

### Further reading

<i>Tree climbing operations</i>	AFAG401
<i>Tractor units in tree work</i>	AFAG501
<i>Mechanical roadside processing</i>	AFAG605
<i>Emergency planning</i>	AFAG802
<i>Electricity at work: Forestry and arboriculture</i>	AFAG804
<i>Training and certification</i>	AFAG805
<i>Managing public safety on harvesting sites</i>	0 7176 2671 7
<i>First aid at work: Your questions answered</i>	INDG214
<i>Protect your hearing or lose it!</i>	INDG363
<i>PUWER 98: How the Regulations apply to agriculture and forestry</i>	AIS27
<i>LOLER: How the Regulations apply to forestry</i>	AIS29

These publications are available from HSE Books - see 'Further information'.

### Notes

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### Further information

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**This leaflet contains notes on good practice which are not compulsory but which you may find helpful in considering what you need to do.**

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# Extraction by cable crane



## Introduction

This leaflet covers the use of cable crane systems for the extraction of whole trees, poles or shortwood to the roadside.

You can use this leaflet, along with the manufacturer's handbook, as part of the risk assessment process to help identify the controls to put in place when operating a cable crane system.

This leaflet does not cover a combination of machines working within each other's risk zones (see AFAG leaflet 605 *Mechanical roadside processing*).

You must also assess the effect of the site and the weather as well as following this guidance.

All operators must have had appropriate training in how to operate the machine and how to carry out the tasks required (see AFAG leaflet 805 *Training and certification*).

This leaflet **must** be read in conjunction with AFAG leaflet 501 *Tractor units in tree work*.

## Electricity

- ❑ 1 Never erect or operate a cable crane system underneath energised overhead electric lines.
- ❑ 2 A safe working distance must be maintained between the cable crane system and any energised overhead electric lines. Consult the electricity company to establish the safe working distance for each set of lines.
- ❑ 3 Never breach the safe working distance(s) given by the electricity company.
- ❑ 4 Never carry a ladder or other long object unless it is carried parallel to and as near the ground as practicable.
- ❑ 5 Never move the cable crane with the tower in the raised position.
- ❑ 6 Stop work and move well clear of the equipment during a thunderstorm because of the risk of lightning strikes.

## Safe working loads

- ❑ 7 Cable crane operations fall under the Lifting Operations and Lifting Equipment Regulations 1998 (LOLER). Specific guidance for forestry operations on compliance with LOLER is given in HSE's Agriculture Information Sheet AIS29 *LOLER: How the Regulations apply to forestry*.
- ❑ 8 The weight of any load must not exert a force greater than the manufacturer's recommended safe working load on any component in the system. Operators should have enough information to enable them to determine the safe working load for the system, including taking account of the weight of the extended cable and the suitability of anchor points/spar trees.

- ❑ 9 The machine and system must be equipped with ropes and components to the manufacturer's recommended specification, and must be in serviceable condition. All hooks and shackles must be suitably marked with their safe working load.

## Wire ropes

- ❑ 10 A Test Certificate must accompany the winch ropes when they are purchased and this must be retained.
- ❑ 11 The rope size and lay of the ropes used must be to the winch manufacturer's recommendations. Never attempt to join ropes of different diameters.
- ❑ 12 Sheaves, rollers and other equipment for guiding ropes should be compatible with the dimension of the rope and they should be kept in a serviceable condition to avoid damaging wire ropes.
- ❑ 13 Hauling ropes must be securely fastened to winding drums. At least three full turns should remain on the drums at all times.
- ❑ 14 All ropes should be terminated in a suitable way such as splicing, soft eye loops or swaging – do not use knots.
- ❑ 15 Check daily for visual signs of rope deterioration such as excessive wear, broken wires or strands, distortions and corrosion. Repair or replace broken or damaged ropes without delay.
- ❑ 16 Replace all ropes when their nominal diameter falls below 90% of the original.
- ❑ 17 Broken or badly frayed ropes must be joined by adequate splicing or be replaced. Knots greatly reduce the strength of the ropes and must not be used.
- ❑ 18 Broken or damaged skyline ropes must be repaired at once. The splice must be as long in metres as the actual diameter in millimetres (eg with 13 mm skylines the splice must be 13 m long). In hauling ropes, a 3 m splice is adequate.
- ❑ 19 Damaged or broken anchor ropes must be replaced.

## Raising and lowering the tower

- ❑ 20 Before raising or lowering the tower, check that anchor ropes are secure and any tower support stay bolts are removed.
- ❑ 21 When using a standing tree to help raise or lower the tower, ensure the winch rope is securely attached to the tree at least 2 m above the height of the raised tower.
- ❑ 22 When raising or lowering the tower, no one other than the operator should be within range of the tower in a direct line in front of or behind the machine.

## Moving and positioning the cable crane

- ❑ 23 When moving short distances between racks, check there is adequate clearance from obstacles. Take special care near overhead electric or telephone lines. In all other instances lower the tower before moving.

- 24 Ensure any trailing anchor ropes cannot become fouled on the machine or other obstructions, and that the skyline and polypropylene rope drums are secured.

### Setting up

- 25 The cable crane system must be set up in strict accordance with the manufacturer's handbook, which should be available.
- 26 See AFAG leaflet 401 *Tree climbing operations* for guidance on use of ladders.
- 27 Where there is a risk of falling from the machine, appropriate measures must be taken to ensure operator safety. This can include the use of fall-arrest systems where appropriate.
- 28 Ensure crossed anchor ropes are rigged in such a way that they will not rub against each other.

### Anchors

- 29 Anchor points, whether natural or artificial, must be strong enough to maintain the stability of the unit.
- 30 Where trees and stumps are used as anchors, ensure they are free of rot, secure and strong enough. Check these regularly, especially after heavy rainfall.
- 31 When stumps are used as anchor points, ensure they are notched to provide security for the stop.
- 32 Anchor ropes should be readily adjustable. Terminations in the ropes should be correctly made.

### Operating the winch

- 33 The cable crane system must only be operated in accordance with the manufacturer's instructions.
- 34 All operators must be protected either by machine guarding or by their work position. Consider hazards such as being hit by timber that may be pulled or ejected from the timber stack.
- 35 The winch operator must work only on agreed signals.
- 36 Take extreme care when side-hauling close to the tractor. An extra anchor should be placed to oppose the tension when large loads have to be side-hauled close to the tractor.

### The chokerman

- 37 The chokerman must keep at least 2 m in thinning and 4 m in clear fell to the side of the skyline when the wires are in motion.
- 38 The chokerman must be aware of the possibility of debris falling from adjacent standing timber during the extraction process.
- 39 Wherever the felling pattern allows, the chokerman must be positioned behind the load or behind standing trees on the same side of the rack during side-hauling.

- 40 The chokerman must avoid standing under intermediate support wires or their anchor ropes.
- 41 The chokerman must not attempt to free an obstructed load when the hauling ropes are tensioned.
- 42 Do not work within the bight of the slack hauling ropes.

### Communication

- 43 A suitable form of communication must be in place between all operators working within the system. Radios must not interfere with remote-controlled carriage systems.
- 44 All radio signals must be prefixed by a call sign, except when sending the 'stop' command in an emergency. All receiving winch operators should obey any such stop signal.
- 45 Where radio communication is not available, use only the recommended and agreed operating signals (see Figure 1).

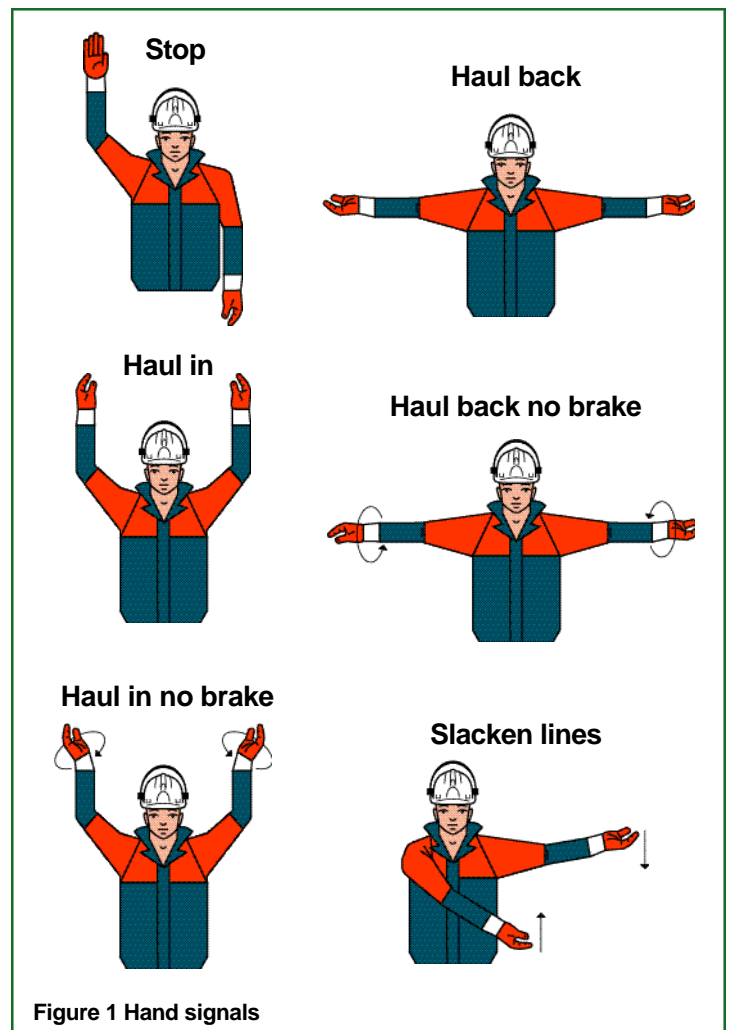


Figure 1 Hand signals

