

HONDA EXHAUST GAS RECIRCULATION

Civic (Calif. Only)

DESCRIPTION

Honda uses exhaust gas recirculation on California Civic models to reduce oxides of nitrogen emissions. The system includes a special intake manifold and cylinder head, EGR control valve, EGR control switch, EGR control solenoid valve, and throttle opener solenoid valve. A speed sensor, thermoswitch, and EGR valve complete the system.

OPERATION

The EGR system operates only when the engine is warm and either accelerating or cruising. The vacuum control signal comes from a carburetor port that produces no vacuum at idle, and a thermoswitch eliminates EGR when engine coolant is below operating temperature. When the vehicle is decelerating, manifold vacuum rises and turns on the EGR control switch. The EGR control solenoid valve closes and cuts off EGR flow. Vacuum is provided to the EGR control switch only above 20 MPH, when the speed sensor opens the throttle opener solenoid valve.

EGR control valves A and B use a ported vacuum signal to control a manifold vacuum flow large enough to operate the EGR valve. With this system, the EGR valve is operated by a signal proportional to airflow through the carburetor venturi, ensuring a correct EGR flow under all load conditions.

TESTING

1) With cold engine, disconnect vacuum hose from EGR valve on manifold and connect vacuum gauge. Start engine and slowly raise to 5000 RPM. No vacuum should be shown on gauge.

2) If vacuum is present, check for voltage at EGR control solenoid valve. If voltage is present, replace valve and retest. If no voltage, check wiring, fuse, and thermosensor.

3) Warm engine to operating temperature. Stop engine, jack up front of car and support with safety stands. Connect voltmeter positive lead to yellow wire in control box connector, and negative lead to ground. Start engine and test as described in chart below.

EGR System Test		
Condition of Engine	EGR Valve Vacuum	Yellow Wire Voltage
Idle	None	None
4500 RPM	Yes	None
4500 RPM Blocked EGR Bleed ^①	Less than 2 in. Hg	None
Hard Acceleration in gear over 20 MPH	Yes	None
Deceleration above 20 MPH	None	Yes

① — See Fig. 2.

4) If all readings are not correct, refer to "Trouble Shooting" in this article. If correct, remove vacuum gauge from EGR valve hose and connect vacuum pump to EGR valve.

5) Apply 6 in. (150 mm) Hg vacuum to EGR valve with engine idling. Vacuum should hold steady and engine should die. If vacuum is not steady and engine does not die, replace EGR

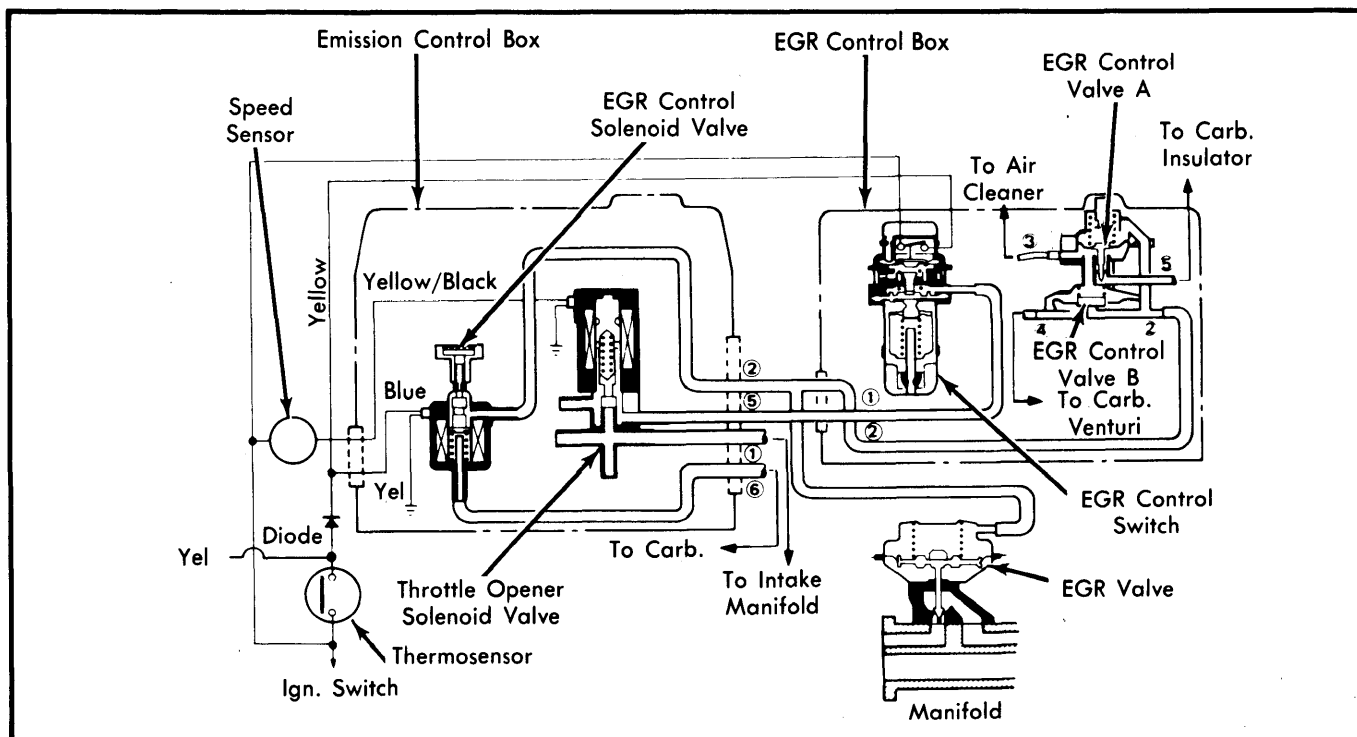


Fig. 1 Honda Civic Exhaust Gas Recirculation System

HONDA EXHAUST GAS RECIRCULATION (Cont.)

valve and retest. If vacuum is steady and engine does not die, remove EGR valve, clean valve and passage, and retest.

TROUBLE SHOOTING

Incorrect Reading at Idle or 4500 RPM with Blocked EGR Bleed – 1) If vacuum and voltage are both noted, check operation of thermosensor and check vacuum hose routing and wiring. Repair or replace as necessary and retest.

2) If vacuum of more than 2 in. Hg is noted (but no voltage), repair EGR control valve and check vacuum hose routing.

Incorrect Reading at 4500 RPM or Accelerating In Gear – 1) If voltage is noted but not vacuum, check thermosensor, EGR control switch, and vacuum hose or wire routing.

2) If neither vacuum nor voltage were noted, check for vacuum at EGR bleed in air cleaner. If vacuum is present, check hose routing and EGR control valve.

3) Check for ported vacuum at EGR control solenoid valve outlet. If vacuum is found, clean orifice in vacuum manifold. If no vacuum, check for vacuum at EGR control solenoid valve inlet. If vacuum, replace control solenoid valve and repeat tests.

Incorrect Reading on Deceleration – 1) If vacuum was available but no voltage, check for battery voltage at EGR control switch yellow wire. If none, check fuse and wires. If

voltage is present, check for manifold vacuum at EGR control switch inlet while speedometer is reading 20 MPH or higher.

2) If vacuum is available, replace control switch and retest. If not, check for battery voltage at throttle positioner solenoid with speedometer reading over 20 MPH. If no voltage, replace speed sensor. If voltage, check vacuum lines for leaks or blocks and replace throttle positioner solenoid valve if necessary.

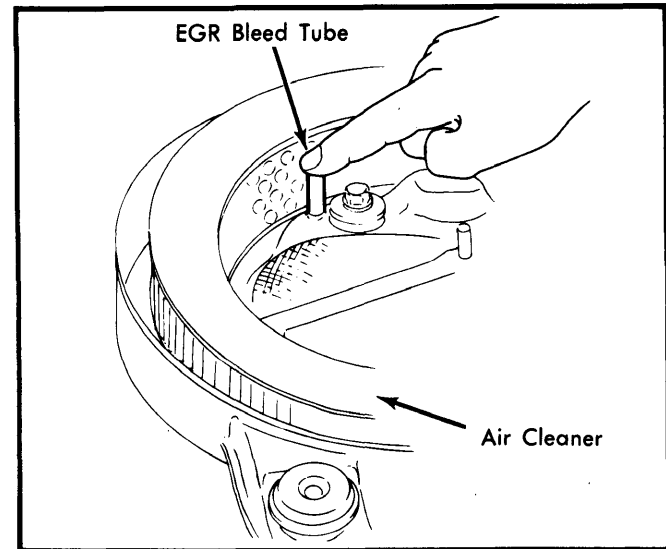


Fig. 2 Blocking EGR Bleed In Air Cleaner