

Cruise Control Systems

VOLVO

DESCRIPTION

An electronic speed control system is used, with the control unit at the right kick panel. The system includes a brake switch, clutch switch, retard switch, control switch, vacuum valve, throttle actuator and speed pick-up coil. The control switch has "ON", "OFF" and "Resume" positions and a "SET SPEED" button.

OPERATION

The control unit gets input from the speed pick-up coil and feeds a signal to the throttle actuator. A memory circuit allows the control unit to bring the car back up to a chosen speed after the brakes have been applied.

The system has 3 or 4 safety switches, depending on the transmission used in the vehicle. The brake switch (if equipped) opens the circuit that shuts off the system when either pedal is depressed.

At the same time, a vacuum valve on the brake pedal bracket opens and vents throttle actuator vacuum. If none of these switches work, a mercury retard switch will open when the car slows, stopping cruise control operation.

TROUBLE SHOOTING

The following items are common causes of system breakdown. Check them before performing component tests.

FUSES

Check fuse No. 1 in panel and the inline fuse at pedal bracket.

VACUUM VALVE

Disconnect large hose at throttle actuator. Blow into hose to check that no air leaks exist. Air should pass through with brake pedal depressed.

VACUUM SUPPLY

Disconnect small hose at throttle actuator. Start engine and check for vacuum at hose. When hose is open to air, engine speed should increase and idle will be rough.

RETARD SWITCH

Switch should be at 17° from horizontal. Bend bracket as necessary to ensure this angle is correct. If the switch is too close to horizontal, mercury switch will open and system will not work.

BRAKE LIGHT BULBS

The control unit is grounded through the brake light bulbs. If both are burned out, control unit will not work.

BRAKE LIGHT SWITCH ADJUSTMENT

The switch should be adjusted so lights come on before brakes are actually applied.

CLUTCH SWITCH

Adjust so that switch pin is fully in when pedal is released.

WIRING CONNECTORS

Be sure all connectors are tight. Green wire from throttle actuator must be grounded.

TESTING

COMPONENT TESTS

Control Unit

1) Use a small pin or drill to push in "TERMINAL RELEASE" on control unit. Pull connector out. Turn ignition off and cruise control on. Use test lamp to check for voltage at all 14 connector pins. No voltage should be present.

2) Turn ignition on. Check for voltage at terminals 5, 7 and 14. If no voltage at 7, check wiring and fuse No. 1. If no voltage at 5, check inline fuse, brake switch or cruise control switch. If voltage at 5 but not 14, check cruise control switch.

3) Check for voltage between terminals 5 and 7. If not present, check Green ground wire at throttle actuator.

4) Connect test lamp across terminals 5 and 13. Lamp should glow. When clutch or brake pedal is depressed, lamp should go out. If not, check switch adjustment and wiring.

5) Hold "SET SPEED" button in. Connect test lamp between ground and terminal 14. Test lamp should be off. If light glows check cruise control switch. Release "SET SPEED" button.

6) Hold switch in "RESUME" position. Connect test lamp to ground, then touch terminal 5, 10, and 14. Lamp should glow at all terminals. If not, check cruise control switch.

Cruise Control Switch

Unplug connector at cruise control switch. Connect a jumper wire from battery voltage to Red wire in connector. Connect a test lamp to ground, then touch it to the other 3 wires while checking switch operation. See Cruise Control Switch Continuity table.

CRUISE CONTROL SWITCH CONTINUITY

Switch Position	Brown	Green	Yellow
OFF	on	off	off
ON	on	on	off
ON & SET SPEED	on	off	on
RESUME	on	on	on

Throttle Actuator & Speed Pick-Up Coil

Unplug connector from control unit. Use a precision ohmmeter to check resistance at terminals shown in Throttle Actuator & Speed Pick-Up Coil table. If resistance is not as shown, check connectors before replacing parts.

THROTTLE ACTUATOR & SPEED PICK-UP COIL

Component	Terminals	Resistance
Speed Pick-Up Coil	2 & 3	500-600
Throttle Actuator		
Resistor	2 & 11	180-600
Vacuum Valve	4 & 11	38-48
Bleeder Valve	6 & 12	38-48

