



Installation Instructions for KPMI Part No: 96-96500

KTM • 450 SX-F • 2013-'18
 KTM • 450 XC-F • 2013-'17
 HUSQVARNA • FC 450 • 2014-'18
 HUSQVARNA • FS 450 • 2017-'18
 HUSQVARNA • FX 450 • 2017

Lightweight Racing Beehive Valve Spring Kit

A) 96-96500 Kit Includes:

<u>Qty</u>	<u>Application</u>	<u>Description</u>
4 - Pcs	Intake / Exhaust	Ti Retainers*
4 - Prs	Intake / Exhaust	Chrome Silicon Beehive Springs
4 - Pcs	Intake / Exhaust	H.T. Steel Basewasher
2 - Pcs	Intake	H.T. Spring Shims

*Note: These retainers are designed to fit the stock adjustment shims. After-market shims that do not match the OEM spec, may not fit the retainers.

B) Recommended Installed Height - Intake & Exhaust

1. Installed Height **	1.355"-1.365"
2. Seat Pressure	80#
3. Open Pressure at 0.410" lift	198#
4. Open Pressure at 0.435" lift	205#
5. Max Valve Lift	0.435"

**Note: The oem keepers require force to seat fully into the retainer. To correctly observe the installation height, the assembly should be measured under spring load.

C) Notes:

1. The difference between the installed height and the coil bind height is considered "Free-Travel"

The coil bind height is determined by compressing the spring(s) with the Retainer and Basewasher in place (a vice can be used for this operation). Once springs are compressed, measure the distance between the Retainer and Basewasher where the Outer Spring contacts them.

2. Free-travel should always be gross valve lift +0.060" for safe operation.
3. Retainer-to-Seal / Guide clearance should also be gross valve lift +0.060" for safe operation.
4. Failure to check valve train clearances can result in serious damage to an engine

Packaged By: _____

Date: _____

TECH TIPS

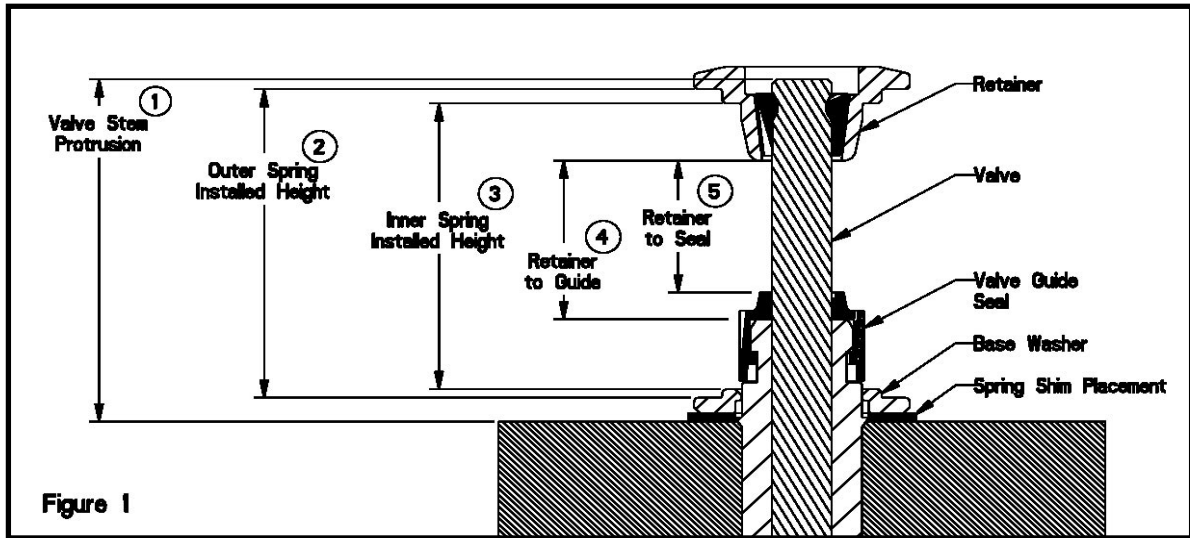


Figure 1

Valve Train Terminology

1. Stem Protrusion is measured from the tip of the valve stem to the cylinder head. See Figure 1.
2. Outer spring installed height is measured where the outer spring contacts the Retainer and Basewasher when assembled (See Figure 1).
3. Inner spring installed height is measured where the inner spring contacts the Retainer and Basewasher when assembled (See Figure 1).
4. Retainer-to-Guide clearance is the distance between the Valve Guide (w/o the seal) and the bottom of the Retainer, with the Valve in the closed position (See Figure 1 and Notes 3 & 4).
5. Retainer-to-Seal clearance is the distance between the Valve Stem Seal and the bottom of the Retainer, with the Valve in the closed position (See Figure 1 and Notes 3 & 4).

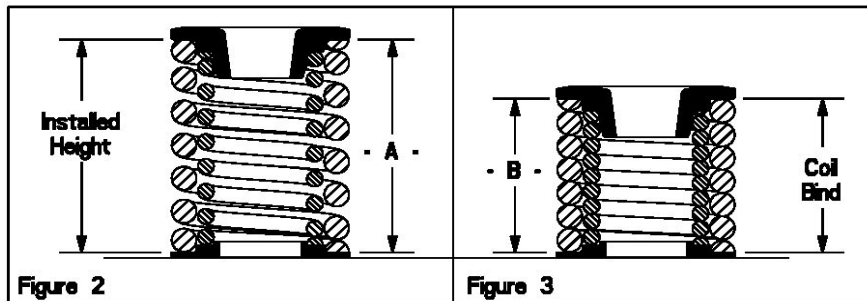


Figure 2

Figure 3

Installed Height

1. In Figure 2 the installed height is measured from where the Outer Spring contacts the Retainer and the Basewasher. This measurement is taken when the Valve, Basewasher, Retainer, and Keepers are assembled in the cylinder head.

Coil Bind / Solid Height:

1. In Figure 3 the coil bind height is determined by compressing the Spring(s) with the Retainer and Basewasher in place (a vice can be used for this operation). Once springs are compressed, measure the distance between the retainer and basewasher where the Outer Spring contacts them.

Notes:

1. The difference between the installed height and the coil bind height is considered "Free-Travel"
2. Free-travel should always be gross valve lift +0.060" for safe operation.
3. Retainer-to-Seal / Guide clearance should also be gross valve lift +0.060" for safe operation.
4. Failure to check valve train clearances can result in serious damage to an engine.