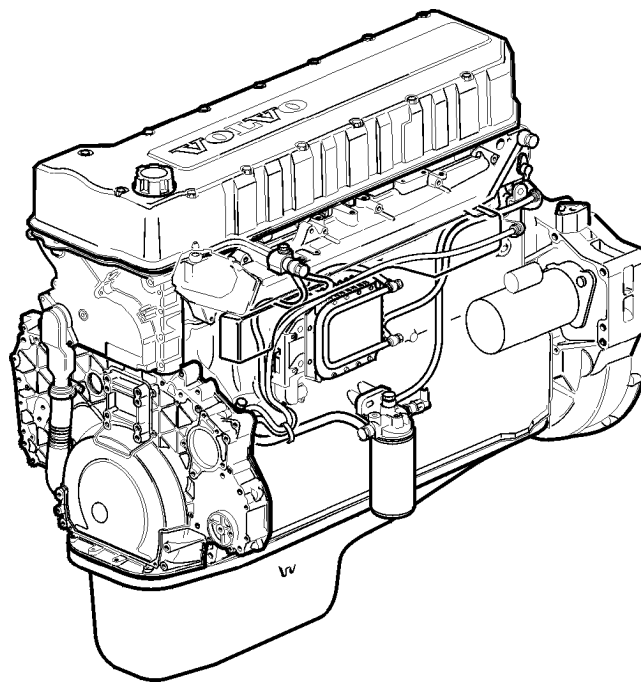


This TSI Service Bulletin replaces TSI Service Bulletin 214-009, "Valve Guides, D12, D12A, D12B, D12C" (11.2001), publication no. PV776-TSP160590.

Date	Group	No.	Supp.	Page
10.2003	<b>214</b>	<b>009</b>		1(7)

## Valve Guides D12, D12A, D12B, D12C

### Valve Guides



W2003244

Fig. 1: Volvo D12C engine

This information covers procedures for checking and replacing valve guides on VOLVO D12, D12A, D12B, and D12C engine.

### Contents

- ["Special Tools" page 2](#)
- ["Valve Guide Wear, Checking" page 3](#)
- ["Valve Guides, Replacement \(One Cylinder Head\)" page 5](#)

# Tools

## Special Tools

The following special tools are used to replace or repair components. The tools can be ordered from Volvo. Please refer to the specified part number when ordering.



**998 9876**

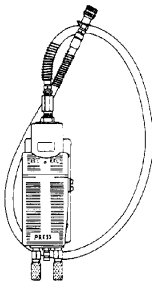
**9989876**  
Dial Test Indicator



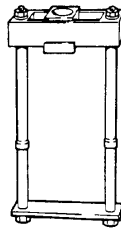
**9996159**  
Adapter



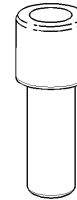
**9996161**  
Hydraulic Cylinder



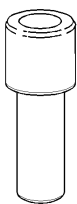
**9996222**  
Foot Pump



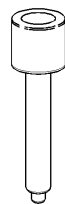
**9998260**  
Press Tool



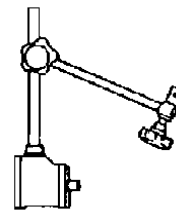
**9998261**  
Drift



**9998262**  
Drift



**9998263**  
Drift



**9999696**  
Magnetic Stand



**9990102**  
Cylinder head Adapter Plate



**9998335**  
Guide Sleeve

# Service Procedures

## 2143-06-05-01

### Valve Guide Wear, Checking



#### WARNING

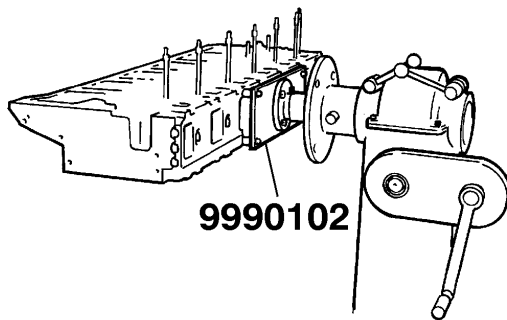
Always wear appropriate eye protection to prevent the risk of eye injury due to contact with debris or fluids.



#### CAUTION

Observe the greatest possible cleanliness when working on the cylinder head. Dirt particles in the fuel and oil channels can cause the unit injectors to malfunction, and can cause the VEB (if equipped) to fail or cause engine damage.

*Special tools: 9999696, 9989876, 9990102*



W2004315

**1**

Attach tool 9990102 in the cylinder head with 4 M8 x 50 mm bolts.

**Note:** Work with the cylinder head is simplified if it is installed in an engine stand.

9990102

**2**

Remove the valve springs.

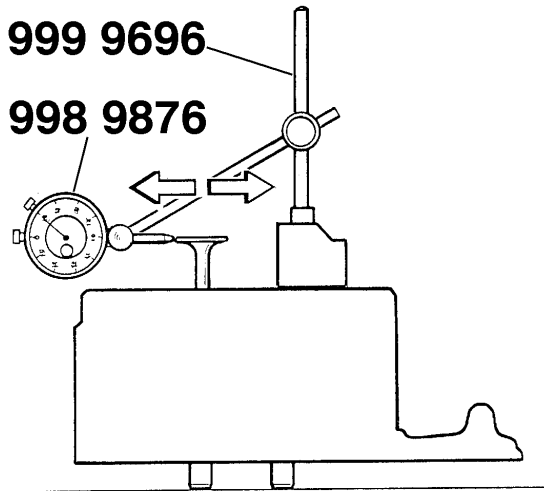
**3**

Remove the oil seal for the valve guide.

**4**

Place a new valve in the valve guide so that the end of the valve stem is flush with the edge of the guide.

**Note:** Use a suitable backstop for the valve stem.



T2008854

**5**  
Position dial indicator 9989876 with magnetic stand 9999696, so that the tip of the dial indicator is in contact with the edge of the valve disc. Move the valve sideways in the direction of the intake and exhaust channels. Read off the value on the dial indicator.

9999696, 9989876

**6**  
Check all the valve guides. If the measured values exceed the accepted wear limit, the valve guides should be replaced. Refer to Specifications Manual for valve dimensions.

## 2143-03-05-03 Valve Guides, Replacement (One Cylinder Head)

(With valves removed.)

### **WARNING**

Always wear appropriate eye protection to prevent the risk of eye injury due to contact with debris or fluids.

### **CAUTION**

Observe the greatest possible cleanliness when working on the cylinder head. Dirt particles in the fuel and oil channels can cause the unit injectors to malfunction, and can cause the VEB (if equipped) to fail.

*Special tools: 9996159, 9996161, 9996222, 9998260, 9998261, 9998262, 9998263*

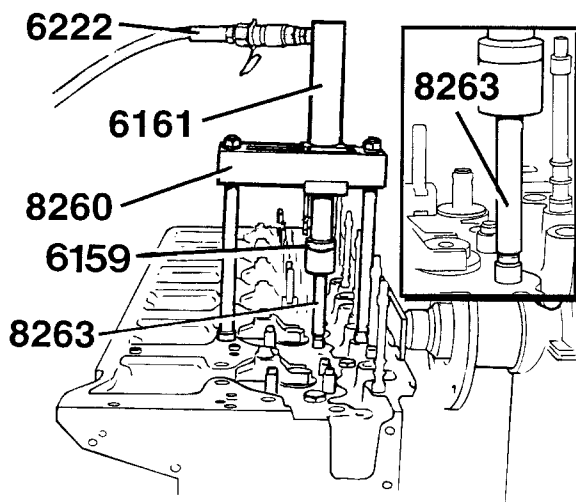
## Removal

1

Install press tool 9998260 in the holes for the cylinder head's hold-down bolts.

**Note:** Place washers between the nuts and the cylinder head plane. Tighten the nuts on the tool.

9998260



T2014954

2

Install tap 9996159 in the hydraulic cylinder.

9996159

3

Install hydraulic cylinder 9996161 in tool 9998260 and press out the valve guide with drift 9998263 and foot pump 9996222. Press out the other valve guides in the same way.

9996161, 9998260, 9998263, 9996222

## Installation

**1**

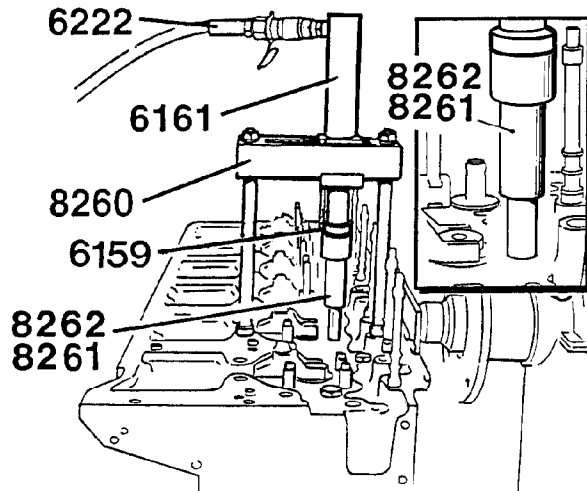
Use engine oil to lubricate the valve guides externally before installing.

**2**

Press in the intake valve guide using tool 9998261. Press in the exhaust valve using tool 9998262.

**Note:** Tool 9998261 is marked with **Inl.** Tool 9998262 is marked with **Ex.** Press until the tool reaches the cylinder head plane.

9998261, 9998262



T2014955

**3**

Repeat the process to install the other valve guides.

**4**

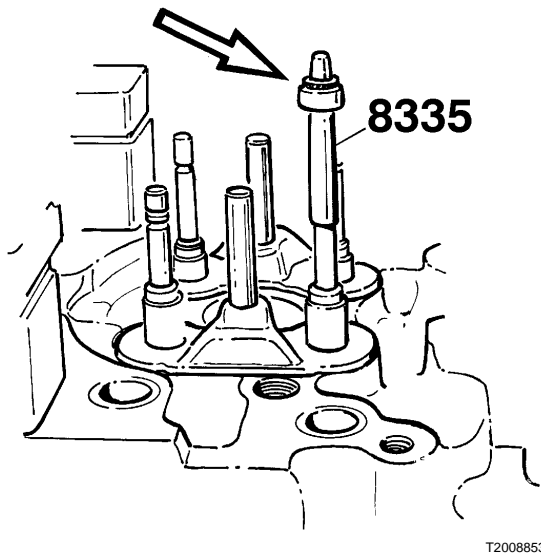
After replacing the valve guides, clean the cylinder head to prevent dirt particles from entering into the fuel chamber or oil channels.

**5**

Lubricate the valve stems with engine oil and install the valves.

**6**

Install the guide pins for the valve yoke.



T2008853

**7**

Install tool 9998335 and press down new oil seals over the valve guides.

**Note:** Make sure that the oil seals are pressed down properly.

9998335

**8**

Install the spring or springs, depending on whether it is an intake or exhaust valve.

**Note:** The exhaust valves have double springs.

**9**

Use the same tool used for dismantling and press down the valve disc, press the spring down carefully, and install the valve lock.

**10**

Install the valve yokes in their respective positions.