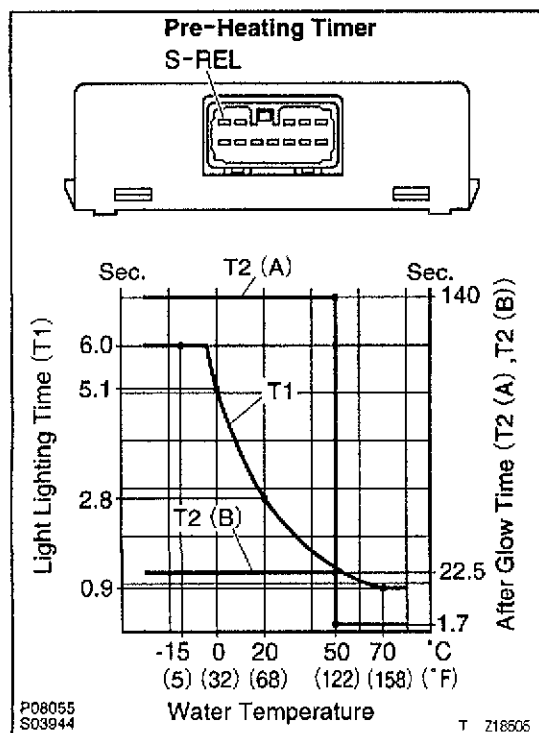




PRE-HEATING SYSTEM (Super Glow Type/with Resistor)

On-Vehicle Inspection

ST050-0C

1. INSPECT LIGHTING TIME OF GLOW INDICATOR LIGHT

Turn the ignition switch ON, and measure the lighting time.

Light lighting time (T1):

Refer to the chart graph

2. INSPECT AFTER GLOW TIME

Turn the ignition switch ON, and measure the time battery voltage is applied to terminal S-REL of the pre-heating timer.

After glow time (T2 (A), T2 (B)):

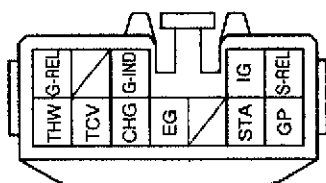
Refer to the chart graph

T2 (A) Before starting the engine

T2 (B) After starting the engine

ST04V-07

Wire Harness Side



e-12-1

T Z18682

Pre-Heating Timer

PRE-HEATING TIMER INSPECTION

1. DISCONNECT PRE-HEATING TIMER CONNECTOR

LOCATION: See relay locations in Electrical Wiring Diagram.

2. INSPECT PRE-HEATING TIMER CIRCUIT

Check the connector on the wire harness side as shown in these chart:

Check for	Tester connection	Condition	Specified value
Voltage	G-IND - Ground	Ignition switch OFF	No voltage
		Ignition switch ON	Battery voltage
Voltage	IG - Ground	Ignition switch OFF	No voltage
		Ignition switch ON	Battery voltage
Voltage	STA - Ground	Ignition switch OFF	No voltage
		Ignition switch START	Battery voltage
Continuity	G-REL, S-REL - Ground	—	Continuity
Continuity	GP - Ground	—	Continuity
Continuity	THW - Ground	—	Continuity
Continuity	EG - Ground	—	Continuity
Continuity	TCV (w/ TCV) - Ground	—	Continuity

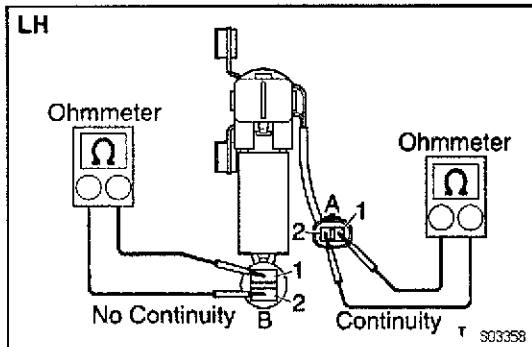
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3. RECONNECT PRE-HEATING TIMER CONNECTOR

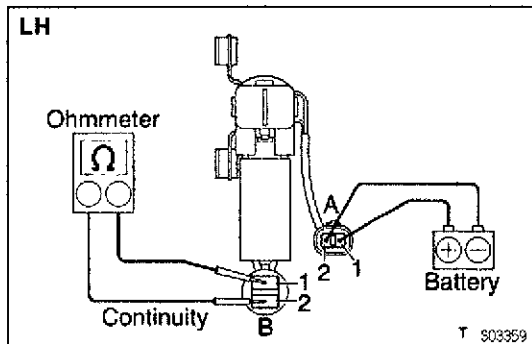
No.1 Glow Plug Relay (LH)**NO.1 GLOW PLUG RELAY INSPECTION****1. REMOVE NO.1 GLOW PLUG RELAY**

LOCATION: See relay locations in Electrical Wiring Diagram.

ST

**2. INSPECT NO.1 GLOW PLUG RELAY****A. Inspect relay continuity**

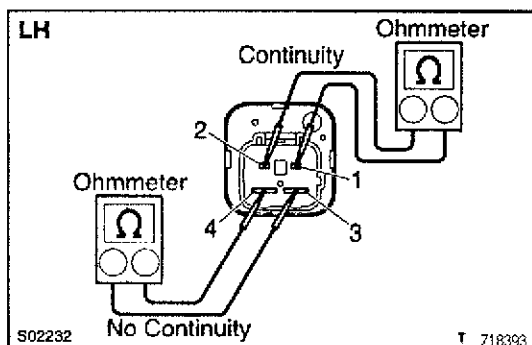
- Using an ohmmeter, check that there is continuity between terminals 1 and 2 of connector A.
If there is no continuity, replace the relay.
- Check that there is no continuity between terminals 1 and 2 of connector B.
If there is continuity, replace the relay.

**B. Inspect relay operation**

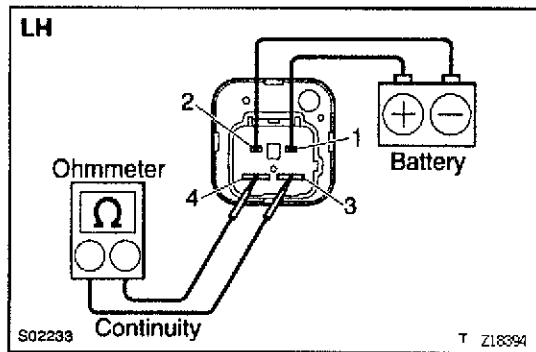
- Apply battery voltage across terminals 1 and 2 of connector A.
- Using an ohmmeter, check that there is continuity between terminals 1 and 2 of connector B.
If there is no continuity, replace the relay.

3. REINSTALL NO.1 GLOW PLUG RELAY**No.2 Glow Plug Relay (LH)****NO.2 GLOW PLUG RELAY INSPECTION****1. REMOVE NO.2 GLOW PLUG RELAY**

LOCATION: See relay locations in Electrical Wiring Diagram.

**2. INSPECT NO.2 GLOW PLUG RELAY****A. Inspect relay continuity**

- Using an ohmmeter, check that there is continuity between terminals 1 and 2.
If there is no continuity, replace the relay.
- Check that there is no continuity between terminals 3 and 4.
If there is continuity, replace the relay.

**B. Inspect relay operation**

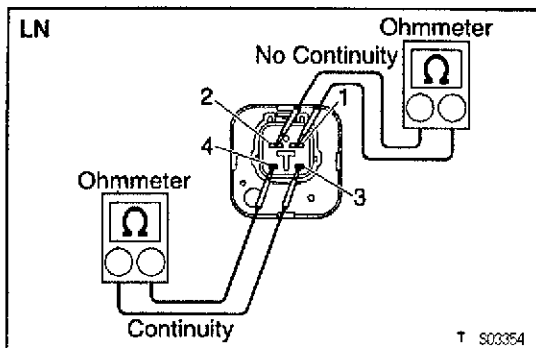
- (a) Apply battery voltage across terminals 1 and 2.
 - (b) Using an ohmmeter, check that there is continuity between terminals 3 and 4.
- If there is no continuity, replace the relay.

3. REINSTALL NO.2 GLOW PLUG RELAY**No.1 and No.2 Glow Plug Relays (LN)**

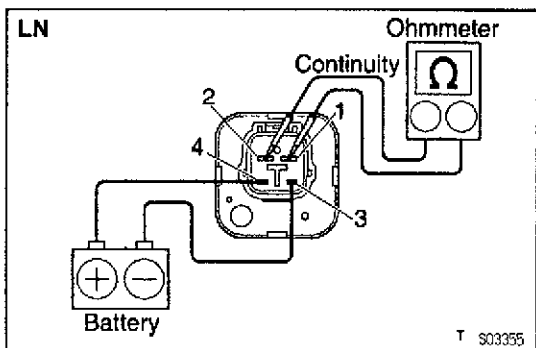
STOAW-06

NO.1 AND NO.2 GLOW PLUG RELAYS INSPECTION**1. REMOVE NO.1 AND NO.2 GLOW PLUG RELAYS**

LOCATION: See relay locations in Electrical Wiring Diagram.

**2. INSPECT NO.1 AND NO.2 GLOW PLUG RELAYS****A. Inspect relay continuity**

- (a) Using an ohmmeter, check that there is no continuity between terminals 1 and 2.
 - (b) Check that there is continuity between terminals 3 and 4.
- If there is no continuity, replace the relay.

**B. Inspect relay operation**

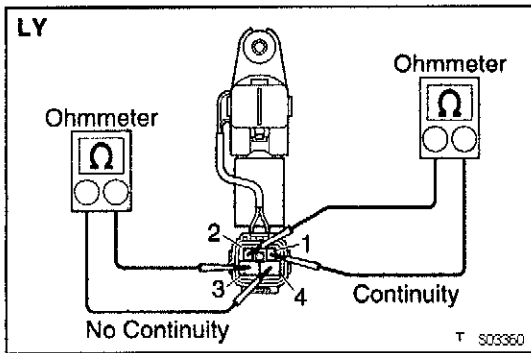
- (a) Apply battery voltage across terminals 3 and 4.
 - (b) Using an ohmmeter, check that there is continuity between terminals 1 and 2.
- If there is no continuity, replace the relay.

3. REINSTALL NO.1 AND NO.2 GLOW PLUG RELAYS**No.1 Glow Plug Relay (LY)**

STOAW-07

NO.1 GLOW PLUG RELAY INSPECTION**1. REMOVE NO.1 GLOW PLUG RELAY**

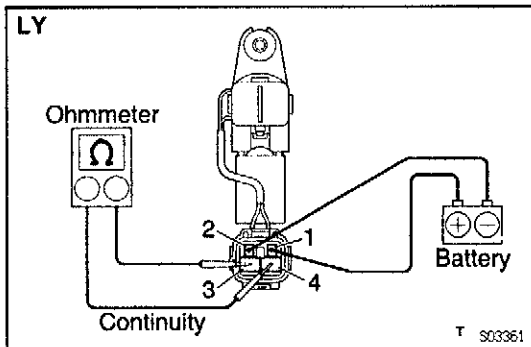
LOCATION: See relay locations in Electrical Wiring Diagram.



2. INSPECT NO.1 GLOW PLUG RELAY

A. Inspect relay continuity

- Using an ohmmeter, check that there is continuity between terminals 1 and 2.
If there is no continuity, replace the relay.
- Check that there is no continuity between terminals 3 and 4.
If there is continuity, replace the relay.



B. Inspect relay operation

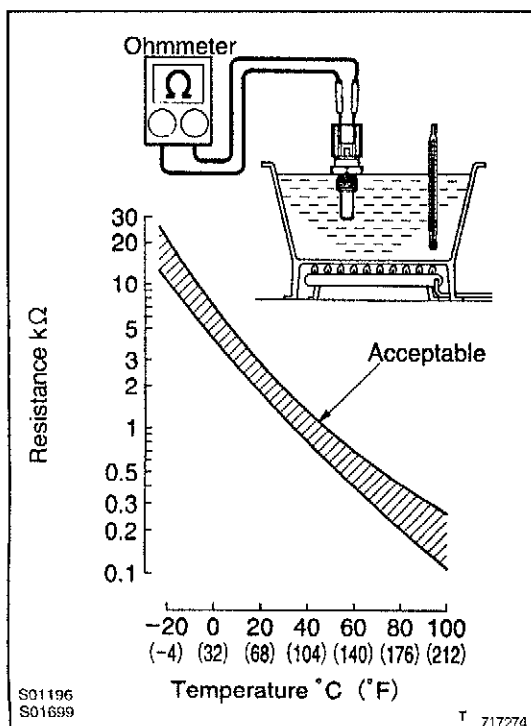
- Apply battery voltage across terminals 1 and 2.
- Using an ohmmeter, check that there is continuity between terminals 3 and 4.
If there is no continuity, replace the relay.

3. REINSTALL NO.1 GLOW PLUG RELAY

No.2 Glow Plug Relay (LY)

ST097-01

(See No.1 and No.2 glow plug relays (LN))



Water Temperature Sensor

WATER TEMPERATURE SENSOR INSPECTION

1. REMOVE WATER TEMPERATURE SENSOR

LOCATION: In water outlet housing.

2. INSPECT WATER TEMPERATURE SENSOR

Using an ohmmeter, measure the resistance between the terminals.

Resistance:

Refer to the chart graph

If the resistance is not as specified, replace the sensor.

3. REINSTALL WATER TEMPERATURE SENSOR

Torque: 17.5 N·m (178 kgf·cm, 13 ft·lbf)

EQ2A1-05