

PEUGEOT RACK & PINION

504

DESCRIPTION

The steering gear is a rack and pinion assembly which is joined to the steering column by a flexible rubber coupling, and mounted to the front crossmember by flange brackets. The rack is protected by flexible rubber bellows and rides on bushings at each end of the housing. A non-adjustable tie rod is connected by a universal joint to the pinion side of the rack, and an adjustable tie rod is attached to the opposite end of the rack.

ADJUSTMENT

NOTE — See *Overhaul procedure in this article.*

REMOVAL & INSTALLATION

Removal — From under vehicle disconnect right and left tie rod ball joints. Remove the steering column clamping bolt (flexible collar). Remove the two screws attaching steering gear housing to crossmember. Using a center punch as a lever, inserted into clamping collar bolt hole, disengage steering column by rocking.

Installation — 1) Position steering wheel spokes vertically. Place right front wheel in straight ahead position and left front wheel turned inwards as far as it will go. Center steering gear rack in straight ahead position. Hook up right tie rod, rotate steering clamp 1/4 turn and align clamp with spline of steering column then install clamp on steering column.

2) Secure steering gear housing to crossmember. Replace flexible coupling bolt, nut, and lock washer. Attach left tie rod. **NOTE** — Ensure proper alignment of the two flats on the ball joint housing with those on the connecting yoke. Install new lock washers and tighten both ball joints. Adjust toe-in. See Peugeot in *WHEEL ALIGNMENT* section.

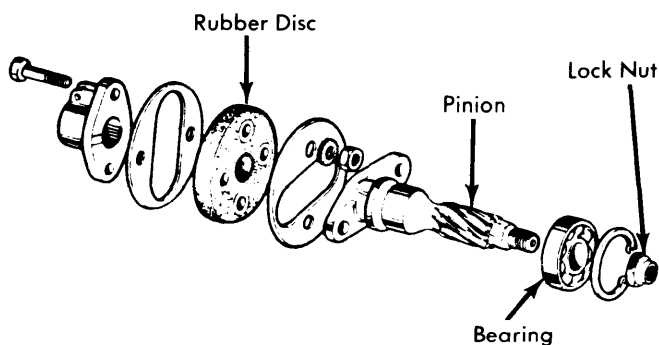


Fig. 1 Exploded view of Steering Gear Flexible Coupling and Pinion

OVERHAUL

Disassembly — 1) Place steering gear horizontally in a padded vise. Mark position of flexible coupling with gear in straight-ahead position (to assist in reassembly). Remove four rubber boot clips, and push boots away from tie rod yoke pivots. Remove both pivots and tie rods. Detach rack eye opposite pinion.

2) Remove rack plunger retaining plate, grease fitting, nylon stop, plunger spring, plunger, and sealing cup. Then, unscrew pinion nut and withdraw thrust washer and "O" ring. Extract rack from pinion side. Remove flexible bushing retaining snap rings, bushings, two steel thrust washers, and pinion bearing snap rings. Remove pinion bearing.

Inspection — Inspect all component parts for excessive wear or damage. Replace parts as necessary.

Reassembly & Adjustment — 1) Replace steering gear housing bushings. Install outer race and bearing with snap ring. Install in housing from opposite side of pinion, the inner thrust washer, flexible bushing with two rubber rings, outer thrust washer and lock ring. Lubricate with grease the bearing, rack and flexible bushing. Insert rack in housing from pinion side. Thread, temporarily, the second eye on rack with lock nut. Tighten the lock nut only slightly.

2) Push rack until lock nut touches steering gear housing. Install "O" ring and thrust washer, lubricate the pinion and install with nut locking groove, facing away from plunger housing. Starting with the pinion flange vertical, rotate it to the left through approximately 20° (see illustration).

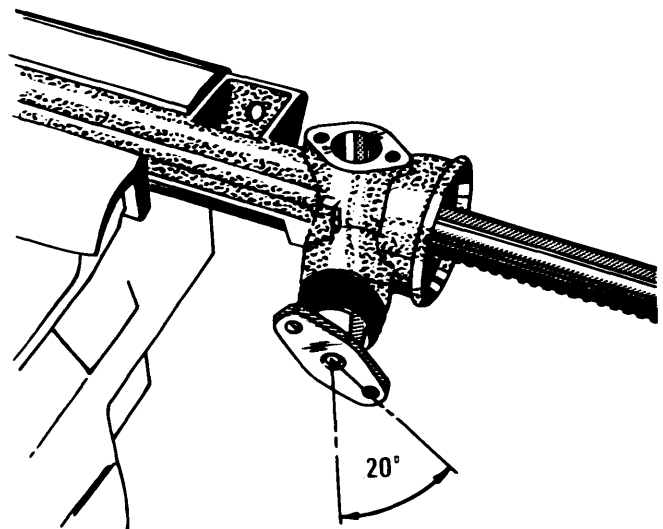


Fig. 2 View Showing Correct Alignment of Pinion Flange

3) Push in pinion until it touches the bearing. **NOTE** — The pinion flange should now be vertical and the lock nut on the opposite end of the housing should still be in contact with the steering housing. Clamp the pinion flange in a padded vise, then install a new lock nut on lower end of pinion. Tighten nut. Stake lock the nut collar, apply grease to the recess, and install sealing cup.

4) To measure the play in rack plunger proceed as follows: Insert plunger in its housing with spring inside plunger. Mount the thrust plate with dial indicator holder on one side. Tighten thrust plate. Install extension rod on dial indicator with extension rod in contact with plunger through the threaded hole in plate. Move the rack from side to side using the pinion. Record the highest point recorded by the dial indicator.

PEUGEOT RACK & PINION (Cont.)

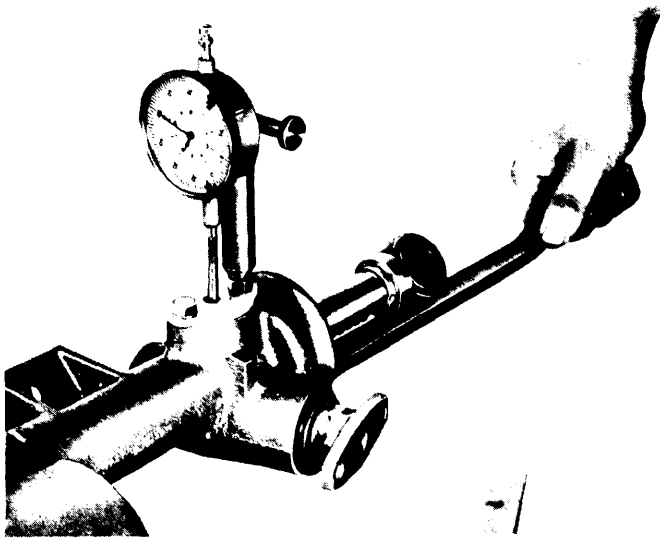


Fig. 3 Using Dial Indicator to Measure Rack Movement

5) Set the dial indicator to zero (without moving rack). Using a lever inserted below the rack, raise the rack (without force) as far as possible. Record the degree of movement registered on the dial indicator. Remove indicator and rack plunger. Place nylon stop inside the plunger. Using a straightedge and feeler gauge, note the gap between top of plunger and nylon stop. This gap must be eliminated by installing adjustment washers.

6) Plunger should now be adjusted so that there is a free play of .002-.006" (.05-.15 mm) at highest point of the rack. To obtain this free play, subtract .004" (.10 mm) from high value previously obtained (when levering rack). This will give the value of shim thickness required to bring free play within specifications. These shims should be added to those which are used to eliminate the clearance between the plunger and nylon stop.

7) Assemble (in the following order) grease nipple, shims, nylon stop, plunger, and spring into the gear housing. Secure the thrust plate. Apply grease through the nipple to lubricate the plunger.

8) Remove the eye from the far end of the housing, position the rubber bellows, then replace and adjust eye to .79-.83" (20-21 mm) between the lock nut and the shoulder of the eye. Turn both eyes so that the holes point in the same direction, then tighten the lock nuts moderately to hold this position.

9) Turn the pinion until the rack is free. Clamp rack in padded jaws of the vise and tighten the lock nut completely. Reposition the gear housing horizontally in the vise and attach yoke of tie rod with bolt head on same side as pinion flange (use a tab washer under the bolt).

10) Fit the pinion side rack boot, with its widest part perpendicular to the mounting flange faces. Position attaching clip so that its fastening part is pointing downward.

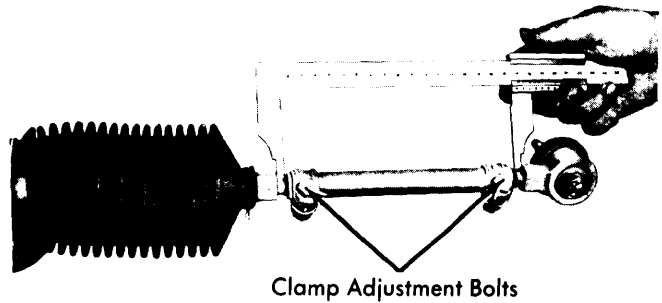


Fig. 4 Measuring Pinion Side Tie Rod for Preinstallation Adjustment

11) Now, make an initial adjustment of the pinion side tie rod as follows: Adjust the distance between the shoulders of the yoke and ball joint to 7.1" (180 mm). Make sure the distances between each end of the adjuster sleeve and the yoke and ball joint shoulders are also equal. Tighten the adjuster sleeve bolts temporarily.

12) Working on opposite end of housing, attach both ends of rubber boot, making sure boot is positioned as described above for pinion side boot. Attach the non-adjustable tie rod to the rack, holding rod in line with rack while tightening the bolt (use a new tab washer).

13) Install four new bolts and washers to attach the rubber coupling at the pinion flange (bolt heads should be toward the steering housing). Position rack in center (straight-ahead position) and attach coupling-to-column clamp, aligning reference mark made during disassembly (in this position, the clamp bolt hole should be parallel to the rack). Chisel-punch the coupling bolt threads to lock them.

TIGHTENING SPECIFICATIONS

Application	Ft. Lbs. (mkg)
Coupling-to-Column Clamp Bolt	7 (0.97)
Rubber Coupling Bolts	13 (1.75)
Tie Rod-to-Eye Bolts	33 (4.56)
Eye-to-Housing Lock Nut	25 (3.46)
Thrust Plate Bolts	7 (0.97)
Pinion Lock Nut	11 (1.52)
Gear Housing-to-Crossmember	24 (3.32)
Tie Rod Ball Joint-to-Steering Arm	31 (4.25)