tech talk

Switching your brake pads

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Before we begin, we think it's worth saying that any mechanical work on a car should only be undertaken with careful preparation. We have a number of MX-5 manuals and we also check the web for comments and hints that will make any repair easier.

If it's the first time for a repair, we definitely seek out tips from a few other members who have a broad mechanical knowledge. There are always pitfalls when doing a repair yourself and it pays to have done your research beforehand. Also note that I am not trying to write a definitive how to guide on changing pads, but more of a general description of the process. Always consult a good workshop manual and do some research first! Whilst this work is very "do-able" for most, your brakes are the reason you don't run into that car ahead or fly off at that corner so this work is for the capable – *safety first!*

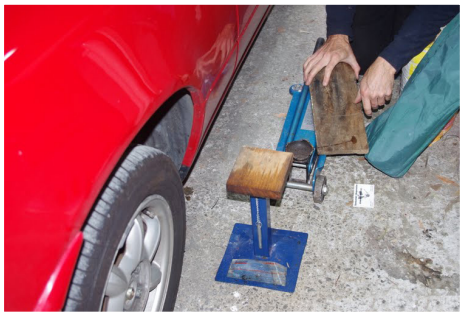
To prepare for this job, you will need to purchase some brake pads. They differ front to rear (the photos show a rear brake disc and caliper) and between models, so be careful to purchase the correct ones. There is a large variety of brake pads and they range in price from around $100 upwards.

More expensive pads offer better braking performance with less brake fade between heavy braking inputs. There are also racing brake pads, which are high end on performance but might not be the best choice for road use as they can be noisy and the braking can be quite harsh. The factory pads are quite acceptable and give good performance and little brake dust.

This webpage gives an interesting comparison if you are more technically minded:

http://blog.caranddriver.com/performance-brake-pads-compared-hawk-hps-hawk-hp-plus-ebc-yellowstuff

To begin, you will need to jack up your car. We strongly recommend (to the point of really insisting) that you use some jack stands. Car jacks are **not** intended to be used to support the car for work of this kind and jack stands are relatively cheap.



Preparing the car stand

Before raising the rear we chocked the front wheels as the handbrake only acts on the rear wheels. Make sure the handbrake is applied when raising the front. Before jacking, loosen the wheel nuts, then jack up each side and place a stand as you can see in the image. Once the car is up remove both wheels as per the images.

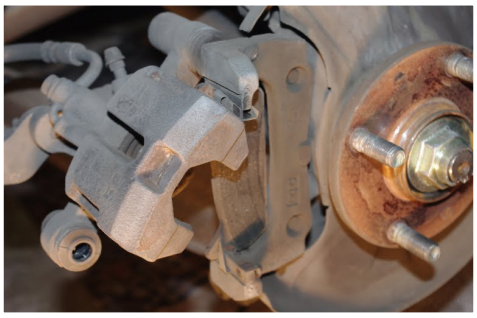
Wheel removed, exposing the brake disc and caliper

Once the car is up and the wheels are off, have a look at the pad wear – it should be even on both pads (these ones weren't).

Caliper with worn disc pad

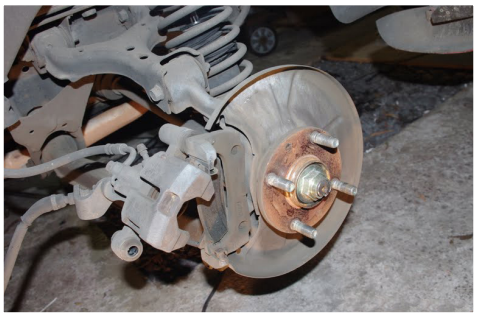
Comparison of new and old brake pad thickness

You will now need to remove one of the slider pins on the caliper. This allows the caliper to rotate upwards for the NA (not sure if it swings downwards for some NBs???), as per the photo.



After removal of the sliding pin, the caliper can be rotated upwards away from the disc so that the old pads can be removed

Once rotated out of the way, you can unclip the pads and remove the old ones. Look at the wear; it should be even on both sides of the disk. Also look at the disk – is it pitted, or heavily worn?



The disc is easily removed before replacing the pads

Use a gauge to check its thickness. Your manual will tell you the minimum thickness allowed. Did you feel vibration when braking? You may need to have the discs machined

or replaced. New discs are around $100 a pair. Machining is cheaper than this and can be done at your local auto reconditioner.

This is also a good chance to spend some time looking around for any brake fluid leaks and worn or damaged brake hoses. Unless you are experienced or knowledgeable regarding overhauling brake systems repairs to these are best undertaken by a professional.

Assuming the discs are fine, new pads are placed where the old ones were. Remember the clip which keeps the pads separate and holds them in place. Once in place, the gap between the pads will be small, and you might not be able to rotate the caliper back into place. You will need to remove the pads and use a clamp to carefully depress the caliper piston into the caliper (there's something about the pistons needing to rotate as they are pushed in – perhaps not for NA but for NB and NC).

When forcing the piston back in, the brake fluid level will rise in the reservoir in the engine bay, so be sure to check that is not overflowing and remove some if necessary. *(**Caution:** brake fluid is damaging to you and your paint work so rinse any spills liberally with water!)* This opens up the caliper and allows it and the new pads to slide into place.

It's also worth checking the rubber boots around the sliding pins, and lubricate the pins. Lubrication should not be with normal oil or grease but a special lubricant which may have been included in your pad kit or can be purchased readily from a parts supplier. Make sure all moving parts are very clean before reassembling to avoid damage/disfunction.

Now rotate the caliper back into place, reposition the sliding pin back into place and tighten as specified by the manual (might be a torque wrench setting for this). The caliper should slide along both pins. You may wish to check the brakes by depressing the brake pedal, but do not start the car while it is on jack stands!

If all is well, repeat for the other side, replace the wheels, check the brake fluid reservoir again, topping up if necessary. Use only the correct brake fluid for your car ('dot3' or '4' we think it is – it will be one of these, NOT both) and you are finished.

The brakes need to be bedded in, to maximise the contact between pad and disc and to transfer a small layer of brake material to the disc.

We recommend you do eight to 10 consecutive stops from 60km/h down to 10km/h ... but do this in a quiet area and not a busy highway! ■

Postscript: pad wear

Looking at our photos, you will see very uneven pad wear. This was a warning signal and on further inspection we discovered that the caliper was frozen to one of the sliding pins, resulting in the one pad doing most of the work.

This means less braking power and could result in damage to the disc rotor. We spent quite a lot of time trying to loosen the caliper and pin without success, and so a replacement is being sourced as we write this.

From the top: new pad, outer pad and inside pad. Note the difference in thickness between the old pads. Not good!

Left to right: new pad, old outer pad and inner pad