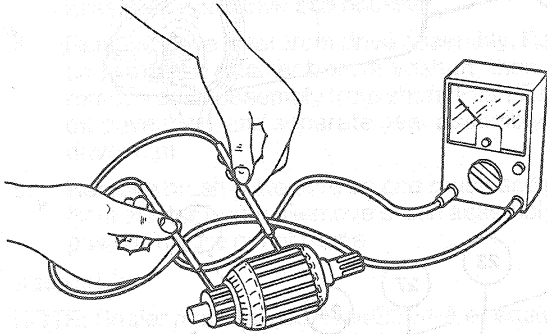


DIAGNOSIS AND TESTING (Continued)

Grounded Armature Test

This test will determine if the winding insulation has been damaged, permitting a conductor to touch the frame or armature core. To determine if the armature windings are grounded, check with a Rotunda Digital Volt-Ohmmeter 007-00001 or equivalent. Infinite resistance indicates a normal condition.

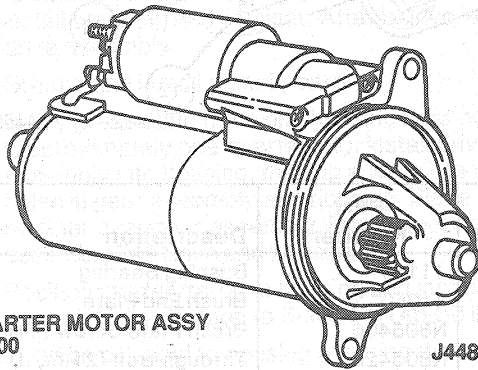


J3411-A

Starter Solenoid Test

Ensure that the solenoid is isolated electrically from the motor. Using a DVOM, check for continuity between S terminal and M terminal, and between S terminal and ground (frame). If there is no continuity, the following conditions may exist:

- (1) Open wire; replace solenoid.
- (2) Ice, dirt or other foreign material preventing contact; service as necessary.

STARTER MOTOR ASSY
11000

J4488-A

REMOVAL AND INSTALLATION

Starter Motor**Removal**

WARNING: WHEN SERVICING STARTER OR PERFORMING ANY MAINTENANCE IN THE AREA OF THE STARTER, NOTE THE HEAVY GAUGE INPUT LEAD CONNECTED TO THE STARTER SOLENOID IS HOT AT ALL TIMES. MAKE SURE THE PROTECTIVE CAP IS INSTALLED OVER THE TERMINAL AND IS REPLACED AFTER SERVICE.

NOTE: When the battery has been disconnected and reconnected, some abnormal drive symptoms may occur while the powertrain control module (PCM) 12A650 relearns its adaptive strategy. The vehicle may need to be driven 10 miles or more to relearn the strategy.

1. Disconnect the battery negative battery cable.
2. Raise the vehicle on a hoist. Refer to Section 00-02.
3. Disconnect starter cable and push-on connector from starter solenoid.

CAUTION: When disconnecting hardshell connector at 'S' terminal, grasp the plastic shell and pull off. Do not pull on wire. Be careful to pull straight off to prevent damage to the connector and 'S' terminal. If any part of the connection is damaged, replace the damaged components.

4. Remove upper bolt.
5. Remove lower bolt.

Installation

1. Position starter motor to engine and install upper and lower bolts finger-tight.
2. Tighten the upper bolt to 20-27 N-m (15-20 lb-ft).
3. Tighten the lower bolt to 20-27 N-m (15-20 lb-ft).
4. Connect starter solenoid connector. Be careful to push straight on and make sure connector locks in position with a notable click or detent.
5. Install starter cable nut to starter terminal. Tighten to 9-14 N-m (80-124 lb-in).
6. Replace red solenoid safety cap.
7. Lower vehicle to floor.
8. Connect negative battery ground cable.

DISASSEMBLY AND ASSEMBLY

NOTE: Although disassembly and service procedures are shown for the starter motor in this section, it is recommended that the starter motor be returned to Ford Return Parts Center for analysis and review.