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Extract taken: from NZTA Vehicle Portal > VIRMs > Heavy vehicle specialist certification > Technical bulletins > Heavy vehicle modifications that may affect the brakes

4 Heavy vehicle 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 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).

Brake certification can only be carried out by a specialist certifier with HVEK category.

No other category of heavy vehicle specialist certifier (HVSC) may certify heavy vehicle brakes. All heavy vehicle brake changes or modifications, except those specifically exempted from the requirements by 8.2(1) of HVBR, must be certified by an HVSC with the HVEK category, whether the certification requires HVBR Schedule 5 or not.

The lead HVSC for a project must consult with the HVEK to ensure that if any brake certification is required it is carried out prior to them issuing LT400 certification for the finished project. The responsibility for obtaining brake certification cannot be delegated to the vehicle owner or the testing station or any other entity. Consideration of the braking system and brake performance is an integral factor to be assessed in all modifications.

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 engineer in the HVEK category. HVEK certifiers should maintain contact with other HVSC certifiers to ensure that any modifications that may affect the brakes are identified and certified accordingly.

Modifications that always require an LT400 by an HVEK

- A heavy vehicle that has had its braking system modified or the vehicle itself has been modified, in New Zealand, in any way which may affect braking performance, after the final stage of OE manufacture ([Note 1](#)), or after entry certification, or after the previous in-service inspection, must be certified by a HVSC with the HVEK category.
- A wheelbase alteration to a standard's compliant heavy vehicle ([Note 2](#)) that is not confirmed with a *Letter of Acceptance/Approval* (LOA) ([Note 3](#)) by the OE manufacturer.
- Any changes or modifications to the vehicle:
 - a. where the vehicles original manufactured axle has changed, eg changing an axle to a different make, configuration or specification has taken place and where changing a brake component or setting has taken place, **or**
 - b. where the vehicles original manufactured GVM is changed - This change of chassis rating must be confirmed by a chassis HVSC with the HVEC category, **or**
 - c. where the vehicles original manufactured axle configuration is changed to another configuration, eg it has been changed from a 4x2 or 4x4 to 6x2 or 6x4 or from 6x2 or 6x4 to 8x2 or 8x4 or any other combination.

The HVEK may take into account written advice in the form of a LOA from the OE manufacturer for that particular vehicle **and** that confirmation has been obtained that the vehicles EBS control software has been altered by the OE manufacturer.

- A heavy vehicle that has been brake-coded to the Heavy Vehicle Brake Code, Second Edition (Schedule 4) and it cannot be established what friction material was used **or** the friction material that was originally used is no longer available.

The vehicle may be re-coded to its original brake code mass using an alternative friction material as long as no other alterations are made. This certification requires that the original brake coding is re-confirmed as compliant with the new friction material by an HVEK with relevant brake coding experience using the **NZTA Brake Calculator** and is issued with an LT400 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 a change of use, eg tractor to rigid (with or without tow connection) where there are no brake, wheelbase or centre of gravity modifications.

If the HVEK certifier can demonstrate using the **NZTA Brake Calculator** that continued compliance with the **second edition Brake Code** can be confirmed, then that original brake coding remains valid and it can be issued with an LT400.

- A brake-coded heavy vehicle that has had its braking system modified, even if its compliance curves remain within the 'tramlines' 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.

Note: when an HVEK considers a modification 'minor,' they can apply for an exemption from the requirements of clause 8.1(4) HVBR.

- 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;

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.
2. Where an air brake coupling device on a powered vehicle has been fitted in accordance with the manufacturers recommendations or 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.

Any modifications not listed in 8.2(1) must be referred to a HVEK certifier. It is the HVEK engineer's responsibility to confirm that the braking system has not been affected by the modification and issue an LT400 to that effect. If the braking system has been affected, it is the HVEC engineer's responsibility to ensure that the HVEK engineer certifies the required modifications.

Certification categories where modifications may affect the brake of a vehicle

HVET

Where a vehicle has a towing connection added to tow another heavy vehicle (TC/TD) or the towing connection is modified in any other way that may affect the brakes, the vehicle must be referred to a HVEK certifier.

The only exception to above is where the vehicle is compliant with section 7.1(4) or 7.5 of the HVBR. In this case the HVET takes responsibility by confirming on the LT400 that HVEK is not required, quoting all supporting information. Supporting information must be retained in the certification file.

Where any brake component(s) have been altered or modified (unless specifically allowed by section 8 of the HVBR), these alterations or modifications must be referred to a HVEK category engineer

It is the HVEK engineer's responsibility to confirm that the braking system has not been affected by the HVET modification. If the braking system has been affected, it is the HVEK engineer's responsibility to check the brake system remains compliant, if the brake system is no longer compliant it is the HVEK engineer's responsibility to bring it back into a compliant state and certify as required.

The HVET certifier must not issue their towing connection LT400 certification until brake system compliance has been confirmed by a HVEK certifier.

HVEC

Where a vehicle has any form of chassis modification that may affect the brakes of the vehicle, the HVEC engineer must consult with an HVEK category engineer to ensure any need for re-certification or adjustment of the braking system is identified and completed prior to an LT400 being issued.

Where any brake component(s) have been altered or modified (unless specifically allowed by section 8 of the HVBR), these alterations or modifications must be certified by a HVEK category engineer

Where an air supply is provided by the vehicle manufacturer for an auxiliary purpose, the HVEC can add an air powered auxiliary without requiring additional certification. The added air supply must not be able to degrade the function or performance of the braking system through use or a fault.

The HVEC certifier must not issue their chassis certification LT400 until brake system compliance has been confirmed by a HVEK certifier.

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
- an OE manufacturers local representative.
- a VIN issuer, if the VIN was issued by a regulator (eg Waka Kotahi), in this case 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

Letter of Acceptance/Approval (LOA) The OE manufacturer has supplied written acceptance or approval for the modification to be carried out. For an LOA to be considered and accepted for certification purposes it must:

- be issued by the OE manufacturer's department responsible for compliance and approvals (homologation). **Statements from local distributors, or departments not responsible for confirming compliance, eg sales and marketing or help desks, are not acceptable**, and
- clearly identify the manufacturer, position, contact details and signature of the person issuing the LOA, and
- list the VIN specific to 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. Statements of 'no objection' or similar which do not confirm compliance must not be accepted, and
- describes the modification and any limitations and or requirements that must be met by the modifier.