

PLEASE READ THIS FIRST:

1. The Yelvington Reverse Pulley is designed solely as a reverse assist or creeper gear and is not designed for high speed reversing or trick riding in reverse. Never exceed 3 MPH in reverse. Never operate reverse in any gear other than first. Improper use can damage the Yelvington Reverse Pulley components or swing arm of your motorcycle, and will void the Yelvington warranty.



2. Keep your feet on the ground during a reverse operation to maintain balance. Be aware of your surroundings. Since the motorcycle turns differently while reversing, go slow and use caution.



3. Never drop the clutch or rev the throttle during reverse operation. Idle speed is sufficient to move backwards on smooth and level surfaces.



4. Use extreme caution on steep or soft surfaces while reversing. Additional throttle may be necessary, and be careful to control the clutch. Never exceed 2000 RPM or let out the clutch completely.



While reversing, you may notice a milling sound from the Yelvington Reverse Pulley, which is completely normal. We use a proprietary polymer gear technology that does not require oil or grease.



Your kit includes a unique adjustment tool (metal rod with rubber handle). **DO NOT DISCARD** this tool after installation. Keep it with the motorcycle at all times. You will need this tool should you ever need to remove the rear axle or wheel in the future.

Operating Instructions:

With your feet on the ground, bike stopped, and gearbox in neutral, press the accessory switch for reverse. Pull in the clutch and shift into first gear. ***Ease*** the clutch slowly and begin backing up while controlling throttle and balance. After backing up, pull in the clutch, shift into neutral, and turn off the accessory switch. Resume normal operation and enjoy the rest of your ride.

YELVINGTON REVERSE FOR 2009-CURRENT HARLEY-DAVIDSON TOURING MODELS



TOOLS NEEDED

Blue Loctite _____
Blue tape _____
Teflon tape _____
Plastic mallet _____
T-25 Torx _____
T-40 Torx _____
5/32" Allen _____
3/16" Allen _____
5/16" Allen _____
10mm wrench _____
5/16" wrench _____
7/16" wrench _____
9/16" wrench _____
3/4" socket _____
15/16" socket _____
36mm socket _____
3/8" drive extension _____
Torque wrench (in-lbs.) _____
Torque wrench (ft-lbs.) _____
Rear belt tension tool _____
Rear wheel alignment tool _____

PART # HF0916MR

This manual (recently updated) can be found on our website with large, high resolution-images and helpful videos. Please visit: www.yelvingtonusa.com/pages/installation.

INSTALLATION TIPS

-When inserting the axle into the Yelvington rear pulley and the stock rear wheel, if the axle will not go in easily, the right end of the axle is not in the center of the right wheel bearing. Try lifting the right end of the axle up or down. Do not force the axle through the wheel by hitting it hard with a hammer. Only taps with your palm or a plastic mallet are needed when it's properly aligned. At this point, only insert the axle into the wheel as far as the fully forward Yelvington axle actuator, which must be exposed at this point.

-If removing the ignition switch, be sure to hold the spring that's under the cover so it stays inside the cover as you remove the switch from the bike. Also, if you don't move or touch the switch base, the switch and cover and spring will go right back into the base without using the special H-D tool.

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Clearwater, Florida 33760
727-233-3610
YelvingtonUSA.com



1 To start this installation, your motorcycle should have its seat, saddlebags, and mufflers removed. Using a bike jack, the rear section of your motorcycle should be raised high enough to remove the rear shocks, rear axle, rear drive pulley, and rear brake caliper and bracket. Gearbox should be in neutral.

2 Your bike's stock rear drive pulley is replaced with this Yelvington drive unit, which has exactly the same tooth count as the stock pulley. As you can see, the inner face of the Yelvington pulley has the same cush drive interface as the stock pulley.



2A Remove rubber cush drive from rear wheel.



2B Place rubber cush upside down and cut away molding from all 5 cush sections as shown above using a utility knife.



2C Individual cush section should be cut as shown above.



2D Reinstall the 5 individual cush drive sections back onto the wheel as shown above. Proceed to step 3



3 Position the Yelvington unit onto the rear wheel exactly like the stock pulley with the flanges engaged with the stock cush drive system while an assistant holds the wheel and keeps the rear drive belt out of the way.



4 Then align the outer bearing and shuttle gear using your finger. Be sure to orient shift gear in middle of pulley so it cannot slide back. See installation tips video: www.yelvingtonusa.com/pages/installation.



5 The Yelvington axle comes un-assembled, so remove the bolt, large washer, and spring from kit contents. Then put a skin coat of anti-seize on the axle. No left axle spacer is used with the Yelvington reverse/pulley unit.



6 With all the axle holes lined up, insert axle through swingarm, Yelvington pulley, and partway into the rear wheel. Note that the actuator in the axle (arrow) is facing to the rear and is fully forward in its slot.



7 With the axle protruding from the right side of the wheel hub about 1" and the fully forward axle actuator exposed on the left side, install the stock ABS sensor with its tab engaged with the notch on the wheel hub.



8 After the stock brake caliper bracket is slipped over the end of the axle, its other end is engaged with its mounting tab on the swingarm. You'll need to angle the front of the wheel to the left to get the bracket onto its mounting tab.



9 Using the supplied Yelvington tool, depress the actuator while keeping it fully forward in its slot while inserting axle. Axle will protrude one inch from swing arm when fully inserted. (See videos at www.yelvingtonusa.com/pages/installation for more info.)



10 Raise the bike up so the wheel clears the worktable and place stock rear drive belt on the Yelvington reverse pulley.

Attention: Do not proceed to Step 12 until you can manually engage pulley in forward and reverse.
Repeat steps 9 and 11, if necessary.



11 Insert Yelvington tool into right side of axle and gently push actuator to the left to connect actuator to pulley shift gear. Listen for a click. Rotate tire to ensure pulley turns in reverse. Then push actuator from left side of axle to the right to confirm the forward engagement. Please see [videos for helpful tips](#).



12 Next, slip the Yelvington right side torque restraint into the front half of the swingarm's axle slot. If needed, lightly tap it into place using a flat-bladed screwdriver and a plastic hammer, and/or drop or lift the bike a little to take pressure off the rear axle.



13 Slip the supplied Yelvington axle adjuster, which replaces the stock unit, onto the right end of the Yelvington axle.



14 Then thread on the stock axle nut, but leave it only finger-tight for now.



15 Install left torque restraint assembly. If needed, lightly tap the assembly into place using a plastic mallet. Tighten bottom-front set screw first using a 3/16" allen. Tighten bottom-rear second (reverse threads/use a 5/16 wrench).



16 Now reinstall the shocks using blue Loctite and a 3/4" socket. Torque the bolts to 35-40 ft-lbs. Remove jack to set alignment and belt tension. Avoid tight/excessive belt tension.



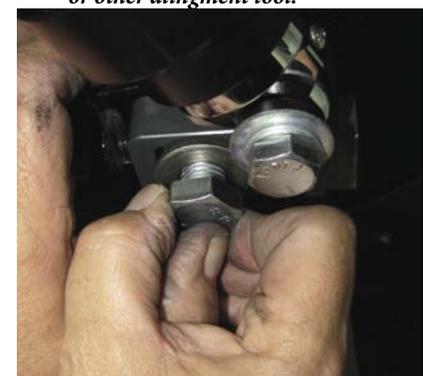
17 Use a 3/16" allen on the top-left torque restraint setscrew and the proper H-D gauge to set the belt tension. Once this is set on the left side of the wheel, you must bring the rear wheel into alignment with the frame using a measurement rod or other alignment tool.



18 Using the cam plate on the right side of the axle, a 3/8" drive extension, and the proper measuring tool, make the axle the same distance from the swingarm pivot shaft on both sides of the bike. Once this is done, snug the axle nut using a 36mm" socket.



19 On the left side of the bike, slip the Yelvington supplied actuator spring into the center of the Yelvington axle. Then apply blue Loctite and the Yelvington supplied large washer onto the Yelvington axle bolt.



20 To install the axle bolt against the pressure of the spring, press in on the head of the bolt with your left thumb while turning the bolt using your right hand. Then torque the bolt to 40 ft-lbs. using a 15/16" socket.



21 You can now torque the stock right axle nut to 95-105 ft-lbs. using a 36mm" socket. Have your assistant hold the Yelvington axle adjusting cam plate using a 3/8" drive extension and ratchet to keep the axle adjustment from changing as you tighten the axle nut.



22 Now pop the stock axle E-clip onto the end of the Yelvington axle using a plastic hammer.



23 With blue Loctite on all three remaining Yelvington torque restraint assembly's setscrews, torque the rear Yelvington axle setscrew to 100 inch-lbs. using a 3/16" Allen.



24 Then torque the rearmost of the two lower Yelvington torque restraint assembly's setscrews to 100 in-lbs. using a 5/16" wrench and lock it down using a 9/16" wrench using blue Loctite.



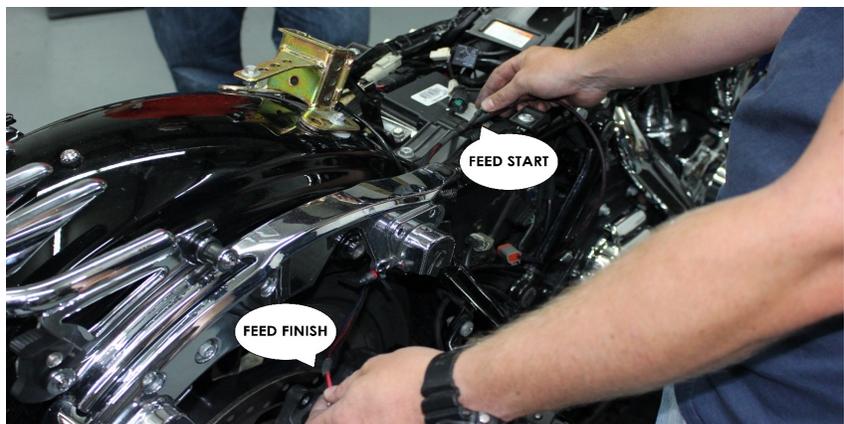
25 Now snug the front lower Yelvington setscrew using a 3/16" Allen and lock it down using the 9/16" wrench with blue Loctite.



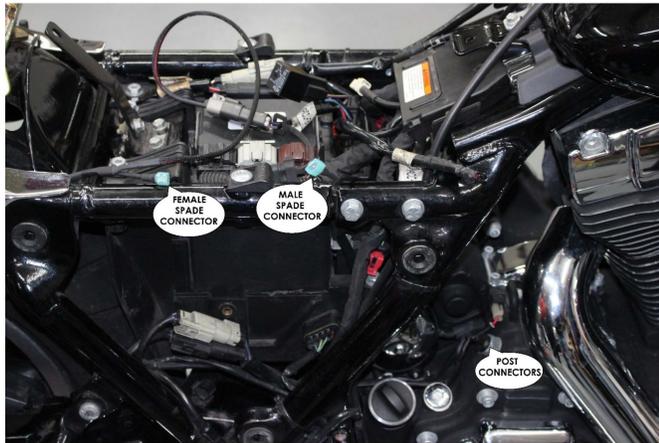
26 You can now reinstall the stock brake caliper using the stock hardware and a 5/16" Allen. Torque these bolts to 43-48 ft-lbs.



27 Install the Teflon-wrapped Yelvington air line fitting into the right end of the Yelvington axle using a 7/16" wrench. This should be the final position of the fitting, between 2 and 3 o'clock.



28 Verify the presence of a Harley Davidson® accessory harness. If none present, install the HD harness per specific touring model instructions. (Please Note: 2017-newer CVO models may require a modified accessory harness. Contact Yelvington USA for more information.) Route the Yelvington main wiring harness assembly (red, black & blue wire harness with plug end) as pictured above and plug this harness into HD accessory plug.



29 Route the Yelvington neutral safety-switch wiring harness (with spade and post connectors) as pictured above. Remove neutral-switch boot connectors from posts and plug white or tan wired boot into the threaded brass post with white/silver marking. Then plug the black wired boot into the other threaded brass post. Tuck wires back behind starter motor. Plug in the Yelvington boot connectors in the same manner as the factory connectors to the neutral switch posts. Connect the light-blue spade connectors together.



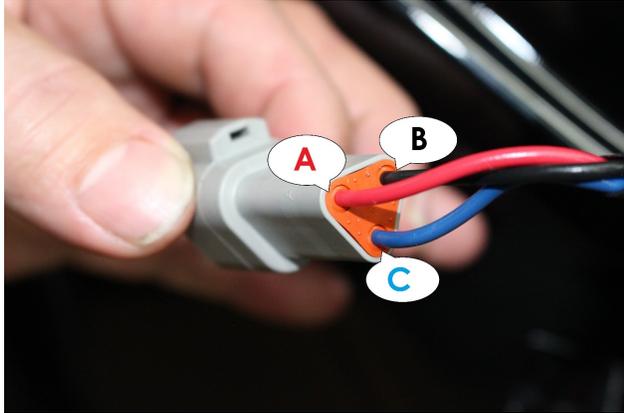
30 Drill two 7/16-inch holes along the inside of the right saddlebag, as pictured above (roughly 1 " inches apart and 1 " inches from the bottom along the flared-out section of the saddlebag. Insert black grommets using silicone spray lubricant for easier installation.



31 Place the air compressor assembly inside the saddlebag and feed the wires out through the upper grommet. Feed the air-line through the lower grommet and firmly connect it to the brass fitting of the air compressor assembly. To ease installation through the grommets, apply spray silicone lubricant to the wires and air-line. Affix the hook-side of the Velcro adhesive to the top and bottom flanges of the compressor housing. Connect the Velcro stickers together, remove the adhesive cover, and firmly press onto the lower back wall of saddlebag as shown above.



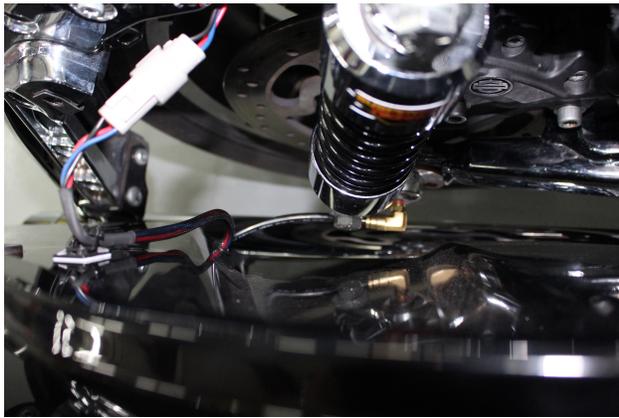
32 Affix the wire-tie base, as pictured above. Install the wire tie horizontally and bring the compressor wires through the loose wire-tie loop. Do not cinch the wire tie until the end of installation to allow for final adjustment.



33 Install the supplied Deutsch connectors to the terminal ends of the Yelvington wiring harness and pump wires. Be sure to arrange the wires as follows: red to A, black to B, and blue to C.



34 Using the supplied wire-ties, connect the Yelvington harness as pictured above. Be sure to curve the wire above and around the shock space to avoid wire damage from shock contact. Tuck away/coil excess wire in the area above the battery. Please note the shock is removed for illustration purposes.



35 Position the saddlebag on the lower support bar, firmly connect the air-line to the axle fitting, and connect the Deutsch connectors. Tighten the wire ties and adjust the air-line for proper fit as shown above, making sure the air-line and wiring are clear of moving parts. Excess wiring and air-line can be snugged into the saddlebag. The air-line can be trimmed if needed.

NOTE: For safety a buzzer is connected to the main wiring harness and should be installed under the seat similar to the figure shown below. The buzzer will sound when the button for the reverse is depressed.





2018 Limited Warranty

Yelvington Mechanical Reverse Pulley

Who is Covered

This warranty covers you, the retail purchaser of this product, and anyone else who owns it during the warranty period.

How Long Does the Coverage Last

This warranty remains in force for two (2) years from the date of purchase.

What This Warranty Covers

This warranty covers any defect in materials or workmanship supplied by Yelvington Trikes, LLC, dba Yelvington USA.

What This Warranty Does Not Cover

This warranty does not cover product that has been damaged directly or indirectly due to misuse, abuse, neglect, or accident such as;

- installation by non-certified mechanic/dealer;
- improper alterations;
- improper or unauthorized repair;
- any paint or finishes;
- normal wear and tear;
- installation or use on off-road vehicles;
- installation or use on racing or similar competition activities; or
- fire, flood, "acts of God," or other contingencies beyond the control of Yelvington Trikes, LLC.



2018 Limited Warranty

What We Will Do to Correct a Problem

We will repair or replace any part covered under this warranty.

We will pay for any reasonable labor and shipping costs related to the repair or replacement of any part covered under this warranty. The labor rate will be based on a flat rate as determined by Yelvington USA.

All warranty claims must have prior authorization from Yelvington USA to be covered under this warranty.

What We Will Not Do to Correct a Problem

We will not pay for any type of transportation costs related to the repair or replacement of any part covered under this warranty. You are responsible for all transportation costs related to the repair or replacement of any part covered under this warranty.

How Do You Get Service

You must deliver the Mechanical Reverse Pulley to any one of the following;

- the dealer from whom you purchased the conversion assembly; or
- any Yelvington Trikes, LLC, Authorized Service Center.

What You Must Do to Keep This Warranty in Effect

You must provide a receipt or order number for your purchase of the Mechanical Reverse Pulley. You must provide a receipt from your dealer or authorized service center for installation of the Mechanical Reverse Pulley.



2018 Limited Warranty

Waiver of Liability

Under US DOT regulations, motorcycles, trikes, and all other variations are considered “extreme sports class” vehicles and injuries occurring during their operation are solely your responsibility.

There is no warranty of specific merchantability or fitness made to you of Yelvington Trikes, LLC, products.

Our Contact Information

Yelvington Trikes, LLC
dba Yelvington USA
6399 142nd Avenue North, Suite 102
Clearwater, FL 33760
727-233-3610 General Office



Warranty Registration

Complete this form and return to Yelvington USA to activate your two-year warranty. A copy of your receipt for installation must be included.

Please print clearly.

Customer Name

Address

City State

Zip Code Telephone

Email

Dealer/Installer

Purchase Date Install Date

Yelvington Serial #

Motorcycle VIN

Year/Make/Model

Please return completed form to: Yelvington USA

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