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Cummins 5.9L 12-Valve Injector Set

**Replacement instructions for fuel injector sets for 1991-98
12-Valve Cummins**

1040175	+40HP 5.9L 6BTA 12V Injector Set
1040277	+45HP 5.9L 12V Injector Set
1040278	+90HP 5.9L 12V Injector Set
1040279	+120HP 5.9L 12V Injector Set

Table of Contents

Table of Contents.....	2
Kit Contents	2
Suggested Add-Ons.....	2
Introduction	3
Tools Required for Installation	3
Removal	3
High-Pressure Fuel Line Removal	3
Fuel Drain Manifold Removal.....	5
Fuel Injector Removal	6
Installation.....	7
Fuel Injector Installation	7
Fuel Drain Manifold Installation.....	8
High-Pressure Fuel Line Installation	8
Boost Control Elbow Installation.....	10

Kit Contents

1040277-1	DPE59000	1040310
		
Fuel Injectors Qty: 6	Washer and O-Ring Kit Qty: 1	Boost Control Elbow Qty: 1

Suggested Add-Ons

1071217X

BD ProForce 3D Torque Converter

Introduction

This kit contains replacement fuel injectors for 5.9L 12-Valve Cummins engines. BD's flow-enhanced fuel injectors are made with new VCO-type 145-degree 5 hole nozzles and the highest degree of accuracy.

Tools Required for Installation

- Wrenches
- Torque Wrench
- Anti-seize Compound
- Injector Bore Wire Brush
- Hammer
- Brass Drift
- Rust-Penetrating Solvent
- Injector Puller

Removal

Caution! Disconnect both vehicle batteries before installation for safety.

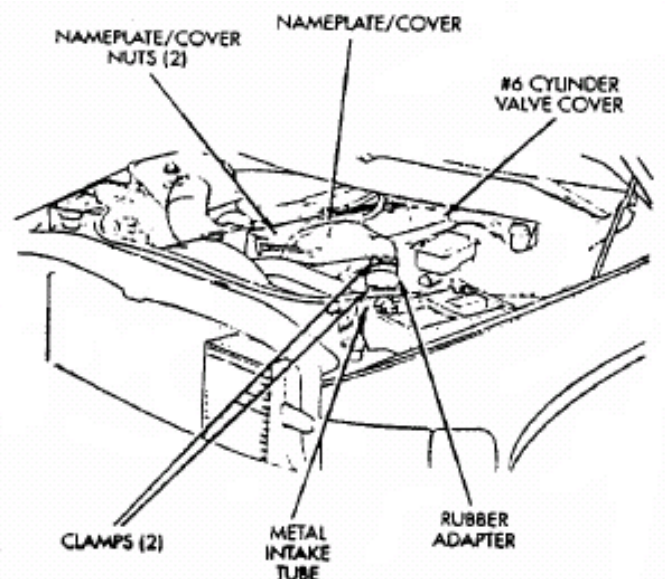
High-Pressure Fuel Line Removal

All high-pressure fuel lines are of the same length and inside diameter. Correct high-pressure fuel line usage and installation is critical to smooth engine operation.

Important! The high-pressure fuel lines must be clamped securely in place in the holders. The lines cannot contact each other or other components. Do not attempt to weld high-pressure fuel lines or to repair lines that are damaged. Only use the recommended lines when replacement of high-pressure fuel line is necessary.

Remove the nameplate/cover from the top of the six engine valve covers (two nuts).

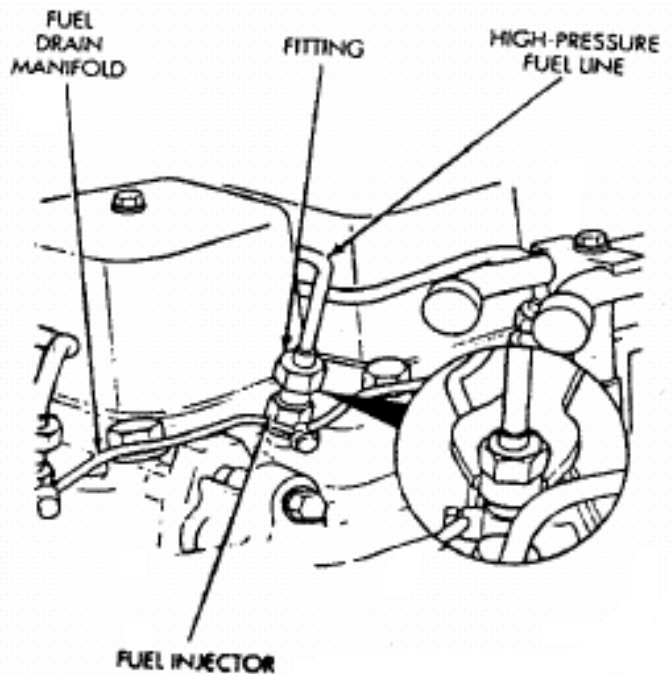
Remove the necessary clamps holding the lines to the engine.



Clean the area around each line.

Disconnect each line at the top of each fuel injector.

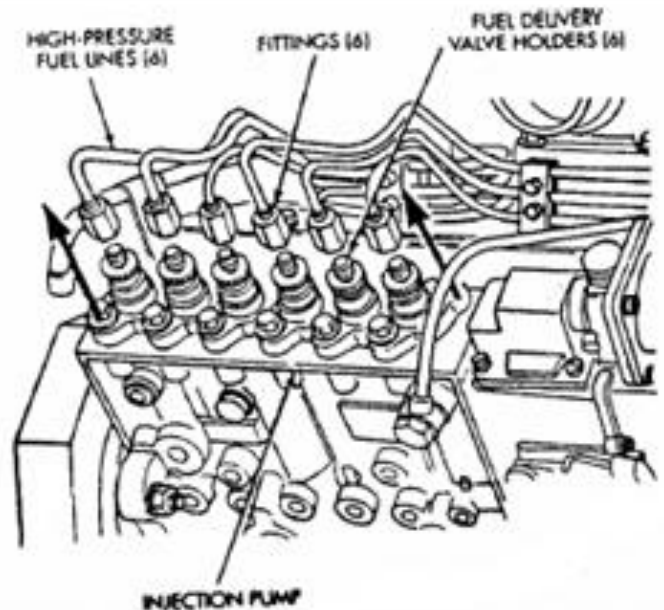
Note: High-pressure fuel lines must be installed in the same order that they were removed. Prevent injection pump delivery valve holders from turning when removing or installing high-pressure lines from injection pump.



Disconnect each high-pressure line fitting at each fuel injection pump delivery valve holder.

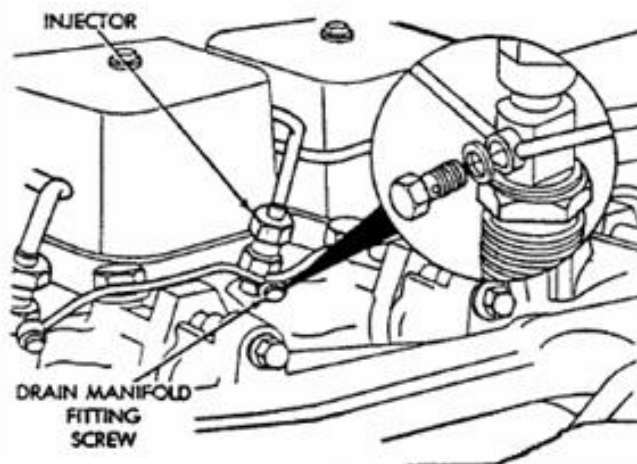
Very carefully remove each line from the engine.

Important! Do not bend the line while removing.



Fuel Drain Manifold Removal

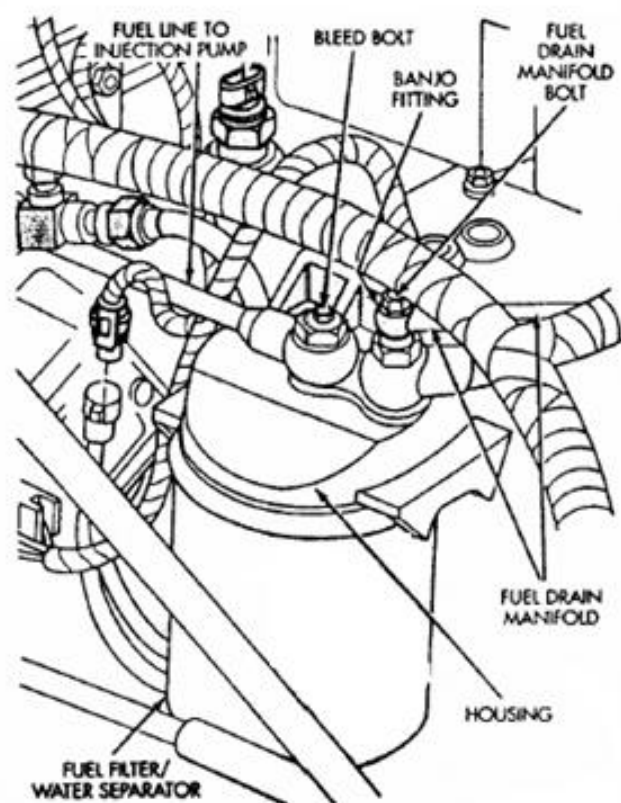
Remove drain manifold fitting screws at each of the six injectors.



Remove the fuel drain manifold holddown clamp mounting bolt at the top/rear of intake manifold.

Remove the fuel drain manifold banjo fitting at the top of fuel filter/water separator (one bolt).

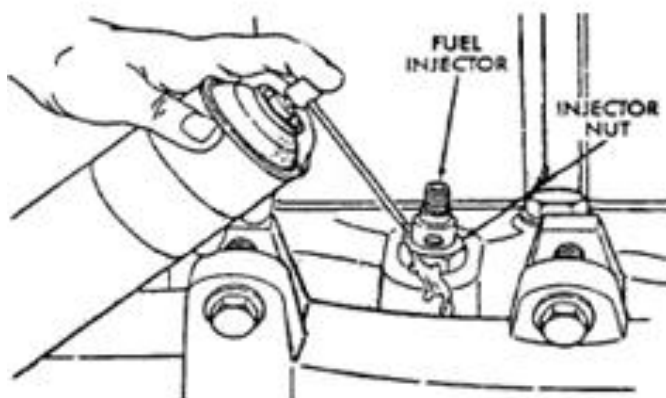
Remove fuel drain manifold washers at each fuel injector.



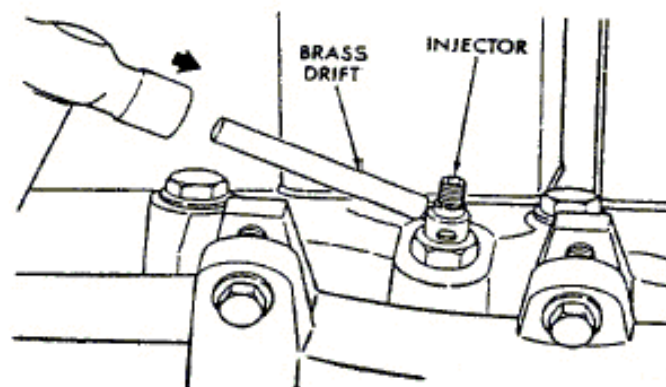
Fuel Injector Removal

Thoroughly clean the area around the injector.

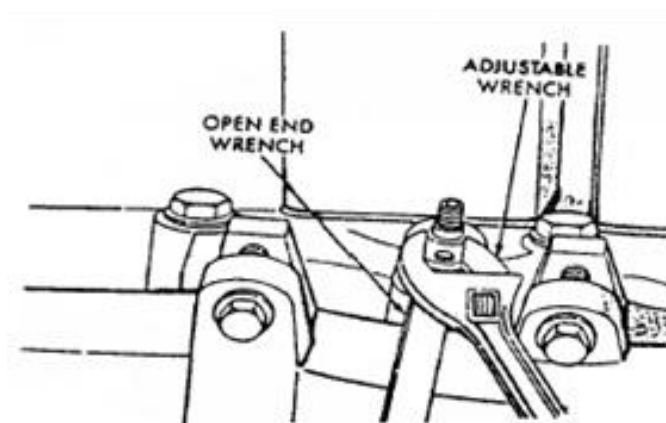
Note: When rust has formed on the fuel injector nut, the injector can rotate in the cylinder head during removal. This may cause damage to the cylinder head bore. Use a rust penetrating solvent before attempting to loosen a rusted holddown nut.



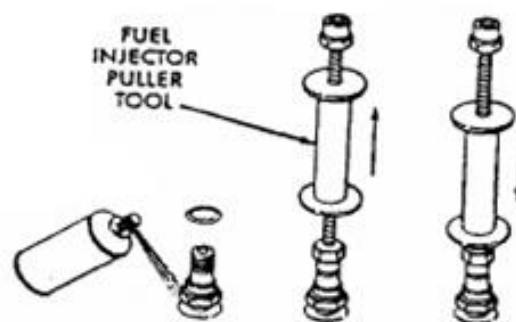
Hit the injector body with a brass drift to loosen it.



Hold the injector body with one wrench while removing the injector nut with another.



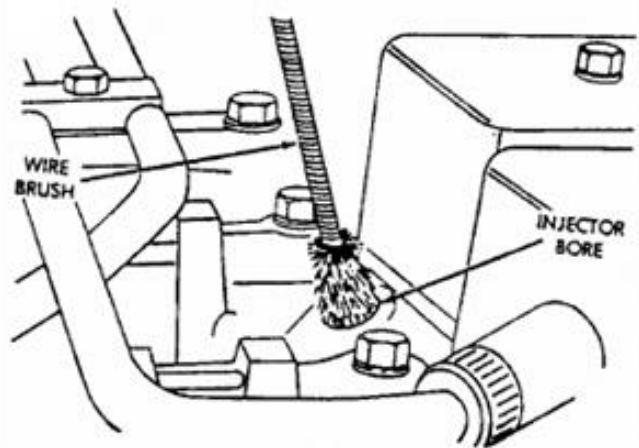
Note: It may be necessary to tap the injector with an injector puller tool.



Installation

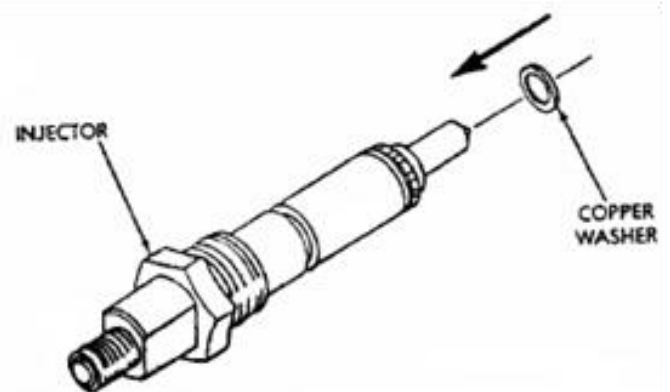
Fuel Injector Installation

Clean the injector cylinder head bore with special Cummins wire brush tool or equivalent.

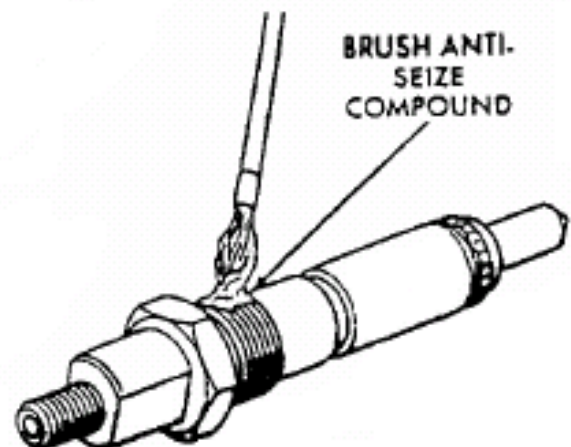


Install a new copper washer on the injector.

Note: Two different thicknesses of injector tip washers have been included in this kit. When installing new injector washers, select injector washers that are the same thickness as used washers from old injectors. Keep in mind that the old washers have been crushed during installation.

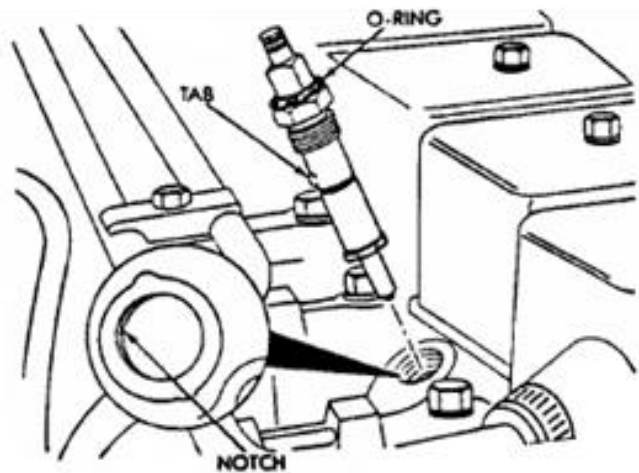


Apply a coating of anti-seize compound to the threads of the injector holddown nut and between the top of the nut and injector body.



Install injector into the cylinder head. Align the tab on the injector to the notch in the cylinder bore.

Note: Certain types of injectors may have an o-ring located above the holddown nut. After tightening the injector, push the o-ring into the groove the top of the injector.



Tighten the injector holddown nut to **60 N-m (44 ft. lbs.)** torque.

Fuel Drain Manifold Installation

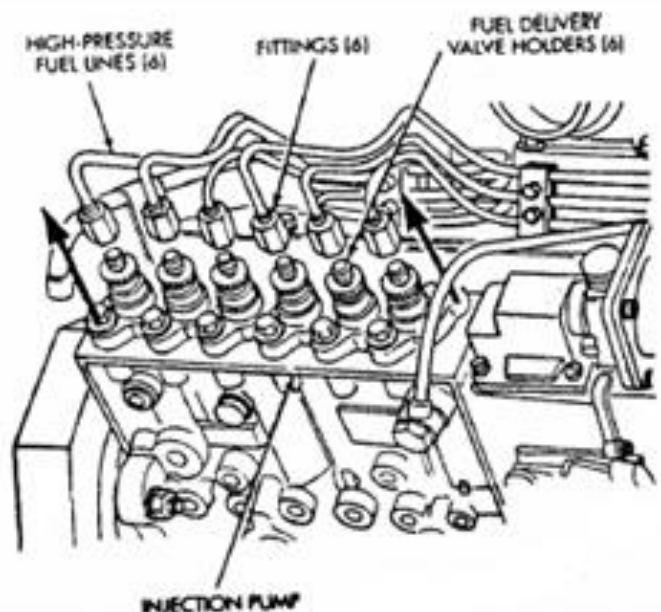
Using new seals and washers on all fittings, assemble fuel drain manifold in reverse order of disassembly.

Tighten drain manifold fitting screws at the injectors to **8 N-m (6 ft. lbs)** torque.

Tighten drain manifold holddown clamp screws to **13 N-m (10 ft lbs)** torque

High-Pressure Fuel Line Installation

Carefully position each high-pressure fuel line to the fuel injector and fuel injection pump delivery valve holder in the correct firing order. Also position each line in the correct line holder.

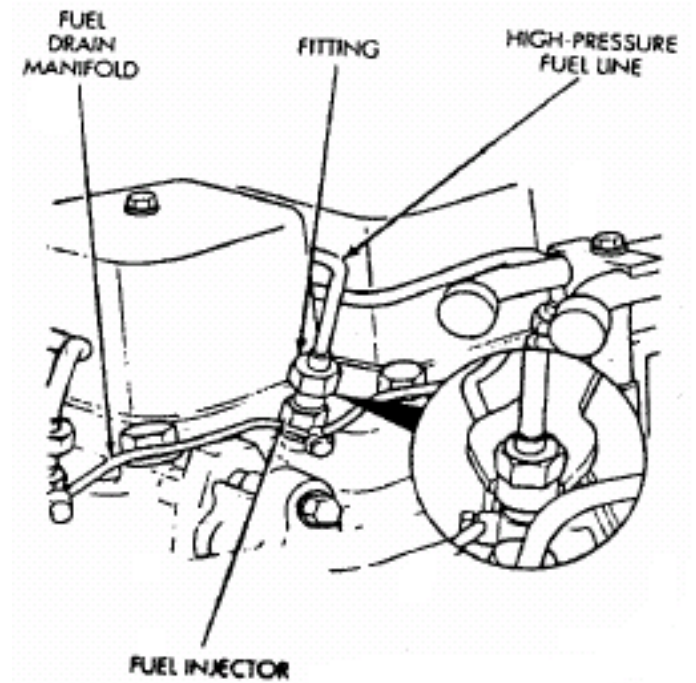


Loosely install the line clamp isolator and bracket holder bolts.

Tighten each line at the delivery valve holder to **30 N-m (22 ft. lbs.)** torque.

Tighten each line at the fuel injector to **30 N-m (22 ft. lbs.)** torque.

Important! Fuel lines must not contact each other or any other component.



Tighten the clamp bracket bolts to **24 N-m (18 ft. lbs.)** torque.

Reinstall nameplate/cover.

Bleed air from the fuel system and reconnect batteries.

Boost Control Elbow Installation

This elbow is recommended to increase boost pressure from the turbocharger to maximize efficiency of the new fuel injectors.

Determine where your vehicle obtains its wastegate pressure signal. Some vehicles (method 1) pick up this signal at an elbow on the front of the turbo while others (method 2) get the signal at a tee connected to the air fuel control housing (AFC) at the rear of the injection pump.

Method 1: Replace the barbed elbow in the wastegate sensor hose with the boost control elbow.

Method 2: Disconnect the barbed hose fitting from the wastegate sensor hose and remove the fitting from the AFC housing with a 7/16" deep barrel socket. Install the boost control elbow into the 1/8" NPT hole in place of the barbed hose fitting and reconnect wastegate sensor hose.

