

Vehicle Standards Information 33

June 2021

This information sheet supersedes all previous copies of VSI 33.

Guidelines for modifications to vehicles operated under Victoria's Club Permit Scheme

This Vehicle Standards Information sheet provides guidelines to ensure the safety and compliance of modified vehicles operated under Victoria's Club Permit Scheme (CPS).

These guidelines describe modifications that are permitted without VASS certification.

Scope

These guidelines apply to all motor vehicles (other than street rods) operated under, or applying to be operated under, the CPS as established by Chapter 3, Part 3.4 of the *Road Safety (Vehicles) Interim Regulations 2020*.

Only the more common modifications are addressed. Where indicated, and in the case of modifications not included in these guidelines, the requirements of Vehicle Standards Information (VSI) 8 – *Guide to Modifications for Motor Vehicles*, will apply to club permit vehicles.

A street rod means a vehicle that has been modified for safe road use and that:

- has a body and frame that were built before 1949; or
- is a replica of a vehicle the body and frame of which were built before 1949.

A street rod can be distinguished from other pre-1949 modified vehicles by virtue of it:

- looking like a traditional Hot Rod style of vehicle
- having been built and certified in accordance with the *National Guidelines for the Construction and Modification of Street Rods in Australia* as published on the Commonwealth Department of Infrastructure, Regional Development and Cities (DITRDC) website
- having been authorised by the Australian Street Rod Federation.

Vehicle age categories

General

For the purposes of these guidelines club permit vehicles are divided into three categories based on their date of manufacture:

- built before 1949
- built after 1948 and before 1969
- built after 1968.

Carry-over provisions

For the purposes of these modified vehicle guidelines, a vehicle model that was first released for public sale before 1949 that continued in production essentially unchanged beyond 1948 may be treated as if it were a pre-1949 model until completion of the model run by the original vehicle manufacturer.

However, a vehicle model first released before 1969 that continues essentially unchanged beyond 1968 may only be treated as if it were a pre-1969 model if all of the following criteria are met:

- evidence, in the form of an Australian compliance plate, previous registration history or a Vehicle Assessment Signatory Scheme (VASS) Approval Certificate, of the vehicle's compliance with any applicable Australian Design Rules (ADRs) has been supplied; and
- if any modification carried out on the vehicle does not affect, or have the potential to affect, compliance with any applicable ADR; and
- the vehicle was manufactured before 1973.

Guidelines

General

For a modification to be acceptable the vehicle must continue to comply with the applicable standards for registration. Victoria's Standards for Registration are set out in Schedule 2 of the *Road Safety (Vehicles) Interim Regulations 2020*.

Further, the modification must not adversely affect the vehicle's structural integrity, its handling characteristics for safe use on the road, exhaust emissions or evaporative emissions as applicable.

The modifications set out below may be considered approved modifications provided they have been carried out in accordance with the specified guidelines. Modifications not mentioned, or not otherwise addressed by VSI 8 *Guide to Modifications for Motor Vehicles*, or that exceed any stipulated limits are deemed assessable modifications and will require certification by a VASS Signatory. In particular, it should be noted that the *Approved Modifications* listed in VSI 8 apply to all vehicles.

Where a modification involves fabrication or welding, all such work must be carried out in a professional manner. Any structural welding must be carried out by a competent person and be carried out with correct joint design with proper consideration given to parent metal type and gauge, and to the selection of the welding process.

Terminology

VASS Approval Certificate

A VASS Approval Certificate is a certificate issued by a VASS Signatory accepted as evidence that a vehicle meets the standards for registration, that any modifications comply with relevant published guidelines and have not adversely affected the vehicle's structural integrity, handling characteristics, exhaust emissions or evaporative emissions. As such a VASS Approval Certificate forms part of the documentation required to unconditionally register a modified vehicle.

Era

The term "of the era" in relation to equipment such as engines, transmissions, drive axles etc means:

- for a vehicle built before 1949 – any such equipment typically fitted to vehicles designed and manufactured before 1949 but includes essentially identical equipment manufactured after 1948 that utilises technology and materials that were in general use before 1949
- for a vehicle built before 1969 – any such equipment typically fitted to vehicles designed and manufactured before 1969 but includes essentially identical equipment manufactured after 1968 that utilises technology and materials that were in general use before 1969.

Significant power increase

The term "significant power increase" in relation to replacement engines is based upon a comparison of manufacturer's published maximum net power figures and means the greater of a 30kW power increase and:

- for engines up to 2000 cc – a 40% increase in power
- for engines from 2001 cc to 3500 cc – a 30% increase in power

- for engines over 3500 cc – a 20% increase in power.

In the case of modified engines, the above figures can only be applied when the modified engine's maximum net power is known or can be estimated. The fitting of alternative carburettor(s), extractors or an alternative ignition system may result in some power increase, but an increase resulting from these modifications on their own would usually not be considered significant.

However, when combined with higher compression ratio, a modified cylinder head, larger valves, performance camshaft etc, they would be very likely to result in a significant power increase. Similarly, fitting forced air induction to a V8 engine would be considered to result in a significant power increase.

Vehicles built before 1969 may be fitted with a supercharger with no more than 5 psi boost to an engine.

If in any doubt, a VASS Signatory should be consulted.

Previous modifications

An existing CPS vehicle that has, at some time in the past, undergone a modification that is an assessable modification according to these guidelines, does not have to be re-certified to retain its permit provided:

- evidence of Australian registration history in its current modified condition can be supplied; or
- evidence in the form of a VASS Approval Certificate (or interstate equivalent or an engineering assessment report issued under Victoria's earlier Recognised Engineering Signatory Scheme) relating to the modification, can be supplied; and
- the vehicle has not been subjected to further assessable modification.

Imported vehicles

An imported vehicle, for which admission to CPS is being sought, must have Australian registration history or a copy of the Vehicle Import Approval issued by issued by DITRDC.

An imported vehicle without registration history that was built after 1968 requires a VASS Approval Certificate demonstrating compliance with any applicable ADRs.

An imported vehicle without registration history that was imported under the Specialist and Enthusiast Vehicle Scheme (SEVS) requires RAWS import certification.

An imported vehicle that has undergone an assessable modification that has not been previously registered in its modified condition in Australia must be issued with a VASS Approval Certificate. Refer to VSI 3 *Conditions for Registration of Imported Vehicles in Victoria* for further information.

Left hand drive vehicles

For left hand drive vehicles, refer to the requirements outlined in VSI 18 *Left Hand Drive Vehicles & Vehicles Converted to Right Hand Drive*

Engines

Note

Fitting a replacement engine can increase axle loads. It is the owner's responsibility to ensure that the load capacity of an axle is not exceeded. If the load capacity of an axle cannot be determined any increase in the mass supported by that axle must be limited to 10%.

Replacement engines

Vehicles built before 1949

Pre 1949 vehicles fitted with engines almost universally require some changes to the mounts. Any unmodified engine of the era may be fitted provided that:

- it can be accommodated in the space originally provided for the engine without structural modification (save for engine mount bracketry)
- the mass supported by an axle of the vehicle does not exceed its rated load carrying capacity
- if the mass supported by an axle is increased by more than ten percent, it can be demonstrated that brake balance and effectiveness has not been adversely affected.

Vehicles built after 1948 and before 1969

Any unmodified engine offered as an option by the vehicle manufacturer for that model may be fitted. Any additional equipment fitted to the vehicle as standard equipment by the manufacturer with that engine option must also be fitted.

Any unmodified engine of the era that is of the same configuration and that does not result in a significant power increase over that of the original (or of that of any optional engine offered by the vehicle manufacturer for that model) may be fitted provided:

- it can be accommodated in the space originally provided for the engine without structural modification (save for engine mount bracketry)
- the mass supported by an axle of the vehicle does not exceed its rated capacity
- where the mass supported by an axle is increased by more than 10% it can be demonstrated that brake balance and effectiveness has not been adversely affected.

Vehicles built after 1968

VSI 8 requirements apply.

Modified engines

Vehicles built before 1949

Minor modifications such as fitting alternative carburettor(s) or ignition systems etc. are permitted. Generally, modifications typical of the era are permitted. However, modifications resulting in a significant power increase and that involve the use of more modern (i.e. after 1948) components or technology will require VASS certification.

Vehicles built after 1948 and before 1969

Modifications such as fitting extractors, alternative inlet manifolds, alternative carburettor(s) or ignition systems etc are permitted. Generally, modifications typical of the era are permitted. However, modifications resulting in a significant power increase will require certification.

Vehicles built after 1968

VSI 8 requirements apply.

Transmission and final drive

Vehicles built before 1949

Any transmission, differential, or drive axle (including brakes) of the era may be fitted provided that:

- there are no structural alterations to the vehicle
- the item comes from a vehicle of equivalent mass and power
- in the case of axles, fitment uses the vehicle's original pick-up points for suspension etc.
- axle flanges, drums or hubs are not re-drilled for alternative wheel mounting
- if the brakes from another vehicle are included as part of the modification it can be shown that the effectiveness and balance of the vehicle's braking has not been adversely affected.

For the purposes of these requirements the fabrication of a tailored transmission cross-member is not considered a structural alteration.

Vehicles built before 1969 (including pre-1949 vehicles)

Any transmission or differential of the era may be fitted provided that:

- there are no structural alterations to the vehicle
- the item is adequate for the mass and power of the vehicle
- axle flanges, drums, rotors or hubs are not re-drilled for an alternative stud pattern; and if the brakes from another vehicle are included as part of the modification, it can be shown that the effectiveness and balance of the vehicle's braking system has not been adversely affected.

For the purposes of these requirements the fabrication of a tailored transmission cross-member is not considered a structural alteration so long as it bolts up to the same location as the factory crossmember.

Replacement live axles that were not offered as an option for the vehicle must not be fitted unless approved by a VASS Signatory.

Vehicles built after 1968

VSI 8 requirements apply.

Bodywork changes

Vehicles built before 1969 (including pre-1949 vehicles)

For vehicles based upon a separate chassis, bodywork changes typical of the era are permitted without certification, so long as the vehicle's general appearance is in accord with vehicles of that type with a similar date of manufacture, and that any replacement bodywork meets the VSI 29 *Drivers Field of View Requirements* for vision, and does not present any additional hazard to pedestrians or other road users. Different materials may be used.

Vehicles built after 1968

VSI 8 requirements apply.

Brakes

Vehicles built before 1949

Modifications may be made to mechanical drum braking systems to improve efficiency such as:

- changing the method of operation
- changing the coupling of actuation controls
- the use of alternative materials
- the fitting of proprietary brake kits or components from other vehicles of similar or greater mass
- fitting of an alternative solid front axle, including brakes, from a vehicle of similar mass and track dimension and utilizing the original vehicle's suspension pick-up points.

All components must be of a design and materials of the era and that the applicable braking performance standards required by the standards for registration can be met.

It is strongly recommended that you seek advice from a VASS Signatory prior to commencing work on your vehicle's braking system.

Vehicles built after 1948 and before 1969

Any braking system offered as an option by the vehicle manufacturer may be fitted provided it is fitted in its entirety. Similarly, a braking system offered by the same manufacturer for a later model vehicle of equal or greater mass may be fitted provided it is fitted in its entirety and provided its fitment does not involve any cutting, drilling or welding of any brake, hub, suspension or steering component.

Commercially available hydraulic brake upgrade kits may also be fitted provided:

- the replacement braking system meets the provisions of the General Requirements section of Code LG of Vehicle Standards Bulletin 14
- the kit has been manufactured by an entity that is subject to laws governing product liability
- the kit has been marketed as suitable for a particular make/model/year of vehicle
- comprehensive fitting instructions are provided
- the kit is fitted in accordance with the instructions provided
- fitting the kit does not involve drilling, cutting or welding of any brake, hub, suspension or steering component.

Vehicles built after 1968
VSI 8 requirements apply.

Fuel systems

Relocation of fuel tank

Vehicles built before 1949

An original equipment or replacement fuel tank may be relocated on the vehicle provided:

- the tank is securely mounted
- the filler is located on the outside of the vehicle
- the tank is located so that it cannot be contacted by the road surface in the event of a flat tyre
- that if the tank is within 75 mm of an exhaust pipe, suitable heat shielding is provided
- any apertures created to allow for the installation of the fuel tank are suitably sealed to prevent the entry of exhaust or petrol fumes into the cabin of the vehicle
- any replaced or extended fuel lines comply with the relevant provisions of VSI 8
- that fuel tank venting is considered to ensure that the tank does not pressurise due to replacement items such as fuel filler caps, which are not designed to be vented.

For any other fuel system modification, VSI 8 requirements apply.

Vehicles built after 1948
VSI 8 requirements apply.

Wheels and tyres

Vehicles built before 1949

Having regard to the fact that not all original equipment tyre sizes are currently available, alternative rims may be fitted provided:

- they are of a form of construction and made of material(s) typical of rims fitted to vehicles of the era
- any reduction in rim diameter is limited to the next smallest size for which suitable tyres may be obtained or to a size originally fitted to a vehicle of the same period and type
- the rims provide adequate clearance around suspension, steering and brake components.

Tyre section width may be increased by up to 30% above that of the original equipment tyre or the most narrow available tyre width where no option exists within 30% width of OEM fitment. Tyre aspect ratio must be at least 70%. Rim width may be increased to any of the rim widths listed in the Tyre and Rim Association of Australia Manual as suitable for the chosen tyre size provided the tyre and rim combination does not foul any part of the body suspension, steering or brake components at any position of suspension travel or steering movement, and, when in the straight ahead position, the guard or bodywork of the vehicle covers the full section width of the tyre.

Note

Where a tyre size is not listed in the above referenced Manual, rim width increase should be limited to 25% above the vehicle's original rim width.

Adequate ground clearance must be maintained.

Vehicles manufactured after 1948
VSI 8 requirements apply.

Steering

Vehicles built before 1969
(includes pre 1949 vehicles)

A change to steering mechanism type (e.g. a change from worm and sector to rack and pinion) must be VASS certified. However, alternative similar steering components sourced from, or intended for, a vehicle of equal or greater mass than that of the subject vehicle may be used, provided the original equipment manufacturer's (OEM) pick-up points are utilised, and that any tie-rod or drag link end tapered joint has a taper that matches that of the component to which it is attached. Original steering geometry must be preserved (linkage lengths, pitman arm lengths, steering arm lengths etc).

Conversions from left hand drive to right hand drive will require VASS certification unless they are to a vehicle which was originally manufactured with provision of mounting points and OEM parts to facilitate manufacture in either configuration and such mounting points and appropriate OEM components are used.

Vehicles built after 1968
VSI 8 requirements apply.

Roll bars and roll cages

A vehicle for which admission to the CPS is being sought that is fitted with a roll bar or roll cage, will require (unless evidence of prior certification can be provided) either:

- for competition roll cages, approval obtained from Motorsport Australia. All roll bar padding must comply with the requirements outlined in Section LK of Vehicle Standards Bulletin 14
- VASS Approval complying with VSI 8 requirements.

The above requirements also apply to an existing CPS vehicle that is to be modified by fitting a roll bar or roll cage.

For further information

Further information is available on the VicRoads website: vicroads.vic.gov.au or by calling VicRoads on **13 11 71** (TTY **13 36 77**, Speak and Listen **1300 555 727**).