

## COURIER RECIRCULATING BALL

Courier

### DESCRIPTION

Steering gear is a recirculating ball and nut type. Two tubes carry the balls through worm channels, thus transmitting the turn action of the steering shaft. Worm bearing preload and ball-nut meshload have adjustments provided, to maintain smooth steering operation.

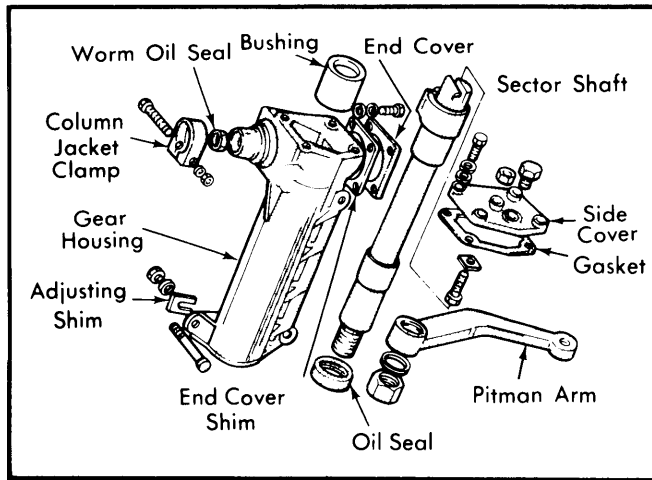


Fig. 1 Exploded View of Recirculating Ball & Nut Steering Gear

### ADJUSTMENT

#### WORM BEARING PRELOAD

Drain gear box. Disconnect pitman arm from gear. Loosen sector adjusting screw lock nut and turn screw counterclockwise. Using torque wrench, rotate worm shaft. Preload should be 1.0-3.5 INCH lbs. (.14-.48 cmkg). If not within specification, remove end cover and shims. If preload is below minimum, reduce shim size. If above maximum increase shim size.

#### SECTOR SHAFT & BALL-NUT MESHLOAD

Adjusting screw in side cover sets sector shaft to provide proper mesh between sector gear teeth and ball-nut rack. Adjustment is made only after setting worm bearing preload. Disconnect pitman arm from center link. Loosen sector adjusting screw lock nut. Turn steering wheel slowly to either stop, then turn to opposite stop. Count steering wheel rotations and turn wheel to center position. Turn sector screw clockwise until worm passes high spot (center) with a torque of 5-7 INCH lbs. (.69-.97 cmkg). Hold adjusting screw in position and tighten lock nut. Recheck mesh load. Connect pitman arm to center link.

### REMOVAL & INSTALLATION

#### STEERING GEAR

**Removal** – 1) Remove directional signal/dimmer switch. Unbolt steering column support bracket, then position floor covering and pad away from bottom of column. Separate toe plate and boot from dash and remove column jacket from shaft.

2) Take off air cleaner assembly. Disconnect heater hoses. Remove hydraulic lines from brake and clutch master cylinders, plug ports on both cylinders and remove from vehicle.

3) Raise vehicle on hoist. Disconnect pitman arm from sector shaft. Remove steering gear retaining bolts. Lower vehicle and remove gear and shaft assembly.

**Installation** – 1) Position gear to frame and install mounting bolts finger tight. Replace column jacket and dash panel boot and toe plate. Reposition floor covering. Install cancelling cam and snap ring on steering shaft, then connect directional signal/dimmer switch wires.

2) Install steering wheel (align marks made during removal). Replace spring and horn button. Install brake and clutch master cylinders and hydraulic lines. Reattach heater hoses and install air cleaner assembly.

3) Raise vehicle and tighten steering gear mounting bolts. Bleed clutch system. Attach pitman arm to sector shaft. Lower vehicle and bleed brake system.

#### STEERING LINKAGE

Center link can be removed from both tie rods, pitman arm, and idler arm by removing ball joint nuts and using suitable puller. After center link removal, pitman arm can be removed from sector shaft. Tie rods can also be removed with puller. Toe-in must be reset when tie rods or ball joints are replaced.

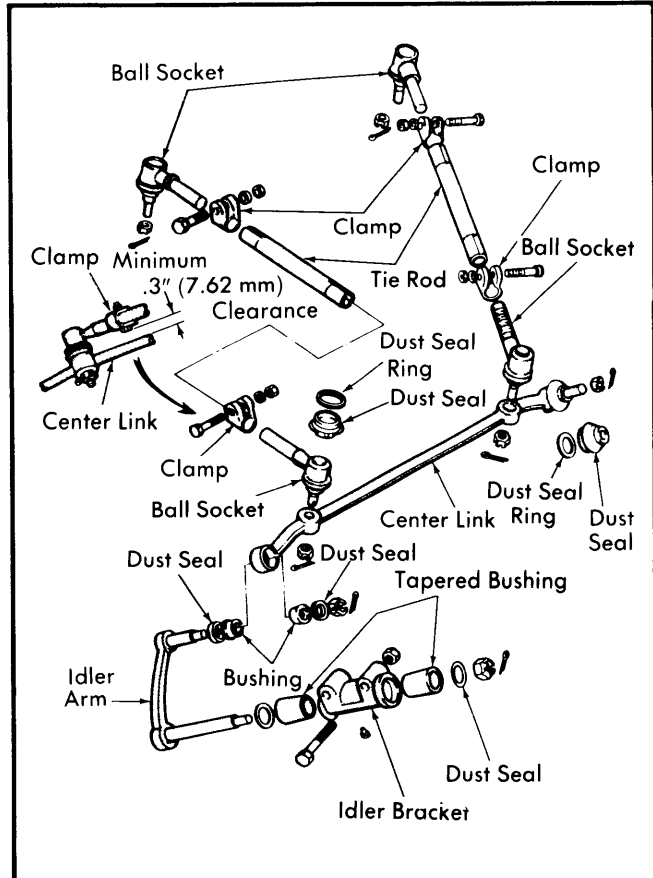


Fig. 2 Exploded View of Courier Steering Linkage

# Steering Gears & Linkage

## COURIER RECIRCULATING BALL (Cont.)

### OVERHAUL

#### STEERING GEAR

**Disassembly** – With gear removed and drained, position gear in vise. Remove pitman arm from gear. Remove sector shaft adjusting screw lock nut. Take off side cover by removing bolts and turning adjusting screw clockwise. Remove adjusting screw and shim from sector shaft. Extract shaft from housing. Remove worm shaft and ball-nut assembly through bottom of housing after end cover and shims are removed.

**Inspection** – Check operation of ball-nut assembly on worm shaft. If travel is not smooth or any part is worn, replace entire assembly. Check and replace all other components as necessary.

**Assembly & Adjustment** – 1) Insert worm shaft and ball-nut assembly into gear housing. Install end cover and shims. Adjust bearing preload, as previously described. Place adjusting screw in slot of sector shaft and check end clearance with feeler gauge; adjust to .001-.003" (.025-.076 mm) by adding or subtracting shims.

2) Turn worm shaft and place rack in center position of worm. Insert sector shaft and adjusting screw into gear housing, being careful not to damage bushings or seal. Align center of sector gear with center of rack. Place side cover on adjusting screw, turn screw to position cover, then install cover retaining bolts.

3) Adjust sector gear and rack backlash, as previously described. Tighten adjusting screw lock nut. Install pitman arm to sector shaft and torque to specification.

### TIGHTENING SPECIFICATIONS

Application	Ft. Lbs. ( mkg)
Gear-to-Frame .....	33-42 (4.56-5.81)
Side Cover Bolts .....	12-17 (1.66-2.35)
Steering Wheel Nut .....	22-29 (3.04-4.01)
Column Support Bracket .....	12-17 (1.66-2.35)
Pitman Arm-to-Gear .....	109-130 (15.1-18.0)
Column Jacket Clamp-to-Gear .....	7-9 (0.97-1.24)