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<b>Model Year Start:</b> 2013	<b>Model:</b> RAV4 EV	<b>Prod Date Range:</b> [12/2012 - ]
<b>Title:</b> HYBRID / BATTERY CONTROL: HYBRID CONTROL SYSTEM: PRECAUTION; 2013 MY RAV4 EV [12/2012 - ]		

## **PRECAUTION**

### **1. PRECAUTIONS FOR INSPECTING ELECTRIC VEHICLE CONTROL SYSTEM**

(a) Before inspecting the high-voltage system or disconnecting the low voltage connector of the electric vehicle traction motor assembly (inverter), DC/DC converter assembly, electric vehicle battery assembly or electric vehicle charger assembly, take safety precautions such as wearing insulated gloves and protective goggles, and removing the service plug grip to prevent electrical shocks. After removing the service plug grip, attach a note to it to prevent other technicians from mistakenly reconnecting it while you are working on the high-voltage system.

#### **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 INFO.
- After removing the service plug grip, turning the power switch on (READY) may cause a malfunction. Do not turn the power switch on (READY) unless instructed by the repair manual.

(b) After removing the service plug grip, wait for at least 10 minutes before touching any of the high-voltage connectors or terminals.

#### **CAUTION:**

**Wear insulated gloves and protective goggles.**

#### **HINT:**

Waiting for at least 10 minutes is required to discharge the high-voltage capacitor inside the electric vehicle traction motor assembly (inverter), DC/DC converter assembly, electric vehicle battery assembly and electric vehicle charger assembly.

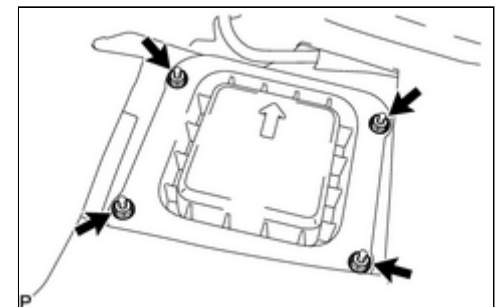
(1) Remove the 4 nuts and front upper floor cover INFO.

#### **NOTICE:**

- After removing the service plug grip, install a dummy plug.
- To prevent the electric vehicle battery assembly from being damaged by falling objects, temporarily install the front upper floor cover after removing the service plug grip.

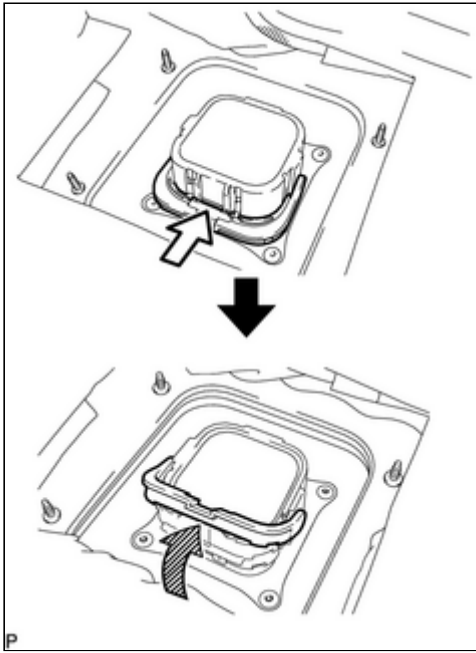
#### **HINT:**

The service plug consists of a 2 part lock structure that has to be released in 2 steps. The first lock releases the service plug handle and the second lock releases the service plug handle when it is halfway upright.





(2) 1st lock release

Using insulating gloves, press the part with the black claw and pull the handle up slightly to release the lock.

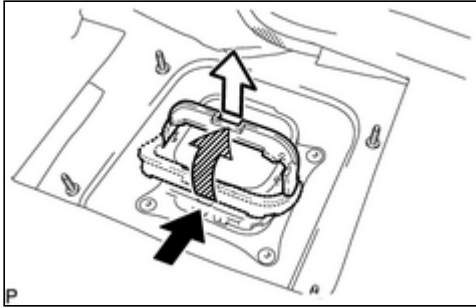


**Text in Illustration**




	Press
	Pull

(3) 2nd lock release

Press the black-colored tab and lift the handle upright, then remove the service plug grip by taking the handle and pulling it directly upward.



**Text in Illustration**

	Press
	Upward
	Upright

(c) Check the voltage at the terminals in the inspection point in the electric vehicle battery assembly.

**CAUTION:**

Wear insulated gloves and protective goggles.

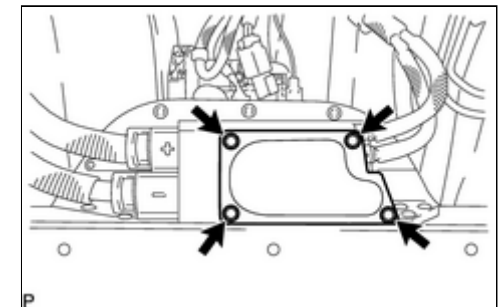
**NOTICE:**

Do not allow any foreign matter or water to enter the electric vehicle battery assembly.

(1) Remove the 4 bolts and electric vehicle battery access cover INFO .

**HINT:**

Make sure to pull the electric vehicle battery access cover straight down, as a connector is connected to the bottom of the cover.



(2) for motor cable side:

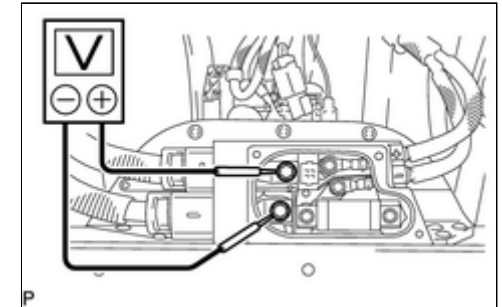
Using a voltmeter, measure the voltage between the terminals of the 2 phase connectors shown in the illustration.

Standard voltage:

0 V

**HINT:**

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



(3) for charge cable side:

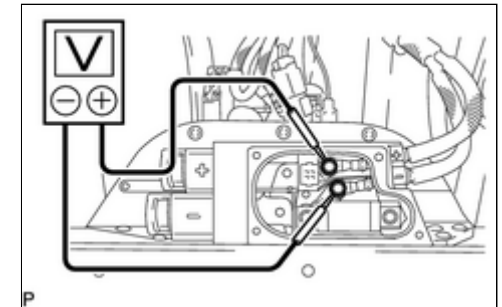
Using a voltmeter, measure the voltage between the terminals of the 2 phase connectors shown in the illustration.

Standard voltage:

0 V

**HINT:**

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



(4) for motor cable side:

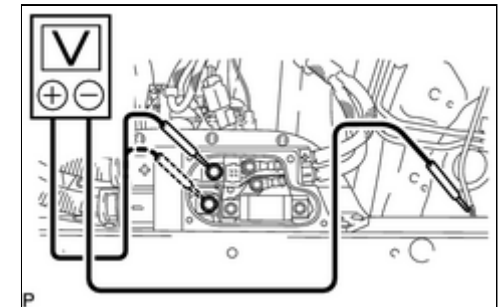
Using a voltmeter, measure the voltage between each terminal and body ground as shown in the illustration.

Standard voltage:

0 V

**HINT:**

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



(5) for charge cable side:

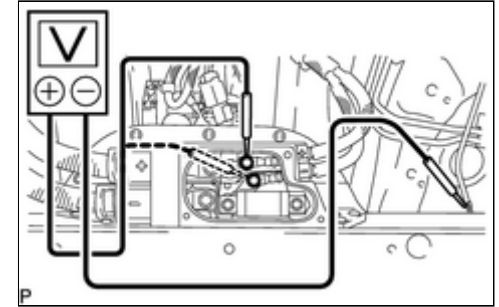
Using a voltmeter, measure the voltage between each terminal and body ground as shown in the illustration.

Standard voltage:

0 V

**HINT:**

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



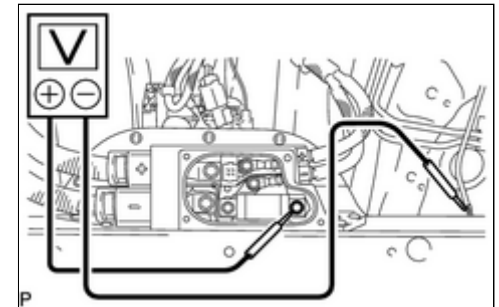
(6) for fuse side:

Using a voltmeter, measure the voltage between each terminal and body ground as shown in the illustration.

Standard voltage:  
0 V

**HINT:**

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




(d) When turning the power switch on (IG) during inspections, do not press the power switch with the brake pedal depressed.

**CAUTION:**

Pressing the power switch with the brake pedal depressed causes the system to enter the READY-on state. This is very dangerous because high voltage may be applied to the inspection area.

(e) Turn the power switch off, wear insulated gloves and protective goggles, and disconnect the cable from the negative (-) terminal of the auxiliary battery before touching any of the orange-colored wires of the high-voltage system.

**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  .

(f) Turn the power switch off before performing any resistance checks.

(g) Turn the power switch off before disconnecting or reconnecting any connectors.


(h) When performing work involving high-voltage wires, use either a tool wrapped with vinyl insulation tape or an insulated tool.

(i) When high-voltage connectors are removed, wrap the connectors with insulation tape to prevent them from contacting foreign objects.

## 2. NOTICE FOR ELECTRIC VEHICLE CONTROL SYSTEM ACTIVATION

- (a) When the warning light is illuminated, or the auxiliary battery has been disconnected and reconnected, attempting to turn the power switch on (READY) may not start the system (the system may not enter the READY-on state) on the first attempt. If so, turn the power switch off and reattempt to start the electric vehicle system.

### 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  .

## 3. DISPOSING OF AN EV BATTERY

- (a) When disposing of an EV battery, make sure to return it through an authorized collection agent who is capable of handling it safely. If the EV battery is returned via the manufacturer specified route, it will be returned properly and in a safe manner by an authorized collection agent.

### CAUTION:

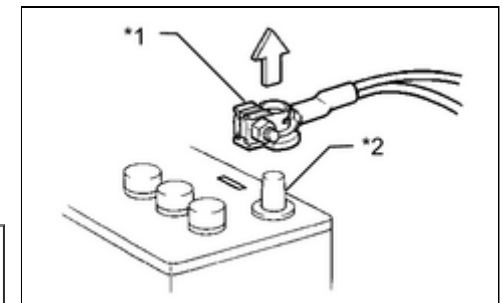
- Accidents such as electric shock may result if the EV battery is disposed of improperly or abandoned. Therefore, make sure to return all EV batteries through an authorized collection agent.
- After removing the EV battery, keep it away from water. Exposure to water may cause the EV battery to produce heat, resulting in a fire.

## 4. DISCONNECTING AND RECONNECTING NEGATIVE AUXILIARY BATTERY CABLE

- (a) Before performing work on electronic components, disconnect the cable from the negative (-) auxiliary battery terminal to prevent damage to the electrical system or electrical components.

### Text in Illustration

*1	Cable
*2	Negative (-) Auxiliary Battery Terminal



- (b) Before disconnecting and reconnecting the auxiliary battery cable, turn the power switch off and the headlight switch off. Then loosen the terminal nut completely. Do not damage the cable or terminal.
- (c) When the auxiliary battery cable is disconnected, the clock and radio settings and stored DTCs are cleared. Therefore, before disconnecting the auxiliary battery cable, make a note of them.

### 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 **INFO** .
- When the cable is disconnected from the negative (-) auxiliary battery terminal, initialize the following system(s) after the cable is reconnected **INFO** .

