



## **Breaking in new Discs & Brake Pads.**

### **Before installing New Brake Discs observe the following;**

Degrease the face of the brake disc with thinners or degreaser.

Thoroughly wire brush the hub flange and remove all rust/small particles.

Put a small amount of Coppaslip on the hub flange to easy future removal.

When installing "clocking" of the discs is sometimes necessary i.e. use a dial gauge to make sure the disc is centrally located.

Regardless of pad composition, if both disc and pad are not properly broken in, material transfer between the two materials can take place in a random fashion - resulting in uneven deposits and vibration under braking. Similarly, even if the brakes are properly broken in, if, when they are very hot or following a single long stop from high speed, the brakes are kept applied after the vehicle comes to a complete stop it is possible to leave a telltale deposit behind that looks like the outline of a pad. This kind of deposit is called pad imprinting and looks like the pad was inked for printing like a stamp and then set on the disc face. It is possible to see the perfect outline of the pad on the disc.

### **PREVENTION**

There is only one way to prevent this sort of thing - following proper break in procedures. The procedure is several stops of increasing severity with a brief cooling period between them. After the last stop, the system should be allowed to cool to ambient temperature. Typically, a series of ten increasingly hard stops from 70mph to 5 mph with normal acceleration in between should get the job done for a high performance street pad.

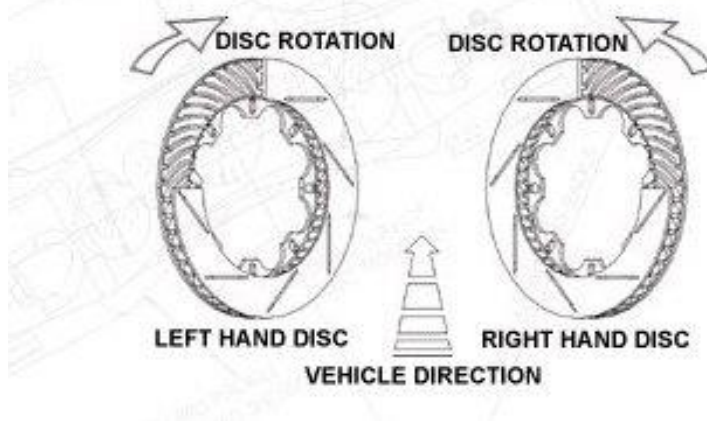
During pad or disc break-in, **do not** come to a complete stop, so plan where and when you do this procedure with care and concern for yourself and the safety of others. If you come to a complete stop before the break-in process is completed there is the chance for non-uniform pad material transfer or pad imprinting to take place and the results will be what the whole process is trying to avoid. Game over.

In terms of stop severity, what you want to do is brake at a rate around 0.7 to 0.9 G's. You should begin to smell pads at the 5th to 7th stop and the smell should diminish before the last stop. A powdery grey area will become visible on the edge of the pad (actually the edge of the friction material in contact with the disc - not the backing plate) where the paint and resins of the pad are burning off. When the grey area on the edges of the pads are about 3mm deep, the pad is bedded in.

For a race pad, typically four 80mph to 5 and two 100mph to 5, depending on the pad, will also be necessary to raise the system temperatures during break-in to the range that the pad material was designed to operate at. Hence, the higher temperature material can establish its layer completely and uniformly on the disc surface. Obviously the above is on a track not the open road.

Other than proper break in, as mentioned above, never leave your foot on the brake pedal after you have used the brakes hard. This is not usually a problem on public roads simply because, under normal conditions, the brakes have time to cool before you bring the car to a stop. In any kind of racing, including autocross and "track days" it is crucial. Regardless of friction material, clamping the pads to a hot stationary disc will result in material transfer and discernible "brake roughness."

Most AP Racing Brake Discs feature Curved Vanes. The brake discs are handed and should be installed with the cooling vanes running back from the inside to outside diameters in the direction of rotation as indicated in the sketch.



Eliseparts S1 Aluminium Belled Disc (RH Disc)



Eliseparts S2 Aluminium Belled Disc (LH Disc)



Built By:

Checked By:

Disc Bell Torque:      Nm