



SPEED CONTROL SYSTEM

CONTENTS

	page		page
CHECKING FOR FAULT CODE	5	ROAD TEST	2
DIAGNOSIS PROCEDURES	2	SERVO UNIT	8
ELECTRICAL TEST:	5	SERVO VACUUM TEST	7
ELECTRICAL TESTS AT POWERTRAIN		SPEED CONTROL RELAY TEST	8
CONTROL MODULE	6	SPEED CONTROL SWITCH REMOVAL	8
ELECTRICAL TESTS AT SERVO	5	SPEED CONTROL SWITCH TEST	7
GENERAL INFORMATION	1	STOP LAMP SPEED CONTROL SWITCH TEST .	7
INOPERATIVE SYSTEM	5	VACUUM SUPPLY TEST	7

GENERAL INFORMATION

The speed control system is electronically controlled and vacuum operated. The electronic control is integrated into the powertrain control module, located on the right side under the air cleaner. The controls are located on the steering wheel and consist of two switches. The ON and OFF buttons are located on the upper left side of the air bag module. The RESUME/ACCEL and SET/COAST buttons are located on the upper right side of the air bag module (Fig.1). For identification and location of the major components (Fig. 2 and 3).

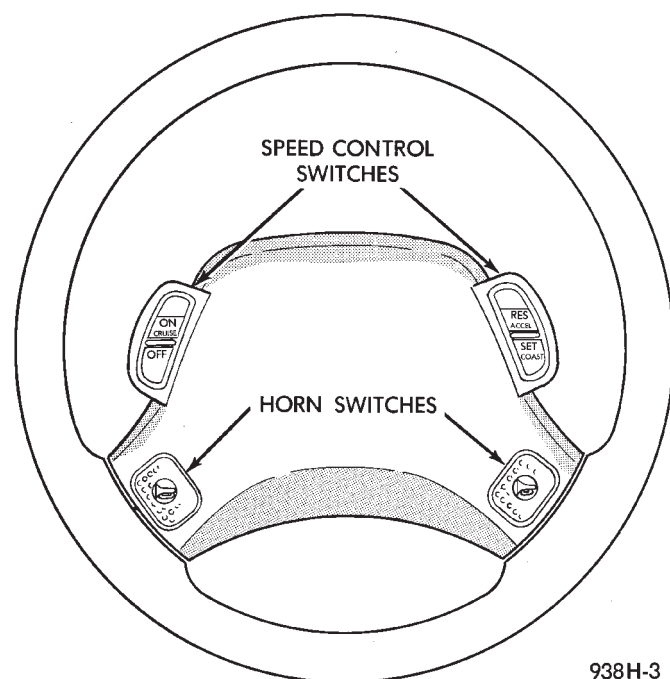


Fig. 1 Speed Control Switch

The system is designed to operate at speeds above 35 mph (50 km/h).

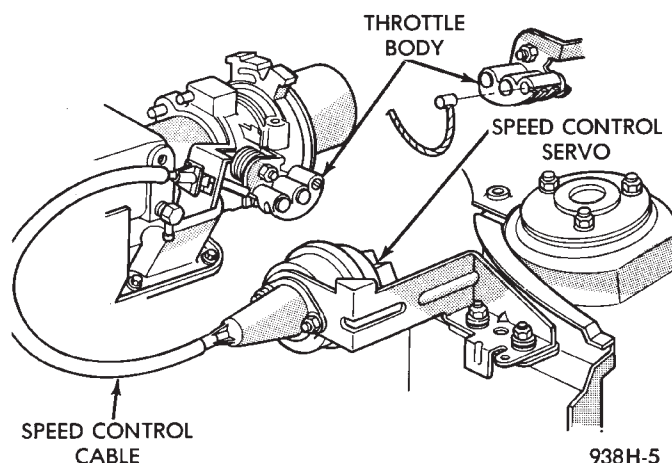


Fig. 2 Speed Control System—3.5L Engine

WARNING: THE USE OF SPEED CONTROL IS NOT RECOMMENDED WHEN DRIVING CONDITIONS DO NOT PERMIT MAINTAINING A CONSTANT SPEED, SUCH AS IN HEAVY TRAFFIC OR ON ROADS THAT ARE WINDING, ICY, SNOW COVERED, OR SLIPPERY.

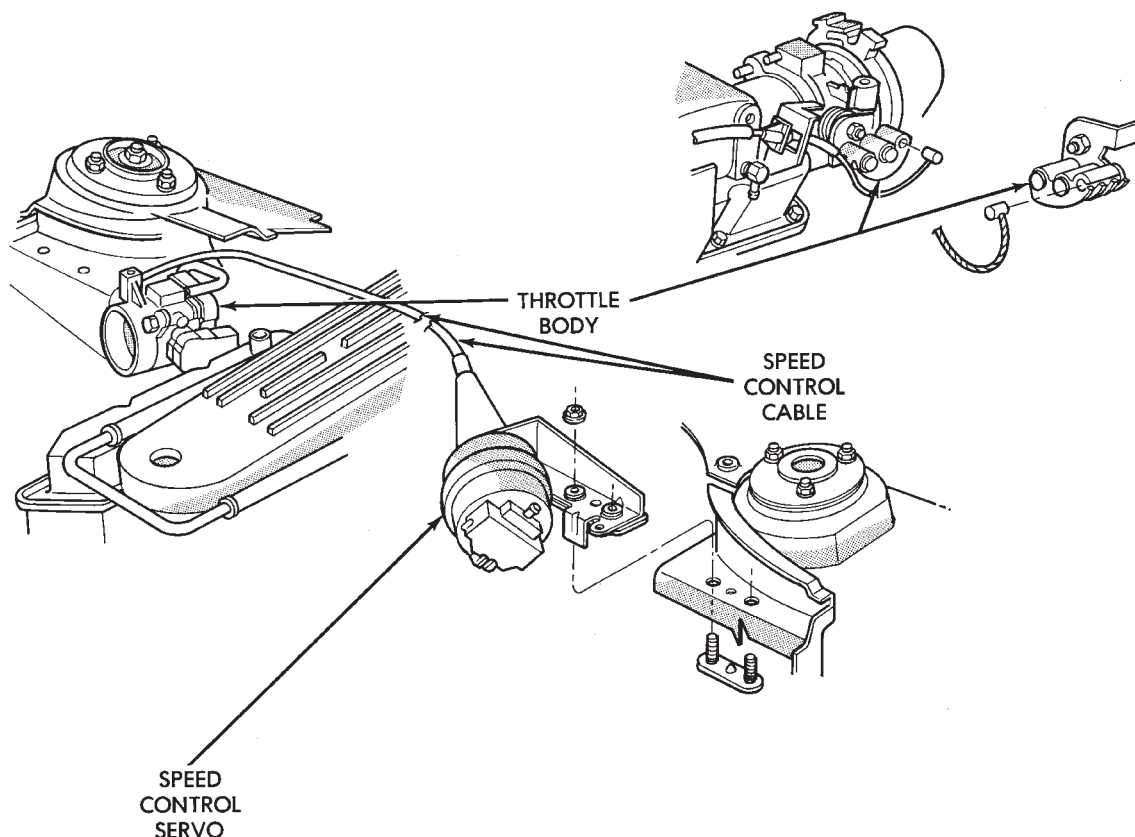
TO ACTIVATE:

Press the ON button. The speed control functions are now ready for use. The system has an AUTO-OFF feature which turns the system off whenever the system loses power or the ignition is turned OFF. If this happens, the ON button must be pressed to activate the system.

TO DEACTIVATE:

- A soft tap of the brake pedal
- Normal brake application

While the system is engaged will disengage speed control without erasing the set speed in memory. A sudden increase in engine rpm may be experienced if the clutch pedal is depressed while the speed control system is engaged. Pushing the OFF button or turning off the ignition erases the set speed in memory.



938H-6

Fig. 3 Speed Control System—3.3L Engine

TO SET SPEED:

When the vehicle has reached the desired speed push the SET/COAST button to engage the system. This will automatically maintain the desired speed. A CRUISE light in the instrument cluster will come on when the speed control is set.

TO DECELERATE:

When speed control is engaged, holding the SET/COAST button depressed allows the vehicle to coast to a lower speed setting.

TO RESUME:

After disengaging the speed control system by tapping the brake pedal or clutch pedal, push the RESUME/ACCEL button to return vehicle to the previously set speed.

TO ACCELERATE:

While speed control is engaged, hold the RESUME/ACCEL button depressed and release at a new desired speed. This will allow the vehicle to continuously accelerate and set at a higher speed setting.

TAP-UP:

When the speed control system is engaged, tapping the RESUME/ACCEL button will increase the speed setting by 2 mph (3 km/h). The system will respond to multiple tap-ups.

TO ACCELERATE for PASSING:

Depress the accelerator as you would normally. When the pedal is released the vehicle will return to the speed setting in memory.

DIAGNOSIS PROCEDURES

Whenever a speed control malfunction occurs, first verify that the speed control wire harness is properly connected to all connectors before starting normal diagnosis and repair procedures. Refer to System Diagnosis Chart or Speed Control Circuit (Fig. 4, 5 and 6).

A poor connection can cause a complete or intermittent malfunction and is also the only connection in the circuit, that can not be tested. For this reason, a loose connection may be misdiagnosed as a component malfunction.

Also, check all vacuum connections for tightness and cracked hoses.

ROAD TEST

Road test vehicle to verify reports of speed control system malfunction. The road test should include attention to the speedometer. Speedometer operation should be smooth and without flutter at all speeds.

Flutter in the speedometer indicates a problem which might cause surging in the speed control system. The cause of any speedometer deficiencies should be corrected before proceeding.

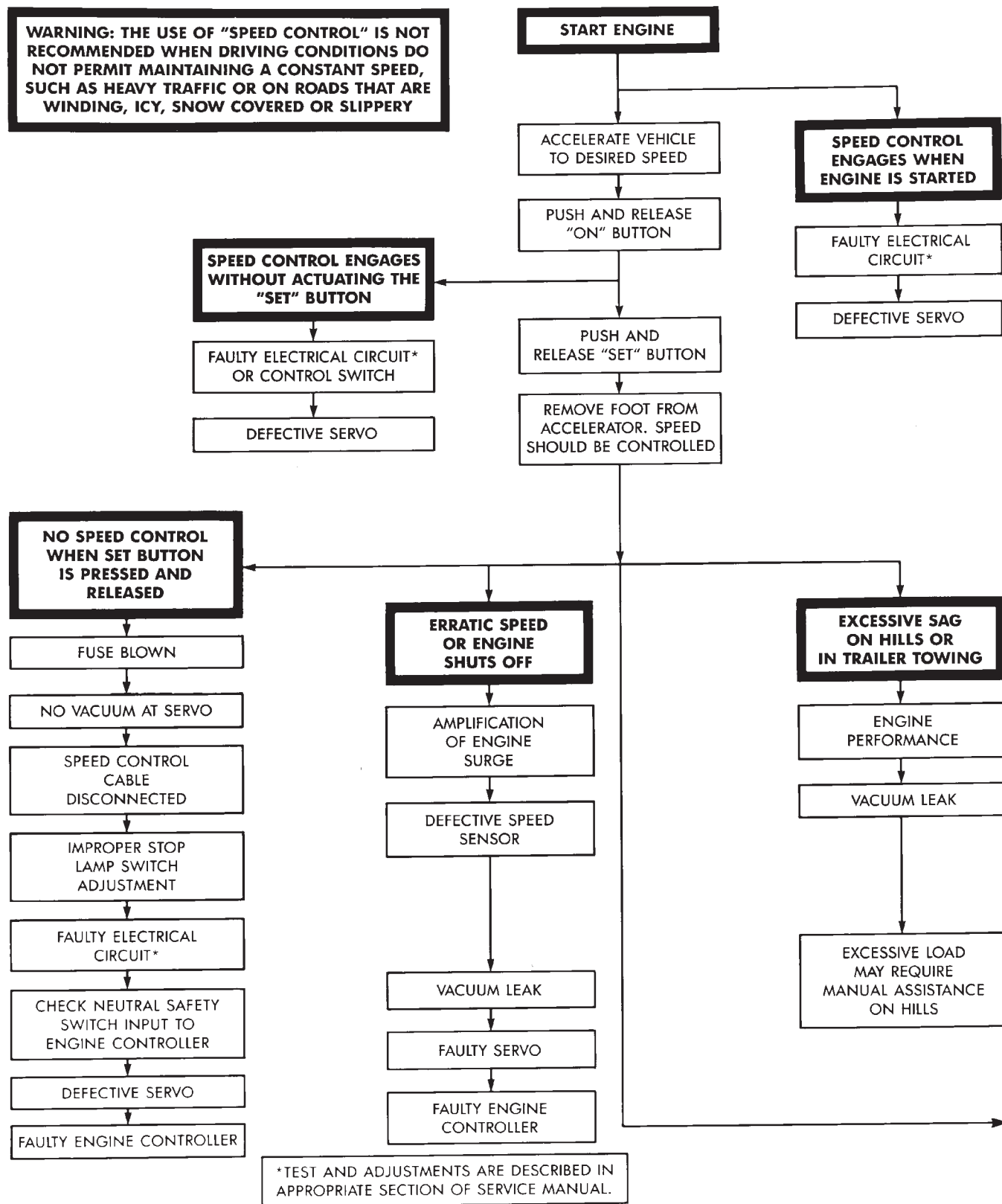
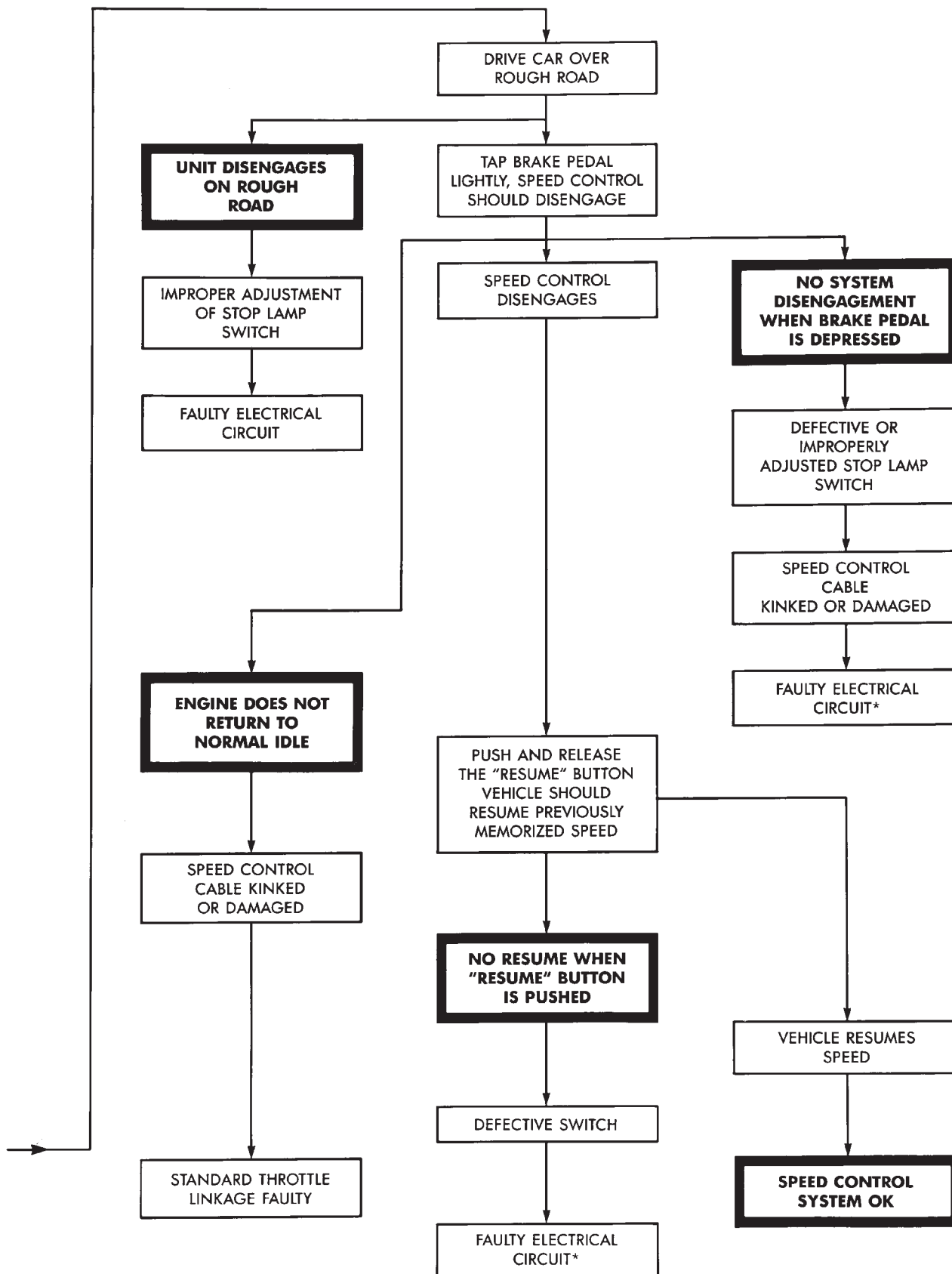


Fig. 4 System Diagnosis



918H-2

Fig. 5 System Diagnosis—Continued

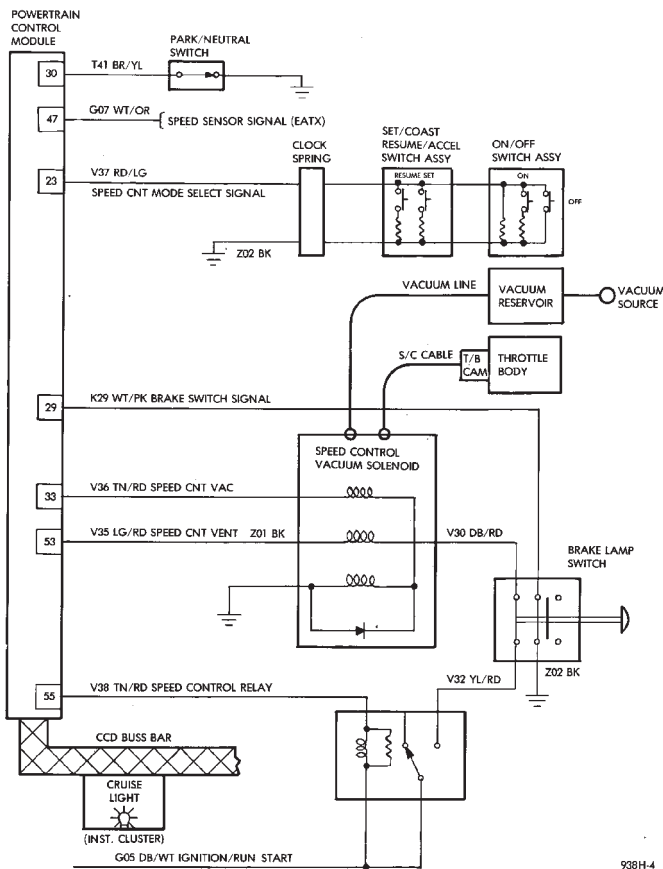


Fig. 6 Speed Control Circuit

INOPERATIVE SYSTEM

If road test verifies a report on an inoperative system and of satisfactory speedometer operation, an inspection should be made for loose electrical and vacuum connections at the servo.

Corrosion should be removed from electrical terminals and a light coating of Mopar Multi-Purpose Grease, or equivalent, applied.

Inspection should also be made to verify that both ends of the speed control cable are securely attached. If either end is loose, the speed control system will be inoperative. Check fuse #14.

CHECKING FOR FAULT CODE

(1) When trying to verify a speed control system electronic malfunction:

(a) Connect a DRB II to diagnostic 6-way connector, if available.

(b) The connector is located at right side of the steering column, and at lower edge of the knee bolster.

(c) Check that either a Fault Code 34, 15 or 77 is indicated.

(d) An inoperative speed control may still occur without either fault code being indicated.

(e) With key inserted in ignition switch, cycle switch to ON position three times. On third cycle, leave switch in ON position.

(f) After switch has been cycled three times, observe CHECK ENGINE indicator on instrument cluster. If a Fault Code is present, indicator will flash (blink) in a series which will show which Fault Code is the problem. EXAMPLE: A series of three flashes in rapid succession, a slight pause, then four flashes in rapid succession would indicate Fault Code 34.

(2) If no Fault Code appears, or Fault Code 34 is observed perform:

- The Electrical Test at Servo below and the Speed Control Switch Test.
- The Electrical Test at powertrain control module. Refer to the appropriate powertrain diagnostic manual. To determine the source of the problem.

(3) If a fault code 15 is observed, perform the test for a faulty vehicle speed sensor, refer to Group 8E, Instrument Panel.

(4) If fault code 77 appears, refer to speed control relay test.

(5) Correct any problems found when performing these tests and recheck for Fault Code if changes were made.

(6) If no problems were found in step (2), replace powertrain control module.

ELECTRICAL TEST:

Electronic speed control systems may be tested using two different methods. One involves use of a DRB II. If this test method is desired, please refer to the Powertrain Diagnostic Test Procedures for charging and speed control system manual.

The other test method uses a voltmeter. The voltmeter method is described in the following tests.

If any information is needed concerning wiring, refer to Group 8W, Wiring Diagrams.

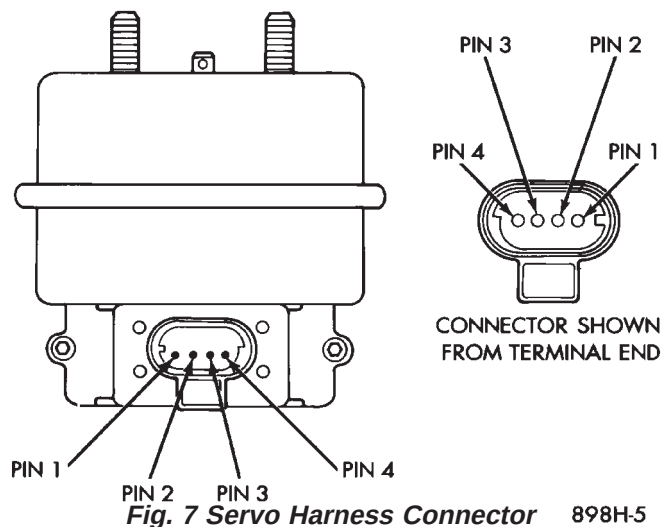
CAUTION: When test probing for voltage or continuity at electrical connectors, care must be taken not to damage connector, terminals, or seals. If these components are damaged, intermittent or complete system failure may occur.

ELECTRICAL TESTS AT SERVO

WARNING: ON VEHICLES EQUIPPED WITH AIR-BAG, SEE GROUP 8M, RESTRAINT SYSTEMS FOR AIRBAG, STEERING WHEEL OR COLUMN REMOVAL PROCEDURES.

(1) Turn ignition switch to the ON position. With the speed control switch in the ON position, set up a voltmeter to read battery voltage and connect the negative lead to a good chassis ground.

(2) Disconnect the four-way connector going to the servo (Fig. 7). Using a voltmeter, test pin 2 of the main harness four-way connector for battery voltage. If not OK, go to step 3. If OK, go to step 4.



(3) Perform the following tests.

(a) Disconnect the six-way connector at the stop lamp switch and test pin 1 for battery voltage. If voltage is OK, perform the stop lamp switch test.

(b) If the stop lamp switch tests OK, repair wire between the servo and the stop lamp switch.

(c) If no voltage at pin 1 of the six-way stop lamp connector, remove the ON/OFF speed control switch on the steering wheel. Disconnect the two-way connector and test pin 1 for battery voltage.

(d) If voltage is OK, perform the speed control switch test.

(e) If speed control switch is OK, test continuity across the clockspring.

(f) If clockspring is OK, repair as wire between stop lamp switch and clockspring as necessary.

(g) Repeat steps (c) through (f) for the SET/RESUME switch.

(h) If no voltage at pin 1 of either of the switch connectors test for battery voltage between the ignition switch and fuse.

(i) If voltage is OK, check fuse.

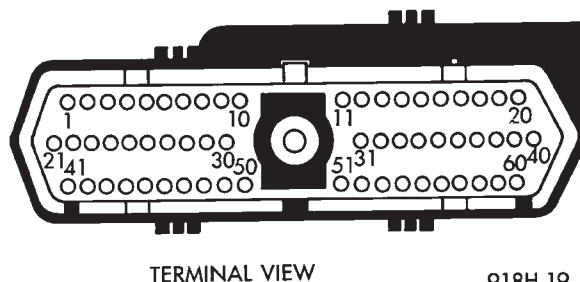
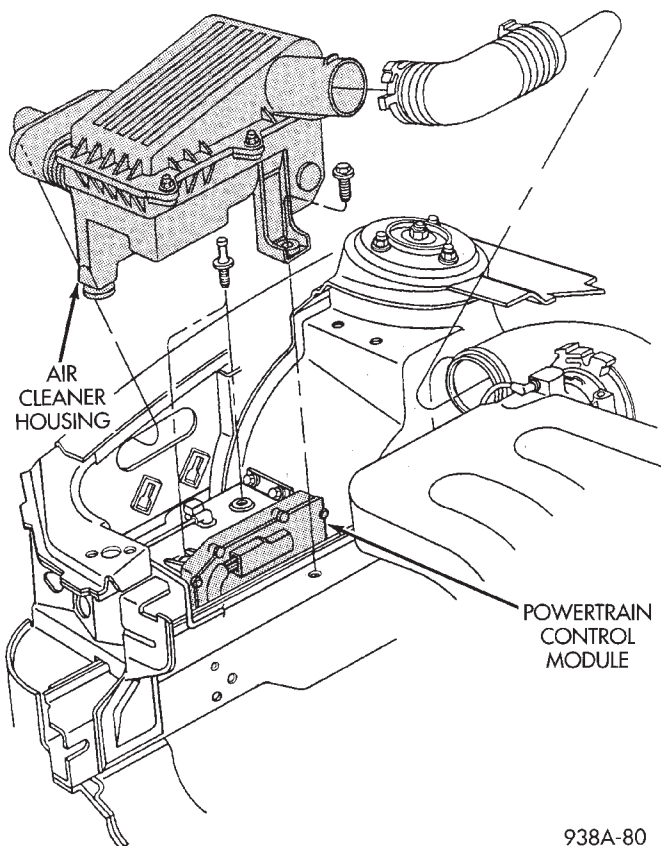
(j) If fuse is OK, repair wire between fuse and clockspring.

(4) Connect a jumper wire between pin 2 of the four-way servo connector of the main harness and pin 2 of the servo (Fig. 7). The other three pins from the servo should have battery voltage. If not, replace servo.

(5) Using an ohmmeter, connect one lead to ground and the other lead to pin 1 of the four-way servo connector of the main harness. There should be continuity, if not, repair the ground circuit as necessary.

ELECTRICAL TESTS AT POWERTRAIN CONTROL MODULE

(1) Unplug 60-way connector from the powertrain control module, located under the air cleaner (Fig. 8 and 9).



(2) Remove both steering wheel speed control switches and disconnect the two-way connectors.

(a) Using an ohmmeter, check for continuity between pin 23 of the powertrain control module and pin 1 of each switch connector.

(b) If no continuity, repair as necessary.

(c) If continuity, perform the Switch Test.

(3) Place ignition switch in the ON position for the following tests.

(a) Connect wire connectors to both switches.

(b) Using a voltmeter, connect the ground lead to ground.

(c) Touch the positive lead of the voltmeter to pin 53. Depress the OFF switch, the voltmeter should read zero volts. Depress ON switch, the voltmeter should read battery voltage. If no volt-



age, repair wire between pin 53 and pin 2 of the servo. If OK, go to step 4.

(4) Touch the positive lead of the voltmeter to pin 33. Depress OFF switch, the voltmeter should read 0 volts. Depress ON switch, the voltmeter should read battery voltage. If no voltage, repair the wire between pin 33 and 1 of the speed control servo. If OK, go to step 5.

(5) Using an ohmmeter, connect one lead to ground and touch the other lead to pin 29. With the brake pedal released, the meter should show continuity. If no continuity, perform the following test:

(a) Check for continuity between pin 29 and pin 3 of the stop lamp switch connector. If no continuity, repair as necessary.

(b) If continuity, perform Stop Lamp Switch Test.

(c) If the Stop Lamp Switch Test is OK, check for continuity between pin 6 of the stop lamp switch and ground. When the pedal is depressed, the meter should show open circuit. If no continuity repair as necessary. If OK, go to step 6.

(6) Using an ohmmeter, touch one lead to a ground and touch the other lead to pin 30. The meter should show no continuity when transmission is in DRIVE and continuity when in PARK or NEUTRAL. If not, test Neutral Start and Back-Up switch using DRB II.

SPEED CONTROL SWITCH TEST

(1) Remove the ON/OFF speed control switch assembly and disconnect the two-way connector (Fig. 10).

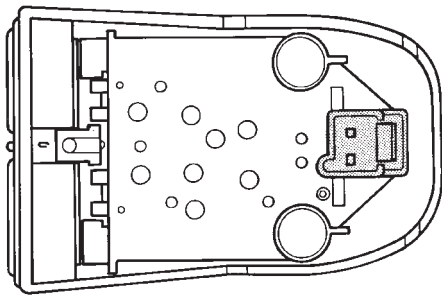


Fig. 10 Speed Control Switch 938H-8

(2) Using an ohmmeter, touch one lead to pin 1 and the other to pin 2. The meter should read 22848 to 22351 ohms. Press the OFF button, the ohmmeter should read 0 to 5 ohms. Press the ON button, the ohmmeter should read 674 to 688 ohms. If the resistance does not fall within these values replace switch.

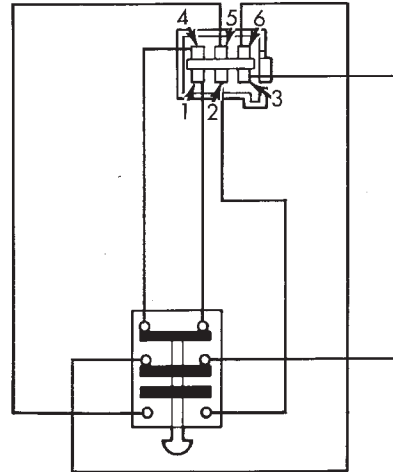
(3) Remove the SET/RESUME speed control switch assembly and disconnect the two-way connector.

(4) Using an ohmmeter, touch one lead to pin one and the other to pin 2. The meter should read no continuity. Press the SET button, the ohmmeter should read 1978 to 2022 ohms. Press the RESUME button,

the ohmmeter should read 5558 to 5682 ohms. If the resistance do not fall within these values replace the switch.

STOP LAMP SPEED CONTROL SWITCH TEST

(1) Disconnect the six way connector at the stop lamp switch (Fig. 11). Using an ohmmeter, continuity may be checked at the switch side of the connector as follows:



STOP LAMP
AND SPEED
CONTROL SWITCH

SWITCH SHOWN
WITH
BRAKE PEDAL
RELEASED

938H-1

Fig. 11 Stop Lamp and Speed Control Switch Wiring

(a) With brake pedal released, there should be continuity:

- Between pin 1 and pin 4.
- Between pin 3 and pin 6.
- No continuity between pin 2 and pin 5.

(b) With brake pedal depressed, there should be no continuity:

- Between pin 1 and pin 4.
- Between pin 3 and pin 6.
- Continuity between pin 2 and pin 5.

(2) If the above results are not obtained, the stop lamp switch is defective or out of adjustment.

(3) Stop lamp switch adjustment is detailed in Group 5, Brakes.

VACUUM SUPPLY TEST

(1) Disconnect vacuum hose at the servo and install a vacuum gauge in the hose (Fig. 12).

(2) Start engine and observe gauge at idle. Vacuum gauge should read at least ten inches of mercury. Shut off engine, the vacuum should continue to hold 10 inches of mercury.

(3) If vacuum does not meet this requirement, check and correct the following vacuum leaks in the vacuum lines, check valve, vacuum reservoir or poor engine performance.

SERVO VACUUM TEST

(1) Remove the speed control cable at the throttle body end.

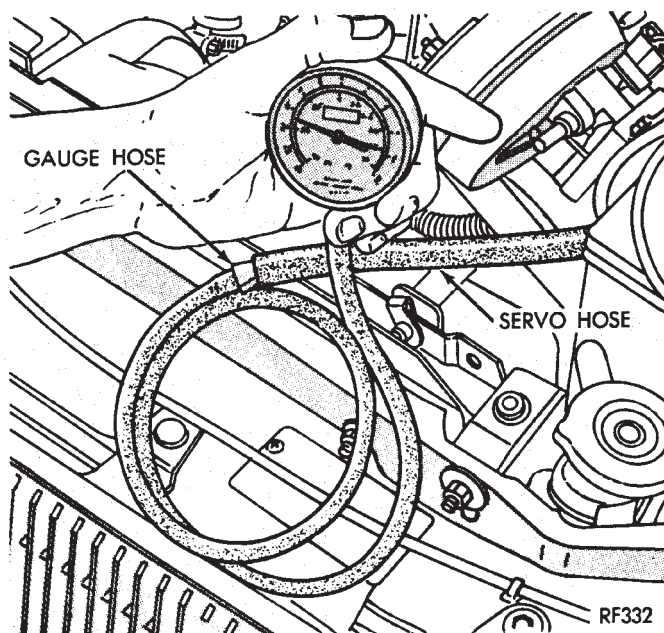


Fig. 12 Vacuum Gauge Test

- (2) Disconnect the four-way electrical connector and the vacuum harness at the servo.
- (3) Connect 12 volt power supply to pin 2 of the servo.
- (4) Ground pins 1,3 and 4 in the servo connector.
- (5) Connect a hand held vacuum pump to the vacuum nipple and apply 10 - 15 inches of vacuum.
- (6) The cable should pull in and hold as long as the vacuum pump is connected.

SERVO UNIT

REMOVAL

- (1) Remove two nuts attaching speed control cable and mounting bracket to servo.
- (2) Remove servo mounting bracket.
- (3) Disconnect electrical connectors and vacuum hose.
- (4) Pull cable away from servo to expose retaining clip and remove clip attaching cable to servo.

INSTALLATION

- (1) With throttle in full open position align hole in speed control cable sleeve with hole in servo pin and install retaining clip.
- (2) Connect vacuum hose to servo.
- (3) Connect electrical connector.
- (4) Insert servo studs through holes in speed control cable and mounting bracket.
- (5) Install nuts, tighten to 9 N•m (80 in. lbs.).

SPEED CONTROL SWITCH REMOVAL

The speed control switch is mounted in the steering wheel and wired through the clock spring device under the air bag module (Fig. 1).

WARNING: IF REMOVAL OF AIR BAG MODULE IS NECESSARY, REFER TO GROUP 8M, RESTRAINT SYSTEMS.

- (1) Turn off ignition.
- (2) Remove two screws from side of the switch.
- (3) Rock switch away from air bag and steering wheel.
- (4) Disconnect two-way electrical connector.
- (5) Repeat for the other switch.
- (6) For installation, turn off ignition and reverse above procedures.

SPEED CONTROL RELAY TEST

- (1) With the ignition off, remove the speed control relay located in the junction block (Fig. 13 and 14). Inspect the connector and repair if necessary.

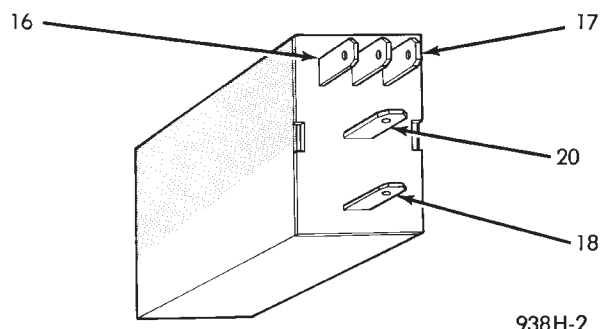


Fig. 13 Speed Control Relay

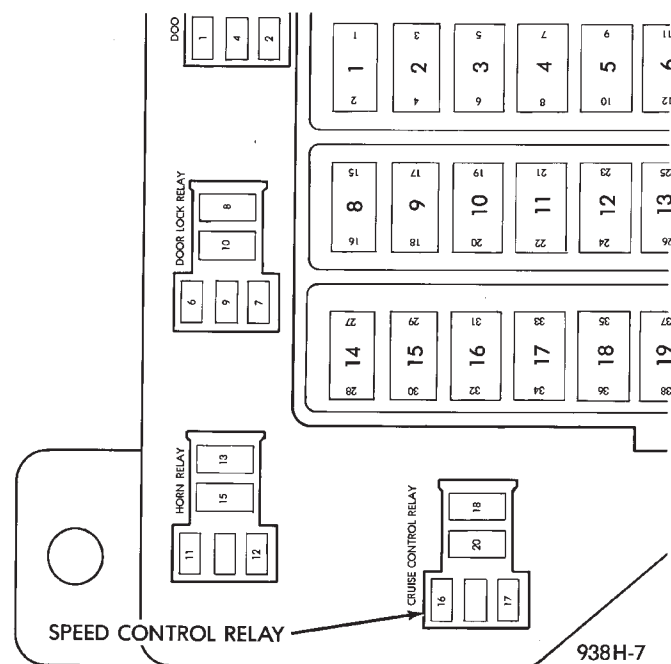


Fig. 14 Junction Block

- (2) With the ignition ON, measure the voltage at pin 16 of the relay connector. If the voltage is less than 10.0 volts.

- (a) Check fuse #14, located in fuse block.



(b) Repair the open wire between the relay connector and fuse #14 or between ignition and fuse #14. (3) Remove the speed control relay from the relay bank and measure the resistance across the relay terminals 16 and 17 (Fig. 13). If the resistance is greater than 100 ohms replace the relay. (4) With the ignition off, disconnect the powertrain control module. Measure the resistance between the powertrain control module connector pin 55 and the

speed control relay connector, pin 18 (Fig. 10 and 14). If the resistance is greater than 10 ohms repair open circuit.

(5) With the ignition off, measure the resistance between pin 55 of the powertrain control module connector and ground. If the resistance is below 10 ohms repair wire for a short to ground. If the resistance is above 10 ohms replace the powertrain control module.

