ARROW, COLT, CHALLENGER & SAPPORO

Arrow
Colt
Challenger
Sapporo

DESCRIPTION

Strut type suspension consists of a vertically mounted strut assembly, lower control arm, and stabilizer bar. Strut assembly is mounted to top of fender panel by a thrust bearing. Strut assembly mounts at bottom to steering arm and pivots in ball joint. Strut components are: shock absorber built into strut outer tube, coil spring around outside of strut tube, and wheel spindle integral with bottom of strut tube. A stabilizer bar is attached to front chassis members and at ends to lower control arms. Some models are also equipped with strut bars.

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

STABILIZER & STRUT BAR

Removal – Raise vehicle and support on safety stands. Disconnect stabilizer and strut bars from mountings on lower control arm. Remove strut bracket from body mounting position. Remove stabilizer bracket on each side and take off stabilizer. Next, lift off strut bar after noting position of all washers and bushings.

Installation – To install, reverse removal procedure and note the following: Make sure distance between strut bar end and lock nut is 3.1" (78.7 mm). Install strut bar bushing with convex surface to front side.

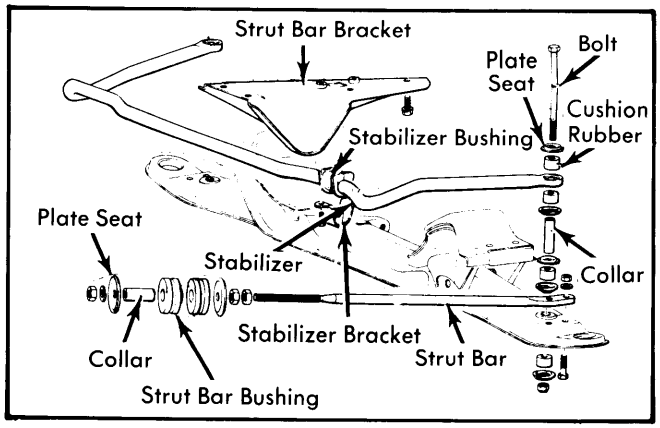

Fig. 1 Showing Mounting Positions and Components for Stabilizer Bar and Strut Bar

LOWER CONTROL ARM

Removal – 1) Raise and support front of vehicle. Remove front wheel(s).

2) Disconnect stabilizer bar and strut bar from lower control arm. Remove strut assembly.

3) Using suitable puller, detach tie rod ball joint from steering knuckle arm.

4) Remove bolt retaining strut assembly and steering knuckle arm. Separate them using a soft-faced hammer.

5) Turn steering wheel to gain clearance for removing lower control arm from crossmember. Using puller, disconnect knuckle arm from lower control arm ball joint.

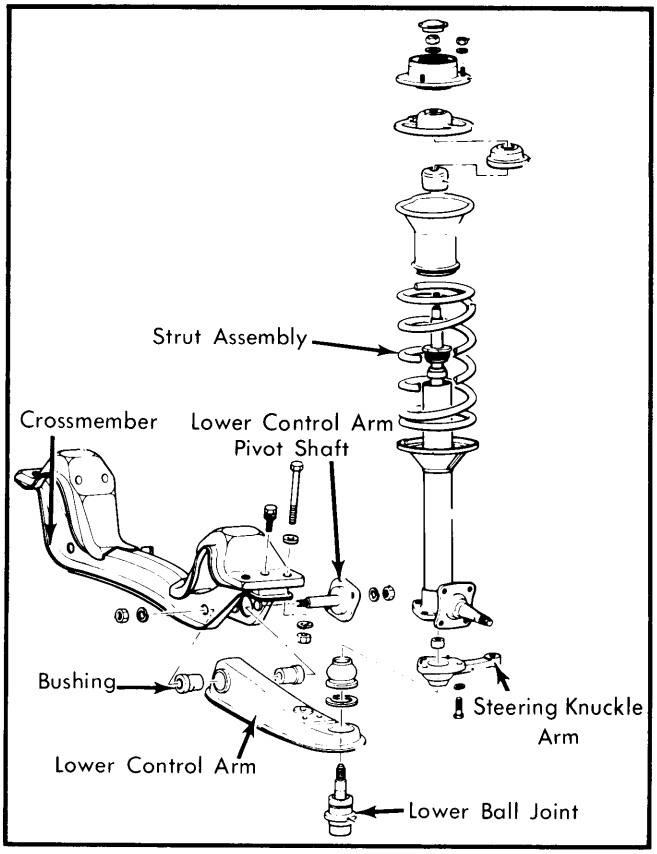

Fig. 2 Exploded View of Front Suspension Showing Relationship of Strut Assembly and Lower Control Arm

Ball Joint Replacement – 1) Pry out ball joint dust seal.

2) Remove snap ring from groove in ball joint seat.

3) Press ball joint from control arm.

4) Select new ball joint. Position ball joint in control arm. Seat ball joint into position so ball joint and lower control arm reference marks are aligned.

NOTE – *It should take approximately 11,000 lbs. (5000 kg) to fully seat ball joint.*

ARROW, COLT, CHALLENGER & SAPPORO (Cont.)

5) Fit new snap ring into ball joint groove. It may be necessary to tap snap ring into place.

NOTE – *Make sure not to open snap ring wider than necessary.*

6) Apply packing sealer inside of dust cover metal ring. Seat metal ring into snap ring surface by tapping with hammer.

Installation – To install, reverse removal procedure and note the following:

- When connecting strut assembly to steering knuckle arm, apply suitable sealer to flanged mating surface.
- When installing lower control arm shaft, tighten shaft nut temporarily and shaft flange nut to full torque setting. After vehicle is on ground at full weight, then tighten shaft nut to specified torque.

STRUT ASSEMBLY

Removal – 1) Raise and support front of vehicle allowing suspension to hang free. Remove front wheel.

2) Remove caliper assembly and front hub assembly.

3) Disconnect stabilizer link and lower control arm. Remove strut assembly, knuckle arm and strut insulator retaining bolts. Remove strut assembly from vehicle.

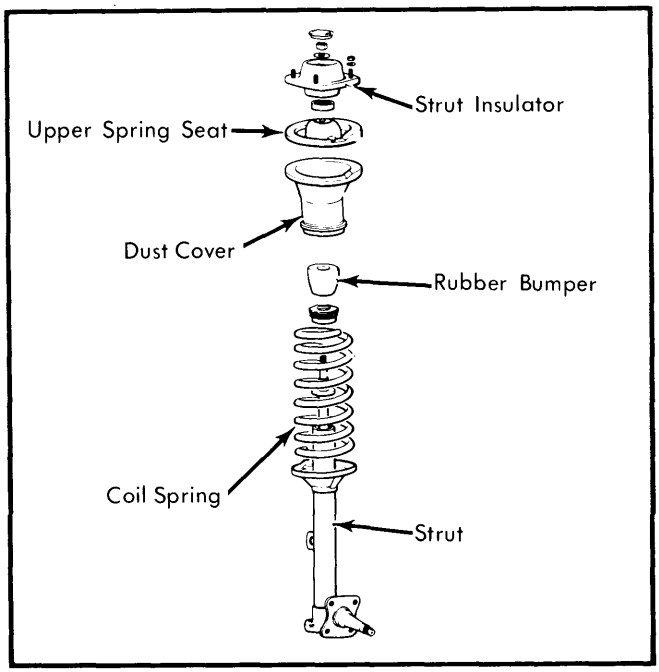

Fig. 3 Breakdown of Strut Assembly Components

Disassembly – 1) Clamp strut assembly in vise and use proper tool to compress coil spring. Remove dust cover. Remove nuts holding insulator to strut sub-assembly. Remove insulator and then coil spring.

NOTE – *Steering knuckle is welded to strut sub-assembly and cannot be separated.*

2) If oil loss is found, disassemble sub-assembly after thoroughly cleaning it. Place sub-assembly vertically in vise. Use special wrench (CT-1112) to remove seal assembly. Compress piston rod to lowest position during this procedure.

3) Drain fluid. Using small screwdriver, remove square-cut "O" ring from rod and draw out rod assembly and guide. Remove guide from piston rod.

Reassembly – 1) Clean and replace all components as required. Apply hydraulic fluid to sliding surfaces. Insert piston rod in cylinder. Compress piston ring with fingers as it slides into cylinder.

2) Assemble cylinder and piston assembly with strut outer casing. Fill unit with new fluid (approximately .72 pint or 300 cc).

3) With guide flange at top, insert piston rod until guide flange contacts shock absorber cylinder end. Install "O" ring between guide and strut outer cylinder (always use new "O" ring).

4) Cover piston rod end with seal guide (CT-1111B), slide in seal after applying oil to seal lip and tighten seal assembly until seal nut edge contacts strut outer cylinder.

NOTE – *Be sure to replace seal assembly when shock absorber has been disassembled.*

5) Attach compressor to coil spring and place spring onto strut assembly. Pull shock absorber fully out and position bumper rubber and spacer.

6) Align "D" shaped hole in spring seat upper assembly with indentation on piston rod. Install insulator assembly. Install self-locking nut and tighten temporarily.

NOTE – *If replacing coil springs, be sure to use same color-code class as original.*

7) After seating upper and lower end of coil spring on grooves of spring seats, remove spring compressor. Using special tool (CT-1112) tighten spring seat and self-locking nut to specified torque.

Installation – To install, reverse removal procedure, noting the following:

- Secure top of strut assembly to mounting bracket first. Apply sealant to lower end of assembly and connect it to knuckle arm, using dowel pins as locating guides.
- Pack strut upper bearing with grease and install dust cap. Install stabilizer, hub assembly and wheel.

TIGHTENING SPECIFICATIONS

Application	Ft. Lbs. (mkg)
Knuckle Arm-to-Ball Joint	29-43 (4.0-5.7)
Knuckle Arm-to-Tie Rod Ball Joint	29-36 (4.0-5.0)
Control Arm Flange Bolt	6-9 (0.8-1.2)
Control Arm Shaft Nut	43 (5.7)
Stabilizer-to-Control Arm	18-25 (2.5-3.5)
Strut Bar-to-Control Arm	36-43 (5.0-5.7)