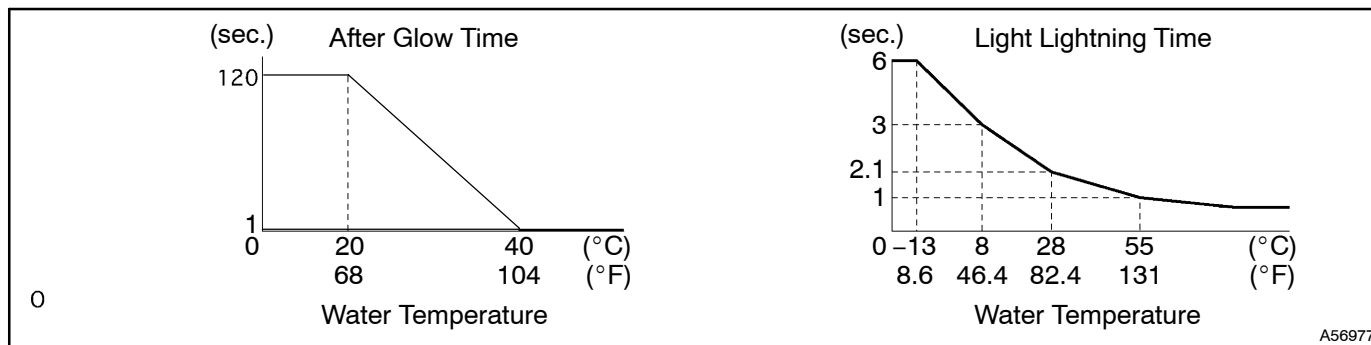


PRE-HEATING CONTROL CIRCUIT

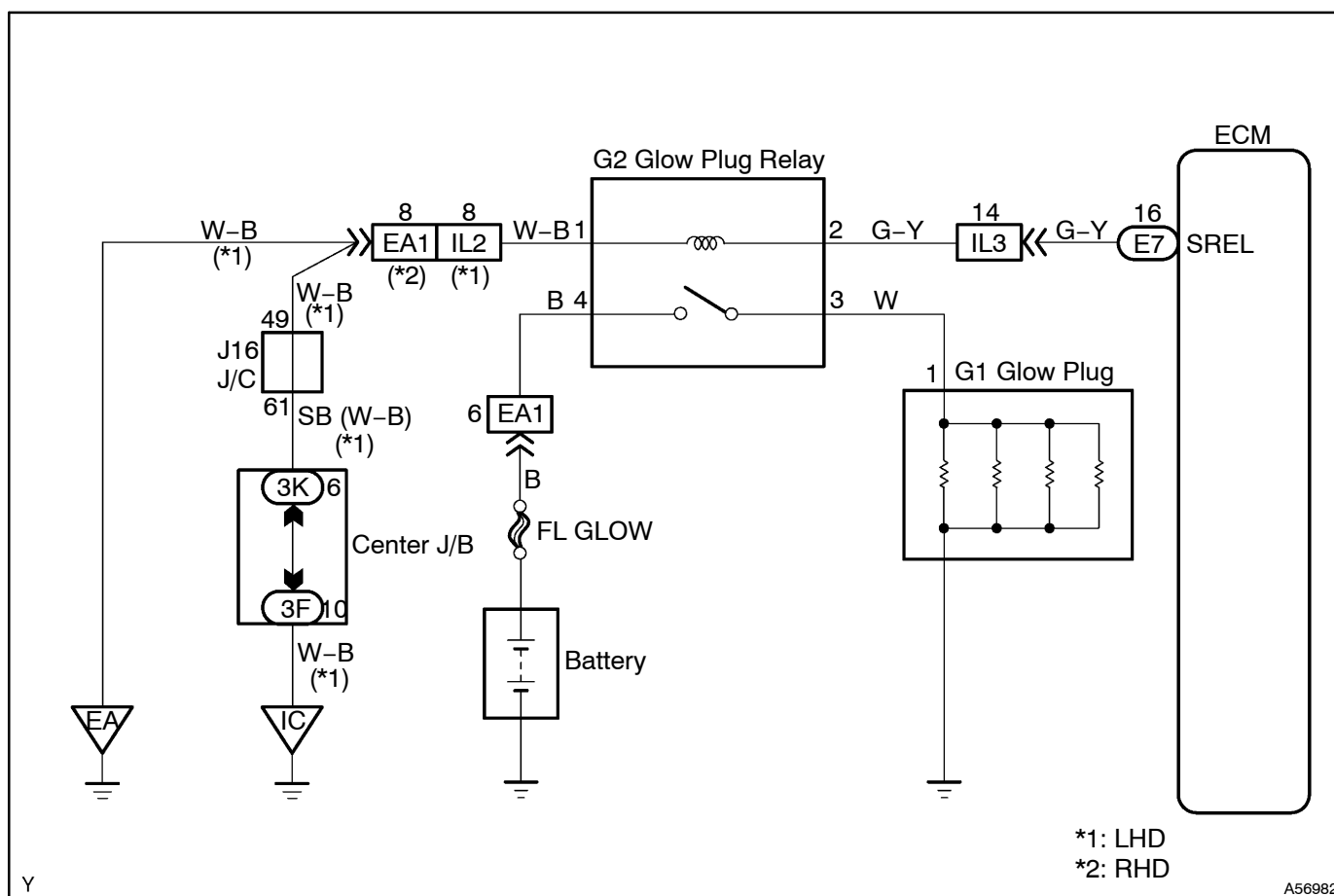
CIRCUIT DESCRIPTION

When the ignition switch turns On, the ECM calculates the glow indicator lighting time/heating corresponding to the coolant temperature at that time and turns ON the glow indicator light/glow plug relay.

As the ceramics is used for a glow plug material, the current control is not performed.



WIRING DIAGRAM



INSPECTION PROCEDURE

1 CHECK GLOW INDICATOR LIGHT

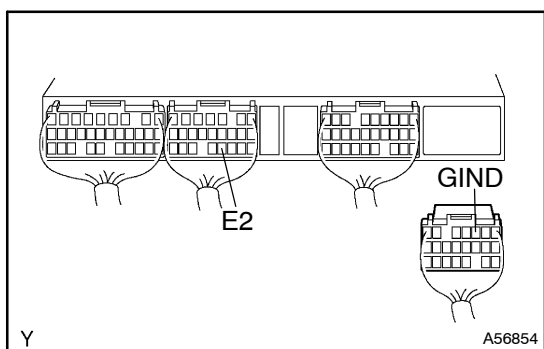
- (a) Turn the ignition switch ON.
- (b) Does the glow indicator light up?
- (c) The glow indicator lights up for 0.5 sec. or more.

OK

Go to step 6

NG

2 INSPECT ECM



- (a) Disconnect the ECM E7 connector.
- (b) Turn ignition switch ON.
- (c) Measure the voltage between terminal GIND and E2 of the ECM connector.

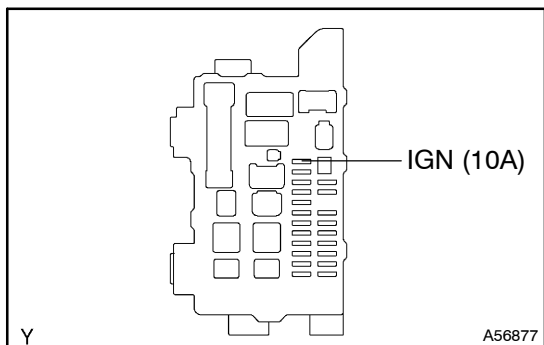
Voltage: 9 - 4 V

OK

CHECK AND REPLACE ECM

NG

3 CHECK FUSE(IGN FUSE)



- (a) Remove the IGN fuse from the instrument panel J/B.
- (b) Check the continuity of the IGN fuse.

Resistance: 1 Ω or less

NG

CHECK FOR SHORT IN ALL HARNESS AND COMPONENTS CONNECTED IGN FUSE

OK

4 CHECK GLOW INDICATOR LIGHT(LIGHT BULB)

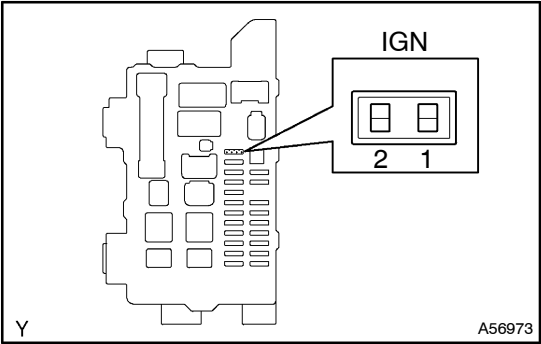
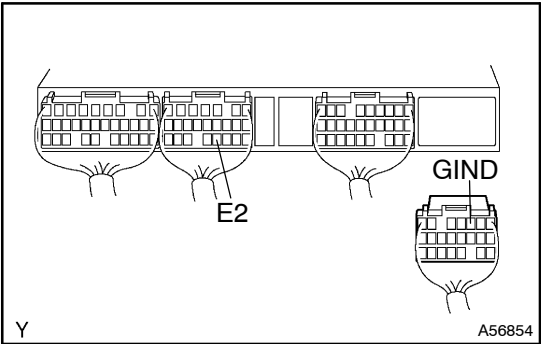
NG

REPLACE BULB

OK

5

CHECK HARNESS AND CONNECTOR
(ECM-COMBINATION METER, AND COMBINATION METER-IGN FUSE)



- (a) Disconnect the combination meter C8 connector. (See page 71-19).
- (b) Disconnect the ECM E7 connector.
- (c) Remove the IGN fuse from the instrument panel J/B.
- (d) Check for open between the terminals GIND of the ECM E7 connector and C8 of the combination meter connector. (Terminal arrangement on 05-656)
Resistance: 1 Ω or less
- (e) Check for open between the terminals 2 of the IGN fuse terminal and C8 of the combination meter connector. (Terminal arrangement on 05-656)
Resistance: 1 Ω or less

NG

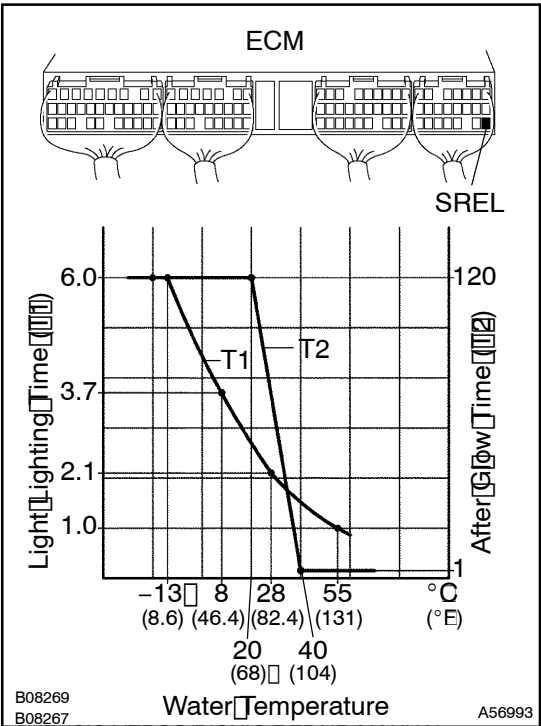
REPAIR OR REPLACE HARNESS AND CONNECTOR

OK

CHECK AND REPLACE ECM

6

CHECK GLOW INDICATOR LIGHT (LIGHTING TIME)



- (a) Inspect lighting time of glow indicator light.
(1) Turn the ignition switch ON, and measure the lighting time.
LIGHT LIGHTING TIME (T1): Refer to the chart graph
- (b) Inspect after glow time.
(1) Turn the ignition switch to START, after the engine starts, measure the time when the battery voltage is applied to terminal SREL of the ECM.
AFTER GLOW TIME (T2): Refer to the chart graph

NG

CHECK AND REPLACE ECM

OK

7 READ OUTPUT DTC (See page 05-156)

Result:

	A	B
RESULT	Other DTC is not output	Other DTC is output

SST 09843-18040

B

GO TO RELEVANT DTC CHART

A

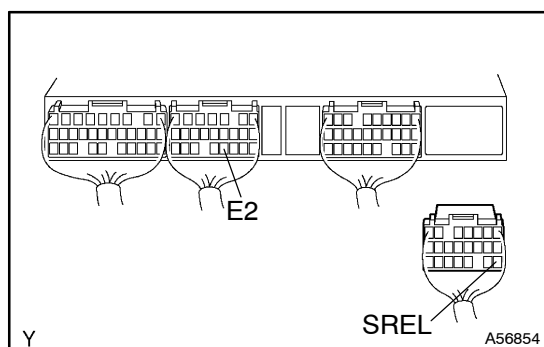
8 CHECK GLOW PLUG RELAY ASSY (See page 19-17)

NG

REPLACE GLOW PLUG ASSY

OK

9 INSPECT ECM



- (a) Disconnect the ECM E7 connector.
- (b) Turn the ignition switch START.
- (c) Measure the voltage between terminal SREL and E2 of the ECM connector at cranking.

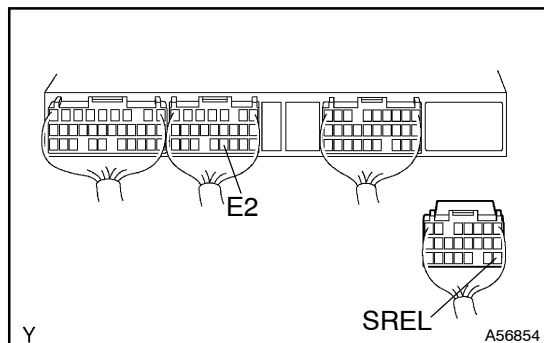
Voltage: 9 - 4 V

NG

CHECK AND REPLACE ECM

OK

10 CHECK HARNESS AND CONNECTOR (ECM-GLOW PLUG RELAY, AND GLOW PLUG RELAY-BODY GROUND)



- (a) Disconnect the glow plug relay connector.
- (b) Disconnect the ECM E7 connector.
- (c) Check for open between the terminals SREL of the ECM E7 connector and 2 of the glow plug relay harness side connector.

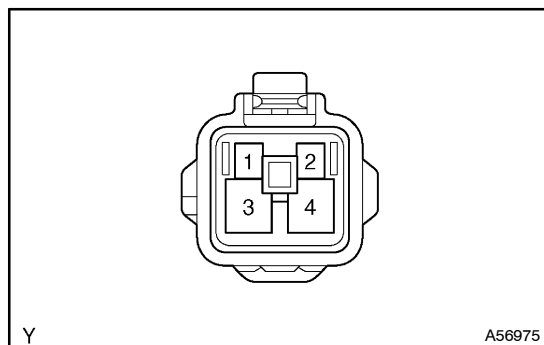
Resistance: 1 Ω or less

- (d) Check for short between the terminals SREL of the ECM E7 connector and E2 of the ECM E10 connector.

Resistance: 1 M Ω or less

- (e) Check for open between the terminal 1 of the glow plug relay harness side connector and body ground.

Resistance: 1 Ω or less



NG

REPAIR OR REPLACE
HARNESS AND CONNECTOR

OK

11 INSPECT GLOW PLUG ASSY (See page 19-16)

NG

REPLACE GLOW PLUG ASSY

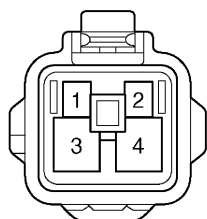
OK

12 INSPECT GLOW PLUG ASSY (INSTALLATION)

NG

TIGHTEN GLOW PLUG

OK

13 CHECK HARNESS AND CONNECTOR (GLOW PLUG RELAY - GLOW PLUG)

Y

A56975

- (a) Disconnect the glow plug relay connector.
- (b) Remove the harness side terminal of the glow plug connector.
- (c) Check for open between the terminals 3 of the glow plug relay harness side connector and harness side terminal of the glow plug connector.

Resistance: 1 Ω or less**NG****REPAIR OR REPLACE
HARNESS AND CONNECTOR****OK**

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN ON PROBLEM SYMPTOM TABLE
 (See [page 05-170](#))