

FIRST EDITION

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OWNERS Operation & Maintenance MANUAL



VI SUPER 2
Automatic Oiling



VI SUPER 2 SL
Automatic Oiling

HOMELITE **VI Super 2** *Automatic Oiling* **CHAIN SAWS**

WARNING: CHAIN SAWS CAN BE DANGEROUS. TO REDUCE DANGER, FOLLOW ALL SAFETY PRECAUTIONS IN THIS OWNER'S MANUAL.

HOMELITE **TEXTRON**

Homelite Division of Textron Inc.

CONTENTS

INTRODUCTION

Facts About VI Super 2 Series of Chain Saws	2
Safety Precautions (list)	3
Protective Articles, Equipment and Supplies	3
Your Physical Condition	3

Section 1 — PREPARING YOUR NEW SAW

Guide Bar and Chain Assembly	4
Chain Tension	4
Chain Oil and the Oil Pump	5
Fueling the Saw	6
How to Start, Stop and Hold the Saw Correctly	6

Section 2 — KICKBACK, PUSH and PULL

What is Chain Saw Kickback?	8
How Should You Maintain Control of Your Saw?	9
How Should You Reduce the Chance of Kickback?	9

Section 3 — THE WORKING AREA

Work Area Precautions	10
Handling and Securing the Saw	11
Unusually Hazardous Conditions	11

Section 4 — TECHNIQUES OF CUTTING

Bucking, Limbing and Pruning	12
Cutting Variations According to Stress Factors	12

Springpoles	13
Boring with the Nose Section	13
Tree Felling Techniques	14
Notching	14
Backcutting	14
Felling "Leaners"	15
Felling Large Trees	15
Changing Direction of Fall	15

Section 5 — MAINTENANCE AND ADJUSTMENT

Homelite® Saw Chain (Identification)	16
Filing Equipment for Pro-Cut 375 Chain	16
How to File the Cutters	16
Corrective Refiling	17
How and When to Set Depth Gauge Clearance	17
Replacement of Worn Sprocket	18
VI Super 2 SL Chain Brake Maintenance and Adjustment	18
Guide Bar Maintenance	18
Air Filter Maintenance	19
Carburetor Adjustment	19
Maintenance of Tanks, Caps and Pick-ups	20
Rewind Starter Maintenance and Repairs	20
Ignition, Cooling and Exhaust System Maintenance	22
Storing Your Saw	23

INTRODUCTION

Facts About VI Super 2 Series of Chain Saws

We strongly urge you to study the entire contents of this Owner's Manual even before you begin to assemble the unit. Proper assembly and maintenance go hand in hand with the proper operation of your saw. So don't wait until something goes wrong with the saw to find out how to care for it. This manual tells you how to operate and maintain your saw correctly, and also how to make emergency repairs.

There are two models: VI Super 2 and VI Super 2SL. The VI Super 2 has a hand guard designed to protect the operator's left hand from contact with the moving chain. It also features the SAFE•T•TIP™ (Pat. Pending), the new Homelite anti-kickback device. The VI Super 2SL has a chain brake.

WARNING:

The VI Super 2SL chain brake is designed to be actuated by motion of the saw against the operator's left hand during a kickback. However, the chain brake will not work in some positions such as during tree felling where the operator's hand is not in position to actuate the kickback guard. A chain brake will not prevent kickback any more than wearing a safety belt will prevent automobile accidents. For your safety, rely on using the proper grip, stance and cutting techniques (See instructions in Sections 2 and 3) to maintain control of saw at all times and minimize the chances of kickback.

A three-point vibration isolation system effectively reduces the amount of engine and cutting chain vibrations transmitted through the saw handle to the operator. The throttle control system includes a safety interlock on the top of the rear handle. The system is designed so that the engine can be throttled up to chain rotation speed only when the operator wants to

throttle it up. When the trigger is in idle position, the engine can be throttled up only if the interlock is depressed before the trigger is squeezed.

NOISE LEVEL OF MODEL SUPER 2 SERIES

Noise level measurements of Model VI Super 2 series of chain saws show that the noise emitted by a new model VI Super 2 can approach 109 dBA. Long or continuous exposure to high noise levels, such as involved in the operation of a chain saw, may cause permanent hearing impairment or other possible effects. Hearing protection devices are available from your Homelite dealer, or can be ordered through him. When ordering, specify "Homelite Hearing Protectors, #92810."



HOMELITE SAFE•T•TIP™ (Pat. Pending)

In your VI Super 2 saw carton, you will find a Safe•T•Tip and an instruction booklet telling you how to attach it to your guide bar and how to operate with a Safe•T•Tip. When properly installed, The Safe•T•Tip prevents chain saw kickback from happening.

SAFETY PRECAUTIONS FOR CHAIN SAW USERS

When you are going to cut wood—DO IT RIGHT!

BASIC PRECAUTIONS FOR PERSONAL SAFETY

Use safety footwear, snug-fitting clothing, and eye, hearing and head protection.

Wear non-slip gloves to improve your grip. Do not wear scarfs, jewelry, or neckties which could be drawn into the engine or catch on the chain or underbush.

Always hold the chain saw with both hands when the engine is running. Use a firm grip with thumbs and fingers encircling the chain saw handles.

Guard Against Kickback:

- Hold the chain saw firmly with both hands. Don't overreach. You cannot maintain good control of the saw if you cut above shoulder height.
- Don't let the nose of the guide bar contact a log, branch, the ground or any other obstruction.
- Cut at high engine speeds.
- Don't operate with a loose chain. Maintain the correct tension of the chain as prescribed in this Owner's Manual.

Guard against the effects of a long or continuous exposure to noise, such as involved in the operation of a chain saw. Hearing protection devices are available from your local Homelite dealer.

Never operate a chain saw when you are fatigued.

Keep all parts of your body away from the saw chain when the engine is running.

BASIC PRECAUTIONS WITH CHAIN SAWS

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.

Always use caution when handling fuel. Move the chain saw at least 25 feet (7.7M) from the fueling point before starting the engine.

Keep the handles dry, clean and free of oil or fuel mixture.

Before you start the engine, make sure the saw chain is not contacting anything.

Do not leave the engine running unattended.

Operate the chain saw only in well ventilated areas.

Be sure that the chain stops moving when the throttle control is released.

BASIC PRECAUTIONS IN CUTTING/WORK AREA

Keep bystanders and animals out of the work area when starting or operating the chain saw.

Never start cutting until you have a clear work area, secure footing, and a planned retreat path from the falling tree.

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.

When cutting a limb that is under tension, be alert for spring-back so that you will not be struck when the tension in the wood fibers is released.

BASIC PRECAUTIONS ABOUT MAINTENANCE

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.

All chain saw service, other than items in the Owner's Manual maintenance instructions, should be performed by competent chain saw service personnel. (If improper tools are used to remove the flywheel or clutch, or if an improper tool is used to hold the flywheel in order to remove the clutch, structural damage to the flywheel could occur which could subsequently cause the flywheel to burst.)

PROTECTIVE ARTICLES, EQUIPMENT & SUPPLIES



YOUR PHYSICAL CONDITION

Work relaxed but stay alert. Take a break from work whenever you begin to tire. Never operate when tired or under the influence of alcohol or any drugs which may affect your balance, coordination or judgement. If you have any serious ailments

such as a heart condition, check with your doctor before doing any strenuous lifting, reaching, pushing, chopping, shoveling, etc. Always do any lifting job with your leg muscles, not your back.

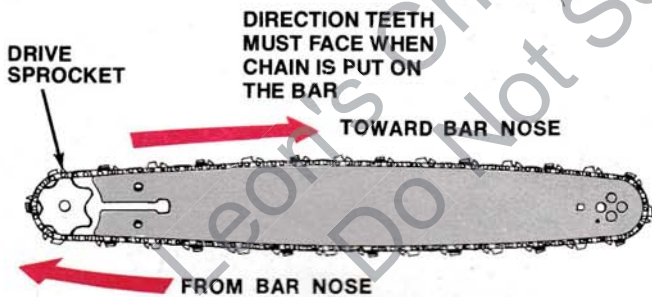
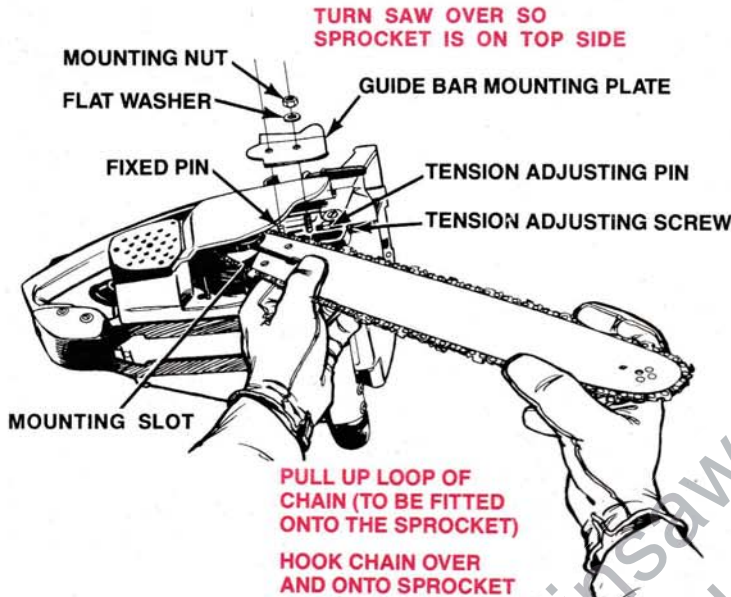
SECTION 1—PREPARING YOUR NEW SAW

Guide Bar and Chain Assembly

IMPORTANT:

Wear gloves for protection against the sharp teeth whenever you are working on the saw chain.

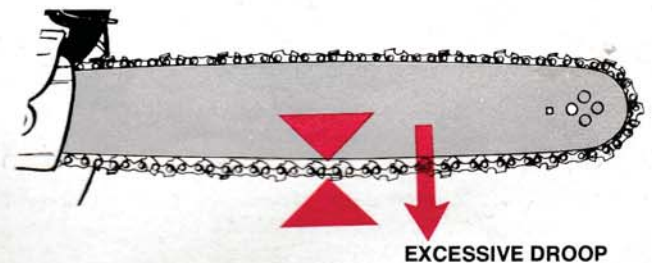
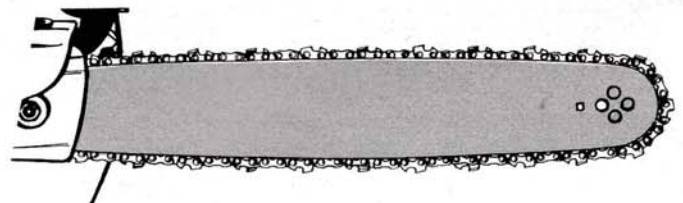
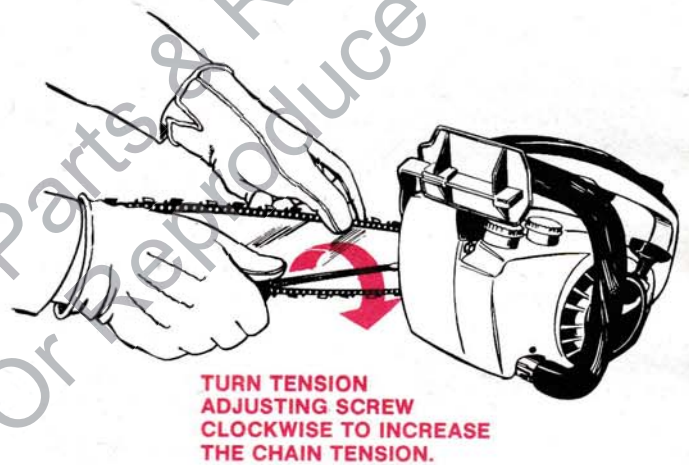
1. Throw the switch into the "STOP" position to insure that the engine will not start while you are working on the saw.
2. If your saw has a chain brake, put the brake hand guard in the upward position (where the brake bands do not engage the clutch drum).



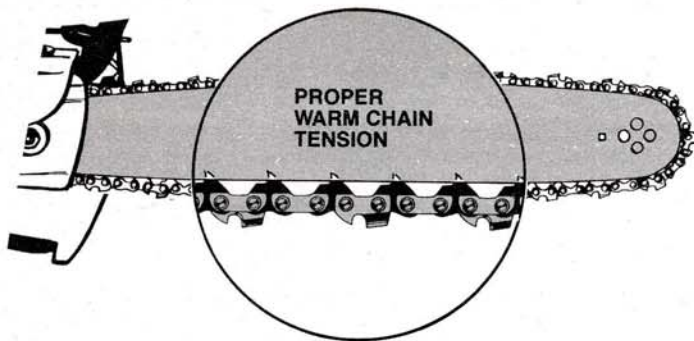
3. Place engine on work surface so guide bar mounting pad and sprocket are face up. Turn tension adjusting screw until adjusting pin is at rear of slot in mounting pad.
4. Remove the mounting nut and flat washer, and the guide bar mounting plate from the mounting pad of the engine.
5. Unpack bar and chain. Straighten any kinks in the chain and lay it out in a loop. Cutting edges should face in direction of chain rotation which is from bar nose toward sprocket along bottom edge of bar.
6. Put the chain tangs into the bar groove and pull the chain so there is a loop at mounting end of bar. Holding chain in place on bar, hook the loop over and onto the chain drive sprocket. Fit the bar into place so that the fixed pins and the mounting stud and the tension pin fit into the long mounting slot of the bar.

7. Check that the bar is flush against the mounting pad. Check that the pin fits cleanly into the slot — Hold bar in the flush position and put the guide bar plate, flat washer and mounting nut back onto the saw.
8. Check that the bar and pins are still in place. Then turn down the nut with a wrench until the bar is quite snug against the rod (and adjusting pin cannot come out of the slot). Leave the bar free enough to slide when the tension adjusting screw is turned.
9. Turn the tension adjusting screw clockwise to move the bar away from the sprocket. Keep turning until nearly all of the chain slack is taken up, turn saw to the right side up position before adjusting the chain tension.

CHAIN TENSION



Starting with proper "Cold tension," chain will stretch and droop as it heats up, limbers up and/or wears in operation. It should be adjusted any time chain tangs hang almost out or completely out of bar rails at point shown.



Adjustment of warm chain! Tighten until tangs move half-way up into bar groove. Check tension after bar has cooled, because only a cool chain can be tensioned accurately.

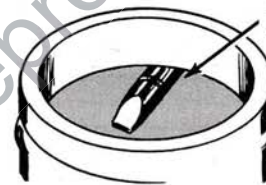
1. Proper tension is extremely important. The mounting nut should be loose enough to permit movement of the guide bar during tension adjustment. Hold up the nose of the bar during the adjustment steps and until the mounting nut has been tightened completely. This will take up any clearance between the bar mounting slot and the mounting pins in the direction in which pressure is most often applied during cutting.
2. "Snap" the chain to remove any kinks (pull chain away from bar and let go several times).
3. Because steel expands as its temperature rises, you will be concerned with two conditions.
 - a) The first is "cold tension". When first mounted on the bar, the chain is cool and should be "snug" or taut — As much tension as possible without your feeling any binding as you pull the chain along the bar by hand. We call this setting "cold tension." You should not see any clearance between the tie-straps and the bar rails along the bottom of the bar. Tighten the mounting nut to lock the assembly at this tension. Now you are ready to fill the saw with chain oil and fuel and make some cuts.
 - b) The second condition is "warm tension." As you operate the saw, the chain will heat up and expand, developing "droop" (too little tension). Operating with a drooping chain is damaging to the chain, bar and engine. It is also dangerous to cut with a drooping chain which can catch in the wood and pull or throw you. When wearing in a new chain and bar, you should stop to adjust the tension after each four or five cuts for the first tankful of fuel consumed. During this period, the droop will be due partly to warming of the steel and partly to loosening of the chain joints. After the joints are worn in, the chain will stretch from heat, but will return to the original tension when it has cooled.
4. Any time the chain droops to where the chain tangs hang out or almost out of the bar groove (as illustrated in picture labeled "excessive droop") you must shut off the engine immediately and do the following:
 - a) Take off your glove and feel the chain. If you cannot hold chain in your fingers without discomfort while counting to 20, the chain is *too hot to adjust* accurately. If you try to adjust an overheated chain, you will fail because the chain will be contracting rapidly as you proceed. Let the chain cool to where you can hold it comfortably before making the adjustment.
 - b) A warm chain should not be adjusted to the same tension as a cold chain. When chain is warm adjust to where the clearance between the tie-straps and bar rails at bottom, center of bar is about $\frac{1}{8}$ " (3, 2 mm) or to half the depth of the tangs (see "Proper Warm Chain Tension" illustration).

CAREFUL: Upon cooling, the chain may become too tight on the bar. Before next use, the tension should always be adjusted for proper "cold tension" after it has cooled.

5. A chain will get too hot if it is underoiled, improperly sharpened or dull, or if you are cutting hard, seasoned wood. Make it a habit to know whether your chain is in good cutting condition and is getting enough lubrication. An underoiled chain will get so hot that the joints will stiffen and the chain will then bind on the bar. If this occurs let bar and chain cool, then remove them. Clean all sawdust from the guide bar mounting pad and clutch area of the engine. Clean out the oil discharge hole in the guide bar pad, and all the sawdust from the guide bar. Reassemble and tension the chain on the saw. Fill the chain oiler with oil. Start up and run the engine for 30 seconds at full throttle. Shut off the engine and examine the chain drive links and joints. They should appear moist with oil. If dry, have the saw checked by your dealer.

CHAIN OIL AND THE OIL PUMP

1. The chain oil and fuel mix tanks are identified in raised letters on the left side of the saw. The fuel cap is RED. The chain oil cap is BLACK. Be sure to fill the chain oil tank with oil every time you fuel the saw.



CHAIN OIL PRESSURE LINE AND CHECK VALVE

NOTE: To prevent the possibility of chain oil being forced through the oil pressure system into the cylinder (causing hydraulic lock) fill the oil tank only to a level below the pressure line and check valve which can be seen when the oil cap is removed. Should the saw lock hydraulically so that it cannot be cranked with the starter rope, remove and clean the spark plug. Then crank the engine several times to dispel oil, re-install spark plug and start engine.

Wipe down the saw if any oil or fuel is spilled on it. Keep the saw handles clean.

2. Type of oil:
HOMELITE® bar and chain oil should be used just as it comes from the containers, as it is formulated with "viscosity improvers" which render it free-flowing even at below zero temperatures and has the property of clinging to the chain to minimize "throw-off".

Any brand of clean motor oil including reprocessed oil may be used as a substitute chain oil. However in extremely cold weather, SAE 30 weight oil should be diluted in the proportion of 1 part kerosene to 4 parts of oil to restore free-flowing properties. Never use dirty oil or used oil in the chain oiler system as it may damage the oil pump.

NOTE: The saw chain should appear moist with oil in the area of the connecting links.

FUELING THE SAW

WARNING:

The fuel tank on this saw may be under pressure. Always remove the cap slowly.

1. The red plastic fuel mix cap at top left corner of the saw is identified in raised letters. During fueling, take care that no sawdust or dirt enter the tank. Do not spill fuel.

CAUTION:

Select bare ground for fueling. Do not smoke or bring any fire or flame near the fuel. Move at least 25 feet (7.7m) from fueling spot before starting engine.

2. Fuel to use: This 2-cycle engine is lubricated by oil mixed with gasoline. The amount of oil required per gallon of gasoline depends on the type of oil used. Use only oils and gasolines recommended in this manual. Always keep fuel in clean, safety type fuel cans. Do not keep fuel in glass containers (which can break or explode) or in plastic jugs (which if attacked by fuel will contaminate it).
3. Acceptable Gasoline Products
Recommended gasoline: Leaded, regular grade.
Gasolines acceptable when recommended gasoline is not available: Unleaded, regular grade; premium grade "high test," either leaded* or unleaded.
4. Acceptable 2-cycle motor oils for air cooled engines.
Recommended first choice—Premium HOMELITE® 32:1

Motor oil (SAE 40) in ratio of one part oil to 32 parts gasoline (¼ pint per U.S. gallon of gasoline of 3% oil).

Other acceptable motor oils—HOMELITE® 16:1 (SAE 30) motor oil or any other motor oil for air-cooled 2-cycle engines in ratio of 1 part oil to 16 parts gasoline (½ pint per U.S. gallon gasoline, or 6% oil.)

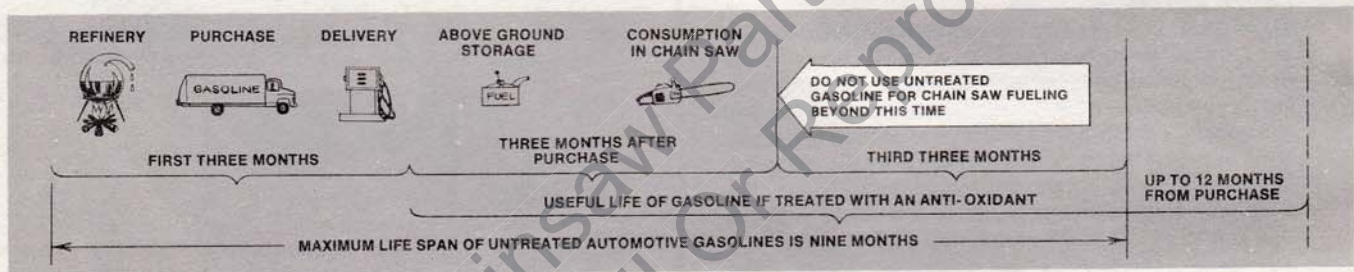
5. Unacceptable Fuel Ingredients:

- a) Any fuel made from untreated gasoline on hand for more than three months should not be used. However, treating fresh gasoline fuel supplies with STA-BIL®, an anti-oxidant type fuel stabilizer, can extend the life of fuel beyond this three month limit. Use according to directions on the STA-BIL can. STA-BIL is a product of Knox Laboratories, Chicago, Ill. 60616.
- b) Avoid use of multi-grade oil products such as 10W-30 or any other oils formulated for 4-cycle or water-cooled engines.

6. How to Mix Fuel Thoroughly:

You can get a uniform fuel mixture only by mixing the oil thoroughly with the gasoline. Measure out the required amounts of gasoline and oil accurately. Pour about half of the gasoline into the mixing can (never directly into the saw tank). Pour in the entire measure of oil. Agitate contents briskly by shaking or by stirring with a clean paddle. Pour in the remainder of the gasoline. Now agitate until sure of a uniform mixture.

*Leaded premium high-test may shorten spark plug life.

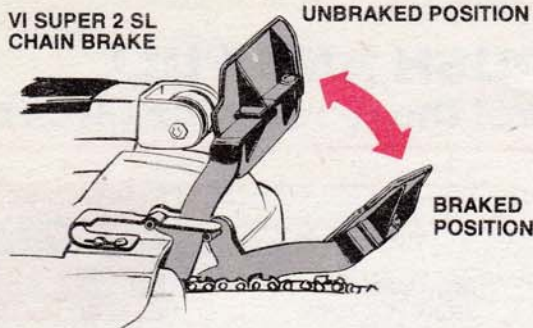


HOW TO START, STOP AND HOLD THE SAW CORRECTLY



PROPER GRIP AND HOLD ON SAW DURING OPERATION

1. Wear non-slip gloves for maximum grip and protection. Using the proper grip, hold onto the saw firmly with both hands when the engine is running.
2. Always hold the saw with your left hand on the front handlebar, and your right hand on the throttle control handle. The grip maintained on the handlebar with your left hand is of utmost importance. The only grip with which you can maintain control of the saw in the event it should jerk or kick back toward you is the one (illustrated) where you wrap your fingers around the handlebar, keeping the handlebar diameter in the webbing between your index finger and thumb.
3. Your right hand wraps naturally around the throttle control handle so that it depresses the trigger interlock. Then you can control engine speed with the throttle trigger.
4. For saws with chain brake: Never rely on the chain brake or any other safety devices to protect you during operation. Safety devices are designed to protect you from injury, but your best protection lies in using the proper grip, stance, and operating techniques to maintain control of the saw at



all times. There is no practicable way that an operator can test the reaction time of the chain brake. However, we recommend your testing the brake before each period of use as follows: With engine not running, and chain properly tensioned, set brake hand guard in the operating (upward) position and pull chain along bar with fingers of your gloved hand. Throw hand guard forward into the braked position. Now you should *not* be able to move the chain. This test

5. During starting, hold the saw down firmly on a level surface with the bar and chain in the clear. Keep on the left side of the saw. Never lean across the saw or straddle the guide bar. As illustrated, place your knee against the back of the front handlebar to help steady the saw. Hold down the trigger interlock and depress the throttle trigger with your left hand. Pull the starter rope with your right hand.
6. Always keep your weight well balanced on both feet when cutting. Since you will be expecting moderate pressure to cut, guard against loss of balance by being ready to hold up on the saw as it cuts through the material. However, throttle up to full speed before letting the chain contact the wood, AND do not throttle down before the cut is completed. Never cut at part throttle, because the clutch is not fully engaged at intermediate throttle speeds and will slip and burn.

STARTING AND STOPPING



DEPRESS THROTTLE INTERLOCK AND SQUEEZE TRIGGER WITH LEFT HAND

KEEP CHAIN IN CLEAR

1. Flip the ignition to the "RUN" position.
2. Push the choke lever all the way up (for a richer mixture required for a cold engine).
3. Hold the saw down and open the throttle as instructed in previous section. (See "Grip and Balance.")
4. Pull the starter cord a short way until you feel the starter engage. Then pull cord briskly to give a fast cranking spin. (Do not pull cord to the very end or you may damage the starter.) Hold onto the grip during rewinding so the cord will not snap back and become frayed.
5. Crank until the engine fires. Normally, an engine that has not been run for some time requires three to five pulls just to prime with fuel before it can fire. On the other hand, a recently run engine will usually start up on the first or second pull. However, *in cold weather*, initial priming will take more pulls because an extremely rich mixture is needed.
6. A cold engine will often fire (go pop... pop...pop) and then stop. This is enough to warm it so that you should push the choke lever *halfway down* before continuing to crank.
7. When the engine starts, keep it running at half-choke to warm it up, but flip the choke lever all the way down before it gets so much fuel that it stalls out. Note: Any engine which has fired several times at *full choke* will start at *half choke*.
8. Now you are ready to operate. Grasp the throttle handle with your right hand so you can depress the throttle inter-



- lock, and control the throttle with the trigger. Grasp the front handlebar with your left hand. (Use correct grip—See page 6.) Let the engine idle. Pick up the saw and position yourself for cutting.
9. Flip the switch to "Stop" position to stop the engine.
10. To restart a warm engine (or any engine which has fired a few times) crank at half choke. After short shut-downs, the engine may be warm enough to be restarted without choking and with the throttle control at idle setting.
11. Choking a warm engine may be necessary after an engine has been in the hot sun or in a car trunk, or has been shut down for five to ten minutes after being run. These things cause vapor to form in the carburetor. It can be cleaned out and the saw started as follows: Crank alternately at full choke and half choke until the engine fires. Then run at half choke when engine starts. Allow no more than 30 seconds before opening the choke fully. If required, repeat above sequence until engine clears itself and runs properly.

IMPORTANT:

When you are through using the saw, relieve tank pressures by loosening the CHAIN OIL and FUEL MIX caps. Then retighten the caps. For extended periods of non-use, prepare the saw for storage as recommended on page 23.

SECTION 2 — KICKBACK, PUSH AND PULL and how to control these reaction forces.



WARNING:

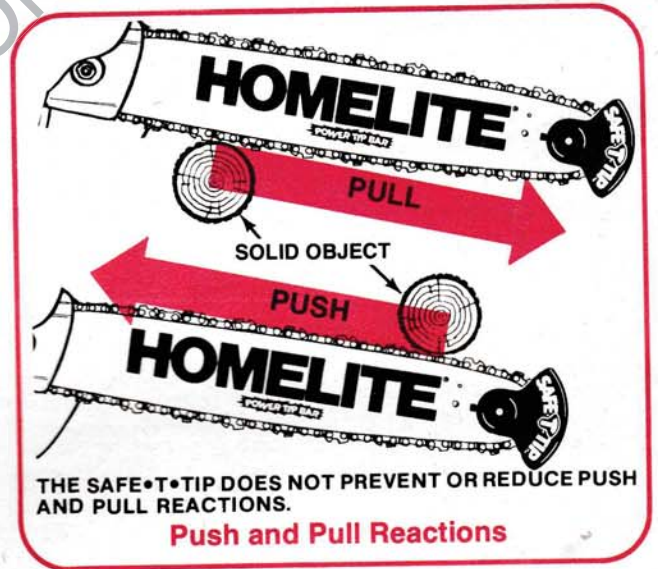
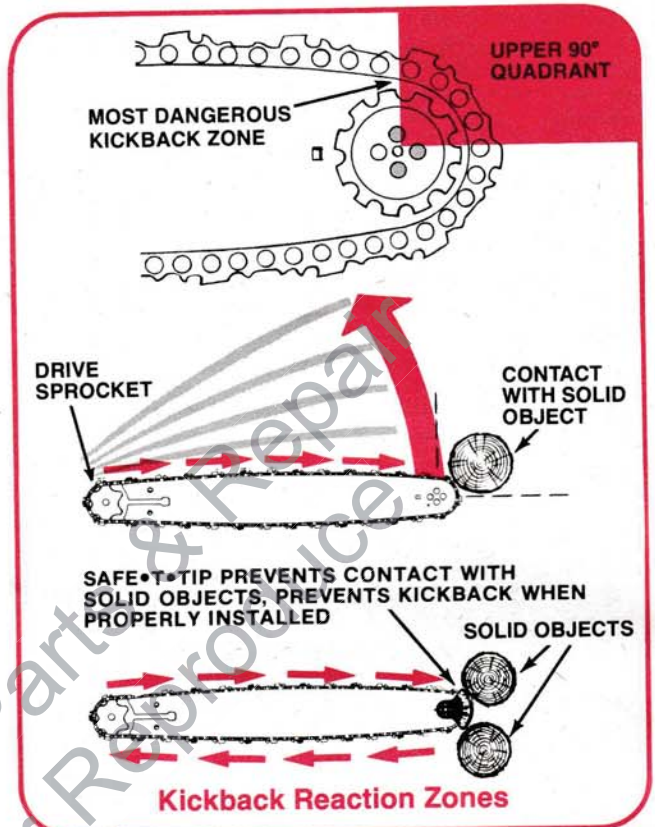
If you purchased VI SUPER 2 which has a SAFE•T•TIP™, or have purchased a SAFE•T•TIP™ separately for your saw, also read the instructions for use

(#17076) which came with the SAFE•T•TIP™. We strongly urge your protecting yourself against chain saw kickback by using the SAFE•T•TIP™. But remember, that for the few types of cuts where a SAFE•T•TIP™ cannot be used you should use the techniques described in your Owner's Manual.

*Pat. Pending

WHAT IS CHAIN SAW KICKBACK?

In the operation of a chain saw, engine torque is transferred to the chain. This energy is then used to cut wood. If the chain suddenly hits a solid object (or takes too large a cut) and is stopped for an instant, the engine torque is transferred to the guide bar and chain saw as a rotation around the center of mass. The direction of the reaction force depends on where the contact is made along the guide bar. If made at the upper 90° quadrant of the bar nose, the reaction will be in an upward arc toward the operator. This arcing movement of the saw blade is called kickback. Kickback is the most dangerous of the reactions which can cause loss of control. When properly installed, the SAFE•T•TIP™ prevents kickback. But it is not a general insurance against "accidents" with a chain saw.



The VI Super 2 SL chain brake is designed to stop the chain *after* a kickback reaction occurs, and *does not prevent kickback*. The chain brake will act only when actuated (by operator's hand tripping the hand guard). Although the equipment required for measuring the stopping time interval of a chain brake is to be found only in a testing laboratory, the chain brake maintenance and adjustment instructions on page 18, when followed, should assure an adequately short stopping time.

Besides kickback, the directional reaction forces which you must control are *push* and *pull*. *Kickback, push* and *pull* reactions are all illustrated on these pages.

HOW SHOULD YOU MAINTAIN CONTROL OF THE SAW?

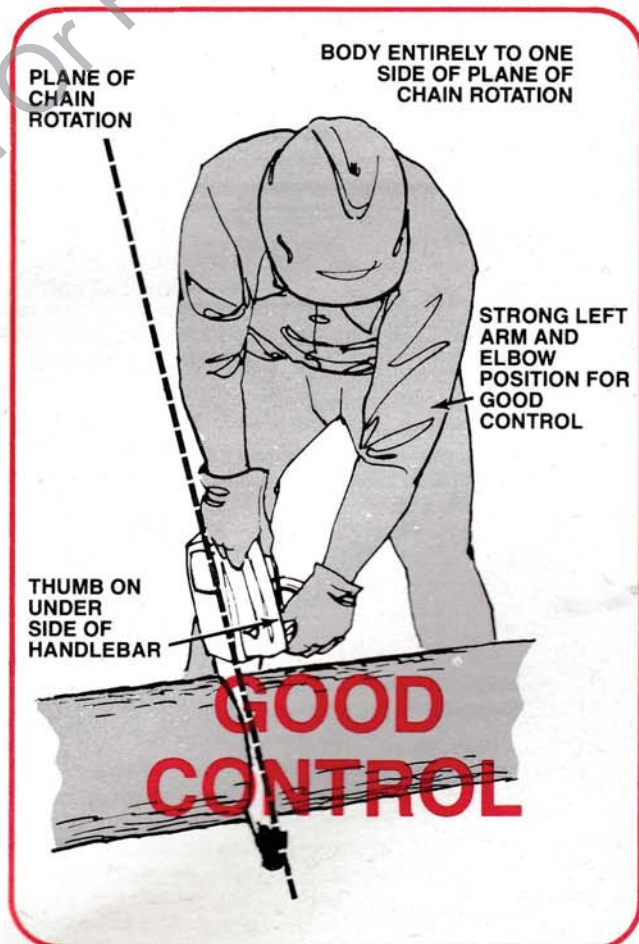
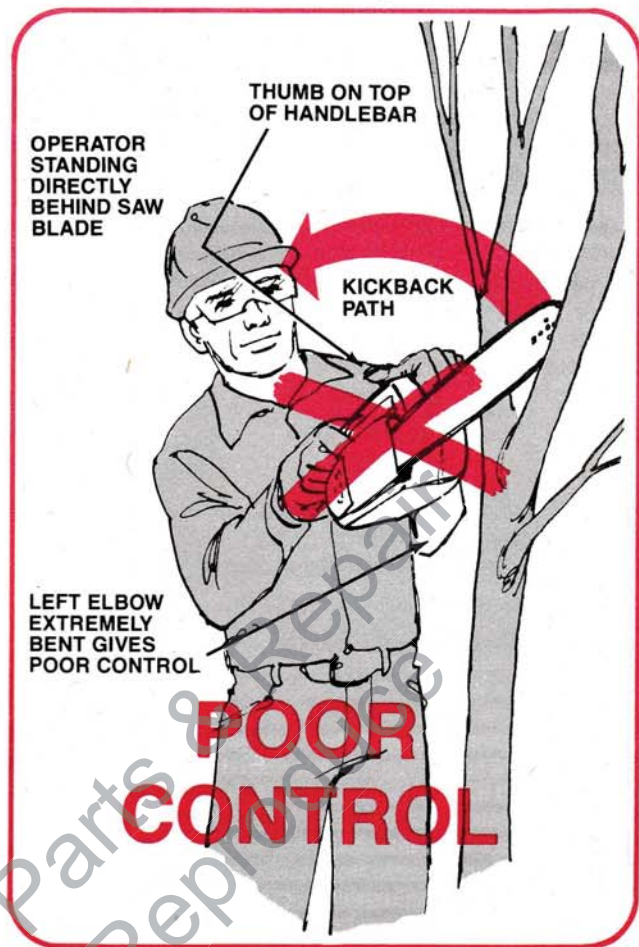
1. First of all, you must keep the front handlebar diameter in the webbing between the thumb and index finger of your left hand. This grip helps maintain control of the saw and limits the possibility that your hand will come in contact with the chain. See the illustrations of the correct and incorrect grips. Do not use a "Monkey Grip" because your hand can slip. Don't forget to wear your gloves.
2. Hold the front handlebar close to the balance point of the saw (or where you can best oppose and absorb the push, pull and kickback forces of the saw without having it twist out of your grip).

Do not reverse right and left hand positions on the saw handles.

3. Get a good grip on the rear handle.
4. Maintain your balance on both feet, and do not reach above chest height with the saw engine, or reach so far forward that you could be drawn off balance by the saw's reactions.
5. Stand a bit to one side so that no point of your body is behind the saw (in the line the saw will take if it kicks back).

HOW SHOULD YOU REDUCE THE CHANCE OF KICKBACK?

1. Avoid letting the nose section of the saw contact any object. Note: A SAFE•T•TIP™ (pat. pending), when properly installed on the bar nose, will prevent kickback.
2. Avoid use of the nose section of the saw for cutting. Cut well back on the straight section of the bar.
3. Be sure to keep your chain sharp and properly tensioned on the saw, because a loose or dull chain is apt to increase the chance of kickback.
4. Use extreme caution when cutting brush, hedges and other "whippy" material. Unless the saw has a properly installed SAFE•T•TIP, cut only one piece at a time and make sure that the nose of the saw stays in the clear.
5. Never bore with the nose section of the saw unless you absolutely have to. If you really *must* make a boring cut with the nose, follow our instructions on page 13 for minimum risk of kickback.



SECTION 3—THE WORKING AREA

WORK AREA PRECAUTIONS

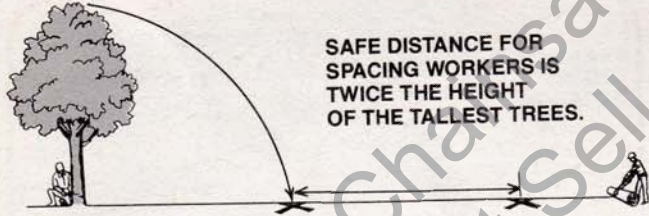
Cut only wood or materials made from wood; no sheet metal, no plastics, no masonry, no non-wood building materials.

Do not allow children to operate your saw, EVER. Allow no person to use this chain saw who has not read this Owner's Manual or received adequate instructions for the safe and proper use of this chain saw.

KEEP BYSTANDERS A SAFE DISTANCE FROM THE CUTTING AREA



Everyone—helpers, bystanders, children and animals, and other operators—must be kept a safe distance from the cutting area. During felling operations, the safe distance should be at least twice the height of the largest trees in the felling area. During bucking operations, space buckers and limbers adequately so they cannot interfere with each other. Only one person should be working on a tree.



SAFE DISTANCE FOR SPACING WORKERS IS TWICE THE HEIGHT OF THE TALLEST TREES.



USE WEDGE TO HOLD CUT OPEN

STAND ON UPHILL SIDE WHEN CUTTING BECAUSE LOG MAY ROLL.

During bucking operations always cut from the uphill side so that the cut-off section of the log will not roll over you. You can be pulled off balance if you have your weight all on one leg, so be sure to stand with both feet on solid ground. Make sure that cut-off wood will not fall on your toes or on your head. Do not cut straight overhead for this reason. In fact, we advise limiting



OPERATOR HAS POOR CONTROL OF SAW IF HE OVERREACHES OR CUTS ABOVE CHEST HEIGHT.

your cutting to chest height, because a saw held higher than this is difficult to control against kickback forces. Limbing from off-the-ground positions, such as in trees or from ladders, is extremely dangerous. Ladders can slip—you can fall. Unless you have had specific training in cutting aloft, leave cutting aloft to experienced tree men.

WHEN LIMBING, STANDING WITH THE LOG BETWEEN YOU AND THE WORK OFFERS MAXIMUM SAFETY.



CUTTING ALOFT OR FROM LADDERS IS EXTREMELY DANGEROUS.

LEAVE SOME SUPPORTING BRANCHES UNCUT. AFTER YOU HAVE BUCKED UP THE LOG SECTIONS YOU CAN CUT OFF THESE LAST FEW LIMBS

In areas near roadways or power lines, do not operate until you have permission from the authorities. When working near roads, you must post flagmen to control traffic. If you accidentally knock down a power line or discover one that is down, DO NOT GO NEAR IT, but notify the power company as soon as you are able. A downed power line is a good illustration of why woodsmen should pair up and always keep within calling distance of one another. In the event of trouble such as this, one man can stand guard while the other summons help.



DON'T GO NEAR DOWNED POWER LINES. SEND SOMEONE TO NOTIFY THE POWER COMPANY. STAND BY TO WARN OTHERS TO KEEP CLEAR.

KEEP CALM, JOE! I'LL GO FOR HELP.

KEEP WITHIN CALLING DISTANCE OF OTHERS IN CASE HELP IS NEEDED.



When the diameter of the wood is large enough for a wedge to be inserted in the cut behind the saw chain, use a wedge to hold the cut open when there is a danger of pinching the saw blade. When felling large trees, wedges should also be used to control the fall. Never use hard metal wedges which could damage the saw chain.

Clear your working area of all materials likely to trip you, snag the saw, catch fire from the hot exhaust, or block your safe retreat from a falling tree.

Before cutting limbs or felling trees, inspect the area to be sure the wood will not strike buried pipelines or damage property.

HANDLING AND SECURING THE SAW

ALL EQUIPMENT MUST BE SECURED IN VEHICLES WITH STRAPPING OR TIE-DOWNS. PERSONNEL SHOULD NOT BE TRANSPORTED IN THE SAME COMPARTMENT AS EQUIPMENT AND FUEL SUPPLIES.

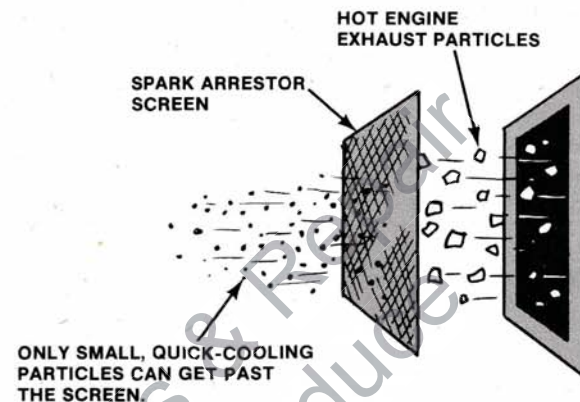


Inspect your saw every day before use. Keep the fuel cap, oil cap and air filter cover on tightly. Check conditions of the fuel line, spark plug and spark plug wire. **DO NOT OPERATE IF THE ENGINE BACKFIRES OR THE SAW LEAKS FUEL.** Have your saw serviced by an authorized serviceman. Be sure to keep your saw chain in proper condition on the saw. Remember that a dull or loose chain snags more easily than a sharp, snug chain. Touch up the chain after two hours of steady cutting and sharpen it thoroughly after 8-10 hours of use. (See Chain and Bar Maintenance in Section 5.) If chain is damaged by abrasives or hits a stone or nail, put on a spare chain immediately and have the damaged chain repaired and sharpened.

If there is anything wrong with the saw have it fixed before further operation. The idle speed adjustment should be maintained so that the chain stops moving after the engine is brought back to idle. Adjust the idle speed whenever necessary (see Section 5).

NOTE: Do not disassemble the rotor (flywheel). Special techniques are required (on a dealer level) for safe removal and installation of the rotor. Never start up your engine unless the guide bar and chain are installed. Without the guide bar in place, the clutch can fly off or explode.

Always use a muffler on your saw and keep it in good repair. A faulty muffler (or open exhaust) can cause hearing damage and is also a fire hazard. Be sure to use a spark arrestor on your muffler under dry woods conditions, and always when required by the law or local authorities. In some states, a spark arrestor is required by law and it is the operator's legal responsibility to see that it is in good condition at all times. Check the muffler and spark arrestor at regular intervals. Careful! Never touch a hot muffler.



A SPARK ARRESTOR IS ONLY ABOUT 80% EFFICIENT IN PREVENTING FIRES. LOCAL AUTHORITIES MAY CLOSE THE FOREST DURING EXTREMELY DRY PERIODS



UNUSUALLY HAZARDOUS CONDITIONS

Do not fell trees or go underneath them during periods of high wind or heavy precipitation. Take no chances during periods of extreme hazard. You can wait to do your cutting after the hazard has abated.

Do not use saws to cut down trees having an extreme lean or large trees that have rotten limbs, loose bark, or hollow trunks. Have these trees pushed or dragged down with power equipment. Then you can cut them up.

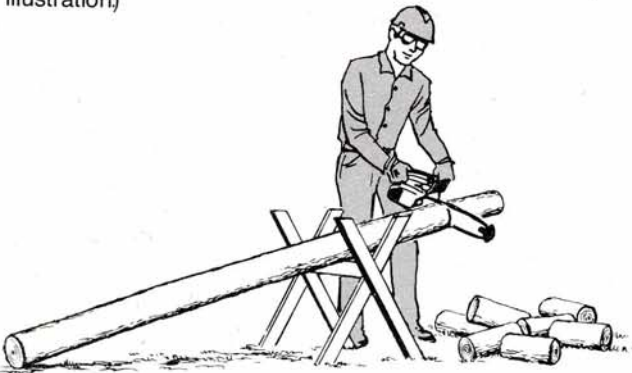
Work only when visibility and light are adequate for you to see perfectly what you are doing.

SECTION 4—TECHNIQUES OF CUTTING

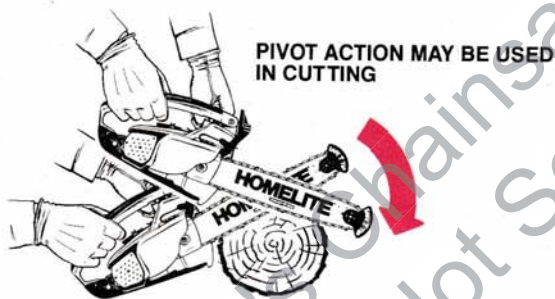
When you are going to cut wood—DO IT RIGHT!

BUCKING, LIMBING AND PRUNING TECHNIQUES

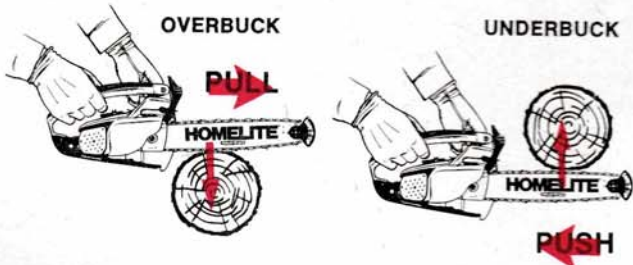
For your first cutting experience, set up a small log so that one end is off the ground. Practice your overbucking technique by cutting firewood length sections off the raised end. (See illustration.)



1. Position yourself and the saw for cutting. Hold the saw near the log and throttle up to full speed just before letting the chain touch the wood. Then exert moderate feed pressure to help the chain cut the wood. The chain must always be running at full throttle speed when it is contacting the wood, or you will burn out the clutch.
2. If desired you can pivot the saw blade back and forth during cutting. This often helps to speed up the cutting a bit.



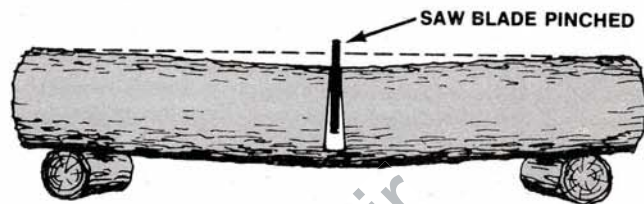
3. You will notice a slight amount of *pull* reaction during cutting. So be ready for the moment the saw breaks through the wood and *pull* ceases. You must be ready to stop pushing down on the saw and hold the saw nose up. The moment the chain breaks clear, release the throttle trigger so the engine will not overspeed.



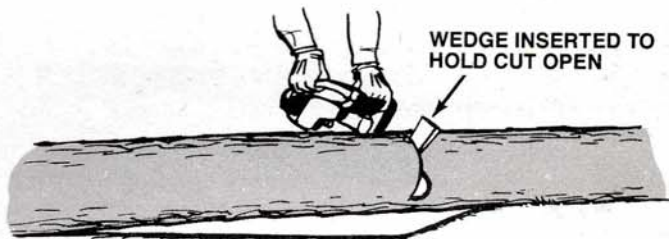
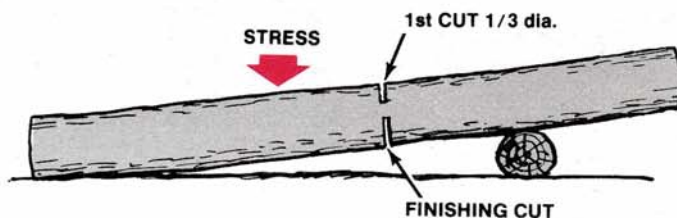
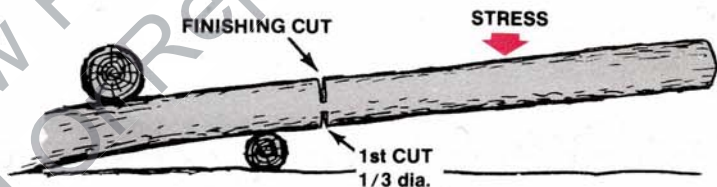
4. When you have mastered the overbucking technique, try underbucking to see what it feels like.

Place the saw blade under the log. Throttle up and exert upward pressure to cut clear through. Now you are ready to learn when to overbuck and when to underbuck in order to avoid pinching the chain in the wood.

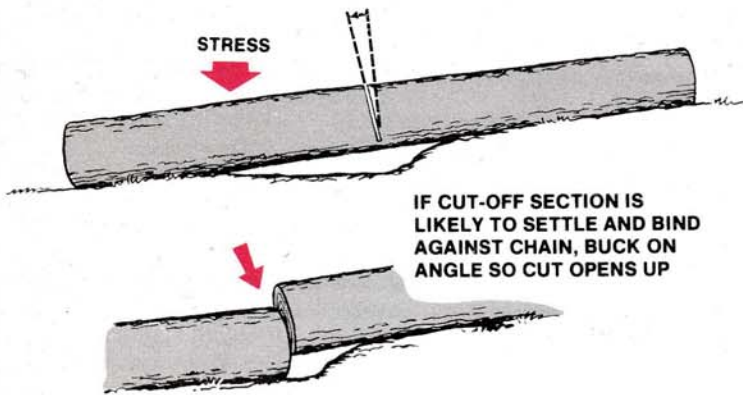
CUTTING VARIATIONS ACCORDING TO THE STRESS FACTORS



When the piece to be cut is supported on the ends, but not along the point where you want to cut, it will bend as you make your cut. If you are overbucking a log that will bend downward at the cut, your saw will be pinched if you cut more than 1/3 the log diameter. So overbuck 1/3, then remove the saw and finish with an underbucking cut from the bottom of the log. This 1/3-2/3 cutting technique helps to avoid pinching of the saw and splitting of wood that is under stress. With small diameter wood, you can make the whole cut by underbucking as long as you don't care if the wood splits. The reverse of the above is true when the lie is such that the log will bend upward at the cut. In this case, underbuck 1/3 through, and then overbuck so that the cut will open up instead of closing on the saw blade.



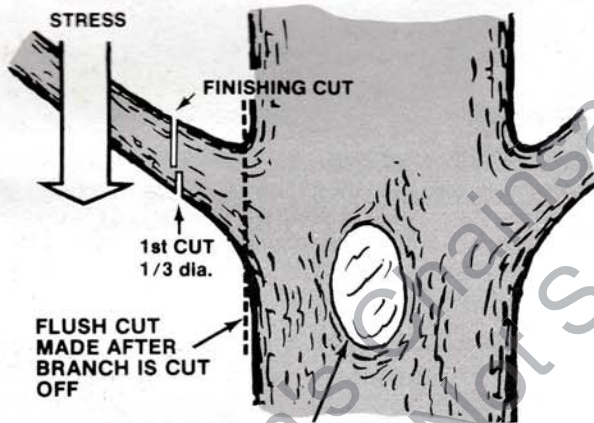
Sometimes it is impossible to avoid pinching (with just standard cutting techniques) or difficult to predict which way a log will bend when cut. You can do this to prevent pinching: If the wood diameter is large enough for you to insert a soft bucking wedge without touching the chain, you should use the wedge to hold the cut open. Sometimes a pocket in the ground will allow the cut section of log to settle, resulting in a pinch. The wedge is also useful here, but in this case you can cut on a slight angle (as illustrated) so that any settling of the log will result in increasing the gap between the cut log sections.



IF CUT-OFF SECTION IS LIKELY TO SETTLE AND BIND AGAINST CHAIN, BUCK ON ANGLE SO CUT OPENS UP

NOTE: A wedge cannot be used with a SAFE•T•TIP™ (Pat. Pending) on the bar, unless you are sure that you can either remove the wedge or roll the log so the saw can be retrieved from the cut.

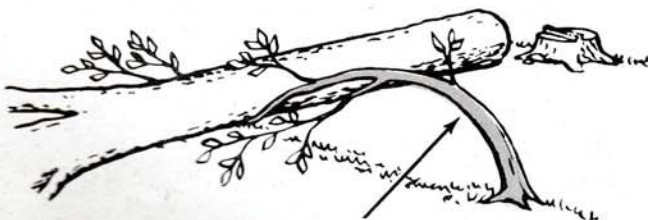
When pruning shade trees it is important not to make the flush cut next to the main limb or trunk until you have lopped off the limb further out to reduce the weight. This prevents stripping the bark from the main member. Unless the branch to be pruned is supported by another branch, the stress will be downward (see illustration). Underbuck the branch 1/3 through, then overbuck to drop the branch off. Now make your finishing cut smoothly and neatly against the main member so the bark will grow back to seal the wound. Don't forget to paint the wound with a tree preservative to prevent insect attacks and rot.



WHEN BRANCHES ARE TRIMMED NEATLY FLUSH WITH THE TRUNK AND THE WOUND PAINTED WITH A PRESERVATIVE, THE BARK CAN GROW BACK TO SEAL THE WOUND

SPRINGPOLES

A springpole is any log or branch or sapling which is bent under tension by other wood so that it will spring back if the wood holding it is cut or removed. Watch out for springpoles. They are potentially dangerous.



THIS IS A SPRING POLE BENT DOWN UNDER HIGH STRESS.

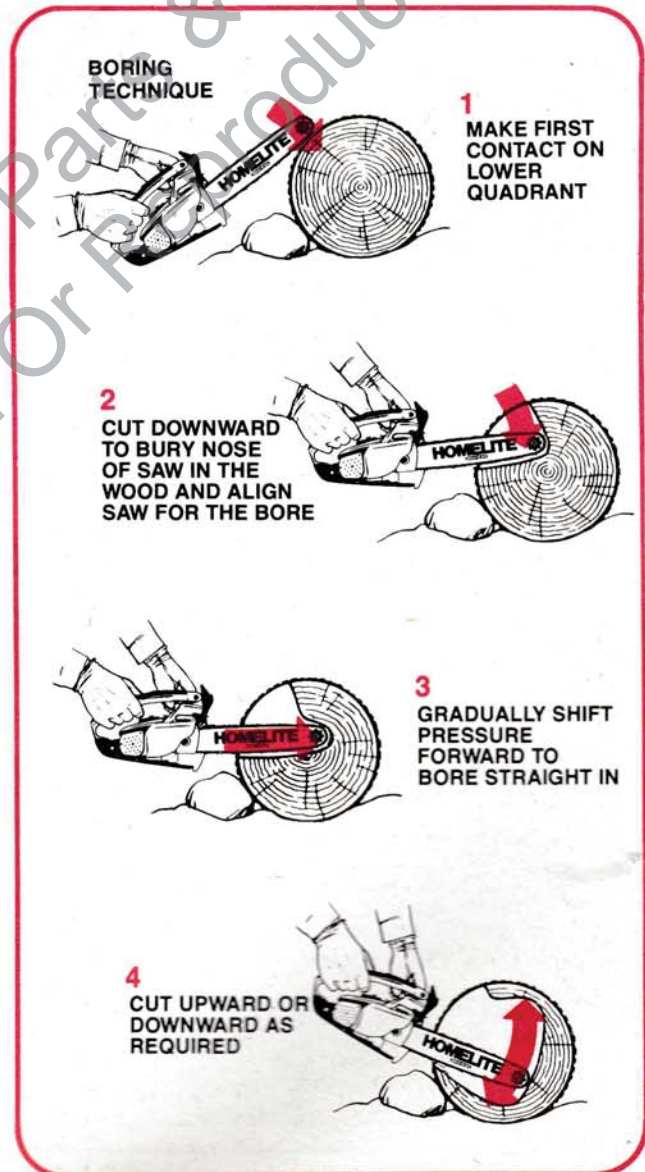
BORING WITH THE NOSE SECTION

KICKBACK DANGER

There is a great possibility that the saw will kick back during the start of the boring cut.

Boring should be attempted only by experienced operators because it requires extreme care and attention to proper technique. Do not bore unless there is no other way to make a cut. Boring is usually resorted to in order to avoid an obstacle or when it is necessary to make blind holes such as cut-outs for log cabin windows. The SAFE•T•TIP™ (Pat. Pending) must be removed for a boring cut. Boring increases the chance of kickback and also wears the chain and bar at an accelerated rate.

Study the panel illustrating a boring operation. As shown, the danger will be minimized if you can make first contact on the underside of the bar as far back from the bar nose as you can get. Then cut downward into the wood until the tip is buried in the cut. Gradually bring the saw level, then bore through the wood to the full length of the blade. Now you can cut either upward or downward through the wood as shown in the panel.



TREE FELLING TECHNIQUES

CAUTION:

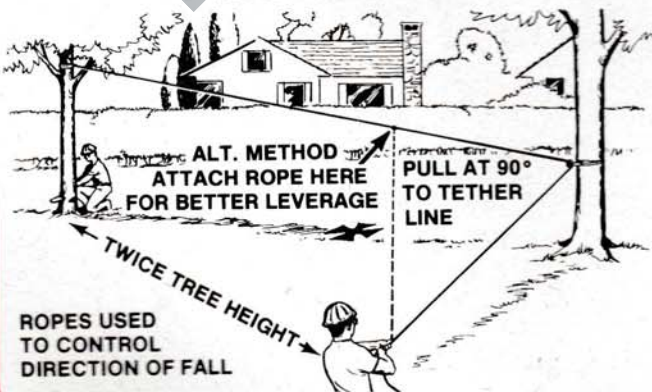
If the saw gets caught or hung up in a tree during felling, leave the saw and save yourself. The saw can be replaced and you cannot!

1. Pick your escape route (or routes in case the intended route is blocked). Clean the immediate area around the tree, and make sure there are no obstructions in your planned path of retreat.

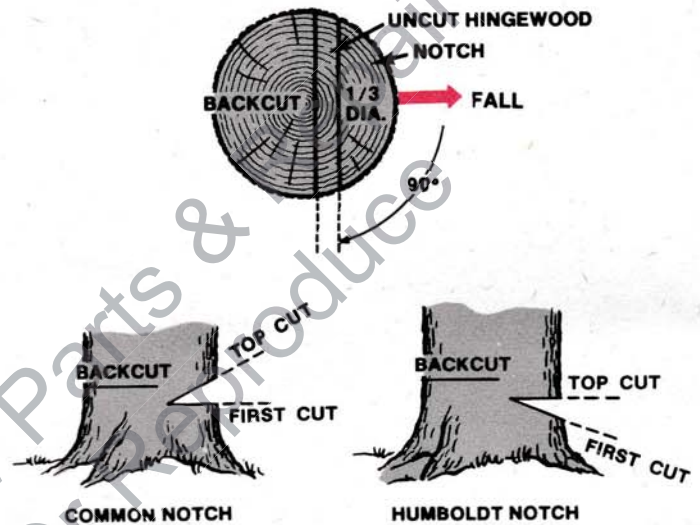


2. Consider the factors of wind direction and velocity, the natural lean and the balance of the tree, and the location of large limbs. These things influence the direction in which the tree will fall. Do not try to fell a tree along a line different from its natural line of fall until you have had considerable experience in felling trees which present no problem as to where they will fall.
3. Take into consideration whether the trunk is sound or so rotted inside as to snap and crash while being cut. Also look for broken or dead branches (widow makers) AND don't go below any widow makers.
4. In tight situations where a mistake in the direction of fall could ruin other trees or destroy property, attach a tether line to the tree as illustrated.

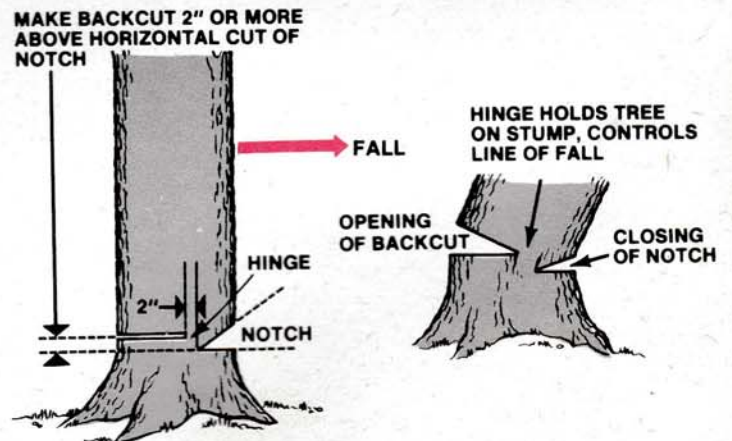
HELPING TREE TO FALL IN DIRECTION PLANNED



5. If the tree is not badly out of balance, cut a notch about $\frac{1}{3}$ the diameter of the trunk. This notch whether standard or "Humboldt" is made in the side the tree is to fall. And the cuts of the notch are made so they intersect at a right angle to the line of fall. This notch should be cleaned out to leave a straight line. To keep the weight of the wood off the saw always make the lower cut of the notch before the upper cut. We illustrate a common notch made with a horizontal cut and an angular cut above it. A "Humboldt" notch, with the horizontal notch on top, is made when trees are to be cut for saw log processing.



6. The backcut is always made level and horizontal and at a minimum of 2 inches (51mm) above the horizontal cut of the notch. As a guide to placing the back cut above the notch, figure 10% of the face diameter as the proper height. Be very careful to make a level back cut, as a slanted back cut can cause the tree to split or "barber chair" (see illustration).
7. You must never cut through to the notch. Always leave a band of wood uncut between the notch and back cut. This is called "hinge" or "hingewood." It controls the fall of the tree and prevents slipping or twisting or shoot-back of the tree off the stump. If the tree starts over in the wrong direction, or if the saw gets caught or hung up during the fall, leave the saw and save yourself!



8. On large diameter trees, it is proper to stop the back cut before it is deep enough for the tree to either fall or settle back on the stump. Then, soft wooden or plastic wedges (not hard metal) are inserted behind the saw so they do not touch the chain. The wedges can be driven in, little by little, to help jack the tree over.

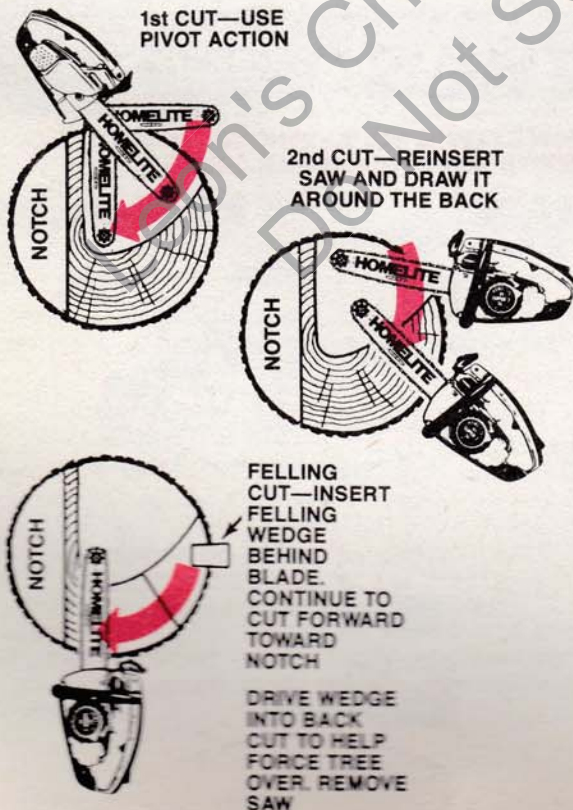


9. Trees larger than the saw can cut in one cut, can be both notched and back-cut in a series of cuts, as illustrated. Start the notching cuts from one side and draw the saw through to the other side of the notch. Start the back cut on one side of the tree, pivoting the saw through to form the desired hinge on that side.

Then remove and reverse the saw for the second cut. Insert the saw in the first cut, very carefully so as not to cause kickback, and cut back toward and around the back of the trunk. Complete the back cut by cutting towards the notch to complete the hinge section.

NOTE: Insert your felling wedges in the back cut. Remove the saw before tree is ready to fall and drive the wedges in to fell the tree.

NORMAL SEQUENCE USED TO FELL VERY LARGE TREES (UP TO TWICE BAR LENGTH IN DIAMETER)



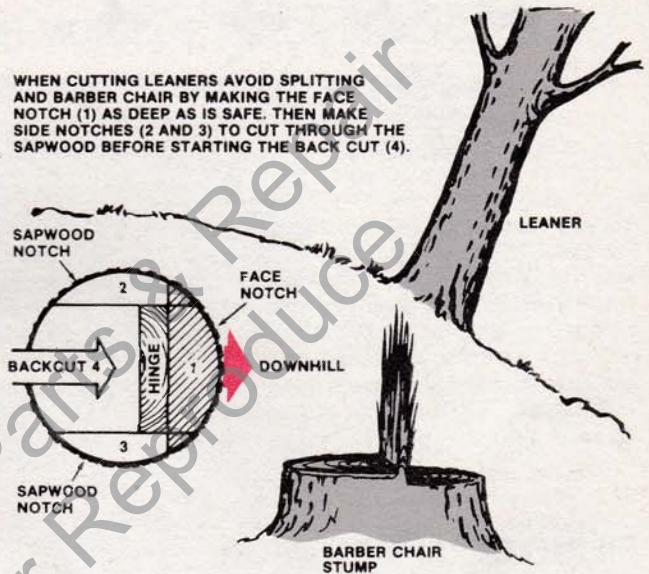
FELLING LEANERS

This variation is designed to prevent splitting and "barber chair" of leaners.

All standard felling techniques apply to leaning trees except as follows:

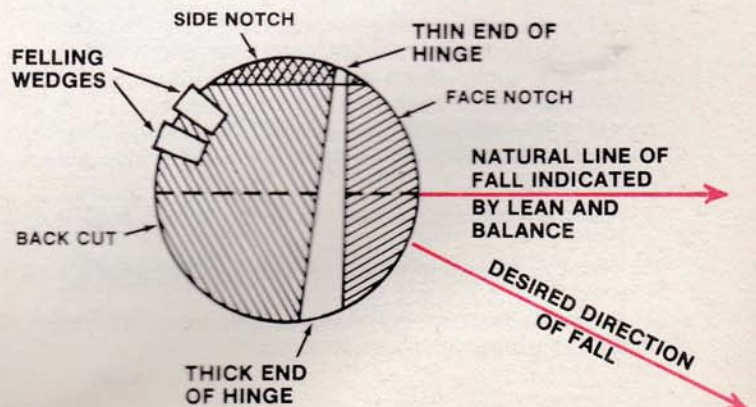
1. Make the directional control face notch shallower than usual.
2. Make shallow notches on both sides of the tree to cut through the outer layer (sapwood).
3. Now make your back cut to leave a parallel hinge.

WHEN CUTTING LEANERS AVOID SPLITTING AND BARBER CHAIR BY MAKING THE FACE NOTCH (1) AS DEEP AS IS SAFE. THEN MAKE SIDE NOTCHES (2 AND 3) TO CUT THROUGH THE SAPWOOD BEFORE STARTING THE BACK CUT (4).



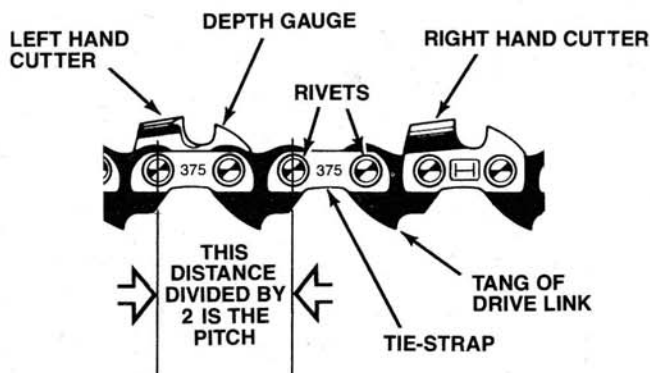
CHANGING THE DIRECTION OF FALL (from the natural line of fall)

1. Where you would leave a parallel hinge (hingewood of equal thickness on both sides) the hinge is left thicker on the side toward which you want the tree to swing (away from the natural line of fall). The thicker hinge on that side will hold up the fall so that the tree will fall to that side.
2. Place your wedges in the back cut between the back-center and the narrow side of the hinge. Drive the wedges to force the tree over in the direction desired.



SECTION 5—MAINTENANCE & ADJUSTMENT

HOMELITE® PRO-CUT 375 SAW CHAIN



It is important for you to know that your saw uses HOMELITE® Pro-Cut .375 saw chain. This is a true $\frac{3}{8}$ (.375") pitch chain which requires a $\frac{3}{8}$ pitch sprocket and drum assembly. When you buy replacement chains be sure that it has "375" stamped on each tie-strap between the rivets. Other chains sold for models in the same size range include a $\frac{1}{4}$ " (.250") pitch 25C (which is stamped 25 on each drive link tang, and 37N or 37C which is .375" pitch. Neither of the chains last mentioned can be used with the $\frac{3}{8}$ pitch (.375") sprocket on your saw.

FILING EQUIPMENT FOR PRO-CUT 375 CHAIN

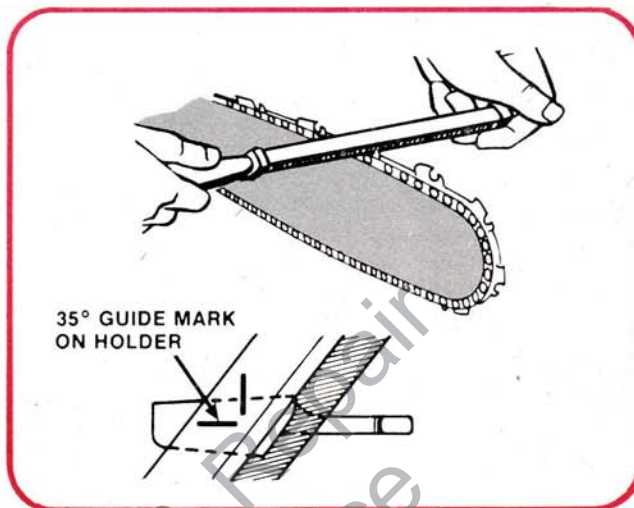
A 5/32" (4 mm) diameter "fast-cut" round file (#92604) and holder (our assembly DA-92617) is required. When about half to $\frac{5}{8}$ of the tooth steel has been filed away, you should switch to a 1/8" (3.2 mm) diameter file (#92605). The reason for switching to a smaller diameter file on a "short-filed" tooth is that the slight taper of the tooth's top plate reduces the size of the tooth.

You will also need a depth gauge tool (.020" or 0.51 mm depth, #D-92630) and a safe-edge (no teeth on edge) flat file (#92609).

HOW TO FILE THE CUTTERS

If you do not have a chain filing vise you can do a satisfactory job "on the bar" if you tighten the chain tension enough that the chain doesn't wobble. And, do all of your filing at the mid-point of the bar. Wear gloves for protection. Be sure to file all cutters to the same length. This must be done because of the taper of the teeth; if some cutters are shorter than others only the longer cutters will get a chance to cut. Also be careful to file all cutters to the specified angles, as fast cutting can be obtained only when all cutters are uniform. Each cutter then gets a chance to cut.

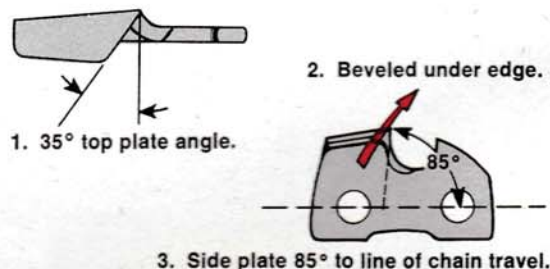
1. Hold file against cutter face at a 35° angle (It is marked on the holder).
2. Keep the file level with the tooth top plate. Do not let file dip or rock.
3. File in one direction only—towards front corner of the tooth. Move file away on the return stroke.



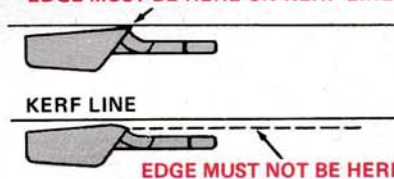
4. Use light but firm pressure, mostly towards back of tooth. Avoid heavy downward pressure. The holder will keep 10% of the file diameter above the cutting edge IF YOU LET IT. This will produce the desired beveled hollow-ground under-edge automatically.
5. Put a few firm strokes in every tooth, filing all cutters on one side, then those on the other side of the chain. Rotate file in holder occasionally.
6. Examine your filing job in strong light. A sharp edge will not reflect light and a dull edge will. However, sharpening does not alone make a good cutting tooth. An abraided tooth, for instance, may still not cut until you have removed the worn or rounded off portion of the steel so that the sharp cutting edge is the highest part of the chain. In other words; the *edge* and not the *flat plate* of the cutter has to contact the wood first (see illustration of repair of a damaged cutter).



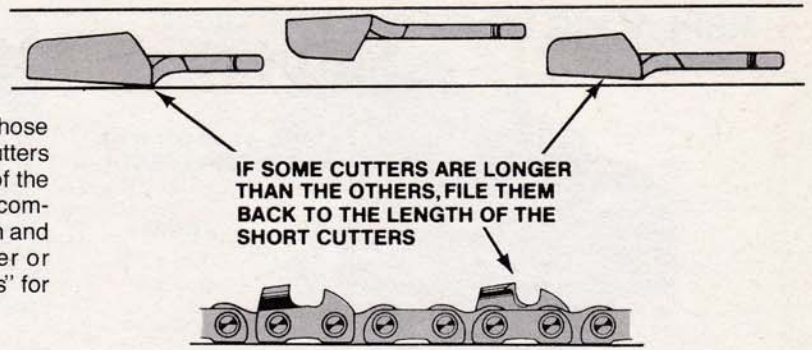
**NOW EXAMINE YOUR FILING JOB—
HERE'S WHAT YOU SHOULD GET:**



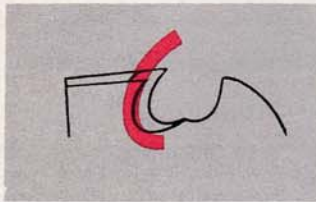
EDGE MUST BE HERE ON KERF LINE



7. If you have done any corrective filing (which makes those cutters shorter than the rest), or replaced damaged cutters with new ones, you must file all cutters until they are of the same length. This is tedious to do by hand, so we recommend having the chain "trued" to uniform cutter length and shape on a chain grinder by your servicing dealer or Homelite Factory Service Branch (See "Yellow Pages" for address).

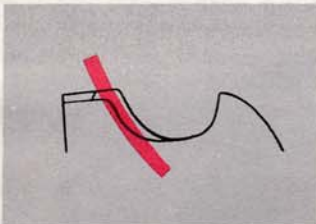


REFILE ANY TEETH HAVING ONE OR MORE OF THESE FAULTS



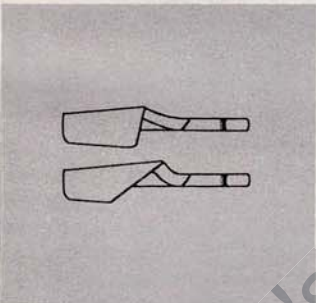
Forward Hook

Chain will grab and jerk, producing rough cutting. Caused by excessive downward filing pressure, or tip of file held too low on tooth.



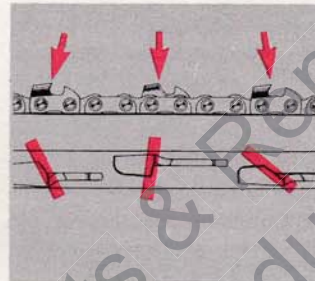
Back Slope

Chain resists entering wood (scrapes instead of cutting wood). Causes excessive heat and wear to bar and chain. Caused by lowering handle end of file or holding file too high on the tooth.



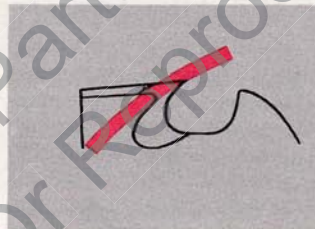
Improper Top Plate Angles

Blunt chain requires too much feed pressure. This top plate angle causes chain to bind, produces a rough cut, robs power from saw, and increases bar groove wear. Caused by holding file at wrong angle or letting it drift or rock during the stroke.



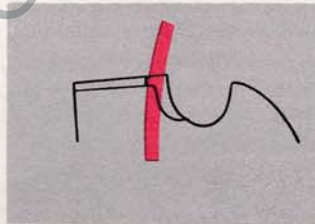
Cutters Filed at Non-Matching Angles

Chain will not cut at its best. May cut off line or "run" to one side, drag may slow down engine. Caused by letting pressure and filing angle vary from tooth to tooth, or one side filed with different angles and lengths than the other.



Thin Feathered Edges

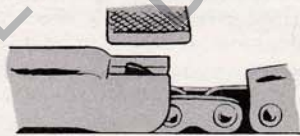
When they almost immediately break off, you have a dull chain. Usually found on chain filed with a hook (see "Forward Hook"). Caused by holding file with handle too low, or pressing down too hard on file.



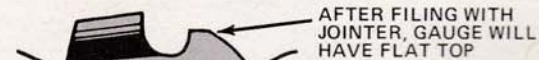
Blunt Cutting Edges

Although edge is durable it won't cut properly; scrapes wood, robs power and produces dust instead of chips. Caused by holding file too high on face of tooth, or keeping file handle too high.

HOW AND WHEN TO SET DEPTH GAUGE CLEARANCE



Every second or third time the teeth are sharpened, or if a large amount of steel is removed from the cutters, the depth gauges should be checked for correct depth. Use a depth gauge tool and a safe/edge (no teeth on edge) flat file. Fit the tool over the chain so that the slotted end points towards the bar nose and the depth gauge projects up through the slot. File the depth gauge flush with the top of the tool. File all gauges to this height. If the gauges are too high, the chain teeth will not get a good bite; if too low, the teeth will take too large a bite, causing the chain to grab and jerk. If some gauges are higher than others, the chain will cut off line, favoring the side having the lowest gauges.



AFTER FILING WITH JOINTER, GAUGE WILL HAVE FLAT TOP

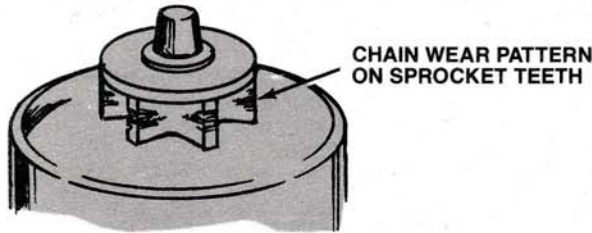
SO...



USE SAFE-EDGE FLAT FILE TO RECURVE THE FRONT SMOOTHLY

DO NOT NICK DRIVE LINK WITH THE FILE

REPLACING WORN CHAIN AND SPROCKET

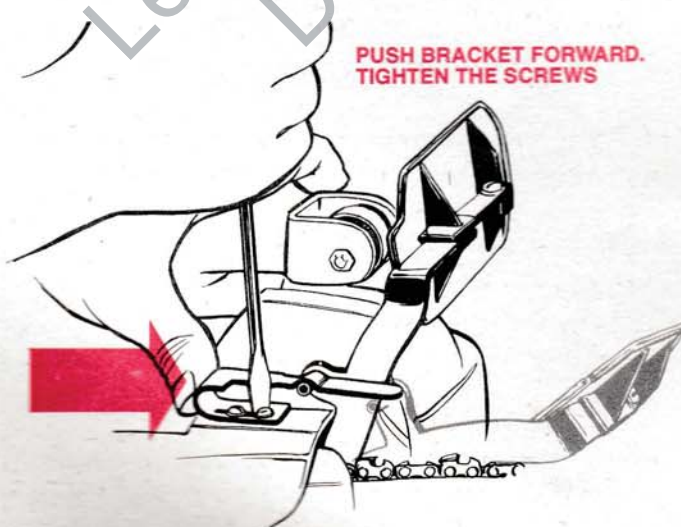


As the chain and sprocket wear together, they both will change in pitch. Therefore it is a good idea to always change the sprocket and drum assembly whenever you are installing a new chain. Otherwise the old sprocket will wear down the new chain and you will have lost some of the life of your new chain. You can tell by the wear pattern whether the sprocket needs replacement. Depressions where the chain tie-straps and drive links contact the sprocket teeth should not be much deeper than a millimeter (3/64" maximum). When a sprocket and drum are replaced, all clutch parts should be checked by your dealer. The replacement sprocket and drum assembly includes a new grease-packed needle bearing and inner race.

SL CHAIN BRAKE MAINTENANCE AND ADJUSTMENT

It is the owner's responsibility to see that the VI Super 2 SL chain brake mechanism is kept clean of oil and sawdust at all times. It is also the owner's responsibility to check on the wear and stretch of the brake band and have it replaced whenever required. Disassembly is not necessary when checking for brake band wear. As the band wears or stretches, the kickback guard and lever will move further and further forward (in the braked position) until the adjustable detent bracket drops down to prevent the guard from being returned to the unbraked position. Correct this condition as follows:

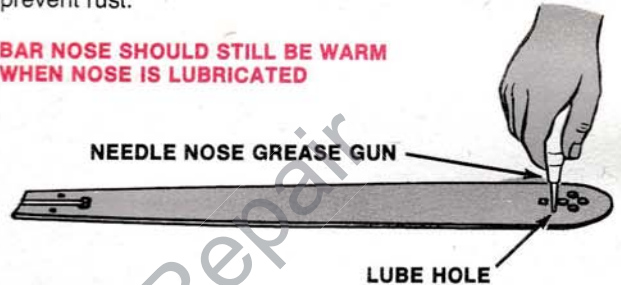
1. With guard in forward position, raise the end of the detent bracket. Pull the guard up under the bracket until the roll pin of the guard lever slides into the detent of the bracket.
2. Loosen the two bracket screws (see illustration) and slide bracket forward. Throw guard into the unbraked position.
3. If the bracket arm now rests on top of the roll pin, tighten the two screws to lock the bracket at this setting. If the bracket still drops down behind the roll pin, you must have the brake band replaced by a servicing dealer. He should also check your clutch and sprocket assembly at the same time.



GUIDE BAR

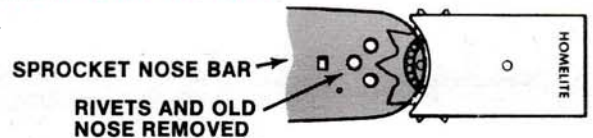
To distribute the wear for maximum life, reverse the position of the guide bar (top for bottom) on the saw every day or two of use. As stated in the operating section, the lubricant in the nose sprocket bearing is expected to last the life of the nose sprocket under usual conditions of use. However, a small lube hole is provided in the bar nose near the rivets. Operating with a dull chain can overheat the bar nose, destroying the lubricant. Also, in certain cases, such as when rain cools a bar nose, it may be advisable to change the bearing lubricant to prevent rust.

BAR NOSE SHOULD STILL BE WARM WHEN NOSE IS LUBRICATED

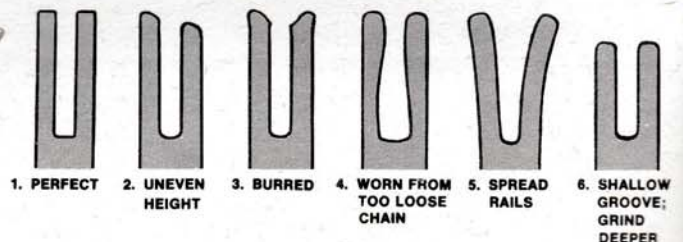


We sell a pre-packed needle nose grease gun (as part #D92680). You can also use a needle nose lube gun, (#24258-1) with a Homelite All-Temp-Multi-Purpose grease (#24551) or a good quality lithium base grease. The nose sprocket should always turn smoothly and freely. The replacement sprocket (#A70239-C) comes assembled and lubricated on a shaped mount which you can use to slide the assembly into the bar nose. When sprocket is positioned in the bar nose, use the rivets from the kit to install it on the bar nose.

SLIDE REPLACEMENT SPROCKET INTO PLACE RIGHT OUT OF KIT PACKAGE



Guide bars suffer from wear and damage. Bent bars should be straightened (if possible) or replaced. Closed chain grooves (the result of pinching in a cut) should be opened up carefully with a screwdriver tip. Spread bar rails should be closed to the normal .056" clearance by inserting a metal strip of .050" (1,3 mm) thickness and hammering the rails lightly with a flat hammer. The guide bar rails should be dressed lightly with a fine flat file to remove steel burrs that make for slow cutting. You should do this about once every week or so. If the bar rails have uneven height, they must be filed smoothly to the same height so that the chain will run straight along them. Loose chains and abrasive cutting conditions will often wear out the bar inside the rails as shown in the panel of bar wear patterns. If your bar has any of these wear patterns and the chain flops over sideways when you cut, the bar should be replaced. A blue or burned appearance of the bar rails along a short section of the bar indicates a pinched bar at that section. Burning along the whole bar, indicates either too much chain tension, or not enough lubrication. Clean the chain oil entry holes and bar groove daily and have your dealer check the oil pump if you don't get enough lubrication.

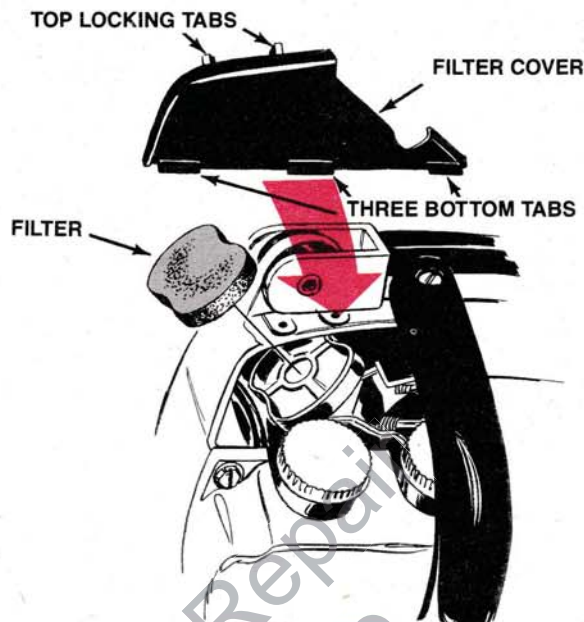


AIR FILTER MAINTENANCE

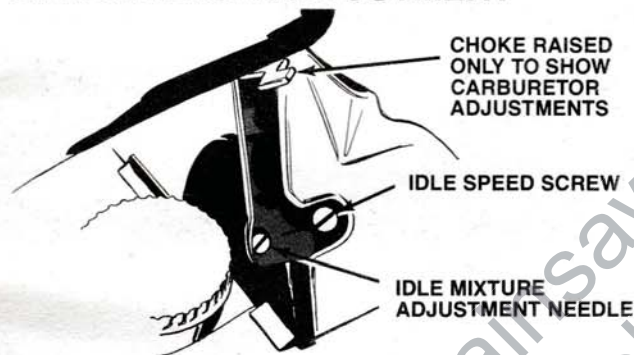
The spongy polyurethane air filter element removes dirt from the air. When it clogs up, the saw will smoke excessively and lose power. The filter should be replaced periodically. In an emergency you can clean it if you don't have a spare. The normal life expectancy of the filter is 10-15 hours of engine operation. However, extremely dirty operating conditions may cause the filter to clog in four or five hours.

To Inspect and Clean or Change the Air Filter

1. Using a thin screw driver at top center of black plastic filter cover, pry the cover free at the top, and lift it off the engine.
2. Clean the area around the air filter before removing it.
3. Install a clean filter element.
4. Fit the three bottom tabs of the filter cover over the top of the starter housing. Depress the locking tabs at top of cover and snap cover into place.
5. For emergency cleaning of a filter element, use either a detergent solution or a cleaning solvent. But be sure to let the filter dry thoroughly before you install it.



CARBURETOR ADJUSTMENT



The carburetor is an all-position, diaphragm type having a factory-calibrated, high-speed mixture system for proper high speed performance. It has two adjustments which may require adjustment from time to time to achieve the desired idling characteristics.

The first adjustment is the *idle speed screw*. This screw is used to adjust the idle speed. It does this by holding the throttle shutter partly open to let fuel and air be drawn through the carburetor for idling.

The second adjustment is the *idle mixture adjustment needle*. This needle adjusts the amount of fuel to get the correct mixture required for idling.

Always clean or change the air filter before attempting any carburetor adjustment.

Adjustment for Starting

1. No adjustments are required for starting a cold engine at full throttle (trigger depressed) or for operating.
2. Adjustment for proper idle speed and mixture may be required if a hot or warm engine cannot be started at idle throttle or if the engine idles roughly or refuses to accelerate.
 - a) Turn the *idle mixture adjustment needle* slowly clockwise until it gently closes against its seat (do not force). Then open it 1¼ turns.
 - b) Turn the *idle speed screw* clockwise ½ turn at a time and keep trying to start the engine each time, until it does start and will keep idling.

Adjustments After Engine Is at Operating Temperature

The saw should be started up and a few cuts made to warm it up. Then idle the saw and make the following adjustment:

1. Turn *idle mixture needle* slowly in one direction, then the other. Leave set where the engine idles the fastest.
2. If this idle speed is too slow, the engine will falter. Turn the *idle speed screw* slowly clockwise to increase the speed until the engine no longer falters at idle.
3. If the speed (in Step 1) is so fast that the chain rotates rapidly, or takes too long to stop rotating after the engine is throttled back to idle, turn the *idle speed screw* counterclockwise until the chain stops turning (but no slower than this setting).
4. What you have done in the above steps is to adjust the throttle for the proper idle setting, and then adjust the mixture for *that* setting. Any time you adjust the idle speed, always readjust the *idle mixture needle* for the best mixture as in Step 1.



Carburetors of saws which bear this circular sticker have had the standard circuit plate replaced with a high altitude plate for optimum performance at high altitudes.

WARNING:

At low altitudes this modification will cause lean operation and overheating. DO NOT OPERATE SAW BELOW 5000 FEET UNLESS CARBURETOR CONTAINS THE STANDARD PLATE. If changing back to standard plate, remove the high altitude sticker from the saw.

MAINTENANCE OF TANKS, CAPS AND PICK-UPS

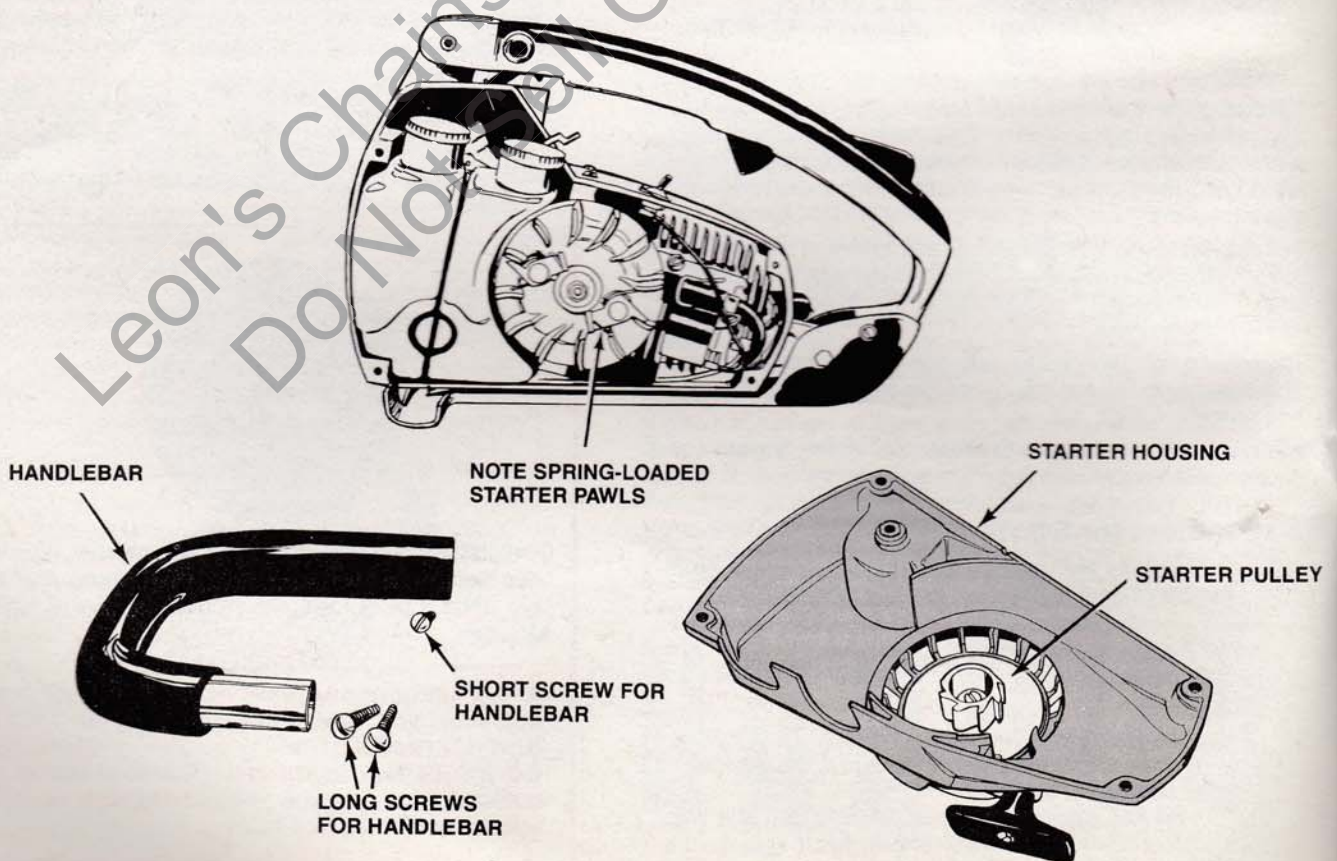
1. The only regular maintenance steps to be performed are cleaning of the screen type oil pick-up filter hanging inside the chain oil tank, and changing of the fuel pick-up filter in the fuel tank. This should be done once each year or every 50 hours of operation. However, dirty oil, sawdust contamination, or old, stale fuel can cause clogging at any time as discussed in Step. 3.
 2. For access to the oil pick-up or fuel pick-up, unscrew the tank cap (slowly, to let pressure equalize). Bend a piece of wire, such as a paper clip, to form a hook. Reach inside the tank with the hook. Hook the pick-up line and draw it up carefully out of the filler hole. Pull off the filter on the end.
 3. Symptoms of fuel starvation (engine lacks power, falters on a cutting load) require checking to determine the cause. Causes in the order of probability are: dirty fuel filter, leaking or kinked fuel line, inoperative "duck bill" vent valve, (you can feel this valve inside the tank just below the neck of the tank filler hole), dirt or other trouble inside the carburetor, and air leaking into the crankcase.
- b) Loosen fuel cap just a little to check vent valve operation. If saw has more power with loose cap than when cap is tight, have the "duck bill" valve changed.
 - c) Check out the fuel line all the way from the pick-up to the carburetor. Peroxides formed in old gasoline sometimes will deteriorate the fuel line. Replace if cracked, kinked or distorted, or if the ends are split. We recommend treating your fuel with an anti-oxidant type stabilizer for this reason (see page 6).
 - d) If fuel starvation problems persist, take saw to a servicing dealer.



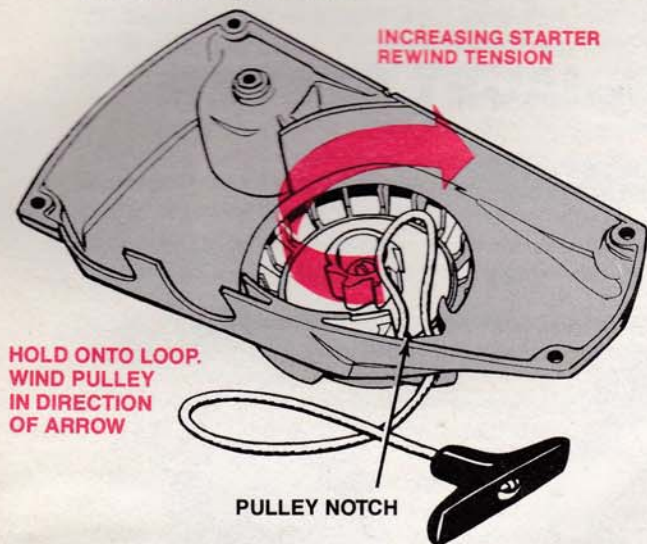
STARTER REPAIRS

The starter has few parts and can be disassembled and repaired under field emergency conditions, as when the cord breaks.

1. Remove the screw at top of handlebar and the two long screws at bottom of handlebar. Lift off the handlebar. Take out the four hex washer head screws to remove the starter/fan housing.



- To add more spring tension: If the grip does not rewind all the way to the housing and stay in place, the spring may need more tension. Note the rounded notch in the edge of the pulley. Pull out the grip about one foot (30 cm) and hold the pulley from rewinding. Turn the pulley to locate the notch at the cord entry hole in the housing. Hook up a loop of cord between the housing and the pulley. Grasp the loop and wind one turn tension (or more if necessary) in a clockwise direction. Hold the pulley from turning. Pull the cord back out through the hole.



- To replace starter cord or repair starter spring: Unscrew the starter screw and remove the flat washer.

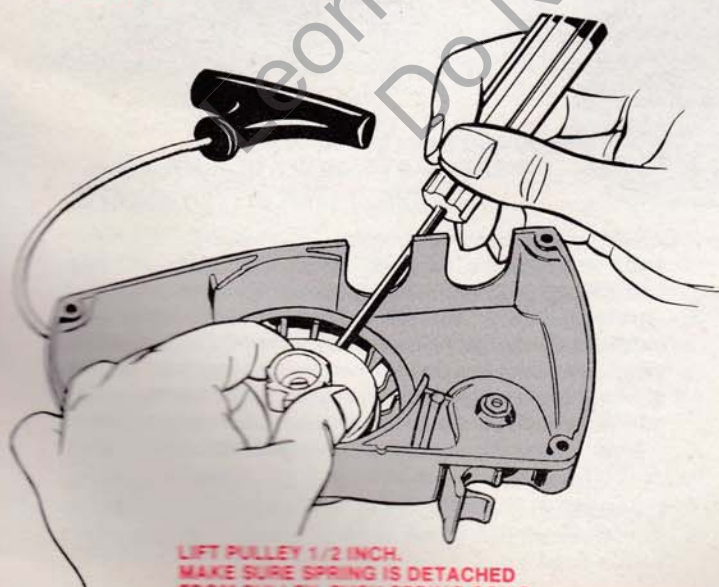
WARNING:

Put on safety glasses and gloves before removing the pulley.

- Grasp the toothed pulley hub and pull the pulley out of position about a half-inch or the width of your finger. Using a thin bladed screwdriver, insert it between the pulley and the housing to free the pulley from the spring. Push the spring coils into the housing.

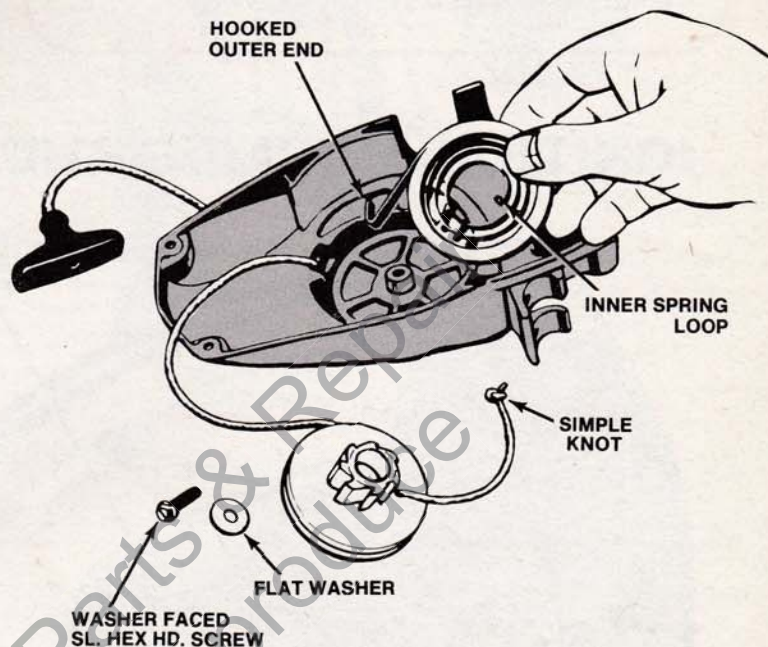
CAUTION:

If you lift the pulley too far out before detaching the spring, the coils may fly apart. They are relatively difficult to rewind.



LIFT PULLEY 1/2 INCH. MAKE SURE SPRING IS DETACHED FROM PULLEY. PUSH SPRING COILS DOWN INTO HOUSING. LIFT OFF THE PULLEY.

- Replace the recoil spring if broken or bent. If the inner spring loop has been straightened out so that it does not engage the pulley, bend in the whole loop carefully until it is curved enough that the end can engage the pulley.

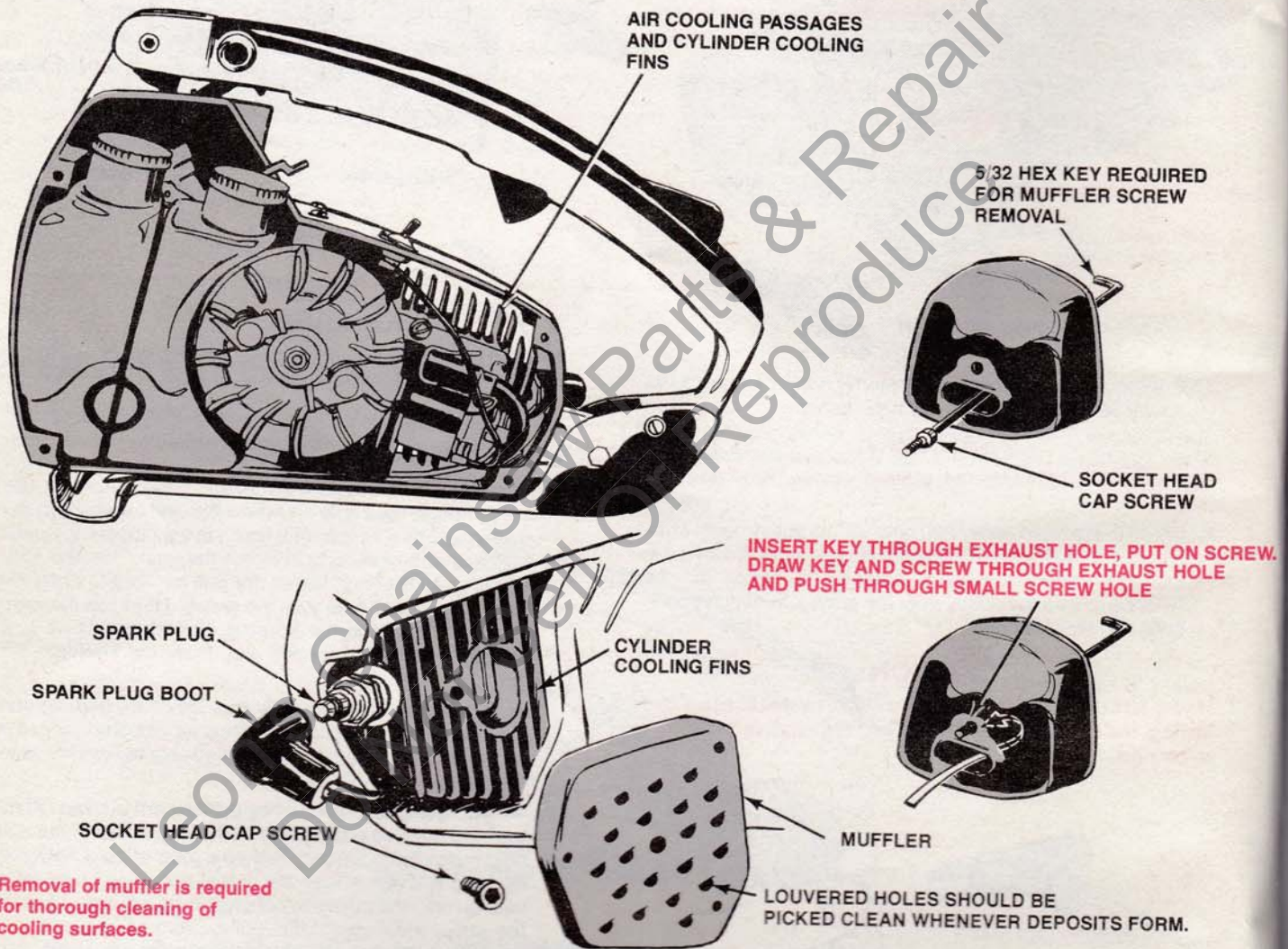


- Clean the pulley post and the pulley.
- To replace the cord, cut old cord and remove it. Push new cord through cord hole and draw the end out through the pulley slot. Tie a simple knot tightly in the other end. Coat it with acetone type cement to set the knot. Trim the cord neatly up to the knot. When dry, pull the cord to draw the knot through the hole into the pulley. Then run the cord through the hole in the housing, thread the starter grip onto the cord and knot this end. Draw the knot into the grip.
- Grease the pulley post lightly (not too much grease) and drop the pulley into place over the post. Pull cord out to the end to straighten it, then wind pulley counter-clockwise to wind cord onto it.
- Test for spring engagement by pulling cord out and letting it rewind. If it does not rewind all the way, pull cord out and hold pulley from turning. Pull up a loop of cord between housing and pulley (use the notch) and wind 1 turn extra tension onto the pulley by holding cord and using it to turn the pulley clockwise. Hold pulley from turning and pull cord out until it runs straight through the housing hole onto the pulley. Let pulley rewind. If grip does not rewind up to the housing, repeat this procedure to add one more turn at a time until grip comes up to the housing. Now add one additional turn of tension in the same manner.
- Secure the pulley with the flat washer and screw. Press the housing lightly against the rotor while pulling the starter cord a short distance and letting it rewind until the housing clicks flush against the engine cover. You may then safely secure it with the four screws previously removed. Position the handlebar on the saw and fasten with one screw at top and the two long screws through the bracket, handlebar and insulator mounting bracket at the bottom of the starter/fan housing.

VIBRATION ISOLATORS

Whenever you begin to notice any rattling originating at the vibration isolators of the saw, or feel more vibration of the saw now than when it was new, have the vibration isolation system checked, and new isolators installed as required.

IGNITION, COOLING AND EXHAUST SYSTEM

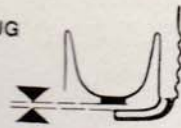


1. Cooling air drawn in by the fan, flows between the cylinder fins and is discharged around the muffler. In order for engine heat to be transferred from the fins into the air passage, fins must be clean and the air passage open. Do not let sawdust, leaves and dirt build up in the air intake area around the rewind starter at the discharge area around the muffler.
2. Occasionally, the muffler should be removed from the engine and the starter/fan housing assembly also removed. Then you can clean out the air passage and clean the cylinder fins right down to the bare metal. At the same time, deposits should be scraped from all surfaces of the muffler

- and the scrapings removed before the muffler is reassembled. A 5/32 hex key is required for muffler removal and reassembly. You should keep watch of the small louvered discharge holes in the muffler. Pick these holes clean whenever any deposits begin to form. If your saw requires a spark arrestor, be sure to keep this as well as the muffler in good repair. If the arrestor screen is burnt out or broken, or muffler louvers are enlarged, replace that part.
3. The engine has a miniature, self-sealing tapered seat type champion #DJ-7J spark plug. Always check to make sure the connector boot of the spark plug wire is firmly pressed on the spark plug.



DJ-7J
SPARK PLUG



GAP .025"

Incorrect engine oil, incorrect fuel mixture, wrong carburetor adjustment, or excessive flooding of the engine during starting will cause deposits to form on the plug electrodes and base. After many hours of use, the plug may also require cleaning and regapping of the electrodes. The firing gap is .025" (0.64 mm). Clean the electrodes prior to setting the gap. Always bend the side electrode toward the center electrode when setting this gap. If the center electrode is moved, you will break the porcelain insulation.

Rounded or pitted electrodes should be filed smooth and square to induce the spark to jump the gap (or a new spark plug of the same type should be installed).

4. While the plug is out, the ignition system should be tested to see whether there is a good spark being generated by the magneto:
 - a) Using a 1/4" (6.4 mm) diameter metal rod (a steel screw works nicely), insert the rod into the spark plug boot to contact the spring connector.
 - b) Holding the spark plug boot well back on the insulation (so as not to get a shock during cranking) position the rod to form an air gap of 1/4" (6.4 mm) between the rod and the metal edge of the muffler.
 - c) With switch turned to "RUN", crank the engine briskly and observe whether a spark jumps the test gap. NOTE: In bright sunlight where you cannot see the spark, the "snap" of a strong spark should be audible. If you do not get a strong spark on every turn of the engine, your dealer may have to change, or clean and adjust the ignition contact points for you.



BROAD, BLUE OR WHITE SPARK	Magneto is O.K.
WEAK SPARK	Magneto output may be low, or there may be an insulation leak.
NO SPARK	Have ignition checked by your dealer.

5. If you are having problems starting the engine and the spark plug is suspected of being faulty, try a new one in its place. If the new one works, discard the old one. However, the condition of the removed plug tells a story about your engine as related in the following panel.

Dry, black or light gray to tan appearance.	This is a normal appearance of plug after considerable service.
Sooty, oily black carbon on bottom and electrodes.	Engine has been getting too much fuel or too much oil in the fuel; or ignition voltage may be low; or wrong heat range plug has been used.
White to light gray powdery deposits, or burnt gray blistered look of the center electrode porcelain insulator. Center electrode appears melted and insulator burned.	Engine running too hot. There may be an air leak, either in the fuel system or in the engine seals.
Yellow ash deposit. Core bridging or gap bridging with carbon or other deposits.	Caused by additives in gasoline or oil; use proper ingredients when mixing fuel. Engine in need of overhaul due to prolonged usage; or wrong oil or incorrect fuel mixture.

STORING YOUR SAW

Chemicals and moisture in the atmosphere will attack an unprotected saw. Remove the chain and store in a container of oil. Clean the guide bar and wrap it in oiled paper or an oily rag. Add a fuel stabilizer, such as STA-BIL®, to fuel according to directions on the stabilizer can. Fill fuel tank to the top. Run engine for a few seconds on this mixture and stop engine by pushing the choke lever all the way up (instead of using the switch). Apply auto wax to painted exterior surfaces of the engine. Store engine and bar in a cool, dry place, away from garden chemicals, fertilizers and de-icing salts. NOTE: If fuel stabilizer is not available, or the saw must be stored in an area constituting a fire hazard, the fuel tank must be completely emptied of fuel prior to storage.



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