Lock Out Resource Package

Procedures and Tools for Locking Out Log Trucks and Other Logging Equipment

BC Forest Safety

Table of Contents

1) Introduction

The procedures for locking out mobile equipment is an important practice that must be clearly understood by everyone on your crew. Log haulers, equipment operators, mechanics and supervisors must all be familiar with how to secure the equipment from any unplanned movement on field sites and in the shop.

Lock out is best described as taking all the steps necessary to remove or secure energy sources so there will be no unexpected movement of the machine or equipment. The types of energy sources that need to be controlled include hydraulic, electrical and gravity. This could involve lowering all the attachments so they can't fall if there is a hydraulic leak, turning off the electrical power and computer so the grab arms on processor head won't unexpectedly close or blocking up a machine when a wheel is removed so if won't unexpectedly fall.

Remember that the equipment manufacturer is a good resource when you need lock out information that is specific to the make and model of a particular machine.

This package contains the following resources:

- Crew Safety Talk – Review this at the next monthly safety meeting or tailgate meeting to start the discussion on how lock-out should be done for your company's equipment.
- Lock Out Procedures – Procedures for log trucks, lowbeds, excavators, log loader/hoechucker, processor and wheel loader.
- Chock It, Block It, Lock It Safety Alert – An excellent safety alert that reminds operators and supervisor about the different ways that equipment can be stabilized.
- Fatality Alert – A log truck driver was fatally injured when the log truck he was working on rolled over him.
- Lock Out and Live Posters and Stickers – Free from the BC Forest Safety Council. A link to the order form is included.

2) Safety talk topic: lock out to live; chock it and lock it!

How to use this content?

1. Talk about this topic during a tailgate or other safety meeting.
2. Have workers practice their lock out procedures with their supervisors, or mentors present.
3. Demonstrate at the safety/tailgate meeting so everyone sees how to properly lock out the particular piece of equipment.

There were three incidents between July 2015 and January 2016 where a worker died under a vehicle.

1. On January 31, 2016, a 23 year-old man was killed after being run over by an empty logging truck that he and a co-worker were trying to repair. Both workers were driving the logging truck to a camp south of Fraser Lake when they stopped to fix a mechanical issue.
2. On October 14, 2015, an incident occurred in Ladysmith, Vancouver Island, when a worker was fatally injured while preforming repairs on a service truck. The truck was parked on a slope and began to roll while the worker was underneath.
3. On July 8, 2015 in the Cariboo region, a mechanic was fatally injured while working underneath a lowbed truck in a shop setting.

Conduct pre-trips and regular inspections

Pre-trip inspections are required for all equipment. A thorough inspection can identify mechanical problems that could result in upset conditions that create hazards for workers and slow down production. Pick a safe location for the inspection with adequate lighting, flat ground, and not crowded with other equipment or workers. Lock out while doing the inspection.

Chock it

When working on wheeled equipment, set the maxi/emergency brake before exiting the cab. When inspecting or repairing the machine, use chocking blocks to prevent movement; if blocks are not available, and you have to still proceed to go under the truck, do not do so until you have put sufficient measures in place to effectively prevent the wheels rolling back.

This is critically important when your task requires you to be under the vehicle or between the vehicle and a solid object! Life or death!

Think it through

An upset condition is any event that is unplanned including a mechanical breakdown. Most incidents happen when there is an upset condition. Plan your work carefully before trying to fix the conditions that may lead to you going under the vehicle.

Other resources:

Integrated Trucking Log Book – Example log books that will help with pre and post trip mechanical inspections: www.bcforestsafe.org/wp-content/uploads/2021/03/Drivers-Daily-Log_Triplicate_FINAL_0.pdf

More Info on Upset Conditions and RADAR: www.bcforestsafe.org/resource/radar/

3) Lock Out Procedures

All trucks and mobile equipment must be locked out when maintenance or inspection work is being done. This especially includes ‘change in conditions’ where a mechanical failure is suspected and workers do a ‘quick look underneath to see that the issue is’. Vehicles can roll on even the slightest slope if not secured, crushing a person under the vehicle or between the vehicle and a solid object. During shop and yard repairs, workers may not see the person working underneath the vehicle and if the vehicle or machine is moved, the person may be seriously injured or killed.

Implement a procedure for vehicle and equipment walk around checks prior to moving or driving. This allows the driver or operator to spot potential problems or people who are too close to the machine or truck.

Each vehicle/machine has a specific lock out procedure. Some examples of lockout include:

LOGGING TRUCK AND LOWBED LOCKOUT PROCEDURE FOR FIELD SITUATIONS

1. Stop in a wide, flat and visible location.
2. Exit truck wearing hi-vis vest and hardhat.
3. Notify other affected workers, public (where possible).
4. Apply parking (MAXI) brake.
5. Shut off truck, put truck in lowest gear or in reverse and place wheel chocks. If chocks are not available, use a method that gives equivalent security to prevent the vehicle from moving.
6. Put out safety triangles if on running surface of road.
7. Remove the key and keep it with you if working in a situation where another worker could start the truck.
8. Turn off master switch (if truck is equipped with master / night switch).
    a. Put lock and tag on master switch.
9. Bleed off any hydraulic or air pressure if applicable.
10. Test to verify zero energy (electrical-hydraulic-gravity).

TRUCK LOCKOUT PROCEDURE FOR SHOP SITUATIONS

1. Notify other affected employees.
2. Apply tractor parking (MAXI) brake.
3. Place wheel chocks.
4. Shut off engine.
5. Remove the key and keep it with you or in the shop lock box. Turn off master switch (if truck is equipped with master / night switch).
    a. Put scissor lockout hasp on master switch if more than one worker will be working the truck.
    b. Each worker working on the truck puts their personal lock and tag on hasp.
6. Bleed off any hydraulic or air pressure if applicable.
7. Test to verify zero energy (electrical-hydraulic-gravity).

EXCAVATOR LOCK OUT

Excavator Lockout - Tagout **(One person working on machine)**	Excavator Lockout - Tagout **(If more than one person working in machine)**	Excavator Tagout ***For machine without master switch***
Shut down procedure: 1. Notify other affected employees. 2. Lower bucket to ground. 3. Shut down engine. 4. Set hydraulic lockout lever. 5. Turn off master switch. 6. Put lock and tag on master switch. 7. Test to verify zero energy (electrical-hydraulic-gravity). **Start-up procedure:** 1. Remove lock from master switch. 2. Start machine.	**Shut down procedure:** 1. Notify other affected employees. 2. Lower bucket to ground. 3. Shut down engine. 4. Set hydraulic lockout lever. 5. Turn off master switch. 6. Each worker attach personal lock and tag to scissor lockout hasp on master switch. 7. Test to verify zero energy (electrical-hydraulic-gravity). **Start-up procedure:** 1. Each employee removes personal lock from scissor lockout hasp on master switch. 2. Start machine when all locks removed.	**Shut down procedure:** 1. Notify other affected employees. 2. Apply parking brake. 3. Lower bucket to ground. 4. Shut down engine. 5. Key out and in pocket. 6. Put lockout tag initialed by all workers on ignition switch. 7. Test to verify zero energy (electrical-hydraulic-gravity). **Start-up procedure:** 1. Each employee crosses off their initials on lockout tag when their work is completed 2. Start machine when all initials on tag crossed off.
		
Lockout tag (front)	**Lockout tag (back)**	**Scissor lockout hasp – with marked locks**

FELLER BUNCHER LOCKOUT

Feller Buncher Lockout - Tagout **(If one person working on machine)**	Feller Buncher Lockout - Tagout **(If two or more persons working on machine)**	Feller Buncher Tagout ***For buncher without master switch***
Shut down procedure: 1. Notify other affected employees. 2. Power off head. 3. Wait for saw to stop or stop against stump. 4. Lower head to the ground. 5. Shut down engine. 6. Set hydraulic lockout lever. 7. Turn off master switch. 8. Put on personal lock and tag on master switch. 9. Test to verify zero energy (electrical, hydraulic, & gravity). **Start-up procedure:** 1. Remove personal lock from master switch. 2. Start machine.	**Shut down procedure:** 1. Notify other affected employees. 2. Power off head. 3. Wait for saw to stop or stop against stump. 4. Lower head to the ground. 5. Shut down engine. 6. Set hydraulic lockout lever. 7. Turn off master switch. 8. Each worker attaches personal lock to scissor lockout hasp on master switch. 9. Test to verify zero energy (electrical, hydraulic, & gravity). **Start-up procedure:** 1. Each employee removes own lock from scissor lockout hasp on master switch 2. Start machine when all locks removed.	**Shut down procedure:** 1. Notify other affected employees. 2. Power off head. 3. Wait for saw to stop or stop against stump. 4. Lower head to ground. 5. Shut down engine. 6. Key out and in pocket. 7. Put lockout tag initialed by all workers on ignition switch. 8. Test to verify zero energy (electrical, hydraulic, & gravity). **Start-up procedure:** 1. Each employee crosses off their initials on lockout tag when their work is completed. 2. Start machine when all initials on tag crossed off.
		
Lockout tag (front)	**Lockout tag (back)**	**Scissor lockout hasp – with marked locks**

LOG LOADER-HOECHUCK LOCKOUT

Hydraulic Log Loader-Hoechuck Lockout - Tagout **(If one person working on machine)**	Hydraulic Log Loader Hoechuck Lockout - Tagout **(If more than one person working on machine)**	Hydraulic Log Loader Hoechuck Tagout ***For Machine without master switch***
Shut down procedure: 1. Notify other affected employees. 2. Lower log grapple to ground. 3. Shut down engine. 4. Set hydraulic lockout lever. 5. Turn off master switch. 6. Put lock and tag on master switch. 7. Test to verify zero energy (electrical-hydraulic-gravity). **Start-up procedure:** 1. Remove lock from master switch. 2. Start machine.	**Shut down procedure:** 1. Notify other affected employees. 2. Lower log grapple to ground. 3. Shut down engine. 4. Set hydraulic lockout lever. 5. Turn off master switch. 6. Each worker attach personal lock and tag to scissor lockout hasp on master switch. 7. Test to verify zero energy (electrical-hydraulic-gravity). **Start-up procedure:** 1. Each employee removes personal lock from scissor lockout hasp on master switch. 2. Start machine when all locks removed.	**Shut down procedure:** 1. Notify other affected employees. 2. Apply parking brake. 3. Lower log grapple to ground. 4. Shut down engine. 5. Key out and in pocket. 6. Put lockout tag initialed by all workers on ignition switch. 7. Test to verify zero energy (electrical-hydraulic-gravity). **Start-up procedure:** 1. Each employee crosses off their initials on lockout tag when their work is completed. 2. Start machine when all initials on tag crossed off.
		
Lockout tag (front)	**Lockout tag (back)**	**Scissor lockout hasp – with marked locks**

LOG PROCESSOR LOCKOUT

Log Processor Lockout - Tagout	Log Processor Lockout - Tagout	Log Processor Tagout
(If one person working on machine) **CAUTION – THE HEAD IS ROBOTIC!** **Shut down procedure:** 1. Notify other affected employees. 2. Lower head to ground. 3. Shutdown computer (See manufacturer's instructions). 4. Shut down engine. 5. Set hydraulic lockout lever. 6. Turn off master switch. 7. Put on personal lock and tag on master switch. 8. Test to verify zero energy (electrical-hydraulic-gravity). **Start-up procedure:** 1. Remove personal lock from master switch. 2. Start machine.	**(If more than one person working on machine)** **CAUTION – THE HEAD IS ROBOTIC!** **Shut down procedure:** 1. Notify other affected employees. 2. Lower head to ground. 3. Shutdown computer (See manufacturer's instructions). 4. Shut down engine. 5. Set hydraulic lockout lever. 6. Turn off master switch. 7. Each worker attaches personal lock and tag to scissor lockout hasp on master switch. 8. Test to verify zero energy (electrical-hydraulic-gravity). **Start-up procedure:** 1. Each employee removes own lock from scissor lockout hasp on master switch. 2. Start machine when all locks removed.	***For processor without master switch*** **CAUTION – THE HEAD IS ROBOTIC!** **Shut down procedure:** 1. Notify other affected employees. 2. Lower head to ground. 3. Shutdown computer (See manufacturer's instructions). 4. Shut down engine. 5. Key out and in pocket. 6. Put lockout tag initialed by all workers on ignition switch. 7. Test to verify zero energy (electrical-hydraulic-gravity). **Start-up procedure:** 1. Each employee crosses off their initials on lockout tag when their work is completed. 2. Start machine when all initials on tag crossed off.
		
Lockout tag (front)	**Lockout tag (back)**	**Scissor lockout hasp – with marked locks**

WHEEL LOADER LOCKOUT

Wheel Loader Lockout -Tagout **(If one person working on machine)**	Wheel Loader Lockout -Tagout **(If more than one person working on machine)**	Wheel Loader Tagout ***For Machine without master switch***
Shut down procedure: 1. Notify other affected employees. 2. Lower log grapple to ground. 3. Shut down engine. 4. Set parking brake. 5. Turn off master switch. 6. Put lock and tag on master switch. 7. Test to verify zero energy (electrical-hydraulic-gravity). **Start-up procedure:** 1. Remove lock from master switch. 2. Start machine.	**Shut down procedure:** 1. Notify other affected employees. 2. Lower log grapple to ground. 3. Shut down engine. 4. Set parking brake. 5. Turn off master switch. 6. Each worker attach personal lock and tag to scissor lockout hasp on master switch. 7. Test to verify zero energy (electrical-hydraulic-gravity). **Start-up procedure:** 1. Each employee removes personal lock from scissor lockout hasp on master switch. 2. Start machine when all locks removed.	**Shut down procedure:** 1. Notify other affected employees. 2. Lower log grapple to ground. 3. Shut down engine. 4. Set parking brake. 5. Key out and in pocket. 6. Put lockout tag initialed by all workers on ignition switch. 7. Test to verify zero energy (electrical-hydraulic-gravity). **Start-up procedure:** 1. Each employee crosses off their initials on lockout tag when their work is completed. 2. Start machine when all initials on tag crossed off.
		
Lockout tag (front)	**Lockout tag (back)**	**Scissor lockout hasp with marked locks**

COMMUNICATING SAFETY INFORMATION TO THE WORKERS OF BRITISH COLUMBIA

Safety ALERT of the MONTH

July 2009: "Chock it - Block it - Lock it" Immobilize your Equipment

BC **Forest Safety**

There have been too many fatalities and serious injuries in the forest industry as a result of a failure to effectively immobilize equipment. Between 2006 and 2008 there were a total of 44 fatalities in harvesting. 20 % of these fatalities occurred when the operator left the protection of the cab to make an adjustment or diagnose a mechanical problem. Six workers died as a result of vehicles or equipment rolling over them, and three were crushed as equipment moved while being worked on.

These serious injuries and fatalities **are** avoidable. By taking a few moments to immobilize your equipment correctly, you will reduce the risk of being seriously hurt or killed.

"Chock it - Block it - Lock it "

"Chock it"

On rolling stock, when you get out of the cab, set the maxi or emergency brake. This is critically important when your task requires you to be under the vehicle. When you are working or repairing the machine, use chocking blocks specifically designed to prevent movement; if blocks are not available, use some large rocks or wood.

"Block it"

If you are working on a piece of mobile equipment, you must block up anything with the potential to fall onto you. Preferably, block it by setting the piece directly on the ground. If that's not possible, then you must use something that will prevent it from falling such as a log deck, a stump or a mound of dirt.

"Lock it"

If your equipment has a lockout mechanism, **USE IT**. This could range from a soft lockout on the hydraulics when you are stepping off the machine for just a moment, to a complete shutdown; de-energize the machine, install the lockout restraints and put a lock on the ignition switch when you are performing maintenance or repairs.

Always follow the manufacturer's lockout instructions, if they are not available, use the company's safe work procedure. For SAFE Companies, The Individual Owner Operator (IOO) lockout procedures are found in the Equipment Maintenance Log tab in the IOO SAFEty Log.

If you do not have a lockout procedure for your equipment, you can develop one using a job safety analysis (JSA). Instructions on how to complete a JSA can be found in chapter six of the safety toolkit that small companies receive when they register for the SAFE Companies program.

Remember, immobilizing your equipment must be done **every single time** you step out of the cab. This may add an extra few minutes to your day, but it could save your life.

BCFSC # 2009-07-01 PLEASE CIRCULATE THIS ALERT TO INDIVIDUALS AND ORGANIZATIONS IN BC'S FOREST INDUSTRY

5) Fatality Alert

FATALITY ALERT
– PRELIMINARY INFORMATION –

BCFSC #2016-01-31

On January 31st, a 23 year old man was killed after being run over by an empty logging truck that he and a co-worker were trying to repair. Both workers were driving the logging truck to a camp south of Fraser Lake when they stopped to fix a mechanical issue.

Our condolences go out to the family and co-workers of the deceased worker.

WorkSafeBC and the Coroners Service are investigating this incident and the results will be released as soon as possible.

There has been an increased frequency of incidents related to improperly securing vehicles before doing maintenance work. On October 14, 2015, an incident occurred in Ladysmith when a worker was fatally injured while preforming repairs on a service truck. The truck was parked on a slope and began to roll while the worker was underneath.

The industry has also seen an increase in fatal incidents involving young log truck drivers. On February 11, 2015, a 24 year old log truck driver died in the crash involving two logging trucks on the Alaska Highway. On January 26th, a 22 year old log truck driver was fatally injured in an incident on Highway 5A when the unloaded logging truck he was driving went off the road.

These recent incidents highlight the need for proper training of young log truck drivers with a focus on driving during winter road conditions and properly securing the log truck when preforming maintenance or inspections.

Although the details of this incident are still unknown, review the following general safety information:

1) Pre-trip inspections are required for all equipment. A thorough inspection will identify mechanical problems that could be hazardous and slow down production. Pick a safe location for the inspection with adequate lighting, flat ground, and not crowded with other equipment or workers.

2) When working on wheeled equipment, set the maxi/emergency brake before exiting the cab. When repairing the machine, use chocking blocks to prevent movement; if blocks are not available, use some large rocks or wood. This is critically important when your task requires you to be under the vehicle.

3) An upset condition is any event that is unplanned. This can be a mechanical breakdown, unexpected weather, or a change in the work plan. Most incidents happen when there is an upset condition. Pause and plan your work carefully before trying to fix these conditions.

Resources:

- Integrated Trucking Log Book – Example log books that will help with pre and post trip mechanical inspections
  www.bcforestsafe.org/wp-content/uploads/2021/03/Drivers-Daily-Log_Triplicate_FINAL_0.pdf
- Log Truck Roll Over and Seatbelt Video
  https://www.youtube.com/watch?v=z_kH7mIuUjk
- More Info on Upset Conditions and RADAR
  www.bcforestsafe.org/resource/radar/

6) Lock It and Live Poster and Sticker

Here is the image that is used on both the sticker and poster.

If you would like to order these free posters and stickers, email info@bcforestsafe.org