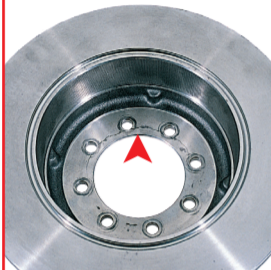


TROUBLE TRACER – BRAKE DISCS

INCORRECT ASSEMBLY




APPEARANCE Hub contact surface distortion, and/or cracking around the fitment holes

CAUSE Tightening sequence incorrect. Insufficient tightening torque used

EFFECT Vibration particularly on initial brake applications

REMEDY Replace the discs and adhere to both correct fitment sequence and manufacturer's recommended torque settings




APPEARANCE Hub contact surface is detached or distorted

CAUSE Excessive tightening and failure to observe manufacturer's recommended torque and sequence during tightening

EFFECT Detachment of disc contact surface. Complete brake failure

REMEDY Full inspection of braking system and associated components. Replace any failed components and fit new discs observing manufacturer's recommended torque and sequence during tightening




APPEARANCE Blue spots, darker colour of some disc areas. Evidence of localised overheating

CAUSE Excessive hub run-out. Uneven disc-to-pad contact generates excessive oscillation which in turn leads to localised heat generation – subsequently discolouration (bluing)

EFFECT Progressively increasing noise and vibration

REMEDY Correct the wheel hub run-out and ensure that this falls within the correct tolerances




APPEARANCE Distortion of the hub contact surface and/or cracking around it

CAUSE Overly severe tightening torque used on the positioning screw

EFFECT Vibrations experienced from initial brake applications onwards

REMEDY Replace the discs avoiding excessive tightening torque. Positioning screws are only intended to ensure that discs are positioned correctly




APPEARANCE Dirt and/or rust on hub surface

CAUSE Contamination on the hub surface can lead to misalignment during mounting leading to irregular contact between pad and disc surfaces and uneven wear of the disc

EFFECT Disc Thickness Variation which leads to oscillation of the disc surface resulting in noise and vibration. The effect becomes progressively greater with use

REMEDY Remove the disc and carefully clean the surfaces of wheel hub and disc, eliminating rust and other debris. Check that the support surface is neither distorted nor damaged. Replace discs observing manufacturer's recommended torque and sequence during tightening




APPEARANCE Detachment of the disc hat from the braking surface

CAUSE Mechanical stress through misalignment. Incorrect assembly or positioning of the caliper and disc results in ongoing asymmetrical wear of the braking surface, eventually causing detachment

EFFECT Initially loud noise and vibration during braking with complete mechanical failure after detachment

REMEDY Full inspection of braking system and associated components. Replace any failed components and fit new discs observing manufacturer's recommended torque and sequence during tightening. Before fitting discs check the alignment and assembly of the caliper body on the axle

ASSOCIATED COMPONENT FAILURE




APPEARANCE Grooving on the disc

CAUSE The deep grooves are caused by loose abrasive particles between the pads and disc. Foreign debris may enter from outside the brake system (road, dirt, water) or from poorly mixed friction material

EFFECT Noise during braking and normal running, and lower brake efficiency due to reduced braking contact surface

SOLUTION Replace pads and discs

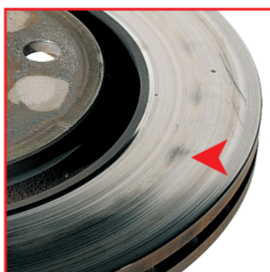


APPEARANCE Disc surface contamination – glazing and/or dark spots

CAUSE Friction material deposits have transferred to the disc surface. This usually occurs where poor quality brake pads have been fitted

EFFECT Vibration, poor braking efficiency and hard pedal

SOLUTION Only install good quality brake pads with friction material suited to the brake and vehicle




APPEARANCE Uneven wear of braking surfaces. Blue spots in the center of braking surface. Possible appearance of cracks

CAUSE Incorrect assembly of the caliper and/or pads can result in the pads being at differing angles to the disc, each side wearing at altered rates. The blue spots are generated by severe localised overheating where the friction contact occurs

EFFECT Gradual onset of vibrations, due to heat spots. Probable reduction of brake efficiency

SOLUTION Check and, if necessary, repair the caliper. Replace pads, checking type and shape are correct for application



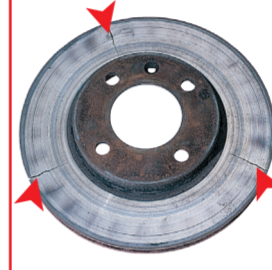
APPEARANCE Uneven wear of brake pads. Major wear on one pad with minimal wear on the opposing side

CAUSE Caliper seizure. One brake pad is in constant contact with the disc causing the pad to wear down to the metal backing plate. The side of the disc in contact with the backing plate becomes badly scored, while the other side of the disc and the other pad are practically new

EFFECT Ongoing grinding noise, vibration and low braking efficiency. Possible unbalanced braking action with vehicle pulling to one side

SOLUTION Caliper needs to be checked, replaced or repaired. Replace brake pads and discs as necessary

MISUSE/THERMAL DAMAGE




APPEARANCE Radial fractures/blue spots corresponding to the venting frames

CAUSE The blue spots are symptomatic of rising cracks. These are caused by metallurgical change in the surface material making it hard and brittle. This is typical of overloading the brakes beyond normal design limits. This could result from intensive or unusual brake use e.g. aggressive driving or excessive payload

EFFECT Brake fade/reduced brake performance, noise, vibrations

SOLUTION Replace the discs, avoid abuse of the brake system and make more efficient use of the engine/gears to aid speed reduction




APPEARANCE Discs show colouring of varying intensity and shades (blue, violet, golden)

CAUSE Poor bedding-in. It is normal on new installations to experience slight variations on the surface between the pad and disc. If not properly bedded, the surfaces where friction occurs become overheated leading to a metallurgical change on the friction surface

EFFECT Poor brake efficiency due to decreased friction. Vibrations can occur which may worsen over the life of the pad and disc

SOLUTION Replace the discs and respect the correct bedding procedure, i.e. moderate use of the brake during the first 200 kilometres

ABNORMAL WEAR

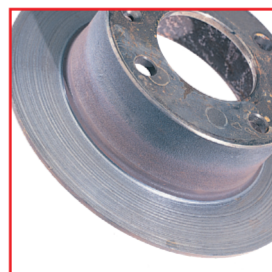


APPEARANCE Excessive wear. Disc thickness is lower than manufacturer's recommended 'Minimum Thickness'

CAUSE Discs were not checked regularly or changed at the correct point

EFFECT Performance decrease, vibration and excessive noise while braking

SOLUTION Full inspection of braking system and associated components. Replace any failed components and fit new discs observing manufacturer's recommended torque and sequence during tightening. Ensure future checking and periodic maintenance




APPEARANCE Disc heavily worn with surface grooves

CAUSE Excessive or complete brake pad wear results the brake pad backing plate contacting the disc (metal to metal) damaging the disc surface

EFFECT Very low braking efficiency/increased stopping distances and grinding noise

SOLUTION Replace discs and pads. Where applicable, confirm the pad wear warning indicator circuit is working correctly



APPEARANCE Deep grooving between hat and disc surface

CAUSE Excessive pad and disc wear may lead to movement of the backing plate within the caliper. In this case, the backplate of the worn pad has come loose from its seat within the caliper causing grooving between hat and disc surface

EFFECT Very low braking efficiency with a long pedal stroke and heavy noise

SOLUTION Replace discs and pads. Check and, if necessary, repair the caliper

