LOW VOLUME VEHICLE TECHNICAL ASSOCIATION (INC)

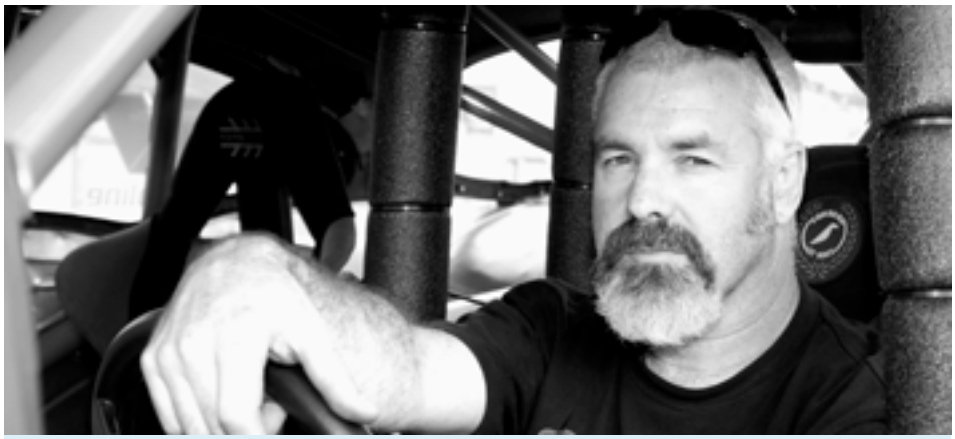
LVVTA NEWSLETTER

25 Years 1992-2017

ISSUE 59
JAN | JUN 2021

TOP STORY:

THE UN-LOVE TRIANGLE. WE ALL PLAY A PART IN NEW ZEALAND'S VEHICLE MODIFICATION AND CONSTRUCTION INDUSTRY.



From the CEO

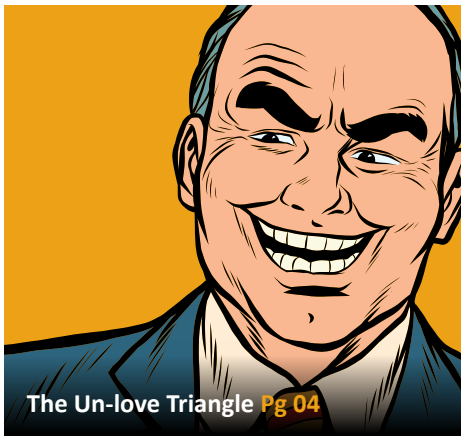
It's easy to under-estimate the huge value of a good relationship between the vehicle enthusiast sector and the regulator - especially when we (LVVTA, and the eight Member Associations it represents) have had such a good relationship with the New Zealand Transport Agency and the Ministry of Transport for so long - rapidly approaching three decades. We've operated within the spirit of a partnership for so long that we're now always given the opportunity by the Government to give our point of view well before any legislation is enacted, and we're always listened to - and never more-so than under the Kane Patena-led Transport Agency environment we operate under today.

A good example of the benefits which accrue from these strong relationships is LVVTA's involvement with the Ministry of Transport as the Ministry works toward introducing more stringent emission standards into New Zealand, which you can read about elsewhere within this LVVTA Newsletter.

Conversely, we're sometimes reminded of the value of that relationship when we hear about what's going on in other parts of the world, and how difficult it can be for our fellow-vehicle enthusiasts elsewhere. In 2015, the American Environmental Protection Agency (EPA) took the position that vehicles which become converted into race cars must remain fully emissions-compliant, even though they've become dedicated race cars and are no longer able to be driven on public roads. This is despite the EPA having previously stated that it *"has no interest in vehicles that begin their existence as normal, EPA-certified production vehicles used on public roads and are then permanently converted to sanctioned competition-use only vehicles."* The Specialty Equipment Market Association (SEMA) in the United States has been trying for five years to have the EPA's position moderated or overturned, but without success, and is now having to resort to law suits against the EPA - fighting this battle both in Congress and in the Federal Court. You can read more about this further on within this LVVTA Newsletter.

What a lot of wasted cost and energy. And what a huge distraction from their core responsibilities for each organisation just because there isn't an open and collaborative relationship between the enthusiast sector and the regulator. We should hugely value and appreciate the willingness that exists within the NZ Transport Agency and the Ministry of Transport to engage with us, to listen to us, and to allow us the ability to manage many aspects of the regulatory process on their behalf in a way that works, for the most part, very well for both parties.

Tony Johnson, CEO.



Low Volume Vehicle Technical Association (inc)

'Helping New Zealanders Build & Modify Safe Vehicles'

Contents


Electronic Data Plate Pg 17


VIRM Updates Pg 19


New Staff Pg 20

News

THE UN-LOVE TRIANGLE

There's a lot of people in New Zealand's car building modification and construction sector. There are the vehicle owners, there are the people who do the modifying and building (whether for themselves or others), there are the people who make, or bring in and sell the parts needed, there are the LVV Certifiers, and there are the people who provide the legal framework and the technical requirements to enable New Zealand's vehicle modification and construction industry and hobby to keep going.

Even though we're all wanting the same thing, sometimes there's a bit of a disconnect between some of the players, and frustration can set in. It shouldn't be that way. Maybe there's a lack of understanding going on, and so seeing things from the perspective of others might shine a bit of light on things…

Risky Business

When you think about it, there's a huge level of potential safety risk associated with unqualified people designing and building a motor vehicle in their home garage, without any calculations, prototyping, or testing. The LVV certification system which has been developed over three decades to reduce this risk is based mostly on 'best practice', which in turn is based on 'historical knowledge'. That 'best practice' and 'historical knowledge' is the backbone of what's recognised internationally as a world-best set of technical requirements for modified and scratch-built vehicles, which have been created by LVVTA in an effort to reduce this potential safety risk. The system has also been created so that the LVV Certifiers – whether they're based in Northland or Southland – can achieve much the same outcome when they LVV certify a vehicle.

Sure, it's a complex profession, and there will always be room for misinterpretation in such a difficult environment, but for the most part, with the LVV Standards and Car Construction Manual Chapters we have, plus the substantial volume of Information Sheets and Safety Alerts in place and a team of highly-experienced technical staff at LVVTA providing the LVV Certifiers with a help-desk service, variations in the way that the requirements are applied should be relatively few.

"LVVTA's Changed the Rules Again"

Despite all of that, the inconsistency of application of the requirements from LVV Certifier to LVV Certifier happens, and sometimes when the team at LVVTA identify incorrect decisions made by an LVV Certifier during the LVVTA's desk-top technical reviewing process, the LVVTA staff can feel a little frustration when that well-worn statement *"LVVTA has changed the rules"* gets rolled out once again. These statements circulate amongst LVV Certifiers, parts sellers, and the public, but the big irony here is that while LVVTA is commonly accused of 'changing the rules', the reality is in fact that LVVTA doesn't change the rules anywhere near as much as it should be. In fact, one of LVVTA's biggest failings over the past ten or so years, as its responsibilities have increasingly outstripped its resources, is that LVVTA hasn't been able to prioritise technical requirement amendments (or 'rule changes') anywhere near as much as it should have been.

So, what's causing this view that LVVTA is always 'changing the rules'?

Here's a recent example of a situation which caused some criticism of an LVV Certifier by some people in the industry. The criticism was unjustified because the LVV Certifier simply followed the process – in other words, he did exactly what he was required to by the LVV certification system. Let's follow the process through, because the key points here apply to many other situations which, while technically different, they're just the same from the perspective of how blame is unjustly apportioned.

Above: *Lokar pedals.*
Below Left and right: *Failed aftermarket steering wheel.*

The 'Lokar'-brand Brake Pedal

The LVV Certifier in question was doing an LVV certification inspection on a car fitted with an aluminium 'Lokar'-brand brake pedal, like the one shown in the photograph, and got to the part of his mandated LVV Inspection Form-set *(Form-set FS108 - Braking Systems)* that deals with custom brake pedals. Item #8 on the Form-set says that *"…a custom-built pedal is made from material of equal or greater strength than 8 mm (5/16") mild steel"*. As with all Form-set statements (based on the corresponding requirement in the LVV Standard or Car Construction Manual Chapter) the LVV Certifier must tick the relevant box to agree that it complies, or cross the box (with relevant notes) if it doesn't comply. Just for clarification, 'custom' is defined (in the Terms and Definitions section of the NZ Car Construction Manual) as *'a service provided, or a component or system manufactured, by an individual or a company who is not a high-volume motor vehicle manufacturer'*.

The corresponding paragraph 8.3.1 of Chapter 8 Braking Systems of the NZ Car Construction Manual (under the section heading 'Pedal Assembly requirements'), says *"A custom-manufactured brake pedal fitted to a low volume vehicle must be manufactured from a material having a thickness* (note that 'thickness' means the skinny section of the pedal that faces the driver) *of equal or greater strength than 8 mm (5/16") mild steel."* In the side-bar adjacent to that paragraph in the Car Construction Manual Chapter, a note says (headed 8.3.1) *"If using aluminium for a brake pedal, the material thickness will need to be between 150% and 200% of the specified mild steel thickness"*. (By the way – just to be clear - that requirement has been in place for over 10 years, so this isn't a case of 'LVVTA has changed the rules again'.)

A vernier caliper showed some areas of the pedal to be 8 mm thick, so if it was made from mild steel it would be acceptable at face value, but as the pedal was made from aluminium the pedal would have to be between 12 mm and 16 mm thick throughout the whole pedal for the LVV Certifier to be able to pass it.

The machined out section (removed from the wider face of the pedal) also raised a question in the mind of the LVV Certifier, in terms of how the removal of the material might affect the overall strength of the pedal.

The requirements clearly necessitated the LVV Certifier to fail the pedal, and the LVV Certifier could have just put a cross in the box and left the vehicle owner with the problem. However, to help his customer, the LVV Certifier asked the vehicle owner to do a bit of homework and see if he could get some information from the manufacturer or the New Zealand supplier to establish what kind of aluminium the pedal is made from. The vehicle owner was able to find out from the pedal manufacturer that the pedal was made from 6061 T6-grade aluminium alloy, which is a very high quality and high-strength aluminium. The LVV Certifier then asked the technical staff at LVVTA for some help, providing them with the material specification and the physical dimensions, and it was quickly established, through a calculation process provided by LVVTA's technical team - at no cost to anyone - that the grade of aluminium had at least the same strength qualities as mild steel also, that the pedal was still sufficiently strong despite the removal of the material from the wider section, and so the pedal could be accepted. The LVV Certifier was able to make a note on the Form-set, tick the box, and move on.

Without establishing the material specification and seeking advice from the LVVTA technical staff, the LVV Certifier would have been acting fraudulently in ticking the box. More importantly, if the LVV Certifier did pass the pedal, and the pedal had been made from an inferior material, it may well have been unsafe.

Aiming for Consistency

When the vehicle owner approached a New Zealand supplier of Lokar-brand pedals with the question about the material grade, he received the response of *"what do they need that for, one of these pedals passed certification the other day"*.

The problem here is that the LVV Certifier who 'passed one the other day' was acting incorrectly yet was perceived as the 'good guy', whereas the LVV Certifier who asked the question because he was correctly following the process as he is legally obliged to do, was cast as the 'bad guy'. Hardly fair…

The same 'bad guy' theme is also applied to LVVTA on a regular basis when, during a desk-top technical review, the LVVTA technical staff identify things like this where the LVV Certifier hasn't followed the requirements correctly. LVVTA is legally obliged to apply the desk-top technical reviewing system (and it's a hugely valuable tool in improving consistency across the LVV Certifiers) and if the staff find that an LVV Certifier has approved something which doesn't meet the requirements and there's no good reason for approving it, the staff are then obliged to bring this to the LVV Certifier's attention – which often results in the LVV Certifier having to go back to their customer to have the vehicle made safe and compliant. Some LVV Certifiers are rock-solid guys and put their hands up to their customer, learn from LVVTA's coaching process, and never make the same mistake twice. Other LVV Certifiers, however, just roll out that old chest-nut *"LVVTA has changed the rules again"* to save face - making LVVTA, and the other LVV Certifiers who do the job correctly, look like the bad guys.

Need to Work Together

It's important that the LVV Certifiers, the modification industry, and LVVTA, all work together. Trying to throw LVVTA or an LVV Certifier who's doing his job correctly under the bus isn't helping resolve the massive aftermarket parts problem that we've all got, and all need to work together on.

Another recent example of the unsafe aftermarket parts problem (and LVVTA sees a new problem every week) is the recent discovery of the 'CPP'-brand booster and master cylinder assembly, where the master cylinder mounting bolts snap under normal tightening – which could easily result in a complete hydraulic brake system failure in an emergency stop. Especially over the last decade, LVVTA has seen a number of well-respected big-name manufacturers make surprising decisions around the use of incorrect materials, inferior production methods, and shocking quality control issues.

It's important for vehicle owners, modifiers, and the sellers of components to understand that when these sometimes-annoying questions are asked, they are coming from the perspective of safety. No one is trying to place obstacles in the way of a vehicle

owner getting their car on the road for the fun of it. Behind every requirement sits New Zealand's 'best practise' car-building history, and 30 years of work has gone into creating a system of well-documented 'historical knowledge' from all of that best practice history.

It's the job of a good LVV Certifier to ask the hard questions. It's his name being signed on the bottom line, and he has big responsibilities – both morally and legally. If he ignores something, or passes something he shouldn't, it might be a short-term gain for the customer, but it could form part of a long-term pain for the whole LVV system, and everyone who is currently lucky enough to be able to modify and build their vehicles in New Zealand.

Let's stop kicking the good LVV Certifiers who are doing the job expected of them, and the LVVTA staff who work bloody hard to create an environment that both the enthusiast community and the Government can live with. ■

1: *Failed alloy wheel stud.*

2: *Poor and non-compliant aftermarket chassis c-notch.*

3: *Failed alloy wheel nuts.*

4: *Failed aftermarket differential tube.*

5: *Poorly designed and made aftermarket tilt steering column.*

5a: *Dismantled column tilt assembly, showing the failed plastic drive-bush.*

6: *Aftermarket steering rack with butt-welded rack shaft.*

6a: *Close-up of aftermarket steering rack with butt-welded rack shaft.*

7: *The Ford pick-up that started the poor quality cast aftermarket axle investigation.*

7a: *A close-up shot of a broken aftermarket I-beam axle.*

THANK YOU *Steve Keys* 16 & 28 *Years*

On the 24th of June 2021, Steve Keys finally retired from his long-held role as President of LVVTA. There's no blaming him for calling time, after having served as the President of LVVTA for 16 consecutive years, and having been part of the LVVTA's Board and Management Committee for a total of 28 years - almost right back to the time of LVVTA's founding in 1992.

On how he came to be involved, Steve jokes that *"...I'd go around and visit Tony at his home* (where the NZ Hot Rod Association's LVV certification system was operating from in the beginning) *and he'd be so stressed out that I'd just about have to grab him by the collar to stop him jumping out of his upstairs window! I could see he needed help and what he was doing was a great thing for the hobby".* Steve's early support was greatly appreciated by Tony, and it was moved onto a more formal basis in 1994. *"With the advent of LVV certification in the early '90s, we'd gone from a normal small club-type income to a comparatively huge income in a very short space of time"* says Tony, *"and I needed some street-smart financially-savvy guys to help me. The entrepreneurial Steve Keys was the first guy I shoulder-tapped for it".*

With Steve's help, NZHRA's 'Financial Board of Management' was established, and this committee helped NZHRA's certification business remain a financially-viable enterprise and the principal system amongst the five organisations operating

back in those early days, having 68% of the total LVV certification volume. In 1996, Steve was part of the NZHRA team that worked with LVVTA to transfer the NZHRA certification system into LVVTA ownership in pursuit of a 'single-certification' system, based on the highly-successful NZHRA operation. In doing so, Steve's interest in the well-being of the national certification system for modified and scratch-built vehicles transferred across to LVVTA also, and by 1998 he had become the NZHRA representative on the LVVTA Council. In 2001, with his leadership skills and business acumen becoming recognised, he was appointed onto the LVVTA Management Committee, and in 2005 was elected President of LVVTA, a role which he has continued to hold until June just gone. In 2018, Steve, as President, joined the then newly-formed LVVTA Board of Directors.

Within LVVTA, as in all other aspects of his personal life, Steve's low profile and absence of self-promotion has resulted in a wide-spread lack of awareness of his substantial input to LVVTA. Steve has been at the fore-front of purchasing and refitting LVVTA's Porirua building, and he's been behind most of LVVTA's big changes and improvements over its almost three-decade life-span. *"A big part of LVVTA's success has been, I think, that Tony and I have worked together, weekly if not daily, for 27 years, and we've never had a single blow-up, or even a cross word. Of course, there's been times when our opinions have differed, but that's alright, we've always just bounced around the options and worked out what we think is the best course to take, and usually they've proven to be the right ones. It's been a great relationship. 27 years is longer than most people have been married!"*

Steve's background is firmly entrenched within the hot rodding denomination, however his steady hand on the tiller of

LVVTA has been helped by the fact that he's been a member of a number of LVVTA's Member Associations, including NZ Hot Rod Association, The Vintage Car Club of NZ, and the NZ Motor Caravan Association. It seems to be an integral part of Steve's nature that he can't walk past a problem without trying to stop and fix it - especially so when the problem could impact the car hobby that he is so passionate about. Of Steve, Tony says *"Steve's just a phenomenal guy. He has great vision, he always has time, he has a never-give-up ethos, and his wife Sue's hospitality is incredible. It's been an amazing journey developing this thing together, obviously with a lot of help from a lot of other people too, and it just seems weird that we won't have Steve involved into the future. The reality is that he'll still be helping out from behind the scenes. I think the way we've operated together has been more like a business partnership between two close friends, rather than just a President and CEO relationship. We're all going to miss him – me, the Board Members, and the LVVTA staff".*

Steve was inducted into the LVVTA Wall of Honour in 2012, and since then he's continued to support and help the low volume vehicle certification system, in his quiet yet committed manner. Steve will always be credited with being a significant and instrumental part of LVVTA's establishment, its survival within a difficult environment and throughout tough times, and its ceaseless growth and improvement. ■

On behalf of every modified and scratch-built car enthusiast in the country... 'thanks Steve'

Front row, left to right: *Phil Bradshaw, Leon Cast, Tony Johnson, Steve Keys, Graeme Banks, Linda Washington.* ***Middle row, left to right:*** *Justin Hansen, Phil Goodin, Kerry Buchanan, Nikki Thomas, Mike Macready, Roger White, Philip Crampton.* ***Back row, left to right:*** *Frances Tunley, Brendon Norling, Marty Boyle, Dan Myers, Chris Smith, Terry Carkeek, Ken McAdam.*

What's Going On

The Ministry of Transport (MoT) is in the process of developing new legislation, generally referred to as the Clean Car Import Standard or the 2025 Clean Car Standard, which is aimed at light vehicles entering NZ from 2023 onwards. The new standard is expected to be in place by 2022, and in full effect by 2025.

The intention of the new Clean Car Standard is to progressively lower CO2 emissions of vehicles entering the NZ fleet from the current average of 171 grams of CO2/km, down to 105 grams of CO2/km by 2025 (a reduction of almost 40% over five years). The NZ Government wants to play its part in the ongoing world-wide clean-up of air quality, recognising that as a country our vehicle fleet CO2 emissions are one of the worst in the OECD.

For decades we've heard the term 'guzzler tax' as it's been introduced throughout other parts of the world, and it has always been inevitable that our turn would come.

Because of the good relationship long enjoyed between the MoT and LVVTA (and a number of other enthusiast groups), the MoT included a number of exempted vehicle categories within its initial proposal, with the intention that the new requirements would not apply to specialist (in particular older) vehicles.

A more detailed explanation of the Clean Car Standard can be found on the LVVTA website, under '*2025 Clean Car Standard Submission',* which takes you to the '*LVVTA Press Release, April 2021 - Enthusiast Vehicle Sector Submission to the 2025 Clean Car Standards'.*

LVVTA's Response to Government

LVVTA took the view that a more helpful approach for the MoT would be for the main enthusiast groups in New Zealand to get together to agree a fair and sensible set of exempted vehicle categories, which meet the needs of the majority of enthusiasts, and are simple for the MoT to administer and apply . With this intention, LVVTA invited representatives from the Federation of Motoring Clubs (Harry Duynhoven), the Vintage Car Club of NZ (Roger White), and the NZ Hot Rod Association (Tony Robinson and Warren Pattinson) to a meeting at the LVVTA offices in Porirua on March 16th. These four enthusiast groups collectively represent approximately 150,000 members, all of whom have an interest in old enthusiast vehicles.

Tony Johnson (LVVTA CEO) chaired the meeting and a specialist from the MoT was present, ensuring attendees had a full understanding of the MoT's objectives in the development of the Clean Car Standard. Agreement on the key points was reached, and this formed the basis of a joint submission presented to the MoT on March 26th.

1 Specialist Vehicles more than 30 Years Old

2 Specialist Motor Vehicles less than 30 Years Old

3 Scratch-built Vehicles

4 Motorsport Vehicles

The proposed exempted vehicle categories within the submission are (basically) as follows:

1. Specialist Vehicles more than 30 Years Old

The MoT initially proposed vehicles over 40 years old would be exempt. While applauding the MoT's desire to provide a concession to old vehicles, the four groups agreed that a 30-year cut-off would be more appropriate for the following reasons:

- 30 years is an internationally recognised age used to differentiate between enthusiast vehicles and normal commuter vehicles. The Vintage Car Club of NZ uses the 30-year cut-off as its key criteria for membership eligibility, and VCC's position follows on from FIVA's position (FIVA is the worldwide federation of historic automobile clubs).
- There are a vast number of vehicles manufactured during the 1980s and early 1990s that would be penalised if a 40-year cut-off point was used rather than 30 years, with intrinsic collector status and value worldwide. The groups would like to enable the continued uptake of these vehicles by New Zealand enthusiasts and collectors, without the fee being applied on the basis that they will typically travel substantially less distance each year than normal commuter vehicles. Ironically, some of these vehicles were 'boy racer' cars 20 years ago, but are now unaffordable for that demographic.
- All 1980s cars now generally fall into one of two areas; (1) collectible 1980s cars which are now too valuable to purchase for everyday commuter use; and (2) non-collectible 1980s cars which are of such low value that it wouldn't be worth the cost of importation and entry compliance (even without the 'gas guzzler' tax) to use as a commuter - the cost to do so would exceed an existing much safer and much more highly-spec'd later-model car available here in New Zealand. In other words, we're not going to get a flood of non-collectible 1980s cars pouring in, because it just doesn't stack up economically to do so. Neither is it cost-effective to bring in 30-plus year-old commercial vehicles such as vans and utilities.

2. Specialist Motor Vehicles less than 30 Years Old

The four groups proposed the establishment of an exempted vehicle category for modern specialist motor vehicles (newer than 30 years old), on the basis there are a number of modern highly collectible and sought-after specialist vehicles which NZ enthusiasts wish to import and own. In many cases these are light-weight vehicles with large-capacity engines which will attract the highest fee (potentially adding approximately 15% to the purchase and importation price for some vehicles). However, these are for the most part 'Sunny Sunday' cars, travelling minimal distances annually, and therefore make a negligible contribution to NZ's Co2 emissions.

3. Scratch-built Vehicles

The MoT's initial proposal was that all vehicles certified to the LVV Code would be exempt, however it's quite obvious that a blanket exemption for all of these vehicles isn't appropriate or necessary, as many LVV certified vehicles aren't enthusiast vehicles at all (for example, taxi vans, modern utility vehicles, and modern right-hand drive-converted vehicles), and should not be exempt from meeting the requirements of the Clean Car Standard. Vehicles could potentially be modified and LVV certified (even temporarily) very cheaply to make use of this exemption and avoid the applicable fee. LVVTA and the New Zealand Transport Agency do not want the LVV system to be used as a backdoor means of enabling users to avoid paying the appropriate fee.

Exempted low volume vehicles, therefore, should be restricted to just scratch-built low volume vehicles. Modern modified production vehicles should be subject to the fee just like any other modern unmodified production vehicle, and the older genuine enthusiast modified production low volume vehicles will be exempted by the age-based exemption. In other words, in terms of the Clean Car Standard, a modified production low volume vehicle should be treated in the same way as an unmodified production vehicle.

4. Motorsport Vehicles

This is an additional exempted vehicle category proposed by the group. These are typically rally cars, which are required to be road-registered in order to travel on public roads between special stages. ■

COVID 19 IMPACT ON LVV PLATE NUMBERS

LVVTA saw a reduction of approximately 20% in annual plate numbers for 2020 in comparison to 2019. The number of new motorhomes and passenger transport vehicles (such as vans fitted with additional seating positions) being LVV certified has dropped significantly due to the reduced demand for these types of vehicles in the past year. In 2019 a total of 738 motorhomes were LVV certified which dropped to only 271 for 2020. LVVTA expect these LVV certification numbers to remain low until overseas travellers start to return. ■

Pillarless Retro-fit Lap & Diagonal Seatbelt System

Work has continued on the Pillarless Retro-fit Lap and Diagonal Seatbelt System shown in LVVTA Newsletter Issue # 58 August-December 2020, and Prototype #2 has now been completed and fitted to the trial vehicle. The second prototype has had some changes made to simplify the manufacturing process, provide more space for the retractors, and improve the shoulder-belt positioning.

The final steps are to have the second prototype tested (the first prototype was tested and passed), and then to document the build and installation process to enable an Information Sheet to be developed (which will be available free of charge from the LVVTA website) that will show interested people how to go about building and fitting the system.

The aim is still to have this innovative system completed, with the Information Sheet developed and available, before the end of 2021. ■

SEMA's Fight for Race Cars

The story below has been provided by the Speciality Equipment Market Association (SEMA) Washington, D.C., Staff, and highlights a big problem that exists in the United States currently, for those building race cars. This affects those in the United States building circuit cars, land speed cars, drag cars, and of course also includes road-going rally cars.

SEMA's top federal legislative priority is passing the 'Recognizing the Protection of Motorsports Act' (RPM Act), which clarifies that it is legal to make emissions-related changes to a street vehicle for the purpose of converting it into a dedicated racecar. The RPM Act also confirms that it is legal to manufacture, sell and install race parts. SEMA is currently working with the RPM Act's strongest supporters in Congress to identify the best strategy for reintroducing the bill in a way that maximizes its chances of becoming law, either as a stand-alone bill or part of a larger legislative package. In recent days Congress has been overwhelmed with messages of support for this legislation. Please keep up the momentum; tell Congress to Save Our Racecars.

The RPM Act, first introduced in 2016, reverses the U.S. Environmental Protection Agency's (EPA) interpretation that the Clean Air Act (CAA) does not allow a motor vehicle designed for street use—including a car, truck or motorcycle—to be converted into a dedicated race car. This American tradition was unquestioned for nearly 50 years until 2015, when the EPA took the position that converted vehicles must remain emissions-compliant, even though they are no longer driven on public streets or highways. A version of the RPM Act was included as part of the energy bill that passed the House in 2020, but the Senate never took it up.

SEMA is fighting this battle both in Congress and in federal court. The association recently filed an amicus brief in a lawsuit between the EPA and Gear Box Z. Inc. (GBZ) arguing against EPA's contention that the CAA does not allow a motor vehicle to be converted into a racing vehicle used solely for competition. In its brief, SEMA asserts that "the agency's interpretation breaks from the plain language of the CAA, the legislative history, and EPA's regulations and guidance." SEMA's brief also notes that the EPA's position contradicts its longstanding guidance and regulations and the agency previously stated that it "has no interest in vehicles that begin their existence as normal, EPA-certified production vehicles used on public roads and are then permanently converted to sanctioned competition-use only vehicles."

The EPA's unwillingness to pull back from its regulatory overreach emphasizes the need to pass the RPM Act in this Congress. The GBZ case is before the U.S. District Court for the District of Arizona. SEMA will continue to fight the EPA's flawed interpretation in court while urging the U.S. Congress to end the debate by enacting the RPM Act.

It's a very difficult situation, and we're grateful that this type of situation doesn't happen in New Zealand because of the great relationship that exists between the enthusiast groups (including LVVTA) and the relevant NZ government agencies (see 'From the CEO' on page 2). ■

'Show Your Ability' in Palmerston North

The Show Your Ability disability equipment show tours New Zealand every year, exhibiting many types of wheelchairs and scooters, alongside equipment to assist around the home.

LVVTA's Dan Myers and Chris Smith visited the show and talked to a range of industry specialists about wheelchair technology and the latest disability vehicle options.

Local company Omeo Technology displayed the latest development of their self-balancing electric-powered wheelchair and Freedom Mobility presented a modified mobility vehicle as an example of their rental fleet for both long-term and short-term clients.

Vehicle modifiers Rod Milner Motors had two European-built vans on display and the Vehicle Adaptions driving simulator showed the capability of their hand control.

There was positive feedback on the new LVVTA Electronic Data Plate, with its small footprint and the removal of the need for a customer to go back to the LVV certifier for fitment of the engraved certification plate. ■

S.A.F.E TRAINING

During April 2021 LVVTA hosted a training session run by Barry Robinson, a highly experienced Auckland-based engineer, who owns and runs South Auckland Forgings & Engineering (S.A.F.E). The day-length session delved into a wide range of topics including fasteners, material selection and quality, weld failures, stress raisers, and much more. There was a practical demonstration of heat treatment, and all the topics were interesting, informative, and relatable to many aspects of low volume vehicles. Attendees included LVVTA and New Zealand Transport Agency staff, LVV Certifiers, and other engineers from around the Wellington region. Barry runs similar training sessions across the country, and provides a handbook to all attendees for future reference. If you are interested in attending one of Barry's sessions, you can email him at *barry@safegroup.co.nz,* and he will add you to his mailing list. We hope to invite Barry back again at a later date - keep an eye on our website and Facebook page for notifications and details. ■

Documents & Systems

NEW-LOOK

LVV Standards and NZ Car Construction Manual Chapter Amendments

Momentum is being gained on the amendment of Low Volume Vehicle Standards (LVV Standards) and NZ Car Construction Manual Chapters (CCM Chapters), as a result of the support that LVVTA is now receiving from the New Zealand Transport Agency. With resources finally able to be applied to the process of regularly reviewing and amending these important documents – which is vital for keeping pace with changing trends – users of the LVV system can expect to see four or five LVV Standards and CCM Chapters reviewed and amended each year.

This momentum kicked in when the LVV Standard and CCM Chapter for Engine & Drive-train was reviewed and amended during the latter part of 2020, and issued at the start of this year. This document development work has stepped up during the first quarter of 2021, enabling LVVTA to:

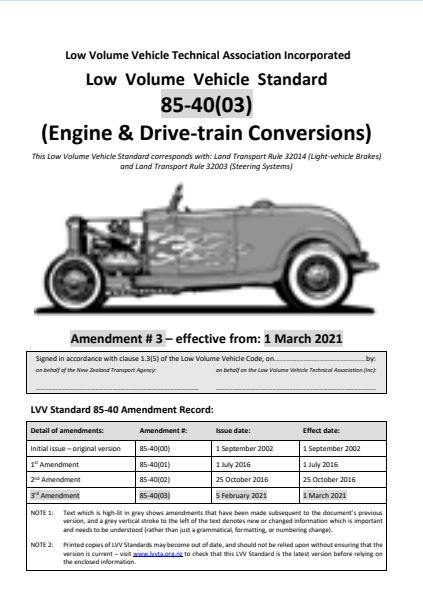
- complete an update to the CCM Chapter 5 (Chassis Modification & Construction) and develop a corresponding LVV Standard 40-00 (Chassis Modification & Construction), and
- complete an update to CCM Chapter 10 (Fuel Systems) and develop a corresponding LVV Standard 105-00 (Fuel Systems).

The Fuel System and Chassis Modification & Construction documents were available for consultation in May 2021, and will be issued in July accompanied by LVVTA Information Sheets which outline the changes, along with the corresponding LVVTA Form-sets for the CCM Chapters.

The updated documents all follow the 'Next-generation' LVV Standards and CCM Chapter principles (explained in LVVTA Newsletter Issue #58 August-December 2020), and users of the new documents will also notice a change to the presentation of the LVV Standards and CCM Chapters - particularly in relation to the covers and introductory pages. ■

Left: *The traditional look of LVV Standards.*

Centre and Right: *The new-look LVV Standards and CCM Chapters for the future.*



Low Volume Vehicle Technical Association Incorporated

Low Volume Vehicle Standard

85-40(03)

(Engine & Drive-train Conversions)

This Low Volume Vehicle Standard corresponds with: Land Transport Rule 32014 (Light-vehicle Brakes) and Land Transport Rule 32003 (Steering Systems)

Amendment # 3 – effective from: 1 March 2021

Signed in accordance with clause 1.3(5) of the Low Volume Vehicle Code, on.....by:

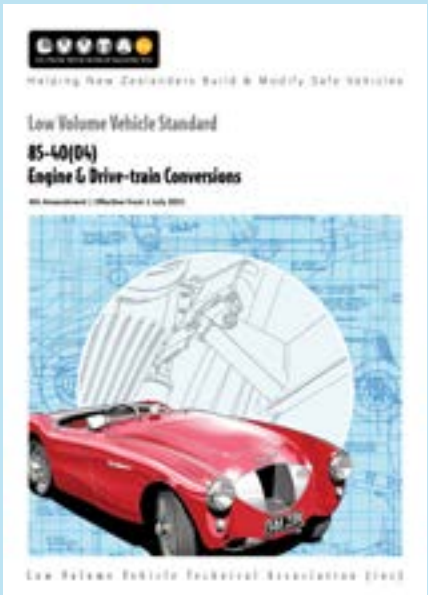
on behalf of the New Zealand Transport Agency: *on behalf on the Low Volume Vehicle Technical Association (Inc):*

LVV Standard 85-40 Amendment Record:

Detail of amendments:	Amendment #:	Issue date:	Effect date:
Initial issue – original version	85-40(00)	1 September 2002	1 September 2002
1st Amendment	85-40(01)	1 July 2016	1 July 2016
2nd Amendment	85-40(02)	25 October 2016	25 October 2016
3rd Amendment	85-40(03)	5 February 2021	1 March 2021

NOTE 1: Text which is high-lit in grey shows amendments that have been made subsequent to the document's previous version, and a grey vertical stroke to the left of the text denotes new or changed information which is important and needs to be understood (rather than just a grammatical, formatting, or numbering change).

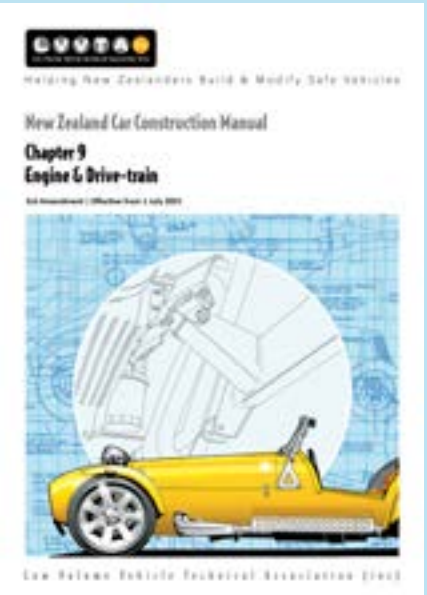
NOTE 2: Printed copies of LVV Standards may become out of date, and should not be relied upon without ensuring that the version is current – visit www.lvvta.org.nz to check that this LVV Standard is the latest version before relying on the enclosed information.



Low Volume Vehicle Standard

85-40(04)

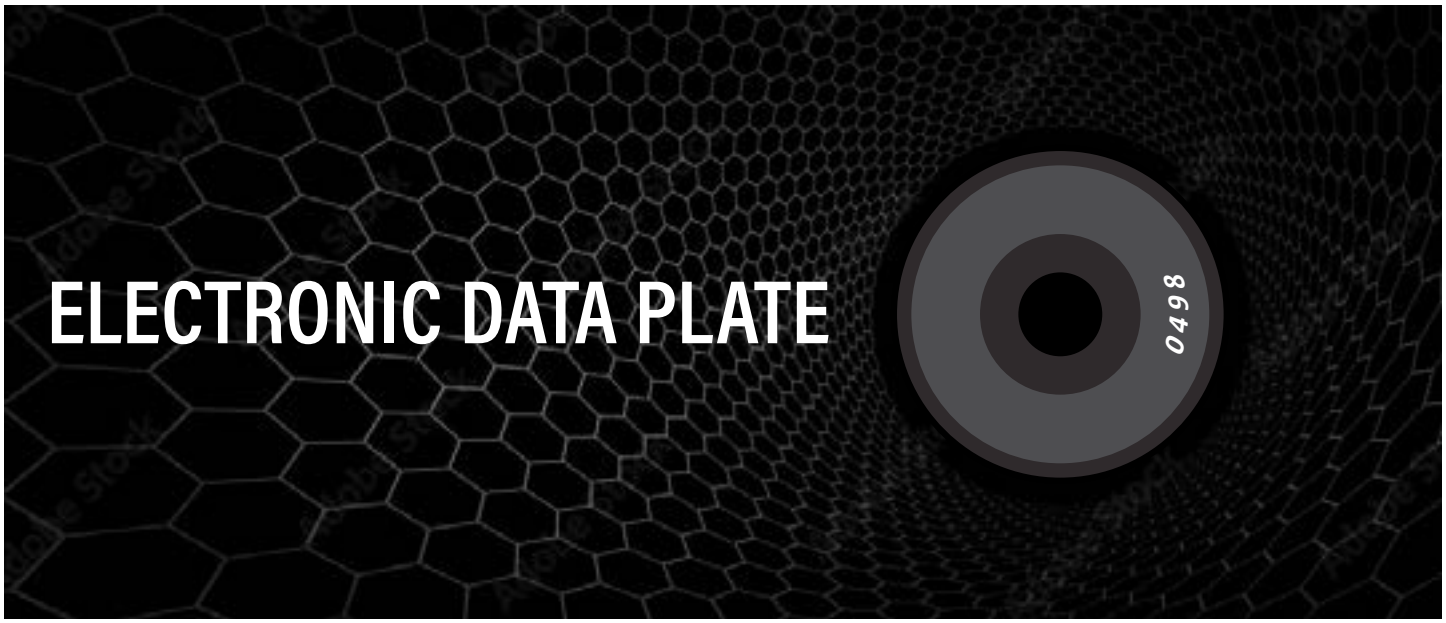
Engine & Drive-train Conversions



New Zealand Car Construction Manual

Chapter 9

Engine & Drive-train

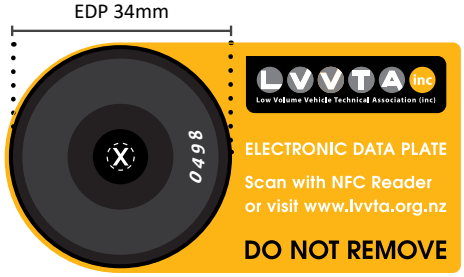


As most users of the LVV system will be aware, after serving its intended purpose well for nearly 30 years, the engraved aluminium LVV certification plates were replaced by the new Electronic Data Plate (EDP) system on the 1st of February 2021.

A brief overview is provided below, but LVVTA Information Sheet (# 01-2021) 'Introduction of LVV Electronic Data Plates' can be downloaded from LVVTA's website at lvvta.org.nz, which includes further details on the LVV EDP technology, the benefits of the new system, and how vehicle owners, modifiers, Authorised Vehicle Inspectors, the NZ Police, and LVV Certifiers will be affected by the change.

In a Nutshell

- **Size:** The EDP is small (about the size of a fifty-cent coin), which makes placement much easier in restricted spaces like a modern crowded engine bay, or a motorcycle frame.



- **Installation:** The EDP is quicker to fit, with only one attachment point through the centre. It must be riveted, ideally to the passenger's door jamb, or in another clearly visible and easily accessible location, such as next to the VIN Plate.
- **Information storage:** The EDP enables large amounts of data to be stored and accessed, including detailed information and extensive photos, which is a great improvement on the limited space available on the engraved LVV certification plates.
- **Information access:** Stored information is easily accessed by using a smart phone or tablet with an RFID/NFC reader to scan the EDP, or by entering the EDP number and the last six digits of the Vin via the LVVTA website through VIN Electronic Data Plate 'Lookup' page. If no information is retrieved, this usually means either the LVV certification is being processed by LVVTA, or the certification inspection process was never completed.
- **Remote activation:** After fitment at final inspection, the EDP can be remotely activated by LVVTA once the LVV certification has been processed, eliminating the need to revisit the vehicle for fitment of an engraved LVV Certification Plate.
- **Updates:** After a vehicle is inspected by an LVV Certifier, the EDP can also be updated remotely, unlike the engraved LVV certification plates which had to be removed and replaced at each subsequent LVV certification.
- **Security:** The EDP has undergone extensive security testing and has been proven to meet stringent security requirements; only LVVTA's Plating Team can edit the stored information.
- **Existing engraved LVV certification plates:** These do not need to be replaced with an EDP unless the vehicle is further modified. Both systems will exist in parallel, and either are acceptable proof of LVV certification (as long as the details on the engraved LVV certification plate or EDP match the vehicle).
- **Changes to WoF/CoF inspection:** For EDP-fitted vehicles, the AVI must ensure the presented vehicle matches the information and photos stored in the system, and if any discrepancies are identified the vehicle must be failed and referred to an LVV Certifier. ■

CAR CONSTRUCTION MANUAL Uptake

FEB-JUN 2021

2,135

Downloads

LVVTA has long held a desire to make the NZ Car Construction Manual (CCM) available at no cost in order to remove any impediment in its uptake, and has finally taken the step and made the CCM available to anyone, electronically free of charge, via download from LVVTA's website, effective from February this year.

During the period February to June last year (when the CCM had to be purchased), 68 electronic versions were sold during those six months.
With the CCM going on-line and made free this year, during the same February to June period of this year, 2,135 CCMs were downloaded! That's an amazing response!

This massive increase in uptake will help the users, and it will also help the LVV Certifiers by reducing the number of people who present a modified or individually-constructed vehicle to an LVV Certifier in a non-compliant condition.

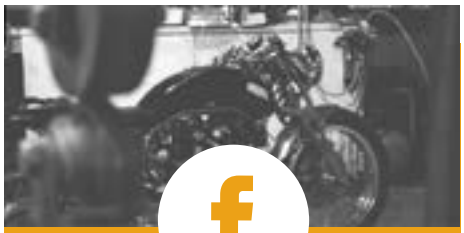
Note: *A complete hard copy of the NZ Car Construction Manual can still be purchased from LVVTA's website at www.lvvta.org.nz/shop/, or from the NZ Hot Rod Association.* ■

Procedural

LVV Certification of a Vehicle with more than One Set of Wheels and Tyres

Occasionally a vehicle owner wants the option available to alternate between different sets of wheels and tyres. This is possible, but each set must be inspected, LVV certified, and all rim and tyre sizes included in the LVV Electronic Data Plate (EDP) stored information. The LVV Certifier must submit separate form-sets (FS023 - Wheels and Tyres, and FS009 - Braking Performance Test) for each set of wheels and tyres. The LVV Certifier must also supply photographs of each set and list the sizes of the wheels and tyres on the F001 – LVV Statement of Compliance Certificate, and the F002 - LVV Compliance Plate Data Form. Once LVV certification is completed, the vehicle owner can change between the sets as they wish.

Please note this option is available only with an EDP, and not available if wheel adaptors and/or spacers are fitted. ■



FOLLOW LVVTA ON FACEBOOK & STAY INFORMED

Wheels and Tyres post:

FEEDBACK... "Good to see some good useful info... Keep it up!"

"Good post. Please post more hints and tips like this."

LVVTA inc
Low Volume Vehicle Technical Association (inc)

Technical

VIRM Updates

Recently the New Zealand Transport Agency made some changes to the WoF regulations, within the Vehicle Inspection Requirements Manual (VIRM). These came into effect in April 2021 and have some impact on the LVV system.

1. **Air Intake Snorkels added to the LVV Threshold under Structure:**

Clarification has been added regarding when a vehicle with an added snorkel requires LVV certification.

- LVV Certification is not required provided that the snorkel is fitted only to the outer skin of the A-pillar (not into the central structure), and
- the fixings are of an appropriate size, and
- the fixings are sealed to prevent water ingress into the A-pillar, and
- appropriate rust treatment is applied to prevent corrosion.

Note: It is recommended that snorkels are fitted with high strength adhesives rather than screws.

2. **Motorcycle Anti-Lock Braking System (ABS) Removal**

The Brakes section of the motorcycle VIRM has been amended to state that where a motorcycle's ABS has been disabled or removed, LVV certification is required. Note that removal of ABS is only permitted on those motorcycles that pre-date the Rule change.

3. **Seat Removal from a Low Volume Vehicle**

The VIRM has been clarified regarding temporary seat removal from a low volume vehicle. Usually if the information on the LVV plate differs from the vehicle as presented, the vehicle should fail the inspection. However, this temporary change is not justification for rejection on its own. ■

INFORMATION SHEETS RECENTLY RELEASED

#07-2021	Power to Manual Steering Conversion for Hydraulically-assisted Steering Racks and Steering Boxes
#06-2021	Engine & Drive-train Conversion: Updated LVV Standard, and NZ Car Construction Manual Chapter
#05-2021	Chassis Modification & Construction: New LVV Standard, and Updated NZ Car Construction Manual Chapter
#04-2021	Fuel Systems: New LVV Standard, and NZ Car Construction Manual Chapter
#04-2020	Version 2 - Re-issue of Spherical Bearing Rod End Conversion for Steering Tie-rod Ends and Unloaded Suspension Ball-joints (re-released June 2021)
#03-2021	Re-issue of Amended LVV Standard 85-40 (Engine & Drive-train) & NZ Car Construction Manual Chapter 9 (Engine & Drive-train)
#02-2021	Explanation of 'Next-generation' LVVTA Technical Documents
#01-2021	Introduction of LVV Electronic Data Plates
#01-2009	Version 5 - Tyre Size to Rim Width Compatibility Guide (re-released June 2021)

For all LVVTA Information Sheets, visit: www.lvvta.org.nz/documents.html#infosheets

SAFETY ALERTS RECENTLY RELEASED

#03-2021 Unsafe Aftermarket Wheel Nuts

#02-2021 Aftermarket Chrome Brake Booster Bolt Failure

#01-2021 'Magnum Force'-Brand Aftermarket Dropped Spindles (Stub Axles)

For all LVVTA Safety Alerts, visit: www.lvvta.org.nz/safetyalerts.html

LVV People

NEW STAFF

Martin Boyle LVVTA's '80s Car Guy

LVVTA welcomed 'Marty' Boyle in February 2021, when he joined our Tech team as a Technical Advisor.

Like all LVVTA staff, cars are a long-standing passion of his - he comes from three generations of mechanics and grew up surrounded by 1970s Fords. Marty is a qualified diesel mechanic, who (after being told resolutely by his dad not to make his hobby his career) decided that fixing commercial equipment would be different enough to keep life interesting. He did his mechanical apprenticeship on Auckland's bus fleet which (apart from regular fleet maintenance) involved chasing uncooperative bus drivers around the central city in a breakdown truck and provided an eye-watering view into the lack of mechanical sympathy some people behind the wheel of a bus have.

After tiring of piecing back together the results of wanton abuse and destruction, Marty moved up to sunny Northland for a career change in the agricultural sector, gaining a second qualification in Dargaville on tractors and farm machinery. This was an immense learning experience for a self-confessed 'townie', who when he first arrived couldn't tell a mulcher from a power harrow. He credits this experience with opening his eyes to the sheer amount of technology and complexity inherent in modern tractors and farm machinery, in particular GPS guidance and auto-piloting features.

After a couple of years crawling around under all manner of farm equipment, the opportunity to join the LVVTA arose, and after a small amount of prodding from CEO Tony Johnson, Marty decided the prospect of writing about and working with modified cars was better than laying in muddy paddocks fixing tractors.

He, his partner, and their cat have settled in Upper Hutt and are happily readjusting to living in a (comparatively) big city.

He says *"we both miss the lifestyle and people in Dargaville, but I'm looking forward to the new challenges that working for LVVTA will bring".*

When he's not in the garage, Marty enjoys photography and tending to his ever-expanding vinyl record collection. His current car collection consists of a Paul Radisich Telstar (for daily duties), a Mk2 Escort sedan (which is halfway through its third year of a 3-month restoration), and a Mk5 Cortina estate ("which I've owned since I was 18 and is staying for life"). If his obvious masochistic tendencies involving ageing economy cars aren't evident enough from that list, the most recent addition to his fleet is an elderly first-gen Honda Accord hatchback.

He justifies this dubious/brilliant choice by saying that one day an XY Falcon station wagon *"with a warmed-over 250 2V and three-on-the-tree"* will join the collection (although probably only once he wins the lottery). There's also the prospect of an early MX-5 with a K-series V6 swap and Individual Trottle Bodies planned, once some of the current projects are under control. ■

NEW Paeroa-based LVV Certifier

Introducing Nathan McGowan

If you're anywhere near the big L&P Bottle in Paeroa, you're in the right area to meet the most recently-appointed LVV Certifier, Nathan McGowan.

Born and bred under the engine hood, Nathan's passion for cars began at an early age working on old cars with his Dad and an uncle, and being dragged along to Hot Rod shows, club meetings, and swap meets. He has been a member of Tauranga Street Machines and Customs since before he had a driver's licence, and is also a member of NSRA, and Rotovegas Knuckledraggers Custom Car Club.

With generations of knowledge and expertise behind him, Nathan undertook his first big project at the age of 14 (a V8-AP5 Valiant conversion), and at age 17 he rebuilt a T-bucket that he acquired 'on the road' under declaration, which appeared to have been stuck together with chewing gum and a 100 amp arc welder. He's now a qualified diesel and automotive mechanic with over 30 years' experience.

Nathan has a personal fleet of 15 vehicles, including a 1955 Ford Crown Victoria, a 1960 Ford Starliner, a 1950 bare-metal chopped Mercury coupe, and he's currently working on a 1930s chopped Model A coupe.

Three years ago, Nathan returned home to New Zealand after years of working overseas and set up shop in Paeroa, opening Midnight Auto Services ("we build and fix cool stuff"), which specialises in the repair and maintenance of older cars to meet VIN/WoF/LVV certification requirements. His decision to become an LVV Certifier was influenced by understanding how daunting the process of building cars (old or new) can be, and wants to help others out by becoming part of the solution. He's got the experience and understands the process well *"…It doesn't have to be as scary as people often think".*

Nathan is a great addition to the team of LVV Certifiers, and we're pleased to have him on board. ■

LVV Certifier Training

With the addition of new LVVTA staff member Marty Boyle to the Technical team, Brendon's time has been freed up to tackle his new responsibilities as LVVTA's LVV Certifier Support Officer.

Amongst other duties, Brendon is providing support, group training sessions, and one-on-one training to current LVV Certifiers. He will also be mentoring LVV Certifiers who are new or have been appointed with new categories, assessing potential LVV Certifiers, and carrying out regular On-site Visits. All LVV Certifiers will

receive an annual friendly low-key 'how-can-we-help?'-style 'On-site Visit', which will focus on giving the LVV Certifier the opportunity to ask questions he might prefer not to ask in front of his peers at training sessions, helping him with any minor issues or shortfalls in knowledge that the desk-top review process might have identified, and will provide opportunity for feedback that might help LVVTA to improve its own performance, or improve the LVV certification system. So far this year Brendon has visited 25 LVV Certifiers and expects to visit the remainder before year end. ■

LVVTA Recognises Services to the Industry

Fred Fellows
NZ Motor Caravan Association

Fred Fellows of the NZ Motor Caravan Association was recognised by LVVTA recently, for his long tenure of almost 12 years as the NZ Motor Caravan Association delegate to the LVVTA Council. Fred provided greatly-valued input into LVVTA Council operations from November 2008 to June 2020, and his steady wisdom and guidance will be a loss to LVVTA's Council Meetings.

Barry Pope
Long-standing LVV Certifier

Barry Pope of Invercargill was recognised by LVVTA upon his retirement as an LVV Certifier, for his significant contribution to the low volume vehicle certification system. Barry was one of the originals shoulder-tapped by Tony Johnson to become an 'Inspector' for the LVV certification system way back in 1990, when the system was in the planning stages, before kicking off in 1992.

Between 1992 when the system began, until his retirement in 2020, Barry LVV certified 1662 modified and scratch-built vehicles over his 27 years.

The inscription on the Certificate of Appreciation is applicable to all of the LVV Certifiers who served well over a long period of time: *"LVVTA's certification system enables New Zealanders to enjoy the freedom to build and modify motor vehicles in a creative and innovative way despite living in a heavily-regulated environment. This freedom is entirely reliant on having a network of LVV Certifiers who possess vast knowledge and skills, and who are willing to pass on their practical vehicle-building and modifying experience to fellow-enthusiasts."* ■

Left: *LVVTA CEO Tony Johnson presented the Certificate of Appreciation to Fred on March 18th 2021 at Fred's home in Papamoa.*

Right: *The Certificate of Appreciation was presented to Barry on March 10th 2021 at his home in Invercargill by LVVTA CEO Tony Johnson.*

The Good, the Bad, & the Ugly

1: *Suspension Arm - When a suspension arm design is complex like this and not a time proven design, they require TAC approval.*

2: *Body Lift Block - Too small of a diameter in a body lift block can lead to fatigue cracks in the floor-pan and potential collapse.*

3: *Brake Pedal - A brake pedal must be made from a single piece of material.*

4: *Tow Bar - Luckily this is not in New Zealand, excessive leverage on a towbar could end catastrophically for other road users.*

5: *Turbo to Strut - Incorrectly positioned turbo, the housing is hitting the strut tower.*

6: *Ball-Joint Spacer - A ball-joint spacer with excessive leverage can cause a concentration of load on the suspension arm and eventual failure.*

7: *Brake Hose and Spring - A brake hose cable-tied to a spring is considered non-tradesman like and could lead to crushing of the brake hose.*