Last Modified: 12-04-2024	6.11:8.1.0	**Doc ID:** RM100000002BI4X
Model Year Start: 2023	**Model:** Prius Prime	**Prod Date Range:** [03/2023 -]
Title: HYBRID / BATTERY CONTROL: HYBRID CONTROL SYSTEM (for PHEV Model): P0AA649,...,P33CF49; Hybrid/EV Battery Voltage System Isolation Internal Electronic Failure; 2023 - 2024 MY Prius Prime [03/2023 -]		

DTC	**P0AA649**	**Hybrid/EV Battery Voltage System Isolation Internal Electronic Failure**

DTC	**P1C7C49**	**Hybrid/EV Battery Voltage System Isolation (A/C Area) Internal Electronic Failure**

DTC	**P1C7D49**	**Hybrid/EV Battery Voltage System Isolation (Hybrid/EV Battery Area) Internal Electronic Failure**

DTC	**P1C7E49**	**Hybrid/EV Battery Voltage System Isolation (Transaxle Area) Internal Electronic Failure**

DTC	**P1C7F49**	**Hybrid/EV Battery Voltage System Isolation (Direct Current Area) Internal Electronic Failure**

DTC	**P1CF749**	**Hybrid/EV Battery Voltage System Isolation (CHR Area) Internal Electronic Failure**

DTC	**P33CF49**	**Hybrid/EV Battery Voltage System Isolation Internal Electronic Failure Abnormal Area Detection Failure**

DESCRIPTION

The hybrid vehicle control ECU monitors the battery ECU assembly and detects insulation malfunctions in the high-voltage system.

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA	MIL	WARNING INDICATE	DTC OUTPUT FROM	PRIORITY	NOTE
P0AA649	Hybrid/EV Battery Voltage System Isolation Internal	Insulation resistance between the high-voltage circuit and the body has decreased.*1	• Inverter with converter assembly • Floor under wire • No. 1 traction	Does not come on	Master Warning Light: Comes on	Hybrid Control	A	SAE Code: P0AA6

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA	MIL	WARNING INDICATE	DTC OUTPUT FROM	PRIORITY	NOTE
	Electronic Failure	(1 trip detection logic)	battery device box assembly • Battery voltage sensor • Battery ECU assembly • No. 1 HV supply stack sub-assembly • No. 2 HV supply stack sub-assembly • No. 3 HV supply stack sub-assembly • Hybrid vehicle transaxle assembly • Motor cable • Air conditioning system • Electric vehicle charger assembly • Solar energy control ECU assembly • No. 2 HV floor under wire • HV air conditioner wire					
P1C7C49	Hybrid/EV Battery Voltage System Isolation (A/C Area) Internal Electronic Failure	Insulation resistance of the compressor with motor assembly or air conditioning inverter has decreased.*2	Air conditioning system	Does not come on	Master Warning Light: Comes on	Hybrid Control	A	SAE Code: P0AA6

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA	MIL	WARNING INDICATE	DTC OUTPUT FROM	PRIORITY	NOTE
		(1 trip detection logic)						
P1C7D49	Hybrid/EV Battery Voltage System Isolation (Hybrid/EV Battery Area) Internal Electronic Failure	Insulation resistance of the HV battery, battery ECU assembly or SMR has decreased.*2 (1 trip detection logic)	• No. 1 traction battery device box assembly • Battery ECU assembly • Battery voltage sensor • No. 1 HV supply stack sub-assembly • No. 2 HV supply stack sub-assembly • No. 3 HV supply stack sub-assembly	Comes on	Master Warning Light: Comes on	Hybrid Control	A	SAE Code: P1C7D
P1C7E49	Hybrid/EV Battery Voltage System Isolation (Transaxle Area) Internal Electronic Failure	Insulation resistance of the hybrid vehicle transaxle assembly or inverter for the generator (MG1) and motor (MG2) has decreased.*2 (1 trip detection logic)	• Inverter with converter assembly • Hybrid vehicle transaxle assembly • Motor cable	Does not come on	Master Warning Light: Comes on	Hybrid Control	A	SAE Code: P0AA6

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA	MIL	WARNING INDICATE	DTC OUTPUT FROM	PRIORITY	NOTE
P1C7F49	Hybrid/EV Battery Voltage System Isolation (Direct Current Area) Internal Electronic Failure	Insulation resistance of the inverter for the generator (MG1) and motor (MG2), A/C inverter, SMR or Floor under wire has decreased.*2 (1 trip detection logic)	• Inverter with converter assembly • Floor under wire • No. 1 traction battery device box assembly • No. 2 HV floor under wire • HV air conditioner wire • Air conditioning system	Comes on	Master Warning Light: Comes on	Hybrid Control	A	SAE Code: P0AA6
P1CF749	Hybrid/EV Battery Voltage System Isolation (CHR Area) Internal Electronic Failure	Insulation resistance of the solar energy control ECU, system main relays, or a charging related DC high voltage wire harness has decreased. *2 (1 trip detection logic)	• Solar energy control ECU assembly • No. 1 traction battery device box assembly • Floor under wire	Comes on	Master Warning Light: Comes on	Hybrid Control	A	SAE Code: P1CF7
P33CF49	Hybrid/EV Battery Voltage System Isolation Internal Electronic Failure Abnormal Area Detection Failure	Insulation resistance has decreased in an unspecified area. (1 trip detection logic)	• Inverter with converter assembly • Floor under wire • No. 1 traction battery device box assembly • Battery voltage sensor • Battery ECU assembly	Comes on	Master Warning Light: Comes on	Hybrid Control	A	SAE Code: P33CF

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA	MIL	WARNING INDICATE	DTC OUTPUT FROM	PRIORITY	NOTE
			• No. 1 HV supply stack sub-assembly • No. 2 HV supply stack sub-assembly • No. 3 HV supply stack sub-assembly • Hybrid vehicle transaxle assembly • Motor cable • Air conditioning system • Electric vehicle charger assembly • Solar energy control ECU assembly • No. 2 HV floor under wire • HV air conditioner wire					

HINT:

- *1: The insulation malfunction detection circuit in the battery ECU assembly monitors the insulation resistance between the high voltage circuits and body. If the insulation resistance decreases, the hybrid vehicle control ECU stores DTC P0AA649 and illuminates the master warning light first regardless of malfunction area.

  Depending on the vehicle condition, the high voltage circuit insulation resistance may return to normal. So if DTC P0AA649 outputs, complete the following steps as soon as possible.
- *2: If the following operations are performed within the same trip after DTC P0AA649 is stored, just one of the related DTCs (P1C7C49, P1C7D49, P1C7E49, P1C7F49 or P1CF749) will be stored.

  a. Apply the parking brake firmly.
  b. Wait for 1 minute or more with the vehicle stopped, the brake pedal firmly depressed, the ignition switch ON (READY), drive (D) selected and the air conditioning system on (Lo/MAX COOL, blower speed HI).
  c. Turn the ignition switch off and wait for 2 minutes or more.
  d. Connect the electric vehicle charger cable assembly, and plug-in charge the vehicle for 3 minutes or more.

  HINT:

- DTCs and freeze frame data are useful information in determining the malfunctioning part. Before performing diagnosis, make sure to check and make a note of all output DTCs and freeze frame data. (Even if a high-voltage insulation malfunction cannot be reproduced, once stored, DTCs of insulation will not be cleared unless the clear operation is performed.)
- When the insulation resistance of the HV battery area decreases and the ignition switch is turned ON, DTC P1C7D49 is stored within 2 minutes.

- When measuring insulation resistance using a megohmmeter, measure the resistance while jiggling the high voltage wire harness.

MONITOR DESCRIPTION

P1C7D49: Isolation resistance in hybrid/EV battery area is below the threshold.

P1CF749: Isolation resistance in battery CHR area is below the threshold.

P1C7F49: Isolation resistance in high voltage direct current area is below the threshold.

P33CF49: Isolation resistance is below the threshold and the malfunctioning area has not been identified.

MONITOR STRATEGY

Related DTCs	P1C7D (INF P1C7D49): Hybrid/EV Battery Voltage System Isolation Fault in Hybrid/EV Battery area P1CF7 (INF P1CF749): Hybrid/EV Battery Voltage System Isolation Fault in CHR area P1C7F (INF P1C7F49): Hybrid/EV Battery Voltage System Isolation Fault in High Voltage Direct Current area P33CF (INF P33CF49): Hybrid/EV Battery Voltage System Isolation Fault in unidentified area
Required sensors/components	P1C7D49: No. 0 HV supply stack sub-assembly P1CF749: Electric vehicle charger assembly P1C7F49: Electric vehicle charger assembly (high voltage direct current area) P33CF49: No. 0 HV supply stack sub-assembly
Frequency of operation	-
Duration	TMC's intellectual property
MIL operation	P1C7D49: 1 driving cycle / 1 charging cycle P1CF749: 1 charging cycle P1C7F49: 1 driving cycle / 1 charging cycle P33CF49: 1 driving cycle / 1 charging cycle
Sequence of operation	None

TYPICAL ENABLING CONDITIONS

The monitor will run whenever the following DTCs are not stored	TMC's intellectual property
Other conditions belong to TMC's intellectual property	-

TYPICAL MALFUNCTION THRESHOLDS

TMC's intellectual property	-

COMPONENT OPERATING RANGE

Hybrid vehicle control ECU	DTC P1C7D (INF P1C7D49) is not detected DTC P1CF7 (INF P1CF749) is not detected DTC P1C7F (INF P1C7F49) is not detected DTC P33CF (INF P33CF49) is not detected

CONFIRMATION DRIVING PATTERN

CONFIRMATION AFTER REPLACING PARTS

HINT:

After repair has been completed, clear the DTC and then check that the vehicle has returned to normal by performing the following All Readiness check procedure. (Do not turn the ignition switch off (READY off) during this inspection.)

Click here INFO

DTC P1C7D49, P1C7F49, P1CF749 and P33CF49:

HINT:

When clearing the permanent DTCs, refer to the "CLEAR PERMANENT DTC" procedure.

Click here INFO

1. Turn the ignition switch off and wait for 2 minutes or more.
2. Apply the parking brake and secure the wheels using chocks. [*1]
3. When the vehicle is stationary, turn the ignition switch ON (READY) with park (P) selected and wait for 1 minute or more. [*2]
4. Turn the air conditioning system on (MAX COLD, blower speed HI). [*3]
5. While depressing the brake pedal without depressing the accelerator pedal, move the shift lever to D and wait for 5 minutes. [*4]

   - If step B is performed within the same trip after DTC P0AA649 is stored, the parts with insufficient insulation resistance will be determined and a DTC (P1C7D49, P1C7F49 or P33CF49) will be stored.

   - If no DTCs are output, proceed to the step A.
6. Drive the vehicle for approximately 5 minutes referring to the following freeze frame data items: "Vehicle Speed", "Shift Position", "Accelerator Position Sensor No.1 Voltage %", "Engine Speed", "Coolant Temperature", "Master Cylinder Control Torque", "Motor Temperature" and "Generator Temperature". (Step A) [*5]

   (If the freeze frame data item "Vehicle Speed" is 10 km/h (6 mph) or less, drive the vehicle at 10km/h (6 mph) or more.)

   - If step B is performed within the same trip after DTC P0AA649 is stored, the parts with insufficient insulation resistance will be determined and a DTC (P1C7D49, P1C7F49 or P33CF49) will be stored.

   - If DTC P0AA649 is output, complete the Step B immediately as quickly as possible.

   - If no DTCs are output, proceed to the step C.
7. Wait for 1 minute or more with the vehicle stopped, the ignition switch ON (READY), park (P) selected and the air conditioning system on (Lo/COOL MAX, blower speed HI), then turn the ignition switch off and wait for 2 minutes or more. (Step B) [*6]
8. Turn the ignition switch off and connect the electric vehicle charger cable assembly, and plug-in charge the vehicle for 3 minutes or more. (step C) [*7]

   - If charging is not performed for 3 minutes and DTCs are not output, decrease the SOC of the HV battery and perform this procedure again from step C.

If DTC P0AA649 is output, the area where the insulation resistance decreased is specified by this DTC and DTC P1C7D49, P1CF749 or P33CF49 will also be stored.

HINT:

[*1] to [*7] : Normal judgment procedure.

The normal judgment procedure is used to complete DTC judgment and also used when clearing permanent DTCs.

9. Enter the following menus: Powertrain / Hybrid Control / Utility / All Readiness.
10. Check the DTC judgment result.

HINT:

- If the judgment result shows NORMAL, the system is normal.
- If the judgment result shows ABNORMAL, the system has a malfunction.
- If the judgment result shows INCOMPLETE or N/A, perform the normal judgment procedure again.

DTC P0AA649, P1C7C49, P1C7E49 and P1C7F49:

1. Turn the ignition switch off and wait for 2 minutes or more.
2. Apply the parking brake and secure the wheels using chocks.
3. When the vehicle is stationary, turn the ignition switch ON (READY) with park (P) selected and wait for 1 minute or more.
4. Turn the air conditioning system on (MAX COLD, blower speed HI).
5. While depressing the brake pedal without depressing the accelerator pedal, move the shift lever to D and wait for 5 minutes.

   - If step B is performed within the same trip after DTC P0AA649 is stored, the parts with insufficient insulation resistance will be determined and a DTC (P1C7C49, P1C7E49 or P1C7F49) will be stored.

   - If no DTCs are output, proceed to the step A.
6. Drive the vehicle for approximately 5 minutes referring to the following freeze frame data items: "Vehicle Speed", "Shift Position", "Accelerator Position Sensor No.1 Voltage %", "Engine Speed", "Coolant Temperature", "Master Cylinder Control Torque", "Motor Temperature" and "Generator Temperature". (Step A)

   (If the freeze frame data item "Vehicle Speed" is 10 km/h (6 mph) or less, drive the vehicle at 10km/h (6 mph) or more.)

   - If step B is performed within the same trip after DTC P0AA649 is stored, the parts with insufficient insulation resistance will be determined and a DTC (P1C7C49, P1C7E49 or P1C7F49) will be stored.

   - If DTC P0AA649 is output, complete the Step B immediately as quickly as possible.

   - If no DTCs are output, proceed to the step C.
7. Wait for 1 minute or more with the vehicle stopped, the ignition switch ON (READY), park (P) selected and the air conditioning system on (Lo/COOL MAX, blower speed HI), then turn the ignition switch off and wait for 2 minutes or more. (Step B)
8. Turn the ignition switch off and connect the electric vehicle charger cable assembly, and plug-in charge the vehicle for 3 minutes or more. (step C)

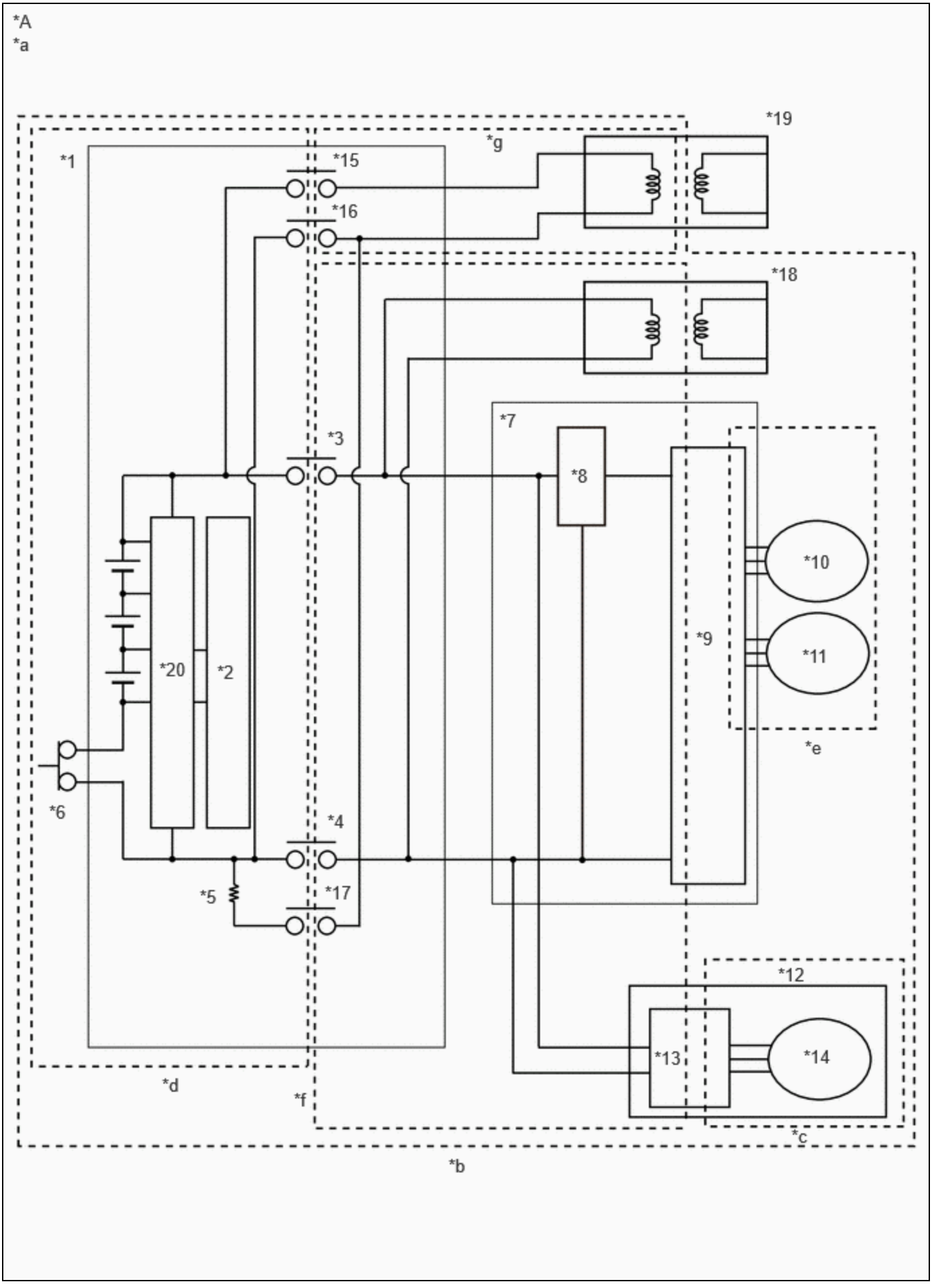
   - If charging is not performed for 3 minutes and DTCs are not output, decrease the SOC of the HV battery and perform this procedure again from step C.

   If DTC P0AA649 is output, the area where the insulation resistance decreased is specified by this DTC and DTC P1C7C49, P1C7E49 or P1CF749 will also be stored.
9. Enter the following menus: Powertrain / Hybrid Control / Utility / All Readiness.
10. Check the DTC judgment result.

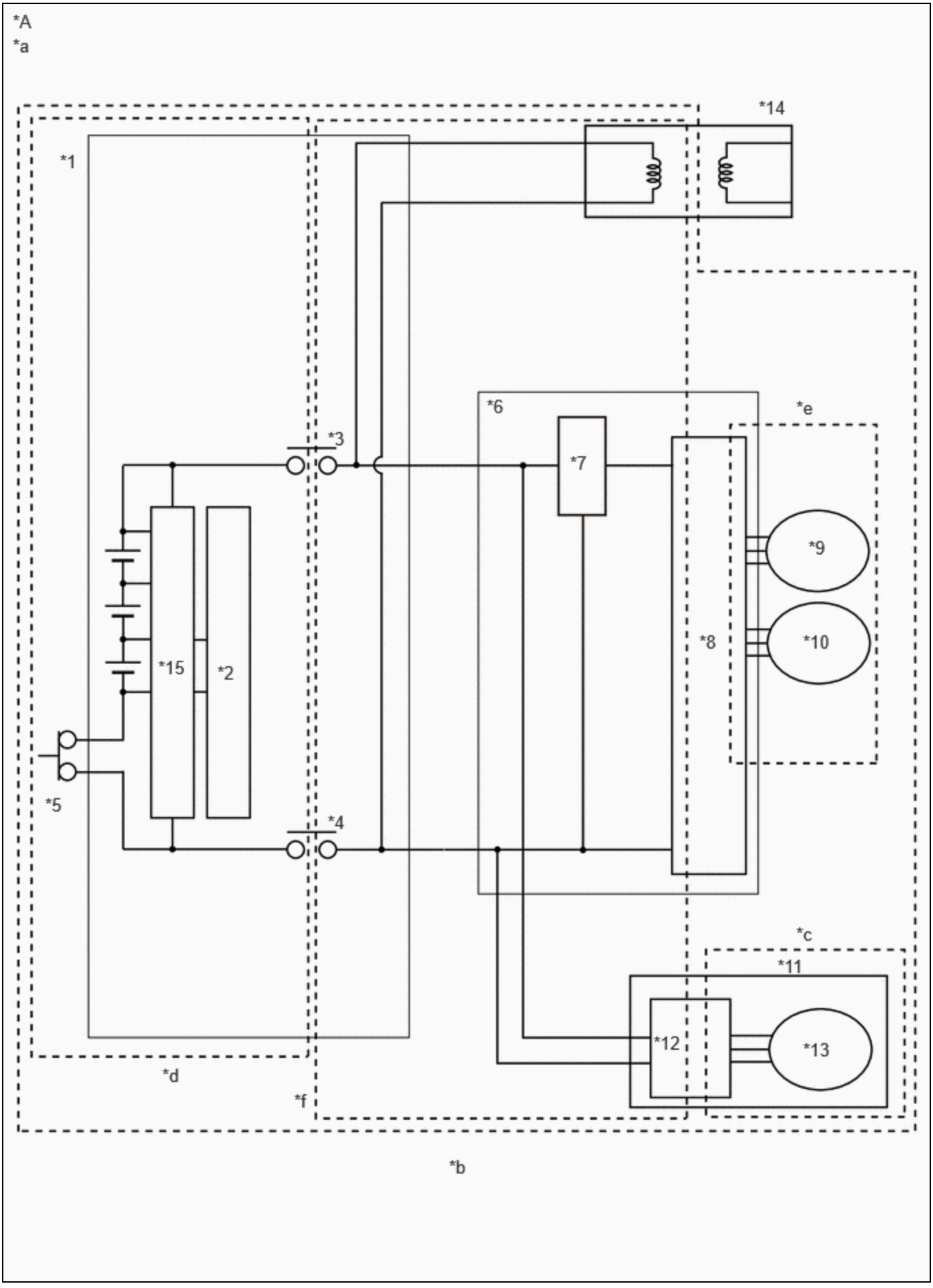
HINT:

- If the judgment result shows NORMAL, the system is normal.
- If the judgment result shows ABNORMAL, the system has a malfunction.
- If the judgment result shows INCOMPLETE or N/A, perform driving pattern again.

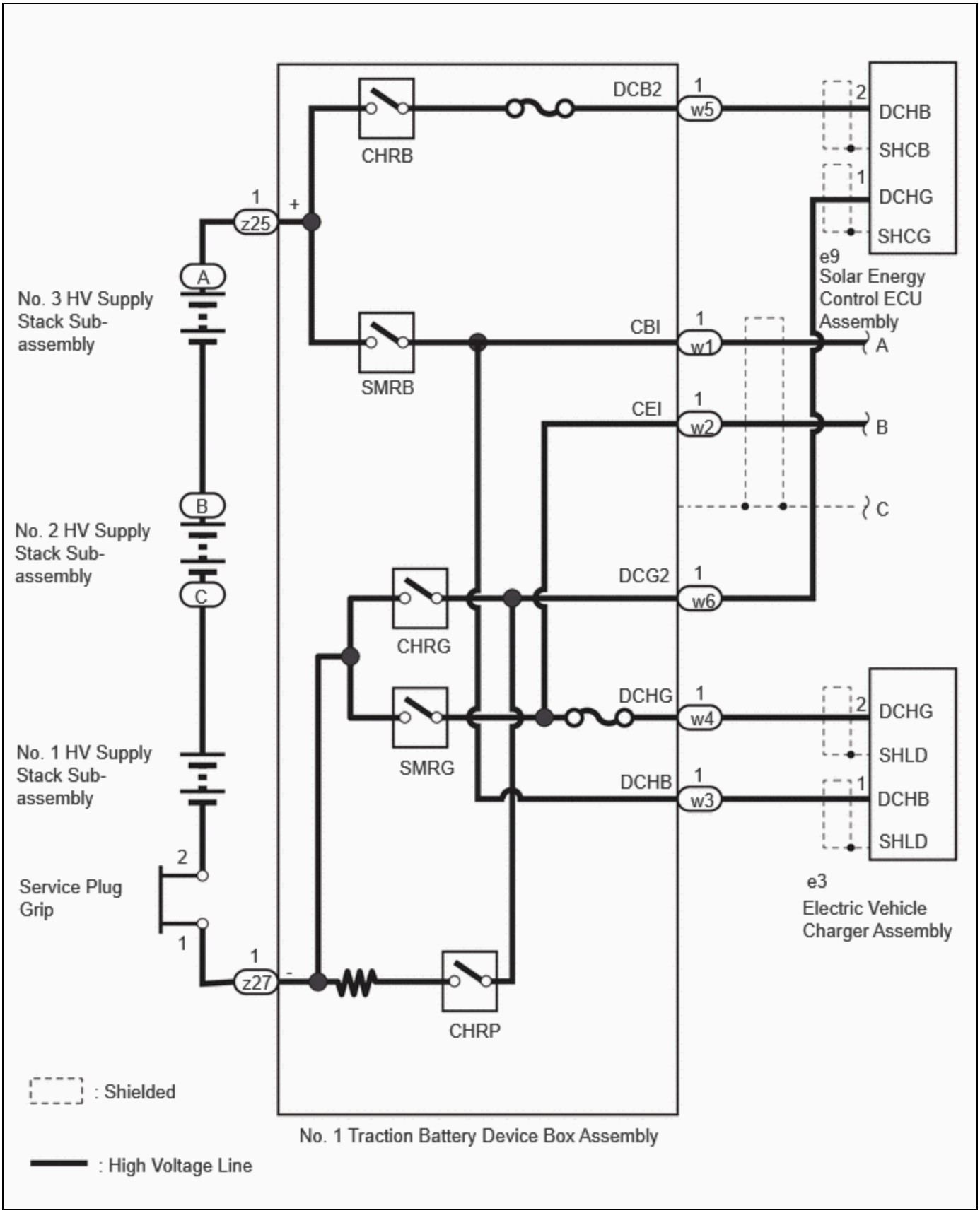
WIRING DIAGRAM


*A
*a
*19
*g
*1
*15
*16
*18
*7
*3
*8
*10
*9
*11
*e
*20
*2
*6
*4
*5
*17
*12
*13
*14
*d
*f
*c
*b

*A	with Solar Charging System		
*1	HV Supply Battery	*2	Battery ECU Assembly
*3	SMRB	*4	SMRG
*5	Service Plug Grip	*6	System Main Resistor
*7	Inverter with Converter Assembly	*8	Boost Converter
*9	Inverter	*10	Generator (MG1)
*11	Motor (MG2)	*12	Compressor with Motor Assembly
*13	A/C Inverter	*14	A/C Motor
*15	CHRB	*16	CHRG
*17	CHRP	*18	Electric Vehicle Charger Assembly
*19	Solar Energy Control ECU Assembly	*20	Battery Voltage Sensor
*a	High-voltage Areas	*b	DTC P0AA649 Vehicle Insulation Resistance Reduction Area
*c	DTC P1C7C49 Air Conditioning System Area	*d	DTC P1C7D49 HV Battery Area
*e	DTC P1C7E49 Hybrid Vehicle Transaxle Assembly Area or Hybrid Motor Control Inverter Assembly AC (Alternation Current) Section Area	*f	DTC P1C7F49 High Voltage Direct Current Area
*g	DTC P1CF749 CHR Area	-	-


*A
*a
*14
*1
*6
*e
*3
*7
*9
*8
*10
*15
*2
*5
*4
*c
*11
*12
*13
*d
*f
*b

*A	without Solar Charging System		
*1	HV Supply Battery	*2	Battery ECU Assembly
*3	SMRB	*4	SMRG
*5	Service Plug Grip	*6	Inverter with Converter Assembly
*7	Boost Converter	*8	Inverter
*9	Generator (MG1)	*10	Motor (MG2)
*11	Compressor with Motor Assembly	*12	A/C Inverter
*13	A/C Motor	*14	Electric Vehicle Charger Assembly
*15	Battery Voltage Sensor	-	-
*a	High-voltage Areas	*b	DTC P0AA649 Vehicle Insulation Resistance Reduction Area
*c	DTC P1C7C49 Air Conditioning System Area	*d	DTC P1C7D49 HV Battery Area
*e	DTC P1C7E49 Hybrid Vehicle Transaxle Assembly Area or Hybrid Motor Control Inverter Assembly AC (Alternation Current) Section Area	*f	DTC P1C7F49 High Voltage Direct Current Area


DCB2
1
w5
2
DCHB
SHCB
1
DCHG
SHCG
e9
Solar Energy
Control ECU
Assembly
CHRB
1
z25
+
A
No. 3 HV Supply
Stack Sub-
assembly
SMRB
CBI
1
w1
A
CEI
1
w2
B
C
B
No. 2 HV Supply
Stack Sub-
assembly
C
DCG2
1
w6
CHRG
DCHG
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w4
2
DCHG
SHLD
SMRG
DCHB
1
w3
1
DCHB
SHLD
e3
Electric Vehicle
Charger Assembly
No. 1 HV Supply
Stack Sub-
assembly
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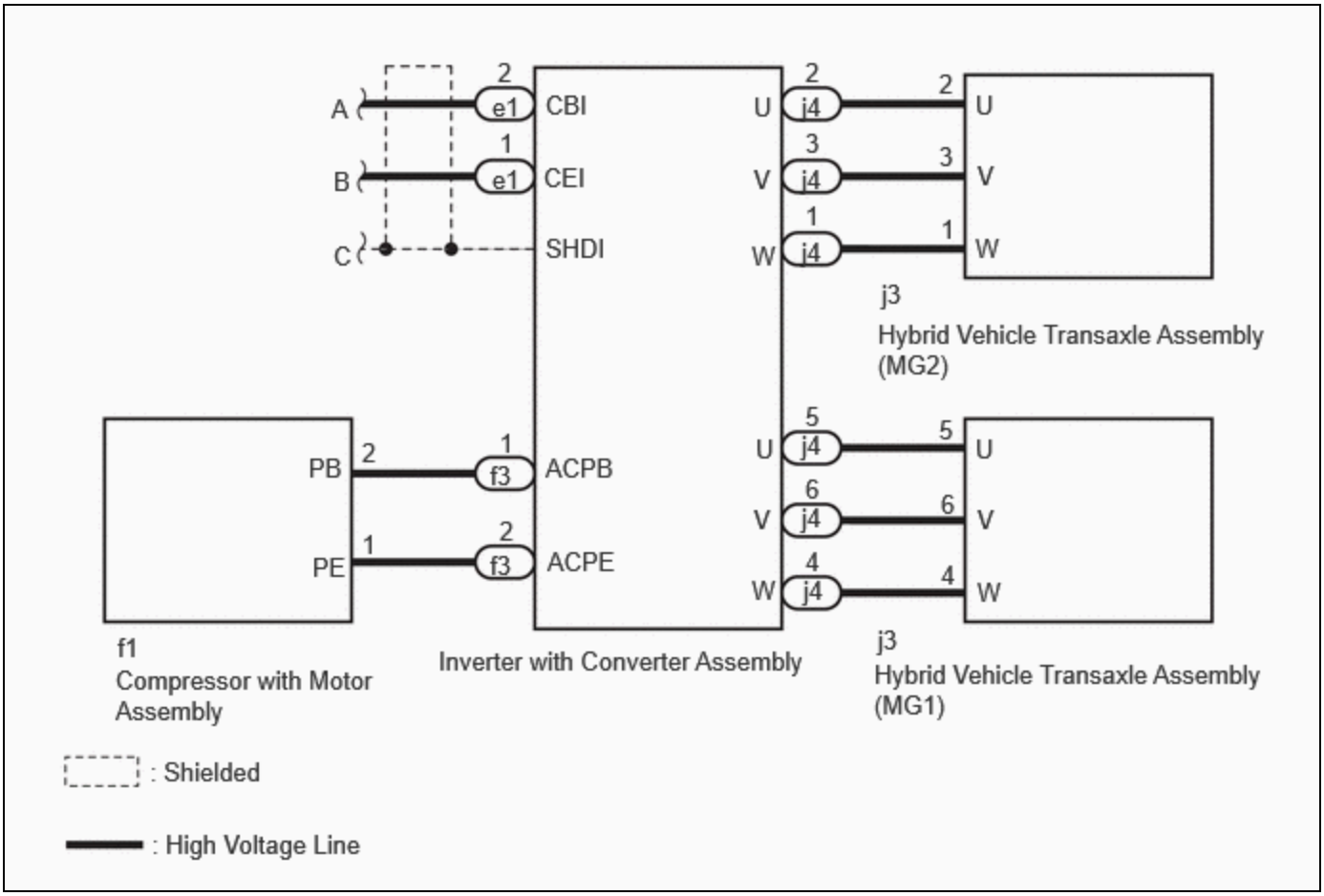
Service Plug
Grip
1
1
z27
-
CHRP
: Shielded
No. 1 Traction Battery Device Box Assembly
: High Voltage Line



SYSTEM DESCRIPTION

HINT:

If a decrease in insulation resistance cannot be confirmed using a megohmmeter, check "Short Wave Highest Value Level" in the Data List.

SHORT WAVE HIGHEST VALUE LEVEL

(a) "Short Wave Highest Value Level" shows a decrease in insulation resistance. When insulation resistance decreases, "Insulation Lower" will be displayed. However, even though the insulation resistance of the vehicle is normal, "Short Wave Highest Value Level" may decrease, so that "Not Judge" will be displayed for any of the following conditions.

- Within approximately 1 minute since the ignition switch was turned to ON.
- When the system voltages ("Hybrid/EV Battery Voltage", "VL-Voltage before Boosting" and "VH-Voltage after Boosting") are changing.
- During boosting. If the Data List item "Boost Ratio" is not 0% or within a few seconds of it becoming 0%. (The values of "Hybrid/EV Battery Voltage", "VL-Voltage before Boosting" and "VH-Voltage after Boosting" are about the same when not boosting.)
- When "No" is displayed for any of the following Data List items:

  - Short Wave Highest Value Availability just after MG Inv On/Off

  - Short Wave Highest Value Availability just after A/C Inv On/Off

  - Short Wave Highest Value Availability just after SMR On/Off

  - Short Wave Highest Value Availability just after AC Charging Relay On/Off

(b) When "Short Wave Highest Value Level" shows "Insulation Lower LV3", insulation resistance will be close to 0 Ω. In this case, damage to a high-voltage cable or hybrid component (high-voltage), or a short to body ground due to intrusion of foreign matter, such as metal particles, can be suspected.

If problem symptoms cannot be reproduced and a malfunction still exists after replacing a part as instructed, checking the following freeze frame data can help determine a trouble area.

Items to be Checked Using Freeze Frame Data:

FREEZE FRAME DATA	DIAGNOSTIC NOTE
Short Wave Highest Value Level	Indicates that the insulation resistance has decreased.
• VL-Voltage before Boosting • VH-Voltage after Boosting • Hybrid/EV Battery Voltage • Boost Ratio	During boosting (when "Boost Ratio" is not 0%), or when "VL-Voltage before Boosting", "VH-Voltage after Boosting" or "Hybrid/EV Battery Voltage" is varying, "Short Wave Highest Value Level" may decrease even though the insulation resistance is normal.
• SMRB Status • SMRG Status • CHRP Status • CHRB Status • CHRG Status	When "SMRB Status", "SMRG Status", "CHRP Status", "CHRB Status" and "CHRG Status" are all OFF, the insulation malfunction detection circuit detects a decrease in insulation resistance in the HV battery area ((*d) in the wiring diagram). **Example:** When the ignition switch is turned ON (not ON (READY)) and the electric vehicle charger cable assembly is disconnected, all 2 system main relays and 3 charge relays are off and it is suspected that the HV battery is disconnected from the high voltage circuits. If "Short Wave Highest Value Level" decreases a few minutes after the ignition switch is turned ON (not ON (READY)) and the electric vehicle charger cable assembly is disconnected, the HV battery may have an insulation malfunction.
Motor Inverter Shutdown Status	When "Motor Inverter Shutdown Status" is ON, the insulation malfunction detection circuit cannot detect a decrease in insulation resistance in the motor system AC (alternating current) section (motor (MG2) side of (*e) in the wiring diagram). The motor system AC (alternating current) section includes the motor (MG2) in the hybrid vehicle transaxle assembly, motor cables and the AC (alternating current) section of the motor drive circuit in the hybrid motor control inverter assembly.
Generator Inverter Shutdown Status	When "Generator Inverter Shutdown Status" is ON, the insulation malfunction detection circuit cannot detect a decrease in insulation resistance in the generator system AC (alternating current) section (generator (MG1) side of (*e) in the wiring diagram). The generator system AC (alternating current) section includes the generator (MG1) in the hybrid vehicle transaxle assembly, generator cables and the AC (alternating current) section of the generator drive circuit in the hybrid motor control inverter assembly.
A/C Consumption Power	The compressor with motor assembly AC (alternating current) section ((*c) in the wiring diagram) includes the air conditioning motor, wiring between the air conditioning motor and air conditioning inverter, and the AC (alternating current) section of the air conditioning motor drive circuit in the air conditioning inverter.

FREEZE FRAME DATA	DIAGNOSTIC NOTE
	With the vehicle stopped, turn on/off the air conditioning system and observe "Short Wave Highest Value Level" to use as a diagnosis reference.

RELATED FREEZE FRAME DATA

HINT:

- Reproducing the vehicle conditions the moment a DTC was stored according to the freeze frame data and results of the customer problem analysis helps ensure that the same DTC is stored again.
  Driving Status

ITEM	DIAGNOSTIC NOTE
Vehicle Speed	-
Accelerator Position Sensor No.1 Voltage %	-
Engine Speed	-
Shift Position	-
Master Cylinder Control Torque	-
Coolant Temperature	-

Operation Conditions

ITEM	DIAGNOSTIC NOTE
Motor Temperature	If any liquid leaks into the ATF, insulation resistance may decrease only when the temperature is high. The motor temperature is likely to increase if the motor speed is low and output torque is high such as when cruising uphill slowly or accelerating from a low speed.
Generator Temperature	If any liquid leaks into the ATF, insulation resistance may decrease only when the temperature is high. The generator temperature is likely to increase under repeat acceleration and deceleration while the vehicle is driven in the mid speed range (60 to 80 km/h (37 to 50 mph)).

- Customer Problem Analysis

  Ask the customer about the operating conditions and environment when the malfunction occurred.

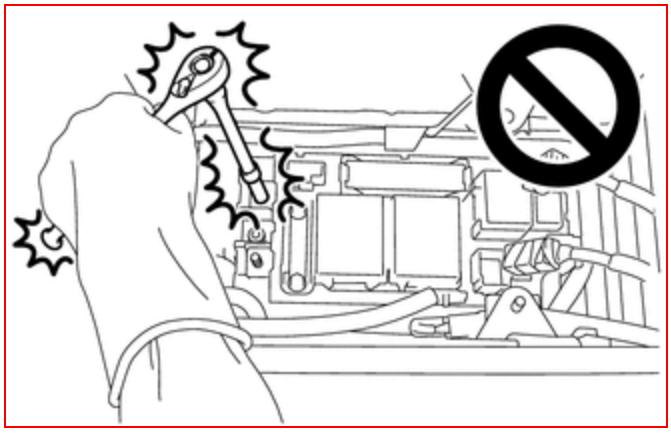
ITEM	DIAGNOSTIC NOTE
Driving Condition (acceleration, deceleration, turning, etc.)	Changes in the insulation of the parts with insufficient insulation due to changes in G force or vibration is suspected.
Road Condition (unpaved, etc.)	
Weather (rain, snow, etc.)	Water intrusion is suspected
Washing the vehicle (Whether the malfunction occurred after washing the vehicle?)	

CAUTION / NOTICE / HINT

CAUTION:

- Refer to the precautions before inspecting high voltage circuit.

  Click here INFO



- When troubleshooting DTC P0AA649, use either a tool wrapped with vinyl insulation tape or an insulated tool. (It is extremely dangerous when a high-voltage charge passes through a non-insulated tool causing a short.)

NOTICE:

- After the ignition switch is turned off, there may be a waiting time before disconnecting the auxiliary negative (-) battery terminal.

  Click here INFO
- When disconnecting and reconnecting the auxiliary battery

HINT:

When disconnecting and reconnecting the auxiliary battery, there is an automatic learning function that completes learning when the respective system is used.

Click here INFO

HINT:

When measuring insulation resistance using a megohmmeter, set the megohmmeter to 500 V.

PROCEDURE

1.	**CHECK DTC OUTPUT (HYBRID CONTROL, MOTOR GENERATOR, HV BATTERY, PLUG-IN CONTROL)**

Pre-procedure1

(a) None.

Procedure1

(b) Check for DTCs.

Powertrain > Hybrid Control > Trouble Codes
Powertrain > Motor Generator > Trouble Codes
Powertrain > HV Battery > Trouble Codes
Powertrain > Plug-in Control > Trouble Codes

RESULT	PROCEED TO
P0AA649, P1C7C49, P1C7D49, P1C7E49, P1C7F49, P1CF749 or P33CF49 only is output, or DTCs except the ones in the table below are also output.	A

RESULT	PROCEED TO
DTCs of hybrid control system in the tables below are output.	B
DTCs of motor generator control system in the tables below are output.	C
DTCs of hybrid battery system in the tables below are output.	D
DTCs of plug-in charge control system in the tables below are output.	E

MALFUNCTION CONTENT	SYSTEM	RELEVANT DTC	
Microcomputer Malfunction	Hybrid control system	P060647	Hybrid/EV Powertrain Control Module Processor Watchdog / Safety MCU Failure
		P060687	Hybrid/EV Powertrain Control Module Processor to Monitoring Processor Missing Message
		P060A29	Hybrid/EV Powertrain Control Module Monitoring Processor Signal Invalid
		P060A44	Hybrid/EV Powertrain Control Module Monitoring Processor Data Memory Failure
		P060A45	Hybrid/EV Powertrain Control Module Monitoring Processor Program Memory Failure
		P060A47	Hybrid/EV Powertrain Control Module Monitoring Processor Watchdog / Safety MCU Failure
		P060A49	Hybrid/EV Powertrain Control Module Monitoring Processor Internal Electronic Failure
		P060A87	Hybrid/EV Powertrain Control Module Processor from Monitoring Processor Missing Message
		P060B1C	Hybrid/EV Powertrain Control Module A/D Processing Voltage Out of Range
		P060B49	Hybrid/EV Powertrain Control Module A/D Processing Internal Electronic Failure
		P060B71	Hybrid/EV Powertrain Control Module A/D Processing Actuator Stuck
		P1CE31C	Hybrid/EV Powertrain Control Module Monitoring Processor A/D Processing Voltage Out of Range
		P1CE349	Hybrid/EV Powertrain Control Module Monitoring Processor A/D Processing Internal Electronic Failure
		P1CE371	Hybrid/EV Powertrain Control Module Monitoring Processor A/D Processing Actuator Stuck
	Hybrid battery system	P060687	Hybrid/EV Battery Energy Control Module Processor to Monitoring Processor Missing Message

MALFUNCTION CONTENT	SYSTEM	RELEVANT DTC	
		P060A47	Hybrid/EV Battery Energy Control Module Monitoring Processor Watchdog / Safety MCU Failure
		P060A87	Hybrid/EV Battery Energy Control Module Processor from Monitoring Processor Missing Message
		P060B49	Hybrid/EV Battery Energy Control Module A/D Processing Internal Electronic Failure
		P062F46	Hybrid/EV Battery Energy Control Module EEPROM Calibration / Parameter Memory Failure
	Motor generator control system	P0A1B49	Drive Motor "A" Control Module Internal Electronic Failure
		P0A1B1F	Generator Control Module Circuit Intermittent
		P1C2A49	Generator A/D Converter Circuit Internal Electronic Failure
		P1C2A1C	Generator A/D Converter Circuit Circuit Voltage Out of Range
		P06D61C	Generator Control Module Offset Power Circuit Voltage Out of Range
		P313387	Communication Error from Generator to Drive Motor "A" Missing Message
		P313383	Communication Error from Generator to Drive Motor "A" Value of Signal Protection Calculation Incorrect
		P313386	Communication Error from Generator to Drive Motor "A" Signal Invalid
		P0A1A49	Generator Control Module Internal Electronic Failure
		P0A1A47	Generator Control Module Watchdog / Safety MC Failure
	Plug-in charge control system	P060B49	Plug-in Control Module A/D Processing Internal Electronic Failure
		P0E5E87	Plug-in Control Module Processor from Hybrid/EV Battery Charger Control Module Processor Missing Message
		P1C1F49	Hybrid/EV Battery Charger Control Module A/D Processing Internal Electronic Failure
Power Source Circuit Malfunction	Hybrid control system	P06881F	ECM/PCM Power Relay Sense Circuit Intermittent
Communication Malfunction	Hybrid control system	U011187	Lost Communication with Hybrid/EV Battery Energy Control Module "A" Missing Message
	Plug-in charge control system	U115087	Lost Communication with Hybrid Powertrain Control Module (Hybrid/EV Battery Local Bus) Missing Message
Sensor and Actuator Malfunction	Hybrid control system	P1C8349	High Voltage Power Resource Circuit Voltage Sensor after Boosting Malfunction
		P0E311C	Boosting Converter Voltage Sensor "A" Voltage Out of Range

MALFUNCTION CONTENT	SYSTEM	RELEVANT DTC	
		P0D2D1C	Drive Motor "A" Inverter Voltage Sensor Voltage Out of Range
	Hybrid battery system	P0AA749	Hybrid/EV Battery Voltage Isolation Sensor Circuit Internal Electronic Failure
	Motor generator control system	P0D2D16	Drive Motor "A" Inverter Voltage Sensor (VH) Circuit Voltage Below Threshold
		P0D2D17	Drive Motor "A" Inverter Voltage Sensor (VH) Circuit Voltage Above Threshold
		P1CB69E	Drive Motor "A" Inverter Voltage Sensor (VH) Stuck On
		P0E3116	DC/DC Converter Voltage Sensor "A" (VL) Circuit Voltage Below Threshold
		P0E3117	DC/DC Converter Voltage Sensor "A" (VL) Circuit Voltage Above Threshold
System Malfunction	Hybrid control system	P1C9E9F	Hybrid/EV System Reset Stuck Off
		P0C7600	Hybrid/EV Battery System Discharge Time Too Long
	Motor generator control system	P0CA300	DC/DC Converter Step Up Voltage Performance

HINT:

- P0AA649 may be output as a result of the malfunction indicated by the DTCs above.

  a. The chart above is listed in inspection order of priority.
  b. Check DTCs that are output at the same time by following the listed order. (The main cause of the malfunction can be determined without performing unnecessary inspections.)

Post-procedure1

(c) Turn the ignition switch off.

B ▶ **GO TO DTC CHART (HYBRID CONTROL SYSTEM)**

C ▶ **GO TO DTC CHART (MOTOR GENERATOR CONTROL SYSTEM)**

D ▶ **GO TO DTC CHART (HYBRID BATTERY SYSTEM)**

E ▶ **GO TO DTC CHART (PLUG-IN CHARGE CONTROL SYSTEM)**

A ▼

2.	**CHECK DTC OUTPUT (HYBRID CONTROL)**

Pre-procedure1

(a) None.

Procedure1

(b) Check for DTCs.

Powertrain > Hybrid Control > Trouble Codes

NOTICE:

- DTC P1C7C49, P1C7D49, P1C7E49, P1C7F49, P1CF749 or P33CF49 are not stored with P0AA649 at the same time. If a decrease in insulation resistance is detected and DTC P0AA649 is output, wait for 5 minutes with the ignition switch ON (READY), the shift lever in D and the air conditioning system on within the same trip, then turn the ignition switch off and wait for 2 minutes to determine the DTC (P1C7C49, P1C7D49, P1C7E49, P1C7F49 or P33CF49).

  If a decrease in insulation resistance is detected during plug-in charge, wait for 3 minutes after connecting the electric vehicle charger cable assembly and conducting plug-in charge to determine the DTC (P1CF749 or P33CF49).
- When any other DTC indicating parts which the insulation resistance dropped are output, perform the diagnostic procedure for each DTC.

RESULT	PROCEED TO
P0AA649 (decrease in the insulation resistance of the high-voltage circuit) only or P0AA649 and P33CF49 (abnormal area detection failure) are output.	A
P0AA649 and P1C7C49 (decrease in the insulation resistance of the air conditioning system area) are output.	B
P0AA649 and P1C7D49 (decrease in the insulation resistance of the HV battery area) are output.	C
P0AA649 and P1C7E49 (decrease in the insulation resistance of the hybrid vehicle transaxle assembly area) are output.	D
P0AA649 and P1C7F49 (decrease in the insulation resistance of the high-voltage direct current area) are output.	E
P0AA649 and P1CF749 (decrease in the insulation resistance of the CHR area) are output.	F

Post-procedure1

(c) Turn the ignition switch off.

B ▶ **GO TO STEP 11**

C ▶ **GO TO STEP 16**

D ▶ **GO TO STEP 36**

E ▶ **GO TO STEP 41**

F ▶ **GO TO STEP 55**

A

3.	**CLEAR DTC**

Click here INFO

NEXT

4.	**SIMULATION TEST**

Pre-procedure1

(a) Turn the ignition switch off and wait for 2 minutes or more.

(b) Apply the parking brake and secure the wheels using chocks.

(c) When the vehicle is stationary, turn the ignition switch ON (READY) with park (P) selected and wait for1 minute or more.

(d) Turn the air conditioning system on (MAX COLD, blower speed HI).

(e) While depressing the brake pedal without depressing the accelerator pedal, move the shift lever to D and wait for 5 minutes.

(f) Check for DTCs.

- If step B is performed within the same trip after DTC P0AA649 is stored, the parts with insufficient insulation resistance will be determined and a DTC (P1C7C49, P1C7D49, P1C7E49, P1C7F49, P1CF749 or P33CF49) will be stored.
- If no DTCs are output, proceed to the step A.

Powertrain > Hybrid Control > Trouble Codes

(g) Drive the vehicle for approximately 5 minutes referring to the following freeze frame data items: "Vehicle Speed", "Engine Speed", "Coolant Temperature", "Accelerator Position Sensor No.1 Voltage %", "Master Cylinder Control Torque", "Shift Position", "Motor Inverter Temperature", "Generator Inverter Temperature" and "Inverter Coolant Water Temperature". (Step A)

(If the freeze frame data item "Vehicle Speed" is 10 km/h (6 mph) or less, drive the vehicle at 10km/h (6 mph) or more.)

Powertrain > Hybrid Control > DTC(P0AA649) > Freeze Frame Data

TESTER DISPLAY
Vehicle Speed

TESTER DISPLAY
Engine Speed
Coolant Temperature
Accelerator Position Sensor No.1 Voltage %
Master Cylinder Control Torque
Shift Position
Generator Inverter Temperature
Motor Inverter Temperature
Inverter Coolant Water Temperature

(h) Check for DTCs.

- If step B is performed within the same trip after DTC P0AA649 is stored, the parts with insufficient insulation resistance will be determined and a DTC (P1C7C49, P1C7D49, P1C7E49, P1C7F49, P1CF749 or P33CF49) will be stored.
- If DTC P0AA649 is output, complete the Step B immediately as quickly as possible.
- If no DTCs are output, proceed to the step C.

Powertrain > Hybrid Control > Trouble Codes

(i) Wait for 1 minute or more with the vehicle stopped, the ignition switch to ON (READY), park (P) selected and the air conditioning system on (Lo/COOL MAX, blower speed HI), then turn the ignition switch off and wait for 2 minutes or more. (Step B)

(j) Turn the ignition switch off and connect the electric vehicle charger cable assembly, and plug-in charge the vehicle for 3 minutes or more. (step C)

Procedure1

(k) Check for DTCs.

- When charging does not continue for 3 minutes with no DTC output, lower the SOC and then perform the step C again.
- If DTC P0AA649 is output at this step, the area where the insulation resistance has decreased is specified and DTC P1C7D49, P1CF749 or P33CF49 is also output.

Powertrain > Hybrid Control > Trouble Codes

RESULT	PROCEED TO
P0AA649 (decrease in the insulation resistance of the high-voltage circuit) and P33CF49 (abnormal area detection failure) are output.	A

RESULT	PROCEED TO
P0AA649 and P1C7C49 (decrease in the insulation resistance of the air conditioning system area) are output.	B
P0AA649 and P1C7D49 (decrease in the insulation resistance of the HV battery area) are output.	C
P0AA649 and P1C7E49 (decrease in the insulation resistance of the hybrid vehicle transaxle assembly area) are output.	D
P0AA649 and P1C7F49 (decrease in the insulation resistance of the high-voltage direct current area) are output.	E
P0AA649 and P1CF749 (decrease in the insulation resistance of the CHR area) are output.	F

Post-procedure1

(l) None.

B ▶ **GO TO STEP 11**

C ▶ **GO TO STEP 16**

D ▶ **GO TO STEP 36**

E ▶ **GO TO STEP 41**

F ▶ **GO TO STEP 55**

A ▼

5.	**CHECK HYBRID VEHICLE TRANSAXLE ASSEMBLY (MOTOR CABLE (FOR MG2))**

CAUTION:

Be sure to wear insulated gloves.

Pre-procedure1

(a) Check that the service plug grip is not installed.

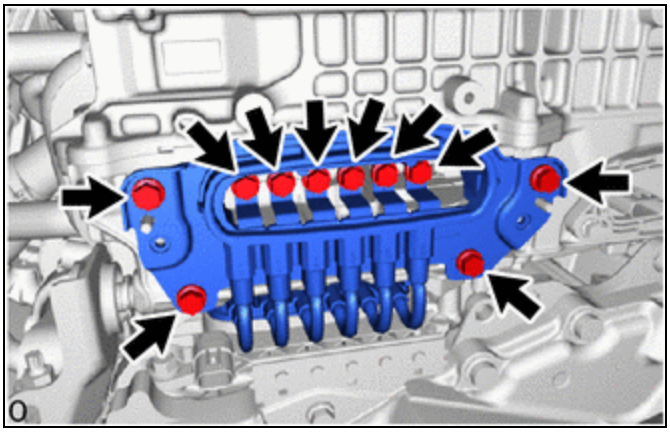
NOTICE:

After removing the service plug grip, do not turn the ignition switch ON (READY), unless instructed by the repair manual because this may cause a malfunction.

(b) Disconnect the motor cable from the inverter with converter assembly

HINT:

Make sure that no foreign matter, coolant or water enters the inverter with converter assembly



(c) Connect the cable to the negative (-) auxiliary battery terminal.

HINT:

As the insulation resistance may vary when motor (MG2) rotates, perform this inspection while rotating the front wheels.

(d) Turn the ignition switch to ON.

NOTICE:

Turning the ignition switch to ON with the service plug grip removed causes DTCs to be stored. Clear the DTCs after performing this inspection.

(e) Move the shift lever to N and lift the vehicle.

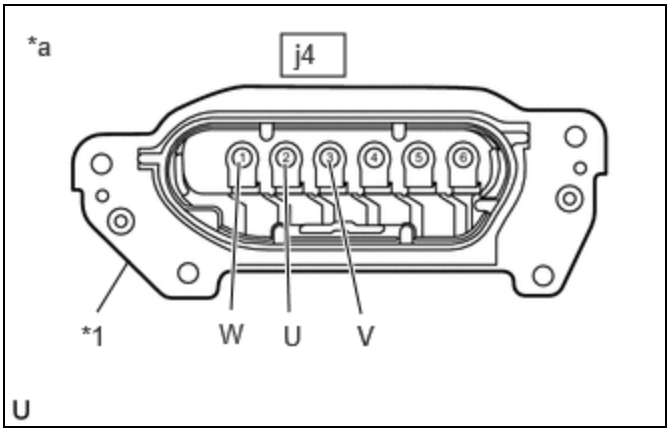
Procedure1

(f) Using a megohmmeter set to 500 V, measure the resistance according to the value(s) in the table below while rotating the front wheels 2 revolutions in the same direction simultaneously.

NOTICE:

- Carefully perform this inspection as the motor (MG2) may generate current when the front wheels are rotated by hand.
- Be sure to set the megohmmeter to 500 V when performing this test. Using a setting higher than 500 V can result in damage to the component being inspected.

Standard Resistance:



*1	Shield Ground
*a	Motor Cable (for MG2) (Inverter with Converter Assembly Side)

EWD INFO

Click Location & Routing(j4)
Click Connector(j4)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
j4-2 (U) - Body ground and shield ground	Ignition switch ON	100 MΩ or higher

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
j4-3 (V) - Body ground and shield ground	Ignition switch ON	100 MΩ or higher
j4-1 (W) - Body ground and shield ground	Ignition switch ON	100 MΩ or higher

Post-procedure1

(g) Lower the vehicle and move the shift lever to P.

(h) Turn the ignition switch off.

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

NG ▶ **GO TO STEP 13**

OK ▼

6.	**CHECK HYBRID VEHICLE TRANSAXLE ASSEMBLY (MOTOR CABLE (FOR MG1))**

CAUTION:

Be sure to wear insulated gloves.

Pre-procedure1

(a) Check that the service plug grip is not installed.

NOTICE:

After removing the service plug grip, do not turn the ignition switch ON (READY), unless instructed by the repair manual because this may cause a malfunction.

(b) Connect the cable to the negative (-) auxiliary battery terminal.

HINT:

As the insulation resistance may vary when generator (MG1) rotates, perform this inspection while rotating the front wheels.

(c) Turn the ignition switch to ON.

NOTICE:

Turning the ignition switch to ON (IG) with the service plug grip removed causes DTCs to be stored. Clear the DTCs after performing this inspection.

(d) Move the shift lever to N and lift the vehicle.

Procedure1

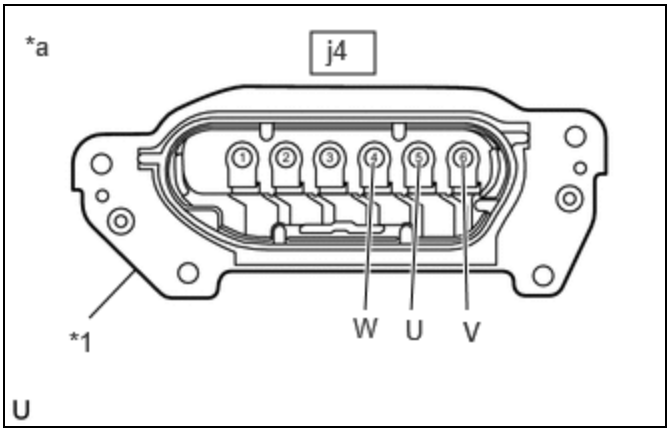
(e) Using a megohmmeter set to 500 V, measure the resistance according to the value(s) in the table

below while rotating the front wheels 2 revolutions in the same direction simultaneously.

NOTICE:

- Carefully perform this inspection as the generator (MG1) may generate current when the front wheels are rotated by hand.
- Be sure to set the megohmmeter to 500 V when performing this test. Using a setting higher than 500 V can result in damage to the component being inspected.

Standard Resistance:



*1	Shield Ground
*a	Motor Cable (for MG1) (Inverter with Converter Assembly Side)

EWD INFO

Click Location & Routing(j4)
Click Connector(j4)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
j4-5 (U) - Body ground and shield ground	Ignition switch ON	100 MΩ or higher
j4-6 (V) - Body ground and shield ground	Ignition switch ON	100 MΩ or higher
j4-4 (W) - Body ground and shield ground	Ignition switch ON	100 MΩ or higher

Post-procedure1

(f) Lower the vehicle and move the shift lever to P.

(g) Turn the ignition switch off.

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

NG ▶ **GO TO STEP 14**

OK ▼

7.	**CHECK HV AIR CONDITIONER WIRE**

CAUTION:

Be sure to wear insulated gloves.

Pre-procedure1

(a) Check that the service plug grip is not installed.

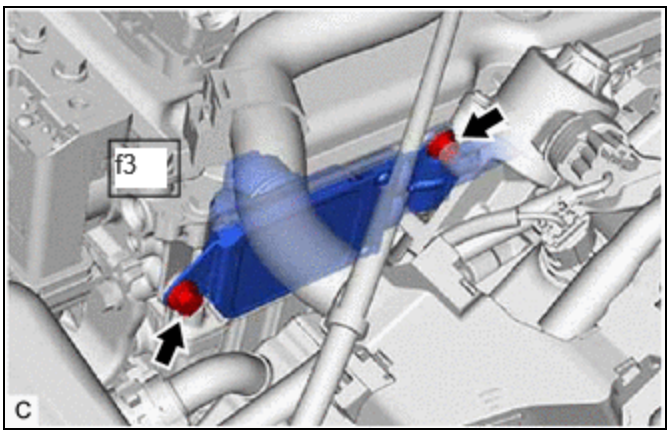
NOTICE:

After removing the service plug grip, do not turn the ignition switch to ON (READY), unless instructed by the repair manual because this may cause a malfunction.

(b) Disconnect the HV air conditioner wire connector from the inverter with converter assembly.

HINT:

Make sure that no foreign matter has entered or contaminated the HV floor under wire.



Procedure1

(c) Using a megohmmeter set to 500 V, measure the resistance according to the value(s) in the table below.

NOTICE:

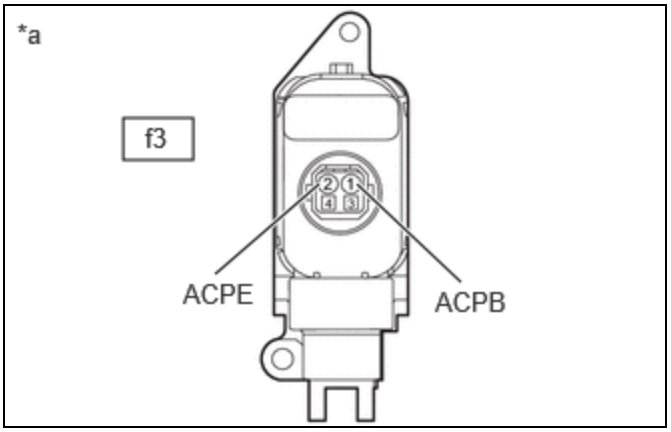
- Be sure to set the megohmmeter to 500 V when performing this test. Using a setting higher than 500 V can result in damage to the component being inspected.
- Be sure not to damage or deform the terminal being inspected.

Standard Resistance:

EWD INFO

Click Location & Routing(f3)
Click Connector(f3)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
f3-1 (ACPB) - Body ground	Ignition switch off	10 MΩ or higher
f3-2 (ACPE) - Body ground	Ignition switch off	10 MΩ or higher



*a	HV Air Conditioner Wire (inverter with Converter Assembly Side)

Post-procedure1

(d) None.

NG ▶ GO TO STEP 58

OK

8.	**CHECK FLOOR UNDER WIRE**

CAUTION:

Be sure to wear insulated gloves.

Pre-procedure1

(a) Check that the service plug grip is not installed.

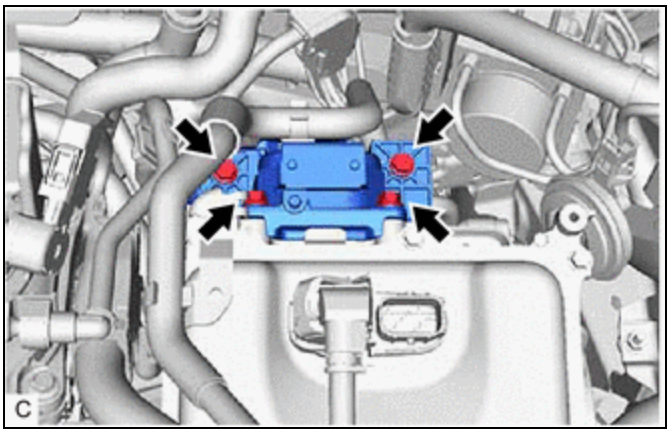
NOTICE:

After removing the service plug grip, do not turn the ignition switch to ON (READY), unless instructed by the repair manual because this may cause a malfunction.

(b) Disconnect the floor under wire connector from the inverter with converter assembly.

HINT:

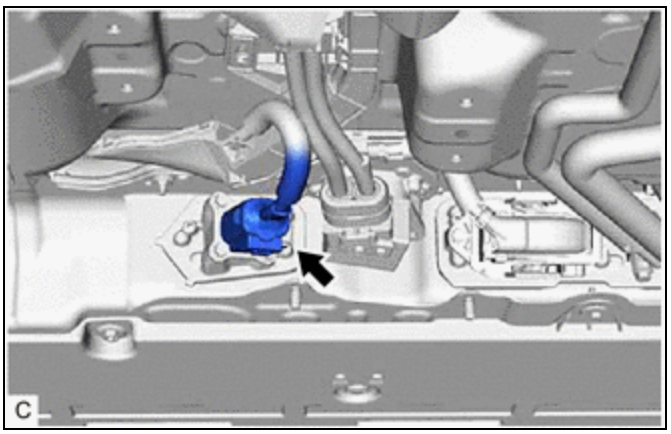
Make sure that no foreign matter has entered or contaminated the floor under wire.



(c) Disconnect the floor under wire connector from the HV supply battery assembly.

HINT:

Make sure that no foreign matter has entered or contaminated the floor under wire.



Procedure1

(d) Using a megohmmeter set to 500 V, measure the resistance according to the value(s) in the table

below.

NOTICE:

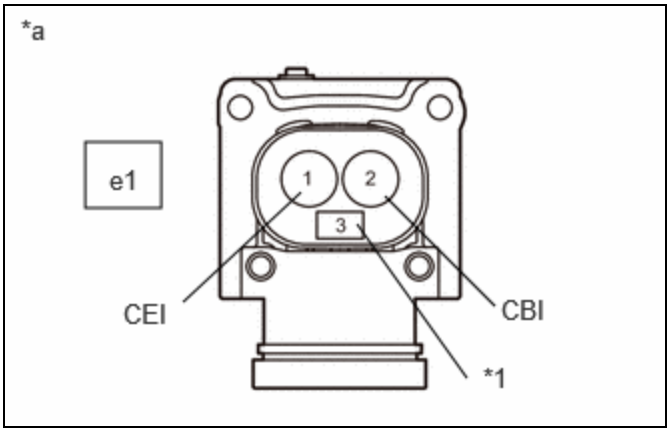
- Be sure to set the megohmmeter to 500 V when performing this test. Using a setting higher than 500 V can result in damage to the component being inspected.
- Be sure not to damage or deform the terminal being inspected.

Standard Resistance:

EWD INFO

Click Location & Routing(e1)
Click Connector(e1)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
e1-1 (CBI) - Body ground and shield ground	Ignition switch off	10 MΩ or higher
e1-2 (CEI) - Body ground and shield ground	Ignition switch off	10 MΩ or higher



*1	Shield Ground
*a	HV Floor Under Wire (Inverter with Converter Assembly Side)

HINT:

Visually inspect the floor under wire for damage. If there is any damage, then this is the likely cause of low insulation resistance.

Post-procedure1

(e) None.

NG ▶ **GO TO STEP 45**

OK ▼

9.	**CHECK INVERTER WITH CONVERTER ASSEMBLY**

CAUTION:

Be sure to wear insulated gloves.

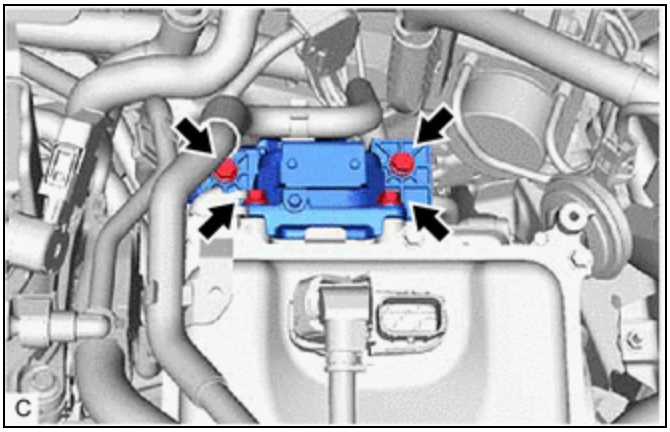
Pre-procedure1

(a) Check that the service plug grip is not installed.

NOTICE:

After removing the service plug grip, do not turn the ignition switch ON (READY), unless instructed by the repair manual because this may cause a malfunction.

(b) Connect the floor under wire connector to the inverter with converter assembly.



Procedure1

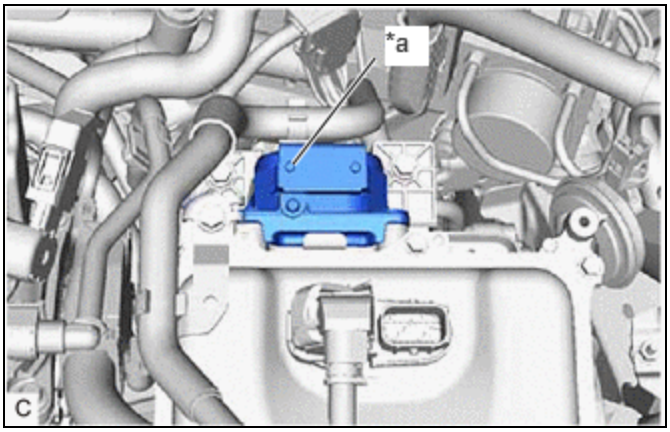
(c) Using a megohmmeter set to 500 V, measure the resistance according to the value(s) in the table below.

NOTICE:

Be sure to set the megohmmeter to 500 V when performing this test. Using a setting higher than 500 V can result in damage to the component being inspected.

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
High voltage terminal - Body ground	Ignition switch off	1 MΩ or higher



*a	High Voltage Terminal

HINT:

Perform this inspection with the motor cable and air conditioning wire disconnected from the inverter with converter assembly.

Post-procedure1

(d) None.

NG ▶ **GO TO STEP 44**

OK ▼

10.	**CHECK VEHICLE CONDITION**

(a) Choose the model to be inspected.

RESULT	PROCEED TO
without solar charge system	A
with solar charge system	B

A ▶ **GO TO STEP 16**

B ▶ **GO TO STEP 15**

11.	**CHECK COMPRESSOR OIL**

(a) Check that compressor oil other than DN-OIL 11 (e.g. ND-OIL 8, etc.) has not been used.

HINT:

- If even a small amount of oil other than ND-OIL 11 oil is used in the refrigeration cycle (contamination), a DTC related to high voltage system insulation malfunction may be stored.
- If a large amount of oil other than ND-OIL 11 oil is used, a DTC may be output again if components related to the refrigeration cycle (No. 1 cooler evaporator sub-assembly, cooler condenser assembly, compressor with motor assembly, cooler expansion valve, and piping) are not replaced as the voltage insulation properties will not recover.

NG ▶ **GO TO STEP 25**

OK ▼

12.	**REPLACE COMPRESSOR WITH MOTOR ASSEMBLY**

HINT:

Click here INFO

NEXT ▶ **PERFORM CONFIRMATION AFTER REPLACING PARTS**

13.	**CHECK MOTOR CABLE (FOR MG2)**

CAUTION:

Be sure to wear insulated gloves.

Pre-procedure1

(a) Check that the service plug grip is not installed.

NOTICE:

After removing the service plug grip, do not turn the ignition switch ON (READY), unless instructed by the repair manual because this may cause a malfunction.

(b) Remove the motor cable from the hybrid vehicle transaxle assembly.

Click here INFO

Procedure1

(c) Using a megohmmeter set to 500 V, measure the resistance according to the value(s) in the table below.

NOTICE:

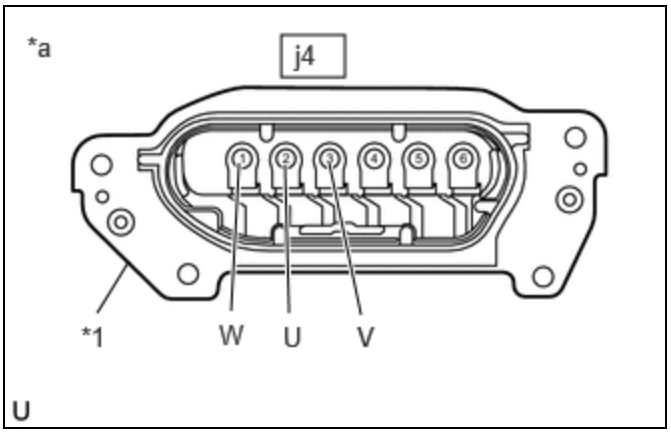
Be sure to set the megohmmeter to 500 V when performing this test. Using a setting higher than 500 V can result in damage to the component being inspected.

Standard Resistance:

EWD INFO

Click Location & Routing(j4)
Click Connector(j4)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
j4-2 (U) - Body ground and shield ground	Ignition switch off	100 MΩ or higher
j4-3 (V) - Body ground and shield ground	Ignition switch off	100 MΩ or higher
j4-1 (W) - Body ground and shield ground	Ignition switch off	100 MΩ or higher



*1	Shield Ground
*a	Motor Cable (for MG2) (Inverter with Converter Assembly Side)

Post-procedure1

(d) None.

OK ▶ **GO TO STEP 39**

NG ▶ **GO TO STEP 40**

14.	**CHECK MOTOR CABLE (FOR MG1)**

CAUTION:

Be sure to wear insulated gloves.

Pre-procedure1

(a) Check that the service plug grip is not installed.

NOTICE:

After removing the service plug grip, do not turn the ignition switch ON (READY), unless instructed by the repair manual because this may cause a malfunction.

(b) Remove the motor cable from the hybrid vehicle transaxle assembly.

Click here INFO

Procedure1

(c) Using a megohmmeter set to 500 V, measure the resistance according to the value(s) in the table below.

NOTICE:

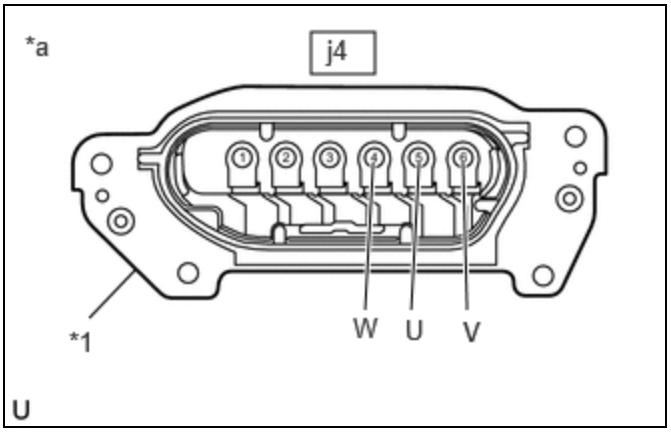
Be sure to set the megohmmeter to 500 V when performing this test. Using a setting higher than 500 V can result in damage to the component being inspected.

Standard Resistance:

EWD INFO

Click Location & Routing(j4)
Click Connector(j4)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
j4-5 (U) - Body ground and shield ground	Ignition switch off	100 MΩ or higher
j4-6 (V) - Body ground and shield ground	Ignition switch off	100 MΩ or higher
j4-4 (W) - Body ground and shield ground	Ignition switch off	100 MΩ or higher



*1	Shield Ground
*a	Motor Cable (for MG1) (Inverter with Converter Assembly Side)

Post-procedure1

(d) None.

OK ▶ **GO TO STEP 39**

NG ▶ **GO TO STEP 40**

15.	**CHECK SOLAR ENERGY CONTROL ECU ASSEMBLY**

CAUTION:

Be sure to wear insulated gloves and protective goggles.

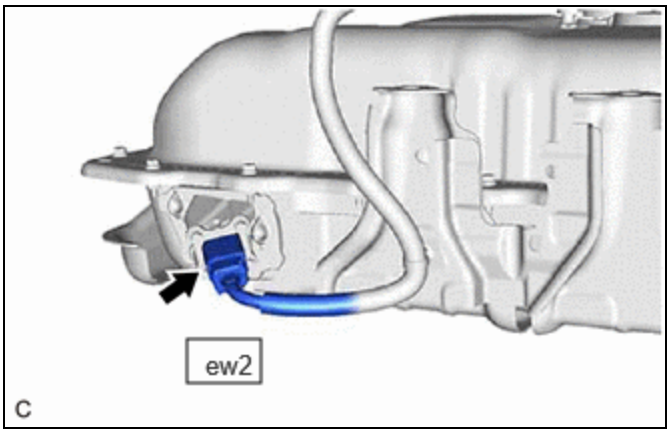
Pre-procedure1

(a) Check that the service plug grip is not installed.

NOTICE:

After removing the service plug grip, do not turn the ignition switch ON (READY), unless instructed by the repair manual because this may cause a malfunction.

(b) Disconnect the floor under wire connector from the HV supply battery assembly.



Procedure1

(c) Using a megohmmeter set to 500 V, measure the resistance according to the value(s) in the table below.

NOTICE:

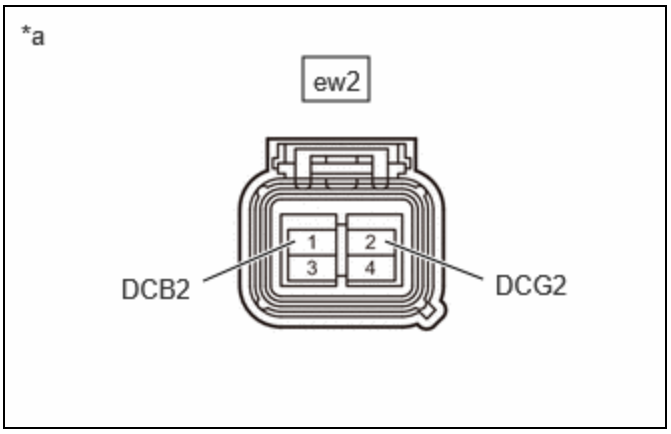
Be sure to set the megohmmeter to 500 V when performing this test. Using a setting higher than 500 V can result in damage to the component being inspected.

Standard Resistance:

EWD INFO

Click Location & Routing(ew2)
Click Connector(ew2)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
ew2-1 (DCB2) - Body ground	Ignition switch off	10 MΩ or higher
ew2-2 (DCG2) - Body ground	Ignition switch off	10 MΩ or higher



*a	Floor Under Wire (HV Supply Battery Assembly Side)

Post-procedure1

(d) None.

NG ▶ **GO TO STEP 62**

OK

▼

16.	**EXTERNAL INSPECTION OF HV SUPPLY BATTERY ASSEMBLY**

Click here INFO

NEXT

▼

17.	**CHECK FOR AIRTIGHTNESS OF HV SUPPLY BATTERY ASSEMBLY (ON-VEHICLE)**

Click here INFO

RESULT	PROCEED TO
OK (External Inspection OK, Airtightness Check OK)	NEXT
NG (External Inspection or Airtightness Check NG)	

NEXT

▼

18.	**REMOVE HV SUPPLY BATTERY ASSEMBLY**

Click here INFO

NEXT

▼

19.	**CHECK FOR AIRTIGHTNESS OF HV SUPPLY BATTERY ASSEMBLY (COMPONENT)**

Click here INFO

RESULT	PROCEED TO
OK (Remove No. 1 traction battery cover.)	NEXT
NG (After identifying airtightness check problem location, remove No. 1 traction battery cover.)	

NEXT

20.	**REMOVE NO. 1 TRACTION BATTERY COVER**

Click here INFO

NEXT

21.	**INSULATION INSPECTION OF HV SUPPLY BATTERY ASSEMBLY**

Click here INFO

NG ▶ **GO TO STEP 23**

OK

22.	**PERFORM INTERNAL INSPECTION OF HV SUPPLY BATTERY ASSEMBLY**

Click here INFO

NG ▶ **REPLACE REPAIR OR REPLACE MALFUNCTIONING PARTS**

OK

23.	**CHECK HV SUPPLY BATTERY ASSEMBLY (HIGH VOLTAGE CABLE)**

CAUTION:

Be sure to wear insulated gloves and protective goggles.

HINT:

Make sure that no foreign matter or water has entered the HV battery.

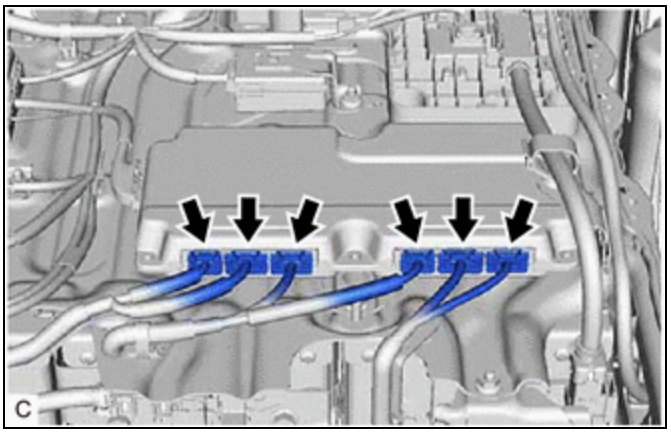
Pre-procedure1

(a) Check that the service plug grip is not installed.

NOTICE:

After removing the service plug grip, do not turn the ignition switch ON (READY), unless instructed by the repair manual because this may cause a malfunction.

(b) Disconnect the battery voltage sensor connectors.

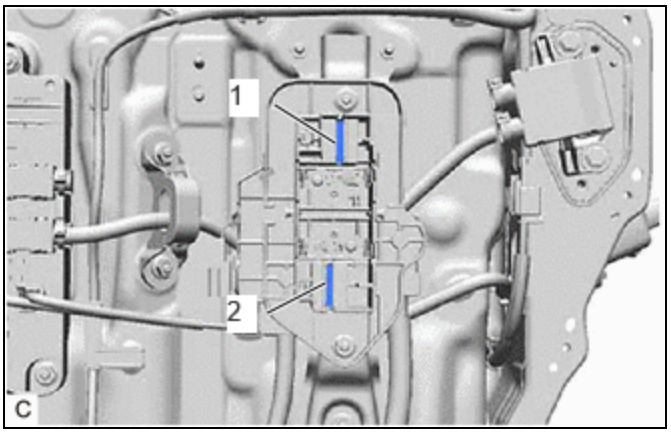


NOTICE:

Insulate each disconnected high-voltage connector with insulating tape. Wrap the connector from the wire harness side to the end of the connector.

Procedure1

(c) Using a megohmmeter set to 500 V, measure the resistance according to the value(s) in the table below.



NOTICE:

Be sure to set the megohmmeter to 500 V when performing this test. Using a setting higher than 500 V can result in damage to the component being inspected.

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
1 - Body ground	Ignition switch off	10 MΩ or higher
2 - Body ground	Ignition switch off	10 MΩ or higher

Post-procedure1

(d) None.

NG ▶ **GO TO STEP 26**

OK

24.	**REPLACE BATTERY ECU ASSEMBLY AND BATTERY VOLTAGE SENSOR**

HINT:

- Battery ECU assembly:

  Click here INFO
- Battery voltage sensor:

  Click here INFO

NEXT **PERFORM CONFIRMATION AFTER REPLACING PARTS**

25.	**REPLACE AIR CONDITIONING CYCLE**

NEXT **PERFORM CONFIRMATION AFTER REPLACING PARTS**

26.	**CHECK NO. 1 TRACTION BATTERY DEVICE BOX ASSEMBLY**

CAUTION:

Be sure to wear insulated gloves and protective goggles.

Pre-procedure1

(a) Check that the service plug grip is not installed.

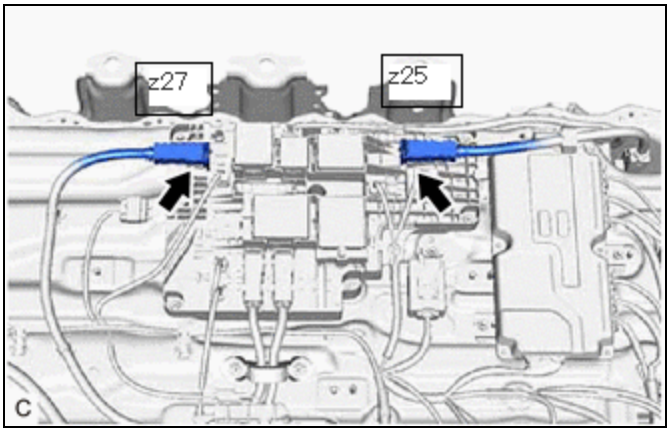
NOTICE:

After removing the service plug grip, do not turn the ignition switch ON (READY), unless instructed by the repair manual because this may cause a malfunction.

(b) Disconnect the high voltage cable connector of the HV battery from the No. 1 traction battery device box assembly.

NOTICE:

Insulate each disconnected high-voltage connector with insulating tape. Wrap the connector from the wire harness side to the end of the connector.



Procedure1

(c) Using a megohmmeter set to 500 V, measure the resistance according to the value(s) in the table below.

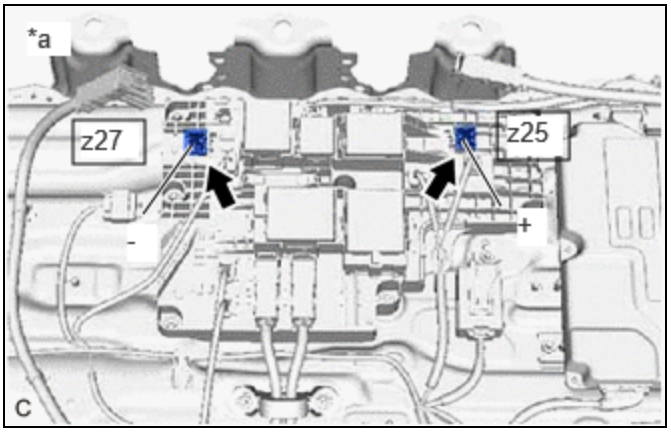
NOTICE:

Be sure to set the megohmmeter to 500 V when performing this test. Using a setting higher than 500 V can result in damage to the component being inspected.

Standard Resistance:

EWD INFO

Click Location & Routing(z25,z27)
Click Connector(z25)
Click Connector(z27)



TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
z25-1 (+) - Body ground	Ignition switch off	10 MΩ or higher
z27-1 (-) - Body ground	Ignition switch off	10 MΩ or higher

*a	Component without harness connected (No. 1 Traction Battery Device Box Assembly)

Post-procedure1

(d) None.

NG ▶ **GO TO STEP 57**

OK ▼

27.	**CHECK HV SUPPLY BATTERY ASSEMBLY**

CAUTION:

Be sure to wear insulated gloves and protective goggles.

(a) Check that no electrolyte is leaking from each HV supply battery assembly.

RESULT	PROCEED TO
Electrolyte is not leaking from the HV supply battery assembly.	A
Electrolyte is leaking from the HV supply battery assembly.	B

B ▶ **GO TO STEP 35**

A ▼

28.	**CHECK TRACTION BATTERY PLUG CABLE (NO. 1 HV SUPPLY STACK SUB-ASSEMBLY)**

CAUTION:

Be sure to wear insulated gloves and protective goggles.

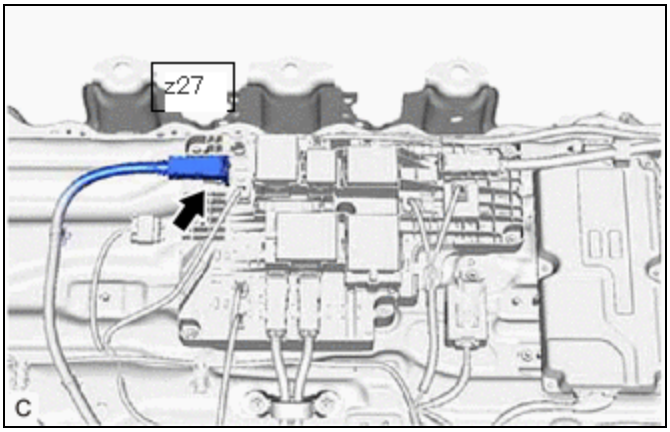
Pre-procedure1

(a) Check that the service plug grip is not installed.

NOTICE:

After removing the service plug grip, do not turn the ignition switch ON (READY), unless instructed by the repair manual because this may cause a malfunction.

(b) Disconnect the traction battery plug cable (HV supply stack sub-assembly) connector from the No. 1 traction battery device box assembly.



Procedure1

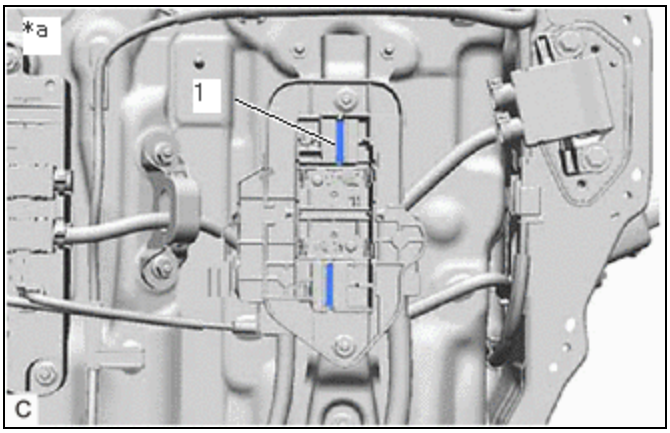
(c) Using a megohmmeter set to 500 V, measure the resistance according to the value(s) in the table below.

NOTICE:

Be sure to set the megohmmeter to 500 V when performing this test. Using a setting higher than 500 V can result in damage to the component being inspected.

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
1 - Body ground	Ignition switch off	10 MΩ or higher



*a	Traction Battery Plug Cable Grip

Post-procedure1

(d) None.

NG ▶ **GO TO STEP 32**

OK ▼

29.	CHECK NO. 1 HV SUPPLY STACK SUB-ASSEMBLY

CAUTION:

Be sure to wear insulated gloves and protective goggles.

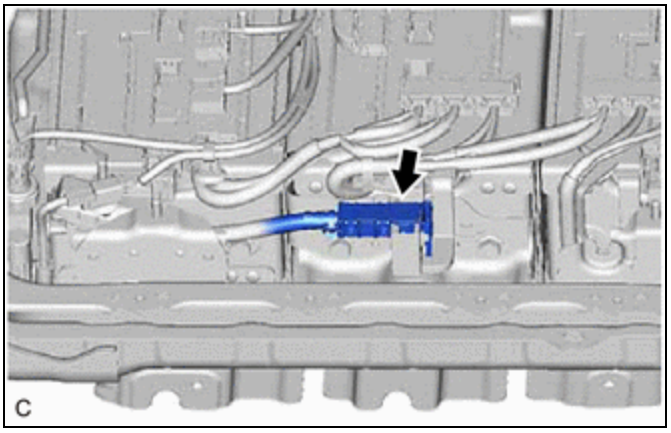
Pre-procedure1

(a) Check that the service plug grip is not installed.

NOTICE:

After removing the service plug grip, do not turn the ignition switch ON (READY), unless instructed by the repair manual because this may cause a malfunction.

(b) Disconnect the traction battery cable (No. 1 HV supply stack sub-assembly).



Procedure1

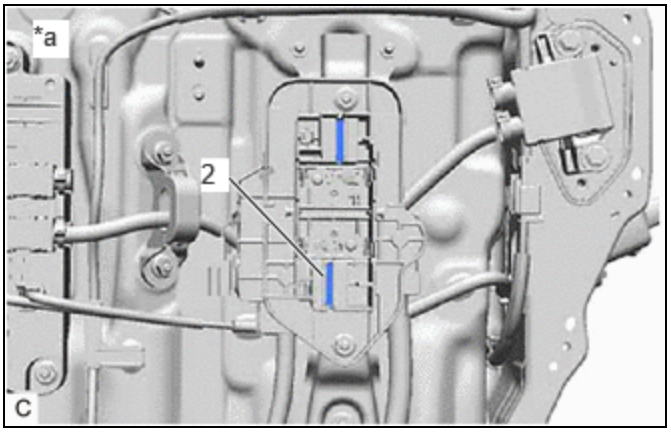
(c) Using a megohmmeter set to 500 V, measure the resistance according to the value(s) in the table below.

NOTICE:

Be sure to set the megohmmeter to 500 V when performing this test. Using a setting higher than 500 V can result in damage to the component being inspected.

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
2 - Body ground	Ignition switch off	10 MΩ or higher



*a	Traction Battery Plug Cable Grip

Post-procedure1

(d) None.

NG ▶ **GO TO STEP 33**

OK ▼

30.	CHECK NO. 3 HV SUPPLY STACK SUB-ASSEMBLY

CAUTION:

Be sure to wear insulated gloves and protective goggles.

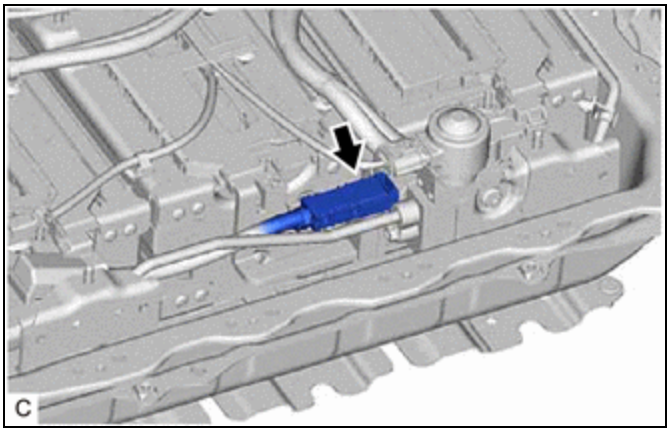
Pre-procedure1

(a) Check that the service plug grip is not installed.

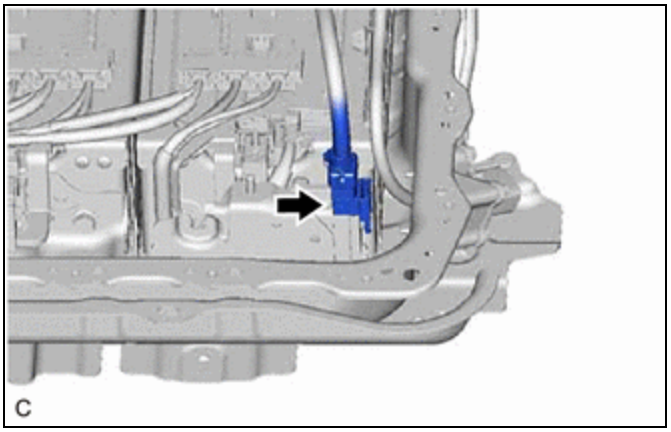
NOTICE:

After removing the service plug grip, do not turn the ignition switch ON (READY), unless instructed by the repair manual because this may cause a malfunction.

(b) Disconnect the traction battery cable (No. 3 HV supply stack sub-assembly).



(c) Disconnect the traction battery cable connector.



Procedure1

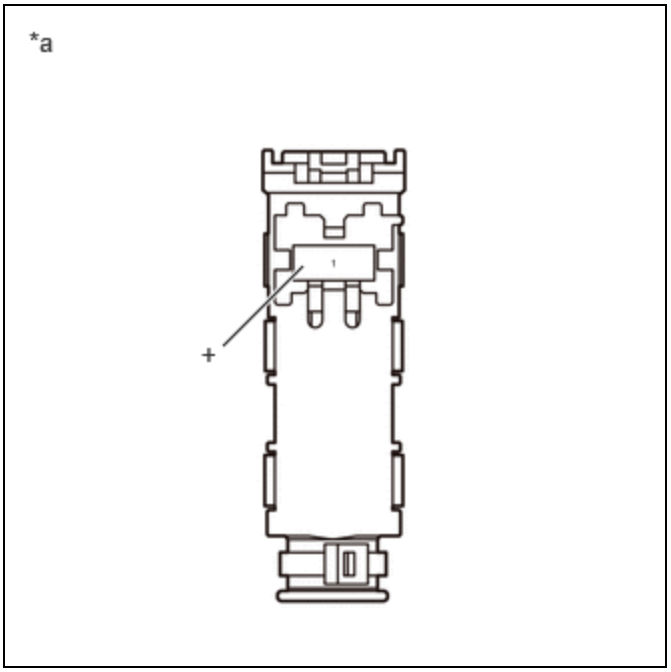
(d) Using a megohmmeter set to 500 V, measure the resistance according to the value(s) in the table below.

NOTICE:

Be sure to set the megohmmeter to 500 V when performing this test. Using a setting higher than 500 V can result in damage to the component being inspected.

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
1 (+) - Body ground	Ignition switch off	10 MΩ or higher



*a	No. 3 HV Supply Stack Sub-assembly Connector (No. 2 HV Supply Stack Sub-assembly Side)

Post-procedure1

(e) None.

NG ▶ **GO TO STEP 34**

OK ▼

31.	**REPLACE NO. 2 HV SUPPLY STACK SUB-ASSEMBLY**

HINT:

Click here INFO

NEXT ▶ **PERFORM CONFIRMATION AFTER REPLACING PARTS**

32.	**REPLACE NO. 1 HV SUPPLY STACK SUB-ASSEMBLY**

HINT:

Click here INFO

NEXT ▶ PERFORM CONFIRMATION AFTER REPLACING PARTS

33.	REPLACE NO. 1 HV SUPPLY STACK SUB-ASSEMBLY

HINT:

Click here INFO

NEXT ▶ PERFORM CONFIRMATION AFTER REPLACING PARTS

34.	REPLACE NO. 3 HV SUPPLY STACK SUB-ASSEMBLY

HINT:

Click here INFO

NEXT ▶ PERFORM CONFIRMATION AFTER REPLACING PARTS

35.	REPLACE HV SUPPLY BATTERY ASSEMBLY

HINT:

Click here INFO

NEXT ▶ PERFORM CONFIRMATION AFTER REPLACING PARTS

36.	CHECK INVERTER WITH CONVERTER ASSEMBLY

CAUTION:

Be sure to wear insulated gloves.

Pre-procedure1

(a) Check that the service plug grip is not installed.

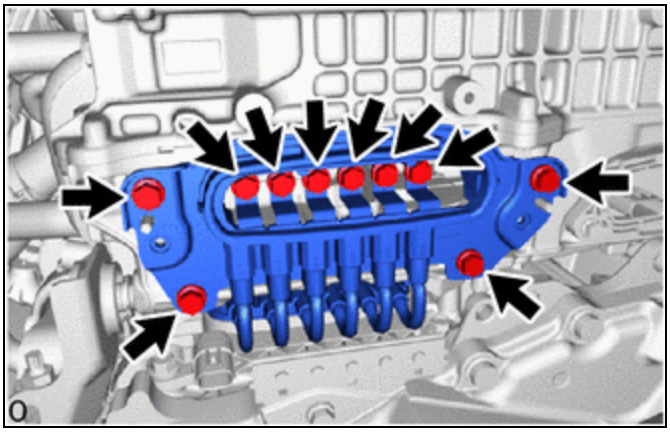
NOTICE:

After removing the service plug grip, do not turn the ignition switch ON (READY), unless instructed by the repair manual because this may cause a malfunction.

(b) Disconnect the motor cable from the inverter with converter assembly.

HINT:

Make sure that no foreign matter, coolant or water enters the inverter with converter assembly.



Procedure1

(c) Using a megohmmeter set to 500 V, measure the resistance according to the value(s) in the table below.

NOTICE:

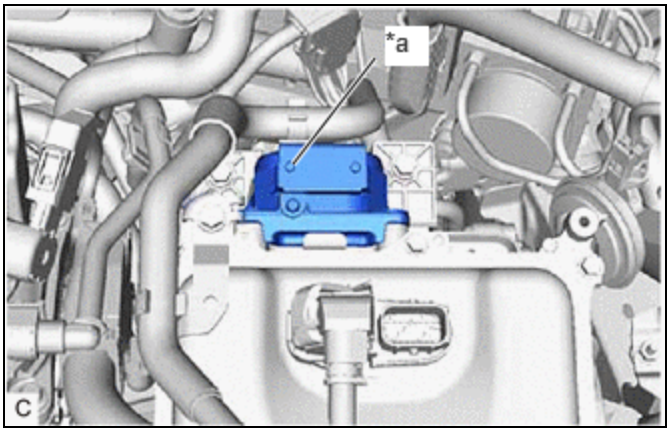
Be sure to set the megohmmeter to 500 V when performing this test. Using a setting higher than 500 V can result in damage to the component being inspected.

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
High voltage terminal - Body ground	Ignition switch off	1 MΩ or higher

HINT:

Perform this inspection with the motor cable disconnected from the inverter with converter assembly.



*a	High Voltage Terminal

Post-procedure1

(d) None.

NG ▶ **GO TO STEP 44**

OK ▼

37.	**CHECK MOTOR CABLE (FOR MG2)**

CAUTION:

Be sure to wear insulated gloves.

Pre-procedure1

(a) Check that the service plug grip is not installed.

NOTICE:

After removing the service plug grip, do not turn the ignition switch ON (READY), unless instructed by the repair manual because this may cause a malfunction.

(b) Remove the motor cable from the hybrid vehicle transaxle assembly.

Click here INFO

Procedure1

(c) Using a megohmmeter set to 500 V, measure the resistance according to the value(s) in the table below.

NOTICE:

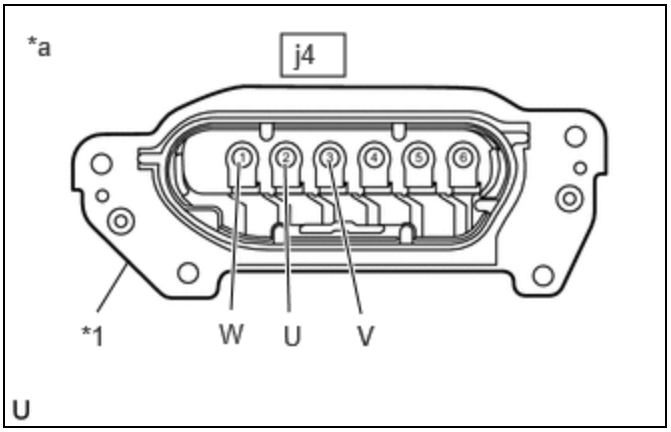
Be sure to set the megohmmeter to 500 V when performing this test. Using a setting higher than 500 V can result in damage to the component being inspected.

Standard Resistance:

EWD INFO

Click Location & Routing(j4)
Click Connector(j4)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
j4-2 (U) - Body ground and shield ground	Ignition switch off	100 MΩ or higher
j4-3 (V) - Body ground and shield ground	Ignition switch off	100 MΩ or higher
j4-1 (W) - Body ground and shield ground	Ignition switch off	100 MΩ or higher



*1	Shield Ground
*a	Motor Cable (for MG2) (Inverter with Converter Assembly Side)

Post-procedure1

(d) None.

NG ▶ **GO TO STEP 40**

OK ▼

38.	CHECK MOTOR CABLE (FOR MG1)

CAUTION:

Be sure to wear insulated gloves.

Pre-procedure1

(a) Check that the service plug grip is not installed.

NOTICE:

After removing the service plug grip, do not turn the ignition switch ON (READY), unless instructed by the repair manual because this may cause a malfunction.

Procedure1

(b) Using a megohmmeter set to 500 V, measure the resistance according to the value(s) in the table below.

NOTICE:

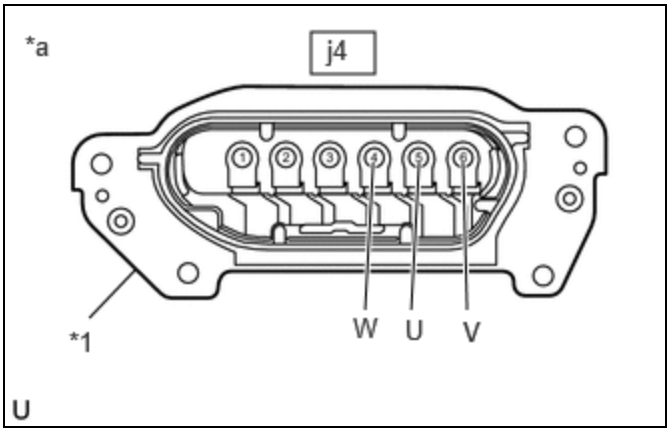
Be sure to set the megohmmeter to 500 V when performing this test. Using a setting higher than 500 V can result in damage to the component being inspected.

Standard Resistance:

EWD INFO

Click Location & Routing(j4)
Click Connector(j4)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
j4-5 (U) - Body ground and shield ground	Ignition switch off	100 MΩ or higher
j4-6 (V) - Body ground and shield ground	Ignition switch off	100 MΩ or higher
j4-4 (W) - Body ground and shield ground	Ignition switch off	100 MΩ or higher



*1	Shield Ground
*a	Motor Cable (for MG1) (Hybrid Motor Control Inverter Assembly Side)

Post-procedure1

(c) None.

NG ▶ GO TO STEP 40

OK ▼

39.	**REPLACE HYBRID VEHICLE TRANSAXLE ASSEMBLY**

HINT:

Click here INFO

NEXT **PERFORM CONFIRMATION AFTER REPLACING PARTS**

40.	**REPLACE MOTOR CABLE**

HINT:

Click here INFO

NEXT **PERFORM CONFIRMATION AFTER REPLACING PARTS**

41.	**CHECK HIGH VOLTAGE DIRECT CURRENT AREA**

CAUTION:

Be sure to wear insulated gloves.

Pre-procedure1

(a) Check that the service plug grip is not installed.

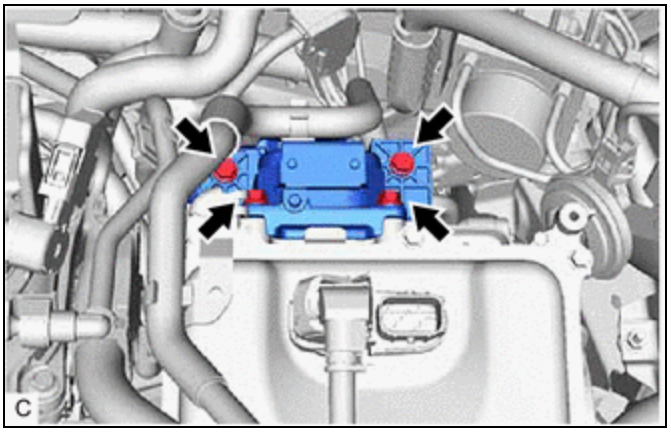
NOTICE:

After removing the service plug grip, do not turn the ignition switch ON (READY), unless instructed by the repair manual because this may cause a malfunction.

(b) Disconnect the floor under wire connector from the inverter with converter assembly.

HINT:

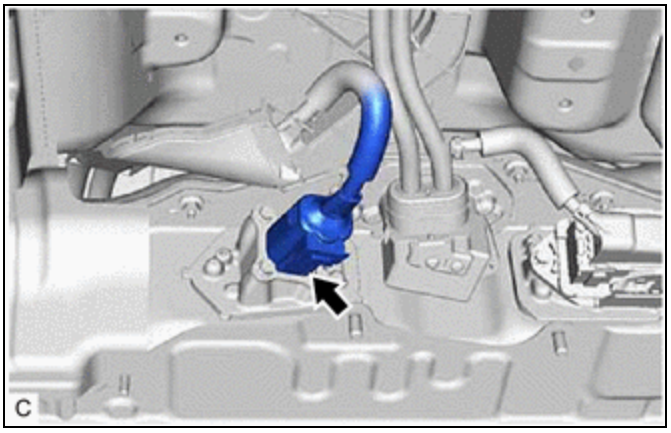
Make sure that no foreign matter has entered or contaminated the floor under wire.



(c) Disconnect the floor under wire from the HV supply battery assembly.

HINT:

Make sure that no foreign matter has entered or contaminated the floor under wire.



Procedure1

(d) Using a megohmmeter set to 500 V, measure the resistance according to the value(s) in the table below.

NOTICE:

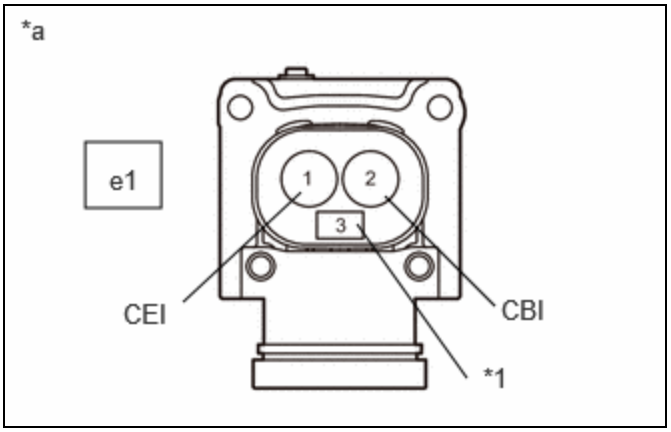
- Be sure to set the megohmmeter to 500 V when performing this test. Using a setting higher than 500 V can result in damage to the component being inspected.
- Be sure not to damage or deform the terminal being inspected.

Standard Resistance:

EWD INFO

Click Location & Routing(e1)
Click Connector(e1)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
e1-1 (CEI) - Body ground and shield ground	Ignition switch off	10 MΩ or higher
e1-2 (CBI) - Body ground and shield ground	Ignition switch off	10 MΩ or higher



*1	Shield Ground
*a	Floor Under Wire (Inverter with Converter Assembly Side)

HINT:

Visually inspect the floor under wire for damage. If there is any damage, then this is the likely cause of low insulation resistance.

Post-procedure1

(e) None.

NG ▶ **GO TO STEP 45**

OK ▼

42.	**CHECK HV AIR CONDITIONING WIRE**

CAUTION:

Be sure to wear insulated gloves.

Pre-procedure1

(a) Check that the service plug grip is not installed.

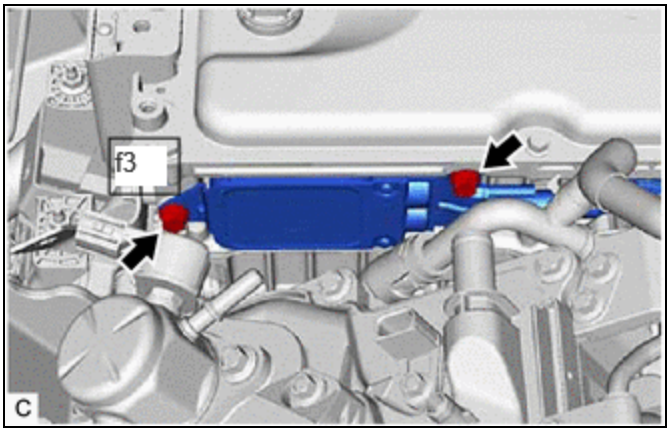
NOTICE:

After removing the service plug grip, do not turn the ignition switch to ON (READY), unless instructed by the repair manual because this may cause a malfunction.

(b) Disconnect the HV air conditioning wire from the inverter with converter assembly.

HINT:

Make sure that no foreign matter has entered or contaminated the HV air conditioning wire.



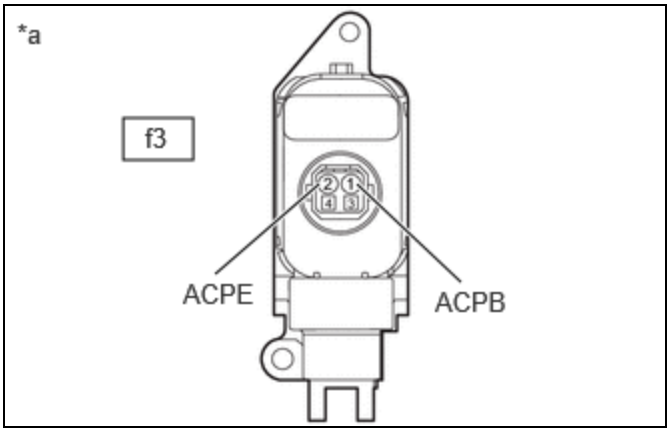
Procedure1

(c) Using a megohmmeter set to 500 V, measure the resistance according to the value(s) in the table below.

NOTICE:

- Be sure to set the megohmmeter to 500 V when performing this test. Using a setting higher than 500 V can result in damage to the component being inspected.
- Be sure to inspect with connecting the tester probes to the tips of the terminal.

Standard Resistance:



EWD INFO

Click Location & Routing(f3)

Click Connector(f3)

*a	HV Air Conditioning Wire (Inverter with Converter Assembly Side)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
f3-1 (ACPB) - Body ground	Ignition switch off	3 MΩ or higher
f3-2 (ACPE) - Body ground	Ignition switch off	3 MΩ or higher

Result:

PROCEED TO
OK
NG

Post-procedure1

(d) None.

NG ▶ **GO TO STEP 58**

OK ▼

43.	CHECK ELECTRIC VEHICLE CHARGER ASSEMBLY

CAUTION:

Be sure to wear insulated gloves and protective goggles.

Pre-procedure1

(a) Check that the service plug grip is not installed.

NOTICE:

After removing the service plug grip, do not turn the ignition switch ON (READY), unless instructed by the repair manual because this may cause a malfunction.

Procedure1

(b) Using a megohmmeter set to 500 V, measure the resistance according to the value(s) in the table below.

NOTICE:

Be sure to set the megohmmeter to 500 V when performing this test. Using a setting higher than

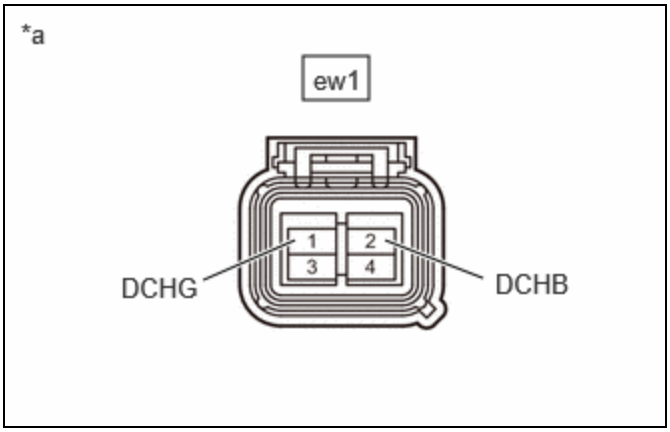
500 V can result in damage to the component being inspected.

Standard Resistance:

EWD INFO

Click Location & Routing(ew1)
Click Connector(ew1)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
ew1-2 (DCHB) - Body ground	Ignition switch off	10 MΩ or higher
ew1-1 () DCHG- Body ground	Ignition switch off	10 MΩ or higher



*a	Floor Under Wire (Floor Under Wire Side)

Post-procedure1

(c) None.

NG ▶ **GO TO STEP 48**

OK ▼

44.	REPLACE INVERTER WITH CONVERTER ASSEMBLY

Click here INFO

NEXT ▶ **PERFORM CONFIRMATION AFTER REPLACING PARTS**

45.	CHECK FLOOR UNDER WIRE

CAUTION:

Be sure to wear insulated gloves.

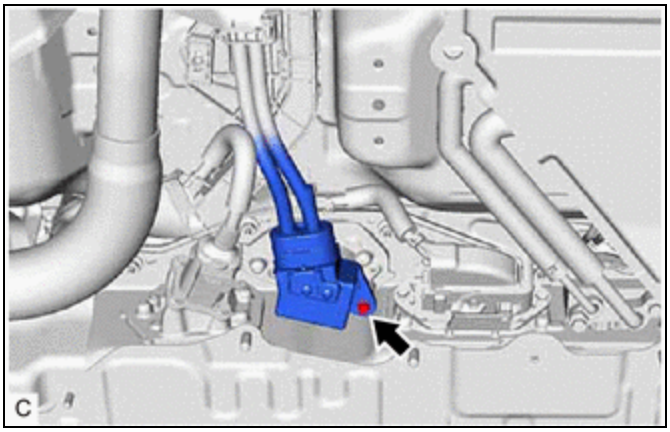
Pre-procedure1

(a) Check that the service plug grip is not installed.

NOTICE:

After removing the service plug grip, do not turn the ignition switch ON (READY), unless instructed by the repair manual because this may cause a malfunction.

(b) Disconnect the floor under wire connectors from the HV supply battery assembly.



HINT:

Make sure that no foreign matter has entered or contaminated the floor under wire.

Procedure1

(c) Using a megohmmeter set to 500 V, measure the resistance according to the value(s) in the table below.

NOTICE:

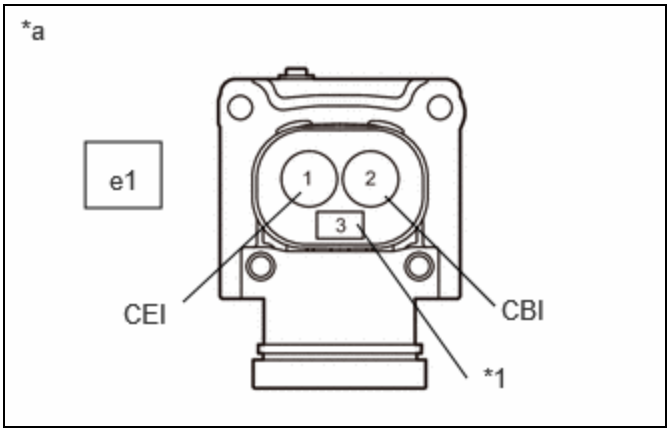
- Be sure to set the megohmmeter to 500 V when performing this test. Using a setting higher than 500 V can result in damage to the component being inspected.
- Be sure not to damage or deform the terminal being inspected.

Standard Resistance:

EWD INFO

Click Location & Routing(e1)
Click Connector(e1)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
e1-1 (CEI) - Body ground and shield ground	Ignition switch off	10 MΩ or higher
e1-2 (CBI) - Body ground and shield ground	Ignition switch off	10 MΩ or higher



*1	Shield Ground
*a	Floor Under Wire (Inverter with Converter Assembly Side)

HINT:

Visually inspect the floor under wire for damage. If there is any damage, then this is the likely cause of low insulation resistance.

Post-procedure1

(d) None.

NG ▶ **GO TO STEP 53**

OK ▼

46.	CHECK NO. 6 TRACTION BATTERY CABLE

CAUTION:

Be sure to wear insulated gloves.

Pre-procedure1

(a) Check that the service plug grip is not installed.

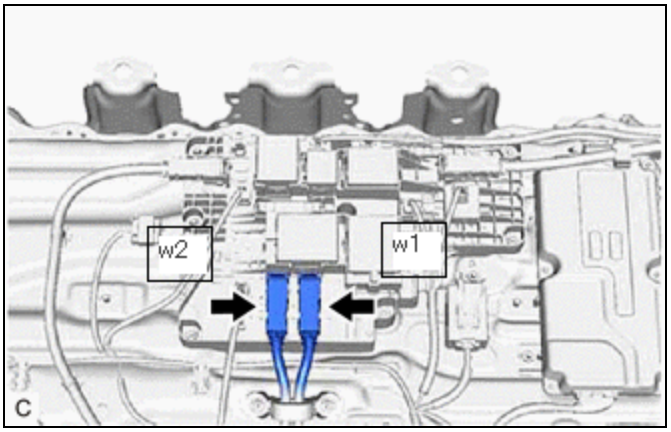
NOTICE:

After removing the service plug grip, do not turn the ignition switch ON (READY), unless instructed by the repair manual because this may cause a malfunction.

(b) Disconnect the No. 6 traction battery cable connectors from the No, 1 traction battery device box assembly.

HINT:

Make sure that no foreign matter has entered or contaminated the No. 6 traction battery cable.



Procedure1

(c) Using a megohmmeter set to 500 V, measure the resistance according to the value(s) in the table below.

NOTICE:

- Be sure to set the megohmmeter to 500 V when performing this test. Using a setting higher than 500 V can result in damage to the component being inspected.
- Be sure not to damage or deform the terminal being inspected.

Standard Resistance:

EWD INFO

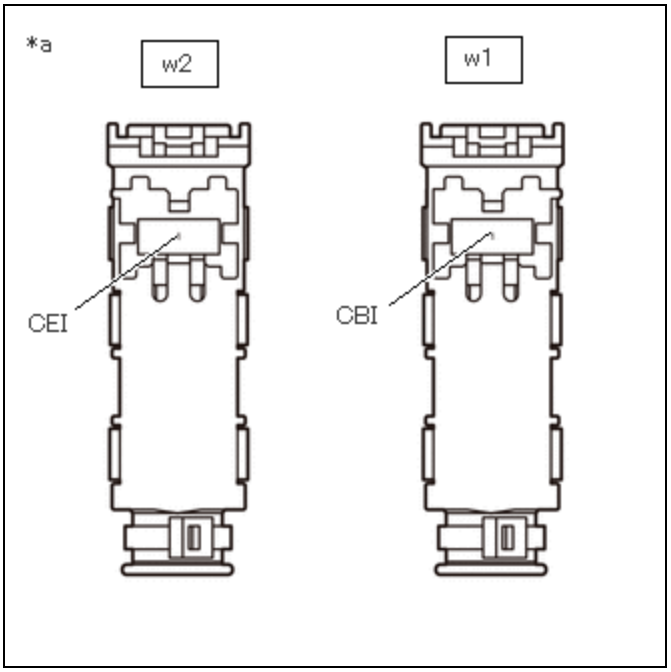
Click Location & Routing(w1,w2)

Click Connector(w1)
Click Connector(w2)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
w1-1 (CBI) - Body ground and shield ground	Ignition switch off	10 MΩ or higher
w2-1 (CEI) - Body ground and shield ground	Ignition switch off	10 MΩ or higher

HINT:

Visually inspect the No. 6 traction battery cable for damage. If there is any damage, then this is the likely cause of low insulation resistance.



*a	No. 6 Traction Battery Cable (No. 1 Traction Battery Device Box Assembly Side)

Post-procedure1

(d) None.

NG ▶ **GO TO STEP 51**

OK ▼

47.	**REPLACE NO. 1 TRACTION BATTERY DEVICE BOX ASSEMBLY**

HINT:

Click here INFO

NEXT ▶ **PERFORM CONFIRMATION AFTER REPLACING PARTS**

48.	**CHECK FLOOR UNDER WIRE**

CAUTION:

Be sure to wear insulated gloves and protective goggles.

Pre-procedure1

(a) Check that the service plug grip is not installed.

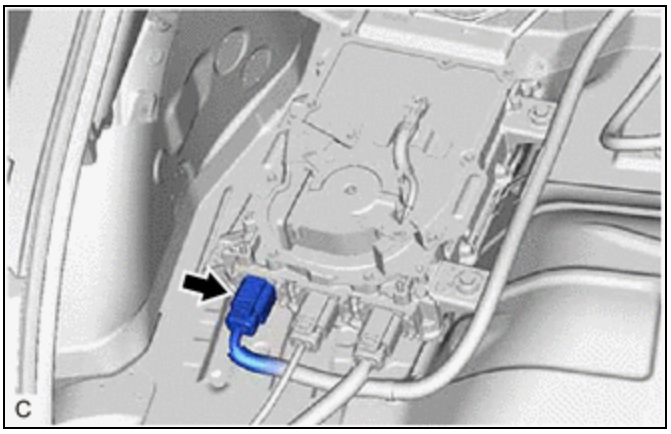
NOTICE:

After removing the service plug grip, do not turn the ignition switch ON (READY), unless instructed by the repair manual because this may cause a malfunction.

(b) Disconnect the floor under wire connector from the electric vehicle charger assembly.

HINT:

Make sure that no foreign matter has entered or contaminated the floor under wire conditioning wire.



Procedure1

(c) Using a megohmmeter set to 500 V, measure the resistance according to the value(s) in the table below.

NOTICE:

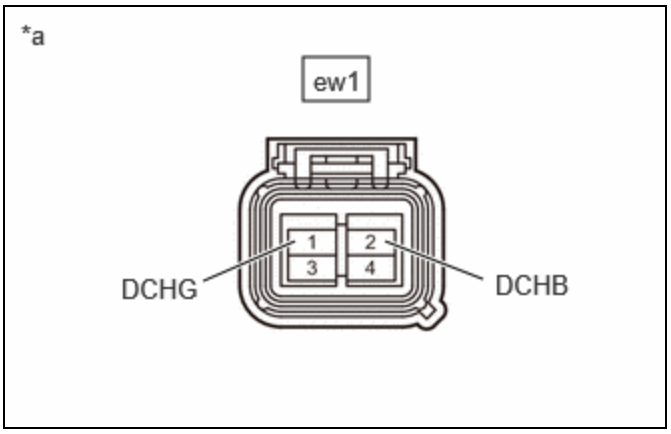
Be sure to set the megohmmeter to 500 V when performing this test. Using a setting higher than 500 V can result in damage to the component being inspected.

Standard Resistance:

EWD INFO

Click Location & Routing(ew1)
Click Connector(ew1)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
ew1-2 (DCHB) - Body ground	Ignition switch off	10 MΩ or higher
ew1-1 (DCHG) - Body ground	Ignition switch off	10 MΩ or higher



*a	Floor Under Wire (HV Supply Battery Assembly Side)

Post-procedure1

(d) None.

NG ▶ **GO TO STEP 54**

OK ▼

49.	CHECK NO. 7 TRACTION BATTERY CABLE

CAUTION:

Be sure to wear insulated gloves.

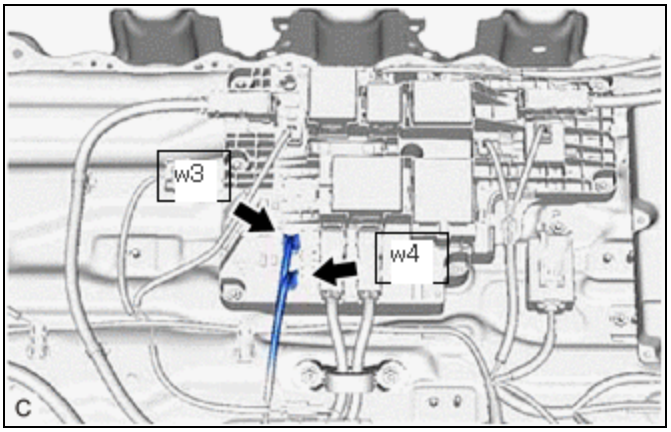
Pre-procedure1

(a) Check that the service plug grip is not installed.

NOTICE:

After removing the service plug grip, do not turn the ignition switch ON (READY), unless instructed by the repair manual because this may cause a malfunction.

(b) Disconnect the No. 7 traction battery cable connectors from the No, 1 traction battery device box assembly.



HINT:

Make sure that no foreign matter has entered or contaminated the No. 7 traction battery cable.

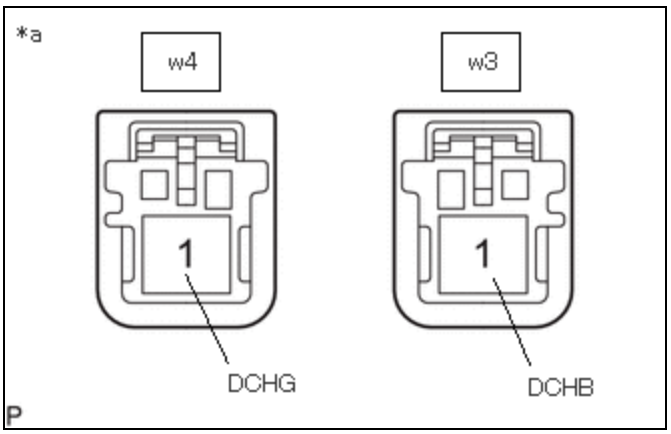
Procedure1

(c) Using a megohmmeter set to 500 V, measure the resistance according to the value(s) in the table below.

NOTICE:

- Be sure to set the megohmmeter to 500 V when performing this test. Using a setting higher than 500 V can result in damage to the component being inspected.
- Be sure not to damage or deform the terminal being inspected.

Standard Resistance:



EWD INFO

*a	No. 7 Traction Battery Cable (No. 1 Traction Battery Device Box Assembly Side)

Click Location & Routing(w3,w4)
Click Connector(w3)
Click Connector(w4)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
w3-1 (DCHB) - Body ground	Ignition switch off	10 MΩ or higher
w4-1 (DCHG)- Body ground	Ignition switch off	10 MΩ or higher

Post-procedure1

(d) None.

NG ▶ **GO TO STEP 52**

OK ▼

50.	**REPLACE NO. 1 TRACTION BATTERY DEVICE BOX ASSEMBLY**

Click here INFO

NEXT ▶ **PERFORM CONFIRMATION AFTER REPLACING PARTS**

51.	**REPLACE NO. 6 TRACTION BATTERY CABLE**

HINT:

Click here INFO

NEXT ▶ **PERFORM CONFIRMATION AFTER REPLACING PARTS**

52.	**REPLACE NO. 7 TRACTION BATTERY CABLE**

Click here INFO

NEXT ▶ **PERFORM CONFIRMATION AFTER REPLACING PARTS**

53.	**REPLACE FLOOR UNDER WIRE**

HINT:

Click here INFO

NEXT **PERFORM CONFIRMATION AFTER REPLACING PARTS**

54.	**REPLACE FLOOR UNDER WIRE**

Click here INFO

NEXT **PERFORM CONFIRMATION AFTER REPLACING PARTS**

55.	**CHECK SOLAR ENERGY CONTROL ECU ASSEMBLY**

CAUTION:

Be sure to wear insulated gloves and protective goggles.

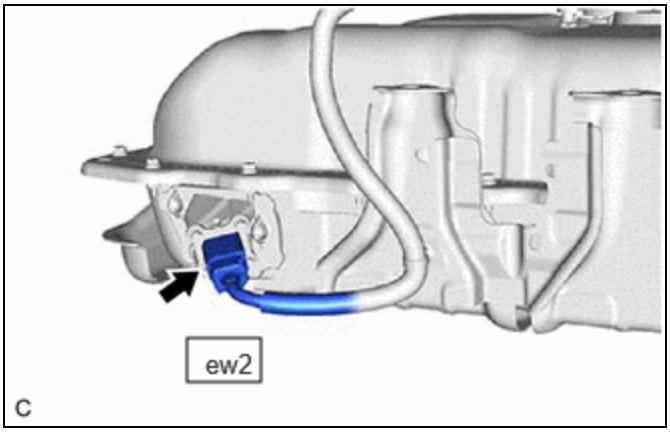
Pre-procedure1

(a) Check that the service plug grip is not installed.

NOTICE:

After removing the service plug grip, do not turn the ignition switch ON (READY), unless instructed by the repair manual because this may cause a malfunction.

(b) Disconnect the floor under wire connector from the HV supply battery assembly.



Procedure1

(c) Using a megohmmeter set to 500 V, measure the resistance according to the value(s) in the table

below.

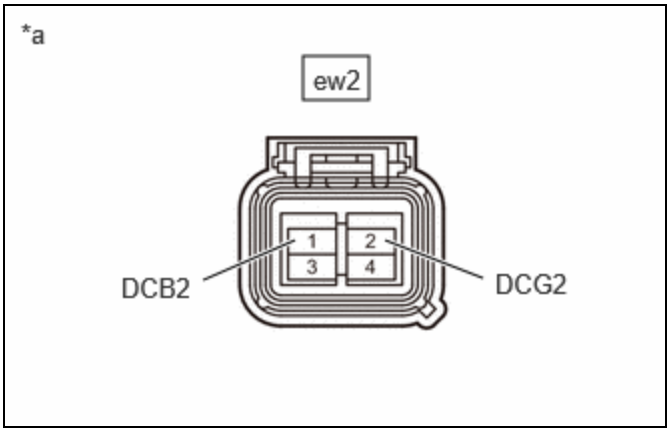
NOTICE:

Be sure to set the megohmmeter to 500 V when performing this test. Using a setting higher than 500 V can result in damage to the component being inspected.

Standard Resistance:

EWD INFO

Click Location & Routing(ew2)
Click Connector(ew2)



TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
ew2-1 (DCB2) - Body ground	Ignition switch off	10 MΩ or higher
ew2-2 (DCG2) - Body ground	Ignition switch off	3 MΩ or higher

*a	Floor Under Wire (HV Supply Battery Assembly Side)

Post-procedure1

(d) None.

NG ▶ **GO TO STEP 62**

OK ▼

56.	CHECK NO. 8 TRACTION BATTERY CABLE

CAUTION:

Be sure to wear insulated gloves.

Pre-procedure1

(a) Check that the service plug grip is not installed.

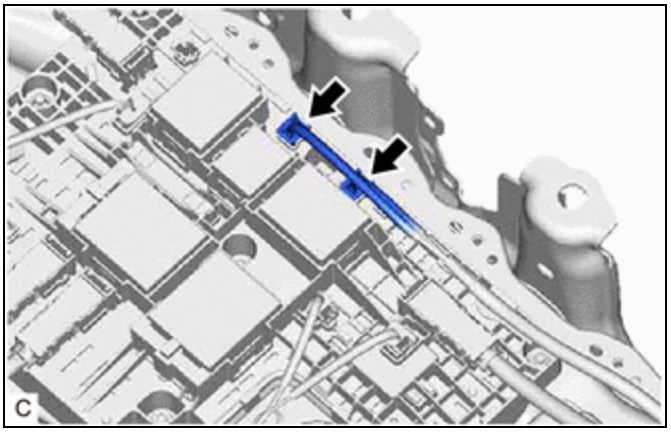
NOTICE:

After removing the service plug grip, do not turn the ignition switch ON (READY), unless instructed by the repair manual because this may cause a malfunction.

(b) Disconnect the No. 8 traction battery cable connectors from the No, 1 traction battery device box assembly.

HINT:

Make sure that no foreign matter has entered or contaminated the No. 8 traction battery cable.



Procedure1

(c) Using a megohmmeter set to 500 V, measure the resistance according to the value(s) in the table below.

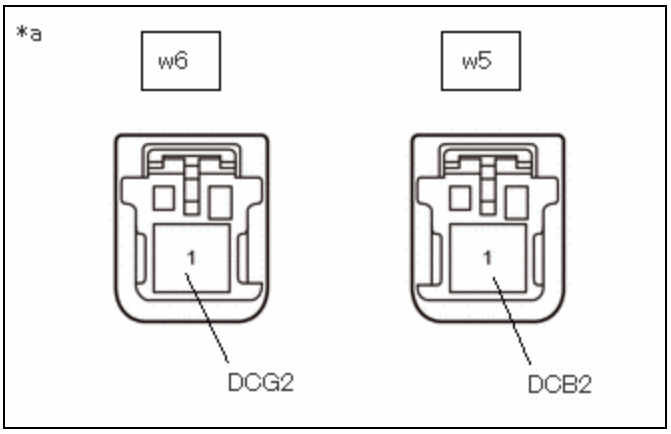
NOTICE:

- Be sure to set the megohmmeter to 500 V when performing this test. Using a setting higher than 500 V can result in damage to the component being inspected.
- Be sure not to damage or deform the terminal being inspected.

Standard Resistance:

EWD INFO

Click Location & Routing(w5,w6)
Click Connector(w5)
Click Connector(w6)



*a	No. 8 Traction Battery Cable (No. 1 Traction Battery Device Box Assembly Side)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
w5-1 (DCB2) - Body ground	Ignition switch off	10 MΩ or higher
w6-1 (DCG2) - Body ground	Ignition switch off	10 MΩ or higher

Post-procedure1

(d) None.

NG ▶ **GO TO STEP 60**

OK

57.	REPLACE NO. 1 TRACTION BATTERY DEVICE BOX ASSEMBLY

HINT:

Click here INFO

NEXT **PERFORM CONFIRMATION AFTER REPLACING PARTS**

58.	CHECK HV AIR CONDITIONING WIRE

CAUTION:

Be sure to wear insulated gloves.

Pre-procedure1

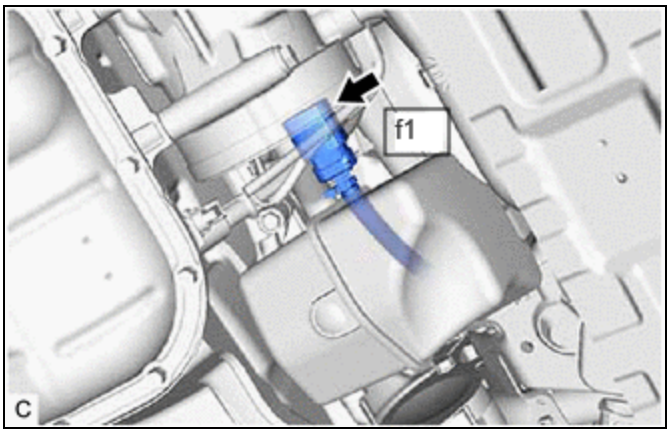
(a) Check that the service plug grip is not installed.

NOTICE:

After removing the service plug grip, do not turn the ignition switch to ON (READY), unless instructed by the repair manual because this may cause a malfunction.

(b) Disconnect the HV air conditioning wire connector from the compressor with motor assembly.

Click here INFO



Procedure1

(c) Using a megohmmeter set to 500 V, measure the resistance according to the value(s) in the table below.

NOTICE:

- Be sure to set the megohmmeter to 500 V when performing this test. Using a setting higher than 500 V can result in damage to the component being inspected.

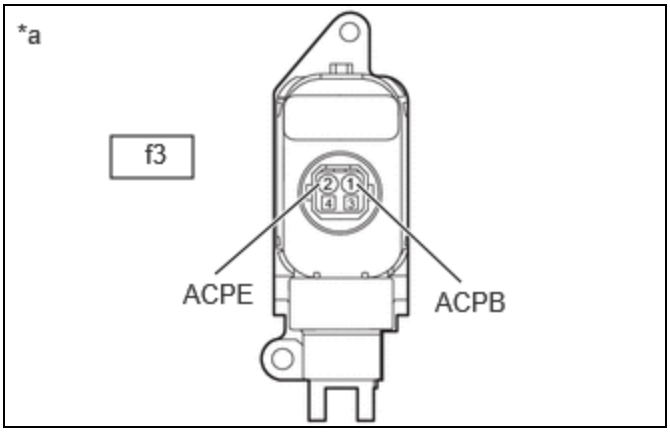
- Be sure to inspect with connecting the tester probes to the tips of the terminal.

Standard Resistance:

EWD INFO

Click Location & Routing(f3)
Click Connector(f3)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
f3-1 (ACPB) - Body ground	Ignition switch off	10 MΩ or higher
f3-2 (ACPE) - Body ground	Ignition switch off	10 MΩ or higher



*a	HV Air Conditioning Wire (Inverter with Converter Assembly Side)

Result:

PROCEED TO
OK
NG

Post-procedure1

(d) None.

NG ▶ **GO TO STEP 61**

OK ▼

59.	**REPLACE COMPRESSOR WITH MOTOR ASSEMBLY**

HINT:

Click here INFO

NEXT ▶ **PERFORM CONFIRMATION AFTER REPLACING PARTS**

60.	**REPLACE NO. 8 TRACTION BATTERY CABLE**

HINT:

Click here INFO

NEXT **PERFORM CONFIRMATION AFTER REPLACING PARTS**

61.	**REPLACE HV AIR CONDITIONING WIRE**

NEXT **PERFORM CONFIRMATION AFTER REPLACING PARTS**

62.	**CHECK FLOOR UNDER WIRE**

CAUTION:

Be sure to wear insulated gloves.

Pre-procedure1

(a) Check that the service plug grip is not installed.

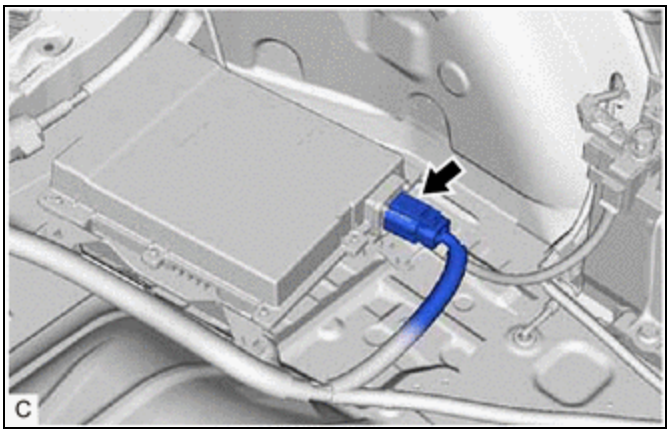
NOTICE:

After removing the service plug grip, do not turn the ignition switch ON (READY), unless instructed by the repair manual because this may cause a malfunction.

(b) Disconnect the floor under wire connectors from the solar energy control ECU assembly.

HINT:

Make sure that no foreign matter has entered or contaminated the floor under wire.



Procedure1

(c) Using a megohmmeter set to 500 V, measure the resistance according to the value(s) in the table below.

NOTICE:

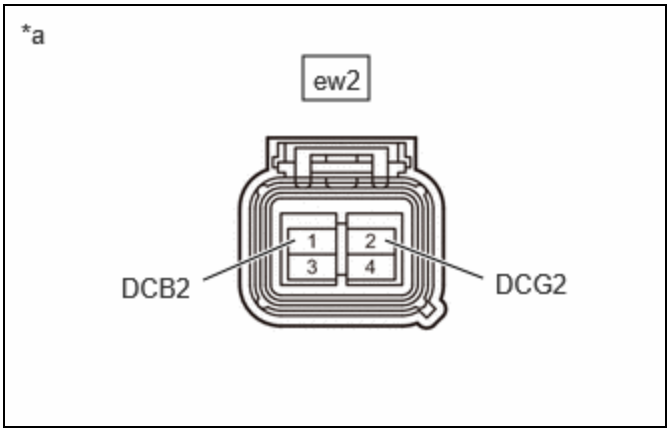
- Be sure to set the megohmmeter to 500 V when performing this test. Using a setting higher than 500 V can result in damage to the component being inspected.
- Be sure not to damage or deform the terminal being inspected.

Standard Resistance:

EWD INFO

Click Location & Routing(ew2)
Click Connector(ew2)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
ew2-1 (DCB2) - Body ground	Ignition switch off	10 MΩ or higher
ew2-2 (DCG2) - Body ground	Ignition switch off	10 MΩ or higher



*a	Floor Under Wire (HV Supply Battery Assembly Side)

Post-procedure1

(d) None.

NG ▶ **GO TO STEP 64**

OK ▼

63.	**REPLACE SOLAR ENERGY CONTROL ECU ASSEMBLY**

HINT:

Click here INFO

NEXT ▶ **PERFORM CONFIRMATION AFTER REPLACING PARTS**

64.	**REPLACE FLOOR UNDER WIRE**

HINT:

Click here INFO

NEXT ▶ **PERFORM CONFIRMATION AFTER REPLACING PARTS**