

Technical bulletin 4: Heavy vehicle alterations and modifications that may affect the brakes

This technical bulletin replaces Technical bulletin 4: Modification thresholds for the Heavy Vehicle Brakes Rule and Technical bulletin 16: Engineers' responsibilities for modifications that may affect a heavy vehicle's brakes

The engineers' responsibilities

All alterations and modifications to a heavy vehicle where the brake system or any components of the brake system may be affected must meet the requirements of the Land Transport Rule: Heavy Vehicle Brakes 2006 (HVBR).

All heavy vehicle brake changes or modifications, except those specifically exempted from the requirements contained in the HVBR, must be certified by a heavy vehicle specialist certifier (HVSC) with the HVEK category, no other category of HVSC can certify heavy vehicle brakes.

Where any brake certification is required, the lead HVSC for a project must ensure that brake certification is carried out and that an HVEK LT400 is issued prior to HVSC certification for the finished project. The responsibility for obtaining brake certification cannot be delegated to the vehicle owner or an inspection organisation or any other entity.

HVEK Brake certification category

Brake certification for any heavy vehicle manufactured or modified in New Zealand and any heavy vehicle imported into New Zealand that has been modified after its original equipment (OE) manufacture (**Note 1**) can only be performed by an HVEK category certifier.

Modifications that always require an LT400 by an HVEK

- A heavy vehicle that has had its braking system or any component of that system modified in any way which may affect braking performance. This includes any modification after OE manufacture (**Note 1**), **or** since entering service **or** since being last certified.
- A wheelbase alteration to a new standards compliant vehicle (**Note 2**) under-going entry certification, that is **not** supported with Acceptable Documentation (**Note 3**) from the OE manufacturer.
- A wheelbase alteration to any vehicle since entering service **or** since last certified by an HVEK certifier.
- Any alterations or modifications to the vehicle:
 - a. where the vehicle's original manufactured axle has changed, e.g. changing an axle to a different make, configuration or specification, **or**
 - b. where the vehicle's original manufactured GVM is changed, except where a GVM decrease is applied to a standards compliant prime mover to align with the on-road axle mass limits, provided no RUC, driver licencing or vehicle class thresholds are crossed, **or**
 - c. where the vehicle is converted from non-towing to towing or from rigid to tractor unit or vice versa, **or**
 - d. where the vehicles originally manufactured axle configuration is changed to another configuration, e.g. it has been changed from a 4x2 to 6x2 or any other combination.

Note; When certifying the changes in (c) and (d) for an EBS/ESC equipped vehicle, the HVEK certifier must have evidence the new configuration remains compliant with the standard it was manufactured to and confirmation from the OE manufacturer's representative **or** the brake system manufacturer that the control software can and/or has been updated.

- A heavy vehicle that has been brake certified to the Heavy Vehicle Brake Code, Second Edition (Schedule 4) and it cannot be established what friction material was used.

The vehicle may be re-certified to its original brake code mass using an alternative friction material provided no other alterations or modifications are made. This requires the original brake coding to be re-confirmed with the new friction material by an HVEK certifier trained or experienced with previous brake coding (HVEB) using the NZTA Brake Calculator. Brake Torque data, meeting the requirements of HVBR must be used for the calculation and an LT400 issued confirming compliance with the code.

Note: vehicles that were brake-coded to any of the earlier iterations of the Brake Code (including the Interim Performance Specification for Heavy Vehicle Braking and the Heavy Vehicle Braking Specification of 6 December 1988) that are modified, must meet the requirements of the HVBR.

- A brake-coded heavy vehicle that has had its braking system modified, even if its compliance curves remain within the braking rate and adhesion utilisation requirements of the Brake Code. The resultant vehicle is outside its original Brake Code certification and must be re-certified to Schedule 5 and issued an LT400.
- An air-operated spring parking brake that has been retrofitted to a vehicle to replace a wind-on parking brake must be certified by an HVEK.

Note: provided the replacement spring brake chamber has the same service brake performance as the original and no other modification is made to the service brake, compliance to Schedule 5 is not required.

Modifications that do not require an LT400 by an HVEK

Only modifications that are exempted as per clause 8.2(1) of HVBR do not require certification from an HVEK certifier:

1. Where the vehicle has had an adjustment to the brake system threshold pressure to comply with 7.1(8) or 7.2(5) of the HVBR, provided this does not affect the service brake performance. e.g. a change in the relay valve characteristics.
2. Where an air brake coupling device on a powered vehicle has been fitted in accordance with the manufacturers recommendations or where it has been replaced for the purposes of complying with 7.3 of the HVBR.
3. Where a park brake valve has been fitted to a powered vehicle to allow any towed trailer/s park brake to operate.
4. Where an existing certified (HVET) or approved ECE compliant 5th wheel is recertified or replaced and the brakes are not affected.

Other certification categories where an alteration or modification may affect the brake of a vehicle.

HVET certifiers responsibilities.

When HVEK certification is required for a towing connection the HVET certifier will be the lead HVSC and must ensure brake certification is carried out prior to issuing an LT400 certification for the towing connection.

Standards compliant vehicle (brakes) post 2008.

When a towing connection to tow another heavy vehicle is fitted to a standards compliant vehicle (**Note 2**) with OEM installed trailer brake supply and control circuits the HVET certifier may rely on Acceptable Documentation (**Note 4**) to prove compliance with section 7 of the HVBR (therefore HVEK certification is not required) and issue an LT400 for the towing connection. The documentation must be retained in the certification file.

Note: An approved air brake coupling device (see HVBR) may be fitted at the same time as the towing connection provided OE manufacturer installed trailer brake supply and control circuits are present. HVEK certification is not required, but compliance with section 7.3 of HVBR must be confirmed by the HVET certifier and recorded in the certification file.

Non-Standards compliant vehicle (brakes) pre 2008.

When a towing connection to tow another heavy vehicle is fitted to a non-standards compliant vehicle the HVET certifier must ensure HVEK certification is complete before issuing an LT400 for the towing connection.

Any other vehicle (not included above).

When a towing connection is fitted to any other vehicle to tow another heavy vehicle it must have HVEK certification.

HVEC certifiers responsibilities.

When HVEK certification is required for a chassis modification the HVEC certifier will be the lead HVSC and must ensure brake certification is carried out prior to issuing an LT400 certification for their work.

When an air supply is provided by the vehicle manufacturer for an auxiliary purpose, the HVEC certifier can accept an added air powered auxiliary without requiring HVEK certification. The added air supply must comply with HVBR requirements and not be able to degrade the function or performance of the braking system through use or a fault.

Note 1

OE manufacturer means the original manufacturer of the vehicle. It does not mean;

- a second or third stage manufacturer, modifier or body builder.
- a local dealer or reseller or parallel importer of the vehicle.
- a VIN issuer, if the VIN was issued by a regulator (eg Waka Kotahi), then the regulator may nominate the manufacturer.

Note 2

Standards compliant means a vehicle which, when it went through entry certification on or after 1 July 2008, was manufactured and is in compliance with one of the international standards approved in clause 2.5(2) of the HVBR, or, being a vehicle manufactured or modified in New Zealand after 1 March 2007, was certified as compliant with Schedule 5 of the HVBR.

Note 3

Acceptable documentation: The OE manufacturer or, for the purposes of this bulletin, the approved representative of the OE manufacturer has supplied auditable documentation that supports the alteration or modification being carried out. **Statements from local dealers, or departments not responsible for confirming compliance, eg sales, service, marketing or help desks, are not acceptable.**

Acceptable documentation must:

- be issued from the OE manufacturer or for the purposes of this bulletin the approved representative responsible for compliance and approvals (eg the homologation department), **and**
- clearly identifies the name, position, contact details and signature of the person providing the documents, **and**
- includes official manufacturer's guidance for the body builder, modifier or certification engineer that lists the model and sub-model of the vehicle, **and**
- confirms that the vehicle remains compliant with the brake standard, or a later version of the standard, that the vehicle originally complied with when manufactured.

Note 4

Acceptable documentation (for towing connections only): The OE manufacturer or for the purposes of this bulletin an approved representative of the OE manufacturer has supplied a Statement of Compliance (SoC) that includes,

- the duty of the vehicle eg rigid, tractor, **and**
- the brake standard the vehicle complies with, **and**
- confirms the vehicle has OE manufacturer installed trailer brake supply and control circuits, **and**
- Confirms the vehicle has tractor protection, **and**
- confirms the vehicles wheelbase, **and**
- confirms the air brake coupling meets the requirements of the HVBR (if fitted prior to the towing connection).

A Sample SOC is provided in this link

<https://vehicleinspection.nzta.govt.nz/resources/content/statement-of-compliance>