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BRAKE DISCS FAILURE GUIDE

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THE RELIABLE PART

REGULAR CONTROL

Check the brake disc regularly for condition and wear. We recommend that this should be done when replacing the brake lining.

This check will show if the brake disc needs to be changed.

Normally worn disc

Small regular grooves.

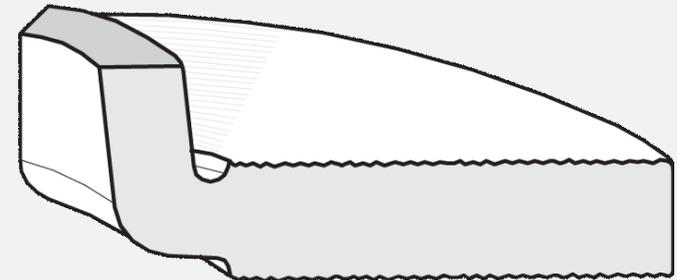
Can be reworked as long as the thickness after the reworking is well above the minimum thickness.

Brake disc with deep grooves

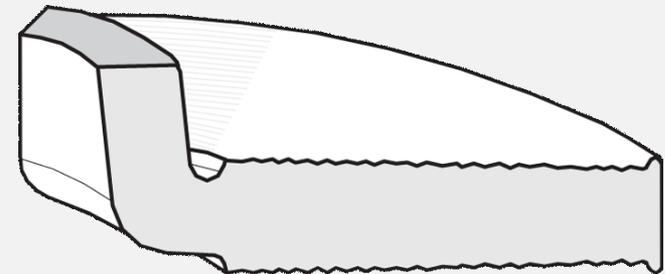
We recommend replacement.

Conically worn brake disc

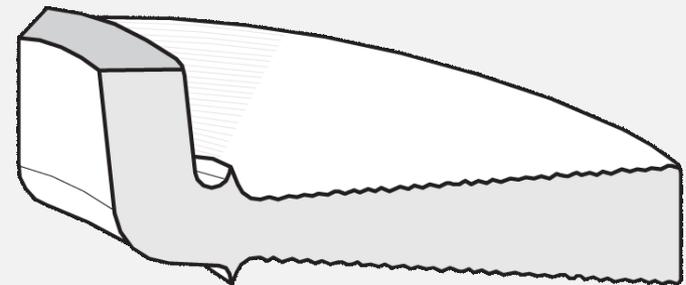
This must be replaced by a new brake disc.



Normally worn disc



Brake disc with deep grooves



Conically worn brake disc

GROOVES ON SURFACE

Symptoms: Noise and judder during braking.

Grooved brake surfaces reduce the brake capacity and efficiency.

Grooves are normally caused by brake pads that are worn below the minimum thickness – in worst case down to the metal part of the pad.

Grooves may also be caused by use of wrong type of brake pad.

Action:

- Check and replace the pads to avoid same problem in the future.
- Replace or rework the brake disc.



EXCESSIVE WEAR

Excessive disc wear may cause noise and judder.

If the disc is worn more than normal, this can be related to hard driving or caliper malfunction.

Action:

- Check the brake caliper
- Replace brake disc if outside safety and comfort limits



CRACKING

Cracks in the brake disc surface leads to braking noise and inefficient braking.

Cracking can normally be related to thermal reactions due to frequent and excessive changes in disc temperature as a consequence of hard or emergency brakings.

Action:

- Replace brake disc



CORROSION

Corrosion can be registered as intermittent noise from the brake disc combined with reduced braking efficiency.

Too early corrosion of the brake disc may be caused by malfunctioning of other components in the disc brake system or infrequent use of the car.

Especially rear brake disc systems are susceptible to corrosion as the most of the braking pressure is on the front axle.

Action:

- Correct malfunctions – if any
- Replace brake disc if outside safety and comfort limits



RUN-OUT

Disc run-out is the major cause of disc braking problems.

Run-out causes steering vibration and increase in pedal stroke.

Run-out is in most cases caused by incorrect fitting and not by faulty production of the brake discs.

The disc run-out should be measured after fitting (follow NK fitting guide and vehicle manufacturer's instructions), and can be measured with a micrometer.

Excessive run-out at this step may lead to thickness variations of the braking surfaces.

The disc becomes unevenly worn if there is only partial contact between the disc and the brake pad.

This problem typically arises after 4000-6000 km.



OVERVIEW

FAILURE →	Uneven wear of disc pad linings	Binding brakes (excessive temperature)	Vehicle pulls to one side when braking	Brake squeal	Excessive pedal travel	Steering vibration when braking	Increased pedal stroke
REMEDIAL ACTION ↓							
Replace brake pads Check that the prescribed lining is used	*	*	*	*			
Check caliper function: Check that sliding mechanisms/pistons are not seized and corrosion free	*	*	*	*		*	*
Check disc for thickness, run-out and general condition	*	*		*		*	
Check hydraulic system for fluid leakage			*		*		
Check that linings have not been damaged by brake fluid or copper grease			*				
Check brake pads/caliper retaining springs and clips				*			
Bleed the braking system					*		
Ensure wheel bearings are adjusted to manufacturer's specifications						*	*
Check steering components, suspension and wheel hubs						*	*
Check tyres and wheel rims for damage						*	