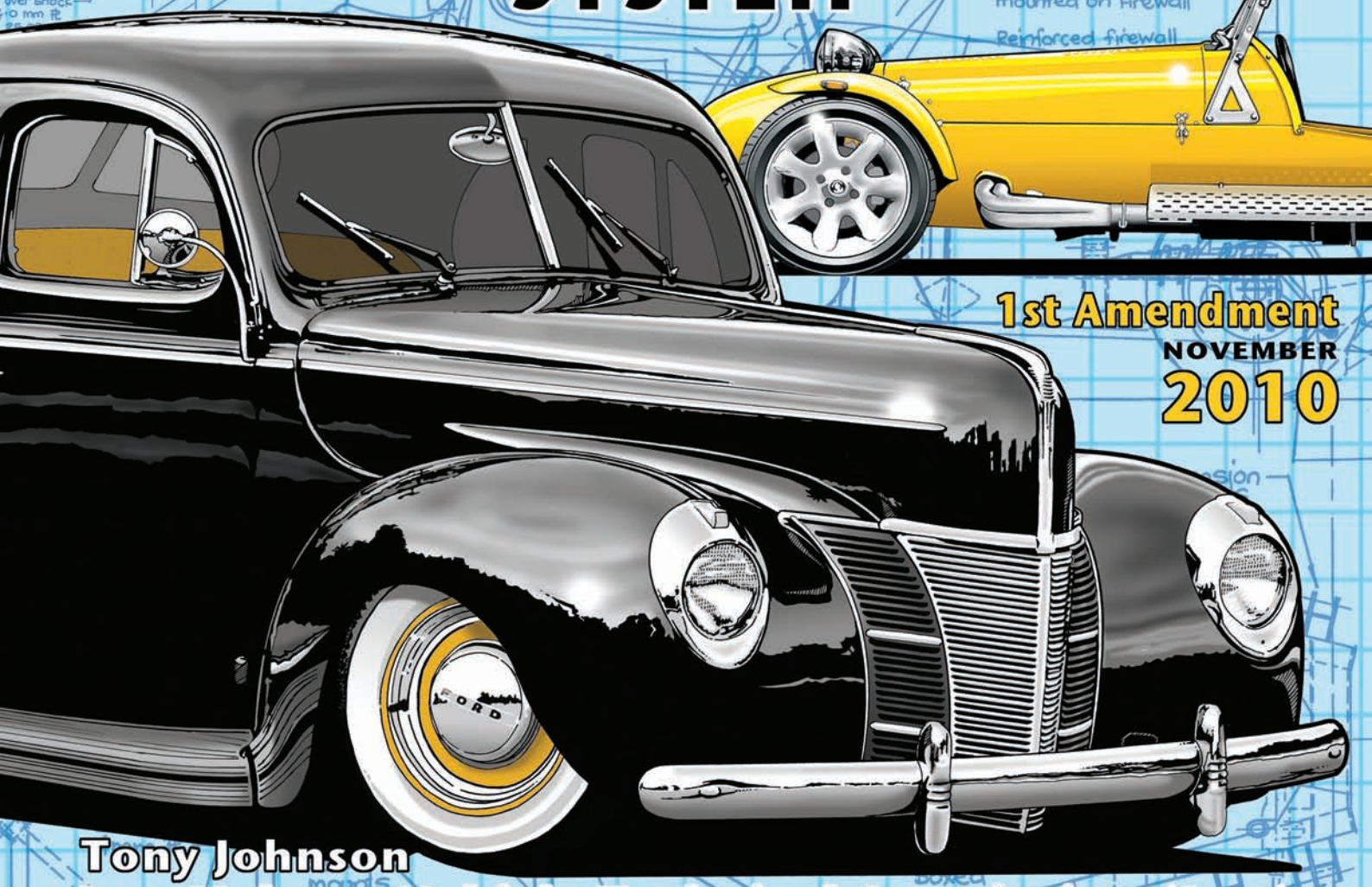
THE NEW ZEALAND CAR CONSTRUCTION MANUAL

CHAPTER 1

LOW VOLUME VEHICLE SYSTEM



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Low Volume Vehicle Technical Association (Inc.)

THE NEW ZEALAND
CAR
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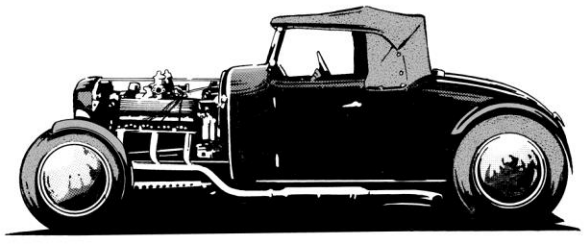

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The New Zealand Car Construction Manual is published and owned by the Low Volume Vehicle Technical Association Incorporated (LVVTA). LVVTA is an incorporated society and was established in 1992, and represents approximately 50,000 motor vehicle enthusiasts throughout New Zealand.

The New Zealand Car Construction Manual was originally published by the New Zealand Hot Rod Association Incorporated (NZHRA), in January 2007.

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The New Zealand Car Construction Manual was written by Tony Johnson of Auckland New Zealand, for the NZHRA, who originally commissioned the development of the Manual in 2002. Tony has continued to take responsibility for the on-going amendments to the Manual for NZHRA, and for LVVTA since LVVTA took ownership of the Manual in October 2010.

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NZHRA, and its key personnel, have, and continue to since the inception of LVV certification, form the back-bone of the LVV certification system in New Zealand. LVVTA is very appreciative of NZHRA's on-going commitment and integrity.

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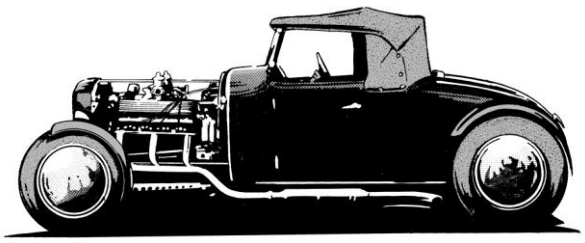

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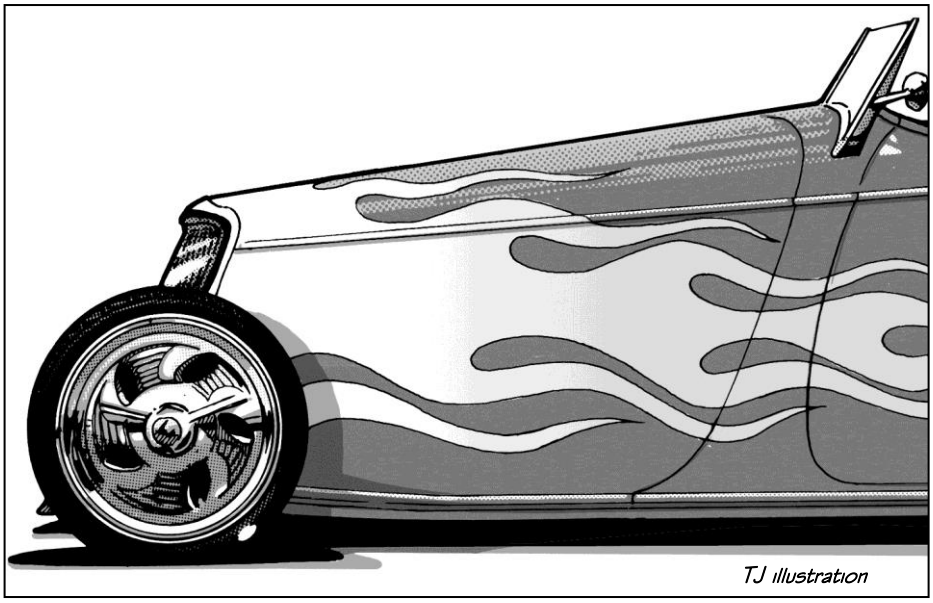
Chapter 1:

LOW VOLUME VEHICLE SYSTEM



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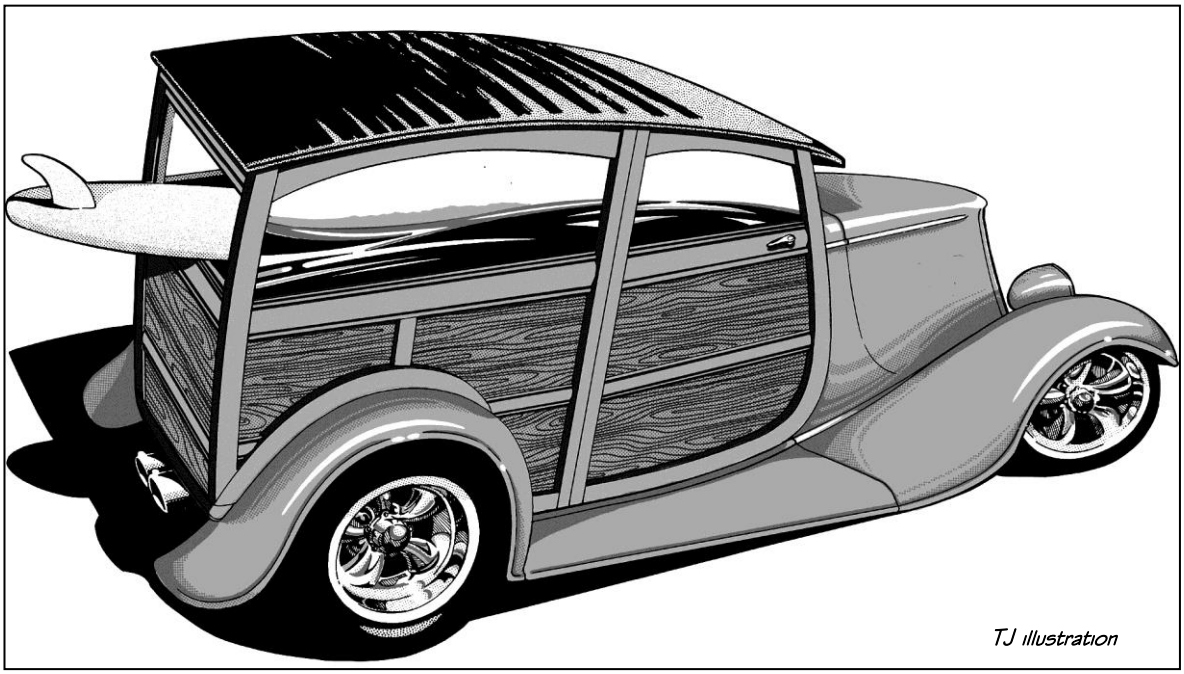


CHAPTER 1: LOW VOLUME VEHICLE SYSTEM

Introduction

Whilst this chapter won't help you build a better or safer car, it will give you the opportunity to learn the basic history and principles of the low volume vehicle certification system if you feel the need to know.

This chapter is intended to provide an overview of how the low volume vehicle system has evolved, and currently works in New Zealand. It outlines the various parts of New Zealand's overall legislative regime in relation to modified and scratch-built cars, and the relationships between the various organisations involved in the low volume vehicle certification system. It is hoped that this will help car builders gain a better understanding of why and how we have achieved the system we've got, and that some of the misunderstandings and misconceptions that surround the low volume vehicle system and certification process will be resolved as a result of reading the information in this chapter.

Evolution of the low volume vehicle system

1.1 Rumours of the new regulations:

The evolution of the low volume vehicle system in New Zealand started when the Government commenced planning the introduction of vehicle standards back in the mid to late 1980s. At that time, life for a hobby car enthusiast was a pretty simple affair. We could go down to the local post office, and register our new scratch-built hobby car - that may or may not have even existed at the time. And as long as our cobbled-together jalopy could pass a few simple warrant of fitness requirements at the local testing station, it was officially and legally 'on the road'. Aah, the good old days...

Vehicle standards-based safety regimes were by then already in place throughout most other western countries, and our Government's plans to introduce vehicle standards into New Zealand (despite wide-spread suspicion of it being some sinister sort of plot) was simply to drag New Zealand into line with the rest of the developed world, by introducing legislation to control the safety-related quality of vehicles imported into, and to a much lesser extent, manufactured in, New Zealand.

When rumours of this new Government legislation that was under development began to leak out, the New Zealand Hot Rod Association (Inc) (NZHRA) investigated what was going on, and learnt that the Ministry of Transport's then proposals for how modified and scratch-built vehicles would be handled under the new regime wasn't going to be a palatable outcome for the hobby car enthusiast.

1.2 Effects of the new regulations as proposed:

The new vehicle standards-based regulations as originally proposed by the Ministry of Transport would have meant the end of New Zealand hobby car enthusiasts building and modifying vehicles. Under the new regulations as they were originally drafted, it would have become illegal to build a vehicle, or to modify a component or system in a production vehicle governed by one of the new vehicle standards, unless the modification could be shown to comply with the standard, via the same level of testing that the component or system had experienced to gain initial approval. In most cases, that would have meant that the vehicle would have to be subjected to physical tests that are both complicated and expensive to carry out, and which would permanently damage the vehicle.

For the major vehicle manufacturers, this process is an accepted practice, as their massive investment in type testing vehicles and components to demonstrate compliance with a standard can be amortised out over the thousands of vehicles they sell. For Joe Home-builder however, it would have meant finding a new hobby.

After lobbying by NZHRA and other enthusiast groups, the Ministry recognised that there needed to be some relaxation introduced, rather than what would have effectively been a blanket ban on building and modifying motor vehicles. Their initial solution by which to resolve this problem was to adopt the rules that some parts of Australia had applied to modified and home-built vehicles (limiting modifications and/or capping distances that such vehicles could travel on public roads), and then use our local 'registered transport engineers' to do the safety-inspections.

From NZHRA's point of view, these engineers were probably very good at calculating the strength of a draw-bar on a truck, but as an industry, they knew nothing about the complexities of a scratch-built hot rod or sports car (nor should they be expected to, as that's not their area of expertise), and at costs of up to $1000 that NZHRA was hearing about just to certify a draw-bar, what was it going to cost us for a whole scratch-built hot rod? And, of even greater concern, what sort of outcome would result from an inspection made by someone who didn't know what he was looking at?

1.3 The low volume vehicle system solution:

After getting their heads around the issues at stake, and developing a relationship with the key Government officials, NZHRA proposed in 1990 that the Ministry allow NZHRA to write their own technical rules, use their own experts for the inspection process, and 'self-regulate'.

The Ministry, after been subjected to a considerable education process by NZHRA, and gaining a new appreciation for the upper end of hot rod design and construction along the way, eventually became satisfied that this could in fact be the way forward, and agreed in principle (with plenty of provisos) to NZHRA's proposed self-certification concept.

In order to legally empower this process, the first version of the 'Low Volume Vehicle Code' (LVV Code) was developed by the Ministry and the enthusiast groups that were involved at that stage, as an alternative standard approved under the Transport (Vehicle Standards) Regulations 1990 (VSRs). In effect, the LVV Code became a concession that could be used by hobby car builders and modifiers as a way through the new legislative regime.

To be eligible to use the LVV Code, the vehicle must be constructed in quantities of less than 200 per year by a manufacturer or constructor whose total production of any type of motor vehicle would not exceed this number, which effectively confined the use of the LVV Code to low-production kit car manufacturers, very small specialist vehicle manufacturers, and one-off home builders and modifiers.

It became recognised by the Ministry that with the level of historical knowledge (of both how, and how not to do things) and experience contained within the NZHRA network, that 'best practice solutions' could in fact become a very legitimate and successful means of operating an alternative system for scratch-built and modified vehicles, alongside the formal vehicle standards regime for production vehicles. It was agreed, then, that in general terms, the LVV Code would allow a vehicle to be built or modified and still comply with the new Transport (Vehicle Standards) Regulations 1990, by substituting the approved standards for high volume (mass-produced) vehicles, with an alternative method and procedure that captured the spirit of the original vehicle standards, but without having to resort to physical testing. These 'alternative standards' would become recognised as 'low volume vehicle standards', and would provide the technical requirements for modified and scratch-built vehicles, based not on physical testing and expensive calculation work, but on 'historical best-practice knowledge'.

1.4 The start of low volume vehicle certification:

As the start of 1992 rolled around, the LVV Code was written and incorporated into the new legislation, and NZHRA had written their code of practice (the original NZHRA Code of Construction Manual), established their administrative system, appointed their own certifiers, and were getting ready to commence LVV certification operations. The first two cars to be LVV certified in New Zealand were two brand new hot rods making their debut at the NZHRA Street Rod Nationals in Masterton, in April 1992.

Other enthusiast groups (the Sports Car Club of New Zealand, NZ Motor Caravan Association, and the Constructors Car Club) also gained approval to establish and operate their own parallel 'self-certification' systems.

Initially, like the other enthusiast groups, NZHRA were only concerned with their own members' vehicles, however it was only a matter of weeks before the Ministry of Transport came to NZHRA and one of the other groups, asking them if they could also look after all the other non-member vehicles out there, whose owners found themselves in the same situation as the enthusiast group members, with vehicles that were modified and suddenly required LVV certification.

The groups' operations expanded quickly, by being tasked with looking after suspension modifications, brake adaptations, diesel engine conversions, and all sorts of other more mainstream modifications, in addition to their own members' hobby vehicles.

1.5 Establishment of the Low Volume Vehicle Technical Association:

Also during 1992, the six organisations then involved in some way with the new-born LVV certification system (not all of them were actually operating LVV certification systems), formed the Low Volume Vehicle Technical Association Incorporated (LVVTA), as a parent body to represent the interests of those six groups, and to produce the LVV certification plates for the groups carrying out LVV certification operations.

By the mid-1990s, then with eight member associations (and effectively representing all of the other non-member enthusiasts in New Zealand), LVVTA had taken on the role of dealing with the Government directly on behalf of all of their member groups - rather than each group individually knocking on the Ministry's door as had initially been happening - and was having a positive effect on the overall LVV certification system. The individual certifying member associations like NZHRA could then worry less about the politics, and get on with looking after their certification operations.

1.6 The single-certification system merger:

After a couple of years of operation, it had become apparent that the quality of inspections varied between the groups, and that the inspection quality wasn't ever going to become uniform while individual groups operated their own systems, and developed their own individual interpretations of the Government's vehicle standards. To resolve this, the development and implementation of a unified single-certification system, and commonised 'alternative standards', was agreed upon by the member associations of LVVTA.

In 1995 LVVTA took on the role of merging the systems into one, under LVVTA's administrative control. NZHRA had been doing around 70% of all of the LVV certification work since 1992, and their system was by far the most advanced and comprehensive, particularly from an inspection quality point of view. The single-certification system therefore became based primarily around NZHRA's systems and documentation, and was up and running in 1996.

At the same time, the Ministry of Transport's by then new arm, the Land Transport Safety Authority (now known as the New Zealand Transport Agency) took over the responsibility for appointing and revoking the individual LVV certifiers (until then the responsibility of the LVVTA member associations), along with the independent auditing of the quality of the LVV Certifiers' work.

1.7 The low volume vehicle system today:

Since the merging of the systems in 1996, the LVV certification system has, amidst a few ups and downs, been improved and refined enormously, with the development of a selection of low volume vehicle standards which set technical requirements to cover a wide range of safety-related systems and modifications.

These range from all of the typical performance enhancement type of modifications (engine conversions, brakes, suspension, wheels, etc) to seat installations, seatbelt anchorage retro-fitting, right-hand drive steering conversions, removal and disabling of supplementary restraint system air-bags, security modifications for security vans, through to adaptive control systems for people with disabilities, and designing modifications to remedy factory faults in production vehicles.

The LVVTA system, now with ten LVVTA member associations supporting it, has over the past decade expanded beyond just low volume vehicle standards, and now encompasses form-sets, information sheets, and other supporting documentation. The LVVTA documentation system is now so extensive that it fills an 8-volume set of manuals. A substantial chunk of the technical expertise and input behind all of this has in fact come from hot rodders – mostly NZHRA members - who still today continue to contribute a massive wealth of technical input into the LVVTA knowledge pool.

The vast majority of the 60 LVV Certifiers around the country are the practical hands-on hobbyists who have spent their lives building and modifying cars, making mistakes and learning from them, amassing knowledge from the car club scene, and furthering their knowledge even beyond that through the engineering side of the motor racing environment.

Amongst these LVV Certifiers, who largely come from a hot rodding background, are national championship winners from the Dunlop Targa, the Muscle Car series, the Pre-'65 Saloon Car series, Clubmans racing, Off-road racing series, and there are national record-holders and championship winners in the national drag racing series. Also within the LVV certifier network is a world land speed record holder, a sports car manufacturer, a kit car designer and builder, a 6-second 200 mph dragster driver and tuner, along with numerous award-winning hot rod fabricators, and people that build, engineer, and wrench on everything from dragsters to circuit cars, to tarmac rally cars.

Most of these guys started their LVV certification involvement right at the inception of the LVV system in 1992, and are utterly irreplaceable; - there is no degree, trade, profession, poly-tech, night-school, or text-books that can equip someone without the life-time of first-hand knowledge and experience that these people have – these practical hobbyist-based LVV Certifiers are graduates, with honours, from the real-world university of a car-building life, and from a decade or more of assessing, and learning from, the many and varied vehicles they inspect in their LVV certification role. Without them, the system would collapse. We must all – hobbyists and Government officials alike - respect them and value them enormously, and at the same time keep an eye toward the next generation of LVV certifiers, who are now quietly doing their hobby car building 'time', in their home-garages in every corner of the country.

1.8 The future of the low volume vehicle system:

The job however, is far from over. There is still a mountain of work to do, because time, trends, and technology never stand still, especially in the world of modified and scratch-built vehicles – where everyone is trying to do something that is just that little bit different to everyone else. There are still many technical standards needed and yet to be completed, and there are a host of other components and systems that all need safety-related technical requirements put in place to ensure that whilst we are able to maintain our traditional freedoms to modify and build cars, we do so whilst incorporating the highest levels of safety that can be practically achieved.

Our challenge, however, is to achieve this within a general legislative environment that is increasingly safety-conscious, heavily regulated, environmentally paranoid, and politically correct - no, - make that politically over-the-top. No matter how diligent we are, how seriously we take our responsibilities, and how well we do our job, managing our situation within this 'Nana-state' will always be our biggest challenge; – even now, as I write the final pieces for this manual from the tranquility of Hopewell Lodge, my favourite back-packer retreat in a remote part of the Marlborough Sounds, our hosts are, because of stringent and unbending council regulations, busy building a massively expensive wheelchair ramp into their recently extended communal cooking facility – never mind that the only way to get to this isolated spot is by boat, and there's not a room nor an ablution block anywhere in the sixty year old complex that can be accessed from a wheelchair…

About the Low Volume Vehicle Technical Association

1.9 Horses for courses:

LVVTA is an incorporated society, and comprises ten member associations, most of whom are hobbyist groups which would be adversely affected by motor vehicle legislation enacted without their interests being represented during the development process. The member associations are: the New Zealand Hot Rod Association, MotorSport New Zealand, Sports Car Club of New Zealand, Constructors' Car Club, Vehicle Association of New Zealand for People with Disabilities, New Zealand Motor Caravan Association, Component Car Manufacturers Association of New Zealand, New Zealand Four Wheel Drive Association, Vintage Car Club of New Zealand, and Kiwi Trikers Social Club.

The net result for the hobby car enthusiast because of LVVTA's operations, is that the technical requirements relating to vehicle modification and construction are, considering the over-regulated environment we live in, workable and achievable from a practical point of view. Builders can work to the rules, and LVV Certifiers can apply the rules.

The reason for the level of success in the LVV system in New Zealand is down to one simple factor – the rules are written for enthusiasts, by enthusiasts. In most other countries, regulations for modified and scratch-built vehicles are written by their government, rather than by representatives of the enthusiasts, and the outcome of that is always, as far as we are aware, unsatisfactory for both parties. This is no criticism of those governments – just recognition that no one group can be expert in all areas; – just as LVVTA or NZHRA could not be expected to be experts in rules relating to motor body repair rules or certificate of fitness requirements, the government departments responsible for overseeing the country's entire motor vehicle certification regime cannot be expected to be experts in a specialist area as small and complex as modified and scratch-built vehicles.

1.10 Do as they do, not just as they say:

Despite any (real or perceived) shortcomings of the LVV system, the New Zealand hobby car community is very fortunate to be in a position where people from within their own ranks are responsible for writing the technical requirements by which our vehicles must be built. Within the home-garages of the six full-time LVVTA team members, there is a 1928 Model-A Roadster hot rod, a 1968 Corvette Roadster, a 1959 Cadillac, a circuit-car, an 8-second 1956 Chevy drag car, a 6-second Ford Customline drag car, a 1955 Pontiac Safari, an Almac Sabre kit car, a modified big block Chevy Pick-up, and two modern V8 daily drivers. Only one of the six LVVTA people own only 'normal' cars!

Likewise, the home garages of the LVVTA Management Committee members include a home-built special, a historic racing car, some old English motorcycles, various sports cars, a Harley Davidson, and a couple of hot rods.

Statistics like this are the best chance for a healthy future for the car building and modifying hobby – almost every time the LVV system faces a problem, the cause of it comes from someone (within or outside of the Government) who has neither understanding nor empathy for the modified or home-built car, or its owner – and it must be virtually impossible for regulators to understand our passion or see things from our perspective, when, in some cases they don't own a motor vehicle, or even hold a drivers' licence.

Relationship between the law and this manual

1.11 Land Transport Rules:

All safety-related motor vehicle requirements, and all of the national certification processes are governed by the Ministry of Transport's Land Transport Vehicle Compliance Rule. Everything we, as New Zealand citizens, and as players within the motor vehicle industry or hobby, can and cannot do in relation to motor vehicles, is governed by this Rule.

In addition to the Land Transport Compliance Rule, the Ministry of Transport has a number of individual 'equipment rules', which specify legal requirements for all vehicles for selected components and systems.

1.12 Low Volume Vehicle Code:

Within the Land Transport Compliance Rule, it is specified that any vehicle, that because of its origin or modifications becomes a low volume vehicle, must be certified to the Low Volume Vehicle Code of the Low Volume Vehicle Technical Association Incorporated.

The LVV Code is a document agreed between the LVVTA and the Government that sets out the legal framework for how modified and scratch-built vehicles in New Zealand are to be treated. The LVV Code is owned and administered by the LVVTA, and is amended from time to time as required, in consultation with, and with approval from, the New Zealand Transport Agency.

The individual equipment rules also, where appropriate, refer in turn to the 'Low Volume Vehicle Code of the Low Volume Vehicle Technical Association Incorporated', in the case of a vehicle that is modified or scratch-built.

1.13 Low volume vehicle standards:

Within the LVV Code, the low volume vehicle standards are legally empowered. Although developed and written by the LVVTA, these must be approved and signed off by the Government.

The starting point for the LVV Standards comes from LVVTA researching and interpreting the relevant overseas vehicle standards that apply to mass-produced vehicles. With a lot of technical input from NZHRA, the LVVTA Technical Advisory Committee blends in the car hobby's immense historical knowledge and best-practice methodology associated with the subject of the standard under development. From that point, the LVVTA develops a practically-oriented 'alternative standard', written in such a way that it can be implemented without destructive testing or prohibitive analysis costs, while still capturing the basic intent and spirit of the international vehicle standards that are applied by the high-volume (mass-produced) vehicle manufacturers.

As time goes by, new vehicle standards will be introduced by the Government, and for as long as the good relationship that exists today between LVVTA and the Government continues, LVVTA, with NZHRA's on-going technical support, will continue to develop 'alternative standards' for each new main-stream vehicle standard that is introduced.

The low volume vehicle standards however, don't always cover the level of complexity found within a scratch-built hobby car. The low volume vehicle standard for suspension systems (at 12 pages long), for example, is a technical standard that covers common suspension modifications, such as that which you'd find in the lowered performance imports which LVV Certifiers are assessing every day of the week, all around the country. This suspension standard however, doesn't go anywhere near the complexities of the suspension issues within scratch-built vehicles, such as custom independent front suspensions, modified beam axles, aftermarket tubular axles, and so on – which whilst high in complexity, is very low in the numbers of vehicles that it applies to. This is because the LVVTA documentation system has to focus on providing technical requirements for the modifications that constitute the majority of the LVV certification work.

1.14 NZ Car Construction Manual:

Therefore, there is a need for a document such as the old NZHRA Code of Construction Manual, or now, the new NZ Car Construction Manual. The Car Construction Manual takes over from where the relevant low volume vehicle standard finishes.

NZHRA's initial development of the NZ Hobby Car Technical Manual (now called the Car Construction Manual) has enabled LVVTA to focus on the wide and varied commercial pressures it faces, and allowed the appropriate specialist LVVTA member associations to focus in on the specialist areas relative to their membership's needs. Far better for the experts to say that "yes, you can drill your old Ford I-beam axle provided that…", than for NZHRA to do nothing, with the result that someone else takes the safer ground in the absence of the necessary knowledge, and says "no, you can't drill your old Ford I-beam axle".

The Car Construction Manual is referred to in most low volume vehicle standards, as being the applicable source of information and requirements, where the nature of the modification or construction on the vehicle in question is beyond the scope of the standard.

The Car Construction Manual, therefore, forms an essential and integral part of New Zealand's LVV certification system, and in order to 'lock in' the Manual into New Zealand's regulatory framework, LVVTA purchased the Manual from NZHRA during 2010. NZHRA will continue to have a high degree of input into any future additions and improvements to it.

Low volume vehicle principles and procedures

1.15 Procedure for getting a new hobby car on the road:

There are two separate aspects to getting a new hobby car on the road; - the process of meeting the new 'entry compliance' requirements ('entry' meaning entry into the NZ vehicle fleet), and the process of ensuring that the vehicle is safe.

In order to meet New Zealand's entry compliance requirements, it has to be demonstrated to a Transport Service Delivery Agent ('TSDAs' are VINZ, VTNZ, AA and On-Road) that you have 'entitlement' to the vehicle (legal ownership), and that the vehicle, if imported, arrived through the correct and legal channels. A new scratch-built vehicle is quite straight-forward in this regard.

In order to show that the vehicle is safe, it has to undergo low volume vehicle certification. The LVV certification process accounts for 99% of the vehicle's safety inspection, however, the TSDA will still carry out a basic check-over, mostly from a warrant of fitness viewpoint.

The correct order of steps required in order to get a new scratch-built car legally on the road are as follows:

- Utilise a suitably skilled and experienced LVV Certifier to carry out the preliminary inspections as the car progresses (a list of NZHRA-endorsed LVV Certifiers is available from NZHRA's website – www.hotrod.org.nz).

- When the car is nearing completion and its final LVV certification inspection, go to a TSDA and have a Vehicle Identification Number (VIN) allocated. This is a 17-digit number that any vehicle entering or re-entering the national vehicle fleet must have. The VIN must be allocated before the LVV Certifier can do his final inspection and order the LVV certification plate, as the vehicle's VIN has to be recorded on the LVV certification plate. The TSDA may or may not need to see the vehicle before allocating a VIN.

- The LVV Certifier can then carry out his final LVV certification inspection. At this point, he will need to be provided with any supporting documentation that he may require, such as NDT reports, wheel alignment reports, etc. When the LVV Certifier is happy, he will order the LVV certification plate, which, upon its arrival to him, he will affix to the vehicle structure. If an LVV Authority Card is required, follow the procedure specified in 'Chapter 3 – Authority Card Process'.

- The vehicle owner then takes the vehicle, with LVV certification plate fitted, to the TSDA. The TSDA will do his safety check and (if it passes) issue a warrant of fitness, generate the form from which the registration plates and label can be issued, and can then supply and affix the registration plates and label. The vehicle is then legally on the road.

For a new scratch-built vehicle, as long as the steps are followed, it's actually a reasonably straight-forward process, with a minimum of backward and forward movements.

1.16 Scratch-built vs Modified Production:

It is important to correctly distinguish between a 'modified production low volume vehicle', and a 'scratch-built low volume vehicle'. This is because the LVV certification requirements that they have to meet are very different.

A modified production low volume vehicle must comply only with those applicable technical requirements that might be affected as a result of the modifications that have been carried out. For example, a 1957 Chevy that has had a late-model 350 and over-drive automatic transmission fitted (and is otherwise original) only has to meet the applicable requirements specified for an engine and drive-train conversion in 'Chapter 9 – Engine & Drive-train', and because the vehicle's increased performance is likely to have an effect on the vehicle's braking performance, it also has to meet the requirements relating to braking performance specified in 'Chapter 8 – Braking Systems'.

For a modified production low volume vehicle, no other specific chapters have to be complied with, although under the LVV Code, the whole vehicle must be checked over for general safety, and to make sure that any modification or group of modifications has not had a wider effect on the overall safe operation of the vehicle.

A scratch-built low volume vehicle however, must comply with all applicable technical low volume vehicle requirements, which include every technical section in this Car Construction Manual, from 'Chapter 5 – Chassis Modification & Construction' through to and including 'Chapter 19 – Vehicle Operation'.

1.17 Vehicles built or modified before 1992:

Some vehicles built or modified before the introduction of the new vehicle standards regulations were issued with what is known as a 'modification declaration certificate'. This is a form that effectively shows to any warrant of fitness issuer that 'this vehicle was built or modified before the new regulations came in, therefore it is not required to be LVV certified'.

This form remains good for the life of the vehicle, provided that; one – the vehicle hasn't been modified further since the modification declaration certificate was issued; and two – the vehicle's registration doesn't lapse. If the vehicle is modified beyond that which is stated on the modification declaration certificate, or the vehicle's registration lapses, the vehicle must then be LVV certified.

As is always the case, the LVV certification process will apply to the vehicle in its entirety (not just the new modifications), however the date upon which the vehicle was built or the majority of modifications were made will be taken into account, with a different set of requirements applied by the certifier, than if the vehicle was brand new. A scratch-built hot rod constructed in the 1980s with a single-circuit master cylinder, for example, will not be required to be upgraded to a dual-circuit master cylinder (as is required for a new scratch-built vehicle built after 1992) just because the registration lapsed, or because the Mk 3 Zephyr front discs (fitted when the car was built) are changed to some later model HZ Holden front discs after 1992. Common sense does still prevail within most areas of the LVV system.

In the same way, someone immigrating to New Zealand from overseas who brings their scratch-built kit car that was built before 1992, will, provided documented evidence is available to prove that it was in fact built prior to 1992, will not be required to comply with all of the new safety standards introduced after 1992, such as door retention systems and steering system collapsibility.

All vehicles however, irrespective of when they were built, or where they have come from, will be required by the LVV Certifier to be safe to operate, especially from a steering/suspension/braking point of view.

A copy of the modification declaration certificates issued during the early to mid 1990s are held by LVVTA, a duplicate of which can be purchased in the event of a vehicle owner losing his or her original modification declaration certificate. Note that in most cases, the testing stations that issued them did not file a copy at the time of issue (as was intended by the Ministry of Transport), so a duplicate won't be able to be provided. However, a copy of any modification declaration certificates issued by an NZHRA certifier will almost certainly be on file. You can find out how to access this service by going to LVVTA's website, www.lvvta.org.nz.

Government legislation background

1.18 Early New Zealand transport legislation:

Motor vehicles in New Zealand have traditionally been governed by a set of rules that have been around since the 1950's, changed a little from time to time, and reviewed in the mid-1970's to become what we've known as the '1976 Traffic Regulations'. Until the early 1990s, these formed the basis of our Warrant of Fitness requirements.

Prior to 1990, many overseas-manufactured vehicles had been imported into New Zealand with certain components falling below an acceptable standard, in particular, windscreen glass and seatbelts, and in many cases vehicles were being imported that had no rear seatbelts fitted at all, at a time where all vehicles of such age should have had them fitted. There also needed to be a regime to stop the importation and sale of various non-approved components, including lights and lenses which didn't meet any standard because their sub-standard manufacturing processes provided no ultra-violet resistance, and after short periods of exposure to sunlight, the red lenses had turned white.

'Vehicle standards' have been an integral part of the motor vehicle industry for decades in most other western countries, and it was inevitable that eventually those responsible for controlling vehicle safety in New Zealand would identify and adopt suitable internationally recognized overseas standards for New Zealand.

1.19 Introduction of vehicle standards:

The Transport (Vehicle Standards) Regulations 1990, (VSRs), began to apply from 1 November 1990, but took real effect in the industry in 1992. The VSRs prescribed internationally established automotive standards for key items that affect vehicle safety, such as seatbelts, their anchorages, glazing, and lighting equipment. They require specified components and systems to comply with a standard, and to be maintained in accordance with the standard throughout the life of the vehicle.

If a component covered by one of these standards was to be repaired, the repair must have restored the component to its original condition as specified by the standards. This requirement is vital to the overall integrity of the vehicle standards philosophy, as any safety feature or device is only as good as its ability to continue to function correctly. It would be pointless having safety-related standards for new and imported vehicles only to allow these standards to become ineffective as soon as the vehicle is repaired.

Whereas the old 1976 Traffic Regulations just said that our vehicles must have four tyres with some tread on them, the new Transport (Vehicle Standards) Regulations 1990 said that whatever tyres we use on our vehicle (in addition to having sufficient tread on them), they must also have specific markings to prove that the carcass construction, load rating, speed rating, and method of manufacture all comply with one or more internationally recognized safety standards, and are therefore assured of being of good quality - as opposed to some tyres available in some parts of the world that are poorly made and create a potential danger to all road users.

Looking at it simplistically, the '76 Traffic Regulations are an old group of rules that tell us what items our vehicles must have, whereas the Transport (Vehicle Standards) Regulations 1990 were the 'new-wave' type of legislation that told us exactly which of all of those items that are available, we are able to put on our vehicles.

The implementation of vehicle standards within our motor vehicle industry forced our New Zealand assemblers and manufacturers to use only approved components where there was a requirement for compliance, although more importantly, the regime also assured that any vehicles imported into New Zealand (particularly used imports) met the same safety requirements.

The introduction of the Transport (Vehicle Standards) Regulations 1990 is what made the whole Low Volume Vehicle Code, the self-certification regime, the original Code of Construction Manual, and now this new Car Construction Manual necessary.

1.20 The new 'Rules' regime:

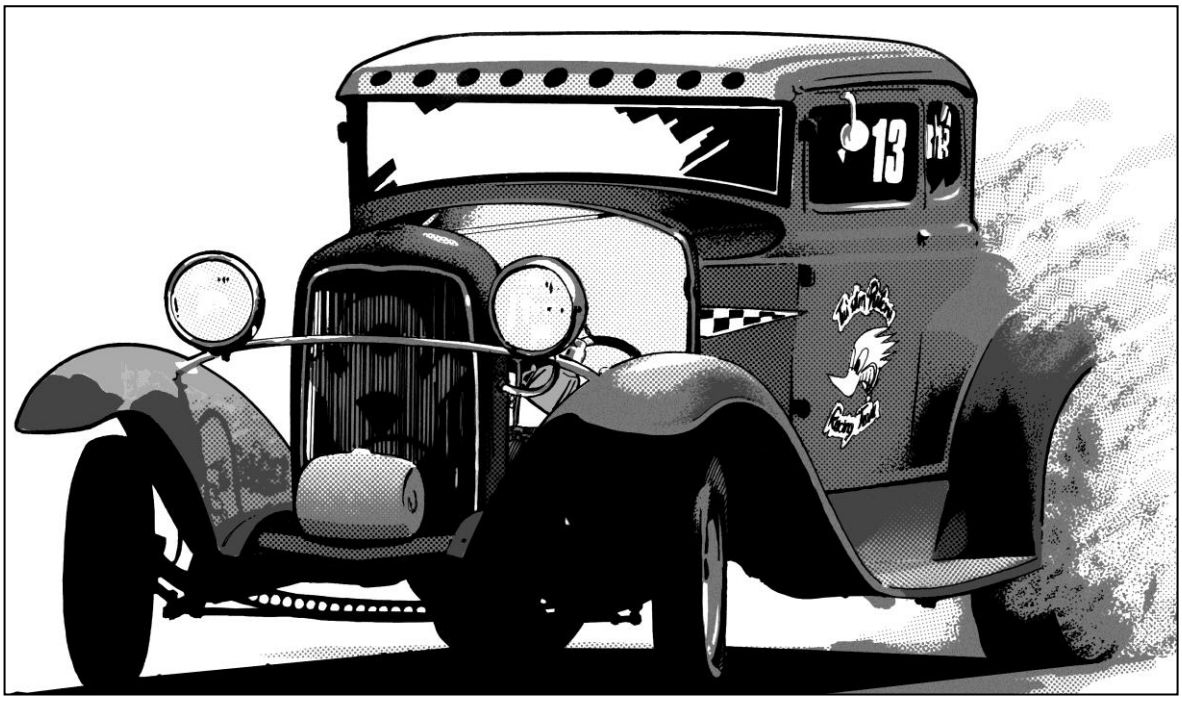
The years of 1990 through to 2005 have been an extremely messy period for motor vehicle legislation in New Zealand. It was very simple before then, and will probably never get as complex again. Only a few years after the Transport (Vehicle Standards) Regulations 1990 (VSRs) were introduced as an addition to the 1976 Traffic Regulations, development began on the new 'Land Transport Rules' regime. The idea of the Rules regime was to improve the VSRs, and amalgamate the VSRs with the 1976 Traffic Regulations.

For the industry, it's been a head-spinning period trying to cope with a combination of Traffic Regulations, Vehicle Standards, and Land Transport Rules, which have kept constantly changing. Now, half-way through the first decade of the 21st century, the Government has almost completed the huge job of integrating New Zealand's transport legislation into one standardised 'Rules' regime.

Things should, we hope, become much easier from here-on. Having said that, safety technology is becoming more and more complex, such as supplementary restraint system airbags in steering wheels, seats, and the body structure, along with traction control, stability control, and anti-lock braking systems. This technology is all moving forward at an astonishing rate.

For all of the variations of modern safety technology, there is a low volume implication, and the LVV system has to keep pace with it all.

There really is a lot to be said for carburetors, points ignition, and I-beam axles – I wonder if past LVV Certifier Gary (Grease) Martin was right many years ago when he said *"...overhead valve engines are just a passing fad..."*



TJ illustration