8-2 Inspection specifications

Technical information

IMPORTANT: any parts that require removal or disassembly in order to carry out the inspection of brakes and brake components must be removed or disassembled.

Exceptions to this requirement are as follows:

a) No removal or disassembly is required for vehicles presented for re-registration that were manufactured before 1991 and previously registered in New Zealand before 1 January 1991.

b) No removal or disassembly is required for new vehicles and scratch-built low volume vehicles, it is not necessary to disassemble any brake components.

c) For vehicles with rear drum brakes that are less than two years old and that have travelled less than 40,000km, only the front brakes must be disassembled initially. If the front brakes are up to standard, and there are no signs of problems with the rear brakes, disassembly of the rear brakes is not required.

d) No removal or disassembly is required for class LA and LB vehicles, new, used or being re-registered.

Procedure

Entry-level brake inspection process for class LC, LD, LE vehicles, and group M or N light vehicles

The vehicle inspector must personally carry out the brake inspection of all vehicles according to the following specifications.

The alternative method for motorcycles may be used if the vehicle inspector is unfamiliar with the disassembly or reassembly of the braking system.

Master cylinder

1. Check the condition of the brake fluid in the master cylinder reservoir for contaminants. If there are visible signs of dirt, moisture or other contaminants in the fluid, the fluid must be replaced.

2. Check the master cylinder for leaks.

Underbody brake components

1. Brake components underneath the vehicle must be inspected using a hoist, pit or ramp that allows the vehicle inspector to comfortably walk under the vehicle.

2. Check the park brake cable by examining exposed cable for signs of knotting, corrosion or fraying or the use of auxiliary tensioning devices.

3. Examine any brake rods for excessive corrosion or wear.

Wheels, brake drums and disc pads

1. Remove all wheels, brake drums and disc pads.

a) Only the front brakes need to be disassembled initially, if the vehicle:

- is less than two years old, and
- has travelled less than 40,000km, and
- is fitted with drum brakes at the rear.

Provided there are no problems detected with the front brakes and the rear brakes exhibit no external sign of a problem (eg uneven braking, leaks, noises), no further disassembly is required.

b) Brake components do not need to be disassembled during the entry certification inspection if the vehicle is new (Note 1) or a scratch-built low volume vehicle.

Note 1

'New' means a vehicle that has not been registered and operated in any country, and has not been operated on a road in any country as a demonstration or courtesy vehicle or used for training or test purposes. It must not be a scratch-built vehicle that contains components which have been fitted to a vehicle operated on a road in any country.

c) Any brake discs or drums and their friction materials, which are used for park brakes only, do not have to be inspected in detail, or have compliance verified. No further disassembly is required provided the brakes do not show any external signs of a problem and meet performance and condition requirements set out in the **VIRM: In-service certification section 8-1**

2. Check the run out of the disc rotors, the minimum thickness of the discs and any variation in disc thickness using calibrated measuring equipment (Note 2)

3. Check the drums for ovality using calibrated measuring equipment.

Measurements must be checked against the manufacturer's specifications. If the manufacturer's specifications are not available, the following maximum runout and ovality are permitted:

- runout on a disc brake rotor with a single acting hydraulic piston 0.1mm
- runout on a disc brake rotor with opposing hydraulic pistons 0.2mm
- ovality on a brake drum for light vehicles 1.0mm.

Note 2

If an entry certifier wishes to use a roller brake machine to detect disc/rotor runout, they must be able to demonstrate this ability to an NZTA officer.

If machining is required, both of the drums or discs on a common axis must be machined. If it is found that a disc brake rotor requires machining or replacing, the brake friction material that was originally fitted to the vehicle may be re-used, provided it is within safe tolerance of the vehicle manufacturer's specifications. The entry certifier must consider the thickness and condition of the remaining brake friction material, and whether or not the vehicle manufacturer permits the re-fitting of brake friction material to new or re-surfaced brake rotors.

Wheel cylinders and callipers

1. Check wheel cylinders and callipers for fluid leaks.

2. Check that the calliper or cylinder pistons have not seized, and are able to slide or swing on their mountings as appropriate.

Brake pipes

1. Ensure that brake pipes are secure and supported.

Hoses and connections

1. Inspect all hoses and connections (under pressure) for condition. Flexible brake hoses must be rejected if:

- they leak brake fluid, or
- they are insecure, or
- they bulge under pressure, or
- they are twisted, or
- they have been stretched, or
- the outer covering is chafed or cracked, particularly in the area of the crimp.

Brake friction material

1. Visually inspect the brake friction material to verify that the material was supplied by the vehicle manufacturer. The name or logo of the vehicle manufacturer or a brake friction material manufacturer (listed in Figure 8-2-1) will be marked on the backing plate or the edge of the friction material.

If the material cannot be identified as being supplied by the vehicle manufacturer, the vehicle must not be certified until replacement brake friction material has been fitted, which:

- has been supplied by a recognised supplier (Note 3), or
- is accompanied by a statement completed by the supplier (see **Reference material 42**), or
- is accompanied by a 'Brake repair declaration' form (see **Reference material 42**) completed by a recognised brake repairer.

A correctly completed 'Brake repair declaration' form is acceptable evidence for replaced brake friction material.

If the brake friction material fitted to a vehicle is not known to be original equipment (OE), it may be accepted if it was made by a manufacturer that is known to produce OEM or OES brake parts.

If brake friction material does not meet these criteria, it must be removed and replaced with parts that return the vehicle’s brakes to within safe tolerance of the manufacturer’s specifications. When disc pads or linings are replaced, the material on both the left and right side of an axle must be replaced using identical material with the same co-efficient of friction.

Table 8-2-1. Limits for wear on brake friction material

Material	Minimum thickness
Disc pads	3.0mm
Shoe linings (bonded)	2.0mm
Shoe linings (riveted)	2.0mm above the head of the rivet minimum thickness
Motorcycle disc pads and shoe linings	Manufacturer's minimum specification, if available, otherwise the general limits above must be used.

Note 3

A recognised supplier is a supplier recognised by the entry certifier as being reputable and competent to supply material that ensures the braking system will be returned to within safe tolerance of its state when manufactured.

Note 4

These limits for wear do not apply if the manufacturer has specified a greater minimum thickness for specific vehicle makes and models.

Important: Entry certifiers are required to include a regular audit of brake repairers in their procedures to ensure that information contained in declarations is correct.

Markings not found in published data

Where brake friction material is found with markings that cannot be found in published data, but the entry certifier believes the material to be OEM (or acceptable manufacturer's alternative) and otherwise fit for further service, it can be accepted. The entry certifier will need to provide evidence of how they determined that the friction material is OEM (or acceptable manufacturer's alternative) (if asked).

Reassembly

Where components are removed as part of the inspection process, an entry certifier must have procedures in place to ensure that those components are re-assembled correctly.

Brake performance

1. Once components have been accepted, carry out a service brake system performance test using an NZTA-approved brake machine.

2. Record the braking effort achieved.

3. Check that the performance meets the requirements specified in the **VIRM: In-service certification, section 8-1**

Re-checking brakes that fail inspection

A brake performance test is required following any brake system repair or component replacement.

Vehicles returning for recheck following brake repair are not expected to be dismantled again for invasive inspection if a declaration from a recognised brake repairer is supplied. The 'Brake repair declaration' form is shown in **Reference material 42**

Note 6

Brake parts that meet UN/ECE Regulation 90R are acceptable for vehicles undergoing entry certification. The vehicle inspector must retain documented evidence that the brake parts meet UN/ECE 90R and are suitable for the particular vehicle (in the location where they are fitted) on the vehicle file.

Alternate method for motorcycle brakes

In cases where a vehicle inspector is not familiar with the disassembly or reassembly of the motorcycle's braking system, a relevant person or company, recognised by the entry certifier as being reputable and competent to carry out this work, may be employed to strip, inspect and reassemble motorcycle brake systems in accordance with the above inspection specifications.

This recognised person or company must supply the entry certifier with documentation confirming that the brake system and components are within safe tolerance of their state when manufactured.

If the motorcycle is required to comply with an approved brake standard, the documentation must also confirm that the brakes still comply with the original equipment brake standard to which the motorcycle was manufactured.

The recognised person or company must issue a declaration confirming that:

1. the motorcycle brake system has been dismantled, and
2. all brake components have been inspected, and
3. measurements have been taken and recorded, and
4. the brake system has been reassembled with no repairs required

OR

any component(s) not within safe tolerance of the manufacturer's specifications is repaired or replaced, and the brake system has been reassembled.

If the motorcycle brake components are dismantled away from the inspection site, the brake component measurements must be recorded by the recognised person or company, or the vehicle inspector must be present during the dismantling process to record details.

The motorcycle owner/importer may take the vehicle to the recognised person or company.

Figure 8-2-1. Recognised brake friction material manufacturers

- see Note 7

Manufacturer	Logos
Aisin	AISIN
	ADVICS
Akebono	akebono
Ambrake	AMBRAKE CORPORATION
AP Racing* (see below)	AP RACING
Asktechnica	Ask Corporation
ATE	Ate
Bendix	Bendix
Bosch	BOSCH
BRAXe	BRAXE
Brembo	brembo
Delco	ACDelco
Delphi	DELPHI
EBC Brakes	EBC BRAKES
Ferodo	FERODO
Girling	GIRLING
Hitachi	HITACHI
Hosei	
Japan Brake Industrial Co.	JB
Jurid	JURID
KIA Precision Works	Similar to KPW
Lockheed	Not supplied
Lucas	Lucas

Manufacturer	Logos
Mando	MANDO
Mintex	MINTEX
MK Kashiyama	
MY 2016 Ltd	CAC
NBK	NBK
Nippondenso	DENSO
Nisshinbo	NISSHINBO
Nissin Kogyo	NISSIN
PAGID	PAGID
PBR	pbr
Powerbrake	POWERBRAKE
Premier	PREMIER BRAKING LIMITED
Royale	ROYALE
Sangsin	SB SANGSIN
Sanyo	
Scandinavian Brake Systems	sbs
Sumitomo	Sumitomo
Takara/Vesrah	
TEMB Auto Brake Co. Ltd	TEMB
Teves	TEVES
Textar	TX TEXTAR
Tokiko	TOKICO LTD
TRW Aftermarket	TRW
Valeo	Valeo

***** AP Racing pads may only be accepted if the friction material type can be identified. AP Racing acceptable pad material types are identified by:

- APF403
- APF404
- APF405.

These are not acceptable, as these are identified by the manufacturer as track only materials.

- APF401
- APF402
- APG406.

Table 8-2-2. Approved brake parts suppliers

- see Note 7

Legal name of business	Trading name used on invoice
Allparts International Ltd	Allparts International Ltd
Apex Brake and Clutch Ltd	Apex Brake and Clutch Ltd
Auto Brake and Clutch Ltd	Auto Brake and Clutch Specialists
Auto Brake and Clutch Supplies Ltd	Auto Brake and Clutch Supplies Ltd
Auto Brakes Ltd	Auto Brakes Ltd
Auto Replacements 1994 Ltd	Auto Replacements 1994 Ltd
Auto Trail Ltd	Auto Trail Ltd
Autolines NP Ltd	Autolines Auto One
Automotive Brake and Clutch Ltd	Automotive Brake and Clutch Ltd
Automotive Driveline 1992 Ltd	Automotive Driveline 1992 Ltd
Automotive Parts Giants Ltd.	Automotive Parts Giants Ltd.
Automotive Partzio Ltd	Partzio (East Tamaki Ltd)
Automotive Partzio Ltd	Partzio (Otahuhu Ltd)
Bay City Motor Co Ltd	Bay City Motor Co Ltd
Belfor Automotive Centre Ltd	Belfor Automotive Centre Ltd
Brake and Clutch Rebuilders Ltd	Brake and Clutch Rebuilders Ltd
Brake and Transmission Ltd	Brake and Transmission NZ Ltd
Brakes and Spares Ltd	Brakes and Spares Ltd

Legal name of business	Trading name used on invoice
Challenge Auto Parts	Challenge Auto Parts
Cockram Motors (Chch) Ltd	Cockram Nissan
Collins Motors Ltd	Collins Auto Parts and Accessories
Cycle and Carriage (North Shore) Ltd	Kia Motors New Zealand
Daihatsu New Zealand Limited	Daihatsu New Zealand Limited
Direct Auto One	Direct Auto One
EBC Brakes NZ Ltd	EBC Brakes NZ
Extreme Distributors Ltd	Extreme Automotive Distributors
Forward Specs (2000) Ltd	Forward Specs (2000) Ltd
Garland Motors	Whakatane Auto One
GPC Asia Pacific Limited	Repco Auto Parts
	NAPA Auto Parts
Holdaways Limited	Holdaways Ltd
Holden New Zealand Ltd	Holden New Zealand Ltd
Honda New Zealand Ltd	Honda New Zealand Ltd
Import Part Specialists Ltd	Import Part Specialists Ltd
Independent Brake Supplies NZ Ltd	Independent Brake Supplies NZ Ltd
Interpart Ltd	Interpart Ltd
Jaycon Engineering Ltd	MP Auto Parts

Legal name of business	Trading name used on invoice
Jeffrey Gong, T/A Callahan Auto Supply	Callahan Auto Supply
John Patton Ltd	Thames Auto One
Johnson Piston Rings Ltd	Johnson Piston Rings
Lambert Brake and Clutch Ltd	Lambert Brake and Clutch Ltd
Le Freins Ltd	Autosafe Taupo
MacDonald Halligan Motors Ltd	MacDonald Halligan Motors Ltd
Master Part Automotive Products (1997) Ltd	0800 Brakes
Master Part Automotive Products Ltd	Master Part Brake and Clutch
Mintoft and Heenan Ltd	Freemans Auto One
Muffler and Brake Ltd	Muffler and Brake Ltd
Murray McLean Motorcycles Services Ltd	Murray McLean Motorcycles Services Ltd
Napier Auto Supplies (1980) Ltd	Napier Auto Supplies
Nelson Brake Services Ltd	Nelson Brake Services Ltd
New Zealand Brake Company Ltd	Brake Co
Orton Motor 1990 Ltd	Ruts Auto Brake, Clutch
Owens Suspension and Brake Specialists Ltd	Owens Suspension and Brake Specialists Ltd
Partmaster Ltd	Partmaster
Pembroke Fram Ltd	Union Yamaha

Legal name of business	Trading name used on invoice
Precision Brake and Clutch Services Ltd	Precision Brake and Clutch Services Ltd
R and J E Hull Ltd	Brake Specialists
Rawson Parts Ltd	Partnership Auto One
Red Baron (NZ) Ltd	
Redwood Investments Ltd	Bikes ’n’ Bits
River City Auto World	Wanganui Toyota
Robbie’s Speedy Exhaust and Brakes Shop Ltd	Robbie’s Speedy Exhaust and Brake Shop Ltd
RTJ Industries	Brake Service Centre
Safe R Brakes Ltd	Safe R Brakes Ltd
SAS Autoparts Limited	SAS Autoparts
Segedins Auto Parts Ltd	Segedins Auto Parts Ltd
Sims Brake Services Ltd	Sims Brake Services Ltd
Southern Brakes and Driveline Ltd	Southern Brakes and Driveline Ltd
Speedy Parts (NZ) Ltd	Speedy Parts (NZ) Ltd
Sterling Brake and Clutch Specialists	Sterling Brake and Clutch Specialists
Styles Autoparts Ltd	Hawera Autospares
Suvic Engineering Ltd	Suvic Engineering Ltd
T B and J F Bell Partnership	Redhills Benz

Legal name of business	Trading name used on invoice
Taupo Auto One Ltd	Taupo Auto One
Transport Brake and Clutch Ltd	Transport Brake and Clutch
Triumph Promotions Ltd	Jim Wright Nissan
Vehicle Testing and Compliance Ltd	Vehicle Testing and Compliance Ltd
Waikato Bonding Services Ltd	
Waikato Clutch and Brake Specialists Ltd	Waikato Clutch and Brake Specialists Ltd
Whakatane Brake and Clutch Centre Ltd	Whakatane Brake and Clutch Centre Ltd
W. White Wholesale Ltd.	Whites Powersports

Table updated 6 May 2024.

Note 7

If you would like information added to this page please email **virmupdates@nzta.govt.nz** with the following information:

- documentation from the manufacturer proving the parts meet the requirements of the **Land Transport Rule: Light Vehicle Brakes 2002**, section 3.3(3) (ie that they comply with UN/ECE Regulation 90)
- the manufacturers logo
- the legal name of your business and the trading name used on invoices.

NZTA will review your submission and add to this page if satisfied.

Page amended **21 August 2024** (see **amendment details**)