Working with Tree Service Chainsaws

Document no.	Work description
SMS-06-SW-0262	Working practices to reduce the risk of injury from tree service chainsaws when working from a rope and harness at height.
	Scope Covers the general requirements which are to be met before using a tree service chainsaw for work at height from a rope and harness. Includes the preparations for using a tree service chainsaw from a rope and harness, the use of a tree service chainsaw for pruning and dismantling, secure work positioning for two-handed use, starting the chainsaw, cutting with the chainsaw, restrictions on one-handed use and freeing a trapped saw. This SWI is to be read in conjunction with, and in addition to the Tree Lopping guide. This SWI does **not** deal with techniques to control sections of branches and stems cut by the saw.
Review date	**References** • OHS Reg 2001 • WorkCover CoP Amenity Tree Industry • AS 2726.2:2004 Chainsaws – Safety requirements – Chainsaws for Tree Service • AS/NZS 4488 Industrial rope access systems • SMS-06-GD-0240 Working at Heights • SMS-06-GD-0250 Tree Lopping • SMS-06-SW-0257 Fall Arrest Systems (Industrial Rope Access) • SMS-06-SW-0261 Tree Lopping

Responsible supervisor *Insert name in BLOCK letters*	PPE and precautions	Competencies or qualifications	Licences or permits required
	• Restraint harness or sit harness with compatible chest harness • High vis vest where required • Helmet with chin strap • Non-slip footwear • Face shield	Industrial rope access workers must hold a current certificate of competency issued by a relevant industry association (e.g. IRAA, IRATA, etc)	Licence to operate chainsaw issued by State Forests.

Tools and equipment required

See below

IF CONTROL MEASURES ARE NOT SUITABLE AND MAJOR CHANGES ARE NEEDED, CONDUCT A RISK ASSESSMENT AND DEVELOP NEW CONTROLS ACCORDING TO SMS-06-PR-0104 WORKPLACE RISK MANAGEMENT.

General	Tree service chainsaws operators working at height from a rope and harness are never to work alone. A ground worker trained in appropriate emergency procedures is to assist them. Tree service chainsaws operators for this work are to be trained in general safe climbing and work positioning techniques and are to be properly equipped with harnesses, ropes, strops, karabiners and other equipment for maintaining secure and safe working positions for both themselves and the saw.

Planning and preparation	Before work starts, a competent person is to be nominated to plan and control the work and is to consult with the people who will be doing the work (or their representative) about how to do the work safely. When planning the work the nominated competent person is to develop and implement Safe Work Method Statements (SWMS) in accordance with the Safe Work Method Statement and Safe Work Instruction procedure.

Working with Tree Service Chainsaws

Significant hazards

Significant hazards include:

- mechanical hazards due to cutting and impact, related to the saw chain
- electrical hazards due to contact with parts under high voltage (direct contact) or parts which have become under high voltage under faulty conditions (indirect contact)
- thermal hazards resulting in burns, scalds and other injuries, by a possible contact of persons with objects or materials with high temperature including the radiation of heat sources
- noise, resulting in hearing loss (deafness) and other physiological disorders (e.g. loss of balance; loss of awareness)
- vibration, resulting in peripheral circulatory and nervous functional disturbances in the hand-arm system, such as Raynaud's disease (white fingers)
- contact with or inhalation of harmful fluids, gases, mists, fumes and dusts
- fire or explosion related to fuel spillage
- neglecting ergonomic principles in machine design as hazards from unhealthy postures or excessive efforts and inadequate consideration of human hand-arm anatomy, related to handle design, machine balance and the use of spiked bumper
- unexpected start-up, unexpected overrun/over-speed from failure/disorder of the control system related to failure in the handles and position of the controls
- impossibility of stopping the machine in the best possible conditions related to the handle design and position of the engine stopping device
- failure of the control system related to handle strength, position of controls and marking
- break up of chain during operation
- ejection of objects or fluids related to chip discharge and fuel spillage.

Preparing to use the saw in the tree

The chainsaw is to be checked, fuelled, started and warmed up by the ground worker before it is sent up to the operator in the tree.

The chainsaw is to be fitted with a suitable strop for attaching to the operator's harness (see Figure 1) and prepared as follows:

- secure the strop around the attachment point on the rear of the saw
- provide suitable karabiners to allow indirect (i.e. via the strop) and direct attachment (i.e. at the attachment point on the saw) of the saw to the operator's harness
- make sure that the saw is securely attached when it is being sent up to the operator
- make sure that the saw is secured to the harness before it is disconnected from the means of ascent.

The saw should only be attached to the recommended attachment points on the harness.

These may be at midpoint (front or rear) or at the sides. Where possible attaching the saw to centre rear mid-point keeps it clear of climbing lines and support its weight centrally down the operator's spine (see Figure 2).

When moving the saw from any attachment point to another, operators are to make sure that it is secured in the new position before releasing it from the previous attachment point.

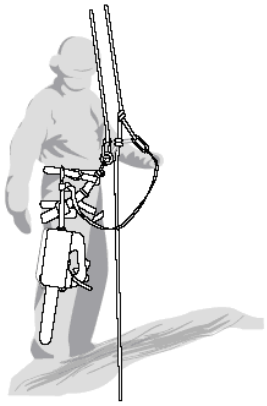

Figure 1 Chainsaw attached to operator harness

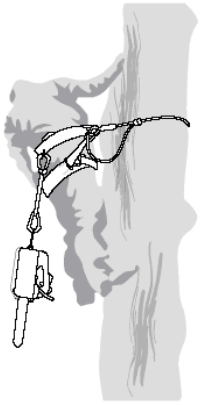

Figure 2 Chainsaw attached to centre rear mid-point of harness

Using the chainsaw in the tree

The primary cause of accidents with chainsaws during tree service operations is inappropriate one-handed use of the saw. In the vast majority of accidents, operators fail to adopt a secure work position which allows them to hold both handles of the saw.

This results in an increased risk of injury due to:

- not having a firm grip on the saw if it kicks back
- a lack of control of the saw such that it is more liable to contact climbing lines and the operator's body (particularly the left hand and arm)
- losing control from an insecure work position resulting in contact with the saw (unexpected movement during operation of the saw).

Securing the work position for two-handed use

To allow operators to hold the saw with both hands, they should as general rule, aim for a secure work position where they are operating the saw at:

- hip level when cutting horizontal sections
- solar plexus level when cutting vertical sections.

When the operator is working close into vertical stems with a low lateral force on the work position, a good footing may be all that is needed to maintain a secure work position.

However, as operators move away from the stem, they need to take steps to remove or counteract the increasing lateral forces by, for example, a redirect of the main line via a supplementary anchor point or by using an adjustable strop direct from the harness to a supplementary anchor point (see Figure 3).

Gaining a good footing at the working position can be assisted by use of a temporary foot stirrup created from an endless sling (see Figure 4).

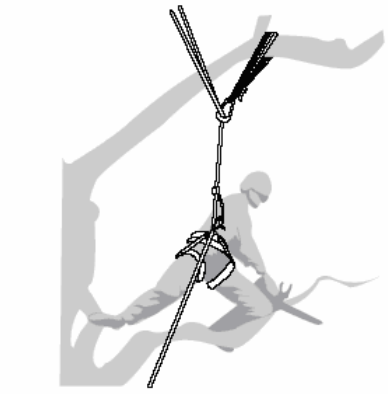

Figure 3 **Example of a re-direction of the main line**

Figure 4 **Example of a temporary foot stirrup**

Starting a saw in the tree

When starting a saw in the tree, the operator is to:

- apply the chain brake before starting
- hold the saw on either the left or right of the body when starting
- on the left side hold the saw with either the left hand on the front handle or the right hand on the rear handle and thrust the saw away from the body while holding the pull starter cord in the other hand
- on the right side hold the saw with the right hand on either handle and thrust the saw away from the body while holding the pull starter cord in the left hand.

Always engage the chain brake before lowering a running saw onto its strop.

Operators are to always check that the saw has sufficient fuel before undertaking critical cuts.

One-hand use of the chainsaw

Tree service chainsaws can be used one-handed only if:

- the operator cannot gain a work position enabling two-handed use
- they need to support their working position with one hand
- the saw is being used at full stretch, at right angles to and out of line with the operator's body (see Figure 5).

Operators are to **never**:

- cut with the kickback zone at the tip of the chainsaw guide bar
- 'hold and cut' sections
- attempt to catch falling sections.

Figure 5 Example of one-handed use of a chainsaw

Freeing a trapped saw

If the saw becomes trapped during cutting, operators are to:

- switch off the saw and attach it securely to the tree inboard (i.e. towards the trunk side) of the cut or to a separate tool line
- pull the saw from the kerf whilst lifting the branch as necessary
- if necessary, use a handsaw or second chain saw to release the trapped saw by cutting a minimum of 30 cm away from the trapped saw.

Whether a handsaw or a chainsaw is used to free a stuck saw, the release cuts are to be always outboard (toward the tips of the branch), to prevent the saw being taken with the section and further complicating the situation.

Training

Before working at heights, RailCorp employees and contractors are to be properly trained in:

- the method of working at heights to be used
- an understanding of the particular task requirements and any hazards and risks involved
- correct selection, fitting, use, care and storage of:
  - fall prevention systems and arrest equipment
  - personal protective equipment
  - tools and equipment to be used
- procedures in the event of an emergency such as rescue, accident or injury.

Users of fall arrest systems and equipment are to be trained and assessed as competent before being allowed to work without direct supervision in accordance with training requirements defined in the Guide to Working at Heights and Guide to Tree Lopping

Line Managers are to make sure that employees are properly trained and possess the above competency.

Additional controls