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Feedback is welcome and may be sent to training@bcforestsafe.org.

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# Unit Introduction

## What you will learn in this unit

By the end of this unit, you will be able to demonstrate knowledge of:

- Prepare for work
- Communication
- Safety responsibilities of a Rigging Slinger
- Choking and rigging
- Supervision, training and leadership of chokerperson

## Why it's important for you to learn this unit

It is always the responsibility of any person using these materials to inform him/herself about the Occupational Health and Safety Regulations (OHSR) related to the work being conducted. A full list of OHSR related to this unit can be found in the relevant package.

## Are you ready to take this unit?

To take this unit, you need to have completed the following units:

- 1002 – Describe Forest Industry
- 1003 – Use Safe Work Practices
- 1004 – Communication in the Workplace
- 1005 – Recognize, Evaluate, and Control Hazards Related to General Forestry
- 1006 – Describe Workplace Documentation
- 1007 – Describe Emergency Preparedness
- 1008 – Describe and Apply Workplace Attributes
- 1009 – Recognize, Evaluate, and Control Hazards Related to Yarding
- 1010 – Describe Basic Regulations and Standards
- 1013 – Describe Rigging Components and Apply Basic Rigging Practices

## Does this unit apply to you?

This unit applies to you if you are in the following occupation:

- Rigging slinger

# Section 1024-01: Prepare for Work

## What you need to know about this section

By the end of this section, you will be able to demonstrate knowledge or ability in the following key points:

1.1 Arrive at work prepared, on time, with all PPE required and in working order

1.2 Pre-work meetings

1.3 Safe zone and hazard zones relevant to the block

1.4 Hazards and safe method of walking in the bush

# Key Point 1.1: Arrive at Work Prepared, on Time, with All PPE Required and in Working Order

You need to be able to demonstrate the ability to arrive at work prepared, on time, with all personal protective equipment (PPE) required and in working order. Make sure that any crew members working under you also have their appropriate PPE as well.

An important part of being prepared for work is arriving well rested and not impaired by fatigue, illness, drugs, or alcohol or by stress or emotional upset. Logging often requires waking up early to travel to the worksite and long days with physically demanding work. Being physically and mentally fit is necessary to be productive and safe on the job.

Before commencing work in proximity to other departments, a pre-work plan must be conducted by the hook tender or his supervisor with all crews to identify the potential hazards and discuss the work plan.

## Personal protective equipment

All workers must wear the following personal protective equipment and clothing:

- Suitable clothing for protection against the natural elements and the hazards of the work
- Clothing that fits fairly close to the body and allow the worker to move freely
- High-visibility headgear in red or orange for all yarding and loading crews
- High-visibility apparel for workers exposed to mobile equipment
- Caulk-soled boots for all workers required to walk logs
- Hand protection
- Leg protective devices of a standard acceptable to WorkSafeBC for workers operating a power chain saw
- Eye protection, when there is a hazard of eye injury for workers cutting cable, operating a chain saw, or moving through heavy brush
- Hearing protection for workers exposed to noise levels in excess of permissible limits

# High visibility clothing

The Occupational Health & Safety Regulations (OHSR) contains the following specific requirements for high visibility clothing for loggers that are applicable to a chokerperson:

1. Highly visible outer clothing that meets the requirements of Part 8 of the regulations must be worn by a worker in a forestry operation if the:
    - Worker may be endangered by any moving equipment or line
    - Worker's location must be routinely checked
    - Worker is involved in harvesting trees at night
2. Safety headgear worn by a worker in a forestry operation must be a high visibility colour that contrasts with the background against which the worker is working.

# Arrive at Work Prepared, On Time, with All PPE Required and in Working Order—Self-Quiz

1. What colors are acceptable for high-visibility headgear?
   - ☐ Yellow or orange
   - ☐ Orange or red
   - ☐ Red or yellow
2. PPE includes which of these additional items:
   - ☐ High-visibility apparel
   - ☐ Hand protection
   - ☐ Caulk-soled boots
   - ☐ All of the above
3. If you are operating a chainsaw, what else do you need?
   - ☐ Leg protection
   - ☐ Eye protection
   - ☐ Ear protection
   - ☐ All of the above

Now check your answers on the next page.

# Arrive at Work Prepared, On Time, with All PPE Required and in Working Order—Quiz Answers

1. What colors are acceptable for high-visibility headgear?
   Answer: **Orange or red**
2. PPE includes which of these additional items:
   Answer: **All of the above**
3. If you are operating a chainsaw, what else do you need?
   Answer: **All of the above**

# Key Point 1.2: Pre-work Meetings

## Initial safety meetings

The Occupational Health and Safety Regulations (OHSR) contain requirements for pre-work meetings.

It defines “new work location” as a work location or block in a forestry operation where the crew of workers has not previously worked.

Before a crew of workers starts work in a new work location, a crew safety meeting must be held by the hook tender or his supervisor to inform the workers of any known or reasonably foreseeable risks in that location and the actions to be taken to eliminate or minimize those risks.

If a worker did not attend the crew safety meeting under subsection (2) of the regulation for a new work location, before starting work in that location, the worker must receive a safety orientation that covers any known or reasonably foreseeable risks in that location and the actions taken to eliminate or minimize those risks.

Records must be kept of the crew safety meetings and safety orientations provided under subsections (2) and (3).

The pre-work meeting can be part of a Workplace Safety Plan. A sample of this document appears on the following pages. Read through each of the forms included in the the plan so that you are familiar with the content.

The hook tender files the Workplace Safety Plan with the company doing the work, and keeps a copy on site.

It is paramount that everyone attending the meeting sign the document, so that a record of the meeting is kept on file with those signatures.

See the Work Safety Plan template in the resources section of this unit.

Your progress

# 1024 - Apply Rigging Slinger Skills

## What you will learn in this unit

By the end of this unit, you will be able to demonstrate knowledge of:

- Prepare for work
- Communication
- Safety responsibilities of a Rigging Slinger
- Choking and rigging
- Supervision, training and leadership of chokerperson

## Why it's important for you to learn this unit

It is always the responsibility of any person using these materials to inform him/herself about the Occupational Health and Safety Regulations (OHSR) related to the work being conducted. A full list of OHSR related to this unit can be found in the relevant package.

## Are you ready to take this unit?

To take this unit, you need to have completed the following units:

- 1002 – Describe Forest Industry
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- 1007 – Describe Emergency Preparedness
- 1008 – Describe and Apply Workplace Attributes
- 1009 – Recognize, Evaluate, and Control Hazards Related to Yarding
- 1010 – Describe Basic Regulations and Standards
- 1013 – Describe Rigging Components and Apply Basic Rigging Practices

## Does this unit apply to you?

This unit applies to you if you are in the following occupation:

- Rigging slinger

Unit Introduction

Work Safety Plan

Now complete the quiz on the next page.

# Pre-work Meetings—Self-Quiz

1. For a new work location, crews must attend a pre-work crew safety meeting before any work begins.

   ☐ True

   ☐ False

2. The purpose of the meeting is to inform the crew of:

   ☐ Known risks

   ☐ Foreseeable risks

   ☐ Action to be taken to minimize or eliminate those risks

   ☐ All of the above

3. If a worker was absent for that meeting, does the worker need a safety orientation before starting work at that new work location?

   ☐ No

   ☐ Yes

4. Do we need to keep records of crew safety meetings and safety orientations?

   ☐ Yes

   ☐ No

Now check your answers on the next page.

# Pre-work Meetings—Quiz Answers

1. For a new work location, crews must attend a pre-work crew safety meeting before any work begins.

   Answer: **True**

2. The purpose of the meeting is to inform the crew of:

   Answer: **All of the above**

3. If a worker was absent for that meeting, does he need a safety orientation before he starts work at that new work location?

   Answer: **Yes**

4. Do we need to keep records of crew safety meetings and safety orientations?

   Answer: **Yes**

# Key Point 1.3: Safe Zone and Hazard Zones Relevant to the Block

## Hazard area of logging equipment

A hazard area created by the operation of logging equipment must be identified.

Every hazard area identified under Part 8, subsection (1) of the OHSR must be communicated to all workers in close proximity to the operating logging equipment and to the hazard area.

A worker must not enter into or proceed on foot through a hazard area referred to in subsection (1) unless the equipment operator first gives permission to the worker in a clear and unmistakable manner.

## Designated safe work area

A safe work area must be designated for workers on foot in close proximity to any operating logging equipment.

The boundaries of a safe work area designated under subsection (1) must be communicated to all workers within and in close proximity to the safe work area.

No equipment may enter into or proceed through a safe work area unless:

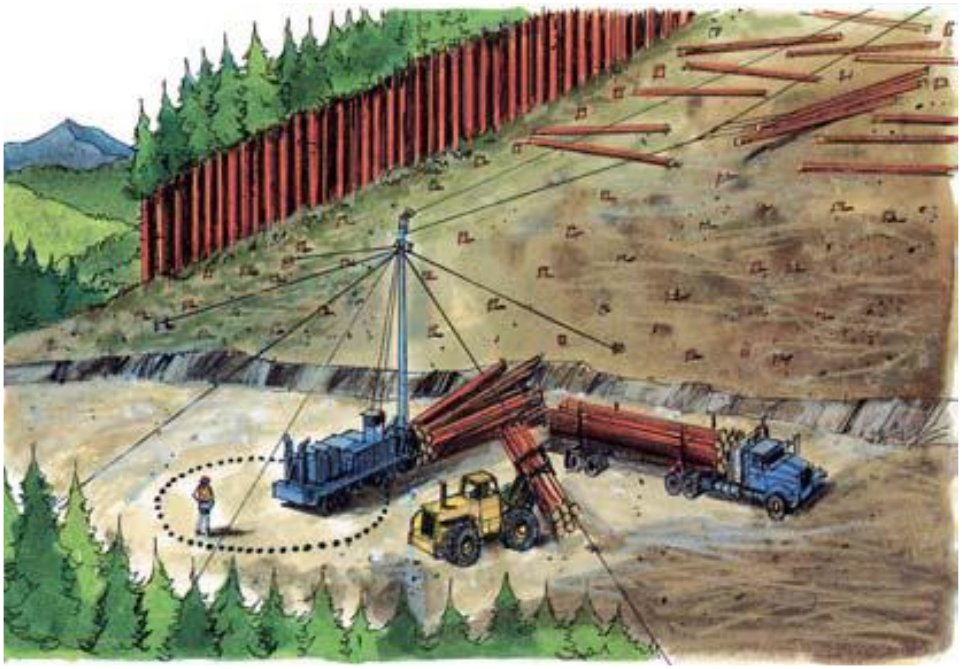
- the equipment operator first obtains permission in a clear and unmistakable manner from all of the workers in that safe work area or from the supervisor of those workers
- those workers take a safe position

At the same time, permission is also required for workers leaving their designated safe zones. Get permission from the operators and maintain eye contact.

## Landing safe area (In the clear)

Remember these points when working in a landing:

- Do not stand underneath or close by the mainline during yarding
- Stand clear of the incoming turn. Remember, logs could jillpoke, upend, or strike logs already in the landing
- Do not stand beneath the guylines opposing the pull of the turn. The guyline could break or the stump may slab
- Do not stand in the bight formed by the running yarding lines
- All landing workers must use designated safe positions, outside the work circle and visible to the machine operators



In the clear

Now try the quiz on the next page.

# Safe Zone and Hazard Zones Relevant to the Block—Self-Quiz

1. Every hazard area identified must be communicated to all workers:

   ☐ In close range of logging equipment

   ☐ In close range of hazard area

   ☐ All of the above

2. To enter a hazard area, a worker must have permission from the equipment operator.

   ☐ True

   ☐ False

3. Boundaries of a safe work area must be communicated to workers:

   ☐ Within the safe work area

   ☐ In close proximity to safe work area

   ☐ All of the above

4. When working in a landing, can you stand underneath or close by the mainline during yarding?

   ☐ Yes

   ☐ No

5. Can you stand beneath the guylines opposing the pull of the turn?

   ☐ Yes

   ☐ No

Now check your answers on the next page.

# Safe Zone and Hazard Zones Relevant to the Block—Quiz Answers

1. Every hazard area identified must be communicated to all workers:

   Answer: **All of the above**

2. To enter a hazard area, a worker must have permission from the equipment operator.

   Answer: **True**

3. Boundaries of a safe work area must be communicated to workers:

   Answer: **All of the above**

4. When working in a landing, can you stand underneath or close by the mainline during yarding?

   Answer: **No**

5. Can you stand beneath the guylines opposing the pull of the turn?

   Answer: **No**

# Key Point 1.4: Hazards and Safe Methods of Walking in the Bush

## Slips, trips and falls injury prevention

Ultimately, your company may strive to reduce all injury types. But when it comes to creating sustainable change and reducing injuries across the operations, it can help to start small and specific with the change and expand the effort as you see progress.

You may find the first aid records for your crew show multiple sprains happening from jumping off a slash pile, a few bruises and cuts from falling down and a tweaked knee from tripping over gear left on the landing. It is up to you to decide where to start in tackling slips, trips, and fall injuries. You may decide that reducing or eliminating the multiple lost time incidents around the sprains represent the best value for your effort or it might make the most sense to focus on reducing or eliminating the more “expensive” (in terms of claims costs, downtime and worker injury) incident of tripping.

Starting small and demonstrating improvements to yourself and your team helps to build momentum in making further changes.

## Additional resources

Below are links to additional resources:

- Injury Prevention Resource Order Form
- Slips, Trips & Falls Injury Prevention Resource Package
- Slips, Trips & Falls Injury Prevention Webinar - Recording

Before going to the field:

- Strive to keep active and stay healthy when away from work
- Stretch and loosen up when you arrive at work before you start the day
- Ensure you have adequate clothing, footwear, and appropriate PPE for the tasks you will be performing and the weather outside
- Ensure you have an adequate food and water supply for the day
- Always make sure that you follow the applicable check-in procedures

When you get to the worksite:

- Ensure you know the designated muster point in the area where you are working
- Be aware of potential eye hazards at all times when walking through the timber

- When walking with co-workers maintain approximately three meters distance between each other
- Avoid jumping off of obstacles
- Be careful around blowdown trees. They may be under tension and unstable in their current position
- When walking on logs watch your footing as logs may roll, be rotten or have loose bark
- Be cautious with your footing when walking or climbing on bare rock
- Always be aware of your surroundings and the potential for wild animal encounters
- Do not sit or walk below fresh cut slopes as banks or rocks may come loose
- On rainy or snowy days, be aware of slippery ground
- In icy conditions, avoid walking on felled logs and in windfall areas

Working in areas with unstable slopes:

- Look for hazards prior to walking in an area with potentially unstable slopes
- Be on the alert for unstable debris, rocks, and logs that may become dislodged
- Be on the alert for unstable ground that may have been impacted by equipment
- Be aware of where you step; if you are unsure find an alternate route
- Be aware of fellow co-workers working downhill from you
- Avoid working in areas at risk of a large landslide (such as steep slopes with
- large, fresh earth cracks or recent landslides/slumps) and report the area to your supervisor

Working on steep slopes:

- Try to maintain three points of contact with the ground when moving across steep slopes
- Where possible keep 1 hand free to grab onto secure objects
- Do not work above or below another worker
- Avoid going below slash accumulations and boulders that may become dislodged
- Move slowly across the hillside if possible. Never jump off of obstacles
- If traction is poor (such as wet, frosty, etc.) work on an alternative site if possible
- Avoid walking on slash, boulders, and talus

Walking on down trees at height:

- Employees are to avoid this practice
- Use an alternate route that allows you to stay on the ground

Walking along rock bluffs or excavations:

- Stay back at least 2 meters from the edge or drop-off
- Never take steps or walk backwards towards the edge
- Avoid slippery or unstable surfaces adjacent to the edge

Walking across streams:

- Assess the stream for hazards before crossing. Do not cross if you are unsure or you feel the crossing is unsafe
- Be aware of changing weather conditions as the water may rise during the day. Make sure you are going to be able to return at the end of the day

Now try the self-quiz on the next page.

# Hazards and Safe Methods of Walking in the Bush—Self-Quiz

1. When walking with co-workers, how far should you maintain between each other?

   ☐ 2 meters

   ☐ 3 meters

   ☐ 4 meters

2. Can you sit or walk below fresh cut slopes?

   ☐ Yes

   ☐ No

3. When working on steep slopes, try to maintain 3 points of contact with the ground.

   ☐ True

   ☐ False

4. Employees should avoid the practice of walking on down trees at height.

   ☐ True

   ☐ False

5. When walking along rock bluffs or excavations, how many meters at least should you stay back from the edge or drop-off?

   ☐ 1 meter

   ☐ 2 meters

   ☐ 3 meters

Now check your answers on the next page.

# Hazards and Safe Methods of Walking in the Bush—Quiz Answers

1. When walking with co-workers, how far should you maintain between each other?

   Answer: **3 meters**

2. Can you sit or walk below fresh cut slopes?

   Answer: **No**

3. When working on steep slopes, try to maintain 3 points of contact with the ground.

   Answer: **True**

4. Employees should avoid the practice of walking on down trees at height.

   Answer: **True**

5. When walking along rock bluffs or excavations, how many meters at least should you stay back from the edge or drop-off?

   Answer: **2 meters**

# Section 1024-02: Communication

## What you need to know about this section

By the end of this section, you will be able to demonstrate ability in the following key points:

2.1 Use signals required for the job

2.2 Communicate hazards back to hook tender or other crew member

# Key Point 2.1: Use Signals Required for the Job

## Logging signals

There are two acceptable means of controlling the movement of lines on cable yarding systems other than hand signals. The chokerperson needs to know the difference and limitations between VHF signals and UHF commands.

The chokerperson also needs to know the action that will result from the signal being acted upon by the operator. For example, when the signal for “slack the mainline” is given, the chokerperson needs to know know that the rigging will start to drop and that he should move out of the way.

### Very high frequency (VHF)

Very high frequency (VHF) radio whistle signaling devices are radio transmitters, usually worn around the waist, that activate a whistle on the yarder when a button is pushed. Each required movement of the line has a specific audible whistle signal, which is the same on every yarding site in the province. The unique combinations of short and long whistles ensure controlled movement of yarding lines at all times.

### Ultra-high frequency (UHF)

Ultra-high frequency (UHF) voice radio is another means of communicating line movement. A worker tells the operator what line movement is required. The worker directing line movement must use WorkSafeBC-approved verbal commands, which describe the VHF radio whistle signals.

When a voice radio is used, any worker who may be affected by the line movement must be able to hear the verbal command. If the worker cannot hear the command, radio whistles must be used.

To meet this requirement, there are three alternatives:

- All workers are equipped with radios
- An amplifying speaker is mounted on the outside of the yarder. The speaker clearly broadcasts each verbal command
- The operator repeats each verbal command with a radio whistle signal

# VHF radio whistles and UHF skyline yarder radio equipment

To ensure that radio equipment used to replace hand signals provides reliable, non-ambiguous, uninterrupted signals, the radio equipment must meet the current WorkSafeBC requirements.

WorkSafeBC officers inspecting workplaces where cable yarders are used will ensure the following:

1. All necessary documentation is available at the workplace, either in an office located on the workplace or in the cable yarder, including:
    - Industry Canada radio license for the current year. Licenses expire on April 1 of each year

    If this documentation is not available or is out of date, the officer will issue an order requiring the frequency to be licensed and coordinated. Transmitters must be removed from service until they are licensed and coordinated.

2. Radio signaling devices, either hand-held transmitters or equipment-mounted radios used in logging operations, must be clearly marked with the following:
    - Name of the manufacturer
    - Serial number
    - Assigned operating frequency
    - Specified tone frequency

3. Radio signaling devices must have the following:
    - Power limits of ¼ watt for grapple yarder radios
    - Power limits of ½ watt for high-lead radio whistles
    - Permanently enabled tone-encoded squelch

*Note: There must only be one frequency per radio. Where multi-channel radios are used, the selection switch must be disabled so that only an authorized person can change the operating frequency.*

# Interference on radio frequencies

Radio signals replace audible signals for the movement of equipment in logging. Interference by other radios on the same frequency can seriously endanger workers.

# Standard audible signals

The audible whistle signals listed below are currently in use in B.C. In addition, carriage operators often use verbal signals with large machines.

Verbal signals are derived from the following whistle signals:

## Audible high-lead signals

| **Operational signals** | | |
|---|---|---|
| Start work | 1 long | — |
| Stop any movement | 1 short | • |
| Ahead* on mainline | 3 short | • • • |
| Slack the mainline | 5 short (minimum) | • • • • • |
| Ahead* on the haulback | 2 short, 2 short | • • • • |
| Slack the haulback | 2 short, several short | • • • • • • |
| Tightline | 3 short, 2 short | • • • • • |
| Tightline on inhaul | 3 short, 2 short | • • • • • |
| Cancel tightline on inhaul | 3 short | • • • |
| Ahead* on Strawline | 3 short, 1 short | • • • • |
| Slack the strawline | 3 short, 1 short, several short | • • • • • • • • • |
| Pick up the guyline | 2 short, 2 short, 2 short, 1 short | • • • • • • • • • |
| Slack the guyline | 2 short, 2 short, 2 short | • • • • • • |
| Extreme hazard present (runaway log, etc.) | 1 long, sustained until hazard has stopped or hazard cleared | _____ |
| Accident | 7 long | — — — — — — — |
| Fire | 1 long, several short, repeated | — • • • • |

*“Ahead” means haulage line moves toward machine

## Audible high-lead signals

| **When butt rigging is at the landing** | | |
|---|---|---|
| Check the rigging | 5 short (minimum) | • • • • • |
| Send out strawline extension | 3 short, 1 short, and 1 short for each extension | • • • • • • |
| Send out strawline in the haulback eye | 3 short, 1 long | • • • — |
| Chokers required | 2 short and 1 short or long for each choker required | • • • • • • |
| Put on/take off scab block | 1 long | — |

| | | |
|---|---|---|
| Calling foreman | 4 long | — — — — |
| Calling hooktender | 3 long | — — — |
| Calling hooktender and crew | 3 long, several short | — — — • • • • |
| Calling for water bag | 1 short, 1 long | • — |
| Calling for block and strap | 1 long, 1 short | — • |
| • Any regular signal preceded by a long signal is a “slow” signal.<br>• Any signal that the engineer is not sure of is a “stop” signal. | | |

## Audible slackline signals

Refer to the standard high-lead whistle signals for most line control signals. The following are additional whistle signals to be used for slackline operations.

| **Operational signals** | | |
|---|---|---|
| Stop outhaul and slack skyline | 1 short | • |
| Pick up the skyline | 1 short, 2 short | • • • |
| Slack the skyline | 5 short | • • • • • |
| Pick up skyline on inhaul to clear obstruction | 2 short | • • |
| Pick up skidding line after obstruction is cleared | 3 short | • • • |
| Slack the skidding line | 3 short, several short | • • • • • • • • |
| **Carriage on outhaul** | | |
| “Slack skidding line” signal given as “skyline is slacked” means “slack both lines at the same time.” | | |
| Hold skidding line tight, keep coming back until stop signal is given | 3 short | • • • |
| Hold skidding line tight, slack skyline, keep coming | 2 short | • • |
| Slack skyline faster | 2 short | • • |

| When carriage is at head spar | | |
|---|---|---|
| Send strawline out in choker bell for a dead line | 3 short, 1 short, 2 short, 2 short | • • • • • • • • • |
| Send out that many coils | 3 short, 1 short, 1 short for each coil needed | • • • • • • • • |
| Calling second rigger | 2 long, 1 short | — — • |

# Skyline carriage signals

All standard high-lead and slackline whistle signals apply to carriages.

| Gravity/shotgun carriage | | |
|---|---|---|
| Standard slackline whistle signals will apply. | | |
| **Dropline/accumulator carriage** | | |
| Ahead* on carriage skidding line | 3 short | • • • |
| Slack the carriage skidding line | 3 short, several short | • • • • • • • • • |
| **Mechanical slack-puller** | | |
| Ahead* on slack puller | 1 long, 1 short | — • |
| Ahead* on dropline | 2 short | • • |
| When the haulback is used as a running skyline, standard high-lead signals apply. | | |
| **Radio-controlled motorized self-contained yarding carriage** | | |
| • This system is similar to the “radio-controlled motor-driven slack-puller, skyline lock” carriage, but does not have a skyline lock.<br>• Any signal preceded by a long signal is a “slow” signal. | | |
| Slack the dropline | 3 short, several short | • • • • • • • • |
| Stop the dropline | 1 short | • |
| Ahead* on dropline | 3 short | • • • |
| If fitted with engine controls: | | |
| Stop engine | 1 short, 1 long | • — |
| Start engine | 2 short | • • |

*“Ahead” means haulage line moves toward machine

| **Radio-controlled motor-driven slack-puller, skyline lock** | | |
|---|---|---|
| • These carriages are fitted with and controlled by an on-board computerized radio control system<br>• This radio system is operated independently through a transmitter separate from that of the yarder<br>• The yarding and carriage frequencies must be separate, registered, and coordinated through the WorkSafeBC coordination system to ensure that one does not interfere with the other or with another operation. Contact the WorkSafeBC Engineering Department for more information<br>• An audible signal must be sounded at the carriage and not at the yarder. This signal must have a tone different from that of the yarder signal<br>• Carriages with variable dropline speeds must have a special signal for the speed changes. These signals must be different from standard yarding signals | | |
| Lock/unlock skyline clamp | 2 short | • • |
| Slack the dropline | 5 short | • • • • • |
| Stop dropline | 1 short | • |
| Ahead* on the carriage skidding line | 3 short | • • • |
| If fitted with engine controls: | | |
| Stop engine | 1 short, 1 long | • — |
| Start engine | 1 long, 1 short | — • |
| **Loading the Skyline Yarder Signal** | | |
| This signal is to be used for alerting the landing workers that the skyline is about to be loaded. | | |
| Skyline being loaded | 2 short | • • |

*"Ahead" means haulage line moves toward machine

# Hand Signals

**Cable down**

Touch the top of head

**Cable up**

Raise hand up and down

**Ahead on the dropline**

Cross arms in front

**Mainline ahead slow**

Raise both arms

**Slack the haulback**

Hands in front of body using chopping motion

**Slack strawline**

Pat back of hand with other hand

**Hold dog drum or brake lever**

Clasp one hand with the other

**Tightline**

Place hands over head with fingertips touching

**Mainline ahead normal**

Raise one arm

**Mainline ahead**

Raise one arm with hand fluttering

**Slack mainline all off**

Extend arm at side with wrist flipping

**Slack the mainline easy**

Extend both hands with hands fluttering

**Ahead on strawline**

Touch hand to bent elbow

Now try the self-quiz on the next page.

# Use Signals Required for the Job—Self-Quiz

1. Draw a line to match the command on the left to the correct operational signal on the right.

| | |
|---|---|
| ☐ Stop any movement | ☐ 3 short, 1 short, • • • • |
| ☐ Slack the haulback | ☐ 2 short, 2 short, 2 short, 1 short, • • • • • • • • |
| ☐ Ahead* on Strawline | ☐ 1 short, • |
| ☐ Pick up the guyline | ☐ 1 long, several short, repeated, — • • • • |
| ☐ Fire | ☐ 2 short, several short, • • • • • • |

2. Draw a line to match the commands when butt rigging is at the landing with the correct signal on the right.

| | |
|---|---|
| ☐ Chokers required | ☐ 3 long, several short, — — — • • • • |
| ☐ Calling foreman | ☐ 1 long, 1 short, — • |
| ☐ Calling hooktender and crew | ☐ 2 short and 1 short or long for each choker required, • • • • • |
| ☐ Calling for block and strap | ☐ 4 long, — — — — |

3. For slackline signals, to pick up the skyline, choose the correct signal:

   ☐ 1 short, 1 long

   ☐ 1 short, 2 short

   ☐ 1 long, 1 short

4. For skyline carriage signals, slack the carriage skidding line is represented by:

   ☐ 3 short, several short

   ☐ 2 short, several short

   ☐ 1 short, several short

5. Which hand signal does the diagram below represent?

- ☐ Cable down
- ☐ Cable up
- ☐ Mainline ahead slow

6. Which hand signal does the diagram below represent?

- ☐ Ahead on the dropline
- ☐ Slack the haulback
- ☐ Slack strawline

7. Which hand signal does the diagram below represent?

- ☐ Tightline
- ☐ Slack mainline easy
- ☐ Ahead on strawline

---

Now check your answers on the next page.

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# Use Signals Required for the Job—Quiz Answers

1. Match the command on the left to the correct operational signal on the right.

| | |
|---|---|
| Stop any movement | 1 short, • |
| Slack the haulback | 2 short, several short, •• •••• |
| Ahead* on Strawline | 3 short, 1 short, ••• • |
| Pick up the guyline | 2 short, 2 short, 2 short, 1 short, •• •• •• ••• • |
| Fire | 1 long, several short, repeated, — •••• |

2. Match the commands when butt rigging is at the landing with the correct signal on the right.

| | |
|---|---|
| Chokers required | 2 short and 1 short or long for each choker required, •• ••• |
| Calling foreman | 4 long, — — — — |
| Calling hooktender and crew | 3 long, several short, — — — •••• |
| Calling for block and strap | 1 long, 1 short, — • |

3. For slackline signals, to pick up the skyline, choose the correct signal:

   Answer: **1 short, 2 short**

4. For skyline carriage signals, slack the carriage skidding line is represented by:

   Answer: **3 short, several short**

5. Which hand signal does the diagram below represent?

Answer: **Cable up**

6. Which hand signal does the diagram below represent?

Answer: **Slack strawline**

7. Which hand signal does the diagram below represent?

Answer: **Slack mainline easy**

# Key Point 2.2: Communicate Hazards Back to Hook Tender or Other Crew Member

Communication between the rigging crew and the machine operator is essential to ensure the operating plan is known and agreed upon. Communication of potential hazards at the worksite is the responsibility of all workers.

Remember the following important points:

- When spotting or setting chokers in blind locations which are out of the operator's vision, the operator must confirm the rigging crew is in a safe location and "in the clear" before moving anything
- Rigging crew members must make sure they are "in the clear" and notify the operator to immediately stop if there is any doubt of their safe location
- The machine operator must never assume the rigging crew is in a safe location. The machine operator Obtain radio and/or visual confirmation

## Methods of communicating

The rigging slinger has to understand as well as be able to give signals to the crew. The rigging slinger must also be able to take direction from the hook tender and relate to the crew what is going on, such as in a road change.

The rigging slinger can communicate hazards back to the hook tender or other crew member in one of the following ways:

- In person – if available
- During pre-work meetings – to inform crew members of known hazards or new ones that have occurred since the last meeting
- During breaks – either coffee or lunch breaks, or during the drive to the block
- Radio communication – probably the most accessible and convenient
- Whistle signals – to communicate hazards right away

Now try the quiz on the next page.

# Communicate Hazards Back to Hook Tender or Other Crew Member—Self-Quiz

1. If rigging crew members are in any doubt of their safe location, what must they notify the operator?

   - ☐ Go slow
   - ☐ Stop

2. What are some of the ways the rigging slinger can communicate back to the hook tender?

   - ☐ Radio communication
   - ☐ During breaks
   - ☐ Whistle signals
   - ☐ All of the above

Now check your answers on the next page.

# Communicate Hazards Back to Hook Tender or Other Crew Member—Quiz Answers

1. If rigging crew members are in any doubt of their safe location, what must they notify the operator?

   Answer: **Stop**

2. What are some of the ways the rigging slinger can communicate back to the hook tender?

   Answer: **All of the above**

# Section 1024-03: Safety Responsibilities of a Rigging Slinger

## What you need to know about this section

By the end of this section, you will be able to demonstrate knowledge or ability in the following key points:

3.1 Constantly look for hazards within work area

3.2 Controls within the work zone

3.3 Use proper ergonomics required to do the job safely

3.4 Reporting procedures for all accidents or serious near misses

# Key Point 3.1: Constantly Look for Hazards within Work Area

The major hazards for the rigging crew discussed here represent specific conditions where specific safety recommendations apply. In addition, workers in the bush need to follow one critical tip that applies everywhere: **stay alert and always know your escape route.**

New workers need to learn to keep an eye out for hazards while they work and think through in advance which way to move if danger erupts. A work position with no good escape route is probably the wrong place to be.

The rigging slinger is responsible for the safety of his crew. If he encounters a hazard that he cannot fix or control, he must halt work.

This key point covers 13 work-related hazards to the rigging crew which includes the chokerperson.

## Hazard 1: Inaccurate signal operations

Unexpected line movement can result if a radio signal malfunctions or is used wrongly. Check equipment and operator knowledge of signals in advance.

Always have two radio transmitters where chokers are being set. A second radio is for backup, but there could be occasions when the second radio is used to stop the rigging when the rigging slinger is occupied or when the crew splits up to set chokers on either side of the mainline. Alert the yarder engineer when both radios are in use.

### Precautions

- Set up the radio whistle on an assigned frequency for the operating location to prevent interference
- Handle radio units carefully to ensure reliable operation. Replace malfunctioning units at once
- Keep battery charged as required
- Guard against accidental activation of spare transmitters. Avoid sounding a stop from both radios at the same time, which could be understood as a “hup-ho” to go ahead fast on the rigging. A worker carrying a second set of transmitters needs to sound the whistle for a stop with a long stop or emergency stop
- The rigging crew must be able to distinctly hear the whistle signals. If necessary, set the yarder whistle away from the yarder and closer to the edge of the landing where the rigging crew can hear it over the motor noise of the carriage

- The yarder engineer must receive clear distinct whistles before any line movement. If the yarder engineer is not sure, he must repeat the whistle and wait for a reply or call on the voice channel to verify
- All motorized carriages must be equipped with a working horn
- Always keep chokerpersons behind you when the turn is going ahead
- When setting chokers ensure that your actions and whistles do not put any chokerperson in a hazardous position

*Note: The transmitter needs to be held upright. The hand should be on the devise ready to blow "STOP" in case of emergency.*

Keep the transmitter ready to signal stop in case of an emergency, especially:

- When spotting the rigging
- After a go-ahead signal has been given, until the turn is cleared
- When lines are being run around

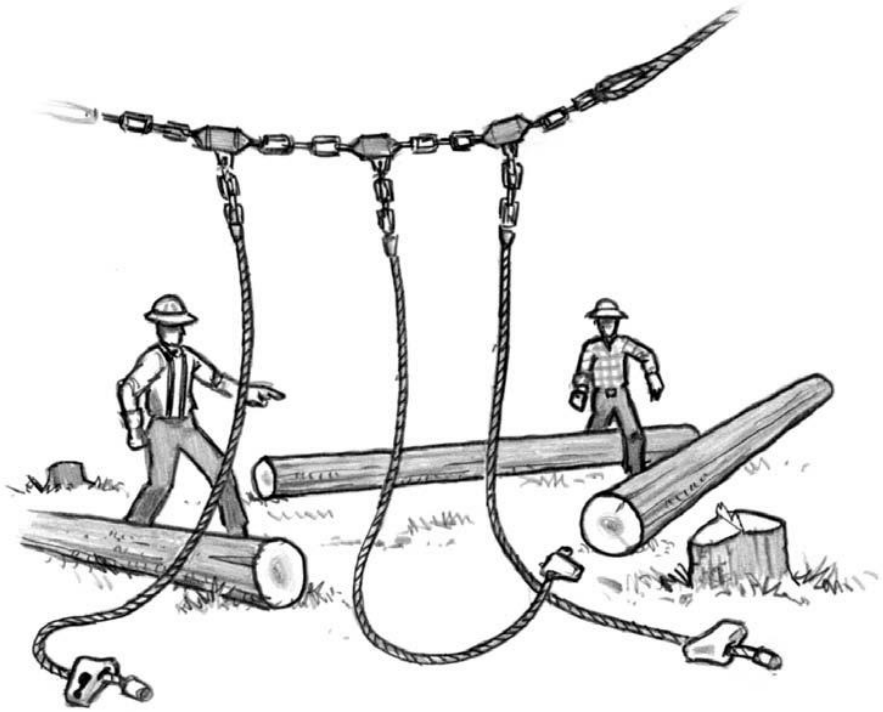
# Hazard 2: Swinging and springing chokers

Stay clear of swinging chokers when the rigging is suspended. Chokers dragging on the ground with line movement can also be dangerous if they catch on an obstacle and spring free.

When grabbing the chokers directly under the carriage, either run the carriage ahead or get in and get out, particularly when the carriage is low to the ground.

### Precautions

- Keep chokerpersons behind you when rigging is coming back
- As chokers come back toward the rigging crew, watch for the chokers pulling debris, which can be thrown toward the crew. The rigger on some carriages lets out the drop line as the carriage comes back. Make sure the chokers are not low enough to run into obstructions or pick up debris
- Stay in the clear, at least two choker lengths away, until the rigging is spotted. For carriages with a dropline, this distance may need to be increased. Stay clear of the potential swing of the choker
- When chokers are swinging, bells and nubbins must be slacked onto the ground to stop the choker movement before the crew approaches
- Be careful of hang-ups when pulling on a choker. If a choker is badly fouled over a log or in brush, don't jerk it free. Walk over and unfoul it



Only approach the rigging once the chokers come to rest

## Hazard 3: Suspended and hang-up rigging

Use caution when working directly under the rigging. There is always a chance a line will be unintentionally released and rigging will drop faster than expected when being slacked down.

Suspended rigging can be dangerous. When the rigging is slacked down, any part of the lines can hang up on saplings or windfall roots and dangle dangerously. Always clear hang-ups before choking logs.

## Precautions

- Never stand directly under the rigging! If you need to cross under it or go under to get your choker, get in and get out quickly, and only when there is no load on the lines. Don't hang around there. If the rigging is being moved or slacked down, DO NOT be under it. Stay to the side
- The yarder engineer must keep the braking system well-maintained, including safety brake or dogs
- The yarder operator must stay at the controls when the crew is setting a turn, with brakes applied
- With a dropline carriage, clear a hang-up by repositioning the carriage to drop the chokers in a clear area
- Hand-clear a hang-up only when the rigging is slacked down
- Clear a hangup with a shotgun carriage or buttrigging
- Watch for signs that the haulback is side-bound, such as crossed lines or lines in a new position

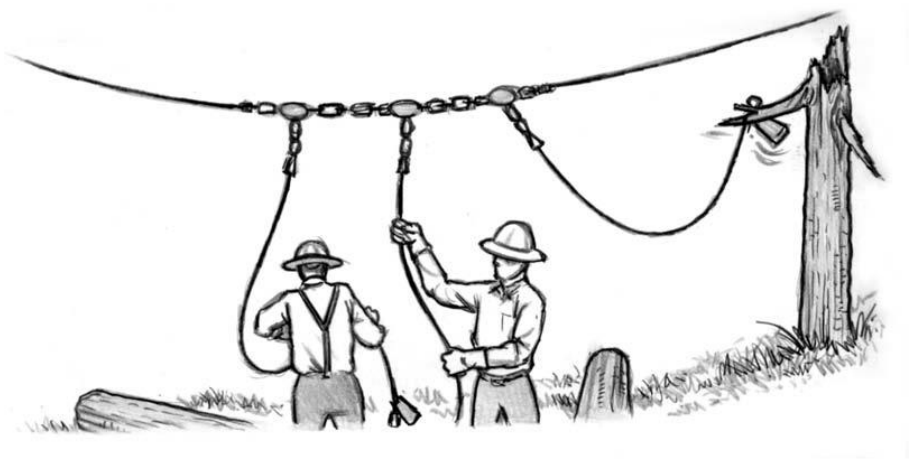
## Clear hang-up rigging with a shotgun carriage or buttrigging

To clear a hang-up rigging with a shotgun carriage or buttrigging, complete the following steps:

1. Tightline the turn.
2. Remove the sapling or other obstruction.
3. Slack the mainline to add weight to break the hang-up.
4. Slack the mainline and skin the rigging to clear the lines, or skin the rigging back and pick up a light turn to clear the lines.

## Suspended rigging hazards

- Drum brakes can fail
- Brake bands, anchors, adjusting rods can fail. Ratchets may slip off pawls, particularly on early-model yarders
- Sudden loss of air pressure can cause the rigging to drop some distance before the spring brake or dogs engage
- Controls may be accidentally released
- Brake may be wet or sticky
- Rigging may hang up on limbs or roots and crash down unexpectedly
- A skyline can incur bounce when the rigging is stopped fast
- A skyline is not static. It moves and bounces slowly throughout the day
- Be aware that it can move on its own at any time, causing the carriage and chokers to move also



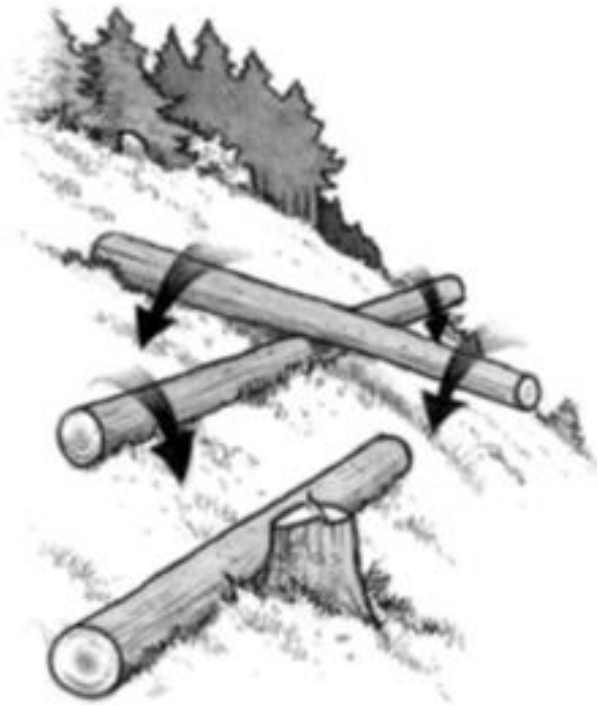
Clear hang-up rigging before working with chokers

# Hazard 4: Rolling logs, rocks, and other objects

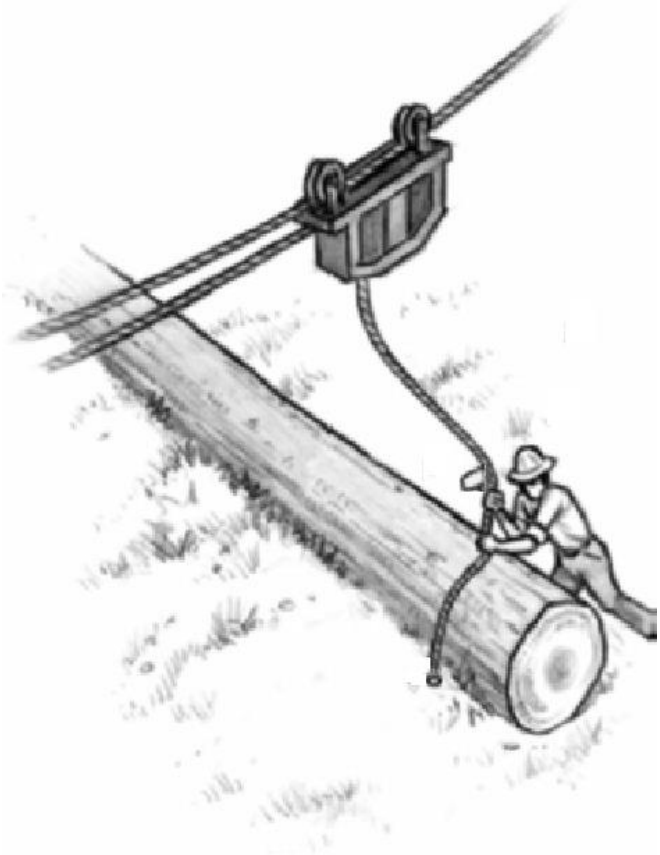
Gravity is the primary source of hazardous energy when working on a slope. Logs, rocks, or other objects can be disturbed by rigging activities and roll or slide downhill toward the crew. The risk is greater working around newly felled timber, where logs can shift and dislodge other logs or material that appeared stable.

## Precautions

- Yard a slope from the highest point down
- Never work below unstable logs, rocks, or other material. If it is unclear what is holding a log, then assume it can move at any time
- When getting in the clear above and behind the turn before the go-ahead signal, identify the logs that will move and check that no unbucked logs or tree lengths could intrude on the safe area chosen. When there is no logged-off area available, retreat farther, and use extra caution. Never remain below anything that could be dislodged when the turn is yarded free
- In an area with bucked timber, never stand on the second cut of a tree that is hooked up
- If there is any doubt about the action of logs in a turn, give the “go ahead slow” signal
- Stay alert to the moving turn and be ready to signal stop if a hazard develops. Chokers can break on the way to the landing or logs break in two, sending material back down on the rigging crew



Beware of unstable logs or other objects beyond the work area that could roll or slide and impact nearby logs



Stay above the log on sloped ground

**CAUTION!**

Be prepared!

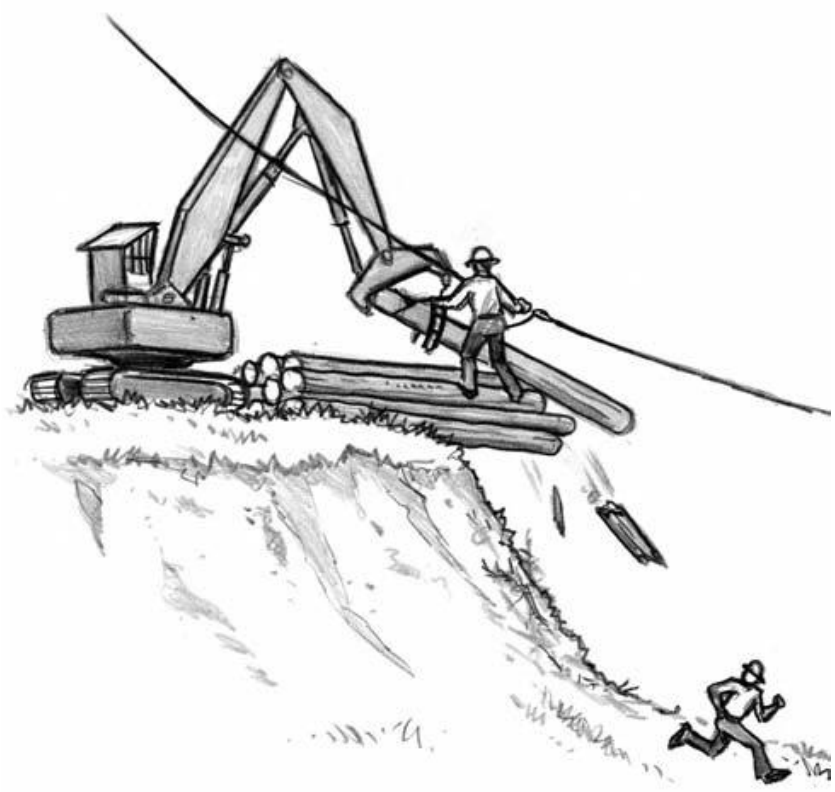
Always know your escape route! Stay above and behind of the turn.

# Hazard 5: Working below a landing on steep ground

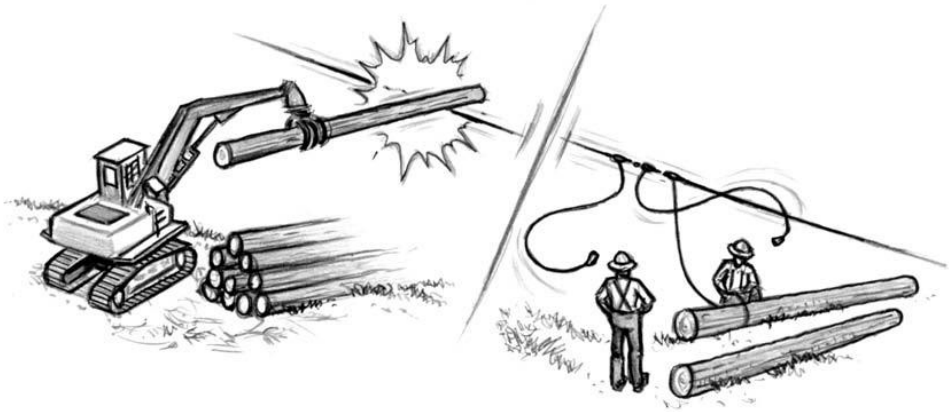
Landings must be planned to minimize the risk of logs or other debris kicked loose at the landing from running downhill toward the rigging crew. On a small landing, the cramped operating area for the loader becomes hazardous. For example, a log in the grapple can strike the mainline and cause the rigging to jump as the rigging crew sets a turn below, or logs may be decked too close to an edge and get disrupted as logs are added.

## Precautions

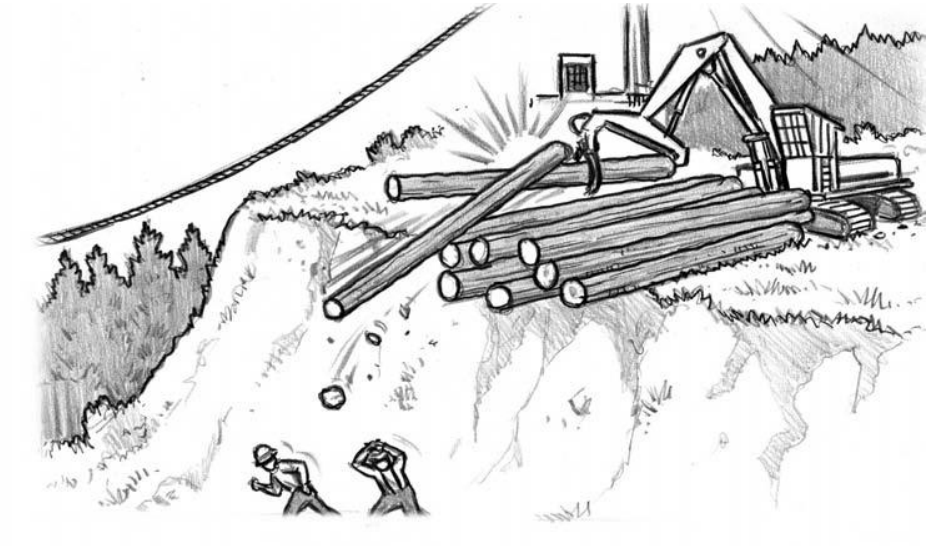
- Discuss the organization of the landing and work zones with the entire crew beforehand. Communication and planning with multiple perspectives improves effectiveness and attention to safety
- The rigging slinger should keep watch as the crew is setting chokers for the lines getting bumped or debris coming out of the landing
- The rigging slinger should try to pick turns that do not require him to slack the lines down where the loader can snag them when setting turns below the landing
- It is preferred that the landing be big enough for the turn to be landed and unhooked without using the loader to prevent the turn from running back down the hill
- Plan the areas of operation of the yarder, processor, and loader. Maintain safe distances. Identify areas where equipment operations overlap
- Make sure the loader boom or log in the grapple does not strike the mainline, skyline, running lines, or guylines when the rigging crew is setting chokers. Avoid throwing debris over the bank
- Set up an emergency whistle at the landing with a signal worked out in advance to warn the rigging crew if materials slide off the landing or other hazards appear they may be unable to see



A short landing is sometimes inevitable, and it may be necessary for the loader or processor to grab and hold the turn while the chaser unhooks the logs. Make sure the rigging crew below is in the clear, in case a log slips out of the grapples



If a machine on the landing hits the mainline, the rigging crew can be endangered by swinging chokers



Beware of log decks close to the edge of the landing. A log can slip off the pile and fall downhill.

## Hazard 6: Windfall trees

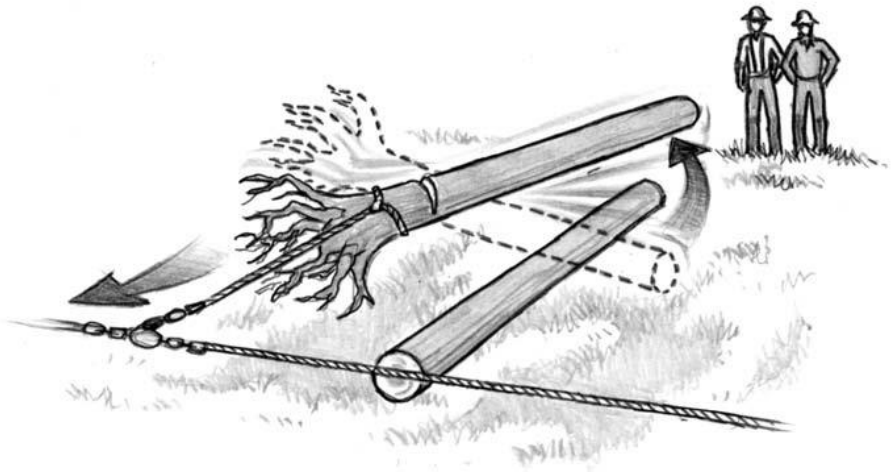
Windfall roots will often sit back when a tree is bucked off or yarded free, particularly if it is bucked short. Heavy rains can disturb the ground and this may cause the root to tip more easily.

Unstable rootwads, when kicked loose, can move unpredictably and cover a wide swath. Any unstable rootwad identified as a hazard in a work area needs to be moved or made secure.

*Note: The illustration above shows the WRONG technique. Remember to always set chokers from the upper side and don't stand behind root wads.*

### Precautions

- Always consider root wads dangerous. Avoid getting below or behind root wads. Always approach from the upper side
- Pull a root wad clear with rigging when it appears unstable



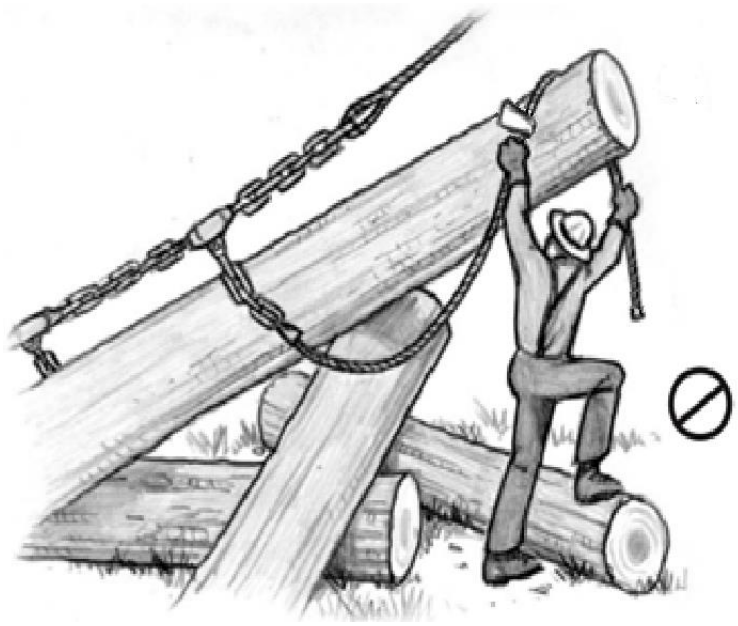
Pull unstable roots clear with the rigging. Get in the clear before lines move

## Hazard 7: Hooking up the turn

Hooking up the turn and starting it to the landing can be hazardous work. Adequate training and safe work procedures are vital. In addition to the safe practices outlined earlier in this chapter, remember the following general precautions:

### Precautions

- Stay in the clear until the rigging is slacked and chokers stop swinging
- When logs are layered, hook up those on top first to reduce applied tensions and damage
- Avoid crawling under logs that could slip or drop, and watch for logs that could be dislodged by movement from other logs
- When tension is applied to the mainline or dropline, beware if it does not rise into position. The line may be fouled and could break free and throw heavy debris



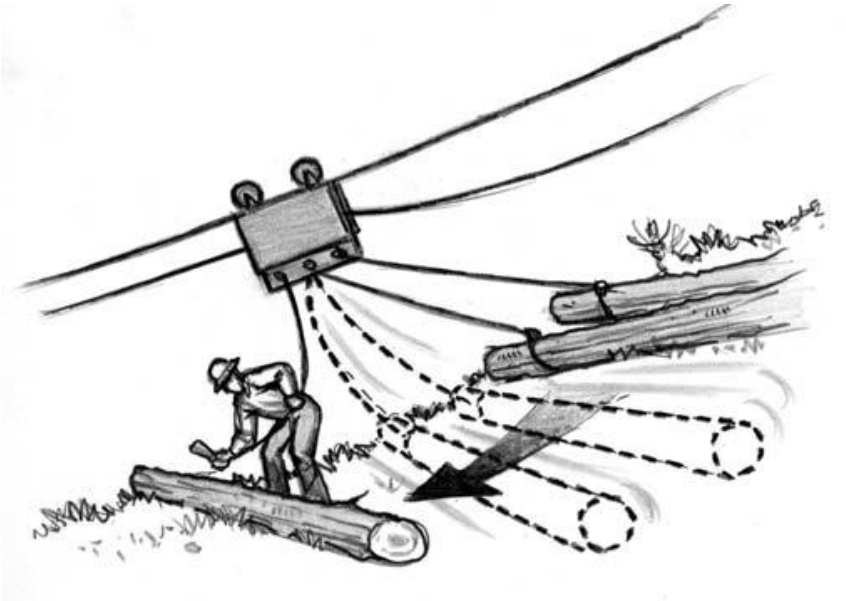
Avoid crawling underneath logs that could slip or drop

# Hazard 8: Choked logs moving when haulback is slacked

On a steep hillside, if the haulback is slacked too much or runs unexpectedly when setting the turn, logs already hooked up can be pulled downhill by the weight of the mainline.

## Precautions

- Do not slack the haulback if some of the chokers are already hooked up to light or unstable logs



The yarder engineer must keep control of the haulback while chokers are being set to avoid log movement

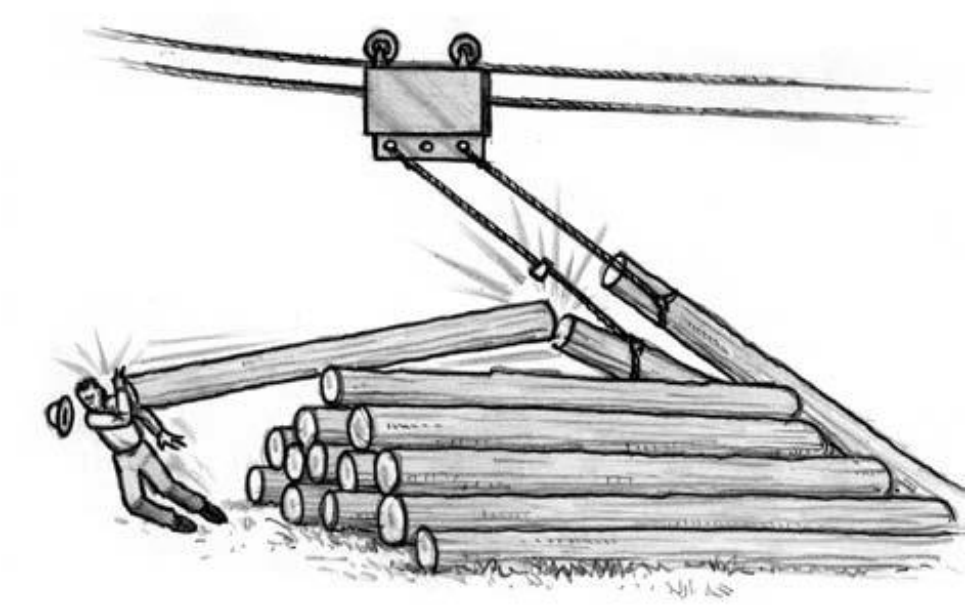
# Hazard 9: Tagging chokers

Adding a tag to a choker or leaving a long dropline can be useful to reach a distant log or direct a log around an obstacle. Tags should be removed and droplines shortened before the turn is yarded to the landing.

Tagged logs foul more readily and are more difficult to control and tightline clear. They are also more difficult to land and may run outside the turn and jill-poke other logs ahead on a pile.

## Precautions

- Establish good communication with the Hook Tender to ascertain where the next road-line will be. This will go a long way to reduce tagging logs
- On a shotgun carriage or buttrigging, use a front choker for tagging logs whenever possible
- Shorten the tagged choker or shorten the dropline before sending the turn to the landing



Strung-out logs are difficult to manage and are more susceptible to hang-ups in the brush and impacts at the landing

---

**IMPORTANT!**

Untag logs in a safe area where logs are stable and not likely to move.

---

Now complete the quiz on the next page.

# Constantly Look for Hazards within Work Area—Self-Quiz Part 1

1. Where chokers are being set, how many radio transmitters are required?

   ☐ One

   ☐ Two

2. When grabbing the chokers directly under the carriage, you should

   ☐ Run the carriage ahead or

   ☐ Get in and get out

3. Do you need to clear hang-up lines before choking logs?

   ☐ Yes

   ☐ No

4. When working on a slope, and there is doubt about the action of logs in a turn, what signal do you give?

   ☐ “go ahead slow”

   ☐ “stop”

5. When working below a landing on steep ground, make sure the loader boom or log in the grapple does not strike which of the following when the rigging crew is setting chokers?

   ☐ Mainline

   ☐ Skyline

   ☐ Running lines

   ☐ Guylines

   ☐ Any of the above

6. For windfall trees, consider root wads dangerous. You should approach from which side?

   ☐ Below root wads

   ☐ Behind root wads

- ☐ The upper side

7. When hooking up the turn and logs are layered, which do you hook up first?

   - ☐ Those on bottom
   - ☐ Those on top

8. On a steep hillside, should you slack the haulback if some of the chokers are already hooked up to light or unstable logs?

   - ☐ Yes
   - ☐ No

9. Strung-out logs are easier to manage and land.

   - ☐ True
   - ☐ False

---

Now check your answers on the next page.

---

# Constantly Look for Hazards within Work Area—Quiz Answers Part 1

1. Where chokers are being set, how many radio transmitters are required?

   Answer: **Two**

2. When grabbing the chokers directly under the carriage, you should

   Answer: **Either run the carriage ahead or get in and get out**

3. Do you need to clear hang-up lines before choking logs?

   Answer: **Yes**

4. When working on a slope, and there is doubt about the action of logs in a turn, what signal do you give?

   Answer: **“go ahead slow”**

5. When working below a landing on steep ground, make sure the loader boom or log in the grapple does not strike which of the following when the rigging crew is setting chokers?

   Answer: **Any of the above**

6. For windfall trees, consider root wads dangerous. You should approach from which side?

   Answer: **the upper side**

7. When hooking up the turn and logs are layered, which do you hook up first?

   Answer: **Those on top**

8. On a steep hillside, should you slack the haulback if some of the chokers are already hooked up to light or unstable logs?

   Answer: **No**

9. Strung-out logs are easier to manage and land.

   Answer: **False**

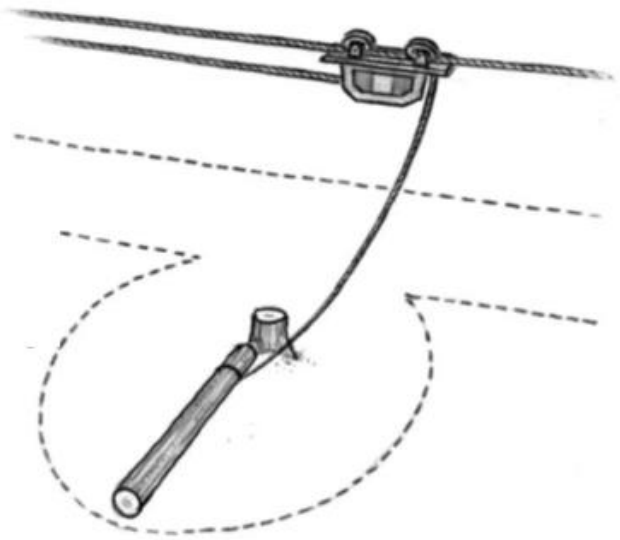
# Hazard 10: Swinging and upending logs

Once a turn starts to move, a hang-up can cause a log in the turn to swing or upend, even when the logs are properly choked and there is good deflection in the line. The risk of a swinging log increases when logs are choked with long ends or guthooked, and with a ground lead.

Long ends give a log greater potential to upend or swing violently if it comes in contact with a stump or hang-up. This is most dangerous with long logs or tree-length logs, which have a greater swing radius.

Precautions:

- The rigging slinger must ensure the rigging crew is well in the clear and out of the danger area of the longest log yarded before giving the go-ahead signal for the turn. Always stay behind the turn
- The safest position in the clear is above and behind the turn and out of the bight of the haulback
- Choke logs with short ends whenever possible
- Get well clear when purposely upending or swinging a log. Do not depend on the log to swing in the expected direction
- Never guthook a log, unless a log end cannot be safely reached. Once pulled free, it is better to reposition the choker on the log before sending the turn to the landing



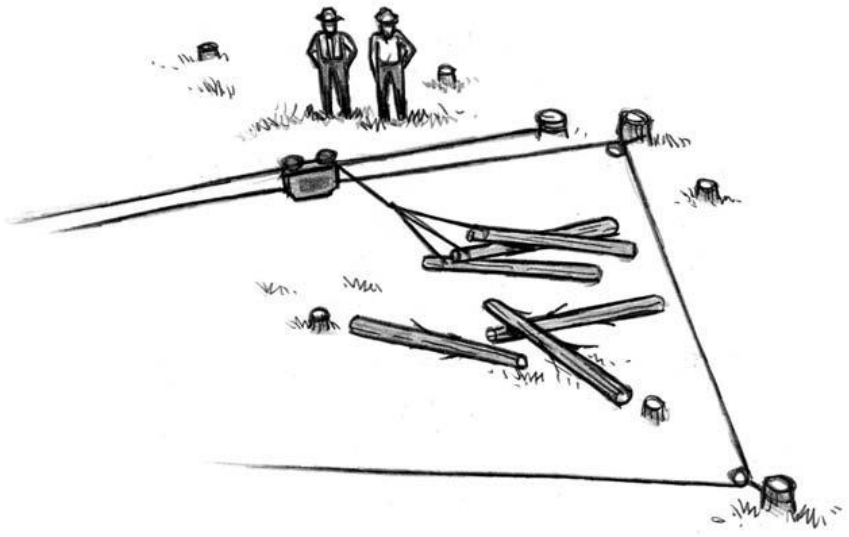
Logs in a turn can swing wildly. Stay well clear

# Hazard 11: Positions in the bight of the line

The rigging crew must always get clear before a turn moves. Loggers standing in the bight of the line risk contact with a whipping cable, choked log, or thrown debris. Avoid a layout with a large bight area. A poor layout can make it difficult for the crew to get in the clear or judge where it is clear, especially near the front end.

## Precautions

- Locate the backline ahead of the road line whenever possible. This allows the rigging crew to move to a safe area that is out of the felled timber and not in the bight of the line
- Beware of flying debris picked up by the haulback that could be tossed downhill



Corner blocks can create a large bight area. During setup, consider the ability of the rigging crew to get in the clear

# Hazard 12: Unhooking lines off anchors

Releasing a line off a stump anchor is very hazardous due to tension in the line. Use caution and always stand on the inside of the point of attachment during release, particularly when there is tension in the line.

Guyline stumps are either attached with a shackle through an eye, or a knob and bell. Backspar guylines are usually timber hitched or wrapped three times and cable clipped or spiked. With single-wrapped stumps, it may be safe enough to unhook the end of the line and let it run. If the line needs to be held on the hillside, use a rigging chain and a short strap, or use a catch shackle and strap.

Always stand on the inside of the point of attachment when releasing a line from an anchor

With multi-wrapped stumps, it may be necessary to use a rigging chain and use the strawline or come-a-long to pull the pressure out of the line to release the stump. If the pressure is great, use a back wrap to ensure the line is all out in the direction of pull, and use the strawline or come-a-long to lower the line.

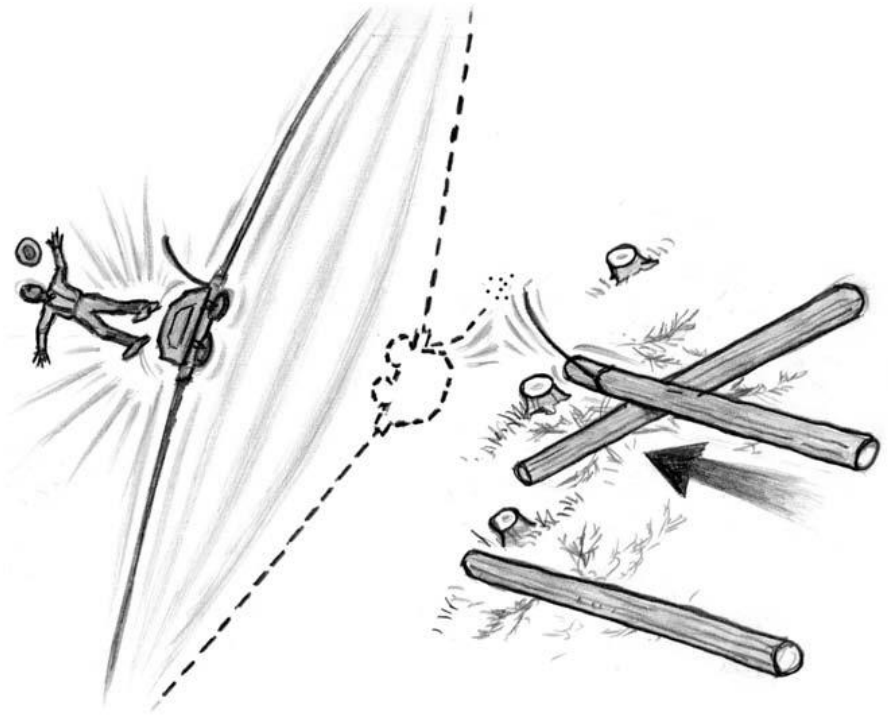
It may be necessary to pound a guy-line shackle pin out with a hammer when there is tension on the line, such as when stumps are above the yarder. This is why shackles are done up with the pin coming up from the bottom.

# Hazard 13: Choker breaking on turn through felled timber

Beware of the increased risk of a choker breaking when yarding across a hill where the turn cannot be held from running through felled and bucked timber. Tightlining the rigging to clear the obstruction increases the danger of rigging flying uphill toward a crew “in the clear” if a choker or other rigging fails.

## Precautions

- Make sure the crew position “in the clear” is located above and behind the moving turn, and also beyond the bight of the line, in case rigging fails
- Try to hook up turns light enough to clear felled and bucked timber
- Immediately signal for slack if a choker breaks
- Hook up a bridle to support chokers on large logs



Always stay clear of the bight of the line, even when behind and above the turn. If a choker breaks as a turn moves, the rigging can snap sideways with great force

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**CAUTION!**

Avoid heavy turns. Turns that are too heavy or hooked up improperly increase the chance for hang ups. Reefing and heavy pulling strain the rigging and tower, and may result in catastrophic failure. Select turns light enough to yard without reefing.

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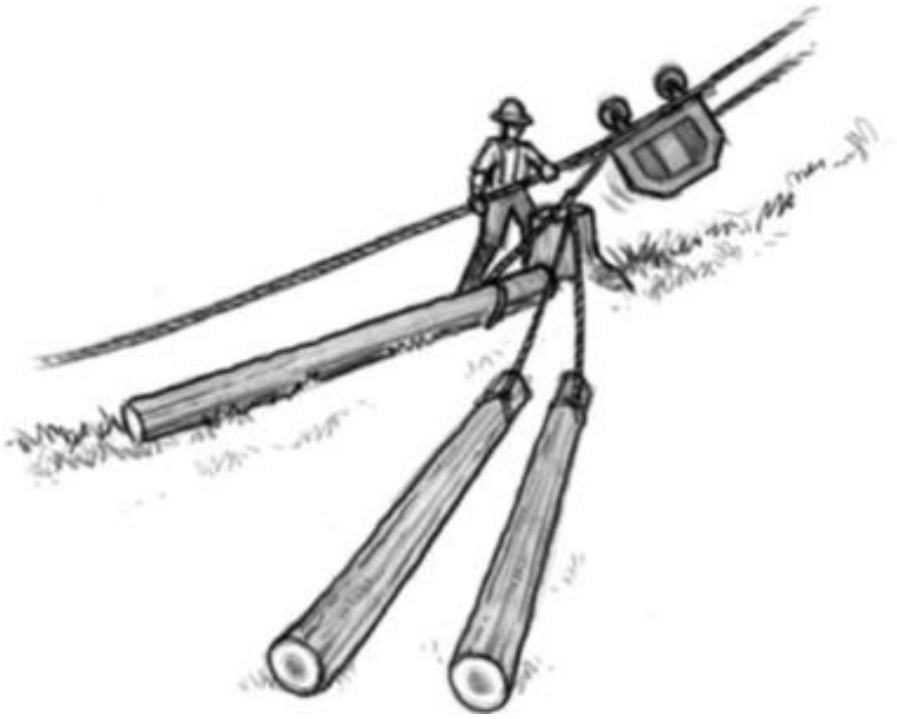
# Hazard 14: Fighting hang-ups

Hang-ups are always hazardous. Good planning for the landing, yarding system, road lines, and payload should minimize problems with obstructions. Every hang-up is going to be different. On some it may work to dislodge the hang-up by repositioning the carriage and pulling in the opposite direction. Others may require unhooking the logs and repositioning the chokers, and others to pull out one log at a time. Avoid letting hang-ups become routine, which may encourage the crew to gradually stand closer to the turn and forget the risk.

## Precautions

- On steep hillsides, always approach hang-ups from the upper side
- Never approach from below the turn when yarding uphill if there is a risk of logs shifting or rolling

- Slack the rigging down before entering the area
- Watch for saplings snagged by the turn and bent under pressure
- Watch for loose rocks and other objects moving with the turn, especially on a hillside. Always assume the turn could roll or shift, and avoid getting caught in a pinch point
- Use caution when standing or working under elevated rigging, which could fall unexpectedly
- Ensure communication with the yarder engineer is working properly – a whistle is heard or a whistleman can hear and see the rigging slinger's signals
- Get clear before signaling to go ahead on the rigging. Make sure others are clear, too.
- Designate a safe location for workers who must fight repeated hang-ups
- If repeated hang-ups occur, consider options to remove or minimize the problem



Use extra caution when approaching a hang-up

## Hang-up hazards

- Rigging under tension may spring or pull loose
- Material disturbed by the hang-up could spring or move unexpectedly, even after the turn is cleared
- Rigging may drop unexpectedly. A log can possibly swing or upend even after the stop signal is given
- Lines that are "bit in" may move unexpectedly

**CAUTION!**

Always inspect a hang-up closely for hazards!

# Hazard 15: Danger trees, loose limbs, and side binds

Remove snags and danger trees in the area before work begins, or arrange work to limit exposure. Stay vigilant as work progresses and report hazards to the hooktender.
Danger trees from farther away can also be hazardous if caught in the path of a tightening line. A side-bound line caught on a tree, rock, stump, or debris pile can throw materials a considerable distance, and the bight in the line can spring one direction and rebound opposite if it breaks free. Side binds also rapidly damage a line and can be a fire hazard in dry weather.

Pay close attention to line movement to indicate obstructions. A haulback that saws into a stump, for example, will not move freely and may develop slack in the backline that allows rigging movement even after the yarder stops. If the rigging does not move at once when the haulback is slacked, stay clear and slowly pick up the slack, then look for a side bind.

## Precautions

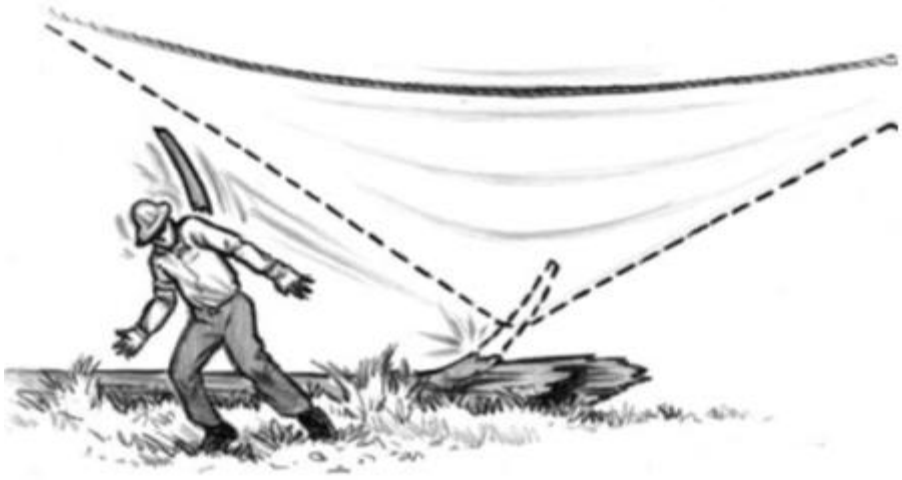
- Stay alert for danger trees, snags, and loose limbs in the work area, especially on the back-end boundaries. Report and remove hazards, or attach safety ribbon and stay clear. Loose branches are common and often hard to see
- Always get in the clear of moving lines and keep well out of the bight of the line
- Stay alert for side binds and clear any hang-ups immediately
- String lines as straight as possible and stay above intervening obstacles
- Use extra caution when working with strawlines
- Be ready to throw clear any objects being carried if a fall is imminent

A line caught on a stump can suddenly break free

## Strawline side binds

Strawline hazards are commonly underestimated. The small line is actually more dangerous than other lines because it more easily runs through and catches on obstructions, and more easily breaks free under tension.

Strawline can fail and throw pieces. Always stay clear of the strawline just like other moving lines, and watch carefully for side binds.



A hang-up line can throw a branch or a whole log when tensioned.

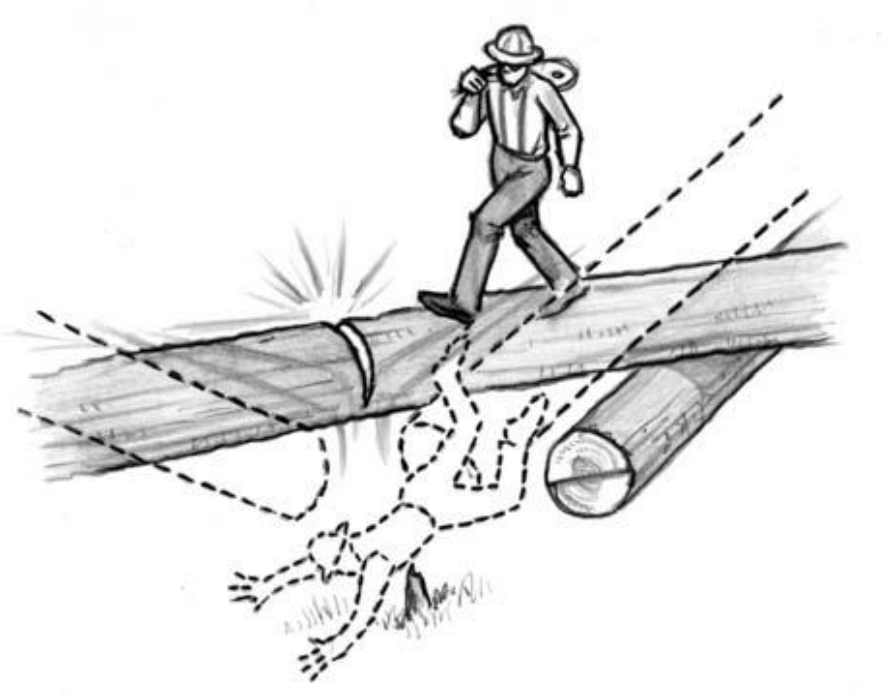
# Hazard 16: Walking in felled timber

Walking in felled timber presents several hazards, even on level ground. Logs may be unstable or slick, with bucked sections, or loose bark, and falling even a short distance off a small log can result in serious injury, due to sharp branches, broken hinge wood on stumps, uneven surfaces, stubs, or other hazards.

In an area of newly felled timber, snags or wildlife trees may have been left, and loose limbs (widowmakers) may remain along the cutting line. Root wads bucked short have been known to suddenly sit back upright. Avoid walking under roots and stay alert for other hazards.

## Precautions

- Stay alert and cautious while walking. It is not always possible to take action to avoid or eliminate hazards in felled timber, so caution is the best advice
- Look to ensure a log is supported by a stump or other solid object that will prevent rolling
- Wear appropriate caulk boots for walking on felled timber, logs, or boom sticks
- Look for hazard ribbons left by others, and report newly observed hazards to others in the crew. If a log is loose or unstable, consider pulling it clear with the rigging if possible, particularly if leaving it would pose a hazard to the rigging crew as they work down the hill



Tree bucked up but still hanging

Loose bark can cause a serious fall, particularly when the sap is up

Windfall roots can sit back and crush a worker

# Hazard 17: Working in standing timber

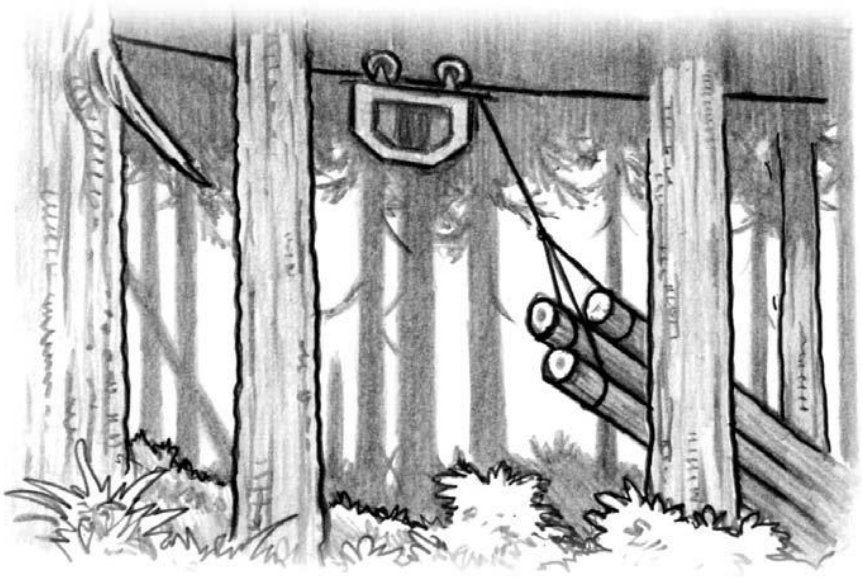
Working in a thinning operation in standing timber poses additional risks for the rigging crew not normally encountered in a clear-cut unit. Workers need to contend with risks such as:

- Leaning and hung trees, limbs, and other overhead hazards
- Spring-loaded limbs and vines
- Logs that are out of lead
- Logs that will not easily turn up the corridor
- Similar obstructions due to surrounding trees left standing

Two of the biggest risks involve intermediate lift trees. Rigged trees can fail and fall in an unexpected direction, or the carriage can jump off of the jack as the carriage is returned to the rigging crew. Make sure the crew stays out of the potential failure zone of rigged support trees during outhaul as well as inhaul.

Trees or logs felled in a thinning operation may lay out of lead, making it necessary to position the carriage with some care to provide the straightest pull out to the corridor without a hang-up. As the turn is pulled to the corridor, it may be necessary to reposition the carriage again to overcome a potential hang-up. The rigging slinger needs to stay alert to stop the inhaul of the drop line before a turn becomes hung up.

The way logs are choked can help avoid hang-ups. Consider choking logs farther from the end than normal if it appears the pull will help a log clear a hang-up and enter the corridor before it swings into the direction of pull. Once the log is free, it may be necessary to stop and adjust the choker to the end before sending the turn on to the landing.



Hang-ups and failure of rigged trees are more likely logging in standing timber

# Hazard 18: Ground and weather conditions

Poor weather creates hazards in the environment and also affects worker attitudes and energy. Cold and wet workers will be less vigilant and less likely to move far enough into the clear. Make sure workers dress appropriately for the weather to stay warm and dry.

Rain, snow, and heat all make a rigging slinger tire out faster than normal. Always clear out to a safe position. Don’t get lazy because you’re tired and not clear far enough. In the heat, remember to hydrate well before, during, and after work.

The following points cover common conditions:

## Rain

Loose and slick ground produces the most frequent source of injury in slips, trips, and falls. Take extra care walking on slopes, logs, and machinery.

Chokersetters should be alert for new hazards with sliding logs and other materials that appeared stable when dry.

Watch for slide hazards on slopes. Look for signs of loose trees or stumps, and smooth rock surfaces showing. Report suspicious signs at once.

## Fog

Work can be carried out safely in fog by organizing additional communication and other precautions. However, on steep ground, work must stop if crews cannot see runaway objects. Wait for vision to improve.

## Snow

Yarding in heavy snow is not always safe, practical, or productive. Workers must be extremely cautious. Activity is slow and workers are prone to slips and falls. Logs can slide more easily, farther, faster, and quieter on snowy slopes. The snow can make it harder to see hazards.

Light snow produces hazards for the rigging crew as well. In moderate conditions though, it may remain possible to load trucks on the landing. Use extra caution when getting on and off machines and trucks. Use tire chains when necessary.

## Thunderstorms

Lightning does indeed regularly strike poor souls working outside in the rain. Electrical storms are particularly dangerous for loggers. Nearby trees attract lightning, so do long lengths of steel cable, and especially moving cables. Steel spars and grapple yarder booms also attract lightning. The risk is much more real than commonly imagined. Stop working until the storm passes. Stay clear of standing timber, towers, and blocks.

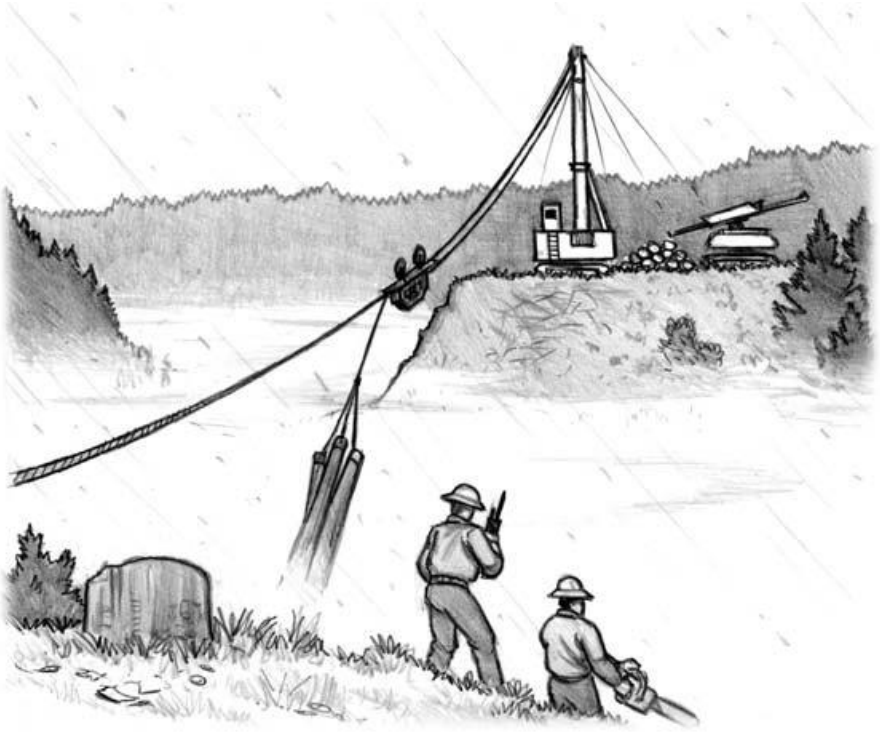
## Hot and dry

Take extreme care to avoid starting a fire. Apply all recognized fire-prevention procedures.

If a fire does start, follow the employer's firefighting plan. Use Department of Forestry recommendations.

Wear adequate clothing to avoid sunburn or sunstroke. Drink plenty of fluids.

Know heat-stress and heat-stroke symptoms. If stress occurs, stop working and find shade. If stress continues, seek first-aid treatment immediately.



Your next quiz is on the following page.

# Constantly Look for Hazards within Work Area—Self-Quiz Part 2

1. Does the risk of a swinging log increases or decreases when logs are choked with long ends or guthooked?

   ☐ Increases

   ☐ Decreases

2. You should avoid a layout with a large bight area.

   ☐ True

   ☐ False

3. When releasing a line off a stump anchor, where should you stand?

   ☐ Stand on the outside of the point of attachment during release

   ☐ Stand on the inside of the point of attachment during release

4. On steep hillsides, where should you always approach hang-ups?

   ☐ From the lower side

   ☐ From the upper side

5. What potential hazard does a side-bound line caught on a tree, rock, stump, or debris pile present?

   ☐ Can cause trips and falls

   ☐ Can throw materials a considerable distance

6. When walking in felled timber, falling even a short distance off a small log can result in serious injury.

   ☐ True

   ☐ False

7. When working in standing timber, should you choke logs closer or farther from the end than normal to avoid hang-ups, if it appears the pull will help a log clear a hang-up and enter the corridor before it swings into the direction of pull?

   ☐ Closer

- ☐ Farther

8. Under foggy conditions, on steep ground, work can continue even if crews cannot see runaway objects.

   - ☐ True
   - ☐ False

---

Now check your answers on the next page.

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# Constantly Look for Hazards within Work Area—Quiz Answers Part 2

1. Does the risk of a swinging log increases or decreases when logs are choked with long ends or guthooked?

   Answer: **Increases**

2. You should avoid a layout with a large bight area.

   Answer: **True**

3. When releasing a line off a stump anchor, where should you stand?

   Answer: **Stand on the inside of the point of attachment during release**

4. On steep hillsides, where should you always approach hang-ups?

   Answer: **From the upper side**

5. What potential hazard does a side-bound line caught on a tree, rock, stump, or debris pile present?

   Answer: **Can throw materials a considerable distance**

6. When walking in felled timber, falling even a short distance off a small log can result in serious injury.

   Answer: **True**

7. When working in standing timber, should you choke logs closer or farther from the end than normal to avoid hang-ups, if it appears the pull will help a log clear a hang-up and enter the corridor before it swings into the direction of pull?

   Answer: **Farther**

8. Under foggy conditions, on steep ground, work can continue even if crews cannot see runaway objects.

   Answer: **False**

# Key Point 3.2: Controls within the Work Zone

## Working in the setting

- Ensure that the crew is well clear of returning rigging and flying chokers
- Do not stand or work directly under the butt rigging when it is being slacked down, in case of brake or friction failure
- Ensure that the crew clears to the same side as you and that everyone is behind you, standing and watching the turn leave, before blowing the “go ahead” signal
- Be aware of potential hazards such as long unbucked logs, rolling logs, forked chunks riding on haulback, loose debris, flying chunks, rolling rocks, side-bound lines, runaway logs
- Always slack the rigging down so that the choker bells are just touching the ground before walking into the turn
- Never set a turn below a working log loader, unless the loader operator stops all movement above the crew
- When working below the landing on steep ground, walk the extra distance to ensure you are clear of runaway logs or other debris from the landing
- Do not allow crew near a tailhold stump or within striking distance of a standing tree being used as a tailhold while turn is being yarded

## Working around the landing

- Do not allow the crew or yourself to walk into a landing behind or over
- a pile of logs while a loader is working in the landing
- When releasing guylines, make sure that you and the crew are on the
- clear side of the bight when the guyline comes around the stump
- Ensure the landing crew is aware before you release the guyline

## Working around cables

- Always carry the guyline shackle back to the landing. Never put it in
- the eye of the guyline
- Make sure all guylines are set properly in the notch of the stump, with
- the proper amount of bight
- Slack lines down to relieve tension when necessary to set chokers in

- bight or near tailhold
- Slack lines down when required to approach or fight hang-ups
- Clear lines if they are hung up, especially before setting turn
- Warn loaders to watch for lines if you plan to slack them down

## Logs behind the tailhold

Planning can minimize the practice of yarding behind backspars or tailholds. However, if this practice needs to be used, the turn should be yarded to the skyline before being yarded forward.

## Rigging rating

Rigging should be selected and used according to the manufacturer's rating. Where low gear ratios or other devices are installed to increase line pull, the size of the rigging must be increased accordingly so that it will safely withstand the increased loads.

## Hang-ups

Hang-ups should be fought by repositioning the choker, rather than by repeated signals. Remember these points when fighting hang-ups:

- Slack the rigging before entering the area
- Approach hang-ups from the upper side
- Watch for saplings sprung ahead of the turn
- Do not go below the turn
- Get in the clear before signaling any line movement
- Ensure you are well in the clear when upending or swinging a log. Remember, the log does not always swing in the intended direction
- Consider moving the road line if hang-ups keep occurring in the same area

Rigging must be slacked before workers enter the turn

# Controls within the Work Zone—Self-Quiz Part 1

1. Can you stand or work directly under the butt rigging when it is being slacked down?

   ☐ Yes

   ☐ No

2. Can you let crew be near a tailhold stump while turn is being yarded?

   ☐ Yes

   ☐ No

3. Should anyone walk into a landing behind a pile of logs while a loader is working in the landing?

   ☐ Yes

   ☐ No

4. Before releasing guylines, where should you and the crew be when the guyline comes around the stump?

   ☐ On the clear side of the bight

   ☐ In the bight

5. When carrying the guyline shackle back to the landing, can you put it in the eye of the guyline?

   ☐ Yes

   ☐ No

Now check your answers on the next page.

# Controls within the Work Zone—Quiz Answers Part 1

1. Can you stand or work directly under the butt rigging when it is being slacked down?

   Answer: **No**

2. Can you let crew be near a tailhold stump while turn is being yarded?

   Answer: **No**

3. Should anyone walk into a landing behind a pile of logs while a loader is working in the landing?

   Answer: **No**

4. Before releasing guylines, where should you and the crew be when the guyline comes around the stump?

   Answer: **On the clear side of the bight**

5. When carrying the guyline shackle back to the landing, can you put it in the eye of the guyline?

   Answer: **No**

# Runaway log hazard

**CAUTION!**

Straight downhill yarding on steep slopes is prohibited.

Straight uphill yarding should be limited to slopes upon which there is no significant hazard to the rigging crews. On blocks where it is feasible, given the prescription, angle the corridors cross-slope so that the rigging crew is up-slope of the turn. Where no practical alternative exists to straight uphill yarding corridors on steep ground, the crew must walk a sufficient distance, cross-slope, to be clear of the runaway log hazard. Activities in the landing that may dislodge materials must be stopped when the downslope crew is in the hazard area.

## Runaway logs

Runaway logs may be a danger during yarding:

- When workers are below the landing, logs, chunks, and other debris may be dislodged into their work area
- During downhill yarding, turns may create runaway logs that go into the landing

Follow these safe work practices:

- Always go in the clear and out of the bight
- During downhill yarding, the logged-off side is generally the safest, as long as you are out of the bight
- Where the hazard of runaway logs exists, do not place the yarder in a hazardous position

Workers should not stand in the bight below the turn

## Overhead hazards

There can be a significant increase in overhead hazards in partial cuts or intermediate cuts. Brushing of trees increases with the density of the residual stems. It is desirable to have the block felled well ahead of yarding activity. This increases the likelihood that residual trees will have the small broken limbs blown out of them by the wind. If the residual density is high and freshly felled, workers need to be aware of small debris and branches if wind comes up past 15–20 km/h (10–15 mph).

Rigging crews must be aware of any forest health issues such as root rot. This will alert them to potential unstable trees missed by the fallers.

There is a significant hazard of trees being yarded over or snapped off by the tong line if the positioning of the carriage and placing of chokers is poor. Logs that are being laterally yarded to the carriage should be bucked to facilitate clear yarding. Logs should not be "powered" out of the hang-up position.

Rub trees that have been overused by the yarding crew or poorly selected by the planners or fallers may become hazardous very quickly. Hazardous rub trees must be removed immediately.

## Windthrow

There is a significant increase in wind throw hazards in the following areas:

- Partial cuts in which a sufficient number of stems per hectare have been removed, reducing intercrown damping
- Riparian and gully management areas in which the edges have not been feathered or the crowns reduced
- Side and back lines laid out without sufficient consideration of predominant wind in relation to elevation and topographic features

Cable yarding crews must have a written wind speed shutdown criteria to ensure control of the wind throw hazard. The operation should also have administrative procedures to control post-wind throw hazards, such as leaning trees or unbuffered danger trees in riparian zones.

## Windthrow amendments

In many of the wind-thrown edges, retaining standing trees to function as a wind break may be desirable to prevent further blowdown. The logging plan for the wind throw amendment must reflect the following:

- The location of the yarding corridors
- The lay of the wind-thrown trees in relation to the direction of yarding
- The specific type of yarding equipment to be used. For example, skyline with dropline carriage – this is important because a grapple yarder system cannot fulfill the performance requirements of a dropline system

- Faller substitution of residual trees to allow for hazardous tree removal and establishment of corridors
- Widening of the corridor at the roadside
- Availability of backspars and/or tailhold stumps
- Appropriate deflection for the yarding system

# Control procedures

## Notice to airman (NOTAM)

Where suspended cables may create a hazard to aircraft, the employer must notify NAV Canada and a NOTAM will be issued to all aircraft operators that would use the area made hazardous by suspended cables or other activities.

## Avalanches

Where logging will be affected by avalanches, planners must institute effective controls and follow the OHS Regulation 4.1.1. Under this regulation, a qualified person must do an avalanche risk assessment and if necessary, create an avalanche safety plan.

## Weather

Planners must calculate the impact of weather and the season on the operation. Cold, snowy, and excessively wet weather have the most impact on development plans, but the impact of these factors decreases as the planning efforts increase.

## Logging sensitive areas during heavy rain seasons

Scarring of the duff on the hillsides causes extreme site degradation through erosion. Workers may be exposed to the hazards of mud and rock slides. Establish rainfall shutdown criteria.

## Logging moist areas before freeze-up

Yarding activity and equipment movement cause excessive site degradation. Haul roads get punched out, making log hauling difficult. Crew buses and emergency transportation vehicles cannot negotiate the roads.

## Logging during periods of excessive snow

Logs buried beneath the snow are sometimes missed, resulting in the need for re-logging when the snow is gone. Gut-hooked logs and logs frozen in the snow often break. Hazards of walking in the felled and bucked timber, impaired visibility, and the hazards of moving equipment increase. Hazards can be hidden in the snow.

### Logging in excessive fog

Crew cannot see the lay of the logs, increasing the hazard of upending and swinging logs. The haulback dislodges logs, roots, and stumps that the crew cannot see.

### Logging during electrical storms

If lightning strikes the lines or equipment, the crew is exposed to the hazard of electrocution.

### Frost boils

Frost boils on the road can cause machines that are being moved to become stuck or roll over. The road condition will deteriorate in a very short time.

## Traffic control

Where active logging takes place adjacent to or over travelled roadways, effective traffic control procedures and equipment must conform to current applicable regulations, such as:

- The Occupational Health and Safety Regulation and safe work procedures
- Requirements of the Ministry of Forests
- The Ministry of Transportation and Highways' Manual of Standard Traffic Signs
- Company operational rules and procedures

# Controls within the Work Zone—Self-Quiz Part 2

1. During downhill yarding, beware of runaway logs. You should:

   ☐ Go in the clear and out of the bight

   ☐ Under the yarder

2. If the residual density is high and freshly felled, workers need to be aware of small debris and branches if the wind comes up past?

   ☐ 10–15 km/h

   ☐ 15–20 km/h

   ☐ 20–25 km/h

3. There should be a written wind speed shutdown criteria in order to ensure control of the wind throw hazard.

   ☐ True

   ☐ False

4. When logging sensitive areas during heavy rain seasons, do you need to establish rainfall shutdown criteria?

   ☐ Yes

   ☐ No

5. When logging during periods of excessive snow, gut-hooked logs and logs frozen in the snow often break.

   ☐ True

   ☐ False

Now check your answers on the next page.

# Controls within the Work Zone—Quiz Answers Part 2

1. During downhill yarding, beware of runaway logs. You should:

   Answer: **Go in the clear and out of the bight**

2. If the residual density is high and freshly felled, workers need to be aware of small debris and branches if the wind comes up past

   Answer: **15–20 km/h**

3. There should be a written wind speed shutdown criteria in order to ensure control of the wind throw hazard.

   Answer: **True**

4. When logging sensitive areas during heavy rain seasons, do you need to establish rainfall shutdown criteria?

   Answer: **Yes**

5. When logging during periods of excessive snow, gut-hooked logs and logs frozen in the snow often break.

   Answer: **True**

# Key Point 3.3: Use Proper Ergonomics Required to Do the Job Safely

Ergonomics matches workplace conditions and job demands to a person's capabilities, to improve worker safety and productivity. Applying the science of ergonomics can be especially helpful in reducing the risk of musculoskeletal injury (MSI), which is the most common work-related injury in B.C.

The rigging slinger needs to tell the hooktender or supervisor if they are hurting and this must be taken seriously. The rigging slinger should be trained in proper body mechanics, such as how to lift heavy objects properly, when and how to say no if something is too heavy to lift, how to pull the line. In other words, how to be an industrial athlete.

## What is a musculoskeletal injury?

Musculoskeletal injury (MSI) is an injury or disorder of the muscles, tendons, ligaments, joints, nerves, blood vessels or related soft tissue including a sprain, strain and inflammation, that may be caused or aggravated by work.

MSIs can affect the body’s soft tissues: the muscles, tendons, ligaments, nerves, blood vessels, and joints of the neck, shoulders, arms, wrists, legs, and back.

### The risks

The main physical risk factors for MSIs associated with the demands of a job include the following:

- Force – exerting force on an object as part of a task
- Repetition – doing a task that uses the same muscles over and over with little chance for rest or recovery
- Work posture – the position of different parts of the body when taken outside of the comfortable range of motion (awkward posture). Usually combined with static posture, such as holding a posture for a long time.
- Local contact stress – a hard or sharp object coming in contact with the skin

For each of these risk factors, it is important to consider magnitude, frequency, and duration of exposure.

### Assessing the risks

Employers must conduct risk assessments for MSIs in their workplace, and eliminate or minimize the risks. Employers must also educate and train workers about MSI risks in the workplace.

## How to reduce the risks

Once the employer has completed a risk assessment, he needs to eliminate the risk factors, where practicable, using risk controls. There are many variables involved in MSIs, and so it's not always possible to eliminate every risk factor. If it is not possible to eliminate the risk, then the risk must be minimized.

To help identify potential risk controls, the following questions can help:

### *Engineering controls*

Physical modifications to facilities, equipment, and processes can reduce risk factor for MSIs. Some question to consider:

- Can mechanical lifting aids be used instead of manual material handling?
- Can the load be lifted within the range of knee to waist height?
- Can the vertical distance the load has to be lifted or lowered be shortened?
- Can stooped or twisted positions be avoided by providing unrestricted work space, or arranging the workspace differently?
- Can the size of the load be made smaller? Options include ordering smaller containers, or having workers make two trips with smaller loads rather than one trip with a heavy load.
- Can carrying distance be shortened by changing the workflow?
- Can equipment be modified to eliminate or reduce awkward postures for workers?
- Can the workplace be modified to eliminate or reduce the need for lifting of heavy objects?

### *Administrative controls*

Changing work practices and work policies, awareness tools, and training can limit the risk of sprains and strains. Some questions to consider:

- Can workers rotate between tasks involving different muscles?
- Can workers use safe work procedures to minimize risk factors, for example, using neutral wrist posture?
- Can workers be trained to perform the tasks using neutral postures?
- Can storage space be organized so that heavy items are located between knee and waist height and light items above shoulder height?
- Can the task design be changed? Examples include changing a lifting task into a lowering task, or changing a carrying task to a pushing or pulling task.
- Can workers be given time to rest or recover when lifting or handling loads?
- Can work demands and work pace be balanced more effectively?

### *Personal protective equipment*

Personal protective equipment (PPE) can only be used when engineering or administrative controls can't be applied. Some questions to consider:

- Do workers have suitable gloves that fit properly? For example, they may need padded, friction-enhanced or vibration-limiting gloves.
- If workers are required to kneel, do they have knee pads or a kneeling pad?
- Do workers have warm clothing if they have to work in cold conditions?

## Additional resources

Visit WorkSafeBC's website to download their guide book called Understanding the Risks of Musculoskeletal Injury (MSI): An Educational Guide for Workers on Sprains, Strains, and Other MSIs.

The book is an educational guide to help workers and employers recognize the signs and symptoms of MSI and understand the potential health effects of these injuries. It also helps employers and workers to identify the factors that place workers at risk for MSI, such as force, repetition, work posture, and local contact stress.

# Sprains and strains (MSIs)

Sprains and strains are among the most common injuries for B.C. workers. They can arise from a number of incident types, such as overexertion, repetitive motion, motor vehicle incident, and slips, trips, and falls. Sprains and strains that arise from overexertion and repetitive motion incident types are referred to as musculoskeletal injuries (MSIs) at WorkSafeBC.

## How to reduce the risks

To help identify potential risk controls, consider the following questions:

### *Engineering controls*

Physical modifications to facilities, equipment, and processes can reduce risk factor for MSIs. Some questions to consider:

- Can equipment be added or modified to eliminate or reduce awkward postures for workers?
- Can the workplace be modified to eliminate or reduce the need for lifting of heavy objects?

### *Administrative controls*

Changing work practices and work policies, awareness tools, and training can limit the risk of MSIs. Some questions to consider:

- Can tasks requiring highly repetitive motions be automated?
- Can tasks requiring heavy lifting be done by mechanized equipment, or by teams of workers rather than one person?

## Back injuries

The following poster gives instructions for proper back support as well as pictures for illustration.

# BACK UP YOUR BACK

FIT TO LOG

*A neutral posture and activated core will reduce pain and increase strength. Take a moment to restore your posture once per hour every day.*

## STEP 1: FIND A NEUTRAL SPINE

1. **Stand tall as though a string is pulling out the top of your head.**
2. **Look straight ahead - don't drop or raise your chin.**
3. **Keep your shoulders and chest relaxed, just lengthen through your spine.**
4. **Put one hand on the back of your neck to check that your neck is lined up with your spine (if your head is forward, the knobby 7th vertebra will stick out. Correct this by pushing your chin straight back with the other hand until the vertebrae all line up).**


## STEP 2: PUT YOUR PELVIS UNDERNEATH YOU

1. **Put one hand on your hip bone and the other on your pubis as shown in the photo.**
2. **They should be in one plane, the pubis should not be behind or in front of the hip bone.**

## STEP 3: ACTIVATE YOUR CORE

1. **Tighten your belly by drawing your lower abdomen in and up very slightly.**
2. **Make sure your upper body is still relaxed, only your lower belly is tight.**
3. **Tighten the pelvic floor (lift your testicles slightly to activate this core muscle) and hold for a count of 10, then do 10 contractions in a row.**

Selkirk College fitSAFE BC Forest Safety

Now try the quiz on the next page.

# Use Proper Ergonomics Required to Do the Job Safely—Self-Quiz

1. What are the main physical risk factors for MSIs associated with the demands of a job?

   ☐ Force

   ☐ Repetition

   ☐ Local contact stress

   ☐ Posture

   ☐ All of the above

2. What type of controls pertains to physical modifications to reduce risk factors for MSIs?

   ☐ Administrative controls

   ☐ Engineering controls

3. What type of controls pertains to work policies and practices, and awareness tools to mitigate sprains and injuries?

   ☐ Engineering controls

   ☐ Administrative controls

4. A forward posture and activated core will reduce pain and increase strength.

   ☐ True

   ☐ False

Now check your answers on the next page.

# Use Proper Ergonomics Required to Do the Job Safely—Quiz Answers

1. What are the main physical risk factors for MSIs associated with the demands of a job?

   Answer: **All of the above**

2. What type of controls pertains to physical modifications to reduce risk factors for MSIs?

   Answer: **Engineering controls**

3. What type of controls pertains to work policies and practices, and awareness tools to mitigate sprains and injuries?

   Answer: **Administrative controls**

4. A forward posture and activated core will reduce pain and increase strength.

   Answer: **False**

# Key Point 3.4: Reporting Procedures for All Accidents or Serious Near Misses

## General Protocol

In general, all incidents should be reported to the worker's supervisor. However, many companies have specific procedures.

The rigging slinger should report all hazards, close call, injuries, property damage, and environmental incidents to their supervisors.

Now do the quiz on the next page.

# Reporting Procedures for All Accidents or Serious Near Misses—Self-Quiz

1. Only serious incidents need to be reported to the worker's supervisor.

   ☐ True

   ☐ False

2. Which of the following incidents does the chokerperson need to report to their supervisors?

   ☐ Hazards

   ☐ Close call

   ☐ Injuries

   ☐ Property damage

   ☐ Environmental incidents

   ☐ All of the above

Now check your answers on the next page.

# Reporting Procedures for All Accidents or Serious Near Misses—Quiz Answers

1. Only serious incidents need to be reported to the worker's supervisor.

   Answer: **False**

2. Which of the following incidents does the chokerperson need to report to their supervisors?

   Answer: **All of the above**

# Section 1024-04: Choking and Rigging

## What you will learn in this section

By the end of this section, you will be able to demonstrate your knowledge of the following key points:

4.1 Undertake a basic assessment of logs ensuring the log is stable

4.2 Choke log in accordance with job requirements

4.3 Control rigging including spotting the rigging, picking the turn, and identifying the hazards in accordance with job requirements

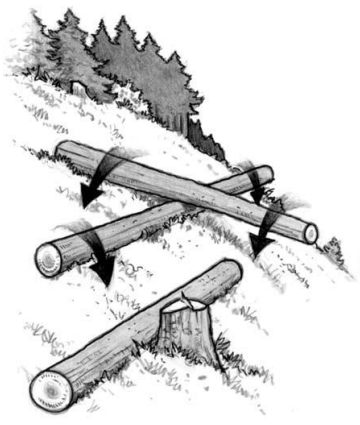
4.4 Understanding of road changes in accordance with the block

# Key Point 4.1: Undertake a Basic Assessment of Logs Ensuring the Log is Stable

Logs, rocks, and other objects can be disturbed by rigging activities and roll or slide downhill toward the crew. The risk is greater working around newly felled timber, where logs can shift and dislodge other logs or material that appeared stable.

## Precautions

- Yard a slope from the highest point down
- Never work below unstable logs, rocks, or other material. If it is unclear what is holding a log, then assume it can move at any time
- When getting in the clear above and behind the turn before the “go ahead” signal, identify the logs that will move and check that no unbucked logs or tree lengths could intrude on the safe area chosen. When there is no logged-off area available, retreat farther, and use extra caution. Never remain below anything that could be dislodged when the turn is yarded free
- In an area with bucked timber, never stand on the second cut of a tree that is hooked up
- If there is any doubt about the action of logs in a turn, give the “go ahead slow” signal
- Stay alert to the moving turn and be ready to signal stop if a hazard develops. Chokers can break on the way to the landing or logs break in two, sending material back down on the rigging crew

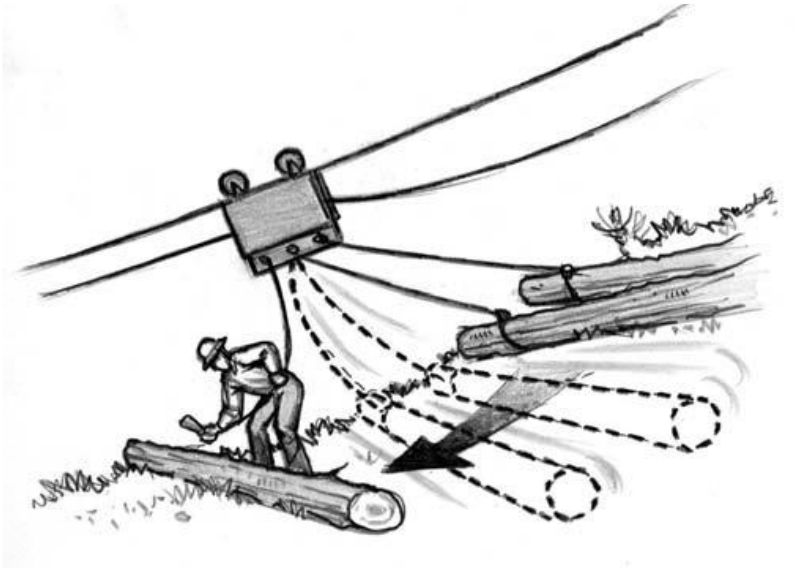


Beware of unstable logs or other objects beyond the work area that could roll or slide and impact nearby logs

## Choked logs moving when haulback is slacked

On a steep hillside, if the haulback is slacked too much or runs unexpectedly when setting the turn, logs already hooked up can be pulled downhill by the weight of the mainline.

Do not slack the haulback if some of the chokers are already hooked up to light or unstable logs.



The yarder engineer must keep control of the haulback while chokers are being set to avoid log movement

## Tagging chokers

Adding a tag to a choker or leaving a long dropline can be useful to reach a distant log or direct a log around an obstacle. Tags should be removed and droplines shortened before the turn is yarded to the landing.

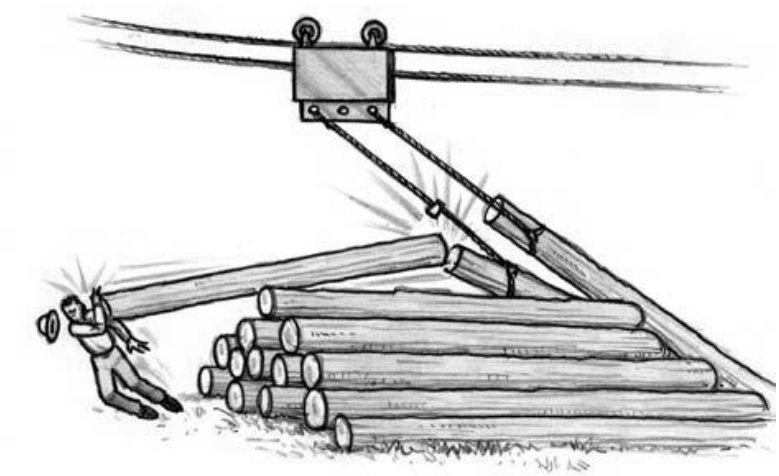
Tagged logs foul more readily and are more difficult to control and tightline clear. They are also more difficult to land and may run outside the turn and jill-poke other logs ahead on a pile.

Here are some useful tips:

- On a shotgun carriage or buttrigging, use a front choker for tagging logs whenever possible
- Shorten the tagged choker or shorten the dropline before sending the turn to the landing

**IMPORTANT!**

Untag logs in a safe area where logs are stable and not likely to move.



Tagged logs are difficult to manage. They are more susceptible to hang-ups in the brush and impacts at the landing

# Walking in felled timber

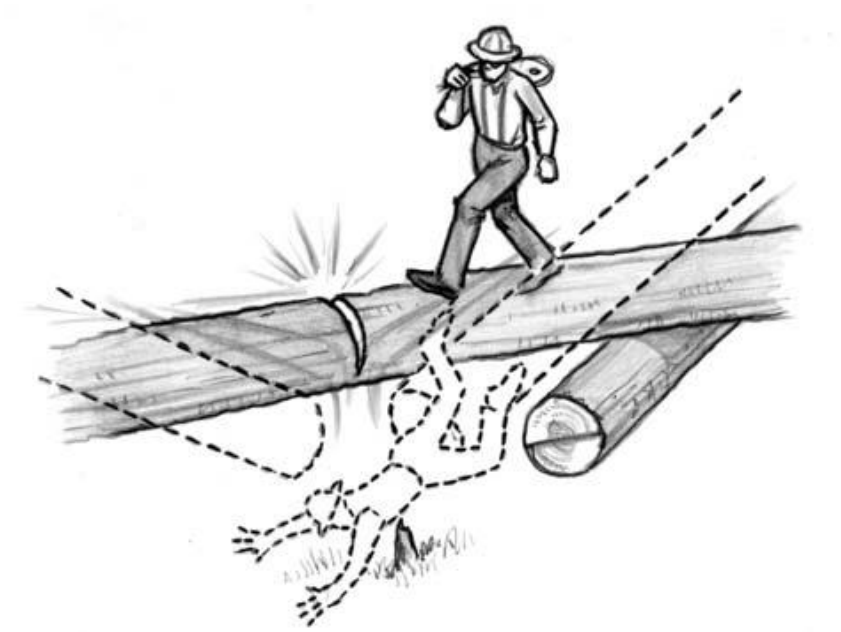
Walking in felled timber presents several hazards, even on level ground. Logs may be unstable or slick, with bucked sections, or loose bark and falling even a short distance off a small log can result in serious injury, due to any of the following:

- Sharp branches
- Broken hinge wood on stumps called “wiskers”
- Uneven surfaces
- Stubs
- Other hazards

In an area of newly felled timber, snags or wildlife trees may have been left, and loose limbs (widowmakers) may remain along the cutting line. Root wads bucked short have been known to suddenly sit back upright. Avoid walking under roots and stay alert for other hazards.

## Precautions

- Stay alert and cautious while walking. It is not always possible to take action to avoid or eliminate hazards in felled timber, so caution is the best advice
- Look to ensure a log is supported by a stump or other solid object that will prevent rolling
- Wear appropriate caulk boots for walking on felled timber, logs, or boom sticks
- Look for hazard ribbon left by others, and report newly observed hazards to others in the crew
- If a log is loose or unstable, consider knocking or pulling it loose with the rigging, particularly if leaving it would pose a hazard to the rigging crew as they work down the hill
- Remember to pack and carry equipment and rigging in such a way that it can be thrown clear or dropped if you slip and fall while moving it. The rigging slinger is responsible for showing this to chokerpersons



Tree bucked up but still hanging

Loose bark can cause a serious fall, particularly when the sap is up

# Ground and weather conditions

## Rain

Loose and slick ground produces the most frequent source of injury in slips, trips, and falls. Take extra care walking on slopes, logs, and machinery.

Chokersetters should be alert for new hazards with sliding logs and other materials that appeared stable when dry.

Watch for slide hazards on slopes. Look for signs of loose trees or stumps, and smooth rock surfaces showing. Report suspicious signs at once.

### Snow

Yarding in heavy snow is not always safe, practical, or productive. Workers must be extremely cautious. Activity is slow and workers are prone to slips and falls. Logs can slide more easily, farther, faster, and quieter on snowy slopes.

## Landing the turn

Do not land or deck logs in a crisscross manner or in unstable piles. Unstable piles are hazardous to the chaser and workers below the landing.

# Undertake a Basic Assessment of Logs Ensuring the Log is Stable—Self-Quiz

1. Should you remain below anything that could be dislodged when the turn is yarded free?

   ☐ Yes

   ☐ No

2. Should you slack the haulback if some of the chokers are already hooked up to light or unstable logs?

   ☐ Yes

   ☐ No

3. Leaving the dropline long or tagging chokers together can be useful to reach a distant log or direct a log around an obstacle. What should you do before the turn is yarded to the landing?

   ☐ Remove tags only

   ☐ Shorten dropline only

   ☐ Do both

4. If a log is loose or unstable, should you figure out a safe way to control the hazard, or make sure the rigging crew and your supervisor are aware of it, if leaving it poses a hazard to the rigging crew?

   ☐ Figure out a safe way to control the hazard

   ☐ Make crew and supervisor aware of it

   ☐ Do both

5. In wet conditions such as rain, can logs that appeared stable when dry become slippery and pose a hazard?

   ☐ Yes

   ☐ No

6. When landing the turn, can you deck logs in a crisscross manner?

   ☐ Yes

☐ No

Now check your answers on the next page.

# Undertake a Basic Assessment of Logs Ensuring the Log is Stable—Quiz Answers

1. Should you remain below anything that could be dislodged when the turn is yarded free?

   Answer: **No**

2. Should you slack the haulback if some of the chokers are already hooked up to light or unstable logs?

   Answer: **No**

3. Leaving the dropline long or tagging chokers together can be useful to reach a distant log or direct a log around an obstacle. What should you do before the turn is yarded to the landing?

   Answer: **Do both**

4. If a log is loose or unstable, should you figure out a safe way to control the hazard,  or make sure the rigging crew and your supervisor are aware of it, if leaving it poses a hazard to the rigging crew?

   Answer: **Do both**

5. In wet conditions such as rain, can logs that appeared stable when dry become slippery and pose a hazard?

   Answer: **Yes**

6. When landing the turn, can you deck logs in a crisscross manner?

   Answer: **No**

# Key Point 4.2: Choke Log in Accordance with Job Requirements

Using whistles, the rigging slinger directs the movement of the rigging and choking of the logs. The rigging slinger needs to keep a sharp eye out for unstable logs or objects and alert the crew to specific hazards that develop during the yarding process.

The rigging slinger starts working a road-line at the front of the road and work towards the back, not always top to bottom. The idea is to continuously work so the logs that get bumped or fall out of the turn will roll downhill while the crew stays to the high-side in the clear. Extra caution is required until yarding activity is clear of the landing and guylines, where the close working conditions increase hazards.

Only one worker can give signals or voice communication to move the rigging. Any person in the crew is authorized to give a stop signal in an emergency situation. If the rigging slinger is also the hook tender and must leave to perform other tasks, a qualified chokersetter must be designated with supervision and communication responsibilities for the crew in the interim.

Knowledge of the following basic work procedures related to the rigging crew is essential to avoid injury and maintain effective production.

## Spotting the rigging

The rigging singer must understand that rigging needs to be stopped in a position that allows the chokerpersons easy access to the rigging and a direct safe route to their respective logs in the setting of the turn. The least amount of pulling chokers along the ground is preferred and is the most productive method.

The steps to spot a rigging is as follows:

1. The rigging slinger will spot the rigging where the chokers are being set.
2. Once the rigging has been spotted, the crew must remain in the clear until the rigging stops swinging.

**CAUTION!**

Never stand directly under elevated rigging. Equipment could fail or a hung line could break free unexpectedly. Get in and get out.

3. The rigging is usually kept elevated until the chokers are untangled.
4. The rigging slinger will signal to slack the lines slowly to enable the chokersetter to pull the chokers to the turn.

## Selecting and choking the turn

The rigging slinger will select the turn and spot the rigging, and tell the chokersetters which logs to choke. Effective communication and teamwork among crew members is critical.

The following main points about setting chokers affect the rigging slinger's selection:

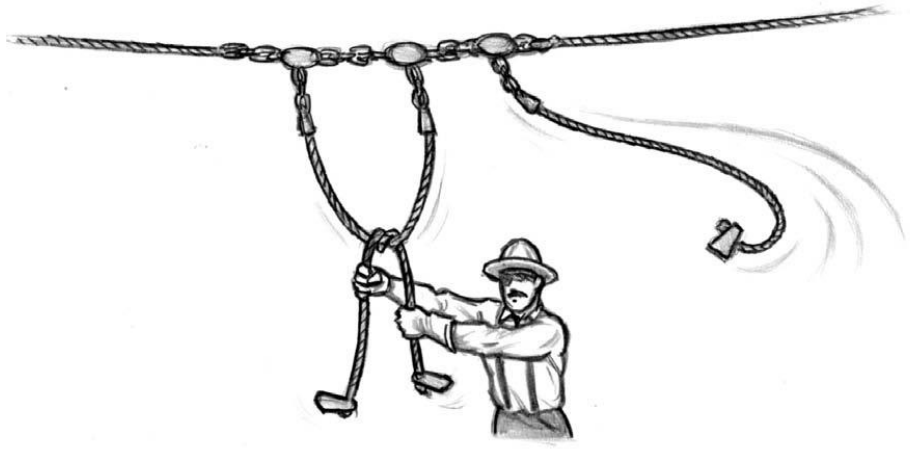
- Always approach and set chokers from the upper side, unless it is certain the log will not move
- Choke logs near the end to reduce the hazard of swinging logs and make landing the turn easier. Avoid gut-hooking logs
- Choke logs at the end nearest to the yarder so they are less likely to upend or swing
- Select logs and attach the chokers so the logs will pull clear of the stumps, felled timber, and other obstacles, and require little digging. Choose logs from the top of the pile first
- If logs are brushed up, yard out a light turn from behind to clear out the brush

The following additional procedure applies when using a shotgun carriage or buttrigging.

1. Place the heaviest and longest logs in the front chokers. Doing so will:
    - Facilitate yarding and landing
    - Minimize the strain on the rigging
    - Prevent small logs from breaking
2. Keep turns within a size that can be safely handled by the yarding equipment. The heaviest log may be a one-log turn, hooked on the front choker.
3. Select logs within easy reach. Pulling logs from top of a pile first will put less strain on the logging system.

**IMPORTANT!**

Beware of slacking the lines too fast. With multi-speed carriages, it is possible to feed out the lines too quickly. Excess slack can push the crew too fast through the brush or can tangle up.



Do not approach the rigging until swinging chokers come to rest

## Setting chokers

Observe the following points when setting chokers:

- When placing the choker on the log, always go over the top of the log with the knob, unless instructed otherwise for a specific reason
- If it becomes necessary to move to the other side of the log to push the knob through, first make sure the log will not roll
- Tight logs can be freed by half hitching or other methods
- Logs should be choked near the ends
- Chokers must be set on crossed logs to avoid “figure eights,” which can cut and damage the chokers
- Choke small logs to avoid breakage

Avoid having to untangle chokers on the ground. Have the rigging raised off the ground to untangle them when possible

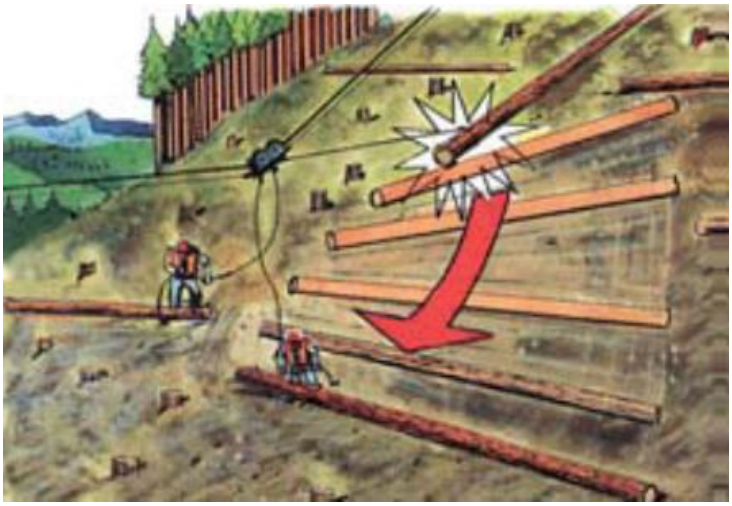
To properly set chokers, always go over the top of the log, except in rare circumstances

## Setting a choker—additional points

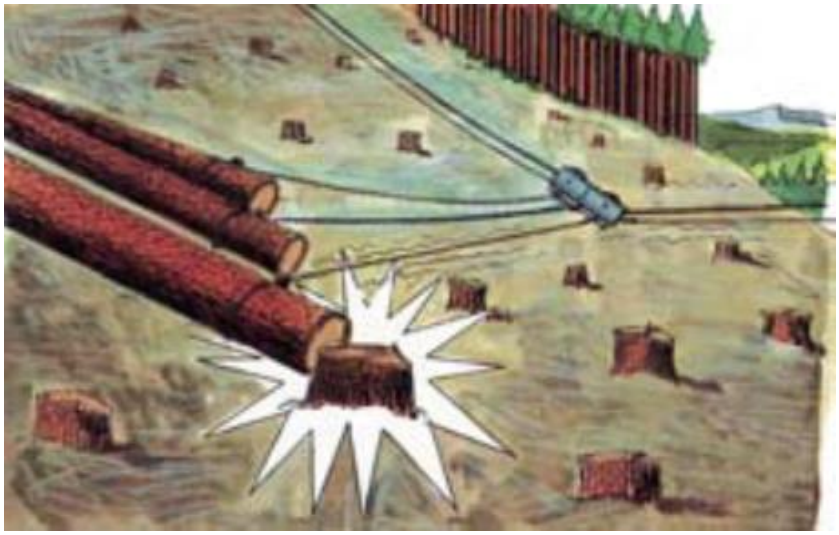
Remember these additional points when setting chokers:

- Standing with your back to the tower, always go over the top of the log with the knob of the choker
- When pulling chokers, walk over and free the choker if it hangs up
- Watch for unstable logs when setting chokers
- Do not stand directly under the rigging. Equipment could fail. The rigging could hang up in a sapling or other object and break free, causing the rigging to drop
- If the rigging does hang up in saplings or other objects, move the lines and rigging to clear it
- Take the top logs first when selecting turns
- Always set chokers from the upper side, whenever possible
- Get in the clear, above and behind the turn
- Do not gut-hook logs

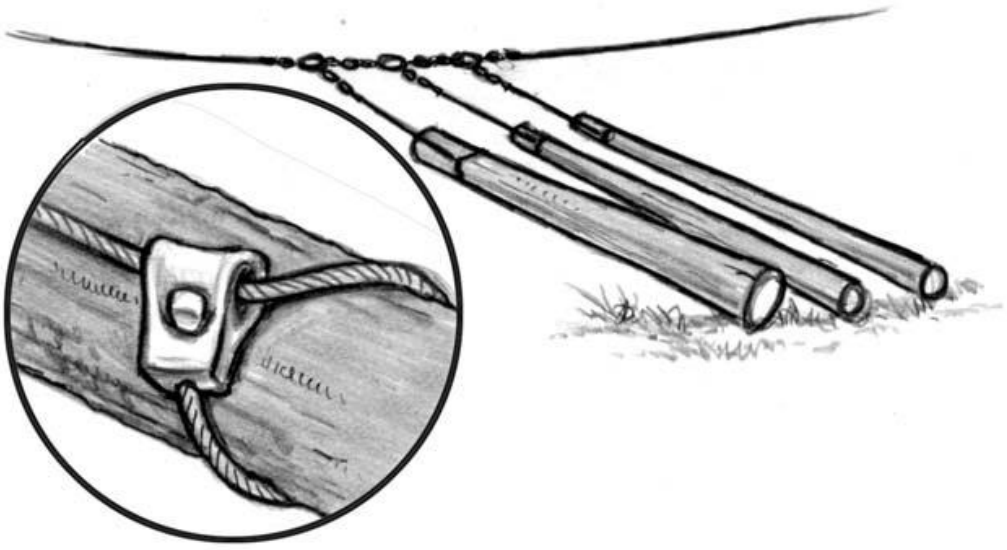
Set the largest log with the front choker



Stand in the clear when moving the rigging



Beware of chokers under tension. Stand in the clear



Choke logs with a short end. Hook heavier logs on the front choker

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**IMPORTANT!**

Never touch a moving line with any part of the body. Do not ride moving hooks, lines, or logs, or use a moving cable as an assist when walking uphill.

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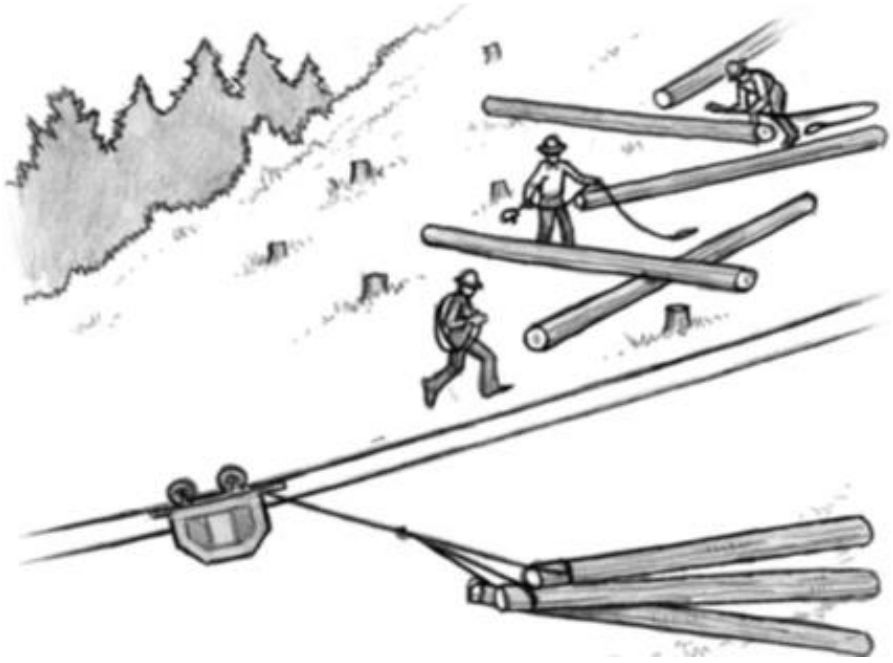


Danger trees and partially pulled-over trees must be removed before yarding commences or continues in the hazardous area

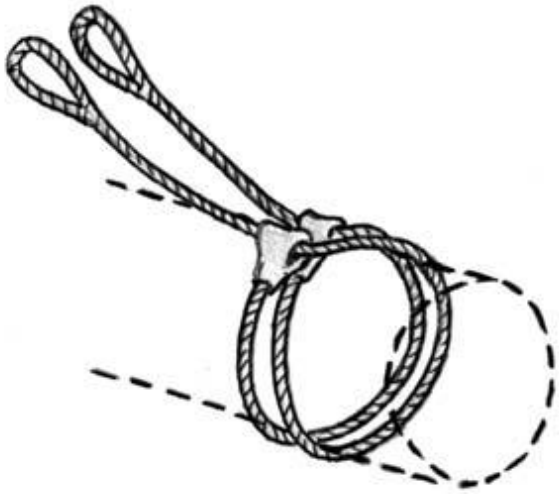
# Chokers for larger logs

Certain logs may require special treatment. In some instances it may be necessary to use more than one choker to move a log. The three alternative hitches commonly used are:

- Swede hitch or popeye
- Bridle hitch
- Half hitch

## Swede hitch or popeye

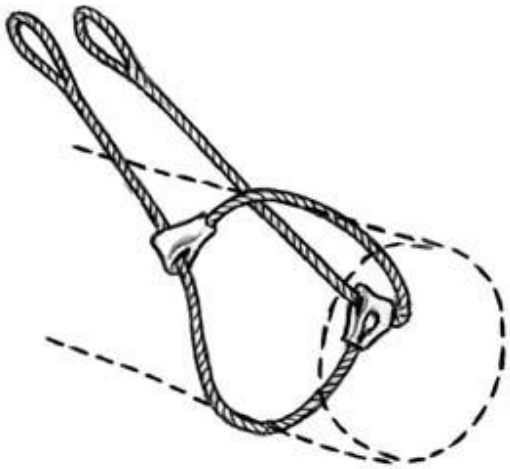
Uses two chokers on a heavy log when one choker may not be strong enough to carry the log.



Swede hitch

## Bridle hitch

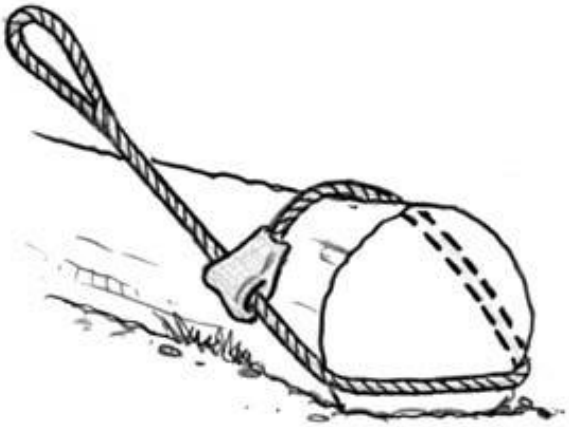
Uses two choker lengths to encircle a large log, when one choker is too short.



Bridle hitch

### Half hitch

Useful when the end of a log cannot be raised from the ground to get a choker underneath. Set the upper end of the choker around the log as usual, and the bottom end around the lower part of the log as close to the bottom as possible.



Half hitch

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**CAUTION!**

Swede and bridle hitches can overload the mainline and cause it to break. It is always safer and easier to have a “bull-choker,” a larger-than-normal choker, but still smaller than the mainline.

Alternatively, have the chaser make some longer-than-normal chokers, roughly 40 feet long. Standard chokers on a tower are 26 feet long.

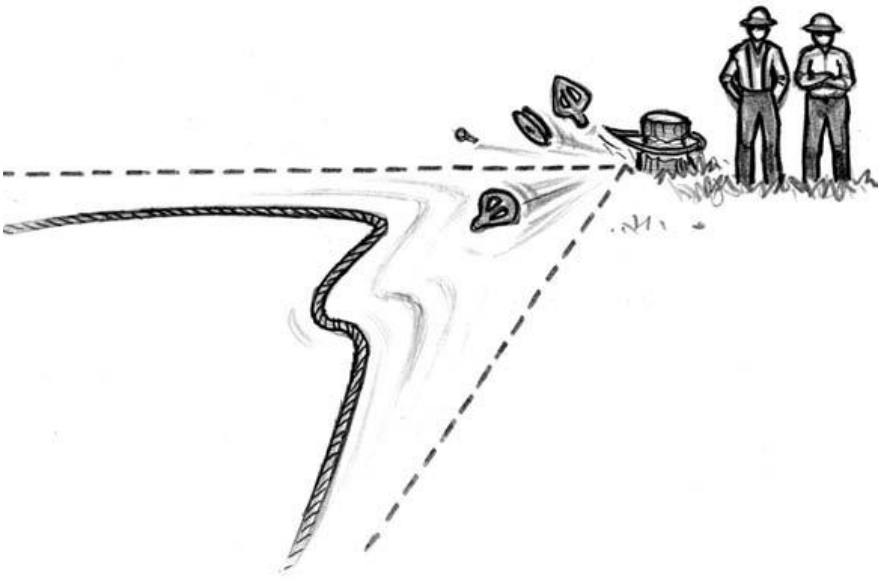
---

## Get in the clear

Once the chokers are set, the rigging crew must get in the clear before the go ahead whistle is blown by the rigging slinger. Always get in clear before lines begin to move. Never touch a moving line.

Remember the following:

- Move away from the turn, above or behind, and clear of the bight of the line
- Ensure the area where the crew stands is free from any log movement or potential for debris to enter from above
- Remain standing and face the turn



Stay a minimum of one strap length clear of corner blocks in case of failure

Stay 1 1/2 tree lengths clear of any standing trees being used as a tail hold or backspar when the lines are moving.

## Signal the turn to the landing

When the rigging crew is in the clear, the rigging slinger blows a go ahead signal, and the crew must watch the turn until it is yarded free. Blow a “go ahead slow” signal if there is any question about the turn, such as length or action of the logs in the turn. Watch for debris picked up by the logs or rigging that could roll back at the crew.

With signals to the yarder engineer, the rigging slinger controls the speed on the mainline and how fast the carriage pulls in at the same time. The drop line needs to pick up fast enough to avoid hang-ups that could break a choker and send a log back down the hill. Never allow suspended logs to overhang the crew. Consider how long to leave the dropline out of the bottom of the carriage. A longer dropline can cause hang-ups and difficulty landing the turn.

## Hang-ups

Hang-ups should be fought by repositioning the choker, rather than by repeated signals. Remember these points when fighting hang-ups:

- Slack the rigging before entering the area
- Approach hang-ups from the upper side
- Watch for saplings sprung ahead of the turn
- Do not go below the turn
- Get in the clear before signaling any line movement
- Ensure you are well in the clear when upending or swinging a log. The log does not always swing in the intended direction

- Consider moving the road line if hang-ups keep occurring in the same area

Rigging must be slacked before workers enter the turn

The best way to clear a hang-up is to reposition the carriage or choker to avoid the obstacle. Other techniques are possible, including the jump, kick, or roll (see diagrams). The hooktender or rigging slinger is generally the person who “fights” a hang-up. Signal to stop the turn, and slack the rigging before approaching the hang-up. Always approach a hang-up from the upper side and stay alert for hazards.

## Work rules for hang-ups

Only approach a hang-up after the rigging has been slacked. Approach from above the hang-up and be alert for the danger of logs rolling or sliding, widowmakers, and danger trees.

## Dealing with hang-ups

Repositioning the rigging can direct yarding forces to overcome obstacles. Common solutions to deal with hang-ups include the following:

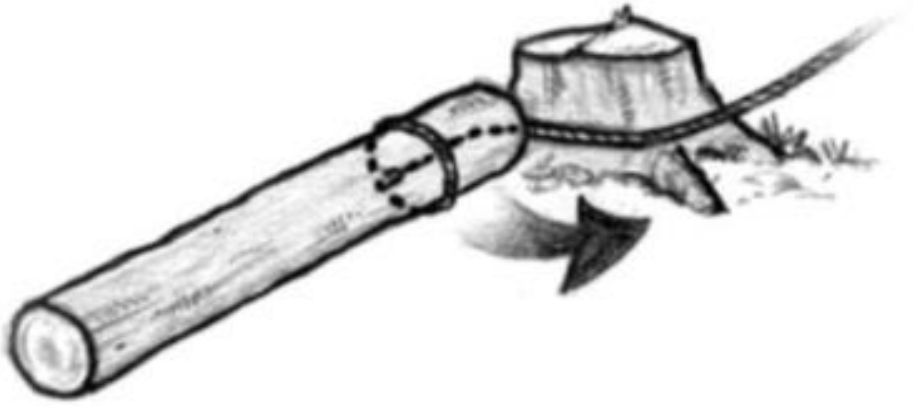
- Jump
- Kick
- Roll

### *Jump*

Position choker bell under log and run the line lead over the obstacle.

***Kick***

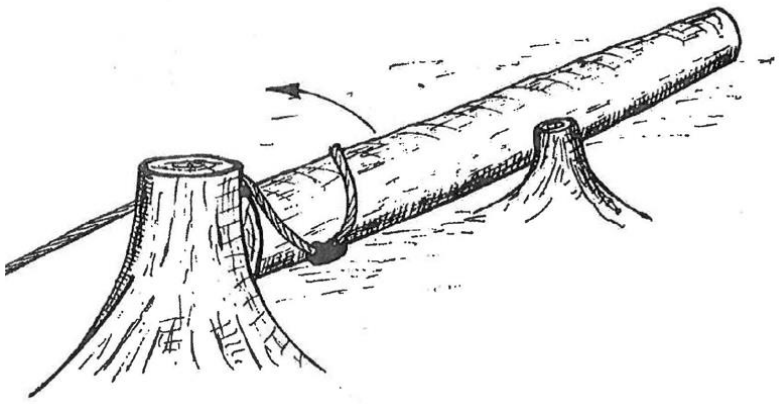
Position choker opposite the direction of pull and run the line lead around the end of the log and around the obstacle.



***Roll***

Slide the strap around the log opposite the direction of pull so the line lead wraps around the log.

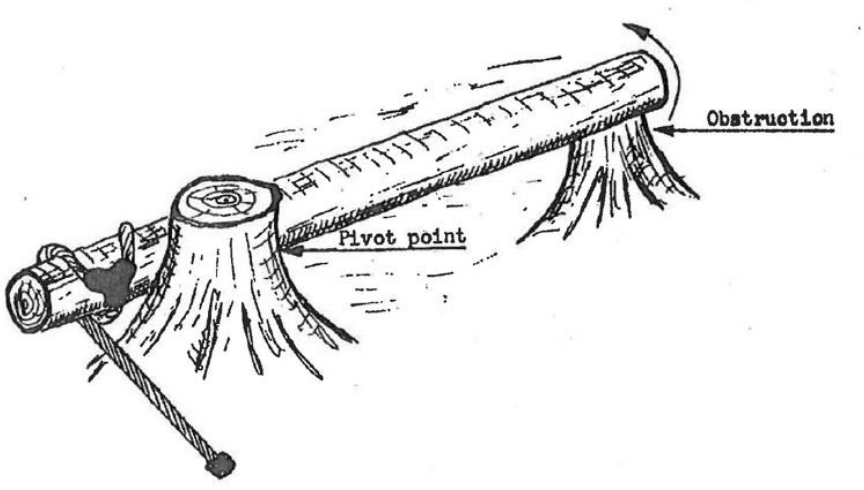
Here’s another picture of the roll.



In yarding, a roll is often used to free a log that has butted up against a stump. The choker should be installed on the log so a cinching bite is formed against the direction of the pull. The bell should be pulled under the log or as far as the contact with the ground will permit. The lead end then returns over the top of the log and around the far side of the stump to the butt rigging. When the power is applied, the log will roll clear of the obstruction. It is advisable to slack the haulback before going ahead to insure the choker will stay in position.

## Undercant

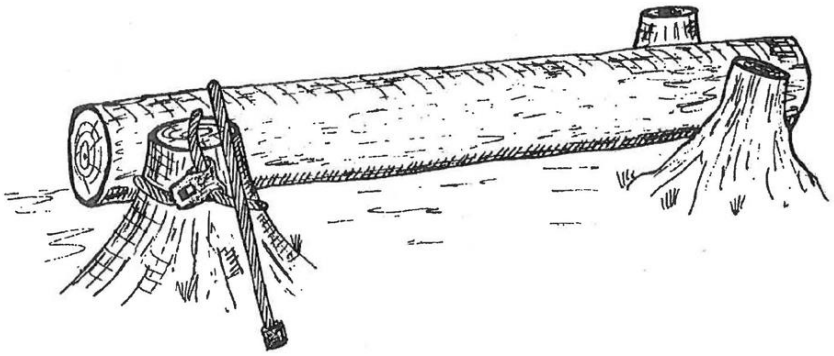
Sometimes the use of an undercant is expedient in freeing a log that is prevented from swinging free by a low obstruction beyond the pivot point. With the undercant, as the word implies, the force is exerted from the bottom as the choker is installed, so the lead end exits under the log in front of the pivot point. When the strain is applied, the lever effect at the pivot point in combination with the reverse roll removes the back end from the obstruction and leaves it free to swing clear.




## Parbuckle

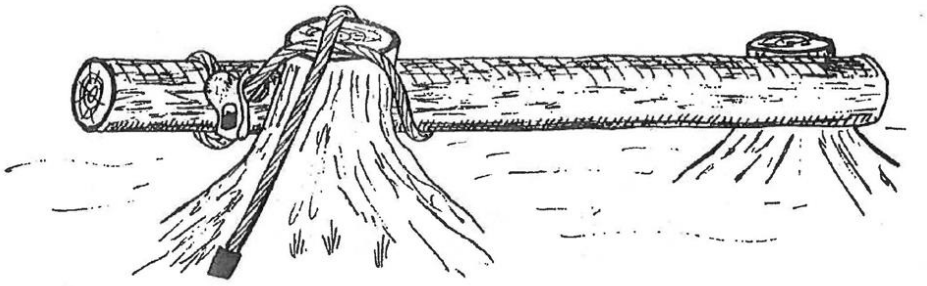
When a log is behind a stump, crossways to the direction of the pull, and the high lead is not sufficient to lift it over, it can be effectively

removed by employing the parbuckle. To apply, first set the choker on the stump from which you want the log removed. Have the bell facing in the direction of the pull. Double the bight back over the top of the stump preferably on the center line. Then, down between the back of the stump and front of log. Pass end under log and bring it back over the top to lay over stump in the direction of pull. When the force is applied, the choker rolls the log up and over the stump. At this stage, the choker must be reset on the log for final removal.



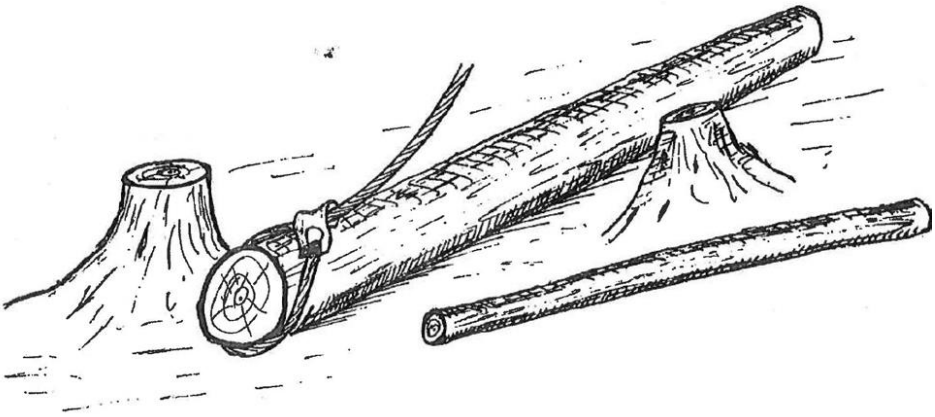
## Flying parbuckle

This serves the same purpose as the parbuckle, but does not entail the delay of stopping and resetting the choker on the log. The choker is first set on the log, preferably with bight upwards. The bight of the choker is then placed over the top of the stump at the most forward edge. The end is then passed under the log from front to back and continues around the log until it emerges over the top of the stump in the direction of the pull. When the strain is applied, the log rolls over the stump and is free to continue on its way.



## Half hitch

When a log is embedded in the ground and it is impossible or impractical to set the choker in the conventional manner, this temporary holt may be set to remove the log to a more advantageous position.



To apply a half hitch, make a noose with your choker and install over the end of the log most distant from the direction of pull. Enough slack should be allowed so the bell can go well forward on the log as illustrated. It is advisable to slack the haulback before going ahead. This lessens the danger of the choker lifting off the end of the log.

Now try the quiz on the next page.

# Choke Log in Accordance with Job Requirements—Self-Quiz

1. Do you choke logs in the middle or near the end to reduce the hazard of swinging logs and make landing the turn easier?

   ☐ Middle

   ☐ Near the end

2. When using a shotgun carriage or buttrigging, should you place the lightest and shortest logs or the heaviest and longest logs in the front chokers to facilitate yarding and landing?

   ☐ Lightest and shortest

   ☐ Heaviest and longest

3. For large logs when the choker is too short, which of the following should you use?

   ☐ Swede hitch

   ☐ Bridle hitch

   ☐ Half hitch

4. Once the chokers are set, the rigging crew must get in the clear before the “go ahead” whistle is blown by the rigging slinger.

   ☐ True

   ☐ False

5. What signal is blown signal if there is any question about the turn, such as length or action of the logs in the turn?

   ☐ “Stop”

   ☐ “Go ahead slow”

6. If a hang-up occurs, you should always approach it from which side?

   ☐ Lower side

   ☐ Upper side

7. Identify the best way to deal with hang-up:
   Slide the choker around the log opposite the direction of pull so the line lead wraps around the log.

- ☐ Jump
- ☐ Kick
- ☐ Roll

8. Identify the best way to deal with hang-up:
   Position choker bell under log and run the line lead over the obstacle.
   - ☐ Jump
   - ☐ Kick
   - ☐ Roll

9. Identify the best way to deal with hang-up:
   Position choker opposite the direction of pull and run the line lead around the end of the log and around the obstacle.
   - ☐ Jump
   - ☐ Kick
   - ☐ Roll

10. Identify the best way to deal with hang-up:
    Creates a lever effect at the pivot point.
    - ☐ Undercant
    - ☐ Parbuckle
    - ☐ Flying parbuckle
    - ☐ Half hitch

11. Identify the best way to deal with hang-up:
    After the choker rolls the log up and over the stump, the choker needs to be reset on the log for final removal.
    - ☐ Undercant
    - ☐ Parbuckle
    - ☐ Flying parbuckle
    - ☐ Half hitch

12. Identify the best way to deal with hang-up:
    The bight of the choker is placed over the top of the stump at the most forward edge.
    - ☐ Undercant
    - ☐ Parbuckle

- ☐ Flying parbuckle
- ☐ Half hitch

13. Identify the best way to deal with hang-up:
    This is used when the log is embedded in the ground and it's impractical to set the choker in the conventional manner.

    - ☐ Undercant
    - ☐ Parbuckle
    - ☐ Flying parbuckle
    - ☐ Half hitch

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Now check your answers on the next page.

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# Choke Log in Accordance with Job Requirements—Quiz Answers

1. Do you choke logs in the middle or near the end to reduce the hazard of swinging logs and make landing the turn easier?

   Answer: **Near the end**

2. When using a shotgun carriage or buttrigging, should you place the lightest and shortest logs or the heaviest and longest logs in the front chokers to facilitate yarding and landing?

   Answer: **Heaviest and longest**

3. For large logs when the choker is too short, which of the following should you use?

   Answer: **Bridle hitch**

4. Once the chokers are set, the rigging crew must get in the clear before the “go ahead” whistle is blown by the rigging slinger.

   Answer: **True**

5. What signal is blown signal if there is any question about the turn, such as length or action of the logs in the turn?

   Answer: **“Go ahead slow”**

6. If a hang-up occurs, you should always approach it from which side?

   Answer: **Upper side**

7. Identify the best way to deal with hang-up:
   Slide the choker around the log opposite the direction of pull so the line lead wraps around the log.

   Answer: **Roll**

8. Identify the best way to deal with hang-up:
   Position choker bell under log and run the line lead over the obstacle.

   Answer: **Jump**

9. Identify the best way to deal with hang-up:
   Position choker opposite the direction of pull and run the line lead around the end of the log and around the obstacle.

   Answer: **Kick**

10. Identify the best way to deal with hang-up:
    Creates a lever effect at the pivot point.

    Answer: **Undercant**

11. Identify the best way to deal with hang-up:
    After the choker rolls the log up and over the stump, the choker needs to be reset on the log for final removal.

    Answer: **Parbuckle**

12. Identify the best way to deal with hang-up:
    The bight of the choker is placed over the top of the stump at the most forward edge.

    Answer: **Flying parbuckle**

13. Identify the best way to deal with hang-up:
    This is used when the log is embedded in the ground and it's impractical to set the choker in the conventional manner.

    Answer: **Half hitch**

# Key Point 4.3: Control Rigging including Spotting the Rigging, Picking the Turn, and Identifying the Hazards in Accordance with Job Requirements

## Rigging slinger

The rigging slinger assists the hook tender in laying out the setting and takes a lead role once logging begins. This includes the following:

- Planning the logs for each turn
- Supervising the rigging crew
- Determining a safe location for the crew to stand when turns are yarded

### Rigging crew

Using a whistle, the rigging slinger directs the movement of the rigging and choking of the logs. The rigging slinger needs to keep a sharp eye out for unstable logs or objects and alert the crew to specific hazards that develop during the yarding process.

The rigging slinger starts working a road-line at the front of the road and work towards the back, not always top to bottom. The idea is to continuously work so the logs that get bumped or fall out of the turn will roll downhill while the crew stays to the high-side in the clear. Extra caution is required until yarding activity is clear of the landing and guylines, where the close working conditions increase hazards.

Only one worker can give signals or voice communication to move the rigging. Any person in the crew is authorized to give a stop signal in an emergency situation. If the rigging slinger is also the hooktender and must leave to perform other tasks, a qualified chokersetter must be designated with supervision and communication responsibilities for the crew in the interim.

Knowledge of the following basic work procedures related to the rigging crew is essential to avoid injury and maintain effective production.

**IMPORTANT!**

Stay alert for hazards.

The rigging slinger needs to keep a sharp eye out for unstable logs or objects and alert the crew of specific hazards in each setting.

## Spotting the rigging

- The rigging slinger will spot the rigging where the chokers are being set
- Once the rigging has been spotted, the crew must remain in the clear until the rigging stops swinging. Never stand directly under elevated rigging. Equipment could fail or a hung line could break free unexpectedly. Get in and get out
- The rigging is usually kept elevated until the chokers are untangled
- The rigging slinger will signal to slack the lines slowly to enable the chokersetter to pull the chokers to the turn

## Selecting and choking the turn

The rigging slinger will select the turn and spot the rigging, and tell the chokersetters which logs to choke. Effective communication and teamwork among crew members is critical. The following main points about setting chokers affect the rigging slinger's selection:

- Always approach and set chokers from the upper side, unless it is certain the log will not move
- Choke logs near the end to reduce the hazard of swinging logs and make landing the turn easier. Avoid gut-hooking logs
- Choke logs at the end nearest the yarder, so they are less likely to upend or swing
- Select logs and attach the chokers so the logs will pull clear of the stumps, felled timber, and other obstacles, and require little digging. Choose logs from the top of the pile first
- If logs are brushed up, yard out a light turn from behind to clear out the brush

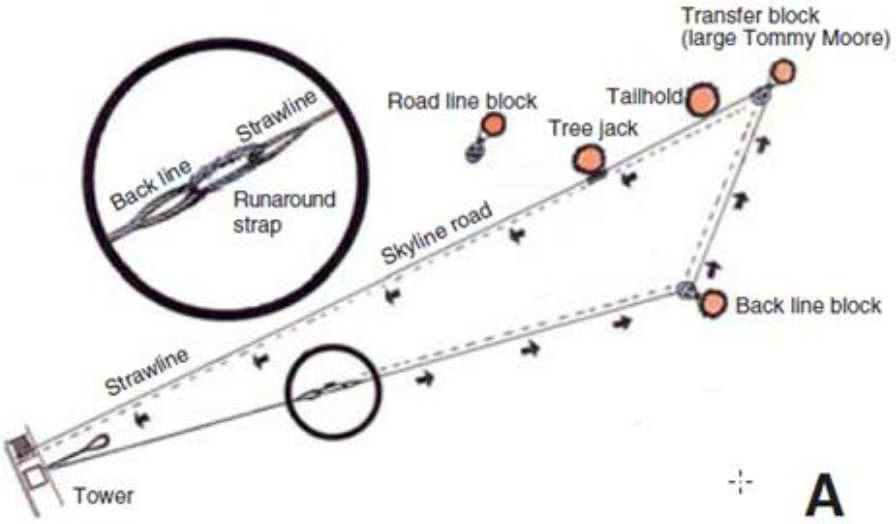
## Rigging skylines

### Work procedure for pulling cable (Skylines)

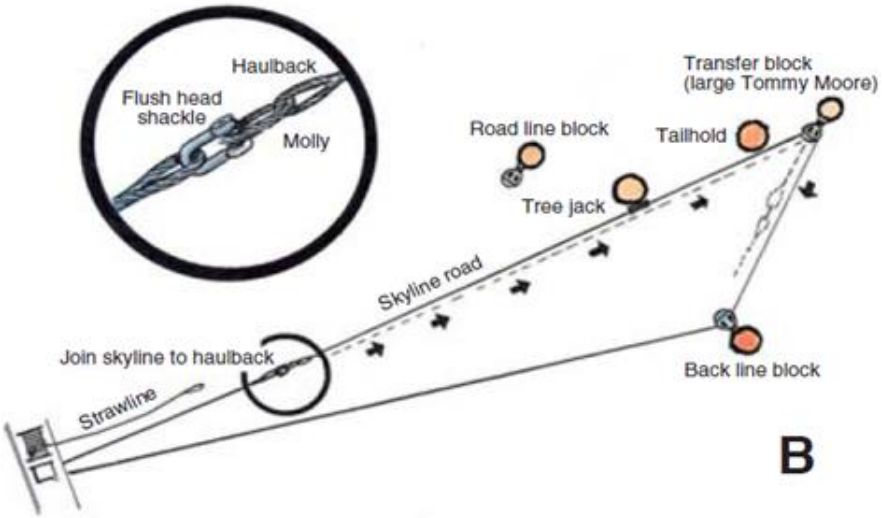
1. String the strawline out to the skyline anchor around through the haulback block and then through the transfer block (large Tommy Moore block) and backspar jack.
2. String the strawline down the skyline road line back to the landing.
3. Attach the strawline to the haulback eye, and use the strawline to pull the haulback around through the haulback block to the skyline tailhold and then through the backspar jack back to the landing.

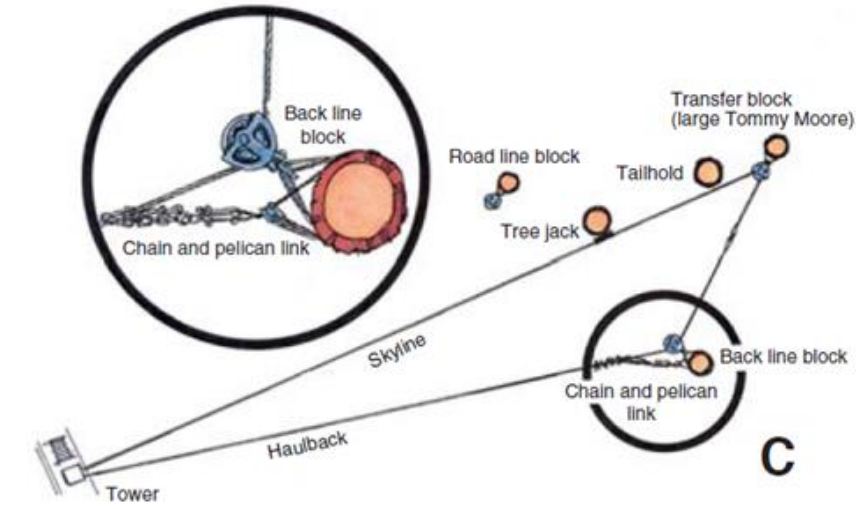
4. Attach the eye of the haulback to the skyline eye with a cable connector.
5. Hang the transfer block behind the skyline tailhold. This will allow enough skyline slack to attach the skyline end around the tailhold.
6. Pull the cable end back to the transfer block behind the tailhold and stop.
7. Using the pass chain and finger link (or pelican hook) with snubbing strap, chain the cable to the anchor so the finger link (pelican hook) is positioned in front of the skyline tailhold.
8. Secure the haulback on the machine side with another pass chain below the haulback block (downhill side).
9. With the skyline (cable) chained, disconnect the haulback from the eye of the skyline.
10. Secure the end of the skyline around the skyline tailhold.
11. Use a skyline knock-out shackle with the pin up and with the bell of the shackle on the bight of the skyline.
12. Secure the pin to prevent accidental dislodgment.
13. Ensure the skyline is sitting in the notch and there is no excessive bight in the skyline.
14. Release the skyline chain and finger link (pelican hook) from the skyline. Stay out of the bight.
15. To ease off tension on the skyline pass chain, you can use a pass chain to a come-along or a block and tackle.
16. Have the operator tension the skyline to ensure it is well seated in the notch, and ensure the skyline tailhold is secure. Stand in the clear and out of the bight while picking up on the skyline.
17. Restring the back line and connect the back line to the pre-strung road line strawline through the road line and back line haulback blocks.
18. To take the chain off of the haulback, tension the strawline enough to pull slack.
19. Pull the haulback to the landing with the strawline.
20. Attach the haulback to the skyline carriage or rigging.
21. Clear the lines and ensure there are no side binds.

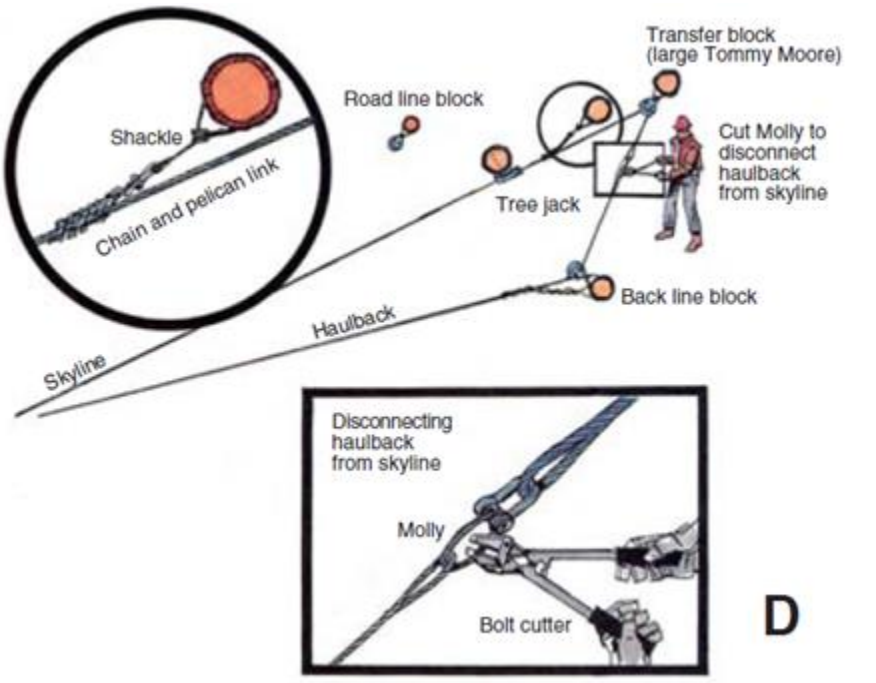
Equipment required at the tailhold

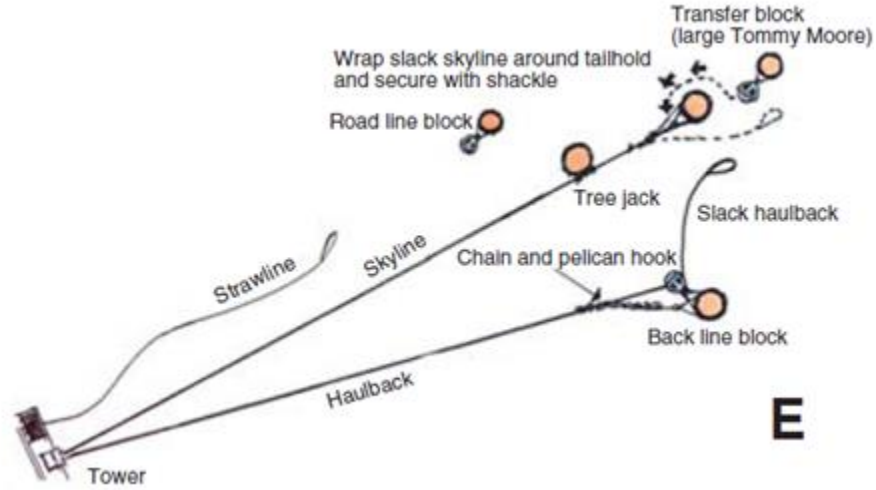


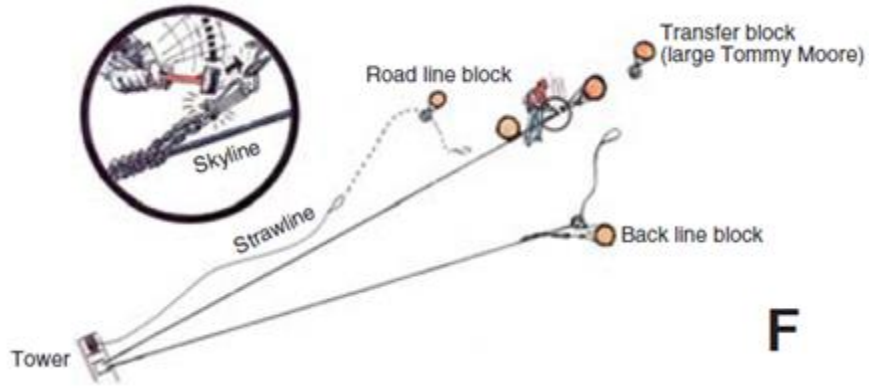

The haulback may be run around using a strawline connector. However, Molly Hogans are a more secure method.

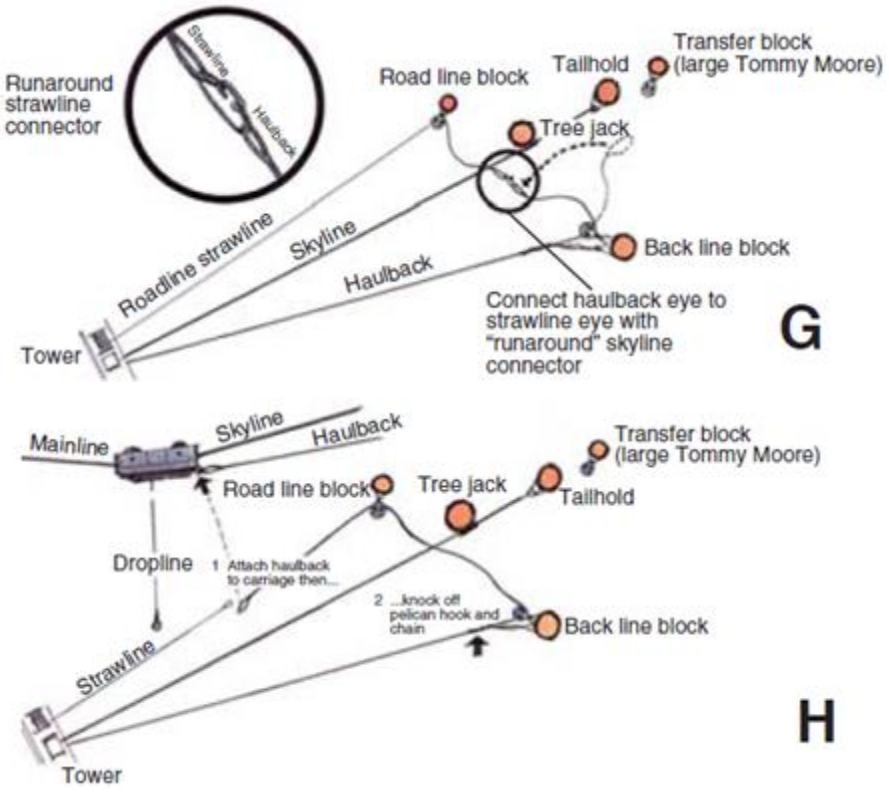



Transfer block
(large Tommy Moore)
Road line block
Shackle
Chain and pelican link
Tree jack
Cut Molly to
disconnect
haulback
from skyline
Back line block
Haulback
Skyline
Disconnecting
haulback
from skyline
Molly
Bolt cutter
D


Transfer block
(large Tommy Moore)
Wrap slack skyline around tailhold
and secure with shackle
Road line block
Tree jack
Slack haulback
Strawline
Skyline
Chain and pelican hook
Back line block
Haulback
Tower
E


Transfer block
(large Tommy Moore)
Road line block
Skyline
Strawline
Back line block
Tower
F



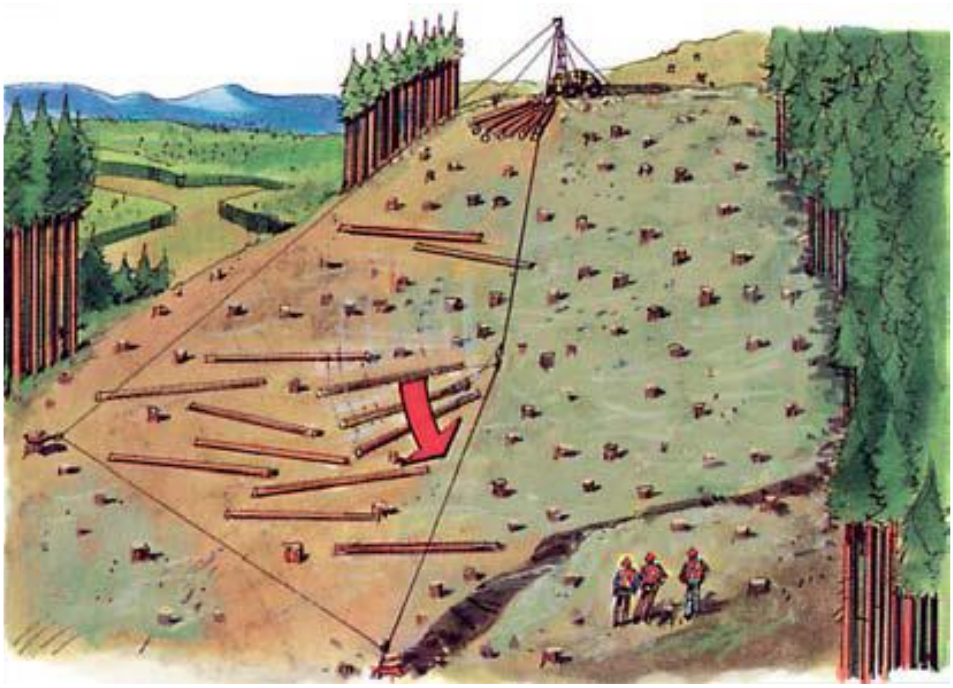

**Standing in the clear means:**

- In the logged-off area, if possible
- Above and behind the turn
- Clear of swinging logs
- Out of the bight

## Snubbing the skyline

The skyline should be snubbed in when yarding downhill. This will enable the yarding engineer to spool the cable in a proper manner. The strawline may be used for this, but if the sidehill is extremely steep, then the haulback is recommended for snubbing.

- Stand facing the rigging when it is moving
- Stand clear of flying chokers
- Spot the rigging where the turn is selected
- To stop chokers from swinging before entering the work area, slack down or pick up rigging until the choker bells are touching the ground
- When leaving the turn, ensure the crew is in the clear by having the rigging slinger be the last to leave



In the clear

## Logs behind the tailhold

Planning can minimize the practice of yarding behind backspars or tailholds. However, if this practice needs to be used, the turn should be yarded to the skyline before being yarded forward.

## Rigging rating

Rigging should be selected and used according to the manufacturer's rating. Where low gear ratios or other devices are installed to increase line pull, the size of the rigging must be increased accordingly so that it will safely withstand the increased loads.

## Choker size

The accepted industry practice is that the choker size is determined by the:

- Mainline size
- Timber size

The choker size must never be equal to or exceed the mainline diameter.

## Side binds

A side bind is an unintentional bight in the line caused by trees, stumps, or other objects, preventing the line from running straight.

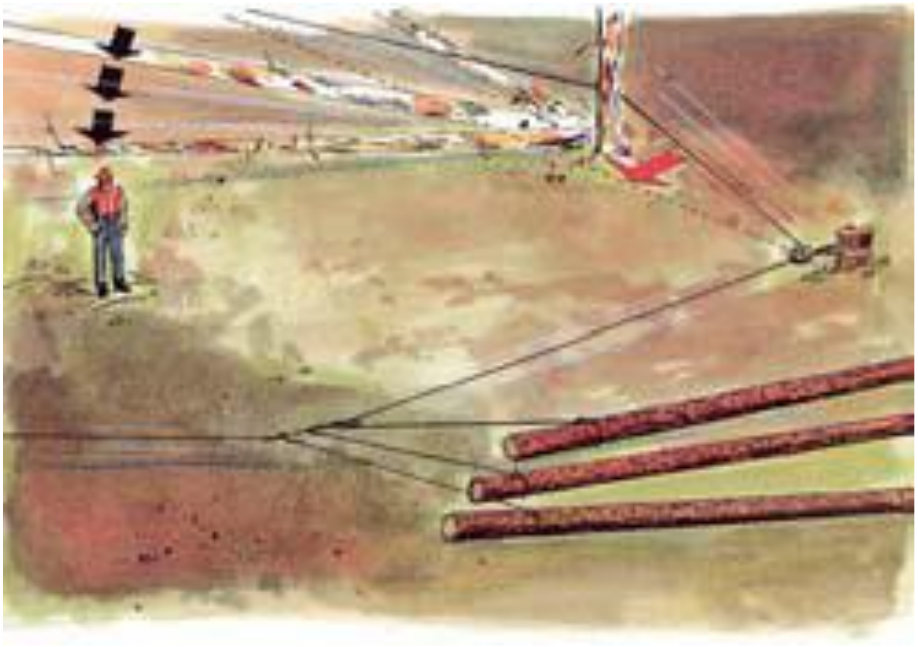
Remember to:

- Always string lines straight
- Clear side binds immediately

- Never get in the bight of a side-bound line

Hazards created by side-bound lines include the following:

- Fire hazard
- Lines that do not run freely because they are cut into stumps, logs, or other material
- Objects thrown in the air, striking workers because the line is side-bound under a chunk or debris



Worker in the bight will be hit by a side-bound line

## Runaway logs

Runaway logs may be a danger during yarding:

- When workers are below the landing, logs, chunks, and other debris may be dislodged into their work area
- During downhill yarding, turns may create runaway logs that go into the landing

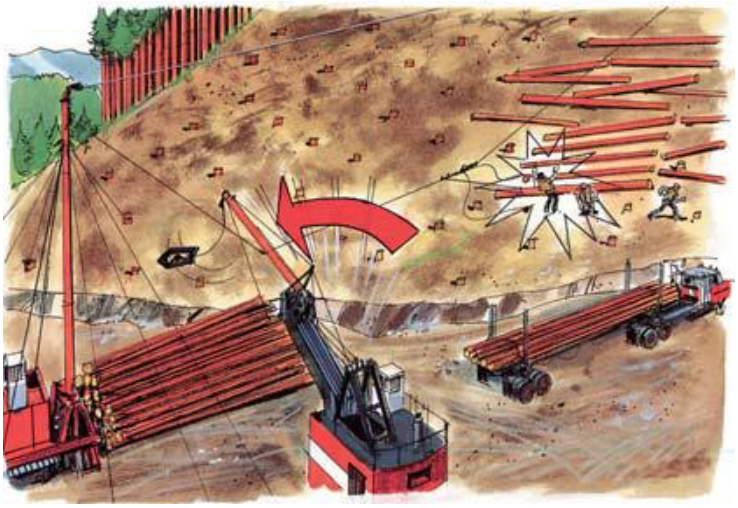
Follow these safe work practices:

- Always go in the clear and out of the bight
- During downhill yarding, the logged-off side is generally the safest, as long as you are out of the bight
- Where the hazard of runaway logs exists, do not place the yarder in a hazardous position

Workers should not stand in the bight below the turn

## Machinery hitting running lines

When the rigging is out in the setting, log loaders should ensure they do not work where they may strike the yarding lines with logs or snorkels.



Snorkel boom hits yarding lines

# Control Rigging including Spotting the Rigging, Picking the Turn, and Identifying the Hazards in Accordance with Job Requirements—Self-Quiz

1. You should never stand directly under elevated rigging.

   ☐ True

   ☐ False

2. You should choke logs at the end furthest away from the yarder.

   ☐ True

   ☐ False

3. When leaving the turn, who should be the last to leave?

   ☐ Chokersetter

   ☐ Rigging slinger

   ☐ Landing Person

4. If you must yard behind backspars or tailholds (last resort), how should the turn be yarded?

   ☐ Yarded forward before being yarded to the skyline

   ☐ Yarded to the skyline before being yarded forward

5. When you increase the line pull, what must you do to the size of the rigging?

   ☐ Increase

   ☐ Decrease

6. When fighting hang-ups, what should you do before signalling any line movement?

   ☐ Get in the clear

   ☐ Slack the rigging

7. Never get in the bight of a side-bound line.

   ☐ True

   ☐ False

8. When workers are below the landing, logs, chunks, and other debris may be dislodged into their work area.

   ☐ True

   ☐ False

---

Now check your answers on the next page.

---

# Control Rigging Including Spotting the Rigging, Picking the Turn, And Identifying the Hazards in Accordance with Job Requirements—Quiz Answers

1. You should never stand directly under elevated rigging.

   Answer: **True**

2. You should choke logs at the end furthest away from the yarder.

   Answer: **False**

3. When leaving the turn, who should be the last to leave?

   Answer: **Rigging slinger**

4. If you must yard behind backspars or tailholds (last resort), how should the turn be yarded?

   Answer: **Yarded to the skyline before being yarded forward**

5. When you increase the line pull, what must you do to the size of the rigging?

   Answer: **Increase**

6. When fighting hang-ups, what should you do before signalling any line movement?

   Answer: **Get in the clear**

7. Never get in the bight of a side-bound line.

   Answer: **True**

8. When workers are below the landing, logs, chunks, and other debris may be dislodged into their work area.

   Answer: **True**

# Key Point 4.4: Understanding of Road Changes in Accordance with the Block

There are several procedures for road changes that involve stringing strawline through blocks at the new road line, then tightlining the yarding lines to the new location. Sometimes this is a clearly quicker choice, but these kinds of “jumps” in the line can be hazardous due to potential hang-ups and side binds. Even moving lines no farther than toward the corner block in the existing layout produces a very large bight area. Workers must stay well clear during line shifts that jump lines directly to the new location.

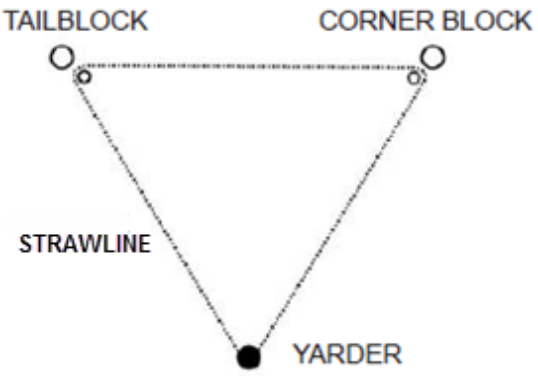
When jumping heavy lines on slopes or uneven ground, use a chain to keep the line from running away when the strawline is released. Attach the chain to the line and to a sapling or secure object.

The examples discussed here illustrate ways to rig-up and change roads in different setups such as the following:

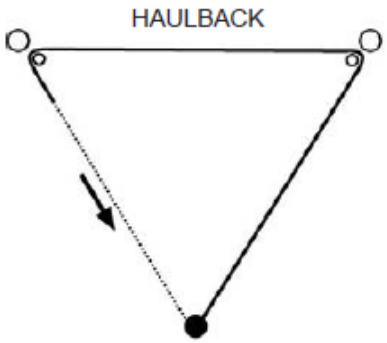
- Highlead: rig-up, road change, corner block change
- Skyline, shotgun, or gravity: rig-up, road change
- Skyline, slackline, rig-up, road change

## Highlead: rig-up

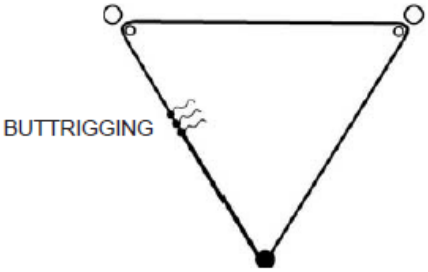
1. Make strawline layout (dotted line).




2. Hook one end of strawline to haulback.



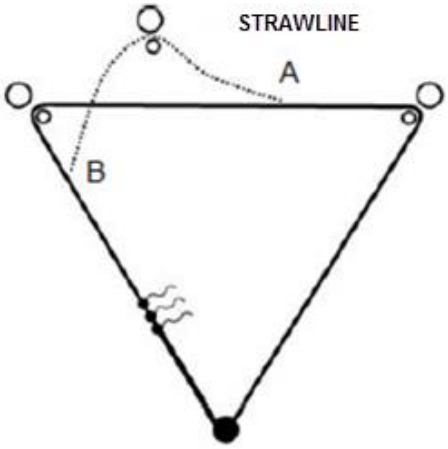

3. Ahead on strawline to pull haulback around layout.



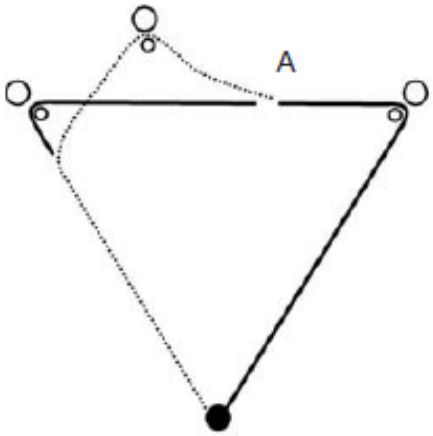

4. Hook up buttrigging between mainline and haulback at landing.

## Highlead: road change

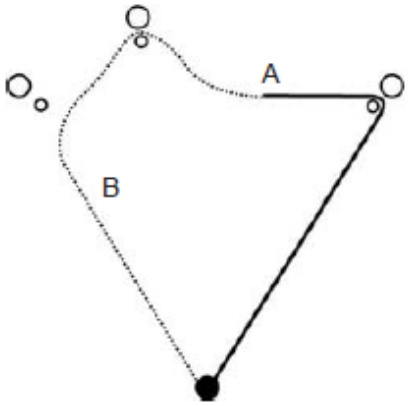
1. String strawline section(s) between points A and B.



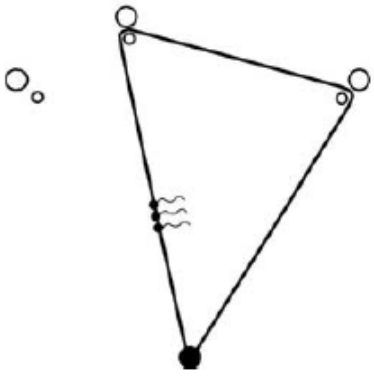

2. Disconnect haulback from buttrigging on landing.
3. Hook haulback to strawline on landing.




4. Ahead on haulback to pull strawline to point A.
5. Disconnect strawline from haulback.
6. Hook short section or sections (extensions) of strawline to haulback at point A.



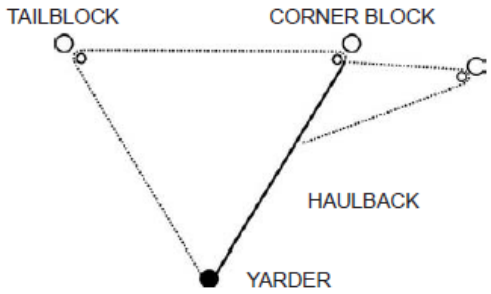

7. Ahead on strawline to pull back to point B.
8. Hook strawline to short section(s) of strawline at point B.
9. Ahead on strawline to pull haulback to landing.



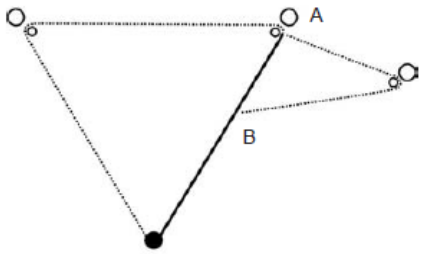
10. Hook up buttrigging at landing.

# Highlead: corner block change

1. Layout strawline section(s) (dotted line).

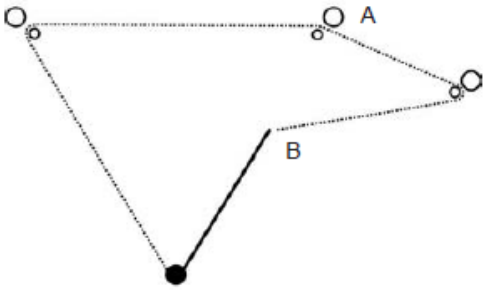



2. Hook haulback to strawline on landing.

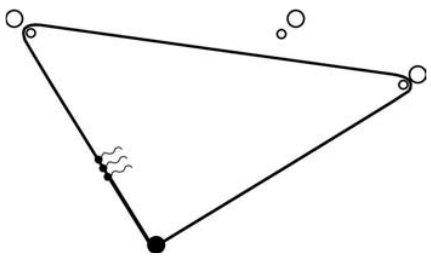



3. Ahead on haulback to pull strawline to point A.
4. Disconnect strawline from haulback.
5. Hook short section or sections (extensions) of strawline to strawline at point B.

*Note: It may be necessary to tie the haulback off to a sapling or stump to keep it from running down the hill.*




6. Ahead on haulback to pull back to point B.
7. Hook haulback to short section of strawline at point B.



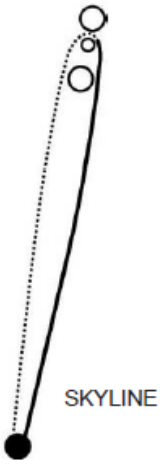
8. Pull strawline to pull haulback to landing.
9. Hook up buttrigging at landing.

## Skyline, shotgun or gravity system: Rig-up

1. Run strawline (dotted line).
2. Hook one end of strawline to skyline.

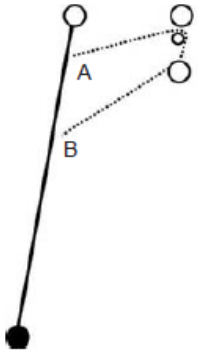
3. Ahead on strawline to pull skyline past tailhold.
4. Disconnect strawline and hook skyline to tailhold.
5. Tighten skyline.
6. Pull strawline to landing.

*Note: It may be necessary to tie off lines with a strap and rigging chain so the skyline does not run back downhill. Leave the strawline out to assist in pulling on the rigged line to loosen rigging chain and strap.*

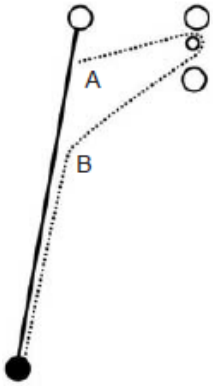



## Skyline, shotgun or gravity system: Road change

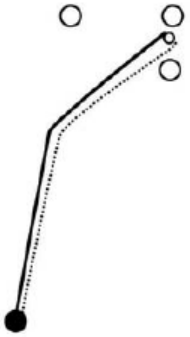
1. Layout section(s) of strawline as shown.
2. Hook strawline to carriage on landing.



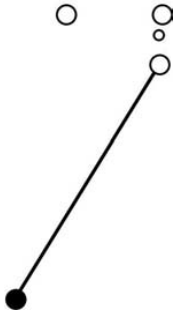

3. Use carriage to pull strawline from landing to point B.
4. Hook strawline to short section(s) of strawline at point B.
5. Take carriage back to landing.
6. Drop skyline.
7. Kick skyline loose of stump and pull skyline to point A.




8. Hook strawline section(s) to skyline at point A.
9. Go ahead on strawline to pull skyline past new tailhold.
10. Disconnect strawline and hook skyline to tailhold.

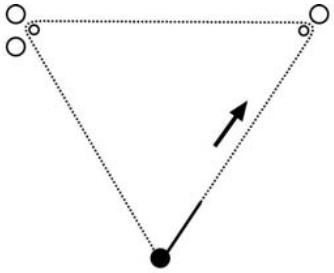


11. Tighten skyline.
12. Pull strawline to landing.

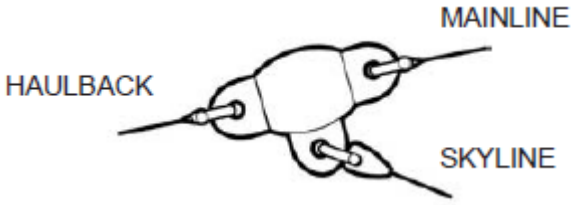


## Skyline, slackline system: Rig-up

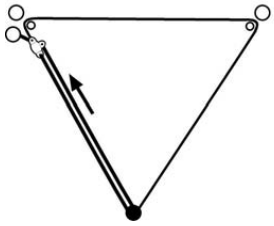
1. Make strawline layout (dotted line).



2. Hook one end of strawline to haulback at landing.
3. Ahead on strawline to pull haulback around layout back to landing.



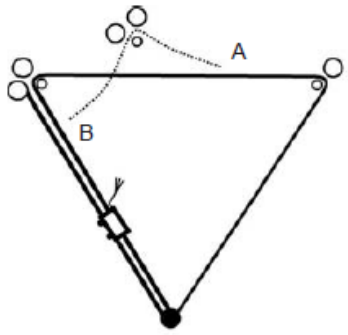

4. Hook a highlead barrel or swivel between haulback and mainline.
5. Hook skyline to middle of buttrigging barrel as shown.



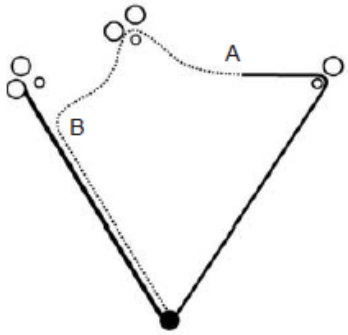
6. Pull on haulback to pull mainline and skyline back behind the tail stump.
7. Disconnect skyline and hook to tail stump.
8. Pull on mainline and pull haulback to landing.
9. Put on carriage.

# Skyline, slackline system: Road change

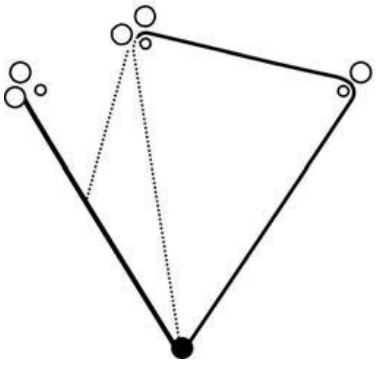
1. Split into two road changes. Move haulback to new tail block before moving skyline.



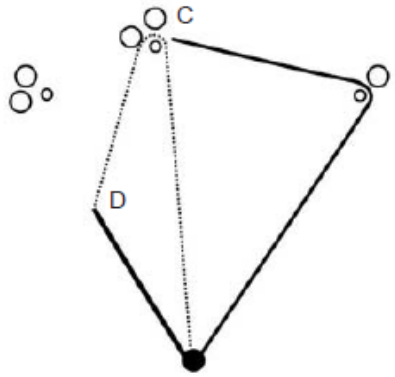

2. Layout strawline extension(s) between points A and B.
3. Hook haulback and strawline together at landing.



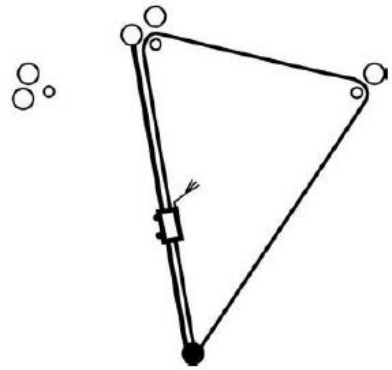

4. Ahead on haulback to pull strawline to point A.
5. Disconnect strawline from haulback at point A.
6. Hook haulback into strawline extension (s) at point A.
7. Ahead on strawline to point B.
8. Hook strawline into strawline extension (s) at point B.



9. Ahead on strawline to pull landing strawline to bring haulback to point C.
10. String strawline extension(s) from point C to point D.
11. Disconnect strawline from haulback at point C.




12. Hook strawline into strawline extension(s) at point C.
13. Slack skyline and unhook skyline from tailhold.
14. Pull skyline until end is at point D.
15. Hook strawline section(s) to skyline at point D.
16. Ahead on strawline to pull skyline to new tailhold.
17. Disconnect strawline from skyline.
18. Hook skyline to new tailhold stump.
19. Tighten skyline.
20. Hook haulback to strawline at point C.
21. Ahead on strawline to pull haulback to landing.



22. Hook up carriage.

Now try the quiz on the next page.

# Understanding of Road Changes in Accordance with the Block—Self-Quiz

1. Moving lines no farther than toward the corner block in an existing layout produces a small bight area.

   ☐ True

   ☐ False

2. When jumping heavy lines on slopes or uneven ground, what should you use to keep the line from running away when the strawline is released?

   ☐ A chain

   ☐ A double chain

3. Which of the following set-ups do you need to do a corner block change?

   ☐ Highlead System

   ☐ Skyline, Shotgun or Gravity system

   ☐ Skyline, Slackline system

Now check your answers on the next page.

# Understanding of Road Changes in Accordance with the Block—Quiz Answers

1. Moving lines no farther than toward the corner block in an existing layout produces a small bight area.

   Answer: **False**

2. When jumping heavy lines on slopes or uneven ground, what should you use to keep the line from running away when the strawline is released?

   Answer: **A chain**

3. Which of the following set-ups do you need to do a corner block change?

   Answer: **Highlead system**

# Section 1024-05: Supervision, Training, and Leadership

## What you need to know about this section

By the end of this section, you will be able to demonstrate your ability in the following key points:

5.1 Supervise chokerperson in a professional manner in accordance with job requirements

5.2 Think and plan ahead in accordance with block requirements

5.3 Train chokerperson in accordance with job requirements

# Key Point 5.1: Supervise Chokerperson in a Professional Manner in Accordance with Job Requirements

Remember the **four Fs** of good supervision:

- Treat people **Fairly**, but **Firmly**
- Be **Friendly** and **Flexible**

## Behaviour of leaders

The table below shows both directive and supportive behaviors required in supervising the chokerperson (an entry level position in yarding).

| **Directive behaviour** | **Supportive behaviour** |
|---|---|
| Sets goals and objectives and clarifies expectations | Encourages, reassures and praises |
| Plan and organizes work in advance | Listens and provides support |
| Identifies job priorities | Asks for suggestions or input |
| Clarifies the leader and employee roles | Explains why |
| Establishes timelines | Encourages self-reliant problem solving |
| Determines methods of evaluation and checks work | Makes information about the organization accessible |
| Teaches employees to do specific tasks | Discloses information about self |
| Closely supervises progress, monitors and evaluates performance | Encourages team work |
| | Involves other person in decision-making |

### Directive style

Directive style ensures safety for the inexperenced chokerperson. It also defines roles and tasks and requires a high level of supervision. Directive is best suited for new or unconfident workers. It is also useful in emergency situations when a clear and decisive leader is required.

### Supportive style

Supportive style motivates the chokerperson to do the task they already know how to do. It clarifies details about roles and tasks, praises and inspires the chokerperson. Supportive style encourages teamwork and promotes self-worth.

## Professional qualities

This picture shows the professional qualities of a supervisor.


The key qualities of being a professional also include the following traits in rigging slingers as they supervise chokerperson:

- Treat others as they would like to be treated
- Exude integrity
- Set the example
- Have humility
- Listen and communicate well
- Encourage the best in people
- Acknowledge others
- Freely delegate and built capabilities (in their staff)
- Multiply talent
- Lead employees to the right answers

## Focus on forestry

Within the forest sector, things can change in an instant, such as hazards, so be vigilant. Safety is paramount in yarding. You need to

be able to make difficult decisions based on the best information you have combined with your experience. However, know your own limitations and acknowledge when you require help. Keep up to date with current knowledge.

You should speak up, not only in praise, but also when you need to say what's uncomfortable to hear. Encourage workers to report on anything that discourages workplace safety and harmony within the team; silence can be deadly. And finally, be available to your staff and always be considerate of those working around you.


Now try the quiz on the next page.

# Supervise Chokerperson in a Professional Manner in Accordance with Job Requirements—Self-Quiz

1. For a new worker, which style is best suited?

   ☐ Directive

   ☐ Supportive

2. For emergency situations, which style should be used?

   ☐ Directive

   ☐ Supportive

3. Professional qualities include being able to listen and communicate well, and encouraging the best in people.

   ☐ True

   ☐ False

4. Within the forest sector, things can change in an instant.

   ☐ True

   ☐ False

5. Should you encourage workers to report on anything that discourages workplace safety and harmony within the team?

   ☐ Yes

   ☐ No

Now check your answers on the next page.

# Supervise Chokerperson in a Professional Manner in Accordance with Job Requirements—Quiz Answers

1. For a new worker, which style is best suited?

   Answer: **Directive**

2. For emergency situations, which style should be used?

   Answer: **Directive**

3. Professional qualities include being able to listen and communicate well, and encouraging the best in people.

   Answer: **True**

4. Within the forest sector, things can change in an instant.

   Answer: **True**

5. Should you encourage workers to report on anything that discourages workplace safety and harmony within the team?

   Answer: **Yes**

# Key Point 5.2: Think and Plan Ahead in Accordance with Block Requirements

## Rigging slinger responsibilites regarding the block

The rigging slinger is directly responsible for the safety, training, and supervision of the chokerperson. Essentially, he is the chokerperson's boss and is the second in command under the hook tender. In thinking and planning ahead pertaining to block requirements, the rigging slinger is responsible for the following:

- Be clear and consistent about where you are working when dealing with safety

Telling someone not to do an unsafe act, and then doing it yourself is being inconsistent in your training. Set a good example. Keep in mind that the experienced chokerpersons will one day be training new chokerpersons.

- His prime objective is to move as many logs as possible to the road in a safe manner
- Safely pick the turns
- Monitor the turns, ensuring a maximum turn size without overloading the lines.
- Ensure his chokerperson(s) are always in the clear
- Pay particular attention to the chokerperson's safety especially if they are inexperienced
- Stay on top of training and supervising the chokerperson, by teaching and demonstrating to him aspects of the job
- He must be able to take instructions from the hook tender and deliver it to the rest of the crew
- Constantly assess hazards and warn the crew if he encounters new ones

Now try the quiz on the next page.

# Think and Plan Ahead in Accordance with Block Requirements—Self-Quiz

1. Is it important to be clear and consistent in your training?

   ☐ Yes

   ☐ No

2. Who is the rigging slinger directly the boss to?

   ☐ Chokerperson

   ☐ Hook tender

3. Does the rigging slinger pick and monitor the turns?

   ☐ Yes

   ☐ No

4. The rigging slinger ensures that the chokerperson is in the clear.

   ☐ True

   ☐ False

5. Does the rigging slinger need to deliver instructions from the hook tender to the rest of the crew?

   ☐ Yes

   ☐ No

6. Is it necessary for the rigging slinger to constantly assess hazards?

   ☐ Yes

   ☐ No

Now check your answers on the next page.

# Think and Plan Ahead in Accordance with Block Requirements—Quiz Answers

1. Is it important to be clear and consistent in your training?

   Answer: **Yes**

2. Who is the rigging slinger directly the boss to?

   Answer: **Chokerperson**

3. Does the rigging slinger pick and monitor the turns?

   Answer: **Yes**

4. The rigging slinger ensures that the chokerperson is in the clear.

   Answer: **True**

5. Does the rigging slinger need to deliver instructions from the hook tender to the rest of the crew?

   Answer: **Yes**

6. Is it necessary for the rigging slinger to constantly assess hazards?

   Answer: **Yes**

# Key Point 5.3: Train Chokerperson in Accordance with Job Requirements

You need to be able to demonstrate your knowledge and ability to train a chokerperson in accordance with job requirements.

## How to train

What do good trainers do well?

- Know your audience and how much they know
- Know your subject matter and admit what you don't know
- Set the right tone and use the right style
- Keep control of the topic, of the time, and of the people
- Engage the learners, keep them active, and show how it affects them in the real world. Use stories and get their input
- Be clear. It's all about communication

When training a chokerperson, you must communicate effectively. Here are additional points:

Be clear and consistent about where you're working when dealing with safety. Telling someone not to do an unsafe act, then doing it yourself is being inconsistent. Set a good example.

Plan things out effectively for all crew members and different phases of logging that will be coming through. If directions are not followed, it will bottle neck somewhere and we could run into a snag.

It is important to listen and follow directions. There are times when this is imperative and the rigging slinger needs to be able to trust that the chokerperson will do what is asked.

## Be specific

Being specific means:

- Describing the task (what is to be done)
- Stating the purpose (why is it to be done)
- Describing the end state (how it should look when it is done)

Be clear in your communication of the task to be done, the purpose for which the task is done, and the end result that is expected.

In team work, the characteristics of high-performing teams as a result of good training are the following:

- People trust each other and feel respected
- Everybody is working toward the same goals
- Team members know how to accomplish tasks, their roles, and expectations.

- Everyone has a voice, and gets a chance to contribute during discussions
- Disagreements are managed, and are constructive. They are viewed as opportunities for problem-solving
- The team makes decisions when there is natural agreement – otherwise decisions are made by supervisors or managers. Decisions are respected
- Leaders are flexible, and make changes to drive results
- No individual members are more important than the team

Now try the quiz on the next page.

# Train Chokerperson in Accordance with Job Requirements—Self-Quiz

1. A good trainer knows the subject, but also admits what he doesn't know.

   ☐ True

   ☐ False

2. To be an effective trainer, you must keep control of the time, the people, and the topic.

   ☐ True

   ☐ False

3. In describing the task, it answers which of the following questions:

   ☐ What is being done

   ☐ Why it's being done

4. In stating the purpose of the task, it answers which of the following questions:

   ☐ What is being done

   ☐ Why it's being done

5. Is it important to describe the end state of the task?

   ☐ Yes

   ☐ No

6. A good leader is flexible, and will make changes to drive results.

   ☐ True

   ☐ False

Now check your answers on the next page.

# Train Chokerperson in Accordance with Job Requirements—Quiz Answers

1. A good trainer knows the subject, but also admits what he doesn't know.

   Answer: **True**

2. To be an effective trainer, you must keep control of the time, the people, and the topic.

   Answer: **True**

3. In describing the task, it answers which of the following questions:

   Answer: **What is being done**

4. In stating the purpose of the task, it answers which of the following questions:

   Answer: **Why it's being done**

5. Is it important to describe the end state of the task?

   Answer: **Yes**

6. A good leader is flexible, and will make changes to drive results.

   Answer: **True**