

**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.

Technical support: **888-679-3278**

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.

## Original Suspension Removal- Front:

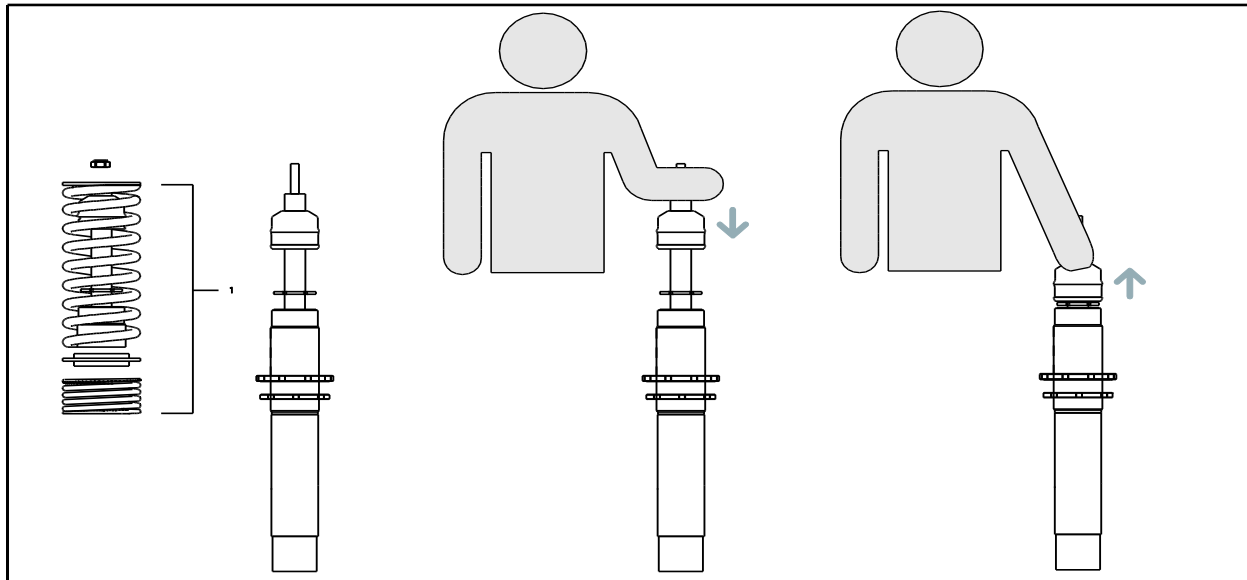
**SOLO WERKS TIP:** *Disconnect Headlight level sensor on control arm (if equipped) before any other steps are taken. Disregard for this step could result in damage to sensor link.*

1. Support Lower Control Arm/Spindle with floor jack
2. Remove any hoses/lines from original suspension strut mounts
3. Disconnect Sway bar endlink from lower control arm
  - a. If equipped with a strut housing mounted endlink, remove completely.
4. Remove Lower Pinch Bolt/Nut from spindle
5. Using Strut Spreader Tool (VAG part # SCW3435), spread spindle mount
6. Lower the control arm to separate strut from spindle.
  - a. Ensure that the lower control arm is still supported
  - b. This may require work to separate as corrosion may limit movement
  - c. Using rubber mallet tap the cast spindle to free strut from spindle
7. Support strut from inside wheel well
8. Remove the upper strut mount nut and stop plate accessing it from inside engine bay
  - a. Note: retain OEM stop plate for reinstall later
9. Remove strut assembly
10. Leave the Strut Spreader in place

**NOTE:** If you are using your existing upper strut mount and bearing (Fig 1 #2 & 4) you must remove these items from the strut assembly. These items are 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 TIP:** *As the strut mounts and bearings are a consumable/wear item and are a known fail point on this chassis Solo Werks recommends replacing with new OEM mounts and new OEM Bearings and leaving your original suspension as an assembly. These parts are available from your Solo Werks Dealer or your local VW/Audi parts dealer.*

## 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 (if equipped):

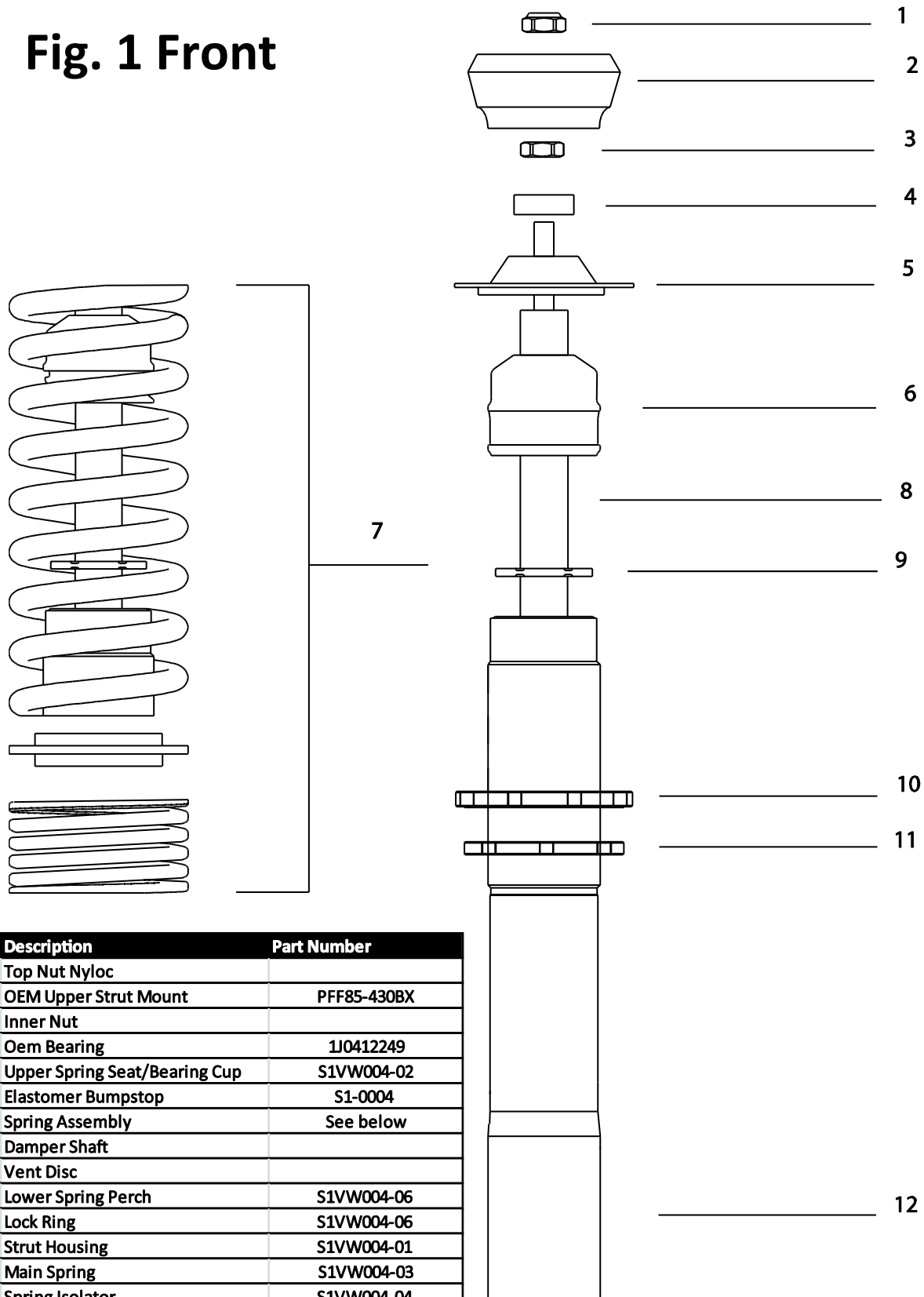
- Two Upper fasteners (lock nut and securing nut)
- Upper Spring Perch
- Main Spring
- Spring Isolator
- Helper Spring

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.

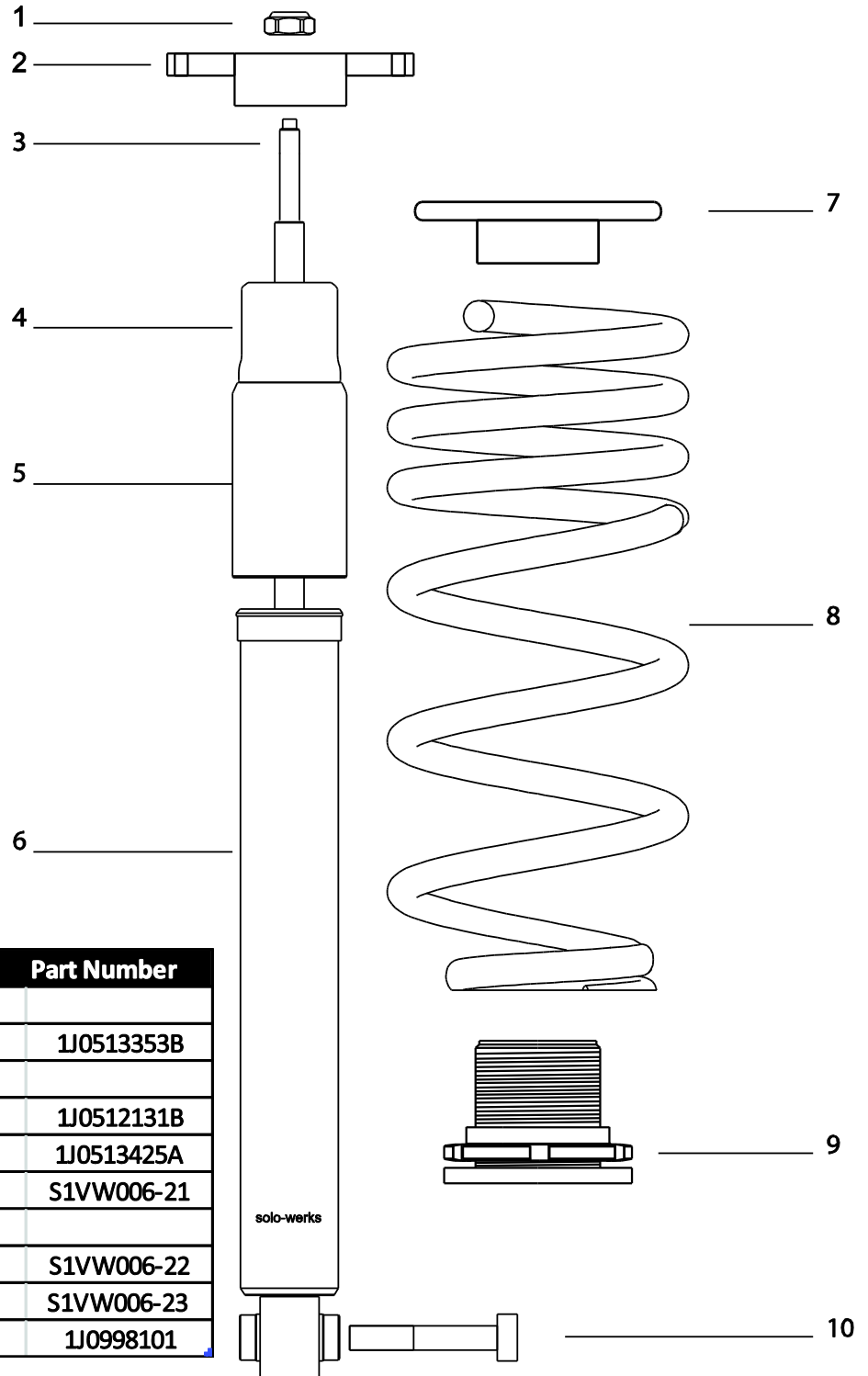
Repeat 3-5 time minimums. You will notice the shock forces getting progressively harder each time. Once they feel consistent each way, you are ready to install.

**Fig. 1 Front**



#	Description	Part Number
1	Top Nut Nyloc	
2	OEM Upper Strut Mount	PFF85-430BX
3	Inner Nut	
4	Oem Bearing	1J0412249
5	Upper Spring Seat/Bearing Cup	S1VW004-02
6	Elastomer Bumpstop	S1-0004
7	Spring Assembly	See below
8	Damper Shaft	
9	Vent Disc	
10	Lower Spring Perch	S1VW004-06
11	Lock Ring	S1VW004-06
12	Strut Housing	S1VW004-01
	Main Spring	S1VW004-03
	Spring Isolator	S1VW004-04
	Helper Spring	S1VW004-05

**Fig. 2 Rear**



#	Description	Part Number
1	Top Nut Nyloc	
2	OEM Upper Shock Mount	1J0513353B
3	Damper Shaft	
4	OEM BUmpStop	1J0512131B
5	OEM Dust Shield	1J0513425A
6	Damper Housing	S1VW006-21
7	OEM Spring pad	
8	Rear Spring	S1VW006-22
9	Rear Adjustable Spring Perch	S1VW006-23
10	OEM Lower Hex Bolt	1J0998101

## Solo Werks Coilover Assembly and Installation – Front:

1. ***Work In the OEM Upper Bearings - Rotate the bearing a few times to break it in***
  - a. ***We have found that brand new or even existing bearings can get stuck as they have a very limited rotation when installed***
  - b. ***If they are stuck or too hard to move, they will not allow the assembly to rotate as it should and will create a spring bind that will produce a “boing” or “clang” sound of the springs recoiling***

Assemble the coilover assembly with the OEM Strut Mount and bearing using the provided hardware as in the diagram Fig.1

- a. Top nut should be torqued to 44 ft-lbs. (Fig. 1 #1)
- b. Inner nut should be torqued to 44 ft-lbs. (Fig. 1 #3)
- c. Once assembled, we recommend starting the main perch at 25mm (1”) of thread remaining below the main perch/spring seat using the included spanner wrench – actual vehicle height will be set later in the process. (Fig.1 # 10&11)

NOTE: Use of an anti-corrosion spray such as the Boeshield T-9 on the threads & main perch/spring seat at this point (Fig.1 # 10&11) 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.

2. Insert strut assembly into vehicle
  - a. Reinstall OEM stop plate and upper strut mount nut but do not tighten at this time.

NOTE: Before proceeding with the next step, inspect the inside of the Spindle for debris (rust/dirt etc. Fig.1 #13). Also note the placement of the ridge that is built into the inner lower edge of the tube of the spindle. This is a locator for the shock tube, which must be inserted into the tube until it is stopped by this ridge. Only at this point is the shock properly seated in the Spindle.

3. With the Strut Spreader in place:
  - a. Insert strut assembly into Spindle housing with the metal bolt locator through the split (Fig.1 #12).
  - b. Slide the strut assembly down until the bottom of the strut housing has bottomed out on the internal ridge in the spindle.
4. Replace lower spindle bolt through spindle housing and strut locator
5. Fasten the self-locking nut onto the lower spindle bolt and tighten to:
  - a. 37 ft-lbs + ¼ turn (90°)
6. Reinstall endlink to lower control arm.
  - a. If Equipped with strut housing mounted endlink, install supplied sway bar endlink.
7. Repeat procedure on the other side.

8. Once vehicle is placed back on the ground under its own weight, Torque upper strut mount nut to 44 ft-lbs.

## Original Suspension Removal- Rear:

**SOLO WERKS TIP:** *Disconnect Headlight level sensor from lower control arm before any other steps are taken. Disregard for this step could result in damage to sensor link.*

1. While Supporting lower beam in the compressed position (loaded as if it is on the ground)
  - a. Remove both lower shock bolts (passenger and driver's side shocks)
  - b. Slowly lower rear trailing arm on both sides to remove the pressure on the rear springs
  - c. Remove rear springs
    - i. This may require you to lower down the rear beam or control arm to allow more room to remove the springs
2. Remove the two upper bolts from the upper shock mount on each side & remove rear shocks.
  - a. Remove oem upper shock mount and dust boot assembly (To be reused)
  - b. Make note of orientation of OEM parts to be reinstalled later. (Fig.2 #2)

## Solo Werks Coilover Assembly and Installation – Rear:

The Rear of this platform is a combination of a rear lowering spring & adjustable spring perch and specially matched shock absorber. The shock absorber does not need to be adjusted in any way to change the ride height.

**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 3.*

In the vertical position (as it would be installed in the vehicle):

1. Extend the shock rod to its full extent
2. Compress until 1" of the chrome shock rod is visible outside of the shock housing
3. Repeat 3-5 times or until the strokes feel consistent.

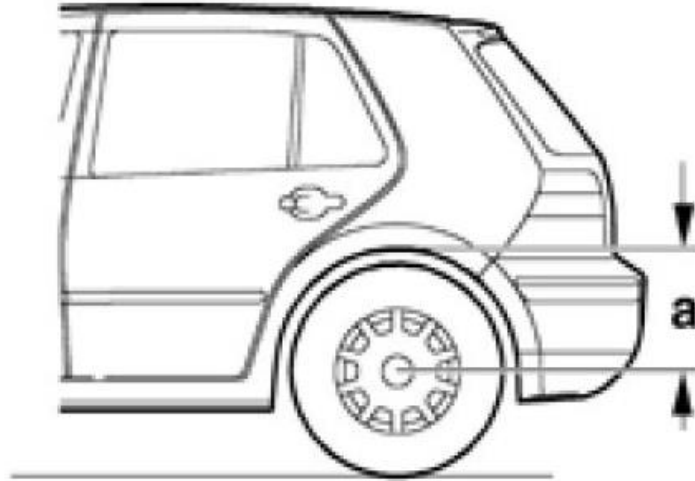
## Solo Werks Coilover Assembly and Installation – Rear con't.

1. Remove both upper and lower factory spring pads from the vehicle, and ensure that both areas are clean and free of any dirt or debris.
  - a. Reinstall upper spring pad.
2. Prepare the perch for installation
  - a. Remove the bolt / lock washer / washer assembly from the bottom of the spring perches.
  - b. Thread the adjustable perches down close to the base.
3. The Solo-Werks rear spring perch will be installed underneath the spring and bolted using the supplied bolt and washer to the lower beam.
4. Place the spring onto the adjustable spring perch with the “flat ground” end of the coil spring against the perch (Fig.2 #9)
  - a. The end with the closer winds of the spring is the top of the spring.
5. Align the top of the spring with the upper spring pad.
  - a. You may need to raise the rear axle to keep the assembly in place.
6. Repeat on the other side.
7. Assemble Solo-Werks rear shock (Fig.2) reusing OEM upper shock mount, Bump stop and Dust shield. Torque shock shaft bolt (Fig.2 #1) to 18 ft-lbs.
8. Place shock into vehicle and reinstall two upper shock mount bolts and torque to 37 ft-lbs.
9. Re install the lower bolt / lock washer / washer assembly through the opening in the bottom of the control arm/axle.
  - a. Do not torque lower shock bolts until vehicle is back on the ground and all weight is on vehicle.
  - b. Torque lower shock bolts to 130 ft-lbs.

**Solo Werks Tip: *When bolting in the lower perch, use a small amount of thread locker on the bolt to ensure that it does not rattle free during use (i.e. Loctite Blue 242)***



## Solo Werks Coilover Final Details – Heights & Working Ranges



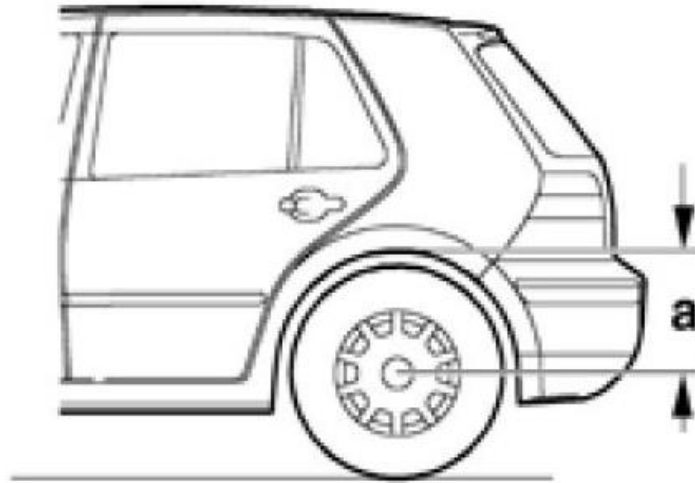
		Lowering Range			
		in Mm		in Inch	
Model	Year	Front	Rear	Front	Rear
VW MK 4	99'-04'	40-70	40-70	1.5"-2.75"	1.5"-2.75"

Front Measurement					
Max low mm	Max low Inch	Max high mm	Max high Inch	OEM mm	OEM Inch
325	12 3/4"	355	14"	395	15 1/2"

Rear Measurement					
Max low mm	Max low Inch	Max high mm	Max high Inch	OEM mm	OEM Inch
320	12 1/2"	350	13 3/4"	390	15 1/4"

- 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!

## My Setup - Heights & Working Ranges



Use this page to record your setup heights for easy future reference

Front Measurement						
Date	Max low mm	Max low Inch	Max high mm	Max high Inch	OEM mm	OEM Inch
Solo Spec	325	12 3/4"	355	14"	395	15 1/2"

Rear Measurement						
Date	Max low mm	Max low Inch	Max high mm	Max high Inch	OEM mm	OEM Inch
Solo Spec	320	12 1/2"	350	13 3/4"	390	15 1/4"