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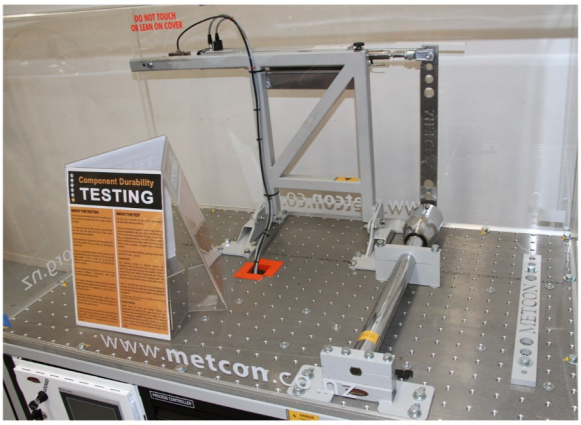
THE NEWSLETTER OF THE LOW VOLUME VEHICLE TECHNICAL ASSOCIATION (INC)

LVVTA'S CYCLIC TEST RIG COMPLETED

In response to the ever-increasing number of unsafe aftermarket automotive components hitting the market during recent years, and the difficulties associated with assessing potentially unsafe components without physical testing, LVVTA's efforts to help the hobby and the industry has moved to the next level through the development of a purpose-built durability cyclic test rig.



The need to build a cyclic test rig arose from growing concerns about the aftermarket parts industry, particularly after the catastrophic failure of an aftermarket tilt-adjustable steering column in 2013. This failure occurred in a small plastic component within the column's tilt mechanism.

Passing a one-off load test is relatively easy, however, to simulate the 'life' of a component in service, a high number of 'cyclic' (repeated) loads must be applied. Critical components like steering and braking parts will undergo something in the region of half a million cycles.

From the steering column failure, LVVTA began the process of formulating a method by which quality aftermarket tilt columns could be distinguished from poor quality items, along with other components over time. The cyclic test rig has been designed in such a way that it can be used for numerous different components, beyond just steering products. Over time, this cyclic test process will help enable LVVTA to prove — or disprove — the quality and durability of components intended to be fitted to low volume vehicles.

The rig has been built to incorporate an electronically-controlled actuator that can apply loads of between 2.5kg and 60kg, loads that can be amplified by using levers when required. The electronic actuator was chosen as it allows for finer control than a pneumatic system, especially at low loads, and also removes the need for noisy air compressors and lines. Loads applied on the column are measured by an electronic load-cell fitted to the rear end of the actuator. This sends a signal to the electronic controller, which is housed in a compartment in the front of the rig. Full data recording takes place of every movement the actuator makes and the loads applied by it. *(Cont'd on page 2...)*

Making it Happen

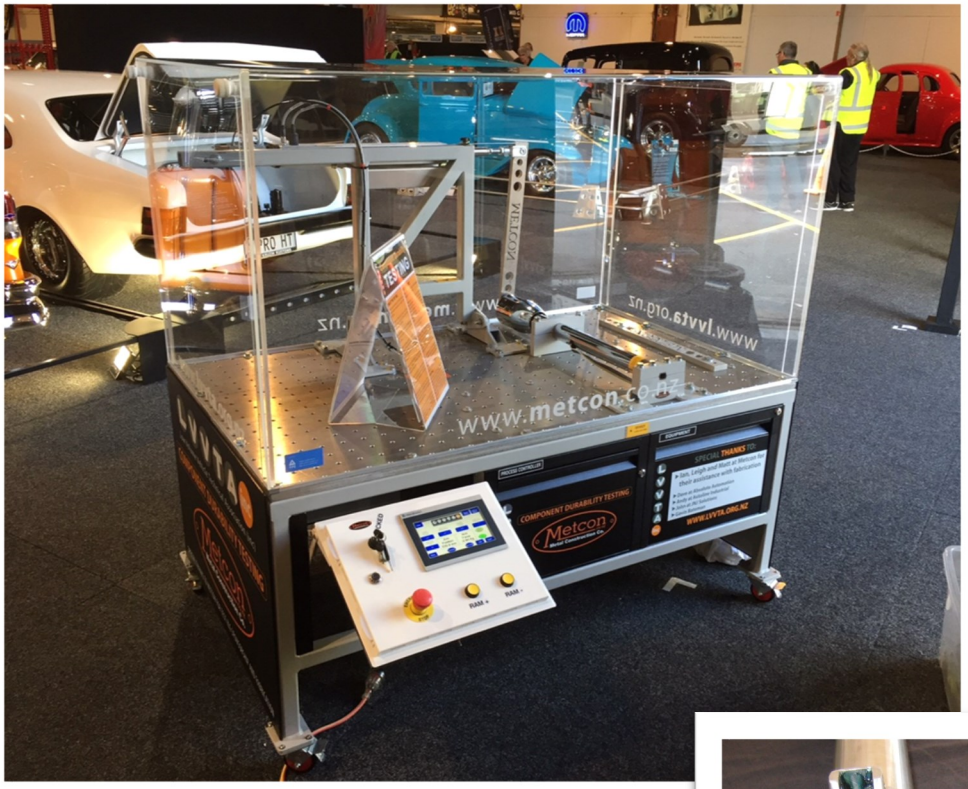
Gavin Bateman, a specialist design engineer, was engaged to assist LVVTA with the design of the cyclic test rig, and Wellington metal fabrication business Metcon, owned by hot rodder Ian Vibert, very generously carried out the major fabrication work for LVVTA at no cost. This donation was Ian's way of putting something back into the car hobby he has enjoyed throughout his life. Justin Hansen of LVVTA coordinated the whole project, and had a considerable role in the rig's design and construction. All eight Member Associations of LVVTA have kindly contributed towards the cost of the test rig. The planning, design, and build has taken around three years - on and off - from start to finish.

LVVTA'S CYCLIC TEST RIG COMPLETED (cont'd)

(...Cont'd from page 1)

The test rig was shown to the motoring public for the first time at the CRC Speedshow held in Auckland, during July of this year. As displayed at CRC Speedshow, the rig was fitted with a steering column that was clamped at the lower end, to prevent any rotation of the inner shaft, while the electronic actuator applied a load of around 7kg to the torque arm attached to the top (steering wheel end) of the steering shaft. The result was a torque of around 34Nm being applied at the shaft centre.

This is a relatively low load test, which is designed to simulate the types of loads that would be applied to an unassisted steering column under normal driving conditions. During CRC Speedshow a total of 11,197 cycles were performed on the sample column.



Unlike LVVTA's test procedure for cast I-beam axles, where each individual axle must be assessed and approved prior to being fitted to a vehicle, this is a destructive test, where even a column that passes will be worn and unsuitable for use in a vehicle. If a manufacturer has shown that they have proven conformity of production in their components, the result from the cyclic testing of one column can be used to justify others of the same make and model.

For the time being, there are no confirmed changes to existing steering column requirements, however LVVTA hope to have a clearer picture of the suitability of a wide range of aftermarket steering columns going forward, which will then be detailed within the LVV certification system.

The design of the cyclic test rig allows for columns to be tested at a range of angles, including their maximum tilt-setting, a position in which they're often driven in hot rods and custom vehicles. This creates the highest loads that such a column will be subjected to.

With the rig now operational, LVVTA are fine-tuning the test procedure which the columns will be tested to, using a mix of data sourced from production vehicle manufacturers and reputable aftermarket column test data. The plan is to be able to test columns under a number of different load conditions and a number of cycles to ascertain if any problems exist with them.

It's important to note that this test procedure being developed is for tilt-adjustable columns only, not for straight columns, due to the concern around the components used and designs of the tilt mechanism itself. The main cause for concern here is that many aftermarket columns, while loosely replicating an OE design, do not include the failsafe features of them, meaning that a failure of a simple plastic component can have catastrophic consequences.

Further information on unsafe steering columns and a detailed explanation of the original column failure can be found in the *Unsafe Aftermarket Steering Columns* infosheet at lvvta.org.nz.

CHANGES & NEW FACES AT LVVTA

More People, Changing Roles, Better Outcomes...

You'll see on page 4 that the LVVTA staff numbers have recently increased by two, as we bring on board Chris Smith and Brendon Norling, which takes the total LVVTA staff numbers up to eight full-time staff-members and three part-time staff-members.

It's no secret that LVVTA's obligations and expectations grow every year, and that we've been unable to properly keep up with the ever-increasing demands placed on us, let alone stay a few steps ahead as we'd like to be. The onslaught of unsafe aftermarket automotive parts arriving from non-traditional source markets like China is burning up more and more of LVVTA's time, and this involves all staff-members in a number of different ways, from identifying and researching the risks, to arranging for testing or expert analysis, to developing warnings via the LVVTA Newsletter, creating Information Sheets and Safety Alerts, and working with the specialist Automotive press to circulate the information as widely as we can. It even affects Ken McAdam's training role, as more and more of LVVTA's training time with LVV Certifiers is taken up in this area.

One of the big stumbling blocks in our quest to make better progress is that we have Justin Hansen and Dan Myers, who, have ten years and nine years respectively inside LVVTA, and both Justin and Dan have huge knowledge which could be put to good use in supporting CEO Tony Johnson in developing and improving the LVV system. Their problem, however, is that they are both mired in providing minute-by-minute technical support to the public, the LVV Certifiers, and the industry. It has been agreed that we have to make better use of Dan and Justin's expertise and time, and we have to differentiate between 'technical support' (which is where the majority of Dan and Justin's time goes), and 'technical project work' - which is what we're unable to achieve because of the number one priority always being to keep up with providing technical support. This huge technical support demand is also reducing Todd Wylie's ability to get on with his primary role involving publicity, as Todd has been part of the all-hands-to-the-technical support situation also, and he needs to be freed up to do what he does best.

In order to achieve this desire, we have brought in two new people - Chris Smith and Brendon Norling - who will effectively become a new Justin and a new Dan and take over (as they come up to speed over time) the technical support demands, which will reduce, if not eliminate, the day-to-day technical support loads from Dan and Justin and allow them to get on with the 'technical project work' that we need them to be doing. Over time, LVV Certifiers, the public, and the industry, will find themselves dealing with Justin and Dan less, and Chris and Brendon more. Chris and Brendon also have Leon Cast (who is part-time with LVVTA these days) to help them learn the ropes.

Chris and Brendon both have a great practically-oriented background, as well as both being very competent from an academic perspective, and were short-listed after a long process of considering many applicants.

We're very hopeful that with LVVTA's staff numbers up to where they need to be - perhaps for the first time in the last 10 years - we'll see some steady progress in many areas that have not been getting the attention that they should have had.

More Work for Ken McAdam!

Ken McAdam came on board at LVVTA, on a part-time basis, over three years ago, to fulfil the role of Training Officer when we recognised that we needed more effort applied to this area. Ken soon started supporting Dan and Justin, through necessity, in the area of technical support, and then found himself helping CEO Tony Johnson in other areas.

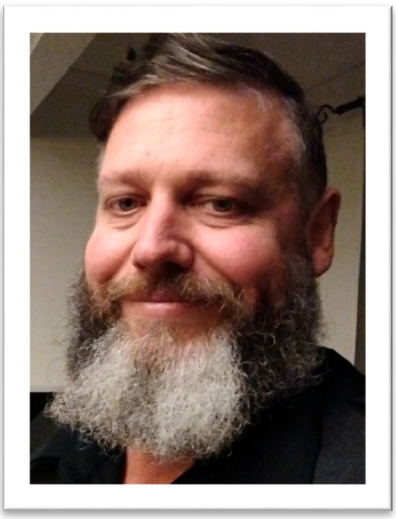
Ken's two days a week quickly became four days a week. During the past year, further efforts have been made to try to free Tony up to enable him to return to allocating some time towards the development of new LVV standards, and the reviewing and updating of existing ones, while still maintaining higher-level Chief Executive Officer responsibilities.

To enable this to happen, Ken has stepped up again, and is now spending five days a week with LVVTA, and is providing more support than ever to Tony by becoming appointed as LVVTA's Operations Manager. This means, principally, that Ken has taken over day-to-day responsibility for the overall office and staff management, while also still looking after the training role. This is made possible, in part, by the appointment of Chris and Brendon, so that Ken can shift away from helping Justin and Dan with Technical support.

It's all a bit of a merry-go-round, and will take time to fall into place, but LVVTA is now well-poised to run more effectively than it has for some years.

CHANGES & NEW FACES AT LVVTA (cont'd)

Chris Smith Stationed at LVVTA



Born and bred Wellingtonian Chris Smith has joined the LVVTA Technical Team, in the role of Technical Advisor. He comes from a mechanical background, where he states he spent "*more than my fair share of time working under leaky and old British cars but balanced with the odd race and fast road car*." Chris's background and personality see him as a perfect addition to the LVVTA technical team.

Cars were never just work for Chris, but a lifestyle choice, having owned and modified everything from a '23 T-bucket with a 350/350 combo through to a 'stock and saggy but great for cruising' '69 Impala coupe.

Currently, his collection includes an '82 VH Holden Commodore station wagon that he's converted from a factory 4-cylinder to a much more respectable 308 V8 and Toyota W55 gearbox. His '83 XE Ford Falcon station wagon he uses as a summer cruiser shows he's not one way or another in the Ford/Holden debate. Come winter time, he prefers the comfort of the heater in his BA Falcon wagon.

If a fetish for old '80's station wagons didn't give you an impression he's a touch unhinged, the fact he's also got a destructive Maine Coon cat named Dave, and a Citroen — station wagon, of course — should leave you with no question.

Following a back injury in 2005, Chris moved out of the workshop full time and into public transport administration, starting out in workshop parts before climbing the ranks to an operational planner for the Wellington metro rail network.

While his interests away from cars and over-sized cats extends to music from the late '70s and early '80s as well as drinking coffee, rum and cider (not necessarily together), he's also a co-admin of New Zealand's online retro and classic community oldschool.co.nz. It's through this, where he, along with assistance from LVV Certifier Clint Field, has already answered a lot of LVV-related questions, giving him a great insight to what his role at LVVTA will entail.

You can get hold of Chris and welcome him to the LVVTA team by emailing chris@lvvta.org.nz.

Brendon Norling's Up and Running

Wellingtonian Brendon Norling has joined the LVVTA Technical Team during October, coming on board as a Technical Advisor. Like all LVVTA staff, he has a long-standing passion for cars. Brendon says "*My passion for things automotive started early - dreaming of Lamborghinis and race cars. With big dreams and a small bank account, I started out as a mechanic more than twenty years ago*".

"If I couldn't afford one, I would drive someone else's or build one! I have built an (LVVTA certified) rally car, and believe it or not, I have managed to drive a Lamborghini."

Over the years Brendon has had the pleasure of driving, repairing and modifying a number of amazing cars including an HSV W427, Lexus IS-F, Dodge Ram SRT10 and Lamborghini Diablo as a few standouts.

He admits his own car ownership "*is, however, a little less flash*" although it does include a few modern-day classics such as an '89 Subaru Legacy RS, a 4AGE-powered '82 Corolla DX rally car and his current sunny day only wheels — a New Zealand new '86 Corolla GT.

After the untimely demise of his previous rally car, he's recently acquired a Toyota Altezza that he laughs may also get sacrificed to the rally Gods in the future. Away from cars, Brendon's heavily involved with off-road running, where he regularly races over long distances in a wide variety of terrain.

Having worked at various workshops over the years he has a wide range of on-the-tools experience and has held a number of positions including Workshop Foreman and Service Advisor. His desire to upskill has seen him build on his engineering interests by starting a New Zealand Certificate in Engineering.

Brendon states he's looking forward to meeting an eclectic group of people and helping all with their LVV requirements, and we're sure that he'll become yet another great member of the LVVTA team. You can get hold of Brendon and welcome him to the LVVTA team by emailing brendon@lvvta.org.nz.

New LVV Information Sheet System Developed During 2018

The LVVTA's 'LVV Certification Manual' has evolved slowly over the past 20 years. Original LVV Certifiers will fondly remember a simpler time twenty five years ago when a single document called the 'Code of Construction Manual' was the only 'paperwork' required. Needs for a robust and professional system became necessary however, and the LVV Certification Manual is now comprised of 8 volumes, plus a 9th 'Internal' manual for LVVTA operations. The 8 volumes provide for 'Operational' material, LVV Standards, LVV Information Sheets, LVV Form-sets, Reference material, and Newsletters.

Traditionally, LVVTA has released 'LVV Information Sheets', to provide 'as-and-when-required' information (not exclusively, but primarily) for the LVV Certifiers, which cover all manner of subjects - including technical, operational, and procedural material. Such is the quantity of these documents now, several years on, that the LVV Certification Manual features two folders specifically devoted to LVVTA Information Sheets.

LVVTA inc
Low Volume Vehicle Technical Association (inc)

SAFETY ALERT
11 – 2018

SAFETY ALERT
Counterfeit Steering Wheels and Quick Release Boss Kits

LVVTA are becoming aware of the increasing number of sub-standard and counterfeit vehicle components that are being imported into New Zealand. While some products are purely cosmetic and do not offer any safety risk, an increasing number of steering wheels and steering boss kits are available both online and locally that pose a very real safety risk to road users.

LVVTA have investigated a range of these components and found many design and quality issues. There's also concern that some of these components are potentially being sold locally as genuine items leaving the owner completely unaware that they're sub-standard counterfeits. Of the various items LVVTA has inspected, some arrived in boxes that appeared to be genuine, however, upon close inspection the products themselves are clearly low-quality replicas. The concern with low-quality steering wheels is the strength of the materials used in their construction. The steering wheels inspected by LVVTA have large amounts of flex due to the sub-standard metal being used – something that could easily result in the metal fatiguing and the steering wheel breaking over time. LVVTA are confident that one of the wheels inspected did not contain a full metal ring, due to the large amount of flexibility it offered.

Steering boss kits or hub kits are also an area of concern with many local sellers offering low-quality counterfeits manufactured from unknown material grades. The New Zealand Car Construction Manual strictly prohibits the welding of steering components. While most genuine brand or high-quality items feature no welding, the replica items often include welding as to reduce the cost of the manufacturing process. In some instances, LVVTA believes the quality of weld to be so poor that component failure is inevitable.

LVVTA are warning prospective purchasers of steering wheels and steering boss kits that the old saying of 'you get what you pay for' is very correct. LVV Certifiers have been informed to keep an eye out for these components, and should they deem them unsafe, will be unable to certify vehicles fitted with them.

LVVTA recommends modifiers ensure they are only purchasing genuine steering components.

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Hindsight is a wonderful thing, and now, many years after developing the early LVV Information Sheets, it's easy to see that - because the Information Sheets cover technical issues, operational and procedural issues, and safety-related issues - it can be difficult for users of the system to find something in a hurry.

The system is also at risk that something very important - such as an Information Sheet about a component which presents a serious safety risk - can easily become buried in the myriad of operational and procedural information contained in the two Information Sheet folders, and therefore become hard to find. Many of the operational or procedural documents only need to be read the once and then not needed again, whereas the technical documents may need to be referred to over and over again as time goes by.

Another problem with the system has been that many safety issues have been brought to the attention of LVV Certifiers via the LVVTA Newsletter, and then finding that article becomes time-consuming for LVV Certifiers when needed again some time later. Additionally, the information about safety issues needs to be made more readily available to the public.

So, the way in which LVVTA provides this 'as-and-when-required' information has undergone a revamp during 2018. Part of this redevelopment process is the introduction of a new style of LVV Information Sheet, which follows a similar theme and format as the normal LVV Information Sheets, but which are clearly identified as something of very high importance.

These documents are called 'Safety Alerts', and have the words 'Safety Alert' printed in red. We have deliberately tried to keep these Safety Alerts (wherever possible) to a single page - however there will be instances (such as is the case with the TCI IFS issue) where the necessary information can't be contained within a 'one-pager'.

To further improve the information distribution system, the Information Sheet folders (within the LVV Certification Manual) are being redesigned and rearranged, in part to facilitate the new 'Safety Alerts'. The two current Information Sheet volumes will become three, to make a nine-volume set. However, the three new volumes will become specific to the type of Information being provided:

- Volume 5 will become 'Safety Alerts';
- Volume 6 will become 'Information Sheets - Technical';
- Volume 7 will become 'Information Sheets—Non-technical'.

This reconfiguration will enable LVV Certifiers to find specific information more quickly and easily into the future.

LVVTA inc
Low Volume Vehicle Technical Association (inc)

SAFETY ALERT
03 - 2018

SAFETY ALERT
Aluminium Wheel Nuts

An investigation by the NZ Police's Serious Crash Unit and the Low Volume Vehicle Technical Association determined that the failure of multiple aluminium wheel nuts caused a wheel to detach from a vehicle, resulting in a serious crash. Further testing by LVVTA found aluminium does not perform adequately in this application.

Therefore, aluminium wheel nuts, regardless of grade, cannot be LVV certified unless provided as OEM equipment by a high-volume vehicle manufacturer for that particular vehicle.

In this case, the wheel nut failure caused the right rear wheel to detach from the vehicle, and the driver to lose control. The vehicle went into the path of an oncoming truck and trailer unit resulting in an accident in which the driver suffered critical injuries.

On inspection, it was found that some of the thread material remained on the wheel studs whilst the nuts had completely come off, indicating that the threads of the nuts had failed.

Failure of aluminium wheel nuts can be caused by a number of ways, such as thread material being torn off the nuts by 'galling' of the threads (i.e. 'cold welding'), stress fracturing, repeated thread cycles causing thread wear, or lack of lubricants on the threads.

Further testing by LVVTA determined that while the aluminium grade of the failed nuts was as stated by the manufacturer (T6075 aluminium wheel nuts, regardless of grade, are more easily stripped than a steel equivalent.

Therefore, aluminium wheel nuts, regardless of grade, cannot be LVV certified unless provided as OEM equipment by a high-volume vehicle manufacturer for that particular vehicle.

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The website will also be reconfigured to align with this new information regime. Because of the high level of importance associated with the Safety Alerts, these new documents are already on the LVV website with their own dropdown menu button (called SAFETY ALERTS).

LVVTA's Frances Bradey has spent a lot of time this year identifying current and past safety issues that should be presented (or represented) in a more permanent and portable manner, and she has done a great job of converting this information - and expanding on it or reducing it as necessary - into the new 'Safety Alert' system.

LVVTA thinks this will be a useful step forward for the LVV certification system, and should prove to be very helpful for the LVV Certifiers who need quick and easy access to this important information.

The three new volumes will be completed and issued to LVV Certifiers (and the two current volumes withdrawn) early in 2019 once the new artwork and reconfiguration work has been completed.

AFTERMARKET ALERT

Concerns About 'BVL/BWD ' Brand Chinese Seatbelts Confirmed

In the last LVVTA Newsletter, Issue # 55 January - May 2018, LVVTA provided an early notification to LVV Certifiers about some unsafe seatbelts in an article entitled 'Concerns About 'BVL/BWD ' Brand Chinese Seatbelts'. Since this article was published, LVVTA has produced a Safety Alert which is on the LVVTA website and has been issued to LVV Certifiers.

The New Zealand Transport Agency has recently undertaken some independent testing of these seatbelts in Australia, which has confirmed that the seatbelts are non-compliant and unsafe.

As a result, the Transport Agency has issued an alert advising of the non-compliant aftermarket seatbelts which have been found to fail during testing, and which, therefore, do not meet an approved safety standard as they claim to do.

This affects only lap and diagonal retractable seatbelts which have labels indicating that they have been manufactured by Changzhou BWD and imported and distributed by Business Ventures Limited (BVL). This does not apply to other seatbelts distributed by BVL or manufactured by other suppliers.

The affected belts have been supplied to members of the public through mainstream automotive supply stores as well as installed into vehicles by specialist seat and seatbelt installation businesses. As many vans, including those used as taxi vans, are often fitted with aftermarket seats and seat belts, owners of these vehicles should be extremely vigilant in their inspection to ensure they're not affected.

NZTA is advising people that if BVL/Changzhou BWD seatbelts are fitted in their vehicle's driver seating position that they do not use the vehicle until replacements are fitted. If fitted in other seating positions, the advice is not to allow passengers to use those seats. It has also instructed vehicle inspectors to fail a vehicle for its warrant of fitness (WoF) or certificate of fitness (CoF) inspection if these seatbelts are identified in a vehicle.

The labels indicating the seatbelt's manufacture can be found on the lower inner end of the seat belts — generally between the seat and the door in passenger cars. It's essential that vehicle owners check both tags. The affected belts will have BWD printed on them.

If vehicle owners and operators have a vehicle fitted with the affected seatbelts, they should contact the retailer they purchased the seatbelts from immediately.

LVVTA Inc
Low Volume Vehicle Technical Association (Inc)

SAFETY ALERT
10 – 2018

SAFETY ALERT
Non-Compliant Aftermarket Seat Belts

The New Zealand Transport Agency (NZTA) has issued an alert advising of non-compliant aftermarket seatbelts which have been found to fail during testing and so do not meet an approved safety standard.

This affects only lap and diagonal retractable seatbelts that have labels indicating they have been manufactured by Changzhou BWD and imported and distributed by Business Ventures Limited (BVL). This does not apply to other seatbelts distributed by BVL or manufactured by other suppliers.

The affected belts have been supplied to members of the public through mainstream automotive supply stores as well as installed into vehicles by specialist seat and seatbelt installation businesses. As many vans, including those used as taxis, are often fitted with aftermarket seats and seat belts, owners of these vehicles should be extremely vigilant in their inspection to ensure they're not affected.

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The labels indicating the seatbelt's manufacture can be found on the lower inner end of the seat belts – generally between the seat and the door in passenger cars. It's essential that vehicle owners check both tags. The affected belts will have BWD printed on them, as shown in the photo above.

If vehicle owners and operators have a vehicle fitted with the affected belts, they should contact the retailer they purchased it from immediately. If vehicle owners have purchased a vehicle with the seatbelts already fitted, NZTA recommend they talk to BVL directly.

Full details on the NZTA alert can be found on NZTA's website here:
https://www.nzta.govt.nz/vehicles/vehicle-safety-alerts/bvlchangzhou-bwd-retrofitted-seatbelts/
Enquiries or questions related to this issue should be directed to the Transport Agency on 0800 699 000.

If vehicle owners have purchased a vehicle with the seatbelts already fitted, NZTA recommend they talk to BVL directly.

The Agency has asked the LVV certification system to assist in this wide-spread problem by requesting that LVV Certifiers look closely at any retro-fitted seatbelts, and fail any vehicles equipped with them. If an LVV Certifier requires any advice on this issue, they should contact a member of the LVVTA Technical Team.

Full details on the NZTA alert can be found on NZTA's website here: https://www.nzta.govt.nz/vehicles/vehicle-safety-alerts/bvlchangzhou-bwd-retrofitted-seatbelts/

Enquiries or questions related to this issue should be directed to the Transport Agency on 0800 699 000.

Tie-rod 'Droppers'

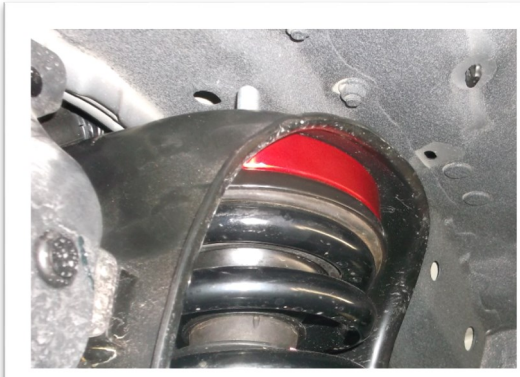
LVVTA have seen an increasing amount of 'tie-rod droppers' being fitted to vehicles. These components move the ball-joint centre downwards to offer the same effect as lowering the steering arm, in an (often misguided) effort to correct steering geometry problems. These are most commonly found on vehicles that have been severely lowered, and are often used in conjunction with roll-centre adjusters.

While these can be LVV Certified, they require an LV1D-authorised LVV Certifier to carry out a thorough inspection of the vehicle, including performing a bump-steer swing-check. Tie-rod droppers can generally be identified by the boots over them having double bellows (two ribs), where all OE tie-rods that LVVTA has inspected have only one. LVVTA asks WoF inspectors to keep an eye out for these modifications, as there is the chance that they may adversely affect the steering geometry of the vehicle, and assessment by an LVV Certifier is essential.

Raising Vehicles With Aftermarket Spacers

Certification required or not?

One of the most common questions currently being asked of the Low Volume Vehicle Technical Association (LVVTA) is the legality of coil spring strut spacers being fitted to late model utes and four-wheel drives. These types of spacers are usually between 25-40mm in height and bolt in between the top of the front strut platform and the vehicle structure, to raise the ride height of the vehicle.



At left, the bright red item in the photograph is an after-market coil spring strut spacer, fitted above the coil spring, to raise the ride-height of the vehicle.

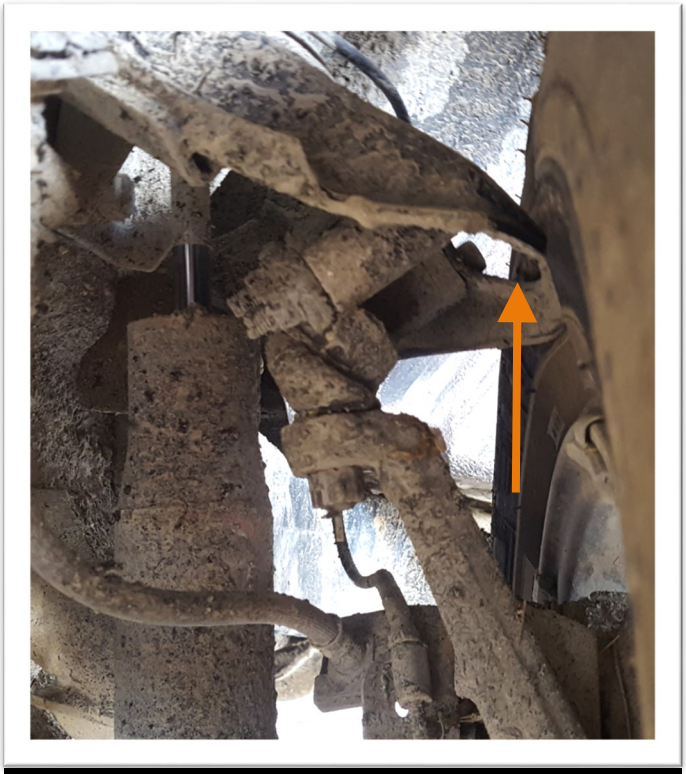
There's always much debate when the topic is mentioned on LVVTA's Facebook page, with many AVIs, vehicle owners, and modifiers incorrectly assuming that spacers do not require LVV certification. The reality is that all strut spacers such as this, do require LVV certification. The clarification of this is on the 'tables and images' tab of the Steering and Suspension section of the NZTA's Vehicle Inspection Requirements Manual (VIRM). This page lists all suspension modifications that are permitted without LVV certification. Strut spacers are not listed, which in turn means that LVV certification is required.

Ball-joint spacers:

Ball-joint spacers, which are also commonly being added to these types of vehicles to correct the top suspension arm angle due to the added spacers, are also a cause for concern due to the added loads that they transfer to the suspension arms.

The photograph above shows an aftermarket spacer inter-positioned between the upper suspension arm and the upper ball-joint, to create an increase in ride-height.

LVVTA has seen multiple cases of cracked, and in the worst cases, completely failed upper suspension arms (such as that shown in the photograph below) due to ball-joint spacers. As such, LVVTA would like to remind AVIs that these modifications not only require LVV certification but may provide a real danger to road users.



The photograph above shows the same type of aftermarket spacer inter-positioned between the upper suspension arm and the upper ball-joint, but in this case the upper suspension arm has collapsed due to the uneven loading caused by the aftermarket spacer.

Multiple problems found:

LVV Certifiers around the country have found multiple issues on vehicles fitted with strut spacers and ball-joint spacers, ranging from ball-joint bind, through to brake hose problems, wheel speed sensor wiring problems, and complete mechanical failures.

LVVTA is also concerned about the number of brand new vehicles that have been fitted with strut spacers by the dealer, resulting in not only a potentially dangerous modification going unchecked but also in a nasty surprise when the vehicle receives its first Warrant of Fitness inspection in three years time.

Remember your customer's insurance:

Vehicle owners should also be made aware that by not certifying vehicles for these types of modifications, their insurance may be void should a claim arise — a risk that is increased, should the modification be deemed to be the cause of the accident.

If presented with a vehicle which you're unsure about the legality of for a WoF inspection, LVVTA encourages inspectors to contact a member of the LVVTA technical team by phone on (04) 238 4343, or email on tech@lvvta.org.nz.

AFTERMARKET ALERT

Sub-standard Suspension Arms

LVVTA has been paying close attention to aftermarket suspension arms, and have discovered many non-compliant items available on the local market. One example – for a Chrysler 300C – is pictured.

The arm was inspected by LVVTA's Technical Advisory Committee, and was rejected as not being suitable for use due to it relying on the clamping force from a single nut to hold the adjustable ball-joint into position. Most arms of this design would feature a serrated area that helps to secure the ball-joint into place and traditionally a minimum of four fasteners.

LVV Certifiers have been alerted that suspension arms with this single-nut clamping system and a lack of serration can not be LVV certified. If you're in the market for adjustable suspension arms, or are advising people on what to use, LVVTA recommends to watch out for this issue, along with ensuring that the requirements of the LVV Suspension Systems Standard is met.

See: https://www.lvvta.org.nz/documents/standards/LVVTA_STD_Suspension_Systems.pdf

Y32 and Y33 Nissan Strut Warning

Nissan Infiniti Q45, Cima, Gloria, and Cedrics based on the Y32 and Y33 platform (1997-2001) feature a front suspension system that incorporates the spindle assembly within the bottom of the shock absorber. This design requires welding of the cast or forged stub axle assembly to the strut tube, however we can be confident that Nissan would have perfected the OEM welding process to ensure the heat generated by the weld does not affect the metallurgical structure of the component.

As LVVTA prohibits welding of a cast or forged component, aftermarket variants of this design cannot be accepted by LVV Certifiers, unless the manufacturer has gone through the process outlined in Information Sheet 05-2012 Welded Aftermarket Suspension Struts (https://www.lvvta.org.nz/documents/infosheets/LVVTA_Info_05-2012_Welded_Aftermarket_Suspension_Struts.pdf).

To date, no suspension suppliers have gone through the process for this make and model. Should owners of Y32 and Y33 vehicles wish to fit coil-over adjustable suspension, they do have the option to add adjustable platforms to their OEM struts. The requirements for this style of modification can be found in the LVV Suspension Systems Standard here: https://www.lvvta.org.nz/documents/standards/LVVTA_STD_Suspension_Systems.pdf .

Welded Aftermarket Pitman Arm Failures

CPP (Classic Performance Products), have reminded vehicle owners of a warning that on some of their tri-five Chev pitman arms, the welded ball stud can detach from the arm. The failure is reportedly due to the design and assembly methods utilised by the manufacturer of the component on the June 2015-December 2016 produced components. If you own a vehicle fitted with a CPP pitman arm, LVVTA recommends you confirm if it is one of the affected items by visiting the CPP recall site. LVVTA understands that CPP are aware of, and have fixed the manufacturing issue. They are also asking for any affected components to be returned for an exchange. This is yet another example of why LVVTA has concerns around welding of critical components. Similarly, LVVTA have also recently discovered multiple similar failures on aftermarket Toyota Hilux pitman arms. One such arm is sold to suit the early non-IFS Hilux range (1979-1997), while another failure has been of an unbranded arm. In all instances, the ball stud has torn away from the arm itself.

As such, it's recommended that owners of these vehicles and AVIs perform a thorough inspection of these components, and if any doubt exists, replace the components with genuine items. The image shows an example of the aftermarket pitman arm that has been recently known to fail.

Right: The failed welding on the CPP-brand Pitman Arm where the ball is welded to the arm

Left: This is what the factory Toyota Pitman Arm looks like

Unsafe Steering Modifications

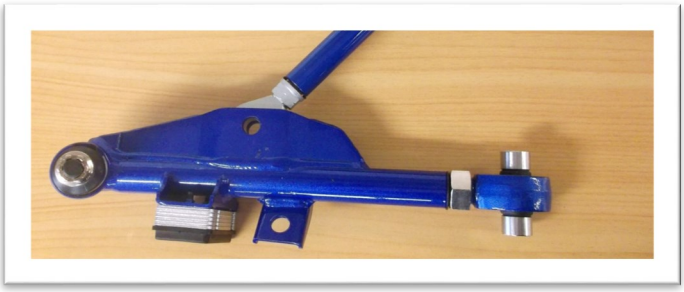
Some of it's OK and some of it's not OK:

LVVTA have become aware of a range of suspension arms, mainly produced for Nissan rear-wheel drive platforms such as Silvia, Skyline, Laurel, Cefiro, and 300ZX, that are used in conjunction with steering rack modifications to offer increased steering lock. Increased lock is often desired by builders of 'drift' cars, or modifiers of regular road cars that want the look of a drift car.

The OK bit:

On these suspension arms, the brake reaction rod is repositioned further inboard than on the OE arm to allow for increased tyre clearance at full lock.

This design has been assessed by LVVTA's Technical Advisory Committee (TAC), and the TAC was generally satisfied that the design of the arm and the relocation of the brake reaction rod. Due to its additional gusseting, the suspension arm was deemed strong enough for the job it was designed for. As such, these can be accepted by LVV Certifiers, provided they ensure that all other requirements contained in the LVV Suspension Standard are met.



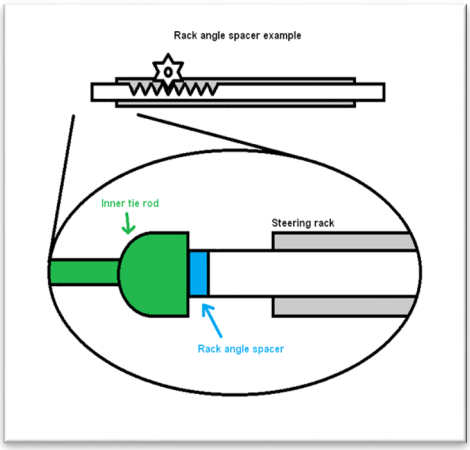
The <u>not</u> OK bit:

The modifications to the steering system however (which these arms are generally used in conjunction with) include adding steering rack spacers which allow the rack to travel further than originally intended, in order to increase steering lock. Additionally, the increased rack travel causes the steering tie-rod end to act as the steering stop by hitting a contact pad incorporated into the suspension arm, which is not acceptable.

Spacers, such as those shown above, fitted for increasing steering lock, may not be LVV Certified. TAC members shared several concerns with these rack modifications including:

- the rack shaft can run out of tooth engagement and can cause damage to rack shaft and pinion teeth; and
- the steering is more likely to go over-centre; and
- the inability to apply a thread-locking device to the rack spacers.

LVV Certifiers should ensure that such steering modifications have not taken place and must ensure that the steering tie-rod cannot come into contact with the contact pad on the suspension arm.



TAC members agreed that whilst these steering modifications can't be certified, that shouldn't have any effect on the suspension arms which can be used provided that the modification process does not incorporate the rack modifications.

TECHNICAL

You Beaut, Mitsuoka Viewt...

You may not know the name Mitsuoka Viewt, but there's a good chance you might have seen one on the road previously that's left you scratching your head.

The cars are based on the Nissan March, and are modified by Mitsuoka to appear like a small-scale Mk2 Jaguar. Mitsuoka have made over a thousand of these per year, adding a new nose and a sedan-style boot area to the Nissan's hatchback body.

As cars become 20 years old, they're exempt from being required to meet frontal impact requirements, so early Viewts can once again be imported into New Zealand.

While previously it was thought that due to the high production numbers, these vehicles were exempt from LVV Certification, further discussion with NZTA has resulted in NZTA requiring LVV Certification to be carried out on all Mitsuoka Viewts.

The reason for this determination is due to concerns around the modifications which Mitsuoka carry out due to their impact on seatbelt anchorages, crumple zones, and the body structure.

LVVTA is aware that Mitsuoka also offers other models such as the Le Seyde (shown below) which features large chassis extensions and requires LVV certification. Any of these vehicles that are newer than 20 years old are still required to meet a frontal impact standard however, and so are unlikely to be able to be LVV Certified.

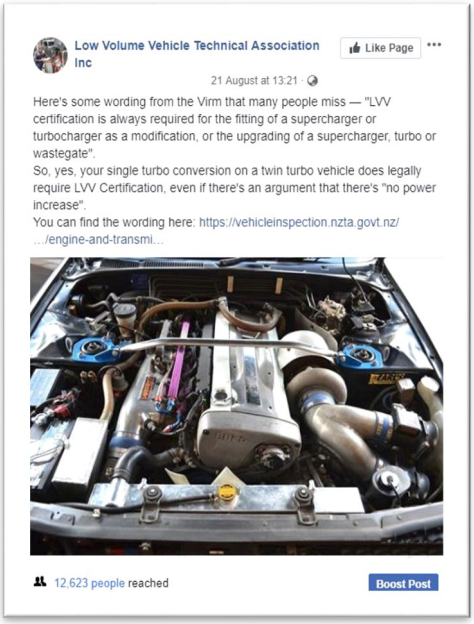
Facebook Tells the Story...

Here's a post on a technical subject that received plenty of interaction on the LVVTA Facebook page recently, provoking a wide range of responses. The post highlighted the NZTA's Vehicle Inspection Requirements Manual's (VIRM) requirements around turbo upgrades and twin-to-single turbo conversions requiring LVV Certification.

While some of the market that the post was aimed at took exception to the requirements that were being highlighted, thankfully many others grasped the logic behind the explanation that LVVTA provided to support the reason for the requirement being in place. What's great is that while LVVTA staff answer many questions on posts such as these, there's now a large number of highly-informed vehicle enthusiasts actively following the LVVTA Facebook page, who also answer the questions. This involvement by the well-informed extends to defending the logic behind requirements such as the ones this particular post was informing people of.

LVVTA accept that not everyone wishes to accept standards and regulations, but through continued education the message does seem to be getting through to those that do want to know. The general feedback on many of LVVTA's posts is of appreciation for informing people of the LVV certification requirements.

If you're not following the LVVTA Facebook page as yet, you can find it here: www.facebook.com/LVVTA



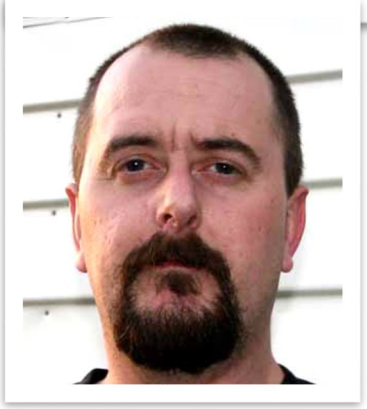
LVVTA Staff Celebrate a Decade of Service

LVVTA staff members Justin Hansen and Nikki Thomas have both passed an important milestone in April 2018 and August 2018 respectively. The dates mark an impressive ten years of service to LVVTA for each of them.

Back in 2008 when both joined LVVTA, the staff numbers were a lot less, with just three full-time employees prior to Justin joining as a Technical Officer, and four when Nikki joined as Plate Production Officer. In comparison, currently, there are eight full-time staff members and three part-time staff members — some of which you can read more about elsewhere in this newsletter.

Since those early days, Justin and Nikki have both become an integral part of the organisation, Justin becoming the in-house Technical Advisory Committee member and an essential part of the LVVTA Tech Team and Nikki stepping away from plate production to look after the administration side of the organisation.

We'd like to take this opportunity to thank and congratulate Justin and Nikki for their service and look forward to many more years working alongside them both.



Justin Says...

"10 years ago I hung up my spanners and hit the LVV plating desk, soon after stepping up to Technical Officer. That was all a major leap of faith, both for myself and LVVTA, and while I can't profess to being any kind of expert even now, I have certainly picked up a few things along the way. The highlights would have to be the people — we deal with a massive number of people every week, and while we get the occasional difficult one, the good buggers outweigh them ten to one, and I get a real kick out of helping people through to a good outcome. The staff — the people that make it all bearable — are all great and of course the LVV certifiers and TAC members I've had a lot to do with are all a big part of the reason I keep coming back for more, and I'm totally proud to be part of the team."

LVV PEOPLE (cont'd)

Welcoming New LVV Certifiers

Ian McLachlan
Christchurch

Long-time mechanic and vehicle lover - particularly of the American variety - Ian McLachlan has been appointed as an LVV Certifier to service the Christchurch region.

Ian's been in the automotive trade since 1986, when he began an apprenticeship in Automotive Engineering.

Since then he's worked in various mechanical workshops around Christchurch before travelling to America where he had the opportunity to work and live for extended periods in California.

Ian's owned a number of interesting vehicles over the years, having progressed from his first modified vehicle, a MK1 Cortina fitted with a 2.3L Pinto motor, onto a wide range of American vehicles. He currently has a very tastefully resto-modded '67 Camaro, a patina-coated '63½ Ford Galaxie, and a Chev Monza circuit car that's under construction for the Mobil 1 Mainland Muscle Car Series – where he's already heavily involved helping his brother Steve McLachlan race his beautiful 1969 Allan Moffat-replica '69 Ford Mustang.

Ian says that cars are his passion, and when he's not at work, he's busy building cars for himself and others, which makes him a great addition to the LVV Certifier network. Ian's appointment support's existing Christchurch LVV Certifier Ian Smith, who both form the next generation of LVV Certifier as Don Hoff slips into retirement.

Phone: 021 267 4265

Email: kiwimac8@hotmail.com

Address: 2/7Nga Mahi Road, Hornby, Christchurch

Matt Tasker
Palmerston North

Despite being only 28 years old, Matt has completed a National Certificate in Automotive Electrical as well as a National Certificate in Automotive Engineering, and has worked alongside long time LVV Certifier Danny McKenna. Matt purchased part of Danny's business in 2014, before buying Danny out in 2017.

With a strong interest in motorsport and as a member of Manawatu Car Club, Matt's been competing in budget motor racing for the last five seasons in a Mazda MX-3 with great success that includes a class win in 2015.

He's also deep into the build of a street-legal Ford Escort Mk2 Station Wagon that's been cut into a ute that he's fitted with a 2L turbo Nissan engine, 5-speed gearbox, and Hilux diff. The plan is to use the Escort for drag and Powercruise type events. This won't be Matt's first foray into the drag racing arena however, having had involvement with a number of tough street cars and dedicated drag cars.

Matt's keen to help people get their projects on the road, regardless of what they are, and saw the opportunity to become an LVV Certifier as the perfect step for his business as well as a natural progression for himself.

Away from the workshop Matt's an avid dart player, competitive woodchopper, and recreational beer taster.

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Email: dannysautoservices@gmail.com

Address: 25 David street, Palmerston North

FEEDBACK

"Thank You for Writing the NZ Car Construction Manual"

Hi Tony, I just bought the NZ Car Construction Manual you wrote (online) and I haven't been able to put it down. I've had a '57 Chevy coupe for many years, now I am finally having a run at all the things that have bugged me about it (so the book has come at just the right time just before I put it back together).

These things sucked: lap belts and no kids seat belts, stink brakes, wandering steering, no aircon (wiping the windscreen with a cloth is just darn frightening), shit headlights, cold as because of all the holes in the body, noisy as because of said holes, uncomfortable seats, whistling windows, a million different rattles, bone jarring rear end.

So far, I have addressed the following: Reliability - bought crate motor. Overheating - bought new alloy radiator. Handling - bought front suspension system from Heidts, this time with new hub to correctly bring wheels inboard to correct track width so they don't rub on the guards, and looking to change rear suspension from 4-link to triangulated 4-link to do away with pan hard rod so I can move coil overs inboard and run a rear sway bar. The stuff in your book around suspension is great, as is the advice for adding x-members to an otherwise stock frame, I feel the car needs to be stronger, the trans x-member is a bolt on job, I'm going to do away with those crush tubes and make a shelf. I bought bigger 6 pot Wilwood brakes for the front, still figuring out the rear.

The goal is to drive safely with the kids onboard, AND be able to do the odd squirt down the track and the odd skid for a giggle.

Thanks again to you and your friends for the huge effort you put in, in writing your book for all the people like me, a fellow enthusiast. I hope I get a chance to say gidday in person one day.

Regards, Brian Ransfield, Wellington

All of us at LVVTA appreciate kind words like Brian's, especially, in this case, the Members of the Technical Advisory Committee who put so much technical input into the development of the NZ Car Construction Manual over many years. Its great to read about people who take safety seriously, and mix road safety in with modern driveability and performance. Brian is going to have one nice ride here; - its features include a TCI 6-speed paddle-shift automatic transmission.

"Very Helpful..."

"The New Zealand Car Construction Manual and guidance by the LVVTA were very helpful ... if we did not have them, we would be like Australia where it is very hard to customize a vehicle, or, on the other hand, like the States, where you can practically do anything to a vehicle even if it's unsafe".

Llew Picton, owner of the 1969 Chev Camaro from the cover of NZV8's December Issue.

Getting LVV Information Out There

Over the years, LVVTA staff have been so under the pump that we have tended to knock a job over, and then get straight into the next one on the pile. We've never done a good job of publicising what's going on within LVVTA, just through a lack of time. If the choice has been to sort out a new problem, or tell people about the last problem we've sorted out, we've elected to sort the next problem out. Todd Wylie was brought on to resolve this situation, and with his publishing background, his role is to get the word out to the industry about what's happening within the LVV world - and in particular, the various safety risks that LVVTA identifies and deals with. A big part of this publicity work is to feed LVV-specific information directly to the Warrant of Fitness issuing industry.

To this end, LVVTA is now working directly with VTNZ and the MTA, and Todd is working towards providing regular articles to these organisations for publishing to their respective members. Todd is keen to hear from any other organisations who would like to become recipients of the LVV-specific information which LVVTA provides. Contact him on todd@lvvta.org.nz


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Tech News
DEKRA
WoF & CoF sticker attachment
Replacement Cast Suspension Arms
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LVV PROMOTIONS

CRC Speedshow 2018

LVVTA was pleased to once again take part in the annual CRC Speedshow held in Auckland during July, holding a trade stand within the Teng Tools Grand National Rod & Custom Show hall.

As well as displaying its recently-completed cyclic test rig, LVVTA was lucky enough to have Llew Picton's Pro-Touring '69 Chevrolet Camaro debuting on the LVVTA stand.

The car is a success story of not just the owner's determination, but of the LVVTA Design Approval process. Although even to the untrained eye, the car looks amazing, it's what's beneath the stunning Camaro body that sets it apart from the rest – a full 'Roadster Shop' box-section chassis that has been integrated back into the vehicle, causing it to remain as a unibody.

Being one of the first vehicles of its type in New Zealand to be modified in this manner, the integration of the chassis provided some impetus for the recent review of the 'scratch -built' and 'modified production' definitions, which now provides a clear path for vehicle owners wishing to perform the same modifications into the future. An aftermarket chassis for a unibody car wasn't thought of a decade ago, but they have proved to provide a great safety and driveability improvement for cars like this. The Technical Advisory Committee found Llew great to deal with, and likewise, Llew was appreciative of the help he received from the TAC. Llew's efforts were well-rewarded, by winning his category and the prestigious People's Choice trophy.

As always during such shows, countless technical questions were answered by the LVVTA Technical Team members present, and plenty of helpful advice was provided to modifiers. Hundreds of entries were received for LVVTA's 'Free Certification' giveaway draw, and the lucky winner was Peter Mattram, drawn by Police Officer and modified vehicle owner Quintin Brown.

LVVTA would like to thank Brenda and Ross Prevette and the rest of the CRC Speedshow team for inviting us each year to be a part of this fantastic event - which has now grown to become the biggest and best car show and hot rod show in New Zealand.

THE GOOD, THE BAD, & THE UGLY

THE GOOD...

Brilliant Kiwi custom car painter, originally from New Plymouth and now residing in California, Paul Adams painted these plastic engine covers on this LS to make them look as though they're fabricated sheet-metal covers! Cool!

...THE BAD...

...THE UGLY...

...& THE SLIGHTLY INSANE!