Table of Contents

MiscRes: Magazine Articles 1
"Get Belted", Swap Out That Chain for a Maintenance-Free Rear Belt Drive 1

Go To Technical Menu

MiscRes: Magazine Articles

This article is an excerpt from Hot XL Magazine, Winter 1998 Edition: [1)]
The content has not been edited from it's original published version.
Any information in these articles, mistakes or omissions are the sole responsibility of the respective owners.

"Get Belted", Swap Out That Chain for a Maintenance-Free Rear Belt Drive

TECH & HOW-TO
- ❑ NOVICE
- ☑ INTERMEDIATE
- ❑ EXPERT
- ❑ PROFESSIONAL

HOW TO

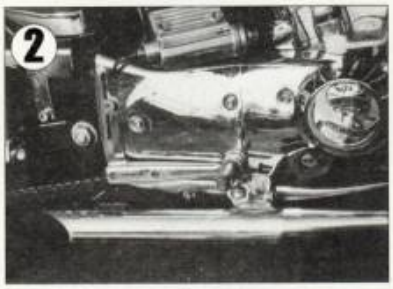
GET BELTED

Swap Out That Chain For A Maintenance-Free Rear Belt Drive

Text and photos by Tom Hurd

One characteristic that many Harley owners seem to share is a resistance to change. Even if it's swapping from a rear chain to a smoother, cleaner, and less troublesome belt drive. Harley itself took five years before it got around to making a belt available on Sportsters. But to atone for its previous mistake (at least that's what some believe), Harley now offers a quality belt conversion kit for 1986 to 1990 Sportsters. This kit (#40110-89) has a suggested retail price of $499.95. There's one for 1991-'92 five-speeds, too. It (#40111-91B) has a suggested retail price of $399.95

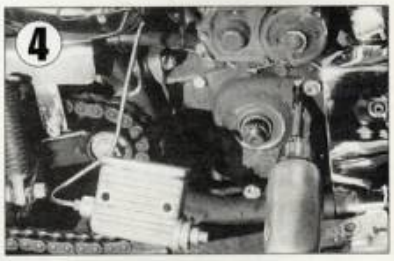
I'm happy to say that when we got the kit we were impressed. Not only does it include the expected 1-1/8" aramid belt, 61-tooth rear and 27-tooth transmission sprockets; there's also a chrome belt guard, lower debris guard, and every bit of hardware needed to make the upgrade. Even the counterbore tool you'll need to recess a bolt in the engine case — a necessary change — is



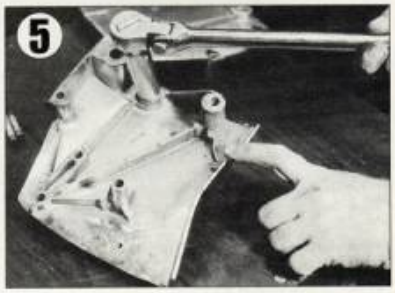
Next, remove the front foot peg and brake pedal. Then unbolt the master cylinder and swing it out of the way. Be gentle with the brake line. You can now access the exhaust brackets and remove the exhaust system.

Here's the section of our lucky patient, a 1989, that we'll be working on. To start the job, place the bike on blocks so the rear wheel is about five inches off the ground.

Remove the sprocket cover, exposing the tranny sprocket. There are three tapped holes around the sprocket nut, one of which will have a set screw threaded into it (see arrow). This screw keeps the nut from loosening. Remove the screw. Then place the tranny in gear, loosen and remove the sprocket nut. Then pull off the sprocket.



There's a crankcase bolt about one o'clock to the sprocket. This bolt's head will interfere with the new pulley so it must be removed. The new bolt must be recessed into the case with the kit's counterbore tool as we are doing here.



You can now swap all the old sprocket cover's parts over to the new pulley cover.

included. Another plus is the instruction sheet. These are probably the best instructions we have ever received with a product.

One point we disagree with Harley about is its recommendation that only an authorized dealer can install this kit. Then again, that may be just to keep them out of court. We don't consider this a difficult installation. In reality, the conversion can be done at home by a person with a fair amount of mechanical experience and ability. You'll need the usual hand tools, plus inch- and foot-pound torque wrenches, and a variable-speed electric drill. One other thing you'll need is an extra set of hands from time to time so have an assistant around.

To start the job, place the bike on blocks. Remember that extra set of hands? Get 'em to help you lift and support the bike so the rear wheel is about five inches off the ground. Next, remove the right footrest and brake pedal. Now unbolt the master cylinder and swing it out of the way (photo #2). You can now access the exhaust brackets and remove the exhaust system, or just the rear pipe if they are separate.

With the exhaust off the bike, you have clear access to the transmission sprocket cover. Unbolt and remove it, exposing the tranny sprocket. The lower right shock absorber bolt and chain guard can also be removed. The chain guard will not be re-used, but the hardware will be. Save it for later.

The transmission sprocket is held to the tranny shaft by a large nut (photo #3). Around the nut are three tapped holes. One of these holes will have a set screw threaded into it. This screw keeps the nut from loosening and falling off. Remove the screw. Then place the transmission in gear and loosen and remove the sprocket nut. Now you can pull off the sprocket.

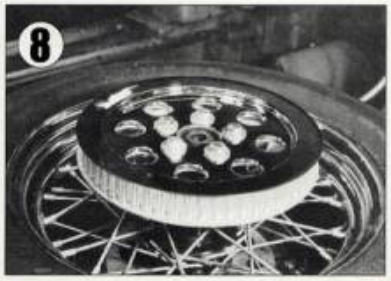
Once the sprocket is off, you'll see there's a crankcase bolt about one o'clock to the sprocket when facing the transmission shaft. This bolt must be removed because its head will interfere with the new pulley. The new, supplied bolt must be recessed into the case. Use the counterbore tool supplied with the kit to do this. Here's how: install the counterbore tool into the variable-speed drill. Then bore the now removed bolt's recess hole 3/16" deeper (photo #4). Remember, you are drilling aluminum, not steel. Take it easy with the drill. If you are unsure, it's better to go a little shallow, then check it and go more if necessary rather than going too deep. After you remove the aluminum shavings, insert the supplied 5/16" x 18 x 4" bolt and torque it to specs. After the bolt is installed, check that its head is not protruding above the surface of the case. If it does, remove it and countersink the hole a little more.

You can now swap all the old sprocket cover's parts (photo #5) over to the new pulley cover.

After cleaning off the splines of the tranny shaft, lightly coat the splines and threads

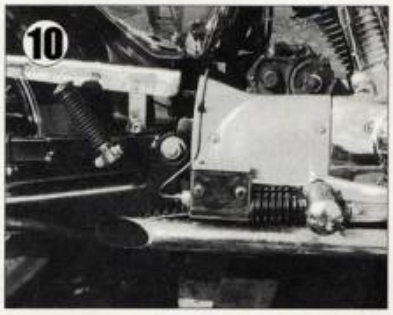
Install the new pulley onto the shaft with the flange facing out. Install the new nut and tighten it to 65-75 ft-lb. The new pulley uses the same set screw system as the old sprocket to keep the nut from loosening.

After you remove the rear wheel, unbolt the old sprocket.

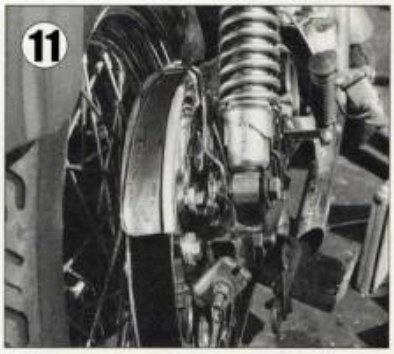


Bolt the new pulley to the wheel using the five supplied 7/16" x 14 x 1/2" bolts. The flange on the new pulley should face the wheel with the chrome cover on the outside as shown.

Place the belt over the rear pulley and, with your buddy helping, lift the wheel into place. Coat the axle with anti-seize and push it through from the left side of the swingarm. Install the washer and nut, hand tight only. Then drape the belt over the tranny pulley.



You can now install the kit's debris guard. This mounts under the swingarm with the supplied hardware. The new upper chrome belt guard mounts in place of the old chain guard. Then reinstall the front foot peg, brake pedal, and master cylinder. The bike can then be removed from the blocks and set on level pavement.



With the bike on its wheels, i s time to adjust the belt tension. This hould be done with the bike resting on the kickstand, with the transmission in neutral, and no one sitting on the bike. The old chain adjusters are also used for the new belt drive. Each adjuster nut should be moved exactly the same number of turns as the other one. Remember, turning the adjuster clockwise will tighten the belt and counterclockwise will loosen it.

of the shaft with Loctite. Install the new pulley onto the shaft with the flange facing out (photo #6). Install the new nut and tighten it to 65-75 ft-lb. The new pulley uses the same set screw system to keep the nut from loosening as the old sprocket. Use the set screw hole that is closest to a corner of the nut. If no hole is close enough, the sprocket nut can be tightened up to 100 ft-lb. to get a hole to line up. Install the set screw with Loctite on the threads and tighten it to 50-60 in-lb.

At the rear wheel, remove the cotter pin, where applicable, from the rear axle nut and remove the nut. Then push the axle through the left side of the swingarm. You may have to tap it out with a hammer and drift. Do not mash the end of the axle. This is where that extra pair of hands will be needed again. Slide the wheel and sprocket assembly out of the swingarm with the old chain still attached. With the wheel resting on the ground, slip the chain off the rear sprocket and set it aside.

You can now remove the old sprocket from the wheel assembly (photo #7). Then bolt the new pulley to the wheel using the five supplied 7/16" x 14 x 1/2" bolts. The flange on the new pulley should face the wheel with the chrome cover on the outside (photo #8). Back at the bike, place the belt over the rear pulley and, with your buddy helping, lift the wheel into place (photo #9).

An H-D Belt Gauge or a pull gauge (what we are using) is used to exert upward pressure (10 pounds) mid-way between the two pulleys on the lower length of the belt. Because different models use different tensions, a chart is supplied with the kit which says how much your model's belt should deflect.

Coat the axle with anti-seize and push it through from the left side of the swingarm. Install the washer and nut hand tight only for now. Then drape the belt over the tranny pulley.

It's now time to install the kit's debris guard. This mounts under the swingarm with the supplied hardware. The new upper chrome belt guard mounts in place of the old chain guard. The front footrest, brake pedal, and master cylinder can now be reinstalled in the opposite order of removal as per the service manual (photo #10). After you have done this, the bike can be removed from the blocks with the aid of your assistant and set on level pavement.

After the first 500 miles, readjust the belt tension. Thereafter, the belt should be checked every time you change the oil even though it will probably not need an adjustment. When we test rode the bike, we immediately noticed that the ride was much smoother.

With the bike on its wheels, it's time to adjust the belt tension. This should be done with the bike resting on the kickstand, the transmission in neutral, and no one sitting on the bike. The old chain adjusters are also used to adjust the new belt drive (photo #11). Each adjuster nut should be moved exactly the same number of turns as the other. This will keep the rear wheel straight and true to the transmission sprocket and the bike's direction of travel. If the wheel is cocked to one side, the belt will not track straight on the pulleys which will greatly accelerate belt wear. Your bike will also be traveling slightly sideways as you ride down the road, adversely affecting tire wear and handling. If you think yours is out of alignment, check out the story on how to correctly true-up your rear wheel on page 24.

When adjusting the belt, remember that turning the adjuster clockwise will tighten the belt and counterclockwise will loosen it. Makes sense, right? A Harley-Davidson Belt Gauge or a pull gauge (what we used) exerts upward pressure (10 pounds) midway between the two pulleys on the lower length of the belt (photo #12). Because different models use different tensions, a chart is supplied with the kit which tells how much the belt should deflect. You can use a ruler to measure belt deflection.

When the proper tension is reached, tighten the axle nut to 60-65 ft-lb. If the nut uses a cotter pin, install a new one. Then visually check over the entire installation to ensure that nothing is loose or interferes with the belt or pulleys. It's not a bad idea to put the bike back on the blocks and, with the tranny in neutral, spin the wheel and listen for any sounds of rubbing or interference. If all's well, you can reinstall the exhaust system.

When you test ride the bike, you'll immediately notice that the ride is much smoother. After the first 500 miles, re-adjust the belt tension. Thereafter, the belt should be checked every time you change the oil even though it will probably not need an adjustment. Your new belt's only real maintenance requirement is to be kept clean and oil-free. This will ensure its long life. ■

SOURCES

Your local Harley-Davidson dealer

Go To Technical Menu

1)

article submitted by ferretface of the XLFORUM