

Automotive Engines 10th

Chapter 26 Valve and Seat Service

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

1. How are the correct valve spring inserts (shims) selected and why are they used?

2. What is the procedure for grinding valves?

3. What is an interference angle between the valve and the seat?

4. When is the valve tip ground? How do you know how much to remove from the tip?

5.
How is a valve seat insert installed?

6. Describe the difference between cutting and grinding valve seats.

Answer Key

Testname: ENGINES 10 SHORT26

1. Valve spring inserts (shims) are used to restore original valve spring tension after grinding valve seats and the face of the valve. By grinding the valve seats and the valve face, the valve stem protrudes further up from the spring seat of the cylinder head. Valve spring inserts are used to compensate for this change in stem height. Determine correct shim thickness by measuring Installed Spring Height and compare with specifications. Subtract the specification from the measurement and the difference is the required thickness of the valve spring insert (shim).
Page Ref: 368-369
2. Step 1 – Valve stem tip is lightly ground and chamfered.
Step 2 – The face of the valve is ground to the proper angle using a valve grinder.
Step 3 – The valve seat is ground in the head. (The seat must be matched to the valve that will be used in that position.)
Step 4 – Valve spring installed height and valve stem height are checked and corrected as necessary.
Step 5 – After a thorough cleaning, the cylinder head should be assembled with new valve stem seals installed.
Page Ref: 360
3. An interference angle refers to the difference between the angles machined on the valve face and the valve seat (usually 1°).
Page Ref: 362
4. The valve tip should be ground whenever the valve is refaced. A maximum of 0.020" should be removed from the tip of the valve.
Page Ref: 368
5. A valve seat insert is installed into a machined pocket with an interference fit.
Page Ref: 366-368
6. Cutting valve seats is done with a carbide cutting tool whereas a grinding operation uses stones.
Page Ref: 365