

TESTING

The computer module has the ability to detect an open sensor circuit, an open actuator solenoid circuit, an excessively long output pulse to the solenoid, and an open failure switch connector at the actuator. The brake warning light comes on 4 to 6 seconds after any of the above conditions occur. When the brake warning light comes on, the sure-track system becomes inoperative and the braking system returns to normal operation. The failure warning light will also come on immediately after the ignition switch is turned to start if the sure-track fuse is defective or the primary power is interrupted.

SENSOR TEST

Be sure to calibrate ohmmeter on the RX100 scale.

1. Remove sensor plug A from the computer module (Fig. 8).

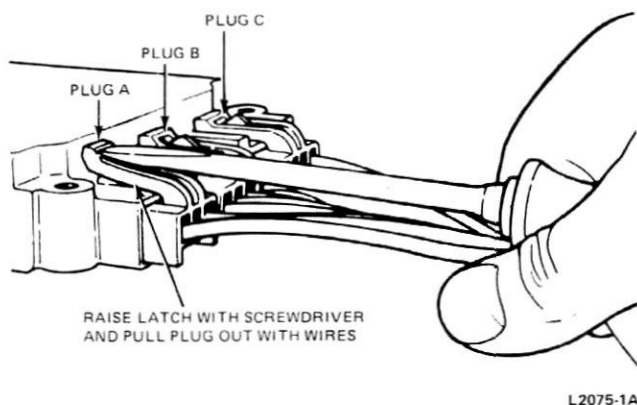


FIG. 8 Removing Sensor Plug From Computer Module

2. Connect an ohmmeter between pins two and three of the sensor connector. Resistance should be 2,400 to 3,200 ohms (Fig. 9).
3. Connect an ohmmeter between chassis ground and either pin of the sensor connector (Fig. 10). Resistance should be infinite.
4. If the resistance is not within the limits on both checks, remove the connector from the sensor at the rear axle pinion housing.
5. Repeat the resistance checks (Steps 2 and 3 above), at the terminals on the sensor.
6. If the resistance at the solenoid terminals is not within the limits on both checks, replace sensor assembly.
7. If the resistance is within the limits on both checks, the problem is in the wiring harness between the sensor and the module.

SENSOR OUTPUT VOLTAGE TEST

The output voltage of the sensor can be monitored if a voltmeter capable of measuring AC voltage is

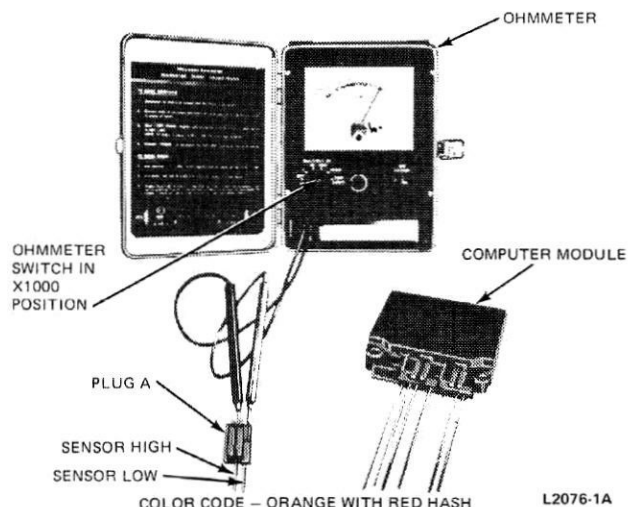


FIG. 9 Testing Sensor Circuit

available. Disconnect plug A at the computer module and connect the AC voltmeter to pins two and three. Raise the rear wheels off the ground and run at 30 mph. Voltage should be above 5 volts AC.

SOLENOID TEST

Be sure to calibrate ohmmeter on the RX1 scale.

1. Remove plug B from the computer module (Fig. 11).
2. Connect an ohmmeter between pin six (solenoid high) (red wire) and pin four (system ground) (black wire) of the plug. Resistance should be 2 to 8 ohms.
3. If the resistance is lower than 2 ohms, inspect the solenoid wiring for a grounded condition.
4. If the resistance is higher than 8 ohms, connect ohmmeter to terminals on solenoid.
5. If resistance is between 2 and 8 ohms, inspect solenoid wiring harness for an open condition or for poor terminal contact at the solenoid connector or at the intermediate connector on the engine compartment harness.
6. If the resistance is not between 2 and 8 ohms, replace the actuator assembly.

SYSTEM GROUND TEST

Be sure to calibrate ohmmeter on the RX1 scale.

1. Remove plug B from the module (Fig. 12).
2. Connect an ohmmeter between chassis ground and system ground (Black) lead of the plug. Resistance should be lower than one ohm.
3. If the resistance is higher than one ohm, check the system ground wiring for a loose or broken wire and

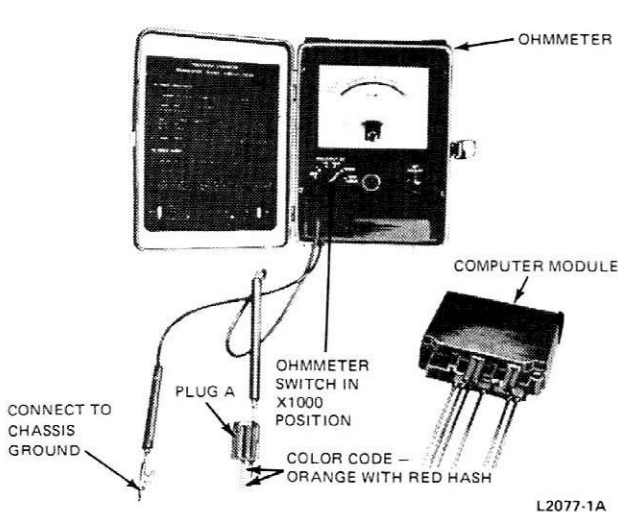


FIG. 10 Testing Sensor Circuit Leakage to Ground

repair as required. The system ground is located at the left-hand side of the instrument panel assembly on the end panel on Lincoln Continental; below and outboard of the fuse block on Continental Mark V.

FAILURE SWITCH TEST

Be sure to calibrate ohmmeter to the scale being used.

1. Remove plug B from the module (Fig. 13).
2. Connect the ohmmeter between pin five (Dark Green) failure switch and pin eight (Blue) failure switch. Resistance should be less than one ohm.

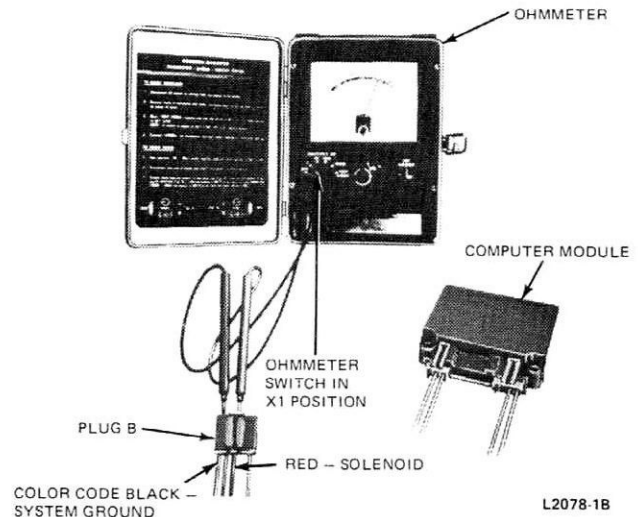


FIG. 11 Testing Solenoid Circuit

3. Connect the ohmmeter between chassis ground and one of the two pins for the failure switch. Resistance should be infinite.
4. If the resistance is not within limits on both tests, check the intermediate connector in the engine compartment and the failure switch connector at the actuator.
5. If all connections are made, check for electrical continuity in wiring harness between the actuator failure switch connector and connector B at the module. If continuity is found OK, and failure switch has not been shuttled due to brake release during sure-track cycling, replace actuator.

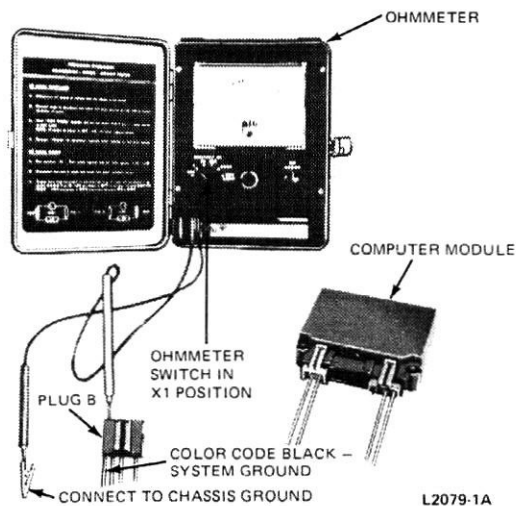


FIG. 12 Testing System Ground

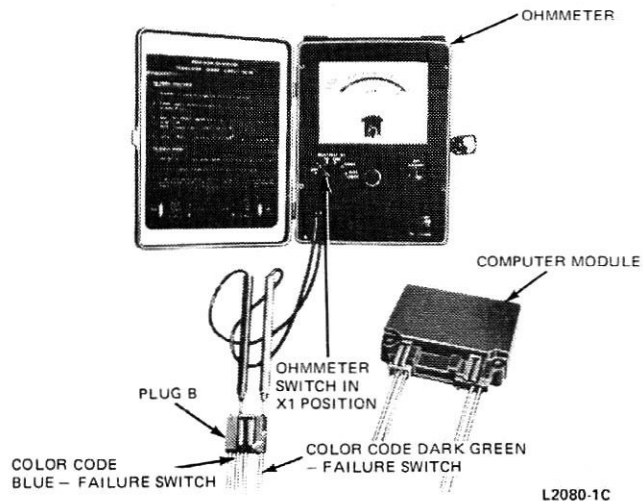


FIG. 13 Testing Failure Switch Circuit



DIAGNOSTIC CHART SURE-TRACK BRAKE SYSTEM

The hydraulic skid control system does not have the audible actuator cycle characteristics of earlier systems, instead, as a proveout function, the brake warning light can be used to diagnose the sure-track system. Normal function of the brake warning light allows the light to flash on and then go out as soon as the ignition key is turned to the run position. The warning light should also go on and stay on while the key is held in the start position. The start position checks only the three-way switch for the hydraulic system not the sure-track system. When the brake warning light is on momentarily with the ignition key in run, the actuator solenoid is also momentarily energized; however, it usually cannot be heard unless the vehicle is raised on a hoist and a second person touches the actuator as it cycles.

Condition	Possible Cause	Resolution
1. Brake warning light comes on immediately and stays on after key is turned to run position.	• Check sure-track 4 amp. fuse. • Differential valve shuttled. • Short in brake warning light ground circuit. • Open B+ lead to module. • Shorted B+ lead to module.	• Replace fuse. • Refer to Hydraulic Brake System Diagnostic Procedure. • Remove plug "C" from module, turn ignition to RUN. If light comes on, locate and repair short. • Check B+ wiring and connectors for open circuit and repair as required. • Check B+ wiring and connectors for short circuit and repair as required. • Perform Solenoid Test as repair as required.
2. Brake warning light flashes and then comes on and stays on 4-6 seconds after ignition key is turned to RUN position.	• Open speed sensor, circuit connections and/or circuitry. • Open actuator failure switch, circuit connections and/or circuitry. • Closed actuator differential failure switch in actuator. • Open actuator solenoid, circuit connections and/or circuitry.	• Check sensor, harness connections at computer module, in trunk, and at sensor and repair as required. (See Sensor Test.) • Check failure switch, connections at actuator, computer module, and in engine compartment. Service as required. (Perform Failure Switch Test.) • Perform Failure Switch Test. • Perform hydraulic brake system diagnostic procedure. • Check solenoid plus connectors at computer module in passenger compartment and at actuator. Service as required. (Perform Solenoid Test.)
3. Brake warning light does not flash and go out as soon as the key is turned to RUN position and: a) Brake warning light comes on when the key is turned to START. b) Brake warning light DOES NOT come on when key is turned to START.	• Loose or missing skid control ground wire. • Connectors loose or not connected to skid control module. • Skid control module not installed. • Burned out brake warning light bulb. • Loose or broken wire in brake warning light circuit.	• Service ground wire (perform System Ground Test.) • Replace and/or repair connectors. • Install skid control module. • Replace bulb. • Replace or repair wire.
4. Brake warning light operates normally (flashes) and skid control system cycles during rough road conditions or normal braking.	• Loose ground connection. • Loose sensor connection. • Faulty sensor or sensor rotor. • Loose B+ and failure light connector at computer module.	• Perform System Ground Test procedure. • Check sensor connection at computer module, in trunk and at sensor. Repair as required. • Perform sensor test. • Check plug "C" and repair as required.
5. Brake warning light operates normally (flashes) and actuator cycles slowly or not at all during maximum braking condition.	• Shorted sensor circuit or defective sensor or rotor. • Plugged actuator filter.	• Perform Sensor Test. • Replace actuator.

If the corrections listed in Steps 1 through 5 above do not correct the observed condition, it may be necessary to replace the computer module.

FIG. 14 Diagnosis Chart—Sure-Track Brake System

L2081-2C

REMOVAL AND INSTALLATION

SENSOR ROTOR

Removal

1. Raise the vehicle on a hoist.
2. Mark the companion flange and the universal joint flange with a center punch, prior to disassembly to assure assembly in the original position to maintain drive shaft positioning.
3. Remove the four bolts that connect the companion flange to the drive pinion flange.
4. Attach the universal joint flange holding Tool T68P-4851-A to the universal joint flange and remove the retaining nut from the drive pinion (Fig. 15).
5. Install Tool T65L-4851-A on the drive pinion flange and remove the flange and rotor assembly from the rear axle drive pinion (Fig. 16).
6. Install the rotor remover Tool T69P4621-A or T71P-4621-A on the flange and rotor assembly and press the rotor from the companion flange (Fig. 17).

Installation

1. Position the drive pinion flange on a press, place the rotor and rotor installer Tool T60P-2B385-A on the drive pinion flange (Fig. 18) and press onto the pinion flange until the flange end bottoms on the shoulder in the tool.
2. Install the drive pinion flange and rotor assembly on the drive pinion shaft splines. Position the flange replacer tool on the pinion shaft and press the flange on the pinion shaft (Fig. 19).
3. Install the drive pinion flange retaining nut on the drive pinion shaft. Hold the pinion flange with the flange holding Tool T68P-4851A and tighten the pinion nut to 180-220 ft-lb torque.
4. Position the companion flange and universal joint flange with the punch marks aligned, install the retaining bolts and nuts and tighten to 70-90 ft-lb torque.
5. Perform functional test.

SENSOR ASSEMBLY

Removal

1. Remove companion flange as described above.
2. Remove the nut that retains the wiring harness tube assembly bracket on the pinion bearing retainer housing.
3. Remove the two nuts that retain the wiring harness and tube assembly bracket on the rear axle carrier assembly studs (right side of carrier on Continental Mark V and the left side of Lincoln).
4. Move the wiring harness and bracket forward off the carrier studs and disconnect the plug from the sensor connector.
5. Remove the three bolts that hold the sensor assembly on the drive pinion bearing retainer housing and remove the sensor assembly.

Insert a screwdriver in the drain hole in the bottom of the pinion bearing retainer housing and pry the sensor assembly from the retainer housing. Do not pry between the sensor wire connector and

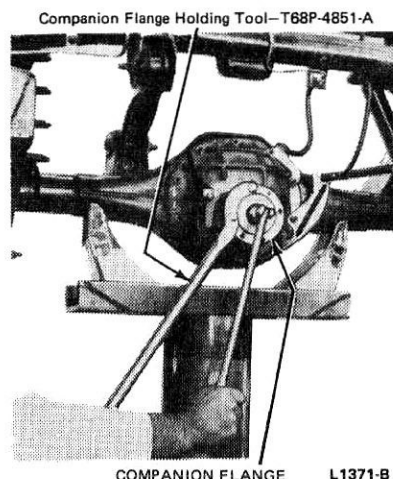


FIG. 15 Removing Pinion Shaft Nut

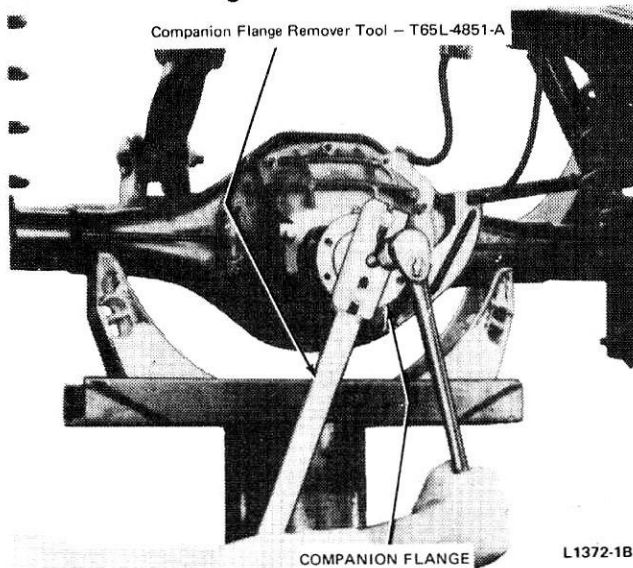


FIG. 16 Removing Companion Flange and Rotor

casting and the edge of the bearing retainer housing, as damage to the wire connector could result.

Installation

1. Position the sensor assembly on the drive pinion bearing retainer housing, install the three attaching bolts, and tighten to 16-24 ft-lb torque.
2. Connect the harness plug to the connector on the sensor assembly and position the wiring harness and tube assembly bracket on the carrier studs.
3. Install the two carrier housing stud nuts on the housing studs and tighten to 30-40 ft-lb torque (right side of carrier on Continental Mark V and the left side of carrier for Lincoln Continental).
4. Install the wiring harness and tube bracket retaining screw at the pinion bearing retainer housing and tighten to 30-45 ft-lb torque.