POWER MAC 6
chain saws

Owner's Manual

READ ME FIRST!

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P/N 83577

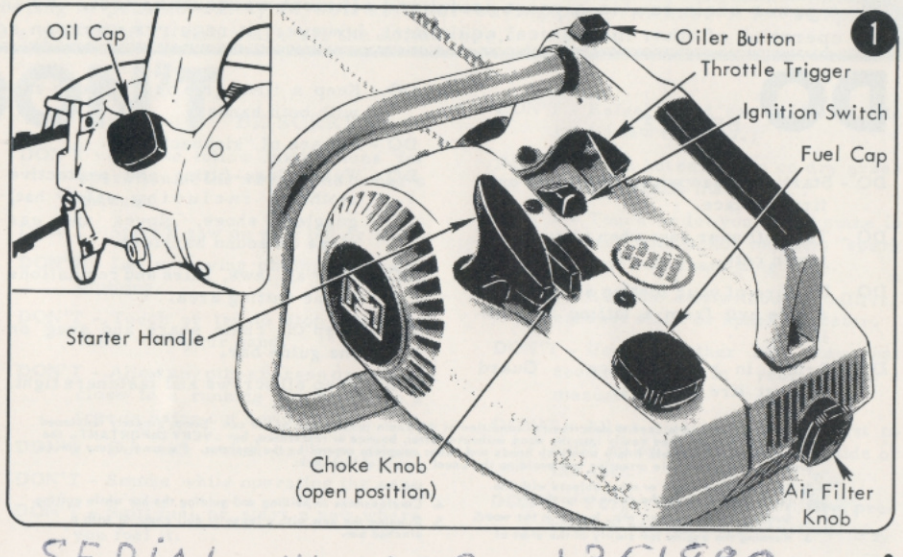
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It's a temptation to use your saw before you read this manual, but if you've never run a chain saw (and even if you have), reading this manual will make your new Power Mac 6 a lot easier to use.

The serial number of the saw is stamped on a metal tab attached in the airbox under the airbox cover. Make a record of the serial number for identification in case the saw is lost or stolen; and keep the record in a safe place.





SERIAL-NUMBER—1351890

A power chain saw is a most useful and efficient woodcutting tool. As in the operation of other mechanical equipment, however, it requires common sense handling to provide safety as well as labor-saving performance. A few simple DO's and DON'Ts can make all the difference.

DO BE SAFE!

DO - Start your saw without help and on a firm surface.

DO - Turn off your saw when moving between cuts.

DO - Be sure of your footing and preplan a safe exit from a falling tree or limbs.

DO - Refuel in a safe place. Guard against fire hazards.

DO - Keep a firm grip on a running saw with both hands.

DO - Beware of "kickback". *

DO - Wear close-fitting and protective clothing, including safety hat, goggles, shoes, gloves and ear plugs or sound barriers.

DO - Obey all laws, rules and regulations of the cutting area.

DO - Keep the chain sharp and snug on the guide bar.

DO - Keep all screws and fasteners tight.

* "Kickback" is a term used to describe the condition of the chain jumping out of the cut. Sharp, properly tensioned chain will normally feed easily into the wood without chatter, bounce or resistance, but – VERY IMPORTANT – the saw must always be held firmly with both hands and under complete control by the operator. Personal injury can be prevented by reasonable attention and avoiding the usual causes of kickback:

1. Striking loose limbs or other objects with the tip of the bar while the chain is moving.
2. Striking metal, cement, etc., buried in the wood.
3. Running the engine too slowly at the start of the cut.
4. Carelessness in holding and guiding the bar while cutting.
5. Running the saw with a loose or dull chain or with a pinched bar.

DON'T BE SORRY!

DON'T - Fail to follow instructions for operation of the saw in this owner's manual.

DON'T - Start a saw on your leg or knee.

DON'T - Let a moving chain touch your clothing.

DON'T - Touch or try to stop a moving chain with your hand.

DON'T - Allow any other person or animal close to a running saw or where a tree is being cut down.

DON'T - Cut with a dull or loose chain.

DON'T - Smoke while operating the saw.

DON'T - Spill fuel or start a saw where you fuel it.

DON'T - Refuel a hot saw. (Allow it to cool a few minutes.)

DON'T - Set a hot saw down on dry grass or flammable material.

DON'T - Touch or let your hand come in contact with a hot muffler, spark arrester or spark plug wire.

DON'T - Run the saw without a muffler, exhaust stack or spark arrester.

DON'T - Use any other fuel than that recommended in your owner's manual.

DON'T - Allow dirt, fuel or sawdust to build up on the engine or outside of the saw.

DON'T - Forget the rules for fire prevention and forest protection.

FUEL & ENGINE LUBRICATION

Two-cycle engines are lubricated by oil mixed into the gasoline. The correct ratio of oil to gasoline is very important. Follow the ratio specified in the Fuel Mixture Table. Use only regular grade gasoline. McCulloch 40:1 Oil is the best two-cycle motor oil to use. If it isn't available, use any well-known brand of SAE 40 two-cycle, non-additive, motor oil. Never use dirty or reclaimed motor oils.

Thoroughly mix the gasoline and oil in a container equipped with a flexible spout before filling the fuel tank of your saw. Wipe the fuel cap and the area around it clean before filling the fuel tank. Do not let dirt get into the fuel tank. Dirt can seriously damage the engine.

FUEL MIXTURE TABLE - GASOLINE TO OIL RATIO

with McCulloch 40:1 Oil (40 to 1 ratio)		with SAE 40 two-cycle motor oil (16 to 1 ratio)	
GASOLINE	OIL	GASOLINE	OIL
2 U.S. gallons 1-1/2 Imperial gallons 7 liters	1 (6 oz.) can 1 (6 oz.) can 1 (6 oz.) can	1 U.S. gallon 1 Imperial gallon 4 liters	1/2 U.S. pint 1/2 Imperial pint 1/4 liter
5 U.S. gallons 4 Imperial gallons 19 liters	1 (16 oz.) can 1 (16 oz.) can 1 (16 oz.) can	2 U.S. gallons 2 Imperial gallons 8 liters	1 U.S. pint 1 Imperial pint 1/2 liter

CHAIN LUBRICATION

Your chain is lubricated with oil from the chain oil tank. Fill the oil tank each time you fill the fuel tank.

We recommend using McCulloch Chain, Bar and Sprocket Oil which contains additives to reduce friction and wear and to assist in the prevention of pitch formation on the bar and chain. If McCulloch Chain, Bar and Sprocket Oil is not available, use SAE 30 non-additive motor oil at temperatures above 40 and SAE 10 non-additive motor oil at lower temperatures.

Keep the oil supply container clean. Wipe the oil tank cap and the oil tank surrounding the fill area clean before filling the oil tank. Do not use dirty or reclaimed motor oils under any circumstances. Dirt can plug the chain oiling system. Never operate your saw if the oiler system does not work.

AUTOMATIC OILER

Power Mac 6 Automatic saws are equipped with an automatic oiler. The automatic oiler was set at the factory. Should it require readjustment because of your particular cutting conditions, take your saw to your McCulloch Dealer for readjustment.

When cutting in extremely dusty or dirty conditions, use the manual oiler to supplement the automatic oiler.

OPERATING INSTRUCTIONS

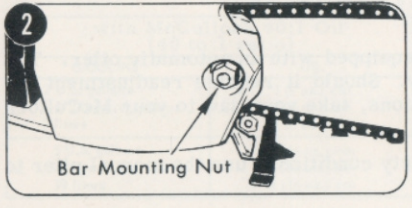
CHAIN TENSION IS IMPORTANT!

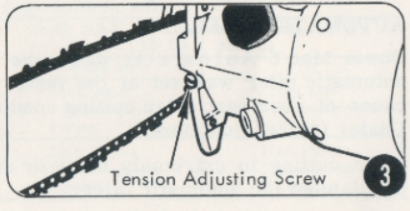
A too loose chain can be dangerous - a too tight chain can be expensive because it will wear out fast.

Even though your chain is installed, check chain tension before you start your saw. Chain tension is correct when the chain has a snug fit on the bar but can still be pulled easily around the bar by hand. Chain is sharp - protect your hand when touching it.

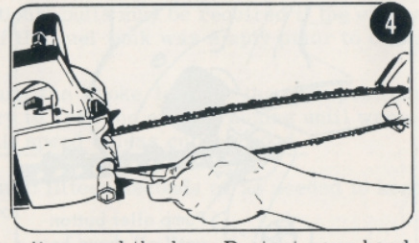
Follow these steps to adjust chain tension:

1. Loosen the bar mounting nut. Figure 2.





2. With the bar nose or rounded end of the bar held up, turn the tension adjusting screw clockwise to tighten the chain. Turn the screw counterclockwise to loosen the chain. Figure 3.

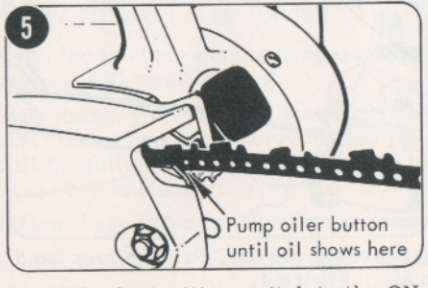


3. When tension is correct, tighten the bar mounting nut while still holding the nose of the bar up and then recheck chain tension by pulling it around the bar. Protect your hand from the sharp cutting teeth of the chain. Figure 4.

A chain will lengthen during the first few hours of use. If the chain is hot to the touch, allow it to cool before checking tension. Keep chain and bar groove oiled. For more information on chain maintenance, turn to page 23.

Starting & Stopping

1. Fill the fuel tank with the correct fuel mixture. Fill the chain oil tank with



McCulloch Chain, Bar and Sprocket Oil. Pump the manual oiler button until oil shows between the chain and the bar at the top of the bar where the chain comes out from behind the clutch guard. Figure 5.

2. Make sure the chain has the correct tension and that the bar is tight on the saw.

3. Slide the ignition switch to the ON position.

4. Turn the choke lever to the fully closed position. A warm engine usually does not require the use of the choke. However, when restarting an extremely hot engine or one which has just been refueled, it may be necessary to use the choke to clean out the vapors in the carburetor.

5. Hold the throttle trigger back and pull the starter handle with a smooth, rapid stroke. Guide the rope back into the starter. The engine should start with two or three pulls. Additional pulls may be required if the engine hasn't been started recently or if the fuel tank was empty prior to being filled.

6. As soon as the engine starts, turn the choke lever to the open position. Use choke and throttle as necessary to keep the engine running until warmed up. Never run the engine at full speed unless cutting wood.

7. Pump the chain oil button every ten to fifteen seconds or as needed to keep the chain and bar groove lubricated.

8. To stop the engine, release the throttle trigger and slide the ignition switch to the OFF position.

If Engine Floods

1. Turn choke lever to open position. Move ignition switch to ON.

2. Hold saw with muffler side down.

3. Hold throttle trigger full back and pull starter handle until engine starts.

Breaking-in A New Engine

Run your saw engine at one-third throttle for three minutes and then at one-half throttle for three minutes prior to making your first cut. When cutting, the engine should be operated at full throttle. By operating the engine at part throttle for the first few minutes with the correct fuel mixture, all bearing surfaces will be properly lubricated for longer life and better performance.

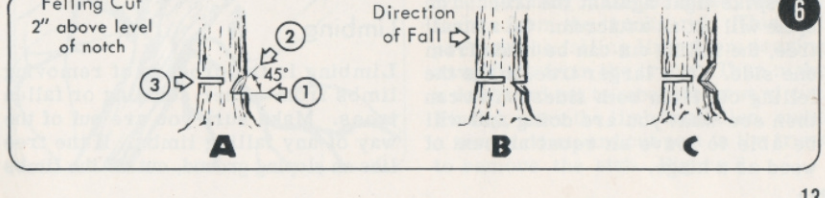
Make several preliminary cuts to get the feel of your saw. Stop the engine after each preliminary cut and check the chain to make sure it is lubricated properly and to adjust chain tension.

Cutting With Your Saw

The most common types of cutting are felling, limbing, pruning and bucking. Advice on how to make these cuts is given in the paragraphs which follow. It is helpful to use the spike which came on your saw when cutting large diameter wood.

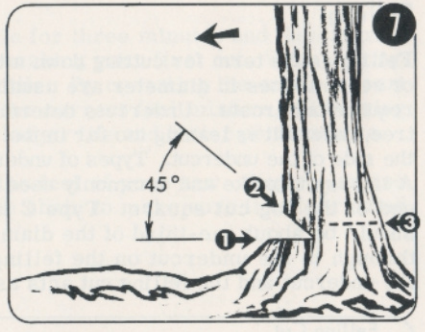
Felling

Felling is the term for cutting down a tree. Small trees of up to six and a half or seven inches in diameter are usually cut through in one cut. Larger trees require undercuts. Undercuts determine the direction the tree will fall. The tree, unless it is leaning too far in the wrong direction, will usually fall toward the side of the undercut. Types of undercuts are shown in the illustration. Type A is easy to make and commonly used for small trees. Type B leaves the butt end of the log cut square. Type C is a variation of Type A. The undercut should be about one-third of the diameter of the tree. Do not cut completely through to the undercut on the felling cut. The uncut band of wood between the undercut and the felling cut acts as a hinge. Figure 6 and 7.



If there is brush around the tree you are felling, clear a working space so that you do not trip or stumble when working. Have a clear path of retreat before making the felling cut. Watch out for dead limbs and bark which might fall while you are cutting.

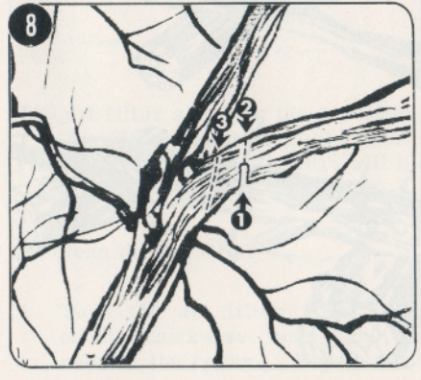
Be sure to clean the cut wood out of the undercut so the tree will fall true. Make the felling cut horizontal, moving the bar in an arc. If you are using a spike, let the moving saw chain draw the spike tight against the tree. The spike will act as a fulcrum. On a small tree, the felling cut can be made from one side. On a larger tree, make the felling cut from both sides. You can then see what you are doing and will be able to leave an equal amount of wood as a hinge.



Limbing

Limbing is the process of removing limbs from either standing or fallen trees. Make sure you are out of the way of any falling limbs. If the tree lies on sloping ground, cut off the limbs which are off the ground first. Be sure to stand on the uphill side of the tree when cutting on sloping ground.

Pruning

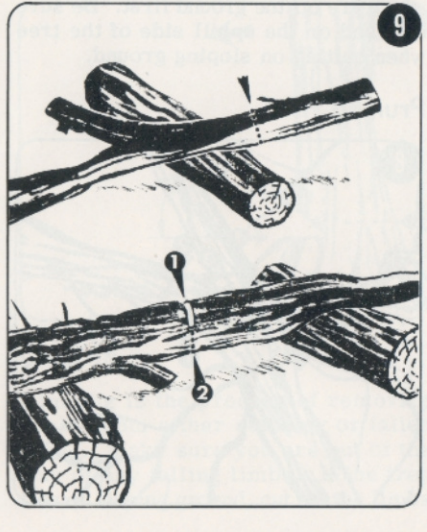


Pruning is removing unwanted limbs from a standing tree to improve the tree's appearance. It is advisable to attach the saw to a rope so you can pull it up into the tree after you. Keep the rope tied to the saw while cutting and tie the other end to the tree so the saw can fall only a short distance if you drop it. Make sure you are secured to the tree. A safety rope or belt around the tree trunk will allow you to use both hands on the saw.

When pruning make an undercut a few inches from the trunk first. This will prevent the falling limb from tearing away bark from the trunk. Then make a downward cut to meet the upward cut. Finally, after the limb has fallen, make a second downward cut next to the trunk to remove the stub. Figure 8.

Bucking

Bucking is cutting a fallen log into lengths. Make sure you have good footing and stand uphill of the log when cutting on sloping ground. If possible, the log should be supported so that the end to be cut off is off the ground in the air. If the log is supported at both ends and you must cut in the middle, make a downward cut halfway through the log and then make an undercut. This will prevent the log from pinching your bar and chain. Be careful that the chain does not cut into the ground when bucking as this causes rapid dulling of the chain. Figure 9.



SAW MAINTENANCE

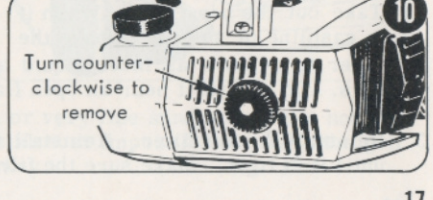
While most of the maintenance of the Power Mac 6 can be done by anyone handy with tools, specialized adjustments and repair work should be done by a McCulloch chain saw serviceman. Keep all screws, nuts and bolts securely tightened. Check them frequently.

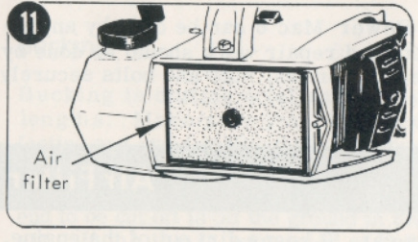
Air Filter

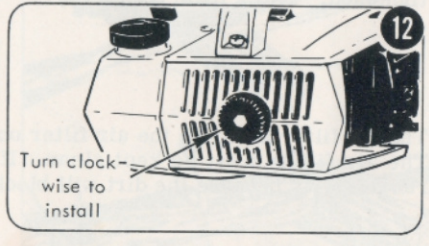
The air filter acts like the air filter on a car. It keeps dirt out of the engine. The air filter must be kept clean. If the filter gets dirty, the engine won't run properly because the dirt will block the flow of air.

To clean the air filter -

1. Turn the air filter cover knob counterclockwise until you can remove the cover. Figure 10.







2. Take out the air filter. Wash it in gasoline or solvent. Shake the filter to remove as much liquid as possible and let it dry for a few minutes. Do not put it near an open flame.

3. Reinstall the air filter. Reinstall the cover and turn the knob clockwise until it is tight. Make sure the filter is seated properly. Figure 12.

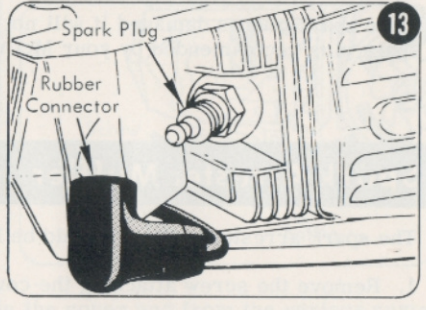
Spark Plug

A clean, properly gapped spark plug is a major factor in easy starting and best performance. When starting or performance is not satisfactory, the plug should be cleaned and gapped.

To clean and gap the spark plug --

1. Remove the rubber connector from the spark plug. Figure 13.

2. Remove the spark plug with a spark plug wrench. Do not use any other tool.



3. Clean the electrodes with emery cloth or very fine sandpaper. (Do not use a spark plug cleaning machine. It is almost impossible to clean the grit from the spark plug.) Blow all dust away.

4. Adjust the side electrode to a gap of 0.025 inch (0.635 mm).

5. Wipe all dirt off the white porcelain insulator and reinstall the spark plug and connector.

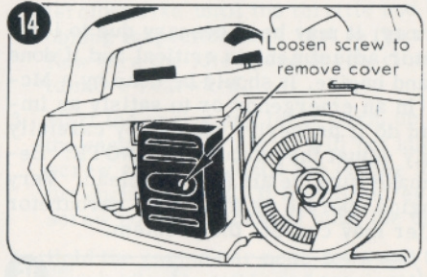
If the spark plug is damaged it will not function properly. Install only the new spark plug recommended by your McCulloch chain saw serviceman.

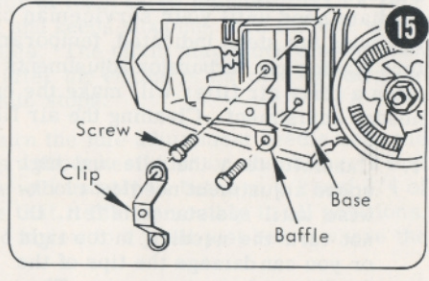
Spark Arrester Muffler

The spark arrester muffler should be kept clean and free from carbon.

1. Remove the screw attaching the cover and remove the cover. Figure 14.

2. Remove the locking clip from the two hex head screws attaching the baffle to the spark arrester base and remove the screws and baffle. The base can be removed if desired. Figure 15.



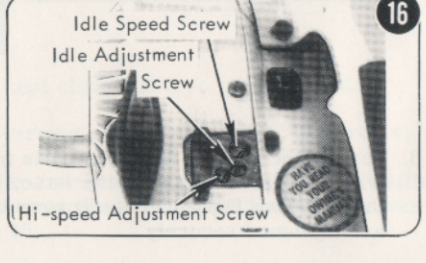


3. Scrape the carbon from the slots in the cover and from the various parts with a knife. Reinstall the base, baffle, screws, clip and cover. Press the clip down tight over the screws to lock them. Make sure all the screws are tightened securely.

Carburetor Adjustment

While the carburetor was set at the factory, it may be necessary due to local conditions to readjust it. As carburetor adjustment is critical and if done carelessly can damage the carburetor and engine, it should be done by a McCulloch chain saw service technician. In an emergency or to satisfy an immediate need until your serviceman can do it properly, you can by carefully following the steps indicated, temporarily adjust the carburetor. NOTE: Before making any carburetor adjustments make sure the air filter is clean. Very often a dirty air filter will make the engine operate as though the carburetor needed adjustment. Cleaning the air filter may correct the problem.

1. Carefully turn the idle and high speed adjustment needles clockwise until resistance is felt. Do not turn the needles in too tight or you can damage the tips of the needles and their seats. Then open (turn counterclockwise) each needle 3/4 of a turn.



2. Turn the idle speed screw counterclockwise until the throttle rod and crank or lever (as seen through the oblong inspection hole just to the right of the screw) stop moving forward. Now turn the idle speed screw clockwise just until the crank and rod begin to move rearward.

3. Start the engine and let it warm up for at least three minutes. Do not race the engine. If the engine will not idle and keeps stopping, turn the idle speed screw clockwise until the engine idles. The chain may move slowly when the engine is cold. If it still moves after the engine is warmed up, turn the screw counterclockwise until the chain stops.

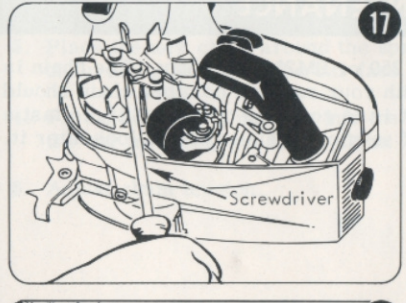
4. Hold the engine bar nose down and turn the idle adjustment needle until the engine idles smoothly and accelerates without hesitation or stumbling. Final position of the idle adjustment needle will usually be between 1/2 and 3/4 of a turn open. Turn the engine to see that it idles smoothly in all positions. If necessary, readjust the idle speed screw to a point just below where the chain starts to move.

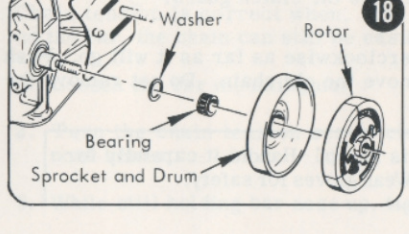
5. While cutting wood with the saw, adjust the high speed adjustment needle for best power. Do not judge by the sound; judge by the way the saw cuts. Final position of the high speed adjustment needle should be 1/2 to 3/4 of a turn open.

6. Check idle operation again. It may be necessary to adjust the idle adjustment needle slightly to obtain best idle operation after the high speed adjustment needle has been set.

Dirt & Sawdust

It's natural for any saw to acquire dirt and sawdust when it's used. But the saw must be kept clean for proper operation. In addition to the air filter, the openings in the fan housing, the cooling fins and the area around the sprocket must be kept clean. The fan housing can be removed after taking out the attaching screws. The fins and sprocket area are accessible after removing the clutch guard and the spark arrester muffler. Scrape the dirt away with a blunt wooden scraper or wash it with solvent or gasoline. A bottle brush or old tooth brush will help. When the saw is clean, reinstall the fan housing, spark arrester muffler and clutch guard. Tighten all attaching screws and nuts securely.





Sprocket

The sprocket is part of the clutch drum. To remove sprocket, remove clutch guard and fan housing. Lock flywheel with a screwdriver braced against the heavier flywheel boss and flywheel nut (Figure 17). Do not brace against the flywheel fins. When installing a new sprocket, coat clutch drum bearing with long fibre grease. The sprocket washer goes on the crankshaft first (Figure 18). Then the bearing, sprocket and drum and the clutch rotor. Lock the flywheel, tighten the clutch rotor and then reinstall the fan housing and clutch guard.

If the washer is lost, obtain a new one from your McCulloch chain saw serviceman. Do not use a substitute.

CHAIN MAINTENANCE

Your Power Mac 6 is equipped with PM250 or SM250 saw chain. The chain is designed for maximum performance with your saw and no other chain should be used. The chain requires care if it is to continue to cut easily, to last a long time and provide the proper kind of service. This is how to look after it.

Installing The Chain

1. Remove the bar mounting nut and remove the clutch guard.

2. Turn the chain tension screw counterclockwise as far as it will go. Push the bar toward the sprocket and remove the old chain. Do not remove the bar.

> CAUTION! McCulloch saw chain is sharp! Handle it carefully for it can cut if handled carelessly. Wear gloves for safety.

3. Place the new chain around the sprocket and bar. The cutting edges of the chain along the top of the bar face toward the nose.

4. Fit the adjustment nut tang into the bar and install the clutch guard. Tighten the bar mounting nut finger tight.

5. Adjust chain tension.

Chain Tension

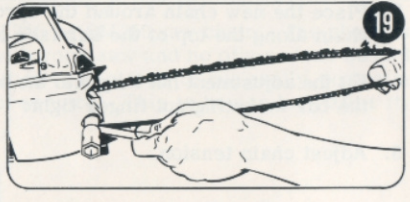
Chain tension is correct when, with the bar nose held up and the chain snug on the bar, the chain can still be easily pulled around the bar.

1. Loosen the bar mounting nut.

2. Turn the chain tension screw clockwise until chain is snug with the bar nose held up.

3. While still holding bar nose up, tighten the bar mounting nut securely.

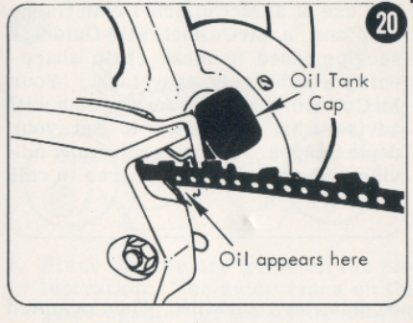
Check chain tension frequently on a new chain. Check chain tension at least every hour on an older chain. If the chain is hot, allow it to cool before adjusting it. Correct chain tension results in easier cutting and operation. Maintain it at all times.



New Chain Break-in

1. Run the chain at slow speeds for at least three minutes. Make sure enough oil is pumped onto the chain to flood the bar groove. Increase speed to half throttle and run chain for another three minutes. Stop the engine and check and adjust chain tension.

2. After using the saw for the first ten minutes, shut off the engine and again check chain tension. Repeat tension check several times during the first few hours of operation.



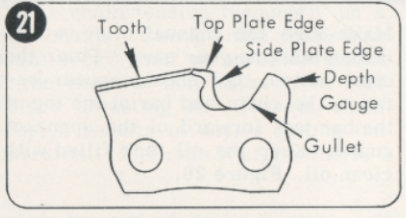
Chain Lubrication

Make sure the manual oiler works before starting your saw. Pump the oiler button. Oil should appear between the chain and bar at the top of the bar just forward of the sprocket guard. Keep the oil tank filled with clean oil. Figure 20.

Use plenty of oil on the bar and chain when cutting. Never let the chain run dry on the bar. In abrasive wood, pump the oiler button more frequently.

Chain Sharpening

Chain sharpening is divided into two main steps - sharpening cutter teeth and lowering depth gauges. The names of the parts of the cutters are shown in Figure 21.



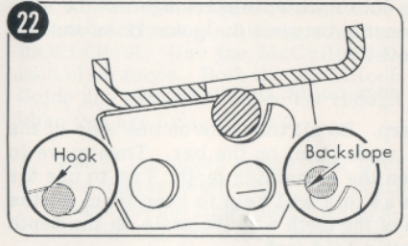
The use of a McCulloch Depth Gauge tool and a McCulloch File Guide is recommended to make chain sharpening a relatively easy task. Your McCulloch chain saw serviceman will advise what clearance to set your depth gauges. If you require any advice or help, always feel free to call on him.

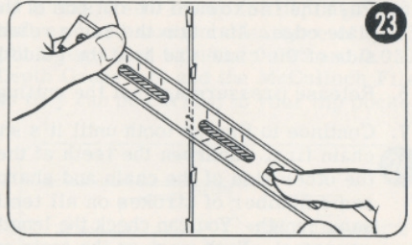
Sharpening Cutter Teeth

When sharpening cutter teeth, use a 1/8-inch diameter round file. When mounted in the McCulloch File Guide and held properly, this size file will give the proper shape to the top and side plate edges.

1. Adjust chain tension snug on the bar to keep the chain from leaning over under filing pressure. Or place the chain in a chain filing vise.

2. Mount the 1/8-inch diameter file in the McCulloch File Guide.





3. Place the file and guide on the tooth to be sharpened as shown in the illustration. The guide rides on the top plate of the tooth - the flat of the guide against the flat of the tooth to provide the proper placement of the file against the top plate edge. Avoid letting the front of the guide drop or rise up as this will cause a hook or backslope. Figure 22.

4. Turn the guide so the guide lines are parallel to the chain as shown in the illustration. Hold the guide level and push the file from the inside of the cutter being sharpened toward the outside. Extend the first finger to assist in applying pressure during filing. Figure 23.

5. Push the file toward the outside of the cutter with pressure against the side plate edge. Maintain the same relationship between the guide lines and the side of the chain and hold the guide level.

6. Release pressure against the cutting edge on the return stroke.

7. Continue to file the tooth until it's sharp. Do all the teeth on one side of the chain first. Sharpen the teeth at the same point on the bar. Then move to the other side of the chain and sharpen the remaining teeth. Try to use the same number of strokes on all teeth as this will help to keep them all the same length. You can check the length of the teeth with the scale on the depth gauge tool. Each mark on the scale equals 1/16 inch.

8. Remove the file from the file guide. With the handle held high, file down and toward the outside of each cutter to clean out the gullet. Do not touch the cutting edges during this operation.

Lowering Depth Gauges

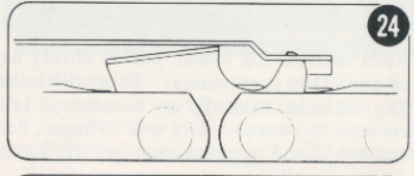
Depth gauges were set at the factory for average cutting. When cutting soft woods, depth gauges should be lowered for greater clearance. Try cutting with the chain before lowering the depth gauges. If the chain feeds easily into the wood, leave the depth gauges as they are.

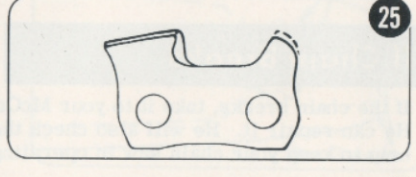
Use a McCulloch Depth Gauge tool and a flat file to lower the depth gauges. For most types of cutting, whether soft or hard wood, a clearance of 0.025 inch is best. Use the McCulloch Depth Gauge tool with the 0.025 and 0.030 inch clearances. Both the McCulloch Depth Gauge tool and the McCulloch File Guide are light and convenient enough so they can be carried in your hip pocket when you are using the saw.

1. Place the depth gauge tool over two cutter teeth with the depth gauge on the first cutter projecting through the 0.025 inch clearance slot of the tool. Figure 24.

2. Remove the projecting part of the depth gauge with the flat file. File across the depth gauge tool toward the outside of the chain.

3. After lowering all the depth gauges, round off their leading edges with a stroke or two of the flat file. Maintain the same pro-





file as on original depth gauges and as shown in Figure 25.

4. Always file depth gauges at the same place on the bar in order to assure uniformity.

Keep Chain Clean

After sharpening chain, pull it slowly around the bar while pumping the manual oiler button frequently. This will help flush filings and dirt off the chain. If the chain is very dirty, remove it from the saw and wash it in kerosene or solvent to remove dirt and filings. Soak the chain in SAE 30 motor oil to lubricate it and prevent rust before putting it back on the saw.

If Chain Breaks

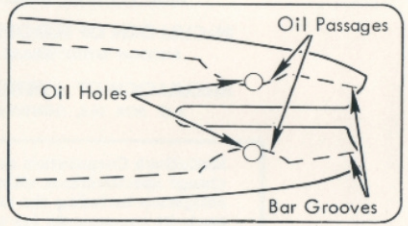
If the chain breaks, take it to your McCulloch chain saw dealer or serviceman. He can repair it. He will also check the condition of the bar and sprocket and help to keep your chain saw in operating condition.

BAR MAINTENANCE

Do not use the bar to pry objects. If the bar is pinched in wood and cannot be freed, use wedges or an axe to force the wood apart and free the bar. Never try to force wood apart with the bar.

Cleaning

After four or five hours of operation, remove the bar from the saw. Clean the sawdust and grime from the oil holes in the side of the bar and from the passage between the oil holes and bar groove. Use wire or pipe cleaner. Clean all sawdust and grime from sides of bar, protector plates and bar mounting pad. Reinstall bar with opposite edge down to equalize wear.



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