

Reverse Gear Installation Instructions

for EVO/5-speed & Twin Cam Harley Davidson Motorcycles

1 Preparation

Removal of Original Parts From Motorcycle

- 1.1 Purchase a small tube of Loctite #262 (red) for use later.
- 1.2 Drain the transmission oil.
- 1.3 Remove the clutch adjustment cover (left side).
- 1.4 Remove rear exhaust header pipe (cross over exhaust pipe)
- 1.5 Remove the muffler support bracket.
- 1.5.1 Remove front header pipe & muffler, (if necessary)
- 1.6 Remove the clutch release cover (right side).
- 1.7 Remove the two nuts from the main (rear) and counter (front) transmission shafts.
- 1.8 Remove the transmission bearing housing (Optional puller available for purchase from Champion). To be replaced with new reverse gear transmission bearing housing (Trap Door).
- 1.9 Cover the exposed gears in the transmission with a cloth in preparation for cutting the shift fork rod.

2 Install New Main and Countershaft Reverse-Gears

NOTE: Gears and Tapered Split Rings are pre-fit and inspected in sets. Do not mix.

- 2.1 Locate the shifter fork rod, mark fork rod flush at transmission case and pull out 1/4" only. Figure 2.1

CAUTION: Do not pull the shifter fork rod out of the transmission more than 1/4". If you pull the shifter fork rod out too far, it will be difficult to realign it with the internal shifter fork.

- 2.2 Cut the shifter fork rod at the mark and push it back in. The shaft end should be flush with transmission case.
- NOTE:** Shift fork is made of non tempered metal and may be cut with a hacksaw or Dremmel cutting tool.
- 2.3 **IMPORTANT:** Remove stock spacers from main and counter shafts. Spray with silicon remover (Brake-Clean) then using supplied Scotch-Brite pad, clean shafts, new counter and main shaft gears and tapered locking rings (inside and out). Figure 2.1
- 2.4 With motorcycle in neutral, ensure that outermost gears are pushed in and that the shafts are pulled out to expose the shoulders of both shafts. The shoulders should be flush with gear faces. Figure 2.4
- 2.5 Apply Champion Super-Lock retaining compound to the inside and outside surfaces of the tapered split ring, to the inside of the new countershaft gear (large gear) and to the transmission countershaft (the forward most shaft).
- 2.6 Install new countershaft gear to the transmission countershaft. **Ensuring that gear is fully seated against shoulder of shaft**, insert tapered split ring (tapered end first) into the new counter shaft gear. Figure 2.5
- 2.7 Install ring seat tool and spring to countershaft and new countershaft gear. Torque ring seat tool to **40 ft. lbs.** Remove tool and clean tool, counter shaft and inside of new countershaft gear. Figure 2.7
- 2.8 Repeat steps 2.3 - 2.7 for installation of new main shaft (small) gear to the transmission main shaft.

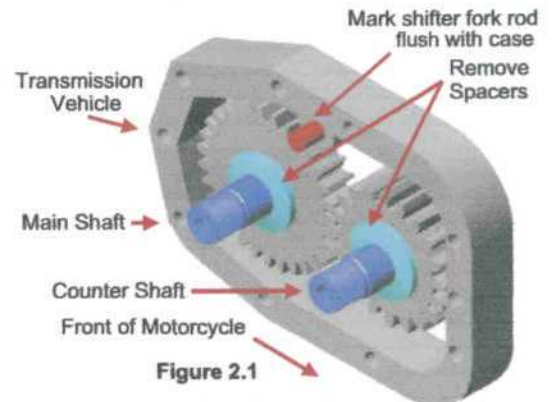


Figure 2.1

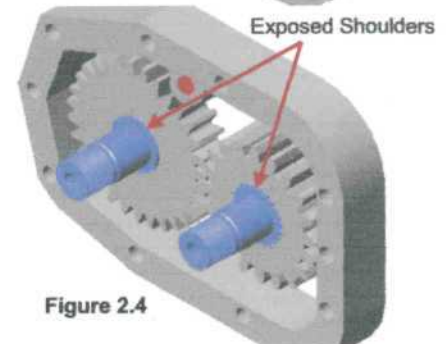


Figure 2.4

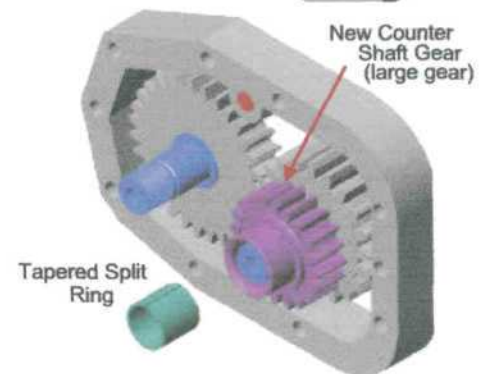


Figure 2.5

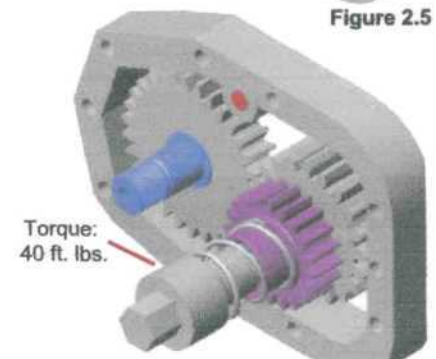
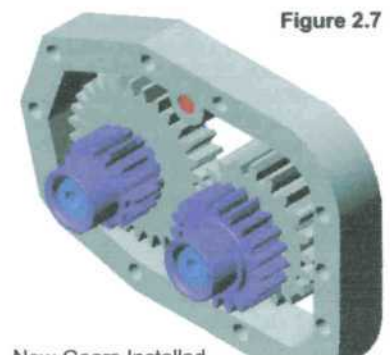


Figure 2.7



New Gears Installed