SAAB RACK & PINION

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NOTE – *Power steering may be used on some models as optional equipment. See Saab Power-Assisted Rack & Pinion under POWER STEERING in this section.*

DESCRIPTION

Steering gear is the rack and pinion type. Rack is protected from dirt by rubber bellows. The pinion bearing uses an adjustable spring-loaded plunger. The gear is oil-lubricated. The steering linkage is a direct link from the steering rack to the steering knuckles, consisting of tie rods and ball joints.

ADJUSTMENT

NOTE – *See OVERHAUL procedure in this article.*

REMOVAL & INSTALLATION

STEERING GEAR

Removal – 1) From under instrument panel, loosen the rubber bellows for steering gear intermediate shaft. Raise vehicle and remove screw mounting "U" joint to steering gear pinion. Loosen steering column tube from body, then separate steering column "U" joint from pinion.

2) Suspend steering column, with wiring harness, out of way. Remove front wheels. Using a puller, remove tie rod ends. Take off the two steering gear clamps and move rack to right stop. NOTE – *Insure bellows is not damaged against body.*

3) Place steering gear far enough to the right to allow tie rod to be bent down into body opening. Pull rack maximum stroke to left and lift steering gear through body opening.

Installation – To install, reverse removal procedure and check toe-in and steering wheel alignment.

OVERHAUL

STEERING GEAR

Disassembly – Remove tie rod ends and rubber bellows. Drill out lock pins from inner ball joints, using a 4 mm bit and drilling only ⅜" deep. Remove outer bearing cups and lock nuts. Remove rack adjustment screw, cap with gasket, shims, spring, and plunger. Remove pinion and cap with gasket shims, and upper bearing. Pull rack out from housing. Tap out lower pinion bearing.

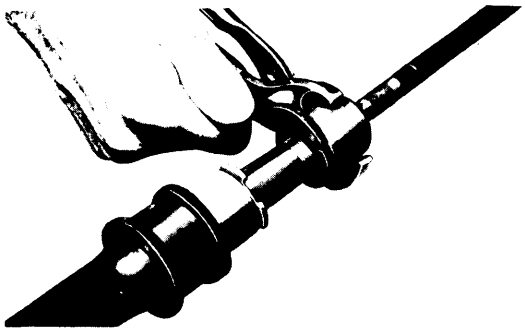

Fig. 1 Procedure for Removing Outer Bearing Cap Lock Nut

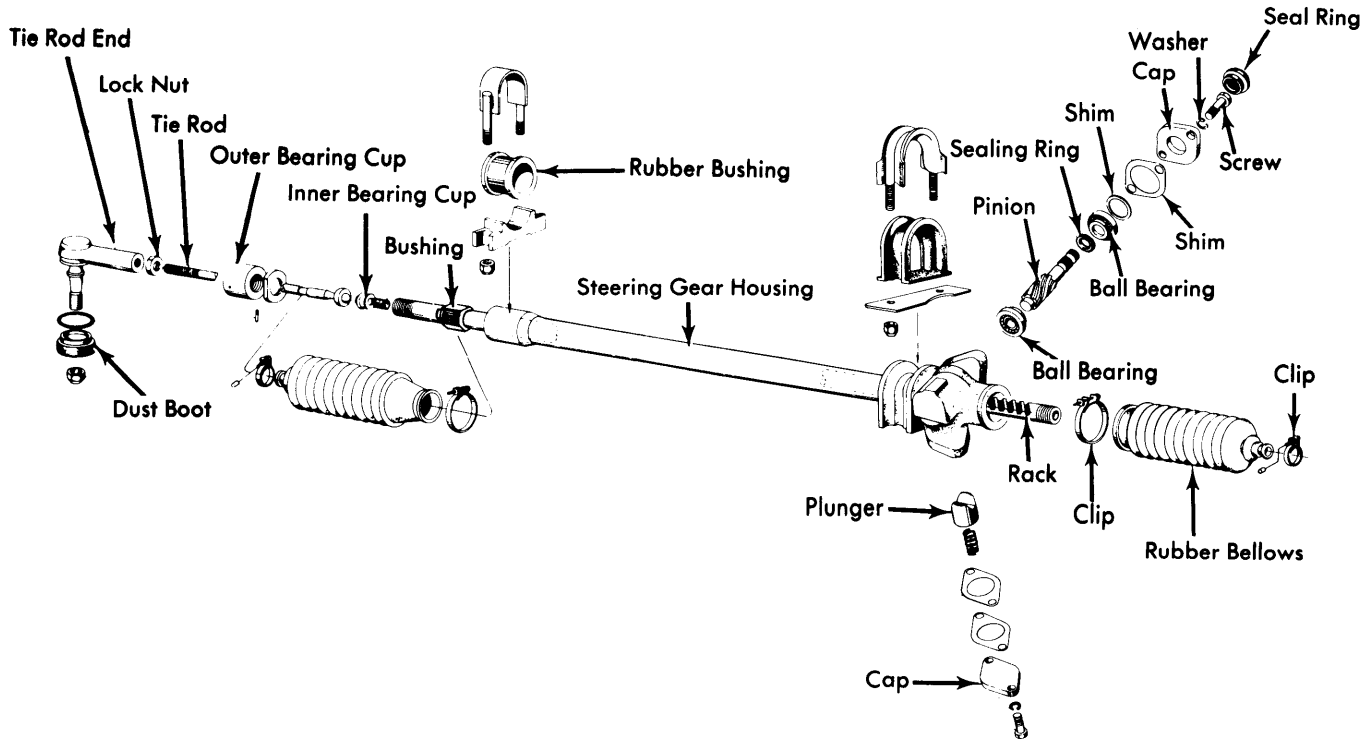

Fig. 2 Exploded View of Saab Rack & Pinion Steering Gear Assembly

SAAB RACK & PINION (Cont.)

Assembly – 1) Ensure all parts are thoroughly cleaned before proceeding with assembly. Lubricate all parts during assembly. Seat the lower pinion bearing. NOTE – *Ensure extended parts of the inner bearing tracks are facing each other.*

2) Assemble inner ball joint on pinion end of rack as follows: Thread lock nut onto rack. Fit outer bearing cup on rack and fill with suitable gear oil. Insert spring and inner bearing cup. Tighten bearing cup so that there is no looseness in ball joint, but without tightness. If rack, with tie rod mounted, is held horizontally, the tie rod should be able to be placed in any position without falling under its own weight. Tighten lock nut against bearing cup and recheck ball joint tightness. Drill a new 4 mm hole 3/8" deep and insert and stake lock a new lock pin.

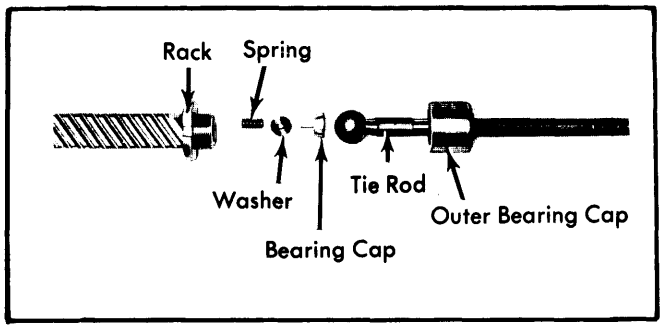

Fig. 3 Exploded View of Ball Joint Assembly Detail

3) Insert rack into housing, then fit pinion and upper bearing. Adjust pinion with shims so that there is no axial play when pinion gasket and cap are attached. Various shim sizes are available.

4) Adjust radial play of rack as follows: Insert plunger without spring and gasket, then attach cap with bolts (fingertight only). Measure clearance which exists between the cap and the housing face. To this measurement add .002-.006" (.05-.15 mm), to allow for play after completion of adjuster assembly. This total thickness will be the thickness of gasket shims required. Remove cap, install spring, shims, gasket, and cap. Check rack for free movement across entire length of its travel by rotating pinion.

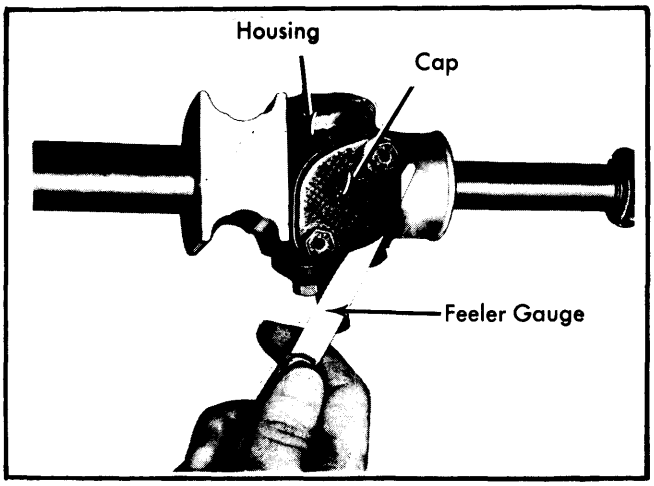

Fig. 4 Measuring Clearance Between Cap and Gear Housing

5) Assemble and adjust other ball joint in same manner as previously described. Attach bellows after lubricating contact area between bellows and tie rod (use silicone grease). Attach both inner clamps. Stand gear on end and pour 7.8 fl. ozs. of suitable EP 90 gear oil into bellows. Attach outboard bellows clamps. NOTE – *Outer clamps should be protected with rubber caps.* Screw on lock nuts and mount tie rod end assemblies to tie rods.