In 1992 The LVVTA was established by a group of NZ hot rod associations with the following philosophies espoused in its introductory pages by Tony Johnson.

The following quotes in purple are taken directly from the introduction to the "Hobby Car Manual"

"New Zealand's low volume vehicle certification process was on its way. We had somehow managed to head off the Australian Design Rules, and the professional transport engineers,"

"Consequently, we have been rewarded for our efforts since 1989, by finding ourselves now living in an environment where we can still build a fenderless '32 Roadster, or a tubbed and supercharged '57 Chevy - no mean feat in this heavily regulated age."

" all without the luxuries of big budgets, plans, prototypes, testing, formal qualifications, or even textbooks."

"would provide the technical requirements for modified and scratch-built vehicles, based not on physical testing and expensive calculation work, but on 'historical best-practice knowledge'."

"Our challenge, however, is to achieve this within a general legislative environment that is increasingly safety-conscious, heavily regulated, environmentally paranoid, and politically correct"

"as I write the final pieces for this hobby car manual from the tranquillity of Hopewell Lodge, my favourite backpacker retreat in a remote part of the Marlborough Sounds, our hosts are, because of stringent and unbending council regulations, busy building a massively expensive wheelchair ramp into their recently extended communal cooking facility - never mind that the only way to get to this isolated spot is by boat, and there's not a room nor an ablution block anywhere in the sixty year old complex that can be accessed from a wheelchair ..."

So we should be able to put more pre 1960's heavy American Iron on the road with low quality braking systems, no electronic stability control, designed without safety crumple zones, lap only safety belts, no air bags, even permitted to be devoid of protective heat belt and mudguards, to say nothing of the madness of V8 powered tricycles.

We have no particular desire to preclude hotrods from using New Zealand roads, we are simply wanting to see some perspective here.

The LVVTA on one hand is saying that a privileged sector of the community does not need to undertake testing nor does it have to meet modern international safety standards. It does not need to pass professional exams or read text books. (apart from the hobby car manual).
On the other hand a severely disadvantaged sector of our community confined to wheelchairs is not allowed on the road unless it has passed every safety test there is, as well as having electronic stability control, ABS braking, multiple air bags, crumple zones and all modern international standard approved safety aids

It would appear that UDM made the fundamental error of wanting to build a car that was not a hot rod, sports car, modified classic, or whatever, In short it was intent on building a very functional, safe social needs vehicle to give wheelchair people the same transport freedom to use the road as any hot rodder takes for granted.
It is little wonder that "New Zealand has never had a real car manufacturing Industry" and with the two faced attitudes of the LVVTA is unlikely that it ever will, unless small production, modern vehicle development certification is taken out of the hands of Petrol heads. The LVVTA has focused on the industry from which it was born and has never equipped itself to be able to provide support for, let alone assess modern car developments. The staff and management proudly proclaim that qualified engineers are not needed in the industry and there is no substitute for 1980's workshop experience.

The LVVTA does not support ADR standards and does not know the difference between a seat locking ECE certification and a whole of vehicle certification as evidenced in the Kivi imports from Italy debacle in the Wheelchair vehicle sector.

When faced with the UDM drive from wheel chair vehicles it had been asked to issue 10 certification plates in the space of 16 months before it appreciated that there was a new production vehicle being developed in New Zealand.

LVVTA's reaction.
It told the certifier concerned to close the UDM factory without so much as a visit to UDM, without discussion with the company and without ever having inspected a vehicle.

It wanted the vehicles to be tested but had no idea what tests it wanted done, which is hardly surprising given the LVVTA philosophy. When the staff did finally check out the operation and the vehicles, they were positive about what they had seen, however the die had already been cast by Tony Johnson and it would appear that he does not like to admit that he could make a mistake and so the factory was not permitted to reopen from the 26th June 2013 and still remains closed today for New Zealand manufacture.

UDM, small firm that it is, was embarking on a major testing programme to check vehicle compliance with the European standards so that it could export to France and the rest of Europe. The company had applied for, and was subsequently approved by the Callaghan Foundation, for a grant of $370,000 for the specific purpose of testing and modifying the design where needed. (Of course the Withdrawal of the certifications in December 2013 at Tony Johnson's insistence, based on totally incorrect engineering analyses, also resulted in the Callaghan Foundation withdrawing its grant without contributing a cent to the costs incurred by UDM)

The first test done was to check the seat belt mounts using the ADR standard pull test. The floor mount for the seat belt had been sized in association with the certifier using the Hobby Car Manual recommendations for aluminium floors, but the Certifier failed to appreciate that the recommended support would prove only sufficient for a single rather than a double seat belt support. The test showed that it was appropriate for 1 seat belt but not for a pair as required for a front seat driver and front seat passenger.

UDM immediately redesigned the support and tested it to be sure that it conformed to both the ADR and EC Standards and then recalled the 8 New Zealand cars to have the new supports fitted. The cars in New Zealand are located from Auckland to Invercargill. UDM advised all owners that the cars should only be used with 1 front seat occupant and up to two rear seat occupants until the replacement support could be fitted. UDM advised LVVTA and asked for a dispensation to allow the owners to have interim use of their cars on this basis. Tony Johnson with his empathy for wheelchair bound people, having evolved from his favourite backpacker retreat in a remote part of the Marlborough Sounds, refused. (I know of a certain wheelchair fishing show host, as well as our wheelchair boating clients, that would support Hopewell lodges foresight)
He and his staff have been determined to assure the public and the NZTA that its infallibility remains intact ever since, and has done everything possible to prevent the UDM vehicle from having a place on New Zealand roads. This despite the completion of full ECE/EU certification testing supported by the donor manufacturer, with UDM cars now coming off the French production line homolgated for Europe, recognised by the UN as being the highest safety standard and sophisticated automotive market in the world.

With this background it is totally understandable that he wants to repetitively highlight the minute and paper over the LVVTA engineering stuff ups and inadequacies in relation to UDM.

So lets see how to defend the indefensible.

LOW VOLUME VEHICLE TECHNICAL ASSOCIATION Inc

Position Statement:
UDM-modified Skoda Yeti Vehicles

From Tony Johnson, CEO, Low Volume Vehicle Technical Association (Inc), March 2014

(UDM rebuttal paragraphs are highlighted from Roger Phillips UDM CEO March 2014)

Introduction and purpose of this position statement:

On the 20th of December 2013, the New Zealand Transport Agency (NZTA) removed the certifications of 8 U-drive Mobility (UDM)-modified Skoda Yeti motor vehicles (UDM vehicles).

It has not generally been part of LVVTA's role to liaise directly with vehicle owners or users, or to participate in public discussions, particularly regarding matters which might contain a degree of commercial sensitivity for a vehicle modifier or builder. LVVTA's role is to provide a technical support function to the LVV Certifiers and to the NZTA, however given the discussions taking place about the situation relating to UDM vehicles in a number of public forums recently, and UDM's willingness to speak publicly about the issues with the vehicles, it has now become appropriate that we provide some information in the hope that it will provide some clarity for affected vehicle users and others that are participating in the discussions.

It has been LVVTA's desire to communicate with the affected vehicle owners and users in an open manner before now, but it has also been our hope during every step in dealing with UDM, that the next step will bring understanding and acceptance of the situation by UDM, along with an associated resolution to the problem – negating the need for us to publicly comment on the situation. Clearly, this has not happened.

We hope that in providing this information, we might be able to help vehicle users and other interested parties to gain a better understanding of:

1. the relationship and responsibilities of the parties involved, in particular the NZTA, LVVTA, and the LVV Certifier; and

2. the events that have been occurring behind the scenes that have led to this situation; and

3. the details and extent of the safety and compliance-related problems that we consider to be associated with the UDM vehicles.

It is not the purpose of this position statement to delve deeply into detailed technical matters, so any references to the technical problems associated with the UDM vehicles are limited to an overview.

Additionally, we would like to take the opportunity to defend LVVTA's position against some inferences, comments, and statements that have been made in relation to LVVTA's involvement with the UDM vehicles

Firstly, what is LVVTA, and what does it do?

An abridged answer to a complex question is that LVVTA is an incorporated society, established over 20 years ago by 10 different national motoring bodies, including Motor Caravan Association, Vehicle Association of NZ for People with Disabilities, Vintage Car Club of NZ, Motorsport NZ, NZ Hot Rod Association, Sports Car Club of NZ, NZ Four Wheel Drive Association (NZFWDA), and others.

Over the past 22 years, LVVTA's responsibilities have grown from its hobby-based origins to now being responsible for the industry side of vehicle modification also, which includes developing technical standards and inspection processes for vehicles being driven by, and for the transportation of, disabled persons.

The principle objective of LVVTA is to advocate the motor vehicle hobby and industry in New Zealand to the Government, specifically in relation to motor vehicle modification and construction, and to ensure that motor vehicle modification and construction in New Zealand remains achievable, but incorporates the highest practically-achievable level of safety.
LVVTA's role is to support the LVV certification process in conjunction with the NZTA. It does this via the joint development of practically-oriented technical requirements and a certification inspection system that is aimed toward ensuring that vehicles which are modified or individually-constructed are safe, durable, and fit for their intended purpose. The system, which is incorporated by reference into land transport legislation, must be sufficiently robust to be considered reasonable and acceptable to the Government by virtue of minimising any resultant risk to road safety.
LVVTA is a very small organisation, with a total staff of 5 people, and our income is limited to a fee on each LVV certification plate. Given LVVTA's very limited resources, and the infrequent use of unusual products such as composite and sandwich panel materials in automotive applications, it is not feasible for LVVTA to have an in-house specialist in such a field. LVVTA does however have access to, and a good relationship with, a lot of experts in all sectors of the automotive mechanical and engineering industry that we can call on for expert assistance. These people are always willing to assist us with information and advice.

To provide LVVTA with general automotive engineering direction, it employs a qualified automotive engineer who holds a Masters Degree and a Bachelor of Engineering (with Honours).

Relationship between LVVTA, NZTA, LVV Certifiers, and modifiers:
NZTA is the regulator that manages all certification processes in New Zealand. Some certification processes are particularly specialised and complex, like repair certification, heavy vehicle certification, and LVV certification. NZTA uses specialist industry groups to assist them in managing these areas of certification, and in the case of modified and individually constructed vehicles (covered by LVV certification), LVVTA supports and assists NZTA.
LVVTA has a very good working relationship with the NZTA, and we have been working closely together on the UDM vehicle issue since June 2013.
The LVV Certifiers are appointed by NZTA to carry out LVV certification inspections. Part of LVVTA's support role to NZTA is to provide training and technical support to the LVV Certifiers, with the goal of improving the overall quality and consistency of all LVV certifications that take place.
There are direct relationships between the modifier and the LVV Certifier, and between the LVV Certifier and LVVTA. Because there is no formal relationship between LVVTA and a modifier (unless a modifier approaches LVVTA directly seeking help or guidance as usually happens with production-run modified vehicles) the appropriate method of communication is for LVVTA to communicate its requirements to the LVV Certifier, and for the LVV Certifier to forward these requirements or requests to the modifier.
When an LVV Certifier has completed his LVV certification inspection on a vehicle, he provides all certification documentation to LVVTA in order to obtain the LVV certification plate which is what finalises and confirms the LVV certification process of the vehicle. One of the systems that LVVTA has in place to minimise safety risk is a technical 'form-set review' process, which involves random reviewing (or 'auditing') of LVV Certifiers' submitted documentation by LVVTA technical staff. This is an added quality assurance check which LVVTA is contracted by NZTA to carry out, introduced in recognition of the high level of complexity associated with many vehicle modifications.
It is this 'form-set review' process that identified some issues associated with the fourth UDM vehicle that was submitted to LVVTA by the LVV Certifier. LVVTA does not have the resources to carry out a technical review on every certification, and while such resources – were they available – would have identified the problems with the first UDM vehicle rather than the fourth UDM vehicle, without this system it may have been that the problem wouldn't have become apparent until many more such vehicles were on the road, and a great number more disabled people became adversely affected by the situation.
It should be noted that LVVTA do not carry out the LVV certifications, and are not responsible for the LVV Certifiers' decisions or LVV certification outcomes. We provide as much technical help and support as we can in order to guide the LVV Certifiers toward making sound decisions.
Anyone can learn more about LVVTA by going to our website www.lvvta.org.nz. In particular, the 'Low Volume Vehicle Code' which sets out the legal framework of the LVV system, and the 'LVV Operating

Requirements Schedule' which provides the rules and protocols that both LVVTA and the LVV Certifiers are obliged to follow. Both can be found under 'documents' on the website's drop-down menu.

UDM Rebuttal and warning

This appears to be an LVVTA admission of a fundamentally flawed system that is not equipped to certify modern complex vehicles structures that are supported by inter related safety technology in widespread use in the automotive manufacturing industry. The writers attempts to justify LVVTA inaction and incompetence cannot be condoned, and as a result UDM, the subject of this character assassination, and it's clients who jointly have become financially, emotionally, and operationally marginalised and threatened by these actions, have no other recourse than to action a rebuttal on this manufactured Spin. Following a QUALIFIED experts report, the 3 LVVTA claimed safety issues of weak floor, weak glue, and excessive rear suspension bump steer have been completely discredited. UDM cars passed all ECE/EU standards testing in Paris June 2014, and are in the final stages of full United Nations and European certification approval, (The highest standard a manufacturer can achieve) with cars now being assembled in France for European distribution. The NZ UDM domestic operation has been completely sidelined by these erroneous LVVTA claims causing subsequent 12 months vehicle deregistration, now reinstated, and it is time that LVVTA motives and competence are closely scrutinised. TJ himself states in a press release that this witch hunt began on complaints laid by potential industry competitors. We leave the public to draw their own conclusions ,but UDM have requested a thorough review of LVVTA operations now in progress by NZTA to ensure this cannot happen again, and reserve the right to take further action.

Chronology of key events relating to LVVTA's involvement with the UDM-modified vehicles:

To follow is a basic outline of the key facts relevant to the situation. In the interests of brevity and clarity I have avoided getting into a lot of minor detail, but instead have just focused on the important key issues relating to the UDM vehicles.

LVVTA's initial concerns:

1. We understand that some time ago UDM developed an idea for a series of modifications to Skoda Yeti vehicles targeted toward the disability transportation and self-drive market. UDM elected to use materials and systems in the modification of the vehicles that, to the best of LVVTA's knowledge, have not been used before in this application.

Incorrect, UDM built an initial car using conventional steel fabrication methods, under supervision of a contracted LVVTA certifier, which was LVVTA certified, but proved unfit for intended purpose, Incidentally, this is LVVTA's preferred solution proposal to the current issue of their own making.. UDM then spent 12 months investigating, developing the initial composite car under supervision of a second contracted LVVTA certifier before shipping to WA client who has had unrestricted use of the vehicle for the last 3 years. Due to pressing family issues the second LVVTA certifier was unable to be present during all parts of this program, but had enough material, and carried out the required progressive inspections to certify the vehicles according to the Hobby car manual requirements. .

The unusual nature of the modifications relate in particular to the concept of cutting out the vehicles' entire floor and chassis sub-frames (comprised in part of high-strength steel, and incorporating both longitudinal and transverse strengthening beams), and replacing the floor and chassis sub-frames with a sheet of aluminium sandwich panel, held against the remaining vehicle structure with epoxy glue. The aluminium sandwich panel material is a product typically used in non-load bearing applications such as partition walls and external building cladding.

2. During late 2012 and early-to-mid 2013, the first seven of the aluminium sandwich panel-floor vehicles were inspected and approved by an authorised LVV Certifier. We understand that his decisions to approve the vehicles were based at least in part on information provided to him by UDM during the inspection process.

Misleading: The certifier was involved as per the hobby car manual and LVVTA website instructions, from the outset, and as an adjunct of the UDM team assisted in the design and development of the car, and determined design perameters to the hobby car manual requirements where applicable during design and

construction. He had also worked closely with UDM management and staff in the past, and had no reason to doubt UDM's ability or professionalism. UDM followed LVVTA website suggestions and procedures to the letter, hence he confident enough to certify the whole 10 vehicles during production.

3. On May 10 2013, LVVTA technical staff received LVV certification documentation from the LVV Certifier for a UDM vehicle, and a technical form-set review was applied to the certification documentation. It became apparent to LVVTA's engineer during the review of the certification documentation that no 'Design Approval' (a process that must be followed when dealing with very unusual designs or systems) had been provided for the vehicle.

Incorrect: Design, or type approval document had been signed and provided to certifier together with CAD drawings for submission to LVVTA prior to completion of unit 2 in Nov 2012. How long does LVVTA process to receive and review applications take? The type approval document is essentially for scratch built hotrods and has very little relevance to UDM's application so UDM also submitted exploded CAD tech drawings of the tub, fuel tank and suspension assemblies with the application. In late Feb of 2013 LVVTA staff have indicated they received 2 telephoned complaints from industry members viewing the vehicle at the disability expo regarding the UDM vehicles already certified. UDM have some evidence that identifies the complainants who are potential industry competitors, and it appears (Now admitted) to be this that sparked an LVVTA investigation of the certification. UDM understands the complaints centred around the use of the Automated docking device used as a restraint for the OEM seats. This design feature is supported and warranted by the docking device manufacturer to enable the vehicle to be fit for purpose as a wheelchair driver vehicle, which requires push button access to all front seating types. The LVVTA in its wisdom had mandated a fixed track system for this function that rendered the seat changeover impossible for a wheelchair user.

LVVTA later changed its position after discussion with the supplier and proof of its certification for this purpose, and reversed its stance to approve docking restraint of ambulant seating! Now that wasn't too hard to confess to, so why is it so hard to confess to all the other major LVVTA engineering inadequacies

4. LVVTA's engineer also identified from the documentation a number of technical issues that gave him cause for concern that the vehicles may be unsafe. LVVTA's engineer immediately informed the LVV Certifier that the certification plate could not be issued, and that 'Design Approval' must be obtained via the LVVTA Technical Advisory Committee (TAC) before the certification of any such vehicles can proceed. LVVTA's engineer also expressed his concerns about the safety of the vehicle to the LVV Certifier, and asked the LVV Certifier to inform UDM that the vehicle owners should be advised not to continue using the vehicles until it could be ensured that they were safe to operate.

5. On June 4 2013, an application for 'Design Approval' was made to the LVVTA TAC, and was rejected because of a lack of important information relating to the aluminium sandwich panel system, the bonding system, the attachment of seatbelt anchorages and seats, and other issues. The 'Design Approval' application did not provide any evidence of testing, which is required to prove the suitability of unknown products and systems such as those used in the UDM vehicles.

Dates incorrect, unless it takes lvvta system 8 months to process documentation provided to certifier. UDM by this time had 10 cars certified and was ramping up production potential from 2 to 5 cars/month. The design approval document makes no mention of testing, rather is a components specification application document for hot rods, with no relevance for a front wheel drive low floor access vehicle using modern build production process, other than the name and address at the top of the application form. On certifier advice UDM submitted CAD production exploded diagrams by way of build explanation to try and provide some relevance. This was submitted to the certifier while the first UDM car was in the build process in August 2012.

LVVTA first responded via certifier in June 2013?. 10 months and 9 cars later. This is not credibly an IMMEDIATE response. It was my understanding that the certifier had asked LVVTA for assistance but we

have nothing to do with the certifier – LVVTA relationship which seems to have broken down during this period.

This information was immediately communicated back to UDM by the LVV Certifier.
6. On June 26 2013, LVVTA's engineer wrote to the LVV Certifier, listing all of his concerns about the UDM vehicles, based on the information that was available to him. Specifically, LVVTA's engineer requested documented evidence of the suitability of the aluminium sandwich panel and of the bonding material, and for the evidence of the testing that was (assumed to have been) conducted on certain critical components and systems (such testing is critical where unknown systems and products are used, in order for everyone involved to be confident that all aspects of the modified vehicles can be assured of being compliant, safe, durable, and fit for their intended purpose).

Incorrect; UDM received a verbal communication expressing LVVTA concern from the certifier. Written confirmation to the certifier by LVVTA was not provided to UDM until August 2013 and then only by the certifier disclosing a communication marked private to him, not for distribution.

On June 28 2013, LVVTA's requests for information and testing data were made to UDM by the LVV Certifier. On the same day, the LVV Certifier reported back to LVVTA that he had established, through his communications with UDM, that no testing of the vehicles' structure and systems had in fact ever been undertaken.

Incorrect; Both certifiers had been involved right from the initial design phase. No testing had been requested as the vehicle was built according to bonding label and floor structure loading perameters, supported by manufacturer/distributor technical information available on their websites, ALSO AVAILABLE TO LVVTA WHERE THEY MISCALCULATED THEIR FLOOR LOADING CALCULATIONS FROM, AND FAILED TO CALCULATE THE BOND LABEL STRENGTHS. The certifier had approved all processes according to hobby car manual parameters. If LVVTA had concerns they should have raised them on the initial certification application, rather than stopping UDM production 12 months later when UDM have committed to full production expenditure and investment. This is a fundamental flaw in the LVVTA certification system. It is UDM's understanding that the certifier requested technical assistance from LVVTA in this regard, but none was forthcoming.

8. On 26 July 2013, at LVVTA's request, UDM carried out its first test, which was of the attachment of the front inner seatbelt anchorages to the aluminium sandwich panel floor section. The LVV Certifier attended the test. On the first test, the aluminium sandwich panel around the seatbelt anchorages collapsed at approximately half the required load. This showed that the UDM vehicle seatbelt anchorage system would not have protected its occupants, even in a 50 kph impact.

Partly true statements can be quite misleading. The initial and only test failure was caused by the hobby car manual design and certifier checked mount plate being of sufficient strength to maintain a 20G impact for one belt, but not for 2. Obviously a self drive wheelchair person on their own would have been quite safe, but at risk if carrying a passenger. This was immediately redesigned and tested to pass a 20g impact for both with a 1.4 x safety margin, and components were manufactured and immediately refitted to all vehicles. It is worth noting that in 95% of vehicle usage only one occupant was using the car. UDM applied for this caveat to be applied to the car so that unaccompanied clients could continue to use their vehicles until all were recalled, but was refused. This would have safely kept users in operation with minimal disruption until any further requirement had been established. LVVTA took this hard line approach to the detriment of users.

9. During August 2013, UDM started to provide some product and system information to LVVTA, and undertook some further testing and provided LVVTA with some test reports. However, the information provided was not sufficient to satisfy LVVTA's safety concerns, and the documentation relating to the testing was not regarded as proper test reports. Some tests were inconclusive, while other tests were not representative of the actual (vehicle) situation.

Incorrect: despite numerous requests for LVVTA to provide satisfactory test procedures, on only one occasion (ADR Torsional test) was the LVVTA able to do so, as it has no formal test procedures. This fact is outlined in the hobby car manual. UDM was therefore left to produce and design test data, which was done in the form of a contracted consulting report including photographs, with Certifier present at all initial tests. UDM also contracted a Melbourne based Qualified ADR engineer to structure and oversee the tests to ADR standards, as LVVTA have none, but his advice and UDM test Data was ignored by LVVTA.

Other Qualified contracted engineers, suppliers and expert authorities have found these tests perfectly adequate, and they formed the sole basis of the subsequent Experts report which rejected LVVTA's inadequate strength calculations These tests do not support LVVTA safety theories, therefore have been discounted, or ignored. Further investigation by UDM reveals that test procedures and their application have in the past been left to the certifiers discretion, as no formal test system is available. A fundamental flaw of this certifying system for any class of vehicle.

10. Given LVVTA's growing concerns about the apparent seriousness of the issues associated with the UDM vehicles by this stage, LVVTA opened a direct line of communication with UDM and began corresponding directly, rather than via the LVV Certifier as is the normal channel that occurs.

Note: UDM has records of these communications most of which are vague and in some cases completely obscure as to what the LVVTA personnel are requesting. Clear concise Communication with stated objectives to be carried out, are completely lacking.

11. During the period of June to August, a number of respected people in the disability transportation sector contacted LVVTA to express their opinions that they were concerned about the nature of the modifications and the overall safety of the UDM vehicles.
LVVTA's first inspection of UDM vehicle:

Misleading: As stated previously according to LVVTA personnel, (now confirmed by TJ) 2 phone complaints were made following the disability expo in Feb 2013, with UDM holding evidence that these were instigated by potential competitors. It still appears to have taken LVVTA 6 months to act on these complaints.

12. On September 3 2013, because LVVTA's requests for proof of suitability of products and proper test reports had still not been provided, two LVVTA technical staff members travelled to UDM's facility in Auckland to inspect a vehicle to gain a better first-hand understanding of the vehicles, and to explain to UDM exactly what LVVTA required in terms of documentation and test evidence. This inspection heightened LVVTA's concerns about the safety of the UDM vehicles, and it was agreed then that LVVTA would co-ordinate a thorough inspection of a vehicle involving other outside industry experts.

Like most things, it is what is left out that is often more important that what is claimed.
Following UDM's legal request for outstanding compliance plates to be issued, having completed and passed the requested LVVTA test, Tony Johnston rang to ask UDM to travel to Wellington. The purpose of this proposed trip was to educate UDM on how LVVTA works. It was UDM's suggestion that as at this point LVVTA had not seen a vehicle, or the manufacturing facility and systems, that they travel to the factory for an inspection to educate themselves. This was done over a 2 day appointment and myself, our staff, and contractors were left with the impression that both the inspecting staff had been favourably impressed, by the nature of conversation and the comments they made. They also communicated that they had no idea the UDM had built 9 vehicles, having assumed that only 2 had been made. They appeared impressed by the production processes and efficiency of the UDM production system, and were shown the QA procedures and build sheet systems in place

13. On September 17 2013, two LVVTA technical staff members again travelled to Auckland, where they carried out a thorough inspection of one of the UDM vehicles. The LVVTA technical staff members brought in some specialist experts to assist with the inspection, including an aeronautical engineer, an automotive

engineer, a welding expert, and an experienced motor vehicle constructor. In addition, an independent composite material expert formed part of the inspection team.

Here we take issue on the writer's loose interpretation of "specialist expert" and "Engineer", which he applies to trades qualified and maintenance personnel. They and their personal opinions appear to form the makeup of a TAC and its findings. In this group there were no qualified consultants capable of taking on professional accountability and responsibility, nor satisfactory technical analysis by any personnel involved with the LVVTA TAC or inspection committee. The LVVTA in circumstances such as this is required to appoint a qualified expert, or expert panel to enable a vehicle to be properly evaluated. Without wishing to denigrate the group assembled by the LVVTA there were no tertiary qualified people with expertise in the fields required. Yes there was some practical experience, but none that could calculate the loads and none of the panel signed off on the LVVTA's staff reports. This is the reason that the NZTA subsequently appointed just such an Expert revue panel when it took over from the LVVTA, as the LVVTA appeared incapable of fulfilling this function, even though it is listed in its charter.

As a result of this inspection, LVVTA formed the view that:
a) there was inadequate evidence that the aluminium sandwich panel system was sufficiently strong and durable to replace the original high-strength steel floor and sub-frame (it should be noted here that this product is not actually a 'composite' material as it is often referred to - 'composites' are a composition of two or more different materials such as a combination of resins, fibres, carbons, and aramid); and (This comment speaks for itself)

b) there was inadequate evidence to show that the aluminium sandwich panel material had a load-rating that was sufficient to support the (wheelchair and occupant) loads to which it would be subjected; and

c) there was inadequate evidence to show that the adhesive used to attach the aluminium sandwich panel to the remaining vehicle structure was intended for structural load-bearing applications (this is important because there was no load-bearing mechanical connection holding the new floor to the remaining vehicle structure); and

d) the attachment system of the critical safety systems (seats, seatbelt anchorages) to the aluminium sandwich panel floor appeared to be unsatisfactory, and insufficient testing had been undertaken to prove otherwise; and

e) the general crash-worthiness of the vehicle in both a frontal collision and a side impact had been significantly compromised; and

f) no suitably experienced or qualified automotive engineer appeared to have been engaged in the design or development of the vehicles' modifications; and

g) there appeared to be little or no procedures developed for ensuring conformity of production from vehicle to vehicle; and

h) no testing appeared to have ever been conducted on the vehicles prior to LVVTA's intervention.

False: UDM were present at this meeting which was held to process the outstanding trype approval application, and all inspecting members of certifying committee congratulated our staff present on the excellent quality of the vehicle build. The Air NZ maintenance staff present approved of the construction method of the floor and materials used. We have communications from LVVTA that this inspection and subsequent approval meeting "went well", with the only concern raised being the rear suspension mounts, which UDM subsequently provided components for inspection to the meeting to prove they were designed to take full loading. Various anecdotes had been bandied about including" no more rivets" bonding systems where an ultralites wings had fallen off, and high heels damaging floors etc. all irrelevant banter which LVVTA subsequently, due I suspect to lack of expertise, appears to have taken seriously. From this point on

communication disappears and LVVTA do not acknowledge or appear to read any further information that UDM provide, So UDM engages legal council to assist in it's dealings with LVVTA. This meeting was also noteworthy when a LVVTA staff member threatened UDM CEO with "never registering another car in NZ unless he did what he was told", following a question regarding the importance of commercial timeline and surety.

14. On September 19, after having viewed the vehicle in Auckland on September 17, LVVTA's concerns about the UDM vehicles had increased significantly. LVVTA's engineer provided UDM with a written preliminary list of faults that were identified with the Auckland vehicle, referred to as '*Draft Report of LVVTA's Technical Review of U-drive Mobility Skoda Yeti Vehicles*', dated September 19 2013.
The September 19 2013 report identified a number of problems, and raised a number of questions, relating to:
a) the lowered aluminium sandwich panel floor; and

b) variations of the aluminium sandwich panel used; and

c) the torsional strength of the body structure; and

d) the durability of the body structure; and

e) the load rating of the vehicle; and

f) the EZ-lock docking station system; and

g) the wheelchair tie-downs in the rear cabin area; and

h) the fuel system; and

i) the braking system.

Within this report, LVVTA reinforced to UDM the need for evidence of the suitability of the aluminium sandwich panel and the bonding material, and for relevant and proper testing to be conducted on certain critical components and systems.
LVVTA's inspection of second UDM vehicle:
15. On October 7 2013, LVVTA technical staff inspected a second UDM vehicle, this one based in Wellington. A Senior Engineer from the NZTA also attended this inspection. While there were many safety and compliance-related faults common to both the Auckland and Wellington vehicles inspected, a number of additional and different faults were discovered on the Wellington vehicle.

One particularly significant new problem identified with the Wellington vehicle was the incorrect suspension geometry in the independent rear suspension; - whereas a standard Skoda Yeti has 1.6 mm of 'toe-change' throughout its full range of suspension travel, the UDM-modified rear suspension (re-designed to make way for the lowered floor and fuel tank) had 43 mm of 'toe-change' through its full range of travel. This is a significant safety issue because excessive 'toe-change bump-steer' in the rear suspension can cause a vehicle to 'rear-wheel steer' during a mid-corner bump-disturbance.
This 'toe-change bump-steer' resulting from the incorrectly-modified suspension in the UDM vehicles is a very serious condition. In 2009, a driver lost control of his vehicle and a passenger was killed in the crash, and the coroner's inquest showed that the cause of the loss of control was because of the 'toe-change bump-steer' geometry created by the incorrectly modified suspension. This is the same characteristic that is present in the UDM vehicles.

A Complete fabrication: LVVTA removed the rear strut to measure the max suspension arm travel of 120mm, and plotted a graph which they have subsequently relied on to manufacture this claim. UDM subsequently carried out a real world test with the suspension in place (the Car is immobile without it and cannot be driven) which reiterated what UDM had already communicated to LVVTA. Max suspension travel

is 42mm, max grounded toe is 10mm, with 11mm once the wheel is off the ground. No mention is made by LVVTA of the standard Equipment Electronic stability Control system which controls handling performance in extremis, nor that the UDM tests were carried out on a Laser aligner by a contracted third party. This statement is mischievous in the extreme, and again demonstrates LVVTA fondness for reshuffling facts and incompetent if not false test data to fit their agenda. LVVTA also claim in a trades article Autotalk, that OEM Yeti has 1.6cm of bump steer, another fiction. It is unfortunate that none of the LVVTA staff are qualified certifiers and are unable to correctly measure bump steer or suspension travel on the rear suspension of a front wheel drive car.

LVVTA's technical staff also identified that the production processes between the two vehicles that had been inspected varied considerably, and it appeared that UDM's development was being carried out on customer vehicles rather than during a pre-production prototype phase as would normally occur. LVVTA technical staff concluded that it may be that no one UDM vehicle could be considered representative of all other UDM vehicles.
LVVTA updated the September 19 LVVTA report to take into account the new issues found on the Wellington UDM vehicle inspected on October 7 2013, referring to it as the '*Follow up Report of LVVTA's Technical Review of U-drive Mobility Skoda Yeti Vehicles*', and provided the updated report to UDM on October 24 2013.
Again, within this report, LVVTA reinforced to UDM the need for evidence of the suitability of the aluminium sandwich panel and the bonding material, and for relevant and proper testing to be conducted on certain critical components and systems.
Need for all UDM vehicles to be assessed:

See previous UDM critique/response as this just gets repetitive
LVVTA assessment of floor strength…….. NZTA…FAIL… Experts Report….PASS
LVVTA assessment of GLUE 9Epoxy bond) Strength …. NZTA…FAIL… Experts Report….PASS
LVVTA assessment of rear suspension…….. NZTA ...FAIL... Experts Report….PASS

16. After the October 7 2013 inspection of the Wellington-based UDM vehicle, because of the lack of production conformity that had been identified between the Auckland and Wellington-based UDM vehicles inspected, it became evident that LVVTA would need to inspect, first-hand, all eight of the aluminium sandwich panel UDM vehicles throughout New Zealand in order to be able to provide UDM with a definitive list of all of the problems and faults that required rectification with each individual vehicle.

17. On October 31 and November 1 2013, LVVTA technical staff inspected the five Auckland-based UDM vehicles. During this inspection, LVVTA's concerns at the general safety and durability of the vehicles increased significantly, due to the wide variation of the modification processes, the high number of faults present in the vehicles, and the structural deterioration that was already visibly occurring with some aspects of the aluminium sandwich panel system. The attachment of the ramp to the rear floor had almost completely collapsed on two vehicles, and a failure of an aluminium sandwich panel component related to a front seat assembly further heightened the LVVTA technical staff's concerns about the general integrity and durability of the aluminium sandwich panel system.

Misleading: excessive loading of the hinge in two vehicles had caused some floor degradation. This had been noted by UDM on a report from France after a 400Kg test showed an overload of the hinge pin transferred excessive force to the rear floor, UDM fabricated a hinge Rod bracket to transfer loads from the hinge to the side of the tub, and reinforced the hinge floor area with a steel plate on all cars. Despite being provided with drawings LVVTA still seem to be unaware of this. LVVTA discovered some floor degradation on 2 cars (whose owners had newly imported 185Kg W/chairs the original vehicles had been designed for average powered chair 85Kg)… by jumping on the floor in an attempt to weaken or break it. The seat floor section received the same treatment, even though it Is not a load bearing surface. This type of schoolboy behaviour exhibits lack of professionalism. As the LVVTA staff member expressed in writing later, UDM seemed to be aware of the issue. He could have just asked about the issue and fix which was already underway and was being applied to all vehicles. It should be noted that this is not a "vehicle" safety issue

that affects roadworthiness, but it is a personnel safety issue that UDM deemed to be unacceptable and addressed. UDM subsequently successfully tested the ramp which has a theoretical load capacity of 750Kg, to 450Kg under the A/NZ standard requested. Because UDM did not have a "standard" Load available it simply loaded a conventional wheelchair to 390kg. NZTA later asked for it to be re-tested with a "standard" load, which it also passed.

18. On 11 November 2013, LVVTA provided a comprehensive report referred to as "*Matrix of Faults Found on Skoda Yeti Vehicles*" to UDM which recorded the issues associated with the first 6 of the 8 vehicles that LVVTA had inspected. Each vehicle inspected had, on average, 49 safety and compliance-related obvious faults and unanswered questions. At this time, there was still no proof of suitability of the products and systems used - particularly in relation to the aluminium sandwich panel and the bonding system - and this was becoming a serious concern to LVVTA. Conversely, LVVTA's own investigations into the suitability of the aluminium sandwich panel and the bonding system (undertaken in the hope that LVVTA could find some evidence to show that the products and systems are fit for a structural load-bearing application) was in fact confirming our opinion that the flooring material was not capable of supporting the loads it may be subjected to, and the bonding agent was not suitable for structural load-bearing applications at all and in fact was just a panel glue.

The matrix of faults was misleading, rephrasing the same points in many different ways and inaccurate with many statements found to be untrue and incorrect. It contained no safety issues in light of testing carried out by UDM and its qualified experts. That "panel glue" has been tested to show that even with a less than optimised label application of it's rated value it would take a force of over 300 times the required loading to separate the 2 Pak Glass bead Epoxy from its bonded surface area, This value has been completely discounted by LVVTA in its strength calculations, and yet it is written on the label. Those strength calculations of 300kg for the composite bonded floor later proved to be a completely wrong and the engineer refused to accept the 1300kg load of cement that he was shown being supported by the floor. The NZTA Experts report also points out that the LLVTA's calculations were fallacious. This is inexcusable as Engineers are supposed to only operate within their specific areas of competence and this was not the case. At best it demonstrates engineering incompetence, at worst it was a deliberate attempt to discredit UDM. What LVVTA calculated would hold 300Kg was demonstrated holding 1300 KG, with UDM contracted Qualified Composites Experts from Auckland university calculated at 1400Kg. The floor requires a load rating of 650Kg. As demonstrated by all UDM testing, the cars have significant margins of safety incorporated in both the bonding system, and the structure. LVVTA making these statements show how ill equipped it is to be a certifying authority for modern vehicles.

19. On November 13 2013, representatives from Skoda NZ travelled to Wellington and met with LVVTA's engineer to inspect a UDM vehicle, together with representatives from the NZTA. Skoda New Zealand confirmed to LVVTA and the NZTA that although they were aware that the UDM modifications were being carried out, the modifications had never been approved by Skoda New Zealand. This appears to be in conflict with written statements made to LVVTA by UDM which say "*Skoda has approved both welding and methods*", and "*Skoda tech support inspected /approved welding process*".

Misleading: Skoda NZ is a licensed Distributor and as such has been kept fully informed by UDM on any processes employed and have inspected such process. As they are not legally able to make representations on behalf of Skoda engineering staff, they are unable to comment. However 2 cars in Europe have been inspected by Skoda Engineering staff, and Skoda remain supportive of UDM processes and have subsequently supported UDM ECE/EU application process, by providing test data and compliance information (not available to LVVTA by UDM/Skoda confidentiality agreement) and the required support for the current ECE type approval total compliance testing that UDM has now completed

20. On November 13 and 14 2013, LVVTA technical staff inspected the last two UDM vehicles based in Christchurch and Invercargill. At this point all eight UDM vehicles (located in the greater Auckland region, Wellington, Christchurch, and Invercargill) had been thoroughly inspected by LVVTA technical staff.

After all of the vehicles had been inspected, there was no doubt in the minds of LVVTA technical staff, NZTA engineers, or the many industry experts that had been called upon to assist, that the compliance, safety, and durability issues with the UDM vehicles were varied, complex, and extremely serious.

False: LVVTA continue to claim expertise it does not have. The only staff member claiming tertiary qualifications claims to have an engineering degree but does not appear to be registered in New Zealand with any professional Engineering association. LVVTA has refused to substantiate his particular fields of competence. The rest of its "Experts and Engineers" hold no relevant tertiary qualifications, other than trades experience. The use of the word Automotive engineer in this tome must be regarded in it's loosest interpretation. UDM on the other hand have contracted an ADR Certifying engineer with appropriate B Mech Eng tertiary qualifications, and a director of Auckland University's Composite engineering dept with an appropriate doctorate as supporting consultants who have assessed the vehicle as appropriately constructed and fit for purpose. This has been confirmed by the ECE testing and we are simply awaiting the documentary confirmation. The rest of these assertions are repetitive and have all been adequately put in context.

Note:

The decision by NZTA to take over the evaluation from LVVTA, and the commissioning of their own Qualified experts report with no further LVVTA involvement in ongoing UDM discussions is symptomatic of the dysfunctional management operation of the LVVTA certifying authority when it finds itself out of it's depth. A quick read of the forward of the hobby car manual of the same author is instrumental in gaining an understanding of the attitude, roots, and management style of the organisation. UDM would like to thank NZTA for moving forward, with UDM no longer forced to accept LVVTA's HELP to fix a non existent problem of their own manufacture**.** The key LVVTA issues of Suspension, Strength of the composite floor, and Bonding, have all been tested and proved fit for purpose and safe despite, LVVTA"s continued assertions defying reality. TJ also fails to mention an attempt by LVVTA to redesign the UDM vehicle with a steel framework that was amateur in the extreme and which it was not prepared to warrant as its own design FIX. This exceeds LVVTA's brief as an Administrative Authourity. UDM refused to countenance the redesign proposal on expert advice on the basis that the UDM design was satisfactory and that the LVVTA redesign would destroy the vehicles structural integrity. By its own admission the LVVTA accepted its "FIX" would add 200 kgs of weight reducing it from a four person to three person vehicle, destroying its fitness for purpose in the process.

21. On November 25 2013 LVVTA updated the report to UDM referred to as "*Matrix of Faults Found on Skoda Yeti Vehicles*", which recorded all of the faults and concerns identified on the eight vehicles, and provided the report to UDM. There were almost 400 compliance and safety-related questions and faults spread across the eight UDM vehicles.

The issue of the need for evidence of the suitability of the aluminium sandwich panel and the bonding material, and for relevant and proper testing to be conducted on certain critical components and systems, was again reinforced by LVVTA to UDM.

UDM's rectification of UDM vehicles:

22. In response to the information provided by LVVTA to UDM on November 25 2013, UDM agreed to rectify the faults on the vehicles, and, we understand, carried out some remedial work on all of the eight UDM vehicles.

23. During the week of November 25 to 29 2013, LVVTA's technical staff were in Auckland on other business, and during that time made repeated offers to go to UDM's facilities to meet with them, to discuss how we could assist UDM to go about the planning of the numerous rectification processes. We offered to travel to UDM's facility during the day, or even during the evening or on a Saturday if that were more convenient for them. All of these offers were declined.

Note: 3 days notice is insufficient for a meeting involving 2 different companies that have other commitments and cannot drop paying customers to listen to more of the same from LVVTA

24. On December 11 2013, LVVTA technical staff re-inspected the Wellington-based UDM vehicle, which had been taken back to UDM's facilities in Auckland and had, according to UDM, been rectified. During this inspection, together with LVVTA's technical staff, was NZTA's Principle Engineer, and two NZTA Senior Engineers.

It was established during the inspection that only some of the faults had been rectified, and the outcome was that the vehicle remained in an unsafe and non-compliant condition. In summary, of the 46 faults and concerns that had been originally identified by LVVTA and communicated to UDM on this particular vehicle:
a) 20 faults of a minor nature had been correctly rectified and met the required standard; and

b) 13 faults had rectification work attempted, but still did not meet the required standard; and

c) 13 faults and concerns had not had any rectification work attempted at all; and

d) none of the serious safety issues associated with the floor and chassis replacement, or the rear suspension geometry, had been addressed at all.

25. LVVTA could reasonably assume from the re-inspection of the Wellington-based UDM vehicle that all other UDM vehicles would be in a similar condition.

The situation as at December 2013:
26. By mid-December 2013, the situation was most unsatisfactory. UDM would not accept that matters were serious, and that the occupants of the UDM vehicles were being subjected to significant risk.

Having spent seven months trying to assist UDM, the six biggest safety issues (amongst many smaller ones) still remained unaddressed on all of the UDM vehicles, which were that:
a) there was still no evidence that the aluminium sandwich panel floor had the necessary structural strength and rigidity to resist the ongoing cyclic fatigue loadings to which it will be exposed in normal use; and

b) there was still no evidence that the aluminium sandwich panel floor and attachment system would provide the necessary occupant protection in the event of a crash; and

c) LVVTA had confirmed, via documented evidence from the aluminium sandwich panel manufacturer, that the load rating of the aluminium sandwich panel material was insufficient to support a person in a powered wheelchair and that the floor would be overloaded by a significant margin; and

Untrue: The domestic Alucore distributors representative had been hassled by LVVTA and would not disclose any relevant material to them, he also laid a complaint with UDM. UDM approached the distributor and provided relevant Test data which was forwarded to Alucore Germany for Technical evaluation by Alucore engineers. Following that evaluation the Alucores senior regional manager provided a letter, forwarded to LVVTA that having evaluated the Alucores design application and use, stated that Alucore backed it as fully fit for purpose. This letter from the German manufacturer, Alucore, was dismissed and ignored by LVVTA as a, Quote "Sales document?". Alucore's statement was subsequently verified in front of LVVTA staff by demonstration of the floor supporting 1290Kg of cement bags, when by LVVTA calculations it would only support 300KG. Again this is repetitive, and proven, as is the bond procedure and specification, and the suspension. We can only conclude LVVTA appears to be deliberately misleading with a disingenuous attempt to spin information and test data to its own agenda.

d) LVVTA had confirmed, via documented evidence from the bonding system manufacturer, that the bonding product used to attach the aluminium sandwich panel to the remaining body structure is not intended for structural load-bearing applications, and is a product designed to bond outer panels (eg mudguards) to the vehicle structure; and

e) there was still no acceptable proof of testing for various components and systems, such as seat anchorages and seatbelt anchorages to prove that the components and systems, and method of attachment of the key elements of the modified vehicle are safe and fit for their intended purpose; and

f) UDM had still not rectified the unsafe rear suspension geometry.

Note: all this repetition has already been covered. It appears rather clear that Mr Johnson's background in the industry has been based on pictures rather than scientific tests and reports. We believe that it should not be a Car Manufacturers responsibility to retrain him in modern industry manufacture and materials. The PROOF testing and data provided by UDM that LVVTA staff were unable or correctly evaluate, was subsequently used by Experts to validate UDM design strengths

27. The modifications present on the UDM vehicles are very complex, and very unusual, to the extent that LVVTA is not aware of any other comparable situations where a series of motor vehicles have been modified in this way anywhere in the world, involving removal of a modern production passenger vehicle's factory-designed high-strength steel floor and cross-members, and replacing it with a sheet of lightweight non-structural aluminium sandwich panel, held in by panel glue, and with little or no form of mechanical attachment connecting the floor to the vehicle.

Certainly, composite systems and sandwich panel construction systems have been used on occasion in automotive applications overseas, but in any such cases that we know of, the sandwich panel material is only used as a flooring system and the vehicles have a separate chassis or sub-frame to provide the load-bearing structure. In every overseas case that we have looked into, the vehicle manufacturer or modifier has ensured that the materials have an appropriate load rating, and - whether used in a load-bearing application or not - thorough independent testing has been conducted to prove the suitability of the material. Any comparisons with the aviation industry have little validity because of the research and development, quality controls, test regimes, and inspection processes that are intrinsically linked to aviation design and construction.

28. To be confident that such a concept would be safe, there would need to be a considerable amount of research, testing, and prototype development done, but none of this appears to have occurred with the UDM vehicles. UDM has carried out some testing since LVVTA became involved, but testing must be done with a degree of independence, must follow very specific processes, be well-documented, and most importantly - be carried out in a meaningful and representative manner. For example, UDM informed LVVTA that it had carried out a test consisting of nothing more than positioning a wheelchair on the floor with a person sitting in it. This on its own could not be a meaningful or relevant test of the suitability of a flooring product used throughout the life of a motor vehicle. No independent testing has been conducted.

Misleading: It seems that even pictures are not enough. The wheelchair in question was loaded to 390 kg and went up and down the ramp showing that it could handle the design load. Perhaps this is just too simple.

NZTA intervention on UDM vehicles:

29. LVVTA has been reporting to the NZTA on a regular basis from the very beginning of our involvement with the UDM vehicles, and NZTA has supported the actions taken by LVVTA in this matter, including LVVTA's expectations from UDM in regard to provision of testing, product information, and discussion on proposed remedial action.

30. During December 2013, a number of meetings were held between LVVTA and NZTA personnel to decide the best course of action relating to the vehicles, and NZTA ultimately made the decision on December 20 2013 to revoke the UDM vehicles' certifications and warrants of fitness. This action should mean the vehicles cannot be driven until rectifications have been made such that the vehicles are safe, compliant, durable, and fit for their intended purpose.

31. LVVTA wishes to make it clear to all vehicle owners and users that we have not been imposing our technical requests and requirements to UDM lightly, and having been involved with the disability

transportation sector for over 20 years we are acutely aware of the massive impact that this situation is creating for the vehicle owners and users. However, we feel that we must do everything that we reasonably can for the vehicle owners and users who should rightly expect their vehicles to be safe, durable, and fit for their intended purpose.

32. Because of the impact that the decision to revoke the UDM vehicles' certifications and warrants of fitness would have on the vehicle owners and users, LVVTA remained, at the time of NZTA's revocation of the vehicles' certifications and warrants of fitness, committed to continuing to assist UDM through the process of making the vehicles safe and compliant for the benefit of those people depending on their vehicles.

LVVTA's continued efforts since revocation:

33. On December 23 2013 LVVTA offered to UDM to bring together another group of experts to create an independent panel, who would assess a UDM vehicle during January, with the objective of establishing how best the eight existing vehicles can be repaired to a safe, compliant, and durable condition, with particular regard to the aluminium sandwich panel floor system. UDM accepted this offer.

Because UDM seem not to have had a qualified automotive engineer involved in the design or modification of the UDM vehicles, LVVTA also offered to identify a suitable engineer that UDM could engage to oversee the rectification process of the UDM vehicles, and act as a technical liaison person between UDM and LVVTA to ensure that the rectification process, and subsequent re-certification, went smoothly. Again, UDM accepted this offer.

34. During the week of 6-10 January 2014, LVVTA identified and organised a panel of very specialised industry experts **Glossary:** The Term Engineer and expert are used loosely in the extreme throughout this article, Experts require tertiary qualifications, as do Engineers, and should be registered as such with NZIE to be able to function on a consulting basis. Experienced trades people do not, and these make up the basis of LVVTA TAC. This is fine for hobbycars, not for production vehicles using modern technology!! with a wide range of experience and skills to assist LVVTA's technical staff in inspecting and assessing the UDM vehicles. The experts included some people from the September 17 2013 assessment, but some new experts were also bought in to see if they could bring a fresh perspective on the situation. The experts involved included an aeronautical engineer, a disability transportation structures expert, a composite materials expert, a race car designer, and a sports car constructor. An NZTA senior engineer was also involved.

35. On January 14 2014, the assessment took place in Auckland, and an engineering solution for a rectification strategy was developed as a result of the assessment that would achieve the best balance between providing a rectification process which will be cost-effective for UDM and minimise delays for vehicle owners and users, and which would offer maximised safety for the vehicle occupants and other road users. Although the initial view was that the aluminium sandwich panel floor should be removed and replaced by a new panel steel floor, fitted in the same way that the first UDM vehicle was modified (which is certainly the preferred option of everyone that has been involved with LVVTA and NZTA throughout this process), a design was worked out that enabled the aluminium sandwich panel flooring system to remain but be sufficiently reinforced by steel that the aluminium floor would no longer be a load-bearing part of the vehicle, and would not therefore need to be relied on as part of the vehicle structure.

36. On January 23 2014, LVVTA technical staff travelled again to Auckland to carry out an additional assessment with two of the original panel members to fine-tune the details of the design, and make a series of drawings that would help UDM's workshop staff.

37. During the week of January 27-31 2014, the details of the engineering solution design concept was collated and recorded, and sent to UDM for them to review and consider.

38. Also, during this same week, an independent engineer, in whom LVVTA has a high degree of confidence, was approached by LVVTA, who agreed to provide a consulting role to UDM in relation to overseeing the

rectification process. The person is an aircraft engineer, who also has considerable experience in vehicle construction and modification, and who has been involved in the assessments of the UDM vehicles. This engineer would be able to visit the UDM factory each day if required to oversee the rectification process, and would provide an expert on-the-spot liaison point between UDM and LVVTA.

February 14 meeting at UDM:

39. On February 14 2014, LVVTA's technical staff members and an NZTA senior engineer travelled again to Auckland, to meet with UDM staff, the objective of which was to provide an opportunity for the UDM workshop staff to gain an understanding from LVVTA technical staff of the details of LVVTA's proposed engineering solution, and to ask whatever questions they felt necessary so that they were in a position to undertake the rectification process in confidence. The independent engineer also attended this meeting.

40. It became evident during the February 14 2014 meeting that UDM had no intention of accepting LVVTA's advice or working with us in a spirit of co-operation and willingness. Despite all of LVVTA's efforts throughout last year, NZTA's intervention in December, and LVVTA's further efforts in the first part of this year, UDM have still not accepted the seriousness of the situation, and we have therefore effectively not moved on at all from the position that we were all in back in June last year.

Note; No LVVTA is still in the same position as last June due to its own ineptitude. UDM has moved forward, proving the vehicles fit for purpose despite LVVTA's deliberate obstruction and dictatorial "Help". UDM vehicles have successfully completed full ECE type approval testing having been assessed by NZ qualified expert ENGINEERS and supporting test data, following which UDM will be assessed for ADR secondary manufacturer status. When this documentation is complete it will remove all barriers to NZ certification.

41. LVVTA is a small organisation with limited resources, and we cannot continue to invest any more time and effort in helping a company when its management refuses to accept that there is a serious problem that must be addressed for the safety of its customers.

42. For this reason, LVVTA has, as of March 6 2014, withdrawn its help and support to UDM, at least until such time as UDM develops a responsible approach to the safety of their customers, and a co-operative and conciliatory approach to their relationship with LVVTA.

UDM did not ask LVVTA to redesign the UDM vehicle. UDM tried to convince LVVTA that the "Safety Problems" it had identified, had been incorrectly assessed. It is clear that LVVTA was not equipped to make these determinations for modern vehicles and the Experts Report commissioned by NZTA makes this abundantly clear. We tried to suggest to LVVTA that it obtain the services of appropriately qualified people but it persisted in using its "old Boys" network. Hopefully the LVVTA will learn from this but entrenched attitudes are difficult to shift

43. LVVTA could not have done any more than it has. Rather than relying completely on our own in-house expertise, we have brought in engineering experts from NZTA, and have had over 20 different experts from the repair, automotive, aeronautical, disability vehicle construction, composite construction, and race car design industries involved in assessing the vehicles and assisting with the assessment process. LVVTA has incurred significant direct costs in funding our attempts to resolve the situation for the vehicle owners and users (over $10,000 in direct expenses – a lot of money for a small not-for-profit incorporated society), and has spent over 750 man-hours in trying to resolve the situation for the vehicle owners. Despite this, we have been unable to help UDM and we have many other responsibilities and obligations, and so we must move on.

In summary:

The following key points summarise LVVTA's view of the current situation relating to the UDM-modified Skoda Yetis as at March 2014:

1. This problem is not of LVVTA's making. However – despite there being no compulsion for us to do so - we have tried very hard to assist UDM in every way possible through these past nine months, and because of

the position that the UDM vehicle owners and users have been placed in, we have made this matter our top priority since June 2013.

2. NZTA has supported LVVTA's efforts in assisting UDM to resolve the matter for the benefit of the owners and users of the vehicles, and other road users.

3. It is very easy to lay all of the blame at the feet of the LVV Certifier involved, but the reason that this situation exists is primarily because UDM embarked on the production and sale of these vehicles without undertaking the necessary research, testing, and development prior to carrying out the modification of these vehicles.

4. There is a clear expectation in law that any person who purports to be an expert in a given field, and who intends to provide a product into the market-place, has an onus of duty to ensure that the product is going to be compliant, safe, durable, and fit for its intended purpose. One should also reasonably expect such a person to feel a moral obligation to ensure that the motor vehicles that he modifies and sells to his customers are safe.

Footnote: Point 4. Is one of the only points of this self justification where we are in agreement with LVVTA, with UDM having demonstrated just that. For this UDM have to thank their staff, consultants, customers, and suppliers, who have enabled UDM to survive this amateur LVVTA attempt to derail the original certification, which by and large has proven to be correct. LVVTA appear to be completely unaware of the financial and psychological burden it has placed on all of the above by completely overstepping its authority and governance requirements on this issue. This fundamentally erroneous assessment should provide NZTA with appropriate information to enable it to review the LVVTA's performance and suitability as a certification agency outside of the Hobby Car mantra and enable it to address the future of LVVTA and commercial certification moving on.

Subsequent events have validated UDM's position and raise serious questions as to LVVTA competence. The 3 safety reasons stated by NZTA, based on information supplied by LVVTA, for the deregistration of the 8 UDM client vehicles of Dec 19th 2013 were

1. the floor strength of 300Kg (proved to be 1400Kg)
2. The insufficient "glue" strength (Epoxy label calculations prove a force of over 300 tonnes required to debond it)
3. The rears suspension excessive bump steer (Incorrectly measured, later accepted by NZTA as correct & Safe)

All LVVTA calculations proved to be seriously flawed, following an experts report commissioned by both UDM and NZTA. UDM cars successfully completed ECE/EU full compliance standards testing in Paris, June 2014, and have been validated by completion of full compliance requirements to shortly be awarded Full United Nations international and European certification. The first NZ designed and built vehicle to ever do so. This very fact calls into question the motives and competence of NZ's own "hobby car" certification system.

As stated earlier, the inconvenience caused by this situation to the vehicle owners and users has been at the forefront of our minds, and for this reason LVVTA has done everything within its ability to help to resolve the situation, with our principal concern being to ensure that the vehicles are rectified in such a way that LVVTA, NZTA, UDM, and the owners and users of the vehicles can all have a high degree of confidence that the vehicles are safe, durable, fit for their intended purpose, and compliant.
While this document doesn't and can't fix the situation for vehicle owners and users, I hope that it at least helps people to gain a better understanding of what has been happening during the past nine months in relation to the problems associated with the UDM vehicles.

Tony Johnson
Chief Executive Officer
Low Volume Vehicle Technical Association Inc.

The LVVTA hopefully acted to protect the safety of 8 disabled citizens, but the ability to assess the vehicles on the three tenants used to have them taken off the road for a year were all incorrect and as far back as January 2014 when the engineer refused to acknowledge that the floor could carry 1300kg, even though it was sitting right in front of him. If he had just accepted the evidence and accepted that the bonding as demonstrated was 300 times stronger than it needed to be, and if he could have accepted that his assessment of the suspension was also incorrect, then the cars would never have been taken off the road.

- An inability to admit that LVVTA got it wrong was cost the 8 people a year of freedom. Two of them died in that period.
- An inability to admit that LVVTA got it wrong cost the NZTA a year of grief and angst.
- An inability to admit that LVVTA got it wrong cost UDM 2 years of production
- An inability to admit that LVVTA got it wrong has deprived many other disabled New Zealanders from enjoying freedom to drive what the French are currently enjoying with the same vehicle.

Mr Johnson, you should be really proud of what you and your staff have achieved