

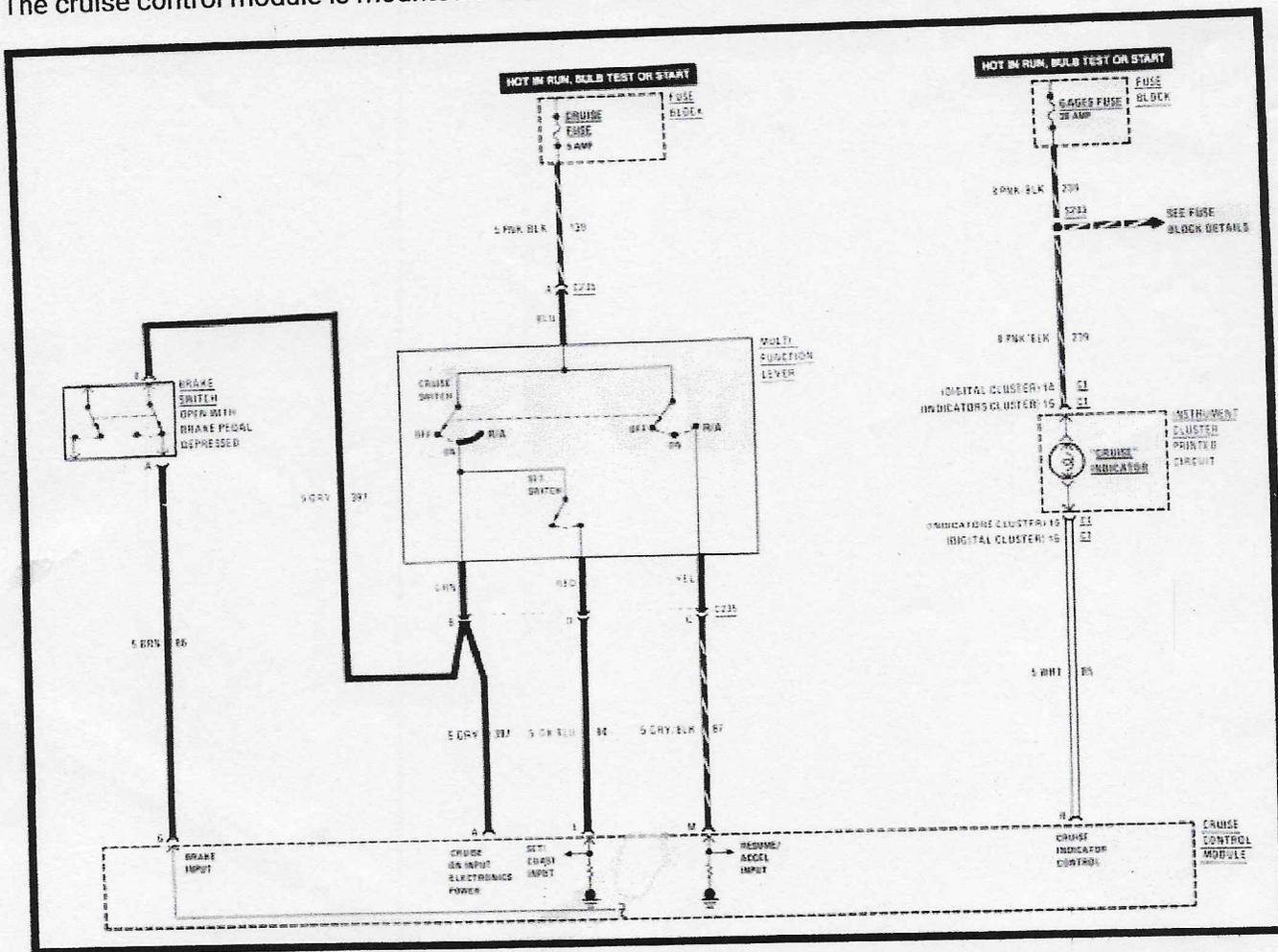


Home How To

Cruise Control Trouble Shooting

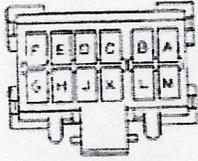
Note that the troubleshooting table procedures require the connector to be disconnected from the module and the key turned to ON. Terminals in the connector are then probed and readings are taken with a common multimeter. I prefer the digital, auto ranging models for simplicity. Be sure you are reading DC volts.

The cruise control module is mounted under the dash on a bracket above the accelerator pedal.



CRUISE CONTROL

HARNESS CONNECTOR FACES



BLK 12034125
Cruise Control Module

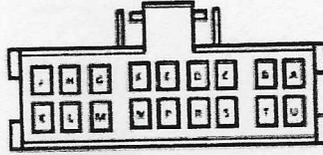


GRY 12020648
Cruise Control Servo



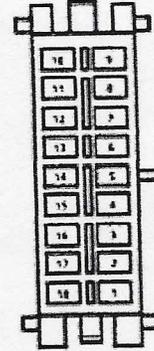
BLU 12015197
Brake Switch

S668 (VIN 7)	Engine harness, near relay bracket	201-8-B
S668 (VIN A)	CCC harness, near blower motor	201-20-B
S668 (VIN Y)	CCC harness, near barometric pressure sensor	201-17-B



C2 BLK

V00017.0
Instrument Panel



C1 BLK

TROUBLESHOOTING HINTS

- Try the following checks before doing the System Check.
- 1. Check Vacuum Hose for leaks, kinks, and/or restrictions. Also check Cruise Control Servo linkage. Refer to Section 9 for vacuum hose routing and servo linkage adjustments.
- 2. If the system works except for the Tap-Up and Tap-Down functions, replace the Cruise Control Module.
- Go to System Check for a guide to normal operation.
- Go to System Diagnosis for diagnostic tests.

SYSTEM CHECK (ROAD TEST)

- Use the System Check Table as a guide to normal operation.
- Refer to System Diagnosis for a list of symptoms and diagnostic steps.

SYSTEM CHECK TABLE

ACTION	NORMAL RESULT
Drive car faster than 25 mph Turn Cruise Switch ON Depress Set button at the end of the Multi-Function Lever	Cruise Indicator should light Car should maintain speed
Hold Set button in, foot off accelerator	Car should coast to a slower speed
Release Set button	Cruise Control should engage and hold a slower speed, if the new speed remains above 25 mph
Slide Cruise Switch to R/A and hold it there	Car should accelerate
Release Cruise Switch back to ON	Car should hold new faster speed
Tap brake pedal	Car should coast slower Cruise Indicator should go out
Slide Cruise Switch momentarily to R/A	Cruise Indicator should light Car should accelerate to former set speed
While cruising, accelerate, then remove foot from accelerator	Car should coast back to set speed
While cruising, tap Cruise Switch to R/A	Car speed should increase 1 mph for each tap, up to ten taps, then system must be reset to a new speed
While cruising, tap Set button	Car speed decreases 1 mph for each tap, until 25 mph is reached when Cruise Control will not operate
Slide Cruise Switch to OFF	Cruise Control turns off Cruise Indicator goes out

- Refer to System Diagnosis when a result is not normal.

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SYSTEM DIAGNOSIS

- Make each of the measurements listed in the Test Directory in the order shown.
- Use either a Cruise Control Quick Checker (J-34185, Spemco QC-3 or equivalent) or a Digital Volt-Ohmmeter, but not both.
- If the response is not correct, go to the Repair Action shown. Repair Actions follow the Test Directory.

- Do not press both the SET and R/A Switches at the same time while the engine is running.
- If the Quick Checker displays a SHORT light, release the switches immediately. Shorts can damage the Quick Checker.

TEST DIRECTORY

Connect: QUICK CHECKER or VOLT-OHMMETER
At: CRUISE CONTROL MODULE CONNECTOR (Disconnected)
Conditions:

- Ignition Switch: RUN
- Test with Quick Checker or Digital Meter

Test	Action	With Quick Checker, Correct Response	Without Quick Checker, Using a Digital Meter			For Different Response, do Repair Action
			Meter Range	Connector Terminals	Correct Response	
1	Cruise Switch OFF	LAMP light on	200 VDC	B & J	Battery voltage 4.5	Q
		All other Lights off	200 VDC	A & J	0 volts 0	A
			200 VDC	M & J	0 volts 0	
2	Cruise Switch ON	ON/OFF light on	200 VDC	A & J	Battery voltage 11.75	B
		BRK light on	200 VDC	G & J	Battery voltage 11.7	C
		VENT light on	200 ohms	C & J	30 to 55 ohms	38 D
		VAC light on	200 ohms	K & J	30 to 55 ohms	38 E
		SPS light on	200 ohms	F & H	15 to 25 ohms	19 F
		R/A light off	200 VDC	M & J	0 volts 0	A
		SC light off	200 VDC	L & J	0 volts 0	A

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Tee tracing Purple / Tan 23.4 ohms

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Test	Action	With Quick Checker, Correct Response	Without Quick Checker, Using a Digital Meter			For Different Response, do Repair Action
			Meter Range	Connector Terminals	Correct Response	
3	Cruise Switch ON, Set Switch pressed	SC light on	200 VDC	L & J	Battery voltage 11.6	G ✓
		VAC & SHORT lights off	200 ohms	K & J	30 to 55 ohms 38	H
4	Cruise Switch in R/A	ON/OFF light on	200 VDC	A & J	Battery voltage 11.6	A
		R/A light on	200 VDC	M & J	Battery voltage 11.6	I
		VENT & SHORT lights off	200 ohms	C & J	30 to 55 ohms 38	J
5	Cruise Switch ON, drive wheels turned by hand	VSS light flashes on and off	200 VDC	A & D	Pulses between approximately battery voltage and less than 7 volts	11.7870 K, L
6	Run engine for one minute, then turn it off With Ignition Switch in RUN and holding Cruise Switch in R/A, press and release Set Switch	Vacuum holds the servo at wide open throttle position	Connect fused jumper from C to M and from K to I, before operating switches		Vacuum holds the servo at wide open throttle position	M
7	Quick Checker not connected		200 ohms	F & J	Over range	N
8	Quick Checker not connected		200 ohms	F & H	15 to 25 ohms	O

* If all results are correct, do Repair Action P.

REPAIR ACTION A: CRUISE SWITCH SHORT

Check for shorts to voltage in the wires to terminals G, A, M and L of the Module (see schematic).

- If the wires are good, replace the Multi-Function Lever.

REPAIR ACTION B: POWER CIRCUIT OPEN

1. Check the Cruise Fuse. ✓
2. Check that terminal J is grounded. ✓

3. Disconnect connector C235 and check for battery voltage at terminal A of the socket half with the Ignition in RUN. 11.75V

- If battery voltage is missing, check/repair PNK/BLK (139) wire. NA

4. Check continuity between terminals A and B of the pin half of connector C235 with the Cruise Switch ON. ✓

- If the Switch is open, replace the Multi-Function Lever. NA

5. Check for an open in GRY (397) wire between terminal B of connector C235 and terminal A of the module connector. ✓

REPAIR ACTION C: BRAKE CIRCUIT OPEN

1. Check for an open Brake Switch (see schematic).
2. Check for an open in the BRN (86) wire to terminal G of the Module.

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REPAIR ACTION D: VENT CIRCUIT OPEN

If you measured less than 30 ohms, perform Repair Action J. Otherwise, proceed to the following action.

- Remove the connector from the Cruise Control Servo. Measure the resistance between terminals A and C of the Servo.
- If it is greater than 55 ohms, replace the Cruise Control Servo.
- If it is 55 ohms or less, check for an open DK BLU or DK BLU/WHIT (403) wire between terminal C of the Module and terminal A of the Cruise Control Servo. Check that terminal C of the Servo connector is grounded (see schematic).

REPAIR ACTION E: VAC CIRCUIT OPEN

If you measured less than 30 ohms, perform Repair Action H. Otherwise, proceed to the following action.

- Remove the connector from the Cruise Control Servo. Measure the resistance between terminals E and C of the Servo.
- If it is more than 55 ohms, replace the Servo.
- If it is 55 ohms or less, check for an open in the LT GRN (402) wire between terminal K of the Module and terminal E of the Servo. Check that terminal C of the Servo connector is grounded (see schematic).

REPAIR ACTION F: SPS CIRCUIT OPEN

If you measured less than 15 ohms, perform Repair Action N. Otherwise, proceed to the following action.

Remove the connector from the Cruise Control Servo. Measure the resistance between terminals B and D of the Servo.

- If it is more than 25 ohms, replace the Cruise Control Servo.
- If it is 25 ohms or less, check for an open in the LT BLU/BLK (399) wire between terminal H of the Module and terminal D of the Servo. Check for an open in the TAN (398) wire between terminal F of the Module and terminal B of the Servo.

REPAIR ACTION G: SC CIRCUIT OPEN

Disconnect C235 and check the switch continuity between terminals B and D of the pin half with the Set Switch pressed.

- If the Switch is open, replace the Multi-Function Lever.
- If the Switch is not open, check for an open in the DK BLU (84) wire between terminal D of connector C235 and terminal L of the Module.

REPAIR ACTION H: VAC CIRCUIT SHORT

Remove the connector from the Cruise Control Servo and measure the resistance between terminals C and E of the Servo.

- If it is less than 30 ohms, replace the Servo.
- If it is 30 ohms or more, check for a short to ground in the wire from terminal K of the Module to terminal E of the Servo.

REPAIR ACTION I: R/A CIRCUIT OPEN

Disconnect C235 and check Switch continuity between terminals A and C of the pin half with the Cruise Switch in R/A.

- If the Switch is open, replace the Multi-Function Lever.
- If the Switch is not open, check for an open in the GRY/BLK (87) wire between terminal C of connector C235 and terminal M of the Module.

REPAIR ACTION J: VENT CIRCUIT SHORT

Remove the connector from the Servo and measure resistance between terminals A and C of the Servo.

- If it is less than 30 ohms, replace the Servo.
- If it is 30 ohms or more, check for a short to ground in the wire from terminal C of the Module to terminal A of the Servo.

REPAIR ACTION K: VSS CIRCUIT OPEN

If the VSS light does not come on, or the voltage between terminals A and D remains less than 7 volts, check for an open in the RED (381) wire from the Vehicle Speed Sensor Buffer. Refer to page 33-0 for diagnosis of the Vehicle Speed Sensor.

CRUISE CONTROL

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REPAIR ACTION L: VSS CIRCUIT SHORT

If the VSS light does not go off or battery voltage remains between terminals A and D, check for a short to ground on the RED (381) wire from the Vehicle Speed Sensor Buffer. Refer to page 33-0 for diagnosis of the Vehicle Speed Sensor.

REPAIR ACTION M: VACUUM SYSTEM

Check for a blocked or leaking Vacuum Source.

- If the vacuum source is good, plug the Vacuum Release Port and repeat Test 6 of the Test Directory.
- If the Vacuum now holds the throttle wide open, repair or replace the Vacuum Release Valve or the hose to it.
- If the test still fails, replace the Cruise Control Servo.

REPAIR ACTION N: SPS CIRCUIT SHORT

Disconnect the Cruise Control Servo connector and repeat Test 7 of the Test Directory.

- If the resistance is now over range, replace the Cruise Control Servo.
- If the resistance is still low, find and repair the short in the wire from terminal F of the Cruise Control Module to terminal B of the Cruise Control Servo.

REPAIR ACTION O: SPS SHORT

If all other tests were OK, replace the Cruise Control Servo.

REPAIR ACTION P: CRUISE MODULE

1. Check the resistance between G100 and G121.
 - If it is more than 0.1 ohm, clean and tighten both grounds and the negative battery cable. In cases where the ground circuit is suspect, add a ground strap between the engine block and the bulkhead.
2. Connect a new Cruise Control Module and check for normal operation.
 - If the Cruise Control operates normally, leave the new Module in permanently.
 - If the Cruise Control still does not operate normally, refer to the AC Custom Cruise 3 Systems Service Manual for further diagnostic procedures.

REPAIR ACTION Q: CRUISE INDICATOR OPEN

1. Check the GAGES Fuse. ✓
2. Check the Cruise Indicator bulb.
3. Check the connections and wiring to the indicator for an open.
4. Check that terminal J of the Cruise Control Module connector is grounded. ✓

CIRCUIT OPERATION

The Cruise Control System operates a mechanical linkage to the throttle by means of a Vacuum Motor. This is a diaphragm moved by a vacuum applied to one side. A solenoid operated valve connects the Vacuum Motor to a Vacuum Tank. Another solenoid valve vents the vacuum to reduce the suction. The Cruise Control Module controls the vacuum motor and the throttle by pulsing these solenoid valves on and off.

One input to the Module is the vehicle speed. This input comes from the Vehicle Speed Sensor and Buffer Amplifier. If the actual speed signal is different from the speed that was set into and remembered by the module, the module generates pulses to change the vacuum and return the vehicle to the set speed. Other inputs to the Module are from the Cruise Switch and the Set Switch. A disconnect input to the Module comes from a switch on the brake pedal. A separate vacuum shut-down of the Cruise Control comes from the Vacuum Release Valve on the brake pedal.

The two outputs of the Module operate the coils of the Vacuum Valve and the Vent Valve. Both valves are located in the Cruise Control Servo. These valves move the Throttle by means of the Vacuum Motor. The Servo Position Sensor coil senses the position and motion of the Vacuum Motor. It feeds this information back to the module to provide smooth acceleration while the vehicle is in Cruise Control.