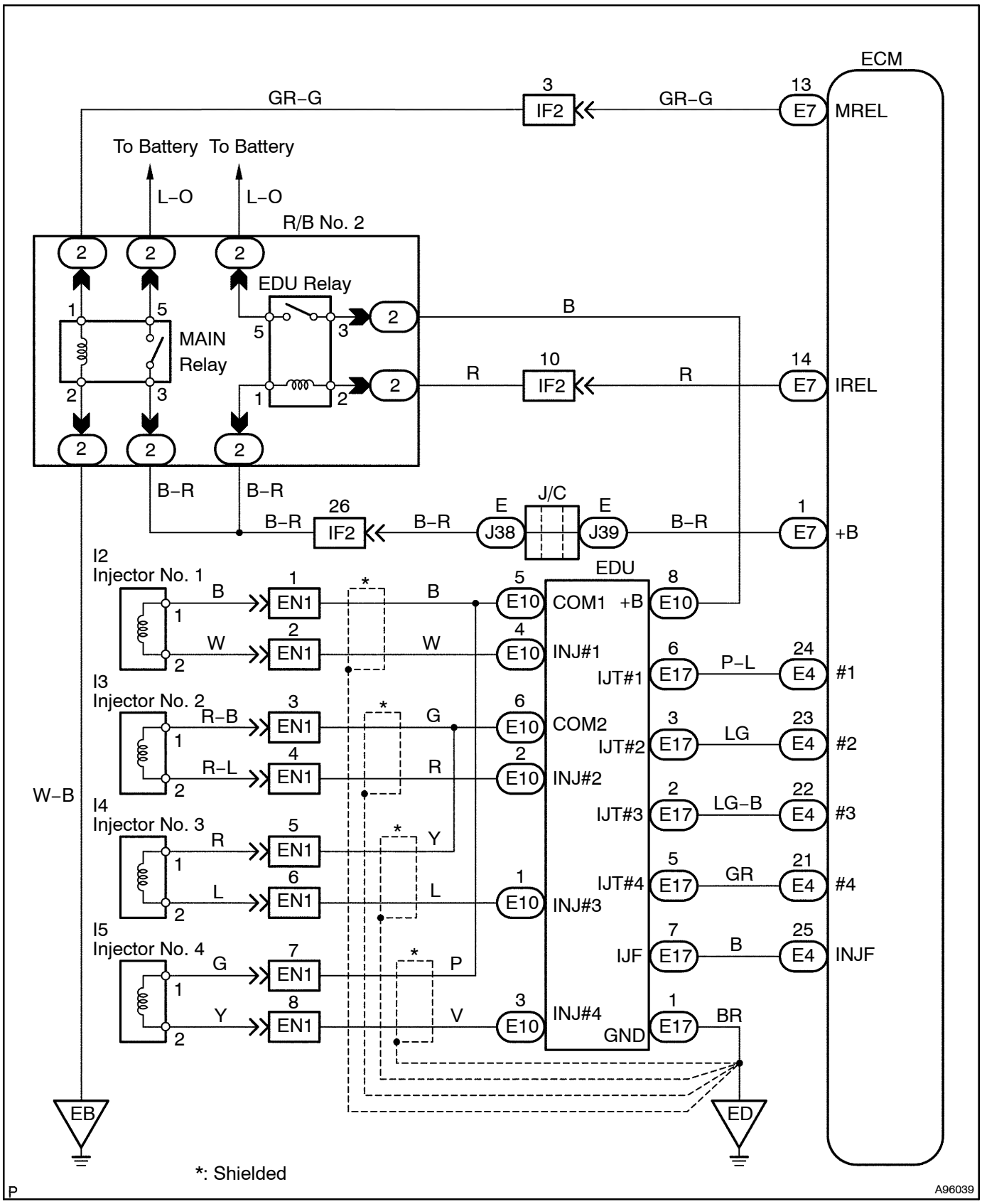
DTC P0200/97 INJECTOR CIRCUIT / OPEN

CIRCUIT DESCRIPTION

The EDU has been adopted to drive the injector at high speeds. The EDU has realized high–speed driving under high fuel pressure conditions through the use of a DC/DC converter that provides a high–voltage, quick–charging system.
The ECM constantly monitors the EDU and stops the engine if an abnormal condition is detected.

DTC No.	DTC Detection Condition	Trouble Area
P0200/97	Open or short in EDU or injector circuit. After engine is started, there is no injection confirmation signal (IJF) from EDU to ECM, despite ECM sending injection command signal (IJT) to EDU.	• Open or short in EDU circuit • Injector • EDU • ECM

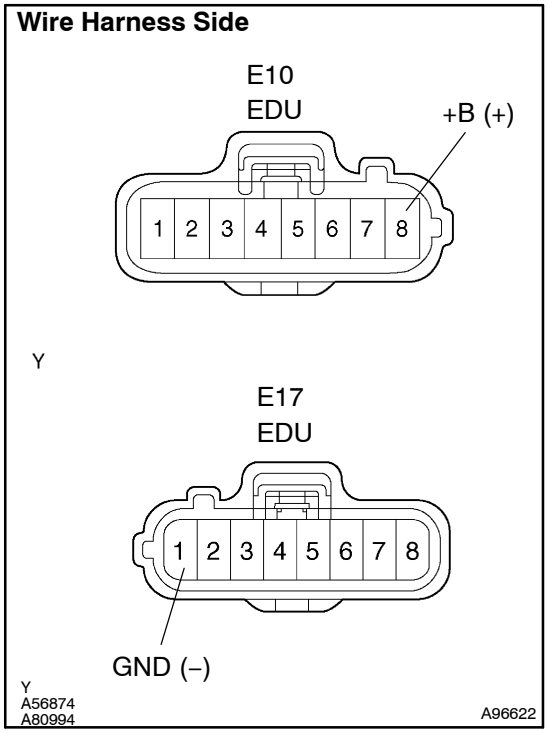
WIRING DIAGRAM



INSPECTION PROCEDURE

HINT:
Read freeze frame data using the hand–held tester. Freeze frame data records the engine conditions when a malfunction is detected. When troubleshooting, freeze frame data can help determine if the vehicle was running or stopped, if the engine was warmed up or not, if the air–fuel ratio was lean or rich, and other data from the time the malfunction occurred.

1 CHECK EDU (+B VOLTAGE)



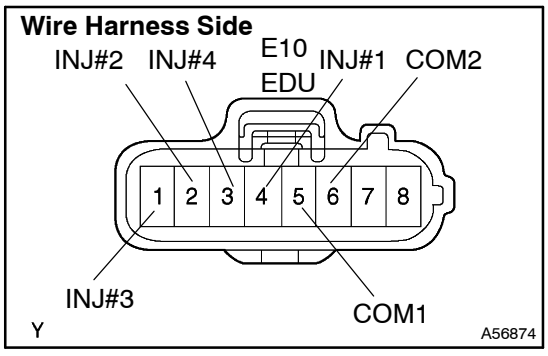
(a) Disconnect the E10 and E17 EDU connectors.
(b) Turn the ignition switch ON.
(c) Measure the voltage of the EDU connectors.
Standard:

Tester Connection	Specified Condition
E10–8 (+B) – E17–1 (GND)	18 to 27 V

NG → **CHECK EDU POWER SOURCE CIRCUIT (BATTERY – EDU)**

OK

2 CHECK EDU (INJECTOR RESISTANCE)



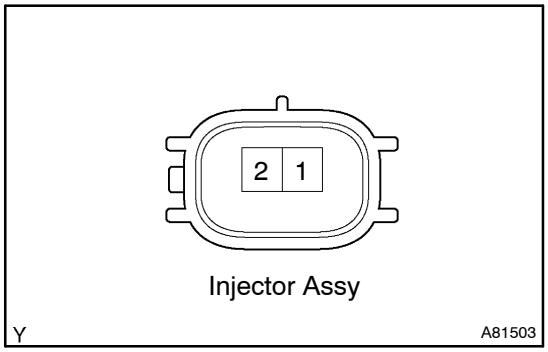
(a) Disconnect the E10 EDU connector.
(b) Measure the resistance of the EDU connector.
Standard:

Tester Connection	Condition	Specified Condition
E10–4 (INJ#1) – E10–5 (COM1) E10–2 (INJ#2) – E10–6 (COM2) E10–1 (INJ#3) – E10–6 (COM2) E10–3 (INJ#4) – E10–5 (COM1)	20°C (68°F)	0.35 to 0.55 Ω

OK → **Go to step 4**

NG

3 INSPECT INJECTOR ASSY



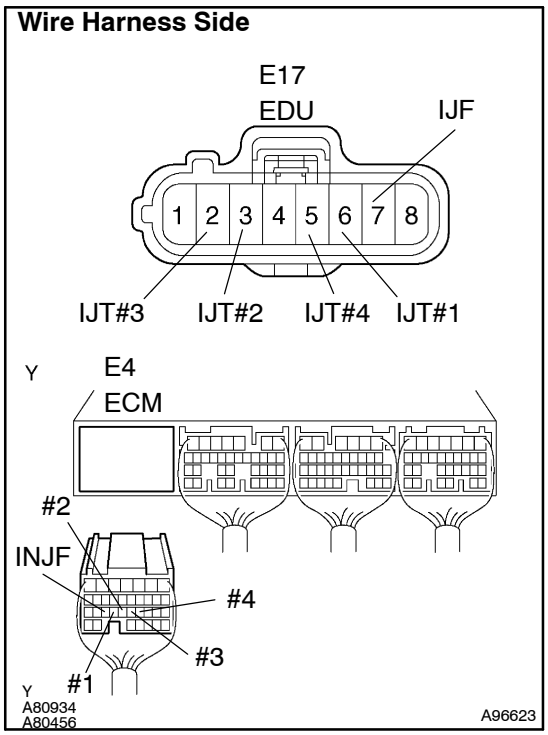
(a) Measure the resistance between the terminals.
Standard: 0.35 to 0.55 Ω at 20°C (68°F)

NG → **REPLACE INJECTOR ASSY (See page 11–20)**

OK

REPAIR OR REPLACE HARNESS AND CONNECTOR

4 CHECK WIRE HARNESS (EDU – ECM)



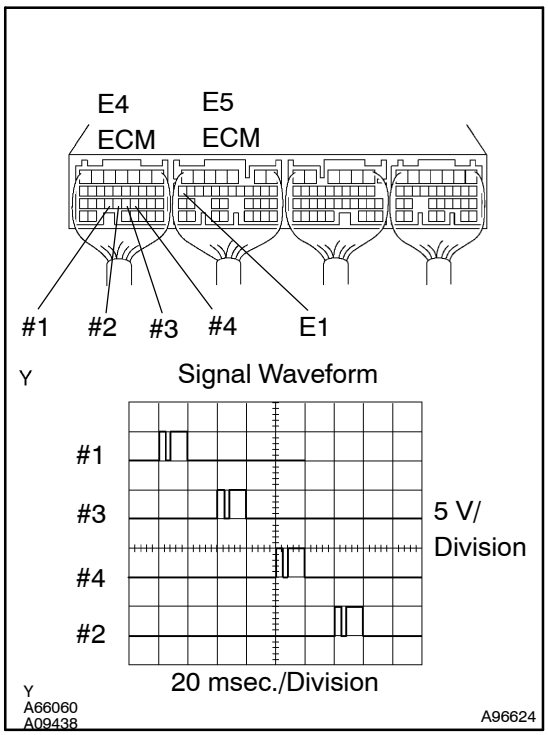
(a) Disconnect the E17 EDU connector.
(b) Disconnect the E4 ECM connector.
(c) Measure the resistance of the wire harness side connectors.
Standard:

Tester Connection	Specified Condition
E17–6 (IJT#1) – E4–24 (#1) E17–3 (IJT#2) – E4–23 (#2) E17–2 (IJT#3) – E4–22 (#3) E17–5 (IJT#4) – E4–21 (#4) E17–7 (IJF) – E4–25 (INJF)	Below 1 Ω
E4–24 (#1) or E17–6 (IJT#1) – Body ground E4–23 (#2) or E17–3 (IJT#2) – Body ground E4–22 (#3) or E17–2 (IJT#3) – Body ground E4–21 (#4) or E17–5 (IJT#4) – Body ground E4–25 (INJF) or E17–7 (IJF) – Body ground	10 kΩ or higher

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

OK

5	CHECK ECM



(a) Inspect using an oscilloscope.

(1) While the engine is idling, check the waveform of the ECM connectors.

Standard:

Tester Connection	Specified Condition
E4–24 (#1) – E5–7 (E1) E4–23 (#2) – E5–7 (E1) E4–22 (#3) – E5–7 (E1) E4–21 (#4) – E5–7 (E1)	Correct waveform is as shown

NG → **REPLACE ECM (See page 10–10)**

OK

REPLACE EDU