MAC 110/120/130

OWNER'S MANUAL



McCULLOCH

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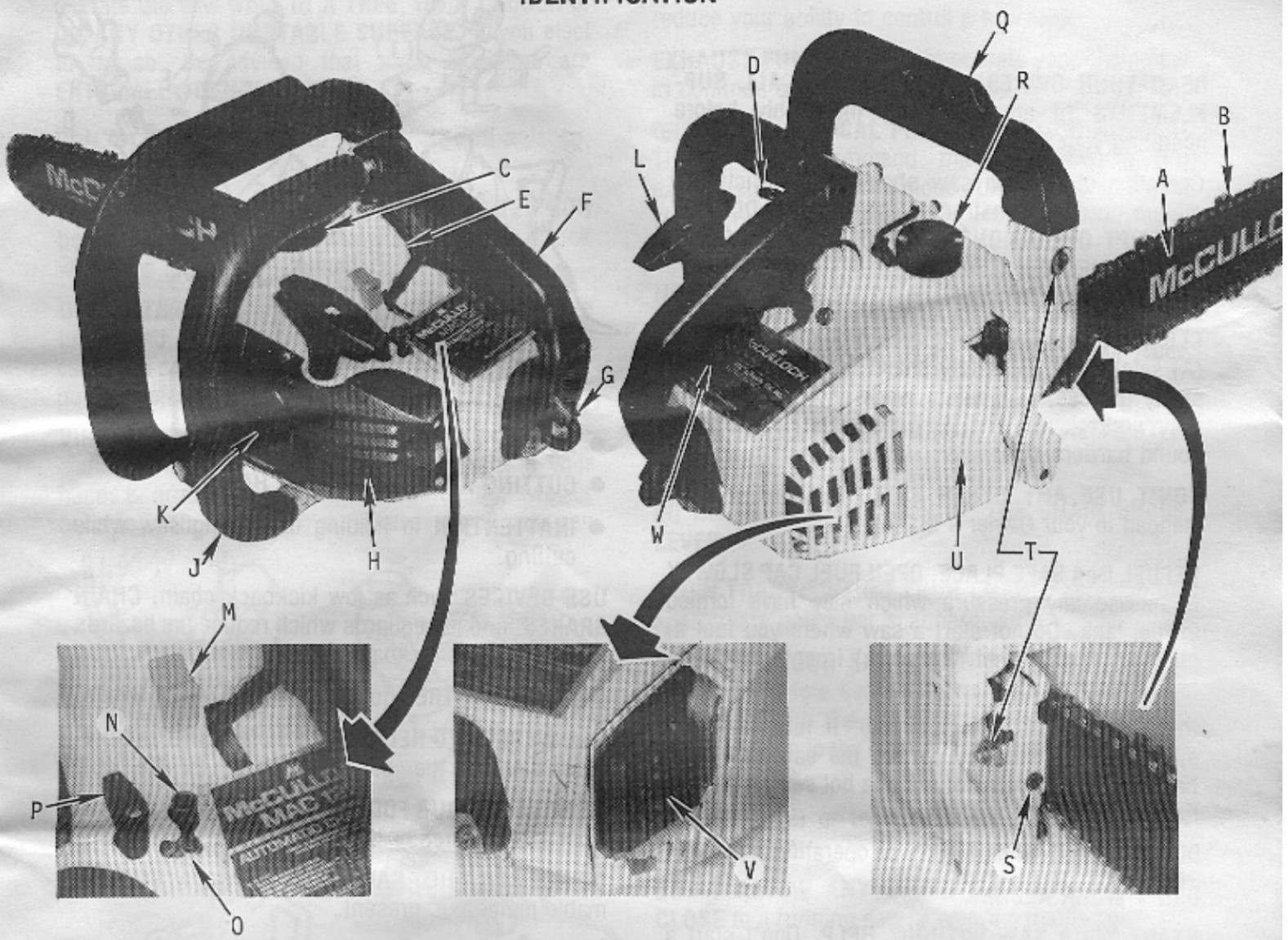
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IDENTIFICATION

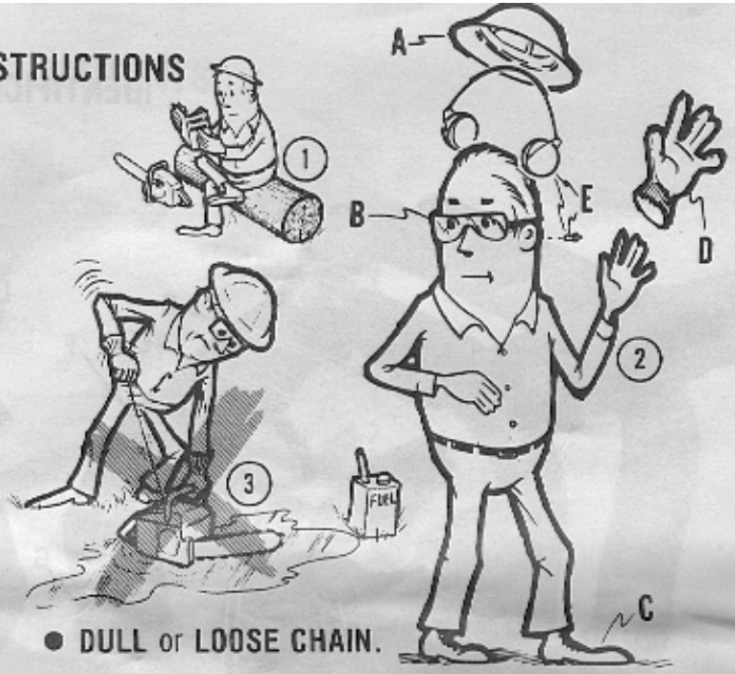


A. Guide Bar
B. Saw Chain
C. Fuel Tank Cap
D. Manual Oiler Lever
E. Throttle Trigger
F. Rear Handle
G. Spark Plug Cover
H. Air Cleaner Cover
J. Front Handle
K. Starter Cover
L. Starter Handle
M. Ignition/Stop Switch
N. Throttle Latch
O. Carburetor Controls
P. Choke Lever
Q. CHAIN BRAKE Lever/Handguard
R. Oil Tank Cap
S. Saw Chain Tension Adjustment Screw
T. CHAIN BRAKE Retaining Nuts
U. CHAIN BRAKE
V. Muffler
W. Safety Trigger

The serial number is attached to the bottom of the saw. 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.

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SAFETY INSTRUCTIONS



READ YOUR OWNER'S MANUAL AND ALL SUPPLEMENTS (if any enclosed) thoroughly before operating your saw. ①

Operation of a chain saw should be restricted to mature, properly instructed individuals. **DO NOT ATTEMPT OPERATIONS BEYOND YOUR CAPACITY OR EXPERIENCE.**

WEAR CLOSE FITTING AND PROTECTIVE WORK CLOTHING that is made to give protection, such as (A) safety hat, (B) safety shield, safety goggles or safety glasses, (C) safety work shoes, (D) heavy duty work gloves, and (E) good grade ear plugs or sound barriers. ②

DON'T USE ANY OTHER FUEL than that recommended in your Owner's Manual.

REFUEL IN A SAFE PLACE. OPEN FUEL CAP SLOWLY to release any pressure which may have formed in fuel tank. Do not start a saw where you fuel it, move at least 10 feet (3 meters) from fueling area before starting. ③

DO NOT OVERFILL or spill fuel. If fuel has been spilled on the unit, be certain the saw has dried before starting it. Do not refuel a hot saw — allow it to cool off. ③

DON'T SMOKE while fueling or operating the saw. ④

DON'T WORK ALONE.

START YOUR SAW WITHOUT HELP. Don't start a saw on your leg or knee. Never operate a chain saw when you are fatigued. ⑤

KEEP ALL PARTS of your body and clothing away from the saw chain when starting or running the engine. Before you start the engine, make sure the saw chain is not contacting anything. ⑥

BEWARE OF KICKBACK! Hold saw firmly with both hands when engine is running; use a firm grip with thumbs and fingers encircling the chain saw handles and watch carefully what you cut. Kickback (saw jumps or jerks, up or backward) can be caused by:

- **STRIKING LIMBS** or other objects accidentally with the tip of the saw while the chain is moving.
- **STRIKING METAL**, cement, or other hard material near the wood, or buried in the wood.
- **RUNNING ENGINE SLOWLY** at start of, or during cut.
- **DULL** or **LOOSE CHAIN.**
- **CUTTING ABOVE SHOULDER HEIGHT.**
- **INATTENTION** in holding or guiding saw while cutting.

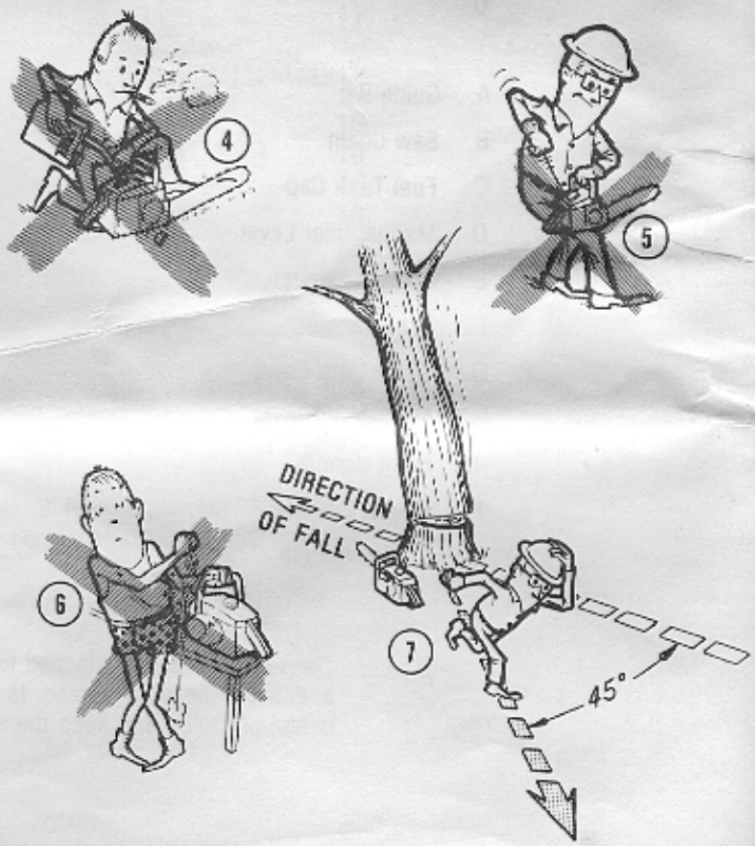
USE DEVICES such as low kickback chain, **CHAIN BRAKES**, and handguards which reduce the hazards associated with kickback.

DON'T FELL A TREE during high or changing winds.

USE WEDGES TO HELP CONTROL FELLING and prevent binding the bar and chain in the cut. ⑦

BE SURE OF YOUR FOOTING and *pre-plan a safe exit* from a falling tree or limbs. ⑦

DO NOT SET A HOT SAW DOWN in areas where flammable material is present.



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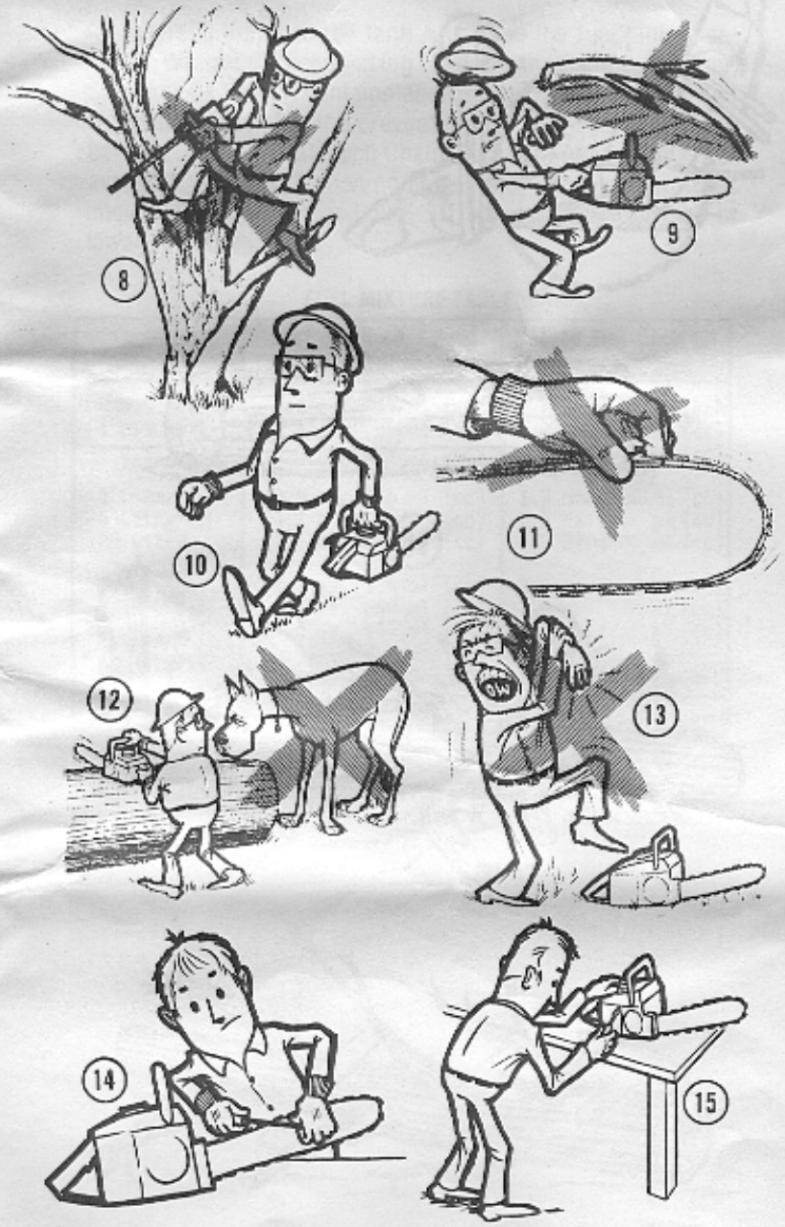
WE STRONGLY RECOMMEND you do not attempt to operate the saw while **IN A TREE, ON A LADDER** or **ON ANY OTHER UNSTABLE SURFACE.** If you elect to do so, be advised that these positions are **EXTREMELY DANGEROUS.** ⑧

DON'T CUT IN AWKWARD POSITIONS (off-balance, out-stretched arms, one-handed, etc.).

WHEN CUTTING A LIMB THAT IS UNDER TENSION be alert for springback so that you will not be struck when the tension is released. ⑨

USE EXTREME CAUTION when cutting small size brush and saplings because slender material may catch the saw chain and be whipped toward you, or pull you off balance. ⑨

VIBRATION — Avoid prolonged operation of your chain saw and rest periodically, especially if your hands or arms start to have a loss of feeling, swell or become difficult to move. These conditions can reduce your ability to control a saw.



EXHAUST FUMES — Do not operate your chain saw in confined or poorly vented areas.

OBSERVE ALL LOCAL FIRE PREVENTION REGULATIONS. We recommend that you keep a fire extinguisher and shovel close at hand whenever you cut in areas where dry grass, leaves or other flammable materials are present.

NOTE: Spark arrester screens are available for installation in your muffler where fire regulations require them. Check local regulations for your special requirements.

NEVER OPERATE YOUR CHAIN SAW WITHOUT A MUFFLER.

DO NOT CARRY THE SAW BY THE CHAIN BRAKE LEVER.

WHEN TRANSPORTING YOUR CHAIN SAW, use the appropriate guide bar scabbard.

TURN OFF YOUR SAW WHEN MOVING BETWEEN CUTS and before setting it down. Always carry the chain saw with the engine stopped, the guide bar and saw chain to the rear, and the muffler away from your body. ⑩

DON'T TOUCH or try to stop a moving chain with your hand. ⑪

DON'T ALLOW ANY OTHER PERSON or **ANIMAL CLOSE** to a running saw or where a tree is being cut down. ⑫

DON'T TOUCH or let your hand come in contact with a hot muffler, spark arrester, or a spark plug wire. Don't run the saw without a muffler, exhaust stack, or a spark arrester. Keep screens and baffles clean. ⑬

KEEP THE CHAIN SHARP and **SNUG** on the **GUIDE** bar. ⑭

DON'T ALLOW DIRT, FUEL or **SAWDUST** to build up on the engine or outside of the saw.

KEEP ALL SCREWS and **FASTENERS TIGHT.** Never operate a chain saw that is damaged, improperly adjusted, or is not completely and securely assembled. Be sure that the saw chain stops moving when the throttle control trigger is released. Keep the handles dry, clean and free of oil or fuel mixture. ⑮

DON'T OPERATE YOUR CHAIN SAW unless the chain stops when the engine idles. (Have corrected.)

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GENERAL CUTTING INSTRUCTIONS

Before using your saw, you should review the safety precautions listed in your Owner's Manual, and all local regulations for the operation of your saw. These precautions and regulations are for your protection.

For all types of cutting, always hold saw firmly with both hands, with thumbs and fingers encircling saw handles.

Cut at high engine speeds (full throttle) only. Don't run the engine slowly at the start or during the cut.

Pre-plan a safe exit from a falling tree or limbs.

Cut wood only.

Test the operation of the CHAIN BRAKE before cutting.

FELLING

Direction of fall is controlled by the undercut. Type "A" is easy to make and is commonly used for small trees. Type "B" leaves butt end of log cut squarely across. Type "C" is a variation of Type "A". The notch should be about 1/3 diameter of the tree. On felling cut, do not cut through to notch. Uncut band of wood parallel to notch serves as a hinge. Make cuts in order shown — 1, 2, 3 on "A". ⑯

When diameter of wood being cut is greater than bar length, make two cuts as shown. ⑰

BUCKING

When bucking on a slope, always stand on the up hill side.

LOG SUPPORTED ALONG ENTIRE LENGTH: Cut from top (overbuck), being careful to avoid cutting earth. ⑱

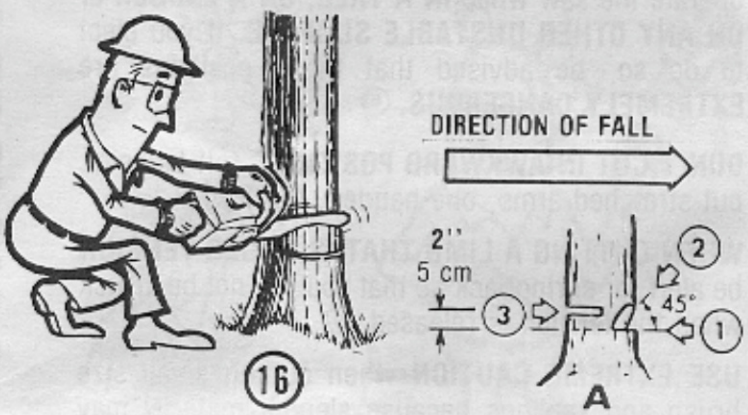
LOG SUPPORTED ON ONE END: First cut from bottom (underbuck) 1/3 diameter of log to avoid splintering. Second, overbuck to meet first cut and avoid pinching. ⑲

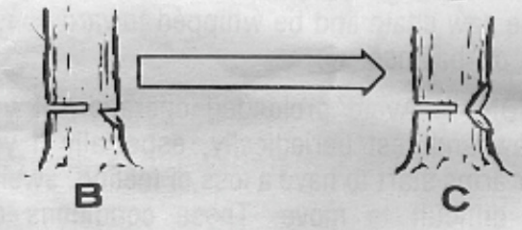
LOG SUPPORTED ON BOTH ENDS: First overbuck 1/3 diameter of log to avoid splintering. Second, underbuck to meet first cut and avoid pinching. ⑳

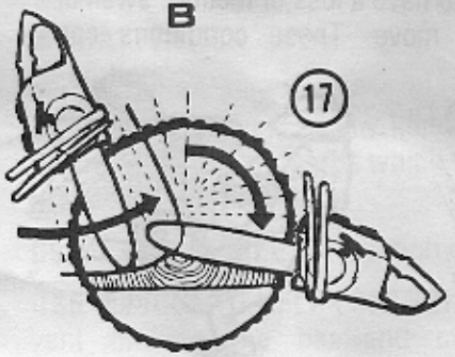
LIMBING

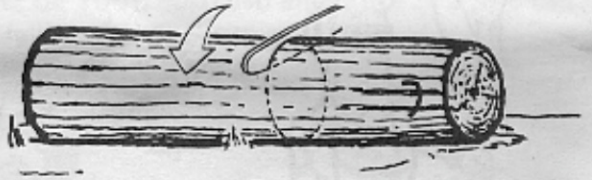
Keep the log off the ground. Do not remove supporting limbs until after the log is bucked into lengths. ㉑

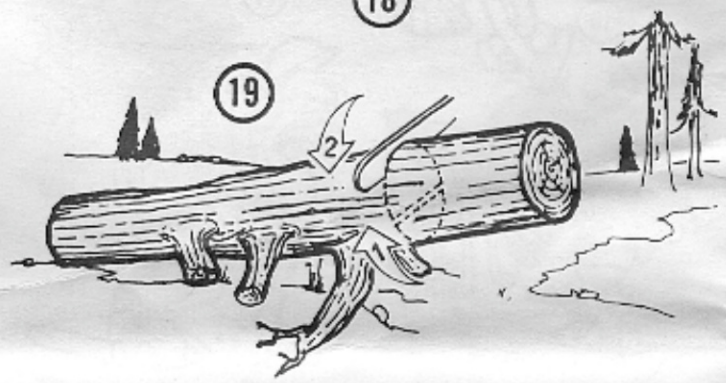
This consumer chain saw is intended for general homeowner use, and such general applications as clearing, pruning, and cutting firewood.

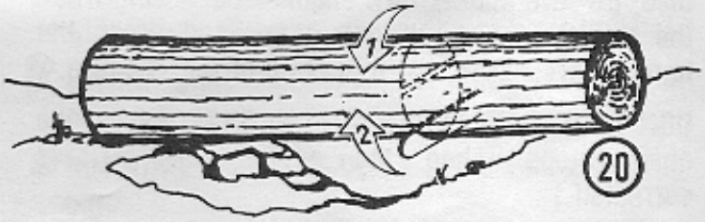














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FUEL AND LUBRICATION

FUEL

Use only regular grade leaded gasoline. Do not use highly leaded, unleaded or low lead gasolines. Chain saw fuel is a mixture of gasoline and lubricating oil. The correct ratio of gasoline to oil is very important. Follow the ratios in the Fuel Mixture Table. McCulloch 40:1 Two-Cycle Custom Lubricant is recommended. If not available, use a good grade SAE 40 two-cycle oil at a ratio of 20 to 1.

MIXING FUEL

Mix fuel in a container equipped with a flexible spout and strainer. Pour half of the gasoline and all of the oil into the container. Shake the container vigorously! Add the rest of the gasoline and shake container vigorously again. Thoroughly mixed fuel makes your saw run better.

CAUTION: Fuel additives or special starting fluids should not be used because seals and other rubber composition parts may be damaged.

CHAIN LUBRICATION

Always refill the chain oil tank each time the fuel tank is refilled. 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° F (5° C) and SAE 10 non-additive motor oil at lower temperatures.

FUEL MIXTURE TABLE

Gasoline	McCulloch 40:1 Ratio Custom Lubricant	SAE 40 Two-Cycle Oil 20:1 Ratio
½ U.S. Gal.	1.6 oz. 48 ml (cc)	3.2 oz. 95 ml (cc)
1 U.S. Gal.	3.2 oz. 95 ml (cc)	6.4 oz. 190 ml (cc)
5 U.S. Gal.	16.0 oz. 475 ml (cc)	32.0 oz. 950 ml (cc)
1 Liter	0.9 oz. 25 ml (cc)	1.7 oz. 50 ml (cc)
5 Liter	4.3 oz. 125 ml (cc)	8.5 oz. 250 ml (cc)
20 Liter	17.0 oz. 500 ml (cc)	34.0 oz. 1000 ml (cc)
1 Imp. Gal.	4.3 oz. 125 ml (cc)	8.6 oz. 250 ml (cc)
2 Imp. Gal.	8.6 oz. 250 ml (cc)	17.1 oz. 500 ml (cc)
5 Imp. Gal.	21.4 oz. 625 ml (cc)	42.8 oz. 1250 ml (cc)
Mixing Procedure	**40 parts gasoline to 1 part lubricant**	**20 parts gasoline to 1 part lubricant**

1 ml = 1cc

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INSTALLATION INSTRUCTIONS

GUIDE BAR, SAW CHAIN AND CHAIN BRAKE INSTALLATION

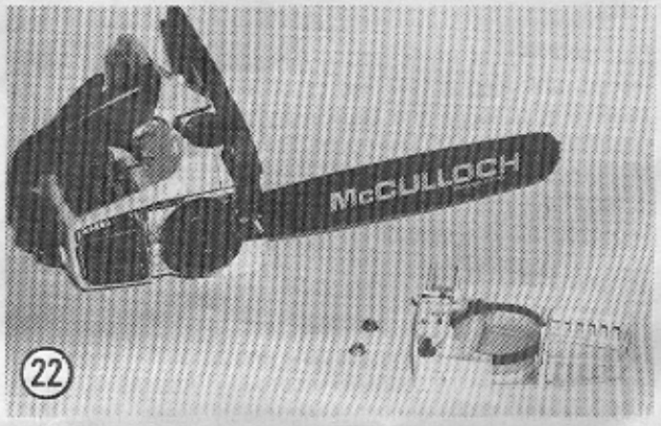
CAUTION: Do not attempt to start or run the engine until the BAR, SAW CHAIN and CHAIN BRAKE have been installed.

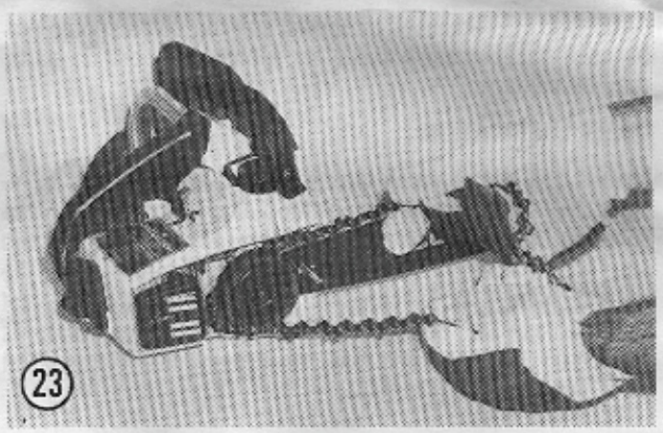
WARNING: Handle the CHAIN BRAKE carefully when it is removed from the saw because it is under tension.

1. Remove the upper retaining nut and bolt, and the lower retaining nut. Remove the CHAIN BRAKE. This is only necessary when the CHAIN BRAKE is assembled on the unit. (22)
2. Slide the slotted end of the bar over the bar mounting bolt and push it back toward the sprocket as far as it will go. (22)
3. Spread the chain out in a loop with the cutting edges of the chain pointing clockwise around the loop.
4. Tilt the top of the chain away from you so that you can slide it edgewise over the top of the drum (under the saw housing and sawdust deflector). (23)
5. Guide the chain around and behind the drum (between the drum and the muffler) and onto the sprocket. (24)
6. Move the chain back and forth to make sure it is in proper mesh with the sprocket and lined up with the bar groove. (25)
7. Guide the chain center links into the bar groove all the way around the bar. Pull the nose of the bar out to take up all the slack in the chain. (26)
8. Make certain the CHAIN BRAKE lever is pulled back to the disengaged position (chain can move). (27)
9. Install the CHAIN BRAKE, being certain the brake band is fitted carefully around the outside of the clutch drum, and the CHAIN BRAKE lever is set properly onto the CHAIN BRAKE. (28)

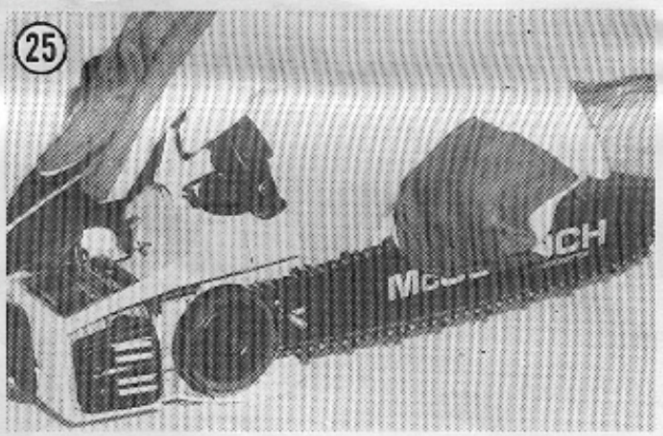
   CAUTION: THE CHAIN BRAKE CAN BE CRACKED OR BROKEN if carelessly installed. The chain tension adjustment nut (tang) **must** be properly positioned in the adjustment hole in the bar before tightening the lower retaining nut. There should be no large gaps between the CHAIN BRAKE and the saw housing, and the front should fit snug against the bar. (29)
10. Turn the chain tension adjustment screw in or out to align the nut with the bar hole. (30)
11. Install the lower retaining nut finger tight.
12. Hold the nose of the bar up and turn the adjustment screw clockwise to tension the chain. It should be a snug fit all around the bar. (31)

    NOTE: The chain has the proper tension when, with the bar locked in the uppermost position, it has a snug fit all around and will pull around the bar easily by hand. No droop or sag of the chain is permitted.
13. Holding the nose of the bar up tighten the lower retaining nut securely.
14. Install the retaining bolt and nut to the brake lever and tighten securely.

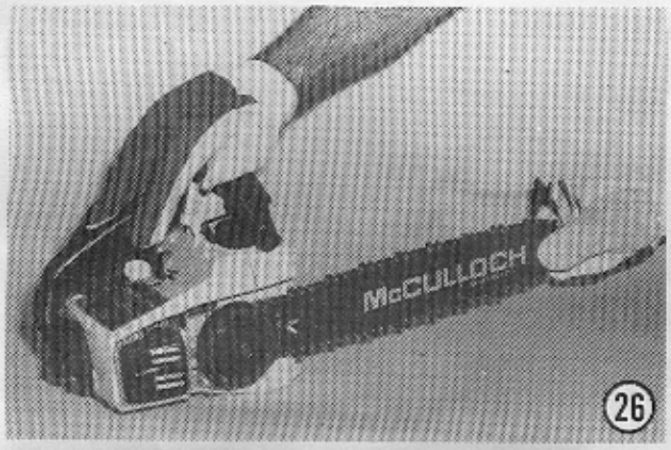


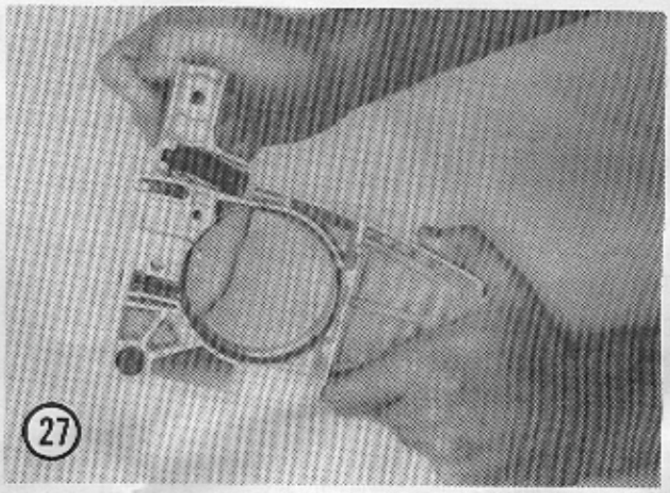


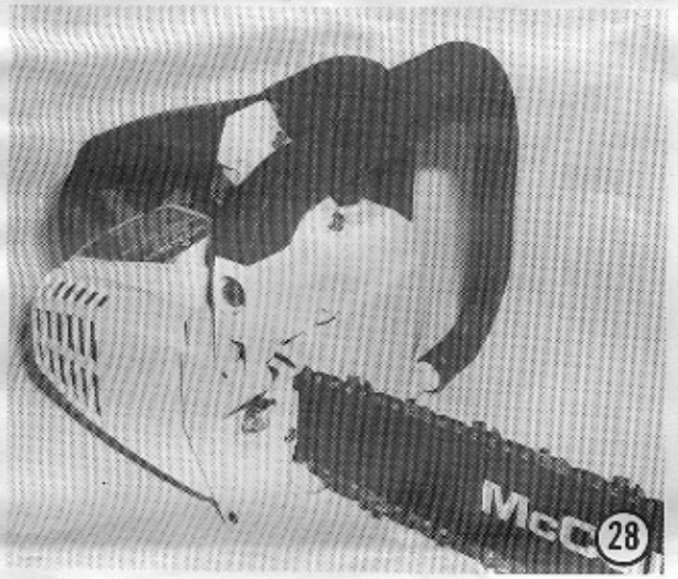


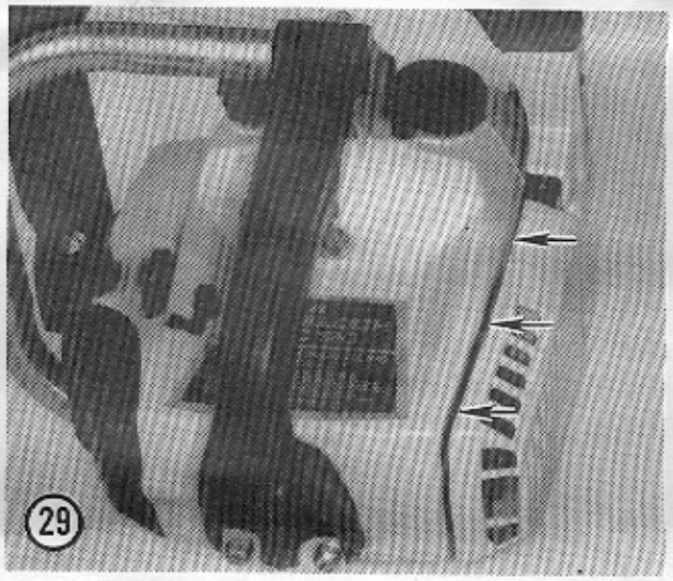


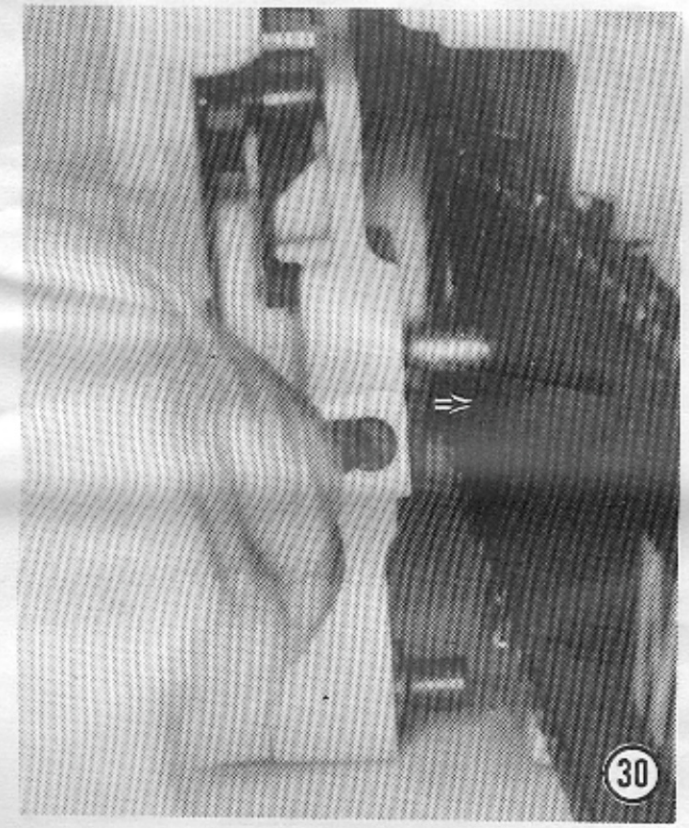
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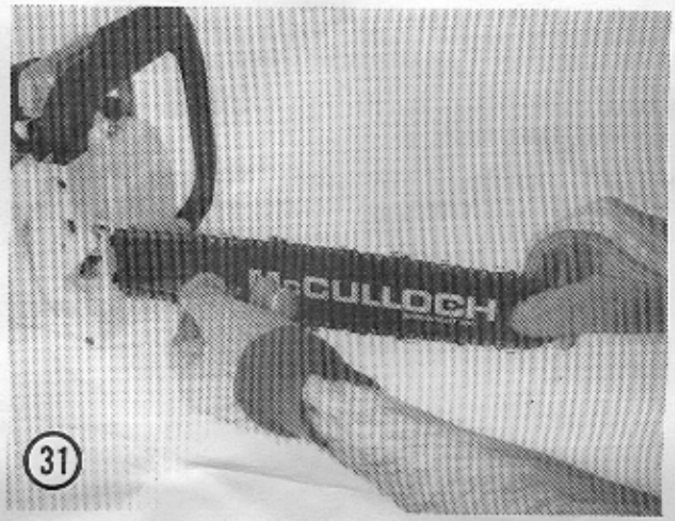












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OPERATING INSTRUCTIONS

CHAIN BRAKE OPERATION

Your chain saw is equipped with a CHAIN BRAKE that reduces the possibility of injury due to "kickback." The brake is actuated if pressure is applied against the lever when, as in the event of "kickback," the operator's hand strikes the lever. When the brake is actuated, chain movement stops abruptly.

CAUTION: Purpose of the CHAIN BRAKE is to reduce the possibility of injury due to "kickback" but it can not provide the measure of protection intended if the saw is operated carelessly.

The CHAIN BRAKE is disengaged (the chain can move) when the brake lever is pulled back and locked. (32)

The CHAIN BRAKE is engaged (chain is stopped) when the brake lever is in the forward position. (33)

When the brake has been tripped and engaged (chain stops) immediately release the throttle trigger to prevent damage to engine or clutch.

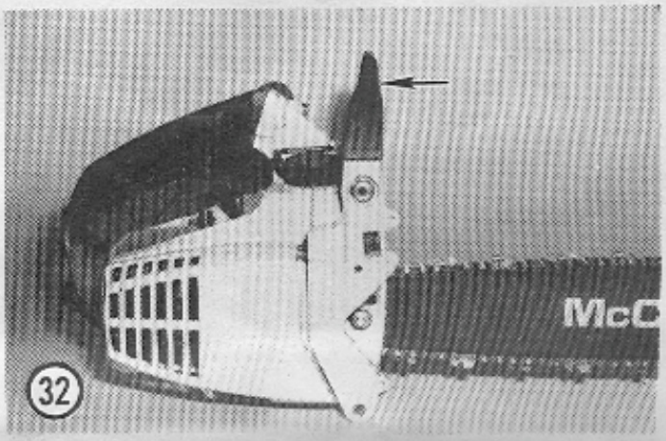
If the CHAIN BRAKE has been actuated and the engine is idling, grasp the brake lever firmly and pull back to the locked position while controlling the saw with a hand grasping the rear handle. Be careful not to squeeze the throttle trigger.

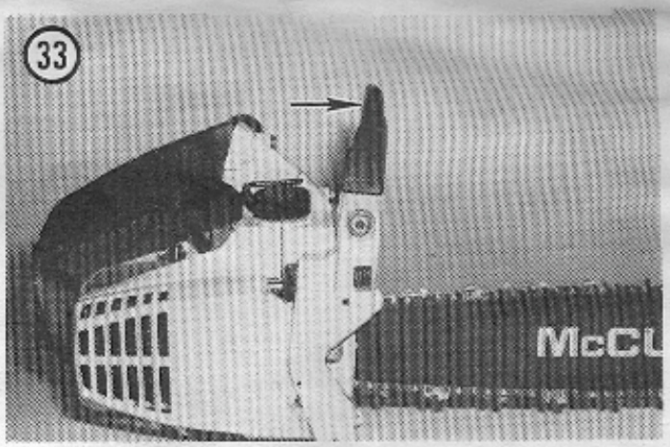
NOTE: Do not attempt to start or operate the engine with the brake engaged (chain is stopped). Do not allow the engine to idle for long periods of time when the brake is engaged as this tends to build up heat in the sprocket bearing.

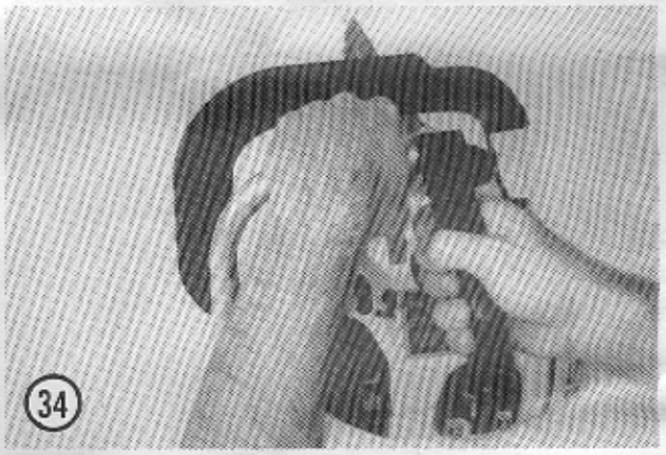
Before cutting with your saw, test the CHAIN BRAKE as follows:

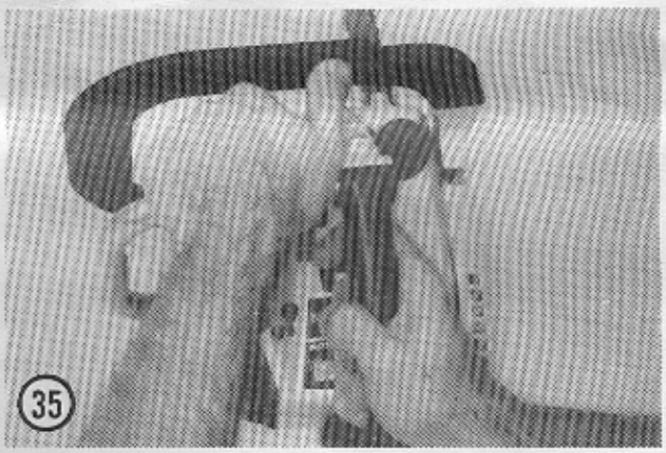
1. Place the saw on a firm flat surface.
2. Follow the correct procedures to start the engine.
3. Grasp the rear handle firmly with the right hand. (34)
4. With the left hand, hold the front handle (not the CHAIN BRAKE lever) firmly. (34)
5. Squeeze the throttle trigger so that the chain begins to move, then activate (push forward) the CHAIN BRAKE lever. (35)

   CAUTION: Activate the **CHAIN BRAKE SLOWLY** and **DELIBERATELY.** Be careful to keep chain from touching surface: don't let saw tip forward.

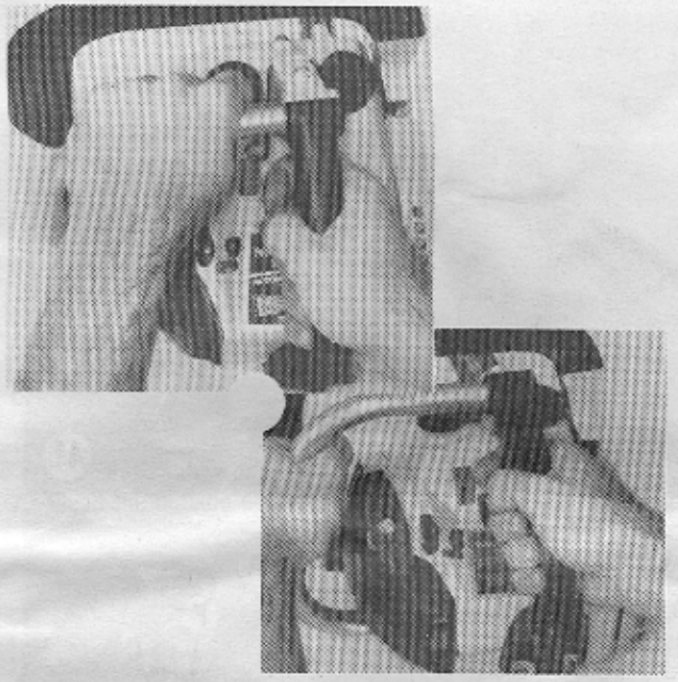




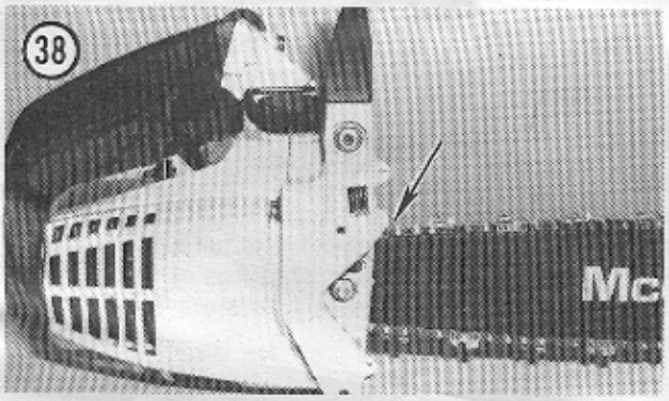


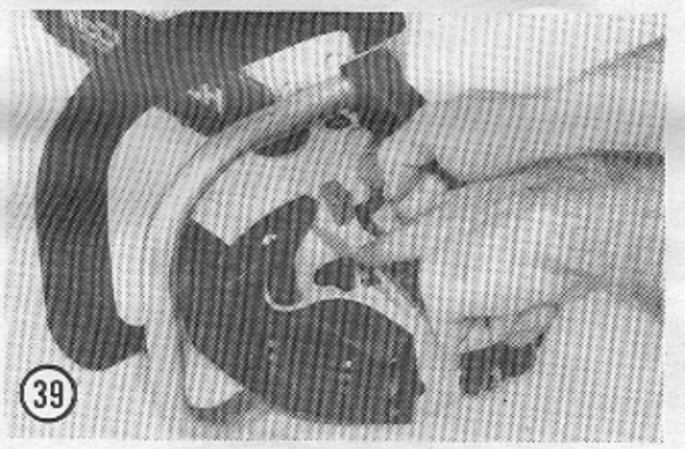


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6. The chain should stop abruptly. When it does, release the throttle trigger immediately.

   NOTE: If the chain does not stop, turn off the engine and check to be sure the CHAIN BRAKE is properly installed. If the installation is correct, take the saw to your McCulloch dealer for repair or replacement of the CHAIN BRAKE assembly.

The CHAIN BRAKE lever (hand-guard) provides the best protection against kickback when the saw is held at the top of the front handle. As the left hand moves around the front handle (toward the bottom of the saw) the CHAIN BRAKE becomes increasingly difficult to activate. However, the CHAIN BRAKE lever will act as a hand-guard if the saw is being held at any point on the front handle. (36)

DO NOT HOLD THE SAW BY THE CHAIN BRAKE LEVER.

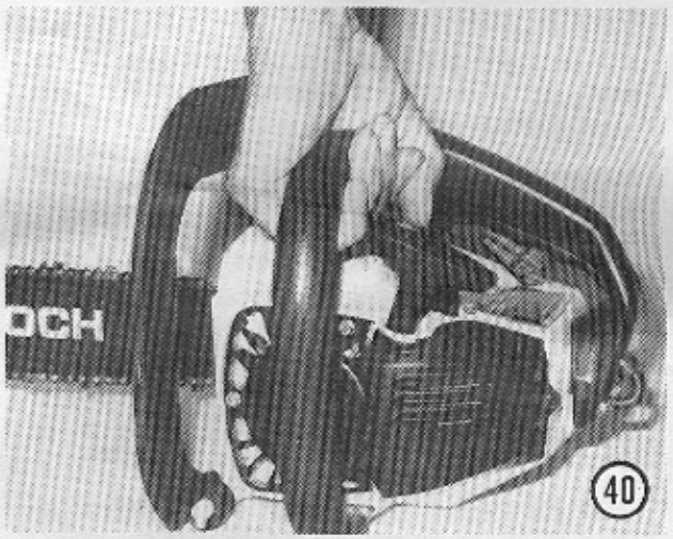
STARTING AND STOPPING

Pre-start Checks

1. Fill the fuel tank with correct fuel mixture. Be certain not to spill fuel on the saw and, if you do, allow saw to dry out thoroughly before attempting to start or operate.
2. Fill the chain oil tank with the correct chain oil and pump manual oiler until oil is seen at top of bar just forward of the CHAIN BRAKE. (37) (38)
3. Make sure the chain has correct tension and the bar is tight on saw.

To Start

1. Place saw on firm flat surface.
2. Push red ignition/stop switch up to the "ON" position.
3. Turn the choke lever counter-clockwise (cold or vapor locked engine only).
4. Depress the safety trigger as you grasp the rear handle and squeeze the throttle trigger tightly. Hold down the throttle latch. (39)
5. Release trigger.
6. Release throttle latch button (button should stay depressed).
7. Grip front handle firmly (not brake lever). (40)



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8. Pull the starter handle slowly until you feel the starter engage, then pull with a smooth, rapid, short-stroke motion. Allow the starter rope to rewind slowly. (Never let the starter rope snap back from the extended position). Repeat until engine starts. (41)
9. Turn the choke lever clockwise after engine first fires.
10. Squeeze the throttle trigger slightly to release the throttle latch button.
11. Use the choke and throttle trigger to keep the engine running until it is warmed up. Do not run the engine at full throttle unless you are cutting wood..
12. To stop the engine push the stop switch down to the "STOP" position.

Starting Vapor Locked Engine

Vapor lock occurs in the carburetors of engines which have become extremely hot from lengthy continuous use and/or from use in extremely hot weather. After the engine has been shut off for a short time it may not start again due to the vapor lock.

To re-start an engine that is vapor locked, perform steps 1 through 8 of the normal starting procedure.

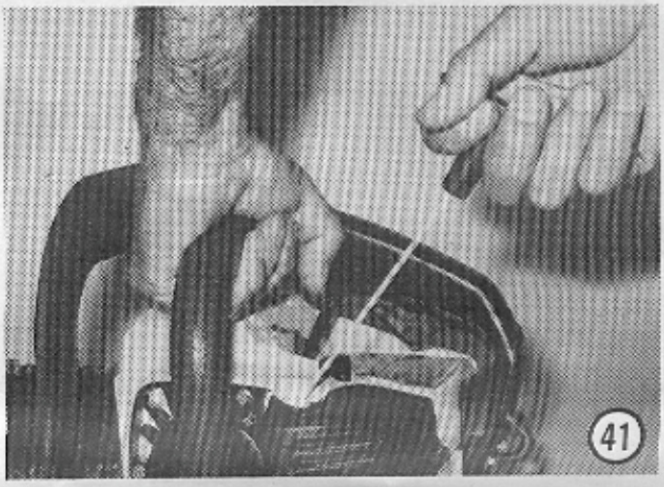
When the engine starts, immediately move the choke lever about halfway forward while alternately squeezing and releasing the throttle trigger as required to keep the engine running. Slowly move the choke lever to the open position and continue to squeeze and release the throttle trigger until the engine runs smoothly.

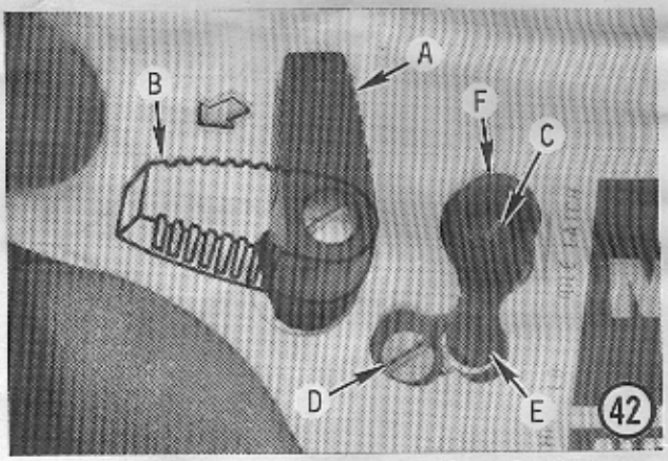
CARBURETOR ADJUSTMENT (42)

Carburetor adjustment is critical and if done carelessly can damage the carburetor and engine.

NOTE: Before making any 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 filter may correct the problem.

1. Carefully turn the low and high speed mixture needles clockwise until resistance is felt. Do not turn the needles in too tight or you can damage the needle tips and their seats. Then open (turn counterclockwise) each needle 1¼ turn.
2. Start the engine and let it warm up at low speed. If the engine will not idle without stopping, turn the idle speed screw clockwise until it does.
3. Accelerate the engine several times, adjusting the low speed mixture needle to obtain a smooth, rapid acceleration without hesitation or falter. If the needle is turned in too far, the engine will hesitate or falter when accelerated. If the needle is turned out too far, the engine will run rough and smoke heavily when accelerated.
4. Adjust the high speed needle for best power under load. Do not judge by the sound; judge by the way the saw cuts. Final position of the high speed needle will usually be between 1¼ and 1½.
5. Check idle operation again. It may be necessary to re-adjust slightly for smooth idle and acceleration.





A Choke Lever (Open Position)
B Choke Lever (Closed Position)
C Idle Speed Screw
D High Speed Mixture Needle
E Low Speed Mixture Needle
F Throttle Latch

BREAKING IN A NEW ENGINE

Breaking in a new chain saw engine is very important. Run your engine for its first few minutes at one-third throttle. Increase speed to about half-throttle and run for a few minutes longer. Cut a few limbs or small logs at first. Check chain tension frequently and use the manual oiler button often.

It is advisable to use a slightly richer fuel mixture during the break-in period. Turn the high speed mixture needle about one-eighth turn counterclockwise from the normal preliminary starting position. On carburetors with a fixed high speed jet, turn the low speed mixture needle one-eighth turn counterclockwise from the preliminary setting. After about an hour's operation, turn the adjusted needle back one-eighth turn clockwise.

STORING A CHAIN SAW

When storing the saw for short periods or transporting it with fuel in the tank, always keep the saw level and with the fuel cap up to avoid leakage from the tank or cap vent.

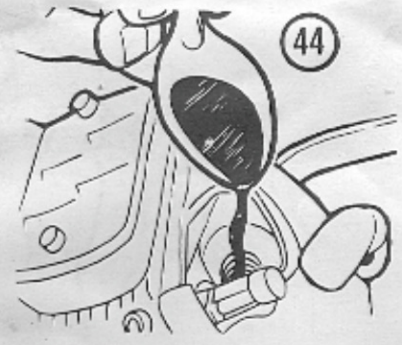
Never store a chain saw for over 30 days without performing the following procedures:

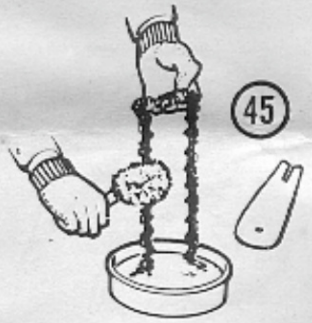
1. Drain the fuel tank in a safe area. (43)

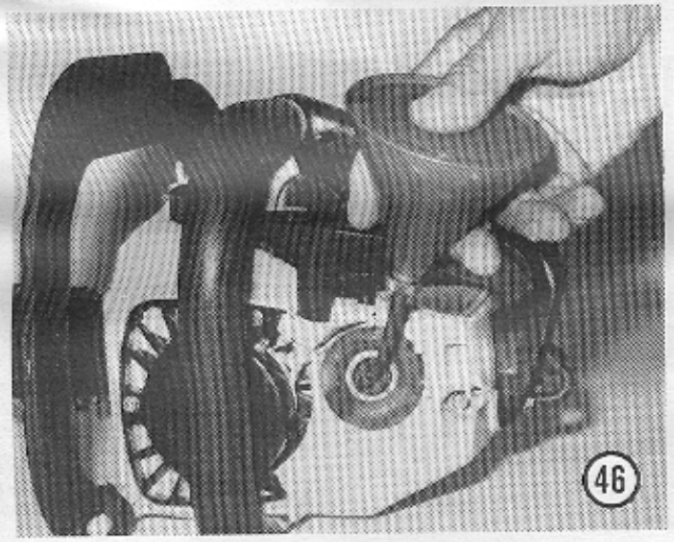
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2. Start the saw and run at idle speed until the engine stops. This will remove most of the fuel from the fuel system.
3. Remove the spark plug with a spark plug wrench and pour a teaspoonful of oil through the spark plug hole into the combustion chamber. Pull the starter rope slowly several times to distribute the oil throughout the engine. Replace the spark plug tightly. (44)
4. Remove and clean the bar and chain (use gloves when handling chain). (45)
5. Store the chain in a container with oil covering the chain.
6. Apply a heavy film of oil over the entire bar including the groove for the chain. Cover with heavy paper, cloth or plastic.
7. Clean the outside surfaces of the saw.









8. Cover the saw with a protective cloth or plastic, and store the saw and bar in a dry place. Always store away from possible source of ignition such as furnaces, heaters, etc.
9. Ideally the saw should be operated for a short period of time (5 minutes) every 30 days. Follow the usual starting instructions.

REMOVAL FROM STORAGE

Remove the spark plug with a spark plug wrench. Pull the starter rope briskly to clear the cylinder of excess oil. Clean and gap the spark plug or install a new spark plug. Fill the fuel tank with the correct fuel mixture and fill the chain oil tank with McCulloch Chain, Bar and Sprocket Oil.

A Hint For Easier Starting

A newly manufactured saw or one which has been in storage may sometimes be difficult to start. This is because for shipping purposes one of the manufacturing processes removes all fuel from the fuel tank, fuel lines and carburetor after the engine is tested. Proper storage and long storage periods also result in removing or evaporating all fuel from the engine.

Under these circumstances, it can be easier to start the engine in the following manner: Remove the air filter cover and air filter. Prime the engine by injecting about half a teaspoon of the proper fuel mixture through the carburetor air intake. (45) (An oil can filled with the proper fuel mixture is ideal for this purpose.) Take care not to flood the engine and do not spill fuel into the airbox. It usually takes two or three pulls of the starter rope to draw the fuel into the combustion chamber and start the engine. It may be necessary to start the engine two or three times in this manner before the engine will run on its own fuel system. As soon as the engine is running on its own fuel system, stop the engine and replace the air filter and air filter cover. Never do any cutting with the air filter and air filter cover off the engine.

NOTE: DO NOT USE THIS METHOD FOR REGULAR STARTING!

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MAINTENANCE

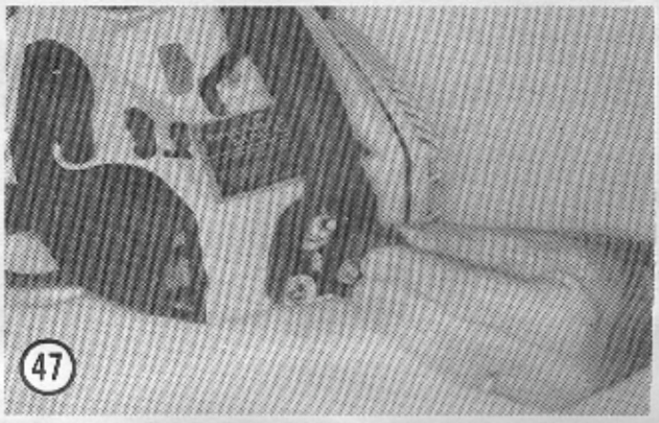
All chain saw service, other than the items listed here in your Owner's Manual maintenance instructions, should be performed by your authorized McCulloch Servicing Dealer.

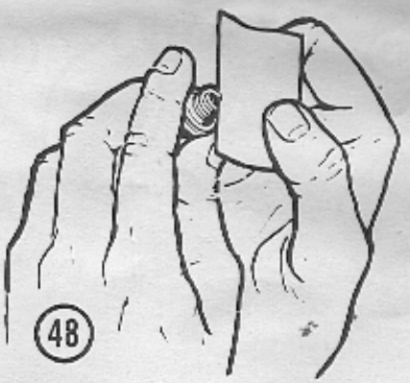
Keep the saw, bar and chain clean. Do not allow the filters, muffler, and cylinder fins to become plugged or covered with sawdust, dirt or other foreign material. Never put dirty fuel or chain oil into the saw.

SPARK PLUG

For efficient operation of the saw engine, the spark plug must be kept clean and properly gapped.

1. Push ignition stop switch to "OFF" position.
2. Disconnect the black rubber connector on end of the wire (47) from spark plug by twisting and pulling at the same time.
3. Remove spark plug with spark plug wrench. Do not use any other tool.
4. Clean electrodes with emery cloth or fine sandpaper. Blow all dust away. Do not use a grit-type cleaning machine. Wear eye protection during this operation. (48)
5. Adjust the electrode air gap to 0.025 in. (0.635 mm) by bending side electrode only. (46)
6. Re-install spark plug and black rubber spark plug connector on end of ignition wire.
7. For replacement spark plugs of different heat ranges, see your McCulloch dealer.





FUEL TANK VENT

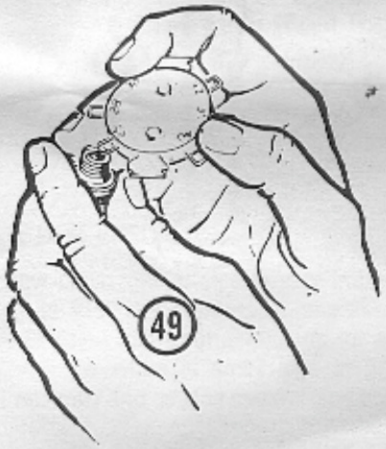
The fuel tank or fuel cap is vented to prevent build-up of either pressure or vacuum in the tank. Both conditions will affect operation of the engine. The vent can become plugged through the use of dirty fuel or dirt falling into the fuel tank during refueling operations. If pressure or vacuum develops, have your McCulloch dealer service the saw.

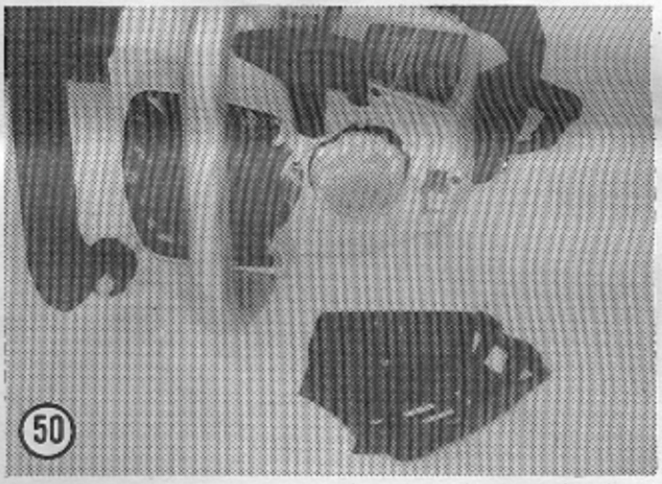
AIR FILTER

Never operate the saw without the air filter, or dust and dirt will be sucked into the engine and damage it. The air filter must be kept clean.

To clean the air filter:

1. Remove the air filter cover by loosening the screw. (50)
2. Lift off the air filter and blow it clean with low air pressure or wash it in fuel mix. Dry in open air and away from open flame. (51)
3. Reinstall the filter in its original position, centered within the ring of small locating studs.
4. Reinstall the cover. Slide the edge on the forward end under the flange of the starter cover, then press the rear end of the filter cover down until it snaps into position, smooth and even all around the edges, and tighten retaining screw.

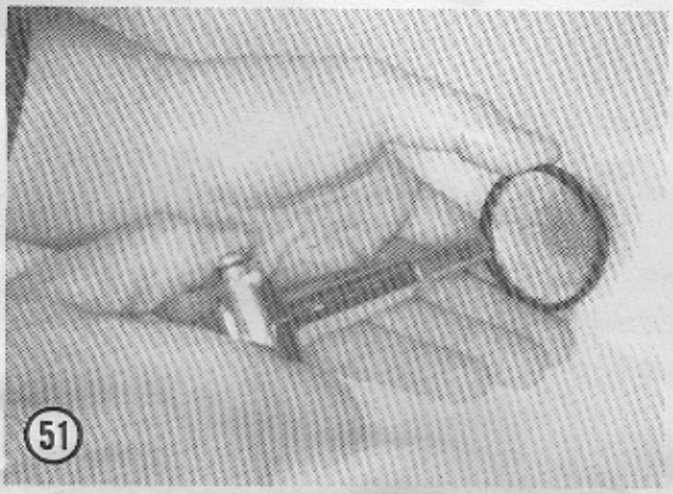




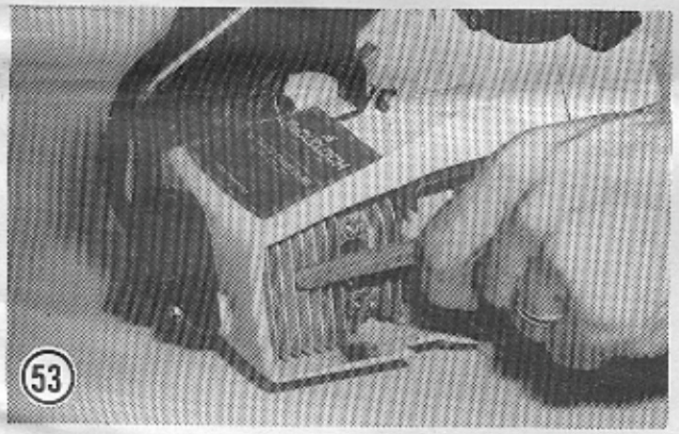
STARTER COVER AND COOLING FINS

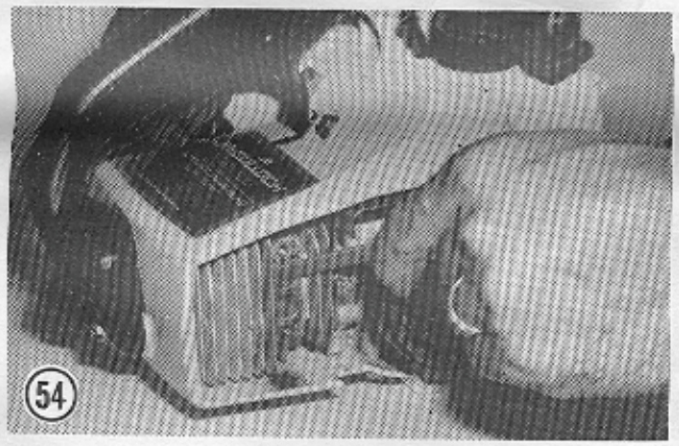
The air inlet openings of the starter cover and the cylinder

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cooling fins must be kept clean or the engine will become overheated during cutting operations. Cooling fins are easily cleaned after removing the starter cover and the muffler.

1. Remove the starter cover and clean out the openings. Use a small wooden scraper to remove dirt and sawdust packed into the mesh. Use a soft bristle brush to finish cleaning the cover. Make sure the starter shaft turns freely and easily. (52)
2. Scrape all dirt, grass, wood chips, etc. from the cooling fins on the cylinder head. Use a thin scraper or a stiff brush. (51)
3. Clean the vanes on the flywheel and the other parts of the engine that became visible when the starter cover was removed.
4. When re-installing the starter cover, pull the starter rope slowly so the starter can engage the flywheel properly.

MUFFLER OR SPARK ARRESTER AND EXHAUST PORT

Periodically it is advisable to remove, clean and inspect the spark arrester or muffler. At the same time, any carbon should be removed from the exhaust port. Operating the saw with a dirty or defective spark arrester can lead to damage to the engine. Never run the engine without a spark arrester or muffler.

1. Remove the muffler or cover and spark arrester screen if utilized.
2. Clean away all carbon deposits with a scraper blade, wire brush, or by washing with a good solvent. Replace any broken or damaged element.
3. While the muffler or spark arrester is removed from the saw, examine the exhaust port for evidence of carbon around the port. Clean the port as follows:
   A. Pull the starter rope slowly until the piston covers the port completely.
   B. Use a wooden scraper and clean in and around the port. Do not use any metal or sharp-edged tool that might slip and scratch the piston or rings. (54)
   C. After cleaning, turn the saw exhaust side down and blow loose particles away with compressed air. Protect your eyes during the operation.

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CHAIN BRAKE MAINTENANCE

The clutch drum and CHAIN BRAKE should be kept as clean and free of sawdust as possible to allow free movement and full contact of the brake band. And, as the thickness of the brake band is important to the effectiveness of the CHAIN BRAKE, it should be inspected daily for any signs of measurable wear or for any noticeable variation in the thickness of the band. The inspection can be part of the daily preventive maintenance program of rotating the guide bar for longest service life (See Preventive Maintenance Schedule). If such wear is noted the brake band should be replaced by your McCulloch Servicing Dealer. (55)

Your McCulloch Servicing Dealer has wear specifications for the band and will be happy to advise you regarding the need to replace the band.

SPROCKET, CLUTCH AND CLUTCH DRUM

You should always install a new sprocket when a new chain is installed. A damaged or worn sprocket must be replaced with a new one. The saw should never be operated with excessive clutch slippage. Evidence of slippage is shown when the chain moves very slowly or stops and the engine continues to run. This will result in a rapid and damaging heat build-up in the clutch and the clutch drum. If the clutch begins to slip, the saw should be taken to a McCulloch Dealer for servicing.

SPROCKET REPLACEMENT

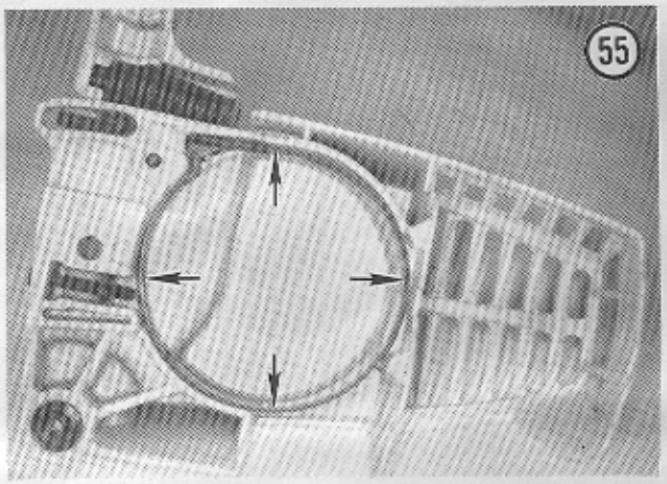
1. Disconnect spark plug wire.
2. Remove spark plug using spark plug wrench.
3. Remove the CHAIN BRAKE assembly, bar and chain, and the starter housing.
4. Lock the crankshaft by holding a ½ inch socket wrench on the flywheel nut to act as a back-up to the ½ inch socket wrench on the clutch nut. (56) (57)
5. Remove the clutch nut by turning it clockwise, then remove the dust plate and clutch. (57)
6. Remove the sprocket and drum assembly and the sprocket bearing. Lubricate the bearing with a good grade of non-fibrous chassis grease whenever replacing the bearing or the sprocket and drum assembly.
7. Install the bearing, the sprocket and drum assembly, the clutch, the dust plate and clutch nut.
8. Lock the crankshaft as explained in step 4 above. Tighten the clutch nut securely by turning it in a counterclockwise direction.

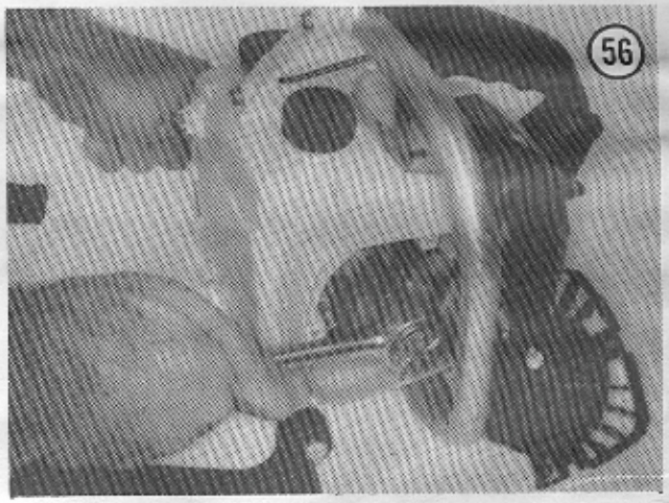
   CAUTION: Do not use excessive force when tightening the clutch nut. Too much force will loosen the flywheel nut. If the flywheel nut is loosened during this procedure, see your McCulloch dealer for corrective maintenance.

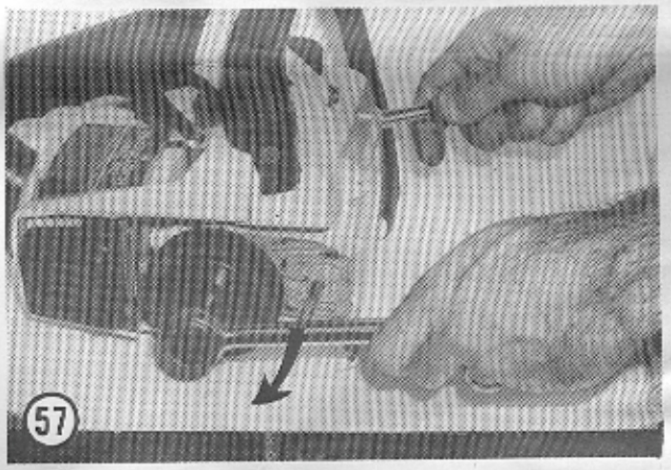
The clutch and clutch drum should be kept as clean and free of sawdust as possible. If sawdust is allowed to build up the clutch may drag causing the chain to move while the saw is idling.

AUTOMATIC OILER ADJUSTMENT

The automatic oiler is adjusted at the factory for average cutting conditions. Oil flow may be adjusted, however, for special conditions or individual requirements. Turn the adjustment screw clockwise to reduce oil flow and counterclockwise to increase it. (58)

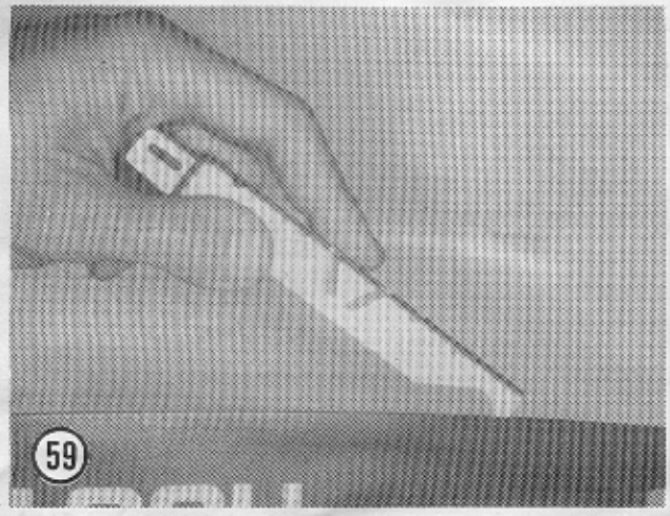


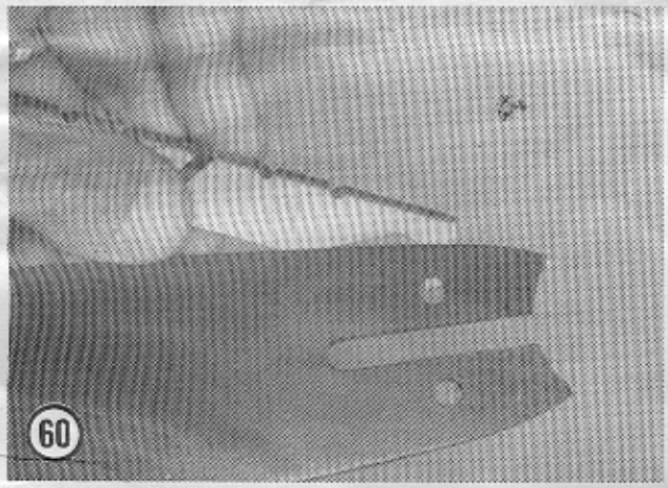


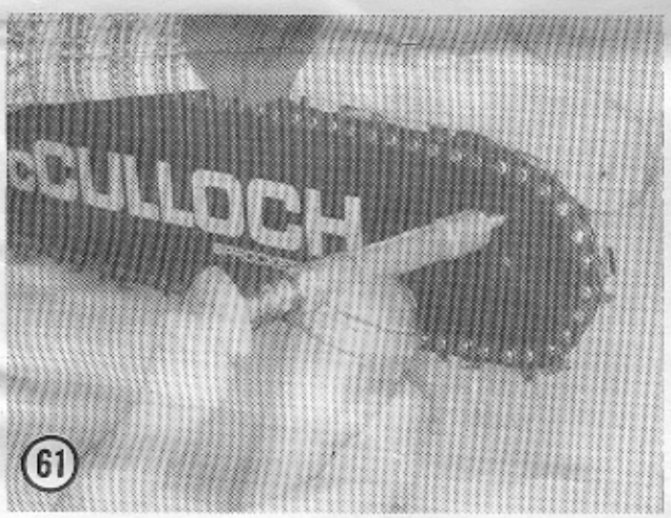




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Do not turn the adjustment screw more than 1/4 turn at a time. Check oil flow after each adjustment. When more oil is needed for short periods, it is better to use the manual oiler as a supplement and make no adjustment to the automatic oiler screw.

GUIDE BAR MAINTENANCE

Bar wear: Turn bar over frequently (at regular intervals) to ensure even wear on top and bottom of bar.

Bar groove: Bar groove should be cleaned every time chain is removed. Run depth gauge tang or similarly sized instrument along the groove until all residue is cleared. (59)

Oil Passages: Oil passages at base of bar should be cleaned periodically to ensure proper lubrication of chain and bar groove. This can be done with depth gauge tang or any instrument small enough to insert into passages. (60)

NOTE: New McCulloch depth gauges are designed with a tang which is ideally suited for cleaning bar groove and oil passages.

The condition of the oil passages should be checked before each use of the saw. While running the saw, press manual oiler button a few times. If passages are clear, the chain will give off a spray of oil.

Lubrication of Sprocket Tip: For most non-professional usage the sprocket tip will not require lubrication. However, lubrication is necessary for professional usage and under the following circumstances:

1. Continuous cutting of dry or highly abrasive wood.
2. Continuous boring cuts.
3. Continuous cutting with the bar tip.
4. Continuous cutting in wet or snowy conditions.

Under these circumstances lubrication is recommended after one hour of hard usage or after three (3) tanks of gas are consumed.

NOTE: Thoroughly clean bar tip before lubrication.

Three methods of lubrication for the sprocket tip may be used:

1. **Needle Nose Grease Gun:** Clean lubrication hole. Using a general purpose chassis lubricant of No. 1 consistency, force grease into lubrication hole on one side of bar while covering the lubrication hole on the other side. Rotate sprocket and apply grease until it appears at edge of sprocket. Repeat on other side of bar. (61)

   NOTE: Lubri-Gun, P/N 68090, is recommended by McCulloch Corporation for applying grease to sprocket tip. Its small nozzle is necessary for efficient application of grease to sprocket tip.

2. **Oil Can:** Squirt the appropriate weight motor oil (SAE 10 in cold weather, SAE 30 in hot weather) into lubrication hole while turning sprocket. Repeat on other side of bar.

3. **Oil Soak:** Fill a small container with clean oil and submerge bar tip in oil. Rotate sprocket several revolutions. Bar tip may be submerged overnight for maximum lubrication.

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CHAIN MAINTENANCE

How you care for your chain saw determines the kind of service you will get from it.

The use of McCulloch Depth Gauge Tools and a McCulloch File Guide is recommended.

Chain should be kept clean and sharp for maximum cutting efficiency.

CAUTION: Always wear protective gloves when handling chain.

CHAIN TENSION

Check the chain tension frequently and adjust as often as necessary to keep chain snug on the bar, but loose enough to be pulled around the bar by hand.

Over a period of time the moving parts of saw chain become worn which results in what is referred to as "chain stretch". When it is no longer possible to obtain the correct chain tension adjustment, a link will have to be removed to shorten the chain. See your McCulloch Servicing Dealer to have this repair performed.

NEW CHAIN BREAK-IN

1. Run chain at low speed without cutting for 5 minutes. Push manual oiler button every 10 to 15 seconds to provide extra oil.
2. After 5 minutes, shut off engine and recheck and adjust chain tension.
3. Keep the chain well lubricated.
4. After 10 minutes, shut off engine and check chain tension. Adjust if necessary. Repeat chain tension check often during the first few hours of cutting.

CHAIN LUBRICATION

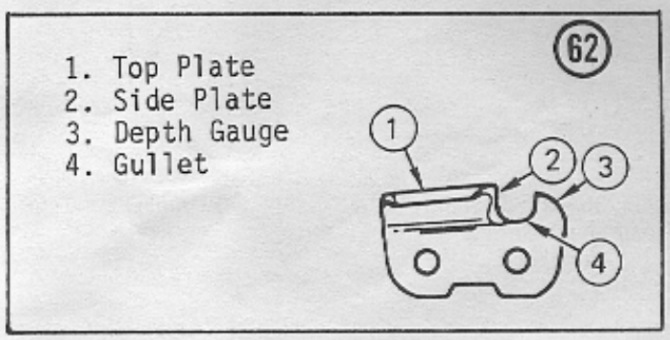
Make sure manual and automatic oiler are working. Keep oiler tank filled with clean McCulloch Chain, Bar and Sprocket Oil.

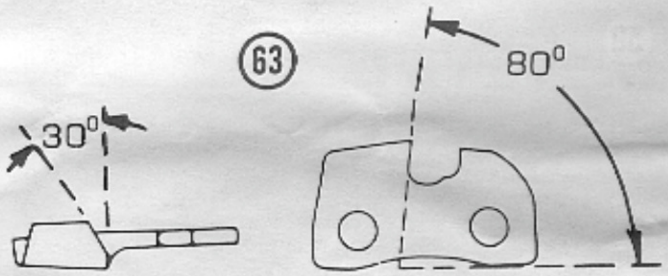
Use plenty of oil on chain when cutting. Never let chain run dry on the bar. In abrasive wood, use extra oil.

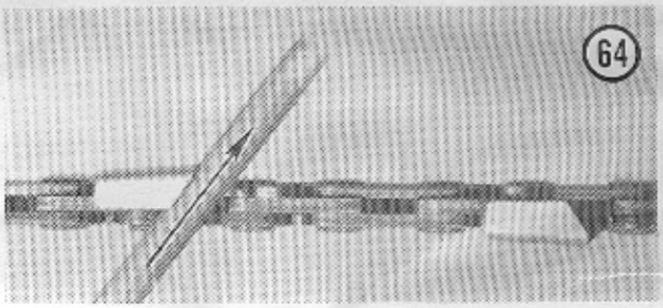
CHAIN SHARPENING (62)

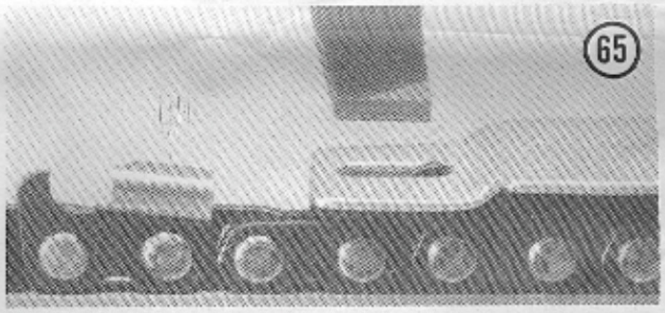
McCulloch saw chain is a precision manufactured cutting attachment and requires regular inspection and care to maintain peak cutting efficiency. Touch up sharpening may be required once or twice during a day's wood cutting. In some areas where sand or other abrasives have become embedded in the bark of trees, cutter teeth dull more rapidly and more frequent sharpening may be required.

1. Chain can be sharpened on saw or place the chain in a chain-filing vise.
2. Use a 5/32 inch (3.9 mm) round file and a file guide marked for a 30° top filing angle. (63)
3. Hold the file at the correct top filing angle, apply pressure against the face of the tooth, and push the file toward the outside of the tooth. Release pressure on the cutting edge on the return stroke. (64)









4. Repeat sharpening stroke until tooth is sharp. Drop file into gullet and clean out with a few light strokes. Do not touch cutting edge of the tooth.
5. Sharpen all teeth on one side of chain before sharpening teeth on the other side. Use same number of strokes on each tooth to help keep all teeth the same length.

LOWERING DEPTH GAUGES

1. Place depth gauge tool over two cutter teeth with depth gauge on first cutter projecting through desired clearance of depth gauge tool. (65)
2. Remove projecting part of depth gauge with a flat file. (65)
3. After lowering all depth gauges, round off their leading edges. Maintain same profile as on original depth gauge.
4. Always place depth gauge to be filed at same place on bar when lowering depth gauges.

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PREVENTIVE MAINTENANCE

A good preventive maintenance program of regular inspection and care will increase life and improve performance of your McCulloch chain saw. This maintenance check chart is a guide for such a program. Cleaning, adjustment, and parts replacement may, under certain conditions be required at more frequent intervals than those indicated*. The chain oiler must be kept constantly in good operating condition and the chain must be kept snug on the bar.

*After the first 7 days or 15 hours of operations, whichever comes earliest, take your saw back to your nearest McCulloch Servicing Dealer for an inspection and checkup. He will be pleased to help you establish a preventive maintenance program to suit your needs. The recommended first 7-day or 15-hour checkup and a follow-up of regular, periodic checkups and tune-ups at your McCulloch Dealer's shop wil be minimal in cost and will assure long, satisfactory service from your McClulloch chain saw.

PREVENTIVE MAINTENANCE CHECK CHART

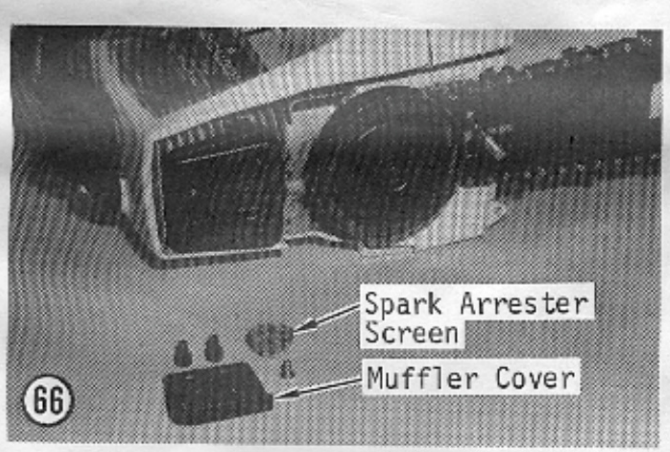
ITEM	MAINTENANCE	FREQUENCY			
		DAILY	WEEKLY	MONTHLY	AS REQD
SCREWS, NUTS, BOLTS	INSPECT & TIGHTEN	●			
CONTROLS	INSPECT	●			
AIR FILTER	CLEAN	●			
	REPLACE		●		
SAWDUST GUARD	CLEAN	●			
CHAIN	INSPECT & SHARPEN	●			
BAR	CLEAN & TURN	●			
SHOCK MOUNTS	INSPECT	●			
	REPLACE*				●
SPROCKET	INSPECT	●			
	REPLACE				●
FUEL FILTER	CLEAN		●		
OIL SCREEN	CLEAN		●		
MUFFLER	CLEAN	●			
SPARK PLUG	CLEAN & ADJUST		●		
	REPLACE				●
CYLINDER FINS	CLEAN			●	
STARTER ROPE	INSPECT		●		
	REPLACE*				●
CARBURETOR	CLEAN*			●	
FUEL TANK	CLEAN			●	
BREAKER POINTS	CLEAN & ADJUST*			●	
LAMINATION GAP	CLEAN & ADJUST*			●	
EXHAUST PORTS	CLEAN*			●	
FUEL, OIL & PRESSURE HOSES	CHECK*	●			●
CARBURETOR DIAPHRAGM	REPLACE ONCE A YEAR*				
CRANKSHAFT SEALS	REPLACE ONCE A YEAR*				

*Recommended for maintenance by an authorized McCulloch Dealer.

ACCESSORIES

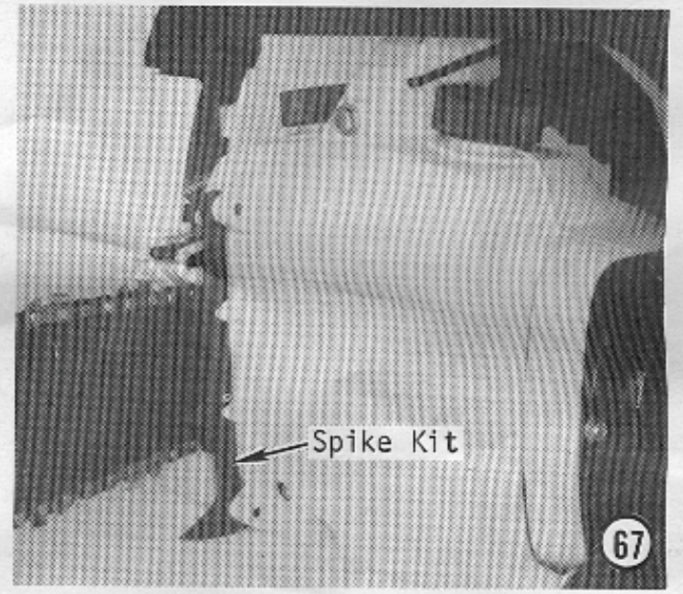
SPARK ARRESTER SCREENS (66)

An accessory spark arrester screen is available from your McCulloch dealer for installation on the saw muffler under the muffler cover. Local regulations may require the accessory screen for fire prevention or other special cutting conditions.



SPIKE KIT (67)

Spikes, which act as wood grippers and fulcrum points for cutting control, are accessory items available from your McCulloch dealer.



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