

EMISSION CONTROL SYSTEM

SECTION **EC**

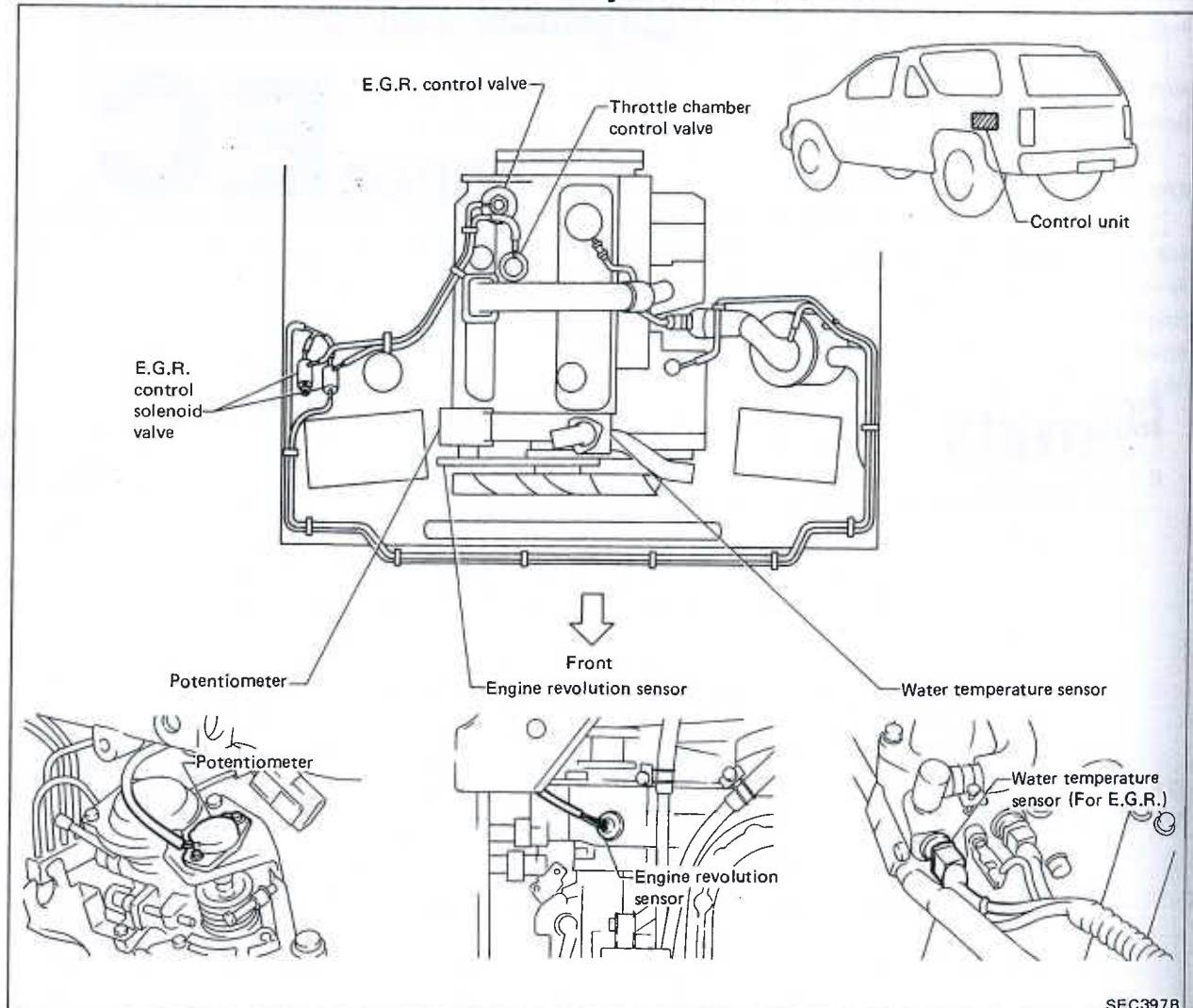
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EC

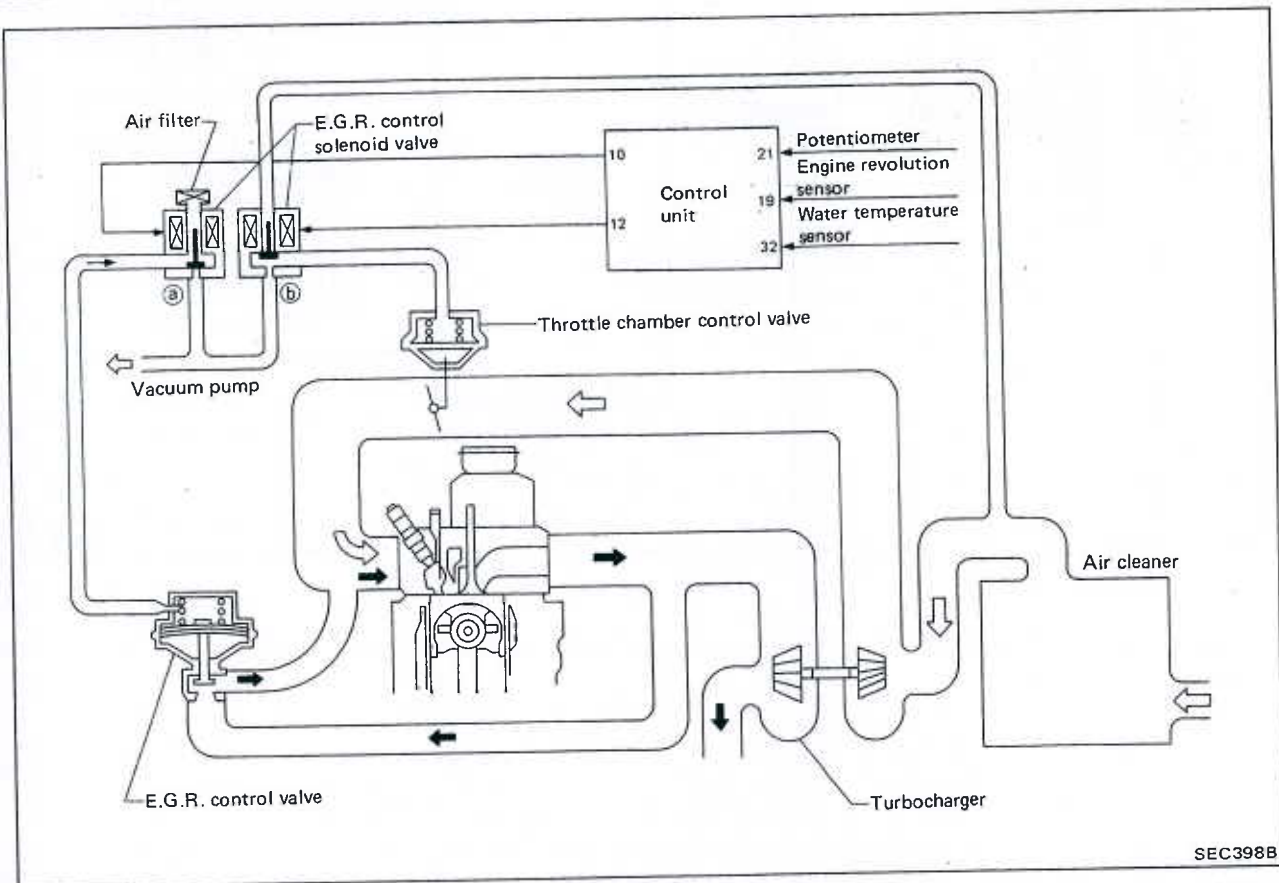
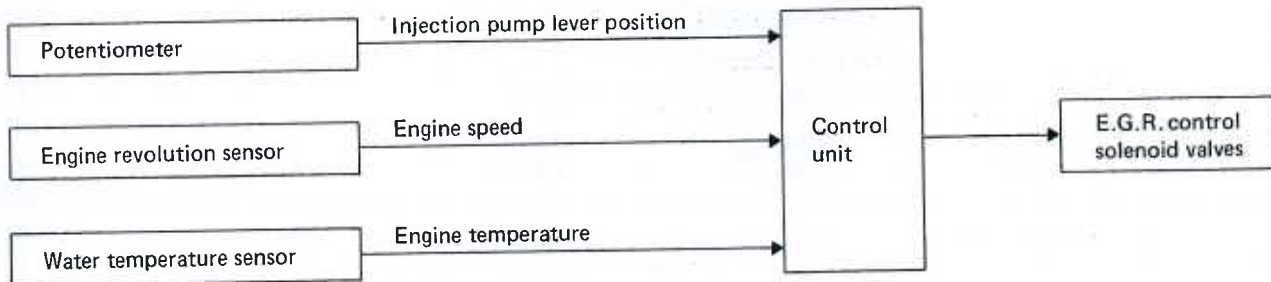
E.G.R. SYSTEM

E.G.R. System Parts Location



E.G.R. SYSTEM

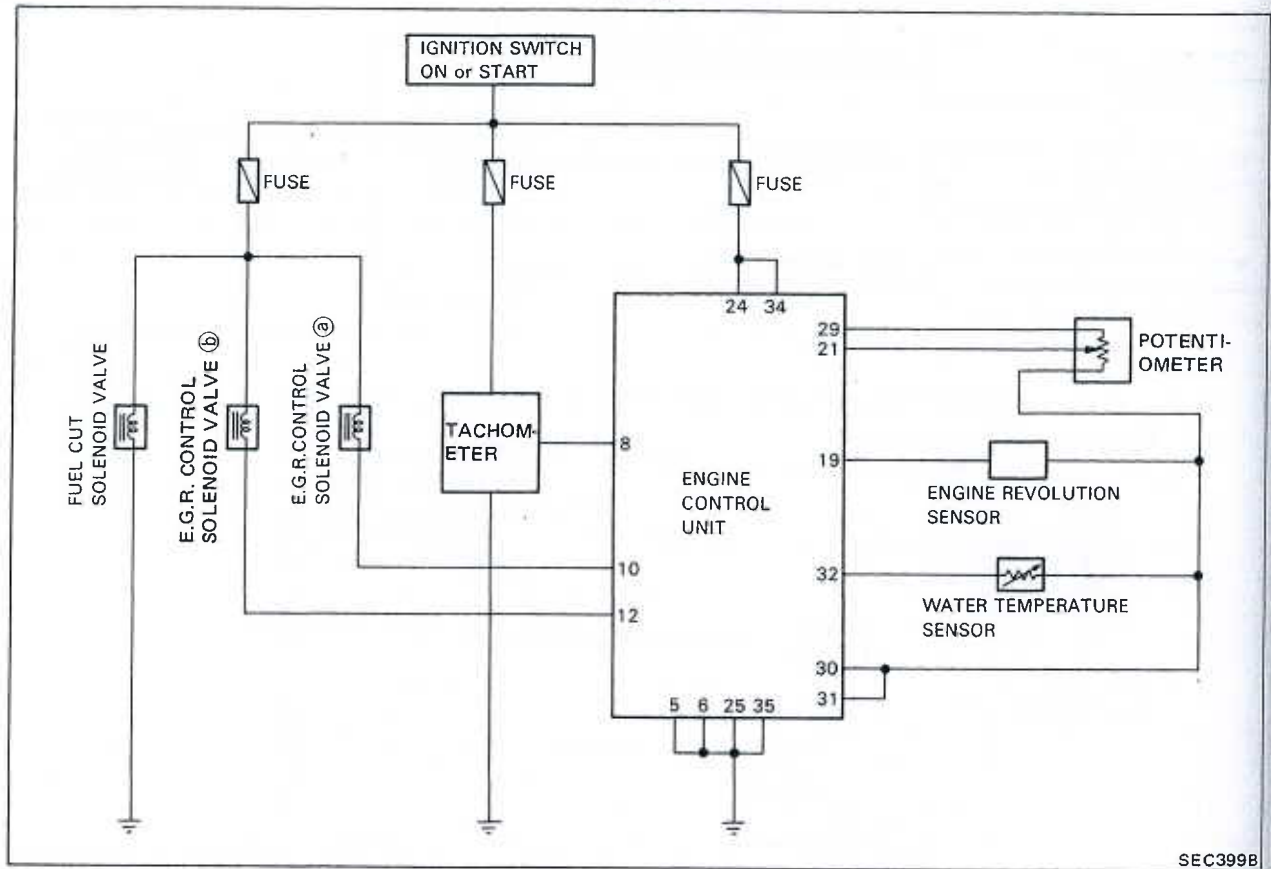
Description



The E.G.R. system is designed to control the formation of NO_x emission by recirculating the exhaust gas into the intake manifold passage through the E.G.R. control valve.

E.G.R. SYSTEM

Schematic



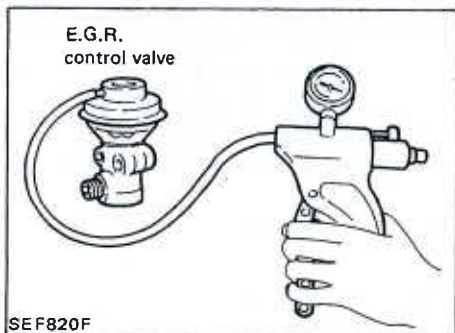
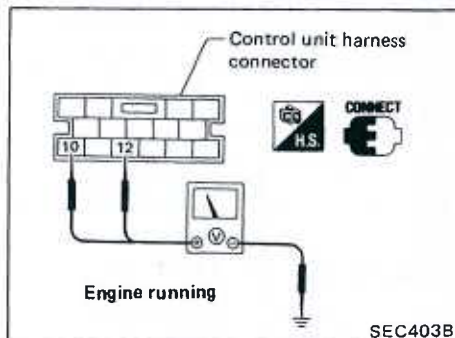
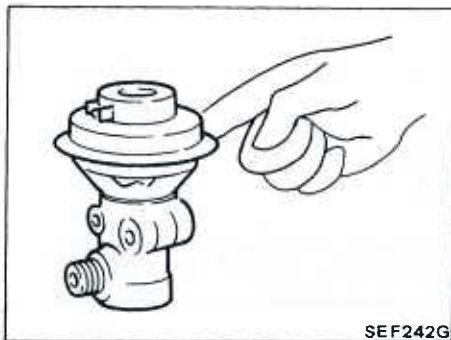
Wiring Diagram



E.G.R. SYSTEM

Operation

Water temperature °C (°F)	Load	E.G.R. control solenoid valve		E.G.R. control valve	Throttle chamber control valve	Amount of E.G.R. gas
		a	b			
Below 60 (140)	All	OFF (Closed)	OFF (Closed)	Closed	Open	—
Above 60 (140)	Low load	ON (Open)	ON (Open)	Open	Closed	High
	Middle load	ON (Open)	OFF (Closed)	Open	Open	Low
	High load	OFF (Closed)	OFF (Closed)	Closed	Open	—



Inspection

ENTIRE SYSTEM

1. Check the vacuum hoses for loosening, flatting damage or improper connections.
 2. Warm up engine sufficiently.
 3. Place your finger on E.G.R. control valve diaphragm to ensure that the valve functions while racing engine.
- Take care not to let your finger get caught between diaphragm and E.G.R. control valve body.
 - Make sure that all harness connectors are connected securely.

CONTROL UNIT OUTPUT SIGNAL

1. Check voltage between control unit terminals ⑩, ⑫ and ground.

Water temperature °C (°F)	Voltage of control unit terminals ⑩, ⑫
Below 60 (140)	Battery voltage
Above 60 (140)	0V

E.G.R. CONTROL VALVE

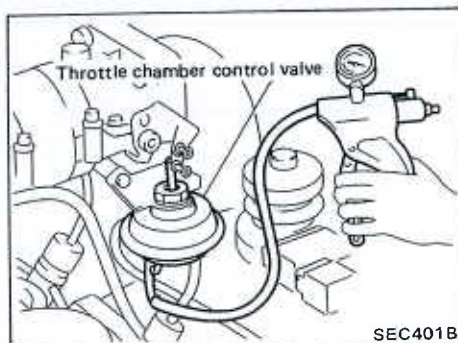
1. Supply the E.G.R. control valve with vacuum using a handy vacuum pump.
 2. Place a finger on the diaphragm of the valve, and make sure that the diaphragm lifts up and down in response to the vacuum leading to the valve.
- Do not supply the valve with excessive high vacuum.

E.G.R. SYSTEM

Inspection (Cont'd)

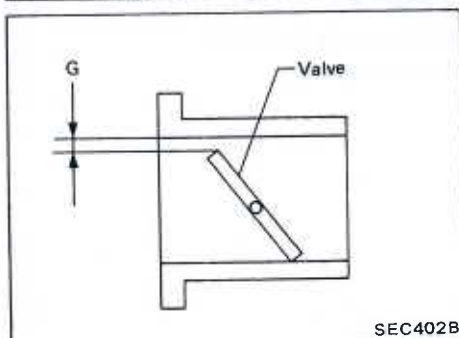
THROTTLE CHAMBER CONTROL VALVE

1. Ensure that throttle chamber control valve is held (closed) at stopper when a vacuum pressure of approximately greater than -13.3 kPa (-133 mbar , -100 mmHg , -3.94 inHg) is applied from a vacuum handy pump to vacuum port.



SEC401B

2. With valve held at stopper, measure clearance "G" between valve and body.



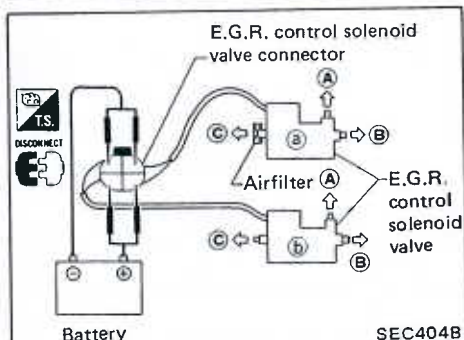
SEC402B

Clearance between valve and body "G"	4±0.1 (0.157±0.004)
mm (in)	

E.G.R. CONTROL SOLENOID VALVES

Check the solenoid valves for normal operation, after disconnecting the connector and all the vacuum hoses.

Supply the solenoid valves with battery voltage, and check whether there is continuity between ports A, B and C.

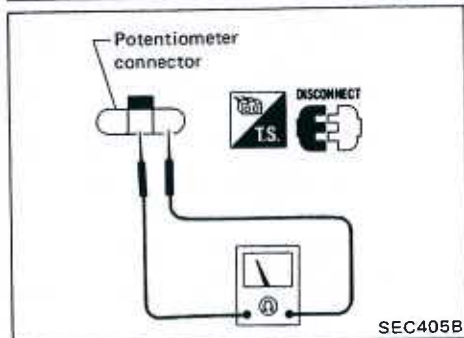


SEC404B

Item	Solenoid valve	
	OFF	ON
Continuity	A-C	A-B

POTENTIOMETER

1. Disconnect potentiometer connector and connect ohmmeter as shown.
2. Make sure that the resistance changes when the control lever opening angle of the fuel injection pump is changed.



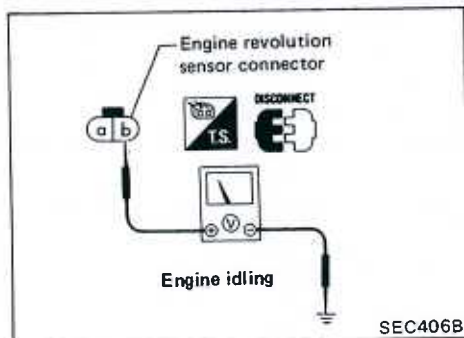
SEC405B

ENGINE REVOLUTION SENSOR

1. While idling engine, check AC voltage across terminal ① and body ground.

Engine idling: Approx. 0.5V

Check that AC voltage increases when engine speed is increased.



SEC406B

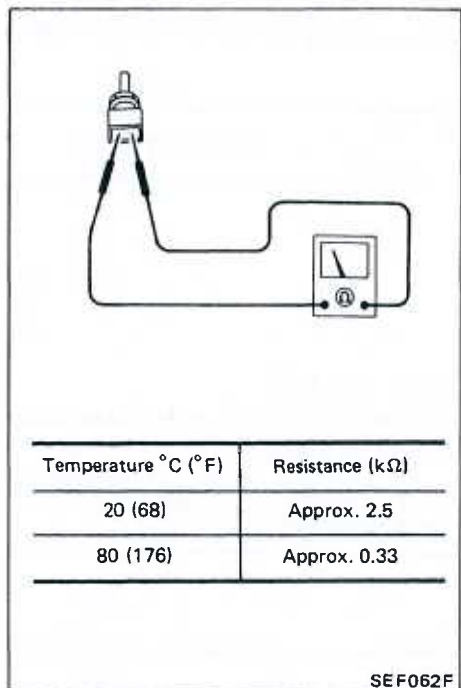
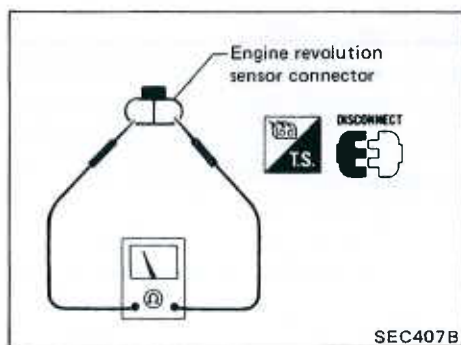
E.G.R. SYSTEM

Inspection (Cont'd)

2. If voltage is not within specifications, conduct a continuity test.

Resistance:

Approx. 1.36 - 1.84 k Ω (continuity established)



WATER TEMPERATURE SENSOR

- Check resistance of water temperature sensor. Resistance is shown in the illustration.