

TECH

Feuling Camshafts & Valve Springs Part I

Staff Report – Photos by Buck Lovell

Ever since the Harley-Davidson® motorcycle was introduced many moons ago, their riders have looked for ways to hop-up or modify the motor to get more horsepower and speed. Today's modern Twin Cam motor is just fine for some, but many want that added horsepower that also adds a whole lot of fun.

American Bagger magazine was invited to try the new 525 Feuling camshafts and valve springs. Installing the cams and springs requires some major mechanical know-how and some specialized tools. These 525 cams are intended for use with the '07 and later Twin Cam motor with hydraulic chain tensioners. Also to be installed is a new cam support plate and oil pump (must be used together), both from Feuling. As with any cam install on a Twin Cam motor, the stock inner cam bearings will be replaced with Torrington's "full complement" parts. These will tolerate the higher than stock spring seat pressures generated by the new springs and increased cam lift.

The entire kit can be ordered using part #7074 but it is recommended that you contact Feuling and talk to their tech person prior to ordering so you can be sure to get exactly what you need for your particular application.

In this installment we will be covering the teardown of the Twin Cam motor. Check back with us next issue for the installation of the Feuling camshafts and valve springs.



Here is the Feuling kit, it includes: gaskets, lifters, BeeHive valve springs, an oil pump, a cam support plate and the new Reaper 525 Camshafts.



This is the '08 Harley-Davidson Street Glide that we will be performing cam-swap surgery on.

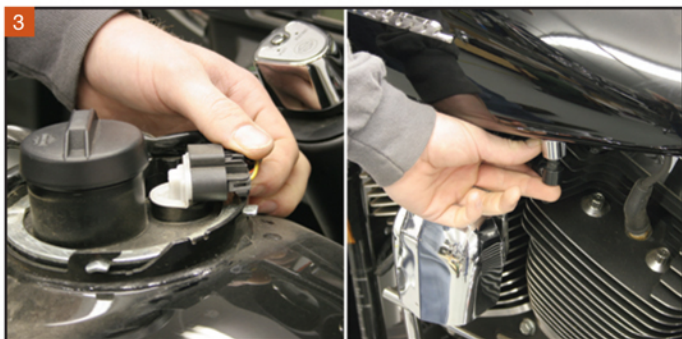


Remove the seat and disconnect the battery as a safety precaution when working on the motor.



Remove the dash hardware and dash plate.

Camshafts & Valve Springs Part I



Unplug the EFI cable and disconnect the fuel line from the gas tank.



Loosen the gas tank hardware and remove the tank.



Remove the existing exhaust header after removing the footboards and swinging the mounts out of the way.



Remove the air cleaner cover and filter element.



Remove the backing plate and unplug the throttle position sensor cable.



Remove the top motor mount/horn bracket.



Remove the throttle body.



Remove the front motor mount.

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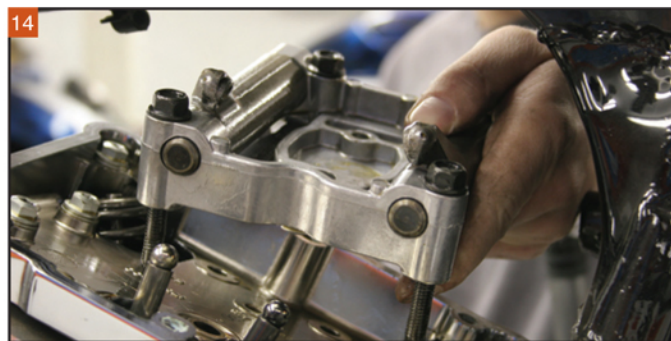
Remove the coil to allow clearance for the rocker boxes to be removed.



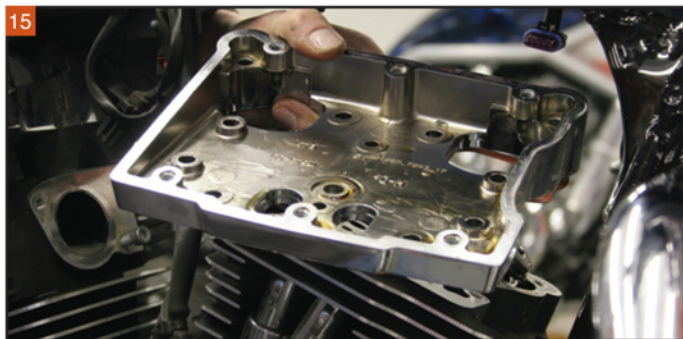
Remove the rocker box covers.



Dismount the rocker box oil baffle assembly.



Remove the rocker arm support plate.



Remove the lower rocker cover plate.



Remove the factory pushrods.



Uninstall the head temperature sensor from the front cylinder head.



Dismount the pushrod covers and set them aside to use again later.



Loosen and remove the head bolts.



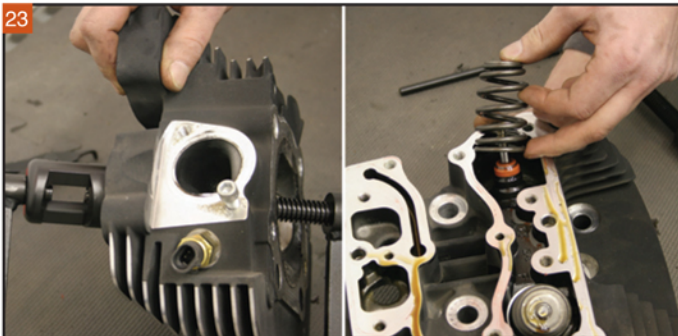
Lift the cylinder head away from the cylinder.



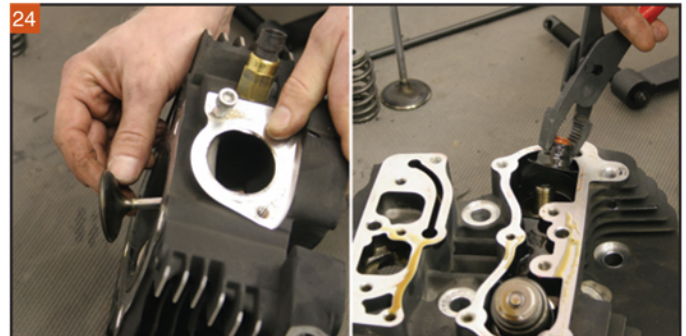
The front cylinder head is off, repeat the same procedure on the rear.



Use sockets and the original head bolts to hold the cylinders in place.



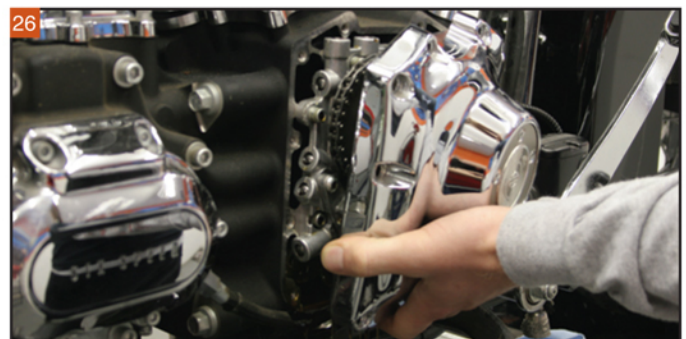
Using the JIMS tool, remove the stock valve springs.



Now remove the valves and seals.



Both cylinders are firmly held in place, so when the motor is rotated by hand, the lower cylinder gasket seal will not be disturbed.

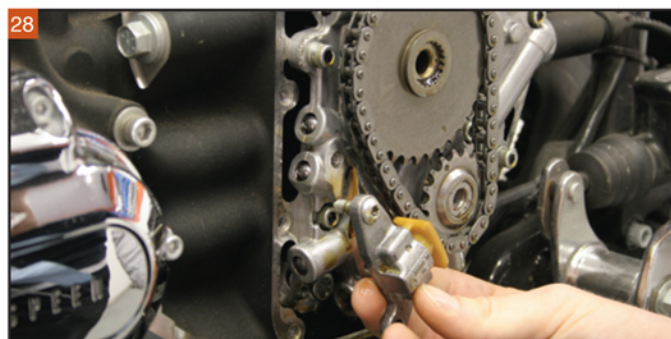


Loosen the cam cover bolts and remove the cam cover.

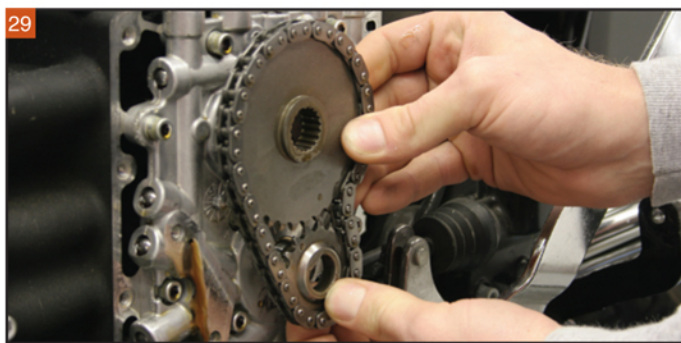
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Remove the chain sprocket bolts.



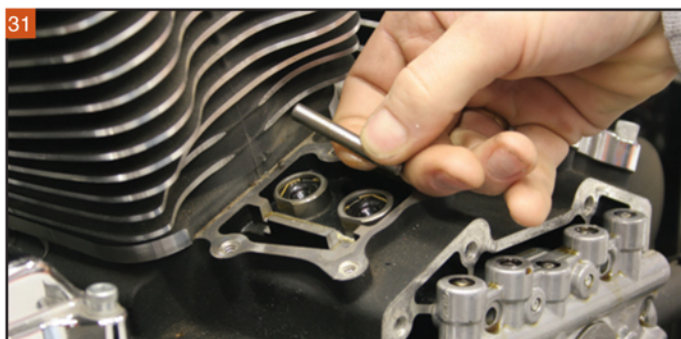
Dismount the stock hydraulic chain tensioner.



Remove the cam drive sprockets and the washer.



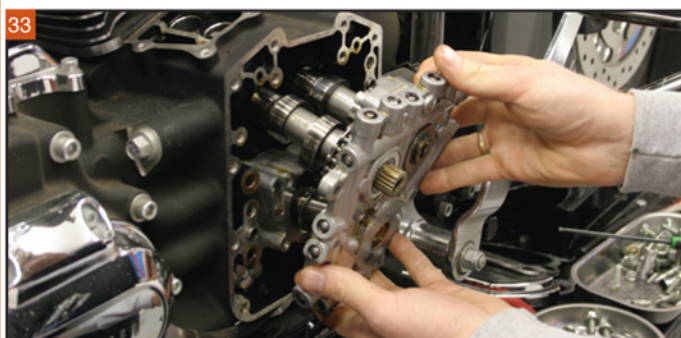
Remove the lifter cover bolts and gently tap the covers loose to remove them.



Remove the dowel pin that keeps the lifters from spinning in their bores.



Remove the stock lifters; they will be replaced with new Feuling lifters.



Dismount the cam support plate.



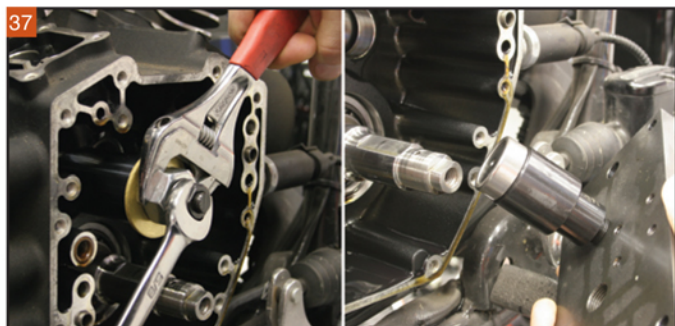
Remove the stock oil pump.



Remove the inner-hydraulic chain tensioner.



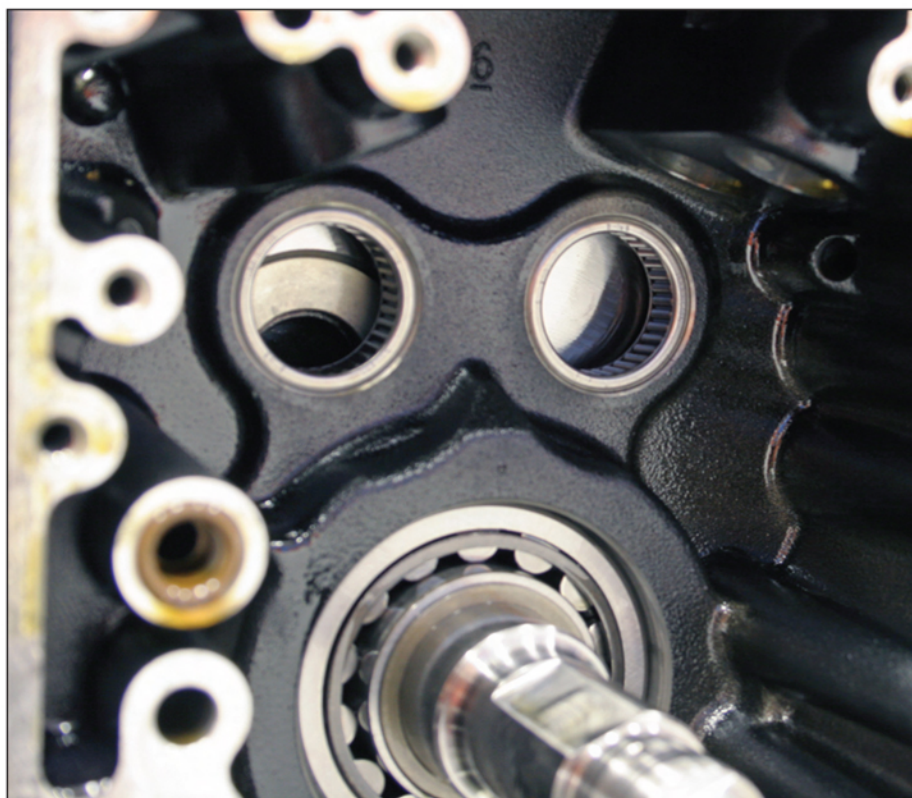
Remove the snap ring and pull the cam out of the plate.



Using JIMS cam bearing tools; remove the existing cam bearing and install the new Torrington bearing.



Check the pinion shaft run out using Feuling's tool. It must be less than .0025".



We will leave part one of this project here with the teardown completed. Check out next month's issue to see the installation of the new Feuling parts and a dyno demonstrating the performance increase.

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525 Camshafts
Part #1004-(525)

BeeHive Valve Springs
Part #1100

Lifters
Part #4000

Oil Pump
Part #7060

Install Kit
Part #2070

Cam Plate
Part #8015

619.917.6222
www.feulingparts.com

JAMES GASKETS

Cam Change Gasket Kit
Part #JGI-25244-07-KD

775.246.2220
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Feuling Camshafts & Valve Springs Part 2

Staff Report – Photos by Buck Lovell

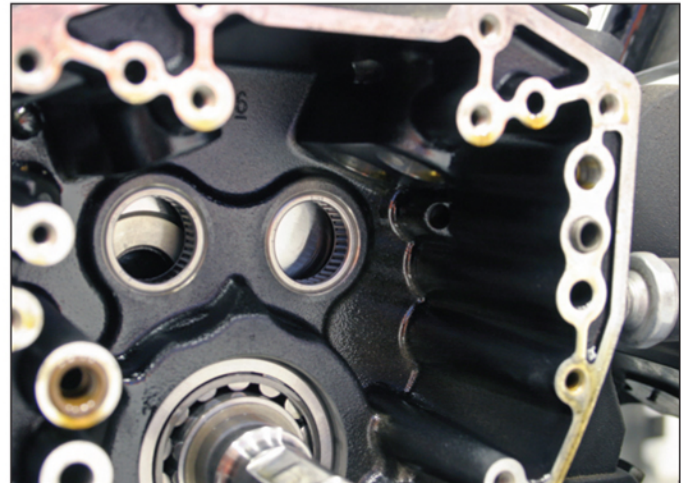
The Feuling hop up that we started last issue will be finished here in part two. We are installing the new Feuling 525 Camshafts and BeeHive Valve Springs. Installing the cams and springs requires some major mechanical know how and some specialized tools. These 525 cams are intended for use with '07 and later Twin Cam motors with hydraulic chain tensioners. We will also install a Feuling cam support plate and oil pump (must be used together). As with any Twin Cam motor cam install procedure, the stock inner cam bearings will be replaced with Torrington "full complement" parts which will tolerate the higher than stock spring seat pressures generated by the new springs and increased cam lift.

A Screamin' Eagle air filter element will improve breathing, as will the Freedom Performance slip-on mufflers. After all, why install new cams if the stock air cleaner and stock mufflers will be used. These cams will wake up the motor only if the motor can breathe to its full potential.

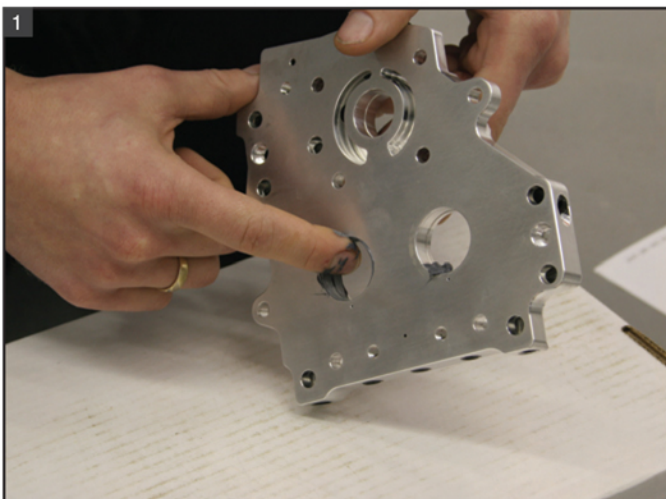
The entire kit can be ordered using part #7074 but it is recommended that you contact Feuling and talk to their tech personnel prior to ordering so you can be sure to get exactly what you need for your particular application.



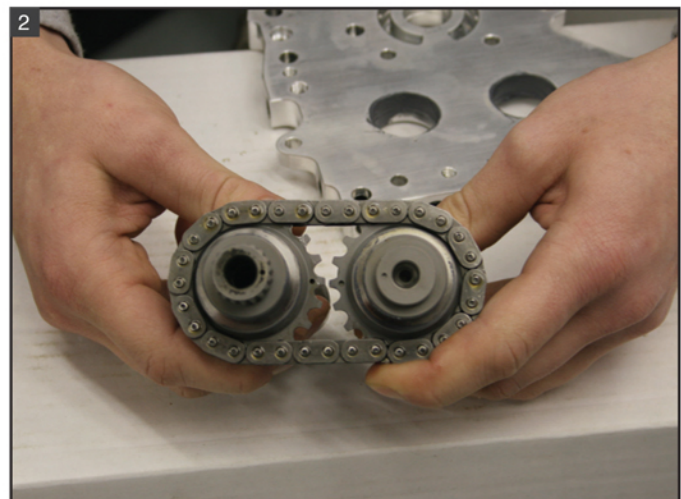
Here once again is the Feuling kit, it includes: gaskets, lifters, BeeHive valve springs, an oil pump, a cam support plate and the new Reaper 525 Camshafts.



Here is the '08 Harley-Davidson Street Glide as we left it in the last issue of American Bagger. We will now reassemble the lower end using new Feuling components.

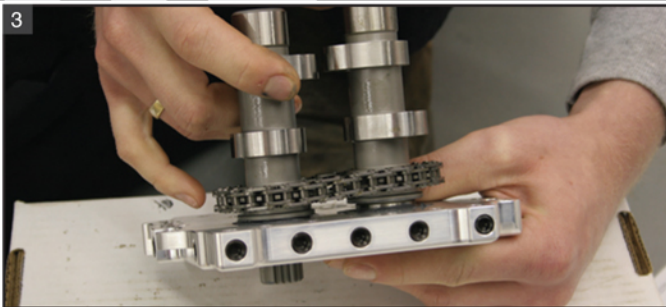


Apply assembly lube to the cam plate surfaces and camshaft surfaces.

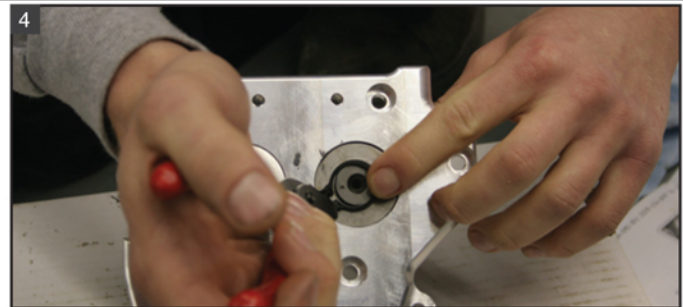


Slip the Feuling 525 cams into the chain with the timing marks lined up.

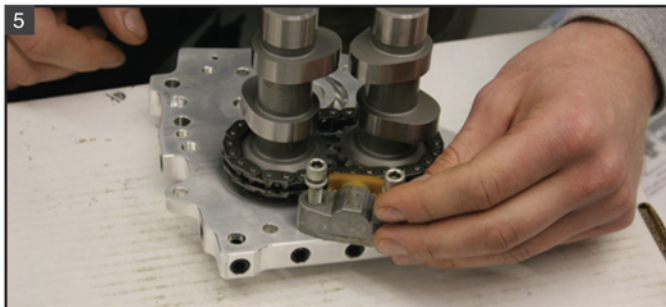
Camshafts & Valve Springs Part 2



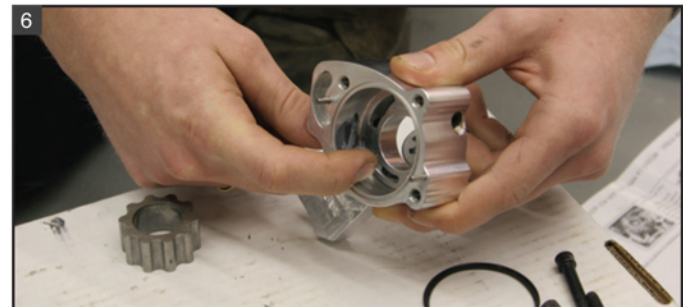
Slide the cams into the cam support plate.



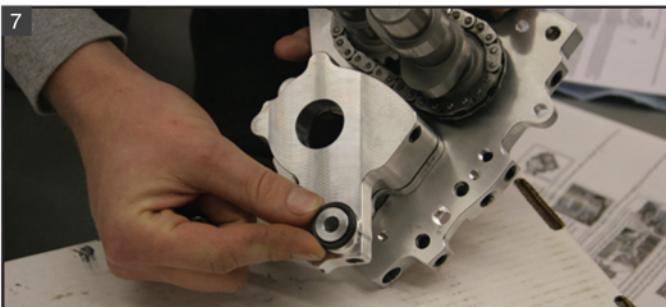
Replace the snap ring on the cam support plate.



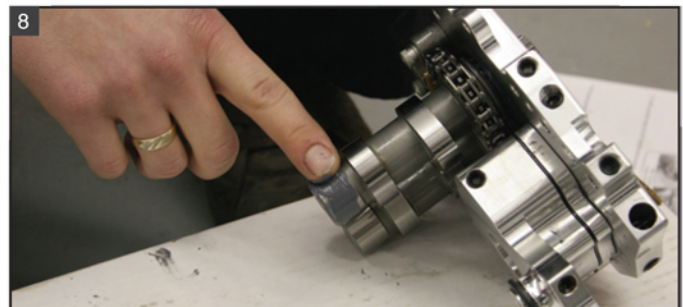
Reinstall the inner-hydraulic chain tensioner.



Lubricate the Feuling oil pump with assembly lube.



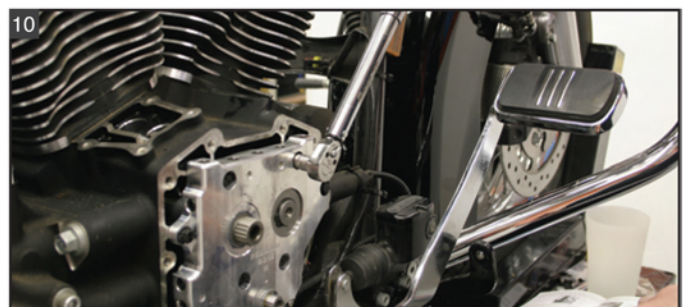
Install the Feuling oil pump with the O-ring, onto the rear of the cam support plate.



Lube the cam bearing surfaces with assembly lube.



Slip the cam plate and oil pump into position over the pinion shaft and thread the bolts into their holes.



Tighten the cam support plate bolts.

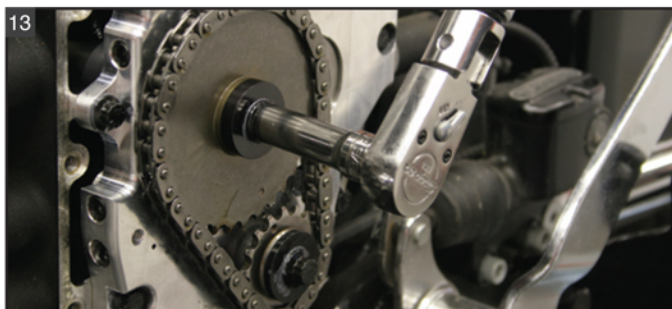


Replace the washer and install the cam drive sprockets.

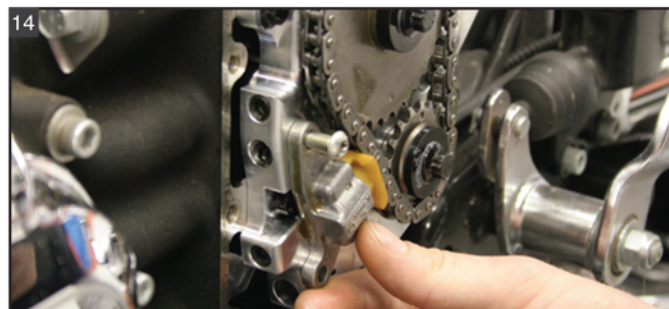


Use Threadlocker on the sprocket bolts and install them.

Camshafts & Valve Springs Part 2



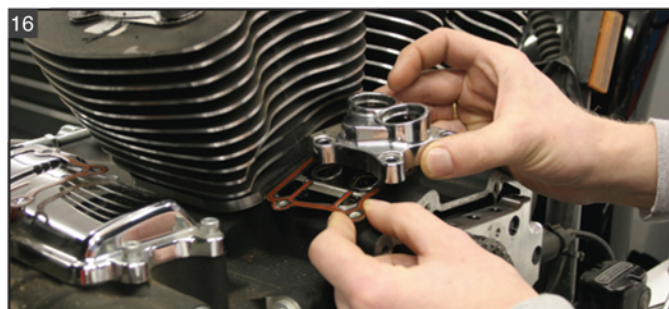
Tighten the sprocket bolts.



Reinstall the outer-hydraulic chain tensioner unit.



Check the bores for clearance then install the Feuling lifters.



Reinstall the lifter covers with new gaskets.



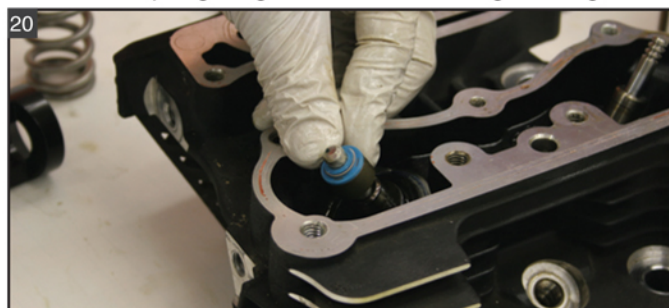
Reinstall the cam cover and tighten the bolts.



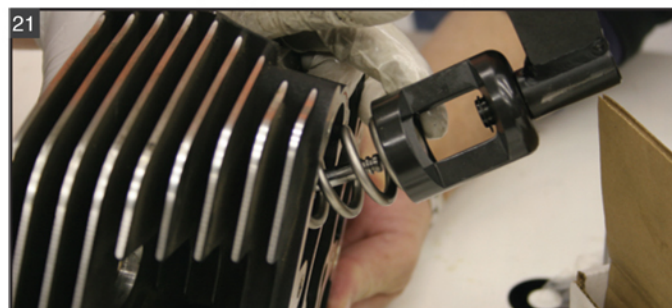
Check the spring height for coil bind using Feuling's tool.



Install the spring seats and any required shims.

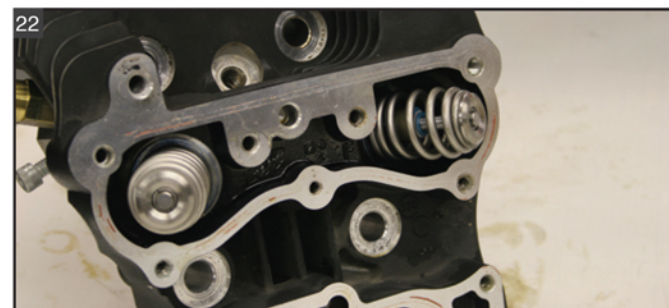


Install the new valve seals included in the Feuling kit.



Install the valves springs while wearing rubber gloves to prevent skin contact with the springs' coating.

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The front head is finished. Perform the same procedure on the rear head.

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Camshafts & Valve Springs Part 2



Using new head gaskets, install the cylinder heads.



Using new gaskets, install the lower rocker cover piece.



Install the oil baffle and rocker arm supports.



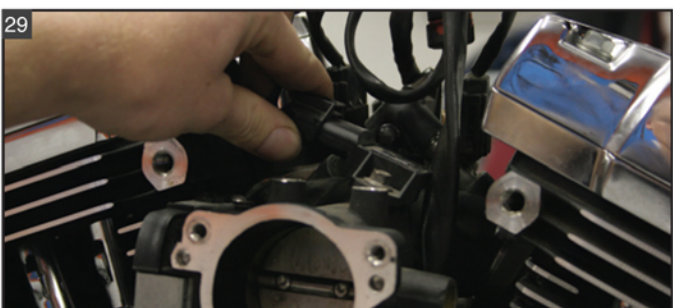
Install the pushrod covers using new O-rings.



Using new gaskets; install the rocker covers.



Using new flange gaskets, install the throttle body.



Plug-in the throttle position sensor cable.



Install the Screamin' Eagle air cleaner and replace the air cleaner cover.



Install the front cylinder anchor mount.
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Reinstall the top motor mount/horn bracket assembly.
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Reinstall the exhaust header.



Install the Freedom Performance mufflers.



Reconnect the battery.



Remount the gas tank, tighten the bolts, and reconnect the fuel line.



Reinstall the dash plate and all the connectors.



Reinstall the seat.



After a quick trip to the dyno for a tune-up of the Power Commander this project is all finished. According to the dyno run printout we gained 38% horsepower and 20% torque.

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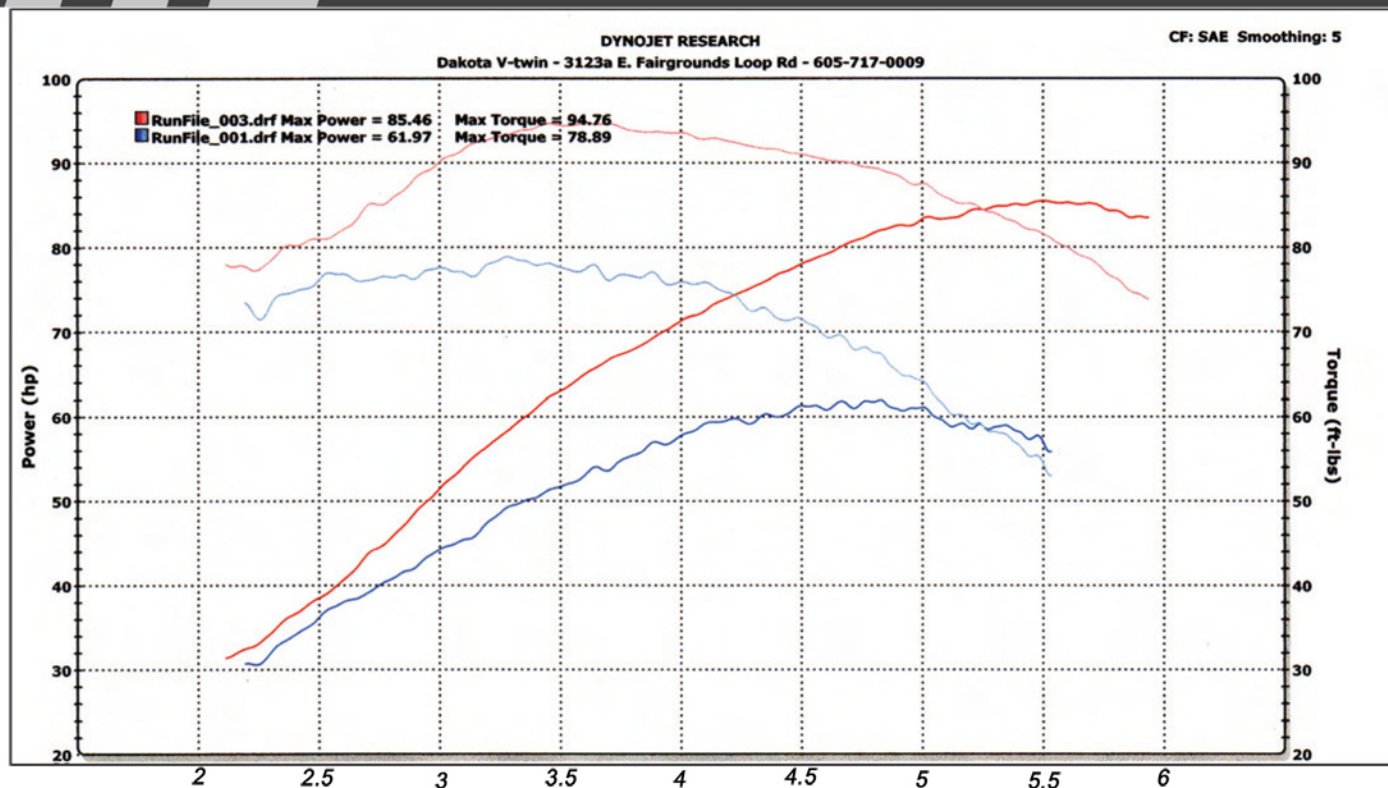
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