LVVTA News

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

WELCOME LEON CAST - LVVTA TECHNICAL SUPPORT OFFICER

LVVTA is very pleased to be able to welcome on board Leon Cast, who joined LVVTA in October 2014 to fill a newly-created position of 'Technical Support Officer'.

As detailed last LVV Newsletter, Issue 49, LVVTA wasn't able to provide Rob Pauletich with the role for which he was initially employed, however the one silver lining to the cloud of losing Rob was that his time with us confirmed beyond any doubt the need for an extra technical person to support LVVTA's two Technical Officer's Dan Myers and Justin Hansen. Rob provided a technical support role during his time with us, which made a significant difference to Dan and Justin's ability to manage their ever-increasing workloads.

When it was agreed that Rob would move on, LVVTA made the decision then to establish a new full-time position within LVVTA's small structure, and look for someone with the right skill-set to join the team at LVVTA's Wellington office as a Technical Support Officer. The principle objective of the role is to provide support, research, and assistance for the two LVVTA Technical Officers.

In addition to his combined 12 years of working within Motorsport New Zealand and the New Zealand Transport Agency, Leon has a strong personal interest in many things automotive - just as do all of LVVTA's existing staff. Leon has been a member of Wellington's Harbour Capital Car Club for 20 years, and has held positions of Secretary, Club Captain, Scrutineer/Authority Card Scrutineer, and Clerk of Course for his club's events. For the past 9 years, he has been Club President.

In addition to enjoying the administrative side of motor sport, Leon is a keen motorsport competitor, spending a lot of time in the navigator's seat of a friend's rally car (he declares that he has no natural sense of self-preservation), in addition to which he races his own vehicles. For many years he has competed in his 4AGE-powered Toyota Corolla in gravel and tarmac sprints, hill-climbs, and rallies.

Leon's latest purchase, made just after joining LVVTA, is a Toyota 86, which although a fun car straight off the showroom floor, he is already fiddling with it and entering the odd sprint event.

Lady luck was smiling upon LVVTA, as Leon Cast, who we all knew well, having just left Maritime NZ was looking for something back in his familiar automotive industry.

LVVTA first got to know Leon when he worked for Motorsport New Zealand as a Technical Adviser, looking after roll cage homologations, LVV authority cards, logbooks, licences, and all and sundry technical questions. Leon maintained contact with LVVTA when, after 6 years with Motorsport NZ he moved to NZTA to take up a role as a Vehicle Compliance Specialist, which saw him involved with Left Hand Drive and Special Interest Vehicle Permits, exemptions from vehicle standards, Trade-Me compliance liaison, vehicle recalls, Ministerial writing, and escalated helpdesk/support.

Leon brings a number of strengths to LVVTA which make him an excellent fit, including a strong interest in regulatory systems and processes, a good understanding of the people and the workings within NZTA, and a very sound knowledge of NZTA's warrant of fitness and entry certification requirements. He has many contacts in the motorsport world, and he also brings to LVVTA a high level of knowledge & passion for Japanese cars.

Leon says of his new role, "*It is a role that brings together my interest in all things with wheels, along with my background in regulations. While I have a passion for race and rally cars, I still have an interest in anything related to vehicles, and I speak the language*." Leon has very quickly proved to be a great asset to the LVVTA team.

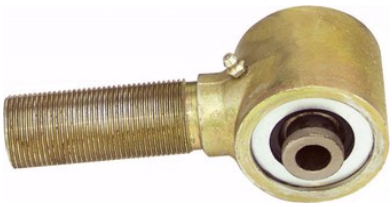
TECHNICAL STUFF

Suspension 'Johnny Joints'

When deciding on the best type of suspension joint for a build, there are pros and cons associated with the 'usual suspects', which are generally spherical joints (also known as 'heim joints' or 'rose joints'), or urethane or rubber-style bushings. Spherical joints tend to transmit a lot of road noise, wear relatively quickly, and provide no compliance, which can lead to suspension bind in some situations. Conversely, a bushing often doesn't allow enough articulation or control, and can wear prematurely or create undesirable geometry changes in extreme situations, such as in a 4WD or high-horsepower vehicles.

Enter the 'Johnny Joint', named after John Currie of Currie Enterprises. A forged threaded version is shown below.

These joints are a 'hybrid' combination of a spherical joint and a bushing, with a specially-designed ball encapsulated in a nylon bushing, and contained within a re-buildable shell.



This joint features heavy construction, and combines the best aspects of both the spherical joint (articulation) and the bush (ability to isolate shock and road-noise). These are potentially an ideal solution for many different suspension set-ups. Shown below is a photograph (of a 'weld-on' joint) that shows how they are constructed , in order to allow both articulation and busing compliance.

However, being a relatively new innovation, 'Johnny Joints' don't fit into any specific technical section within the HCTM suspension chapter, and they don't come with specific load ratings from the manufacturer. This has resulted in some uncertainty as to whether they actually meet LVV requirements.

The LVVTA Technical Advisory Committee (TAC) recently looked into the suitability of these joints, to determine whether or not they were fit for purpose on road-going vehicles. TAC members assessed an actual joint, supplied by the NZ agent *The Krysler Shop* in Tauranga, along with documentation supplied by the joint manufacturer. The TAC were very impressed with the design and construction of the joint, and have approved it for use in New Zealand. This means that LVV Certifiers can now approve these joints for use on vehicles being LVV Certified. There are various different styles of joint available; both bolt-on and weld-on, and any of these Currie-brand Johnny Joints are included under this agreement.

There are a few things however that an LVV Certifier should watch out for, as follows:

- This is applicable only to 'Johnny Joints' manufactured by Currie Enterprises. We are aware of other joints available in the marketplace, however none of these other joints have been assessed. If an LVV Certifier is presented with a similar joint from a different manufacturer, please call the LVVTA office for advice.

- Ensure that all jam-nuts are tightened correctly to prevent loosening, as there will be additional resistance in the joints (especially when new) which could cause fasteners to loosen.

- These joints must not be used in a situation where there are side-loadings (referred to correctly as axial loads), on the joint, such as a single swing-arm setup in an air-bag suspension system, as is sometimes seen in mini-truck setups.

Although these joints won't be right for every situation, there are obvious benefits of using a joint such as this, and it's great to have well-made products being produced which give car builders and modifiers better options.

Photo courtesy of The Krysler Shop

TECHNICAL STUFF (cont'd)

Head Restraints in Front of Solid Structure Clarification

LVVTA would like to make LVV Certifiers aware of a clarification to paragraph 2.4 (9) of the LVV Standard 185-00 (Seats & Seat Anchorages). The relevant part of 2.4(9) says that (paraphrased) "*...a seat which is retro-fitted to a vehicle must be fitted with a head restraint if a solid structure is positioned within 300 mm of the rearmost part of the seat-back...*"

The intention of 2.4(9) was that it applied to a seat fitted into a position where a seat was never originally fitted. For example, if a seat is fitted into an empty goods van as part of a taxi van conversion, and the rearmost row of seats is within 300 mm of the rear door, then a head restraint must be fitted to protect the occupant from head-strike against the rear door or window glass.

The intention is not that a head restraint is to be necessarily fitted to an existing seating position when a seat is changed. For example, a 1956 Ford F100 pick-up did not originally have head rests provided for the original bench seat. If a bench seat is replaced with a later-model bench seat, or a pair of bucket seats, then head restraints would not need to be fitted, because there has been a change of seat within an existing seating position, and there is no reduction in safety. Similarly, a late model crew cab utility that did not have head restraints fitted for the rear seat passengers would not require head restraints to be retro-fitted for the rear seat passengers just because a different seat is fitted.

If a seat is changed in an existing seating position where no head restraints were originally provided by the vehicle manufacturer, then head restraints are not required to be retro-fitted. 2.4(9) will be amended to clarify this at the next amendment opportunity. Obviously, this doesn't apply to scratch-built LVVs.

No Joke!

In LVV News issue # 49, we showed a picture similar to the one below of a right-hand drive conversion using a fabric belt. We genuinely thought the picture in the last newsletter was some Photoshop-manipulated joke, or someone with too much time on their hands having a laugh, but we've just discovered that in fact it wasn't a joke at all.

Not only is this right-hand drive conversion for real, it's a commercially-available kit made for many common makes and models of vehicles in the USA, designed with posties in mind! If you think we're pulling your leg, check the website: http://www.postalthings.com/Right-hand-Drive-Conversion-Kits-RHD/rhd-kits.html

Non-compliant Doubler Plates on Market

Some seatbelt anchorage doubler plates have been discovered on the New Zealand market which incorporate only a 1 mm corner radius, instead of the 5 mm radius required by LVV Standard 175-00 (Seatbelt Anchorages). The doubler plates are made by APV Australia, and have been sold through Repco outlets, amongst others. APV are aware of the problem, and they have undertaken to remove the plates from the market. LVVTA reminds LVV Certifiers and the modification industry that these doubler plates are non-compliant and cannot be LVV certified. They must be rejected until replaced, or re-radiussed and re-corrosion protected.

Photo at left shows the difference between the APV doubler plates (on right) with the 1 mm radius, and other doubler plates with the correct 5 mm radius.

Check for Drilling of I-beam Axles

LVVTA asks LVV Certifiers to carefully check any I-beam axles that they are presented with that have been 'drilled', to make sure that they have been drilled by the axle manufacturer, and that the drilling has been carried out in accordance with the NZ Hobby Car Technical Manual (HCTM) requirements. The HCTM does allow drilling of cast axles where the axle was drilled and fitted to the car prior to 2007, or where the axle was drilled by the axle manufacturer.

Pictured is a cast 'Superbell'-brand dropped I-beam axle (in green primer) which came to LVVTA's offices for testing recently. Upon initial inspection, the axle was found to have been incorrectly drilled. LVVTA confirmed with Superbell that this axle was not drilled by them, and that Superbell's drilling process is very different to the way in which this axle has been drilled.

The photograph below shows that the holes in the home-drilled (green primer) axle are significantly larger when compared to the Superbell-drilled axle (dark grey colour).

In this case however, even if the axle was modified before 2007, it would not have met the applicable HCTM requirements, which specify that the hole size does not exceed 20 mm, not less than 5 mm of beam material remains above and below the holes within the vertical web section of the beam, not less than 20 mm of beam material remains between the holes, and that the outboard holes are positioned no closer to the perch-bolt housing than 80 mm.

The Superbell axle's holes are 19 mm in diameter, there's approximately 35 mm of space in between the spring-perch boss and the first drilling, and about the same 35 mm spacing exists between the centre drilling and tip of the wing on the Superbell logo.

By contrast, the home-drilled axle has holes that are 25 mm in diameter, and are spaced much closer to the spring-perch (which we believe would be the area of most concern as this is the failure point of the axles that LVVTA has tested), and also closer to the centre of the axle. The holes are also spaced much closer together than the Superbell axle.

In this case, LVVTA had no option but to return the axle to the owner without the necessary LVVTA approval, destined to become an expensive garage wall-hanging.

Seatbelts in Scratch-built Vehicles

There are 2 conflicting requirements in the NZ Hobby Car Technical Manual on seatbelts for scratch-built vehicles, which was discovered when a beach buggy manufacturer recently wished to fit lap-only seatbelts in the rear seating positions. Paragraph 14.28.1 says that a vehicle must have seatbelts of a type listed in the NZTA seatbelt Rule, however sub-section 14.31 says that a scratch-built vehicle can have just lap belts in the rear.

14.31 inadvertently contradicts NZTA requirements that a new vehicle of class MA, MB, MC, NA, or MD1 has to have lap and diagonal retractor seatbelts in the rear outer positions, and there are no provisions within the Land Transport Seatbelt Rule which allow any alternative for low volume vehicles. This has been clarified and confirmed with NZTA.

Therefore paragraph 14.28.1 of the HCTM is correct, and lap and diagonal seatbelts must always be fitted to rear outer seating positions in scratch-built vehicles. Sub-section 14.31 of the HCTM should be ignored for scratch-built vehicles, and the offending paragraph will be changed at the next amendment opportunity.

Bump-steer Swing-check Reminder

LVVTA reminds LVV Certifiers that when carrying out a bump-steer swing-check, the LVV Certifier must always check and record the results throughout the entire suspension travel - in other words from full droop, to full compression, made in at least five suspension heights in order to identify any curved results.

LVVTA technical staff sometimes find that an LVV Certifier has only measured what he estimates as the 'normal range' - however this doesn't identify any potential bump-steer in the extremes of suspension travel, which is where the suspension is likely to be working in a situation where, for example, evasive steering action is taken during a high-speed cornering manoeuvre - a time when a driver needs to have predictable and precise steering control.

LVVTA also reminds all LVV Certifiers that whilst it is acceptable to have a bump-steer swing-check carried out at a wheel alignment shop, the LVV Certifier must be present to oversee and take responsibility for the bump-steer swing-check process, and secondly the results of the bump-steer swing-check process must be recorded on the FS039 - Bump-steer Swing-check Inspection Form-set.

Disability Vehicle Brake Testing - Relaxation of Requirements

A clarification regarding brake performance testing on vehicles modified with disability equipment: Line item 114 of the Disability Transportation form-set calls for a brake test to be conducted on all such vehicles. This requirement is intended to ensure that any uneven weight distribution has not affected the performance of the vehicle's braking system, such as when a large hoist is fitted.

LVVTA has considered that a brake performance test is not necessary in many cases, particularly where no hoist is fitted. LVVTA confirms, therefore, that a brake performance test is only necessary on a vehicle that is modified with disability equipment if the LVV Certifier believes that the modifications have the potential to adversely effect the vehicle's braking performance.

Battery Requirements in Boots or Passenger Compartments

It has recently been identified that there is nothing in the NZ Hobby Car Technical Manual applying to all vehicles, that requires any enclosure of a battery in a boot or passenger compartment. There are requirements specified in the Hydraulic and Airbag Suspension System section of Chapter 6 Suspensions Systems of the HCTM (6.60.1), however this will be easily missed by LVV Certifiers if the vehicle being certified isn't fitted with hydraulic or airbag suspension.

These requirements are simple best-practice, which most LVV Certifiers are applying anyway, regardless of the lack of general requirements being specified anywhere other HCTM paragraph 6.60.1.

Until requirements are added at the next amendment opportunity (applying to all vehicles), LVVTA asks LVV Certifiers to ensure that the following requirements are applied to all vehicles undergoing LVV certification.

A battery fitted in a boot or passenger compartment must:

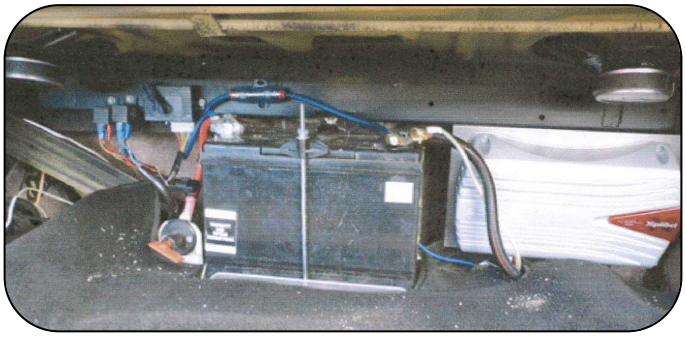
a) be securely retained in a structure specifically designed for the weight and load of the batteries being used, and

b) have some method of preventing acid spills from entering the passenger compartment of the vehicle; and

c) are sealed and ventilated where charging and subsequent gas emission may occur while the vehicle is operating; and

d) be safely wired and protected from short circuits, and

e) have electrical equipment such as pump motors and solenoids isolated from the fuel tank and system.



Scope of Door Retention Exclusion Expanded to Include Vehicles With Roofs

The LVV Standard 155-00(01) 'Door Retention Systems', sub-section 3.5 Design Criteria Exclusions, allows a scratch-built low volume vehicle that does not have a permanent roof structure and which meets specific design criteria, to be exempted from complying with sub-section 2.3 (latch and striker plate assembly requirements), sub-section 2.4 (hinge assembly requirements), and sub-section 2.5 (and door structure strength requirements).

There are several instances over the past few years of vehicles which do have a permanent roof structure (and therefore cannot be exempted) where LVVTA technical staff have considered that it would be practical and sensible to enable these vehicles (with roofs) to benefit from this same exclusion. The LVVTA Technical Advisory Committee (TAC) reviewed the need for this requirement to be restricted to vehicles without a permanent roof structure.

An Ultima GTR showing its high-sided sills - one of the criteria for the exclusion. Image source: www.ultimasports.co.uk

The TAC were shown a selection of examples of such 'roofed' vehicles which meet all other aspects of this design exclusion criteria. These vehicles are generally space-frame replicas of early Ferraris, or 'Ultima'-brand kit-type cars. The TAC agreed that the LVV Standard and the HCTM should be amended to include vehicles with a permanent roof within the exclusion at the next amendment opportunity. In the interim, LVV Certifiers can apply this exclusion. For clarification or assistance, please call a Technical Team member at LVVTA.

TECHNICAL STUFF (cont'd)

VIRM Update

NZTA has recently released a VIRM update, effective as of November 1 2014, some of which LVV Certifiers should be aware of. The updates are contained within the In-service VIRM, but the chapters in the Entry Certification VIRM say to refer to the In-service VIRM, so the changes effectively apply to both the In-service and Entry VIRMs.

- Seating:

  One of the more contentious reasons for rejection has been removed from the VIRMs, which might reduce some of the discussions LVV Certifiers have with customers who have taken some seats out of their vehicle. Previously where a seating position had been removed, all the seatbelts for that removed seating position also had to be removed. Now if a seating position has been removed, the remaining seatbelt components may remain in place, and the inspector is to note what seats are removed, advising the vehicle operator that if the seat is refitted that the belts have not been inspected for that seating position. This could affect quite a few LVV certifications, as this would have a cross-over with two-seater cars, vans, and people movers.

- Handbrakes:

  Handbrakes have had a reason for rejection added, which is in the case of a handbrake being unusually difficult to apply or release. This is a good common-sense item that an LVV Certifier would probably have rejected anyway.

- Air-bag suspension:

  Air-bag suspension has had a reason for rejection added, covering damage to the bellows. Hopefully this isn't an item that LVV Certifiers will encounter during the LVV certification phase, but certainly something to watch out for with vehicles arriving for a re-certification, or where used parts have been fitted in an air-bag suspension conversion.

- Steering:

  Steering failing to self-centre is now a reason for rejection. This is something that LVV certification has always been tough on, as it has been one of the most common steering geometry-related problems found in home-built vehicles, usually as a result of insufficient positive castor.

- LVV-certified suspension:

  The measured height for LVV certified suspension is clarified as being while the vehicle is unladen, which has not previously been specified. This is something you could advise your customers of, just in case they have questions about their vehicle in operation after it has been LVV certified. Even though it is unlikely that many WOF inspectors will be loading up a car with occupants during a check, Police can also check this at road-side.

If an LVV Certifier has any questions about any of these VIRM changes, particularly about how they relate to LVV certification inspections, they should contact Leon Cast at the LVVTA office.

Quick-release Steering Wheels

The Hobby Car Technical Manual advises (in paragraph 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 a number of cases overseas of wheels detaching during use, some causing fatal accidents. It has been agreed that this advice is now a mandatory requirement – quick-release wheels may only be fitted in a vehicle where removal is necessary to exit in a reasonable time, such as a Lotus 7 replica or fully-caged car with race seats. Removal as a security measure is not considered sufficient justification for the additional risk that a quick-release mechanism introduces into the steering system.

Hydraulic Brake Conversions on Early Fords

A not-uncommon modification to pre-1939 Fords - particularly 1928 -'39 Fords - is the fitment of a complete 1940-'48 hydraulic braking system (including the original single-circuit master cylinder) to replace the original rod braking system. This is an effective and sensible modification, and one which LVVTA would encourage.

The problem with such a conversion however, is that when a braking system is upgraded, the LVV Braking Systems Standard specifies that a dual circuit master cylinder must be fitted. In cases where a vehicle is otherwise standard apart from period hydraulic brakes, upgrading the vehicle to a late model dual-circuit master cylinder would be an unreasonable imposition.

LVVTA has had two cases now of this type of vehicle, and after discussion within the LVVTA-NZTA Technical Working Group and the LVVTA Technical Advisory Committee, LVVTA has agreed that in such cases the original (slightly later-model) Ford single circuit master cylinder can be retained.

LVV Certifiers should be aware that this will be allowed for any other similar vehicles, however once other significant upgrades have also taken place, such as an overhead valve engine conversion, this concession would not apply.

This concession operates on a case-by-case basis, so LVV Certifiers should contact a member of the LVVTA Technical Team if such a situation arises.

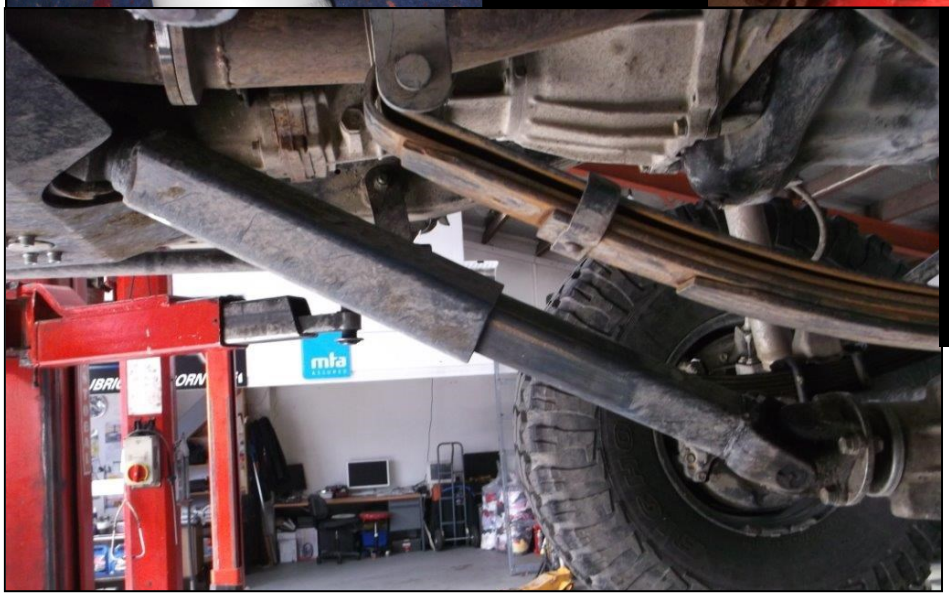
Drive-shafts - What Could Possibly Go Wrong?

Drive-shafts and drive-shaft safety loops. What subject could be simpler? You go to a drive-shaft specialist, have a drive-shaft made that's man enough for the job, get it balanced, and then fit a drive-shaft safety loop that meets the requirements in the Hobby Car Technical Manual. Indeed, what could be simpler?

Here's some interesting things that LVV Certifiers have seen during the past few months...

This little number at left and above came from a drift car, spotted by Dan Myers at a drift demonstration. So too did the drive-shaft in the vehicle pictured below (thanks to LVV Certifier Ken McAdam for the photo), that when it failed, the ensuing out of control energy tore the vehicle's floor apart, and almost tore through the seatbelt webbing and brake line.

At left is a drive-shaft from a four wheel drive vehicle, and this failure occurred during some serious off-road activity. Astonishingly, despite the multiple twists of the drive-shaft it stayed in one piece, and believe it or not, it remained connected to the gearbox and the vehicle was driven home! Thanks to LVV Certifier Bruce Jamieson from South Taranaki for the photo.



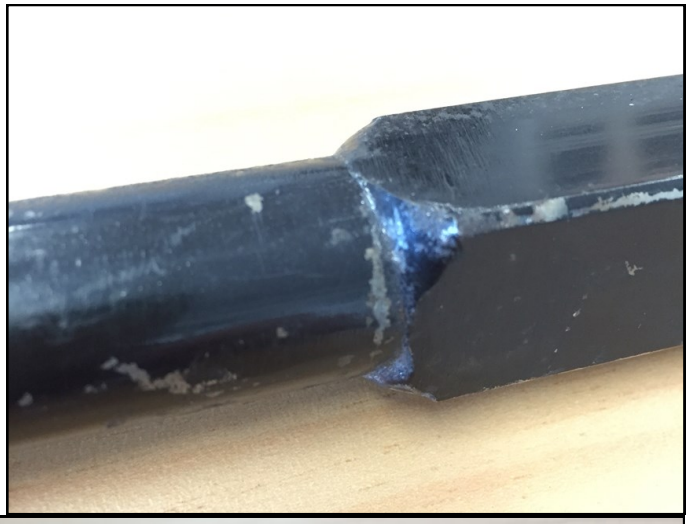
This, at left, is a joke, I hear you say. The result of someone with too much time on his hands giving an LVV Certifier a wind up. No; this was a serious effort, and is how the vehicle was presented to an LVV Certifier (thanks to LVV Certifier Don Hoff for the photo) for certification. The fertile mind of an off-road enthusiast came up with this cunning plan to deal with the age-old conundrum of ensuring sufficient gearbox output shaft engagement with a lot of suspension articulation; - a sliding section from a power take-off donated from a piece of agricultural equipment!

We never cease to be amazed by the number of people who don't understand what devastating force is pent up within an automotive drive-shaft, how much damage can be done, and that cars can be over-turned by the force of a flailing drive-shaft that digs into the ground at the wrong time. So simple, but so important to get this part right.

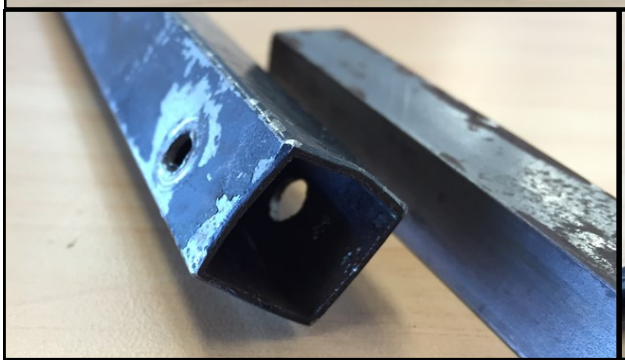
Kit Car Steering Column Shafts

Two more examples of poorly-constructed steering column shafts have been identified by an LVV Certifier as part of his inspection processes during November 2014. In the case of these columns, rather than being 'name-brand' aftermarket columns, these column shafts were found in overseas low volume scratch-built kit vehicles, and it is likely that these shafts are how the kit manufacturers made them.

One of the vehicles was a 'Suffolk' SS Jag replica, the other was a 'Birkin' Lotus 7 replica.



'Birkin' steering shaft:
This steering shaft was removed from a South African 1995 Birkin Lotus 7 replica. The thin-walled square-section tube (19 mm x 1.4 mm) clearly isn't adequate from a strength point of view, and the attaching welds are not only poor quality, they're also ground. This shaft was rejected and a new one-piece shaft was made.



LVVTA thanks Wairarapa-based LVV Certifier Julian Cheer of Cheers Auto for making these shafts available for photographing.

'Suffolk' steering shaft:
This shaft was removed for inspection from a UK-built SS Jag replica kit car. There was some helpful documentation provided by the manufacturer, which provided info stating that the steering column was 'unmodified Jaguar column'. The shaft comprises a welded join between two shafts of slightly varying sizes, and appears to have a spigot. There's also a collar, which has been fitted to allow for a steering lock – this modification on it's own may be OK as the welds attaching this collar aren't relied upon for steering control, however the column could still not be LVV Certified, and a new one-piece shaft was made.

Custom Suspension Arms Info-sheet #01-2012 Reminder

LVVTA developed Info-sheet #01-2012 (Custom Suspension Arm Inspection & Approval) to allow LVV Certifiers to approve custom or aftermarket suspension arms which previously required TAC approval. This Info-sheet is working well, however some LVV Certifiers still overlook important aspects of the inspection obligations in using this document. The Info-sheet specifically requires that if fitted, spherical or bushed rod-ends must meet the applicable HCTM requirements within the relevant sections of the Chapter 6 Suspension form-set. This is an important aspect of approving custom arms, many of which are fitted with low-grade budget rod-ends, which do not meet the HCTM requirements. LVVTA asks LVV Certifiers who become involved in this area to take a few minutes to read through this Info-sheet and refresh themselves on their obligations when inspecting such arms.

AFTERMARKET ALERT

'CPP'-brand Brake Boosters

Wellington's Mark Russell brought a new aftermarket parts problem to LVVTA's attention after discovering a potentially serious safety problem with an aftermarket brake booster. The booster is branded as 'CPP' (an acronym for 'Classic Performance Products'), and is a bolt-on replacement for Ford Mustangs.

Upon a cursory glance the booster looks like any other, but when the rubber dust seal is pulled back to expose the brake pedal push-rod (an item that is customarily one-piece), a welded two-piece rod is found. LVVTA considers this to be unnecessary, and poor engineering practice. Worse, LVVTA's welding experts within the Technical Advisory Committee (TAC), quickly concluded after inspecting the push-rod that the welding is of poor quality with pronounced undercut causing a reduction in material. One TAC member's comment was that "One side shows obvious undercut and insufficient weld volume".

LVVTA contacted CPP to see who makes the boosters, and the response was that "*...the power brake booster you referenced is made by a company called MBM brakes. They are not really big like GM or Ford so I suppose you would classify them as a 'low-volume manufacturer*' So, the unit is definitely an aftermarket part, and therefore is subject to the requirements for critical braking components, which means such a component cannot be welded.

LVV Certifiers are asked to take extra care with any boosters that are not, or may not, be an OEM item, to ensure that a welded push-rod is not incorporated within the booster assembly. Inspection is simple, and the rectification - certainly in this case at least - is also straight-forward with the fabrication of a one-piece item.

LVVTA is keen to hear from other LVV Certifiers if they identify any more of these boosters with welded push-rods.

Counterfeit Full Harness Seatbelts

While LVVTA spends a lot of time looking into sub-standard and unsafe aftermarket components, Motorsport New Zealand (MSNZ) is dealing with straight-out counterfeit or fake components. MSNZ recently issued a bulletin to all the Motorsport NZ Scrutineers, warning them of fraudulently-labelled full-harness seatbelts.

One example MSNZ showed in their Technical Article was this full harness branded as a 'Sabelt' harness, (the red harness shown in the photograph) selling on a Chinese website, complete with FIA 2018 Homologation. The price? $US 18-50!

Another example was a full harness branded as a 'SPARCO' harness, also with FIA 2018 Homologation, these ones at $US 26-00.

MSNZ advise that it is not possible to buy a new genuine FIA-compliant harness for $20.

It is not only FIA-approved safety equipment items that are being copied. The SFI have also recently issued a number of warning notices advising of similar problems with counterfeit labels on full harness seatbelts, intended to mislead people into thinking that cheap, non-compliant seatbelts meet FIA safety standards.

As the counterfeit parts problem becomes more and more widespread, everyone must be vigilant. Buyers need to think harder about where they buy their products from, and those playing a part in inspection regimes must be more vigilant than ever in demanding documented evidence to show the origins of the product.

Watch for Aluminium Wheel Nuts Part Two

In issue # 46 (January-May 2013) of LVVTA News, a small article was included (shown on right) cautioning LVV Certifiers to reject aluminium wheel nuts.

A serious crash occurred out on the open road earlier in 2014, in which a driver of a ute suffered critical injuries. The crash was caused by the failure of aluminium wheel-nuts, allowing the right rear wheel to come off, causing the driver to lose control of the vehicle. The vehicle ended up sideways into the front of an oncoming truck and trailer unit.

Post crash inspection by the NZ Police SCU found that the thread material had been torn off some of the nuts, and in some cases still attached to the vehicle's wheel studs. Several of the remaining wheel nuts on the other wheels were only finger tight; - on the front left wheel, only one nut out of five nuts was tight. The brand of wheel-nut was 'TPi', and we believe they are manufactured in China. The wheel nuts are stamped as 'forged 7075', but it would appear that they are in fact made from low-grade aluminium.

A low grade aluminium wheel nut cannot withstand anywhere the same high torque loads that a normal steel wheel-nut will cope with, and the torque applied by 'rattle guns' can strip the thread from a low-grade aluminium wheel nut instantly.

Although there are currently no requirements relating to aluminium wheel-nuts for warrant of fitness inspections, LVVTA reinforces to LVV Certifiers that aluminium wheel nuts must not be approved for use on any vehicle that is certified to the Low Volume Vehicle Code.

Watch for Aluminium Wheel Nuts

Occasionally LVVTA has it reported by LVV Certifiers that vehicle owners are turning up for LVV certification with aftermarket wheels fitted, which are attached with aluminium wheel nuts. LVVTA emphasises that due to an inherent lack of tensile strength in commonly-available aluminium compared to high tensile steel, aluminium wheel nuts must never be used.

Seatbelt Anchorage Permitted Area for Scratch-builts

LVV Standard 175-00, and Chapter 14 of the NZ Hobby Car Technical Manual both specify a 'permitted area' for seatbelt anchorages, which is critical for the correct safety performance of the seatbelt against the occupants in an impact. There are some cases where it is not practical to achieve the specified permitted area (particularly for the upper anchorage) when retro-fitting seatbelt anchorages into older open-top vehicles where no structure exists to support an upper anchorage in the correct place. For example, if the owner of a 1960s MGB roadster wished to retro-fit lap and diagonal seatbelts to increase the safety of the occupants, there is no structure within the normal permitted area for an upper seatbelt anchorage. For exactly this type of situation, paragraph 14.38.1 of the HCTM provides an 'as closely as practicable' softening of the requirement for such situations, in order to encourage people to retro-fit lap and diagonal seatbelts. While the wording is not clear, it was not the intention for this paragraph to allow 'as close as practical' for new scratch-built vehicles. A new scratch-built vehicle must always have all seatbelt anchorages positioned within the normal permitted area, as specified within the LVV standard and HCTM requirements.

The upper anchorage positions on this scratch-built Ford-T will not provide good protection, and is not acceptable for the future.

PROCEDURAL STUFF

LVVTA's Christmas Holiday Close-down

As we approach the Christmas Season LVVTA wishes to advise that the Wellington office's last day of business will be midday Tuesday 23rd December 2014, and will re-open on Monday 5th January 2015. There will be no LVV Plates processed and no access to Modification Declaration Certificate details, or technical support during the four and a half affected working days.

New LVV Certifier Mentoring System Trialled

A new 'mentoring' system has been developed and trialled during late 2013 and 2014 for newly-appointed LVV Certifiers. This involves pairing an LVV Certifier who has undergone and passed his LVV Entry Assessment Examination with an existing and experienced LVV Certifier in whom LVVTA has a high degree of confidence. Ten LVV certifications are done together, with the mentored LVV Certifier's involvement progressively ramping up. The mentoring system has been very successful, and will be a mandatory part of the process of being authorised as an LVV Certifier from 2015-on. LVVTA is very appreciative of LVV Certifier Don Hoff of Christchurch, who has provided the mentoring during the trials.

Fender Exemption Text on Certification Plates

A quick request to all 1D category LVV Certifiers who are asked to sign off the 'Certifier' part of the Fender Exemption Application Form (located on Page 3-6 in the HCTM); - in the case of an LVV certification plate that does not specify that a current NZHRA Fender Authority Card is required, please request a new LVV Certification plate from the LVVTA plating desk.

When doing so, remove and return the existing LVV certification plate, ask LVVTA for a replacement LVV certification plate with the wording 'CURRENT NZHRA FENDER AUTH CARD REQUIRED' on the Exemption Field, enclosing the replacement plate fee of $39-60.

'NZHRA-endorsed LVV Certifiers' or 'LVVTA Member Association-endorsed LVV Certifiers'

There has been a minor change to the way in which a 'New Zealand Hot Rod Association (NZHRA)-endorsed Low Volume Vehicle Certifier', or an 'LVVTA Member Association-endorsed LVV Certifier', is required to carry out a specific part of an LVV certification, most commonly in relation to the issuing of an FS012 Upper Seatbelt Anchorage Request Form, or for the initial application for an NZHRA Fender Exemption LVV Authority Card.

These functions can now be carried out by any category LV1D LVV certifier, so there is no longer a 'New Zealand Hot Rod Association (NZHRA)-endorsed Low Volume Vehicle Certifier' or 'LVVTA Member-association endorsed LVV Certifier'.

The applicable sections of the LVV requirements will be updated to reflect this change at the next amendment opportunity.

NZTA Performance Review Fees Dropped

NZTA has restructured their fees for the various products and services that they provide, and one of the big changes that will affect LVV Certifiers (positively) is that the Performance Review System (PRS) is now not being charged for. The costs of operating the PRS is now met through other revenue streams.

Watch Out for 'Heavy' Scratch-builts

LVVTA reminds LVV Certifiers to watch out for scratch-built vehicles that are based around 'heavy vehicle' components, chassis in particular.

There have been a few cases in recent years where hot rod style school buses (used as campers), and hot rod style 'ramp trucks' have been built on Chevrolet or Ford or Dodge crew cab dually chassis. A Dually chassis provides the length needed for a school bus, and the length and load-carrying capability for a ramp truck. Typically, bodywork is fitted that is unrelated to the chassis, and the vehicle therefore becomes a scratch-built low volume vehicle.

Caution should be exercised whenever an LVV Certifier approaches a scratch-built vehicle that might be a heavy vehicle, uses a heavy vehicle chassis, or may be perceived by people to be a heavy vehicle (even if it isn't). No LVV Certifier wants to put a lot of time and effort into certifying a vehicle that is then deemed to be a heavy vehicle and as such has to be certified by a Heavy Vehicle Certifier. LVVTA advises LVV Certifiers to contact the office and talk to Dan, Justin, or Leon at the outset if presented with such a vehicle.

The likelihood is that, if the vehicle is a dually chassis-based 'ramp truck' (such as in the photo below), the vehicle will be a heavy vehicle, and will therefore need to be certified by a Heavy Certifier.

It is probable that, if the vehicle is a dually chassis-based 'school bus' camper (such as in the photo below), the vehicle will be a light vehicle, and will therefore be able to be certified by an LVV Certifier. There are a couple of fish-hooks though, so always talk to an LVVTA Technical team-member before embarking on the certification of one of these potentially-problematic vehicles.

AUTHORISED VEHICLE INSPECTORS' PAGE

Fraudulent LVV Certification Plates

Authorised Vehicle Inspectors are asked to keep a vigilant eye out for fraudulent LVV certification plates. Producing fake LVV cert plates seems to have become popular during the past two years. During 2013, an eagle-eyed AVI spotted a LVV certification plate which he thought looked irregular, and notified NZTA and LVVTA of the situation. This quickly ended up in the hands of the NZ Police, and a Wellington man was later charged with a fraud offence, found guilty by the court and convicted of fraud, and was sentenced to 100 hours of community work.

The Police are currently investigating another man (from Nelson) who has been selling fake LVV certification plates through his Facebook page. Shown below is the advertisement for the fake plates.

While a printed label on a piece of trimmed aluminium is relatively simple to create these days, a giveaway that a plate is fraudulent will be the quality (or lack thereof) of the engraving. LVVTA would be grateful if AVIs can inspect LVV certification plates thoroughly, and check that the engraving is computer generated and uniform, and that the engraved information sits neatly within each text field. If in doubt, AVI's are welcome to send a photo of the plate to the LVVTA office at info@lvvta.org.nz

Current LVV Certifier Information

LVVTA reminds Authorised Vehicle Inspectors that, when looking for an LVV Certifier, or referring someone to an LVV Certifier, it is better to use LVVTA's website than printed LVV Certifier listings, because there have been many changes to the LVV Certifier population over the last few years.

This information is available for viewing and down-load on www.lvvta.org.nz. Once on LVVTA's website, go to 'Support' on the top drop-down Menu, and click on 'Find an LVV Certifier'. Easy.

'Vehicle in Question', not Make or Model

When considering whether or not a modified vehicle needs to be referred for LVV certification during a Warrant of Fitness inspection, a key question that AVIs should ask themselves, is "did the vehicle in question come out from the factory with these particular brakes, or with this particular engine?" Not the make or model or sub-model of vehicle, but *this particular* vehicle.

Vehicle manufacturers build many subtle differences into their vehicles to take into account a vehicle's performance characteristics, weight, and load-carrying capability. Ford Escorts for example, have something like 16 different combinations of wheel cylinder size, master cylinder bore diameter, proportioning valve, and disc/drum combinations, and so doing an engine swap for example, that was available as an option by the manufacturer for that vehicle, won't necessarily be right, unless all the other subtle changes have been made as well. The role of the LVV certification process is to ensure that all of the other changes that are necessary to make the engine swap work safely have in fact taken place correctly.

So, we know that an old Ford Falcon might have been fitted from the factory with either a 250 ci 6-cylinder, or a 302 ci V8, or a 351 ci V8. The question is, did *this particular vehicle* that we're doing the WoF inspection on leave the factory with this particular engine?

If the answer is no, the vehicle is required to be referred for LVV certification to ensure that the modifications have been carried out safely and correctly.

LVV–related Advice for AVIs

Any AVI that requires further clarification on these issues, or has any other LVV-related questions, is welcome to contact a member of the LVVTA technical team at the LVVTA office in Wellington on (04) 238-4343.

COMINGS & GOINGS

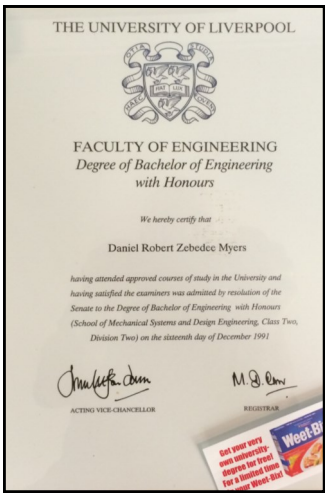
UDM-modified Skoda Yeti Update

During late November, the New Zealand Transport Agency allowed six of the UDM-modified Skoda Yeti vehicles to return to the road after being satisfied that the key safety concerns had been satisfactorily rectified, however they have required an on-going monitoring process to be applied to the vehicles to address remaining durability concerns. NZTA will issue a statement about this, which should be on the LVVTA website before Christmas.

It's a Tough Job...

LVVTA Technical Officer Justin Hansen was caught here doing we know not what, while a hearse was in the LVVTA workshop. Was he (a) inspecting the quality and finish of the interior fit-out; (b) checking it for size before making an early booking; or (c) just having a wee kip?

Vandalism Within LVVTA's Office



LVVTA's Engineer, Dan Myers, arrived at work one day recently to find that a fellow-staff member had made a minor modification to his Engineering Degree.

Wonder who...

From the Internet...

"Holy Toledo Batman, watch where you're going..."

Another New LVV Certifier for Auckland Region

An additional LVV Certifier is to be appointed for the Auckland region in January 2015.

Mike Owen from Howick has passed his LVV entry assessment examination, and has undergone the 'pre-appointment mentoring' with Don Hoff in Christchurch, saying that Don's mentoring will be invaluable once he gets underway with LVV certification in the new year. Mike will spend two days in Wellington in early January for some further specialist mentoring, and will be appointed by NZTA by mid-January.

Mike runs a busy mechanical workshop in Howick, which will provide a base from which he will specialise in LVV certification. With over 30 years of practical experience in modifying vehicles, Mike's background includes building and racing Super Minis, and the restoration and modification of many American classic cars. His current car is a restored and lightly modified 1958 Chev Impala Sports Coupe.

Mike can be contacted at Progressive Automotive on (09) 534-8604.

ODDS & ENDS

And The Free LVVTA Certification Voucher Goes To...

During each of the CRC Speedshow events at which LVVTA has a trade display, a competition is run for a chance to win a LVV Certification Voucher. It's always a popular contest with just a simple question to enter, and a $500 voucher towards an LVV certification is a real bonus to the winners.

This year's prize was won by Auckland couple Ngaire and Murray Worboys. They have a 40-year plus history in speedway, particularly in the TQ and Midget classes, with Murray having competed and scrutineered at Western Springs, and son Carl having also competed successfully for a number of years. As well as having a very clean '85 IROC-Z Camaro parked in their garage, there's a perfect candidate for the certification voucher; - the couple have recently purchased a 1948 Ford F1 pickup which has been receiving some upgrades and requires re-certification for it's new engine. So, great timing! LVVTA staff would like to congratulate the Worboys on their win, and wish them many happy cruising miles in their pickup.

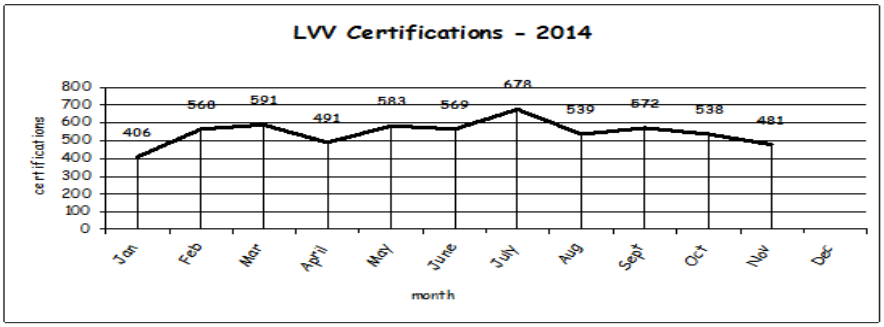
LVVTA President Steve Keys presents the Worboys with their $500 gift certificate. The '48 F1 can be seen in the background, alongside their '85 IROC-Z.

Recognition for NZHRA's Errol Uttinger

LVVTA paid recognition to Errol Uttinger upon his retirement from his 16-year role as an LVVTA Member Association Delegate representing the New Zealand Hot Rod Association at LVVTA's General Council Meeting on the 25th of November 2014. Prior to Errol's role as the NZHRA Delegate to LVVTA, he was an essential part of LVVTA's formation and growth through his role within NZHRA. Errol was one of the original team with Tony Johnson in establishing the original 'Code of Construction Manual in 1992, then assisted with the establishment of the LVVTA 'single-certification system' by making NZHRA's documents & systems available to LVVTA in 1998, and he spear-headed the development of the Hobby Car Technical Manual that was completed in 2007.

A plaque was presented to Errol (at left of picture) from LVVTA president Steve Keys at the LVVTA General Council meeting, which read: "*In appreciation of your valuable contribution and your commitment to the Low Volume Vehicle Technical Association, whilst representing the New Zealand Hot Rod Association, over a sixteen year period, from 1998 to 2014. Many thanks from the Management Committee, Member Association Delegates, and Staff of the Low Volume Vehicle Technical Association Incorporated.*" Errol's calm and steady influence within LVVTA will be missed.

LVV Certification Numbers for 2014



December has been an unusually busy month in 2014, with 585 certifications already processed by the 19th day of December. This represented a 30% increase in Frances' workload during December, however she still managed to despatch plates within the three-day turn-around period, and in most cases within two days of receipt of applications. The monthly average figure (which will exceed 550) makes 2014 the busiest year for LVV certification since the global economic crisis hit at the end of 2008.

Low Volume Vehicle Technical Association (Inc) www.lvvta.org.nz Office & courier: 21 Raiha Street, Porirua City
E-mail: info@lvvta.org.nz Phone: (04)238-4343 Fax: (04)238-4383 Postal: P.O. Box 50-600, Porirua City 5240