

Brakes**8-1 Service brake and parking brake****Summary of legislation****Applicable legislation**

- Land Transport Rule: Light-Vehicle Brakes 2002

Mandatory equipment**Service brakes**

1. Motorcycles must have a service brake that acts on each wheel, except in the following cases:
 - a) a vehicle of class LD first registered anywhere on or after 1 February 1977 must have a service brake acting on both wheels of the motorcycle
 - b) a vehicle of class LC or LD first registered anywhere before 1 February 1977 may have a service brake that is designed to act on the rear wheel only
 - c) a vehicle of class LE first registered anywhere before 1 February 1977 may have a service brake that is designed to act on fewer than three wheels.
2. A vehicle of class LE first registered in New Zealand from 1 November 1990 that does not have a dual circuit service brake must have a parking brake that is capable of bringing the vehicle to a controlled stop if the service brake fails.

Parking brake

3. A vehicle of class LE first registered anywhere on or after 1 April 2002 must have a parking brake that:
 - a) acts on at least one complete axle, or
 - b) if the vehicle has dual wheels on an axle, acts on that axle.
4. A vehicle of class LE first registered in New Zealand from 1 November 1990 without dual circuit service brakes must have a parking brake that is capable of bringing the vehicle to a controlled stop if the service brake fails.

Permitted equipment

5. A vehicle may be fitted with a warning system that is part of, or associated with, the use of a brake component or system.

Condition

6. A brake must be in good condition.
7. The brake friction surfaces must be within safe tolerance of their state when manufactured, and must not be scored, weakened or damaged to the extent that the safety performance of the brake is adversely affected.

Performance

8. The service brake must be able to be applied in a controlled and progressive manner.

Reasons for rejection**Mandatory equipment****Service brake (Note 1)**

1. A motor cycle does not have a service brake.
2. A vehicle of class LC and LE first registered anywhere on or after 1 February 1977 does not have a service brake that is designed to act on each wheel.
3. A vehicle of class LD first registered anywhere on or after 1 February 1977 does not have a service brake acting on both wheels of the motor cycle.
4. A vehicle of class LC or LD first registered anywhere before 1 February 1977 does not have a service brake that is designed to act on at least the rear wheel.
5. A vehicle first registered in New Zealand after 1 November 1990 that does not have a dual circuit service brake does not have a parking brake that is capable of bringing the vehicle to a controlled stop.

Parking brake (Note 1)

6. A vehicle of class LE first registered anywhere on or after 1 April 2002 does not have a parking brake.
7. A parking brake does not act on at least one complete axle.
8. A parking brake does not act on at least one axle that has dual wheels fitted.

Condition**Service brake**

9. There is corrosion damage within 150 mm of a brake component mounting point.
10. The service brake pedal or lever:
 - a) is insecure, or
 - b) is spongy (indicating air in the system), or
 - c) creeps, or
 - d) has a non-slip surface which has deteriorated to such an extent that the brake cannot be safely applied, or
 - e) has excessive travel.

Brakes**8-1 Service brake and parking brake (cont.)**

9. When a vehicle's brake is applied:
- the vehicle or its controls must not vibrate to the extent that control of the vehicle is adversely affected, and
 - the braking effort on each wheel must provide stable and efficient braking without adverse effect on the directional control of the vehicle, and
 - if the vehicle is equipped with an anti-lock braking system (ABS), the wheels must not lock, other than when the speed of the vehicle falls below the ABS activation parameters set by the vehicle manufacturer.
10. A brake warning system, if fitted, must function correctly (this does not apply to a brake pad wear system).

Service brake

11. The service brake of a vehicle or vehicle combination that is operated on a hard, dry, level surface that is free of loose material and without assistance from the compression of the engine or other retarders must operate in the following manner:
- a service brake that acts on each wheel must stop the vehicle within a distance of 7 m from a speed of 30 km/h (average brake efficiency of 50%)
 - a service brake that is designed to act on the rear wheel only on a vehicle of class LC or LD first registered anywhere before 1 February 1977 must stop the vehicle within a distance of 9 m from a speed of 30 km/h (average brake efficiency of 40%)
 - the service brake on a vehicle manufactured before 31 December 1918 not capable of exceeding 30 km/h must stop the vehicle within a distance of 20 m from a speed of 30 km/h (average brake efficiency of 18%).

Parking brake

12. A parking brake must
- stop the vehicle within 18 m from a speed of 30 km/h (average brake efficiency of 20%), or
 - hold the vehicle at rest on a slope of 1 in 5.

Modification

13. A modification to a brake or vehicle that affects the braking performance must be inspected and certified by an LVV specialist certifier, unless the vehicle:
- is excluded from the requirement for LVV specialist certification (**Table 8-1-1**), and
 - has been inspected in accordance with the requirements in this manual, including those for equipment, condition and performance.

Reasons for rejection

11. A brake cable:
- is knotted, frayed or excessively corroded, or
 - has an auxiliary tensioner fitted, or
 - has otherwise deteriorated so that it may affect the service brake performance.
12. A brake actuating rod or guide:
- is excessively corroded, or
 - is excessively worn, or
 - has otherwise deteriorated so that it may affect the service brake performance.
13. A vacuum hose or pipe (including connections) is:
- insecure, or
 - leaking, or
 - damaged (cracked, chafed, twisted, stretched or corroded, eg showing signs of pitting or a noticeable decrease in the pipe's outside diameter).
14. The brake vacuum servo (brake booster) is:
- not functioning fully or adequately, or
 - leaking, or
 - insecure.
15. The brake master cylinder is:
- leaking brake fluid, or
 - insecure, or
 - excessively corroded.
16. A brake valve is:
- not operating (eg a seized load sensing valve), or
 - leaking brake fluid, or
 - insecure, or
 - excessively corroded.
17. A brake pipe (including connections) is:
- leaking brake fluid, or
 - insecure, or

Reasons for rejection

- c) deformed from its original shape, or
 - d) chafed, or
 - e) corrosion damaged, eg there are signs of pitting or a noticeable increase in the pipe's outside diameter.
18. A flexible hydraulic brake hose (including connections):
- a) is leaking brake fluid, or
 - b) is insecure, or
 - c) bulges under pressure, or
 - d) is twisted, stretched or chafed, or
 - e) has external sheathing which is cracked to the extent that the reinforcing cords are exposed, or
 - f) has metal connections that are excessively corroded, or
 - g) has an end fitting that is not attached to the hose by means of swaging, machine crimping or a similar process (**Note 2**).
19. A brake calliper:
- a) shows visible signs of leaking, or
 - b) is insecure, or
 - c) is seized.
20. A brake backing plate is:
- a) insecure, or
 - b) severely corroded, or
 - c) deformed from its original shape, or
 - d) cracked, or
 - e) contaminated by brake fluid, oil or grease.
21. A wheel cylinder:
- a) shows visible signs of leaking, or
 - b) is insecure, or
 - c) is seized.
22. An ABS system component is damaged, insecure or missing.

Brakes

8-1 Service brake and parking brake (cont.)

Reasons for rejection

23. A brake disc or drum is:

- a) worn beyond manufacturer's specifications (where visible without removing vehicle components) (**Note 3**), or
- b) fractured or otherwise damaged (where visible without removing vehicle components) (**Note 3**), or
- c) contaminated by brake fluid, oil or grease.

24. Brake friction material (where visible without removing vehicle components) (**Note 3**) is:

- a) worn below manufacturer's specifications, or
- b) separating from the brake pad backing plate or brake shoe, or
- c) contaminated by brake fluid, oil or grease.

25. A gap between the brake shoe and the brake drum exceeds manufacturer's specifications (where visible without removing vehicle components) (**Note 3**).

Parking brake

26. The parking brake lever:

- a) travel is excessive, or
- b) is insecure, or
- c) is damaged, corroded, distorted or fractured within 150 mm of the handle mounting, or
- d) mechanism or lever pivot bearing is worn or damaged so that the parking brake could be easily released by accident.

27. The parking brake cable:

- a) is knotted, frayed or excessively corroded, or
- b) has an auxiliary tensioner fitted, or
- c) has otherwise deteriorated so that it may affect the parking brake performance.

28. A parking brake actuating rod or guide:

- a) is excessively corroded, or
- b) is excessively worn, or
- c) has otherwise deteriorated so that it may affect the parking brake performance.

Reasons for rejection

Performance

Service brake

29. The service brake is not able to be applied in a controlled and progressive manner.
30. When the service brake is applied:
- a) the vehicle does not stop within 7 m from a speed of 30 km/h (average brake efficiency of 50%) for a vehicle which has a service brake designed to act on each wheel, or
 - b) the vehicle does not stop within a distance of 9 m from a speed of 30 km/h (average brake efficiency of 40%) for a vehicle of class LC or LD that has a service brake designed to act on the rear wheel only, or
 - c) the vehicle does not stop within a distance of 9 m from a speed of 30 km/h (average brake efficiency of 40%) for a vehicle of class LE that has a service brake designed to act on fewer than three wheels.
31. Where the service brake is applied:
- a) the vehicle vibrates under braking to the extent that the control of the vehicle is adversely affected, or
 - b) the brake fails to release immediately after the brake pedal has been released, or
 - c) the directional control is affected (eg there is swerving to one side, or the brakes on one side apply more slowly than on the other side), or
 - d) the brake balance varies by more than 20% between wheels on a common axle.
32. The ABS or brake system warning lamp or self-check system, if fitted, indicates a defect in the ABS or brake system (does not apply to brake pad wear warning systems).

Parking brake

33. When the parking brake is fully applied:
- a) the vehicle does not stop within 18 m from a speed of 30 km/h (average brake efficiency of 20%), or

Brakes

8-1 Service brake and parking brake (cont.)

Reasons for rejection

- b) it does not hold the vehicle at rest on a slope of 1 in 5, or
 - c) it does not hold all the wheels on a common axle stationary against attempts to drive the vehicle away.
34. The directional control of the vehicle is affected when the parking brake is being applied on a vehicle first registered in New Zealand on or after 1 November 1990 that does not have a dual circuit service brake.

Modification

35. A modification to a brake or vehicle affects the braking performance, and:
- a) is not excluded from the requirements for LVV specialist certification (**Table 8-1-1**), and
 - b) is missing proof of LVV specialist certification, ie:
 - i. the vehicle is not fitted with a valid LVV certification plate, or
 - ii. the operator is not able to produce a valid modification declaration or authority card.

**Table 8-1-1. Modifications that do not require LVV certification**

Fitting of or modification to:	LVV certification is not required provided that:
Aftermarket brake pedal pads or covers	<ul style="list-style-type: none"> ▪ the fitment of the pads or covers does not: <ul style="list-style-type: none"> - necessitate any modification to the pedal arm, or - have any effect on the operation of other pedals.
Aftermarket or custom brake pedal extensions (for unusually short people)	<ul style="list-style-type: none"> ▪ the extension: <ul style="list-style-type: none"> - does not compromise the strength of the original pedal, and - is sufficiently strong to withstand emergency braking loads.
Aftermarket brake rotors	<ul style="list-style-type: none"> ▪ the substitute rotors are: <ul style="list-style-type: none"> - the same size as the OE rotors, and - catalogued aftermarket items for that make and model of vehicle (and can include cross-drilled and/or slotted types), and - attached to unmodified OE parts.
Fitting of or modification to:	LVV certification is never required:
Aftermarket brake pads, linings and hoses	<ul style="list-style-type: none"> ▪ in-service requirements for condition and performance must be met.
Any modifications for the purposes of law enforcement or the provision of emergency services	

Note 1 Definitions

Service brake means a brake for intermittent use that is normally used to slow down and stop a vehicle.

Parking brake means a brake readily applicable and capable of remaining applied for an indefinite period without further attention.

Corrosion damage is where the metal has been eaten away, which is evident by pitting. The outward signs of such corrosion damage is typically displayed by the lifting or bubbling of paint. In extreme cases, the area affected by the corrosion damage will fall out and leave a hole.

Modify means to change a vehicle from its original state by altering, substituting, adding or removing a structure, system, component or equipment, but does not include repair.

Repair means to restore a damaged or worn vehicle, its structure, systems, components or equipment to within safe tolerance of its condition when manufactured, including replacement with undamaged or new structures, systems, components or equipment.

Note 2 Hose end fittings that can be undone using hand tools are unacceptable.

Note 3 If a brake is fitted with an inspection port plug, this must be removed for inspection of the brake components.

