1973 OPEL

GT (1973)
Manta (1973)
1900 (1973)

DESCRIPTION

Steering gear is a rack and pinion type. Gear housing is held to crossmember by rubber bushing and clamps. Pinion shaft is seated in upper portion of gear housing and is supported by a needle bearing in upper housing and a bushing in lower housing. Pinion is not adjustable. Rack and pinion are held in mesh by a thrust spring and shell.

ADJUSTMENT

STEERING GEAR BACKLASH

Set gear to high point by positioning front wheels straight-ahead. Flexible coupling bolt holes will be positioned parallel to the rack. Thread adjusting screw into gear housing until a resistance is felt. Back off screw 1/8 - 1/4 turn. Tighten lock nut. Fill area under pinion shaft rubber boot with gear lubricant and slide boot into position.

REMOVAL & INSTALLATION

GT

Removal – Remove knee protector pad. Loosen clamp securing flexible coupling to steering shaft. Unscrew stop bolt from underside of column (in center of collar housing ignition switch and lighting switch), and pull steering wheel rearward approximately three inches. Detach tie rod ends from steering arms. Unbolt and remove gear assembly from crossmember.

Installation – 1) Position steering gear on front suspension crossmember and torque attaching bolts. Position tie rods in steering arms and attach with nuts and cotter pins. Turn steering wheel until flat or cutout surface on lower portion of steering shaft is parallel to flexible coupling bolt hole.

2) Install lower end of steering shaft to flexible coupling and adjust dimension between steering wheel hub and turn signal housing cover to 1/8 - 3/32". Maintain this setting by tightening flexible coupling bolt and lock bolt with new lock plate. Replace stop bolt in steering column. Check for smooth turning operation.

MANTA & 1900

Removal – Remove splash shield from lower deflector panel and both side members. Remove clamp bolt securing flexible coupling to steering shaft. Detach tie rods from steering arms; unbolt and remove gear assembly from vehicle.

Installation – To install, reverse removal procedure, noting the following: First set gear and steering wheel in center positions, and ensure slot of lower steering mast matches bolt hole of flexible coupling pinion flange.

OVERHAUL

GT

Disassembly – 1) Carefully clamp gear assembly in padded vise. Unclamp and remove rubber bellows. Bend up tabs on lock plates from ball studs and disconnect tie rod ball studs from rack. *NOTE – It is important that rack be held secure while removing ball studs or rack teeth will be damaged.*

2) Loosen adjusting screw lock nut; remove adjusting screw from housing and take out thrust spring and sintered bronze shell. Rotate gear assembly in vise until pinion shaft portion is held by vise. Remove pinion nut, flat washer, and special washer.

3) Remove pinion shaft, then withdraw rack from gear housing. From housing, remove "O" rings from retainer and pinion bushing. Also take out thrust washer.

Assembly – 1) Reclamp gear housing in padded vise and place new "O" rings onto retainer and pinion shaft bushing. Also install thrust washer onto pinion bushing. Coat all moving parts with gear oil and fill long end of housing with approximately 1 3/4 oz. of gear oil.

2) Insert long, smooth end of rack into short end of housing until rack protrudes equally from each end of housing (approximately 2 7/8"). Check to ensure three air channels of sintered metal bushing are not obstructed by lubricant.

3) Reassemble pinion shaft into gear assembly so that spline in pinion shaft meshes with twelfth tooth of rack. Use special pinion mounting sleeve (J-21712) during pinion installation to avoid damage to "O" ring in pinion bushing. When inserting pinion shaft, be sure pinion is positioned so that flexible coupling bolt hole is on top and parallel to the rack.

4) Reassemble special washer, flat washer, and new pinion nut onto pinion shaft. Torque pinion nut to 11 ft. lbs. *CAUTION – Do not exceed this torque or jam in steering gear may result.*

5) Place sintered bronze shell into gear housing and fill adjusting hole with Calcium Soap No. 2. Reassemble thrust spring, adjuster screw, and lock nut on gear assembly. *NOTE – Final adjustment of adjusting screw is performed after gear is installed in vehicle. See Adjustment in this article.*

6) Place rubber bellows, clamps, and new lock plates on ball stud portion of tie rods, and screw ball studs into rack while holding bent tab of lock plate against flat on rack. Hold rack secure while torquing ball studs.

7) Bend rounded edges of lock plate over flat on ball stud to lock stud in position. Properly position rubber bellows and clamps over tie rod and gear housing, and adjust clamps so that ends are pointing in same direction as adjusting screw.

MANTA & 1900

Disassembly – 1) Clamp gear assembly in padded vise. Disconnect left and right tie rod ends from axial joints (at lock nuts). *NOTE – Ball joint of tie rod end is maintenance-free; if defective, it must be replaced as an assembly.* Unclamp and remove both rubber bellows.

2) Disconnect ball stud of axial joint from rack (lock plate and stop plate). *CAUTION – Securely hold rack while detaching axial joint, or rack teeth will be damaged. Axial joint is maintenance-free and must be replaced as assembly, if defective.*

3) Loosen adjusting screw lock nut, remove adjusting screw; withdraw thrust spring and bearing. Remove sheet metal cap from gear housing and remove hex nut from pinion. Do not turn pinion in end position. Pull pinion and rack from housing.

1973 OPEL (Cont.)

Assembly – 1) With gear housing in padded vise, place new "O" rings onto retainer and pinion shaft bushing. Install thrust washer onto pinion bushing. Coat all moving parts with gear oil. Fill long end of housing with approximately 1¾ oz. of gear oil.

2) Insert long, smooth end of rack into short end of housing until rack ends protrude evenly from housing. Ensure that three air channels of sintered bushing are not blocked by lubricant.

3) Reassemble pinion shaft into gear assembly so that spline in pinion shaft meshes with twelfth tooth of rack. Use special pinion mounting sleeve (J-21712) during pinion installation to avoid damage to "O" ring in pinion bushing. Ensure pinion is positioned such that bolt hole in flexible coupling is on top and parallel to rack.

4) Reassemble special washer, flat washer, and new pinion nut onto pinion shaft. Torque pinion nut to 11 ft. lbs. *CAUTION – Do not exceed this torque, or gear jam may result.*

5) Place sintered bronze shell into gear housing and fill adjusting hole with gear lubricant. Reassemble thrust spring, adjuster screw, and lock nut on gear assembly.

6) Screw ball stud of axial joint together with stop plate onto both ends of rack (hold rack from turning). Slide rubber bellows into position and clamp such that clamp screws are facing same direction as adjuster screw.

TIGHTENING SPECIFICATIONS

Application	Ft. Lbs. (mkg)
Flexible Coupling Clamp	
GT	15 (2.1)
Manta & 1900	22 (3.0)
Tie Rod Ball-to-Rack (GT)	43 (5.9)
Axial Joint Ball Stud-to-Rack (Manta & 1900)	47 (6.5)
Tie Rod Lock Nut (Manta & 1900)	49 (6.8)
Gear Housing Mounting Bolts	
GT	18 (2.5)
Manta & 1900	29 (4.0)
Adjusting Screw Lock Nut	43 (5.9)
Pinion Lock Nut	11 (1.5)
Tie Rod-to-Steering Arm	29 (4.0)