

Two Wheel Drive / Reverse Shift Kit Instructions

Important – Read Before Installing

1. **Do not** disassemble your already assembled shift kit **except** as specified in these instructions. Your kit has been correctly preassembled prior to shipment.
2. **Prior to installation:** remove the entire assembly from the box and lay it out on a workbench or tabletop. Orient the long shift lever facing forward and to the right. Remove the 7/16" bolt (along with the spacer washers) on the LH side of the shift lever cross shaft. This bolt secures the shift lever cross shaft to the mast tube – once removed - separate the lever from the tube.
3. Begin your conversion by draining the gas tank and removing the tank from the motorcycle. Use **caution** when doing this to avoid the possibility of fire. **Do not decant fuel in a closed room!** Keep a fire extinguisher handy. It's a **smart** idea to disconnect the battery before draining fuel.
4. Once the tank is off the machine, remove the top engine mount – keeping the bolt, nut and both steel and rubber washers for attaching the mast tube. **Note** the position of the bolt, nut, steel washer & rubber washers - they are used in the same sequence when attaching the 2WD/Reverse shifter mast tube.
5. Assuming you have separated the mast tube from the shift arm cross shaft – proceed by securing the mast tube bracket onto frame/top of engine using the same hardware as on the original mount. Insure the mast tube is tightened parallel to the front edge of the engine block where the ignition cover attaches

Note! It may be necessary to remove the bolts holding the Ducati coil to the frame so as to allow room to move the coil & slide the mast tube into place – this is only necessary when the bike is equipped with Ducati ignition system. Minor trim may be necessary to the top of the mast tube bracket to allow installation on some 08 model Urals – grind or saw aprox 3/16" of material off the top of the mast tube bracket to allow the install. Apparently – there are some changes made to some (but not all) 08 models in the frame upper bracket.

When done - do not forget to reattach the ground wire to the top motor mount stud and replace the coil bolts.

Replace the cross shaft in the mast tube making sure you have the reverse shift lever facing aft on the cross shaft. Replace the spacer(s) and Loctite the 7/16 bolt prior to tightening it.

6. Next, remove the reverse shift arm from the transmission – do this in the neutral (out of gear) position!

Once the original reverse arm is removed, install the modified reverse arm on the splined transmission shaft. Note the new reverse lever is attached by drag link to the reverse operating lever which is equipped with a shift knob.

It is helpful to loosen the RH foot peg securing nut and let the peg swing down out of the way when doing this operation. Do note the position of the foot peg so it can be returned to its original position once the new lever is in place.

The drag link ball end installs on the inside (towards the transmission) of the modified reverse lever. Position the lever on transmission shaft splines so that the ball joint mounting bolt is aimed at the transmission rear cover/case intersection (11:30 O'clock position) This is done when the reverse lever is in the engaged position. Use same hardware to secure reverse lever to the transmission shaft as was used on the original lever.

Caution: transmission must be in neutral and reverse engaged when doing this operation!

Installed, the reverse shift lever is correct when pulled into reverse and the lever **does not** hit the bottom of the installed gas tank. If the lever hits, adjust the drag link by turning the rod ends in or out as needed, (to shorten or lengthen the overall length of the drag link) It may prove necessary to rock the bike back and forth to get it to shift into reverse gear – **do not force it into gear as you risk damaging the shift quadrant**

Insure the drag link will rotate slightly once tight by gripping the drag link between thumb and forefinger and twisting back and forth. If needed – reposition either ball end by breaking the jam nut lock on the rod end, adjusting and retightening the jam. **If there is no axial motion to the installed tire rod – shifting will prove stiff and oftimes difficult!**

7. Next, remove two wheel drive engagement lever assembly by turning off the inside 13mm hex nut and taping the shaft outwards.

Do recover the wedge collet piece which slides over the engagement lever axle on the inside of the swing arm bracket.

Disassemble the shift engagement lever assy (located on the RH side of the rear wheel swing arm) – replacing the factory stop bracket with the kit axle. Install the kit bell crank over the kit axle with the deep pocket outwards, using the original spring, flat washer, lock washer and acorn nut - tighten up the assembly at both ends. Since the kit was preassembled, the bell crank will have tie rods attached to it already. In essence, the kit bell crank assembly is installed to the original factory lever assembly

8. Install the rear tie rod onto the 2WD lever on the final drive case. Check for free axial motion of the tie rods. 2WD shift lever should be straight up when the 2WD is out of gear – tie rods can be adjusted in length to insure this position.
9. When all is tight, and prior to reinstalling the gas tank – check function of both levers. Assuming all is correct, remount the gas tank and enjoy your shift conversion.
10. Warning – DO NOT “gorilla” or “Goon Bar” the levers – often all that is required on a stationary running bike is to “sneak” the clutch out slightly to allow meshing of the components while applying reasonable pressure to the lever.