

## LVVTA WELCOMES NZTA REVIEW OF LVV CERTIFICATION SYSTEM

The Low Volume Vehicle Technical Association (LVVTA) is welcoming the review that the New Zealand Transport Agency (NZTA) is undertaking of the LVV certification system, and foresees that the outcome of the review could well provide opportunities to make further improvements to the LVV certification system that has been in operation since 1992. LVVTA has had a long and solid relationship with NZTA and its predecessors (which are Land Transport New Zealand, the Land Transport Safety Authority, and the Ministry of Transport) going all of the way back to the initial development of the LVV certification system which began in 1989.

### NZTA's review of the LVV certification system

LVVTA's CEO Tony Johnson was the initiator of the LVV certification system back in 1989 and has remained a key driver of it ever since.

Johnson says that it is healthy for NZTA to review all of the vehicle certification systems in operation within New Zealand from time to time (which include WoF, CoF, Heavy, Repair, and Entry), in this case to ensure that the LVV certification system is operating as NZTA expects it to be. Additionally, LVVTA needs to have confidence that it is providing the level of technical rigour and LVV certifier performance oversight that NZTA requires. In order for NZTA to know whether they want the bar raised, left as it is, or lowered, they will obviously need to look into how the system is working, and provide feedback to LVVTA.

NZTA wants to make sure that the various aspects of the LVV certification process are working well for everyone involved with the system; that the process is responsive and relevant, and that the technical requirements are sufficiently robust.

In order to determine where the LVV certification system is currently at in relation to where NZTA would like it to be, many of the key participants in the LVV certification process will have an opportunity to have a say about what they like and don't like in relation to the current system. NZTA will be inviting people who use the LVV certification system in some way to comment on it, and offer their opinions and ideas, through an internet-based questionnaire. This questionnaire is being independently managed on NZTA's behalf by Standards New Zealand.

### LVVTA supports NZTA's system review

LVVTA is very supportive of NZTA's desire to review the LVV certification system. The LVV certification system hasn't been reviewed by NZTA (or its predecessors) for some time, and it's very important

that LVVTA clearly understands what NZTA expects of the system, and that both parties' thinking in terms of how the LVV certification system should be operated is clearly aligned.

Associate Transport Minister Craig Foss has said publicly recently, and quite rightly, that "The LVV certification process is about ensuring vehicles built from scratch or modified for a specialised purpose are safe to be on the road". Associate Minister Foss's view on road safety mirrors LVVTA's most fundamental operating principle.

Johnson is adamant that LVVTA will continue to take its responsibilities seriously, remain vigilant, and do everything it practically can to allow enthusiasts and the modification industry alike to continue to modify and build vehicles within safe and sensible engineering parameters.



### Development of the LVV system

The current LVV certification system has been developed over 25 years, involving hundreds of technical experts from all walks of automotive engineering life during this time. A wide range of input into the system has been necessary because of the level of complexity and diversity associated with the certification of modified and scratch-built vehicles. By way of example, the LVV Standard 45-60 (Disability Transportation Systems) was developed over a period of eight years, involving a consultation process which included nine draft documents, five industry working group meetings, and input from approximately 300 people directly involved in the disability sector including modifiers, builders, importers, occupational therapists, health and medical specialists, users, formally-trained engineers, LVVTA's technical committee and staff, Taxi

Federation, Lotteries Board, and key officials across four Government agencies.

It can be easily overlooked that the LVV certification system does much more than just developing technical requirements and over-viewing the LVV certification inspection process. LVVTA applies much of its resources into areas including product and component assessment, component testing, publicising known safety problems and risks, training LVV Certifiers, and providing technical support to system users and industry groups, including supporting the NZ Police's Serious Crash Unit and training front-line Police staff. One of LVVTA's current projects is the design and construction of a cyclic test rig for assessing the durability of critical aftermarket automotive components - something that is sorely needed with the growing tidal wave of unsafe products arriving into our market. (Cont'd P 2)

## LVVTA WELCOMES NZTA REVIEW OF LVV CERTIFICATION SYSTEM (Cont'd)

### Encouraging innovation *(Cont'd from P 1)*

Every day, LVVTA deals with people wanting to do something in a new, unique, or innovative way, and so the LVV certification system has been designed to be flexible and to continuously evolve as trends change and new technologies emerge. That said, while the LVV certification system encourages innovation, we have to be mindful that not all innovators innovate well. Most members of the motoring public would rightly expect that if people are allowed to modify motor vehicles that there is a robust certification system in place to ensure that the highest practical level of safety is incorporated within those modifications in order to protect the public from the potential risks that could accrue from unsafe modification work. LVVTA's experience shows that many members of the modification industry in New Zealand do a very good job, and the quality players in the industry don't want to see others in this industry taking short-cuts and putting people's lives at risk.

### Continuous improvement

For these reasons above the LVV certification system has to be robust; - and it wouldn't have survived and continuously improved for a quarter of a century if LVVTA didn't take its responsibilities very seriously. 'Continuous improvement' can be a bit of a well-worn cliché these days, but this is something that LVVTA has genuinely strived for, and has consistently achieved. "I think everyone understands that it's better to have a system that demands a very high level of safety but still enables the hobby and the industry to prosper" says Johnson, "than to have a weak system that might provide an easy path in the short-term but fail in the long-term, leaving options for modifying vehicles in New Zealand that might be less palatable than what has been built up over the past 25 years"

### Meeting the challenges

NZTA and its predecessors have all wanted the bar - in terms of safety-based technical requirements - to be set at a very high level, and this has resulted in the heavily safety-focussed technical

standards that have been developed by LVVTA and co-signed by NZTA during the past 25 years. In 2006 NZTA's predecessor LTNZ requested LVVTA put in place an in-house auditing regime to enable technical and administrative scrutiny to be applied to the certification documentation provided by LVV Certifiers when they apply for an LVV certification plate, and this led to the desk-top auditing ('form-set review') regime that has been in operation since 2007. In 2009 NZTA asked that an error recording system be implemented that would formally record technical and administrative errors made by LVV Certifiers, so that a view could be objectively made at any time of how each LVV certifier is performing in relation to his peers. This was introduced that same year and linked to the form-set review process, and has resulted in the formal recording of errors, which feeds quarterly into the continuously updated 'Error Report Summary'.

Johnson is confident that NZTA will be pleased with what they learn from the review that they are undertaking of the LVV certification system. "I have no doubt that NZTA will find, under whatever level of scrutiny is applied, that the various systems and processes that have been developed and implemented will not only meet but exceed what the Agency has asked and expected of us over the past 25 years, as we've worked together to build the LVV certification system." It's widely-known that LVVTA has worked very hard to do a top-level job of implementing the ever-improving system, and the resultant system is generally recognised as world-leading, both from the point of view of the regulator, and that of the enthusiast and industry users.

### Fresh thinking can be a big help

"The review should get some thinking and discussion going" says Johnson. "It's very easy in any process or system-based organisation to say that we do this or that, because we have always done it that way, and fresh ideas and discussion can often result in improvements to an organisation like this. Any ideas or opportunities to build upon what we have, and make it more user-friendly and relevant without compromising safety is always welcomed".

## AFTERMARKET ALERT

### Failed Aftermarket Steering Wheel



Thanks to Hamilton-based LVV Certifier Noel McMillin for bringing to LVVTA's attention an aftermarket steering wheel, fitted to a MK3 Zephyr going through LVV and Entry Compliance. The steering wheel felt 'a bit loose' and it didn't take Noel long to see why. The outer steering ring is only held on by 3 aluminium rivets and one rivet had pulled through. On removing the covers it was discovered that another rivet was also pulling through. The only up-side of this failure is that there are still 3 spokes to grab onto in order to provide some form of steering if you're quick enough. The wheel is the 'Mountney' brand, well-known in the UK, and was purchased from a supplier in NZ, who immediately offered a refund or exchange. It appears from internet research that this failure has happened at least twice before.

The wheel design is nothing short of shocking, and this sort of product shouldn't be able to be sold - but unfortunately with more and more parts being made in China, and access to them available via the internet, we can only work on preventing parts like this from going on the road. LVVTA asks LVV Certifiers to look closely at any aftermarket steering wheels to ensure that they appear (based on what can be seen) strong, and of sound design.





## LVVTA SERIES-PRODUCTION DEVELOPMENTS

### Well-designed Disability Vehicle Achieves LVVTA Series-Production Approval

Last year in this newsletter LVVTA reported on a new assessment process for vehicles modified on a 'series-production' basis, such as utilities converted to hearses, station wagons converted to utilities, and vehicles modified for disability access.

The objective of the series-production assessment process is to ensure that the engineering associated with any complex conversions are completed to an acceptable quality, resulting in safe vehicles. Obviously, the risk to road safety of a fleet of flawed vehicles is much greater than a one-off vehicle with problems, and the time and effort required to deal with rectifications later on can become significant when the problems relate to multiple vehicles.

One of the primary principles of this new process is that some vehicles, which are unusually complex, can require more skill-sets than any one individual LVV Certifier can be expected to possess, and by involving a range of people and skill-sets in the assessment of a series-production prototype, the burden of having to make diverse decisions on a complex vehicle is lifted from the shoulders of any one individual LVV Certifier.



*Above & below: The 'Auto Transform' VW Caddy provides a 'drive-from' wheelchair position, plus an additional rear passenger wheelchair position.*



The process is proving a useful exercise for the industry, promoting discussion between LVV Certifiers on the varied methods for executing modifications, and providing feedback to the modifier on any areas of non-compliance or potential safety improvements. This work also provides opportunity for LVVTA to see emerging trends and technologies first-hand and evolve the LVV certification system accordingly. The Auto Transform VW Caddy was found to be very well designed and engineered, and earlier this year the Caddy's approval and sign-off process was completed, with LVV certification following shortly after. The first vehicle is destined to be a demonstrator vehicle for the new brand. The series-production assessment process applied to the Auto Transform VW Caddy showed that innovative systems can go through the LVV certification process easily if a vehicle is well-designed and engineered.

A number of commercial companies have now been through LVVTA's series-production assessment process, and positive results are starting to emerge from the new system. One such vehicle is the brand new VW Caddy mobility vehicle, from 'Auto Transform', featuring a lowered floor and drive-from-wheelchair position, as well as a rear wheelchair position.

'Auto Transform' may not be a familiar name to many, but the previous brand may be; - 'Van Extras' - which was an Auckland-based company who has had a lot of experience in the New Zealand vehicle modification industry.

Part of LVVTA's series-production assessment process is for a vehicle to be inspected by a group of LVV Certifiers and other experts with experience and knowledge in the particular modification type. In this case, the Auto Transform VW Caddy came to the Wellington LVVTA offices for a period of time where technical staff and three LVV Certifiers evaluated the modifications.

*Above: The 'Auto Transform' VW Caddy has undergone LVVTA's 'series-production' assessment process, enabling high consumer confidence in the safety of the modifications.*



There are several other series-production vehicles due to go through the LVVTA assessment process during 2015. Modifiers or importers of commercial vehicles should contact LVVTA as early as possible to discuss new projects and get the ball rolling.

## LVV EQUIPMENT DEVELOPMENTS

### New LVVTA Cyclic Test Rig Under Construction

One of LVVTA's ongoing projects has been to conduct research into specific issues and gain knowledge from testing. This has usually meant collaborating with organisations who have the necessary test equipment. One such company is Jackson Enterprises in Otara, Auckland, who specialise in van seating installations. Jacksons have a hydraulic test rig used mainly for testing seat and seatbelt anchorage strength. Over time we have used their facility to test components such as the hook and wire wheelchair restraint systems commonly fitted to Japanese disability vehicles and the composite fibre cab featured elsewhere in this newsletter.

In recent times there have been a succession of product failures, notably cast I-beam axles and tilt steering columns. The ability to test these products in a simulated real-world scenario is a valuable tool to understand the key factors in the failure and to set minimum requirements for components. We know that car manufacturers spend millions testing their products before release with the aim of improving reliability and function, as well as reducing costs.

The long term goal for LVVTA has always been to build in-house testing capability and was one reason for the choice of the LVVTA building, with its workshop facility. This goal has become reality, first with the cast I-beam axle materials testing and now with the commission of a multi-purpose test rig capable of applying a load, either as a one-off to measure ultimate strength, or in cycles to assess fatigue.

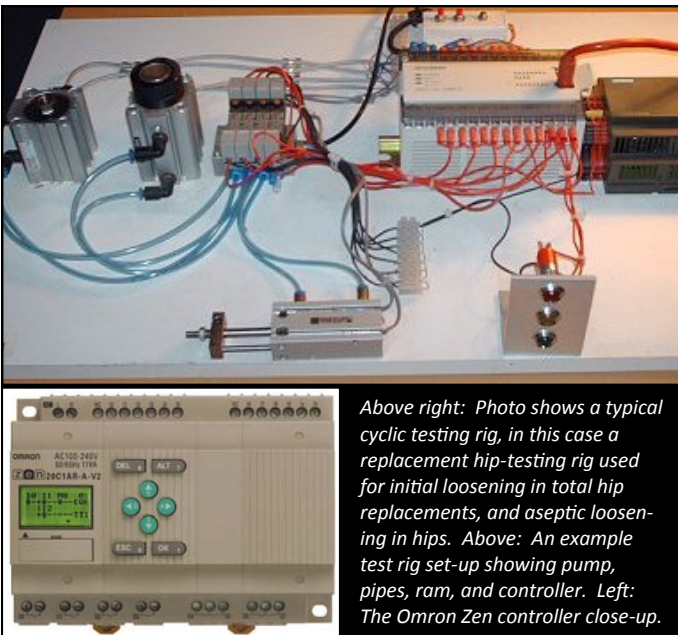


The test rig has a pneumatic pump to power air cylinders which are electronically controlled by an Omron Zen programmable logic controller driven via a laptop. Feedback to the controller is by incorporation of a load cell to record the forces applied and reed switches to measure how much the cylinder ram moves. This control allows accurate testing and can detect when a part has failed by the change in data output.

This pneumatic-fed rig is a common set-up that allows for expansion, providing the ability to grow the system to perform more complex functions and greater loads.

While LVVTA have experience in testing (our engineer Dan used to manage noise and vibration testing of Ford air filter systems) the initial rig set-up is a specialist role that has been given to Gavin Bateman, a design engineer with a lot of knowledge in the construction & testing of prototypes and parts using pneumatic systems. Gavin is busy building up the rig ready for commissioning in the coming months.

The first role of the test rig will be to test some tilt steering columns to understand their performance characteristics in comparison to OEM columns. On the basis of that knowledge, and the ability to cyclically test aftermarket steering columns entering the NZ market, LVVTA will be able to apply a robust testing process as part of the overall approval process for these safety-critical components.



*Above right: Photo shows a typical cyclic testing rig, in this case a replacement hip-testing rig used for initial loosening in total hip replacements, and aseptic loosening in hips. Above: An example test rig set-up showing pump, pipes, ram, and controller. Left: The Omron Zen controller close-up.*

### Steering Universal Joint Angle Measurement Gauge

This photo was sent to us by Hamilton-based LVV Certifier Neal Miller, and it shows how he can quickly and easily identify whether or not a steering system universal joint has exceeded the maximum 30 degree angle required by the NZ Hobby Car Technical Manual. He also takes his certification photos (for the file) with the gauge in place, so that there can't be any question that the angle requirements have been met if there was a problem (such as something being changed) later on. A simple gauge like this can be a time-saver for the LVV Certifier, and is easily made from a bit of scrap steel or aluminium, using a protractor to get the angle perfect. The tool can also make the process of explaining to a customer if his vehicle doesn't meet the angularity requirements a whole lot easier.





## LVVTA COMPONENT TESTING

### Testing of Integrated Seatbelt Anchorages in a Fibreglass Body

There are plenty of different ways that seatbelt anchorages have been mounted into motor vehicles over the years, and nearly every one of them has attached to a steel structure. Every now and then someone comes along who wants to do it in a new way, for a point of difference, or to prove out alternative technologies.

One such example is Laurie Smith, who has spent over 40 years building boats, the last 20 or so in building race yachts fabricated with composite materials. Laurie wanted to utilise his fabrication skills and materials expertise to integrate all of his seatbelt anchorages into a full glass-fibre laminate cab for his Ford F100 pickup project.

With help from some highly-skilled colleagues a design was created, using multiple layers of fibreglass strand mat and foam core sections to add strength in the critical places, together with alloy inserts that incorporate the thread sections necessary to attach the seatbelts.

As this isn't the usual run-of-the-mill seatbelt anchorage construction it had to be referred to the LVVTA Technical Advisory Committee (TAC) for approval before the vehicle could be LVV certified. There needs to be adequate proof that the construction method will be strong enough to withstand the substantial loads generated on the seatbelt anchorages – a force equivalent to around one and a half tons per occupant. The seatbelt anchorages in this 2-seater fibreglass cab need to take about 3 tons, like lifting the cab up and hanging an average car off each lap and diagonal belt.

Calculations showed the theoretical design to be more than adequate, which left the actual construction as the final contributing factor. Laurie's experience was taken into account, and when he offered to subject the cab to physical testing it was agreed that there would be no better way to prove its suitability. The TAC were interested in the outcome so were all present to witness the event.

The hydraulic test rig at Jackson Enterprises in South Auckland was used. This rig was designed and constructed by Jacksons to test seat and seatbelt installations and has had many a test over the years. To simulate the seatbelt loading of a crash test, each seatbelt anchorage is connected by chains to hydraulic rams which apply a specified pull-load. The correct direction of pull requires that the chains exit the cab through the windscreen aperture.

The slack is taken up on the chains and the capture of data begins, followed shortly after by a sudden increase of hydraulic pressure to the rams as the full load is applied to the seatbelt anchorages. About a second later the pressure is released and it's all over. The unique and innovative fibreglass cab passed with flying colours; - there were no creaks or groans from the structure during the test and subsequent ultrasonic checks showed no delamination whatsoever of the composite material around the anchorages.

The process applied to Laurie Smith's outside-of-the-square project shows that with proper design and development, and a willingness to work with the system, even the most complex and innovative ideas can very easily be assessed and passed, enabling a smooth LVV certification process, and total surety of safety into the future for everyone concerned.

When this F100 replica is completed, it will be a very special vehicle – it's not only the cab construction that makes it interesting!



*The hydraulically-operated Jackson Enterprises test rig was used for the test.*



*The 'body block' divides the applied load to the buckle & upper anchorages.*



*A 'still-shot' taken from the video shows no movement of the cab under load.*



*After the load was released, the fibreglass structure remained sound.*

### Achieving Consistency on Technical Subjects from May-June LVV Certifier Training

During LVV Certifier training during May and June of 2015, LVVTA Training Officer Ken McAdam presented questions to LVV Certifiers around the country, relating to a number of technical issues where he had identified some inconsistency in how LVV Certifiers have been applying particular requirements. Ken raised each issue, and then generated discussion focussing on establishing the correct interpretation or decision for the issue to hand, and then sought a consensus from the LVV Certifiers as to how each technical issue would be treated by all LVV Certifiers into the future. To follow is a recap on the issues that were discussed, and the agreements that were achieved. Ken asks all LVV Certifiers to review these points, and to ensure that the agreed decisions are followed for future LVV certifications.

#### Steering Dampers with Centering Spring:

**Question:** Should this type of steering damper with a centering spring be allowed for on road use?



**Answer:** NOT TO BE FITTED. The consensus around the country was that there are more issues against the use of this type of damper to assist steering centering, and that it could be used to try and hide faults created from lack of castor, rather than fitting castor correction bushes.

#### Lock washers on adjustable camber plates:

**Question:** Are lock washers required on adjustable camber plates?



**Answer:** NOT REQUIRED. No LVV Certifiers were aware of any height-adjustable struts which include camber plates that are provided with spring washers. In a lot of instances the bolts supplied are not suitable for fitting a spring washer to them, and no one was aware of any instances of these coming loose due to not being fitted with a lock washer. LVV Certifiers will still need to check correct thread engagement depth.

#### Dome-style rubber cushions:

**Question:** Are these 'dome' style rubber cushions acceptable to be used as suspension bump-stops?



**Answer:** NOT TO BE FITTED. There were no LVV Certifiers around the country who thought these would meet requirement 2.3(6) from the suspension standard 195-00, which says "All low volume vehicles must be fitted with purpose-designed bump-stops that ... (c) function effectively to ensure that suspension or body components are cushioned from the transfer of excessive shock loading at the limit of suspension travel".

This style of stop is designed for a top arm resting on it at full droop; - not for continued pounding from suspension travel.

#### Multi-piece brake caliper mounts:

**Question:** Is a multi-piece brake caliper mount acceptable?



**Answer:** NO. There are no known examples of this style of mount being used by an OEM manufacturer, and it would be easy to make this as a one piece mount to prevent the possibility of a parallelogram effect on the mounting plates. It was acknowledged that in some circumstances it is only possible to catch three mounting bolts, but it was agreed nevertheless that the bracket must always be one piece.

#### Aftermarket Steering Arms:

**Question:** Should an aftermarket steering arm be of equal size and strength to the custom arm specifications in the HCM?

**Answer:** YES. Consensus was that an aftermarket steering arm must at least match the requirements set out in the HCM for the design and manufacture of a custom steering arm.



## TRAINING (cont'd)

### LVVTA Training for NZ Police Ramping Up

LVVTA traditionally provides training to NZ Police groups four times per year, helping the Police Officers understand what is required to be LVV certified and what isn't, and to gain an understanding of various aspects of common modifications and LVV certification as it relates to typical motor vehicles that they come into contact during the course of their normal duties, and 'boy racer' operations. The LVV courses have proved popular with the Police groups, and LVVTA technical staff have recently found themselves providing additional training, during some periods on a weekly basis.



### LVVTA Training for Police Serious Crash Unit

LVVTA has been in discussion with the NZ Police's Serious Crash Unit (SCU) recently. The SCU have had good feedback about the training that LVVTA provides regularly to front-line Police staff, and is keen for LVVTA to develop some high-level technical training tailored specifically for their SCU staff.

LVVTA already has a close working relationship with the SCU, through the many accident investigations involving modified vehicles that LVVTA technical staff have assisted the SCU with.

### Raised Vehicle Workshop Postponed

The two-day workshop on raised vehicles - primarily focussed on 4WD vehicles with raised suspension, body lifts, and larger tyres was to take place on 12 and 13 of August 2015. Due to the additional workloads experienced by LVVTA during the mid-year period, this workshop has been postponed again until October 20 and 21 2015 in order to enable LVVTA technical staff to fully prepare for the workshop, so as to make best use of the experts who will be attending.

There have been a large number of LVV Certifiers who have expressed an interest in attending. LVVTA is limiting the total number of attendees to around 20 so there will only be room for a few who have specialised knowledge in this area. Once the list has been finalised, Ken McAdam will be in contact with those selected for participation. LVVTA would, however, like to thank the many LVV Certifiers who expressed interest in attending and helping out with this project.

Invitees will be invited by email before the end of August.

### May-June 2015 LVV Certifier Training

LVVTA's first series of training sessions of 2015 for LVV Certifiers took place during May and June, in Auckland, Rotorua, Wanganui, Wellington, Christchurch, and Dunedin.



As always, almost 100% attendance was achieved, and the sessions benefited from LVVTA Training Officer Ken McAdam's excellent section on technical 'look-out-fors', along with a series of discussions with all LVV Certifiers throughout NZ on various technical subjects aimed at improving consistency of decisions around the country, covered on page 6 of this newsletter.

The next series of nation-wide LVVTA training for LVV Certifiers will take place during November 2015.

### A MUST BUY FOR EVERY CAR BUILDER



Contact NZHRA today to secure your copy. Phone 07 575 7606 or email [nzhra@hotrod.org.nz](mailto:nzhra@hotrod.org.nz)

Discounts are available for all NZHRA Members and LVV Member Association Members. Call NZHRA for more detail or visit [www.hotrod.org.nz](http://www.hotrod.org.nz)

### Disability Hand Control Installation

It was recently reported to LVVTA that a driver using a disability hand control had an accident due to brake failure. It is possible that when braking hard for a tight corner the brakes became soft, leading to insufficient clearance between the hand control and dashboard to maintain effective brake pressure.



LVVTA reminds LVV Certifiers of the critical importance to check for sufficient hand control clearance during operation. The wording under the 'hand control lever operation' section of the LVVTA Standard 45-30 (Disability Adaptive Control Systems) is as follows:

*2.5(3) A hand control lever in a hand control system fitted to a low volume vehicle must:*

- c) be able to be operated throughout its full range of travel, particularly when fully extended in an emergency braking application position, without interference or binding with any other part of the vehicle surfaces, fittings, or structure; and*
- d) maintain sufficient surplus clearance from the dashboard or any other surfaces, fittings, or structure, so that interference or binding will not be experienced even during an increase in pedal travel required to achieve full braking application when wear in brake components occur;*

Feedback from Christchurch LVV Certifier Don Hoff on how to properly confirm the above is to have an assistant open up one bleed nipple on a brake caliper to simulate loss of one circuit, while pushing hard on the hand control. Adequate clearance must remain for knuckles, as well as the control itself.

There is also another claimed cause of an accident relating to clearances; - that the hand control interfered with the ignition key and switched off the engine, losing brake power assistance. If this is a potential issue when a hand control is installed then a relocated start/stop button may be a neat solution.

Note that LVV Standard 45-30 (Adaptive Hand Control Systems) can be downloaded from LVVTA's website [www.lvvtta.org.nz](http://www.lvvtta.org.nz) free of charge.

### New Model Toyota Hiace Seating

Toyota have updated their Hiace model, and with it comes a notable change; – the centre front seating position has been removed.

Toyota NZ explains: "We dropped the centre seat from both Hiace and Landcruiser 70 (models) because changes to ADR meant that a lap belt fitted to the front centre seat was non-compliant if there was a chance that a passenger would make contact with the wind-screen if it was within the reference zone."

The ADR (Australian Design Rules) change applies to new model vehicles from July this year. Lap belts are less safe than a lap and diagonal seatbelt, not only due to the fact that the occupant is restrained less and can contact more parts of the vehicle and other occupants, but also because of the greater likelihood of internal injury around the lap, including spinal damage.

LVVTA has received several enquiries regarding retro-fitment of a centre seat position in the new Hiace. NZTA have confirmed that there is no NZ rule to prevent this - a centre seat can be installed, subject to LVV certification. A double passenger seat from an older model Hiace is likely to fit in easily, with LVV certification also a requirement.

The seatbelt rules require a lap belt as a minimum in centre seating positions, though a lap and diagonal belt is preferable for safety and usually essential for securing a child seat. Vehicle manufacturers recognise the benefits of lap and diagonal seatbelts; - most new passenger light vehicles, including double cab utes, are now sold with a lap and diagonal seatbelt in the centre-rear seating position.



### Roof-racks on PSVs

A reminder that, last year, there was a change to the Certificate of Fitness (CoF) requirements for Passenger Service Vehicles (PSVs) that have roof racks. This modification isn't common, mostly affecting taxis and shuttle buses fitted with ski racks. Those PSVs fitted with roof racks since 2000 were required to be LVV certified and to have a plate or label attached to the roof rack with information about maximum load carrying capacity, rack manufacturer details, and vehicle identity. This is no longer the case and the External Projections section 2-1 of the CoF manual (the VIRM) has been updated to remove these requirements. PSV operators now need only meet the same in-service requirements for conditions and performance as any other light vehicle.



## TECHNICAL STUFF (cont'd)

### Recognised IFS Manufacturers

LVVTA technical staff were recently asked for clarification on two points, both relating to 'LVVTA Recognised IFS Manufacturers'.

#### Custom Independent Rear Suspensions:

Q: Does a custom independent rear suspension (IRS) that's manufactured by an LVVTA-recognised IFS manufacturer have to go through the Technical Advisory Committee (TAC) approval process, and do the a-arm welds require non-destructive testing (NDT)?

A: No – an IRS made by an LVVTA-recognised IFS manufacturer does not require TAC approval, and the a-arm welds do not require NDT. However, like a custom IFS, the LVV Certifier must ensure that the IRS is an appropriate fitment for the weight and power of the vehicle to which it's been fitted, and must carry out all appropriate geometry checks that are ordinarily required during an LVV Certification.

#### Welded brake caliper mounting brackets:

Q: I have a customer with an IFS built by an LVVTA-recognised IFS manufacturer, and it has slugs welded to the bolt-on brake calliper brackets. Do these brackets need to be TIG welded and non-destructive testing (NDT) as per the LVV Braking System and Critical Function welding requirements?

A: Yes they do. The LVVTA-recognised IFS manufacturer status does not extend to braking components, so these must meet all applicable requirements contained in the NZ Hobby Car Technical Manual. This means that they must be TIG welded, and non-destructively tested to AS/NZS 1554:1.



*Photo shows the brackets with welded components. These welds must be TIG welds, and all applicable LVVTA non-destructive test requirements must be met.*

### Recognised IFS Manufacturers

The list, as at July 2015, of all current LVVTA-recognised independent front suspension (IFS) manufacturers are:

Rods by Reid; Total Cost Involved (TCI); Alston's Chassis Works; Art Morrison; Heidts; Kugel; Factory Five; and Caterham.

### Custom Bushed Rod-ends

A question that crops up from time to time is how to best go about fabricating a male custom bushed rod-end, commonly used in 4-bar rear suspension setups. Although the NZ Hobby Car Technical Manual contains a section relating to these components, it concentrates on their attachment, rather than providing guidelines for their fabrication. The Technical Advisory Committee has provided the following basic information to assist those who wish to fabricate their own custom bushed rod-ends. Note however that only a person who has had experience in welding carbon-type steels should carry out the welding.



*Example of a correctly fabricated custom bushed end, courtesy of Terry's Chassis Shoppe.*

Start with a grade-5 set screw, as the threads go right to the head of the fastener. Any fastener that is higher than grade-5 is considered to be high tensile, and **is not suitable for welding** due to its high carbon content. Your LVV Certifier may ask for proof that you've used the correct grade bolt, so photographic proof prior to any machining is recommended.

- Always ensure that the diameter of the set screw and the wall thickness of the bush tube are suitable for the intended purpose.
- Machine the flats off the head of the screw, but remove only enough material so that you maintain the maximum possible diameter, as this provides the maximum possible weld area.
- Shape (profile) the machined end of the fastener so that it fits perfectly against the bush tube.
- Pre-heat the components to be welded.
- Method of welding must be TIG.
- All welds should be non-destructively tested to LVVTA specs for critical function welds (AS/NZS 1554:1).

### Drive-shaft Safety Loop Requirements for Composite & Carbon-fibre Drive-shafts

As technology and materials used in modern motor vehicles advances, there is a growing trend from the aftermarket parts industry toward the use of carbon-fibre and composite materials for vehicle modifications. One such example is the recent emergence of carbon-fibre drive-shafts. LVVTA was recently asked whether a drive-shaft safety loop should still be a requirement on a vehicle fitted with a carbon-fibre driveshaft.

After some discussion between LVV technical staff and the LVVTA Technical Advisory Committee, it was agreed that a carbon-fibre driveshaft must still have a drive-shaft safety loop, as the drive-shaft can still fail, and as the drive-shaft may contain aluminium or similar materials as part of the composite construction, there is still enough potential for rotational forces to cause major damage, loss of control, or occupant injury.

### Automatic Transmission Shift Position Indicator

One of the principle responsibilities of the LVVTA technical staff is to ensure that all LVV Certifiers are applying the technical requirements from the LVV standards and Hobby Car Technical Manual uniformly across the country.

One area of inconsistent application that has recently been identified relates to the requirement for a gear selection indicator on any automatic transmission-equipped vehicle. This requirement, which is in both the LVV Engine & Drivetrain Standard, and the NZ Hobby Car Technical Manual 'Engine & Drivetrain' chapter, requires that a vehicle which is fitted with an automatic transmission has a means of displaying to the driver the selected gear that the transmission is in at all times.

The requirement is found in Hobby Car Technical Manual: 9.16.2; and LVV Standard 85-40(00): 2.4(8), and states that:

*A gear-shift mechanism in a low volume vehicle must:*

- d) *in the case of an automatic transmission, provide to the driver an accurate indication of the selected gear.*

LVVTA technical staff believe that there has been some confusion between a 'gear selection indicator', and a 'shift pattern indicator'. A 'shift pattern indicator' is simply a marking (usually on the gear lever knob) to show the shift pattern or sequence. The latter shift pattern indicator does not tell the driver which gear is selected at any given time.

To ensure that LVVTA's requirement for a gear selection indicator is still relevant, reasonable, and fair, this was tested recently by discussion with the Technical Advisory Committee (TAC). TAC members agreed that the requirement was reasonable, achievable, and that there were no known situations where a high-volume vehicle manufacturer didn't provide a means of identifying the selected gear. On these grounds the TAC found that there was a good justification for the requirement to remain. There are a number of aftermarket manufacturers who supply good quality gear selection indicators, most of which can be set up or programed to suit a vehicle builder's individual requirements.

LVV Certifiers are reminded to ensure that this important requirement is met in all instances.



*At left: One example of an aftermarket shifter, complete with LED gear selection indicator as an integral part of the base. This will enable the driver to know which gear is selected at all times.*

*Photo courtesy of the [www.lokar.com](http://www.lokar.com) website.*

### Aluminium Wheel Nuts (Follow-up)

In the August-December 2014 issue of LVVTA News, LVVTA reported on a set of aluminium wheel-nuts that failed in service, most likely being the cause of a serious accident due to a loss of control of the vehicle to which they were fitted, when the internal threads of the wheel nuts tore off allowing a wheel to come off the vehicle.



Initial thoughts were that the T7075 markings on the nuts were fake, but LVVTA has had a hardness test carried out on a sample nut, and it has been established that the material is of an equivalent hardness to T7075 aluminium.

While this hasn't shown that the T7075 markings were fake as suspected, it does reinforce that alloy nuts – even those made from a very high-grade alloy as these have turned out to be – shouldn't be used. Another theory relating to this accident is the possibility of the nuts being either left loose or over-tightened, however, the simple fact that remains amidst all of the possible causes and reasons is that you never see the thread torn off like this on normal steel wheel nuts. And that's all that matters. LVVTA maintains its position that, unless provided as OEM equipment by a high volume vehicle manufacturer, an LVV Certifier may not approve aluminium wheel nuts.

LVVTA understands that NZTA is amending the Vehicle Inspection Requirements Manuals to require Authorised Vehicle Inspectors to fail any aftermarket aluminium wheel nuts if fitted to a vehicle presented for a Warrant of Fitness inspection.

### Big Wheels on Chrysler 300Cs

The Western Australia Department of Transport has recently discovered a disturbing practice. They have found a number of Chrysler 300Cs fitted with large diameter front wheels that apparently foul the upper suspension ball joints. A practice has developed of grinding down the ball joint threads or even the ball joint retaining nut to get the tyres on. LVV Certifiers should keep an eye out for this on blinged-out Chrysler 300Cs presented for LVV certification.

### Drive-shaft Safety Loop Attachment

Make sure that all doubler-plates used to attach driveshaft safety loops are actually compliant. The minimum size for these plates is a mating area of 3000 square mm, as close to square as can be practically achieved. LVV Certifiers should also remember that - as it is a requirement to provide a photograph of every aspect of every modification - they should inspect and photograph the doubler plates from inside the vehicle. This will often necessitate the removal or lifting of carpets, so it would pay to pre-warn customers of this in advance to prevent the need for re-inspections.



### Electric Power-assist Steering Columns from Production Vehicles

There's an increasing number of Japanese and European OEM vehicle manufacturers who utilise an electrically-operated power assist steering unit within the steering columns of their vehicles. With the availability of used parts from these vehicles increasing, such systems are now being installed into various different types of vehicles as a modification to the steering system.

This has raised questions about how fit-for-purpose these components are, particularly when taken from a relatively small vehicle, and installed into a larger or heavier vehicle, such as a mid-1950's American car. Other concerns have been expressed where an installation has occurred where no speed sensor wiring was used, when this electronic wiring was fitted in its OEM situation.

LVVTA Technical Officer Justin Hansen canvassed a number of LV1D category certifiers who had previously certified such installations, and also contacted well known steering specialists for their opinions. These responses were then taken to the Technical Advisory Committee (TAC) for their input.

Based on this information, TAC members made several comments and recommendations, as follows. These comments can be used by any 1D category LVV Certifier to assist in determining whether such a system is suitable when inspecting a vehicle for LVV certification.

- The maximum steering effort that is exerted on the steering wheel is the same whether a small or large vehicle – therefore steering column components are generally quite similar, regardless of vehicle size, as the driver generates the steering input loads.
- Due to the similarly-sized steering shafts, they are generally appropriate for such a fitment – there is no reduction in size below any of the OEM shafts, and so no 'weak-link' has been introduced. However the LVV Certifier should make sure that all universal joints used within the steering system are adequate and comparable in size, and that their attachment methods meet all applicable NZ Hobby Car Technical Manual (HCTM) requirements.

- These power assist units generally utilise a torsion-bar type load-sensing system just like a regular hydraulic power rack – this means that at highway speeds, as the steering wheel input loads are less, the torsion bar load sensing reduces the power assistance being provided.
- In the event of electrical motor failure, the steering system simply reverts back to that of the OE vehicle, which apart from possible caster changes (caster should ideally be increased when power steering is fitted) would be relatively easy for a normal driver to maintain directional control, unlike a hydraulic power steering system, which can be extremely heavy when hydraulic pressure is lost. This also means that in a retro-fit situation as part of a steering modification, the load on the motor is low, as the car is 'manual steer' in every other aspect.
- The under-dash mounting attachment needs to be sufficient to support the components from significant rotational loads. A support structure should ideally span from a-pillar to a-pillar, in much the same way that a dash support bar is used to support a steering column.
- There will be extra loads on the OEM steering box gears due to the additional power assist. Steering box condition needs to be carefully assessed by the LVV Certifier, and it is highly recommended that the steering box or rack & pinion is overhauled to ensure that it is in the best possible shape.
- Steering specialist PG Hydraulics has found that some factory-installed OEM steering racks with electric power-assist columns are requiring an overhaul more often than other traditional rack & pinions, however WoF inspections should catch any in-service wear.

LVVTA asks LVV Certifiers to consider the comments above made by the Technical Advisory Committee when inspecting vehicles with these retro-fitted systems, and to also feed back any additional thoughts and ideas that they have to LVVTA technical staff.

### Alternative (Plastic) Glazing

LVVTA is regularly asked to recommend brands of plastic glazing for fitment in place of glass. Whilst LVVTA doesn't endorse products, it has built up a list of brands that do meet the necessary acceptance criteria as set out in the recognised standard ANSI-Z26.1.

There are two common materials used for plastic glazing – polycarbonate and acrylic. The best products for automotive use are polycarbonate materials which will bend almost indefinitely, whereas acrylic will only bend a small amount and then break, leaving a sharp edge (less than ideal in a roll-over situation).

Minimum glazing thickness should follow Motorsport NZ regulations which currently state minimum 4.5 mm for windscreens, and minimum 3 mm for side windows and rear windscreen.

The key feature that plastic glazing must have is abrasion-resistance, also known as 'MAR' resistance. It is essential to ensure that the product has this feature, or it could lead to an expensive rectification when it comes to LVV certification time.

To follow is the known list of abrasion-resistant polycarbonates:

- Lexan MR series
- Cyrolon AR series
- Tuffak CM-2
- Makrolon AR
- PalGard (note PalSun is not abrasion resistant and cannot be LVV certified)

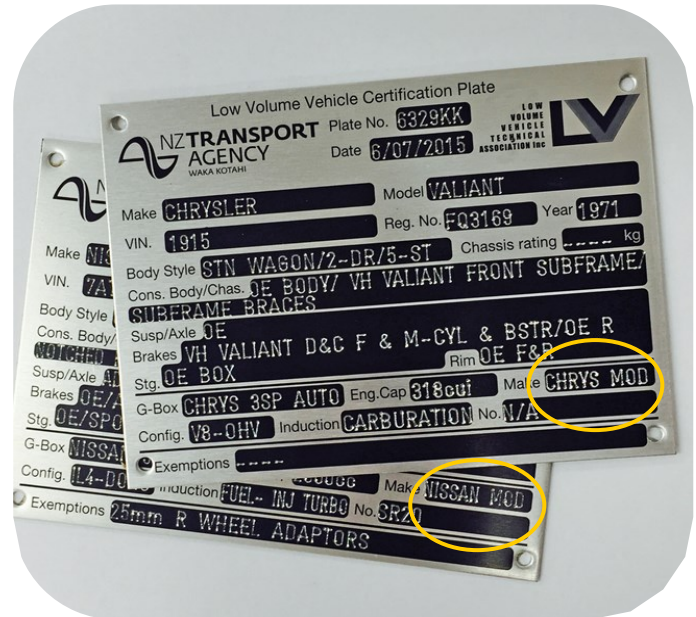
There may be other suitable brands – LVVTA technical staff welcome feedback which might add to the list.

Note that the abrasion-resistant polycarbonates have a silica layer which must be on the vehicle exterior to provide the resistance to marking. Installers should leave the peel-off protective wrapper on the glazing to prove to the LVV Certifier which product has been used and to show the abrasion resistant side. The LVV certifier will provide the required information that must be engraved on each piece of plastic glazing.

## 'Mod' Engines on LVV Certification Plates Explained

The LVVTA office staff are often asked by AVI's how to tell if a vehicle was certified with a bigger turbo or waste-gate, as this detail is usually not engraved into the certification plate. This lack of detail is primarily due to space limitations on the plate, however the answer to the question lies in the engine 'Make' field on the LVV Certification plate. If any modifications have taken place to the vehicle's engine that bring about a combined increase of 20% or more (over original OEM output), the LVV Certifier will determine this during his inspection, and will then provide these details on his form-sets when he orders the LVV certification plate from LVVTA. LVVTA will, in turn, record the word 'MOD' immediately after the engine make, on the 'MAKE' field of the LVV certification plate.

This 'MOD' text can cover a wide range of modifications, including aftermarket or modified waste-gates, larger or modified turbochargers, re-programmed ECU's, and many other performance enhancements commonly fitted to a wide range of vehicles. If a WoF inspector is presented with a vehicle that has a modified engine, and the certification plate has the word 'MOD' directly after the engine make, assuming all other certification plate details match and all WoF requirements have been met, a WoF can be issued.



## Fraudulent LVV Certification Plates

LVVTA has seen a couple of examples of fraudulent LVV certification plates lately; - one quite accurately copied (and on a car), and one very poorly done (and for sale on a Facebook page).

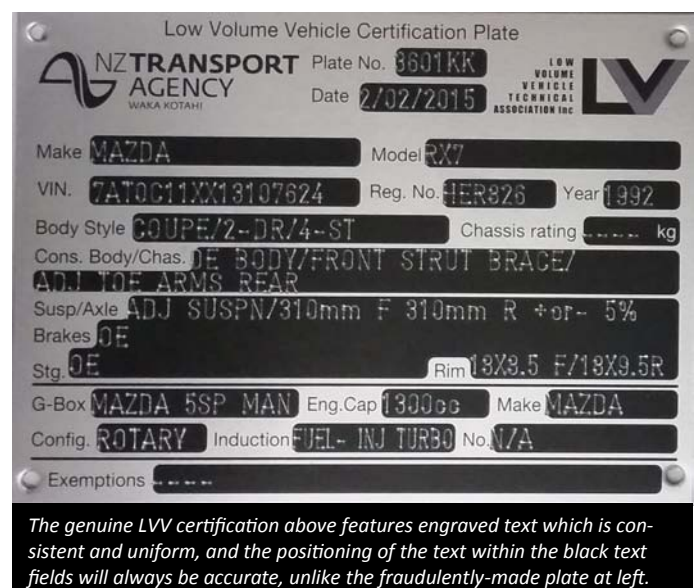
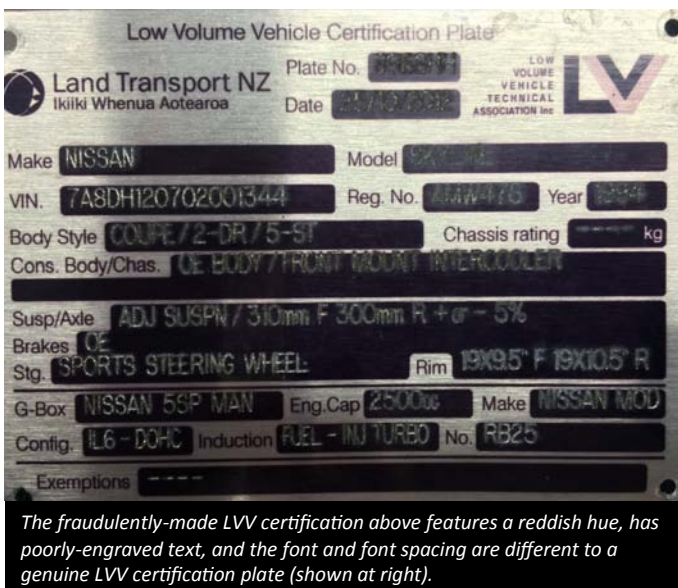
The convincing one was identified by an LVV Certifier as he was inspecting the vehicle for a wheel upgrade, who notified the LVVTA office. The vehicle was also at such a low ride-height that as well as the tyres fouling the bodywork, the LVV Certifier wasn't even able to get the vehicle onto his hoist.

It became evident that while the vehicle had been LVV certified genuinely in the past, the details that were on the LVVTA computer database were no longer the same as the details on the fraudulent LVV certification plate fitted. The LVV Certifier removed the plate very carefully, and has sent it back to Wellington for the police to fingerprint and pursue a prosecution of those involved in the fraudulent activities.

Visually, there are relatively few clues to identify the plate as being fake. There is a subtle colour difference that if you placed it side by side with a genuine plate you would probably see, and the engraving font and spacing is different. The fake plate uses speech marks as an inch symbol, whilst a genuine plate does not.

The best detective tool was that the LVV Certifier simply looked at what was on the plate, looked at the car, and immediately recognised that the car was clearly not correctly certified. You can always check with the LVVTA office on (04) 238-4343 or tech@lvvta.org.nz that what you're looking at on the plate in front of you is in fact how it was certified.

The second fake plate was a sticker and just a bare template, perhaps to have silver printed on it, apparently made in Thailand. This fake isn't too likely to fool many people, and the police have recovered what is allegedly the only one.





## Disability Vehicle Brake Test Relaxation

Item 114 of the Disability Transportation form-set calls for a brake test to be conducted on any vehicle modified with disability equipment. This is to ensure that any uneven weight distribution has not adversely affected brake performance when heavy equipment such as an electric wheelchair hoist has been fitted.

LVVTA confirms that a brake test process is only necessary when an LVV Certifier believes the nature of the disability transportation modifications (usually mass) have the potential to cause a detrimental effect on the vehicle's braking performance. If the LVV Certifier is satisfied that the equipment could not adversely effect the vehicle's braking performance, then (provided it is clearly stated in the form-set) it will not be necessary to perform a brake test.

Note that any adaptive hand control system will always need a brake test.

## Removable Steering Wheels

The Hobby Car Technical Manual advises (in Section 7.5.1 sidebar) that quick-release steering wheels are not recommended for road use, and should only be used where the design of the vehicle makes a quick-release steering wheel necessary for easing entry and exit.

There have been several cases of wheels detaching during use, particularly overseas, some causing fatal accidents.

It has been agreed that this 'advice' is now 'mandatory'; - that quick-release steering wheels are only appropriate in a vehicle where removal is necessary to exit in a reasonable time, such as a Lotus 7 replica or fully-caged road-going race car with race seats.

Removal as a security measure is not considered a reason to introduce the additional risk that a quick-release mechanism introduces into the steering system.

## HCTM Form-sets - Coming Unstuck!

For those LVV Certifiers who are regularly using the Hobby Car Technical Manual (HCTM) form-sets, LVVTA asks (Frances especially!) that you please staple the individual pages from each form-set together, so that, for example, the pages from the 'Body Modification & Construction' form-set remain combined during the plating and form-set review processes.

This helps not only to prevent the many pages from becoming mixed up, but it also makes it quicker and easier for the person doing the administrative and technical form-set reviews to carry out the process of checking that all of the form-sets have been provided. The upshot of doing this is, of course, that you'll get your certification plate back faster, so it's really a win-win for all!

Having said all that, Frances doesn't want to see you guys reverting back to stapling your base form-sets together - so watch out for that, or she'll be onto you again!

## F005 Plate Delegation Form Revamp

Due to a number of issues that LVVTA staff have been experiencing regarding plate delegation, and incorrect LVV Plate attachment, Frances Bradey has redesigned the F005 LVV Plate Attachment Delegation Form to include detailed information regarding the plate affixing requirements.

To allow for this information to be added, Frances has moved a few sections around. LVV Certifiers will now find their details, and the nominated person's details next to each other, as well as a reformat of the vehicle details section. For ease of filing Frances has also added a Plate No box at the top right corner.

The wording in the declaration box has changed slightly too; - now including the options of sending the form back via fax or email, an additional check-box to confirm the plate has been fitted in an approved position, and the form also asks the nominated person to specify that location.

**Form # F005 LVV PLATE ATTACHMENT DELEGATION FORM**

For use in the case where an LVV Certifier agrees to delegate the responsibility of the attachment of a Low Volume Vehicle Certification Plate to another person, as provided for within Section 4 of the LVVTA Low Volume Vehicle Operating Requirements Schedule.

Note: This process may not be applied in conjunction with LVV certification plate pre-ordering.

Plate No. \_\_\_\_\_

**Part 1. From:** (originating LVV Certifier carrying out LVV certification of the vehicle detailed in Part 4 (LVV certifier to complete))

Name: \_\_\_\_\_

Postal address: \_\_\_\_\_

Courier address: \_\_\_\_\_

Phone: \_\_\_\_\_

Fax: \_\_\_\_\_

E-mail: \_\_\_\_\_

**Part 2. Nominated person:** (person delegated to fit the LVV Plate by the LVV Certifier named in Part 1 (LVV certifier to complete))

Name/company: \_\_\_\_\_

Postal address: \_\_\_\_\_

Courier address: \_\_\_\_\_

Phone: \_\_\_\_\_

Fax: \_\_\_\_\_

E-mail: \_\_\_\_\_

**Part 3. LVV certification plate affixing requirements:**

The person nominated in Part 2 must follow the LVV Certification Plate affixing requirements as set out in the LVVTA Operating Requirements Schedule, section 4 (available on our website: [www.lvvtas.org.nz](http://www.lvvtas.org.nz)). Those requirements are summarised below:

- The LVV Certification Plate must be fixed to the vehicle with four rivets and the self-adhesive backing.
- It must be fitted to a clearly visible and accessible part of the vehicle structure.
- The engine bay is the most preferable location but if not possible any of the following options are ok:
  - the vehicle's A or B-pillar
  - a prominent position in the boot (not hidden under carpet)
  - spare wheel-well (only if no tools are needed to access)
  - a non-removable panel steel part of the engine cover/seat frame on a van (with engine cover in passenger compartment)
  - the vertical area of a step behind a door on a van or a vehicle with a raised floor

**Part 4. Vehicle details:**

Make	Model	Year	VIN

**Part 5. Declaration by nominated person:**

I, \_\_\_\_\_, the person nominated in Part 2, understand that I must fill out Part 5 of this Form, and that the form must be returned to the LVV Certifier who nominated me to fit the LVV Plate via post, fax or email, **within five working days** after fitting the LVV Plate. I also understand that I must give the vehicle owner the Statement of Compliance (F001) received with the LVV Plate.

I confirm that I have fitted LVV Certification Plate # \_\_\_\_\_ to the vehicle in Part 4 after checking the following factors:

A. The VIN engraved on the Plate is identical to the VIN on the vehicle

B. The details on the Plate match the modifications or design features on the vehicle

C. There are no readily identifiable modifications additional to those listed on the Plate and F001

D. The adhesive backing has been removed prior to riveting the Plate in position

E. The Plate is positioned on a part of the vehicle structure specified in Part 3

☐  
☐  
☐  
☐  
☐

Specify location fitted: \_\_\_\_\_

Signature: \_\_\_\_\_ date: \_\_\_\_\_

Form # F005
Issue # 7 - August 2015
Page 1 of 1
Low Volume Vehicle Technical Association [Inc]

LVVTA hopes that this revised form will clarify what is expected of both the LVV Certifier, and the nominated person, and that it reduces the frequency of incorrect plate fitments.

LVVTA asks LVV Certifiers, that when the revised F005 LVV Plate Attachment Delegation Form is issued within the next LVV Certifiers' mail-out, LVV Certifiers take the time to familiarise themselves with the form, and when filling it out, to complete as many fields as possible.

## FROM THE INTERNET!

### That's Gonna Take Some Fixin'

Spotted on, believe it or not, a 2013 Mustang recently imported from the US, otherwise stock as a rock.

It appeared to be some sort of strange chassis/rear suspension reinforcement brace, but whatever the intention was, or purpose behind the modification, someone's got a bunch of work to do to put that mess right!



### Positive Parenting...



### Should be Fine!



### Need a Good Penetrating Oil for rusty Stuff?

Found on the Internet... Original source unknown, accuracy can't be guaranteed, but it could be very helpful for 'garage people'!

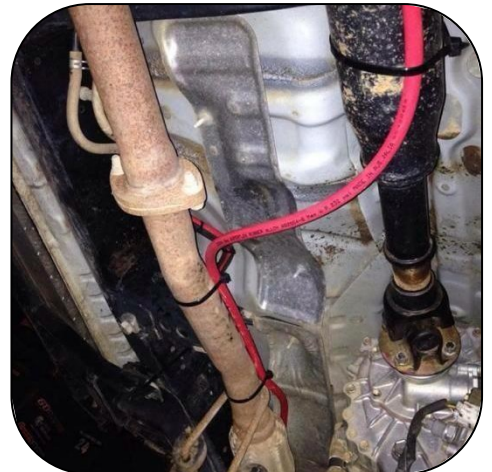
'Machinist's Workshop' recently published information on various penetrating oils. The magazine reports they tested these products for break out 'torque' on rusted nuts and bolts. A subjective test was made of popular penetrating oils, with the unit of merit being the torque required to remove the nut from a 'scientifically rusted' bolt. Average torque load to loosen nut:

- No Oil used .....516 foot pounds
- WD-40 .....238 foot pounds
- PB Blaster .....214 foot pounds
- Liquid Wrench .....127 foot pounds
- Kano Kroil .....106 foot pounds
- ATF/Acetone mix..... 53 foot pounds

The ATF/Acetone mix is a 'home brew' mix of 50/50 automatic transmission fluid and acetone. Note this 'home brew' released bolts better than any commercial product in this one particular test. Our local machinist group mixed up a batch, and we all now use it with equally good results. Note also that Liquid Wrench is almost as good as Kroil for 20% of the price. ATF/Acetone mix is best, but you can also use ATF and lacquer thinner in a 50/50 mix. ATF = Any type of Automatic Transmission Fluid.

### Clip up That Battery Cable!

Courtesy of Gary (Golliwog) Adams from Inglewood, comes this novel method of securing a battery cable from a trunk-mounted battery to the starter motor at the front. The photo, obviously, was taken before the test drive...



### Dude! Nice Brake Pipe!

Thanks to Lloyd 'Magoo' Wilson of 'Magoo's Street Rods', for this picture of how some modifiers run brake pipes in America!





## ODDS & ENDS

### Welcoming Andy Urwin-Wells

LVVTA welcomes on board Nelson-based engineer and motorcycle-guru Andy Urwin-Wells as a new LVV Certifier. Andy will be looking after motorcycle LVV certification for the top half of the South Island.

Andy's an accomplished motorcycle builder and drag racer, and a welcome addition to the LVV Certifier network. Trading as Automotive Certification Nelson Ltd, he can be contacted on mobile (0274) 209-900 or [autocert@yahoo.com](mailto:autocert@yahoo.com)

Thanks to NZTA's Gary Hollingsworth and Bruce Pacey for their assistance in Andy's appointment process, and also to LVV Certifier Julian Cheer for help with Andy's training.



### LVVTA Exhibits at CRC Speedshow

LVVTA had a display once again at the CRC Speedshow in Auckland on July 18 & 19, showcasing the home-builder challenges of the '80s, and the aftermarket challenges of today. The display captured the interest of many, and the LVVTA team of Tony, Linda, Dan, and Ken were kept busy all weekend with over 30,000 people flooding through. This is a great event, and is a 'must-do' for every car lover.



### Get Back to Work Nikki...



Taking two minutes out during another full-on day at the LVVTA office, Nikki Thomas enjoys the affections of 'Ruby Tuesday'; - Tony and Linda's 10 month old 40 Kilogram Bernese Mountain Dog puppy.

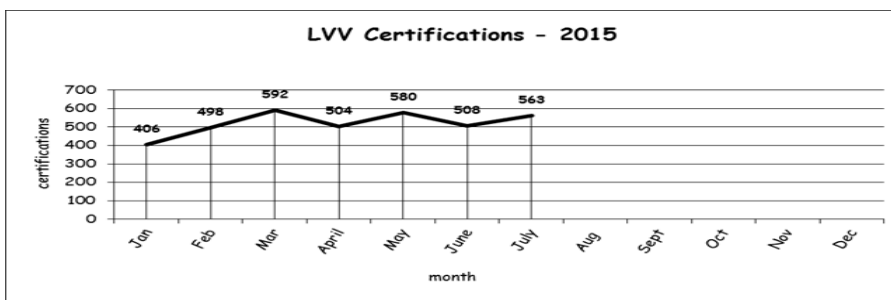
No doubt Nikki's husband Mark Thomas, when he sees this photo, will be wishing he received such attention from Nikki!

### LVVTA Trade Site at Feilding 4WD Show

Justin Hansen and Ken McAdam attended a Four Wheel Drive display on Sunday July 5th on behalf of LVVTA at Manfeild Auto Course in Feilding, to provide help and advice to enthusiasts, and to see what they might learn about four wheel drive issues leading up to the Raised 4WD workshop being held later this year.



### LVV Certification Numbers for 2015



Despite 2015 starting out a little slower compared to previous years, the per-month average figure is now up to 522, which is now consistent for this time of year with previous years.

The big unknown of how the change of WoF frequency under the Vehicle License Reform will affect LVV certification numbers hasn't seemed to have had any affect as yet, and with luck, may not do so.

Low Volume Vehicle Technical Association (Inc)

E-mail: [info@lvvta.org.nz](mailto:info@lvvta.org.nz)

[www.lvvt.org.nz](http://www.lvvt.org.nz)

Phone: (04)238-4343

Fax: (04)238-4383

Office & courier: 21 Raiha Street, Porirua City

Postal: P.O. Box 50-600, Porirua City 5240