

This risk assessment relates only to the *generic* features of a common activity; it does not cover those *specific* to a location or group. It therefore must not be used without completing the local review, making additions as necessary to take account of local circumstances. However, such a local review need not be timeconsuming. Use the box at the bottom to create the local review, or add extra pages as necessary. **SEE ACCOMPANYING SAFETY NOTES**

ACTIVITY ASSESSED		ASSESSOR	ASSESSMENT DATE
38. CHAINSAW USE		STEPHEN BOLSOVER	24 th May 2017
Even in professional hands, chainsaws are extremely dangerous. As well as identifying and guarding against specific risks, the equipment needs to be rigorously maintained in line with the manufacturers guidelines. In addition to the risk assessment and safety notes specific to chainsaw use the risk assessment and safety notes for tree felling additionally apply when a chain saw is used for tree felling.			
HAZARD potential for harm	RISK LEVEL	PRECAUTIONS	
Contact of a running chainsaw with unprotected flesh – and this includes flesh covered by even multiple layers of conventional clothing – will cause serious, traumatic injury.	H	to remove hazard or reduce risk level. One precaution may tackle several hazards.	
		All volunteers using chainsaws for any purpose should have been trained in maintenance and crosscutting and obtained a Certificate of Competence, City and Guilds Reference: 60373532 or equivalent (this used to be called “CS30”). All volunteers using a chainsaw to fell trees should have received appropriate training and obtained a Level 2 Certificate of Competence in Felling Small Trees up to 380mm – City and Guilds Reference: 60373544 or equivalent (this used to be called “CS31”). We recommend that volunteers take a refresher course in chainsaw use at intervals of three years. The maximum allowed intervals between refresher training is five years; volunteers are not permitted to use a chainsaw if it is five years or more since their last training or refresher course. Volunteers may only continue to use a chainsaw if at the most recent refresher course the instructor determines that they are safe to do so. Appropriate protective equipment must be worn. In all cases this means chain saw standard boots, trousers and hard hat with visor. Ear protectors must be worn when using a petrol chain saw and are recommended when using a battery machine. Chain saw standard gloves should be worn unless the operator assesses that their use would cause a greater risk than not wearing them - this would only apply on very hot days when gloves would become sweaty and slippery, compromising control of the machine. A chainsaw must never be held above shoulder height while cutting and should never be carried with the motor running. Chains must be changed and sharpened according to the manufacturers instructions. Fuel for petrol saws should be kept away from the felling area and in the shade. Fuel spills should be dealt with immediately. There must be no smoking within 20 metres of a fuel spill or while the chain saw is being refueled. There should always be at least one other person present to keep a look out for members of the public, act if an accident occurs, and work with the chainsaw operator if a tree gets hung up or some other unexpected problem arises.	
RISKS AND PRECAUTIONS SPECIFIC TO THE SITE OR DAY ASSESSOR ASSESSMENT DATE APPLICABLE DATES (This is likely either to be one specific day, or “until further notice”).			

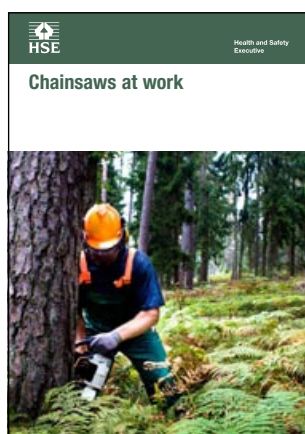
Risk level: L = Low, M = Medium, H = High

ACTIVITY ASSESSED	ASSESSOR	ASSESSMENT DATE
38. CHAINSAW USE	STEPHEN BOLSOVER	24 th May 2017
RESTRICTIONS The operator should always be standing on the ground – use of chain saws in trees is not sanctioned by the Forum. Loose brushwood should be cleared by hand, not with a chainsaw. At such times the chainsaw should be on the ground with the motor stopped. There should always be at least one other person present to keep a look out for members of the public, act if an accident occurs, and work with the chainsaw operator if a tree gets hung up or some other unexpected problem arises.		
PREVENTATIVE MEASURES		
PERSONAL PROTECTIVE EQUIPMENT A first aid kit should be readily available. Appropriate protective equipment must be worn. In all cases this means chain saw standard boots, trousers and hard hat with visor. Ear protectors must be worn when using a petrol chain saw and are recommended when using a battery machine. Chain saw standard gloves should be worn unless the operator assesses that their use would cause a greater risk than not wearing them - this would only apply on very hot days when gloves would become sweaty and slippery, compromising control of the machine.		
TRAINING All volunteers using chainsaws for any purpose should have been trained in maintenance and crosscutting and obtained a Certificate of Competence, City and Guilds Reference: 60373532 or equivalent. All volunteers using a chainsaw to fell trees should have received appropriate training and obtained a Level 2 Certificate of Competence in Felling Small Trees up to 380mm – City and Guilds Reference: 60373544 or equivalent. We recommend that volunteers take a refresher course in chainsaw use at intervals of three years. The maximum allowed intervals between refresher training is five years; volunteers are not permitted to use a chainsaw if it is five years or more since their last training or refresher course. Volunteers may only continue to use a chainsaw if at the most recent refresher course the instructor determines that they are safe to do so.		
MONITORING		
INFORMATION Chainsaw users should read the Health and Safety Executive document “Chainsaws at Work” which follows this risk assessment.		

Risk level: L = Low, M = Medium, H = High

Insert “HSE on chainsaws to insert after chainsaws 13010001.pdf” after this page.

Chainsaws at work



This is a web-friendly version of leaflet INDG317(rev2), published 01/13

Introduction

This leaflet gives guidance on using portable, hand-held, petrol-engine chainsaws at work. It is aimed at employers, the self-employed and those who control the use of work equipment and includes basic information on safe working practices which operators may find useful.

Controlling the risks

As part of managing the health and safety of your business, you must control the risks in your workplace. To do this you need to think about what might cause harm to people and decide whether you are doing enough to prevent harm. This process is known as a risk assessment and it is something you are required by law to carry out.

A risk assessment is about identifying and taking sensible and proportionate measures to control the risks in your workplace, not about creating huge amounts of paperwork. You are probably already taking steps to protect your employees, but your risk assessment will help you decide whether you should be doing more.

Think about how accidents and ill health could happen and concentrate on real risks – those that are most likely and which will cause the most harm. The following might help:

- Think about your workplace activities, processes and the substances used that could injure your employees or harm their health.
- Ask your employees what they think the hazards are, as they may notice things that are not obvious to you and may have some good ideas on how to control the risks.
- Check manufacturers' instructions or data sheets for chemicals and equipment, as they can be very helpful in spelling out the hazards.
- Some workers may have particular requirements, for example new and young workers, migrant workers, new or expectant mothers, people with disabilities, temporary workers, contractors, homeworkers and lone workers may be at particular risk.

Having identified the hazards, you then have to decide how likely it is that harm will occur. Risk is a part of everyday life and you are not expected to eliminate all risks. What you must do is make sure you know about the main risks and the things you need to do to manage them responsibly. Generally, you need to do everything reasonably practicable to protect people from harm.

Make a record of your significant findings – the hazards, how people might be harmed by them and what you have in place to control the risks. Any record produced should be simple and focused on controls. If you have fewer than five

employees you do not have to write anything down. But it is useful to do this so you can review it at a later date, for example if something changes. If you have five or more employees, you are required by law to write it down.

Few workplaces stay the same, so it makes sense to review what you are doing on an ongoing basis.

More guidance on risk assessment can be found at www.hse.gov.uk/risk.

Consulting your employees

Workplaces where employees are involved in taking decisions about health and safety are safer and healthier. Collaboration with your employees helps you to manage health and safety in a practical way by:

- helping you spot workplace risks;
- making sure health and safety controls are practical;
- increasing the level of commitment to working in a safe and healthy way.

You must consult all your employees, in good time, on health and safety matters. In workplaces where a trade union is recognised, this will be through union health and safety representatives. In non-unionised workplaces, you can consult either directly or through other elected representatives.

Consultation involves employers not only giving information to employees but also listening to them and taking account of what they say before making health and safety decisions.

Issues you should consult employees on include:

- risks arising from their work;
- proposals to manage and/or control these risks;
- the best ways of providing information and training.

For further information on your legal duties see the HSE leaflet *Consulting employees on health and safety: A brief guide to the law* (see 'Further reading').

See the worker involvement website for more information on consulting with your employees (www.hse.gov.uk/involvement).

Fitness to operate a chainsaw

Operators need to be reasonably fit, both physically and mentally, if they are to use a chainsaw safely. People with disabilities do not need to be excluded from work with chainsaws, but medical advice may restrict the tasks they can do and require increased supervision.

Certain medical conditions may affect the ability of a person to operate a chainsaw safely. Seek further medical advice if prospective operators have any condition affecting, eg their:

- mobility (eg arthritis, stroke);
- alertness (eg diabetes or alcohol/drug dependency);
- physical strength (eg heart conditions);
- vision (which cannot be corrected by glasses or contact lenses);
- manual dexterity/grip strength (eg vibration white finger);
- balance (eg vertigo, giddiness or epilepsy).

Operators need to inform their employers when they are taking prescribed medication which may affect their ability to operate a chainsaw safely.

New workers

Workers are at particular risk of injury in the first six months of a job, when they are more likely to be unaware of risks. Follow these six steps to protect new workers:

- Assess the new starter's capabilities.
- Plan and provide an induction.
- Make sure control measures to protect them against risks are up to date and being properly used and maintained.
- Provide relevant information, instruction and training.
- Provide effective supervision.
- Check workers have understood the information, instruction and training they need to work safely.

See HSE's website for more information (www.hse.gov.uk/diversity/new-to-the-job.htm).

Young workers

A young person is anyone under 18 and a child is anyone who has not yet reached the official minimum school leaving age which may be just before, on, or just after their 16th birthday.

Employers are responsible for ensuring a young person is not exposed to risk due to lack of experience, being unaware of existing or potential risks or a lack of maturity.

You must let the parents/guardians of any child know the key findings of the risk assessment and the control measures put in place before the child starts work or work experience.

Before deciding whether you can employ a young person, you must consider:

- the layout of the workplace;
- any physical, biological and chemical agents they may be exposed to;
- the work equipment they will use;
- how work activities and processes are organised;
- the need for health and safety training.

In health and safety law, students and trainees on work experience are employees. Once you've assessed the risks to them, you must provide them with the same health, safety and welfare protection as other employees.

See HSE's website for more information on young people (www.hse.gov.uk/youngpeople).

Health risks

Chainsaws expose operators to high levels of noise and hand-arm vibration, which can lead to hearing loss and conditions such as vibration white finger. These risks may be controlled by good management practice such as:

- buying low-noise/low-vibration chainsaws (eg with anti-vibration mounts and heated handles);
- providing suitable hearing protection;
- proper maintenance schedules for chainsaws and personal protective equipment (PPE);
- giving information and training to operators on the health risks associated with chainsaws and use of PPE etc.

Encourage existing chainsaw operators to report any signs or symptoms which may affect their ability to use a chainsaw safely or may indicate adverse health effects from noise and/or vibration. Employers are required to carry out health surveillance of their employees where they cannot reduce noise or hand-arm vibration exposure to safe levels.

See HSE's website for more information (www.hse.gov.uk/noise/index.htm and www.hse.gov.uk/vibration/index.htm).

Providing information, instruction and training

Everyone who works for you needs to know how to work safely and without risks to health. You must provide clear instructions, information and adequate training for your employees on:

- the risks they may face;
- measures in place to control the risks;
- how to follow any emergency procedures.

It is particularly important to consider the training needs and supervision of:

- new recruits and trainees;
- young people who are particularly vulnerable to accidents;
- people changing jobs, or taking on new responsibilities;
- health and safety representatives, who have particular laws relating to them.

For more specific advice, see the HSE leaflet *Health and safety training: What you need to know* (see 'Further reading').

Chainsaw use

Chainsaws are potentially dangerous machines, which can cause major injury if used by untrained people. Anyone who uses a chainsaw at work must receive adequate training and be competent in using a chainsaw for that type of work.

Use of chainsaws in tree work

The Approved Code of Practice, *Safe use of work equipment*, supporting regulation 9 of the Provision and Use of Work Equipment Regulations 1998 (PUWER 98) (see 'Further reading') sets a minimum standard of competence for people using chainsaws in treework:

'All workers who use a chainsaw should be competent to do so. Before using a chainsaw to carry out work on or in a tree, a worker should have received appropriate training and **obtained a relevant certificate of competence or national competence award**, unless they are undergoing such training and are adequately supervised. However, in the agricultural sector, this requirement only applies to first-time users of a chainsaw.'

This means everyone working with chainsaws on or in trees should hold such a certificate or award **unless**:

- it is being done as part of an agricultural operation (eg hedging, clearing fallen branches, pruning trees to maintain clearance for machines); **and**
- the work is being done by the occupier or their employees; **and**
- they have used a chainsaw before 5 December 1998.

In any case, operators using chainsaws for any task in agriculture, or any other industry, must be competent under PUWER 98.

See the HSE leaflet *Training and certification* (see 'Further reading') for further guidance on the level of training and certification appropriate for treework.

Training provision

Training needs to be carried out by suitably qualified instructors. External sources that may be able to provide appropriate training include independent training providers, instructors and colleges. Advice on suitable training courses (and competence assessment where appropriate) is available from your industry Sector Skills Council and sources listed under 'Further information'.

Where training is being consolidated through workplace-based experience, the trainee should be supervised by a person competent in using a chainsaw for the work being done by the trainee. The supervisor should hold the relevant competence certificate or award.

All chainsaw operators should do regular refresher/update training to ensure they work to industry best practice and maintain their levels of competence. The suggested intervals for refresher training are:

- occasional users – every two to three years;
- full-time users – every five years.

Supervision of trainees at training courses and training at work

The ratio of trainees to instructors should reflect:

- the level of experience of trainees;
- the content of the training;
- the location/terrain where the training is being carried out.

See Table 1 for a general guide to the ratio of trainees to instructors.

Suitable records of training should be kept for those trainees deemed to be safe and competent but who need to consolidate their competence through workplace-based experience before undergoing external assessment. During this period of consolidation, the trainee still needs to be supervised (see Table 1).

Table 1 Recommendations for the ratio of trainees to instructors

	Organised training course	Supervision of consolidation of training at work
Overall ratio	1:4	1:2
During initial practical operation	1:1	1:1
Once trainee can work safely	Degree of supervision may be reduced for individual trainees, to a maximum of 1:4, as long as the instructor continues to supervise full time	May return to 1:2 once trainee(s) have reached a satisfactory level of competence. The supervisor may then also carry out work in the vicinity

Selecting a chainsaw

There are two basic designs of chainsaw – ‘rear-handled’ and ‘top-handled’.

Rear-handled chainsaws

These have the rear handle projecting from the back of the saw. They are designed to be gripped and used with both hands, with the right hand on the rear handle. Select chainsaws which will be suitable for the intended work. You may need a range of saws with different guide bar lengths. As a general rule, choose a chainsaw with the shortest guide bar suitable for the work. Training in how to use chainsaws will identify the type and size of saw most suited to a range of operations.

Top-handled chainsaws

These saws have the rear handle over the top of the engine. **They are only suitable for use off the ground by trained competent arborists.** They are not designed for use on the ground or as a substitute for small, rear-handled chainsaws.

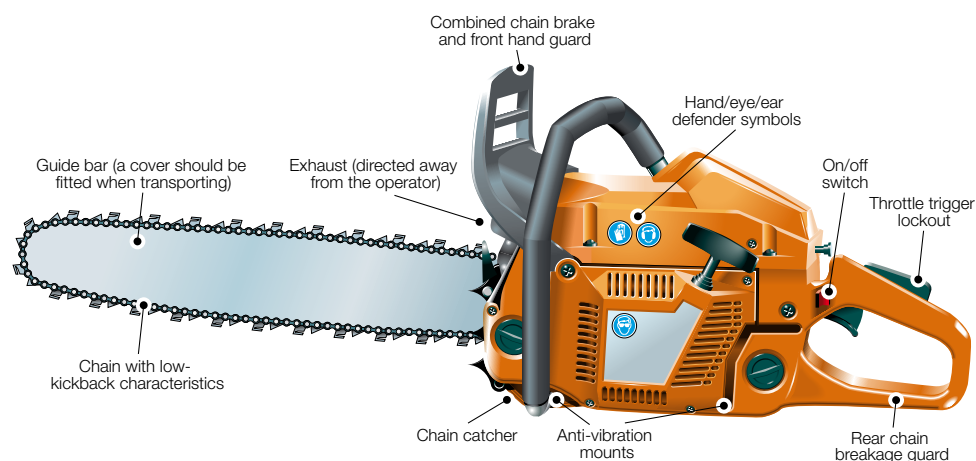


Figure 1 Rear-handled chainsaw

Maintaining a chainsaw

Proper maintenance is essential if a chainsaw is to be safe to use and will provide protection against ill health from excessive noise and vibration. Maintain the saw in accordance with the manufacturer's recommendations with all the safety devices in efficient working order and all guards in place. It will need to be regularly serviced by someone who is competent to do so.

Operators need to be trained in the correct chain-sharpening techniques and chain and guide bar maintenance to keep the saw in safe working condition. Operators need to report any damage or excessive wear from daily checks on the following:

- on/off switch;
- chain brake;
- chain catcher;
- silencer;
- guide bar, drive sprocket and chain links;
- side plate, front and rear hand guards;
- anti-vibration mounts;
- starting cord for correct tension.

PPE

Employers have duties concerning the provision and use of personal protective equipment (PPE) at work.

PPE is equipment that will protect the user against health or safety risks at work. It can include items such as safety helmets, gloves, eye protection, high-visibility clothing, safety footwear, safety harnesses and respiratory protective equipment.



Figure 2 PPE

PPE should only be used as a last resort, ie when all other ways to eliminate or reduce risks have been considered.

When selecting PPE, make sure it's CE marked and it suits the user in terms of size, fit etc. If more than one item of PPE is worn at the same time, make sure they can be used together, eg wearing safety glasses may disturb the seal of a respirator, causing air leaks.

Make sure that users of PPE are instructed and trained on its use and it is maintained and available at all times.

Protective clothing complying with the appropriate standard should provide a consistent level of resistance to chainsaw cut-through. Other clothing worn with the PPE needs to be close fitting and non-snagging.

Note: No protective equipment can ensure 100% protection against cutting by a hand-held chainsaw.

Relevant PPE standards:

Safety helmet to EN 397. It is recommended that arborists working from a rope and harness use a mountaineering style helmet.

Hearing protection to EN 352-1.

Eye protection: Mesh visors to EN 1731 or safety glasses to EN 166.

Upper body protection: Chainsaw jackets to BS EN 381-11. Chainsaw jackets can provide additional protection where operators are at increased risk (eg trainees, unavoidable use of a chainsaw above chest height). However, this needs to be weighed against increased heat stress generated by physical exertion (eg working from a rope and harness).

Gloves: The use of appropriate gloves is recommended under most circumstances. The type of glove will depend on a risk assessment of the task and machine. Consider the need for protection from cuts from the chainsaw, thorny material and cold/wet conditions. Where chainsaw gloves are required these need to be to EN 381-7.

Leg protection to EN 381-5. (All-round protection is recommended for arborists working in trees and occasional users, such as those working in agriculture.)

Chainsaw boots to BS EN ISO 20345:2004 and bearing a shield depicting a chainsaw to show compliance with EN 381-3. (For occasional users working on even ground where there is little risk of tripping or snagging on undergrowth or brash, protective gaiters conforming to EN 381-9 may be worn in combination with steel-toe-capped safety boots.)

Lone workers

Lone workers should not be put at more risk than other employees. Think about and deal with any health and safety risks before people work alone.

Consider the following:

- whether there is a need to assess areas of risk including violence, manual handling, the medical suitability of the individual to work alone and any risks arising from the nature of the workplace itself;
- whether there are any particular requirements for training and levels of experience needed;
- what systems might be needed to supervise and keep in touch with lone workers where a risk assessment shows this is necessary.

Avoid working alone with a chainsaw. Where this is not possible, make arrangements for raising the alarm if something goes wrong. These may include:

- regular contact with others using either a radio or telephone;
- someone regularly visiting the worksite;
- carrying a whistle to raise the alarm;
- an automatic signalling device which sends a signal at a preset time unless prevented from doing so;
- checks to ensure operators return to base or home at an agreed time.

For more guidance on lone workers, see the leaflet *Working alone: Health and safety guidance on the risks of lone working* (see 'Further reading').

First aid

You are responsible for making sure your employees receive immediate attention if taken ill or injured at work. Your arrangements will depend on the particular circumstances in your workplace and you need to assess what your first-aid needs are.

As a minimum, you must have:

- a suitably stocked first-aid box;
- an appointed person to take charge of first-aid arrangements;
- information for all employees giving details of first-aid arrangements.

You might decide that you need a first-aider, ie someone trained by an approved organisation, and who holds a qualification in first aid at work or emergency first aid at work.

There is no legal requirement for operators to hold an emergency first-aid at work certificate but we recommend they do so. Anyone working with chainsaws needs to be trained in emergency first aid, and in particular how to control major bleeding and deal with crush injuries. In remote sites, people who have been injured may also be at risk of hypothermia. Make sure operators always carry a personal first-aid kit (incorporating a large wound dressing) with them and have reasonable access to a more comprehensive kit. See HSE's web pages on first aid at work (www.hse.gov.uk/firstaid).

Working with chainsaws

Fuelling and lubrication

Make sure petrol containers are in good condition, clearly labelled, and provided with securely fitting caps. Use containers specially designed for chainsaw fuelling and lubrication. Fit an auto-filler spout to the outlet of a petrol container to reduce the risk of spillage from over-filling. Operators need to:

- avoid getting dirt in the fuel system (this may cause the chainsaw to be unreliable);
- securely replace all filler caps immediately after fuelling/oiling;
- wipe up any spilt petrol/oil;
- keep fuel containers well away from fires and other sources of ignition, including the saw itself (at least 4 m is recommended) during starting and use.

Do not allow operators to use discarded engine oil as a chain lubricant – it is a very poor lubricant and may cause cancer if it is in regular contact with an operator's skin.

Starting the chainsaw and pre-use checks

When preparing to use a chainsaw, operators need to check:

- all nuts, screws etc are tight;
- the saw chain is correctly tensioned;
- the throttle cannot be squeezed unless the throttle lock-out is pressed;
- they are wearing the correct PPE.

When starting the saw, operators need to maintain a safe working distance from other people and ensure the saw chain is clear of obstructions.

When starting a chainsaw with a cold engine, operators need to:

- place the saw on level ground;
- secure the saw firmly, eg put a foot on the rear-handle base plate and a hand on the front handle;
- set the controls as recommended by the manufacturer;
- pull the starter cord firmly. Once the saw has started, operators need to rev the throttle to warm up the engine and check that:
 - the saw chain stops moving when the engine revs return to idle;
 - the chain brake is effective when applied at maximum revs or according to the manufacturer's specification;
 - the engine continues to run when the saw is turned through 90° in any direction;
 - the stop switch works correctly;
 - lubrication to the guide bar and chain is working properly.

These checks need to be repeated at regular intervals throughout the day.

When starting a chainsaw with a hot engine, operators may use the same method as above. Alternatively, they can grip the rear handle firmly between the knees and the front handle with their left hand, pulling the starter with their right hand. Once the saw is running, operators should apply the chain brake before moving off with the saw. Most modern chainsaws will allow hot starting with the chain brake applied.

Kickback

Kickback is the sudden uncontrolled upward and backward movement of the chain and guide bar towards the operator. This can happen when the saw chain at the nose of the guide bar hits an object. Kickback is responsible for a significant proportion of chainsaw injuries, many of which are to the face and parts of the upper body where it is difficult to provide protection. A properly maintained chain brake and use of low-kickback chains (safety chains) reduces the effect, but cannot entirely prevent it. Make sure operators use the saw in a way which avoids kickback by:

- not allowing the nose of the guide bar to accidentally come into contact with any obstruction, eg branches, logs, stumps;
- not over-reaching;
- keeping the saw below chest height;
- keeping the thumb of the left hand around the back of the front handle;
- using the appropriate chain speed for the material being cut.

Using the chainsaw

Whatever the job, check the worksite thoroughly to identify any potential hazards. This is particularly important when carrying out felling or demolition work. Wherever possible, maintain a clear working area on the site. For any work with a chainsaw ensure:

- the risks from the work have been assessed and controlled;
- the operator is competent to do the job;
- the operator wears the appropriate PPE;
- the operator either stops the engine or applies the chain brake when not cutting with the saw.

Manual handling

Manual handling causes over a third of all workplace injuries. These include work-related musculoskeletal disorders (MSDs) such as upper and lower limb pain/disorders, and joint and repetitive strain injuries of various sorts.

Manual handling covers a wide variety of tasks including lifting, lowering, pushing, pulling and carrying. If any of these tasks are not carried out appropriately, there is a risk of injury.

Manual handling injuries can have serious implications for both the employer and the person who has been injured. They can occur almost anywhere in the workplace and heavy manual labour, awkward postures and previous or existing injury can increase the risk.

To help prevent manual handling injuries in the workplace, you should avoid such tasks as far as possible. However, where it is not possible to avoid handling a load, employers must look at the risks of that task and put sensible health and safety measures in place to prevent and avoid injury, using lifting aids where necessary.

These simple rules will help operators:

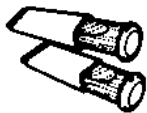
- only lift when it is really necessary;
- only lift loads well within their capability;
- don't lift with the back bent, stretched or twisted;



Breaker bar with
cant hook



Log pick



High lift wedges



Pulp hooks



Log tongs

Figure 3 Aid tools

- always keep loads close to the body;
- get help if they need it;
- give themselves proper rest breaks.

Aid tools

Operators will find it a lot easier to follow these rules if you invest in a few simple bits of equipment such as pulp hooks, log tongs and high lift wedges. Used correctly they will help operators to do the job with a minimum of effort and with a straight back.

Correct body position

Whether on the ground or up a tree, it is vital that forces on the back are applied evenly. Before lifting, operators should take up a position which gives secure footing and doesn't force them into an awkward posture. Place the feet apart with one leg slightly forward to keep balanced. If operators are levering over a tree, moving pieces of timber, or just picking up a chainsaw – the best way to do it is with bent knees, straight back and with the load as close to the body as possible. That way they are lifting with their strong leg muscles, rather than their back.

Operators should not lever over a tree with one hand pushing on the tree and one on the lever. The back will be stretched and twisted, and most of the load will be taken by the lower back muscles.

It is very important that operators have a good grip when lifting and are free to adjust their position for the best lift. One of the best methods is to use properly sharpened pulp hooks or log tongs. This will also preserve their gloves and they won't have to bend so far. They should use both hands, otherwise they will tend to twist their back. A log pick can also be a useful handling tool in some situations.

Using a chainsaw

Operators may not think of their chainsaw as a load – but it is! If they work in a stooped position, with the weight of the saw hanging from their arms, the strain on their back will be considerable.

When operators are making the felling cut on a tree, they can support the weight of the saw by bracing their forearms on their thighs or knees.

Resting the saw on the thigh when crosscutting and debranching takes the weight off the lower back muscles.

Operators should keep close to the saw – this will also reduce the risk of kick-back.

They should aim to work at a height where they can easily support the saw on the tree without stooping.

Handling timber

Operators should cut the timber into manageable pieces, getting someone to help them with the larger sections. They can often avoid having to lift by rolling, pivoting or sliding the wood. The more thought put into felling and processing the trees, the easier this will be.

Aid tools will help operators do the job safely. If they do have to carry timber, they should make sure the ground is free of obstacles and tripping hazards.



Figure 4 Bracing
the forearms

Heavy loads

Even good lifting techniques have their limitations when it comes to heavy loads. Wherever possible operators should use equipment which gives their body a big advantage. A portable winch is useful for applying large forces when felling large or awkward trees. It will also make it easier to turn over a large tree stem. Similarly high lift wedges allow operators to apply forces well in excess of those from a breaking bar — their use will spare operators' backs and give them much more control.

Felling cushions are also available which can be used instead of wedges. Exhaust gas from the chainsaw is used to inflate the cushion and force the tree over.

For some jobs, let a machine take the strain.

Training

Correct manual handling is part of doing the job properly. Recognised training courses are available for chainsaw work and for some other tasks involving timber handling. These will teach operators how to do the job safely and efficiently without putting their back at risk.

There is more information about MSDs on HSE's website (www.hse.gov.uk/msd) and in *Manual handling at work: A brief guide* (see 'Further reading').

Tree felling using chainsaws

Before felling starts on the worksite:

- contact the owners of any overhead power lines within a distance equal to twice the height of any tree to be felled to discuss whether the lines need to be lowered or made dead;
- do not start work until you have reached agreement on the precautions to take;
- check whether there are underground services such as power cables or gas pipes which could be damaged when the tree strikes the ground;
- if there are roads or public rights of way within a distance equal to twice the height of the tree to be felled, ensure that road users and members of the public do not enter the danger zone. You may need to arrange warning notices, diversions or traffic control.

When felling a tree:

- check if it is affected by rot;
- assess what could affect the direction of fall, such as wind conditions and whether the tree is leaning, has uneven growth or branches which could foul other trees;
- be especially careful to check for broken crowns and branches which might fall during the operation;
- check both the tree to be felled and those nearby;
- operators may need to use aid tools such as alloy or plastic wedges, a breaking bar, a cant hook, a winch, or high-lift wedges and a sledgehammer;
- make sure operators have the right equipment available and the skills to use it correctly.

If a tree is or is likely to become hung up on another during felling, operators will need to have the knowledge and the equipment to bring it down safely. Dealing with leaning trees or wind-blown trees also requires special skills.

More detailed advice and guidance on safe working practices in felling is set out in HSE's AFAG leaflets 300 series (see 'Further reading').

Working with chainsaws off the ground

Chainsaws should not be used off the ground unless the operator has been adequately trained in safe working techniques.

Work off the ground involving the lifting and lowering of people or loads, including work-positioning techniques, will be subject to the requirements of the Lifting Operations and Lifting Equipment Regulations 1998 (LOLER) (see 'Further reading').

Mobile elevating work platforms

Always use a purpose-built platform. Ensure operators have received adequate training in the safe operation of the platform and safe use of a chainsaw from a work platform.

Work from ladders

Avoid using a chainsaw from a ladder. Chainsaws require both hands to be operated safely: work on a ladder requires one hand to hold the ladder to maintain a steady working position. Work from a ladder should only be done by an arborist trained in and equipped for tree climbing. When operating from a ladder, the climber should establish an independent anchor to the tree using a rope and harness and obtain a stable and secure work position.

Ropes and harnesses

Using a chainsaw from a rope and harness requires special skills. This should only be done by people who have the relevant training and competence for arboricultural work.

Further reading

HSE publications

Consulting employees on health and safety: A brief guide to the law Leaflet INDG232(rev1) HSE Books 2008 www.hse.gov.uk/pubns/indg232.htm

Hand-arm vibration at work Leaflet INDG175(rev3) HSE Books 2012 www.hse.gov.uk/pubns/indg175.htm

First aid at work: Your questions answered Leaflet INDG214(rev1) HSE Books 2009 www.hse.gov.uk/pubns/indg214.htm

Manual handling at work: A brief guide Leaflet INDG143(rev3) HSE Books 2012 www.hse.gov.uk/pubns/indg143.htm

Health and safety training: What you need to know Leaflet INDG345(rev1) HSE Books 2012 www.hse.gov.uk/pubns/indg345.htm

Noise at work: A brief guide to controlling the risks Leaflet INDG362(rev2) HSE Books 2012 www.hse.gov.uk/pubns/indg362.htm

Safe use of lifting equipment. Lifting Operations and Lifting Equipment Regulations 1998. Approved Code of Practice and guidance L113 HSE Books 1998 ISBN 978 0 7176 1628 2 www.hse.gov.uk/pubns/books/l113.htm

Safe use of work equipment. Provision and Use of Work Equipment Regulations 1998. Approved Code of Practice and guidance L22 (Third edition)
HSE Books 2008 ISBN 978 0 7176 6295 1
www.hse.gov.uk/pubns/books/l22.htm

Working alone: Health and safety guidance on the risks of lone working Leaflet INDG73(rev2) HSE Books 2009 www.hse.gov.uk/pubns/indg73.htm

AFAG leaflets

Training and certification AFAG805(rev1) HSE Books 2011
www.hse.gov.uk/pubns/afag805.htm

HSE's Arboriculture and Forestry Advisory Group (AFAG) has produced a comprehensive set of leaflets on safe working practices for forestry and arboricultural operations. They can be printed directly from HSE's website (www.hse.gov.uk/treework/resources/publications.htm).

Other publications

A guide to good climbing practice The Arboricultural Association (available to buy from www.trees.org.uk)

A guide to the use of MEWPs in arboriculture The Arboricultural Association (available to buy from www.trees.org.uk)

Further information

Awarding bodies

City and Guilds NPTC (www.nptc.org.uk)

Lantra (www.lantra-awards.co.uk)

Trade associations

Arboricultural Association (www.trees.org.uk)

Forestry Contracting Association Ltd (www.fcauk.com)

For information about health and safety, or to report inconsistencies or inaccuracies in this guidance, visit www.hse.gov.uk/. You can view HSE guidance online and order priced publications from the website. HSE priced publications are also available from bookshops.

This guidance is issued by the Health and Safety Executive. Following the guidance is not compulsory, unless specifically stated, and you are free to take other action. But if you do follow the guidance you will normally be doing enough to comply with the law. Health and safety inspectors seek to secure compliance with the law and may refer to this guidance.

This leaflet is available at www.hse.gov.uk/pubns/indg317.htm.

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