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### **INSTALLATION INSTRUCTIONS:**

CLOSE RATIO 1ST GEAR SETS (2.44/1 - 2.60/1 - 2.24/1)  
CLOSE RATIO 3RD GEAR SETS (1.35/1)  
STOCK RATIO 3RD GEAR SETS (1.23/1)

**IMPORTANT:** If you are installing a close ratio 1st gear and if your transmission was made before 1959, you must obtain a late style mainshaft 3rd gear to complete this installation. If you are also installing a new Andrews Products close ratio or stock ratio 3rd, the new mainshaft 3rd will be the proper length. Andrews Products or any H/D dealer can supply a correct 3rd if you need one (part# 206220 or H/D# 35306-59).

Andrews Products 3rd gear installation instructions appear on the back of this page.

If you are not experienced in disassembly and repair procedures for a hog gearbox, let an H/D dealer or other capable shop do the work. Transmission overhauls require specialized tools and knowledge!

1. Disassemble transmission as covered in H/D service manual.
2. Inspect all the parts for wear and damage, replacing those which are worn beyond their service limits.
3. Clean transmission case and all other parts for reassembly.
4. Check fit of mainshaft cluster gear over mainshaft. The 1-2 cluster gear requires a light press fit the first time it is assembled on a new transmission mainshaft. A hand operated arbor press is recommended for this.
5. With cluster gear assembled onto mainshaft and nut and bearing secured, check 3rd gear end play. This should be done with spacer in place. Recommended 3rd gear end play is (.004 to .017) loose. It is important that the end play be checked and correctly set prior to assembling the mainshaft into transmission case.
6. With mainshaft assembly in place, countershaft gear parts can be assembled. If you are also working with a new close 3rd, turn to the reverse side of this page covering 3rd gears. Before proceeding, make sure that mainshaft 3rd gear retaining lock ring is secure in the mainshaft groove. Use a NEW lock ring.
7. Remove 1st bushing from stock countershaft first gear and slide it into the new countershaft gear. Bushing should have .0005/.0025 clearance in gear and .0005/.0015 clearance over countershaft bearing. It is important that bushing "floats" with correct clearance.
8. Reassemble transmission exactly as covered in H/D service book.
9. Before installing top cover, check to see that all gears are meshing freely and that transmission rolls **WITHOUT** binding. If there is any binding, determine why and correct before proceeding.
10. Reset shift 1-2 and 3-4 fork positions if necessary and install top cover.
11. Reinstall transmission in bike and fill with 1 ½ pints of oil.

## INSTALLATION INSTRUCTIONS FOR CLOSE RATIO 3RD GEAR

Beginning in late 1976, all countershaft 3rd cluster gears use drawn cup needle bearings (instead of trapped rollers) in both ends of the gear. On motorcycles with transmission case serial numbers U-8959 and higher, the countershaft bearings will be the late style drawn cup needles. In addition to this change in end bearings, the actual countershafts are different and therefore NOT interchangeable. For this reason, the early and late style 3rd gears are also NOT interchangeable. (If you really want to change over, new case bushings must be installed also.)

1. Installation of close ratio 3rd gears consists of assembling the new countershaft cluster gear assembly prior to installation into the transmission gearbox.
2. Most bikes made with disc front brakes do not have a speedometer gear in the transmission. However, if you need to use one, press the old speedometer gear off and reinstall it onto the new cluster gear. This can be done on a small arbor or hydraulic press taking care to support the speedometer gear properly while pressing the cluster out of it. The old speedometer gear should fit over the new cluster with no problem.
3. Remove the 2nd gear retaining ring (35810-36), washer (35811-36), stock 2nd gear and bushing from the old cluster and install them on the new cluster. As with the 1st gear, it is important that this bushing also “floats” freely between the gear inner diameter and the cluster gear outer diameter surface.
4. All Andrews Products 3rd gear clusters are made to the same nominal length as stock clusters. Installed end play should be (.007-.012). End play of this gear can be set with different thickness countershaft washers. They are listed by part numbers below. **It is extremely important that this end play be properly set.** (Third gear cluster assemblies which are installed with insufficient end play will almost always experience service failure after only a short operating time. The failure mode will result in severe overheating and seizure of the third gear to the countershaft).

35876-36	.074" thickness
35877-36	.078"
35878-36	.082"
35879-36	.085"
35882-36	.090"
35883-36	.095"
35884-36	.100"

5. At this point the new 3rd cluster assembly is ready for installation into the transmission. Proceed with the instructions on the reverse side at number 8.