Light Vehicle Inspection Manual

Appendix A Brake Drums and Discs - Minimum Material Thickness

NORTHERN TERRITORY GOVERNMENT

Appendix A - Brake Drums and Discs - Minimum Material Thickness

The purpose of this Appendix is to set the terms for the acceptability of brake drums and disc dimensions and the criteria for the replacement of worn or damaged brake drums or discs used in the automotive industry.

This procedure is in accordance with *Australian Standard 3617 Parameters for the machining and reconditioning of brake drums and discs*. When the braking system of a motor vehicle is inspected, serviced, overhauled, repaired, reconditioned or rebuilt, the condition of each brake drum or brake disc fitted to the vehicle shall be inspected in accordance with the following standards:

After removal of the brake drum from the vehicle, the brake drum should be inspected for:

- Cracking: If the drum is cracked, replace the brake drum. No repair shall be made to the component.
- Glazing and excessive scoring: If the brake drum is glazed or excessively scored, place it on a suitable fixture and measure it in accordance with the section titled 'Measurement Parameters'.
- Heated or hardened hotspots: If the brake drum has heated or hardened hotspots, place it on a suitable fixture and measure it in accordance with the section titled 'Measurement Parameters'.

After inspection and assessment, the following should be taken into account:

Brake drums

1. If the drum is cracked, replace the brake drum. No repair shall be made to the component.
2. If it is considered that there is insufficient material available to successfully machine the brake drum in accordance with the vehicle manufacturer's requirements, replace the brake drum.
3. Where a vehicle manufacturer specifies that a brake drum may not be machined, replace the brake drum.
4. If, after machining, the brake drum measures on or above the maximum diameter specified by the vehicle manufacturer, replace the brake drum.
5. Where after machining the brake drum, and re-measuring in accordance with the section titled 'Measurement Parameters', any of the parameters are outside the vehicle manufacturer's recommendations, replace the brake drum.
6. After machining, inspect the drum for any flaws or defects, including excessive scoring or undercutting. If any flaws are present, replace the brake drum.
7. If after machining the brake drum, heated or hardened hotspots are still present, replace the brake drum.

Brake discs

8. If any cracking is evident, replace the brake disc. No repair shall be made to the component.
9. If it is considered that there is insufficient material available to successfully re-machine the brake disc in accordance with the vehicle manufacturer's requirements, replace the brake disc.
10. Where the manufacturer specifies that a disc rotor may not be machined, replace the brake disc.
11. If, after machining, the brake disc measures on or below the minimum thickness specified by the vehicle manufacturer, replace the brake disc.
12. Where after machining the brake disc, and remeasuring in accordance with the section titled 'Measurement Parameters', any of the parameters are outside the vehicle manufacturer's recommendations, replace the brake disc.
13. After machining, inspect for any flaws or defects, including excessive scoring or undercutting. If any flaws are present, replace the brake disc.
14. After machining the brake disc, heated or hardened hotspots are still present, replace the brake disc.

The following dimensions shall be measured and recorded to ascertain the suitability for reuse or machining:

1. For brake drums, the following shall be observed:
    a. **Diameter**: The diameter of the brake drum shall be measured in at least 6 equally spaced positions across the area of lining contact. The largest measured diameter shall be deemed to be the diameter.
    b. **Radial runout**: When rotating the drum on a suitable fixture, a dial gauge shall be used to record the runout of the drum.
2. For brake discs, the following shall be observed:
    a. **Thickness**: Using suitable measuring equipment, the disc thickness shall be measured in at least 6 equally spaced positions around and across the pad contact area. The smallest dimension measured shall be deemed to be the thickness of the disc.
    b. **Lateral runout**: A dial gauge should be used to measure the brake disc lateral runout.

Definitions

Brake drum: A hollow, machined, round drum that rotates with the wheel axle/hub and against which brake linings are forced into contact when the brakes are applied.

Brake disc: A flat, machined, round disc that rotates with the wheel axle/hub and against which the brake pads clamp when the brakes are applied.

Lateral (axial) runout: A measurement of the lateral or sideways change in the position of the disc rotor-wearing surface during one revolution.

Radial runout: A measurement of the radial change in the position of the brake drum wearing surface during one revolution excluding any bearing movement or other clearances.

Machining: The process of turning or grinding a brake drum or disc to remove surface imperfections such as scoring and glazing, and to eliminate lateral disc runout and other dimensional problems.

Maximum diameter: The largest diameter specified by the vehicle manufacturer at which a brake drum can remain in service.

Minimum thickness: The smallest thickness specified by the vehicle manufacturer at which a brake disc can remain in service.

Shall: Indicates that a statement is mandatory.

Should: Indicates that a statement is advisory.

Note:

Linings or disc pads must not be worn below wear indicators. If no indicators are provided, the thinnest part of the lining or disc pad must not be worn below manufacturer's specifications.

Cracking of brake drums and disc rotors, other than minor surface heat cracks, MUST result in the drum or rotor being replaced.