DTC P0A94/587 DC/DC CONVERTER PERFORMANCE

CIRCUIT DESCRIPTION

See the description of the boost converter on page 05–477.
The HV control ECU uses two voltage sensors, VL and VB, to detect voltage levels. The VL sensor that has been built into the boost converter is used to detect the high voltage before it is boosted. The VB sensor that has been built into the battery ECU is used to detect voltage of the HV battery.

DTC No.	INF Code	DTC Detection Condition	Trouble Area
P0A94	587	Difference between voltages from HV battery voltage (VB) sensor and boost converter voltage (VL) sensor is large	• Wire harness or connector • w/ converter inverter assembly • Service plug grip • High voltage fuse • Battery ECU

WIRING DIAGRAM

Refer to DTC P0A94 (INF 589) on page 05–531.

INSPECTION PROCEDURE

CAUTION:

- **Before inspecting the high–voltage system, take safety precautions to prevent electrical shocks, such as wearing insulated gloves and removing the service plug grip. After removing the service plug grip, put it in your pocket to prevent other technicians from reconnecting it while you are servicing the high–voltage system.**
- **After disconnecting the service plug grip, wait at least for 5 minutes before touching any of the high–voltage connectors or terminals.**

HINT:
At least 5 minutes is required to discharge the high–voltage condenser inside the inverter.

1	READ OUTPUT DTC(HYBRID CONTROL)

(a) Connect the intelligent tester II to the DLC3.
(b) Turn the power switch ON (IG).
(c) Turn the intelligent tester II ON.
(d) On the intelligent tester II, enter the following menus: Powertrain / Hybrid Control / DTC.
(e) Read DTCs.
Result:

Display (DTC Output)	Proceed to
Only DTC P0A94 (INF 587)	A
DTCs P0A94 (INF 587), and P0A1F (INF 129) (HV battery voltage circuit malfunction)	B
DTCs P0A94 (INF 587), and P0A94 (INF 442) (Abnormal voltage execution value)	C
DTCs P0A94 (INF 587), and P0A94 (INF 585) (Boost converter voltage (VL) sensor performance problem)	D
DTCs other than above	E

B	GO TO DTC P0A1F/129 (See page 05–330)
C	Go to step 4
D	GO TO DTC P0A94/585 (See page 05–523)
E	AFTER PERFORMING STEP 4, GO TO RELEVANT DTC CHART (See page 05–268)

A

2 READ OUTPUT DTC(HV BATTERY)

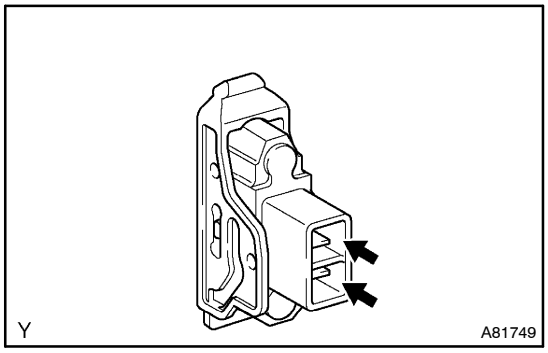
(a) Connect the intelligent tester II to the DLC3.
(b) Turn the power switch ON (IG).
(c) Turn the intelligent tester II ON.
(d) On the intelligent tester II, enter the following menus: Powertrain / HV Battery / DTC.
(e) Read DTCs.

Result: DTCs are output

YES	GO TO RELEVANT DTC CHART (See page 05–665)

NO

3 INSPECT SERVICE PLUG GRIP



CAUTION:
Wear insulated gloves before performing the following operation.

(a) Turn the power switch OFF.
(b) Remove the service plug grip (see page 21–120).

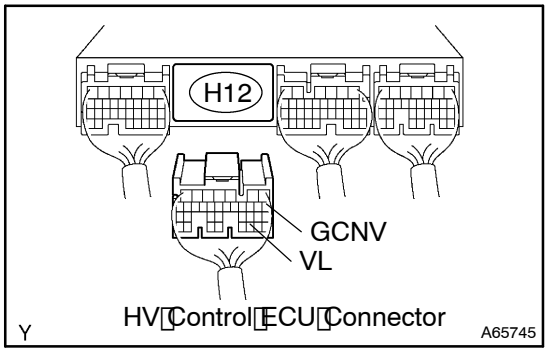
NOTICE:
Turning the power switch ON (READY) with the service plug grip removed could cause malfunction. Therefore, never turn the power switch ON (READY) in this state.

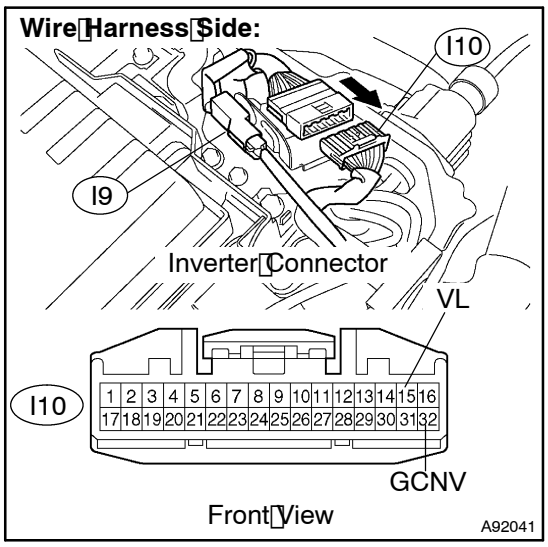
(c) Check the resistance between the terminals of the service plug grip.
Standard: Below 1 Ω
(d) Reinstall the service plug grip (see page 21–120).

NG	Go to step 6

OK

4	CHECK HARNESS AND CONNECTOR(HYBRID VEHICLE CONTROL ECU – INVERTER)





CAUTION:
Wear insulated gloves before performing the following operation.

(a) Turn the power switch OFF.

(b) Remove the service plug grip (see page 21–120).

NOTICE:
Turning the power switch ON (READY) with the service plug grip removed could cause malfunction. Therefore, never turn the power switch ON (READY) in this state.

(c) Disconnect the H12 HV control ECU connector.

(d) Remove the inverter cover (see page 21–25).

(e) Disconnect the I10 inverter connector.

(f) Turn the power switch ON (IG).

HINT:
DTCs for the interlock switch system are output when turning the power switch ON (IG) with both service plug grip and inverter cover removed.

(g) Measure the voltage between the terminals of the HV control ECU connector and body ground.

Standard:

Tester Connection	Specified Condition
VL (H12–30) – Body ground	Below 1 V
GCNV (H12–8) – Body ground	Below 1 V

(h) Turn the power switch OFF.

(i) Check the resistance between the wire harness side connectors.

Standard (Check for open):

Tester Connection	Specified Condition
VL (H12–30) – VL (I10–15)	Below 1 Ω
GCNV (H12–8) – GCNV (I10–32)	Below 1 Ω

Standard (Check for short):

Tester Connection	Specified Condition
VL (H12–30) or VL (I10–15) – Body ground	10 kΩ or higher
GCNV (H12–8) or GCNV (I10–32) – Body ground	10 kΩ or higher

(j) Reconnect the inverter connector.

(k) Reconnect the HV control ECU connector.

(l) Reinstall the inverter cover (see page 21–25).

(m) Reinstall the service plug grip (see page 21–120).

NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

5	CHECK OUTPUT DTC

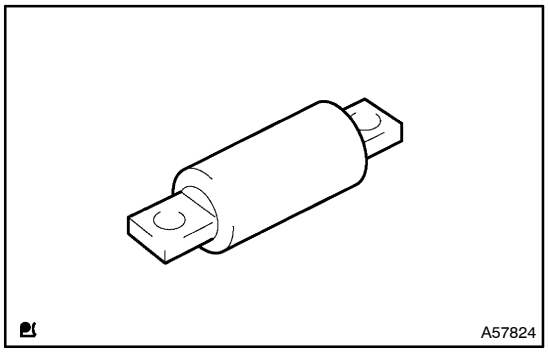
(a) Proceed to A if only DTC P0A94 (INF 587) is output as a result of DTC reading in step 1.
(b) Proceed to B if DTCs P0A94 (INF 587) and P0A94 (INF 442) are output as a result of DTC reading in step 1.

B → REPLACE W/CONVERTER INVERTER ASSY (See page 21–25)

A

REPLACE W/CONVERTER INVERTER ASSY AND BATTERY ECU ASSY (See page 21–25 and 21–100)

6	INSPECT HIGH VOLTAGE FUSE



CAUTION:
Wear insulated gloves before performing the following operation.

(a) Remove the high voltage fuse (see page 21–120).

HINT:
The high voltage fuse is enclosed in the service plug grip.

(b) Check the resistance between the terminals of the high voltage fuse.
Standard: Below 1 Ω

(c) Reinstall the high voltage fuse (see page 21–120).

NG → REPLACE HIGH VOLTAGE FUSE

OK

REPLACE SERVICE PLUG GRIP