

Thank you for purchasing your new SOLO WERKS S1 Coilover suspension.

IMPORTANT PLEASE READ BEFORE BEGINNING INSTALLATION:

Please take a moment to review this installation process and verify that your kit is complete and all components have been received. If there are any questions during the process, contact us directly.

SOLO WERKS recommends that you have this kit installed by a qualified professional. Solo Werks or its authorized agents are not responsible for damage or failure resulting from an improper or modified installation. Do not use a pneumatic impact gun to torque the upper strut nut as damage may occur.

All suspension related components must be inspected and in good working condition. You should inspect all bushings, tie rods, hubs, bearings, strut mounts, sway bar end links, wheels, tires, etc. and replace if necessary.

This suspension system was designed to work best with the factory wheel/tire combination. Any deviations from these specifications could result in significantly altered handling characteristics and/or increased interference risk to other vehicle components.

SOLO WERKS TIP: Depending on the offset & size your wheels/tires, wheel spacers may be required for proper fitment.

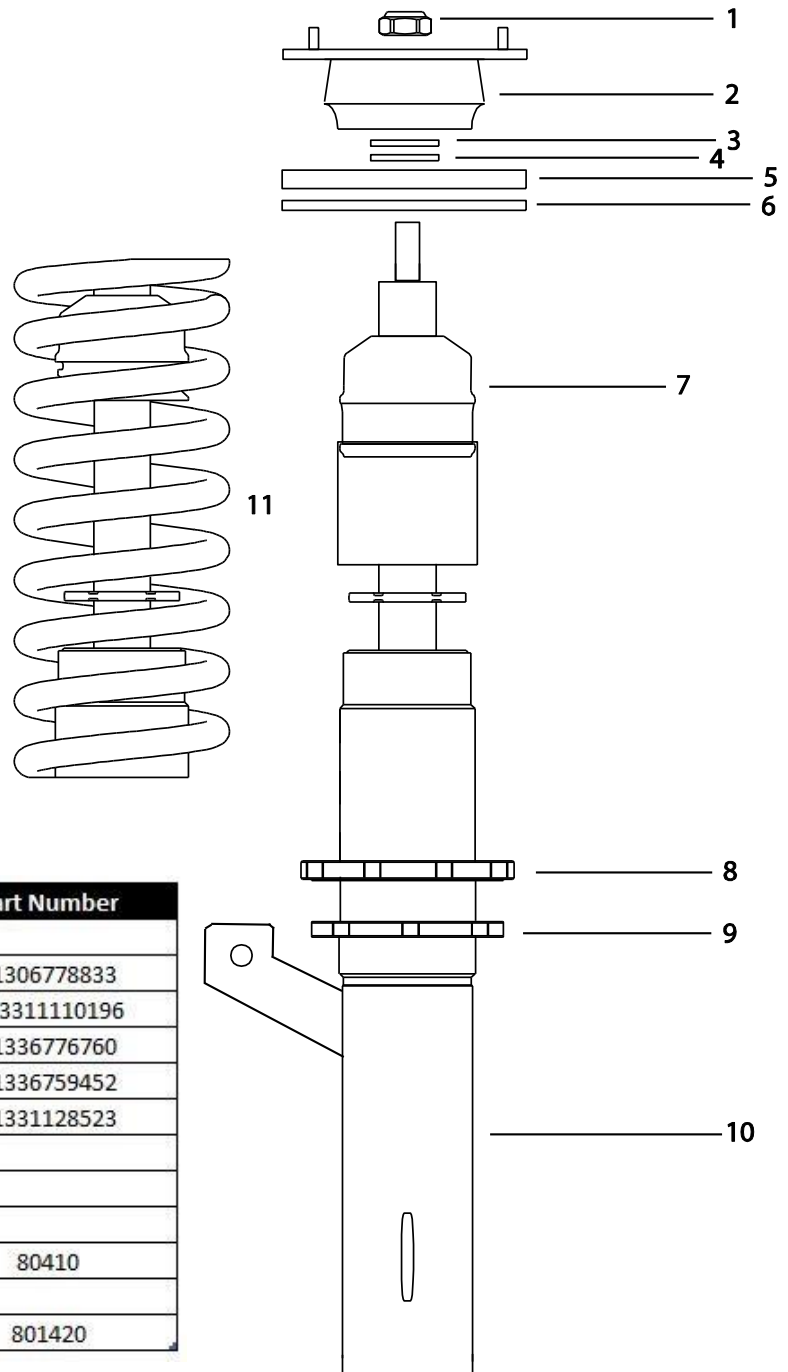
If suspension is lowered past the recommended measurements there can be possible interference with multiple vehicle components; (i.e. modification may be necessary to fender lips, seams etc...). This will also void your Solo Werks warranty.

After installing the suspension system, a four-wheel alignment must be performed according to manufacturer's specifications. Check and reset load- dependent brake compensator, ABS system and headlight aim according to manufacturer's specifications (If applicable).

ALL RUBBER- MOUNTED STRUT/ DAMPER ATTACH-MENTS MUST NOT BE FULLY TIGHTENED UNTIL AFTER THE SUSPENSION SYSTEM IS LOADED (WHEELS ON THE GROUND). OTHER MOUNTING FASTENERS (FOR EXAMPLE BRACKETS) MUST BE SECURELY TIGHTENED BEFORE LOAD IS PLACED ON THE SUSPENSION SYSTEM

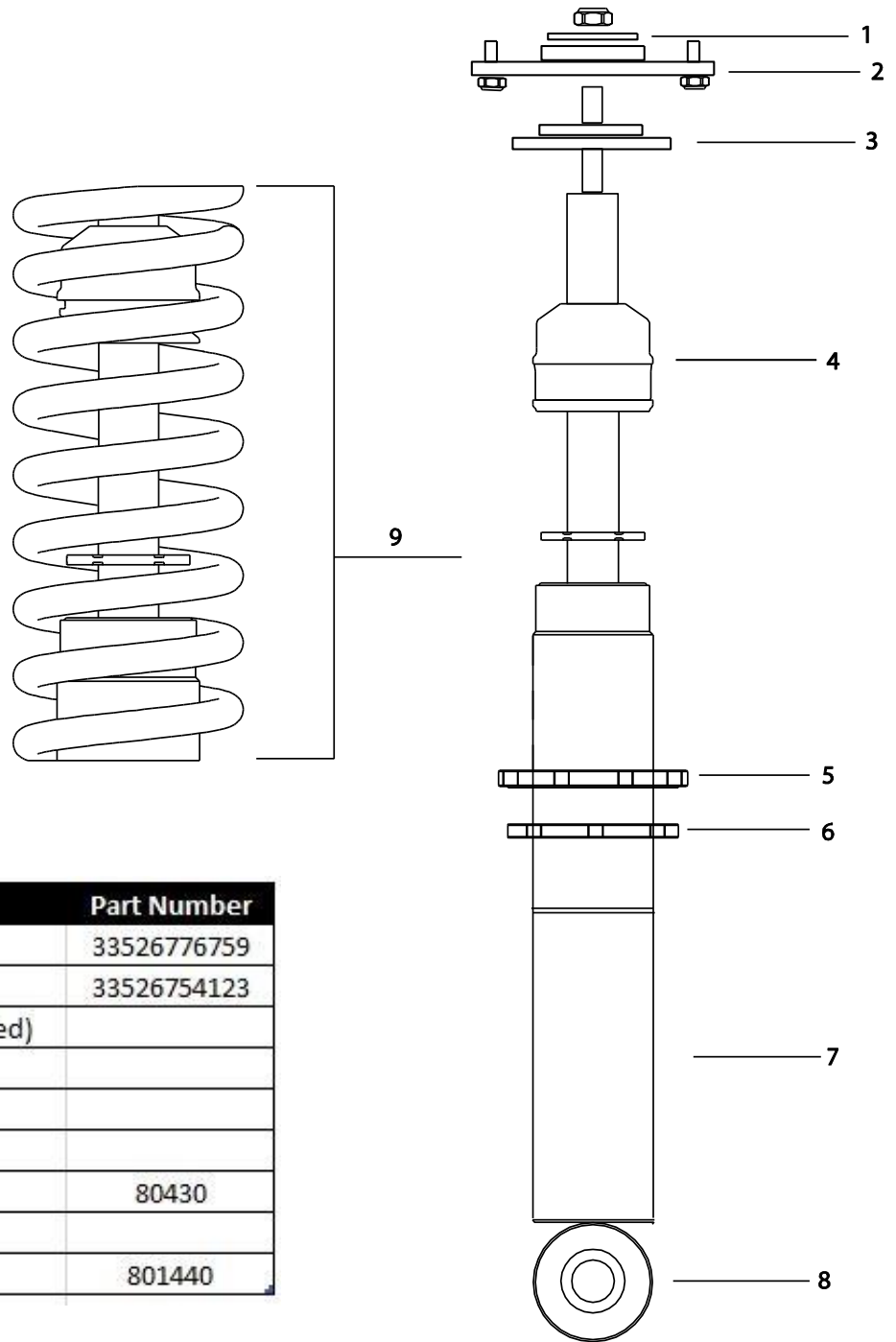
Every effort has been made to avoid printing errors in our literature. However, if there are any application or specification errors or omissions we must disclaim responsibility.

Fig. 1 Front Assembly



#	Description	Part Number
1	Top Nut Nyloc	
2	Oem Upper Mount	31306778833
3	Oem Cupped Washer	313311110196
4	Oem Shim	31336776760
5	Oem Upper Spring Plate	31336759452
6	Oem Upper Spring pad	31331128523
7	Elastomer Bumpstop	
8	Lower Spring Perch	
9	Lock Ring	
10	Strut Housing	80410
	Spring Assembly	
	Main Spring	801420

Fig. 2 Rear Assembly



#	Description	Part Number
1	Oem Washer	33526776759
2	Upper Shock Mount	33526754123
3	Upper Spring Seat (Supplied)	
4	Elastomer Bumpstop	
5	Lower Spring Perch	
6	Lock Ring	
7	Strut Housing	80430
8	Lower Shock Mount	
9	Rear Spring	801440

Original Suspension Removal

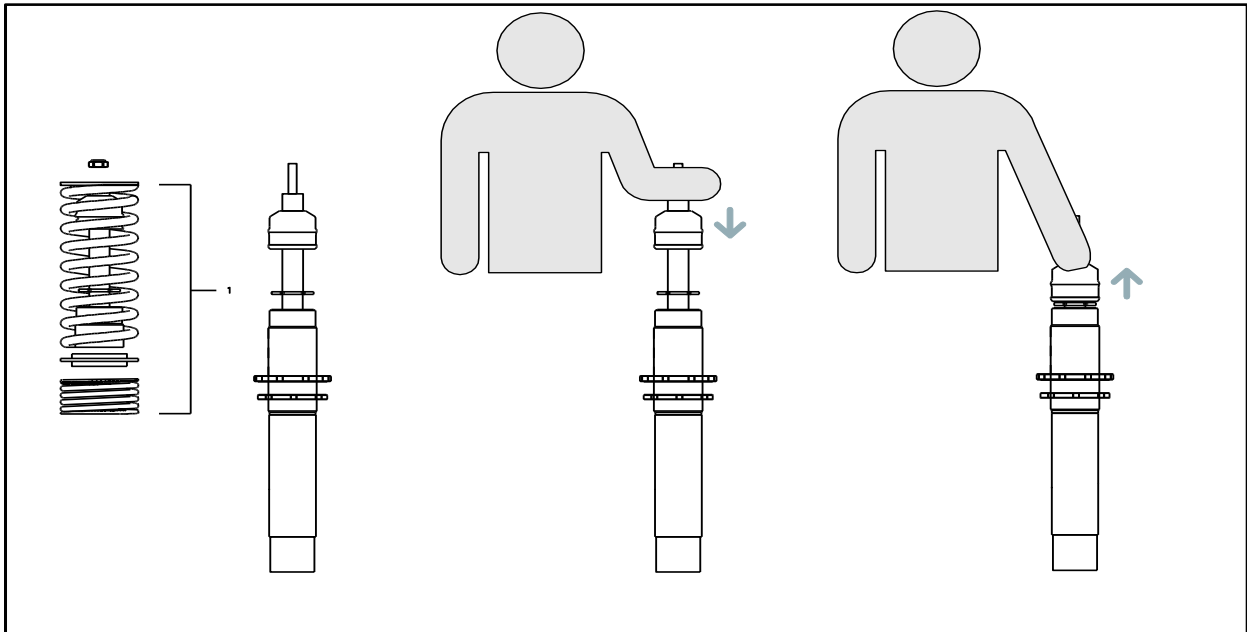
Front

1. Raise and support vehicle with a properly rated jack stand and support the lower control arm with a floor jack.
2. Remove the three upper strut mount bolts (13mm) inside the engine bay.
3. Remove any brake lines, hose, abs or headlight sensors from the strut housing.
4. Disconnect the sway bar endlink from the strut housing (16mm)
5. Remove the pinch bolt from the spindle
6. Using a strut spreader tool, insert and spread the spindle to free up the strut housing.
7. Using a spring compressor, compress the spring to allow enough room to clear the spindle and remove the strut housing as an assembly.
8. If you will be reusing the original upper strut mount and bearing you will need to disassemble the strut assembly.

SOLO WERKS TIP: As the strut mounts are a consumable/wear item and are a known fail point on this chassis. Solo Werks recommends using new replacement parts and leaving your original suspension as an assembly. These parts are available from your Solo Werks Dealer or your local BMW parts dealer.

NOTE: If you are using your existing OEM upper strut mount (Fig. 1 #3) you must remove this from the strut assembly. This component is under extreme pressure from the front spring and must be removed using an appropriate spring compressor to relieve the pressure. Follow the directions given by the manufacturer of the Spring Compressor to safely remove the spring and disassemble the Strut Assembly.

Solo Werks Coilover Pre-Assembly – Priming the Dampers



SOLO WERKS TIP: *As the suspension is shipped and stored in a horizontal position, it is advisable to exercise or Prime the shock absorber before you install them to ensure that the internal contents are in the correct chambers. Therefore we advise that before you assemble the front coilover shock absorber, take a moment to purge the shock absorber.*

To do this, one side at a time remove the following from one of the front Coilover Assemblies:

- *Two Upper fasteners (lock nut and securing nut)*
- *Upper Spring Perch*
- *Main Spring*
- *Spring Isolator*
- *Helper Spring*

You will then be left with the coilover strut with the bumpstop and vent disc on the shaft. Pull the bumpstop up to the top of the chrome shock shaft, just before the threaded portion.

With the shock upright (as it would be installed in the vehicle) compress the shock shaft until the bump stop touches the shock housing, and then pull to extend the shock shaft back to full extension.

Repeat 3-5 times. You will notice the shock forces getting progressively harder each time. Once they feel consistent each way, you are ready to install.

Solo Werks Coilover Assembly and Installation

Front

1. Assemble the coilover assembly with the OEM Strut Mount using the provided hardware as in the diagram (Fig. 1)
2. Torque the top nut to spec. (Fig. 1 #1) 64Nm/47ft. lbs.

NOTE: Use of an anti-corrosion spray such as the Boeshield T-9 on the threads & main perch/spring seat at this point can make the adjustment process much easier and will add an extra layer of protection. Boeshield T-9 is available from your Solo Werks dealer.

3. Insert strut assembly into vehicle
 - a. Hand tighten three (3) upper strut mount nuts (Fig. 1 #2)

NOTE: Before proceeding with the next step, inspect the Spindle for debris (rust/dirt etc. as this can make installation difficult.

4. Connect strut housing to spindle:
 - a. Insert Strut into spindle making sure housing is completely seated within spindle. (Fig.1 #10)
 - b. Remove strut spreader tool and insert OEM hex bolt and nut, torque to spec.
 - c. (18mm) 81Nm/59ft lbs.

5. Reattach the endlink to the strut housing and torque to spec. 56Nm/41ft lbs.
6. Reattach any brake, ABS lines, etc. that were removed.
7. Repeat procedure on the other side of vehicle.
8. Once vehicle is placed back on the ground tighten three (3) upper strut mount nuts to proper torque specifications. 34Nm/25ft lbs.
9. Adjust lower spring perch to desired vehicle height.

Original Suspension Removal Rear: Rear

SOLO WERKS TIP: *The removal and installation of the rear is easiest if you are able to disconnect the rear anti sway bar end links from the lower control arms.*

1. Raise and support vehicle with a properly rated jack stand and support the lower control arm with a floor jack.
2. Remove any brake lines, hose, abs or headlight sensors from the strut housing.
3. Remove the lower shock mount bolt. (21mm)
4. Remove the two upper shock mount bolts. (13mm)
5. You can now remove the rear shock as an assembly.
6. If you will be reusing the original upper shock mount you will need to disassemble the strut assembly using a properly rated spring compressor.

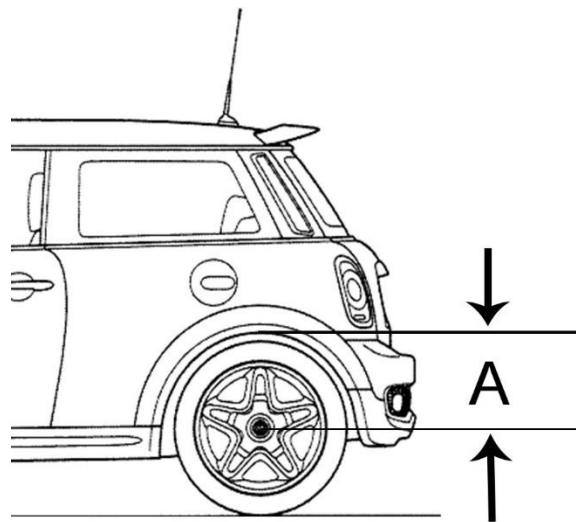
Solo Werks Coilover Assembly and Installation: Rear

SOLO WORKS TIP: *Just like the front struts, it is advisable to Prime the rear shocks as well. To purge the rear shocks: Refer to procedure on page 5.*

1. Assemble new Solo Werks rear shock absorber using the original upper shock mount and torque top nut to spec. (Fig.2 #1&2) 30Nm/22ft lbs.
2. Discard the oem dust shield/bumpstop assembly (Fig. 2 #4)
3. Install shock into upper shock mount and hand tighten two (2) shock mount nuts. (Fig. 2 #2)
 - a. Once vehicle is placed back on the ground torque upper shock mount nuts to proper torques settings. 56Nm/41ft lbs.
4. Compress lower control arm until lower shock mount bolt can be reinstalled. (fig.2 #8)
 - a. Torque lower shock bolt to proper torque settings. 140Nm/103ft lbs.
5. Reattach any brake lines, abs lines, headlight sensors that were removed.
6. Final check and set final ride height to preferred settings.

SOLO WERKS TIP: *It is advisable that all attaching hardware be checked after approx. 200 miles to ensure it has retained appropriate OEM torque settings.*

Solo Werks Coilover Final Details – Heights & Working Ranges



		Lowering Range			
		in mm		in Inch	
Model	Year	Front	Rear	Front	Rear
Mini R50 / R52 / R53	02-'06	20-50mm	20-50mm	.8"-2.0"	.8"-2.0"

Front Measurement					
Max low mm	Max low Inch	Max high mm	Max high Inch	OEM mm	OEM Inch
315mm	12.5"	348mm	13.7"	368mm	14.5"

Rear Measurement					
Max low mm	Max low Inch	Max high mm	Max high Inch	OEM mm	OEM Inch
310mm	12.2"	340mm	13.4"	360mm	14.2"

- These measurements are in place to allow both front and rear dampers to operate properly and allow for ample shock travel.
- All measurements will be referenced from "center of wheel hub to bottom lip of fender" (see example figure "a")
- Using this system outside of this range can cause premature failure and is cause to void your manufacturer specified warranty.
- Helper springs are intended to keep preload on the main spring under full suspension extension, do not remove!