

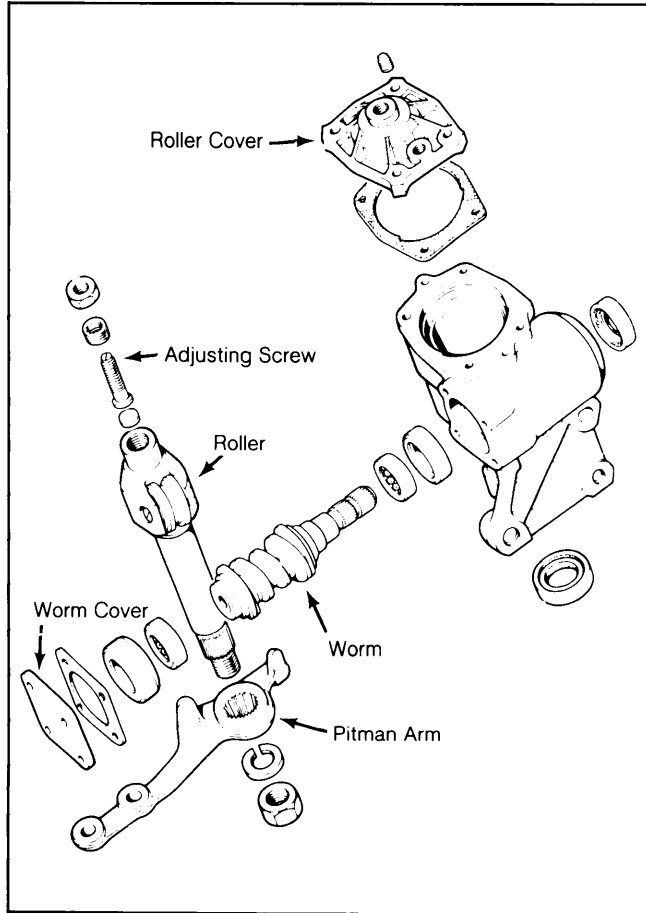
# Steering Gears & Linkage

## FIAT SPIDER 2000 WORM & ROLLER

### DESCRIPTION

The steering gear is a worm and roller type, having a gear ratio of 16.4:1. The steering gear box is mounted on the crossmember in front of the firewall.

#### Exploded View of Spider 2000 Steering Gear



### ADJUSTMENT

**NOTE:** Adjustments are performed as part of gear reassembly. See Overhaul in this article.

### REMOVAL & INSTALLATION

#### STEERING GEAR

##### Removal

Remove tie rod and center link from pitman arm. Disconnect starter and move out of way. Remove lower bolt on left wheel well shield to gain access to steering gear mounting bolts. Remove three bolts holding steering box to body, noting number and position of shims. Remove steering box.

##### Installation

Bolt steering box to body, but do not tighten bolts. Clamp steering column on worm shaft and reconnect tie rod and center link. Turn steering wheel from side to side several times to align shaft and box, then tighten bolts to specification.

### OVERHAUL

#### STEERING GEAR

##### Disassembly

1) Unscrew oil plug and drain gear oil, then mount assembly on overhaul stand. Use a puller to detach pitman arm from roller shaft.

2) Remove nuts and washers attaching roller shaft cover to gear box, then take off cover with roller shaft adjusting screw, adjusting disc, lock washer, and lock nut. Extract roller shaft assembly from gear housing.

3) Remove worm shaft thrust cover and shims. Turn shaft and remove bearing. Using a puller, remove worm shaft rear bearing. This will release shims located behind bearing. Remove roller shaft oil seal, and bearings if necessary with a puller.

##### Reassembly & Adjustment

1) If installing roller shaft bearing, drive into place with drift punch. Ream to correct bore diameter, 1.298-1.306" (28.799-28.717 mm). Replace shims and rear worm shaft bearing.

**NOTE:** If proper center mesh position was found during inspection, install same shims. If not, adjust shim pack.

2) Fit worm bearing races and install worm into box. Drive front ball bearing race into gear box and replace thrust cover with shims.

3) Check starting torque of worm shaft. It must not exceed 4.3 INCH Lbs. (.5 N.m). If torque is higher, shimming must be increased. If lower than specified, reduce shimming.

4) Insert roller shaft oil seal, roller shaft, and cover plate with gasket and shims. Connect pitman arm temporarily to roller shaft. The roller shaft should be free to rotate through 30° on either side of center.

5) Eliminate any clearance using adjusting screw. Turning torque after adjustment should be 7.8-10.4 INCH lbs. (.9-1.1 N.m).

6) When adjustment is complete, tighten pitman arm retaining nut to specification. Fill steering box with 7.25 oz. of SAE 90 EP lubricant.

#### TIGHTENING SPECIFICATIONS

Application	Ft. Lbs. (N.m)
Linkage-to-Pitman Arm .....	22 (30)
Pitman Arm-to-Gear .....	174 (237)
Steering Column Bracket Bolts .....	11 (15)
Steering Gear-to-Body .....	29 (39)
Steering Wheel Nut .....	36 (49)