E46 330 Rear Brake Conversion DIY

After completing the front brake conversion it was time for the rear ones. Good upgrade but no as simple or straightforward as the front one.

Researching, I came to the conclusion that the only limitation for a direct bolt on upgrade, is the inner diameter of the 330 rotor, which is larger, requiring the e-brake assembly from a 330 to be transplanted to the lower model cars in order to work properly.

There are 3 solutions available for this retrofit.

1. Find the entire rear e-brake/hub assembly of a 330 and transplant it, which is expensive and not worth it imo.

2. Fabricate a spacer and press it/weld it inside the 330 rotor to create a smaller drum diameter so that the original e-brake can work. Not good because it will add more weight to the already heavy rotor, it will throw rotor off balance, and each time a rotor will need replacing, a new spacer must be manufactured. Also, difference in materials used will probably create a problem with heat expansion.

3. Fabricate custom brake shoes, with the mounting base of a 320/23/25/28 and the proper length to reach the standard 330 rotor drum diameter. I chose to follow this method for the following reasons:

a. I have access to laser cutting / waterjet equipment, and I will be able to manufacture the brake shoes with the proper dimensions.
b. I have access to brake shoe manufacturer therefore I will have no problem making the design I want.
c. Once the original design works, I will be able to fabricate virtually any kind of brake shoe, enabling anybody with a 320/25/28 to upgrade to rear 330 brake setup with the lowest cost.

The advantage of this method is that, reversing to OEM will be as easy as just putting oem rotors back with oem brake shoes.

This is the current 320 rear e-brake setup. The inner diameter is 160mm
According to the measurement a fellow forum member took, the inner 330 diameter is 184mm. 184-160=24mm (About an inch). So each brake shoe must increase by only 12mm to compensate for the rotor diameter increase. That's not too bad.

Rear parking shoes below. Manufactured by Meyle. It seems that the shoe part is spot welded on the bracket I want to manufacture. Which

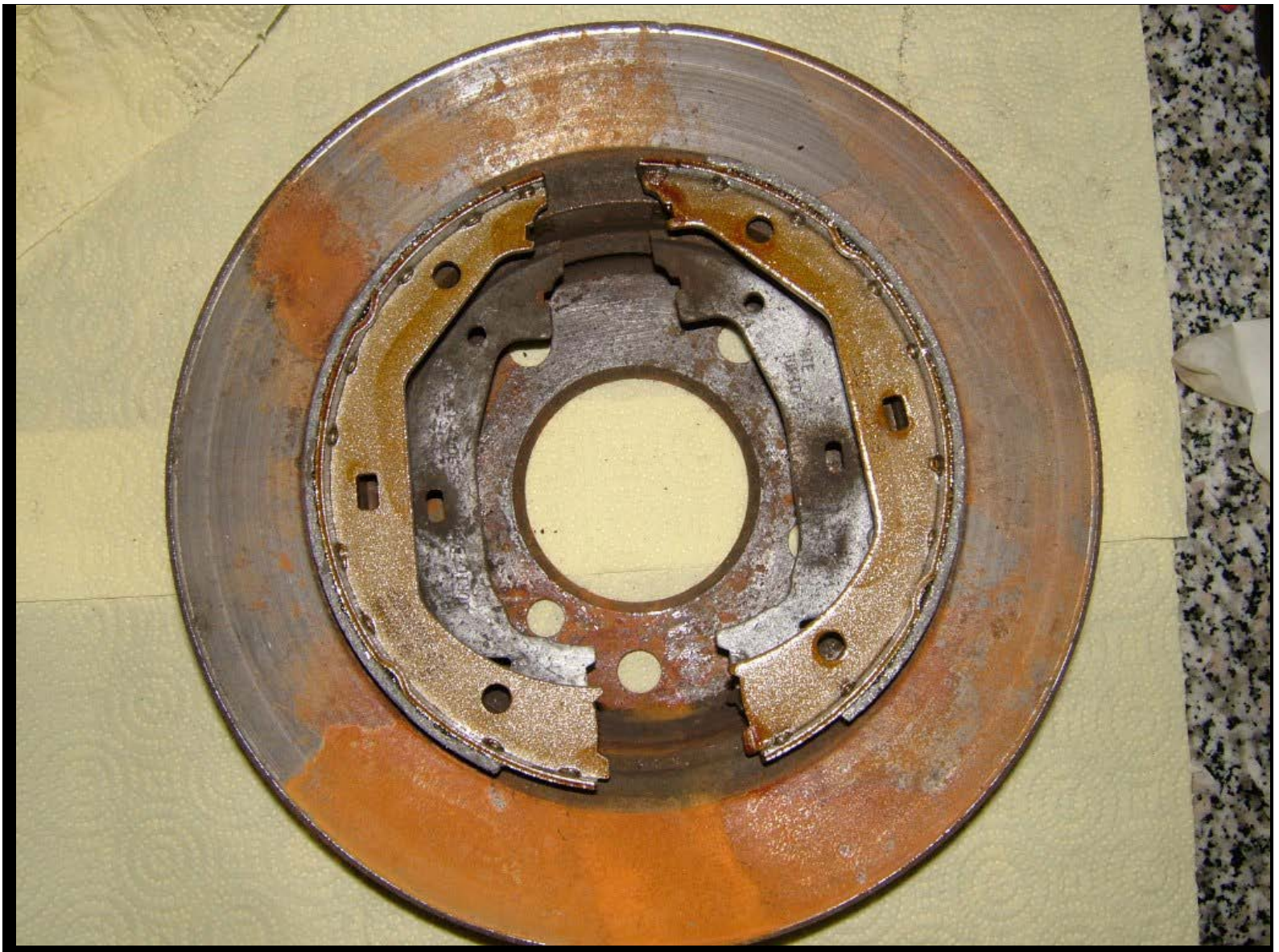
makes life much easier, as I will just create a bracket that will fit the 320 handbrake assembly and just weld the rest shoe on it.

The 330 shoe is almost identical with the 320 one, so I think I will weld a piece of metal to the 330 shoe and grind until I get the correct size. Then I'll make the CAD prototype .

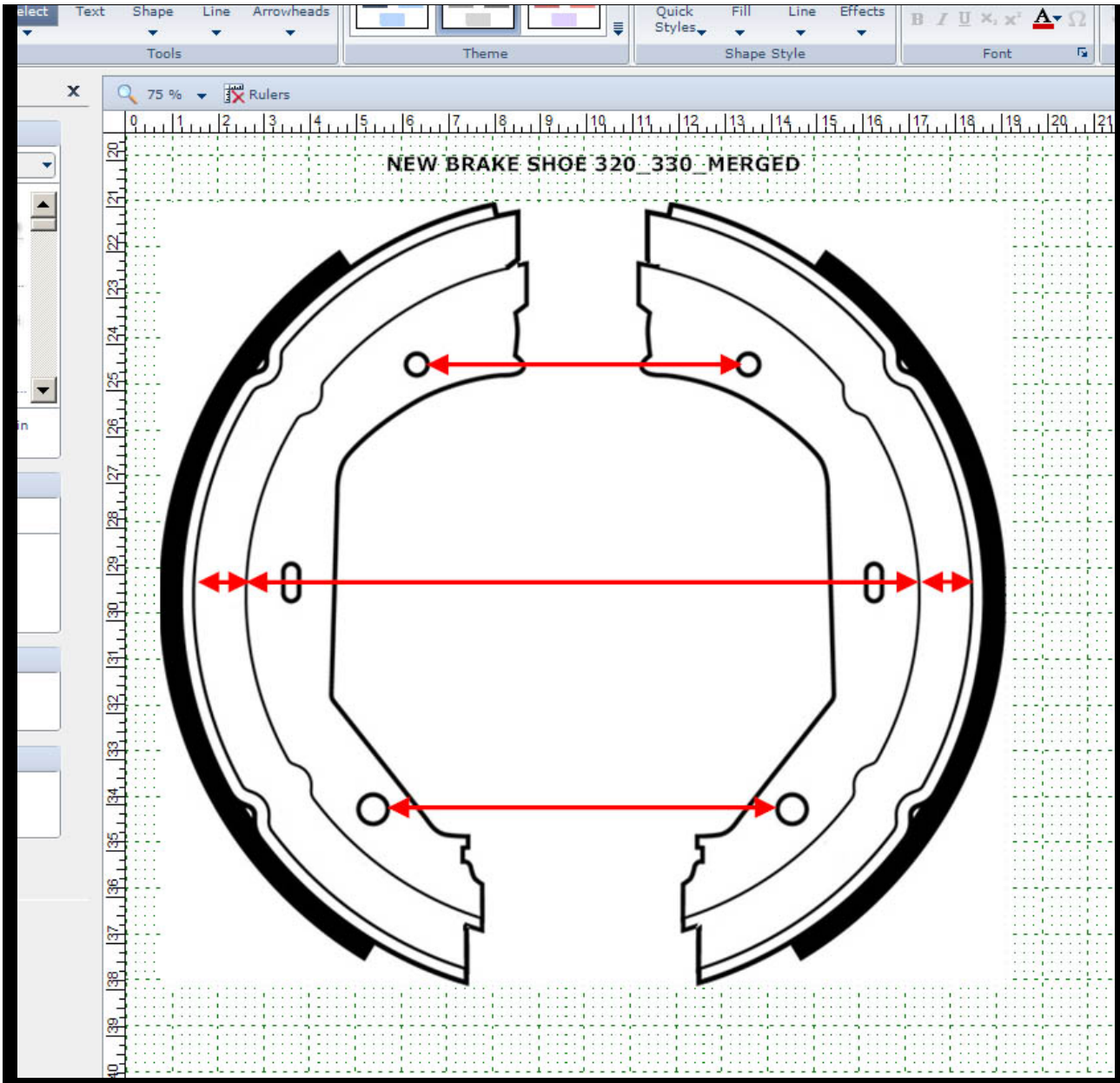
320 With cutout line

330

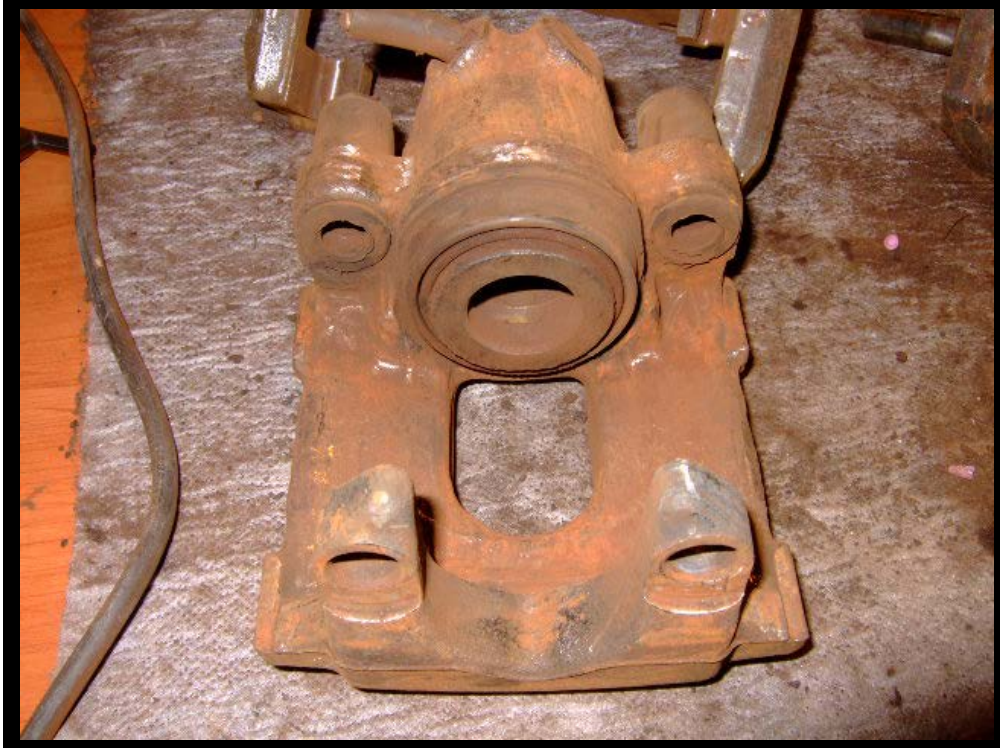
Compared:



Getting dimensions:



Rear calipers, rusted, ready for their transformation



After 2 days in rust inhibitor and more cleaning:

Painted with heat resistant paint to prevent rusting:


BMW
957
42/22
BMW
957
42/22


957
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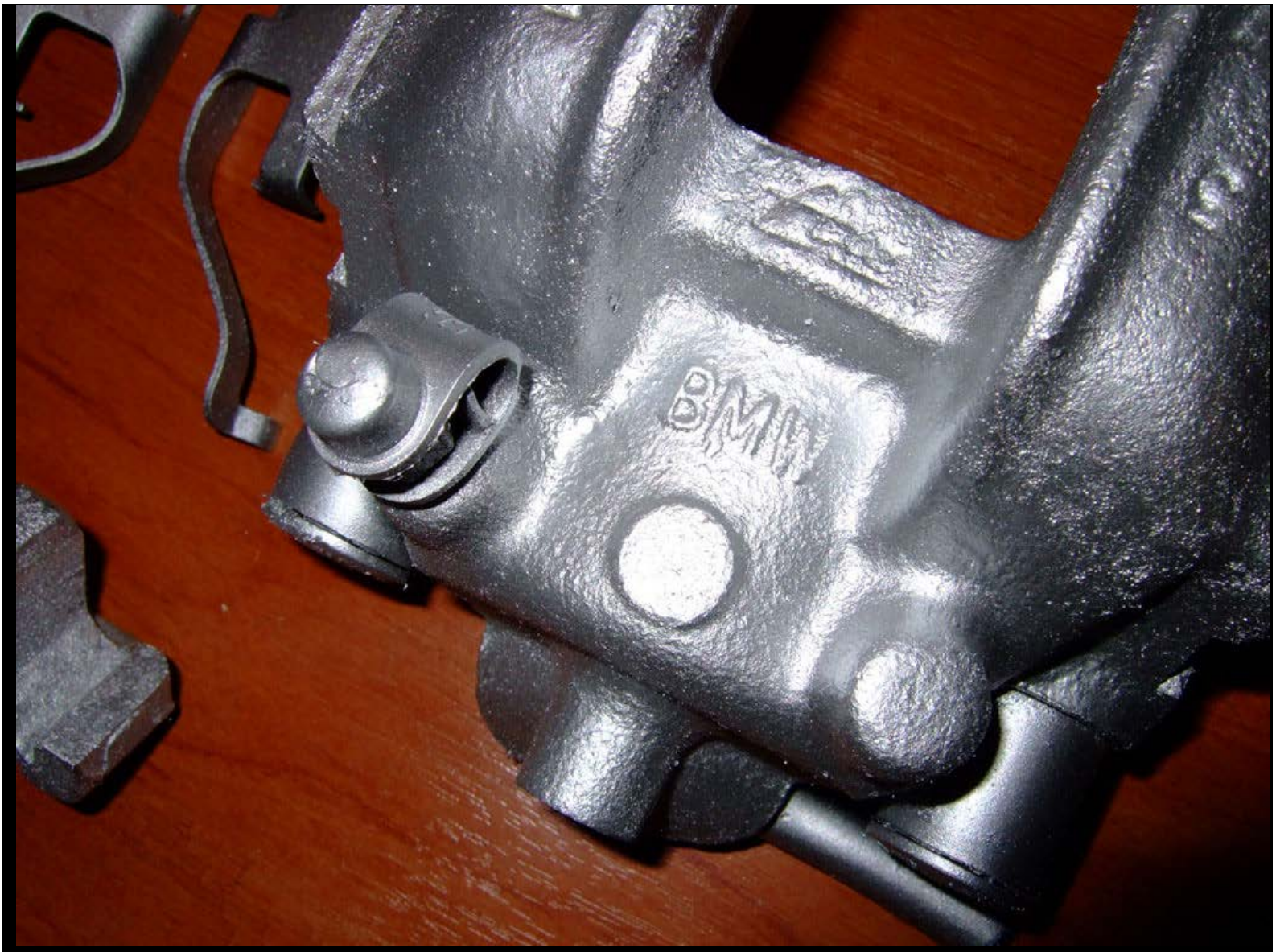
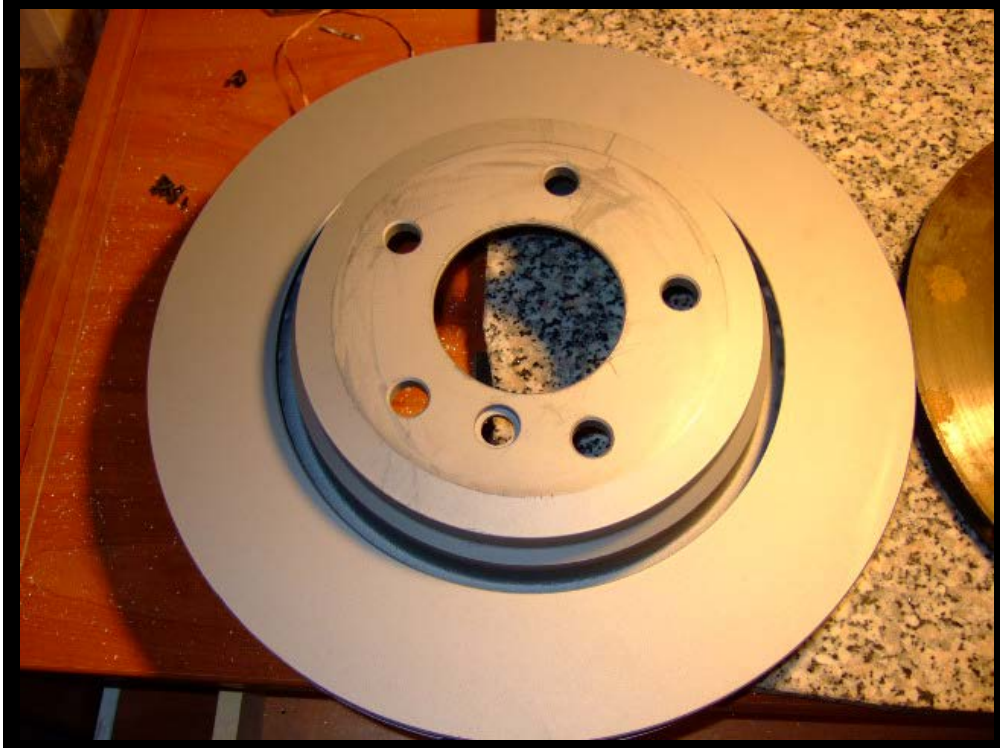
42/22

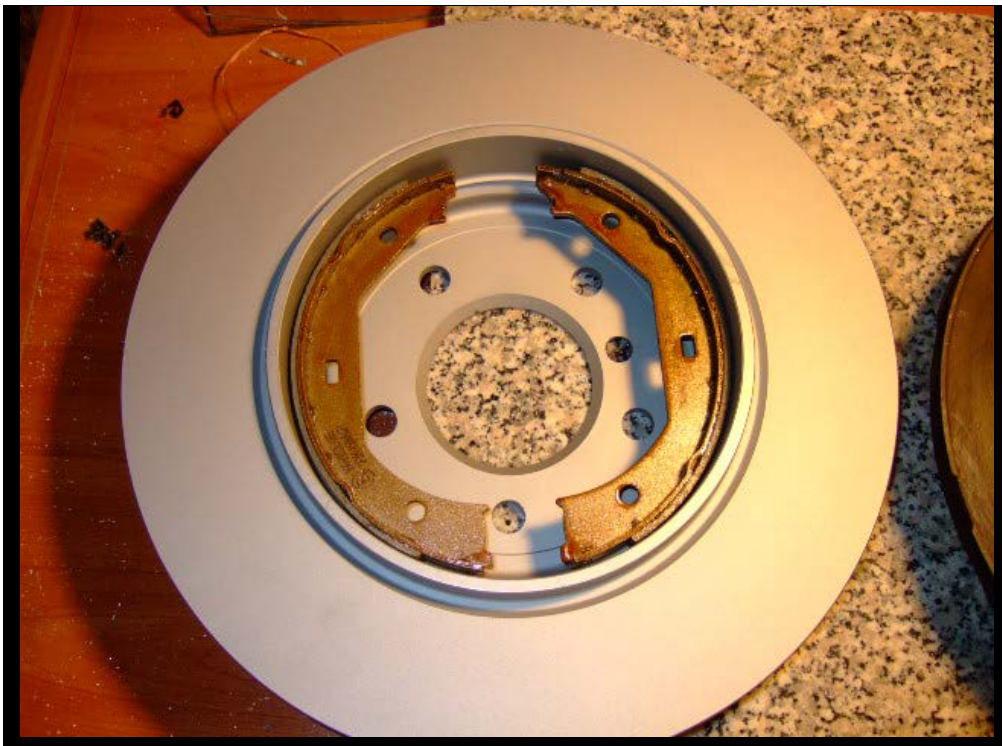

BMW

OEM 330 Rear Disks


Coat Z
ANTI-CORROSION
Zimmermann
Bremsscheiben
Brake Discs
Disques de Frein
Discos de Freno
Made in Germany
2
Verwendungshinweis/Application
BMW Coat Z
Best. Nr. 150.1295.20
Original Nr. / Original No. 3420 1 166 673



Side to side



Fabricating some holders to preserve diameter and positioning of shoes so that I don't have to carry the disk with me all the time

Increase of diameter by 11.8mm

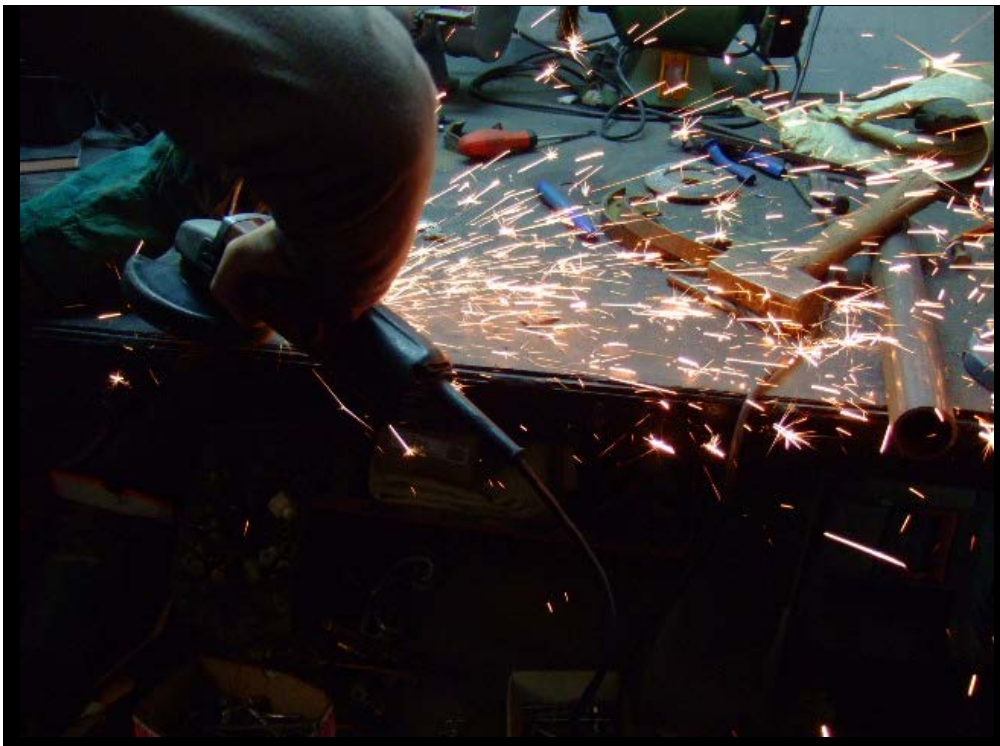
Time to cut the shoes to fabricate the franken-shoe :)

Removing the braking plate out of the 320 shoe

How it will look

Marking the area to be cut on the 330 shoe

Professional grinder makes cutting easier

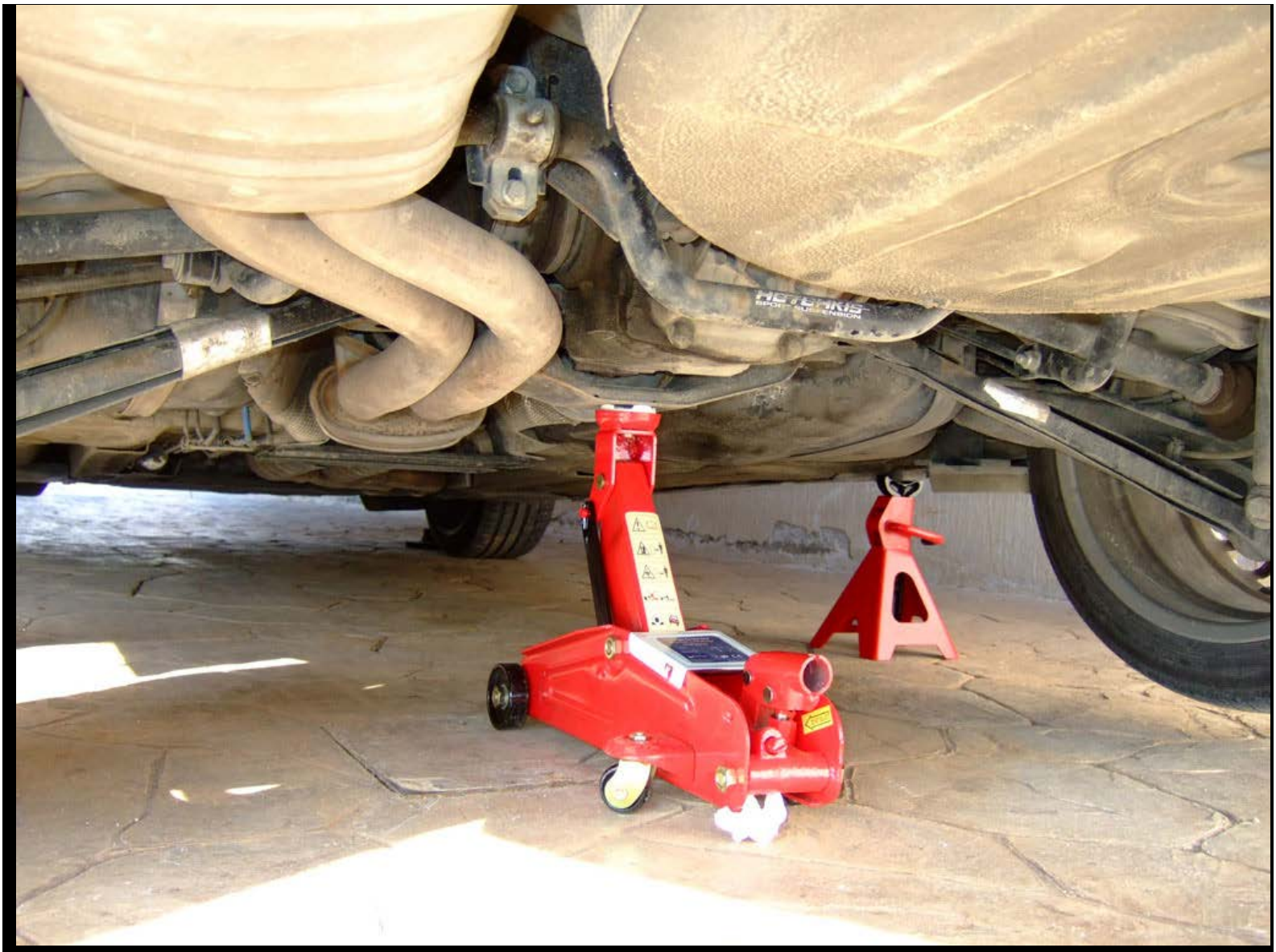


Spot welding the adapters/extensions to test fit!

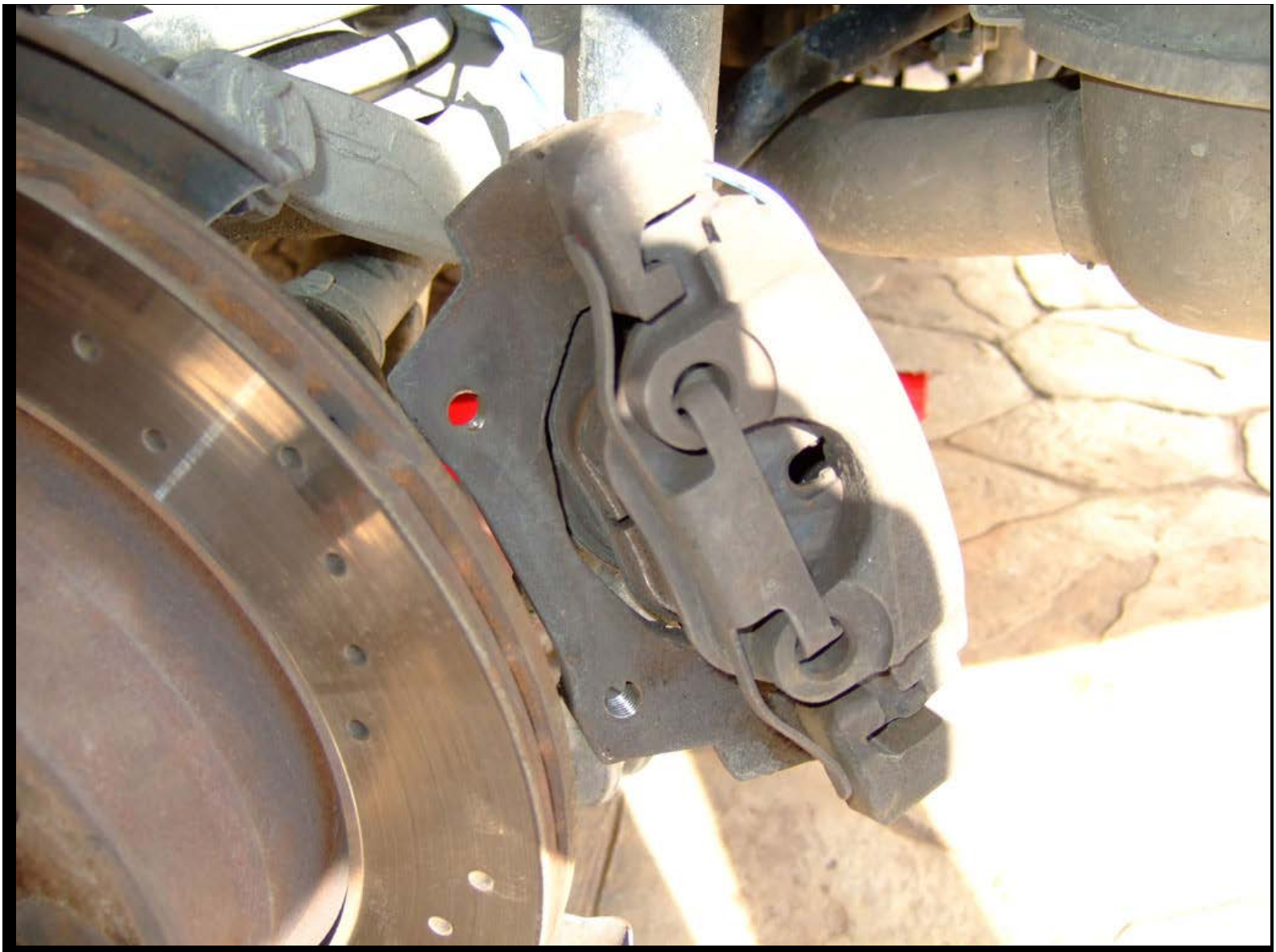
I believe we are very accurate!

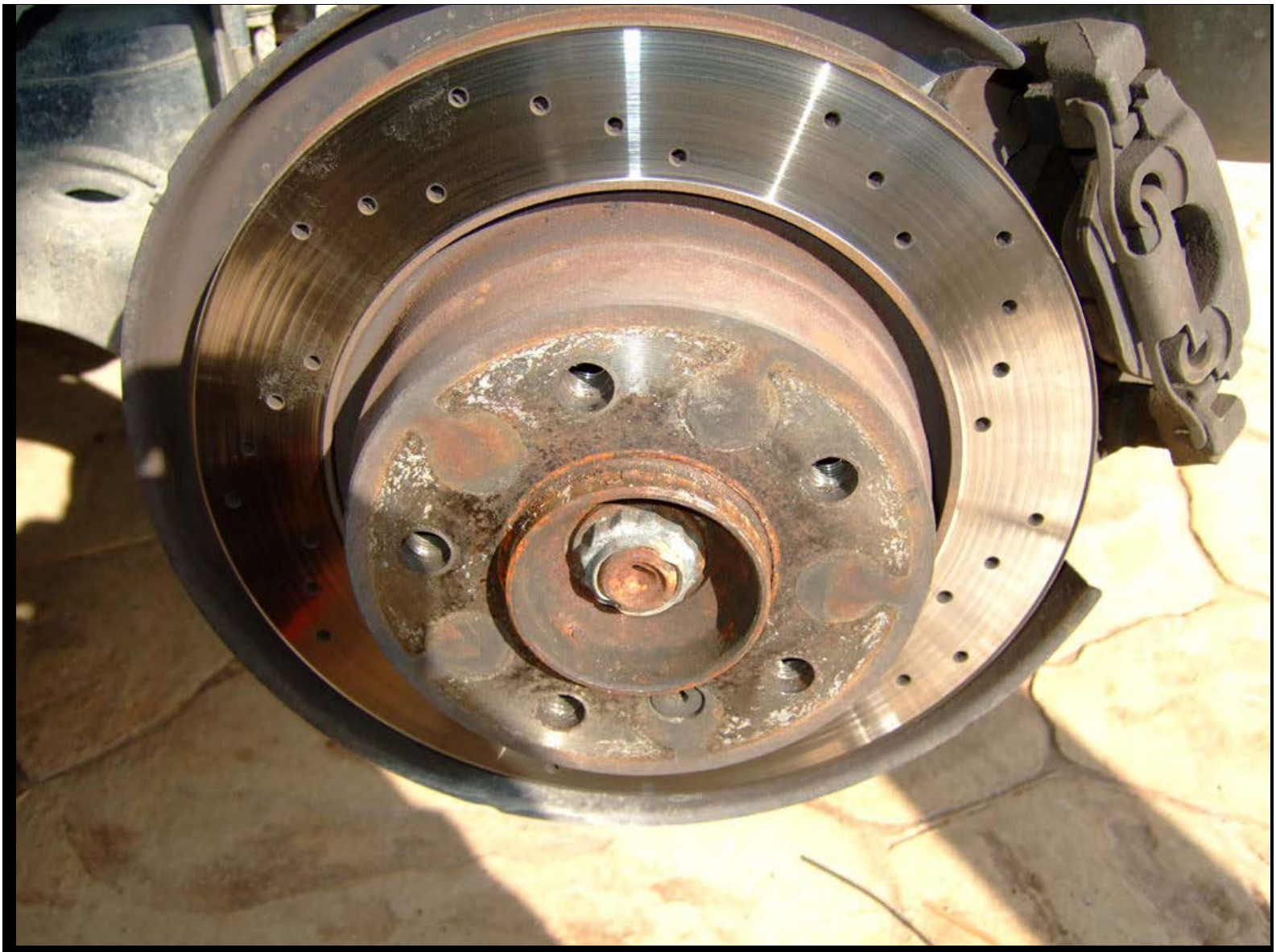
Both sides finished!

Car on jack and jack stands! - Handbrake DIY

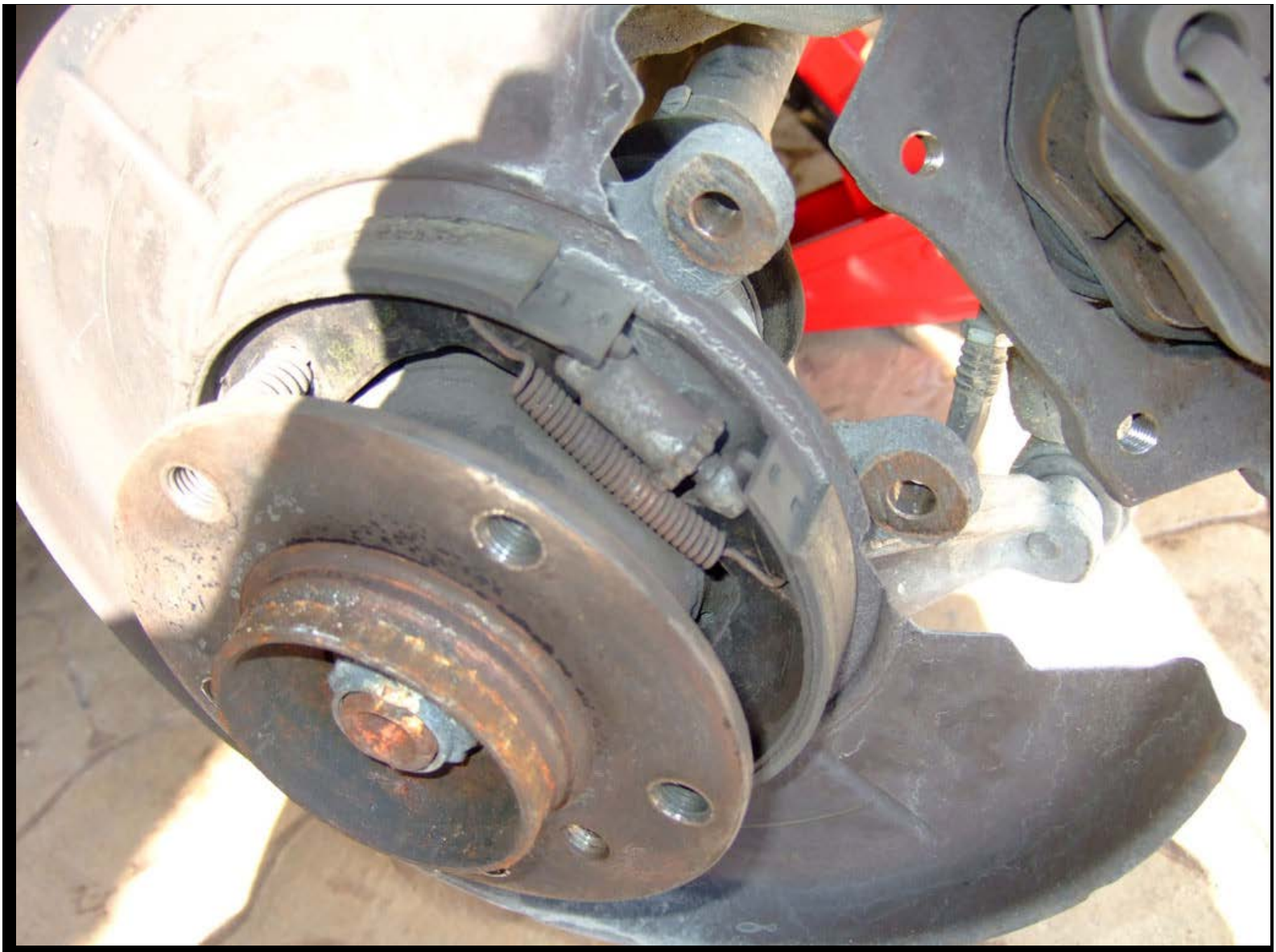


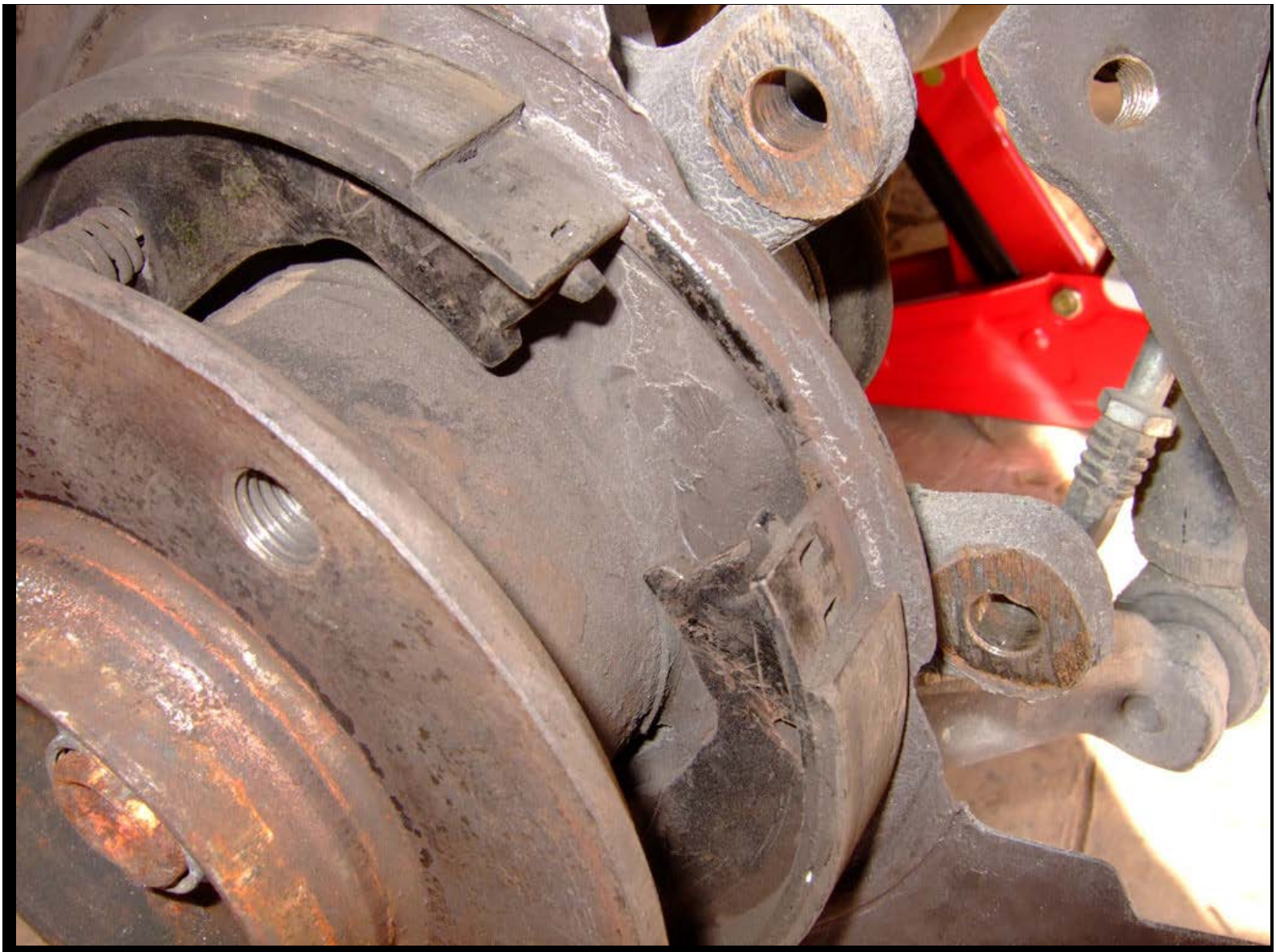
Removing 2x16mm bolts to release caliper





After removing the rotor, the handbrake assembly appears. First we remove the spring using needle nose pliers and safety glasses since everything is spring loaded and may fly anywhere! Then that little conical adjuster is removed.



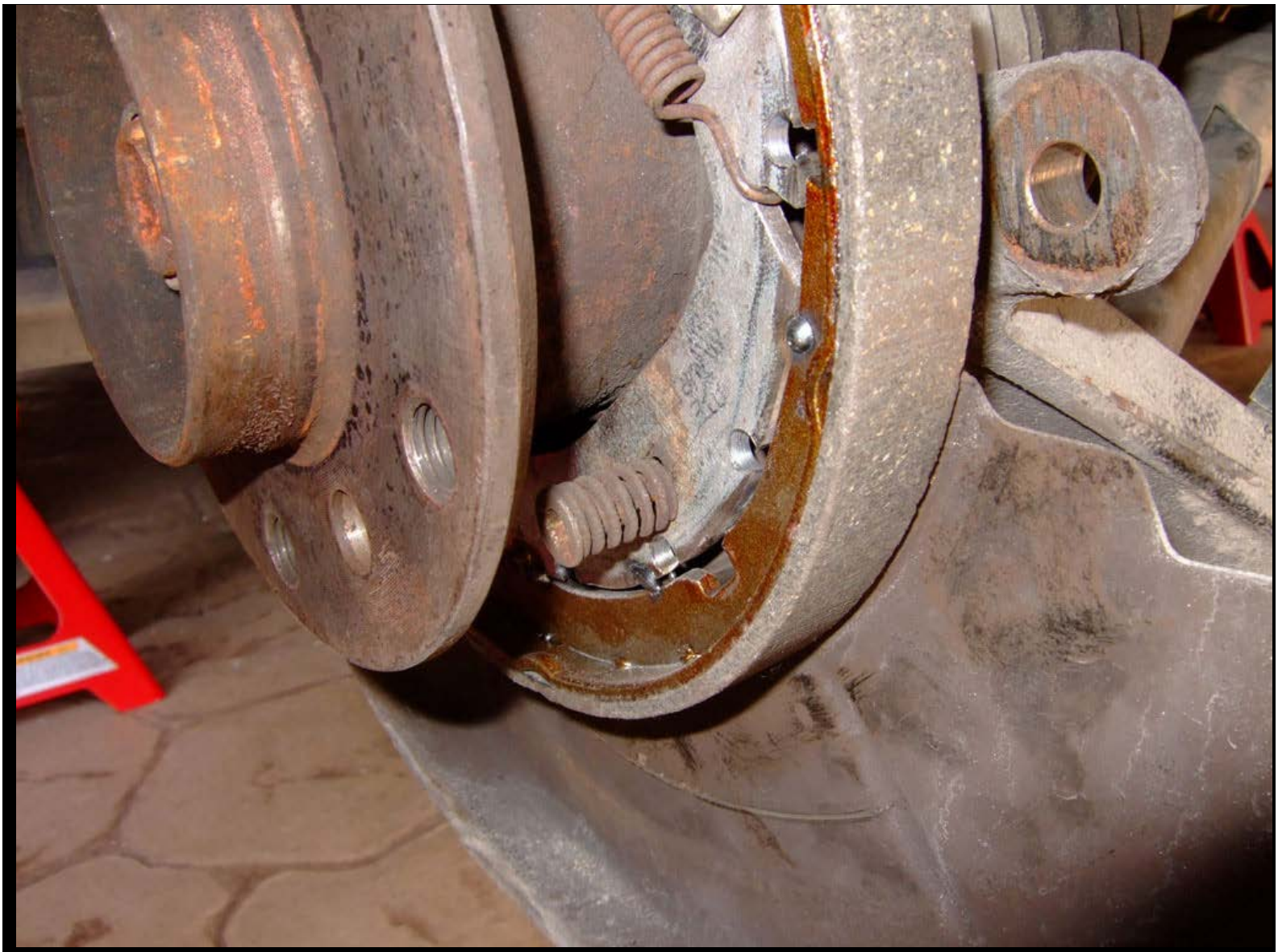


The other side of the handbrake has another spring to be removed as well, same way.

To remove the shoes, insert a 6mm hex key through the wheel bolt hole, twist 90 degrees and remove the retaining pin

Reassembly using the new hybrid brake shoes to test fit!

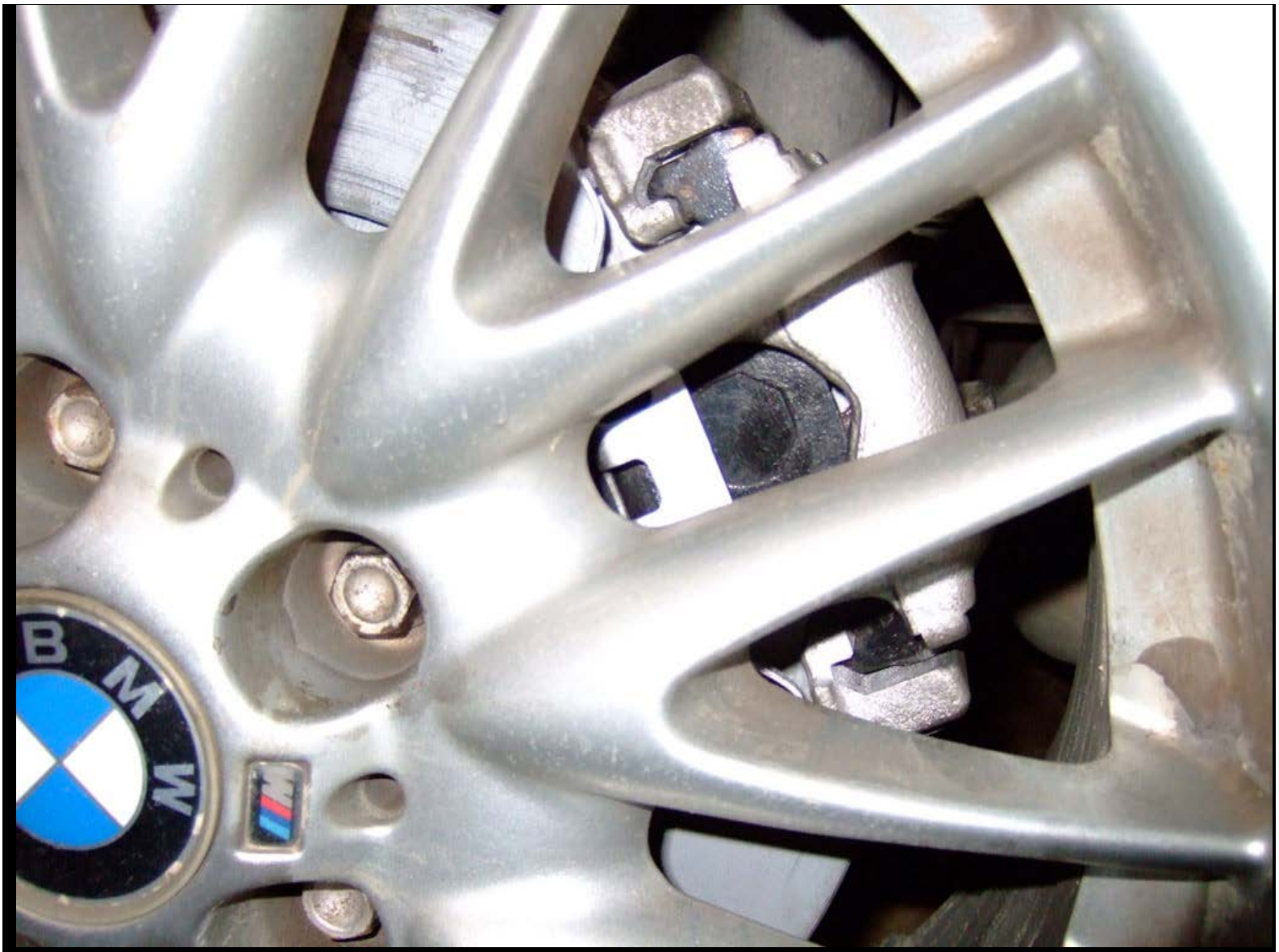
The dust shield took a beating since it was in the way of the larger 330 rotors, I had to bend it out of the way, that is until it's time to do the rear bearings, where I will get a proper 330 based dust shield as well. Unfortunately, without taking the hub apart it's impossible to remove it.



After verifying correct fitting, I removed the shoes again, fully welded them, painted them with rust prevention paint, and re-assembled them back! Here's the end result!


WARNING
EXTRA LOAD
MICHELIN
TUBELESS
BMW


B M W

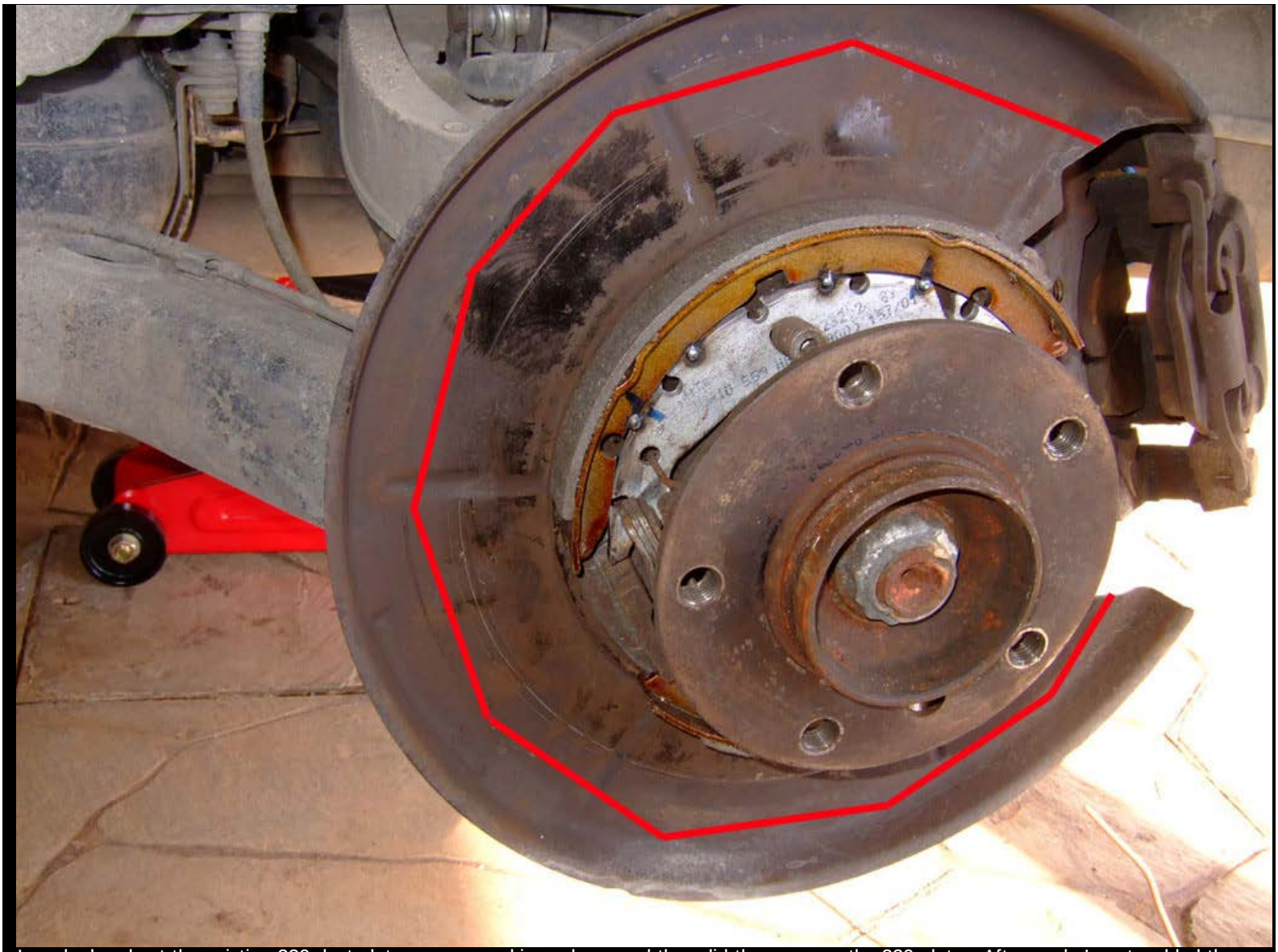


I didn't get into detail regarding the rear caliper installation, since it's bolt on, using the same mounts and brake lines. Brake pad sensor is the same as well!

DIY Continued with installation of PBR (Axxis) ULT Ceramic pads. Previously I run some used ferodo pads that came with the calipers I bought because I didn't want to spend money in case the mod with the handbrake did not succeed. Additionally, I installed some modded 330 dust plates as well. I had to cut them and weld them on the existing ones due to the fact that the 330 dust plates need 330 trainling arms etc to fit. So again, cutting and welding was the only option.

Ceramic pads, now matched with the front ones!

330 Rear Dust plates



I marked and cut the existing 320 dust plates as per markings above and then did the same on the 330 plates. Afterwards I spot welded them in place to make a hybrid expanded 320 dust plate that would accommodate the 330 rotors.

End result with new pads and plates installed.


BMW

Wheels could use a bit of a cleaning I know.