HONDA EXHAUST GAS RECIRCULATION

Accord
Civic
Prelude

DESCRIPTION

Honda uses exhaust gas recirculation on all models to reduce oxides of nitrogen (NOx) 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, thermosensor, and EGR valve complete the system. A barometer switch, a second EGR control solenoid valve, and a second thermosensor are also used on California models.

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 thermosensor (2 on California models) eliminates EGR when engine coolant is below normal operating temperature. When vehicle is decelerating, manifold vacuum rises and turns on EGR control switch. The EGR control solenoid valve closes and cuts off EGR flow. Vacuum is provided to EGR control switch only above 15 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.

TESTING & TROUBLE SHOOTING

System Check – **1)** With engine cold, disconnect vacuum hose from EGR valve at manifold and connect vacuum gauge to hose. Start engine and slowly raise to 4500 RPM. No vacuum should be shown on gauge.

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

3) Disconnect vacuum hose from EGR valve and connect vacuum gauge to hose. Take off control box cover by removing 3 screws. Put positive probe of voltmeter in Blue/White wire connector at EGR control solenoid valve A. Put negative probe to good ground.

4) Raise front of vehicle and support with safety stands. Start engine and wait for engine to warm up (cooling fan comes out). Vacuum and voltage should match specifications given in "EGR System Test" chart.

5) If all readings are correct, check EGR valve for proper operation. If vacuum of more than 2 in. Hg is noted (but no voltage) replace EGR control valve and check vacuum hose routing. If any other readings are not correct, perform all other tests in sequence.

Incorrect Reading at Idle, 4500 RPM, or 4500 RPM with Blocked EGR Bleed – **1)** Thermosensor A should not have continuity. If it does have continuity, replace it and retest. If it does not have continuity, check control switch.

2) Remove hose from control switch and connect vacuum gauge to hose. If there is no vacuum at idle, replace control switch and retest. If there is vacuum at idle, check throttle opener solenoid.

3) With ignition on, check for voltage at throttle opener solenoid valve. If there is no voltage, replace throttle opener solenoid valve. If there is voltage, replace speed sensor and retest.

Incorrect Reading on Hard Acceleration Above 15 MPH – **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 A outlet. If vacuum is found, clean orifice in vacuum manifold. If no vacuum, check for vacuum at EGR control solenoid valve A inlet. If vacuum, replace EGR control solenoid valve A and retest.

Incorrect Reading on Deceleration – **1)** If there is no voltage, check EGR control switch. With speed sensor jumped and engine at idle, remove vacuum hose at EGR control switch and check for vacuum. If vacuum is available, reconnect hose and check for voltage at EGR control solenoid valve A. If there is no voltage, replace EGR control switch and retest.

2) If vacuum and voltage are available at same time, replace EGR control solenoid valve A.

EGR System Test

Condition of Engine	EGR Valve Vacuum	Blue/White Wire Voltage
Idle	None	None
4500 RPM	Yes	None
4500 RPM with Blocked EGR Bleed ①	Less Than 2 in. Hg	None
Hard Acceleration over 15 MPH ②	Yes	None
Deceleration over 15 MPH ②	None	Yes

① – See *Fig. 1*.
② – In second gear or "2".

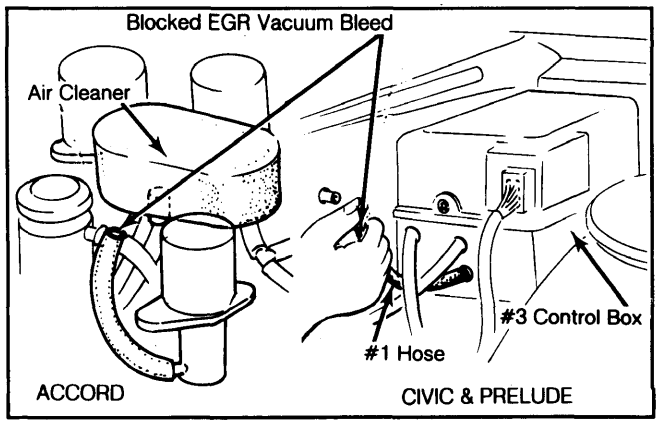

Fig. 1 Blocking EGR At Control Box

HONDA EXHAUST GAS RECIRCULATION (Cont.)

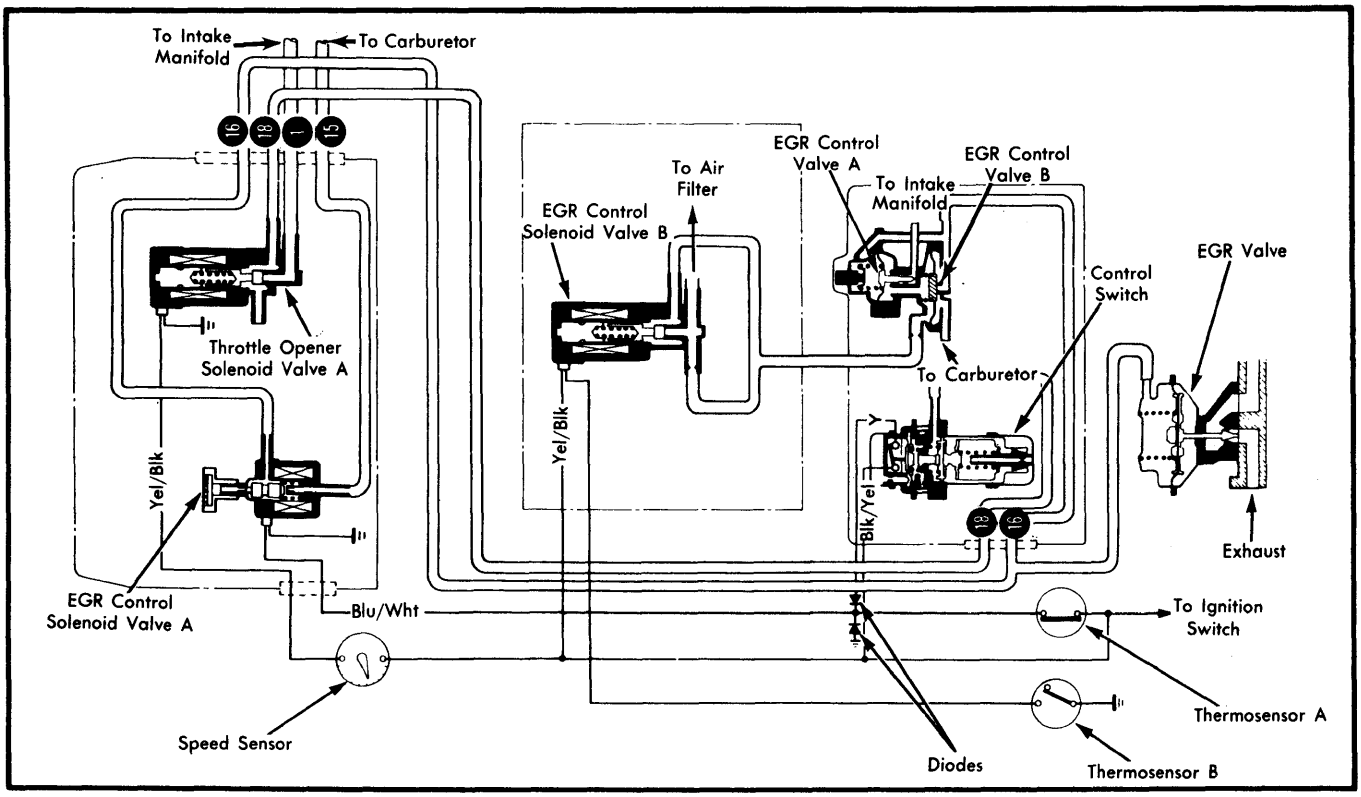

Fig. 2 Honda Exhaust Gas Recirculation System (California Accord & Prelude with Man. Trans.)

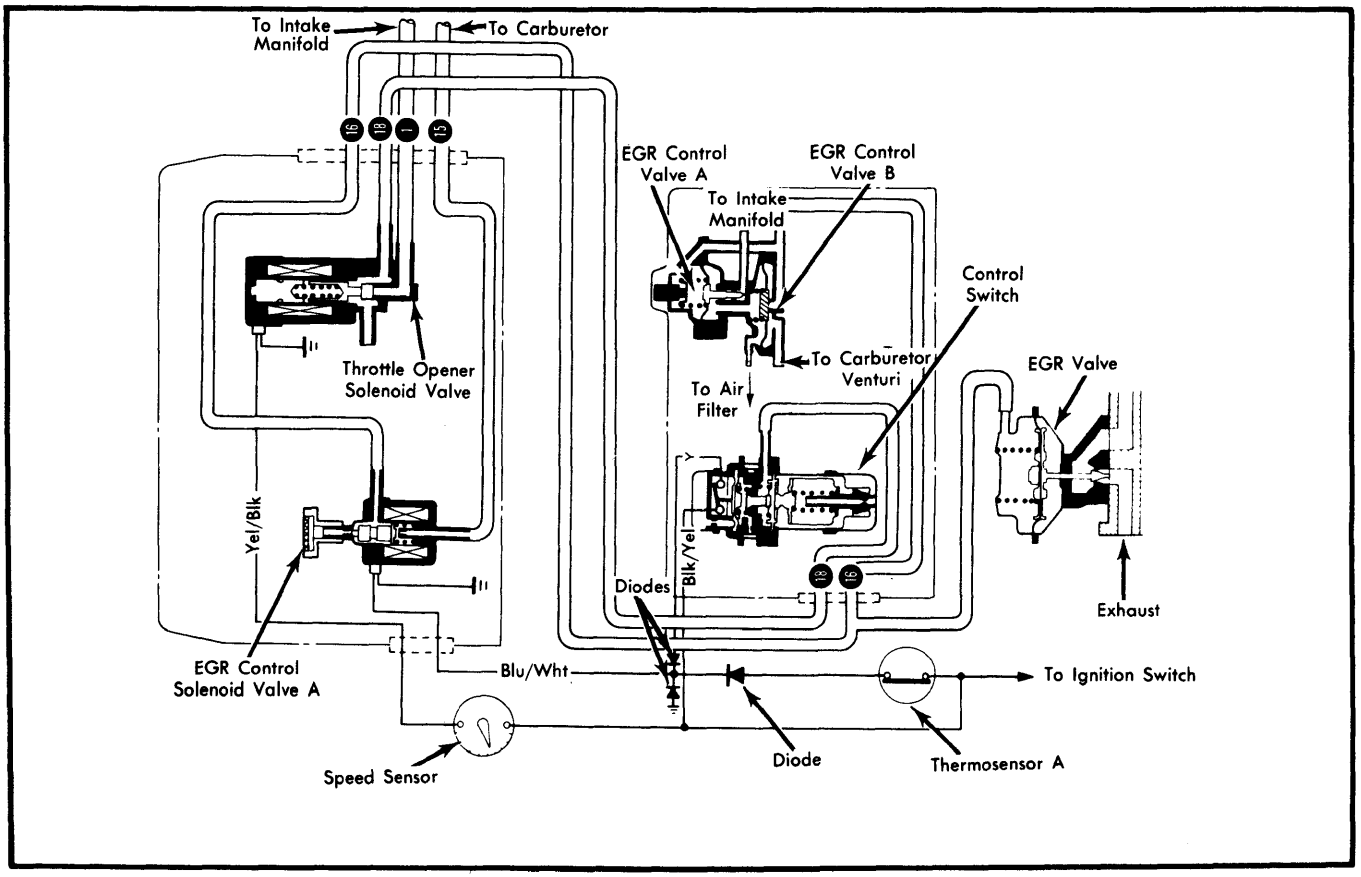

Fig. 3 Honda Exhaust Gas Recirculation System (All Models, Federal)

HONDA EXHAUST GAS RECIRCULATION (Cont.)

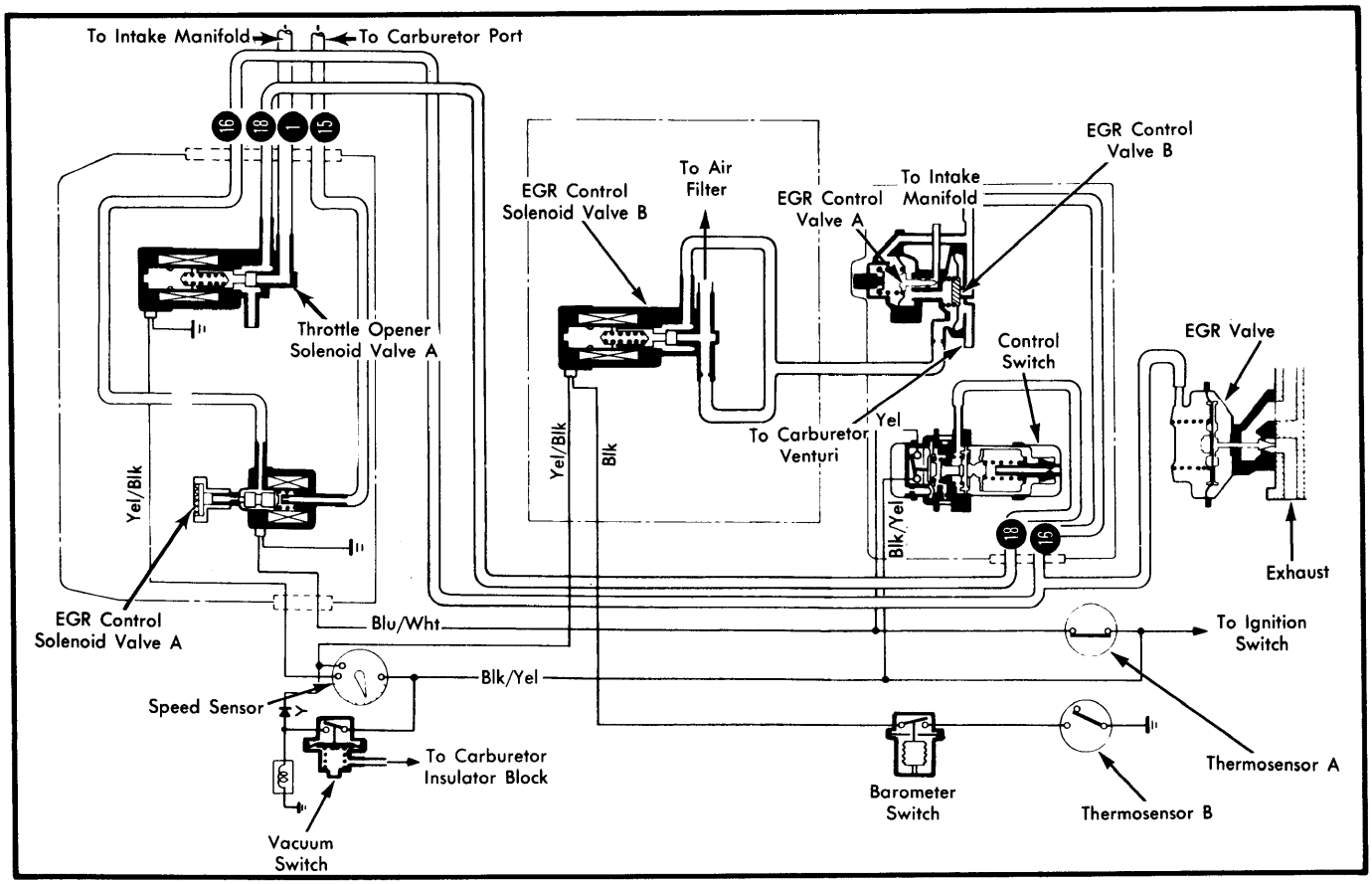

Fig. 4 Honda Exhaust Gas Recirculation System (California Civic)

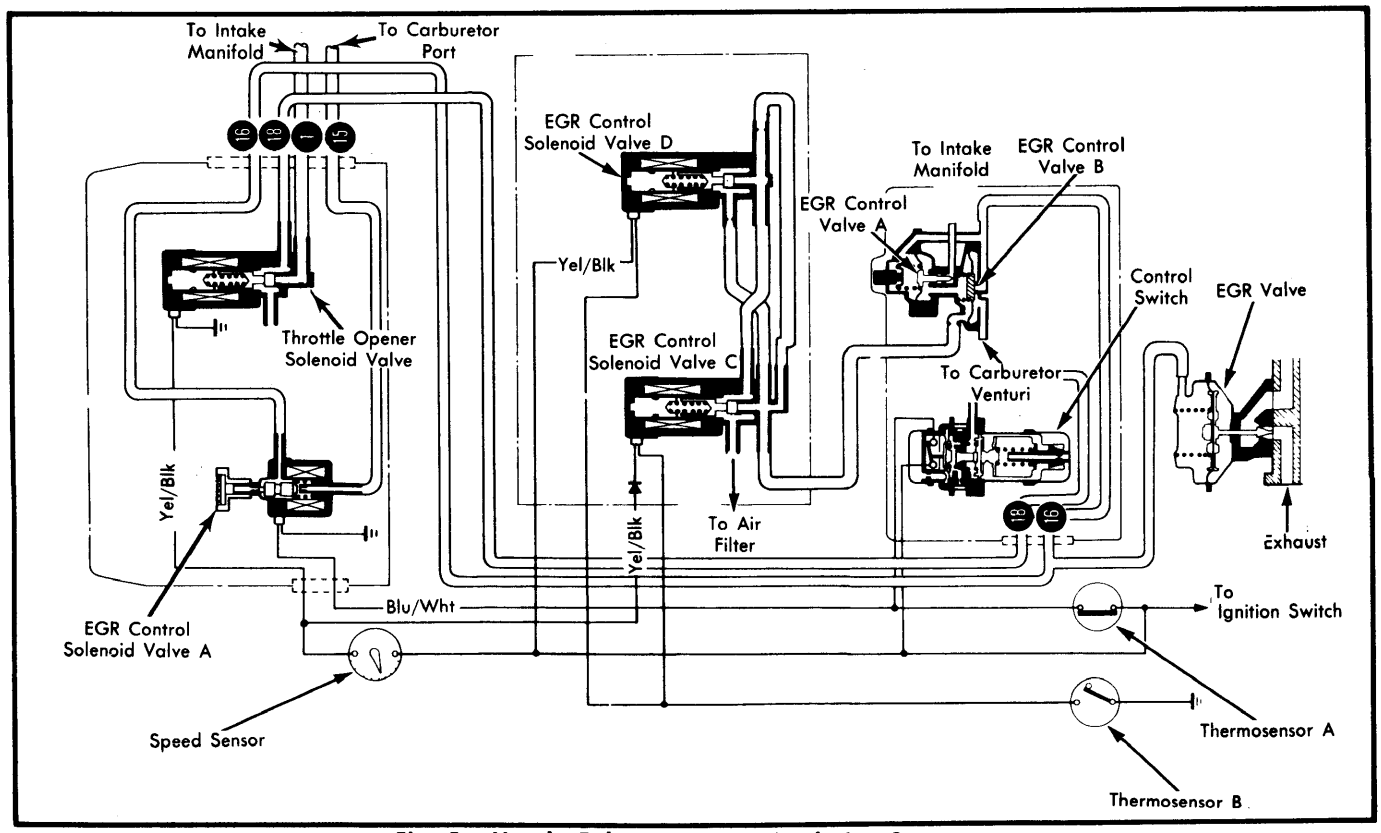

Fig. 5 Honda Exhaust Gas Recirculation System (California Accord & Prelude with Auto. Trans.)