

**Vehicle:** BMW  
**Model(s):** E36  
E36 M3

### Disclaimer:

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Should you decide that you want to change your brake pads on your own, be sure that your car is properly jacked and supported. Wear safety goggles or glasses at all times.

### Introduction:

Changing the brake pads is fairly easy process. A novice you can expect to spend about 3.0 – 4.0 hours to change pads on all four brakes.

### Tools:

The following tools will be needed to successfully change your brake pads:



3/8" Socket Wrench



7mm short hex bit socket



3lb hammer



Two flat head screwdrivers



C Clamp



18" of insulated solid wire or length from a coat hanger



Torque Wrench (optional)

### **Supplies:**

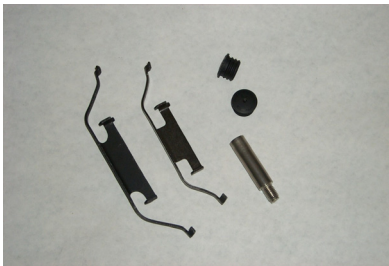
It is helpful to have the following supplies on hand:



New brake pads

### **Spares:**

If you change your pads frequently and/or you participate in track events it is wise to keep these spares on hand. They are either easy to brake, loose, or will wear out. You do not want to be without these supplies, especially, if you are away from home.



Caliper spares kit:

- Front/rear Brake clips. These have tension and can fly away from you when you remove them. If you force them they will brake. You can not safely operate the car without these in place.
- Hex guide bolt. The hex socket and threads on these can wear with repeated changing.
- Hex bolt caps. These are small and easy to loose. These caps keep the hex bolts clean and free from corrosion. The hex bolt should also be clean to properly accept the hex socket

### **Instructions:**

The following step by step instructions will lead you through changing your brake pads. These instructions assume that you have properly and safely jacked up your car, removed the wheel and the brakes are cool. Pictures show different calipers from step to step (front/rear) but the actions are identical.

#### **1. Remove brake clips**



Insert the flat head screwdriver under the clip and the other between the hub and the top of top of the clip.

Pry the screwdriver between the hub and the top of the clip towards the brake caliper. Pry until you see the catches clip move to the outside of the holes in the caliper.

Pry the other screwdriver towards the hub. Until the clip springs free. You may have to adjust your prying on both screw drivers until the clip comes free. Be careful and make sure that your face and hands are clear since the clip will pop free.

Once the clip is removed you will want to set it aside so it does not get stepped on or lost.

#### **2. Remove guide bolt caps**



There are two little plastic caps about the diameter of a dime behind the caliper. Since you can not see these easily you will have to feel around for them.

Use your thumbnail to catch the edge and push them out gently. You will push away from the caliper towards the wheel hub. Work it out about 1/4" and then pinch with your thumb and forefinger to pull it out. Avoid using a screwdriver to pry it out. It comes out fairly easily and you do not want to mangle the plastic or damage the rubber sleeve with the screwdriver. Set the caps aside along with your brake clips so they do not get damaged or lost.

### 3. Disconnect wear sensor



There are only two brake wear sensors on the car. One is on the front driver side and the other is on the rear passenger side. It is a small green insulated wire that runs from a connection mounted in the wheel hub and leads to the edge of one of the brake pads.

These are tricky to remove because the connector on the pad is ceramic. You do not want to break this since it will trigger the brake warning light in your car.

Gently using the flat end of your screw driver push the sensor to the outside. Once it is about half way off use your fingers to pinch and gently pull while you continue to apply pressure with the screw driver. You do not want to pull the wire out of the sensor.



If you are changing to race pads or intend to change the pads well before they are worn you do not have to reattach the sensor. On a quick change for a race day there is no need to risk damage to the sensor by repeated removal and installation. You do not want to leave the wire hanging free if you are not going to reattach it. You can double it back through the clip on the shock tower.

You can also use electrical tape to secure the wire to the shock mount.



In the rear, you can use the additional clip on the lower control arm to double back the sensor.

### 4. Free hex guide bolt



Using your 3/8" socket wrench with the hex bit socket insert the bit into the hole where you removed the hex caps. Be sure that your socket is set for a counter clockwise catch. Turn the wrench until bit inserts into the hex bolt. You have to do this by feel since you can not see what the recessed hex bolt. To loosen the hex bolt hold the socket wrench in place near the head of the wrench and tap the handle of the wrench with the hammer to force it in a clockwise direction.

The removal of the nut is in reverse because your angle of attack is from behind.

### 5. Loosen brake piston



Removing the caliper can be difficult especially if the brake pads are old and worn. The piston in the caliper will keep the pads firmly against the rotor even when the brakes are not applied. You will need to loosen the grip of the piston to facilitate the removal of the caliper. You will use a flat head screw driver to push the piston back into the caliper. Through the opening in the caliper you will see the top of the brake pad and the slot in it for the wear sensor. You can slide a flat head screw driver into the sensor slot between the brake pad backing and the piston. Gently pull the screw driver towards you pressing the piston back into the caliper. Make sure that the flat head screw driver is in contact with the piston and not the rubber flange. You do not need to insert the screw driver beyond the depth of sensor notch.

Removing the caliper will be much easier if you take care to properly recess the piston.

### 6. Remove caliper



Use a screw driver to pry the caliper away from the rotor. The caliper will be hard to remove if the pads have been on for a while since they have tightly conformed to the rotor. Don't be surprised if some of the inside edge of the brake pads chip away as you try to remove the caliper.

Hold the caliper with your other hand so the caliper does not swing loose once removed and put undo tension on the brake line. The outside brake pad is not attached and may fall free from the caliper during this process.



If the using the screw driver method does not free the caliper you may need to use the 3lb hammer to help loosen the grip of the pads on the rotor. Tap the caliper with the hammer handle in one hand while holding the caliper with your other hand to prevent the caliper from swinging free only to be supported by the brake line.

### 7. Support the caliper



Use the length of wire and hook one end through the caliper and wrap the other through the spring. If the wire is soft be sure to loop it at the ends so it does not loosen and cause the caliper to fall free. Be sure that the caliper hangs without tension on the brake line.

### 8. Remove pads



If the outside pad did not fall free when removing the caliper remove it now. The inside caliper is held in place by a clip on the pad. You will have to pull the pad forward from the caliper piston to free the pad.

### 9. Recess piston



If your old pads are worn the caliper piston will be extended. This means the new pad will not sit flush against the caliper. If the new pad is not flush you will have a hard time repositioning the caliper. To recess the piston you will press it back using the C Clamp. Use an old pad between the clamp and the piston opening to prevent damage to the piston.

### 10. Install new pads



The front inside pad has a clip that inserts into the caliper piston to hold it in place.



Insert the outside pad into the caliper make sure that the brake surfaces are facing in and that the pads are not upside down.

### 11. Position caliper



Push the caliper towards the wheel hub until it is in position. The hex pins should line up over the holes in the caliper bracket.

### 12. Tighten guide bolts



Use your socket wrench with the hex bit turn counter clockwise since your angle of attack is from the rear.

You will want to tighten your hex bolts to 30NM or 22 ft lb. If you do not have a 3/8" torque wrench then hold the socket wrench at the hub and give the handle a few taps with the 3lb hammer until the hex bolt is tight. You do not want to pound it and over tighten the bolt.

### 13. Insert guide bolt caps



Insert the cap into the hex bolt opening and push with your fingers until it is flush. It is very important to install these to keep the hex bolt free from road grime and corrosion.

### 14. Install clip



Reinstall the clip by resting the flexible tabs on the outer edge of the bracket then press from the hub outwards until the two inner tabs drop back into the two retaining holes.

### 14. Installation completed



The installation of the new pads is complete

### 15. Pump brake pedal



**IMPORTANT:** Before you drive the car make sure that you pump the brake pedal a few times. Do this until the pedal travel is short and firm! This will help set the pads and restore pressure to the caliper pistons. Otherwise, your brakes will be loose and unable to stop the car!