

Component Description

The heat up switch is located on the lower side of the instrument panel. This switch is used to speed up the heater's operation when the engine is cold.

When the ECM received the heat up switch "ON" signal, the ECM increases the engine idle speed to 1,100 to 1,200 rpm to warm up engine quickly.

This system works when all conditions listed below are met.

Heat up switch	ON
Engine coolant temperature	Below 105°C (221°F)
Shift lever	"P" or "N"
Accelerator pedal	Fully released

CONSULT-II Reference Value in Data Monitor Mode

Specification data are reference values.

MONITOR ITEM	CONDITION		SPECIFICATION
WARM UP SW	● Ignition switch: ON	Heat up switch: ON	ON
		Heat up switch: OFF	OFF

ECM Terminals and Reference Value

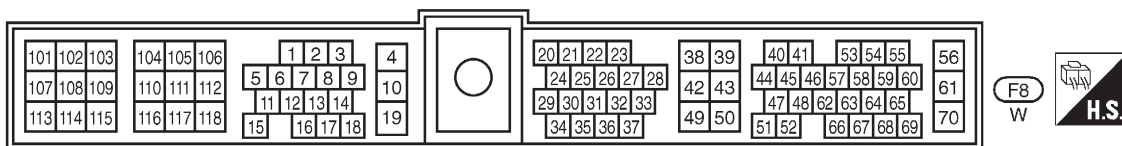
Specification data are reference values and are measured between each terminal and ground.

CAUTION:

Do not use ECM ground terminals when measuring input/output voltage. Doing so may damage the ECM's transistor. Use a ground other than ECM terminals, such as the ground.

TER-MINAL NO.	WIRE COLOR	ITEM	CONDITION	DATA (DC Voltage and Pulse Signal)
59	BR/W	Heat up switch	Ignition switch "ON" └ Heat up switch is "OFF".	0V
			Ignition switch "ON" └ Heat up switch is "ON".	BATTERY VOLTAGE (11 - 14V)

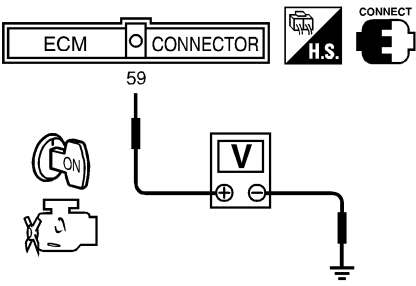
EC-HEATUP-01



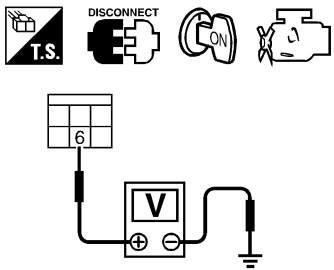
Diagnostic Procedure

1	INSPECTION START	
Do you have CONSULT-II?		
Yes or No		
Yes	▶	GO TO 2.
No	▶	GO TO 3.

2	CHECK OVERALL FUNCTION							
With CONSULT-II 1. Turn ignition switch "ON". 2. Check "WARM UP SW" in "DATA MONITOR" mode with CONSULT-II under the following conditions.								
<table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th colspan="2">DATA MONITOR</th> </tr> <tr> <th>MONITOR</th> <th>NO DTC</th> </tr> </thead> <tbody> <tr> <td>WARM UP SW</td> <td>OFF</td> </tr> </tbody> </table>			DATA MONITOR		MONITOR	NO DTC	WARM UP SW	OFF
DATA MONITOR								
MONITOR	NO DTC							
WARM UP SW	OFF							
<table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Conditions</th> <th>WARM UP SW</th> </tr> </thead> <tbody> <tr> <td>Heat-up switch is "OFF"</td> <td>OFF</td> </tr> <tr> <td>Heat-up switch is "ON"</td> <td>ON</td> </tr> </tbody> </table>			Conditions	WARM UP SW	Heat-up switch is "OFF"	OFF	Heat-up switch is "ON"	ON
Conditions	WARM UP SW							
Heat-up switch is "OFF"	OFF							
Heat-up switch is "ON"	ON							
SEF302Z OK or NG								
OK	▶	INSPECTION END						
NG	▶	GO TO 4.						

3	CHECK OVERALL FUNCTION							
Without CONSULT-II 1. Turn ignition switch "ON". 2. Check voltage between ECM terminal 59 and ground under the following conditions.								
								
<table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Conditions</th> <th>Voltage</th> </tr> </thead> <tbody> <tr> <td>Heat-up switch is "OFF".</td> <td>Approximately 0V</td> </tr> <tr> <td>Heat-up switch is "ON".</td> <td>Battery voltage</td> </tr> </tbody> </table>			Conditions	Voltage	Heat-up switch is "OFF".	Approximately 0V	Heat-up switch is "ON".	Battery voltage
Conditions	Voltage							
Heat-up switch is "OFF".	Approximately 0V							
Heat-up switch is "ON".	Battery voltage							
SEF303Z OK or NG								
OK	▶	INSPECTION END						
NG	▶	GO TO 4.						

Diagnostic Procedure (Cont'd)




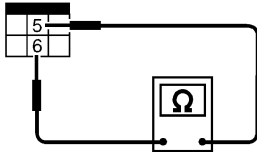
4	CHECK HEAT UP SWITCH POWER SUPPLY CIRCUIT
1. Turn heat up switch "OFF". 2. Turn ignition switch "OFF". 3. Disconnect heat up switch harness connector. 4. Turn ignition switch "ON". 5. Check voltage between heat up switch terminal 6 and ground with CONSULT-II or tester.	
 <p style="text-align: right;">Voltage: Battery voltage</p>	
SEF304Z OK or NG	
OK	▶ GO TO 6.
NG	▶ GO TO 5.

5	DETECT MALFUNCTIONING PART
Check the following. <ul style="list-style-type: none"> ● Fuse block (J/B) connector M3 ● 10A fuse ● Harness for open or short between heat up switch and fuse 	
	▶ Repair open circuit or short to ground or short to power in harness or connectors.

6	CHECK HEAT UP SWITCH INPUT SIGNAL CIRCUIT FOR OPEN OR SHORT
1. Turn ignition switch "OFF". 2. Disconnect ECM harness connector. 3. Check harness continuity between ECM terminal 59 and heat up switch terminal 5. Refer to Wiring Diagram. Continuity should exist. 4. Also check harness for short to ground and short to power.	
OK or NG	
OK	▶ GO TO 8.
NG	▶ GO TO 7.

7	DETECT MALFUNCTIONING PART
Check the following. <ul style="list-style-type: none"> ● Harness connectors M51, F6 ● Harness for open or short between heat up switch and ECM 	
	▶ Repair open circuit or short to ground or short to power in harness or connectors.

Diagnostic Procedure (Cont'd)

8	CHECK HEAT UP SWITCH							
Check continuity between heat up switch terminals 5 and 6 under the following conditions.								
<div><div></div><div></div></div>								
<table><tr><th>Conditions</th><th>Continuity</th></tr><tr><td>Heat-up switch is "OFF".</td><td>Should not exist.</td></tr><tr><td>Heat-up switch is "ON".</td><td>Should exist.</td></tr></table>			Conditions	Continuity	Heat-up switch is "OFF".	Should not exist.	Heat-up switch is "ON".	Should exist.
Conditions	Continuity							
Heat-up switch is "OFF".	Should not exist.							
Heat-up switch is "ON".	Should exist.							
SEF305Z OK or NG								
OK	▶	GO TO 9.						
NG	▶	Replace heat up switch.						

9	CHECK INTERMITTENT INCIDENT	
Refer to “TROUBLE DIAGNOSIS FOR INTERMITTENT INCIDENT”, EC-1076.		
	▶	INSPECTION END