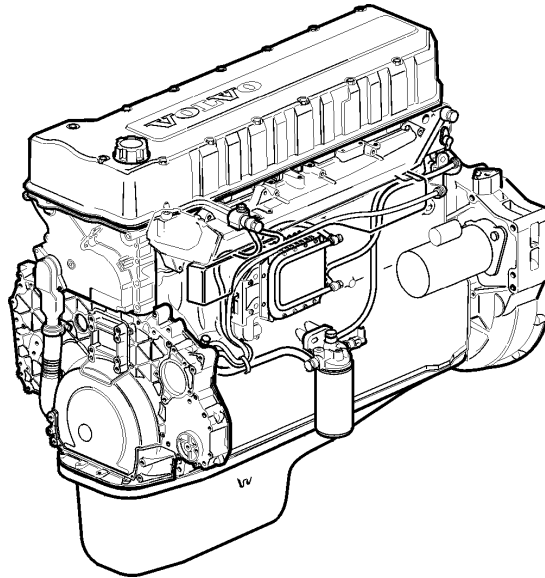


This TSI Service Bulletin replaces TSI Service Bulletin 214-011, "Valve Stem Seals, D12, D12A, D12B, D12C" (11.2002), publication no. PV776-TSP161564.

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Valve Stem Seals D12, D12A, D12B, D12C

Valve Stem Seals



W2003244

This information covers the proper procedure for servicing valve stem seals on the VOLVO D12, D12A, D12B, D12C engines.

Contents

- ["Special Tools" page 2](#)
- ["Valve Stem Seals, Replacement" page 3](#)

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

Tools

Special Tools

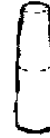
For special tools ordering information, refer to Tool Information, Group 08.



9996950
Flywheel blocking tool



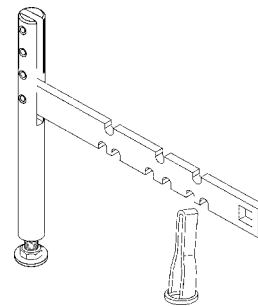
9996956
Flywheel turning tool



9998335
Valve stem seal guide sleeve



9998255
Rocker arm shaft lifting tool



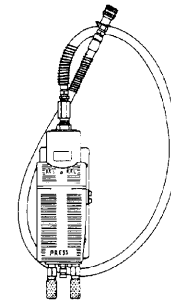
J-41989
Valve spring compressor tool



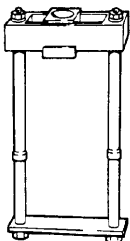
9996159
Tap for Hydraulic Cylinder 9996161



9996161
Hydraulic Cylinder



9996222
Foot Pump for Hydraulic Cylinder



9998260
Press Tool



9998261
Valve Guide Drift



9998263
Valve Guide Removal Drift

Service Procedures

2149-03-02-01

Valve Stem Seals, Replacement

(Cylinder head installed.)

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.

Note: Make sure that piston is at TDC for the cylinder where the valve stem seals are being replaced. If valve stem seal replacement is attempted with the piston NOT at TDC, the valve may fall into the cylinder, and the cylinder head may have to be removed.

Special tools: 9996950, 9996956, 9998255, 9998335, J-41989

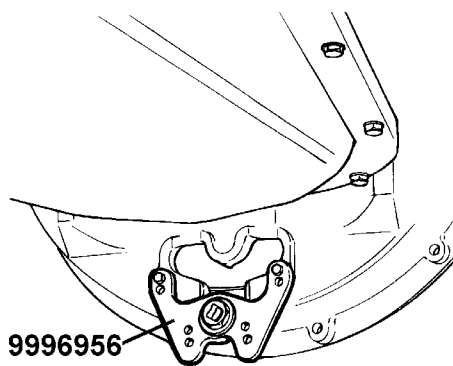
1
Remove the valve cover; refer to Service Information, Group 21.

2
Remove the flywheel housing inspection cover.

3
Install tool 9996956 and turn the engine to **TDC**, 0 degrees on the flywheel.

Note: When the flywheel is at **TDC**, the piston in No. 1 cylinder will be at the top of the cylinder stroke.

9996956



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4
Remove flywheel turning tool. Install blocking tool 9996950.

9996950

5
Loosen the rocker arm shaft bolts gradually to avoid bending the arm shaft assembly. Remove the bolts, install tool 9998255 and lift off the rocker arm shaft assembly.

9998255

6
Using tool 9998255, remove the rocker arm shaft from the cylinder head. Remove all valve bridges.

Note: Valve bridges need to be installed in the same location from which they were removed.

9998255

7
Install tool J-41989 to remove the valve springs on cylinder No. 1. With the flywheel locking tool still in place, do the valve seal on No. 6 cylinder, also. Rotate the engine, then move to cylinders 2 and 5. Then, rotate to cylinders 3 and 4.

J-41989

8
Remove the valve springs and old valve seals.

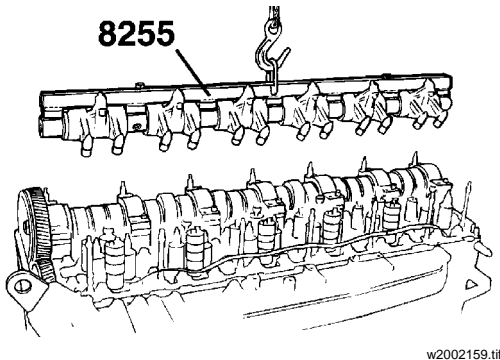
Note: Exhaust valves have inner and outer springs (double springs).

9
Place tool 9998335 on the valve guide and slip the valve seal over the tool. Push seal until it bottoms against the valve guide.

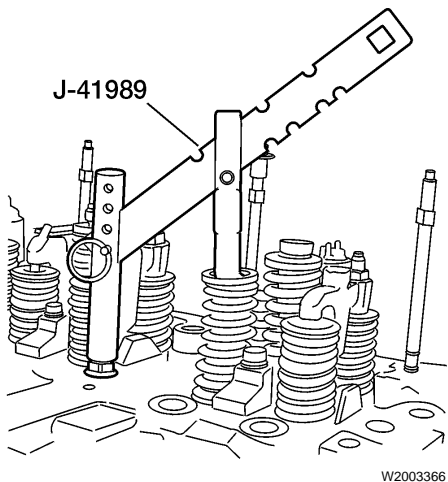
Note: Use tool 9998335 to avoid damage to the new seals.

9998335

10
Reinstall the valve springs, making sure that the valve retainers (keepers) lock correctly. Make sure that inner springs are on the exhaust valves.



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W2003366

11

Replace the valve stem seals on cylinder No. 6 in the same way.

12

Remove blocking tool 9996950. Install flywheel turning tool 9996956 and rotate the engine 120° until the next pair of pistons are located at TDC.

9996950, 9996956

13

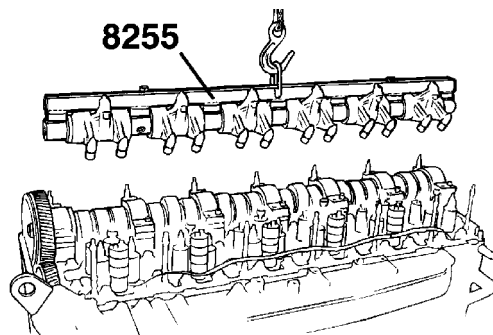
Remove flywheel turning tool 9996956. Reinstall blocking tool 9996950 and replace valve stem seals for these cylinders. Continue until all stem seals have been replaced.

9996950, 9996956

14

Remove blocking tool 9996950. Using tool 9998255, install the rocker arm shaft assembly.

9996950, 9998255



w2002159.tif

15

Adjust the valve bridges, valves, and injectors on all cylinders; refer to Service Information, Group 21.

16

Install the valve cover.