

Manual Steering Gears

IHC (GEMMER/ROSS) WORM & ROLLER

International Harvester (1965-74)

NOTE — Some models may use other units. See IHC (Gemmer/Ross) Cam & Lever or IHC (Saginaw) Recirculating Ball in this Section.

DESCRIPTION

Worm and roller type manual steering gear consists of a worm gear, sector shaft assembly and steering linkage. Worm gear, which is part of the input shaft, rotates on ball bearings. Roller, which rides on worm gear, is mounted to sector shaft. Sector shaft and roller assembly rotates as a unit in bushings or bearings mounted in lower part of housing. Rotation of worm gear is transmitted to sector shaft through roller assembly, and is then relayed to steering linkage through pitman arm.

ADJUSTMENT

WORM BEARING PRELOAD

Disconnect drag link from pitman arm and loosen adjusting screw on side cover to release sector shaft preload. Position worm to center of travel and using a suitable INCH pound torque wrench rotate worm approximately ½ turn. Preload should be 1.7-5.6 INCH pounds (IHC code 05008 assembly) or 5.6-11.2 INCH pounds (IHC code assembly 05165). To adjust preload, remove top cover and add or remove shims as required. Shims are available in thicknesses of .002", .005" and .010".

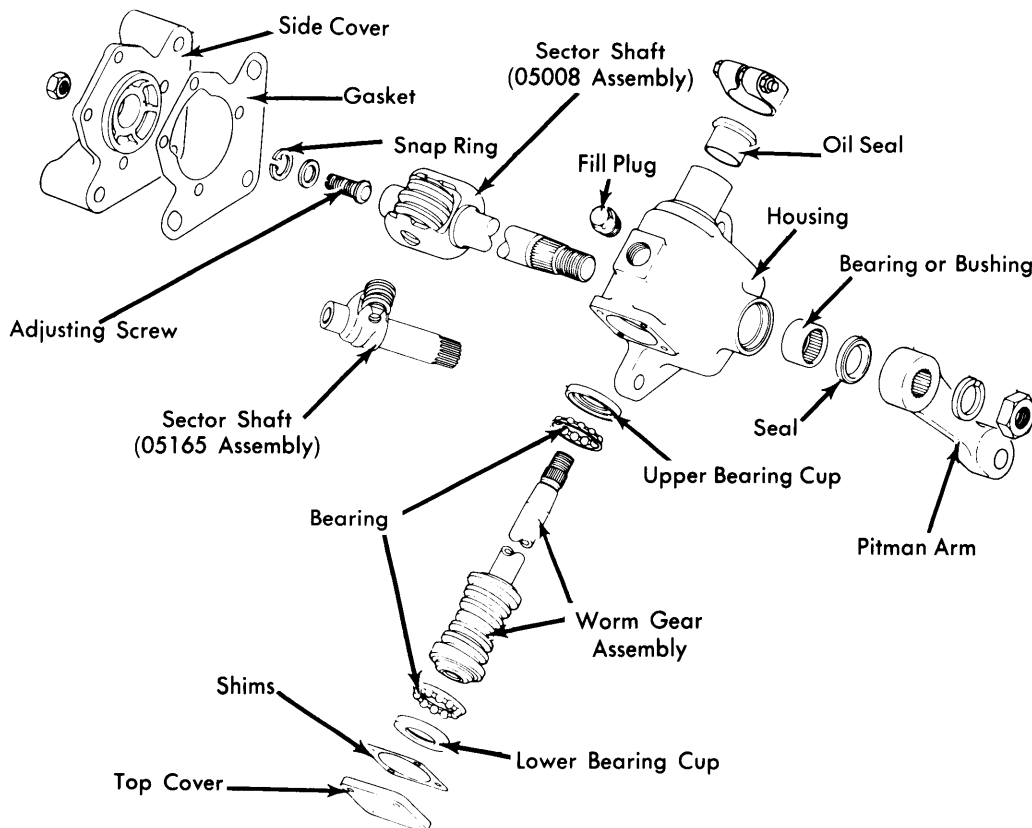
WORM & ROLLER MESH PRELOAD

Disconnect drag link from pitman arm. Center the sector shaft by turning through full travel and counting number of turns. Rotate back ½ of total travel which will place shaft in center position. Use a suitable INCH pound torque wrench to check torque required to turn shaft through center position. Preload should be 6.75-12.4 INCH pounds (IHC code 05008 assembly) or 15-29 INCH pounds (IHC code 05165 assembly). To adjust preload, loosen adjusting screw on side cover to decrease or tighten to increase. **NOTE** — Adjust with sector shaft in center position only.

OVERHAUL

DISASSEMBLY

- 1) Drain lubricant and remove pitman arm from sector shaft. Loosen adjusting screw on side cover and remove side cover attaching bolts, side cover and gaskets. Remove sector shaft assembly from housing. Remove sector shaft bearing (if equipped) from housing.
- 2) Remove top cover attaching bolts, top cover and shims. **NOTE** — Do not discard shims. Remove lower cam bearing cup and ball bearing assembly by pressing on end of worm gear assembly. **NOTE** — If bearing cup cocks, tap bearing cup lightly back into place and repeat procedure. Remove worm gear assembly. Remove upper bearing and retainer



STEERING GEAR ASSEMBLY (TYPICAL)

9IH01

IHC (GEMMER/ROSS) WORM & ROLLER (Cont.)

assembly. Remove upper bearing cup. Remove oil seals as necessary.

INSPECTION

Use cleaning solvent to clean parts and dry parts with compressed air taking care not to spin bearings. Inspect worm gear for chipping, scoring or binelling and condition of splines and threads. Check all bearings and bearing surfaces for wear. Check sector shaft for burrs on splines, twisted splines and wear on bearing surfaces. Check housing for strain at mounting flanges, bushing for wear or out-of-round and oil seals for nicks.

REASSEMBLY

1) Install sector shaft bearing or bushing if removed. Install upper bearing and retainer assembly on worm gear. Install oil seals if removed. Install upper bearing cup and worm gear in housing. Install lower bearing assembly over worm gear assembly and insert lower bearing cup. Install shims and top cover to housing. Check worm bearing preload. See *Adjustments*.

2) Install sector shaft assembly into housing. Install side cover and gasket on housing. Adjust worm and roller mesh preload. See *Adjustments*.