Idle Control System

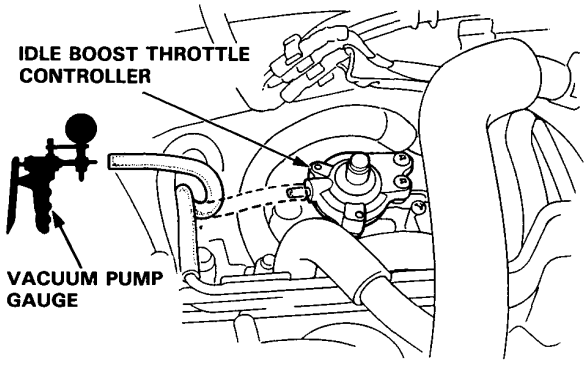
Testing

Idle speed too high in no-load conditions

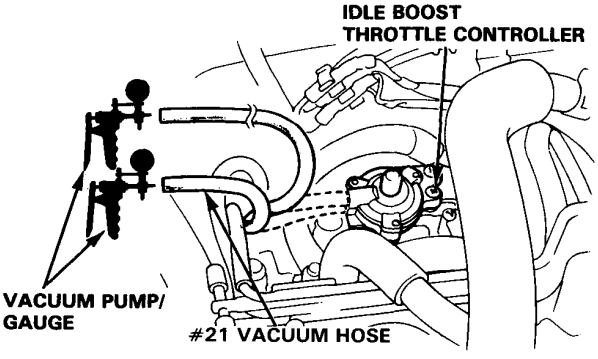
1. Start the engine and warm up to normal operating temperature (the cooling fan comes on).
2. Disconnect the vacuum hose (4WS: two vacuum hoses) from the idle boost throttle controller and check for vacuum.

   There should be no vacuum (4WS: in both hose).

Except 4WS:



4WS:



- If there is no vacuum, check the throttle valve shaft for binding or sticking, and replace the idle boost throttle controller.
- Except 4WS: If there is vacuum, go to troubleshooting (page 6-57, 59).

  4WS: If there is vacuum at either hose, go to troubleshooting (#21 hose: page 6-52, 54, outside hose: page 6-57, 59).

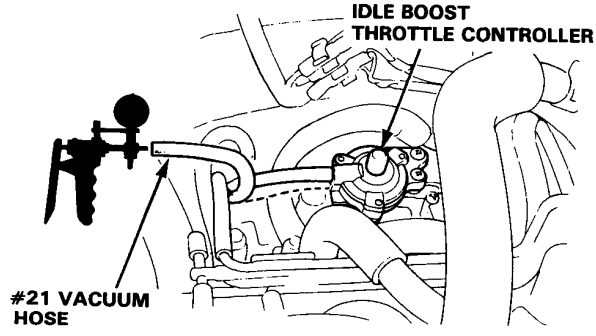
Idle speed is rough while the steering wheel is turning (4WS)

1. KX, KS, KZ model: Check the idle speed is above specified in no-load conditions, when the 2P connector on the P/S oil pressure switch is disconnected.

   Except KX, KS, KZ model: Disconnect the 2P connector on the P/S oil pressure switch, and connect a jumper wire between the 2 terminals on the wire harness. Then check the idle speed is above specified in no-load conditions.

   - If idle speed is as specified in no-load conditions, disconnect the #21 vacuum hose from the idle boost throttle controller and check for vacuum.

     There should be vacuum.



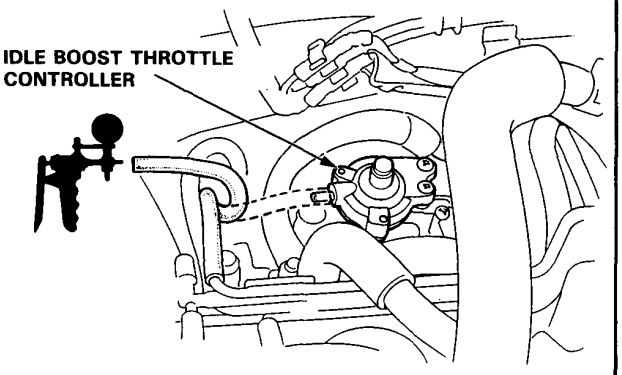
   - If there is vacuum, check the throttle valve shaft for binding or sticking, and replace the idle boost throttle controller.
   - If there is no vacuum, check the vacuum hose for proper connection, cracks, blockage or disconnected hose. If OK, go to troubleshooting (KX, KS, KZ model: page 6-52, Except KX, KS, KZ model: page 6-54).

Idle speed is low with A/C on

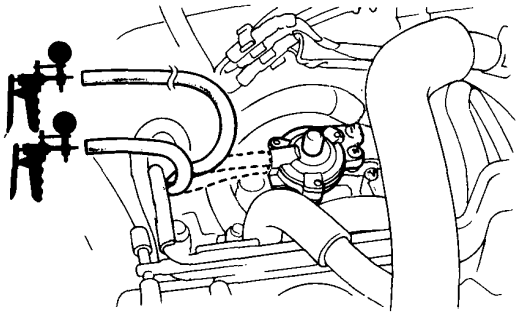
1. Disconnect the two vacuum hoses from the idle boost throttle controller and check for vacuum with the A/C on.

   There should be vacuum (4WS: in both hoses).

Except 4WS:



4WS:



- **If there is vacuum, replace the idle boost throttle controller and recheck.**
- 4WS: If there is no vacuum only at the #21 hose, go to troubleshooting (page 6-52, 54).
- If there is no vacuum (4WS: only at the outside hose), go to troubleshooting (page 6-57, 59).

(cont'd)

Idle Control System

[KX, KS, KZ model (4WS)]

Troubleshooting Flow Chart **Idle Boost Solenoid Valve**

Inspection of Idle Boost Solenoid Valve

Start the engine and warm up to normal operating temperature (the cooling fan comes on).

Disconnect the lower vacuum hose of the solenoid value from the joint and connect a vacuum pump.

Disconnect the #21 vacuum hose from the vacuum hose manifold, and connect a vacuum gauge.

Is there vacuum?

YES

Turn the ignition switch OFF.

Disconnect the 4P connector.

Start the engine.

Measure voltage between BRN (+) terminal and BLK (−) terminal.

Is there voltage ?

NO

Replace the solenoid valve.

YES

Check the self-diagnosis indicator. If OK, check the input troubleshooting (page 6-18).

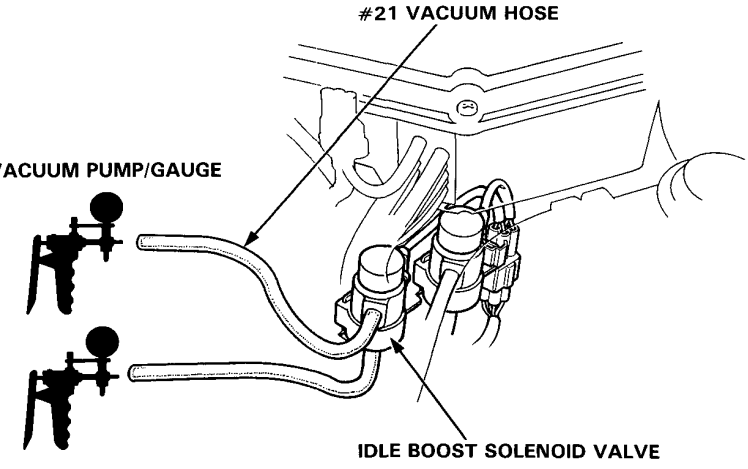
NO

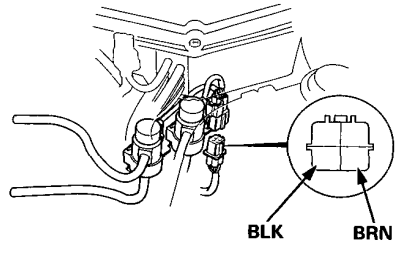
Turn the ignition switch OFF.

Disconnect the 2P connector on the P/S oil pressure switch.

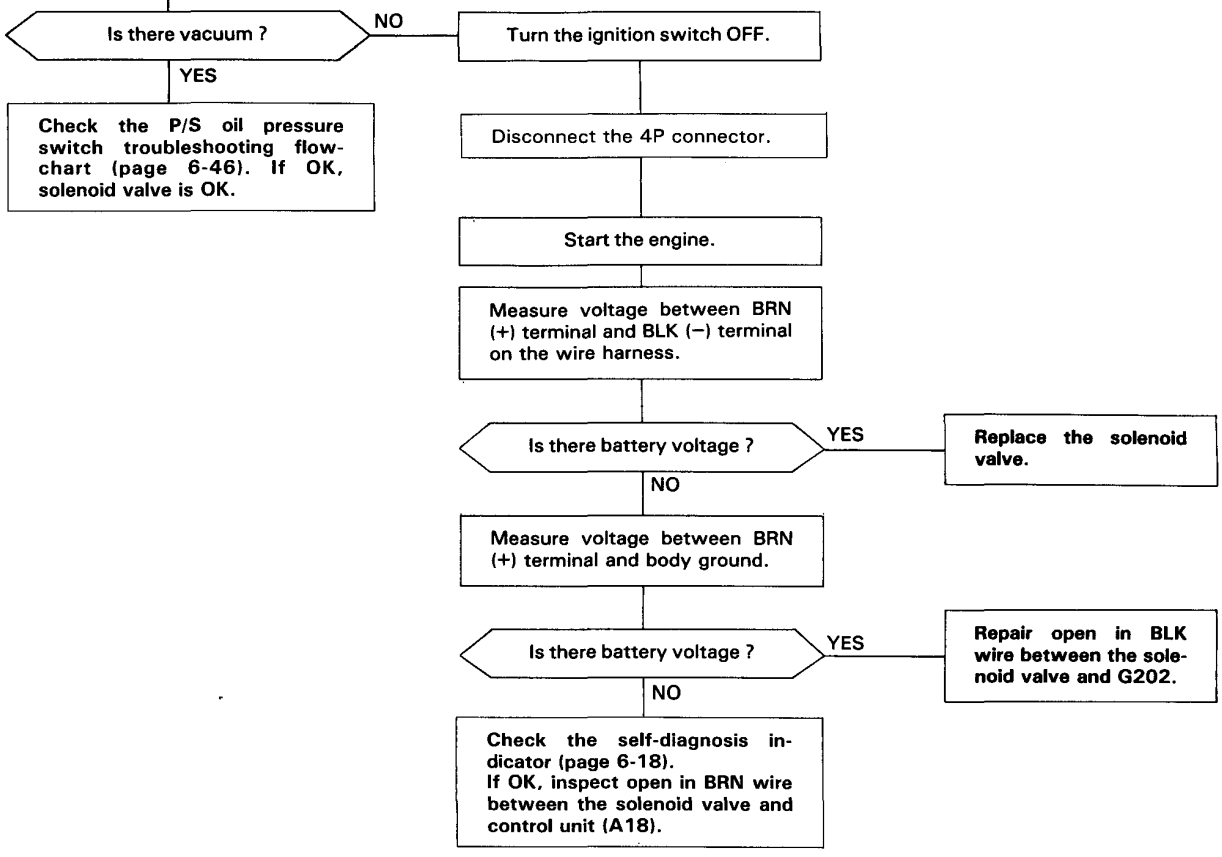
Turn the ignition switch ON.

(To page 6-53)





(From page 6-52)



(cont'd)

Idle Control System (cont'd)

[Except KX, KS, KZ model (4WS)]

Troubleshooting Flowchart **Idle Boost Solenoid Valve**

Inspection of Idle Boost Solenoid Valve.

Disconnect the lower vacuum hose of the solenoid valve from the joint and connect a vacuum pump.

Disconnect #21 vacuum hose of the solenoid valve from the vacuum hose manifold and connect a vacuum gauge.

Start the engine.

Apply vacuum.

Is vacuum indicated on the gauge?

YES

Turn the ignition switch OFF.

Disconnect the connector on the solenoid valve.

Turn the ignition switch ON.

Measure voltage between BRN (+) terminal and BLK (−) terminal on the solenoid valve.

Is there voltage?

NO

Replace the solenoid valve.

YES

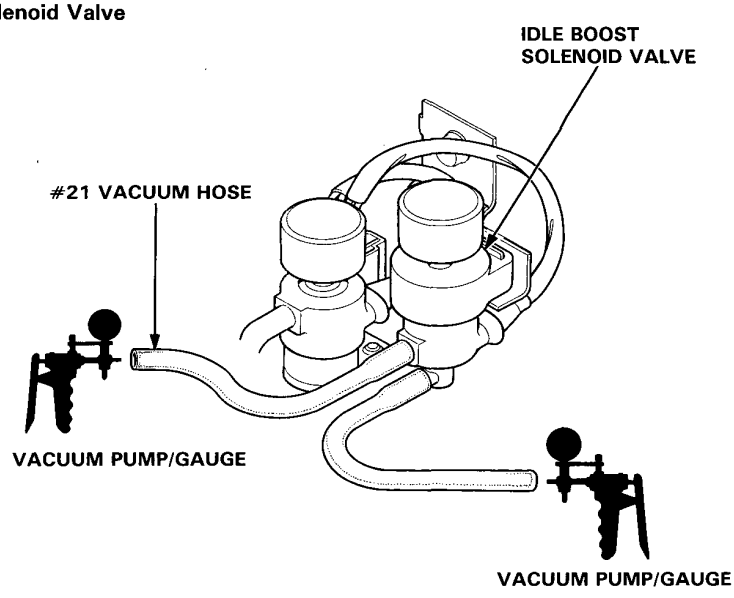
- **Replace the P/S oil pressure switch.**
- **Repair the idle boost relay and see air conditioner inspection (section 15).**

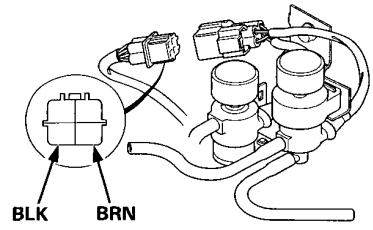
NO

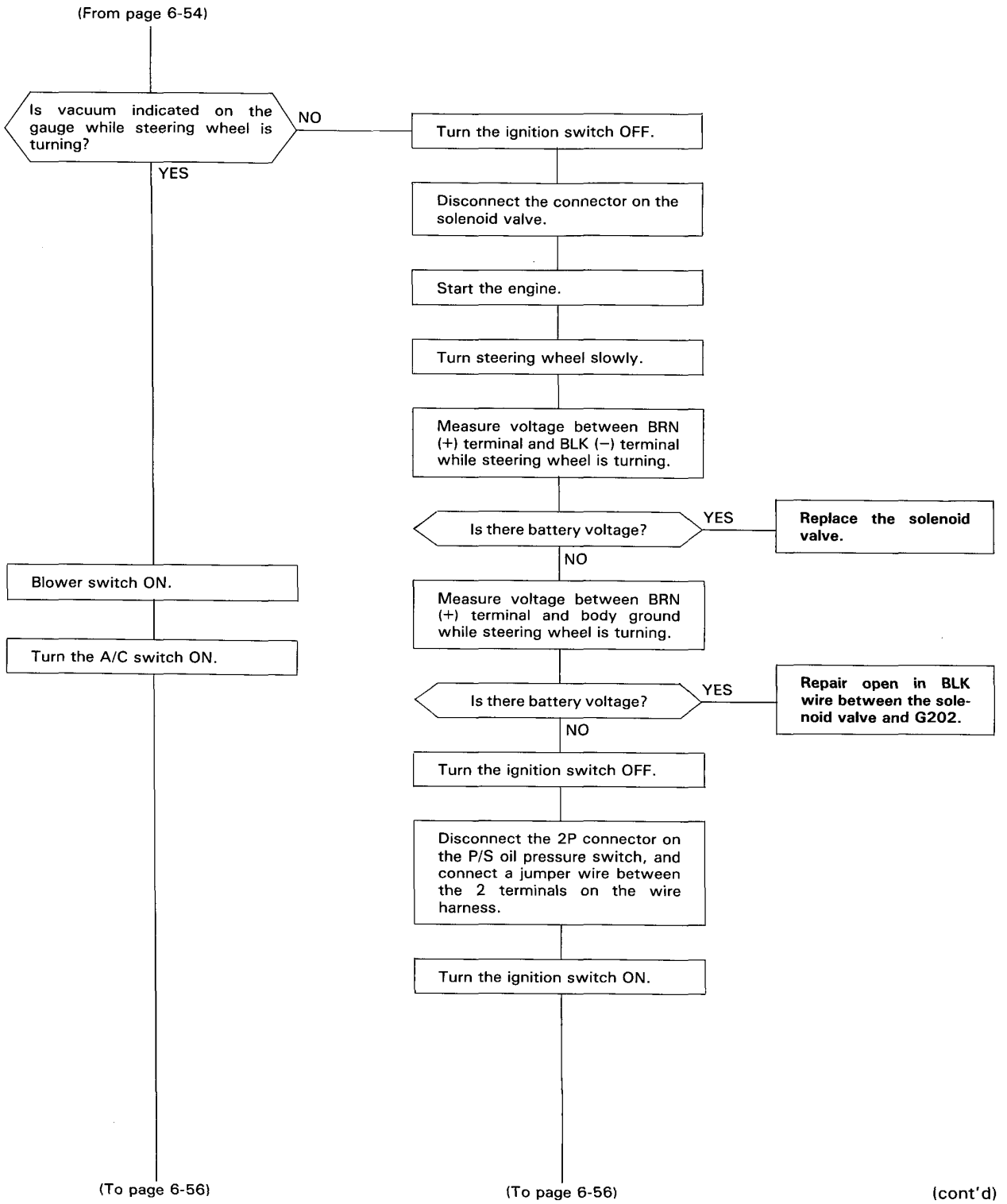
Turn steering wheel slowly.

Apply vacuum.

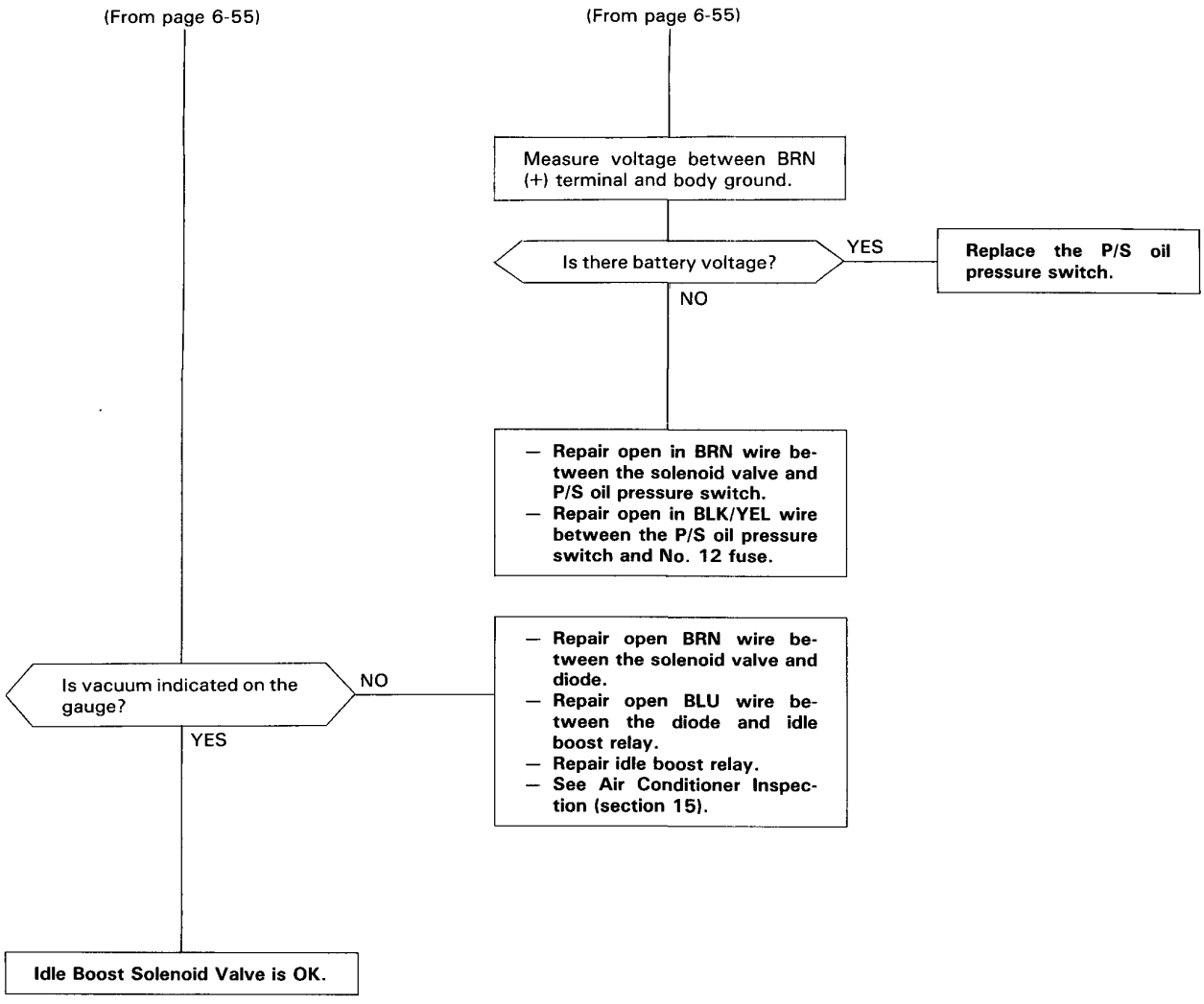
(To page 6-55)






(From page 6-54)
Is vacuum indicated on the gauge while steering wheel is turning?
NO
YES
Turn the ignition switch OFF.
Disconnect the connector on the solenoid valve.
Start the engine.
Turn steering wheel slowly.
Measure voltage between BRN (+) terminal and BLK (−) terminal while steering wheel is turning.
Is there battery voltage?
YES
Replace the solenoid valve.
NO
Measure voltage between BRN (+) terminal and body ground while steering wheel is turning.
Is there battery voltage?
YES
Repair open in BLK wire between the solenoid valve and G202.
NO
Turn the ignition switch OFF.
Disconnect the 2P connector on the P/S oil pressure switch, and connect a jumper wire between the 2 terminals on the wire harness.
Turn the ignition switch ON.
Blower switch ON.
Turn the A/C switch ON.
(To page 6-56)
(To page 6-56)
(cont'd)

Idle Control System (cont'd)



[KX, KS, KZ model (A/C)]

Troubleshooting Flowchart A/C Idle Boost System

Inspection of A/C Idle Boost System

Disconnect the upper vacuum hose of the solenoid valve from the idle boost throttle controller and connect a vacuum gauge.

Start the engine.

Is there vacuum ?

YES → Disconnect the 2P connector near the solenoid valve.

NO

Is there vacuum ?

YES → **Replace the solenoid valve.**

NO → **Inspect the A/C signal (page 6-40).**

Turn the A/C switch ON.

Is there vacuum ?

NO → Disconnect the 2P connector near the solenoid valve.

YES

A/C Idle Boost solenoid valve and A/C signal are OK.

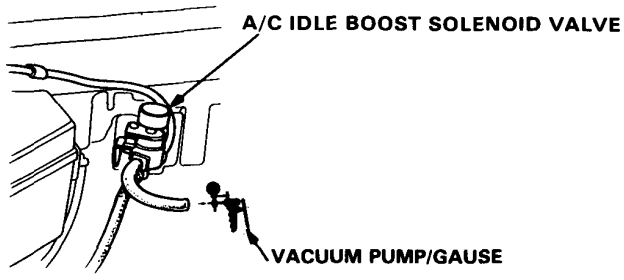
Measure voltage between RED (+) terminal and BLK (−) terminal on the wire harness.

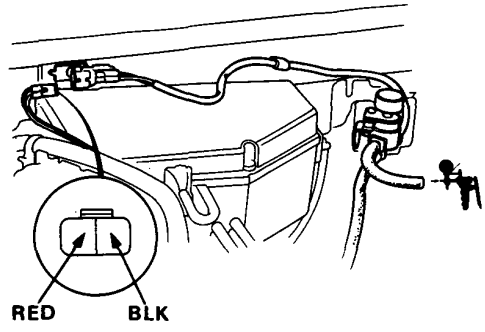
Measure voltage between RED (+) terminal and body ground.

NO → Is there battery voltage ?

YES

Disconnect the lower vacuum hose from the solenoid valve and connect a vacuum gauge to the disconnected hose.





(To page 6-58)

(To page 6-58)

(cont'd)

Idle Control System (cont'd)

(From page 6-57)

Is there battery voltage ?

YES → **Repair open in BLK wire between the solenoid valve and G203.**

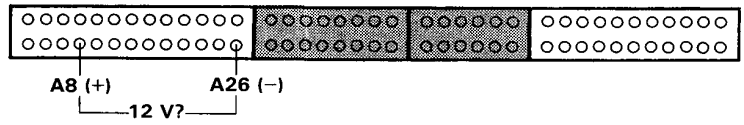
NO

Turn the ignition switch OFF.

Connect the ECU test harness between the control unit and the connector (page 6-16).

Start the engine and turn the A/C switch ON.

Measure voltage between A8 (+) and A26 (–).



Is there battery voltage ?

YES → **Repair open RED wire between control unit (A8) and the solenoid valve.**

NO

Turn the ignition switch OFF.

Disconnect A connector from the control unit only, not the main wire harness.

Check for continuity between A8 and body ground.

Does continuity exist ?

YES → **Repair short in RED wire between control unit (A8) and the solenoid valve.**

NO

Inspect A/C signal (page 6-40). If OK, substitute a known-good control unit and recheck. If symptom goes away, replace the original control unit.

(From page 6-57)

Is there manifold vacuum?

YES → **Replace the solenoid valve.**

NO

Check routing of lower hose to solenoid valve.

[Except KX, KS, KZ model (A/C)]

Troubleshooting Flow Chart A/C Idle Boost Solenoid Valve

Inspection of A/C Idle Boost System

Disconnect the upper vacuum hose of the solenoid valve from the idle boost throttle controller and connect a vacuum gauge.

Start the engine and warm up to normal operating temperature (the cooling fan comes on).

Is there vacuum ?

YES → Disconnect the 2P connector near the solenoid valve.

Is there vacuum ?

YES → **Replace the solenoid valve.**

NO → **Inspect the A/C signal.**

NO

Turn the blower switch ON.

Turn the A/C switch ON.

Is there vacuum ?

NO → Disconnect the 2P connector near the solenoid valve.

YES

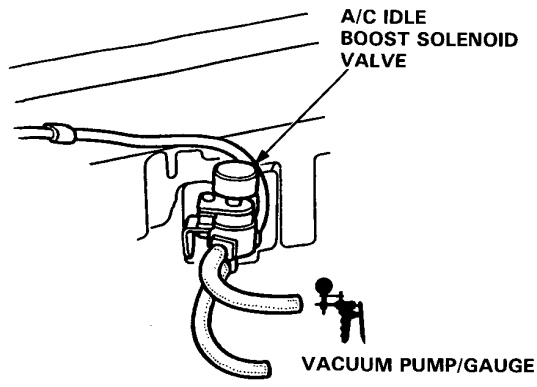
A/C Idle Boost solenoid valve and A/C signal are OK.

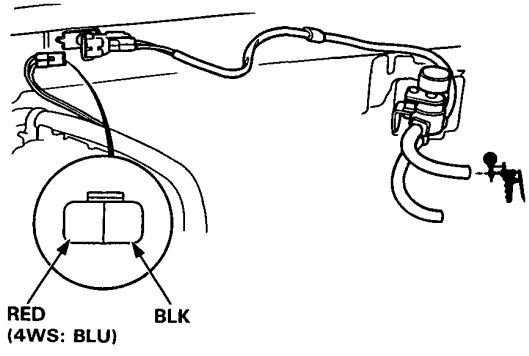
Measure voltage between RED (4WS: BLU) (+) terminal and BLK (−) terminal on the wire harness.

Measure voltage between RED (4WS: BLU) (+) terminal and body ground.

NO → Is there battery voltage ?

YES → Disconnect the lower vacuum hose from the solenoid valve and connect a vacuum gauge to the disconnected hose.





(To page 6-60)

(To page 6-60)

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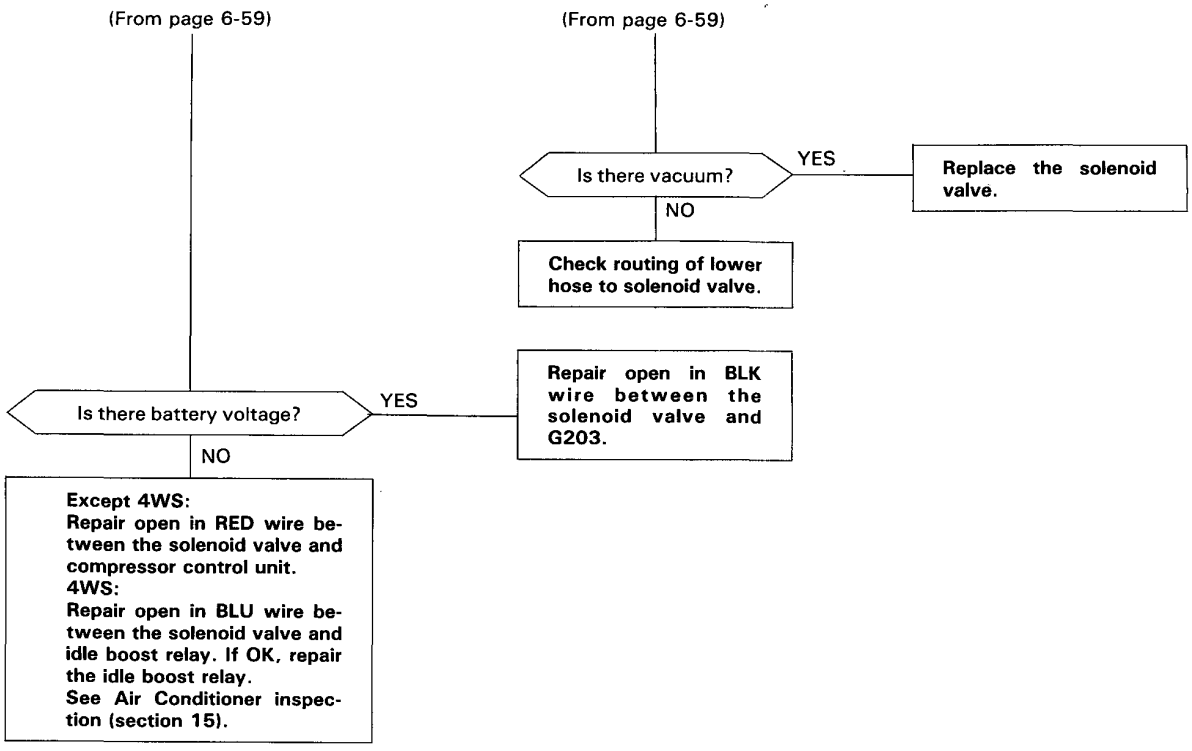
Idle Control System (cont'd)

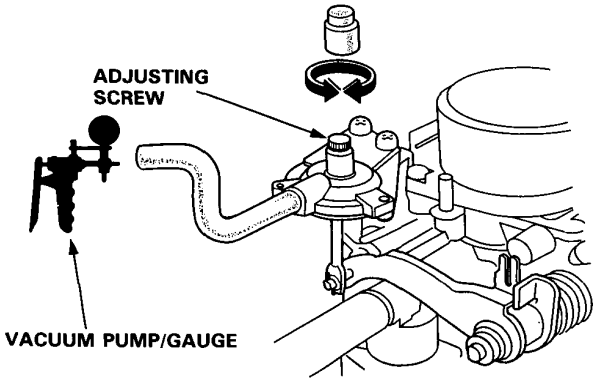


[KX, KS, KZ model]

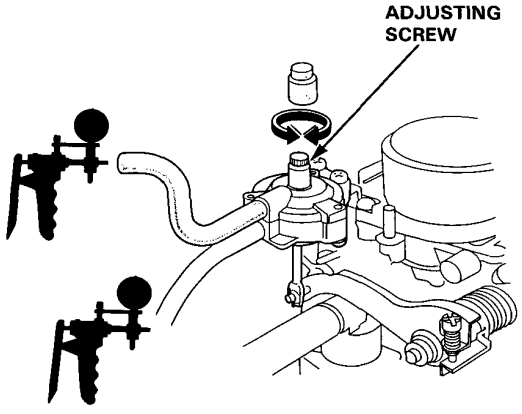
Idle Boost Throttle Controller Testing

1. Start the engine and warm up to normal operating temperature (the cooling fan comes on).
2. Connect a tachometer.
3. Disconnect the vacuum hose from the idle boost throttle controller and connect a vacuum pump to the controller, then apply vacuum.

Except 4WS:



4WS:



4. Check the engine speed.

   Engine speed should be: 1,200 ± 50 min^{-1} (rpm)
   Adjust the engine speed, if necessary, by turning the adjusting screw.

(cont'd)

Idle Control System (cont'd)

[KX, KS, KZ model]

Troubleshooting Flowchart A/C Idle Boost Solenoid Valve

Inspection of A/C Idle Boost Solenoid Valve.

Warm up engine to normal operating temperature (cooling fan comes on).

Disconnect the upper vacuum hose of the solenoid valve from the idle boost throttle controller and connect a vacuum gauge.

Is there any vacuum?

YES → Disconnect the 2P connector near the solenoid valve.

NO

Turn the ignition switch OFF.

Disconnect the 2P connector from the solenoid valve.

Connect battery positive to terminal A and battery negative to terminal B of the connector.

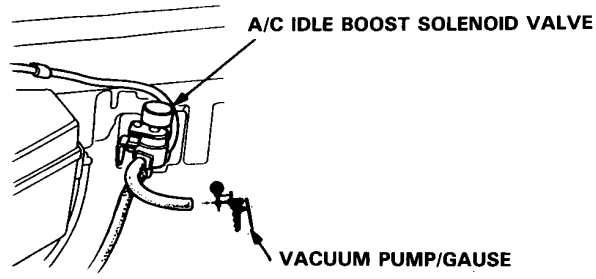
Start the engine.

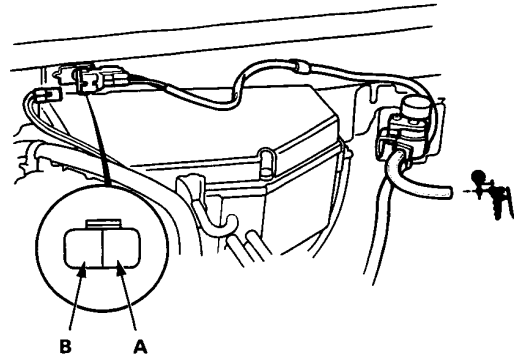
(To page 6-63)

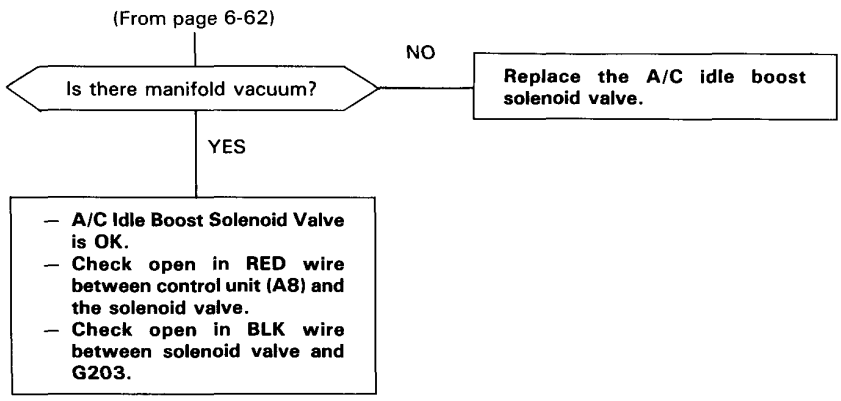
Is there any vacuum?

YES → **Replace the A/C idle boost solenoid valve.**

NO → **Check the self-diagnosis indicator (page 6-18). If OK, substitute a known-good control unit and retest. If symptom goes away, replace the original control unit.**






(From page 6-62)
Is there manifold vacuum?
NO
Replace the A/C idle boost solenoid valve.
YES
– A/C Idle Boost Solenoid Valve is OK.
– Check open in RED wire between control unit (A8) and the solenoid valve.
– Check open in BLK wire between solenoid valve and G203.