8. Inspect the speed sensors for proper mounting and connections (see section later in this chapter for the procedure).

9. Inspect the gear pulsers for broken teeth or poor mounting (see section later in this chapter for the procedure).

10. Certain driver induced problems, such as not releasing the parking brake fully, spinning the wheels under acceleration, sliding due to excessive cornering speed or driving on extremely rough surfaces may fool the system and trigger the dash warning light. These induced problems are not system failures; they are examples of vehicle performance outside the parameters of the control unit.

11. Many system shutdowns are due to loss of sensor signals to or from the controller. The most common cause is not a failed sensor, but a loose, corroded or dirty connector. Check harness and component connectors carefully.

12. Check for correct battery voltage and inspect the condition of all ALB/ABS fuses.

SYSTEM TESTING

CAUTION

The accumulator contains high-pressure nitrogen gas. Do not puncture, expose to flame or attempt to disassemble the accumulator or it may explode, resulting in severe personal injury.

Reading Problem Codes

See Figures 87 and 88

If the ALB/ABS indicator light comes on and remains on while the engine is running, there may or may not be a (real) problem with the system. Before assuming there is, go through the following steps to determine if there was a false alarm, or to determine exactly which problem code should be checked.

1. Turn off the engine and then turn the ignition key back to the **ON** position to see whether the indicator light comes on as it should. Then restart the engine to confirm whether the light will remain on or go off as normal.

2. If the light comes on with the ignition on, and goes off with the engine running, there is no problem.

➡If the indicator light on the dashboard does not come on at all, stop here and refer to the following section "ABS Indicator Light."

3. If the ALB/ABS indicator light remains on with the engine running, thus confirming that a problem has been detected, stop the engine. Disconnect the service check connector from the connector cover under the glove box and connect the two terminals with a jumper wire.

4. Turn the ignition **ON** without starting the engine to determine the problem. The ALB/ABS control unit will communicate by a series of blinks through the ALB/ABS indicator light which problem code(s) must be checked.

5. To understand the blinks, record the blinking frequency of the ALB/ABS indicator light and compare it to the Problem Code Chart following. The blinking frequency will indicate the problem code. If you miscount the blinking frequency, or want to make sure, turn **OFF** the ignition and then turn it **ON** again to repeat the cycle.

6. Once the problem code(s) have been determined by use of the Symptom-to-System Chart following, use a digital multimeter and the appropriate flowcharts (provided after the code chart) to test the system. Start at the beginning and work all the way towards the end before removing any components.

WARNING

Before starting the engine, disconnect the jumper wire from the service check connector, or else the Check Engine light will remain on while the engine is running.

7. After repairs, make sure the warning light on the instrument panel operates properly. It should light when the ignition is first turned **ON**, then go out after the vehicle starts moving. If not, the system is still not repaired.

ALB/ABS Indicator Light

See Figure 89

The ALB/ABS indicator light should always come on when the ignition key is turned **ON**, and then go out when the car is started. If the light fails to operate

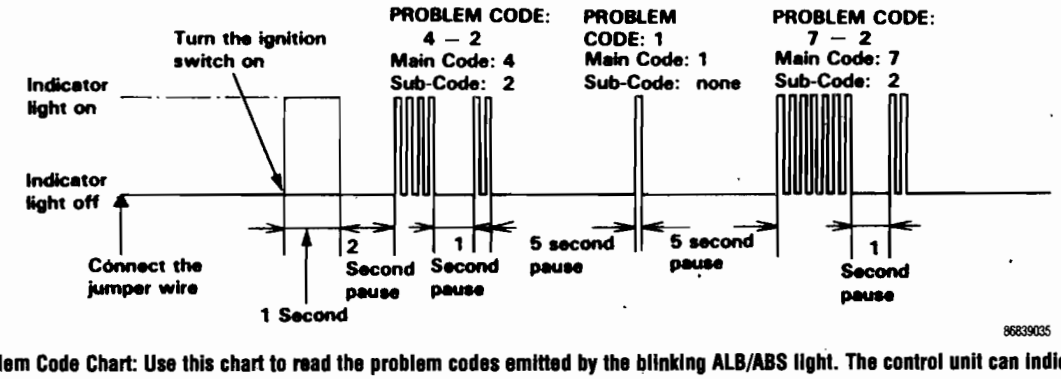


Fig. 87 Problem Code Chart: Use this chart to read the problem codes emitted by the blinking ALB/ABS light. The control unit can indicate three problem codes (one, two or three problems). If you miscount the blinks, turn the key off and then on again and the process will start again

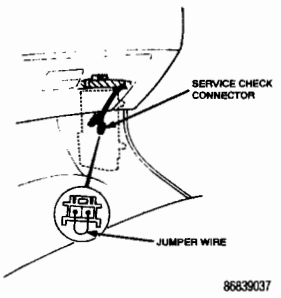


Fig. 88 To read ALB/ABS problem codes, connect a jumper wire between the service check connectors and the indicator light will communicate the problem by blinking the code as indicated by the ALB/ABS control unit

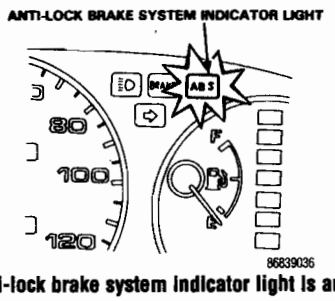


Fig. 89 The anti-lock brake system indicator light is an important part of the ALB/ABS system. In daily operation it tells the driver the system is working properly, but in the event of a malfunction, it can be used to indicate the specific problem code(s) for system troubleshooting

and the car's electrical system is energized, check the following items. If they are OK, check the control unit connectors. If not loose or disconnected, substitute a known-good control unit (if possible) and recheck:

- Blown anti-lock brake system indicator light bulb.
- Open circuit in YEL wire between the No. 15 backup light (10A) fuse and the gauge assembly.
- Open circuit in BLU/RED wire between the gauge assembly and control unit.
- Poor ground connection between the control unit and the body.

➡The testing of the ALB/ABS system may require the Bleeder T-Wrench, Honda part No. 07HAA–SG00101 and a digital multimeter. If you intend to service and maintain your ALB/ABS system, investment in these tools may be necessary.

➡After a repair is completed, the ALB/ABS B2 (15A) fuse must be disconnected for a minimum of three seconds to erase the control unit's memory. Then turn the ignition key ON and recheck. The memory is erased if the connector is disconnected from the control unit or the control unit is removed from the body.

DIAGNOSTIC FLOW CHARTS

◗ See Figures 90 thru 108

The accompanying charts should be used along with the information in this section to help troubleshoot system problem codes.

PROBLEM CODE		PROBLEMATIC COMPONENT/ SYSTEM	AFFECTED				OTHER COMPONENT
MAIN CODE	SUB-CODE		FRONT RIGHT	FRONT LEFT	REAR RIGHT	REAR LEFT	
1	–	Pump motor over-run	–	–	–	–	Pressure switch
	2	Pump motor circuit problem	–	–	–	–	Motor relay, Unit fuse, Motor fuse
	3	High pressure leakage	–	–	–	–	Solenoid
	4	Pressure switch	–	–	–	–	
	8	Accumulator gas leakage	–	–	–	–	
2	1	Parking brake switch-related problem	–	–	–	–	Brake fluid level switch BRAKE light
3	1	Pulser(s)	○				
	2			○			
	4				○	○	
4	1	Speed sensor	○				
	2			○			
	4				○		
	8					○	
5	–	Speed sensor(s)			○	○	Modulator
	4				○		
	8					○	
6	–	Fail-safe relay (Open, short)	–	–	–	–	Front or rear fail-safe relay
	1		–	–	–	–	Front fail-safe relay
	4		–	–	–	–	Rear fail-safe relay
7	1	Solenoid related problem (Open)	○				ABS B1 fuse Front fail-safe relay
	2			○			
	4				○	○	Rear fail-safe relay

86839038

Fig. 90 Troubleshooting symptom-to-system chart

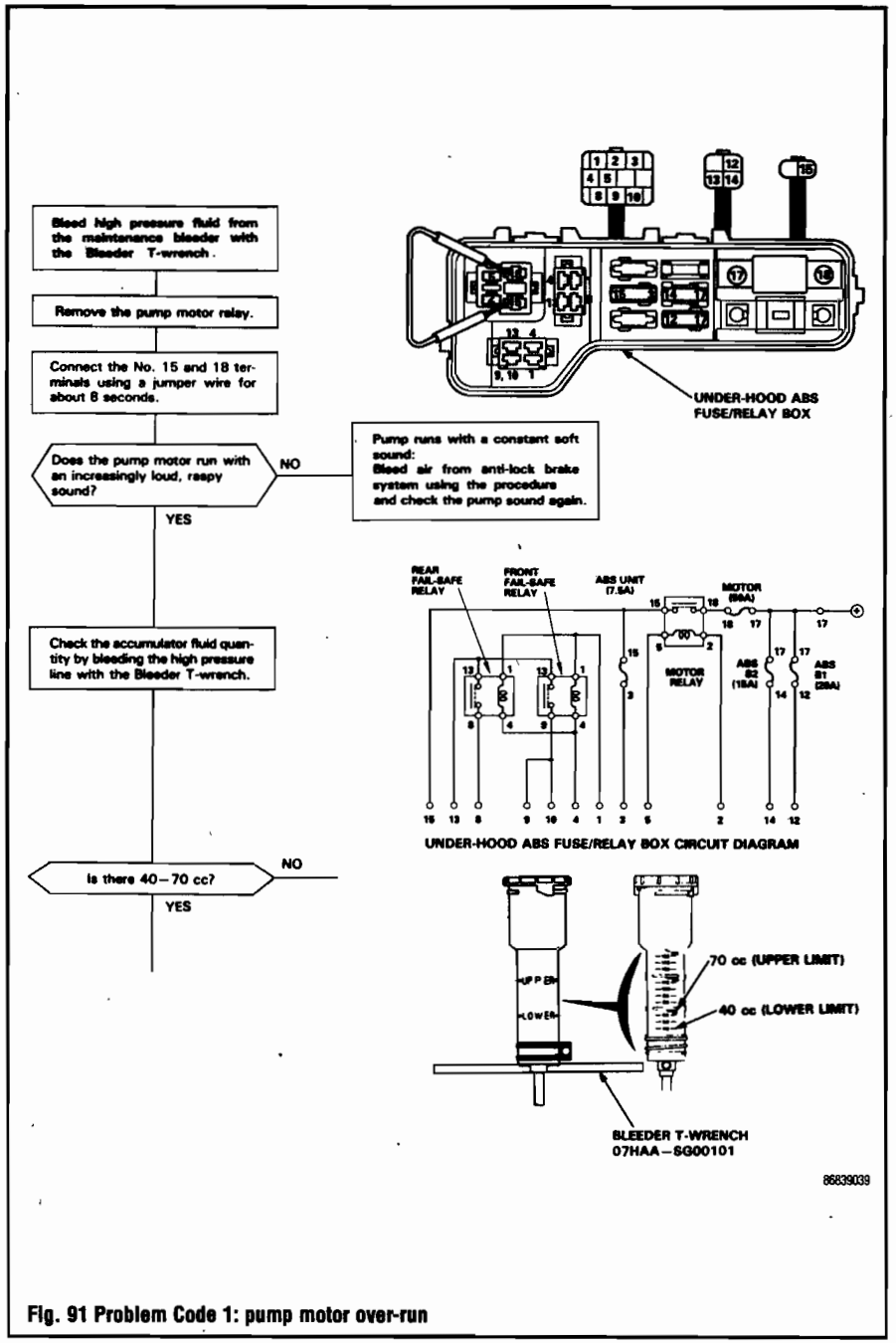


Fig. 91 Problem Code 1: pump motor over-run

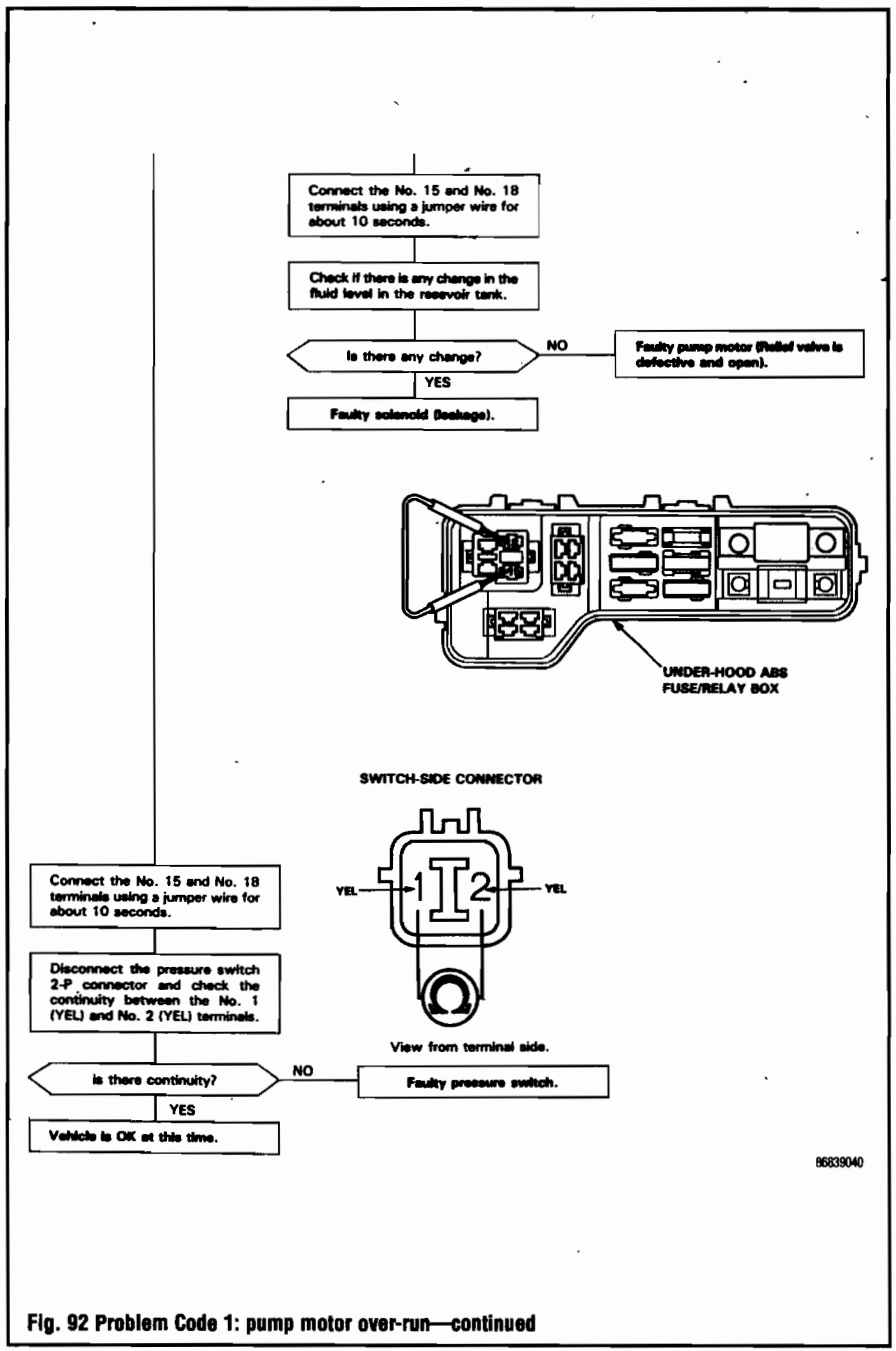


Fig. 92 Problem Code 1: pump motor over-run—continued

CAUTION: Use only the digital multimeter to check the system.

NOTE: If a malfunction is detected, this code appears and the fail-safe function is activated. The indicator light comes ON after restarting the engine until the malfunction code is erased (by disconnecting the ABS B2 fuse for 3 seconds).

Pre-test steps:
- Check ABS MOTOR (50 A) FUSE
- Check ABS UNIT (7.5 A) FUSE
- Check for loose under-hood ABS fuse/relay box connectors.

Remove and check the pump motor relay (page 19-87).

Does it work properly? NO → Faulty pump motor relay.

YES

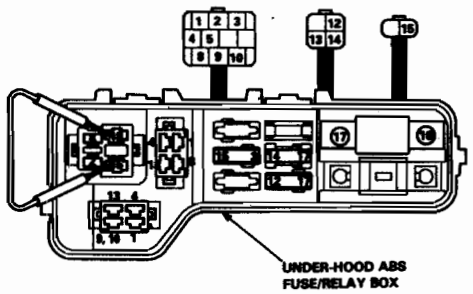
Connect the No. 16 and No. 18 terminals using a jumper wire.

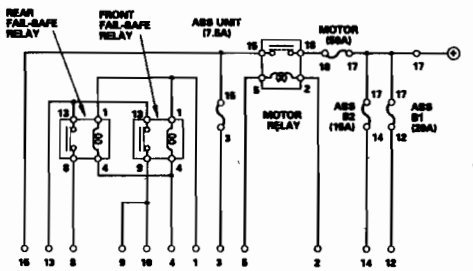
Does the pump motor run? NO

YES

Disconnect the jumper wire.

Disconnect the 2-P connector from the pump motor.





UNDER-HOOD ABS FUSE/RELAY BOX CIRCUIT DIAGRAM

86839041

Fig. 93 Problem Code 1-2: pump motor circuit problem

Remove the ABS UNIT (7.5 A) fuse from under-hood ABS fuse/relay box.

Turn the ignition switch ON.

Check for voltage between the under-hood ABS fuse/relay box ABS UNIT fuse No. 3 terminal and body ground.

Is there battery voltage? NO → Repair open in BRN/YEL wire between the ABS UNIT fuse and control unit.

YES

Reinstall the fuse in the under-hood ABS fuse/relay box.

Check for voltage between the pump motor relay No. 15 terminal (+) and body ground (–).

Is there battery voltage? NO → Faulty under-hood ABS fuse/relay box.

YES

Check for voltage between the No. 2 terminal and body ground.

Is there battery voltage? NO → Repair open in BLK/YEL wire between the No. 13 RR DEF RLY/HEATER MOTOR RLY/ COOLING FAN MOTOR RLY (7.5 A) fuse and pump motor relay.

YES

Reinstall the pump motor relay.

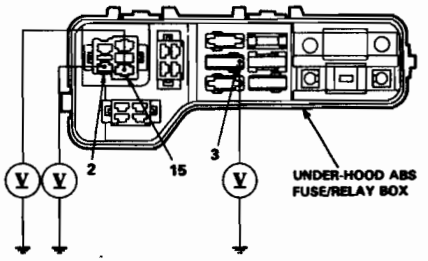
Disconnect the 18-P connector from the control unit.

Check for voltage between the control unit connector No.18 (YEL/RED) terminal and body ground.

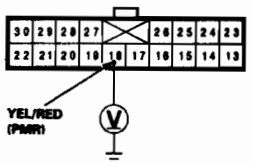
Is there battery voltage? NO → Repair open in YEL/RED wire between the pump motor relay and control unit.

YES

Check for loose control unit connectors. If necessary, substitute a known-good control unit and recheck.



18-P CONNECTOR



View from control unit terminal side.

86839042

Fig. 94 Problem Code 1-2: pump motor circuit problem—continued

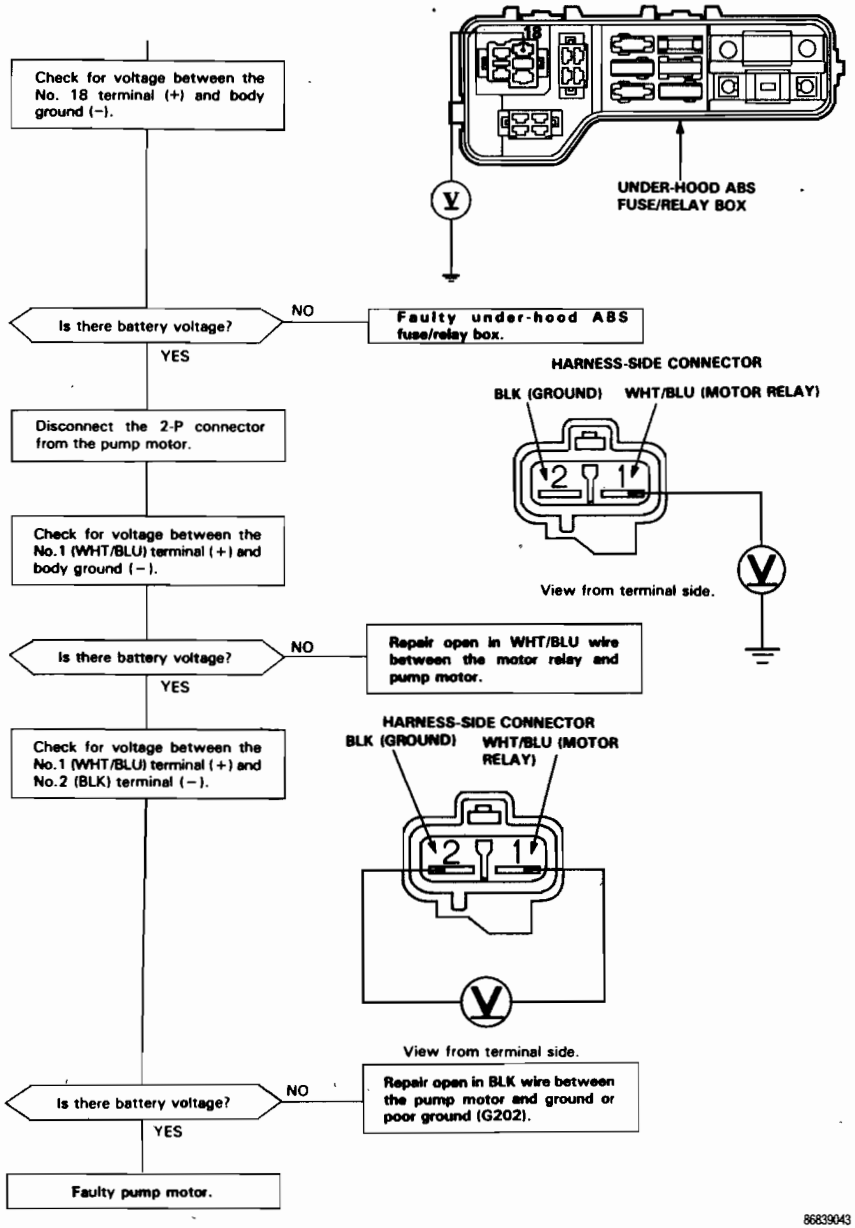


Fig. 95 Problem Code 1-2: pump motor circuit problem—continued

CAUTION: Use only the digital multimeter to check the system.

Pre-test steps:
- Check reservoir fluid level, and if necessary, fill to the MAX level.
- Check for fluid leaks from the functional parts and replace the faulty parts if there is a leak.

Functional parts:
- Modulator
- Pump assembly
- High pressure hose/pipe

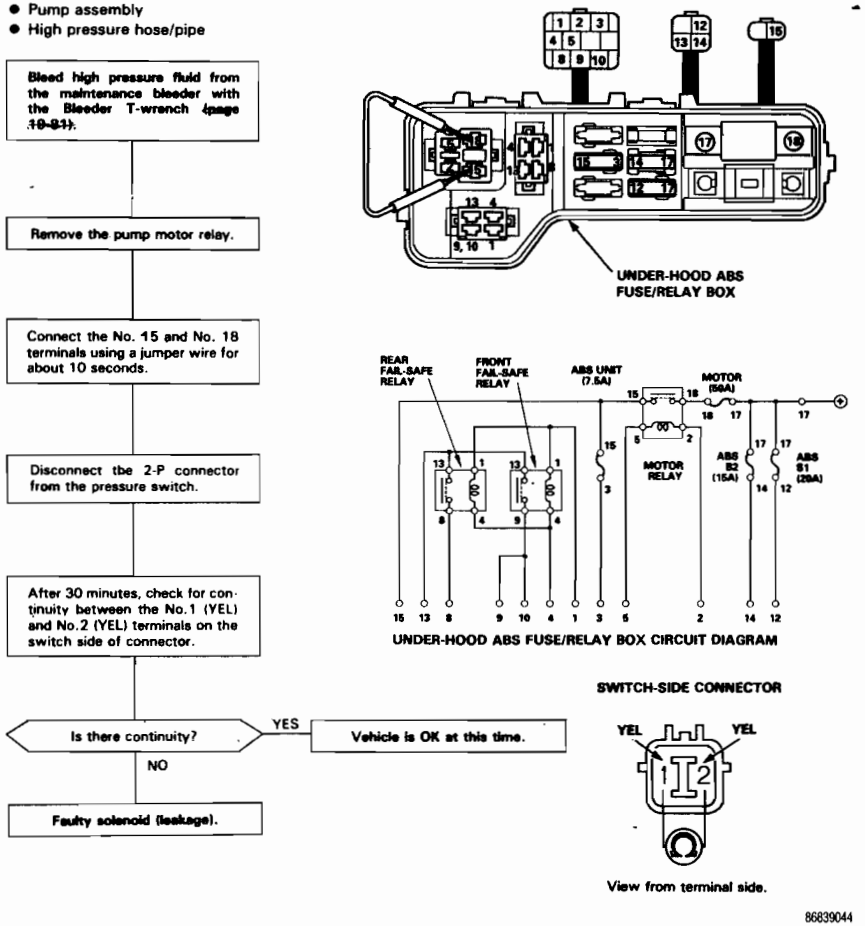


Fig. 96 Problem Code 1-3: high pressure leakage

CAUTION: Use only the digital multimeter to check the system.

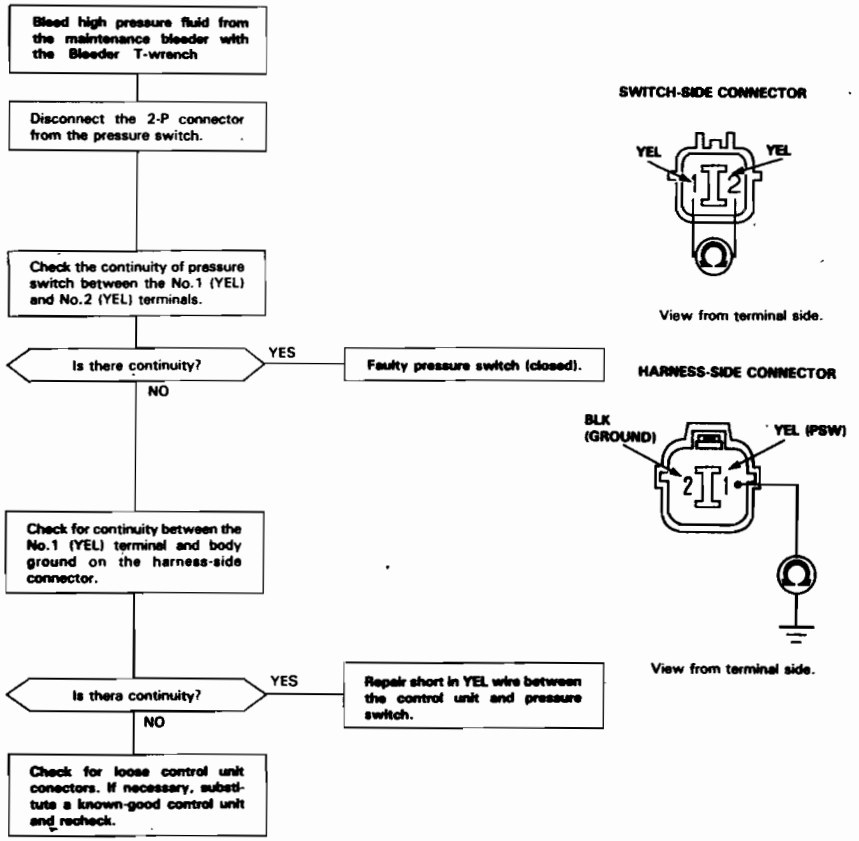
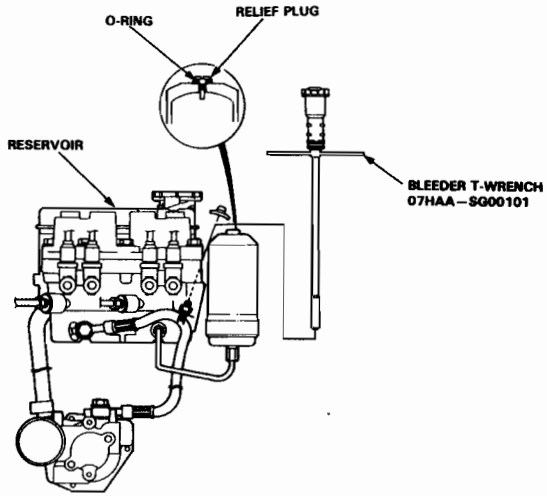


Fig. 97 Problem Code 1-4: pressure switch circuit

Check the following items:

- The relief plug is loose.
- The relief plug O-ring is out of place.
- Bleed the high pressure line with the Bleeder T-wrench. Operate the pump motor for 10 seconds and bleed the high pressure line again with the Bleeder T-wrench. If no fluid or more than 70 cc of fluid come out, it is likely that the gas has leaked out.



Problem Code 2-1: 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 recheck.

NOTE: Before Troubleshooting Problem Code 2-1, remove the ABS B2 (15 A) fuse for 3 seconds to clear the control unit's memory, then test drive the car.
If the anti-lock brake system indicator light stays 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.
- GRN/RED wire is shorted between the BRAKE indicator light and parking brake switch.
- GRN/RED wire is shorted between the BRAKE indicator light and brake fluid level switch.
- The BRAKE indicator light is blown.
- GRN/RED has an open between the BRAKE indicator light and the control unit.

86839046

Fig. 98 Problem Code 1-8: accumulator gas leakage

CAUTION: Use only the digital multimeter to check the system.

NOTE: If a malfunction is detected, this code appears and the fail-safe function is activated. The indicator light may come ON after restarting the engine until the malfunction code is erased (by disconnecting the ABS B2 fuse for 3 seconds).

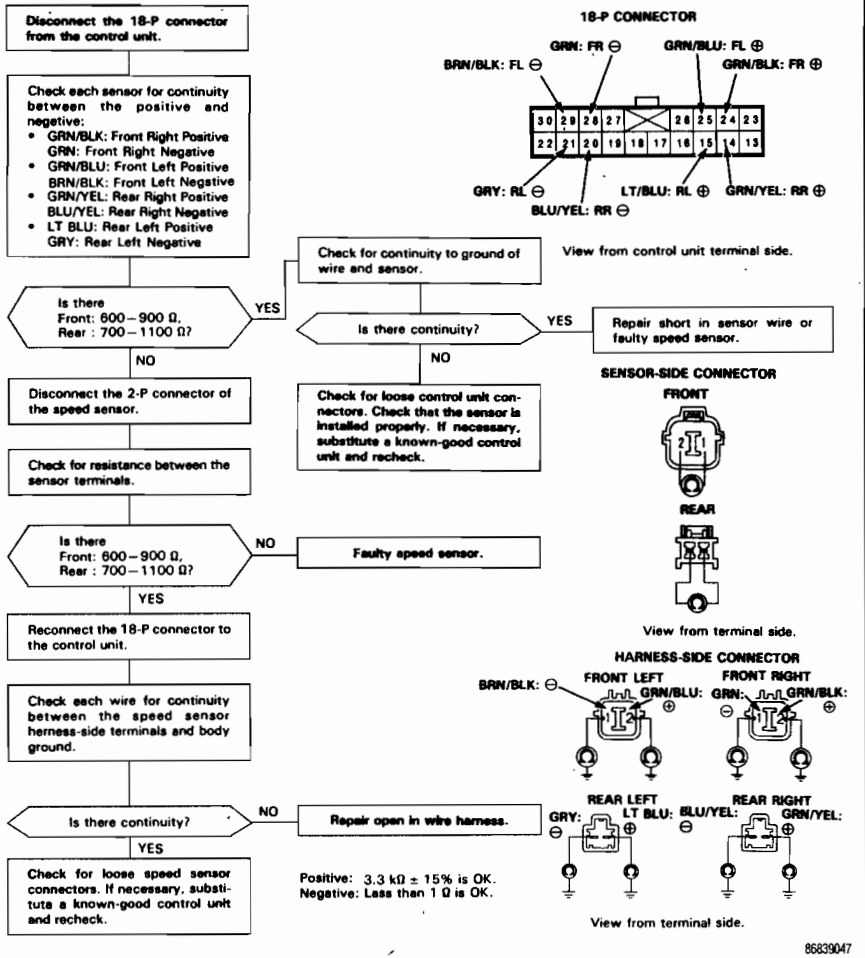


Fig. 99 Problem Code 4-1 to 4-8: speed sensor

CAUTION: Use only the digital multimeter to check the system.

NOTE: If a malfunction is detected, this code appears and the fail-safe function is activated. The indicator light may come ON after restarting the engine until the malfunction code is erased (by disconnecting the ABS B2 fuse for 3 seconds.)

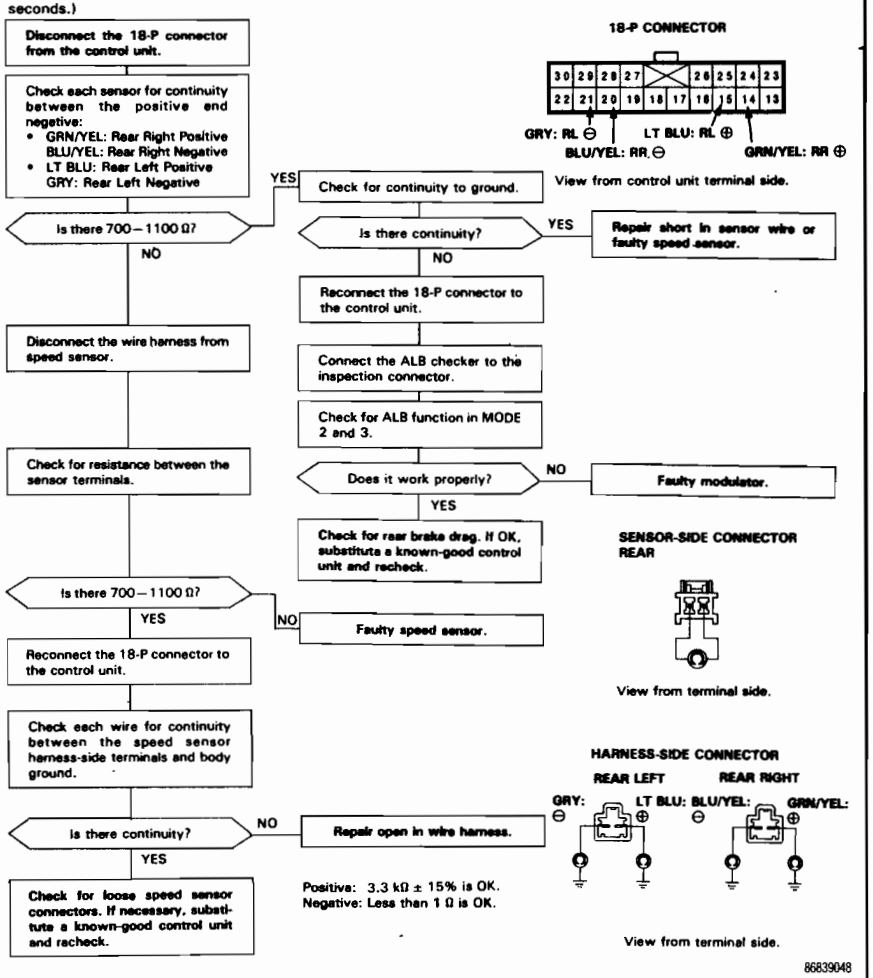


Fig. 100 Problem Code 5 to 5-8: speed sensor(s)

CAUTION: Use only the digital multimeter to check the system.

Pre-test steps:
- Check ABS B1 (20 A) FUSE
- Check for loose under-hood ABS fuse/relay box connectors.

Remove the front fail-safe relay from the under-hood ABS fuse/relay box.

Check relay function

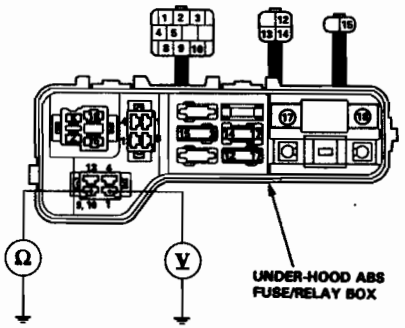
Does it work properly? NO → Faulty front fail-safe relay.

YES

Disconnect the 10-P connector from the solenoid.

Turn the ignition switch ON.

Check for voltage between the fail-safe relay No. 1 (BLK/YEL) terminal end body ground.

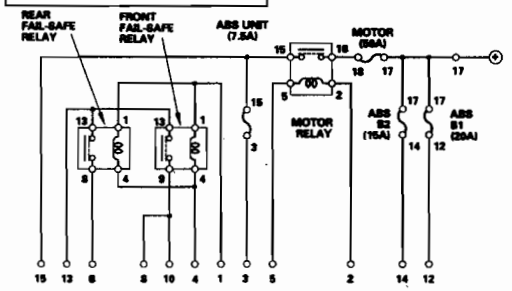


Is there battery voltage? NO → Repair open in BLK/YEL wire between the fuse and front fail-safe relay.

YES

Turn the ignition switch OFF.

Check for continuity between the fail-safe relay No. 9, 10 (BRN/BLK) terminal and body ground.



UNDER-HOOD ABS FUSE/RELAY BOX CIRCUIT DIAGRAM

86839049

Fig. 101 Problem Code 6-1: front fail-safe relay circuit

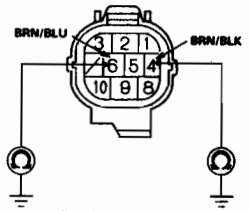
Is there continuity? YES → Repair short in BRN/BLK wire between the solenoid and front fail-safe relay.

NO

Reinstall the front fail-safe relay.

Check each wire for continuity between the solenoid terminals and body ground
No. 6 (BRN/BLU): Front Right
No. 4 (BRN/BLK): Front Left

SOLENOID-SIDE CONNECTOR



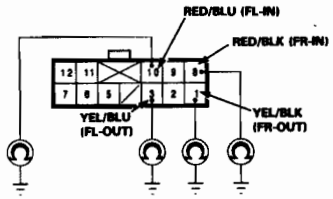
View from terminal side.

Is there continuity? YES → Faulty solenoid (short).

NO

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

12-P CONNECTOR

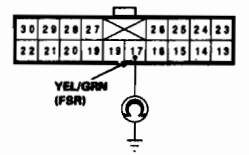


View from control unit terminal side.

Check each wire for continuity between the control unit and body ground.
No. 8 (RED/BLK): Front Right Inlet
No. 1 (YEL/BLK): Front Right Outlet
No. 10 (RED/BLU): Front Left Inlet
No. 3 (YEL/BLU): Front Left Outlet

Is there continuity? YES → Repair short in wire between the solenoid and control unit:
RED/BLK: Front Right Inlet
YEL/BLK: Front Right Outlet
RED/BLU: Front Left Inlet
YEL/BLU: Front Left Outlet

18-P CONNECTOR



View from control unit terminal side.

NO

Remove the rear fail-safe relay.

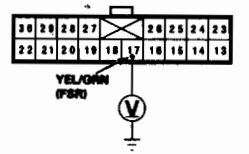
Check for continuity between the No. 17 (YEL/GRN) terminal and body ground.

Is there continuity? YES → Repair short in YEL/GRN wire between the control unit and front fail-safe relay.

NO

Turn the ignition switch ON.

18-P CONNECTOR



Check for voltage between the control unit connector No. 17 (YEL/GRN) terminal and body ground.

Is there battery voltage? NO → Repair open in YEL/GRN wire between the front fail-safe relay and control unit.

YES

Check for loose control unit connectors. If necessary, substitute a known-good control unit and recheck.

View from control unit terminal side.

86839050

Fig. 102 Problem Code 6-1: front fail-safe relay circuit—continued

CAUTION: Use only digital multimeter to check the system.

Pre-test step:
- Check for loose under-hood ABS fuse/relay box connectors.

Remove the rear fail-safe relay from the under-hood ABS fuse/relay box.

Check relay function

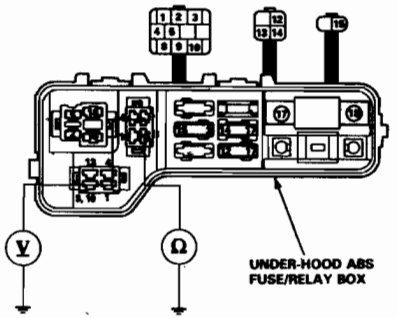
Does it work properly? — NO → Faulty rear fail-safe relay.

YES

Disconnect the 10-P connector from the solenoid.

Turn the ignition switch ON.

Check for voltage between the fail-safe relay No. 1 (BLK/YEL) terminal and body ground.

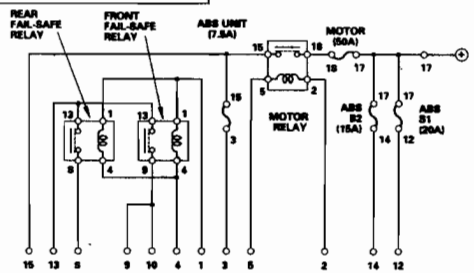


Is there battery voltage? — NO → Repair open in BLK/YEL wire between the fuse and front fail-safe relay.

YES

Turn the ignition switch OFF.

Check for continuity between the fail-safe relay No. 8 (BLU/BLK) terminal and body ground.



UNDER-HOOD ABS FUSE/RELAY BOX CIRCUIT DIAGRAM

Is there continuity? — YES → Repair short in BLU/BLK wire between the solenoid and rear fail-safe relay.

NO

86839052

Fig. 103 Problem Code 6-4: rear fail-safe relay circuit

Reinstall the rear fail-safe relay.

Check for continuity between the solenoid No. 5 (BRN/WHT) terminal and body ground.

Is there continuity? — YES → Faulty solenoid (short).

NO

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

Check each wire for continuity between the control unit and body ground.
No. 11 (RED/WHT): Rear Inlet
No. 6 (YEL/WHT): Rear Outlet

Is there continuity? — YES → Repair short in wire between the solenoid and control unit:
RED/WHT: Rear Inlet
YEL/WHT: Rear Outlet

NO

Remove the front fail-safe relay.

Check for continuity between the No. 17 (YEL/GRN) terminal and body ground.

Is there continuity? — YES → Repair short in YEL/GRN wire between the control unit and rear fail-safe relay.

NO

Turn the ignition switch ON.

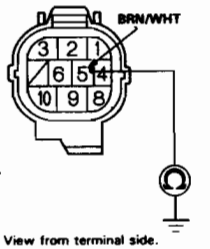
Check for voltage between the control unit connector No. 17 (YEL/GRN) terminal and body ground.

Is there battery voltage? — NO → Repair open in YEL/GRN wire between the rear fail-safe relay and control unit.

YES

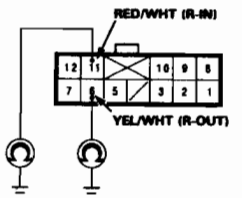
Check for loose control unit connectors. If necessary, substitute a known-good control unit and recheck.

SOLENOID-SIDE CONNECTOR



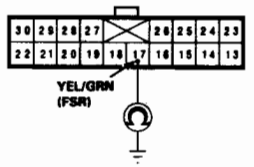
View from terminal side.

12-P CONNECTOR



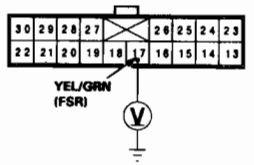
View from control unit terminal side.

18-P CONNECTOR



View from control unit terminal side.

18-P CONNECTOR



View from control unit terminal side.

86839053

Fig. 104 Problem Code 6-4: rear fail-safe relay circuit—continued

CAUTION: Use only the digital multimeter to check the system.

Pre-test step:
- Check ABS B1 (20 A) FUSE
- Check for loose under-hood ABS fuse/relay box connectors.

Disconnect the 10-P connector from the solenoids.

Check for resistance between the solenoid terminals:
No. 3 (RED/BLU) and No. 6 (BRN/BLU): Front Right Inlet
No. 1 (RED/BLK) and No. 4 (BRN/BLK): Front Left Inlet

Is there 1-3Ω? NO → Faulty solenoid.

YES

Check for resistance between the solenoid terminals:
No. 10 (YEL/BLU) and No. 6 (BRN/BLU): Front Right Outlet
No. 8 (YEL/BLK) and No. 4 (BRN/BLK): Front Left Outlet

Is there 1-3Ω NO → Faulty solenoid.

YES

Disconnect the 12-P connector from the control unit.

Check each wire for continuity between the 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 between the solenoid and control unit:
RED/BLK: Front Right Inlet
YEL/BLK: Front Right Outlet
RED/BLU: Front Left Inlet
YEL/BLU: Front Left Outlet

YES

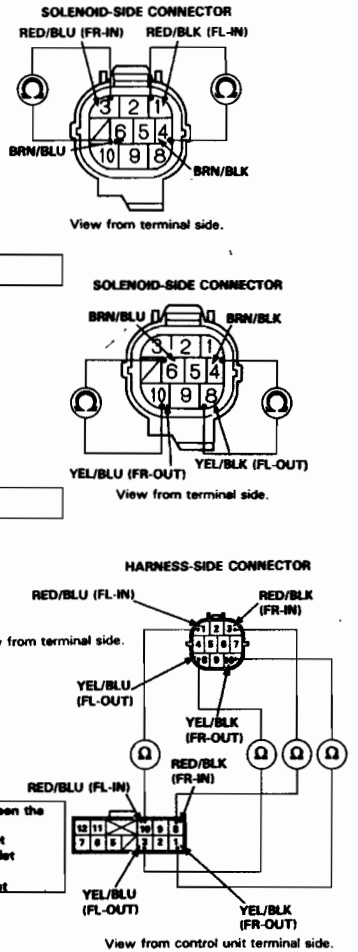


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Fig. 105 Problem Code 7-1 and 7-2: front solenoid related problem

Check each wire for continuity between the control unit and body ground:
No. 8 (RED/BLK): Front Right Inlet
No. 1 (YEL/BLK): Front Right Outlet
No. 10 (RED/BLU): Front Left Inlet
No. 3 (YEL/BLU): Front Left Outlet

Is there continuity? YES → Repair short in wire between the solenoid and control unit:
RED/BLK: Front Right Inlet
YEL/BLK: Front Right Outlet
RED/BLU: Front Left Inlet
YEL/BLU: Front Left Outlet

NO

Remove the front fail-safe relay from the under-hood ABS fuse/relay box.

Check for relay function

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

YES

Check for continuity between the No. 13 terminal and body ground.

Is there continuity? NO → Repair open in BLK wire between the fail-safe relay and ground or poor ground (G202).

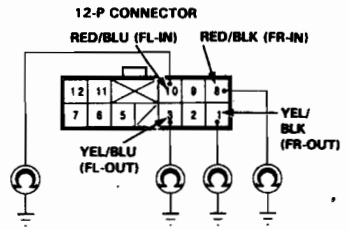
YES

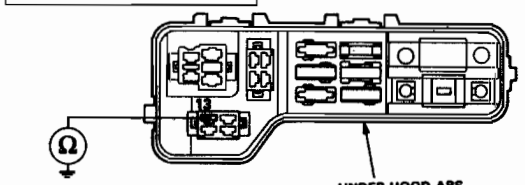
Check BRN/BLK wire for continuity between the solenoids and front fail-safe relay.

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

YES

Check for loose control unit connectors. If necessary, substitute a known-good control unit and recheck.





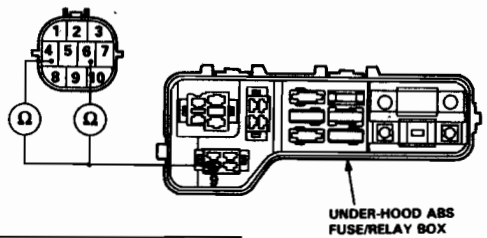


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Fig. 106 Problem Code 7-1 and 7-2: front solenoid related problem—continued

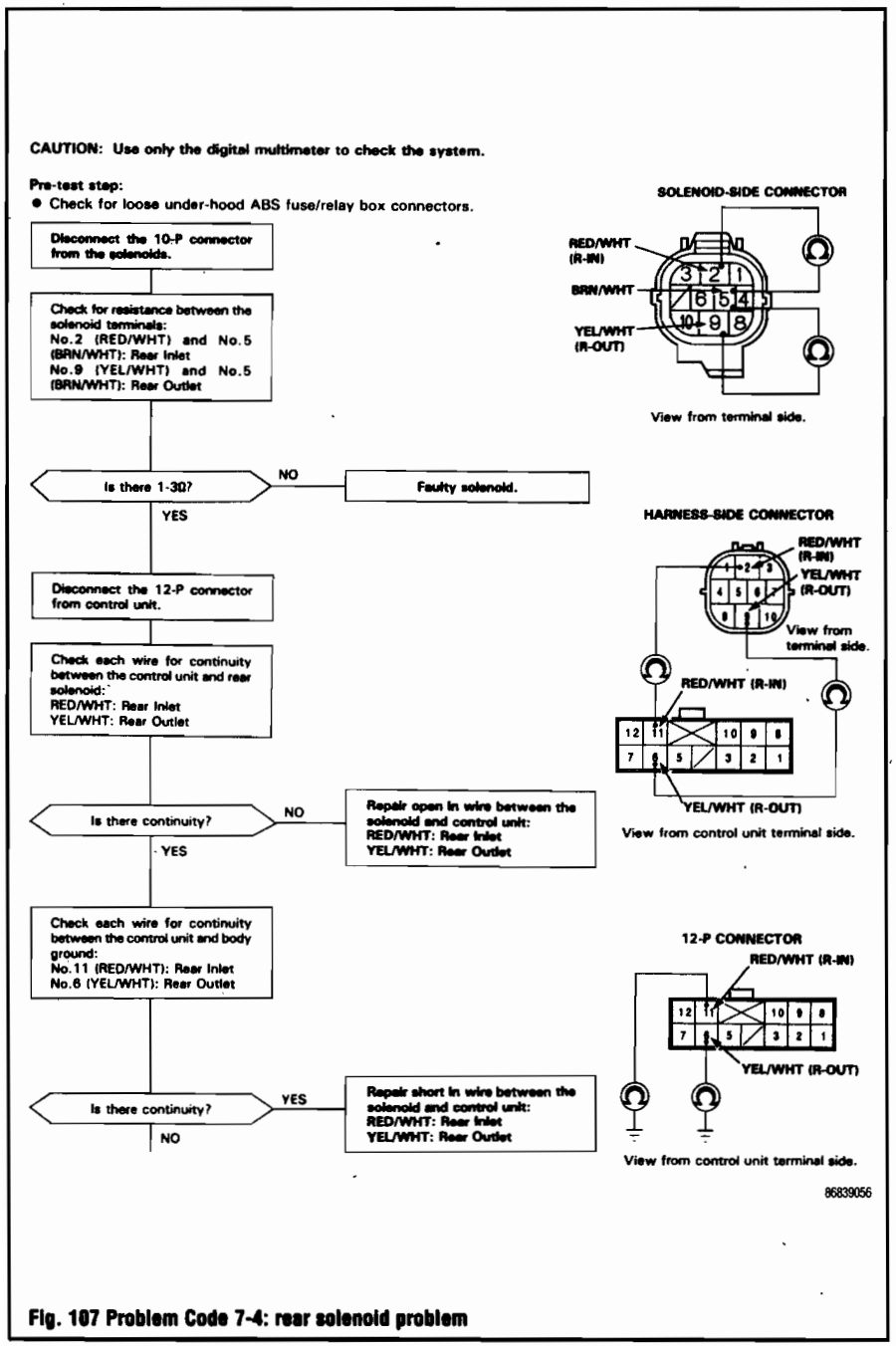

Fig. 107 Problem Code 7-4: rear solenoid problem

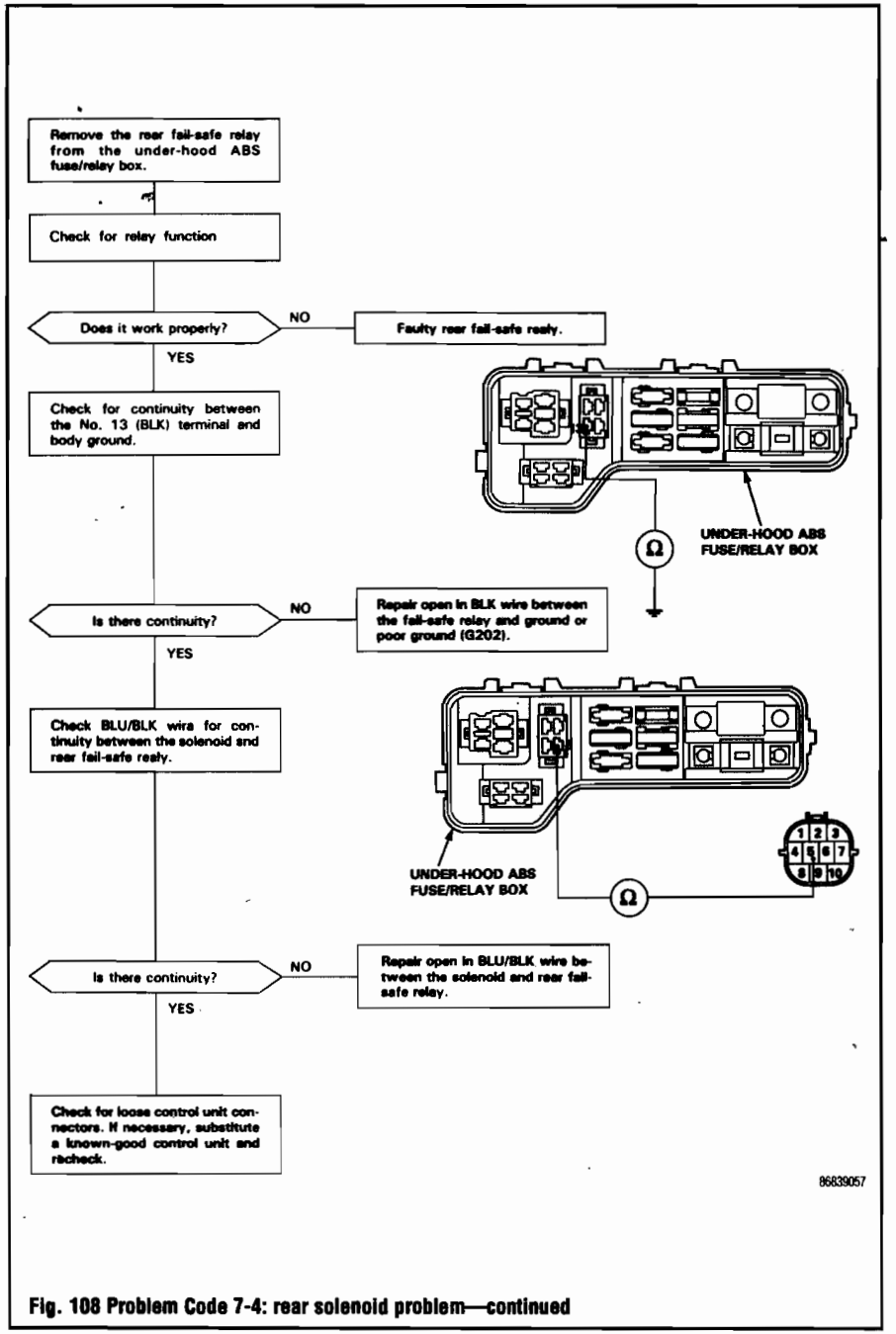

Fig. 108 Problem Code 7-4: rear solenoid problem—continued