



INSTALLATION INSTRUCTIONS

[CARBAHN.COM/INSTRUCTIONS](https://carbahn.com/instructions)

**CARBAHN HIGH PERFORMANCE COIL-OVER SUSPENSION - F90 M5, M5
COMPETITION; F91 F92 F93 M8, M8 COMPETITION**

**CARBAHN PART #:
CBF90-3126**



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Info

Kit ID: CBF90-3126

Version: 2.0.0

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Warnings

- ⚠ If not used and installed properly this component can significantly affect the performance and drivability of the vehicle.
- ⚠ Use secure jack stands, do not work on vehicles supported by a jack only.
- ⚠ Re-aligning the car after installation is required to fully utilize the kit and not affect drivability, only use the CarBahn recommended alignment.
- ⚠ Please only use recommended BMW procedure for working on the car and installing these parts.
- ⚠ Due to the extensive lowering possible, the installer must carefully evaluate tire clearance under all situations:
 - o During and after installation of this kit
 - o After any ride height changes
 - o After any alteration to the original tire/wheel package

If you determine there is insufficient clearance, the vehicle must be raised, safety will be compromised if all precautions are not taken. CarBahn is not responsible for any property damage or injury.

Installation Notes

CarBahn's target bump stop gap measurements are as follows:

	Comfort	Track
Front	9 mm	6 mm
Rear	12 mm	9 mm

The above values were developed for a BMW F90 M5 test vehicle with the following specifications:

- ⊕ Forgeline 20" x 10.0" front wheels with 295 x 30 x 20 Michelin Pilot Sport Cup 2 R compound tires
- ⊕ Forgeline 20" x 10.5" rear wheels with 305 x 30 x 20 Michelin Pilot Sport Cup 2 R compound tires
- ⊕ CarBahn Monoball kit.
- ⊕ CarBahn Anti-Roll Bar kit.
- ⊕ CarBahn Adjustable Toe Links kit.

If your vehicle has been configured differently, you may alter the target values as required per your situation.

- ⓘ Note settling will occur and the ride height should be set 2mm high and reset after 1,000 miles.

Best performance was generated using the set up below. CarBahn's BMW F90 M5 test vehicle camber angle and toe angle measurements are as follows:

CarBahn recommends the following starting set up for Street use:

- ⊕ Toe: 0.10° - 0.15° Total Toe for front and 0.20° - 0.25° Total Toe for rear.
- ⊕ Camber: -1.4° for front and -2.0° for rear.
- ⊕ Front Packer Gap 9 mm and Rear Packer Gap 12 mm.
- ⊕ Hot tire pressures 40 psi front and rear.

CarBahn recommends the following starting set up for track use:

- ⊕ Toe: -0.03° - 0.00° Total Toe for front and 0.20° - 0.25° Total Toe for rear.
- ⊕ Use negative camber arms (available through CarBahn).
- ⊕ Camber: -1.6° - 2.0° for front and -2.2° - 2.5° for rear.
- ⊕ Front Packer Gap 6 mm and Rear Packer Gap 9 mm.
- ⊕ Hot tire pressures 40 psi front and rear.

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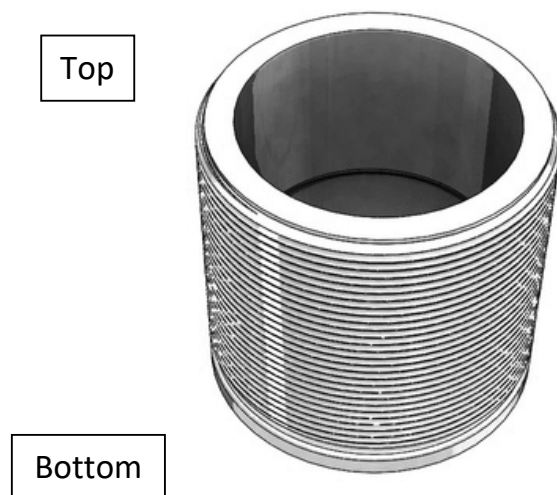
Front Installation

1. Remove front shocks from vehicle per BMW procedure. Mark the shocks with a “L” (Left) or “R” (Right) so they will not get mixed up when they are reinstalled.
2. Disassemble the shock assemblies and set aside the dust boots, springs, and lower spring pads (lower spring perch). These will not be reused. If the perches do not slide off, heating the perches maybe required. Use of a bench vise to do so is recommended.

 Warning: Make sure to use safety precautions while heating and installing the perches. CarBahn is not responsible for any property damage or injury.

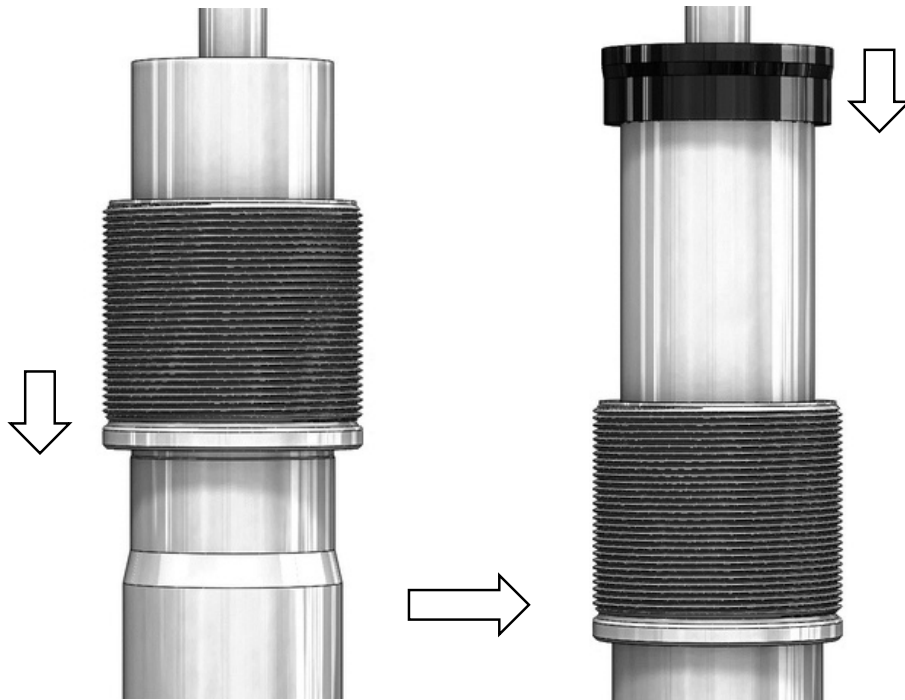
 Warning: Make sure to apply as little heat as possible, applied only to perches. The shock body contains gas that can cause damage and injury on expansion.

3. Locate the two CarBahn Front Perches. They are shorter of the two sets and measure to about 2.6 inches tall, orientation of the part is as shown:

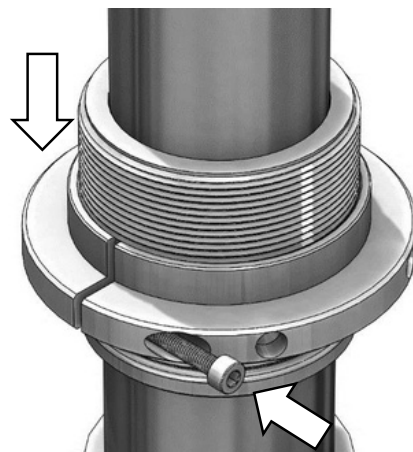


Front Perch (CBF90-3124)

4. Slide the threaded front perches onto the shocks as shown. Push the perch down until it moves no further down and is seated onto the shock groove. If the perches don't slide on, heating the perch might be required. Use of a bench vise to do so is recommended. See figure below.

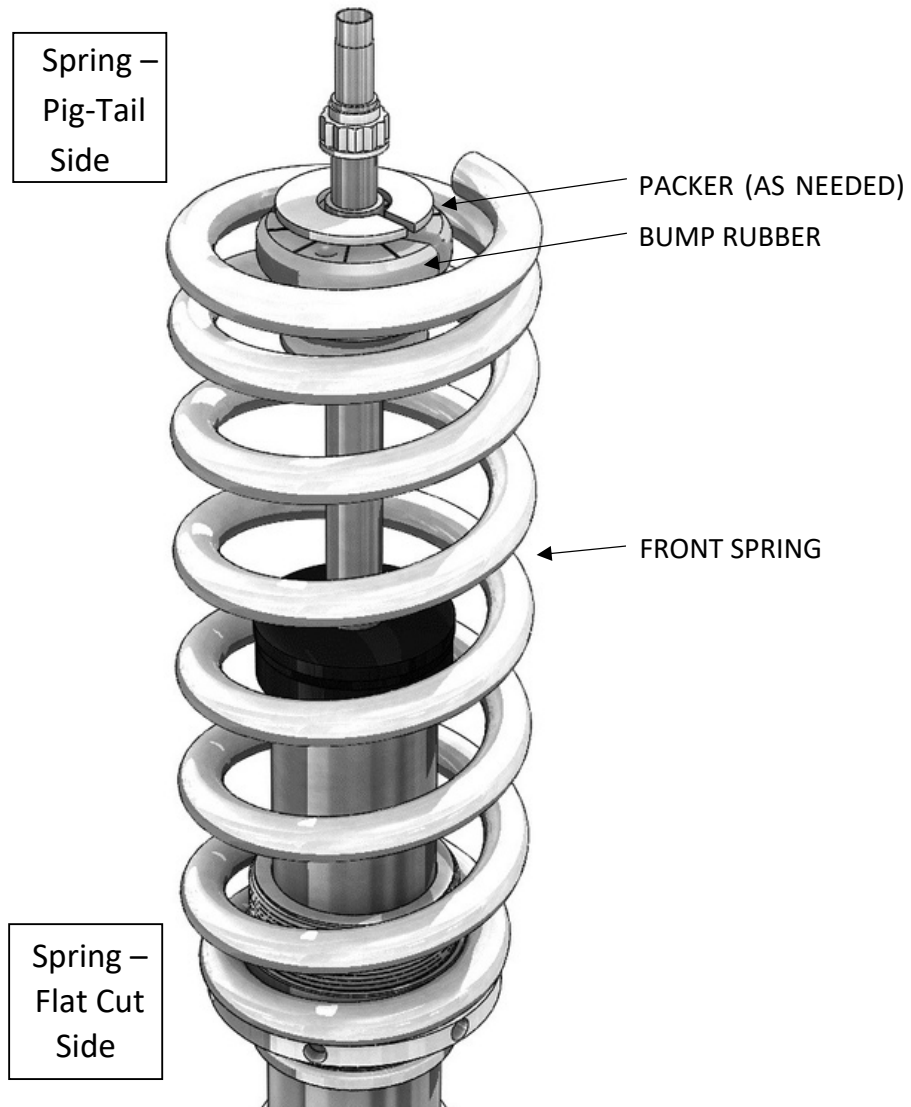


5. Install the spring perch collar as shown. Adjust the perch collar to its middle setting. This will be the starting ride height setting and further adjustments can be made from this starting point. Tighten the 5mm screw to lock the perch into place.



6. Install the rest of the front shock components and shock mounts as shown.
The flat end of the spring sits on the CarBahn lower perches whereas the pig-tail end sits on the upper stock shock mount. Please note:

- ⊕ Adjust the quantity of packers (shown below) as required, depending on your bump stop gap measurements (please refer to installation notes at the beginning of the instruction manual).



7. Install the shock assemblies into the vehicle per BMW recommended procedure, make sure the 5mm screw is tightened.

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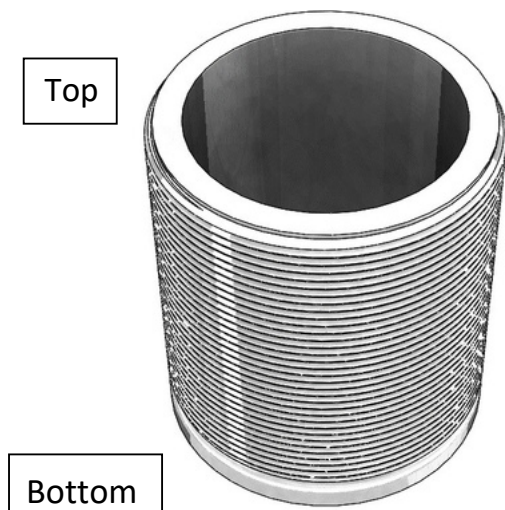
Rear Installation

1. Remove rear shocks from vehicle per BMW procedure. Mark the shocks with a “L” (Left) or “R” (Right) so they will not get mixed up when they are reinstalled.
2. Disassemble the shock assemblies and set aside the dust boots, springs, and lower spring pads (lower spring perch). These will not be reused. If the perches do not slide off, heating the perches maybe required. Use of a bench vise to do so is recommended.

 Warning: Make sure to use safety precautions while heating and installing the perches. CarBahn is not responsible for any property damage or injury.

 Warning: Make sure to apply as little heat as possible, applied only to perches. The shock body contains gas that can cause damage and injury on expansion.

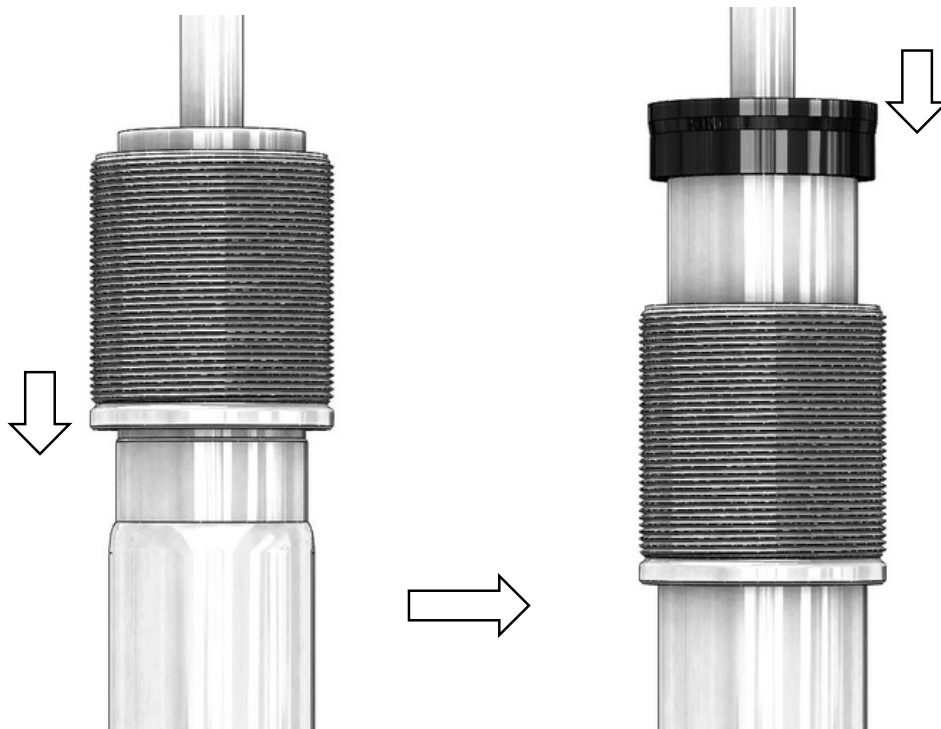
3. Locate the two CarBahn Rear Perches. They are taller of the two sets and measure to about 3.1 inches tall, orientation of the part is as shown:



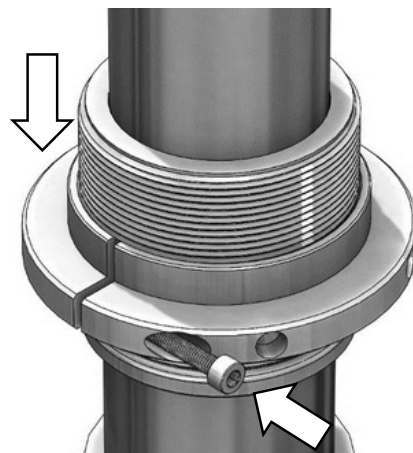
Rear Perch (CBF90-3103)

4. Slide the threaded rear perches onto the shocks as shown. Push the perch down until it moves no further down and is seated onto the shock groove. If the perches don't slide on, heating the perch might be required. See figure below.

⚠ Warning: Make sure to use safety precautions while heating the perches. CarBahn is not responsible for any property damage or injury.



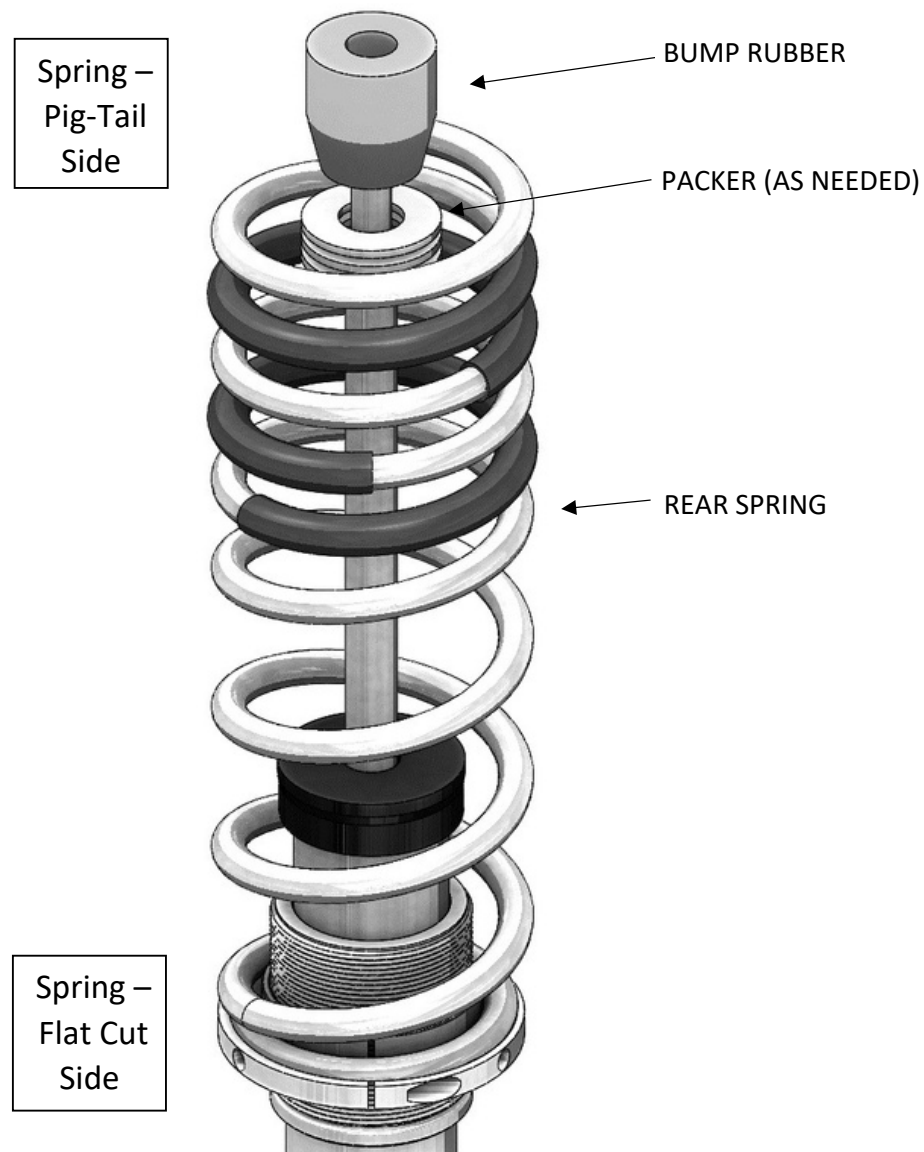
5. Install the spring perch collar as shown. Adjust the perch collar to its middle setting. This will be the starting ride height setting and further adjustments can be made from this starting point. Screw the 5mm screw to lock the perch into place.



6. Install the rest of the rear shock components as shown. The flat end of the spring sits on the CarBahn lower perches whereas the pig-tail end sits on the upper stock shock mount.

⊕ Please note:

Adjust the quantity of packers (shown below) as required, depending on your bump stop gap measurements (please refer to installation notes at the beginning of the instruction manual).



7. Install the shock assemblies into the vehicle per BMW recommended procedure, make sure the 5mm screw is tightened.

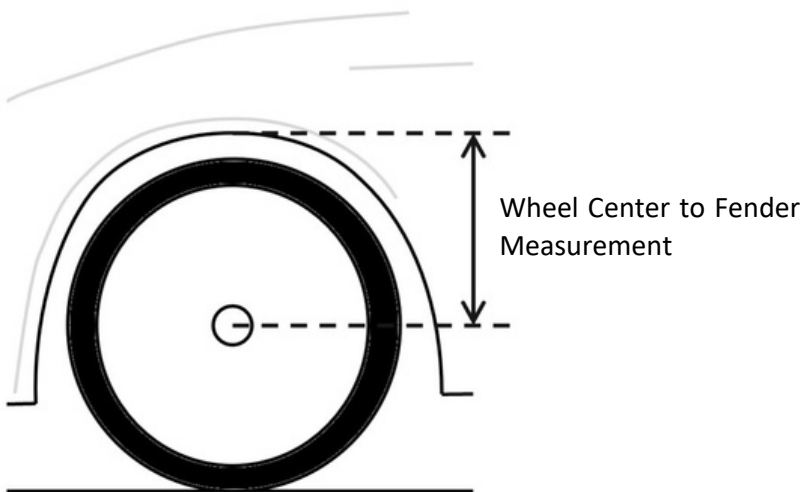
Adjusting Ride Height & Bump Stop Gap

1. Test drive the vehicle to settle the suspension.
2. Measure the ride height using the center of wheel to fender measurements and adjust the spring perches as necessary to obtain your target ride height. Tighten the spring perch screws once you obtain your target ride height.

⚠ Warning: Make sure you roll the car forward & backward after each adjustment to settle the suspension.

⚠ Warning: Carefully evaluate tire clearance after any ride height changes. If you determine there is insufficient clearance, the vehicle must be raised, safety will be compromised if all precautions are not taken.

CarBahn is not responsible for any property damage or injury.



3. Lift the vehicle on jack stands. Slide the bump rubbers all the way up.
4. Use clay to measure the bump stop gap. Make sure the clay is taller than the targeted bump stop gap. Place the clay between the packer and the damper.

5. Lower the vehicle back onto the ground and roll it forward and backward to settle the suspension and compress the clay to the target bump stop gap measurement.

 Warning: Do not bounce the car! This can result in an incorrect bump stop gap measurement.

6. Lift the vehicle back again. Take a note of the height of the clay, this will be the measurement of the bump stop gap. Packers can be removed and added as required to achieve the desired bump stop gap.

7. An alignment must be performed after installation of this kit.