

REMOVAL AND INSTALLATION (Continued)

2. Disconnect battery ground cable and secure it out of the way.
3. Remove fuel cap and release tank pressure.
4. Release pressure from fuel system. Refer to Section 10-01 for fuel system pressure relief procedures. A fuel pressure relief valve on the fuel rail assembly is provided for this procedure.

Post-Service Procedures

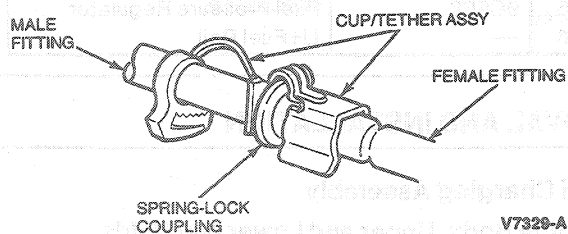
After the service is complete and the fuel charging assembly is installed onto engine, the following Steps must be taken:

1. Install fuel cap at tank.
 2. Connect battery ground cable.
 3. Add engine coolant if required.
- CAUTION: The fuel system is normally pressurized to 276 kPa (40 psi).**
- NOTE: Check all connections at fuel rails, push connect fittings, etc.**
4. Turn ignition switch ON/OFF several times without starting engine to check for fuel leaks.
 5. Start engine and warm to operating temperature. Check for coolant leak if coolant was removed.
 6. Perform powertrain control module (PCM) Self-Test to check systems function. Refer to the Powertrain Control/Emissions Diagnosis Manual².

Spring Lock Coupling**Tools Required:**

- Spring Lock Coupling Disconnect Tool D87L-9280-A (3/8 inch) or D87L-9280-B (1/2 inch)

The spring lock coupling is a fuel line coupling held together by a garter spring inside a circular cage. When the coupling is connected together, the flared end of the female fitting slips behind the garter spring inside the cage of the male fitting. The garter spring and cage then prevent the flared end of the female fitting from pulling out of the cage. As a redundant locking feature, a horseshoe-shaped retaining clip is incorporated to improve the retaining reliability of the spring lock coupling.



² Can be purchased as a separate item.

Removal

1. Release fuel system pressure. Refer to Section 10-01 for fuel system pressure relief procedures. A fuel pressure relief valve on the fuel injection supply manifold assembly is provided for this procedure.
2. Remove retaining clip from spring lock coupling by hand only. Do not use any sharp tool or screwdriver as it may damage the spring lock coupling.
3. Twist fitting to free it from any adhesion at the O-ring seals.
4. Fit Spring Lock Coupling Disconnect Tool D87L-9280-A (3/8 inch) or D87L-9280-B (1/2 inch) or equivalent to coupling.
5. Close tool and push into open side of the cage to expand garter spring and release female fitting.
6. After garter spring is expanded, pull fittings apart.
7. Remove tool from disconnected coupling.

Installation

1. Ensure that garter spring is in cage of male fitting. If garter spring is missing, install a new spring by pushing it into cage opening. If garter spring is damaged, remove it from cage with a small wire hook (do not use a screwdriver) and install a new spring.
 2. Clean all dirt or foreign material from both pieces of coupling.
- WARNING: USE ONLY THE SPECIFIED O-RINGS AS THEY ARE MADE OF A SPECIAL MATERIAL. THE USE OF ANY O-RING OTHER THAN THE SPECIFIED O-RING MAY ALLOW THE CONNECTION TO LEAK INTERMITTENTLY DURING VEHICLE OPERATION.**
3. Replace missing or damaged O-rings. Use only O-rings listed in Spring Lock Coupling illustrations.
 4. Lubricate male fitting and O-rings and inside of female fitting with clean engine oil XO-10W30-QSP (ESE-M2C153-E) or equivalent.
 5. Fit female fitting to male fitting and push until garter spring snaps over flared end of female fitting.
 6. Ensure coupling engagement by pulling on fitting and visually checking to ensure garter spring is over flared end of female fitting.

NOTE: All vehicles require the large black clip to be installed on the supply side fuel line and the small gray clip to be installed on the return side fuel line.

7. Position retaining clip over metal portion of spring lock coupling. Firmly push retaining clip onto spring lock coupling. Ensure that horseshoe portion of clip is over the coupling. Do not install retaining clip over rubber fuel line.