

Instruction 51-1009  
4-25-06

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Because every industry has a leader

## Installation Instructions: Throttle Shaft Bushing All S&S® Carburetors Except E & G Series Super and Two-Throat

Two methods of repair are given to restore carburetor throttle shaft holes. The degree of wear determines which method to use. Carb bodies with extreme wear will generally have elongated holes. This makes it impossible to enlarge the hole as described in the Minimal Wear Method and expect to have the hole located in the correct position. Therefore it is advisable to use the Extreme Wear Method if there is any doubt. If the Extreme Wear Method cannot be used, return the carb body to S&S® for restoration.

### Carb bodies with minimal wear:

**NOTE:** Repair work for carbs with minimal wear can be done using a drill press.

1. Using machinist's vise or 90° angle plate, clamp carb body so that both throttle shaft holes can be drilled from same side of body. On Super carbs make bowl gasket surface parallel with drill. All early style and L Series S&S carbs must have bowl gasket surfaces lined up 90° to drill plane (perpendicular to drill).
2. For all carburetors use "N" letter drill (.302" diameter). Drill must be long enough so that when it is inserted in drill chuck both throttle shaft holes can be drilled in one operation from same side of carb body.
3. Line up throttle shaft hole by centering on drill point.
4. Carefully drill out throttle shaft holes.

5. Without removing carb from clamps ream drilled throttle shaft holes with  $\frac{5}{16}$ " (.3125") diameter reamer. Reamer must be long enough to ream both throttle shaft holes in one operation from same side of carb body.
6. Deburr both holes.
7. Bushing has .3115" diameter O.D. x .050" long lead on one end. Start bushing with this end and press to within .005" of carburetor bore.

**NOTE:** When correctly installed, bushing will not be flush with the out side of throttle shaft boss. If bushing is not pressed in far enough, air will leak past throttle plate causing erratic carburetor operation.

8. Ream throttle shaft bushings with .251" diameter reamer. Ream both throttle shaft bushings in one operation from the same side of carb body. This insures that bushing bores are correctly aligned and that throttle shaft has correct clearance when installed in bushing.

**NOTE:** For all drilling and reaming operations the use of coolant or lubricant on tool is recommended to insure a clean cut and a straight hole.

### ▲ CAUTION

If reaming operation is not performed throttle shaft may bind and stick due to misalignment or improper clearance.

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If reaming operation is not performed throttle shaft may bind and stick due to misalignment or improper clearance.

### ⚠ WARNING

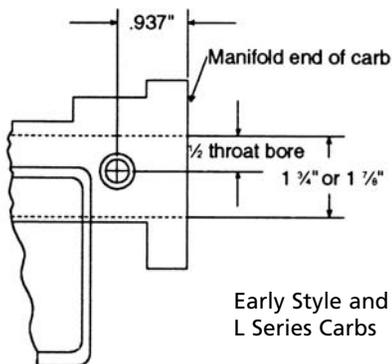
If throttle inadvertently sticks in open position, loss of control of motorcycle and personal injury to you or others may result.

9. Thoroughly clean carb and reassemble with new parts, making sure to install throttle plate with beveled surface sealed against carb bore.

#### Carb bodies with extreme wear:

**NOTE:** Repair work for carbs with extreme wear must be done using a milling machine.

1. Use machinist's vise or 90° angle plate to hold carb body and bolt to mill table. Super carb bowl gasket surfaces must be lined up 90° to table while all early S&S® carb bowl gasket surfaces must be parallel to table. Use dial indicator to check this if necessary.
2. Position and clamp assembly so that throttle shaft hole is directly below chuck. All early style and L Series carbs have throttle shaft hole locations as illustrated.
3. Use  $\frac{5}{16}$ " (.3125") endmill cutter with flutes longer than depth of hole to be cut. Slowly feed cutter when making new hole.
4. Bushing has .3115" diameter O.D. x .050" long lead on one end. Start bushing with this end and press to within .005" of carburetor bore.



Early Style and L Series Carbs

**NOTE:** When correctly installed, bushing will not be flush with the out side of throttle shaft boss. If bushing is not pressed in far enough, air will leak past throttle plate causing erratic carburetor operation.

5. Repeat steps 1 through 4 for opposite throttle shaft hole.
6. Ream both throttle shaft bushings with .251" diameter reamer. Ream both throttle shaft bushings from the same side of carb body. This insures that bushing bores are correctly aligned and that throttle shaft has correct clearance when installed in bushing.

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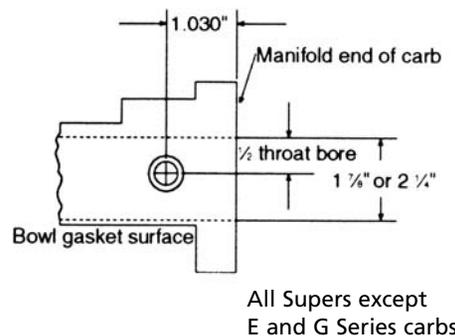
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If reaming operation is not performed throttle shaft may bind and stick due to misalignment or improper clearance.

### ⚠ WARNING

If throttle inadvertently sticks in open position, loss of control of motorcycle and personal injury to you or others may result.

9. Thoroughly clean carb and reassemble with new parts, making sure to install throttle plate with beveled surface sealed against carb bore.



All Supers except E and G Series carbs

### ⚠ WARNING

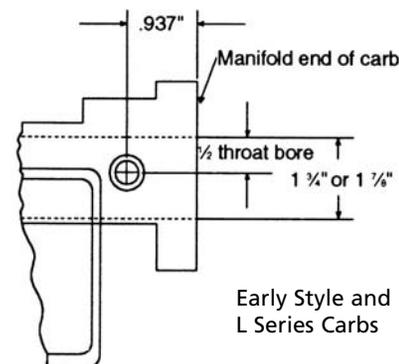
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Early Style and L Series Carbs

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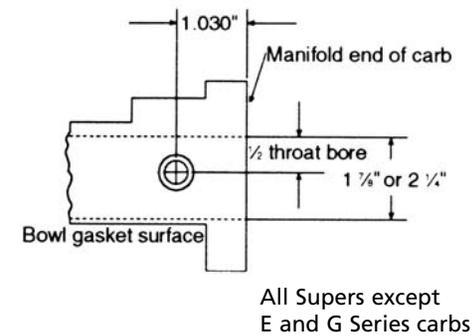
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