

# Chain Saws

## HIGHLIGHTS:

- Incidents and their causes
- Starting and operating a chain saw safely
- What to wear: protective clothing
- Preventing kickbacks
- Maintenance
- Felling trees and limbing

Chain saws are among the most frequently used powered hand tools in the construction industry. They are also the cause of many serious incidents. Chain saw safety depends on knowledge of good operating practices, attention to those practices during use and a healthy respect for the inherent dangers of these versatile tools.

### Chain Saw Incidents

Inadvertent contact with the moving chain and saw kickback are the most common causes of chain saw incidents. Contacting the chain usually results in cuts and scrapes to the hands, arms and legs. Kickback incidents that occur when the chain saw suddenly jumps or “kicks back” toward the operator, typically injure the face, neck and upper body.

### Causes of Chain Saw Incidents

- Contact with moving chain
- Saw kickback
- Loss of footing or balance while cutting
- Follow through after cut is made
- Skating or bouncing of saw chain while cutting
- Losing control of saw while cutting
- Contact with stopped saw
- Injuries to bystanders by saw or falling materials
- Injuries to operator by falling materials

For most chain saw incidents, prevention requires a combination of appropriate clothing, a saw in top operating condition and an operator who follows the established procedures for starting, operating and carrying the saw. Preventing kickback incidents requires some additional, specific measures.

### Starting a Chain Saw Safely

Many chain saw incidents occur when the chain saw is being started. The sudden jolt can cause uncontrolled movement, creating serious hazards for the operator, bystanders and nearby materials. Never start your saw while it is balanced on your

leg or knee, or while holding it in one hand. And never “drop start” a saw because it can swing into you resulting in severe injury.

To start a chain saw safely, follow the manufacturer’s instructions. Below are some general guidelines.

1. Move well clear of the fueling area, at least 10 feet (3 meters) away
2. Place the saw on a cleared, debris-free surface
3. Keep a fire extinguisher within reach
4. Hold the saw firmly (some models may be steadied by placing a foot through the rear hand grip)
5. Press the start button
6. Pull the start cord

### **Operating**

The first step in operating a chain saw is to get a proper grip. Grasp the forward handle with your left hand, palm down, fingers gripping the front, and thumb tucked under the rear. Grasp the rear handle firmly with your right hand. Note the position of the hand guard, just in front of the forward (or left) handle grip. Left handed users should check with manufacturer for any special modifications/ instructions before purchasing/using a chain saw in a reversed hand manner.

Follow these guidelines while operating the saw:

- Visualize the path the saw bar will take before beginning the cut.
- Stand to the side of the cut, place your feet about shoulder width apart and keep your belt buckle (belly button) centered between your feet.
- While cutting, bend your knees or reposition your feet to avoid leaning forward or to the side.
- Cut with the engine operating at high speed.
- Let the saw do the work—avoid forcing or pushing it through the cut.
- Be aware of the saw’s path before, during and after the cut.
- Keep your legs out of the path the saw bar will take.
- Keep your toes out from under the material being cut.
- Stay on the uphill side of the cut to avoid being injured by rolling material.
- Stop operating the saw if any of its components are missing or damaged.

### **Carrying**



Chain saw incidents occur before, during and after operation. Unsafe carrying procedures can result in cuts, abrasions, burns and other injuries.

- Always shut off the saw before carrying it.
- Place a protective sheath over the blade when carrying or storing the saw.
- When carrying the saw immediately after use, keep the hot muffler away from your clothes and body.
- Carry the saw with the guide bar pointing to rear.

## Protective Clothing

Chain saw operators must wear appropriate clothing and personal protective equipment (PPE) at all times. General clothing should be trim-fitting, with no dangling or loose articles that could get caught in the moving chain.

Chain saw operators should wear:

- A long-sleeve shirt with the front fully buttoned and the sleeves rolled down and buttoned at the wrist.
- Pants with no cuffs, a smooth finish and no exposed key chains or tools hanging from the belt.
- The full range of PPE, including:
  - A hard hat to protect the head.
  - A face shield or goggles to protect the eyes.
  - Heavy-duty gloves to protect the hands.
  - Steel-toed shoes or boots to protect the toes and feet.
  - Ballistic nylon or protective shields/chaps to protect the lower legs and knees.
  - Earmuffs or earplugs for hearing protection.

## Kickbacks

Kickbacks can occur when the blade tip contacts an object; the material being cut pinches or closes in on the blade; the chain hits a hard section or object (nail, bolt, stone); or when the cutting material is thicker than the bar length.

These tips can help prevent kickbacks:

- Test the chain brake to make sure it is functional each time the saw is started and before cutting begins.
- Select chains and guide bars designed to minimize kickback.
- Grip the forward handle with your left hand, palm down, fingers gripping the front, and thumb tucked under the rear.
- Don't let the "kickback zone" (the arc at the front of the guide bar) touch any object when the saw is operating.
- Avoid boring cuts which require burying the guide bar nose in the material being cut.
- Use wedges to avoid pinching the guide bar when cutting larger pieces.

## Maintenance

A regular program of preventive maintenance and adjustment will keep the saw in good operating condition, reducing the likelihood of many types of chain saw incidents.

- Turn off the saw engine off before maintenance or adjustments.
- Keep the saw chain sharpened.
- Maintain chain tension according to manufacturers recommendations.
- Keep the chain brake adjusted according to manufacturer's recommendations.
- Keep the chain oiled. Check the reservoir and oiling mechanism frequently.
- Adjust the engine idle speed so that the chain does not move when the engine is at "idle."
- Periodically clean sawdust and debris from the saw, especially prior to refueling.

## Felling Trees

Before cutting, think ahead and make plans. Clear a space to work that is free of brush and rocks. Plan where you will move – the escape route you will take – as the tree falls.

- Use an alternate means of removing the tree if there is risk of the tree contacting power lines or hanging trees.
- Avoid working under or within falling contact range of a hanging tree.
- Make cuts below your shoulder height.
- Clear the work area of people or objects that can be damaged by falling trees.

- Know the location of other crew members before beginning the cut.
- Shout a warning before a tree is felled.
- Remove brush and logs from the work area immediately after they are cut.

### **Limbing**

The danger of kickbacks is highest when cutting the limbs from a felled tree.

Follow these guidelines while limbing:

- Stand on the opposite side of the tree from the limb being cut.
- Stand on the uphill side of the work.
- Take extra care when cutting bent branches or limbs—roll the tree to take tension off the branch before cutting.
- Block the tree or log to prevent rotation during the cut.
- Maintain a secure footing.
- Keep cut material out of your work area.

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