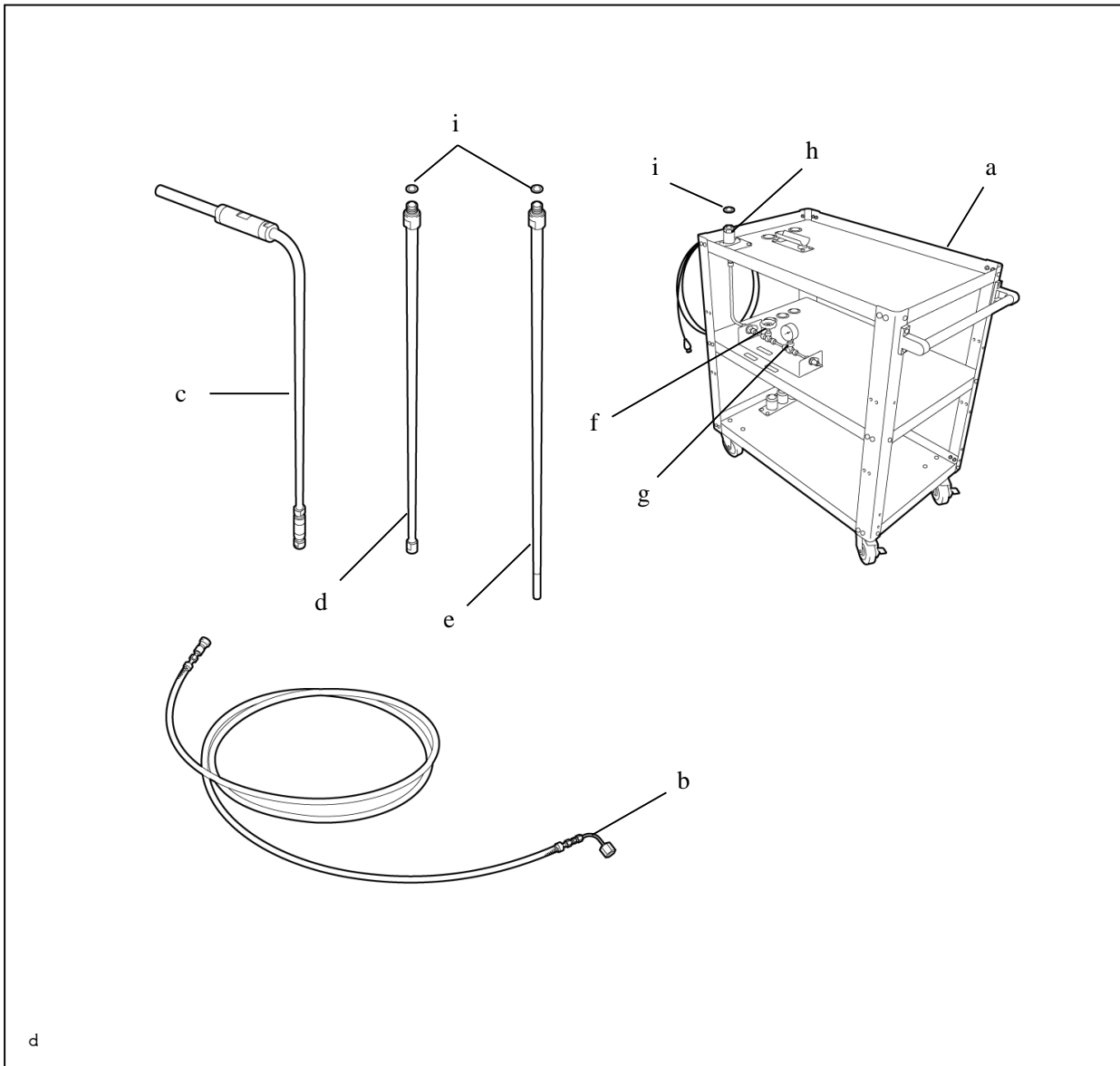
**Hint:**

Before performing work, check the set up conditions of the SST (hydrogen venting tool).



a	Basic Conditions	b	Other than Basic Conditions (if mechanism cannot be set up outdoors)
---	------------------	---	--

(1) Check the assembly of the SST (hydrogen venting tool).



a	SST (Venting Stand)	b	SST (Flexible Hose)
c	SST (Upper Release Pipe)	d	SST (Middle Release Pipe)
e	SST (Lower Release Pipe)	f	Open/close Valve
g	Pressure Gauge	h	Discharge Pipe Support
i	SST (O Ring (Replace at time of using SST (hydrogen venting tool)))	-	-

## SST

**09404-62010 (09404-06010, 09404-06020, 09404-06030, 09404-06040, 09404-06050,09404-06060)**

Make sure to replace the SST (3 O-rings) of the SST (hydrogen venting tool) with new ones.

(2) Remove the SST (O-ring) from the SST (middle release pipe).

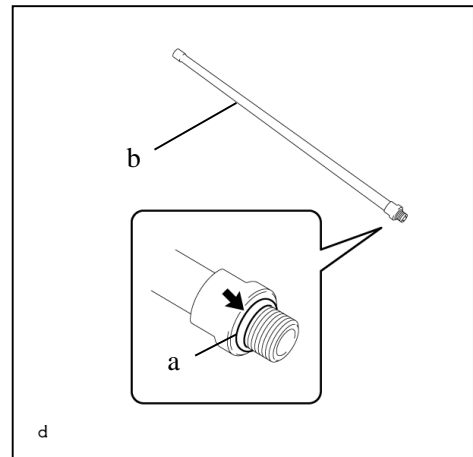
**SST**

**09404-62010 (09404-06040,09404-06060)**

(3) Install a new SST (O-ring) to the SST (middle release pipe).

**SST**

**09404-62010 (09404-06040,09404-06060)**



a	SST (O-ring)
b	SST (Middle Release Pipe)

(4) Remove the SST (O-ring) from the SST (lower release pipe).

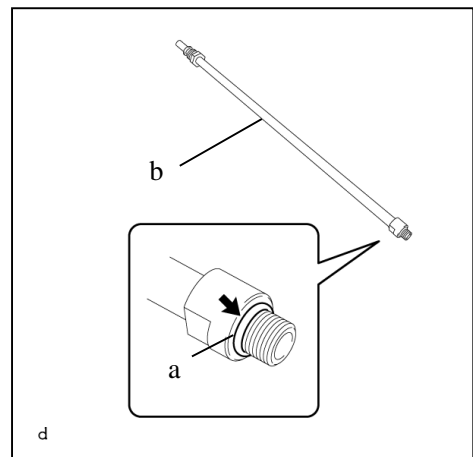
**SST**

**09404-62010 (09404-06050,09404-06060)**

(5) Install a new SST (O-ring) to the SST (lower release pipe).

**SST**

**09404-62010 (09404-06050,09404-06060)**

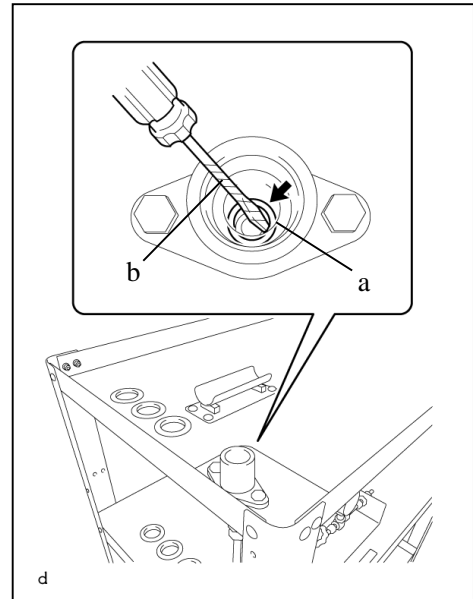


a	SST (O-ring)
b	SST (Lower Release Pipe)

- (6) Using a thin-bladed screwdriver with its tip wrapped in protective tape, remove the SST (O-ring) from the release pipe support.

**SST**

**09404-62010 (09404-06010,09404-06060)**

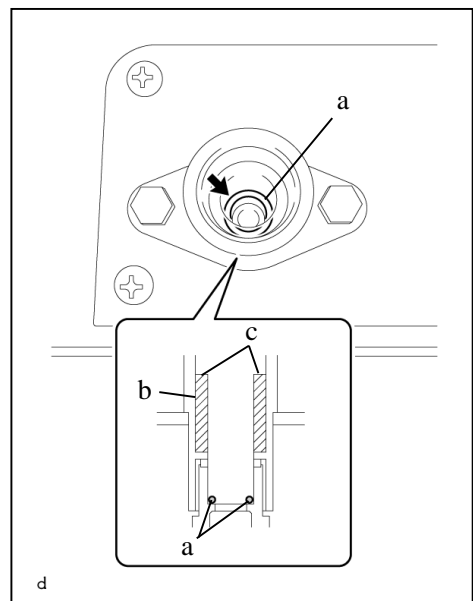


a	SST (O-ring)
b	Protective Tape

- (7) As shown in the illustration, install a new SST (O-ring) to the release pipe support.

**SST**

**09404-62010 (09404-06060)**



a	SST (O-ring)
b	Release Pipe Support
c	Collar

- (8) Connect each part of the SST (hydrogen venting tool) and prepare it for use.

- i. Connect the SST (upper release pipe) and SST (middle release pipe), and using a thickness gauge, measure the clearance in the location shown in the illustration.

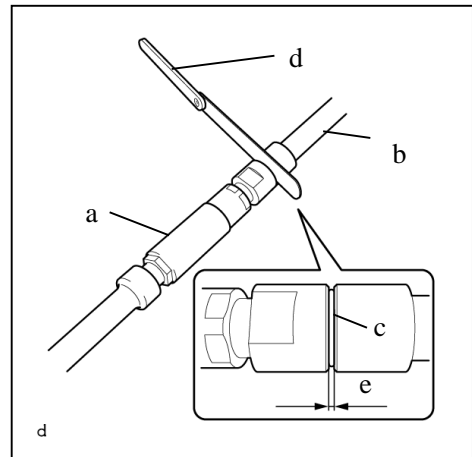
**SST**

**09404-62010 (09404-06030,09404-06040, 09404-06060)**

**Discharge pipe connection clearance:  
1.7 mm (0.0669 in.)**

**Notice:**

Perform the procedure by hand. Do not use any tools.



a	SST (Upper Release Pipe)
b	SST (Middle Release Pipe)
c	SST (O-ring)
d	Thickness Gauge
e	1.7 mm (0.0669 in.)

- ii. Connect the SST (middle release pipe) and SST (lower release pipe), and using a thickness gauge, measure the clearance in the location shown in the illustration.

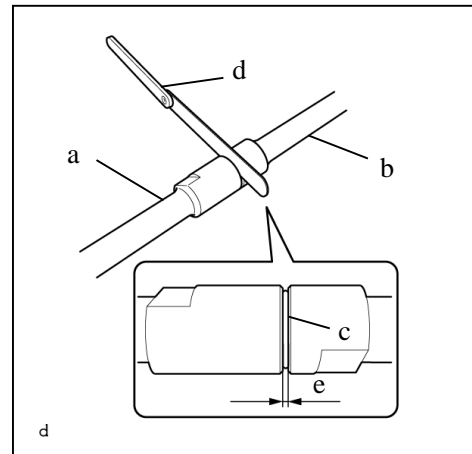
**SST**

**09404-62010 (09404-06040,09404-06050, 09404-06060)**

**Discharge pipe connection clearance:  
1.7 mm (0.0669 in.)**

**Notice:**

Perform the procedure by hand. Do not use any tools.



a	SST (Middle Release Pipe)
b	SST (Lower Release Pipe)
c	SST (O-ring)
d	Thickness Gauge
e	1.7 mm (0.0669 in.)



- iii. Connect the SST (lower release pipe) to the discharge pipe support, and using SST (variable open wrench), tighten the nut.

**SST**

**09922-10010**

**09404-62010 (09404-06050)**

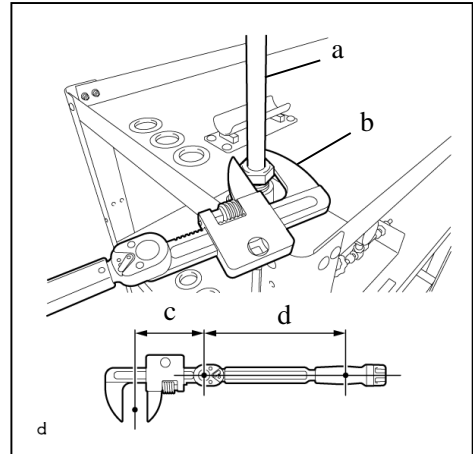
**Torque:**

**Specified tightening torque**

**20 N\*m (204 kgf\*cm, 15 ft.\*lbf)**

**Hint:**

- Calculate the torque wrench reading when changing the fulcrum length of the torque wrench.
- When using SST (fulcrum length of 136 mm (5.35 in.)) + torque wrench (fulcrum length of 180 mm (7.09 in.)): 11.4 N\*m (116 kgf\*cm, 8 ft.\*lbf)

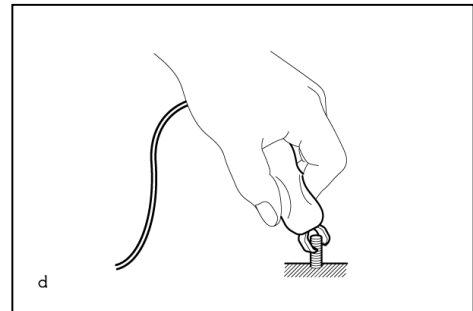


a	SST (Lower Release Pipe)
b	SST (Variable Open Wrench)
c	SST Fulcrum Length
d	Torque Wrench Fulcrum Length

- iv. Connect the ground wire.

**Notice:**

Connect the ground wire to somewhere that will enable secure electrical grounding.

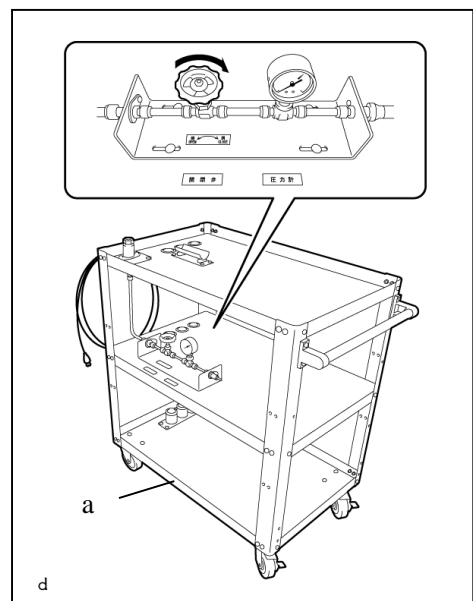


**3. CONNECT SST (HYDROGEN VENTING TOOL)**

- (1) Check that the open/close valve of the SST (venting stand) is closed.

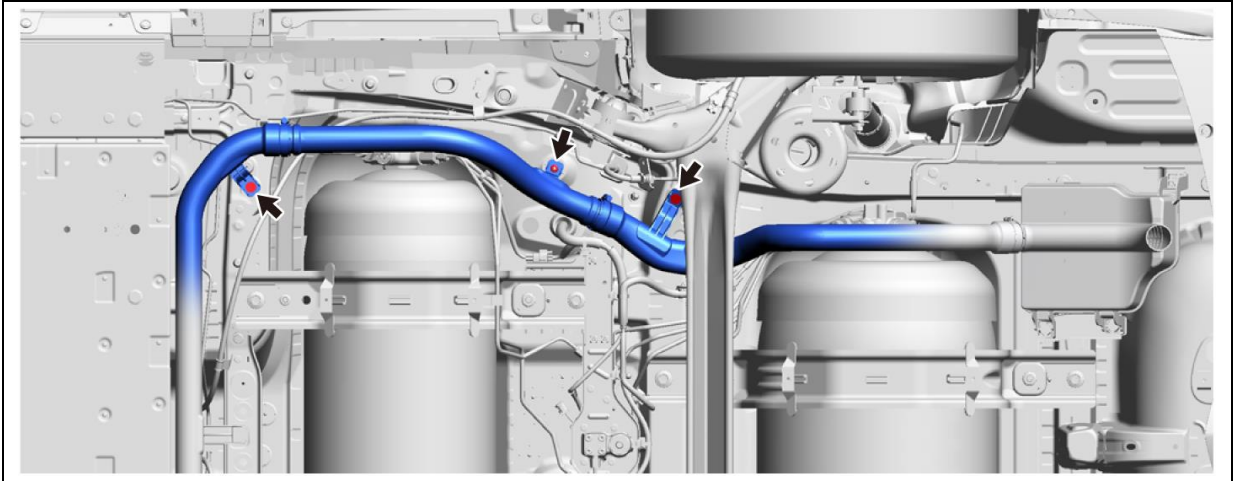
**SST**

**09404-62010 (09404-06010)**



a	SST (Venting Stand)
---	---------------------

(2) Remove the 3 bolts and disconnect the FC exhaust pipe.



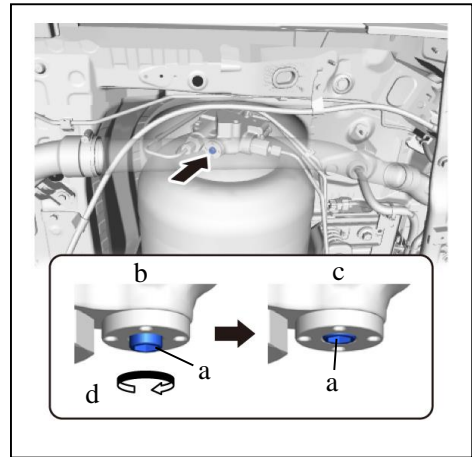
(3) Using an 8 mm socket hexagon wrench, rotate the adjustment bolt in the clockwise direction to close the manual valve of the No. 1 hydrogen tank assembly.

**Torque:**

**20 N\*m (204 kgf\*cm, 15 ft.\*lbf)**

**Notice:**

- The manual valve shuts off the pressure from the hydrogen tank assembly, so be careful not to damage the hexagonal portion.



a	Adjustment Bolt
b	Manual Valve Open
c	Manual Valve Closed
d	Clockwise

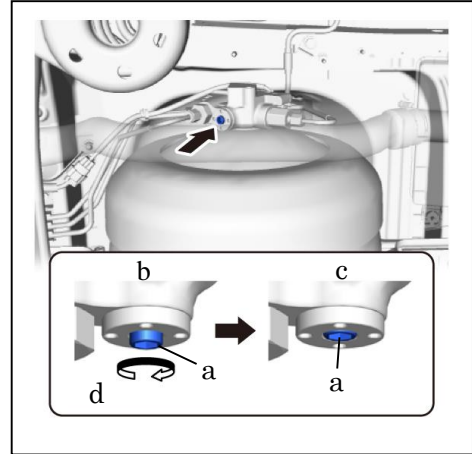
- (4) Using an 8 mm socket hexagon wrench, rotate the adjustment bolt in the clockwise direction to close the manual valve of the No. 2 hydrogen tank assembly.

**Torque:**

**20 N\*m (204 kgf\*cm, 15 ft.\*lbf)**

**Notice:**

- The manual valve shuts off the pressure from the hydrogen tank assembly, so be careful not to damage the hexagonal portion.



a	Adjustment Bolt
b	Manual Valve Open
c	Manual Valve Closed
d	Clockwise

- (5) Before beginning depressurization procedures, if there are any contaminants such as mud near the medium pressure leak check port of the hydrogen supply regulator assembly, clean them away.

**Hint:**

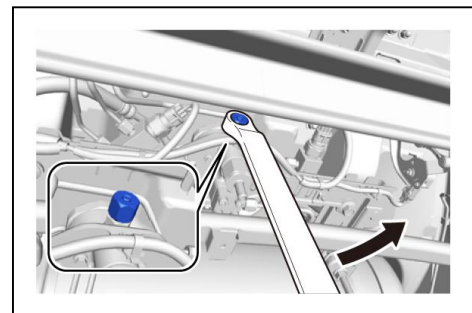
Performing installation while any foreign matter is adhered to the nut of the medium pressure leak check port could cause a hydrogen gas leak.

- (6) Perform depressurization.

**Notice:**

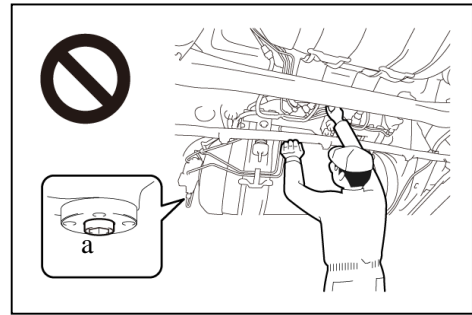
When performing depressurization, only loosen the nut. Do not remove it.

Slowly loosen the nut until the hissing sound of gas escaping can be heard, then stop loosening the nut and wait for the sound to stop. Repeat this procedure multiple times until the sound stops occurring, in order to depressurize the compressed hydrogen gas from the medium pressure leak check port of the hydrogen supply regulator assembly.



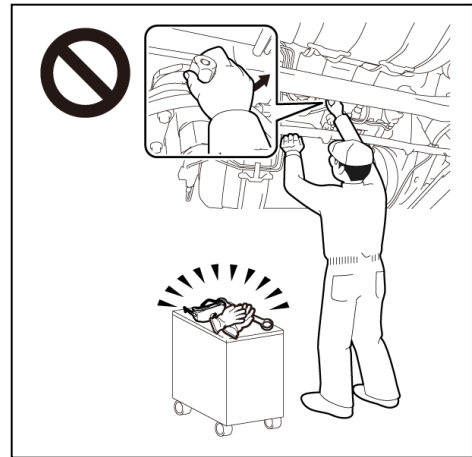
**Caution:**

- Do not perform depressurization procedures when the manual valve of the hydrogen tank assembly is open.
- The highly pressurized hydrogen gas inside the hydrogen tank assembly could blow out, resulting in a serious accident.

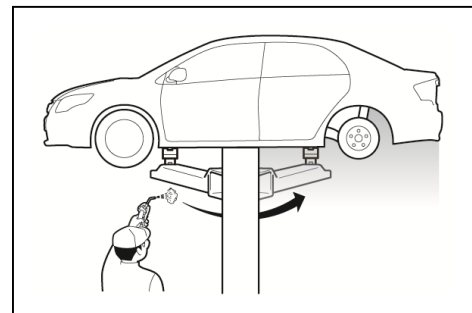


a Manual Valve Open

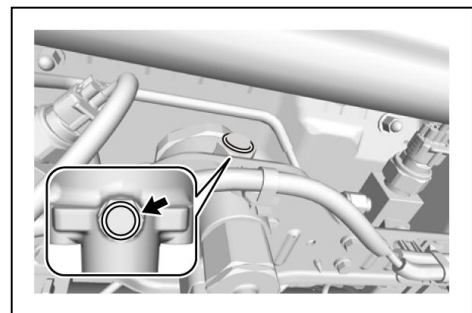
- When performing depressurization, do not perform procedures by hand without wearing protective glasses and gloves.
- The highly pressurized hydrogen gas inside the hydrogen tank assembly could blow out, resulting in a serious accident.



- (7) Blow compressed air at the underside of the vehicle to disperse any accumulated hydrogen gas.
- (8) Remove the nut from the medium-pressure leak check port of the hydrogen supply regulator assembly.



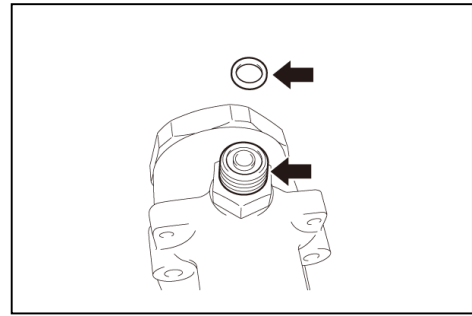
- (9) Remove the O-ring from the hydrogen supply regulator assembly.



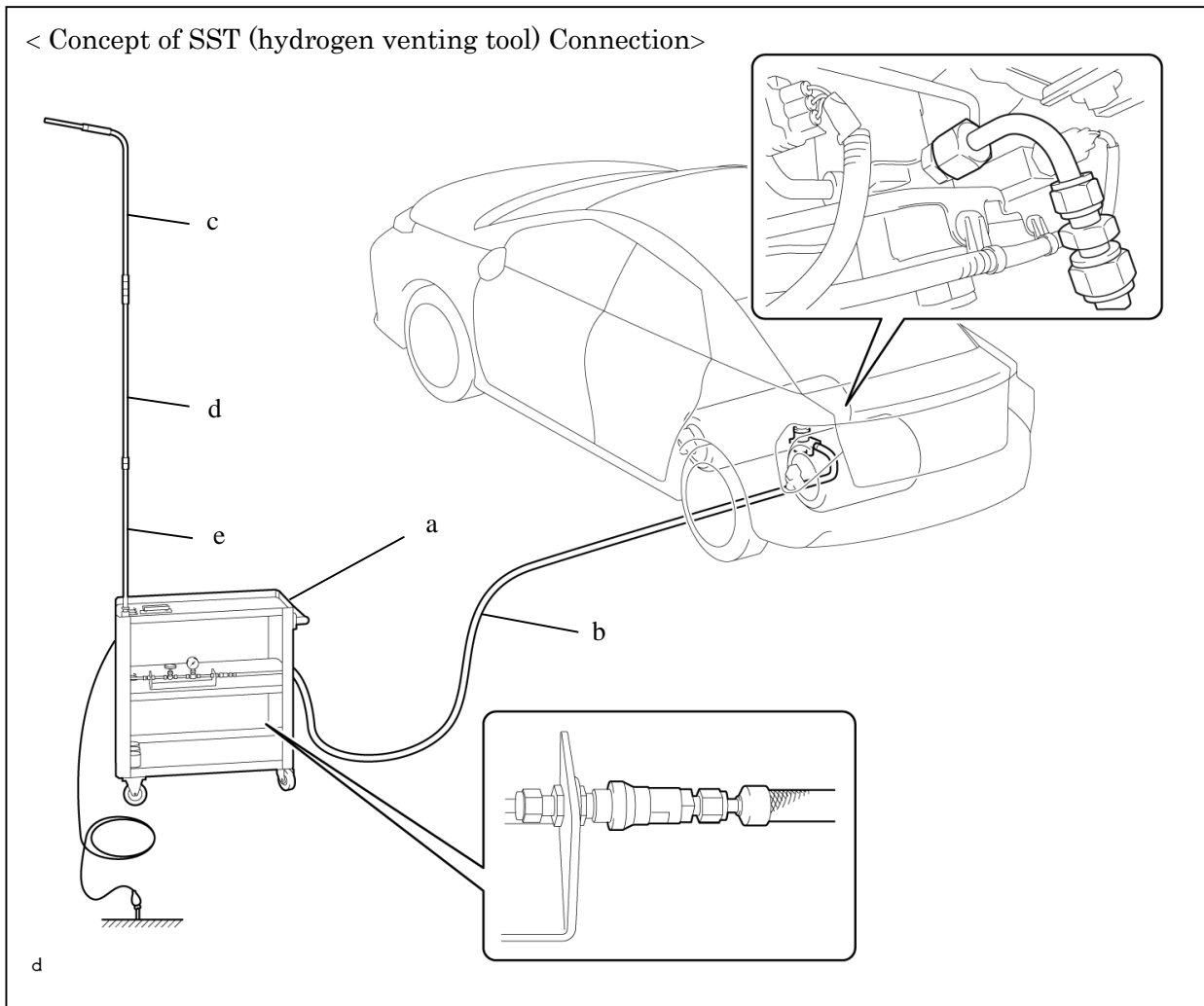
- (10) Apply TOYOTA Genuine FC Grease to a new O-ring and to the threaded portion of the medium pressure leak check port.
- (11) Install the O-ring to the hydrogen supply regulator assembly.

**Notice:**

During installation, make sure not to damage the O-ring.



(12) Connect the SST (hydrogen venting tool).



a	SST (Venting Stand)	b	SST (Flexible Hose)
c	SST (Upper Release Pipe)	d	SST (Middle Release Pipe)
e	SST (Lower Release Pipe)	-	-

## SST

09404-62010 (09404-06010, 09404-06020, 09404-06030, 09404-06040, 09404-06050)

- i. Using SST, install the flexible hose to the medium pressure leak check port of the hydrogen supply regulator assembly.

**SST**

**09922-10240**

**09404-62010 (09404-06020)**

**Torque:**

**Specified tightening torque**

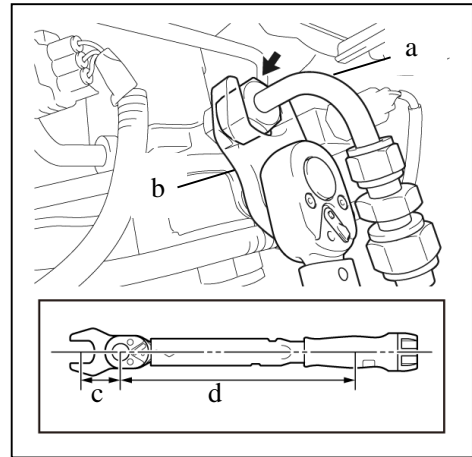
**25 N\*m (255 kgf\*cm, 18 ft.\*lbf)**

**Notice:**

- Make sure that the SST (flexible hose) does not interfere with any part of the vehicle.
- If the SST (flexible hose) interferes with any part of the vehicle, protect it with a piece of cloth, etc.

**Hint:**

- Calculate the torque wrench reading when changing the fulcrum length of the torque wrench.
- When using SST (fulcrum length of 40 mm (1.57 in.)) + torque wrench (fulcrum length of 255 mm (10.04 in.)): 21.6 N\*m (220 kgf\*cm, 16 ft.\*lbf)

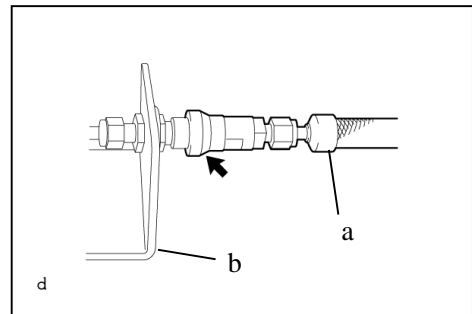


a	SST (Flexible Hose)
b	SST (Open End Wrench)
c	SST Fulcrum Length
d	Torque Wrench Fulcrum Length

- ii. Connect the SST (flexible hose) to the SST (Venting Stand).

**SST**

**09404-62010 (09404-06010,09404-06020)**



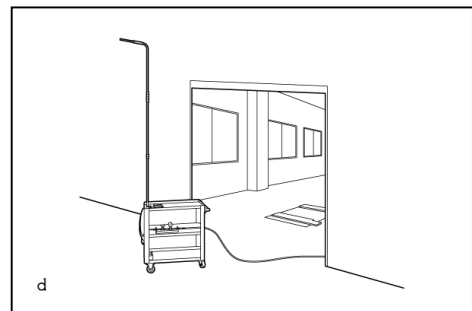
a	SST (Flexible Hose)
b	SST (Venting Stand)

(13) Under basic conditions

- i. Set the SST (hydrogen venting tool) in an outdoor location.

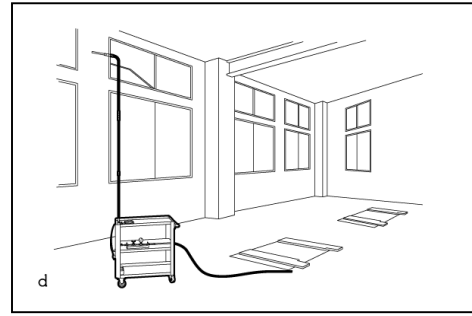
**Notice:**

Take care that the compressed hydrogen gas that is discharged during the discharging procedure does not enter any indoor location.



(14) Other than basic conditions (when outdoor setup is not possible)

- i. When the SST (hydrogen venting tool) will be set up indoors, locate it along a wall near a window, and with the tip of the SST (upper release pipe) outdoors.



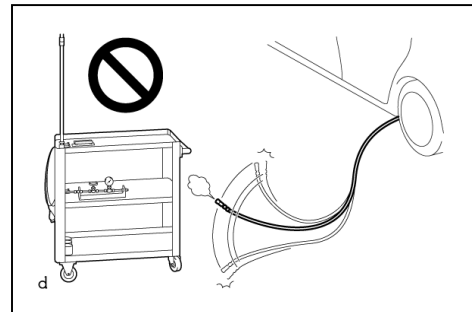
**Notice:**

Open windows on two sides or more, and ensure that there is adequate ventilation to prevent the compressed hydrogen gas that is discharged from collecting inside.

(15) Open the tank shut valves of the No. 1 and No. 2 hydrogen tank assemblies, then immediately close them again.

**Caution:**

- **When opening the tank shut valve and applying pressure to the SST (hydrogen venting tool), stay away from the SST (flexible hose).**
- **If the SST (flexible hose) comes off, you could be struck by the loose end of the SST (flexible hose), causing a serious accident.**



(16) Perform preliminary leak check (using remaining piping pressure).

**Hint:**

Perform leak check using the pressure remaining upstream of the tank shut valve.

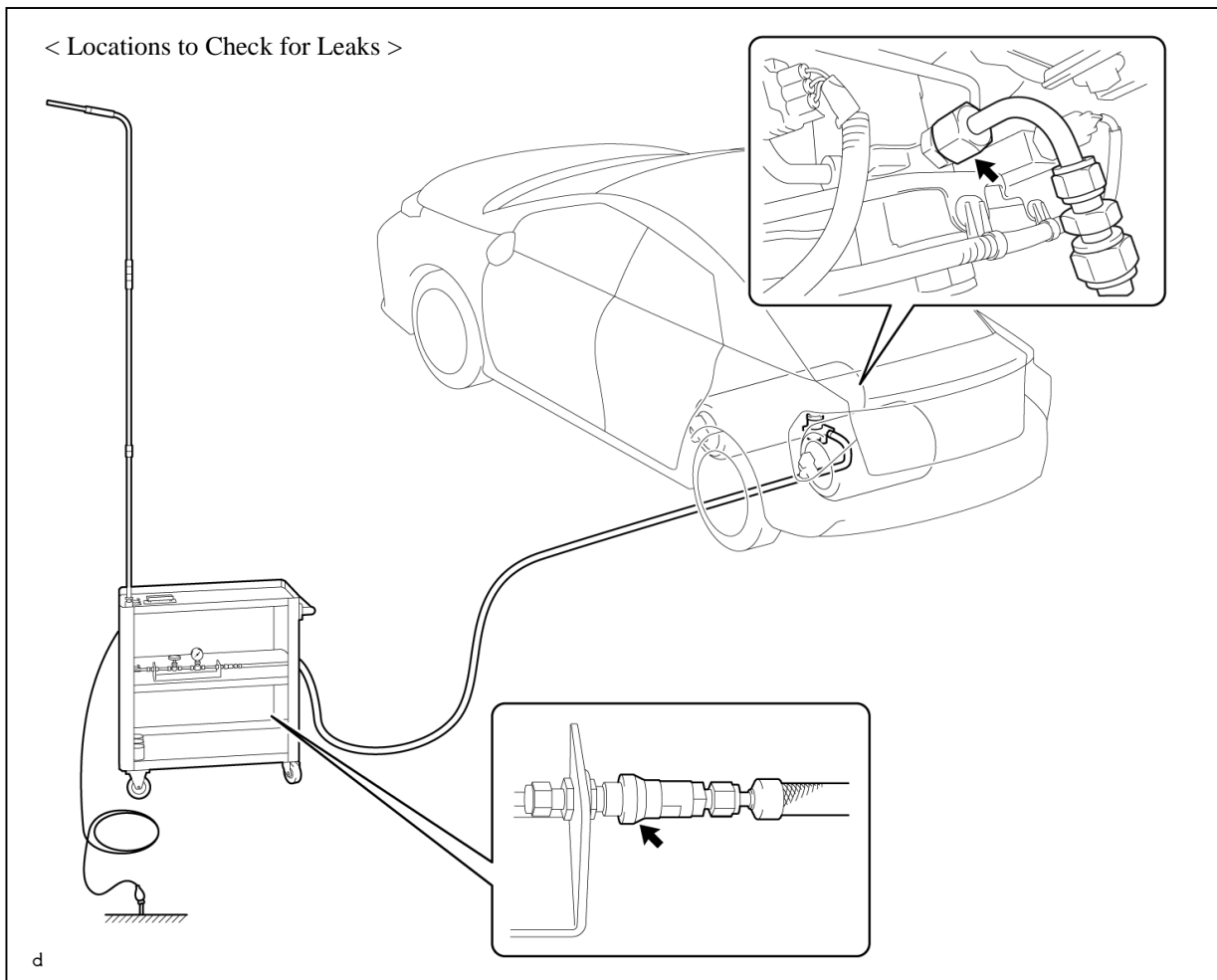
- i. If there are any water droplets, etc. adhering to the measurement locations, wipe them away before performing the procedure.

**Notice:**

Performing the measurement while any water droplets, etc. are adhering could damage the hydrogen gas detector.



- ii. Using SST and a hydrogen gas detector, inspect for leaks in the locations shown in the illustration.



**SST**

**09401-62010**

**Specified Value:**

**300 ppm or less**

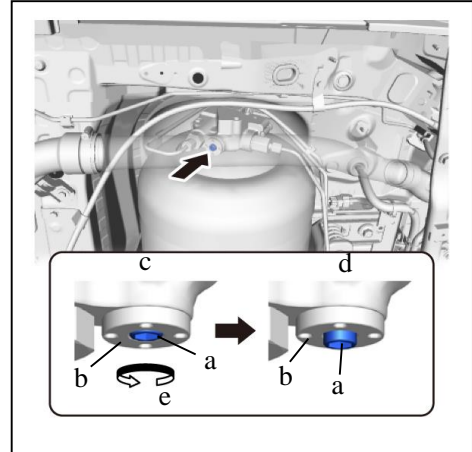
**Notice:**

If any values are outside the specified range, disconnect those locations that have leaks and assemble the parts again.

(17) Using an 8 mm socket hexagon wrench, rotate the adjustment bolt counterclockwise until it contacts the plug, and open the No. 1 hydrogen tank assembly manual valve.

**Notice:**

The manual valve shuts off the pressure from the hydrogen tank assembly, so be careful not to damage the hexagonal portion.

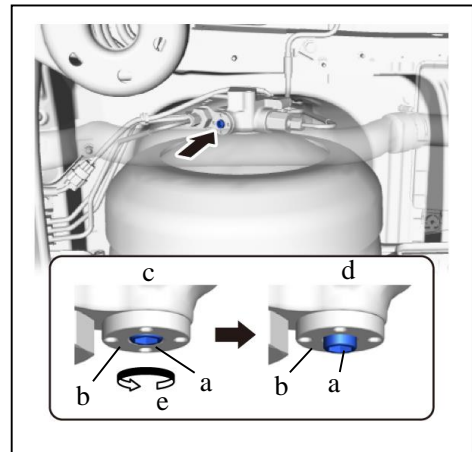


a	Adjustment Bolt
b	Plug
c	Manual Valve Closed
d	Manual Valve Open
e	Counterclockwise

(18) Using an 8 mm socket hexagon wrench, rotate the adjustment bolt counterclockwise until it contacts the plug, and open the No. 2 hydrogen tank assembly manual valve.

**Notice:**

The manual valve shuts off the pressure from the hydrogen tank assembly, so be careful not to damage the hexagonal portion.

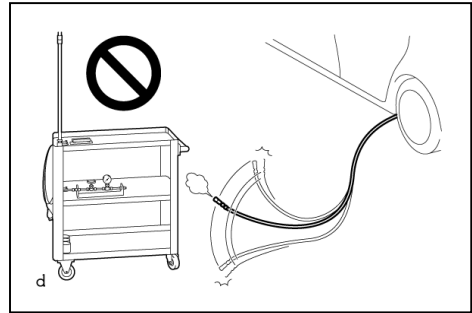


a	Adjustment Bolt
b	Plug
c	Manual Valve Closed
d	Manual Valve Open
e	Counterclockwise

(19) Open the tank shut valves of the No. 1 and No. 2 hydrogen tank assemblies, then immediately close them again.

**Caution:**

- When opening the tank shut valve and applying pressure to the SST (hydrogen venting tool), stay away from the SST (flexible hose).
- If the SST (flexible hose) comes off, you could be struck by the loose end of the SST (flexible hose), causing a serious accident.

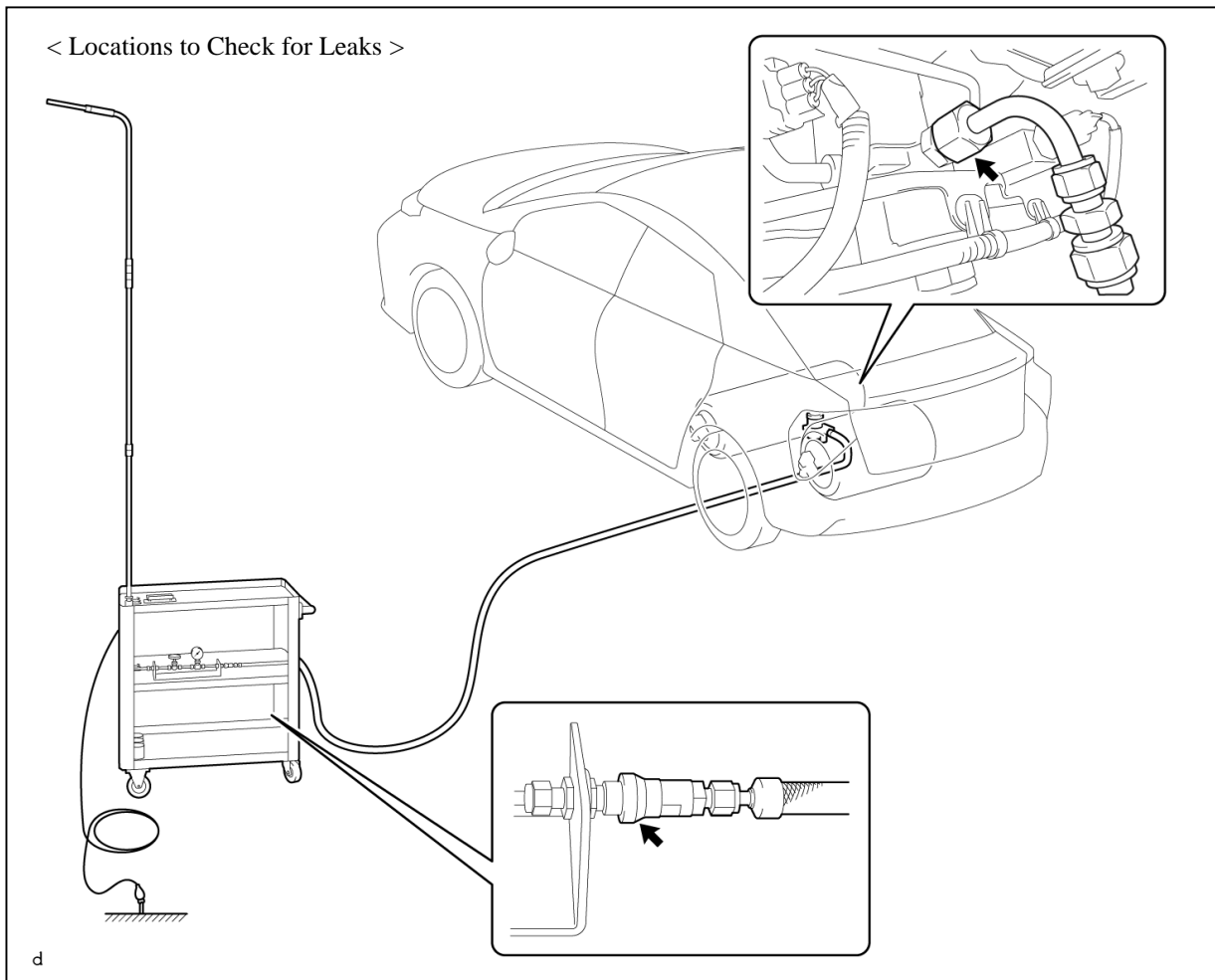


(20) Perform preliminary leak check (using tank pressure)

**Hint:**

Perform leak check while applying hydrogen tank pressure.

- i. Using SST and a hydrogen gas detector, inspect for leaks in the locations shown in the illustration.



**Specified Value:**  
**300 ppm or less**

**Notice:**

- If any values are outside the specified range, disconnect those locations that have leaks and assemble the parts again.
- After reassembling the locations that were leaking, perform the leak check again.

#### 4. SELECT APPROPRIATE DISCHARGE PROCEDURE

**Notice:**

Except in a case where the tank shut valve for either the No. 1 or No. 2 hydrogen tank assembly cannot be opened, always perform the discharging procedure for both hydrogen tanks.

Using on-vehicle inspection of the hydrogen tanks or DTC-based troubleshooting, confirm the number of tanks for which compressed hydrogen gas will be discharged, and perform the appropriate discharging procedures.

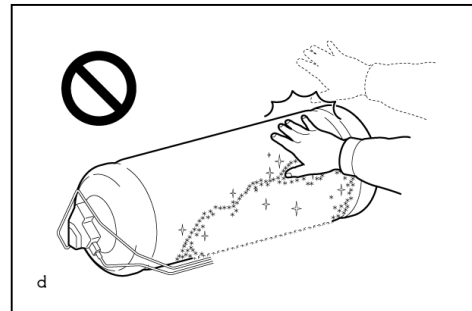
## Compressed Hydrogen Gas Discharging Conditions

Number of Compressed Hydrogen Gas Tanks Possible to Discharge	Proceed To
2 Tanks (Both No. 1 and No. 2 hydrogen tank assembly tank shut valves can be opened)	DRAIN COMPRESSED HYDROGEN GAS (2 Tanks Being Discharged)
1 Tank (Either No. 1 or No. 2 hydrogen tank assembly tank shut valve cannot be opened)	DRAIN COMPRESSED HYDROGEN GAS (1 Tank Being Discharged)

### 5. DRAIN COMPRESSED HYDROGEN GAS (2 Tanks Being Discharged)

#### Caution:

- While discharging pressurized hydrogen gas, the temperature inside the tank decreases and frost may form on the outside. Do not touch tanks, piping, or SST (hydrogen venting tool) when frost has formed on them.
- Touching tanks, piping, or SST (hydrogen venting tool) on which frost has formed could result in burn-like injuries due to frostbite.



#### Notice:

- Starting the discharging of compressed hydrogen gas will cause the temperature inside the hydrogen gas lines to decrease.
- To protect the hydrogen tank and related components, when the hydrogen gas temperature becomes  $-30\text{ }^{\circ}\text{C}$  ( $-86\text{ }^{\circ}\text{F}$ ) or less, the discharging of compressed hydrogen gas must be stopped temporarily.
- Monitor the Data List items "Smoothed Value of Hydrogen Tank 1 Temperature" and "Smoothed Value of Hydrogen Tank 2 Temperature" while performing compressed hydrogen gas discharging.
- While performing compressed hydrogen gas discharging, periodically conduct leak checks of each connecting part of the SST (hydrogen venting tool).
- If a leak is found, stop the discharging procedure.

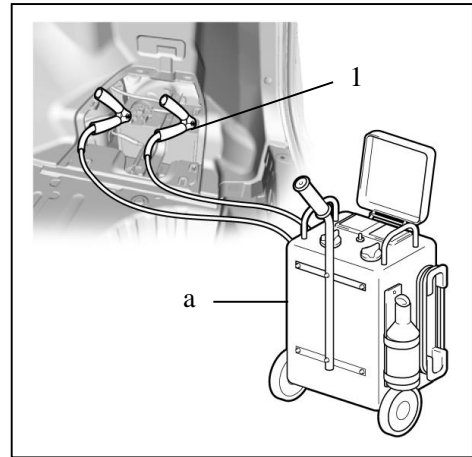
#### Hint:

#### <Approximate Discharging Times for Compressed Hydrogen Gas>

Hydrogen Gas Pressure	Discharging Time (approximate)
70 MPa	180 minutes
55 MPa	150 minutes
35 MPa	110 minutes

- The times listed above are only approximations, and times will vary depending on the actual work environment (ambient temperature, hydrogen tank gas temperature, etc.)
- The (approximate) times listed above do not include time spent while the procedure is halted due to hydrogen gas temperature becoming too low.

- (1) Lower the vehicle on the lift.
- (2) Connect a charger to the auxiliary battery and put the auxiliary battery into a charging state.
- (3) Using the Tech stream, enter the following menus:  
Body Electrical / Power Source Control / Utility / Auto Power OFF Cancel



1	Auxiliary Battery
a	Battery Charger

Body Electrical > Power Source Control >Utility

Tester Display
Auto Power OFF Cancel

Execute

- (4) Using the Tech stream, enter the following menus:  
Powertrain / FC / Data List / Medium-range Hydrogen Pressure, High-range Hydrogen Pressure, Smoothed Value of Hydrogen Tank 1 Temperature, Smoothed Value of Hydrogen Tank 2 Temperature, Tank Side Hydrogen Detector Density

Powertrain > FC > Data List

Tester Display
Medium-range Hydrogen Pressure
High-range Hydrogen Pressure
Smoothed Value of Hydrogen Tank 1 Temperature
Smoothed Value of Hydrogen Tank 2 Temperature
Tank Side Hydrogen Detector Density

Execute

**Hint:**

If the Tech stream unit setting is absolute pressure (abs), change it to gauge pressure (gauge).

- (5) Open the tank shut valves of the No. 1 and No. 2 hydrogen tank assemblies.
- (6) Open the open/close valve of the SST (venting stand), and discharge compressed hydrogen gas.

**SST**

**09404-62010 (09404-06010)**

- (7) Read the Data List and check that "Smoothed Value of Hydrogen Tank 1 Temperature" and "Smoothed Value of Hydrogen Tank 2 Temperature" begin to decrease together.

**Hint:**

- By checking that the hydrogen tank temperatures are decreasing, it can be determined that the compressed hydrogen gas is discharging.
- If either one of "Smoothed Value of Hydrogen Tank 1 Temperature" or "Smoothed Value of Hydrogen Tank 2 Temperature" does not decrease, perform the following procedure.

- (a) Close the open/close valve of the SST (venting stand).

**Notice:**

To protect the tank shut valve, make sure to first close the open/close valve of the SST (venting stand).

- (b) Close the tank shut valves of the No. 1 and No. 2 hydrogen tank assemblies.
- (c) For the side where the hydrogen gas temperature does not decrease, check that the manual valve is open, and if it is closed, open the manual valve.
- (d) Open the tank shut valves of the No. 1 and No. 2 hydrogen tank assemblies.
- (e) Open the open/close valve of the SST (venting stand) again, and discharge the compressed hydrogen gas.

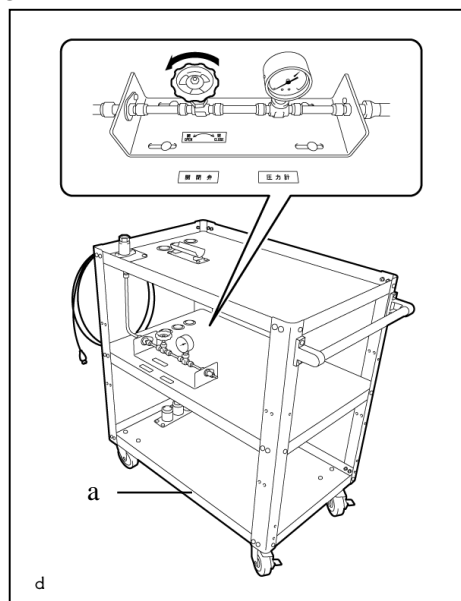
- (8) Read the Data List, and if either of the items "Smoothed Value of Hydrogen Tank 1 Temperature" or "Smoothed Value of Hydrogen Tank 2 Temperature" have become  $-30^{\circ}\text{C}$  or less:

- i. Close the open/close valve of the hydrogen discharging device. [\*1]

**Notice:**

To protect the tank shut valve, make sure to first close the open/close valve of the SST (venting stand).

- ii. Close the tank shut valves of the No. 1 and No. 2 hydrogen tank assemblies. [\*2]  
Wait until both values "Smoothed Value of Hydrogen Tank 1 Temperature" and "Smoothed Value of Hydrogen Tank 2 Temperature" have increased to  $-20^{\circ}\text{C}$  ( $-68^{\circ}\text{F}$ ) or more. [\*3]
- iii. Open the tank shut valves of the No. 1 and No. 2 hydrogen tank assemblies. [\*4]



a	SST (Venting Stand)
---	---------------------

- iv. Open the open/close valve of the SST (venting stand) and discharge compressed hydrogen gas again. [\*5]

**Notice:**

During the compressed hydrogen gas discharging procedure, if it appears that either "Smoothed Value of Hydrogen Tank 1 Temperature" or "Smoothed Value of Hydrogen Tank 2 Temperature" are about to decrease to -30 °C (-86 °F) or less, repeat steps [\*1] through [\*5].

- (9) Continue to monitor the Data List, and when the value of "Medium-range Hydrogen Pressure (gauge)" becomes 0.8 MPa, close the open/close valve of the SST (venting stand).

**Notice:**

To protect the tank shut valve, make sure to first close the open/close valve of the SST (venting stand).

- (10) Check that the Data List item "Medium-range Hydrogen Pressure (gauge)" and the pressure on the pressure indicator of the SST (venting stand) are less than 0.8 MPa.

**Notice:**

- The pressure immediately after closing the open/close valve of the SST (venting stand) should be less than 0.8 MPa for both the Data List item "Medium-range Hydrogen Pressure (gauge)" and on the pressure indicator of the SST (venting stand).
- If either the Data List item "Medium-range Hydrogen Pressure (gauge)" or the pressure on the pressure indicator of the SST (venting stand) are 0.8 MPa or greater, open the open/close valve of the SST (venting stand) and adjust the pressure.
- After the pressure discharging, when the gas temperature inside the hydrogen tank increases, the pressure will also increase, so make sure to continue discharging until the pressure is less than 0.8 MPa.

**Hint:**

If the pressure immediately after closing the open/close valve of the SST (venting stand) is less than 0.8 MPa for both the Data List item "Medium-range Hydrogen Pressure (gauge)" and on the pressure indicator of the SST (venting stand), then the pressurized hydrogen gas discharging procedure is complete.

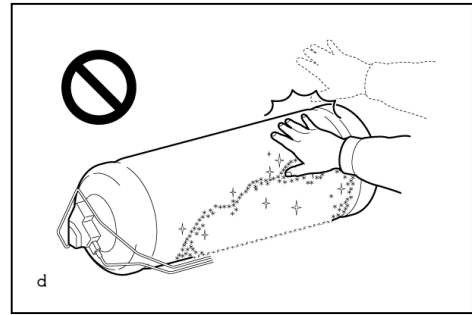
- (11) Close the tank shut valves of both the No. 1 and No. 2 hydrogen tank assemblies.
- (12) Disconnect the hydrogen discharging device (medium pressure).



## 6. DRAIN COMPRESSED HYDROGEN GAS (1 Tank Being Discharged)

### Caution:

- While discharging pressurized hydrogen gas, the temperature inside the tank decreases and frost may form on the outside. Do not touch tanks, piping, or SST (hydrogen venting tool) when frost has formed on them.
- Touching tanks, piping, or SST (hydrogen venting tool) on which frost has formed could result in burn-like injuries due to frostbite.



### Notice:

- Starting the discharging of compressed hydrogen gas will cause the temperature inside the hydrogen gas lines to decrease.
- To protect the hydrogen tank and related components, when the hydrogen gas temperature becomes  $-30\text{ }^{\circ}\text{C}$  ( $-86\text{ }^{\circ}\text{F}$ ) or less, the discharging of compressed hydrogen gas must be stopped temporarily.
- When discharging compressed hydrogen gas from only a single hydrogen tank, the decrease of hydrogen gas temperature is more rapid than when discharging only one tank, so the discharging procedure will need to be stopped a greater number of times.
- Because the temperature decrease in the hydrogen gas lines is more rapid, the following steps [\*1] through [\*5] must be repeated more often.
- Monitor the Data List items "Smoothed Value of Hydrogen Tank 1 Temperature" and "Smoothed Value of Hydrogen Tank 2 Temperature" while performing compressed hydrogen gas discharging.
- While performing compressed hydrogen gas discharging, periodically conduct leak checks of each connecting part of the SST (hydrogen venting tool).
- If a leak is found, stop the discharging procedure.

### Hint:

#### <Approximate Discharging Times for Compressed Hydrogen Gas>

Hydrogen Gas Pressure	Discharging Time (approximate)
70 MPa	90 minutes
55 MPa	75 minutes
35 MPa	55 minutes

- The times listed above are only approximations, and times will vary depending on the actual work environment (ambient temperature, hydrogen tank gas temperature, etc.)
- The (approximate) times listed above do not include time spent while the procedure is halted due to hydrogen gas temperature becoming too low.

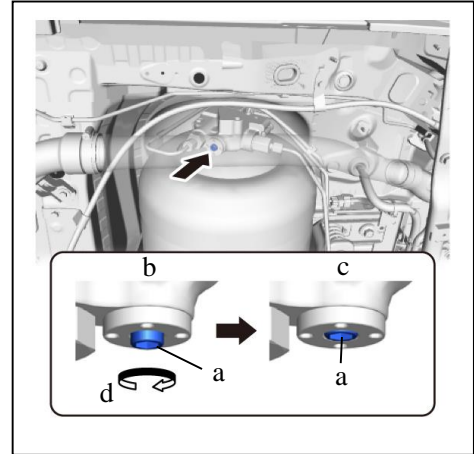
- (1) If the tank shut valve of the No. 1 hydrogen tank assembly can not be opened:
- i. Using an 8 mm socket hexagon wrench, rotate the adjustment bolt in the clockwise direction to close the manual valve of the No. 1 hydrogen tank assembly.

**Torque:**

**20 N\*m (204 kgf\*cm, 15 ft.\*lbf)**

**Notice:**

The manual valve shuts off the pressure from the hydrogen tank assembly, so be careful not to damage the hexagonal portion.



a	Adjustment Bolt
b	Manual Valve Closed
c	Manual Valve Open
d	Counterclockwise

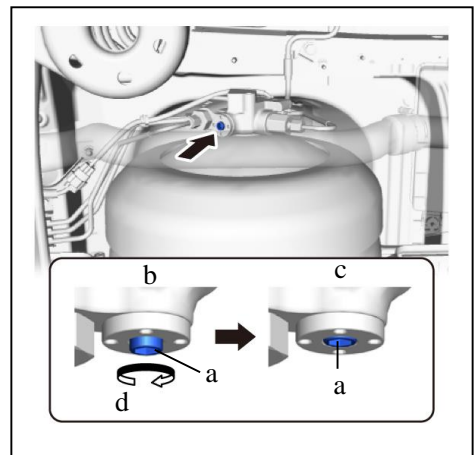
- (2) If the tank shut valve of the No. 2 hydrogen tank assembly can not be opened:
- i. Using an 8 mm socket hexagon wrench, rotate the adjustment bolt in the clockwise direction to close the manual valve of the No. 2 hydrogen tank assembly.

**Torque:**

**20 N\*m (204 kgf\*cm, 15 ft.\*lbf)**

**Notice:**

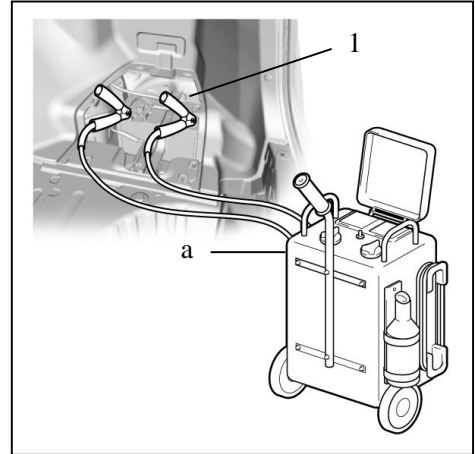
The manual valve shuts off the pressure from the hydrogen tank assembly, so be careful not to damage the hexagonal portion.



a	Adjustment Bolt
b	Manual Valve Closed
c	Manual Valve Open
d	Counterclockwise

- (3) Lower the vehicle on the lift.

- (4) Connect a charger to the auxiliary battery and put the auxiliary battery into a charging state.
- (5) Using the Techstream, enter the following menus:  
Body Electrical / Power Source Control / Utility / Auto Power OFF Cancel



1	Auxiliary Battery
a	Battery Charger

Body Electrical > Power Source Control >Utility

Tester Display
Auto Power OFF Cancel

Execute

- (6) Using the Techstream, enter the following menus:  
Powertrain / FC / Data List / Medium-range Hydrogen Pressure, High-range Hydrogen Pressure, Smoothed Value of Hydrogen Tank 1 Temperature, Smoothed Value of Hydrogen Tank 2 Temperature, Tank Side Hydrogen Detector Density

Powertrain > FC > Data List

Tester Display
Medium-range Hydrogen Pressure
High-range Hydrogen Pressure
Smoothed Value of Hydrogen Tank 1 Temperature
Smoothed Value of Hydrogen Tank 2 Temperature
Tank Side Hydrogen Detector Density

Execute

**Hint:**

If the Tech stream unit setting is absolute pressure (abs), change it to gauge pressure (gauge).

- (7) Open the tank shut valves of the No. 1 and No. 2 hydrogen tank assemblies.

- (8) Open the open/close valve of the SST (venting stand), and discharge compressed hydrogen gas.

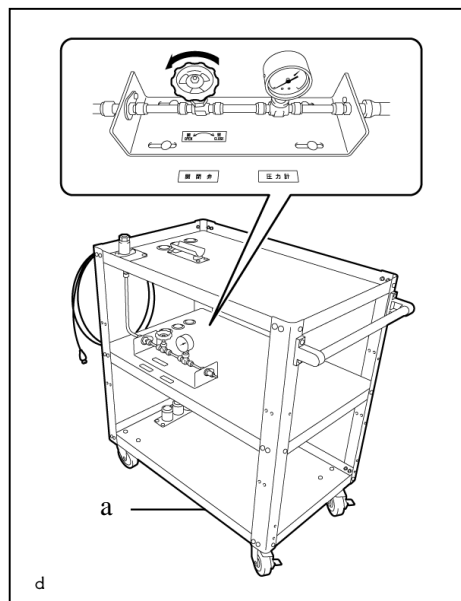
**SST**

**09404-62010 (09404-06010)**

- (9) Read the Data List, and if either of the items "Smoothed Value of Hydrogen Tank 1 Temperature" or "Smoothed Value of Hydrogen Tank 2 Temperature" have become -30 °C (-86 °F) or less:
- i. Close the open/close valve of the SST (venting stand) [\*1]

**Notice:**

To protect the tank shut valve, make sure to first close the open/close valve of the SST (venting stand).



a	SST (Venting Stand)
---	---------------------

- ii. Close the tank shut valves of the No. 1 and No. 2 hydrogen tank assemblies. [\*2]
- iii. Wait until both values "Smoothed Value of Hydrogen Tank 1 Temperature" and "Smoothed Value of Hydrogen Tank 2 Temperature" have increased to -20 °C (-68°F) or more. [\*3]
- iv. Open the tank shut valves of the No. 1 and No. 2 hydrogen tank assemblies. [\*4]
- v. Open the open/close valve of the SST (venting stand) and discharge compressed hydrogen gas again. [\*5]

**Notice:**

During the compressed hydrogen gas discharging procedure, if it appears that either "Smoothed Value of Hydrogen Tank 1 Temperature" or "Smoothed Value of Hydrogen Tank 2 Temperature" are about to decrease to -30 °C (-86 °F) or less, repeat steps [\*1] through [\*5].

- (10) Continue to monitor the Data List, and when the value of "Medium-range Hydrogen Pressure (gauge)" becomes 0.8 MPa, close the open/close valve of the SST (venting stand).

**Notice:**

To protect the tank shut valve, make sure to first close the open/close valve of the SST (venting stand).

- (11) Check that the Data List item "Medium-range Hydrogen Pressure (gauge)" and the pressure on the pressure indicator of the SST (venting stand) are less than 0.8 MPa.

**Notice:**

- The pressure immediately after closing the open/close valve of the SST (venting stand) should be less than 0.8 MPa for both the Data List item "Medium-range Hydrogen Pressure (gauge)" and on the pressure indicator of the SST (venting stand).
- If either the Data List item "Medium-range Hydrogen Pressure (gauge)" or the pressure on the pressure indicator of the SST (venting stand) are 0.8 MPa or greater, open the open/close valve of the SST (venting stand) and adjust the pressure.

- After the pressure discharging, when the gas temperature inside the hydrogen tank increases, the pressure will also increase, so make sure to continue discharging until the pressure is less than 0.8 MPa.

**Hint:**

If the pressure immediately after closing the open/close valve of the SST (venting stand) is less than 0.8 MPa for both the Data List item "Medium-range Hydrogen Pressure (gauge)" and on the pressure indicator of the SST (venting stand), then the pressurized hydrogen gas discharging procedure is complete.

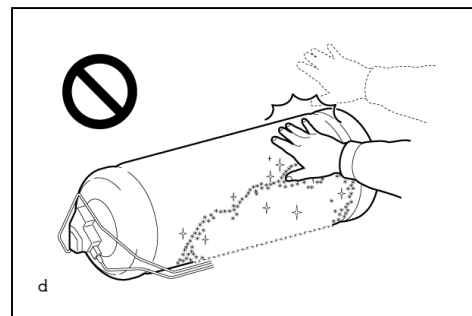
(12) Close the tank shut valves of both the No. 1 and No. 2 hydrogen tank assemblies.

(13) Disconnect the hydrogen discharging device (medium pressure).

**7. DISCONNECT SST (HYDROGEN VENTING TOOL)**

**Caution:**

- While discharging pressurized hydrogen gas, the temperature inside the tank decreases and frost may form on the outside. Do not touch tanks, piping, or SST (hydrogen venting tool) when frost has formed on them.
- Touching tanks, piping, or SST (hydrogen venting tool) on which frost has formed could result in burn-like injuries due to frostbite.



(1) Using an 8 mm socket hexagon wrench, rotate the adjustment bolt in the clockwise direction to close the manual valve of the No. 1 hydrogen tank assembly.

**Torque:**

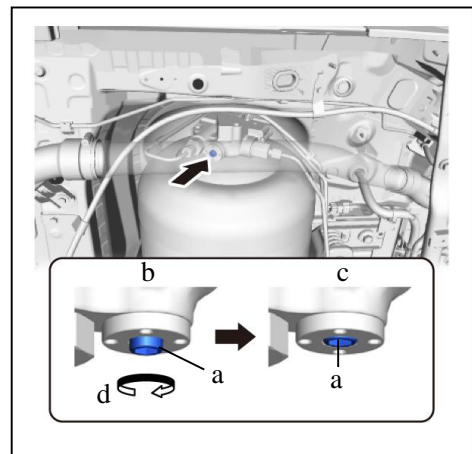
**20 N\*m (204 kgf\*cm, 15 ft.\*lbf)**

**Notice:**

The manual valve shuts off the pressure from the hydrogen tank assembly, so be careful not to damage the hexagonal portion.

**Hint:**

If the manual valve is closed at the time of discharging compressed hydrogen gas, this procedure is unnecessary.



a	Adjustment Bolt
b	Manual Valve Open
c	Manual Valve Closed
d	Clockwise

- (2) Using an 8 mm socket hexagon wrench, rotate the adjustment bolt in the clockwise direction to close the manual valve of the No. 2 hydrogen tank assembly.

**Torque:**

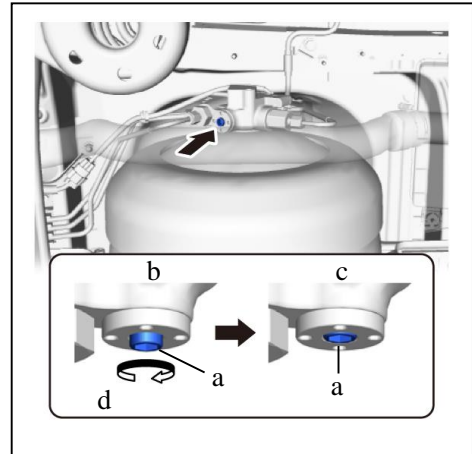
**20 N\*m (204 kgf\*cm, 15 ft.\*lbf)**

**NOTICE:**

The manual valve shuts off the pressure from the hydrogen tank assembly, so be careful not to damage the hexagonal portion.

**Hint:**

If the manual valve is closed at the time of discharging compressed hydrogen gas, this procedure is unnecessary.



a	Adjustment Bolt
b	Manual Valve Open
c	Manual Valve Closed
d	Clockwise

- (3) Open the open/close valve of the SST (venting stand) and discharge the compressed hydrogen gas remaining inside the SST (flexible hose).

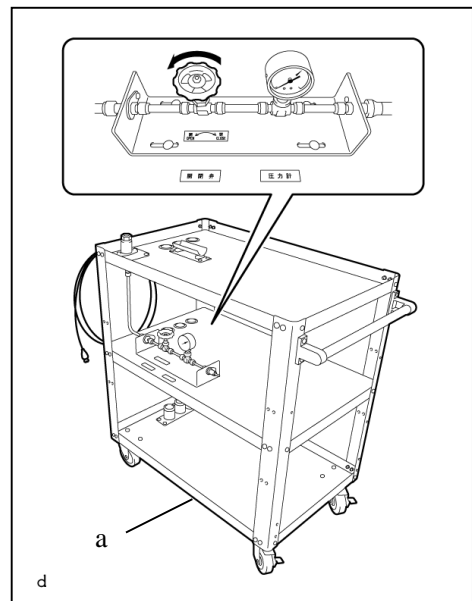
**Notice:**

- Do not disconnect the SST (flexible hose) while there is still pressure remaining inside it.
- Continue discharging until the pressure gauge of the SST (Venting Stand) becomes "0".

**SST**

**09404-62010 (09404-06010)**

- (4) Before performing the disconnection procedure, if there are any contaminants such as water droplets adhering near the medium pressure leak check port of the hydrogen supply regulator assembly, wipe them away before performing the procedure.

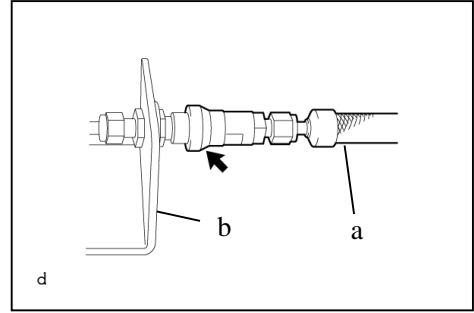


a	SST (Venting Stand)
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(5) Disconnect the SST (flexible hose) from the SST (Venting Stand).

**SST**

**09404-62010 (09404-06010, 09404-06020)**



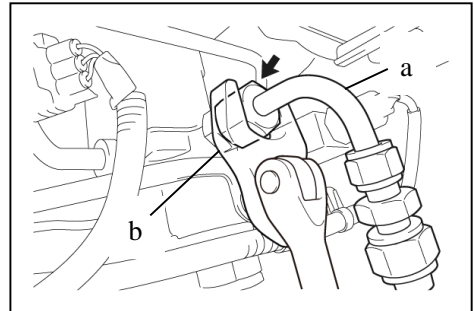
a	SST (Flexible Hose)
b	SST (Venting Stand)

(6) Using SST (open end wrench), remove the SST (flexible hose) from the medium pressure leak check port of the hydrogen supply regulator assembly.

**SST**

**09922-10240**

**09404-62010 (09404-06020)**



a	SST (Flexible Hose)
b	SST (Open End Wrench)

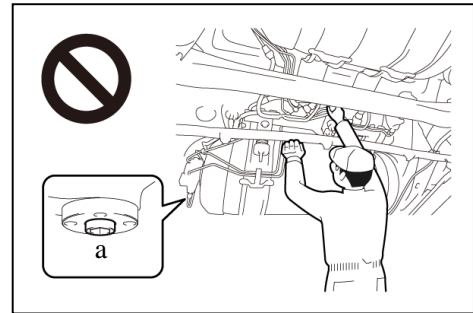
## Dismantling the vehicle (Continued)

### Removal of Hydrogen Tank

The following 2 pages contain general instructions for use when working on an MIRAI. Read these instructions before proceeding to the hydrogen tank removal instructions on page 54.

#### Caution:

- Do not perform depressurization procedures when the manual valve of the hydrogen tank assembly is open.
- The highly pressurized hydrogen gas inside the hydrogen tank assembly could blow out, resulting in a serious accident.



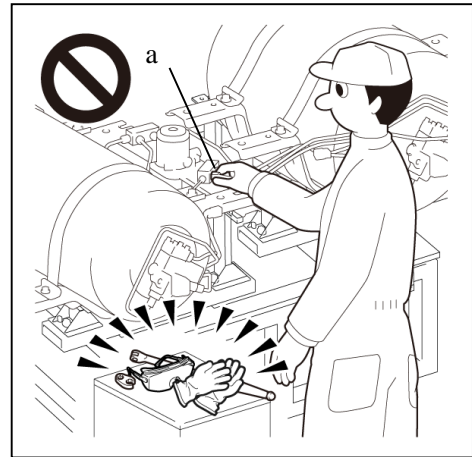
a Manual Valve Open

- When performing depressurization, do not perform procedures by hand without wearing protective glasses and gloves.
- High pressure nitrogen gas could cause a serious accident.





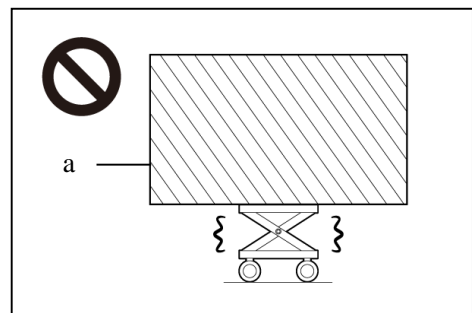
- After performing depressurization procedures, when first loosening the union nut of the high pressure hydrogen piping, do not loosen the union nut by hand without wearing protective glasses and gloves.



- Even when depressurization procedures are performed, the pressurized hydrogen gas inside the high pressure hydrogen piping cannot be completely depressurized, so the highly pressurized hydrogen gas remaining in the high pressure hydrogen piping could blow out, resulting in a serious accident.

a	After depressurization procedures, the high pressure piping union nut that is loosened first
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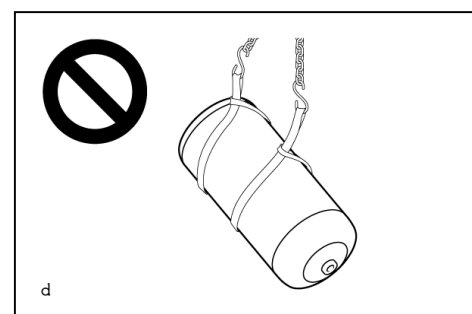
- Because the hydrogen tank unit is extremely heavy, make sure to follow the work procedures described in the repair manual.



- If work is not performed according to the procedures described in the repair manual, there is a danger that the engine lifter could drop and components could fall down.

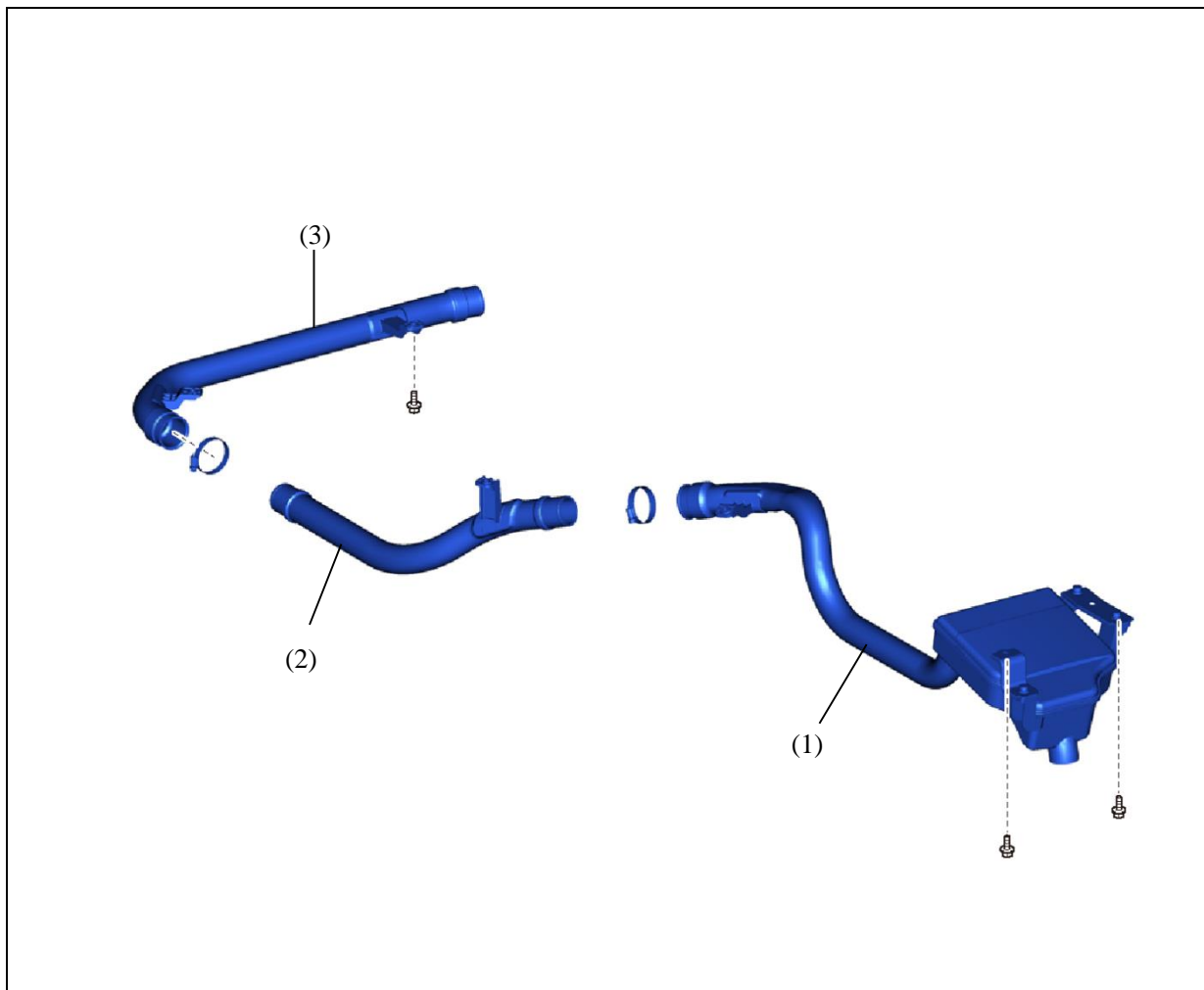
a	Heavy load exceeding the weight limits or size limits of the engine lifter
---	--

- When hoisting up the hydrogen tank assembly, do not hoist it when not properly balanced.



- The hydrogen tank assembly could fall, resulting in a serious accident.

1. Remove No. 2 FC exhaust pipe.
  - (1) Remove the FC exhaust tail pipe assembly.
  - (2) Remove the No. 3 FC exhaust pipe.
  - (3) Remove the No. 2 FC exhaust pipe.



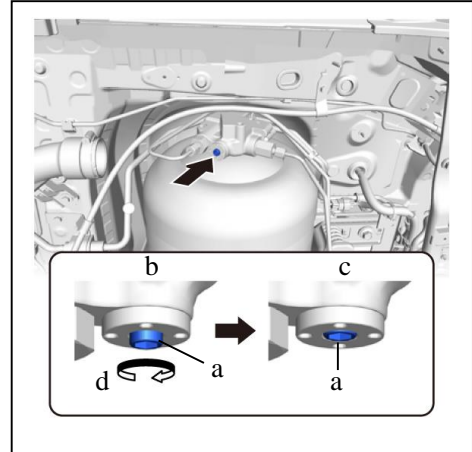
## 2. PRESSURE RELEASE OPERATION

- (1) Using an 8 mm hexagon socket wrench, rotate the adjustment bolt clockwise to close the manual valve of the No. 1 hydrogen tank assembly.

**Torque: 20 N\*m (204 kgf\*cm, 15 ft.\*lbf)**

**Notice:**

The manual valve shuts off the pressure from the hydrogen tank assembly, so be careful not to damage the hexagonal portion.



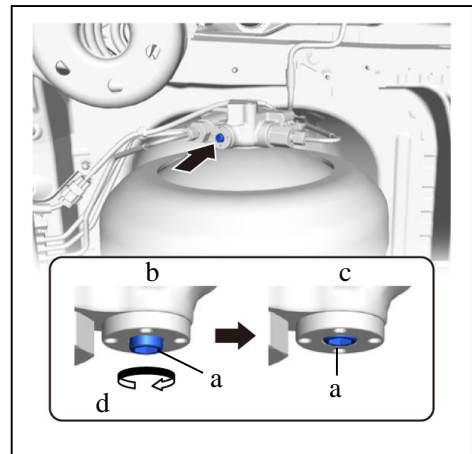
a	Adjustment Bolt
b	Manual Valve Open
c	Manual Valve Closed
d	Clockwise

- (2) Using an 8 mm hexagon socket wrench, rotate the adjustment bolt clockwise to close the manual valve of the No. 2 hydrogen tank assembly.

**Torque: 20 N\*m (204 kgf\*cm, 15 ft.\*lbf)**

**Notice:**

The manual valve shuts off the pressure from the hydrogen tank assembly, so be careful not to damage the hexagonal portion.



a	Adjustment Bolt
b	Manual Valve Open
c	Manual Valve Closed
d	Clockwise

- (3) Open the tank shut valve of the No. 1 hydrogen tank assembly and No. 2 hydrogen tank assembly.

- (4) Before starting the depressurization procedure, first check that there is no mud or other contaminant around the medium pressure leak check port of the hydrogen supply regulator assembly, and clean it as necessary.

**Hint:**

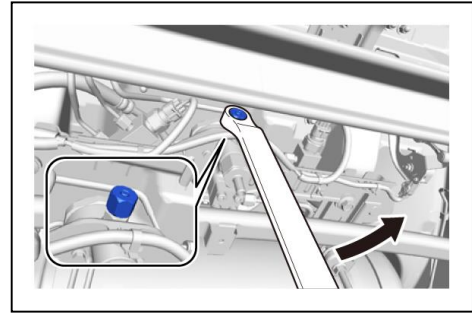
Installing the nut of the medium pressure leak check port while any foreign matter adheres to it can cause a hydrogen gas leak.

- (5) Perform the depressurization procedure.

**Notice:**

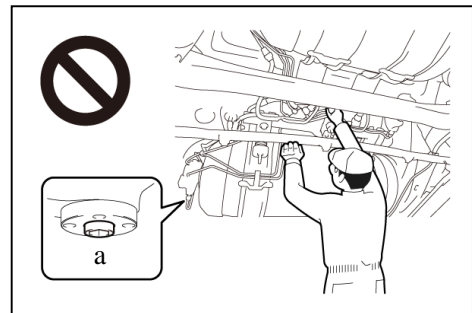
When performing depressurization, only loosen the nut. Do not remove it.

- i. Slowly loosen the nut until the hissing sound of gas escaping can be heard, then stop loosening the nut and wait for the sound to stop. Repeat this procedure multiple times until the sound stops occurring, in order to depressurize the compressed hydrogen gas from the medium pressure leak check port of the hydrogen supply regulator assembly.



**Caution:**

- **Do not perform depressurization procedures when the manual valve of the hydrogen tank assembly is open.**
- **The highly pressurized hydrogen gas inside the hydrogen tank assembly could blow out, resulting in a serious accident.**

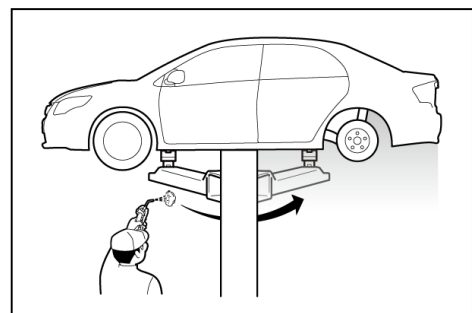


a	Manual Valve Open
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- **When performing depressurization, do not perform procedures by hand without wearing protective glasses and gloves.**
- **High pressure nitrogen gas could cause a serious accident.**



- (6) Blow compressed air around the underside of the vehicle.
- (7) Remove the nut from the medium-pressure leak check port of the hydrogen supply regulator assembly.



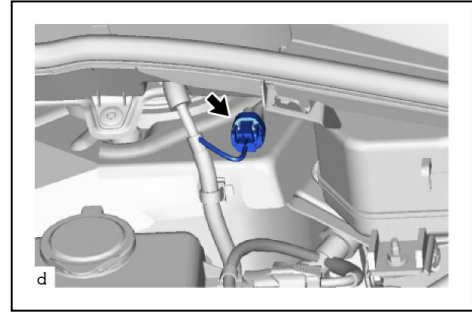
### 3. DISABLE BRAKE CONTROL

- (1) Wait for at least 2 minutes after turning the power switch off.

**Notice:**

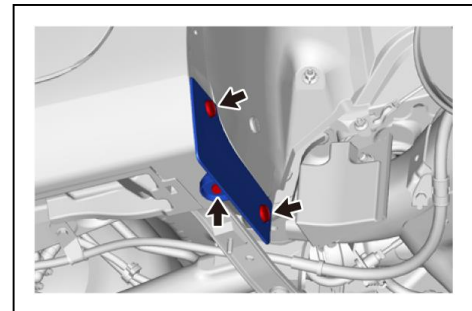
When the brake pedal is depressed or the door courtesy switch is turned on even if the power switch is off, the brake control system activates. Therefore, do not depress the brake pedal or open/close the doors until the reservoir level switch connector is disconnected.

- (2) Disconnect the reservoir level switch connector with the parking brake applied.
- (3) Depress the brake pedal 40 times or more to return all the fluid in the accumulator back to the reservoir.
- (4) Check that the brake pedal cannot be further depressed.
- (5) Release the parking brake.



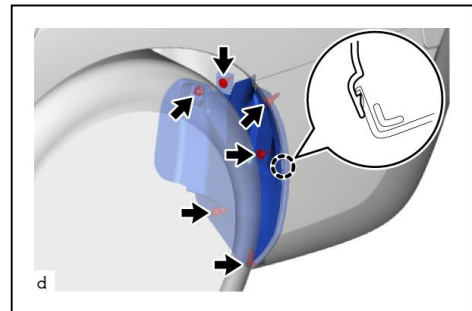
### 4. REMOVE REAR WHEEL HOUSE FRONT PLATE LH

Remove the screw and 2 clips and the rear wheel house front plate LH from the vehicle.



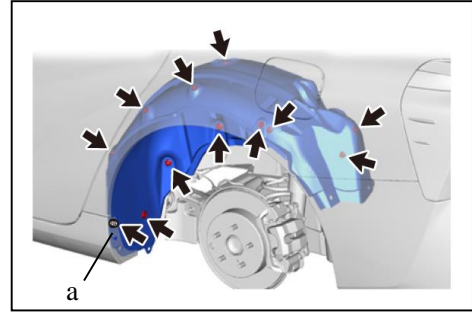
### 5. REMOVE REAR BUMPER SIDE SEAL LH

- (1) Remove the 6 clips.
- (2) Disengage the claw to remove the rear bumper side seal LH.



**6. REMOVE REAR WHEEL HOUSE LINER LH**

- (1) Using a 4 mm socket hexagon wrench, remove the hexagon screw.
- (2) Remove the 12 clips and rear wheel house liner LH from the vehicle.



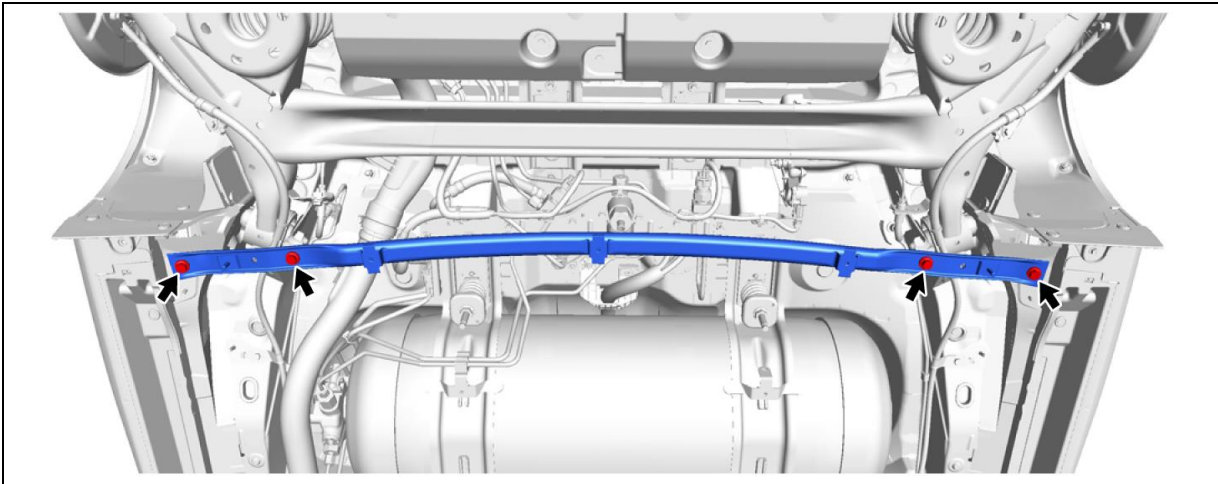
a	Hexagon Screw
---	---------------

**7. REMOVE REAR WHEEL**

**8. DRAIN BRAKE FLUID**

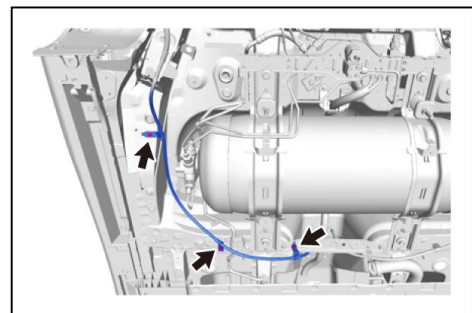
**9. REMOVE REAR SUSPENSION BRACE SUB-ASSEMBLY**

Remove the 4 bolts and rear suspension brace sub-assembly from the vehicle.



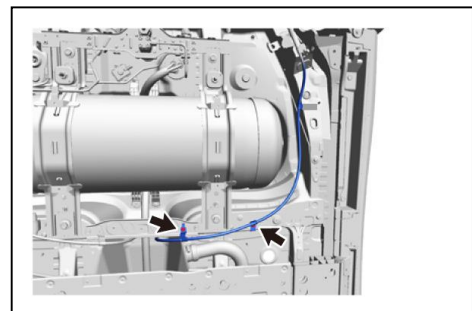
**10. SEPARATE NO. 2 PARKING BRAKE CABLE ASSEMBLY**

Remove the 3 bolts and separate the No. 2 parking brake cable assembly from the vehicle.



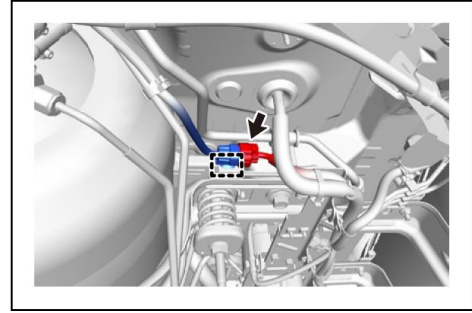
**11. SEPARATE NO. 3 PARKING BRAKE CABLE ASSEMBLY**

Remove the 2 bolts and separate the No. 3 parking brake cable assembly from the vehicle.

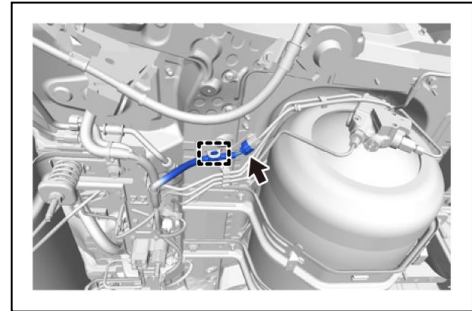


## 12. SEPARATE NO. 3 FLOOR WIRE

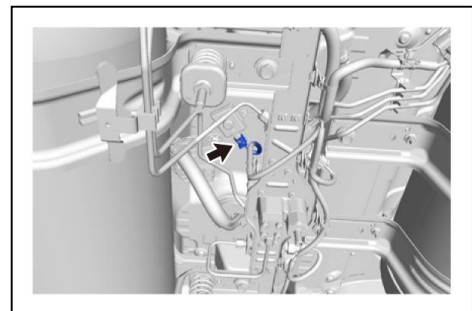
- (1) Disconnect the No. 1 hydrogen tank assembly connector.
- (2) Disengage the clamp and separate the No. 1 hydrogen tank assembly connector from the wire harness clamp bracket.



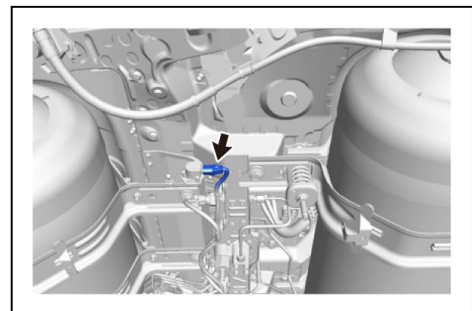
- (3) Disconnect the No. 2 hydrogen tank assembly connector.
- (4) Disengage the clamp and separate the No. 3 floor wire from the hydrogen tank tube clamp bracket.



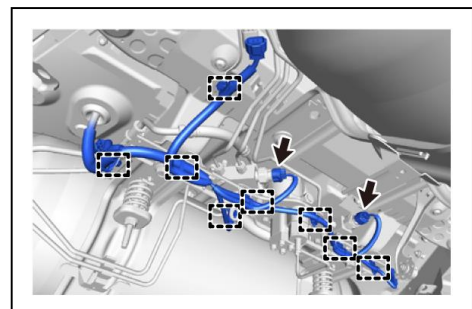
- (5) Disconnect the hydrogen detector connector.



- (6) Disconnect the rear height control sensor sub-assembly connector.

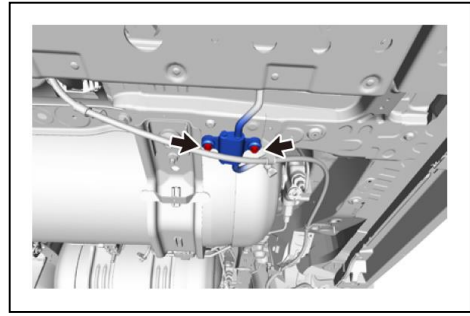


- (7) Disconnect the 2 hydrogen tank pressure sensor connectors.
- (8) Disengage the 8 clamps and separate the No. 3 floor wire from the front center hydrogen tank frame and wire harness clamp bracket.



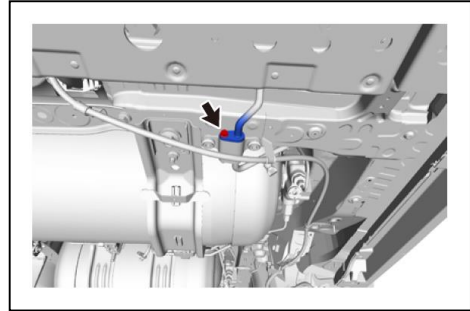
### 13. SEPARATE NO. 2 HYDROGEN SUPPLY TUBE SUB-ASSEMBLY

Remove the 2 bolts and separate the No. 2 hydrogen supply tube sub-assembly from the vehicle.

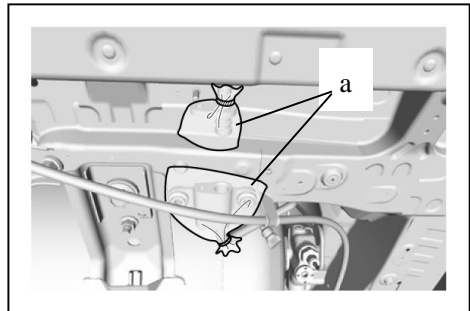


### 14. DISCONNECT NO. 1 HYDROGEN SUPPLY TUBE SUB-ASSEMBLY

(1) Remove the bolt and disconnect the No. 1 hydrogen supply tube sub-assembly from the No. 2 hydrogen supply tube sub-assembly.



(2) To prevent contamination by foreign matter, cover the openings of the No. 1 hydrogen supply tube sub-assembly and No. 2 hydrogen supply tube sub-assembly with plastic bags.

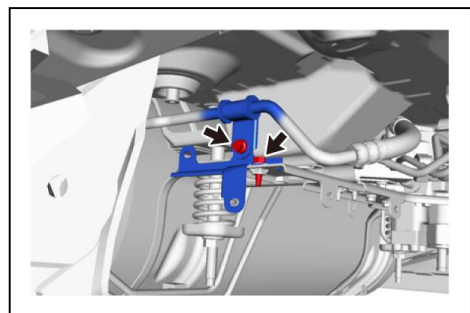


a	Plastic Bag
---	-------------

### 15. REMOVE WIRING HARNESS CLAMP BRACKET

(1) Remove the bolt and separate the No. 2 hydrogen supply tube sub-assembly from the wire harness clamp bracket.

(2) Remove the bolt and wire harness clamp bracket from the front hydrogen tank frame sub-assembly LH.



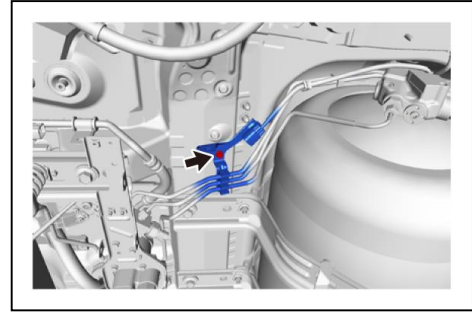


## 16. SEPARATE HYDROGEN TANK TUBE CLAMP BRACKET

Remove the bolt and separate the hydrogen tank tube clamp bracket from the vehicle.

### Notice:

When loosening the bolt, to prevent the high pressure hydrogen piping from rotating together and being strained, hold the hydrogen tube clamp bracket in place by hand while performing the procedure.



## 17. DISCONNECT HYDROGEN TANK TUBE ASSEMBLY

### Caution:

- After performing depressurization procedures, when first loosening the union nut of the high pressure hydrogen piping, do not loosen the union nut by hand without wearing protective glasses and gloves.
- Even when depressurization procedures are performed, the pressurized hydrogen gas inside the high pressure hydrogen piping cannot be completely depressurized, so the highly pressurized hydrogen gas remaining in the high pressure hydrogen piping could blow out, resulting in a serious accident.

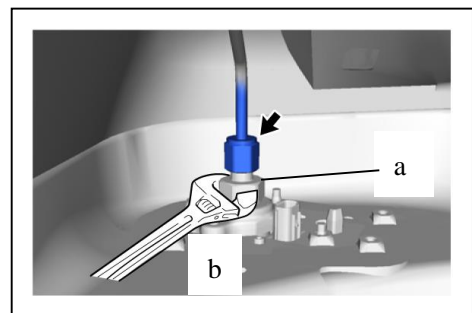
- (1) Using a 17 mm union nut wrench, loosen the union nut and disconnect the hydrogen tank tube assembly from the hydrogen inlet receptacle assembly.

### Notice:

While using an adjustable wrench to hold the adaptor portion of the hydrogen inlet receptacle assembly in place, loosen the union nut.



a	After depressurization procedures, the high pressure piping union nut that is loosened first.
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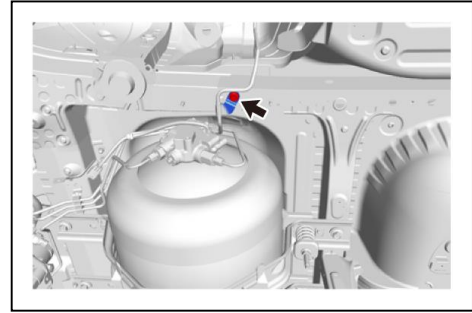


a	Adaptor Portion
b	Hold

- (2) Remove the bolt and separate the bracket of the hydrogen tank tube assembly from the vehicle.

**Notice:**

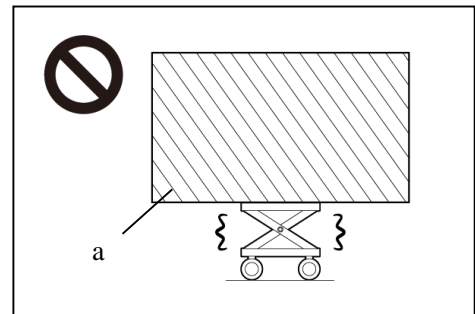
When loosening the bolt, to prevent the high pressure hydrogen piping from rotating together and being strained, hold the bracket portion in place by hand while performing the procedure.



**18. REMOVE HYDROGEN TANK UNIT**

**Caution:**

- Because the hydrogen tank unit is extremely heavy, make sure to follow the work procedures described in the repair manual.
- If work is not performed according to the procedures described in the repair manual, there is a danger that the engine lifter could drop and components could fall down.



a	Heavy load exceeding the weight limits or size limits of the engine lifter
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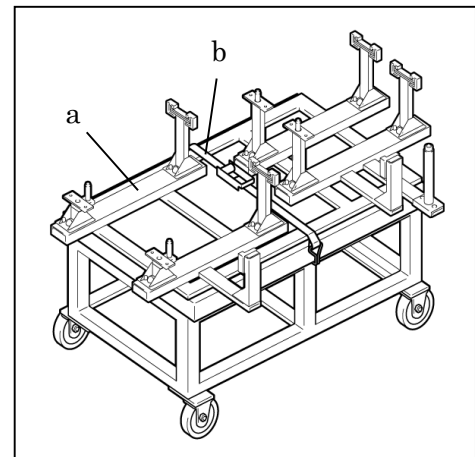
- (1) Set the SST (hydrogen tank stand) on the engine lifter and secure it with the belt.

**SST**

**09403-62010 (09403-06010, 09403-06020,09403-06030, 09403-06040, 09403-06050,09403-06060, 09403-06070, 09403-06080,09403-06090, 09403-06100, 09403-06110)**

**Notice:**

Set the SST (hydrogen tank stand) in the middle of the engine lifter and secure the center portion with the belt.

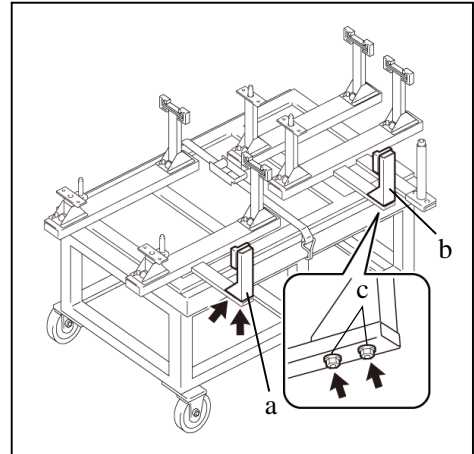


a	SST (Hydrogen Tank Stand)
b	Belt

(2) Remove the SST (nuts) and each tank support type SST.

**SST**

**09403-62010 (09403-06050, 09403-06060, 09403-06090)**

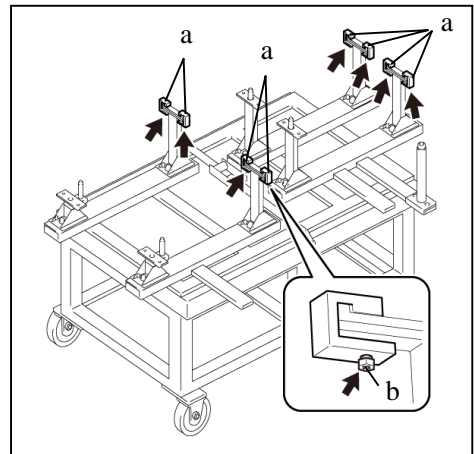


a	SST (Support No. 5)
b	SST (Support No. 6)
c	SST (Nut)

(3) Remove the SST (bolts) and each SST (tank belt fixture).

**SST**

**09403-62010 (09403-06100, 09403-06110)**



a	SST (Tank Belt Fixture)
b	SST (Bolt)

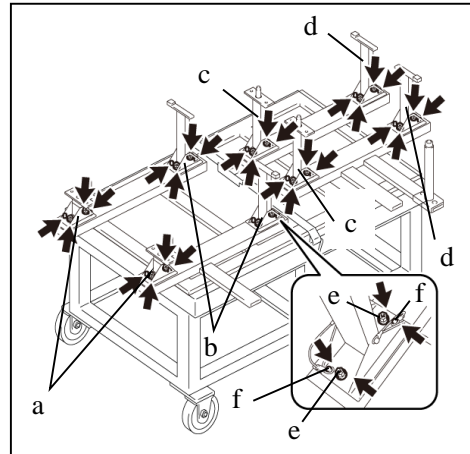
(4) For each tank support type SST, disengage the 2pins and loosen the 2 SST (bolts).

**SST**

**09403-62010 (09403-06010, 09403-06020,09403-06030, 09403-06040, 09403-06080)**

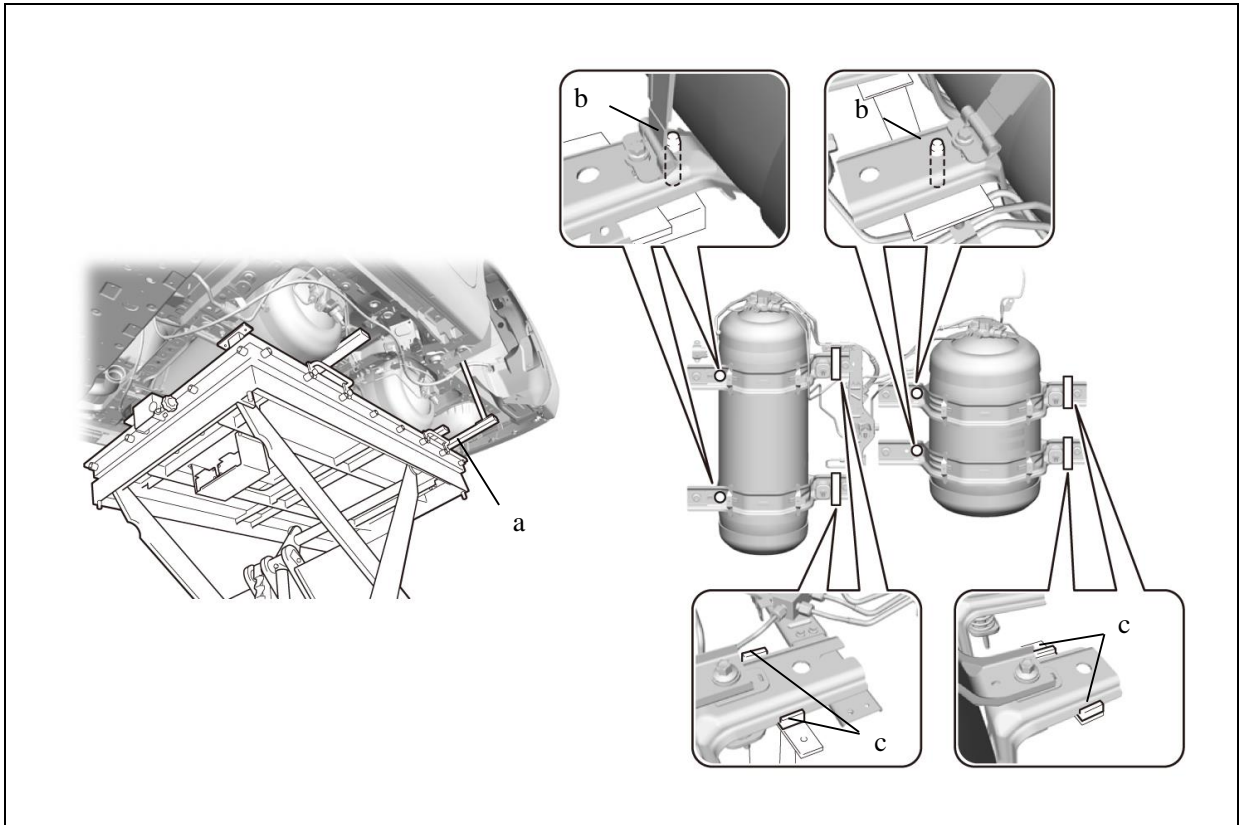
**Hint:**

This is done to align the SST (hydrogen tankstand) with the installation condition of the hydrogen tank unit on the vehicle.



a	SST (Support No. 1)
b	SST (Support No. 2)
c	SST (Support No. 3)
d	SST (Support No. 4)
e	SST (Bolt)
f	Pin

(5) Operate the engine lifter, and set the SST (hydrogen tank stand) against the hydrogen tank frame.



a	SST (Hydrogen Tank Stand)	b	Pin
c	Groove	-	-

**Notice:**

- Align the pins of the each tank support type SST with the pin holes of the hydrogen tank frame.
- Align the grooves of the each tank support type SST with the tank frame.

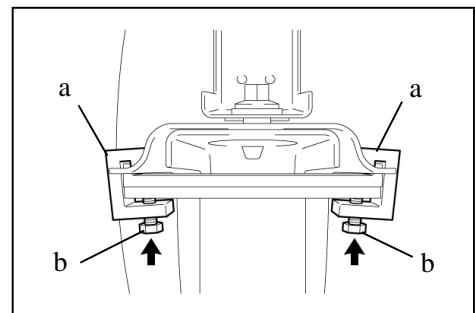
(6) Using the SST (bolts), install each SST (tank belt fixture), and support the hydrogen tank frame.

**SST**

**09403-62010 (09403-06100, 09403-06110)**

**Notice:**

- If the hydrogen tank unit is removed from the vehicle without attaching each SST (tank belt fixture), the hydrogen tank frame will spring back because of the spring force and the installation positions of parts will be misaligned.
- Do not remove any of the tank frame installation bolts until each SST (tank belt fixture) are installed.



a	SST (Tank Belt Fixture)
b	SST (Bolt)

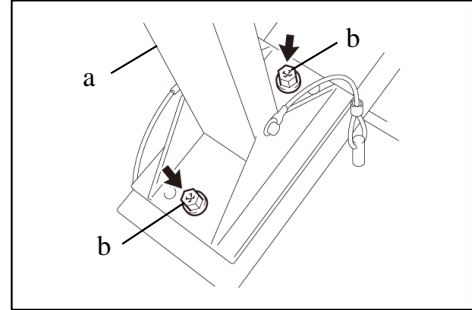
**Hint:**

If it is difficult to install each SST (tank belt fixture), loosen the tank frame installation bolts to a position where the tank frame support attachments can be installed.

- (7) Tighten the SST (bolts) of each tank support type SST.

**SST**

**09403-62010 (09403-06010, 09403-06020, 09403-06030, 09403-06040, 09403-06080)**

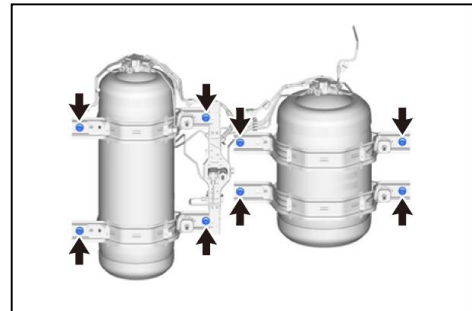


a	SST (Support No. 1, Support No. 2, Support No. 3 and Support No. 4)
b	SST (Bolt)

- (8) Remove the 8 bolts.
- (9) Operate the engine lifter and slowly remove the hydrogen tank unit from the vehicle.

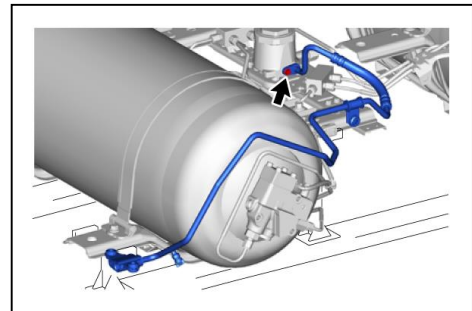
**Notice:**

Make sure the hydrogen tank assembly and high pressure hydrogen piping do not interfere with the vehicle body or surrounding components.



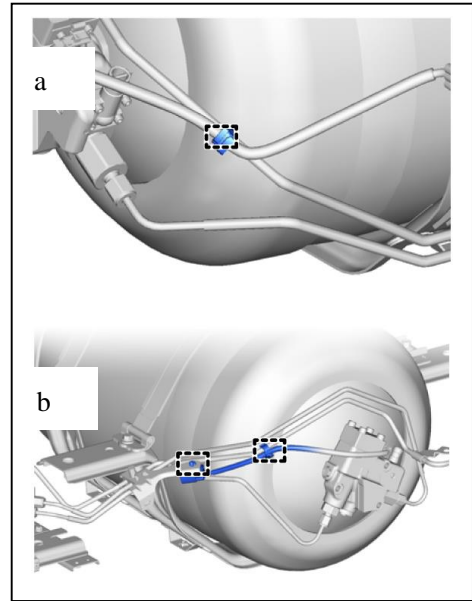
**19. REMOVE NO. 2 HYDROGEN SUPPLY TUBE SUB-ASSEMBLY**

- (1) Remove the bolt and No. 2 hydrogen supply tube sub-assembly from the hydrogen supply regulator assembly.



## 20. REMOVE WIRE HARNESS CLAMP

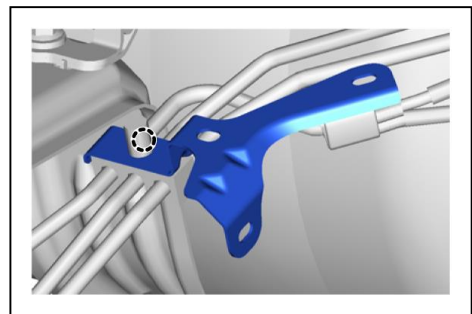
- (1) No. 1 Hydrogen Tank Assembly Side:
  - i. Disengage the clamp and remove the wire harness clamp from the wire harness of the No. 1 hydrogen tank assembly and No. 4 hydrogen tube sub-assembly.
- (2) No. 2 Hydrogen Tank Assembly Side:
  - i. Disengage the clamp and separate the No. 2 hydrogen tank assembly connector to the hydrogen tank tube clamp bracket.
  - ii. Disengage the clamp and remove the wire harness clamp from the wire harness of the No. 2 hydrogen tank assembly and hydrogen tube sub-assembly.



a	No. 1 Hydrogen Tank Assembly Side
b	No. 2 Hydrogen Tank Assembly Side

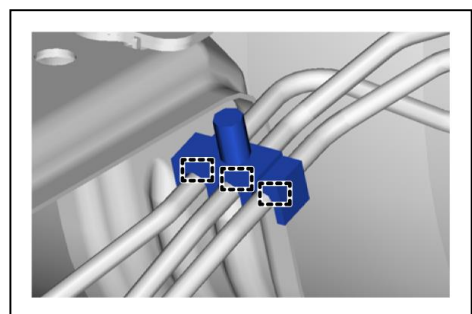
## 21. REMOVE HYDROGEN TANK TUBE CLAMP BRACKET

Disengage the claw and remove the hydrogen tank tube clamp bracket to the No. 1 fuel tube clamp.



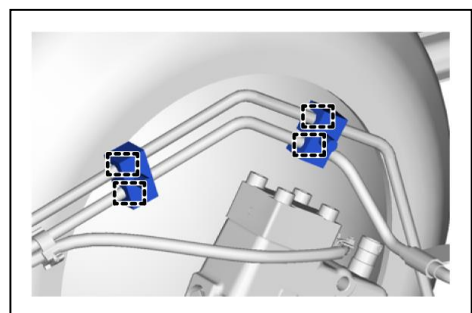
## 22. REMOVE NO. 1 FUEL TUBE CLAMP

Disengage the 3 clamps and remove the No. 1 fuel tube clamp from the hydrogen tank tube assembly, No. 3 hydrogen tank tube and No. 5 hydrogen tank tube.



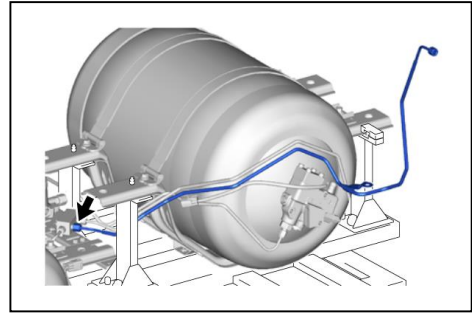
## 23. REMOVE FUEL TUBE GROMMET

Disengage the 2 clamps and remove the 2 fuel tube grommets from the hydrogen tank tube assembly and No. 3 hydrogen tank tube.



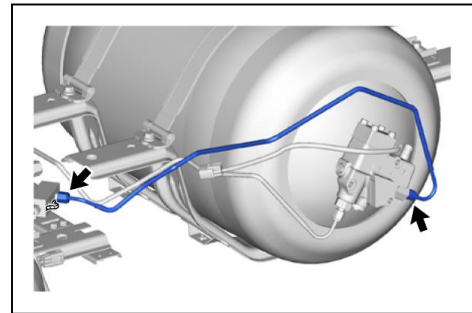
#### 24. REMOVE HYDROGEN TANK TUBE ASSEMBLY

- (1) Using a 17 mm union nut wrench, loosen the union nut and remove the hydrogen tank tube assembly from the hydrogen tank tube joint.



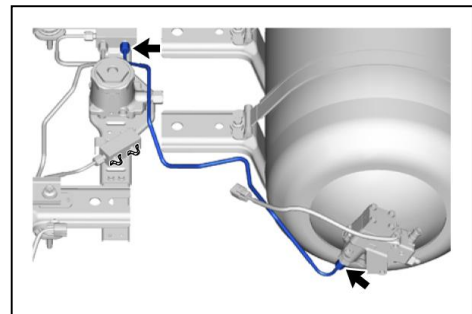
#### 25. REMOVE NO. 3 HYDROGEN TANK TUBE

- (1) Using a 17 mm union nut wrench, loosen the 2 union nuts and remove the No. 3 hydrogen tank tube from the No. 2 hydrogen tank assembly and hydrogen tank tube joint.



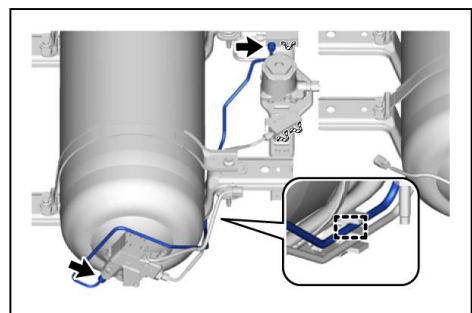
#### 26. REMOVE NO. 5 HYDROGEN TANK TUBE

- (1) Using a 17 mm union nut wrench, loosen the 2 union nuts and remove the No. 5 hydrogen tank tube from the No. 2 hydrogen tank assembly and hydrogen tank tube joint.



#### 27. REMOVE NO. 4 HYDROGEN TANK TUBE

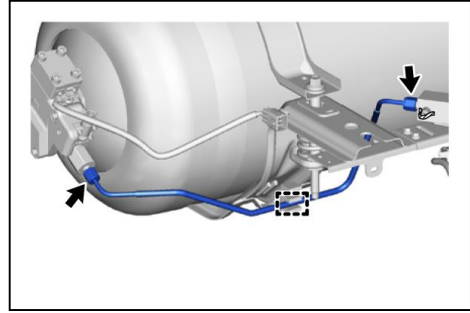
- (1) Using a 17 mm union nut wrench, loosen the 2 union nuts and disconnect the No. 4 hydrogen tank tube from the No. 1 hydrogen tank assembly and hydrogen tank tube joint.
- (2) Disengage the clamp and remove the No. 4 hydrogen tank tube from the fuel tube grommet.





## 28. REMOVE NO. 2 HYDROGEN TANK TUBE

- (1) Using a 17 mm union nut wrench, loosen the 2 union nuts and disconnect the No. 2 hydrogen tank tube from the No. 1 hydrogen tank assembly and hydrogen tank tube joint.
- (2) Disengage the clamp and remove the No. 2 hydrogen tank tube from the fuel tube grommet.

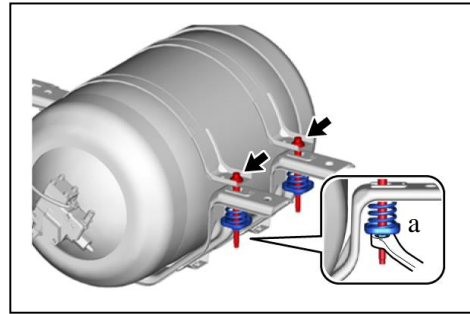


## 29. REMOVE NO. 2 HYDROGEN TANK ASSEMBLY

- (1) Loosen the 2 bolts and remove the 2 rear hydrogen tank spring bolt cups and 2 compression springs.

### Notice:

While holding the rear hydrogen tank spring bolt cup, loosen the bolt.

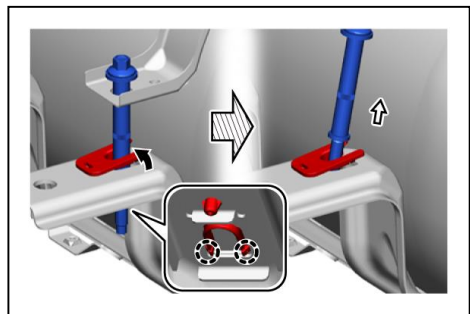


a	Hold
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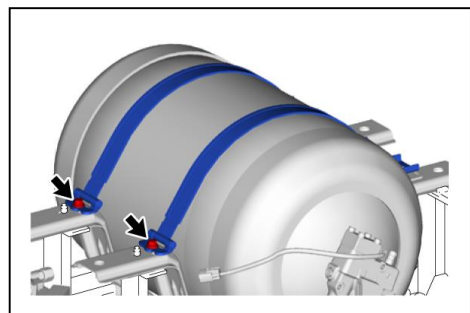
- (2) Disengage the 2 claws, raise up the rear hydrogen tank frame spring bolt cushion, and remove the bolt.

### Hint:

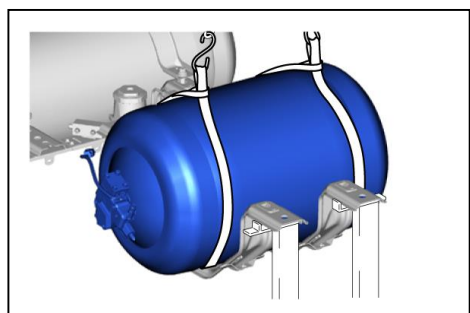
Use the same procedure to remove the other bolt.



- (3) Remove the 2 bolts and 2 rear hydrogen tank band sub-assemblies from the 2 rear hydrogen tank frame sub-assemblies.



- (4) Using an engine sling device and belts, remove the No. 2 hydrogen tank assembly to the rear hydrogen tank frame sub-assembly.

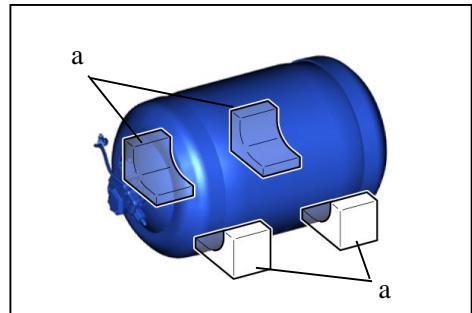


**Caution:**

- When hoisting up the hydrogen tank assembly, do not hoist it when not properly balanced.
- The hydrogen tank assembly could fall, resulting in a serious accident.



- (5) Place the No. 2 hydrogen tank assembly on wheel chocks or similar.



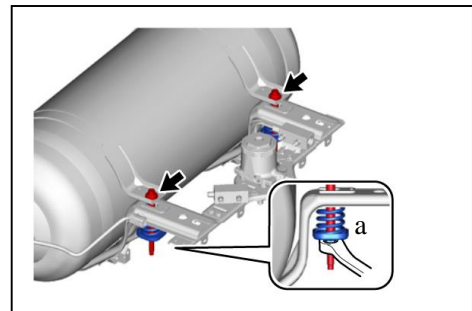
a	Wheel Chocks
---	--------------

**30. REMOVE NO. 1 HYDROGEN TANK ASSEMBLY**

- (1) Loosen the 2 bolts and remove the 2 front hydrogen tank spring bolt cups and 2 compression springs.

**Notice:**

While holding the front hydrogen tank spring bolt cup, loosen the bolt.

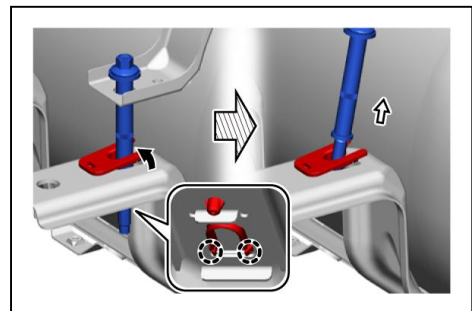


a	Hold
---	------

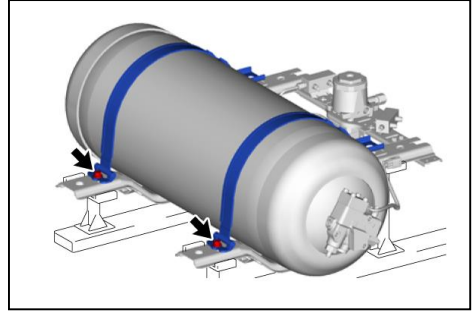
- (2) Disengage the 2 claws, raise up the rear hydrogen tank frame spring bolt cushion, and remove the bolt.

**Hint:**

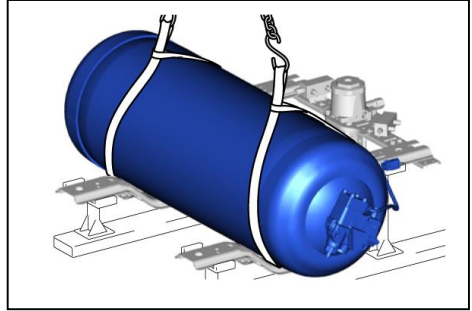
Use the same procedure to remove the other bolt.



- (3) Remove the 2 bolts and 2 front hydrogen tank band sub-assemblies from the front hydrogen tank frame sub-assembly LH and front hydrogen tank frame sub-assembly RH.

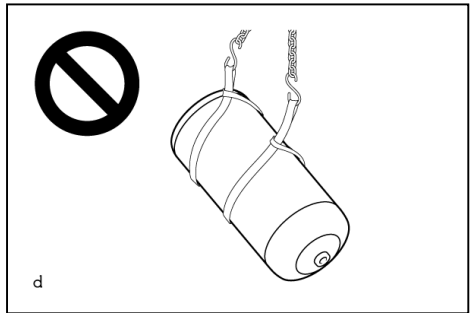


- (4) Using an engine sling device and belts, remove the No. 1 hydrogen tank assembly to the front hydrogen tank frame sub-assembly LH and front hydrogen tank frame sub-assembly RH.

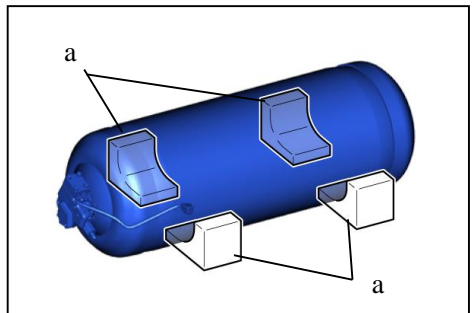


**Caution:**

- **When hoisting up the hydrogen tank assembly, do not hoist it when not properly balanced.**
- **The hydrogen tank assembly could fall, resulting in a serious accident.**



- (5) Place the No. 1 hydrogen tank assembly on wheel chocks or similar.



a	Wheel Chocks
---	--------------

## **Dismantling the vehicle (Continued)**

### **Discharge Hydrogen Gas from High Pressure Port**

Procedures will be added once the tools are prepared.

## **Dismantling the vehicle (Continued)**

### **Prepare Hydrogen Tank for Disposal**

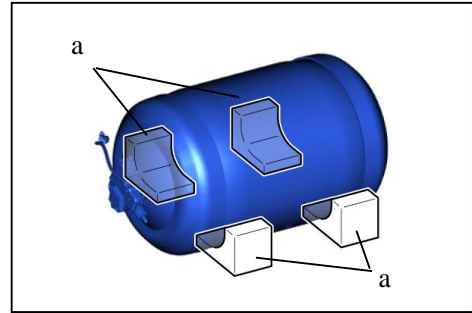
The following 1 page contain general instructions for use when working on a MIRAI. Read these instructions before proceeding to the prepare hydrogen tank for disposal instructions on page 74.

#### **Caution:**

- **Perform the procedures outdoors in a well-ventilated area.**
- **To prevent static electricity, spray water on the hydrogen tank and around the work area.**
- **Before performing work procedures, touch a metal object in contact with the ground in order to discharge any static electricity from your body.**

## 1. DISPOSE OF HYDROGEN TANK ASSEMBLY

- (1) To prevent the hydrogen tank assembly from rolling, secure it with wheel chocks or similar.



a	Wheel Chocks
---	--------------

- (2) Discharge any remaining hydrogen gas from the tank.

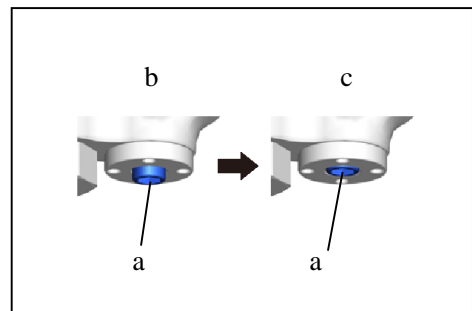
### Hint

If the hydrogen gas has already been discharged from the high-pressure port, this procedure is unnecessary.

- i. Using an 8 mm socket hexagon wrench, apply the specified tightening torque to the adjustment bolt to make sure the manual valve of the hydrogen tank assembly is closed.

### Torque:

**20 N\*m (204 kgf\*cm, 15 ft.\*lbf)**



a	Adjustment Bolt
b	Manual Valve Open
c	Manual Valve Closed

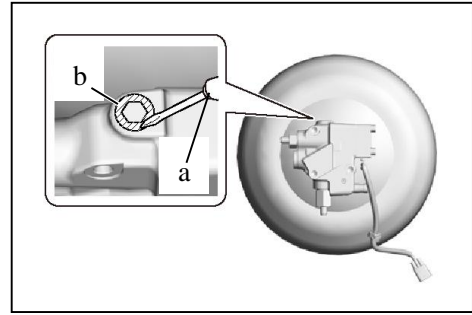
### NOTICE

- The manual valve shuts off the pressure from the hydrogen tank assembly, so be careful not to damage the hexagonal portion.
- If the hexagonal portion has been damaged, discharging compressed hydrogen gas from the hydrogen tank assembly will not be possible.

- ii. Using a flat-bladed screwdriver, remove the resin from around the discharge plug of the hydrogen tank valve assembly.

**NOTICE**

If resin enters the hydrogen discharging device (high pressure), it could result in a malfunction or gas leak, so be sure to remove the resin completely.

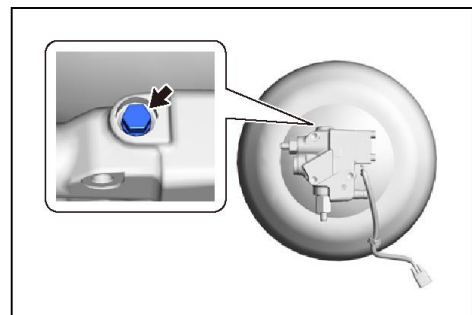


a	Flat-bladed Screwdriver
b	Resin

- iii. Slowly loosen the discharge plug of the hydrogen tank valve assembly and release the compressed hydrogen gas.

**NOTICE**

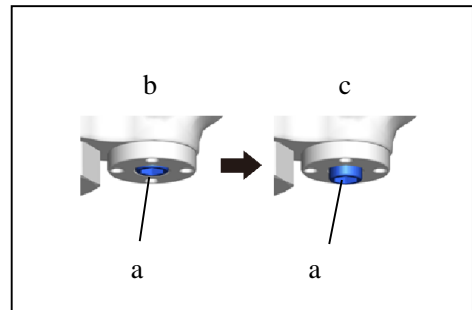
The compressed hydrogen gas remaining inside the hydrogen tank valve assembly will come out, so continue to slowly loosen the plug until compressed hydrogen gas stops coming out.



- iv. Using an 8 mm socket hexagon wrench, rotate the adjustment bolt 4 rotations in the counterclockwise direction to open the manual valve of the hydrogen tank assembly.

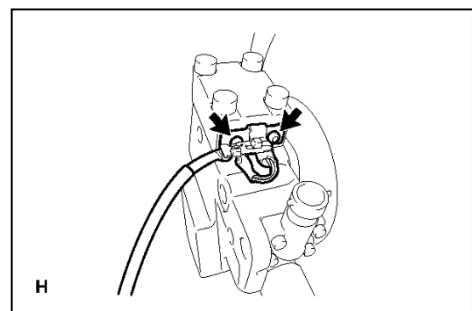
**NOTICE**

If the hexagonal portion has been damaged, discharging compressed hydrogen gas from the hydrogen tank assembly will not be possible.



a	Adjustment Bolt
b	Manual Valve Closed
c	Manual Valve Open

- (3) Remove the 2 screws and disconnect the wire harness from the hydrogen tank valve assembly.



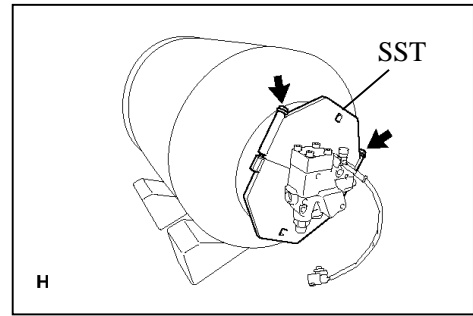
(4) Install SST to the hydrogen tank valve assembly.

**Torque:**

**28 N\*m (286 kgf\*cm, 21 ft.\*lbf)**

**SST**

**09403-62020 (09403-00010)**



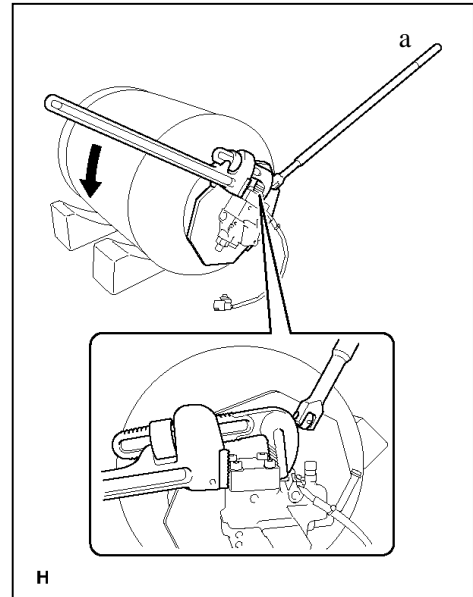
(5) Remove the hydrogen tank valve assembly.

- i. While holding SST, rotate the hydrogen tank valve assembly to loosen the valve.

**Caution**

**Because the tightening torque of the valve is extremely high, perform this operation with 2 people.**

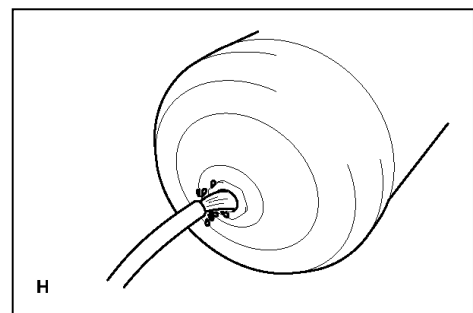
- ii. Remove SST from the hydrogen tank valve assembly.
- iii. Remove the hydrogen tank valve assembly.



a	Hold
---	------

(6) Soak the interior of the hydrogen tank assembly with water.

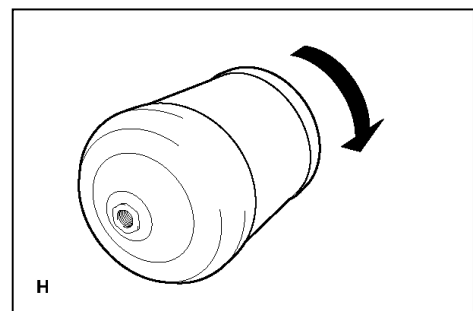
- i. Spray water into the hydrogen tank assembly through the valve installation hole as shown in the illustration.



- ii. After spraying water into the inside of the hydrogen tank assembly, roll the hydrogen tank assembly through at least 1 full rotation.

**Hint**

To ensure the entire inside surface of the hydrogen tank assembly is soaked with water, roll the hydrogen tank assembly through at least 1 full rotation.

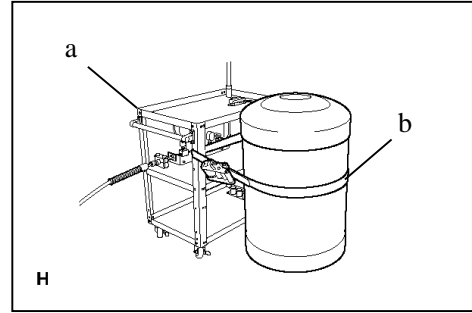




(7) Set the hydrogen tank assembly vertically and leave the tank untouched for one day. (8 hours or more)

**Notice**

- To prevent the hydrogen tank assembly from falling over, use a belt to secure the hydrogen tank assembly to hydrogen discharging device (high pressure).
- This procedure is performed to lower the concentration of hydrogen in the tank.



a	Hydrogen Discharging Device (High Pressure)
b	Belt

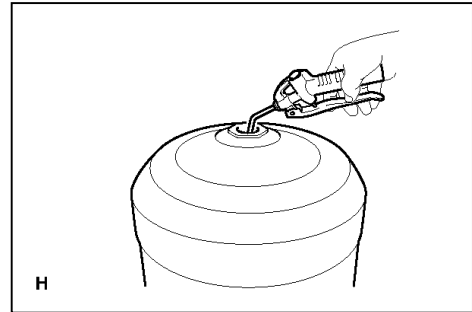
(8) Check that the concentration of hydrogen in the tank is 4% or less using a portable hydrogen detector.

(9) Perform procedures to remove residual hydrogen gas from the hydrogen tank assembly.

- i. Blow compressed air into the hydrogen tank assembly through the valve installation hole.

**Hint**

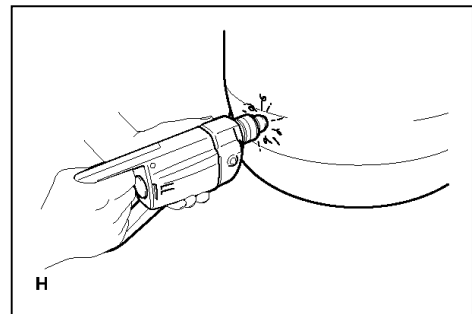
This procedure is performed in order to force out hydrogen gas that may remain in the hydrogen tank assembly and release it into the atmosphere.



(10) Using a drill, drill 2 holes in the hydrogen tank assembly.

**Hint**

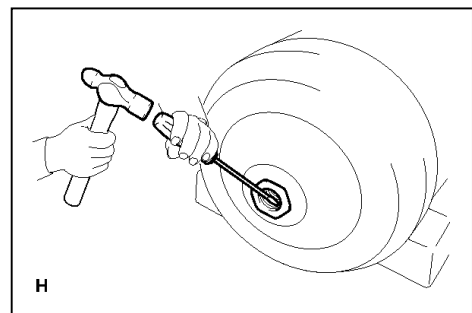
This is done to ensure that the hydrogen tank assembly will not be reused.



(11) Destroy the threads of the valve installation hole of the hydrogen tank assembly as shown in the illustration.

**Hint**

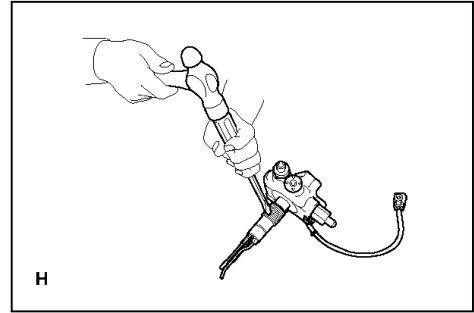
This is done to ensure that the hydrogen tank assembly will not be reused.



(12) Destroy the threads of the valve of the hydrogen tank assembly as shown in the illustration.

**Hint**

This is done to ensure that the hydrogen tank valve assembly will not be reused.



## Dismantling the vehicle (Continued)

### Removal of EV Battery

#### • Before Proceeding to the EV Battery Removal Instructions

The following 12 pages contain general instructions for use when working on a MIRAI.

Read these instructions before proceeding to the EV battery removal instructions on page 91.



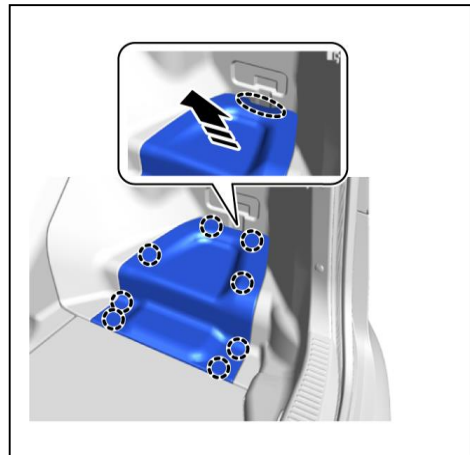
#### **WARNING:**

- ***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.***

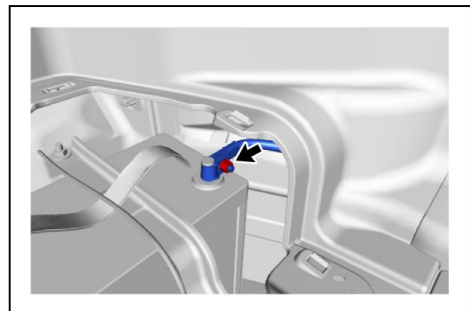
1. Shut off the ignition (READY indicator is off).

Then disconnect the cable from negative auxiliary battery terminal.

(1) Remove the luggage trim service hole cover.

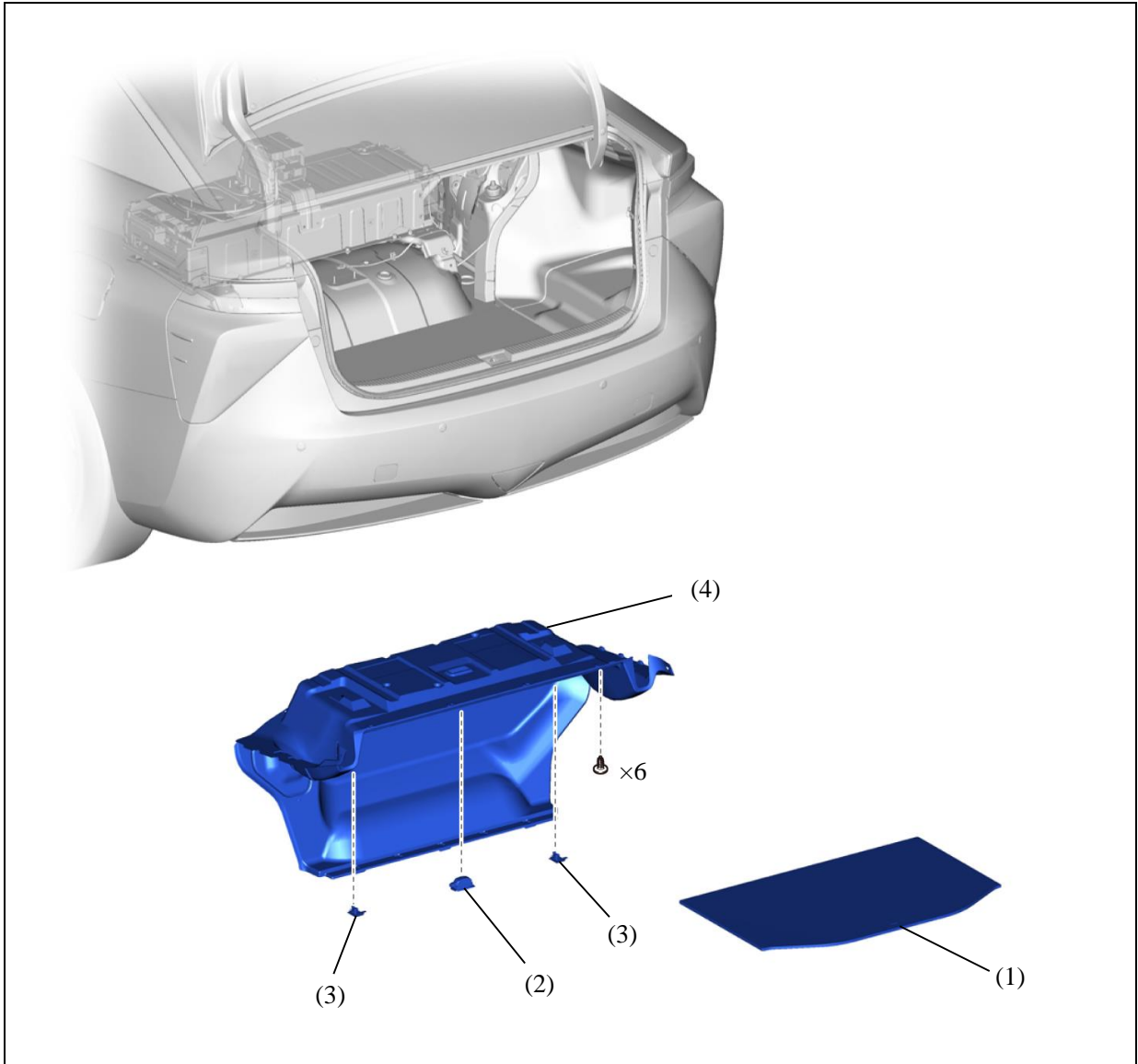


(2) Disconnect the cable from the negative (-) auxiliary battery terminal.

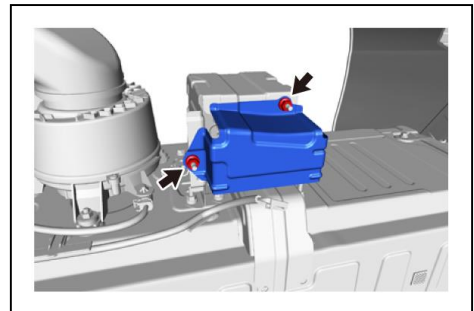


2. Remove the service plug grip (for EV).

- (1) Remove the luggage compartment floor mat.
- (2) Remove the No. 1 luggage compartment light assembly.
- (3) Remove the No. 2 luggage compartment trim hook.
- (4) Remove luggage compartment trim front cover.



(5) Remove the No.8 EV battery shield panel.

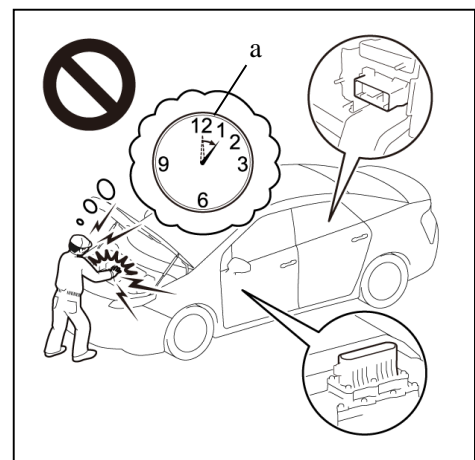


**Caution:**

- Wear insulated gloves.
- Do not inspect or repair high voltage system wiring or components without removing the service plug grip (for EV) and FC stack service plug grip.
- If work is performed while the service plug grip (for EV) and FC stack service plug grip are still installed, high voltage circuits will still be connected and there is a risk of electric shock.



- After removing both the service plug grip (for EV) and FC stack service plug grip, wait for 10 minutes before touching any high voltage connectors or terminals.
- If work is performed without waiting for 10 minutes, there is a risk of electric shock due to residual charge in the high voltage capacitors inside the inverter with converter assembly and FC converter assembly.



a Without waiting for 10 minutes

- Put the removed service plug grip (for EV) in your pocket and carry it with you, and place a "HIGH VOLTAGE WORK IN PROGRESS. DO NOT TOUCH." sign on the FC stack service plug grip, in order to prevent other technicians from accidentally reconnecting the power while work is in progress.



- If work is performed while the service plug grip (for EV) and FC stack service plug grip are still installed, high voltage circuits will still be connected and there is a risk of electric shock.

**Notice:**

- If the system is set to READY ON while the service plug grip (for EV) and FC stack service plug grip are removed, a malfunction may occur.
- Do not touch the connection terminal of the service plug grip (for EV) and FC stack service plug grip.
- If the service plug grip (for EV) and FC stack service plug grip has been struck or dropped, replace it.

**Hint:**

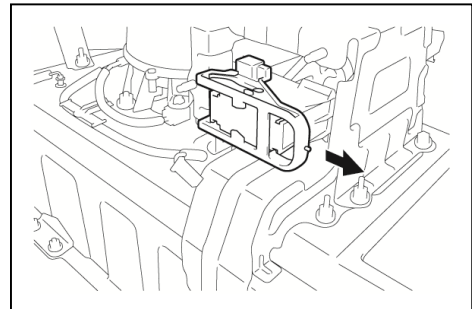
- The order in which the service plug grip (for EV) and FC stack service plug grip are removed does not matter.
- The 10 minute wait is to allow the high voltage capacitors inside the inverter with converter assembly and FC converter assembly to discharge.

- (6) To prevent contamination by foreign matter or water droplets, check that the area around the service plug grip (for EV) has no foreign matter or water droplets, and clean away any foreign matter or water droplets found.

**Notice:**

Make sure that foreign matter does not enter other components.

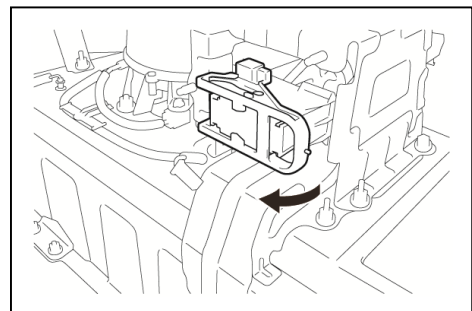
- (7) Slide the lever of the service plug grip (for EV) in the direction shown in the illustration until it contacts the stopper.



**Notice:**

The service plug grip (for EV) has an interlock connector, so slide it horizontally.

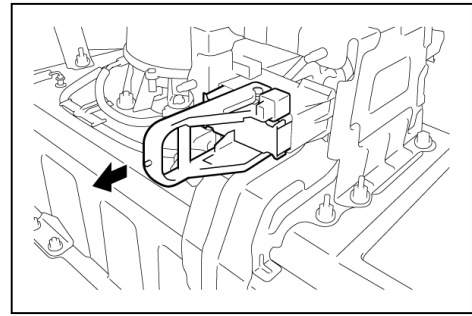
- (8) Slowly rotate the lever of the service plug grip (for EV) in the direction shown in the illustration until it contacts the stopper.



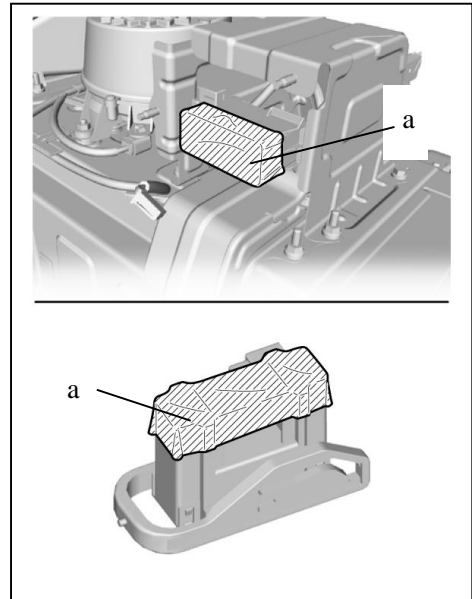
**Notice:**

Do not excessively twist the lever of the service plug grip (for EV).

- (9) Slowly pull the service plug grip (for EV) lever, remove the service plug grip (for EV) from the EV battery.



- (10) To prevent contamination by foreign matter or water droplets, cover the openings of the removed service plug grip (for EV) and EV battery with protective tape.

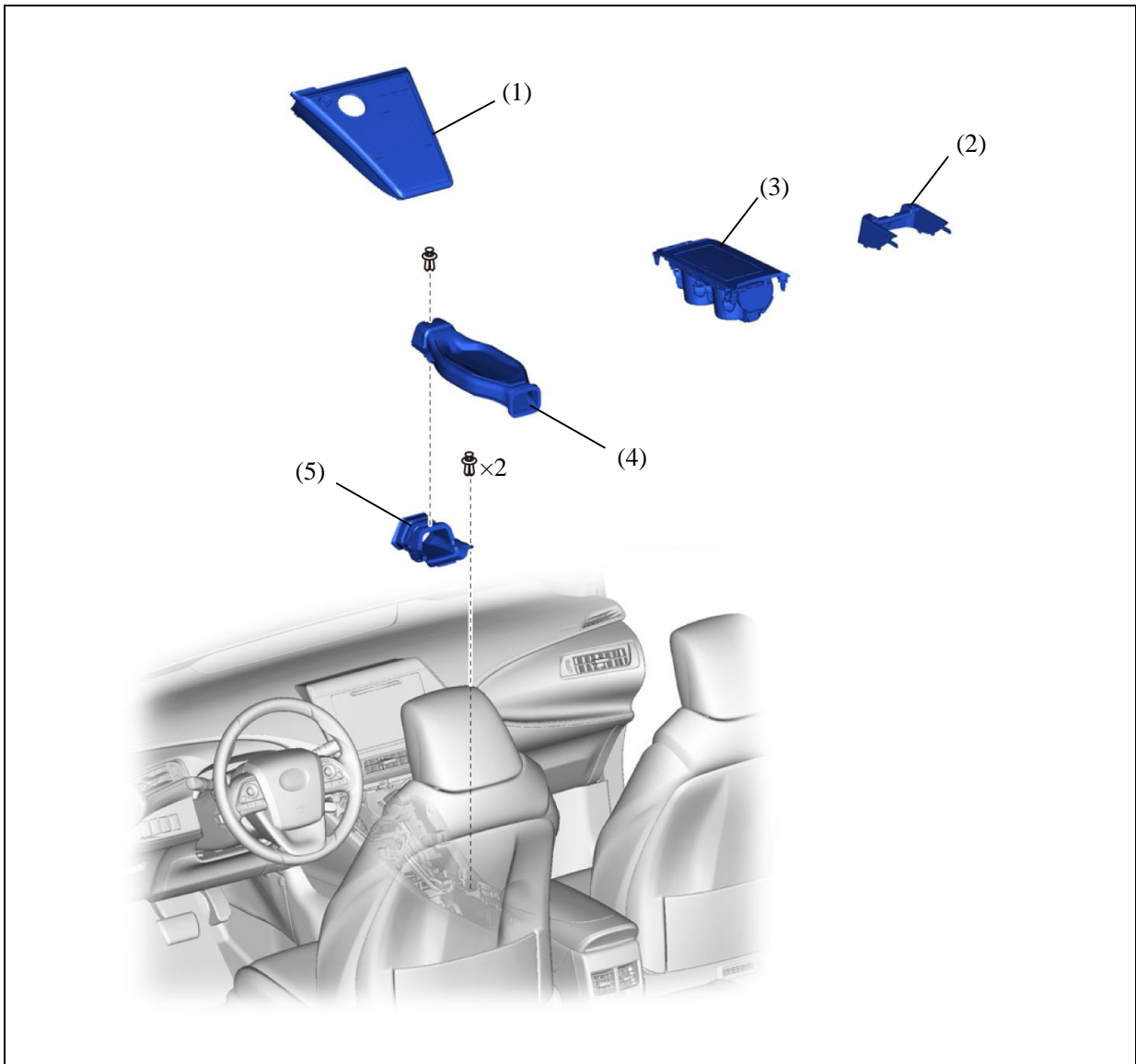


a	Protective Tape
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3. Carry the removed service plug grip in your pocket to prevent other staff from accidentally reinstalling it while you are dismantling the vehicle.

4. Remove the FC stack service plug grip.

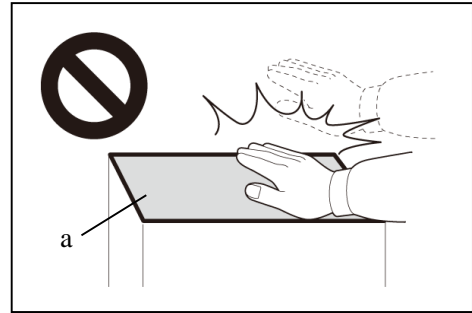
- (1) Remove the integration control and panel assembly.
- (2) Remove the front console box cover.
- (3) Remove the console compartment box assembly.
- (4) Remove the No. 2 console box duct.
- (5) Remove the No. 1 console box duct.





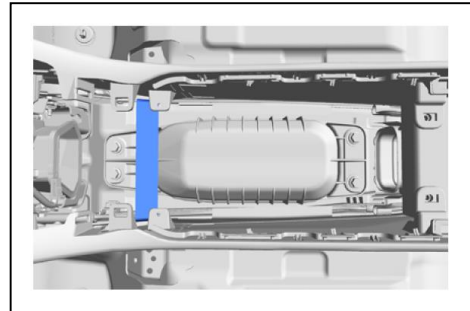
**Caution:**

- If the front floor service hole cover and surroundings are hot, do not touch them.
- Touching the front floor service hole cover or surroundings when they are hot could result in burns.

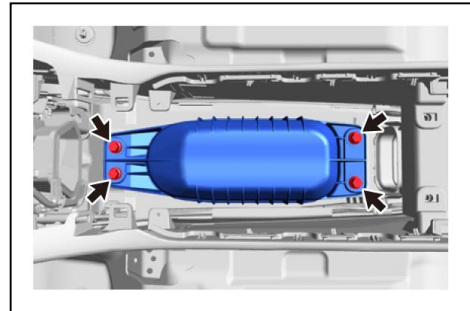


a High temperature areas

(6) Remove the front floor carpet assembly.



(7) Remove the 4 bolts and front floor service hole cover from the vehicle.

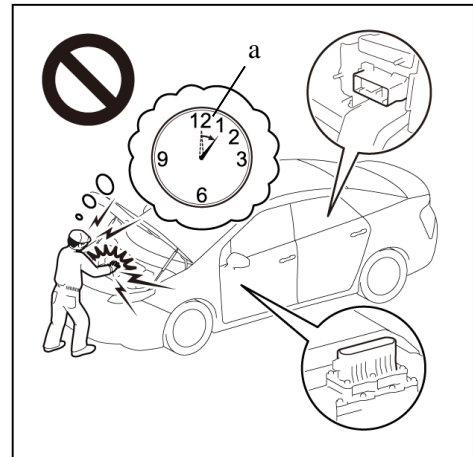


**Caution:**

- Wear insulated gloves.
- Do not inspect or repair high voltage system wiring or components without removing the service plug grip (for EV) and FC stack service plug grip.
- If work is performed while the service plug grip (for EV) and FC stack service plug grip are still installed, high voltage circuits will still be connected and there is a risk of electric shock.

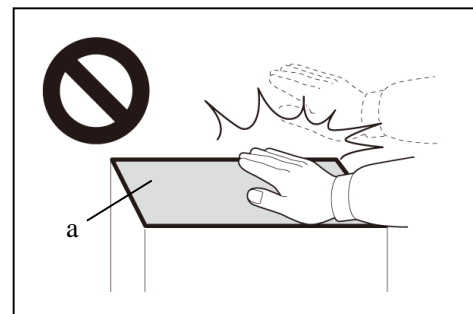


- After removing both the service plug grip (for EV) and FC stack service plug grip, wait for 10 minutes before touching any high voltage connectors or terminals.
- If work is performed without waiting for 10 minutes, there is a risk of electric shock due to residual charge in the high voltage capacitors inside the inverter with converter assembly and FC converter assembly.



a	Without waiting for 10 minutes
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- If the FC stack service plug grip and surroundings are hot, do not touch them.
- Touching the FC stack service plug grip or surroundings when they are hot could result in burns.



a	High temperature areas
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**Notice:**

- If the power switch is turned on (READY) while the service plug grip (for EV) and FC stack service plug grip are removed, a malfunction may occur.
- Do not touch the terminal portion of the FC stack service plug grip.
- Do not touch the rubber seal of the FC stack service plug grip.
- Store the removed FC stack service plug grip so that dirt or contaminants do not adhere to its contact points or rubber seal.
- If the FC stack service plug grip is dropped, scratched, or subjected to a strong impact, replace it with a new one.

**Hint:**

- The order in which the service plug grip (for EV) and FC stack service plug grip are removed does not matter.
- The 10 minute wait is to allow the high voltage capacitors inside the inverter with converter assembly and FC converter assembly to discharge.

- (8) To prevent contamination by foreign matter or water droplets, check that the area around the FC stack service plug grip has no foreign matter or water droplets, and clean away any foreign matter or water droplets found.

**Notice:**

Make sure that foreign matter does not enter other components.

- (9) Slide the lever of the FC stack service plug grip in the direction shown in the illustration until it contacts the stopper.

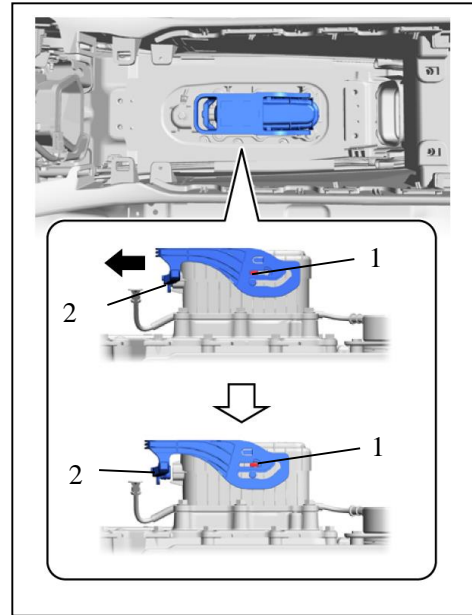
**Notice:**

The FC stack service plug grip has an interlock connector, so slide it horizontally.

- (10) After the lever of the FC stack service plug grip contacts the stopper, wait at least 1 second before beginning the next procedure.

**Hint:**

The 1 second delay is the time required for the interlock circuit to disconnect and then for the FC stack circuit to disconnect.

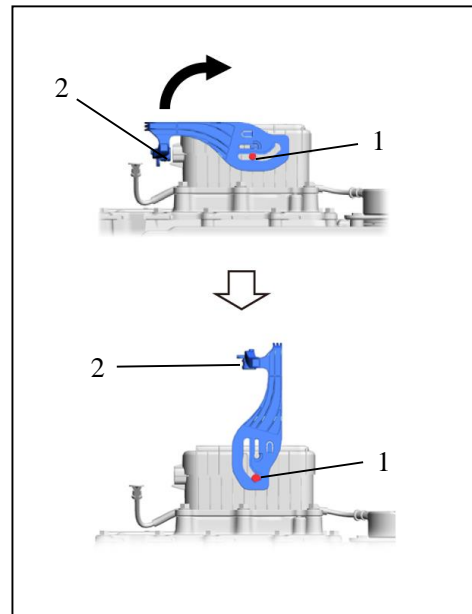


1	Stopper
2	Interlock Connector

- (11) Slowly rotate the lever of the FC stack service plug grip in the direction shown in the illustration until it contacts the stopper.

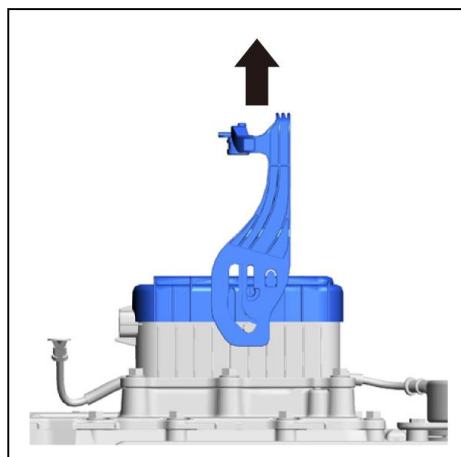
**Notice:**

- Do not touch the rubber seal of the FC stack service plug grip interlock connector.
- Do not excessively twist the lever of the FC stack service plug grip.

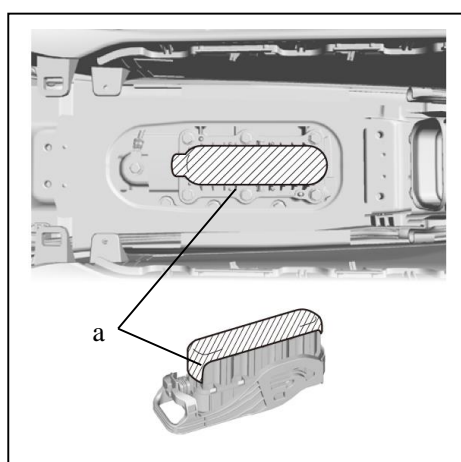


1	Stopper
2	Interlock Connector

(12) Slowly pull the FC stack service plug grip lever straight up vertically to remove the FC stack service plug grip from the FC stack assembly.



(13) To prevent contamination by foreign matter or water droplets, cover the openings of the removed FC stack service plug grip and FC stack assembly with protective tape.



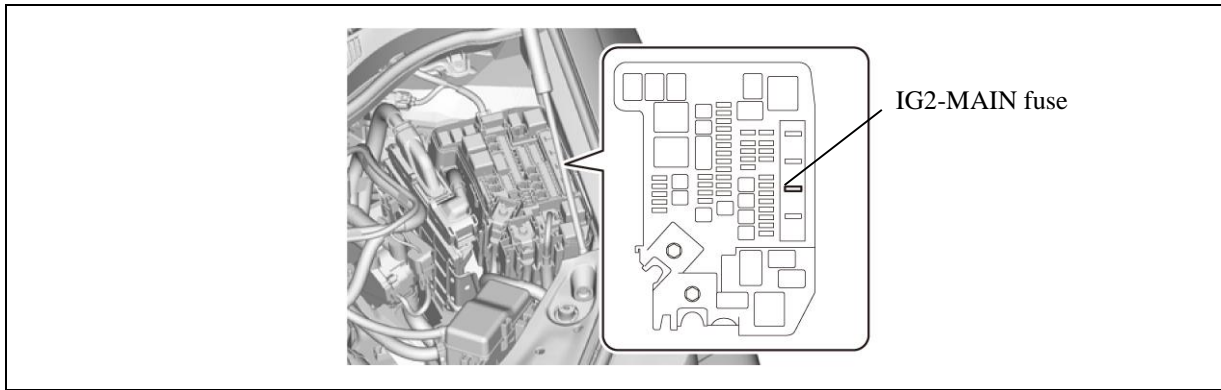
a	Protective Tape
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(14) Warn other technicians to be cautious by placing a sign "CAUTION: HIGH VOLTAGE DO NOT TOUCH" on the removed FC stack service plug grip. (An example sign is included, so make a copy and use it.)

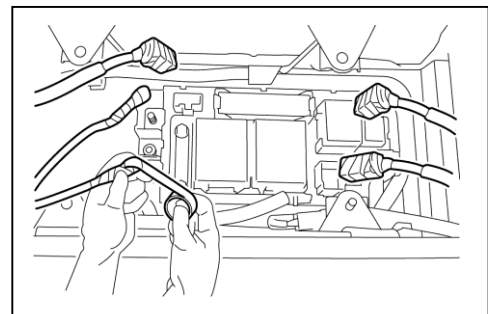
5. Carry the removed service plug grip in your pocket to prevent other staff from accidentally reinstalling it while you are dismantling the vehicle.
6. Make other staff aware that a high-voltage system is being dismantled by using the following sign: CAUTION: HIGH-VOLTAGE. DO NOT TOUCH (see page 89).
7. If the service plug grip cannot be removed due to damage to the vehicle, remove the **IG2-MAIN** fuse (30 A).

**Caution:**

**This operation shuts off the HV system. Be sure to wear insulated gloves because high voltage is not shut off inside the EV 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 EV 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 EV battery, remove parts by following procedures which are similar to conventional Toyota vehicles. For the removal of the EV 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 EV Battery

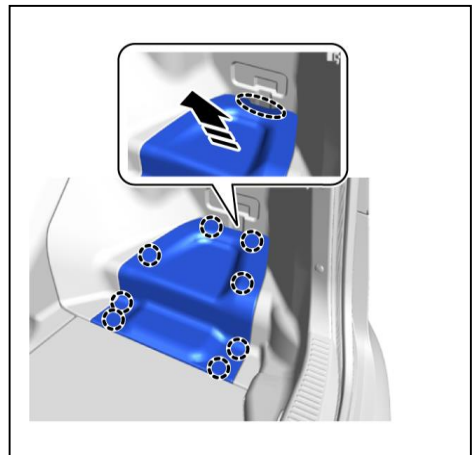


**WARNING:**

- *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 EV 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.*

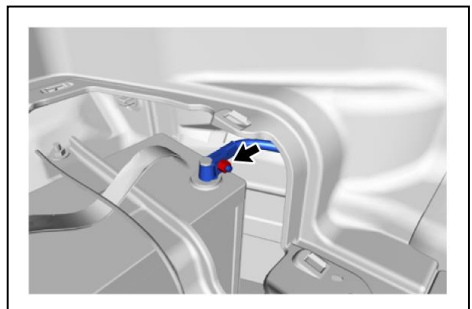
1. SHUT OFF IGINATION (**READY** indicator is off)
2. REMOVE LUGGAGE TRIM SERVICE HOLE COVER

Pull up in the direction shown by the arrow in the illustration to disengage the claws, and remove the luggage trim service hole cover from the vehicle.



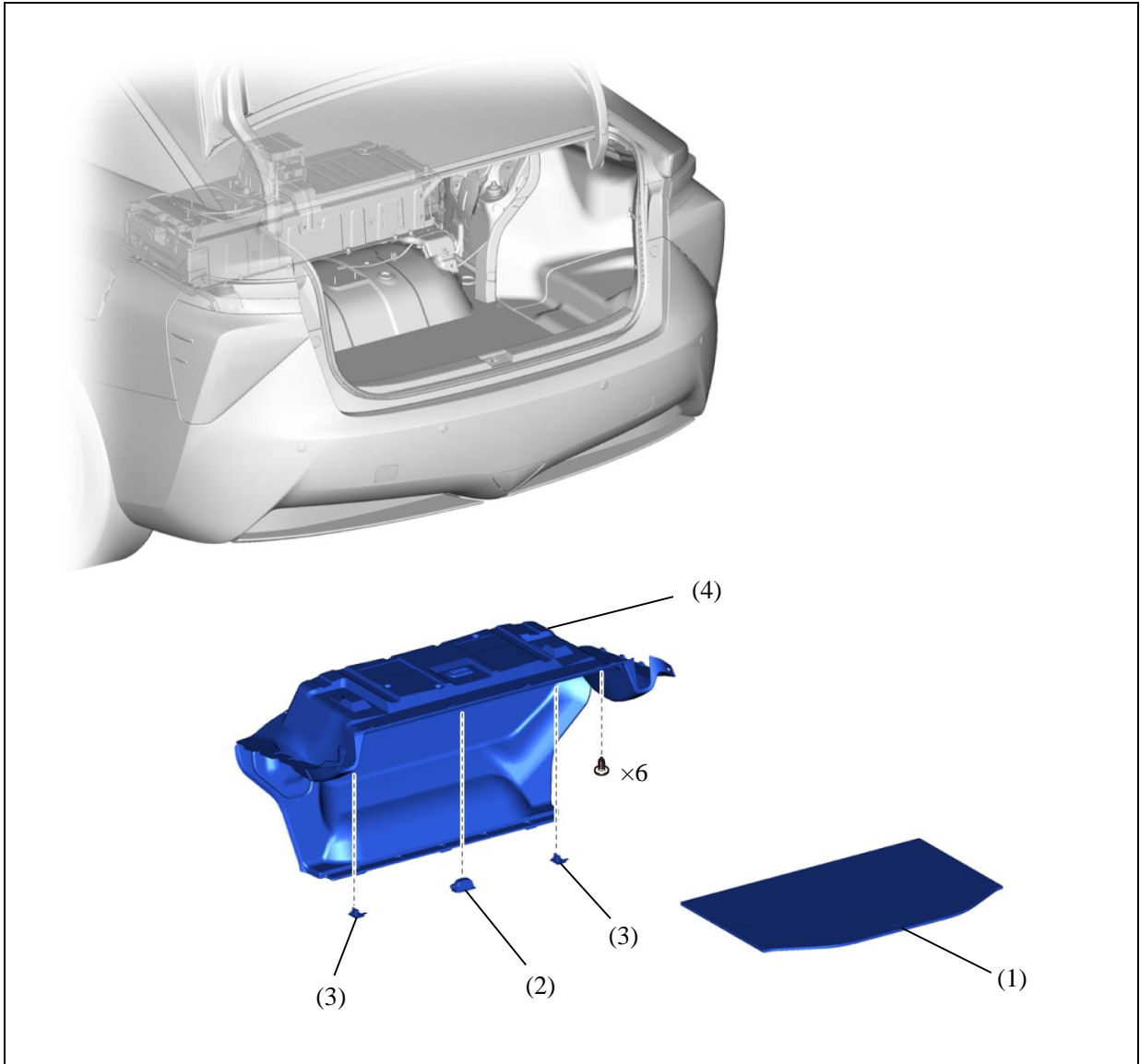
3. DISCONNECT CABLE FROM NEGATIVE AUXILIARY BATTERY TERMINAL

Loosen the nut and disconnect the negative (-) auxiliary battery terminal from the auxiliary battery.



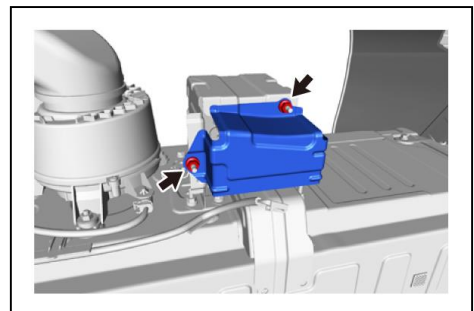
#### 4. REMOVE LUGGAGE COMPARTMENT TRIM FRONT COVER

- (1) Remove the luggage compartment floor mat.
- (2) Remove the No. 1 luggage compartment light assembly.
- (3) Remove the No. 2 luggage compartment trim hook.
- (4) Remove luggage compartment trim front cover.



#### 5. REMOVE NO. 8 EV BATTERY SHIELD PANEL

Remove the 2 nuts and No. 8 EV battery shield panel from the EV battery.

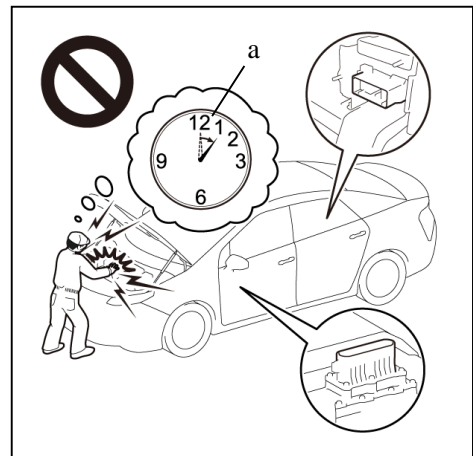




## 6. REMOVE SERVICE PLUG GRIP (for EV)

### Caution:

- Wear insulated gloves.
- Do not inspect or repair high voltage system wiring or components without removing the service plug grip (for EV) and FC stack service plug grip.
- If work is performed while the service plug grip (for EV) and FC stack service plug grip are still installed, high voltage circuits will still be connected and there is a risk of electric shock.
- After removing both the service plug grip (for EV) and FC stack service plug grip, wait for 10 minutes before touching any high voltage connectors or terminals.
- If work is performed without waiting for 10 minutes, there is a risk of electric shock due to residual charge in the high voltage capacitors inside the inverter with converter assembly and FC converter assembly.



a Without waiting for 10 minutes

- Put the removed service plug grip (for EV) in your pocket and carry it with you, and place a "HIGH VOLTAGE WORK IN PROGRESS. DO NOT TOUCH." sign on the FC stack service plug grip, in order to prevent other technicians from accidentally reconnecting the power while work is in progress.
- If work is performed while the service plug grip (for EV) and FC stack service plug grip are still installed, high voltage circuits will still be connected and there is a risk of electric shock.



**Notice:**

- If the system is set to READY ON while the service plug grip (for EV) and FC stack service plug grip are removed, a malfunction may occur.
- Do not touch the connection terminal of the service plug grip (EV) and FC stack service plug grip.
- If the service plug grip (for EV) and FC stack service plug grip has been struck or dropped, replace it.

**Hint:**

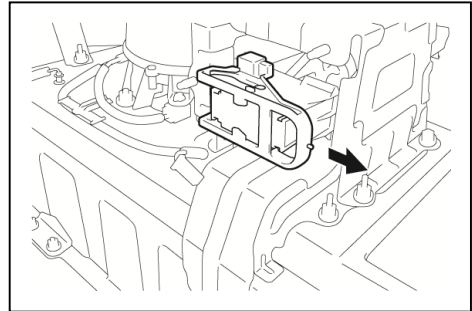
- The order in which the service plug grip (for EV) and FC stack service plug grip are removed does not matter.
- The 10 minute wait is to allow the high voltage capacitors inside the inverter with converter assembly and FC converter assembly to discharge.

- (1) To prevent contamination by foreign matter or water droplets, check that the area around the service plug grip (for EV) has no foreign matter or water droplets, and clean away any foreign matter or water droplets found.

**Notice:**

Make sure that foreign matter does not enter other components.

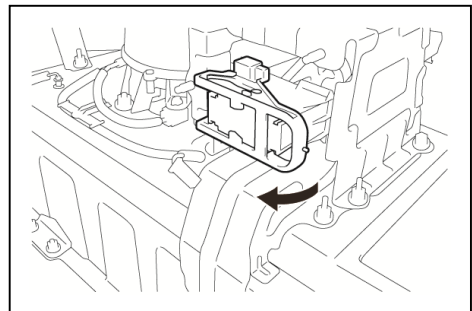
- (2) Slide the lever of the service plug grip (for EV) in the direction shown in the illustration until it contacts the stopper.



**Notice:**

The service plug grip (for EV) has an interlock connector, so slide it horizontally.

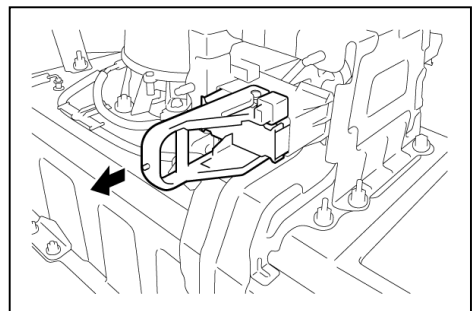
- (3) Slowly rotate the lever of the service plug grip (for EV) in the direction shown in the illustration until it contacts the stopper.



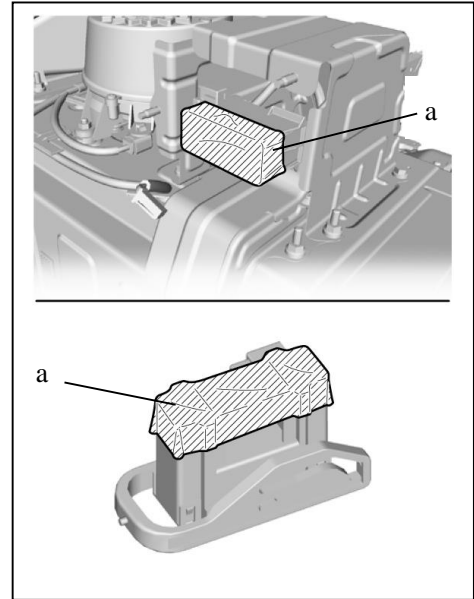
**Notice:**

Do not excessively twist the lever of the service plug grip (for EV).

- (4) Slowly pull the service plug grip (for EV) lever, remove the service plug grip (for EV) from the EV battery.



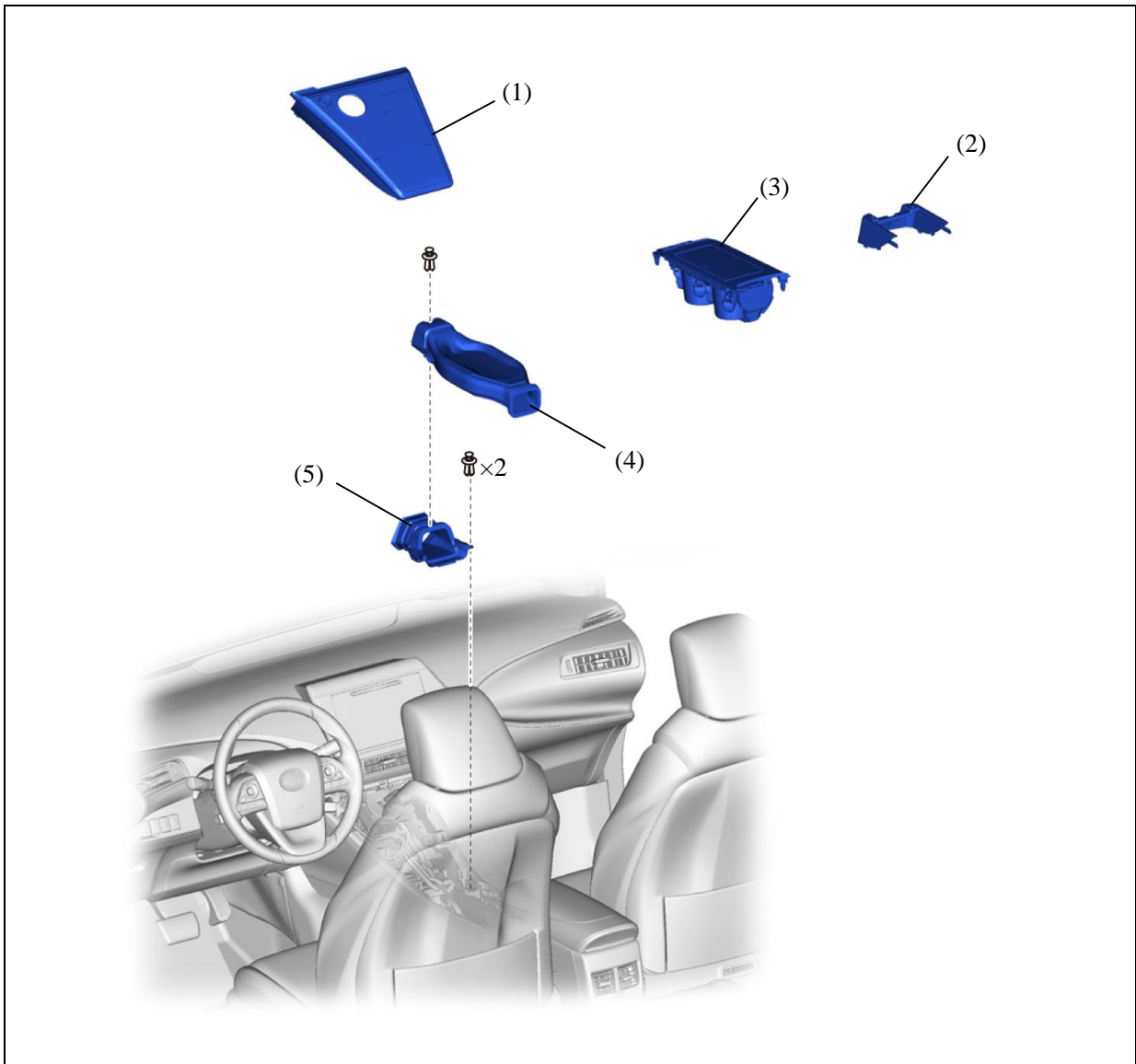
- (5) To prevent contamination by foreign matter or water droplets, cover the openings of the removed service plug grip (for EV) and EV battery with protective tape.



a	Protective Tape
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## 7. REMOVE NO. 1 CONSOLE BOX DUCT

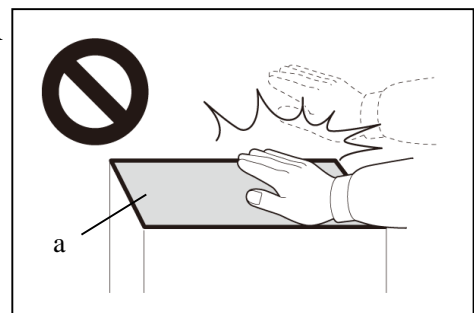
- (1) Remove the integration control and panel assembly.
- (2) Remove the front console box cover.
- (3) Remove the console compartment box assembly.
- (4) Remove the No. 2 console box duct.
- (5) Remove the No. 1 console box duct.



## 8. REMOVE FRONT FLOOR SERVICE HOLE COVER

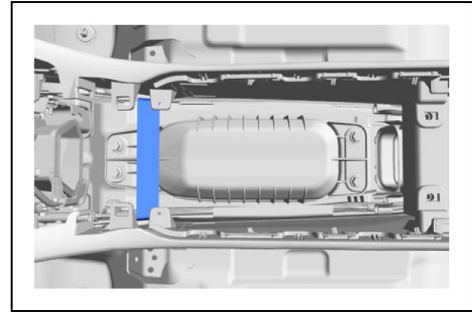
### Caution:

- If the front floor service hole cover and surroundings are hot, do not touch them.
- Touching the front floor service hole cover or surroundings when they are hot could result in burns.

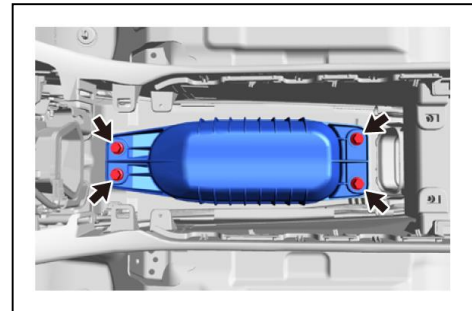


a High temperature areas

(1) Remove the front floor carpet assembly.



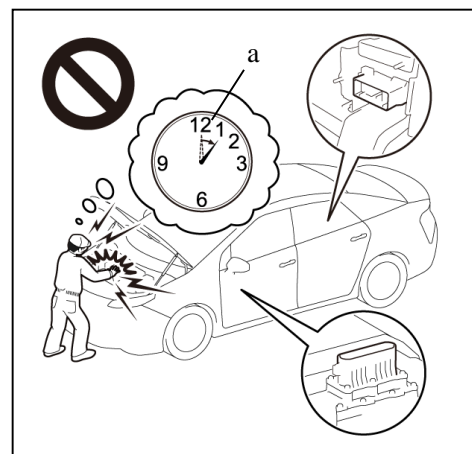
(2) Remove the 4 bolts and front floor service hole cover from the vehicle.



## 9. REMOVE FC STACK SERVICE PLUG GRIP

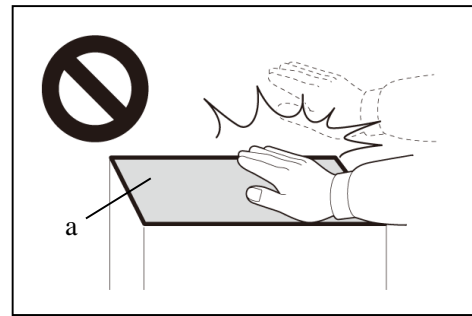
### Caution:

- **Wear insulated gloves.**
- **Do not inspect or repair high voltage system wiring or components without removing the service plug grip (for EV) and FC stack service plug grip.**
- **If work is performed while the service plug grip (for EV) and FC stack service plug grip are still installed, high voltage circuits will still be connected and there is a risk of electric shock.**
  
- **After removing both the service plug grip (for EV) and FC stack service plug grip, wait for 10 minutes before touching any high voltage connectors or terminals.**
- **If work is performed without waiting for 10 minutes, there is a risk of electric shock due to residual charge in the high voltage capacitors inside the inverter with converter assembly and FC converter assembly.**



a Without waiting for 10 minutes

- If the FC stack service plug grip and surroundings are hot, do not touch them.
- Touching the FC stack service plug grip or surroundings when they are hot could result in burns.



a	High temperature areas
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**Notice:**

- If the system is set to READY ON while the service plug grip (for EV) and FC stack service plug grip are removed, a malfunction may occur.
- Do not touch the terminal portion of the FC stack service plug grip.
- Do not touch the rubber seal of the FC stack service plug grip.
- Store the removed FC stack service plug grip so that dirt or contaminants do not adhere to its contact points or rubber seal.
- If the FC stack service plug grip is dropped, scratched, or subjected to a strong impact, replace it with a new one.

**Hint:**

- The order in which the service plug grip (for EV) and FC stack service plug grip are removed does not matter.
- The 10 minute wait is to allow the high voltage capacitors inside the inverter with converter assembly and FC converter assembly to discharge.

(1) To prevent contamination by foreign matter or water droplets, check that the area around the FC stack service plug grip has no foreign matter or water droplets, and clean away any foreign matter or water droplets found.

**Notice:**

Make sure that foreign matter does not enter other components.

- (2) Slide the lever of the FC stack service plug grip in the direction shown in the illustration until it contacts the stopper.

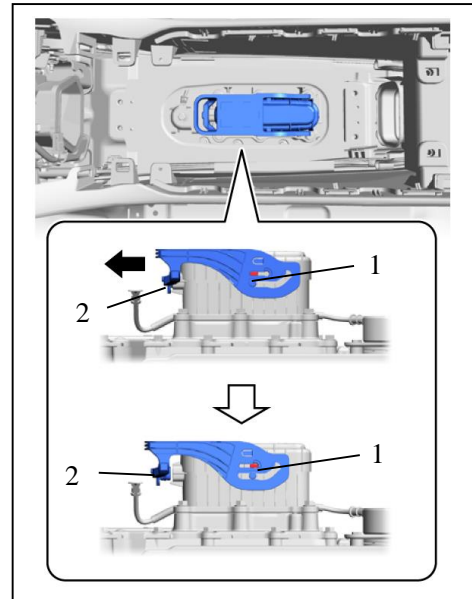
**Notice:**

The FC stack service plug grip has an interlock connector, so slide it horizontally.

- (3) After the lever of the FC stack service plug grip contacts the stopper, wait at least 1 second before beginning the next procedure.

**Hint:**

The 1 second delay is the time required for the interlock circuit to disconnect and then for the FC stack circuit to disconnect.

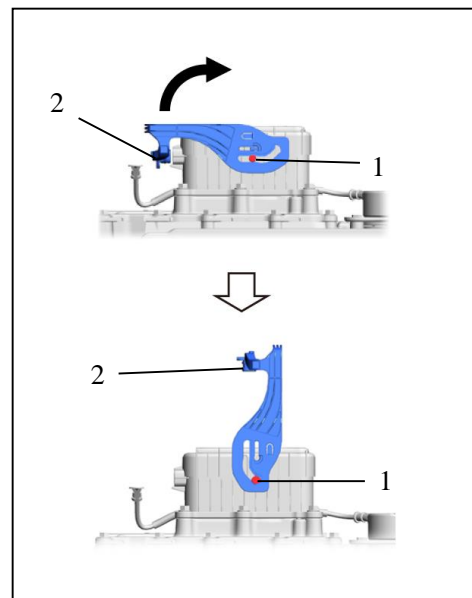


1	Stopper
2	Interlock Connector

- (4) Slowly rotate the lever of the FC stack service plug grip in the direction shown in the illustration until it contacts the stopper.

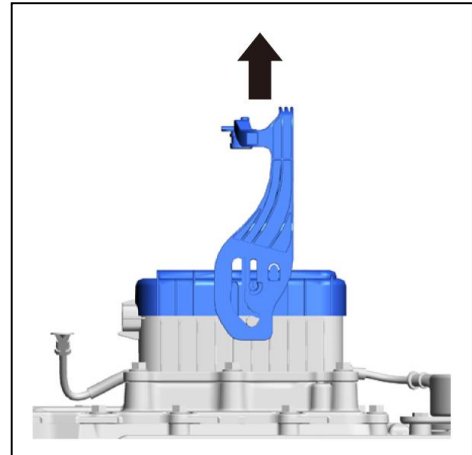
**Notice:**

- Do not touch the rubber seal of the FC stack service plug grip interlock connector.
- Do not excessively twist the lever of the FC stack service plug grip.

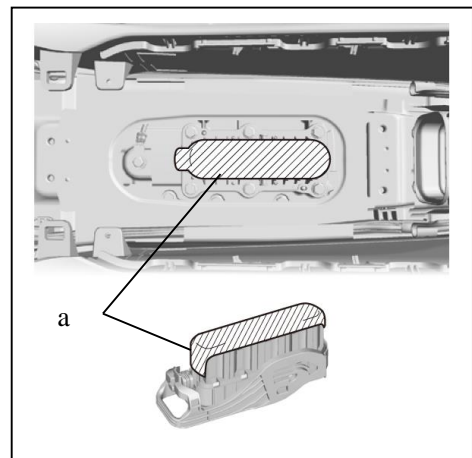


1	Stopper
2	Interlock Connector

- (5) Slowly pull the FC stack service plug grip lever straight up vertically to remove the FC stack service plug grip from the FC stack assembly.



- (6) To prevent contamination by foreign matter or water droplets, cover the openings of the removed FC stack service plug grip and FC stack assembly with protective tape.



a	Protective Tape
---	-----------------

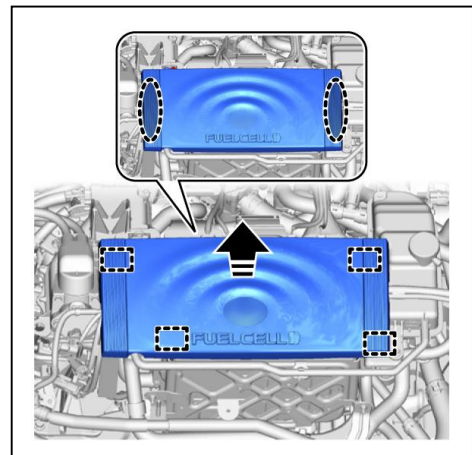
- (7) Warn other technicians to be cautious by placing a sign "CAUTION: HIGH VOLTAGE DO NOT TOUCH" on the removed FC stack service plug grip. (An example sign is included, so make a copy and use it.)

## 1. REMOVE INVERTER COVER

Disengage the 4 grommets and remove the inverter cover from the inverter with converter assembly and inverter protector.

### Notice:

To avoid damaging the inverter cover, pull it upwards and disengage the grommet.





## 2. REMOVE INVERTER TERMINAL COVER

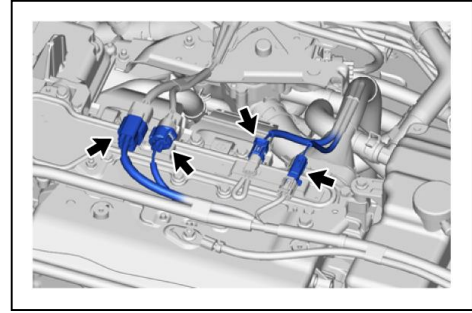
**Caution:**

**Wear insulated gloves.**

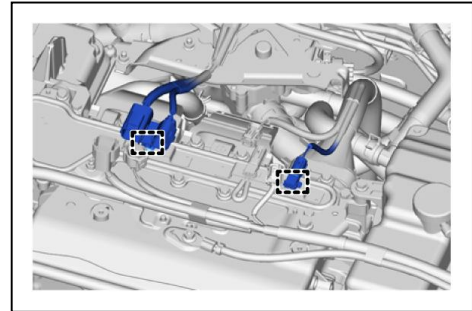
**Notice:**

Do not allow foreign matter or water droplets to enter into the inverter with converter assembly.

(8) Disconnect the 4 connectors.



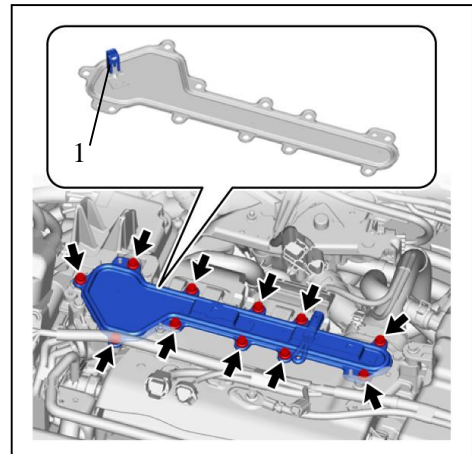
(9) Disengage the 2 clamps to separate the wire harness from the inverter terminal cover.



(10) Remove the 11 bolts and inverter terminal cover from the inverter with converter assembly.

**Notice:**

- The inverter terminal cover has an interlock connector, so pull it up perpendicularly.
- Do not touch the rubber seal of the inverter terminal cover.



1	Interlock Connector
---	---------------------

## 3. CHECK TERMINAL VOLTAGE

**Caution:**

**Wear insulated gloves.**

**Notice:**

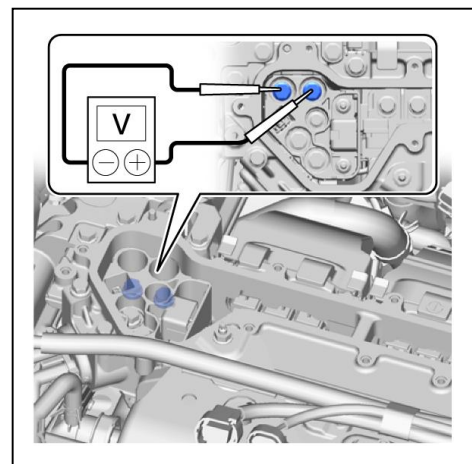
Do not allow foreign matter or water droplets to enter into the inverter with converter assembly.

Using a voltmeter, measure the voltage between the terminals of the 2 phase connectors.

**Standard voltage: 0 Volt**

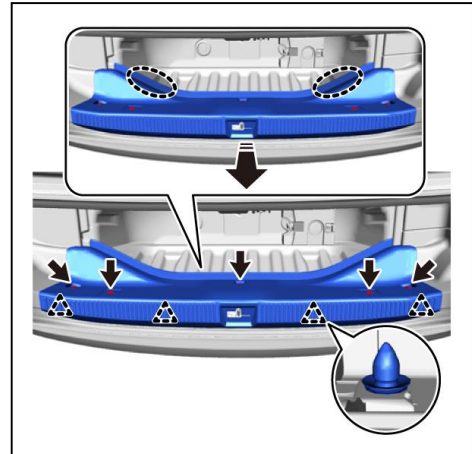
**Hint:**

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



#### 4. REMOVE REAR FLOOR FINISH PLATE

- (1) Using a clip remover, remove the clips.
- (2) Disengage the clips to remove the rear floor finish plate as shown in the illustration.



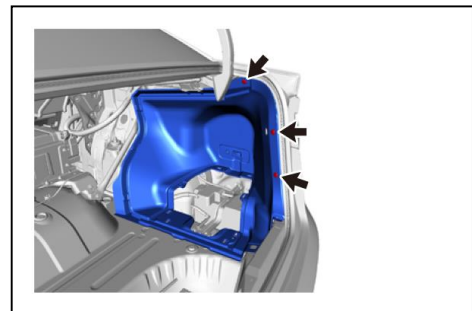
#### 5. REMOVE ROPE HOOK

Disengage the claw to remove the rope hook.



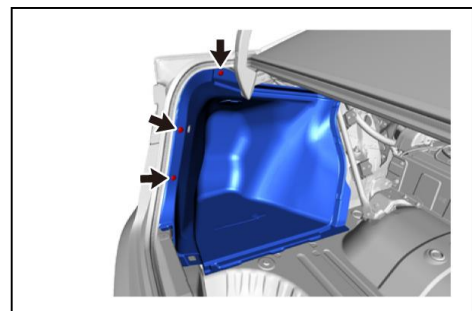
#### 6. REMOVE LUGGAGE COMPARTMENT TRIM COVER ASSEMBLY RH

Using a clip remover, remove the 3 clips and luggage compartment trim cover assembly RH from the vehicle.



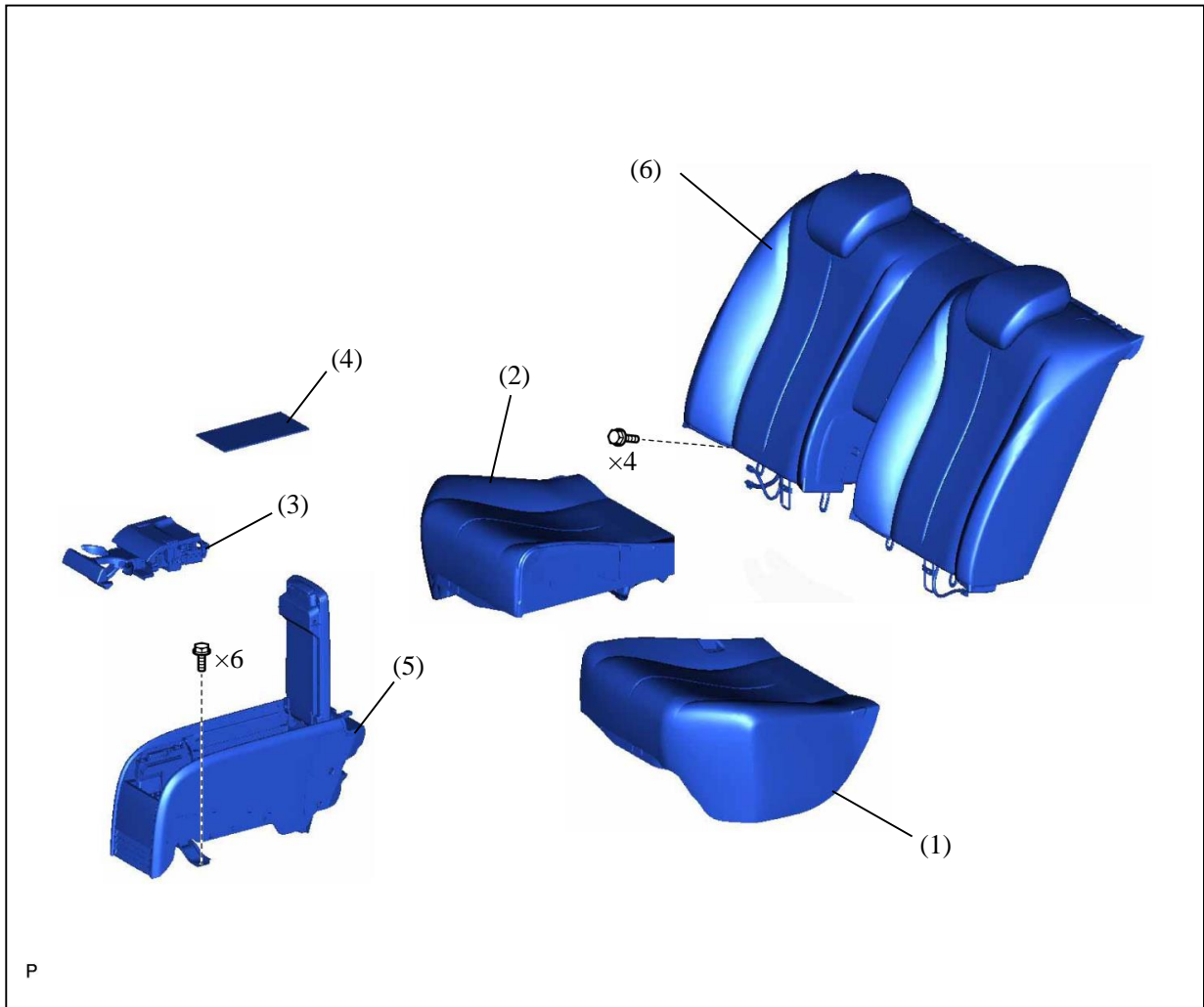
#### 7. REMOVE LUGGAGE COMPARTMENT TRIM COVER ASSEMBLY LH

Using a clip remover, disengage the clips to remove the luggage compartment trim cover assembly LH.



## 8. REMOVE REAR SEATBACK ASSEMBLY

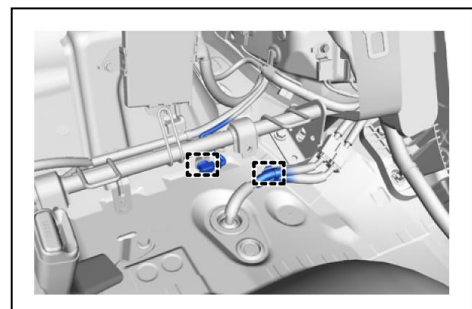
- (1) Remove the rear seat cushion assembly LH.
- (2) Remove the rear seat cushion assembly RH.
- (3) Remove the upper console panel sub-assembly.
- (4) Remove the console box carpet.
- (5) Remove the rear console box.
- (6) Remove the rear seatback assembly.



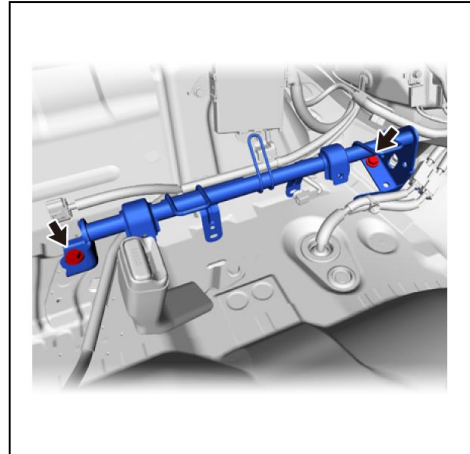
## 9. REMOVE CHILD RESTRAINT SEAT ANCHOR BRACKET SUB-ASSEMBLY

LH

- (1) Disengage the clamps to separate the wire harness.



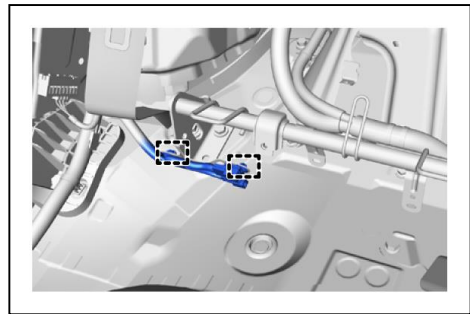
- (2) Remove the 2 bolts and child restraint seat anchor bracket sub-assembly LH.



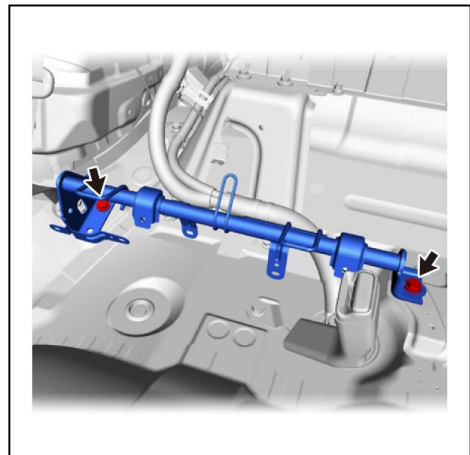
## 10. REMOVE CHILD RESTRAINT SEAT ANCHOR BRACKET SUB-ASSEMBLY

RH

- (1) Disengage the clamps to separate the wire harness.

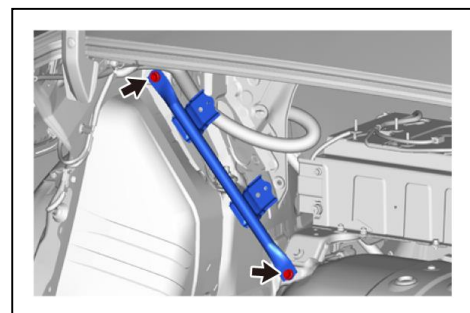


- (2) Remove the 2 bolts and child restraint seat anchor bracket sub-assembly RH.



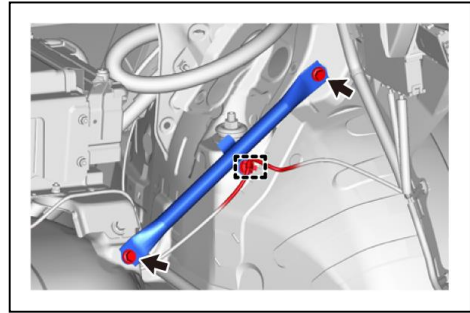
## 11. REMOVE NO. 3 BODY MOUNTING BRACKET SUB-ASSEMBLY LH

Remove the 2 bolts and No. 3 body mounting bracket sub-assembly LH from the vehicle.



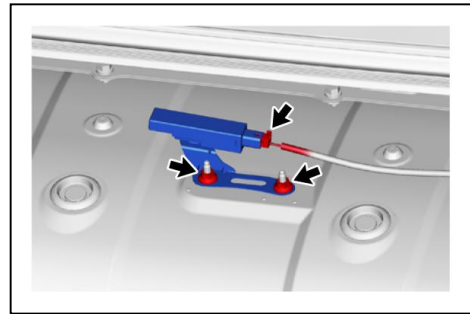
**12. REMOVE NO. 3 BODY MOUNTING BRACKET SUB-ASSEMBLY RH**

- (1) Disengage the clamp and separate the wire harness from the No. 3 body mounting bracket sub-assembly RH.
- (2) Remove the 2 nuts and No. 3 body mounting bracket sub-assembly RH from the vehicle.



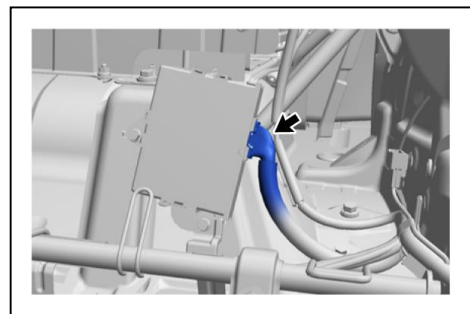
**13. REMOVE INDOOR ELECTRICAL KEY OSCILLATOR**

- (1) Disconnect the connector.
- (2) Remove the 2 nuts and indoor electrical key oscillator.

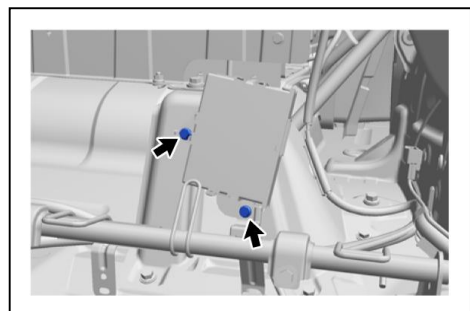


**14. REMOVE HYDROGEN FUEL CONTROL ECU ASSEMBLY**

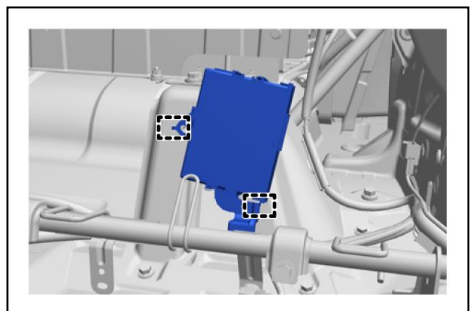
- (1) Disconnect the hydrogen fuel control ECU assembly connector.



- (2) Remove the 2 bolts.



- (3) Disengage the 2 hooks and remove the hydrogen fuel control ECU assembly from the vehicle.



#### 15. REMOVE NO. 1 EV BATTERY INTAKE DUCT

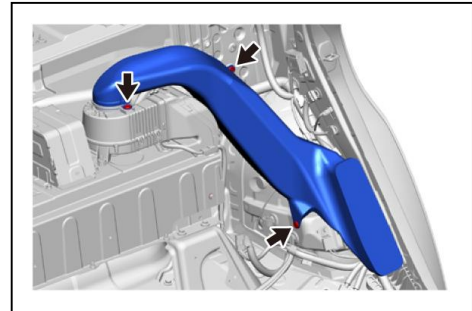
**Caution:**

**Wear insulated gloves.**

**Hint:**

If the message "See Dealer for Maintenance of Traction Battery Cooling System" is displayed on the multi-information display in the combination meter, perform inspection of the No. 1 EV battery intake duct after removal.

Remove the 3 clips and No. 1 EV battery intake duct from the battery cooling blower assembly and vehicle.

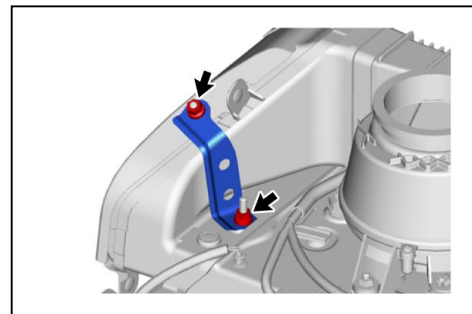


#### 16. REMOVE NO. 2 EV BATTERY UPPER COVER BRACKET

**Caution:**

**Wear insulated gloves.**

Remove the 2 nuts and No. 2 EV battery upper cover bracket from the No. 2 EV battery intake duct and EV battery.

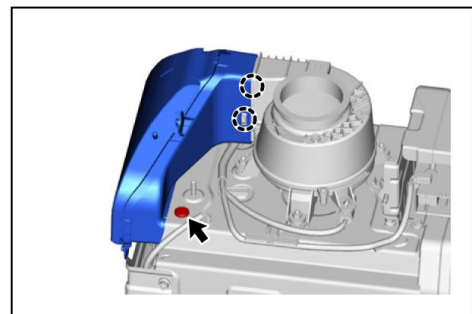


#### 17. REMOVE NO. 2 EV BATTERY INTAKE DUCT

**Caution:**

**Wear insulated gloves.**

- (1) Remove the clip.
- (2) Disengage the 2 claws and remove the No. 2 EV battery intake duct from the battery cooling blower assembly.



## 18. REMOVE BATTERY COOLING BLOWER ASSEMBLY

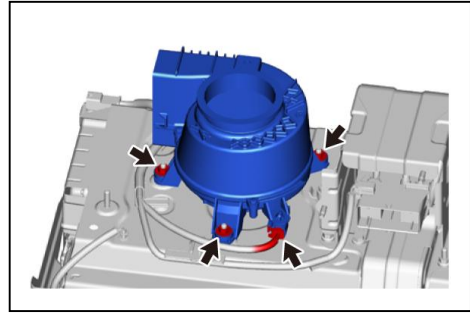
**Caution:**

**Wear insulated gloves.**

- (1) Disconnect the battery cooling blower assembly connector.
- (2) Remove the 3 nuts and battery cooling blower assembly from the EV battery.

**Notice:**

- Do not lift the battery cooling blower assembly using the wire harness.
- Be sure not to touch the fan part of the battery cooling blower assembly .



## 19. REMOVE NO. 4 EV BATTERY SHIELD PANEL

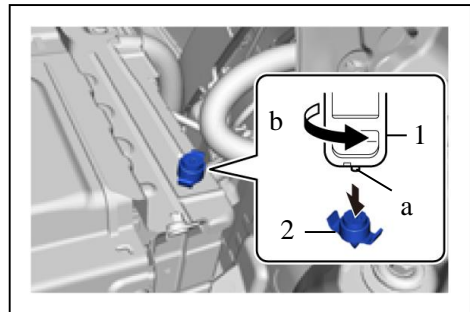
**Caution:**

**Wear insulated gloves.**

- (1) Using the service plug grip, remove the battery cover lock striker.

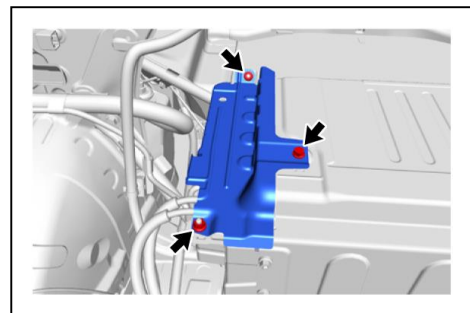
**Hint:**

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



1	Service Plug Grip (for EV)
2	Battery Cover Lock Striker
a	Projection
b	Counterclockwise

- (2) Remove the bolt, 2 nuts and No. 4 EV battery shield panel from the EV battery.

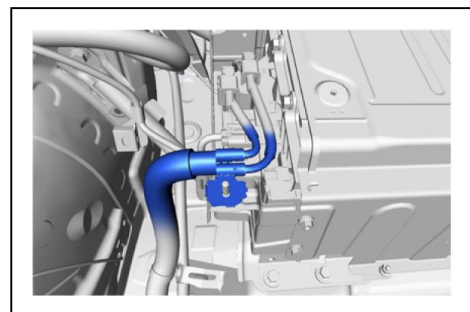


## 20. DISCONNECT FRAME WIRE

**Caution:**

**Wear insulated gloves.**

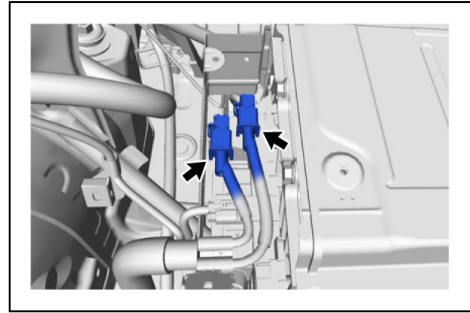
- (1) Disengage the shielded wire ground of the frame wire from the stud bolt.



(2) Disconnect the 2 frame wire connectors.

**Notice:**

- Do not touch the connector terminals.
- Insulate the terminal portion of the connector by wrapping it with insulating tape.

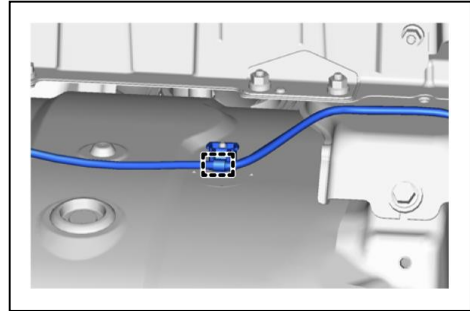


## 21. REMOVE EV BATTERY

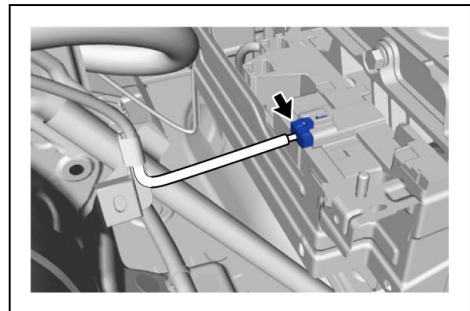
**Caution:**

**Be sure to wear insulating gloves.**

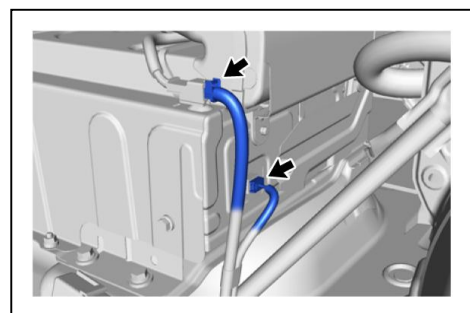
- (1) Disengage the clamp and separate the indoor electrical key oscillator wire from the vehicle.
- (2) Move the disconnected indoor electrical key oscillator wire so that it is on the outer side from the EV battery.



- (3) Disconnect the EV battery junction block connector.

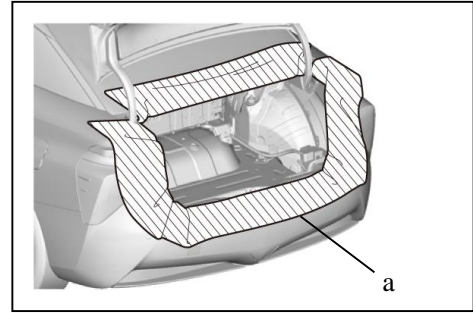


- (4) Disconnect the battery voltage sensor connector.
- (5) Disconnect the No. 2 EV battery pack wire connector.





- (6) To prevent scratches or damage, use protective sheets to protect the vehicle interior and body.

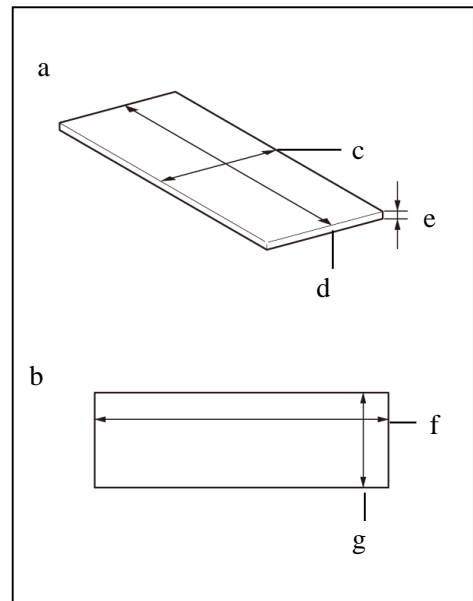


a	Protective Sheet
---	------------------

- (7) Prepare boards and cardboard that will be used to pull out the EV battery.

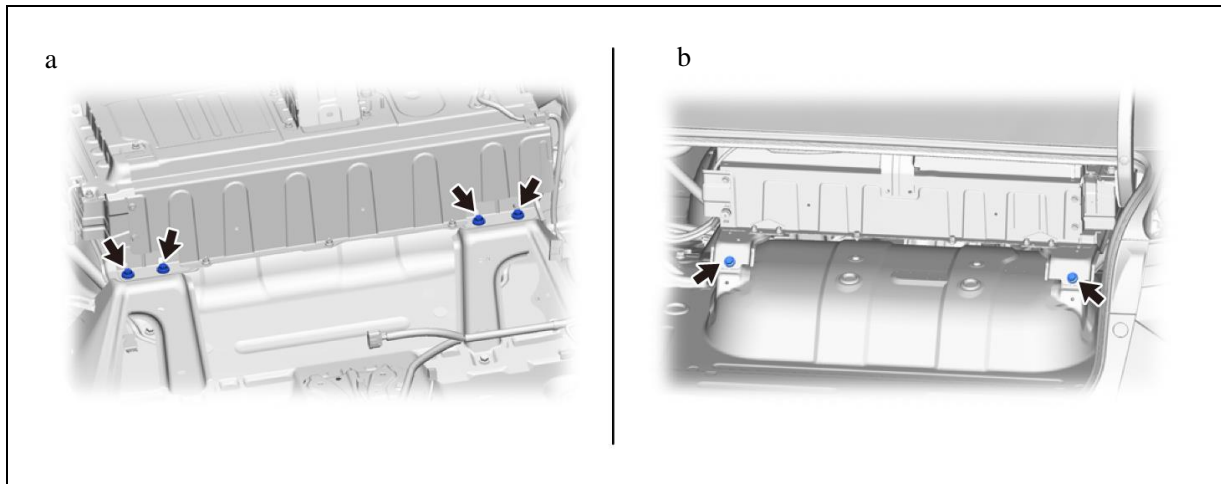
**Hint:**

- Use boards with the dimensions shown in the illustration.
- The cardboard dimensions are an approximation.



a	Board
b	Cardboard
c	110 mm (4.33 in.)
d	570 mm (22.4 in.)
e	10 mm (0.394 in.)
f	790 mm (31.1 in.)
g	350 mm (13.8 in.)

(8) Remove the 6 bolts.

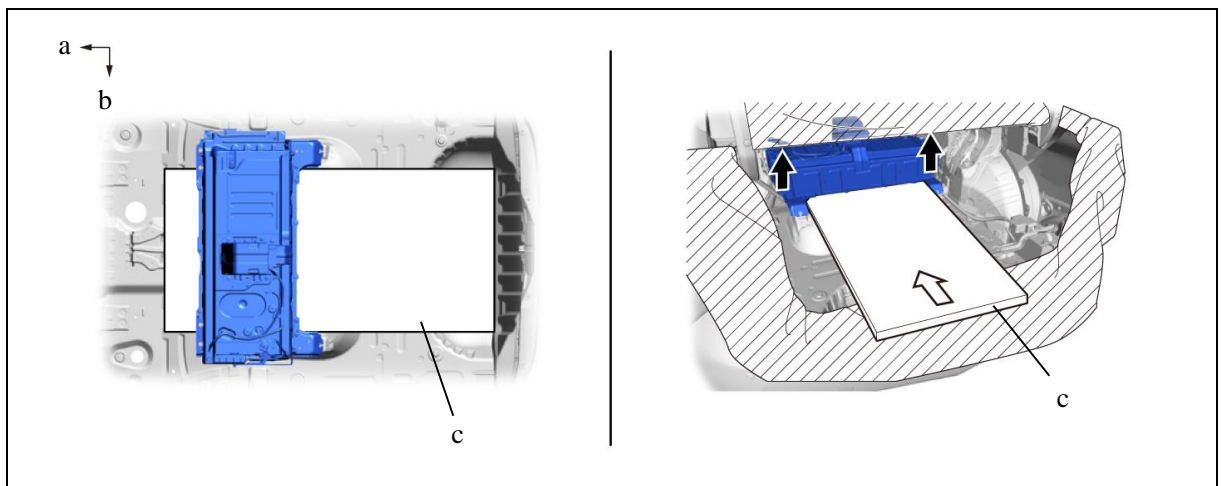


a	Front of the vehicle	b	Rear of the vehicle
---	----------------------	---	---------------------

**Notice:**

Do not touch the bolts of the EV battery when there is grease or oil on your hands.

(9) As shown in the illustration, lift up the EV battery and set the boards between the EV battery and the vehicle.

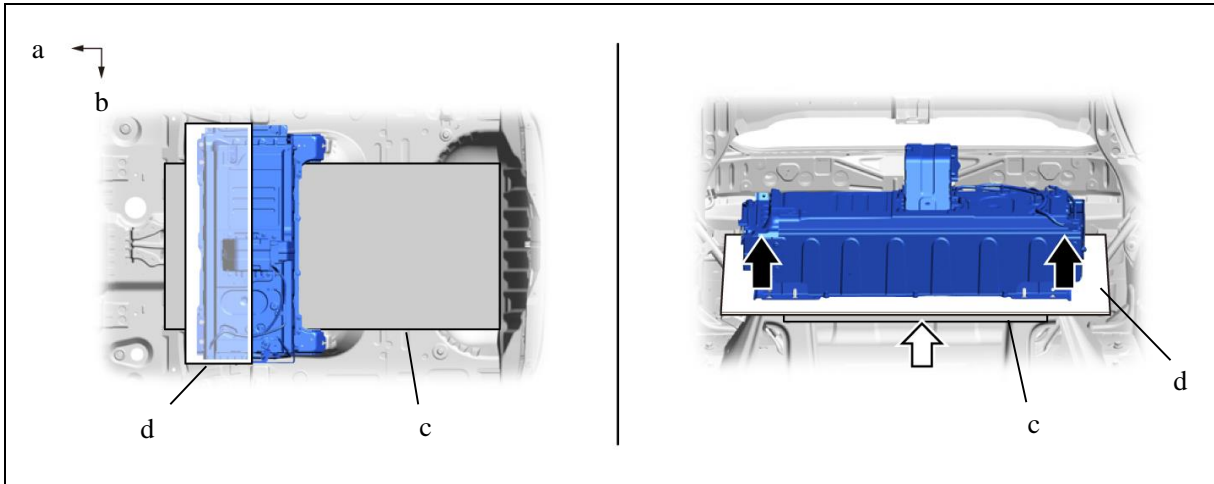


a	Front of the vehicle	b	Left of the vehicle
c	Board	-	-

**Notice:**

This procedure must be performed by 2 people.

(10) As shown in the illustration, lift up the EV battery and set the boards between the EV battery and vehicle.

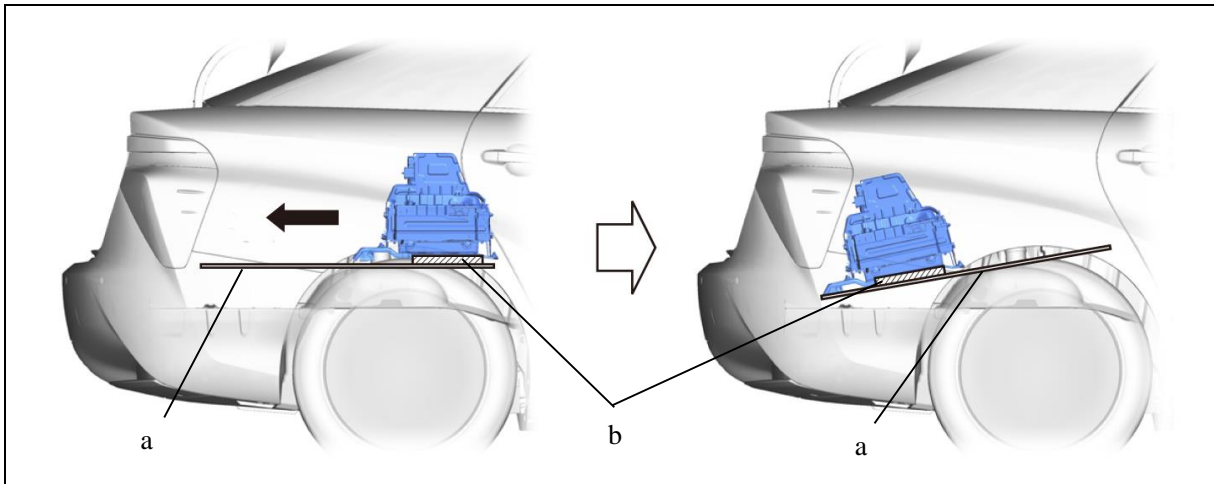


a	Front of the vehicle	b	Left of the vehicle
c	Board	d	Cardboard

**Notice:**

This procedure must be performed by 2 people.

(11) Pull out the EV battery together with cardboard to the rear of the vehicle as shown in the illustration.



a	Board	b	Cardboard
---	-------	---	-----------

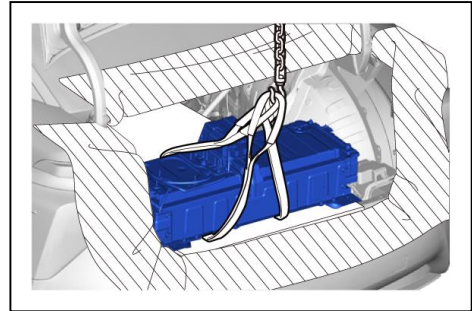
**Hint:**

When pulling out the EV battery, pull out the EV battery to the rear of the vehicle while tilting the boards as shown in the illustration.

(12) Using an engine sling device and belts, remove the EV battery from the vehicle.

**Notice:**

This procedure must be performed by 2 people.



22. The EV battery pack is recyclable. Contact your Toyota distributor (if included on the EV battery caution label) or contact the nearest Toyota dealer (see page 136 for sample of the EV battery caution label).

**Caution:**

**After removing the EV battery, do not reinstall the service plug grip to the EV Battery**

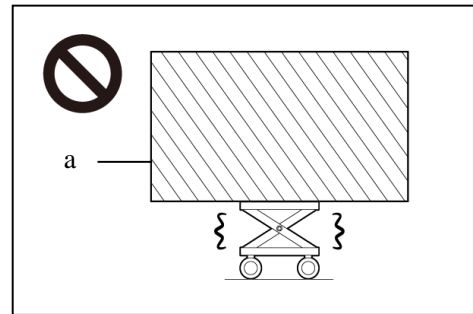
## Dismantling the vehicle (Continued)

### Removal of FC Stack

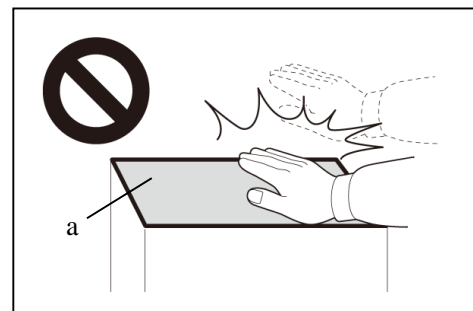
The following 1 pages contain general instructions for use when working on a MIRAI. Read these instructions before proceeding to the FC Stack removal instructions on page 114.

#### Caution:

- Because the weight of the FC stack with FC converter assembly is extremely heavy, make sure to follow the work procedures described in the repair manual.
- If work is not performed according to the procedures described in the repair manual, there is a danger that the engine lifter could drop and components could fall down.
- Do not touch the FC stack assembly or its surroundings when they are hot.
- Touching the FC stack service plug grip or surroundings when they are hot could result in burns.



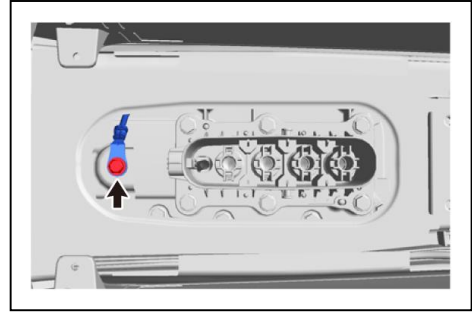
a	Heavy load exceeding the weight limits or size limits of the engine lifter
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a	High temperature areas
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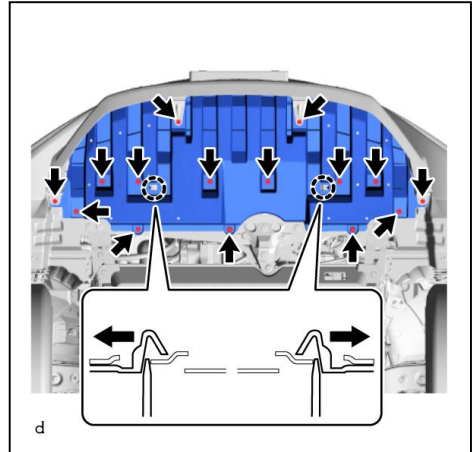
### 1. SEPARATE WIRE HARNESS

Remove the bolt to separate the wire harness from the vehicle.



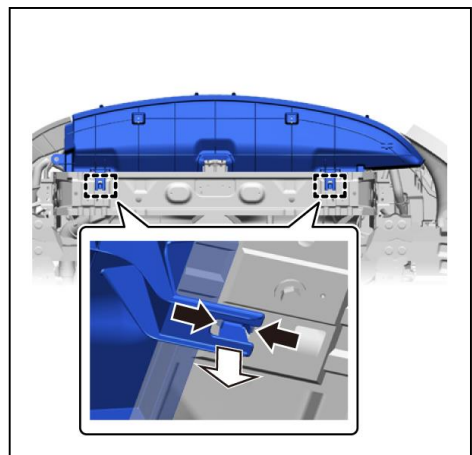
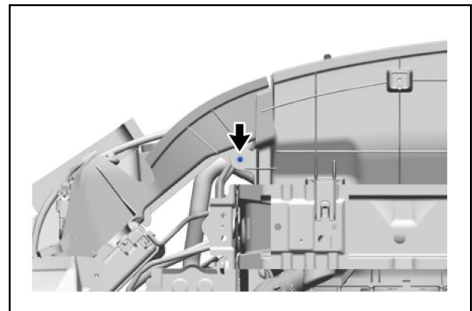
### 2. REMOVE FRONT BUMPER LOWER ABSORBER

- (1) Remove the 8 bolts, 4 screws and 3 clips.
- (2) Using a screwdriver, disengage the 2 claws to remove the front bumper lower absorber as shown in the illustration.



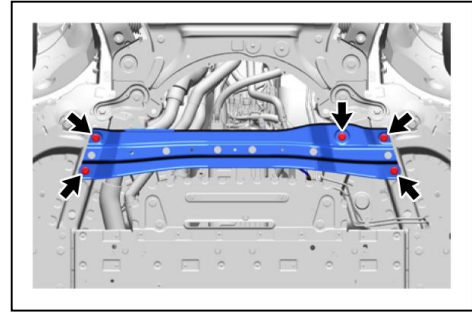
### 3. REMOVE NO. 3 RADIATOR AIR GUIDE

- (1) Remove the clip.
- (2) While pinching the clamp portion of the No. 3 radiator air guide from both sides as shown in the illustration, pull it out towards the bottom of the vehicle, and remove the No. 3 radiator air guide from the radiator support LWR.



4. REMOVE SUSPENSION MEMBER TO FRONT CROSSMEMBER BRACE SUB-ASSEMBLY

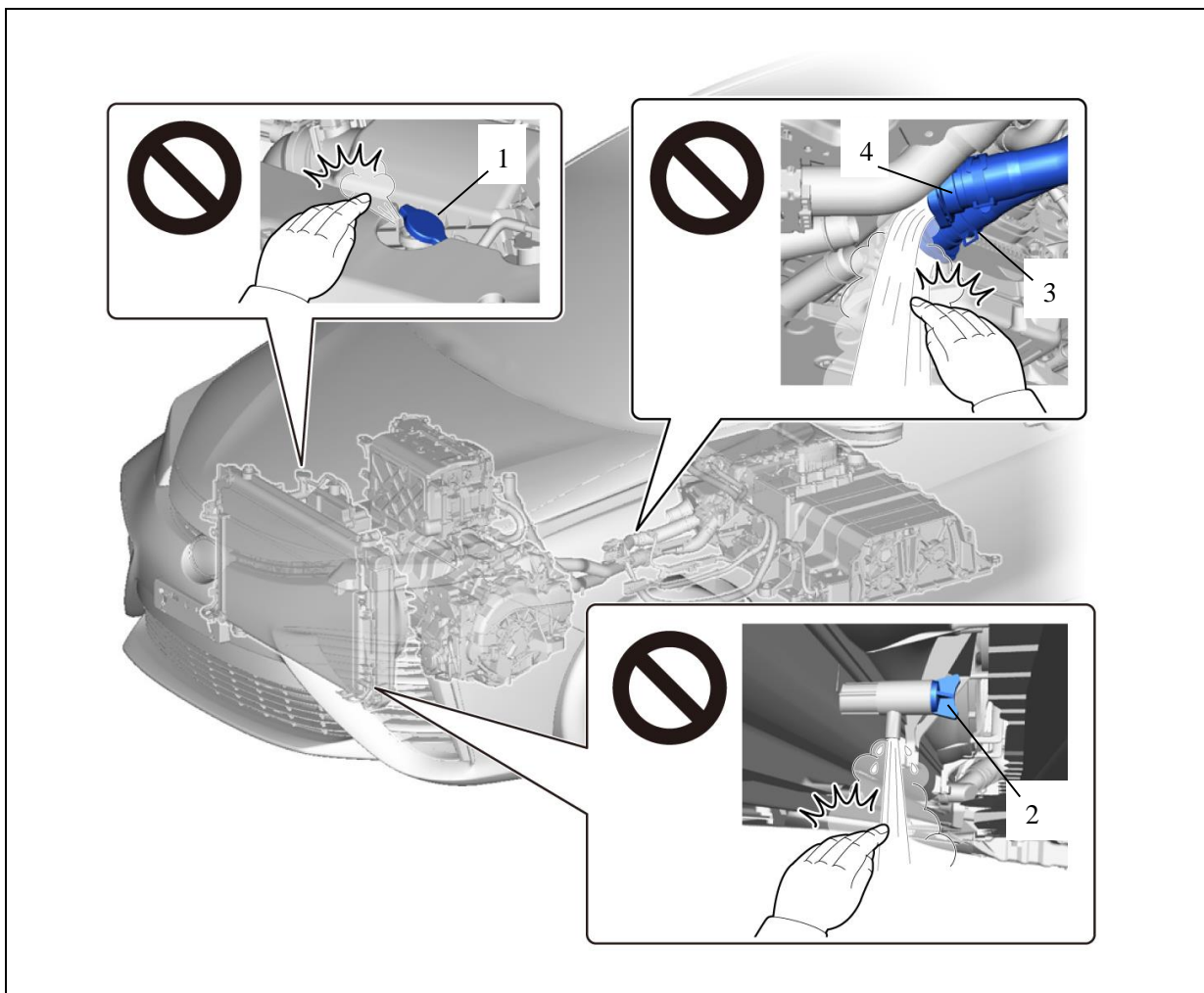
Remove the 5 bolts and suspension member to front crossmember brace sub-assembly from the vehicle.



5. DRAIN COOLANT (FC STACK COOLANT)

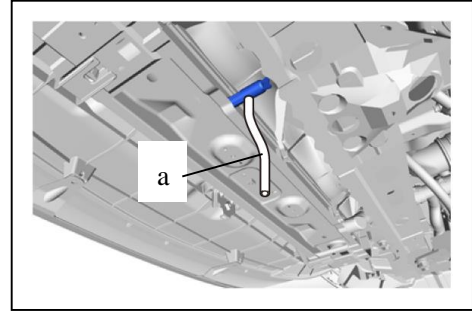
**Caution:**

- When the coolant (Toyota genuine FC stack coolant) temperature is high, do not remove the radiator cap sub-assembly or the drain cock plug of the FC radiator, and do not disconnect the No. 2 FC cooling water pump outlet hose or No. 2 FC cooling water valve inlet hose.
- Fluid and steam may spray out due to high pressure, possibly resulting in burns.



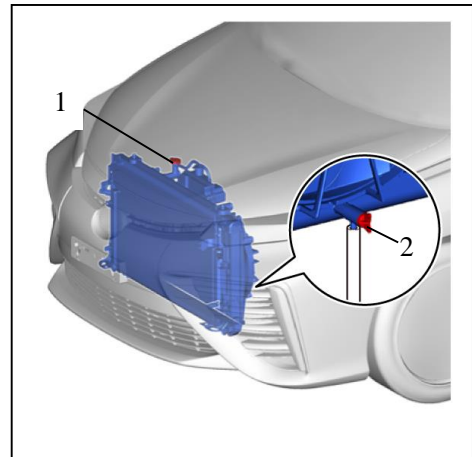
1	Radiator Cap Sub-assembly	2	FC Radiator Drain Cock Plug
3	No. 2 FC Cooling Water Pump Outlet Hose	4	No. 2 FC Cooling Water Valve Inlet Hose

- (1) Connect a hose with an inside diameter of 9 mm (0.354 in.) to the FC radiator assembly drain cock as shown in the illustration.



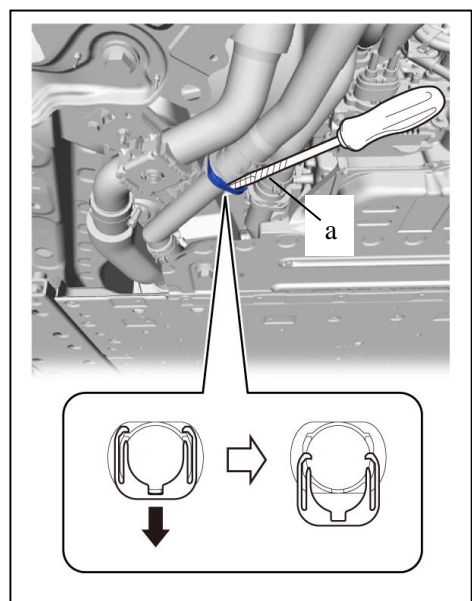
a	HOSE
---	------

- (2) Loosen the FC radiator assembly drain cock plug.
- (3) Remove the radiator cap sub-assembly, then drain the coolant (Toyota genuine FC stack coolant).
- (4) Tighten the FC radiator drain cock plug by hand.
- (5) Remove the hose from the FC radiator assembly drain cock.



1	Radiator Cap Sub-assembly
2	FC Radiator Drain Cock Plug

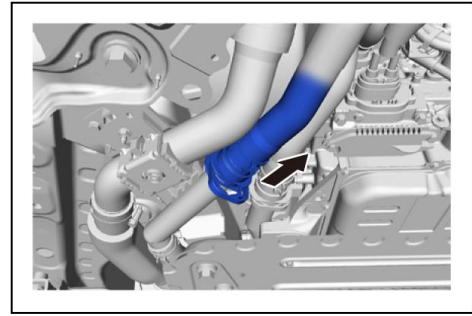
- (6) Disconnect the No. 2 FC cooling water valve inlet hose (with FC water hose connector).
  - i. Using a screwdriver with its tip wrapped in protective tape, press down the retainer of the FC water hose connector to release the lock.



a	Protective Tape
---	-----------------



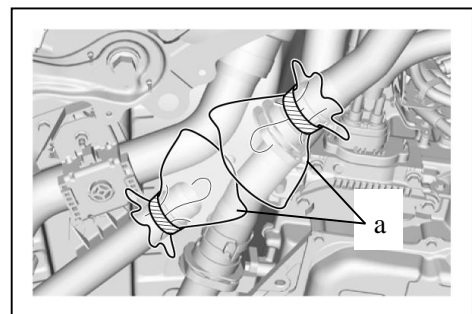
- ii. Separate the No. 2 FC cooling water valve inlet hose (with FC water hose connector) from the FC stack cooling water outlet pipe, and drain the coolant (Toyota genuine FC stack coolant).



**Notice:**

- Disconnect the components slowly to prevent coolant (Toyota genuine FC stack coolant) from splattering.
- Perform the procedures by hand. Do not use any tools.
- Do not rotate or tilt the No. 2 FC cooling water pump outlet hose (with FC water hose connector) when pulling it out.

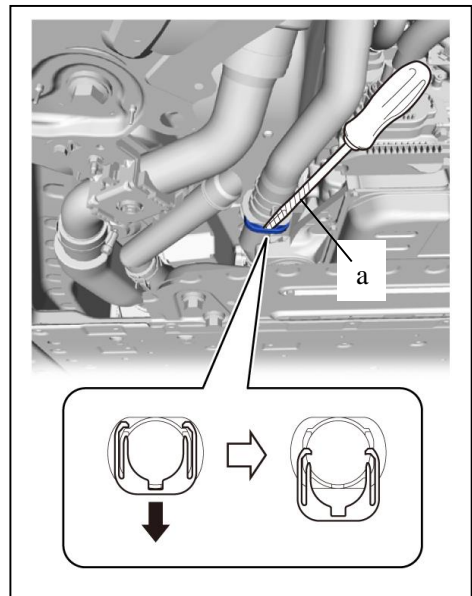
- iii. When working with the No. 2 FC cooling water valve inlet hose (with FC water hose connector) disconnected, to prevent foreign matter from entering, protect the connecting portions of the No. 2 FC cooling water valve inlet hose (with FC water hose connector) and FC stack cooling water outlet pipe with plastic bags.



a	Plastic Bag
---	-------------

(7) Disconnect the No. 2 FC cooling water valve inlet hose (with FC water hose connector).

- i. Using a screwdriver with its tip wrapped in protective tape, press down the retainer of the FC water hose connector to release the lock.



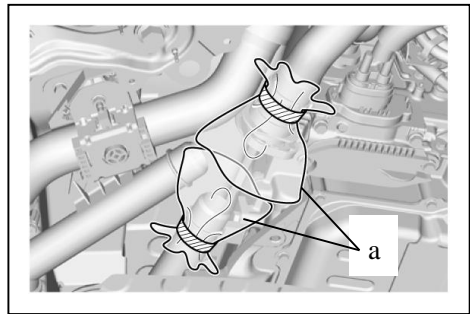
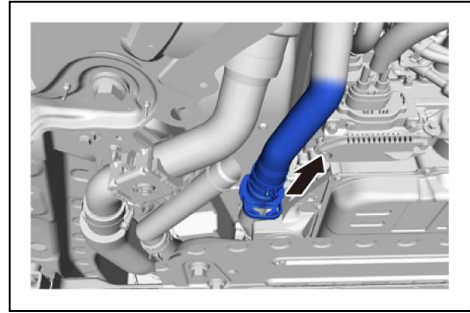
a	Protective Tape
---	-----------------

- ii. Separate the No. 2 FC cooling water valve inlet hose (with FC water hose connector) from the FC stack cooling water outlet pipe, and drain the coolant (Toyota genuine FC stack coolant).

**Notice:**

- Disconnect the components slowly to prevent coolant (Toyota genuine FC stack coolant) from splattering.
- Perform the work by hand. Do not use tools.
- Do not rotate or tilt the No. 2 FC cooling water pump outlet hose (with FC water hose connector) when pulling it out.

- iii. When working with the No. 2 FC cooling water valve inlet hose (with FC water hose connector) disconnected, to prevent foreign matter from entering, protect the connecting portions of the No. 2 FC cooling water valve inlet hose (with FC water hose connector) and FC stack cooling water outlet pipe with plastic bags.

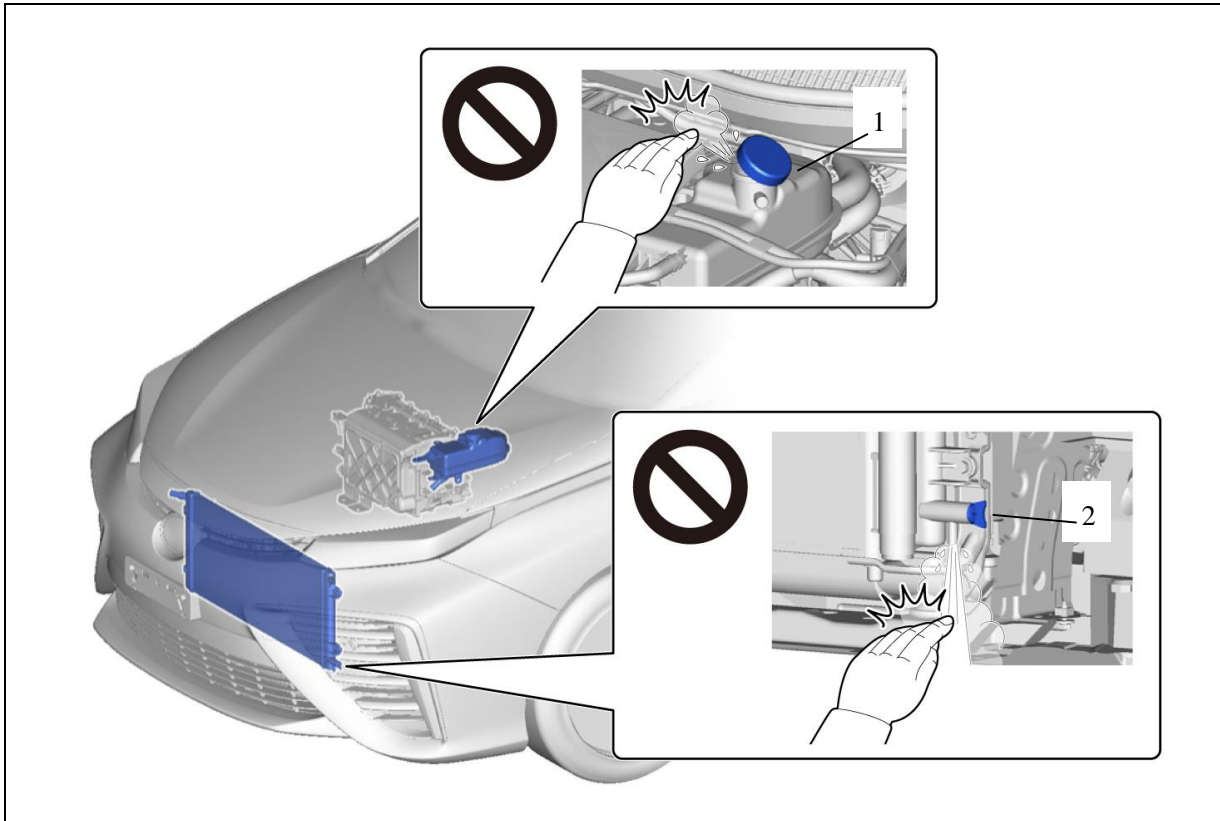


a	Plastic Bag
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## 6. DRAIN INVERTER COOLANT

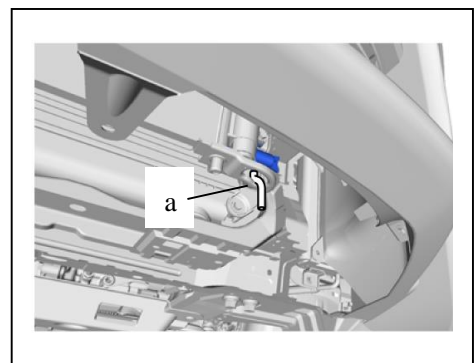
### Caution:

- When coolant (for inverter) is hot, do not remove the inverter reserve tank cap or the drain cock plug of the radiator assembly.
- Fluid and steam may spray out due to high pressure, possibly resulting in burns.



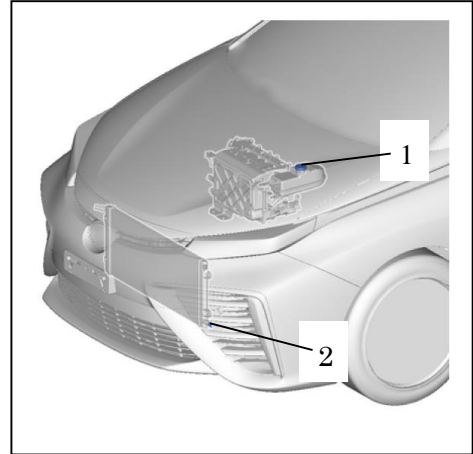
1	Inverter Reserve Tank Cap	2	Radiator Assembly Drain Cock Plug
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- (1) Connect a hose with an inside diameter of 9 mm (0.354 in.) to the radiator assembly drain cock as shown in the illustration.



a	Hose
---	------

- (2) Remove the inverter reserve tank cap.
- (3) Loosen the radiator assembly drain cock plug, and drain the coolant (for inverter).
- (4) Close the radiator assembly drain cock plug.



1	Inverter Reserve Tank Cap
2	Radiator Assembly Drain Cock Plug

## 7. DISCONNECT FC CONVERTER POWER OUTLET CABLE

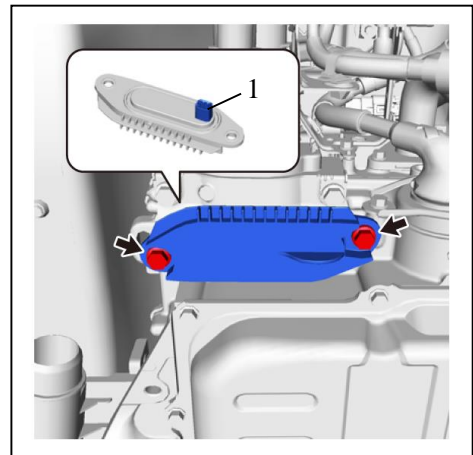
**Caution:**

**Wear insulated gloves.**

- (1) Remove the 2 bolts and front FC converter service hole cover from the FC converter assembly.

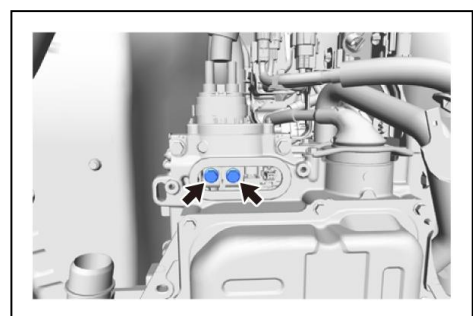
**Notice:**

- The front FC converter service hole cover has an interlock connector, so pull it down straight.
- Make sure not to drop the gasket of the front FC converter service hole cover.



1	Interlock Connector
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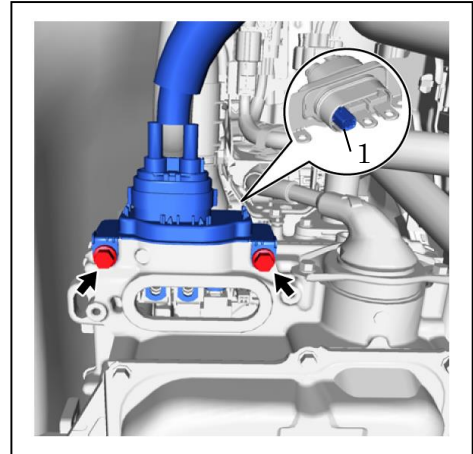
- (2) Using an insulated tool, remove the 2 bolts.



- (3) Using an insulated tool, remove the 2 bolts and disconnect FC converter power outlet cable from the FC converter assembly.

**Notice:**

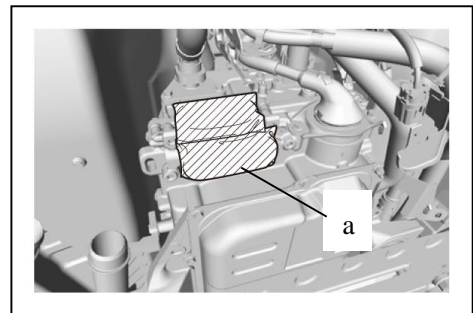
- The FC converter power outlet cable has an interlock connector, so pull it out straight.
- Do not touch the rubber seal or terminal portion of the FC converter power outlet cable.
- Do not apply any impacts to the terminal portion of the FC converter power outlet cable



1	Interlock Connector
---	---------------------

- Do not scratch or damage the FC converter assembly with the terminal portion of the FC converter power outlet cable.
- Insulate the terminal portion of the FC converter power outlet cable by wrapping it with insulating tape.

- (4) To prevent contamination by foreign matter or water droplets, cover the openings of the FC converter assembly with protective tape.



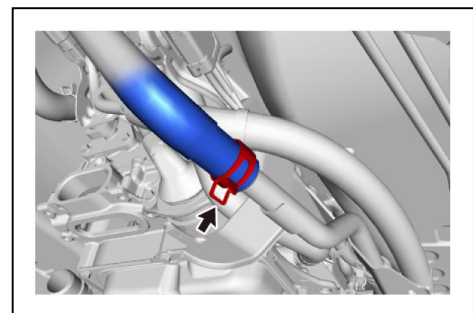
a	Protective Tape
---	-----------------

8. DISCONNECT NO. 2 INVERTER COOLING OUTLET HOSE

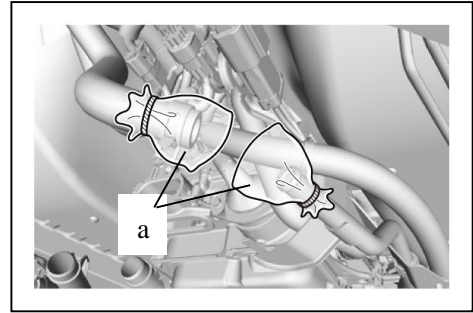
- (1) Slide the hose clip and disconnect the No. 2 inverter cooling outlet hose from the FC converter cooling water inlet pipe.

**Notice:**

Disconnect slowly to prevent coolant (for inverter) from splattering.



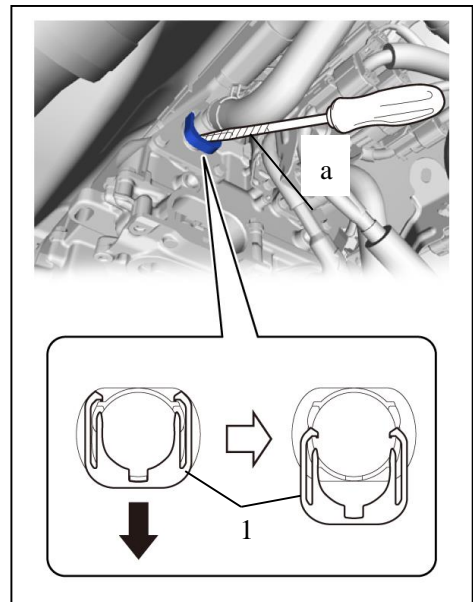
- (2) To prevent contamination by foreign matter, cover the connecting portions of the No. 2 inverter cooling outlet hose and FC converter cooling water inlet pipe with plastic bags.



a	Plastic Bag
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## 9. DISCONNECT NO. 2 EV WATER HOSE CONNECTOR

- (1) Disconnect the No. 2 EV water hose connector.
- i. Using a screwdriver with its tip wrapped in protective tape, press down the retainer of the No. 2 EV water hose connector to release the lock.

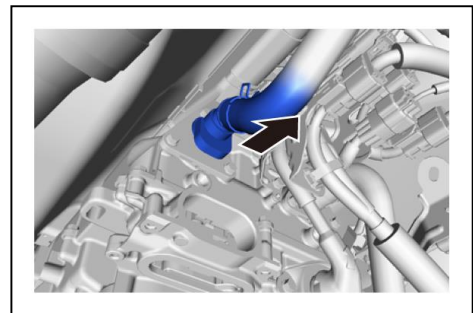


1	Retainer
a	Protective Tape

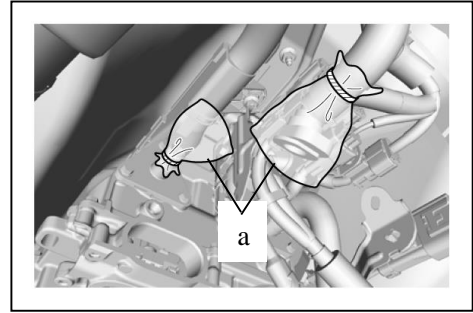
- ii. Disconnect the No. 2 EV water hose connector, together with the FC converter cooling water outlet hose, from the FC converter assembly.

### Notice:

- Perform the procedures by hand. Do not use any tools.
- Do not forcefully bend, fold, or twist the No. 2 EV water hose connector and FC converter cooling water outlet hose.
- Disconnect slowly to prevent coolant (for inverter) from splattering.



- iii. To prevent contamination by foreign matter, cover the connecting portions of the No. 2 EV water hose connector and FC converter assembly with plastic bags.



a Plastic Bag

## 10. SEPARATE WIRE HARNESS

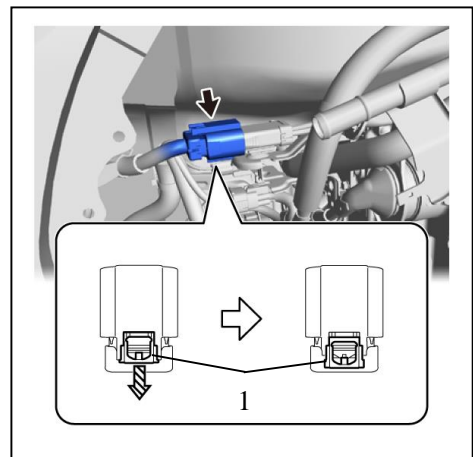
### Caution:

### Wear insulated gloves.

- (1) Pull out the green lock of the connector and disengage the connector as shown in the illustration.

### Notice:

- Do not touch the connector terminals.
- Insulate the opening of the connector by wrapping it with insulating tape.

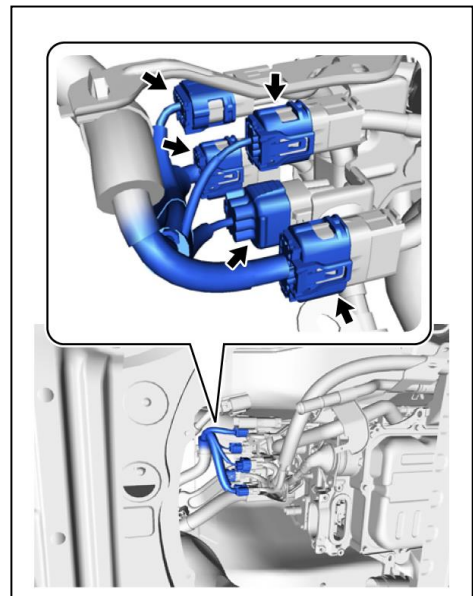


1 Green-colored Lock

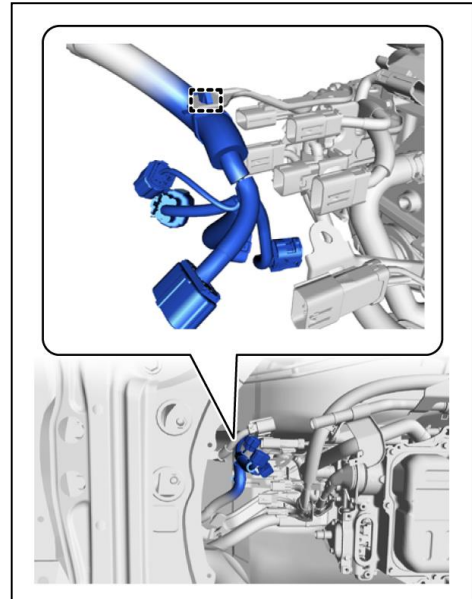
- (2) Disconnect the 5 connectors.

### Notice:

Do not touch the connector terminals.

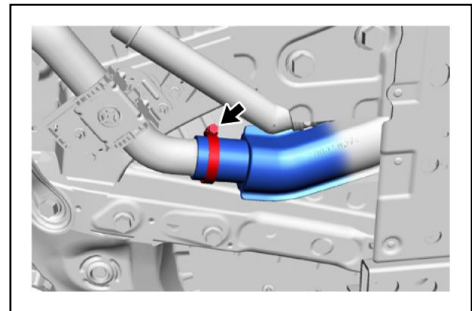


- (3) Disengage the clamp to separate the wire harness from the wire harness clamp bracket.

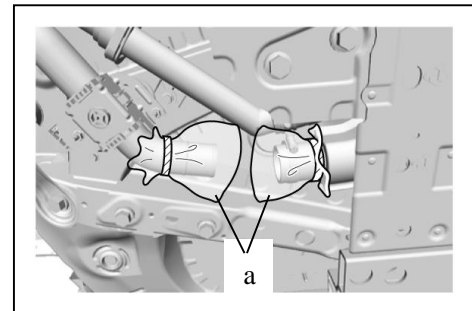


### 11. DISCONNECT FC STACK AIR INLET HOSE

- (1) Loosen the hose clamp and disconnect the FC stack air inlet hose from the No. 2 FC air compressor outlet pipe.



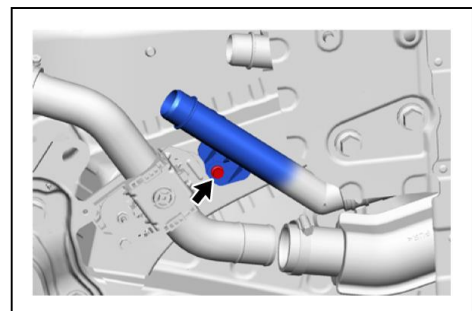
- (2) To prevent contamination by foreign matter or water droplets, cover the connecting portions of the FC stack air inlet hose and No. 2 FC air compressor outlet pipe with plastic bags.



a	Plastic Bag
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### 12. SEPARATE FC STACK COOLING WATER OUTLET PIPE

Remove the bolt and separate the FC stack cooling water outlet pipe from the vehicle.



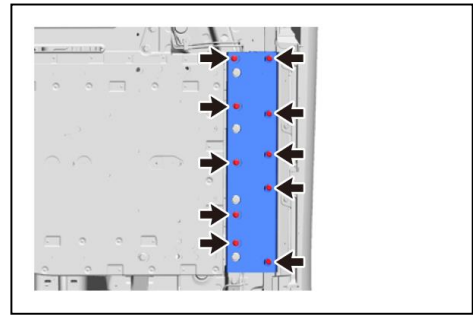


### 13. REMOVE FRAME REAR CROSSMEMBER EXTENSION LH

Remove the 10 bolts and frame rear crossmember extension LH from the vehicle.

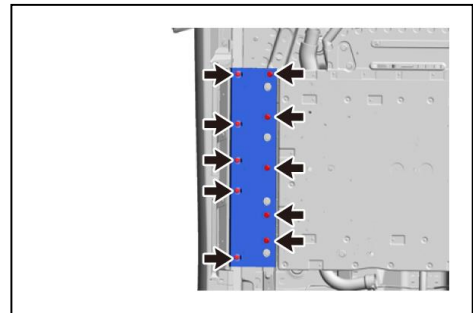
**Notice:**

Be careful of the brake tube when removing.



### 14. REMOVE FRAME REAR CROSSMEMBER EXTENSION RH

Remove the 10 bolts and frame rear crossmember extension RH from the vehicle.

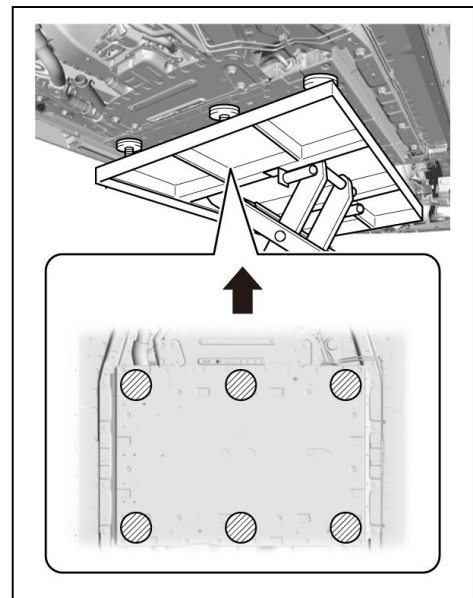


### 15. REMOVE REAR FRAME ASSEMBLY

- (1) Using a height adjustment attachment, set the engine lifter, together with the FC stack with FC converter assembly, to the rear frame assembly.

**Notice:**

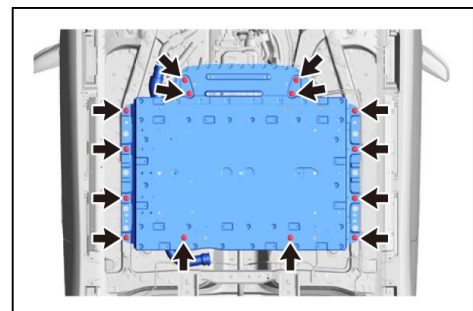
Set so that the rear frame assembly is horizontal and level.



- (2) Remove the 14 bolts, and remove the rear frame assembly, together with the FC stack with FC converter assembly, from the vehicle.

**Notice:**

Be careful of the wire harnesses and hoses when removing.

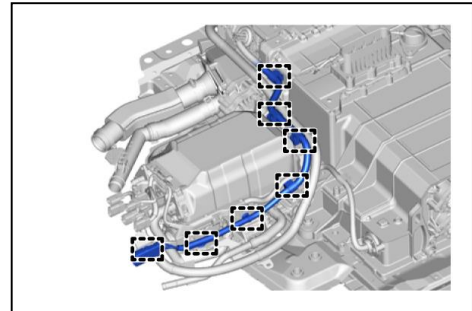


## 16. SEPARATE WIRE HARNESS

### Caution:

### Wear insulated gloves.

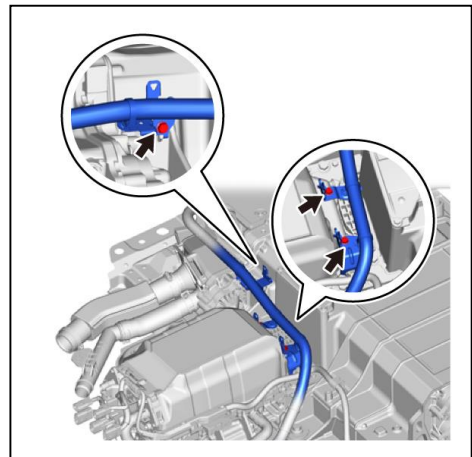
- (1) Disengage the 7 clamps to separate the wire harness and connector from the FC converter assembly and FC stack assembly.



- (2) Remove the 3 bolts to separate the 3 wire harness clamp brackets from the FC converter assembly and FC stack assembly.

### Notice:

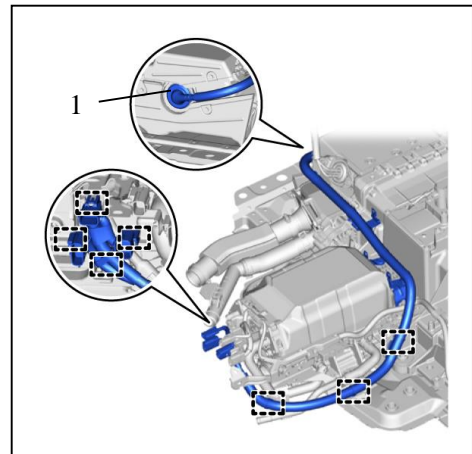
Do not disengage the clamp before removing the wire harness clamp bracket.



- (3) Disengage the 7 clamps to separate the wire harness from the wire harness clamp bracket.

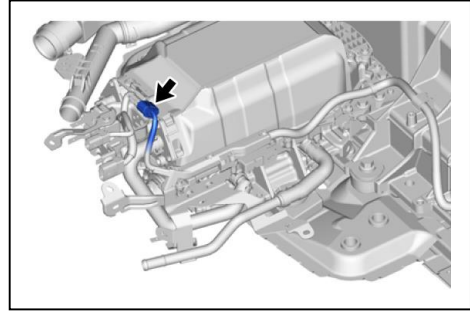
### Notice:

Do not remove the grommet.

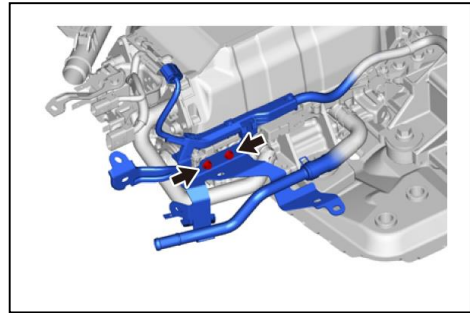


1	Grommet
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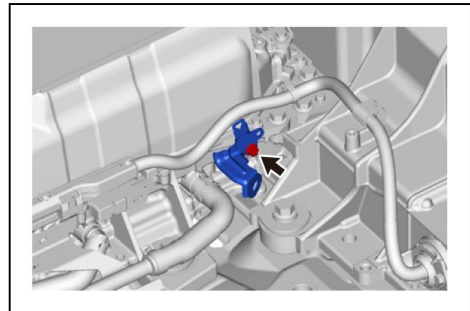
- (4) Disconnect the connector.



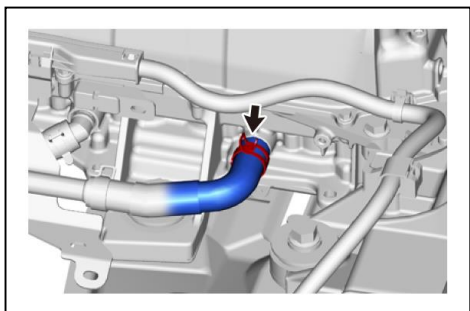
- (5) Remove the 2 bolts to separate the FC converter cooling water inlet pipe, together with the wire harness, from the FC converter assembly.



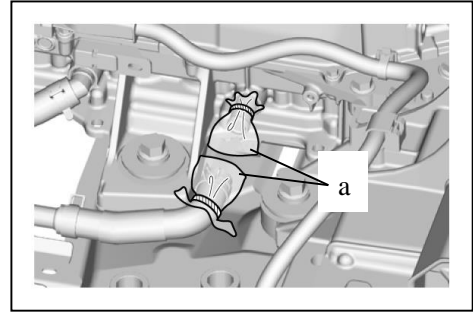
- (6) Remove the bolt and wire harness clamp bracket from the FC converter assembly.



- (7) Slide the hose clip and disconnect the FC converter cooling water inlet hose from the FC converter assembly.

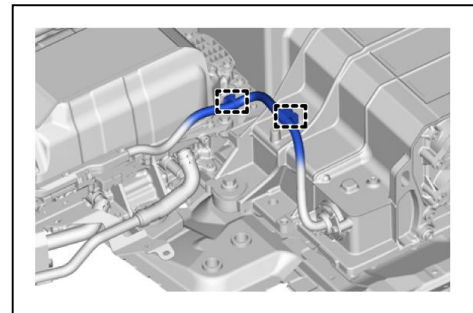


- (8) To prevent contamination by foreign matter, cover the connecting portions of the FC converter cooling water inlet hose and FC converter assembly with plastic bags.



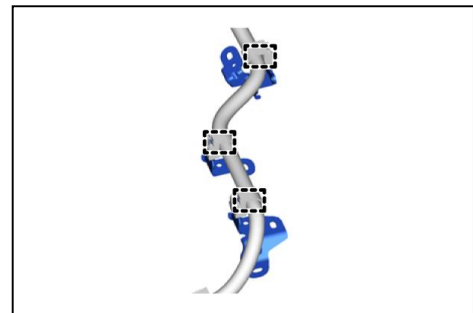
a	Plastic Bag
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- (9) Disengage the 2 clamps to separate the wire harness from the wire harness clamp bracket.

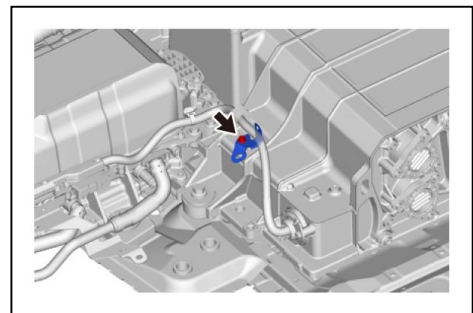


## 17. REMOVE WIRE HARNESS CLAMP BRACKET

- (1) Disengage the 3 clamps to remove the 3 wire harness clamp brackets from the wire harness.

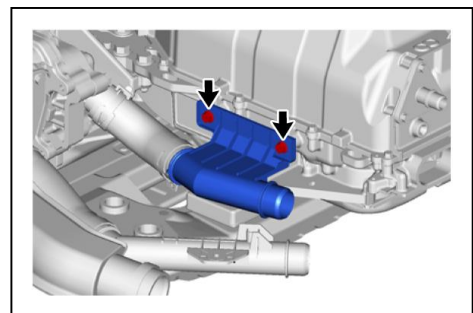


- (2) Remove the bolt and wire harness clamp bracket from the FC stack assembly.



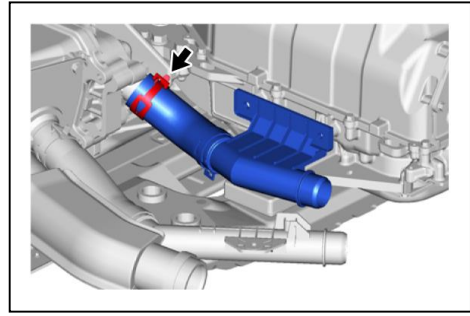
## 18. SEPARATE FC STACK COOLING WATER INLET PIPE

Remove the 2 bolts to separate the FC stack cooling water inlet pipe from the FC converter assembly.

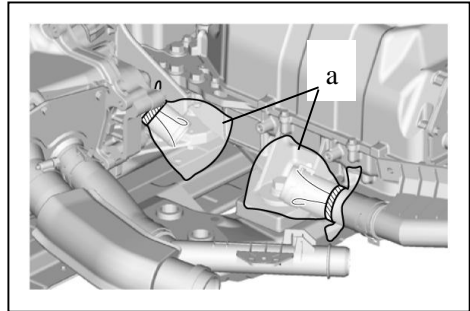


## 19. REMOVE FC STACK COOLING WATER INLET HOSE

- (1) Slide the hose clip and remove the FC stack cooling water inlet hose from the FC stack assembly.



- (2) To prevent contamination by foreign matter, cover the connecting portions of the FC stack cooling water inlet hose and FC stack assembly with plastic bags.



a	Plastic Bag
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## 20. REMOVE FC CONVERTER ASSEMBLY

### Caution:

### Wear insulated gloves.

- (1) To prevent contamination by foreign matter or water droplets, check that the area around the rear FC converter service hole cover has no foreign matter or water droplets, and clean away any foreign matter or water droplets found.

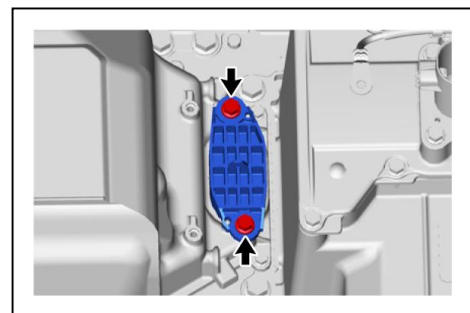
### Notice:

Do not allow foreign matter or water droplets to enter any other components.

- (2) Remove the 2 bolts and rear FC converter service hole cover from the FC converter assembly.

### Notice:

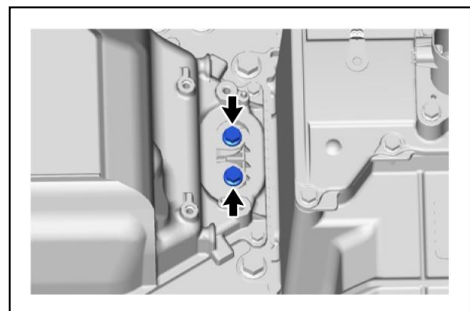
Be careful that foreign matter or water droplets do not enter the FC converter assembly.



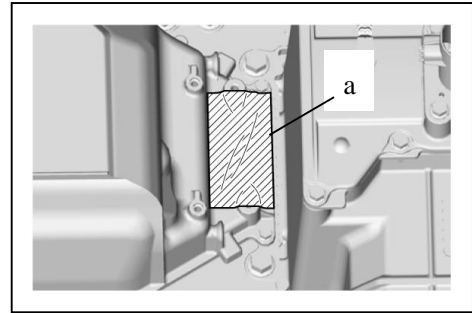
- (3) Using an insulated tool, remove the 2 bolts.

### Notice:

Be careful that foreign matter or water droplets do not enter the FC converter assembly.

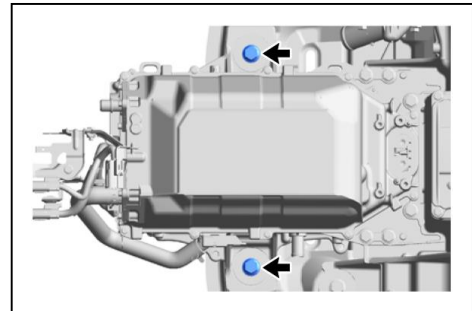


- (4) To prevent contamination by foreign matter or water droplets, cover the opening of the FC converter assembly with protective tape.

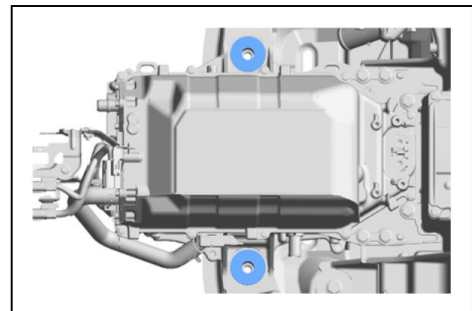


a	Protective Tape
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- (5) Remove the 2 bolts



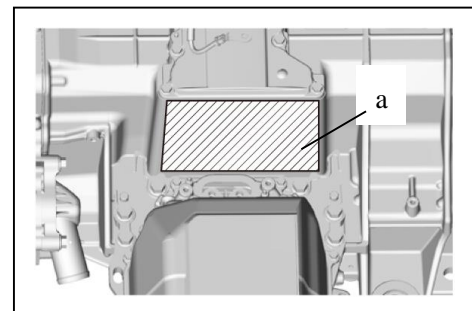
- (6) Remove the 2 No. 2 FC stack mounts from the FC converter assembly.



- (7) To avoid damaging the No. 1 FC stack caution label, protect the No. 1 FC stack caution label using protective tape or similar.

**Hint:**

This procedure is only performed when the FC stack assembly is not being replaced with a new one.

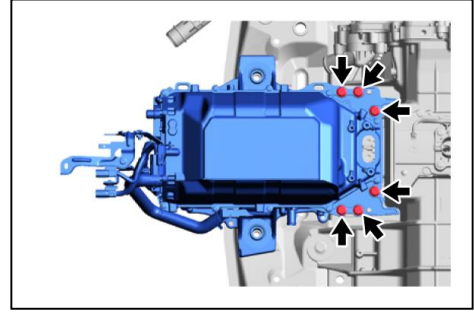


a	Protective Tape
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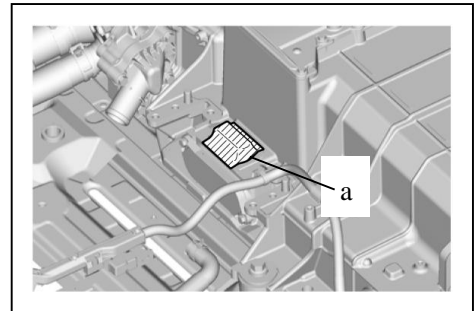
- (8) Remove the 6 bolts and FC converter assembly from the FC stack assembly.

**Notice:**

- Do not hold the FC converter assembly by its pipe portion.
- Be careful that foreign matter or water droplets do not enter the FC stack assembly and FC converter assembly.

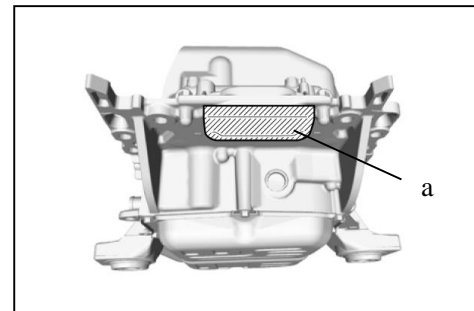


- (9) To prevent contamination by foreign matter or water droplets, cover the opening of the FC stack assembly with protective tape.



a	Protective Tape
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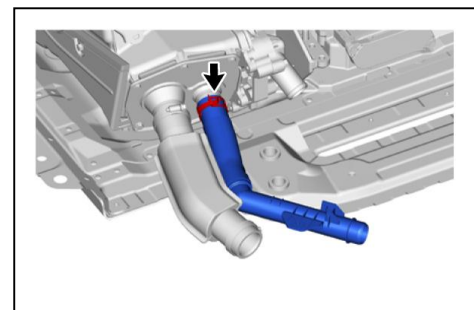
- (10) To prevent contamination by foreign matter or water droplets, cover the opening of the FC converter assembly with protective tape.



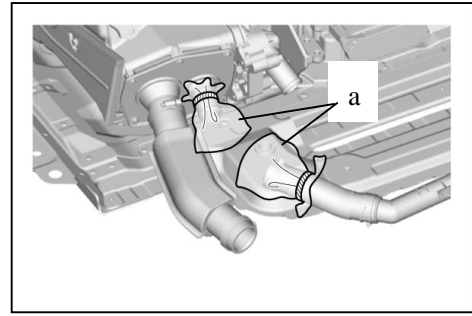
a	Protective Tape
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## 21. REMOVE FC STACK COOLING WATER OUTLET HOSE

- (1) Slide the hose clip and remove the FC stack cooling water outlet hose from the FC stack assembly.



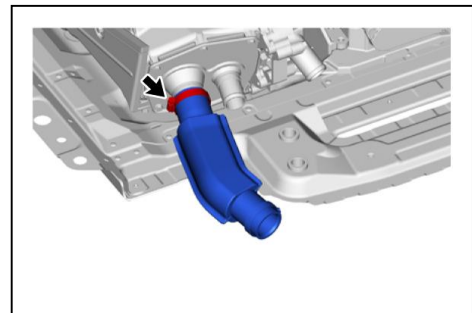
- (2) To prevent contamination by foreign matter, cover the connecting portions of the FC stack cooling water outlet hose and FC stack assembly with plastic bags.



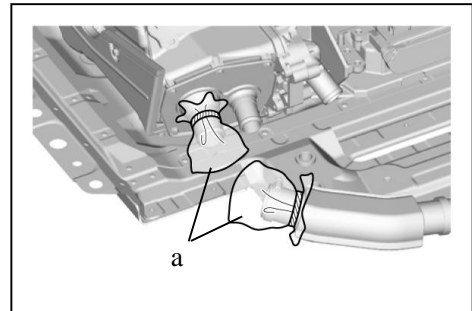
a	Plastic Bag
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## 22. REMOVE FC STACK AIR INLET HOSE

- (1) Loosen the hose clamp and remove the FC stack air inlet hose from the FC stack assembly.



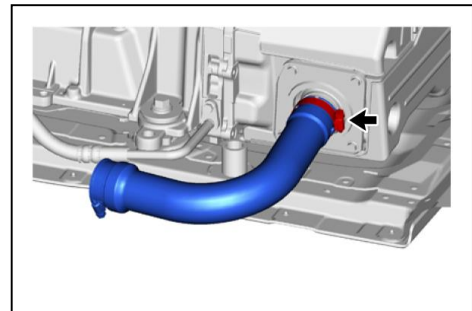
- (2) To prevent contamination by foreign matter or water droplets, cover the connecting portions of the FC stack air inlet hose and FC stack assembly with plastic bags.



a	Plastic Bag
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## 23. REMOVE NO. 1 FC EXHAUST PIPE

- (1) Loosen the clamp and remove the No. 1 FC exhaust pipe from the FC stack assembly.



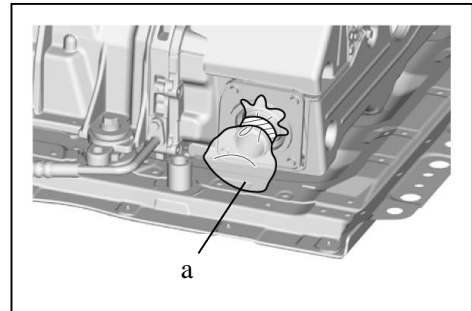


**Caution:**

- If the water remaining inside the No. 1 FC exhaust pipe is hot, do not touch the water directly.
- Touching the water remaining inside the No. 1 FC exhaust pipe when it is hot could result in burns.



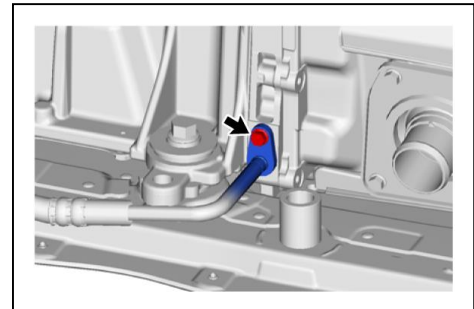
- (2) To prevent contamination by foreign matter, cover the connecting portion of the FC stack assembly with a plastic bag.



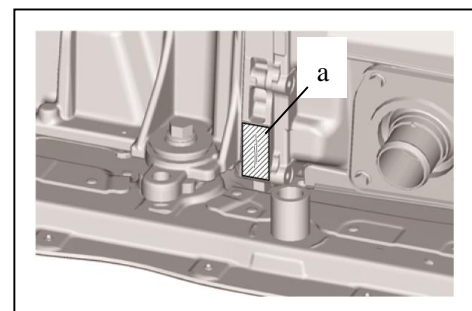
a	Plastic Bag
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**24. REMOVE NO. 1 HYDROGEN SUPPLY TUBE SUB-ASSEMBLY**

- (1) Remove the bolt and disconnect the No. 1 hydrogen supply tube sub-assembly from the FC stack assembly.

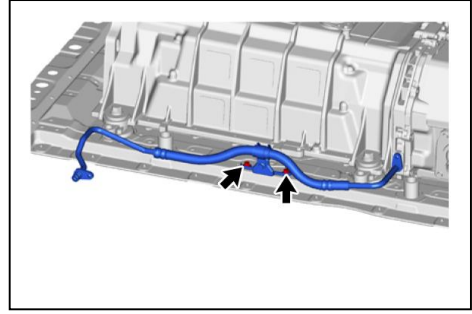


- (2) To prevent contamination by foreign matter or water droplets, cover the connecting portion of the FC stack assembly with protective tape.



a	Protective Tape
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- (3) Remove the 2 bolts and No. 1 hydrogen supply tube sub-assembly from the rear frame assembly.

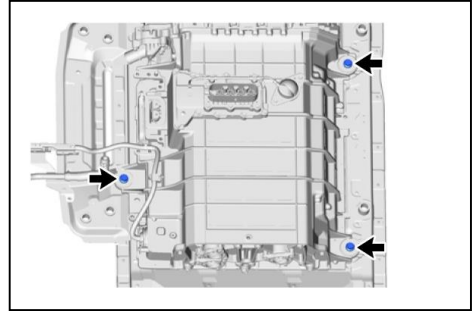


## 25. REMOVE FC STACK ASSEMBLY

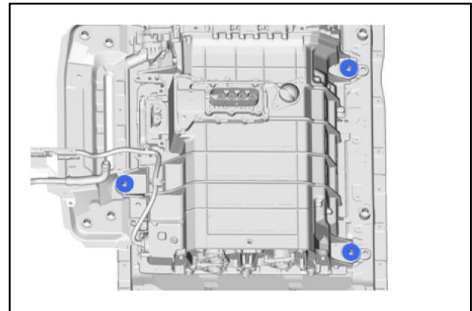
**Caution:**

**Wear insulated gloves.**

- (1) Remove the 3 bolts.



- (2) Remove the 3 No. 2 FC stack mounts from the FC stack assembly.

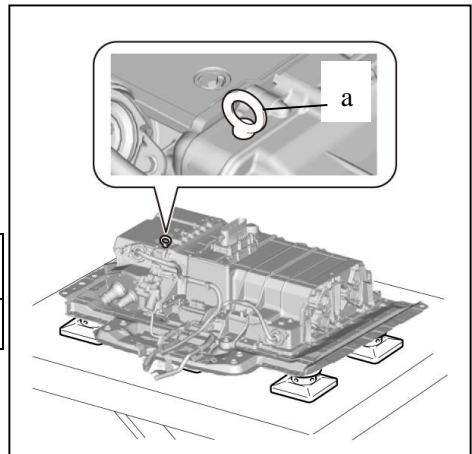


- (3) Install an eye bolt in the location shown in the illustration.

**Hint:**

Eye Bolt Installation Hole Size

Nominal Diameter [mm]	Pitch [mm]	Depth [mm]
M10	1.5	18

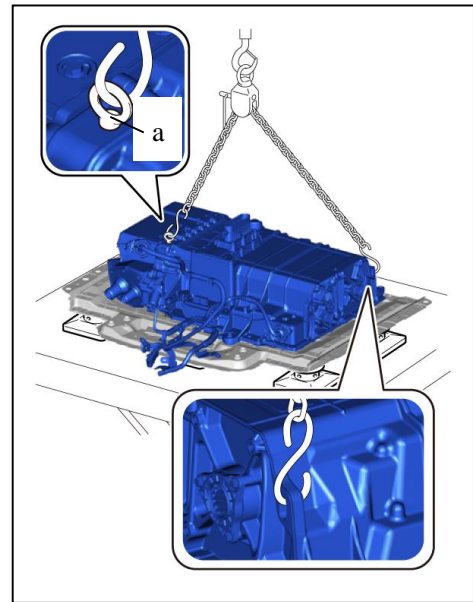


a	Eye Bolt
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- (4) Using an engine sling device, set it in the location shown in the illustration, and remove the FC stack assembly from the rear frame assembly.

**Notice:**







- Do not hoist the FC stack assembly from locations other than those shown in the illustration.
- Make sure that wire harnesses are not caught when hoisting.
- To avoid damaging or deforming the FC stack assembly, be careful of the hoisting angle of the engine sling device.
- Set the engine sling device so that the FC stack assembly is horizontal and level.






a	Eye Bolt
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# EV Battery Caution Label

## 1. For U.S.A.

<b>⚠ DANGER</b>		     	
<b>High Voltage Inside / Alkaline Electrolyte</b>		<b>Ni-MH</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.</p> <p>● 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>			
<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.			
<b>HV Battery Recycling Information</b>			
Please transport this unit in accordance with all applicable laws. Consultations about replacing and disposing this unit are accepted in your dealer or the following address.			
Residents in U.S.A.		Residents in PUERTO RICO	
● TOYOTA MOTOR SALES U.S.A., INC. TORRANCE, CAL 90501 Phone:1-800-331-4331	● SERVO PACIFIC INC. HONOLULU, HAWAII 96813 Phone:808-539-2273	● TOYOTA DE PUERTO RICO HATO REY, PUERTO RICO Phone:787-751-1000	<b>B</b>

## 2. For Europe

<b>⚠ DANGER</b>		     	
<b>High Voltage Inside / Alkaline Electrolyte</b>		<b>Ni-MH</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.</p> <p>● 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.</p> <p>● Ne jamais démonter, convertir ou dévier cette batterie, ou en déposer les couvercles. (Veiller 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. ● Garder hors de portée des enfants.</p>			
<b>To Qualified Technicians, Haulers, Dismantlers</b>			
<b>A l'attention des techniciens qualifiés, transporteurs, démonteurs</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. Veiller à lire le manuel de réparation lors de l'entretien ou du remplacement de cette batterie. Veiller à consulter votre concessionnaire ou votre distributeur national lorsque vous transportez ou démontez cette batterie.			
<b>HV Battery Recycling Information</b>			
<b>Informations concernant le recyclage des batteries des HV (Véhicules Hybrides):</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. ● Veiller 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.			
			<b>D</b>