

## RETROFIT R56 COOPER S BRAKES

This note describes the upgrading of a 2<sup>nd</sup> generation Cooper or SD to Cooper S brakes. It is just one amateur's opinion, so get professional help if you are in doubt.

The procedure is exactly the same as replacing a complete set of discs and pads and should take less than 30 minutes per side. It makes sense to also read the two MINI workshop manual sections which can be found fairly easily online:

- 34 11 000 - Removing and installing/replacing brake pads on both front disc brakes;
- 34 11 220 - Removing and installing or replacing both front brake discs.

The new and old components were weighed:

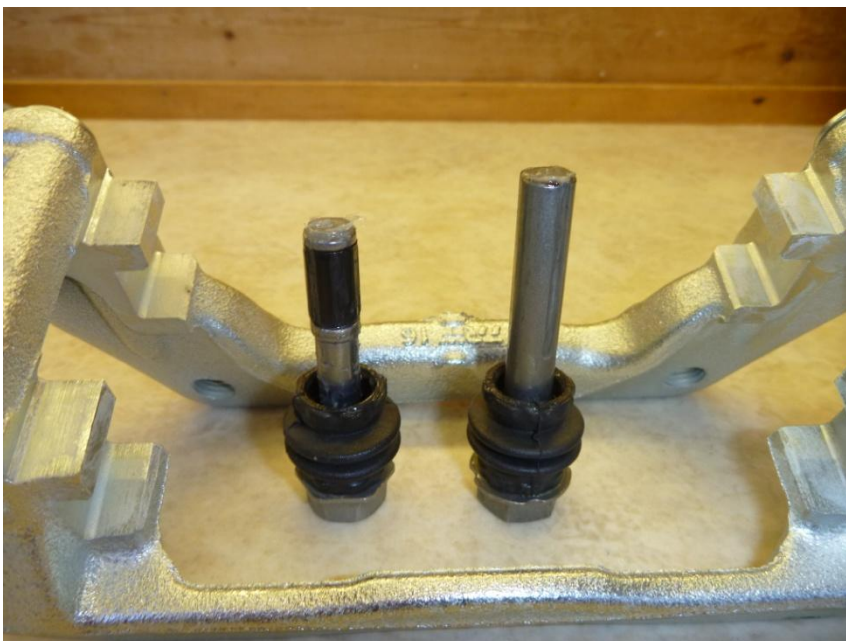
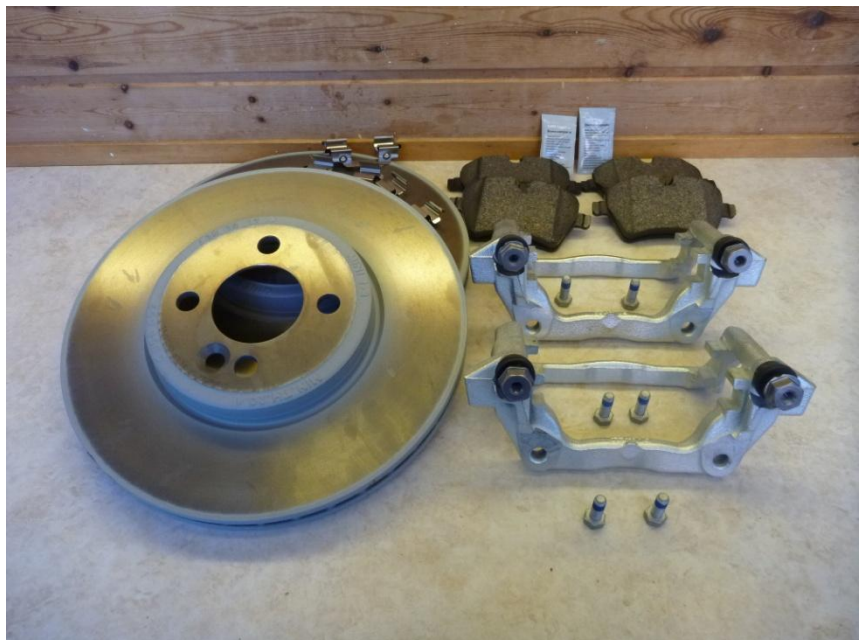
- Cooper disc 5.3kg and calliper bracket 1.2kg
- Cooper S disc 6.0kg and calliper bracket 1.4kg

So the 'S' brakes are 0.9kg heavier per wheel –within the range of variation of different Mini alloy wheels.

The complete set of parts needed are:

- two Cooper S discs;
- two Cooper S calliper brackets, left and right (which come with sliding pins fitted);
- a set of Cooper S pads (which come with new spring clips).

Arguably, a new brake sensor for the left brake is required too – it is definitely needed if the current one has been worn by contacting the disc.



The pads come with two little sachets of BMW grey mustard, called "Bremsklotzpaste", which is used for lubricating the back of the pads to prevent squeal.

Do not try to use it in a ham sandwich as it tastes terrible.

The two calliper brackets look the same but have different sliding pins top and bottom (the long plain one goes at the top) and have different part numbers, so it's a good idea to mark the boxes and keep them separate until needed.

Jack up one corner and support on an axle stand.

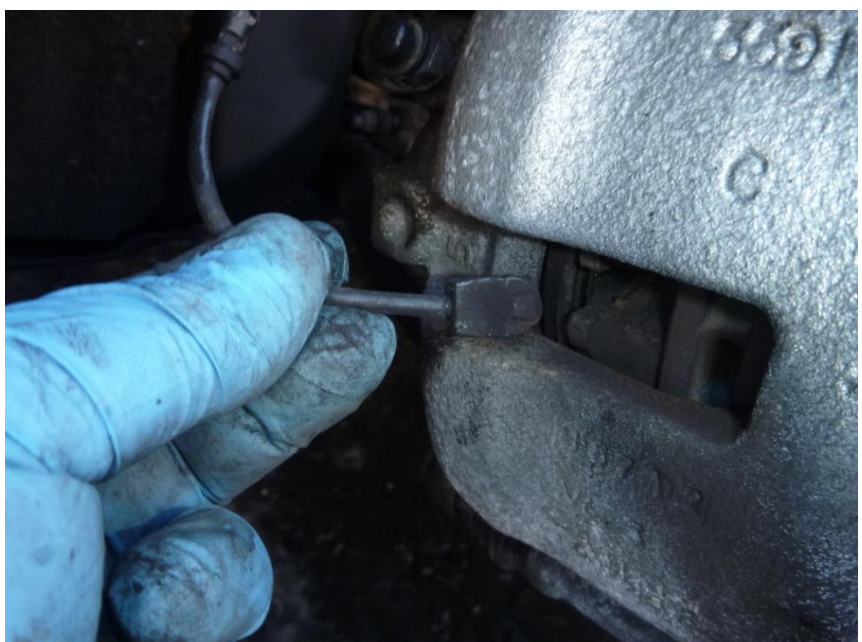
Remove the wheel.



When doing the left brake, unclip the bleed nipple dust cover that (cleverly) acts as a cable guide for the brake wear sensor.

And detach the sensor by pulling it out forwards.

(No, I didn't just pull it out by the wire – that's just for the photo)





It's worth loosening the countersunk torx screw that holds the disc to the hub now – a T50 socket is required.

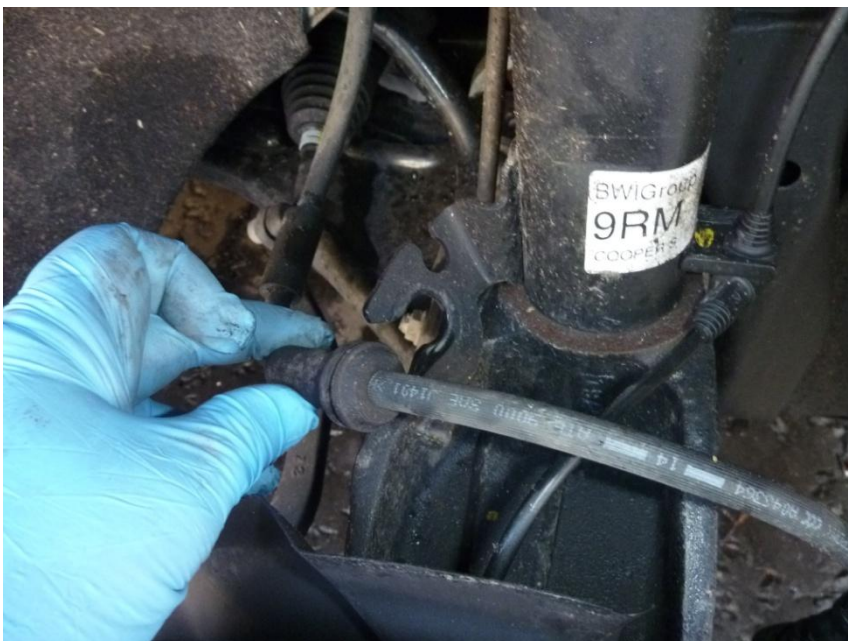
I found a bar laid across two studs and pressed against the calliper bracket with my knee stopped the disc rotating enough to get the screw undone – otherwise this step really needs three hands if you are going to avoid damaging the torx screw.

Undo the 'guide screw' (as MINI calls it) with a 13mm spanner while holding the hex head of the sliding pin with a 15mm spanner.

Repeat for the bottom guide screw to free the brake calliper.

Curiously, the hex head on the new calliper bracket had a 17mm hex head.

The new calliper brackets come with new guide screws with a fresh ring of thread lock on them.



Unclip the brake hose from the strut and lift the calliper off the pads and out of the calliper bracket.

Support the calliper using the approved MINI special tool so that it doesn't hang by the hose.

For reasons I can't explain, the component parts of this special tool are not only stocked by all dry cleaners nationwide, but they give one away with each purchase.



Remove the pads by sliding them away from the disc until their ears can be manoeuvred out of the slots (and the spring clips) in the calliper bracket.

And, yes, I have now switched to photo'ing the left brake.

Remove the two screws holding the calliper bracket to the hub, using a 16mm socket and long bar – the replacement torque is 110Nm, so these will be tight.





Unscrew the torx screw and a new-ish disc will fall/lift off. Discs that have been in place for a while may need some taps with a rubber mallet to loosen.

Fit the new spring clips to the new calliper bracket and lubricate inside the groove with the grey mustard and around the ears of the new pads.

The MINI instructions say not to lubricate the backs of the pads themselves, but just the outer end of the piston and the bearing surface of the other side of calliper.

After that, fitting really is the reverse of the removal process.



And incidentally, this is the MINI way of replacing just the pads – by undoing only the bottom guide screw and rotating the caliper up out of the way.

That's why the MINI brake pad set includes only two new guide screws, since their method doesn't touch the top ones.

