Scrutineering

This section contains general guidelines for scrutineering.
It should be useful to scrutineers and competitors alike.

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Notes on terminology

Originally, the term Land-Rover (note the hyphen) was a vehicle type produced by the Rover Company. Then came Land Rover Ltd producing Land Rover branded vehicles such as the Range Rover, One-Ten and Ninety. Currently, the company is called Land Rover and is a member of Jaguar Land Rover owned by TATA. The product range names are Defender, Range Rover, Discovery and Freelander. In this handbook, Ninetys / 90s and One-Tens / 110s and Defenders are all considered to be the same range.

If you need any further clarification, please contact any of the ALRC scrutineers.

Introduction

For a vehicle to participate in a motor sport event, it must be in a safe and sound condition, and it must comply with all applicable regulations. For the ALRC, the main regulations are contained in the MSA 2017 Yearbook; and the ALRC Handbook (which you are reading now!) The MSA Yearbook contains many regulations which end in *"unless stated otherwise in Supplementary Regulations"* Many of these options are taken up by the ALRC on a permanent basis and are to be found as part of the ALRC rule set. So the ALRC Handbook effectively contains Regulations and Supplementary Regulations (SRs). The ALRC is not permitted to make a rule that sets a standard lower than an MSA one. The ALRC can, and often does, set a higher or more restrictive standard. In most cases, this is a result of the ALRC being a one-marque club. Event organisers may create further Supplementary Regulations to suit their needs, and these must be published with the event entry forms so that competitors will know all the applicable rules and regulations before the event starts.

It all starts off with the entrant or driver, usually one and the same. Among the principal rules that the entrant or driver must heed, when presenting the vehicle for scrutineering, are the following MSA regulations:

H.32.1.5. An entrant shall, before the event, satisfy himself as to the eligibility and safety of the vehicle and safety equipment and the competence of its driver.
H.32.1.6. An entrant shall furthermore ensure that a vehicle is maintained in an eligible and safe condition throughout the event or meeting.
H.32.1.7. The act of presenting a vehicle and safety equipment for official scrutiny shall be deemed a declaration of its fitness and eligibility for the event and an acceptance of the consequences of such a declaration not being valid.
H.32.1.8. Vehicles shall comply with the MSA Technical Regulations and any appropriate Approved Formulae Regulations.
H.32.1.9. There shall be no requirement for eligibility of a vehicle additional to the preceding point unless such requirement is stated in the SRs.

The following is also pertinent

J. 3.1.1. The fact of obtaining a Scrutineer's approval at prevent scrutiny does not indicate that the Scrutineer is accepting any responsibility for the safety or the roadworthiness of the vehicle, nor does it indicate that the vehicle complies in all respects with the Regulations. Please note that pre-event scrutineering or logbook inspection by a scrutineer is only a spot check of a limited number of key safety and eligibility features of a vehicle's condition. Alone it will not guarantee that the vehicle meets all applicable regulations or standards.

So if the vehicle is examined during or after the event and found to be out of compliance with the regulations, it may be excluded from the results. If the problem was something that the entrant feels the scrutineer should have spotted before the event, the entrant has no come-back against the scrutineer!

The Documentation

Let's have a look at the required documentation first. The car may be fine but if you haven't brought the necessary papers with you, then you won't be able to compete. For a Road Taxed Vehicle (RTV) or a Tyro Trial, the required documentation is fairly straightforward; an ALRC club membership card and the event entry forms are all you need.

The signing-on sheets will carry a declaration that you have a valid driving licence and a valid MoT certificate (where applicable).

The entrant does not need to present these for examination. For a Cross Country Vehicle trials (CCV) you'll need an ALRC log-book in addition. (See article elsewhere relating to log-book procedure.)

For any timed event such as Competitive Safari, Team Recovery, Timed Trial, etc., competitors will need an ALRC log-book and a Clubman's Licence (at least) obtainable from the MSA. Club cards and Competition licences, where applicable, will normally be checked at 'signing on'.

This is very much simpler than other forms of motor-sport where insurance cover must be produced, mandatory competition licences and homologation papers etc. shown.

The Scrutineers

So who are scrutineers and what are their powers and duties? For RTV and CCV trials, the scrutineer needs only to be a club appointment, he or she does not need to be a Motor Sports Association (MSA) official. For Competitive Safari, Timed Trial, Team Recovery etc. the Scrutineer will need to be a National Scrutineer at least.
Their main duties are twofold:

a) is the vehicle safe and sound. and
b) to check the vehicles' eligibility for the event, that is, does it fulfil the requirements of the ALRC and MSA regulations.

Contrary to popular opinion, the Scrutineers want you to compete; they aren't really looking for reasons to stop you. However, if they do find something untoward in a) or b) above, then they will have to act on it.

NOTE the following MSA regulations

D.33.2. The main purpose of Pre-Event Scrutineering is to check, as far as possible under the prevailing conditions, the safety of the vehicle and safety equipment for compliance with Technical Regulations and to superficially check its eligibility for a particular class or category (G.6.7, H.32, J.3).

This is similar to the earlier quote and indicates that the Scrutineers will always carry out safety checks before an event. But note that this rule allows them to carry out only basic eligibility checks before the event. Detailed eligibility checks may be carried out after the event:

J.3.1.4. At the conclusion of a competition, a number of vehicles, as agreed by the Clerk of the Course and the Scrutineers, or as ordered by the Stewards, or as laid down in the Regulations, may be required to be presented for Post-Event Scrutiny. No work may be done on such vehicles after finishing the competition except by permission or request of the Scrutineers, until after the examination is completed and the vehicle released. It is the responsibility of the competitor to provide appropriate tools and personnel within an agreed time to carry out the work required.

This is common practice in many motor sport disciplines and often only the top few finishing positions in the event will be examined. This practice is rare in a small club event. The downside to this practice is that a vehicle may compete in several events without much success whilst actually being ineligible during this period. Suddenly it wins but is rejected due to that ineligibility being discovered! Furthermore, the cause of the failure may be easy to fix and the driver could easily have rectified the problem before the event if only he had known about it.

The scrutineer's duties also include making a report to the Clerk of the Course (CoC) about the vehicles entered. It is the duty of the scrutineer to report an unsafe or ill-prepared vehicle, or one that doesn't comply with the rules, to the Clerk of the Course who will make a judgement as to whether the vehicle is allowed to compete. It is not the scrutineer who decides if the vehicle can compete. So the scrutineer may "fail" the vehicle and the CoC may not allow it to compete. However annoying or upsetting, this process is in place to protect you (from yourself sometimes) and others from possible danger which you could avoid by better preparation.

Should, for example, a person be injured following an accident whilst a vehicle is competing and there is a Judicial Inquiry, such as a Coroner's Court, the scrutineer would have to give evidence that the vehicle was fit to enter. If the cause of the accident was a badly corroded brake pipe, or collapsed engine / gearbox mountings then that is the responsibility of the driver as defined in MSA regulations *H.32.1.5. to H.32.1.9* quoted earlier. This could open the way to litigation against the driver (as *J. 3.1.1.* takes the responsibility of this off the shoulders of the scrutineer.) Thankfully in Land Rover club circles those litigation doors have not yet been opened and this must be due to the responsible attitude that the scrutineers and most competitors show. Keep it up!

In a sport where there are few cash prizes, and helping your fellow competitors is still the name of the game, some people will still lie and cheat in their efforts to pass scrutineering. Perhaps it may be better said that people tend to neglect the vehicle preparation side or don't read the vehicle regulations properly. No matter what the reason is, if a scrutineer reports your vehicle as being unsatisfactory due to bad preparation or rule infringements, please think about it from their point of view *before* coming to the boil.

Should you still feel that the scrutineer's judgement is wrong, there is a right of appeal. Lodge a protest initially to the Secretary of the Meeting who will consult the Clerk of the Course. At a major event, your protest may end up with the ALRC Scrutineering Committee, a nationally spread body of people which has been set up specifically to establish an equality of scrutineering standards throughout all Rover Clubs. If they are not present, the following may apply:
G.7.2.5. The decision of a Scrutineer may be overruled by the Stewards of the Meeting in the course of adjudicating on a properly registered Appeal..

Scrutineers are not 'God', but just like all officials in motor sport, whether Cross Country Vehicle eventing or Grand Prix Formula One, without them there would be no event.

If scrutineering closes at 10:00 a.m. it is no good arriving at 10:15 a.m. Scrutineering is closed and if you are not self-controlled enough to accept that you have made a mistake without shouting and swearing, you shouldn't be in motor sport at all, least of all the friendly circles that Rover Club eventing provides. At a club event, a friendly chat with the scrutineer may yield acceptable results.

So what are the safety and eligibility checks previously mentioned?

The safety checks are usually self evident. Loose, damaged, corroded or badly worn parts present obvious dangers, but difficulties can arise over competitors' more 'esoteric' designs for equipment which may, in the eyes of its constructor be perfectly safe, but in the eyes of any other person, the scrutineer included, it may not be.

Other people may be polite, the scrutineer is obliged to be honest, and for the sake of safety, report the vehicle as unacceptable. If you intend to do something to a vehicle which is not clearly defined, or maybe it's something that appears to fit the rules but no-one else has done before, then do ask the advice of your club scrutineer first. If there is any doubt, then put your intended ideas in writing to the ALRC Scrutineering Committee for an opinion. That way it will avoid possible disappointment and expense. You won't get an instant response, so if you're thinking of trying something bold, then allow for the Scrutineering Committee to get together and discuss the matter.

Vehicle eligibility is complex with various regulations of the MSA (see the MSA Yearbook or "Blue Book") and the ALRC (ALRC Handbook or "Green Book") to be complied with. BOTH sets of regulations are subject to change from time to time and BOTH sets must be complied with. For those of you without Competition Licences or who are not MSA officials, the relevant sections of the MSA Yearbook are printed elsewhere in this Handbook. Furthermore, don't forget to read the Supplementary Regulations (SRs) mentioned earlier.

So, what is the scrutineer going to check for? How can you ensure that when you present your machine it will pass the safety and vehicle eligibility checks? First of all, *read* the Vehicle Regulations. It may sound rather silly, but many competitors, even those "long in the tooth" don't read them thoroughly, or don't realise that they have changed. Having read them, apply them to your vehicle; think about what each regulation says and have a current copy in your hand whilst you check to see that everything is right.

Having done that and having looked underneath the vehicle yourself, can you see everything? Is everything clean or is it covered in a layer of mud? Most checks are visual and if your vehicle is clean without mud or dirt obscuring everything it will be quicker and easier. Scrutineers are well within their rights to refuse to check a vehicle covered with mud and will send you away to clean it before they'll inspect it.

In an ideal world, every nut and bolt should be checked by the scrutineer (in an ideal world there would be no need for a scrutineer!), but this is impossible. All he has time to do is a quick check of the condition if your vehicle.

He doesn't have time to rebuild your vehicle, but he may make suggestions which you could follow (e.g. "This universal joint is a bit worn and I will accept it for a trial, but not for a Competitive Safari. Please change it before the next event" and similar.)

Don't forget also that there are other competitors after yourself who want their vehicles to be checked, so don't do repairs on the scrutineering line. Nor should you, after repairing your vehicle, drag a scrutineer by his legs from under a vehicle he is checking to re-check yours. Please wait until he is free to do so.
Lastly, whilst still on general matters, *you* don't like to be conned, neither does a scrutineer. *You* don't like to be told lies, neither does a scrutineer. *You* are not an idiot, neither is a scrutineer (and most scrutineers do have parents!).

When the functionality of any part of the vehicle needs to be tested, the test will be carried out by the driver, not by the scrutineer.

“Conducted Tour”

Let’s take a tour around (and under) your vehicle...

1. Chassis

To clarify the silhouette rule, shortening or lengthening a chassis is permitted provided the wheelbase matches the style of the body being used. An example is turning a Range Rover chassis into a Ninety style of vehicle, the wheelbase must be 92.9ins and the body specifications, dimensions and appearance must be that of a Ninety. Similarly, if you build an 80” Series One from bits, the final appearance and dimensions must all reproduce those of an 80” Series One. It has also become common practice to build a ‘new’ chassis from two front halves. Please note that all joints, strengthening plates and welding must be to the highest standards. There isn’t a specific requirement for patch plates to be fitted over the joins on a two-piece chassis.

2. Brakes

These are fairly easy to check, but for full cover, two people should be used, one to operate the brake pedal, the other for checking joints / flexible pipes for wear whilst the pedal is pressed.

Foot-brakes. Press the brake pedal hard and long. Obviously if it reaches the floor it will fail. Obviously again, if it is spongy it will fail. Note that a vehicle with disc brakes all round may feel fairly spongy compared to one with drums all round. Assuming it operates correctly, keep it pressed for about 10 seconds - this will test for ‘creep’, a condition where fluid seeps past the brake seals. If there is a slight leak in the system, this will show it up as the pedal slowly sinks beneath your foot.

If a servo is fitted, exhaust the vacuum (press the pedal 4 or 5 times or until the hissing noise has gone) without the engine running and try the above test. No pedal movement - great. Then try it with the servo! Slight creep against a servo is acceptable; fluid leaks or seepage is not.

Handbrakes are things scrutineers love to check! If the vehicle is parked on a slope it will roll away unless there is something to stop it.

There are two common methods of checking them

1) Drive the vehicle up a 45º(ish) slope, stop, select neutral and apply handbrake. If vehicle rolls backwards - fail. If it stays still, (out of gear) pass. The scrutineer may stand where he can see your brake lights so he’ll know if you’ve got your foot on the brakes - so don’t try to cheat!!

2) On level ground, first gear top box or 3rd low box, handbrake set, try to drive away - GENTLY. If you do set off - fail. If engine stalls - pass. If the engine carries on running and you don’t set off - your clutch requires replacement! With a V8 powered vehicle it may move off. After all, over 120h.p. can take some stopping! Drive 2-3 feet then put the clutch in, if the vehicle stops immediately and rocks gently - pass. If it carries on - fail.

Finally, the scrutineer may check that you can operate the handbrake when wearing your seatbelt; as this is a requirement. This may sound like a silly comment, but some early SWB Land Rovers have the short low-set handbrake lever which is almost impossible to reach when you are belted in. Vehicles of this vintage didn’t have seat-belts so this wasn’t a problem at the time. You aren’t allowed to compete in a vehicle without seat-belts. If this is the case with your vehicle, then you should fit the longer curved lever from later vehicles. This is a simple nut and bolt job that won’t cost much.

Corrosion on brake pipes and wear / rubbing / cracks / cuts on flexible hoses are fail points. Any wear, no matter how slight on a flexible hose is a fail. The extended travel on many modified vehicle axles, over and above Rover’s specification, usually means using longer flexible hoses and the routeing of these, under all suspension conditions, from full compression to extension, needs care. Additional brackets may be needed.

All brake pipes must be secure, the rear axle line being best secured along the top rear edge of the axle. If you are re-piping, try to put the pipe in areas which are not going to be damaged by bellying on rocks or crushed by the bump stops.

3. Steering

This causes more problems that any other topic and almost invariably the root problem is lack of maintenance. Some of the faults listed, such as a loose steering wheel are rare, but worn ball joints are common. Even new ball joints or ones that have passed an MoT the day before can fail, and don’t forget that cross country driving takes more out of the steering linkage than a drive down a smooth motorway.

The simplest way to check the steering is to put some strain on the system by turning the steering wheel from side to side, causing the road wheels to move by about an inch (25mm) at the tyres. Have your vehicle on a surface where there will be a degree of resistance to turning otherwise the wear will not show.

Steering Wheel. Should the wheel move more than 3¼” / 80mm at the rim (1/5th of steering wheel diameter if you have fitted a smaller one) before the road wheels begin to turn, you’re in trouble; too much play. Pull the wheel hard towards you, see if it is loose and will slide off. It can happen if you have changed boxes on a Land Rover or universal joints on a Range Rover, Discovery or Ninety.

Move down towards the steering box and you will find universal joints, allowing the shaft to rotate through an angle. Is rust showing round the joints? If so, try oiling it. If it’s badly worn, replace the joint, they can’t be mended.

At the steering box, look for play in the sector shaft leading from the box; this too can be a failure point. Look where the box bolts to the chassis, is it loose? If the steering wheel is being rotated with a load on it this will show up quite easily.

With Series. I and II Land Rovers, the box is mounted on a plate coming from the chassis and the easiest place to look for movement is from the rear of the driver’s side front tyre. If the box is moving on the plate or the plate is moving on the chassis, then tighten the nuts up. Do not confuse movement with an amount of flex in the whole assembly. An early 80” can have a certain amount of flexing without detriment although Rover Ltd did produce a modification to strengthen this area.

If the area is covered with underseal or paint look for a crack running along the joint, if this opens and closes it would indicate something is loose. If it is bare metal look for a polished area around the joint or around the edges of bolts, washers or nuts. This is caused by fretting between parts and indicates that something is loose. On a ‘traditional’ trials vehicle (one that only gets used once every month or so) look around for an area of feint or fresh rust. Again, the problem is the same, fretting, but this time it has been left long enough for the dreaded ferrous oxide (rust!) to set in.

Freelanders have a steering rack so there is not much to check here other than the security of the rack unit. Does it move from side to side as the steering wheel is turned?

Moving onwards from the steering box to the drop arm secured to the ‘sector shaft’ (the splined bit sticking out from the steering box that should rotate freely with no play when the steering is turned!). Here, what can be thought of as play in the splines can sometimes be put down to a loose pinch bolt or retaining nut on the drop arm.

The checks to do are visual followed by the ‘finger test’. The ‘visual’ is simple, just look for movement between the sector shaft and the drop arm. An area of fresh rust or a seepage of oil or water squeezed out between them around the splines is a good indicator of possible movement which can’t otherwise be easily seen. Check the ball-joint on the drop-arm. Note that on the drop-arms that have the removable ball-joint, (identifiable by the circlip at the bottom) this may pop up and down as this assembly has a spring in it. A small amount of vertical movement is OK but sideways movement is not. Vertical movement on this type of joint will occur particularly if the vehicle is on firm ground and the engine is running on a vehicle with power steering. The ‘finger test’ can be used to check several joints and is easily learned with a little practice. It may be used to check for movement between any two mating surfaces. All you have to do is *rest* the end of your finger across the inter-face and then move the joint. Any movement will be felt easily after very little practice. Do not PRESS your fingers on or the feel of the movement is lost - just REST your finger tip(s) on the joint with the same amount of pressure you would hold a pen or a pencil.

Series I’s, II’s and III’s and 101’s have a steering relay unit in the chassis cross-member. Check that the securing bolts for these are tight, that the arms are secure on the shaft and that the shaft doesn’t wobble. These relays are lubricated, some by removing a bolt at the top and filling with oil; there’s no ‘proper’ filler plug. Don’t forget it!

Next in the steering linkage comes a ‘ball joint’, track rod end or steering joint. Scrutineers fail more of these than any other single component. Cheap, poor quality ball joints are a waste of time and money, even new ones may fail! The

criteria here are that a ball joint may have a slight amount of SIDEWAYS play but no VERTICAL play. If sideways play is found also check for a loose nut. Occasionally, if not correctly secured with a split pin or if a worn Nyloc nut is fitted they will work loose. The checks are firstly visual, then it's dirty fingers time again! Hold the joint and try to feel it through the rubber whilst the steering is being moved. Any play will be obvious to you.

Track-rod end problems

1) Track-rod ends loose in the drag-link even with the clamp tightened hard.

Cause: worn threads in the link tubing. Cure: Replace the tube.

2) Track-rod ends breaking off at the taper.

Cause 1: Inadequate tightening of these components causing worn taper in the steering drop-arm and in the hub Pitman arms. Once the tapered holes are worn oval, the only cure is replacement of the drop arm. Expensive.

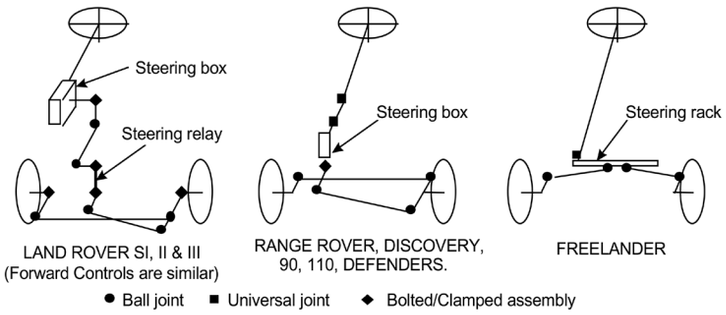
Cause 2: Over-tightening causing the track-rod end to shear off at the nut. If the split-pin hole doesn't line up within the correct torque range, try a different nut or a washer of different thickness.

Notice that I used the word "torque" there. Big Boys Toys need Big Boys Tools and a torque wrench should be one of them.

Check the pinch bolts on all the rods and links; if they are loose, tighten them up and look for movement between the tube and the threaded portion of the rod end. Grasp the rod link and try to twist it round. If you can, it is loose.

The rest of the joints / clamps / pinch bolts are only a question of what has already been said until you get to the type of vehicle where the steering arms are bolted to the top or bottom of the hub assembly. A visual check, looking for signs of movement, polishing, new rust lines or even a crack in paint can show it up. Follow this by placing two fingers between the steering arm and the hub / brake back plate. If your fingers are squashed slightly when the steering is turned, there is play. A little point of interest here is that you can feel the steering arms flexing if this latter test is done towards the ball joint end. This can be felt when the wheels are turned through 2" / 50mm or so. Imagine the forces passing through this on a hard landing with the wheels slightly turned!

The schematic diagram below shows the basic types of steering gear and specific points to check on them.



Steering gear parts may not be modified by welding, bending or drilling. ALRC Vehicle Regulations generally permit interchange of Land Rover steering gear parts and they also allow the use of Rover car components. This allows the use of the P5 car power steering unit.

Finally, check the steering stops. You may adjust these but the requirements of the MSA rules must be met. One of these states that a vehicle must

J.5.5.1. Be fitted with sprung suspension between the wheels and the chassis.

J.5.5.2. Suspension must be controlled to avoid fouling of wheels on chassis or bodywork.

Steering gear - scrutineering check points

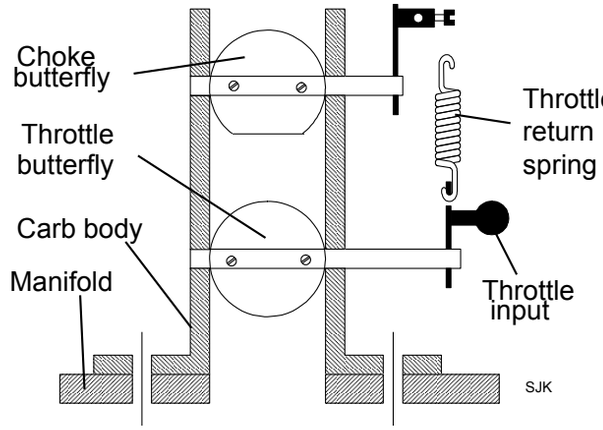
Many of the 'bolted' together joints on vehicles will cause no problem whatsoever. The nuts / studs were tightened at the factory, were undersealed (or have seized) together and will never come loose. However, when parts have been stripped down, washers left out, nuts not torqued or worn parts re-used, play is inevitable.

Bear in mind that a smooth, easily moved steering linkage makes for easy work behind the steering wheel. Smoother operation, without any play, reduces shock loading through the system and there is less likelihood of damage occurring. It will also help you to point the vehicle in the right direction!

4. Throttle Return Spring

There must be at least one spring in place on the final linkage and act on directly on each butterfly spindle, control lever on a diesel engine pump, or the throttle control lever on a petrol injection system. If the manufacturer fits one in that position, then an additional one is not required. If there is not a manufacturer-fitted spring there, such as many Land Rover Series 1s, then you will need to fit one. (See sketch) Later vehicles with the "fly-by-wire" throttle system having no moving part other than the accelerator pedal itself do not need a spring; indeed there is nowhere to fit a spring anyway. The electronic system will set the engine to idle in case of any electrical failure.

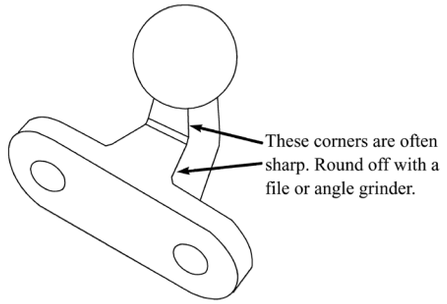
The previous requirement for an EXTRA spring is no longer applicable unless SRs state otherwise.



5. Towing / Recovery points

These are required for all events and, sooner or later they will be used. Murphy's Law usually applies; the vehicle without towing points will always be the worst one stuck and the vehicle with the poorest towing points will always try to pull it out!

We strongly recommended that some form of positive locking device is used, e.g. Pintle Hook or NATO-type tow hook. Tow balls often let the rope slip off, especially at the 'sillier' angles involved in Team Recoveries or when stuck on a trials section. If you use a tow-ball, particularly if it is mounted such that the bolts are vertical, check the stem for sharp edges that could damage your tow-rope.



Without anything to spread the loads imposed whilst recovering in a competitive situation, the bolts may pull through the rear cross member. Make a metal plate (at least $^{1}/_{8}$" / 3mm) with correct sized holes to fit the forward face of the rear cross member and, if you wish, weld this with struts back to the longitudinal chassis members. Use high tensile nuts and bolts (as always).

At the front, one of the strongest methods is to make a 'T' shaped bar to fit between the chassis rails and the front cross member, then bolt a Pintle Hook onto this through the front bumper using high tensile nuts and bolts. If you attach the recovery-point to the bumper with a load spreader behind, you must attach the bumper to the vehicle with high tensile nuts and bolts too. If you don't, someone will get the whole bumper wrapped round their head rather than just the tow-ball!! You can also use a chassis-shackle. These will fit 90s, 110s, Defenders, Range Rovers, Discoverys etc. Part number is RRC3237 and is attached with a BH110281L high tensile bolt and nut. This shackle is sometimes referred to as a JATE ring.

At every event someone gets stuck and sooner or later it will be you. Unless you have the right

towing gear, damage will be caused; that is, of course, if you can persuade someone to risk their rope on your vehicle.

To check your towing gear, attach a rope to your vehicle and an immovable object (telegraph poles and lamp posts are *not* immovable and will result in a large bill if they begin to lean!) and set off. If your vehicle stays in one piece - pass; if it bends - fail.

Usually all a scrutineer will do is to look and feel to see if it is loose, but otherwise alright, you'll be sent away to tighten it. Points he will be watching for are; substantial mounting, worn metal or cracks around bolt holes, nuts and bolts of a reasonable size and of high tensile steel (see roll-cage section for ways to tell) and whether or not a rope can slip off under tension. Chains wrapped around the springs or bumpers will not do; ropes around the bumper usually result in a bent bumper or cut rope when tension is applied.

Apart from an additional throttle return spring, strong tow points are the only modification to do on a factory specification vehicle in order to enter RTV events, so please, give it some thought.

High tensile steel nuts and bolts. Bolts must have appropriate markings on the head; if it has only manufacturer's markings or it has a plain head do not use it. The markings can consist of either letters (UNC, UNF and Whit. threaded bolts) or numbers (Metric or ISO Metric). The letter to look for is 'S' or a higher letter or the number 8.8 or higher. Stainless Steel bolts usually have a tensile strength of 5 Tonnes/cm^2, 33 tons/in^2 (marked A2 for Stainless Steel and 'M' for the strength) so be warned! Some bolts may be marked in Newtons per square centimetre, in which case high-tensile means over 80N/cm^2. Do not get confused with the manufacturer's name code, e.g. GKN, SN, BP, etc. High tensile bolts must always be fitted with high tensile nuts, and these will also have appropriate markings. Usually, there will be a marking on the face (not the flat) of the nut and this may be out of sight when fitted depending which way up you screw it on. Nyloc nuts are often plated but should still show this mark; you don't have the option which way up this type of nut goes and this mark will not be visible on assembly. A figure 8 will equate to a grade 8 specification and must be used with a grade 8 bolt. Nuts may also have a "clock code". There may be a dot and a stroke. With the dot at the top (12 o'clock position) look to see where the stroke is. A stroke at the 8 o'clock position indicates a grade 8 nut. You must be able to prove to a scrutineer that the nuts and bolts used meet these specifications. If in doubt, ask the supplier for a chart or a diagram that shows the meaning of the markings.

6. Fuel Tank Seals

On many vehicles this can be one of the most difficult things to do. The ALRC requirement is that the tank shall be isolated from the driver / passenger compartment by means of a separate fire-proof metal bulkhead.

On a standard Range Rover, Discovery or outside-filling Land Rover there is no real problem. Make sure the rubber seal in the filler cap seats good and tight to prevent fuel from getting past. Also ensure that, if fitted, the non-return valve in the cap functions correctly.

Now we move on to the under-seat fillers. The best way to describe what is needed is to imagine yourself upside down, held fast in your seat belt and to wonder where fuel leaking out of the filler cap is going to land. The answer is - round the seat of your pants. It puts a whole new meaning on the culinary term 'Kebabs'. Don't forget the passenger side on the twin tank vehicle.

There are several ways that Rover have made the seat box lid that fits between seats and petrol tanks. As a general rule this should have a seal / gasket to stop fuel flowing past the joint between it and the seat base. Try Hermetite RTV silicon rubber (Here, RTV stands for "Room Temperature Vulcanising", not "Road Taxed Vehicle"!) or other non-bituminous compounds (do not use tar products as these are petrol soluble) to make the seal, then screw it down with self tapping screws.

This system is fine where the lid is one which doesn't help secure the seat, but, on an early Series I, the seat base is located by holes through it. Now, that is a problem! You can use heavy sticky tape (Gaffer, Duct or Tank tape are a few generic terms to look out for) and this will hold back spilt fuel for a few minutes before the adhesive softens. This should be long enough to keep fuel off the occupants until they can escape from the vehicle. The best method that has been produced as yet is to move the fuel tank !

Moving a fuel tank into the back can cause problems as well as solving them. The tank must still be covered regardless of whether the vehicle is open or not. A suitable cover must be fitted to stop fuel from spilling if (when!) you are up-side down. Do not completely seal the cover; leave it vented at the bottom. If the vehicle is inverted, fuel may spill into the cover where it will be retained safely whilst the occupants are helped out. When the vehicle is righted, any fuel inside the cover may then spill out onto the ground but by that time, the main danger will be over.

Whilst discussing fuel tanks, why enter an event with a tank full of petrol? If you do roll over and the tank leaks, you'll lose a lot instead of just a little. Remember that a standard under seat Land Rover fuel tank, if $^1/_3$ full; will not spill if the vehicle is resting on its side, even more importantly, there is a lot less to burn.

LPG in competition vehicles. It is acceptable to use LPG fuel in any competition vehicle on condition that the system conforms with the Road Vehicles Construction and Use regulations, and LPG Industry Technical Association Code of Practice No. 11. If the cylinder is installed internally, then it will need to be protected against damage by tools etc by being covered in some way. Internally fitted cylinders often come with a cover for the tank *fittings* but no overall cover.

A wooden cover will suffice for the time being, or until the MSA come up with other recommendations. The manifold fitting on the top of the tank will have a vent pipe which leads to the outside of the vehicle. Safety guidelines are available for supply to those who work on LPG powered vehicles.

7. Springs

Leaf Springs - Standard type leaf springs must have at least 5 leaves. If the springs have been rebuilt, the leaves below the top two MUST be in proportional reducing steps to copy the originals. "Tin foil" or "Spacer" designs are not acceptable. 101" wheelbase Forward Control Land Rovers must have at least two leaves on each spring. Parabolic springs with at least two leaves to the Santana parabolic design are also permitted. All of these springs must have the top two leaves wrap around the eye.

Springs must have no breaks or cracks. The spring clamps should be in position to allow forces on one leaf to be passed to another and so relieve excess forces acting on any one leaf. Spring-eye rubbers must be present, although minor wear will be allowed. In an early 80" with narrow springs, wider alternatives are allowed.

Coil springs - these must have the retaining plate fitted at the bottom but we recommend that they be secured at the top too. A Jubilee or similar clip around the spring wire and through the mount will help.

8. 'U' Bolts

Should be tight with no play - tap them gently with a small hammer or a spanner; a 'ringing' sound indicates they are tight, a dull 'thunk' shows them to be loose. Look for shiny metal areas, areas of new rust or movement when the steering is being exercised.

9. Seat Belts & Seats.

A minimum of lap-belt only is required in non-timed events such as RTV (all vehicles regardless of age) and CCVT, but a three or four point fixing with 2 shoulder and one lap strap is mandatory in a Competitive Safari and other "speed" events.

The method of attaching seat-belts are described in the regulations. These should be examined carefully for security. Early Land Rover seat belts can easily be trapped in the door latch mechanism and become damaged. Seat belts can also become chafed and frayed. Badly damaged or frayed belts can cause the vehicle to "fail" scrutineering. Note MSA Reg J.5.3.4. The seat cushion (i.e. the part on which the occupant sits) when uncompressed, must not be less than 15.25cm / 6" below the top edge of the adjacent body side or door.

10. Bumpers

The regulations are quite clear. No alterations such as spring mounted ends are allowed, but the scrutineers should also check to see if the vehicle has an overall length that is *less* than it should be. A check on the position of the bumper(s) relative to the body is part of the log-book process but note that RTV's are not subject to log-booking at this time. The chart in the Log Book section of this handbook shows the required dimensions for bumpers and other significant dimensions. Rear cross members should be the full width as originally fitted.

11. Fire Extinguishers
These are required in all events except RTV Trials, but we recommend one anyway. It should be positioned so you can reach it whilst normally seated and not outside the body lines, where it could be set off by contact with low branches or a roll over. Ideally both driver and navigator should be able to reach it.

Don't fix it in so firmly that it cannot be removed and, equally, don't have it so loose that it drops out of its carrier. Don't use spring-clip type carriers, use the type with an over-centre clamp. Check with the supplier that it is suitable for use out of doors on a vehicle and also check whether it can / should be mounted vertically or horizontally. Following the Montreal Convention, BCF and Halon extinguishers are not acceptable so you must be using an AFFF type. Please note that all new extinguishers are red and no longer colour-coded as to contents. (EU regulations again!)

MSA reg. C(c) Table 56 states that the minimum size for a hand-held extinguisher is a 1.75 litre AFFF unit, although you might consider getting a bigger one than this if you use unleaded petrol which is more difficult to extinguish.

These should be clearly marked as to volume of contents, and should have a pressure gauge which should be checked to show adequate pressue. Minimum specification should be approval to BS5423 or EN3 and have a Fire Industry rating of at least 34B. Don't leave extinguishers outside in the winter to freeze as this can adversely affect their reliability.

The greatest risk will be to an open vehicle parked outside, so bring the extinguisher indoors on frosty nights. You might consider hanging the vehicle's keys on it so you don't forget it when you go out early to a competition!

12. Battery
This must be securely mounted. If it is anywhere but under the bonnet with the engine, it must have a cover that will contain or trap any spilt acid if the vehicle overturns. Where the battery is normally mounted under a seat (as in a 90, for instance) then you need take no other action unless you wish to.

The scrutineer may wish to inspect the battery to ensure that it is fixed down and not just "sitting there". If the battery is in the rear load area, then make sure the cover strong enough to resist tool-boxes, passengers, dogs, jacks, shackles etc. that may travel in there at other times.

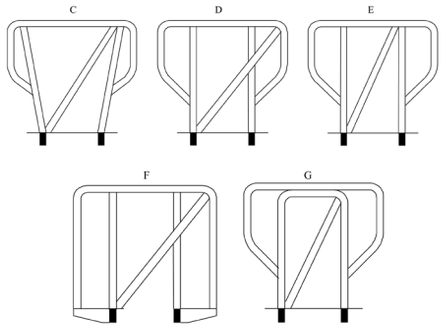
13. Electrical Cut-Off
Required in all events except trials. The regulation is self explanatory. When operated it should isolate all electrical services and stop the engine. The location can be difficult, as it is liable to be turned on and off by pranksters. One way around this is to have the cut-off mounted on the dash with couple of bowden cables (standard choke cables do the job admirably) attached to the roll-cage and connected to the isolator so the key is turned off when the cable is pulled.

By doing this you can position various cut-off positions around the vehicle body with only one actual cut off, easy really - when you know how. The vehicle Regulations say how the warning symbol should be displayed.

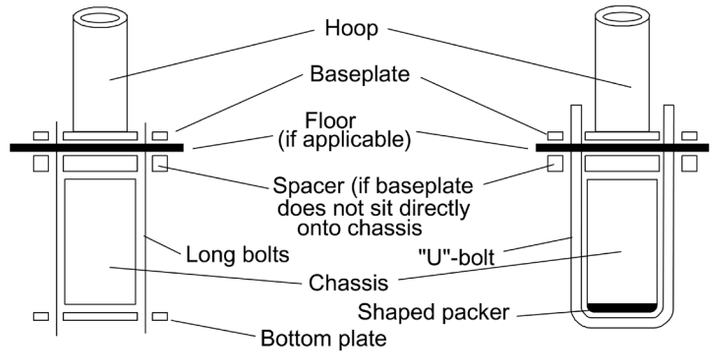
14. Competition numbers
Make sure the vehicle has a number panel as defined in the regulations. Display only the numbers which are valid for the event you are competing in - you'll find it easier removing them yourself as a scrutineer may not have time to care for your paintwork as much as you do.

Tape running through numbers can often be misleading on a dark muddy vehicle so, really, it's up to you to help yourself here. MSA regulations C(b) 6 and F 201 require that after retirement or at the end of the event, competition numbers must be removed.

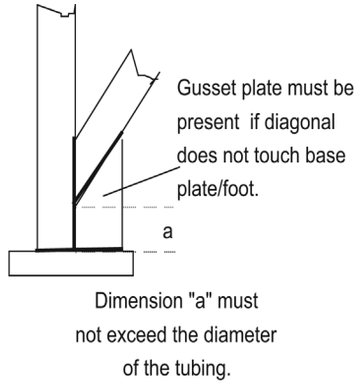
15. Roll Cages
Roll-cages are subject to particular scrutiny during the log-book process. For current design details, see separate roll-cage section in this publication. It is important to note that as a scrutineer, you may encounter roll-cage designs and mounts that are no longer permitted on new vehicles:

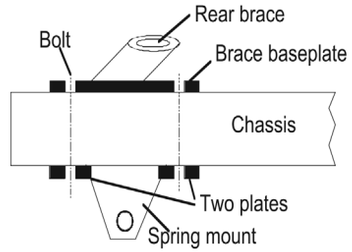


One of the reasons for the introduction of vehicle log-books was to allow discontinued designs to remain in use. Discontinued roll-bar designs are as follows. These may not be used on Comp Safari / Timed Trial / Team Recovery vehicles:
Discontinued mounting designs using long bolts or U-bolts are shown below:



Discontinued main hoop diagonal joint at foot, and rear-brace attachment variations:





16. Silhouette
This describes the body shape and dimensions below the body capping on a Land Rover and the bottom edge of the side window-line on a Range Rover or Discovery. In RTV events, the silhouette encompasses the whole of the vehicle.

Included in the silhouette considerations is the requirement to equip all wheels with mudguards which present no sharp edges and cover the complete wheel (flange+rim+tyre) which must not be visible when viewed from above. This minimum coverage must be achieved with a continuous surface of rigid material and the tyre. (See MSA reg P.56.2.3.) The MSA consider Land Rover plastic "eyebrows" as being rigid material. Commonly used alternatives such a conveyor-belt rubber are also adequate.

Closely allied to this subject is the requirement to fit mud flaps, of a flexible material not less than 5mm thick, behind each road wheel extending to a minimum of 4cm each side of the tyre tread, and a maximum of 10cm above the ground when the vehicle is stationary, is mandatory. (See MSA reg P.57.5.2.)

A table of dimensions will be found elsewhere in this publication. But don't forget that silhouette

is taken in plan, front and side elevations. For all classes other than RTV, a Log-book process is in place and this requires that the principal dimensions of the vehicle are correct.

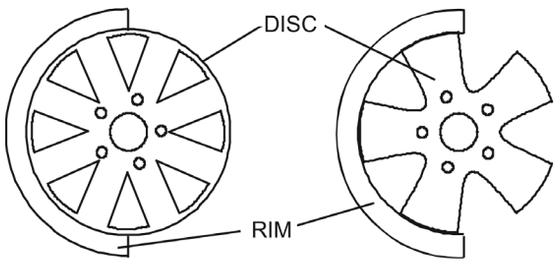
17. Wheels

Any make of steel wheels may be used in all events. Aluminium alloy wheels are currently allowed only in Road Taxed Vehicle (RTV) trials but do make sure they are suitable for the weight of vehicle and that the vehicle hubs are the right type to mount aluminium alloy wheels. You will need "universal" hubs.

These are easily identified by an engraved triangle or what looks like a very shallow screw-driver slot on the flat outer end of each wheel mounting stud. The hub plate is thinner on the "universal" hub making the studs appear longer than unmarked ones. The scrutineers may request the removal of a wheel-nut to check for this and for the offset measurement. There must not be an offset of more than 4" / 102mm between the outer bead flange of the wheel (not the final out-turned lip) and the flat of the nave plate (the surface the nuts sit on).

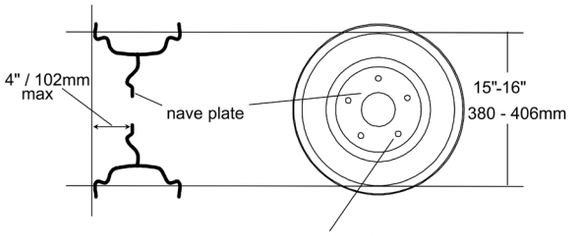
Wheels with a split BEAD rim are not allowed. These are not to be confused with a military style split wheel, the type with two sections bolted together, which *are* allowed. Watch out for certain types of spoked steel wheels. Usually, the spoked effect is achieved by a series of triangular holes in the wheel disc.

The outer ring is then welded all round the inside of the rim. Some types have only 5 spokes and have a star-shaped plate which is welded to the rim only at the tips of the spokes. These wheels are acceptable but must be checked very carefully at these weld points. On each of the wheels shown below, the right hand half of the rim has been cut away to show this important difference in their construction. Both types are legal.



Steel wheels with curved tubular spokes are also now in common use. These are visually checked in the same way.

The only major 'wear' points on wheel rims are around the stud holes, cracks here are not permitted (even welded up ones) or excess wear around the hole. This wear, usually caused by loose nuts, enlarges the holes and 'small' nuts can easily pull through.



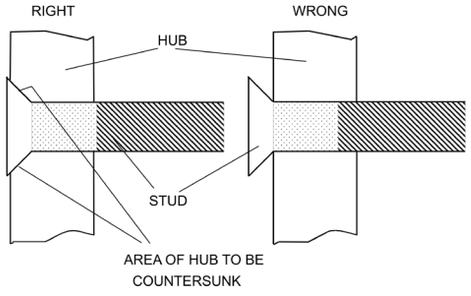
Look for cracks/wear around the stud holes. Either mean that the wheel should be discarded.

Wheels of sizes other than shown above are permitted only where factory fitted to that specific vehicle model.

Whilst in this area, look at the nuts / studs. Normal engineering practice is to have the stud at least flush on the outside of the nut. However, Land Rover have informed us that an engagement figure of a minimum of 1.1 times the stud diameter is acceptable. On "Series" vehicles, double-ended nuts may still be in use and scrutineers may request that a standard nut be fitted temporarily as a test to check for stud length before refitting the original nut.

The correct wheel nut torque-loading figure should be applied in all cases. For all non-Rover wheels, users must consult the supplier or manufacturer to obtain an appropriate torque-loading figure for the nuts. If the suppliers can't quote a torque figure, don't buy their wheels.

Replacing studs If you need longer studs for the coil-spring range of vehicles, the late series 3 LWB studs can be used or use part number FRC7577 studs available from Land Rover and from other non-OEM suppliers. Contact the Scrutineering Committee for details. With a Series 3 'pull in' type replacement stud, the hub should be drilled to take the countersink of the stud. Failure to fit the stud correctly can make the aspect ratio between the nut and stud become critical.



Pull-in Type replacement wheel stud.

18. Tyres

A great degree of 'flexibility' is present here but some tyres, such as the 'V' tread tractor or 'dumper' style are prohibited, as are open-block tread and any agricultural or implement tyres.

However, many equally advantageous and aggressive tyres are allowed. Re-cutting of treads is allowed in all events except RTV trials where road-legal tyres must be used. Re-cut tyres are not legal on the road for any Land Rover products.

Don't use tubes in a "tubeless" tyre and don't use a tube-type tyre on a wheel marked "TUBELESS". Some Rover alloy wheels are marked in this way. Minimum tyre pressures are stated in the vehicle regulations. The tyres must not be visible when viewed from above. See MSA Regulation J.5.2.6.(a).

19. Differential Check

Limited slip, torque biased, locking or fixed axle differentials are prohibited. The normal check for these is to use a set of rollers which will allow the road wheels on one side of the vehicle to rotate whilst the other side are chocked. The instructions given to the scrutineer are reproduced below.

Try to ensure that the driver sets off GENTLY. With the 'carbon' and oversized thrust washers in a differential, a sudden jerk can overcome their resistance. Let the wheels turn for 3 or 4 revs at a SLOW speed (saves the roller bearings as well). If the vehicle climbs off the rollers or continually stalls, ask the driver if he has modified the differentials. Then:

1. Jack up rear axle, handbrake off, gears in neutral, turn a back wheel by hand. If the wheel rotates in the opposite direction freely, set the hand-brake, try again. If you get the same result, repeat on the front axle. If this too rotates the wheels in opposite directions kick the driver on the shins for having a clumsy pair of feet. PASS.

2. If the wheels rotate in the same direction with the hand-brake off, become very suspicious! If they will not run with the hand-brake on (should rotate in opposite directions freely), kick the driver on the shins and send him limping away until it works right. FAIL.

Care should be taken however that the cause is not a partially smashed set of gears in the differential casing which could lock everything up. If this is the case the driver requires sympathy but the vehicle still fails.

Some types of LSDs (Limited Slip Differentials) require 'warming up', try it. Before you do so, ensure that no one is in front of the vehicle or is stood near the diagonally opposite side, as the vehicle may pivot round as it climbs off the rollers.

20. Engine and Gearbox Mounts

Broken or perished engine and gearbox mounts must be replaced. If you find that they keep breaking, try using ones for diesel engines as they are tougher.

21. Exhaust Condition and noise levels.

A broken exhaust can
a) cause excessive noise and lose us our competition sites,
b) cause fumes in the vehicle,
c) fall off and damage brake pipes etc.

22. Crash Helmets

The MSA is toughening up on crash helmets. Expect them to be checked carefully. The "Blue Book" contains details beyond the scope of this hand-book. If you need a crash helmet then you will be in an event that requires you to have a licence; consequently you will have an MSA Yearbook too.

Please read it. Special qualifications are required by scrutineers to apply a sticker to a helmet. At a "normal" event, all a scrutineer can do is to check for the presence of the sticker. Additionally, check the 50mm / 2" clearance between the top of the helment and the top of the roll-cage whilst the driver is seated.

23. Start Inhibiter on Automatic Gearboxes.

Vehicles fitted with an automatic gearbox must have a start inhibiter which prevents the engine being started while a gear is selected. This may be a part of the gear selector or linked to the foot-brake, depending on the type of vehicle; or the vehicle from which the gearbox was obtained.

24. Scrutineering Check List.
On the opposite page is a scrutineering check list that you may use in your club events if you wish or just use as a quick reference whilst checking your own vehicle. Items are grouped loosely into Check areas Walk Round; Underneath; Function Check; Miscellaneous; Documentation. A written "guide" follows the checklist. Try it.

25 Documentation.
MSA Rule P 24.3.1.says "Drivers at Trials, Winch Recovery, Gymkhanas,Treasure Hunts and Orienteering must also hold a current valid driving licence appropriate to the vehicle, but the SRs can Permit entries from Drivers who are 17or over but who do not have a current valid driving licence for the vehicle, provided their Passenger holds such a licence and is experienced in Cross Country

Trials.... and rule P 24.4 says The vehicle may only be driven between observed sections by a crew member holding a valid full RTA licence. For Tyro and Junior Trials see 44.1, 25.3 and 45. These two MSA rules are quoted here to remind organisers and competitors alike of these requirements.

Furthermore, vehicles entering RTV events must be insured for road use, and have a valid MOT Test Certificate where applicable. Note that none of these documents needs to be shown but by entering the event the driver is making a declaration that the driver does have these.

Scrutineering check list

ITEM to CHECK	RTV	CCV	Timed events	Reason for Failure
Bodywork / silhouette.				
Doors. Secure. Tops as required.				
Bumpers (length, & cross-section width, height).				
Seats and seat belts.				
Hard-top or canvas & sticks.		N/A	N/A	
Roll-cage.	N/A			
Wheels, studs & nuts.				
Tyres (type & condition & must not be visible when viewed from above.)				
Minimum tyre pressures: RTV - 22 psi. CCV / Team Recovery / Timed Trial - 12 psi. Comp Safari / Point-To-Point - 18 psi.				
Recovery points				
Mud flaps (width & height.)	N/A	N/A		
Number board / panel	N/A	N/A		
Rear-radiator - pipes, fans, header tank.				
Chassis condition.				
Propshafts front & rear.				
Engine & gearbox mounts.				
Springs, shackles, dampers.				
Leaf-spring U-bolts.				
Steering box, links, rods, arms.				
Suspension bushes.				
Exhaust.				
Brake pipes.				
Handbrake.				
Footbrake.				
Self starter, & start inhibiter if auto gearbox.				
Lights / horn (RTV, Comp Safari)		N/A		
Differential check (where facilities are available)				
Battery. Security & cover.				
Fuel tank security & cover.				
Extra throttle return spring(s) on Series 1s only				
Fire extinguisher type, pressure & mounting.	N/A			
Membership card (with correct wording)				
Competition licence as appropriate.	N/A	N/A		
Log-book.	N/A			
Helmet (type, condition and sticker & roll-bar clearance)	N/A	N/A		
Mark thus Pass ✓ Fail × Recheck ®				
Confirmed passed scrutineering Signed				

Suggested “Scrutineering Tour”

General Walk around the vehicle

BODYWORK / SILHOUETTE
- Is it correct? Full silhouette with no cutting away and all the glass in place required for all Standard classes. Windscreen must be LR item on proper mounts for RTV & Tyro.
- Is the bodywork unduly damaged? Sharp edges? Capping strips in place?

DOORS
- Do they close properly? Are door tops in place for RTV & Tyro as required?

BUMPERS
- Are they there? Are they straight? Are they wide enough? Is the cross-section width, height correct? Any bumpers with normally detachable end-caps (RR and Disco) must have the end-caps or an equivalent in place. All-metal one piece or winch bumpers are acceptable if full width.

SEATS AND SEAT BELTS
- Are seat frames secured? Are seat squabs attached (early vehicles in particular suffer “gravity mounted” squabs!)
- Are seat belts in good condition? Warn about slight fraying, reject if bad. Are attachment points secure? Particularly “Series” vehicle seat-box attachments at the door sill / bulkhead area.

HARD-TOP or CANVAS & STICKS
- Full set of sticks? Roll-bar doesn’t count as a hood-frame / stick for RTV & Tyro.

ROLL-CAGE (where applicable.)
- Any obvious damage? Identity tag secure?

WHEELS, STUDS & NUTS
- Wheel offset in limits? (max 102mm / 4 inches) All studs and nuts in place? Nuts tight?

TYRES
- Type appropriate for class? Serious cuts? Perished? Type mismatch?
- Re-cut tyres not allowed on RTV & Tyro. Tyre type must be per Vehicle Manual for RTV & Tyro.
- The tyres must not be visible when viewed from above. See MSA Regulation J.5.2.6.(a).

TYRE PRESSURES:
- RTV - 22 psi. CCV - 12 psi Comp Safari / Point-To-Point - 18 psi.
- Tyro - Pressures to be per Vehicle Manual.

RECOVERY POINTS & ROPE
- Recovery-point bolts all present and with HT markings? Backing plates as needed? If recovery point is attached to bumper, is bumper attached to chassis with HT bolts?
- Rope in acceptable condition. Cables and chains not permitted. Shackles should have a pin size of at least 19mm / ¾ inch.

MUD FLAPS (WIDTH & HEIGHT. COMP SAFARI ONLY)
- Check for presence and dimensions.

NUMBER BOARD / PANEL (COMP SAFARI ONLY)
- Check for presence, location and dimensions.

REAR-MOUNTED RADIATORS
- Pipes all covered over? Header tank covered? Radiator protection grilles etc. to protect occupants / spectators from hot water / steam in case of burst? Mesh over fans to keep fingers out?

Now dive underneath and check the following:

CHASSIS CONDITION
- Rust, buckling? Bump-stops present.

PROPSHAFTS FRONT & REAR
- All attaching bolts in place?

ENGINE & GEARBOX MOUNTS
- Mount condition OK? Splits, disbonding, securing nuts, etc.?

SPRINGS, SHACKLES, DAMPERS
- Dampers present, not leaking.
- Leaf Springs Check for broken or excessively worn leaves, loose / missing clips?
- Coil-springs Seated OK?. Air suspension Rubber perished?

LEAF-SPRING U-BOLTS
- Loose or missing? Tap with small hammer to test.

STEERING BOX, LINKS & RODS
- Box drop-arm nut secure? End joints worn? Pitman arms secure on hubs (bolt-on type common on early vehicles)?
- You’ll need the owner to waggle the steering for this check.

EXHAUST
- Secure and functional?

BRAKE PIPES
- Corroded? Kinked? Leaking? Also check for vulnerability to catching on roots, stumps etc.

Function Checks
(All function checks to be carried out by driver.)

Stop the vehicle on a hill and
- FOOTBRAKE - Does it stop with the footbrake?
- HANDBRAKE - Does it stop with the handbrake? (Make sure they don’t use the footbrake during this bit. Stand at the back and watch for brake lights.)
- Alternatively, try to drive away gently with the handbrake on.

SELF STARTER
- Fairly obvious really - does the engine start on the starter?
- Where gearbox is automatic, ensure that it cannot be started in gear. Get driver to check this while you stand clear !

LIGHTS / HORN
- Do they all work for RTV & Tyro?. Red warning lights for Comp Safari.

DIFFERENTIALS
- Check for locking, torque-sensing diffs. Roller test if facilities available.

Miscellaneous and under the bonnet

BATTERY. SECURITY & COVER
- Check attachment means. If not original, decide if adequate.

FUEL TANK SECURITY & COVER
- Under seat filler Check that the access panel is sealed (within reason)
- If in rear load area Check that the tank is protected from feet and tools etc. by its cover and that top of cover is sealed. Check that cover is not sealed underneath.

THROTTLE RETURN SPRING(S)
- Only early Series vehicles did not have the return spring attached directly to carburettor butterfly spindle. So check that one is fitted.

FIRE EXTINGUISHER
- Needed for all except RTV & Tyro. Check type and pressure if visible.
- Check mounting. Can the driver reach it? Can it be unclipped easily for use?

BULKHEAD / BONNET
- This is the fireproofing check. Check for holes in the bulkhead and scoops / louvers etc. in the bonnet. None permitted.

HELMET
- Check the 50mm / 2” clearance between the top of the helment and the top of the roll-cage whilst the driver is seated. The scrutineer will check type, condition and sticker. This is a specialist task.

Documents

MEMBERSHIP CARD / COMPETITION LICENCE
- As required.

Sign the scrutineering sheet.

If there are any points where the vehicle does not comply with the regulations, then mark the sheet with the reason(s) why. Advise the driver and the Clerk of the Course (CoC) of the reasons for your decision. The driver will then be given the opportunity to explain to the CoC why he thinks the vehicle does comply. The CoC will make a decision whether or not to allow the vehicle to compete. If the problem can be fixed on the spot, then a re-check can be carried out at the discretion of the scrutineer.
If there are any “near-misses”, (usually matters of eligibility), then mark the sheet as before. A discussion between the driver, the scrutineer and the CoC may well result in the other drivers being asked if they are willing to allow the entrant to compete. If they are, then make it quite clear that the problem item must be attended to before the next event. Other clubs may not permit this. At a major event, such a concession is unlikely to be granted.