

# Steering Gears & Linkage

## VOLKSWAGEN VANAGON RACK & PINION

### DESCRIPTION

Volkswagen Vanagon models use a rack and pinion steering gear. A transfer gear is used to connect steering shaft to steering gear.

Tie rods are connected to rack and directly to steering knuckle, with ball joints. Both tie rods are adjustable for toe-in.

### ADJUSTMENT

#### STEERING GEAR

**NOTE:** Steering gear is not adjustable on these models. If gear is damaged or does not operate properly, complete unit must be replaced.

### REMOVAL & INSTALLATION

#### STEERING GEAR

##### Removal

Remove clamp bolt retaining connecting shaft coupling to steering gear pinion shaft. Disconnect tie rod ball joint from steering knuckles. Remove steering gear housing mounting bolts and remove steering gear from vehicle.

##### Installation

To install, reverse removal procedures.

#### TRANSFER GEAR

##### Removal

Remove clamp bolt retaining connecting shaft coupling to transfer gear shaft. Remove clamp bolt retaining lower steering shaft flange to transfer gear shaft. Remove transfer gear retaining bolts. Remove transfer gear.

##### Installation

To install, reverse removal procedures.

**NOTE:** During installation of steering gear and/or transfer gear, always replace rubber couplings in connecting shaft and steering shaft lower flange.

### OVERHAUL

**NOTE:** Steering gear and transfer gear cannot be repaired. Replace components if damaged. Steering gear rubber boots and tie rods can be replaced.

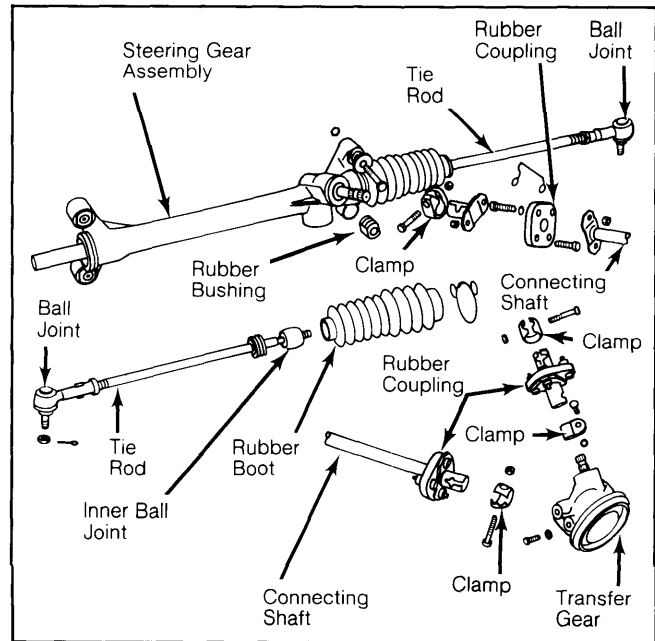
#### TIE RODS AND RUBBER BOOTS

##### Disassembly

1) With steering gear assembly removed, remove clamps retaining rubber boot to tie rod and steering gear housing. Using a punch, remove staking of tie rod inner ball joint washer to rack.

2) Remove tie rods and rubber boots from steering gear assembly. Loosen tie rod ball joint lock nut. Remove ball joints from tie rods. Press rubber bushing out of gear housing mounting.

Fig. 1: Exploded View of Steering Gear and Transfer Gear



#### Reassembly

To reassemble tie rods and rubber boots, reverse disassembly procedures. After tightening tie rod inner ball joints, stake washer to groove in rack.

#### TIGHTENING SPECIFICATIONS

Application	Ft. Lbs. (N.m)
Clamp Bolts .....	14 (19)
Housing Mounting Bolts .....	18 (24)
Tie Rod Inner Ball Joint Lock Nut .....	51 (69)
Tie Rod Outer Ball Joint Lock Nut .....	58 (79)