

FIAT X1/9 RACK & PINION

DESCRIPTION

Rack and pinion steering gear is mounted in rubber insulators and attached to body. Gear is attached to steering shaft through universal joints.

Adjustments are provided for pinion bearing play and rack yoke free play. At each end of steering rack, tie rods connect steering mechanism to front wheels.

ADJUSTMENT

NOTE: Adjustments of the pinion bearing and rack yoke are performed during rebuilding. See Overhaul procedure.

REMOVAL & INSTALLATION

STEERING GEAR

Removal

1) Center steering wheel and front wheels. Raise and support front of vehicle and remove front wheels.

2) Disconnect drive pinion from lower steering column section by detaching universal joint inside vehicle. Using a puller, remove tie rods from steering knuckles.

3) Remove stone shield if necessary. Unbolt and remove steering gear assembly by sliding out from right-hand side of vehicle.

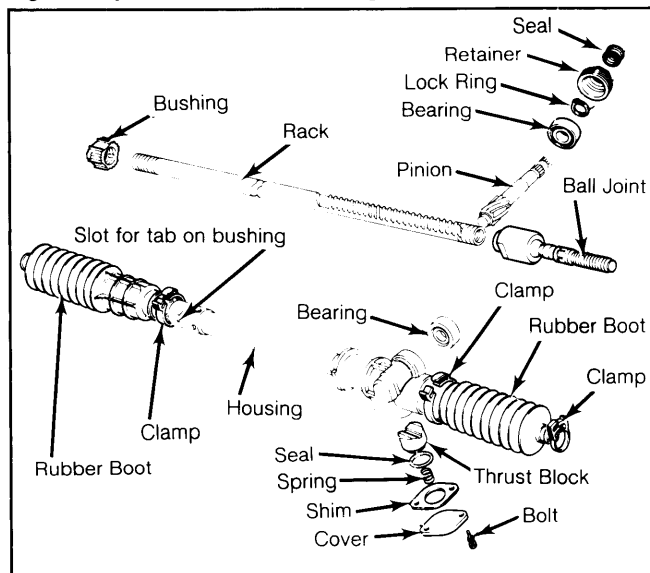
Installation

1) Set wheels in straight-ahead position. Connect drive pinion to steering column and tighten pinch bolt to 19 ft. lbs. (26 N.m). Remount steering gear to body. Connect tie rods to steering knuckle and tighten to 25 ft. lbs. (34 N.m).

2) If steering gear has been disassembled, perform pinion and rack adjustments, and replace front wheels. Lower vehicle to ground and turn steering wheel fully to the right.

3) Raise vehicle on left side and loosen clamp on left boot. Fill steering gear with 4.4 ounces lithium-base grease containing molybdenum disulphide.

Fig. 1: Exploded View of Steering Gear Components



OVERHAUL

STEERING GEAR

Disassembly

1) With steering gear removed from vehicle, remove rubber boots from steering gear. Disconnect tie rod end ball joints from rack (inner ends of tie rods).

2) Remove cover, shim, spring, seal and thrust block from bottom of housing. Remove threaded retainer, seal, lock ring, bearing, and pinion from housing. See Fig. 1. Slide rack from housing and remove bushing. Remove lower bearing from housing.

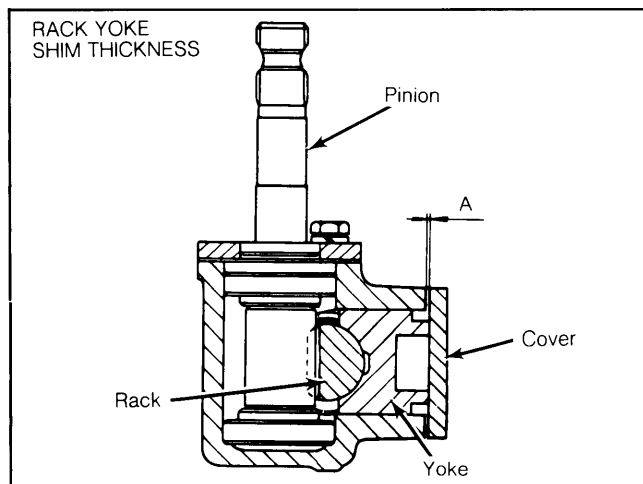
Inspection

1) Clean all metal parts in a degreaser and blow dry. Inspect rack, pinion, upper bearing and housing for wear or damage. Replace entire steering box if damaged.

2) Inspect boots for tears or breaks. Replace if necessary. Inspect bushing, spring, lower bearing and thrust block for wear or damage. Replace if necessary.

3) Check that ball joints are free to move in all directions. They should not fall under their own weight. Replace if worn.

Fig. 2: Measurement of Rack Yoke Shim Thickness



Reassembly and Adjustment (Pinion)

1) Coat all bearings and gear surfaces with molybdenum disulphide grease. Reassemble in reverse order of disassembly.

2) Install threaded retainer over pinion. Tighten retainer 22-25 ft. lbs. (29.8-33.9 N.m).

3) Check initial turning torque of pinion. Torque should be 4.3-14 INCH lbs. (.48-1.6 N.m). Stake retainer.

Reassembly and Adjustment (Rack)

1) Center rack in its travel. Remove cover, shims and spring to gain access to rack thrust block.

2) While holding rack thrust block against rack, turn pinion through 180° in both directions to seat rack to pinion.

3) Measure distance from top of rack thrust block to cover facing dimension "A". See Fig. 2. To "A" add .002-.005 (.05-.13 mm).

4) Combine shims to make up new dimension. Install spring, shims and cover.

NOTE: Lubricate dust boots with silicone spray and be sure they are not twisted after installation.