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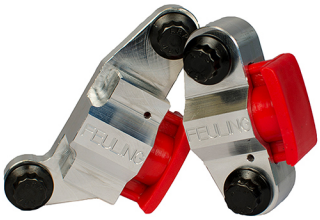
FEULINGPARTS.COM

SPROCKETS, SPROCKET SPACERS, CAM CHAINS, TENSIONERS & BEARINGS

#8062

#1091

#8040



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IMPORTANT NOTICE
- This installation should be done by an experienced mechanic who has access to a factory service manual and all required tools.

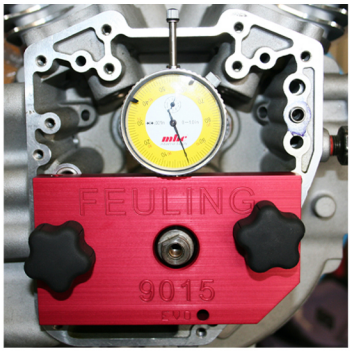
CAUTION
- Incorrect installation can cause premature tensioner pad wear and engine damage not covered under warranty. Failure to install components correctly can cause engine seizure. Engine seizure may result in serious injury to motorcycle, operator, passenger, and/or others.
- Improperly torqued bolts may result in oil leaks, distortion of components and engine failure.

NOTE: Excessive pinion shaft runout & or play can/will cause damage & or failure. Feuling recommends ideal end play at 0.003"-0.004", & crankshaft runout at or below 0.003", Feuling warranty does cover up to 0.005" combination of runout & bearing play, measure crank bearing play by lifting up on the tip of the pinion shaft.

INSTALLATION:

1. **Refer to the HD® service manual for your model motorcycle for removal/installation of the camchest.**
2. **Inspect cam chains and make sure they are free of burrs, if needed replace chains or use a stone to remove burrs.**
3. **Use assembly lube on all moving parts: tensioner pads, inner bore of tensioner housings, chains, cams, oil pump, bearings etc.**
4. **Make sure the tensioner pads and housings are installed square to the chain, especially the inner tensioner. If the housing and pad are not installed square it will cock the pad and create premature pad wear.**
5. **On installation make sure timing marks of sprockets are lined up correctly per your service manual/cam manufacturer.**
6. **Align outer cam and crank sprockets using the correct thickness cam sprocket spacer, use a straight edge to verify alignment and adjust the cam sprocket using the 'needed' spacer thickness.**
7. **Front cam on '07-'17 and conversion camshafts use the 0.100" thick thrust washer held in with the snap ring.**
8. **Assembly the camplate/oil pump/cams on the bench and install into the engine as a complete assembly, with oil pump and camplate bolts finger tight. Rotate engine over to center the camplate, tighten and torque then rotate engine again to center oil pump then tighten and torque. Both torqued 90 - 120 inch Lbs.**

Engines that have premature tensioner pad wear should have the sprocket runout inspected. The sprocket registry on the crankshaft may need to be modified to true the sprocket.



Check engine crank end play & runout. Feuling recommends ideal end play at 0.003"-0.004", & crankshaft runout at or below 0.003". Our warranty will cover up to 0.005" combination of runout & bearing play.

Feuling recommends dropping the oil pan & performing a full clean & flush on the oil system prior to installing new camchest components. Install fresh oil & filter before installing the oil pump/camplate. While performing the install, rotating the engine over by hand to center the oil pump & camplate will pull fresh oil into the system & start to prime it. You should witness oil coming out the pinion hole & tensioner feed hole while rotating the engine over on assembly.

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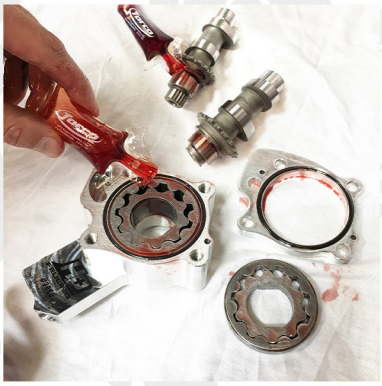
1

Install new inner cam bearings using the correct tools and press lube.

2



Clean & lube:
- Oil pump
- Gears
- Camplate
- Camshafts

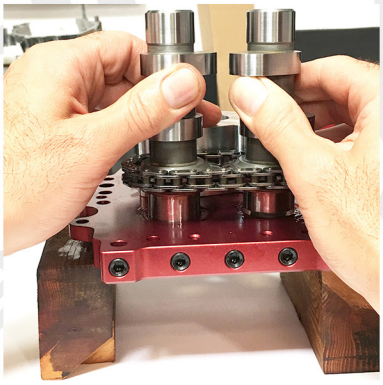
3

Install oil pump finger tight, **DO NOT** use loctite on oil pump or camplate bolts, use moly lube or engine oil. Note we have the camplate supported by wood blocks to ease install of pump.

4

Picture showcases '07-'17 cams & or conversion camshafts with inner cam chain installed & timing marks lined up. Make sure chain is free of burrs & well lubed.

5



Feuling recommends supporting the camplate to ease installation & allow the camshafts to float freely. Wood blocks are used here. Properly lube camplate bores, cams, chain & always lead with the rear camshaft.

6

For late style '07-'17 cams & conversion cams on '99-'06 models.

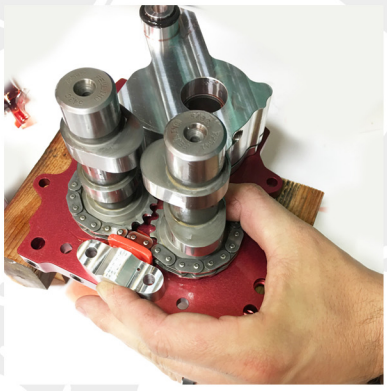
Install 0.100" thick thrust washer & retaining ring on front camshaft. Note the retaining ring installs with taper/bevel ID edge towards the camplate & the square ID edge towards the outside of the cam.

7

Lube tensioner pads, chains & inner bore of housings.

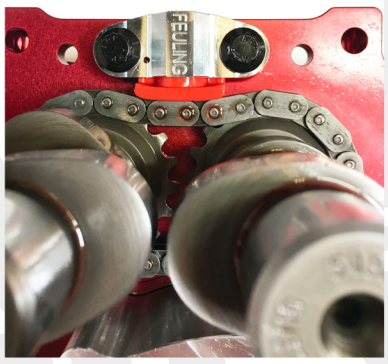
Lube all moving parts!

8



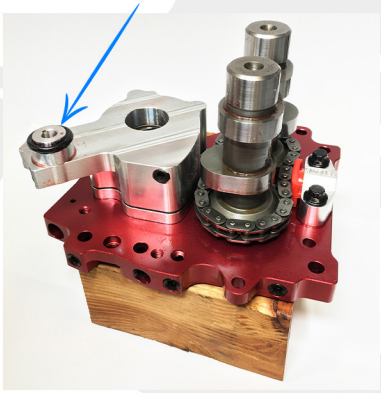
Install tensioner pads & housings squarely. Do not install 1 bolt then rotate tensioner housing into place as this can cock the pad.

9



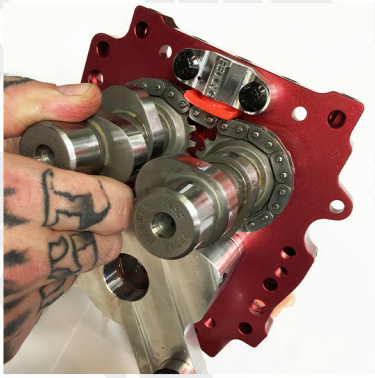
Make sure tensioner pad is square to the chain and the pad moves up and down.

10



Assemble camplate, cams, inner tensioner & oil pump on the bench as a complete assembly. Oil pump should be finger tight, scavenge port O-ring should be installed on back of pump & well lubed.

11



Rotate cams & verify the assembly rotates freely & the tensioner pad is true & not cocked.

Chain & tensioner pad must be well lubed.

12

Align oil pump gear flats horizontally.

Rotate crank to match.

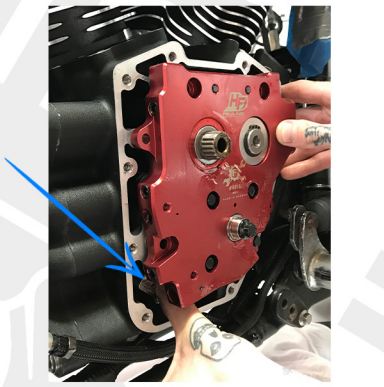
13

Rotate crankshaft so flats are horizontal. Install 2 camplate O-rings, put assembly lube on scavenge port hole of the case, O-rings, pinsionshaft & inner cam bearings.

14

Install camplate assembly into case, guide pinionshaft into bore and cams into bearings, rotating engine rocking back and forth can aid in aligning oil pump gears - do not force.

15

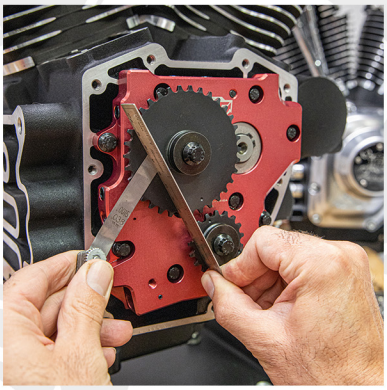


Use your left thumb or a finger to push on oil pump to pop into scavenge port, assure proper o-ring seal.

16

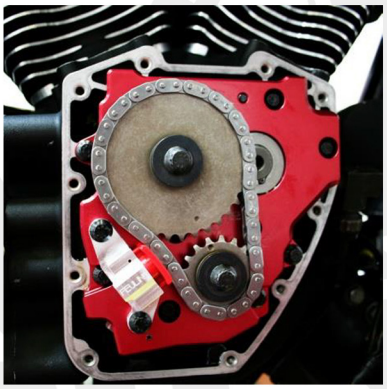
With oil pump & camplate bolts finger tight, rotate engine over to center the camplate, tighten & torque. Then rotate engine again to center oil pump then tighten & torque. Both torqued 90-120 inch lbs.

17



Align sprockets using a straight edge to verify sprockets are in line. Use the selection of different thickness thrust washers to adjust cam sprocket spacing to match crank sprocket.

18



Install outer sprockets, cam & crank bolt & outer tensioner, use assembly lube on tensioner pad & chain. Verify pad is square to chain & not cocked.

Cam bolt TQ-34 ft/lbs // Crank bolt TQ-24 ft/lbs

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REAR CAM ROLLER BEARING WITH RACE INSTALL

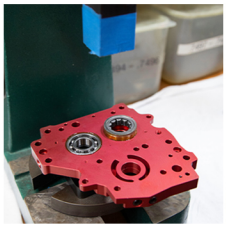
#2078

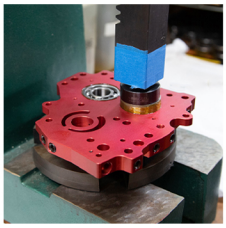
For use with early style chain drive cams '99-'06

1

Use proper fixtures & tools, apply press lube to bearings & camplate bores.

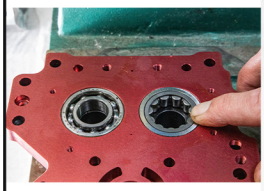
2





Set camplate into proper fixture to press bearings in. Easy work with press lube and an arbor press.
Roller bearing rear cam, ball bearing front.

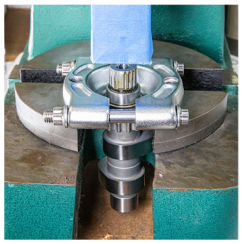
3



Verify bearings are pressed in square and flush with camplate.

Install bearing retainer plate.

4 PRESS or PULLER



Remove existing rear cam race. Use a separator in a press or with a standard puller.

5

Install new bearing race onto camshaft, the race is matched to the bearing, the race & bearing combo sets the camshaft end-play.

6

- Install O-Ring
- Thrust washer
- Race.
- Use lube

Press race onto camshaft using proper tools & press lube.

7

New bearing race installed onto rear cam.

8

Showcasing rear cam installed into the roller bearing.

9

Showcasing outer view of both cams & bearings installed with retaining clip on rear cam.

* STANDARD 1 YEAR WARRANTY:
- WARRANTY COVERS MANUFACTURE DEFECTS.
- DOES NOT COVER PARTS THAT HAVE FAILED DUE TO IMPROPER INSTALLATION, MAINTENANCE, EXCESSIVE CRANKSHAFT RUNOUT, OR MISUSE.
- DOES NOT COVER ANY CONSEQUENTIAL DAMAGE RESULTING FROM A FAILURE OF A FEULING PRODUCT.

* OPTIONAL 2 YEAR WARRANTY:
- ADDITIONAL YEAR WARRANTY IS ONLY AVAILABLE IF PARTS ARE INSTALLED BY A PROFESSIONAL INSTALLER.
- THE ONLINE WARRANTY FORM MUST BE COMPLETED BY THE DEALER PRIOR TO BIKE DELIVERY.
- OIL TANK MUST BE DROPPED & CLEANED.
- CRANKSHAFT RUNOUT MUST BE BELOW 0.005"

NOTE: FOR FULL WARRANTY INFORMATION VISIT WWW.FEULINGPARTS.COM/WARRANTY

DISCLAIMER: NOT LEGAL FOR SALE OR USE IN CALIFORNIA ON ANY POLLUTION CONTROLLED MOTOR VECHICLE. FEULING DOES NOT RECOMMEND TUNING BEYOND STOCK EMISSION STANDARDS.

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