

# **UUC motorwerks**

## **FRONT Brake upgrade for 1991-2006 BMW 330, 328, 325, 323, 318 models (E36 and E46) Superlite (4- or 6-piston) caliper and 325mm E46 M3 rotor**

*READ THIS INSTALLATION GUIDE COMPLETELY BEFORE  
BEGINNING WORK. MAKE SURE YOU HAVE ALL NECESSARY  
PARTS AND TOOLS.*

### **Parts list:**

- (2) replacement rotors
- (2) Superlite calipers
- (4) brake pads (Wilwood 7420-10)
- (4) M12 x 35mm bolts
- (4) 7/16"-14 x 1.25" bolts
- (2) brackets
- (8) washers (Wilwood)
- (4) black shims
- (4) .125" / 3mm bracket spacers (4-piston calipers)  
or (4) .343" / 8.7mm bracket spacers (6-piston calipers)
- (2) SS braided brake lines with Wilwood right-angle fittings
- (4) rear brake lines (E36 models)  
or (2) rear brake lines (E46 models)
- (4) small tubes of red loc-tite
- (2) rotor retaining bolts

### ***Warning!***

Brake system work should only be performed by qualified individuals. If you are not completely confident of your skill in this area, have someone who *is* do the installation or assist you with the installation.

***UUC Motorwerks accepts no responsibility for the consequences of improperly installed brake components. Your life depends on your brakes, be careful.***

### **Installation:**

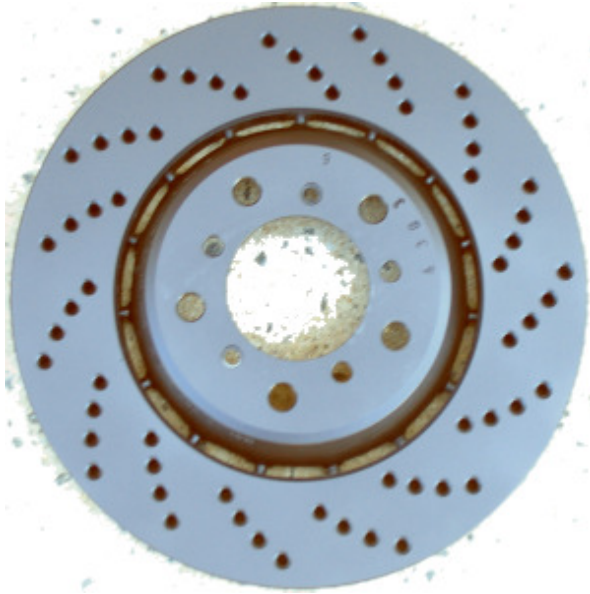
Jack up the front of the vehicle and secure with jack stands. Refer to the shop manual and remove front wheels, calipers, rotors, and flex hoses. These brake parts will not be reused.

After disconnection of the flex hoses from the chassis hard lines, it is a good idea to plug the hard lines to prevent excessive brake fluid loss and entry of air into the system. Small (3/16" diameter) rubber or soft plastic plugs work well.

## **Rotors:**

The rotors are directional (specific left and right sides). Note that the holes or slots angle backwards:

**This is a RIGHT-side (US passenger side) rotor:**



**Mount rotors using supplied retaining bolts.**

## Modifications

- 1) Locate the original caliper upper mounting lug:



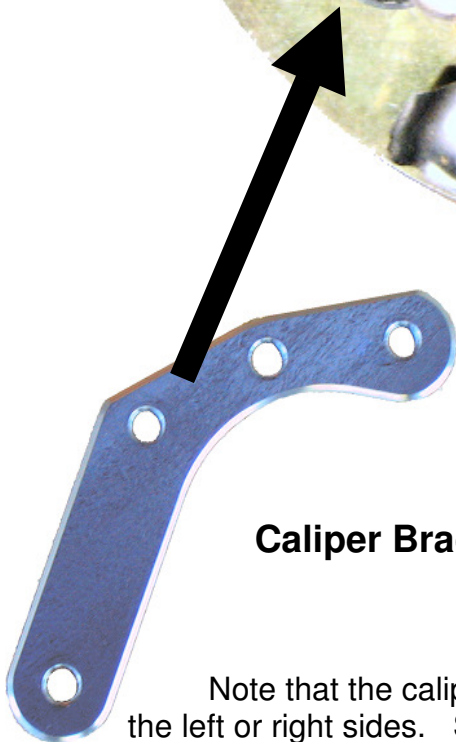
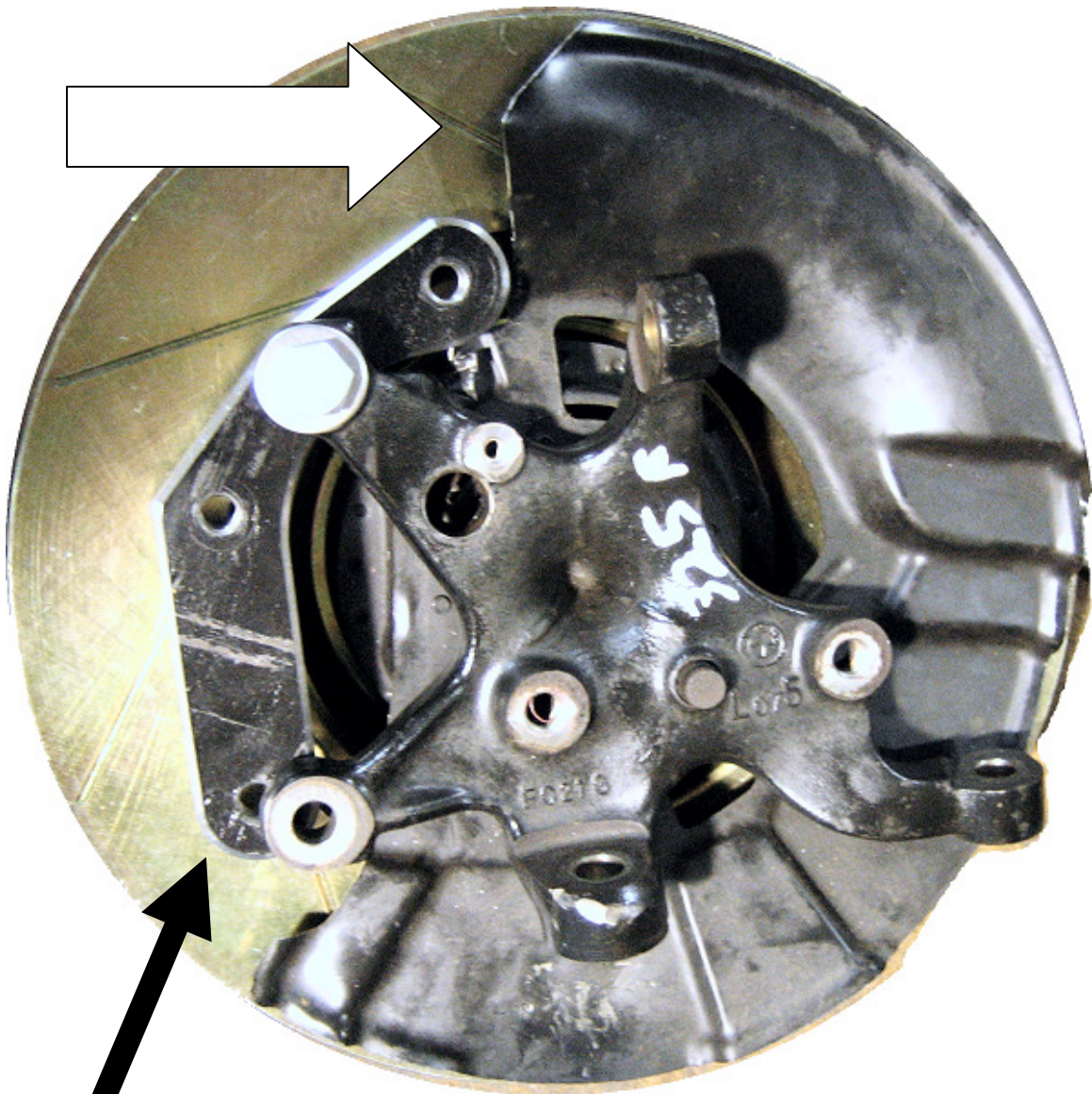
The rearward point of the casting must be ground off:





2) The heat shield must be trimmed to clear the caliper:  
(driver's side shown from back side)

**Rotors are shown in pictures for reference, but should be mounted AFTER caliper brackets.**

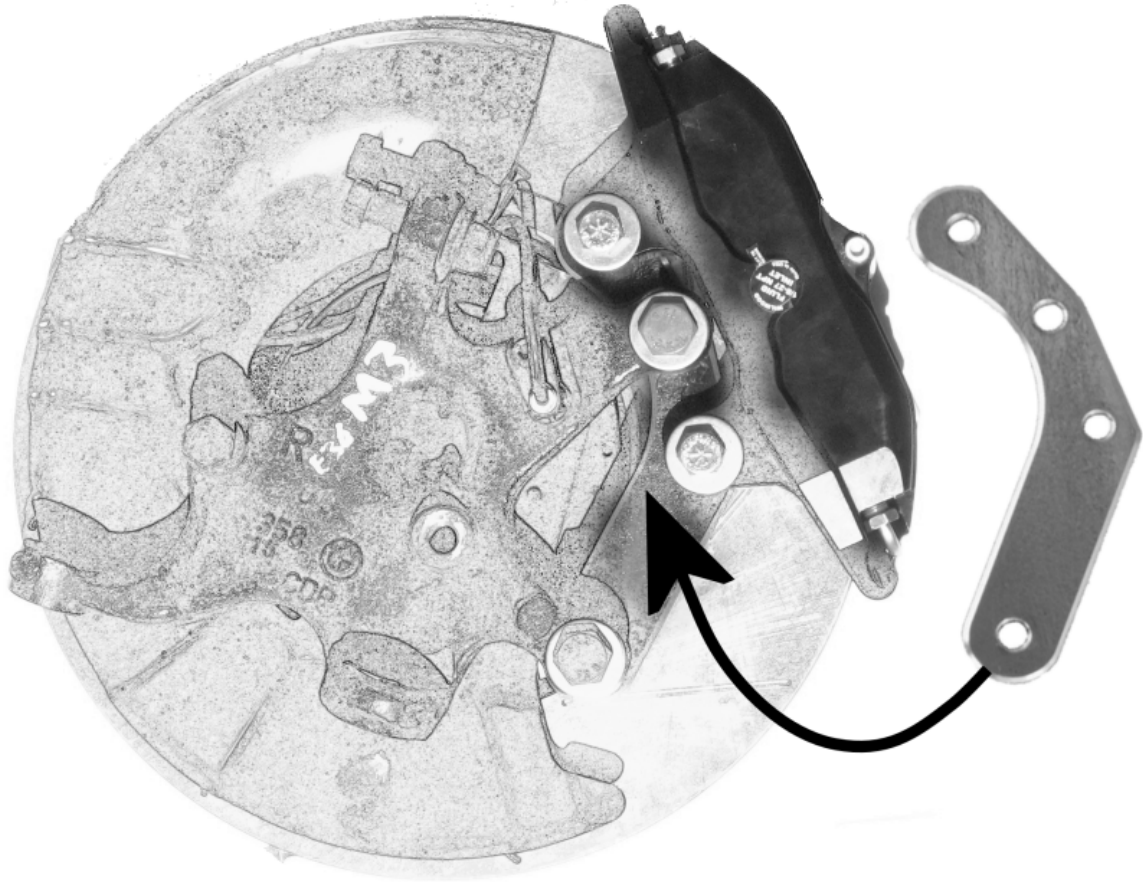


**Caliper Brackets**

Note that the caliper brackets are symmetrical and can be fitted to either the left or right sides. Shown above is the orientation for the LEFT side of the

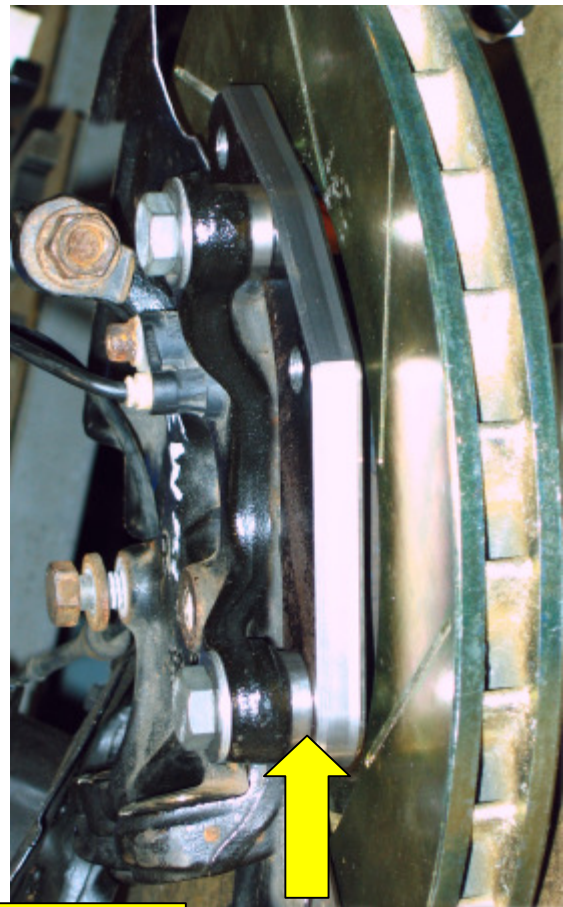
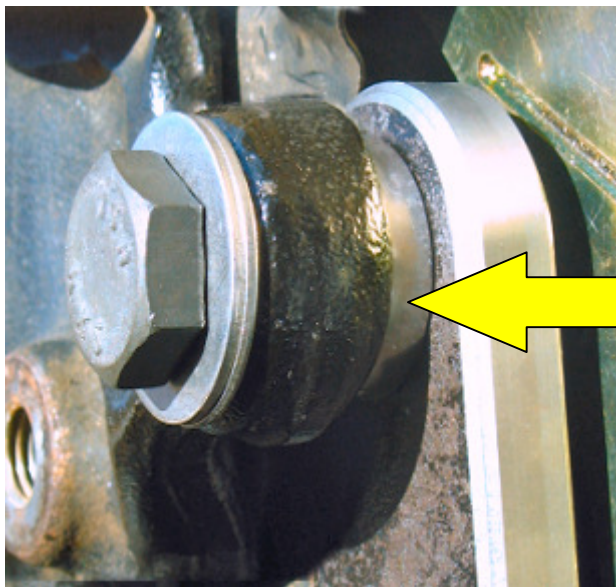
car, viewed from INSIDE the car (not viewed from underneath).

View / orientation from inside of RIGHT side hub assembly, viewed from INSIDE the car:



Attach the brackets to the original factory caliper mounting ears as shown using the two bracket spacers, two M12 x 35mm bolts and a washer under each bolt head.

The bracket and spacers mount to the “wheel” side of the spindle. The bracket is spaced away from the spindle mounting ears by the spacers. Slip two washers onto the M12 bolt and engage the bolt in the factory caliper mounting ear. Place a spacer over the protruding bolt, apply thread locking compound, then thread the bolt into the new bracket. Repeat the process for the other bolt and tighten hardware to 55 lbs/ft.



3mm spacer

## Calipers & Pads

The new calipers are directional and must be installed on the correct left or right sides.

You will note each caliper box is marked **R/H** (Right Hand) or **L/H** (Left Hand). The caliper bleed nipple must be oriented upwards.

The calipers use a bridge and through-bolt to secure the pads in place. Remove the bolt and brace, and then slide the pads into place in the caliper. With the pads and in the calipers, reinstall the brace and bolt to secure the pads. For best appearance and wheel clearance, the bolt head should be installed from the wheel side of the caliper.

With the pads installed, slip the caliper into position over the rotor and the new mounting bracket. Engage the 7/16 x 1.25” bolts (each with a flat washer) in the



mounting ears of the caliper and thread the bolts into the brackets.

Check that the caliper is perfectly centered over the rotor. Use shims between spindle lugs and bracket to adjust if necessary.

Once certain that the caliper is centered, apply Loctite compound to the threads and tighten bolts to 45 Ft/Lb.

## **Hoses and fittings**

The hose assemblies consist of two pieces, the hose itself and the 90 degree elbow. Install the new hose in place of the original hose. Secure the fitting with the lock clip. Install the 90° elbow fitting into the caliper fluid inlet with Teflon tape. Be sure to install the pipe thread end of the elbow into the caliper and not the AN3 end. (The AN3 end is more pointed and is a perfect fit in the flex hose). Install the hose between the fittings. Do not use Teflon tape on the hose fittings or the factory hard lines.

## **Bleeding**

Bleeding can be performed manually or with the use of power equipment in the usual way. Be certain to remove all air from each caliper. If bleeding manually, DO NOT pump the brake pedal to build pressure in the system before cracking the bleed screws loose. This method is sure to aerate the fluid making it nearly impossible to remove all the trapped air.

**TIP:** to release all small bubbles that may be stuck within a new caliper, tap the caliper with a rubber mallet.

The sequence should be; open bleeder, depress brake pedal slowly till some resistance is felt, lock the bleeder, raise the pedal, wait 2-3 seconds for the master cylinder to recover and repeat the process until only clean fluid without air bubbles is emitted from the bleed screws.

With the installation complete, the wheels can be replaced and the vehicle made ready for testing.

## **Pad bedding**

It is IMPORTANT to properly bed or seat-in new pads on their rotors. The rotors function at peak efficiency until the pad friction material has transferred to the rotor friction surfaces.

In a safe location, make a series of gentle stops from low speed. Start at around 10mph to prove that the system is functioning properly. Gradually work up to 20 and 30mph again with gentle stops. Gradually work up to hard braking at higher speeds. Run vehicle up to moderate speed (50 – 60 mph) and make several (10 – 12) medium brake applications (slow down to 20mph, do not come to a complete stop) to heat up the rotor slowly. This will help reduce the chance of thermal shock caused by uneven heating of the rotor.

Park the car and allow the brakes to cool completely (preferably overnight). While driving the vehicle to where it will be parked, use the brakes as little as possible. When you need to stop the

vehicle, get off the brakes just before the car stops and allow it to roll a foot or two before stopping completely.

Do not hold brakes on after performing the bedding-in procedure until cooling is completed. This will avoid "hot spotting" or uneven cooling which can damage the rotor.

If brake fade is experienced at any time the system should be cooled immediately. Drive at moderate speeds to cool the pads, do not apply the brakes during this process if possible. After initial cooling in this manner, the vehicle should be parked so that the pads can return to ambient temperature. This completes the heat cycle and will ensure minimal pad wear and maximum pad friction.

### **ROTOR BEDDING (future replacements)**

All new iron rotors should be bedded-in before being used under normal conditions. Proper bedding-in will prepare the rotor surface, prolong the rotor's life and make it more resistant to thermal checking or cracking under severe braking conditions. The following procedures should be followed when bedding-in rotors:

Thoroughly inspect all brake system components before the bedding-in process. Check all bolt connections, make sure mounting bolts and rotor bolts are properly secured, that brake pads are properly secured by retaining clips or cotter pins, that master cylinders and brake pedals are working properly, that brakes are properly bled with plenty of fluid, and that proper engagement of brakes occur when pedal is depressed.

Because the bedding process is different for rotors and pads, it is best to bed-in a new rotor (disc) using a used set of pads, preferably ones which will not create heat rapidly. Generating heat too quickly will thermal shock the rotors. Likewise, when bedding-in a new set of brake pads, use a used rotor. This new-used bedding process permits controlled bedding of each individual component. This may not be an option with a new kit installation as used pads will most likely not be available. This is not cause for concern.

Make sure that the rotor surfaces are free from oils, grease and brake fluid.

If your vehicle has brake cooling ducts, close them approximately 75% to expedite the bedding-in process.

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### **Pedal Pulsation**

Were your worn factory brakes causing pedal pulsation? Have you experienced pedal pulsation? We strongly urge you to perform a lateral rotor run-out check before you finalize your new brake installation. This should be standard practice during any brake rotor replacement or after turning rotors during any brake job. Any small amount of distortion in the vehicle wheel hub will cause run out of the rotor. Over time, rotor run out will cause irregular pad contact while the brake is disengaged. The constant "knocking back" of the brake pad by the rotor and the resultant reaction of the caliper piston (rubber) square rings rebounding the pad to the rotor, will over a short period "wear" such distortion into the rotor that pedal pulsation will



undoubtedly become an obvious problem. When measured, the rotors will show significant lateral run out.

Even if pulsation was not noticed before your “Big Brake Upgrade”, hub distortion could be a problem. Hub run out could be minimal and when measured at the relatively small diameter of your factory rotors, it could be tolerable and unnoticed, especially considering the forgiving nature of heavy iron factory ‘floating’ calipers. The increase in rotor diameter with this upgrade will MAGNIFY any run out and the unforgiving nature of high performance ‘fixed’ calipers will bring this distortion to your notice shortly after installation, probably within weeks. Typically, pedal pulsation will start to come on gradually as the new aggressive pad compound hammers back and forth on the rotor surface.

Any more than 0.004” of lateral run out measured at the edge of a 13” or 14” rotor means you are headed for problems. If lateral run out is measured, first mark the high spot, then try re-indexing the rotor on the hub. That is, remove the rotor, rotate it one stud and reinstall it on the hub. If the high spot is in the same place after your second, the rotor is distorted. If the high spot has moved, the hub is distorted. Make sure no foreign material is holding the hat off the hub. Sometimes re indexing a few times may solve the problem. The easy solution is to turn the rotors in place on the vehicle with an ‘on-car’ lathe. Note that after on car machining it is imperative that the rotors be marked in such a way that they can be returned to their correct index position should they ever be removed in the future.

**DRIVE SAFELY!**