

Steering Gears & Linkage

MAZDA RECIRCULATING BALL

GLC
RX4
Cosmo
B1800 Pickup

DESCRIPTION

Steering gear is a recirculating ball type with a variable ratio, depending on turning angle of sector shaft. The pinion shaft and steering shaft are an integral (nonseparable) unit on some models, while the shaft is separable from the pinion on others. Steering linkage is basically the same for all models, having a nonadjustable center link, two adjustable tie rods, an idler arm assembly, and pitman arm.

ADJUSTMENT

NOTE — Adjustments are performed during assembly portion of overhaul. See Overhaul procedure in this article.

REMOVAL & INSTALLATION

STEERING GEAR

Removal (GLC, B1800 Pickup) — 1) Disconnect negative battery cable. Remove steering wheel and switches. See Mazda under **STEERING WHEEL & COLUMN SWITCHES** in this Section. Remove bolts holding column to dash. Loosen dust cover screws, any other column bolts, and pull column jacket off shaft.

2) On GLC, disconnect center link from pitman arm with puller. Remove steering gear mounting bolts and pull gear forward after raising vehicle.

3) On B1800 Pickup models, remove air cleaner, brake master cylinder and power booster, clutch master cylinder, and EGR pipes and hoses. Drain coolant, then remove hoses and lines from intake manifold. Remove manifold and carburetor assembly.

4) Raise and support vehicle. Remove left front wheel, then disconnect and remove pitman arm. Place jack under lower left control arm and support. Remove upper left control arm, noting position of shims. Unbolt steering gear and pull up out of vehicle.

Removal (RX4, Cosmo) — Raise and support front of vehicle on stands. Remove front wheel and detach pitman arm from center link. Remove bolt securing flexible coupling to worm shaft. Detach pitman arm from gear. Remove speedometer cable from clips attached to gear housing and power brake unit. Unbolt and remove gear housing.

Installation (All Models) — To install, reverse removal procedure, ensuring any shims which were removed are installed in original positions.

NOTE — To avoid damage to steering column components, do not apply bending or striking forces to steering shaft or column.

STEERING LINKAGE

Steering linkage may be removed as an assembly or as individual components. Whenever tie rod setting is disturbed, toe-in must be reset. See Mazda in **WHEEL ALIGNMENT** section.

OVERHAUL

STEERING GEAR

Disassembly — Drain gear oil from housing. Remove pitman arm from sector shaft if not removed previously. Unscrew side cover attaching bolts and loosen adjusting screw lock nut. Turn adjusting screw in to remove side cover from housing. Take adjusting screw and shim from slot in sector shaft. Withdraw sector shaft. Unbolt end cover, then remove worm and ball nut assembly. On GLC, worm and ball nut assembly is held in place by adjuster plug and lock nut.

Inspection — Check ball nut rotation on worm. If movement is not smooth for full length of travel, replace worm and ball nut assembly. Ball nut is not to be serviced separately. Check worm bearings and cups, sector shaft gear surface, and oil seal. If any component is defective, replace it.

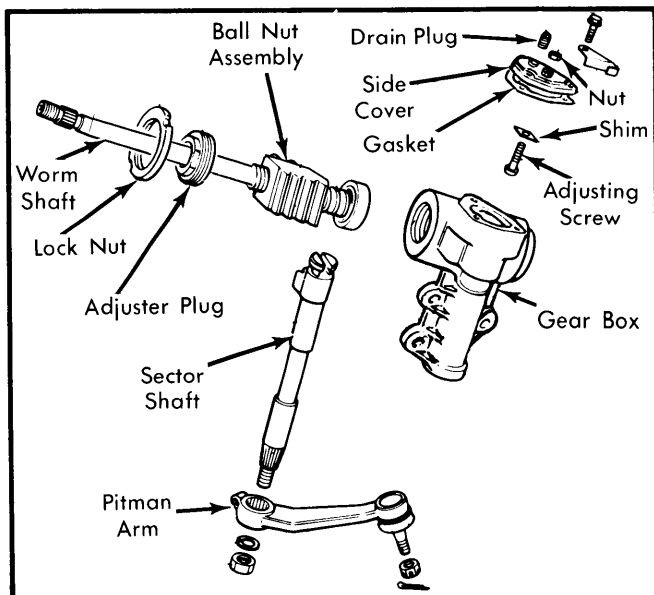


Fig. 1 Exploded View of GLC Steering Gear

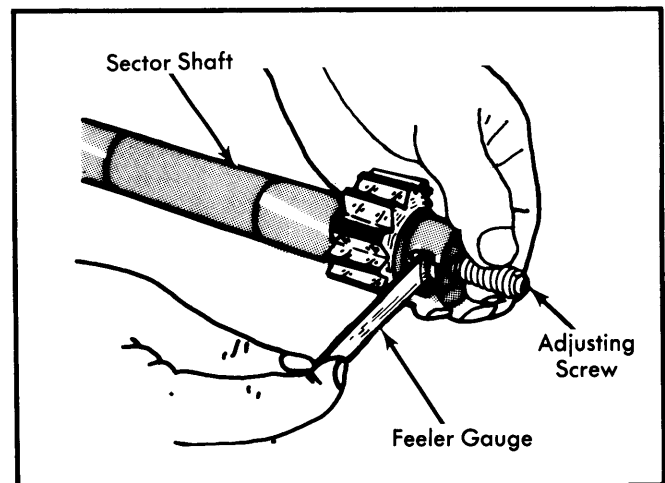


Fig. 2 Checking Adjusting Screw End Clearance

MAZDA RECIRCULATING BALL (Cont.)

Assembly & Adjustment – 1) Replace oil seal in housing. Insert worm shaft and ball nut assembly into gear housing. Position end cover (or column jacket) with bearing preload adjusting shims and tighten cover (jacket) bolts. Attach an INCH lbs. torque wrench to shaft and check preload. If below specification, reduce the shims; if above, increase the shim. On GLC, tighten adjuster plug to set preload.

Initial Worm Bearing Preload Torque

Application	INCH lbs. (cmkg)
RX4	0.9-3.5 (1-4)
Cosmo, GLC, B1800	1.7-4.3 (2.0-5.0)

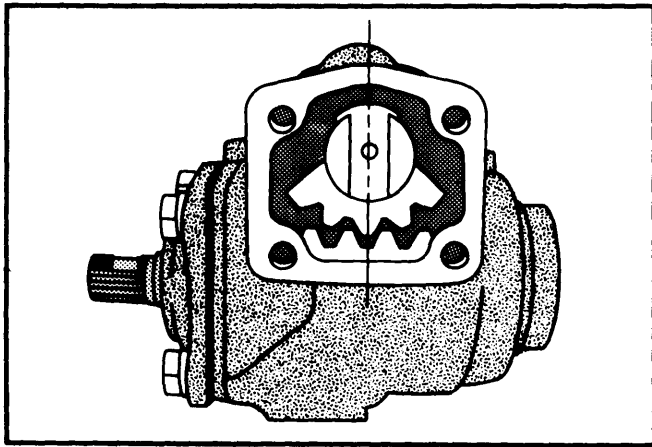


Fig. 3 Aligning Sector Gear & Rack

2) Insert sector shaft into gear housing, using care not to damage oil seal. Ensure center of sector gear is aligned with center of worm gear. See Fig. 3. Insert adjusting screw into slot in end of sector shaft. Check end clearance as illustrated and add appropriate shim to bring clearance within 0-.004" (0-.1 mm). Place side cover and gasket over adjusting screw and turn adjusting screw until cover is in place, install attaching bolts.

3) Install pitman arm onto sector shaft, aligning marks. Install and tighten retaining nut. Measure pitman arm backlash. If necessary, turn sector adjusting screw until zero backlash is obtained. Tighten adjusting screw lock nut, taking care not to disturb backlash adjustment.

4) Check worm shaft rotating torque. Attach an INCH lbs. torque wrench to worm shaft. If not to specifications, adjust as necessary. Fill gear housing with lubricant (SAE 90 EP).

Final Worm Bearing Preload Torque

Application	INCH lbs. (cmkg)
GLC, Cosmo	5.2-10.4 (6-12)
RX4	7.9-10.4 (9-12)
B1800	5.2-7.8 (6-9)

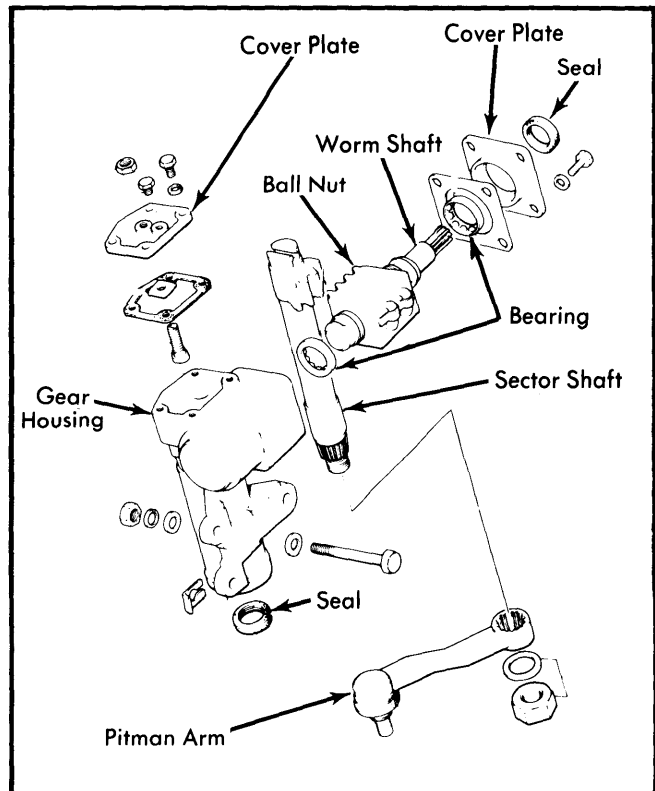


Fig. 4 Exploded View of RX4 Recirculating Ball Steering Gear (Others Similar)

TIGHTENING SPECIFICATIONS

Application	Ft. Lbs. (mkg)
Gear Box-to-Frame	32-40 (4.4-5.5)
Steering Wheel Nut	22-29 (3-4)
Pitman Arm-to-Sector Shaft	
RX4, Cosmo, B1800	108-130 (15-18)
GLC	58-87 (8-12)
Pitman Arm-to-Center Link	
GLC, RX4, Cosmo	22-33 (3-4.5)
B1800	22-29 (3-4)