



Installation Checklist

Cautions and Hints

If you are not competent to install camshafts take the bike to a qualified mechanic. Improperly installed camshafts can destroy your engine – be careful!!

□ Preparation

Clean the vehicle thoroughly before starting work on your machine, especially in the area directly above the engine with the fuel tank off. This will insure that the inside of your motor stays clean and contamination free. Be sure to plug any open vent, vacuum, or fuel lines before you start cleaning. **Read & understand the instructions for the installation of your camshaft(s) before you begin any disassembly. We recommend the owners manual or Clymers. If you have questions, call! 515-402-8005 ext. 112. We will return your call.** After removal of the original cam(s) carefully inspect the cam followers or rocker arm pads for wear. If any wear is found, replace the item(s). Also check the cam timing chain for wear – replace if over a year old.

□ Oils: Do's and don'ts

Do change the oil after the installation of the cams before you start the engine for the first time. Clean or change the oil filter too.

Do not use synthetic lubes or oils during break in. Use petroleum based oils only. Synthetic oils do not allow the camshaft to break in properly.

Do use plenty of assembly lube during assembly, like BG Extreme Pressure Concentrate, CRC C.V. Joint grease, or Lube Tech Extreme Pressure Concentrate, making sure all the parts are thoroughly coated.

□ Valve Clearances

It is the customer's responsibility to check, and set the valve lash/clearance. It is **VERY** important for the valve lash/clearances to be set correctly and for that lash/clearance to be maintained for consistent performance and maximum component life. Please take the time when setting up the engine to get the lash/clearances as close to perfect as possible and then maintain those clearances. **Check the cam card** included with your camshaft. Always re-check your lash, these are performance camshafts so lash must be monitored more often. Use pre-bent feeler gauges, when you do not have a "straight shot" at the follower/rocker arm.



□ **Five Warnings**

Hot Cams are designed as a direct bolt in using stock springs and pistons, with the exception of the Stage 2, and stage 3, 660 Raptor. Because every machine is different, it is the customer's responsibility to check all clearances. However, if an aftermarket piston is installed you must check piston to valve clearance.

- 1) Check your piston to valve clearance. We recommend .045" clearance on the intake side and .060" on the exhaust side. Even though most Hot Cams are designed to work with most stock pistons it is always good practice to verify that there is adequate piston to valve clearance, and that the piston is free of carbon deposits. **If when rotating the engine binding can be felt stop immediately and determine the cause of the bind – do not force.**
- 2) Pre-fit the camshaft and check for freedom of movement, and contact between the cam lobe, and the cylinder head, and rocker arm cover, removing any material if needed from the cylinder head, or head cover, not the cam. Also making sure that the lubrication system is up to spec.
- 3) Check for coil bind. We recommend that at maximum valve lift there should still be at least .050" movement left in the spring before complete coil bind. Check your valve retainer/keeper to valve seal clearance. We recommend at least .030" clearance between the seal and the retainer. Any clearance less than .030" will pump oil into the cylinder through the valve guide.
- 4) Remember a thinner head or base gasket, or milled head or cylinder, will change the cam timing, and also decrease the piston to valve clearance. By milling the head you will change the distance from the crankshaft sprocket to cam sprocket. This in turn will change your cam timing by increasing the chain slack between the two sprockets – beware.
- 5) Be sure to use blue Loctite on the cam bolts - especially the adjustable cam sprockets. Before applying Loctite, clean the bolt, and bolt hole, making sure that the threads are clean, and dry. Torque cam bolts on the (YZ / WR) to 12 ft/lbs, (DRZ / LTZ / KLX / KFX) to 14 ft/lbs, and Raptor to 9 ft/lbs. Other sprockets refer to owner's manual.

Stage 2 and 3 Raptor cam. These cams require a Hot Cams valve spring kit, part no. SKYFM660S2. The center intake valve guide **may** (see warning #3) need to be machined down 1mm (.040") for clearance between the valve guide seal and the retainer.

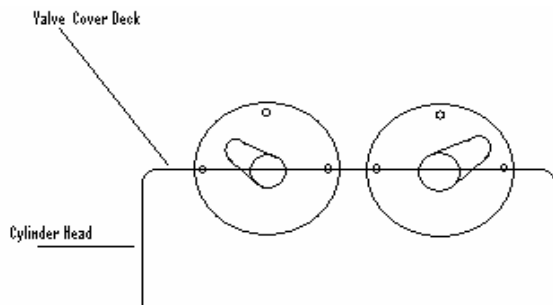
□ **Automatic De-Compression**

Because of the varying designs of OEM automatic de-compression Hot Cams is not always able to re-use the de-compression system. On engines with a manual decompressor, be careful when



setting the cable freeplay to use the least amount of valve lift. The least amount of valve lift, the better.

□ **Adjustable Sprockets**



The YZ/WR 250/400/426, and DRZ/LTZ KFX/KLX 400 camshafts come with an adjustable sprocket that has already been factory indexed with three color marks painted on the sprocket. The cam bolts have also been factory torqued and loctited. When the piston is at TDC install as illustrated above, use the valve cover deck as a guide. If you wish to adjust the timing on your own you must use a positive stop top dead center locator, a degree wheel, and dial indicators to re-adjust the cam timing. **WARNING- if you are not experienced at setting cam timing do not attempt on your own. Instead, take bike to a competent mechanic for installation.** All engines have different manufacturing tolerances and wear. These cams are set using a new machine; your machine settings may vary.

□ **Break in procedure**

Upon initial start up it is very important you DO NOT let the engine idle. We suggest running the engine for at least 30 minutes of run time, at 3000 rpm or better. We recommend a light trail ride-to maintain the engine RPM above 3000 rpm. Only light engine loads are to be used. No excessive rpm or lugging. Let the engine cool. **Check your valve clearances again** with the entire engine at room temperature.

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