

## GENERAL MOTORS RACK & PINION – "J" BODY

Cavalier  
Cimarron  
Firenza  
J2000  
Skyhawk

### OVERHAUL

#### DESCRIPTION

Steering gear is of rack and pinion design. Steering gear consists of a tube housing containing an input pinion gear and a steering rack gear. Pinion gear is supported by a sealed ball bearing on the upper end and a pressed in roller bearing on the lower end. Wear take-up is provided by an adjuster spring which forces engagement of rack gear to pinion teeth. Inner tie rod ends are bolted to the center of the rack gear.

#### REMOVAL & INSTALLATION

##### STEERING GEAR

**Removal** – 1) Remove driver's side hush panel. Move seal away from flexible coupling at bottom of steering column. Remove both pinch bolts from flexible coupling. Remove washer fluid reservoir. Disconnect both tie rod ends from steering struts.

2) Remove steering gear retaining brackets. Remove flexible coupling from steering column while pushing pinion shaft through opening in cowl. Remove grommets from driver's side splash shield. Remove rubber grommet from pinion shaft area. Remove steering gear through opening in driver's side fender well.

**Installation** – To install, reverse removal procedure.

##### DISASSEMBLY

1) Remove inner tie rod ends from steering gear. Remove right side mounting grommet from housing. Do not remove left side grommet unless damaged. Remove and discard both boot clamps. Using constant pressure, slide boot over retaining bushing and off housing. Do not remove retaining bushings unless damaged.

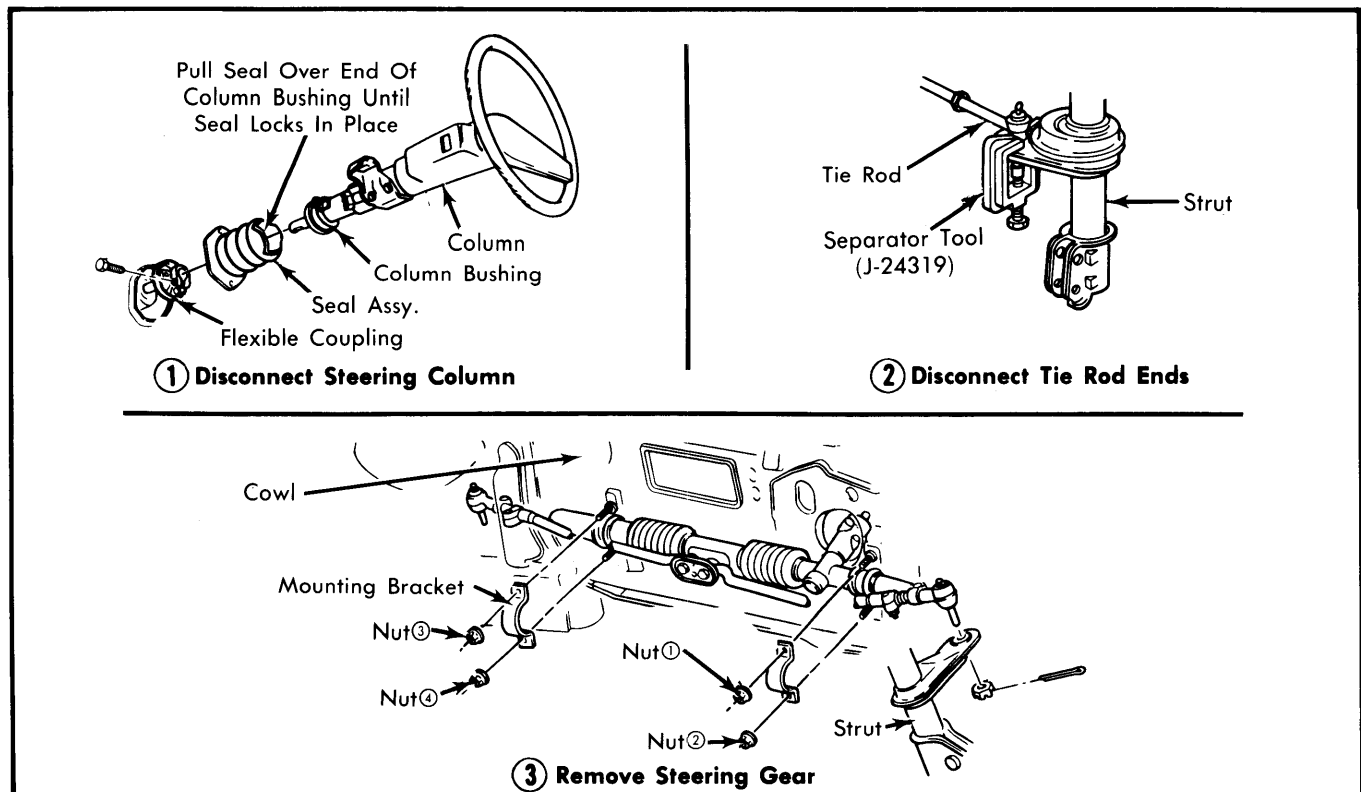
2) Remove flexible coupling from input shaft. Remove dash seal from housing. Remove adjuster plug and lock nut. Remove rack bearing and spring. Using a 3 jaw slide hammer puller, remove viscous steering damper from housing. Turn pinion shaft until rack is centered.

3) Mark pinion shaft and housing for reassembly reference. Remove pinion retaining ring. Tap on housing while holding pinion shaft to remove pinion. Using rack gear, drive right side housing end cover off of housing. Remove rack gear.

4) Using a drift punch, drive roller bearing out of housing. Remove retaining ring from right hand end of housing, using suitable tool (J-29823 or equivalent). Using a slide hammer puller, remove rack bushing from right hand end of housing.

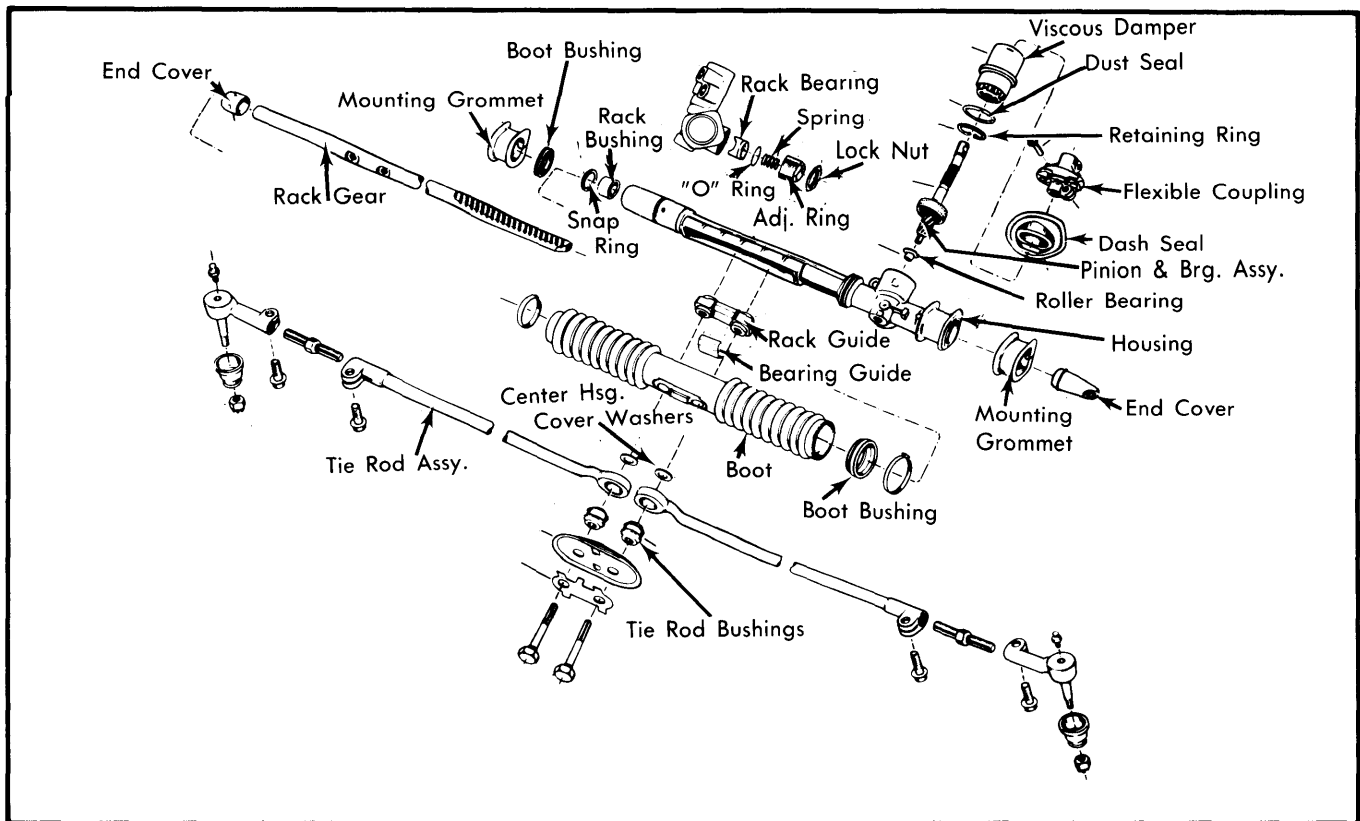
##### COMPONENT SERVICING

**Mounting Grommets** – Grommets are retained on housing with a dovetail joint on flat side of grommet. Do not replace grommets unless they are ripped or worn.



**Fig. 1 Steering Gear Removal & Installation Procedure.**  
Reinstall Mounting Bracket Nuts In Order Shown.

## GENERAL MOTORS RACK & PINION – "J" BODY (Cont.)



**Fig. 2 Exploded View of "J" Body Rack & Pinion Steering Gear**

**Pinion & Bearing Assembly** – Inspect pinion shaft, gear teeth and bearing assembly. If shaft is scored, teeth are chipped or bearing is loose on shaft, pinion and bearing assembly should be replaced.

**Inner Tie Rods** – To replace inner tie rod bushings, remove bushing with suitable driver (J-29809 or equivalent). Coat new bushing with grease and drive into place with bushing driver (J-29809).

### REASSEMBLY

**1)** Press new rack bushing into housing until fully seated. Install bushing retaining ring. Press new roller bearing into pinion bore. Slide rack gear into housing and install housing end cover. Center rack gear in housing. Install pinion gear with center of flat side of pinion shaft facing between 1 and 2 o'clock as viewed from driver's position. When pinion is seated, center of flat side of shaft should face 3 o'clock and alignment marks made at disassembly should line up.

**2)** Install pinion shaft retaining ring. Install dust shield on viscous damper and remove retaining shield. Line up flat side on damper with adjusting plug. Press inner hub of damper into housing until seated on pinion shaft. Make sure tabs on damper line up with slots on housing. Press outer housing of damper onto steering gear housing until seated. Reinstall retaining shield.

**3)** Coat rack bearing and adjuster plug assembly with lithium base grease. Install rack bearing assembly, with new "O" ring, into housing. Tighten adjusting plug to specification and then

back off 50° to 70°. Tighten lock nut. Check pinion preload by rotating pinion with torque wrench. If preload is not within 8-20 INCH Lbs., readjust setting of adjusting plug.

**4)** Reinstall dash seal and flexible coupling onto pinion shaft. Install new boot clamp on pinion end of boot. Install bearing guide and rack guide onto housing. Coat inner lip of boot retaining bushing (in pinion end of boot) with grease. Install boot onto housing and retain with inner tie rod end bolts.

**5)** Slide pinion end of boot onto housing until seated in bushing groove. Crimp new boot clamp to retain. Slide tube end of boot onto housing until seated in boot retaining bushing. Install new boot clamp on tube end of boot and crimp to retain. Install inner tie rod ends, making sure that center housing cover washers are in place between tie rods and boot.

### TIGHTENING SPECIFICATIONS

Application	Ft. Lbs. (N·m)
Adjusting Plug Lock Nut .....	50 (68)
Flexible Coupling Pinch Bolts .....	29 (39)
Inner Tie Rod Bolts .....	65 (87)
Tie Rod Adjuster Pinch Bolts .....	20 (27)

Application	INCH Lbs. (N·m)
Pinion Adjusting Plug .....	Ⓢ72-132 (8-15)

Ⓢ – Tighten to specifications, then back off 50°-70°.