CHRYSLER CORP. IMPORTS RECIRCULATING BALL

Arrow
Arrow Pickup
Challenger
Colt (Exc. Hatchback)
D50 Pickup
Sapporo

DESCRIPTION

Steering system uses a recirculating ball gear of variable ratio. This type of gear minimizes gear ratio at the straight-ahead position, resulting in high stability at center; however, as the wheel is turned from center, gear ratio increases, allowing easy maneuvering.

Two sizes of steering box are used: a small box on models equipped with the 1600 cc engine, and a larger box for models equipped with the 2000 and 2600 cc engines. Both are serviced by the same procedures.

REMOVAL & INSTALLATION

STEERING GEAR

Disconnect steering shaft from gear box main shaft. Using suitable puller, separate relay rod from pitman arm. Remove gear box from frame. Pull pitman arm from cross shaft. To install, reverse removal procedure.

TIE ROD ASSEMBLY

Removal – Disconnect tie rod ends from steering knuckle, using puller. Unscrew tie rods ends from tie rod.

Installation – Grease tie rod end dust cover and coat lower edge of cup with packing sealer before installation. Temporarily install tie rod ends to rod, so distance from center to center of tie rod ends is 11.89" (302 mm) for Arrow and Colt, except station wagon. Distance should be 12.36" (314 mm) for Challenger, Sapporo and Colt Wagon. Distance for Pickups is 14.84" (377 mm). Amount of threads showing on each side of tie rod sleeve should be equal. Install on vehicle and check toe-in. See *WHEEL ALIGNMENT Section.*

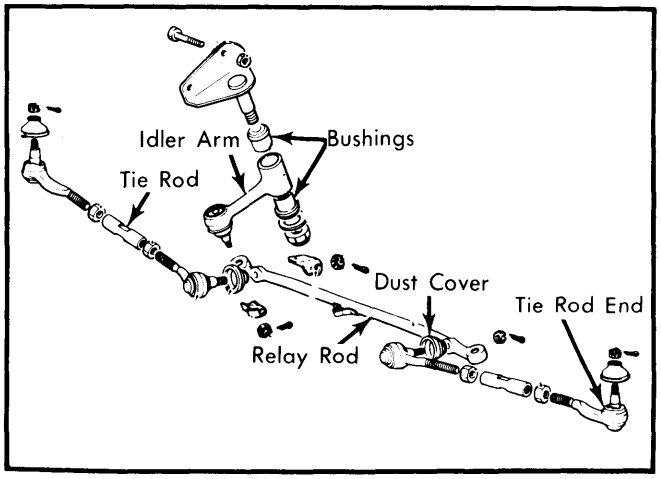

Fig. 1 Exploded View of Steering Linkage Colt & Arrow (Exc. Station Wagon)

RELAY ROD

Removal – Disconnect tie rod ends from steering knuckle arms using puller. Detach pitman arm and idler arm, using the same puller. Remove relay rod.

Installation – To install, reverse removal procedure, noting the following: Ensure dust covers are well greased and that lower edge of covers are coated with packing sealer.

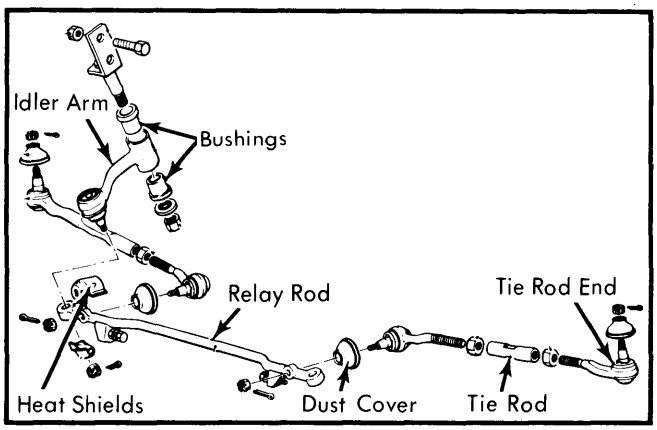

Fig. 2 Exploded View of Steering Linkage Challenger, Sapporo, Colt Station Wagon & Pickups

IDLER ARM

Removal – Disconnect idler arm from relay rod, using puller. Remove idler arm assembly from frame.

NOTE – *Do not disassemble idler arm and support unless absolutely necessary.*

Installation – Apply soapy water to bushings and idler arm. Push bushings into arm, using a vise if necessary. Grease bracket shaft and inner surface of bushing, then insert shaft into idler arm. Install washer with knurled side toward bushing and using a new self-locking nut, tighten to specification.

PITMAN ARM

Removal – After removing steering gear, disconnect pitman arm from cross shaft, using a puller.

Installation – During installation, ensure slit on cross shaft aligns with pitman arm mark.

OVERHAUL

STEERING GEAR

Disassembly – 1) Prior to disassembly, record starting torque of main shaft (as guide during assembly). Remove adjusting screw lock nut, turn screw counterclockwise (partial turn), then remove cover. When cover is free of sector shaft, remove adjusting screw. Set gear in straight ahead (center) position and withdraw sector shaft from gear box.

2) Measure and record main shaft starting torque with sector shaft removed. Remove end cover and record thickness of shim. Carefully remove main shaft, ball nut assembly, and bearings.

CAUTION – *Do not disassemble the mainshaft and ball nut assembly.*

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Inspection – Check components for excess wear or free play. If rough rotation or excess play is found in main shaft or ball nut, replace both as an assembly. Do not force ball nut to either end of main shaft.

Assembly & Adjustment – 1) Place gear box in vise with main shaft in horizontal position. Replace end cover with shim (same as removed) and torque to specifications. Measure main shaft preload. If less or greater than 3.0-4.8 INCH lbs. (.42-.66 cmkg), reduce or increase shim size to obtain proper preload.

2) Install adjusting screw and proper shim in groove on sector shaft. Be sure axial play of shaft is no greater than .002" (.051 mm). If greater, change shim size. Lubricate and install sector shaft in housing. Replace cover and cover bolts. Turn sector shaft several times from side to side, then turn adjusting screw in and out several times, to set proper gear mesh.

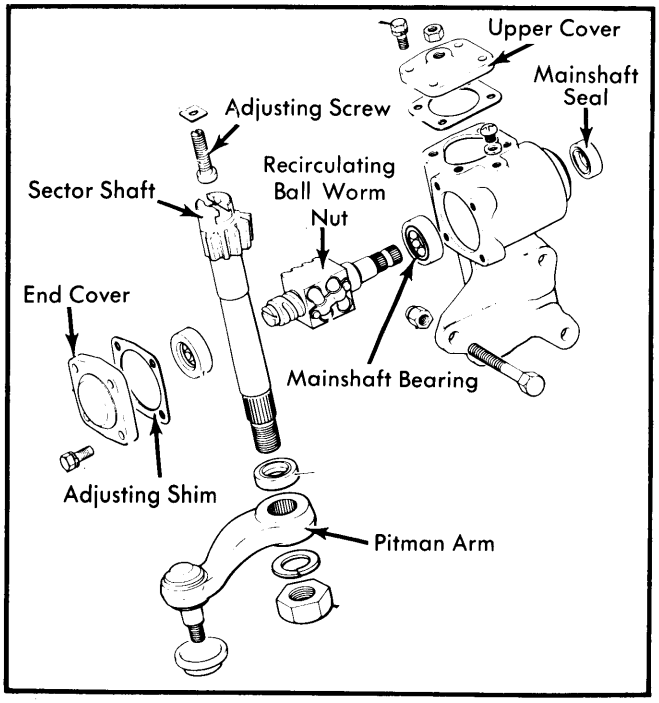

Fig. 3 Exploded View of Recirculating Ball & Nut Steering Gear – Small Gear Box

3) Loosen adjusting screw until no play is noticed at main shaft when gear in in central position. Tighten lock nut. Recheck main shaft preload; it should now be 5.7-7.4 INCH lbs. (.79-1.02 cmkg). Fill gear box with SAE 90 gear oil. Check oil level through lower right bolt hole. Proper level from hole is 0.7" (18 mm) for small steering gear box and .87" (22 mm) for large box.

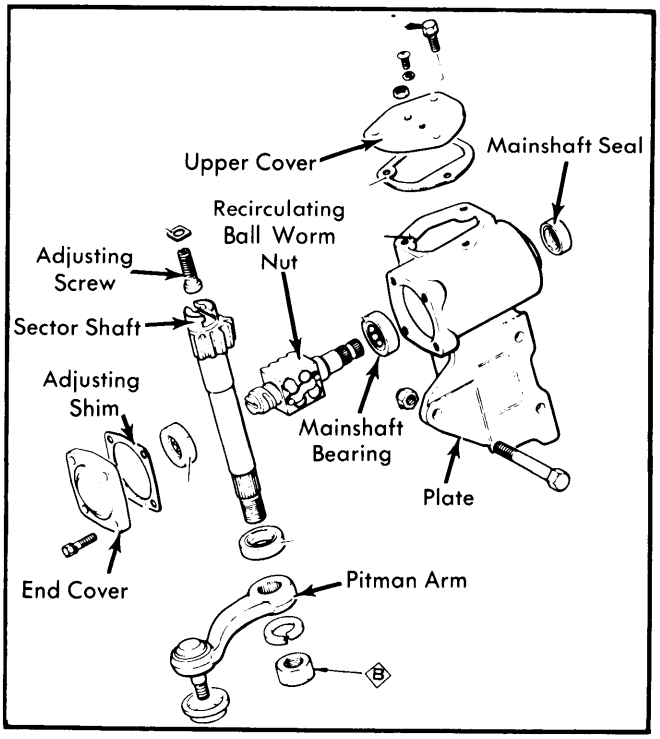

Fig. 4 Exploded View of Recirculating Ball & Nut Steering Gear – Large Gear Box

TIGHTENING SPECIFICATIONS

Application	Ft. Lbs. (mkg)
Gear Box-to-Frame	
Small Box	25-29 (3.5-4.0)
Large Box	32-36 (4.4-5.0)
Gear Box End Cover	11-14 (1.5-2.0)
Pitman Arm-to-Gear Box	94-108 (13-15)
Idler Arm Bracket-to-Frame	29-43 (4.0-6.0)
Tie Rod Stud Nuts	36-40 (5.0-5.5)
Tie Rod End Lock Nuts	36-40 (5.0-5.5)
Relay Rod-to-Pitman Arm	25-33 (3.5-4.5)
Relay Rod-to-Idler Arm	25-33 (3.5-4.5)