Front Suspension

CHRYSLER CORP. IMPORTS — EXCEPT PICKUPS

Challenger, Champ, Colt, Sapporo

DESCRIPTION

MacPherson Strut type suspension is used, consisting of a vertically-mounted strut assembly, lower control arm, and stabilizer bar. Strut assembly is mounted to top of fender panel by a rubber insulator.

On rear wheel drive (RWD) models, the strut assembly mounts at bottom to steering arm and pivots in ball joint. On front wheel drive (FWD) models, the lower end of strut is bolted to a separate steering knuckle.

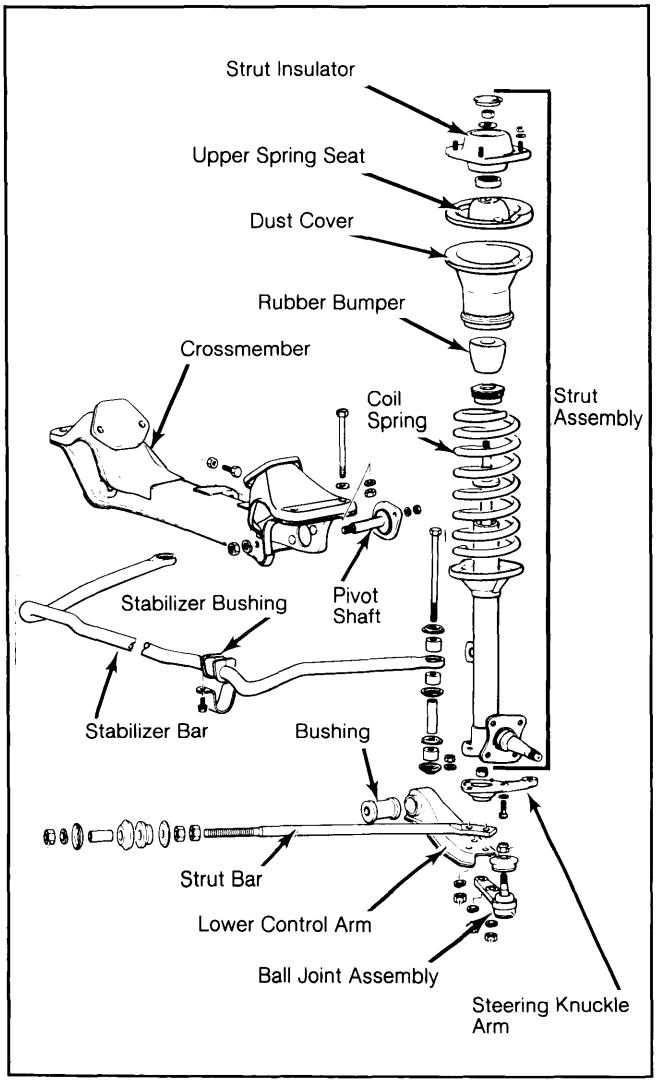
On all models, a stabilizer bar and strut bars are attached to front chassis members and to ends of lower control arms.

ADJUSTMENTS

WHEEL ALIGNMENT SPECIFICATIONS & PROCEDURES

See Wheel Alignment Specifications and Procedures in WHEEL ALIGNMENT section.

Fig. 1: Exploded View of Front Suspension (RWD)



WHEEL BEARING

RWD Models

1) Tighten spindle nut to 15 ft. lbs. (20 N.m). Loosen completely, and retighten to 4 ft. lbs. (5.5 N.m).

2) Install cotter pin. Do not back off nut more than 15° to accomodate cotter pin. If holes cannot be aligned within 15°, repeat procedure.

FWD Models

1) To adjust, use the correct wheel bearing preload spacer. To determine correct spacer, install spacer selection gauge (MB990959) in hub, and tighten to 14 ft. lbs. (19 N.m).

2) Rotate tool several times to seat wheel bearings. Install dial indicator on tool, and load approximately .2" (5 mm) of travel on dial indicator. Zero indicator.

3) Measure travel by holding threaded stud of special tool with a wrench. Back off nut slowly, until travel no longer registers on dial indicator. Note reading.

4) Repeat procedure to ensure accurate reading. Average the readings and select proper spacer. See Wheel Bearing Preload Spacer table.

WHEEL BEARING PRELOAD SPACER

Indicator Reading In. (mm)	Spacer Color	Spacer Thickness In. (mm)
.021-.024 (.54-.60)	Light Blue	.2212 (5.62)
.024-.026 (.60-.66)	Pink	.2236 (5.68)
.026-.028 (.66-.72)	Green	.2260 (5.74)
.028-.031 (.72-.78)	Red	.2283 (5.80)
.031-.033 (.78-.84)	White	.2307 (5.86)
.033-.035 (.84-.90)	None	.2330 (5.92)
.035-.038 (.035-.038)	Yellow	.2354 (5.98)
.038-.040 (.96-1.02)	Blue	.2378 (6.04)
.040-.042 (1.02-1.08)	Orange	.2402 (6.10)
.042-.045 (1.08-1.14)	Light Green	.2425 (6.16)
.045-.047 (1.14-1.20)	Brown	.2449 (6.22)
.047-.050 (1.20-1.26)	Grey	.2472 (6.28)
.050-.052 (1.26-1.32)	Navy Blue	.2496 (6.34)
.052-.054 (1.32-1.38)	Vermilion	.2520 (6.40)

BALL JOINT CHECKING

1) Remove ball joint assembly from vehicle. Check axial and radial play. If any measurable play is present, replace ball joint.

2) Check starting torque required to rotate ball joint stud. Starting torque should be 4-6 ft. lbs. (5-8 N.m). If readings are not to these specifications, ball joints should be replaced.

CHRYSLER CORP. IMPORTS — EXCEPT PICKUPS (Cont.)

REMOVAL & INSTALLATION

WHEEL BEARINGS

Removal (FWD Models)

1) Remove knuckle and hub assembly. Using a soft mallet, separate knuckle from hub. Remove inner bearing and inner race from knuckle, and preload adjusting spacer from hub. Separate rotor from hub.

2) Remove outer bearing inner race with drift, and pry out inner and outer grease seals. Drive out bearing outer races.

Installation

Select wheel bearing preload adjusting spacer. See Wheel Bearing Preload Spacer table. Set bearing preload according to procedures given under Wheel Bearing Adjustment.

Removal (RWD Models)

1) Raise and support vehicle. Remove wheel assembly. Remove caliper assembly, and wire out of the way.

2) Pry off grease cup. Remove cotter pin, cap, and retaining nut. Remove hub and rotor assembly. Remove outer bearing inner race, and drive out remaining races.

Installation

To install, reverse removal procedure. Use adjusting procedures given in Wheel Bearing Adjustment.

BALL JOINT

Removal & Installation (FWD Models)

Remove ball joint assembly from control arm. Press or drive ball joint from knuckle. Remove assembly. Reverse procedure to install new ball joint.

Removal & Installation (RWD Models)

1) Remove wheel assembly. With brake hose connected, remove caliper assembly and support out of the way.

2) Press tie rod end from steering knuckle. Remove knuckle-to-strut retaining bolts, and separate with soft mallet.

3) Loosen ball joint retaining nut in knuckle arm. With nut partially installed to protect stud, tap ball joint from arm.

4) To install, reverse removal procedures. When connecting strut assembly to steering knuckle arm, apply sealer to flanged mating surface. When installing lower control arms, tighten to specifications after vehicle has been lowered to the floor.

STRUT ASSEMBLY

Removal (FWD Models)

Raise and support front of vehicle. Remove wheel assembly. Disconnect brake line from strut tube. Remove attaching nuts and bolts at ends of strut. Remove strut.

Removal (RWD Models)

1) Raise and support vehicle. Remove wheel and tire. Disconnect brake line at strut and wheel well bracket, and remove. Remove caliper and hub assemblies.

2) Remove strut assembly mounting nuts from both ends of strut, and remove from vehicle.

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, after thoroughly cleaning it.

2) 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 approximately 8 oz. (FWD) or 14.5 oz. (RWD) of new hydraulic fluid.

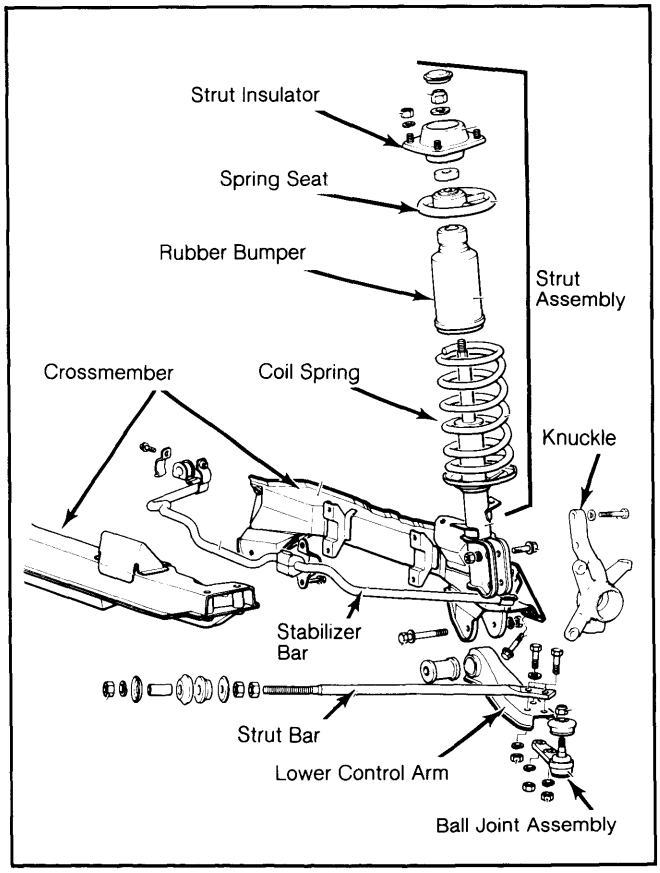
3) With guide flange at top, insert piston rod until guide flange contacts shock absorber cylinder end. Install "O" ring between guide and strut outer cylinder (always use new "O" ring).

4) Cover piston rod end with seal guide (CT-1111B). Slide in seal after applying oil to seal lips. Tighten seal assembly until seal nut edge contacts strut outer cylinder.

NOTE: Be sure to replace seal assembly when strut 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.

Fig. 2: Exploded View of FWD Front Suspension



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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 (All Models)

To install, reverse removal procedures, noting the following: On RWD, apply sealer to flanged mating surfaces of strut mount and knuckle. Pack strut upper bearing with grease, and install dust cap.

LOWER CONTROL ARM

NOTE: On all models, do not remove ball joint from steering knuckle unless ball joint is to be replaced.

Removal (FWD Models)

Raise and support front of vehicle. Disconnect ball joint and strut bar bolts from lower control arm. Remove lower control arm pivot bolt from crossmember. Remove arm assembly.

Removal (RWD Models)

1) Raise and support vehicle. Remove wheel assembly. Disconnect stabilizer bar, strut bar, and ball joint at control arm.

2) Disconnect idler arm bracket from body, and move steering linkage back. Remove control arm pivot bolt from crossmember, and remove arm.

Installation (All Models)

1) To install, reverse removal procedure and note the following: On RWD models, when connecting strut assembly to steering knuckle arm, apply sealer to flange mating surface.

2) On all models, when installing lower control arms, tighten all nuts and bolts to specifications after vehicle has been lowered to the floor.

STEERING KNUCKLE

Removal (FWD Only)

1) Raise and support front of vehicle. Remove wheel assembly. Remove cotter pin, axle nut, and washer. Remove underside cover. Remove strut bar, and disconnect ball joint from lower control arm. Drain transaxle.

2) Insert a pry bar between the transaxle case and the shoulder of the constant velocity joint of axle shaft. To avoid damaging inner seal, do not insert pry bar more than .28" (7 mm). Pry axle shaft from transaxle and support.

3) Using an axle shaft puller (CT-1003), force axle shaft out of hub, and remove from vehicle. Remove brake assembly.

4) Using a tie rod puller, remove tie rod end from knuckle. Disconnect the knuckle from strut, and remove hub and knuckle as an assembly.

Installation

To install, reverse removal procedure. Replace the constant velocity joint retainer ring each time the axle shaft is removed from transaxle case.

STABILIZER AND STRUT BAR

Removal

1) Raise vehicle and support on safety stands. Disconnect stabilizer and strut bars from mounts on lower control arm.

2) 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 bushing.

Installation

1) On FWD, right side strut bar is marked with Yellow. On all other models, check mark between bolt holes to determine right (R) and left (L) rods.

2) Make sure distance from end of strut rod to outside edge of outer lock nut is 2.95" (75 mm) on FWD, and 3.2" (8l mm) on RWD.

TIGHTENING SPECIFICATIONS

Application	Ft. Lbs. (N.m)
FWD Models	
Drive Axle Nut	87-130 (118-177)
Strut-to-Knuckle Arm	54-65 (73-88)
Knuckle Arm-to-Ball Joint	40-51 (54-69)
Knuckle Arm-to-Tie Rod Ball Joint	11-25 (15-34)
Control Arm-to-Ball Joint	69-87 (94-118)
Control Arm-to-Crossmember	69-87 (94-118)
Strut Bar-to-Control Arm	69-87 (94-118)
Strut Bar-to-Crossmember	54-61 (73-83)
Stabilizer Bracket Bolts	22-29 (30-39)
Hub-to-Rotor	29-36 (39-53)
RWD Models	
Strut-to-Knuckle Arm	58-78 (79-106)
Knuckle Arm-to-Ball Joint	43-52 (59-71)
Knuckle Arm-to-Tie Rod Ball Joint	25-33 (34-45)
Control Arm-to-Corssmember	58-69 (79-94)
Control Arm-to-Ball Joint	43-51 (59-69)
Stabilizer-to-Control Arm	10-14 (14-19)
Stabilizer Bracket Bolts	25-33 (34-45)
Strut Bar-to-Control Arm	43-51 (59-69)
Strut Bar-to-Bracket	54-61 (73-83)
Hub-to-Rotor	25-29 (34-39)