Print Exit

A25A-FXS ENGINE CONTROL SFI SYSTEM CHECK MODE PROCEDURE

HINT:

Compared to normal mode, check mode is more sensitive to malfunctions. Therefore, check mode can detect malfunctions that cannot be detected in normal mode.

NOTICE:

All of the stored DTCs and Freeze Frame Data are cleared if: 1) the ECM is changed from normal mode to check mode or vice versa; or 2) the power switch is turned from on (IG) to on (ACC) or off while in check mode. Before changing modes, always check for and note any DTCs and Freeze Frame Data.

CHECK MODE PROCEDURE

a. Check and ensure the following conditions:

i. Auxiliary battery voltage is 11 V or higher.

ii. Accelerator pedal fully released.

iii. Shift lever is in P or N.

iv. A/C switch is off.

b. Turn the power switch off.

c. Connect the Techstream to the DLC3.

d. Turn the power switch on (IG).

e. Turn the Techstream on.

f. Enter the following menus: Powertrain / Engine / Utility / Check Mode.

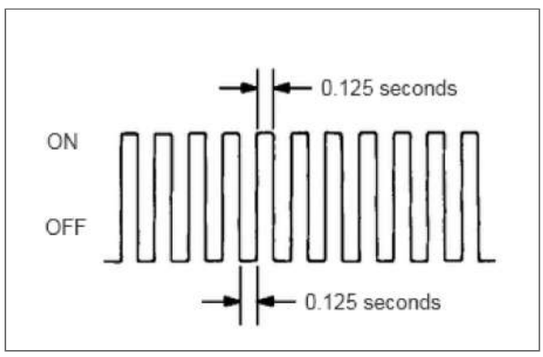
Powertrain > Engine > Utility

Tester Display
Check Mode

Execute

g. Change the ECM from normal mode to check mode.

h.



Check that the MIL flashes as shown in the illustration.

i. Turn the power switch on (READY).

j. Check that the MIL turns off.

k. Simulate the conditions of the malfunction described by the customer.

l. Check for DTCs and Freeze Frame Data using the Techstream.

Print Exit

HYBRID / BATTERY CONTROL FRAME WIRE REMOVAL

CAUTION / NOTICE / HINT

The necessary procedures (adjustment, calibration, initialization or registration) that must be performed after parts are removed and installed or replaced during HV floor under wire removal/installation are shown below.

Necessary Procedures After Parts Removed/Installed/Replaced

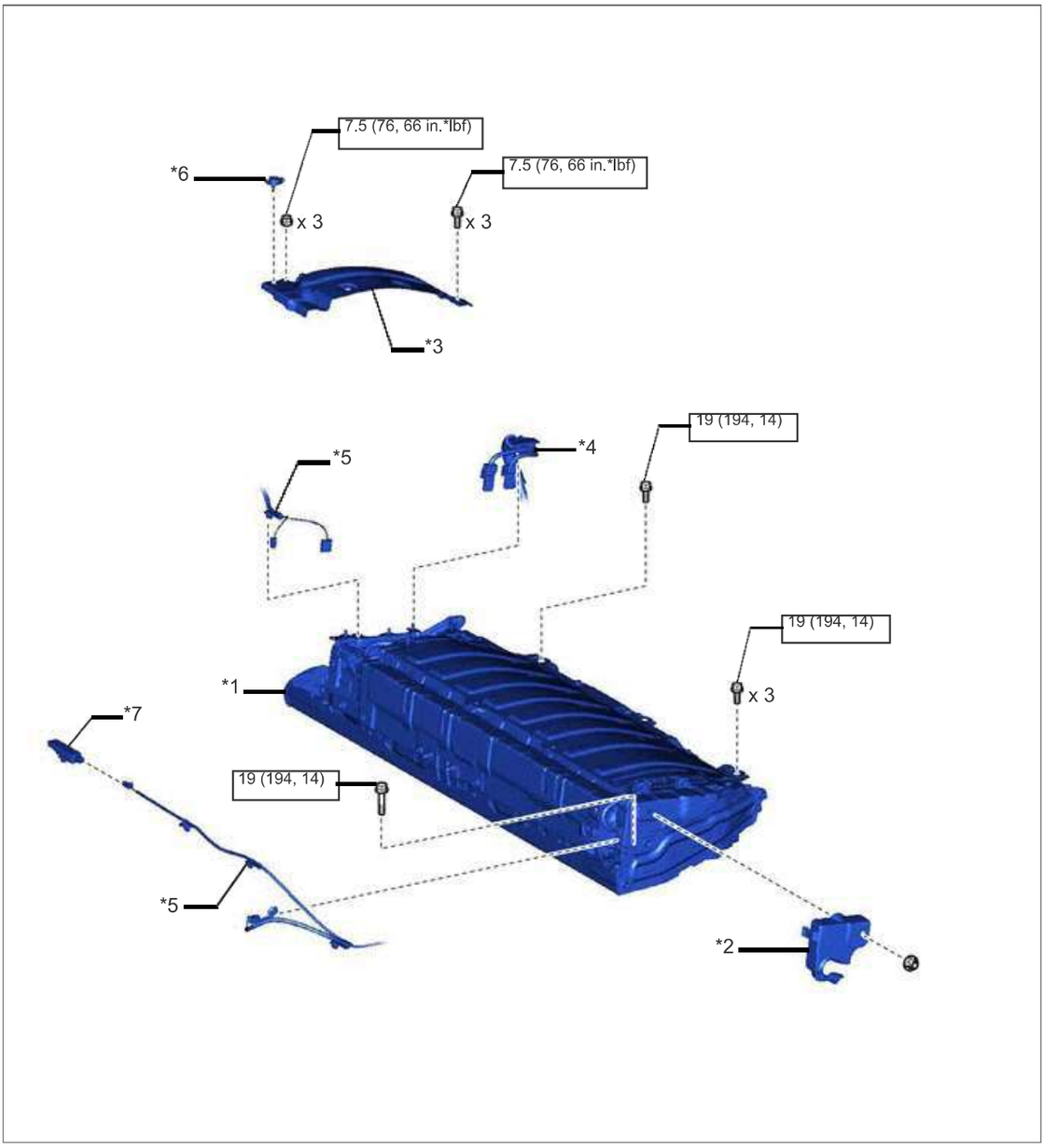
Replaced Part or Performed Procedure	Necessary Procedure	Effect/Inoperative Function when Necessary Procedure not Performed	Link
Auxiliary battery terminal is disconnected/reconnected	Perform steering sensor zero point calibration	Lane Tracing Assist System	( )
		Pre-collision System	
		Lighting System (w/ AFS)(EXT)	
	Memorize steering angle neutral point	Parking Assist Monitor System	( )
		Panoramic View Monitor System	( )
· Replacement of air fuel ratio sensor · Gas leak from exhaust system is repaired	Inspection After Repair	· Poor idle, etc. · Engine start function, etc.	( )

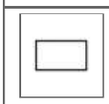
CAUTION:

Orange wire harnesses and connectors indicate high-voltage circuits. To prevent electric shock, always follow the procedure described in the repair manual.
for NICKEL METAL HYDRIDE BATTERY: Click hereEngine / Hybrid System>HYBRID / BATTERY CONTROL>HYBRID CONTROL SYSTEM (for NICKEL METAL HYDRIDE BATTERY)>PRECAUTION
for LITHIUM-ION BATTERY: Click hereEngine / Hybrid System>HYBRID / BATTERY CONTROL>HYBRID CONTROL SYSTEM (for LITHIUM-ION BATTERY)>PRECAUTION

To prevent electric shock, wear insulated gloves when working on wire harnesses and components of the high voltage system.

ILLUSTRATION



*1	HV BATTERY	*2	NO. 1 HYBRID BATTERY EXHAUST DUCT
*3	NO. 1 HV BATTERY COVER PANEL RH	*4	HV FLOOR UNDER WIRE
*5	FLOOR WIRE	*6	BATTERY COVER LOCK STRIKER
*7	NO. 2 INDOOR ELECTRICAL KEY ANTENNA ASSEMBLY	-	-
	N*m (kgf*cm, ft.*lbf): Specified torque	-	-

ILLUSTRATION

Click hereEngine / Hybrid System>HYBRID / BATTERY CONTROL>HYBRID CONTROL SYSTEM (for NICKEL METAL HYDRIDE BATTERY)>P056014

Result:

Proceed to
OK
NG

OK

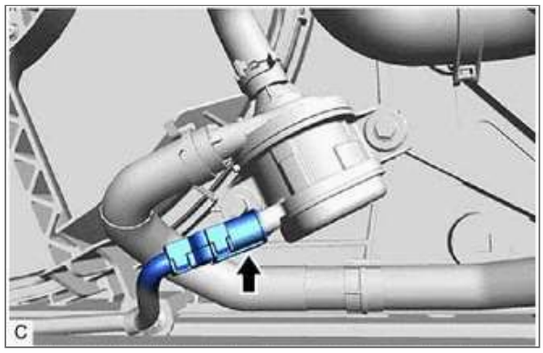
10.CHECK CONNECTOR CONNECTION CONDITION (INVERTER WATER PUMP ASSEMBLY CONNECTOR)

NG

CONNECT SECURELY

10.CHECK CONNECTOR CONNECTION CONDITION (INVERTER WATER PUMP ASSEMBLY CONNECTOR)

a.



Check the connector connections and contact pressure of the relevant terminals for the inverter water pump assembly connector.
Click hereGeneral>INTRODUCTION>HOW TO TROUBLESHOOT ECU CONTROLLED SYSTEMS>ELECTRONIC CIRCUIT INSPECTION PROCEDURE

OK:
The connector is connected securely, the terminals are not deformed or corroded and there are no contact problems.

Result:

Proceed to
OK
NG

OK

11.CHECK HARNESS AND CONNECTOR (HYBRID VEHICLE CONTROL ECU ASSEMBLY - INVERTER WATER PUMP ASSEMBLY)

NG

CONNECT SECURELY

11.CHECK HARNESS AND CONNECTOR (HYBRID VEHICLE CONTROL ECU ASSEMBLY - INVERTER WATER PUMP ASSEMBLY)

a. Disconnect the A28 hybrid vehicle control ECU assembly connector.

b. Disconnect the w1 inverter water pump assembly connector.

Print Exit

HYBRID / BATTERY CONTROL HYBRID CONTROL SYSTEM(for NICKEL METAL HYDRIDE BATTERY) Shut Down Signal Circuit

DESCRIPTION

The cause of the malfunction may be a shutdown signal.
Check whether there is a shutdown signal +B short circuit.

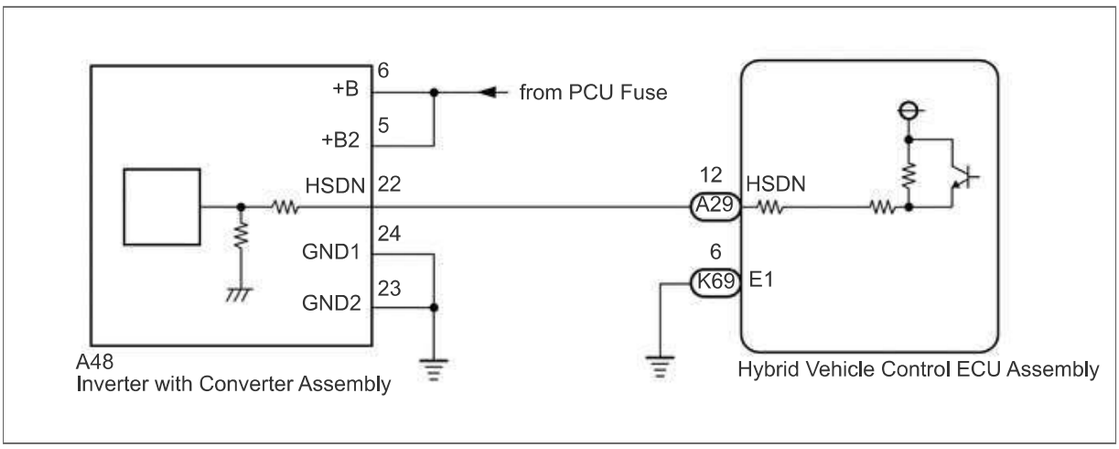
Related Parts Check

Area	Inspection
HSDN terminal	Check that the HSDN terminal voltage decreases to check for an open or short circuit while READY off (IG ON).
Hybrid vehicle control ECU assembly, inverter, wire harness	Check for open or short circuit in hybrid vehicle control ECU assembly, inverter and wire harness.

SYSTEM DESCRIPTION

Power supply to the motor is cut off due to a shutdown signal sent from the hybrid vehicle control ECU assembly to the motor generator control ECU (MG ECU).

WIRING DIAGRAM



CAUTION / NOTICE / HINT

This diagnostic procedure is referenced to in the diagnostic procedure of several DTCs.
If the result of this diagnostic procedure is normal, proceed as directed in the procedure for the DTC.

CAUTION:

Before the following operations are conducted, take precautions to prevent electric shock by turning the power switch off, wearing insulated gloves, and removing the service plug grip from HV battery.

- Inspecting the high-voltage system
- Disconnecting the low voltage connector of the inverter with converter assembly
- Disconnecting the low voltage connector of the HV battery

TYPICAL MALFUNCTION THRESHOLDS

TMC's intellectual property	-

COMPONENT OPERATING RANGE

Hybrid vehicle control ECU assembly	DTC P0A93 (INF P0A9300) is not detected

CONFIRMATION DRIVING PATTERN

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.
  Click hereEngine / Hybrid System>HYBRID / BATTERY CONTROL>HYBRID CONTROL SYSTEM (for NICKEL METAL HYDRIDE BATTERY)>UTILITY
- When clearing the permanent DTCs, refer to the "CLEAR PERMANENT DTC" procedure.
  Click hereEngine / Hybrid System>HYBRID / BATTERY CONTROL>HYBRID CONTROL SYSTEM (for NICKEL METAL HYDRIDE BATTERY)>DTC CHECK / CLEAR

1. Connect the Techstream to the DLC3.
2. Turn the power switch on (IG) and turn the Techstream on.
3. Clear the DTCs (even if no DTCs are stored, perform the clear DTC procedure).
4. Turn the power switch off and wait for 2 minutes or more.
5. Turn the power switch on (IG) and turn the Techstream on.
6. With power switch on (IG) and wait for 5 seconds or more. [*1]
7. Turn the power switch on (READY) and wait for 5 seconds or more. [*2]
8. Perform a road test according to the freeze frame data item "Vehicle Speed" for approximately 10 minutes. [*3]

   HINT:

   [*1] to [*3] : 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.

WIRING DIAGRAM

Refer to the wiring diagram for Cooling System.
Click hereEngine / Hybrid System>HYBRID / BATTERY CONTROL>HYBRID CONTROL SYSTEM (for NICKEL METAL HYDRIDE BATTERY)>Cooling System

CAUTION / NOTICE / HINT

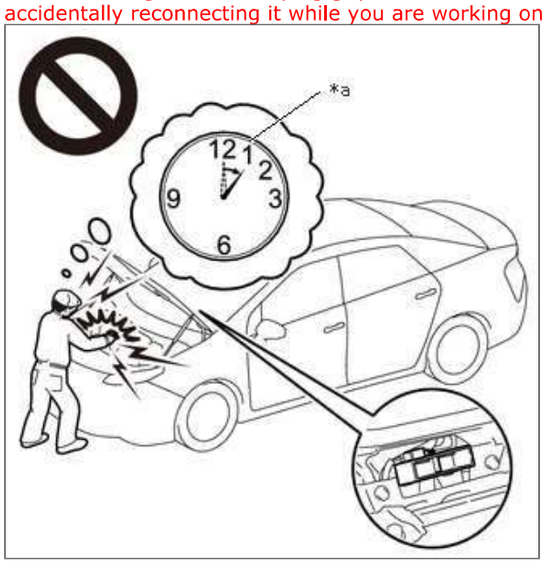
CAUTION:

Before the following operations are conducted, take precautions to prevent electric shock by turning the power switch off, wearing insulated gloves, and removing the service plug grip from HV battery.

- Inspecting the high-voltage system
- Disconnecting the low voltage connector of the inverter with converter assembly
- Disconnecting the low voltage connector of the HV battery

To prevent electric shock, make sure to remove the service plug grip to cut off the high voltage circuit before servicing the vehicle.

After removing the service plug grip from the HV battery, put it in your pocket to prevent other technicians from accidentally reconnecting it while you are working on the high-voltage system.



*a	Without waiting for 10 minutes

After removing the service plug grip, wait for at least 10 minutes before touching any of the high-voltage connectors or terminals. After waiting for 10 minutes, check the voltage at the terminals in the inspection point in the inverter with converter assembly. The voltage should be 0 V before beginning work.
Click here Engine / Hybrid System>HYBRID / BATTERY CONTROL>HYBRID CONTROL SYSTEM (for NICKEL METAL HYDRIDE BATTERY)>PRECAUTION

HINT:

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

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.
Click here General>INTRODUCTION>REPAIR INSTRUCTION>PRECAUTION

PROCEDURE

1.CHECK DTC OUTPUT (HYBRID CONTROL)

a. Install the upper HV battery cover sub-assembly to the HV battery with the 5 bolts and 7 nuts.

Torque:
7.5 N*m (76 kgf*cm, 66 in.*lbf)

4.CONNECT FLOOR WIRE **82161**

Click hereEngine / Hybrid System>HYBRID / BATTERY CONTROL>HV BATTERY (for LITHIUM-ION BATTERY)>INSTALLATION

5.INSTALL NO. 4 HV BATTERY PROTECTOR **G92PF**

Click hereEngine / Hybrid System>HYBRID / BATTERY CONTROL>HV BATTERY (for LITHIUM-ION BATTERY)>INSTALLATION

6.CONNECT FLOOR WIRE **82161**

Click hereEngine / Hybrid System>HYBRID / BATTERY CONTROL>HV BATTERY (for LITHIUM-ION BATTERY)>INSTALLATION

7.INSTALL HYBRID BATTERY HOSE ASSEMBLY **G9290A**

Click hereEngine / Hybrid System>HYBRID / BATTERY CONTROL>HV BATTERY (for LITHIUM-ION BATTERY)>INSTALLATION

8.INSTALL NO. 1 HV BATTERY COVER PANEL RH **G92N4A**

Click hereEngine / Hybrid System>HYBRID / BATTERY CONTROL>HV BATTERY (for LITHIUM-ION BATTERY)>INSTALLATION

9.INSTALL REAR SEAT CUSHION LEG SUB-ASSEMBLY **71033**

Click hereEngine / Hybrid System>HYBRID / BATTERY CONTROL>BATTERY BLOWER>INSTALLATION

10.INSTALL REAR UNDER COVER **76971G**

Click hereEngine / Hybrid System>HYBRID / BATTERY CONTROL>BATTERY BLOWER>INSTALLATION

11.INSTALL REAR UNDER SIDE COVER LH **76974F**

Click hereEngine / Hybrid System>HYBRID / BATTERY CONTROL>BATTERY BLOWER>INSTALLATION

12.INSTALL REAR DOOR SCUFF PLATE LH **67918A**

Click hereVehicle Interior>INTERIOR PANELS / TRIM>ROOF HEADLINING>INSTALLATION

13.INSTALL REAR UNDER SIDE COVER RH **76973F**

Click hereEngine / Hybrid System>HYBRID / BATTERY CONTROL>BATTERY BLOWER>INSTALLATION

14.INSTALL REAR DOOR SCUFF PLATE RH **67917A**

HINT:
Use the same procedure as for the LH side.

15.INSTALL NO. 2 INDOOR ELECTRICAL KEY ANTENNA ASSEMBLY **899A0A**

Click hereVehicle Interior>THEFT DETERRENT / KEYLESS ENTRY>ELECTRICAL KEY OSCILLATOR (for Rear Floor)>INSTALLATION

16.INSTALL SERVICE PLUG GRIP **G3834**

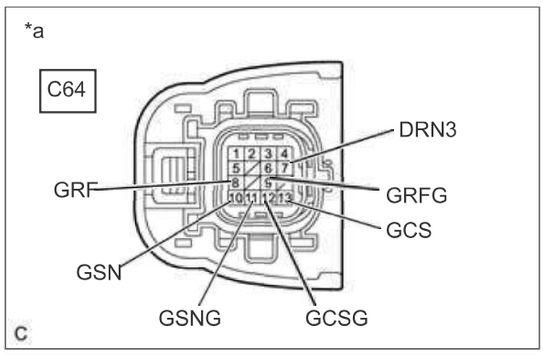
Click hereEngine / Hybrid System>HYBRID / BATTERY CONTROL>SERVICE PLUG GRIP>INSTALLATION

17.PERFORM INITIALIZATION

Click hereGeneral>INTRODUCTION>REPAIR INSTRUCTION>INITIALIZATION

Tester Display	Measurement Item	Range
Generator Inverter Shutdown Status	Generator inverter shutdown status	Awake or Shutdown
Motor Inverter Operation Request	Motor inverter operation request	Shutdown / 3 Phase ON / Discharge / Insulation Resistance Measurement / Output Torque / Emergency Shutdown / Shutdown during Insulation Resistance Measurement
Motor Inverter Fail	Motor inverter stopped	ON or OFF
Motor Inverter Shutdown Status	Motor inverter shutdown status	Awake or Shutdown
Boosting Converter Operation Request	Boosting converter operation request	Normal / Boosting Stop / Upper Arm ON / Maximum Boosting / Output Torque / Upper Arm Lowering
Boosting Converter Fail	Boost converter stopped	ON or OFF
Boosting Converter Shutdown Status	Boost converter shutdown status	Awake or Shutdown
Generator Carrier Frequency	Generator carrier frequency	0.75 kHz / 1.25 kHz / 2.5 kHz / 3.75 kHz / 5 kHz / 10 kHz / Electrical Power Loss Reduction Mode
Generator Control Mode	Generator (MG1) control mode	Sine Wave / Overmodulation / Square Wave / Electrical Power Loss Reduction Mode
Motor Carrier Frequency	Motor (MG2) carrier frequency	0.75 kHz / 1.25 kHz / 2.5 kHz / 3.75 kHz / 5 kHz / 10 kHz / Electrical Power Loss Reduction Mode
Motor Control Mode	Motor (MG2) control mode	Sine Wave / Overmodulation / Square Wave / Electrical Power Loss Reduction Mode
Boosting Converter Carrier Frequency	Boost converter signal carrier frequency	9.55 kHz / 9.13 kHz / 8.71 kHz / 8.29 kHz / 7.87 kHz / 7.45 kHz / 4.8 kHz
VL-Voltage before Boosting	High voltage before it is boosted	-
VH-Voltage after Boosting	High voltage after it is boosted	-
Boost Ratio	Boost converter boost ratio	Min.: 0.0%, Max.: 100.0%
V Phase Generator Current	V phase generator current	Min.: -3276.8 A, Max.: 3276.7 A
W Phase Generator Current	W phase generator current	Min.: -3276.8 A, Max.: 3276.7 A
V Phase Motor Current	V phase motor current	Min.: -3276.8 A, Max.: 3276.7 A
W Phase Motor Current	W phase motor current	Min.: -3276.8 A, Max.: 3276.7 A
Inverter Coolant Water Temperature	Inverter coolant temperature	Min.: -40°C (-40°F), Max.: 215°C (419°F)
Inverter Water Pump Duty Ratio	Inverter water pump motor driver request duty	Min.: 0.0%, Max.: 100.0%
Inverter Water Pump Revolution	Inverter water pump assembly speed	Min.: 0 rpm, Max.: 15000 rpm
Overvoltage Input to Inverter	Overvoltage detection into inverter	ON or OFF
Inverter Emergency Shutdown (Main CPU)	Inverter emergency shutdown	ON or OFF
Inverter Emergency Shutdown (Sub CPU)	Inverter emergency shutdown	ON or OFF
Inverter Input Current	Inverter input current	Min.: -3276.8 A, Max.: 3276.7 A
Overvoltage Input to Boosting Converter	Overvoltage detection into boost converter	ON or OFF
Motor/Generator Reactor Current before SMR Precharge	Reactor current before system main relay precharge	Min.: -3276.8 A, Max.: 3276.7 A
Motor/Generator Reactor Maximum Current during SMR Precharge	Highest reactor current during system main relay precharge	Min.: -3276.8 A, Max.: 3276.7 A
Motor/Generator Reactor Current-Carrying Status during SMR Precharge	Current flowing through reactor during system main relay precharge	Indefinite / Definite
Motor/Generator Reactor Noncurrent-Carrying Status during SMR Precharge	Current not flowing through reactor during system main relay precharge	Indefinite / Definite
Hybrid/EV Battery SOC	HV battery state of charge Primary calculated from charging and discharging amperage	Min.: 0.00%, Max.: 100.00%
Hybrid/EV Battery SOC of Immediately after IG ON	HV battery state of charge soon after power switch on (IG)	Min.: 0.0%, Max.: 100.0%
Hybrid/EV Battery Maximum SOC	Maximum SOC after power switch turned on (IG) in current trip	Min.: 0.0%, Max.: 100.0%
Hybrid/EV Battery Minimum SOC	Minimum SOC after power switch turned on (IG) in current trip	Min.: 0.0%, Max.: 100.0%
Hybrid/EV Battery Voltage	HV battery voltage	Min.: 0.00 V, Max.: 1023.98 V
Hybrid/EV Battery Current	HV battery current	Min.: -3276.8 A, Max.: 3276.7 A
Hybrid/EV Battery Current for Driving Control	Hybrid battery current for driving control	Min.: -327.68 A, Max.: 327.67 A
Hybrid/EV Battery Cooling Fan Low Speed Request	Battery cooling blower assembly Lo speed requested	ON or OFF

c.



*a	Front view of wire harness connector (to Inverter with Converter Assembly)

Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
C64-8 (GRF) - C64-9 (GRFG)	Power switch off	8.9 to 14.8 Ω
C64-10 (GSN) - C64-11 (GSNG)	Power switch off	22.6 to 34.5 Ω
C64-13 (GCS) - C64-12 (GCSG)	Power switch off	25.5 to 37.4 Ω

HINT:

To correct the variation of the measured resistance due to temperature, use the following formula to calculate the resistance at 20°C (68°F).
R20 = Rt / {1 + 0.00393 X (T - 20)}
The calculation is based on the following:
R20: Resistance at 20°C (68°F) (mΩ)
Rt: Measured resistance (mΩ)
T: Temperature when the resistance is measured (°C (°F).)

Standard Resistance (Check for Short):

Tester Connection	Condition	Specified Condition
C64-8 (GRF) or C64-9 (GRFG) - Body ground and other terminals	Power switch off	1 MΩ or higher
C64-10 (GSN) or C64-11 (GSNG) - Body ground and other terminals	Power switch off	1 MΩ or higher
C64-13 (GCS) or C64-12 (GCSG) - Body ground and other terminals	Power switch off	1 MΩ or higher
C64-7 (DRN3) - Body ground	Power switch off	1 MΩ or higher

d. Reconnect the C64 inverter with converter assembly connector.

Result:

Proceed to
OK
NG

OK

GENERATOR RESOLVER CIRCUIT NORMAL (PERFORM NEXT STEP FOR REFERENCED DTC)

NG

3.CHECK CONNECTOR CONNECTION CONDITION (RESOLVER CONNECTOR)

3.CHECK CONNECTOR CONNECTION CONDITION (RESOLVER CONNECTOR)

2.CHECK CONNECTOR CONNECTION CONDITION (INTERMEDIATE CONNECTOR)

a. Check that the intermediate connector which connects the motor temperature sensor to the hybrid vehicle control ECU assembly is securely connected with no deformation, and that there is no contamination by water or foreign matter.
Click hereGeneral>INTRODUCTION>HOW TO TROUBLESHOOT ECU CONTROLLED SYSTEMS>ELECTRONIC CIRCUIT INSPECTION PROCEDURE

HINT:
For vehicles in which the intermediate connector is inside the relay block, check for signs of water intrusion inside the relay block.

OK:
- The connector is connected securely.
- The terminals are not deformed and are connected securely.
- No water or foreign matter in the connectors.

Result:

Result	Proceed to
OK	A
NG (The connector is not connected securely.)	B
NG (The terminals are not making secure contact or are deformed, or water or foreign matter exists in the connector.)	C

A

3.CHECK CONNECTOR CONNECTION CONDITION (MOTOR TEMPERATURE SENSOR CONNECTOR)

B

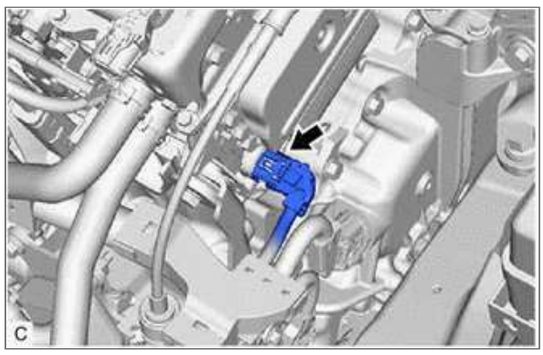
CONNECT SECURELY

C

REPAIR OR REPLACE HARNESS OR CONNECTOR

3.CHECK CONNECTOR CONNECTION CONDITION (MOTOR TEMPERATURE SENSOR CONNECTOR)

a.



Check the connection condition of the motor temperature sensor connector and the contact pressure of each terminal.
Check the terminals for deformation, and check the connector for water ingress and foreign matter.
Click hereGeneral>INTRODUCTION>HOW TO TROUBLESHOOT ECU CONTROLLED SYSTEMS>ELECTRONIC CIRCUIT INSPECTION PROCEDURE

OK:
- The connector is connected securely.
- The terminals are not deformed and are connected securely.
- No water or foreign matter in the connector.

Result:

Result	Proceed to
OK	A
NG (The connector is not connected securely.)	B
NG (The terminals are not making secure contact or are deformed, or water or foreign matter exists in the connector.)	C

A

Result	Proceed to
Boosting" is always less than 100 V.	
Difference between "Hybrid Battery Voltage" and "VL-Voltage before Boosting" is 100 V or more.	B

h. Turn the power switch off.

A

END

B

REPLACE HYBRID VEHICLE CONTROL ECU ASSEMBLY AND HV BATTERY JUNCTION BLOCK ASSEMBLY

HYBRID VEHICLE CONTROL ECU ASSEMBLY: Click hereEngine / Hybrid System>HYBRID / BATTERY CONTROL>HYBRID VEHICLE CONTROL ECU>REMOVAL
HV BATTERY JUNCTION BLOCK ASSEMBLY: Click hereEngine / Hybrid System>HYBRID / BATTERY CONTROL>HV RELAY ASSEMBLY (for LITHIUM-ION BATTERY)>REMOVAL

Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Denso Made:

Tester Connection	Condition	Specified Condition
K69-4 (SMRB) - Body ground	Power switch off	25.0 to 59.0 Ω

Panasonic Made:

Tester Connection	Condition	Specified Condition
K69-4 (SMRB) - Body ground	Power switch off	20.6 to 40.8 Ω

c. Reconnect the K69 hybrid vehicle control ECU assembly connector.

Result:

Proceed to
OK
NG

OK

8.CHECK HARNESS AND CONNECTOR (SHORT TO POWER SUPPLY WIRES)

NG

9.CHECK CONNECTOR CONNECTION CONDITION (FLOOR WIRE CONNECTOR)

8.CHECK HARNESS AND CONNECTOR (SHORT TO POWER SUPPLY WIRES)

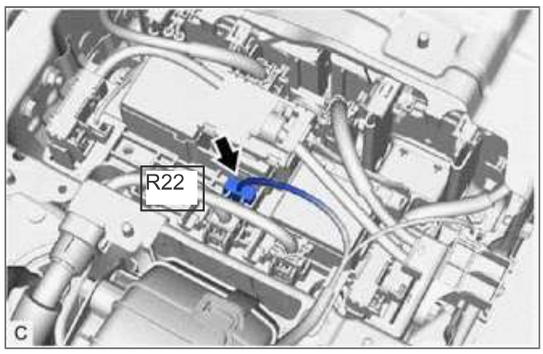
CAUTION:
Be sure to wear insulated gloves.

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

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

b. Remove the No. 1 HV battery cover panel RH.
Click hereEngine / Hybrid System>HYBRID / BATTERY CONTROL>HV BATTERY (for LITHIUM-ION BATTERY)>REMOVAL

c.



Disconnect the R22 HV battery junction block assembly connector.

d. Disconnect the K69 hybrid vehicle control ECU assembly connector.

e. Turn the power switch on (IG).

Result:

Result	Proceed to
Electrolyte is not leaking from the HV supply stack sub-assembly.	A
Electrolyte is leaking from the HV supply stack sub-assembly.	B

A

18.CHECK NO. 2 HV SUPPLY STACK SUB-ASSEMBLY

B

21.REPLACE HV BATTERY (HV SUPPLY STACK SUB-ASSEMBLY THAT HAS A LEAK OF ELECTROLYTE)

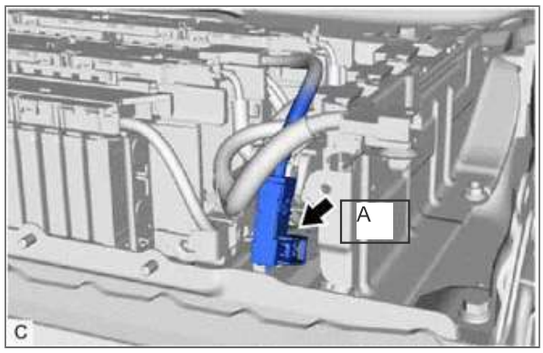
18.CHECK NO. 2 HV SUPPLY STACK SUB-ASSEMBLY

CAUTION:
Be sure to wear insulated gloves and protective goggles.

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

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

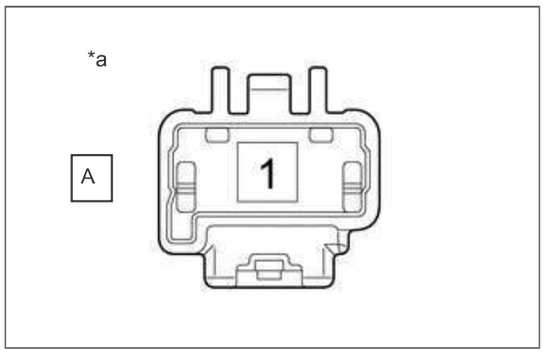
b.



Disconnect the HV battery high voltage connector.

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

c.



*a	Component without harness connected (No. 2 HV Supply Stack Sub-assembly)

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
A-1 - Body ground	Power switch off	10 MΩ or higher

Result:

Proceed to
OK

Print Exit

HYBRID / BATTERY CONTROL HYBRID CONTROL SYSTEM(for LITHIUM-ION BATTERY) 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 P1C9E9F Hybrid/EV System Reset Stuck Off 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

DESCRIPTION

The hybrid vehicle control ECU assembly monitors its internal operation and will store these DTCs when it detects an internal malfunction. If these DTCs are output, replace the hybrid vehicle control ECU assembly.

DTC No.	Detection Item	DTC Detection Condition	Trouble Area	MIL	Warning Indicate
P060647	Hybrid/EV Powertrain Control Module Processor Watchdog / Safety MCU Failure	ECU internal malfunction (HV-CPU error) (1 trip detection logic)	Hybrid vehicle control ECU assembly	Comes on	Master Warning Light: Comes on
P060687	Hybrid/EV Powertrain Control Module Processor to Monitoring Processor Missing Message	ECU internal malfunction (Communication error (main to sub CPU)) (1 trip detection logic)	Hybrid vehicle control ECU assembly	Comes on	Master Warning Light: Comes on
P060A29	Hybrid/EV Powertrain Control Module Monitoring Processor Signal Invalid	ECU internal malfunction (Sub CPU circuit error) (1 trip detection logic)	Hybrid vehicle control ECU assembly	Comes on	Master Warning Light: Comes on
P060A44	Hybrid/EV Powertrain Control Module Monitoring Processor Data Memory Failure	ECU internal malfunction (Sub CPU RAM error) (1 trip detection logic)	Hybrid vehicle control ECU assembly	Comes on	Master Warning Light: Comes on
P060A45	Hybrid/EV Powertrain Control Module Monitoring Processor Program Memory Failure	ECU internal malfunction (Sub CPU ROM error) (1 trip detection logic)	Hybrid vehicle control ECU assembly	Comes on	Master Warning Light: Comes on
P060A47	Hybrid/EV Powertrain Control Module Monitoring Processor Watchdog / Safety MCU Failure	ECU internal malfunction (Sub CPU WDC error) (1 trip detection logic)	Hybrid vehicle control ECU assembly	Comes on	Master Warning Light: Comes on
P060A49	Hybrid/EV Powertrain Control Module Monitoring Processor Internal Electronic Failure	ECU internal malfunction (Sub CPU calculation check error) (1 trip detection logic)	Hybrid vehicle control ECU assembly	Comes on	Master Warning Light: Comes on
P060A87	Hybrid/EV Powertrain Control Module Processor from Monitoring Processor Missing Message	ECU internal malfunction (Communication error (sub to main CPU)) (1 trip detection logic)	Hybrid vehicle control ECU assembly	Comes on	Master Warning Light: Comes on
P060B1C	Hybrid/EV Powertrain Control Module A/D Processing Voltage Out of Range	ECU internal malfunction (AD conversion error) (1 trip detection logic)	Hybrid vehicle control ECU assembly	Comes on	Master Warning Light: Comes on
P060B49	Hybrid/EV Powertrain Control Module A/D Processing Internal Electronic Failure	ECU internal malfunction (AD timeout error) (1 trip detection logic)	Hybrid vehicle control ECU assembly	Comes on	Master Warning Light: Comes on
P060B71	Hybrid/EV Powertrain Control Module A/D Processing Actuator Stuck	ECU internal malfunction (AD multiplexer error) (1 trip detection logic)	Hybrid vehicle control ECU assembly	Comes on	Master Warning Light: Comes on
P1C9E9F	Hybrid/EV System Reset Stuck Off	ECU internal malfunction (Primary check error) (1 trip detection logic)	Hybrid vehicle control ECU assembly	Comes on	Master Warning Light: Comes on
P1CE31C	Hybrid/EV Powertrain Control Module Monitoring Processor A/D Processing Voltage Out of Range	ECU internal malfunction (Sub CPU AD conversion error) (1 trip detection logic)	Hybrid vehicle control ECU assembly	Comes on	Master Warning Light: Comes on