Front Suspension

MAZDA — EXCEPT PICKUPS

DESCRIPTION

Mazda uses independent front suspension with MacPherson type struts. Strut assemblies mount between lower control arms and upper fender panels. Strut assemblies consist of inner shock absorbers, coil springs surrounding outside of strut tube housing. The steering knuckle is connected to both lower control arm and strut.

Lower control arms pivot at crossmember and are connected by ball joints to steering knuckle. Rear wheel drive models are equipped with a stabilizer bar which is attached to the chassis and at each end to the lower control arms. On 626 and RX7 models, torsion bars are installed to maintain alignment and stability.

ADJUSTMENT

WHEEL ALIGNMENT SPECIFICATIONS & PROCEDURES

See Wheel Alignment Specifications & Procedures in WHEEL ALIGNMENT section.

WHEEL BEARING

RWD Models

Tighten spindle nut to 14-18 ft. lbs. (19-24 N.m). Turn hub a few times to seat bearings. Loosen nut. Install one wheel bolt and attach spring scale. Gradually tighten spindle nut until a preload reading of 1.0-1.4 lbs. (4.5-6.2 N) is obtained.

FWD Models

1) With steering knuckle removed as discribed in Wheel Bearing Removal, and outer bearing and spacer in place. Attach spacer selector (49 B001 727) to knuckle.

2) Tighten selector nut to 145 lbs. (197 N.m) by 35 ft. lb. (48 N.m) increments, checking that knuckle turns smoothly at each step. Measure bearing preload at caliper mounting hole in knuckle. Preload should be .5-2.0 lbs. (2.2-8.9 N). If not to specification, the spacer must be changed.

3) There are 21 spacers available from .2474" (6.285 mm) to .2794" (7.085 mm) in steps of .0016" (.04 mm). If preload is too high, increase spacer thickness. If it is too low, decrease thickness. Changing spacer thickness by one number will change preload by about .5-1.0 lbs. (2.2-4.5 N). Number is stamped on outer edge of spacer. Recheck preload after new spacer is installed.

BALL JOINT CHECKING

RWD Models

1) With strut assembly disconnected (GLC Wagon & 626) or control arm removed from vehicle (RX7), check ball joint dust boot for cracks or other damage. Rotate ball joint stud several times to settle joint.

2) Attach knuckle arm and connect spring scale to tie rod hole in arm. Support knuckle with finger and measure starting force required to turn ball joint. If scale reading is less than .9 lbs. (4.0 N), replace ball joint and lower control arm as an assembly.

FWD Models

Raise vehicle and support with safety stands. With control arm removed and ball joint assembly attached to knuckle arm, measure starting force required to turn ball joint. If scale reading is not 4.0-6.8 lbs. (17.8-30.3 N), replace ball joint assembly.

REMOVAL & INSTALLATION

WHEEL BEARING

Removal (RWD)

1) Raise vehicle and support with safety stands. Remove wheel assembly. Remove brake caliper and support out of the way. Remove grease cap, cotter pin, nut lock, adjusting nut and bearing from spindle.

2) Remove rotor and hub assembly. Remove grease seal and inner bearing. Inspect bearing races for excessive wear or signs of damage. If replacement is required, drive out with drift.

Installation (RWD)

To install, reverse removal procedures. Check bearing preload.

Removal (FWD)

1) Raise vehicle and support with safety stands. Remove wheel assembly. Remove drive shaft lock nut. Separate tie rod ball joint from knuckle.

2) Disconnect brake line from clip on strut, remove brake caliper assembly and support out of the way. Remove knuckle-to-strut attaching bolts and ball joint-to-control arm bolts. Remove knuckle and ball joint as an assembly. Separate ball joint from knuckle.

3) With wheel hub in vise, remove knuckle with puller (49 B001 726). Remove hub-to-rotor retaining bolts and separate hub from rotor. Remove bearing spacer and press outer bearing from hub.

4) Remove inner and outer grease seals. Remove inner bearing and drive out bearing races with drift. Inspect bearing and races for excessive wear or damage and replace as needed. Always use a new race with a new bearing.

Installation (FWD)

To install, reverse removal procedures. Check bearing preload.

LOWER CONTROL ARM

Removal (RWD)

1) Raise vehicle and support with safety stands. Remove wheel assembly. Remove cotter pin from tie rod nut. Remove nut.

2) Separate tie rod ball joint with puller. Remove bolts mounting steering knuckle to strut tube. Disconnect stabilizer bar and torsion bars (if equipped) from control arm.

Removal (FWD)

Raise vehicle and support with safety stands. Remove wheel assembly. Disconnect knuckle arm-to-control arm ball joint. Remove control arm retaining bolts at frame and remove arm.

Installation (All Models)

To install, reverse removal procedures.

RWD STRUT ASSEMBLY

Removal

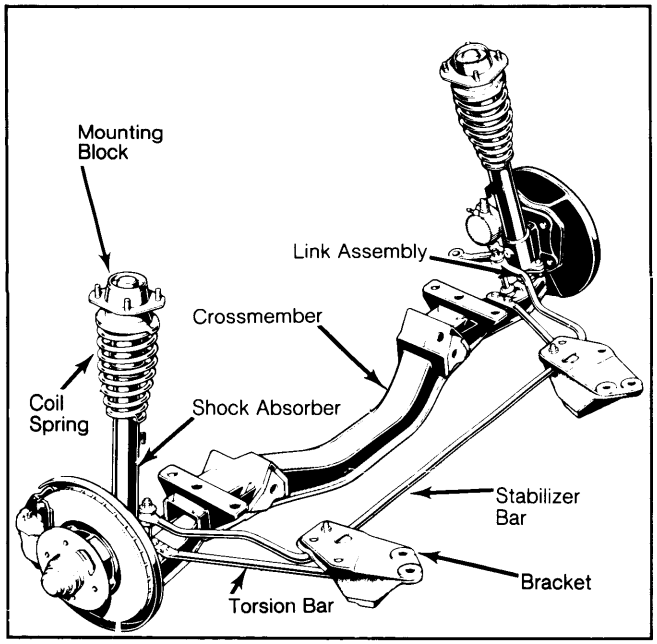
1) Raise vehicle and support with safety stands. Remove wheel assembly. Remove strut-to-fender panel nuts from inside engine compartment.

2) Remove brake line mounting clip from strut housing. Remove brake caliper and support out of the way. Remove grease cap, cotter pin, nut lock, and bearing from spindle. Pull off hub and brake assembly.

Front Suspension

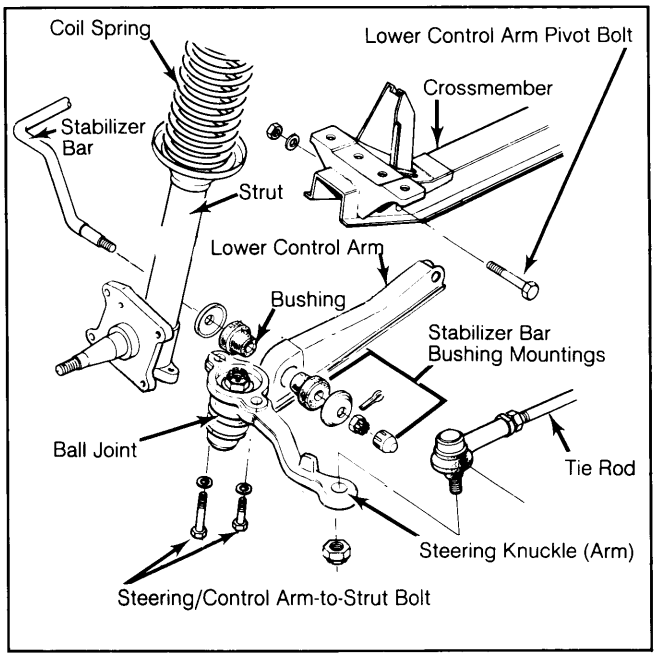
MAZDA — EXCEPT PICKUPS (Cont.)

Fig. 1: 626 & RX7 Front Suspension Assembly



3) Remove backing plate. Remove strut-to-steering knuckle mounting bolts. Drop lower control arm down. Remove strut assembly and coil spring.

Fig. 2: Exploded View of GLC Wagon Front Suspension



Disassembly

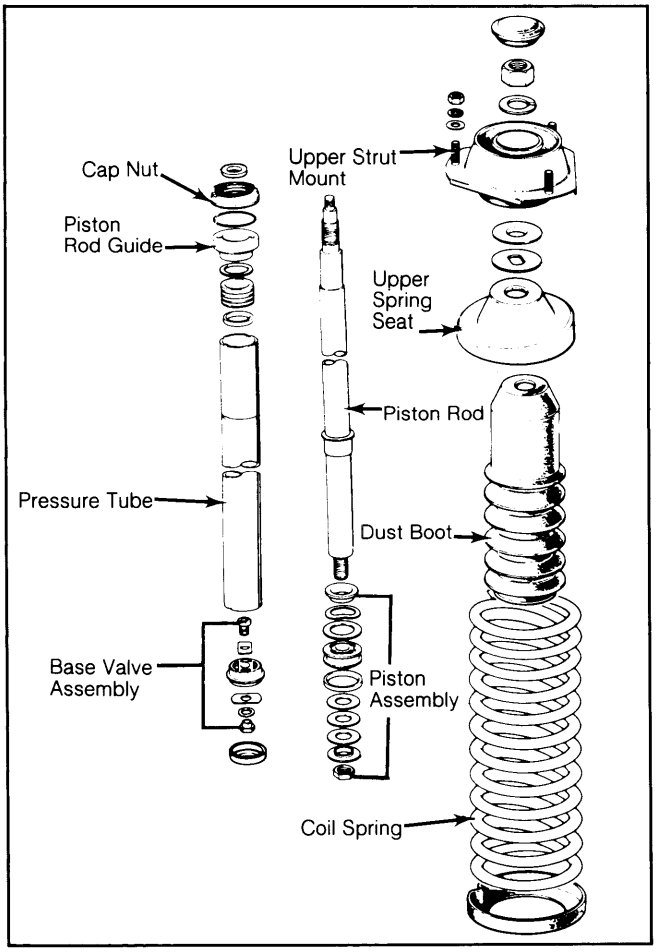
1) Clamp strut in vise. Use spring compressor to collapse coil spring. Remove lock nut and washer from top of piston rod.

2) Remove shock absorber support, spring seat and thrust bearing. Remove coil spring, dust boot and damper stopper.

3) Place strut in a soft jawed vise. Remove cap nut and seal. Pry "O" ring from guide rod. Pull piston rod and pressure tube assembly out of strut tube. Remove strut from vise and drain fluid.

NOTE: Do not remove piston rod, guide or base valve from pressure tube. Service as a complete assembly only.

Fig. 3: Exploded View of 626 & RX7 Strut Assembly



Inspection

Check strut tube for cracks or wear. Check all rubber parts for cracks or excessive damage. Inspect coil spring for signs of fatigue or damage. Replace parts as needed.

Reassembly & Installation

1) Hold strut tube in vise. Insert pressure tube and piston rod assembly into tube. Pour hydraulic fluid into strut.

2) Install piston rod guide into pressure tube. Fit new "O" ring between rod guide and strut tube. Fit a pilot (49 0259 590) over threads of piston rod. Apply grease to lip of oil seal and insert cap nut through pilot onto piston rod.

3) Tighten cap nut and pull out piston rod. Seat piston and torque cap nut. Install coil spring and remaining components in reverse order of removal procedure.

FWD STRUT ASSEMBLY

Removal

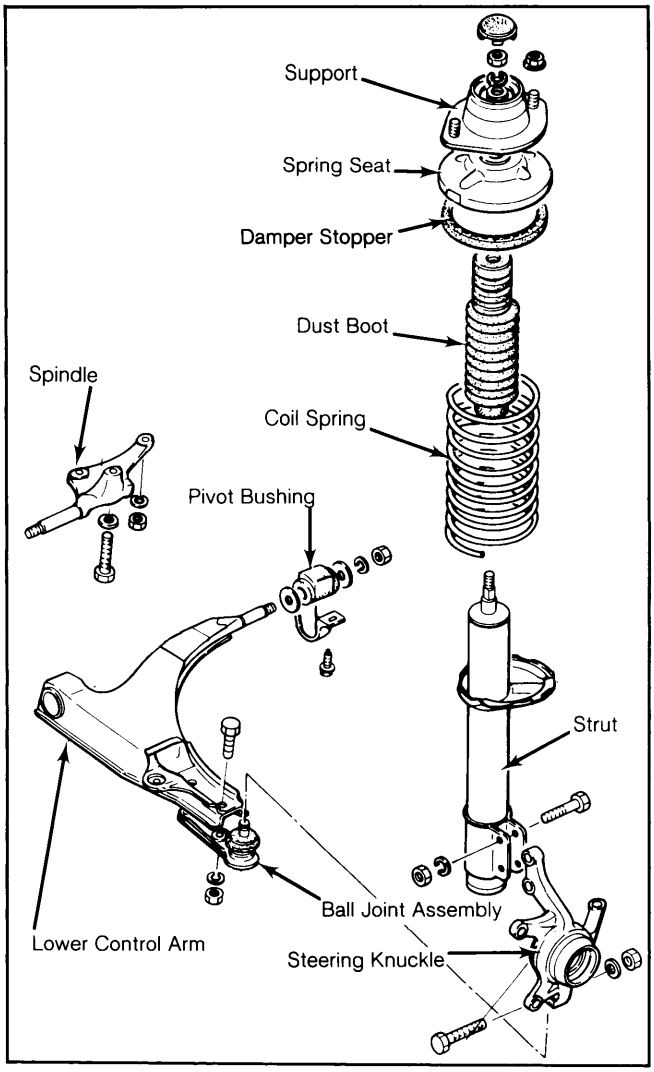
Raise vehicle and support with safety stands. Remove wheel assembly. Remove brake line from bracket

Front Suspension

MAZDA — EXCEPT PICKUPS (Cont.)

on strut. Remove retaining bolts from top and bottom of strut assembly and remove strut.

Fig. 4: Exploded View of GLC Front Suspension



Disassembly

1) Clamp strut in vise. Use spring compressor to collapse coil spring. Remove lock nut and washer from top of piston rod.

2) Remove shock absorber support and spring seat. Remove coil spring, dust boot and damper stopper. Strut assembly is serviced as an assembly.

Inspection

Check all rubber parts for cracking or signs of wear. Inspect coil spring for signs of fatigue, cracks or other damage. Replace components as needed.

Reassembly & Installation

Reverse disassembly and removal, to complete assemble and installation procedures.

STRUT RESERVOIR VOLUME

Application	Ounces
RX7	7.61
GLC	8.45
626	8.15

TIGHTENING SPECIFICATIONS

Application	Ft. Lbs. (N.m)
RWD Models	
Control Arm-to-Frame	29-40 (39-54)
Steering Knuckle-to-Strut	
GLC Wagon	69-85 (94-116)
626 & RX7	43-51 (58-69)
Ball Joint-to-Knuckle	
GLC Wagon	43-58 (58-79)
626	46-69 (63-94)
RX7	43-51 (58-69)
Knuckle-to-Tie Rod Ball Joint	22-33 (30-45)
Torsion Bar-to-Control Arm	
626	48-58 (65-79)
RX7	40-50 (54-68)
Torsion Bar Lock Nut	80-108 (109-147)
Strut Cap Nut	
GLC Wagon	72-94 (98-128)
626 & RX7	36-43 (49-58)
w/Cartridge	58-108 (79-147)
FWD Models	
Control Arm Spindle Nut	55-69 (75-94)
Control Arm Spindle-to-Frame	69-86 (94-117)
Control Arm Pivot Bushing Nut	55-69 (75-94)
Control Arm Pivot Bushing Bracket	37-45 (50-61)
Ball Joint-to-Control Arm	69-86 (94-117)
Ball Joint-to-Knuckle (Pinch Bolt)	33-40 (45-54)
Knucke-to-Tie Rod Ball Joint	22-33 (30-45)
Knuckle-to-Strut	58-86 (79-117)
Strut Cap Nut	55-69 (75-94)
Axle Nut	116-174 (158-237)