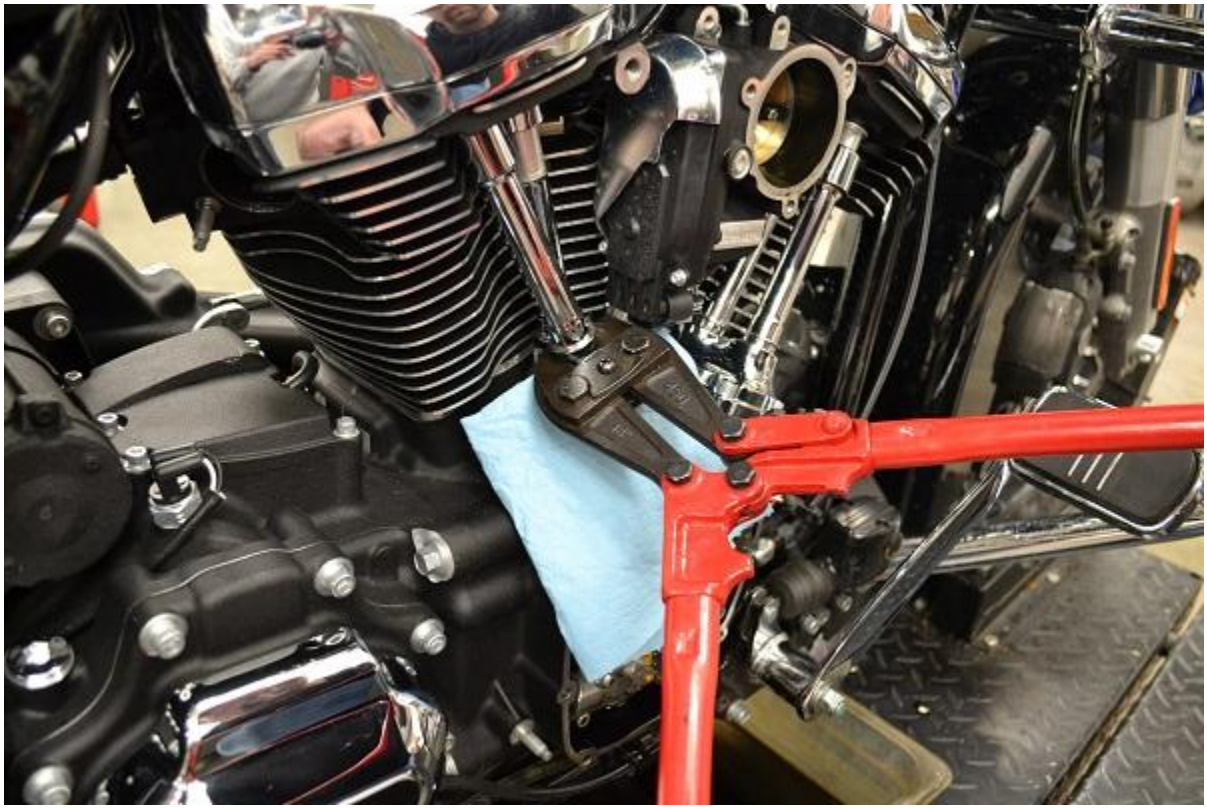
H-D Milwaukee-8 Cam Install instructions

In this article we will outline what is involved in a cam swap in the H-D Milwaukee Eight engine. This is a very straight forward procedure. We will be covering the complete step by step install using a bolt in replacement cam using quick install adjustable pushrods, in this example we will be re-using the stock lifters. The bike is a Road Glide with 107″ M8 air cooled engine.

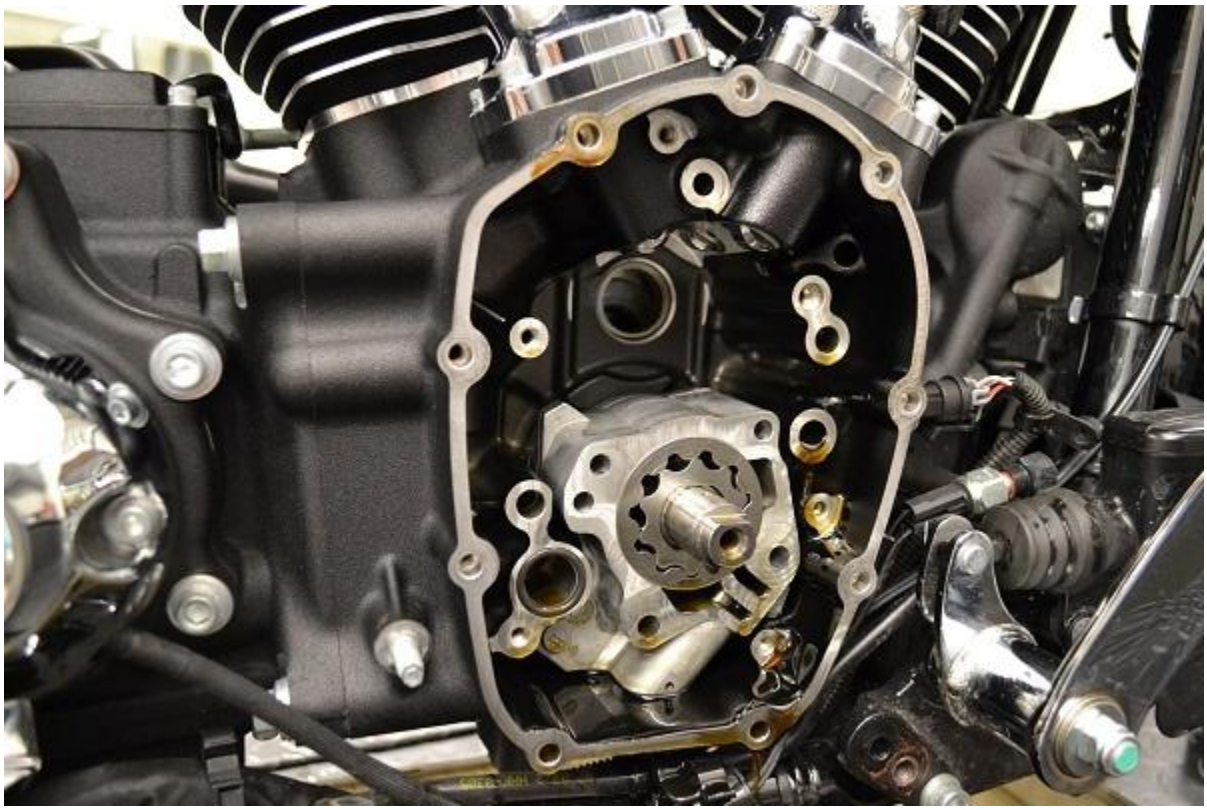
Here is the motor ready for disassembly, we've removed the complete exhaust system, air cleaner, and cam cover.

In this application we will not be re-using the factory pushrods, we are using Quick Install style adjustable pushrods. THe image below shows cutting the factory pushrods with a bolt cutters and removing them. Do not use a cutoff wheel or grinder, use a bolt cutter which makes a clean cut and eliminates (or highly reduces) the chances of any particulates making their way into the motor.

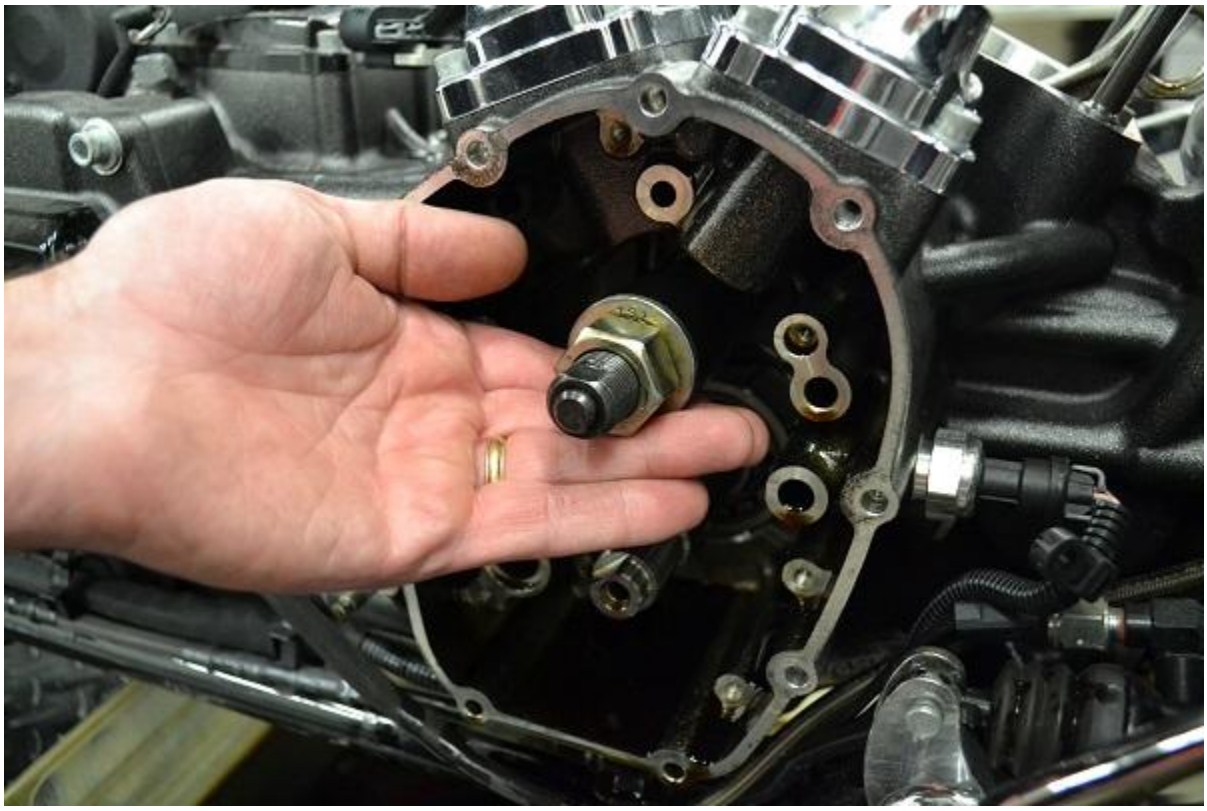


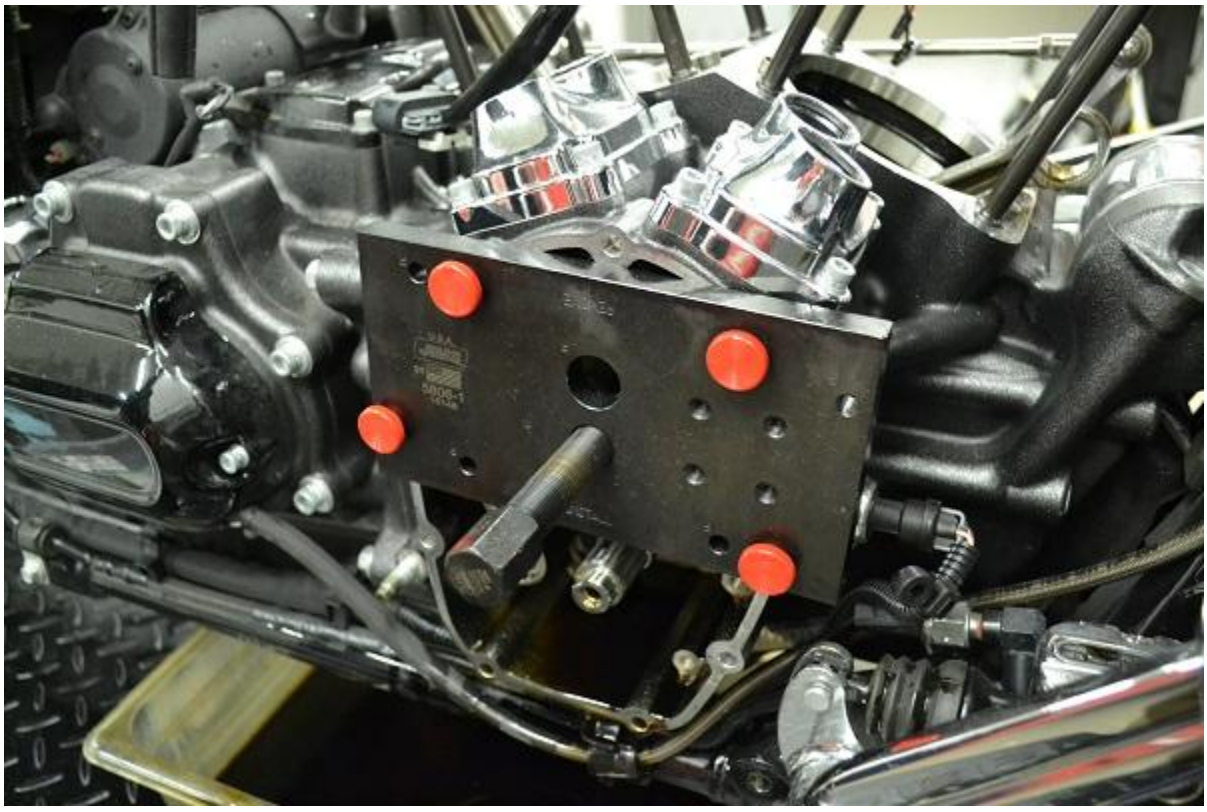
Remove the cam cover. Here is a close up image of the camchest. Next remove the cam chain tensioner, sprockets & chain, then completely remove the cam plate leaving the oil pump in place in the engine case.

camchest with cam plate removed



Removal and installation of the the inner cam bearing using the appropriate cam bearing tools





M8 cam plate removed from engine

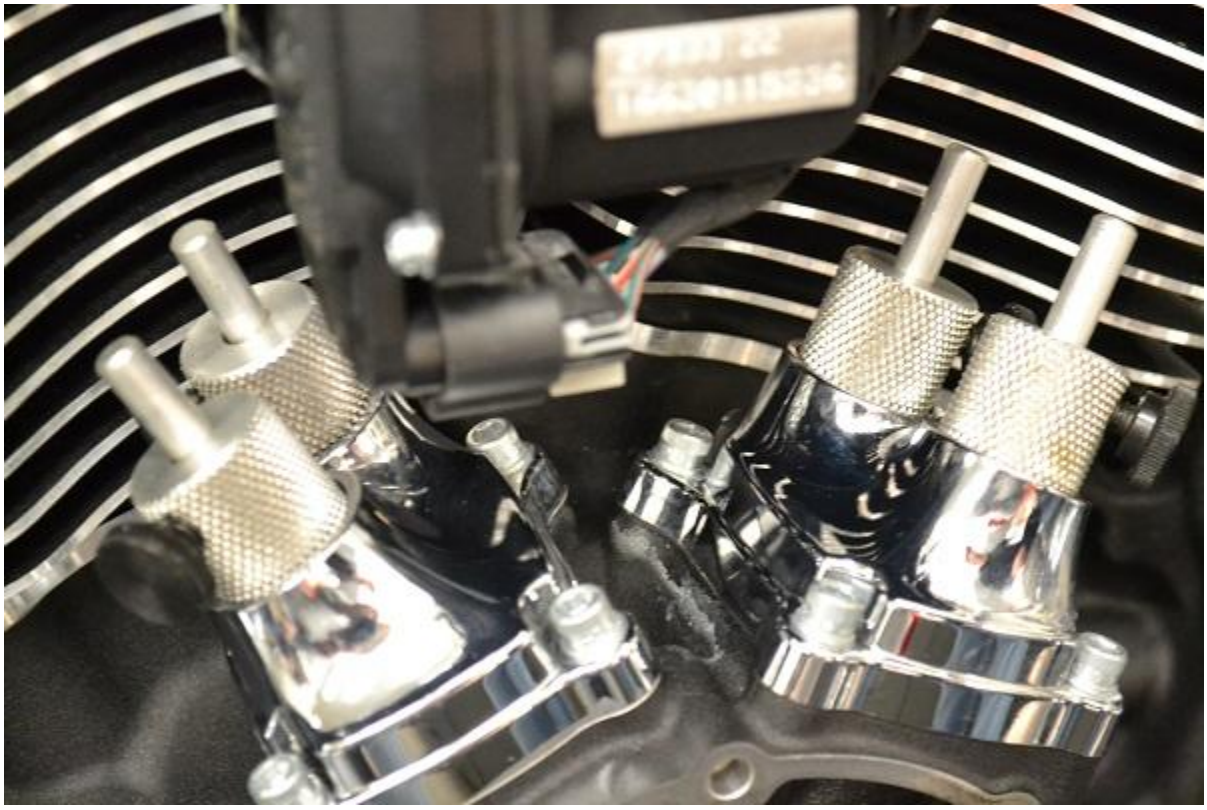
backside view of M8 cam plate with camshaft

Cam sprockets & chain

cam chain tensioner

stock H-D M8 cam on the left, Wood Performance WM8-222 cam on the right. Note the lobes are pressed on the factory cam, the aftermarket cam is machined from a billet blank.

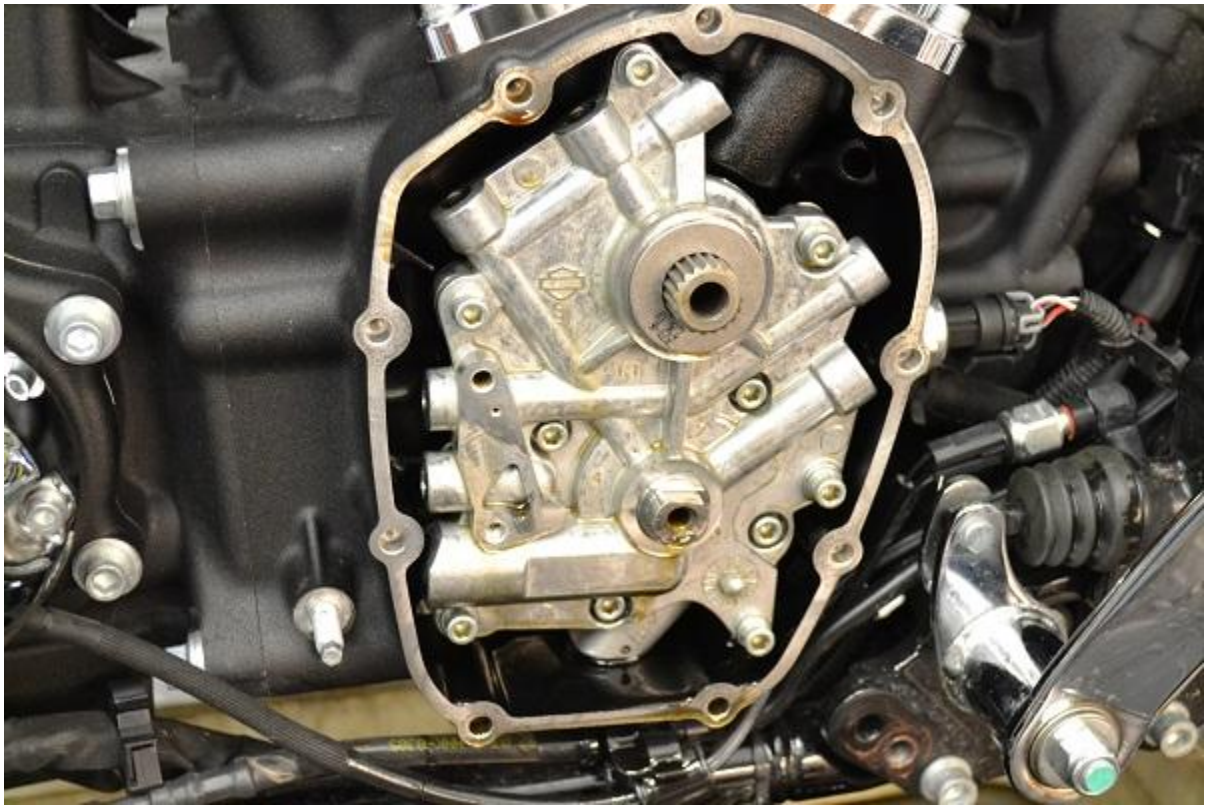
The lifter blocks and lifters do not need to removed. For holding the lifters to allow cam plate removal we use the same Twin Cam magnetic tools for holding the lifters in place on the M8, there are other simple ways to hold them as well including the binder clip method. NOTE: we recommend replacing & upgrading lifters at the same time as part of a complete cam swap.



Carefully clean & inspect the cam & cam plate, liberally apply assembly lube to the camshaft

Replace o-ring on feed oil port, install cam plate into the engine cases, install screws loosely

Use rear wheel to roll engine over to ensure the oil pump does not bind. Tighten cam plate screws in sequence according to manual, do not final torque. Turn engine until the flat surface on the crankshaft is horizontal. Carefully torque cam plate bolts in steps as listed in service manual. Final torque on these bolts is 120 in-lb



Install cam sprockets & chain. Use red loctite on these fasteners. You can use the same locking tool as a Twin Cam. Double check sprocket alignment and cam spacing. Carefully torque cam sprocket bolt to 34 ft-lb, crankshaft sprocket to 25 ft-lb

Note cam timing marks. The dot on the upper sprocket will be at 6:00, the dot on the lower sprocket is at 12:00. Install tensioners, use blue loctite and final torque is 120 in-lb

Install pushrods and follow the full adjustment procedure. Adjust pushrods to spec based on the thread pitch listed by the manufacturer and for the specific lifter you are using.

Install cam cover, you are now ready to install the exhaust system and other components that were removed for cam installation

For more info, data, and dyno sheets on Milwaukee Eight camshafts check our our M8 Dyno shootouts for the 107″ and 114″ engines!

Fuel Moto EZ Quick Install Pushrod Installation & Adjustment H-D M8 & Twin Cam engines

Updated design for 2019! Fuel Moto "**EZ**" Quick Install pushrods are engineered for easy use along with maximum strength and durability, allowing users to easily swap cams without removing the fuel tank or disassembling the top end. They are designed for use with the stock pushrod tubes; the length of the pushrod body, the locknut location, and adjuster allow for easy adjustment without any special tools. These pushrods fit 1999-current Twin Cam and Milwaukee-Eight engines.

Installation & Adjustment

Step 1) Disassemble pushrod tubes. Remove stock pushrods by cutting with bolt cutter. Rotate engine to top dead center on the compression stroke for each cylinder when cutting the pushrods, this puts both lifters on the base circle of the cam lobe. When both timing marks on the crank and cam sprockets are lined up that would be TDC for the compression stroke for the rear cylinder. If you rotate the crank one complete revolution so the cam sprocket timing mark face 180 degrees from each other that would be TDC for the compression stroke for the front cylinder.

Step 2) Install FM EZ pushrods & factory tubes. You will install & adjust pushrods one at a time using the same technique stated above for finding TDC on the compression stroke. When you are on the compression stroke you can adjust the pushrod using the following procedure:

Extend the pushrod to zero lash making sure the end of the pushrod is properly seated in the rocker arm. There should not be any up and down play in the pushrod. You will want to be careful if you are using new lifters as it can be easy to start preloading the lifter without realizing it. Once zero lash is achieved **adjust the pushrod per lifter manufacturers specs** and the tighten the jam nut. **(S&S and OEM lifters approx. 3.5 turns, Wood's lifters require 4 turns)** Let the lifter bleed down; it is imperative that lifters have bled down before the engine is rotated otherwise valve to valve contact & cylinder head damage can occur. The pushrods will rotate easily with your fingers when the lifters have bled down, this typically takes 20-30 minutes. Once the lifters are bled the engine can be rotated and you can install the pushrods for the other cylinder.

Quick Tips:

- Be sure to replace pushrod tube o-rings when installing new pushrods
- make sure you wait sufficient time for lifters to bleed down before rotating engine
- Fuel Moto EZ pushrods are 24 TPI (threads per inch)

https://youtu.be/y-VV0mK1-5I?si=lOVlcvu2KTrtvOfL