



Adjustable Rear Control Arms Installation Instructions MINI 2002-on

PART # 100-485 & 100-486

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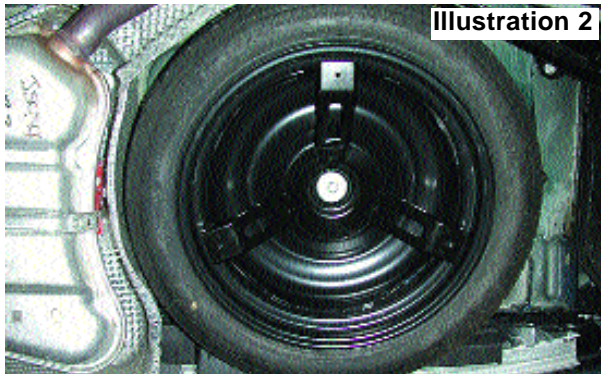
Tools required: Jackstands, hydraulic floor jack, 9/16 inch socket, 17mm & 1/2 inch crescent wrench, 6 inch extension, 12 inch extension, two 16mm sockets with two matching socket wrenches (can have different sized drives or use two 16mm sockets, a socket wrench and a breaker bar or torque wrench), a torque wrench (ft-lbs) and a large screwdriver.

Note: You will only need to remove the lower two control arms instead of all four.

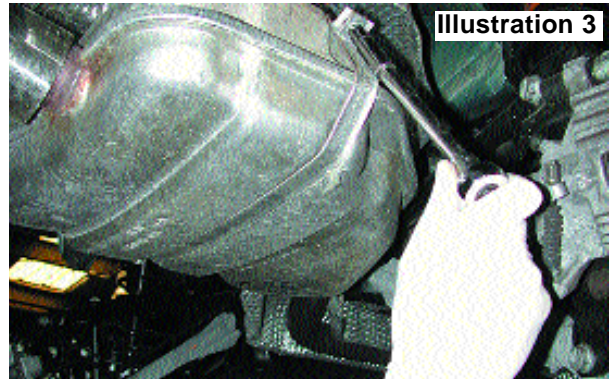
1. Raise vehicle and place on jackstands. Do not work on vehicle while raised on jack. Remove the right and left rear wheels. (See Illustration 1)



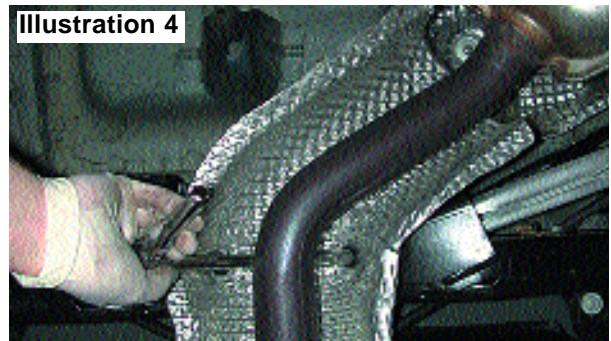
2. Remove the spare tire using the method described in the owner's manual. (You will need to loosen the retaining nut from inside the vehicle and unclip the retaining bracket.) (See Illustration 2)



3. Unbolt the two bolts that hold the muffler-retaining bracket using a 10 mm socket and the 6 inch extension. Let the muffler hang in position. (See Illustration 3)



4. Remove the two rear bolts that mount the exhaust pipe heat shield to the body with a 10 mm socket and 6 inch extension. Then remove the silver screw that mounts the muffler heat shield to the exhaust pipe heat shield with an 8 mm socket. Let the unbolted heat shield lie on the exhaust pipe. (See Illustration 4)



5. Remove the lower right-side and lower left-side spring retaining bolts using a 21 mm socket. (See Illustration 5 on next page)

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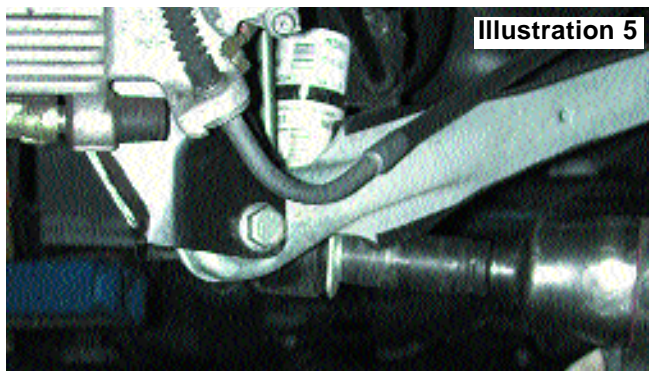


Illustration 5

6. Unbolt the lower right-side and lower left-side sway bar links. Use a 17 mm crescent wrench on the notches next to the ball joint to hold the ball joint in place. Use a 16 mm socket on the outside to unbolt the nut on the outside. See photo for view of right side. When unbolted, push lower ball joint mounting bolt out of hole and out of way. The right and left suspension arms should now be able to move independently. (See Illustration 6)

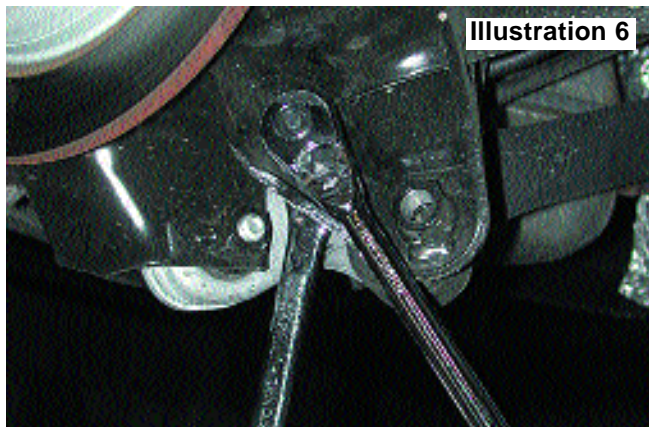


Illustration 6

7. Unbolt the lower outer control arm bolts (left-side lower and right-side lower). Use a 18 mm socket. (If the emergency brake cables are in the way, they can be removed. First, lower the parking brake handle in the car so that it is disengaged. Second, turn the spring loaded arm that attaches the cable to the brake caliper with a flathead screwdriver until there is enough slack to disengage it by pulling the bulb at the end out of the actuating arm. Third, pull down on the cable and it should slide out of the mounting bracket on the caliper.) (See Illustration 7)

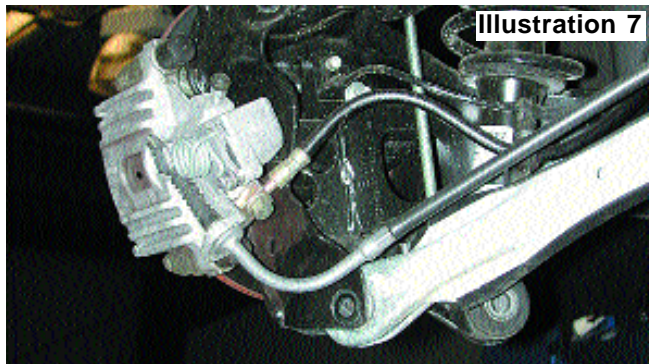


Illustration 7

8. Use a large screwdriver to pry the lower suspension arms out of the mounting bracket at their outside mounting point. Lifting up on the outer suspension bracket while prying on the arm will ease the removal process. Once removed, let the arms hang in place by their inner mounting bolts. (See Illustration 8)



Illustration 8

9. Unbolt the two inner control arm bolts (left-side lower and right-side lower). Use two 18 mm sockets and two socket wrenches or use one socket wrench and either a breaker bar or a torque wrench. If your car has a bracket for the spare tire at the lower left bolt location, remove it as well. Then pull the lower suspension arms out of the bracket and off of the car. If you are installing Moss solid upper control arms, this is the time to remove the upper inner & outer bolts as well as the upper control arms. (See Illustration 9)



Illustration 9

10. Apply the provided lubricant grease to both sides of each bushing on the suspension arms (8 sides total for the lower two arms). Do not skip this step or the bushings will squeak. (See Illustration 10)

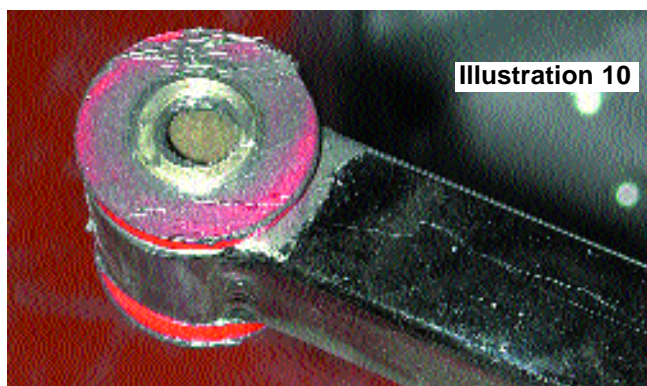
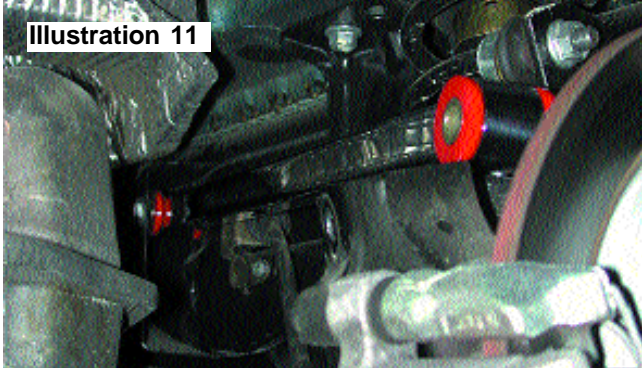


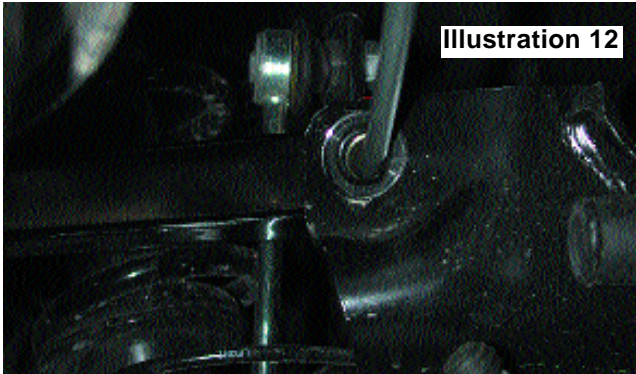
Illustration 10

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11. If you are replacing the upper arms as well, grease them and then place the end of a control arm (all are the same length) into the upper left hole of the center control arm mounting bracket. Put a mounting bolt into the hole and thread the mounting nut onto the bolt. The MINI logo on the solid control arm should face toward the rear of the vehicle. (See Illustration 11)



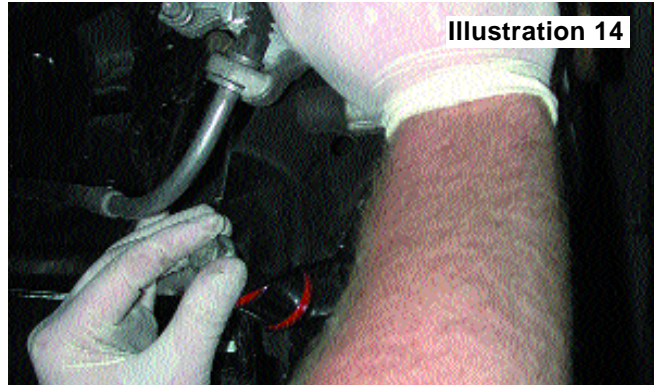
12. Push up on the brake caliper to align the hole at the other end of the control arm to the hole in the bracket. Be sure that the sway bar links that were disconnected in Step 6 are not hanging up against the outer suspension brackets. Pushing up on the bracket while pulling back on the arm should allow the control arm end to slip into place. Line up the bracket and control arm holes with a flathead or large phillips screwdriver. (See Illustration 12)



13. Then place the outer control arm mounting bolt into place. Lift up on the brake caliper again to get the threaded bolt to line up with the threaded nut on the other side of the bracket. Thread the bolt into the bracket, but do not tighten. (See Illustration 13)

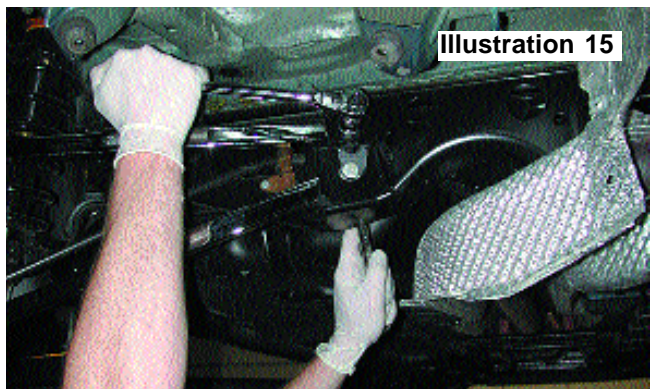


14. Repeat Steps 11, 12 and 13 for the other upper control arm. **Point the end of the control arm with the flat towards the wheels of the car.** Then repeat the same steps for the two adjustable lower control arms. NOTE: if you removed a spare tire bracket in Sept 9, put it back on at the same lower left bolt location in the center control arm bracket. (See Illustr. 14)



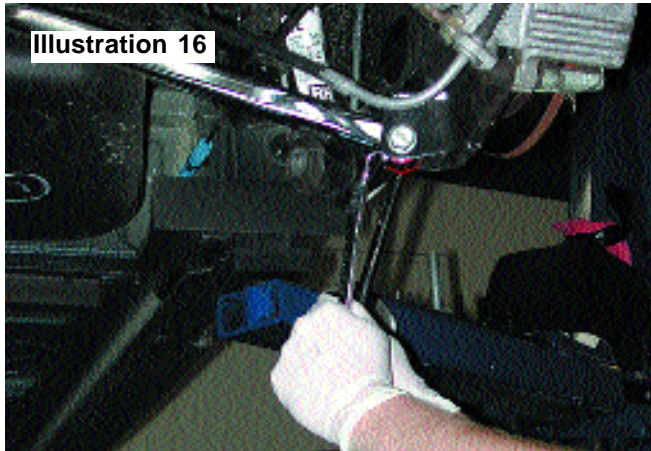
15. **IMPORTANT:** If you disengaged the emergency brake cable in Step 7, put it back on by turning the spring loaded arm with the flathead screwdriver and putting the cable back into the actuating arm. Do not skip this step or the emergency brake will no longer function.

16. Tighten the four inner control arm bolts (left-side upper and lower and right-side upper and lower) to 60 ft-lbs. Use two 18 mm sockets and two socket wrenches or use one socket wrench and either a breaker bar or a torque wrench. (See Illustration 15)

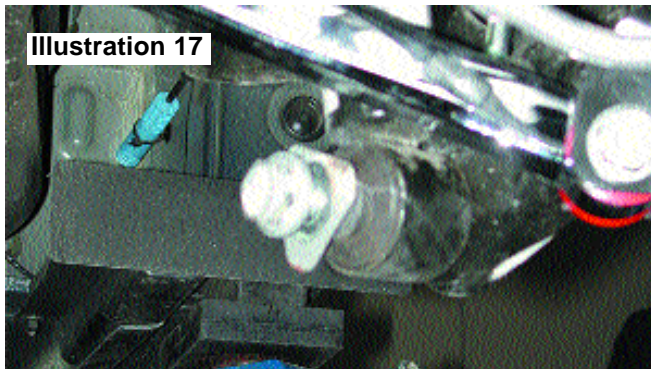


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17. Tighten the four outer control arm bolts to 60 ft-lbs. Use a 18 mm socket. (See Illustration 16)



18. Tighten the lower right-side and lower left-side spring retaining bolts to 100 ft-lbs. Use a 21 mm socket. (See Illustration 17)



19. Tighten the lower right-side and lower left-side sway bar links to 35 ft-lbs. Use a 17 mm crescent wrench on the notches next to the ball joint to hold the ball joint in place. Use a 16 mm socket on the outside to unbolt the nut on the outside. See Step 6 photo for illustration.

20. Tighten the two heat shield bolts to 8 ft-lbs with a 10 mm socket. Then tighten the one heat shield screw with a 6 mm socket. It should be finger tight. Be sure not to strip the threads.

21. Reattach the muffler-retaining bracket using a 10 mm socket and the 6 inch extension. Tighten the bracket to 15 ft-lbs.

22. Put the spare tire back on using the procedure listed in the owner's manual. (You will need to reclip the attachment bracket in place and then tighten the mounting nut from inside the vehicle).

23. Put the right and left rear wheels back on. Torque the lug nuts to the specification in the owner's manual using a 17 mm socket or a lug wrench.

24. Take the vehicle off of the jackstands. Test for proper operation of the emergency brake.

NOTE: If you replace the control arm bushings in the future, lubricant is available from www.mossmini.com. See www.mossmini.com for your MINI performance and accessory needs.

ADJUSTING THE SUSPENSION LINKS:

The length of the Moss Adjustable Control Arms can be adjusted to reduce excessive camber on lower vehicles or to add camber for autocross. Tools needed include a 15/16" combination wrench and a large crescent wrench.

1. The length of the Moss Adjustable Control Arms can be adjusted to reduce excessive camber on lower vehicles or to add camber for autocross.
2. Raise the rear of the vehicle and place securely on jackstands. Removing the rear wheels is also helpful, but not necessary.
3. Using a 15/16" combination wrench on the jam nut and an adjustable crescent wrench on the flat, loosen the jam nut at each end of the lower left arm.
4. Using the adjustable combination wrench on the flat, turn the control arm to lengthen or shorten its length. **NOTE:** The stock length of the control arm is 21in from the center of the inside bolt to the center of the outside bolt. This leaves about 1.05in between the top of the jam nut and the bottom of the round metal bushing surround.
5. Using a 15/16" combination wrench on the jam nut and an adjustable crescent wrench on the flat, tighten the jam nut at each end of the lower left arm to at least 45 ft-lbs.
6. Repeat steps 3 through 5 for the right side adjustable control arm.
7. Measure again to make sure that the installed bolt-to-bolt length of the left and right side control arms are the same length.
8. Replace wheels (if removed), torque lugnuts to 80 ft-lbs and lower the vehicle.