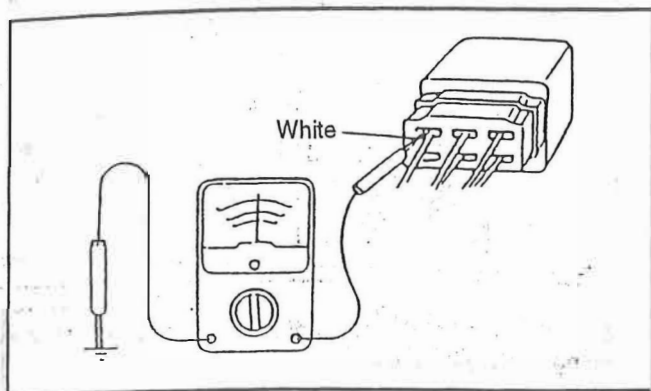
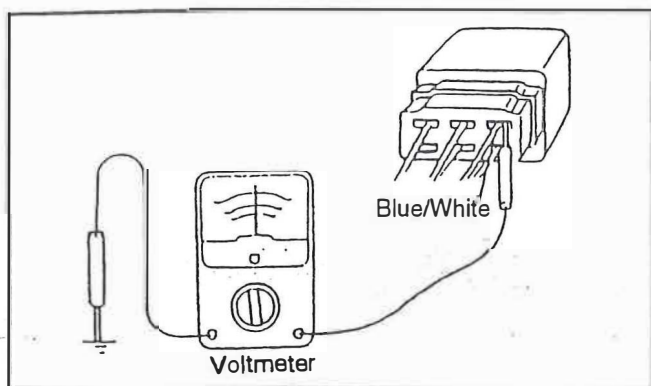


### FUEL STOP RELAY CIRCUIT INSPECTION

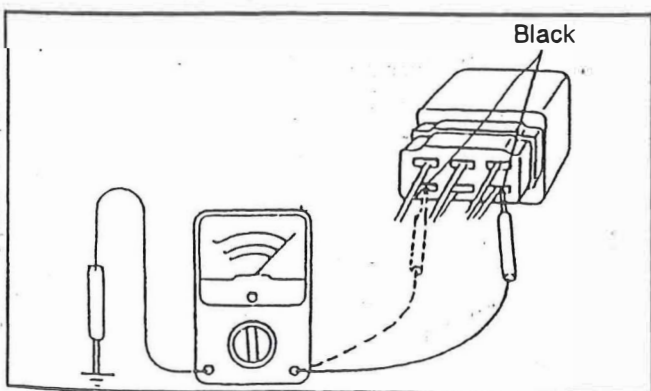
1. Verify that battery volts is present at the relay normally open terminal (White wire). If the correct voltage is not present, check the fusible link and associated wiring.



2. Turn the ignition switch "ON" and verify that battery volts is present at the relay coil (+) terminal (Blue/White wire). If the correct voltage is not present, check the main fuse, ignition switch and associated wiring.

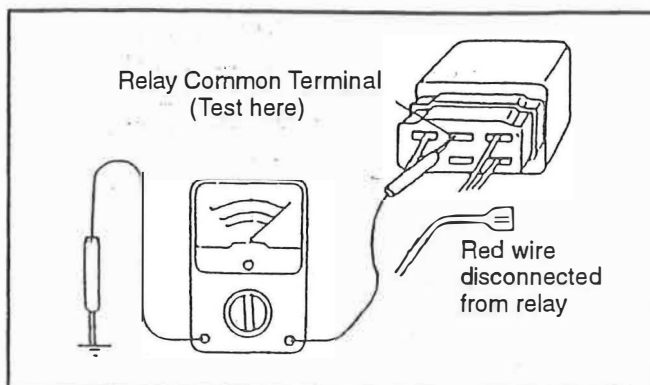


3. Verify that there is a continuity between the relay coil (-) terminal (Black wire) and battery (-) (ground). Verify that there is continuity between the relay normally closed terminal (Black wire) and battery (-) (ground). If continuity is not present check the associated wiring.

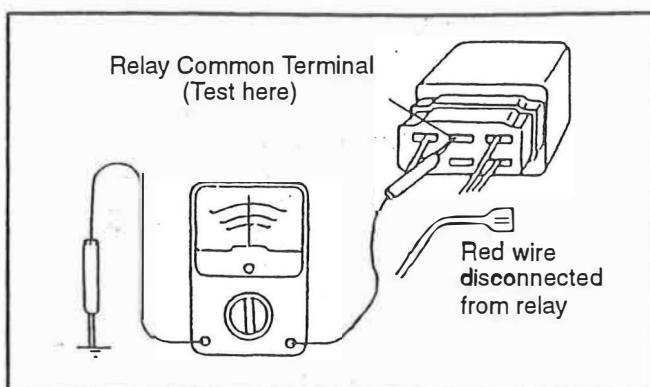


**NOTE:** It is necessary to isolate the fuel stop relay from the fuel stop motor to properly perform test four (4) and test five (5). Isolate the relay from the motor by disconnecting the three wire connector at the fuel stop motor OR by removing the red wire from the common terminal on the fuel stop relay connector as illustrated. Insulate the red wire to prevent a short during the test procedure.

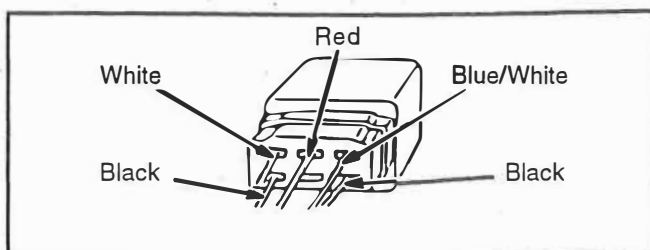
4. With the ignition switch "OFF", verify that there is a continuity between the relay common terminal (where red wire was connected to the relay) and battery (-) (ground). If continuity is not present the relay may be defective.



5. With the ignition switch "ON", verify that battery volts is present at the relay common terminal (where red wire was connected to the relay). If the correct voltage is not present, the relay may be defective.

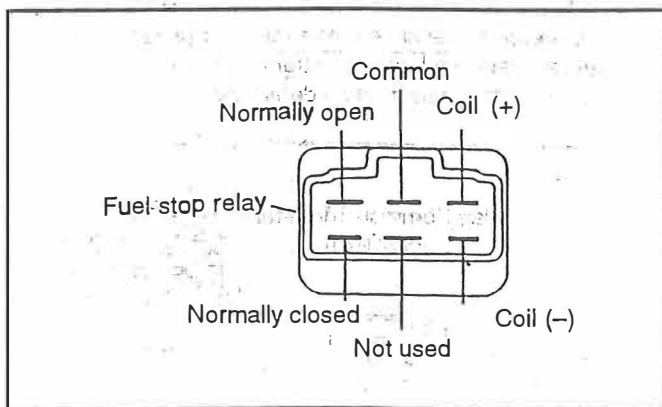


6. Turn the ignition switch off and reconnect the red wire.

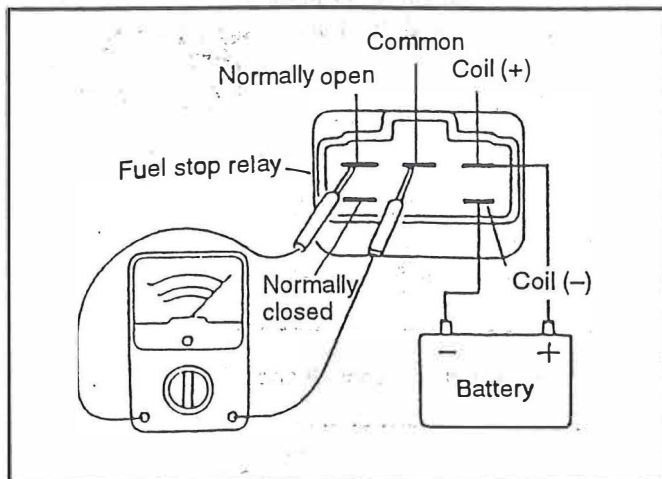


### FUEL STOP RELAY BENCH TEST

1. Remove the fuel stop relay and unplug it from the wire harness connector.
2. Check the continuity between the common and normally closed terminals. If there is no continuity, replace the relay.



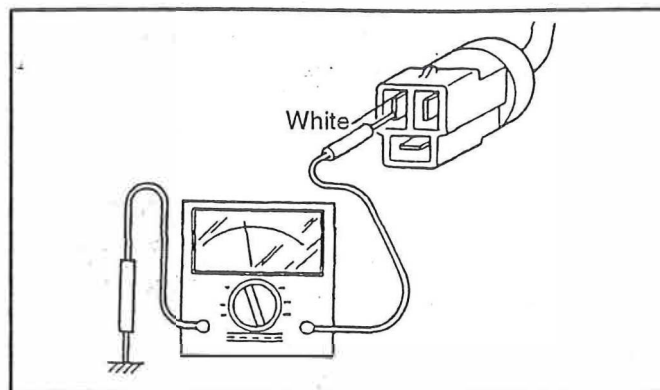
3. Check the continuity between the coil (+) and the coil (-) terminals. If there is no continuity, replace the relay.
4. Connect a fully charged 12 volt battery to the relay coil. Connect the battery positive (+) terminal to the coil (+) terminal, and the battery negative (-) terminal to the coil (-) terminal.
5. With the relay coil energized, check the continuity between the common and the normally open terminals. If there is no continuity, replace the relay.



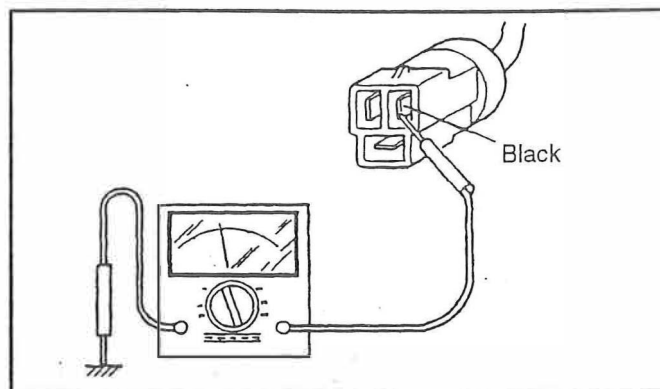
### FUEL STOP MOTOR CIRCUIT INSPECTION

1. Unplug the fuel stop motor wire harness connector (located at the fuel stop motor).
2. Connect the voltmeter at the truck wire harness connector between the white wire and battery (-) (ground).

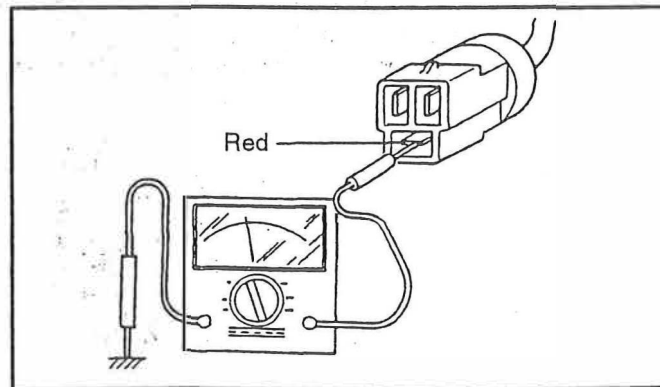
3. Verify that the voltmeter indicates battery voltage.



4. If the correct voltage is not present, check the associated wiring and the fusible link.
5. Check the continuity at the truck wire harness connector between the black wire and battery (-) (ground). If there is no continuity, check the associated wiring.



6. Connect the voltmeter at the truck wire harness connector between the red wire and ground (battery -).



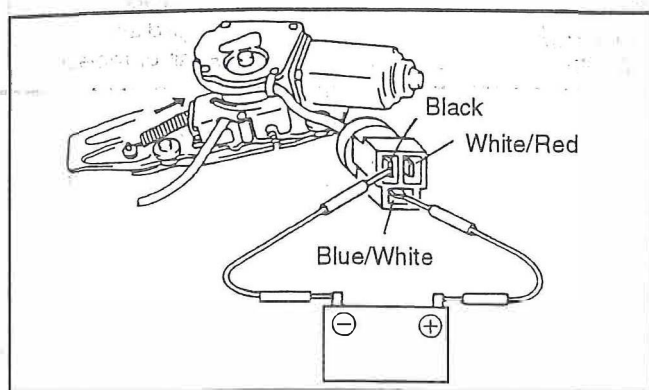
7. Verify that the voltmeter indicates battery voltage with the ignition switch "ON" and zero (0) volts with the ignition switch "OFF".

8. If the correct voltage is not present, check the fusible link, fuel stop motor relay, ignition switch and the associated wiring.

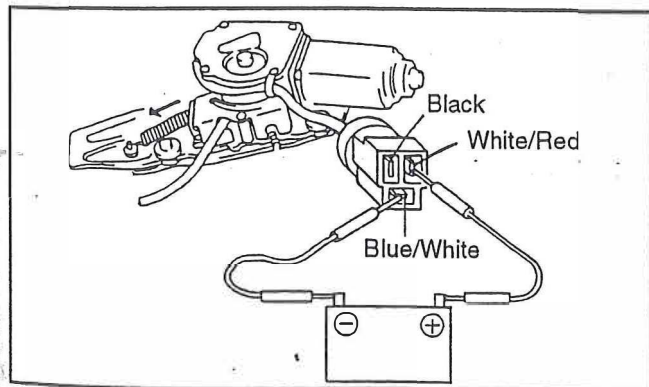
### FUEL STOP MOTOR BENCH TEST

**NOTE:** Used a fully charged battery to test the fuel stop motor. Make all the connections at the fuel stop motor connector as illustrated.

1. Verify that the key switch is "OFF". Remove the key from the key switch to prevent accidental starting. Unplug the fuel stop motor wire harness connector.
2. Connect the battery positive (+) terminal to the blue/white wire, and the battery negative (-) terminal to the black wire.



3. Verify that the motor extends the cable completely. If the motor does not operate, repair or replace the motor.
4. Connect the battery positive (+) terminal to the white/red wire, and the battery negative (-) terminal to the blue/white wire.
5. Verify that the motor retracts the cable completely. If the motor does not operate, repair or replace the motor.





## TROUBLESHOOTING GUIDE

Problems	Possible Cause of Problem	Correction
Engine Difficult to Start	<p>Causes related to fuel filter</p> <ul style="list-style-type: none"> <li>* Clogging or water in the fuel</li> <li>* Air in the fuel</li> </ul> <p>Causes related to the fuel injection pump</p> <ul style="list-style-type: none"> <li>* Defective fuel stop lever position</li> <li>* Defective fuel stop cable</li> <li>* Air in the fuel</li> <li>* Incorrect injection timing</li> <li>* Defect in the pump</li> </ul> <p>Causes related to injection nozzle</p> <ul style="list-style-type: none"> <li>* Seizure of the needle valve</li> <li>* Fuel drips from the nozzle</li> <li>* Incorrect valve opening pressure</li> <li>* Incorrect the air heater operation</li> </ul>	<p>Replace Repair and bleed</p> <p>Adjust Replace Repair and bleed Adjust Replace</p> <p>Replace Replace Adjust Repair or replace</p>
Incorrect Engine Idle	<p>Causes related to fuel filter</p> <ul style="list-style-type: none"> <li>* Clogging or water in the fuel</li> <li>* Air in the fuel</li> </ul> <p>Causes related to the fuel injection pump</p> <ul style="list-style-type: none"> <li>* Defective fuel stop lever position</li> <li>* Defective fuel stop cable</li> <li>* Air in the fuel</li> <li>* Incorrect injection timing</li> <li>* Defect in the pump</li> </ul> <p>Causes related to injection nozzle</p> <ul style="list-style-type: none"> <li>* Seizure of the needle valve</li> <li>* Fuel drips from the nozzle</li> <li>* Incorrect valve opening pressure</li> <li>* Incorrect nozzle holder tightening</li> </ul> <p>Causes related to the fuel injector lines</p> <ul style="list-style-type: none"> <li>* Fuel leakage from the lines</li> <li>* Fuel leakage from the connections</li> </ul> <p>Incorrect adjustment of idle adjusting bolt</p>	<p>Replace Repair and bleed</p> <p>Adjust Replace Repair and bleed Adjust Inspect and repair or Replace</p> <p>Replace Replace Adjust Re-tighten</p> <p>Replace Repair or replace Adjust</p>
Excessive Engine Noise (Engine Knocks)	<p>Causes related to injection pump</p> <ul style="list-style-type: none"> <li>* Incorrect injection timing</li> </ul> <p>Causes related to injection nozzle</p> <ul style="list-style-type: none"> <li>* Incorrect valve opening pressure (too low)</li> <li>* Seizure of the needle valve</li> <li>* Fuel drips from the nozzle</li> <li>* Use of incorrect fuel</li> </ul>	<p>Adjust</p> <p>Adjust Replace Replace Replace</p>

Problems	Possible Cause of Problem	Correction
Excessive fuel consumption	<p>Causes related to injection pump</p> <ul style="list-style-type: none"> <li>* The full-load adjusting screw seal is removed</li> <li>* Incorrect injection timing</li> <li>* Incorrect idling speed (too high)</li> </ul> <p>Causes related to injection nozzle</p> <ul style="list-style-type: none"> <li>* Incorrect valve opening pressure (too low)</li> <li>* Fuel drips from the nozzle</li> <li>* Fuel leaks from the connections</li> <li>* Clogged air cleaner</li> </ul>	<p>Repair Adjust Adjust</p> <p>Adjust Replace Replace Replace</p>
Poor acceleration	<p>Causes related to injection nozzle</p> <ul style="list-style-type: none"> <li>* Incorrect valve opening pressure (too low)</li> <li>* Seizure of the needle valve</li> <li>* Fuel drips from the nozzle</li> <li>* Defect in the pump</li> </ul> <p>Causes related to injection pump</p> <ul style="list-style-type: none"> <li>* Defective fuel stop lever position</li> <li>* Defective fuel stop cable</li> <li>* Air in the fuel</li> <li>* Incorrect injection timing</li> </ul> <p>Causes related to fuel injector lines</p> <ul style="list-style-type: none"> <li>* Fuel leakage from the lines</li> <li>* Fuel leakage from the connections</li> </ul> <p>Causes related to fuel filter</p> <ul style="list-style-type: none"> <li>* Clogging or water in the fuel</li> <li>* Air in the fuel</li> </ul>	<p>Adjust Replace Replace Inspect and repair or Replace</p> <p>Adjust Replace Repair Adjust</p> <p>Replace Repair or replace</p> <p>Replace Repair</p>



7

ELECTRICAL SYSTEM





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