

City & Guilds Winter Service Operations (6159-10/20/30 to -16/26/36)

Assessor/Candidate Notes for Guidance



Version: December 2016

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Introduction

These notes for guidance are intended to assist you as a candidate undertaking assessment within the City & Guilds Award number 6159 for winter service operations of vehicles and equipment.

Under current UK and EU Legislation it is a requirement that employers ensure all employees have received adequate information, instruction, supervision and training for purposes of Health & Safety, including any information on the risks and precautions to be taken.

Training

If you or your employer requires information on training/assessment courses and training/assessment modules offered in winter service operations please contact your City & Guilds assessment centre offering the winter service awards or contact:

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Section one: Current Health & Safety Legislation

Introduction

To meet the requirements of the Health & Safety at Work Act 1974 and the Management of Health & Safety at Work Regulations, the following are essential for all activities undertaken at work:

- assess the risks to the health & safety of all employees
- assess the risks to the health & safety of third parties affected by our works
- take preventative or protective measures
- control, monitor and review the preventative or protective measures
- monitor sickness trends
- maintain and publicise the appropriate procedures to be followed in the event of serious or imminent danger to persons at work.

The responsibilities of employees are:

- to work safely
- to be responsible for their own Health & Safety and that of others who may be affected by their activities
- not to miss-use anything provided for safety
- not to abuse any welfare facilities
- to keep the workplace in a tidy state
- to maintain tools and equipment in a good condition
- to wear the appropriate Personal Protective Equipment (PPE) at all times
- to follow health & safety instructions and the procedures given by the employer.

This manual has been compiled to comply with current legislation as far as it affects Winter Service Operations. The notes are intended only as a guide and should not be used in isolation. All operations must be carried out in accordance with best practices, and these guidelines used as a supplement to any training or information from employers.

The Health & Safety at Work Act 1974

This act applies to all work activities. It requires employers to ensure 'so far as reasonably practicable' the health & safety of their employees, other people at work and members of the public who may be affected by their work.

The generally accepted definition of reasonably practicable is that one should 'do one's best', whereas practicable on its own means that it has to be done if technically possible.

Employers should have a health & safety policy. If they employ five or more people, the policy should be in writing. The policy should be clear and simple. Everyone in the organisation should know about and understand the health & safety systems which have been developed.

The self-employed should ensure so far as reasonably practicable their own health and safety and make sure that their work does not put other workers, or members of the public, at risk.

Employees must co-operate with their employer on health & safety matters and not do anything that puts them or others at risk. Employees should be trained and clearly instructed in their duties.

Main sections of the act applicable to Winter Maintenance:

Section 2	The duties of the employer
Section 3	The duties of employers and the self-employed to persons other than their employees, i.e. members of the public
Section 7	Duties of employees
Section 8	Duty not to interfere with or misuse things provided at work provided under legal requirements
Section 16 & 17	Allows for the Health & Safety Commission to approve Codes of Practice that can be referred to in court

The Management of Health & Safety at Work Regulations

The Management of Health & Safety at Work Regulations (MHSW Regulations) apply to everyone at work, regardless of what work it is. They require employers to plan, control, organise, monitor and review their work.

To do this they should:

1. assess the risks associated with work
2. have access to competent health & safety advice
3. provide health & safety information and training to employees
4. have arrangements to deal with serious and imminent danger
5. co-operate in health and safety matters with others who share the workplace

Risk assessment

Employers and the self-employed must identify the hazards involved with their works and assess the likelihood of any harm arising and decide on adequate precautions. This process is called risk assessment and is central to all planning for health and safety.

How is a risk assessment carried out?

A risk assessment can be done in five steps:

Step 1 - Looking for the hazards

Consider the job, how it will be done, where it is done and what equipment, materials and chemicals are used. The process is like that described for the Control of Substances Hazardous to Health Regulations (COSHH).

What are the hazards which could cause harm?

Here are some examples which are regular causes of serious and fatal accidents or ill health:

- falling from an open edge or through a fragile material
- being struck by site vehicles
- collapse of an excavation or part of a structure
- work with materials (for example, lead, asbestos or solvents) which could be a health problem
- dust from cutting, grinding, drilling or scabbling.

Step 2 - Decide who might be harmed and how

Think about employees, the self-employed, employees of other companies working on the job, site visitors and members of the public who may be in the area or outside the site.

Safe working often depends on co-operation between organisations. Consider how they need to be taken into account in the assessment. Identify problems the work may cause for others at the site, or problems they may cause for those doing the work and agree necessary precautions. Tell the principal contractor or whoever is controlling the site what has been agreed.

Step 3 - Evaluate the risks and decide on action

This means asking if somebody is likely to be harmed. Where there is a risk of harm consider:

1. Can the hazard be removed completely? Could the job be done in another way or by using a different, less hazardous, material? If it can, change the job or process to eliminate the risk.
2. If the risk cannot be eliminated, can it be controlled? Applying the advice and guidance given in Section 2 will help here. For example, while it may be necessary to apply a solvent based material, the exposure of workers to hazardous vapours may be reduced by applying it by brush or roller rather than by spraying. If the precautions described in Section 2 have not been taken, is there an equivalent or better standard of protection? If not, more needs to be done.
3. Can protective measures be taken which will protect the whole workforce? For example, to prevent falls, guard rails at edges provide safety for everyone in the area. Secured harnesses only provide safety for those wearing them and then only after a fall. They are a second best option.

Step 4 - Record the findings

Employers with five or more employees should record the significant findings of their assessment as an aid to controlling hazards and risks. Employers should pass on information about significant risks and the steps they have taken to control the risks, even when they employ less than five people.

Step 5 - Review the findings

Reviews are important. They take account of unusual conditions on some sites and changes in the way the job is done. Reviews allow lessons learned from experience to be taken into account. A new assessment is not always needed for every job, but if there are major changes a new assessment will be needed. In other cases only the principal contractor will be in a position to do a full assessment. For example, it may be the potential interaction of two or more contractors that leads to increased risk. In such cases the principal contractor should take the lead.

A form on which the risk assessment can be recorded is provided in '5 steps to risk assessment', available from HSE. Further advice on how risk assessment provisions in different regulations are linked together and what they mean can be found in 'A guide to risk assessment requirements'.

Risk Assessments should be carried out for the various activities associated with Winter Maintenance.

This is dealt with in more details in Section Two of this manual.

Winter Service Operators are advised to study their own employer's Risk Assessment for the various activities.

The Provision and use of Work Equipment Regulations

These regulations largely revoke older Regulations with the exception of the provision for training and adequate supervision. A list of revocations is in the back of the regulations.

Work equipment maintenance

Section 2 of the HASWA Act makes it a requirement for the maintenance of equipment to be carried out safely.

Regulation 6 makes it a duty of employers to maintain work equipment in an efficient state, in efficient working order and in good repair.

Regulation 22 and regulation 10 give information regarding the design of existing and new equipment and its safe maintenance.

The notion of efficiency in this case relates to the way the condition of the equipment affects health & safety, and as such is not concerned with factors affecting productivity.

Employers should always carry out routine maintenance based on the recommendations provided by the equipment manufacturer together with any specific legal requirements as in the case of lifts, hoists, scaffolding etc.

A system of Planned Preventative maintenance may be necessary where inadequate maintenance could cause equipment to fail dangerously. The objective of this maintenance is to prevent failures occurring when the equipment is in use.

Using a written service schedule based on manufacturers instructions and experience of past services is a way of achieving planned preventative maintenance.

Although there is no requirement to keep a log of maintenance, it is recommended by the HSE. This log, which should be kept up to date, could be written form or as part of a computerised system for monitoring maintenance of equipment. Keeping such a log could also form part of any instructions/information provided in compliance with Regulation 8(3).

Employees are required to use any work equipment provided by the employer, safely. This extends to any safe system of work provided by the employer. The employer will mostly depend on the manufacturers recommendations.

All winter service equipment, old or new must comply with the requirement of the regulations

The Personal Protective Equipment (PPE) at Work Regulations

The employer must assess the requirement for the use of PPE and ensure that any PPE provided is suitable for use and is also suitable for the wearer. The aim of the assessment must be to eliminate the need for PPE before considering it as a control measure. Employees must use any Personal Protective Equipment (PPE) provided for their safety. Adequate training in the use of PPE should be provided; this is mainly to do with more complex forms of PPE. Where several items of PPE are needed for a particular activity the PPE must be compatible, such as hard hats and hearing protection. Any lost, damaged or defective PPE must be reported as soon as possible and any defective PPE withdrawn from use.

Use of PPE

1. PPE should always be used in accordance with employer's instructions.
2. The employer's instructions should be based on manufacturer's instructions.
3. PPE should only be used after adequate training and supervision to ensure that instructions for use are followed.
4. PPE must be properly maintained in an efficient state and not abused in any way.
5. Most PPE should be returned to the proper accommodation after use (except for items such as work shoes, overalls, etc, which are often taken away from the workplace).

Accommodation for PPE

Suitable storage for PPE should take into account the following:

1. When it is not in use.
2. Adequate enough to protect against contamination, loss, damage damp or sunlight.
3. This is separate from any ordinary clothing if the PPE is contaminated during use.
4. In appropriate separate storage if the PPE itself contains hazardous substances (eg asbestos).

Some PPE commonly used for Winter Service Operations:

1. Steel toe capped working boots for foot protection.
2. Dust mask to protect against salt dust.
3. Safety helmet when working with plant.
4. High visibility clothing for work on the highway. This must be suitable for the type of road.
5. Eye protection from the risk of salt entering eyes during loading and washing down.
6. Waterproof clothing in inclement weather and when washing down.
7. Gloves to protect against the cold and handling operations.

PPE must comply with the appropriate British or European Standards.

The Noise at Work Regulations

The Noise at Work Regulations set out action levels for noise exposure. The priority is for noise to be reduced below the first action level before any ear protection program is introduced. Whilst the Employer must assess the risks to the health & safety of employees if there is a problem, Manufacturers must also try to achieve as low a level as possible or provide adequate information. Whilst noise is not generally a problem to vehicles drivers, it is to snow blower operators.

	Exposure limits	Comment
First Action Level	daily personal noise exposure of 80dB(A)	maximum permitted noise exposure
Second Action Level	daily personal noise exposure of 85dB(A)	ear protection compulsory
Peak Action Level	peak sound pressure of 200 Pascal's [137dB]	ear protection compulsory

Examples of when hearing protection should be used:

Portable drills	immediately if drilling onto masonry (90-95 decibels)
Disc cutter/Chainsaw	immediately (100 -110 decibels)
Breaker (Jack hammer)	immediately (100 -115 decibels)
Snow Blower	immediately (95 – 110 decibels)

The first and second levels are measured in decibels experienced during the working day of an employee.

The third (peak) action level is meant to guard against short but intense bursts of sound which might otherwise escape attention under the first and second levels which monitor average noise exposure. The Pascal is a unit to measure the pressure generated by sound waves – it will be relevant when there are loud percussion noises from operating pile drivers, and cartridge operated tools, etc.

Maintenance and Use of Equipment

1. All employers must, so far as practicable, ensure that any item provided by him in compliance with these regulations is fully and properly used when it is for the benefit of an employee except for ear protectors voluntarily worn; and well maintained, works efficiently, and is in good repair.
2. All employees must, so far as practicable, fully and properly use all protective measures provided by his employer in compliance with these regulations, including ear protectors when their provision is compulsory. Defective equipment should be reported immediately. As a rule of thumb 'if you have to raise your voice to be heard over the noise of the noise of the equipment, then hearing protection should be worn'.

With modern Winter Service equipment having soundproof cabs etc there should be little problem with noise, but older equipment should be checked if there is any doubt and appropriate action taken.

The Manual Handling Operations Regulations

Injuries sustained whilst lifting and handling materials or equipment account for a large percentage of lost time accidents every year.

Duties of the employer

Under the Manual Handling Operations Regulations, the employer must, so far as reasonably practical, avoid the need for hazardous manual handling operations altogether. This may not always be possible.

Where hazardous manual handling operations cannot be avoided a thorough assessment must be undertaken, and measures must be introduced to reduce the risk of injury.

Duties of the employee

Employees must make full and proper use of any system of work provided by their employer to reduce the risk of injury.

Definition of Terms

Manual handling means 'the transportation or supporting of loads by hand or bodily force'. This includes, lifting, lowering, pushing, pulling, carrying or moving. It may also apply to hauling on a rope or using a lever which is attached to a load. Where an implement is being handled for its intended purpose it may not fall into the manual handling definition, e.g. using a hammer to drive in nails.

Injury from manual handling does not include any harm caused by leaks or spills, but if the leak or spill caused the load to become slippery, then the handling of such a load falls within the scope of the Regulations.

Hazards and Risks

Hazard = The potential to cause harm.
Risk = The likelihood of harm occurring.

Example:

Hazard = Fitting a plough to a vehicle.
Risk = The likelihood of someone cutting themselves on sharp edges or injury from lifting or moving heavy loads.

If there is no reasonable way of removing any sharp edges, the wearing of suitable gloves will provide protection from any sharp edge.

If the plough is in an accessible position on level ground and if possible on a suitable stand, the level of risk will be reduced. Applying the basic principles of good lifting techniques will further reduce the risk as will using any safe system of work provided by the employer.

Reducing the Risks

Work organisation is one of several ways in which employees can minimise the risk of injury from manual handling operations. This may be achieved by having heavy loads delivered closer to their final destination or splitting loads to carry less weight at a time. Using mechanical lifting aids may help in some circumstances but could pose their own different hazards.

Arranging the work activities to minimize the distance loads are carried will help, and could improve efficiency. Double handling of loads should be avoided where possible.

Good housekeeping is an essential part of safety in the workplace, by keeping the working area free from debris and general clutter the risk of injury from trips and slips can be minimized. Safe storage of items to be handled will also reduce the risk of injury.

Good lifting techniques should be used. Keeping the back straight as possible and avoiding twisting can help to prevent back injuries. Do not over reach for loads, and never attempt to lift beyond your own lifting capacity.

If lifting as a team, good communication is essential. Nominate someone responsible to take charge of the lift and ensure everyone knows what is expected of him or her.

If you have to carry loads long distances, make sure that the route is clear and easy to negotiate. Select a place where the load may be put down to rest the body, and where possible get help with the lifting and carrying.

Whilst it would be good practice to employ job rotation this is not always possible, but if possible rotating the work activities can reduce the chance of repetitive strain injury. It may also improve productivity.

If using mechanical lifting aids, ensure that adequate training has been given. Do not use equipment, such as forklift trucks or loads shovels, unless you have been trained in their use.

As an employee you must make full and proper use of any safe systems of work provided by the employer

The Health & Safety (first aid) Regulations

When considering whether to appoint first aiders the following should be taken into account:

1. The number of employees present at any one time
2. The nature of the work (hazards and risk)
3. The extent of employees working in scattered locations
4. The distance from outside facilities/treatment
5. Shift patterns and holidays.

As a general guideline, in places such as offices and shops, where hazards and risks are comparatively low, there should be a ratio of one first aider for every 50 employees.

If there are fewer than 50 employees a qualified first aider does not have to be appointed (but a responsible person must be appointed to be in charge of first aid regardless of numbers).

In premises such as shops, offices or low-risk warehouses where there are fewer than 50 employees, the employer may consider it appropriate and adequate to designate an 'appointed person' to look after first aid, and take charge of any situation, such as an injured or ill employee, rather than have a first aider.

Where qualified first aiders have been provided, a responsible person can be appointed to cover temporary and exceptional absence (eg sickness) but not annual leave. The employer must take into account foreseeable absenteeism.

It would be considered good practice for all Winter Service Operatives to received basic training in emergency treatment of casualties.

First Aid Supplies

1. All establishments must have at least one first aid kit placed in a clearly identified and readily accessible location.
2. First aid kits should contain specified first aid materials and nothing else (eg no aspirins, creams or sprays).
3. They should be suitably designed and identified (a white cross on a green background).
4. There should be a system to check, replenish and replace items that have passed their expiry dates.

Standard first aid kit recommended contents

20 sterile plasters
2 sterile eye pads
6 triangular bandages
6 safety pins
6 medium wound dressings
2 large wound dressing
3 extra large wound dressings

Travelling first aid kit recommended contents

6 sterile plasters
1 large wound dressing
2 triangular bandages
2 safety pins
Moist cleaning wipes

Both kits must have a general first aid information card.

Winter Service Operatives can on occasions be subjected to extremes of temperature. To function properly our bodies work best at our normal temperature 36-37 °C (97-99°F). To maintain this temperature we adapt to different outside conditions by storing heat when it is cold and by sweating to lose heat when it is hot. Good-quality warm clothing keeps heat in when it is cold and it is advisable to eat high-energy foods. Exposure to extremes of temperature can damage the skin or other body tissues.

Hypothermia

This is a condition that develops when the body temperature drops below 35°C (95°F). Hypothermia is likely to occur when the temperature is very cold – in wind, rain or snow. It is commonly caused by not wearing suitable clothes in cold weather or prolonged immersion in cold water. Suspect hypothermia if you notice any of the following symptoms:

Consciousness	If the casualty is not treated quickly, it could lead to collapse and unconsciousness.
Appearance	Will be very pale and shivering badly. Movements may be clumsy and speech may be slurred.
Behaviour	The person begins to slow down both physically and mentally and may become irritable.
Cold	The skin will feel abnormally cold when you touch it.

Important - Never warm the casualty by giving them a hot water bottle or an electric blanket. Do not give the casualty any alcohol to drink. Do not encourage the casualty to move around or rub their skin to warm them up.

Action

1. Stop immediately and rest. Do not continue in the hope that you can find shelter.
2. Shelter the casualty as much as possible. Wrap them with an emergency blanket and lay them on a ground-sheet. If you are long way from shelter, protect the casualty and replace wet clothing with dry.
3. Give a warm drink.
4. If the casualty loses consciousness, place them in recovery position and keep checking breathing and circulation. Begin mouth-to-mouth and chest compression if it becomes necessary.
5. Look for any signs of frostbite and treat accordingly.
6. Arrange to get the casualty to hospital. They must be carried on a stretcher- do not let them walk.

Frostbite

This occurs when parts of the body, generally the extremities such as fingers, toes, ears or nose, become frozen because they are exposed to prolonged or intense cold. Frostbite can be accompanied by hypothermia.

Recognition

- prickly pain followed by gradual loss of feeling in the affected area
- skin in affected area will feel hard
- skin becomes mottled blue or sometimes white.

Important - Do not let a casualty walk on a defrosted foot. If further walking is unavoidable, do not thaw the feet until shelter is reached. Never warm the frostbitten part with a hot water bottle.

Action

1. Remove the tight clothing from around the affected part, for example rings and boots
2. Warm the affected part slowly. The casualty can put their hands in their armpits or their feet in your armpits. Cover their face, nose or ears with dry gloved hands. Keep the affected areas covered until colour and feeling return.
3. Seek medical aid or call an ambulance.

Hyperthermia

Hyperthermia is caused by the body's inability to lose body heat naturally. The wearing of too much clothing whilst carrying out strenuous activities, regardless of weather conditions, can cause Hyperthermia.

Recognition

- Cramp-like pains and/or headache
- Pale moist skin
- Fast weak pulse
- Body temperature may be normal or slightly raised.

Action

1. Rest the casualty
2. Remove or loosen some clothing
3. Get medical aid urgently.

The Control of Substances Hazardous to Health Regulations

Hazardous Substances

A hazardous substance is, in general terms, one of two types:

1. They can directly affect an individual by entering into the body through the lungs, skin or mouth.
2. They can come into contact with the body through a secondary effect, such as burns from an ignited substance.

Substances in common use may include:

1. Dusts of any kind when present in any concentration
2. Any substance labelled as very toxic, toxic, corrosive or irritant (look out for hazard warning symbols).
3. Pathogens and other micro-organisms
4. Most other substances having known health hazards.

Prevent or Control the Risk

If, following an assessment, a risk to health has been identified, regulation imposes a duty on employers of either eliminating the risk, substitution of the process or activity with a safer one or introducing control measures which will restrict exposure.

These controls can take varying forms such as:

1. local exhaust ventilation
2. exclusion areas
3. safe storage and disposal procedures
4. personal protective equipment
5. new work activities/processes which minimise the generation of dust, fumes or vapour.

It may take more than one control measure to limit exposure. Efficient monitoring techniques must be introduced in order to measure their effectiveness. It is important that when assessing the adequacy of any control the maximum exposure limited (MEL) or occupational exposure standards (OES) are met for that particular substance.

Such information is contained in the HSE guidance note EH40.

Ensure controls are used and maintained

Having introduced the necessary control measures, it is the duty of every employer under Regulation 8 to ensure that procedures are put in place to maintain the controls and that they are used properly.

Examples of such procedures are:

1. Visual checks that personal protective equipment is being used correctly.
2. Enforce a high standard of personal hygiene.
3. Check for any defects in the control measures such as the efficient running of local exhaust ventilation or the condition of any item of protective clothing/equipment.

Inform, instruct and train employees

Information, instructions and training are to be made available by an employer to his employees and other persons on his premises under Regulation 12.

Information must include what risks to health & safety can arise and what factors could increase that risk, for example the use of naked flames or the loss of particular substances. Information on the control measures, including why they are there and how they should be used are very important together with the monitoring of both these measures and the employee's health via health surveillance.

Such instruction must be given so that the employee, or any person on the premises using the activity, is aware of what they must do and what precautions to take. Safety, storage, disposal and emergency procedures should be known, as well as when they should be carried out.

Training of persons performing a specific work activity or process must be of sufficient standard as to enable them to use effectively the imposed measures, and the necessary personal protective equipment and for them to implement the necessary emergency procedures.

Review the Risks

All control measures and procedures put in place for use and enforcement must be reviewed on a regular basis.

If a process/activity is altered in any way or there is a suggestion that the control measures are inadequate, then a reassessment must take place.

The monitoring process to determine the efficiency of control measures must be itself be reviewed, taking into account the introduction of new guidelines for the use of substances/activities and the introduction of any new technology which may help to evaluate more the exposure to risk more efficiently. New, safer techniques may also be available in order to replace an older, more hazardous process.

The products used in Winter Service activities which would need to be covered by a COSHH assessment include salt, brine, fuels, oils and detergents.

The Reporting of Injuries, Diseases and Dangerous Occurrences Regulations

Statutory reporting of incidents by the employer is covered by RIDDOR.

In addition, employees have a duty under Reg. 24 Social Security (Claims and Payments) Regulations to notify the employer (verbally or in writing) of any injury at work that could lead to a claim for benefit.

Responsibility for reporting

Employers, self-employed persons or someone in control of the premises where work is carried out must notify the enforcing authority if:

1. Any person is unable to carry out their normal work, or is absent from work for more than three consecutive days, as a result of an accident arising out of, or in connection with, work activities (including as a result of physical violence)
2. Certain dangerous occurrences, which have the potential to cause serious injury, happen, whether or not they did actually cause injury or
3. A certain work-related disease affects an employee.

When and how to report

Reporting of the following must be done without delay, usually by telephone:

1. Any fatal or major injuries to employees or other people in an accident connected with work.
2. Any dangerous occurrences listed in RIDDOR.

A written report on Form F2508 obtainable from HSE Books must be submitted within ten days of any notifiable incident under 1 and 2 above, and also of any other injury to any employee which results in their absence from work, or inability to do their normal work for more than three consecutive days. A photocopy of the form may be used if originals are not available. Lack of original forms is no defence for not reporting.

Injuries arising from an act of violence are reportable (where they result in fatal, major or 'over three day' incapacity) if the violence arises out of, or in connection with, work activities.

A record must be kept of any injury occurrence or case of disease that has to be reported.

This must include:

- the time, date and place of the incident (not relevant for disease)
- personal details of those involved
- A brief but full description of the circumstances (including details of witnesses if relevant).

It is a legal requirement to keep an accident book and maintain the records for three years (Social Security (Claims and Payments) Regulations). The official HSE accident book BI 510 (obtainable from HSE Books) is recommended, but alternative systems providing the same information may be used.

Further required information

The HSE can request further information from any person who has already made a RIDDOR report. This could include:

1. The circumstances of the incident
2. The nature and design of the plant and equipment involved
3. The safe systems and procedures in operation at that time
4. The qualifications, training and experience of persons involved
5. Design and operation documentation
6. Personal protection available to staff
7. Examinations or test carried out on the plant
8. Available information about levels of exposure of persons at the workplace to airborne substances

The request for further information would state the specific items required. Officials from the Department of Social Security (DSS) may require certain information following a claim for benefit by an injured person. This will normally be requested by sending a form to the employer for completion.

Internal accident/incident investigation and report

When an accident or potentially dangerous incident occurs it should be investigated to identify:

- the cause(s)
- any lessons to be learned, including shortfalls in safety performance, standards or procedures
- actions required preventing a recurrence.

This is not a legal requirement under RIDDOR, but failure to investigate an accident can incur penalties from the enforcing authorities for being unable to provide further information should it be required. Insurers may also wish to see investigations reports, or to carry out their own investigation, to assess the potential for a claim for damages by the injured party.

If an Environmental Health Officer or Health & Safety Executive inspector was investigating an accident/dangerous occurrence he/she would need to see:

- the Accident Book
- any internal/incident report and investigation form
- any relevant risk assessment relating to the particular task – for example, if a cleaner has a back injury while inserting large roller towels into the dispenser in the washing facilities, they may look for evidence of a risk assessment under the Manual Handling Operations Regulations
- written safe systems of work which may be applicable to the incident/accident, for example, if an employee has an accident while changing a light bulb, in a sanitary convenience, was there a safe system of work for such jobs and was it followed? In this case the person may not have bothered to get the ladder or may not have been able to find it and may have stood on the toilet seat to change the light bulb resulting in a fall.

Major injuries

These are:

- any fracture apart from in the fingers, thumbs or toes
- any amputation, whether as a direct result of the accident or carried out as a surgical procedure following the injury
- loss of sight (temporary or permanent), any penetrating injury to the eye, or eye damage caused by chemicals or hot metal
- electrical injuries that require resuscitation, lead to unconsciousness, heat-induced illness, hospitalisation for over 24 hours, or requiring resuscitation
- unconsciousness caused by lack of oxygen or exposure to a harmful substance or biological agent
- acute illness needing medical treatment or causing loss of consciousness, resulting from substances inhaled, ingested or absorbed through the skin
- acute illness needing medical treatment, which is likely to have arisen from exposure to infected material or a biological agent or its toxins.

Dangerous occurrences

The Regulations contain an extensive list of dangerous occurrences that must be reported, including:

- The collapse, overturning or failure of a load-bearing part of a lift, hoist, crane, derrick or mobile platform, or an excavator, or a pile-driving frame with an operating height of more than several metres
- An electrical short circuit or overload causing fire or explosion
- Any fire or explosion resulting in the suspension of work for more than 24 hours
- The collapse or partial collapse of any scaffold over five metres high
- The sudden uncontrolled release of one tonne or more of highly flammable liquid
- Any incident in which a dangerous substance being conveyed by road is involved in a fire or where there is an uncontrolled release or escape of the substance
- Any incident in which plant or equipment comes into contact with overhead power lines exceeding 200 volts and many more.

It is equally important that dangerous situations or 'near misses' even though they may be excluded from the requirements of RIDDOR, are recorded within the employer's system ie a hazard book.

This will allow investigation to be made and possibly prevent future serious or even fatal accidents.

Reportable diseases

These are also covered under RIDDOR. The diseases must be related to specified work activities and cover:

- poisoning by certain chemicals such as mercury, benzene, arsenic, etc
- skin diseases such as skin cancer (from working with tar, pitch, arsenic or mineral oils), or chrome ulcers
- lung diseases from various industrial, agricultural or mining processes
- infections such as hepatitis, tuberculosis or anthrax
- other conditions such as cataracts, occupational cancer or vibration white finger.

A case must be reported on Form F2508A if a written diagnosis is received from a doctor (e.g. on a medical certificate to cover absence) and the person works in one of the jobs listed in the Regulations as being at risk. These jobs do not normally apply in shops and offices. Further RIDDOR details, including full lists of reportable diseases and dangerous occurrences, can be obtained from A Guide to the Reporting of Injuries, Diseases and Dangerous Occurrences Regulation (L73) obtainable from HSE Books.

The Health and Safety (safety signs and signals) Regulations

The Regulations require employers to use safety signs where there is a significant risk to health and safety that has not been avoided or controlled by the methods required under other relevant law. This is provided that the sign can help reduce any residual risks. Safety signs are not a substitute for any other methods of controlling risks.

The regulations apply to all workplaces and to all activities where people are employed. They do not apply to transport or marking of dangerous substances, products or equipment.

Safety Sign Colours

Colour	Meaning or purpose	Instruction and information
Red	Prohibition sign	Dangerous behaviour, stop, shutdown
	Danger Alarm	down, emergency cut-out devices, evacuate
Yellow or Amber	Warning sign	Be careful, take precautions
Blue	Mandatory sign	Specific behaviour or action, e.g. wear Personal protective equipment
Green	Emergency escape	Doors, exits, escape routes
	First aid sign No danger	equipment and facilities Return to normal

Hand signals – duty of the Banks Person

1. The signaller must be competent to make hand signals, and must be trained in their use.
2. The signaller must be able to see all the manoeuvres being made by the people receiving the signals without being endangered by them.
3. During manoeuvres, make sure that the duties of the signaller are confined to directing manoeuvres and other specific measures aimed at the safety of nearby workers.
4. If signals need to be supplemented, specific arrangements must be made to ensure that all those affected by them are fully aware of their meaning.
5. Drivers or operators can be confused by more than one signaller used throughout the manoeuvres unless there are specific arrangements.
6. Any manoeuvre must be discontinued if the signaller is unable to communicate effectively with the operator/driver.
7. If weather conditions make it difficult for the signaller to communicate with the operator/driver then the manoeuvres should be discontinued. Wearing High visibility clothing may be required (long sleeves for hand/arm signals). Signalling bats or reflective armbands may also be considered.
8. Verbal signals can also be used provided that they are audible, clear, concise and understood by the listener.

Winter Maintenance Operators need to be familiar with the signals to be used for directing vehicles and plant to ensure the safety of those affected by the operations. Most Operations are carried out in darkness and therefore the risks are higher, adequate lighting should be provided to ensure the health and safety of all. Further information relating to hand signals can be obtained from BS 6736 or BS 7121. Information is also contained in Schedule 2 of the Regulations.

Work at Height Regulations

These regulations are aimed to ensure, so far as reasonable practical, that measures are taken to prevent a fall from height likely to cause injury. They set out a hierarchy of measures to be taken to prevent falls from height.

Working on and around vehicles is one such area where falls have been common,

- Loading and unloading vehicles
- Washing down
- Climbing onto vehicle bodies
- Clearing salt from screens.

Where it is identified that there is a risk of falling, a risk assessment must be carried out. The aim of the risk assessment is to

1. Avoid the risk by not working at height
2. If the work has to be done, select appropriate work equipment to enable the task to be carried out safely
3. Mitigate against the risk of a fall
 - a. Guard rails and toe boards
 - b. Safety harness (fall arrest equipment)
 - c. Access equipment
4. Ensure that measures taken are maintained.

A common practice with winter service vehicles is that of standing on the screens when clearing salt or washing down. This activity has led to injuries from a fall and in most cases has been serious.

Properly constructed access platforms should be used for washing down and long handled scrapers provided to remove excess salt from screens. It is not considered appropriate or practical for safety harnesses to be used when washing down or clearing screens.

When working at night or poor visibility conditions on access platforms appropriate lighting should be provided.

Section Two: Control measures, Safe working methods

General control measures

There are many hazards and risks associated with Winter Service activities.

To comply with the management regulations, employers should have carried out Risk Assessments. This can be approached in many different ways and recorded in different formats. However, as a guide the following should have been considered in addition to poor lighting, lack of visibility and cold and wet working conditions:

Pre-start checks

There is a danger from contact with Methanol used for brake antifreeze systems on some makes of vehicle. Other risks will come under the heading of slips, trips and falls. Also there is a risk of contact with moving parts (spinner) and the possibility of getting caught up in the conveyor belt.

Loading

The main risks again will be under the heading of slips, trips and falls. Climbing on the screens, the catwalk behind the cab, the ladders at the rear and if done in poor light and cold or wet conditions. There are also risks from Loading Shovels.

Fitting plough

Slips, trips and falls mainly. Manual handling problems, as most ploughs, need a certain amount of manual moving to fit them. On certain types there is a risk of the plough toppling over when manually moving the plough into position for fitting. The risks increase with poor light, cold, wet and if the plough is stored in a relatively confined area.

Operations

Pre-Salting

Normal driving hazards possibly slightly increased where normal driving position on road is not possible.

Salting

Road and weather conditions and type of road will vary the risk greatly from little more than normal driving risks to extremely dangerous. Hypothermia is a possibility if problems arose in a remote area in bad conditions. Slips, trips and falls due to icy conditions when clearing blockages.

Ploughing

Again, road and weather condition and type of road will give variable risk, greater risk to other road users due to width of plough. Hypothermia risk is as in the paragraph above.

Offloading and washing off

Mainly slips, trips and falls due to climbing about the vehicle. Contact with moving parts when washing off. Risk of salt, dirt, water etc in eyes if not protected. Risk increased with poor light, cold, ice or snow. Contact with salt in wet and cold conditions.

Removing ploughs

As for fitting ploughs.

Post use checks and maintenance

Mainly slips, trips and falls. Contact with moving parts and same procedures as with pre-start checks.

The following control measures have been drawn up to try and minimise some of these risks. The information is presented under the following headings:

- depot safety
- driving
- fuel handling
- hazardous substances
- hygiene and disease
- manual handling
- mechanical handling

Control measures – depot safety

There are potential hazards in every depot and vigilance is required at all times. As most Winter Maintenance activities are carried out at night it is essential that adequate lighting is provided and that high-visibility clothing is worn at all times.

Speed limit

No vehicle will exceed the speed limit within the depot.

One-way systems

All vehicles will follow the depot system where applicable and follow any marked roadway.

Parking

Parking should only take place in designated areas. Do not obstruct access routes or emergency exits. Engines of parked vehicles must not be left running whilst unattended. This applies also to the off-loading of spreaders when the added hazard of carbon monoxide fumes could arise in poorly ventilated areas.

Reversing

No vehicle shall be reversed without first ensuring that the area to the rear is clear of obstruction. Wherever possible, the assistance of a Banks Person in reversing operations should be used, maintaining eye contact with the driver at all times.

Authorised drivers

No vehicle will be moved except by an authorised driver.

Washing

Vehicles shall only be washed in the area allocated for the purpose and where a chemical wash is used, manufacturer's precautions shall be observed and appropriate protective clothing worn. No other person, unless equipped with protective clothing shall enter the washing area. Any contaminated clothing should be thoroughly cleansed before using. All chemicals must be assessed before use, to comply with other duties under the COSHH Regulations 2003.

Cleanliness of depots

Every employee will take all necessary care to ensure the cleanliness of the depot.

Fuel/Oil spillage

Any spillage must be reported and immediately dealt with using sand or chemical means as appropriate. Vehicles/plant must not be left unattended whilst being refuelled.

Ignition keys

These should be removed from all parked vehicles to prevent unauthorised use.

Salt barns/salt heaps

It is essential that the salt loading process does not leave a vertical face on the stockpile. In the event of a slippage, this could have fatal consequences for anyone stood nearby.

It is worth remembering that there is a duty of care even to persons who may not be authorised to be on the premises, i.e. children playing and to this end the Depot should be maintained in the safest possible way at all times.

Control measures – driving

All drivers will hold the appropriate licence and be authorised by their employer. All drivers are legally responsible for their vehicles and will comply with all current Highway Laws and Road Traffic Acts.

1. The driver will carry out the appropriate daily checks.
2. The driver will be familiar with the controls before operating the vehicle.
3. The driver will report all defects in the vehicle inspection report & defect report book.
4. Consideration will be given to other road users.
5. Drive at all times with regard to road conditions.
6. Take extreme care whilst reversing
 - use assistance whenever possible or make a visual check before reversing
 - restrict your speed whilst reversing.
7. If towing a trailer:
 - use the trailer board and ensure that the trailer is in good condition
 - ensure that your licence allows you to tow the train weight.
8. Do not overload the vehicle and ensure that loads are secure, stable and evenly distributed.
9. Do not carry unauthorised passengers.
10. Do not drive close to trenches.
11. Do not park in dangerous positions.
12. Do not drive vehicles for which you have not received specific training.
13. All employees involved in the organisation and use of transport for their employer shall, as far as it lies within their responsibility, ensure that the provisions of the Road Traffic Act are strictly adhered to, including those contained within the Road Traffic (carriage of dangerous substances in packages, etc) Regulations 1996.
14. Employees should observe and obey 'General' safety notices on display, together with specific instructions relative to hitching of vehicles, daily checking of vehicles etc.
15. All drivers shall ensure that, when preparing a vehicle to be towed, both the towing and towed vehicle are stationary, suitably braked and out of gear. The driver of the towing vehicle shall take responsibility for the hitching operation.
16. Employees should observe and obey notices and current procedures in respect of passengers, security of loads, working under unsupported vehicle bodies, towing regulations, etc.
17. All drivers shall immediately inform their supervisor of any defect that they may be aware of in respect of their vehicle, and shall not use that vehicle if any danger or accident may result from such use.
18. Drivers shall observe and comply with all appropriate regulation and notices displayed when their vehicle are being refuelled.
19. Where required tachograph charts will be used in accordance with the appropriate rules (domestic or EC).
20. Use of trailers:
 - as a general rule all trailers should not be unhitched whilst loaded
 - where possible, vehicles and trailers should be on level ground before hitching, loading or unloading
 - prop stands, if fitted, are to be used when unhitching or unloading heavy items of plant. If a ball hitch is fitted leave sufficient tolerance on the rear prop when unhitching
 - trailer brake to be operated and pressure removed (tension or compression) between trailer and vehicle before unhitching
 - adjust height for hitching/unhitching by using the jockey wheels or prop stands
 - towing boards to be used unless the trailer has its own working electric's
 - trailers to be loaded evenly ensuring at all times that there is a nose weight on the region of 50-100 kilograms
 - where fitted, brake fail safe connection (safety chain or wire rope) must always be used.

Remember:

- get help where necessary
- there is a legal duty to report defects
- wear appropriate Personal Protective Equipment at all times.

Control measures – hazardous substances

Particular care will be taken with these materials:

- fuels
- oils
- grease
- de-icers (solid and chemical)
- anti-freeze
- salt
- brine solution

When handling any 'substances' the following precautions must be taken:

1. Before using read the instructions on the packaging and/or obtain the product safety data sheet. Follow the directions, warning and instructions.
2. Use the proper procedures, protective clothing and equipment.
3. When handling concentrates wear eye protection to protect against splashes.
4. Make full and proper use of manufacturers specific control measures.
5. Learn and follow the proper means of handling, storing and disposing of hazardous substances.
6. Know what to do in the event of an emergency.
7. Follow good basic hygiene procedures. Washing hands prior to eating or after going to the toilet or handling any chemical based product.
8. Report any inadequacies or deficiencies in control measures or protective equipment.
9. Do not handle any concentrates or chemicals in poorly ventilated areas.
10. Do not store any surplus "substances" in unmarked containers.
11. Do not smoke whilst handling flammable substances.
12. Do not reuse containers to hold other substances.
13. Do not leave used containers on site. Return all empty containers to stores for correct disposal.

Control measures – disease and hygiene

The hazards to health are:

1. Chemical
 - Solids, liquids, gases
 - Causing poisoning, ulceration, pneumoconiosis, cancer, asthma or dermatitis
2. Biological
 - Virus, bacterial fungus, zoonoses etc
 - Causing leptospirosis (Weil's Disease), Hepatitis A, Farmers Lung or HIV/Aids

Substances can enter the body by three main routes:

1. Inhalation – the main route of entry as it allows the substance to directly attack the lung tissue and in some cases to enter the blood stream.
2. Ingestion – through the mouth. This can be accidental or by poor hygiene such as eating or drinking in a contaminated environment.
3. Absorption – through the skin either directly or through cuts and abrasions.

To counter these hazards:

- full advantage will be taken of any welfare facilities provided
- wash hands before eating and do not eat in contaminated areas
- refer to COSHH register for details of the hazard of “chemicals” and the precautions required
- use the appropriate PPE for protection
- do not smoke whilst handling chemical or materials which may be contaminated.

Particular care should be taken when working in areas that may be contaminated by rats.

It is recommended that tetanus injections are maintained up to date and that people who come into contact with sewage-contaminated materials keep up to date with the relevant injections.

Control measures – manual handling

Manual handling will be carried out in accordance with The Manual Handling Operations Regulations 1992 (as amended).

The work should be organised to minimise the amount of manual handling required. For example – placing heavier loads near where they will be used. Wherever practicable, or possible, use mechanical lifting aids.

Assess the operation before lifting using the mnemonic **TILE** as a guide.

Task	Assess the risk of injury from the operation and take action to minimise the risk of injury.
Individual Capability	Be aware of your own capabilities (strength and height) and training and do not exceed your personal ability.
Load	Test the load for weight, shape and bulk.
Environment	Space constraints. Ensure that there are no obstructions in the direction you will be carrying the load. Check that the setting down point is clear.

1. Always:
 - wear suitable gloves to protect hands from sharp edges
 - wear safety footwear to protect from falling objects.
2. Lifting in a team:
 - One person will act as a leader and give clear instructions to co-ordinate the team's movements.
3. Guidelines:
 - be aware of packaged objects which are liable to shift during lifting
 - use lifting aids wherever possible
 - make use of any handles provided
 - report any loads that are difficult to deal with.

To minimise the manual handling of snowploughs when fitting or removing, they should be stored in an area that is well lit with good access and on purpose-made support frames or timbers.

Control measure – mechanical handling

The Lifting Operations & Lifting Equipment Regulation will apply to all operations. All lifting equipment will hold the relevant certificate.

1. Every lifting appliance will be:
 - of good mechanical construction, of adequate strength and free from defect
 - suitable for the work
 - properly maintained
 - inspected weekly and this inspection reported on Form 91C
 - adequately and securely supported.
2. The operations will only be carried out by trained and competent persons who have been authorised by management.
3. When operating lifting equipment with a jib, account must be taken of overhead services especially electricity.

Do not operate closer than six metres to high voltage cables

1. The person operating the lifting equipment will have a clear view of the operations.
2. The lifting slings, chains and shackles used will be inspected regularly and a record of the test certificate will be held on file. If they have been repaired then they will be tested.
3. If a Banksman is required for safe operations then one must be used. Communication will be by means of clear signals.
4. The safe working load will be clearly marked upon the lifting appliance. (At various radii if applicable). **Do not exceed the safe working load.**
5. When a sling or chain is used it must:
 - be securely connected to the lifting appliance
 - not come into contact with the edges of the load – use packing
 - not to be knotted or twisted
 - be examined and checked prior to use.
6. Every part of the load shall be securely suspended or supported whilst being raised or lowered to prevent danger from slippage.
7. When using guidelines to control a load their length must be twice the height of the lift.

Section Three: Working Practices

Working practices – emergency procedures

Emergency procedures must comply with the provisions contained in the Management of Health & Safety at Work Regulations. To ensure that those undertaking Winter Service operations are not put at unnecessary risk. The procedures given below are guidelines only and are not intended to supersede any instructions provided by the employer.

Emergency Telephone Numbers - 999 or 112 if using a mobile telephone with no signal.

Listed below are some of the main hazards that winter service operators can face and the recommended emergency action to be carried out.

Vehicle breakdown

1. Contact your supervisor or base by radio or telephone if safe to do so, give following information:
 - location
 - cause if known (this will aid repair or recovery)
 - any safe routes to be taken if known.
2. Stay with the vehicle and await recovery.
3. If the engine will still run, use it to keep the heaters operating to stay warm, but if snow is falling make sure that the exhaust is kept clear or fumes may enter the cab.
4. Deploy any warning signs if carried and if possible keep the beacon/hazard lights run
5. Only leave your vehicle if it is safe to do so.

Blocked Route

1. Contact your supervisor by radio or telephone if it is safe to do so. Give as much information as possible.
2. Await instructions from your supervisor. Do not try to take an alternative route unless instructed to do so, you may get into more difficulty and your supervisor will not know where you are.
3. If communications are not possible return along your previous route to your depot, and report to your supervisor.

Road Traffic Accident

1. Contact your supervisor by radio or telephone if it is safe to do so. Give as much information as possible to ensure that the correct emergency services can be dispatched.
2. Check the further danger to any casualties that may be there, especially check the numbers as people can be thrown some distance from a vehicle involved in a road traffic accident.
3. Give assistance if possible.
4. Await the arrival of the emergency services before continuing on your route. If the route is blocked follow the action given for 'Blocked Route' above.

Do not put yourself at risk

Emergency equipment

It is suggested that the following items of equipment be carried on Winter Service vehicles for use during emergencies. Checking of these items should be part of the driver's daily checked detailed later.

1. An adequate first aid kit.
2. Fire extinguisher.
3. Hand lamp or torch.
4. Warning signs in case of breakdown. This may not always be practical due to storage problems.
5. Shovels.
6. A suitable rod for clearing blockages which may occur.
7. Tow chains or rope which must conform to the relevant regulations.
8. Amber beacons, visible from all angles.
9. Battery powered beacons in case of electrical failure.
10. Approved reflectorised 'salting or spreading' signs fitted to the rear of the vehicle.
11. Thermal blankets during extreme weather conditions.

Note

Drivers should also consider carrying a thermos flask, headgear and extra clothing. Sun glasses should also be considered against the effects of UV light.

Working practices – duties of the driver/operator

There is often controversy over the need for double manning of vehicles in winter conditions. There can be no hard and fast rule other than to refer to the employer's policy on this matter.

The decision on whether a mate is needed will depend on conditions. For example a pre-salting run with modern equipment and a radio will rarely need a mate. However, snow ploughing, particularly in remote rural areas, could well be deemed a two-man operation.

Drivers should refer to their supervisor or manager for guidance.

Keep to the correct route at the correct speed. Do not divert off your route unless permission is given.

Modern computerised salt recording equipment will rely on accurate information being provided by the driver and the importance of sticking to the designated route cannot be overstressed. If there is **any** reason for the slightest deviation or variation to the normal route this **must** be recorded.

Ensure spreading is carried out at the correct rates of spread and spread widths, according to the directions given by the supervisor and the conditions prevailing on the route.

The driver should supervise the loading of the spreader, as he is responsible in law for all aspects of vehicle safety, including security of the load. In many circumstances, it may be necessary for the driver and/or mate to operate the loading shovel. They should therefore be trained to enable them to carry out this task efficiently and safely. The driver and mate should know how to operate salt storage and loading hoppers.

Blockages that occur during spreading should be cleared using approved procedures and, if authorised and issued with the correct tools, carry out minor adjustments to the spreader mechanism on the road. Do not leave piles of salt on the highway that will cause a hazard to other road users.

Good teamwork between the driver and the mate should help to ensure that correct ploughing techniques are employed.

Maintain radio contact with control and ensure that reports are sent in accurately and punctually, in accordance with any laid down procedures. Where radio communications are not possible a telephone should be used if available.

Report accurately and promptly any changes in weather or road conditions that may affect the predetermined treatment. Do not attempt the impossible, if extra equipment is needed inform supervisor as soon as possible.

Report accurately and promptly any vehicle faults. If you need to leave your vehicle for any reason (clear blockages) inform your supervisor or base of your intentions.

Subject to the policy of the Employer, clean and maintain the vehicle spreading equipment. Washing down and lubrication at the end of each Winter Maintenance shift is essential.

The ideal situation would be where the mate is capable of driving and operating the spreader in order that he may relieve the driver during long and/or arduous shifts.

Winter Maintenance crews should be aware that their main duty is to the public, their main effort should be aimed at keeping roads open to allow vehicle and pedestrian traffic to travel safely.

Working practices – vehicle and equipment pre-start checks

To ensure that the vehicle, spreader, plough and any auxiliaries are functioning correctly the operator will need to carry out some basic checks on the equipment. These checks are not aimed at the operator carrying out any major maintenance on the equipment, but more to identify any defects that could lead to further problems developing or equipment failure.

It is equally important to ensure that there are no loose items in the cab which could cause serious injury or impede the driver in any way.

Prime mover

The following are recommended to be checked by the operator. A serious defect with tyres, lights steering or braking systems could lead to the driver being prosecuted for driving an unroadworthy vehicle on the highway.

Tyres

Check the security of all wheel nuts and hub seal caps. If any system is used to aid the driver, such as 'wheel nut indicators', then this system needs to be maintained.

There should be a minimum of 1.6mm of tread over $\frac{3}{4}$ of the width of the tyre and a minimum of 1mm on the remainder over the full circumference (this allows for uneven wear from cornering with a load). There should be no lumps, gouges or bulges in the tyre and any split over 25mm will defect the tyre, especially if any cord is exposed. All tyres must be inflated to the recommended inflation specified in the vehicle handbook, under or over inflation will effect the vehicle handling and cause uneven tyre wear. If the vehicle has twin rear wheels check that there are no objects trapped between the wheels.

Lights

All lights need to be checked thoroughly, as salt will corrode wiring. Any auxiliary lighting also needs to be checked such as beacons, loading lights and rear spot lights.

Steering

Most Winter Maintenance vehicles are fitted with power steering, if the steering feels heavy or stiff there may be a fault with the system. Turn the steering wheel from full lock to full lock and check for any signs of stress to the system. If the steering wheel is adjustable, move it to suit your driving position. The steering wheel must be in good condition and free from any defects.

Brakes

Nearly all modern LGV vehicles are fitted with air brakes. The operation of the brakes is by means of charging air cylinders via a compressor driven by the engine. Operation of the foot or parking brake releases air into the brake cylinders causing the brake drums to come in contact with brake linings. With winter service vehicles there is the problem of salt corroding the system and causing brake failure. Indicators are usually located on the instrument control panel and give the driver an audible warning if the pressure in the air cylinders falls below the safe operating limits. If this warning sounds during driving, stop the vehicle safely and do not attempt to drive until the fault has been rectified by a competent person. Air tanks must be drained regularly to prevent the build up of water, which could freeze during winter. In addition to the main checks above there a number of other checks to carry out.

These are listed below:

1. Fuel.
2. Oil levels, and the condition of the oil.
3. Steering oil levels.
4. Coolant levels.
5. Windscreen washer fluid.
6. Horn.
7. Wipers.
8. Heat/blower.
9. Security of any ancillary equipment such as snow plough mounting frames.
10. Hydraulic hoses and unions for any sign of wear, corrosion and leaks.

All the checks listed in this section should be carried in accordance with the manufacturer recommendations or the instructions given by the employer. If any fluid needs to be topped up, use only the recommended fluids as advised in the manufacturer's handbook or the instructions given by the employer. Any defects found must be reported immediately using the approved reporting procedures.

Spreader bodies

To ensure safe and efficient use of the spreader, whether fixed body or demountable, it is essential that the operators carry out pre-start checks. These must be in accordance with the manufacturer's recommendations or instructions from the employer. Any defects must be reported using the approved reporting procedures laid down by the employer.

The following are routine checks that can be carried out by the operator:

1. Check the overall condition of the spreader body for signs of damage and ensure there is no debris in the hopper.
2. Check any mounting bolts used to fix the spreader to the vehicle body show no signs of excessive corrosion or looseness.
3. Check the condition of any hydraulic systems for:
 - signs of any leaks in hoses, seals, valves and joints (hydraulic systems should never be painted as this will hide any defects)
 - security of hose clamps
 - the general condition of the above (salt will corrode joints rapidly)
 - the oil is at the correct level
 - do not run bare hands along hydraulic hoses to check for leaks.
4. Check the condition of the conveyor belt or delivery system.
5. Set the discharge door/gate to the appropriate setting with computerised controls.
6. Check the discharge chute for any damage or obstructions.
7. Set the distribution chute to the appropriate spread pattern.
8. Check the spinner is free to rotate and there is no undue movement.
9. Once all the above checks have been carried out and there are no defects which should be reported, ensure that all operating controls work properly.

Demountable bodies

1. In addition to the checks listed above, ensure that the vehicle bed is free from any obstructions that may impede mounting the spreader.
2. Follow the correct procedures to fit the spreader body to the vehicle. **When connecting hydraulic hoses or electrical supply, ensure that the vehicle engine is switched off.**
3. Once fitted check that any ancillary equipment is working, beacons, load light etc.
4. Once all the above checks have been carried out and there are no defects which should be reported, ensure that all operating controls work properly.

Also check any other equipment that may be fitted in accordance with the manufacturer's instructions or the instructions given by the employer.

Working practices – Salting Operations General Safety Precautions

The following safety precautions have been put together as a result of observing Winter Maintenance operations in most operational situations and environments. Drivers, especially, have been a major source of information.

1. Avoid handling salt without the appropriate PPE. Open wounds should be covered to prevent contact.
2. Be aware of the effect of salt leaving the spinner at speed. Before starting salting, turn down the spinner and rate of spread to the minimum. This will allow following vehicles to pull back and avoid getting a blast of salt. After starting slowly, increase the spinner and then the conveyor to the predetermined spread rate.
3. Where the controls of the spreader allow, it is preferable to start the spinner on leaving the depot and start the conveyor at the point where salting is to begin. This 'warms up' the hydraulics and prevents a build-up of salt on the spinner.
4. Avoid using the "blast" or "spot" button in built up areas. If necessary to put down extra salt, use the conveyor control if fitted.
5. Salt spread at a rate over 40g/m² is considered environmentally damaging and will have no added advantage. It can be more of a hazard to road users and pedestrians.
6. Keep a check on where the salt is spread and take action to prevent salting of the footways and verges. Be aware that when salting a smooth carriageway the salt will slide further; reduce the spinner to compensate for this. On a carriageway, which is surface dressed, the salt will have a tendency to hold in the voids but your vehicle speed, if excessive, will cause the salt to bounce up. Remember your vehicle speed also affects where the salt will lie.
7. Try to read the road and alter the controls to suit the conditions. Setting the controls to a pre-determined pattern will not necessarily suit the entire route.
8. If you are familiar with the route you are given, try to find out where the known 'black spots' are and any peculiarities of the route. The more details you can get the better you will be prepared.
9. When fitting spreaders or ploughs to vehicles observe any organisational safety procedures. Never attempt to do something for which you have received no formal training.

Working practices – use of salt on the highway

These notes give guidance about the use of rock salt for the winter maintenance of roads, including its value as an aid to snowploughing and the precautions necessary to achieve economy and to lessen both the likely and long-term effects of salt on the environment.

Use of and action of salt

Common Salt (Sodium Chloride)

Salt dissolves in water and lowers the freezing point. Salt will melt ice already formed on the Highway. Salt will melt snow and ice at temperatures as low as minus 21°C. However, at temperatures below minus 10°C, the quantities of salt required increase to a point where its use becomes environmentally and economically undesirable. Usually, in Britain, with rare exceptions, the temperature during periods of icing or snowfall is usually above minus 3°C: this explains why salt is the most commonly used chemical.

Precautionary Salting

The recommended spread rate for precautionary salting is 10 grams per square metre. Every effort should be made to spread rock salt at the recommended precautionary rate before the onset of freezing conditions. This not only prevents the formation of ice, but also prevents snow from adhering to the road surface. For precautionary salting to be effective, an assessment of weather trends based on weather forecasts and local knowledge is necessary. Salting allied to weather forecasts etc, can reduce unnecessary salt spreads to a minimum and lessen the possibility of brine contamination of roadside vegetation and watercourses during the winter months.

Treatment of Ice

Where ice has already formed on the road surface it is recommended that rock salt be applied at rates of up to 40 grams per square metre, depending on the amount of ice to be removed and the temperature. This makes certain a rapid melt and an improvement in road conditions within a reasonable time.

Treatment of Snow

The salt spreading rate recommended for melting up to 40mm of fresh snow at 0°C under traffic, is up to 40 grams per square metre. Although repeated applications of salt can remove a heavy snowfall and can be a useful method of operation in urban areas, where congested conditions make use of snowploughs difficult and snow removal impractical: this approach is not recommended unless there is no other way on non-urban roads and even on urban roads. Where conditions allow, ploughing is recommended as soon as snow depths exceed 30mm or 40mm; each pass of the plough may be supplemented by salt spread at the rate of 10 grams per square metre. This will prevent snow from compacting and so ease the passage of ploughs.

Ploughing aided by light salting has the advantage that winter maintenance vehicles require less reloading. Should temperature drop and the need for ploughing operations continue, it is important to carefully monitor the air temperature so that spread rates may be increased up to 40gm/m². Having thermometers located at suitable open sites in depots best does this. Vehicle mounted thermometers can be useful but tend to be misleading unless careful thought is given to their placement and mode of use. If using these recommended ploughing salting techniques at no time, even under worst conditions, should it be necessary to spread at rates in excess of 40gm/m².

Treatment of hard packed snow and ice

If hard packed snow or ice does form down to minus 5°C, provided it is not more than 20mm thick, removal is possible by using successive salt spreads at 20 grams per square metre. At a temperature below minus 5°C where the hard packed snow or ice is more than 20mm thick the use of salt alone will result in an uneven and slippery surface. In these circumstances, abrasives added to the salt will assist in making the surface less slippery. A single sized abrasive aggregate is recommended: either of particle size 6mm to 10mm or a 5mm sand having a low percentage of fines. Particles over 10mm size are not recommended because of the risk to pedestrians and vehicles. The particles should be angular in shape but not sharp enough to cut vehicle tyres. Cinders are suitable but should be free from chemical compounds, such as sulphates, which may degrade concrete.

Reversion to salt only should be made as soon as possible since abrasives contribute little to the removal of the snow and ice and may block drains and gullies.

Sustained Low Temperatures

Sustained low temperatures are rare in Britain, for each drop in temperature below a minimum of 5°C the amount of salt needed to maintain a given melting effect increases by about 14 grams per square metre. Where the road is subject to traffic, however, little or no increase is required until sustained temperatures are evident.

Where temperatures below minus 10°C are reached the amount of salt required increases markedly and the addition of some calcium chloride to the salt may be useful. However, the cost of calcium chloride is high and because it absorbs moisture more rapidly from the air its storage is difficult.

Calcium chloride is usually supplied in flake form contained in plastic bags. A mixture of four parts salt to 1 part calcium chloride should suffice on the very few isolated sites where a need may arise.

Recommended rates of spread (g/m²) of salt for various conditions

Serial	Type of Treatment	Spread rate of salt g/m ²	Remarks
1	Precautionary salting	10	
2	Treatment of ice	10-40	If a rapid thaw is required to restore skid-resistance quickly, 40 g/m ² should be applied
3	Treatment of snow	10g/m ² /25mm/°C below 0°C	See table below
4	Treatment of hard packed snow and ice a) down to -5° b) below -5°c	20 nil	Successive salt spreads as necessary Use abrasives
5	Sustained low road temperatures	nil	Use abrasives

Quantity of salt (grams/m²) required to reduce snow to slush

Temperature (°C)	Depth	Of	Snow	(mm)
0	25	50	75	100
-1	10	20	30	40
-1	20	40	60	80
-2	30	60	90	120
-3	40	80	120	160

Note:

1. Falls of snow over 50mm deep are not usually removed by the used of salt alone. Snow in excess of 50mm deep is best removed by ploughing and salting.
2. Quantities of salt shown in the shaded area of the table will necessitate more then one application as they are beyond the capabilities of most salt spreaders.

Lengths of road (miles) which can be treated with one tonne of salt, at various rates and widths of spread

Rate of spread (g/m ²)	Distance covered (miles) for spread width of				
	4m	5.5m	6m	6.7m	7.3m
10	15.5	11.2	10.3	9.2	8.5
20	7.7	5.6	5.1	4.6	4.2
30	5.1	3.7	3.4	3.0	2.8
40	3.8	2.8	2.5	2.3	2.1

The table above is taken into account when deciding upon vehicle type and hopper capacities.

Note:

Salt with a high moisture content will adversely affect the rate of spread and this should be taken into account.

Working practices – snowploughing

Introduction

Snowplough blades for Winter Maintenance are manufactured in a number of shapes and sizes for mounting on a variety of different vehicles e.g. heavy goods vehicles, 4 x 4 vehicles and agricultural tractors.

Blades are normally supplied complete with a sub-frame to suit the particular vehicle's fixing brackets and have hydraulic controls to operate the blade from the driver's cab: the hydraulic ram is mounted on the front of the vehicle.

The blade is easily mounted or removed and is normally secured by three or four quick release pins. When the blade is removed the hydraulic ram, with flexible pipe, is 'parked' in a clip thus leaving the vehicle ready for other work. These operations should only take a few minutes.

Types of blades

Straight blades

These are used for general snowploughing. Blades, mounting brackets and sub-frames are normally designed to enable the positioning of the blade for ploughing straight ahead, or the blade may be angled (up to 30-35 degrees deflection) to either the left or right to enable the snow to be pushed to one side or the other of the vehicle.

Vee blades

These blades are particularly useful for opening of snowdrifts or deeply snowed-in roads. The blade is locked centrally on the axis of the vehicle and pushes the snow to both sides of the vehicle. As well as its use in deep snow and snowdrifts, this type may also be used as a general-purpose snowplough. A common fault when using blades of this type is to mount them on vehicles of insufficient power and weight.

Combination straight/vee blades

This type of blade has been developed to fulfil the need for a single unit which will deal equally well with plain snowploughing and with drifted snow. The transition from the straight to the vee configuration is simply and quickly made. The blade in the straight formation can be slewed for angle ploughing in the normal way but in the vee formation it is locked centrally on the axis of the vehicle.

Rubber edged snowplough ('squeegee plough')

This type of plough is suitable for the clearance of fresh snow before compaction by traffic, to any marked degree, has taken place. It is also suitable for the clearance of slush. The manufacturer claims that this plough is effective in the clearance of thin layers of snow, from 6mm deep. The blade runs in direct contact with the road surface and due to its flexibility causes minimal damage to street furniture, cats eyes, etc. Blades are available from 1.200m to 3.657m in length. A variety of 'A' mounting frames and bumper and axle fittings are available to suit most vehicles. A particular use for the rubber bladed snowploughs is the removal of snow from locations where chemical treatment is either prohibited or inadvisable, eg metal bridges.

Motorised graders

If available, motorised graders can be used as a useful supplement to the more conventional snow clearance equipment.

Ploughing

Ploughing becomes effective when snowfall exceeds approximately 50mm in depth. Lighter falls may call for ploughing where local drifts have occurred, Ploughing may be required to remove snow not dispersed by traffic, ie in cases where drivers are reluctant to use the right hand lane of a dual carriageway, or where traffic is light (at night for instance).

When prolonged falls are forecast, it will be found useful to plough continuously from the onset of snow, to prevent build-up and to prevent compaction by traffic. Such ploughing can be combined with simultaneous salting at rates up to 40g/m² so that a wet base is maintained. However, once snow depths of 125mm have been reached, either when tracking snowdrifts or where vehicles are operating on gradients, it may be desirable to continue ploughing without salting. The weight of a part load of salt will aid vehicle traction when ploughing.

Snowploughing policy

In the interest of traffic safety it is necessary to have a snow clearing policy that is readily understood and acted upon by all staff. The policy suggested and outlined below is one suitable for clearance of motorways and other dual carriageway roads.

The core of the policy is **clearance by lane** with the ultimate object of **clearing all lanes**. Motorway and dual carriageway lanes are defined by broken white lines and/or cats eyes which drivers are accustomed to use as guides. It is therefore bad practice to make ploughing passes which leave traffic guided by irregular windrows of snow that weave from one lane to another or even on and off any hard shoulder. The effect of such ploughing for traffic is dangerous in daylight and even more so at night.

It is undesirable to leave only half lanes clear, as drivers are tempted to overtake dangerously by squeezing past at speed. Similarly, the ploughed windrows of snow should form a smooth and continuous line without sudden encroachment into the cleared path, which may lead to overtaking vehicles being obliged to brake hard and risk hitting windrows at speed.

It is also undesirable to leave a motorway or other dual carriageway road without some stretches of cleared hard shoulder, lay-bys or verge as refuges for broken down or abandoned vehicles.

The ultimate aim must always be to clear all lanes and any hard shoulder as soon as conditions permit; clearance work should proceed continuously to this end. If clearance work is stopped during a snowfall, resultant snow build up takes disproportionately longer to clear. Packed snow, glazed by the wind, can be particularly difficult to remove.

If one or more lanes are left uncleared and a thaw sets in, these lanes, under the action of the thaw, will go through an uncontrolled transitional stage of semi-clearance, which might tempt imprudent drivers to risk overtaking through the restricted gaps that will develop.

A question that must be answered by anyone involved in snow clearance from motorways or other dual carriageway road is **which lane to clear first**.

Due to variations in local weather conditions, snow depth, snow wetness and road topography it is difficult to be precise on the order of lane clearance. Local traffic densities and movements differ from day to day, even within a day, and can affect lane clearance priorities. The presence of broken down or abandoned vehicles must also be considered.

It is felt that more than two lanes of snow ploughed on to the central reservation would prove impracticable and potentially hazardous to traffic since snow build-up could lead to flooding when temperatures rise. Indeed, on some dual carriageway roads it may not be practicable to plough any snow onto the central reservation.

Suggested lane clearance

Three lane motorways and dual carriageway roads

- 1st, plough snow from centre lane to left hand lane
- 2nd, plough from left hand lane and slip roads to hard shoulder
- 3rd, plough snow from hard shoulder to verge
- 4th, plough snow from right hand lane to central reservation.

Some authorities choose to plough snow from the left hand lane and slip road to the hard shoulder first. This approach may have particular merit when snowfall is heavy and persistent but because of fuel waxing, for instance, or obliterated windscreen, can easily force plans to change to a centre lane first start. This suggests that a flexible approach must be maintained.

Two lane motorways and dual carriageway roads

- 1st, plough snow from left hand lane and slip roads to hard shoulder
- 2nd, plough snow from hard shoulder to verge
- 3rd, plough snow from right hand lane to central reservation.

On some dual carriageway roads it may not be possible to plough snow from the right hand lane onto the central reservation. In any case, it must be appreciated that excessive speed when ploughing snow onto the central reservation can result in danger to oncoming traffic on the opposite carriageway.

Echelon ploughing (two or more vehicles moving in the same direction one behind the other in adjacent lanes) when adequate vehicles are available, makes for rapid clearance in the worst conditions.

The maintenance of clear interchanges is important. At least one lane of each slip road should be cleared as soon as possible, together with appropriate links on roundabouts and junctions.

Hazards and problems related to snowploughing

It is most important that operatives are aware of the various hazards and problems that they are likely to encounter whilst engaged in snowploughing operations. Some identified hazards and problems are discussed below.

Ballast

It will be found that most ploughing vehicles will require ballast of some kind in order to achieve the necessary traction. In the case of bulk spreaders this ballast will consist of the salt or abrasives carried in the hopper. It should be noted that many vehicles used for snowploughing will not possess the power to cope with both a full load and the snowploughing. Because of this lack of the necessary power (due to the fact that most vehicles are not specifically designed for winter maintenance duties but are designed for load carrying only) it may be found that many vehicles will have to be part-load and that this is positioned over or just forward of the rear axle. A point for consideration is that salt retained in the vehicle hopper for ballast only purposes may compact and become difficult to discharge when required; because of this it is recommended that aggregate be used as ballast.

Steering

Operation of snowploughing, particularly when the blade is angled, will affect the steering characteristics of the vehicle. When ploughing, operatives must be aware of the tendency for the vehicle to be pushed in the opposite direction to that in which blade is angled and make due allowance to counteract this effect. Practice and experience, where possible under supervision and in operational conditions, will be necessary before an operative may adequately cope with this problem.

Gears

When ploughing, operatives must use the correct gear at the correct time and in the correct place. The use of too high a gear may result in a lack of necessary power to plough, this in turn could result in an increased tendency for the vehicle to be pushed away from the direction of ploughing, thus aggravating the steering problem. In the event of encountering a snow obstacle, which is beyond the ploughing capability of the vehicle, the use of too low a gear and/or four-wheel drive could result in vehicle damage, such as distortion of chassis members. Operatives must be aware of the capabilities of their vehicle under all circumstances and must drive within those capabilities. Experienced drivers will know when to change up or down to suit the road conditions.

Damage to street furniture and road surface

Some steel snowplough blades are fitted with rubber edges to avoid damaging the road surface and items of street furniture such as cats eyes. Even if rubber edges are fitted to the blade, damage to the road surface and street furniture could occur if the rubber edges were in contact with the road surface while snowploughing, contact with the road surface would also rapidly wear out the rubber. Some authorities do not fit rubber edges to plough blades; they use mainly steel edges blades. To make certain that blade edges do not come in contact with the road surface castor wheels are fitted to most snowploughs. These castor wheels should be adjusted so that the edge of the blade is at least 15mm clear of the surface of the road. This will, of course, mean that a thin layer of snow will remain in the road even after ploughing: this should be dealt with by salting, either by the snowplough vehicle itself or by a separate vehicle.

Blade travelling position

If travelling at any time other than when snowploughing, the blade should be raised and locked in to the travelling position using the travelling stays or supporting chains. Failure to do this may result in severe damage and/or injury, in the event of hydraulic failure whilst moving. When unlocking the blade, personnel must ensure that they are clear of the direction of fall of the blade in case hydraulic failure has occurred while the blade is locked.

Blade position when vehicle is parked

It is recommended that blades are either locked in the travelling position or rested on the castor wheels when the vehicle is parked. If castor wheels are not fitted, suitable timber parking should be used to support the rubber edge, if fitted, just clear of the ground.

Broken down vehicles

Operatives must be aware of the danger posed by broken down vehicles which may lie on the proposed ploughing route and which may not be seen due to bad visibility. This problem is likely to be particularly acute on the left hand lane or hard shoulder of a motorway or other dual carriageway. In deep drifted snow it is possible that broken down vehicles may not be abandoned but may contain people inside.

Width of clearance

Operative must ensure that they plough sufficient width of the carriageway to cater for the type and density of traffic that will use the road. A common fault is to plough too narrow a clearance, to rectify this it may be necessary either to plough in echelon with two or more vehicles or to make a number of passes with one vehicle.

Damage to hedgerows and walls etc.

Care should be taken to avoid damaging buildings, walls and hedges at the sides of the roads with the plough blade. It should also be realised that the pressure of the ploughed snow being pushed or thrown against these objects may damage them without the blade touching them. Any damage known to have been caused by ploughing should be reported to management as soon as possible.

Crossing the central reservation

It is dangerous for Winter Maintenance vehicles to cross from one carriageway to the other, during the course of Winter Maintenance operations on motorways and other dual carriageway roads, via the central reservation. All operatives should use the normal interchanges unless the weather or traffic conditions make it absolutely necessary to use emergency crossings. They should be instructed to take all possible precautions to protect their own safety and the safety of other road users.

Snow ploughed across centre reservations

Excessive speed, while ploughing the right hand lane of a motorway or other dual carriageway road, may result in the snow being thrown across the central reservation, resulting in a danger to oncoming traffic on the opposite carriageway.

Bulk clearance of snow

Where there is deep snow beyond the capabilities of snowploughs, it will be necessary to achieve clearance using snow blowers, dozers, loaders and tippers etc, to remove the obstacle. This method may also be necessary in such places as restricted urban areas, roads over road/rail bridges etc.

Care of snowplough frame

Snowplough frames fitted to vehicles must not be misused, eg as securing points for towing or recovery operations. Misuse of this kind can lead to severe distortion of the frame, and make fitting of blades extremely difficult or even impossible. When not fitted to vehicles, snowplough blades should be stored in a manner that will ensure that the blade and frames are not damaged or distorted. It is also desirable that blades are stored in such a way that they are readily and easily accessible when required for mounting on the vehicles.

Kerbs and banks etc

Due to the fact that these are obscured by snow, there is a danger that the driver will strike them with the snowplough blade occasioning damage to the kerbs etc. and/or the ploughing vehicle.

Visibility (ploughing vehicle driver)

Driver visibility during snowploughing operations may be severely impaired. Therefore, attention should be paid to the following:

1. Headlights are working at maximum efficiency and correctly focused.
2. Spotlights are working at maximum efficiency and correctly focused.
3. Rear of snowplough blade painted with a high visibility colour but not one that will excessively reflect light and dazzle the driver.
4. Clearly mark the extreme edges of snowplough blades; this will assist other drivers when overtaking, particularly where the blade is wider than the ploughing vehicle. It should be noted that in a right hand drive vehicle the snowplough driver is unlikely to be able to see the left hand edge of the snowplough blade when this is angled for ploughing to the left.

Snowplough baffles

Many snowplough blades are manufactured with baffles on the top of the blade, which roll excess snow forward. Where blades are not fitted with these baffles there is a danger that this excess snow will be pushed back over the top of the blade and under the ploughing vehicle: resulting in inefficient snow clearance and an unnecessary hazard to the snowplough crew.

Inexperience

Inexperienced snowplough drivers are likely to travel so slowly that the snow will not be thrown off the road. Driving too slowly will allow snow to build up in front of the plough blade and cause a loss of steering and traction. This can cause the rear of the vehicle to slew into the path of oncoming traffic.

Snowplough fitting

The following is aimed at ensuring that snowploughs are fitted, adjusted and used correctly for snowploughing operations. It is the responsibility of the driver/operator to ensure that the snowplough is safe and suitable for use. Any snowplough that is in any way defective, so as to make it unsuitable for use, must not be used and the defect must be reported to the appropriate person.

In case of hydraulic failure, travel bars (safety devices) must be used when transporting the snowplough when it is not in use. It is both dangerous and illegal to take an insecure snowplough on the highway.

Access

1. To facilitate easy fitting the snowplough must be sited where access is not restricted.
2. The snowplough should be left in a stable position on level even ground.
3. Consideration must be given to safe manoeuvring when mounting or de-mounting the snowplough.

Mounting the Snowplough (angled blades, twin yoke system)

1. Ensure that the snowplough is suited to the vehicle and mounting frame assembly.
2. Make sure that all pins and safety clips are available and in good condition.
3. Check the condition of the snowplough and any baffles, rubber blades, lights or reflectors.
4. Check any hydraulic systems for leaks, deterioration and damage.
5. Check the castor wheels are in good condition. Where pneumatic tyres are fitted, check that they are inflated to the appropriate pressure.
6. Check the condition and security of the vehicle-mounting frame.
7. Ensure that any safety devices (travel safety bar/chain) are available and in good condition.
8. If the snowplough is fitted with a "twin yoke" arrangement, support the lower yoke to the height of the vehicle mounting frame to ease guiding the vehicle onto the snowplough. Remove the top yoke to facilitate easy access and prevent the yoke falling and causing injury.
9. Direct the vehicle onto the snowplough safely. Do not stand between the snowplough and the vehicle during this operation.
10. Switch off the engine and fit the lower yoke with the correct pins. If a traverse bar is to be fitted ensure that the pins are elongated to facilitate the traverse bar and fitted inside out.
11. Fit the hydraulic ram with the correct pins.
12. Fit the upper yoke with the correct pins.
13. Ensure that all safety clips are in place
14. Raise and fit the traverse bar.
15. Once the snowplough is fitted, check that it operated correctly.

Adjusting the Snowplough

Most angled blades are adjusted by moving the castor wheels up or down: refer to the manufacturer's instructions for more information. Always make allowances for the load you will be carrying.

The following is a guide:

1. Lower the snowplough onto even ground and drive forward to take up any 'slack' in the mounting assembly and to ensure that the castor wheels are in their running position.
2. Check the clearance of the blade to the surface; allowances should be made for any road camber.
3. If a steel blade is used ensure a gap clearance of at least 50mm along the width of the blade is achieved. Adjust as necessary.
4. If a rubber blade ('squeegee') is fitted the blade can be just clear of the ground, preferably with a 15 - 25mm clearance. Adjust as necessary.

Once the snowplough has been adjusted, raise and secure the blade in the travelling position. During operation regularly check the security of the snowplough. If a snowplough becomes damaged during operation report it to your supervisor and stop using it. A snowplough that is not fitted correctly or is not set up correctly will cause damage to the vehicle, plough and any street furniture.

Mounting the Snowplough (Vee-Blades)

All of the above procedures apply to vee-blades.

Always refer to the manufacturer's instructions or to the instructions given by the employer to be certain that you comply with any safe working practices and procedures.

SNOW CLEARING AT LEVEL CROSSINGS; FROM ROAD BRIDGES OVER RAILWAY SYSTEMS AND FROM ROADS PROXIMATE TO RAILWAYS.

1. CLEARANCE TO BE EFFECTED BY HIGHWAY AUTHORITY

British Rail rarely need to use snow ploughs, and even when they do so the result may be unsatisfactory for highway purposes. It has, therefore, been agreed that the appropriate highway authority should continue its ploughing operation over crossings situated on roads which are being cleared. There must, however, be proper liaison between the highway and rail authorities and care must be taken that snow does not build up across the tracks or against gates and barriers.

2. GUIDANCE ON THE USE OF VARIOUS VEHICLE TYPES – MECHANICAL SAFETY

Snow-Ploughs, Snow Blowers and Snow Cutters of the Rotary Type. Rotary equipment should NEVER be used to clear snow from any type of level crossing since there is a danger of the lower blade and support shoes fouling the rails. Department of Transport/Ploughing/Salt Vehicles. These may be used for snow clearance at level crossings subject to observance of paragraphs 3 and 6 below.

Local Authority Vehicles

Winter maintenance equipment, owned or operated by local authorities, varies considerably. Close cooperation is therefore essential between an authority and British Rail about the machinery available and how it can be used with safety and to the fullest advantage for clearing snow from, and spreading salt on, level crossings.

3. GUIDANCE RELATED TO VARIOUS TYPES OF LEVEL CROSSING

Unmanned Crossings with Automatic Half Barriers.

These are connected by telephone to the signal box controlling that particular section of line. The driver of a snow-plough must always obtain permission by telephoning the controlling signalman for safety clearance before proceeding on the crossing. It is essential that snow be cleared from both lanes of a carriageway at half barrier crossings and not part cleared and the other left covered with snow, even for a short time, road users may be tempted to weave around one of the half barriers in order to get on to the clear lane. With the opposite half barrier closed vehicles could be trapped or staff on the crossing with a train approaching. After the snow has been cleared the driver must park his plough at a safe distance from the railway track and return on foot to report to the signal man as quickly as possible that he is now clear of the crossing. In so doing he must confirm to the signalman that snow has not been built up across the track in such quantity as to impede trains.

Unmanned Crossings Controlled by Miniature Red/Green Lights

These too are connected by telephone to the appropriate signal box. Again the driver of the snow plough must always obtain permission by telephoning the controlling signalman for safety clearance before proceeding on to the crossing and subsequently report that he is clear in the same way as for crossings with automatic half barriers.

Closed Circuit Television and Remotely Controlled Crossings Operated by a Signalman located some way from the Crossing. These are also connected by telephone to the appropriate signal box and here again the driver of the snow-plough must always obtain permission by telephoning the controlling signalman before proceeding on to the crossing and subsequently report that he is clear.

Manually Controlled Crossings Operated by either a Crossing Keeper or a Signalman Located

Adjacent to the Crossing. Snow-plough drivers must at all times obtain clearance from the signal-man or crossing keeper before driving on the level crossing.

Unmanned Uncontrolled Crossings, usually Having Farm Type Gates or, Occasionally without

Gates. These are generally on minor roads; ploughing of unmanned uncontrolled crossings must only be carried out in accordance with prior arrangement made with British Rail.

4. EFFECTS OF PLOUGHING OPERATIONS

Snow-plough drivers must ensure, so far as it is possible, that accumulated snow is not deposited on railway tracks. Passing trains and rail snow-ploughs tend to leave windows of snow across the path of the carriageway. It is therefore suggested that highway authorities and British Rail co-ordinate plans which can be put into effect if and when this occurs.

After the crossing has been cleared the snow-plough driver must park his vehicle at a safe distance from the crossing, then return on foot to ensure that no solid objects have been deposited by the blade on or near the rails.

5. CROSSINGS UNSUITABLE FOR PLOUGHING

There are some crossings which are dangerous or impossible to plough; for instance where the road descends steeply on both sides of the crossing, or where the rail protrudes to such an extent that plough blades might be fouled. For such crossings the local highway authority should consult the appropriate Divisional Civil Engineer of British Rail about the methods best employed to clear the snow.

6. PRIVATELY OWNED CROSSINGS

Where a level crossing is privately owned, agreement should be obtained from the owner by the local authority so that the authority can take the same action as they would in the case of a public crossing. Ploughing of unmanned uncontrolled crossings should only be carried out in accordance with prior arrangements made with British Rail

7. VEHICLES TRAVERSING LEVEL CROSSING FITTED WITH SNOW PLOUGHS IN THE TRAVELLING POSITION (i.e. NOT IN USE)

When Department-owned vehicles are driven over level crossings, other than for snow clearing, the plough should always be locked in the raised position. Rotary ploughs should follow the requirements of the signs at level crossings concerning slow vehicles as set out in The traffic Signs Regulations and General directions 2002.

8. GENERAL STANDARD OF CARE

Apart from the operational requirements detailed above, highway authorities must take special care to ensure that the strictest safety precautions are taken when winter maintenance vehicles are negotiating level crossings. All snow-plough drivers must be conversant with provisions of the Highway Code and in particular those parts about the use of level crossings.

9. SNOW CLEARING FROM ROADS OVER OR NEAR RAILWAY LINES

Snow ploughs of all types can throw snow and slush distances of 10 to 15 metres (the rotary type even more) when driven at speed. Drivers of snow plough vehicles must, therefore, be made aware of road bridges over railways and stretches of road near to railways, where they should operate at an appropriate speed in order to prevent thrown snow building up on railway lines or becoming a hazard to passing trains.

Particular care must be taken where there is a danger of thrown snow damaging or creating an electrical path from overhead railway electric power lines.

Care must be taken to avoid packing snow against bridge parapets, fences or walls such that, for instance, children could climb nearer to and so tamper with overhead electric power lines.

10. SNOW CLEARING FROM ROADS OVER OTHER ROADS AND ON DUAL CARRIAGEWAYS

The opportunity is taken to draw attention to similar problems in relation to road-over-road bridges where drivers of ploughs should be aware of the dangers of throwing snow on to the lower road which would become a hazard to traffic and pedestrians.

Excessive speed when ploughing snow on to the central reserves of dual carriageway roads can result in danger to oncoming traffic in the opposite carriageway. Drivers should adjust their speed to prevent this happening.

WORKING WITH PLANT

Trained and **competent** people must only operate plant equipment. Their use is in accordance with both manufactures recommendations and training/instructions given. Unauthorised use of plant equipment may lead to disciplinary action, accidents, insurance claims and prosecutions.

General

1. Use only certified lifting chains and plant of adequate lifting capacity to load demountable bodies.
2. Snowploughs should be stored on level ground on suitable timbers at the correct height to facilitate safe easy fitting or alternatively on a suitable stand.
3. Salt containers on vehicles must not be entered whilst drive belts are in motion.
4. Amber beacons and headlamps should always be used whilst vehicles are in motion carrying out winter maintenance operations.
5. Beware of the possible effects of salt leaving spinners at speed on other road users.
6. Vehicle mounted steps should be used when mounting vehicles is necessary.
7. Do not attempt to operate plant which you are unfamiliar with without seeking guidance from your supervisor.
8. Plant defects should be reported to the supervisor at the earliest opportunity and a defect sheet submitted promptly.
9. Safety equipment e.g. first aid box, fire extinguishers and thermal blankets should be checked by drivers and at wash downs or test runs, and defects/shortages reported to the supervisor.
10. Always ensure that your vehicle carries a good supply of fuel during adverse weather conditions.
11. Plant/equipment should only be operated by suitably qualified persons, or persons undergoing a course of instruction.

The Telescopic Material Handler

The Telescopic Material Handler is classed as a Fork Lift and all relevant Health and Safety rules apply. A loading shovel in place of forks would be classed as an attachment.

1. Operatives working with the machine will wear the appropriate PPE especially safety footwear, gloves, high visibility jacket and a hard hat.
2. Trained and authorised Fork Lift Operators only must use the forks and the reach facility.
3. Appropriate PPE will be worn whilst carrying out maintenance work or changing attachments especially gloves when required and safety footwear.
4. Travel with the load as low as possible.
5. Use the correct type of machine for the work undertaken.
6. Carry out pre-start checks in accordance with the training.
7. Ensure that audible warnings and lights are operational before using the machine.
8. When loading the reach facility should be used with caution and only to marginally increase the dump height.
9. **Do Not** operate beyond the capacity of the machine.
10. **Do Not** carry passengers.

Loading Shovel

1. Operatives working with the machine will wear the appropriate PPE especially safety footwear, high visibility jacket and a hard hat.
2. Appropriate PPE will be worn whilst carrying out maintenance work or changing attachments especially gloves when required and safety footwear.
3. **Do Not** carry out any function for which the machine was not designed.
4. **Do Not** exceed the safe working capacity of the machine.
5. Care will be taken when working near overhead cables.
6. The cab will be kept tidy and free from loose objects.
7. **Do Not** carry passengers on the machine.
8. Travel with the load as low as possible.
9. Carry out pre-start checks in accordance with the training.
10. Safety stays will be fitted before carrying out maintenance.
11. Ensure that audible warnings and lights are operational before using the machine
12. Ensure that there is no one in the cab of the lorry before loading with a front shovel.
13. After loading salt wash off the loading shovel.

Drivers Hours and Working Hours

Drivers of winter service vehicles will come under the GB Domestic drivers hour rules.

1. If you are driving under the GB domestic drivers' hours rules (or are an occasional mobile worker)
2. If you drive a vehicle subject to the GB domestic drivers' hours rules or are an occasional mobile worker, you are affected by four provisions under the 1998 Regulations.

These are:

- weekly working time, which must not exceed an average of 48 hours per week over the reference period (although individuals can 'opt out' of this requirement if they want to);
- to 'an entitlement to 4.8 weeks' paid annual leave (increased to 5.6 weeks from 1 April 2009);
- health checks for night workers;
- and an entitlement to adequate rest.

The reference period for calculating the 48-hour average week is normally a rolling 17-week period. However, this reference period can be extended up to 52 weeks, if this is permitted under a collective or workforce agreement.

Exemptions

The following exemptions apply to drivers who would otherwise be subject to the GB domestic rules:

If they do not drive for more than **4 hours** a day in any week, drivers are exempt from any GB domestic rules for that week.

If they drive for more than **4 hours** for up to two days in any week, they are still exempt from the rules, but on these two days:

- all working duties must start and finish within a 24-hour period;
- a 10-hour period of rest must be taken immediately before the first duty and immediately after the last duty; and
- rules on driving times and length of working day must be obeyed.
- If any working day overlaps into a week in which drivers are not exempt from the rules, then on that day the limits on driving time and length of working day must be obeyed.
- An exemption from the rules on driving time and rest applies during any time spent dealing with an emergency.

Enforcement

VOSA enforces the working time limits and the requirement for health checks for night workers under the 1998 Regulations for drivers operating under the GB domestic drivers' hours rules (and occasional mobile workers).

Mixed EU and GB domestic driving

Many drivers spend some of their time driving under one set of rules and some under another set, perhaps even on the same day. If you work partly under EU/AETR rules and partly under GB domestic rules during a day or a week, the following points must be considered:

- The time you spend driving or on duty under EU rules cannot count as a break or rest period under GB domestic rules.
- Driving and other duty under GB domestic rules (including non-driving work in another employment) count as other work but not as a break or rest period under EU/AETR rules.
- Driving and other duty under EU rules count towards the driving and duty limits under the GB domestic rules.
- When driving under each set of rules you must comply with the requirements of the rules being driven under e.g. the daily rest provisions for domestic and the daily and weekly rest requirements for EU driving.

Domestic driving limits

Driving is defined as being at the controls of a vehicle for the purposes of controlling its movement, whether it is moving or stationary with the engine running, even for a short period of time.

Breaks and continuous driving

After **5.5 hours** of driving a break of at least **30 minutes** must be taken in which the driver is able to obtain rest and refreshment.

Alternatively, within any period of **8.5 hours** in the working day, total breaks amounting to at least **45 minutes** are taken so that the driver does not drive for more than **7 hours and 45 minutes**.

The driver must in addition have a break of at least **30 minutes** to obtain rest or refreshment at the end of this period, unless it is the end of the working day.

Daily driving

In any working day, the maximum amount of driving is **10 hours**. The daily driving limit applies to time spent at the wheel, actually driving, and includes any driving done under EU rules.

Day: The day is the 24-hour period beginning with the start of duty time.

Appendix A: Photocard Driving Licence 10 Year Update



All UK photocard driving licences need to be updated every 10 years.

The photograph on the licence is only valid for 10 years, therefore the driving licence and photo needs to be updated accordingly. Drivers will not need to retake a driving test but will of course need to submit a new photo of how they currently look.

This started to happen in **July 2008**, with the DVLA starting to issue reminders in May 2008. The holder must renew their licence before their current photo expires. Renewal is necessary to avoid a £1000 fine. The licence expiry date can be found in the section marked 4b on the front of the photocard.

The paper part of the licence however does not contain an expiry until the holders 70th Birthday.

Businesses will need to review licence holders who drive for work as employees with an out of date licence could affect vehicle insurance and therefore the entitlement to drive legally. All businesses that have employees driving for work should have a record of all drivers' licences and expiry dates, which should be updated at least annually, or every six months for any driver that is getting near the limit for a ban.

There will be a charge made for the update (check DVLA website for costs). Photocard licences replaced the traditional paper licences, which do not have to be renewed until the holders 70th birthday or if holding LGV or PSV licence from the age of 45.

However a DVLA spokesperson has said that a motorist's entitlement to drive will not be affected by failure to update the photo on the licence but it will invalidate their insurance. This is because with an out of date licence their entitlement to drive legally has ended, invalidating their car, crown or local authority insurance cover.

Source: Driver Vehicle Licencing Agency