

A circular graphic with a light beige background is centered on a solid blue background. Inside the circle, a black chain saw chain is arranged in a large, stylized letter 'S' shape. The chain consists of several links, each with a sharp cutting edge. The text '1975 Special Chain Saw Section' is printed in a bold, black, serif font across the middle of the 'S' shape.

1975 Special Chain Saw Section

IN THE HANDS of an experienced, capable operator a smooth running chain saw is a high production harvesting tool. It can be a pleasure to watch a skillful operator using a chain saw effortlessly as if it were a part of himself. Some of these men are "artists" who never appear to waste a single movement and are capable, productive and safe chain saw operators. This requires experience, alertness, concentration and, above all, knowledge. Knowledge in the case of safety refers to understanding the potential hazards and the limitations of the operator himself and his chain saw.

What Causes Accidents?

Three basic factors must be considered in examining possible chain saw related accidents: the environment, the operator and the machine. Environmental factors include terrain, ground cover (understory), timber type and density and, of course, the weather. Operator factors involve training, experience and skill to recognize unsafe acts or conditions. Alertness and attitude are also important, plus attention to such details as footing, clothing and personal protective gear. But the major cause of accidents is fatigue.

Machine factors involve selecting the right size and type of chain saw and cutting attachment, in addition to proper maintenance. Weight and balance are important for safety, as are handling characteristics. Noise, smoke and vibration contribute to operator fatigue. Ease of maintenance, elimination of fire hazards and availability of special protective safety devices also should be considered.

One of the less obvious environmental factors is ground cover. Thick brush, heavy blowdown and soft or loose rocky ground certainly affect footing. Since man is a two-legged animal, his own balance is vital, especially when he has a chain saw in his hands! The timber type and density can affect his cutting technique and present varying degrees of hazard. Rain, snow, ice or wind can double the hazard since they can affect mobility, footing and the operator's grip on the saw. Frozen wood reacts to cutting and splitting quite differently from wet or green timber. The weather affects the operator's mental attitude as well (who can possibly feel good

Proper Handling For Chain Saw Safety

By BLAKE STRETTON
Vice President, Stihl American, Inc.

when every branch you touch with your hardhat pours half a cup of icy rain water down your neck!)

Training, Experience and Supervision

Many progressive companies engaged in wood harvesting have initiated training courses for their chain saw operators. Most chain saw companies are usually willing to provide maintenance and operating instruction, and a few provide some form of operator safety training. Many of the timber companies who have such training programs can also point to their safety records with a great deal of pride.

Experience cannot be acquired merely by instruction, but good supervision is important. Supervisory staff should be quick to point out any unsafe acts that they observe saw operators performing, and to help the operators recognize potential cutting hazards on the job.

An operator's personal health can also affect his mental attitude and alertness. No responsible supervisor will allow a man who is "not really feeling well" to operate a chain saw, or they are both asking for trouble.

No supervisor should allow a chain saw operator on the job without proper personal protective gear and proper footwear or clothing. This includes a hardhat, with or without screen visor. Goggles are not always the best since they fog up, get covered with fine saw or bark dust, and can limit the operator's peripheral vision range.

Good fitting boots with steel toe caps are needed, and they must be in good repair.

Durable, properly fitted clothes are also important to safe operation in the woods (too snug can affect mobility and too loose can catch on brush or tangle with the saw). Hearing protection should also be considered, depending on the brand or model of saw being used. Fatigue is one of the biggest factors contributing not only to chain saw mishaps but all industrial accidents.

Fatigue and Handling Ease

Many characteristics of the chain saw itself can contribute to fatigue. These include vibration, noise and exhaust smoke, as well as balance, handling and control of the saw. Chain saws vary greatly in such areas as design, construction, power output, balance, handling and reliability. But let's talk about the machine factors: To help in selection of the right tool for the job and to provide some guidelines for the selection of a safer tool, here is a "checklist" of design parameters that apply to any chain saw used in commercial cutting.

Weight and Power

Low weight is useless if the unit is so flimsy that it lacks durability and reliability, or has limited fuel and chain oil capacity. Don't be misled by "dry weight — less bar and chain." Some saws run considerably longer on the same quanti-

(continued on page 50)



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.

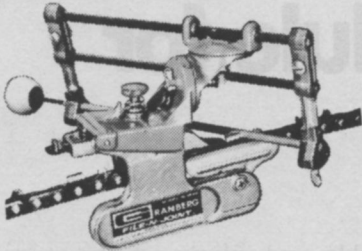
After the undercut is made and the wedge removed, stop the engine and move around to the back of the tree for the back cut. This is a straight cut slightly higher than the undercut. Do not cut clear through to the undercut; a small "hinge" should be left to guide the fall of the tree.

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

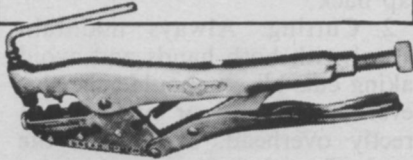
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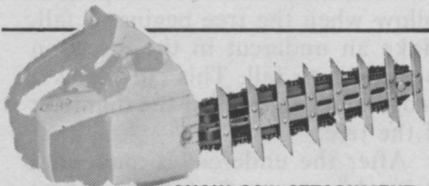
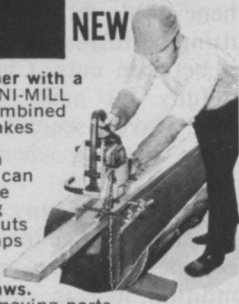
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a standing tree.

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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WEEDS TREES and TURF

The Lightweights: Little Saws for Big Jobs

By JERRY KARTHEISER, Product Manager, Skil Corp.

USE and application of lightweight chain saws is well known to many members of the Green Industry who earn a sizeable percentage of their income with chain saws. But for those whose familiarity is limited to an occasional limb removal, merits of lightweight chain saw use should be carefully considered.

For starters, we will be "basic": why use a chain saw?

The casual user may submit just one reason: easier cutting. The commercial user sees this as a major factor, too, but he finds other benefits:

Faster cutting. For the man who must cut wood as part of his occupation, time is money. Where a golf course superintendent may want to lop a few branches, the commercial user may have five or ten trees to cut or trim, or several cords of firewood to prepare, and he wants to finish this task and move on to another. The chain saw provides a cumulative savings in time which can have practical workday values.

Versatility. A chain saw will handle probably any outdoor cutting of wood that can confront, for example, a nursery-

man or a golf course superintendent. It will cut any type of wood. And it can zip through the odd cutting job that crops up every so often.

Safety. The chain saw minimizes the body movement and exertion that, with a manual saw, can pose possible safety problems while working up in the branches of a tree.

If the merits of the chain saw have been established for the commercial user, the next decision is whether to buy gasoline or electric.

The first point to emphasize is that, when both types are the same size and power output, there is no difference in cutting ability.

The first and most obvious difference between the two is accessibility to the job at hand. This of course eliminates the electric-powered chain saw from many applications. And the much greater portability of the gasoline-powered saw has advantages even where a source of electricity is available.

The electric, on the other hand, has advantages where its use would be indoors or in or near public areas. It's quieter and has the merit of not producing exhaust fumes.

Some more pro's and con's on the electric saw:

- There's no problem in starting nor with the possibility of running out of fuel . . . worth consideration when the job at hand is in an awkward location such as up in a tree.
- The electric chain saw generally is less expensive at retail than the gasoline; maintenance also will tend to be less expensive.
- On the negative side, distance from a power source has another limiting effect on the use of an electric chain saw. It operates best within the limits of a 100-foot extension cord. Beyond 100 feet voltage begins to drop, and beyond 150 feet the saw will not provide consistently effective cutting.

Special features in today's lightweight chain saws contribute to

their versatility and make them an even more efficient partner in heavier cutting operations.

Gasoline models, and some electric chain saw models, have a centrifugal clutch which disengages if the chain gets bound in the cut, a periodic occurrence when cutting large-diameter trees and branches. This clutch action . . .

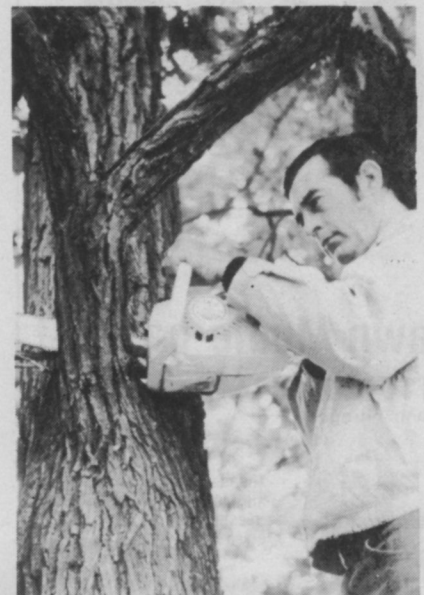
- reduces the chance of kick-back;
- reduces possible risk when working in a tree;
- reduces load on the saw and thus helps prolong its life.

Another 'plus' in modern lightweight chain saws is their fuel capacity. With certain models the operator has up to 15 or 20 minutes of cutting time available, an attribute which permits railroad or power line right-of-way work far from the base of operations.

How big a chain saw is needed? Almost all chain saw work in the applications considered here can be handled by 10, 12, 14 or 16-inch cutting bars. The effectiveness of today's saws means that a chain saw with a 16-inch bar will make an efficient 16-inch cut, and an efficient 32-inch double cut. □



A 100-ft. extension cord gives a good bit of mobility — and utility — to a light-weight electric chain saw.



Positioning of the cutting bar on this 16-in. gasoline chain saw enables the operator to cut close to the tree trunk.



Important factors in operating a chain saw safely are good footing and a clear area.

ty of fuel. I've yet to see any chain saw cut much wood empty and without a guide bar or chain. Compare "ready to work" weights only.

An operator should not carry more saw than he needs, for this affects his mobility, tires him quickly and is a poor investment. Consider the weight-to-power ratio. Very few chain saw manufacturers provide horsepower rating and there are no industry standards. Displacement is not necessarily a

reliable guide to power output, either. Some makes of chain saws derive much more power per cubic centimeter or cubic inch than others. Always compare two saws with the same chain and guide bar length, because the type of bar and chain can greatly affect cutting speed.

Balance and Handling

Look for excellent balance in both felling and bucking attitudes. This makes a saw "handle better" and feel lighter which, of course, reduces fatigue. Look for a low, narrow profile, a smooth bottom and an exterior with no sharp corners, exposed linkages, oil lines or parts that will catch on clothing or brush. Try the saw "limbing" to see how it handles.

Note the controls. Are they simple? Positive action? Within easy reach of the control hand? Does it have a throttle trigger interlock? (This means the operator "control" hand must be firmly in place before the throttle can be opened.) Are all rotating parts enclosed? (except the chain, of course) Is it equipped with a front hand guard? (to prevent the "holding" hand from slipping onto the revolving chain.) How about a rear or "control" hand from whipping brush, stubs or a broken chain "fling" as well as accidental activation of the controls. Some saws are available with an automatic chain brake that stops the chain in the event of a kickback in less than two-tenths of a second.

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WEEDS TREES and TURF



Steady the saw, keep your balance and start the saw on the ground or other solid surface.

Note the direction of the exhaust gas and cooling air discharge. Is it away from the operator? Is he protected against contact with a hot muffler surface?

Does it have an automatic oiler? This lets the operator concentrate on more important things than keeping his chain and bar properly lubricated. Does it have a flow adjustment for this lubrication to conform to timber type and size, season, temperature, and larger length bar and chain? Does it pump at idle, wasting oil and making a slippery mess? Do the chain saw tanks hold enough, and are the fuel and lubricating tanks integrated to avoid bothersome and unnecessary refilling stops.

Is the spark plug located where it will not shock the operator if it has a leaky "boot"? (This can surely make a man jump at the wrong time.) Does it start easily? (Some accidents have been caused by an exasperated operator violently yanking on the starter cord of a balky saw and soon finding a running saw in his lap.)

Noise, Smoke and Vibration

Check the noise level. Observe the muffler design, location, construction and shielding for the operator against hot surface contact. Under the Walsh-Healy regulations, some brands of saws can be run twice as long as others without hearing protection. Not only has noise been proven to effect fatigue, but it pre-

vents voice warnings or the "crack" of a tree going over from being heard easily.

Can it be equipped with an approved U. S. Forest Service Spark Arrestor Screen? How about smoke and exhaust fumes, which can restrict vision and produce nausea? Can it use a low oil/fuel ratio mix? This eliminates most smoke, reduces carbon build up in exhaust ports and actually extends spark plug life.

Try the saw to feel the vibration level. Vibration like noise, induces fatigue. Does the saw have an anti-vibration system? Does moving the saw within the vibration mounts affect the throttle action? This could hold the throttle open at the wrong moment.

Fire Hazard Reduction

Note the location of the fuel tank and the filter opening size and location. Some saws have a "drain" for the carburetor chamber immediately above the muffler! Can it spill on the spark plug or high tension lead? Is the muffler shielded against contact with dust, dry moss or needles? Is sawdust discharge easy and direct? Some saws have places where oily chips can build up in the muffler area, presenting a potential fire hazard.

Selection and Maintenance

Guide bar nose contour must match the chain being used. If the "geometry" of these two parts is not correct, particularly if the guide bar

nose radius is too large, it can cause very severe kickback during nose contact with the wood.

One serious hazard in the woods today is the so-called "safety" chain. There is no such thing as a safe chain. As one safety director put it — "if it will cut wood — it will cut people." These chains are best referred to as "reduced" or "anti" kickback chains and do help to reduce kickback during certain types of limbing and brushing operations. Remember that the best and safest cutting attachments designed are also only as good as the maintenance they receive.

Many sharpening and maintenance publications are available from chain saw manufacturers and replacement chain manufacturers. Some companies also conduct "clinics" and maintenance classes. Simple tools are available to aid in better sharpening, jointing and maintenance of cutting attachments. These tools are a good investment since any chain that is properly and evenly sharpened (and jointed) is a smoother cutting, safer chain. A shop type chain grinder is also a good investment since it produces more consistent results.

Over the years, Stihl-American, like other conscientious chain saw manufacturers have diligently worked at making their saws safer more dependable.



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10 Steps to Improved Cutting

By FRANK McDONALD, Product Mgr., Pioneer Chain Saws

A PROPERLY FILED and jointed chain on a chain saw adds life to your machine by allowing it to cut faster and smoother at minimum engine stress.

But you won't get more life out of your saw just by taking a few quick whacks at the chain with a file. To assure maximum life and performance from your saw, adopt the following step-by-step guide to joint and sharpen the chain properly:

1. Clamp the chain in a vise to prevent the chain from moving sideways as you file it. Chain movement restricts ability to control the plane and achieve an even cut. Furthermore, placing the chain in a vise assures optimum control because you can use both hands on the file to prevent biting and skipping. If your chain needs limited touching up, but you are in the field where a vise isn't available, increase the chain tension to minimize movement.

2. Select the correct size chain

saw file. You can determine proper size by consulting your owner's manual or a dealer, who will need the chain pitch and brand to help you. Incidentally, use the next smaller size file when cutters on the chain are worn back halfway. It will be easier to obtain the correct undercut and side plate angle.

3. Place the file in a cutter opposite your side. The sharpening angle may vary depending upon the type of chain, but manufacturers generally suggest you hold the file parallel to cutting edge at 35 degree bevel angle with the side plate edge 80 to 90 degrees from the cutter's base line. If you follow these instructions carefully the top plate undercut or cutting angle will be correct. This angle, which makes the chain pull itself into the wood, results from the side plate angle and the file position relative to being horizontal. These angles will give satisfactory performance under average cutting conditions.

4. Always let one-fifth of the file diameter protrude above the cut-

ting edge to assure the correct undercut. If the file is held too high, the cutter will have a blunt and slow-cutting edge. Stress and extra pressure required to make it cut will produce wear and eventually break the chain. Similarly, a thin and quick-dulling edge (with hook) will result if the file is held too low. A hooked cutter will tend to grab while cutting and cause wear on the guide bar rails.

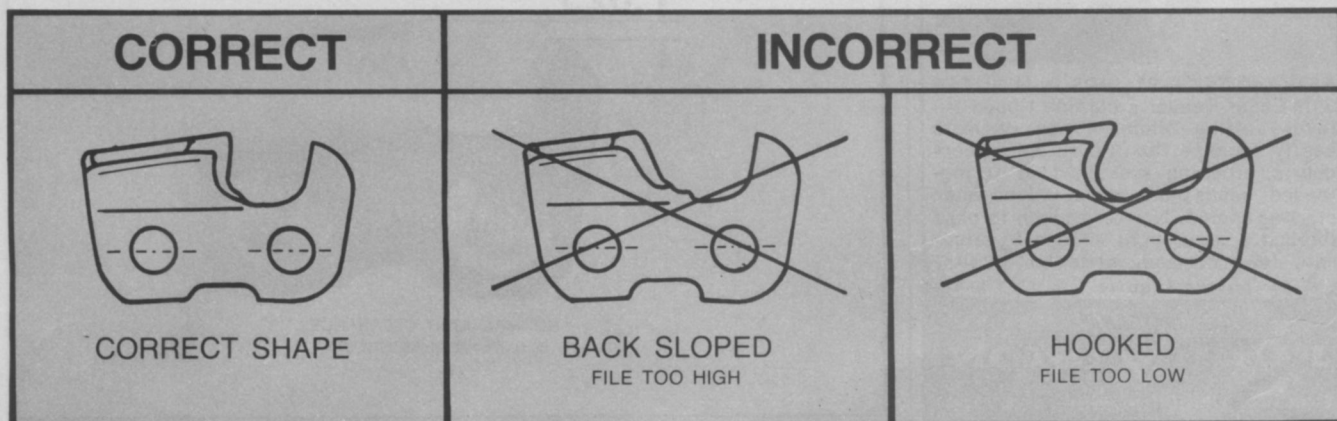
5. Keep the file snug to the top edge of the tooth and apply two or three firm strokes against the edge. The outside surface of the cutting edge is very hard (chrome plated), so you'll preserve the file by pushing it outward in a straight line. Filing in a straight line can be assured by stiffening your wrist and pretending your underarm is a solid extension of the file.

6. Leave the file in the cutter between individual filing strokes. However, apply pressure only on the outward stroke and move the file away from the cutting edge on the return stroke to avoid dulling the edge. Never remove more metal than necessary, and finish all cutters on one side before doing the other side. Your best measure of sharpening accuracy is a visual check to make certain the cutters are not back sloped or hooked, which are two common sharpening mistakes.

7. Next check the joint clearance, because correct joint height is vital to a fast cutting and smooth operating chain. The joint may vary depending upon the manufacturer, but the normal joint on chains is 0.025-inch.

8. Use caution if more joint is required, because an improper joint

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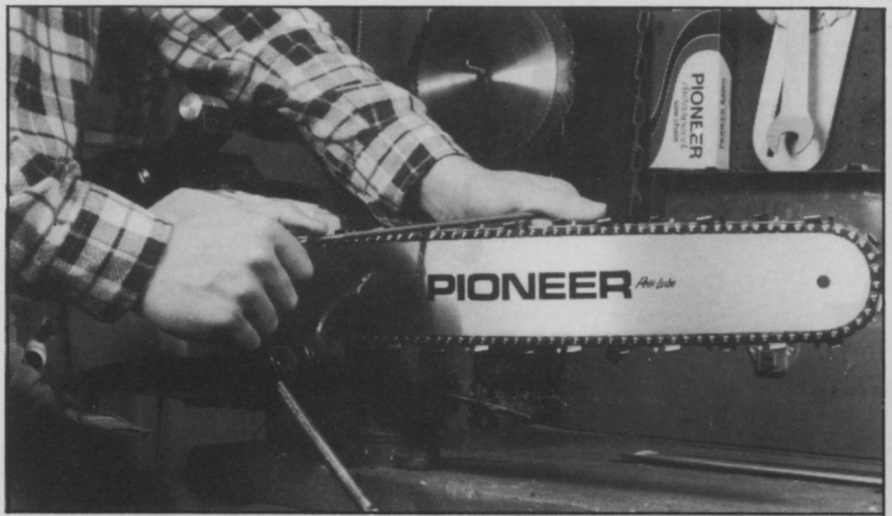


A visual check reveals whether cutters have been sharpened properly. Back sloped or hooked cutters are two common sharpening mistakes.

will cause excessive wear and shorten the life of the bar and chain. Excessive joint will cause cutters to bite too deep, forcing chain to grab and overload the engine. Conversely a shallow setting will prevent cutters from biting into wood.

9. Correct improper joint either with a flat file or a jointing gauge but, whenever possible, use a gauge for optimum results. When jointing with a flat file, a steady firm stroke will remove 0.002 to 0.003 inch of metal. File all depth gauges with an identical number of strokes and pressure. To protect against excessive jointing, never make more than two passes of a file before retesting the joint. Two passes with a file will remove about 0.005 inch of metal.

10. When using a gauge, set the filing block to the desired joint. Place gauge on chain so the depth gauge protrudes through the hole in the filing block. Hold the gauge firmly with your left hand and file down depth gauge to top of the filing block. Always file depth gauges from the same side of the guide bar. □



Hold file parallel to cutting edge at 35 degree bevel angle with side plate edge 80 to 90 degrees from cutter's base.

EAGER BEAVER

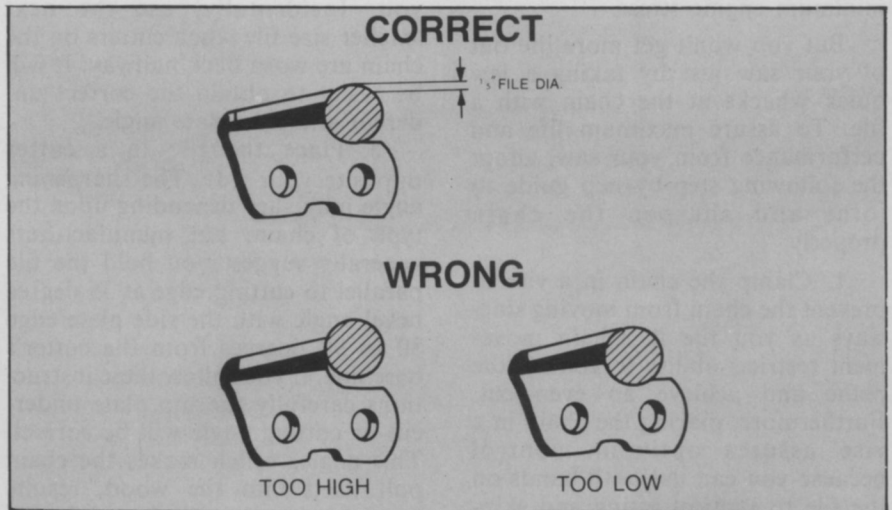
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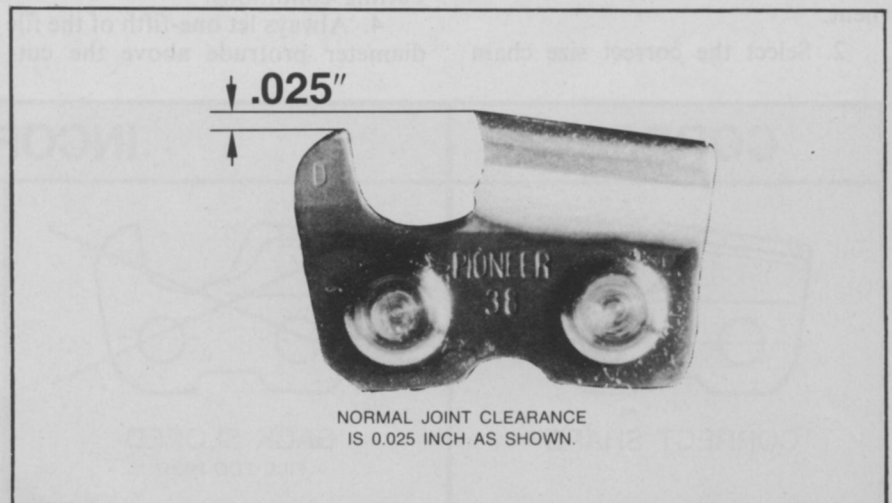
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One-fifth of the file diameter should protrude above the cutting edge to assure correct undercut.



Joint clearance is vital to fast cutting and smooth operating chain. The normal joint on chains is 0.025-inch.

Chain Saw Product Preview



No. 701

New from Frontier Division, Quadra Manufacturing, Inc., the Mark I "VIP" (Vibration Isolated Power-head) is designed to fill the growing need for a lightweight, reasonably priced saw with features previously found only on expensive professional type units. Mark I VIP has all the features of the Mark I automatic, plus: vibration isolating insulators at all points where handles come in contact with engine housing; tip-up hand guard just forward of front handle; throttle lock feature to prevent accidental revving of the

saw. Priced at \$149.95 complete with 12-inch sprocket nose bar and chain, this is said to be the lowest priced anti-vibration saw on the market today. **For more details, circle No. 701 on the reply card.**



Chain Saws
6205
6206

No. 702

Designed for rugged, high speed sawing under difficult conditions, Milwaukee Electric Chain Saws are available in two models — 16-inch and 20-inch. Powered by 13-amp 115-volt Milwaukee-built motors, both saws deliver a full 2 hp at the chain, cut at a speed of 2,000 feet per minute, and feature quiet, smooth

electric power and instant starts even in freezing temperatures, without fuel or fire hazards. Model 6205 (16-inch) weighs 17½ lbs. and 20-inch Model 6206 weighs 18½ lbs. Other features include all ball bearing transmissions with hardened steel gears, plunger type chain oiler and large capacity oil reservoir, tempered steel guide bar with simple chain adjustment and specially designed handles for fatigue reduction. Operates on standard 115-volt or with portable generating equipment. **For more details, circle No. 702 on the reply card.**

West Germany's Solo Kleinmotoren GmbH has released a fourth version to its modular chain saw design series 620/650/660AV — the 655AV Model. With a displacement of 70 cc. (4.27 cu. in.), the new Solo
(continued)



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For More Details Circle (136) on Reply Card

APRIL 1975

Sitting Pretty?



Goshen benches offer a wide selection of fast selling, long lasting, outdoor seating. Choose from a variety of models and sizes. All benches are shipped knocked-down for maximum freight savings. Simple assembly instructions are included in each carton.

Inquiries from distributors and dealers are invited. Send for complete information.

Goshen Mfg. Co.
612 East Reynolds Street
Goshen, Indiana 46526

For More Details Circle (109) on Reply Card

655AV delivers roughly 6 1/2 hp/SAE. Designed primarily for the professional market, the 655AV is available with standard 20-inch or 24-inch guide bars. Automatic chain oiling and throttle safety lock are standard; an optional wrap-around handlebar is available. Solo's abrasive saw attachment for pavement, concrete and metal cutting may also be used with the 655AV. For more details, circle No. 703 on the reply card.



No. 703

Reinco

A 4-TON-AN-HOUR "MINI-BRUTE": the new Reinco TM7-30 truck-mounted mulcher



IDEALLY SUITED FOR COMMERCIAL OR RESIDENTIAL TURF WORK.

The Reinco TM7-30 is a "lawn-a-minute" work horse that blows mulch a distance of up to 60 feet. Its unique straight-through drive eliminates power-robbing belts, chains, and gears. But most important of all, the TM7-30 cuts labor expenses as much as 5000% over hand shaking. Check out all the other advantages like low maintenance and versatility. You'll find the Reinco TM7-30 a real profit maker.

ONE MAN, ONE HYDROGRASSER perfectly suited for establishing grass on home lawns and other small areas.

One man can easily fertilize, seed, and mulch up to 6 good size lawns a day with the PP500. Only one moving part insures low maintenance. Simple to operate.

Add mulch, seed, fertilizer plus a soil binder such as Terra Tack to the circulating water to form a homogenous slurry. . . then spray . . . that's all there is to it. Spray on all the ingredients necessary for good turf—all in one easy operation. Check out the time. . . you'll be surprised. For further information write to:



Reinco

P. O. Box 584, Plainfield, N. J. 07061 (201) 755-0921

Echo Chain Saw Division, Kioritz Corp. of America, is introducing a high-performance, low cost and low maintenance scythe, Model SRM-202F. The lightweight SRM-202F (13 lbs.) is equipped with a Kioritz two-cycle engine. Scythe is outfitted with automatic rewind starter, centralized clutch and can be equipped with a 10-inch circular saw blade or 10-inch, 8-blade cutter. For more details, circle No. 704 on the reply card.



No. 704

Designed especially for today's high powered direct drive chain saw engines, the Olini 1500, from Olympic Instruments, Inc., is said to eliminate failings common to most small portable winches. This unit has a working weight of 50 to 60 lbs. and will operate at the safe working limits of the recommended wire rope. Drum capacity is 150 feet of 3/16-inch wire rope. Standard features include a unique level wind system, free spooling and a positive self-adjusting drum brake. The unit is powered by mounting medium or large direct-drive chain saws to stub

(continued)



No. 705

Why Not Spray the DEPENDABLE Way ...

SMITHCO

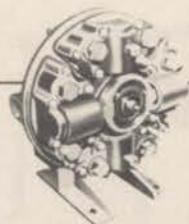
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Smithco sprayers are equipped with pumps that produce 10-20-25 GPM up to 800 PSI with tank capacities from 110 to 500 gallons. Available either trailer or skid mounted; gas engine with V-belt drive or PTO; convenient drains, hose and boom outlets.



The
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Dependable, four cylinder, positive displacement, short stroke design for pulsation free operation. Plunger cups that are guaranteed for one year, and Timken Tapered Roller Main Bearings guaranteed for two years. Ceramic valves with Nylatron seats. Longer pump life than any other pump.



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bar of winch. This bar, used with a rim sprocket and loop of cutterless saw chain, transmits engine torque to the winch without mechanical alteration to the saw. Restoration of the saw for cutting is comparable to changing a bar and chain. Standard winches have either $\frac{3}{8}$ -in. or .404-in. pitch drive and other pitches are available as special orders. Also available is Model 2000, a self-powered version of Model 1500, powered by a Tecumseh two-cycle engine. Engine and winch are mounted on a welded steel frame that provides fuel storage and handles for transport and control. For more details, circle No. 705 on the reply card.



No. 706

A new steel hand guard is being introduced by Pioneer as an accessory for its 1975 professional and farm chain saw line. The safety guard lists for \$5.45 and is bracketed to the front handle of the Pioneer P40 and P50 model chain saws. The accessory is designed to protect an operator from injury in case his hand slips off the saw handle. Pioneer chain saws and accessories are marketed by OMC-Lincoln. For more details, circle No. 706 on the reply card.

Echo Chain Saw Division, Kioritz Corp., is now marketing specially compounded motor oils for two-cycle engines including chain saws, power blowers and brushcutters. The oils will be packaged in cases of 48, 8-ounce, six-pack containers. For more details, circle No. 707 on the reply card.

The Growing Commercial Market

NO ONE will argue that the cost of materials and labor is climbing at an alarming rate. But is the chain saw industry's growth rate keeping pace?

"The growth rate is tapering off," said Frank McDonald, Pioneer product manager, "but only when measured against the phenomenal 25 to 35 percent annual sales upsurge experienced industry-wide since 1972."

He predicts gasoline-driven chain saws will increase 13 percent this year in North America to 1.7 million units. The farm, professional and commercial segments of the market are expected to increase 10, 5 and 8 percent respectively.

McDonald, also a director of the Power Saw Manufacturers Association, estimates 90,000 saws will be sold this year in the commercial market compared to 72,000 units in 1972.

However, unit sales to the commercial market were down slightly in early 1975 compared to a similar period a year earlier. McDonald attributed the decline to the economic slump and high unemployment, but said marketing research studies project a rebound before the key fall buying season.

The key period will be four months beginning in September when an estimated 51 percent of industry-wide sales are expected to be recorded.

Commercial unit sales this year are expected to constitute almost 7 percent of the North American chain saw business. Because commercial saws are operated in work-a-day conditions, the average commercial saw is replaced at least once every 2 years at \$190 minimum.

"The commercial market is a slowly growing segment of the business, but it is dependable and maintains a steady upward curve," McDonald said. "Growth in the commercial field will be influenced by replacement

sales plus an increase in the variety of new chain saw uses that are constantly cropping up in the commercial field."

McDonald sees the industry-wide growth as sparked by the high-volume consumer market, which was first penetrated in 1971 with the advent of saws selling under \$140. Low-priced saws enabled consumers to discover the utilitarian value of chain saws around the home, but there is evidence the casual market pipeline is filling up.

A chain saw can last a homeowner a lifetime if he only uses it once or twice a year to cut firewood or trim trees. "That's why the tremendous growth is peaking out. The replacement business isn't as significant as in the commercial segment," said McDonald.

The news from 1974 was good and 1975 looks even better, according to Don Bartelt, general sales manager of the Echo Chain Saw Division of Kioritz Corp. "Our sales were up nearly 200 percent over 1973," Bartelt said. "In 1973 we grew 113 percent."

WEEDS TREES AND TURF recently completed the 1975 Golf Course Market Study and found that the 9,300 golf course superintendents own an average of 1.8 chain saws. Most experts agree that chain saws purchased by superintendents fall within the commercial market.

WEEDS TREES AND TURF also polled leaders in the chain saw industry. We asked the manufacturers to describe their 1975 market forecast. Most respondents agreed that supplies were sufficient to meet market demand. Early 1975 sales indicators were split evenly between steady and down. Only one respondent indicated an upward trend in sales.

We also asked the manufacturers to compare their profit outlook for 1975 to their 1974 net. Most respondents indicated an unchanged profit picture from 1974. □

"The New Chain Saw for the Handyman" is the slogan Husqvarna, Inc. has put on the new Husky 35 Chain Saw, priced at \$124.95 and featuring a Phelon ignition and Tillotson all-position carburetor. Another feature is automatic oiling with a manual over-ride. The Husky 35 weighs under seven pounds and has a 2.2 cubic inch, two-cycle engine. Bar lengths are available from 10 to 16 inches. All components are said to be easily accessible under the protective casings, making the chain saw easy to service. Top filling gas and oil caps offer ease in maintenance, according to the manufacturer, and the new chain saw has more gas and fuel capacity over the Husky 22. A recessed starter housing enables the owner to start the saw with ease. A new air direction baffle is said to keep the engine running quieter at a

cooler temperature and there is more room to grip the rear handle with work gloves. According to the manufacturer, the Husky was designed with inexperienced users in

mind. The tank and front section are extended to prevent fingers from coming in contact with the chain while sawing. **For more details, circle No. 712 on the reply card.**



No. 712

THE 1975 CHAIN SAWS

Manufacturer	Model No.	Bar Length (Inches)	Weight (Lbs.)	Engine Size (CID)	Chain (Brand)	Retail Price
Allis-Chalmers P.O. Box 512 Milwaukee, Wisconsin	75	14	8.5	2.1	—	—
	75A	14	8.5	2.1	—	—
	95	17	13.75	3.6	—	—
	195	17	12.5	3.6	—	—
	295	17	12.5	3.6	—	—
John Deere John Deere Road Moline, Illinois 61265	61	10	6.75	2.1	Sabre	\$109.95
	81	12	6.75	2.1	Sabre	134.95
	81 (Elec. Start)	14	8.5	2.1	Sabre	169.95
	91	14	6.75	2.1	Sabre	142.95
	14	15	10.0	2.8	Sabre	192.95
	18	17	13.0	3.6	Sabre	212.95
	19	19	13.0	4.0	Sabre	262.95
	23	21	15.5	5.0	Sabre	316.95
				(Less Guide Bar)		
	23	23	15.5	5.0	Sabre	331.95
			(Less Guide Bar)			
Dolmar Maschinen Fabrik 947 W. Foothill Boulevard Monrovia, California 91016	118	15-24	13.0	2.7	Dolmar	256.46
	122	17-30	16.0	3.8	Dolmar	319.54
	144	17-36	19.0	5.5	Dolmar	363.22
	CT	21-60	23.0	7.4	Dolmar	497.86
Frontier Division	Mk1 Automatic	12	6.6	2.2	Sabre	129.95
Quadra Manufacturing, Inc. P.O. Box 491 Trail, B. C. Canada	Mk1 Anti-Vibe	12	7.2	2.2	Sabre	149.95
Kioritz Corporation of America 350 Wainwright Avenue Northbrook, Illinois 60062	CS302	14	8.1	1.83	Oregon	159.95
	CS60S	20	15.4	3.75	Oregon	264.95
	CS451VL	16	11.4	2.7	Oregon	219.95
	CS601SVL	20	14.5	3.7	Oregon	299.95
	CS701SVL	24	14.7	4.31	Oregon	324.95
	CS601S	20	15.0	3.7	Oregon	284.95
McCulloch Corporation 5400 Alla Road Los Angeles, California 90066	Mini Mac 25	12	6.9	1.8	McCulloch	109.95
	Mini Mac 30	12	6.9	1.8	McCulloch	119.95
	Mini Mac 35	14	7.1	2.0	McCulloch	139.95
	Power Mac 6A	14	6.9	2.0	McCulloch	169.95
	Mac 10-10A	16	12.4	3.3	McCulloch	209.95
	7-10A	to 28	13.0	4.3	McCulloch	319.95
	Super 250	to 42	20.8	5.3	McCulloch	299.95
	Pro Mac 55	16	12.5	3.5	McCulloch	239.95
	Pro Mac 60	16	13.0	5.8	McCulloch	289.95
	Super Pro 60	16-30	14.7	3.8	McCulloch	299.95
	Super Pro 81	30-36	15.5	5.0	McCulloch	369.95
	Super Pro 105	30-42	22.3	6.5	McCulloch	419.95
	Super Pro 125C	42	22.6	7.5	McCulloch	499.95
	G-70	15 bow	16.9	4.3	McCulloch	359.95

Manufacturer	Model No.	Bar Length (Inches)	Weight (Lbs.)	Engine Size (CID)	Chain (Brand)	Retail Price
Milwaukee Electric Tool Corp. 13135 West Lisbon Road Brookfield, Wisconsin 53005	6205 Electric	16	17.5	2 h.p.	Windsor	169.00
	6206 Electric	20	18.5	2 h.p.	Windsor	179.00
New Draulics, Inc. 2252 So. 3600 W. Salt Lake City, Utah 84119	AHS-0-C9	—	6.0	Hydraulic	Windsor	325.00
	AHS-0-C12	—	6.5	Hydraulic	Windsor	335.00
	APS-0-3N-C9	—	7.75	Hydraulic	Windsor	340.00
	APS-0-3N-C12	—	8.0	Hydraulic	Windsor	355.00
	APS-0-4N-C9	—	8.1	Hydraulic	Windsor	345.00
	APS-0-4N-C12	—	8.5	Hydraulic	Windsor	360.00
	APS-0-5N-C9	—	8.5	Hydraulic	Windsor	350.00
	APS-0-5N-C12	—	8.75	Hydraulic	Windsor	365.00
	APS-0-6N-C9	—	8.9	Hydraulic	Windsor	355.00
	APS-0-6N-C12	—	9.1	Hydraulic	Windsor	370.00
Pioneer Chain Saws Box No. 82409 Lincoln, Nebraska 68501	P20	14	10.3	3.14	Pioneer	169.95
	P25	16	10.4	3.14	Pioneer	184.95
	1200A	16-24	13.3	3.546	Pioneer	229.95
	P40	16-28	14.0	4.0	Pioneer	289.95
	P50	16-36	16.5	5.0	Pioneer	329.95
Stanley Hydraulic Tools 13770 S. E. Ambler Road Clackamas, Oregon 97015	7H	12	6.0	Hydraulic	Oregon	—
	7H	15	7.0	Hydraulic	Oregon	424.00
	7H	18	8.0	Hydraulic	Oregon	450.00
Skil Corporation 5033 Elston Avenue Chicago, Illinois 60630	1610	12	7.6	2.2		134.99
	1612	16	7.6	2.2		144.99
	1631	16	13.5	4.2		219.95
	1645	16	13.5	4.2		244.95
	1601 (Electric)	12	8.5	12 amp		89.99
	1602 (Electric)	14	8.5	13 amp		109.95
Stihl American 107 Bauer Drive Oakland, New Jersey 07436	015	10-12	7.5	1.9	Stihl	—
	020AV	12-16	8.0	2.0	Stihl	—
	020AV/P	12-16	8.25	2.0	Stihl	—
	031AV	14-25	11.5	2.95	Stihl	—
	08S	13-15	13.5	3.4	Stihl	—
	041	13-25	12.0	3.72	Stihl	—
	041AV	13-25	12.5	3.72	Stihl	—
	041AVE	13-25	12.5	3.72	Stihl	—
	041G	13-25	15.0	3.72	Stihl	—
	045AV	13-25	—	4.6	Stihl	—
	051AV	17-32	18.5	5.5	Stihl	—
	070	17-41	22.5	6.5	Stihl	—
	075AVE	21-60	21.0	6.7	Stihl	—
	090G	17-41	26.0	6.5	Stihl	—
	090	17-41	23.5	8.5	Stihl	—
	E-10 (Electric)	10, 12	8.8	—	Stihl	—
E-15 (Electric)	13, 17, 20	18 w/13"	2.6 h.p.	Stihl	—	
E-30 (Electric)	to 60	30 w/17"	3.7 h.p.	Stihl	—	