

Best Practice Guidelines for Personal Protective Equipment

First edition July 2000

Revised edition January 2005

This Best Practice Guideline is to be used as a guide to personal protective equipment. It does not supersede legislation in any jurisdiction or the recommendations of equipment manufacturers.

FITEC believes that the information in the guideline is accurate and reliable; however, FITEC notes that conditions vary greatly from one geographical area to another; that a greater variety of equipment and techniques are currently in use; and other (or additional) measures may be appropriate in a given situation.

Table of contents

Introduction	1
Purpose of these guidelines	1
How to use these guidelines	1
Acknowledgements	1
About best practice training material	1
General health	2
Employer and employee relationships	2
Implications of non-compliance with protective equipment rules	2
High-visibility garments	3
Rules	3
Types of garments	3
Maintaining hi-vis garments	3
Protective legwear	4
Rules	4
Types of leg protection	4
<i>Chainsaw Chaps</i>	4
<i>Chainsaw trousers</i>	4
Signs that leg protection needs replacing	4
How to maintain leg protection	5
Safety footwear	6
Rules	6
Types of footwear and their uses	6
Care for safety footwear	7
Safety helmets	8
Rules	8
Signs that a helmet needs to be replaced	8
Maintaining a helmet	9
Hearing protection	10
Rules	10
Minimising noise generation	10
Types of hearing protection	10
Maintaining hearing protection	11
Eye protection	
Rules	12
Activities requiring eye protection	12
Types of eye protection available	12
Care for protective eyewear	13
Sunscreen	14
Gloves	15
Rules	15
Tasks requiring gloves	15

Table of contents (cont...)

Respiratory protective devices	16
Rules	16
Tasks requiring respiratory protection	16
Types of respiratory devices	16
Care for respiratory protective devices	17
Fall protection devices for silviculture	18
Rules	18
Range available	18
Use of safety belts and harnesses	18
Maintenance of safety belts and harnesses	18
Fall protection devices for logging	19
Use in logging	19
Maintenance of safety belts and harnesses	19
Glossary of terms	20

Employer and employee responsibilities

The employer is responsible for providing (or making provision for) clothing, footwear, and protective equipment which protect employees from hazards in the workplace. The employer is also responsible for ensuring that clothing, footwear and protective equipment are replaced when worn out or damaged.

Employers and employees are responsible for ensuring that this protective equipment is used correctly.

Employees are usually responsible for ensuring that all protective clothing and equipment is properly maintained.

When purchasing clothing and equipment, comfort and fit are important. Hazards are not always as obvious as falling trees, chainsaws, and machinery. When determining what clothing and equipment are appropriate for a task, also consider hazards such as heat exhaustion, UV light, and asthma triggered by dust.

Under the Health and Safety in Employment (HSE) Act (1992) employees are responsible for taking all practicable steps to ensure they and their work mates are not harmed at work. If any piece of protective clothing or equipment is thought to be unsafe, report this to the employer immediately. The unsafe piece of clothing or equipment should not be used again until it has been fixed.

Individual sections of these guidelines outline ways to determine whether protective gear is in safe working order.

Implications of non-compliance with protective equipment rules

Protective clothing and equipment is designed to protect the wearer from injury, health risks, or death. If any employee does not wear the required protective gear, both the employee and employer risk being penalised (fines and/or imprisonment) under the HSE Act. Also, by not wearing the required gear, the employee is placing his or her health and well being at risk.

Examples of hazards faced in the forestry industry include:

- movement of trees and machinery
- chainsaw use
- incorrect or insufficient safety clothing
- varying terrain and unstable under-foot conditions
- adverse weather conditions
- high winds.

Some of the common injuries sustained while working in the forestry industry include strains, sprains, lacerations, and fractures. Wearing protective clothing and equipment can help prevent these injuries occurring.

High-visibility garments

Rules

The wearing of high-visibility (hi-vis) garments is not mandatory unless entering or working in roading, harvesting or tree felling operations. However, individual company policy may require a person to wear hi-vis garments at other times.

The standard hi-vis colour is Fluorescent Red-Orange or Lime-Yellow for daytime operations. The minimum area of 600 square centimetres visible on the front upper torso and 600 square centimetres on the back upper torso.

During the hours of darkness, hi-vis clothing shall have reflectorised strips (minimum 150 square centimetres visible on both the front and rear of the garment).

Types of garment

There is a wide range of hi-vis garments used in the forest industry. These garments include the following:

- Printed cotton or woollen shirts or singlets
- Shirts or singlets made in hi-vis material
- Nylon hi-vis vests, often with pockets
- Jackets, raincoats, and capes with hi-vis sections

The choice as to which type to wear will be based on tasks being done, weather conditions, and personal preference. In hot weather and or when involved in highly physical activity, garments should not cause overheating.

Give consideration to protection from sunburn.

Many skid and mensuration activities require the carrying of spray cans, notebooks, tapes, and crayons. Hi-vis vests with large pockets on either the front or back of the vest allow this equipment to be carried.

Do not wear synthetic hi-vis garments to fire situations because of the risk of the garment melting.

Maintaining hi-vis garments

A hi-vis garment that is dirty or faded will be less obvious to other workers and thus will provide less protection to the wearer. Garments should be washed regularly to preserve their high visibility. If washing does not restore high visibility, the garment should be replaced.



Hi-vis shirt



There are a range of hi-vis garments to suit the weather conditions

Protective legwear

Rules

All people required to use a chainsaw shall wear safety leg protection which complies with *AS/NZS 4453.3: 1997 Protective clothing for users of handheld chainsaws, Part 3 Protective legwear*, or any other standard embodying the same or more stringent criteria.



Chainsaw chaps



Chainsaw trousers



Cuts to chainsaw chaps make them unsafe

Types of Leg Protection

There are two types of chainsaw leg protection — chaps and trousers.

Both provide protection to the wearer by covering the leg with multiple layers of kevlar, polypropylene, or ballistic nylon fibres. When a moving chain cuts into these fibres, the chain grabs them and becomes clogged. This stops the chain from moving further. Kevlar has the advantage of increased chainsaw resistance and lower weight and bulk.

Note that chainsaw protective legwear should not be worn to fire operations unless the wearer is operating a chainsaw. This should only occur where there is no risk of burns to the operator.

Chainsaw chaps

Chaps protect the front of the legs. They are fastened around the leg by straps and snap buckles. They are cooler to wear than trousers but can be less comfortable.

Chainsaw trousers

Chainsaw trousers provide the same coverage of fibres as the chainsaw chaps. They cover the legs more than chaps, providing protection from the cold/wet, and branches and understorey.

Signs that Leg protection Needs Replacing

The protective layers within the garment must be undamaged and intact to provide protection.

The two main types of damage are cuts/tears (see photo) and excessive oil stains.

If the protective layers have been cut or torn, they will provide less protection if cut again. Also, cuts and tears allow dirt and oil to get inside the protective layers and bind them up. Once the protective layers have been damaged in this way, they cannot be repaired.

Do not attempt to mend cuts or tears to the protective padding. This will bind the layers, making it easier for a moving chain to cut through them. Damaged leg protection should be replaced.

Getting oil on your protective legwear is common. However, if too much soaks into the protective layers, they bind together. This allows them to be cut more easily by a moving chain.

It is recommended that leg protection is replaced after 6 months' continuous use or after a total of 0.5 litre (one chainsaw tank) of oil has been spilt on them.

How to Maintain Leg Protection

If washing instructions are listed on the inside tag of leg protection they should be followed. Otherwise, hand washing with laundry detergent in warm water is recommended. However, do not wash leg protection unnecessarily, as excessive washing may reduce the life span of leg chaps and chainsaw trousers. Ensure that they are rinsed thoroughly with cold water following washing, to remove residual soap powder. Do not bleach, dryclean, or iron.

Leg protection should be air-dried thoroughly before use. Wet or damp leg wear increases its weight.

Safety footwear

Rules

- All people engaged in forest operations must wear safety footwear.
- Safety footwear must have a steel toe-cap, which complies with *AS/NZS 2210 Occupational protective footwear Part 1*, or any other standard embodying the same or more stringent criteria.
- Safety footwear must provide support to the ankles. When fitted with laces, these shall be securely tied at all times.
- Chainsaw cut-resistant footwear shall be of a recognised industry standard.

Types of safety footwear and their uses

There are two main types of safety footwear. These are:

- leather or synthetic steel-capped work boots
- chainsaw cut-resistant gumboots.

Steel-capped leather or synthetic lace-up work boots can be used for general forestry operations. These may or may not be fitted with spikes or studs. These boots have an advantage over the protective gumboots by providing better ankle support and traction on side slopes.



Spiked leather safety boots

Spiked or studded boots, or 'Grippes' provide added traction for fallers, breaker-outs, and skid workers.

Steel-capped chainsaw-resistant gumboots provide more protection to the wearer from chainsaw cuts. These boots have a protective layer, usually of kevlar, built into the front of the boot. The protective layer extends from the toe-cap to the top of the ankle.

Chain cut-resistant footwear needs to meet a recognised standard. There are several standards available.

The European Standard (EN-245-2) produces similar outcomes to the Swedish (7975-78) standard by providing a graduated protection. The European standard has three levels of protection as follows:

Chain speed at limit of protection

Class 1	20 m per second
Class 2	24 m per second
Class 3	28 m per second

Chainsaw-resistant boots do not provide complete protection from chainsaw-cut injuries. A chainsaw on full throttle can generate chain speeds in excess of 30 m per second. At full throttle, the chain can cut through the protective layers.

Gumboots are available in either three-quarter or full length styles. Gumboots are easy to put on and remove. They provide chainsaw operators with additional protection as more of the lower leg is covered. Gumboots also protect the wearer from surface mud and water. Spikes are recommended when working on difficult surfaces, such as walking on logs.



Chainsaw cut-resistant gumboots

Chainsaw cut-resistant gumboots can be hotter than leather or synthetic work boots. This may cause foot problems (fungal infection) for wearers during the summer months. An alternative is the stainless steel foot protector. This has been designed to fit on the conventional leather work boot. As most cuts occur to the left foot during trimming and bucking operations, the protector is fitted to the left boot only.



Left boot with foot protector fitted

Care for safety footwear

Proper maintenance of your safety footwear can increase its life span. Leather work boots should be treated with a water-resistant seal before being worn. This will help maintain the leather and prevent cracking. This treatment should be repeated regularly (every 2–3 months). Before applying any treatments to the boots, ensure that they are thoroughly cleaned so that no dirt is ground into the leather.

Laces do not generally last as long as the boots to which they are fitted. Replace them whenever they have broken or appear to be ready to do so.

Laces should be tied at all times when the boots are worn.

Keeping boots and laces in a warm dry area, e.g., hot water cupboard, can help increase their life-span, as water is what causes them to rot.

Regularly cleaning the soles of shoes can reduce the chances of slipping. If studs or spikes are clogged with dirt they can be ineffective in improving grip and traction.

Over time the soles of your boots will wear and crack. In many cases it is possible to simply resole your boots. When any part of the sole is worn to the point where it no longer provides adequate grip, or when the sole is cracked, either have the boots resoled or replace them. Spikes and studs will also wear over time and should be replaced when they no longer provide adequate grip.

Any work boot, but particularly chainsaw cut-resistant gumboots, should be replaced when cut. A cut gumboot does not provide adequate protection and can be a hazard in itself if it catches on something.

Safety helmets

Rules

- Safety helmets must be worn at all times by persons who are tree felling or at a logging operation site. The only exception is for machine operators who are fully protected by an approved canopy or protective structure. When the operator ceases to be covered by the canopy, then a safety helmet must be worn.



Faller using helmet visor to protect eyes

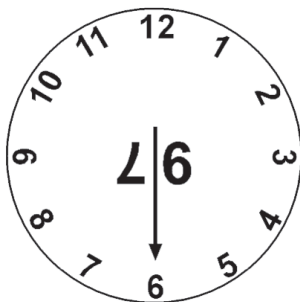
- The standard for safety helmets is specified by *ASNZS1801:1997 Occupational protective helmets*, or any other standard with equal or more stringent requirements.
- An information sticker located inside the helmet is required under *NZ Standard 5806: 1980*.
- Safety helmets for chainsaw operators shall be fitted with earmuffs and have provision for visors (see photo).
- Safety helmets must be of hi-vis colours. Forest owners often specify certain colours, these being fluoro yellow and fluoro melon (or pink).
- People working near or under helicopters shall wear a chinstrap to secure the helmet.

Signs that a helmet needs to be replaced

Helmets may need to be replaced for two reasons.

- If they show obvious damage, such as a cracked peak, or a dent after receiving a blow
- The age of the helmet.

The strength of the common plastic helmet is reduced over time by ultra violet (UV) light. This causes the plastic to become more brittle, which can lead it to shatter when it receives a blow.



Manufacturer's date stamp. This example indicates June 1997.

Manufacturers recommended that a helmet be replaced 3 years, and the harness 2 years, from the date of purchase. The date of purchase should be written on a sticker on the inside of the helmet. If this is not present or filled in, the helmet should be replaced 40 months after the date of manufacture. This is shown on a manufacturer's stamp indicating the month and year of production.

This replacement age also applies to helmets that are not used every day. It is common to see a safety helmet in the back window of a vehicle. This may increase the degradation of a helmet, resulting in the helmet offering little protection. Fading of the helmet's fluorescent colour is an indication that the helmet needs replacing.

Maintaining a helmet

NZS 1800: 1997 contains guidelines for the proper maintenance of safety helmets.

Inspect helmet shells regularly for damage.

Store them away from direct sunlight.

Do not apply paints, petrol, oil, or solvents to a helmet as this may cause deterioration of the helmet.

Use an approved adhesive sticker if it is necessary to name the helmet.

Regularly inspect the harness to check the clearance. Replace if necessary.

Clean the helmet regularly with hot soapy water. This will remove harmful build-up and maintain the hi-vis appearance.

Hearing protection

Rules

Hearing protection must be worn when noise levels exceed or are likely to exceed 85 decibels (dB). This is the level of noise where a person must raise their voice to be heard 30 centimetres away.

A guide to sound levels and the level of hearing protection required is shown below.

Source	Sound level (dB)	Maximum daily exposure without likely hearing loss	Hearing protection required
Jackhammer	120	< 30 seconds	Seek advice
Sandblasting	112	1 minute	Grade 5 earmuffs
Chainsaws, fire pumps	106–109	2–4 minutes	Grade 4 earmuffs
Brushcutter	104–106	4–8 minutes	Grade 4 earmuffs
Near a high-revving logging machine	97–103	8–30 minutes	Grade 3 earmuffs
Noise level inside cab of logging truck	88–94	1–4 hours	Grade 2 earmuffs or ear plugs

Hearing protection must comply with either *NZS/AS 1270:1988 Acoustics Hearing Protectors*, or any other standard embodying the same or more stringent criteria.

Owners of machinery must take all practical steps to minimise at source any excessive noise levels that may impair the workers' hearing.

Minimising noise generation

Some steps to reduce noise generation include:

- Think about noise levels when purchasing machinery.
- Keep machinery in good working order.
- Fit any noise dampers that are available.
- Maintain mufflers and silencers to ensure maximum efficiency.
- Avoid over-revving of machines when this is not necessary for proper operation.
- Where possible, increase the distance between the person and the noise source.
- Where practicable, place noise barriers between the person and the noise source.
- If operations permit, reschedule work for shorter exposure periods to high noise levels.

Types of hearing protection

There are three main types of hearing protection available for use in forestry operations. These are:

- Helmet-mounted earmuffs
- Head-mounted earmuffs
- Earplugs

Chainsaw operators wear **helmet-mounted earmuffs** because their helmet is worn at all times. The earmuffs are able to hinge back off the ears to allow the wearer to hear as normal. Ensure that the earmuffs are held firmly against the ear. If not, the effectiveness of the earmuff is reduced. This can pose a problem when wearing protective or corrective eyewear.



Helmet-mounted earmuffs

Operators of machinery often wear **head-mounted earmuffs**. When within a protected cab, the operator does not need to wear a safety helmet. In this case, head-mounted earmuffs provide excellent sealing around the ears. They also allow airflow around the wearer's head. As with helmet-mounted earmuffs, the wearing of glasses may reduce the level of protection.



Head-mounted earmuffs

Truck drivers and operators in well-insulated machinery may wear **earplugs** to minimise noise levels. Earplugs are comfortable to wear, and do not cause sweating as earmuffs often do.



Earplugs

Maintaining hearing protection

Inspect earmuffs regularly to maintain them to the highest standard. Replace any worn or damaged parts. Grade 4 earmuffs can be safely used for a maximum period of 12 months. After this a new ear cushion is needed.

Wearing somebody else's earmuffs will reduce the level of protection. This is because the earmuff cushions mould to the shape of the original wearer. The cushion plays a key role in the protection level of the earmuffs.

Long and/or thick hair can reduce the cushion's ability to seal against the operator's head. This reduces the level of hearing protection. Moving the hair out of the way when positioning the earmuff can avoid this.

The side arms of safety glasses may also reduce the effectiveness of earmuffs. Many glasses avoid this by having bent side arms. Also, some wearers remove the side arms and attach a rubber strap.

Eye protection

Rules

Eye protection shall be used where there is potential for injury from:

- excessive dust
- material from vegetation
- flying particles
- chemicals, welding, and grinding,

except where the eye protection itself is likely to cause a greater hazard.

Note that chainsaw operators may use a forestry-type mesh visor.

Eye protection equipment other than forestry-type mesh visors shall comply with *AS/NZS 1337:1992 Eye protection for industrial applications, Amendment 1 Sept. 1994: Amendment 2 Oct. 1997* or any other standard embodying the same or more stringent criteria.

Activities requiring eye protection

Protective eyewear is often worn in the following situations:

- Working on dusty skid sites
- Cutting wire rope
- Hand application of fertiliser.
- Chainsaw operation
- Pruning and plotting

Over the period 1983 to 1996, 175 eye injuries were reported to the Liro Accident Reporting Scheme. Of this total, 87% occurred in logging.

In a 1997 survey of 198 silvicultural workers, 88% indicated they had previously had an object enter their eye while working. Thirty-three percent of these had sought medical attention, resulting in an average of 8 days off per injury.

Protective sunglasses are often worn during the summer months to protect the wearer's eyes. These glasses must also meet the protective eyewear standards above.



Safety glasses



Safety goggles

Types of Eye Protection Available

There are three main classes of protective eyewear:

- Safety glasses
- Safety goggles (plastic or mesh)
- Safety shields (plastic or mesh)

Safety glasses have the advantage of being light and less restrictive. They can be fitted with side shields and cups. They may have a permanent lens coating with anti-fog, anti-scratch, and UV-protection properties. Glasses may also be made prescriptive for those requiring corrective lenses.

Lenses for glasses come in a range of colours for use in varying light conditions. Dark glasses are available for bright light conditions, clear lenses for normal light. Amber lenses are suited to low light conditions.

However, when the risk of damage to the eye is high (such as during chemical spraying or loading water into an aircraft) **safety goggles** should be worn. Goggles are impact resistant, but they also provide a secure shield around the entire eye area. Goggles may have regular or indirect ventilation. Indirect ventilation should be used when splash hazards exist.

Mesh goggles and **visors** protect the wearer from chips and dust. They also provide excellent visibility with low heat build-up and no fogging.

Chainsaw operators commonly use visors. They can be made of clear plastic, plastic stainless steel, or steel mesh. Visors may also be fitted with a peak designed to reduce glare. Visibility can be poor when using a plastic visor in either bright sunlight (i.e., from glare) or rain.

When chainsaw pruning, the operator should use a visor that is attached to his or her helmet.

When working on a fire line, operators should use a clear visor attached to the helmet to protect the eyes and face from the heat.



Helmet-mounted plastic mesh visor

Care for Protective Eyewear

To be effective, protective eyewear should not reduce the wearer's vision.

Protective eyewear is often worn in dirty and wet conditions. This makes it very difficult to keep lenses clean and scratch-free. The tendency to wipe glasses on a shirt will result in scratches that will quickly make the glasses ineffective.

Protective eyewear, particularly those with lenses, should be treated carefully when cleaned and stored. Cleaning and storage accessories are available for most protective eyewear types. Badly scratched and/or dirty eyewear may create a greater hazard than if no eyewear was worn. However, this should not be seen as a long-term reason for not wearing protective eyewear. In these cases, clean the eyewear. Replace them if necessary.

Sunscreen



Sunscreen — a necessary part of the forest worker's kit

Many forest workers are constantly exposed to the sun and UV radiation. This increases the risk from cancer for forestry workers. Forest workers at risk should take extra precautions to prevent sunburn.

Apply a broad-spectrum sunscreen (15+) 15 to 20 minutes before being exposed to the sun, and reapply regularly (every 1 to 2 hours if sweating).

It is especially important to apply sunscreen during spring and summer and between the hours of 11 a.m. and 4 p.m.

Wear a hat (if not required to wear a hard hat) and clothing for additional protection from the sun.

The lips and the tips of ears are particularly sensitive to the effect of exposure to the sun. Ensure that these areas are protected.

Gloves

Rules

Gloves should be used when there is potential for injury from:

- chemicals
- abrasions
- punctures
- heat.

Gloves should comply with *NZS 5812:1982 Industrial protective gloves* (reconfirmed 1989), or any other safety Standard with the same or more stringent criteria.

Tasks requiring gloves

There are two main types of protective glove worn in forestry operations.

PVC gloves are often used when working with chemicals (e.g., herbicide).

Leather gloves are often used when:

- handling wire rope and chain (strops or load binder)
- using hand tools
- working on a fireline.

Note that the chainsaw mitt is not considered a glove.



PVC glove



Leather glove

Respiratory protective devices

Rules

Respiratory protective devices should be used when there is potential for injury from dust, gases, fumes or chemicals.

Appropriate respiratory protective devices shall comply with either *AS/NZS 1715:1994 Selection, use and maintenance of respiratory protective devices* and *1716:1994 Respiratory protection devices, Amendment 1 Feb 1996*, or any other Standard embodying equal or more stringent criteria.

Tasks requiring respiratory protection

Respiratory protection is most often used when:

- mixing or applying herbicides
- spraying paint in confined spaces or for long periods.

Read the labels on chemical or gas containers to see what sort of respiratory protective is required. If the container is not labelled, seek advice from your employer before performing the operation.

Types of respiratory protective devices

The type of respirator used will depend on the type of chemical or gas being used. Check with the chemical manufacturer to determine the appropriate equipment.

Dust masks are useful for filtering dust. They may or may not be fitted with a filtering device.



Full mask

The three types of respiratory protective devices are:

- Full mask (single or twin filter)
- Half mask (single or twin filter)
- Disposable mask.

Full and half mask respirators may be fitted with either cartridges or canister filters.

General guide to respirator use time

Type	Outdoors	Indoors
Cartridges	Up to 8 hours	Not recommended
Canisters	Up to 20 hours	1 to 4 hours

Powered respirators that supply cool air are available.

Care for respiratory protective devices

Filters and canisters should be replaced:

- When the contaminant breaks through
- When the wearer (by smell, taste, or irritation to the eyes or respiratory tract) identifies its presence.

After use, keep filters in an air-tight plastic bag or container. Store them in a cool place out of direct sunlight (ideally between 20°C and 30°C).

Discard *used* filters over 6 months old.

Discard *unused* filters over 5 years old. The filter's date of manufacture should be on the label.

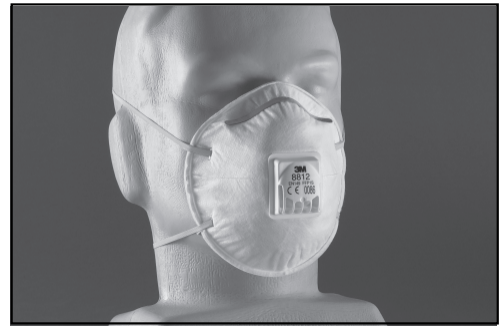
Wipe unspent filters with a clean damp cloth after use (do not wash them). Wash the face piece, exhalation valves, and sealing gasket in warm soapy water. Take care not to damage the valves. Do not use detergents or solvents to wash respiratory equipment.

Have respirators checked regularly (such as every month if in regular use) by a competent person. Record the date and person who inspected the device and store the details with the respirator.

Fix any defects found during inspection immediately.



Half mask



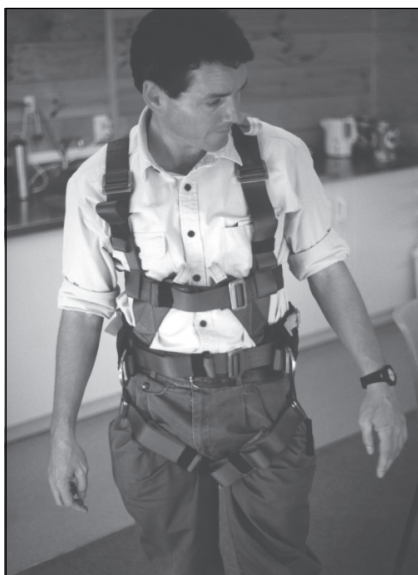
Disposable mask

Fall protection devices for silviculture

Rules

Fall protection devices for silviculture should comply with

AS/NZS 1891.1: 1995 Industrial fall arrest systems and devices, Part 1 Safety belts and harnesses: Amendment 1, March 1997: Amendment 2, October 1997, or any other Standard embodying equal or more stringent requirements.



Full-body safety harness



Half-body safety harness



Safety belt

A fall protection device must be used at all times when a chainsaw is operated above ground-level. The fall protection device for silvicultural pruning is a work positioning device, designed to secure the operator in the work position so that the job can be done, and reduces the risk of a fall injury.

The lanyard part of the work positioning device shall be of metal or wire core construction.

A fall protection device must be worn when manual pruning from a ladder with the feet above 3 m height.

For full details of the requirements see the Best Practice Guidelines for Silvicultural Pruning.

Range available

There are three main classes of safety harness used for fall protection.

- Full-body safety harness
- Half-body safety harness
- Safety belts

The most common fall protection devices for silviculture are the half-body harnesses and safety belts. There are several options available in each type.

For ultra-high pruning (with the operators feet 4.5 metres or more above the ground), a full body harness is used, with a “D” ring on the chest for use in lowering the operator in the event of an emergency.

Use of the work positioning device

Before workers use a safety belt or harness they should be adequately trained in:

- Securing the belt or harness to themselves
- Attaching and detaching the lanyard from around the tree
- Body position relative to the lanyard and activity undertaken.

The safety belt or harness should fit the person wearing it. If not, a falling worker may fall out of the harness, or extra stress may be placed on the belt or harness construction.

Maintenance of safety belts and harnesses

Harnesses must be in serviceable condition when used to avoid falls. This involves daily checks of fittings, stitching, and strapping. These checks are also important if a fall has been sustained on the belt or harness.

Fall protection devices for logging

Rules

Fall protection devices and climbing equipment for logging should comply with either *ASTM F 887 – 91a Personal Climbing Equipment*, or any other Standards embodying the same or more stringent criteria.

The climbing rope must have an 8-mm wire rope core construction where there is risk of it being cut. This includes the use of chainsaws or axes.

The climbing rope must:

- Be laced to the climbing belt (or pass through at least three rings that are secured around the belt)
- Have an eye at one end of the climbing rope
- Be passed around the climber and around the tree
- Have the dead end passed through the eye and secured with an easily adjustable mechanism, such as the bowline, or cats paw knot.

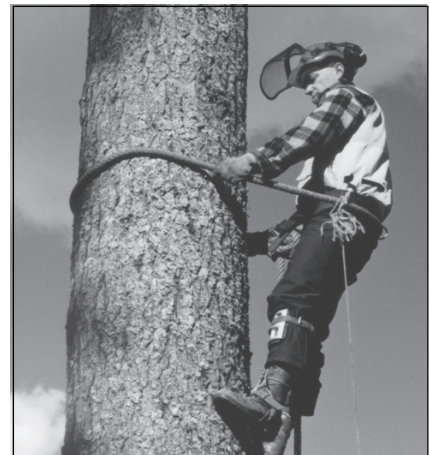
A duplicate set of equipment (or other means) must be available for immediate use by a competent worker so that an injured climber can be lowered to the ground in an emergency.

Use in logging

Safety belts and harnesses are most often used for tree climbing for the purpose of tree topping or hanging blocks. Climbers, wearing climbing spurs, move up the tree by alternately lifting the climbing rope and feet. The climber leans back in the climbing belt. As the diameter of the tree reduces with height, the climbing rope is progressively tightened to stop the climber from sitting back too far.

Maintenance of safety belts and harnesses

Harnesses must be in serviceable condition when used to avoid falls. This involves daily checks of fittings, stitching, and strapping. These checks are also important if a fall has been sustained on the belt or harness.



Safety belt used for tree climbing

Glossary of terms

Chainsaw chaps	A form of protective leg wear. Chaps cover the lower leg, front, and inside of the thigh. They are secured at the back with straps.
Chainsaw-resistant footwear	Any footwear that meets the requirements of the Australian/New Zealand Standard 2210 <i>Occupational protective equipment Part 1</i> or any other Standard embodying the same or more stringent criteria.
Chainsaw trousers	A form of protective leg wear. These are worn like ordinary trousers but are made with chainsaw-resistant material such as ballistic nylon with the inside thigh padded, e.g., with KEVLAR.
Climbing rope	Used to secure the climber so that if the climber falls the fall distance is limited or broken by the rope. The rope is connected to the harness or belt and at a point on the tree.
Climbing spurs	Spikes strapped to the feet and lower legs used with a safety belt or harness and lanyard to climb a tree or spur
Disposable mask	Used to prevent inhalation of dusts and mists in well-ventilated areas. These have a short life-span.
Fall protection device	A belt or harness and lanyard designed to protect the worker from a fall injury
Full-body safety harness	Type of safety harness which secures both the lower and upper body. The full-body harness is designed to prevent people from flipping upside down in the case of a fall.
Full mask	A full-mask respirator consists of a mask covering the nose and mouth which is fitted with either cartridges or canisters (to filter sprays and vapours) and a transparent shield covering the eyes and nose.
Half-body safety harness	Type of safety harness that straps the lower half of the body. The climber is connected at one point rather than two as with the full-body harness.
Half mask	A half-mask respirator covers the user's nose and mouth and is fitted with either cartridges or canisters to filter for sprays and vapours.
High visibility (hi-vis)	Clothing and equipment that is "hi-vis" has the property that it can be easily spotted and seen from a great distance when compared to ordinary-coloured clothing and equipment. Common hi-vis colours include fluorescent yellow, pink, and orange, though it has been found that yellow is the most easily spotted of the fluorescent colours.
Lanyard	Device which is connected to the safety belt or harness and wrapped around the tree. The lanyard may be made of fibre rope, wire rope, or chain.
Protective eyewear	Any eye wear that complies with Australian/New Zealand Standard 1337: 1992 <i>Eye protectors for industrial applications</i> , Amendment 1 Sept 1994: Amendment 2 October 1997, or any other Standard embodying the same or more stringent criteria.
Protective leg-wear	Any leg-wear that meets the Australian/New Zealand standard 4453.3 (1997). Protective clothing of users of handheld chainsaws Part 3 Protective legwear.
Respiratory protective device	Any device fitted to someone for the purpose of filtering the air they breathe.

Safety belt	A specially designed belt which allows a climber to be connected to a safety rope when climbing a tree.
Safety footwear	Any footwear that meets the requirements of the Australian/New Zealand Standard 2210 <i>Occupational Protective Equipment Part 1</i> , or any other Standard embodying the same or more stringent criteria.
Safety glasses	Protective eye-wear which is fitted over the eyes. These glasses may be fitted with side-shields but do not completely enclose the eye area.
Safety goggles	Protective eye-wear which completely encloses the eye and is secured by a strap around the back of the head.
Solvent	The substance in a solution that is in the greatest abundance. Solvents are an important component of paints, lacquers, and pharmaceuticals and are used in the production of synthetic materials.
Spikes	Fitted to safety footwear to give better traction and grip. Spikes are generally made from steel and are pointy.
Studs	Fitted to safety footwear to give better traction and grip. Studs are generally made of steel and are rounded.
Visor	Shield (made from plastic or mesh) that encloses the front and sides of the wearer's face. Visors are generally fitted to safety helmets.
UV light	Ultra violet light is waves of energy generated from the sun which causes sunburn, pre-mature ageing of the skin, and cancer.
Work positioning device	For forestry work, usually a belt or harness designed to secure the operator in the work position and minimise the risk of a fall injury.