

**Thanks for Ordering
The Honda 400/600 Belt Tension Tester
from**



If you have any questions concerning the use of your belt tension tester, please contact us via e-mail at support@scootworks.com. This will ensure you receive the most prompt and accurate reply.

Rev 1.3; 3/20/03

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Instructions for use of the Scootworks Belt Tension Tester

With the Honda 400/600 Steed/VT/VLX

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

Tools Needed:

- 12mm wrench
- 14mm wrench (2 each)
- 14mm 6 point socket
- 17mm socket
- 24mm socket

1. Remove the cotter pin and loosen the nut on the drum brake securing bar (tie rod). This is located on the RH side of the rear wheel, and is the bar that connects the brake drum to the swingarm. When removing the cotter pin and loosening the nut on the drum securing bar, you'll need to use a 12mm socket/wrench. You only need to loosen the nut nearest the rear of the bike (The cotter pin will need to be removed, of course). Loosen the rear brake linkage with a 14mm 6 point socket.

2. Loosen the locking nuts and adjustment bolts on the rear axle adjusters. These are the adjusters used to tension the chain/belt. The open-end wrenches needed to loosen the wheel adjustment and locking nuts are 14mm.

3. Loosen the 24mm nut on the RH side of the axle. You can turn either side to loosen the RH axle nut. The RH nut is 24mm and the LH end of the axle is 17mm. 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 24mm socket on the RH side of the axle, while holding the LH side 17mm axle hex head. You can use the tool kit wrench to secure the LH hex head while tightening or loosening, however...You just won't be able to loosen the axle nut with it. Use a pull-bar with the 24mm. Socket, if possible.

4. ADJUSTING THE BELT TENSION

Once all is installed, begin the adjust belt tension procedure by setting the rear wheel adjusters to a point half way between the 7th and 8th alignment mark from the front for the 2.25:1 ratio, or at the 2nd alignment mark from the front for the 2.53:1 ratio. Be sure that both adjusters are set to the recommended alignment marks when counted from the *front* of the bike (not the rear of the bike), it's easy to make a mistake here. Don't "second guess" the following adjustments, and 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.**

5. 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. Place a ruler along the leading edge of the Gateway, 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.



Apply 10 lbs. of force upward on the return side (bottom) of the belt at mid-span, just behind the ruler and along side of the Gateway. The belt should be adjusted to deflect between 1/8" and 3/16", but no more than 3/16" at the loosest point measured. I prefer a setting of 3/16" @ 10 lbs. in this application, but in cases of higher payload or "more spirited" riding habits, a setting of 1/8" @ 10 lbs. is acceptable. Again, use no more, and no less than these recommended values. Observe the picture below for an illustration of this procedure...



Once the Belt Drive is adjusted per the above instructions, torque the rear axle to 65 ft/lbs., and perform a road test. While the recommended alignment mark settings from the front (listed above) are recommended starting points, there are many variables with individual motorcycles that make it impossible to provide exact setting values for the indicators of rear wheel adjusters. That's why the tension measurement is the correct way to adjust belt tension. I find, with the Honda VLX drives, most often the adjustment ends up at the 8th mark, being spot on for 2.25:1 ratio, or halfway between the 2nd and 3rd alignment mark from the front for the 2.53:1 ratio. 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. Check the tension once more, as you should not exceed the "tight" setting of 1/8" @ 10 lbs. Lock the adjusters, reinstall the chain guard (if desired), 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.

Additional notes:

1. Torque values:

§ **Swing arm pivot shaft nut: 65ft/lbs**

§ **Shock absorber nuts: 33ft/lbs each**

§ **Drum Link nut: 15ft/lbs**

§ **Rear axle nut: 65ft/lbs**

2. Don't forget to install the cotter pin in the drum tie rod bolt.

3. Reinstall the chrome cover for the front pulley using a 5mm Allen wrench. Don't forget to reinstall the spring clip in the upper rear of this cover.

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 3000 miles, and then again about every 10,000 miles afterward. Remember, engine braking is abusive to the driveline (including the clutch), so opt for your brakes instead.

FAQ's (Frequently Asked Questions)

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 :

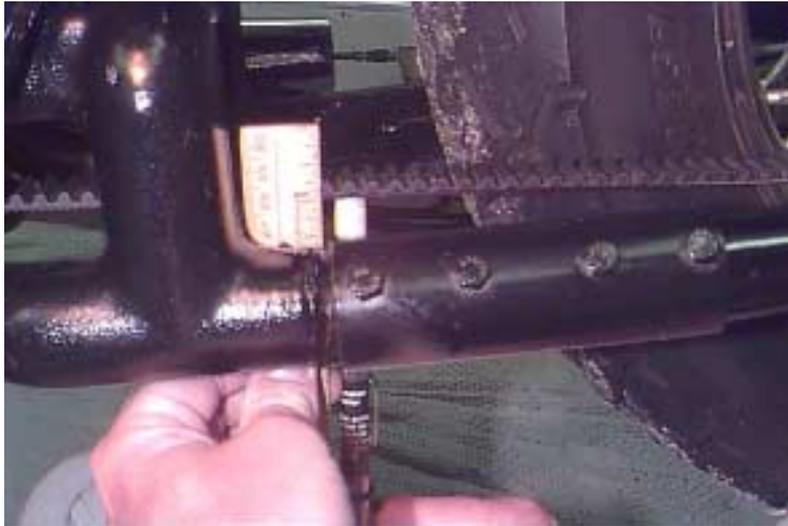
The belt will wear to match the exact contour of the drive pulleys. Paint wears away from the teeth of the front drive pulley. Chrome plating and/or paint wears away from the teeth of the rear drive pulley. A very small amount of belt elongation when new (usually only a few thousandths of an inch!)

It's virtually maintenance free.

Question- I'm not sure I have the belt tension set correctly. Are there any simple methods to use as a starting point?

Answer- Sure. Once all is installed, begin the adjust belt tension procedure by setting the rear wheel adjusters to a point half way between the 7th and 8th alignment mark from the front for the 2.25:1 ratio, or at the 2nd alignment mark from the front for the 2.53:1 ratio. Be sure that both adjusters are set to the recommended alignment marks when counted from the *front* of the bike (not the rear of the bike), it's easy to make a mistake here. Don't "second guess" the following adjustments, and 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.**

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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- 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, as most 600 Honda VLX's don't track straight as delivered.

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 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 and micro-oscillations 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 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- 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 recommended alignment marks on the swingarm for the ratio you purchased (outlined above in the tensioning instructions), from the front. Follow the belt tension instructions and the belt drive will perform correctly.

Question- My VLX 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 2000-4000 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- 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'.