



TT00023

366/396 C.I. and 427/454 C.I. GM Big Block Exhaust Guide Installation

NOTE: The valve guide may not be replaceable in some of the above GM Big Block engines. Because of GM's factory production method of placing the valve guides in the head castings after the cylinder head was cast, original valve guides may not be concentric or parallel to the outside diameter. The only practical method to determine if this is a problem is to install new a new guide, grind the valve seat, and pressure test the cylinder head. If both a uniform seat width and leak-free seal around the guide can be obtained, then the original concentricity was not a problem. Also note that the exhaust valve guides are water-cooled and have two different-size press-fit diameters.

GUIDE REMOVAL

1. Measure and record the installed height above the cylinder head of the original valve guide.
2. First of all, note that from year model 1985, GM has used a different method of sealing the water passages. Unfortunately, there is no known method to determine the size and type of guides in the cylinder head.

SBI recommends driving the guide toward the spring seat approximately 0.250" (6.35 mm). Measure the guide's outside diameter closest to the spring seat. If the guide's O.D. is 0.620," it is the **old-style** guide, which interchanges with SBI valve guide number **140-1972**. Drive the guide out from the **combustion chamber** towards the **spring seat**.

If the guide measures 0.616", it is the **new-style** guide. (Please refer to the application listing in the SBI catalog for guide part number.) To remove this new-style guide, perform the exact opposite procedure mentioned above: Drive the guide out from the **spring seat** towards the **combustion chamber**.

CAUTION: IF THE VALVE GUIDES ARE REMOVED IN THE WRONG DIRECTION, THE HEAD CAN BE DAMAGED, WHICH MAY RESULT IN WATER LEAKAGE INTO THE COMBUSTION CHAMBER, AS WELL AS OFFSET SEAT-TO-GUIDE CONCENTRICITY.

GUIDE INSTALLATION

1. Make sure the correct guide is being installed when replacing a guide in the different type cylinder heads. Aluminum cylinder head castings use the same guide for both intake and exhaust valves, with the undercut on one end only. On the other hand, cast iron cylinder heads have an exhaust guide that is undercut on both ends and an intake guide that is undercut on one end only.

IMPORTANT: For valve guides that are undercut on both ends, insert the end of the guide that measures 0.616"/0.617" in diameter toward the combustion chamber. If both ends of the valve guide measure the same diameter, insert the end with the lesser chamfer toward the combustion chamber.

2. Remove debris from guide hole. The guide hole must be clean for the new guide to seal the water passage.
3. Insert the correct undercut end of the guide into the hole; make sure that the correct end of the valve guide (as instructed above) points towards the combustion chamber side of the cylinder head. The guide must be driven into the cylinder head from the same side as removed: If the original guide was removed from the spring seat side, the replacement guide must be installed from the spring seat side; conversely, if the original guide was removed from the combustion chamber side, the replacement guide must be installed from the combustion chamber side.
4. Pressure test the cylinder head for leakage. If water from the water passage leaks around the valve guide, repeat removal and installation steps before discarding the cylinder head. Always remember that not all guides in these cast heads are replaceable due to variations in the factory production methods.

SBI valve guide part numbers related to this topic:

SBI Part No.	Engine C.I.D.	Year(s)
140-1972	396 C.I.D.	1965-72
140-1972	402 C.I.D.	1965-69
140-1972	427 C.I.D.	1966-69
140-1972	454 C.I.D.	1966-76
140-7208 (Plain I.D.)	366 C.I.D.	1966-84
140-9208 (Spiral I.D.)	366 C.I.D.	1966-84
140-8113	454 C.I.D.	1985-00
140-8256	366 C.I.D.	1984-94
140-8256	454 C.I.D.	1984-94

For more information, or the location of the SBI Distributor nearest you, please call 1-888-THE SEAT (843-7328).

**Information is from best available sources and is accurate at the time of publication.
However, S. B. International, Inc., ASSUMES NO RESPONSIBILITY and cannot be held liable
for any results or consequences regarding the use of this information.**