

Practical Restoration Handbook

**Vehicles and Trailers**

by

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## 1. INTRODUCTION

- 1.1 For almost all restoration groups there are certain subjects that crop up in conversation on a regular basis. One of the most common is "We should get a van", usually followed by either "We should get another van" or "We should get a trailer". It seems that almost any restoration work involves moving heavy objects or lots of people about. Given this it is hardly surprising that this is a classic grumble from the work site to the committee meeting. This chapter offers advice and guidance both to help you finish the argument and then to maximise the benefits of any vehicles and trailers.
- 1.2 This booklet is based on the considerable experience of the authors and from interviews with many waterway recovery group (WRG) volunteers. Hopefully it will enable societies to avoid the "potholes" of owning a vehicle and/or to maximise their safe and effective use. The authors realise that each society has different requirements and so this will not attempt to be too prescriptive a document. However, as many people reading this chapter will be WRG volunteers, or at least affected by them, any additional points that directly apply to WRG vehicles and trailers are given in Appendix 2.
- 1.3 One point needs to be made clear from the outset:

### **Vehicles and trailers are a considerable responsibility**

- 1.4 Not just for a society's committee in terms of legality, depreciation, costs etc. but in very real practical ways for whoever is in charge of them at the time i.e. the driver. There is one golden rule imposed on WRG drivers –

### **Do not drive if you are unhappy about any aspect of the vehicle or it's use**

- 1.5 You may be unsure about paperwork matters (is the MOT current?) or practical matters (should the brakes make that noise?) – either way check it out before you set off.
- 1.6 The simple reason for this is that it is your responsibility to ensure both the trailer and towing vehicle are legal, safe and roadworthy. "Well I assumed so" or "I asked Fred to check it and he didn't say anything was wrong" will not be acceptable to WRG, the insurers or the police.
- 1.7 Good though this chapter is, it is worth knowing that RoSPA, some Police Forces and some Local Authorities run driving courses specifically for charity minibus and van drivers. Consider getting a few of your volunteers together and attending a course – it may be a day well spent. In addition the guidance offered by the Highway Code should not be ignored.

## 2. VEHICLES

### 2.1 **Running a vehicle/what sort of vehicle?**

- 2.1.1 Firstly you need to consider what is the vehicle going to be used for. By far the most popular vehicle is the Ubiquitous Ford Transit van or any of its imitators. However, if your vehicle is for the use of a project officer visiting local interest groups to raise the project profile then perhaps a small economical van is the right answer. Similarly, if your restoration works demand it then

perhaps a larger wagon is what you want. (WRG have recently purchased a beavertail wagon to move plant and equipment around the country – we'll let you know how it turns out!).

- 2.1.2 There are other more direct factors that will influence your personal decision – if the Local Authority locks off all its access points with 6' height barriers then you would be fairly foolish to buy a high roof van. If your group of volunteers is small but needs to be mobile and carry equipment then a utility van (50/50%) may be the answer.
- 2.1.3 The desire to have a site capable vehicle often leads people off on a "perhaps a Land Rover instead of a van" argument. It cannot be denied that it is a nice idea to be able to drive to the builders merchant, load up with cement and then drive across site and deliver it straight to the mixer. To be able to tow your tool trailer to exactly where you want it is a dream shared by anyone who has had to manhandle one into place. However, be aware that the potential for accidents is considerable, driving them on site is a considerable skill and in the same way that dumper drivers should be properly trained so should anyone who will be using a vehicle off road. Also it must be said that the physical capacity of most 4x4 vehicles is quite small compared to a van, and certainly their personnel carrying facilities leave something to be desired. However, there have been many times that WRG have been very grateful for a Land Rover on site and if you are sure that you can use one it may be a sensible option. It may be you wish to have a vehicle for site use only: the Montgomery and the Stratford both ran non-roadworthy (but still safe!) Land Rovers for a while with great success. However, this is really only a sensible idea if your site is spread along a wide towpath for a mile or so or you have a large field or similar to work in.
- 2.1.4 Make no mistake the costs involved in running a vehicle can make a sizeable hole in your restoration budget. Although there are documented records of a WRG van only costing £50 a year to operate (not including insurance, MOT and tax), a modern van maintained to a high standard costs in excess of £1000 a year to run. There is also considerable depreciation and you will be prudent to start saving to replace a vehicle as soon as you buy it. Sponsorship may help the budget out but it is difficult to find.
- 2.1.5 Good maintenance is essential for the safety of everyone. Although no one is suggesting that every minor dent and scrape should be repaired immediately remember that you have a duty to the public and your volunteers. No volunteer should be expected to drive a van that is likely to breakdown and strand him in the back of beyond.
- 2.1.6 So even a brief analysis of the potential costs means that one discussion any responsible society needs to have (and keep in the back of their mind when costly repair work is required) is "would it be cheaper to hire each time?"
- 2.1.7 Hire versus buy is a fairly common argument and goes something like this:

**Hiring:**

- We can get the exact vehicle we want for each job (if it is available)
- We don't have to worry about its security mid-week
- Maintenance is not our problem
- It will be shiny and not break down at critical moments

**Buying:**

- It will be available on the Thursday evening to load up
- We can paint and signwrite to get some publicity and raise our local profile
- We can modify it so it will safely carry those long-handled slashers and rakes we have
- We don't have to find someone to pick it up before six on Friday
- We don't have to find someone to get it back after nine on Monday (more difficult)

2.1.8 Following on from the "hire versus buy argument" is the "diesel versus petrol" argument. As far as WRG is concerned there is no discussion – diesel wins every time; reliability, longevity, economy, lower fire risk, low revving, good on site with lots of torque for towing, lower depreciation but higher initial purchase price. However, If you are in the market for a cheap short-term vehicle then it will most likely be petrol.

2.1.9 For most of this booklet it is assumed that the vehicle chosen is a standard "box" van (possibly as a people carrier). However, many of the points will still be valid for 4x4s, mini-vans etc.

## 2.2 Fuel, Tyres, etc.

2.2.1 Always make sure that you put the right fuel in the vehicle. If a diesel-engined vehicle is to be run on the highway at any time then it must be run on white diesel (also known as DERV fuel, which actually stands for Diesel Engined Road Vehicle). White diesel has to meet stricter environmental specifications but the only visible difference between red and white diesel fuel is that red diesel has some red dye in it. White diesel carries a tax which takes the price from £1 to £3.50 a gallon. The red dye is therefore a technique used by the Tax inspectors to ensure all road fuel is taxed. They are entitled to stop and check fuel tanks at random roadside stops. The dye stains the tank for many months and so they know if any red diesel has been used recently. They have regular "purges" in most areas and if you are caught with red diesel in your tank you will be prosecuted. If you are caught with evidence (stains) of red diesel then you will be in a long legal argument about "it wasn't me Guv, it must have been someone else, how was I to know, etc". You may well get away with it (or they may well prosecute the society itself) but it is not something you wish to occupy your vital restoration time with. So the moral is don't use red diesel, always use legal white DERV fuel.

2.2.2 Never ever run out of diesel fuel, diesel engines can be a real pain to bleed through. If you are leaving the van for some time during the cold weather then do so with a full tank to prevent water condensation and waxing in the fuel tank.

2.2.3 If the vehicle has a petrol engine and was designed to run on leaded petrol then you might find you need to have the engine modified if you intend to use it for heavy motorway driving or for towing. This involves having hardened valve seats fitted.

2.2.4 All spare fuels should be stored in proper containers and label them to avoid the old "Well, I thought it was blackcurrant squash" mistake.

2.2.5 A good quality engine oil is recommended, a cheaper one is often a false economy.

- 2.2.6 Check the condition of the tyre, they should be free from cuts and defects. Also check the tread, the limits for vehicles under 3,500Kg maximum laden weight are:
- Cars, light vans and light trailers MUST have a tread depth of at least 1.6mm across the central three quarters of the breadth of the tyre and around the entire circumference
  - Motorcycles, large vehicles and passenger carrying vehicles MUST have a tread depth of at least 1mm across three quarters of the breadth of the tread and in a continuous band around the entire circumference.
- 2.2.7 All of these considerations apply to the spare wheel(s) – check them before you need them. And while we are on the subject make sure you know where the jack and wheel brace are stored.
- 2.2.8 Bulbs, fuses and other such consumables – it is best to carry a stock of these and if you use them replace the spare immediately.
- 2.2.9 Keep washer bottles full as entrances and exits to worksites are often very muddy and windscreens need to be cleaned. Similarly if your windscreen wipers are in poor condition then replace them. A bottle of water carried with the vehicle will ensure you have something to top up the radiator and the washer bottles with.

## 2.3 Insurance/Legal

- 2.3.1 Firstly remember that the moment you take the vehicle off the highway it will almost certainly not be insured by the motor policy you are paying for. It is therefore necessary to take out additional plant insurance to cover use on site. Corporate members of the IWA can take advantage of cover given by the IWA policies. This places certain conditions on drivers. See PRH "Health & Safety Section 2" for further details.
- 2.3.2 One point that cannot be reinforced too much is that if you use the vehicle for hire or reward then a whole load of additional legislation concerning driving hours, tachographs, etc. become relevant. Also the insurance cover will almost certainly be void. Hire or reward has been interpreted as not only taking money from passengers but also receiving a donation towards fuel so be very careful about how you phrase such things.
- 2.3.3 Check carefully the contents policy. As mentioned in "security" below, it is the loss of the contents not the van itself that will cause the major problems.
- 2.3.4 Speed limits are also a source of much hearsay and untruths. They are also open to interpretation by the Constabulary. However, the generally accepted limits for close coupled trailers (which most are) are:

Vehicle	Single carriageway	Double carriageway	Motorway
Van/minibus	50	60	70
Single axle trailer	50	50	50
Double axle trailer	50	50	60

- 2.3.5 Do report all accidents to whoever is responsible and do inform the vehicle's keeper if you are stopped by the police.
- 2.3.6 Remember as the driver of the vehicle it is your responsibility to ensure the Tax and MOT are valid.
- 2.3.7 A further consideration is to ensure that the driver is actually legally allowed to drive the vehicle. This situation has been "fluid" over the past few years as UK legislation has moved into line with European rules. The automatic granting of permission to carry more than 8 passengers upon passing an ordinary driving test has been applied intermittently. Hence for people who passed their test recently they will need to individually check their licence. The critical category on the licence is D1/D. Check this before driving.
- 2.3.8 Whatever the case you will still need to be over 21 to drive a vehicle that can carry more than 8 passengers.
- 2.3.9 Make sure you know where your vehicle documents are kept. They may be kept in the van or they may be held centrally. If the police stop you and request to see your documents then, if not provided there and then, they must all be provided together at one nominated police station. Unless the driver can get to the head office (or wherever the rest of the documents are kept) then the driver will need to keep his licence with him in case he is stopped.
- 2.3.10 As this chapter was going to press there was a new development in European legislation. It appears that the mere act of fitting a towbar to a vehicle means that it is "modified to carry goods" and if it exceeds the minimum weight (max. train weight of 3.5T) then it requires a tachograph. This could well cause problems for many of us, WRG hope to have some guidance notes on the subject soon.

## 2.4 Control of Drivers

- 2.4.1 The subject of control of drivers is dealt with in PRH "Health & Safety Section 2". The authors seriously recommend that you put in place some regime to control who can drive your vehicles(s). The WRG Driver Authorisation scheme is highly recommended.
- 2.4.2 Even the most experienced driver should be given instruction before being allowed to drive an unfamiliar vehicle. The driver should have wide experience before being allowed to drive a vehicle with passengers. Any person driving should be completely familiar with that particular vehicle before taking passengers, and less experienced drivers should be limited to driving without rear passengers for a while. (N.B. Less experienced refers to the size of the vehicle – an experienced car driver still needs to learn to drive a large vehicle and cope with the limited visibility of a van.)

## 2.5 Safety

- 2.5.1 Beware the effects of fatigue. Canal restoration is a tiring business anyway and that coupled with the fact that you know twenty volunteers are waiting for you to get back from the builders merchant with the cement so they can start mixing can easily lead to reckless driving. And we know where that will lead, don't we? Don't give into the pressure.

- 2.5.2 Duty drivers – it is WRG policy, when staying in remote locations, to nominate a duty driver for the evening to do all the driving, both for social trips and emergency trips. Because this is sorted out at the start of the evening you do not have the embarrassing "I can't drive back, I've been drinking", "So have I", "So have I" conversations at eleven o'clock. It also means the volunteer knows exactly who to wake up if they are taken ill in the middle of the night.
- 2.5.3 A side loading door (SLD) has many advantages for a panel van as they make access to the load bay easier and give a second route to whatever vital bit of kit you have buried in the middle of the van. The mechanisms on older models used to be unreliable but modern SLDs are usually OK so long as the sliders are kept clean. An SLD is mandatory if the vehicle is used for towing with more than eight passengers in the vehicle (it's a good idea anyway).
- 2.5.4 Emergency exits – if the vehicle is to be used to carry passengers other than in the front seats then the emergency exits need to be marked appropriately. This is not quite the safety overkill that it seems – in the authors experience at least 50% of first time volunteers are incapable of opening the rear doors of a Transit from the inside!
- 2.5.5 Don't use mobile phones or two-way radios while driving (without a proper hands-free kit) because you may well crash. Conversations using hands free equipment can distract your attention from the road. If you receive a call, say you are driving and keep the conversation brief. They must also be switched off whilst in fuel stations.
- 2.5.6 Fire extinguisher – this is obviously a sensible item to carry, but ensure it is correctly fitted and checked regularly.
- 2.5.7 First Aid kit – whether mandatory or not it makes sense to have a decent first aid kit on board. Avoid the "travelling/buy them at a garage" kits – they are of very little use. Get a proper one (HSE approved for 10-20 people), that way if you have a working party that travels with the van they are all covered (assuming the van doesn't leave site). And as with all first aid kits if you use anything out of one then tell the person responsible so they can replace it. That way next time it's required.....
- 2.5.8 If the van is to be used to carry any hazardous substances then check the Hazchem regulations. The most common item that falls under the regulations is bottled gas. Warnings may need to be displayed on the outside of the van.
- 2.5.9 WRG retains a breakdown recovery service so that no matter where the van breaks down the passengers and the vehicle can be recovered and fixed. You may not feel the need for such extravagance (after all your van never breaks down and never travels more than 10 miles from base, does it?)

## 2.6 Loading

- 2.6.1 Beware of unsecured equipment – lash it down properly. It is recommended that a suitable bulkhead is fitting to avoid the load shooting forward and injuring the driver/passengers. Before you set off try an emergency stop in the safety of the car park to see how the load stays put and how the brakes are affected.

- 2.6.2 It is well worth fitting a panel van out with proper racking and straps (Surrey and Hants Canal Societies van is a good example of cramming it all in).
- 2.6.3 Don't overload the vehicle and ensure the load is distributed evenly to maintain steering – stick 40 bags of cement on the very back end of a van and you will see how the front end is lifted off the ground making steering poor and unresponsive.
- 2.6.4 Don't bury the spare tyre or the jack and wheelbrace under the load or you will guarantee getting a puncture.
- 2.6.5 Don't drive around with loads sticking out of the back, unless properly lashed and marked (and suitably lit at night).
- 2.6.6 Pick up trucks – these can be very, very useful but if you are shifting a load of dusty or loose materials then please remember it is a legal requirement to sheet the load over.
- 2.6.7 Roof racks – these have the advantage of keeping the kit out of the body of the vehicle but they do drastically raise the vehicles centre of gravity (and reduce its stability and cornering) and also increase wind resistance and reduce its fuel economy.

## 2.7 Minibuses and Passengers

- 2.7.1 For many years the restoration movement travelled round in vans with everybody crammed in the back sitting on whatever they could find that was comfortable. As time progressed the vans were fitted out for a convenient mix of people moving and goods moving. This usually meant bench or box seating and, apart from the fact that whatever was urgently required was usually in the box seat that had three navvies and 8 bags of cement on it, worked very well.
- 2.7.2 However, a constant drive towards safety meant that legislation was threatened that would make such seating illegal. Only properly installed "crash tested" seats with seat belts would be legal. At the time of writing it seems that this has not fully happened (except for under 16s).
- 2.7.3 However, recent accidents and the uproar that followed mean that, in the authors opinion it would be very foolish to purchase a vehicle without seatbelts and proper forward facing seats.
- 2.7.4 Hopefully it is obvious that if they are fitted, passengers should always use the seat belts, even for short distances. If seat belts are fitted in the vehicle the driver should tell the passengers to put on their seat belts at the start of every journey. There should be one passenger only per seat. If any seats are removed to increase the load space they must be re-installed by a competent person.
- 2.7.5 If you have a 15 seat minibus it will require a Class 5 MOT – it is very difficult to find a garage that can cope with Class 5 but remember that most public bus companies have facilities and will take outside customers if not busy. The cost is only slightly more than a normal MOT.
- 2.7.6 With regard to actual driving there are only a few extra suggestions. Don't underestimate the noise and disruption a van full of navvies can produce (especially on the way home from a pub). If they are distracting you stop and tell them to sit down and shut up or they will be walking. You are in

charge. Any passengers reading this should think hard before starting that boisterous sing-song at midnight; there is one person in the van who has had to drink lemonade all night and is now having to navigate the dark country lanes in the rain. Be kind to them. Shut up. Or walk.

- 2.7.7 The biggest headache with driving people about is checking you are leaving with all the people you brought. Count them out and count them in again. If you are part of a several van convoy check with the other drivers to ensure you are not waiting for someone who went in the other bus some time ago.
- 2.7.8 And finally, just remember that they have been working hard and are tired and don't want to be flung about the back of a bus. Drive with due consideration for your passengers, they do not have a steering wheel to hang onto!

## 2.8 Security

- 2.8.1 Security is, unfortunately, an important issue these days. It is not so much the cost of replacing the vehicle (that is what insurance is for) but the sheer inconvenience. What are you going to do all weekend if someone nicks your van full of expensive tools and unique coping bricks? How are you going to get back to Sheffield from Oswestry at 8 o'clock on a Sunday night? Thus be careful about how and where you leave your van. Avoid shouting across the pub "Dave, I've hidden the keys to the van in the back wheel arch".
- 2.8.2 You may wish to consider tinted windows (though this may well attract attention and all of the vehicle's original windows must allow at least 75% of light to pass through them) or consider a "no power tools stored in van" sticker. Additional features such as immobilisers and steering wheel locks are a worthwhile investment.
- 2.8.3 Regarding keys there are several WRG traditions as to what to do with them, obviously they are not for discussion here and please, once you have discovered them, don't tell everyone you meet.
- 2.8.4 Never leave vehicle documents in the vehicle.

## 2.9 Driving Techniques

- 2.9.1 Before you drive off don't forget all the usual checks – oil, fuel, water, tyres, lights, etc.
- 2.9.2 Compared to your car it's wider, longer and the wheels are in different places so it will handle differently, you should get some practice in before going on the road.
- 2.9.3 Take all corners late/wide to avoid clipping the corner (and the pedestrians, their dogs, pushchairs, etc).
- 2.9.4 Get in the habit of pulling up to T-junctions "square" so that you can see both directions of traffic. This is good practice in a van with side windows and essential in a panel van.
- 2.9.5 Do adjust the mirrors and seat so they are relevant for you before you set off.

- 2.9.6 Unless your normal vehicle is a Morris Minor Traveller it is a fair bet that the van will have a lower power to weight ratio than you are used to. Even when unloaded it will take more time to pull out at junctions, when loading or towing it will takes ages to pull out into traffic and you will need to drive appropriately.
- 2.9.7 You will also notice an increase in stopping distances.
- 2.9.8 There is no shame in getting out and having a look before you hit the wall when manoeuvring.
- 2.9.9 Remember you are in charge even with 14 drunk navvies in the back of the vehicle.
- 2.9.10 Clean your muddy site boots and take off your muddy gloves before driving.
- 2.9.11 Remember that, unlike you, your passengers don't have a steering wheel to hang on to so slow down if they are starting to roll about.
- 2.9.12 Proper driving techniques (just like the ones you passed your driving test with – don't hold things on the clutch, use the handbrake etc.) will save valuable pennies and save on down time.
- 2.9.13 Regarding driving on site – the easiest way to avoid problems is DON'T but if you must then use 2nd gear and low revs with nobody hanging on the back.

## 2.10 **Parking**

- 2.10.1 Ensure that when parking you take the time to manoeuvre it so it is ready to leave easily (unless loading considerations or similar apply). This is especially important if the vehicle is the emergency vehicle (WRG policy is to always have a vehicle available on site ready to go to hospital or wherever in an emergency). Not having to turn the van round with a 64 point turn is a blessing when you are trying to go home and you are tired, weary and it's dark. It is a real essential when someone has just had an accident and needs to get to hospital fast.
- 2.10.2 When backing up to a wall consider access and egress from the rear doors and park a distance from the wall.

## 2.11 **Cleanliness**

- 2.11.1 The first thing to remember is that the van represents your organisation. With appropriate signwriting it can be good publicity (Contract Sign Services will make up some smart stickers for you). So keep the van looking clean and respectable and people will respect you. If you have just bought the van then consider a respray to your societies colours, it may only cost a few hundred pounds but may well make the van look like a million dollars.
- 2.11.2 You may wish to consider wipe-clean seat covers, these are available from Atlantechs Ltd at Weedon amongst others.
- 2.11.3 One final point is that if you are going to use the van for an evening social trip to the pub then it is far easier to clean it up just after you get back from site rather than when you have all eaten and

changed into your clean clothes. It is strongly recommended that you carry a brush in the van for just this sort of thing.

## 2.12 Green Van-keeping

2.12.1 These days no society can expect to be considered environmentally responsible if they drive around in an oil-burning old wreck. When purchasing a van you should consider such green issues.

2.12.2 Also consider disposal of waste oil, tyres, etc. Oil can be recycled or used to start fires on site, old tyres can be given to boat clubs as fenders. Beware, however, waste oil is carcinogenic and should be properly disposed of.

## 2.13 Paperwork matters

2.13.1 You should always give your drivers access to the information they need, it will save time and trouble, probably just when you need it most. In the glove box of each WRG van there is a red information folder – this has all the information drivers need regarding:

- MOT/TAX info
- vehicle dimensions
- max. number of passengers
- other restrictions on use
- insurance details
- maintenance notes
- general WRG info

If it's your first time in a particular vehicle then read the folder. Do not remove it from the vehicle.

2.13.2 A sample copy of the WRG version is available from the WRG Transport Manager. Adapt it to your needs and use it. An abridged copy is stuck to the visor of all the WRG vans for quick reference by the driver.

2.13.3 Take the time to carry out a complete audit of the van's condition every now and then as appropriate. During the Canal Camps season WRG Logistics ensures that a check is made at the start of every camp. This ensures that dents are checked and that any maintenance problems (i.e. burning oil) are flagged up in time and means we can trace who scratched what. The Logistics checklist is given in Appendix 1.

## 2.14 Hints and Tips

- Remember that speed limits are exactly that – "they are a limit not a target".
- Don't suddenly turn on the fan full blast or you'll most likely be covered in the dust that builds up everywhere in a site van but especially in the air vents. Turn it on gently to avoid a blinding shower.
- Vans are a great place for romantically inclined couples – when you jump in the van first thing in the morning remember to check who is in the back before you set off for site.

- It is often the case that lots of keys can lock a vehicle but only the right one opens it. The author can testify to locking the van up securely only to notice the correct set of keys still in the ignition of the now unopenable van. Keep spare copies of keys and know who has the spares.
- Number plates suitable for fitting to a trailer should be kept with the vehicle if it is suitable for towing. WRG policy involves storing them in the glove box when not in use.
- Crushed wings/wheel arches and battered corners of vehicles are often a result of people not using their wing mirrors. Mr Beattie suggested removing the rear view mirror to force people to use their wing mirrors. WRG did this and by golly it worked, most WRG drivers use their wing mirrors a lot more and dents were reduced.
- Brake pads are cheaper than gearboxes!
- From bitter experience most WRG drivers know that it is better to have as many wheels as possible (4 being a minimum!). Transits used to be twin rear wheel (giving six wheels in total) this gave more traction on site (but meant there was more chance of a puncture). Unfortunately most new vans now only come as four wheelers as the twin wheel arches were deemed to intrude into the load space too much. However, they are still available second-hand.
- No matter what various smart alics say do not leave the vehicle in gear when parking up unless you really need to as a brake. And when starting a van ensure it is in neutral before you turn it over..
- Remember your driving licence.
- Rubbish on the dash board – don't tolerate it. It will obscure your vision and is a driving hazard.
- Always ensure all the doors are shut before you drive off.
- On a lot of current vans the fuses work loose over a period of time, so if an electrical feature stops working check the fuses first and give them a bit of a waggle.
- Check heights, widths and lengths of the vehicle before you set off – it's a lot easier than holding up the traffic at the entrance to the railway station car park while you get out and measure the van. WRG vans have a notice inside the van giving such details (see Appendix 1).
- When travelling on convoys put the slowest vehicle first. It stops that driver having to flog his van to keep up.
- Keep publicity leaflets in the van – the author has been stopped on the Euston Road by a motorcycle courier who wanted to know what we were all about.
- Fuel gauges, speedometers, etc. all read different – check with the vehicle keeper as to what each actually means. Best to refuel as soon as the needle hits the red section.
- When driving large numbers of passengers around always count the number of passengers who get out of the van and ensure the same number get back in before setting off again. And if you take anyone else back who came in another van then tell the driver of that van so he doesn't have to spend ages looking for a bloke who is actually already back at the accommodation.
- Before you drive off check the rear of the van for tools, etc. leant against the vehicle and tea mugs stacked on the rear bumper. Also check the passenger side of the vehicle as driving off with a rake leaning against the side door will produce a really nasty scratch all along the body.
- This is a very obvious point but never drive off in the wrong van. It might not matter to you which van you go to the builders merchant in but it might matter to the site leader, cook, etc.

- Another common error is to drive off in one van with the keys to the other van still in your pocket – an easy way to become very unpopular.
- Check that the number plates match if you are towing.
- Let the leader know you have taken the van and when it will be back as it will save an awful lot of grief. It may be the leader has an important job for the van, which is why it has been cleaned out and left ready to go, not so you can nip to the newsagents in it.
- Vans (especially with trailers attached) are difficult to manoeuvre so to avoid having to reverse up the country lane for two miles it is best to look at maps before setting out.
- As mentioned before six wheelers have much better traction on site but one problem is that it is possible to get a single flat tyre and not realise it as the other one of the pair holds it up. Always check with a firm kick that all tyres are inflated. An allied problem is that half bricks and rocks get caught between the twin wheels. Once this has happened two outcomes are possible – either the brick stays there and writes both tyres off or the brick ejects itself at 30 mph and damages the windscreen of the guy behind you. Both cases are not good news so before you leave site check for objects between rear twin wheels.

## 3. TRAILERS

### 3.1 Introduction

3.1.1 Trailers in particular are excellent "learn by watching others make a mess" plant. Watch all the other people with interest. Weigh up what you see carefully:

- is it safe?
- is it peculiar to that unit?
- is it an accident trying to happen?
- can we learn from what we have seen?
- what if?

3.1.2 But, however much practice you get (and that is never enough!) the only time you get it right first time is when there is all the time in the world, all the space you could want and not a soul watching!

3.1.3 Every Minibus passenger seat must have unobstructed access to at least two doors, one of which must be on the near side of the vehicle and one of which must be either at the rear or on the offside of the vehicle for passenger use. There is a risk of blocking such exits by towing a trailer and minibus operators and drivers should be made aware of this fact.

### 3.2 Connecting Up

#### 3.2.1 Safety

- Keep your feet out from under the A-frame when connecting up – it is not unknown for legs, jockey wheels, etc. to slip and delay your trip with a jaunt to the local Casualty Department. Be very careful about releasing the trailer brakes before the whole unit is

coupled up – on a slope the trailer may pin you to the vehicle or disappear into the distance.

- If the trailer has a reversing catch to stop the trailer brakes engaging when reversing then check the catch is disengaged and any brakes are free to operate. Many modern trailers have an automatic hitch that negates the use for a manually engaged catch.
- Do not use bricks, sandstone blocks or similar as chocks or supports for jockey wheels – they have a habit of pulverising.

### 3.2.2 Procedure

- Ensure the parking brake of the towing vehicle is applied.
- Remove the wheel clamps and hitch cover (if applicable).
- Check the weight distribution (especially nose weight).
- Couple the main hitch (check the hitch height is set correctly). See also 3.4.2
- Connect the breakaway cable (ideally to a separate part of the vehicle).
- Wind the jockey wheel, rear legs, etc. fully up, raise them into the storage position and ensure they are safely locked off.
- Check the trailer load is secure and that tyres are in good condition and correctly inflated.
- Remove any chocks or wedges from the wheels.
- Release the trailer handbrake.
- Check the number plate corresponds to the towing vehicle.
- Check all lights function correctly.

### 3.2.3 Notes

- The weight of the laden trailer should be within that recommended by the towing vehicle manufacturer, as should the nose weight.
- Make sure that the trailer you are about to tow off is the one you're meant to be towing!
- It is important to match the height of the hitch to the trailer. If it is set incorrectly it will drastically affect the departure and attack angles you can manage – a serious problem on rough ground. (Departure and attack angles refer to the maximum angle between the trailer and its towing unit either entering or leaving a slope.) If you do adjust the hitch height then stop after 15 mins/5 miles or so and check all nuts/bolts/pins etc.
- It is far easier to check your height and width before you set off than to do so at the low bridge you encounter on the twisting country lane.
- It is WRG procedure for the spare (trailer) number plate to be kept with the vehicle to which it corresponds (usually in the glove box).
- Check the lamps on the trailer and the vehicle are of the same voltage – the type of plug and socket should tell you.
- The electrical cable should be clear of the ground, but please leave enough slack to enable the rig to go around corners.

- Be aware that the towball height of a vehicle changes depending upon internal load. You may need a decent block of wood under the jockey wheel/front leg to increase the parked height.
- Another point is always check the load before you go out – you'd be surprised how many people leave mugs, tools etc. on mudguards.

### 3.3 **Disconnecting**

#### 3.3.1 **Safety**

- Ensure the parking brake of the towing vehicle is applied.
- Keep your feet out from under the A-frame when disconnecting – it is not unknown for legs, jockey wheels, etc. to slip and delay your trip with a jaunt to the local Casualty Department.
- Be very careful to engage the trailer brake before disconnecting – on a slope the trailer may pin you to the vehicle or disappear into the distance.
- Do not use bricks, sandstone blocks or similar as chocks or supports for jockey wheels – they have a habit of pulverising.
- Always ensure that you are not blocking access especially for emergency vehicles.

#### 3.3.2 **Procedure**

Employ the reverse of **CONNECTING UP**, however, please note the following additional points:

When dropping the leg/jockey wheel make sure that it has a couple of inches of thread used – the collecting vehicle may have a lower hitch than yours and leaving some thread available means that they can wind the trailer down further.

#### **Notes**

- If you need to manoeuvre a four wheel trailer then it is easier to do so if you wind down the jockey wheel so that the trailer rests on the rear pair of wheels and the jockey wheel, however, **BEWARE** the sloping effects on the trailer load and never overload the jockey wheel – it is not designed for speed.
- Make sure that when parked there is sufficient space to load or unload safely and you stand a reasonable chance of coupling up later. The reverse of this technique can be used to your advantage if you are trying to stop someone from making off with the contents.

### 3.4 **Hitches**

#### 3.4.1 **Safety**

- Always ensure the hitch height is set correctly for both the vehicle and the trailer.
- Always ensure that the weight rating of the hitch (usually stamped on the hitch) is not exceeded by the combined weight of the trailer and the load. **OR**
- Always ensure that the weight rating of the trailer (usually stamped on a plate) is not exceeded by the weight of the load.

- Never attempt to mix pins and balls or couple a trailer to a vehicle with lengths of rope or chain.
- Ball hitches – never mix differently sized hitches and balls and always ensure that all moving parts of a hitch do actually move and return to their correct position when released.
- Pin hitches – also come in several sizes and should be free enough to articulate in all directions. Always ensure that locking clips/pins, etc. are put back with the relevant unit when disconnected. The connection is however a lot freer than a ball hitch and so they place much greater strain on the hitch mounting and chassis components. This is especially the case on site where the "bouncy, bouncy" effect is considerable.

#### 3.4.2 Procedure

See section "connecting" and "disconnecting".

#### 3.4.3 Notes

- A light trailer is defined as being less than 3500kg maximum laden weight. The maximum laden weight of an unbraked trailer is 750kg or 50% of the kerbside weight of the towing vehicle whichever is the lesser. A braking trailer more than 1500kg laden weight must have a device (known as a breakaway cable) to stop the trailer in the event of separation of the main couplings and a trailer below 1500kg must have a secondary coupling or may have a breakaway cable if it is a braking trailer.
- Check the ball size, a 2" ball and a 50mm ball appear to be compatible but are NOT and there is a serious risk of the two parting company at inconvenient moments, like going round a roundabout or down a hill. Usually the 50mm ball is flat topped with "50mm" stamped on it and 2" units are round topped. American units are usually 2".
- Regarding towing hitches fitted to vehicles it is best to fit a standard ball hitch. There are combination hitches (i.e. ball and pin) which mean you can shift stuff around site and on the road, however, as mentioned above, beware the effects of "bouncy, bouncy" on the vehicle chassis.

### 3.5 Loading

#### 3.5.1 Safety

- Always ensure that the trailer is adequate to take the load. Consider not only weight and speed limits but also any projection over the edge of the trailer and the ground you will be moving over.
- Always ensure the trailer is adequately braked to stop it moving while loading.
- Ensure any loading legs are lowered and locked.
- Remove all loose winch handles when not actually using them.
- Check clearances between the trailer load and the vehicle when cornering.
- Note for participants in WRG Drive Authorisation scheme: if moving plant you will need Driver authorisation for that piece of machinery as well as vehicles and trailers.

### 3.5.2 Procedure

The load centre of gravity should be along the centre line of the trailer and just forward of the centre line of the wheels, so that there is a downward force on the vehicle towbar – known as the nose weight.

### 3.5.3 Notes

- The towing vehicle handbook should state the preferred value of nose weight, however, a good rule of thumb is 25-50kg i.e. does lifting the hitch feel like picking up a bag of cement.
- The centre of gravity should be as low as possible.
- Be very careful when loading heavy equipment onto a trailer. The downward force on the loading ramps can pivot the trailer front into the air, which lifts the back of the towing vehicle which is where most handbrakes work. Interesting if you try and be clever and park on a slope so that gravity can help you unload. Solve the problem with a baulk of timber under the back chassis member of the trailer. Of course if your trailer has rear legs and you remembered to put them down you can laugh till you collapse (Remember to raise them before driving off though).
- Nothing stops you winching the trailer under the load rather than the load onto the trailer.
- If using H-bars or ladder racks to carry a long load don't forget that the angle between the trailer and tractor will change as you go into and over hills. If possible put the projecting load on the offside of the unit as there is slightly less chance of catching passing trees, road signs, etc. Also watch low bridges all the way through as your height can change with the angles of road surface.

## 3.6 Roping Down

### 3.6.1 Safety

- Frayed or damaged ropes should not be used.
- Ensure that ropes do not pass over sharp edges – use suitable packing such as wood or carpet squares.
- All ropes should be tight so that the load cannot even rock, it's the inertia of a moving load against a static rope that breaks the rope.
- When using chains only proper systems should be used, do not knot chains to tie off a load. Ensure there are no loose ends of rope that will get caught round wheels, etc. either going forwards or backwards.

### 3.6.2 Procedure

- The idea that each section of rope is tied at both ends so that any breakages only release that section and not the whole rope.
- See the end of these notes for simple drawings of the simple "marlin hitch" and the complex "waggoners hitch". This is the traditional hitch used by lorry drivers for sheeting down loads and with practice is very effective and a great way to impress others. It comes undone easily when released and adapts to the load as required (aka carters knot).

### 3.6.3 Notes

- A newer system is the ratchet strap, again keep it tight and protect the straps going over corners. Beware worn ratchets that slip with the load coming loose.

## 3.7 Towing

### 3.7.1 Forward

- Going forward is really simple – if the weight distribution, tyre pressures and hitch height are right then the trailer should follow you exactly and all you have to do is leave a bit more clearance round bends. Remember to brake sooner rather than at the last minute and watch your clearance (including height).
- The most important point to facilitate this is remember to use the mirrors – a lot. Make sure that your mirrors are correctly adjusted.
- Remember you are longer than normal when pulling out and in.
- With roundabouts, there is something to be said for staying near the outside edge, on the grounds that you can't see the offside of a long trailer.
- Be on the lookout for cyclists who creep past the trailer and then sit in the space between the towing vehicle and trailer.
- The key to easy towing is to maintain momentum wherever possible. Ease off the power and approach traffic lights slowly so that you don't actually stop before the lights turn green.
- Try not to park facing uphill – fine for showing off your hill start skills but unnecessary work for the vehicle.
- If the vehicle starts snaking the usual cause is bad weight distribution, normally not enough nose weight, but it can be left/right balance or incorrect tyre pressures. An easy answer to this may be nothing more than moving the spare wheel from back to front – whatever you do slow down until you have solved the problem. But remember don't brake sharply in order to slow down, just ease off the power till the trailer comes back under your control.
- On a narrow winding hilly road once back on the level or going down hill give some thought to letting any traffic that has built up behind you go past.
- Remember that your height may well be above the bottom of many projecting road signs, give them a wide berth.
- Punctures on most roads are dealt with as normal but it is recommended that the units are left coupled up. On a motorway with an offside puncture give serious thought to calling out a breakdown service. John Palmer suggests that if on an unknown route with a reasonable weight trailer and with little motorway work, an average speed of 20 mph is not far from the truth. Mick Beattie would say this is a little pessimistic but agrees that towing can drastically increase journey times.
- Think before parking, if the area fills up can you still get out? When you return to a parked unit have a good look at the connections to ensure they have not been tampered with.

- Use all your mirrors to keep an eye out for the load wandering. If you notice vehicles staying well back it may be a trailer fault, stop and check as soon as possible.
- When manoeuvring in tight spots then feel free to get out and have a look at what you're doing or, better still, have someone with you – preferably someone you have faith in and who uses the same signals as you.
- Turning through access gates or narrow entrances – you should be as close as possible to the other side of the road. Turn sharply so that the front corner of the vehicle just misses the gate post at the far end of your approach side, make no allowance for any extra width of the trailer, but keep turning so that you straighten up in the centre of the gateway. There is no shame in practising this with cones, etc. in a car park and indeed WRG trailer instructors insist on this when instructing new trailer drivers.
- Don't assume that if you got through once you will always get through. Site hazards and conditions may well have changed while you were out shopping!
- On the road you will rarely have problems but, if on site, make sure you can get out before merrily charging into the mud. A half mile reverse along a narrow towpath is good practice but not recommended with a working party being held up.

### 3.7.2 Reversing

- Start off by operating the reversing catch! This is not the joke it seems, it is the most common mistake when reversing and failure to do so leads to stuck brakes, burnt out clutches skids and dangerous uncontrolled manoeuvres. Many modern trailers have automatic hitches that do not engage the trailer brakes if the force is applied gently (such as when the vehicle slowly pushes the trailer backwards) but does engage the brakes when the force is applied quickly (such as when the vehicle brakes suddenly). With these hitches there is no manual catch to engage.
- Make sure that your mirrors are well adjusted and take it very easy. If possible have someone outside watching you, to avoid collisions with objects and especially the public who often seem oblivious to manoeuvring trailers. Trailer reversing is best summed up by the joke "If I was going over there then I wouldn't have started from here". Initial positioning of the trailer and vehicle is essential to achieve a really smooth, impressive "I could be in WRG Logistics you know" manoeuvre.
- To reverse in a straight line watch the mirrors and whichever way the trailer starts heading off in, move the top of the wheel gently that way. If it goes too far off square pull forward again until the whole lot is in line again.
- When preparing to reverse round something, just before you stop going forward turn so that the vehicle and trailer are slightly kinked in the direction you want to go. Then repeat the procedure of watching in the mirrors and turning the wheel towards the mirror with "too much trailer" in.
- Beware the act of jack-knifing the trailer – and never push the trailer round using the vehicle while jack-knifed. It can do serious damage and there is no point in turning the vehicle round in double quick time only to have to spend an hour rebuilding the electrics socket before you can set off. Remember to keep an eye on your front end when reversing as well as crumpled front wings are a common accident.

- Of course if you are lucky enough to have a front bumper hitch and a small trailer that you can see over the top of then life is much simpler and safer.
- Other tricks with small trailers are to place a road cone on top and use the internal mirror, if fitted. An alternative is to try laying a suitable length of wood across the load so that your mirrors have something to see. Don't forget to remove these items when you go out on the open road.
- Now release the reversing catch (if appropriate).

### 3.8 **Electrics**

- 3.8.1 The lights at the back end of the unit should follow (i.e. match) the lights at the back end of the towing vehicle. The only exception to this is the vehicle rear fog lights which may be extinguished leaving the trailer only on to avoid glare when reversing, etc. This is usually done with a switch on the socket. If fitting the sockets try not to put them at the same height as the hitch, because the first time you manoeuvre into a decent angle you will demolish the plug and socket. Not so bad on a new installation when everything still comes apart easily but if subject to several months road grot! It really is worth fitting the sockets out of harms way and putting a slightly longer plug cable on.
- 3.8.2 There are three wiring standards generally referred to for connecting vehicle and trailer electrics. And life is difficult in that neither plug or socket is a true plug or socket both having a combination of male and female components. However, the normal convention is that the connector with the majority of male components is the plug and the connector with the majority of female components is the socket.
- 3.8.3 The system is further sub-divided into 12N (normal) and 12S (supplementary). The 12N should have a black spring-loaded cover and the 12S a white spring loaded cover.
- 3.8.4 The older standard using the 12N plug was in the days before rear fog lights and used one pin for caravan interior lights. When rear fog lights became standard the industry did something very sensible, for a change, and said that the new standard will use this pin as rear fog lights following this with the third standard the 12S for interior lights, fridges and other caravan type things.
- 3.8.5 Of course you can use any type of connection you like – even a chocolate block but all WRG trailers use the 12N standard as recommended by all statutory bodies, which is:

<b>12N pin</b>	<b>Cable Colour</b>	<b>Service</b>
1 (L)	Yellow	Left indicator
2 (54G)	Blue	Rear Fog
3 (31)	White	Earth
4 (R)	Green	Right indicator
5 (58R)	Brown	Right tail lights
6 (54)	Red	Brake
7 (58L)	Black	Left tail lights

- 3.8.6 Note that the white cable should be thicker than the others since it is the 'earth' and takes all the electrical load. Don't economise with bodgy bits of cable, the proper 7-core cable is available from good auto electrical shops (such as Lucas) and is not expensive so there is no excuse for not using it.
- 3.8.7 When checking the lights remember that indicator and brake lights normally only work with the services on. Test all the lights individually and then all together to check the connections can support the maximum electrical load.
- 3.8.8 In the event of a fault that gives the wrong light or the others flashing start by checking the earth both on the trailer and the vehicle.
- 3.8.9 There should be either a warning light on the dashboard or an audible buzzer to show that the trailer indicator lamps are functioning correctly, fine provided that the buzzer is not obliterated by the load or a very loud radio.
- 3.8.10 An easy way to provide some protection for the plug end of the cable is to find a short length of plastic pipe (to suit the trailer colour scheme – yellow gas or blue water) and slip about 1ft (300mm) of it onto the cable. Make sure this is on the loop that can hit the road and it will take a surprising amount of road wear and saves the cable from needing replacement so regularly.
- 3.8.11 When making up a new trailer cable, once you have cut your cable to length examine both ends. One will have the cores in the same order as the pins of the plug, the other will be in reverse order. It's much easier to use the first end than to have to twist each core across all the others to get to the right pin.

### 3.9 Tyres

- 3.9.1 Tyres are a traditional area for economy with trailer designers. This is not good news as it means they are often so small as to ruin your ground clearance across site and they are also more susceptible to damage and are not suited to fast/long haul journeys. Do not economise on tyres, they should be as good as the towing vehicles and damage to tyres and wheels should be considered just as disastrous as damage to the towing vehicle. Tyre pressures should be marked on the trailer and adhered to.

### 3.10 Security

- 3.10.1 Always be wary of people trying to steal your trailer. If you leave the trailer unattended at any time then fit all the security devices (usually the wheelclamp and hitch lock) but remember to remove them before you set off. This applies whether the towing vehicle is attached or not. A common place for trailers to go missing is motorway service stations when the driver stops just to go to the toilet. Remember that the trailer represents a sizeable effort from WRG Logistics (or whoever) in itself and the contents will take months and many thousands of pounds to replace.
- 3.10.2 The practice of leaving the trailers wedged somewhere that is very difficult to get them out from is fine but please remember someone else has to get the thing out.

### 3.11 **Law**

3.11.1 This is a minefield and is not only constantly changing but also a source of rumour, hearsay, and misinformation. A good start is a reputable trailer dealer or a real auto electrical shop for the latest interpretations of the regulations.

3.11.2 However, some definite facts are:

- On a motorway with three or more lanes you are not allowed in the lane closest to the central reservation
- When parked at night you must not only park on the nearside, unless on a one way street, but you should have your lights on
- All three number plates should show the same sequence of digits, and be in the same style (but may be a different shape)
- Unless the towing vehicle has a side door for the rear passengers the maximum number of people allowed is eight when towing
- Any projections at the back must be marked and if over 3' 6" (1.06m) must carry the correct triangle and be lit at night

3.11.3 The position of lights is a minefield: John Palmer's answer is to put lots of them everywhere which, so far, has kept the authorities away. However, it also blows the fuses in the van so the correct answer is to go and see your local Auto dealer (such as Lucas Autoelectrics) who will, at the very least, have a wallchart to explain the latest version of the regulations. Ask him nicely and he may give you a free copy.

3.11.4 Further information is available from Indespension (a very reputable trailer manufacturer/distributor). They do an excellent trailer manual full of such information for £2.

## APPENDIX 1 – VAN INFO SHEET/LOGISTICS CHECK LIST

<b>VEHICLE REGISTRATION:</b>	R10 RFB	<u>Only drive if:</u>
<b>LENGTH:</b>	5.55m (18'3")	1. Completely sober and not under the influence of drugs or medicine
<b>WIDTH (exc. mirrors):</b>	1.98m (6'6")	2. You are not too tired or sleepy
<b>HEIGHT:</b>	2.44m (8'0")	3. Authorised by site leader
<b>MAX. NO. OF PASSENGERS:</b>	5 (exc. driver)	4. Carrying valid WRG authorisation card
<u>In the Event of an Accident</u>		
<b>USE DERV DIESEL FUEL ONLY. FILLER CAP BY FRONT PASSENGER DOOR</b>		<ol style="list-style-type: none"> <li>1. Give your and the vehicle owners name and address and the registration number of the vehicle</li> <li>2. Produce driving licence to police</li> <li>2. Inform them that vehicle documents are held centrally and will be presented at <b>Rickmansworth Police Station</b></li> <li>3. Inform WRG Head Office as soon as possible</li> <li>4. If vehicle can be safely driven you may continue to your destination but then your authorisation to drive WRG vehicles on the highway is suspended until further notice.</li> </ol>

Vehicle owned by:	Waterway Recovery Group Ltd., 3 Norfolk Court, Rickmansworth, WD3 1LT 01923 711114
Vehicle insured by:	Cornhill Insurance Plc

**Waterway Recovery Group Logistics Van Checklist**

Camp No:
Location:

Van present from:	To:
Mileage at start:	Finish:
Maintenance	Oil added:
	Water added:

Van condition:	
Tyres tread/side wall	Front nearside:
	Front offside
	Rear Nearside:
	Rear offside:
	Spare:

Van condition:	Interior
	Exterior
Faulty lights:	
Damage to Van:	

Camp leaders signature:
-------------------------

List all drivers of the van on the reverse of this form and return to WRG Logistics

**APPENDIX 2 – ITEMS SPECIFIC TO WRG VEHICLES**

As mentioned already, if in doubt about roadworthiness, do not drive a van or tow a trailer. That is what we pay a huge amount of money to a breakdown recovery agency. Remember to state if you have lots of passengers and/or a trailer when you ring them up.

WRG, not unnaturally, participates in the WRG Driver Authorisation scheme. This means you must either be an authorised operator for the vehicle (and trailer if appropriate) or under the supervision of a WRG authorised instructor. Full details of the WRG Driver Authorisation scheme are given in PRH "Health & Safety Section 2".

Any damage to a vehicle must be reported to the WRG transport manager or WRG head office as soon as possible.

There are spare sets of keys held by various people around the country – contact the WRG transport manager or WRG head office for details. The master keys are held at WRG head office.

## **APPENDIX 3 – HOW WRG ENDED UP WITH THEIR CURRENT VEHICLES**

In 1996/7 WRG replaced its van fleet. The following discussion does not attempt to suggest that one model or manufacturer is superior to any other but just to show the thoughts and considerations that went into such a sizeable investment.

We needed to replace our old vans as they were getting a little unreliable and new regulations/political pressures meant we needed to consider passenger seating and seatbelts. We needed a decent van that is easy to drive for everyone, can survive basic site conditions, can be fixed easily, has enough power for towing, won't depreciate too quickly, is economical and won't have the volunteers immediately condemning it as "a shed on wheels".

We test drove the models available and came up with:

DAF was old, under-powered, thirsty and struggling but it did have twin rear wheels and maintenance costs were low.

Fiat/Peugot is good, drives well but is low slung, therefore bad ground clearance and departure angle. It is also a little "European" under the bonnet.

Citroen/Renault looked really awful, was rumoured to be under-powered and was widely regarded not a serious option.

Mercedes Sprinter was brand new at the time so it was an unknown quantity. It was well designed apart from a few annoying points. We did know though that the turbo version was far too powerful. Normal version was very nice but expensive.

Ford Transits are well known by everyone and have reasonable reputation as the industry standard. Lots of Ford dealers around the country.

So we settled on Transits.

We also considered the possible sources: new purchase, ex-demo, used, lease and possible engines. Diesel was immediately chosen. We were in no hurry so we decided to wait for a bargain from whatever source.

We wanted to be able to transport people and materials/kit. The passengers must have seat belts. We decided to try a panel van and minibus for each Canal Camps circuit. Decision as to whether to convert a panel van to a minibus ourselves, get one converted by a third party or to buy a minibus straight away. We don't want the full minibus trim as it will only get dirty. Decide to get panel vans converted professionally – then by fluke we find two already converted to a basic level of trim. Buy those and a panel van.

We found a panel van (with only three seats) was a little limiting – decide to get fourth van made up as a utility vehicle (six seats and a bulkhead halfway down the vehicle to carry loads as well). It seems to be good solution.

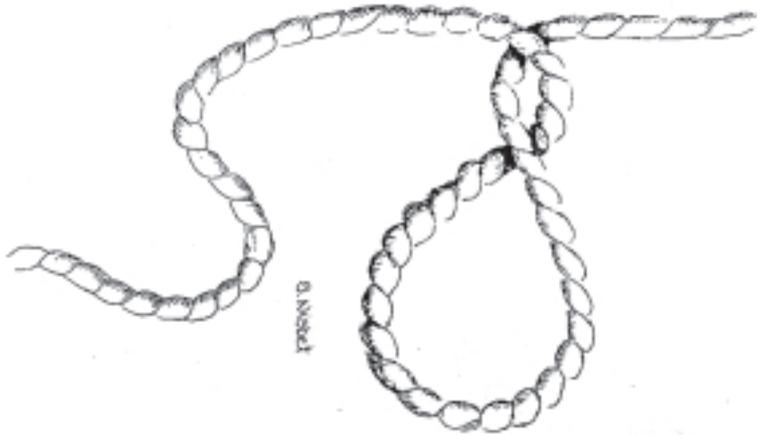
That was a few years ago. If you want to know how it turned out stop any WRG van and ask the driver!

# APPENDIX 4 – KNOTS AND HITCHES

Drawings by Sandra Nisbet

## CARTER'S KNOT

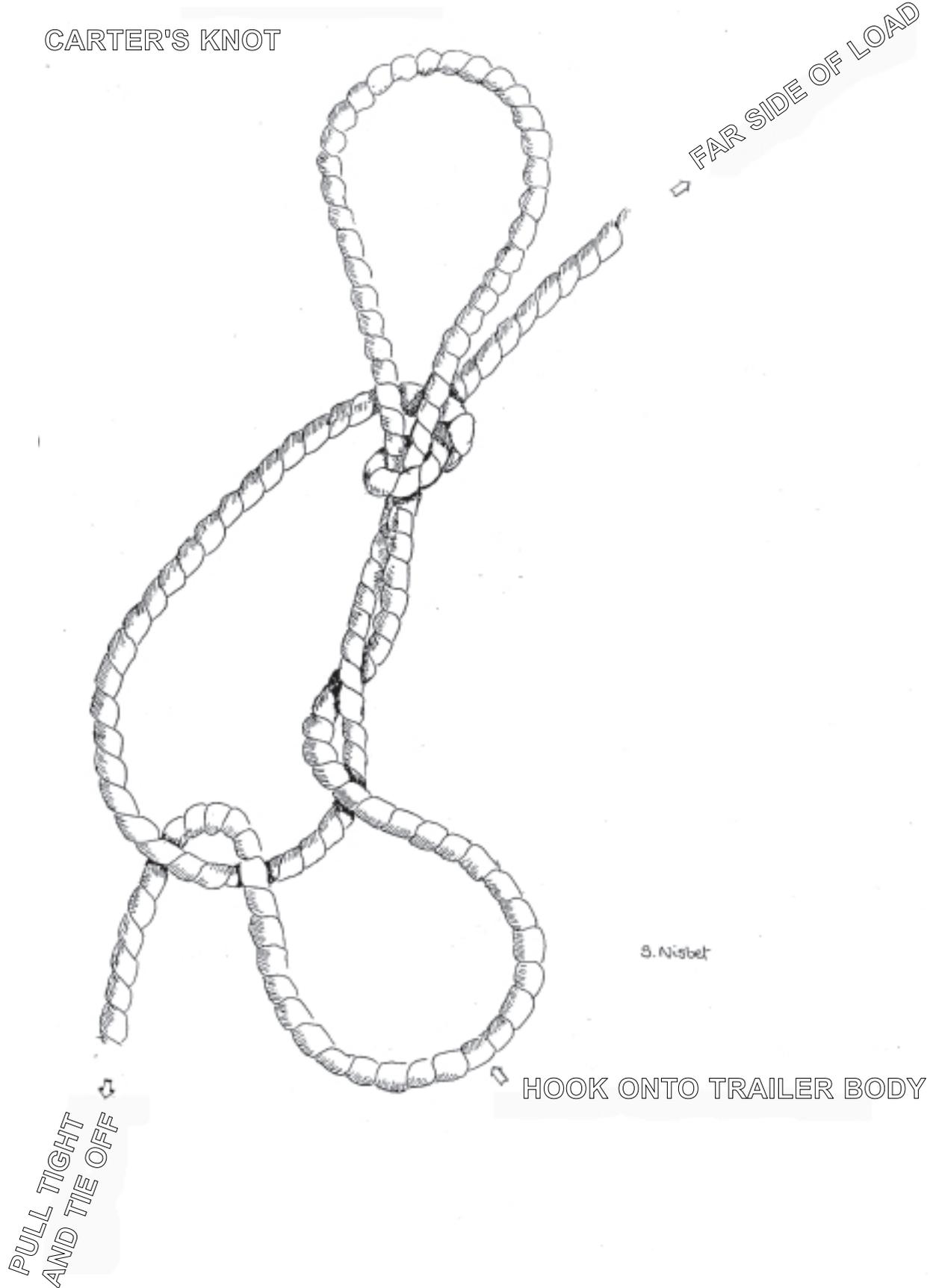
STAGE 1



STAGE 2



# CARTER'S KNOT



## **APPENDIX 5 – ADDRESSES**

### **Royal Society for the Prevention of Accidents**

RoSPA House  
Edgbaston Park  
353 Bristol Road  
Birmingham  
B5 7ST  
0121 248 2000  
[www.rospace.co.uk](http://www.rospace.co.uk)

Neil Ritchie

### **Contract Sign Services**

The Chapel House  
Sandford Road  
Churchdown  
Gloucester  
GL3 2HD  
01452 854057

### **Atlantechs Ltd**

Seat Covers  
Royal Ordnance Depot  
Weedon  
Northants  
NN7 4PS  
01327 342484

### **Indespension Trailers**

Ring 0121 561 5467 for your nearest branch