

Front Suspension

VOLKSWAGEN VANAGON

DESCRIPTION

Front suspension is an independent type consisting of upper and lower control arms and ball joints connected to steering knuckles. With shock absorbers surrounded by coil springs.

Strut rods are attached to chassis and lower control arms, and a stabilizer bar is attached to chassis and strut rod.

ADJUSTMENT

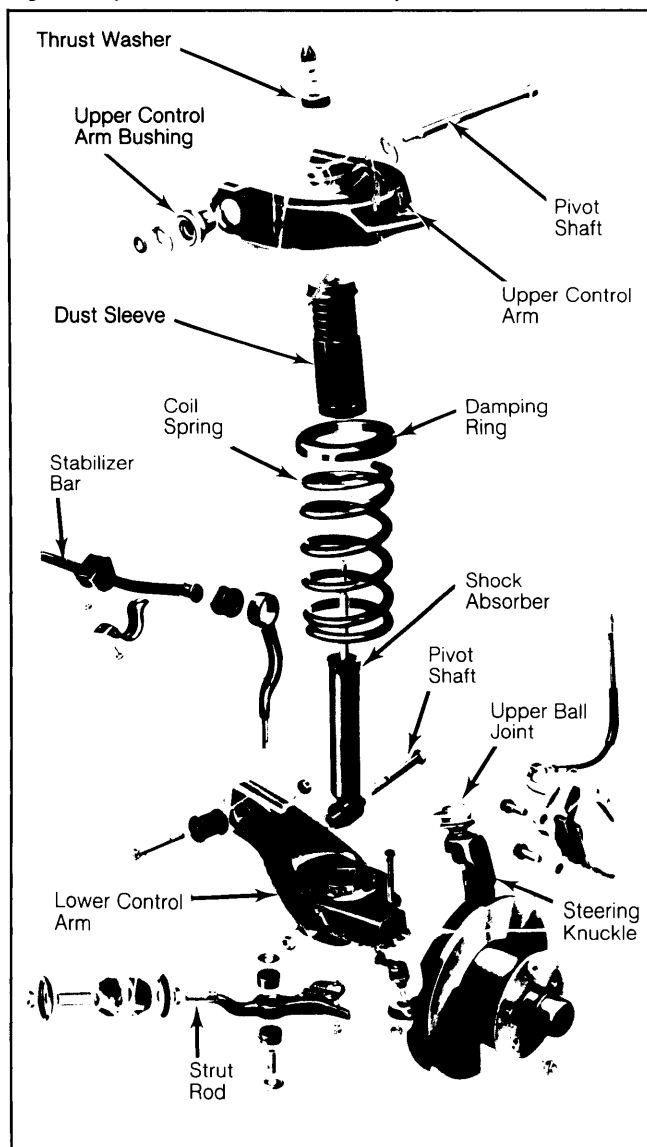
WHEEL ALIGNMENT SPECIFICATIONS & PROCEDURES

See *Wheel Alignment Specifications and Procedures* in **WHEEL ALIGNMENT** section.

WHEEL BEARING

Tighten hub nut firmly to seat bearing while turning hub. Wheel bearing is correctly adjusted when thrust washer can be moved slightly with a screwdriver

Fig. 1: Exploded View of Front Suspension



and finger pressure. After adjustment, peen flange of hub nut into stub axle shaft recess.

BALL JOINT CHECKING

Inspect ball joint for wear or excessive play. Replace ball joints as necessary.

REMOVAL & INSTALLATION

WHEEL BEARING

Removal

1) Raise vehicle and support with safety stands. Remove wheel assembly. Remove dust cap. Pry flange on hub nut out of recess in shaft and loosen hub nut.

2) Remove caliper and support out of the way. Remove hub nut, washer, outer bearing and hub. Remove seal and inner bearing from hub.

Installation

To install, reverse removal procedure.

BALL JOINT

Removal

1) Remove steering knuckle from vehicle as described, see **Lower Control Arm, Steering Knuckle & Coil Spring Removal** in this article. Remove self-locking nuts retaining ball joints to steering knuckle.

2) Press lower ball joint adapter (VW 267a) off ball joint. Press upper ball joint out with same tool. Remove circlip for ball joint and press lower ball joint out of steering knuckle.

Installation

1) Press in ball joints with flat side of shoulder facing spindle. Attach adapter loosely to lower ball joint. Do not tighten adapter fully.

2) Adapter must be aligned with control arm when steering knuckle is installed or rubber boot will tear. Install steering knuckle to vehicle and tighten ball joints and adapter with new self-locking nuts.

LOWER CONTROL ARM, STEERING KNUCKLE & COIL SPRING

Removal

1) Raise and support with safety stands. Remove wheel assembly. Detach stabilizer bar from strut rod.

2) Remove nuts retaining strut rod, steering knuckle, and lower control arm together. Remove caliper and brake hose bracket. Support caliper out of the way.

NOTE: Strut rod length determines caster angle. If setting at body mounting is changed, caster must be readjusted.

3) Separate tie rod end from steering knuckle. Remove upper ball joints from control arms. Remove steering knuckle.

4) Loosen shock absorber mounting on lower control arm. Support lower control arm with a floor jack, and pull out shock absorber bolt from lower control arm.

5) Lower floor jack slowly and remove coil spring. Remove lower control arm pivot bolt and remove control arm from vehicle.

Bushing Replacement

Using press and adapters, press out old bushings and press in replacements.

Front Suspension

VOLKSWAGEN VANAGON (Cont.)

Installation

1) Install lower control arm to vehicle with pivot bolt. Position coil spring so straight end is at bottom.

2) Attach damping ring to spring with tape. Install spring in control arm spring depression.

3) Lift control arm with a floor jack and attach shock absorber lower mount. Attach steering knuckle to control arm.

4) Attach strut rod to steering knuckle and control arm lower connection. Install stabilizer bar, tie rod end, and brake caliper.

NOTE: When installing strut rod bolts, spring washers go under bolt heads. Always use new self-locking nuts.

5) Install wheel assembly. Lower vehicle. Turn wheel to full-lock position and check distance between wheel and brake hose. Bend bracket as necessary to adjust distance to 1" (25 mm).

SHOCK ABSORBER

Removal

1) Raise vehicle and support with safety stands. Loosen shock absorber lower retaining bolt.

2) Lower vehicle to floor and remove retaining bolt. Raise vehicle and remove shock absorber upper mounting hardware. Remove shock absorber from vehicle.

Installation

When lifting vehicle with shock absorber disconnected, avoid damaging upper ball joint.

UPPER CONTROL ARM

Removal

1) Raise vehicle and support with safety stands. Remove wheel assembly. Remove bolts retaining upper ball joint to upper control arm.

2) Swing steering knuckle carefully to one side. Note the position of upper control arm pivot shaft and remove from control arm. Remove control arm from vehicle.

Bushing Replacement

Note the position of and grind off spot welds retaining bushings. Using press and adapters, press out old bushing and press in replacements. Secure bushing with spot welds in noted locations. Clean up welds and paint surface.

Installation

Lubricate pivot shaft with grease. Install upper control arm to body and position pivot shaft as noted during removal. Install ball joint to upper control arm. Install wheel assembly and lower vehicle.

NOTE: Flat on pivot shaft must be vertical and face center of vehicle. Larger side of eccentric washer faces down.

STABILIZER BAR

Removal

Disconnect stabilizer bar from strut rod. Remove bolts retaining bracket to chassis. Remove stabilizer bar.

Installation

To install, reverse removal procedures.

STRUT ROD

Removal

Disconnect stabilizer bar from strut rod. Remove nuts retaining strut rod, steering knuckle, and lower control arm together. Remove hardware mounting strut rod to chassis. Remove strut rod from vehicle.

Installation

To install, reverse removal procedures. Check wheel alignment.

NOTE: When attaching strut rod, steering knuckle, and lower control arm, spring washers are to be installed under bolt heads. Always use new self-locking nuts.

TIGHTENING SPECIFICATIONS

Application	Ft. Lbs. (N.m)
Ball Joint Self-Locking Nuts ¹	80 (109)
Brake Caliper-to-Bracket	115 (156)
Shock Absorber Top Nut	22 (30)
Stabilizer Bracket-to-Chassis	14 (19)
Stabilizer-to-Strut Rod	22 (30)
Strut Rod-to-Chassis	72 (98)
Strut Rod-to-Lower Control Arm ¹	
1st Tightening	47 (64)
2nd Tightening	51 (69)
Lower Control Arm Pivot Bolt	65 (88)
Tie Rod End-to-Steering Knuckle	22 (30)
Upper Ball Joint-to-Control Arm	43 (58)
Upper Control Arm Pivot Bolt	54 (73)

¹ — Always use new self-locking nuts.