

# Tech talk ...

## Cracked Brake Discs

■ Words & photo: Stuart James

After the 2008 Cup Day long weekend trip to the Snowy Mountains, I noticed marks on the front right brake disc (*clearly visible in the photograph*).

Thinking it was dust or rust after washing, I tried to wipe it off with my finger, but to no avail. Closer examination revealed cracks on both sides of the disc. The cracks happened to line up exactly with the outline of the brake pad. This is not an uncommon failure due to heavy braking followed by stopping and the car not moving for a while.

As you all know, metals expand when heated and contract when cooled.

What happens here is that a great deal of heat is built up in the disc during heavy braking. If the car is stopped for a while, the disc starts to cool but, due to the insulation value of the brake pads, the disc does not cool uniformly.

### *So what's the problem, I hear you ask?*

Well, for reasons of braking efficiency, brake discs are made from cast iron, a material that is very prone to cracking when heated and cooled rapidly or at differential rates due to internal stresses (*also makes the stuff tricky to weld!*).

Maybe run organisers need to consider if they have allowed enough time for discs to cool between heavy braking sections of the route and the coffee stop!!

Applying the same logic, it is good



practice not to jam on the hand brake while the brakes are hot (whether after a stint on the track or on a Club run), as this constrains the discs from moving while cooling and can also result in the pads being “welded” to the disc, due to the combination of heat and pressure.

### *So, the moral of the story?*

Keep an eye on your discs, the front in particular and *be careful about extended coffee stops after heavy braking*. As you can imagine, a total failure could end in tears.

My best price on a set of discs and pads (they should be done together, and the new pads “bedded in”) was from Albury Brake & Clutch (\$180 for parts, DIY fitting in my case).

By all accounts, after-market is better. Their attitude seems to be “*we are here to move parts not store 'em*”

*Next month: DIY oil change*

*MX-TRA readers have called for more technical articles and information to be published in these pages.*

*If you have a handy hint to pass on to your fellow MX-5ers, or are doing some modifications to your car that others might find interesting, please send your report and photographs to [editor@mx5vic.org.au](mailto:editor@mx5vic.org.au) and share it with the rest of us through MX-TRA.*

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