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A few thoughts from the project:

-I don’t have very miles on the bike with the Redshift 468 cam yet, but it pulls STRONG and seems to be running great. My bike has a Fuel Moto header attached to S&S MK45 mufflers. I use Power Vision (with Target Tune) for fuel management, with a fuel map provided by Fuel Moto. I’m a fan of this combo for real world usable power.

-I’d highly recommend having your own copy of the Factory Service Manual on hand prior to attempting this project. Additionally, watch a couple of YouTube videos on cam swaps and / or read a couple of other walkthroughs of the process. It will make you much more comfortable in the process.

-I set up a folding table in the garage to provide a clean and neat workspace. Keeping all my parts and pieces physically in one spot helped me keep track of my project.

-Prior to starting the project, I copied all the steps from the Factory Service Manual in to a word document. I wrote down tips that I’d learned during research prior to the project, highlighted torque values, and had all the information together in one hard-copy document as a quick reference guide while working on the bike. It was a very helpful document to keep me on track. It also provided a handy scratch paper to jot down notes.

-If you’ll notice in the pic of my table, I had the tools and parts set on my table (from left to right) in the order I intended to use them prior to turning the first wrench. This order corresponded with the printed-out document I created before starting the project. Stated another way, I put thought ahead of time on the process / order of events and attempted to prepare ahead of time for the job. Planning ahead kept the project moving along in a logical fashion, and prevented wasted time looking for misplaced items.

-A little organization goes a long way. I took extensive notes along the way and took a TON of pictures with my phone. When I took small parts off (such as the screws / bolts / hardware) I placed them in a plastic baggy along with the 3x5 note card related to the part. Waaaaaay cooler than trying to remember which bolt goes where or looking around for tiny parts.

-Like most projects, this took much longer than I originally thought it would. The very best case scenario is that this is a 3-4 hour job after you've done it a few times, but you'd be wise to start this early on a Saturday morning when you have the whole weekend free. I learned a lot during the process, but there were multiple times that I had to stop and seek clarification on a process or procedure. With the knowledge and experience I've gained it would go much quicker for me if I were to do another M8 cam swap. Hopefully my explanation will be helpful to others.

-Be very careful around the exhaust studs in the heads. I accidently cross-threaded one of the studs coming out of my head with a flange nut while re-installing my headers. Luckily I was able to extract the damaged stud and replace with a new one with the engine in the motorcycle, but I was initially SUPER worried that I was going to have to pull the head for the repair. If I hadn't been rushing to install parts I would have avoided that whole headache.

-I was under the mistaken belief that Twin Cam and M8 pushrod covers were the same length. The black Twin Cam pushrods that I installed on this project stumped me for a while (I initially couldn't figure out why I was having so much difficulty and couldn't get them to fit). Once I determined that M8 Covers were shorter by laying my stock pushrod covers next to the ones I was trying to utilize, I realized I could trim a ¼ of an inch off the top end of the Twin Cam clips with a hacksaw. I cleaned up the edges with a file and then put a little bit of paint on the exposed metal to prevent rust in the future. The good news is that the portion that I trimmed is hidden up inside the head, and is out of sight.

-I decided to remove the gas tank to enable me to remove all four spark plugs (I wanted to replace them all anyways). However, you certainly can get away with leaving the gas tanks in place and only pulling one plug per head on this project if you'd rather leave the tank in place. You just need a pathway for the compression to escape as you turn the motor over while finding TDC.

-I went in to the project with S&S Standard Adjustable Pushrod Set sitting on my bench ready for the install. What I found out, however, was that the Standard S&S adjustable pushrods do not shorten enough to work on a M8. The S&S product that would have shortened enough for my application is the Quickee Adjustable Pushrod. I opted for Fuel Moto pushrods to solve the problem (because they could be used with the pushrod covers that I had on hand), but it built additional delay in to the project while I waited for parts to come in the mail. Frustrating.

****CRITICALLY IMPORTANT****

The cam *must* be on its base circle prior to cutting the pushrods. All that means is that the pushrods for an individual cylinder are not being lifted on one of the cam lobes. This happens when a cam is at TDC (top dead center) for an individual cylinder. In the pic below you can see an example of what I'm talking about. Because the pushrod ends are resting on the "flat spot" of the cam, they are not being raised up and pressing against the rocker arm up in the head (and so there is no pressure from the valve springs) and they can be safely cut. Obviously as the cam rotates away from the base circle the pushrods will rise and fall as they engage the lobes of the cam.

If you were to cut one of the pushrods when the cylinder was not at TDC, one or both of your pushrods would be in the process of being lifted by the upward slope of a cam lobe. In turn, the rocker arm would be pressing against, and receiving pressure from your valve springs. If you cut a pushrod while in a raised position, the downward pressure from the valve spring instantly releasing could damage the bike or send chunks of cut pushrod violently at you. All bad.

For that reason you'll only cut the pushrods on one cylinder, while it's at TDC, before moving on to the next cylinder. Luckily it is quite easy to determine when the bike is at TDC for an individual cylinder. You'll need to remove the spark plugs from the heads. This allows you to rotate the engine without engine compression making the task difficult. Shift the transmission to sixth gear to provide mechanical advantage via the transmission gearing. This will make it quite easy to turn the motor over by hand while rotating the rear wheel. Have a helper rotate the engine a few times while you watch the pushrods rise and fall as the motor turns over; it'll help you visualize the exhaust and intake movement during the four-stroke intake / compression / power / exhaust process. As we discussed, TDC for a cylinder is found when both valves are closed, so by extension both pushrods are in the full down position. However, because we have the cam cover off, you can simply look at the timing marks on the sprockets to determine when you're on TDC. You'll see a small dot on the sprocket connected to the crankshaft, and a corresponding dot on the sprocket connected to the camshaft. These timing marks aid in helping you be 100% sure that you're on TDC for a cylinder.

Here's how the timing marks look when the engine is rotated such that it is on TDC for the rear cylinder:

As you rotate the engine over for TDC on the front cylinder, you'll notice that the timing marks are still vertically aligned, but now the cam sprocket timing mark is 180° out of phase from where it was during the rear cylinder TDC and is now displayed at the top of the gear. Stated another way, the timing mark is now at the top position of the camshaft sprocket when at TDC for the front cylinder:

It’s important that you use a pair of bolt cutters, and NOT a grinding wheel or cutting device to cut the pushrods. This avoids small particles of metal from getting inside your engine. I started with the rear cylinder first. After ensuring that I was on TDC for the cylinder, I cut the rear cylinder intake and exhaust pushrods. With that done, I then rotated the engine to TDC on the front cylinder and cut the front cylinder intake and exhaust pushrods. Discard the cut pushrod pieces and set your pushrod covers with the other parts out of the work area.

You can now start removing your cam chain assembly. Take a moment to make a mark with a paint marker on one of the sprockets and the chain. The idea here is that when you go to reassemble parts at the end of the project you connect to the chain on the same sprocket tooth that it has previously paired with / broken-in with. If you’re careful you can slide both sprockets off their respective shafts with the cam chain still attached

Remove the two torx bolts holding your cam tensioner in place:

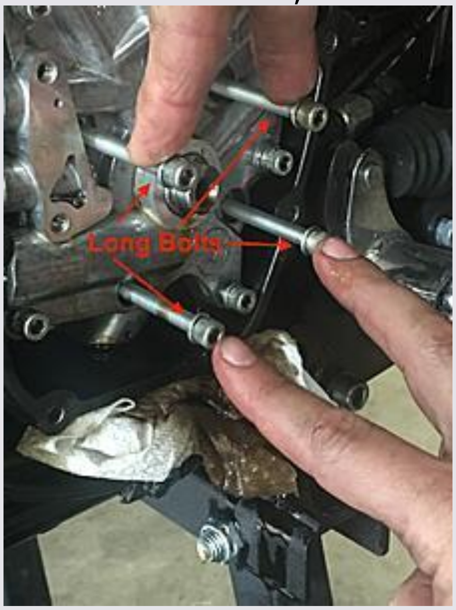
We’ll need to lock the two sprockets together. I used Cam & Pinion Gear Locking Tool, Georges Garage Part Number 320620 to immobilize the sprockets.

With the sprockets locked in place, you’ll use a 9/16 socket to break the bolts free. From there simply remove the bolts, and slide the sprockets off the shafts they are attached to

As you can see, the unique machining on the crankshaft and camshaft mean that you cannot accidently put the sprockets on the wrong shaft or reinstall “one tooth off”.

You can now see your cam support plate. There are four long bolts, and five short bolts that must be removed. Keep track of which one goes where for reassembly.

Remove the bolts, and slide the cam support plate out of the engine compartment.



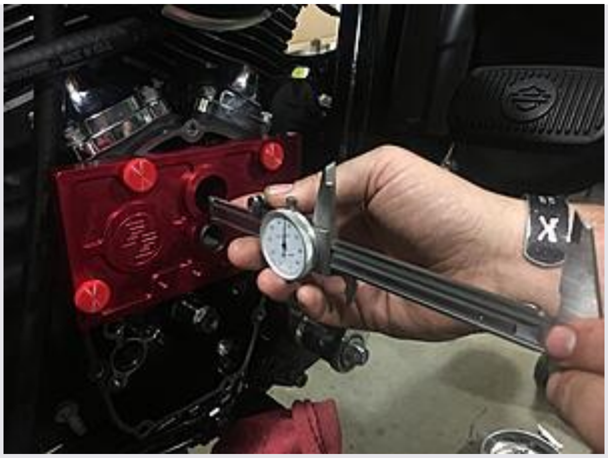
You now have full access to your cam and oil pump.

You’ll want to take a moment here to use a thread chase to clean up threads used to attach the camchest cover and camchest components. The bolts previously removed are all threaded ¼”x20 TPI. Because blue thread locker is used on assembly, you must clean out the threads to get rid of the old thread locker. If you skip this step, you will NOT have accurate torque values when you reassemble. For those unfamiliar with a thread chase, it is similar to a thread tapping tool, but is specifically designed to be slightly undersized to avoid damaging / cutting too much when cleaning up threads. Very carefully insert the chase by hand to avoid cross threading, and then clean out the threads.

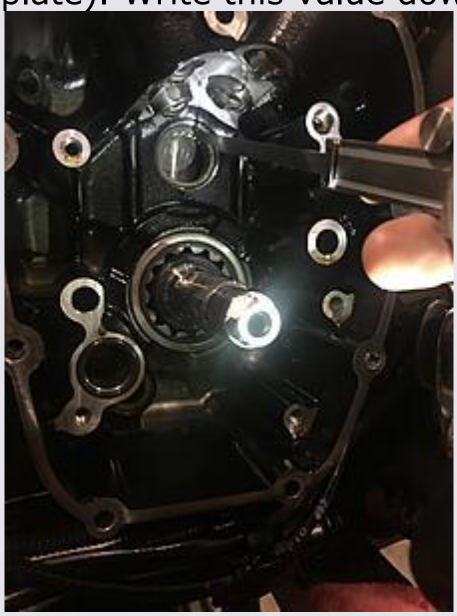
Now it’s time to remove the original factory cam and oil pump. They slide right out of place.

Replace the cam shaft and oil pump o-rings. You’ll use Harley part number 11900103 and part number 11293 o-rings.

Now it’s time to replace the cam bearing. The MOCO cheaps out and doesn’t use high quality bearings at the factory. Since I’m this far in the camchest, now is the time to upgrade the bearing. The first step is finding out the seated depth of the bearing in the engine case. This is done by attaching a bearing installer plate to the engine case, and then measuring the distance from the front edge of the bearing to the front of the plate tool. The Factory Service Manual directs you to use CAMSHAFT NEEDLE BEARING REMOVER / INSTALLER TOOL, part number HD-42325-C, but I used an equivalent tool (Inner Cam Bearing Installer Plate, M8 Single Cam) from Georges Garage. The part number is 820655.



This pic is to help visualize where the caliper is touching the front edge of the bearing to help you determine its seated depth (as it relates to the front edge of the plate). Write this value down, as you'll reference it later.



The bearing removal tool works by installing through the bearing as it sits in the engine case. The face of the tool is slightly smaller than the diameter of the bearing, as long as the expansion rod is not installed. When the expansion rod is installed, the face of the tool expands out and "grabs" on the back edge of the bearing. The threaded portion on the other end of the tool allows you to attach a nut, which pushes against the body of the tool (which is resting on the wall of the engine case)

to then in turn draw the bearing out. 
Attachment 617066


So, with the expansion rod removed (or only barely inserted in the tool), slide the front edge of tool in to the engine case and through the bearing.

Next insert the expansion rod in, slid the outer body sleeve of the tool in place over the collet, put your washer in place, and then thread the nut on to the rod finger tight.

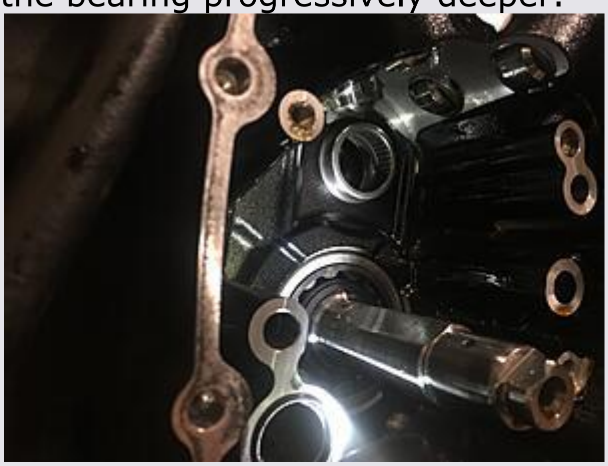
Using a 1 & 1/8” wrench to hold the nut in place, rotate the threaded portion of the tool with a 5/8” wrench to pull the bearing out of the case. Works like a champ.

Now it’s time to install a new needle bearing. I used a high quality Koyo bearing (part number B-168) for longevity in my motor.

NOTE: If you have a George’s Garage cam bearing install tool that was originally sold for use on a twin cam engine the design of the tool will not allow you to fully seat the bearing to the original factory seated depth on your M8 motor. You’ll need to order a different face for the tool (Georges Garage Inner Cam Bearing Installer Pilot for the M8, Part Number 820652). It has a slight bevel to the edge of it that allows you to seat the bearing slightly deeper than the original version of the tool from the twin cam era. Also, the thumbscrews that attach the M8 Cam Bearing Install Plate are longer than the ones for the Twin Cam. I didn’t realize that at first, and was initially using the Twin Cam tool thumbscrews (I also have a Twin Cam bearing install tool from Georges Garage). If you use the thumbscrews supplied with the Twin Cam bearing instillation plate in conjunction with the M8 Plate, the screws will only barely engage the corresponding threads on the engine case. Make sure you are using the correct length screws.

The installer plate bolts to the engine case, and Cam Bearing Installer tool (Georges Garage Part Number 320650) will push the new bearing in to the engine case.

You can see in the pic below that the bearing is juuuuuuuust touching the engine case, and obviously has a lot deeper to be seated. Unfortunately, this part is slow and tedious. Because you don’t want to install the bearing too deep (and then have to pull it out and start all over), you’ll have to continually seat the bearing slightly deeper and then recheck the new seated depth. This part isn’t particularly hard, it just goes slow because you have to constantly remove the seating tool to have access to recheck the seated depth with your caliper, and then reattach the seating tool to seat a little deeper. You’ll end up doing that process several times as you seat the bearing progressively deeper.



If you want to get fancy you can do a little math to speed up the process. Because the threaded rod on the seating tool is 18 TPI (turns per inch), that means that one 360° revolution of the tool seats the bearing exactly 1/18 of an inch deeper in to the engine case. 1/18 in decimal form is approximately 0.056. If you know how much deeper you need to seat the bearing in inches (which you’ll get by rechecking the seating depth with your calipers), you can simply divide that number by 0.056 to determine how many revolutions the tool has to be turned to properly seat your bearing to your specified depth.

I decided to upgrade my tappet cuff / anti-rotation device to S&S. The factory part is made out of flimsy plastic, whereas the S&S product is made out of sturdy aluminum. While I was there, I opted to replace my lifters with S&S Limited Travel Tappets (with HLST). This necessitated removing the intake module to gain access to the screws securing the lifter block in place. After removing the air cleaner cover assembly, I removed the three bolts attaching the air intake module to my motor

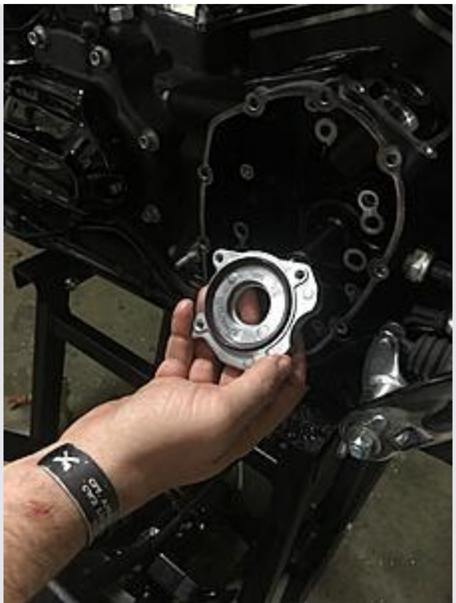
With the air intake out of the way, I now had access to the bolts holding the lifter cover in place. When I pulled the lifter block cover bolts, I found that they were pretty grimy with thread locker. Once again, I used my thread chase tool to clean the 1/4x20 threads in the engine cases, as well as the bolts themselves. I had to use a rubber mallet to dislodge the lifter block cover; it was stuck in place pretty good and didn't initially want to come free.

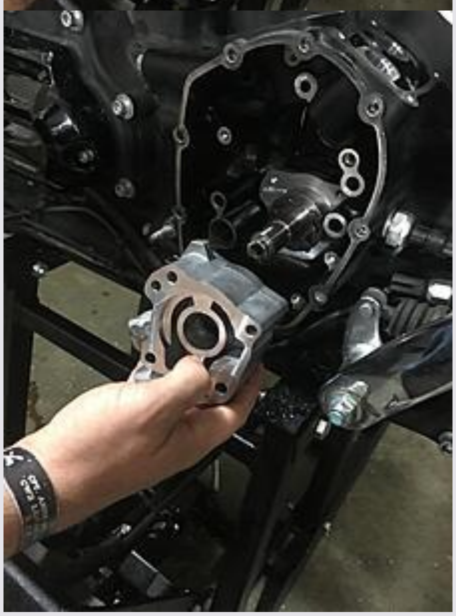
You can see the difference between the plastic anti-rotation cuff that the MOCO uses and the S&S aluminum part. It may never actually make a difference, but I opted for the peace of mind of knowing that I had a sturdy metal part holding my lifters in place and correctly aligned. 

NOTE: Because the factory uses Loctite on the center bolt holding the anti-rotation cuff in place, some people have reported having the bolt snap/shear while being removed. I encountered no issues with removing the bolt, but it'd be wise to gently and evenly apply torque while removing the bolt.

With the cuffs removed, I was able to pull out the factory lifters. My bike has about 10,000 miles, and I could already see some glazing forming on the stock lifters. They are being replaced with new S&S lifters.

Now on to the new and improved oil pump. Harley part number 62400248 (it'll pull up as KIT,OP,8 LOBE SCAVENGE,WT at the parts counter) was about $120 when I ordered it online. The model year 2020 eight lobe oil pump has a revised cover / seal that goes up against the wall of the engine case. Here's a pic of the face of it, along with how it looks once it's slid in place. The gerotor assembly goes in place in behind it. Assembly lube is applied to the gears.

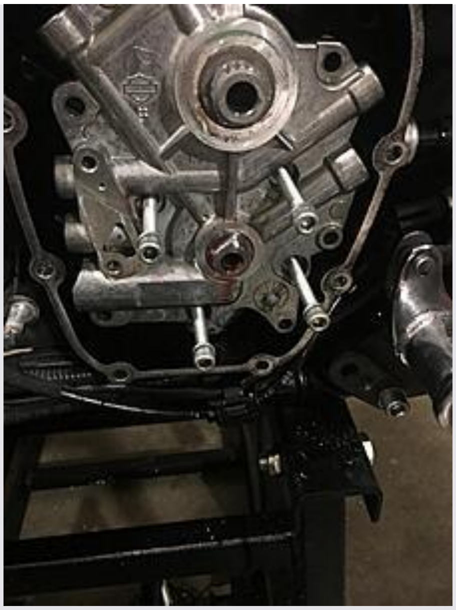




Now slide the oil pump assembly in to place. It takes a little bit of wiggling to get everything to line up perfectly such that everything fits together. Assembly lube is applied everywhere there are moving parts.

My Redshift 468 cam is ready to slide in place. Copious amounts of assembly lube are applied to the cam to ensure lubrication is in place upon first start up.

The cam plate is reinstalled at this point. Apply assembly lube, slide in to place, and tighten the long / short bolts finger tight only.



IMPORTANT Prior to fully tightening the oil pump screws, rotate the engine several times (by turning the rear wheel). This ensures that the oil pump is property seated and centered prior to tightening down the attachment screws / bolts.

The bolts need to be tightened in a specific sequence.

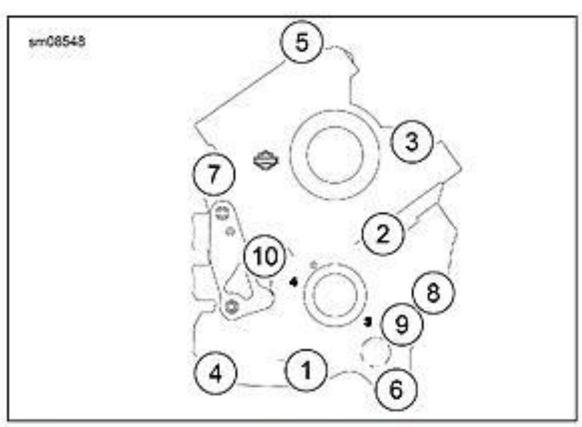


Figure 4-47. Cam Support Plate Tightening Sequence

Grab your torque wrench. The Factory Service Manual tells you that screws 1 and 2 should be tightened to 12-60 inch pounds. You then rotate the crankshaft through several engine rotations (to make sure the oil pump is centered). Then, tighten screws 3-8 in the order shown above to 90-120 inch pounds. Finally, tighten screws 1 and 2 to 90-120 inch pounds.

It’s now time to put the camshaft sprocket and crankshaft sprockets back on (without the chain). Install the washer / shim that rides on to camshaft (coming out of your cam plate) back in to place. Slide the cam sprocket over the splined cam shaft and the crank sprocket over the crank shaft. After locking the gears in place with your plastic cam locking tool, install the bolts that hold the sprocket in place. The torque value from the FSM is 15 foot pounds.

IMPORTANT You must verify sprocket alignment at this step to avoid

premature wear of your engine

We must now make sure that our sprockets are “true” to each other. Obviously if one sprocket stuck out significantly in front of the other, the chain would then be forced to stretch at an odd angle (as opposed to if they were perfectly parallel) to turn the two sprockets. Premature chain and gear wear is a near certainty if the sprockets aren’t inline with each other. We’ll take a machinists ruler across the front edges of the sprockets and slide a feeler gauge under the straight edge to determine the height offset between the two sprockets. Don’t simply run the straight edge across the two sprockets: press the ruler firmly against the cam sprocket at a 90° angle and check for height offset against the crank sprocket, and then repeat the operation by firmly holding the ruler parallel to the crank sprocket and checking the difference in height to the cam sprocket with your feeler gauge. Make sure you’re on the flat spot of the sprocket when doing your check, and perform the operation on both the left and right sides of the sprocket face to be 100% sure what the difference in offset is between the two sprockets. 

The Factory Service Manual states that the offset between the two sprockets cannot exceed 0.009 inches. If you find that you need to change the offset, that is done by swapping the shim / spacer that runs in-between the cam plate and the cam sprocket. These shims are also used on Twin Cams, so your local dealer should have them in stock. Ahead of the project I ordered a cam shim kit (Harley part number 25928-06) which has all of the shims, as I didn’t want to have to interrupt the project to run to the dealership for a shim. If you end up not using the shims, you should be able to return the shim kit. In my case my sprockets were only around 0.003” off from each other, so I did not need to swap anything out.

PART NO.	IN	MM
25729-06	0.100	2.54
25731-06	0.110	2.79

Table 4-39. Cam Sprocket Spacers

PART NO.	IN	MM
25734-06	0.120	3.05
25736-06	0.130	3.30
25737-06	0.140	3.56
25738-06	0.150	3.81

Once the sprocket alignment is verified, it's time to install the cam chain. Pull out the bolts holding the sprockets in place, slide the sprockets off their respective shafts, and situate the gears back inside the cam chain (using the paint marks that you made earlier to maintain your original sprocket-to-chain wear pattern). The next step is to rotate the camshaft until the keyed spline is up and rotate the crankshaft until the flat is up. Now, when you install the sprocket / chain assembly on to the respective shafts the timing marks on your sprockets should indicate rear cylinder TDC.

The Factory Service Manual states that you should replace the bolts that hold the sprocket in place after they're used once. I'm not sure why, but they're pretty inexpensive so I went ahead and did it. Sprocket Retention Kit, Cam Drive, Harley part number 25566-06 has your required hardware. Apply LOCTITE 262 HIGH STRENGTH THREADLOCKER AND SEALANT (red) to the threads of your bolts. Put a light film of oil on the bottom of the sprocket bolt heads and washers, and then loosely install the bolts. You'll need to grab your gear locker tool to lock the sprockets together.

The tightening sequence for the sprocket bolts is fairly specific. Using a 9/16 socket and your torque wrench, tighten the sprocket bolts to 15 foot pounds. Then, loosen them bolts one full 360° revolution. Now you're ready to tighten to the final torque value for the bolts: 34 foot pound on the cam sprocket bolt and 24 foot pounds on the crank sprocket bolt.

Cam chain tensioners are installed at this point. Torque value is 90-120 inch pounds. I opted to use blue Loctite thread locker as well.

Now back to the lifters. I installed S&S lifters and a S&S tappet cuff. The instructions from S&S direct you to install a 0.002” feeler gauge between the metal cuff body and the tappet as you tighten the cuff retaining bolt. This is meant to ensure clearance between the parts during normal operations. Torque value for the bolt securing the lifter anti-rotation cuff is initially 100 inch pounds (I also applied blue Loctite). After removing the feeler gauge and rotating the engine several times and observing no issues, a final torque of 140 inch pounds is used.

Install your lifter cover gaskets. If they need to be replaced, it’s Harley part number 25700362. Set your lifter cover in place, and thread the retaining cover bolts (after applying blue Loctite). Torque value on the lifter cover bolts is 132-156 inch pounds. Replace the O-rings that go in the top of your lifter block (Harley part number 11145A).

Now we’re ready to install the pushrods. I’m using this opportunity with everything apart to change from the original chrome pushrod covers to blacked out covers. Neatly lay out your pushrod parts. You’ll want to replace the O-rings in the center of your pushrod cover assembly (Harley part number 11132A).

With O-Rings replaced you’re now able to install your adjustable pushrods. Pushrods are adjusted one cylinder at a time. The timing marks on my sprockets indicate TDC for the rear cylinder, so I’ll start there. I opted to use pushrods from Fuel Moto. They have slightly different lengths for the pushrods, depending if it’s an exhaust or intake pushrod, so make sure you’re using the correct one for the valve / lifter combo you’re working on. Replace the O-rings in the head of your bike (the ones that the top of the upper pushrod tube presses against) with Harley part number 11293 O-rings.

Shorten the pushrod to the shortest length possible, and then slide the pushrods inside the pushrod covers. The lifter block on M8s are very tall, so you may have to play with the angle of the pushrod as it goes inside the head before there is enough clearance at the bottom of the pushrod to allow it to slip inside the lifter block. Once the pushrod is situated inside the head and lifter block, you’ll then extend the pushrod until it just touches the tappets. Turning the threaded portion clockwise lengthens the pushrod. It is helpful to use the rubber band and paperclip trick from earlier to secure the pushrod tube in the raised position to provide easier access to the threaded adjustment on the pushrods. Repeat the process for the other pushrod on that cylinder.

At this point the pushrods should be extended such that they are touching the top of the lifters. It should be possible to spin the pushrods with light pressure, but the pushrod should be fairly tight against the rocker arm and lifter (e.g. you feel light drag or resistance as you attempt to rotate the pushrod). There should be no up or down movement of the pushrod. This position is known as “zero lash”.

We’ll now be extending the pushrods to “bleed out” the lifters. By purposefully lengthening the pushrods, it applies downward pressure from the valve springs (via the rocker assembly in the head) to the lifters. This is done to force all the oil out of the lifters (there is a small hole machined in them that will allow the oil to ooze out) prior to setting the final length of your pushrods. If you were to skip this step, you would end up adjusting your pushrods to an incorrect length. Because we’ll be using the number of turns to keep track of how much we’re adjusting the pushrods, it’s very helpful to paint some obvious markings on the pushrod to help see how fair the pushrod has turned as we change its length. A paint marker works great for this.

The correct steps for lengthening the pushrod can get a little confusing when using parts from different manufactures. The instructions provided from S&S with my lifters tell you to lengthen the pushrods four additional turns after the pushrods are initially set at zero lash to allow the lifters to bleed. However, that guidance is predicated on using S&S pushrods. S&S adjustable pushrods are 32 TPI, but my Fuel Moto pushrods are 24 TPI so I can't 100% follow the same guidance. However, S&S has a great chart that helps cut through the confusion:

PUSHROD REFERENCE*

Threads Per Inch	Distance Per Turn	Distance Per Flat	Adjustment for S&S Tappets (w/o) HL2T)
24	0.0417	0.0069	3 Turns or 18 Flats
28	0.0357	0.0059	3.5 Turns or 21 Flats
32 (S&S*)	0.0313	0.0052	4 Turns or 24 Flats
36	0.0275	0.0045	4.5 Turns or 27 Flats
40	0.025	0.0042	5 Turns or 30 Flats
52	0.0192	0.0032	6.5 Turns or 39 Flats

*For reference only, use the instructions that came with your tappets!

Since I know that one complete turn of S&S pushrods moves 0.0313 inches, and I'm being directed to go four turns, the total distance adjusted is 4 x 0.313" which equals 0.1252 inches. My 24 TPI pushrod adjusts 0.0417 inches every time it's turned one complete revolution. Dividing the desired distance of travel (0.1252 inches) by the distance moved in one turn for my application (0.0417 inches) shows that I needed to adjust my pushrods downwards 3.002 turns. Or, you know, look at the chart where S&S tells you to adjust three turns for a 24 TPI pushrod…..

You'll use a 9/32" and ½" wrench to adjust the Fuel Moto pushrods. After adjusting the pushrods down to the specified length, you'll then need to wait approximately 15-20 minutes to force all the oil out / bleed down. Once fully bled down, for S&S lifters with HSLT spacers the next step is to shorten the overall length of the pushrod until you can spin the pushrods with finger pressure. Once there, S&S tells you shorten the pushrods one complete turn. However, that guidance from S&S is built on using their 32 TPI pushrod. The same logic applies here: one complete revolution of a 32 TPI pushrod is equal to 0.0313 inches. My fuel moto 24 TPI pushrod adjusts 0.0417 inches per rotation. 0.0313 / 0.0417 = 0.75. Therefore, I need to shorten by ¾ of a turn. When properly adjusted after bleeding the lifters, you should NOT be able to move the lifters up or down but you should be able to rotate the pushrod with only slight or no resistance. Apply a small amount of blue Loctite to the pushrod locknut and snug the nut tight.

CRITICALLY IMPORTANT You will damage your motor if you rotate the engine prior to the lifters fully bleeding out

Only after the lifters have bled down, and the intake and exhaust pushrods are completely adjusted on one cylinder, can you then rotate the engine to work on the opposite cylinder. Turning the engine prior to the lifters being fully bled down will cause damage to your heads. So, don't rush the process!

Since the cam cover is still off, I was able to look at the timing marks and verify I was 100% TDC on the front cylinder prior to starting adjustments. The process to adjust the pushrods on the front cylinder is identical to the procedures used on the rear cylinder.

We’re just about down with the engine. Replace the cam cover gasket (Harley part number 25700370). After applying blue Loctite, lightly snug the bolts until the cam cover just comes in contact and “kisses” the engine case, then tighten cam cover bolts to 90 to 120 inch pounds. The service manual directs you to tighten the bolts in a star pattern:

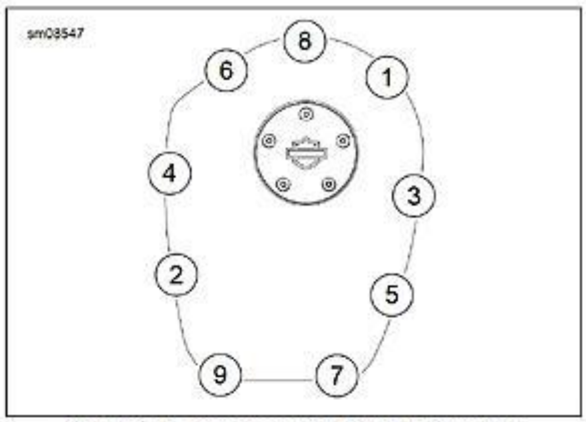


Figure 4-49. Cam Cover Tightening Sequence

You’ll now need to install your pushrod cover clips in place.I used a tool from Motion Pro that aids in installation, but you can just as easily do the job with light downward pressure with a screwdriver.

Reinstall your air intake module, air cleaner cover, and spark plugs (be sure to apply a little anti-seize on the spark plugs). Reinstall your head pipe, crossover pipe, mufflers and heatshields. Hook your battery back up and put the seat on.

Cam swap complete!