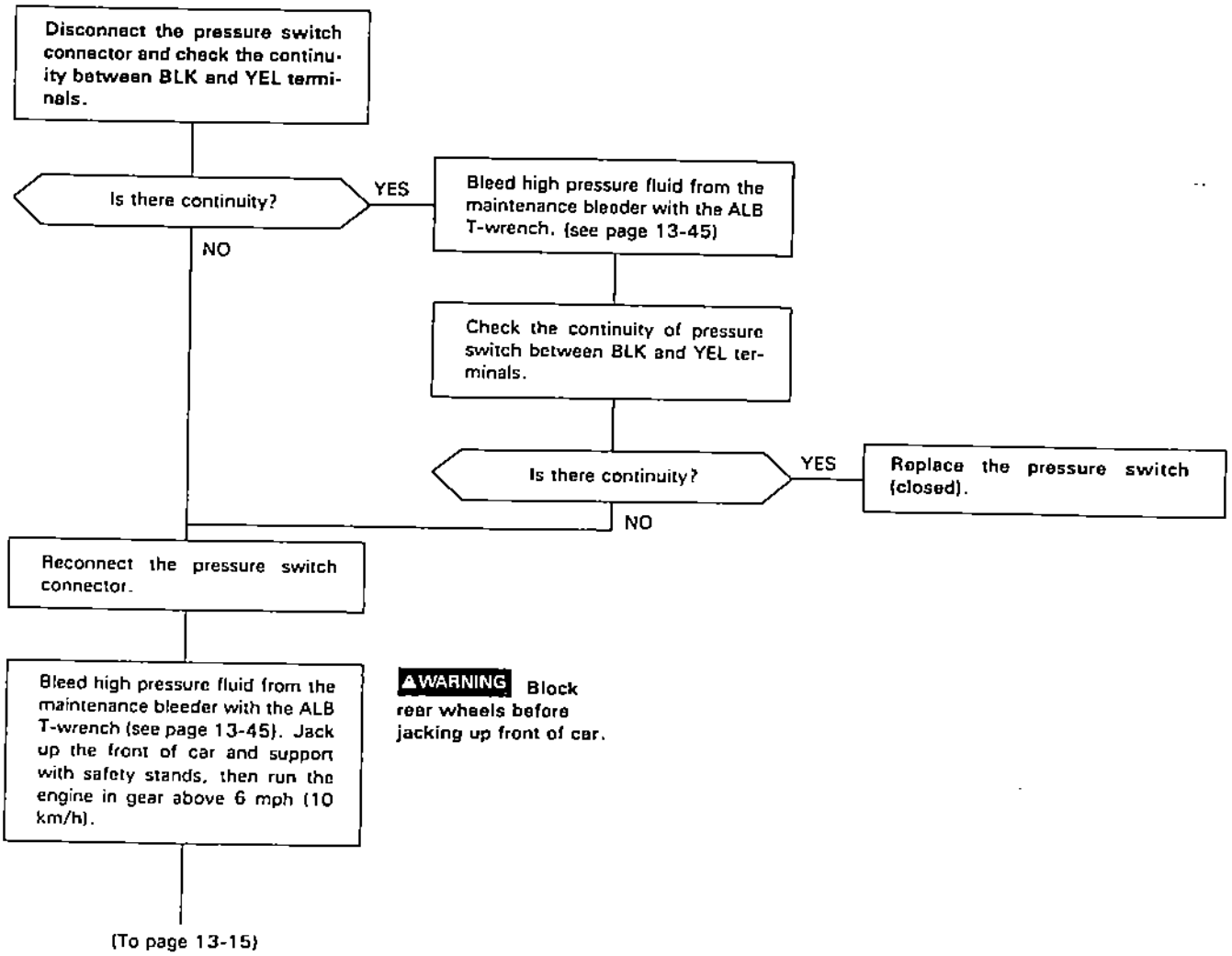
Flowchart

Problem Code 1: Hydraulic Controlled Components.

NOTE: The LED does not blink when the following failures occur.
- The contact points of the motor relay remain closed (the motor runs continuously even after the ignition key is removed).
- YEL/RED lead is shorted or the control unit is internally shorted the motor stops when the ignition switch is turned lock.

Pre-test steps:
- Check ALB Main (40 A) Fuse.
- Check all brake system hoses and pipes (low and high pressure) for signs of leaking bending or kinking.
- Check reservoir fluid level, and if necessary, fill to the MAX level.



(From page 13-14)

Does the pump motor run? — YES → (To page 13-16)

NO

Disconnect the 18P connector from the control unit.

Check for continuity between the YEL terminal and body ground.

Is there continuity? — YES → Repair short in YEL wire between the control unit and pressure switch.

NO

Connect the YEL/RED terminal to body ground using a jumper wire. Turn the ignition switch ON.

Does the pump motor run? — YES → Faulty control unit.

NO

Remove the pump motor relay and check the pump motor relay (page 13-46)

Connect the WHT/RED and WHT/BLU terminals using a jumper wire.

Does the pump motor run? — NO → (To page 13-17)

YES

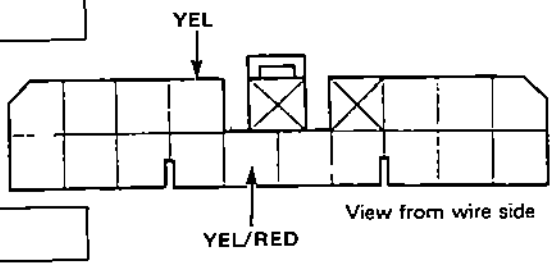
Check voltage between the pump motor relay motor side (+) terminal and body ground (−).

Is there battery voltage? — NO → Repair open in BLK/YEL wire between the No.18 (10A) fuse and pomp motor relay.

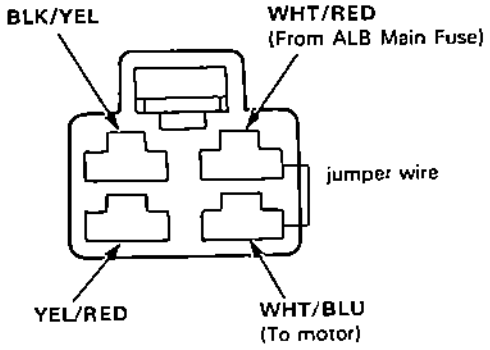
YES

Repair open in YEL/RED wire between the control unit and pump motor relay.

‹CONTROL UNIT: 18P CONNECTOR›



‹PUMP MOTOR RELAY CONNECTOR›



View from terminal side

Flowchart(cont'd)

(From page 13-15)

Does the pump motor run with an increasingly loud, raspy sound?

NO → Pump runs with a constant soft sound:
Bleed air from ALB system using the procedure on page 13-45 and check the pump sound again

YES

Does the pump motor stop after about 60 seconds?

NO → Pump stops after about 120 seconds:
faulty pressure switch (open).

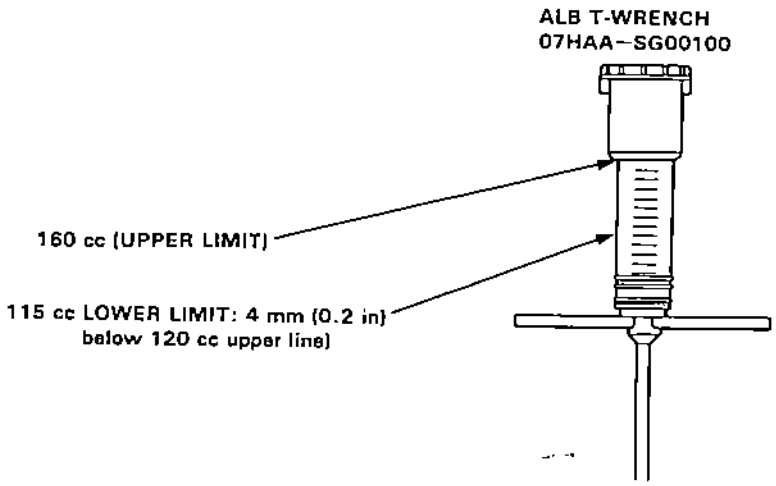
YES

Does the reservoir fluid level go down, and are there no bubbles in the modulator reservoir tank?

NO →
- If level stays the same and there are bubbles in the modulator reservoir tank, check the accumulator fluid quantity by bleeding the high pressure line with the ALB T-wrench:
  - —If over 160 cc (upper limit), faulty accumulator.
  - —If under 115 cc (lower limit), modulator inlet solenoid leak or accumulator leak.
- If level goes up : faulty modulator assembly.

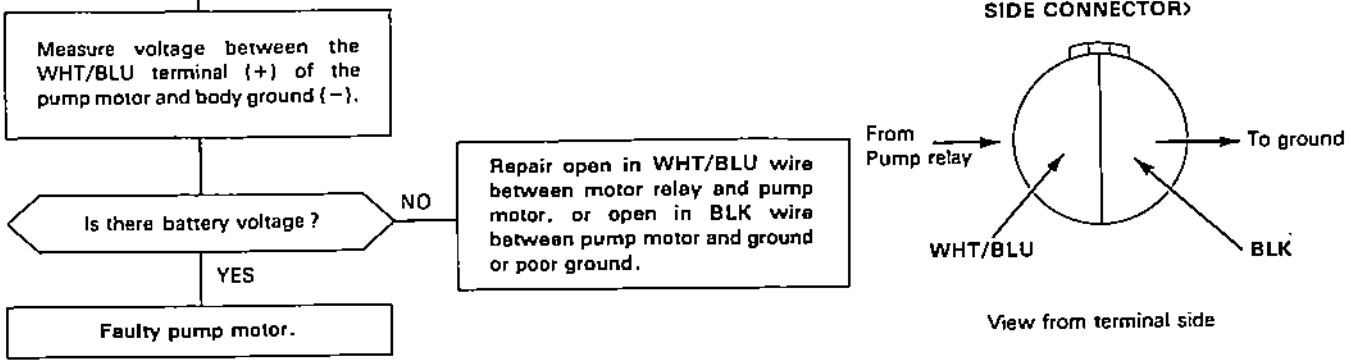
YES

System is OK; recheck pump motor, to confirm no intermittent problem.



NOTE: The fluid enters the reservoir under pressure; wait 1 or 2 minutes for air bubbles to disappear and level to stabilize.

(From page 13-15)



Problem code 2: Parking Brake Switch Related Problem

If the parking brake has been released, the following items are possible causes. If they are OK, check the control unit connectors for good connection. If not loose or disconnected, substitute a known-good control unit and rechceck.

NOTE: Before Troubleshooting Problem Code 2, remove the ALB B2 fuse for three seconds to clear the control unit's memory, then test drive the car.
If the dash warning light and LED stay off, the probability is that the car was driven with the parking brake applied.

- The parking brake is applied for more than 30 seconds while driving.
- The brake fluid level in the master cylinder is too low.
- BLK/WHT lead is shorted between the BRAKE warning light and parking brake switch.
- BLK/WHT lead is shorted between the BRAKE warning light and brake fluid level switch.
- The BRAKE warning light is blown.
- BLK/WHT has an open between the BRAKE warning light and parking brake.
- BLK/WHT has an open between the parking brake switch and control unit.

(cont'd)

Flowchart (cont'd)

Problem Code 4-1 to 4-8: Speed Sensor

NOTE: Control unit will only indicate the higher number sub-code.

Ignition switch: OFF

Disconnect wire harness from speed sensor.

Check for resistance between sensor terminals.

Is there 500-1,000Ω? — NO → Faulty speed sensor.

YES

Disconnect the 18P connector from the control unit.

Check each wire for continuty between the sensor and control unit:
GRN/BLK: Front Right Positive
GRN/BLU: Front Left Positive
GRN/YEL: Rear Right Positive
LT BLU: Rear Left Positive
GRN: Front Right Negative
BRN: Front Left Negative
BLU/YEL: Rear Right Negative
GRY: Rear Left Negative

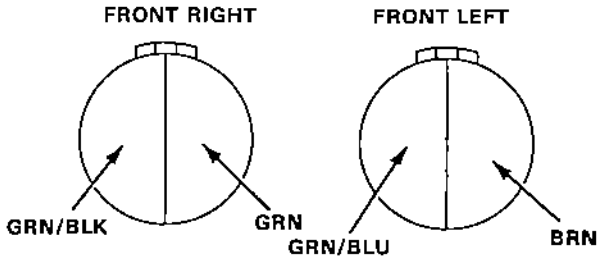
Is there continuity? — NO → Repair open in sensor wire:

GRN/BLK: Front Right Positive
GRN/BLU: Front Left Positive
GRN/YEL: Rear Right Positive
LT BLU: Rear Left Positive
GRN: Front Right Negative
BRN: Front Left Negative
BLU/YEL: Rear Right Negative
GRY: Rear Left Negative

YES

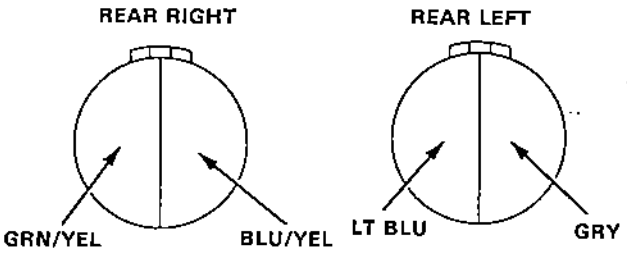
Faulty control unit

‹SENSOR SIDE CONNECTOR›



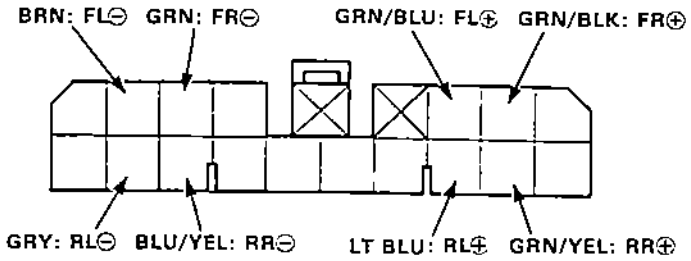
View from terminal side

‹SENSOR SIDE CONNECTOR›



View from terminal side

‹CONTROL UNIT 18P CONNECTOR›



View from wire side

Problem Code 5 to 5-4, 5-8: Speed Sensor(s)

Disconnect wire harness from speed sensor.

Check for resistance between sensor terminals.

Is there 500—1000 Ω? — NO → Faulty speed sensor.

YES

Disconnect the 18P connector from the control unit.

Check each wire for continuity between the sensor and control unit:
GRN/BLK: Front Right Positive
GRN/BLU: Front Left Positive
GRN/YEL: Rear Right Positive
LT BLU: Rear Left Positive
GRN: Front Right Negative
BRN: Front Left Negative
BLU/YEL: Rear Right Negative
GRY: Rear Left Negative

Is there continuity? — NO → Repair open in sensor wire:

GRN/BLK: Front Right Positive
GRN/BLU: Front Left Positive
GRN/YEL: Rear Right Positive
LT BLU: Rear Left Positive
GRN: Front Right Negative
BRN: Front Left Negative
BLU/YEL: Rear Right Negative
GRY: Rear Left Negative

YES

Reconnect the 18P connector to the control unit and connectors to the speed sensors.

Connect ALB checker to inspection connector.

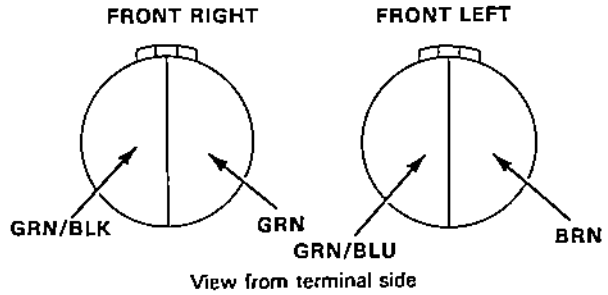
Check ALB function in MODE 2 and 3.

Does it work properly? — NO → Faulty modulator.

YES

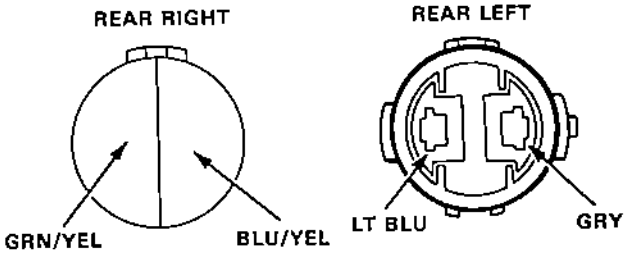
- Incorrect the air gap (page 13-47)
- Faulty control unit.

‹SENSOR SIDE CONNECTOR›

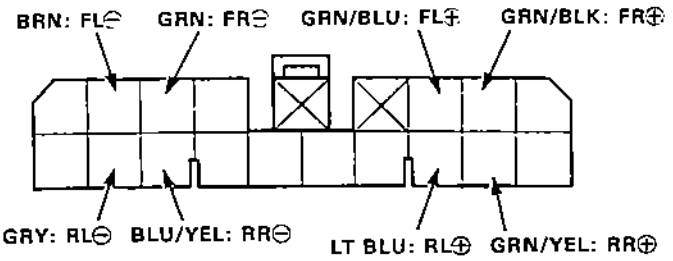


View from terminal side

‹SENSOR SIDE CONNECTOR›



‹CONTROL UNIT 18P CONNECTOR›



View from wire side

Flowchart (cont'd)

Problem Code 6-1: Front Fail Safe Relay Circuit

Remove front fail safe relay

Check relay function (page 13-46)

Does it work properly? — NO → Faulty the front fail safe relay.

YES

Check for continuity between BLK lead of relay connector and body ground.

Is there conitinuity? — NO → Repair open in BLK wire between the fail safe relay and ground or poor ground.

YES

Turn ignition switch ON.

Check for voltage between BLK / YEL lead (+) and body ground (−).

Is battery voltage available? — NO → Repair open in BLK/YEL wire between the fail safe relay and No. 18 fuse (10 A).

YES

Turn ignition switch OFF.

Disconnect the 3P connectors from the front solenoids.

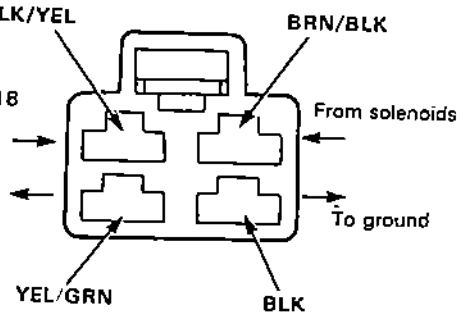
Check for continuity in BRN/BLK lead between fail safe relay and solenoids.

Is there continuity? — NO → Repair open in BRN/BLK wire between the solenoids and fail safe relay.

YES

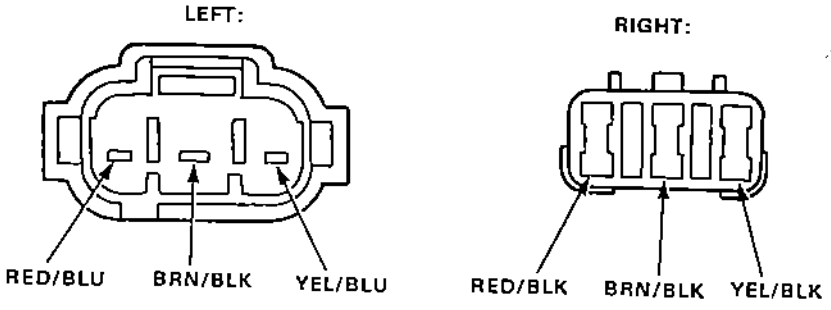
(To page 13-21)

<FRONT FAIL SAFE RELAY CONNECTOR HARNESS SIDE>



View from terminal side

<FRONT SOLENOIDS CONNECTOR HARNESS SIDE>



View from terminal side

(From page 13-20)

Check for resistance between RED and BLK terminals of front solenoids.

Is there 1-3 Ω? NO → Faulty solenoid.

YES

Check for resistance between YEL and BLK terminals of front solenoids.

Is there 1-3 Ω? NO → Faulty solenoid.

YES

Disconnect the 12P connector from the control unit.

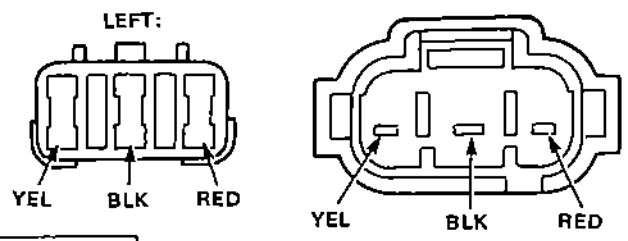
Check for continuity between control unit and front solenoid.
RED/BLK: Front Right Inlet
YEL/BLK: Front Right Outlet
RED/BLU: Front Left Inlet
YEL/BLU: Front Left Outlet.

Is there continuity ? NO → Repair open in wire:
RED/BLK: Front Right Inlet
YEL/BLK: Front Right Outlet
RED/BLU: Front Left Inlet
YEL/BLU: Front Left Outlet

YES

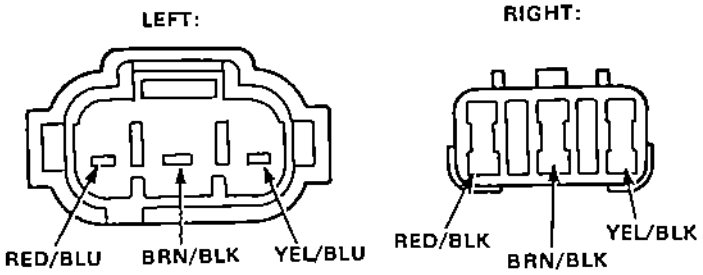
- Faulty control unit.
- Incorrect air gap (page 13-47)

<FRONT SOLENOID CONNECTOR>



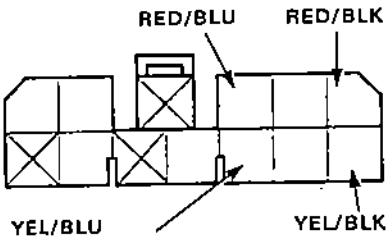
View from terminal side

<FRONT SOLENOIDS CONNECTOR HARNESS SIDE>



View from terminal side

<CONTROL UNIT 12P CONNECTOR>



View from wire side.

Flowchart(cont'd)

Problem Code 6-4: Rear Fail Safe Relay Circuit

Remove rear fail safe relay.

Check relay function (page 13-46)

Does it work properly? NO → **Faulty relay.**

YES

Check for continuity between BLK lead of relay connector and body ground.

Is there continuity? NO → **Repair open in BLK wire between the relay and ground or poor ground.**

YES

Turn ignition switch ON.

Check for voltage between BLK/YEL lead (+) of wire harness and body ground (−).

Is battery voltage available? NO → **Repair open in BLK/YEL wire between the relay and No. 18 (10 A) fuse.**

YES

Turn ignition switch off.

Disconnect the 3P connector from the rear solenoid.

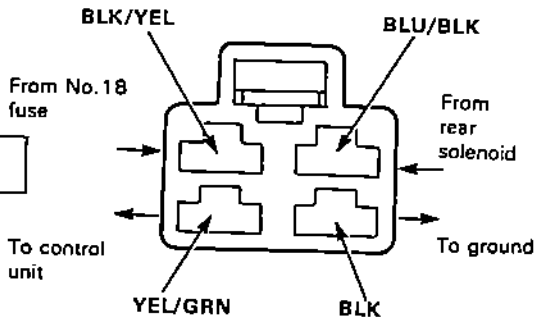
Check for continuity in BLU/BLK lead between fail safe relay and solenoid.

Is there continuity? NO → **Repair open in BLU/BLK wire between the relay and solenoid.**

YES

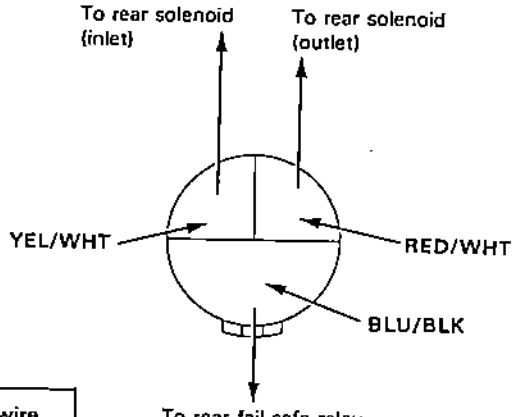
(To page 13-23)

<REAR FAIL SAFE RELAY CONNECTOR HARNESS SIDE>



View from terminal side

<REAR SOLENOID CONNECTOR HARNESS SIDE>



View from terminal side

(From page 13-22)

Disconnect the 18P and 12P connectors from the control unit.

Check for continuity in YEL/GRN lead between fail safe relay and control unit.

Is there continuity? NO → Repair open in YEL/GRN wire between the relay and control unit.

YES

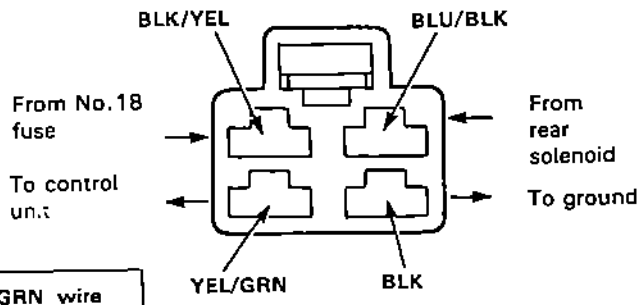
Check for continuity between control unit and rear solenoid.
RED/WHT: Rear Inlet
YEL/WHT: Rear Outlet

Is there continuity: NO → Repair open in wire between the solenoid and control unit:
RED/WHT: Rear Inlet
YEL/WHT: Rear Outlet.

YES

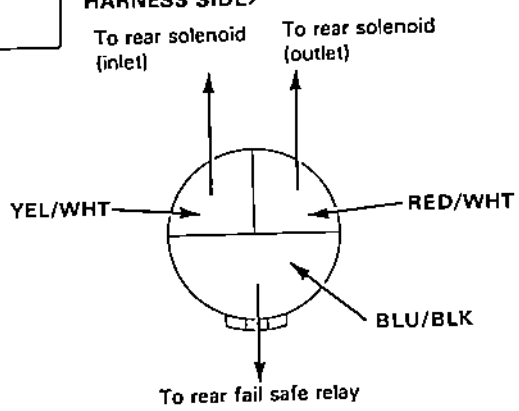
Faulty control unit.

‹REAR FAIL SAFE RELAY CONNECTOR HARNESS SIDE›



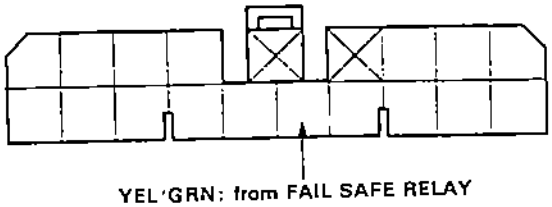
View from terminal side

‹REAR SOLENOID CONNECTOR HARNESS SIDE›

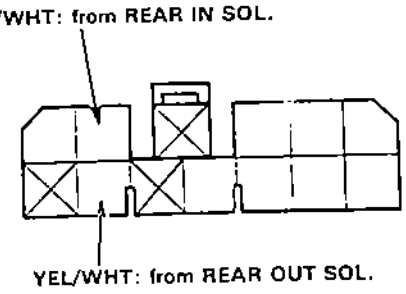


View from terminal side

‹CONTROL UNIT 18P CONNECTOR›



‹CONTROL UNIT 12P CONNECTOR›



View from wire side

Flowchart (cont'd)

Problem Code 7-1 and 7-2 Front Solenoid Related Problem

Disconnect wire harness from front solenoids

Check for resistance between RED and BLK terminals of front solenoid.

Is there 1-3 Ω? — NO → Faulty solenoid.

YES

Check for resistance between YEL and BLK terminals of front solenoid.

Is there 1-3 Ω? — NO → Faulty solenoid.

YES

Disconnect the 12P connector from the control unit.

Check for continuity between control unit and front solenoid:
RED/BLK: Front Right Inlet
YEL/BLK: Front Right Outlet
RED/BLU: Front Left Inlet
YEL/BLU: Front Left Outlet.

Is there continuity ? — NO → Repair open in wire:
RED/BLK: Front Right Inlet
YEL/BLK: Front Right Outlet
RED/BLU: Front Left Inlet
YEL/BLU: Front Left Outlet

YES

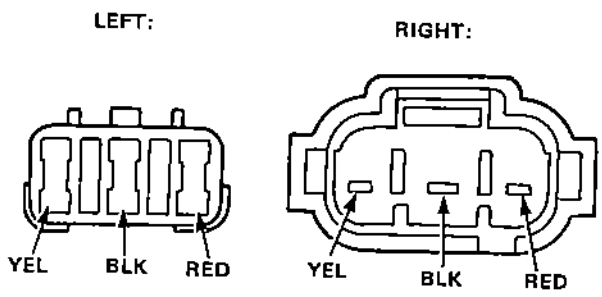
Check for continuity between control unit and body ground.
RED/BLK: Front Right Inlet
YEL/BLK: Front Right Outlet
RED/BLU: Front Left Inlet
YEL/BLU: Front Left Outlet

Is there continuity? — YES → Repair short in wire:
RED/BLK: Front Right Inlet
YEL/BLK: Front Right Outlet
RED/BLU: Front Left Inlet
YEL/BLU: Front Left Outlet

NO

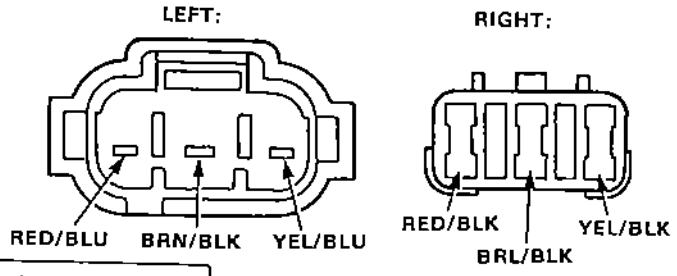
- Faulty control unit.
- Incorrect air gap (page 13-47)

<FRONT SOLENOID CONNECTOR>



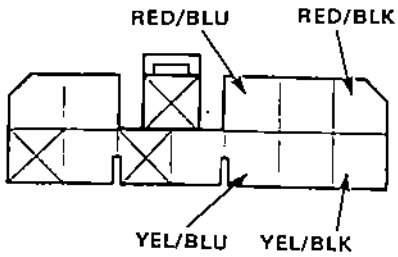
View from terminal side

<FRONT SOLENOIDS CONNECTOR HARNESS SIDE>



View from terminal side

<CONTROL UNIT 12P CONNECTOR>



Problem Code 7-4: Rear Solenoid Related Problem

Disconnect wire harness from rear solenoids

Check for resistance between RED and BLK terminals of rear solenoid.

Is there 1-3 Ω? — NO → Faulty solenoid.

YES

Check for resistance between YEL and BLK terminals of rear solenoid.

Is there 1-3 Ω? — NO → Faulty solenoid.

YES

Disconnect the 12P connector from the control unit.

Check for continuity between control unit and rear solenoid.
RED/WHT: Rear Inlet
YEL/WHT: Rear Outlet

Is there continuity? — NO → Repair open in wire between the rear solenoid and control unit:
RED/WHT: Rear Inlet
YEL/WHT: Rear Outlet

YES

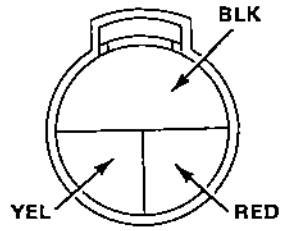
Check for countinuity between control unit and body ground.
RED/BLK: Front Right Inlet
YEL/BLK: Front Right Outlet
RED/BLU: Front Left Inlet
YEL/BLU: Front Left Outlet

Is there continuity? — YES → Repair short in wiro:
RED/WHT: Rear Inlet
YEL/WHT: Rear Outlet

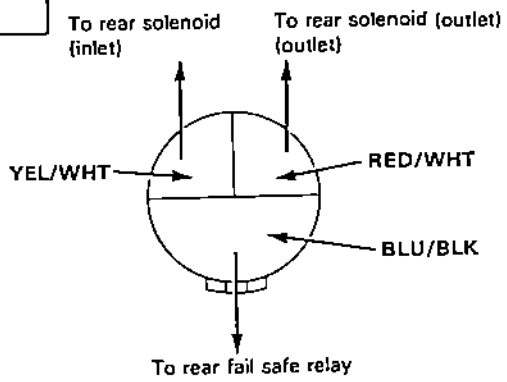
NO

Faulty control unit.

<REAR SOLENOID CONNECTOR>

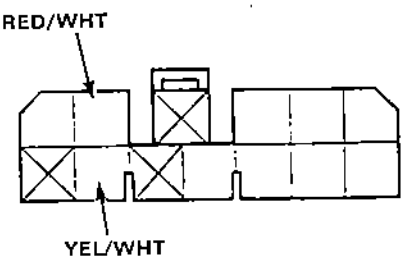


<REAR SOLENOID CONNECTOR HARNESS SIDE>



View from terminal side

<CONTROL UNIT 12P CONNECTOR>



View from wire side.