Note:

- Your front wheels must be off the ground to change brake pads. See Getting car up on jack stands DIY.
- I assume that your car is already up on a lift or on jack stands and the wheels are off.

Step 1: Getting the required items together

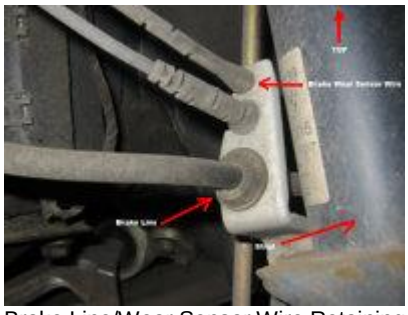

M3 Front Disk Brake

This job requires:

- A lift or some other method of getting the front wheels off the ground.
- 7mm Allen Head Socket
- Socket Wrench
- Torque wrench (recommended)
- 6" or larger "C" clamp
- Large flat screwdriver
- Small flat screwdriver
- Disk brake anti-squeal compound
- Brake cleaner
- Something to rest calipers on (Cardboard box, spare jack stand, etc - something about as tall as bottom of the caliper).
- A BMW M3 (E46).
- About 30 minutes of free time.

Step 2: Start on Driver's Side - Free Things Up

- Note: Pop the hood (no this has nothing to do with the caliper but you will need to get in there in a bit and might as well do it before you're covered with brake dust and grease).
- You will need to pop the brake line out of its retaining bracket (bottom grommet) (see image).
- You will also need to pop the brake wear sensor wire out of the same bracket (top most grommet) (see image).
- Just use your fingers to push the grommets out of the bracket. Push away from the strut, toward the center of the car.

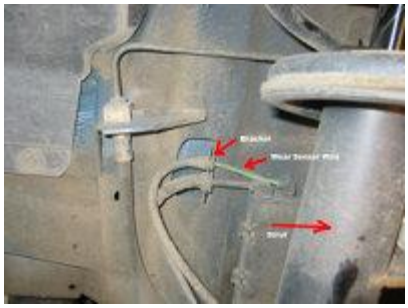

Brake Line/Wear Sensor Wire Retaining Bracket


Line/Sensor Wire Released From Retaining Bracket

Step 3: Freeing Things Up Part II

- There is a small plastic clip that clips into a hole toward the lower end of the strut (on its back side) that harnesses the ABS wire and the wear sensor wire - gently pull it out. (see first image)
- There is one more bracket that holds the wear sensor wire in place - its on body of the car, right by wear the brake line goes into the engine compartment - just follow wire to the bracket and pop the grommet out of the bracket. (see second image).
- NOTE: The wear sensor is only on the driver's side on the front brakes. You still have to release the brake line on the passenger side just like above but you will not have to worry about the wear sensor at all on the front passenger side.


Retaining Clip (view from behind the strut)


Upper Bracket

Step 4: Removing the Brake Pad Anti-Rattle Clip

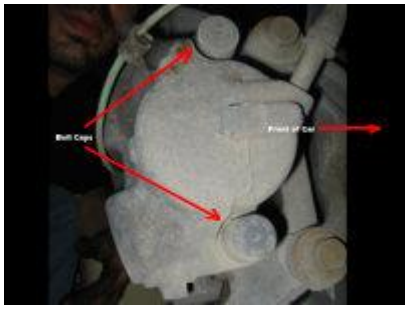
- Use your flat head screwdriver to pry under one of the arms of the clip and to push the arm away from the rotor toward yourself (see image).
- This can take a little doing and may require a little imagination (some claim this can be done with your hands - I like my fingers in one piece).
- When the clip releases it may pop off with a little zest do watch your face, etc. and don't get blinded by a flying anti-rattle clip.


Anti-Rattle Clip


Anti-Rattle Clip Removed

Step 5: Taking Yet More Stuff Off

- A short and simple step - there are two plastic caps that protect the bolts used to retain the calipers.
- These are located on the back side of the caliper (see image) - just pull them out with your fingers.



Plastic Caps


7mm Retaining Bolts Exposed

Step 6: Giving Things a Squeeze (Compressing the Piston)

- You need to compress the brake piston. This can be done on the car (easier) or once the caliper is off the car (harder).
- There is a special tool to do this via BMW but since you don't have one (I'm willing to bet on that) we will use our own special tool - a garden variety 6" or larger "C" clamp.
- Open the clamp and place the end on the back of the brake piston housing (see second image).
- Place the other end on the outside brake pad (see first image).
- Gently compress till you meet resistance. Depending on the condition of you brake pads you will see the outside brake pad move in about a 1/4" from its starting position.
- CAUTION: Watch brake fluid level in the brake fluid reservoir as you compress the piston. You're compressing the system with the clamp and forcing fluid out of the caliper - make sure the fluid reservoir does not over flow - there is nothing worse than brake fluid for paint - if the reservoir gets close to overflowing, use a turkey baster, etc. to siphon off a little fluid. Do not siphon off any more than required to keep it from overflowing. Make sure to replace what ever fluid you siphon off with NEW fluid after you're done.
- Remove the clamp.


Clamp Location From Front


Clamp Location From Back


Clamp Location From Rear


Brake Fluid Reservoir

Step 7: Preparing to Remove the Caliper

- You will need something to set the caliper on after its released or it will hang down by the brake line - not the world's brightest idea. A cardboard box about the same height as the caliper works well.
- Using the 7mm Allen bit, loosen the two caliper retaining bolts. These are both accessed from the back of the caliper (these are the bolts that were covered by the plastic caps you removed in Step 5).
- You don't have to pull these all the way out but its probably easier just to do so.


All the Stuff Taken Off So Far

Step 8: Removing the Caliper

- Carefully pull the caliper directly back toward the back of the car - mind the fact that the wear sensor and brake line are still attached to the unit!
- Once released, set the caliper on what ever you are using for a support.
- Your outside brake pad will stay on the brake pad carrier, just lift it out and set it aside (don't toss it yet!).


Pulling Caliper Off

Removed Caliper

Step 9: Releasing the Inboard Pad

- The inboard brake pad is clipped into the piston (see image).
- Gently push the pad toward the center of the caliper to release - keep in mind that the wear sensor is still attached.

Releasing the Inboard Pad

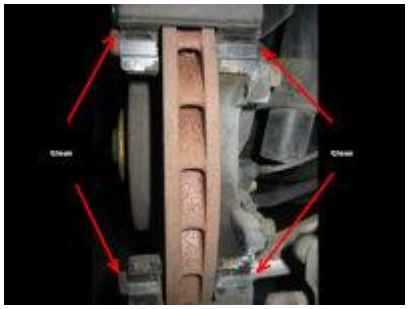
Step 10: Removing the Wear Sensor

- The wear sensor sits at the top end of the inboard driver's side brake pad.
- Use a small screw driver to gently pop it upwards and out of the pad's recess.
- Set the inboard pad aside (don't toss it yet!).

Brake Wear Sensor

Step 11: Cleaning Up

- Use brake cleaner to thoroughly clean both the runners on brake pad retaining bracket and the caliper (particularly the piston and the outboard arms).
- Wipe clean.



Brake Pad Carrier Bracket

Caliper

Step 12: Preparing the New Pads for Installation

- Examine your old pads and note the areas of the pad that contact the piston and the caliper.
- Apply a liberal amount of anti-squeal compound to the new pads in the area where they will contact the caliper and piston (use the old pads as a template).
- Too much is better than too little here and this is a place where its OK to be messy.
- Don't worry about being able to see the anti-squeal compound once the brakes are installed - after a couple of days, whatever color the compound you used will be turned into a nice shade of brake pad dust gray.

Inboard Pads
Old Pad, top
New Pad, bottom

New Outboard Pad

Step 13: Installing the Inboard Brake Pad

- Set the new, anti-squeal coated inboard brake pad into the piston inside the caliper (see image).
- The clip on the back of the inboard pad will snap into the piston itself and snap in securely.

New Inboard Pad in Caliper

Step 14: Installing the Outboard Brake Pad

- Set the new, anti-squeal coated outboard brake pad into the brake pad carrier (see image).

- The pad will just loosely sit in place until the caliper is installed.

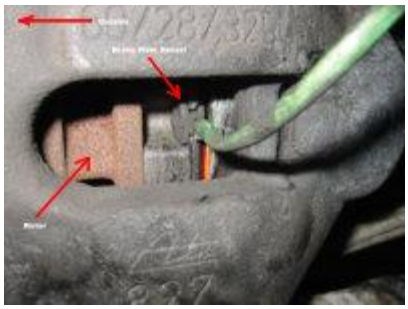

New Outboard Pad in Carrier

Step 15: Installing the Caliper

- Slide the caliper back on making sure that the outboard pad stays on the brake pad carrier.
- Reinstall the two retaining blots to hold the caliper in place and torque them down to 22 ft lbs.
- Reinstall the two plastic caps you removed in Step 5. (they just pop back in by hand)

Step 16: Reinstall the Brake Wear Sensor

- The brake wear sensor will snap back into the inboard brake pad.
- You will be able to see the recess in the inboard pad through the back of the caliper (see image)
- Gently snap the sensor back in and check to make sure its seated.


Brake Wear Sensor

Step 17: Reinstall the Anti-Rattle Clip

- The anti-rattle clip just snaps back on the caliper.
- Slide the clip in from the front of the caliper until it snaps back into place.


Anti-Rattle Clip In Place

Step 18: Finishing Up

- You're almost done - just need to secure the brake wear sensor wire and the brake line and then you're all set.
- Reverse Steps 2 & 3 to secure the wire and line.
- Reinstall the wheel and torque the lugs to 88 ft lbs.
- Repeat for passenger side - you will be skipping everything to do with the brake wear sensor on the passenger side since there isn't one there.

Step 1: Getting the required items together

This job requires:

- **European Spec Front Rotors: 34-11-2-282-301 Left & 34-11-2-282-302 Right**
- **A lift or some other method of getting the front wheels off the ground.**
- **16mm Socket and Socket Wrench**
- **16mm Open Wrench**
- **5mm Allen (hex) Socket**
- **Dead-Blow Hammer or Rubber Mallet**
- **Torque Wrench (16 - 130 Nm range)**
- **Anti-Seize Compound**
- **Brake Cleaner**
- **A box or something else to either set the caliper on or a bungee cord, etc.**
- **A BMW M3 (E46).**
- **About 30 - 45 minutes of free time.**

Euro Rotors (in correct orientation)

Step 2: Lets Start On the Driver's Side

- **Look behind the caliper and locate the two 16 mm Hex Head bolts. The image shows the location of the bolts with the rotor already removed.**
- **Using the 16 mm socket and wrench loosen these bolts - due to the torque spec of these bolts they will be tight (may want to use a breaker bar to get them to move)**
- **Remove one of the bolts first, but before removing the second have your caliper securing system ready. I used a card board box to set the caliper on - do not let it dangle from the brake lines.**
- **Remove second bolt and pull the entire assembly off the rotor, and set in on your box**
- **Be careful when removing the caliper; the Brake Line and Brake Wear Sensor Wire (driver's side only) are still attached.**


Caliper Retaining Bolt Locations


Removed Caliper "Resting"

Step 3: Removing the Old Rotor

- **Using your rachet and 5mm hex socket, loosen the two set screws that are securing the rotor to the hub.**
- **After removing the two set screws, the rotor will come off but may require a few blows from the dead-blow hammer or rubber mallet.**
- **Once loosened up, remove the old rotor and set it aside.**

Rotor Retaining Bolts

Hub with the Rotor Off

Step 4: Installing the New Rotor

- **Take the Left Front Rotor (34-11-2-282-301) and use brake cleaner to clean off any shipping oil, etc.**
- **Line up the new rotor with the three pins in the wheel hub, as well as the lug holes and set screw holes.**
- **Replace the two 5mm set screws and torque them to 16 Nm.**

Left Front Rotor (showing part number)

New Rotor on Hub

Step 5: Reinstalling the Caliper

- **Test fit the caliper - you may have to spread the pads apart a bit to get it to fit on the new rotor - to do this use the handle of a large screwdriver or hammer and spread the pads.**
- **Place the caliper back in position.**
- **Apply some anti-seize on the 16mm hex bolts before putting them back in.**
- **Torque the bolts down to 110 nm.**
- **Your done on this side of the car - repeat for the other side (right side rotor part number is 34-11-2-282-302)**

Caliper Back In Place

Step 1: Getting the required items together

This job requires:

- Pressure Bleeder (I used one made by Motive - the steps assume that this is what you are using).
- Brake Fluid (I used ATE Super Blue Racing)
  If you are planning on replacing all of the fluid in the system you will want to get 1.5 to 2 liters of fluid - The system's capacity is right around 1 liter but I would not risk it.
- Can or Jar to catch old fluid
- Turkey Baster (no, I'm not kidding)
- A lift or some other method of getting the wheels off the ground.
- 9mm Open Wrench
- 6mm Open Wrench
- 8mm socket
- Socket wrench
- Rubber Mallet or Dead-Blow Hammer
- Helper
- A BMW M3 (E46).
- About 20 - 30 minutes of free time.

Motive, ATE & Jar

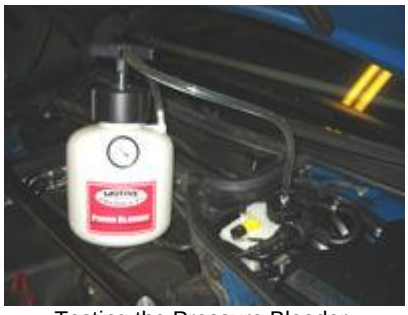
Step 2: Start by removing some of the old brake fluid from the reservoir

- Locate the brake fluid reservoir on the driver's side of the car, up toward the firewall.
- Remove cap and pop out the screen filter in the top of the reservoir.
- Using the turkey baster siphon out as much of the old fluid as you can - place what ever your using to drain the fluid into as close as you can to the reservoir so that you do not have to carry the baster with fluid over any painted surfaces (fender, etc).
- Once you get as much fluid out as you can, replace the screen filter and refill the reservoir with new fluid up to max level.


Brake Fluid Reservoir Location

Step 3: Working with the pressure bleeder

- Test the bleeder and connection first by connecting an empty bleeder to the car's fluid reservoir and pressurizing the bleeder to about 20 psi (don't go any higher or you might blow the cap off the reservoir making a bloody mess) and check for leaks - if all is well - continue. If you find leaks take a look at the rubber seal inside the end cap of the bleeder (the part that screws on the reservoir). If you cannot fix the leak - DO NOT use the pressure bleeder as you will spray fluid all over the car and cost yourself a very expensive repaint job. If everything checks out continue.
- Fill the pressure bleeder with about 1 liter of new brake fluid (I'm assuming a Motive bleeder - always follow manufacturer's instructions).
- If you are planning on replacing the fluid in the system rather than just bleeding put about 1.5 to 2 liters in the pressure bleeder - the LAST thing you want is to run out of fluid and pump air into the brake system.


Testing the Pressure Bleeder

- Screw the cap back on the bleeder and connect the bleeder up to the car's brake fluid reservoir.
- Pressurize the bleeder to around 20 psi (no higher!) - you'll see fluid being pushing toward the reservoir through the hose as you do this.


Filling the Pressure Bleeder

Step 4: Start at the Passenger Rear wheel

- Though the front and rear systems in an M3 are more or less independent old habits die hard and its always a good idea to use the following pattern to bleed the brakes: Passenger Rear, Driver Rear, Passenger Front, Driver Front. The idea is to bleed the calipers from furthest away from the reservoir to the closest.
- The bleed valve is located toward the top of the rear caliper and is covered by a little rubber cap.
- Pop the cap off and slide the hose you got with your bleeder onto the end of the valve - make sure its well seated.
- Position your drain jar, etc under the end of the hose.
- Take your 9mm open wrench and open the bleed valve by turning it counter clockwise about 1/2 to 3/4 of a turn - the fluid will start to flow out of the caliper.
- If there is air in the system you will see small bubbles flowing out of the caliper.
- Let the fluid drain till you no longer see air bubbles and then close the valve back up.
- If you are replacing the fluid in the system it is wise to use a fluid of a different color so that you can see when the old fluid is out of a given caliper and new fluid is flowing out.
- MAKE SURE YOUR BLEEDER DOES NOT RUN DRY and that pressure stays up above about 15 psi - you may have to close the bleed valve and add pressure or fluid to the pressure bleeder during the procedure, that's OK. This is where a helper is useful as the he/she can watch the pressure and fluid level in the bleeder.
- Once you're done with the passenger side caliper, move onto the driver's side rear caliper, then on to the front passenger side and finish at the driver's front.
- The process for front calipers is identical to that for the rear and bleed valve location is pretty much the same.


Rubber Bleed Valve Cap (from rear of caliper)


Valve Exposed (from rear of caliper)

Drain Hose Attached To Valve (from above caliper)

Draining Fluid

Step 5: Getting at the Clutch Bleed Valve

- Since the clutch uses the same fluid as the brakes its typically a good idea to bleed any air out of there as well.
- This is actually the most involved part of the bleeding process.
- You need to remove 2 of the plastic shields under the transmission to gain access to the clutch bleed valve.
- Work from the driver's side of the car and remove the two shields pictured here -->
- The shields are have a series of 8mm screws and bolts as well as being interlocked with tabs.
- Remove the smaller shield that is closest to the side of the car first.
- Make a mental note at to how these are installed - this will make reinstalling them MUCH easier.

View From Under the Car

Shields Removed

Step 6: Bleeding the Clutch

- Locate the clutch bleed valve on the driver's side rear of the transmission case (see image).
- Slip your drain hose onto the valve and open (6mm open wrench) and bleed the valve the same way as you bled the brakes.
- Once you're satisfied close the valve and reinstall the plastic shields.

Clutch Bleed Valve


Drain Hose on Valve

Step 7: Disconnecting the Pressure Bleeder

- Tilt the bleeder so that the pick up line inside the bleeder is not immersed in fluid.
- Slowly unscrew the top of the bleeder itself (not the connection to the reservoir!).
- The fluid still in the tube connecting it to the reservoir will flow back inside the bleeder.
- Once the bleeder is de-pressurized you can remove the connection from the car's reservoir.
- Again be careful not to spill any fluid on anything painted!
- You're now done with the bleeder. Set it aside and remember to clean it out before storing it.

Step 8: Grab Your Helper

- This is where you really need your helper.
- Make sure your brake fluid reservoir is full.
- Go back to your rear passenger side caliper and reattach the drain hose to the bleed valve.
- Have your helper press the brake pedal 5 times to the floor to pressurize the system.
- Take your rubber mallet or dead-blow hammer and tap the caliper to loosen any bubbles stuck in the system (don't beat the hell out of it - a few good taps should do it)

Step 9: Finishing Touch

- Have the helper press the brake pedal down to the floor again and hold it there.
- Open the bleed valve. Make sure your helper does NOT release the pedal as that will suck air back into the system!
- The system will lose pressure and the pedal will go all the way to the floor.
- Once fluid stops flowing close the valve and then tell the helper to release the pedal.
- Repeat this step at least 3 times - or till no more bubbles are seen.
- Make sure that your brake fluid level does not drop below minimum in the reservoir or you will suck air into the system - add fluid as required to keep it topped off.

- Repeat for the rest of the brake calipers (including Step 8 above for each).
- Once you have done this for all of the calipers your pedal should be VERY firm - this is the goal - if its mushy you still have air in the system - repeat the process or have a professional do it for you.
- Replace the rubber caps on the bleed valves and make sure the valves are snugged down.
- Make sure your fluid level is good and close the reservoir.
- You're done!