



# Tech

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## PAD AND ROTOR BEDDING

Bedding is a "real conditions" heat cycle, and the final step that prepares brake pads and rotors for service. Nearly every friction pad material, even OEM passenger car compounds, improve in performance and durability after bedding. Some friction compounds will transfer a layer of friction material onto the rotor faces. This transfer layer is an essential element to the performance and service life of the pads and rotors. New cast iron rotors must be heat cycled and bedded to remove any remaining internal stresses and to condition the rotor faces for service. Pad and rotor bedding cannot be accomplished in a heat oven or cryogenic chamber. For parts to be properly bedded, they must be subjected to the heat, pressure and torque loads they will see in real operating conditions. This can be accomplished in the car or on a special dyno capable of operating at real torque level conditions.

Here is the truth about bedding. Some pad compounds can be cured to eliminate the need for any real break in time. This is true with pads that will run in the lower temperature ranges. It is not the case with the higher temperature race compounds. Some pad companies claim that their race compounds are ready for competition right out of the box. They claim that you do not need to spend time with bedding. The fact is, no experienced racer would ever take the green flag and head off into turn one with parts that have not been heat cycled. The performance is just not there yet and the chances for failure are proportionately higher. You may be able to take the family wagon right out of the garage and onto the highway after installing new parts, but do not attempt to race your car on competition pads or cast iron rotors that have not been cycled and bedded. You are compromising the performance and increasing your chances for early failure or premature wear. Our engineers strongly urge you to take the time for proper bedding. We want you to get the maximum performance, reliability and service life from your pads and rotors.

The principals behind rotor bedding are largely the same as the principals that apply to seasoning new cast iron engine blocks or cylinder heads. One of the leading causes of rotor cracking is thermal shock. Thermal shock is the result of heat, or the rate which the heat is applied or removed. The cracking heard when pouring your favorite beverage over ice is fracturing caused by thermal shock. The same thing can happen to unseasoned cast iron. It is therefore imperative to run the rotors through one or two moderate heat cycles before subjecting them to the extreme heat conditions in competition. In addition to stress relief, the bedding cycle also conditions the rotor faces. This is important with pad materials that work with a friction transfer layer. Even if you are using pads that are already bedded or cured low temperature pads that do not need break in, you must still heat cycle new cast iron rotors before subjecting them to real service conditions.



Rotor bedding is usually done at more moderate temperatures than most pad bedding. Rotor bedding works best with pads that have already been run and are ready for service throughout their entire temperature range. The new rotors should be cleaned prior to installation to remove any oily residues. On the car, the rotors should be gradually cycled to 500 - 700 degrees F., and then allowed to cool. Keep in mind that pyrometer readings taken in the pits do not reflect the actual peak temperatures of the rotors on the track. Temperature paints can be very helpful in identifying the peak temperature. It is also a good idea to bed new rotors with a lower temperature pad compound: this will prevent overheating the rotors in their first cycle. Once the rotors have been subjected to the first head cycle and cooled down, they are ready to run with the higher temperature pads. A second lap session, followed by another complete cool down cycle is the best method of assuring that the bedding process is complete.

For proper bedding, the pads should be gradually cycled up to normal operating temperature and then allowed to completely cool to ambient air temperature. Race compound pads intended for high temperature service will naturally require more heat in their bedding cycle than pads intended for passenger car or lower temperature competition. It is always best to bed new pads on a rotor that has already been bedded or run. Used rotors must not be scored, cracked or grooved from wear when installing and bedding new pads. If you are running new pads and new rotors together for the first time, the first laps should focus on bedding the rotors. Once the new rotors have been bedded and cooled, the next cycle can be used to heat the pads up to their operating range.

Whether you are bedding new pads or rotors, keep these points in mind. Pump the brake pedal with medium pressure at low speed to be sure everything is working properly. Do not drag the pedal to increase the heat up time. Apply the brakes in gradual cycles to make sure the parts are evenly and thoroughly heat saturated. Avoid quick overheating of just the pad and rotor surfaces without taking the time to get good heat build up through the entire body of the part. If your car is equipped with brake cooling ducts, reduce or block the air inlet area. This will minimize the cooling cycle time and maintain more even temperature during the bedding laps. If the pads and rotors are both new, make the first laps with rotor bedding in mind. After the rotors or pads have been heated, run a few laps without touching the brake pedal to begin the cooling process. Use the brakes as little as possible to bring the car back to the pits. Once parked, release the brakes immediately. It also helps to rotate the wheels periodically during the cool down cycle. This will promote even cooling in the rotors by not allowing any one section to retain heat from within the brake pads for any extended time. Avoid any chance for extreme temperature shocks. Avoid driving through any standing water on the way back. If



# Tech

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time permits, you can use a low temperature pad to bed new rotors. This method will allow the pads to fade before the new rotors reach a critical temperature. If you take these steps to prepare your parts for competition, your time will be well rewarded with performance and longevity from your parts.

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