

HOMELITE®

OWNERS MANUAL

LX30 *Bandido*™ CHAIN SAW

Leon's Chainsaw Parts & Repair
Do Not Sell Or Reproduce



First Edition
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NOTE: See back of manual for Servicing Dealer Information.

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BAR AND CHAINS FOR LX30 BANDIT™ CHAIN SAW

BAR LENGTH, STYLE TIP & PART NO.	DUAL RAKER CHAIN IDENT. NO. & PART NO.	DUAL RAKER CHAIN IDENT NO. & PART NO.
10" Hard Track HT-1001-G4	355D-42EH N1-N7242-AH	350D-42EH H1-M7242-AH
12" Hard Track HT-12001-G4	355D-48EH N1-N7248-AH	350D-48EH H1-M7248-AH
12" Power Tip PT-12371-G4	355D-48EH N1-N7248-AH	350D-48EH H1-M7248-AH

SYMBOL DEFINITIONS



THIS SYMBOL INDICATES DANGER OR WARNING.



DANGER! BEWARE OF KICKBACK.



AVOID BAR NOSE CONTACT.



THE SAFE•T•TIP® DEVICE ON YOUR BAR NOSE PREVENTS KICKBACK.



READ YOUR PRODUCT LITERATURE.



WEAR HEARING AND EYE PROTECTION DEVICES.



DO NOT USE ONE-HANDED.



HOLD SAW PROPERLY WITH BOTH HANDS.



DIAGONAL LINE ACROSS A SYMBOL "PROHIBITED" OR "TO BE AVOIDED."

SAFETY PRECAUTIONS FOR CHAIN SAW USERS

PRECAUTIONS AGAINST KICKBACK



WARNING: KICKBACK may occur when the nose or tip of the guide bar touches an object. Tip contact, in some cases, may cause a lightning-fast reverse reaction, kicking the guide bar up and back towards the operator.



WARNING: PINCHING the saw chain along the top of the guide bar may push the guide bar rapidly back towards the operator. The pinch may occur when the wood closes around the chain in the cut.

Either of the above reactions, **KICKBACK** or **PINCH**, may cause you to lose control of the saw and could result in **SERIOUS PERSONAL INJURY**. When a push has caused the operator to lose control, it is possible for a kickback to occur as a secondary reaction.

Do not rely exclusively upon the safety devices built into your saw to protect you from injury. As a chain saw user, you should do the following to avoid accident and injury:

- Keep SAFE•T•TIP® Anti-kickback Device properly mounted on the guide bar. It prevents kickback.
- Get a basic understanding of kickback so you can reduce or eliminate the element of surprise. Surprise can contribute to accidents.
- Keep a firm grip on the saw with both hands when the engine is running. The right hand should be on the rear handle and the left hand on the front handle. Use a firm grip with thumbs and fingers encircling the handles. A firm grip will help you to maintain control of the saw if kickback occurs. Don't let go.
- Be sure the area in which you are cutting is free from obstructions. To avoid kickback, if you remove the SAFE•T•TIP Device for a specific cut, do not let the chain at the tip of the guide bar contact a log, branch or any other obstruction while you are operating the saw.
- Keep your body to the left of the line of cut.
- Always bring the saw up to speed before letting the chain touch the wood. Once wood contact is made, keep cutting at steady speed. Do not slow down, then speed up or the saw may pull you off balance.
- Do not overreach or cut above shoulder height. You cannot maintain proper control in these positions.
- Follow Homelite's sharpening and maintenance instructions for the saw chain. Improper maintenance may defeat the safety features designed into your saw.
- Use only the bars and chains specified by Homelite. Other bars and chains may have greater kickback potential.
- Keep up to date with the latest technology in chain saw safety devices and equipment. Contact Homelite Manager of Customer Relations for information. (Address is on back page.)

OTHER BASIC SAFETY PRECAUTIONS

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 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 you 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.
- Be ready to hold up the saw so it will not drop onto your leg when the cut is finished.
- Never make one-hand cuts, because the saw may skate out of control along the surface of the wood, or because kickback, pinch, push or other reactions cannot be controlled as well with any one hand.
- Never let anyone use your chain saw who has not received adequate instructions in its proper use. This applies to rentals as well as privately owned saws.
- 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 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.)

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.

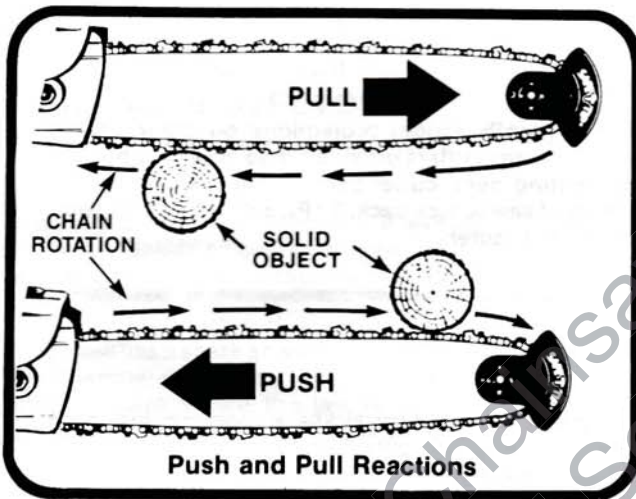
KICKBACK, PUSH, AND PULL *and how these reaction forces are best controlled*

CONTROLLING THE REACTION FORCES

The powerhead (engine) drives the chain to cut into the wood. Being hard, the wood exerts a reaction force against the saw. This force can be controlled. And it is an alert operator, not a safety device, who does the controlling. The inherent danger of a safety device is lulling the user into a false sense of security. The means of controlling the saw include keeping a balanced stance, keeping the left elbow straight, and using the proper grip to hold the saw firmly in both hands.

PUSH AND PULL

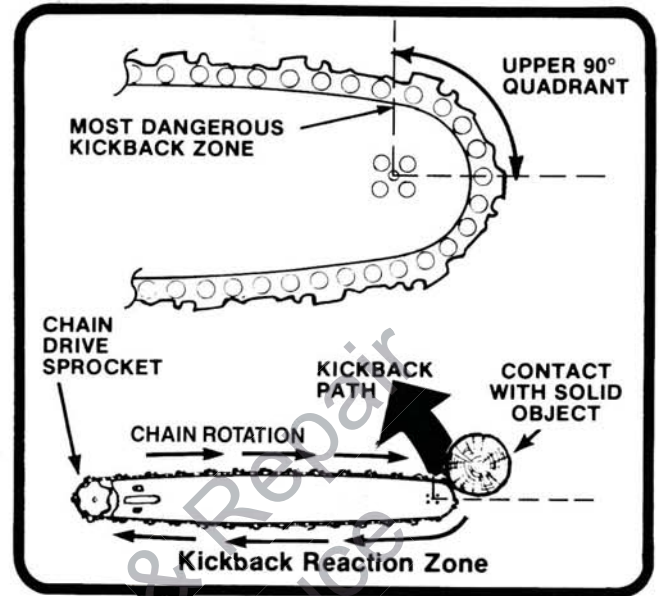
The reaction force is always opposite to the direction the chain is moving when wood contact is made. Thus, the operator must be ready to control the PULL when cutting on the bottom edge of the bar, and PUSH when cutting along the top edge. These reactions are referred to in the manual as PULL and PUSH.



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

KICKBACK is another reaction, the most dangerous of these (3) reactive forces. It occurs only when solid contact with moving chain is made at the upper quadrant of the bar nose. A violent reaction 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 saw with bar and chain during which the chain saw *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.

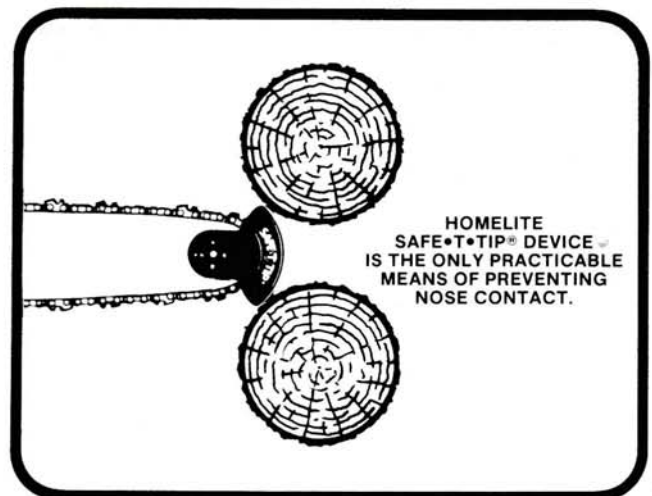
Even though it is up to you to keep control of the saw, certain of the ANSI-recommended safety devices may help protect you as explained above:



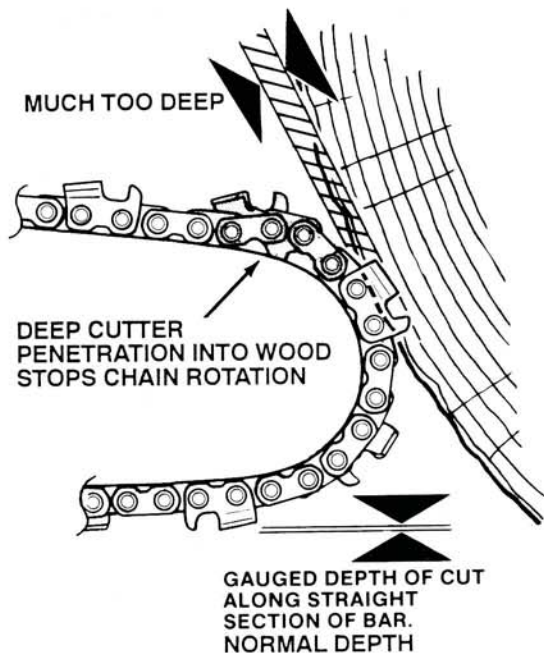
SAFE•T•TIP® ANTI-KICKBACK DEVICE

You still have to control PULL and PUSH as well as the tendency of the chain to slide along the work rather than penetrate it. But, the **SAFE•T•TIP** Device really does prevent kickback from happening, because it covers the tip of the bar where kickback is generated. Inexperienced persons should never attempt any kind of cutting where the Device would have to be removed from the bar tip.

Those users, such as professional loggers, who may need to draw the tip through the cut, make boring cuts, or cut logs bigger than the bar length should replace the Device as soon as those cuts are complete. When cutting with the Device removed, the user must rely on careful use of the proper techniques as shown in the manual to avoid kickback. With proper care to keep the Device properly mounted and tightened on the bar, the **SAFE•T•TIP** Device will prevent kickback for the life of the unit. If allowed to loosen, it may catch the chain. Replace only if damaged.

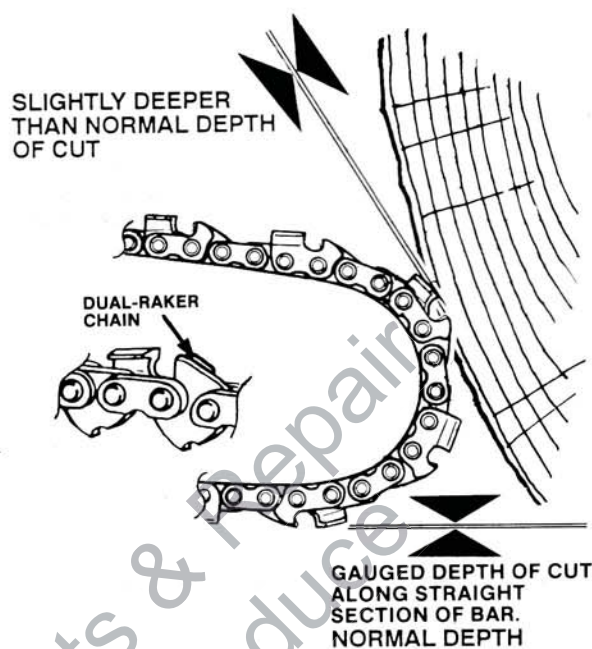


ORDINARY SINGLE-RAKER SAW CHAIN



Projections on the cutters gauge the depth of cut properly along straight rails of bar, but cannot support cutters at bar nose. Result: tooth including the gauge rounding nose draws deeply into the wood, stopping chain and causing strong kick-back.

LOW-KICKBACK DUAL-RAKER



Raker (depth gauge) projections on other chain links besides cutters provide broad area of support, preventing deep cutter penetration, reducing tendency of saw to kick back. TYPE 350D chain has two rakers per cutter.

LOW - KICKBACK SAW CHAIN

ANSI standard B175.1 requires that a saw shall kick back no more than 45 degrees under simulated conditions. These conditions are intended to provide reference numbers for comparison (like EPA mileage ratings that may not represent actual fuel economy). A rating below 45 degrees does not mean the saw cannot kick much higher in actual use.

All saw chain designated for the Bandit™ chain saw is low-kickback chain. The chain supplied with your saw is type 355D, a dual-raker chain.

All bar and chain combinations for the Bandit™ chain saw are listed on page 2.

Under some conditions, low kickback chain may not cut as smoothly or quickly as conventional chain. When starting a cut, for example, the chain may tend to skid or slide along the work before penetrating. Frequent, precise chain maintenance preserves performance.

Properly maintained low kickback chain may lose some of its kickback-reducing ability with each sharpening. This is because the filing increases the space between the rakers and the teeth. The chain will be rough-cutting, "grabby," and more kickback-prone if the cutters have a forward hook shape, or rakers are too low or improperly contoured.

Generally, dullness affects the kickback potential of the chain very little. However, improper sharpening including wrong cutter angles and especially too-low raker filing may raise the kickback potential significantly.

HOMELITE® GUIDE BARS

The model LX30 Bandit™ chain saw meets the kickback-reduction requirements of ANSI B175.1 without need for small radius tip guide bars. Therefore, all bars listed for the Bandit™ chain saw have wider tips for faster cutting and longer life.

When replacing the guide bar, be sure to order from bars listed for the Bandit™ chain saw in Homelite sales literature or this owner's manual. The proper size SAFE•T•TIP® Device comes installed on the bar. Bars of other manufacture with no provision for this kickback-preventing device should not be used. This owner's manual gives instructions for bar maintenance. Follow them to prevent chain damage and preserve saw performance.

OTHER PROTECTION AND PROTECTIVE DEVICES

THE OWNER'S MANUAL

Your owner's manual is for your protection. READ IT. Keep it handy for reference. Know what you are doing before you begin assembly of the unit. Proper preparation and upkeep go hand-in-hand with operator safety and performance of the saw.

FRONT HAND GUARD

The Bandit™ chain saw has a factory-installed hand guard. The guard can be pivoted out of the way for fueling. Do not remove this guard or replace it with a substitute (which may not fit like the original design). Keep the hand guard in good condition. Do not let it snag in the underbrush. Do not use it as a hand grip or handle. Replace it if damaged or broken.

WARNING

For your safety use no guide bars or saw chains other than those listed for the Bandit™ chain saw in this owner's manual. Do not adapt your powerhead to any devices or attachments not listed for the LX30 Bandit™ chain saw in current Homelite sales literature. Chain saws and related equipment are subject to periodic modification. So keep informed of the latest in attachments and new features for your saw. Contact us through the address or phone number at rear of this manual.

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."

SPARK ARRESTOR

Your saw has a spark arrestor screen built into the muffler and a temperature screen integral with the exhaust cap. In certain states where the law requires use of a spark arrestor, it also requires the owner/operator to keep a spark arrestor in good condition (intact) in the exhaust system at all times. The spark arrestor is a very fine stainless steel mesh. Thus it is subject to clogging, cracking and burning out. Replacement spark arrestor screens are available in blister packs as 93991-A, or in kit form as A-97955.

PROTECTION FROM VIBRATION

It has been reported that vibrations from hand-held tools (chain saws, pneumatic hammers, grinders, sledge hammers, etc.) may contribute to a condition called Raynaud's Syndrome in certain individuals. Symptoms may include tingling, numbness and blanching of the fingers, usually apparent upon exposure to cold. Hereditary factors, exposure to cold and dampness, diet, smoking and work practices are all thought to contribute to the development of these symptoms. It is presently unknown what, if any, vibration or extent of exposure may contribute to the condition.

This saw is classified in the "occasional use" category by many current regulations that differentiate between "professional" and "occasional use" saws. These varied regulations place limits on the amount of vibration which saws can transmit to the operator.

There are measures that can be taken by the operator to possibly reduce the effects of vibration:

- Keep your body warm in cold weather. When operating the unit wear gloves to keep the hands and wrists warm. It is reported that cold weather is a major factor contributing to Raynaud's Syndrome.
- Refrain from smoking (another suspected contributing factor).
- After each period of operation, exercise to increase blood circulation.
- Take frequent work breaks. Limit the amount of exposure per day.
- Keep the tool well maintained, fasteners tightened and worn parts replaced.

If you experience any of the symptoms of this condition, immediately discontinue use and see your physician about these symptoms.

PROTECTIVE ARTICLES, EQUIPMENT AND SUPPLIES



CUFFLESS TROUSERS, TRIM, PROTECTIVE CLOTHING



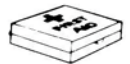
HAND TOOLS



EYE PROTECTION (Goggles or Mask)



HEAD PROTECTION (Hard Hat)



FIRST-AID KIT



SPARE SPARK ARRESTOR SCREEN



CHAIN FILING TOOLS



SPARE STARTER ROPE



SPARE SPARK PLUG



PLASTIC OR WOODEN WEDGES



FIRE EXTINGUISHER AND SHOVELS



SPARE CHAIN



HEARING PROTECTION



BAR AND CHAIN COVER FOR TRANSPORT



NON-SLIP SHOES AND GLOVES



SPARE FILTERS



FUEL IN CONTAINER



CHAIN OIL



SHARP AXE

COMPARISON CHART

FUNCTION	EFFECT, IF ANY, UPON PERFORMANCE OF CHAIN SAW	EFFECT IF REMOVED	EFFECT OF BOTH NORMAL AND IMPROPER USE & CARE	EFFECT OF A PRODUCT SUBSTITUTE
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DEVICE TO PREVENT INJURIES FROM KICKBACK

BAR-TIP GUARD (SAFE•T•TIP® Anti-kickback device is factory-installed on all Homelite® bars.)

Covers kickback-generating zone of the bar tip to prevent kickback from happening.	Prevents (a) drawing of the bar tip through the cut, (b) boring and (c) cuts where tip is buried.	Cannot prevent kickback if removed from the bar.	No loss of protection if kept properly tighten. Loose device can catch the chain.	To be as effective as the SAFE•T•TIP Device, similar products must fit just as well over the bar tip.
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DEVICES TO REDUCE INJURIES FROM KICKBACK

LOW-KICKBACK CHAIN (Homelite's 355D and 350D Chains)

Control depth of cutter penetration at the bar tip to reduce force of a potential kickback.	Low-kickback design may compromise cutting speed. Needs proper care to preserve top speed.		May be slight increase of potential kickback force as teeth are filed back. Can be grabby and more dangerous if improperly filed.	Other chains may have greater potential kickback force and may not cut as well.
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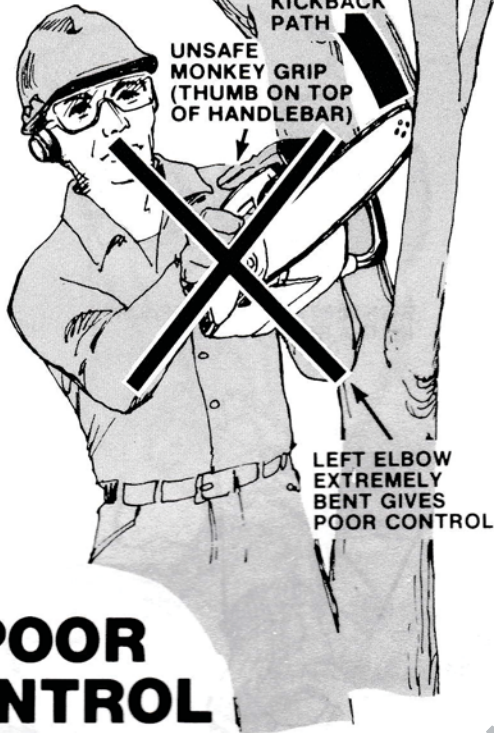
REDUCED-KICKBACK GUIDE BAR (Not used on the Bandit™ Chain Saw)

Small radius bar tip lowers potential kickback force and may provide a smaller kickback zone at bar tip.	May tend to have shorter life than wider tip bars, and may reduce the cutting rate in some situations.		No loss of protection if properly maintained, slow or off-line cutting if not properly maintained. Rail wear changing effective tip radius may affect protection.	Kickback potential may increase.
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FRONT HAND GUARD (Front hand guards are provided on all Homelite® saws.)

Protects left hand from contact with the saw chain.	Adds slight weight. May snag in the brush.	Loss of protection.	May fail to protect if bent, loose, damaged or broken.	May provide less protection than original guard.
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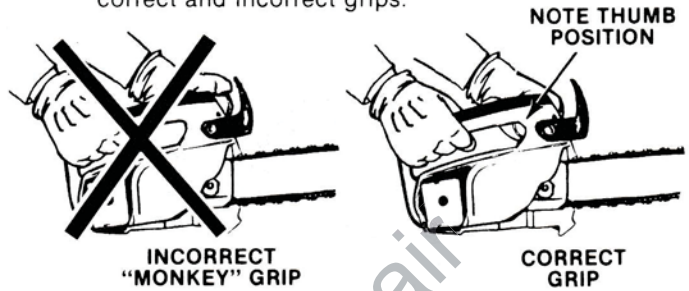
OPERATOR
STANDING
IN THE
CHAIN LINE
DIRECTLY IN
POTENTIAL
KICKBACK PATH



POOR CONTROL

HOW TO MAINTAIN CONTROL

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.

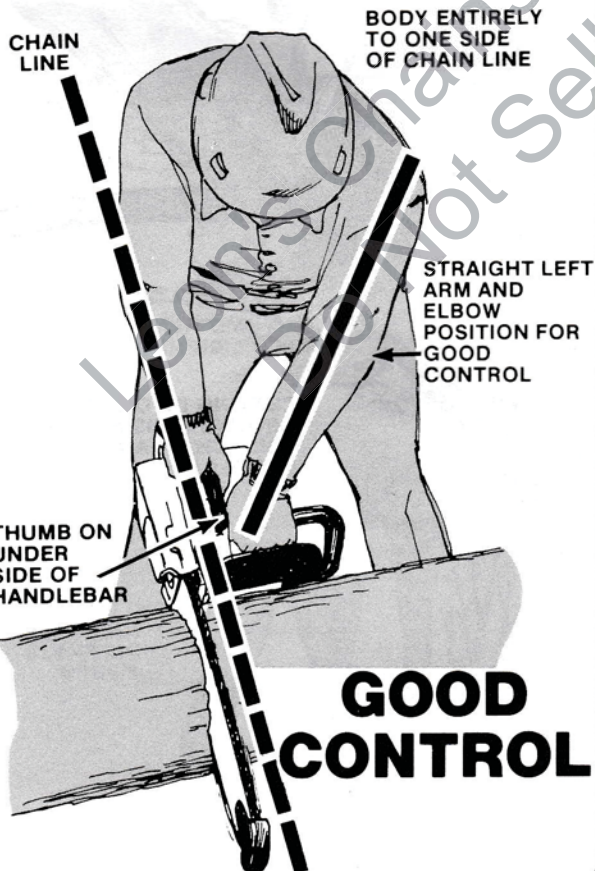


Do not use a "Monkey Grip" (thumb on top) because your hand can slip.
Don't forget to wear your gloves.

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). See illustration to left on good control.

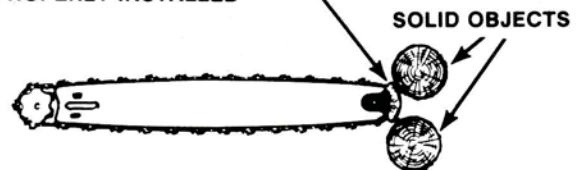
HOW TO REDUCE THE CHANCE OF A KICKBACK

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 21 for minimum risk of kickback.

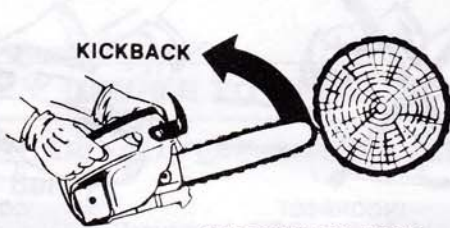


GOOD CONTROL

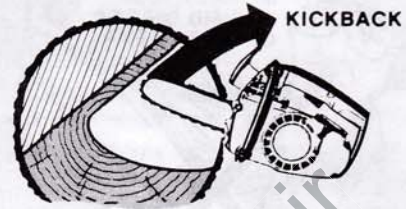
SAFE•T•TIP DEVICE PREVENTS CONTACT WITH SOLID OBJECTS, PREVENTS KICKBACK WHEN PROPERLY INSTALLED



WITHOUT THE ANTI-KICKBACK DEVICE ON YOUR SAW YOU WOULD HAVE TO BEWARE OF THESE SITUATIONS



STARTING TO BORE WITH NOSE OF SAW



REINSERTING NOSE OF SAW INTO A PREVIOUS CUT



NOSE STRIKING ANY SOLID OBJECT (WILL CAUSE A KICKBACK)



CUTTING MORE THAN ONE PIECE OF WOOD AT A TIME (NOTE THAT CUTTING BRUSH (A) CAN PULL THE SAW SO THAT THE BAR NOSE COULD CONTACT AN OBJECT SUCH AS TREE (B) RESULTING IN A SECONDARY REACTION — KICKBACK.)



CUTTING INTO THE GROUND (THIS HURTS YOUR CHAIN AND GUIDE BAR)

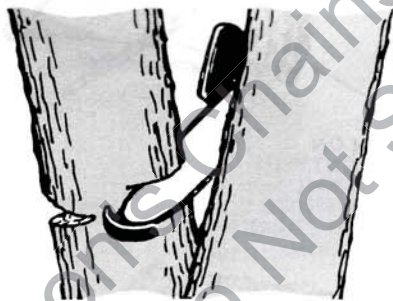
HERE ARE SOME SITUATIONS WHERE THE SAFE•T•TIP® ANTI-KICKBACK DEVICE ACTUALLY MAKES CUTTING FASTER AND EASIER AS WELL AS SAFER.



DEVICE RESTED AGAINST AN OBSTRUCTION TO PREVENT CHAIN DAMAGE



CUTTING IN CLOSE QUARTERS SUCH AS NEAR MASONRY WALL WITHOUT HAZARD OF KICKBACK.



CUTTING ONE TRUNK ONLY OF A DOUBLE-TRUNK SHADE TREE



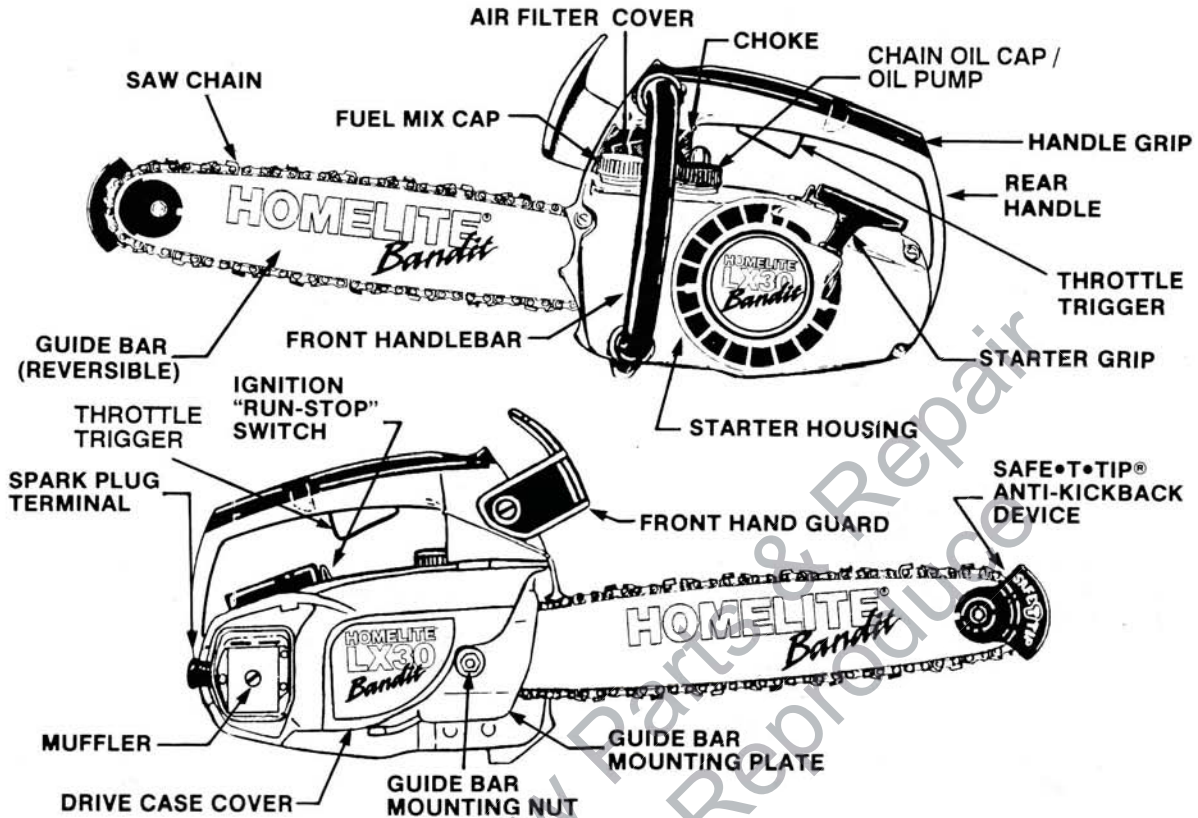
PLUNGING THE SAW BLADE INTO PILES OF BRUSH FOR QUICK CLEAN-UP.

USE A SCYTHING TECHNIQUE TO CLEAR LIGHT BRUSH



LIMB AND BUCK WITHOUT FEAR THAT THE SAW WILL KICK BACK

Section 1 PREPARING FOR USE



INSTALLING ANTI-KICKBACK DEVICE

CAUTION

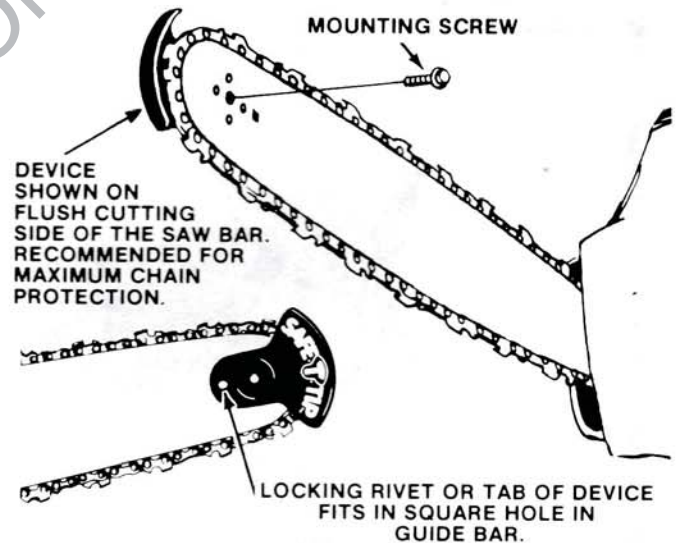
Always wear gloves to protect your hands when you are working on the saw chain and guide bar. Check that the switch is in the "O" stop position before you do any work on the saw.

IMPORTANT NOTICE

Although the guide bar comes with a SAFE•T•TIP® device already installed, we call attention to your need to check tightness of the mounting screw before each day of operation. You will also need to reinstall the device after guide bar maintenance has been performed.

Before each period of operation, tighten the mounting screw as instructed below. These are specially hardened screws. If the screw cannot be installed tightly, replace both the screw and the device before further operation. Do not replace with ordinary screws.

- In addition to preventing chain contact with solid objects at the nose of the bar, the SAFE•T•TIP® device also helps keep the chain away from abrasive surfaces such as the ground. We recommend keeping the device on the right hand side of the bar, where it will be between the chain and the ground during FLUSH-WITH-THE-GROUND cutting.
- The device has an 8-32 x 7/16 mounting screw. It requires a 5/16" wrench (or adjustable wrench) to achieve the recommended tightness of 35 to 45 inch-pounds (4-5Nm). A tightness within this range can be achieved by the following method.
 - Mount the device on the bar nose. (See illustration for details.) Tighten the screw with your finger.
 - From the finger-tight position, tighten the screw 3/4 to one turn more with a wrench.



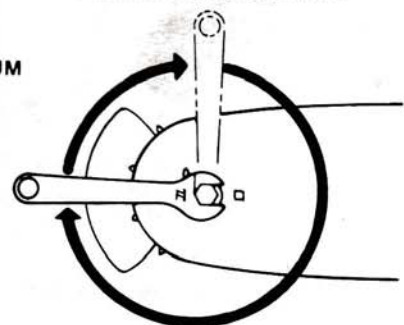
DEVICE SHOWN ON FLUSH CUTTING SIDE OF THE SAW BAR. RECOMMENDED FOR MAXIMUM CHAIN PROTECTION.

LOCKING RIVET OR TAB OF DEVICE FITS IN SQUARE HOLE IN GUIDE BAR.

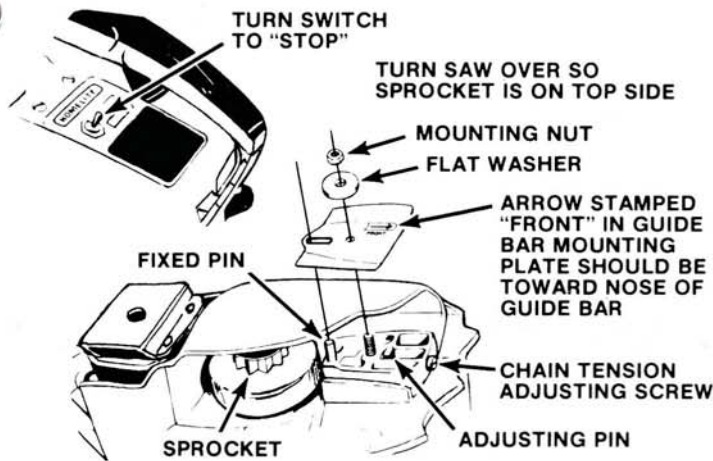
FINGER TIGHT AT START

1 TURN
MAXIMUM

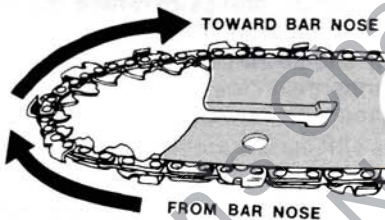
3/4 TURN
MINIMUM



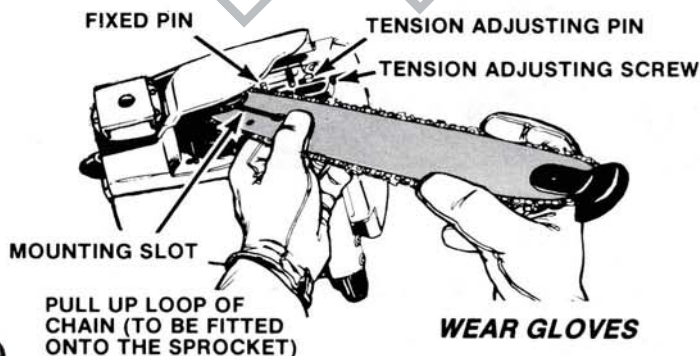
GUIDE BAR AND CHAIN ASSEMBLY



1. Always put the switch to "STOP" before you do any work on the saw.
2. Turn the saw over (see illustration). Remove the mounting nut, flatwasher, and the guide bar mounting plate.
3. Lay out the saw chain in a loop and straighten any kinks. The cutters should face in the direction of chain rotation (see illustration). If they face backwards, flop the loop over.
4. Feed the chain tangs into the bar groove. Pull the chain so there is a loop at the back of the bar. Hold chain in place on the bar and hook the loop over and onto the sprocket. Fit the bar flush against the mount so the fixed pin, mounting stud and movable tension pin are all in the long slot of the bar.

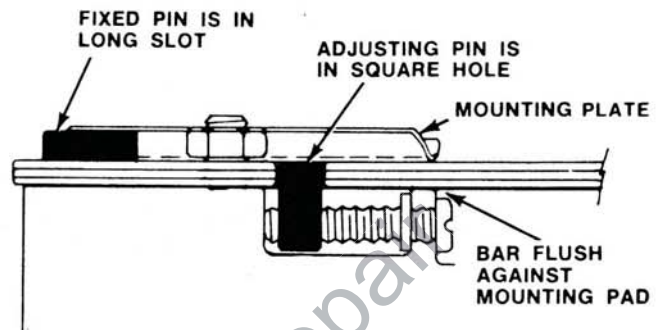


5. Hold the bar flush against the mount. Put the guide bar mounting plate, flat washer and nut back on the stud.

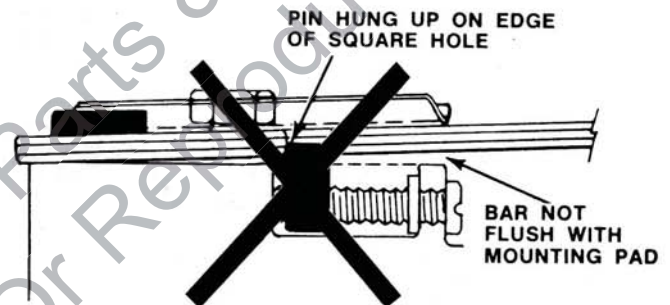


HOOK CHAIN OVER AND ONTO THE DRIVE SPROCKET. THEN FIT BAR ONTO THE MOUNT.

RIGHT!

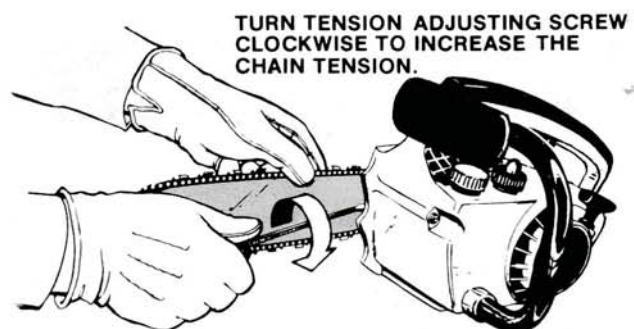


WRONG!



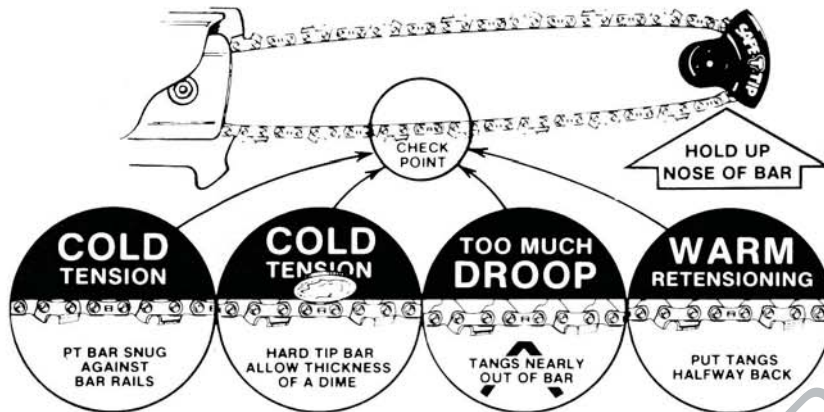
WRONG MOUNTING CAUSES CHAIN JUMP-OFF AND TENSION PIN BREAKAGE.

6. Check that the bar and pins are still in place. Turn down the nut with a wrench until bar is snug, but not tight against the mount. (Bar must be free to move for tension adjustment.)
7. Turn the saw upright. Turn the adjusting screw clockwise to move bar away from sprocket. Take up enough slack that the chain tangs enter the groove between bottom rails of the bar. (DO NOT CINCH CHAIN TIGHT!) Check the chain. If any tangs have come out of the bar groove, put them back. Now the chain tension should be set.



CHAIN TENSION

REMEMBER: WEAR GLOVES



AFTER WARM RETENSIONING ALWAYS RESET PROPER TENSION AFTER CHAIN HAS BECOME "COLD."

1. Mounting nuts should be finger-tight. Turn the adjuster screw clockwise to remove slack in the chain. Tighten until the chain tie-straps come up close to the bottom bar rails.
2. With your gloved hand "snap" the chain several times by pulling up and letting go of the chain. As this removes some of the stiffness, the chain may hang or droop from the bar.

NOTE

From now on during the tensioning, hold up the nose of the bar until the mounting nut has been tightened. This is to take up play between the bar slot and the mounting bolt.

Steps 3 through 6 are for tensioning a cold bar and chain.

3. The proper tension is according to the type of bar nose.
 - a) Sprocket nose (PT series) bar: Increase tension until there is no clearance (zero droop) between the chain and bar. Pull chain along bar as you increase the tension. If you feel any binding, that is too tight.
 - b) Hard track (HT series) bar: Increase tension until the amount of clearance or "droop" between the bar rails and the chain tie-straps is no more than the thickness of a dime or penny.
4. While holding up the bar nose, tighten the mounting nut to lock the bar at proper tension.
5. Pull chain around bar by hand to check that assembly is correct. Start engine. Hold the saw free of obstruc-

tions and let the chain turn at slow speed for a few seconds. Set saw down and reset tension if droop develops.

6. For the first few tankfuls of fuel make light cuts only. Watch the tension. When the chain tangs hang more than halfway out of the bar, shut down and retension. New chain stretches rapidly due to the combination of limbering up, warming up, and friction wear of both the bar and chain surfaces.

Steps 7 and 8 are for retensioning a warm chain.

7. During operation, the chain will expand as it warms up. Once worn in, however, it will return almost to the original setting when it cools. Shut down immediately whenever the chain droops to where the tangs are hanging almost out or all the way out of the bar rails.
8. Warm chain should have the tension increased to where the tangs are drawn halfway into the bar groove. Hot chain cannot be tensioned accurately and should be allowed to cool.

CAUTION

After being tensioned while warm, chain may be too tight upon cooling. Check the "cold tension" before next use.

9. Tighten the mounting nuts when the tension has been set. Then you need not hold up the bar nose.

CHAIN OIL SYSTEM

1. Approved chain oils:

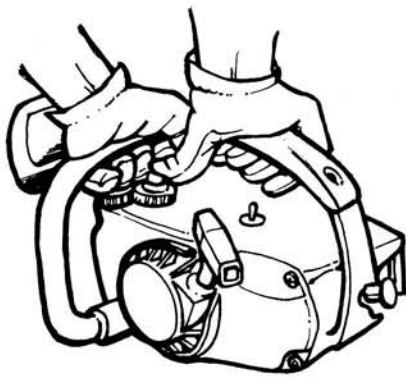
- a) Homelite® Bar and Chain Oil, designed exclusively for chain oilers. Use it because it gives the best protection, generally needs no dilution in cold weather and is less expensive than engine oil.
- b) Any engine oil products, including clean reprocessed oils. Above 40° F (4.4° Celsius) use SAE-30 oil. In temperatures cold enough to cause thickening of SAE-30 oil, either dilute it with enough (up to 25%) kerosene until it flows freely, or switch to an SAE-20 or SAE-10 weight oil as needed.

2. Disapproved oils:

Used, dirty or otherwise contaminated oils, and water-based synthetic oils should not be used.

3. How often to fill the chain oil tank:

Fill it now. Always check that the oil tank is full before engine start-up, and refill the oiler at every refueling stop. You control the feed-rate of oil. When the saw is new to you, check the oil system often to be sure there is oil in the tank and the chain is properly moist with oil.

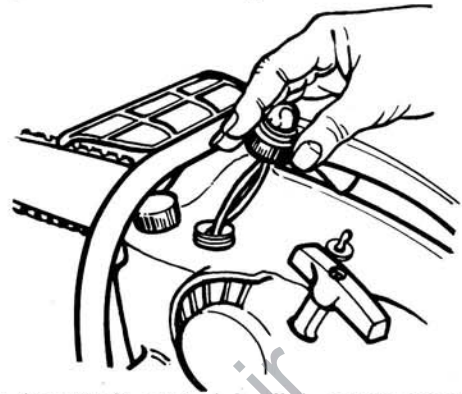


4. How to adjust pumping rate:

- a. The bulb and oil lines of the manual system are designed to supply a slow, steady flow of oil to the chain, not wasteful gushes of oil. Apply slow, steady thumb pressure (not quick jerking strokes) to depress the bulb. Wait for the bulb to refill before the next pumping stroke. Do this 5 to 10 times before engine start-up, and pull the chain along the bar by hand to pre-oil it. Pump at regular intervals during operation.

NOTE

Always turn the chain oil cap one full turn to the left before screwing it back onto the tank. This keeps the oil pick-up and delivery lines from becoming twisted.



- b. When the saw is new, shut off the engine every few minutes and look at the chain. It should always be moist with oil in the area of the connecting links. It does no harm to overfeed the chain with oil. Try to adjust your pumping rate so that the oil tank has just a bit of oil left when the engine runs out of fuel.

NOTE

Do not set the saw on surfaces you wish to keep unstained. Even if the chain oil cap was loosened to relieve oil tank pressure after shut-down, oil seepage may continue due to gravity.

FUELING THIS 2-CYCLE ENGINE REQUIRES PRE-MIXING GASOLINE AND 2-CYCLE OIL.

WARNING

The fuel tank may be under pressure. Remove the fuel cap slowly to avoid spurting of fuel.

CAUTION

Select bare ground for fueling. **DO NOT SMOKE** or bring any flame or sparks near fuel. Move at least 10 feet (3m) from the fueling spot before starting the engine.

1. Recommended Fuel:

- a) This engine will operate satisfactorily on any gasoline intended for automotive use. This includes gasolines blended with alcohols or ethers. If you are not satisfied with the performance of the product (running quality or startability) with these fuels, you may prefer to use unleaded gasoline that does not contain alcohol.
- b) We recommend the exclusive use of Homelite 2-cycle oils. Homelite 2-cycle engine oil, when mixed with gasoline according to the instructions on the oil package, will provide complete lubrication protection.
- c) All Homelite 2-cycle engine oils contain an anti-oxidant fuel stabilizer. Under average conditions, fuel mixed with Homelite oils will stay fresh up to 12 months.
- d) If Homelite oils are not used, we recommend stabilization of fuel with an anti-oxidant fuel stabilizer, such as STA-BIL, a product of Gold Eagle Co., Chicago, IL 60632. Unstabilized fuel will stay fresh for only up to three months and should not be used after that time.

- e) We urge you to use Homelite 32:1 or **Homelite Premium Exact Mix** oil for best performance and customer satisfaction. Oils formulated for air cooled 2-cycle engines at 40:1 or 50:1 ratios can be used at the Homelite specified 32:1 ratio (4 oz./gal.). Oils formulated at less than 32:1 ratio or non 2-cycle oils should not be used. They can cause smoking, oily residues, spark plug fouling, combustion chamber deposits, hard starting, etc.

2. Do Not Use Automotive Motor Oil.

3. How To Mix Fuel Thoroughly:

- a) Measure out the quantities of gasoline and oil to be used.
- b) Put some of the gasoline into the mixing can.
- c) Pour in all of the oil and agitate contents by stirring or shaking the can.
- d) Pour in the remainder of the gasoline. Again stir or agitate—this time for at least one minute.

HOW TO FUEL

WARNING

Loosen fuel cap slowly to allow safe release of pressure from the fuel tank.

1. Untwist and remove the fuel cap. Rest the cap on a clean surface so that it will not be a source of fuel contamination.
2. Pour in fuel carefully to the top. Avoid spillage by not overfilling.
3. Screw the fuel cap on tightly. Wipe up any fuel spillage immediately.

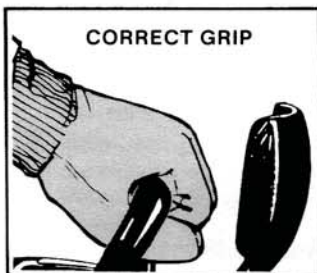
PROPER GRIP ON HANDLES POSITIONING OF THE BODY DURING BOTH STARTING AND OPERATING

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 to idle so as not to overspeed the engine when it becomes load-free.

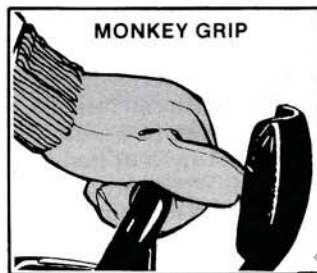
Wear non-slip gloves for maximum grip and protection. Practice these things before you start the saw.

1. **The proper grip is to be maintained on the saw whenever the engine is running.** The proper grip (see illustration) is where the fingers encircle the handlebar and the thumb is wrapped on the opposite side from the fingers. This grip is least 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 the saw right out of your hands.

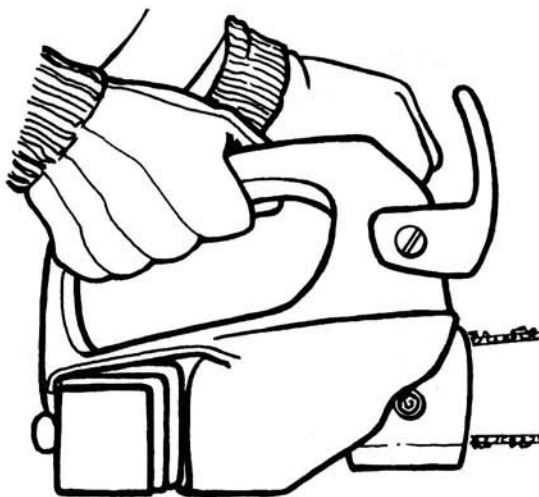


CORRECT GRIP IS YOUR BEST PROTECTION AGAINST A KICKBACK REACTION

A KICKBACK WILL PUSH THE HANDLEBAR RIGHT OUT OF A MONKEY GRIP

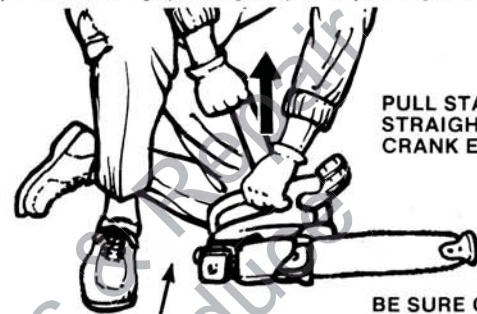


2. **Always hold the saw firmly with both hands when the engine is running.** Always keep your **LEFT HAND** on the front handlebar and your **RIGHT HAND** on the rear (throttle) handle, so that your body is to the left of the chain line (see illustration). Never use a cross-handed grip, or any stance which would place your body or arm across the chain line.



3. **The proper stance and placement for starting the saw includes:**

- a) Hold saw down on clear, level surface, with bar and chain in the clear.
- b) Body to left of chain line. (Never straddle the saw or chain, or lean over past the chain line.) Place your knee against starter housing to steady the saw.
- c) Using the correct grip, hold the control handle with your left hand. Use your index finger to depress the throttle trigger.
- d) Pull starter grip straight up with your right hand.

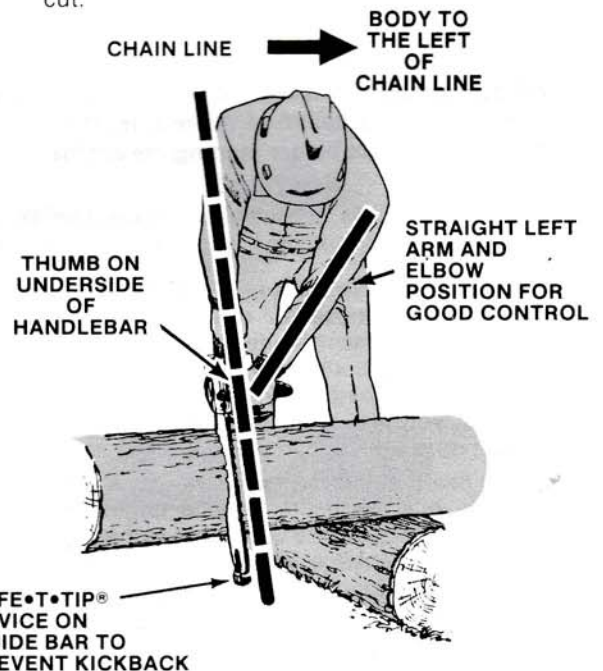


STEADY SAW WITH KNEE

BE SURE CHAIN IS IN THE CLEAR

4. **Proper stance for operating includes:**

- a) Weight balanced on both feet—feet on solid ground.
- b) Left arm kept with elbow locked in a "straight arm" position to withstand any kickback force.
- c) Body always to the left of the chain line.
- d) Grip maintained as described above.
- e) Avoidance of any off-balance or overextended cutting stance. Especially, do not reach way out in any direction, or higher than your chest to make a cut.



5. **The proper procedure for cutting includes:**

- a) Idle saw, then take your stance in front of the wood.
- b) Position saw, but rev saw to full speed before chain engages wood, (prevents violent reaction).
- c) Watch your work. Be ready to stop cutting pressure and hold up the saw so it will not pull you off balance as the chain cuts itself suddenly free.

STARTING AND STOPPING

NOTE

You can expect some fluid, particularly chain oil, to seep from the saw during transport or storage. Do not put saw on surfaces you wish to keep unsoiled.

Steps 1 through 9 are for Starting a Cold Engine.

1. Push switch to the "RUN" Position.
2. Push choke lever all the way up. Full choke (see illustration) is needed for a cold engine.
3. Hold saw down and open the throttle (see illustration).
4. Pull the starter grip a short way until you feel the starter engage, then pull straight up, briskly for a fast cranking spin. (Do not pull to the end of the rope, because this can damage the starter.) To reduce rope fray, hold onto grip during rewinding.
5. Crank until the engine fires. This should take three to five pulls the first time, then one or two pulls after that, except in very cold weather where the required extra rich mixture must be supplied by more cranking.
6. Put choke to half choke position before the next crank as soon as engine fires. (Firing is when the engine goes *pop — pop — pop*.) Any engine which has fired at full choke will start at half choke.
7. When the engine starts, go to *open choke* before it stalls out.

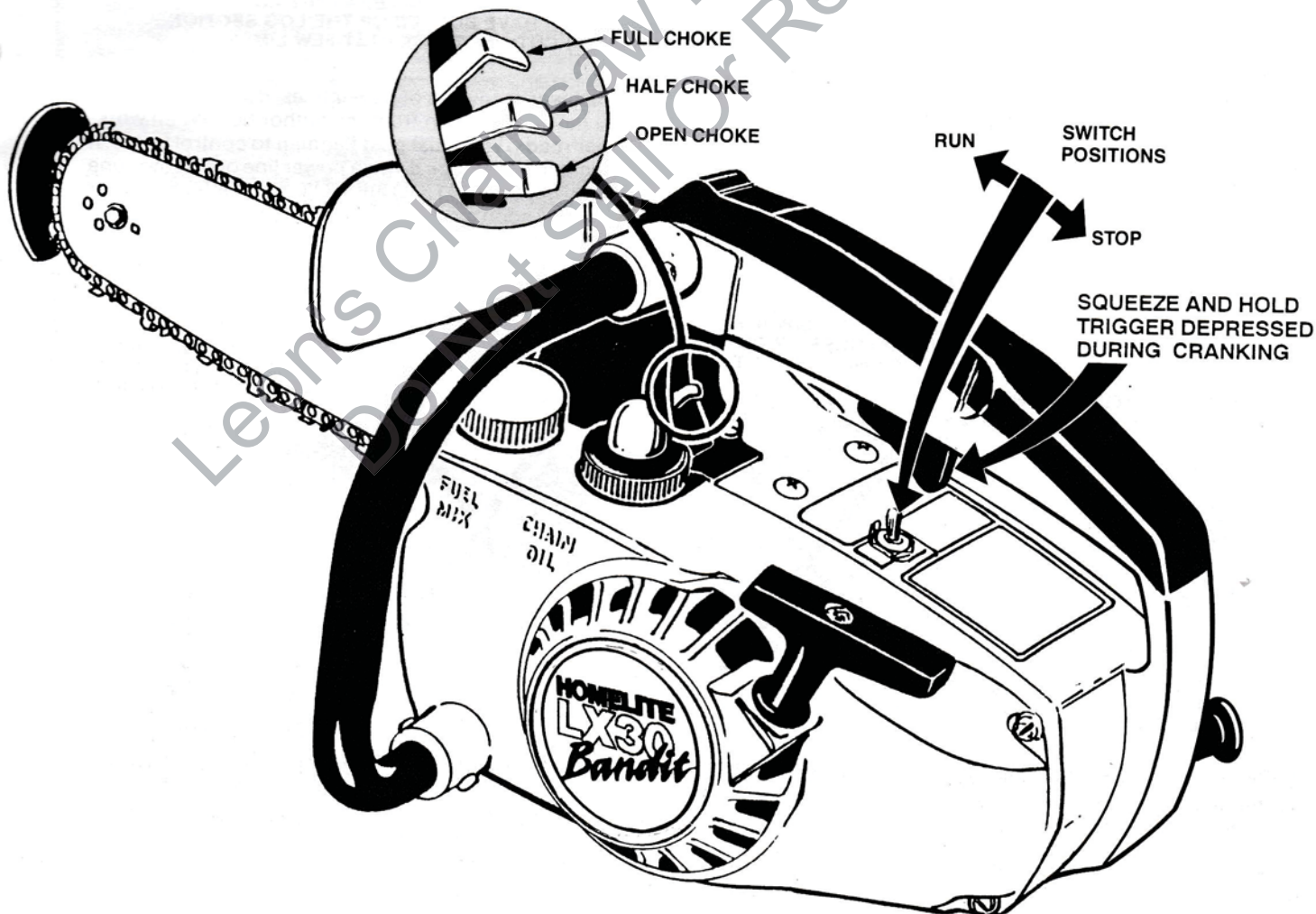
8. Now you are ready to pick up the saw. Use the proper grip and hold on the handles, described above.
9. Flip the switch to "STOP" position when you wish to stop the engine.

Special Starting Situations

10. **Restarting a recently run engine:** The engine may still be warm enough to start at idle throttle without choking. If not, hold throttle open and go to half-choke. Use full choke if necessary.
11. **Breaking a vapor lock:** This is when heat turns fuel in the fuel line and carburetor into a vapor. It occurs when the saw has been exposed to the heat of the sun or a car trunk, or after a 5 to 10 minute shut-down on a hot day. To break the lock and start the saw, crank alternately at full choke and half-choke until the engine fires. Then start and run the engine at half-choke. Allow no more than 30 seconds before opening the choke fully. Repeat sequence, if required, until engine clears itself and runs properly.

IMPORTANT

When you are through using the saw, relieve tank pressures by loosening the CHAIN OIL and FUEL MIX caps. Then retighten the caps. For extended periods of non-use, prepare the saw for storage as recommended in Section 4.



Section 2

THE WORKING AREA

WORK AREA PRECAUTIONS

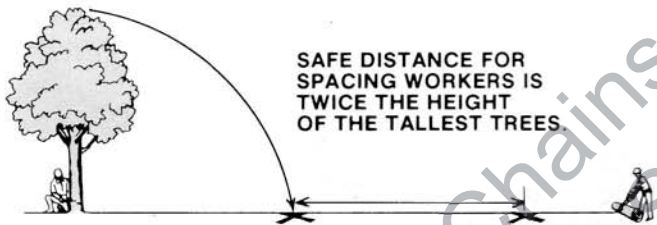
Cut only wood or materials made from wood; no sheet metal, no plastics, no masonry, no non-wood building materials.

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

KEEP BYSTANDERS A SAFE DISTANCE FROM THE CUTTING AREA



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



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

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



A WEDGE TO HOLD THE CUT OPEN CAN BE USED ONLY ON LARGE DIAMETER LOGS.

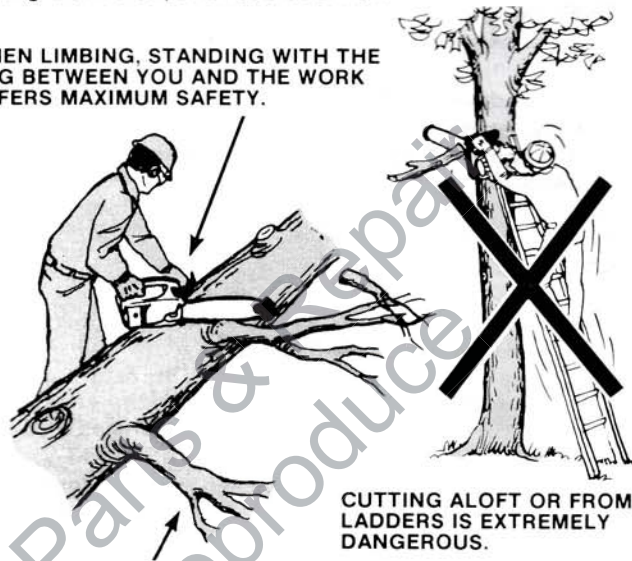


STAND ON UPHILL SIDE WHEN CUTTING BECAUSE LOG MAY ROLL.

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 YOU HAVE BUCKED UP THE LOG SECTIONS YOU CAN CUT OFF THESE LAST FEW LIMBS

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

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



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



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

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

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

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

WARNING

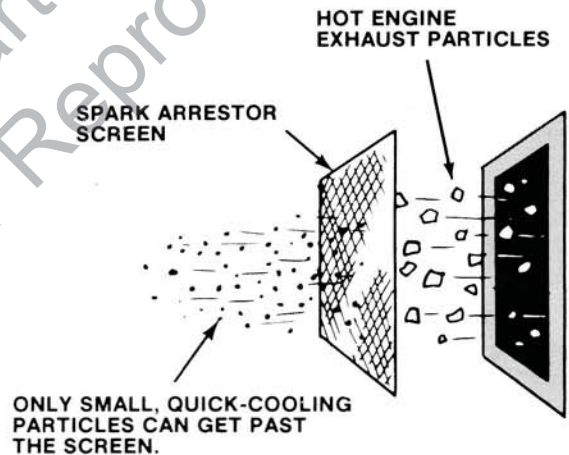
If there is anything wrong with the saw have it fixed before further operation. The idle speed adjustment should be maintained so that the chain stops moving after the engine is brought back to idle. Adjust the idle speed whenever necessary (see Section 4).

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 servicemen. 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.

NOTE

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

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 arrester on your muffler under dry woods conditions, and always when required by the law or local authorities. In some states, a spark arrester is required by law and it is the operator's legal responsibility to see that it is in good condition at all times. Check the muffler and spark arrester at regular intervals. Careful! Never touch a hot muffler.



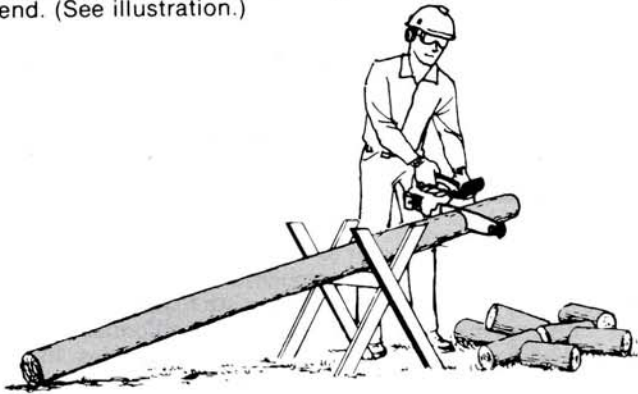
ALL EQUIPMENT MUST BE SECURED IN VEHICLES WITH STRAPPING OR TIE-DOWNS. PERSONNEL SHOULD NOT BE TRANSPORTED IN THE SAME COMPARTMENT AS EQUIPMENT AND FUEL SUPPLIES.



Section 3 TECHNIQUES OF CUTTING

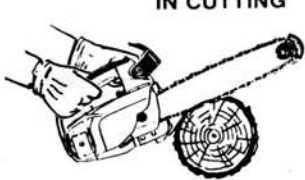
BUCKING, LIMBING AND PRUNING

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.

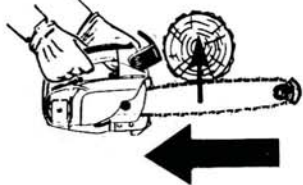
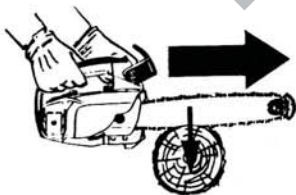
PIVOT ACTION MAY BE USED IN CUTTING



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.

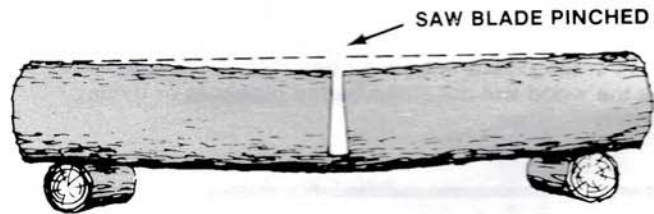
OVERBUCK

UNDERBUCK

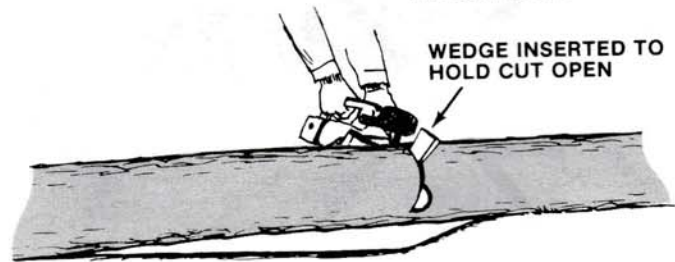
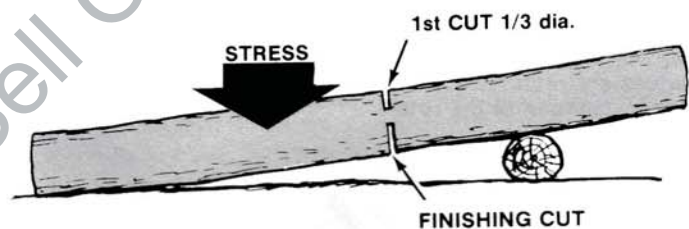
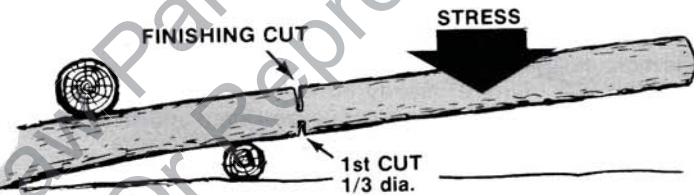


4. When you have mastered the overbucking technique, try underbucking to see what it feels like. Place the saw blade under the log. Throttle up and exert upward pressure to cut clear through. Now you are ready to learn when to overbuck and when to underbuck in order to avoid pinching the chain in the wood.

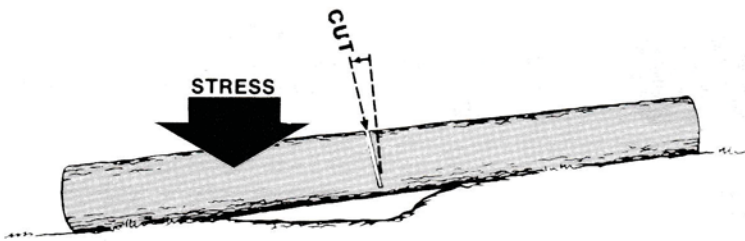
CUTTING VARIATIONS ACCORDING TO THE STRESS FACTORS



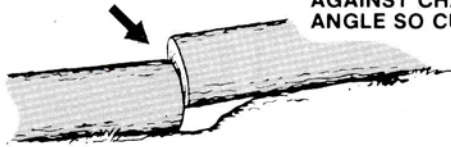
When the piece to be cut is supported on the ends, but not along the point where you want to cut, it will bend as you make your cut. If you are overbucking a log that will bend downward at the cut, your saw will be pinched if you cut more than 1/3 the log diameter. So overbuck 1/3, then remove the saw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



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



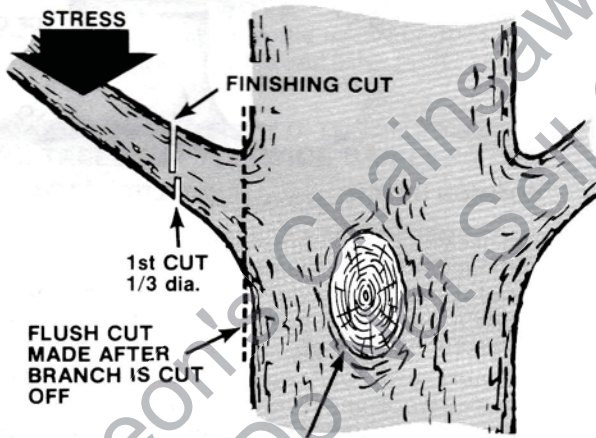
IF CUT-OFF SECTION IS LIKELY TO SETTLE AND BIND AGAINST CHAIN, BUCK ON ANGLE SO CUT OPENS UP



NOTE

If you misjudge the lie of the log and the saw is pinned in the cut, or if you have inserted a wedge and the bar is trapped: roll the log to remove the saw; or use leverage to raise the log to free the blade; or remove the engine from the bar and use another saw or an axe to free the bar and chain.

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.



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

SPRINGPOLES

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



THIS IS A SPRINGPOLE BENT DOWN UNDER HIGH STRESS

BORING WITH THE NOSE SECTION

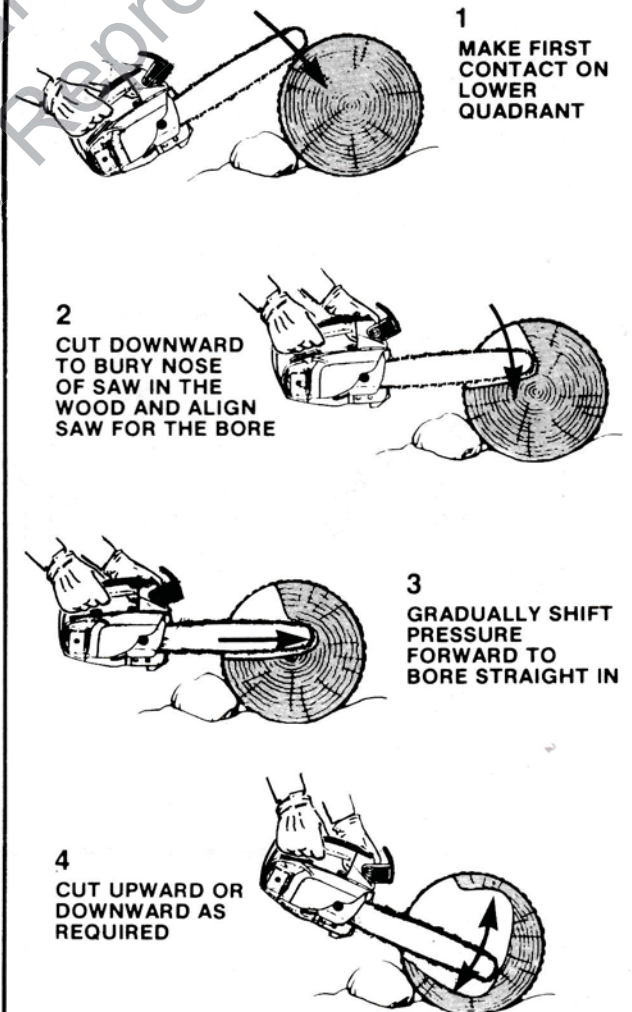
KICKBACK DANGER

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

Boring should be attempted only by experienced operators because it requires extreme care and attention to proper technique. Do not bore unless there is no other way to make a cut. Boring is usually resorted to in order to avoid an obstacle or when it is necessary to make blind holes such as cut-outs for log cabin windows. The SAFE•T•Tip® 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. Although it may not prevent kickback from happening, the low-kickback chain on your saw may help you to keep control by reducing the force of a kickback reaction.

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 full length of the blade. Now you can cut either upward or downward through the wood as shown in the panel.

BORING TECHNIQUE

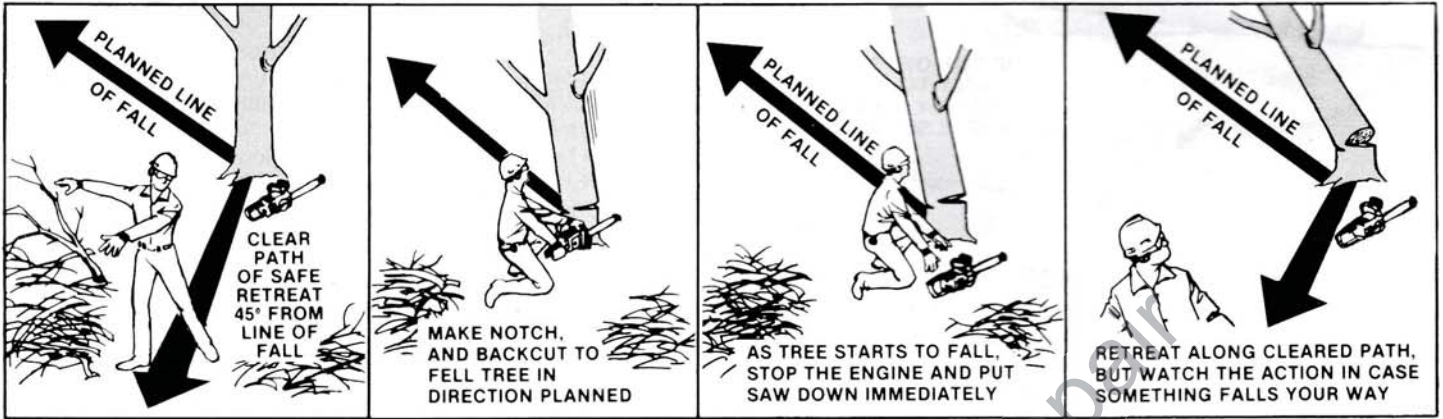


REPLACE THE SAFE•T•TIP® ANTI-KICKBACK DEVICE TO PREVENT INJURY DUE TO KICKBACK

TREE FELLING TECHNIQUES

CAUTION

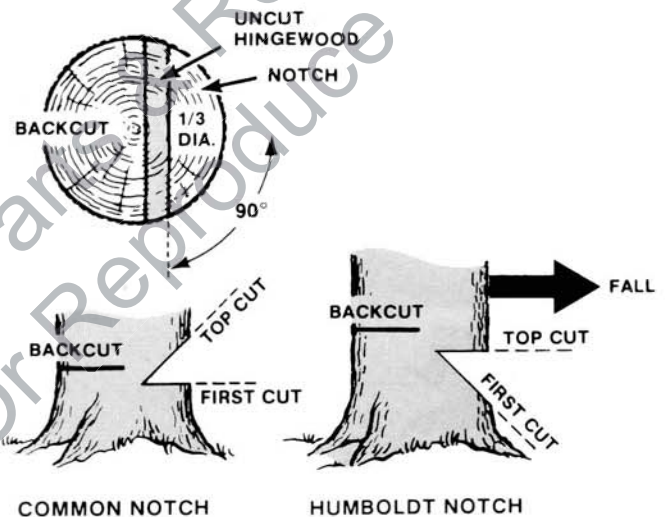
If the saw gets caught or hung up in a tree during felling, leave the saw and save yourself. The saw can be replaced and you cannot!



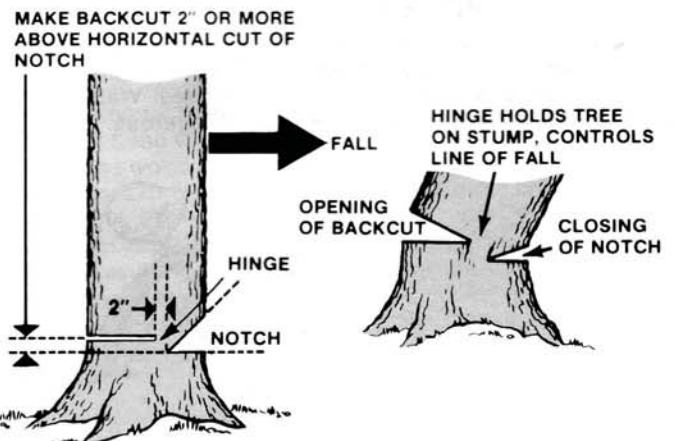
1. Pick your escape route (or routes in case the intended route is blocked). Clean the immediate area around the tree, and make sure there are no obstructions in your planned path of retreat.
2. Consider the force and direction of the wind, the lean and balance of the tree, and the location of large 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 or leaning over (See "Felling Leaners"), cut a notch about 1/3 the diameter of the trunk in the side the tree is to fall. Make the cuts of the notch 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.



6. The backcut is always made level and horizontal and at a minimum of 2 inches (5 cm) above the horizontal cut of the notch. 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 require removing the SAFE•T•TIP® anti-kickback device. They 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. Always replace the SAFE•T•TIP® Anti-Kickback Device to prevent injury due to kickback.

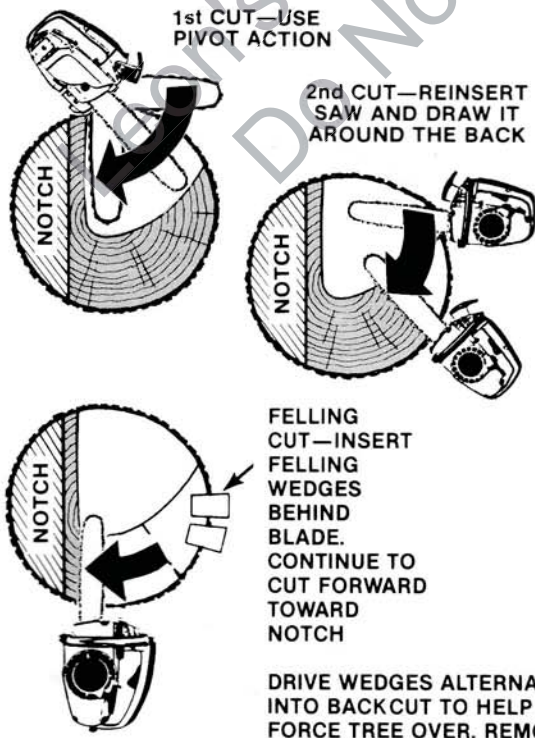
NOTE

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)

DANGER

THE CHANCE OF A KICKBACK IS VERY GREAT DURING THIS SERIES OF CUTS BECAUSE THE BAR NOSE IS INSIDE THE WORK.



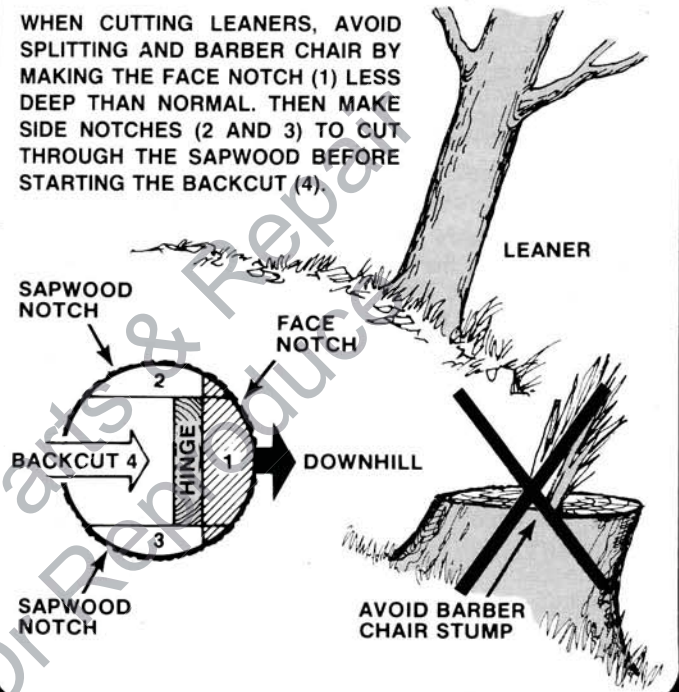
FELLING LEANERS

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

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

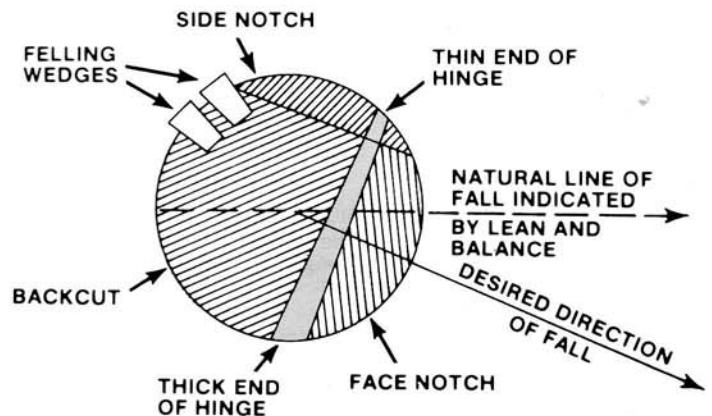
1. Make the directional control face notch shallower than usual.
2. Make shallow notches on both sides of the tree to cut through the outer layer (sapwood).
3. Now make your back cut to leave a parallel hinge.

WHEN CUTTING LEANERS, AVOID SPLITTING AND BARBER CHAIR BY MAKING THE FACE NOTCH (1) LESS DEEP THAN NORMAL. THEN MAKE SIDE NOTCHES (2 AND 3) TO CUT THROUGH THE SAPWOOD BEFORE STARTING THE BACKCUT (4).



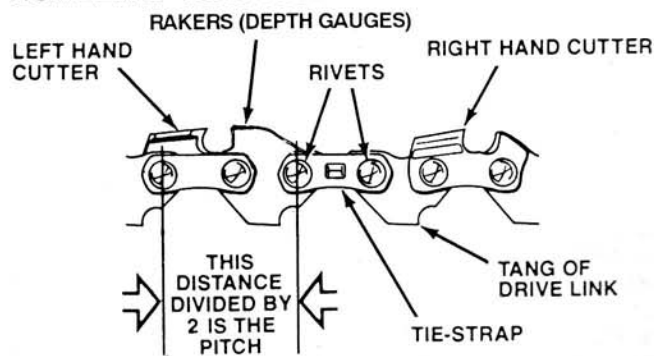
CHANGING THE DIRECTION OF FALL (from the natural line of fall)

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.



Section 4 MAINTENANCE & ADJUSTMENT

HOMELITE® LOW-KICKBACK SAW CHAIN



NOTE

Doubling the rakers preceding each tooth provides support to prevent the cutters from digging themselves deeply into the wood. Thus the tendency toward a violent kickback reaction is reduced.

All instructions pertaining to saw chain in this section apply to both types of chain, 355D and 350D Dual Raker Chains.

For smooth and fast cutting, the chain needs proper maintenance. Shut down the saw for filing whenever the sawdust turns from chips into a fine powder and you have to bear down hard to make the saw cut. Follow our instructions for filing the cutters and maintaining the rakers at proper depth. Remember the following:

1. Dullness affects speed of cutting but not the kickback-reducing ability of the chain.
2. Improper filing angle resulting in a forward-hooked cutter makes the chain "grabby" and increases the potential for a high kickback. (See FAULTS, page 25.)
3. Raker (depth gauge) setting: Too low increases the potential for kickback; not low enough decreases cutting ability.
4. Sharpening the cutters, removing some steel each time, gradually reduces the kickback-reduction ability of the chain.

CHAIN FILING TOOLS

Our file holder (#DA-92617-A) comes with a 5/32" diameter (4mm) round file. Late production models of this file have both 35° and 30° guide marks. The 30° marks should be used for both 355D and 350D chains.

After repeated sharpenings, when the teeth are reduced to a bit less than half their original length, replace the 5/32" diameter file (in the same holder) with a 1/8" diameter (3.2 mm) file. The smaller diameter file is necessary because the teeth taper to a lower height towards the rear.

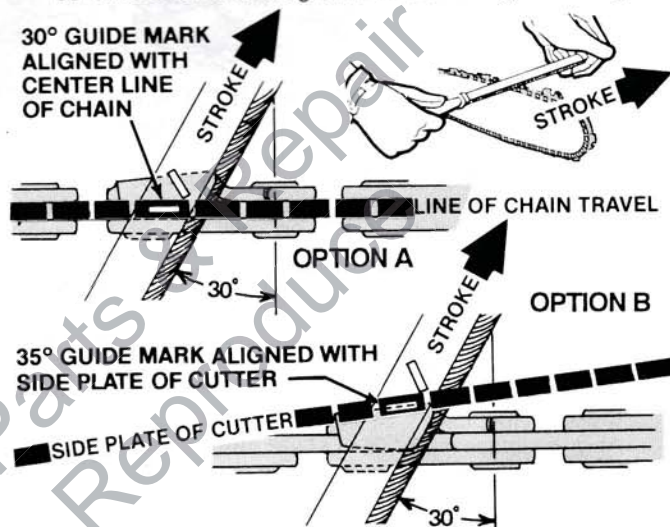
You will need .020" (0.5mm) depth gauge filing tool (#D-92630-C). The filing slot is wide enough for the rakers to fit. The rakers should be filed and shaped with a 6" flat file (#92609).

HOW TO FILE THE CUTTERS

If you do not have a chain filing vise, you can do a satisfactory job "on the bar" if you tighten the chain tension enough that the chain doesn't wobble. And, do all of your

filing at the mid-point of the bar. Wear gloves for protection. Be sure to file all cutters to the same length. This must be done because of the taper of the teeth; if some cutters are shorter than others only the longer cutters will get a chance to cut. Also be careful to file all cutters to the specified angles, as fast cutting can be obtained only when all cutters are uniform. Each cutter then gets a chance to cut.

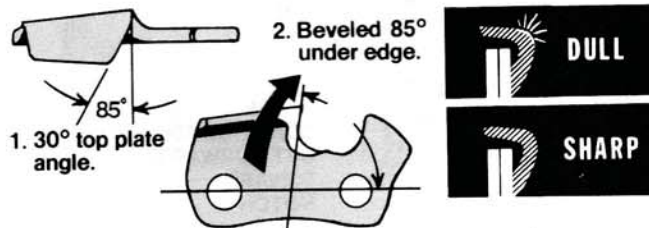
1. Any top plate filing angle from 30° to 35° will work well as long as every cutter is filed to the selected angle. However, the angle recommended for best results is 30°. We show two diagrams for achieving a 30° angle.



OPTION A shows a 30° guide mark aligned with the center line of the chain to produce a 30° angle.

OPTION B shows a 35° guide mark aligned with the side plate line of the cutter to produce a 30° angle.

2. Keep the file level with the top plate of the tooth. Do not let the file dip or rock.
3. Stroke only towards the front corner of the tooth. Lift file away from the steel on each return stroke.
4. Use light but firm pressure — mostly towards back of tooth and very little downward. With the correct angle and pressure maintained by you, the file holder will produce the desired edge.
5. Put a few firm strokes on every tooth. File all left hand cutters on one side. Then move to the other side and file the right hand cutters. Occasionally rotate the file in the holder.
6. Check your filing job in strong light. A sharp edge does not reflect light. Put a few more strokes on edges which reflect light.
7. If you are not satisfied with the performance of your chain after it has been filed, examine it for "skid-nose" and one or more of the common chain faults illustrated in this section. Also be sure to check the depth of the rakers frequently as instructed under "Raker Clearance."



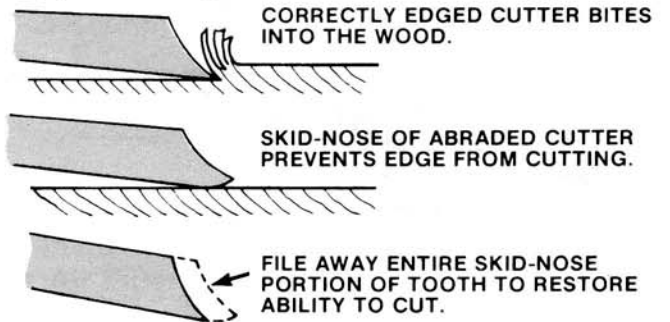
3. Side plate 85°-90° to line of chain travel.

FILING OUT SKID-NOSE WEAR PATTERN

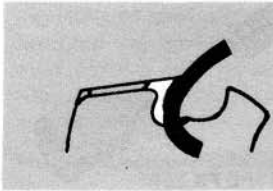


A sharp edge does not alone make for good cutting. You have to put the edge on the outside of the tooth. "SKID-NOSE" describes the edge area of teeth which have hit hard objects such as nails and stones, or have been abraded by mud and sand on the wood. The skid-nose rides the wood, keeping the sharp edge from biting in. The friction at the skid-nose area overheats the 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 your chain "trued" to proper cutter length, contour, and edge by your servicing dealer on an electric chain grinder.

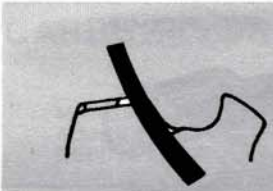


REFILE ANY TEETH HAVING ONE OR MORE OF THESE FAULTS



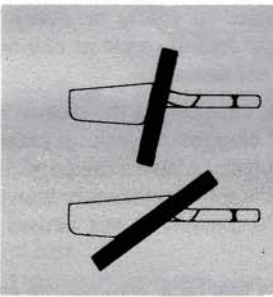
Forward Hook

Makes cutting rough and "grabby." Violent kickback may happen if saw tip is engaged. Caused by excessive downward filing pressure, or tip of file hold too low on tooth.



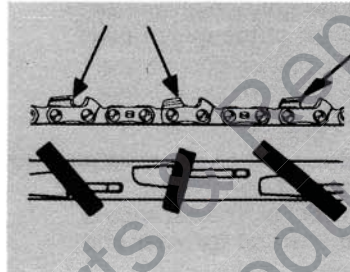
Back Slope

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.



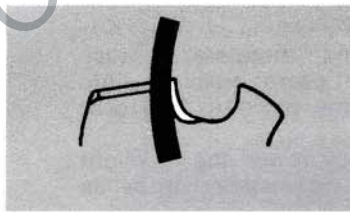
Cutters Filed at Non-Matching Angles or Lengths

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

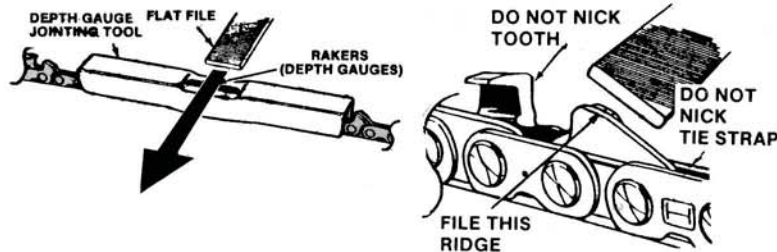
Although edge is durable, it won't cut properly. Scrapes wood, robs power, and produces dust instead of chips. Caused by holding file too high on face of tooth.

RAKER CLEARANCE

WARNING

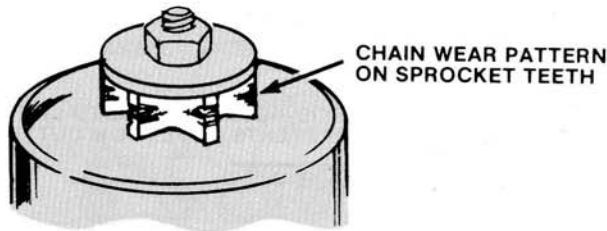
Whenever the SAFE-T-TIP® anti-kickback device is not present on the bar nose, the chain's ability to reduce kickback may be defeated by any or all of the following conditions: a) rakers filed lower than recommended, b) chain tension too loose, and c) cutters misfiled producing a forward hook shape.

1. The rakers should be maintained at a clearance between .020" (0.5 mm) and .018" (4.6 mm). Depth gauge tool #D-92630-C can be used for checking the raker clearances as well as filing them uniformly.
2. Every time the chain is filed, check one or two sets of rakers. Locate the set to be checked along the flat portion of the bar rails. Fit the tool over the chain so that a set of rakers projects up into the filing slot in the tool (see illustration). Put one or two strokes across the filing face of the tool with a 6" flat file. If you take off any metal from the rakers, they are too high, and all sets of rakers on the chain should then be filed to .020".



3. If the rakers are too high (less than .018" clearance) the teeth will get only a shallow bite. If they are too low, the chain will cut too deeply into the wood and the saw will grab and jerk. If all rakers are not filed to the same clearance you will get the same poor results as from non-uniform cutters. Non-uniformity causes slow cutting and the saw often goes off line.
4. After the rakers have been filed, they should be contoured to their original pattern. When doing this with the flat file fit the depth gauge tool over the tooth on an angle to protect the cutting edge.

REPLACING WORN CHAIN AND SPROCKET



Sprockets and saw chains of the same nominal pitch normally stay in pitch with each other as they wear together. When the saw chain is being replaced, however, a chain-damaging mismatch may exist unless a new sprocket is installed to match the chain. While changing the sprocket, drum and bearing assembly, your servicing dealer will also check the condition of the clutch plate for you.

GUIDE BAR

Every week or so, reverse the guide bar on the saw so that the rails which were on the bottom will be on the top. This distributes the wear for maximum bar life. The bar should be cleaned every day of use and checked for wear and damage.

Feathering or burring of the bar rails is a normal process of bar wear. Such faults should be smoothed with a file or stone as soon as they occur, because they slow down your cutting. Also check that the bar rails are parallel (of equal height). If not, file or grind them parallel. Pinched rails can be opened by prying them apart carefully with a screwdriver.

A bar with any of the following faults should be replaced because the repair of your type and size bar would be either impossible or uneconomical.

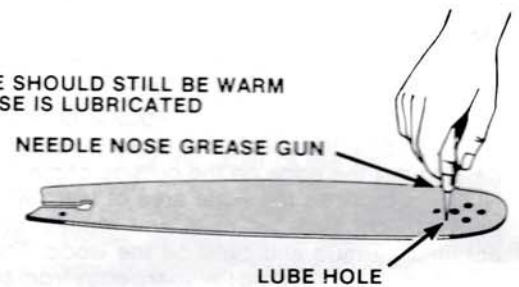
- Wear inside the bar rails, called "hourglass" because of its cross section shape—It comes from too little chain tension and permits the chain to flop over sideways.
- Bent guide bar — If only slightly bowed, the bar might be rebent straight. But compound twists or sharp bends call for replacement.
- Cracked or broken rails.
- Spread rails—Peening will not satisfactorily close the rails of the laminated bar.

POWER TIP BAR ONLY

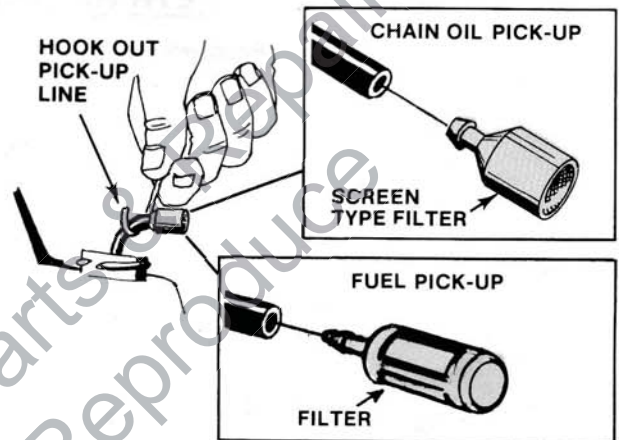
If the nose sprocket fails and the rest of the bar is in good condition, your servicing dealer can install a new nose sprocket assembly in your old bar.

The original grease plus oil that comes off the chain may be enough to keep the nose sprocket lubricated. However, it is advisable to regrease daily, to remove the old grease which may be packed with sawdust and dirt. Homelite dealers sell a grease-packed needle nose lube gun (as part #D-92680-A) for sprocket nose bars. You can also use needle nose lube gun (DA-52713-B) with Homelite® ALL-TEMP Multi-Purpose Grease (#17193) or a good quality lithium base grease. The bar nose should always be warm (from recent operation) when the grease is changed. If the old grease is cold and hard, it cannot be pumped out. A small lube hole is provided on the side of the bar near the nose. Pump grease through the lube hole until the dirty grease is forced out and fresh grease appears.

BAR NOSE SHOULD STILL BE WARM WHEN NOSE IS LUBRICATED



MAINTENANCE OF TANKS AND PICK-UPS



- The regular maintenance period is yearly or every 50 operating hours. However, trouble can result at any time from dirt, sawdust, moisture or stale fuel.
- Unscrew and lift up the oil tank cap. Lift out the pickup line and the pick-up. A leaking or clogged oil pick-up causes insufficient oiling. If flow is insufficient (see note, page 15), change the oil pick-up filter or clean it by picking or blowing the wire mesh clean. Be sure the line is not kinked or cracked.
- To remove the pickup from the fuel tank, remove the cap. (Slowly--let the pressure equalize.) Hook the line with a piece of clean wire and draw the pick-up out through the filler hole. Remove the pick-up from the line. Symptoms of fuel starvation are faltering on a cutting load and a loss of power. A fuel system check can be made by your servicing dealer, or you can make the following check for yourself:
 - Loosen fuel cap just enough to leak air. If this restores performance to the saw, have the tank vent changed. (Valve is just inside neck of tank.) If performance is not improved, change the fuel pick-up filter. If this doesn't work, the problem is probably in the carburetor. Have Dealer service it.
 - Check for split ends, kinks, cranks and deterioration of fuel pick-up line all the way to the carburetor. Note: Peroxides in stale fuel attack rubber fuel lines. We recommend use of fresh, treated fuel (see page 15).
- To change the fuel filter, disconnect the pick-up from the line. If it appears to be dirty, attempts to clean the felt may not help. Filter replacement is recommended.

AIR FILTER MAINTENANCE



USE SLOT TO PRY OFF PLASTIC COVER



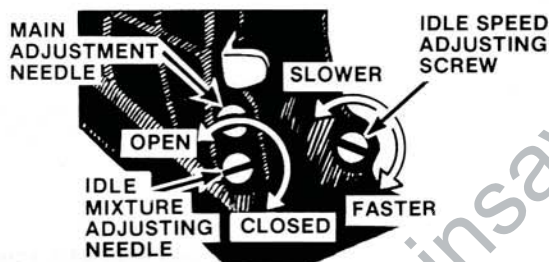
PUT BOTTOM TAB OVER STARTER CASTING, THEN SNAP INTO PLACE

The spongy element removes dirt from the air. When it clogs up, the saw will smoke excessively and lose power. The filter should be changed when dirty, but in an emergency, can be cleaned in detergent and water or a cleaning solvent and allowed to dry. The normal life expectancy of the element is 10 to 15 hours of operation. However, extremely dirty operating conditions may cause the filter to clog in four or five hours. You should keep some spares on hand for quick-changing.

To Inspect and Clean or Change the Air Filter

1. Refer to the illustrations. Use the slot at the top of the black plastic filter cover to pry off the cover.
2. Clean the area around the filter before removing filter.
3. Fit clean filter in place carefully.
4. Before operating, reinstall plastic cover as follows: Start cover on by putting choke lever through the slot and placing tabbed bottom and rear edges into position. Press cover into place. **WARNING:** Never run the engine without the filter.

CARBURETOR ADJUSTMENT



The carburetor is an all-position, diaphragm type. Should adjustment of the carburetor for high-speed performance be required, we recommend that it be done by your authorized servicing dealer.

The following adjustments may require readjustments from time to time to achieve the desired idling characteristics.

WARNING

Do not operate saw if chain does not stop rotating when engine is idled. Adjust idle as instructed below. If idle cannot be adjusted properly, have saw fixed by your authorized servicing dealer.

NOTE

If the saw gives the following signs, check out these things before considering a need for carburetor adjustment.

1. Starts up o.k., but dies out or cannot stand a load — loosen fuel cap temporarily and restart engine. If symptoms disappear, leave carburetor alone. Inoperative vent valve in tank may be the trouble. Valve can be replaced by your servicing dealer.
2. Seems to have less power than usual — check for a clogged air filter, and see that the muffler and spark arrestor screen are clean.
 - a) IDLE SPEED SCREW — Adjusts the throttle position for speed of idling.

b) IDLE MIXTURE NEEDLE — called "LO NEEDLE" for short, adjusts mixture for smooth idling and acceleration.

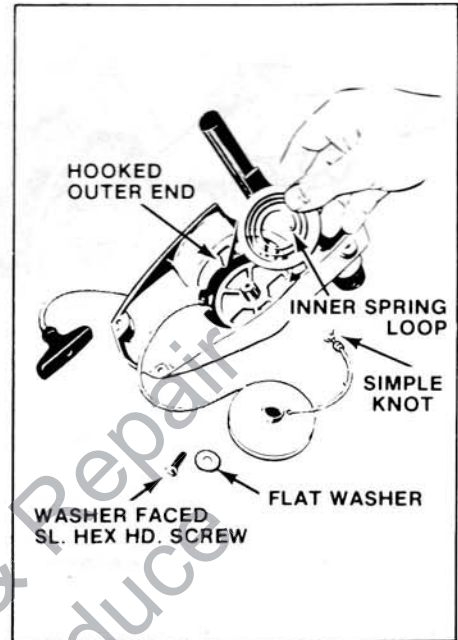
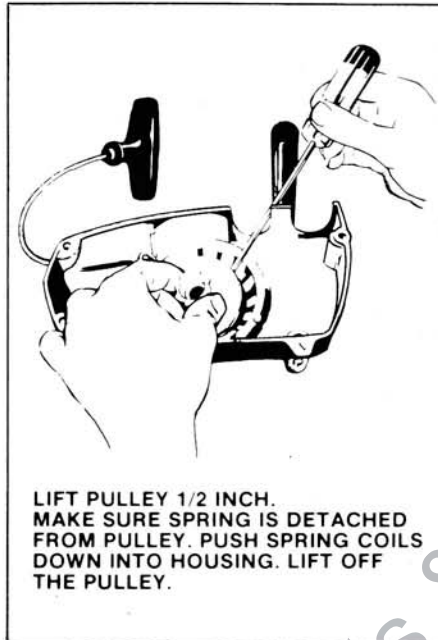
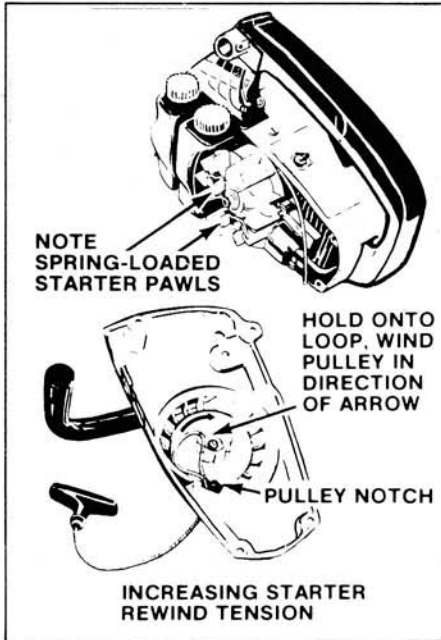
c) MAIN ADJUSTMENT NEEDLE — called "HI NEEDLE" for short, adjusts mixture for high speed, full power.

3. The ranges of the HI and LO mixture adjustments are each about one turn open (counterclockwise) from the gently closed position. If you are having trouble starting the engine, set both needles about 1 to 1 1/8 turn open. Otherwise skip this step.
4. Start the engine, allow it to warm up, then let it idle. If it will not idle, turn the IDLE SPEED SCREW clockwise 1/8 turn at a time until the saw will keep idling.
5. Turn IDLE MIXTURE NEEDLE slowly in one direction, then the other. Leave set where the engine idles the fastest. Try to accelerate. If the saw hesitates, open the LO NEEDLE (counterclockwise) a little at a time until the engine is able to accelerate.
6. Now use the IDLE SPEED SCREW to adjust the idle speed for a stable idle at which the chain does not turn. Cut some wood with the saw to bring the engine to full operating temperature. Start the chain into a cut, and pull up on the rear handle to jam the chain into the wood.
 - a) If the engine falters, the mixture is too lean. Open the HI NEEDLE 1/8 turn (counterclockwise) and repeat this procedure until the saw can carry a full load. (On a full load, the clutch will slip.) But do not jam the chain more than a moment, because the clutch will burn if it slips very long.
 - b) Idle the saw, then make a cut with the saw in a horizontal (felling) position. If the saw accelerates and carries a full clutch-slipping load the HI NEEDLE adjustment is satisfactory.

NOTE

It is essential that the idle speed be high enough for stable idling regardless of the engine attitude (the position), but never so high that the chain turns during idling.

STARTING REPAIRS



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

1. Remove the guide bar and chain.
2. Remove the screw (or screws) at the top of the handlebar and the four screws through the starter/fan housing to the engine housing. Lift the starter/fan housing and the handlebar off the engine. Remove the plastic air filter cover.
3. **TO ADD MORE SPRING TENSION:** If the grip does not rewind all the way to the housing and stay in place, it may need another turn of tension. Note the rounded notch in the edge of the pulley. Pull out the grip about one foot and hold the pulley from rewinding. Turn the pulley to locate the notch at the rope entry hole in the housing. Hook up a loop of rope between the housing and the pulley. Grasp the loop and wind one turn tension (or more if necessary) in a clockwise direction. Hold pulley from turning. Pull the rope back out through the hole.
4. To replace starter rope or repair starter spring: Unscrew the starter screw and remove the flat washer.

WARNING

Put on safety glasses and gloves before removing the pulley.

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

CAUTION

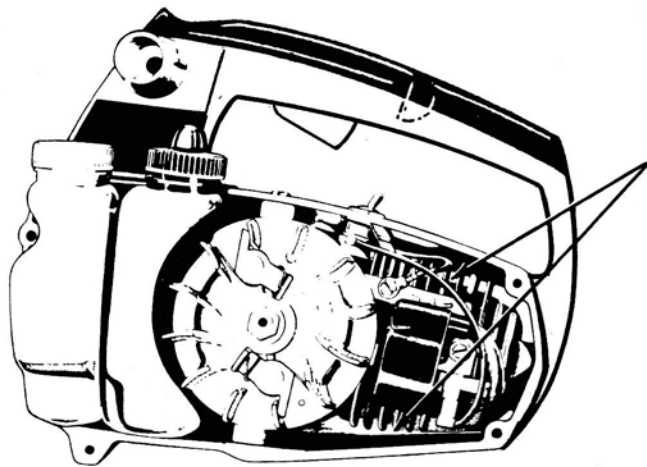
If you lift the pulley too far out before detaching the spring, the coils may fly apart. They are relatively difficult to rewind. Coils which are to be scrapped should be uncoiled before being discarded.

6. Replace the recoil spring if broken or bent.
7. Various types of starter spring assemblies may be encountered. All types are to be installed so that the outer spring loop engages the post in the recess of the starter housing. The type of spring which is coiled

in its own retainer goes open-side-towards-starter housing. Integrally banded springs should be placed (as illustrated) and the coils pushed into the housing. The unretained and unbanded type should have the outer loop hooked to the post and then be wound into the housing a coil at a time. Be very careful not to let the coils fly apart. They should be tied or taped together while out of the housing.

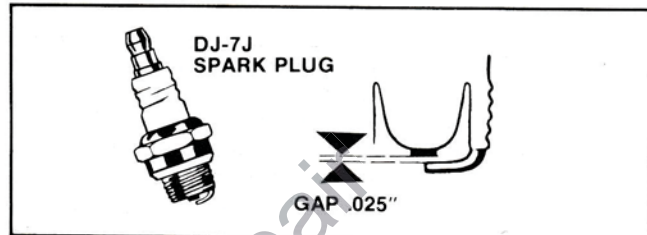
8. Clean the pulley post and the pulley.
9. To replace the rope cut old rope and remove it. Push new rope through rope hole and draw the end out through the pulley slot. Tie a simple knot tightly in the other end. Coat it with acetone type cement to set the knot and trim the rope neatly up to the knot. When dry, pull the rope to draw the knot through the hole. Run the rope through the hole in the housing, thread the starter grip onto the rope and knot this end. Draw the knot into the grip. Wind all but 8-10 inches of rope clockwise onto the pulley.
10. Grease the pulley post lightly (not too much grease) and drop the pulley into place over post. See Step 3 for winding 2-3 turns of spring tension on the pulley.
11. Test for spring engagement by pulling rope out and letting it rewind. If it does not rewind all the way, pull rope out and hold pulley from turning. Pull up a loop of rope between housing and pulley (use the notch) and wind 1 to 2 turns extra tension onto the pulley by holding rope and using it to turn the pulley clockwise. Hold pulley from turning, and pull rope out until it runs straight through the housing hole onto the pulley. Let pulley rewind. If grip does not rewind up to the housing, repeat this procedure to add one more turn at a time until grip draws into place against the housing.
12. Secure pulley with the flat washer and screw. Press the housing lightly against the rotor while pulling the starter rope a short distance and letting it rewind until the housing clicks flush against the engine cover. You may then safely secure it with the four screws previously removed. Fasten the handlebar to the engine cover with one screw at the top.

SPARK PLUG, COOLING AND EXHAUST



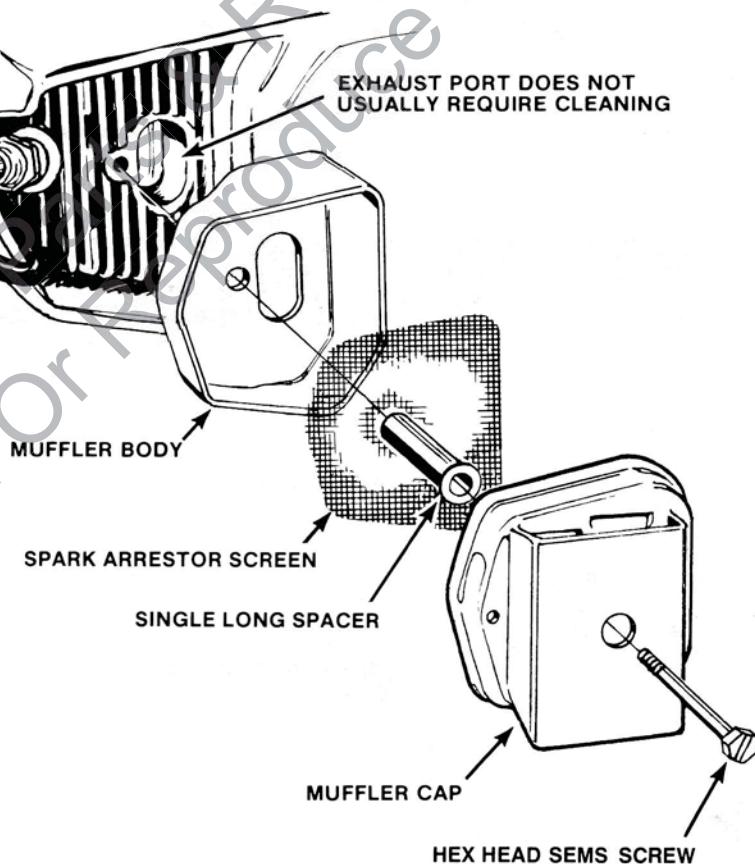
EVERY 50 HOURS OF OPERATION:

STARTER AND MUFFLER SHOULD BE REMOVED. AIR COOLING PASSAGES AND CYLINDER COOLING FINS SHOULD BE CLEANED.



SPARK PLUG
SPARK PLUG BOOT
FINGER TIGHT

EXHAUST PORT DOES NOT USUALLY REQUIRE CLEANING



1. The engine has a miniature, self-sealing tapered seat type Champion #DJ-7J spark plug. Whenever there is trouble starting the engine, always immediately replace it with a new DJ-7J plug (or its equivalent of the same type and heat range). Leave the new plug in the saw at least until you have found the trouble and gotten the saw started.
2. When installing the tapered seat type spark plug in this engine, you must get a gas-tight seal without over-tightening the plug. To do this, first make the plug finger tight and then use a spark plug wrench to tighten 1/16 turn more.
3. The most frequent cause of ignition trouble is spark plug fouling. This can be due to a build-up of hard engine deposits, but is often due to soft deposits or merely wetness caused by a) flooding, b) improper fuel or mixture, c) wrong adjustment of the carburetor idle mixture or prolonged idling of the engine, and d) wrong spark plug gap setting.
4. Fouled plugs often can be restored, first by cleaning and then by resetting the firing gap. The metal electrodes should be filed or scraped down to the bare metal, then gapped to .025" (0.64mm) by bending the side electrode toward the center electrode.

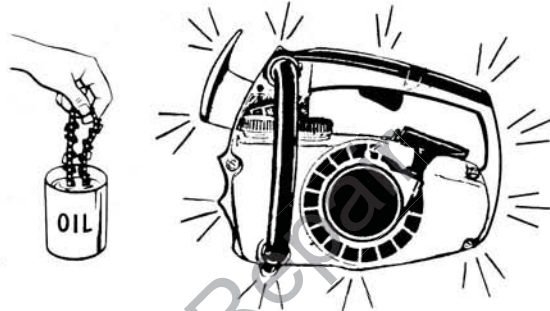
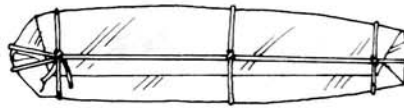
NOTE

Plugs can be cleaned by hand-brushing and followed by a rinse in solvent. Power-brushing or sandblasting are not recommended, as these methods drive into the plug harmful particles which cannot be removed with solvent.

5. Always keep the muffler and spark arrestor on your saw in good condition. Even though you wear hearing protection, a faulty muffler (or open exhaust) can cause hearing damage. In areas of high forest fire incidence where it is mandatory for saws to meet standards intended to help prevent forest fires, you will be required to maintain the muffler and spark arrestor in good (intact) condition.
6. For inspection, take out the hex head Sems screw and lift the muffler assembly off the engine.
7. The spark arrestor screen may or may not be cleanable. Replace if not cleanable or if it is the least bit cracked or otherwise deteriorated. Replace all or any of the parts including sleeves and screws, if you find cracking or metal deterioration.

OFF-SEASON STORAGE

1. Remove bar and chain and clean them thoroughly. Let chain dry and store in a small container of engine oil to prevent rust. Oil the dried bar and wrap it in oiled paper.
2. Prepare the engine internally for storage. Drain as much fuel from the saw tank as possible, then start and run the engine until it runs dry and quits. Remove the spark plug to pour in a teaspoonful of a rust inhibitor product or a detergent oil. Install the spark plug and crank the engine enough times to distribute the oil over the cylinder and piston walls as a vapor.
3. All local regulations for the safe storage of fuel supplies must be observed. Non-stabilized fuel supplies should be used up in other equipment or discarded.
4. Clean all foreign material from the outside surfaces of the engine. The finish can be preserved with a coat of auto wax.
5. Store the saw in a well-ventilated place where it is inaccessible to children and away from corrosive agents such as garden chemicals and de-icing salts.



MAINTENANCE CHART

JOB	Daily Check	Every 5 Hours Operation	Every 15 Hours Operation	Every 50 Hours Operation
1. EXAMINE AND CLEAN EXTERIOR OF SAW	✓			
2. SHARPEN CHAIN		✓		
3. REVERSE GUIDE BAR TOP FOR BOTTOM ON SAW		✓		
4. CHECK SCREWS, TIGHTEN LOOSE FASTENERS		✓		
5. CLEAN GUIDE BAR, MOUNTING PAD AREA, AND OIL DISCHARGE HOLE		✓		
6. CHECK AIR FILTER		✓		
7. LOWER CHAIN DEPTH GAUGES		✓		
8. CHECK FUEL FILTER			✓	
9. CLEAN SPARK PLUG. GAP TO .025"				✓
10. DISASSEMBLE MUFFLER. CLEAN CYLINDER EXHAUST PORT AND MUFFLER.				✓
11. CLEAN CYLINDER FINS, AIR INTAKE AND ENGINE COOLING PASSAGeways.				✓

NOTE: Figure that each hour of operating time requires (4) tankfuls of fuel.

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