

APPROVED CODE OF PRACTICE FOR

# **SAFETY AND HEALTH IN FOREST OPERATIONS**

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## Part 1: Introduction

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# 1: ACKNOWLEDGEMENTS

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National Rural Fire Authority, Wellington

Logging Industry Research Association, Rotorua

Occupational Safety & Health Service, Wellington

Land Transport Safety Authority, Wellington

The assistance of the large number of contractors who offered advice and guidance is also acknowledged.

## 2: NOTICE OF ISSUE

I have issued this *Approved Code of Practice for Safety and Health in Forest Operations* being a statement of statutory requirements, rules and provisions, based on preferred work practices and arrangements, for the purpose of ensuring the health and safety of persons to which this code applies and persons who may be affected by the code.

The code is supported by guidelines containing safety, health, training and operational information and outlining preferred work practices or arrangements on the major components related to each part. This will be practical information for those carrying out or directly associated with the work.

A handwritten signature in black ink, consisting of a large, stylized initial 'J' followed by a series of connected loops and a long horizontal tail.

J. M. Chetwin  
Secretary of Labour.

### 3: FOREWORD

I have approved this statement of statutory requirements and rules and provisions, based on preferred work practices and arrangements, which is an *Approved Code of Practice for Safety and Health in Forest Operations* under Section 20 of the Health and Safety in Employment Act 1992. When a code is approved, a Court may have regard to it in relation to compliance with the relevant sections of the Health and Safety in Employment Act. This means that if an employer in an industry or using a process to which an approved code applies can show compliance with that code in all matters it covers, a Court may consider this to be compliance with the provisions of the Act to which the code relates.



Hon. M Bradford

Minister for Enterprise and Commerce

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## Part 2: The 1992 Act and 1995 Regulations

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# 1: THE ACT: AN OVERVIEW

## 1. PRINCIPAL OBJECTIVES OF THE ACT

The Health and Safety in Employment Act 1992 has the principal objective of providing for the prevention of harm to employees at work.

The following mandatory requirements are designed to help with ensuring operations are managed safely.

<i>Requirement</i>	<i>Explanation</i>
Active management commitment	A policy statement that reflects commitment to the health and safety of employees, employers and others.
Hazard identification and control	A systematic identification of hazards to employees in the workplace, including appropriate controls.
Information, training and supervision	Systems in place to ensure workers have the training or supervision to do the work safely and efficiently.
Accident reporting, and investigation	Investigation and recording documentation of accidents to employees in the workplace.
Emergency procedures	A plan covering procedures during emergencies which may occur on the job.

## 2. CODES OF PRACTICE

In addition to the mandatory requirements, the Act allows for the development and approval of statements of preferred work practice. These are known as approved codes of practice and are the result of consultation between OSH and affected industry members.

The codes recommend how to comply with the Act, and may include procedures to take into account when deciding practicable steps workers take to do their job.

Compliance with codes of practice is not mandatory. However, a Court may consider that non-compliance with the code in all matters it covers is non-compliance with the Act to which the code relates.

## 3. HOW TO COMPLY

Compliance with the requirements of the Act (and the recommendations of the code) is best achieved by incorporating the elements listed above in a written document, often called a health and safety management plan.

To assist with the operation of this code, industry best practice guidelines should be used as the basis for safe work practice.

## 2: THE ACT: DUTIES

### 1. DUTIES OF EVERYONE

The Act places duties on employers, self-employed people and employees to ensure that their work activities do not harm themselves or other people. For forest operations, other people includes visitors, people passing the operation, and the general public who may be in the vicinity of an operation.

Any person in control of a place of work (e.g. a principal, contractor or subcontractor) shall ensure that people there (or close by) are not harmed by any hazard resulting from work activities.

#### NOTE

The best way to safely restrict access to forest operations and inform people about work-related hazards must be decided by the contractor in consultation with the principal.

### 2. DUTIES OF SELF-EMPLOYED PERSONS

Self-employed persons shall take all practicable steps to ensure that no action or inaction while at work harms either themselves or any other person.

### 3. DUTIES OF EMPLOYEES

While at work, employees shall take all practicable steps (including using safety equipment) to ensure their own safety and that of others.

### 4. DUTIES IF YOU EMPLOY CONTRACTORS

Forest owners (or those acting as an agent for a forest owner) who hire contractors or sub-contractors are principals and shall take all practicable steps to ensure no one is harmed while carrying out work they are engaged to do.

### 5. EMPLOYER'S DUTIES: GENERAL

Under the Act, employers are required to:

- provide and maintain a safe working environment;
- provide and maintain facilities for the safety and health of employees;
- ensure that machinery and equipment are safe for employees;
- ensure that working arrangements are not hazardous to employees; and
- provide procedures to deal with emergencies that may arise while the employees are at work.

### 6. EMPLOYER'S DUTY ON HAZARDS

Employers shall have a three-step system for hazards at work.

<i>Step</i>	<i>Task</i>	<i>Description</i>
1	Identify hazards	A hazard is any activity, situation or substance that can cause harm.
2	Assess hazards	<p>Assess which hazards are significant. The Act uses “significant hazard” to mean one which could cause:</p> <ul style="list-style-type: none"> <li>• Serious harm, including death, serious injury and disease.</li> <li>• Harm which depends on how often/long a person is exposed to the hazard (e.g. exposure to noise over a long period may cause gradual or permanent deafness).</li> <li>• Harm which cannot be detected for a significant time (e.g. exposure to certain chemicals may cause health problems years later).</li> </ul>
3	Manage hazards	<p><i>Eliminate</i> the hazard if it is practicable to do so.</p> <p><i>Isolate</i> the hazard if you cannot eliminate it, by putting some kind of barrier or distance between the hazard and the person.</p> <p><i>Minimise</i> the hazard if you cannot isolate it, e.g.</p>

<i>Step</i>	<i>Task</i>	<i>Description</i>
		<ul style="list-style-type: none"> <li>• follow safe and accepted work practices;</li> <li>• provide suitable protective clothing and equipment and ensure it is worn/used correctly;</li> <li>• maintain equipment properly;</li> <li>• train employees in safe work methods;</li> <li>• supervise untrained or inexperienced employees;</li> <li>• monitor employees' exposure to the hazard;</li> <li>• monitor employees' health (only with their consent).</li> </ul>

## 7. EMPLOYER'S DUTY TO INFORM EMPLOYEES

Employers shall inform employees of:

- the hazards they are exposed to or create while at work;
- how to minimise hazards to themselves and other people;
- where the necessary safety clothing and equipment are kept;
- what to do if an emergency arises while they are working.

Employers must also give employees the results of any monitoring of their health or the

workplace, without identifying individuals.

## 8. EMPLOYER'S DUTY TO TRAIN AND SUPERVISE

Employers shall take all practicable steps to ensure that employees who do any kind of work, or use plant, equipment or deal with any substance:

- have the knowledge and experience to ensure that they and others are not harmed; or
- are supervised by a person with the knowledge and experience to ensure that they and others are not harmed; or
- are adequately trained in the safe use of all:
  - plant;
  - objects;
  - substances;
  - protection clothing/equipment provided by the employer;

that the employee may use.

## 9. EMPLOYER'S DUTY TO INVOLVE EMPLOYEES

Employers shall ensure that employees have an opportunity to be involved in the development of procedures for health and safety.

## 10. EMPLOYER'S DUTY WITH REGARD TO ACCIDENTS

Employers shall keep a register of every work-related:

- accident;
- serious harm incident;
- near-miss incident (where someone might have been harmed);

involving any person in a place of work.

Employers are also required to:

- investigate all recorded accidents, harm and near-miss incidents;
- determine whether they were caused by a significant hazard;
- document remedial action taken;
- notify OSH of any serious harm accident that occurs at a place of work:
  - verbally as soon as possible;
  - in writing within seven days.

#### NOTE

The site shall not be disturbed unless authorised by an inspector, except where necessary to aid the injured person or prevent serious damage to or loss of property.

# 3: THE ACT: DEFINITION OF SERIOUS HARM

## 1. DEFINITION

Serious harm has occurred if any of the following symptoms or conditions results in severe loss of bodily function (permanent or temporary).

## 2. SERIOUS HARM CONDITIONS

This table shows conditions which indicate serious harm has occurred.

<i>Condition</i>	<i>Cause</i>
Unconsciousness	<ul style="list-style-type: none"><li>• from lack of oxygen;</li><li>• from absorption, inhalation, or ingestion, of any substance, requiring treatment by a registered medical practitioner.</li></ul>
Hospitalisation	<ul style="list-style-type: none"><li>• any need for person to be hospitalised for 48 hours or more, commencing within 7 days of the cause.</li></ul>
Temporary severe loss	<ul style="list-style-type: none"><li>• pain or health impairment is significantly more than discomfort; and</li><li>• pain or health impairment prevents use of part of the body; and</li></ul>

<i>Condition</i>	<i>Cause</i>
	<ul style="list-style-type: none"> <li>• condition is likely to be temporary.</li> </ul>
Acute illness	<ul style="list-style-type: none"> <li>• from absorption, inhalation, or ingestion, of any substance, requiring treatment by a registered medical practitioner.</li> </ul>
Sickness/illness	<ul style="list-style-type: none"> <li>• caused by decompression;</li> <li>• from poisoning;</li> <li>• caused by exposure to infected material;</li> <li>• cancer.</li> </ul>
Disease	<ul style="list-style-type: none"> <li>• neurological disease;</li> <li>• dermatological disease;</li> <li>• respiratory disease;</li> <li>• musculoskeletal disease;</li> <li>• communicable disease.</li> </ul>

### 3. SERIOUS HARM INJURIES

This table shows injuries which indicate serious harm has occurred.

<i>Body part</i>	<i>Injury</i>
Any part	<ul style="list-style-type: none"> <li>• amputation;</li> <li>• burns requiring referral to a medical specialist or specialist outpatient clinic;</li> <li>• laceration;</li> <li>• bone fracture;</li> <li>• crushing.</li> </ul>

Eyes	<ul style="list-style-type: none"> <li>• chemical burn;</li> <li>• hot-metal burn;</li> <li>• penetrating wound;</li> <li>• other vision impairment.</li> </ul>
Ears	<ul style="list-style-type: none"> <li>• noise-induced hearing loss.</li> </ul>

*Examples of Forestry Injuries and Required Reporting Action*

<i>Example of Employee's Injury</i>	<i>Severity of Injury</i>	<i>Action Required by the Employer</i>
Serious chainsaw cut requiring visit to doctor.	Serious harm	Notify OSH within 48 hours; record in accident register.
Small chainsaw cut requiring stopping of task: first aid treatment only.	Temporary severe harm	Notify OSH within 48 hours; record in accident register.
Strain to back while lifting, requiring visit to doctor.	Serious harm	Notify OSH within 48 hours; record in accident register.
Strain to shoulder while pruning, requiring stopping of task but no visit to doctor.	Temporary severe harm	Notify OSH within 48 hours; record in accident register.

Minor cut while sharpening saw; requiring first aid but can still perform task.	Minor harm	Do not notify OSH; record in accident register if caused by a significant hazard.
Dirt in eye while planting; requiring first aid but can still perform task.	Minor harm	Do not notify OSH; record in accident register if caused by a significant hazard.
Pain in arm and temporarily cannot perform task.	Temporary severe harm	Notify OSH 48 hours; record in accident register.

# 4: THE REGULATIONS: DUTIES

## 1. OVERVIEW

The Regulations lay down certain duties of employers and others. Explanation and practical application of these is contained in the *Guidelines for the Provision of Facilities and General Safety in Forestry Work*.

## 2. EMPLOYER'S DUTY TO PROVIDE FACILITIES

Employers have a duty to maintain, keep clean and provide access to the following facilities, sufficient for the place of work:

- washing facilities;
- toilets;
- drinking water;
- first-aid equipment;
- facilities for employees who become ill at work;
- facilities for changing and storing clothes;
- facilities for meals;
- lighting;
- emergency exit plans.

## 3. EMPLOYER'S DUTIES: GENERAL

Employers have general duties which relate to the management of particular hazards, e.g.

- working at heights above three metres;
- activities under raised objects;
- earthworks and excavations;
- harmful noise;
- cleaning, maintenance and repair of machinery;
- protective structures of self-propelled plant;
- employment of young persons.

#### 4. EMPLOYER'S DUTY: NOTIFIABLE WORK

An employer must provide the nearest OSH office with the following details in writing at least 24 hours before beginning any notifiable work:

- nature and location of the work;
- name, address and the contact details of the employer;
- intended date of commencement of the work;
- estimated duration of the work.

#### NOTES

1. A definition of notifiable work is given on the next page.
2. Notification forms can be obtained at any OSH office.

## 5. GENERAL DUTIES OF DESIGNERS, MANUFACTURERS AND SUPPLIERS

Designers, manufacturers, and suppliers of plant and protective clothing/equipment have general duties which relate to the safety of their products. Expansion of these duties is contained in the relevant guidelines.

# 5: THE REGULATIONS: DEFINITIONS

## 1. DEFINITION OF NOTIFIABLE WORK

The Regulations refer to notifiable work, which means any logging or tree felling operation undertaken for commercial purposes.

## 2. DEFINITION OF LOGGING

Logging is defined as felling trees by manual or mechanical means for the purpose of extracting logs, poles, and posts. It includes extracting logs to an area for processing and loading.

## 3. DEFINITION OF TREE FELLING

Tree felling is defined as felling trees by manual or mechanical means for any purpose. It includes:

- harvesting firewood commercially;
- land clearance;
- maintaining shelter belts for horticulture;
- maintaining trees in the vicinity of power lines;
- managing and caring for trees in the general community;
- silviculture;
- willow layering and any other work in catchment soil erosion operations.

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## Part 3: Rules of the Code

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# 1: RULES FOR GENERAL SAFETY

## 1. EMERGENCIES

### **Rule**

- 1 There shall be a means of communication or transport available at the worksite in the case of injury or illness that requires medical attention.
- 2 The employer (or person in charge) shall issue procedures for dealing with emergencies and ensure that persons at the work site fully understand them.
- 3 There shall be at all times:
  - immediate access to work sites; or
  - machines available which are capable of clearing the way and enabling immediate access; or
  - alternative procedures/arrangements.

## 2. FIRST AID

### **Rule**

- 1 Where crew work is taking place, a holder of a current first aid certificate issued by a recognised organisation shall be present in the crew at all times.
- 2 A clearly marked first aid kit shall be kept:
  - in each work vehicle;
  - at each work area.

Note: Vehicle kits can substitute for those required at a work area, provided the vehicle remains at the work site.

- 3 Every kit shall be kept fully stocked, and stored so as to ensure contents are protected against contamination by dust, heat, moisture or any other source.
- 4 Chainsaw operators (except those working on a skid site) shall carry on their person at least two large sterile wound dressings protected against contamination by dust, heat, moisture or any other source.

### 3. ALL PERSONS IN THE FOREST

#### **Rule**

- 1 No person shall work at or visit a forest operation while under the influence of drugs or alcohol.
- 2 No person shall enter an area where work is taking place until they have drawn attention to their presence and been acknowledged.
- 3 No person shall work in a manner likely to cause harm to themselves or others.
- 4 Every person undertaking forestry work shall be either:
  - qualified;
  - competent; or
  - under training.
- 5 No person shall work on their own unless all practicable steps are taken to ensure they have a means of getting help in an emergency.
- 6 No person shall position themselves where there is danger of materials being dislodged and rolling or falling into the work area.

- 7 No person shall remain in the bight of an operating rope under tension unless safety precautions have been taken to protect them from being struck by the rope if it breaks or becomes loose.
- 8 No person shall attempt to guide moving ropes on to drums or through fairleads by using their hands or feet.

#### 4. PRINCIPALS

##### **Rule**

- 1 Before commencing operations, the principal shall verify that the employer has in place a safety management plan which complies with the requirements of the HSE Act and HSE Regulations.
- 2 The principal shall ensure contract agreements clearly incorporate and define responsibilities and duties under the:
  - Health and in Safety in Employment Act 1992; and
  - Health and Safety in Employment Regulations 1995.
- 3 The principal shall periodically audit the effectiveness of the employer's health and safety system to ensure compliance with the requirements of the HSE Act/ Regulations.
- 4 The principal shall provide the employer with the opportunity to have input into the planning phase or such documents as are necessary, so that hazards which may arise from the work can be identified or controlled prior to commencement.
- 5 The principal shall identify significant hazards which are:

- caused by operations over which they have control;
- specific to the work area;

and then:

- jointly with employer determine measures to control hazards;
- supply employer with documentation on the hazards in a form that is reasonably likely to be understood.

Note: See appendix 2 for examples of hazard information to consider.

## 5. EMPLOYERS

### Rule

- 1 The employer shall ensure that a competent person is in charge of each operation, and shall supervise and ensure work is supervised and performed in a safe manner.
- 2 The employer shall ensure that all employees are properly instructed, and are qualified, adequately trained, or under training for the work they are required to perform.
- 3 Training shall include information on health issues associated with forestry work.
- 4 The employer shall have in place a system for the management of hazards in each operation. Employers shall provide employees with access to comprehensive information regarding safety and health hazards and their control.

- 5 The employer shall ensure close supervision of employees until they visually demonstrate they are competent in the work they may have to perform.
- 6 Employers shall ensure all new employees are inducted into:
  - legislative and regulative requirements;
  - the principal's health and safety system and policies;
  - in-house practices;
  - hazards;
  - codes and guidelines;
  - emergency procedures.
- 7 Workers required to work at positions where they may fall vertically more than 3 metres shall be provided with suitable means to prevent them from falling.
- 8 The employer or person in charge shall suspend all operations when adverse weather creates significant hazards that cannot be satisfactorily controlled.
- 9 Where night work is required, the employer shall ensure that the level of illumination does not cause a hazard.

## 6. EMPLOYEES

### **Rule**

- 1 No employee shall work in a manner likely to cause harm to themselves or others.

## 7. VISITORS

### Rule

- 1 Visitors to a worksite shall have prior approval of the person in charge who shall ensure they are:
  - designated a safe area; or
  - guided so that they are not harmed in the place of work.
- 2 Persons in charge of the place of work shall stipulate the minimum requirements for protective clothing and equipment for visitors.
- 3 Persons under the age of 15 are not permitted in the vicinity of any forest operation while work is being carried out, unless:
  - they have permission from the person in charge; and
  - they are under the constant supervision of a responsible person.

## 8. VEHICLES TRANSPORTING WORKERS

### Rule

- 1 Vehicles used for conveying workers shall comply with the:
  - Transport Act 1962;
  - Traffic Regulations 1976;
  - Passenger Vehicle Construction Regulations 1978;
  - Transport (Vehicle Standards) Regulations 1990;
  - Rules made under the Land Transport Act 1993 which replace or supersede the above Regulations.

## IMPORTANT NOTE

The above requirements are in addition to provisions contained in any Act, award, or industrial agreement.

- 2 Drivers of vehicles used for transporting workers shall hold a relevant driver's licence.
- 3 No loose tools or equipment shall be carried in the passenger compartment of a vehicle conveying workers.
- 4 Each person travelling in a vehicle shall have a suitable place to sit in a properly fastened seat with shelter from the elements.

## 2: RULES FOR HEALTH

### 1. GENERAL HEALTH

#### **Rule**

- 1 Working hours shall be arranged so as to provide adequate opportunity for rest periods, which shall include:
  - short breaks during work hours;
  - sufficient breaks for meals;
  - daily or nightly rest.
- 2 The employer shall ensure that employees are educated about the importance of sufficient nutrition and hydration, and a balanced diet, for their health and productivity.
- 3 The employer shall ensure employees have medical assessments to monitor any effects from exposure to known health hazards associated with their work.

## 3: RULES FOR PROTECTIVE CLOTHING AND EQUIPMENT



### 1. GENERAL HEALTH

#### **Rule**

- 1** The employer shall provide or make provision for all appropriate clothing, footwear and personal protective equipment to protect employees from harm due to any hazard in the workplace, and ensure it is used correctly.
- 2** Clothing/equipment shall be comfortable and allow free movement.

#### **NOTE**

Give consideration to fit, comfort and the protection offered when selecting protective clothing and equipment.

- 3** Clothing/equipment shall be kept clean and properly maintained.

- 4 Damaged clothing/equipment shall be properly repaired or discarded.
- 5 Persons entering/working in harvesting or tree felling operations shall wear high-visibility clothing.
- 6 During the hours of darkness, high-visibility clothing with reflectorised strips (minimum 150 sq. cm visible on both the front and rear of the garment) shall be worn.

## 2. LEG PROTECTION

### Rule

- 1 All workers required to use a chainsaw shall wear safety leg protection complying with either:
  - AS/NZS 4453.3: 1997 *Protective clothing for users of hand-held chainsaws*, Part 3, *Protective legwear*; or
  - any other Standard embodying the same or more stringent criteria.

## 3. SAFETY FOOTWEAR

### Rule

- 1 All workers engaged in forest operations shall wear footwear which:
  - gives support to the ankles;
  - has steel toe-caps complying with either:
    - AS/NZS 2210 *Occupational protective footwear* Part 1; or
    - any other Standard embodying the same or more stringent criteria.

- 2 Laces shall be securely tied at all times.
- 3 Chainsaw safety footwear shall be of a recognised industry standard.

#### 4. SAFETY HELMETS

##### **Rule**

- 1 Safety helmets shall be worn at all times by persons who are:
  - tree felling;
  - at a logging operation site.

EXCEPTION: Machine operators who are fully protected by an approved canopy need not wear helmets.
- 2 Safety helmets shall comply with either:
  - AS/NZS 1801:1997 *Occupational protective helmets*; or
  - any other Standard embodying the same or more stringent criteria.
- 3 Safety helmets shall be of high-visibility colours for daytime work.
- 4 Helmets shall be inspected regularly and shall be replaced as recommended by the manufacturer or earlier if they have suffered any damage or deterioration.

#### 5. HEARING PROTECTION

##### **Rule**

- 1 Hearing protection shall be worn where noise levels are above (or likely to be above) 85dB.

- 2 Hearing protection shall comply with the requirements as set out in Appendix 3: Exposure to Continuous Sound.
- 3 Hearing protectors shall comply with either:
  - NZS/AS 1270:1988 *Acoustics - Hearing protectors*, or
  - any other Standard embodying the same or more stringent criteria.
- 4 Owners of machinery shall take all practicable steps to minimise at source excessive noise levels which may impair the worker's hearing.

## 6. EYE PROTECTION

### Rule

- 1 Eye protection shall be used where there is potential for injury from:
  - excessive dust;
  - flying particles;
  - material from vegetation;
  - chemicals, welding, and grindingexcept where the eye protection itself is likely to cause a greater hazard.  
NOTE: Chainsaw operators may use a forestry-type mesh visor.
- 2 Eye protection equipment other than forestry-type mesh visors shall comply with either:
  - AS/NZS 1337:1992 *Eye protectors for industrial applications*, Amendment 1 Sept 1994:  
Amendment 2 Oct 1997; or

- any other Standard embodying the same or more stringent criteria.

## 7. GLOVES

### Rule

- 1 Gloves shall be used where there is potential for injury from:
  - chemicals;
  - abrasions/punctures;
  - heat.
- 2 Gloves shall comply with either:
  - NZS 5812:1982 *Industrial protective gloves* Reconfirmed:1989; or
  - any other Standard embodying the same or more stringent criteria.

## 8. RESPIRATORY PROTECTIVE DEVICES

### Rule

- 1 Appropriate protective devices shall be used where there is potential harm to persons exposed to:
  - dust;
  - gases;
  - fumes;
  - chemicals.
- 2 Appropriate protective respiratory devices shall comply with either:
  - AS/NZS 1715:1994 *Selection, use and maintenance of protective respiratory devices* and 1716:1994 *Respiratory protective devices*,

Amendment 1 Feb 1996; or

- any other Standard embodying the same or more stringent criteria.

## 9. SAFETY BELT AND HARNESSSES FOR SILVICULTURE

### Rule

- 1 Safety belts and harnesses for silviculture and seed collection shall comply with either:
  - AS/NZS 1891.1:1995 *Industrial fall arrest systems and devices*, Part 1 *Safety belts and harnesses*: Amendment 1 March 1997; Amendment 2 Oct 1997; or
  - any other Standard embodying the same or more stringent criteria.

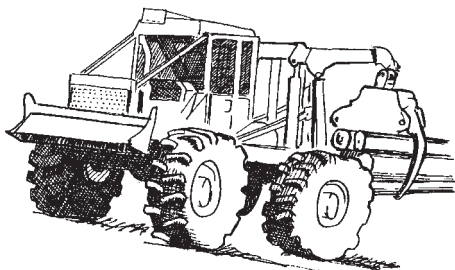
## 10. SAFETY BELTS, AND HARNESSSES FOR LOGGING

### Rule

- 1 Safety belts and harnesses for logging shall comply with either:
  - ASTM F 887 - 91a *Personal climbing equipment*;  
or
  - any other Standard embodying the same or more stringent criteria.
- 2 A climbing rope shall have 8mm wire rope core construction where there is danger of it being severed.
- 3 The climbing rope shall:
  - be laced to the climbing belt (or pass through at least three rings which are secured around the belt); and

- have an eye at one end of the climbing rope; and
  - be passed around the climber and around the tree; then
  - have the dead end passed through the eye and secured with an easy adjustable mechanism (e.g. bowline/cat's paw knot).
- 4 A duplicate set of equipment (or other means) shall be available for immediate use by a competent worker so that an injured person can be lowered to the ground in an emergency.

## 4: RULES FOR MOBILE PLANT AND MACHINERY



### 1. STATUTORY REQUIREMENTS

#### Rule

- 1 Mobile plant used in forestry work shall comply with the:
  - Health and Safety in Employment Act 1992;
  - Health and Safety in Employment Regulations 1995.
- 2 Mobile plant (except hydraulic excavators) which is not operated on level ground shall be fitted with a roll over protective structure (ROPS) complying with either:
  - ISO 8082:1994 *Self-propelled machinery for forestry, Roll over protective structures, Laboratory tests and performance requirements*;
  - or
  - any other Standard embodying the same or more stringent criteria.

<i>Included in this rule</i>	<i>Excluded from this rule</i>
<p>All mobile plant used in forestry work such as:</p> <ul style="list-style-type: none"> <li>• wheeled tractors</li> <li>• crawler tractors</li> <li>• skidders</li> <li>• graders</li> <li>• loaders.</li> </ul>	<p>Mobile plant that is designed to be and is operated on level ground and:</p> <ul style="list-style-type: none"> <li>• machinery weighing less than 700kgs;</li> <li>• log haulers;</li> <li>• buses, trucks, vans, cars;</li> <li>• telescopic mast forklifts;</li> <li>• power-operated work platforms.</li> </ul>

Hydraulic excavators operating on terrain where stability cannot be assured shall be fitted with a Cabin Operator Protective Structure (COPS).

- 3 Mobile plant fitted with ROPS or COPs cabs shall be fitted with seat belts (or other safety restraint) complying with either:
  - AS 2664:1983 *Earth-moving machinery, Seat belts and anchorages*; or
  - any other Standard embodying the same or more stringent criteria.
- 4 Where a seat belt or other safety restraint is fitted, operators shall wear the restraint device whenever the machine is being operated.
- 5 Alterations to protective structures outside the manufacturer's specifications shall be approved by the manufacturer (or their agent).

## 2. SAFETY SPECIFICATIONS

### Rule

- 1 Mobile plant working in standing trees (or where there is danger from falling material) shall be fitted with a falling object protective structure (FOPS) complying with either:
  - ISO 8083:1989 *Machinery for forestry, Falling object protective structures, Laboratory tests and performance requirements*; or
  - any other Standard embodying the same or more stringent criteria.
- 2 Mobile plant required to work where there is danger of objects entering the cab shall be fitted with an operator protective structure (OPS) complying with either:
  - ISO 8084:1993 *Machinery for forestry, Operator protective structures, Laboratory tests and performance requirements*; or
  - any other Standard embodying the same or more stringent criteria.
- 3 Mobile plant required to work at night shall be equipped with lights to illuminate the work area.
- 4 Mobile plant with any structure that may come in contact with overhead power lines shall have an appropriate warning displayed.
- 5 Mobile plant shall be equipped with brakes capable of holding the machine and its load on any slope on which it is operated.
- 6 Any mobile plant used as a stationary winch shall comply with the relevant requirements set out in

this code.

- 7 All pulleys, shafts belts and fan belts shall be securely guarded.
- 8 Where operating noise levels may cause damage to hearing:
  - an ear protection warning sign shall be displayed;
  - the operator shall wear appropriate hearing protection.

### 3. PLANT AND VEHICLES

#### **Rule**

- 1 Vehicles/mobile plant used for forest operations shall have a valid Warrant or Certificate of Fitness where applicable.
- 2 Drivers of vehicles shall hold a relevant valid licence.
- 3 Operators of mobile plant shall hold a valid licence if applicable.

### 4. USING MACHINERY

#### **Rule**

- 1 Mobile plant shall be operated, serviced and maintained to the manufacturer's specifications, recommendations and instructions.
- 2 Where the stability of machines may be compromised by slope, weather or ground conditions, specific hazard control measures shall be put in place.  
Equipment shall not be operated on slopes that

exceed the maximum specified by the manufacturer. As a guide, subject to weather and ground conditions:

- Rubber-tyred machines should not operate on slopes that exceed 30% (18°).
  - Crawler tractors, feller bunchers, excavators, and other similar mobile plant should not operate on slopes that exceed 40% (22°).
- 3 No person shall:
    - get on or off a moving machine;
    - ride on a machine not provided with proper seating;
    - ride on a load carried or towed by a machine.
  - 4 No loose objects shall be carried in the cab of a machine.
  - 5 When a machine is shut down or left unattended with engine running:
    - brakes shall be applied;
    - blades and accessories shall be resting on the ground.
  - 6 Machines shall keep away from tree felling by a distance equal to at least twice the height of the tallest tree being felled.  
They shall enter the area only when felling has ceased and the fallers have signalled their approval (see Mechanised harvesting, Machine-assisted felling, and Hung-up or Cut-up trees for exceptions to this rule).
  - 7 Any machinery that becomes unsafe, or is suspected to be unsafe, shall be shut down. The machine shall

be inspected, repaired and tested before returning to service.

## 5. MAINTAINING MACHINERY

### **Rule**

- 1** Daily operational checks shall be carried out by the operator or their supervisor.
- 2** Mobile plant shall be maintained in a safe operating condition according to the manufacturer's requirements.
- 3** No machine shall be cleaned, lubricated or repaired with the engine running, except where final adjustments are specified by the manufacturer.  
Repairs or adjustments shall never be made when the machine is in motion.
- 4** No person shall work under:
  - a raised blade, load or accessory; or
  - any machine raised for repairsunless supports are used to ensure that the object cannot be dropped or lowered.

## 6. SHIFTING MACHINERY

### **Rule**

- 1** Loading (and unloading) a machine onto a transporter or other vehicle shall only be done by a competent person.

## 7. USING ALL TERRAIN VEHICLES

### Rule

- 1 The manufacturer's recommended instructions shall be followed and recommended loadings shall not be exceeded.

## 8. USING POWER-OPERATED WORK PLATFORMS

### Rule

- 1 A power-operated elevating work platforms shall have an engineer's certificate stating it can safely:
  - elevate, sustain, and lower;
  - slew and transport (where applicable);its designated safe working load (SWL).
- 2 The work platform shall be operated in accordance with the manufacturer's instructions and the *Code of Practice for Power-Operated Elevating Work Platforms*.

In particular, operators shall not:

- exceed the safe working load;
  - approach within 4 metres of overhead powerlines;
- without written consent of the owner and operator of the powerlines.

## 9. WORKING AROUND OVERHEAD POWER LINES

### Rule

- 1 Persons working with hand tools or ladders, or operators of any machinery working in the proximity of live power lines, shall keep the tools, ladders or

any part of the machinery at least 4 metres away.

Refer to *Approved Code of Practice for Tree Work: Part Two Maintenance of Trees around Power Lines*.

- 2** The following reference shall be used when tree felling around power lines. Refer to *Approved Code of Practice for Tree Work: Part Two Maintenance of Trees around Power Lines*.

## 5: RULES FOR HELICOPTERS



### 1. WHEN A HELICOPTER IS IN THE VICINITY

<i>It is imperative to:</i>	<i>It is prohibited to:</i>
<ul style="list-style-type: none"><li>• remain clear of the immediate vicinity of the hovering helicopter (unless unavoidable).</li></ul>	<ul style="list-style-type: none"><li>• approach or leave a helicopter that is starting up or closing down;</li><li>• throw any object.</li></ul>

### 2. WHEN APPROACHING AN OPERATING HELICOPTER

<i>It is imperative to:</i>	<i>It is prohibited to:</i>
<ul style="list-style-type: none"><li>• stand in front of helicopter;</li><li>• stay in full view of the pilot;</li><li>• keep clear of the rotors;</li></ul>	<ul style="list-style-type: none"><li>• go near the rear of the helicopter;</li><li>• remain towards the outer path of the rotor.</li></ul>

<i>It is imperative to:</i>	<i>It is prohibited to:</i>
<ul style="list-style-type: none"> <li>• crouch;</li> <li>• approach from the downhill side;</li> <li>• move as far up to the cabin doors as practicable;</li> <li>• go near the rear of the helicopter.</li> </ul>	

### 3. WHEN ENTERING, LEAVING OR UNLOADING

<i>It is imperative to:</i>	<i>It is prohibited to:</i>
<ul style="list-style-type: none"> <li>• wait for a signal from the pilot before entering, leaving or unloading;</li> <li>• fully secure loose clothing (e.g. unfastened jacket);</li> <li>• fully secure loose freight (e.g. open containers).</li> </ul>	<ul style="list-style-type: none"> <li>• take anything into a helicopter unless carried horizontally below waist height.</li> </ul>

#### NOTE

Operations involving suspension of persons below the helicopter, including injured persons, shall be conducted in compliance with the Civil Aviation Rule 133.

## 4. OPERATIONS

### Rule

- 1 Pilots shall hold a current valid licence and appropriate rating for specialised work.
- 2 A briefing session on safety between the pilot, controllers and workers shall be held before operations commence.
- 3 Where safety helmets are worn in helicopter operations they shall be provided with a means of preventing them from being blown off such as a chin strap or by wearing ear muffs attached to the helmet.
- 4 Seat belts shall be fastened until pilot signals for passengers to exit.

## 5. RIGGING

### Rule

- 1 Strops or taglines used shall have an ultimate breaking strength three times their safe working load and shall be regularly inspected for wear.

## 6. REFUELLING

### Rule

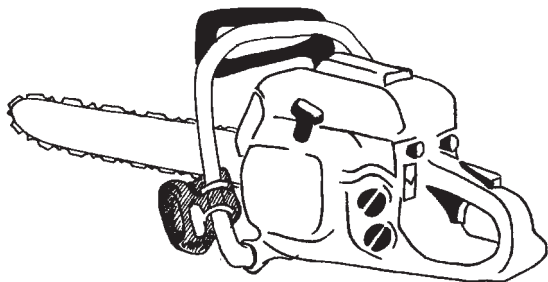
- 1 An appropriate area shall be allocated for refuelling. The pilot shall be responsible for safety procedures during refuelling and ensuring compliance with:
  - Civil Aviation Rule 135.73;
  - Dangerous Goods Act 1974;
  - Dangerous Goods Regulations 1985.

## 7. COMMUNICATION

### **Rule**

- 1** Procedures shall be established to ensure that alternative communication methods are available should radio communication fail or become unclear.
- 2** Hand signals shall be in conformance with the instructions issued by the pilot.

## 6: RULES FOR CHAINSAWS



### 1. GENERAL SPECIFICATION

#### Rule

- 1 Chainsaws shall comply with:
  - NZS 5819:1982 *Chainsaw safety: Part 1: Code of practice for safe use of petrol and electrical chainsaws. Part 2 : Specification for the safe design of petrol and electrical chainsaws*; or
  - any other Standard embodying the same or more stringent criteria.
- 2 Chainsaws held directly by hand shall have:
  - a safety mitt and chain brake;
  - a clearly marked and functional ON-OFF switch;
  - a chain catcher;
  - a rear hand guard;
  - anti-vibration mounts;
  - a throttle lockout;

- an effective muffler;
  - a spark arrester.
- 3** The chain shall be tensioned and sharpened and the depth gauges set to the manufacturer's instructions.

## 2. STARTING

### **Rule**

- 1** Only approved starting methods shall be used. These are:
- starting a chainsaw on clear ground;
  - step over method for warm starting.

#### NOTE

For starting/using a chainsaw off the ground, see the *Approved Code of Practice for Safety and Health in Tree Work: Part One Arboriculture*.

## 3. OPERATION

### **Rule**

- 1** A chainsaw shall not be used if:
- any safety device is inoperable;
  - the saw chain does not remain stationary when the motor is idling;
  - the saw will not idle correctly;
  - the cutter bar, handles or controls are loose;
  - any parts are damaged, missing or ineffective.
- 2** The chain brake shall be activated by the operator at least every work period to test its effectiveness under operating conditions.

- 3 The chainsaw shall not be used above shoulder height.  
Exception: Chainsaw pruning operations.
- 4 No maintenance shall be carried out while the motor is running except for the fine tuning of the carburettor.
- 5 No person shall use a chainsaw while on stockpiled, stacked or heaped logs.

#### 4. REFUELLING

##### **Rule**

- 1 The following rules shall be observed when refuelling:
  - no smoking;
  - stop the motor;
  - place the saw in the clear and fill the oil tank first;
  - wipe any fuel spillage from the saw;
  - move at least 3 metres away from the refuelling site before restarting.

#### 5. REDUCTION OF VIBRATION DISEASE

##### **Rule**

- 1 Operators shall check and maintain the security and condition of anti-vibration mounts.

# 7: RULES FOR WIRE ROPE



## 1. WIRE ROPE

### Rule

- 1 No wire rope shall be used in any forestry work unless its breaking strength has been certified by the manufacturer or vendor.
- 2 Wire rope used in forestry work shall comply with either:
  - BS/NZS 302:Part 5:1987 *Specification for ropes for hauling purposes*; or
  - any other Standard embodying the same or more stringent criteria.
- 3 Eyes in all ropes and strops shall be:
  - spliced, with ends tucked in at least three times on one side, and two on the other; or
  - held by clamping devices giving at least the same strength.
- 4 Wire rope shall be cut with either:
  - a specialist non-percussion cutting tool; or
  - a percussion tool using a softened hammer.

- 5 Eye-to-eye splices shall not be used in:
  - load-bearing or working ropes;
  - strops used for lifting purposes.
- 6 Wire rope shall be replaced if it shows signs of:
  - excessive wear;
  - corrosion;
  - kinking;
  - stranded wires;
  - being burned.
- 7 Knots shall not be used in any wire rope.  
Exception: Knots may be used to secure strawline hooks in cable logging.
- 8 “C” hooks are prohibited in any logging operation.
- 9 White metal babbiting shall only be performed by a recognised rigging supplier or manufactured according to best industry practices.

Reference: LIRO *Wire Rope Splicing Handbook*.

# 8: RULES FOR OTHER PORTABLE EQUIPMENT

## 1. BRUSHCUTTERS

### Rule

- 1 Harnesses for supporting machines shall be fitted, worn and adjusted to the manufacturer's instructions.
- 2 The emergency release system for the harness shall work effectively.
- 3 Operators shall work the greater of 3 metres or twice the length of the material being felled away from other workers. These distances may need increasing in adverse conditions.

## 2. PORTABLE TOOLS

### Rule

- 1 Tools shall be kept in safe working condition and where applicable be properly sharpened.
- 2 Tools shall be used only for the purpose they were designed for.
- 3 Split axe heads, damaged or mushroomed wedges, hammers and similar equipment shall be properly repaired or replaced.
- 4 Workers shall keep 3 metres apart, or twice the height of tallest vegetation being cut (whichever is the greatest) when using hand cutting tools.

5 Tools shall be properly secured when transporting.

### 3. LADDERS

#### **Rule**

- 1 Ladders shall comply with:
  - AS/NZS 1892.1:1996 *Portable ladders: Part 1: Metal*; or
  - any other Standard embodying the same or more stringent criteria.
- 2 Ladders shall be regularly checked and defects repaired before use. Particular attention shall be given to:
  - junction of stiles and rungs;
  - interlocking joints;
  - chains and pins in metal ladders and accessories.

# 9: RULES FOR FLAMMABLE LIQUIDS AND EXPLOSIVES

## 1. STORING AND TRANSPORTING FLAMMABLE LIQUIDS

### **Rule**

- 1** Petrol and other flammable liquids shall be conveyed, stored and packed in containers that comply with the requirements prescribed under the Dangerous Goods Act 1974 and Dangerous Goods Regulations 1985. (To be replaced by the Hazardous Substances and New Organisms Act and Regulations 1999.)
- 2** At least two hand-held fire extinguishers designed for fighting class “B” fires shall be immediately available. They shall be of suitable capacity in relation to the quantity of flammable liquid being carried on every tank wagon or trailer.
- 3** When it is necessary to carry flammable liquids in vehicles also used to transport passengers, the containers shall be secured in a properly constructed vented compartment which is:
  - separate from the passenger compartment;
  - accessible only from the exterior;
  - vented to the exterior.
- 4** Only approved containers with an authorised LAB number shall be used to carry fuel for on-site

refuelling. Such containers must not be used for storing fuel.

## 2. USE OF EXPLOSIVES

### **Rule**

- 1** Explosives shall be stored, carried and handled to the requirements of The Explosive Regulations 1959.
- 2** Persons using explosives shall be conversant with and carry out operations to the requirements of Regulation 74 “Use of Explosives” of The Explosive Regulations 1959.

# 10: RULES FOR SAFETY AT FIRES AND BURNOFFS



## 1. ATTENDING FIRES

### Rule

- 1 Personnel shall be fully briefed before commencing a burnoff or approaching a fire line by either:
  - the person in charge of the operation; or
  - the appointed representative.

## 2. DRESS STANDARD

### Rule

- 1 Persons attending fires or burnoffs shall be safely clad in clothes that offer protection from:
  - physical injury;
  - exposure to radiant heat;
  - build-up of metabolic heat;
  - exposure to water or chemicals.
- 2 Minimum standard of dress is:
  - steel-capped footwear that gives support to the ankles;

- ankle to wrist clothing or overalls of fire-resistant material;
  - safety helmet.
- 3 Clothing that is unacceptable includes:
    - nylon or synthetic clothing;
    - shorts and short-sleeved shirts;
    - clothing that restricts normal movement;
    - protective clothing or equipment that may restrict vision.
  - 4 Chainsaw safety trousers and some chaps are not fire-resistant and they shall not be worn while actively involved in fire suppression on the fire line.

### 3. PERSONAL SAFETY

#### **Rule**

- 1 Personnel shall stay within the following safe areas:
  - areas already burnt;
  - downhill or upwind of the fire area;
  - cleared ground, such as firebreaks, roads and tracks;
  - areas such as creeks and river beds.
- 2 An escape route shall be planned at all times. An alternative route in case the original route is cut off shall also be planned.
- 3 Persons shall have established some means of communication if working outside the calling distance of another person.
- 4 Persons shall be instructed on and be aware of the

effects of dehydration and the need to drink plenty of water to replace excessive sweat loss.

- 5 Sufficient rest periods and an adequate supply of food and drinking water shall be provided to minimise fatigue.
- 6 Persons shall be protected from and exposure minimised to:
  - metabolic heat;
  - radiant heat;
  - high noise levels.

#### 4. USING HAND TOOLS

##### **Rule**

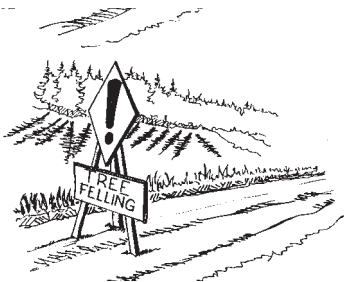
- 1 Persons shall work at least three metres apart when using hand tools and increase this distance to two tree lengths apart if felling vegetation.
- 2 When using a hand burner, the operator shall be accompanied by another person.

#### 5. VEHICLES

##### **Rule**

- 1 Vehicles shall be parked facing the direction of escape and in a position where other vehicles may pass. The doors, windows and air vents shall be shut and the keys left in the ignition.
- 2 When driven, all vehicles shall travel with the lights on.

# 11: RULES FOR ROADS



## 1. WORKING ON OR NEAR ROADS

### Rule

- 1 Signs warning of work in progress shall be displayed when work is on or near public/private roads. Their purpose is to protect workers, and to guide traffic and pedestrians around the worksite and any hazards.
- 2 Planning of appropriate warning methods shall be prepared as part of hazard management.
- 3 Permanent signs shall comply with *Manual of Traffic Signs and Marking*, published by Transit NZ/LTSA.
- 4 Temporary traffic control signs shall comply with Transit New Zealand's handbook *Temporary Traffic Control and Safety at Roadwork Sites*.  
Temporary signs shall be removed or covered when no longer valid and when work has ceased.
- 5 Where there is a road controlling authority, formal authorisation shall be obtained and compliance

made with any conditions set by the authority before any signs warning of operations are placed and work commences.

## 2. ROAD CONSTRUCTION AND MAINTENANCE

### Rule

- 1 Roads shall be constructed to engineering standards appropriate for the intended use.
- 2 Adequate provision shall be made for passing bays in one-lane roads. These shall be located on level ground where practicable.
- 3 Roads and tracks used for regular access shall be maintained to ensure the safe passage of the class/ type of vehicle for which its use is intended.
- 4 The gradient of any road used for transporting logs or wood produce shall not be greater than 1 in 5 (11 degrees - 20%) on the steepest part.

Exception: Roads used only by off highway vehicles may be in excess of the stated gradient limit provided:

- the machines are designed to cope with the steeper gradient; and
  - the operation has a written site-specific hazard control procedure.
- 5 Adequate culverts and drains shall be provided to ensure surface water is carried away. Cutouts for water disposal and soakpits for ponding shall be regularly checked for proper functioning.
  - 6 Sight distances shall be maintained by cutting back impeding vegetation or removing obstructions.

- 7 Warning of slips, washouts or repair work shall be provided by signs complying with section 11.1, “Working on or near roads”, Rule 4.

### 3. BRIDGES

#### **Rule**

- 1 Bridges and their approaches shall be designed and constructed to engineering standards appropriate for the intended use.
- 2 Approaches to bridges shall be constructed to allow:
  - as straight an access way as practicable;
  - optimum visibility for all users.
- 3 Curb rails shall be provided on bridges.
- 4 The running surfaces of bridges shall be provided with non-slip materials to prevent vehicle slide.
- 5 Bridges shall be inspected annually for safe use by the bridge owner or his nominated representative, and a record of each inspection kept.
- 6 Bridges shall be maintained to ensure the safe passage of the class/type of vehicle for which its use is intended.

# 12: RULES FOR LAND PREPARATION AND ESTABLISHMENT



## 1. PREPARATION

### Rule

- 1 Where service tracking, fire-breaking or road formation has been carried out, the following shall be felled or be brought to the ground prior to the completion of the operation:
  - hung-up trees;
  - leaning trees;
  - trees whose roots have been disturbed.

## 2. GRAVITY ROLLING

### Rule

- 1 The weight of the roller used for gravity rolling shall not be greater than half the weight of the tractor.

## 3. PLANTING

### Rule

- 1 Employees shall be provided with suitable planting bags, backpacks or harnesses when required to carry

seedlings, with good weight distribution to reduce fatigue and the risk of injuries due to stumbling and falling.

- 2 Tools used for tree planting shall be purpose designed for planting.
- 3 Employees shall maintain a safe distance from other persons and avoid working directly beneath other workers on steep terrain where there is a danger from falling debris.
- 4 Employees shall carry, sharpen and use planting tools in a safe manner.

#### 4. MACHINE PLANTING

##### **Rule**

- 1 A suitable signalling device shall be provided between the machine operator and the planting machine workers.
- 2 Adequate protection shall be provided to prevent wood, sticks and debris entering the planting machine workers' compartment and to provide protection in the event of a rollover.
- 3 A safety belt shall be provided for each person in planting machines and worn at all times while work is in progress.

#### 5. HANDLING CHEMICALS

##### **Rule**

- 1 Washing facilities and adequate water shall be provided where chemicals are being mixed, handled or applied.

A separate supply of drinking water shall be clearly labelled.

- 2 Workers shall be adequately trained in the handling, application, disposal and harmful effects of the chemical that is being used.
- 3 Users of chemicals shall comply with manufacturers' instructions. Particular attention shall be applied to ensure:
  - correct chemical, dosage and timing for the specific job;
  - appropriate protective clothing and any other equipment specified is used.
- 4 Protective clothing shall be clean and in good condition before use. Avoid inhaling dusts and sprays.
- 5 Smoking is prohibited while spraying, mixing or dusting.

## 6. STORING CHEMICALS

### **Rule**

- 1 Chemicals shall be stored in original or suitable correctly labelled containers. They shall be kept under lock and key, and out of the reach of children and pets.

# 13: RULES FOR SILVICULTURE



## 1. GENERAL

### Rule

- 1 For any work involving carrying, employees shall be provided with ergonomically designed bags, backpacks, harnesses or similar with good weight distribution to reduce fatigue, strain and falling injuries.
- 2 Tools used for silviculture shall be purpose designed to reduce the potential for injury.
- 3 When working on steep terrain where there is loose debris such as rocks, workers shall maintain a safe working distance and not work directly below other workers.
- 4 Workers shall carry, sharpen and use tools in a safe manner.

## 2. LADDERS AND CLIMBING AIDS

### Rule

- 1 All ladders used for pruning shall comply with AS/NZS 1892.1:1996 *Portable ladders: Part 1: Metal*.

- 2 Steps and climbing aids shall:
  - be designed for that purpose;
  - have their safe working load certified by an engineer.
- 3 All equipment shall be maintained in a safe working condition.

### 3. MANUAL FERTILISING

#### **Rule**

- 1 The employer shall ensure that the potential hazards and safe handling procedures of the fertiliser as prescribed by the manufacturer are clearly understood and followed by employees.

### 4. SPRAYING

#### **Rule**

- 1 Any area used for mixing agrichemicals shall be kept clear of any eating or washing-up facilities.
- 2 Where manual spraying, equipment shall be maintained to prevent leakage of agrichemical onto the worker.
- 3 All persons shall maintain a safe working distance from the application of harmful agrichemicals to avoid inhaling spray drift.

### 5. PRUNING TOOLS

#### **Rule**

- 1 Tools such as pruners, jacksaws and epicormic removers shall be carried in a suitable pouch that

protects the operator from the blade when not in use.

## 6. POLE PRUNING

### **Rule**

- 1 The following items shall be worn when pole pruning:
  - safety helmets with a suitable chin strap;
  - eye protection.
- 2 Workers shall be at least 1½ pole lengths apart while working.

## 7. MECHANICAL PRUNING

### **Rule**

- 1 Safety specifications as recommended by the manufacturer shall apply to mechanical or gas-operated pruners.

## 8. CHAINSAW PRUNING

### **Rule**

- 1 A chainsaw used for pruning shall be fitted with a suitable cutter bar guard designed to prevent harm to the operator from:
  - kickback;
  - follow through.

## 9. CHAINSAW LADDER PRUNING

### **Rule**

- 1 Workers carrying out chainsaw ladder pruning shall

wear a safety belt, harness or other fall restraint device when they reach their working position.

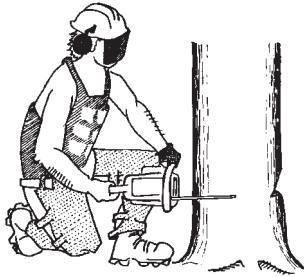
- 2 The lanyard part of the fall restraint shall be metal chain or wire core construction.

## 10. SEED COLLECTION

### **Rule**

- 1 Workers shall not climb without visible or audible contact with another person who is able to give or summon help in an emergency.
- 2 Climbers shall use a climbing rope, slings or safety line when free climbing, and securely attach themselves to at least one anchor point at all times.  
*Note: Refer to *Approved Code of Practice for Safety and Health in Tree Work: Part 1 Arboriculture*.*
- 3 Anchor points shall be sufficient to take the climber's weight.

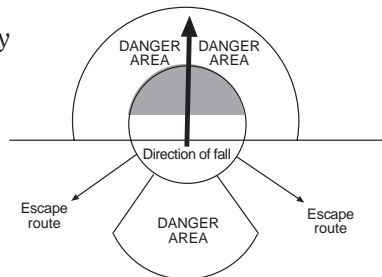
# 14: RULES FOR TREE FELLING



## 1. BEFORE TREE FELLING BEGINS

### Rule

- 1 The employer (or their representative) with the involvement of the fallers shall identify hazards specific to the site.
- 2 Scrub, vines, dead defective or unstable trees, and similar obstacles shall be cleared from around every tree to be felled to provide adequate work space and a clear escape route.
- 3 A careful check shall be made, to ensure there is no danger of dead material, branches or dead tops falling into the work area. If required, an observer should be present to warn the faller of any danger.
- 4 A clear escape route at  $45^{\circ}$  (or as close as practicable) to the rear of fall direction shall be made and used.



## 2. FELLING AIDS

### Rule

- 1 Where the size of trees being felled has the potential to cause harm, fallers shall carry with them or have available suitable felling aids appropriate for the size of the trees being felled.
- 2 The minimum equipment to be carried with the faller when falling trees greater than 20 cm stump diameter shall be:
  - three wedges suitable for the size of tree being felled;
  - a suitable tool for driving wedges.These tools shall be used as required.

## 3. SAFETY AREAS

### Rule

- 1 Fallers shall ensure that no:
  - other person;
  - machine;
  - operating ropes;
  - other operations;are within two tree lengths of the tree being felled.
- 2 No person shall be closer than two tree lengths to a tree being felled, unless:
  - assisting with felling;
  - supervising;
  - training others;
  - being trained.

On steep slopes or in other circumstances the distance may have to be increased.

Exceptions: Machine-Assisted Falling (Rule 1), Hung-up or cut-up trees (Rule 4), and Mechanical Harvesting (Rule 2).

- 3 No tree shall be felled within two tree lengths of any road, railway or public access unless the provisions of section 11.1, “Working on or near roads” have been complied with.
- 4 Trees should be felled towards a clear open space unless there is no alternative.
- 5 Fallers and observers shall ensure the safety area is maintained.
- 6 When it is necessary to “buddy cut” or for another person to be at the tree with the faller, the following rules shall apply:
  - only one faller shall make felling cuts at one time;
  - only one chainsaw shall be working while felling cuts are being made.

The person not executing the felling cuts must be:

- behind the tree being felled;
- positioned up the escape route in full view of the faller;
- able to see the top of the tree being felled.

## 4. FELLING CUTS

### Rule

- 1 The scarf, back-cut and hinge wood shall form the basis for felling on trees over 20cm stump diameter.

- 2 The top cut of the scarf shall be put in first followed by the bottom cut (except with Humbolt scarfs).
- 3 The scarf and back-cut of the tree being felled shall be completed before starting on the next tree.

## 5. HUNG-UP AND CUT-UP TREES

### **Rule**

- 1 Hung-up and cut-up trees shall be brought to the ground immediately or isolated from the operation.
- 2 A hung-up or cut-up tree shall not be left standing. The faller shall not leave the area before the tree has been brought to the ground, other than to seek assistance to do so.
- 3 Machine assistance shall be used where practicable for hung-up and cut-up trees.
- 4 No person shall be within two tree lengths of the intended or likely direction of fall of any hung-up or cut-up tree.

Exception: Machinery may work within two tree lengths to assist in safely bringing the tree to the ground providing the operator does not leave the cab.

## 6. TREE DRIVING

### **Rule**

- 1 Tree driving is not acceptable as a normal felling practice. In the interests of safety it may be used to help fell difficult or dangerous trees.
- 2 The tree to be driven shall have a holding wedge

inserted in the back-cut at the earliest opportunity and prior to any cut in the driving tree.

- 3 The maximum number of trees in a drive without an observer is two, i.e. one on to one.
- 4 A competent person shall act as observer to warn on the movement of trees whenever an initial one-on-one drive is unsuccessful and a further tree is necessary.

## 7. MACHINE-ASSISTED FELLING

### Rule

- 1 Where machine-assisted felling is required, the machine may work within one tree length of the tree being felled provided that:
  - the machine shall be of sufficient size to handle all aspects of the operation;
  - the faller and the machine operator shall have an effective means of communication;
  - when using rope pulling, the rope shall be secured as high as practicable on the tree;
  - the machine shall not be in the direct line of the intended direction of fall.

## 8. FELLING JACKS

### Rule

- 1 There shall be two competent persons engaged on operations where tree jacks are used to fell trees against their lean.
- 2 Trees shall be felled directly against their lean.

- 3 Only jacks designed for tree felling shall be used.

## 9. WINDTHROW

### **Rule**

- 1 Machines shall be used if practicable to breakout windthrown trees to a safe position where tension is released and the tree may be safely worked on.
- 2 No person shall work within two tree lengths forward of wind wrenched or damaged trees.

## 10. MECHANICAL HARVESTING

### **Rule**

- 1 All machinery shall be operated with the doors closed.
- 2 Machinery may work within two tree lengths of felling operations (but never closer than one tree length) providing the operator does not leave the cab.
- 3 All harvester heads shall be locked or supported and the cutting unit deactivated when any maintenance is being carried out.

## 11. TRIMMING

### **Rule**

- 1 Trimming shall not be done from the downhill side of the log if the log has the potential to roll on the worker.
- 2 Wherever practical, standing on the log shall be avoided when trimming or heading off.

Trimming or heading off while standing on a tree which is suspended above the ground by more than 1.5 metres (ground level to the underside of the tree) is prohibited.

# 15: RULES FOR BREAKING OUT AND EXTRACTION



## 1. GENERAL

### Rule

- 1 The person in charge of breaking out shall have a clear, unmistakable system of signalling.
- 2 Only one person shall give signals at any one time.  
Exception: Any person may give an emergency or stop signal.
- 3 The breaker-out shall move to a safe position:
  - where movement will not be restricted;
  - behind the uphill side of the drag (if possible);
  - out of the rope bight;
  - clear of any material likely to be dislodged during the extraction;
  - out of reach of any log swinging or upending;before signalling the machine operator to breakout.
- 4 Log stops shall not be hooked or unhooked while the machine or winch rope is moving.

- 5 Workers shall not enter the area below a log unless the log is obviously stable.
- 6 Machine operators shall take additional precautions when advised by the breaker-out that a log may swing or up-end, and shall ensure all persons/mobile plant near the swinging log are clear when this occurs.

## 2. GROUND-BASED

### Rule

- 1 Strops shall be attached no more than 1 metre (if practicable) from the end of log/tree.  
Note: The breaker-out shall notify the machine operator if it is necessary to have strops more than 1 metre from the end of a log/tree.
- 2 Winch ropes shall be long enough to ensure machines are not put in hazardous situations at breakout.
- 3 Winches shall not be operated from outside the canopy or cab.  
Exception: Radio-controlled winches equipped with a fail-safe device.
- 4 Machine operators required to attach strops to logs, shall first:
  - angle the machine away from breaking-out area;
  - apply the brake;
  - lower all hydraulics;
  - ensure the winch is in the free spool position.
- 5 Breaker-outs shall position themselves clear of the machine until it is stationary.

- 6** The breaker-out shall be in view of the machine operator.

### 3. CABLE LOGGING

#### **Rule**

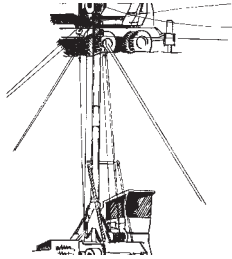
- 1** Workers shall not stand underneath a moving operating rope.
- 2** Workers shall not approach the butt rigging or carriage until it has stopped.
- 3** Strops shall be attached no more than 1 metre (if practicable) from the end of the log or tree.

#### **NOTE**

The breaker-out shall notify the hauler operator if a log or tree:

- has strops more than 1 metre from its end;
- has the potential to either end-for-end or swing.

# 16: RULES FOR CABLE LOGGING



## 1. GENERAL

### Rule

- 1 The security of anchors for hauler towers, spars and working ropes shall be checked daily by a competent person.
- 2 Cable logging installations shall be rigged in accordance with the manufacturers instructions or industry specified standards or guidelines.
- 3 The configuration used to anchor any operating rope shall be at least equal in strength to the operating rope.
- 4 Any rope suspended over a travelled road shall be rigged to clear all traffic. If this is not practicable, then:
  - the rope shall be conspicuously marked;
  - signs warning of limited clearances shall be posted on the road;
  - appropriate traffic control measures carried out.
- 5 At least two competent persons shall be present

when tree topping or rigging operations are taking place.

## 2. TAILSPARS

### **Rule**

- 1 Tail spars shall be topped where there is a hazard from the tree top falling.

## 3. SKYLINES

### **Rule**

- 1 Extensions to the skylines shall be of at least equal strength to the skyline to which it is attached.  
Exception: Unless the extension is being used as a fuse line.
- 2 Live, running or standing skylines shall be secured to an anchor of sufficient strength to withstand the forces which are imposed on it.

## 4. GUYROPES

### **Rule**

- 1 Guyropes shall be at least equal in strength to the strongest working ropes, unless otherwise recommended by the manufacturer.
- 2 Splicing of guyropes is prohibited except to make eye splices. Splices shall be tucked at least three times.
- 3 Eye-to-eye joining of guyropes is prohibited.

## 5. ANCHORS

### Rule

- 1 It is prohibited to use standing trees for guyrope anchors, except in mini-hauler thinning operations.
- 2 Guyrope anchors should be selected so that the angle of the guyrope at the anchor is  $45^{\circ}$  (or less) to the horizontal, unless otherwise specified by the manufacturer.

### NOTE

If this is not possible, an additional guyrope shall be rigged to oppose the haul line.

- 3 All guyrope stumps shall be notched. Notches shall be:
  - at least  $1\frac{1}{2}$  times, but no more than twice the diameter of the guyrope;
  - as close to the ground as practicable;
  - in lead with the top of the tower.
- 4 Guyropes shall be fixed to one of the following:
  - sound stumps;
  - adequately sized and properly buried deadmen;
  - an adequately sized and correctly positioned machine anchor capable of restraining the force imposed from the guyline;
  - other tested and industry approved anchoring device.
- 5 Where deadmen are required:
  - a separate strop with both ends protruding above the ground shall be used to pass around the buried deadman;

- the strop shall be of equal strength to the rope being attached;
- the rope being attached shall be shackled to both ends of the strop.

## 6. RIGGING GEAR

### **Rule**

- 1** Shackles with bodies made of high-tensile steel or alloy steel and fitted with high-tensile steel pins, may be used for any purpose if:
  - they are fitted with screw pins when used in butt rigging;
  - they have their pins secured from undoing if they cannot be readily checked at any time during operation (e.g. top of the tower).
- 2** Shackles and rigging screws or turnbuckles used in the rigging or guyropes shall:
  - be tested and marked with their safe working load;
  - have a breaking strength at least equal to the rope to which they are rigged.
- 3** Hauler towers shall be fitted with safety equipment which confines the fall of the haul rope and damaged tackle in the event of failure of lead block, blocks or their securing tackle.

## 7. SIGNALS

### **Rule**

- 1** All cable operations shall have a clearly understood

- signalling system, and all workers in the operation shall be familiar with the signals used in their work.
- 2 When audible signals are used the following signals shall be adopted:
    - One long + one short blast = Start main rope
    - One short blast = Stop any rope
    - Two short blasts = Start tail rope
    - One continuous blast = Emergency.
  - 3 An audible signal shall always be sounded before any major rope movement.

Exceptions:

- when no breaker-outs are being used in the operation;
  - when workers on the landing are in an enclosed protective cab.
- 4 Hauling shall cease if the communication system in use cannot be clearly heard or seen, and understood, until the system is fully restored.
  - 5 Only one worker shall give signals when strops are set.

Exceptions: Stop and emergency signals.

- 6 Any worker may give the emergency signal.

## 8. MOBILE TAILHOLDS

### Rule

- 1 The tailhold operator shall have direct communication with the hauler operator during a tailhold shift.
- 2 No person shall be on a tailhold machine when the

hauler is pulling in logs. (A person can only be on the tailhold machine when shifting haul lines.)

- 3 Tailhold machines shall be positioned squarely to the hauler, and with brakes on.

#### *Tractors*

Tractor blades shall be dug into the ground to a depth greater than 1/2 of the depth of the blade wherever possible.

#### *Excavators*

Excavators shall be positioned and the boom lined up to maximise stability.

- 4 The operator of a tailhold machine shall retreat to a safe position clear of the machine.

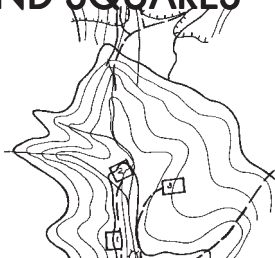
## 9. HAULER OPERATIONS

### **Rule**

- 1 Modifications and structural repairs shall only be made under the direction of the manufacturer or a registered engineer.
- 2 The manufacturer or a registered engineer shall ensure modifications and structural repairs:
  - do not reduce the original safety factor of the equipment;
  - are recorded on an identification plate showing:
    - name and address of manufacturer;
    - date of manufacture;
    - any other relevant information as set out in rule 5 below.
- 3 A safe working load factor of 3:1 shall be used.

- 4 Any hauler in standing or live skyline operations shall have an efficient skyline brake with the facility to release tension (slip) if overloaded.
- 5 An integral spar manufactured after January 1980 shall have an identification plate permanently attached to its base. The plate shall include:
  - (a) name and address of manufacturer;
  - (b) spar model and serial number (if relevant);
  - (c) date of manufacture;
  - (d) maximum and minimum inclination at which the spar is designed to operate;
  - (e) maximum breaking strength and size of all operating ropes (except strawline) for which the spar is designed;
  - (f) number, breaking strength and size of guyropes and any other ropes or lines required; and
  - (g) shall be positioned so that it can be easily read by a person standing on the ground (or on the base platform).

# 17: RULES FOR SKIDS, LANDINGS, DUMPS AND SQUARES



## DEFINITION

Skids also means landings, dumps and squares (see Appendix 1).

## 1. GENERAL

### Rule

- 1 Skids shall be constructed, arranged, maintained and operated so that:
  - all logs can be landed safely;
  - workers may work in the clear of moving logs and equipment;
  - hazards are eliminated or minimised.
- 2 Sufficient area shall be provided for parking of workers' transport and smoko/rest facilities:
  - clear of any work activity;
  - clear of any road carriageway;
  - with an exit open at all times.

## 2. CONSTRUCTION

### **Rule (general)**

- 1 All dangerous trees within reach of the skid shall be removed before operations begin. Particular attention shall be given to:
  - trees leaning towards the skid;
  - trees on the prevailing wind side;
  - trees disturbed in skid formation.
- 2 Over-burden, cast material, rocks or stumps shall not be placed where they will create a hazard to operations.
- 3 Unstable logging debris around the edge of the skid shall be made safe before workers enter the hazard zone.
- 4 Waste (such as limbs or tops) shall not be allowed to accumulate and impede movement of workers or machinery. It shall be regularly cleared to provide a clean work site as far as practicable.

### **NOTE**

Waste may be used for corduroy in adverse soil conditions, providing it is kept compacted and does not interfere with safe movement of machines or workers.

## 3. CONSTRUCTION

### **Rule (for cable logging)**

- 1 Landing shutes shall be long and level enough to safely land extracted logs allowing for:
  - machine type;

- surrounding terrain;
  - extraction direction.
- 2 For downhill hauling, there shall be adequate flat chute area to land logs without endangering the hauler operator or other workers.
  - 3 The ground foundation for a hauler or spar shall be adequate to ensure it remains stable throughout log harvesting at that site.
  - 4 Provision shall be made for the safe control and disposal of slash.

#### 4. WORK ON SKIDS (GENERAL)

##### **Rule**

- 1 Work areas shall be organised and spaced so that the actions of one worker will not create a hazard for another worker.
- 2 A one-metre gap shall be maintained between the counterweights of boom loaders and any obstruction.
- 3 Workers shall:
  - stay clear of log loaders and extraction machines;
  - watch for swinging or suspended logs;
  - watch for the radius of swing of boom loaders;
  - not pass alongside trucks being loaded;
  - try to face operating machines if possible;
  - remain in view;
  - notify machine operator when leaving/returning to the skid area.
- 4 All stems shall be assessed for tension before

commencing log making, and appropriate steps taken to minimise this hazard.

- 5 Signage as detailed in the Transit NZ booklet *Temporary Traffic Control and Control at Roadwork Sites* shall be displayed when using public/private roads to sort, stack or load logs.

## 5. WORK ON SKIDS (GROUND-BASED)

### **Rule**

- 1 Machine operators shall ensure people are clear before blading or straddling logs.
- 2 To enable strops to be safely removed from the drag after dropping it on the skid, machine operators should release rope tension, move machine forward and stop.

## 6. WORK ON SKIDS (CABLE LOGGING)

### **Rule**

- 1 Workers shall not work under operating ropes unless in an approved protective cab.

## 7. WORK ON SKIDS

### **Rule**

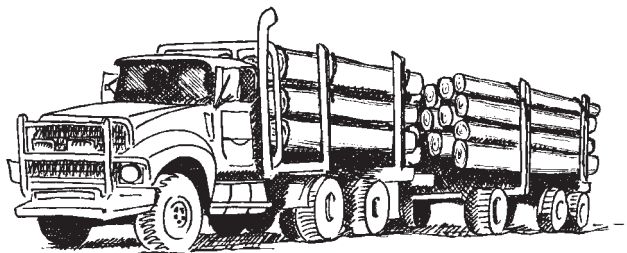
- 1 No load/log shall be swung above or within reach of any person.

#### *Log loaders*

- 2 Loading and unloading operations shall only be performed by plant with adequate lifting capacity.
- 3 Forked loaders shall:

- support loads with both forks;
- be fitted with a log clamp to secure logs and round wood.

# 18: RULES FOR TRANSPORTATION



## 1. VEHICLES

### **Rule (general)**

- 1 Vehicles transporting forest produce on a public highway:
  - shall be subject to all aspect of the Transport Act 1962 and associated transport legislation;
  - shall have a valid Certificate of Fitness.
- 2 Off-highway cartage vehicles not subject to the Transport Act 1962 and associated regulations shall:
  - be inspected every six months and issued with a road worthiness certificate;
  - have a copy of the certificate (signed by the inspector) displayed in the vehicle.

### NOTE

Inspection and maintenance records shall be maintained to ensure maintenance is performed properly.

- 3 Vehicles used to carry logs shall be:
  - certified as to the maximum load the unit shall

carry (this information shall be available to authorised persons on request);

- where logs are to be measured and scaled on the vehicle, they shall be fitted with suitable non-slip platforms enabling logs to be measured safely;
- operated within the manufacturer's rated gross vehicle mass and gross combination mass;
- operated within the component manufacturer's rating.

- 4 Flat-decked trucks/trailers used for transporting forestry products shall be certified as complying with NZS 5444:1989 *Load anchorage points for heavy vehicles*.

## 2. CAB GUARDS

### Rule

- 1 Trucks used for the transportation of forest produce shall be fitted with an industry-standard cab protection frame between the cab and forward end of the load.

The frame shall be fastened so that it protects the cab and driver during loading, unloading and in the event of a sudden movement of the load.

- 2 The cab guard shall provide limited protection in the event of a vehicle roll over.

## 3. TRAILERS

### Rule

- 1 Trailers being piggy-backed on a truck with cradles:
  - For lashings placed over the trailer and attached

to an anchor point on each side of the truck, the lashings shall have a combined rated strength equal to at least the weight of the trailer.

- For lashings directly attached between the truck and trailer, the lashings shall have a combined rated strength equal to at least twice the weight of the trailer.
- To prevent sideways movement, one axle shall have guides with a minimum height of 100mm. If the trailer has more than one axle set, the remaining axle sets shall have at least one axle having guides with a minimum height of 50mm.
- All load anchorage points shall comply with NZS 5444:1989 *Load anchorage points for heavy vehicles*.

#### NOTE

If axles straddle a bolster, the bolster can be considered a cradle.

- 2 Trailers shall be lifted a minimum height off the ground when turning the drawbar.  
No person shall move under a raised trailer.
- 3 Trailer lifting chains, strops and attachments shall:
  - be designed to suit the lifting equipment being used;
  - have safe working loads at least equal to the tare weight of trailer (a safety factor of 1:4 is recommended).
- 4 A chain or wire strop used to lift a trailer with a single point lift shall have a ring (or other means to hold the hook) at the balance point of the trailer (a safety factor of 1:4 is recommended).

## 4. RIGGING AND FITTINGS

### Rule

- 1 The following shall be inspected daily or at the end of each shift:
  - load restraint equipment;
  - load securing equipment;
  - load anchorage points;
  - load binders.
- 2 Defective rigging or fittings shall be repaired or replaced before the vehicle continues operating.
- 3 The combined rated strength of load anchorage points on each side of the vehicle on a custom-built logging truck or trailer shall be at least equal to half the total payload weight.

Verification of this shall be displayed on the unit to which it applies.
- 4 Load anchorage points shall comply with NZS 5444:1989 *Load anchorage points for heavy vehicles* and have verification displayed in the vehicle.

## 5. SAWDUST, WOODCHIPS AND WASTE PRODUCTS

### Rule

- 1 Loose bulk loads shall be tarped/netted as appropriate whenever there is risk of load shedding due to wind actions or movement (see *Truck Loading Code*).

## 6. SAWN TIMBER

### **Rule**

- 1 Sawn timber and panel products shall be transported to the requirements of *Approved Code of Practice for Safety and Health in Forest Operations Part: 5 Timber Stacking and Packeting*.

## 7. RAILWAY MACHINERY

### **Rule**

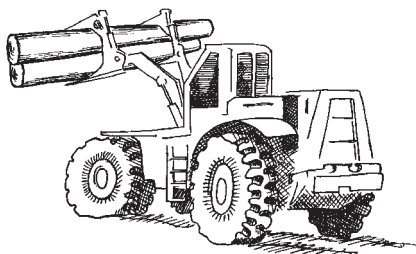
- 1 Machinery used for the assembly, loading and unloading of logs at a railway yard shall comply with the relevant section of this code.

## 8. DRIVING

### **Rule**

- 1 Drivers shall have a current licence for the class of vehicle they are operating.
- 2 Drivers shall have a thorough knowledge of and abide by the regulations and codes of practice for the class of vehicle they are operating.
- 3 Machine operators shall have a current licence for the class of machine they are operating when working in an area which comes within the jurisdiction of the Transport Act 1962.

# 19: RULES FOR LOADING



## 1. TRUCK DRIVERS

### Rule

- 1 Persons may stay in the cab except when:
  - loading/unloading debarked logs;
  - loading/unloading by open sling method;
  - there is a risk of short logs falling out when unloading.
- 2 Truck drivers and persons involved in loading/unloading shall be:
  - in sight of the machine operator at all times; or
  - at a safe predesignated position.
- 3 The truck driver shall have final responsibility to ensure the vehicle in their control is loaded:
  - to the correct length, weight and height;
  - securely and in accordance with this code.

## 2. PORT OPERATIONS

### Rule

- 1 Persons may stay in the cab of a truck while logs are

reloaded from a log dump and during unloading at the ship's side, except where an open sling method is used. (All persons shall keep a safe distance while such operations are carried out.)

- 2 Machinery used for the assembly, loading and unloading of logs at port operations shall comply with the relevant sections of this code.
- 3 It shall be permissible to transport unrestrained logs, provided:
  - the complete trip is off-highway and in areas of non-authorized public access;
  - the maximum speed is no greater than 20 kph.

### 3. SELF-LOADING TRUCKS

#### **Rule**

- 1 Self-loading trucks shall be fitted with outriggers and stabilisers that firmly stabilise the unit while loading and unloading.
- 2 Outriggers/stabilisers shall be used unless the stability of the empty truck exceeds the maximum tipping moment the crane can apply.
- 3 All practicable steps shall be taken to protect the driver of a self-loading truck from log movement, if the truck design does not offer protection from the crane mast or other device.
- 4 A positive means shall be provided to prevent a free fall of the boom in the event of malfunction.
- 5 Each set of controls for the operation of a self-loading unit shall be of the deadman operation type.

## 4. LOADING

### Rule

1 Measuring/marking shall not be carried out while loading or unloading.

2 General:

- The outside logs of the load shall not be loaded above the top of the stanchions or the stanchion extensions.

- Logs loaded in the middle of the load shall not have more than one-third of the

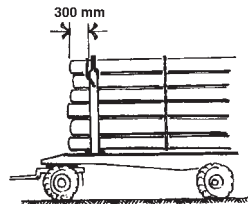
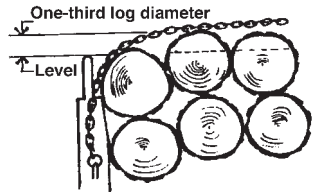
diameter of the logs above the top of the stanchions or the stanchion extensions where fitted.

- The top of the load shall be rounded so that the load-securing device will contact as many logs as possible.

3 Overhang:

- Logs shall be loaded so that lower and outside logs overhang the bolster and side arm edges by at least 300mm.

Exceptions: The minimum overhang may be reduced to 150mm



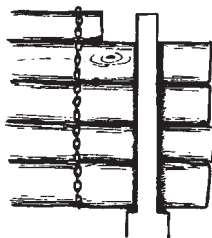
provided:

- logs are less than 4.6 metres and of uniform length;
- there is a fixed chassis or frame between the bolsters;
- there is a tensioned load restraint of equal strength used in addition to other restraints required by this code.

#### 4 Short logs:

- Logs which are shorter than the distance between the bolsters and side arms shall be nestled between outer rows.

Exception: Short logs may be placed on top of the load, provided the log end not supported by a side arm is secured with a tensioned load restraint of equal strength in addition to other restraints required by this code.



## 5. SECURING LOADS ON LOGGING TRANSPORT

### Rule

- 1 All loads shall be loaded and secured so that no portion of the load can become dislodged or fall from the vehicle.
- 2 There shall be a minimum of two sets (two bolsters and stanchions) to contain each load or section of load.

- 3** Steel wire rope and chain used to secure a load shall have a combined rated strength at least equal to half the weight of the load they contain.

Where this is not practicable, the balance shall be made up by using a belly strop/chain or load restraining equipment of equal strength.

Where a belly strop/chain or other load restraint is used, it may be attached from chassis to chassis.

- 4** Debarked logs, eucalypt logs and other hard-to-restrain logs shall have a tensioned belly load restraint fitted over each section of the load in addition to any other restraints required by this code.

- 5** Restraining devices shall not be released until the load is ready to be removed.

Exceptions: Log transport may move slowly (20kph) to the unloading area providing:

- a designated unchaining area has been allocated;
- the distance is no greater than 500 metres;
- there is no access way by members of the public.

- 6** All chain, wire strop, load binder attachments and anchor points shall be maintained in good condition. No equipment shall be used if it has any defect which will prevent its safe operation until the defective part is replaced or repaired.

- 7** At log landings, it shall be permissible to move up to 100 metres to a safe area away from the landing before securing the load.

## 6. USING STANCHIONS AND BOLSTERS

### Rule

#### 1 Stanchions:

- Lift-out stanchions shall have the stanchion secured to the bolster (see specification).
- Drop-out type stanchions shall only be used with load restraint equipment capable of retaining the stanchion in an upright position in the event that the wrap-round stop fails.
- Drop-out stanchions shall have the release control pin placed so that it can be released on the side opposite to that from which the load shall be removed.
- When not in use, the extension pins shall be carried long-end down or in a separate rack.

#### 2 Bolsters:

- Bolsters shall be attached to the main chassis. If this is not practicable:
  - The combined rated strength of all chains/strops shall be at least equal to twice the pay load weight carried.
  - Section load anchorage points shall be at least equal to a minimum breaking load limit of the chain/strops being used.
  - Convertible units with sliding bolsters shall be used with a locking device which prevents the bolster sliding when long logs are carted.

#### 3 Maintenance:

Bolsters/stanchions shall be repaired or replaced

if they show signs of significant yield (i.e. bending or deformation) or wear.

## 7. MISCELLANEOUS VEHICLES

### Rule

#### 1 Flat-decked trucks:

Where logging bolsters and stanchions are not securely attached directly to the chassis:

- the combined rated strength of all chains/strops shall be equal to twice the payload carried;
- load anchorage points shall be at least equal to the working load limit of the chain/strops being used.

#### 2 Well-sided trucks:

Well-sided trucks used for cartage of bin logs:

- shall not be loaded above the height of well deck sides or tailgate;
- shall have a method of containing the logs so no portion of the load may become dislodged or fall from the vehicle at any time.

#### 3 On vehicles loaded across deck with roundwood:

- uprights of sufficient height and strength to retain the load shall be fitted when roundwood is loaded above the headboard;
- uprights/chock blocks of sufficient height and strength to ensure safe releasing of load restraints shall be fitted at the rear of the vehicle.

The load on the vehicle shall be secured with at least two tensioned load restraints complying with other relevant parts of this code.

- If there is doubt about load security, at least two additional load restraints across the load shall be used. These shall be tensioned tight across the load and load restraints, and positioned approximately  $\frac{1}{3}$  along the load from each end.
- 4 Over-dimensional log train units:
- Units shall not be operated at a weight exceeding manufacturer's rated gross vehicle mass or gross combination mass.
  - Units shall not be loaded in a manner exceeding manufacturer's component rating.
  - Units with excessive overhang shall display flashing lights and operate under a specific hazard control procedure to ensure that other road users are warned of the hazards associated with such operations.
  - Units shall have any excessive rear overhang identified with warning signs as recommended by the Land Transport Safety Authority,
  - All load securing equipment shall comply with the requirements of this code.

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## Part 4: Equipment Specifications and Design

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	2. Owners	118
2: Stanchion specifications	1. Stanchions	119
3: Bolster specifications	1. Bolsters	120
4: Load restraint specification	1. Load restraints	121

# 1: RESPONSIBILITIES

## 1. DESIGNERS AND MANUFACTURERS

### **Rule**

- 1 It shall be the responsibility of both designer and manufacturer to produce equipment capable of meeting the basic design requirements of this code.

## 2. OWNERS

### **Rule**

- 1 It shall be the owner's responsibility to have a Land Transport Safety Authority certifying engineer's certificate stating that the vehicle (or relevant part of it) has been designed and manufactured to at least the design specifications listed in this code.

## 2: STANCHION SPECIFICATION

### Rule

- 1 Stanchion extension pins shall be made of 50mm steel bar of minimum grade 4140 steel (or equivalent).
- 2 Pivot pins for drop-out and drop-in stanchions shall be made of steel no less than 32mm, and have a grade no less than mild steel.
- 3 Stanchion extension pins shall:
  - fit firmly into the stanchion;
  - extend into the stanchion at least 150mm;
  - be as near vertical as possible.
- 4 Stanchion extension pins shall not:
  - exceed 450mm above the top of the stanchion;
  - exceed the vehicle width.
- 5 The distance between parallel faces of both fixed and drop stanchions shall vary at the top and bottom by no more than 50mm.

Exception: This rule does not apply to purpose-built trailers used in port operations.
- 6 Wrap-round strops (cradle strops) used with drop stanchions shall be:
  - at least 19mm diameter wire rope;
  - re-certified every six months.

# 3: BOLSTER SPECIFICATION

## Rule

- 1 Bolsters shall be made of steel with at least one raised edge:
  - no less than 10mm high;
  - between 6 - 20mm thick.

### NOTE

An inverted angle is sufficient for this purpose.

- 2 Bolsters which are required to rotate shall rotate on a spigot plate or turntable.
  - spigot vertical play shall not exceed 10mm;
  - spigot horizontal play shall not exceed 6mm;
  - spigot depth shall be no less than 25mm;
  - bolster pivot pins shall be secured top and bottom.

# 4: LOAD RESTRAINT SPECIFICATION

## LOAD RESTRAINTS

### Rule

- 1 All wire rope shall have eyes with a thimble.
- 2 All chain shall:
  - have a minimum breaking strain of no less than 6.4 tonne;
  - be of short link;
  - comply with AS/NZ 4344:1995 *Cargo restraint systems, Transport chain and components* or other Standard embodying the same or more stringent criteria.
- 3 Load restraint equipment shall be identified with the manufacturer's grade or safe working load and working load limit.
- 4 Synthetic load restraints shall not be used to secure logs or slabs. They may be used to secure bundled treated round produce provided:
  - they comply with AS/NZ 4380:1996 *Cargo restraint systems, Webbing load restraint systems* or other Standard embodying the same or more stringent criteria;
  - they are dyed and heat set to prevent ingress of water and dirt;
  - they are not in a loom state;
  - if the load is against the headboard, the combined

- safe working load (or working load limit) is no less than the weight of the load it retains;
- if the load is not against the headboard, the combined safe working load (or working load limit) is no less than twice the weight of the load it retains.
- 5** The load restraint system (bolsters and stanchions) shall be capable of containing the load under three particular conditions:
- Forward deceleration under emergency braking conditions when the combined restraining force shall be at least equal to the total weight of the payload (i.e. deceleration of 1.0g).
  - Rearward deceleration when braking during reversing when the combined restraining force shall be at least 50% of the total weight of the payload.
  - Sideways or lateral acceleration when cornering when the combined restraining forces shall be at least 50% of the total weight of the payload (i.e. 0.5g).
- 6** Loads shall be secured with at least two throw-over stanchion or chassis chains/strops, which may be attached from chassis to chassis.

Where attached to a stanchion on one side, it shall be no less than 300mm below the height of the load before passing over to the anchor point on the opposite stanchion, bolster or chassis.

Where a throw over chain does not include attachment to a fixed side arm, they must be located in close proximity to the side arm.

This requirement is not applicable to belly/strops restraints.

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## APPENDICES

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# APPENDIX 1: DEFINITIONS UNDER THE CODE

**Adequately trained:** a person who can demonstrate the skill and knowledge derived from experience and/or training for the type of work in which the person is employed.

**Close supervision:** direct and constant one-on-one supervision.

**Competent person:** a person who can consistently demonstrate the skill and knowledge derived from experience and/or training for the type of work in which the person is employed.

**Contractor:** a person engaged by a person (otherwise than as an employee) to do any work for gain or reward (HSE Act).

**Co-operative contract:** a contract where two persons or more are contracted to carry out work on a co-operative basis. One person is to be nominated as the person in charge and as such becomes the employer.

**Cut-up tree:** a tree that has been scarfed and back cut but has not fallen.

**Employee:** a person employed by any other person to do any work for hire or reward; and in relation to any employer, means an employee of the employer (HSE Act).

**Employer:** a person who or that employs any other person to do any work for hire or reward; and in

relation to any employee, means an employer of the employee (HSE Act).

**Forest operation:** Silviculture, logging, transportation and solid wood processing defined below.

**Forestry work:** includes any work in connection with establishment, silviculture, logging, transportation, tree work and solid wood processing whether for commercial purposes or not, and includes:

- felling of trees for land clearing for any purpose by mechanical or manual means;
- commercial harvesting of firewood including stockpiling, stacking, transportation and handling by manual or mechanical means;
- work in log storage, transfer or processing areas including handling and loading of logs in wharf areas to the ship's side;
- construction and maintenance of private roads, service and access tracks, bridges, log skids, tramways, railways and the shifting of any plant for the purpose of forestry operations.

**Fuse line:** a short extension of rope attached to the anchor end of a skyline. The breaking strength of the fuse line shall be less than or equal to the breaking strength specified for the hauler.

The fuse line ensures that the maximum loading on the hauler does not exceed the manufacturer's instructions, while allowing use of rope with higher breaking strain (e.g. swaged rope) for longer rope life.

**Hung-up tree:** a cut, windthrown or pushed up tree caught in or lodged against another, thus preventing from falling to the ground.

**Industry qualifications:** unit standards registered with the NZ Qualifications Authority where assessment has been carried out and competence verified.

**Inspector (Forestry):** a health and safety inspector for the time being appointed under Section 29(1) of the HSE Act.

**Logging:** includes —

- tree felling by manual or mechanical means;
- preparation and extraction of logs to an area for processing and/or loading out.

**Machinery or machine:** as defined in the Health and Safety in Employment Act 1992 — an engine, motor or other appliance that provides mechanical energy derived from compressed air, the combustion of fuel, electricity, gas, gaseous products, steam, water, wind or any other source . . .

**Minihauler:** a small mobile hauler with light hauling ropes and a short tower with two or three guyropes, and used mainly for thinning operations.

**Mobile plant:** any self-propelled mechanical mobile plant designed to move under its own motive power with an operator at its controls and includes wheel and crawler tractors, excavators, skidders, graders and loaders.

**Operating Ropes:** ropes which move to do the

work, e.g. mainrope, tailrope, tagline, dropline, strawline and skyline in the live skyline situation.

**Person who controls the place of work:** in relation to a place of work, a person who is —

- the owner, lessee, sub-lessee, occupier, or person in possession, of the place or any part of it; or
- the owner, lessee, sub-lessee, or bailee, of any plant in the place (HSE Act).

**Principal:** a person who or that engages any person (otherwise than an employee) to do any work for gain or reward (HSE Act).

**Produce:** includes logs of all types and also includes round produce such as posts and poles.

**Qualified:** a person who holds an industry-recognised qualification for the type of work in which they are employed.

**Serious harm:** Serious harm has occurred if any of the following symptoms or conditions results in severe loss of bodily functions (permanent or temporary):

- Unconsciousness;
- Hospitalisation (for 48 hours or more within 7 days of the cause);
- Temporary severe loss;
- Acute illness (from absorption, inhalation or ingestion of any substance, requiring treatment by a registered medical practitioner);
- Sickness/illness (due to decompression, from poisoning, due to exposure to infected material,

cancer);

- Disease (neurological, dermatological, respiratory, musculoskeletal, or communicable disease).

**Skid:** a selected or prepared area to which logs are extracted, and where they may be sorted, processed, stockpiled or loaded.

**Solid wood processing:** portable processing of logs into rough finished products and includes work of a portable nature such as sawmilling, chipping, peeling, splitting, drying, mulching and treatment plants.

**Standard:** a standard approved by Standards New Zealand or any other Standard embodying the same or more stringent criteria as the Standard cited. An item may be verified by a qualified person such as a Registered Engineer that the criteria of the Standard is met by that item. Should any Standard quoted at the time of publication be updated or superseded, the latest version shall take precedence.

**Standing rigging:** ropes and guys which are fixed and thus do not move during the operating cycle.

**Silviculture:** includes the establishment and tending of tree crops and includes land preparation, planting, blanking, releasing from ground or air, protection, pruning, thinning, seed collection, nursery work, use of agricultural chemicals, controlled burning and fire fighting.

**Subcontractor:** a person engaged (otherwise as an employee) by any contractor or subcontractor to do for gain or reward, any work, the contractor or

subcontractors has been engaged (as a contractor or subcontractor) to do.

**Temporary severe loss:**

- pain or health impairment is significantly more than discomfort; and
- pain or health impairment prevents use of part of the body; and
- the condition is likely to be temporary.

**Transportation:** includes cartage of all types of forest produce such as all log types, chips, bark, mulch, firewood, sawdust and any waste products other than on a public road, street or railway system and includes the use of helicopters, rafts and barges for such purpose.

**Tree:** a woody perennial plant generally with a single erect stem or trunk bearing lateral branches and includes a bush, shrub or scrub.

**Tree work:** any work on trees outside a forest situation and includes willow layering and any other work with trees in catchment or soil erosion operations, maintenance of shelter belts for horticulture, agriculture or farming, maintenance of trees in the vicinity of overhead power lines and arboriculture which is the management and care of trees in the general community.

**Under training:** a person who is not competent or qualified to carry out the task unsupervised and is working towards an industry recognised qualification under the guidance and training of a competent person.

## APPENDIX 2: EXAMPLES OF HAZARD INFORMATION

Documentation that the principal might supply includes a detailed map identifying likely site hazards and related information, e.g.

<i>Item</i>	<i>Description</i>
1	Prescription area boundaries.
2	Routes and tracks: <ul style="list-style-type: none"><li>• access routes;</li><li>• existing and possible tracks and skids;</li><li>• emergency evacuation routes;</li><li>• public access areas, rivers/streams used by fishermen, etc.</li></ul>
3	Terrain factors: <ul style="list-style-type: none"><li>• slope ranges for different extraction equipment;</li><li>• ground roughness;</li><li>• vegetation hindrance;</li><li>• rock outcrops;</li><li>• tomos and other significant terrain ; hazards.</li></ul>
4	Tree factors: <ul style="list-style-type: none"><li>• species;</li><li>• average piece size and range;</li></ul>

	<ul style="list-style-type: none"> <li>• presence of windthrow on site;</li> <li>• general direction of lean.</li> </ul>
5	<p>Location of services:</p> <ul style="list-style-type: none"> <li>• power;</li> <li>• telephone;</li> <li>• gas; sewerage;</li> <li>• water;</li> <li>• communication lines.</li> </ul>
6	<p>Environmental consent requirements:</p> <ul style="list-style-type: none"> <li>• streams/rivers;</li> <li>• wildlife sanctuaries;</li> <li>• native vegetation;</li> <li>• historic sites;</li> <li>• debris removal.</li> </ul>

## APPENDIX 3: EXPOSURE TO CONTINUOUS SOUND AND REQUIRED HEARING PROTECTION

<i>Source</i>	<i>Decibels</i>	<i>Decibel exposure level for a working day</i>	<i>Hearing protection required</i>
Jackhammer	120	Over 115	Seek expert advice
Sandblasting	112	110-115	Grade 5 earmuffs
Chainsaws Brushcutter Disco	106-109 104-106 100-110	104-109	Grade 4 earmuffs
Petrol-driven tools Pneumatic drill Boiler shop	100 100 100	93-103	Grade 3 earmuffs
Older machinery	90-95	92-97	Grade 2 earmuffs or ear plugs

Modern machinery	85-90	86-91	Grade 1 earmuffs or ear plugs
Average factory	80-90		
Busy traffic	75	85 and below	No protection required
Ordinary speech	66		
Average home	50		