

1970-73 AUDI

S90 (1970-72)
100LS (1970-73)
Fox (1973)

► CHANGES, CAUTIONS, CORRECTIONS

► 1973 AUDI FOX — PINION-TO-RACK ADJUSTMENTS SHIMS — Adjustment shims are available in three sizes to eliminate excessive steering noises (usually encountered when driving on rough surface). Remove rack damper cover, measure shim set thickness, reduce this by .002" (.05 mm) and install new shims. Repeat this procedure as required until steering noise is eliminated, but without steering stiffness.

DESCRIPTION

Vehicles are equipped with a self-adjusting steering gear of the rack and pinion type. Rack and pinion have helical teeth. The rack is always pressed against the pinion by the damper through a pressure piece and insert, thus preventing backlash. Adjustable track rods are screwed on to both sides of rack.

ADJUSTMENT

S90 & 100LS

If adjustment is required, turn back lock nut, then tighten adjusting screw (not more than 10.5 INCH lbs.) until rack can slide easily over pinion. Retighten lock nut and seal with paint.

REMOVAL & INSTALLATION

S90 STEERING GEAR

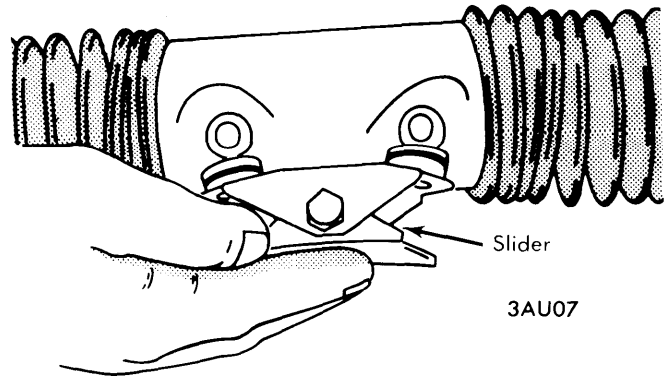
Removal (1970-72) — Loosen column boot, unscrew end plate and slide both upward. Remove top and bottom hex bolts and ground wire from Hardy disc (while doing this, hold steering wheel tight or turn to extreme left). Remove track rod ball joint. Unbolt steering gear support brackets and pry brackets out. Apply outward force to gear and turn 90° clockwise or until pinion flange faces downward. Pull gear out to the left.

Installation (1970-72) — To install, reverse removal procedure, then adjust toe-in.

100LS STEERING GEAR

Removal — Disconnect steering column at pinion. Pry track rods out of steering knuckle. Unbolt gear assembly from mountings and pull assembly to the right, then up and out of engine compartment. Unscrew track rod. Ball joint may be removed, if necessary. On vehicles without steering damper, a stop ring, located on right side of housing, is replaceable.

Installation — To install, reverse removal procedure, then adjust toe-in.



REPLACING SLIDER

100LS STEERING DAMPER

Removal — Unscrew and remove steering damper retaining bolts from both ends of unit. Remove large hose clamp from outer end of rack rubber boot and smaller clip from around damper mounting. Pull boot back from end of rack, away from damper attachment, pull out center stud and remove attachment piece.

Installation — First, place boot over track rod and attachment. Slide attachments onto track rod, aligning hole for stud with groove in track rod. Insert stud, attach and tighten hex nut. When damper is installed, distance from center of outer rack mounting bracket to center of inner damper mounting bracket should be 11.3" (287 mm).

FOX STEERING GEAR

Removal — After removing both tie rod mounting bolts from rack, pry tie rods off steering gear. Remove lower instrument panel trim. Loosen bottom steering column mounting bolt and pry off clip. Drive bottom of column off gear, using a brass mandrel. Remove gear mounting bolts from body. Turn front wheels to right lock and remove steering gear through opening in right wheel well.

Installation — Before installing steering gear in vehicle, install the slider (in which both sealing sleeves are welded into the cup - see illustration). Install steering gear. To facilitate installation of the tie rods, remove one bolt from the slider, install tie rod and reinstall bolt. Repeat this procedure for the other tie rod. After tightening all bolts, secure with lock plate.

OVERHAUL

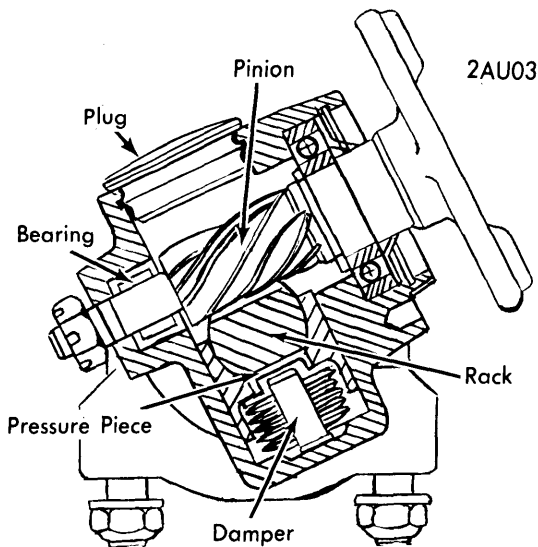
ALL MODELS

NOTE — Manufacturer does not recommend overhaul of this rack and pinion steering unit for 1973 and later models. If unit is determined defective, replace as an assembly.

Disassembly (1970-72) — 1) Thoroughly clean outside of gear and place in padded vise in horizontal position. Loosen outer bellows clamp, slide bellows back, remove lock plate and unscrew track rod.

1970-73 AUDI (Cont.)

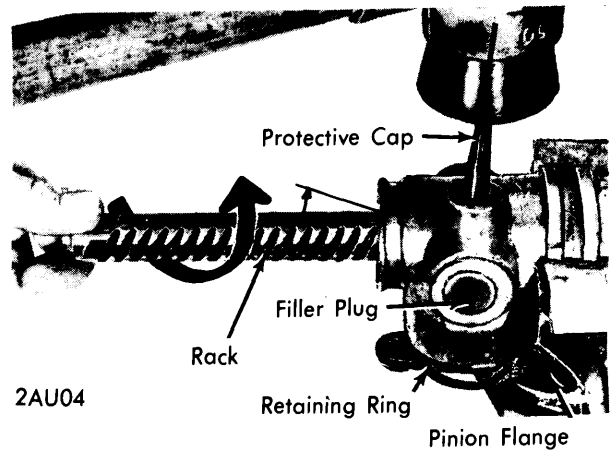
2) Clamp gear pinion flange in vise and remove castellated nut from pinion stud. Extract retaining ring from groove in housing under pinion flange. Clamp gear housing in vise with pinion flange facing down. Place protective cap on pinion threads and drive pinion out of housing (with plastic hammer) while turning rack counterclockwise and applying force away from pinion.



RACK & PINION GEAR

2) Replace needle bearing. Reassemble pinion (use new "O" ring). Press rack against damper (enough to relieve pressure against pinion during installation), position pinion against stop, place retaining ring in housing groove and torque castellated nut to specification.

3) Reposition and clamp bellows to housing (ensure clamp screw heads point upward). Screw in track rods and secure with new lock plates. Clamp bellows on track filler plug. Install gear assembly in reverse of removal procedures and adjust toe-in.



REMOVING RACK & PINION

3) Remove plastic filler plug from side of housing and apply pressure to rack damper until rack can be easily removed from housing. Drive out needle bearing, if necessary. Gently tap housing on wooden block to remove damper. Detach bearing ring from pinion and extract bearing.

4) Disassemble remaining components from pinion as necessary. If guide bushing (opposite end of housing) requires replacement, drive retaining key inward, then using rod inserted from pinion end, drive out bushing.

Reassembly (1970-72) – 1) Press in new guide bushing until it rests against stop (with one protrusion directly under key hole). Drill suitable hole in bushing and drive in retaining key. Replace damper in housing. Coat rack heavily with suitable lubricant, apply pressure to damper and slide rack into position.

TIGHTENING SPECIFICATIONS

Application	Ft. Lbs. (mkg)
Tie Rod-to-Rack	
S90 & 100LS.....	50 (6.9)
Fox.....	39 (5.4)
Track Rod Ball Joint Nut	
S90.....	26 (3.6)
100LS.....	10 (1.4)
Steering Wheel Nut.....	36 (5.0)
Hardy Disc Flange Hex Screws (Exc. Fox).....	12 (1.7)
Column Housing Clamp Nut (S90).....	21 (2.9)
Column Housing-to-Panel (100LS).....	18 (2.5)
Pinion Castellated Nut (S90).....	3.6 (.5)
Column-to-Pinion (100LS).....	18 (2.5)
Gear-to-Bracket.....	15 (2.1)
Column Base Plate (S90).....	2 (.3)
Bar-to-Slider (Fox).....	15 (2.1)