

# TwistGear™ and WideGear Installation Instructions

It is important that the general procedure described in the Harley-Davidson™ service manual is followed when installing the TwistGear™ (or WideGear) Drive System. It is not necessary to remove the transmission from the frame to install these parts. Usually the transmission case will not require modification. However, a hand grinder may be required to grind off any interference that may exist since the output gear OD is slightly larger.

## Disassembly

Installation of the TwistGear™ Drive System will first require complete disassembly of the transmission. Remove the primary drive and inner ring located on the transmission input shaft. Remove the shift drum and forks, trapdoor assembly and output gear. Remove the main drive oil seal and clean the transmission case. Any case interference with the main drive gear will most probably occur at the bump on the case floor, which could be easily ground down at this time.

## Seal and Spacer Assembly

Assemble triple lip output seal 705002 and output spacer 280001 together. The seal is shipped with high performance grease packed into the seal lips to ensure lubrication and exclude dust & water. (Caution: Only high temperature grease should be used, grease is better than oil, never install the seal dry.) Slide the quad ring and seal/spacer assembly onto the transmission output shaft, then slide tool JE300001 (TwistGear™) or JE300002 (WideGear) onto the shaft and finally tighten the nut until the tool drives the seal flush with the case. Do not attempt to install the main drive seal without the JE tool or the seal will be damaged, and the seal performance will be compromised (the JE seal is wider around the shaft for the third sealing lip, which will be damaged if a tool is pressed against it.) It is best that a new JE spacer be used each time a new seal is installed for quick break-in of the main lip seal surface.

## Counter Shaft Assembly

Note the order and orientation of the gears on the counter shaft when it is removed from the trapdoor. Disassemble the counter shaft and transfer the parts to the TwistGear™ counter shaft. Note that the TwistGear™ counter shaft assembles in different order than the OEM counter shaft. Two washers are required in the position as shown in figure 1 (see arrow) before the retainer ring is installed. The second washer is included in the kit.

## Four-Point Bearing Assembly

Select a driver that fits over the counter shaft end with minimum clearance and properly contacts the inner bearing shoulder (not the bearing race). Press one inner race onto the counter shaft, and if an optional bearing was purchased, press one inner race onto the main shaft as well.

Press the OEM ball bearing out of the trapdoor counter shaft position and press in the four-point bearing outer ring assembly (do not use a hammer since the trapdoor may be damaged). If an optional bearing was purchased, press one outer race assembly in the main shaft position as well. Trapdoor assembly is easier if both trapdoor bearings are four-point bearings.

Press the remaining ring(s) onto the shaft end(s). Torque the trapdoor counter shaft and main shaft lock nuts to service manual specifications. The countershaft assembly should look like figure 2 (trapdoor housing is not shown).

#### Primary Drive Assembly

Ensure that the engine, transmission, primary drive and rear tire are all aligned upon assembly or vibration will result.

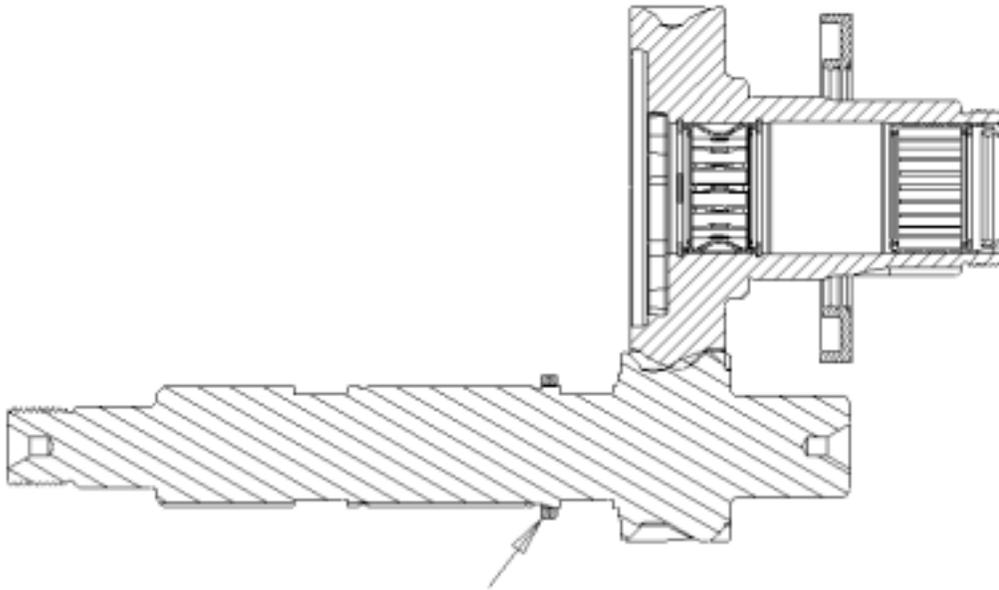


Figure 1. Counter shaft spacer location (two spacers)

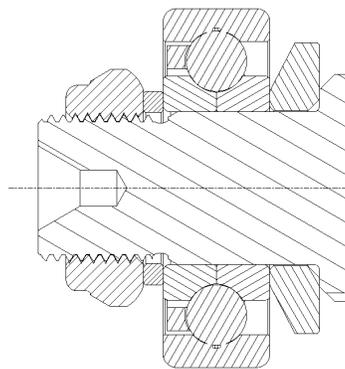


Figure 2. Four Point Bearing Assembly on Shaft End



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