FEULING®

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LIFTER INSTALLATION INSTRUCTIONS

HYDRAULIC LIFTERS PART # 4000, 4025, 4050, 4051, 4052, 4061, 4062

These high performance roller lifters, when used in conjunction with a high volume oil pump will provide optimized oil flow to the top end of your engine extending valve train component life.

HP PLUS FEULING HORSEPOWER PLUS

RS FEULING RACE SERIES

IMPORTANT NOTICE

THIS INSTALLATION SHOULD BE DONE BY AN EXPERIENCED MECHANIC WHO HAS ACCESS TO A FACTORY SERVICE MANUAL AND ALL REQUIRED TOOLS.

CAUTION

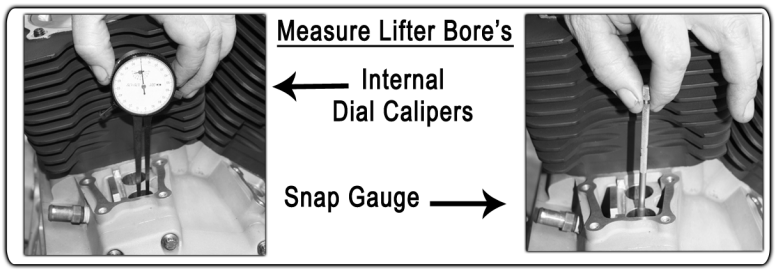
INCORRECT INSTALLATION CAN CAUSE ENGINE DAMAGE NOT COVERED UNDER WARRANTY. LIFTERS MUST BE FULLY PUMPED UP PRIOR TO ADJUSTING PUSHRODS, FAILURE TO INSTALL COMPONENTS CORRECTLY CAN CAUSE ENGINE SEIZURE. ENGINE SEIZURE MAY RESULT IN SERIOUS INJURY TO MOTORCYCLE, OPERATOR, PASSENGER, AND/OR OTHERS.

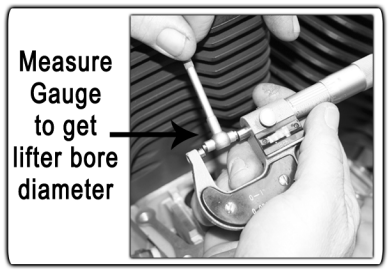
CAUTION

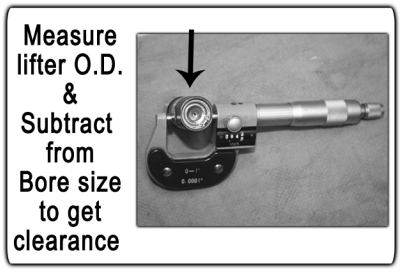
REMOVAL OF THE ROCKER ARMS AND OR PUSHRODS WITH THE VALVE TRAIN LOADED CAN DAMAGE ROCKER ARMS, PUSH RODS, BUSHINGS AND OR CAMPLATE. ROTATE ENGINE TO TDC OF COMPRESSION STROKE ON THE SERVICING CYLINDER.

1. For removal of the lifters and inspection of the lifter bores, refer to the proper factory service manual for your model and year of engine.

2. Clean, inspect and measure lifter bores to make sure the tolerances are within specification. For maximum lifter performance Feuling® recommends a lifter to lifter bore clearance of 0.001”-0.0015”. Feuling® offers oversized lifters part #’s 4051 & 4052.







3. Thoroughly clean and inspect each new Feuling® lifter

4. Thoroughly clean and inspect each pushrod including the center oil hole

5. Pump up each lifter before installing. Use an oil squirt can to fill the lifter with oil through the side feed hole, push oil through the feed hole until the air bubbles are gone. If needed work the oil back & forth through the feed hole and pushrod seat of the lifter with the oil squirt can. Light weight oil can be helpful.

6. Apply engine assembly lube or liberal amounts of engine oil to the lifters, rollers, lifter bores and camshafts.

7. We recommend that you fill the pushrod oil holes and rocker arms with engine oil before final installation.

8. Install lifters in the lifter bores of the crankcase, with the lifter flats facing forward and rearward.

9. Avoid cam damage! Do not drop lifters onto cam lobes.

10. Check all clearances - bottom lifter body to camshaft lobe clearance, lifter to lifter blocks, lifter flats to roll pin, pushrod to pushrod tubes and if using one piece pushrods check length for proper pre load on lifters.

11. 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.

12. Feuling® hydraulic roller lifters run best at .090” - .100” of pre-load. If using adjustable pushrods, from zero lash adjust the pushrod longer .090” - .100”. If using one piece pushrods make sure you have the correct lengths so you get the proper amount of pre-load on the lifters.

13. If using adjustable pushrods we recommend adjusting Feuling® hydraulic roller lifters starting with a fully pumped up lifter from zero lash and adjusting the pushrod .090"-.100" longer crushing the lifter. We DO NOT recommend bottoming the lifter and adjusting back upwards.

14. When using adjustable pushrods it is helpful to have the rocker arm in hand to feel for zero lash and it is a must to start with a fully pumped up lifter.

15. Feuling® hydraulic lifters have a total travel distance of 0.200"

16. If using Feuling® adjustable pushrods they have 32 threads per inch and 1 full turn equals 0.031" of adjustment. When adjusting Feuling® Pushrods on Feuling® lifters from zero lash, 3 – 3 1/4 turns will put 0.093" – 0.100" of pre load on the lifter.

17. If adjusting valve lash with solid lifters see your camshaft recommendation or ask your camshaft manufacturer.

18. Refer to your factory service manual for final assembly.

ADJUSTABLE PUSHRODS – REFERENCE ONLY – SEE THE INSTRUCTIONS THAT CAME WITH YOUR PUSHRODS

CORRECT ADJUSTMENT REQUIRES STARTING WITH FULLY PUMPED UP LIFTERS

Threads per Inch	Distance per 1 Full Turn	Turns to .100"
24	.0417"	2.39
28	.0357"	2.80
32	.0313"	3.19
36	.0275"	3.63
40	.0250"	4
52	.0192"	5.20

*TECH NOTE: We recommend filling hydraulic lifters with thin weight oil and perform your initial start up with the thinner oil. Leave your top rocker box covers off, turn the engine over with the spark plugs out to make certain oil is flowing to the top end and lubricating the rocker arms and valves. Cold thick oil such as 20W50 will take much longer to reach the top end and can 'vapor lock' causing a lack of lubrication. After initial engine running, change over to your preferred oil grade.

TROUBLE SHOOTING NOISY VALVE-TRAIN

1. **Lifter adjustment - Starting with a fully pumped up lifter, from zero lash put 0.90" - 0.100" of pre-load on Feuling® hydraulic lifters**
2. **Lifter to lifter bore clearance out of spec, Feuling® recommends a clearance of 0.001" - 0.0015" for proper oil psi at lifter**
3. **Pushrods flexing and hitting pushrod tubes - look for a shiny ring witness mark around pushrod normally seen up towards the cylinder head**
4. **Low oil pressure - inspect pressure relief valve in camplate, oil pump/camplate wear**
5. **Pushrod center oil hole plugged**
6. **Clearance for roller rocker arms on under side of rocker box covers**
7. **Steep ramped camshafts, valves closing so fast the valves bounce off valve seats - see Feuling® Beehive® valve springs**
8. **Excessive crankshaft runout**
9. **Gear drive camshafts, excessive gear drive backlash or excessive crankshaft runout**
10. **Rocker arms/bushings out of tolerance**
11. **Valve spring clearance to lower rocker box housing**
12. **Valve spring coil bind and or valve spring harmonics - match up valve spring open height with camshaft peak lift**
13. **Leaky/broken piston cooling jets**

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