Thanks for Ordering
The "Classic" Belt Conversion Kit
from

READ THIS BEFORE UNPACKING YOUR KIT!

This instruction booklet contains detailed steps for installing the belt drive conversion kit on your Kawasaki 400 Classic, 400A, 400 Drifter, 800 Classic, 800A, and 800 Drifter motorcycle. Please pay careful attention to the instructions regarding the unpacking and handling of your belt. The belt can be damaged if handled improperly. If you have any questions concerning installation of your belt drive, please contact us via e-mail at support@scootworks.com. This will ensure you receive the most prompt and accurate reply.

Rev 1.20; 3/17/2003

Instructions for Installing the Scootworks Belt-Drive on Kawasaki VN800's

(Be sure to visit www.scootworks.com and select [Instructions] from the main page, for more info and pictures!)

Tools Needed:

- Phillips-head screwdriver
- Flat-head screwdriver
- Socket wrench pull bar
- Large torque wrench calibrated in foot-pounds
- 4mm Allen wrench
- 6mm Allen wrench
- 8mm Allen wrench
- 8mm socket
- 10mm open-end wrench
- 12mm socket/wrench
- 14mm socket (6 point recommended)/wrench
- 17mm socket
- 19mm socket
- 22mm socket (optional, you may substitute a 7/8" socket for this)
- 27mm socket (optional, you may substitute a 1 1/16" socket for this)
- Small amount of **RED** Loctite (maximum strength thread locking compound)

The installation of the Scootworks Belt Drive is exactly the same as replacing the OEM sprockets and chain (with the addition of a spacer replacement behind the front pulley, on some belt drive models), including removing the swing arm. However, Scootworks wanted to assist you as much as possible with the installation process, and developed this instruction package. If there are any steps you feel need improvement in instructions, please email **support@scootworks.com** and specify the area you are having trouble with.

UNPACKING!
The shipping container and contents must be inspected by the purchaser for damage to goods immediately upon receipt of goods, and a claim must be filed with the carrier if damage is discovered. The purchaser must Scootworks within 24 hours from receipt of damaged goods to file a claim, and for further instructions. Your Scootworks Belt Drive will come packed with the front pulley assembly, the rear pulley, the belt, a belt tension tester, and these printed instructions. Uncoil the belt, with the teeth turned inward. **DO NOT** fold the belt inside out, nor pinch to a fold of less than 1 1/2"! This will permanently damage the Kevlar material used in the construction of the belt. While the belt is **VERY** strong, these are important handling precautions that should be followed closely. There is more info on this in the **FAQ** page.

BEGIN INSTALLATION
1. Begin by removing both side compartment covers. The RH compartment cover requires the use of the ignition key for removal; the LH compartment cover is secured by a large Phillips screw. Once you've removed the LH cover, place the Phillips screw back into the hole in the frame (so you don't misplace it) and set both covers aside. You must

remove the upper exhaust pipe (from the rear cylinder), and loosen the other pipe, to remove the inner parts of the RH side compartment cover (see below).

2. Remove the exhaust pipes for both cylinders. This will simplify installation. To do so, remove the two Allen nuts on each exhaust header, where it attaches to the engine, using an 8mm Allen wrench. Most often, this goes much more smoothly if you first spray the inside of the allen nut with a penetrating lubricant like WD-40. Remove the black acorn nut from the discharge end of the exhaust pipes (under the upper exhaust pipe, near the discharge end of the pipe) using a 12mm open-end wrench or socket. You'll find a black metal spacer, through which the bolt goes, that is pressed through the rubber grommet. To avoid the potential of having it fall out unnoticed, remove it and place it aside with the nut. Remove the black bolt from the pipe just aft (to the rear) of where the pipe enlarges and above the pipe. This is actually a bracket that holds the two pipes together at a joint. Loosen the bolt using a 12mm socket, then slide it back onto the pipe you're removing. Once you have the pipe off of the bike, the clamp will be loose. Be sure to keep it with the pipe, along with the rest of the removed parts. Loosen the pipe from the front cylinder **BEFORE** trying to remove the pipe from the rear cylinder. By loosening the header nuts on the pipe from the front cylinder, and removing the two black Allen bolts (6mm Allen wrench) under the forward pipe that attach it to the frame, you will be able to remove the rear pipe. There are more spacers in grommets where the 6mm Allen bolts secure the lower pipe to the frame (like those used in the rearmost connection of the rear cylinder's pipe). These spacers will normally remain in the frame bracket, but if either is loose, remove them and store with the Allen bolts. If the pipe doesn't come loose relatively easily, loosen the two top nuts on the black triangular metal bracket used to secure the pipes to the frame. With patience and care, however, you should be able to remove the pipe without loosening with the triangular bracket.

WARNING!!! Watch out for the metal exhaust gasket ring that fits between the pipe header and the engine. When you remove the pipe from the bike, the gasket ring (crush collar) can easily fall out of the pipe. Don't lose it! Keep it with the pipe for reinstallation.

3. Use a Phillips screwdriver to remove the lower cover of the RH side compartment. There are three black Phillips screws that secure this cover. Remove the cover and place the screws back into their holes, then set the cover aside. Use an 8mm socket to remove the four black bolts on the inner liner of the RH side cover. The top-left bolt also secures the latch for the RH side compartment’s outer cover. Remove the inner compartment. Notice the small pilot hole in the latch, to the right of the 8mm securing bolt. This is where a guide stem (molded into the compartment liner) protrudes to insure that the bracket is in the proper position when installed. Insure that you reinstall the bracket properly, with the hardware for the locking assembly facing out, and the guide stem through the pilot hole.

NOTE: if you have the California version of the bike and you haven't removed the emission control system from the bike, you won't be able to remove the inner side cover box entirely. Just remove the bolts and pull the box away from the bike as much as possible, lifting it so you can access the swing arm and frame hardware beneath it.

4. Remove the front sprocket cover (chrome cover) from the rear of the engine on the LH side of the bike. Use a 5mm Allen wrench to remove the single securing screw located to the top-rear of the housing. After the screw is removed, place one or two fingers of your right hand behind the top-right raised section of the housing (where it is cast up and away from the bike) and pull gently toward you. The housing will shift toward the rear of the bike and pull toward you from the top. Be careful not to damage the chrome, and maintain a firm grasp so as not to drop the cover. When you reinstall the housing, do so in the opposite manner by placing the bottom part of the housing into the frame, pivoting the housing upward and toward the bike to alignment, then shifting the housing forward and into position (more on that later). Remove the rubber gasket from the groove on the cover and place it back onto the engine in it's guide. When you reinstall the housing, you'll be able to press the housing up against the gasket. Trying to reinstall the cover with the gasket still on the cover is a nearly impossible task. Set the housing aside and place the securing screw in it for safe-keeping.

5. Before the front sprocket can be removed, the locking washer must be bent away from the nut that secures the sprocket. Using a screwdriver with a sharp point and a small hammer, bend the edges of the washer down flat against the front sprocket.

The easiest way to fold down the washer sides that are securing the pulley is to place a flathead screwdriver (or something similar) in the joint between the washer and the pulley nut and tap the screwdriver with a light hammer. That will bend the washer side away from the locking nut on the pulley. Then use a flat surface (like a brass drift pin or bar stock) and tap down the entire washer surface so it lies relatively flat against the outer surface of the sprocket. You might be able to get the nut off without flattening the washer all around but it's far easier if you flatten it first.

Place the transmission in 1st gear to assist with loosening this nut. Have someone to sit on the bike and hold the rear brake locked tightly. Using a 27mm socket and pull bar or 27mm socket and impact driver, loosen the nut. Once the nut is off, place the nut carefully to one side, and toss the old sprocket and lock washer as far away as you can :-) .

Now is a good time to clean the area around the original sprocket. Check the front pulley packaged in your belt drive kit. If your belt drive kit has a small tubular spacer packed with the front pulley (included in some versions), remove the tubular spacer that slips onto the output shaft and through the outer oil seal. Locate the new (shorter) spacer in the belt drive kit (if supplied). Notice the beveled inner edge in the spacer. Apply a small amount of lubricant (engine oil, etc) onto the outer surface of the spacer. Turn the beveled/tapered inner edge of the spacer **TOWARDS** the engine/oil seal, and slide it fully onto the output shaft and into the oil seal. The beveled inner edge compresses a tiny o-ring on the shaft and prevents oil seepage from between the spacer and shaft during operation. Again, if your front pulley was not packaged with a tubular spacer, omit this step.

Next, prepare the front pulley for installation. Remove any paint that might be on the rear surface that contacts the spacer, and on the front surface that is contacted by the locking nut. Clean the threads inside of the 27mm nut, and the threads on the output shaft, with alcohol to remove any oils. Slip on the new pulley (with the 12 point fasteners facing outward), and the 27mm nut. Do not install the locking washer. Do not apply Loctite at this time!!! Tighten the nut to about 90 ft/lbs., or approximately to the maximum amount possible without turning the engine while in 1st gear. Application of the loctite and final torque setting will be achieved after the rear wheel is installed, and belt is initially adjusted to the 4th mark on the swingarm.

7. Let's get ready to remove the rear wheel. Remove the rear brake tension nut and barrel, and reinstall on the brake rod for safe keeping.

****NOTE for Drifter owners:** Remove the bolts securing the rear fender, rear bumper to swing arm, and unplug the wiring harness (located under the seat). Lift the rear fender assembly off, and set aside. Also, remove the small triangular covers on either side of the swingarm (secured by Phillips screws).

Remove the cotter pin and nut from the drum securing bar. When removing the cotter pins and nuts from the drum securing bar, you'll need to use a 14mm socket/wrench. These are often extremely tight, and the use of a 6 point socket is recommended to prevent damage to the nut. You only need to remove the bolt and nut nearest the rear of the bike, and loosen the forward one. (The cotter pins will need to be removed from both, of course). Be sure to replace the bolt and nut on the bar after the bar has dropped down out of the way so they're handy when you reinstall the bar.

Remove the locking and adjustment nuts from the adjuster rods on both sides of the rear axle. These are the adjusters used to tension the chain. The open-end wrenches needed to remove the wheel adjustment and locking nuts are 14mm and 12mm, respectively..

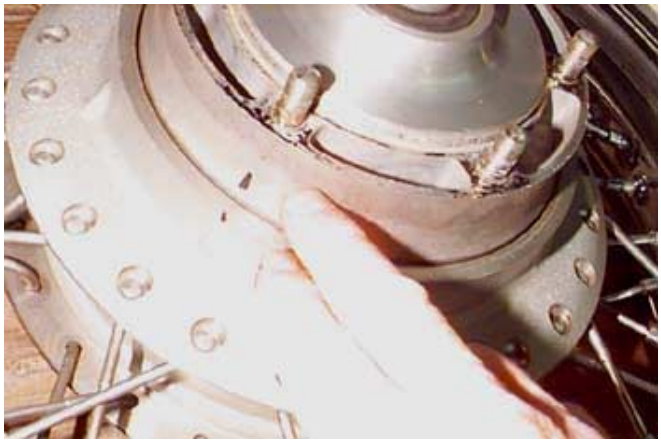
Remove the cotter pin and nut from the RH side of the axle. When preparing to remove the axle, you can loosen either side to remove the RH axle nut. The RH nut is 22mm and the LH end of the axle is 19mm. The hand-wrench supplied in the owner's tool kit is not robust enough for this application, so most users loosen and tighten with a 19mm wrench on the LH side of the axle. You can use the tool kit wrench to secure the RH nut while tightening or loosening, however...You just won't be able to loosen the axle nut it. Use a pull-bar with the 19mm. Socket, if possible. Also, a large adjustable wrench on the 22mm nut works nicely.

8. Before removing the rear axle, raise the rear of the bike so the rear axle is at least 19 inches above the floor, however I recommend 21 inches. I feel 21 inches works much better when removing the tire. This will allow room to work under the bike, as well as easily remove and reinstall the rear wheel. I use a Kodirak lift, (sold on our site at www.Scootworks.com) placed on top of about 4" of wood. Many users have reported using a hydraulic floor jack to lift the bike while having the bike stabilized by another person. If lifted by a hydraulic jack, jack stands can be used to support the bike securely. I recommend our Kodirak lifts for safety and ease of use.

Remove the speedometer cable, preferably _before_ removing the axle. To remove the cable, one must completely remove the allen bolt using a 4mm allen wrench. Pull the cable out of it's receptacle. After you remove the speedometer cable from the wheel hub, reinstall the securing screw into the hub so you don't misplace it. Let the cable just hang out of the way during the installation. Once disconnected, remove the axle by pulling it out to the left of the bike. Carefully lower the rear wheel, keeping one hand on the brake drum assembly on the RH side of the wheel to prevent it from falling out. Lean the wheel over, remove the chain from the sprocket, and slide the wheel from under the bike.

Remove the brake assembly from the hub, and place to one side. You'll need this when you're ready to reinstall the wheel!

9. Remove the spacer from the sprocket side of the wheel. Use a 17mm socket (with a pull-bar) to remove the six nuts securing the sprocket to the rear wheel. Remove the sprocket and toss it! Next, take a moment to mark the rear hub. This will insure correct alignment, should it be removed and need to be reinstalled. Notice the photo below…



Test fit the new rear pulley on the hub of the wheel. In some models, the pulley has a stamped marking on one side indicating K2. This stamped side should go towards the hub of the wheel (not facing outward). One side of the pulley is slightly deeper than the other. The slightly deeper side will go towards the wheel, with the side slightly more shallow facing outward.

Due to minor variations in manufacturing tolerances at Kawasaki, ScootWorks chrome pulleys may be a _very_ tight fit on the center protrusion. If necessary, although not common, you may use sandpaper on the inner bore of the rear pulley to fit it to the rear hub. Our black coated rear pulleys are often a very tight fit, and the excess material will push out of the center bore as you install it on the hub.

Install the rear pulley, and tighten the six attachment nuts. Torque to 54 ft-lbs. In a “star” pattern, tightening opposing bolts on rotation. The black drives will require a gradual tightening of this 6 nuts, to slowly work it onto the hub. This insures a very well centered rear pulley. Once tightened all the way down onto the rear hub, loosen the nuts, and set the torque to 54 ft-lbs.

10. Remove the LH compartment cover, exposing the ignition system. Also, open the door to the tool kit storage compartment, and remove the tool kit. Remove 3ea. 8mm bolts used to secure the LH side inner compartment and ignition into the frame. Pull the rear cylinder plug wire from the spark plug, and swing the LH side compartment/ignition out to one side. With the LH side compartment/ignition pushed out to one side, access is available to the upper shock absorber bolt.

11. Use a 10mm open-end wrench to remove the four bolts securing the mud guard. Once you've removed the mud guard, set it aside and place the screws back into their holes for safe keeping. It's easy to forget the mud guard on re-assembly, so don't…It's no fun disassembling the rear of the bike again to install that puppy!

With the mud guard removed from the swing arm, the rear shock and other suspension components are easily accessed.

Use a 17mm socket to remove the lower shock bolt and trailing link (suspension tie rod) bolt. I've used the 17mm socket on the RH and the open-end wrench from the owner's tool kit on the LH side to remove these bolts. If you don't secure both ends, the bolt will just spin once it's loose. Once the trailing link assembly is dropped down (with the bolts removed), replace the bolts into the assembly for safe keeping.

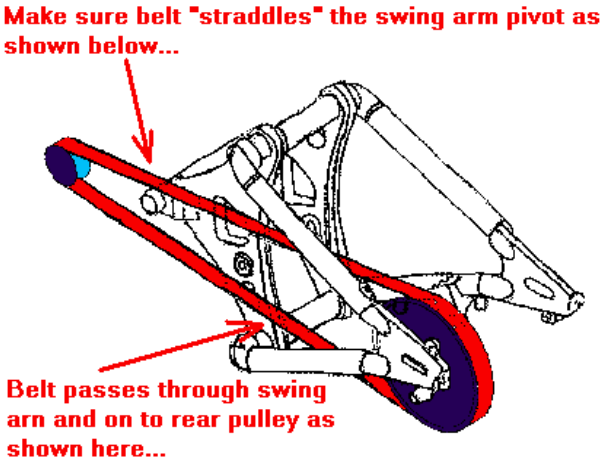
12. Use a 17mm on both sides of the upper shock bolt as well. It is easiest to straddle the bike backwards, and reach down from above (as if one is hugging the bike's seat) to reach both sides of the upper shock bolt, but you can access both sides from under the fender as well (through the area now accessible with the mud guard removed). Once you've removed the shock, place the bolt and nut back through the hole in the top of the shock and set the assembly aside.

13. To access the swing arm pivot bolt, you have to remove the round black plastic caps from the frame on both sides of the bike. Pry them off using a flathead screwdriver or similar tool.

CAUTION!!! These caps are plastic and easily broken, use patience an a thin tool for this task. With the caps removed, you need a 22mm socket to remove the pivot bolt. One can also successfully use a 7/8" socket. The easiest way to remove the pivot bolt while supporting the swing arm is to slide up under the rear fender with the rear of the swing arm resting on your shoulders (one swing arm portion on each side of your head). This lets the weight of the swing arm rest on your shoulders. Then you can use your arms and hands to support the front end of the swing arm while you slide out the pivot bolt and pull the swing arm toward you and let it down to the floor. Use the same method to reinstall the swing arm and pivot bolt.

Be careful, as this could become a compromising position, should be bike fall off of it's stand. Make sure the bike is secure, and have a another person on hand for safety. Be patient!

NOTE: Install the belt on the front pulley, and pull it back through the same frame path as the original chain (See drawing below). Make sure that the belt is located on both sides of the swing arm pivot: the upper belt portion should be above the swing arm pivot, the lower belt portion should be below the swing arm pivot. Also insure that the belt itself is INSIDE of all the frame hardware. Otherwise, you may end up with the swing arm in place but the belt is outside of the swing arm. If so, you'll get to do this work over again ☹



NOTE: Be sure to NOT torque down any of the swing arm bolts until after you've attached all of the associated hardware. Then torque them all down at the same time.

CAUTION!!! Remember to reinstall the mud flap BEFORE reinstalling the wheel! Use a 10mm socket or wrench for the four bolts.

Reinstall the swing arm in the frame, and push the swing arm pivot bolt through the frame and swing arm to support the assembly. If the swing arm doesn't fit back into the frame easily, loosen the large frame pinch bolt, located near the bottom of the frame, below the swing arm pivot bolt. Take a break, you deserve it!

Reinstall shock, reattach the trailing link and lower shock clevis. Before reinstalling the rear wheel assembly, check the LH side of the swingarm for an interference problem between the outer edge of the pulley flange and the welds associated with the LH axle mounting plate. The slotted axle mount that is welded into the rear section of the LH swingarm tubing will often have lumps of weld that could possibly contact the pulley when installed, causing scratching or damage. These portions are manually welded, and the resulting clearance varies wildly. File or grind any protruding weld lumps, and touch up with black paint.

Reinstall the rear wheel and brake drum assembly, etc. Follow the disassembly instructions in reverse, omitting the steps you've previously completed (like installing the front pulley).

****NOTE:** Now would be a great time to adjust the rear shock preload to #4-5, maybe more, depending on bike and rider weight. This improves ride considerably. Visit the www.Scootworks.com web site and read about the lowering kit, and it's associated shock adjustment info.

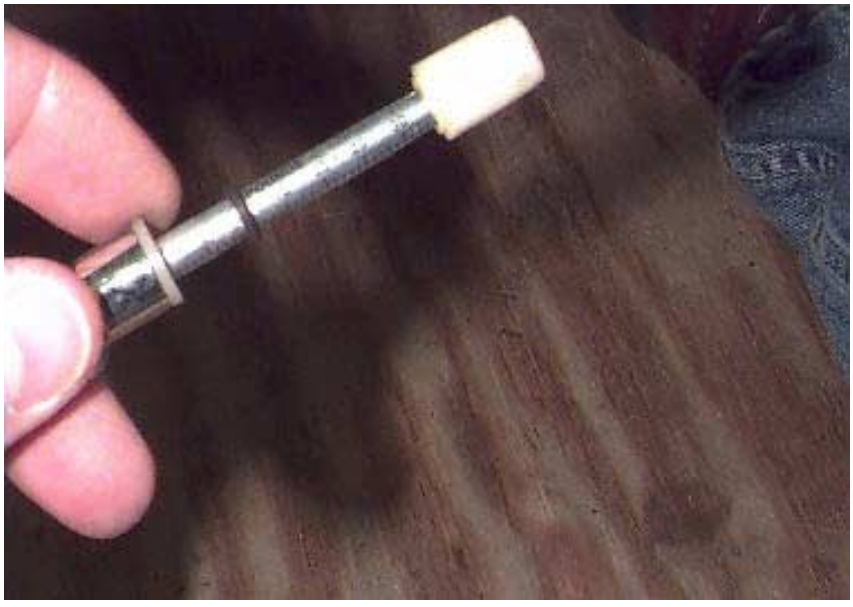
ADJUSTING THE BELT TENSION

It's now time to apply the RED (permanent) Loctite. Be sure the threads in the front pulley's nut are free of oil, and the threads on the shaft at also clean and dry. **Apply a liberal amount of RED Loctite to the threads inside of the nut and on the end of the output shaft prior to installing the nut…not to the splines on the shaft. Make sure you**

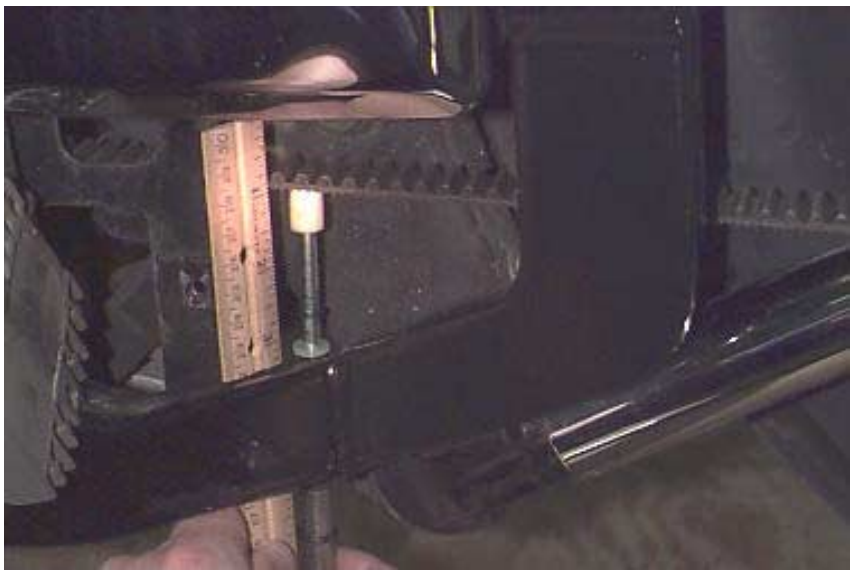
torque to 150 ft lbs. within a short time of using the RED loctite, as it will cure and you'll be unable to finish torque setting to 150 ft/lbs. Wait 24 hours before riding the bike after setting the torque to 150 ft/lbs., to allow time for the Loctite to cure. This is VERY important.

Once all is installed, begin the adjust belt tension procedure by setting the rear wheel adjusters to the rear edge of the 5th alignment mark from the front. Be *sure* that both adjusters are set to the 4th mark from the *front* of the bike, it's easy to make a mistake here. Don't "second guess" the following adjustments, follow this procedure in it's entirety... **At this time, make the final torque setting on the front pulley while in 1st gear *and* while holding the rear brake. Torque the 27mm nut on the front pulley to 150 ft/lbs.** Next, make the final adjustments to the belt tension. Use the Belt Tension Tool supplied with the kit. Also, **_BE SURE_** to read all of the **FAQs** on the Scootworks Belt Drive **_BEFORE_** attempting to 'test drive' your new belt drive system. **Correct initial adjustment is critical to the long life of your new belt! Please remember that the belt, while strong, is not indestructible! Performing wheelies, burnouts, or excessively hard acceleration at a low speed can result in damage to the belt.**

With the bike on a lift and the rear wheel off of the ground, rotate the tire while "plucking" the belt. Note the location of the wheel when the belt tension is highest. Place a mark on the tire pointing straight down with the wheel in this position. Remove the bike from the lift, and position the bike with the tire mark pointing straight down. Using the Scootworks Belt Tension Tester supplied with the kit, perform the following test: The bike should be on level ground, transmission in neutral, and rider on. Unbolt the voltage regulator and move to one side. Place a ruler along the mounting bracket for the voltage regulator, to measure the **BELT** deflection (ignore the ruler printed on the outer body of the tension tester…this is for another application). Slide the small black o-ring on the center plunger of the tension tester to the 10 lb. mark as a point of reference. See the photo below…



Apply 10 lbs. of force upward on the return side (bottom) of the belt at mid-span, just behind the voltage regulator bracket. The belt should be adjusted to deflect between 1/8" and 3/16", but no more than 3/16" at the loosest point measured. See the photo below…



Once adjusted, retighten the axle to 72 ft/lbs. and reinstall the cotter pin, retighten the drum locking bar to 25 ft/lbs. and reinstall the cotter pin, reinstall the voltage regulator, and lock the 12mm and 14mm rear wheel adjuster nuts together.

MUSICIANS: If you possess a chromatic guitar tuner, tune the belt tension for D major, once your tension is in the approximate range indicated above. This is an alternative method, but extremely accurate!

Once the Belt Drive is adjusted per the above instructions, perform a road test. While the rear edge of the 4th mark is the recommended starting point, with final adjustment to be set at 1/8" to 3/16" of deflection, there are many variables with individual motorcycles that make it impossible to provide exact setting values for the rear wheel adjusters. Take the motorcycle out on the road for a quick test. If you get **_ANY_** ratcheting of the belt (jumping or slipping) during normal operation, tighten both adjusters an amount of 'two flats of the nuts' (approximately 1/3 revolution). Test again. Continue, until no additional ratcheting occurs, and tighten an additional 1 flat. Lock the adjusters and ride! Typical final rear wheel adjustment location is approximately 4 ½ marks from the front of the motorcycle.

Once adjusted, we recommend that you perform is what we call a "pick check". When the belt is "picked" along the edge like a guitar string, it will generate a tone. Observe this when the belt drive installation is new, and use it as a point of reference during the life of your belt. It may sound silly, but it has held true on all of the systems I've installed locally over the last few years, and is a common practice among those who service belt driven motorcycles.

NOTE: CHECK THE TENSION OF YOUR BELT AFTER APPROXIMATELY 2000-4000 MILES.
It is very important to check the tension of your belt after 2000-4000 miles of use, and re-adjust it if necessary. There should be no more adjustments needed after that, but as with any good maintenance program, you should always be aware of your belt tension, and check it periodically.

Additional notes:

1. When reinstalling the wheel, before raising it up into position, attach the brake cable to the swing arm on the RH side of the wheel drum. This will insure that it is in position and out of the way as you raise the wheel into position to insert the axle bolt.

2. Once everything is connected and the wheel turns freely, begin to torque all fasteners beginning with the forward components and working backwards to the rear of the bike (e.g., swing arm pivot bolt, other swing arm and shock bolts/nuts, wheel hardware, etc.).

Torque values:

§ Swing arm pivot shaft nut: 72ft/lbs

§ Shock absorber nuts: 43ft/lbs each

§ Link nuts (the two on the bracket holding the drum in position): 25ft/lbs (14mm socket; be sure to position the bolts so, when the cotter pins are inserted, the pins will be horizontal or parallel with the ground)

§ Rear axle nut: 72ft/lbs

§ Front pulley nut: 150ft/lbs

3. Don't forget to install the three cotter pins. The large one goes on the RH side of the axle on the nut. The two smaller ones go on the nuts securing the brake drum link bar.

4. Reinstall the inner liner (4 bolts; 8mm socket), inner liner box (three Phillips screws), and the RH side cover.

5. Reinstall the exhaust pipes. Header nuts need an 8mm Allen wrench. A 6mm Allen wrench will be needed for the nuts under the front pipe. A 12mm socket/wrench will be needed for the aft-end pipe connections. Don’t forget to install the exhaust gasket ring on the rear exhaust pipe, where it connects to the engine.

NOTE: be sure to reinstall the top (rear) pipe (hand-tightening connections only) before reinstalling the lower (front) pipe. Otherwise, it'll be tougher than crud to install it!

6. Reinstall the LH side cover.

7. Torque the front pulley to 150 ft-lbs. This is best done with the transmission in 1st gear, and someone holding the rear brake locked. **BE SURE to use RED (permanent) loctite on the threads of the nut and shaft for the front pulley, and DO NOT reinstall the OEM locking washer on the shaft (read the FAQ below for more info on this)!**

8. Reinstall the chrome cover for the front pulley using a 5mm Allen wrench. Remember that it installs easiest when you have the rubber gasket mounted on the engine side (not on the removable cover) and if you insert the bottom of the housing first, roll it up toward the bike to align it, then slide it forward.

Maintenance

There isn't a lot of maintenance required for the belt drive system. Check the belt tension periodically, and keep the system free of dirt and debris.

Occasionally, inspect the torque of the front pulley attachment. I recommend to check this at 2000 miles, and then again about every 10,000 miles afterward. The Kawasaki attachment method for the front sprocket or pulley has been known to loosen in a few applications. The OEM locking washer is of a very soft material, and will wear easily if the front securing nut should loosen. The more the nut loosens, the more the washer wears, etc. An excessively loose drive system can cause premature shaft/spline erosion. This isn't isolated to belt-driven 800's, and can also happen with chain driven 800's…so you may wish to pass this info along to your chain-driven brethren. Insure that the front nut torque is set to 150 ft/lbs. per the instructions. This is **very important**. Vulcans 800's driven by riders who tend to use heavy engine braking, have a higher propensity to loosen this nut than those who slow their bike with brakes (while in 5th gear) and downshift back to 1st as they roll to a stop. Engine braking is abusive to the driveline (including the clutch), so opt for your brakes instead. There is a Technical Bulletin on this topic at www.scootworks.com in the Information Resource Center. Please

Belt "Quick Change" Instructions…

We don't recommend this procedure be used for the initial installation, as most swing arms are poorly lubricated and should be properly serviced at the time of installation. Here are "quick change" instructions for belt replacement:

Lift the rear wheel a few inches off the ground by the frame (below the engine/frame with a lift, not by the swing arm). Remove the rear wheel. Remove the bolt securing the bottom of the shock (farthest to the rear of the aluminum suspension relay arm). Remove the bolt securing the tie rod link to the suspension relay arm (in the middle of the aluminum suspension relay arm). Push the relay arm down and out of the way. Remove the caps that cover the swing arm pivot bolt. Wedge a straight blade screwdriver in against the swing arm pivot nut on the RH side (behind the pipes..no need to pull the pipes). The nut holds itself in place very nicely... Remove the swing arm pivot bolt from the LH side. Fold the belt (not tight, but about like it would be when wrapped around the front pulley) and push it below the swing arm pivot, all the way to the engine. Push the swing arm _forward_ (towards the engine). Twist the top of the belt a bit and pull it up and over the top of the swing arm pivot. Pull the swing arm back into place and reinstall the pivot bolt. Reassemble, adjust, and ride. I've performed and belt replacement in about 20 minutes using this method.

FAQ's (Frequently Asked Questions)

Question- I recently saw a HD Belt, and it was very large. Is the Belt used in the Scootworks Belt Drive of an adequate size for my bike?
Answer- Many of the older belts for H-D systems were large, as they used an older technology. Many are simple rubber timing belts with a fiber reinforcement. The newer belt driven bikes use a technology incorporating Kevlar in their construction, making them much stronger as well as much smaller. The belt used in the Scootworks Belt Drive is one such belt, and has a higher tensile strength than a #60 steel roller chain. It has been road tested for thousands of miles, and is more than adequate for the application.

Question- I currently have to adjust my chain every 1000-2000 miles. I have a friend with a belt driven bike, and he has to tension his belt also. Will I have to periodically adjust my belt tension?
Answer- Chains stretch across their entire lifespan. Cord reinforced rubber drive belts used on some motorcycles also stretch. The composition of the belt used in the Scootworks Belt Drive doesn't lend itself to stretch the way conventional belts do. Usually, after initial installation, the Scootworks belt will need a single tension adjustment after

'break in' (somewhere between 1000-4000 miles, depending on rider). This tension adjustment is due to several variables that occur during break-in :

The belt will wear to match the exact contour of the drive pulleys. Paint wears away from the teeth of the front drive pulley. Chrome plating and/or paint wears away from the teeth of the rear drive pulley. A very small amount of belt elongation when new (usually only a few thousandths of an inch!)

It's virtually maintenance free.

Question- Does the Scootworks Belt Drive system require any additional materials, fasteners, etc. for installation?
Answer- The Scootworks Drive System comes complete with all parts needed for installation, including detailed step-by-step instructions. One only needs to supply RED (permanent) loctite thread locking compound.

Question- How long does it take to install a Scootworks Belt Drive?
Answer- We've had dealers install these systems in under 1 hour, and I've installed many, many of these in my personal shop in just over 1 hr, by myself. My personal motorcycle shop at home is equipped with only average tools, a lift, etc. Conversely, I've had some people report that their local dealership charged them for as much as 8 hours of labor... So, this obviously depends on many variables. Items such as the speed of the individual performing the installation, stuck fasteners, contamination of components to be removed, tools available, problems understanding instructions, individual skillsets, etc are beyond our control. A good rule of thumb for a person performing a first time installation is approximately 3 hours. Remember, we are only an email or phone call away, to answer any of your questions.

Question- Will I have to cut or modify anything to get the Scootworks Belt Drive system on my bike?
Answer- No, the Scootworks Belt Drive is a direct replacement for your original chain drive system. Following the instructions for a conventional OEM chain replacement, the Scootworks Belt Drive slips back into place as if your bike came with it originally!

Question- Will the Scootworks Belt Drive require an additional belt guard? The bike in your pictures has the belt exposed and I'd like to cover it to keep rider's feet safe.
Answer- The Scootworks Belt Drive was designed to retain the use of your existing chain guard. There are no clearance problems and the OEM chain guard works nicely with your new belt drive system. Some customers have fabricated their own lower guard, to eliminate the possibility of a stone entering the system, but reports (and personal experiences) with this failure mode indicate that operation without a lower guard is practically a non-issue.

Question- Does the Scootworks Belt Drive reduce acceleration?
Answer- There is some minor reduction in acceleration from start is a little less than the OEM chain drive and sprocket installation. This is due to a reduction in the final drive ratio. However, there is a very noticeable reduction in engine RPM's at cruising speeds, making the ride much more relaxed. The reason for the difference is due to the change in ratios used by Scootworks in the belt drive system. One of the design criteria was to reduce engine speed to make hiway speed operation more enjoyable, and to improve gas mileage.

Question- What gear ratio have you selected for the Kawasaki belt drive, and will I loose horsepower or top end speed??
Answer- The engine will produce the same horsepower, irrespective of the final drive ratio. Power to the ground will increase a bit, as the belt drive efficiency is about 98% vs. a chain being in the mid-80% range (at it's best!). Since the

power band is at a different vehicle speed, you'll notice some difference in acceleration at different speeds. Top speed will remain the same, as the amount of HP developed by the engine will only do a certain amount of work.

The bike may not leap out of the hole as it did (by comparison), depending on the year model of your bike. The '95 and early '96 models were geared at a ridiculously low ratio (2.875:1!!), eventually improved by Kawasaki in later models. The later models were shipped from Kawasaki with 2.75:1, 2.47:1, and finally 2.35:1 in the 2000 Drifter 800's. Many riders commonly swap the front sprocket to a 18t, resulting in 2.22:1. Most every chain driven metric cruiser on the market today comes geared to give the best "around town" performance, yet lack a bit on the open road due to high cruising RPMs.

The belt drive is shipped as 2.22:1, and was optimized at that ratio after much experimentation in 1998 with ratios from 2.10:1 through 2.51:1 and thousands of miles in all sorts of terrain.

Much additional info is available in the FAQ's section of our website at www.scootworks.com , in the "FAQ's (Frequently Asked Questions)" section. You can also view the installation instructions and learn more about it in the "Information Resource Center" portion of our site.

Question- When I received my Scootworks Belt Drive, I examined everything closely. I accidentally turned the belt "teeth out", and folded it together. A white stripe appeared in between two teeth of the belt. Is it OK to install it anyway??
Answer- No, do not install this belt. While the belt has a tensile strength higher than a #60 steel chain, the Kevlar composition is not designed to fold or bend tightly. Never bend the belt smaller than about 1 1/2", and absolutely _never_ bend it inside out (as if you're inspecting the "teeth" closely). This will damage or break the Kevlar material, and lead to premature failure.

Question- Is there any danger in damaging the output shaft bearing of the engine, due to the tension required by a belt?
Answer- An engineering study was performed on the installation, taking into consideration the tension of the belt, additional load presented by the engine, the location of the shaft bearings on the shaft, and the type of bearings used by Kawasaki in the design of the output shaft. Load data indicated that the shaft loads were well within the bearing design parameters. Feedback from field testing has indicated, with well over 80,000 miles of use on the test installation and hundreds of thousands of miles logged by our customers around the world, that no additional wear has occurred in the bearings of the output shaft and drive system free motion is unchanged.

Question- Kawasaki recommends a torque of 94 ft/lbs. and the use of their locking washer on the engine output shaft. You recommend RED loctite, no locking washer, and 150 ft/lbs. of torque. Which is correct??
Answer- Countershaft nut loosening has been a long running problem with the Kawasaki 800 engine. We began working on a solution to this problem back in '99, after finding bikes with low mileage having loose countershaft nuts and damaged splines on the shaft. After doing an engineering study on the countershaft (nut size, material composition, thread pitch, etc), we determined the first problem to be the torque spec of 94 ft/lbs. The _correct_ torque is 150 ft/lbs., with the upper acceptable end being 210 ft/lbs.

The next problem is the malleable material used in the Kawasaki lock washer... The chain sprocket/belt drive pulley will "squirm" (rotate CW and CCW about 1/10,000th inch, due to the required installation clearances between the splined shaft and mating surfaces) on the shaft a bit during accel/decel. Over time, the soft material in the lock washer will wear, creating more clearance, which causes more movement, etc...it gets into a run-away condition, and will damage and/or destroy the output shaft. Our tests with red loctite (permanent grade) and 150 ft/lbs. of torque corrects this situation, and is actually an "old school" fix. Red loctite isn't really permanent on a shaft of the diameter used in this application, but it is a very good thread locking compound.

Question- Does the swing arm have to be removed for installation?
Answer- Yes, just like with the installation/replacement of the OEM O-ring chain, the swing arm must be removed. It may sound scary, but is really quite simple and is outlined both in the shop manual and in the instruction booklet supplied by Scootworks. The only thing special is the requirement that the back wheel be raised to remove the swing arm (just as in the chain replacement procedure). If you have your work done by a mechanic, he wouldn't encounter anything different from a conventional chain replacement job.

Question- When I tried to install the rear wheel, I noticed that the pulley flange contacts the welded area on the inside LH of the swingarm, near where the axle fits.
Answer- Before installing the rear wheel assembly, check the LH side of the swingarm for an interference problem between the outer edge of the pulley flange and the welds associated with the LH axle mounting plate. The slotted axle mount that is welded into the rear section of the LH swingarm tubing will often have lumps of weld that could possibly contact the pulley when installed, causing scratching or damage. These portions are manually welded, and the resulting clearance varies wildly. File or grind any protruding weld lumps, and touch up with black paint.

Question- How do you get the locking washer bent back around the front drive nut?
Answer- DON'T! Follow the instructions for the use of RED loctite, 150 ft-lbs. of torque, and do not use the locking washer with the belt drive.

Question- I received my Scootworks Belt Drive, but am unsure of the correct direction of installation for the rear pulley. Which side of the pulley should be turned towards the hub of the wheel?
Answer- One side of the pulley is slightly deeper than the other. The deeper side faces the rear hub/wheel.

Question- I'm not sure I have the belt tension set correctly. Are there any simple methods to use as a starting point?
Answer- Sure. Correct belt tension is easy to accomplish, with very little practice. Once all is installed, begin the belt tension procedure by setting the rear wheel adjusters to the rear edge of the 4th alignment mark from the front. Be *sure* that both adjusters are set to the 4^{th} mark from the *front* of the bike, it's easy to make a mistake here. Don't "second guess" the following adjustments, follow this procedure in it's entirety... Use the Belt Tension Tool supplied with the kit. Also, **_BE SURE_** to read all of the **FAQs** on the Scootworks Belt Drive **_BEFORE_** attempting to 'test drive' your new belt drive system. **Correct initial adjustment is critical to the long life of your new belt! Please remember that the belt, while strong, is not indestructible! Performing wheelies, burnouts, or excessively hard acceleration at a low speed can result in damage to the belt.**

With the bike on a lift and the rear wheel off of the ground, rotate the tire while "plucking" the belt. Note the location of the wheel when the belt tension is highest. Place a mark on the tire pointing straight down with the wheel in this position. Remove the bike from the lift, and position the bike with the tire mark pointing straight down. Using the Scootworks Belt Tension Tester supplied with the kit, perform the following test: The bike should be on level ground, transmission in neutral, and rider on. Unbolt the voltage regulator and move to one side. Place a ruler along the mounting bracket for the voltage regulator, to measure the belt deflection. Apply 10 lbs of force upward on the return side (bottom) of the belt at mid-span, just behind the voltage regulator bracket. The belt should be adjusted to deflect between 1/8" and 3/16", but no more than 3/16" at the loosest point measured.

Once the Belt Drive is adjusted per the above instructions, perform a road test. While the rear edge of the 4th mark or 1/8" to 3/16" of deflection is a recommended point, there are many variables with individual motorcycles that make it impossible to provide exact setting values for the rear wheel adjusters. Take the motorcycle out on the road for a quick test. If you get any ratcheting of the belt (jumping or slipping) during normal operation, tighten both adjusters an

amount of 'two flats of the nuts' (approximately 1/3 revolution). Test again. Continue, until no additional ratcheting occurs, and tighten an additional 1 flat. Lock the adjusters and ride!

Once adjusted, we recommend that you perform is what we call a "pick check". When the belt is "picked" along the edge like a guitar string, it will generate a tone. Observe this when the belt drive installation is new, and use it as a point of reference during the life of your belt. It may sound silly, but it has held true on all of the systems I've installed locally over the last few years, and is a common practice among those who service belt driven motorcycles.

NOTE: CHECK THE TENSION OF YOUR BELT AFTER APPROXIMATELY 2000-4000 MILES.
It is very important to check the tension of your belt after 2000-4000 miles of use, and re-adjust it if necessary. There should be no more adjustments needed after that, but as with any good maintenance program, you should always be aware of your belt tension, and check it periodically.

Question- My Belt makes a slight 'squeak' when I roll the bike slowly. Is there anything I can do for this?
Answer- This is normal for the technology and fit we use in the WideDrive. An old "trick" used by many belt driven motorcycle owners of all brands, is to occasionally rub the edges of the belt with a bar of soap to eliminate "dry squeak". The "squeak" is usually caused by small particles of dirt that become embedded in the belt while riding, and/or by a clean and dry belt while rubbing against the edge of the pulleys (much like rubbing a clean finger around the top of a wine glass). A little dry soap will "lubricate" the edge of the belt, and eliminate "ringing" or "squeaking", should it occur.

Question- I've noticed a 'howl' or 'whine' from my belt at certain speeds. Is this normal??
Answer- It is normal for the belt to exhibit a small 'howl' or 'whine' at some speed between 25-45 mph, once break-in is completed. This is simply the point where resonance is achieved between the belt tension and the rate that the belt's teeth strike the pulleys. A new belt will often be a bit noisy for the first few hundred miles, while it is wearing to match the contour of the front and rear pulleys.

A belt that 'howls' at a wide range of speeds usually indicates a slightly overtensioned belt. Overtensioning isn't typically a contributor to premature failure (as is undertensioning!), but is a bit annoying. Loosen the belt tension slightly, but stay within the recommended 1/8"-3/16" tension setting. I usually loosen the rear wheel adjusters by only 1 flat each, while making this adjustment. Measure the tension, road test, and repeat if necessary. Once adjusted, this doesn't need to be repeated in the future.

Question- I don't want to run my belt as tight as recommended by Scootworks. Can I operate with the belt a little slack?
Answer- No. If the belt is loose (even a "little"), the mechanical shock generated when placing the bike into gear as well as that of the vibration transmitted from the engine to the drive train, will destroy the belt. A loose belt will allow the input pulley to generate transients many times greater than would normally exist in normal operation. Additionally, micro-oscillations will occur along the length of the belt's lower track that will destroy the Kevlar in the belt and lead to premature belt failure. The leading cause of premature belt failure is under-tensioning. Adjust the belt to the correct tension as recommended by Scootworks.

Question- My belt seems to jump teeth occasionally, under normal to moderate acceleration. Is something wrong?
Answer- The belt should **_NEVER_** jump during normal use. As with any belt drive, no matter of manufacture, it is possible to cause it to jump (and even destroy it) during heavy acceleration, when doing burnouts or attempting to pull "wheelies". If your belt jumps during normal to moderate acceleration, check to make sure you have it adjusted the dimension outlined in the belt tension instructions. If the problem persists, increase the tension by adjusting the rear

wheel adjusters in 1/3 revolution steps (2 flats on the adjuster nuts), and repeat the test. A single 1/3 revolution increase in tension can make a considerable improvement in performance. Most often, this problem occurs when a new drive is installed and is not adjusted correctly, but can occur after the belt has past the initial break in period and requires a minor adjustment.

Question- I know how to install and adjust a belt, and don't care to bother with the tension tool if the belt tension feels OK to me. Is it really that important to use the tool, or do I just need it for the initial installation?
Answer- I really wish we could call this something other than a belt, because I've answered this question many, many times. The only similarities between our belting and conventional belting that most are familiar with, is the fact that it is a continuous loop of semi-flexible material. Try to forget anything else you know about belting, including the common myths that exist about motorcycle drive belts. The single most common cause of premature Kevlar belt failure is under tensioning. Micro-oscillations in the return track of the belt, as a result of incorrect tensioning, will destroy the Kevlar in short order. Often, a belt adjusted out of spec as little as 1/16"-1/8" @ 10 lbs. will destroy a belt that would otherwise last for tens of thousands a miles. It's almost impossible to distinguish this difference by "feel" or see it with the human eye. This is the reason our kits are supplied with the tool…to insure this adjustment is made correctly. The good thing is, once the initial and break-in adjustments are made, you can almost forget about your drive system. The tool makes this adjustment accurately, and is VERY easy to use. Be sure to read the installation instructions completely, and familiarize yourself with the tool. There is a separate instruction and FAQ on our website at www.scootworks.com for the tool, in the event you would only like to read about that.

Question- How tight does the belt need to be? I was afraid to get it too tight for fear I might snap it. How tight is too tight?
Answer- These belts are STRONG! You can literally lift an automobile off the ground with this type of belt. Adjust the rear wheel to the rear edge of the 4th alignment mark on the swingarm, from the front. Follow the belt tension instructions and the belt drive will perform correctly.

Question- My Vulcan jumps suddenly when I place it in gear from a cold start. Is this normal, and will it damage the belt?
Answer- Start the engine, and hold the clutch "in" for about 30 seconds before you place it in gear. There isn't anything wrong, and many bikes with wet clutches will do this when cold. If unused for a while, a wet clutch will displace the oil from the clutch plates and create a vacuum, giving the appearance that the clutch isn't disengaged. Pumping the clutch doesn't usually help, but holding it in as I outlined will make that first shift into gear nice and smooth. This will also help minimize stress on the belt (and the rest of the drive train!) when starting a cold engine.

Question- Is there any lubrication or other maintenance on the belt drive after it's installed?
Answer- Only once, at about 2000-4000 miles. Once the belt drive is installed with the proper tension on the belt, the only other adjustment is a minor retensioning after break-in. ...unlike a chain which requires lubrication every 600 miles. Chains normally stretch over time and require periodic readjustment. The Scootworks Belt drive uses a Kevlar/Arimid fiber reinforced Poly Chain similar to that used on other "modern" belt driven motorcycles. Since there is no belt stretch (well, only about .002"!), the system requires no adjustment. A great by-product of having a belt drive instead of a chain is the fact that you no longer have all that grease and grime to clean from your rear wheel, tire and rim that a chain will deposit there.

Question- I'm going to remove my belt/swingarm to perform lowering modifications to my bike. Are there any precautions I need to observe when reinstalling a used belt?
Answer- Inspect the belt for any physical damage. If there is any damage, now is the perfect time to replace it..it's very inexpensive. If you decide to reinstall the old belt, be sure to mark it's original direction of installation, and reinstall it so it runs in the same direction it originally did.

Question- I was afraid going from a final ratio of 2.875 to a 2.22 would kill the "takeoff" power of my '95 model Vulcan. It really does slow those RPMs down at highway speeds! I'm really impressed with the setup and am surprised at how relatively easy it is to takeoff from a stop.
Answer- It makes a substantial difference in cruising RPMs of the '95-'96's that originally came with a 16t front and 46t rear sprocket. Typical reduction of engine speed on those models is around 23%, and about 11% on the newer versions shipped with 17t front and 42t rear sprocket complement. To equate this to engine RPM's vs. hiway speeds: At 60 mph in 5th gear, the Vulcan 800 A ('95 and '96) usually turns approximately 5100 RPM. The Classic's usually rev to about 4450 RPM at 60 mph. The Drifters usually operate at about 4250 RPM at 60 mph. With the belt drive, the final drive ratio allows then engine to run at approximately 3900 RPM at 60 mph.

Question- Does Scootworks have a Warranty of any type? I've looked all over the web site and couldn't find anything.
Answer- Certainly! Scootworks Inc. warrants the workmanship of all materials sold, to be free of defects for a period of twelve (12) months from the date of purchase. As with any other belt drive manufacturer, the belt is warranted to be free of defects at the time of purchase only. You can find more information on the first page of the Scootworks WebPage, at the bottom of the page under ‘Warranty & Return Policies’.