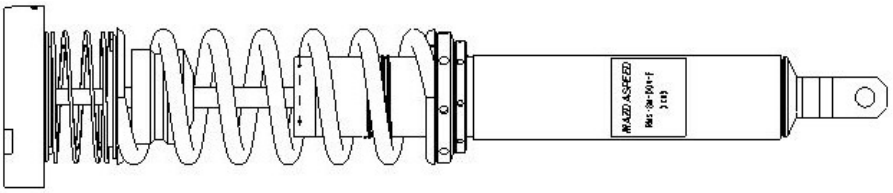
MAZDASPEED
PERFORMANCE ACCESSORIES

INSTALLATION INSTRUCTIONS

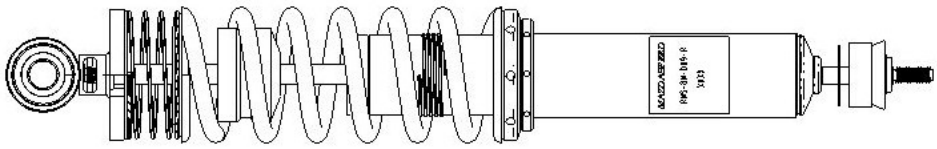
PART NUMBER: RAMS-8M-K01 | **Coilover Kit** | **APPLICABLE MODELS: 2002> RX-8 (all models)**

CONTENTS OF KIT

1x Installation Instructions & Warranty Statement



2x Front Coilover Assembly (RAMS-8M-K01-F)



2x Rear Coilover Assembly (RAMS-8M-K01-R)

Contents of Front Coilover Assembly:
1) Front Damper Assembly
2) Bump Stop
3) Bump Stop Spacer
4) Front Spring – 800.250.0400
5) Adaptor – Spring
6) Helper Spring (common)
7) Spacer – Helper Spring
8) Pre-Load Collar
9) Collar Lock
10) Spring Isolators

Contents of Rear Coilover Assembly:
1) Rear Damper Assembly
2) Bump Stop
3) Bump Stop Spacer
4) Rear Spring – 800.250.275
5) Lower Spring Support
6) Helper Spring (common)
7) Spacer – Helper Spring
8) Pre-Load Collar
9) Collar Lock
10) Top Bearing (Cup and Bushing)
11) Washer – Cup Support
12) Spring Isolators

Other Kit Contents:
1) Pre-Load Adjustment Tool
2) Rear Damper Adjustment Tool
3) Front Damper Adjustment Tool
4) Mazdaspeed Sticker
5) Grease Pack (rear Bearing)

Reference pages 3,4 and 6 for exploded views of the front and rear coilover assemblies.

TOOLS REQUIRED

Sockets:
12mm
14mm
17mm
21mm

Socket Driver
Torque Wrench
Spring compressor
Sm Flat-head Screwdriver
12" socket extension & Swival Union

Alignment tools
Spanner wrenches:
14mm
17mm
24mm

0 PRE INSTALLATION

- **WARNING!** Removal and installation of suspension components may be dangerous as parts may be under compression and are likely to "jump" unexpectedly, **causing serious injury or death**. Mazdaspeed Performance Accessory Suspension components should only be installed by a qualified licensed mechanic experienced in the installation and removal of suspension components.
- Mazdaspeed Accessories carry a different warranty than Mazda Genuine Accessories. Review the applicable warranty statement with your Mazdaspeed dealer. This product is sold under the Mazdaspeed Orange Warranty Statement (See attached Warranty Statement Sheet)..
- Read complete instructions before starting installation of kit; this kit approved for North American vehicles only.
- For proper function, you must comply with the installation instructions.
- Use torque wrench on each bolt during installation. Torques are listed beside each fastener in exploded views, for reassembly in N-m(Kg-m,ft-lb), and some are listed in the text of the instructions.
- Provide instructions and OE take-off parts to the end user. Store instructions in a safe place for future use.

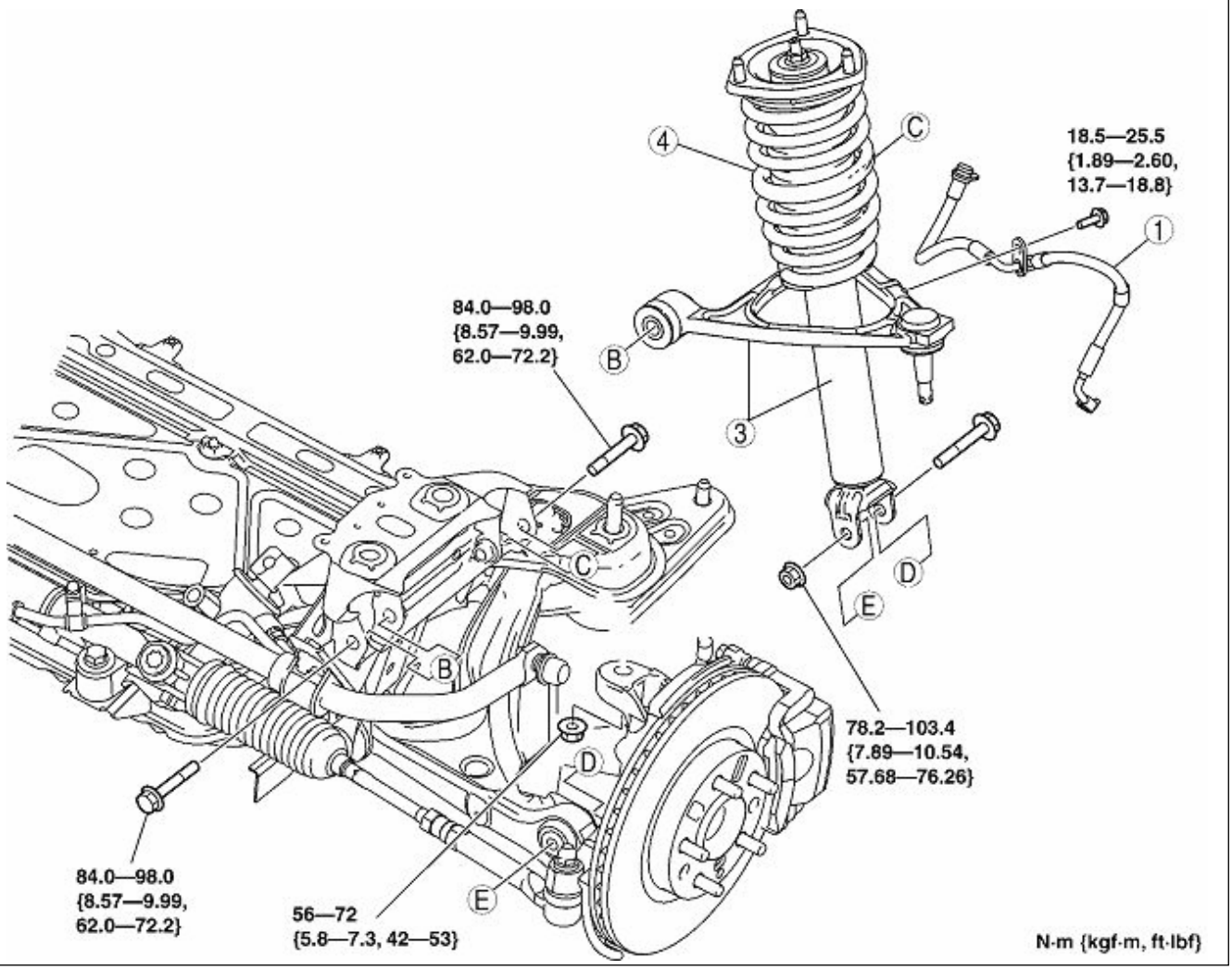
1a FRONT DAMPER/SPRING ASSMEBLY REMOVAL

CAUTION:

- Performing the following procedures without first removing the ABS wheel-speed sensor may possibly cause an open circuit in the harness if it is pulled by mistake. Before performing the following procedures, remove the ABS wheel-speed sensor (axle side) and fix it to an appropriate place where the sensor will not be pulled by mistake while installing suspension on the vehicle. Also remove the brake hose bracket (1) attachment to the upper control arm.

1. With the front of the car off the ground and the suspension in full-droop, loosen lower attachment nut E and remove the upper control arm pivot bolts B and C (It may be necessary to remove the bolt from the brake line bracket located behind the control arm bolt at position B in order to completely remove the bolt).
2. Remove the stabilizer bar from the lower control arm.
3. Remove the 3 nuts that attach the upper mount to the shock tower (located under the hood).
4. Remove bolt D, push down on the damper assembly so the upper mount studs clear their attachment holes, and carefully pull outboard on damper and upper control arm until the damper/spring assembly slides up and out. Do not put any tension on the brake hose which is still connected to the chassis and caliper.

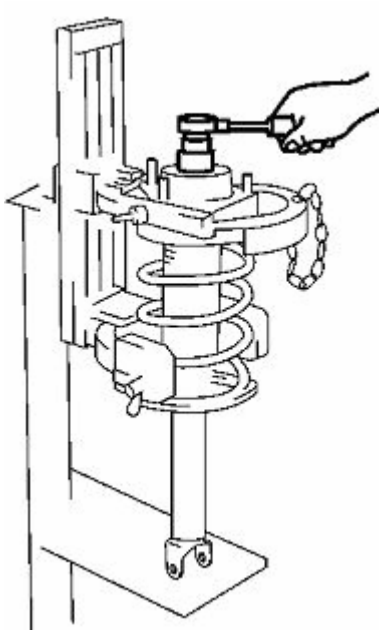
Figure A: Front Suspension Assembly



1b FRONT DAMPER/SPRING ASSMEBLY TEAR-DOWN & BUILD-UP

WARNING: If removed incorrectly the shock and spring could fly off under pressure, causing injury or death. Remove the piston rod nut carefully after spring is compressed and as follows. Secure the shock absorber in the spring compressor before removing the piston rod nut. Read spring compressor instructions before attempting to disassemble.

Figure B: Spring Compressor



WARNING: Do NOT use an impact wrench on the top nut!

5. Install the spring/damper assembly into the spring compressor (recommended to use a piece of cloth in order to prevent the coil spring from being scratched).
6. Compress the coil spring using the spring compressor per its instructions and remove the piston rod nut.
7. Carefully remove upper mount and the shock absorber from the spring. Make sure not to loose pieces of the assembly.
8. Carefully de-compress the spring per the spring compressor instructions.
9. Use the upper mount, rubber damper isolators, upper washer and upper nut from the disassembled OE spring/damper assembly on the new coilover assembly per below.

Figure C: Completed Front RX8 Coilover Assembly

(1) Upper Nut *(off OE unit)*

(2) Upper Washer *(off OE unit)*

(3) Upper Damper Isolator *(off OE unit)*

(4) Upper Mount *(off OE unit)*

(5) Spacer – Isolator *(off OE unit)*

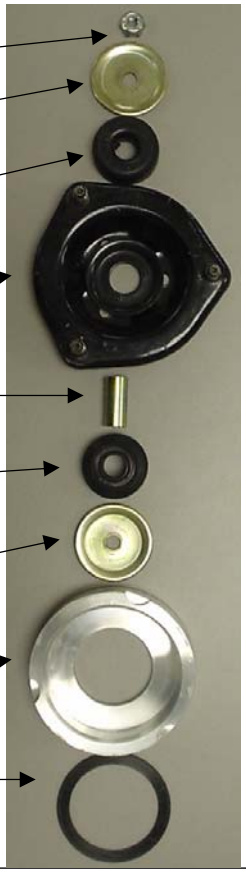
(6) Lower Isolator *(off OE unit)*

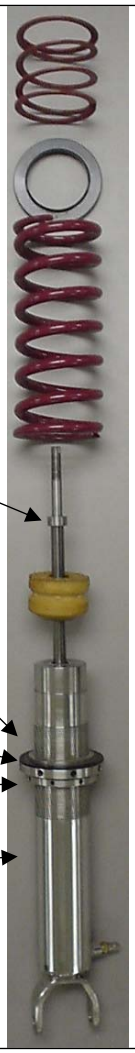
Only New Coilover Parts Below

(7) Lower Washer *(Supplied in Kit)*

(8) Adaptor – Front Spring

(9) Spring Isolator (same as lower)





1c FRONT DAMPER/SPRING INSTALLATION

<u>WARNING</u>: Do not use an impact wrench on the top nut

10. Re-assemble in reverse order, but only snug (do not apply torque) either of bolts B or nut E (Figure A) until the vehicle is on the ground. Failing to do so could result in pre-mature failure of the rubber bushings, and will force the vehicle to sit higher. All torques, with the exceptions to the ones below, are shown in Figure A.

Torque for Stabilizer bar nut is 43.1-60.8 N-m

Torque for front-upper mount-to-tower nuts is 29.4-39.8 N-m

2a REAR DAMPER/SPRING REMOVAL

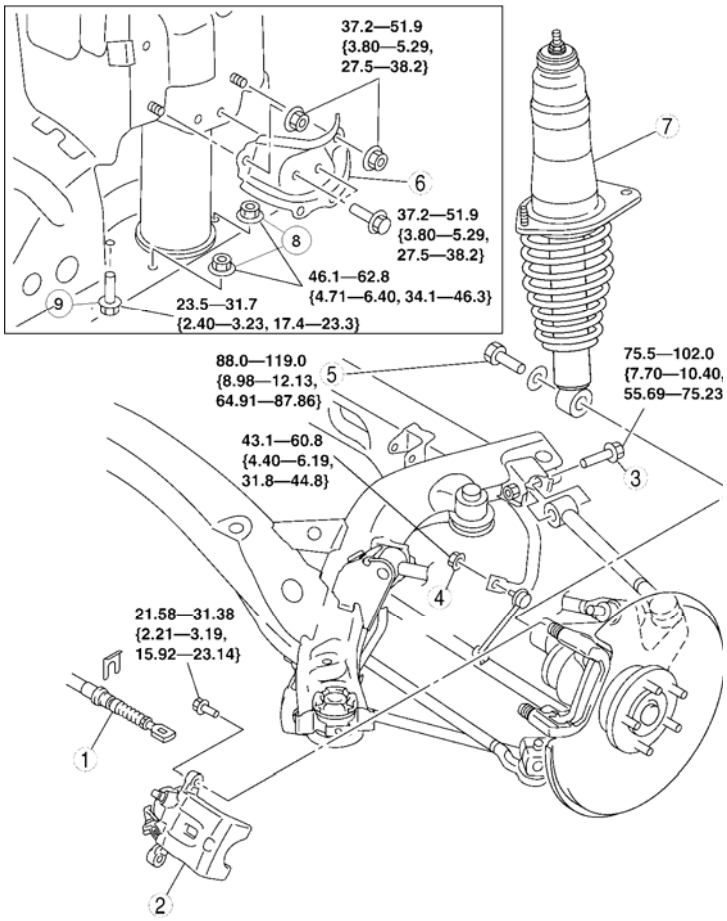


Figure D: Rear Suspension Assembly

**Tip: It is easiest to do both sides together.*

1. Remove the trunk liners from the inside of the trunk, carefully, using a small flat-head screw driver or clip-removal tool.
2. Remove both lateral support brackets (6), each held on by 2 nuts and 2 bolts, then remove the two lower nuts (8) on each side.
3. Mark the position of the cam bolt (3) for closer settings for the alignment.
4. With the rear of the vehicle raised and the suspension in full-droop, remove bolts , 3, 4, and detach both sway bar brackets.
5. With bolt 3 removed, rotate the rear link out of the way, pull down on the hub and carefully separate the damper from the lower mount.
6. Whiles pulling down and out on the hub, extract the damper assembly by feeding it down through the lower-rear of the system.

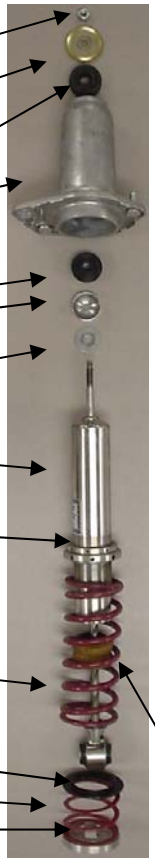
2b REAR STRUT TEAR-DOWN & BUILD-UP

WARNING: If removed incorrectly the shock and spring could fly off under pressure, causing injury or death. Remove the piston rod nut carefully after spring is compressed and as follows. Secure the shock absorber in the spring compressor before removing the piston rod nut. Read spring compressor instructions before attempting to disassemble.

6. Install the damper/spring assembly into the spring compressor (recommended to use a piece of cloth in order to prevent the coil spring from being scratched)-(See Figure B).
7. Compress the coil spring using the spring compressor per its instructions and remove the piston rod nut.
8. Carefully remove upper mount and the shock absorber from the spring. Make sure not to loose pieces of the assembly.
9. Carefully de-compress the spring per the spring compressor instructions.
10. Use the upper mount, upper nut, upper insulator and upper washer from the disassembled OE spring/damper assembly in the new coilover assembly per below.

Figure E: Rear RX8 Coilover Assembly

(1) Upper Nut *(off OE unit)*
(2) Upper Washer *(off OE unit)*
(3) Upper Damper Isolator *(off OE unit)*
(4) Upper Mount *(off OE unit)*
(5) Spherical Bearing (durable nylon)
(6) Bearing Cup
(7) Washer - Cup Support
(8) Rear Damper Assembly
(9) Collar Lock
(10) Pre-Load Collar (shown below collar lock)
(11) Spring Isolator (seated below pre-load collar)
(12) Rear Spring – 800.250.0275
(13) Spacer – Spring
(14) Helper Spring
(15) Lower Spring Support (shown un-mounted)



Bump Stop & Bump Stop Spacer pre-installed on damper

2c REAR DAMPER/SPRING INSTALLATION

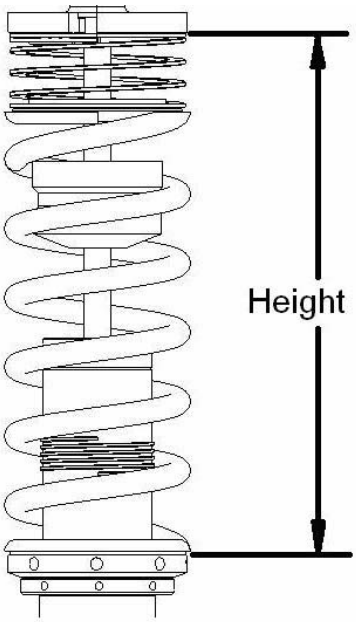
WARNING: Do NOT use an impact wrench on the top nut

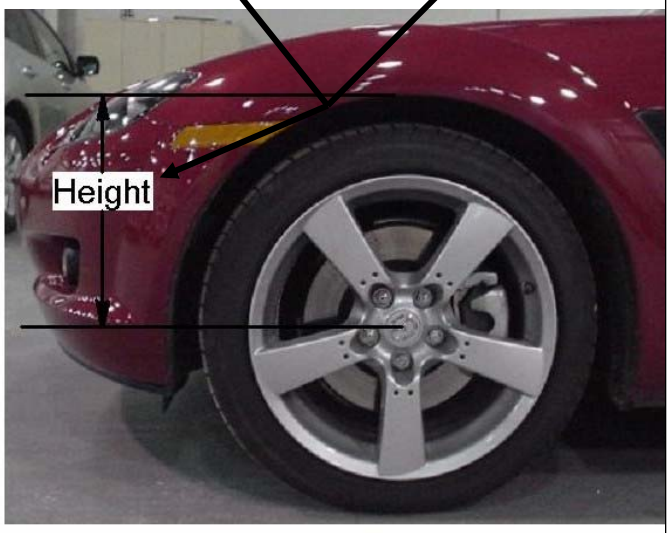
11. Re-assemble in reverse order; making sure the damper adjustment window is facing inboard for accessibility. Snug, but do not torque bolts 3 or 5 (Figure D) until the vehicle is on the ground. Failing to do so could result in pre-mature failure of the rubber bushings, and will force the vehicle to sit higher. All torques are shown in Figure D.

3 RIDE HEIGHT AND DAMPER ADJUSTMENT

1. When adjusting the vehicle height, make sure that the threads are clean and free of debris. After initial cleaning, move the perch 10 mm downwards, and then clean the area that you desire to adjust the perch (up or down).
2. In the area where the piston rod and the sealing package meet may have oil and grease collected. This can happen during assembly of the damper or due to accumulation of streak oil. There is no reason for concern over this oil/grease collection.

Ride Height Adjustments		**Permitted Ride Height Adjustment Range**							
Technical Data		Approximate adjustment range of ***Coilover "Height"*** in mm				Approximate wheel ***hub center to fender edge "Height"*** in mm			
Part #	Model	Front:		Rear:		Front:		Rear:	
		min:	max:	min:	max:	min:	max:	min:	max:
RAMS-8M-K01	RX-8	228mm	250mm	225mm	250mm	325mm	345mm	325mm	345mm
Recommended lowering		**230mm**		**225mm**		**342mm**		**345mm**	





Damper adjustments:

FRONT

REAR

Front:
Adjustment located at top of shock rod – accessible under hood after cross-brace is removed or access hole is made.

Recommended initial setting:
Start at full counterclockwise, then adjust three turns clockwise.

Rear:
Located at the bottom of the shock rod – access window pointing inboard to vehicle when installed.

Recommended initial setting:
Start at full counterclockwise, then adjust seven clicks clockwise.

Avoid setting the dampers to full hard (full clockwise) initially.
Clockwise = Harder Counterclockwise = Softer
*Clockwise is towards the back of the car on the passenger-rear and towards the front of the car on the driver-rear.

3 FINAL INSTALLATION NOTES

- It is common for some vehicle suspensions to settle a few millimeters over the first 3000 miles of driving.
- A vehicle alignment should be performed after assembly. Specifications should be set to recommended specifications (below).
- All components that are controlled by vehicle ride height (headlights, etc.) must be adjusted as specified by the vehicle manufacturer instructions and procedures.
- Only adjust ride height with the vehicle lifted off the ground so no pre-load is on the main spring.
- **It is strongly recommended that the damper adjustment window on the rear damper be covered with a piece of weather-resistant tape to protect the mechanism from debris.**

SUSPENSION ALIGNMENT SPECIFICATIONS

FRONT

Item			Specification
Total toe-in	Tire [Tolerance ±4 mm {0.15 in}]	(mm {in})	2 {0.08}
	Rim inner	(mm {in})	1.4±1.1 {0.06±0.04}
		degree	0°11'±11′
Steering angle [Tolerance ±3°]		Inner	38°42′
		Outer	32°54′
Steering axis inclination (Reference value)			10°43′
Camber [Tolerance ±0.5°]	Vehicle height: From the end of the front fender to the center of the wheel (mm) - recommend measuring from the bottom of the rim to a marked point on the fender, then subtracting ½ of the rim diameter.	356—365	-0°51′
		346—355	-1°21′
		336—345	-1°48′
		326—335	-2°00′
		315—325	-2°20′
Caster [Tolerance ±0.5°]	Vehicle height: From the end of the front fender to the center of the wheel (mm) - recommend measuring from the bottom of the rim to a marked point on the fender, then subtracting ½ of the rim diameter.	356—365	6°27′
		346—355	6°36′
		336—345	6°44′
		326—335	6°52′
		315—325	6°57′

REAR

Item			Specification
Total toe-in	Tire [Tolerance ±4 mm {0.15 in}]	(mm {in})	3 {0.12}
	Rim inner	(mm {in})	2.2±1.1 {0.083±0.04}
		degree	0°17′±22′
Camber [Tolerance ±0.5°]	Vehicle height: From the end of the front fender to the center of the wheel (mm) - recommend measuring from the bottom of the rim to a marked point on the fender, then subtracting ½ of the rim diameter.	356—365	-1°38′
		346—355	-1°56′
		336—345	-2°14′
		326—335	-2°30′
		315—325	-2°40′