



WATERWAY RECOVERY GROUP

INSTRUCTOR GUIDANCE NOTES

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WRG DRIVER AUTHORISATION SCHEME INSTRUCTOR GUIDANCE NOTES



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Introduction

Given the huge variety of sites, projects and equipment together with the wide range of skills and experience that exist across the movement it is not appropriate for WRG to insist on a strict instruction regime. However it is clear that minimum standards should exist and for this reason the WRG Board strongly recommend that all instructors follow these guidance notes when instructing people. Driver authorisation will only be issued on receipt of a completed assessment form, showing that all areas of instruction have been covered and an evaluation undertaken. It may seem that some of the guidance notes cover possibilities that may never occur on your site - however the volunteer may encounter them elsewhere and so they should be instructed on them.

Role of Instructor:

The safety of an operator depends significantly on the contribution of the instructor and therefore the role should not be undertaken lightly. As an instructor you are not liable for any accidents that might occur at a later stage unless you deliberately misinform someone. The instruction process is given overleaf. Whilst instructing a volunteer you should maintain constant supervision, following the Guidance Notes and adding to them based on your experience. Never rush the job and in particular ensure that there is plenty of time for both the theory and practical.

No matter what the category you must impart five golden rules.

Five golden rules:

- If unhappy about any activity then don't do it. If they are unsure about the kit or the job or their abilities then they should seek further guidance. A volunteer will not be forced to work outside what they feel are their limits of either capability or speed.
- Always ensure that they are fully briefed about the job, particularly with regard to hazards – consult the project plan or discuss it fully with the Site Leader.
- Make time to familiarise yourself with the controls of the specific model of plant you're using in a safe environment before starting work.
- As volunteers it is possible they may drift out of practice. If so then they should arrange a refresher (either informally with an instructor or formally via a WRG Training Weekend).
- Always use the right tool for the right job – it may not always be a piece of plant.

(As an instructor if you feel you have “drifted out of practice” then WRG recommend you attend one of its training weekends where you can watch and join in with other instructors as a refresher.)

These Notes:

These notes cover the basic principles that should ensure safe working. Clearly they do not cover every possible permutation of working. They are general points that you should work from, elaborating as appropriate. It is not an exhaustive list and you may well add other items specific to your site.

Many of the notes refer to chapters in the Practical Restoration Handbook. This is an essential onsite reference book and will make your instruction sessions much easier. Individual chapters are available; if you do not have a copy they are available from the WRG website or from IWA Head Office.

When instructing you should always consider safe operation of the plant to be the primary goal - experience can be picked up later but safety must be there from the start. However if you don't consider your volunteer has had enough practice to be safe then say so and they can always have another instruction session.

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Process:

Can you answer yes to all the following questions?

- ✓ Does the site leader wish me to instruct them?
 - ✓ Do they satisfy the minimum requirements?¹
 - ✓ Are they suitable?
 - ✓ Do they have a good understanding of health and safety on a restoration site?
 - ✓ Is the owner/keeper of the vehicle content for me to instruct them with it on this occasion?
 - ✓ If the item is “on road” has head office performed a license check and are they old enough?
 - ✓ Am I aware of any specific differences this model of plant may have from other similar versions?
 - ✓ Can the instruction be carried out safely without risk to others?
 - ✓ Do I have adequate resources?²
- **Carry out instruction and assessment**
- **Fill out assessment form honestly**

Are they of an adequate standard to safely operate plant without direct supervision?

- ✓ **Yes:** Sign assessment form and give to volunteer. Volunteer should enclose assessment form with their DA application form. If you do not have a spare copy of the assessment form to hand over, make arrangements with the volunteer to send one to them.
- ❖ **No:** Don't sign form, but indicate areas in which further training is required and give it to the volunteer. This will give the next instructor an idea of what areas need to be reinforced in any further sessions.

Will volunteer be operating equipment within the next 3 weeks?

- ✓ **Yes:** You may issue a temporary ticket, but it must be dated and can only run for 21 days
- ❖ **No:** no need for temporary ticket

Instruction/Induction?

Please note, for historical reasons we use the term “instruction”. However seeing as there are no formal tests and we are using the DA scheme to show volunteers the rules within which we operate and the standards of safety we expect from them the term “induction” is actually more appropriate.

Some people many have many years' experience in a particular piece of plant in another context, but they are still required to demonstrate that they can operate within the standards of safety WRG expects on volunteer run sites.

Feedback:

WRG encourages a positive attitude to improving Health and Safety standards. If there is any point in these notes that you are unhappy with (inaccuracies, omissions, errors, etc.) then please contact da@wrg.org.uk or write to Head Office.

¹ There are a mix of legal restrictions, conditions imposed by our insurers and conditions imposed by WRG which must be met. The current 'rules' are given in the leaflet *Driver Authorisation 2004*. Note that if a volunteer does not meet all these conditions it may still be possible to train them but you must first obtain permission from the WRG Board – it is recommended that contact is made via IWA Head Office.

² Suitable site, equipment, materials and particularly time.

Vehicles

The volunteer should be fully conversant with the chapter "Vehicles and Trailers" in the Practical Restoration Handbook and the "Driver Supplement". In particular note the legal requirements – the volunteer must have the correct categories on their driving licence.

Golden rules

- Do not drive if you are unhappy with any aspect of the vehicle or the job.
- If in doubt then don't – we pay for breakdown cover!
- Driver is legally responsible for ensuring the vehicle is safe and roadworthy.
- Lots of different vehicles – check you know all about the one you are going to drive.

Planning

- There is an information folder in each vehicle - use it.
- Dimensions – best to check before you set off than when you reach the low bridge !
- Weights – both tare and load.
- Try not to take the vans off road – they are not really designed for it.
- Maintenance is essential – follow whatever regime is in place.
- Diesel versus petrol versus electric – not much of an argument but...
- Hire or reward, Tachos and Drivers Hours – refer to the Drivers supplement.

Driving

- Check tyres (inc. spare) and lights. Adjust mirrors.
- Limited visibility in some vans – correct positioning at junctions is important.
- It will not handle like your car – don't expect it to.
- Check all four corners when manoeuvring.
- Don't drive in muddy boots.
- Never use red diesel.
- Always park as though you are ready to go back out, in an emergency you will be grateful.
- Loading – always ensure it is secure and well balanced. Don't bury the spare wheel !

Misc

- All WRG vehicle documents are kept at Head Office – but you must carry your licence with you.
- Security is essential – always keep it locked but ensure everyone knows where the keys are. Don't go off with the keys!.
- Accidents - for WRG all accidents must be reported to Head Office and the Transport Manager.
- Emergency exits (in fact all doors) – do not block them.
- Spare keys for WRG vehicles are kept at Head Office and with the wrgNW, Plant officer and Chairman.
- Always fill in the Logistics paperwork fully.
- First Aid kit –don't remove it, let someone know if you use any of it.
- Return the vehicle to its keeper with a full tank of fuel and in a tidy condition.
- Roof racks – beware effect on centre of gravity and the dangers of working at height when accessing them.
- It is much easier to clean the van as soon as you have got back from site than to wait until you have got into your smart clothes.
- Mobile phones – do not use while driving!
- Be especially considerate regarding your passengers, but it is you that is in charge.
- Inform all passengers they should use their seat belts.
- Passengers – count them out and back in again.

Extra for Minibuses (more than 8 passenger seats + driver)

- To drive minibuses with over 8 passenger seats+ driver you must have D1 on your driving licence. **NO ONE MAY INSTRUCT ON MINIBUSES ANY VOLUNTEER WHO DOES NOT HAVE D1.** Consult Head Office for further details.

EVALUATION

Tick	Did they:	Comments
	complete all pre-use checks?	
	show knowledge of legal aspects, speed limits etc?	
	carry out any special instructions given to them?	
	drive appropriately through traffic?	
	complete reversing around a corner and emergency stop maneuvers satisfactorily?	
	demonstrate safe observation?	
	show suitable consideration for passengers when cornering etc?	
	demonstrate awareness of width, height and length?	
	park vehicle in a safe and sensible place?	
	Demonstrate understanding of process to follow in case of an accident or breakdown?	
	Suggested tests:	
	Manoeuvre around cones in a car park – forwards and reverse	

Volunteer:

Overall evaluation:

Instructor:

Signed:

Date:

Category number	Description
1a	Car/MPV
1b	Vans up to 3.5t
1c	Trucks up to 7.5t
1d	Rigid HGV
1e	Articulated HGV
2a	Minibus up to 8 passenger seats + driver
2b	Minibus up to 16 passenger seats + driver

Note on categories 1 and 2

The current wrg camp vans are category 2a. Unless there are exceptional circumstances, if the person is considered satisfactory for 2a and has class d1 on their driving licence you would normally give category 2b. In addition anyone given category 2a or 2b would normally additionally be given category 1b (panel vans)

Land-Rovers & Equivalents

The volunteer should be conversant with the chapter "Vehicles and Trailers" in the Practical Restoration Handbook. Note that "Power winches" is a separate category.

Golden rules

- Do not drive if you are unhappy with any aspect of the vehicle or the job.
- If in doubt then don't – we pay for breakdown cover!
- Driver is legally responsible for ensuring the vehicle is safe and roadworthy.
- Lots of different vehicles – check you know all about the one you are going to drive.

Planning

- Two wheel versus four wheel drive
- Dimensions – best to check before you set off than when you reach the low bridge !
- Weights – both tare and load.
- Tyres – good for mud or road, "all terrain" types are a compromise but some are better than others
- Maintenance is essential – follow whatever regime is in place.

Driving

- Check tyres (inc. spare) and lights. Adjust mirrors.
- Discuss off-road driving techniques.
- Don't wrap thumbs round the steering wheel.
- Limited visibility is some vehicles – correct positioning at junctions is important.
- It will not handle like your car – don't expect it to.
- Check all four corners when manoeuvring.
- Don't drive in muddy boots.
- Never use red diesel.
- Always park as though you are ready to go back out, in an emergency you will be grateful.
- Loading – always ensure it is secure and well balanced. Don't bury the spare wheel!
- If you're unsure about the ground conditions/obstacles, get out and have a look

Misc

- All WRG vehicle documents are kept at Head Office – but you must carry your licence with you.
- Security is essential – always keep it locked but ensure everyone knows where the keys are. Don't go off with the keys!
- Accidents - for WRG all accidents must be reported to Head Office and the Transport Manager.
- Spare keys for WRG vehicles are kept at Head Office and with wrgNW, plant officer and Chairman.
- First Aid kit –don't remove it, let someone know if you use any of it
- Return the vehicle to its keeper with a full tank of fuel and in a tidy condition.
- Roof racks – beware effect on centre of gravity and the dangers of working at height when accessing them.
- Be especially considerate regarding your passengers, but it is you that is in charge.
- Inform all passengers they should use their seat belts.
- Passengers – count them out and back in again.

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EVALUATION

Tick	Did they:	Comments
	complete all pre-use checks?	
	carry out special instructions given to them?	
	drive appropriately through traffic?	
	carry out reversing around a corner and emergency stop maneuvers appropriately?	
	demonstrate safe observation at all times?	
	demonstrate correct selection of gears/box according to terrain?	
	demonstrate awareness of width, height and length?	
	drive appropriately across rough terrain, including inclines and wet ground conditions?	
	park vehicle in a safe and sensible place?	
	Suggested tests	
	Negotiate preplanned off-road course, including different ground conditions, dips and humps etc	
	slow speed maneuvering around cones forward and reverse	

Volunteer:

Overall evaluation:

Instructor:

Signed:

Date:

Category number	Description
3a	4wd up to 8 passenger seats + driver
3b	4wd up to 16 passenger seats + driver

Note:

Unless there are exceptional circumstances, if the person is considered satisfactory for 3a and has class d1 on their driving licence you would normally give category 3b.

Trailers

The volunteer should be conversant with the chapter "Vehicles and Trailers" in the Practical Restoration Handbook. The relevant points are bulleted here for ease of reference. To tow a trailer on the road, a volunteer must have category E on their driving licence. They must also have driver authorisation for the towing vehicle.

Golden rules

- ❑ The secret is practice.
- ❑ Loading is everything, ensure balance and that nose weight is correct.
- ❑ Discourage bad habits from the start - the common problems are often electrics and brakes - these must be sorted out before any trailer is used.
- ❑ If in doubt then don't – we pay for breakdown cover!

Safety

- ❑ Trailers should not obstruct the only exit from the vehicle.
- ❑ Beware feet injuries – steel toe caps recommended.
- ❑ Always check hand brake works.
- ❑ Explain how the overrun brake works.
- ❑ Always connect/disconnect on the flat.
- ❑ Many different types of trailer – check the features before you start (e.g. does it have a reversing catch? Only on some pre 1981 trailers but local societies often still have older kit)

Planning

- ❑ Driver is legally responsible for ensuring the trailer and load is safe and roadworthy.
- ❑ Dimensions – best to check before you set off than when you reach the low bridge!
- ❑ Weights – both vehicle and trailer.
- ❑ Hitch types – balls place less strain on chassis and 2" is not the same as 50mm.

Procedure:

- ❑ Brakes
- ❑ Wheel clamps, etc.
- ❑ Check weight distribution – nose weight of 25-50Kg (a cement bag!).
- ❑ Couple main hitch.
- ❑ Breakaway cable – discuss attachment.
- ❑ Electrical cable – slack but beware it dragging on road.
- ❑ Sort jockey wheel, legs, etc.
- ❑ Check load and number plate.
- ❑ Release handbrake.
- ❑ Check ALL lights.

Driving

- ❑ Use wing mirrors (a lot) - discourage the act of looking over the shoulder.
- ❑ Moving forward is easy - just leave a bit more clearance on corners. If it is not easy then something is wrong.
- ❑ Moving backwards – remember the reversing catch (if fitted), start from the right place, use your mirrors, beware jackknifing damage, watch your front end,
- ❑ Maintain momentum where safe to do so.
- ❑ Feel free to check clearances by getting out and actually checking, if necessary use a banksman.
- ❑ Discuss 50mph and 60mph speed limits.
- ❑ Motorway driving – only the first two lanes please!

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Misc

- Loading and Securing the load – refer to Instructor Guidance notes for Loading and Securing plant.
- Electrical sockets (and lights) – explain about different types AND fix them if broken.
- Security - remind them that almost all insurance (especially IWAs) expects that additional security is used, such as wheel clamps and/or hitch locks.
- Another common mistake is leaving number plates on trailers.
- If leaving for long periods of time then do not leave the handbrake on (otherwise the brakes will bind on) but do chock the trailer securely and use good chocks not bits of crumbly brick!
- Explain about attack and departure angles.
- H bars should be loaded with due regard to overhanging things and attack and departure angles.
- Check no-one has tampered with the coupling, etc if you leave the vehicle unattended.
- Check tyre pressures.
- Paperwork – use the Logistics checklists if appropriate. Always report any damage to site leader.

EVALUATION

Tick	Did they:	Comments
	complete all pre-use checks?	
	reverse to coupling under direction?	
	carry out special instructions given to them?	
	couple the trailer with regard to safe procedure?	
	drive appropriately in traffic, showing that they know about legal restrictions on speed and road positioning?	
	show correct positioning for towing forwards around corners?	
	demonstrate control of outfit when reversing, in straight line and around corners?	
	uncouple the trailer with regard to safe procedure and leave it safely parked?	
	demonstrate safe observation?	
	demonstrate awareness of width, height and length?	
	Suggested tests	
	slow speed maneuvering around cones	
	reverse outfit in a straight line over a distance of 10m	
	reverse outfit around a corner	
	reverse outfit into space not less than 1m wider than trailer	

Volunteer:

Overall evaluation:

Instructor:

Signed:

Date:

Category number	Description
4a	Site trailers
4b	Road trailers

Tractors

To tow a trailer with a tractor, a volunteer must also have at least category 4a Site trailers but must have 4b to take a road-legal tractor on the road with a trailer. These notes refer to ride-on mowers, although some points are also valid for mowers towed behind a tractor (but these are classed as ‘Trailers’ in the DA scheme).

Use of power winches and loading of securing of plant are separate categories within the driver authorisation scheme.

Golden rules

- Every tractor is different – make sure you know how the controls of the particular example you are driving work before you start work
- Always consider whether you need a banksman, particularly if operating with limited room (e.g. on a towpath)?

Safety

- Be aware of the public – does the towpath need to be closed off? Do you need to use a banksman?
- No passengers to be carried
- Check condition of tyres
- Check front and back ballast is present if required and not tampered with
- Correct entry and exit of vehicle – be careful of muddy boots
- When working near water take extra care. Be aware that bank edges can crumble.

Planning

- Two wheel drive and four wheel drive
- Suitable tyres for work planned and ground conditions
- Different attachments e.g. three pin hitch, PTO shaft drive, front loader – what should be used for what?

Operation

- Check fluid levels, including hydraulics
- Places for fuelling and greasing
- Allow for warm up time of hydraulics before starting work
- Appropriate use of gears (and clutch)
- Use of transfer boxes
- Use of differential lock
- Hand throttle
- On modern tractors, interlocks – what can be operated with what
- Positioning for manoeuvring on slopes, inclines, uneven ground

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EVALUATION

Tick	Did they:	Comments
	complete all pre-use checks?	
	demonstrate fuelling and greasing?	
	carry out special instructions given to them?	
	enter and exit the machine safely?	
	start the engine with due regard to warm up time?	
	demonstrate correct maneuvering including climb, descent, turns	
	demonstrate correct use of three pin hitch?	
	demonstrate use of PTO shaft drive?	
	demonstrate use of front loader?	
	show that they knew how to prevent overloading of the engine?	
	demonstrate safe observation?	
	demonstrate correct use of controls and instruments?	
	demonstrate correct park up and shut down procedures?	
	Suggested tests	

Volunteer:

Overall evaluation:

Instructor:

Signed:

Date:

Category number	Description
32a	Tractors up to/including 30hp
32b	Tractors over 30hp

Skid-steer Loaders

General

- ❑ Beware - it is not a site machine. It is designed for running around a flat builders yard.
- ❑ It has very bad ground clearance and its stability is severely compromised by rough terrain, etc.
- ❑ The Operators Manual should be in a sensible place - read it.
- ❑ It doesn't dig holes very well and landscaping must be done backwards as the tyres make a lot of mess.

Pre-use checks

- ❑ Check tyres for wear (especially beware bricks etc. stuck between tyre and chassis as they will shred the tyres).
- ❑ Check the control levers move freely and do not stick.
- ❑ Check no one has bugged about with the ballast on the back of machine.
- ❑ Check ROPS (that's Roll Over Protection System).
- ❑ Check engine oil, water, hydraulic fluid (in the case of some Case machines it was engine oil and a special Case additive, it is now a special oil available from Case dealers)
- ❑ Check bucket pins and teeth (if fitted).
- ❑ Horn should be working (to warn others and attract their attention).
- ❑ Check accessories/hoses are connected or the hose couplings are protected with proper bungs

Maintenance

- ❑ Grease everything every 10 working hours as usual for this type of kit.
- ❑ It is good procedure to fuel up and grease at end of day while the machine is warm rather than when machine is cold in morning (but watch for that exhaust!). This is especially relevant if the machine is not to be used for some time (i.e. the end of the weekend).

Safety

- ❑ Use the safety belt as it gives you much better control as you don't bounce around the cab as much.
- ❑ Generally in the event of losing control release all levers and stay in the vehicle as the ROPS will save you.
- ❑ Keep an eye all around you at all times.
- ❑ Before starting check that levers are in neutral and accessories/hoses are connected.
- ❑ Always leave the machine with the bucket on the ground. Never step out or in the cab with the bucket up. Mention new style machines (side entry/exit). Never allow anyone to walk under the bucket as it (or the load) may fall and crush them. Never get in or out of the vehicle with the engine running - demonstrate the "overalls pocket getting caught on the right hand control lever as you're getting out of the vehicle with the engine running" mistake..
- ❑ Don't leave the machine on a slope without proper chocks.
- ❑ Beware when tipping into trenches as your front wheels are very close to the bucket. Use a stop board to avoid falling in.
- ❑ Don't lift people.
- ❑ Beware of using it to lift items using chains or strops (especially cutting effect of bucket edge on strops) etc.
- ❑ Prop the arms when working on it in a raised position. Turn the engine off whenever maintaining the unit.
- ❑ Appropriate PPE (e.g. goggles when shovelling sandy loads).
- ❑ Don't get the controls or the entry/exit surfaces covered in crap.

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Technique

- Set the engine speed appropriately.
- Always consider the vehicle centre of gravity and keep load as low as possible. Perhaps go backwards up inclines if unladen.
- Beware the angle of bucket changes with elevation as does visibility.
- Make gentle moves (and beware sneezing).
- Discussion of skid steer techniques - gentle smooth moves make less mess of the path. Pivot turns also bugger the tyres.
- Beware hills and side slopes.
- Also beware the effect of tipping out your load on the balance of the vehicle.
- Discuss loading a dumper (must be done on level ground).
- When shovelling keep the base of the pile neat and flat.
- Beware creepage of the hydraulics especially on the travel motors.
- Additional attachments may be available - only use if confident in ability to do so (if available show how to connect and use the pallet forks (beware thumbs).
- Sheet loads if windy and dusty.
- Correct use of the “four in one/clamshell” bucket.

EVALUATION

Tick	Did they:	Comments
	Complete all the pre-use checks?	
	Show they can grease and fuel it?	
	Pay attention to any special instructions you gave them?	
	Enter and exit the vehicle safely?	
	Observe all around them at all times?	
	Manoeuvre the vehicle safely around a variety of inclines/ground conditions? (after warm-up)	
	Demonstrate good digging technique (both shovelling and clamshell)?	
	Keep the load as low as possible at all times?	
	Alter the bucket angle to retain the load as they raised the bucket?	
	Know any legal/operational limits (such as total lift weight) or at least where to find them?	
	Show that they knew what any instruments/indicators did?	
	Use the throttle appropriately?	
	Show that they had a basic understanding of how the machine actually worked?	
	Park up the machine correctly?	
	Suggested tests	
	Load a dumper	
	Keep (or at least leave) the ballast heap/site tidy?	
	Landscape off a rough section?	
	Pick up a brick in the “four in one” bucket and set it on a post (repeat with another brick on top?).	
	.	

Volunteer:

Overall evaluation:

Instructor:

Signed:

Date:

Category number	Description
7	Skid steer loaders

Dumpers

The volunteer should be fully conversant with the chapter "Plant" from the Practical Restoration Handbook. The relevant points are bulleted here for ease of reference.

Golden Rules

- ❑ A very great range of models exist and that their suitability to the task should be carefully assessed. In particular consider centre of gravity when tipping and turning. Hi-skip/narrow models are rarely suitable for a restoration site and require a special authorisation from the wrg board issued on a job by job basis
- ❑ As operator you have a responsibility to ensure safe operation.
- ❑ If in doubt about the safety of any dumper operation then don't do it.

Planning

- ❑ Read the manual and any safety labels attached to the machine (e.g. transmission diagrams)
- ❑ Appropriate clothing and PPE – inc. clean gloves and boots!
- ❑ Check the site and job specification thoroughly – refer to the Project Safety Plan for specific hazards. Feel free to check ground conditions on foot first.
- ❑ Check the actual dumper and its controls – are you familiar with it, especially do you know how to stop it?
- ❑ A dumper is not allowed on public roads unless it been added to the IWA special vehicles register and the operator has category 99.
- ❑ Working close to water, along towpaths and near the public - extra care to be taken.

Maintenance

- ❑ Fluid levels and tyres check.
- ❑ Check also for leaks and loose bolts, belts, etc
- ❑ Allow machine to cool before fuelling.
- ❑ Fuel up at the end of day (prevents condensation and allows crud to settle).
- ❑ Grease up at end of day (more important on machines that are not used heavily!)

Operation

- ❑ Starting – explain both hand start (inc. decompressors, excess fuel devices and safety) and electric start.
- ❑ Stopping – always check how to do it, before setting off.
- ❑ Steering - explain the differences between rear wheel steer and centre articulated steer.
- ❑ If in doubt, use a banksman.
- ❑ Loading – positioning and interaction with excavator operator. Also always, stop the engine while loading and get off the dumper. Never overload or load badly.
- ❑ Keep the deck clear especially around the pedals.
- ❑ Seat belts – check and use them, it gives better control. Check ROPS (Roll Over Protection System), particularly if it can be lowered for going under obstructions.
- ❑ Don't wrap fingers around the wheel.
- ❑ Crush zones (and never reach under a raised skip)
- ❑ Inclines – explain about inclines and loading (when to go backwards and when to go forwards).
- ❑ Tipping - best to chock it if in any doubt or use a tipping stop but always ensure no-one else has moved it while you have been away.
- ❑ Beware the effects of swivelling a swivel skip on centre of gravity, particularly when dumping.

EVALUATION

Tick	Did they:	Comments
	complete all pre-use checks?	
	demonstrate fuelling and greasing?	
	carry out special instructions given to them?	
	enter and exit the machine safely?	
	start the engine with due regard to warm up time?	
	maneuver correctly, including climb, descent, turns (skip empty)?	
	position of dumper to be loaded?	
	maneuver including climb, descent, turns (skip loaded)?	
	demonstrate safe tipping (ground level)?	
	demonstrate safe tipping (into deep excavation)?	
	demonstrate safe observation?	
	demonstrate correct use of controls?	
	carry out park up and shut down procedures?	
	Suggested tests	
	Manoeuvre around a planned course, including incline, both empty and loaded	
	position dumper to be loaded (by excavator)	
	tip load as directed – onto flat and into excavation	
	.	

Volunteer:

Overall evaluation:

Instructor:

Signed:

Date:

Category number	Description
24	Rear steer dumper (e.g. Winget 2s)
25	Articulated steer wheeled forward tip dumper
26	Rear tipping wheeled dumper

180deg Excavators and JCB3 & Equivalents

The volunteer should be fully conversant with the chapters "Plant" and "Excavators" from the Practical Restoration Handbook.

Golden rules

- Do not drive if you are unhappy with any aspect of the plant or the job.
- Driver is legally responsible for ensuring the vehicle is safe and up to the job.
- Lots of different vehicles – check you know all about the one you are going to operate.
- Working near water - extra care required.
- Practice makes perfect.

Planning

- Pick the right machine for the right job.
- Always ensure you have adequate resources - dump site, trench supports, etc before starting.
- Site survey is essential - check for hazards (read the Project Plan!) partic. overhead/buried services, poor ground conditions, toxic spoil, public, etc.
- Consider space to manoeuvre and how to get back out!
- To go on public road it must be added to the IWA special vehicles register and the operator must have category 99.

The machine itself

- Daily checks - tyres/ fluids/pins/teeth/grease points, clean mirrors and windows. Check for leaks (but beware hydraulic fluid under pressure).
- Discuss controls
- Keep boots and hands clean - so control levers stay clean.
- Keep PPE handy as you will have to get out of the cab (but never jump down)
- Always use the grab handles and steps.
- As with all plant check the kill switch works before anything else! Also the interlock arm (or whatever device is fitted)

Manoeuvring

- Allow warm up and test everything before you start work.
- Beware punctures.
- Use gradual turns and avoid turning the site into a quagmire.
- Always keep looking all around.
- Discuss inclines
- Steering - use of split brakes versus the steering wheel
- Show correct shutdown and park up procedure.
- Refuel at end of day while still warm to prevent condensation in tank, etc

Digging technique (rear)

- Positioning is everything - try to minimise movement and position the dumper correctly.
- Chose correct bucket - discuss types.
- Stability – always have the feet down.
- Always keep looking all around.
- Don't overload the bucket. Bucket ram is strongest but don't use it to dig. Use all three rams together and arrange the bucket to be full when the dipper comes vertical - this gives max tear-out force and prevents under cutting.
- Beware undercutting and/or striking your own cab/feet (partic. with quick release buckets).
- Stability - digging at extreme angles.
- Discuss use of a banksman - agree all hand signals.
- Never load a dumper with the driver still on it (and don't dump on their seat)
- Discuss trench excavation (inc. min distance from the edge)

WRG DRIVER AUTHORISATION SCHEME INSTRUCTOR GUIDANCE NOTES



Loading technique (front)

- Keep site tidy
- Beware buried hazards.
- Beware tipping into trenches

Other points

- Maintenance is essential especially if the vehicle is not used much. So grease it!
- Return keys to the "nominated" place.
- If it will be parked up for a long time then minimise the amount of ram exposed.

EVALUATION

Tick	Did they:	Comments
	complete all pre-use checks?	
	demonstrate fuelling and greasing?	
	carry out special instructions given to them?	
	enter and exit the machine safely?	
	start the engine with due regard to warm up time?	
	test everything before starting work?	
	maneuver correctly including climb, descent, turns (bucket empty)?	
	show awareness of front bucket and back hoe when maneuvering?	
	maneuver correctly including climb, descent, turns (bucket loaded)?	
	complete a trench excavation with back hoe to required depth and standard?	
	demonstrate trench backfilling with front bucket?	
	demonstrate safe observation?	
	demonstrate use of controls and a basic understanding of the machine?	
	complete park up and shut down procedures?	
	Suggested tests	
	load a dumper	
	keep a ballast/spoil heap tidy	
	dig a trench	
	backfill and landscape the trench	

Volunteer:

Overall evaluation:

Instructor:

Signed:

Date:

Category number	Description
9a	180 degree excavator
9b	JCB3 and equivalent

360deg Excavators

The volunteer should be fully conversant with the chapters "Plant" and "Excavators" from the Practical Restoration Handbook.

Ensure you are training with an appropriate machine for the category. Machines under 2t are category 29 (micro diggers), over 2t but of mini digger style – i.e. front mounted arm which normally can slew independently of the main superstructure are category 30 and large machines i.e. arm mounted alongside the cab are category 31. If you have any queries email da@wrg.org.uk

Golden rules

- Do not drive if you are unhappy with any aspect of the plant or the job.
- Driver is legally responsible for ensuring the vehicle is safe and up to the job.
- Lots of different vehicles – check you know all about the one you are going to operate.
- Working near water - extra care required.
- Practice makes perfect.
- Keep the load low and close in.

Planning

- The right machine for the right job. Not too big or too small – remember that the very small machines are particularly unstable – chose carefully.
- Always ensure you have adequate resources - dump site, trench supports, etc before starting.
- Site survey is essential - check for hazards (read the Project Plan!) partic. overhead/buried services, poor ground conditions, toxic spoil, public, etc.
- Consider space to manoeuvre (including up and down) and how to get back out!

The machine itself

- Tracks versus wheels
- Daily checks - tracks/tyres/ fluids/pins/teeth/grease points, clean mirrors and windows. Check for leaks (but beware hydraulic fluid under pressure).
- Discuss controls (inc. slew lock pin if fitted)
- Keep boots and hands clean - so control levers stay clean.
- Keep PPE handy as you will have to get out of the cab (but never jump down)
- Always use the grab handles and steps.
- As with all plant check the kill switch works before anything else! Also the interlock arm (or whatever device is fitted)

Manoeuvring

- Allow warm up and test everything before you start work.
- Always track forward to prevent bunching.
- Use gradual turns and always beware of picking up debris in the tracks.
- Always keep looking all around.
- Slew zone must have 600mm clear at all points.
- Discuss inclines
- Show correct shutdown and park up procedure.
- Refuel at end of day while still warm to prevent condensation in tank, etc
- Never allow people under the bucket/load.

Digging technique

- Positioning is everything - try to minimise movement and position the dumper correctly.
- Chose correct bucket - discuss types.
- Always keep looking all around.
- Don't overload the bucket. Bucket ram is strongest but don't use it to dig. Use all three rams together and arrange the bucket to be full when the dipper comes vertical - this gives max tear-out force and prevents under cutting.
- Beware undercutting and/or striking your own cab/tracks (partic with quick release buckets).
- Stability - digging along or at right angles to the tracks – especially if category 29.
- Discuss use of a banksman - agree all hand signals.
- Never load a dumper with the driver still on it (and don't dump on their seat)
- Discuss trench excavation (inc. min distance from the edge)

WRG DRIVER AUTHORISATION SCHEME INSTRUCTOR GUIDANCE NOTES



Other points

- ❑ They are all different BUT they are a common source of accidents so make sure you know exactly how they operate and double check all pins and interlocks are back in. They also may make it possible for you to strike your bodywork with your bucket so check before you start to dig.
- ❑ Maintenance is essential especially if the vehicle is not used much. So grease it !
- ❑ Return keys to the "nominated" place.
- ❑ Use as cranes - for loads less than 1000Kg take care and in particular be concerned about the effects of swinging loads. For loads above then it must be a modified machine. [Under Review]
- ❑ If it will be parked up for a long time then minimise the amount of ram exposed.

EVALUATION

Tick	Did they:	Comments
	complete all pre-use checks?	
	demonstrate fuelling and greasing?	
	carry out special instructions given to them?	
	enter and exit the machine safely?	
	start the engine with due regard to warm up time?	
	test everything before starting work?	
	maneuver correctly including climb, descent, turns?	
	complete a trench excavation to required depth and standard?	
	demonstrate safe observation, slewing to maneuver?	
	maneuver over distance to prevent track bunching?	
	show awareness of correct positioning of dumper to be loaded?	
	load dumper correctly?	
	demonstrate use of controls and a basic understanding of the machine?	
	complete park up and shut down procedures?	
	Demonstrated understanding of quick hitches, especially in relation to safety pins/clips?	
	Suggested tests	
	load a dumper	
	keep a ballast/spoil heap tidy	
	dig a trench	
	backfill the trench	

Volunteer:

Overall evaluation:

Instructor:

Signed:

Date:

Category number	Description
29	360 degree tracked excavator with front mounted arm 2t or less
30	360 degree tracked excavator with front mounted arm over 2t
31	360 degree tracked excavator with arm mounted alongside cab

Smalley Excavators

The volunteer should be fully conversant with the chapters "Plant" and "Excavators" from the Practical Restoration Handbook. They should also be experienced industrial archeologists....

Golden rules

- Do not drive if you are unhappy with any aspect of the plant or the job.
- Driver is legally responsible for ensuring the vehicle is safe and up to the job.
- Working near water - extra care required.
- Practice makes as close to perfect as you are going to get in a Smalley.

Planning

- They were designed as gravediggers !
- They are not very manoeuvrable so it is essential to plan the whole dig especially egress.
- Site survey is essential - check for hazards (read the Project Plan!) partic. overhead/buried services, poor ground conditions, toxic spoil, public, etc.

The machine itself

- Daily checks - tyres/ fluids/pins/teeth/grease points, clean mirrors and windows. Check for leaks (but beware hydraulic fluid under pressure).
- Discuss controls (inc. slew lock pin)
- Keep boots and hands clean - so control levers stay clean.
- Keep PPE handy as you will have to get out of the cab (but never jump down)
- Always use the grab handles and steps (do NOT step on the tyre as it may be suspended).
- As with all plant check the kill switch works before anything else!

Manoeuvring

- Show starting procedure.
- Allow warm up and test everything before you start work.
- Show the unique way of moving between "dig" and "move" mode.
- Demonstrate the technique for moving - do not slew by more than 45degrees while body raised. Show what happens when you slew or dig with the feet raised!
- Raising the feet from the ground - it is all about smooth technique !
- There are no brakes, other than digging bucket/feet into ground - so beware of moving up/down inclines.
- Always keep looking all around.
- Slew zone - always check it - must have 600mm clear at all points.
- Show correct shutdown and park up procedure.
- Refuel at end of day while still warm to prevent condensation in tank, etc

Digging technique

- Positioning is everything - try to minimise movement and position the dumper correctly.
- Chose correct bucket - discuss types.
- Discuss positioning of feet.
- Always keep looking all around.
- Always dig with all feet down and locked - show what happens if you don't !
- Don't overload the bucket. Bucket ram is strongest but don't use it to dig. Use all three rams together and arrange the bucket to be full when the dipper comes vertical - this gives max tear-out force and prevents under cutting.
- Beware undercutting and/or striking your own feet.
- Discuss use of a banksman - agree all hand signals.
- Never load a dumper with the driver still on it (and don't dump on their seat).
- Discuss trench excavation (inc. min distance from the edge)

WRG DRIVER AUTHORISATION SCHEME INSTRUCTOR GUIDANCE NOTES



Other points

- Maintenance is essential especially if the vehicle is not used much. So grease it!
- Use as a crane - don't.
- If it will be parked up for a long time then minimise the amount of ram exposed.
- Return starting handle to the nominated place.

EVALUATION

Tick	Did they:	Comments
	Complete all pre-use checks?	
	Demonstrate fuelling and greasing?	
	Start the machine safely?	
	Enter and exit the machine safely?	
	Move between the two modes safely?	
	Move around the site safely?	
	Demonstrate observation at all times?	
	Position the machine, excavate a trench and load a dumper correctly?	
	Show adequate control of the Smalley?	
	Complete park up and shut down procedures?	
	Suggested tests	

Volunteer:

Overall evaluation:

Instructor:

Signed:

Date:

Category number	Description
12	Smalley excavator

Hoists and Cranes

The volunteer should be fully conversant with the chapter "Plant" from the Practical Restoration Handbook. The relevant points are bulleted here for ease of reference. They mainly refer to barrow hoists but all points are relevant for cranes also.

WRG classes use of cranes as a specialist category, rarely encountered on restoration sites. Refer to Head Office for further guidance.

Planning

- ❑ Age limits – basically 21 for anyone involved in the operation.
- ❑ Variants of barrow hoist – all should have “dead mans handle” type safety features.
- ❑ Site layout/set up is essential.
- ❑ H and S – where there is any risk of a fall greater than 2m then a fall arrest harness should be worn.
- ❑ Beware fuel fumes in the semi-enclosed space of a lock chamber.
- ❑ Large dumping ground required and well briefed team.

Setting up

- ❑ The base should be properly ballasted – just stacking any old rubbish is not acceptable.
- ❑ Base must be level (all of it - not just where the stand goes)
- ❑ Usually best to set the hoist at the end down stream end of the lock (gate recess has the most space) due to water control reasons.
- ❑ Beware loose bricks in wall you are lifting against (and check the ground is solid enough!).
- ❑ Check all wire ropes for damage.
- ❑ Lubrication of all the moving bits is important.
- ❑ Jib angle and effect on lift capability.
- ❑ Access/egress to the lock - must be two separate routes and ladders must be set up correctly!
- ❑ Size of generator and cable/connectors needed for electric hoists (normally 110v 32A)

Operation

- ❑ A clear system of signals must be in use between the bottom and the top.
- ❑ Discussion of techniques for controlling a barrowhoist.
- ❑ Never to be used as a man hoist.
- ❑ Beware lifting non-standard lifts (for cranes discuss uses of stone tongs, chains and kettles/buckets).
- ❑ Uses of a banksman.
- ❑ Operator keeps clean hands – someone else handles the muck!
- ❑ Fuel up with everything stopped and cool at end of day.
- ❑ It is tiring and you are the one person who is essential to the operation – take breaks.
- ❑ Nobody should be standing beneath the barrow as the barrow/load will fall straight down in the event of an emergency. (We know a song about this!)

Telehandlers (and Fork-lift Trucks)

The volunteer should be fully conversant with the chapters "Plant" and "Excavators" from the Practical Restoration Handbook.

Note

Dumpers, excavators and lots of other bits of kit are generally concerned with moving waste around. Telehandlers are much more concerned with moving new materials around (at the least a pallet of expensive bricks and quite possibly a very expensive display engine). While this should not make any difference to the Health and Safety side of things it does tend to aggravate the observers who tend to get a bit twitchy. The operator should be aware of these things.

Golden rules

- Do not drive if you are unhappy with any aspect of the plant or the job.
- Driver is legally responsible for ensuring the vehicle is safe and up to the job.
- Lots of different vehicles – check you know all about the one you are going to operate.
- Working near water - extra care required.
- Practice makes perfect.
- Keep load low and close in.

Planning

- Check for hazards (read the Project Plan!) partic. overhead services, poor ground conditions, public, etc. Get out and walk the route if necessary.
- Consider space to manoeuvre (inc. up/down!) and how to get back out!

The machine itself

- Explain controls – there are lots of different models and styles of controls - practise if unsure
- You can only see forward and to the left – so check, clean and use your mirrors
- Daily checks - all the usual (but esp. check for cracked heel on forks)
- The boom projection at the rear may well vary with boom angle.
- Always climb in and out properly using the steps – never jump down.

Manoeuvring

- Observation at all times.
- Crab steer – discuss its uses and restrictions
- Be aware of extremities at all times.
- Especially beware the public and workers around your blind sides – use marshals and banksman if required.
- Discuss inclines
- Road travel – fold up the forks (beware thumbs!) and check with Site Leader if it is insured for road use
- Discuss use of a bucket for loading.

Lifting/lowering

- Observation at all times.
- You are bound to have to get out and fettle things – so you will need PPE – hat, gloves, steel toe-caps.
- Load gauge.
- Boom out low to the ground.
- Keep load level even when boom up (some do this automatically)
- Feet down (if fitted)
- Nobody should ever be under the boom or load
- When positioning to pick up a load park up a fork length away and boom in so you can get out again if it goes wrong.
- Always ensure your palletted load is securely palletted.
- Effect of tipping a load on balance of machine.
- Stacking – ensure that the item at the bottom can take the item on the top.

WRG DRIVER AUTHORISATION SCHEME INSTRUCTOR GUIDANCE NOTES



- ❑ Remember some other person has got to pick it up !

Suggested tests

- ❑ Start with a bare pallet.
- ❑ Then try a few other things and practice stacking.
- ❑ Then finally pick up a pallet with a 45 gallon open drum of water on it and manoeuvre around an incline.

EVALUATION

Tick	Did they:	Comments
	complete all pre-use checks?	
	demonstrate fuelling and greasing?	
	carry out special instructions given to them ?	
	enter and exit the machine safely?	
	start the engine with due regard to warm up time?	
	manoeuvre including climb, descent, turns (not loaded)	
	pick up a load safely?	
	manoeuvring including climb, descent, turns?	
	place a load accurately safely?	
	demonstrate safe observation at all times?	
	show correct use of controls?	
	complete park up and shut down procedures?	
	Suggested tests	
	see above	

Volunteer:

Overall evaluation:

Instructor:

Signed:

Date:

Category number	Description
15	Telehandler

Rollers

These notes refer to pedestrian and ride-on vibrating rollers, not rollers towed behind e.g. tractors, for which see Tractors and Trailers.

Golden Rules

- ❑ Beware using them close to the public
- ❑ Obviously they are heavy - this means that no matter how you try and convince them to move forward or back they will always move DOWN if they can, into the canal. In addition, smooth drums have very little friction (or lateral traction) and consequently slide very easily.
- ❑ Because of this take considerable care when working close to water.

Planning

- ❑ They are heavy and move very slowly. it may well take you an hour to get it to the start point. Similarly the operator may have to set off back to base an hour before close of play.
- ❑ Always make sure you get the roller and the dumpers in the right order along the tow path !
- ❑ Operators should wear steel toe caps as should all other volunteers working in the area, particularly those spreading surfacing materials etc.
- ❑ In particular the pedestrian roller is very tiring to operate, more so than other plant, because physical effort is required to move it. Take regular breaks, ideally share the work.
- ❑ Chose the right width of drum - usually 120cm or 80cm.
- ❑ Check fluids daily.
- ❑ Wear correct PPE: steel toe caps, ear defenders and goggles if necessary for the material being rolled (stone chippings etc)
- ❑ Check the project plan, and walk the full job first to find out where potential problems and possible recovery points are.
- ❑ Are you going to block the towpath? Do you need banksmen (one at each end)?

The machine

- ❑ Several variants exist but they all do the same job. Just ensure that you know how the controls work before you start it.
- ❑ Chose the right type for the work being done.
- ❑ Essentially there are two types of drum: smooth and sheeps-foot.
- ❑ As with all plant - check you can stop it before you start work.
- ❑ Steering capability is limited.

Operation

- ❑ Always check controls move freely and are not stuck before starting.
- ❑ Long slow steady passes are best.
- ❑ No matter what you tell it to do it will go DOWN if it has the chance. If it does go, with a pedestrian roller let go – the plant can be rescued, but not you if you're underneath it.
- ❑ Vibration makes it more likely to slide – turning it off if you safely can may help you rescue it.
- ❑ Always keep your observation around you - particularly with pedestrian rollers.
- ❑ Beware backing into things and other serious crush injuries.
- ❑ Vibration assistance - obviously improves effect but beware banks, edges, giving way.
- ❑ Use of water to assist finish on hard surfaces only
- ❑ Be very wary of inclines - at some point the drum may loose traction and just slide back onto you.
- ❑ Beware the starting handle vibrating out of its clips (and where to put the handle at the end of the day).
- ❑ Refuel at the end of the day to avoid condensation problems in the tank and to allow detritus to settle.
- ❑ Always stop and allow public past – use of banksmen.

Shredders/chippers

We advise all operators to undertake a certificated course in chippers before applying for category 17 – Chippers.

Golden rules

- ❑ Don't put your hand in – there is a risk of being dragged in with the materials and the injury will be serious if it happens
- ❑ Make sure you know how to stop it before you start
- ❑ Set up a safe system of work – where the material is coming from and where it is going to

Planning

- ❑ Do you need to chip it, or could it be burnt? How are you going to dispose of the chips?
- ❑ How is the chipper going to get to its location? How will it be delivered and offloaded? How will it be moved?
- ❑ Different types and sizes of chipper – select the right one depending on what you need to chip and how you're going to get the chipper there. Check it has the right kind of tyres.
- ❑ Consider location – where is the chipper going to stand so that materials can be brought to it safely and the chips can be blown out safely?

Safety

- ❑ PPE – ear defenders, visors, gloves
- ❑ No loose clothing
- ❑ Public safety – set up an exclusion zone, have banksmen to marshal public, correct signing
- ❑ Check all guards and interlocks are in place before use

Operation

- ❑ Check fluid levels etc
- ❑ Set up, using the legs etc
- ❑ What not to put through (dirty wood, soil, roots, wet dredgings)
- ❑ Mix wood and leaves, don't put leaves through on their own
- ❑ Correct direction for feeding materials
- ❑ Use of guidance stick for feeding small materials
- ❑ How to clear it safely when it does get blocked
- ❑ How to identify when its not working properly and when blades need sharpening

Generator-based Electrical Distribution Systems

This section is under review.

- Colour codes and standards
- Ratings
- Earths
- 110/240
- looking after the generator
- RCCBs

Power Winches

These notes relate to winches mounted on a vehicle (e.g. land rover or tractor). The volunteer should have authorisation for the vehicle being used. Winches on trailers are covered under loading and securing of plant. It also doesn't cover hoists or tirlfors (although some of the winching techniques will be relevant to their use).

Planning

- Plan the job in full before you start
- How are you going to deal with any public access?
- Know the vehicle you are using to winch.
- The winch is unlikely to be rated or insured/inspected for lifting. In the terms of the arboricultural definition of lifting. It isn't lifting if the load doesn't leave the ground –so dragging up a slope or up the side of the cut isn't lifting, in the context of this category.
- Discuss merits/disadvantages of different types of winches: power, hydraulic, mechanical (e.g. tirlfors)

Safety

- Manual handling of components – they are heavy
- PPE – gloves when handling rope or cable
- Don't run hands along a wire rope
- Don't use dirty gloves on the controls
- Inspect the cable or rope – when isn't it safe to use?
- Keep well clear of the tensioned cable – winch sails (cover draped over cable to limit damage if cable snaps) are ineffective with this size of winch – the cable will go straight through the cover
- If the cable crosses a public right of way you will need banksmen to marshal the public through when safe
- Inspections and what paperwork to expect to be present with a winch
- Correct types of strops to use

Operation

- Winch should be rated high enough for the job
- Park the vehicle so that you can get out even if the winch breaks
- Ensure vehicle is appropriately located and anchored – use of ground anchors
- Decide who is in charge of the operation – not necessarily the winch operator, who may not be able to see the item being winched
- Agree signals in advance with whole of team
- Ensure it is possible to communicate with the winch operator
- Check cable is attached securely
- Winch in a straight line to prevent bunching on the drum
- Maintenance – regular greasing

Winching techniques

- Snatch blocks for changing direction and increasing power
- Suitable anchor points
- With a tree stump, dig around the root by hand first
- Use only one method of removal on an object at a time (e.g. don't use an excavator at the same time as a winch)
- Consider height of winching point on stump
- When winching whole trees, ensure they won't fall on you and the winch
- Use sacking to protect a tree that's going to stay (i.e. being used as an anchor point) and don't use chains

Boats

There are three categories of authorisation for boats: small dinghies, boats up to 21m (approx 70ft) and tugs. These notes refer to the use of boats for restoration work, not passenger boats/trip boats. Therefore, there are areas specific to use as work boats which will still need to be covered even if a volunteer has considerable experience of recreational use of boats.

Note:

- IWA has a registered exemption under the MCA for work boats, based on the fact that they will be operating in an isolated waterway, with few if any other users, the waterway will probably be shallow and will not have any flow.

Safety

- You are also responsible for all others on the boat and what they are doing – correct briefing
- Check the risk assessment for correct safety equipment e.g. life rings, life jackets
- Agree a procedure of recovery for man overboard
- Check what number of crew the boat can carry
- Know where the emergency engine stop is
- All boats have momentum once they are moving and are difficult to stop quickly; risk of crush injuries with larger boats
- Dinghies are at risk of capsizing and are not very visible to other boats

Operation

- All boats are different – familiarise yourself with each one before use
- Each bit of water is different – ensure you know what the specific hazards are
- In particular, difference between canals and rivers
- Pre-flight checks – fluids, weed hatch, sea cock etc
- Maintenance – greasy bits
- Fuel storage
- Check you know where the plimsol line of the boat is/what its safe load is
- Controls – throttle, gears, tiller
- Steering (pivot point), reversing, turning
- It takes time to get moving, stop and turn – think ahead
- Navigation and operation of locks and bridges and different types
- Rights of way – pass on the right and give way to unpowered craft
- Loading techniques
- Water levels can change – risk of settling on the bottom when loading
- How to clear the prop and weed hatch safely – turn off engine and take the keys out of the ignition
- Weils disease
- Mooring securely
- After-flight checks

Powered cut off saws

Golden rules

- ❑ Always use the correct blade for the machine/job
- ❑ Wear the correct PPE

Blades

- ❑ Blades come in a variety of sizes, do not try and adapt the wrong size to fit
- ❑ Check the bore, outside diameter and speed rating are correct for the machine you are using
- ❑ Check the blade is correct for the material you are cutting
- ❑ “Diamond” blades used to be expensive but now are considered standard for cutting masonry
- ❑ Dispose of any traditional abrasive wheels that have been used with water dust suppression at the end of the day
- ❑ Do not use worn blades from large saws in smaller angle grinders, the speed rating of the blade is generally too low
- ❑ Some diamond blades are directional, make sure you put them on the machine the correct way around

Fuel

- ❑ Cordless saws are becoming available but most use two stroke engines
- ❑ Easiest to mix two stroke fuel using either sachets (1 per 5l) or dispenser bottle
- ❑ Many machines not suitable for E10 petrol, either buy super unleaded (E5) or pre mixed alkalite fuel (e.g. Aspen)
- ❑ Mixed two stroke goes off, if its been knocking around for months you are probably better off disposing of it and mixing fresh

Safety

- ❑ Stout trousers or overalls, eye protection (full goggles, not just glasses), ear protection, gloves, steel toe caps.
- ❑ Be aware of hand/arm vibration, swap operators regularly if there is a lot of work
- ❑ Face mask – FFP3
- ❑ For masonry use dust suppression
- ❑ When cutting steel (or steel reinforced concrete) beware of fire risk from sparks, in particular don't refuel or leave fuel cans where sparks from cutting may ignite split fuel – a surprisingly common occurrence.
- ❑ Allow saw to cool before refuelling, better to make sure it is full before you start.
- ❑ Take care not to drop the saw as it could damage the blade causing it to fly apart when used
- ❑ Keep other workers and the public out of range of flying debris and dust
- ❑ It may be necessary to use a banksman as the operator will not be aware of people around due to the noise. Note that the banksman is there to stop others entering the working area, it is unlikely they will be able to stop the operation as the operator will not be able to hear them.
- ❑ Do not force the tool against the work or twist it while cutting as this can cause blade failure
- ❑ Check the blade before use for cracks or damage, if any is found discard the blade
- ❑ Ensure you are working on a firm surface, never on a ladder and never above shoulder height
- ❑ Make sure the cutting groove will open as the cut progresses rather than pinching the blade
- ❑ Make sure the item you are cutting is secured so it will not move while cutting, also be aware of any weight transfer when the bit you are cutting falls off

Maintenance

- ❑ Bang out first stage air filter at least daily if working in a dusty environment (though note some newer saws have self cleaning filters – identified by the need to use a tool to get to the filter instead of a thumbwheel)
- ❑ Most common repair needed is replacing pull cord, this is simple but fiddly task and best given to someone who has done it before. Note some brands have shock absorbing handles so you cannot just change the “string”, you buy a complete assembly of handle and cord (e.g. Stihl Elastostart)
- ❑ Anything beyond this should be entrusted to a competent person

Tracked Dumpers

The volunteer should be fully conversant with the chapter "Plant" from the Practical Restoration Handbook. The relevant points are bulleted here for ease of reference.

Golden Rules

- ❑ A very great range of models exist and that their suitability to the task should be carefully assessed. In particular consider centre of gravity when tipping and turning.
- ❑ As operator you have a responsibility to ensure safe operation.
- ❑ If in doubt about the safety of any dumper operation then don't do it.

Planning

- ❑ Read the manual and any safety labels attached to the machine
- ❑ Appropriate clothing and PPE – inc. clean gloves and boots !
- ❑ Check the site and job specification thoroughly – refer to the Project Safety Plan for specific hazards. Feel free to check ground conditions on foot first.
- ❑ Check the actual dumper and its controls – are you familiar with it, especially do you know how to stop it?
- ❑ It is very unlikely a tracked dumper will be road legal
- ❑ Working close to water, along towpaths and near the public - extra care to be taken.

Maintenance

- ❑ Fluid levels and track check.
- ❑ Check also for leaks and loose bolts, belts, etc
- ❑ Allow machine to cool before fuelling and fuel up at the end of day (prevents condensation and allows crud to settle).
- ❑ Grease up at end of day (more important on machines that are not used heavily!)

Operation

- ❑ Getting on and off – always use the handles and steps – never jump down.
- ❑ Vibration – very important to keep in mind the effects of this.
- ❑ Stopping – always check how to do it, before setting off.
- ❑ Steering - explain the control levers – they are very model dependant.
- ❑ Visibility – considerable problems - if in doubt use a banksman.
- ❑ Going backwards and forwards – swivel seats and effect on visibility.
- ❑ Loading – positioning and interaction with excavator operator. Also always stop the engine while loading and get off the dumper. Never overload or load badly.
- ❑ Keep the deck clear especially around the pedals.
- ❑ Seat belts – check and use them, it gives better control. Check ROPS (Roll Over Protection System), particularly if it can be lowered for going under obstructions.
- ❑ Crush zones - never reach under a raised skip
- ❑ Inclines – explain about inclines and loading (when to go backwards and when to go forwards).
- ❑ They have tracks – which make a mess which don't inconvenience you but upsets everyone else. Avoid spin turns, especially when loaded.
- ❑ Tipping - best to chock it if in any doubt or use a tipping stop but always ensure no-one else has moved it while you have been away.
- ❑ Explain the issues associated with tipping – tail-gates, side-gates, etc. Beware the effects on centre of gravity, particularly when dumping.

EVALUATION

Tick	Did they:	Comments
	complete all pre-use checks?	
	demonstrate fuelling and greasing?	
	carry out special instructions given to them?	
	enter and exit the machine safely?	
	start the engine with due regard to warm up time?	
	manoeuvre correctly, including climb, descent, turns (skip empty)?	
	position of dumper to be loaded?	
	manoeuvre including climb, descent, turns (skip loaded)?	
	demonstrate safe tipping (ground level)?	
	demonstrate safe tipping (into deep excavation)?	
	demonstrate safe observation?	
	demonstrate correct use of controls?	
	carry out park up and shut down procedures?	
	Suggested tests	
	Manoeuvre around a planned course, including incline, both empty and loaded	
	position dumper to be loaded (by excavator)	
	tip load as directed – onto flat and into excavation	

Volunteer:

Overall evaluation:

Instructor:

Signed:

Date:

Category number	Description
23	Tracked dumpers

Revision History

2021 Minor updates

22/5/23 Minor corrections and improvements to layout

23/5/23 Add title page, proper auto updating contents page, Powered cut off saws section and merged in previously separate tracked dumpers section

30/5/23 Updated cut off saws: Removed reference to 3m exclusion radius (out of date and insufficient), added note about banksman not being able to stop the operation. Changed heading logo to corrected version. Changed front page to match current branding.

19/2/24 Updated excavator section to note changes to categories (introduction of category 29)

13/3/24 Updated excavator check list to include quick hitch safety points, updated vehicle check list to include accident/breakdown procedure.

12/5/24 Added category numbers to all evaluation pages, added clarification on category numbers to vans section.

11/7/24 Removed 11 (Draglines), 12 (Bulldozers) & 22 (Dredgers) from DA scheme and from these notes (which were blank for these categories anyway).