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HOMELITE®

Model 330 Chain Saw

Owners
OPERATING AND MAINTENANCE
Manual

WARNING: Chain Saws can be dangerous. To reduce danger follow all safety precautions in the owners manual before using the saw.

NOTICE: Kickback is the most dangerous of the reactions with which the chain saw operator must contend. Kickback and the other reaction forces are discussed in this manual on page 3.

HOMELITE TEXTRON
Homelite Division of Textron Inc.

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 underbrush.
- 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:
  a) 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.
  b) Don't let the nose of the guide bar contact a log, branch, the ground or any other obstruction.
  c) Cut at high engine speeds.
  d) Keep the chain sharp. 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. When transporting your chain saw, use the appropriate guide bar scabbard.
- Always use caution when handling fuel. Move the chain saw at least 10 feet (3 m) 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.
- Shut off the engine before setting down the saw. 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

- Do not operate a chain saw in a tree unless you have been specifically trained to do so.
- Keep bystanders and animals out of the work area.
- 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 springback 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.)

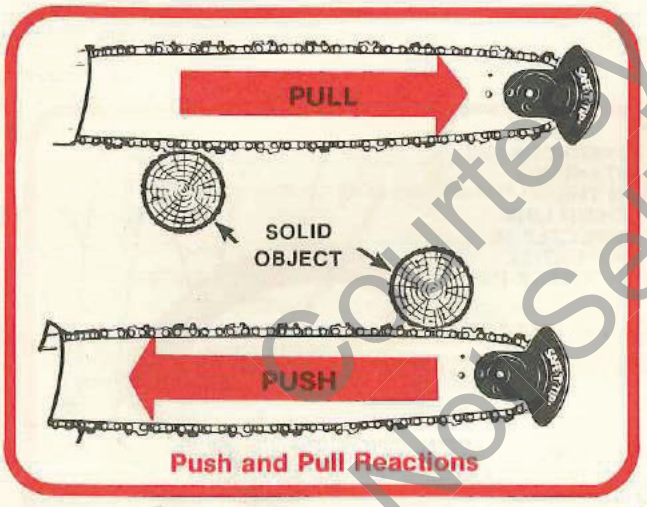
WARNING OF KICKBACK, PUSH, AND PULL and how to best control these reaction forces

WARNING

Also read the instructions which came with the SAFE•T•TIP® anti-kickback device*. We strongly urge your protecting yourself against chain saw kickback by using the SAFE•T•TIP device. But remember, that for the few types of cuts where a SAFE•T•TIP device cannot be used, you should use the techniques described in this Owner's Manual.

WHAT ARE THE REACTION FORCES?

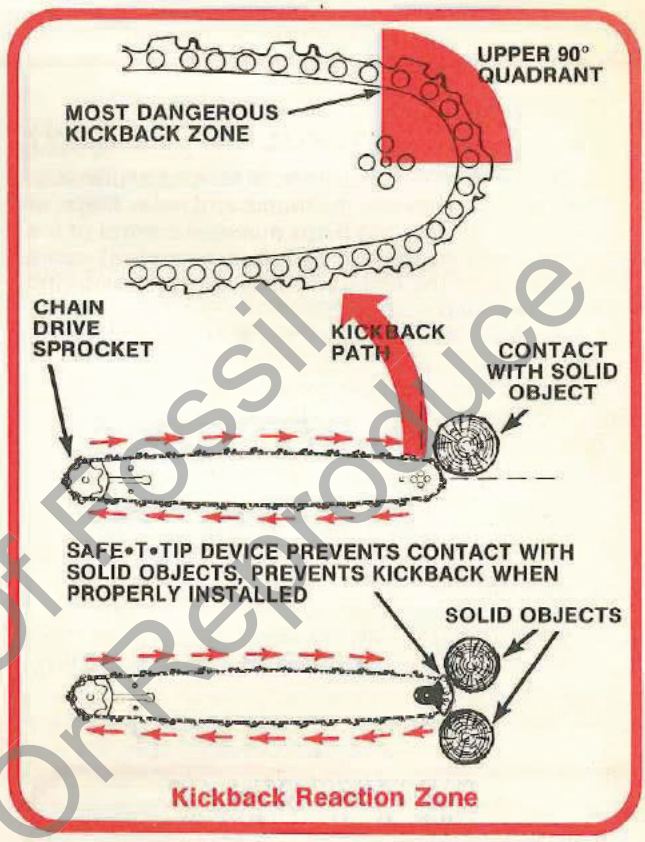
In the operation of a chain saw, engine torque is transferred to the chain. This energy is then used to cut wood. But to every force (action) there is always a reaction force in the opposite direction. Thus if the chain contacts wood or any other obstruction where the chain is moving away from the operator, the operator will feel the saw being pushed toward him. And when the work contact is made on the underside of the bar where the chain is moving toward the operator, the person will feel the saw being pulled away from him.



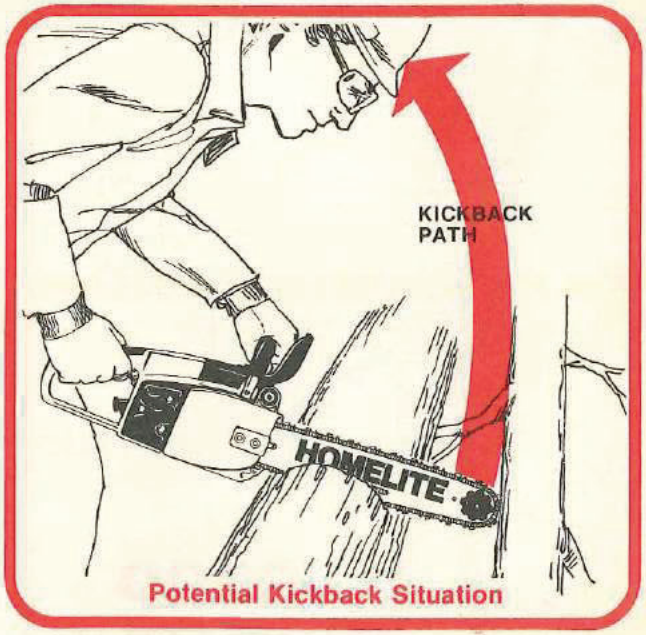
Push and Pull Reactions

KICKBACK is another reaction, the most dangerous of these reactive forces. It occurs only when solid contact with the moving chain is made at the upper quadrant of the bar nose. A violent kickback will occur any time the chain hits a solid object (or takes too large a cut) while rounding this top quadrant of the bar nose. For the instant that the chain is stopped cold, the engine drives the guide bar to rotate inside the chain loop. This results in a pinwheeling rotation of the chain, the saw, and the bar during which the bar nose *kicks back in an arc towards the operator.* This is **KICKBACK** the most dangerous of the reactions which can cause loss of control. When properly installed on a saw, a SAFE•T•TIP anti-kickback device prevents kickback. But it is not a general insurance against "accidents" with a chain saw.

THE SAFE•T•TIP DEVICE DOES NOT PREVENT OR REDUCE PUSH AND PULL REACTION.



Kickback Reaction Zone



Potential Kickback Situation

*Pat. Pending

Situations Known to Cause Saw to Kick Back towards Operator

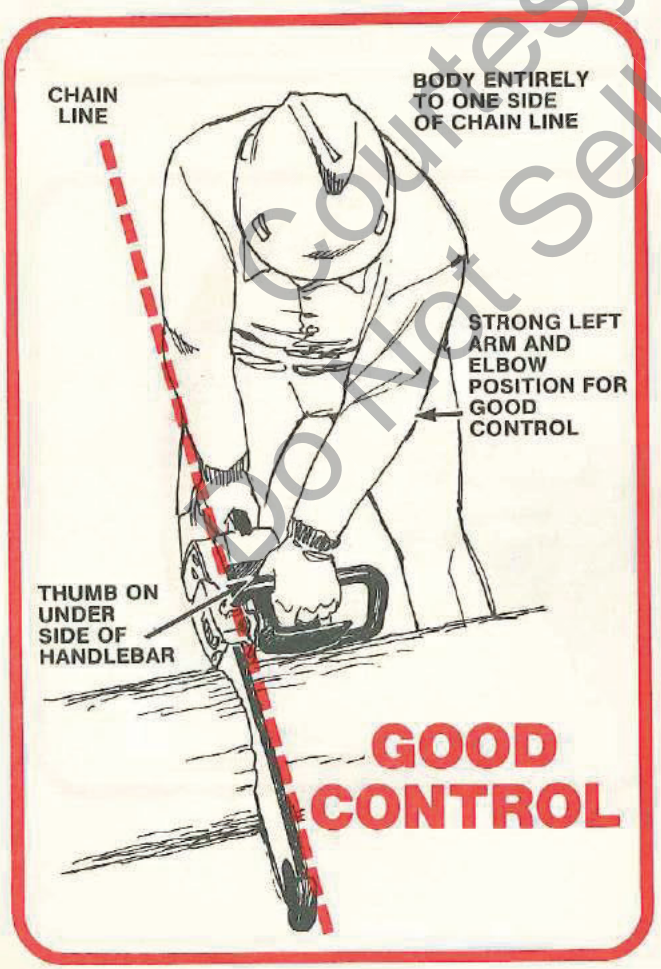
HOW SHOULD YOU MAINTAIN CONTROL OF THE SAW?

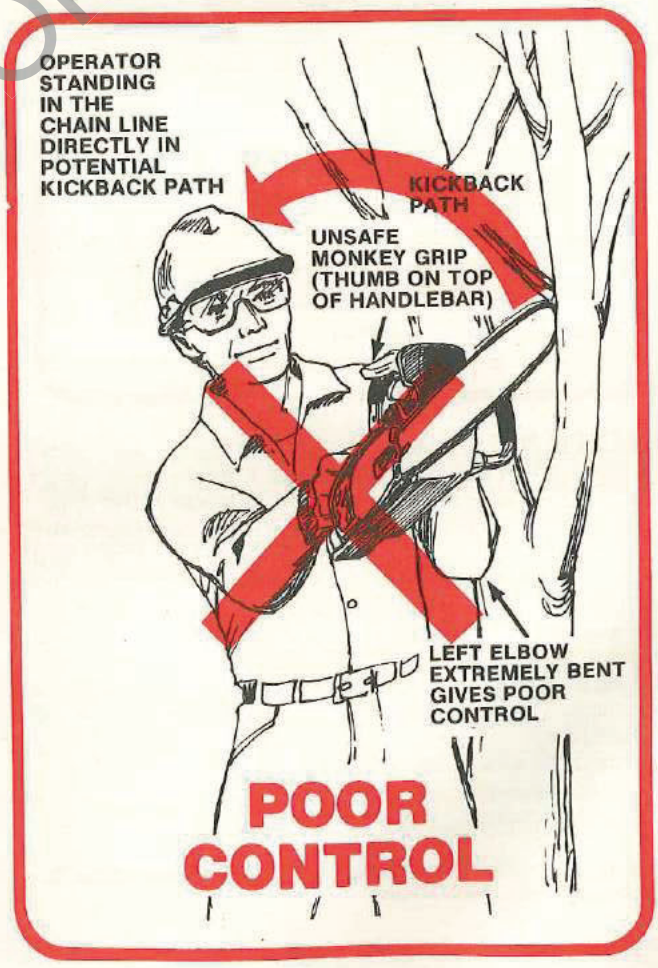
1. First of all, you must keep the front handlebar diameter in the webbing between the thumb and index finger of your left hand. This grip helps maintain control of the saw and limits the possibility that your hand will come in contact with the chain. See the illustrations of the correct and incorrect 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 chain line (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® anti-kickback device* 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 device, 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 17 for minimum risk of kickback.

*Pat. Pending





INTRODUCTORY FACTS

This Owner's Manual covers the preparation, operation and maintenance of the 330 series of chain saw models. Except where chain brake information is given, this manual pertains to all 330 Models. Take the time to read this Owner's Manual carefully, even before you prepare your new chain saw for use.

You should also study the special booklet supplied with the SAFE•T•TIP® device*. This booklet tells you how to assemble the device properly on your saw, and shows you not only how you actually can use the device to speed up some cutting operations, but also how you should vary your cutting technique for maximum protection against kickback for those few situations where use of the SAFE•T•TIP® device may be impracticable.

VIBRATION ISOLATION

This chain saw is designed for use by professionals. It's vibration reduction features are, accordingly, intended to help protect the operator against harmful vibration. The vibration isolation system of the saw is designed to meet many current regulations which place a limit on the amount of vibration which a "professionally" categorized chain saw can transmit to the operator. But, even so, you should know how you can protect yourself even further from exposure to vibration.

It has been determined that certain individuals, after long periods of exposure to chain saw vibration, possibly coupled with exposure to cold weather, experience a restriction of blood circulation through the fingers which often has the appearance of frostbite. This ailment has been referred to as *Raynaud's Disease*, and is now being called *Vibration-Induced White Finger* or *VIWF*.

The following practices may further protect you from this ailment:

1. Wear gloves to keep the hands and wrists warm.
2. Keep the chain sharp so that you do not have to bear down hard while cutting.
3. After each period of use, exercise to restore normal blood circulation.
4. Should the isolators become worn or broken so that they chatter, or if you feel an increase in the vibration transmitted through the handles, have the saw repaired before further use.

NOTICE

Model 330 chain saws are designed for operation using conventional guide bars only. The guide bars should not exceed the maximum bar length listed for the model 330 in Homelite-published sales literature. The 16" cutting length Power-Tip® guide bar and 3/8" pitch saw chain are standard equipment for this saw. Do not attempt to fit a bow guide to this saw, because it was not designed for use with a bow. Do not use the 330 engine as a power head for any equipment or devices except those listed by Homelite for the model 330 series.

HEARING PROTECTORS

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."

ENGINE PARTICULARS

The model 330 has a 3.27 cubic inch (53.6cc) displacement 2-cycle engine featuring a pyramid (multiple reed) valve intake, and solid state ignition (no breaker points). It requires a fuel mixture made from regular grade, leaded or unleaded, gasoline and engine oil. Mixtures made with gasohol must not be used in this engine.

We urge you to keep one or two spare spark arrestor screens on hand so that you may change screens whenever one becomes deteriorated. If you are working in areas where mufflers with special properties as well as spark arrestors are required we remind you that these parts must be intact (in good condition) and on the saw at all times.

SAFE•T•TIP® ANTI-KICKBACK DEVICE*

The Homelite® anti-kickback device furnished with your saw fits the standard guide bars for the model 330 series. The booklet packed with the device tells you how to install it on your guide bar, and how to operate with the device in place. When properly installed, the SAFE•T•TIP® device prevents chain saw kickback by covering the upper 90 degree quadrant of the bar nose where kickback reactions could occur.

CHAIN BRAKE

Even if you purchased a chain brake-equipped model, Homelite has supplied a SAFE•T•TIP® anti-kickback device for it. This is because a chain brake does not prevent kickback any more than a seat belt prevents collisions. A chain brake, if properly actuated and in working order, can only stop chain rotation and, even then, possibly not in sufficient time to prevent injury.

At its best, a chain brake offers only partial protection against injury from kickback. In some situations it may be impossible for the brake mechanism to stop the chain before the saw blade reaches the operator. This is especially true in situations where the operator is positioned in close proximity to the saw blade.

A chain brake is not like a fire extinguisher which can be certified to work for a certain time. Too many things like breakage or wear, dirt, dust, sawdust, chain oil, and temperature changes in the chain saw's environment, can lengthen a chain brake's stopping time. The best chance you can give the brake to react effectively is to keep it clean. Even with daily cleaning of the mechanism, the dependability of a chain brake to perform under field conditions cannot be certified or even gauged.

For your safety, rely on the SAFE•T•TIP device to prevent kickback. And depend on using the proper grip and stance and the safe cutting techniques recommended in this owner's manual to control the forces which tend to push or pull you and the saw during cutting.

YOUR PHYSICAL CONDITION

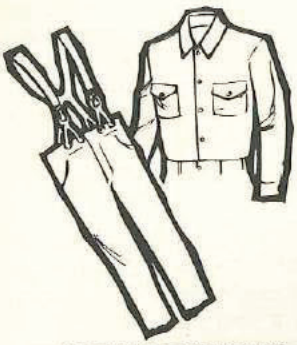
Work relaxed but stay alert. Take a break from work whenever you begin to tire. Never operate when tired or under the influence of alcohol or any drugs which may affect your balance, coordination or judgement. If you have any serious ailments such as a heart condition, check with your doctor before doing any strenuous lifting, reaching, pushing, chopping, shoveling, etc. Always do any lifting job with your leg muscles, not your back.

*Pat. Pending

NOTICE

Technology changes with the times. Homelite strives not only to create new products, but also to refine and improve existing designs. By contacting our manager of customer relations (address on back cover) you can learn of any improvements or new devices which have been developed since you purchased your chain saw.

PROTECTIVE ARTICLES, EQUIPMENT & SUPPLIES



CUFFLESS TROUSERS, TRIM, PROTECTIVE CLOTHING

NON-SLIP SHOES AND GLOVES

EYE PROTECTION (Goggles or Mask)

HEAD PROTECTION (Hard Hat)

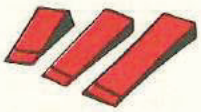
HEARING PROTECTION

FIRE EXTINGUISHER AND SHOVELS

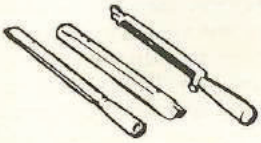
FIRST-AID KIT

HAND TOOLS

CHAIN SAW OIL



PLASTIC OR WOODEN WEDGES



CHAIN FILING TOOLS

SPARE STARTER ROPE

SPARE CHAIN

NEEDLE-NOSE GREASE GUN

SPARE SPARK ARRESTOR SCREEN

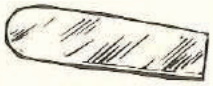
SPARE SPARK PLUG

FUEL IN CONTAINER

SHARP AXE

SAFE•T•TIP® ANTI-KICKBACK DEVICE*

SPARE FILTERS



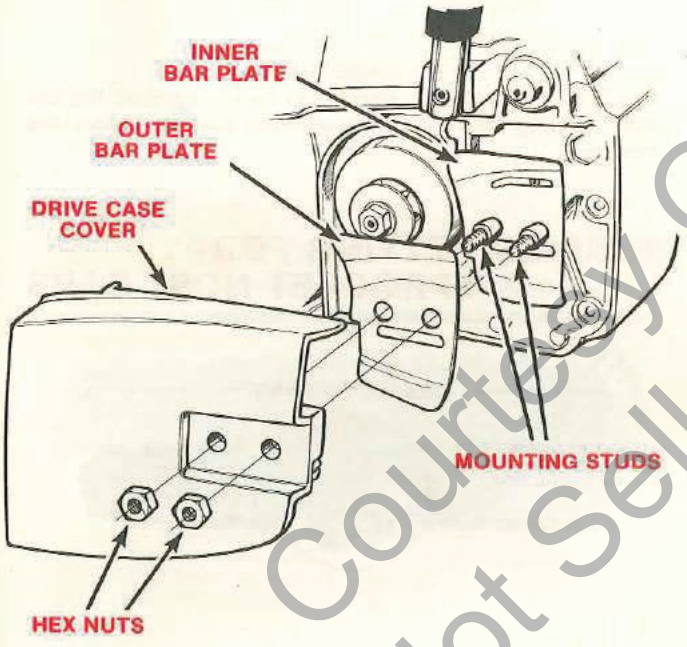
BAR AND CHAIN COVER FOR TRANSPORT

*Pat. Pending

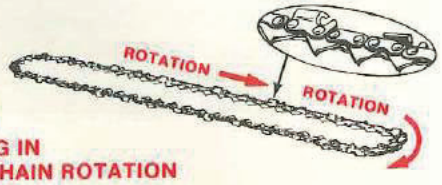
GUIDE BAR AND CHAIN ASSEMBLY

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. Refer to the illustrations of bar and chain mounting. Remove the two hex nuts and pull the drive case cover off the mounting studs. Lift off the outer bar plate. Remove and discard any cardboard packing which you may find behind the plate.
3. Note that the inner bar plate has a slot at the top to let the chain oil flow through to the bar. This slotted inner plate should always go next to the drive case.



4. Unpack the guide bar and the saw chain. Straighten out any kinks in the chain and lay it out in a loop. The cutting edges should face in the direction of chain rotation which is from the bar nose toward the sprocket along the bottom of the loop as you would assemble it on the saw. If the edges face in the wrong direction, flop the loop over. NOTE: If the SAFE•T•TIP® anti-kickback device* is to be used, it may be assembled on the guide bar now or, you may wait until the last step of assembly instructions. Follow the SAFE•T•TIP instruction booklet.

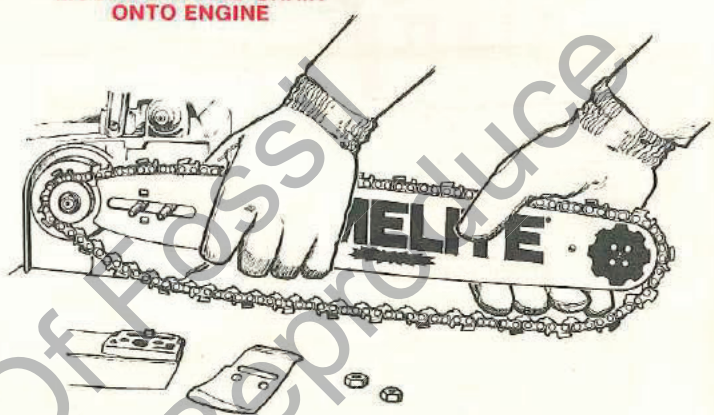


LAY OUT CHAIN IN A LOOP WITH CUTTERS FACING IN DIRECTION OF CHAIN ROTATION

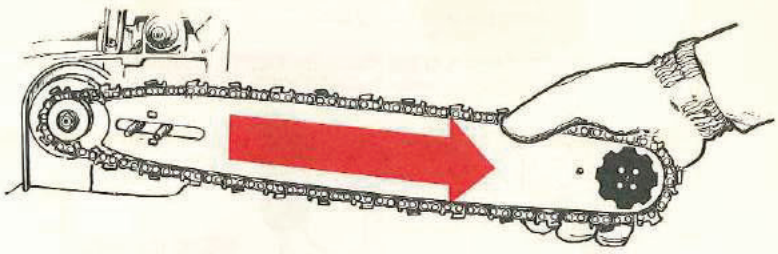
*Pat. Pending

5. Mount the chain and bar on the engine in one of the following ways:
   a) Put the chain on the bar (tangs into bar groove). Pick up the assembly and engage the chain around the drive sprocket as you fit the bar into place on the studs.

MOUNT BAR AND CHAIN ONTO ENGINE

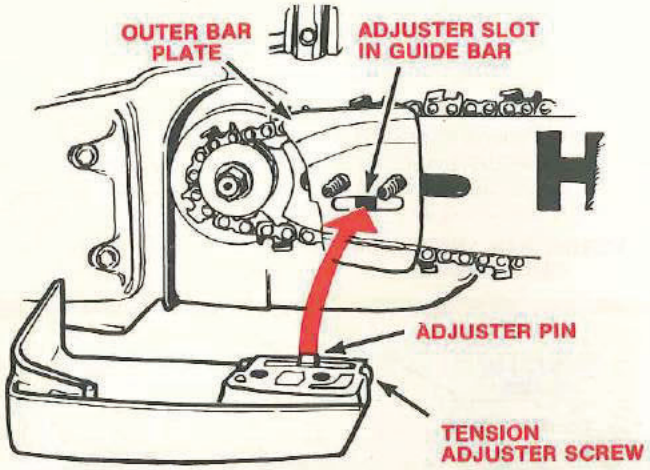


   b) Mount bar in place on studs. Then pick up the loop and fit it around the sprocket. Working from the sprocket toward the bar nose, feed the chain drive tangs into the bar groove until the chain is on the bar.
6. Make sure the bar is flush against the (inner plate on the) mounting pad.
7. Hold the bar against the mount, but slide it away from the sprocket to take up slack in the chain. If any drive link tangs come out of the bar groove, put them back in.



SLIDE BAR AWAY FROM SPROCKET TO TAKE UP SLACK IN CHAIN

8. Slip the outer bar plate back on the studs. Hold the drive case cover in position to go on the studs. By turning the tension adjuster screw (in the required direction) move the adjuster pin to where it will engage the adjuster slot in the guide bar when the cover is fitted into place on the studs.



TURN ADJUSTER SCREW TO ALIGN ADJUSTER PIN WITH SLOT IN BAR

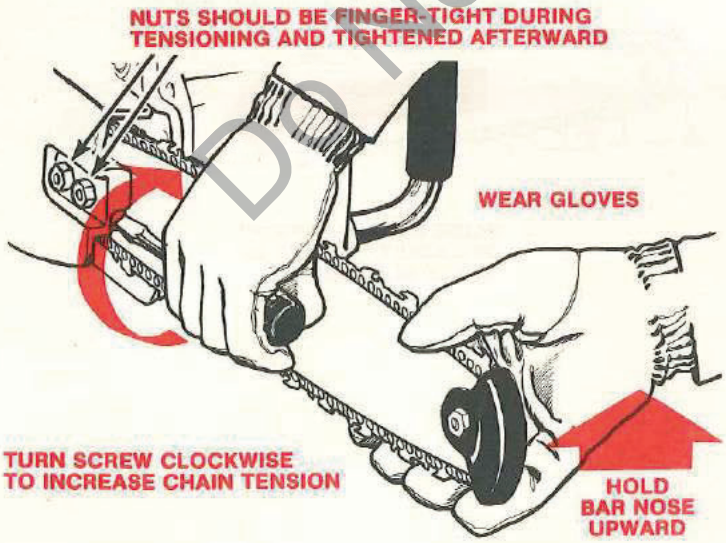
9. Hold cover and bar in place. Put the two hex nuts back on the studs and make them only finger tight for now. (Tightening should be done after the chain tension has been set.)
10. Check that the adjuster pin is in the slot, the bar is flush in place and the chain is correctly on the bar. Now turn the adjuster screw clockwise to move the bar away from the sprocket until nearly all the chain slack is removed. The chain is now ready for tensioning.

CHAIN TENSION

Proper tension is extremely important. In order to avoid a false setting, follow the steps under "General Tensioning Procedure".

GENERAL TENSIONING PROCEDURE

1. Leave mounting nuts finger-tight. Remove most of the droop (slack) from the chain.

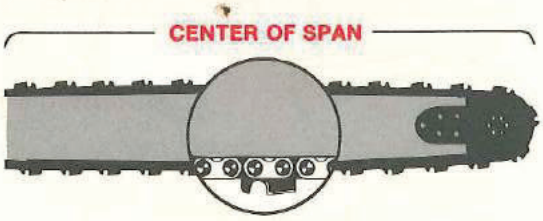


2. Pull the chain along the top of the bar toward the nose. Note that the amount of chain droop will vary (according to the sprocket position) as the chain moves. Pull the chain to where the chain has the least amount of droop. Hold up the nose of the bar to take up any play between the mounting studs and the bar mounting slot.
3. Set the chain to the tension prescribed for type of guide bar (sprocket nose or hard nose, see below).
4. While holding up the nose of the bar, tighten the nut to lock the assembly at the proper tension.
5. In use, the chain will begin to droop as it warms up and expands. Know these facts:
   a) A hot chain—so hot that you cannot hold it without discomfort while counting to 20 — cannot be adjusted accurately, because it will be contracting rapidly as you proceed. Always allow a hot chain to cool for a few minutes before adjusting.
   b) An underoiled chain gets hot and stiff and is likely to kink up. Kinking will cause it to become tight on the bar. Keep your chain well oiled.
   c) A certain amount of droop is OK when the chain is warm. But it should be adjusted on the bar any time the chain droops to where the tangs hang almost out or completely out of the bar groove at the point shown.

CAREFUL

Chain tensioned while warm may be too tight on the bar after cooling down. Always readjust tension before the next use.

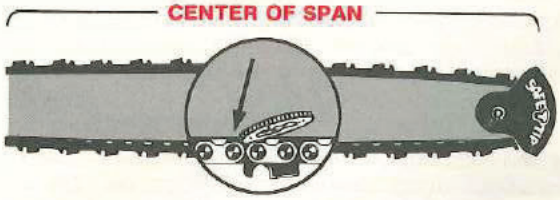
TENSION SETTING FOR SPROCKET NOSE BARS



1. The "cold" tension should be "snug", or taut like a chalk line — as tight as possible without your feeling any binding as you pull the chain along the bar by hand.
2. The chain will expand and droop as it warms up in use. Under heavy duty cutting conditions it may droop until only the points of the tangs stay in the bar.
3. For extra long duration cutting, reset the tension to where the warm chain droops only to about half the depth of the chain tangs at the center of the chain span.

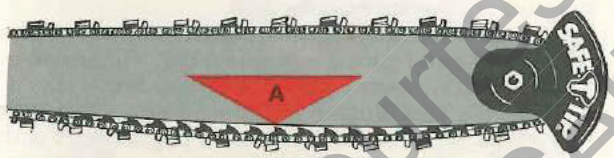
WHENEVER YOU HAVE TIGHTENED THE TENSION OF A WARM CHAIN, BE SURE TO SET PROPER "COLD CHAIN TENSION" AFTER CHAIN HAS COOLED.

TENSION SETTING FOR HARD NOSE BARS

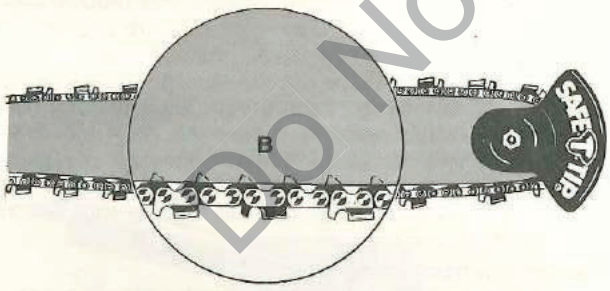


1. When "cold" tensioning, set to where the chain tie-straps do not quite touch the bar rails at the center of the chain span. The clearance with the bar should be the thickness of a small denomination coin (penny, dime, etc.).
2. Do not adjust overheated chain. Do not readjust "warm" chain unless the chain tangs hang all the way out of the bar groove.
3. When "warm" adjusting, set to where the chain tangs hang about halfway out of the bar groove at the center of the chain span. This setting leaves about a 1/8" (3.2mm) gap between the tie-straps and the bar rails.
4. When starting out with a cooled chain condition, always recheck that the "cold" tension is as described in step 1.

WHEN TO READJUST TENSION OF WARM CHAIN



IF TANGS HANG OUT OR NEARLY OUT OF THE BAR GROOVE, ADJUST TENSION SO THEY HANG HALFWAY OUT AS IN ILLUSTRATION B.



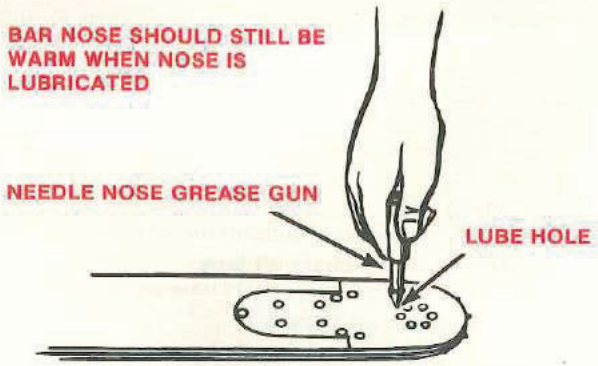
NOTE: DO NOT MAKE ANY CUTS UNLESS THE CHAIN TENSION IS CORRECT!

DAILY ATTENTION TO CHAIN AND GUIDE BAR

1. At the end of each day of cutting, clean the sawdust from the guide bar mounting pad, the clutch area and the clutch cover. Clean out sawdust from the chain groove in the guide bar.
2. File and clean the saw chain.
3. Each time you remount the bar, reverse its position (top for bottom on the saw) to distribute the wear.

REVERSING BAR ON SAW OCCASIONALLY HELPS TO DISTRIBUTE THE WEAR.

4. The sprocket nose of your PT or SP guide bar may need a grease change every day of cutting (see Maintenance Section). The proper time to change the grease is while the nose is still warm from operation and the old grease is still soft. Use needle nose Lube Gun #24258-1 filled with Homelite® ALL-TEMP Multi-Purpose Grease #17193, or our pre-packed lube gun. Pump grease into the sprocket nose bearing, until dirty grease oozes out and clean grease appears.

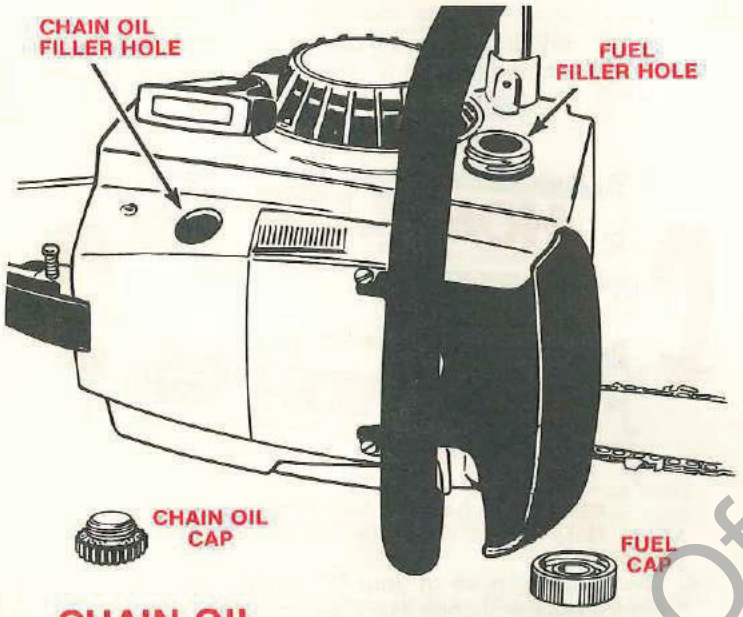


A nose sprocket is good as long as it turns freely, with no roughness or binding. However, it can be replaced as described in the Maintenance Section.

FLUIDS (Chain Oil and Fuel)

NOTE

Always fill the chain oil tank with chain oil every time you put any fuel into the fuel tank. This assures you that the saw will always use up its fuel before it runs out of oil.



CHAIN OIL

1. **Approved chain oils:**
   Homelite® Bar and Chain Oil: Recommended because it is designed for chain oilers. Formulated with viscosity improvers, this oil remains free flowing in below freezing weather — needs no dilution.
   Any SAE-30 weight engine oil product that is clean. Reprocessed oil products are satisfactory as long as clean. In extremely cold temperatures, however, SAE-30 oils should be either replaced with lighter oils such as SAE-20 or SAE-10 weights or diluted with a quantity (up to 25%) of kerosene to flow freely. No dilution of SAE-30 oil is necessary above 40° F. (4.4° Celsius).
2. **Disapproved oils:**
   Used, dirty or otherwise contaminated oils.
3. **How often to fill the chain oil tank:**
   Fill it at the start. Then refill every time engine is fueled.
4. **How to check the oil system:**
   The rate of oil discharged depends on the engine speed The higher the RPM, the more oil is pumped. No oil is pumped during idling of the engine. When saw is new, shut saw off every few minutes and look at the chain. The chain should always be quite moist in the area of the connecting links.

NOTE

A SAFE•T•TIP® anti-kickback device* mounted on the bar nose can be used to check the flow of oil to the chain: Shut off the engine with the switch. Wipe the device absolutely clean. After running the chain at high speed, no longer than five seconds, shut off the engine and see how much oil has been thrown off onto the SAFE•T•TIP device. The surface should be quite moist.

*Pat. Pending

FUELING THE SAW

CAUTION

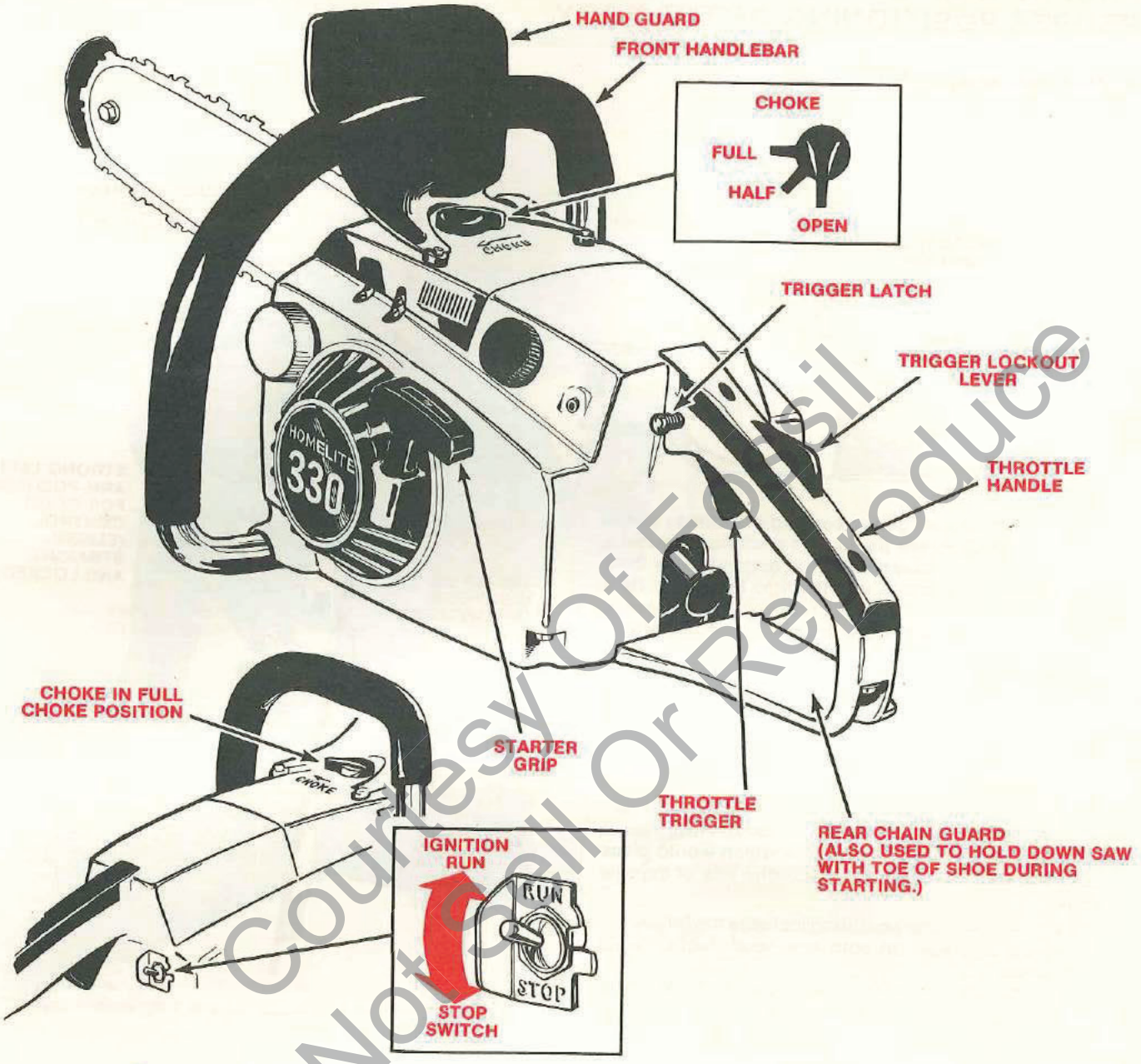
Select bare ground for fueling. DO NOT smoke or bring any flame near fuel. Move at least 10 feet (3 M) from the fueling spot before cranking the engine.

WARNING OF TANK PRESSURE

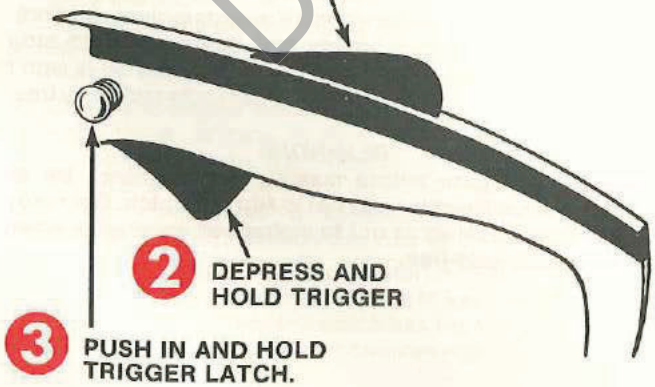
The fuel tank may be under enough pressure to cause fuel to spurt out when cap is loosened. To prevent this, always turn cap very slowly about 1/6 to 1/4 turn and let the tank depressurize before you remove the cap.

1. **Disapproved fuel ingredients:** Gasohol; and dirty, contaminated oil or fuel; stale (soured) gasoline; multi-viscosity engine oils such as 10W-40, or any oils formulated for 4-cycle engines. Gasohol attracts moisture and tends to corrode small engines. Dirt is poison to any combustion engine. Certain properties of 4-cycle engine oils may be harmful or of no value in 2-cycle engine use. A small engine will not run on stale fuel.
2. **Recommended Fuel Ingredients:** Any regular** grade leaded or unleaded gasoline that is both clean and fresh. Homelite® 2-Cycle Engine Oils (both 32:1 and 16:1 formula oils). Any high quality 16:1 ratio 2-cycle engine oil product. An anti-oxidant type of fuel stabilizer (such as Sta-Bil®, available from Knox Laboratories, Chicago, Ill. 60616).
   **When regular grade is not available, a premium high-test gasoline may be substituted in the mixture, but spark plug fouling may occur at an earlier than normal date.
3. **Proportions for the mixture:**
   a) **Homelite 32:1 Engine Oil:** (3% oil or 32:1 mix) 1 part oil to 32 parts gasoline or one 8 U.S. ounce can oil to two U.S. gallons (256 fl. oz.) gasoline.
   b) **Homelite 16:1 Engine Oil** or any other 16:1 ratio 2-cycle oil: (6% oil or 16:1 mix) 1 part oil to 16 parts gasoline, or one 8 U.S. ounce can oil per U.S. gallon (128 fl. oz.) gasoline.
   c) **Fuel stabilizer:** Follow instructions on stabilizer can to add stabilizer to formula a) or b) given above.
4. **How to mix thoroughly:**
   Gasoline and oil do not mix readily and require considerable agitation for a uniform mixture (never mix fuel directly in the saw tank). Select clean mixing equipment. Pour half the gasoline and all of the mixture of oil into the mixing can and agitate by shaking can. Then pour in the remaining gasoline. Now mix thoroughly for one minute by shaking the can or stirring the mixture with a clean paddle. Wipe saw down if fuel was spilled. Move away from the fueling spot before cranking the engine.
5. **Protection from aging fuel:**
   Do not use a non-stabilized fuel older than 3 months from the time the gasoline was purchased. Do not use a stabilized fuel beyond the time limit given on the stabilizer can. For long storage, prepare the saw as instructed under "Storing The Saw" on page 30.

THE OPERATING CONTROLS



1 **GRIP THROTTLE HANDLE.**
This depresses the trigger lockout lever to free up the trigger mechanism.



2 **DEPRESS AND HOLD TRIGGER**

3 **PUSH IN AND HOLD TRIGGER LATCH.**

4 **LET GO (RELEASE) THE TRIGGER BEFORE THE LATCH.**
Trigger is now latched in the position for starting the saw.

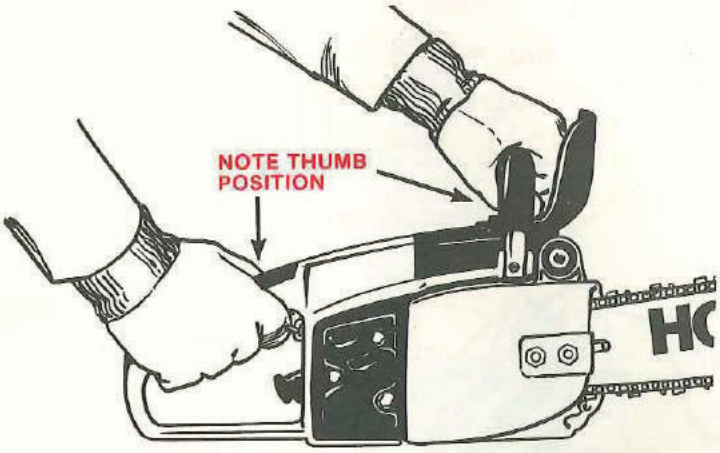
5 **AFTER STARTING, TAKE OVER CONTROL OF ENGINE BY SQUEEZING THE TRIGGER.**
All cutting should be done at full throttle.

6 **RELEASE TRIGGER WHEN YOU DESIRE TO IDLE THE ENGINE.**

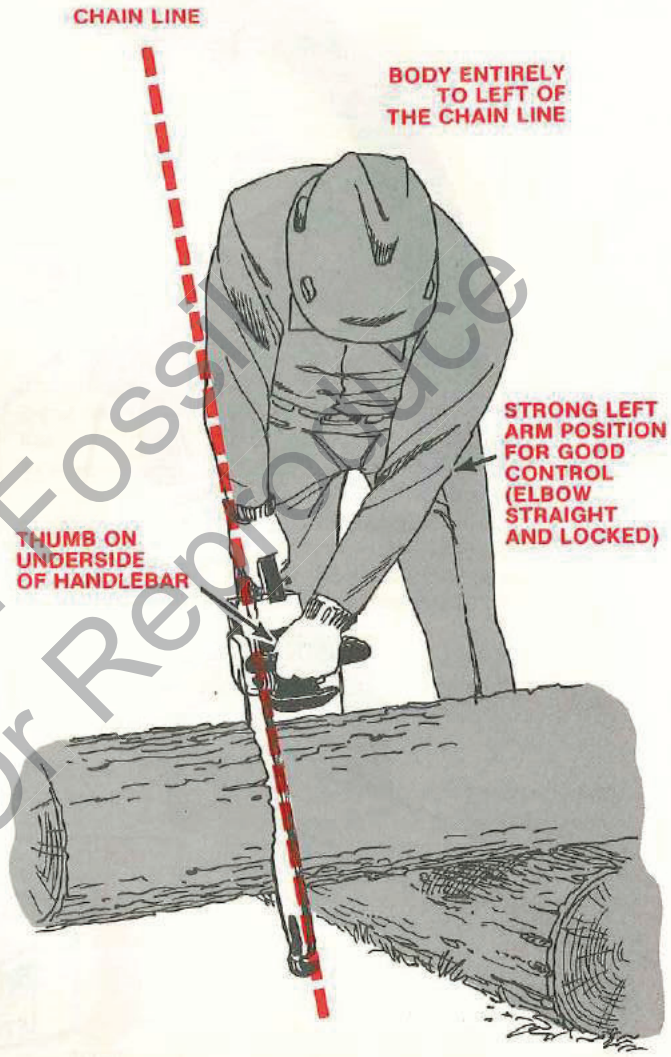
7 **IF LOCKOUT LEVER IS ALLOWED TO RAISE UP (IF YOU LET GO OF THE HANDLE) TRIGGER WILL BE LOCKED IN IDLE.**
This prevents accidental acceleration of the saw.

PROPER GRIP ON THE HANDLES AND PROPER POSITIONING OF THE BODY

Practice these things before you start your saw.



1. Note that the proper grip to be used at all times is (the one illustrated) where the fingers encircle the handle and the thumb is wrapped on the opposite side from the fingers. This grip is less likely to be broken by a kickback or similarly sudden reaction of the saw. A "monkey grip," in which the thumb and fingers are on the same side of the handle, is dangerous because a slight kick of the saw can force it right out of your hands.
2. Always hold the saw firmly with both hands when the engine is running. Always keep your LEFT HAND on the front handlebar and your RIGHT HAND on the rear (throttle) handle, so that your body is to the left of the cutting line of the chain. Do not under any circumstance operate the saw with one hand. Never use a cross-handed grip, or any stance which would place your body and arm across the cutting line of the saw chain.
3. The proper stance for operating includes the following:
   a) Weight balanced on both feet—both feet on solid ground.
   b) Left arm kept in a "straight-arm" position with elbow straight to withstand any kickback force.
   c) Body always to the *left* of the chain line.
   d) Grip maintained on handles as described (above).
   e) Avoidance of any off-balance or overextended cutting stance. Especially, do not reach above chest height with the saw, or way out in any direction to make a cut.
4. The proper stance and saw placement for starting includes the following:
   a) Hold saw down on a clear, level surface with the bar and chain in the clear.
   b) Body to left of the chain line. (Never straddle the saw or lean across it past the chain line.
   c) Hold front handle bar on top, behind the chain guard.
   d) Put toe of shoe over the rear chain guard platform to hold down the rear.
   e) Pull starter grip straight up with your right hand.

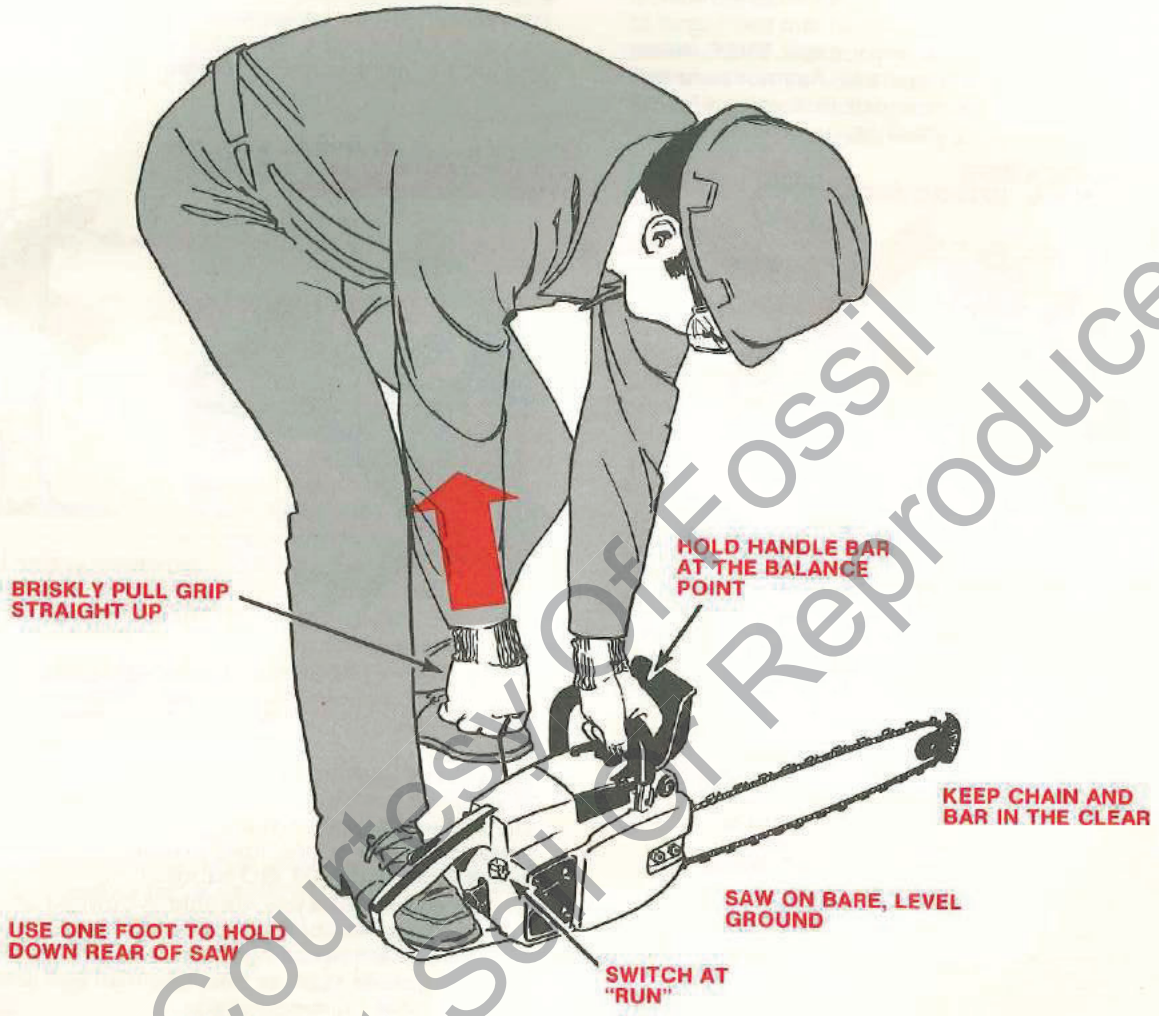


5. The proper procedure for cutting includes:
   a) Starting up engine, then taking stance in front of the wood.
   b) Positioning saw, but revving it to full speed before chain touches the wood. (Prevents violent reaction).
   c) Watching the progress and being ready to stop cutting pressure and hold up the saw so it won't pull you off balance as the chain cuts suddenly free.

REMINDER

Speed up engine before making wood contact. Do all cutting at full throttle so as not to slip the clutch. Get ready to throttle down so as not to overspeed the engine when it becomes load-free.

STARTING AND STOPPING



NOTE

Steps 1 through 6 are for starting a cold engine.

1. Put ignition switch to "RUN", and twist choke knob clockwise to full choke position (see illustration of controls, page 11).
2. Latch trigger for starting (see illustrations, page 11).
3. Hold saw down properly. Pull the rope slowly to engage the starter. Then crank engine with smooth but vigorous pulls on the starter grip. (Pull rope straight up out of the rope hole). Hold onto grip during each rewind, to reduce kinking and fraying of the rope.
4. Crank the engine until engine fires. (Coughs two or three times, or runs briefly.) Then open the choke halfway. (Normally, 3 to 5 cranks are required to prime the engine with fuel. Many more might be required in cold weather but only one crank may be needed to fire an engine which already has fuel in the chamber).
5. Crank engine at half choke to start it. Smoothly open choke (counterclockwise) in time to keep engine running. NOTE: Any engine which has fired several times at full choke will start when cranked right away at half choke.
6. Switch your hand from the starter grip to the throttle handle. Squeeze the trigger and you will have control of the throttle. When saw is warm enough, let it idle while you take your stance for cutting.

NOTE

The following are for the special circumstances mentioned.

7. To restart a warm engine turn the switch to "RUN" and crank to start. Choking and latching of the throttle are usually not needed unless the engine has cooled a bit.
8. If a warm engine has begun to cool, first try *half-choke*. If it does not fire or start at half-choke, use the cold-starting control settings (steps 1—5).
9. If an engine has been flooded (you can usually smell the excessive fuel vapors) remove and *dry off the spark plug*. Put the switch to "STOP," hold the throttle wide open, and spin the engine over quite a few times with the starter rope to purge fuel from the cylinder. Reinstall the spark plug and follow steps 1 through 6 to start the engine.

SECTION 2 — WORKING AREA PRACTICES

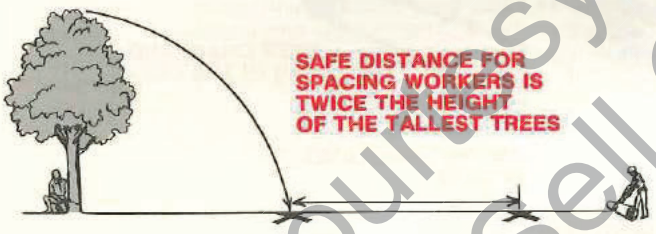
WORK AREA PRECAUTIONS

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

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

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 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 BUCKING 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 WITHIN CALLING DISTANCE OF OTHERS IN CASE HELP IS NEEDED

*Pat. Pending

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.

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 ended.

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.

HANDLING AND SECURING THE SAW

Inspect your saw every day before use. Keep the fuel cap, oil cap and air filter cover on tightly. Check condition 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 4.) 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.

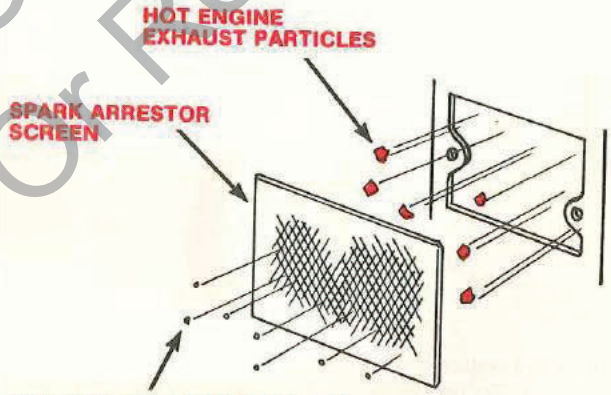
If there is anything wrong with the saw have it fixed before further operation. The idle speed adjustment should be maintained so that the chain stops moving after the engine is brought back to idle. Adjust the idle speed whenever necessary (see Section 5).

NOTE

Do not disassemble the rotor (flywheel). Special techniques are required (on a dealer level) for safe removal and installation of the rotor.

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

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 states where a spark arrestor is required by law, it is the operator's 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.



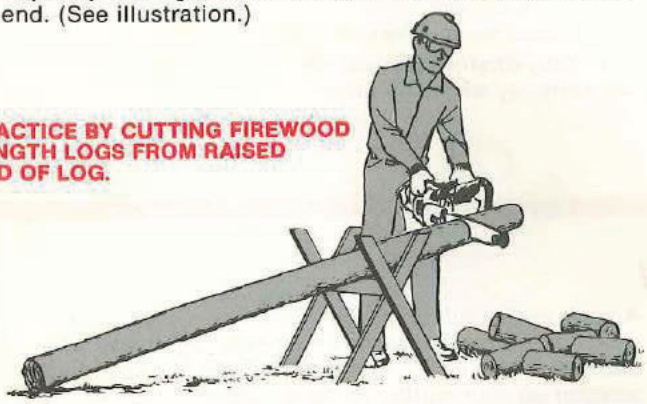
A SPARK ARRESTOR IS ONLY ABOUT 90% EFFICIENT IN PREVENTING FIRES. LOCAL AUTHORITIES MAY CLOSE THE FOREST DURING EXTREMELY DRY PERIODS.

SECTION 3 — TECHNIQUES OF CUTTING

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

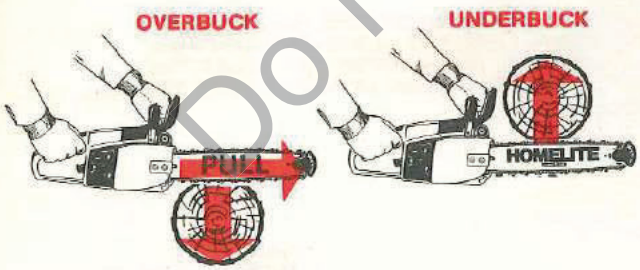
BUCKING, LIMBING AND PRUNING

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.

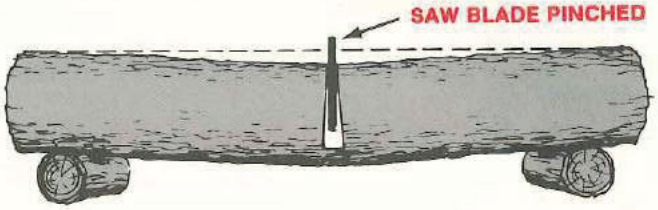
3. You will notice a slight amount of *pull* reaction during cutting. So be ready for the moment the saw breaks through the wood and *pull* ceases. You must be ready to stop pushing down on the saw and hold the saw nose up. The moment the chain breaks clear, release the throttle trigger so the engine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



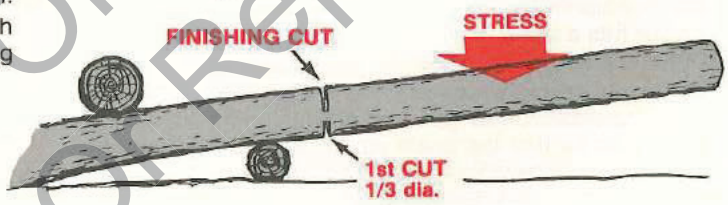
4. When you have mastered the overbucking technique, try underbucking to see what it feels like.

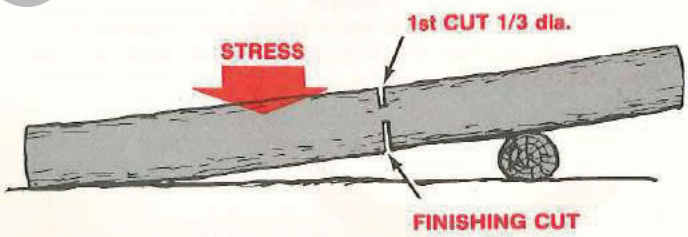
   Place the saw blade under the log. Throttle up and exert upward pressure to cut clear through. Now you are ready to learn when to overbuck and when to underbuck in order to avoid pinching the chain in the wood.

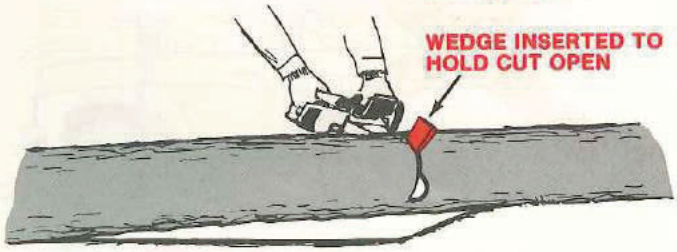
CUTTING VARIATIONS ACCORDING TO THE STRESS FACTORS



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.

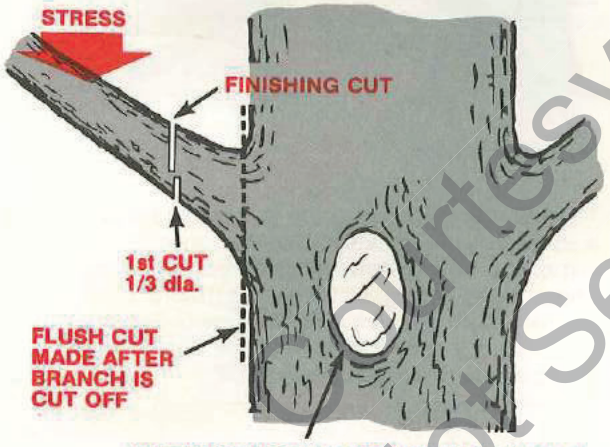






Sometimes it is impossible to avoid pinching (with just standard cutting techniques) or difficult to predict which way a log will bend when cut. You can do this to prevent pinching: If the wood diameter is large enough for you to insert a soft bucking wedge without touching the chain, you should use 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.

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.



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.

BORING WITH THE NOSE SECTION

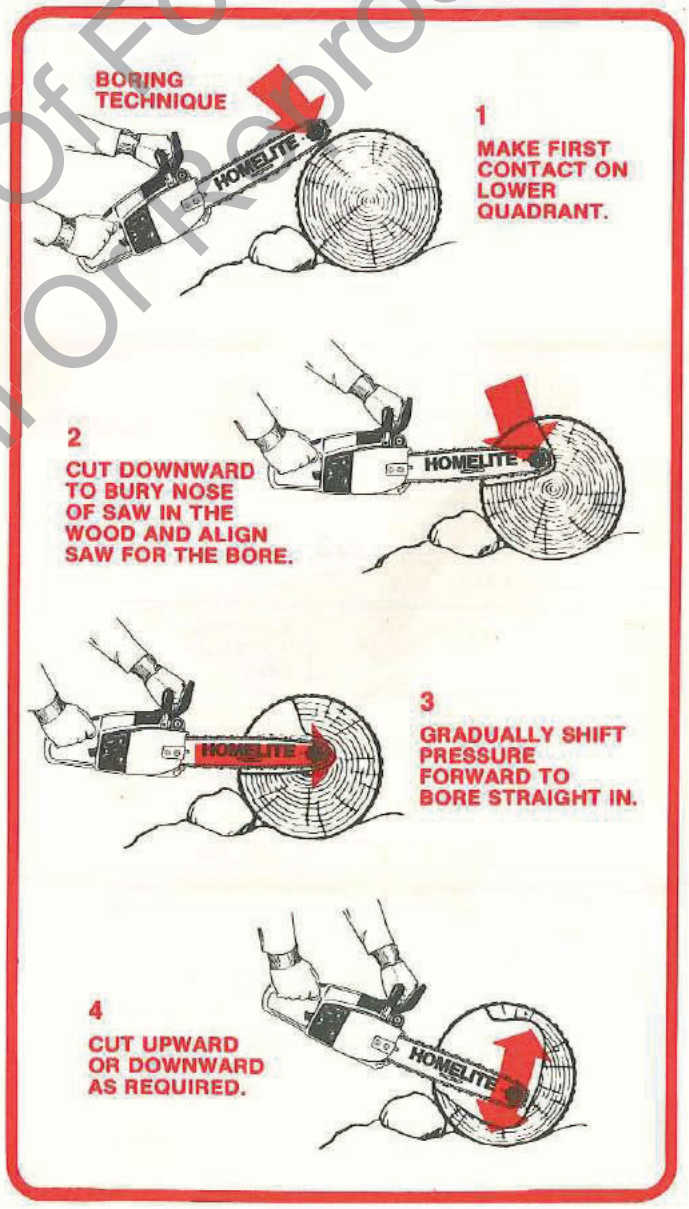
KICKBACK DANGER

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® anti-kickback device* 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.

*** Pat. Pending**

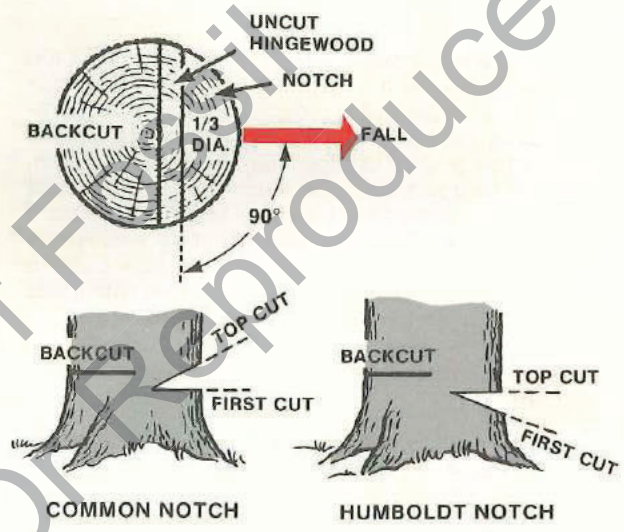


TREE FELLING TECHNIQUES

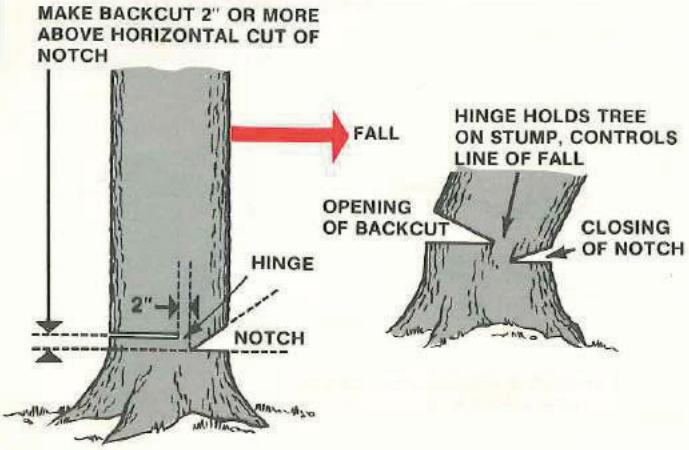
CAUTION
If the saw gets caught or hung up in a tree during felling, leave the saw and save yourself. The saw can be replaced and you cannot!

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 speed and direction, 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.

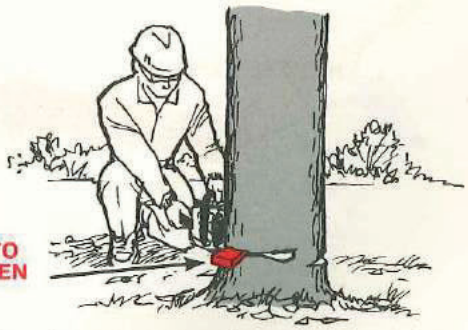
5. If the tree is not badly out of balance, cut a notch about 1/3 the diameter of the trunk. This notch whether standard or "Humboldt" is made in the side the tree is to fall. And the cuts of the notch are made so they intersect at a right angle to the line of fall. This notch should be cleaned out to 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 (51 mm) above the horizontal cut of the notch. As a guide to placing the back cut above the notch, figure 10% of the trunk 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.



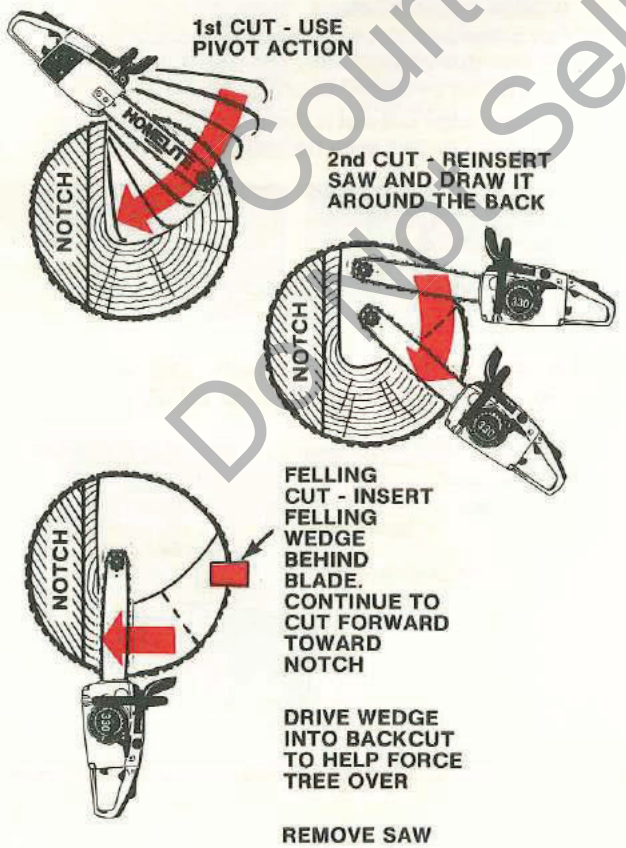
9. Trees larger than the saw can cut in one cut, can be both notched and back-cut in a series of cuts, as illustrated. Start the notching cuts from one side and draw the saw through to the other side of the notch. Start the back cut on one side of the tree, pivoting the saw through to form the desired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



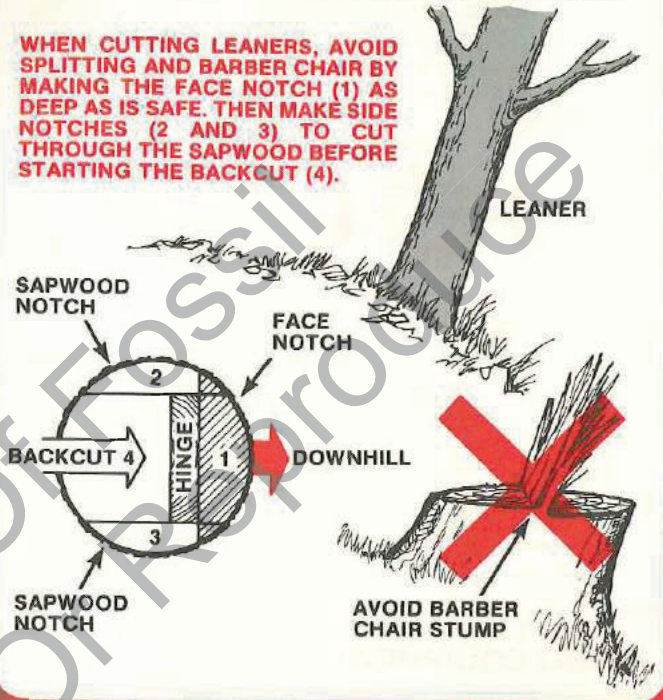
FELLING LEANERS

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

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

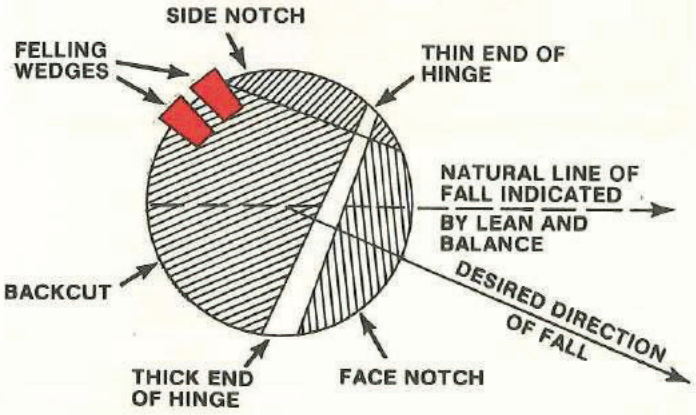
1. Make the directional control face notch shallower than usual.
2. Make shallow notches on both sides of the tree to cut through the outer layer (sapwood).
3. Now make your back cut to leave a parallel hinge.

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 BACKCUT (4).



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

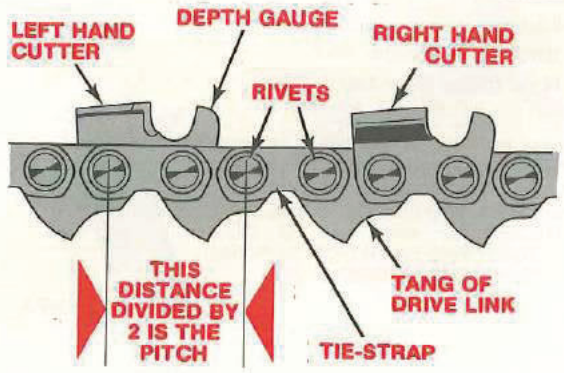
1. Where you would leave a parallel hinge (hingewood of equal thickness on both sides) the hinge is left thicker on the side *toward* which you want the tree to swing (away from the natural line of fall).
2. Place your wedges in the back cut *between the back-center and the narrow side* of the hinge.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



*Pat. Pending

SECTION 4 — MAINTENANCE AND REPAIR OF THE CUTTING UNIT

HOMELITE® SAW CHAIN



Your saw has a fast-cutting chain with a sprocket which matches it in pitch. When the chain is to be replaced, always install a new sprocket of matching pitch because a worn sprocket would be out-of-pitch and damage the new chain.

Not only for fastest cutting, but also for maximum life of the chain and all saw parts, always keep the chain in such good, sharp condition that bearing down hard to cut is not needed. When the sawdust turns from chips into a fine powder and you find yourself pressing hard to feed the chain, STOP IMMEDIATELY and file the chain.

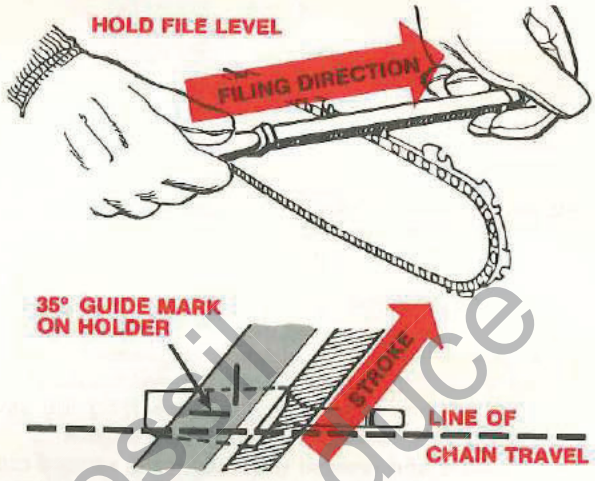
FILING EQUIPMENT

Uniformity and accuracy are necessary for success in filing saw chain. These are easiest to obtain with the aid of a file holder which has the required 35° top filing angles marked on it, and also holds the file at the correct height (1/10 to 1/5 of file diameter above top plate of tooth) to produce the required side plate angle and beveled cutting edge.

ALL YOU HAVE TO DO IS MAINTAIN THE CORRECT FILING ANGLE, HEIGHT AND PRESSURE AGAINST THE TOOTH.

For new 3/8 pitch chain, a 7/32 diameter "fast-cut" round file and holder (our Assembly DA-92615) is required. When about half of the original tooth steel has been filed away, you should switch to 3/16" diameter file (92603) which you can use in the same holder. The reason for using a smaller size file on a "short-filed" tooth is the slight taper of the tooth's top plate which reduces the size of the tooth.

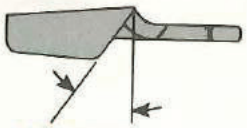
A chain filing vise holds the cutters rock-steady during filing: but you can do a satisfactory job "on the bar" if you tighten up the tension enough that the chain doesn't wobble, and do all of the filing at the mid-point of the bar. Wear gloves for protection. Be sure to file all cutters to the same length. If you replace damaged cutters, file them back to the same length as the rest of the cutters so that each cutter has the same chance to cut.



HOW TO FILE CUTTERS

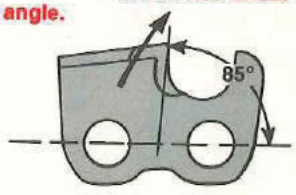
1. Hold file against cutter face at 35° angle (marked on file holder).
2. Keep file level — do not let it dip or rock.
3. File in one direction only — towards front corner of the tooth. Move file away from tooth face on return stroke.
4. Use light but firm pressure, mostly towards back of tooth. Avoid heavy downward filing pressure. The holder will keep 10% to 20% of the file above the top plate, automatically producing a beveled hollow-ground under edge.
5. Put a few firm strokes on every tooth, filing all cutters on one side of the chain, then all cutters on the other. Rotate file in holder occasionally.
6. A sharp edge will not reflect light. Examine the edge to see if the dulled area has been removed.

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



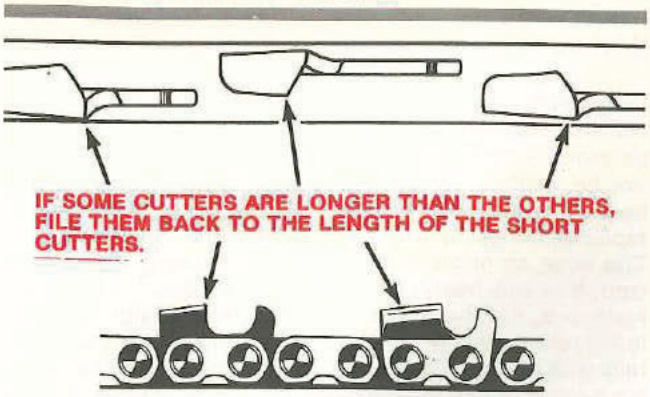
1. 35° top plate angle.

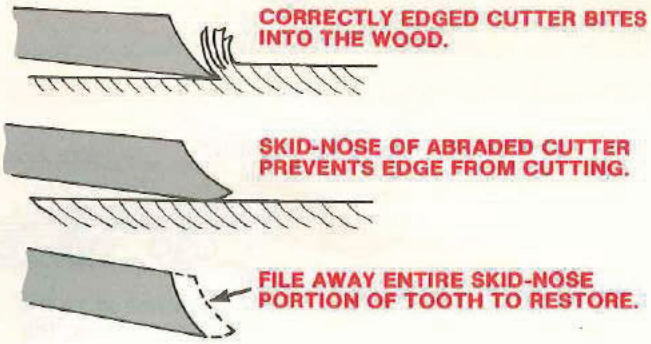
2. Beveled under edge.



3. Side plate 85°-90° to line of chain travel.

CORRECTIVE FILING

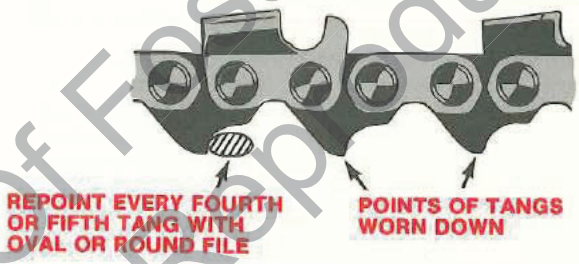




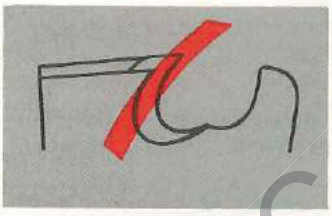
FILING OUT "SKID-NOSE" WEAR PATTERN

"SKID-NOSE" describes the edge area of teeth which have hit hard objects such as stones, nails, etc., or cut dirt, sand, etc. The "skid-nose" rides the wood surface keeping the sharp edges out of the wood. The friction at the "skid-nose" area overheats the cutter steel, and the chain gets "soft". The only way to restore the chain to good condition is to file away all of the "skid-nose" steel. And, then to adjust all cutters to the same length. As this may be tedious to do by hand-filing, consider having it done by your servicing dealer on an electric grinder.

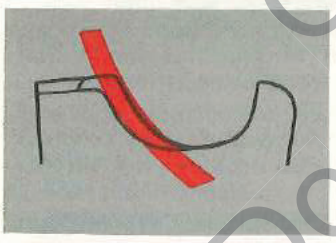
Chain drive tangs must have sharp points to clean sawdust from the bar groove, and bar groove must be deep enough for the tangs to clear bottom all the way around bar. (Every fourth or fifth tang resharpened will do the job as the chain wears.)



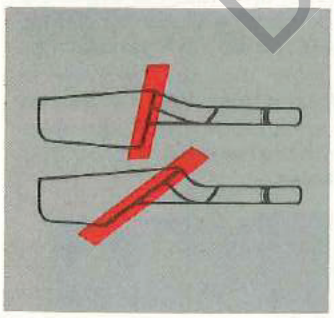
REFILE ANY TEETH HAVING ONE OR MORE OF THESE FAULTS



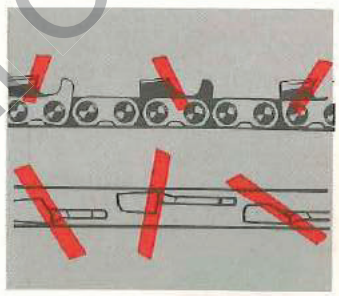
Forward Hook
Chain will grab and jerk. Producing rough-cutting. Caused by excessive downward filing pressure, or tip of file held too low on tooth.



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

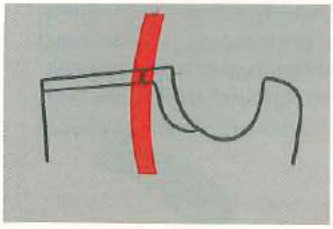


Improper Top Plate Angles
Blunt angle requires too much feed pressure to cut. Too sharp an angle causes binding. Produces a rough cut, robs power from saw, and increases bar wear. Caused by holding file at wrong angle or letting it drift or rock during the stroke.



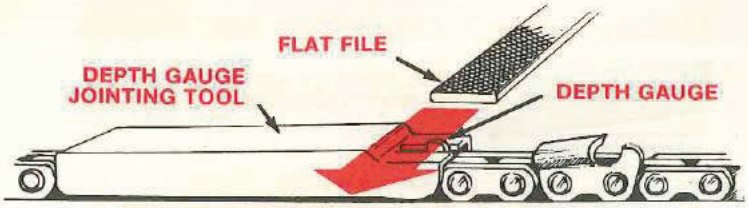
Cutters Filed at Non-Matching Angles or Lengths
Chain will not cut at its best. May cut off line or "run" to one side. Drag will slow down engine. Caused by letting filing angle or pressure vary from tooth to tooth, or filing one side of chain differently from the other.

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 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.

HOW AND WHEN TO SET DEPTH GAUGE CLEARANCE



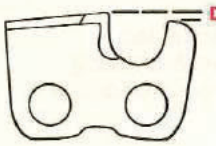
Every second or third time the teeth are sharpened, or if a large amount of steel is removed from the cutters, the depth gauges should be jointed to correct depth.

SUGGESTED DEPTHS FOR THIS SAW AND CHAIN ARE:

HARD WOOD TO MIXED HARD/SOFTWOOD DIET	.025" (factory setting of new chain)
STRICTLY SOFTWOOD DIET	.030"

Use a depth gauge jointer and a flat file. Fit the jointer over the chain so that the slotted end of the jointer points toward the bar nose and the depth gauge projects up through the slot. File the depth gauge flush with the top of the jointer. File all gauges to this height. Be careful not to nick the tiestraps with the file.

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.



CORRECT SHAPE - TOP FILED FLAT AND FRONT HALF ROUNDED

FILED FLAT BUT NOT ROUNDED OFF - TOO SQUARE TO SLIDE SMOOTHLY. CAN BE CAUSE OF A VIOLENT KICKBACK

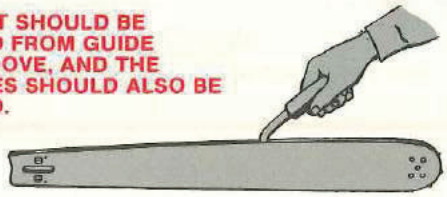
POINTED OR ROUNDED OFF TOO MUCH - NOT ENOUGH FLAT SECTION LEFT TO CONTROL THE DEPTH OF CUT.

GUIDE BAR MAINTENANCE AND REPAIR

The guide bar should be cleaned periodically. Use a putty knife or stiff wire to clean packed sawdust out of the chain grooves. Also clean out the chain oil holes so that oil can flow freely to the chain. Rotating the bar top-for-bottom on the saw every day or two helps to equalize the wear.

Hard nose bars ground from solid steel (GW Series) can very often be repaired by grinding down the worn or cracked bar rails, welding new rail metal to the bar, and re-grooving. All of this must be done by bar shop specialists. However, replacement of short length bars may be more economical. Laminated construction bars can not be welded. They *must be replaced.* Sprocket nose bars in both the PT and SP series can be fitted with replacement sprocket nose assemblies when necessary. The nose sprocket bearing is good as long as it turns smoothly and freely. Examine the bar rails. If burred or feathered, file the edges smooth. Small straight cracks in the rails probably have little effect on performance, but rails with hooked cracks will cause trouble. If the bar rails are burned blue it indicates either that the rails were pinched together or that the chain was run with too little oil or under too much pressure.

SAWDUST SHOULD BE CLEANED FROM GUIDE BAR GROOVE, AND THE OIL HOLES SHOULD ALSO BE CLEANED.



NOTE

Do not use any guide bar which is bent out of shape. Have bent bars straightened, if possible, or replace them.

WEAR PATTERNS IN GUIDE BAR GROOVE AND BAR RAILS:

Most of these will cause the chain to flop over sideways and either not cut at all or cut in a curve. Sometimes the bar rail will be exposed to one side and will hang up against the side of the cut so the chain cannot feed.

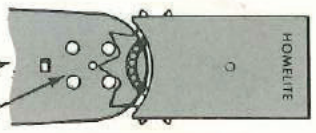
SPROCKET NOSE OF POWER TIP® GUIDE BARS (PT BAR SERIES)

A PT bar has a replaceable nose sprocket of different construction than the sprocket nose of SP bars (shown in the next topic).

1. A PT bar in the sizes used on this saw requires daily lubrication of the nose sprocket, and under heavy wood cutting or land clearing conditions may need lubrication every second or third refueling. (See Preparation Section for sprocket nose lubrication).
2. The nose sprocket will require replacement whenever the bearings bind or become rough-turning, or when the sprocket teeth are badly worn and a new chain is to be installed.
3. To change a Power Tip® nose sprocket, drill through the center of the rivet heads. Punch out the old rivets (see illustration). Install the new sprocket by sliding it into the bar nose just as it comes from the replacement nose kit package. Note that the package is shaped to the contour of the bar nose. When installing the rivets, peen the heads out smoothly with light taps, then strike several blows with the flat head of a hammer until the rivets fill up the holes.

POWER TIP® SPROCKET NOSE BAR

RIVETS AND OLD NOSE SPROCKET REMOVED



SLIDE REPLACEMENT SPROCKET RIGHT OUT OF THE SHAPED PACKET INTO THE BAR NOSE

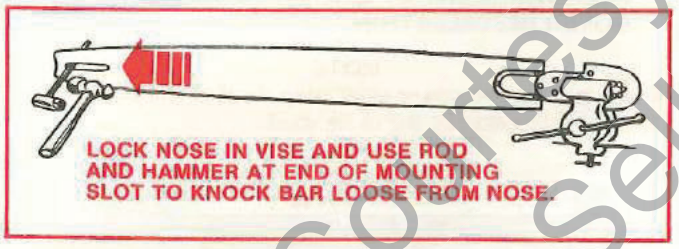
SPROCKET NOSE OF SP GUIDE BARS

NOTE

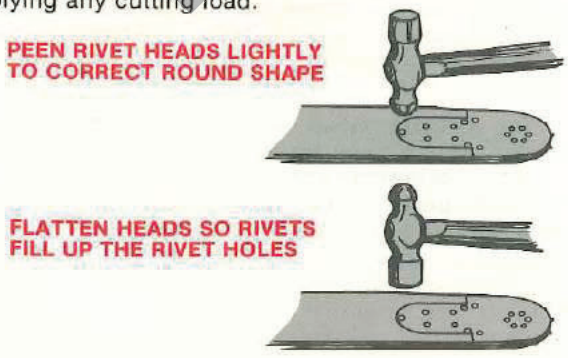
SP guide bars can be fitted for use with either 3/8 pitch-.050" gauge (which is the standard for this saw) or .404" pitch — .063" gauge by installing the appropriate pitch nose sprocket assembly. Be sure to select the nose sprocket which matches the drive sprocket and chain of the saw.

1. See the "Preparing for Use" Section of this manual for daily lubrication information.
2. The SP replacement nose assembly comes with three aluminum rivets and is ready for use as soon as installed. It will require replacement when it no longer turns smoothly, or whenever the sprocket is badly worn and a new chain is being installed, or when changing from one pitch to another pitch saw chain and drive sprocket.
3. When a change of noses is needed, drill through the centers of the three rivet heads illustrated below. Then punch out only those three rivets.

4. Clamp the old bar nose right over the rivet heads in a vise. Strike the end of the guide bar mounting slot (as illustrated) with a rod and hammer to free up the nose for removal. Clean the bar thoroughly before installing the new nose as instructed below.



5. Slide the replacement nose into place in the bar. Line up the three holes in the nose with those in the bar. Insert the three new rivets in the holes.
6. Place bar on a supporting surface (anvil). Peen the rivet heads smoothly with light taps of a ball peen hammer. Then, use the flat head of the hammer to strike sufficient blows for the rivets to fill up the holes.
7. After assembling and adjusting the bar and chain on the saw, pour some chain oil onto the chain or into the bar groove at several points. Then run-in the chain and bar for one minute or more at a slow speed without applying any cutting load.



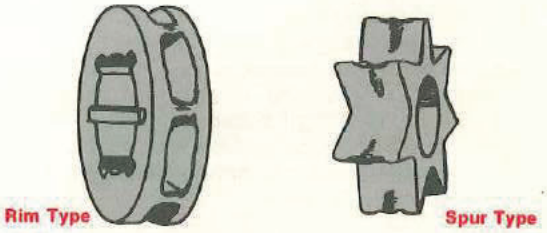
CLUTCH, DRUM AND DRIVE SPROCKET

Maintenance, Inspection and Repair

WARNING

Proper disassembly and repair of the clutch is so important to the life of the engine and the safety of the operator, that all clutch service should be done by an experienced repairman equipped with the required special tools. DO NOT disassemble the clutch unless you are a competent small engine mechanic and have the proper clutch service tools.

1. The owner should clean the clutch drum and sprocket and the surrounding area daily, at the same time as he is cleaning and remounting the bar and chain. At these times, a check should be made to see that the clutch drum turns freely and smoothly.
2. Whenever a new chain is to be installed, the drive sprocket should be replaced also, for full life expectancy of the chain. At these times, the clutch bearing should be checked and either replaced or repacked with grease (see below).
3. The clutch requires full inspection and service at 100 hour intervals. You are again reminded that this should be done by a competent serviceman. If any of the bearing needles are missing, have developed flat spots, or are burnt or bent; or if the bearing cage or inner race is worn or scored, change the entire bearing complement. If the bearing seems to be in good shape, repack it with a small amount of HOMELITE® All-Temp Multi-Purpose Grease #17193 or a lithium base grease.
4. Clutch trouble symptoms are: a) failure to disengage; b) slipping so much that the saw cannot cut; and c) chattering during a load.
5. Causes of clutch trouble may include: a) overheated, stretched springs; b) worn or cracked spider or clutch plate; c) worn or broken clutch shoes; d) oil, dirt or grease on the clutching surfaces; e) worn, bent, cracked or scored clutch drum; f) dry or worn bearing and g) worn sprocket.



CHAIN WEAR PATTERN ON SPROCKET TEETH

CHAIN BRAKE MAINTENANCE

The drive case cover and all surfaces of the drivecase assembly including the brake mechanism and the exterior of the clutch drum should be cleaned each day. Then the user should make a careful inspection of the brake mechanism parts. If there is any detectable amount of wear, the saw should be brought to a Homelite Factory Service facility or servicing dealer for examination.

REMEMBER

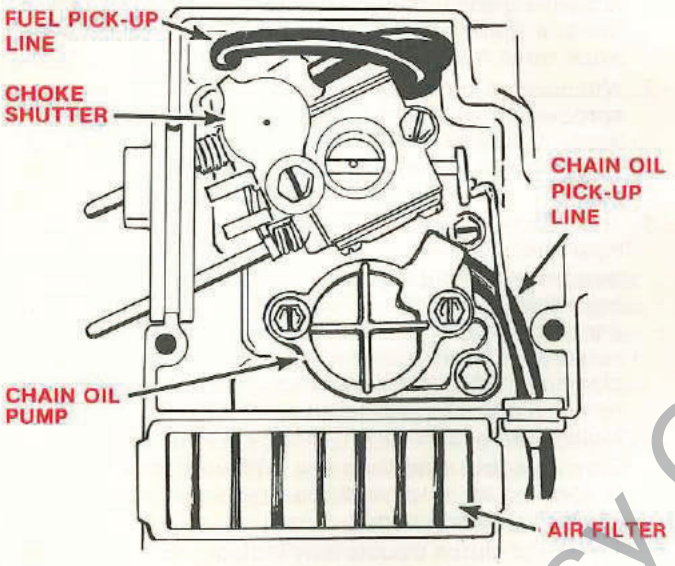
There is no test available to assure effectualness of the chain brake.

SECTION 5 — POWER HEAD MAINTENANCE

INCLUDING TROUBLE SHOOTING AND SOME LIGHT REPAIRS

AIR FILTER, CARBURETOR AND OIL PUMP GROUP

These parts are all located in chambers covered by the air filter cover assembly. The cover can be freed for removal by loosening the two screws.

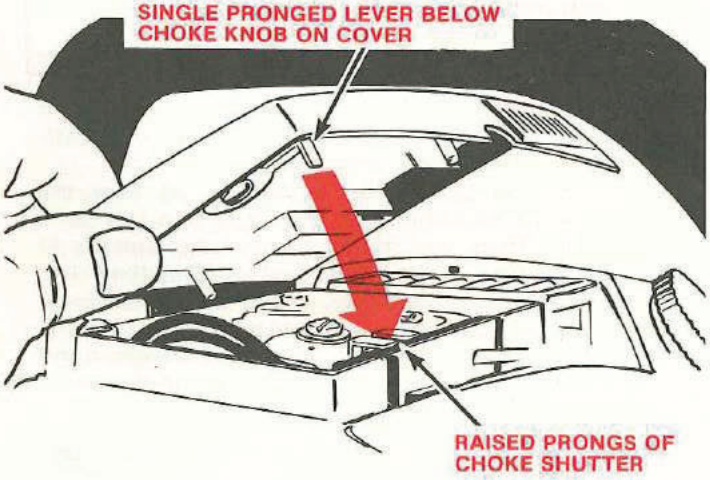


1. **TROUBLE SYMPTOMS**
   a) Engine runs rich, smokes excessively, has lower than normal top speed. *Check your fuel mixture, then the carburetor adjustment.*
   b) Air filter soaked with oil at rear, center in particular. *No doubt about the cause. Have the leaking oil tank bleed valve changed by your dealer.*
   c) Engine runs lean, has too high a no load speed and cannot carry any load. *First, check carburetor for proper idle and high speed mixtures. Then check for clogged fuel pick-up filter or kinked or split fuel line. Further trouble shooting, if required, should be done at depot level.*

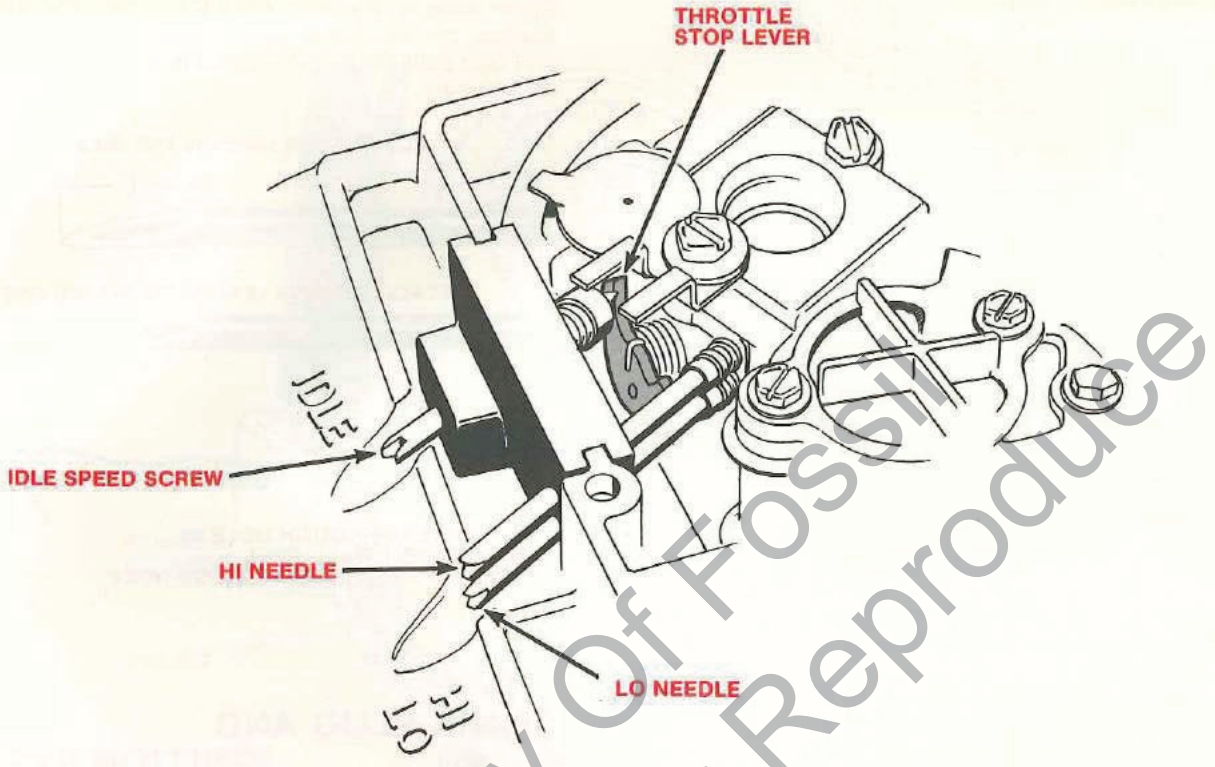
2. **AIR FILTER CLEANING**
   Brush or blow all loose dirt and sawdust from the filter area before lifting out the filter element. According to the severity of operating conditions (dustiness) the filter may require a "tap-cleaning" from one to three times a day. To tap-clean, tap the filter smartly against a flat, clean surface. Once a week, or so, the element should be given a thorough cleaning by tap-cleaning followed by rinsing in a non-oily petroleum solvent. It can also be blown clean with air, if available.

3. **REENGAGEMENT OF CHOKE DURING AIR FILTER COVER INSTALLATION**

NOTE
Delay putting on cover until Step 4a if preliminary carburetor adjustments are to be made.



The single-pronged lever on the underside of the choke knob must be fitted between the two raised prongs of the choke shutter on top of the carburetor. To do this: position the shutter to fully close the carburetor barrel, and turn the knob to the full choke position (see arrow on cover). Fasten the cover down with the two screws.



4. **PRELIMINARY SETTING**

NOTE

If you get the engine running, do not make these settings, but go right to paragraph 5, to adjust the carburetor.

a) IDLE SPEED SCREW — One turn clockwise from where screw barely touches the throttle stop lever on the carburetor. This screw is marked *IDLE*. When making this setting, remove the air filter and cover temporarily so you can see what you are doing.

b) MIXTURE ADJUSTMENT NEEDLES — One turn counterclockwise from gently closed position. These needles are marked *HI* and *LO*.

5. **CARBURETOR FINE ADJUSTMENT (TUNING)**

CAUTION

The chain will rotate at high speed when the engine is started. So be sure the chain is in the clear.

Warm the saw fully with a cutting load before tuning it as follows:

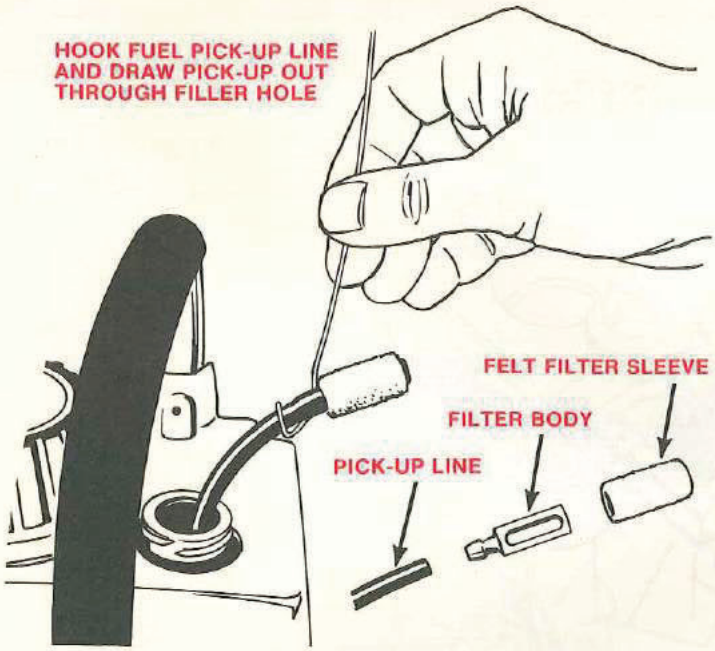
a) Idle the engine. Adjust the *idle speed screw* to either decrease or increase the idle speed to where the engine idles smoothly and the chain does not turn.

b) Set the *LO needle* for the highest speed you can get without changing the *idle speed screw* setting. Leave *LO needle* as now set. If the chain rotates, turn the *idle speed screw* counterclockwise to slow the chain to a stop.

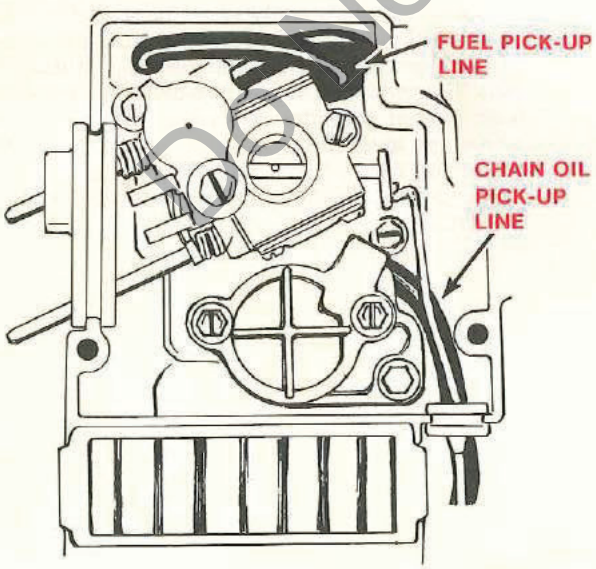
c) Squeeze the trigger to try acceleration. If the engine quits, turn the *LO needle* counterclockwise 1/8 turn (or more if required) for smooth acceleration.

d) Cut wood until the engine develops full operating heat. Then apply a full load by jamming the chain into a cut to completely stop chain rotation. (But, because this load will cause the clutch to slip and develop excessive heat, do not slip clutch more than 2 seconds.) If the engine cannot carry this full load, adjust (counterclockwise) the *HI needle* to where the load can be carried. ALWAYS REMEMBER THIS ABOUT CARBURETOR ADJUSTMENT: THE CHAIN SHOULD NOT ROTATE DURING IDLING.

FUEL PICK-UP AND FUEL LINE (And Other Lines)

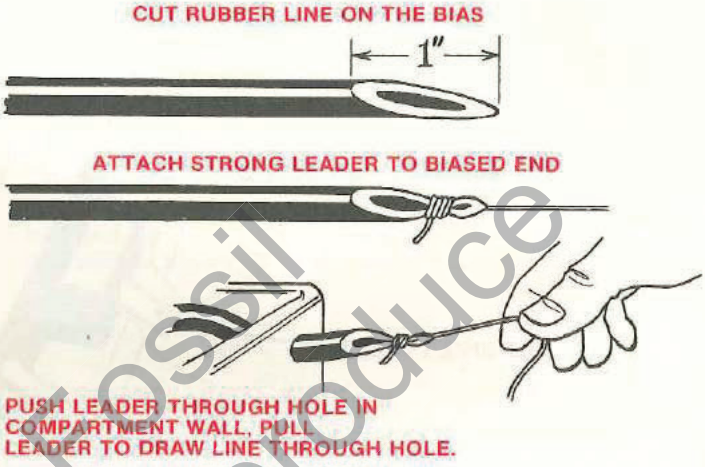


1. The fuel pick-up can be hooked with a piece of clean wire, and the filter brought out through the filler hole in the fuel tank.
2. Pull the felt filter sleeve off the meta, body on the end of the rubber pick-up line (fuel line). Roll and squeeze the filter in your fingers. If it feels hard and crusty, replace with a new felt sleeve. A clogged sleeve cannot be sucessfully cleaned, and can cause lean operation (racing without a load, but no power to make a cut).
3. Also, occasionally check the condition of the fuel line from the fuel pick-up right to the carburetor. Cracks or kinks in this line will cause lean operation. A slit or crack, however, may cause the saw to run lean only in certain positions when the leak is above the level of fuel.
4. The chain oil pick-up can be hooked with a piece of clean wire, and brought out through the filler hole in the oil tank. Clean or replace a dirty filter. The filter can be cleaned by picking the wire screen with a pin, or by blowing clean with air.



NOTE

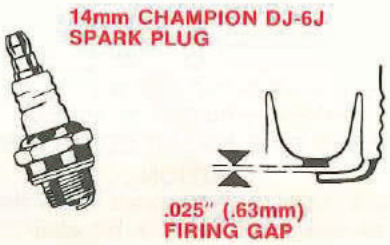
All rubber lines in this saw (fuel line, pulse line and oil line) can be installed through the small holes in the castings. It is done by binding a strong leader, thin wire or cord, to one end of the line which has been cut on a bias to go easier through the hole. After lubricating the outside of the line, the installer threads the leader through the hole and then pulls the line through. The biased end is then cut off squarely.



SPARK PLUG AND IGNITION SYSTEM

TROUBLE SHOOTING

The engine uses the 14mm Champion DJ-6J, a tapered seat type (gasketless) non-resistor plug with .025" (0.63mm) electrode gap. Always make your replacements with a DJ-6J or equivalent plug of the same configuration and heat range. The firing gap between the electrodes should be set with the aid of a wire type feeler gauge and should be done after the plug has been cleaned.



NOTE

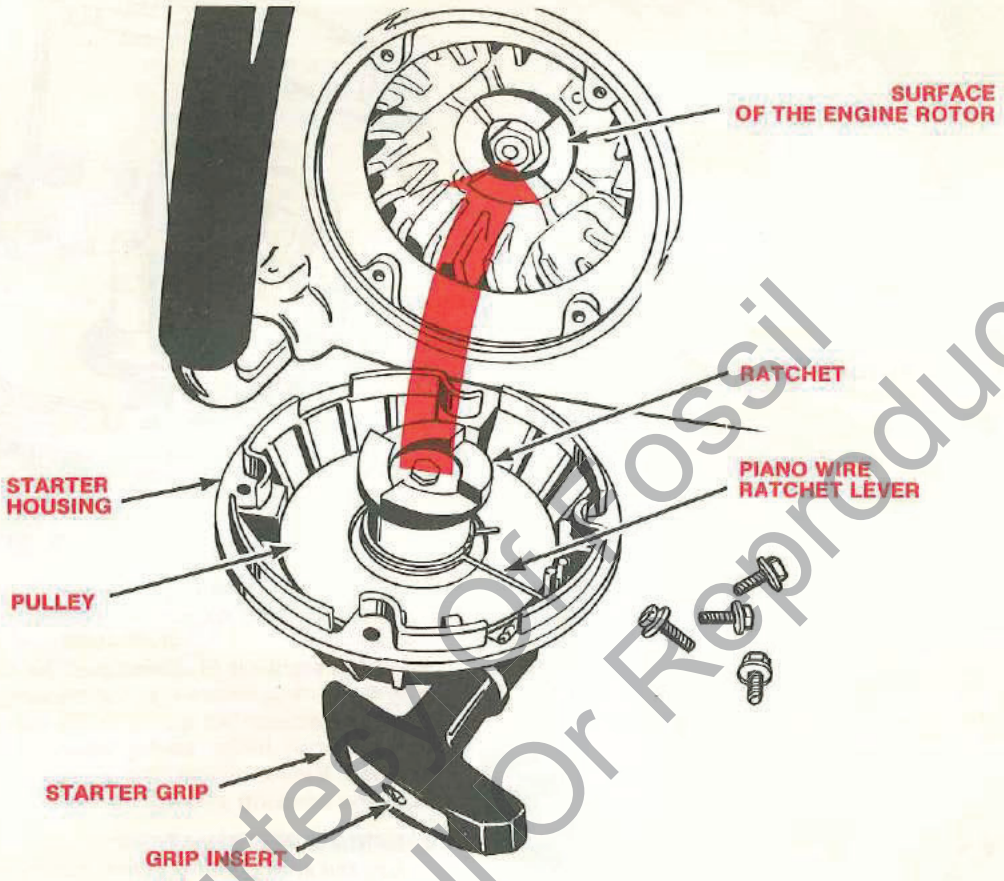
Spark plugs can be cleaned by brushing, filing or scraping down to bare metal. Then all deposits should be washed or blown off the plug. Hand-brushing and hydro-honing are recommended cleaning methods. Power-brushing and sand-blasting must not be done, because these methods can embed particles in the plug which can later find their way into the engine.

Most often, starting trouble is due to fouling of the spark plug. The engine can usually be started as soon as a new spark plug is installed. Chronic (often-occuring) fouling, should be investigated, however, because it may indicate some cause such as improper carburetor setting, faulty ignition, or broken reed valve assembly.

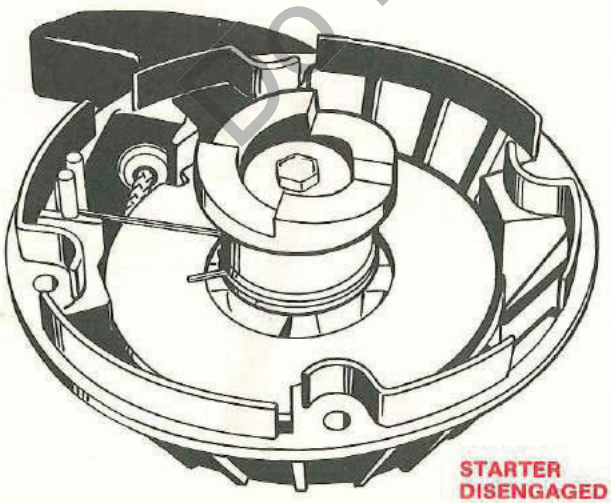
STARTER REPAIRS

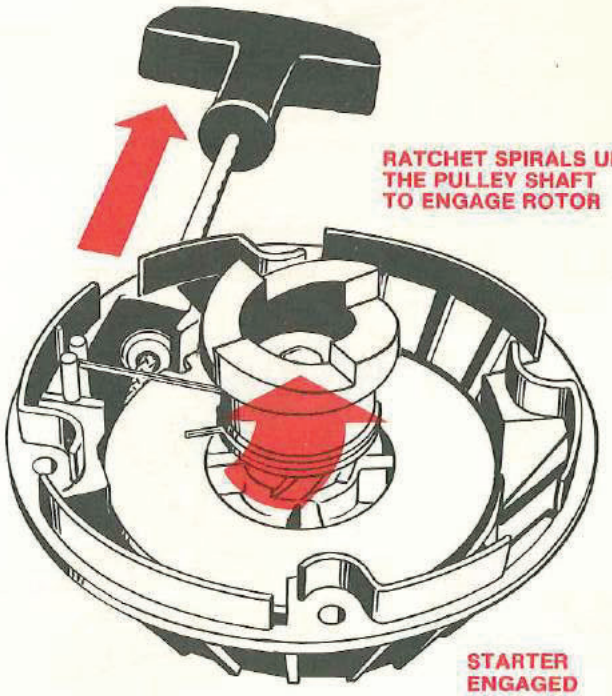
The only regular maintenance to be performed on the starter is to see that material does not build up to clog the air intake louvers.

The rewind mechanism consists of a coiled spring which has one end pinned in its retainer or housing and the other end attached to the rope pulley. Two turns of tension (called "prewinds") are wound into the spring coils so that when the rope is pulled out, the spring will wind it back onto the pulley. The rope as well as the housed spring assembly can be replaced by the owner.



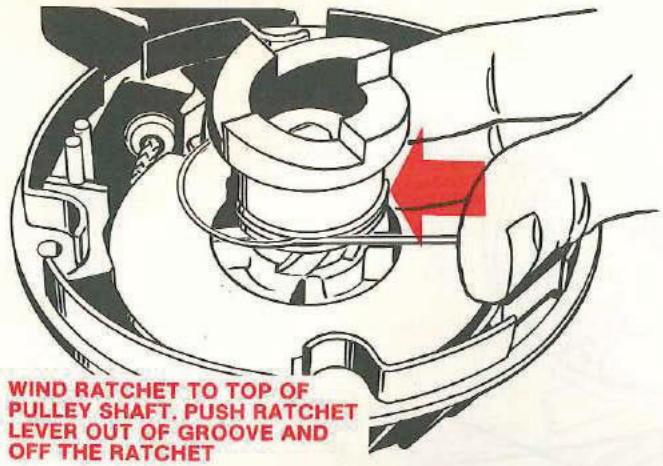
Engagement of the engine rotor and crankshaft for cranking is accomplished by a "throw-out" type of mechanism similar in effect to an automatic starter. When the starter rope is pulled to turn the pulley, the ratchet and lever device raises on the spirally-ribbed pulley shaft to engage and turn the rotor. Unless the starter rope is held out to prevent rewinding, the ratchet winds back down so there is no contact between the engine and the starter except during cranking.





1. **REMOVAL:**
Take out the four screws. Lift the entire starter off the engine housing.

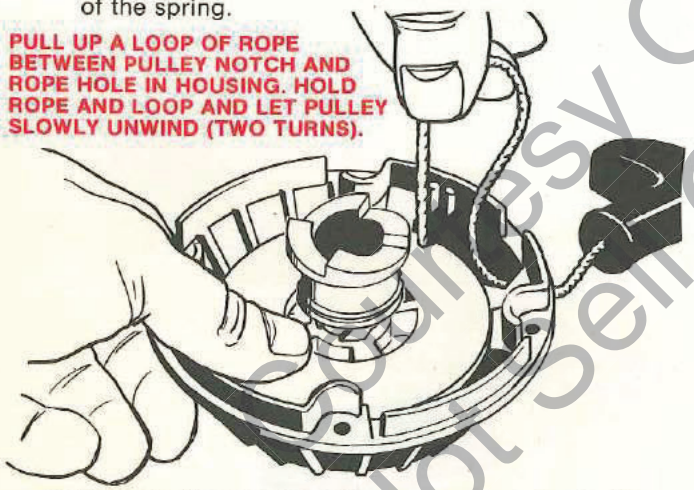
2. **DISASSEMBLY FOR TENSIONING OR REPLACEMENT:**
a) Wind the ratchet counterclockwise to spiral it to the top of the pulley shaft. Hold in that position and push the piano wire rachet lever (out of the retaining groove and) off the ratchet.



WIND RATCHET TO TOP OF PULLEY SHAFT. PUSH RATCHET LEVER OUT OF GROOVE AND OFF THE RATCHET

b) Pull out the grip about one foot (30-40 cm) to where the notch in the pulley rim is located at the rope hole in the housing. Hold the pulley in that position.

c) Pull up a loop of rope between the notch and the rope hole. Hold this loop and let the pulley slowly unwind. This removes what is called the "pre-winds" of the spring.



PULL UP A LOOP OF ROPE BETWEEN PULLEY NOTCH AND ROPE HOLE IN HOUSING. HOLD ROPE AND LOOP AND LET PULLEY SLOWLY UNWIND (TWO TURNS).

d) Remove the screw and large steel washer in the pulley post. Then remove the ratchet with a spiraling motion.

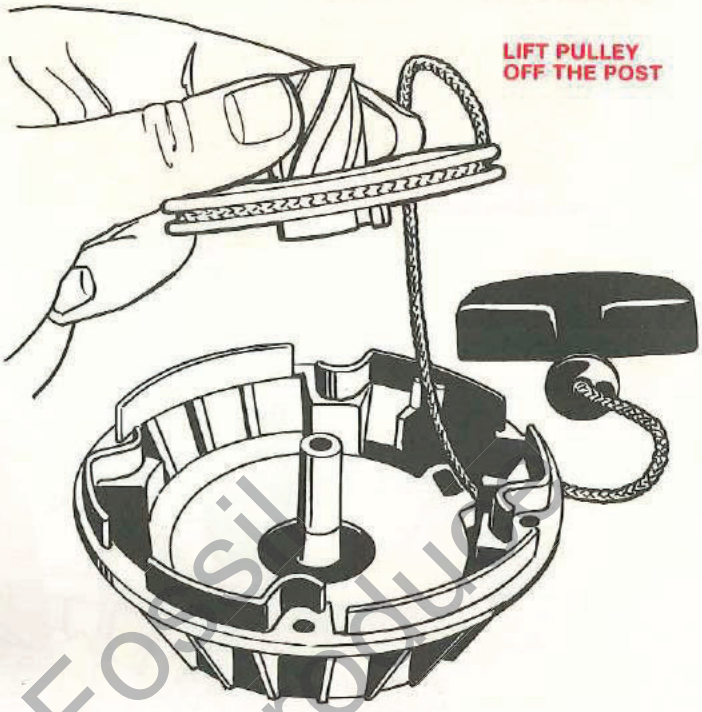
REMOVE STEEL WASHER AND SCREW. THEN REMOVE THE RATCHET.

PULLEY SHAFT

SCREW

STEEL WASHER

e) The pulley may now be lifted carefully off the post.



LIFT PULLEY OFF THE POST

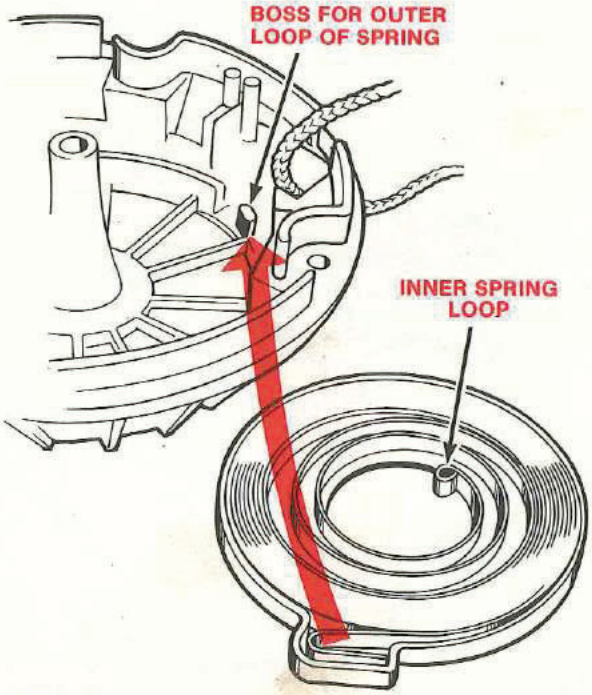
f) If the rope is being replaced, remove the old rope. Cut it if necessary.

g) If there is nothing wrong with the rewind spring, leave it and its plastic retainer in the housing.

WARNING

When the starter is disassembled, be careful not to jolt or drop the spring retainer (or the housing with the exposed retainer) because the spring is still coiled under great tension and can inflict bodily injury if dislodged from its retainer. Before discarding a spring, always remove it from the housing and uncoil it.

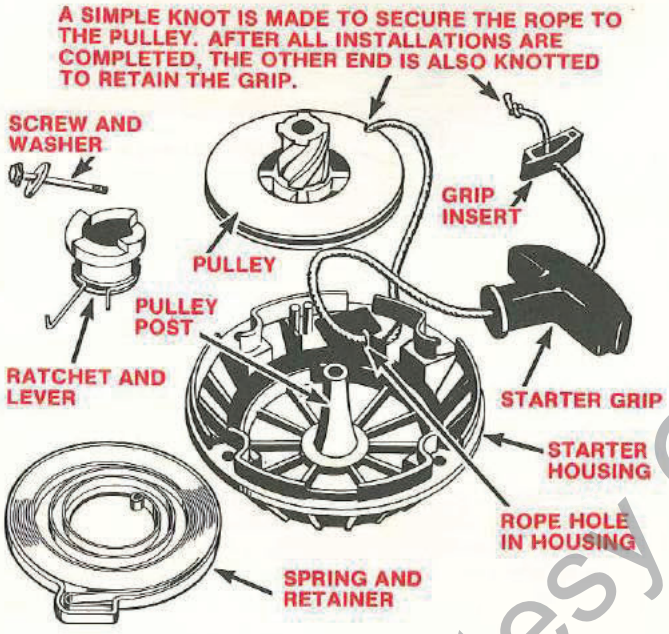
3. **SPRING INSTALLATION:**
Lay the spring and retainer into the housing. Note that the hooked end of the spring fits over the small boss at the housing rim.



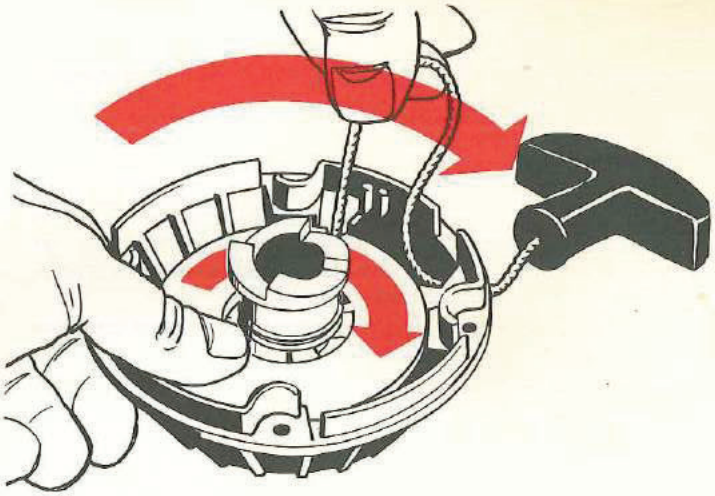
BOSS FOR OUTER LOOP OF SPRING

INNER SPRING LOOP

4. **ROPE INSTALLATION:**
   a) Tie a simple knot right at one end of the rope. Set this by dipping the knot in nail polish or model cement, or by heating to fuse the strands of rope past the knot (not the knot itself). Pull the knot into the recess in the pulley.
   b) Thread the unknotted end through the small rope hole in the pulley and pull it out between the pulley rims.
   c) Thread the rope through the metal insert in the housing, then put on the starter grip. Thread the rope through the small hole in the grip insert, then pull the end out the side of the insert. Knot this end of the rope tightly. Pull the knot into the grip insert, then fit the insert into the grip.



5. **INSTALLING REWIND PARTS AND SETTING THE TENSION:**
   a) Drop the pulley onto the post. Pull the grip out as far as the rope will go to straighten any kinks in the rope.
   b) Drop the ratchet onto the post and let it spiral down. Then retain the pulley and ratchet on the post with the large steel flat washer and screw previously removed.
   c) Wind the rope entirely onto the pulley by turning the ratchet and pulley counterclockwise. Pull out one foot or more (30-40 cm) of rope and again pull up a loop of rope between the pulley notch and the rope hole (as done in paragraph 2d).

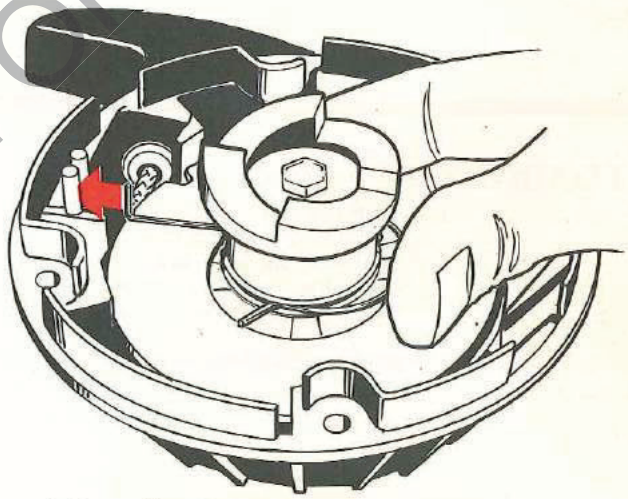


   d) Grasp the loop and wind both the loop and the pulley clockwise two turns with the loop. Hold the pulley from turning and pull out the grip until the cord runs straight off the pulley through the rope hole. Now let the pulley rewind. The grip should be drawn right into place against the housing.

CAUTION

The two turns of tension set above are referred to as "prewinds" necessary to rewind the rope properly. Do not set more prewinds than this or you will not be able to make a full cranking pull without damage to the spring.

6. **REESTABLISHING THE THROW-OUT ABILITY:**
   a) The piano wire ratchet lever should be placed with its (90°) bent end pointing up.
   b) Locate the open end of the ratchet lever against the side of the ratchet and push it onto the ratchet with your thumb and fingers.

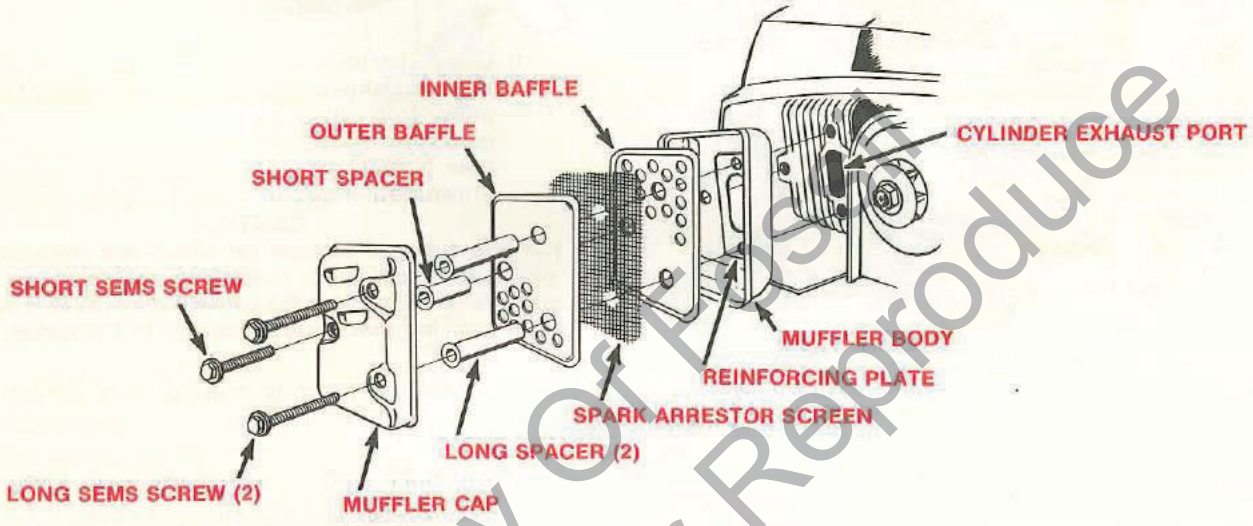


   c) Spreading the two ends only as much as required, enlarge the ring diameter of the lever and fit it into the retaining groove of the ratchet.
   d) Spiral the ratchet upward and locate the long end of the ratchet between the two posts of the starter housing.
   e) Hold the housing, pull the starter grip and observe whether this causes the ratchet to spiral upward. If it does not spiral, there may not be enough friction between the ratchet and the ratchet lever. To restore proper friction remove the lever and bend the wire to encircle the ratchet more snugly. Then reinstall on the ratchet. Assemble the starter to the saw with the four screws previously removed. The engine should rotate when the starter grip is pulled out.

MUFFLER AND SPARK ARRESTOR

Slightly different muffler assemblies are used on the models 330 and 330SL but have the same general configuration as pictured here. Particularly when the saw is used in areas of high forest fire incidence, regular inspection of the spark arrestor screen should be made. This involves disassembling the muffler.

1. Remove the three muffler screws (two short and one long screw).
2. Remove and examine all parts. Clean the surfaces, clear the holes in the baffle plates.
3. Clean and examine the spark arrestor screen. Replace the screen immediately if warped or cracked. Even the slightest crack can develop almost immediately into a large hole. Particles emitted through the hole can start fires; broken-off particles can also be sucked back into the engine.
4. Replace any part, including muffler fasteners, which is not in perfect condition.
5. Assemble the parts back on the cylinder in the order shown. Tighten the screws.



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.

CONTENTS

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