

Ford Cruise Control - System and parts Testing

WARNING! FOLLOW STANDARD SAFETY PRACTICES WHEN WORKING ON A VEHICLE INCLUDING BUT NOT LIMITED TO: Transmission in Park or Neutral and the driven wheels off the ground or chocked when cranking/running the engine.

Check fan blade for cracks and do not stand next to the fan when running.

Use caution when working on fuel systems, which can remain pressurized for a long period after the key is turned off.

No smoking around fuel.

Watch for electric fan which can come on at any time.

Watch out for hot and/or moving parts.

Watch out for high voltage secondary circuits.

If you are not sure of the safety of any operation DO NOT DO IT. ASK SOMEONE!

The author assumes no responsibility for the safety of anyone using these documents.

You will need a meter for reading voltage and resistance for these tests. Actually, a 12 volt automotive type test light is easier for voltage tests.

Basic electrical tests:

Key ON, Meter on 20 volts scale:

Check from ground to the Ignition feed at the amplifier connector.

If not 12 volts - Replace fuse or repair power feed

Check from ground to the brake light wire while you push the brake pedal.

If not 12 volts - Replace fuse, brake light switch or repair wiring as necessary.

Key OFF, Meter on 100 or 200 ohms scale:

Check from the main ground to the vehicle body. It should be less than 5 ohms.

If not OK - Repair ground wiring

Electrically checking the Servo and its wiring:

At the amplifier servo (8 pin) harness connector:

This first test is with the harness connector plugged into the Amp:

1. Key ON, Meter on 20 volts scale:

From Servo+ to Ground should be battery voltage

If not OK - Replace fuse or repair power feed

Unplug the connector from the Amp for the following tests:

2. Key OFF, Meter on 100,000 or 200,000 (100K or 200K) ohms scale:

From Feedback to each of the potentiometer ends, P1 and P2 should be "about" 25,000 ohms each.

If not OK, check again at the Servo connector. If OK there the problem is the wiring from the Amp to the Servo. If out of range at the Servo, the Servo is defective.

3. Key OFF, Meter on 100 or 200 ohms scale:

From Servo+ to Vac should measure 40 to 125 ohms.

If not OK, check again at the Servo connector. If OK there the problem is the wiring from the Amp to the Servo. If out of range at the Servo, the Servo is defective.

From Servo+ to Vent should measure 60 to 90 ohms.

If not OK, check again at the Servo connector. If OK there the problem is the wiring from the Amp to the Servo. If out of range at the Servo, the Servo is defective.

Note: USUALLY when the solenoids go up they're open (infinite resistance) but I have seen them be electrically OK, and mechanically defective.

4. Also, with the key OFF and the meter set on 100 or 200 ohms, or continuity, check from all of the wires above to ground. There should be NO continuity. If there is, then the wire is shorted to ground.

Servo functional test:

WARNING: DO THIS AT YOUR OWN RISK. The engine revs up during this so you need to be ready to release the Servo vent line ground or turn off the key quickly if it revs too high.

You need 3 test leads, preferably with alligator clips on the ends.

Disconnect the servo (8 pin) connector at the Amp.

Connect the Servo+ line to a 12 volt source.

Connect the Vent lead to ground.

Connect the third lead to ground, but don't connect it to the wire harness yet.

Ensure the vehicle is safe to start (see precautions at the top of page) and start the engine.

Momentarily touch the ground lead to the Vacuum wire on the harness. It only takes a fraction of a second to apply some vacuum. Keep doing it in little steps rather than just holding the line grounded.

As you apply the ground, the diaphragm should start to pull the throttle open and increase engine RPMs.

To release the throttle, just break the ground to the Vent wire.

Remember to just turn off the key or release the Vent line if the engine gets away from you.

If the Servo doesn't respond:

Make sure the vacuum hose to the Servo has a good vacuum with the engine running.

Also try blocking off the hose to the dump valve. It may be leaking vacuum.

I have also seen the actuator cables break right where they connect inside the Servo. You can undo the two 10mm nuts that hold the cable to the Servo and pull it away a bit to see if it's connected.

Checking the speed sensor:

The speed sensor is checked at the amplifier harness from the VSS wire to VSS ground (or just ground). If the sensor reading is not right there, check again at the sensor itself to see if the wiring is bad between the sensor and the Amp.

Note: If the speedometer and the cruise both don't work suspect speedo cable and or gear\sensor problems.

Non-electronic instrument cluster:

Set ohmmeter to read the required range:

Up to 1982 = 30-100 ohms

1983 and up = 180-300 ohms

Escort, EXP, and Lynx used the 30-100 ohm sensor until 1983.

Notes: The usual problem would be an open sensor (infinity ohms reading).

It is still possible for the sensor to be bad even if it reads right. It could be mechanically bad. I have seen them come apart inside so that the magnet doesn't spin.

Electronic instrument cluster:

The cluster outputs the voltage that the amp reads. The only way to test these is to look for a 6-24 Volts AC output from VSS to ground at about 30MPH. MAKE SURE YOU DO THIS TEST SAFELY AND KEEP YOUR EYES ON THE ROAD. Preferably, do it on a lift.

Checking the steering wheel switches:

The steering wheel switches tell the amp what to do by grounding out the switch line (OFF), putting full to it (ON), or by putting voltage to the amp through resistors (Other functions).

Key ON, Meter on 20 volts scale:

Check from switches line to ground. When you press the ON switch you should get anywhere from 7 to 14 volts on the line.

If not OK, check the 12 volt feed that comes through the horn relay up to the wheel. Also check the appropriate wires for continuity.

Key OFF, Meter on 2000 ohm scale.

Check from switches line to ground while you actuate the switches:

SET\ACCEL - 680 ohms

COAST - 120 ohms

RESUME 2200 ohms

If the reading is wrong, try moving the wheel while pressing the buttons. The slip ring contacts might be dirty. USUALLY if this is the case, you can get the system to work by moving the wheel back and forth while activating it.

If all of the readings are infinity, suspect an open wire somewhere.

The switches can be replaced by removing the pad on the wheel.

Note: If the wheel has to come off to clean the slip rings, you will need a large socket and breaker bar as well as a steering wheel puller. Don't try and beat it off with a hammer. Wipe the grease off the rings on the wheel and clean them up with a 3M type "scuff pad" (like a plastic scouring pad). Lightly scuff the tops of the brushes (pins) they hit too. It's not really necessary to regrease them.

You can buy the ring assemblies separately if the plastic is breaking apart.

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