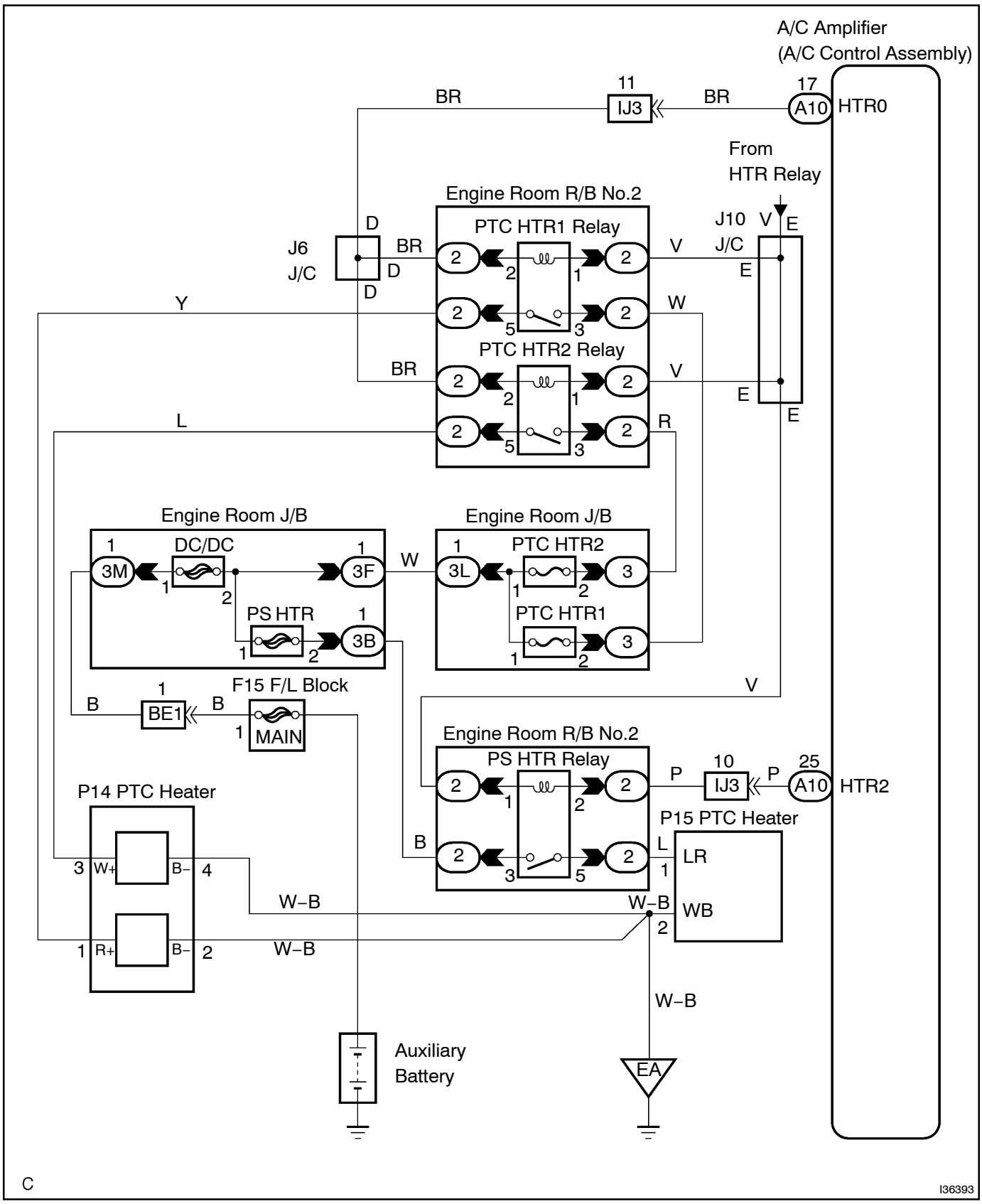
PTC HEATER CIRCUIT

CIRCUIT DESCRIPTION

The PTC heater is installed in the radiator in the heater unit on the driver and passenger's FOOT sides and operates when cooling water temperature is low and normal heater effectiveness is insufficient.
The air conditioner amplifier assy switches the circuit in the PTC relay and operates the PTC heater when the operating conditions (cooling water temperature is Below 55°C (131°F), setting temperature is MAX. HOT, air outlet damper position is FOOT or FOOT/DEF and blower switch in not OFF) are met.

WIRING DIAGRAM



INSPECTION PROCEDURE

1	INSPECT FUSE(PTC HTR1 (30A), PTC HTR2 (30A))

(a) Remove the PTC HTR1 (30A) and PTC HTR2 (30A) fuse from the engine room J/B.
(b) Measure the resistance according to the value(s) in the table below.

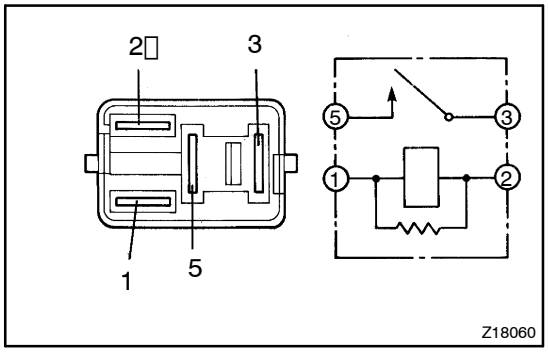
Standard:

Tester Item	Condition	Specified condition
PTC HTR1 (30A) fuse	Always	Below 1 Ω
PTC HTR2 (30A) fuse	Always	Below 1 Ω

NG → **CHECK FOR SHORT IN ALL HARNESS AND COMPONENTS CONNECTED FAILURE FUSE**

OK

2	INSPECT PTC HEATER RELAY(PTC HTR1, PTC HTR2)



(a) Remove the PTC heater relay from the engine room R/B.
(b) Measure the resistance according to the value(s) in the table below

Standard:

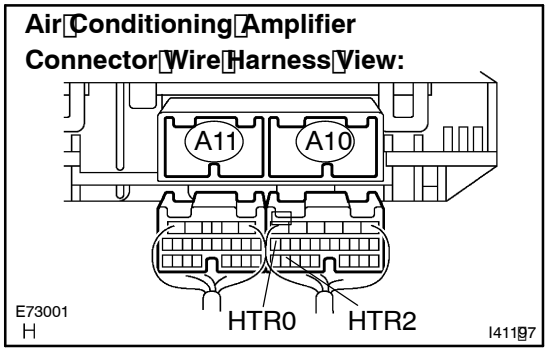
Tester connection	Condition	Specified condition
3 – 5	Always	10 kΩ or higher
3 – 5	When battery voltage applied to terminals 1 and 2	Below 1 Ω (When battery voltage applied to terminals 1 and 2)

NG → **REPLACE PTC HEATER RELAY**

OK

3	CHECK HARNESS AND CONNECTOR (SEE PAGE 01–46)

Air Conditioning Amplifier Connector Wire Harness View:



(a) Disconnect the connectors from air conditioning amplifier.
(b) Measure the voltage according to the value(s) in the table below.

Standard:

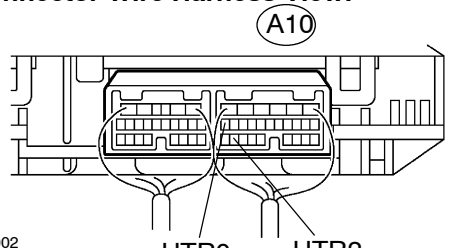
Tester connection	Condition	Specified condition
A10–17 (HTR0) – Body ground	Power switch ON	10 to 14 V
A10–25 (HTR2) – Body ground	Power switch ON	10 to 14 V

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

OK

4 INSPECT AIR CONDITIONING AMPLIFIER ASSY

Air Conditioning Amplifier Connector Wire Harness View:



(a) Connect the connectors.
(b) Measure voltage according to the value(s) in the table below.

Standard:

Tester connection	Condition	Specified condition
A10–17 (HTR0) – Body ground	Power switch READY ON Set temperature: Max. hot Ventilator mode: FOOT Coolant temperature: 55°C (131 °F) or lower Blower switch: OFF → LO (after 30 sec.)	Below 1V → 10 to 14 V
A10–25 (HTR2) – Body ground	Power switch READY ON Set temperature: Max. hot Ventilator mode: FOOT Coolant temperature: 55°C (131 °F) or lower Blower switch: OFF → LO (after 30 sec.)	Below 1V → 10 to 14 V

HINT:

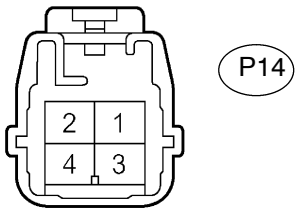
- PTC operation may stop when the electric load on the vehicle is high. Perform the inspection under conditions with low electric load (such as with headlights turned OFF).
- since the two PTC heaters are gradually turned to the ON position, perform the inspection 30 seconds after the blower switch is turned to the LO position.

NG → **REPLACE AIR CONDITIONING AMPLIFIER ASSY (SEE PAGE 55–52)**

OK

5 INSPECT PTC HEATER ASSY

PTC Heater Assy Connector Front View:



(a) Disconnect the connector from the PTC heater assy.
(b) Check the continuity between each terminal.

Standard:

Tester connection	Condition	Specified condition
P14–1 – P14–2	Always	Continuity (0.5 kΩ or higher)
P14–3 – P14–4	Always	Continuity (0.5 kΩ or higher)

NG → **REPLACE PTC HEATER ASSY**

OK

REPAIR OR REPLACE HARNESS OR CONNECTOR