Tree Trimming Tools and Equipment Safety
Prerequisites:

- None

Objectives: Explain the safe use of tree-trimming equipment.

Rationale: Improper work habits can endanger personnel and equipment.

Learning Objectives

- Explain the safety for operating a gas chain saw.
- Explain the safety when operating hydraulic pruning tools.
- Explain the application of hand pruning tools.
- Explain the safety for operating a tree chipper.

Learning Methods

- Self-learning + On-the-job
- Self-learning + On-the-job
- Self-learning + On-the-job
- Self-learning + On-the-job
- Self-learning + On-the-job

Evaluation Methods

- Knowledge test
- Knowledge test
- Knowledge test
- Knowledge test
- Knowledge test

Student Resources

- None

Learning Steps

1. Read the Learning Guide.
2. Follow the steps outlined in the Learning Guide.
3. Clarify any questions or concerns you may have.
4. Complete the Practice and Feedback.
5. Complete the Evaluation.
Lesson 1: Gas Powered Chain Saws

Learning Objective: Explain the safety for operating a gas chain saw.

Learning Method: Self-learning + On-the-job

Evaluation Method: Knowledge test

Personal Protective Clothing

When operating a gas powered chain saw the operator should wear the following:

• Hard hat
• Safety eye glasses
• Protective safety footwear
• Chain saw safety pants (ballistic nylon)
• Leather gloves
• Hearing protection

Safe Operating

Starting a Power Saw

Before using a gas powered chain saw, the owner’s manual must be consulted to determine the maintenance procedures.

To start a chain saw do the following:

• Adjust choke and kill switch.
• Put the saw on a surface that is stable and free of clutter.
• Step on the saw handle just below the trigger with your right foot.
• Hold the front handle with your left hand.
• Pull the starter cord.

Kickback

Cause

Kickback is caused when the tip of the chain bar comes into contact with an object while the chain is moving. The result is that the chain stops cutting and “piles up”. The motor is still driving the chain, and this force causes the chain bar to kick up and back toward the operator.
Figure 1. Kickback

**Prevention**

Kickback is prevented by:

- Ensuring that the tip of the chain bar does not come in contact with any object (avoid putting the “chain tip” into a tangle of brush).
- Using an anti-kickback chain.

The anti-kickback chain is designed with a gradual sloped guide rising up to the cutting tooth. This helps to prevent the chain from piling up, but it is not a guaranteed safeguard against kickback.
Gas Power Saw Cutting Rules

Gas power saws are meant to be operated from the ground. When cutting with a gas powered chain saw, observe the following rules:

- Have a firm grip.
- Ensure good footing.
- Never move your feet while the saw is cutting.
- Always stand left of the saw.
Lesson 2: Hydraulic Powered Chain Saws

**Learning Objective:** Explain the safety when operating hydraulic pruning tools.

**Learning Method:** Self-learning + On-the-job

**Evaluation Method:** Knowledge test

### Personal Protective Clothing

When operating a hydraulic powered chain saw, the operator should be wearing the following:

- Hard hat
- Safety eye glasses
- Protective safety footwear
- Leather gloves
- A full body harness fall arrest system

### Safe Operating

It is difficult to put oneself in danger, insofar as chain injuries occur, if common sense is used. The following points sum up the safe operating of hydraulically driven saws:

Keep the chain and bar away from your body during trimming maneuvers.

- Don’t stow the hydraulic saw with the chain down in the bucket.
- Don’t attempt to over extend your reach when cutting. Keep both feet on the bottom of the bucket.
- Don’t consider the hydraulic saw as an insulated stick.
- Linemen shall always maintain limits of approach from energized lines.

### Hydraulic Powered Clippers

Hydraulic powered clippers are most efficient for clipping off heavy branches (i.e. spruce) with diameters 2 - 2 1/2 inches.

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The clippers are better than a saw for small diameter heavy limbs. The advantage is one clip as opposed to three cuts.
Lesson 3: Pruning Hand Tools

Learning Objective: Explain the application of hand pruning tools.

Learning Method: Self-learning + On-the-job

Evaluation Method: Knowledge test

Swede Saw

The Swede saw is used when trimming limbs while standing on a ladder or on a tree. Because it is hand powered, usually only small limbs are pruned with this tool.

Universal Pruning Saw

A universal pruning saw is a small saw that is adaptable to a universal hotstick. These saws are often used at the end of a telescopic fusing stick, and are useful for trimming small branches that are close to energized power lines of all voltages.
Extension Mechanical Trimmer

The mechanical tree trimmer can be used for clipping off small branches (up to 2 inches in diameter). Additional sections can be added to the main section for increased reach.

This is generally a tool that is used from the ground to prune around live secondary voltages. It requires the operator to approach the branch at right angles for an effective cut. For this reason, it can be difficult to remove all of the branch without leaving a stub.

Hot Universal Trimmer

There is also a hot trimmer that may be attached to a universal hotstick for direct contact with live primary conductors. The rope should be kept clean and an insulated stick should be tied into the rope for electrical resistance.
Figure 4. Hot Universal Trimmer
Lesson 4: Tree Chipper Safety

Learning Objective: Explain the safety for operating a tree chipper.
Learning Method: Self-learning + On-the-job
Evaluation Method: Knowledge test

Personal Protective Equipment

The purpose of the tree chipper is to chop the trimmings into small pieces thus enabling the crew to make fewer trips to the landfill for disposal.

The following is a list of personal clothing and equipment for chipper operators:

- Tight fitted clothing
- Loose fitting gloves
- Hearing protection
- Safety foot protection
- Safety eye wear
- Safety hard hat

Safety Rules

Tree chippers are a heavy piece of apparatus that are often driven by a powerful motor. The owner’s manual must be consulted prior to operating the unit.

The safety rules are as follows:

- Ensure that all the safety features are operating on the chipper.
- When the chipper is not in use, the starting key must always be removed from the ignition and the intake chute must be closed.
- Never leave the chipper running while it is unattended.
- Never reach past the hopper when the blades are turning.
- Always stand off to the side of the chute when feeding trees into it.
- Always keep the brush in front of your body to prevent being pulled by branches that are drawn past you.
- Do not throw piles of raked debris into the chipper due to the fact that stones, bottle caps etc. can damage the cutting blades and become high speed projectiles.
Summary

To summarize this module, you have learned:

- The personal protective equipment and safety procedures that are recommended for operating chain saws, hydraulic saws, pruning tools and chippers.

Practice Feedback

Review the lesson, ask any questions and complete the self test.

Evaluation

When you are ready, complete the final test. You are expected to achieve 100%.
Review Questions

1. An operator should prepare to start a gas saw by:
   (a) Using two hands while standing straight up.
   (b) Setting the saw down and stepping below the trigger.
   (c) Standing to the right of the saw.
   (d) Putting the chain in a vice to stop its motion.

   T / F  2. Kickback can be avoided by kneeling down while cutting.

   3. When operating a gas powered saw you should:
      (a) Never move your feet while cutting.
      (b) Have a firm grip and good footing.
      (c) Stand to the left of the saw.
      (d) All of these

   T / F  4. A hydraulic saw can be considered insulated.

   T / F  5. Keep the hydraulic saw chain away from your body during trimming maneuvers.

   T / F  6. Both feet should be on the bottom of the bucket when cutting.

   T / F  7. Hydraulic clippers are more efficient than hydraulic saws under certain circumstances.

   T / F  8. The Swede saw is to be used when standing on a ladder or in a tree.

   T / F  9. The extension mechanical trimmer is to be used from the ground around live primary circuits.

   T / F 10. Ensure that all the safety features are operating on the chipper.

   T / F 11. Always throw raked piles of debris into the chipper to aid in the cleanup.
Review Question Solutions

1. Setting the saw down and stepping below the trigger.
2. F
3. All of the these
4. F
5. T
6. T
7. T
8. T
9. F
10. T
11. F