

Sensors

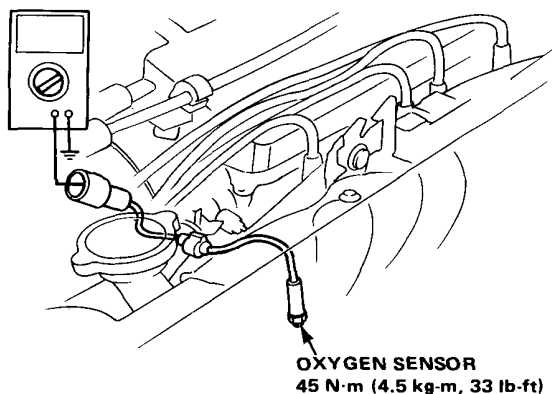
Oxygen Sensor [KX model only]

1. Disconnect the connector of the oxygen sensor.
2. Start the engine and warm up for 2 minutes at 3,000 rpm under no load. Raise the engine speed to 4,000 rpm and release the throttle suddenly at least 5 times.
3. Within one minute after the engine has been warmed up, measure the voltage between the connector terminal and body ground as described in steps 4 and 5.

NOTE: If it takes more than one minute to complete the checks, warm up the engine as in step 2 before continuing.

4. Raise the engine speed to 5,000 rpm, then lower to 2,000 rpm by operating the accelerator pedal. Voltage should be below 0.4 V.
5. Disconnect the vacuum hose (between the MAP sensor and the throttle body) from the throttle body; plug the opening in the throttle body. Connect a hand vacuum pump to open the end of the vacuum hose and apply 300 mmHg, and raise the engine speed to 4,000 rpm.

Voltage should be above 0.6 V.



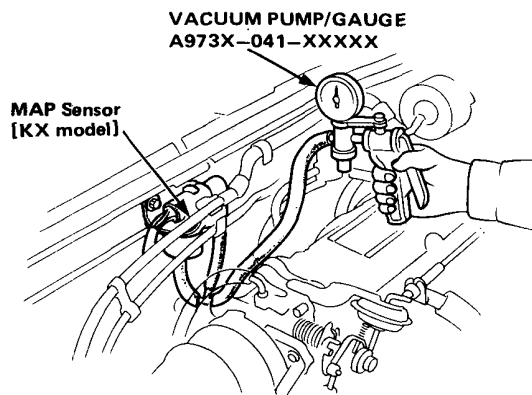
- Replace the oxygen sensor if the voltages are out of the above ranges.

NOTE:

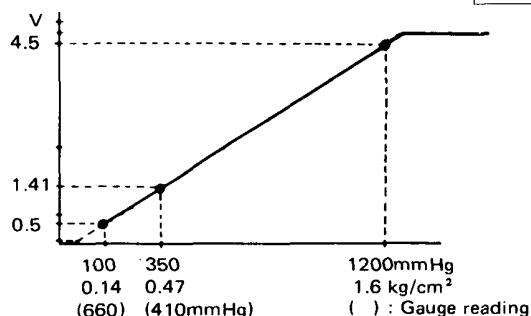
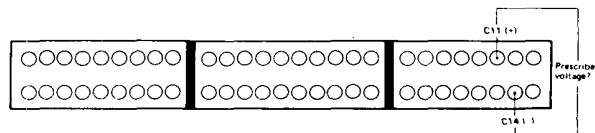
- Avoid damaging the wire harness.
- To prevent cross-threading, first tighten finger tight, then tighten to the specified torque with a torque wrench.
- Oxygen sensor does not operate when its intake is clogged.
- Be extremely careful not to spray anything over the oxygen sensor.

Manifold Absolute Pressure (MAP) Sensor

1. Disconnect the hose #21 from the throttle body to the MAP sensor in the control box (on KX model, disconnect the vacuum hose between the MAP sensor and the throttle body) from the throttle body; plug the opening in the throttle body. Connect a vacuum hand pump to the open end of the vacuum hose.



2. Disconnect the connector from the control unit. Connect the system checker harness between the control unit and wire harness connector (No. 07999-PD6000A).
3. Turn the ignition switch ON. Connect a digital voltmeter positive probe to the C11 terminal of the system checker harness and negative probe to the C14 terminal. Measure the voltage between the two terminals.



Voltmeter should indicate voltage along with the chart above.

- If the voltage is incorrect, check the vacuum hose for leakage, and wires between the control unit and sensor for open or short circuit. Replace the sensor if the wires are normal.

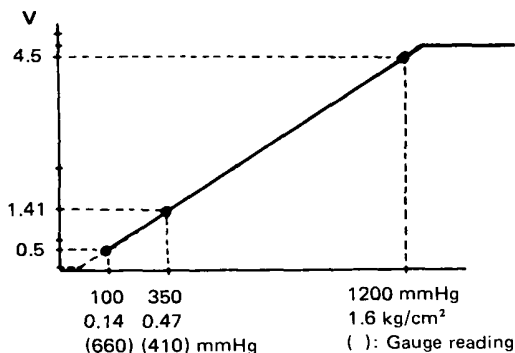
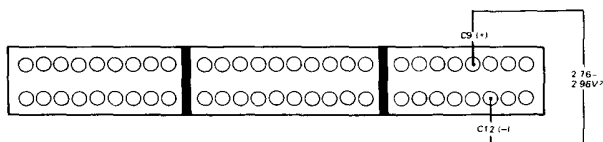


Atmospheric Pressure (PA) Sensor

NOTE: Check the sensor at the ECU connector.

1. Disconnect the wire harness connector from the control unit and connect the system checker harness (No. 07999-PD6000A) to the control unit and wire harness connector.
2. Turn the ignition switch ON. Connect a digital voltmeter positive probe to the C9 terminal of the system checker harness and negative probe to the C12 terminal.

There should be: 2.76–2.96 V



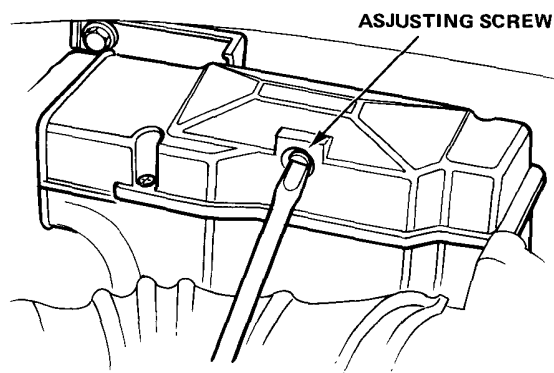
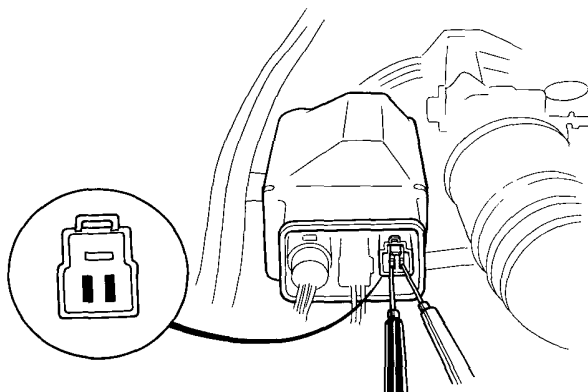
- If voltage is outside ranges, check for open or short circuit between the ECU and PA sensor. Replace the PA sensor with a new one if the wires are in good condition.

Idle Mixture Adjuster (IMA) Sensor

[Except KX model]

1. Disconnect the connector of the IMA sensor at the control box.
2. Turning the idle adjusting screw fully, measure resistance between the brown terminal and the green terminal at the sensor.

Resistance should be: 0.25 – 6.2 kΩ



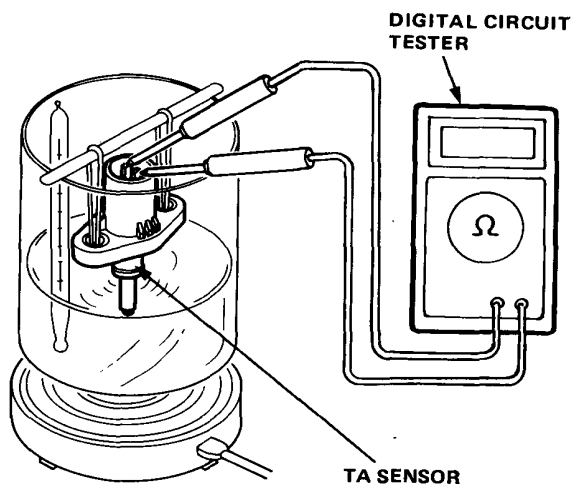
- If resistance is outside above ranges, replace IMA sensor.

NOTE: Whenever the inspection or the replacement of IMA sensor is performed, check specification for CO (page 11-35).

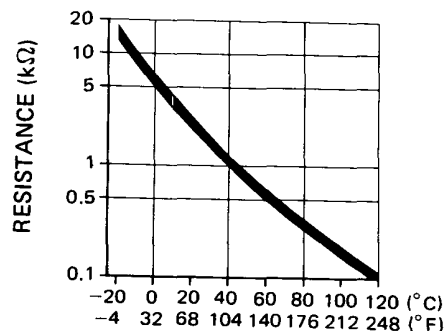
Intake Air Temperature (TA)/ Coolant Temperature (TW) Sensor

1. Disconnect the connector, then remove the TA/TW sensor from the intake manifold/cylinder head.
2. To test a sensor, suspend it in cold water and heat the water slowly. Make sure more than half of the connector is submerged. Measure the resistance between the terminals.

STANDARDS: 0.98–1.34 k Ω at 40°C (95°F)
0.22–0.35 k Ω at 80°C (176°F)



3. The chart below shows the change in resistance over a range of intake air/coolant temperature.



INTAKE AIR/COOLANT TEMPERATURE

- Replace the sensor if resistance is outside the range.
- When installing the TW sensor, torque to: 28 N·m (2.8 lg-m, 20 lb-ft)

NOTE:

- Don't let the sensor touch the bottom of the container.
- During the test, stir the water in the container to ensure even temperature.

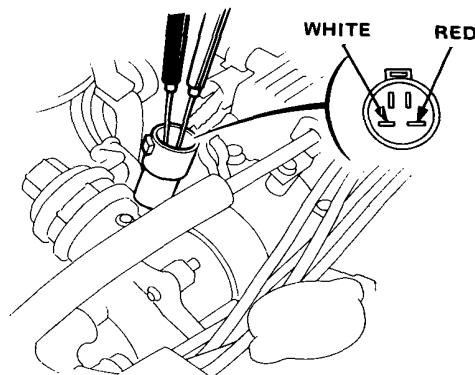
Crank Angle Sensor

NOTE: If either the CYL or TDC sensor tests bad, replace the distributor assembly.

CYL Sensor Inspection

1. Disconnect the connector of the CYL sensor.
2. Measure the resistance between the white terminal and red terminal at the sensor.

Resistance should be: 0.65–0.85 k Ω



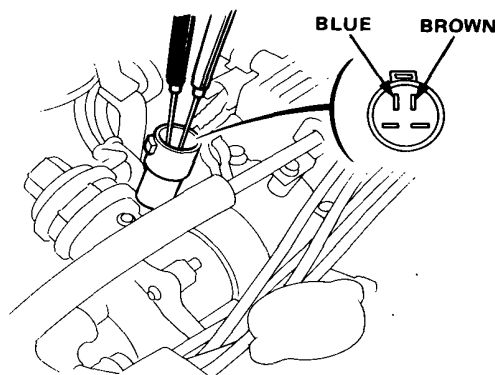
3. Measure the resistance between the White and Red terminals and crank angle sensor housing.

Resistance should be: 100 k Ω or more

TDC Sensor Inspection

1. Disconnect the connector of the crank angle sensor.
2. Measure the resistance between the brown terminal and blue terminal at the sensor.

Resistance should be: 0.65–0.85 k Ω



3. Measure the resistance between the Brown and Blue terminals and crank angle sensor housing.

Resistance should be: 100 k Ω or more



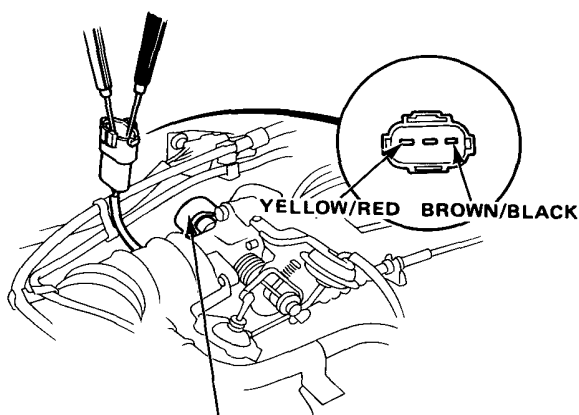
Throttle Angle Sensor

Testing/Removal:

CAUTION: The throttle stop screw is non-adjustable.

1. Disconnect the connector of the throttle angle sensor.
2. Measure the resistance between the Brown/Black terminal and Yellow/Red terminal at the sensor.

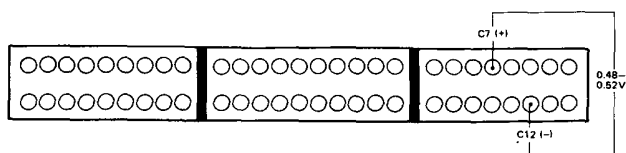
Resistance should be: 3.2–7.2 k Ω



- If the resistance is outside the above range, adjust the installation position of the sensor and re-test. Replace if necessary. To remove the sensor, first remove the 2 shear screws from the throttle body.

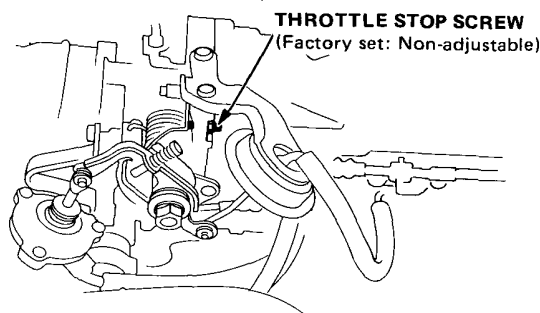
Installation:

1. Align the pin of the sensor with the throttle valve shaft groove and tighten temporarily.
2. Disconnect the control unit connectors and connect the "System Checker Harness" between the control unit and wire harness connector (P/N 07999–PD6000A).
3. Connect a digital voltmeter positive probe to C7 terminal of the system checker harness and negative probe to C12 terminal.

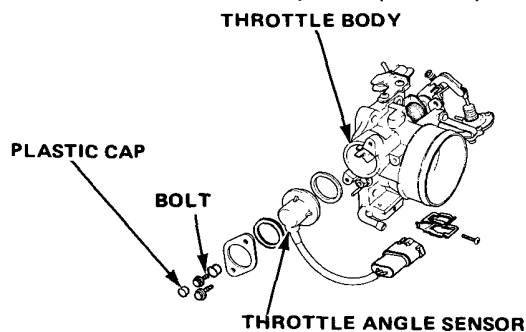


4. With the ignition switch turned ON, adjust the sensor to a position in which the throttle stopper lever just touches between the stop screw. Then measure the voltage between two terminals.

There should be: 0.48–0.52 V



5. If the voltage is within the specification, tighten the sensor bolts and put the plastic cap on.



6. After reassembling the sensor, test the deceleration fuel cut-off device (page 11-45).

- If the deceleration fuel cut-off device does not work, repeat steps 1 through 5 and check the voltage.

Solenoid Valves

Idle Control Solenoid Valve

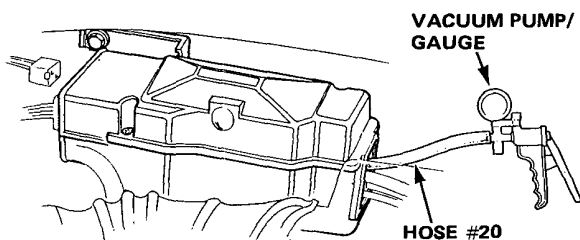
[Except KX model]

The idle control solenoid valve is activated by commands from the ECU. When the solenoid valve opens, this causes vacuum in the vacuum hose #23 (between the throttle body and the solenoid valve) and increase idle speed approximately 150 min^{-1} (rpm) under the following conditions:

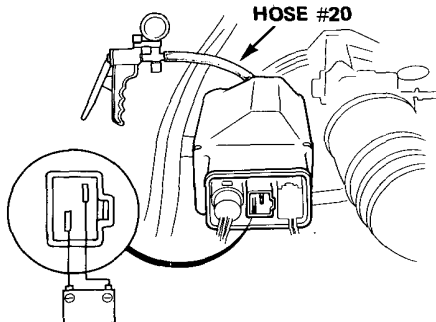
- For a short period after starting the engine.
- Altitude higher than 800 m.
- Coolant temperature lower than 70°C (158°F).
- For 0.5 seconds when quick deceleration is detected at $1,000 \text{ min}^{-1}$ (rpm)

While the solenoid valve is energized, 9V or higher should be available between the Yellow/Black terminal (+) and Green/Black terminal (−) of the main harness at the control box.

1. Disconnect the 4 cavity rectangular connector from the control box.
2. Disconnect the vacuum hose #20 from the throttle body.
3. Apply vacuum to the hose #20.
It should hold vacuum.



- If it does not hold vacuum, replace the valve.
4. Connect the battery positive terminal and negative terminal to the terminals of the control box connector.
 5. Apply vacuum to hose #20.
It should not hold vacuum.



- If it holds vacuum, replace the valve.

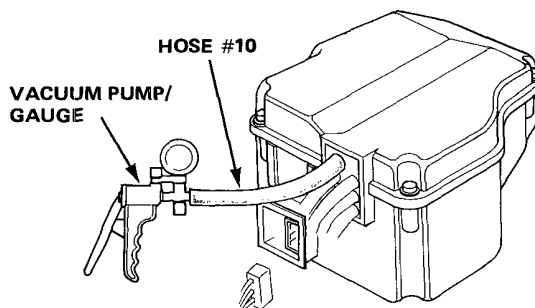
[KX model]

The idle control solenoid valve is activated by commands from the ECU. When the solenoid valve opens, this causes vacuum in the vacuum hose (between the air filter and the solenoid valve) and increase idle speed under the following conditions:

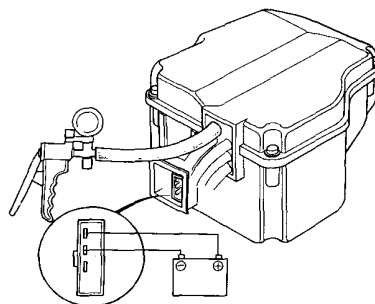
- For a short period after starting the engine.
- Whenever electrical loads are turned ON (vacuum will disappear when engine speed is raised over $1,700 \text{ min}^{-1}$ (rpm) by operating the throttle).

While the solenoid valve is being activated, 9V or higher should be available between the Green/White terminal (+) and Black/Yellow terminal (−) of the main harness at the control box.

1. Disconnect the 8 cavity rectangular connector from the control box.
2. Disconnect the vacuum hose #10 from the intake manifold.
3. Apply vacuum to the hose #10.
It should hold vacuum.



- If it does not hold vacuum, replace the valve.
4. Connect the battery positive terminal and negative terminal to the terminals of the control box connector.
 5. Apply vacuum to hose #10.
It should not hold vacuum.



- If it holds vacuum, replace the valve.