



261 Rope Mill Parkway, #3
Woodstock, Georgia 30188

Telephone: (770) 592-3823

Fax: (770) 517-9332

AK-20 AXION CARTDRIDGE KIT FORK OIL CHANGE For HARLEY-DAVIDSON MOTORCYCLES with 41mm Forks

READ THESE INSTRUCTIONS ENTIRELY BEFORE YOU GO ATTEMPT TO SERVICE YOUR AK-20 EQUIPPED Harley-Davidson!!!

These instructions assume you are willing to purchase proper tools, and do a professional quality job. These instructions will only show you how to correctly do this job, without “shortcuts”, and without home-rigged devices and improper tools.

YOU WILL NEED A HARLEY-DAVIDSON SERVICE MANUAL TO PROCEED!!!

WARNING: Any Harley-Davidson with 20,000 miles or more since the forks were rebuilt should have the forks completely disassembled, cleaned and inspected following the instructions in the Harley-Davidson Service Manual. We find over 80% of Harley-Davidson Motorcycles will have worn lower bushings.

WARNING: Always work in a well-lit area, use the proper tools, and wear safety glasses. In general, springs can be dangerous, and you should work with great caution and care.

NOTE: You must follow the Harley-Davidson Service manual for proper removal and re-installation of the forks on the motorcycle.

It is helpful to have a 5” bench vise mounted near the edge of a workbench, but not absolutely necessary. If you have a vise clamp the fork in a bench vise, using a pair of aluminum jaws (See **Figure 1A**). Many hardware stores have aluminum vise jaws with a variety of clamping grooves that make this job easier (available from Traxxion Dynamics for \$15). Do not grab the fork near the top (you will pinch the cap and make it difficult to remove), nor in the area where the seal slides (See **Figure 1B**).

Figure 1A.



Figure 1B.



Unscrew the fork cap.

Using a Traxxion Dynamics Fork Spring Compressor Kit (\$36.95), push down the preload spacer.

Have a helper slide in the Fork Spring Hold Down Tool between the jam nut and the Top Washer.

Loosen the jam nut under the cap, and spin the cap off.

Pull the Metering Rod out of the center of the cartridge rod.

Push down on the spring compressor; the next steps will take a minute so be ready.

Have your helper pull the hold down tool out, spin the jam nut off, and lift the Top Washer off.

Gently release the pressure on the spring compressor.

Invert the fork and dump out the washers, buffer, and spring.

Pump out the old oil by working the two halves of the fork together. Using a Fork Bleed Tool (available from Traxxion Dynamics \$10-20, **See Figure 3B**), pump the cartridge rod to get as much oil out of the cartridge as possible.

Remove the bottom bolt holding the cartridge in each fork, and slide each cartridge out. Normally, this requires no special tool, but may require the AK-20 Cartridge Holding Tool, which you can get for free from Traxxion Dynamics.

Remove the dust seals and seal retaining clips.

“Slide Hammer” the tubes and legs apart.

Thoroughly clean and inspect all parts. Pay close attention to the Teflon coating on each fork bushing. The lower (or inner) fork bushings are almost always worn out. Especially if your Harley-Davidson has 10,000 miles or more on the forks since the last rebuild. If you can see brass through the Teflon, you must replace the bushings to avoid damage to the lower fork leg.

Clean all parts using Next Dimension Brake Cleaner or Contact Cleaner. We recommend this brand only as it is like contact cleaner, not brake cleaner. It is also very inexpensive (\$3 a can). Expect to use two cans in this process.

Polish the fork tubes using a 400# emory cloth. Use the cloth as if you were shining a shoe. Roll the tube in 1/3 rotations to make sure tube is evenly polished.

Reassemble legs and tubes per the Harley-Davidson Service Manual, making sure to use a high quality seal grease to reduce stiction. Fill the inner lip of the oil and dust seals with seal grease.

Insert Black Washer into fork and drop on top of AK-20.

Fill each fork with ½ quart of Maxima 125/150 7wt Suspension Fluid.

Pump the inner chrome tube up and down to bleed air from in between the tube and leg. DO NOT pull up on the leg more than six inches (6”).

Bleed both cartridges thoroughly using a Fork Bleed Tool (available from Traxxion Dynamics \$10-20, **See Figure 3B**). Start by making short one inch strokes until you feel resistance start, and then make each stroke thereafter progressively longer, until you are using full strokes. A well bled fork will have no “skips” in the stroke as you move the cartridge rod up and down.

Install the Metering Rod into the center of the cartridge rod.

Set the oil level with a fork oil level gauge (available from Traxxion Dynamics, **See Figure 3A**). You **MUST** set the oil by level, not by pouring in a pre-measured volume, or your bike will not work properly, and you will be wasting your time and money, and creating a DANGEROUS and UNSAFE motorcycle.

Oil level is measured from the top of the fork tube with the spring out, and all parts of the fork collapsed as far as possible (**See Figure 3D**).

Figure 3A.



Figure 3B.



Figure 3C.



Figure 3D.



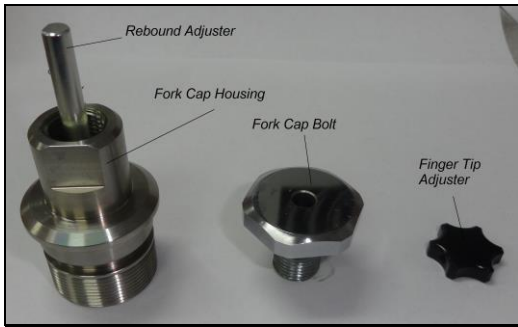
****Traxxion Recommended Oil Level for the Harley-Davidson Motorcycles with 41mm Showa Forks is 90mm. For other models please call, 770-592-3823.**

Insert Traxxion Springs into each tube.

Pull cartridge rod up using fork bleed tool and put aluminum spring spacer on top of springs.
Using Traxxion Fork Spring Compressor Kit, push down on spring. This will take a minute, so be ready.
Have a helper pull up on the bleed tool, remove the bleed tool, slip Traxxion Top Washer over cartridge rod, and then install new jam nut onto the rod, threading it all the way down.
Then have the helper slide the Fork Spring Hold Down Tool between the jam nut and the Top Washer.

Fork Cap installation:

The fork cap supplied with the AK-20 Cartridge kit is different than the OEM cap and does require some setup. There are four parts to the fork cap, see diagram for identification purposes.



Fork Cap Components Diagram



Assembled Fork Cap

Before installing the cap preset the adjuster by turning the Rebound Adjuster counter-clockwise until it stops, do not force. From the all the way out position turn the Rebound Adjuster in three full turns. This presets the adjuster so you will have a full range of adjustment.

Thread the fork cap housing all the way on the rod until you feel it GENTLY bottom out, DO NOT FORCE IT FURTHER.

Have your helper push down on the spring to take the tension off the nut. Thread the jam nut up to the cap, taking care to move ONLY the nut and NEVER the rod.

Tighten the jam nut to the fork cap. DO NOT OVERTIGHTEN THIS NUT!!! Firm pressure on the wrenches is all that is required. Do NOT use Loctite!

Once you have the forks fully assembled turn the rebound screw in clockwise until it stops, DO NOT FORCE, then counter clockwise 1 ½ turns out. This is your baseline setting. After riding the bike if you want the fork firmer turn the rebound adjuster in, clockwise ¼ - ½ turn. To make the fork softer turn the rebound adjuster out, counter clockwise ¼ - ½ turn.

WARNING!!!! Failure to take great care to perform the preceding steps correctly can mean the motorcycle will have the incorrect amount of damping in the system, and the motorcycle will be UNSAFE, and can INJURE or KILL the operator!!!!

Slide the fork tube up to the fork cap and thread the fork cap down into the tube. Be careful not to cross-thread the cap. Do not use any threadlocking agent. DO NOT OVERTIGHTEN THE FORK CAP!!! 6 ft/lbs of torque is all that is required (like a little tiny screw!!!).

Slide the tube through the upper triple clamp, thread Fork Cap Bolt into housing to hold fork in clamps. Finally install Finger Tip Adjuster on Rebound Adjuster post and tighten set screw to hold in place.

Reassemble the bike per the Harley-Davidson Service Manual.

Now, go have fun! We hope you enjoy your refreshed suspension!