



Upper left: Sawdust and other debris allowed to build up under sprocket housing can cause improper alignment of the guide bar, leading to poor cutting performance. Left: Proper fuel preparation is one of the most important aspects of chain saw maintenance. McCulloch saws operate on a 40:1 fuel/oil mixture. Above: Instructions for carburetor adjustment, if necessary, are contained in the owners manual. Following procedures can help the operator obtain maximum performance and reliability.

# A Maintenance Schedule for Cost Cutting

By DAVE KIRBY, McCulloch Corporation

DEPENDING on how you care for it, a chain saw can be either very expensive or relatively inexpensive to maintain.

Unless cutter teeth are properly sharpened and lubricated, the chain, bar, and engine will be subjected to premature wear, resulting in rough, slow cutting.

Following are tips for long, reliable use:

1. Keep the chain sharp. A properly sharpened chain will feed itself into the wood. If you must force the chain saw or have difficulty making a straight cut, immediately resharpen the cutters and/or lower the depth gauges.

2. Keep the chain fitting properly. When the engine is stopped, the chain should not hang down below the bar. It should be as snug as possible to the bar and still be loose enough to be easily pulled along with a gloved hand.

3. Rotate your cutter bar. Because most wood cutting is done with the bottom side of the bar, turn it over every four to six hours of cutting to avoid excessive wear, which can cause chain damage.

4. Lubricate chain adequately. This may be the most important single maintenance item for your chain saw. Skimping on chain oil will increase maintenance and repair costs.

On saws with only manual type oilers, a full stroke should be made every 10 to 15 seconds while cutting. Automatic chain oilers will deliver adequate oil except in very dirty, dry wood or while boring with the end of the bar. In these cases, the manual oiler should be used.

A good practice is to check the chain oil reservoir each time fuel is added. Under normal conditions a reservoir of oil should be used for

each tank of fuel.

5. Use proper and recommended oil in the fuel mixture. When a two-cycle engine is operating at 7,000 to 8,000 r.p.m., there is a little margin for error in the amount of lubrication provided by the fuel.

Chain saw cylinder temperatures are as much as 200 degrees higher than those of other engines. Oil must be able to withstand the higher temperatures without breaking down.

A chain saw user should not attempt to save maintenance dollars by using the same type of oil for his chain saw that he uses for his car, lawnmower, truck, or other equipment.

Here is a checklist of additional saw maintenance procedures:

- Remove and clean air filter regularly.
- Clean the external engine and cylinder fins regularly.
- Check and tighten fasteners every day the saw is in use.
- Ask for use and maintenance training from your chain saw dealer.

Even more important than using proper maintenance procedures is the observance of safe handling practices — especially by the first time or infrequent chain saw user.

Following are chain saw handling tips compiled from McCulloch Corporation's booklet, "Chain Saw Operation," available at McCulloch dealers or directly from the company.

1. Starting. Place the saw on the ground or other firm surface before starting. Make sure the chain and bar do not touch anything. Grasp the top handle firmly and pull

quickly and evenly on the starter cord. After starting, guide the starter cord back onto the take-up reel. Do not let go and allow it to snap back.

2. Cutting. Always maintain control with both hands and avoid making cuts above shoulder height. Never cut a limb or other wood directly overhead. Stay alert; the sound of a chain saw engine can drown out warning voices or audible signals. Cut as close as possible to the base of the guide bar; attempting to cut with the tip of the bar can cause "kickback."

3. Between cuts. Stop the engine whenever doubtful about safety or cutting performance and when moving between cuts. Check the wood carefully for nails, wire or other metal. Have a second person within calling distance whenever working with a chain saw.

4. Felling. Many factors determine safe practice in cutting down a tree, including the tree's size and condition, its lean, other trees in the area, terrain and wind conditions.

First, determine a retreat path to follow when the tree begins to fall. Make an undercut in the direction the tree is to fall. This cut forms a wedge about one-third the diameter of the tree.

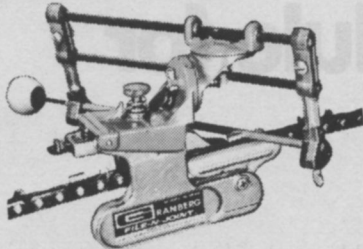
After the undercut is made and the wedge removed, stop the engine and move around to the back of the tree for the back cut. This is a straight cut slightly higher than the undercut. Do not cut clear through to the undercut; a small "hinge" should be left to guide the fall of the tree.

6. Limbing and pruning. Limbing is the removal of branches from a tree that has been cut down. Pruning is the removal of branches from

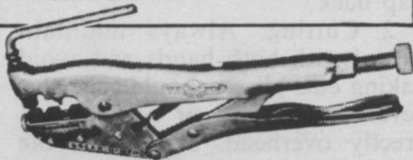
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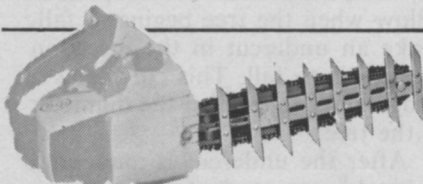
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a standing tree.

Limbing cuts should be started at the crotch, or top side of the branch. The best way to limb a tree is to begin at the base and work towards the top. Take extra care with underneath branches on which the tree rests. The tree may settle when they are removed.

When pruning large branches, notch the underside of the branch first. Complete the cut from the upper side, a few inches further out on the limb to keep the trunk bark from being stripped.

7. Bucking. This is the term used for cutting felled trees or logs into shorter lengths. Firm, sure footing is important; on sloping ground, stand uphill from the log. Avoid "traps" where the log may bind the bar during the cut. Do not allow the chain to bite into the dirt or hit rocks or other debris.

8. Clothing and equipment. Clothes should fit well, but not tightly. Loose sleeves, sweaters and open jacket flaps may catch on branches or other projections and throw the operator off balance.

A hard hat should be worn anytime trees are being felled, or limbs pruned. Heavy, reinforced-toe work shoes and snug fitting work gloves are recommended and safety glasses should be worn whenever a chain saw is operated.

Every chain saw operator should be constantly aware that his saw is a powerful cutting tool — potentially dangerous when misused.

According to the American Pulpwood Association, forty-five percent of logging industry accidents to chain saw operators are not caused by the saw itself, but by overhead hazards, such as limbs that fall during felling, or improperly felled trees.

The Association lists three primary unsafe acts which lead to injury accidents as:

1. Failure to use mechanical means to safely pull a lodged tree — one which fell partially and is suspended by other trees — to the ground.

2. Failure to remove potential overhead hazards such as dead standing trees (snags) and limbs which are loosely hanging overhead prior to cutting.

3. Carrying out felling operations while other personnel are in close proximity. □



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