Rules for modifications to new and used heavy vehicles

My last two articles have been about tyre performance. Next month I will describe ARTSA's proposal for tyre standards that will liberate tyre specification in the Performance-Based Standards scheme. However, now I want to discuss a more immediate issue.

The National Heavy Vehicle Law*, which underpins the operation of the National Heavy Vehicle Regulator (NHVR) applies from 1 October 2013. All states and territories have opted in to this great national reform - except for Western Australia. This is a welcome development.

Figure 1.

(2) If an approved vehicle examiner approves a modification of a heavy vehicle, the examiner must –

(a) give a certificate approving the modification, in the approved form, to –

(i) the registered operator of the vehicle; or

(ii) if there is no registered operator of the vehicle–an owner of the vehicle; and

(b) ensure a plate or label that complies with subsection (3) is fitted or affixed to a conspicuous part of the vehicle.

Maximum penalty–$3000.

There will however, be some requirements and procedures that will be either new, inconvenient or unfamiliar.

Many heavy vehicles are modified after they are manufactured. The approval of modifications is important for operators because it establishes adherence to uniform safety standards. It also provides the operators with legal certainty and protection, thus minimizing the risks if and when things go wrong.

Figure 1. Excerpt for the National Heavy Vehicle Law Act 2012.*

Section 3.3 of the National Law concerns the modification of heavy vehicles. In summary, heavy-vehicle modifications need to be approved by an 'approved vehicle examiner'. Both an approval certificate and a national heavy-vehicle modification plate must be issued to make a modification public-road legal.

The state and territory road agencies have traditionally appointed the 'accredited vehicle examiners'. They are engineering signatories listed with the various road-agencies, and sometimes published on their websites. There are usually 'Level 1' signatories, who are unrestricted and 'Level 2' signatories, who are restricted to specific types of modifications. The existing accreditations are unlikely change in the foreseeable future.

A significant change that will apply from 1st September 2013 is that national heavy-vehicle modification plates issued by any jurisdiction will be acceptable in all other jurisdictions (except for WA). An example is shown in Figure 1. The South Australian road agency recently issued an advisory that a national HV modification plate will be needed on newly modified heavy-vehicles in SA from 1st September 2013. The requirement to plate modified vehicles has applied elsewhere, although compliance levels have been low.

Figure 2.

Figure 2.

Modifications to heavy vehicles that affect compliance with the national standards must be approved. The Australian Design Rules (ADRs) are the national standards that apply to new heavy vehicles and the Australian Vehicle Standards Rules (AVSRs) are the national standards that apply to in-service heavy vehicles. The AVSRs are based upon the ADRs. The relevant modifications are listed in the National Heavy Vehicle Modification Code (VSB 6). This modification code provides guidance to modifiers and accredited vehicle examiners about suitable practices, assessments and tests that can be used to ensure that the modified vehicle continues to comply with national standards.

A couple of the modification codes in Table 1 are for routine work. For example, all prime-movers have a fifth-wheel fitted (P2) and all rigid trucks get a body fitted (J1). These modifications are likely to be done, or organized by, the vehicle dealer before first registration and without the knowledge of, or general supervision by the OEM vehicle manufacturer. These need to be approved. The dealers are not the OEM manufacturer. In many cases dealers, who can register heavy vehicles without inspection by the road agency, do not get modifications approved. This exposes the operator (and dealer) to risk later, if things go wrong. From 1st September the legal requirements become clearer and uniform. There are many companies that carry out modifications that do not participate in, or are registered in any engineering signatory schemes administered by state jurisdictions. It is now time for a new, truly national approval scheme to be established that has specific status for experienced mechanics who are accredited (as Level 2 signatories), to approve specific modification codes for work done by their employer and attach a NHVM plate. The modifier company will need to develop detailed work instructions and quality check procedures. The product liability insurance cover of the modifier company should be the only insurance required for this category of accredited vehicle examiner.

Dealers and professional modifiers need to put procedures in place before 1st September 2013 that will result in a NHVM plate being affixed to new and in-service heavy vehicles that are modified according to any of the codes in Table 1.

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Table 1. Heavy Vehicle Modification Codes (VSB 6)

VSB 6 Code	Nature of the Modification
A1	Substitution* of the engine by a different type or rating.
A2	Air cleaner substitution or alteration of the air intake system.
A3	Turbocharger installation or charge air cooler installation.
A4	Exhaust system modification. Replacement of a muffler with a different type.
A5	Road speed limiter installation or modification.
B1	Transmission substitution by a different type or installation of an auxiliary transmission.
C1	Tail-shaft alterations such as change of length, angles or gauge.
D1	Alternative rear axle(s) or rear suspension(s) installation.
D2	Fit of an alternative differential or a traction-control system.
E1	Front axle.
E2	Steering alternations and conversions.
E3	Fit of non-standard front wheel rims and bon-standard front tyre sizes.
F1	Truck suspension substitution* or modification.
F2	Trailer suspension substitution* or modification.
G1	Relocation of air-brake components.
G2	Installation or modification of trailer air-brake controls.
G3	Trailer brake system upgrade.
G4a	Non-standard brake system certification.
G4b	Additional brakes with the same method of operation on added axles.
G4c	Brake system with mixed method of actuation.
G4d	Brake system certification after removal of an axle.
G4e	Brake system certification after wheelbase alteration.
G5	Installation of auxiliary brakes (engine, exhaust or retarder types)
G6	Installation of air-operated accessories that take air off the brake air tanks.
G7	Brake system substitution*.
G8	Trailer brake system upgrade for non-standard trailers.
H1	Wheelbase extension outside the first manufacturer's option.
H2	Wheelbase reduction less than the first manufacturer's option.
H3	Wheelbase alterations within the first manufacturer's option.
H4	Chassis frame alteration.
H5	Trailer chassis frame modification.
J1	Body fitment.
K1	Seating capacity alteration and seat belt installation.
K2	Seatbelt anchorage certification
K3	Cabin conversion – alternative cabin, steering conversion,...
K5	Wheelchair occupant restraint system installation.
M1	Fuel system alteration – fuel tank and / or fuel line modification.
P1	Tow coupling installation and safety chain attachments, electrical couplings,...
P2	Installation of a fifth wheel, turntable or coupling kingpin.
Q1	Installation of a truck-mounted lifting system with slewing capacity.
R1	Installation of a truck-mounted lifting system without slewing capacity.
R2	Wheelchair loader installation.
S1	Gross Vehicle Mass (GVM) or Gross Combination Mass (GCM) change within the manufacturer's range for the model.
S2	GVM change outside the manufacturer's GVM range for this model.
S3	GCM change outside the manufacturer's GCM range for this model.
S7	Aggregate Trailer Mass (ATM) change within the manufacturer's ATM range for the model.
S8	Road train prime-mover rating.
S9	B-Double combination approval.
S11	Road train trailer rating.
S12	Trailer ATM change outside the manufacturer's ATM range for the model.
T1	Construction of tow trucks.
T2	Design of tow trucks.

*Repair or replacement of original equipment that does not alter the specification of the vehicle and therefore doesn't alter the compliance with the ADRs is not deemed as modification and does not need modification approval.