



**Installation Instructions for KPMI Part No: 96-96560**  
**KTM (Motorcycles) • All RFS Engines 400cc thru 560cc • 2000-'09**  
**KTM (ATV) • All RFS Engines 450cc thru 525cc • 2008-'09**  
**Cylinder Head Service Kit (for 89mm Bore Applicaitons)**

This kit is verified for the model year range listed above. Certain components in this kit may have larger coverage and are labeled accordingly.  
 When installing KPMI Cylinder Head Service Kits it is important to maintain these highly stressed components in accordance with  
 factory service limits. Always consult with qualified professionals suited to inspect your machine.

**A) 96-96560 Kit Includes**

KPMI P/N	QTY	Description	Specification
<b>96-96000</b>	1 Set	Spring Kit	Includes: Titanium Retainers, CrSi Valve Springs, HT Steel Basewashers, HT Spring Shims*
<b>96-96004</b>	2 Pcs.	Intake, Standard Valve	Valve • Black Diamond™ • Black Nitroreg Stems
<b>96-96007</b>	2 Pcs.	Exhaust, Standard Valve	Valve • Black Diamond™ • Black Nitroreg Stems
<b>96-96010</b>	2 Pcs.	Intake, Standard Valve Guide	Valve Guide • C630 Bronze
<b>96-96020</b>	2 Pcs.	Exhaust, Standard Valve Guide	Valve Guide • C630 Bronze
<b>96-96561</b>	1 Set	Gasket Kit	Includes: Head Gasket 89mm Bore (1), Base Gasket (1), Valve Seals (4), Cam Chain Tensioner Gasket (1), Exhaust Gasket (1), Rocker Arm O-ring (1), Oil Filter O-rings (2), Valve Cover Gasket (2), Crush Washers (4), Water Pump Gasket (1)

\*For some RFS engines it may be necessary to utilize the 96-96035 and 96-96039 spring shims included in this kit to achieve the listed installation height.

**B) Recommended Installed Height - Intake/Exhaust**

- |   |                      |
|---|----------------------|
| 1. Installed Height .....                   | <b>1.170"-1.180"</b> |
| 2. Seat Pressure .....                      | <b>75 #</b>          |
| 3. Open Pressure at 0.395" valve lift ..... | <b>201 #</b>         |
| 4. Open Pressure at 0.435" valve lift ..... | <b>214 #</b>         |
| 5. Max Valve Lift** .....                   | <b>0.435"</b>        |

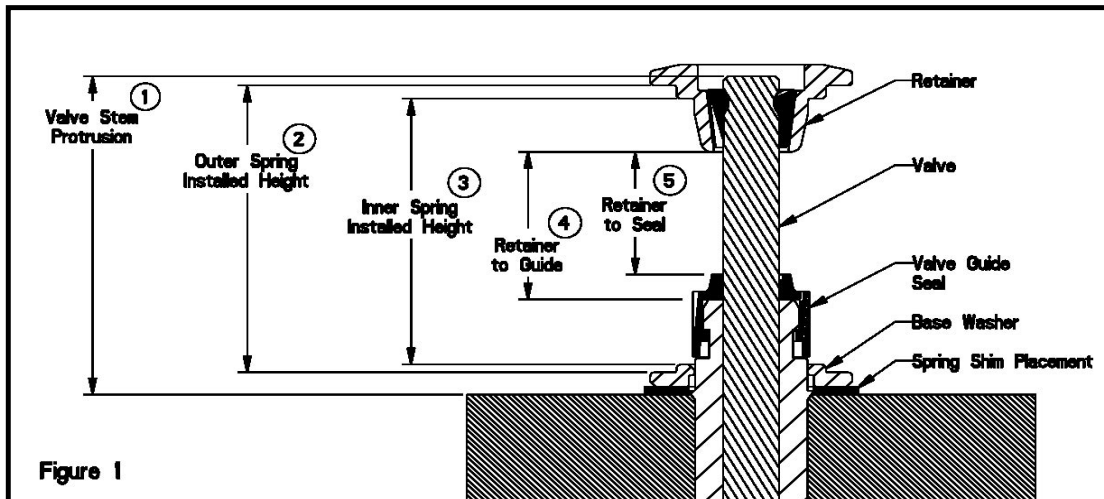
\*\*Cams with greater than stock lift may require the use of shortened seals KPMI part number (71029-4). Always check clearances.

**C) Notes**

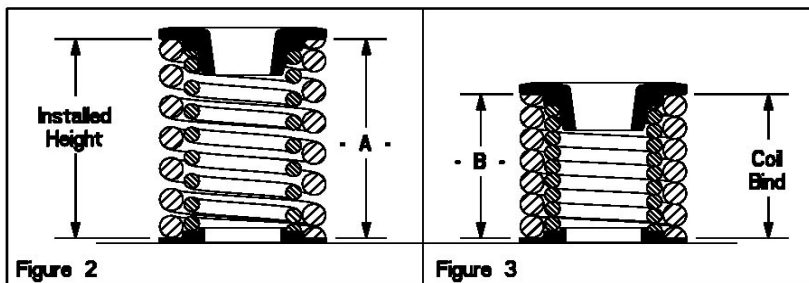
1. The difference between the installed height and the coil bind height is considered "Free-Travel"  
 The coil bind height is determined by compressing the spring or springs with the retainer and basewasher in place, a vice can be used for this operation, once springs are compressed measure the distance between the retainer and basewasher where the outer spring contacts them.
2. Free-travel should always be gross valve lift +.060" for safe operation.
3. Retainer to seal and retainer to guide clearance should also be gross valve lift +.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 lower component when assembled. See Figure 1.
3. Inner spring installed height is measured where the inner spring contacts the retainer and lower component 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 or springs 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 +.060" for safe operation.
3. Retainer to seal and retainer to guide clearance should also be gross valve lift +.060" for safe operation.
4. Failure to check valve train clearances can result in serious damage to an engine.