Brakes - troubleshooting guide

A regular and thorough inspection is very important to the proper operation of your braking system and should be included in your regular maintenance program. The following information is designed to help identify common problems that may be encountered during service. The problems below are not covered by warranty as they do not identify a fault with the component.

Brake Discs

Natural Wear

The minimum disc thickness is shown on the outside diameter of the disc as well as in this catalogue. The minimum dimension applies to the cross section measurement between the two braking surfaces. This measurement should be made at several points around the entire circumferance of the disc. If the thickness is below the minimum dimension shown, the disc must be replaced. The disc should also be checked to ensure the wear is approximately equal on both braking surfaces. If one surface is more worn than the other, the brake system is not functioning properly and should be inspected and repaired.

Blue Discs

A disc that shows signs of blueing has been subjected to extremely high temperatures. This condition may be caused by continued hard stops or by brake system imbalance. It is not necessary to replace or resurface as long as the disc remains within the allowable tolerance.
To correct this problem the brake system should be checked for proper balance. The disc should be checked to make sure the disc thickness is correct and the caliper should be checked for proper adjustment and clearance. If this condition is left unresolved, it can result in the development of a martensite condition or cause the disc to crack.

Heat Checking

Heat checking is the appearance of numerous short, thin radial interruptions of the braking surface. Heat checking is a normal phenomena of the disc brake function.
This occurs as a result of the heating and cooling of the braking surface during normal operation of the brakes. Heat checks are not detrimental to the function or the performance of the braking system and no corrective action is required. These will frequently wear away and reform as a result of the normal braking process, however these can progress over time into cracks depending on such factors as, lining/disc wear, brake system balance and how hard the brakes are used.

Cracked and Spotted Discs

fig 1.

fig 2.

Braking surface cracks are seen as radial cracks appearing in the braking surface and rounding the edge of the disc at the inside or outside diameter of the braking surface. (see *fig1.*) along with high spots on the opposite side of the disc (also known as maternsite spots *see fig2.*)

These cracks ans spots are always caused by excessive heat which is usually caused by faulty calipers or torque imbalance which shifts a greater share of the braking function to only a few of the vehicle brakes. Extreme high temperature causes the disc to distort (also known as dishing - see fig 3.)

The brakes which are providing a greater share of the braking action, will always be the ones to show the greater disc wear and will sometimes crack. Cracked discs must always be replaced. If the disc is not replaced the cracks will gradually get worse and can eventually progress into the barrel section. After the discs are replaced the braking system should be checked for proper balance.

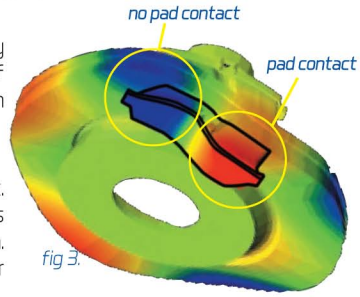
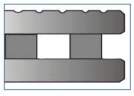


fig 3.

Scored Discs

A scored disc is indicated by defined grooves appearing on the disc surface. If the depth of the scoring is excessive (exceeds 0.015" or 0.5mm) and the braking surface can be resurfaced while remaining within the recommended thickness then it should be resurfaced to restore smoothness.



If this is not possible then the disc should be replaced. It is also important to replace the brake pads at the same time as any replacement or resurfacing work is undertaken.

Lining Transfer

Lining transfer is indicated by a thin layer of lining material which has become welded to the braking surface. Initially the lining deposits will be spotty, however as the problem progresses the deposits will become larger covering more of the braking surface. This will accelerate the lining wear.
This problem is caused by extremely high temperatures which are usually caused by dragging brakes, continued excessive braking, brake system imbalance or system malfunction. The disc can be resurfaced to restore a smooth surface, provided doing so does not reduce the braking surface below the recommended thickness.

Warranty period: Heavy commercial discs - 12 months or 50,000km
Light commercial discs - 12 months or 24,000km

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