

Cruise Control: Technical Service Bulletins

Additional Reference Information

Speed Control Servo Operation and Function

NOTE

ALL FUNCTIONALITY LISTED BELOW IS PERFORMED WITH CONNECTORS CONNECTED AND KEY IN RUN POSITION UNLESS OTHERWISE NOTED.

PIN 1 - Indicator. (if used) Speed control servo grounds this circuit to turn the speed control lamp in cluster on during operation. This will not affect operation of system.

PIN 2 - Clutch/TRS Input. (Escape/Mariner only) Signal comes from clutch switch (MT) or TRS (AT). On the harness side the signal can be measured by connecting a DVOM, set to ohms, between Pins 2 and B-. With clutch depressed (MT) or in N (AT) you should read 0 ohms, which disables speed control. With clutch released (MT) or in D (AT) signal should read greater than 10,000 ohms, which enables speed control operation.

PIN 3 - VSS Input. (**Note:** Performed with engine running and vehicle driven.) Signal comes from PCM, ABS, OSS, hall effect sensor depending on application. Except for hall effect sensor, the signal can be measured by removing Connector C122 and measuring the frequency between Pins 3 and 10 with a DVOM set to AC Hz. The signal should measure 2.2 Hz/MPH. The vehicle must be traveling 30 MPH (48 Km/h) before the system will set, therefore a minimum of 66 Hz must be observed. Take note that on vehicles equipped with SVC (speed sensitive volume control), an internal problem within the radio can bring signal down to 0 Hz even though it reads correctly in PCM PIDs. If signal is missing disconnect radio and retest. Note, for vehicles with a hall effect input to the speed control servo, see WSM for speed signal verification.

PIN 4 - Brake Switch Input (BOO/BPP).

NOTE

ENSURE THAT BRAKE LAMPS ARE FUNCTIONING CORRECTLY.

Vehicles with automatic transmission and all Escape and Mariner vehicles (auto and manual): With a DVOM set to ohms, measure resistance between Pins 4 and B- with brake pedal not depressed, you should get less than 5 ohms. Then measure voltage with brake pedal depressed, you should get 12 V. Operation: The servo sends out a reference voltage on Pin 4 (4-7V) which is grounded through the brake lamps or switched directly to ground.

Vehicles with manual transmissions (except Escape and Mariner vehicles, see above): With a DVOM set to ohms, measure resistance between Pin 4 and B- with brake pedal not depressed and clutch pedal not depressed, you should get less than 5 ohms. Next, depress clutch pedal only, measuring resistance, you should get an open circuit / infinite resistance. Then measure voltage with brake pedal depressed, clutch pedal not depressed and you should get 12 V. Repeat with both pedals depressed and you should get 0 volts. Operation:

The servo sends out a reference voltage on Pin 4 (4-7V) which is grounded through the brake lamps or switched directly to ground when the clutch pedal is not depressed.

Speed Control Switch	Resistance Value
Coast	Between 114 and 126 ohms
Set / Accel	Between 646 and 714 ohms
Resume	Between 2,090 and 2,310 ohms
Off	Less than 5 ohms
No Buttons Pressed	Infinite

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Figure 3

PIN 5 - Control Switch Input. (**Note:** Performed with key in OFF position.) Remove Connector C122 using a DVOM set to resistance, measure the resistance between Pins 5 and 6. See table of resistance readings below for each switch when it is depressed.

PIN 6 - Control Switch Return. This is the return side of the switches, which are grounded internally to the servo to Pin 10. If test for Pin 5 checks good then Pin 6 is functioning normally.

PIN 7 - Power. Remove Connector C122, Using a DVOM set to DC volts, measure the voltage between Pin 7 and ground. You should read greater than 10 volts with the key in the run position. Record the voltage from Pin 7 to ground, then re-measure with a test lamp (1156) from Pin 7 to ground, to ensure current carrying capability. The difference between the two measurements should be less than 0.3 VDC. If voltage drop test fails then check wiring.

PIN 8 - Not used.

PIN 9 - Brake Deactivator Switch (BPS). This is a redundant shutoff switch. Without depressing the brake pedal, measure voltage on Pin 9, and re-measure with a test lamp (1156) from Pin 9 to ground, to ensure current carrying capability. The difference between the two measurements should be less than 0.3 VDC. The system requires enough current at this pin to engage properly. If voltage drop test fails, check for corroded wiring or deactivation switch. You should measure 0 volts at Pin 6 when the brake pedal is depressed firmly.

An alternate to the voltage drop test would be to disconnect the switch connector and measure the switch resistance. It should be less than 5 ohms. If the switch is suspected, a bypass test may also be done: On the harness side of the BPS connector, connect a jumper between the two deactivation switch pins and drive vehicle above 30 MPH (48 Km/h). If speed control engages then the brake deactivation switch was faulty, otherwise wiring is at fault.

PIN 10 - Ground. Using a DVOM set to DC volts, measure the voltage between B+ and Pin 10. You should read greater than 10 volts. Record the voltage between B+ and Pin 10, then re-measure with a test lamp (1156) from B+ to Pin 10. The difference between the two measurements should be less than 0.3 VDC. If voltage drop test fails then check wiring. This verifies circuit can carry proper load as well as continuity to ground.