

# STEERING SYSTEM - MANUAL

## Article Text

1992 Mitsubishi Mirage

For a a a a

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Monday, April 01, 2002 10:17AM

## ARTICLE BEGINNING

1991-92 STEERING

Chrysler Motors/Mitsubishi - Manual Steering - Rack & Pinion

Dodge; Colt, Colt Vista, Colt 200,  
Eagle; Summit  
Mitsubishi; Eclipse, Mirage, Precis

## DESCRIPTION

Steering gear is a rack and pinion type. Steering gear is connected to steering knuckles by tie rods. A flexible coupling connects steering column to steering gear pinion shaft. See Fig. 1.

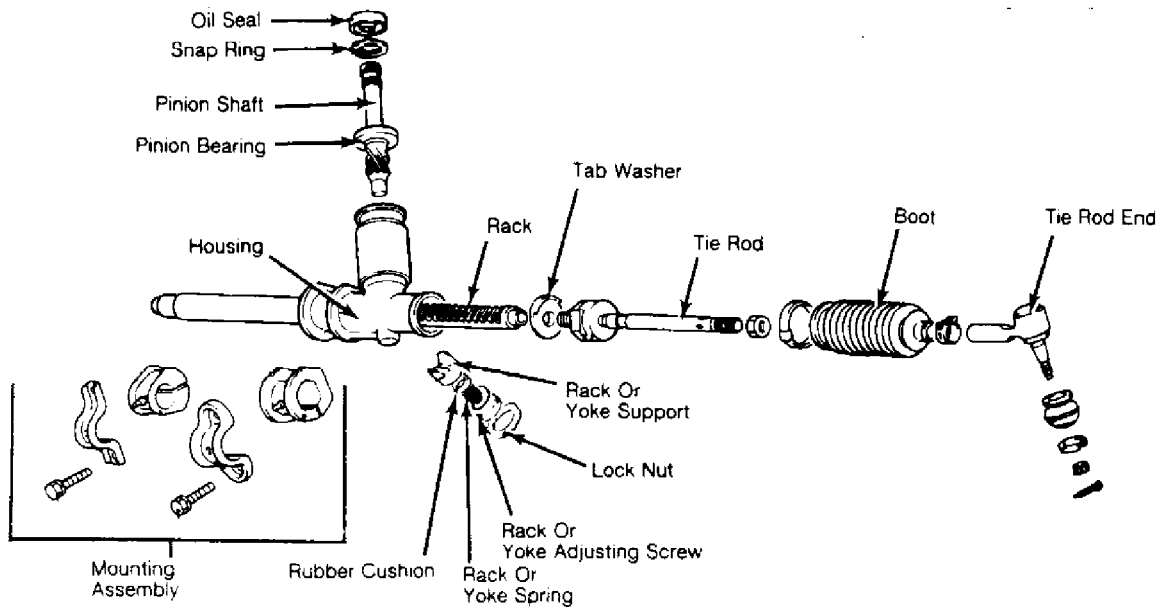


Fig. 1: Exploded View of Manual Rack & Pinion Steering Gear (Typical)  
Courtesy of Mitsubishi Motor Sales of America

## TROUBLE SHOOTING

Refer to TROUBLE SHOOTING - BASIC PROCEDURES article in the GENERAL TROUBLE SHOOTING section.

## ADJUSTMENTS

Adjustments are made during reassembly procedure. See OVERHAUL.

## REMOVAL & INSTALLATION

### STEERING GEAR

# STEERING SYSTEM - MANUAL

## Article Text (p. 2)

1992 Mitsubishi Mirage

For a a a a a

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Monday, April 01, 2002 10:17AM

### Removal

1) Disconnect negative battery cable. Raise and support vehicle. Remove both wheels. On Colt Vista, remove dust cover bolts. On all models, remove steering column flexible joint-to-pinion shaft clamp bolt(s). Clamp bolt is accessible from inside of vehicle.

2) Remove tie rod end cotter pins and castle nuts. Using a tie rod end puller, separate tie rods from steering knuckles. On Colt Vista, remove crossmember support bracket and rear roll stopper stay. On Eclipse, remove stabilizer bar bracket, front roll stopper bolts, center member rear mounting bolts and front exhaust pipe.

3) On all models, remove steering gear mounting clamp bolts. Remove steering gear. DO NOT damage rubber boots. Remove and note location of mounting bushings for installation. To remove rack on Eclipse, move rack completely to the right and remove it from center member. While tilting rack down, move rack left and remove.

### Installation

To install, reverse removal procedure. Tighten bolts and nuts to specifications. See TORQUE SPECIFICATIONS table at end of article. Check and adjust toe-in. For wheel alignment information, refer to the WHEEL ALIGNMENT SPECIFICATIONS & PROCEDURES article in the WHEEL ALIGNMENT section.

## OVERHAUL

### STEERING GEAR

#### Disassembly

1) Mount steering gear in a soft-jawed vise. Remove tie rod end assemblies. Remove adjusting plug lock nut. See Fig. 1. Remove rack or yoke adjusting screw (plug), plunger spring, rubber cushion and rack support from housing.

2) Pry pinion shaft oil seal from housing. Remove pinion bearing snap ring from housing. Remove pinion bearing with pinion shaft.

3) Remove bearing snap ring from pinion shaft. Using an appropriate sleeve and press, remove bearing from pinion shaft. Remove boot retaining clamps. Remove boots.

4) Using chisel, unstake right side (opposite pinion shaft) rack end tab washer. Move rack all the way toward pinion shaft side housing. Using a copper or brass plate to protect rack teeth, place exposed end of rack in vise.

5) Loosen tie rod ball joint. Remove tie rod from rack. Pulling toward side of pinion shaft, remove rack from housing. See Fig. 2.

## STEERING SYSTEM - MANUAL

### Article Text (p. 3)

1992 Mitsubishi Mirage

For a a a a

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Monday, April 01, 2002 10:17AM

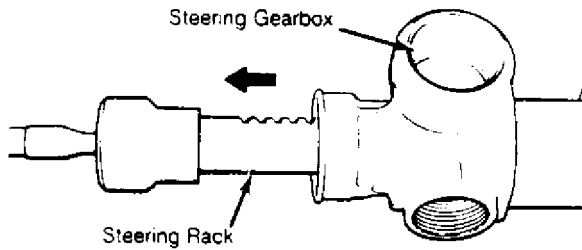


Fig. 2: Removing Rack From Housing  
Courtesy of Mitsubishi Motor Sales of America

#### Inspection

1) Check steering housing rubber mounts for deterioration or cracking. Inspect rack bushing for excessive play. Check for damage to rack teeth, pinion shaft teeth and pinion shaft splines.

2) Inspect bushing and seal mating surfaces for scratching or scoring. Check housing for cracks or dents. Inspect all rotating surfaces for wear. Replace components as necessary.

#### Reassembly

1) Clean all components in solvent. Always use new seals. Using an appropriate sleeve and press, install pinion shaft bearing onto pinion shaft.

2) Install bearing snap ring to pinion shaft. Grease rack, pinion shaft, bushing, needle bearing and other sliding surfaces.

NOTE: When lubricating components with grease, DO NOT cover air passages in housing bushing.

3) Install rack into housing from pinion shaft side of housing. Install pinion shaft into housing while meshing pinion shaft with rack teeth.

4) Ensure rack is properly centered. Measure travel of rack at each end of housing. If travel is not equal, remove pinion shaft. Recenter rack and reinstall pinion shaft. Select and install snap ring. To minimize pinion shaft axial play on Colt Vista and Precis, see the SNAP RING THICKNESS COLOR CODING (COLT VISTA & PRECIS) table.

#### SNAP RING THICKNESS COLOR CODING (COLT VISTA & PRECIS)

Color Code	In. (mm)
Blue .....	.063 (1.59)
White .....	.066 (1.66)
Yellow .....	.069 (1.74)

5) On all models, grease oil seal lip and oil seal-to-housing mating surface. Install oil seal into housing. Grease rack support. Install rack support, rubber cushion, plunger spring and adjusting plug into housing. Center rack.

6) On Colt, Colt 200, Eclipse, Mirage and Summit, tighten

# STEERING SYSTEM - MANUAL

## Article Text (p. 4)

1992 Mitsubishi Mirage

For a a a a

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Monday, April 01, 2002 10:17AM

adjusting screw (plug) to 11 ft. lbs. (15 N.m). On Colt Vista, tighten adjusting screw to 60-84 INCH lbs. (7-9 N.m). On Precis, tighten adjusting plug to 96 INCH lbs. (11 N.m).

7) Back off adjusting screw (plug) 30-60 degrees. Apply sealer to adjusting screw (plug) lock nut threads. Tighten adjusting plug lock nut to 36-51 ft. lbs. (50-70 N.m).

8) Install tie rod assemblies with new tab washers. Stake tie rod-to-rack end nuts. Install bellows and bellows clamps.

9) Using a socket and torque wrench, measure rack starting force. See RACK STARTING FORCE SPECIFICATIONS table. If rack starting force is not within specifications, replace plunger spring and rubber cushion. Recheck rack starting force.

### RACK STARTING FORCE SPECIFICATIONS TABLE

Application	INCH Lbs. (N.m)
Colt, Colt 200, Mirage & Summit .....	3-12 (.3-1.4)
Colt Vista .....	6-11 (.7-1.3)
Eclipse	
Zero-90 Degrees .....	5-11 (.6-1.3)
90-650 Degrees .....	2-9 (.2-1.0)
Precis .....	4-10 (.4-1.1)

### TIE ROD ASSEMBLY

#### Disassembly

1) Mount steering gear in a soft-jawed vise. Remove boot clamps and boots. Using a chisel, unstake left tie rod. Move tie rod all the way to right. Place rack in soft-jawed vise. Loosen tie rod end nut. See Fig. 1.

2) Remove tie rod from rack. Repeat step 1) for right side tie rod, moving rack to left side and loosen end nut.

#### Inspection

1) Inspect ball joints for pitting or wear. Check for damaged or deformed tie rod. Check boots for cracks or cuts.

2) Check ball stud starting torque. Starting torque should be 4-22 INCH lbs. (.5-2.5 N.m). If ball joint starting torque is not within specification, replace tie rod end.

3) Check for ball stud axial deflection. Deflection should be less than .06" (1.5 mm). Replace tie rod end if ball stud axial deflection is greater than specification.

#### Reassembly

Install tie rod end ball joint to rack. Tighten tie rod ball joint-to-rack nut to specification. See TORQUE SPECIFICATIONS table. Install boots and boot clamps. Adjust tie rod end lock nuts until distance between bellows and lock nut is as specified. See Fig. 3. See the TIE ROD LOCK NUT INSTALLATION SPECIFICATIONS table.

## STEERING SYSTEM - MANUAL

### Article Text (p. 5)

1992 Mitsubishi Mirage

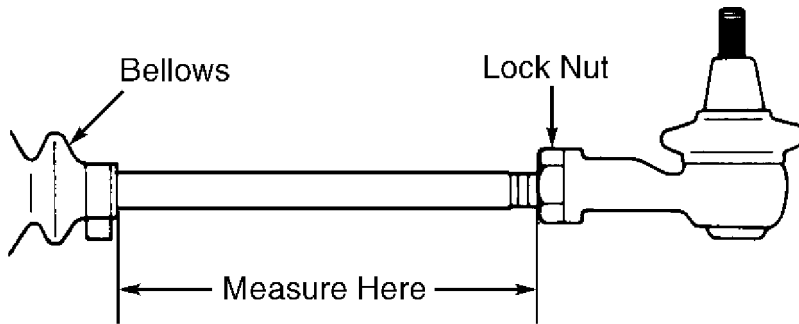
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#### TIE ROD LOCK NUT INSTALLATION SPECIFICATIONS TABLE

Application	In. (mm)
Colt, Colt 200, Mirage & Summit .....	7.2 (183)
Colt Vista .....	6.7-6.8 (170-173)
Eclipse .....	7.2-7.3 (183-185)
Precis .....	7.1 (180)



92H00775

Fig. 3: Installing Tie Rod Lock Nut  
Courtesy of Mitsubishi Motor Sales of America

#### WHEEL ALIGNMENT

After performing appropriate service procedures, refer to the WHEEL ALIGNMENT SPECIFICATIONS & PROCEDURES article in the WHEEL ALIGNMENT section.

#### TORQUE SPECIFICATIONS

##### TORQUE SPECIFICATIONS TABLE

Application	Ft. Lbs. (N.m)
Steering Gear Mounting Bracket Bolt	
Except Mirage .....	43-58 (60-79)
Mirage .....	51 (69)
Tie Rod Ball Joint-To-Rack Nut	
Except Mirage .....	58-72 (79-98)
Mirage .....	65 (88)
Tie Rod End Castle Nut	
Eclipse .....	17-25 (23-34)
Except Eclipse .....	11-25 (15-34)
Tie Rod End Lock Nut	
Colt, Colt 200 & Summit .....	25-36 (34-49)
Eclipse & Precis .....	36-40 (49-54)
Mirage .....	30 (41)
"U" Joint-To-Pinion Shaft Clamp Bolt	
Colt, Colt 200 & Summit .....	11-17 (15-23)
Eclipse & Precis .....	11-14 (15-19)

# STEERING SYSTEM - MANUAL

## Article Text (p. 6)

1992 Mitsubishi Mirage

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Mirage .....	13 (18)
Yoke Plug Lock Nut	
Except Mirage .....	36-51 (49-69)
Mirage .....	29-40 (39-54)

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END OF ARTICLE