



How to change front coil  
springs on **BMW 1  
Hatchback (E87)** –  
replacement guide

### SIMILAR VIDEO TUTORIAL



This video shows the replacement procedure of a similar car part on another vehicle

#### **Important!**

This replacement procedure can be used for:

BMW 1 Hatchback (E87) 118i 2.0, BMW 1 Hatchback (E87) 120i 2.0, BMW 1 Hatchback (E87) 130i 3.0, BMW 1 Hatchback (E87) 116d 2.0, BMW 1 Hatchback (E87) 118d 2.0, BMW 1 Hatchback (E87) 120d 2.0

The steps may slightly vary depending on the car design.

This tutorial was created based on the replacement procedure for a similar car part on: BMW 3 Saloon (E90) 318i 2.0

**REPLACEMENT: COIL SPRINGS – BMW 1 HATCHBACK (E87). LIST OF THE TOOLS YOU'LL NEED:**



- Wire brush
- WD-40 spray
- Brake cleaner
- Copper grease
- Combination spanner #13
- Combination spanner #15
- Combination spanner #18
- Combination spanner #22
- Drive socket # 13
- Drive socket # 17
- Drive socket # 18
- Drive socket # 21
- Torx bit T45
- Wheel impact socket #17
- Ratchet wrench
- Torque wrench
- Flat chisel
- Hammer
- Flat Screwdriver
- Hydraulic strut spring compressor
- Hydraulic transmission jack
- Fender cover
- Wheel chock

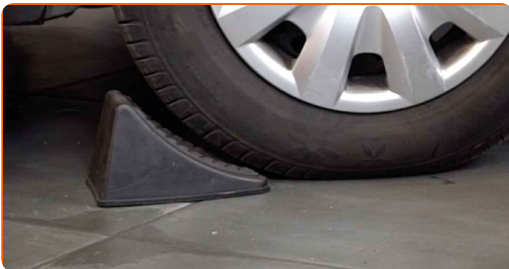
**Buy tools**

Replacement: coil springs – BMW 1 Hatchback (E87). AUTODOC recommends:

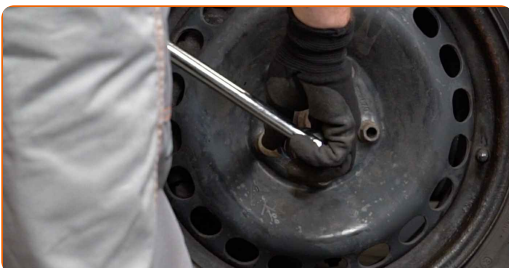
- Both coil springs of the front suspension should be replaced simultaneously.
- The replacement procedure is identical for the left and right coil springs of the front suspension.
- Please note: all work on the car – BMW 1 Hatchback (E87) – should be done with the engine switched off.

**CARRY OUT REPLACEMENT IN THE FOLLOWING ORDER:**

**1** Secure the wheels with chocks.



**2** Loosen the wheel mounting bolts. Use wheel impact socket #17.



**3** Raise the front of the car and secure on supports.

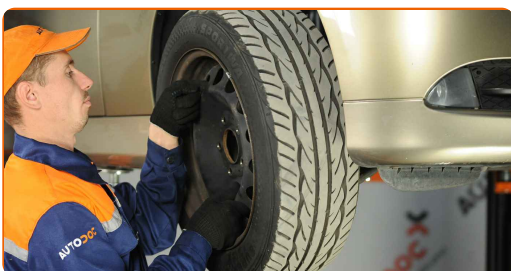
**4** Unscrew the wheel bolts.



**AUTODOC recommends:**

- Warning! To avoid injury, hold the wheel while unscrewing the fastening bolts.  
BMW 1 Hatchback (E87)

**5** Remove the wheel.



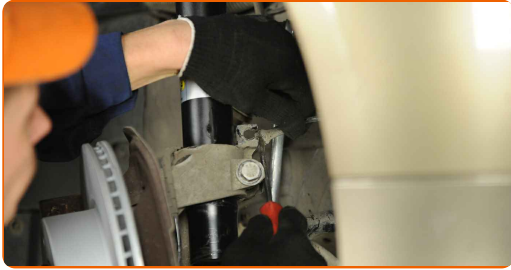
**6** Clean the stabiliser link fasteners. Use a wire brush. Use WD-40 spray.

**7** Unscrew the fastener connecting the stabilizer link to the shock strut. Use a combination spanner #15. Use a drive socket #17. Use a ratchet wrench.



**8** Remove the stabilizer rod.

**9** Disconnect the ABS sensor wiring. Use a flat screwdriver.

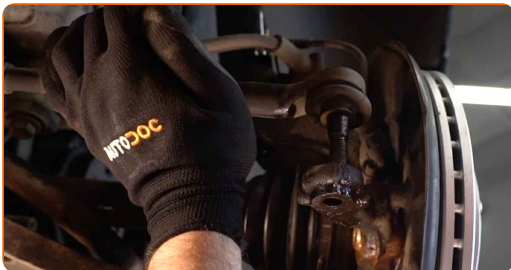


**10** Clean the fastener connecting the tie rod end to the steering knuckle. Use a wire brush. Use WD-40 spray.

**11** Unscrew the end fastening nut to the steering knuckle. Use a combination spanner #22. Use Torx T45. Use a ratchet wrench.

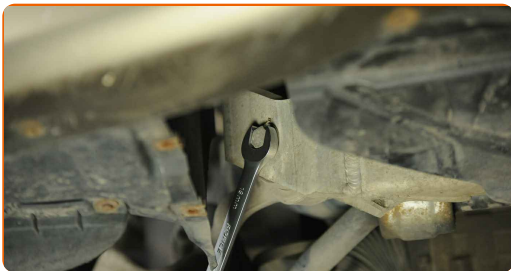


**12** Disconnect the tie rod end from the steering knuckle.



**13** Clean the fasteners connecting the control arm to the subframe. Use a wire brush. Use WD-40 spray.

**14** Loosen the front fastener of the control arm. Use a combination spanner #18.



**15**

Unscrew the rear fastener connecting the control arm to the subframe. Use a combination spanner #18 (2 pieces).



**16**

Remove the rear fastener of the control arm.

**17**

Clean the fasteners connecting the shock strut to the steering knuckle. Use a wire brush. Use WD-40 spray.

**18**

Unscrew the lower fastener connecting the shock strut to the steering knuckle. Use a combination spanner #18. Use a drive socket #18. Use a ratchet wrench.

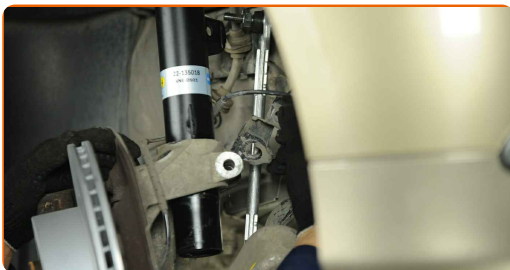


**19**

Remove the fastening bolt.

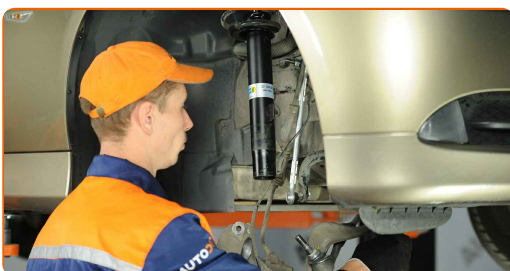
**20**

Release the lower fastener connecting the shock strut to the steering knuckle. Use a flat metal-working chisel. Use a hammer.



**21**

Disconnect the steering knuckle from the shock absorber strut.



Replacement: coil springs – BMW 1 Hatchback (E87). Tip from AUTODOC experts:

- Make sure that the steering knuckle is supported.

**22** Lower the car.

**23** Open the bonnet.

**24** Use a fender protection cover to prevent damaging paintwork and plastic parts of the car.

**25** Clean the fasteners of the shock strut upper mount. Use a wire brush. Use WD-40 spray.

**26** Unscrew the top fastening of the shock strut mount. Use a combination spanner #13. Use a drive socket #13. Use a ratchet wrench.



**AUTODOC recommends:**

- Important! Hold the suspension strut while unscrewing the fastening bolts. BMW 1 Hatchback (E87)

**27** Remove the suspension strut.





**28**

Set the shock absorber strut on the spring compressor tool.



**Replacement: coil springs – BMW 1 Hatchback (E87). Tip from AUTODOC experts:**

- Note that when using a spring compressor, spring coils need to be securely gripped, compressing the spring on the opposite sides.
- Ensure the correct position of the spring in the retainer.
- Make sure that the spring coils tightly entered the lock handles.

**29**

Compress the spring.

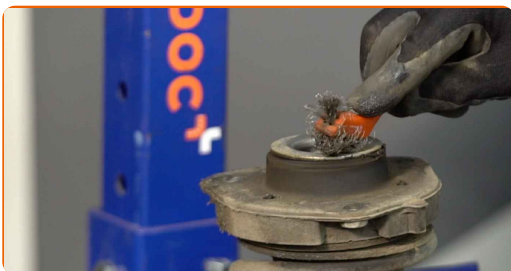
**30**

Remove the shock strut mount cap. Use a flat screwdriver.



**31**

Treat the shock strut rod. Use a wire brush. Use WD-40 spray.



32

Remove the strut piston rod nut. Use a drive socket #21. Use a ratchet wrench.

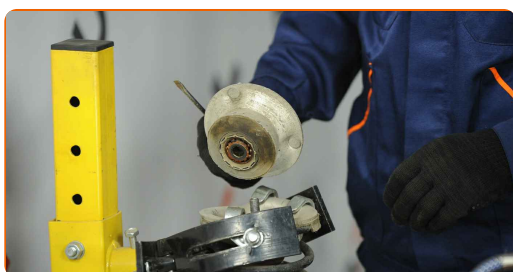


33

Release the coil spring.

34

Remove the top strut mount. Use a flat screwdriver.



35

Remove the shock absorber dust cap and the bump stop.



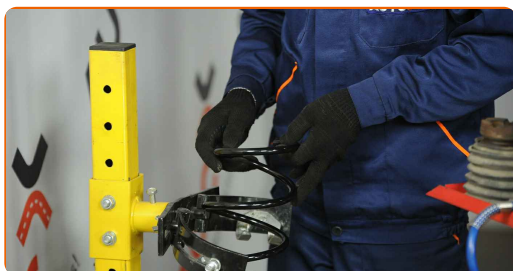
**AUTODOC recommends:**

- Replacement: coil springs – BMW 1 Hatchback (E87). Carefully inspect the mount, the boot, and the bump stop of the shock absorber. Replace if necessary.

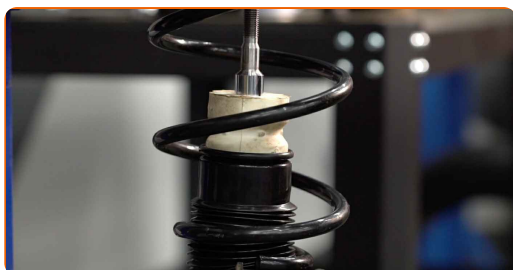
**36** Remove the spring.



**37** Install the spring on the shock absorber.



**38** Install the boot and a bump stop onto the shock absorber.



**39** Compress the spring.

**40** Install the upper strut mount and the strut mount bearing. Use a flat screwdriver.



**41** Tighten the shock strut piston rod nut. Use a drive socket #21. Use a torque wrench. Tighten it to 64 Nm torque.



Replacement: coil springs – BMW 1 Hatchback (E87). Tip from AUTODOC:

- Check to make sure the spring is positioned correctly. Avoid its misalignment.

**42** Install the shock strut mount cap.



**43** Decompress the spring.

**44** Remove the assembled shock strut.

**45** Install the shock strut into the wheel arch.



**46** Screw the top fastening of the shock strut mount.



**AUTODOC recommends:**

- BMW 1 Hatchback (E87) – To avoid injury, hold the suspension strut while screwing in the fastening bolts.

**47** Tighten the upper fastener of the shock absorber strut mount. Use a combination spanner #13. Use a drive socket #13. Use a torque wrench. Tighten it to 34 Nm torque.



**48** Remove the fender protection cover.

**49** Close the hood.

**50** Raise the front of the car and secure on supports.

**51** Treat the shock strut mounting seat on the steering knuckle. Use a wire brush. Use WD-40 spray.

**52** Fix the shock absorber strut on the steering knuckle. Use a flat metal-working chisel. Use a hammer.

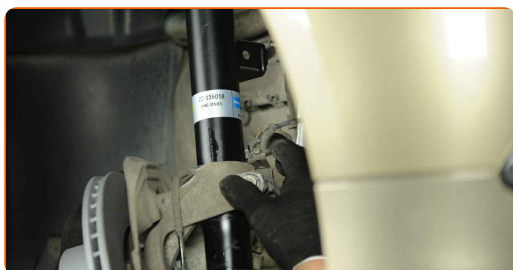


**53** Install the fastening bolt.

**54** Tighten the lower fasteners connecting the shock strut to the steering knuckle. Use a combination spanner #18. Use a drive socket #18. Use a torque wrench. Tighten it to 81 Nm torque.

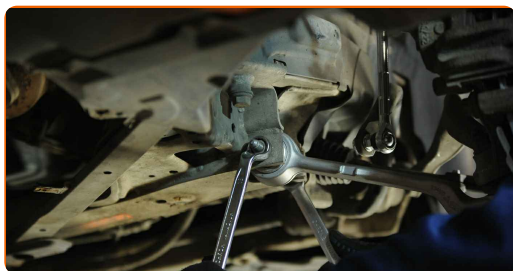


**55** Connect the ABS sensor wiring.



**56** Install the rear fastener of the control arm.

**57** Screw the rear fastener connecting the control arm to the subframe. Use a combination spanner #18 (2 pieces).

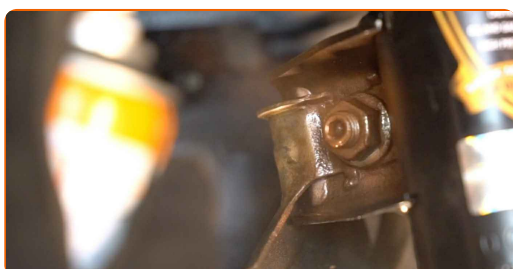


**58** Install the transverse stabilizer link.

**59** Tighten the fastener connecting the stabilizer link to the shock strut. Use a combination spanner #15. Use a drive socket #17. Use a torque wrench. Tighten it to 58 Nm torque.

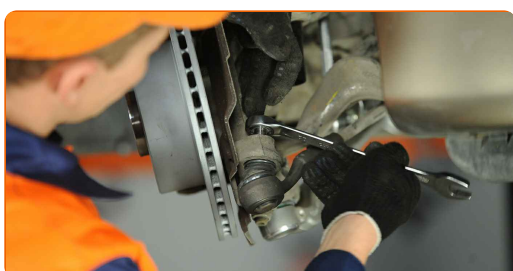


**60** Treat the shock strut fasteners. Use copper grease.



**61** Connect the tie rod end to the steering knuckle.

**62** Tighten the fastening nut connecting the tie rod end to the steering knuckle. Use a combination spanner #22. Use Torx T45. Use a torque wrench. Tighten it to 165 Nm torque.



**AUTODOC recommends:**

- Important! Be sure to use new fasteners.

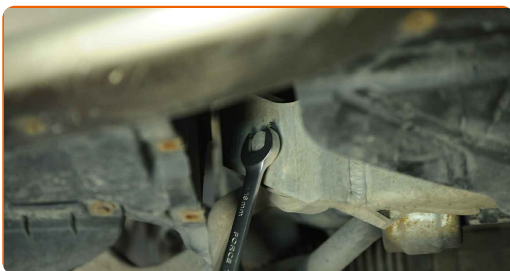
**63**

Prop up the steering knuckle. Use a hydraulic transmission jack.



**64**

Tighten the front fastener connecting the control arm to the subframe. Use a combination spanner #18. Use a torque wrench. Tighten it to 68 Nm torque. +90°

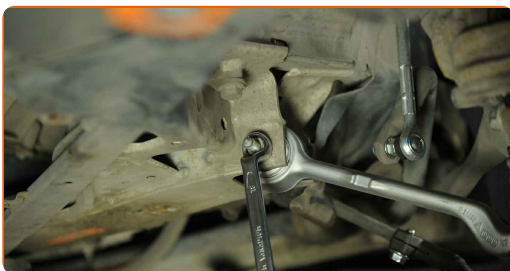


**AUTODOC recommends:**

- Important! Be sure to use new fasteners.

**65**

Tighten the rear fastener of the control arm. Use a combination spanner #18 (2 pieces). Use a torque wrench. Tighten it to 68 Nm torque. +90°



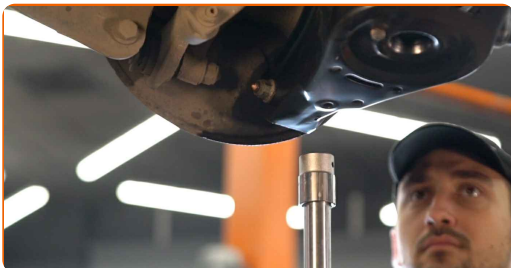
**AUTODOC recommends:**

- Important! Be sure to use new fasteners.



**66** Treat all joints of the arm. Use copper grease.

**67** Remove the support from under the steering knuckle.



**AUTODOC recommends:**

- BMW 1 Hatchback (E87) – Do not lower the transmission jack sharply to avoid damaging components and mechanisms of the car.

**68** Treat the surface where the brake disc contacts the wheel rim. Use copper grease.



**69** Clean the brake disc surface. Use a brake cleaner.

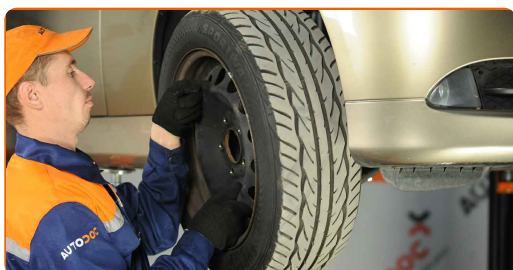


**AUTODOC recommends:**

- Replacement: coil springs – BMW 1 Hatchback (E87). After applying the spray, wait a few minutes.

**70**

Install the wheel.



**AUTODOC recommends:**

- Warning! To avoid injury, hold the wheel while screwing in the fastening bolts on the car. BMW 1 Hatchback (E87)

**71**

Screw in the wheel bolts. Use wheel impact socket #17.



**72**

Lower the car and working in a cross order, tighten the wheel bolts. Use wheel impact socket #17. Use a torque wrench. Tighten it to 120 nm torque.



73

Remove the jacks and chocks.



**WELL DONE!** 

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