VOLVO
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Service Bulletin Trucks

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Unit Injector, Clean
Volvo D11, D13 and D16 Engines

Unit Injector, Clean

W2004685

This information covers the proper procedure for cleaning unit injectors on Volvo engines.

Contents

Note: Information is subject to change without notice.
Illustrations are used for reference only, and may differ slightly from the actual engine version. However, key components addressed in this information are represented as accurately as possible.

Service Procedures

2374-11-03-01
Unit Injector, Clean

You must read and understand the precautions and guidelines in Service Information, group 20, "General Safety Practices, Engine" before performing this procedure. If you are not properly trained and certified in this procedure, ask your supervisor for training before you perform it.

1

CAUTION

If excessive combustion leakage has resulted in the copper sleeve being stuck-fast to the unit injector by carbon, the unit injector must be replaced. The condition is found when the unit injector is removed and the copper sleeve comes out with the injector.

Remove and discard the injector nozzle gasket (flat washer) from the injector tip or copper sleeve bore.

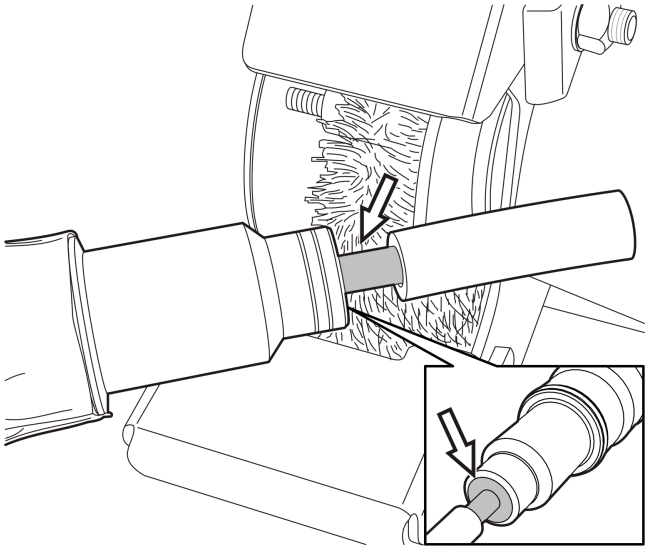
Note: If an injector nozzle gasket (flat washer) had been used for the seal joint between the injector copper sleeve and the injector, discard the used gasket immediately after the injector is removed. A used gasket must not be reused. When the injector is removed, this gasket may come out attached to the injector or it may remain in the bottom of the injector sleeve.

Note: If the nozzle gasket (flat washer) is attached to the injector, loosen it with gentle prying from a thin flat gasket scraper blade. If the gasket is in the bottom of the injector sleeve, initially attempt to remove it with a magnet. If this is unsuccessful, use a standard flat blade screwdriver with a long thin shank and narrow width blade to loosen the gasket. Locate the blade in the recess between the outside of the gasket and the injector sleeve. Use the blade to apply force on the outside of the gasket at different locations around the gasket. Continue this until the gasket separates from the sleeve.

2
To determine if the injector is suitable for reuse, the injector must be cleaned. The cap nut seat surface is the only surface which requires a thorough cleaning. Remove the two O-rings from the injector. Cover the two O-ring grooves and the complete area between the grooves with tape or equivalent to prevent contamination from getting into the injector. Also, cover the electrical connection opening. Protect the nozzle spray holes from damage by covering approximately half of the nozzle tip length with a piece of 6 mm (0.25 inch) ID hose.

CAUTION

Unit injectors operate at very high fuel injection pressures, which keep the nozzle tip spray holes clean and free of carbon. The outer surface of the tip spray holes does not need to be cleaned and to prevent spray hole damage MUST NOT be cleaned with a wire wheel.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3
With the unit injector surfaces protected as described above, clean the cap nut seat surface of hard carbon deposits by careful use of a wire wheel, confining the wire wheel contact to the cap nut seat surface only and completing the cleaning with hand tools. Carefully remove the carbon by applying slight nominal pressure with the wire wheel against the cap nut and nozzle for short periods of time. Clean any remaining carbon using hand tools such as a hand scraper or medium grit emery cloth.

CAUTION

The carbon will be very hard and difficult to remove. Variables such as size and condition of the wire wheel may result in a tendency to force the wheel harder against the cap nut. However, it is very important to not use excessive pressure against the wire wheel to clean the cap nut seat surface. The use of excessive force must be avoided and can damage the seat surface resulting in an injector that cannot be reused.

Note: Using the precautions described in this procedure, a steel wire wheel is allowed to be used to clean the nozzle cap nut seat surface as described, but must not touch the nozzle tip spray holes under any circumstances or hole damage will result.

Note: The spray hole damage described here cannot be seen with a magnifying glass or an eye loop. A microscope with a minimum 10x magnification is needed to see this damage.

4
After cleaning, inspect the injector nozzle cap nut seat surface for pitting or related damage. If there is pitting or other damage, the injector can not be reused. If there is no pitting on the seat surface, the unit injector can be reused.

Note: Pitting on surfaces other than the cap nut seat surface does not effect the function of the unit injector and is acceptable.

Note: Heat discoloration (a "straw-colored" appearance) of the cap nut is normal and does not affect function of the injector. Do not replace a unit injector due to cap nut heat discoloration.