



## ***INSTALLATION INSTRUCTIONS*** ***FEULING® ADJUSTABLE HP+® & RACE SERIES™ PUSHRODS***



- *Increased stiffness and column rigidity maximizing valve-train stability, increasing engine RPM horsepower and torque output.*
- *Made from 7/16" chrome moly steel tube, the Feuling® pushrods use a minimal adjustment parameter eliminating the flex and loss of valve train-stability problems associated with most adjustable pushrods.*
- *The short adjustment area allows for Individual pushrods on intake & exhaust*
- *Designed to exceed the needs of performance engines using larger lift camshafts and high spring pressures, while maintaining proper and critical oil flow to valves, springs, rockers, shafts & valve guides.*
- *Maintain maximum valve lift*
- *CNC machined with 32 threads per inch, Standard pushrod wall thickness .095", RACE Series wall thickness .120"- recommended for extreme spring pressures*
- *HP +® and Race Series™ Pushrods can be used with hydraulic or solid lifters and street or race engines*
- *Made in the U.S.A.*

### ***Twin Cam '99 – Present***

- #4065**     *HP +® Series 0.095" Wall Thickness*
- #4070**     *Race Series™ 0.120" Wall Thickness*
- #4075**     *Race Series™ Shorty .120" Wall Thickness, for use w/ Feuling® Raised Solids*

### ***Evolution Big Twins '84 – '99***

- #4077**     *HP +® Series 0.095" Wall Thickness*
- #4080**     *Race Series™ 0.120" Wall Thickness*

### ***IMPORTANT NOTICE***

This installation should be done by an experienced mechanic who has access to a factory service manual and all required tools.

### ***CAUTION***

Incorrect installation can cause engine damage not covered under warranty. Failure to install components correctly can cause engine seizure. Engine seizure may result in serious injury to motorcycle, operator, passenger, and/or others.

### ***IMPORTANT NOTICE***

Measure flywheel pinion shaft run out. Excessive pinion shaft run out will cause camplate and oil pump damage and or failure. Excessive pinion shaft run out will void manufacturer's warranty.

### ***CAUTION***

Removal of the rocker arms and or pushrods with the valve train loaded can damage rocker arms, push rods, bushings and or camplate. Rotate engine to TDC of compression stroke on the servicing cylinder.

1. Refer to the proper factory service manual for your model and year of engine, for removal of existing pushrods.
2. The Feuling® pushrods are designed with a small adjustment parameter for rigidity creating maximum lift – These are not quick install pushrods and may require the removal of the lifter blocks and or loosening of the breathers/rocker arms supports. When loosening the rocker arm supports always remove the breather bolts first.
3. Clean and inspect each new Feuling® pushrod **including center oil hole**
4. Feuling pushrods are marked Intake and Exhaust. The shorter pushrods are Intake and the longer pushrods Exhaust.
5. Feuling recommends using new O-rings and gaskets where applicable to prevent oil leaks
6. Always pump up hydraulic lifters before installing them. Use an oil squirt can to fill the lifter with oil through the feed hole on the side of the lifter, push oil through the feed hole until the air bubbles are gone. If needed work the oil back and forth through the feed hole and pushrod seat with the squirt can. Light weight oil can be helpful.
7. Assemble and adjust one cylinder at a time, the servicing cylinder needs to be on TDC of compression stroke so the cam lobes are at their lowest point

8. Install pushrods into proper locations with the adjusting side of the pushrod down, towards the lifter. Slide the pushrods through the pushrod covers up into the rocker housing and set the pushrod on the seat of the lifter. We recommend filling the pushrods with oil then maneuver the pushrod up into the rocker arm seat.
9. Torque rocker arm housings and breathers to factory torque spec's
10. See the instructions for your lifters for the proper adjustment. All Feuling® hydraulic lifters run best at .090" - .100" of Pre load.
11. Feuling® pushrods have 32 threads per inch and 1 full turn equals .031" of adjustment. When adjusting Feuling Pushrods on Feuling lifters from zero lash, 3 – 3 1/4 turns will put .093" – .100" of crush on the lifter. The loose jam nut tightens to the top, towards the rocker arm, see (figure 2).
12. Feuling® pushrods have 2 jam nuts – tighten one to the bottom (lifter side) and one to the top (rocker arm side).
13. We recommend starting from zero lash with a fully pumped up lifter and adjusting the pushrod longer crushing the lifter. We **DO NOT** recommend bottoming the lifter and adjusting backwards. To find zero lash it is best to have the rocker arm in hand to feel and verify zero lash position.
14. Wait for hydraulic lifters to bleed off before rotating engine over, this may take 10 – 15 minutes.

### Feuling® Pushrods 32 threads per inch

<b>Distance per turn = .031"</b>	<b>3 – 3 ¼ Turns = .093" - .100"</b>
<b>Distance per wrench flat = .0052"</b>	<b>18 – 19 Flats = .093" - .100"</b>

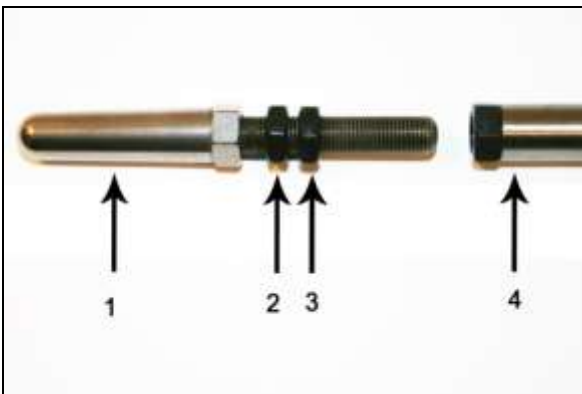


Figure 1

1. Pushrod Base
2. Jam nut – Lifter side
3. Jam Nut – Rocker Arm side
4. Pushrod tube



Figure 2

**Jam nuts tighten one to the top and one to the bottom**

#### **WARRANTY:**

All parts are guaranteed to the original purchaser to be free of manufacturing defects in materials and workmanship for a period of twelve (12) months from the date of purchase. Merchandise that fails to conform to these conditions will be repaired or replaced at FOP's option if the parts are returned to FOP by the purchaser within the (12) month warranty period. In the event warranty service is required, the original purchaser must notify FOP of the problem immediately. Some problems may be rectified by a telephone call and need no further action. A part that is suspected of being defective must not be replaced without prior authorization from FOP. If it is deemed necessary for FOP to make an evaluation to determine whether the part was defective, it must be packaged properly to avoid further damage, and be returned prepaid to FOP with a copy of the original invoice of purchase and a detailed letter outlining the nature of the problem, how the part was used and the circumstances at the time of failure. After an evaluation has been made by FOP and the part was found to be defective, repair, replacement or refund will be granted. Excessive flywheel pinion shaft run out will damage camplate and oil pump and or cause engine damage and or failure. Damage to Feuling oil pump corporation products from excessive pinion shaft run out will void manufacturer's warranty.

#### **ADDITIONAL WARRANTY PROVISIONS:**

FOP shall have no obligation in the event an FOP part is modified by any other person or organization, or if another manufacturer's part is substituted for one provided by FOP. FOP shall have no obligation if an FOP part becomes defective in whole or in part as a result of improper installation, improper break-in or maintenance, improper use, abnormal operation, or any other misuse or mistreatment.

FOP shall not be liable for any consequential or incidental damages resulting from the failure of an FOP part, the breach of any warranties, the failure to deliver, delay in delivery, delivery in non-conforming condition, or any other breach of contract or duty between FOP and the customer. The installation of parts may void or otherwise adversely affect your factory warranty. In addition, such installation and use may violate certain federal, state and local laws, rules and ordinances as well as other laws when used on motor vehicles operated on public highways, especially in states where pollution laws may apply. Always check with federal, state, and local laws before modifying your motorcycle. It is the sole and exclusive responsibility of the user to determine the suitability of the product for his/her use, and the user shall assume all legal, personal injury risk and liability and all other obligations, duties and risks associated therewith. Our high performance parts, engines and motorcycles are intended for experienced riders only.

Feuling Oil Pump Corporation reserves the right to change prices and/or discounts without notice and to bill at the prevailing prices at the time of shipments. The words Harley®, Harley-Davidson® and H-D® and all H-D® part numbers and model designations are used in reference only. Feuling Oil Pump Corporation is in no way associated with, or authorized by Harley-Davidson Motor Co®. To manufacture and sell any of the engine parts described in this instruction sheet.