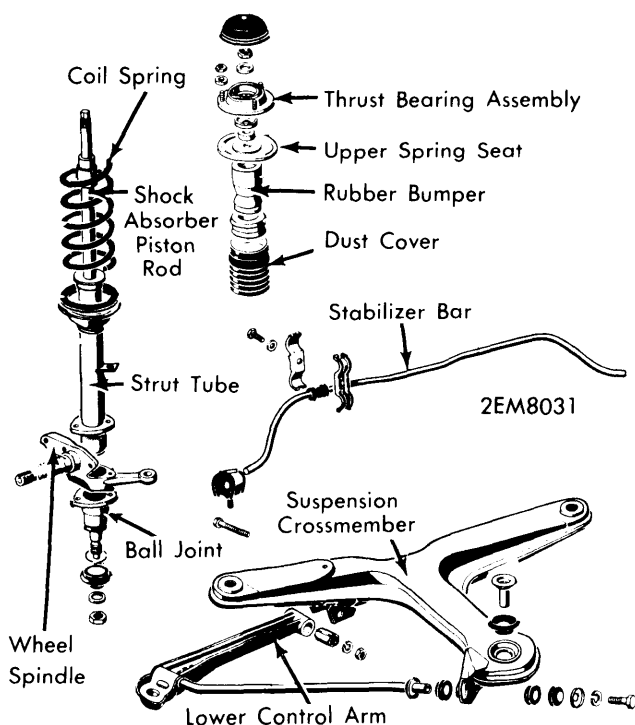


VOLKSWAGEN TYPE 4

Type 4
412

DESCRIPTION

Independent strut type suspension consisting of vertically mounted strut assemblies, lower control arms and a stabilizer bar. Strut assembly mounts at top to fender panel by means of a thrust bearing and at bottom to wheel spindle. Wheel spindle mounts to a ball joint which pivots on lower control arm. Lower control arm pivots in mount connected to suspension crossmember. Strut assembly consists of a shock absorber integral with strut tube; a coil spring is mounted over strut tube and a thrust bearing is mounted on top of assembly. Stabilizer bar mounts in front to chassis members and at ends to lower control arms.



421 FRONT SUSPENSION COMPONENTS

ADJUSTMENT

WHEEL ALIGNMENT SPECIFICATIONS & PROCEDURES

See *Wheel Alignment Specifications & Procedures* in **WHEEL ALIGNMENT** Section.

WHEEL BEARING ADJUSTMENT

See *Wheel Bearing Adjustment* in **WHEEL ALIGNMENT** Section.

BALL JOINT CHECKING

See *Ball Joint Checking* in **WHEEL ALIGNMENT** Section.

REMOVAL & INSTALLATION

BALL JOINT

Removal — Raise vehicle and place safety stands under front chassis members. Disconnect stabilizer bar from chassis mount and control arm. Remove ball joint stud nut and separate ball joint from lower control arm. Remove three bolts connecting wheel spindle to ball joint and wire spindle and brake assembly in a stationary position to prevent damaging brake line. Remove ball joint from vehicle.

Installation — Reverse removal procedure for installation. Tighten all bolts and nuts to specifications.

WHEEL SPINDLE

Removal — Raise vehicle and place safety stands under front chassis members. Disconnect stabilizer bar at chassis mount and control arm. Remove tie-rod steering knuckle stud nut and separate from wheel spindle arm. Disconnect brake line at bracket on strut tube. Remove wheel and tire. Remove two brake caliper retaining bolts and remove caliper. Remove rotor (disc) and splash shield. Remove three bolts retaining strut assembly to wheel spindle. Remove wheel spindle from vehicle.

Installation — Reverse removal procedure for installation. Tighten all bolts and nuts to specifications and bleed brakes. **NOTE** — See appropriate story in **BRAKE SYSTEMS** Section for correct bleeding procedures.

STRUT ASSEMBLY

Removal — Raise vehicle and place safety stands under front chassis members. Disconnect strut assembly from wheel spindle as previously outlined. Remove three self-locking nuts retaining strut assembly to fender panel and remove strut from vehicle.

Disassembly — Place strut assembly on a suitable holding fixture (VW 340) and compress coil spring using a suitable spring compressor (VW 340). Remove self-locking nut from piston rod. Release spring and remove thrust bearing, upper spring seat and coil spring. Dust cover and rubber bumper can also be removed at this time.

Assembly — Check all components for wear or damage. If shock absorber is found defective, replace as it cannot be serviced. Using a suitable holding fixture and spring compressor install components in reverse of removal procedure. Replace self-locking nut and tighten to specification.

Installation — Reverse removal procedure for installation. Tighten all bolts and nuts to specifications.

LOWER CONTROL ARM

Removal — Raise vehicle and place safety stands under front chassis members. Disconnect ball joint from control arm as previously outlined. Remove bolt securing control arm strut bar to suspension member. Remove control arm pivot bolt nut and slide out pivot bolt. Remove control arm from vehicle. Control arm bushing is replaceable. To remove, press out using a suitable driver.

Front Suspension

VOLKSWAGEN TYPE 4 (Cont.)

Installation — When replacing bushing, make sure it is centered in control arm. Install control arm by reversing removal procedure. Tighten all bolts and nuts to specifications.

SUSPENSION CROSSMEMBER

Removal — Raise vehicle and place safety stands under front chassis members. Remove stabilizer bar from vehicle. Disconnect both control arms from ball joints as previously outlined. Disconnect steering damper from crossmember. Remove three bolts securing suspension crossmember to body and remove crossmember with control arms attached.

Installation — Install suspension crossmember in vehicle, but leave mounting bolts loose. Install all other components in reverse of removal procedure. Tighten all bolts and nuts (except crossmember bolts) to specifications. Set front wheel camber to specifications following procedure in Wheel Alignment Section. Tighten suspension crossmember bolts to specifications.

TIGHTENING SPECIFICATIONS

| Application | Ft. Lbs. (mkg) |
|---------------------------------------|----------------|
| Upper & Lower Ball Joint Stud | 75 (10.4) |
| Ball Joint-to-Lower Control Arm..... | 45 (6.2) |
| Shock Absorber Upper End..... | 18 (2.5) |
| Shock Absorber Lower End..... | 45 (6.2) |
| Upper Arm Pivot Shaft Bushing..... | 220 (30.4) |
| Upper Control Arm-to-Frame..... | 55 (7.6) |
| Lower Control Arm-to-Crossmember..... | 130 (18.0) |
| Strut Bar-to-Frame | |
| Nut..... | 15 (2.1) |
| Lock Nut..... | 55 (7.6) |
| Strut Bar-to-Lower Control Arm | 45 (6.2) |
| Stabilizer Bar | |
| Nut..... | 7 (1.0) |
| Lock Nut..... | 18 (2.5) |