

TECH ARTICLE # T006**MOTOR SPORT BRAKE GUIDE - GENERAL**

There are many factors that directly affect the longevity of disc rotors and the safety of the driver when using a high-performance street vehicle on a race track. They include:

CORRECT BEDDING OF ROTORS

The Bedding in process is very important to the performance and life of the brake rotors and pads. The bedding in process gradually heat treats the rotor and eliminates thermal shock in the rotor. It also burns off volatiles and moisture from the resin that is near the pad surface. During this process a layer of transfer film is being established on the rotor surface.

For detailed information on bedding in procedures please refer to our technical bulletins on Basic Initial Brake Bed-In.

PAD SELECTION

Standard street pads are NOT suitable for track day applications. Core Temperatures of rotors used on track days are generally in the 450°C to 600°C (1110°F) range and peak surface temperatures up to 800°C (1470°F) for 5 seconds or more. Street pads will generally start to break down at 300°C to 350°C (570°F to 660°F), causing brake pad fade and glazing of the rotor surface. Also the pad structure is degraded, resulting in poorer product performance.

WARM UP & COOL DOWN

Disc rotors must be preheated before track sprints to reduce the thermal shock from sudden high speed braking. The greater the difference in rotor temperature from when the pedal is applied to when the pedal is released, the greater the metal fatigue. The thermal shock from braking at high speed on cold rotors WILL prematurely fatigue your brakes. This is also applicable after the event, when you exit the track. A cool down lap is advisable at reduced speed with lighter braking to lower the core temperature slowly, or if this is not possible, go for a short drive off the track for a few minutes. Do not pull up immediately after exiting the track with hot brakes if you plan on using them again!

NOTE: Applying the hand-brake on hot rotors after a track session can distort the rear discs as they cool down.

POST TRACK DAY ROTOR INSPECTION

All disc rotors should be inspected after track day events. This involves removing the rotor from the vehicle and inspecting for heat checking (surface cracking) and severe cracks from fatigue on the pad surfaces. If a suspected crack is found, rub the area with a light grade emery paper, 240 grit or higher, to confirm that it is a crack and not leaching or etching from the pad material. Pad etching looks similar to light cracking but will disappear with a light rub with emery paper. If the heat checking is advanced to the point where the surface cracks are clearly visible, discard the pair of rotors. One ideal method that should be adopted is to have two sets of rotors. One set for track use and one for street use. Changing to your street rotors after a track event encourages rotor inspection. Also, your street rotors can become your next track rotors with the advantage of being bedded in gradually. After the initial purchase of two sets of rotors you are still only replacing one set at a time.

ROTOR TEMPERATURES

Rotor temperature analysis is one method that can be used to enhance your driving technique. The use of thermographic heat paint is the simplest method to record temperatures. To maintain optimal disc rotor life, the core temperatures should not exceed 630°C (1160°F). If you are exceeding this limit you should reconsider pad grades and driving technique. Take note of the time and distance the brakes are applied into a corner and compare them to other drivers. One or two seconds of additional braking can make a substantial difference in rotor temperature and product life.

Technical Support
Disc Brakes Australia.