

DTC	P0A1F/129	BATTERY ENERGY CONTROL MODULE
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CIRCUIT DESCRIPTION

The battery ECU transmits information on the HV battery voltage to the HV control ECU via CAN communication.

DTC No.	INF Code	DTC Detection Condition	Trouble Area
P0A1F	129	HV battery voltage circuit malfunction	<ul style="list-style-type: none"> • HV battery voltage circuit • Service plug grip • High voltage fuse • Battery plug • Battery ECU

MONITOR DESCRIPTION

The HV control ECU calculates the differences between the received HV battery voltage, boost converter voltage, and inverter voltage. If any of the differences exceed prescribed values, the HV control ECU determines that there is a malfunction in the battery voltage circuit. When the HV control ECU detects a malfunction, it illuminates the MIL and sets a DTC.

MONITOR STRATEGY

Related DTCs	P0A1F (INF 129): Battery ECU/Voltage (VB) sensor deviation
Required sensor/components	Battery ECU, boost converter, inverter
Frequency of operation	Continuous
Duration	TOYOTA's intellectual property
MIL operation	Immediately
Sequence of operation	None

TYPICAL ENABLING CONDITIONS

The monitor will run whenever the following DTCs are not present	TOYOTA's intellectual property
Other conditions belong to TOYOTA's intellectual property	–

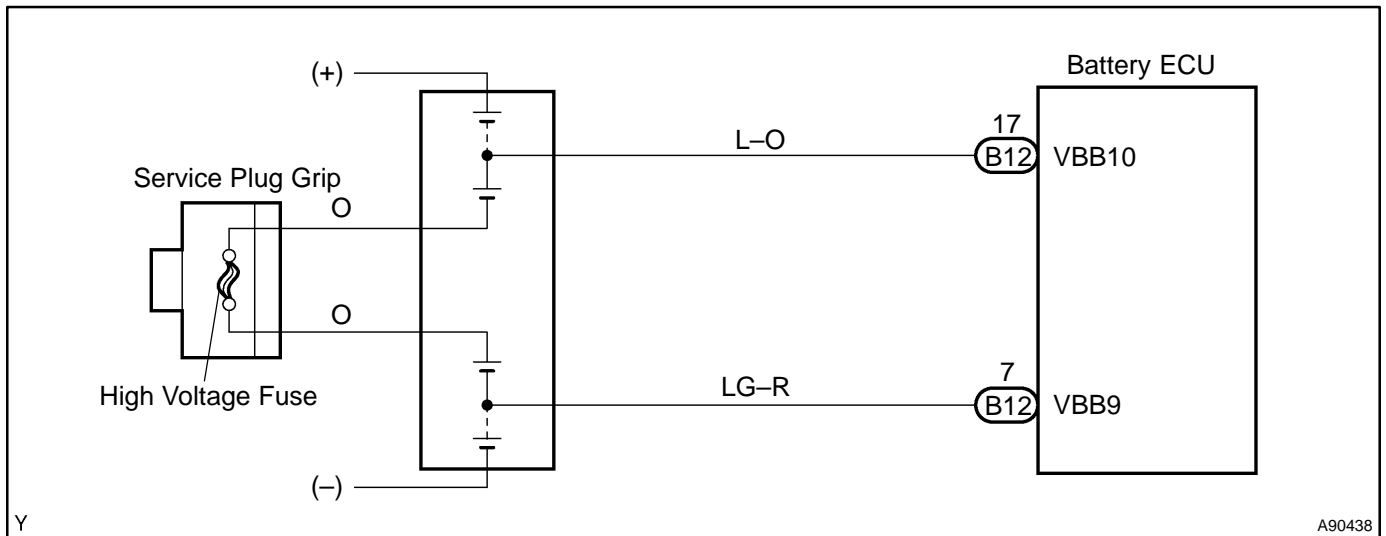
TYPICAL MALFUNCTION THRESHOLDS

TOYOTA's intellectual property	–
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COMPONENT OPERATING RANGE

Battery ECU	Normal
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WIRING DIAGRAM



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(HV BATTERY)

- Connect the hand-held tester to the DLC3.
- Turn the power switch ON (IG).
- Turn the hand-held tester ON.
- On the hand-held tester, enter the following menus: DIAGNOSIS / ENHANCED OBD II / HV BATTERY / DTC INFO / TROUBLE CODES.
- Read DTCs.

Result: DTCs are output

YES

GO TO RELEVANT DTC CHART
(See page 05-893)

NO

2 READ OUTPUT DTC(HV ECU)

- Connect the hand-held tester to the DLC3.
- Turn the power switch ON (IG).
- Turn the hand-held tester ON.
- On the hand-held tester, enter the following menus: DIAGNOSIS / ENHANCED OBD II / HV ECU / DTC INFO / TROUBLE CODES.
- Read DTCs.

Result: DTCs listed in the table below are output

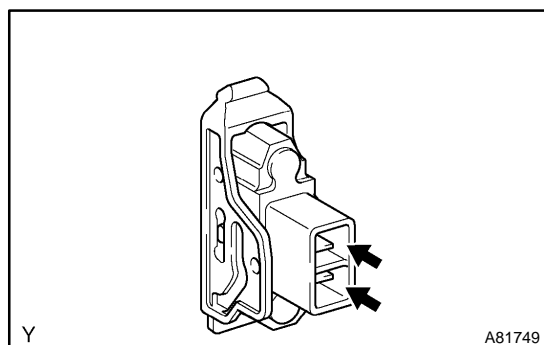
DTC No.	INF Code	Detection Item	See Page
P0AA1	226	Hybrid Battery Positive Contactor Circuit Stuck Closed	05-763
P0AA2	227	Hybrid Battery Positive Contactor Circuit Stuck Open	05-763
P0AA4	228	Hybrid Battery Negative Contactor Circuit Stuck Closed	05-767
P0AA5	229	Hybrid Battery Negative Contactor Circuit Stuck Open	05-767

YES

GO TO THE PAGE NUMBER SHOWN IN THE TABLE ABOVE

NO

3 INSPECT SERVICE PLUG GRIP



CAUTION:

Wear insulated gloves before performing the following operation.

- Turn the power switch OFF.
- Remove the service plug grip (see page [21-116](#)).

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.

- Check the resistance between the terminals of the service plug grip.

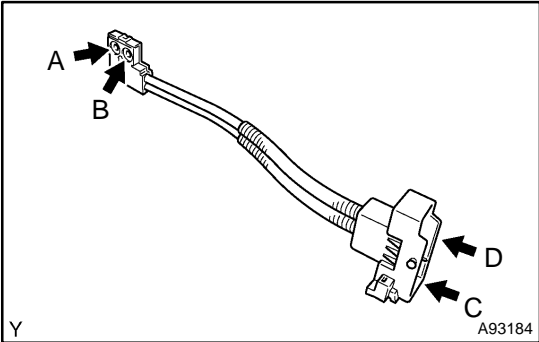
Standard: Below 1 Ω

NG

Go to step 5

OK

4 INSPECT BATTERY PLUG



CAUTION:

Wear insulated gloves and goggles before performing the following operation.

- (a) Remove the HV battery assembly (see page 21-54).
- (b) Remove the battery plug (see page 21-77).
- (c) Check the resistance between the terminals of the battery plug.

Standard:

Tester Connection	Specified Condition
A – C	Below 1 Ω
B – D	Below 1 Ω

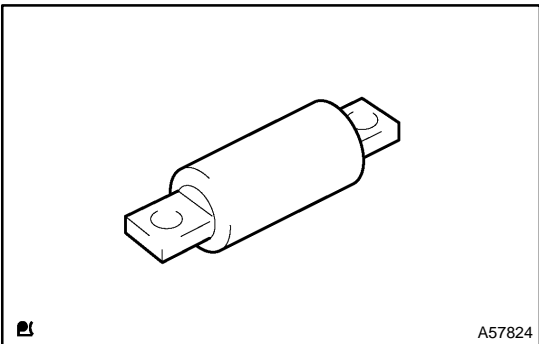
- (d) Reinstall the battery plug (see page 21-77).
- (e) Reinstall the HV battery assembly (see page 21-54).

NG → **REPLACE BATTERY PLUG**

OK

REPLACE BATTERY ECU ASSY (See page 21-98)

5 INSPECT HIGH VOLTAGE FUSE



CAUTION:

Wear insulated gloves before performing the following operation.

- (a) Remove the high voltage fuse (see page 21-116).
- 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 21-116).

NG → **REPLACE HIGH VOLTAGE FUSE**

OK

REPLACE SERVICE PLUG GRIP