Product:

Featherlight Generation Single Adjustable Coilover

Part Numbers:

430-503001-N

Applications:

BMW F8x, M3/M4 2014-18

Contents in the box:

Qty	Part #	Description
1	00P-0A1612-N	Front Left Coilover
1	00P-0A1613-N	Front Right Coilover
2	00P-0A1619-N	Rear Shock
2	00P-0A1624-N	Rear Spring & Adjuster
1	00P-0P1493-A	Spring Perch Tool

Difficulty of Installation: Beginner |----------x----------| **Advanced**
Reason: This is a fairly straight forward installation that does require some automotive skill, and adequate tool availability.
Expected Installation Time: 4 Hours

Note: Some models are equipped with Adaptive Ride, Electronic Shock Absorbers. Installation on these vehicles requires a electronic "Delete kit" at a additional cost. Please contact aFe control for availability and more information.

Recommended Tools:

- 16mm box end
- 13mm thin wall socket
- 13 mm deep socket
- 8, 10, 13, 15, 16, 17, 18 mm sockets
- 3/8" drive ratchet
- 3/8" drive extension
- Allen Wrench Set
- Complete Male & Female Metric Torx Socket Set
- ¾ box end wrench
- 3/8" drive Torque Wrench
- 2 Post Lift and Screw Jack (preferred)

This procedure is best performed on a vehicle lift by qualified mechanics, however it is possible to install these sway bars using a floor jack and jack however it is not recommended.

Front OEM Strut Removal

1. Using proper jacking points, lift and support the front of the car on jack stands.
2. Using a 17mm socket remove the front wheels.
3. Unbolt the sway bar end links from OEM Strut using a 16mm wrench and T-30 torx socket. If the vehicle is equipped with ride height sensors, disconnect the sensor from the driver's side control arm.

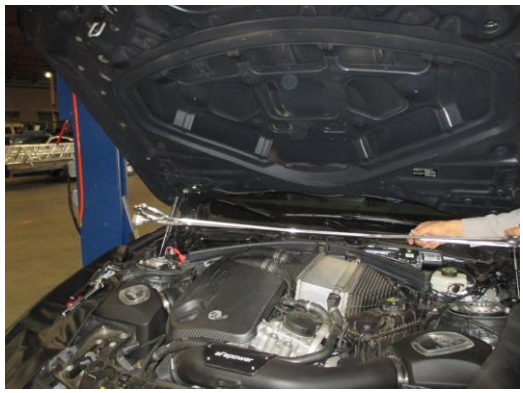
4. Position a screw, or floor jack under the front control arm to hold in place.
5. Using a 16 mm socket and wrench, remove the pinch bolt that holds the OEM strut into the upright. Slowly lower the jack and slide strut free from upright. You might need to use a pry bar to open up the split in the upright.
6. Move to the engine compartment. You will start by removing the plastic cowl cover by removing the plastic clips and 10 mm bolts.

7. Remove the (2) 10 mm bolt that holds the coolant reservoir.


8. Remove the Carbon fiber strut brace by removing the (8) 13 mm bolts, and carefully remove from vehicle.

9. Using a E-12 socket, remove the (10) bolts that hold the aluminum strut brace to the chassis. There are an additional (2) T-50 torx bolts that need removed.

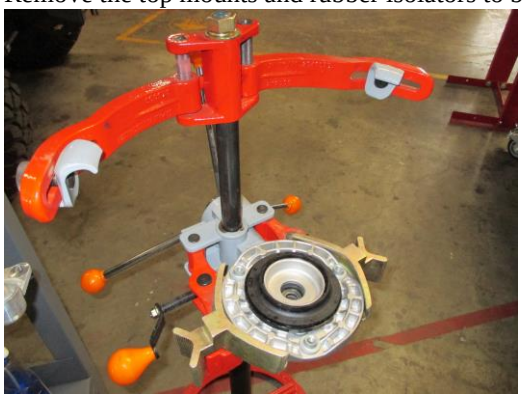

10. Remove the two plastic cowl caps to gain access to the remaining (2) 16 mm bolts holding the brace to the vehicle. Carefully remove aluminum brace from vehicle.



11. If the vehicle is equipped with Selective ride you will need to disconnect the connector before removing the OEM strut.
12. Using a 13 mm socket, remove the (3) bolts that hold the strut housing into the vehicle. Be careful to use a helper to hold the strut from the bottom of the car.

13. Using a strut compressor, remove the factory springs from the strut, by removing the top nut, using a 18mm 12 point socket.

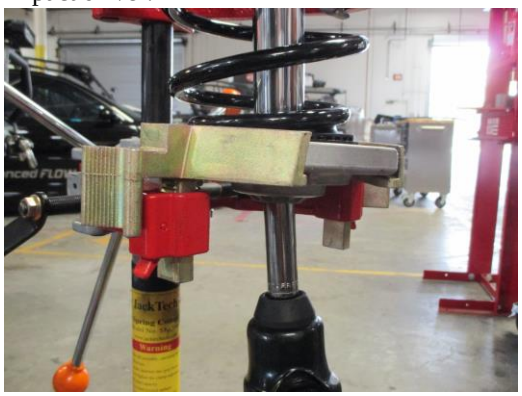
14. Remove the top mounts and rubber isolators to be transferred to the new coilovers.



Front aFe Control Coilover Installation

1. Using a strut compressor install the stock upper spring mount, rubber isolator, and bearing onto the new coilover using the supplied P1097 spring.

2. Using a 18 mm 12 point socket, tighten the top nut while still in strut compressor by using a impact driver.



3. Locate the correct coilover for side you are installing, by looking at the position of the sway bar end link bracket. The correct position would place the end link bracket towards the rear of the vehicle.
4. Install the new coilover into the vehicle by lifting into place, and positioning the upper mount to the body. Note there are positioning pins to pilot into the body. Having a helper on hand, reinstall the (3) upper bolts using a 13 mm socket. Torque to 25 lb-ft.

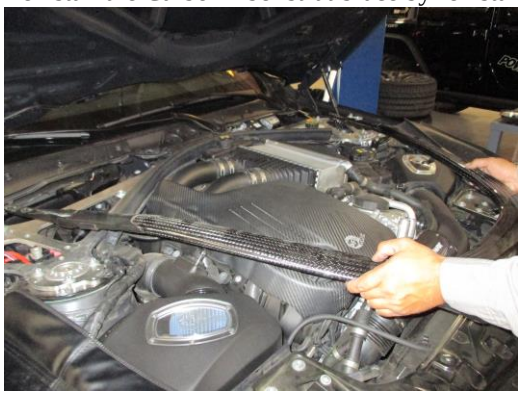

5. Slide the upright, over the strut tube. Using a floor or screw jack, raise the lower control arm until the upright bottoms on the tapered stop on the strut tube. Approximately ¾" of strut tube will protrude from bottom. If too tight, use a pry bar to slightly pry the split open further.


6. Torque pinch bolts to 20 lb-ft using a 16 mm socket.
7. Re-attach sway bar end link and torque to 25 lb-ft
8. Re-attach any brake line clips, and electrical connectors, that were moved during installation.
9. If the vehicle was equipped with accelerometers, one mounting solution would be to zip tie in the orientation as shown. Please contact aFe control for bracket solutions in development at the time of these instructions.

10. Move to other side of vehicle and repeat process.

11. Reinstall the front wheels using a 17mm socket and torque to 90 lb-ft.
12. Using a E-12 socket, reinstall the (10) bolts that hold the aluminum strut brace to the chassis. There are an additional (2) T-50 torx bolts that need reinstalled under the cowl cover. Reinstall plastic caps.


13. Reinstall the Carbon fiber strut brace by reinstalling the (8) 13 mm bolts.



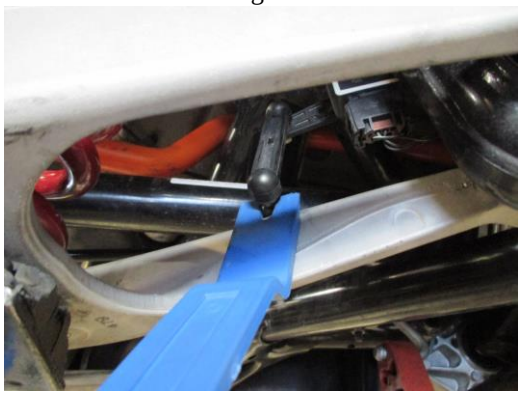
14. Reinstall the (2) 10 mm bolt that holds the coolant reservoir.


15. Reinstall the plastic cowl cover by reinstalling the plastic clips and 10 mm bolts.

Rear OEM Shock & Spring Removal

1. Using proper jacking points, lift and support the rear of the car on jack stands.
2. Using a 17mm socket remove the wheels.
3. Unbolt the sway bar end links from the sway bar using a 16mm wrench and T-30 torx socket.

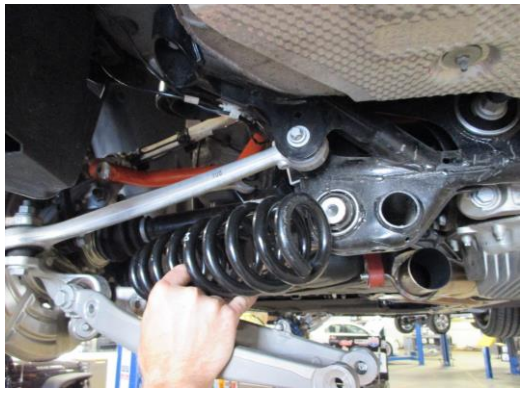
4. Disconnect the ride height sensor located on the driver's side lower rear control arm.



5. Using either a floor jack, or a trans jack, support the lower control arm.

6. Remove the rear shock mount bolts using a 18 mm socket and wrench.

7. On selective ride models, disconnect the wires to the accelerometer and the wires that attach the top of the shock to the chassis.
8. Using a E12 socket, remove the (3) bolts that hold the upper aluminum shock mount. Remove the shock assembly from the vehicle.
9. Using a 21 mm wrench and socket, remove the bolt holding the lower control arm at the sub frame. Slowly lower the control arm to release tension on the OEM springs, and remove spring from vehicle.



Rear aFe Coil Over Installation

1. Remove the aluminum factory upper mount from the OEM shocks. On Vehicles equipped with Selective Ride shocks, there might be two upper mounts, and a gasket sandwiched between.
2. Reinstall the aluminum upper mounts, In the same order onto the new, aFe Control rear shock. Using a impact driver, and 18 mm 12 point socket tighten factory upper nut. Install the upper portion of the mount onto the lower. It is important to get the correct orientation of the gaskets and upper mounts.


3. Remove the upper spring seat from the chassis of the vehicle. This can be done by using a flat blade screw driver and mallet.


4. Next install the coil spring adjuster and rear spring. The adjuster will press into the upper chassis mount, and be held in by a loose press fit, and the tension of the spring.


5. Be careful to properly index the spring in the lower mount.

6. Using a screw, or floor jack, raise the lower control arm into position, and align the bushing to the sub frame. Using a 21 mm socket, and open wrench, torque bolts to 56 ft-lbs
7. Install the rear coilover by positioning the aluminum upper mount onto the body. Using a E12 socket, install the (3) bolts and torque to 25 ft-lbs. Be sure to reinstall the upper gasket if equipped.

8. Install the lower shock bolt. Correct orientation is from the front of the vehicle, the nut will be on the rear. Torque the 18 mm nut 42 ft-lbs.

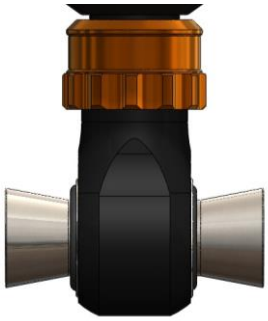
9. Reinstall the ride height sensor, and any other connectors that might have been disconnected.
10. Re-attach the end link s to the sway bar and torque to 25 lb-ft.
11. Reinstall the rear wheels using a 17mm socket and torque to 90 lb-ft.

Setup Information

Damping Adjustment:

There are 24 clicks of damping adjustment on the **FRONT** aFe Control Featherlight Coilover units and 24 clicks on the **REAR** Coilovers. The adjustment knob is located at the bottom of both the front strut and rear damper, shown below. The damping knob controls both compression and rebound damping together.

Front Damping Knob



Rear Damping Knob

Start by adjusting the knobs in front to full stiff (clockwise) - a setting of 24 - and count down from there. For example, a setting of -10 in the front would be achieved by going to full stiff and backing off 10 clicks.

The rears should also be turned to full stiff (clockwise) – a setting of 24 – and count down from there. For example, a setting of -10 (read “minus ten”) would be achieved by going to full stiff and backing off 10 clicks.

As a starting point for sporty street driving begin with the dampers set near the middle of the range at -10 in the front and -14 in the rear.

The damping adjustment on the Featherlight coilovers can be used to tune ride quality and performance. The entire range is useful and you should tune the car to meet your specific comfort/performance level.

Damping tuning is generally a tradeoff between stability and grip. Stiffer damping increases stability - this makes the car more responsive - but also can reduce overall grip level. With tires that have higher grip levels, more stability can be utilized. Below are some general guidelines for damping.

Recommended Damping Settings

Use	Front	Rear
Comfortable Street	-14	-17
Sporty Street	-10	-14
Track Day / Autocross	-8	-7
Drag Race	-21	-18

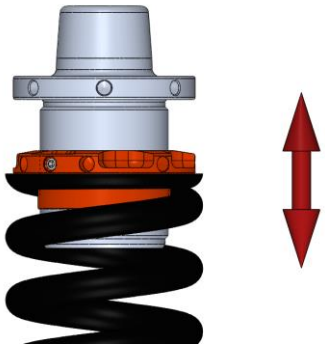
Ride Height Adjustment:

Loosen the small Allan head screw in the spring perch before attempting to change ride height, and tighten by hand after ride height changes have been completed.

Set the car to your desired ride heights by adjusting the spring perches with the supplied spring perch tool.

For the **Front** shocks threading the spring perch **UP** the threaded coilover body will **RAISE** the car, threading it **DOWN** will **LOWER** the car.

For the **Rear** threading the spring perch **UP** the body of the rear adjuster will **LOWER** the car, threading the perch **DOWN** the body of the shock will **RAISE** the car.



aFe Control recommends a final ride height at the fender arch of:
Front: 24.5”
Rear: 24.75”

This measurement should be taken from the ground to the fender lip. The BMW F80 suspension is pretty effective at a wide range of ride heights. We suggest setting up the car where you are happy with the visual stance, and that the car is still functional with the streets in your area.

Front: 4 turns = 1/2" change to ride height
Rear: 3.7 turns = 1/2" change to ride height

After making ride height adjustments be sure to either roll the vehicle or take a short drive to allow the vehicle to settle at its new ride height.

When the ride height is set, take the vehicle to alignment shop for a proper alignment.

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