

SUSPENSION - FRONT

1994 SUSPENSION Mazda - Front

DESCRIPTION

An independent front suspension with MacPherson-type struts is used on all models. Miata uses double wishbone design upper and lower control arms with struts mounted between lower control arm and upper fender panel. See [Fig. 1](#).

Lower control arm pivots at crossmember and is connected by ball joint to steering knuckle. All models are equipped with a stabilizer bar which attaches to each lower control arm and frame.

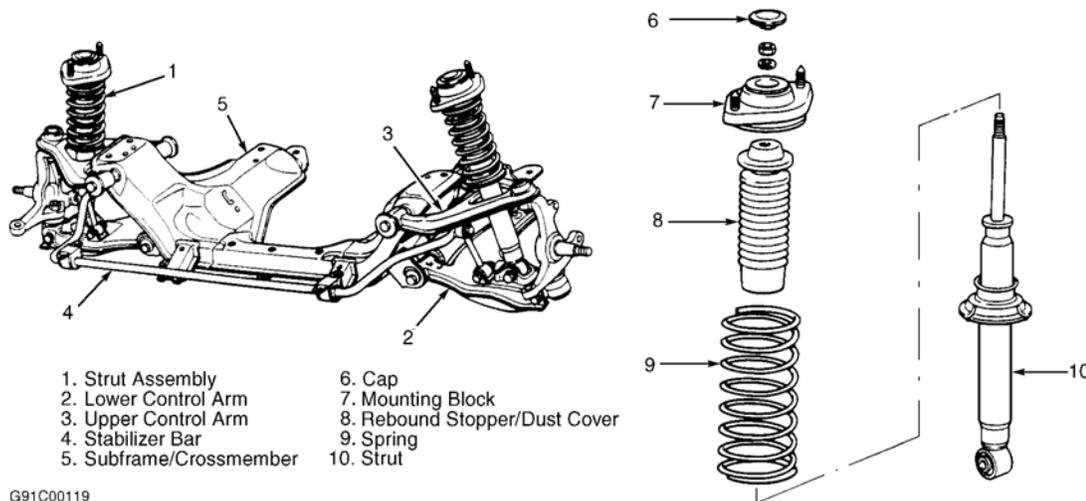


Fig. 1: Front Suspension Components
Courtesy of MAZDA MOTORS CORP.

ADJUSTMENTS

WHEEL ALIGNMENT SPECIFICATIONS & PROCEDURES

NOTE: See [WHEEL ALIGNMENT SPECIFICATIONS & PROCEDURES](#) article in the [WHEEL ALIGNMENT](#) section.

WHEEL BEARING

Raise and support vehicle. Remove wheel assembly. Remove brake caliper and wire aside. Remove rotor. Attach dial indicator to axle hub and measure bearing play. Check bearing axial play by rocking hub assembly by hand. Maximum axial play should be .002" (.05 mm). If play exceeds specification, check and adjust lock nut torque or replace hub and bearing assembly.

1994 Mazda MX-5 Miata

SUSPENSION - FRONT 1994 SUSPENSION Mazda - Front

INSPECTION

BALL JOINT CHECKING

Lower Ball Joint

Remove lower control arm. Rotate ball joint stud 3-4 times. Install Preload Attachment (49-0180-510B) to ball joint stud. Measure ball joint preload using spring scale. Preload should be 1.1-3.3 lbs. (0.5-1.5 kg).

Upper Ball Joint

Remove upper control arm. Rotate ball joint stud 3-4 times. Install Preload Attachment (49-0180-510B) to ball joint stud. Measure ball joint preload using spring scale. Preload should be 0.9-4.0 lbs. (0.4-1.8 kg).

REMOVAL & INSTALLATION

NOTE: Refer to Fig. 1 during removal and installation.

WHEEL BEARING

NOTE: Replace hub and bearing assembly as a unit.

Removal

Raise and support vehicle. Remove wheel assembly. Remove brake caliper and wire aside. Remove grease cap and axle lock nut. Remove brake rotor. Remove hub and bearing assembly. Remove wheel speed sensor rotor from hub.

Inspection

Wash all disassembled components before inspection. Check for damage, excessive wear and signs of bearing seizure. Inspect steering knuckle and hub for cracks, scoring and rust. Check for damaged dust cover and poor fit with steering knuckle. Replace components as necessary.

Installation

To install, reverse removal procedure. Adjust wheel bearing preload. See **WHEEL BEARING** under ADJUSTMENTS.

LOWER CONTROL ARM & BALL JOINT

Removal

1. Raise and support vehicle. Remove wheel assembly. Remove engine splash shield (if equipped). Remove brake caliper and wire aside (as necessary). Remove compression rod or tension rod (if equipped). Separate tie rod end from knuckle (as necessary). Remove stabilizer bar from lower control arm.

1994 Mazda MX-5 Miata

SUSPENSION - FRONT 1994 SUSPENSION Mazda - Front

2. Remove strut lower mounting bolt and separate lower strut from lower control arm or knuckle. Remove lower control arm ball joint cotter pin and nut. Separate lower control arm ball joint stud from knuckle. Remove lower control arm pivot bolts and remove lower control arm.

Inspection

Check lower control arm for damage or cracks. Check bushings for deterioration and excessive wear. Check ball joint for excessive wear. Examine dust boot for damage. Replace components as necessary.

Bushing Replacement

Cut or press old bushing from control arm. Coat NEW bushing with paraffin-based oil. Press NEW bushing into control arm.

Installation

To install, reverse removal procedure. Tighten lower control arm-to-frame bolts to specification with vehicle resting on ground and suspension unloaded. See **TORQUE SPECIFICATIONS** table.

UPPER CONTROL ARM & BALL JOINT

Removal

Raise and support vehicle. Remove wheel assembly. Remove engine splash shield. Remove wheel speed sensor harness band. Remove strut lower mounting bolt and separate lower strut from lower control arm. Remove upper control arm ball joint cotter pin and nut. Separate upper control arm ball joint stud from knuckle using Puller (49-0118-850C). Remove upper control arm pivot bolts and remove upper control arm.

Inspection

Check upper control arm for damage or cracks. Check bushings for deterioration and excessive wear. Check ball joint for excessive wear. Examine dust boot for damage. Replace components as necessary.

Bushing Replacement

Cut or press old bushing from control arm. Coat NEW bushing with paraffin-based oil. Press NEW bushing into control arm.

Installation

To install, reverse removal procedure. Tighten upper control arm pivot bolts to specification with vehicle resting on ground and suspension unloaded. See **TORQUE SPECIFICATIONS** table.

STRUT ASSEMBLY

Removal

1994 Mazda MX-5 Miata

SUSPENSION - FRONT 1994 SUSPENSION Mazda - Front

Raise and support vehicle. Remove wheel assembly. Remove engine splash shield. Remove wheel speed sensor harness band. Remove stabilizer link bolt. Remove upper control arm ball joint cotter pin and nut. Separate upper control arm ball joint stud from knuckle using Puller (49-0118-850C). Loosen lower control arm pivot bolts. Remove strut upper mount nuts and lower bolt. Move lower control arm just enough to remove strut assembly. Be careful not to damage brake line.

NOTE: Prior to removing strut-to-steering knuckle bolts, make an alignment mark for reassembly reference. Note position of mounting mark on top of strut assembly before removing strut.

Disassembly

Clamp upper strut mount in vise. Loosen piston lock nut 2 turns only. Compress coil spring using coil spring compressor. Remove piston lock nut. Slowly release compressor tension. Remove components. Remove coil spring. Remove strut from vise.

Inspection

Check strut tube for damage, oil leakage and abnormal noise. Check rubber components for deterioration or damage. Inspect coil spring for signs of fatigue or damage. Replace components as necessary.

Reassembly

Clamp strut in vise. Install coil spring and components in reverse order of disassembly. Ensure coil spring is well seated in upper and lower spring seats.

Installation

To install, reverse removal procedure.

STABILIZER BAR

Removal & Installation

1. Raise and support vehicle. Remove engine splash shield (if equipped). Remove mounting hardware and stabilizer bar. Note position of frame bushing seam.
2. Inspect all components for wear, bends or damage. Replace components as necessary.
3. To install, reverse removal procedure. Ensure frame bushing is aligned with White line on stabilizer bar. Ensure seam faces front of vehicle. Fully tighten all bolts with vehicle resting on ground and suspension unloaded. See [TORQUE SPECIFICATIONS](#) table.

TORQUE SPECIFICATIONS

TORQUE SPECIFICATIONS

Application	Ft. Lbs. (N.m)
Brake Caliper Bracket Bolts	36-51 (49-69)

1994 Mazda MX-5 Miata

SUSPENSION - FRONT 1994 SUSPENSION Mazda - Front

Drive Axle Lock Nut	123-159 (167-216)
Lower Ball Joint-To-Knuckle Nut	42-57 (57-77)
Lower Ball Joint-To-Lower Control Arm Bolts/Nut	54-69 (73-93)
Lower Control Arm-To-Frame Front Adjusting Bolt Lock Nut	69-83 (93-113)
Rear Adjusting Bolt Lock Nut	61-76 (83-103)
Stabilizer Bar Bracket-To-Frame Bolts	13-19 (18-26)
Stabilizer Bar-To-Stabilizer Link Bolt	27-40 (36-54)
Stabilizer Link-To-LowerControl Arm Bolt	27-40 (36-54)
Strut Assembly Lock Nut	21-27 (29-36)
Strut Assembly-To-Lower Control Arm Bolt/Nut	54-69 (73-93)
Strut Upper Mount Nuts	21-27 (29-36)
Tie Rod-To-Knuckle Nut	21-32 (29-44)
Upper Ball Joint-To-Knuckle Nut	30-45 (41-61)
Upper Control Arm Pivot Bolt/Nut	87-101 (118-137)
Wheel Lug Nuts	65-87 (88-118)
Wheel Speed Sensor Bolt	12-17 (16-23)