

VEHICLE SPEED CONTROL SYSTEM

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GENERAL INFORMATION

The vehicle speed control system (Fig. 1) is electrically controlled and vacuum operated. The electronic control is integrated into the Powertrain Control Module (PCM). The PCM is located in the engine compartment on the passenger side dash panel. The controls are located on the steering wheel and consist of the ON/OFF, RESUME/ACCEL and SET/DECEL buttons. The system is designed to operate at speeds between 35 mph (50 km/h) and 85 mph (142 km/h).

WARNING: THE USE OF VEHICLE 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: By pushing the ON/OFF button to the depressed latched position, ON, the speed control function is now ready for use.

TO DEACTIVATE: A soft tap of the brake pedal, normal brake use or clutch pedal use while the system is engaged will disengage speed control without erasing memory. A sudden increase in engine R.P.M. may be experienced if the clutch pedal is depressed while the speed control system is engaged. Pushing

the ON/OFF button to the unlatched position or turning off the ignition erases the memory.

TO SET SPEED: When the vehicle has reached the desired speed push the SET/DECEL button to engage system which will then automatically maintain the desired speed.

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

TO RESUME: After disengaging the speed control system by tapping the brake 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.

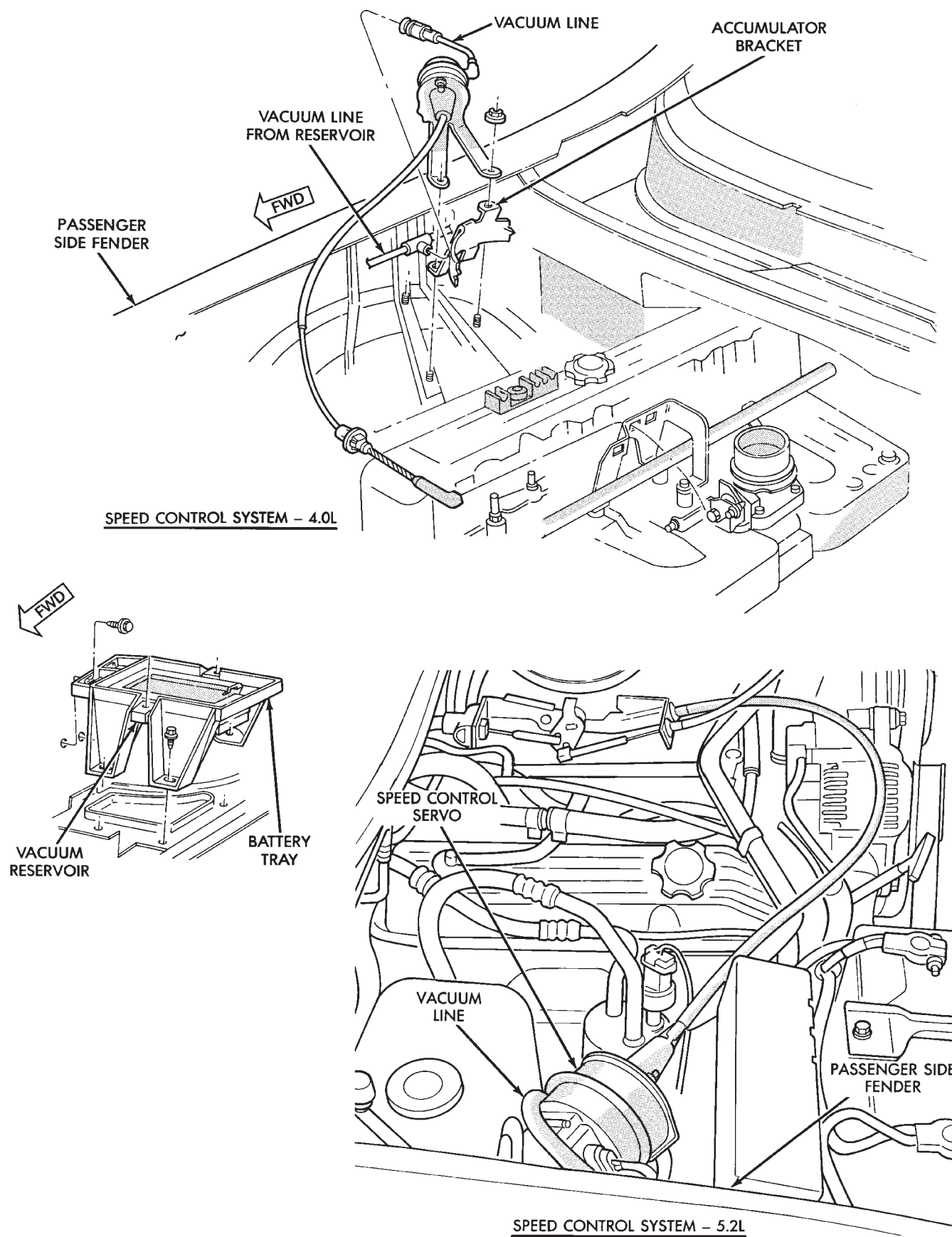
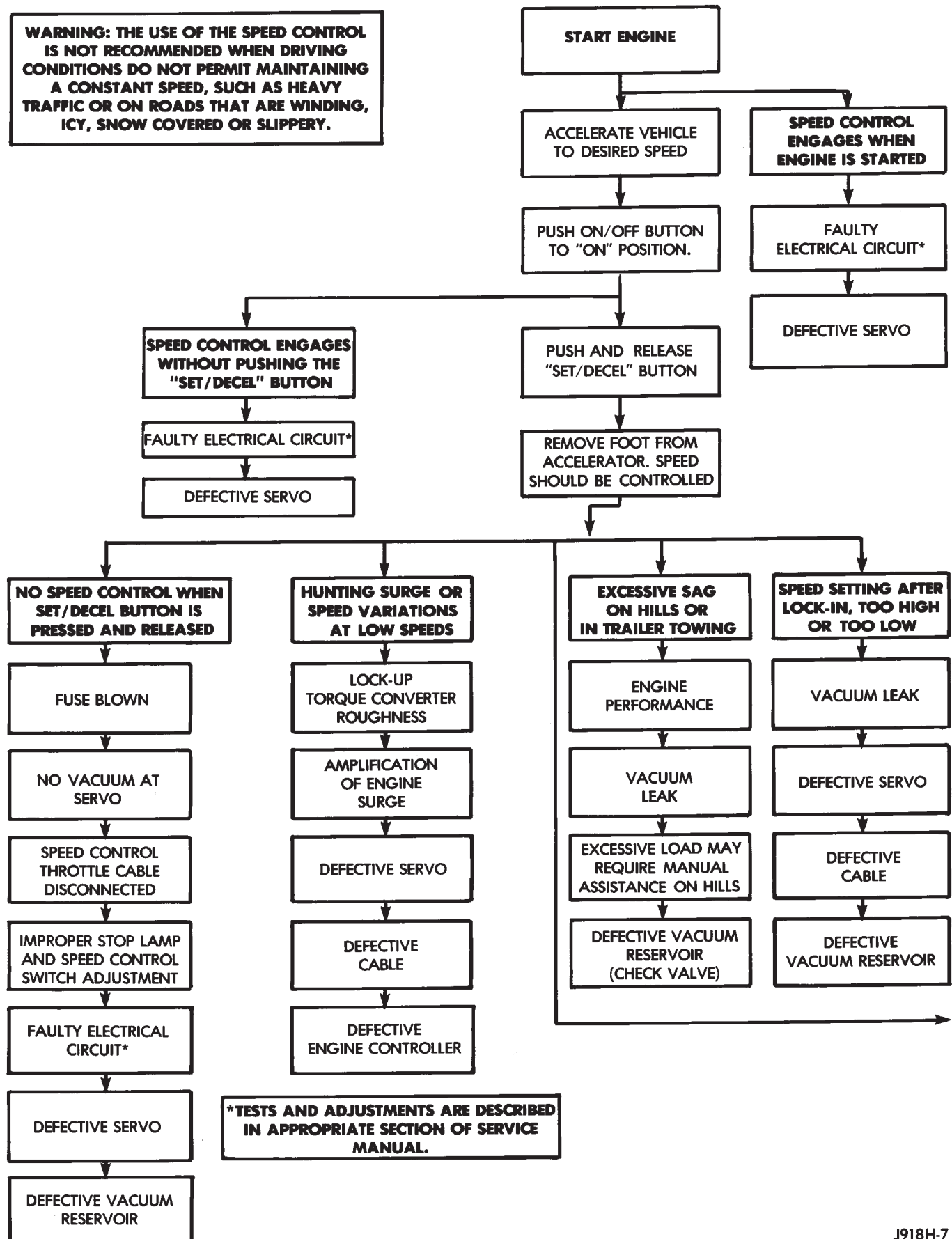
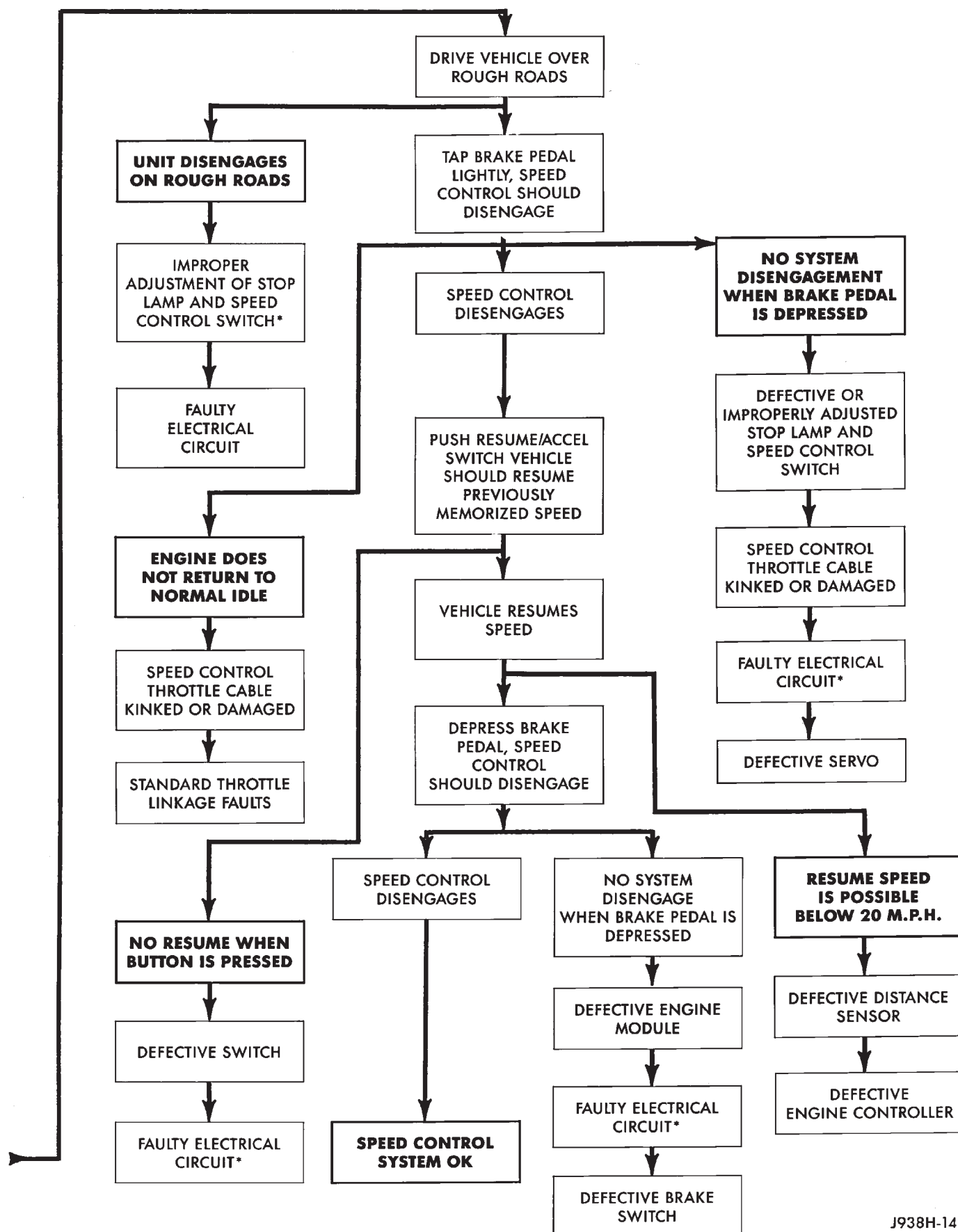


Fig. 1 Vehicle Speed Control System

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





TEST PROCEDURES

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GENERAL INFORMATION

Before starting diagnosis and repair procedures for a speed control malfunction, verify that the speed control wire harness is properly connected to all connectors. Refer to Diagnosis Chart.

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.

INOPERATIVE SYSTEM

If a road test verifies a system problem and the speedometer operates properly, check for:

- loose electrical and vacuum connections at the servo
- correct installation of the vacuum check valve in the hose from servo to vacuum source. The word VAC on the valve must point toward the vacuum source
- corrosion that should be removed from electrical terminals and a light coating of Mopar MultiPurpose Grease, or equivalent, applied
- secure attachment of both ends of the speed control cable.

CHECKING FOR DIAGNOSTIC TROUBLE CODE

(1) When trying to verify a speed control system electrical problem, use a DRB II Scan Tool to find the cause. Refer to Powertrain Diagnostic Procedures manual.

If the DRB II is not available, the Diagnostic Trouble Code (DTC) may be determined with the following method:

(a) With key inserted in ignition switch, cycle switch to ON position 3 times. On third cycle, leave switch in ON position.

(b) After switch has been cycled 3 times, observe the Malfunction Indicator Lamp "CHECK ENGINE" on instrument cluster. If a DTC is present, the code will be displayed in a series of flashes

representing digits. Three flashes in rapid succession, a slight pause, then 4 flashes in rapid succession would indicate DTC 34.

(2) If a DTC 34 is observed, perform the tests in the sections Electrical Tests at Servo and Electrical Tests at Powertrain Control Module.

If a DTC 15 is observed, perform the test for a faulty Vehicle Speed Sensor.

(3) Correct any problems found when performing these tests and recheck for DTC if changes were made.

VEHICLE SPEED SENSOR TEST

For testing of the Vehicle Speed Sensor and related components refer to the Powertrain Diagnostic Procedures manual.

VEHICLE SPEED CONTROL SYSTEM ELECTRICAL TESTS

Vehicle speed control systems may be tested using two different methods. One involves use of a DRB II Scan Tool. If this test method is desired, refer to the Powertrain Diagnostic Procedures 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 the Section 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

(1) Turn ignition switch to the ON position.

(2) Push the speed control switch to the ON position.

(3) Connect the negative lead of a voltmeter to a good chassis ground near the servo.

(4) Disconnect the 4-way connector going to the servo (Fig. 2). The blue wire with the green tracer of the main harness 4-way connector should read ap-

proximately battery voltage. If not, check for loose connections, brake switch adjustment or, repair the main harness as necessary.

(5) Connect a jumper wire between the male and female terminals of the blue wire with green tracer. The other 3 male terminals from the servo should show battery voltage. If not, replace the servo.

(6) Turn ignition OFF. Using an ohmmeter, connect one lead to a good body ground. Touch the other lead to the black (BK) wire terminal in the 4-way connector of the main harness. The meter should show continuity. If not, repair the ground circuit as necessary.

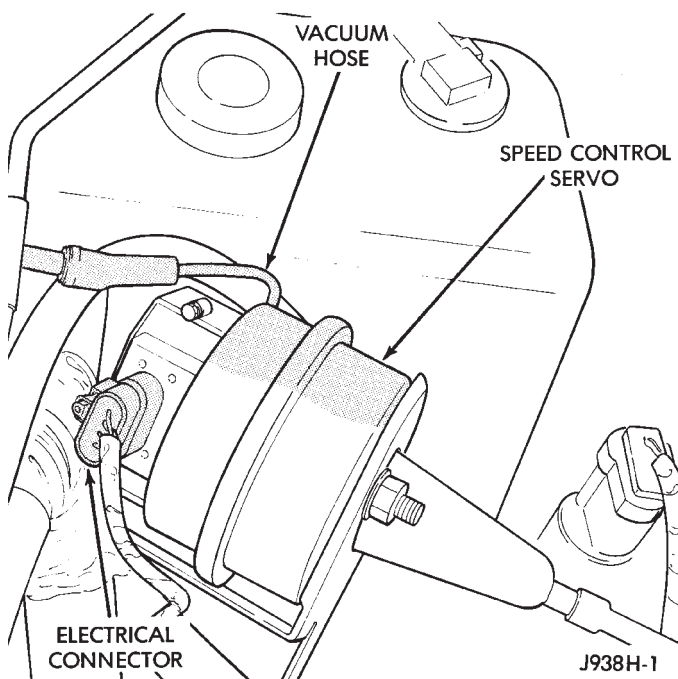


Fig. 2 Servo And Harness Connector

ELECTRICAL TESTS AT POWERTRAIN CONTROL MODULE

(1) Unplug 60-way connector from the Powertrain Control Module, located on the passenger side dash panel in the engine compartment (Fig. 3).

(2) Connect negative lead of voltmeter to a good body ground near the module.

(3) For the following tests, the ignition switch must be in the ON position. Refer to Fig. 4 for control module terminal locations. Touch the positive lead of the voltmeter to the terminal in cavity number 33. With the speed control switch in the OFF position, the voltmeter should read 0 volts. With the speed control switch in the ON position, the voltmeter should read battery voltage. If not, repair the main harness as necessary.

(4) Touch the positive lead of the voltmeter to the terminal in cavity number 53. As in step (3), the voltmeter should read 0 volts with the switch in the OFF position and battery voltage with the switch in the ON position.

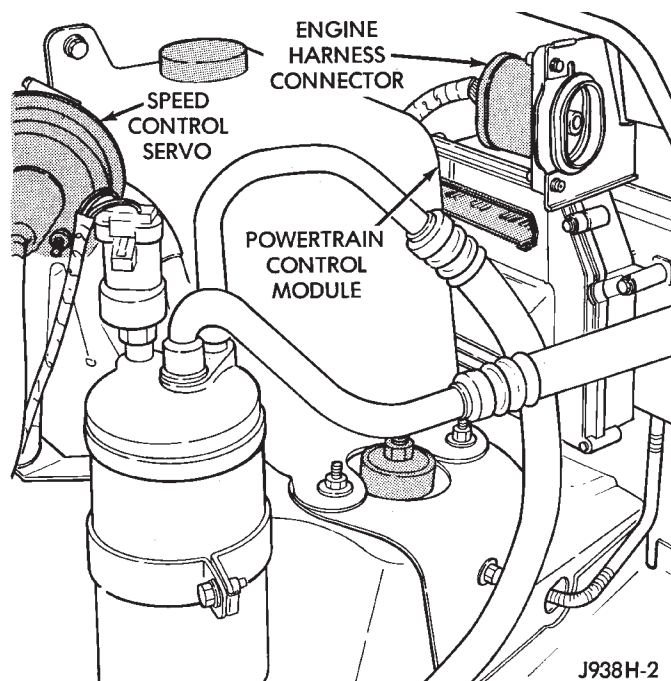


Fig. 3 Powertrain Control Module and Connector Location

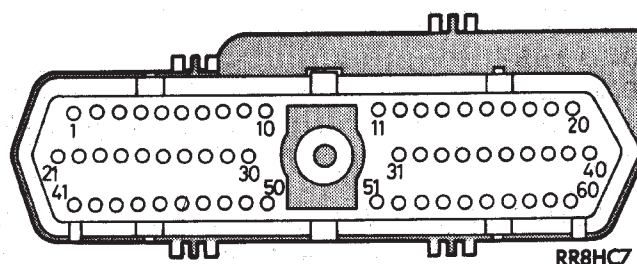


Fig. 4 Powertrain Control Module 60-Way Connector Shown from Terminal End

(5) Touch the positive lead of the voltmeter to the terminal in cavity number 48. With the speed control switch in the OFF position, the voltmeter should read 0 volts. With the switch in the ON position, the voltmeter should read battery voltage. Pressing the SET button should cause the voltmeter to change from battery voltage to 0 volts for as long as the switch is held. If not, perform the speed control switch test. If the switch is not at fault, then check the main harness and repair as necessary.

(6) Touch the positive lead of the voltmeter to the terminal in cavity number 50. The voltmeter should read 0 volts with the speed control switch in either the OFF or ON position. With switch in either RESUME or SET position, the voltmeter should read battery voltage. If not, perform the speed control switch test. If the switch is not at fault, then check the main harness and repair as necessary.

(7) Touch the positive lead of the voltmeter to the terminal in cavity number 49. The voltmeter should read 0 volts with the switch in the OFF position. With the switch in the ON position, the voltmeter should read battery voltage. The voltmeter will continue to read battery voltage when either the SET or RESUME switch is pressed. If not, perform the speed control switch test. If the switch is not at fault, then check the main harness and repair as necessary.

(8) Turn key OFF. Using an ohmmeter, connect one lead to a good body ground and touch the other lead to the terminal in cavity number 29. With the brake pedal released, the meter should show continuity. When the pedal is depressed, the meter should show open circuit.

VEHICLE SPEED CONTROL SWITCH TEST

WARNING: BEFORE BEGINNING ANY AIR BAG SYSTEM COMPONENT REMOVAL OR INSTALLATION, REMOVE AND ISOLATE THE NEGATIVE (-) CABLE FROM THE BATTERY. THIS IS THE ONLY SURE WAY TO DISABLE THE AIR BAG SYSTEM. FAILURE TO DO THIS COULD RESULT IN ACCIDENTAL AIR BAG DEPLOYMENT AND POSSIBLE INJURY.

To check the switch, remove the switch from its mounting position, refer to Service Procedures - Speed Control Switch. Use an ohmmeter and refer to the Switch Continuity Chart to determine if continuity is correct. If there is no continuity at any one of the switch positions, replace the switch.

STOP LAMP SPEED CONTROL SWITCH TEST

(1) Disconnect the connector at the stop lamp switch. Using an ohmmeter, continuity may be checked at the switch side of the connector as follows (Fig. 5):

- (a) With the brake pedal at rest (plunger of switch pushed in by brake pedal) there should be:
 - continuity between the black (BK) and white with pink tracer (WT/PK) wires
 - continuity between the yellow with red tracer (YL/RD) and dark blue with red tracer (DB/RD) wires.
 - NO continuity between the pink (PK) and white (WT) wires.
- (b) With brake pedal depressed, there should be:
 - continuity between pink (PK) and white (WT) wires
 - NO continuity between black (BK) and white with pink tracer (WT/PK) wires
 - NO continuity between the yellow with red tracer (YL/RD) and dark blue with red tracer (DB/RD) wires.

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

Stop lamp switch adjustment is detailed in Group 5 - Brakes.

SPEED CONTROL SWITCH CONTINUITY CHART

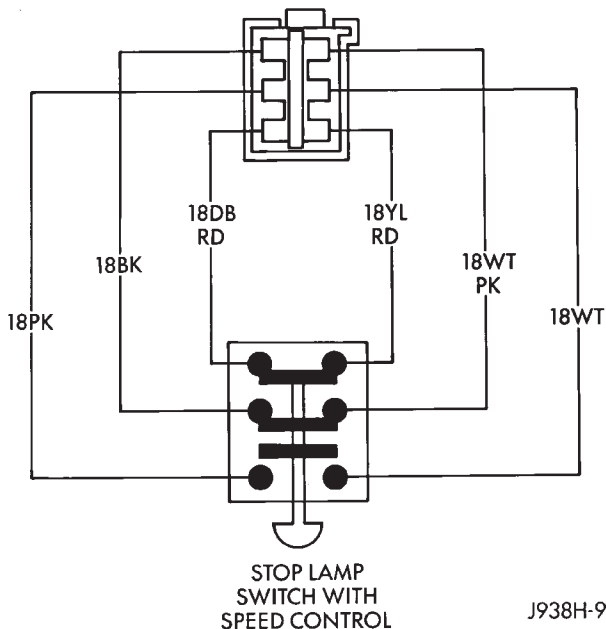
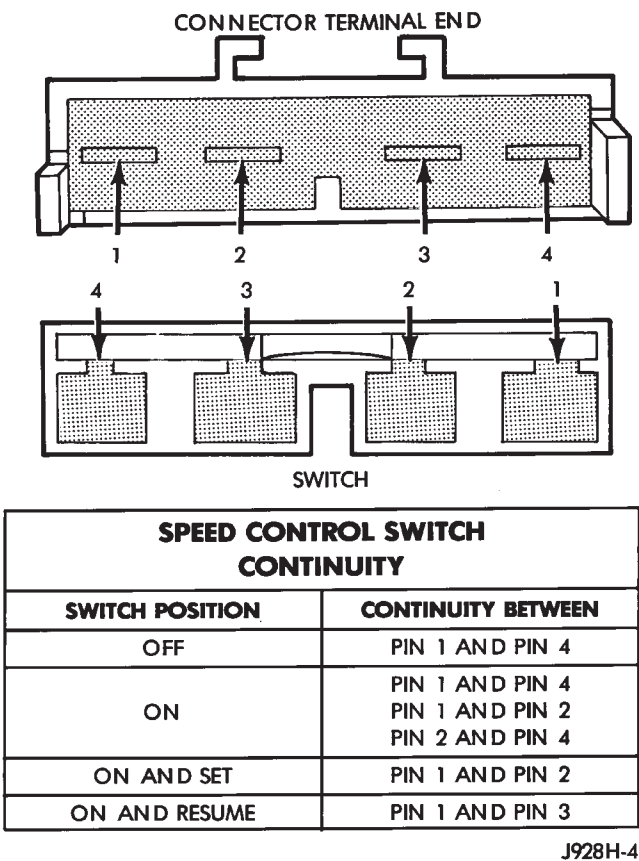
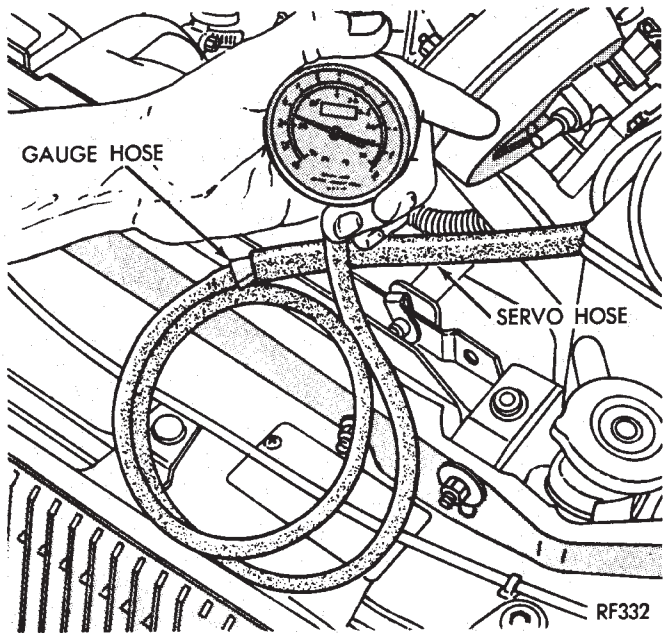
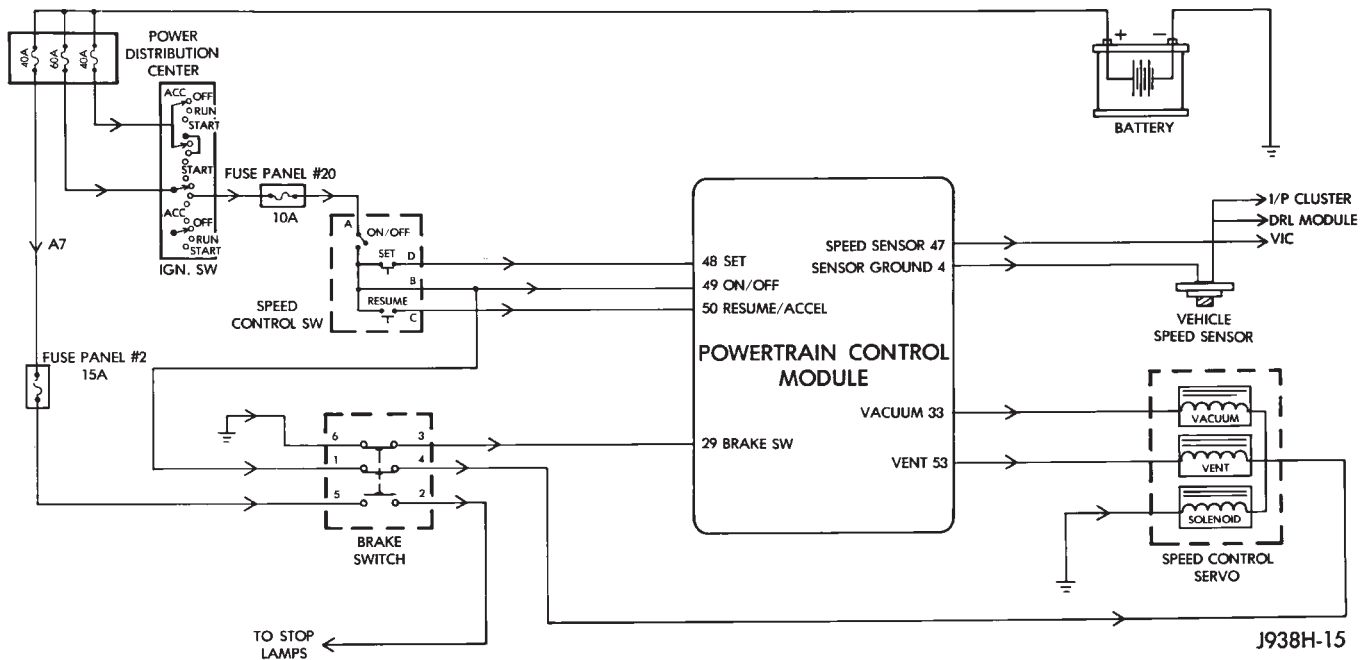


Fig. 5 Stop Lamp Switch Connector

VACUUM SUPPLY TEST

- (1) Disconnect vacuum hose at the servo or vacuum receiver and install a vacuum gauge in the hose (Fig. 6).
- (2) Start engine and observe gauge at idle. Vacuum gauge should read at least 10 inches of mercury.
- (3) If vacuum does not meet this requirement, check for vacuum leaks or poor engine performance.

**Fig. 6 Vacuum Gauge Test****VEHICLE SPEED CONTROL SYSTEM SCHEMATIC**

SERVICE PROCEDURES

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SERVO UNIT

REMOVAL

- (1) Disconnect vacuum hose at servo.
- (2) Unplug electrical connector at servo.
- (3) Remove 2 nuts from servo mounting bracket.
- (4) Remove and discard push nuts on servo studs.
- (5) Pull servo away from mounting bracket.
- (6) Pull speed control cable away from servo to expose cable retaining clip.
- (7) Remove clip attaching cable to servo.

INSTALLATION

- (1) With throttle blocked to full open position, align hole in cable sleeve with hole in servo pin and install retaining clip.
- (2) Insert servo studs through holes in the cable.
- (3) Insert servo studs through holes in servo mounting bracket.
- (4) Install new push nuts on the servo studs.
- (5) Install the 2 attaching nuts and tighten to 8.5 N•m (75 in. lbs.).
- (6) Connect vacuum hose to servo.
- (7) Connect the electrical connector to servo terminals.

SPEED CONTROL SWITCH

WARNING: BEFORE BEGINNING ANY AIR BAG SYSTEM COMPONENT REMOVAL OR INSTALLATION, REMOVE AND ISOLATE THE NEGATIVE (-) CABLE FROM THE BATTERY. THIS IS THE ONLY SURE WAY TO DISABLE THE AIR BAG SYSTEM. FAILURE TO DO THIS COULD RESULT IN ACCIDENTAL AIR BAG DEPLOYMENT AND POSSIBLE INJURY.

REMOVAL

- (1) Disconnect negative cable from the battery.
- (2) Remove 2 screws from back side of steering wheel (Fig. 1).
- (3) Rock switch away from horn pad while lifting switch out of steering wheel.
- (4) Disconnect 4-way electrical connector from clockspring.

INSTALLATION

- (1) Connect 4-way electrical connector from clockspring to switch.

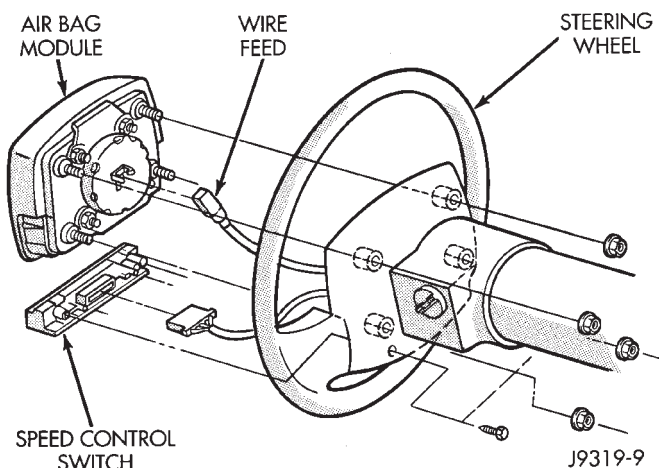


Fig. 1 Speed Control Switch Removal

- (2) Place switch in steering wheel, sliding the forward edge of switch under horn pad. Line up locating pins on switch with holes in steering wheel frame.
- (3) Attach switch to wheel with 2 screws starting with the screw at the left end of the switch.
- (4) Connect negative cable to battery.

SERVO CABLE REPLACEMENT

CAUTION: Use finger pressure only to remove the speed control cable connector at the bell crank. Pliers or screwdriver can break the connector requiring the complete cable replacement.

- (1) Using finger pressure only, remove speed control cable connector at bell crank by PUSHING connector off the bell crank (Fig. 2). DO NOT try to pull connector off perpendicular to the bell crank.
- (2) Squeeze tabs on speed control cable and push out of locking plate (Fig. 3).
- (3) Pull cable out of cable guide.
- (4) Remove 2 nuts, 2 pushnuts, and cable housing from the servo.
- (5) Release the cable clip from the servo cable and remove the servo cable.
- (6) To install, reverse the removal procedure.

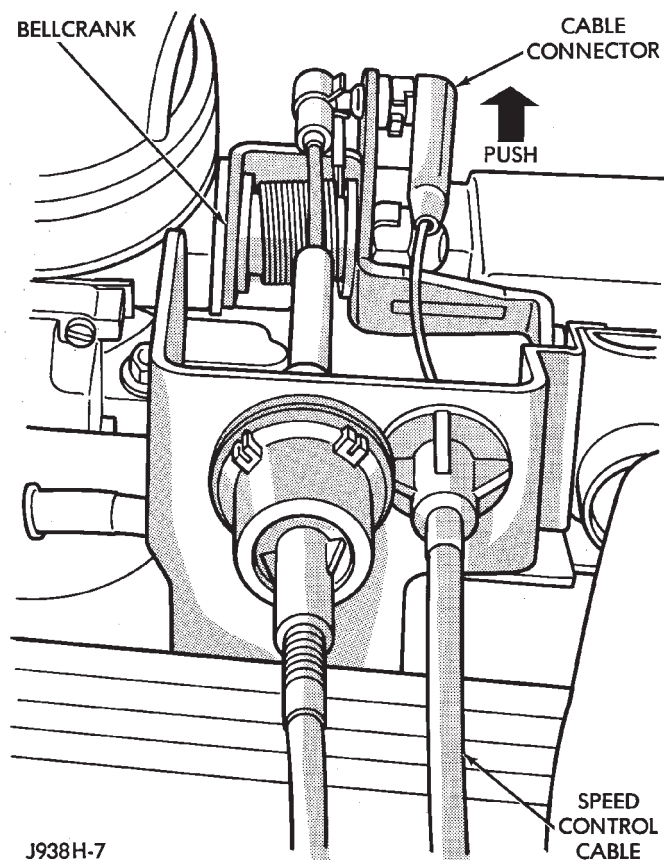


Fig. 2 Remove Bell Crank Connector

VACUUM RESERVOIR

REMOVAL

- (1) Disconnect battery cables, negative cable first.
- (2) Remove both battery holddown bolts.
- (3) Remove battery from vehicle.
- (4) Remove 5 screws holding battery tray.
- (5) Pull up battery tray and remove vacuum line from reservoir (Fig. 4).
- (6) Remove 2 screws holding reservoir to battery tray.

INSTALLATION

- (1) Install vacuum reservoir to battery tray.
- (2) Connect vacuum line to reservoir.
- (3) Install battery tray. Tighten screws to 10 N•m (90 in. lbs.).
- (4) Install battery.
- (5) Install battery strap and holddown bolts. Tighten bolts to 10 N•m (90 in. lbs.).
- (6) Install battery cables, positive cable first. Tighten clamps to 8.5 N•m (75 in. lbs.).

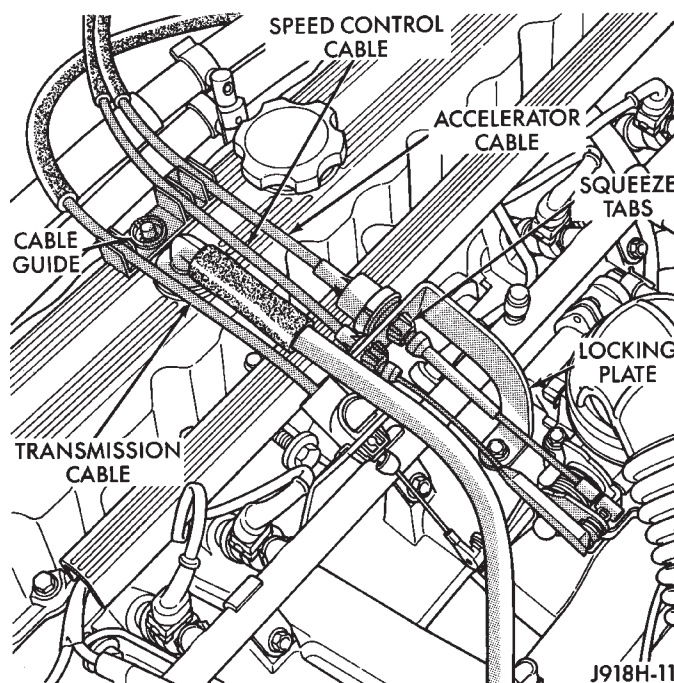


Fig. 3 Remove/Install Speed Control Cable to Locking Plate

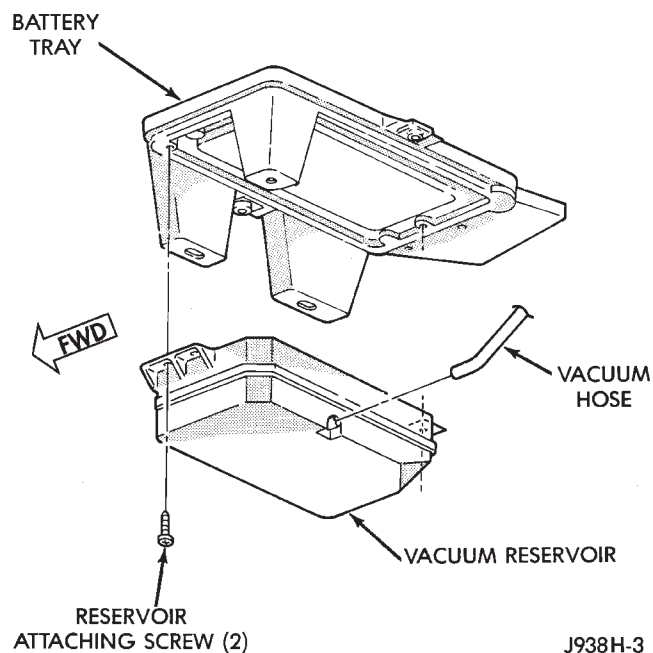


Fig. 4 Vacuum Reservoir