

TROUBLE TRACER – BRAKE PADS



PAD CONTAMINATION

APPEARANCE Friction material is contaminated with either oil, grease or brake fluid

- CAUSE** Spillage during maintenance, or fluid that has leaked from the caliper
- EFFECT**
- The vehicle pulls to one side during braking
 - Reduction in braking performance
- REMEDY**
- Identify and repair cause of contamination
 - Replace the brake pad set



EDGE CRUMBLING

APPEARANCE Uneven wear pattern on the pad

- CAUSE** Brake pad is sticking within the caliper causing the brake pad to stay in contact with the disc with associated excessive pad temperature
- EFFECT** Pad surface may glaze reducing brake performance
- REMEDY**
- Investigate cause of caliper sticking
 - Maintain the caliper
 - Replace the brake pad set



UNEVEN WEAR – DISC SCORING

APPEARANCE Uneven wear pattern on the pad

- CAUSE**
- Incomplete contact between brake pad and disc
 - Disc scoring due to dust or excessive wear
 - New pads fitted to a worn disc may also cause this
- EFFECT**
- Squeal and judder
 - Braking efficiency
- SOLUTION** Replace both brake pads and brake discs



RUSTY PADS

APPEARANCE Rust between the friction material and back plate

- CAUSE** A brake pad sticking in the caliper bracket when braking flexes the back plate, cracking the friction material. Corrosion worsens this, separating the friction material and back plate
- EFFECT**
- Noise and soft pedal feel
 - Once material has separated, brakes will not work
- REMEDY**
- Replace brake pad set
 - Clean and maintain caliper to ensure the pad fits freely into the caliper during installation



UNEVEN WEAR – WEAR LIP

APPEARANCE Uneven wear on the pad surface

- CAUSE** An irregularly worn brake disc or "wear lip" on the disc will cause this pattern of wear on the brake pad
- EFFECT**
- Squeal and Judder
 - Premature pad wear
- SOLUTION** Replace pads and discs



METAL PICK UP

APPEARANCE Metal pick-up (or ingrained metal) on the friction surface

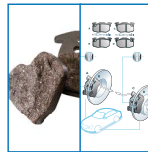
- CAUSE** During normal braking small particles of the disc surface break off. Typically these are burnt off by the intense heat as dust. During extremely wet conditions these are quenched, cooled fast to solid material, and adhere to the brake pad surface
- EFFECT** This generally has no detrimental effect on braking performance, however in extreme cases, it can cause disc damage or brake squeal
- SOLUTION** In extreme cases, replace discs and pads



CRACKED PADS

APPEARANCE Small cracks in the centre of the pad

- CAUSE** The cracks indicate that the caliper is sticking. The piston bends the back plate causing the back plate to flex, cracking the friction material
- EFFECT**
- Noise while braking
 - Uneven pad wear
 - Vehicle pulling to one side during braking
 - Overheating on 1 side of the vehicle
- REMEDY**
- Maintain and service the caliper
 - Replace the brake pad set



INCORRECT PAD FITTING BENDIX IV OFFSET CALIPER TYPE

APPEARANCE Damaged pads

- CAUSE**
- These "handed" pads are not identical to each other within the set, and need to be fitted to either the inner or outer side of the caliper
 - When fitted incorrectly, the pads will be damaged
- EFFECT**
- Damaged pads
 - Reduced brake performance
- SOLUTION** Replace pad set to manufacturers instructions as per the inserted diagram



UNEVEN WEAR WITHIN A SET

APPEARANCE One or more brake pads within an axle set is excessively worn

- CAUSE** The caliper guide pins or piston is sticking
- EFFECT**
- The brake pulls to one side
 - Uneven & overly rapid pad wear
- SOLUTION**
- Maintain all caliper slides and pistons
 - Replace pads and check replace discs if necessary



GLAZING

APPEARANCE The brake pad friction material is glazed

- CAUSE**
- High intermittent pad temperature over short time periods
 - Overly harsh braking during the bedding-in period
- EFFECT** Temporary reductions in brake performance
- REMEDY**
- If light glazing is evident, no action is required
 - If heavy glazing is evident, replace brake pad set
 - Check the disc condition



WORN OUT PADS

APPEARANCE The friction material is completely worn out

- CAUSE** There has been no regular check of pad wear or proper brake maintenance
- EFFECT**
- The vehicle pulls to one side during braking
 - Damage to the disc
 - High squeal and other brake noise
- SOLUTION**
- Check the disc for damage
 - Replace pad set and the disc if it has suffered damage



DENATURING

APPEARANCE Partially charred or burnt friction material (will show whitish outer edges)

- CAUSE** Prolonged excessive pad temperature due to intensive use or dragging of the brake pad on the disc
- EFFECT**
- Reduction in initial brake efficiency
 - Excessive material deterioration and abnormal wear
 - Material becomes brittle, chips and cracks
- SOLUTION**
- Investigate cause for overheating of brake pad
 - If damage is not excessive, pads will be effective under normal use
 - If the damage is extensive replace brake pad set



TAPERED PADS

APPEARANCE Uneven wear or tapered pads

- CAUSE**
- The caliper is distorted and the caliper slides are sticking
 - Excessive caliper clearance
- EFFECT**
- Premature pad wear and noise while braking
 - Uneven braking pressure
- REMEDY** Replace pad set and maintain & service caliper
- Note:** Some vehicles use pads that are tapered by design. Refer to vehicle application to determine if they are outside normal degree of taper



BACK PLATE DAMAGE

APPEARANCE Damaged back plate

- CAUSE** Incorrect assembly, or excessive force used during fitting
- EFFECT**
- Braking efficiency
 - Irregular pad wear
 - Noise & judder
- SOLUTION** Replace the brake pad set