

2022 CHEVROLET CORVETTE SERVICE MANUAL

- SEARCH

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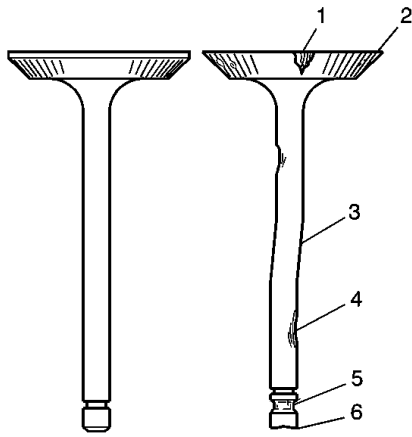
Valve Guide Reaming, and Valve and Seat Grinding

Valve Guide Reaming

1.
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2. Caution:

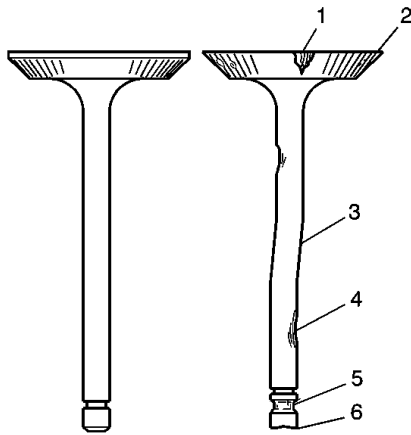
Excessive valve stem-to-guide clearance may cause a noisy valve train, premature valve stem oil seal wear, component damage, and/or excessive engine oil consumption.
3. Caution:

Insufficient valve stem-to-guide clearance will result in noisy or sticking valves. Valves that are too tight may disturb engine smoothness or lead to component damage.
4. Measure the valve stem to guide clearance.
5.
 1. Using a micrometer (1) measure the diameter of the valve stem (a).
 2. Using a ball style measuring gauge, measure the inner diameter (b) of the valve guide at the specified depth. Engine Mechanical Specifications
 3. Subtract the valve stem diameter (a) from the valve guide inner diameter (b) to obtain the valve stem to guide clearance.
6. If the clearance measurement between the valve stem and guide is not within specification, the valve and/or the cylinder head must be replaced. Engine Mechanical Specifications

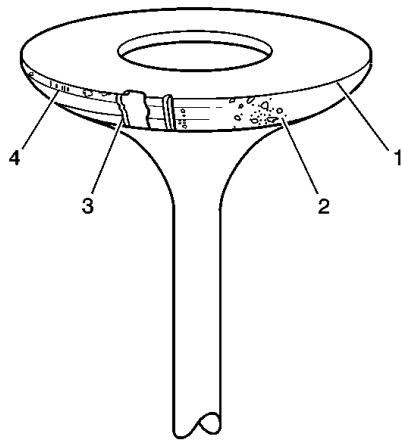


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8. Inspect the valve stems for excessive scoring, wear, or warpage.
9.
 - A valve stem that has excessive scoring (3 or 4) or wear (4 or 6) must be replaced.
 - If a valve guide is worn or has excessive stem-to-guide clearance, the cylinder head should be replaced.
10. Measure the valve stem diameter. If the valve stem diameter is not within specification, the valve must be replaced. Engine Mechanical Specifications
11. If the valve stem diameter is within specifications, and the stem-to-guide clearance is excessive, the cylinder head must be replaced.

Valve and Seat Grinding



1. [Click here for full size](#)
2. Note:
 - Reconditioning the valve seats is very important. The seating of the valves must be perfect for the engine to deliver optimum power and performance. Several different types of equipment are available for grinding valve seats.
 - Another important factor is the cooling of the valve head. Good contact between the valve and the seat will ensure that heat will be properly dissipated.
 - The recommendations of the equipment manufacturer should be followed carefully to obtain the proper results. Regardless of the type of equipment used, it is essential that valve guide bores be free of carbon or dirt to ensure proper centering of the tool pilot in the guide.
 - Valves that are pitted or have stems that show excessive wear, or valves that are warped excessively must be replaced.
 - DO NOT reface valves. Valves with excessive wear or damage MUST be replaced.
3. Inspect the valve for the following conditions:
4.
 - Burnt or eroded areas (1)
 - A worn margin (2)
 - A bent stem (3)
 - A worn or scored stem (4)
 - A worn key groove (5)
 - A worn stem tip (6)



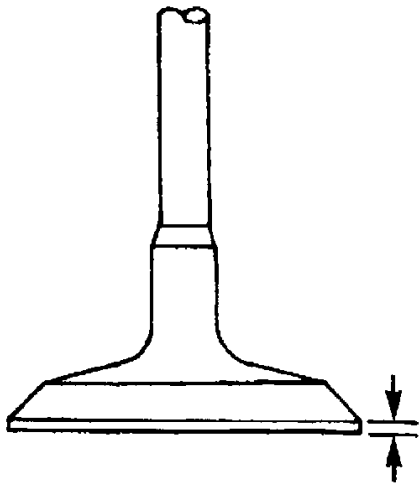
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6. Inspect the valve face for the following conditions:

7.

- Worn or no margin (1 or 4)
- Pitted surfaces (2)
- Burnt or eroded areas (3)



8.
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9. Inspect the valve margin.
10. If the margin has worn away, it can lead to breakage, burning or pre-ignition due to heat localizing on this edge. If the vertical edge of the valve head, margin, is not visible and only a sharp edge remains, replace the valve.
11. Inspect for a loose valve seat in the cylinder head. The valve seat has an interference fit to the cylinder head.
12. Clean the valve guide bores with a suitable tool. Remove all carbon or dirt from the bores.
13. The valve guide must be clean for the seat grinding tool to obtain proper results.
14. Grind the valve seat.
15. The recommendations of the equipment manufacturer should be followed carefully to obtain the proper results. Regardless of the type of equipment used, it is essential that valve guide bores be free from carbon or dirt to ensure proper centering of the tool pilot in the guide.
16. Inspect the valve seats.
17.
 - The valve seats should be concentric to the centerline of the guide, measure valve seat runout. The total indicator runout reading must be within specification. Engine Mechanical Specifications
 - If the valve seat has been ground, measure the valve stem height after reassembly of the cylinder head. The cylinder head, and/or valve must be replaced if the valve stem height is not within specification after seat grinding. Engine Mechanical Specifications