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# EVO: Engine Mechanicals - Sub-04Q

## Removing / Installing Pushrods and Tubes

See also in the Sportsterpedia;

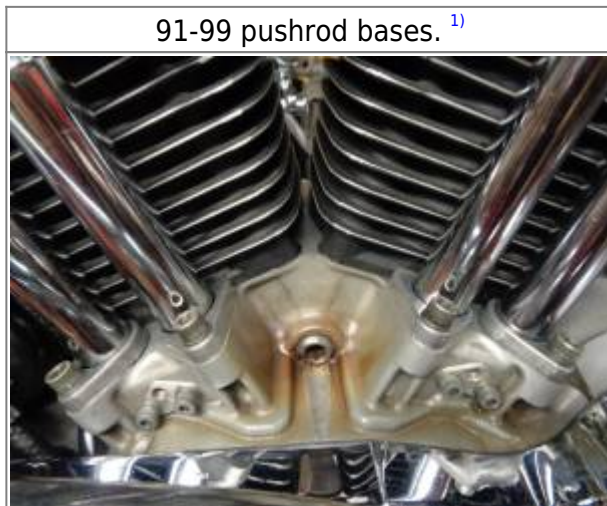
- [Removing the Rocker Boxes](#)

## 91-99 Engines

### Removal

The lower rocker box has to be removed first to be able to get the pushrods and tubes out (see link above).

It's also easier to remove the pushrods so they won't get hung up while removing the tubes. Pushrods simply lift out once the lower rocker box is unbolted / removed.



A standard Allen wrench can be used to remove or install the tube base bolts.

But it won't help to properly torque the bolts on installation.

A short Allen wrench adapter, short extension and a 3/8" socket wrench works well for removing / installing the bolts.

With the bolt removed, you can swing the front end around a bit to get a hold on the base to lift it up on the pushrod tube.

Refrain from using a screwdriver to wedge under it as that can scratch the sealing surface.

The short Allen adapter and extension brings the wrench to the smaller OD area of the tube. <sup>2)</sup>



You just want to bring the base up enough to clear the roll pin it's sitting on to give more room when maneuvering the tube up.  
 Push the base up slightly, then grab and pick up on the pushrod tube while pulling the bottom outward.

There is enough room to pick up on it and then pull the bottom out to clear the lifter block and then down to remove it from the head. <sup>3)</sup>



## Installation

- Clean the lifter block, pushrod tubes and O-ring sockets in the heads.
  - Any grease, debris, grit etc. can cause a leak.
- Lightly oil the O-rings and install them into the heads (do not install them on the tubes first).
- Install the seal on the tube with the chamfer facing up. Then slide the base onto it.

Lifter block can be cleaned with brake cleaner or Acetone poured onto a rag and wiped across the surface. <sup>4)</sup>



Make sure the O-rings are seated all the way in the sockets. <sup>5)</sup>



Install gasket and base. Intake and Exhaust side bases are directional. <sup>6)</sup>



- Bring each pushrod into the O-ring in the head carefully at an angle so as not to move or cut it with

the end of the tube.

- Swing the bottom over the lifter block being careful not to bump the seal out of alignment in the base.
- Pull the base down over the roll pin and snug the bolt so the base doesn't jump off the roll pin.

When you pull the base down with your hand, make sure it is over the roll pin and looks relatively flush to the lifter block. If not, pull the base back up and try again.

Else you can pinch the seal between the base and block which will result in a leak. <sup>7)</sup>



- The base is made of cheap metal that can warp easily and then it can move off the roll pin while tightening the bolt.

It's best to hold the base steady with one hand while tightening the bolt with the other. <sup>8)</sup>

Torque to 80-110 in / lbs. <sup>9)</sup>



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