



# Driver Safety Handbook

For drivers of specialist vehicles

[Version control](#)

Created: 14/2/19  
last reviewed: 14/2/19  
review date: ??/??  
Reviewer: (insert name)

# Contents

<b>Introduction</b> .....	4
Who this handbook is for? .....	4
<b>Defect reporting</b> .....	5
<b>Driving Specialist Vehicles</b> .....	6
Refuelling Agricultural vehicles & equipment .....	9
<b>Extra consideration for drivers of specialist vehicles</b> .....	10
Rough terrain.....	11
Right gear for the job.....	11
Deep Water .....	12
Hill Climbing & Descending .....	13
Long Grass .....	13
Mud .....	13
Rock Crawling .....	13
Snow .....	14
<b>Specialist vehicles – best practice guidance</b> .....	14
Telescopic Lift-truck (Telehandler) .....	14
Counter Balance Lift-Truck (Forklift) .....	16
All-Terrain Vehicles (Sit-In and Sit Astride) .....	18
Tractors.....	22
Electric Utility Vehicles - E-Gators .....	28
Skid-Steer loader .....	29
Ride on mowers.....	33

Combine harvesters including plot combine harvesters .....34

## Introduction

This is a guidance document. Using the information given should help you to comply with your statutory duties in respect of safe driving for work practices.

The document is not exhaustive and provides information, in no particular order, on the main risks that working drivers may encounter, as part of their work practices.

Because this handbook contains advice and guidance only for specialist vehicles, as a driver you **MUST** read the general Driver Safety handbook as this will contain general safety advice not covered in this handbook.

Please note, driving a minibus comes with added responsibilities, a separate handbook is provided for all minibus drivers - 'Driving a Minibus, best practice guidelines.

### Who this handbook is for?

This handbook aims to provide advice and guidance for drivers and operators of specialist vehicles and equipment, such as those operated in its agriculture, horticultural, research and any other off-road activities.

For the avoidance of doubt, a specialist vehicle is any vehicle other than a car, van or minibus. Specialist equipment refers to any equipment that is attached to or can be towed by any specialist vehicle.

### Authorisation to drive

Before you can drive any University vehicle, including those that operate off-road, you must be an Authorised driver. Guidance on how to undertake this process is contained in the General Driver Safety Handbook and associated Policies. You **MUST NOT** drive any vehicle until you are on the Authorised Drivers Database.

## Defect reporting

Under the Provision and Use of Work Equipment Regulations 1998 (PUWER), checks should be carried out when a significant risk to the operator or others from the checks or use of the work equipment has been identified. The need for checks under this Regulation will depend on the nature of the equipment, where and how it is used and the level of potential risk from its use.

Checks might range from a simple visual check to a detailed inspection and test.

Users must ensure that:

- Where safety of equipment is dependent on installation conditions; it is inspected after installation and before use, or after assembly at a new site;
- Where conditions may cause deterioration, it is checked at suitable intervals and each time any exceptional occurrences, such as damage or serious breakdown occur.

Examples of safety critical items under the above, which may need regular inspection, include PTO guards, mower guards, tractor cab condition, a roll bar damaged in an accident and the parking brake. Any checks made under the PUWER must be recorded and results documented and retained.

Line Managers must also ensure that no work equipment is obtained from another undertaking (borrowed or hired) and used, unless accompanied by evidence of its last checks and inspection under the PUWER.

To comply with legislation, you should carry out pre use checks to make sure the machinery you are about to use, or allow someone else to use, is safe and working correctly. These checks should be simple to carry out, using the check sheets provided by Aberystwyth University from the following web link; <https://www.aber.ac.uk/en/hse/proc-prac/vehicle-inspection-sheets/>

Keeping a record of when checks have been carried out and what work has been done is very important. These records can help show that a machine is well maintained and regularly checked, particularly in the event of an inspection or accident.

The purpose of these checks are to reduce the risk of an accident occurring in the first place, as possible defects may be highlighted and should be taken out of use, reported to the Line Manager and repaired immediately or as soon as is reasonably practicable.

Line Managers must ensure that equipment is maintained in good and efficient working order. Here the “efficiency” of the equipment does not relate to productivity, but to the health and safety aspects of all parts of the machinery. Employers must ensure that PTO guards, brakes, hydraulic hoses etc., are maintained to do their job at all times.

Equipment should be checked regularly to ensure that it does not deteriorate and become a risk. The frequency of checks is dependent on the equipment itself and the risk involved; it could be pre-use, each day, weekly, or even longer. Only a competent person should carry out maintenance work. All equipment should undergo regular maintenance checks in accordance with the recommendations of the manufacturer.

Where machinery has a maintenance log, it should be kept up to date. The logbook should provide information for future planning and inform maintenance personnel and others of previous action taken.

## Driving Specialist Vehicles

Due to the wide variety of activities involving transport, special consideration and extra care MUST always be exercised when driving on or around these work areas. The following must be adhered to at all times;

Vehicle operators must follow 'Safe Stop' procedure:

1. Engage handbrake
2. Controls in neutral
3. Switch off engine (or turn off power)
4. Remove key (or lock-off the power supply)

This above procedure should be followed;

- before leaving the driver's seat/operating position;
- when anyone else approaches;
- before anyone carries out maintenance, adjustments or deals with a blockage.

Whilst driving and operating a vehicle, ensure the below is adhered to;

Safe vehicle:

Check that vehicles, machines and handling equipment are:

- suitable for the work and capable of safely performing the jobs to be done, with reversing aids such as mirrors;
- checked over before using for faults and repaired promptly;
- properly maintained, paying particular attention to braking systems.

Check that the vehicles, or any machines with workers riding or working on them, are fitted with roll-over protective structures (ROPS) and seatbelts if there is a risk of overturning.

Check that:

- drivers of lift trucks and loaders are protected from falling objects;
- loads are stable and secure;
- trailers have adequate brakes designed for the maximum loads and speeds at which they will operate;

- keys are kept secure when vehicles are not in use.

#### Safe driver:

Drivers must:

- be medically fit to drive;
- be properly trained and unauthorised people are not allowed to drive;
- know how to safely enter and exit the vehicle.

Never allow passengers to ride on or in vehicle cabs unless they are sitting on a passenger seat in a safe position and cannot impede the driver, accidentally contact the machine controls, or obscure the driver's vision. No one should mount or dismount a moving vehicle.

#### Safe site:

Check that:

- vehicles and pedestrians are separated where possible;
- visiting drivers are aware of your rules, including parking areas, one-way systems etc;
- vehicle routes reduce the need to reverse, e.g. by adding turning areas, or using the one-way systems;
- traffic routes are properly maintained and adequately lit;
- Warning and speed limit signs are clear and consistent with the Highway Code.
- Silos and stores are located in a safe place away from public right of way to reduce risks during feed deliveries.
- Deliveries should be undertaken away from the public right of way.

Never approach or walk behind or beside a reversing vehicle. If you must approach, attract the driver's attention first when it is safe to do so and get



them to stop, especially if you need to speak to the driver or mount the machine.

- Audible alarms should be fitted to vehicles (where possible) to warn people when they are reversing
- Never attempt to squeeze between a moving vehicle and a doorway or fixed object
- If possible have separate doorways in buildings for vehicles and pedestrians
- Wear high visibility clothing to help others see you

## Refuelling Agricultural vehicles & equipment

Fuel for agriculture vehicles and machinery are stored at Trawscoed and Gogerddan. These fuel storage areas / containers are kept locked to prevent unauthorised access. Keys to allow access to these have been provided to authorised personnel. When re-fuelling vehicles and machinery, the log book must be completed; detailing the individuals name, date re fuelling undertaken and amount used. There are some special requirements for the refuelling of agricultural vehicles, these are articulated below:

- Ensure you are using the correct type of fuel.
- Use caution when refuelling tractors or other farm machinery. There is always a risk of fire and explosion. Never refuel the tractor while the engine is running or hot. Always refuel the tractor outside. Static electricity, a spark from the ignition system or a hot exhaust could cause the fuel to ignite.
- Store your fuel outside. Keep the area free of weeds or any other combustible material. Carry a first aid kit and an approved dry chemical fire extinguisher. Tractors should have at least a 2kg extinguisher.

- Be sure of good ventilation before starting the tractor engine. Exhaust gases contain carbon monoxide, which is odourless and colourless.
- Identify any water courses, site drains, drainage systems and routes in the immediate vicinity of the site (Assume all drains discharge to surface waters) and instigate control measures.
- Designate a re-fuelling area that is bunded and isolated from the surface water drainage routes.
- Keep emergency spill response kits at each refuelling point and instruct staff in their use.
- Carry a spill response kit with each bowser if mobile re-fuelling activities are carried out.
- Manage and report all fuel leaks on tractors, plant, equipment and machinery.
- Ensure site personnel are aware of emergency response procedures and what actions to take in the event of a spillage or fire.
- Clean up deployed spill materials once they have done their job and dispose of as hazardous waste.
- Re-stock spill kit content if used.
- Ensure you have or have access to emergency contact numbers for key personnel.
- Ensure site staff know the correct emergency reporting procedures.

## Extra consideration for drivers of specialist vehicles

The following is considered general advice for off-road driving; however, your vehicle or equipment may have some specific operational requirements, you must therefore familiarise yourself with any operator's manual that comes with the vehicle or equipment or local operational practices.

## Rough terrain

When driving through rough terrain:

- Drive smoothly
- Ensure steering is steady and precise
- Keep braking to a minimum – as alien that may sound, it's the technique when off-roading in a 4x4
- When applying the throttle, apply it gently and release it slowly, this avoids spinning your wheels
- Ensure you're always in control of your vehicle

How to overcome obstacles

- When you're approaching an obstacle such as a log, rocks or ditches, make sure you always have at least three wheels on the ground
- Before taking on an obstacle, check your tyres are fully inflated and the underside of your vehicle will clear the obstacle
- When approaching a ridge, tackle it head on, but carefully

## Right gear for the job

Selecting the right gear is important, this is where your training and vehicle familiarisation will come in. The following table is a general guide for four-wheel drive off-road vehicles.

Terrain	Recommended gear
Sand	3rd, 4th or 5th gear is often best on sandy tracks in low range.
Rocky Terrain	Low range 1st gear is often best when off-roading on rocky terrain.

Soft Terrain	When off-roading on soft terrain, low range 2nd or 3rd gear is best.
Climbing Obstacles	When climbing obstacles such as slopes, use the highest practical gear.
Descending Obstacles	When descending obstacles such as slopes, it's often best to use low range 1st gear.
Icy Terrain	When driving on icy terrain such as snow and ice, use the highest gear possible.
Wading	When you're wading, use low range 2nd gear for best results.

## Deep Water

Before going into deep water, you need to check if the bottom is solid or if it's soft mud, and if there are any underwater potholes. Tyres act as floats so directional steering can be affected by deep and strong sideways currents.

Drive slowly and steady pushing a gentle bow-wave in front of your vehicle. The wave causes a lower water level inside the engine bay. Don't stop or accelerate through the waves, just nurture them. Vehicles will be difficult to restart if the water enters the exhaust system.

After leaving the water, check the brakes. Try to dry brake shoes and drums by pressing brakes lightly while driving a short distance. Discs will be quicker to dry out. If the vehicle was being driven in the muddy water, it may require inspection and cleaning by a qualified mechanic.

In exceptionally deep water you'll need a well fitted snorkel as well as waterproof electrics in the engine bay.

### Hill Climbing & Descending

Avoiding rocks, stumps and holes is a good idea when climbing or descending hills. Try to check the hill, if possible, to make sure it's safe for the vehicle.

Select the gear, then go with a steady pace. Don't use too much of accelerator but avoid stalling the engine. If a wheel spins, back off the power to get traction again. If you stop on the hill, apply brakes and select reverse immediately. Release the brake and engage the clutch fully.

To descent the hill, use engine braking to slow down rather than the brakes because braking downhill may cause the wheels to lock, you'll then lose steering control and may slide sideways or even roll over. To regain control in case of sliding, accelerate very slightly to regain forward traction of the wheels.

### Long Grass

Be very careful while driving in long grass, as there are might be unseen dangers. Very long grass can wrap around the crank pulley or catch fire on the hot exhaust system.

### Mud

Mud can be one of the most frustrating terrains to drive on especially if you get stuck. One way to prevent getting stuck in the mud is to keep moving, albeit very slowly and if you feel like you're beginning to get stuck, turn your wheel left and right and see where the grip is. If you do get stuck, try rocking your vehicle back and forth, until you get enough momentum to get yourself out.

### Rock Crawling

If you need to negotiate large rocks, try to do it squarely. The sidewall is the most vulnerable part of the tyre. If your vehicle has an automatic gearbox,

you might want to brake gently as automatic boxes give a bit less engine braking.

## Snow

Avoid changing gear unnecessarily and use an appropriate gear that will keep the vehicle moving at a steady pace. There might be several hidden obstacles in the snow, such as rocks, branches etc. Keep to the high side of a slope and drive on the crown of the track where the snow is less deep.

## Specialist vehicles – best practice guidance

The following section aims to provide advice and guidance for specific vehicle groups or associated equipment. It is intended as a guide only and not a replacement for proper training or reading any relevant Operators Guide belonging to vehicles or equipment.

### Telescopic Lift-truck (Telehandler)

**Risk Assessment** – Before undertaking a task involving this vehicle, please refer to the relevant risk assessment.

**Training** - You must attend a University approved training course before being permitted to drive this type of vehicle. Go over the manual of the machine thoroughly and familiarise yourself with all safety symbols and equipment. The following are considered useful reminders:

**Maintenance** - In order to ensure work equipment does not deteriorate to the extent that it may put people at risk, managers in control of work equipment are required by PUWER to keep it 'maintained in an efficient state, in efficient order and in good repair'.

The frequency and nature of maintenance should be determined through risk assessment, taking full account of:

- the manufacturer's recommendations

- the intensity of use
- operating environment (eg the effect of temperature, corrosion, weathering)
- user knowledge and experience
- the risk to health and safety from any foreseeable failure or malfunction

Telehandlers are lifting machines, and as such, it will require a thorough examination under the Lifting Operation and Lifting Equipment Regulations 1998, once every 12 months (or once every 6 months if used to lift personnel) by a third party.

**Checks** - Conduct a daily visual and functional inspection before you use the machine and only start working if the machine is in good condition.

**Pay attention when loading the Telehandler** - Always make sure that the load does not exceed the maximum weight. An excessively heavy load could cause the Telehandler to tilt. Most Telehandler are equipped with a safety system, which prevents the lifting of loads that are heavier than allowed. You can find the maximum weight of your Telehandler in the user manual.

**Pay attention when driving** - Don't get distracted while driving. Make sure that the view of the route is always optimal. If you're not able to look more than two metres beyond your load, it is recommended to drive backwards. Also do this when you're carrying unstable loads or pallets that can slide off the forks. Ask for assistance if you must drive forward with a load that restricts your view.

**Always keep the forks 30 cm off the ground** - The distance between the ground and the forks or attachment must be 30 cm when driving a Telehandler. When transporting a load, keep it +/- 30 cm above the ground and always tilt the fork carriage backward. Pay special attention to the fork height on uneven surfaces and adjust it if necessary. When moving loads across larger distances, the telescopic boom must always be retracted.

Make sure that assistants or other people keep their distance while loading. Never allow anyone to walk or stand still under to load.

**Adjust your driving behaviour** - Telehandlers can reach speeds of up to 25mph on public roads. This is different on off-road sites. Here, you must adjust your speed to the situation. When you are driving on rough terrain at an excessive speed, you can lose control of the steering wheel and the Telehandler. So always, consider the terrain and the Telehandler load. When cornering, the centrifugal force comes into play. This means the goods are being drawn to the outside of the turn. Never start, stop or suddenly change direction at high speed. Always go up or down slopes in a controlled way and at an appropriate speed. These sudden and unexpected movements can cause the Telehandler to lose its load or to tilt.

**Always drive forward when going uphill** - Always drive straight forward when going uphill. So never drive uphill diagonally and never start turning on a slope. When loaded, the load must be in the highest position in relation to the slope (forwards uphill and backwards downhill). On slopes you need to increase the fork height and lean backwards more, to prevent contact with the ground.

### Counter Balance Lift-Truck (Forklift)

**Risk Assessment** – Before undertaking a task involving this vehicle, please refer to the relevant risk assessment.

**Checks** - It is always important to carry out checks on your Counter Balance Lift- Truck before you drive it to ensure everything is in working order. Make sure it is in safe operating condition.

**Training** - You must attend a University approved training course before being permitted to drive this type of vehicle. Go over the manual of the machine thoroughly and familiarise yourself with all safety symbols and equipment. The following are considered useful reminders:



**The Counterbalance** - Counterbalance forklifts can pick up and carry heavier loads than some other types of forklift truck due to the added weight at the rear of the truck. The purpose of the counterbalance is to help spread the weight as it counters the load, as the name implies. The weight of this counterbalance cannot be adjusted as it would create an unstable and unsafe situation for the driver and those they are working with.

**The Fulcrum Point** - The fulcrum point of a forklift is also known as the pivot point as it is where a forklift can pivot, or tip forward if a load is too heavy. You can think of it like a see-saw in a children's park, where if both sides have equal weight then it is balanced, but if the load side is heavier the load must be moved closer to the fulcrum point to maintain the balance. Forklift training will teach you to understand how to properly load the truck and carry properly to avoid instability.

**The Stability Triangle** - The stability triangle can be imagined like a wheelbarrow. The front wheels make up the more stable part of the triangle, leaving the point of less stability between the back wheels. If the centre of gravity moves outside of the stability triangle, the forklift will tip over to its side. Forklift training will teach you how to avoid this, such as, checking tyre pressure, even loading, proper turning, avoiding turns on an incline, and turning slowly.

**Maintenance** - You may not be a forklift mechanic, but there are things that you will learn in training that will help you to work safely. Checking tyre pressure and oil pressure, making sure the horn and lights are working correctly, and checking for slack in chains are important tasks for a forklift operator. If anything is not working properly, then it must be fixed right away or replaced by another forklift. As the forklift operator, you are responsible for taking care of the machines, so they are safe for yourself and others.

**Safety and How to Avoid Accidents** - One of the main topics of forklift training is safety and avoiding workplace accidents. Accidents are preventable by always following proper procedures. As a forklift operator,

you are responsible for those around you, just like you are when driving a vehicle on the road. Using horns and lights are important safety measures.

### All-Terrain Vehicles (Sit-In and Sit Astride)

**Risk Assessment** – Before undertaking a task involving this vehicle, please refer to the relevant risk assessment.

**Training** - You must attend a University approved training course before being permitted to drive this type of vehicle. Go over the manual of the machine thoroughly and familiarise yourself with all safety symbols and equipment. The following are considered useful reminders:

**Pre-start checks** - Before setting off on the vehicle drivers should always complete pre-start checks, this should include the following;

- Check the brake operation - footbrakes and handbrakes
- Check the tyre condition, for wear and visible damage
- Check the tyre pressures, using a pressure gauge capable of reading low pressures accurately (1 psi difference can cause control problems)
- Check the steering, for smooth and positive operation
- Check the throttle, for smooth operation in all steering positions
- Check the security of the wheel nuts
- Check the security of the seat, carriers and loads
- Check all lights including warning lights
- Check the clutch (if manual), for smooth and positive operation
- Check you have enough fuel for the planned journey
- Check if seat belts are working (where seat belts are fitted)

**Stopping & starting** – Follow these procedures:

- Do not run the engine for long periods when parked in enclosed spaces
- Sit astride the ATV when starting the engine. (On certain models with a pull start this may not be possible)

- Ensure the gearbox is in neutral when starting
- Always park the ATV in a suitable position with the parking brake applied

**Route planning** - When planning your route drivers should take care to avoid severe slopes and unstable ground conditions and always survey deep vegetation to identify hidden obstructions.

Drivers should plan regular routes to avoid rocks, stumps, drainage ditches and steep slopes.

**General driving** - Drivers should always drive with due care and attention and be aware of others around them. The following are considered useful reminders:

- Only select and use routes that are within the capabilities of the ATV and the operator and drive with feet on the footrests
- Do not ride the gear change lever as this can put the gearbox into neutral, should avoid changing gear on slopes and select a suitable low gear before negotiating the slope or obstacle
- Make sure the speed is appropriate to the terrain and tasks and position the body to increase stability on slopes. Drivers need to be aware that:
  - front wheel brakes are either omitted on some ATVs, or may have reduced efficiency when rolling back;
  - on four-wheel-drive machines, using any brake will operate both front and rear wheels;
  - some ATVs have hydrostatic drives with no engine braking at zero revs, therefore maintain slight revs on downhill travel.
- On ATVs without a differential, the driving technique used should allow for the difference between inside and outside wheel speeds during turns:

- at slow speeds, shift body weight to the footrest on the outside of the turn while leaning the upper body into the turn;
- at faster speeds, shift body weight to the inside footrest while leaning the upper body into the turn.

On paved surfaces, increased grip may prevent wheel slip on inside wheels and reduce turning efficiency - a sudden change in traction may cause a change in direction. Sharp or quick application of the throttle in a low gear may cause the ATV to overturn backwards, especially when travelling up slopes. If travelling behind another ATV/vehicle, ensure adequate separation to permit safe braking and to avoid any dust, spray or stones that may be thrown up.

**Driving on difficult terrain** - drivers should be aware that when driving on difficult terrain to:

- Only drive within the limits of visibility
- Maintain an even throttle while negotiating slopes
- Avoid side slopes and difficult obstacles by route planning
- Where side slopes are unavoidable lean and steer slightly uphill
- **To ascend slopes:**
  - select the appropriate low gear at the foot of the slope;
  - keep your weight as far forward as possible (lean over the handlebars);
  - align the ATV directly uphill;
- **To descend slopes:**
  - select the appropriate low gear at the top of the slope and use engine braking (if available);
  - keep your weight as far back on the seat as possible;
  - align the machine directly downhill;
  - if needed, use only back brakes (be aware that on four-wheel drive machines, operating the rear brake may also have a braking effect on the front wheels);

- be aware of the danger of brakes locking causing a skid;
- correct skids by releasing the brake and straightening the ATV;
- very steep slopes need a run-out area at the bottom.

**In wet and boggy areas:**

- do not ford water deeper than 250 mm;
- dismount from the upstream side of a stalled ATV;
- test brakes after driving through water;

**Carrying loads** - The operator needs to know:

- the manufacturers recommended carrying limits;
- the maximum front and rear load capacity;
- the maximum ATV load;
- how front and rear loads will affect stability.

Drivers must ensure that all loads must be properly secured and distributed to allow for difficult terrain and any heavy loads on the rear carrier must be counterbalanced using ballast on the front carrier. When carrying loads on the Sit – In ATV, ensure that the cargo bed is not overloaded.

**Trailed loads** - When selecting trailed equipment employees need to look for:

- overrun brakes;
- a swivel hitch drawbar;
- bead lock rims on wheels;
- a low centre of gravity and a wide wheel track;
- a long drawbar;
- attachment points for securing the load.

The operator must attach all loads only to the towing hitch and no other part of the ATV and know:

- the maximum tow weight (trailer + load);
- the maximum tongue weight (weight on hitch point);
- the maximum combined tongue and rear carrier weight.

**Drivers need to be aware that:**

- it is very difficult to unhitch a loaded trailer on a slope;
- turning may be restricted when towing a trailer;
- turning across slopes should be avoided;
- when pushing an ATV/trailer combination no person should stand between the ATV and the trailer.

**Transporting ATVs** - Before loading an ATV onto a transport trailer, check the trailer load capacity.

After loading, ensure the ATV is securely restrained. Do not rely on the ATV brakes to prevent movement on the trailer.

**Road use** - ATV's should not be used on any public highway unless they are specifically designed to do so and they comply with the Road Vehicles (Construction and Use) Regulations 1986 and the Road Vehicles Lighting Regulations 1989, they must also to be suitably insured and meet any vehicle excise duty requirements.

## Tractors

**Risk Assessment** – Before undertaking a task involving this vehicle, please refer to the relevant risk assessment.

**Training** - You must attend a University approved training course before being permitted to drive this type of vehicle. Go over the manual of the machine thoroughly and familiarise yourself with all safety symbols and equipment. The following are considered useful reminders:

**Checks** - It is always important to carry out checks on your tractor before you drive it to ensure everything is in working order. Make sure the tractor

is in safe operating condition. Check the lights are working, keep steps always clean for access and check the PTO and lift arm controls.

**Maintenance** - In order to ensure work equipment does not deteriorate to the extent that it may put people at risk, managers in control of work equipment are required by PUWER to keep it 'maintained in an efficient state, in efficient order and in good repair'.

The frequency and nature of maintenance should be determined through risk assessment, taking full account of:

- the manufacturer's recommendations
- the intensity of use
- operating environment (eg the effect of temperature, corrosion, weathering)
- user knowledge and experience
- the risk to health and safety from any foreseeable failure or malfunction

Where there is a loader on a tractor, it will require a thorough examination under the Lifting Operation and Lifting Equipment Regulations 1998, once every 12 months (or once every 6 months if used to lift personnel) by a third party.

**Take your time and be aware** - When driving never move the tractor off until you are fully aware of how all controls operate and where they are. Take your time and never rush when operating the tractor. Use throttle-correct procedure for slowing down, when reversing use mirrors and use the horn to warn by-standers. Lower your gears gradually when preparing to stop.

**Use the correct hitch system** - When hitching always make sure you use the right hitch system. Only use the controls from tractor seat and never stand between tractor and other machines or behind them. Never stand with

your feet under or near draw bars and ensure that jacks, skids and other supports are used and maintained.

**Experience is necessary when handling the tractor** - It is advisable to have inexperienced people supervised when hitching and unhitching trailers and implements. Never get between a hydraulically mounted machine and the tractor or place your feet under parts that can collapse e.g. a drawbar.

**Always check the terrain** - When in the tractor and carrying out work always make sure the terrain over which the tractor is driven is free from hazards such as steep slopes or excavations.

**Beware of danger from overhead lines** - Tractors or machinery should never be operated if a danger from overhead electricity lines exist.

**Safe Stop Procedure** - Always practice the Safe Stop procedure. Cut back the throttle in good time, wait until the tractor has slowed down sufficiently, press clutch pedal, apply brakes gradually, always park in a suitable location, stop the engine and apply the handbrake, lower all hydraulically mounted equipment and finally remove the key.

**Safe Tractor Position Method** - Carry out the Safe Tractor Position Method. When getting in and out of the tractor always use access steps and hand supports, adjust seat position to operate controls comfortably and adjust mirror for clear view.

**Keep tractor clear of hazards** - Always keep floors, doors, pedals clear and keep your boots clean. Do not keep items like tools, draw bar pins, ropes etc. on the cab floor.

**Be aware off all blind spots** - When driving ensure that there is nobody near you before starting the engine, always watch out for people, obstacles and blind spots. Take time to clean windows and mirrors for visibility and always check that the brakes are locked together.



## Diggers / Excavator

**Risk Assessment** – Before undertaking a task involving this vehicle, please refer to the relevant risk assessment.

**Training** - You must attend a University approved training course before being permitted to drive this type of vehicle. Go over the manual of the machine thoroughly and familiarise yourself with all safety symbols and equipment. The following are considered useful reminders:

**Read the Safety manual** - The first step before using a mini-excavator is to read the safety manual. This is because the operator safety needs to be paramount. The safety tips which are universal include; maintaining the right weight, not working when the excavator is raised and making sure that the user has the right gear.

**Carry out pre-start check** - After reading the manual the next thing which should follow, is to carry out the pre-start checks. This includes making sure that the indicator lights and gauge light are working properly. Another check is to make sure that the seatbelt is present and working. Drivers should never operate a mini-excavator without having their seat belt on. Make sure that no one else is in the excavator and that you read all the warnings stickers which are posted on the excavator.

**Movement** - When the mini-excavator is in operation and moving it's important to make sure that the machine tracks are in a straight line. The machine needs to be steered in a straight line as much as possible and when a change in direction is required it should be done gradually and not abruptly. When on rough terrain, the movement should be slow and in an inclined area, movement needs to be up or down and not diagonally as this may cause the machine to tip.

**Digging/Excavating** - Before the mini-excavator can start digging it's important to make sure that the ground is level. The importance of level ground is that it increases the stability of the min-excavator and makes the works much easier. During excavation the mini-excavator should not be

placed too close to the edge as the more you work the more the ground becomes unstable and may topple the machine.

**Shutting down** - After work the mini-excavator must be shut down, there are few things which must be observed when shutting down the mini excavator. The machine has to be on a level ground and the blade and bucket needs to be lowered. The RPM needs to be set to low and then the engine switched off and not the other way around.

## Trailers & Trailed Appliances

**Risk Assessment** – Before undertaking a task involving this vehicle, please refer to the relevant risk assessment.

**Training** - You must undergo an AU approved training course and check with the Travel & Fleet department whether you have the correct entitlement on your driving licence to tow on the public highway. The following are considered best practice advice:

- Make sure that when a trailer or trailed appliance is bought, that it has a suitable braking system to match the tractor, and ensure the supplier provides brake efficiency information when purchasing.
- Check the manual to see what the minimum age the operator must be to operate the machine / trailer.
- Safe towing requires the use of a large enough tractor and selecting the most suitable gear to stop the combination within a safe distance.
- Carry out a pre-use visual check on the appliance once secured to the vehicle / tractor and before driving away. Ensure the failsafe trailer braking mechanism is not defective in anyway and is secured properly.
- Properly maintain and adjust braking systems for tractor-trailer combinations to ensure efficiency and safety. Testing on the move may be necessary after maintenance.

- Keep hydraulic and air brake couplings clean and avoid contamination.
- Make sure linkages are properly lubricated and operate freely and keep them maintained.
- Check the parking brake works properly – they are prone to seizure if neglected.
- After use, clean mud and contamination from brakes (including parking brakes).
- Make sure the cleaning method does not lead to deterioration of the brakes (eg rusting caused by pressure washing).
- Tractors which are not fitted with a self-balancing braking system require more frequent checks to make sure the brakes are evenly balanced.
- Follow the manufacturer’s recommendations for frequency and detail of inspection.
- Some older brake linings may contain asbestos. Take appropriate precautions to avoid breathing dust and when disposing of waste material.
- Make sure operators are familiar with the operation of air brake systems (if fitted) so they know how to attach and detach trailers safely.
- Always load the front of the trailer first and place 60 per cent of the weight forward of the front axle, distributing it evenly
- Ensure that your load is as low as possible in your trailer and, if necessary, secure using ropes and tie-downs so that your gear is firmly anchored. Improperly secured items can affect your vehicle’s balance and trailer stability
- Once your trailer is attached to your vehicle you need to adjust the way you drive as the normal handling characteristics of the vehicle will change
- Plan your journey ahead and look for hazards that could cause problems. Leave extra time and distance between you and other vehicles on the road when you are towing so you can stop safely

- Allow extra time for changing lanes and overtaking other vehicles – the addition of a trailer adds weight and length to the towing vehicle, meaning it will take longer to speed up
- Always remember the extra length of your vehicle when you are reversing or travelling round bends or corners. Your trailer won't follow the exact path of the vehicle that tows it, so swing out wider than usual when you make any turns
- When travelling up large hills or along gravel-lined roads, use a lower gear to ease transmission and similarly, slow down before going downhill and, if need be, use the same low gear as you make your descent
- Be on the lookout for potholes or obstructions in the road which can damage your vehicle or trailer and affect stability
- If your trailer begins to snake following a gust of wind or a larger vehicle driving past, gradually reduce your speed by easing off the accelerator and avoid braking
- Never tow a trailer that continues to sway – stop, reload your trailer and try and resolve the problem. If it persists, seek professional advice
- When you park, try to find a place where you can pull forward to drive away so you don't need to reverse.

## Electric Utility Vehicles - E-Gators

**Risk Assessment** – Before undertaking a task involving this vehicle, please refer to the relevant risk assessment.

**Training** - When using any electric utility vehicle it is essential that operators have had appropriate AU approved training and that they operate the vehicle in accordance with the manufacturer's operating manual.

The following are considered general safeguards for the safe use of an electric utility vehicle.

- Carry out visual checks of lights, tyres and battery levels before use. Report any defects immediately.
- Ensure the vehicle is well maintained by a competent person.
- Wear seatbelts where provided.
- Drive slowly and turn smoothly to avoid an overturn.
- On public roads use hazard warning beacon and always wear a seatbelt.
- When carrying a load the centre of gravity is raised increasing the chance of overturning.  
Loads must never exceed the recommended capacity and must be secured and positioned above or in front of the rear axle point.
- Keep arms and legs inside the vehicle at all times when the vehicle is in motion. Passengers must ride in their own seat, not anywhere else on the UTV.
- Operators must yield to pedestrians at all times and must be alert to potential hazards to themselves and others.
- Stay clear of ditches and embankments.
- When leaving the vehicle parked always remove the ignition key and ensure the drive lever is in neutral with the hand brake engaged.
- Never attempt to get off the vehicle unless it has been parked in the correct manner.
- Follow the instructions for safe charging of the battery and use only the battery charger provided with the utility vehicle in a well ventilated area.

### Skid-Steer loader

**Risk Assessment** – Before undertaking a task involving this vehicle, please refer to the relevant risk assessment.

**Training** - When using any skid-steer loader it is essential that operators have had appropriate AU approved training and that they operate the loader safely in accordance with the manufacturer's operating manual.

The following are considered general safeguards for the safe use of a skid steer;

- **Control Interlocks** - To prevent unintentional control activation, skid-steer loaders are equipped with interlocked control systems. These interlocked control systems require that a safety device such as a seat belt be secured or restraint bar be properly positioned before the operational controls can function. This ensures that the operator is safely seated away from the zone of lift-arm movement before the machine can be operated.
- **Rollover Protective Structures and Operator Restraints**—Skid-steer loaders are also equipped with rollover protective structures (ROPS) and seat belts to keep the operator inside the machine during rollover incidents. Falling object protective structures (FOPS) are provided to protect the operator from being struck by falling material.
- **Side Screens** - Metal or glass side screens integrated with the ROPS prevent the operator from leaning or reaching out of the operator's compartment and coming into contact with a moving lift arm. Side screens may also protect operators from being injured by debris or objects entering the operator's compartment.

### **Using and Maintaining Safety Devices Provided by Manufacturers**

Regularly inspect and maintain all safety devices provided by manufacturers.

**Lift-arm support** - Use the lift-arm support device provided by or recommended by the manufacturer any time it is necessary to work or move around the machine with the lift arm in a raised position. Machines

now being manufactured have either pin-type support devices (which can be operated from inside the operator's cab) or strut-type support devices (which may also be operated from inside the cab or may require the help of a co-worker). If the machine is not equipped with a lift-arm support device or it is damaged, contact the equipment dealer or manufacturer's to determine proper support procedures or for replacement parts.

**Interlocked controls** - Regularly inspect and maintain interlocked controls in proper operating condition. These systems require the operator to be properly positioned and restrained before the loader can be used. Never bypass interlocked controls. Make sure that the seat belt is always securely fastened around the operator when the loader is in operation. Always use the restraint bar if one is provided.

**Seat belts**—Make sure that the seat belt is secured around the operator whenever the operator is in the seat. The seat belt protects the operator in several ways. In the event of a rollover, the seat belt restrains the operator within the protective envelope of the ROPS. The seat belt can also protect the operator from falling out or being jostled into the operating zone of the lift arm and bucket. If the seat belt is part of the interlocked control system, it protects workers from being caught and crushed between the lift arm and frame.

### **Operating Safely**

Aberystwyth University has made sure that operators understand all the manufacturer's warnings and instructions before they operate a skid-steer loader. Employees are advised to use the following safe operating procedures:

- Read and understand all safety and operating procedures outlined in the operator's manual, and service manual.
- Operate the loader only when properly positioned in the operator's compartment - never from the outside.
- Stay seated when operating the loader controls.
- Operate with the seat belt snugly fastened and the restraint bar properly positioned, if one is provided.
- Keep hands, arms, legs, and head inside the operator's compartment while operating the loader.

- Plan to load, unload, and turn on level ground, when possible.
- Travel and turn with the bucket in the lowest position possible. Carry the load low.
- Never exceed the manufacturer's recommended load capacity for the machine.
- Operate on stable surfaces only. Avoid slippery surfaces.
- Avoid traveling across slopes - travel straight up or down slopes with the heavy end of the machine pointed up hill.
- Always look in the direction of travel.
- Keep bystanders away from the work area.
- NEVER modify or bypass safety devices.
- Never carry riders.
- Be aware that each machine may operate differently.

### **Entering and Exiting the Loader Safely**

- Enter and exit when the bucket or other attachment is flat on the ground or when the lift-arm support device is in place. Use the lift-arm support device supplied or recommended by the manufacturer.
- When entering the loader, face the seat and keep a three-point contact with handholds and steps.
- Never use foot or hand controls as steps or handholds. Keep all walking and working surfaces clean and clear of debris.
- Before leaving the operator's seat,
  - lower the bucket or other attachment flat on the ground,
  - set the parking brake,
  - turn off the engine.
- If unable to exit through the primary opening for entering the machine, use the emergency exit located at the back of the operator's compartment or as specified by the manufacturer.

### **Maintaining the Loader in Safe Operating Condition**

- Follow the manufacturer's instructions for maintaining the loader.
- Keep the foot controls and the operator's compartment free of mud, ice, snow, and debris.
- Regularly inspect and maintain the following safety devices:
  - Control interlocks
  - Seat belts



- Restraint bars
- Side screens
- Rollover protective structures (ROPS)
- Falling object protective structures (FOPS)
- NEVER modify or bypass safety devices.

## Ride on mowers

**Risk Assessment** – Before undertaking a task involving this vehicle, please refer to the relevant risk assessment.

**Training** - When using any ride on mower it is essential that operators have had appropriate AU approved training and that they operate the vehicle in accordance with the manufacturer’s operating manual.

The following are considered general safeguards for the safe use of ride on lawn mowers.

- Ensure the vehicle is well maintained by a competent person.
- Carry out visual checks of tyres and guards before use.
- Carry out a site inspection. Clear any debris from the area to be mowed and ensure there are no bystanders.
- Drive slowly, especially when turning, and keep your feet on the decking.
- Mow up and down on slopes. Never mow across.
- Always check behind before you reverse.
- If the mower does not stop automatically when the driver gets off the driving seat make sure you completely shut down the blades before getting off the mower, even if you only get off temporarily.
- Always wear eye protection, hearing protection, safety shoes and long trousers.
- Machine must be fuelled prior to start of work. Allow engine to cool before refuelling.

## Combine harvesters including plot combine harvesters

**Risk Assessment** – Before undertaking a task involving this vehicle, please refer to the relevant risk assessment.

**Training** - When using any combine harvester it is essential that operators have had appropriate AU approved training and that they operate the combine safely in accordance with the manufacturer's operating manual.

The following are considered general safeguards for the safe use of a combine harvester.

- The most important safety measure is to follow the safe stop procedure before carrying out any maintenance or adjustments, including dealing with a blockage or other problem:
  - Handbrake on
  - Controls neutral
  - Stop engine
  - Remove key
- Ensure the vehicle is well maintained by a competent person.
- Check all guards are in position and correctly fitted before starting work. Do not run the combine with the guards raised.
- Never carry passengers on the combine unless seated in a proprietary passenger seat and do not mount or dismount the combine when it is moving.
- Make sure there are no other people within the working area of the machine.

When collecting samples from the forage plot harvesters the driver and people sampling must take care and be aware.
- On public roads use hazard warning beacon.
- Make sure you keep reversing mirrors clean and properly adjusted.

- Be particularly careful when reversing as operator vision to the rear may be poor. If the machines are not fitted with an automatic reversing alarm sounding the horn before starting the engine or reversing can help alert others.
- Allow adequate rundown time before approaching the rear of the combine.
- Never open or remove protective devices while the engine is running.
- If unloading the combine on the move you will need to plan and coordinate your movements carefully to match the tractor/trailer combinations working with you.
- Keep the cab door shut to keep out dust and noise.
- On small plot combines without cabs wear hearing protection when operating the machine. Respiratory protective equipment may be required when combining some crops – follow the controls in the risk assessment.
- Take care on slopes and avoid sudden changes of direction. Park on flat ground where you can. If you must park on a slope, park across it. Brake and turn with care on downhill and side slopes.
- Always use the access ladders, steps and/or standing platforms provided.
- Provide and use suitable access equipment if it is necessary to work at height during cleaning and maintenance operations
- Assess the risks from overhead power lines (OHPLs) before starting work and use a safe system of work for harvesting fields where they are present. Consider the height of the combine to be used, the minimum height and location of the OHPLs in the fields where harvesting will take place and look at safe travel routes between fields/work sites which take in to account safety clearance distances.
- Never park the combine, carry out maintenance, or extend the discharge auger when under or near OHPLs.
- Regularly clean straw, chaff and/or forage deposits from the engine compartment and around belts and pulleys to reduce the risk of fire.

- Carry suitable fire extinguishers that are checked and maintained.
- Dealing with blockages –
  - Develop a safe system of work for dealing with any problems that arise with the combine and follow the procedures set out in the operator’s manual. Do not reach into the header with an arm or leg, attempt to clear a blockage, or climb or reach into the grain tank unless you follow the safe stop procedure.
  - Use your instruments and watch and listen for potential blockages – avoiding blockages is easier than clearing them.
  - Do not operate the machine beyond its capacity – do not overload it.