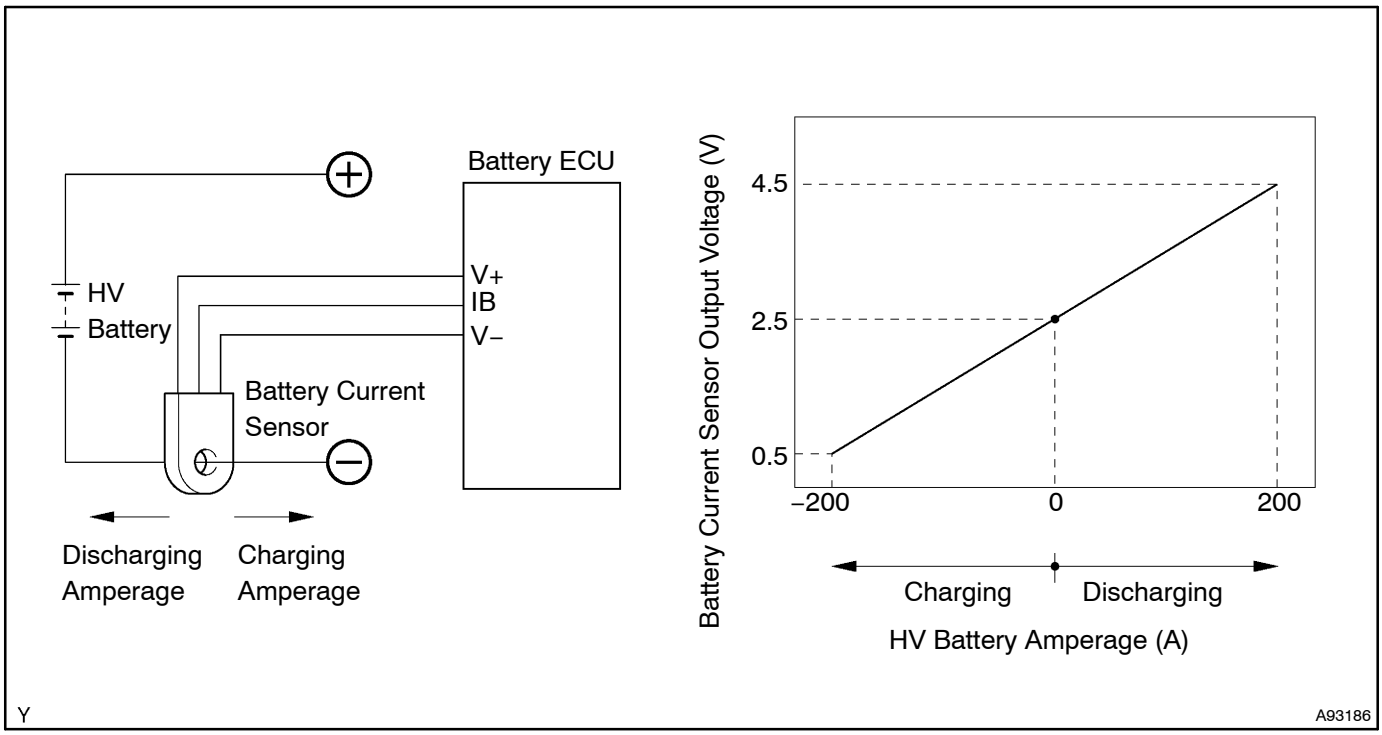
DTC	P3056	BATTERY CURRENT SENSOR CIRCUIT MALFUNCTION

CIRCUIT DESCRIPTION

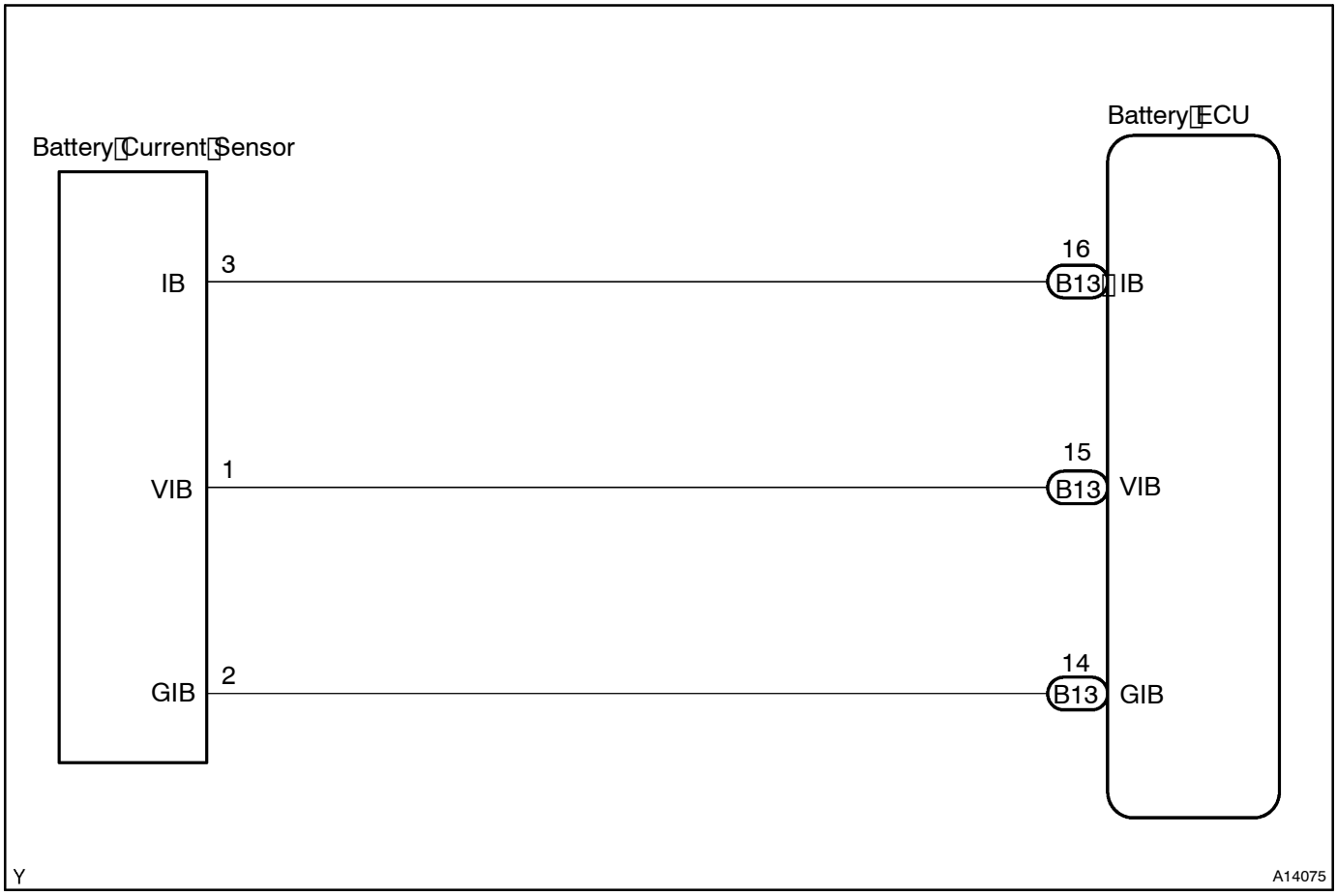
The battery current sensor, which is mounted on the negative cable side of the HV battery assembly, detects the amperage that flows into the HV battery. The battery current sensor inputs a voltage (which varies between 0 to 5 V in proportion to the amperage) into the IB terminal of the battery ECU. An output voltage of the battery current sensor below 2.5 V indicates that the HV battery assembly is being charged, and above 2.5 V indicates that the HV battery assembly is being discharged.

The battery ECU determines the charging and discharging amperage of the HV battery assembly based on the signals that are input to its IB terminal, and calculates the SOC (state of charge) of the HV battery through the estimation of the amperage.



DTC No.	DTC Detection Condition	Trouble Area
P3056	Malfunction in battery current sensor (1 or 2 trip detection logic)	• HV battery assembly (wire harness or connector) • Battery current sensor • Battery ECU

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 (DTC P0A1F IS OUTPUT)

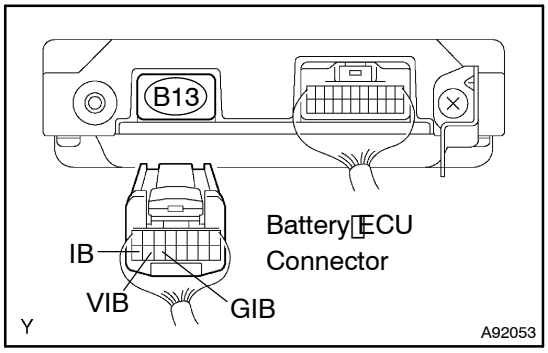
(a) Connect the intelligent tester II to the DLC3.
(b) Turn the power switch ON (IG).
(c) Turn the intelligent tester II ON.
(d) On the intelligent tester II, enter the following menus: Powertrain / HV Battery / DTC.
(e) Read DTCs.

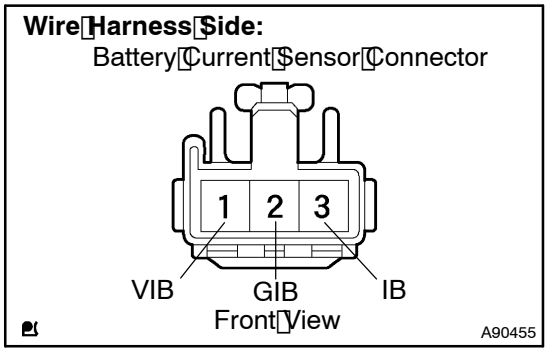
Result: DTC P0A1F is output

YES	REPLACE BATTERY ECU ASSY (See page 21–100)

NO

2	CHECK HARNESS AND CONNECTOR(BATTERY ECU – BATTERY CURRENT SENSOR)





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 B13 battery ECU connector.

(d) Disconnect the battery current sensor connector.

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

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

(f) Measure the voltage between the terminals of the B13 battery ECU connector and body ground.

Standard:

Tester Connection	Specified Condition
IB (B13–16) – Body ground	Below 1 V
GIB (B13–14) – Body ground	Below 1 V
VIB (B13–15) – Body ground	Below 1 V

(g) Turn the power switch OFF.

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

Standard (Check for open):

Tester Connection	Specified Condition
IB (B13–16) – battery current sensor (3)	Below 1 Ω
GIB (B13–14) – battery current sensor (2)	Below 1 Ω
VIB (B13–15) – battery current sensor (1)	Below 1 Ω

Standard (Check for short):

Tester Connection	Specified Condition
IB (B13–16) or battery current sensor (3) – Body ground	10 kΩ or higher
GIB (B13–14) or battery current sensor (2) – Body ground	10 kΩ or higher
VIB (B13–15) or battery current sensor (1) – Body ground	10 kΩ or higher

(i) Reconnect the battery current sensor connector.

(j) Reconnect the battery ECU connector.

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

HINT:
Since the wire harness is not available as a unit and if it is impossible to repair, replace the entire HV battery assembly.

NG → **REPAIR WIRE HARNESS OR CONNECTOR, OR REPLACE HV SUPPLY BATTERY ASSY (See page 21–56)**

OK

3	REPLACE BATTERY CURRENT SENSOR

(a) Replace the battery current sensor (see page 21–97).
(b) Connect the intelligent tester II to the DLC3.
(c) Turn the power switch ON (IG).
(d) Turn the intelligent tester II ON.
(e) On the intelligent tester II, enter the following menus: Powertrain / HV Battery / DTC / Clear.
(f) Perform a simulation test.

HINT:
Some of the steps involve the detection of 2 trips. Therefore, after performing a simulation test, turn the power switch OFF, and perform the simulation test again.

GO

4	READ OUTPUT DTC (DTC P3056 IS NOT OUTPUT AGAIN)

(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: DTC P3056 is not output again

NO	REPLACE BATTERY ECU ASSY (See page 21–100)

YES

SYSTEM OK