Thanks for Ordering
The Kawasaki EN500LTD
Belt Drive Conversion Kit
from

READ THIS BEFORE UNPACKING YOUR KIT!

This instruction booklet contains detailed steps for installing the both the Classic and WideDrive belt drive conversion kits on your Kawasaki EN500LTD 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.

Instructions for Installing the Scootworks Belt-Drive on Kawasaki EN500LTD'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
- 8mm socket
- 12mm socket/wrench
- 14mm socket (6 point recommended)/wrench
- 17mm socket
- 19mm socket
- 27mm socket (optional, you may substitute a 1 1/16" socket for this)
- Small amount of **RED** Loctite (maximum strength thread locking compound)
- Service Manual or access to www.buykawasaki.com parts diagrams

The installation of the Scootworks Belt Drive is exactly the same as replacing the OEM sprockets and chain 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 contact 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 the engine sprocket cover. Use an 8mm socket to remove the four chrome bolts that hold the cover on. Be sure to hold on to the cover so it does not fall and get scratched up. Set the cover aside and screw the bolts back into the engine case so they don't get lost. It is recommend you remove the left side, black plastic cover to prevent it from being scratched, using a large Phillips screwdriver.

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 is securing the sprocket is to place a Flathead screwdriver (or something similar) in the joint between the washer and the sprocket nut, then tap the screwdriver with a light hammer. That will bend the washer side away from the locking nut on the sprocket. 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 (Fig. 01) ***[NOTE: All photos are located on pages 9-11 of this instruction manual. Refer to the (Fig #) for full details.]***

Place the transmission in 1st gear to assist with loosening this nut. Have someone sit on the bike and hold the rear brake locked tightly. Using a 27mm socket and pull bar or impact driver, loosen the nut. Once the nut is off, place the nut carefully to one side. You can pitch the washer, it will not be reused. Now pull the sprocket off the output shaft.

Due to the close tolerances involved and casting variations there is a very remote possibility that the drive pulley may contact the engine case. Test fit the pulley by sliding it on the output shaft, pushing in and rocking it to check for possible contact (Fig. 02) and yes, that's what it looks like in there when it's all cleaned up ;-) Should you find that contact is being made, remove material from the case using a small Dremel grinding or sanding wheel. Do NOT attempt to chisel or chip material away as we don't want to crack the aluminum case.

2. Remove the mufflers from both sides of the bike. This will simplify installation. To do so, loosen the 12mm clamp bolts at the front and under the muffler about five turns. The clamp is just behind the cross over pipe that connects the exhaust headers below and to the rear of the engine (Fig. 03). This will probably go smoothly if you first spray the nut with a penetrating lubricant like WD-40. Using a 14mm socket remove the rear foot peg mounting bolts and the 12mm peg plate bolts just forward of the pegs. You can now pull the mufflers off to the rear. A little twisting will help. Set the mufflers, pegs and bolts aside for safekeeping.

3. Let's get ready to remove the rear wheel. Using a large Phillips screwdriver, remove the three screws that hold the chain guard on and set it aside. Put the screws back in the swing arm so you don't loose them. Remove the rear brake tension nut and barrel, and reinstall on the brake rod for safekeeping (Fig. 04). Take care the spring and flat washer do not fall off the rod. Remove the brake light switch spring behind the right rider foot peg (Fig. 07). This will prevent it from being damaged. Stow it somewhere where it won't get lost.

Remove the cotter pins and 14mm nuts from the brake drum torque link bar (Fig. 04). These nuts are often extremely tight, and the use of a 6-point socket is recommended to prevent damage to the nut. Put the bar away for safekeeping. Screw the nuts back on the bolts and insert the cotter pins so they won't be lost. Using a 14mm open end wrench unscrew the nut that holds the brake cable to the swing arm and slide the black rubber dust boot to the rear of the cable. Remove the cotter pin and loosen the 27mm nut on the right hand side of the axle a couple turns. The left hand end side of the axle is 19mm (Fig. 04).

Loosen the axle locking and adjustment nuts from the adjuster rods in the ends of the swing arm on both sides of the rear axle. These are the adjusters used to tension the chain. The open-end wrenches needed for the nuts are 14mm and 12mm, respectively and the ones in the bike's OEM tool kit work well for this step. Back the nuts off almost all the way (Fig. 04).

Remove the round chrome plastic covers in the frame just behind the engine to allow access to the swing arm pivot point attachment bolt and nut (Fig. 07). You can usually pull these out by hand but if they stick, a small flat screw driver can be used to pry them loose but **be careful as they scratch easily**. Using a 19mm socket loosen the swing arm attachment nut about two full turns. A 17mm socket fits the swing arm attachment bolt. This is for safety reasons, as we really don't want to be tipping things over once we have the bike off the ground.

4. 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. This will allow room to work under the bike, as well as easily remove and reinstall the rear wheel. I use a Centerstand lift (www.centerstand.com model CS8) 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. Once lifted, jack stands can be used to support the bike securely.

5. Remove the rear wheel by taking off the axle nut and pulling the axle 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. It is a good idea to mark the position of the drive coupling on the left side of the hub using a grease pencil in case you should let it fall out so you can put it back in the same position it was. Remove the brake assembly from the hub, and place to one side. You'll need this when you're ready to reinstall the wheel!

6. 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! Install the rear pulley with the **DEEPEST** amount of dish side toward the wheel. Test fit the new rear pulley on the hub of the wheel. Due to variations in manufacturing tolerances at Kawasaki, your pulley 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. Conversely, it may be sloppy. If that is the case, use shim stock or feel to center it on the hub. Hand tighten the six attachment nuts. Torque to 54 ft-lbs. In a "star" pattern, tightening opposing bolts on rotation. Put the brake assembly back in the hub and insert the axle with spacers (short on the left, longer on the right sides), washer and screw the axle nut on. Set the wheel out of the way.

7. Remove the swing arm. Note how the axle locking and adjustment assemblies are installed, then pull them out of the ends of the swing arm and set aside for safekeeping. Lift the drain and vent hoses that hang down inside the swing arm out of their wire keeper. Using a 6 point 12mm socket or wrench remove the chrome lower shock bolts. **Do not let the swing arm fall as it could be damaged**. Have someone hold up the swing arm or set something under it. Using a 19mm socket, remove the swing arm pivot nut and push/pull the pivot bolt out from the right side of the bike. Pull the swing arm out to the rear of the bike being careful not to loose the two grease seals. Slide the chain off the swing arm noting how it was routed and deposit in waste receptacle. Screw the lower shock bolts back into the swing arm so they don't get lost. Store the swing arm pivot bolt and nut in a safe place.

Now is a good time to clean all the accumulated dirt and chain wax/oil from the swing arm, engine case and frame. Check the swing arm bearings and clean/pack with good waterproof grease if needed. Kawasaki recommends molybdenium disulfide grease. It is also a good idea to clean and spread a very thin layer of water proof grease on the swing arm pivot and axle bolts to prevent rust before putting them back in.

BEGIN ASSEMBLY

8. 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. Slip on the new pulley (with the 12 point fasteners facing outward) followed by the 27mm nut. **DO NOT reinstall the locking washer!** Read the Tech bulletin in the Information Resource Center at Scootworks.com on this topic! Clean the threads on the end of the output shaft and within the 27mm nut with alcohol, to remove ALL oils. Install the 27mm nut (without the locking washer), and snug down tightly. Do not torque at this time, as you'll need to remove the nut and apply the loctite and torque to correct setting after the rear wheel work is completed.

NOTE: Install the belt on the front pulley, and pull it back through the same frame path as the original chain. 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 (Fig. 05). 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 ☹

9. Reinstall the swing arm in the frame. Grease the seals and replace in the swing arm. If desired slip the rubber protective boot back on the left front of the swing arm. Note: You may discard this boot, as without the chain it serves no useful purpose. Slip the left leg of the swing arm threw the belt so that the belt lies between the legs. Be sure the rear brake cable is routed through the guide below the swing arm (Fig. 04). Now position the swing arm back in place, and push the swing arm pivot bolt through the frame from the right side of the bike and swing arm to support the assembly. Be sure the grease seals did not fall out and the drain/vent hoses are routed behind the swing arm pivot point. Insert the shocks back in the brackets and screw the lower shock bolts back into the swing arm to hold it up.

Double-check the routing of the belt. It must lay between the swing arm legs at the rear, go over the top of the swing arm pivot point, around the front pulley, and under the swing arm pivot point on the bottom. Screw the 19mm nut back on the swing arm attachment bolt. The bolt takes a 17mm socket. Just snug it up fairly tight. Will torque it once the bike is back on the ground. Slide the axle locking and adjustment assemblies' back into the ends of the swing arm. Be sure the adjustment marks on the blocks are visible through the holes in the swing arm for the axle. Take special note of the adjustment marking spacing/numbering for use during belt tensioning procedure. Ensure the rear brake cable is in the bracket on the swing arm then tighten the locking nut using a 14mm open-end wrench. Slip the rubber protective boot back over the end of the cable (Fig. 04).

10. Reinstall the rear wheel and brake drum assembly. Position the wheel back under the rear fender and fit the drive belt onto the rear pulley. Ensure you have the shorter spacer on the left side of the wheel and the longer one on the right. Lift the wheel and insert the axle bolt from the left side of the bike being sure it passes through the holes in the alignment/adjustment blocks. Slide the flat washer on and screw the axle nut on finger tight. Retrieve the brake drum torque link bar and reinstall leaving the nuts only finger tight.

11. Adjust belt tension by pulling the rear wheel toward the back of the bike and screwing the adjusters in until the 5th alignment mark is aligned with the leading edge of the hole in the swing arm on both sides (Fig. 09). Note: The picture shows a belt that has been fully adjusted. Your initial setting is to be with the leading edges and 5th marks aligned vertically. Snug up the axle nut but not so tight you cannot move the wheel with the adjusters.

Don't "second guess" the following adjustments, follow this procedure in it's entirety... Make the final adjustments to the belt tension using the Belt Tension Test Gauge supplied with the kit. **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.**

While positioned on the left side of the bike, rotate the tire by hand a couple revolutions of the **belt** in counter-clock-wise direction. Using a ruler and the Scootworks Belt Tension Test Gauge, check the tension of the belt. The final setting is **3/16" deflection @ 10lbs. of force** (Fig. 08). We want to progressively stretch the belt's teeth, into the front sprocket, over the belts entire length, by slowly increasing the tension while rotating the wheel. Screw both adjusters in a couple flats of the nuts (approximately 1/3 revolution), rotate the tire a couple revolutions of the belt, then check tension again. Continue these three steps until you reach 3/16" of deflection @ 10lbs. The easiest method I have found to check the tension is to set the small black O-Ring on the gauge at the 10lb. Mark. Center the gauge under the belt and press up until contact is made with the O-ring. Sight across the belt and note what mark the bottom of the belt is aligned with on the ruler. Reduce the pressure on the gauge and count the marks passed. Really helps to use a ruler graduated in sixteenths of an inch. Don't get in a big hurry, you will only have to do this once with a new belt so lets do it right. Check for proper alignment as you go along by ensuring the tension at the edges of the belt are equal.

When finished tensioning the belt, install the engine sprocket cover to check for adequate clearance. Spin the rear wheel and feel/listen for any contact with the cover. If contact is being made with the belt or front sprocket remove the

rubber dampers and plates inside the cover using an 8mm socket (Fig. 06). If desired you may remove them anyway, as without the chain, they serve no useful purpose. Now remove the cover being careful not to let it fall.

If you intend to use the chain guard, test fit, modify if required, and install now. It is possible that a small amount of material will have to be removed from the trailing inner edge to prevent rubbing the pulley/belt. A Dremel with sanding wheel is great for this. With the **WideDrive kit,** you must reposition the inner mounting leg of the guard on the right side of the mounting bracket (Fig. 10). Tighten the screw from the right side of the bike through the wheel.

Ensure the kickstand is down and remove the bike from the lift. **Double check the belt tension** with the rider setting on the bike holding it upright. Unless the bike has been lowered, tension should not have changed but check it anyway and adjust if necessary. Deflection should be 3/16" @ 10 lbs. Using the 27mm socket torque the rear axle bolt to 72 ft-lbs. and install the large cotter pin in the axle nut. Using a 19mm socket torque the swing arm attachment nut to 65 ft-lbs. A 17mm socket fits the swing arm attachment bolt. Now screw the tension adjuster locking nuts in and lock them down using a 12mm open end wrench. Be sure to not let the 14mm adjustment nuts move.

Applying thread locking compound to the front pulley's nut, and setting torque.
12. Now, remove the 27mm nut from the front pulley, and clean with alcohol once more to insure no oils are present. **NOTE: 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!** Tighten the nut to about 90 ft/lbs., or approximately to the maximum amount possible without turning the engine while in 1st gear. Reinstall the rear brake rod using the tension nut and barrel. Adjust it to the point you can lock the rear wheel with the pedal. At that time, torque to approximately 150 ft-lbs. The use of an air or electric impact wrench is acceptable at this time. **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. VERY IMPORTANT: 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.**

13. Install the engine sprocket cover using an 8mm socket on the four chrome bolts. **Caution:** The case is aluminum, do not over tighten, only torque the bolts to 95 in-lbs. Although it doesn't call for it, I like to use a little blue Loctite on them to prevent their falling out. Install the round plastic chrome swing arm pivot bolt covers. Spread a little RTV around the holes in the frame for the swing arm pivot bolt before inserting the chrome plastic covers to help keep them from falling out.

Cleaning up the loose ends.
14. Using the 12mm socket torque the lower shock bolts to 25 ft-lbs. Using the 14mm socket torque the two rear brake drum torque link bar nuts to 25 ft-lbs. and insert the cotter pins. Route the drain and vent hoses that hang down inside the swing arm back into their wire keeper. Slip the mufflers back on the exhaust headers and into position lining up the holes for the foot pegs. Using the 14mm socket, torque the rear foot peg mounting bolts to 25 ft-lbs. Using the 12mm socket torque the mounting plate bolts to 25 ft-lbs. as well. Tighten down the muffler clamp using the 12mm socket. Adjust the rear brake pedal so that the free play is between 20 ~ 30mm or ¾ ~ 1 inch. If you run out of adjustment, remove the 12mm locking bolt on the brake arm. Pull the arm off the shaft and rotate back a serration or two and push back on. Don't forget to tighten the 12mm locking bolt. Insert the brake light switch spring and adjust if necessary. Install the left side black plastic cover using a large Phillips screw driver.

Congratulations, you are now ready to perform a road test. First go back over everything and check that all fasteners are secure and no steps have been omitted.

Additional notes:

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 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 MILES.
It is very important to check the tension of your belt after 2000 miles of use with the tension gage, and re-adjust it if necessary. Ensure it is set at 3/16" of deflection @ 10lbs. 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.

1. Torque values:

§ Swing arm pivot shaft nut: 65ft/lbs

§ Lower Shock absorber nuts: 25ft/lbs each

§ Rear Brake Torque 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

§ Rear Foot Peg bolts: 25ft/lbs

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

3. 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.

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 500's, and can also happen with chain driven Vulcans…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 500'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 6th 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.

Illustrations

Fig. 01

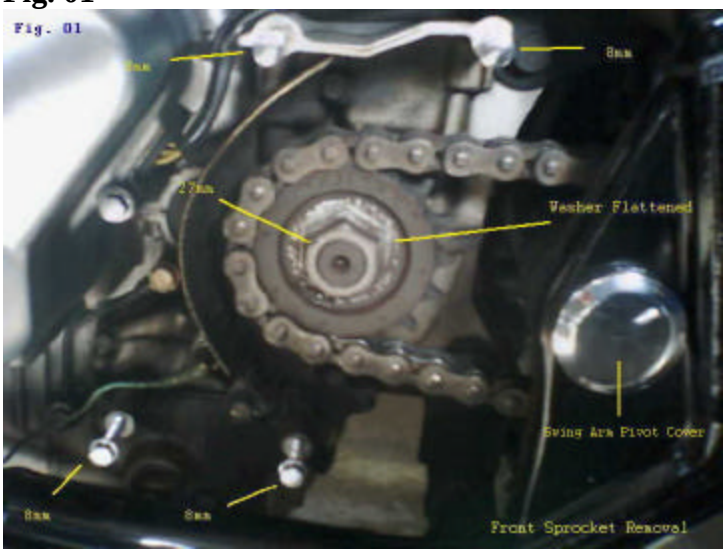

Fig. 02

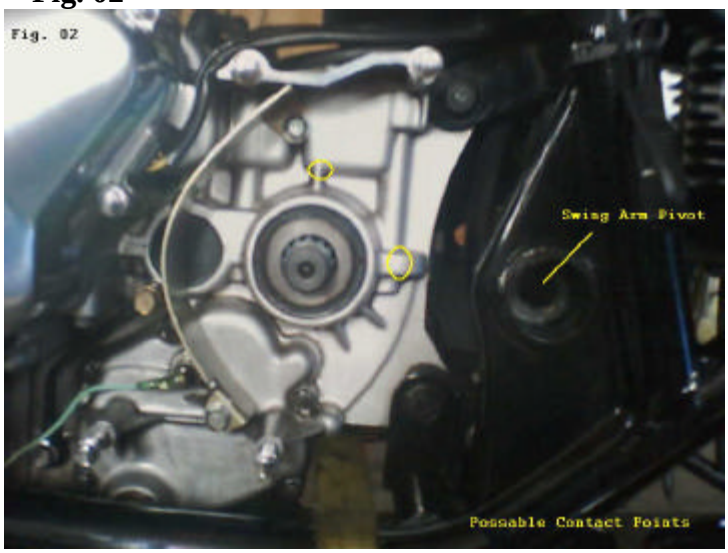

Fig. 03

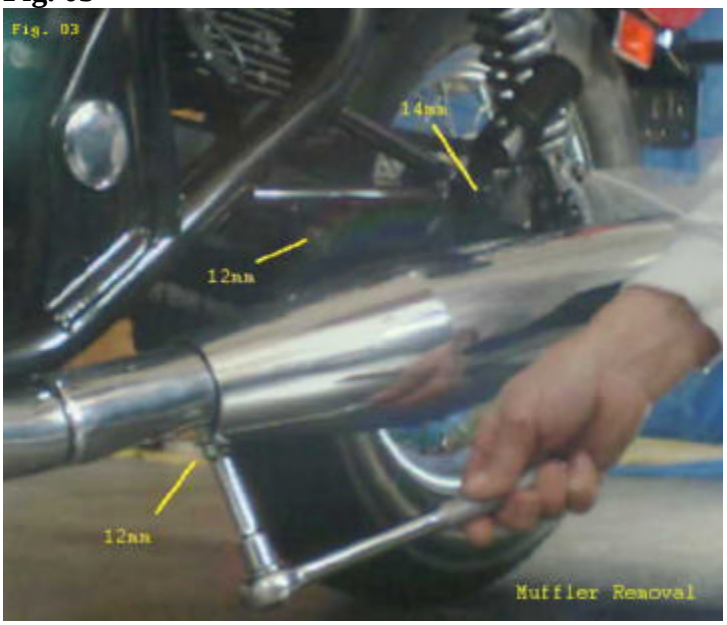

Fig. 04

Fig. 05

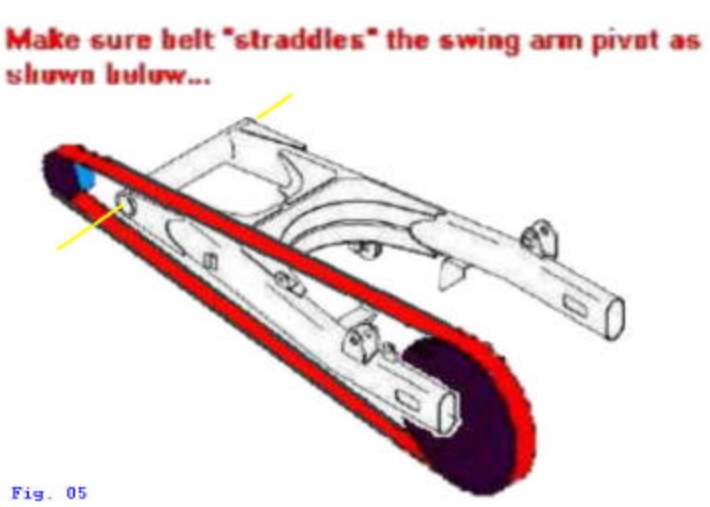

Fig. 06

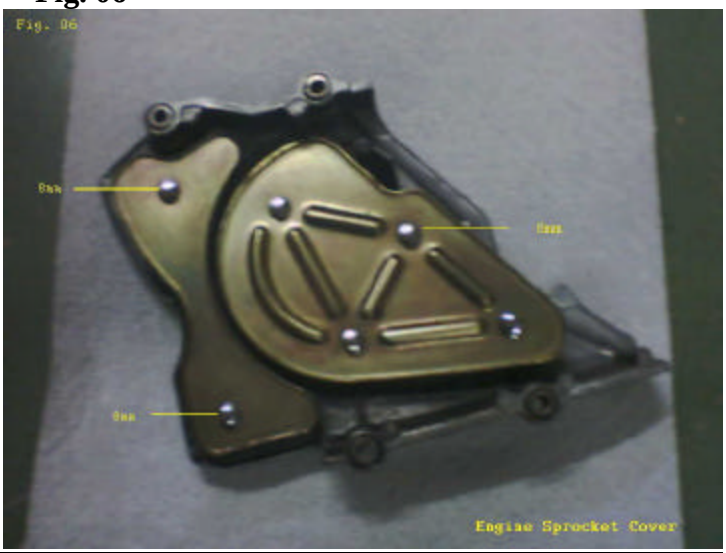

Fig. 07

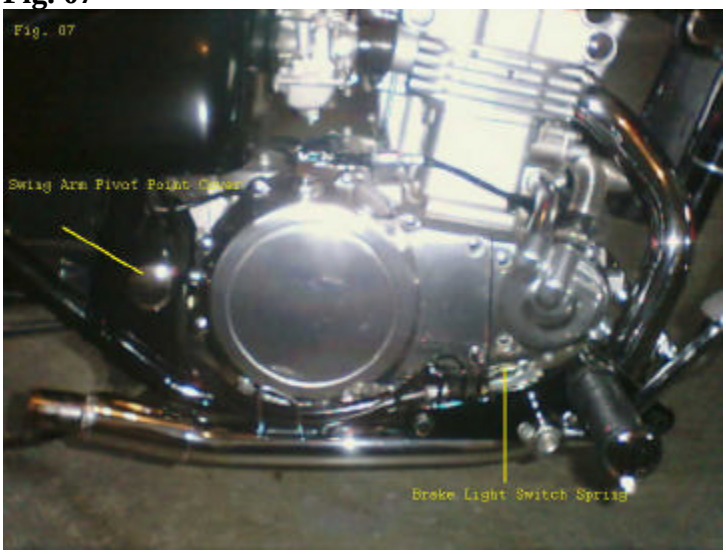

Fig. 08

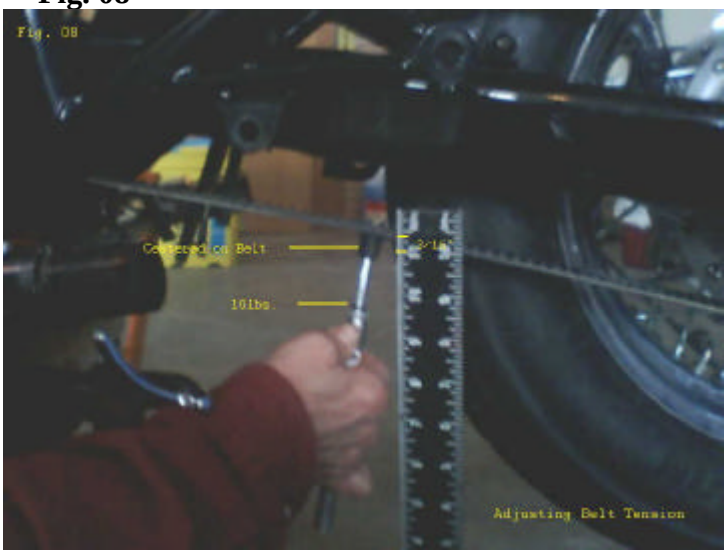

Fig. 09

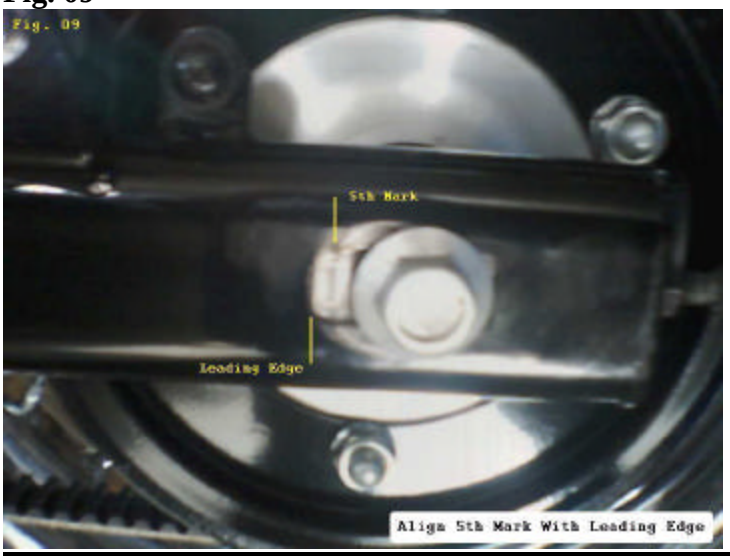
Fig. 09
5th Mark
Leading Edge
Align 5th Mark With Leading Edge

Fig. 10

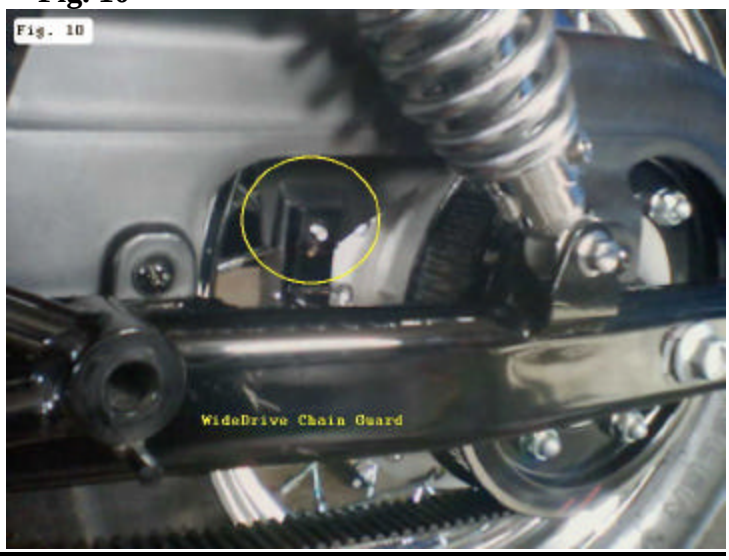
Fig. 10
WideDrive Chain Guard


Fig. 11
Another Very Satisfied Customer

FAQ's (Frequently Asked Questions)

Question- The front pulley that came with my Classic kit is much wider then the belt. Did I get the right one?
Answer- Yes, the same drive pulley is used with both the Classic and WideDrive kits. This is a cost saving measure and of no concern as the system is carefully engineered to keep the belt in the right place at all times.

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- Not at all. The Scootworks Drive System comes complete with all parts needed for installation, including detailed step-by-step instructions.

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. 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- 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! Due to manufacturing tolerance variations at Kawasaki a little trimming may be required in a couple areas but nothing the average backyard mechanic can’t handle with a Dremel tool.

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. 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 a start compared to 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. 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 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, that no additional wear has occurred in the bearings of the output shaft and drive system free motion is unchanged. Be aware, output shaft bearings occasionally fail on all types of motorcycles, regardless of final drive type.

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- How do you get the locking washer bent back around the front drive nut?
Answer- You don't! Remember to not use this washer as instructed in this manual. There is a reason for this…be sure to read over the instruction manual thoroughly on this topic. Also, read the technical bulletin in the Information Resource Center at www.ScootWorks.com on the Vulcan 400/800 front pulley sprocket attachment.

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 has a part number stamped into it. This is the side that faces the rear hub/wheel. If your model has no part number (K2) stamped in, measure the depth of each side, and turn the deeper side towards the 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 5th alignment mark on the leading edge of the holes in the swing arm. Be *sure* that both adjusters are set to the 5^{th} mark, it's easy to make a mistake here. You're not finished yet, this is just the starting location for the belt tensioning procedure. Don't "second guess" the following adjustments, follow this procedure in it's entirety... Use the Belt Tension Test Gauge 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.**

Using a ruler and the Scootworks Belt Tension Test Gauge, check the tension of the belt. The final setting is **3/16" deflection @ 10lbs. of force**. Screw both adjusters in a couple flats of the nuts' (approximately 1/3 revolution), rotate the tire a couple revolutions of the **belt**, then check tension again. Continue these three steps until you reach 3/16" of deflection @ 10lbs. The easiest method I have found to check the tension is to set the small black O-Ring on the gage at the 10lb. Mark. Center the gage under the belt and press up until contact is made with the O-ring. Sight across the belt and note what mark the bottom of the belt is aligned with on the ruler. Reduce the pressure on the gage and count the marks passed. Really helps to use a ruler graduated in sixteenths of an inch. Don't get in a big hurry, you will only have to do this once so lets do it right. Check for proper alignment, as you go along by ensuring the tension at the edges of the belt are equal.

Once the Belt Drive is adjusted per the above instructions, perform a road test. While the 3/16" of deflection @ 10lbs. is the 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 MILES.
It is very important to check the tension of your belt after 2000 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- Yes. An adjustment I like to perform is 'tracking' of the belt. This isn't necessary, but will eliminate a 'squeaky' belt (noticed when the bike is pushed slowly). Typically, this requires the RH side of the rear wheel to not be adjusted as far back as the LH side by somewhere between 1/3 and 1 full revolution of the adjuster nuts. This test requires that the rear wheel be raised. Turn the rear wheel by hand (in the normal direction of rotation) and observe the belt sound. Loosen the RH side adjuster slightly, while monitoring the belt tension. It may be necessary to tighten the LH side slightly to maintain correct belt tension. This adjustment will reduce the contact pressure between the belt and the LH flange of the rear pulley during it's unloaded condition, helping to eliminate "belt squeak". A by-product of this adjustment is improved 'hands-off' handling of the motorcycle.

An old "trick" used by many belt driven motorcycle owners of all brands, is to occasionally rub the LH edge 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 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 **NOT** 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 to 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 of 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 belt tension to 3/16” deflection @ 10lbs. of force. 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- Does the belt typically run more to one side of the rear pulley or should it line up in the middle? Mine seems to stay more to one side or the other, rather than the middle.
Answer- The belt should track to the LH side of the rear pulley under normal conditions. This is intentional, and does not indicate a misalignment of the system. The belt will track back and forth on the rear pulley a little, depending on load. That's the reason for the pulleys being a little wider than the belt. Much work has gone into insuring the user of correct alignment without the need for adjustment or modification. Kevlar belts run under different conditions than the conventional rubberized belts most users are familiar with. You'll notice, if the bike is up on a lift and the rear wheel is free to spin, the belt is easily moved from one side of the pulley to the other.

Question- Is there any lubrication or other maintenance on the belt drive after it's installed?
Answer- Only once, at about 2000 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, as 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- How wide a tire can I run with the WideDrive kit?
Answer- We have not checked all possible sizes and manufacture’s tires but the 150/80-15 Metzeler ME880 will fit just fine.

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’.