



# VIRM Modification - threshold updates

**Following the article on changes to the tyre tread protrusion threshold in the April 2020 edition of Radiator, there are some other VIRM threshold sections that have changes worth explaining:**

- Fuel system threshold - has been expanded to confirm that most modifications should be referred for LVV certification.
- Steering wheel threshold - has been updated to clarify current requirements.

These amended thresholds came into force with the amendment to the in-service VIRM on 29th April 2020.

## Fuel system (Section 13-3 of VIRM)

The threshold previously stated that LVV certification is not required provided that:

- No structural modifications have occurred to the vehicle during the installation or modification, and
- The filling location remains the same as at original manufacture, and
- The fuel type (petrol, diesel) has not changed (other than a change to LPG/CNG).

The threshold is more specific now, meaning that all fuel system modifications require certification except for the following under-threshold items:

- Fuel lines that are of similar construction to the OE fuel lines (i.e. hard lines are not replaced with flexible lines), and are in the OE location and mounted to all the OE fixing clips
- In-line fuel filters that are of an appropriate pressure rating, adequately supported, at least 50mm from the exhaust and at least 100mm from a catalytic converter
- Electric fuel pumps that are a replacement for a mechanical pump on a carburettor engine, are adequately supported, and do not increase the fuel pressure above OE specification.

The effect of this threshold amendment is that certification is now required for a greater range of fuel system changes, such as these common examples:

- Changing from carburettor to fuel injection
- Replacing the fuel tank with one of larger capacity
- Surge tanks or fuel pumps fitted in the boot

The requirement for fuel pressure to be similar to OE specification is intended to highlight the issue of a high-pressure pump intended for a fuel injection system being fitted to a low-pressure system. An inspector is not expected to identify all high-pressure pumps but where it is obvious, they should be referred for certification.

Like fuel, any changes to the high voltage electrical system of a hybrid or EV must also be referred for LVV certification. This is covered in section 13-5 of the VIRM.

**The LVV requirements for fuel systems can be found in chapter 10 of the New Zealand Car Construction Manual, available from the LVVTA website - an electronic download of the chapter is \$10.99 or a download of the whole manual is \$110.00 (GST inclusive).**



Fuel system components under rear of a 60s Chev for a fuel injected LS1 V8



## Steering wheels (Section 9-1 of the VIRM)

Three additional requirements have been added to the existing threshold clauses for replacement steering wheels:

LVV certification is not required provided that:

- the vehicle does not have an airbag installed as OE, and
- the vehicle is not required to comply with a frontal impact occupant protection standard, and
- the steering wheel is a direct substitute, without steering column shaft modification, and either a non-OE item of a reputable brand or an OE item from another vehicle.

There are three additional clauses added:

LVV certification is not required provided that a replacement steering wheel is:

- mounted with a one-piece boss, and
- has a diameter greater than 245mm, and
- does not significantly inhibit the drivers view of the speedometer or mandatory warning lights.

The main aim of the first point is that a vehicle fitted with a quick-release steering wheel adaptor must always be referred for LVV certification, and even then, is only permitted within strict criteria.

Back in May last year we wrote an article in *Radiator* about counterfeit parts, including quick-release steering wheel adaptors. The internet has many examples of wheels detaching during driving, including some scary videos, and we have seen some extremely poor designs.

One type we found was an exact copy of a well-known brand that had been manufactured in two parts and crudely welded together. All the steering effort was relying on this insufficient weld and cannot be certified.

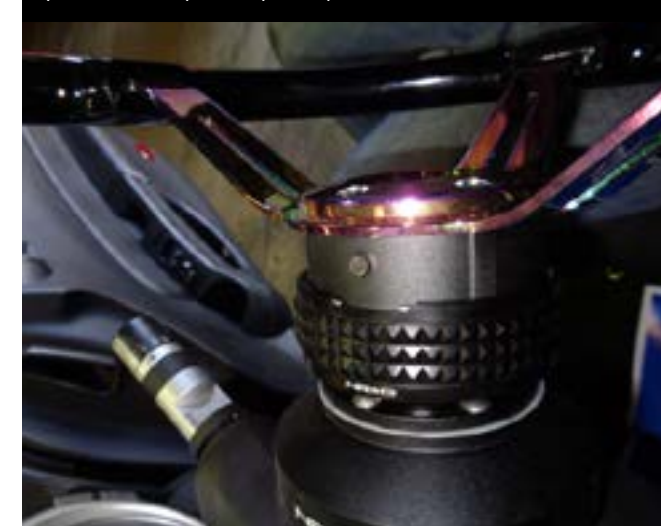
Another design had a locking collar which did not automatically engage, and very thin alloy tabs to hold the wheel on. There is a high risk that the wheel would not be attached properly, or that the tabs would break off, so again this cannot be certified.

Due to the added potential for failure causing complete loss of steering control, fitment of a removable steering wheel is not a risk worth taking.

So, a quick-release adaptor can be considered for certification where the design of the vehicle necessitates regular removal of the steering wheel. For instance, when it is necessary for ease of entry and exit, such as a motorsport vehicle fitted with a roll-cage or a disability transportation vehicle modified for the needs of a specific driver.



Quick-release steering wheel adaptors are generally not permitted and if fitted must be referred for LVV certification. The adaptor pictured is poor quality and cannot be certified.



Removal of the wheel as an anti-theft measure isn't an acceptable reason for consideration.

The second change to the steering threshold is the addition of a minimum steering wheel diameter. This aligns the threshold with the minimum requirement in the New Zealand Car Construction Manual, to ensure steering effort is not increased to an unacceptable level.

The last addition relating to visibility of the speedometer derives from a Reason for Rejection in VIRM section 7-12 for speedometers, as a reminder of this requirement when changing the steering wheel.

If you would like advice on the LVV threshold, WoF inspectors are encouraged to contact the LVVTA tech team on 04 238 4343 or tech@lvvta.org.nz