DATSUN 280ZX RACK & PINION

280ZX

DESCRIPTION

Steering assembly is a direct-acting rack and pinion system, with a gear ratio of 19.6:1. This unit consists of a rack bar and toothed pinion, both working in the plain bearing of the housing. Backlash is held to zero by the retainer and the retainer spring.

REMOVAL & INSTALLATION

Removal – Raise and support front of vehicle. Loosen bolt securing column joint shaft to rubber coupling. Disconnect lower joint from steering pinion gear and remove lower joint from steering pinion gear.

NOTE – *Raise front engine mount approximately ½" (with jack) before trying to remove steering gear.*

Installation – Install in reverse order of removal procedure. Check wheel alignment. For wheel alignment procedures, see *Datsun in WHEEL ALIGNMENT section.*

ADJUSTMENT

NOTE – *Adjustments are performed during gear assembly process. See Overhaul as outlined.*

OVERHAUL

Disassembly – **1)** Clamp steering gear and linkage in a padded vise. Remove both dust boot clamps. Loosen inner joint lock nut and remove tie rod from rack.

NOTE – *Do not disassemble inner joint assembly and tie rod socket assembly.*

2) Loosen adjuster lock nut and remove retainer adjust screw. Remove retainer spring and steering gear retainer out of steering gear housing. Remove oil seal and pry off snap ring from steering gear housing. Remove steering pinion assembly and rack from steering gear housing.

3) Pry off snap ring securing pinion bearing from pinion gear. Press bearing from pinion gear, then remove inner snap ring from pinion gear.

Assembly & Adjustment – **1)** Install inner snap ring to pinion gear and then press bearing onto pinion gear. Install

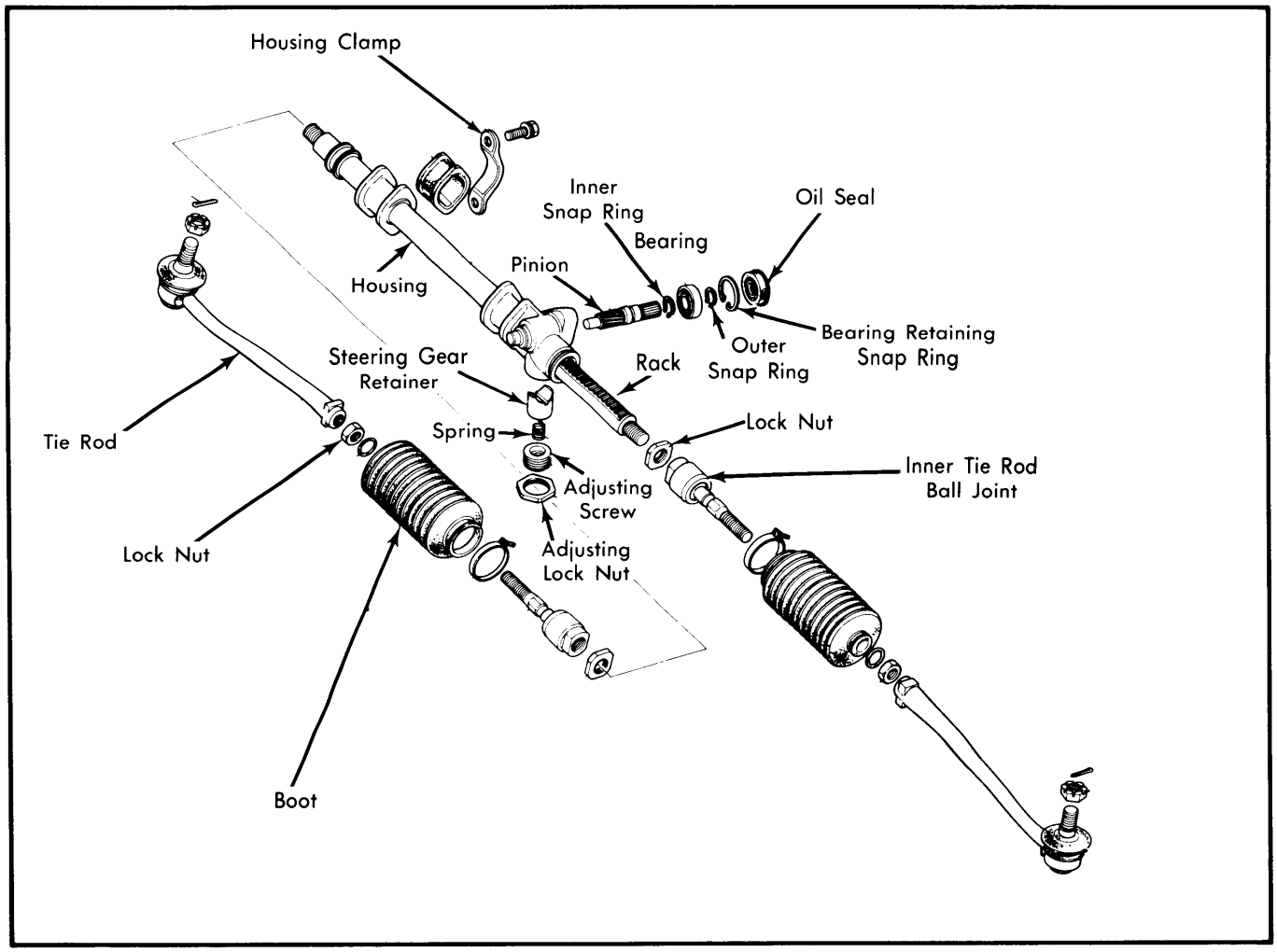

Fig. 1 Exploded View of Rack & Pinion Steering Gear Assembly

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outer snap ring onto pinion gear. Outer snap ring thickness should be selected so that bearing play is less than .004" (0.1 mm).

2) Clamp steering gear in a padded vise. Coat rack teeth and friction surfaces of rack with grease. Insert rack into housing making sure rack teeth are facing in correct direction. Install pinion gear and make sure pinion gear teeth and rack teeth mesh properly. Make sure rack protrudes 3.52" (89.4 mm) from each side of steering gear housing.

3) Install snap ring into steering gear housing (snap ring retains pinion bearing in place). Snap ring thickness should be selected so that pinion gear movement is less than .004" (0.1 mm). Pack grease seal with grease and install. Make sure pinion assembly rotates smoothly.

4) Apply grease to steering gear retainer and insert gear retainer and retainer spring into housing. Turn adjusting screw in and install lock nut. Fully tighten adjusting screw then back off approximately 20-25°. Apply liquid sealant around lock nut and tighten lock nut.

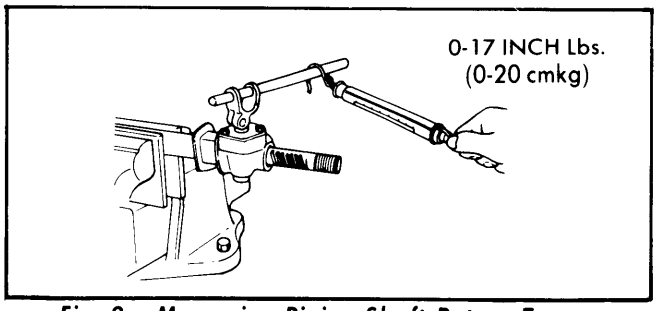

Fig. 2 Measuring Pinion Shaft Rotary Torque

5) With steering gear assembled, measure torque required to keep pinion and rack in motion. Install steering gear in a padded vise and attach torque wrench or bar and spring gauge (see *illustration*). Pinion turning torque should be 0-17 INCH lbs. (0.20 cmkg). Also measure force to pull rack at neutral position (see *illustration*). Force should be 0-22 pounds (0-10 kg).

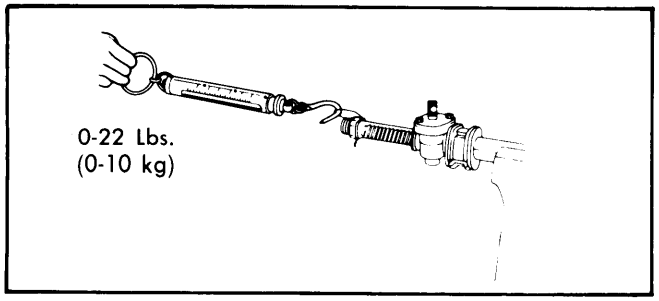

Fig. 3 Measuring Steering Gear Rack Pulling Force

6) Install rubber boot and clamp onto tie rod. Thread lock nut over threaded portion of rack. Apply grease to sliding surfaces of tie rod inner joint and spring seat. Install tie rod assembly to rack end together with inner spring and spring seat.

NOTE – *Tie rod for the left side is marked with an "L". No mark is used for the right side tie rod.*

7) Screw inner socket portion until ball seat reaches rack end and then tighten lock nut. Upon completion of tie rod assembly, measure swinging torque and axial play of inner ball joint. Swinging torque (measured at outer end of tie rod) should be 0-43 INCH lbs. (0-50 cmkg). Axial play of inner ball joint should not exceed .002" (.05 mm).

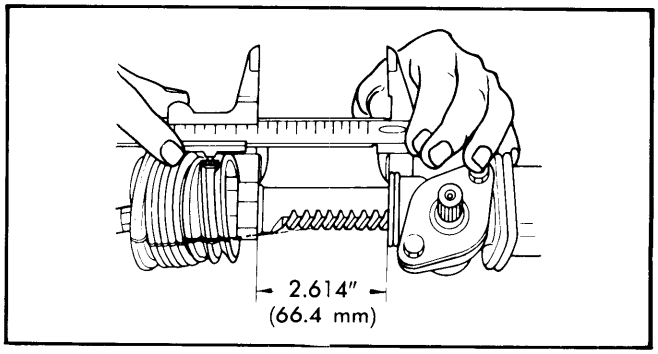

Fig. 4 Measuring Steering Gear Rack Protrusion

8) Measure rack protrusion. It should be 2.614" (66.4 mm). Attach boot and clamps, insert grease nipples at both ends of housing, and lubricate gear assembly (until a small amount of grease appears at boot outlet hole). Adjust tie rod length so that distance from outer side of lock nut to end of boot mounting groove is 1.161" (29.5 mm).

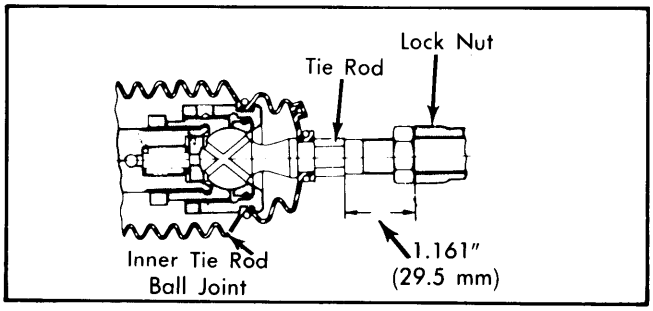

Fig. 5 Adjusting Steering Gear Tie Rod Length

TIGHTENING SPECIFICATIONS

Applicaton	Ft. Lbs. (mkg)
Adjuster Lock Nut	29-43 (4-6)
Inner Socket Lock Nut	58-72 (8-10)
Tie Rod Lock Nut	58-72 (8-10)
Tie Rod Outer Ball Joint Nut	40-72 (5.5-10)
Gear-to-Crossmember Bolt	33-44 (4.6-6.1)
Rubber Coupling Bolt	33-44 (4.6-6.1)
Lower Joint-to-Rubber Coupling Bolt	17-20 (2.4-2.8)
Lower Joint-to-Pinion Clamp Bolt	29-36 (4-5)