Part No. 24751

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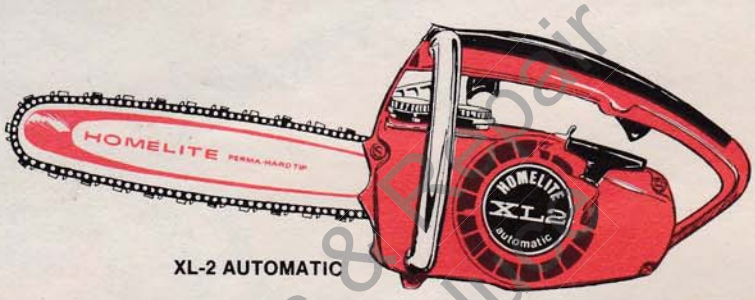
HOMELITE®

XL 2 Automatic Chain Saw

OWNERS MANUAL

The HOMELITE® XL-2 Chain Saw was designed for use by home owners and campers. Despite its lightness and compactness, the XL-2 has a powerful 2-cycle type engine. The *Twin Trigger™dual control system* increases the ease of handling. The saw chain is 1/4 inch pitch, the newest for use on saws of this size. Your XL-2 is also equipped with features incorporated into our larger saws intended for the professional user. These include: a diffuser type exhaust muffler which dampens the engine noise, centrally located saw controls, an automatic chain oiler, and a centrifugal type automatic clutch.

It will pay you to familiarize yourself with the saw and a few simple operating and maintenance principles. Maximum performance and life of this saw depend on your using it correctly right from the start. This manual tells you how to do this, and also how to maintain your saw.



XL-2 AUTOMATIC

CONTENTS

FOR YOUR SAFETY

Although this booklet later on tells you how to use the saw safely and correctly, here are some of the important points to be kept constantly in mind:

- **During starting, steady the saw with the side of your knee against the rear handle and hold saw down firmly on the ground with one hand on the front of the throttle handle (see page 6).**
- **Always keep both hands on the saw when it is running. Be sure to use the proper grip on the handle bar (see page 6) and maintain your balance and control of the saw.**
- **Never let the chain contact any obstacle other than the work at hand. Never let it contact other limbs or touch the ground.**
- **Helpers and bystanders must be kept a safe distance from the operator and the cutting chain.**
- **Keep clear of a moving chain. Do not touch it. Shut engine off before making any saw repairs or adjustments.**
- **After completing a cut, don't move away until chain stops. Shut off the engine before carrying the saw between cuts. Put a scabbard over the blade when transporting the saw.**
- **Select a path of safe retreat before making a felling cut.**
- **Beware of falling limbs. Wear a "hard hat" in the woods and during felling of large trees.**
- **Use plastic or wooden wedges to control the fall of a tree or prevent binding during bucking. Do not use hard metal wedges.**
- **If there is anything wrong with the saw, get it fixed before further use. Keep the chain sharp and properly tensioned. A dull, misfiled or loose chain will chatter and buck, and can cause saw to kick back.**
- **Keep fuel in clearly labeled safety type cans. Fuel your saw over ground that presents no hazard of fire. Move at least 10 feet away from fueling spot before starting up the saw.**
- **Avoid spillage of fuel, and wipe saw down if fuel is spilled on it. Do not bring fuel where there is fire of any kind.**
- **Keep the saw clean and free of leaves, sawdust, pitch and oil. Keep the handles free of oil and grease.**
- **Do not operate with fuel cap loose or muffler or filters removed.**
- **Use only the correct fuel mixtures made from the ingredients recommended in this manual.**
- **Keep a fire extinguisher handy.**
- **For 15 minutes after stopping work, check the area to be sure there are no smoldering embers. Put out any fires and report them, listing causes if known, to the proper authorities.**
- **Study this manual to learn the best and safest ways to use your chain saw.**

PREPARING YOUR NEW SAW

CHAIN OIL AND THE OIL PUMP

1. The CHAIN OIL and FUEL MIX tanks are identified in raised letters on the left side of the saw. Fill the chain oil tank with oil. Be sure to refill the chain oil tank every time you fuel the saw.

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

2. TYPE OF OIL: HOMELITE® Bar and Chain Oil should be used just as it comes from the container, as it is formulated with "viscosity improvers" which render it free-flowing even at below zero temperatures and has the property of clinging to the chain to minimize "throw-off."

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

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

FUELING THE SAW

1. The FUEL MIX tank at top left corner of the saw is identified in raised letters. During fueling, take care that no sawdust or dirt enter the tank.

CAUTION: Select bare ground for fueling. Do not smoke or bring any flame near fuel. Move at least 10 feet from the fueling spot before you crank the engine.

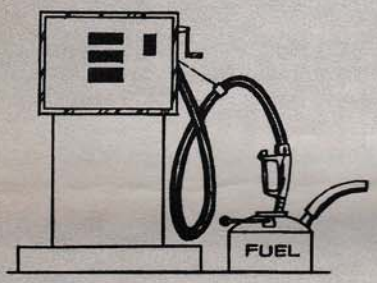
2. FUEL TO USE: The 2-cycle engine is lubricated by oil mixed with gasoline. The amount of oil required per gallon of gasoline depends on the type of oil used. Use only those gasolines recommended below. Always handle fuel in clean safety type fuel cans.

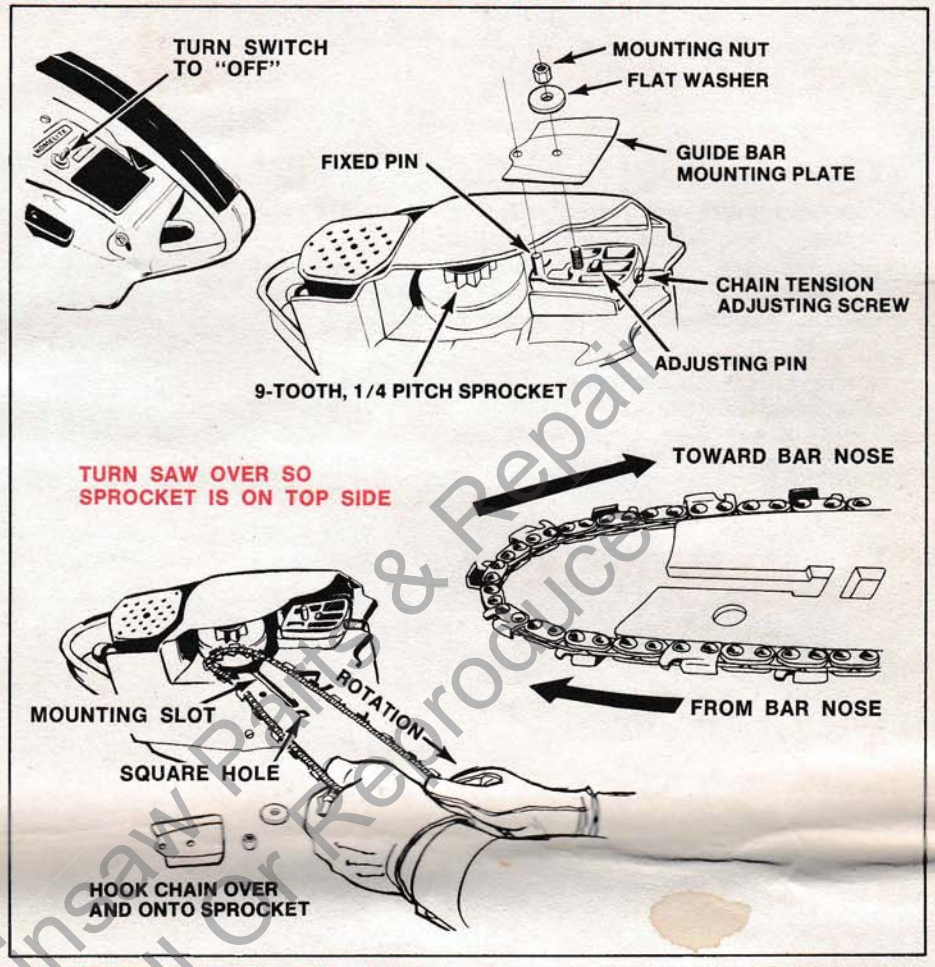
3. To be sure of the correct mixture, always measure out the recommended quantities of gasoline and oil accurately. Pour half of the gasoline into the mixing

GUIDE BAR and CHAIN ASSEMBLY

One 8 oz. can of HOMELITE® PREMIUM SAE-40 2-cycle oil can be mixed with 2 gallons of gasoline for 32:1 mix fuel.

Mix 8 oz. can of HOMELITE® SAE-30 2-cycle motor oil or another brand of SAE-30 weight 2-cycle motor oil with one gallon of gasoline.





container (never directly into the saw tank), pour in all of the measured-out oil. Now add the remainder of the gasoline and agitate or stir vigorously for at least one minute.

4. For best performance and longest possible service life, use PREMIUM HOMELITE® 32:1 Motor Oil (SAE-40) in the ratio of 1 part oil to 32 parts gasoline (1/4 pint oil per U.S. gallon of gas. or metric, 3% oil).

5. Use HOMELITE® 2-cycle (SAE-30) Motor Oil in the ratio of 1 part oil to 16 parts of gasoline 1/2 pint per U.S. Gal. Gas. or metric, 6% oil).

6. If neither of the above HOMELITE® oils are available, use any other good brand 2-cycle motor oil in the ratio of 1 part oil to 16 parts of gasoline (1/2 pint per U.S. gallon gasoline, or metric, 6% oil).

7. Avoid use of multi-grade oil products (10W-30, for example) or any other oils formulated for 4-cycle engines.

8. Many gasoline products are acceptable for use in this engine. However, the gasoline must be clean and fresh. Use regular grade, or low lead (0.5 gm/gallon maximum) gasolines.

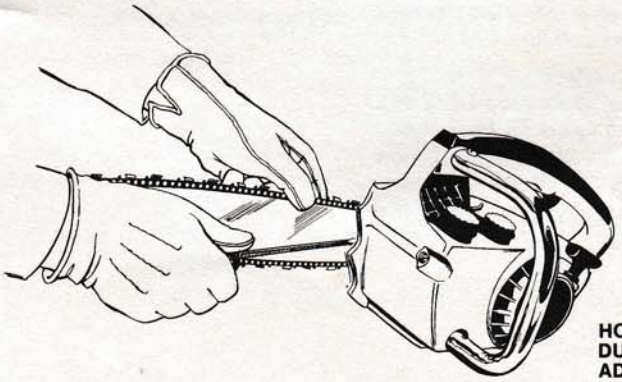
IMPORTANT: Wear gloves for protection against the sharp teeth whenever you are working on the saw chain.

1. Turn the switch to "OFF." Remove the mounting nut and flat washer, and the guide bar mounting plate from the mounting pad of the engine.

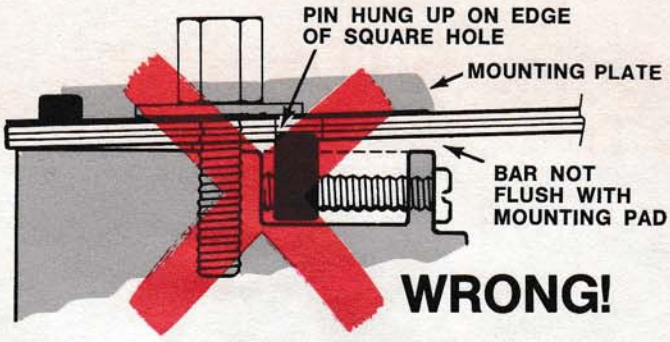
2. Place engine on work surface so guide bar mounting pad and sprocket are face up. Turn tension adjusting screw until adjusting pin is at rear of slot in mounting pad.

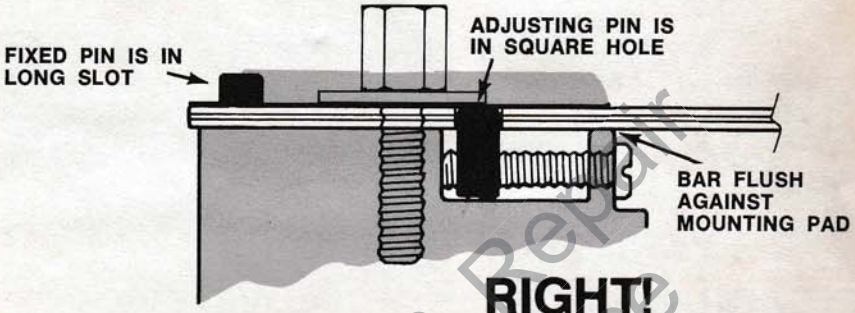
3. Unpack bar and chain. Straighten any kinks in the chain and lay it out in a loop. Cutting edges should face in the direction of chain rotation which is from bar nose toward sprocket along bottom edge of bar.

4. Put the chain tangs into the bar groove and pull the chain so there is a loop at rear of the bar. Holding chain in place, pick up bar and hook the loop over and onto the chain drive sprocket. Fit the bar into place so that the fixed pin and mounting stud are in the long mounting slot, and tension pin fits into the square forward hole.



HOLD UP NOSE OF BAR DURING TENSION ADJUSTMENT



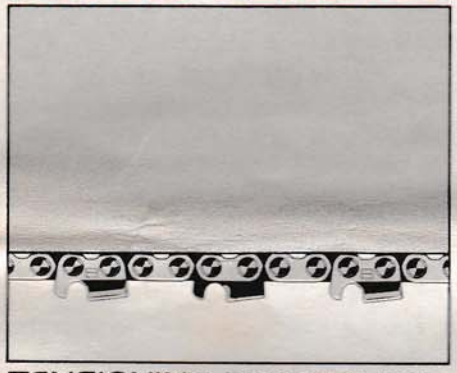


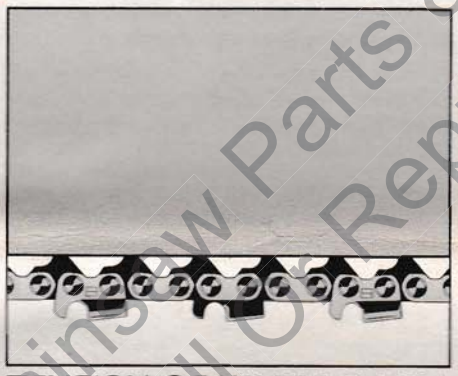
5. CHECK that the bar is flush against the mounting pad. Check that the pin fits cleanly into the hole—HOLD THE BAR IN FLUSH POSITION and put the guide bar plate, flat washer and mounting nut back on the saw.

6. Check that the bar and pin are still in place, and turn down the nut with a wrench until the bar is quite snug against the pad (and won't move off the adjusting pin) but is free enough to slide when the tension adjusting screw is turned.

7. Turn the tension adjusting screw clockwise to move the bar away from the sprocket. Keep turning until nearly all of the chain slack is taken up. Now, adjust the chain tension as instructed next.

CHAIN TENSION





TENSIONING PROCEDURE WHEN CHAIN AND BAR ARE COLD

(These instructions are for 1/4" pitch chain on this length of guide bar only.)

1. Proper tension is extremely important. The mounting nut should be loose to permit movement of the guide bar during tension adjustment. Hold up the nose of the bar during the adjusting procedure, and until the mounting nut has been tightened completely. The cold tension should be "snug" or taut like a chalk line—as much as possible without your feeling any binding as you pull the chain along the bar by hand. Increase the tension in this manner, and then tighten the mounting nut.

2. "Snap" the chain to remove any kinks (pull away from bar and let go several times). If this causes the chain to develop slack, retension as in Step 1.

3. Tighten the nut securely to lock the assembly at the proper tension. Check the tension. If it is correct, you are ready to make some cuts with the saw.

The chain will expand when warm and contract to the original setting as it cools.

TENSION OF WARM CHAIN

Know these facts:

1. A hot chain—so hot that you cannot hold it without discomfort while counting to 20—cannot be accurately adjusted because it will be contracting rapidly as you proceed. Always allow the chain to cool for a few minutes before making an adjustment.

2. A warm chain will hang down or sag. Leave it alone unless it hangs down so far that the chain tangs come right out of the bar groove. If this is the case, retension to where the warm chain hangs down only to about half the depth of the chain tangs at the center of the span.

CAREFUL: Upon cooling, the chain will be too tight on the bar and should be readjusted (per our instructions for the tensioning of "cold" chain) before the next use.

3. An underoiled chain gets hot and stiff and is likely to kink up, becoming too tight on the bar. If this occurs, check the oil level and the condition of the pick-up screen in the oil tank. Let bar and chain cool, then remove them. Clean them. Clean out the oil discharge hole in the guide bar mounting pad. Start up and run the engine for 30 seconds at full throttle. Note whether oil is discharged from the oil hole. If there is no discharge, or if the discharge is foamy or bubbly, have the saw checked out by your dealer.

HOW TO START, STOP and HOLD THE SAW CORRECTLY

PROPER GRIP AND HOLD ON SAW DURING OPERATION

1. Wear non-slip gloves for maximum grip and protection. Using the proper grip, hold onto the saw firmly with both hands when the engine is running.

2. The grip maintained on the handle bar with your *left hand* is of utmost importance. The only grip with which you can maintain control of the saw in the event it should jerk or kick back toward you is the one (illustrated) where you wrap your fingers around the handle bar, keeping the handle bar diameter IN THE WEBBING BETWEEN YOUR INDEX FINGER AND THUMB.

3. Your right hand wraps naturally around the throttle control handle in the correct manner described in Step 1. You have the option of using either trigger of the Twin Trigger™ dual control system. The front trigger should be depressed to control the throttle while you are starting the saw. The rear trigger is usually the one chosen for cutting, as it gives you more leverage.

4. During starting, hold the saw down firmly on a level surface with the bar and chain in the clear. Keep on the left side of the saw. Never lean across the saw or straddle the guide bar. Place your knee over the rear of the throttle control handle to help steady the saw. Hold down the front of the throttle control handle with one hand and depress the forward trigger with this hand to open the throttle for starting. Pull the starter grip. Do not use any technique which would bring your foot or leg near the saw chain.

5. Always keep your weight well balanced on both feet when cutting. Since you will be exerting moderate pressure to cut, guard against loss of balance by being ready to hold up on the saw as it cuts through the material.

STARTING AND STOPPING

1. Flip the ignition switch to "ON."

2. Push the choke lever all the way up to fully choke the cold engine.

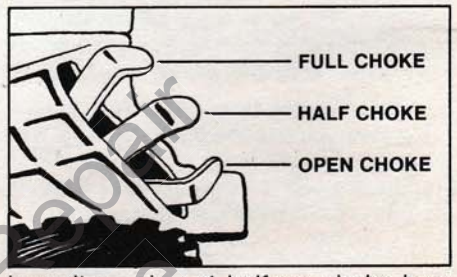
3. Hold the saw down as instructed in the previous section ("Grip and Balance"), and depress the forward position trigger.

4. Pull the starter grip out a short way until you feel the starter engage. Then pull cord briskly to give a fast cranking spin to the engine. (Do not pull to the very end or you may damage the starter.) Hold onto the grip to let it rewind smoothly.

5. CRANK UNTIL THE ENGINE FIRES. Normally, an engine that has not been run for some time requires three to five cranks just to prime with fuel. In cold weather, additional cranking may be required for initial prime. On the other hand, a recently run engine will usually start up on the first or second pull.

6. When the engine fires it may not keep running. If this occurs, push the choke lever down halfway before continuing with cranking. When it starts and runs, keep it running at halfway choke long enough to warm up the engine, then flip the choke lever down. NOTE: Any engine which has fired several times at full choke will start at half-choke.

IMPORTANT: Know how to operate the saw controls, and how to hold the saw during both cranking and operating.



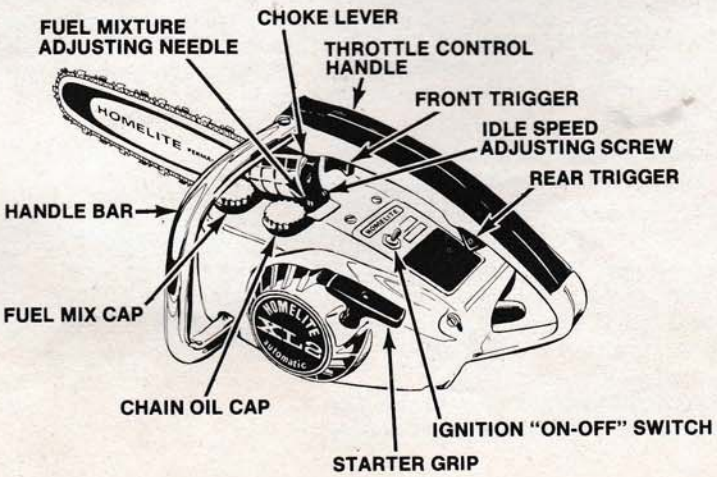
7. NOW YOU ARE READY TO OPERATE: Grasp the throttle handle with your right hand so you can control the saw with the rear trigger, and grasp the front handlebar with your other hand for normal cutting. Slide your right hand up the handle to control the saw with the front trigger when this position is more convenient.

8. Flip the switch to "OFF" to stop the engine.

9. To restart a warm engine (or any engine which has fired a few times), crank at half-choke. You may not have to depress the trigger to start if the engine is warm enough.

10. Normally, a hot engine needs no choking.

IMPORTANT: When you are through using the saw, relieve tank pressures by loosening the CHAIN OIL and FUEL MIX caps. Then retighten the caps.



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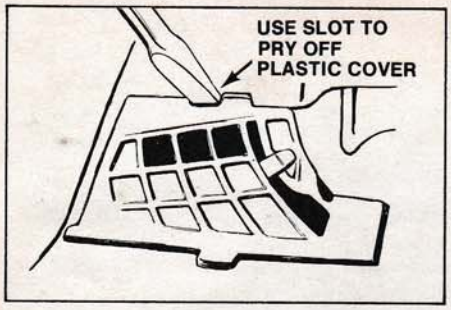
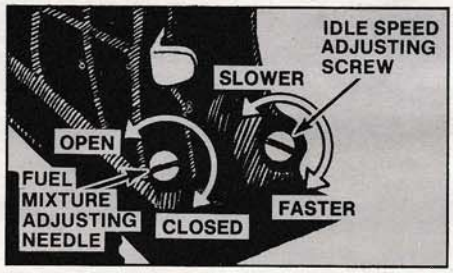




THE AIR FILTER

The spongy polyurethane air filter element removes dirt from the air. When it clogs up, the saw will smoke excessively and lose power. The filter should be changed periodically, but in an emergency, can be cleaned in detergent and water, or a cleaning solvent, and allowed to dry before use. The normal life expectancy of the filter is 10 to 15 hours of operation. However, extremely dirty operating conditions may cause the filter to clog in four or five hours.

TO INSPECT OR CHANGE AIR FILTER ELEMENT:

1. Locate the pry slot at top, center of the black plastic filter cover (just below top of handlebar). Use a thin screwdriver to pry off the cover.

2. Clean the area around the filter before removing the filter.

3. Install a new filter. As these filters are relatively inexpensive, you might consider the purchase of several spares so you will have a clean, dry filter to install whenever necessary.

4. Always fit the air filter element carefully into place and reinstall the plastic cover before you start the engine. Start the cover back on by putting the choke lever through the plate and placing tabbed bottom edge of the cover into position. Then, press cover into place with your fingers. WARNING: Never run the engine without the air filter.

CARBURETOR ADJUSTMENT

The carburetor is an all-position, diaphragm type having a factory-calibrated high speed mixture system for proper high speed performance. The carburetor may require some adjustment from time to time to achieve the desired idling characteristics. Always clean or change the air filter before attempting any carburetor adjustment.

Carburetors of saws which bear this circular sticker have had the standard circuit plate replaced with a high-altitude plate for optimum performance at high altitudes. WARNING: At low altitudes this modification will cause lean operation and overheating. DO NOT OPERATE SAW BELOW 5000 FEET UNLESS CARBURETOR CONTAINS THE STANDARD PLATE. If changing back to standard plate, remove the high altitude sticker from the saw.

ADJUSTMENT FOR STARTING

1. Cold engines should be started at full throttle (trigger depressed). No carburetor adjustments are necessary for full throttle starting or operation.

2. A hot or warm engine can be started either at full throttle or idle throttle, but may require carburetor adjustment if it will not start up or idle smoothly at idle throttle setting.

a) Turn the idle mixture adjustment needle slowly clockwise until it gently closes against its seat (do not force). Then open it 1-1/4 turns.

b) Turn the idle speed screw clockwise 1/2 turn at a time and keep trying to start the engine each time, until it does start and will keep idling.

ADJUSTMENTS AFTER ENGINE IS AT OPERATING TEMPERATURE

The saw should be started up and a few cuts made to warm it up, then idled and the following adjustment made:

1. Turn the idle mixture needle slowly in one direction and then the other, and leave it set where the engine idles the fastest.

2. If this idle speed is too slow, the engine will falter. Correct by turning the idle speed screw slowly clockwise to increase the speed until the saw no longer falters.

3. If the speed (in Step 1) is so fast that the chain rotates rapidly, turn the idle speed screw counterclockwise until the chain stops turning (but not any slower than this setting).

4. Any time the idle speed setting is changed to adjust the idle speed, always go back and readjust the idle mixture needle for best mixture as in Step 1.

WOOD CUTTING INSTRUCTIONS

GLOSSARY OF OPERATING TERMS

BACK CUT	**The felling cut made in back side of tree toward the notch.**
BORING CUT	**A blind cut made into the wood, principally with the nose of the bar.**
BUCKING CUT	**Usually any cuts made to section up a felled tree or log.**
FELLING CUT	**The back cut which causes the tree to fall.**
FELLING NOTCH	**A horizontal cut-out made on side tree is to fall, the inside edge of the notch being 90° to line of fall.**
HINGE WOOD	**Wood left uncut between the notching and felling cuts; hinge holds tree on stump, guides it over.**
"NO LOAD" SPEED	**Running the engine or saw at wide open throttle without applying any work load.**
OVERBUCKING	**Using bottom edge of bar to cut downward through a log.**
UNDERBUCKING	**Using top edge of bar to cut upward through a log.**
SPRING POLE	**Sapling bent and held down under tension by another fallen tree.**
SAW KERF	**The width of the saw blade or cutting chain including the set of the teeth; also the cut made by a saw blade or chain.**

RECOMMENDED ACCESSORY EQUIPMENT AND SUPPLIES

Except in the work area, always keep a scabbard over the guide bar and saw chain. Take along a supply of fuel mixture in safety type fuel cans, oil for the chain oiler, some plastic or wooden (not hard metal) wedges for bucking and felling, a sharp hatchet or single blade axe, and touch-up tools for chain maintenance. Under dry woods conditions, a fire extinguisher or shovel should also be available in case of fire.

PERSONAL ATTIRE

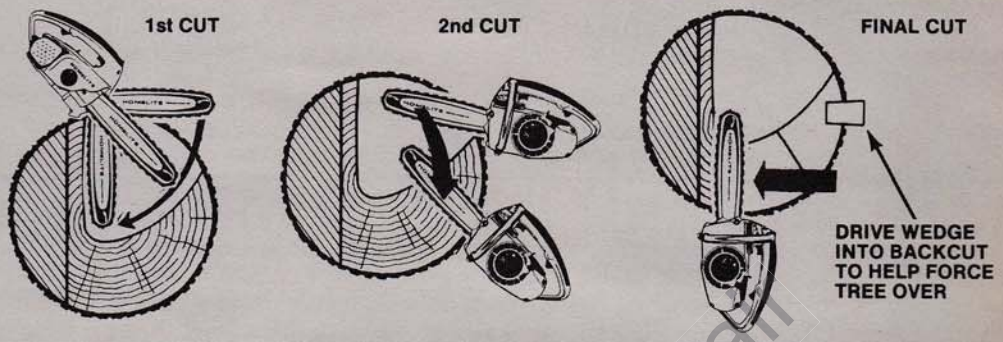
Select trim fitting garments that will not catch in the chain or underbrush. Wear cuffless pants and sturdy shoes with non-slip soles. Wearing non-slip gloves will improve your grip and keep your hands cleaner. A hard hat is recommended for wearing whenever you are working under large trees. Safety lens type eye protection should be worn. Persons using a chain saw regularly for many hours each day should be fitted for and wear hearing protection devices (head set type or ear plugs).

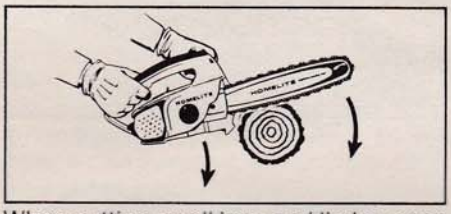
WORK AREA PRECAUTIONS

Prepare immediate cutting area by cleaning out undergrowth likely to interfere with operator and saw, and by removing dead material which could cause fire. Prepare a path of safe retreat to the rear and diagonal to the line of fall. Keep all bystanders from the work area.

BASIC SAWING TECHNIQUES

SEQUENCE USED TO FELL TREES UP TO TWICE BAR LENGTH IN DIAMETER



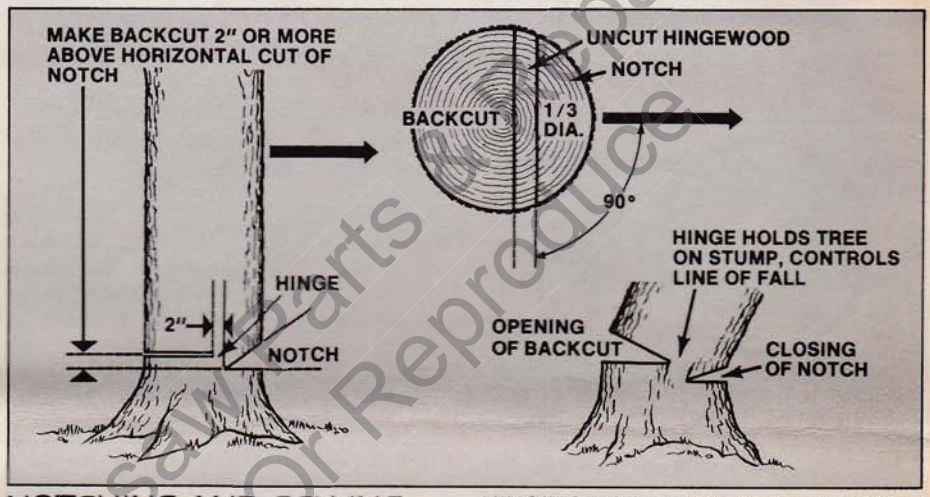


When cutting small logs and limbs, open the throttle fully just before letting the chain touch the wood. It is safest to cut with the saw bumper up against the wood. If you cut further out along the bar, the chain will have a tendency to pull you and the saw towards the work, so you must take care to brace yourself against this slight pull. (The reverse will be true if you are using the top of the bar to snip small limbs or "under" buck). Exert light feed pressure to cut straight through the wood, but be ready to ease off on the throttle the moment the cut is completed.

Cutting large logs or felling trees, do as above, but place the saw bumper right up against the wood so that you can pivot the saw at the bumper for best control and easy feeding.

THIS IS A SPRING POLE BENT DOWN UNDER HIGH STRESS.

WATCH OUT FOR "SPRING POLES" OR OTHER HIGH STRESS CONDITIONS where a log or tree could spring up or shift when stress is relieved by cutting.

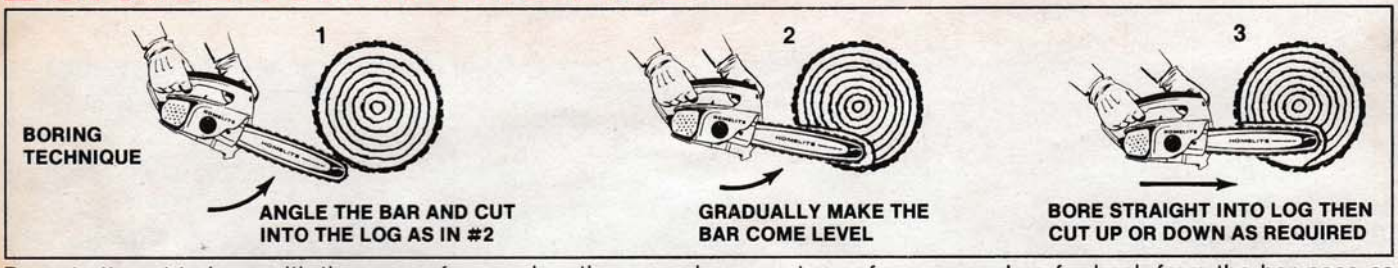


NOTCHING AND FELLING

When felling a tree, consider factors such as wind, the natural lean and balance of the tree, location of large limbs and whether the trunk is sound, hollow, or partially rotted. Watch for dead limbs overhead. Cut a notch 1/3 the diameter of the trunk and a right angle to the line of fall as shown. Make the back cut at least 2" higher than the notch and leave a hinge of uncut wood to guide the tree over (see hinging note). If there is any chance that the tree might not go over in the desired direction, or may rock back and bind the saw, stop cutting before the back cut is completed and use only wooden or plastic (not hard metal) wedges to open the cut and tilt the tree in the desired direction of fall. Never let a wedge contact the chain—kick-back will result. Large diameter trees should always be wedged over in this manner. Do not cut through the hinge. Large trees can be felled in a series of cuts with a short blade. As shown, the final cut must leave hinge wood parallel to the notch.

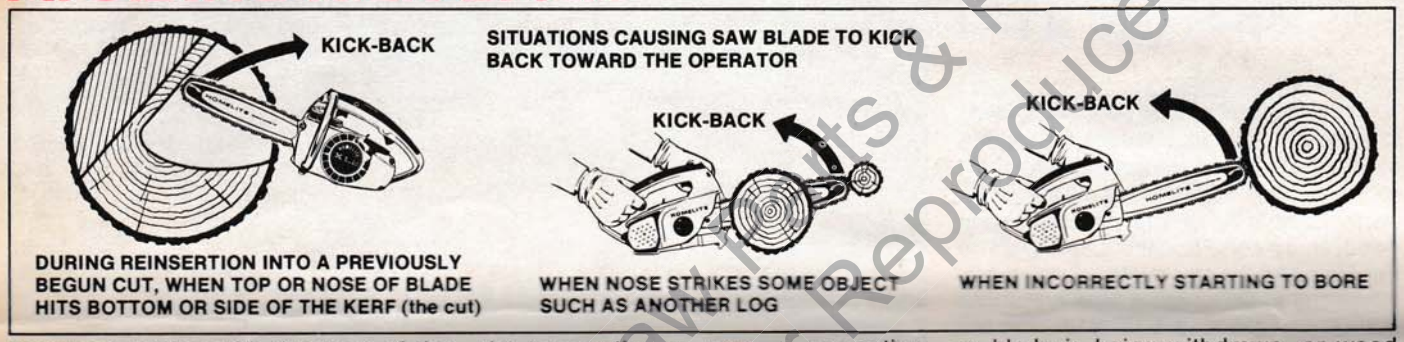
HINGING NOTE: The hinge wood is what controls the fall of the tree. If the hinge has the same thickness from end to end (backcut parallel to the notch) the direction of fall will be at a right angle to the notch. If the notching and back cuts are not parallel, the tree will fall more in the direction of the thicker end of the hinge. If the hinge is cut through, the tree could fall in any direction and might twist off the stump.

BORING WITH THE NOSE



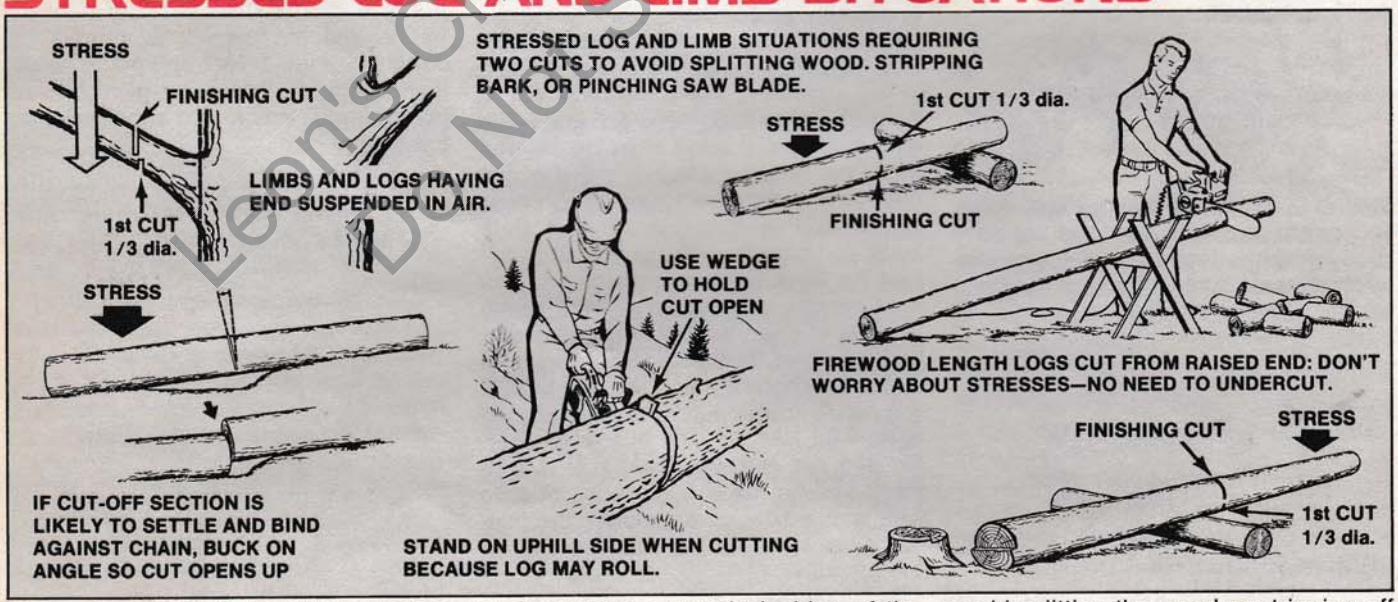
Do not attempt to bore with the nose of the bar until you have become proficient in operating the saw and are sure of your own capabilities as well as those of the saw. Boring is something resorted to only when there is no better way to make a cut. It may be necessary to bore when some obstruction—another tree or log, a rock or the ground—prevents you from placing the long edge of the bar against the wood. Boring is also employed to cut "blind holes" such as holes in fence-posts or cut-outs for log-cabin windows. One way to minimize the danger of the saw kicking back, is to begin with an angular cut, making contact with the wood as far back from the bar nose as possible; when this cut is deep enough to become a guide, exert downward pressure to bring the bar gradually into the line for boring. Then bore into the wood.

AVOIDING KICK-BACK



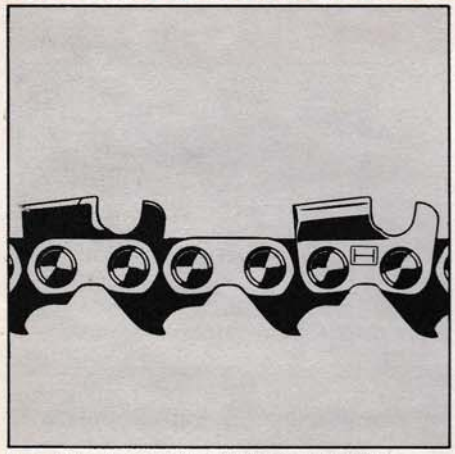
If you are cutting with the nose of the bar, you must be extra careful to protect against the possibility that saw may kick back. The saw will kick back any time the top section or upper nose section of the rotating chain hits any solid object such as the bottom of an incompleted previous cut, the side of the saw kerf as blade is being withdrawn, or wood when you are trying to start a boring cut, or other material next to the log you are cutting.

STRESSED LOG AND LIMB SITUATIONS



Remember wood is heavy and that it bends or flexes. As you cut through a log, you weaken it at the cut and it will bend *there* unless it is lying flat on the ground and under no stress. To avoid closing of the cut and pinching of the saw blade, therefore, you must cut a stressed log or limb in such a way that the cut will open instead of closing on the bar. In addition, you may wish to avoid splitting the wood or stripping off the bark. This can all be done as shown above. NOTE: With large logs, insert only a plastic or wooden wedge into the cut to hold it open.

MAINTENANCE and ADJUSTMENT



HOMELITE® SAW CHAIN

Your saw has a fast-cutting 1/4" pitch, .050" gauge HOMELITE® saw chain with a sprocket which matches it in pitch. When the chain is to be replaced, always have a new sprocket of matching pitch installed because a worn sprocket would be out-of-pitch and damage the new chain.

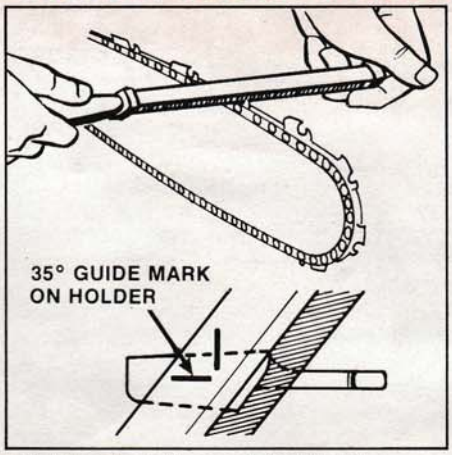
Not only for fastest cutting, but also for maximum life of the chain and all saw parts, always keep the chain in such good, sharp condition that bearing down hard to make the saw cut is unnecessary. When the sawdust turns from chips into a fine powder and you find yourself pressing hard to feed the chain,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

FILING EQUIPMENT

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

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

For new ¼" pitch chain, a 5/32" diameter (4mm) "fast-cut" round file (HOMELITE #92604) and holder (our Assembly A-92617) is required. When about half of the original tooth steel has been filed away, you should switch to a ⅛" diameter (3,2mm) file (#92605). The reason for switching to the smaller diameter file on a "short-filed" tooth is the slight taper of the tooth's top plate which reduces the size of the tooth.

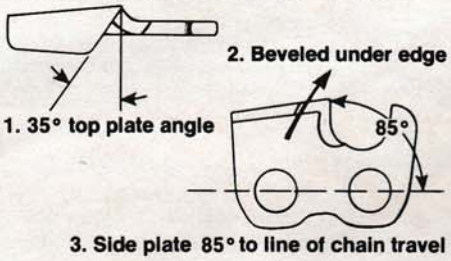


HOW TO FILE CUTTERS

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

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

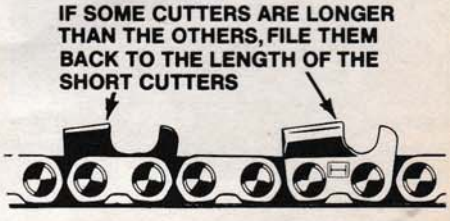
NOW EXAMINE YOUR FILING JOB— HERE'S WHAT YOU SHOULD GET:



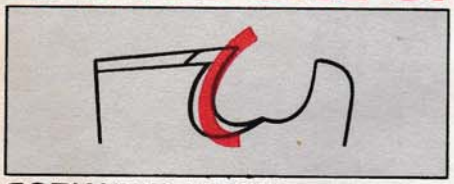
CORRECTIVE FILING

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

When teeth have hit hard objects such as stones, nails, etc., or cut dirt, sand, etc., the damaged area must be filed away before the tooth will cut or have the proper set. NOTE: All cutters must be filed equally back to this point. This can be done by hand. It is less expensive and easier to have it done on an electric chain grinder at your dealer or HOMELITE factory service office (See "Yellow Pages"). This is an extra advantage since it "trues" the chain to original factory shape.



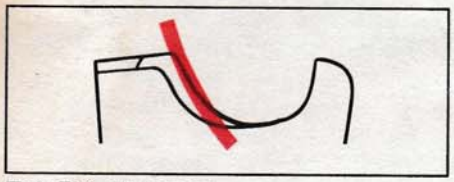
REFILE ANY TEETH HAVING ONE OR MORE OF THESE FAULTS:



FORWARD HOOK

Chain will grab and jerk, producing rough cutting

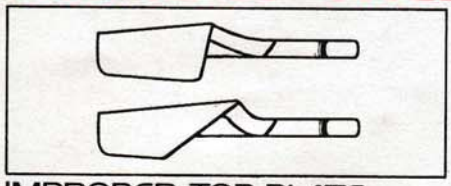
Caused by excessive downward filing pressure, or tip of file held too low on tooth.



BACK SLOPE

Chain resists entering wood (scrapes instead of cutting wood). Causes excessive heat and wear to bar and chain.

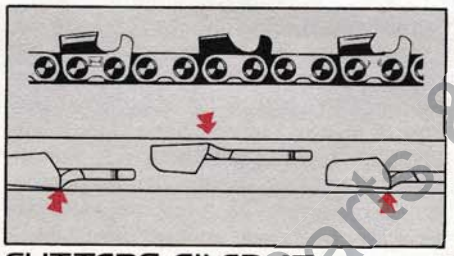
Caused by lowering handle end of file or holding file too high on the tooth.



IMPROPER TOP PLATE ANGLES

Blunt chain requires too much feed pressure. This top plate angle causes chain to bind, produces a rough cut, robs power from saw, and increases bar groove wear.

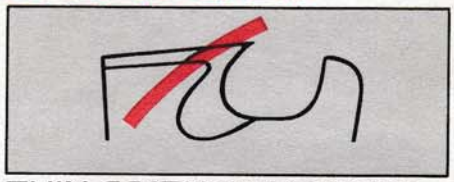
Caused by holding file at wrong angle or letting it drift or rock during the stroke.



CUTTERS FILED AT NON-MATCHING ANGLES

Chain will not cut at its best. May cut off line or "run" to one side, drag may slow down motor.

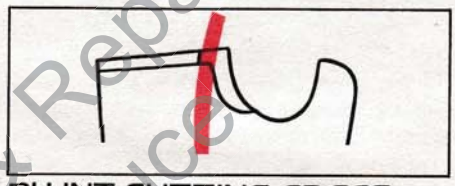
Caused by letting pressure and filing angle vary from tooth to tooth or one side filed with different angles and lengths than the other.



THIN FEATHERED EDGES

When they almost immediately break off, you have a dull chain. Usually found on chain filed with a hook (see "forward hook").

Caused by holding file with handle too low, or pressing down too hard on file.

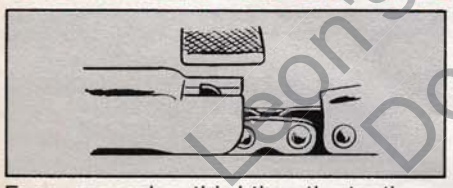


BLUNT CUTTING EDGES

Although edge is durable it won't cut properly; scrapes wood, robs power and produces dust instead of chips.

Caused by holding file too high on face of tooth, or keeping file handle too high.

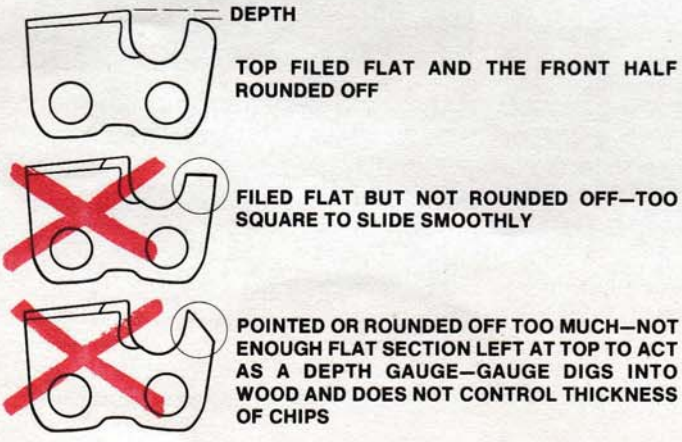
HOW and WHEN TO SET DEPTH GUAGE CLEARANCE



Every second or third time the teeth are sharpened, or if a large amount of steel is removed from the cutters, the depth gauges should be jointed uniformly to a depth of .020 inches.

Use depth gauge tool #92630 and a safe-edge (no teeth on edge) flat file. Fit the tool over the chain so that the slotted end of the tool points toward the bar nose and the depth gauge projects up through the slot. File the depth gauge flush with the top of the tool. File all gauges to this height.

If the gauges are too high, the chain teeth will not get a good bite; if too low, the teeth will take too large a bite, causing the chain to grab and jerk. If some gauges are higher than others, the chain will cut off line, favoring the side having the lowest gauges.

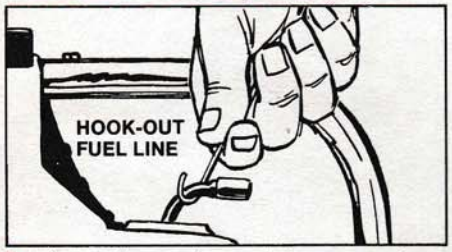


TOP FILED FLAT AND THE FRONT HALF ROUNDED OFF

FILED FLAT BUT NOT ROUNDED OFF—TOO SQUARE TO SLIDE SMOOTHLY

POINTED OR ROUNDED OFF TOO MUCH—NOT ENOUGH FLAT SECTION LEFT AT TOP TO ACT AS A DEPTH GAUGE—GAUGE DIGS INTO WOOD AND DOES NOT CONTROL THICKNESS OF CHIPS

TANKS, CAPS and PICK-UPS



1. The only regular maintenance steps to be performed are cleaning of the screen type oil pick-up filter hanging inside the chain oil tank, and changing of the sintered bronze fuel pick-up filter in the fuel tank. This should be done once each year or every 50 hours of operation.

2. For access to the oil or fuel pick-up, unscrew the tank cap. Bend a piece of wire (or straighten out a paper clip) to form a hook. Reach inside the tank with the hook. When you hook the pick-up line, draw it up carefully out of the filler hole, and pull out the filter on the end.

3. A symptom of fuel starvation (engine lacks power, will falter on application of cutting load) requires a process of checking to determine the cause. Causes in the order of probability are: dirty fuel filter, leaking or kinked fuel line, clogged "duck-bill" vent valve in fuel tank, dirt or other trouble inside carburetor, and air leaking into the crankcase. Use this checking sequence:

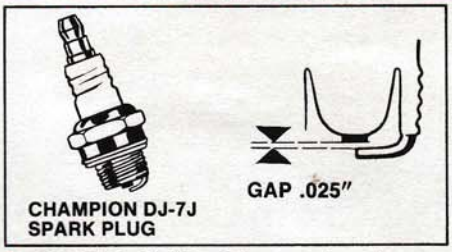
a) Change the sintered bronze filter. If this does not restore power:

b) Loosen fuel cap just a little to check vent valve operation. If saw has more power when cap is loose than when tight, have the "duck bill" vent valve changed.

c) Check out the fuel line all the way from the pick-up filter to the carburetor inlet. Replace if cracked, kinked or distorted, or if the ends are split or otherwise loose-fitting.

d) Take saw to a dealer if fuel starvation symptoms persist.

IGNITION, COOLING and EXHAUST SYSTEMS



1. SPARK PLUG: The engine has a miniature, self-sealing tapered seat type Champion #DJ-7J. Always check to make sure the connector boot is firmly pressed on the spark plug.

Incorrect engine oil, incorrect fuel mixing, wrong carburetor mixture adjustment, or excessive flooding of the engine during starting, will cause deposits to form on the plug electrodes. After many hours of use, the plug may also require cleaning and regapping of the electrodes. The firing gap is .025". Always clean the insulator and the electrodes prior to setting the gap. Always bend the side electrode toward the center electrode when setting the gap. Rounded or pitted electrodes should be filed smooth and square to induce the spark to jump the gap.

2. While the plug is out, the ignition system should be tested to see whether there is a good spark being generated by the magneto:

a) Using a 1/4" diameter metal rod (a screw works nicely), insert the rod into the spark plug boot to contact the spring connector inside.

b) Holding the spark plug boot well back on the insulation, position the rod so there will be an air gap of 1/4" between the rod and a metal edge of the muffler.

c) With switch turned to "ON", crank the engine briskly and observe whether a spark jumps the 1/4" gap. NOTE: In bright sunlight you can hear the "snap" of a strong spark even though you may not be able to see it.

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

3. Cooling air drawn in by the fan, flows between the cylinder fins and is discharged around the muffler. In order for the engine heat to be transferred from the fins to the air, the fins must be clean and the air passage open. Do not let sawdust, leaves and dirt build up in this area. If engine appears heavily clogged, remove the engine cover assembly for complete cleaning (see Repair Section page 14).

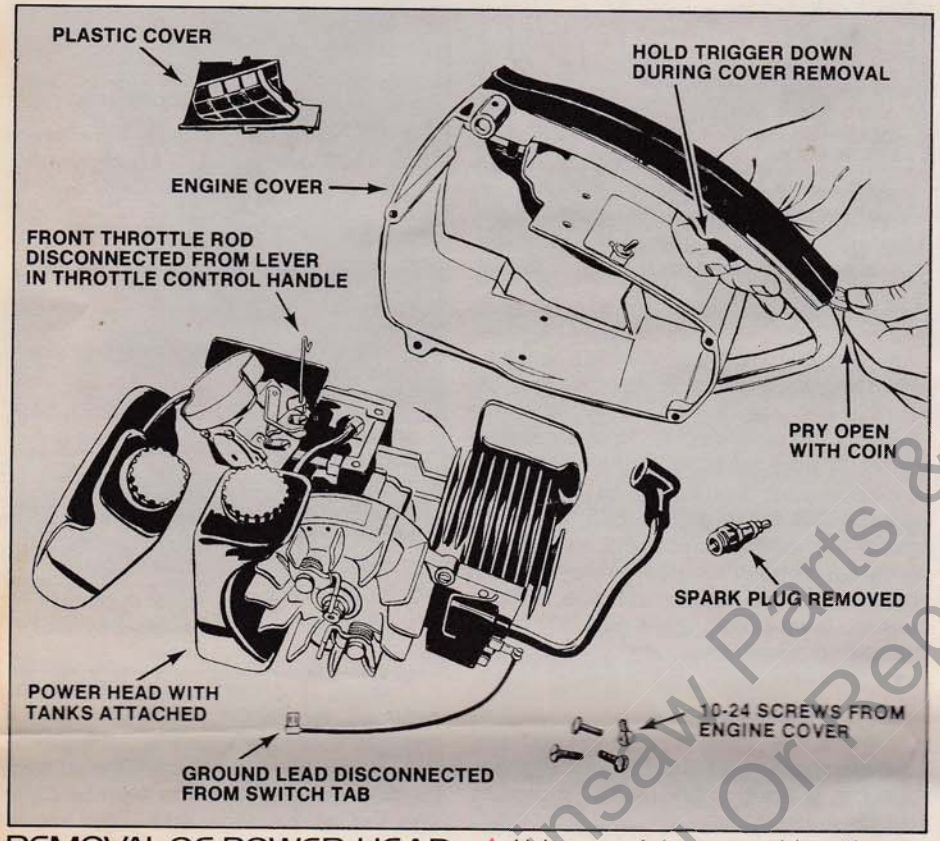
4. Occasionally, the muffler should be removed from the engine and the cylinder fins cleaned down to bare metal. At the same time, deposits should be scraped from all surfaces of the muffler, and the scrapings removed before muffler is reassembled. The owner should keep watch of the small louvered discharge holes in the muffler, and should pick them clean whenever deposits are noted.

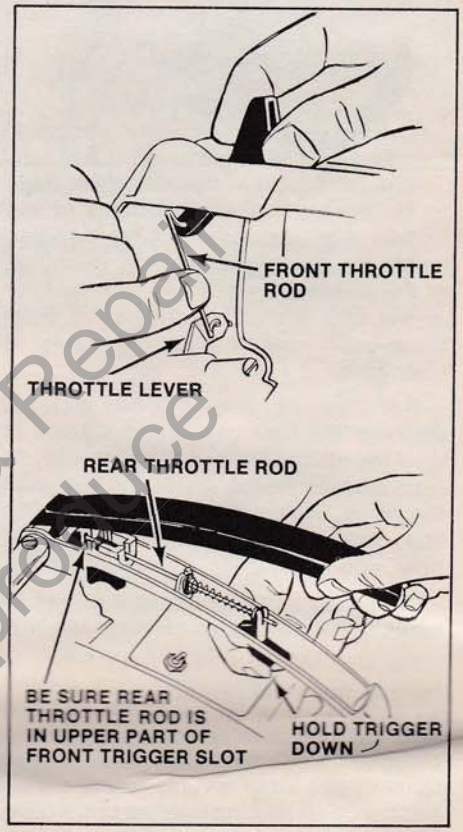
If the spark plug is suspected of being faulty, try a new one in its place. If the new one works, discard the old one. However, the condition of the old plug tells a story about your engine:

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

REPAIR SECTION

Although your HOMELITE Servicing Dealer is equipped to make all necessary repairs on your saw, the information supplied here is for owners who wish to know something of the construction of the saw, and who may wish to perform some of the repair work or end-of-season maintenance themselves. Replacement parts may be obtained from your dealer. For complete satisfaction always use genuine HOMELITE replacement parts and accessories.





REMOVAL OF POWER HEAD

The power head and tanks should be removed for cleaning and inspection every 50 operating hours. Under certain conditions, as when oil or fuel spilled down inside the engine cover has resulted in a grimy accumulation, the power head should be removed for cleaning.

1. Remove the guide bar and chain.

2. Remove the screw through 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. Disconnect the switch lead at one end, and take out the spark plug.

NOTE: To prevent the throttle rod and spring from flying out, pull and hold down the rear throttle trigger while performing step 4.

4. Using a coin or screwdriver tip, pry between the handle and the black handle cover at the rear to produce enough of a bow for the locking tab to clear the casting. Then lift the cover at the front. Immediately place your hand on the throttle rod and spring so they don't fly out.

5. Remove the rod and spring and the rear trigger.

6. Grasp the black plastic front throttle lever and pull it out of its cradle in order to unhook it from the front throttle rod (which is connected to the carburetor throttle lever on the other end). Lift out the front trigger. Pull the power head out of the engine cover.

INSTALLATION OF POWER HEAD

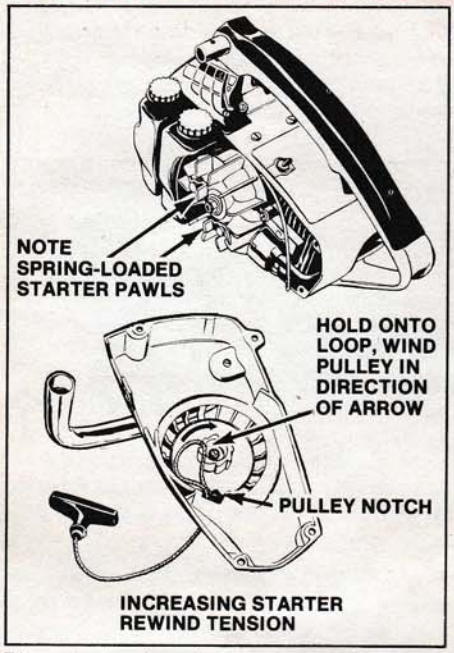
1. While starting power head back into the engine cover, be sure to push the spark plug wire into approximate position.

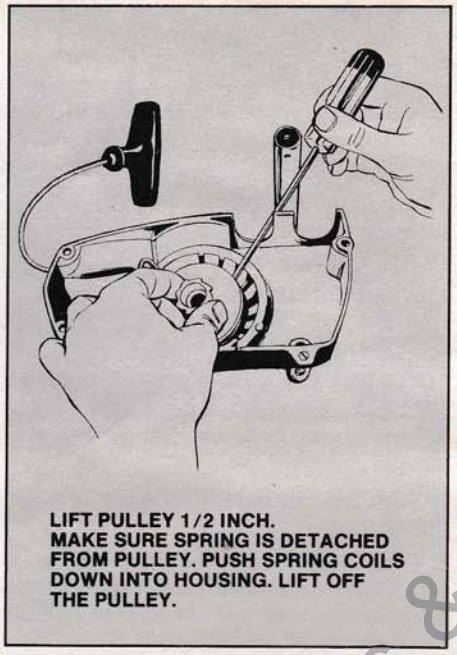
2. If the front throttle rod came off the carburetor throttle lever, hook it back on. Push power head into place in cover. Connect ground lead to switch tab and install spark plug and connect the spark plug wire to it.

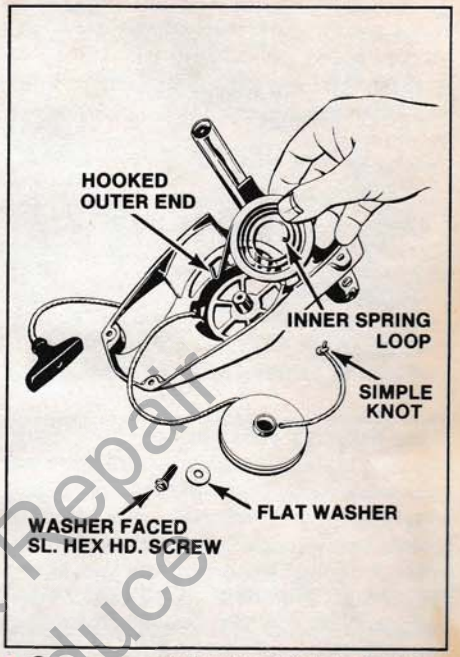
3. Put front trigger back in handle. Connect the front throttle lever to the throttle rod and put it in its cradle in the handle.

4. Put the rear trigger into the cradled position. Assemble the spring on the throttle rod and position them (as shown). NOTE: pull and hold rear trigger downward, once you get the rod and spring positioned properly. This helps keep the assembly in place. Pick up the black handle cover. Rehook it in place at the front of the handle and press down at the rear until the rear tab locks the cover in place. Try out both triggers—if they do not work the throttle properly, something may have slipped out of place.

RECOIL STARTER REPAIRS







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

1. Remove starter/fan housing (page 14).

2. 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 cord entry hole in the housing. Hook up a loop of cord between the housing and the pulley. Grasp the loop and wind one turn tension (or more if necessary) in a clockwise direction. Hold pulley from turning. Pull the cord back out through the hole.

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

WARNING: Put on safety glasses and gloves before removing the pulley.

4. 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.

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

6. Clean the pulley post and the pulley.

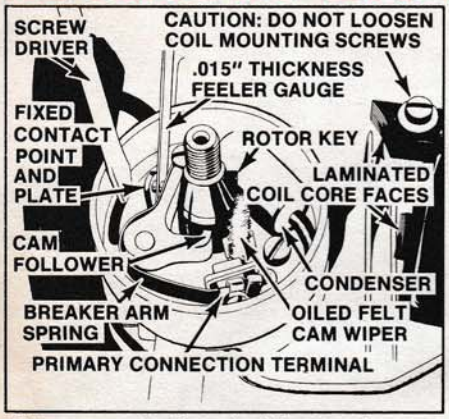
7. To replace the cord, cut old cord and remove it. Push new cord through cord hole and draw the end out through the pulley slot. Tie a simple knot tightly in the other end. Coat it with acetone type cement to set the knot and trim the cord neatly up to the knot. When dry, pull the cord to draw the knot through the hole. Run the cord through the hole in the housing, thread the starter grip onto the cord and knot this end. Draw the knot into the grip.

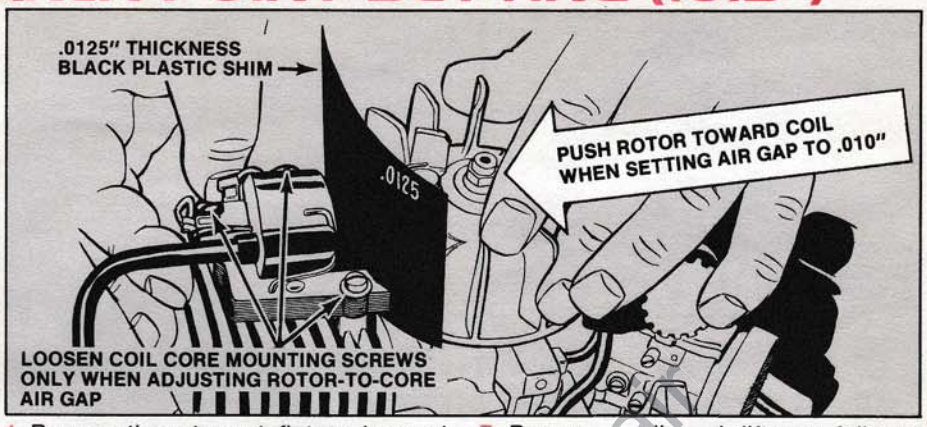
8. Grease the pulley post lightly (not too much grease) and drop the pulley into place over the post. Pull cord out to the end to straighten it, then wind pulley counterclockwise to wind cord onto it.

9. Test for spring engagement by pulling cord out and letting it rewind. If it does not rewind all the way, pull cord out and hold pulley from turning. Pull up a loop of cord between housing and pulley (use the notch) and wind 1 turn extra tension onto the pulley by holding cord and using it to turn the pulley clockwise. Hold pulley from turning, and pull cord out until it runs straight through the housing hole onto the pulley. Let pulley rewind. If grip does not rewind up to the housing, repeat this procedure to add one more turn at a time until grip comes up to the housing. Now add one additional turn of tension in the same manner.

10. Secure pulley with the flat washer and screw. Press the housing lightly against the rotor while pulling the starter cord a short distance and letting it rewind until the housing clicks flush against the engine cover. You may then safely secure it with the four screws previously removed. Fasten the handlebar to the engine cover with one screw at the top.

MAGNETO BREAKER POINT SETTING (.015")





If the magneto (see test for spark, page 13) fails to deliver a good spark on every crankshaft revolution, the breaker points may be dirty or burned. The breaker points are located behind the magneto rotor. Although the prong and jack screw type Rotor Remover #A-24747, available as a service tool, is used by dealers for rotor removal, the rotor can usually be removed (after removal of the rotor nut) by holding the rotor and power head free of support and giving the end of the shaft a light tap with a small hammer. WARNING: Do not strike such a heavy blow that you could damage the shaft threads.

NOTE: Do not loosen the filister head coil mounting screws or you will be obliged to obtain a piece of .0125" shim stock (not a metal thickness gauge which won't work) with which to reset the coil core legs-to-rotor air gap (see step 9, below). The air gap adjustment employing the attraction of the coil core laminations to the rotor magnets and using above shim stock (#24306) to cover both legs, sets the gap automatically to the desired tolerance of .008" to .012" (0,20-0, 30mm).

1. Remove the rotor nut, flat washer and rotor.

2. Turn the crankshaft until the breaker points open.

3. Clean the breaker box and the area around the points. Examine the points. Breaker points and condenser should be replaced as an assembly.

4. Turn the shaft until the breaker arm (fiber) cam follower is riding on the high spot of the crankshaft cam section, just past the breaking edge of the cam.

5. Slide a piece of .015" plastic shim stock (our point gauge #22486) between the points. Loosen the two fixed contact plate screws. Using a screwdriver for leverage, push the fixed contact plate toward the movable breaker plate and feel by sliding the gauge back and forth. Leave the gauge in place and tighten the fixed contact screw.

6. Remove the feeler gauge. Insert a clean piece of cardboard (such as a business card) between the points. Turn the shaft to the point of low contact of the cam section and slide the cardboard between the points to polish them clean. Turn shaft to high point of cam contact.

7. Remove cardboard, lift cam follower a short distance away from cam and let go abruptly so it snaps back. Do this two or three times to dislodge any small particles of dust.

8. Reassemble: Align rotor keyway with key in crankshaft taper and start rotor onto taper by hand. Put the flat washer and rotor nut on the shaft. Turn down the nut. This draws the rotor up onto the taper and secures the assembly. Make sure the nut is on tightly. CAUTION: Maximum torque setting is 220 pound-inches (253 kg-cm). Nut must be tight enough to hold the rotor, but do not overtighten or you may damage the crankshaft.

9. Reset rotor air gap if coil mounting screws were loosened: Turn rotor to locate the two magnets at the core legs of the coil. Put the .0125" shim stock (#24306) between the rotor and the coil legs. Loosen the coil mounting screws. Push the rotor towards the coil and hold while tightening the screws. Remove the shim stock.

CLUTCH and SPROCKET REPAIR

See page 18 for exploded view of clutch, sprocket and drum.

1. The clutch drum and sprocket should be renewed whenever a new chain is being installed. It also should be renewed if cracked, badly scored, or out-of-round, or if the chain has worn deep impressions in the sprocket.

2. The clutch drum and sprocket is retained in the crankshaft with a large flat washer and a retaining ring. Spread the ends of the ring and lift it out of the ring groove on the end of the shaft. CAREFUL: Wear safety glasses and use a rag to catch the ring, as it may fly off. Remove the flat washer, drum and sprocket, and the needle bearing.

3. The clutch drum contains a pressed-in bearing shell loaded with 21 grease-packed needle rollers. The drum, sprocket and bearing are available as a complete assembly. The bearing may be replaced separately by your dealer if necessary. The needles may fall out of the shell during removal of the clutch drum. If they do fall out, a new bearing should be installed, because it is difficult to repack the needles and know that all 21 are in place. Less than a full complement of needles will result in spalling of the crankshaft. Always replace the clutch drum, sprocket and bearing as a complete assembly.

4. The one piece, ductile iron, "S" design clutch should not be removed by anyone lacking the proper special equipment. If the clutch fails to disengage at proper idle speed, DO NOT USE THE SAW until it has been inspected by your dealer.

5. To reassemble, put the parts back in reverse of the order of removal. If the retaining ring was distorted during removal, use a new one and make sure it fits properly in the ring groove.

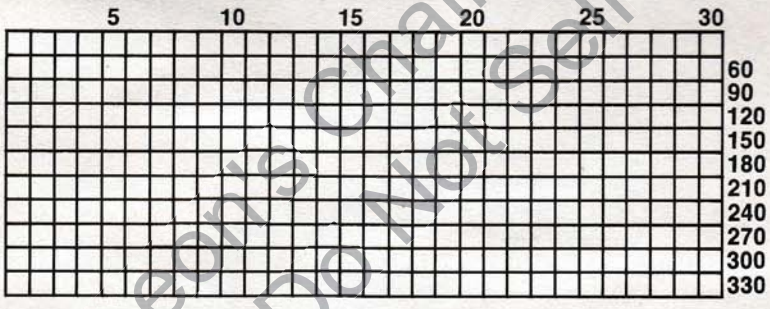
MAINTENANCE CHART

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. CHECK MUFFLER LOUVRES: PICK CLEAN ANY CLOGGED LOUVRES		✓		
8. LOWER CHAIN DEPTH GAUGES		✓		
9. CHECK FUEL FILTER			✓	
10. CLEAN SPARK PLUG AND GAP TO .025"				✓
11. DISASSEMBLE MUFFLER, AND CLEAN MUFFLER AND CYLINDER EXHAUST PORT.				✓
12. CLEAN CYLINDER FINS, AIR INTAKE AND ENGINE COOLING PASSAGEWAYS.				✓

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

PERFORMANCE LOG

Keep track of the use made of your saw by recording the number of times saw is refueled.



FILL IN THIS INFORMATION FOR YOUR RECORD

MODEL NO. _____

SERIAL NO. _____

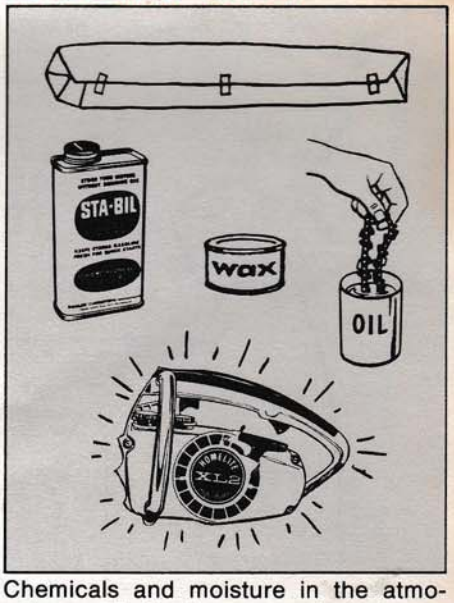
DATE OF PURCHASE _____

NAME OF DEALER _____

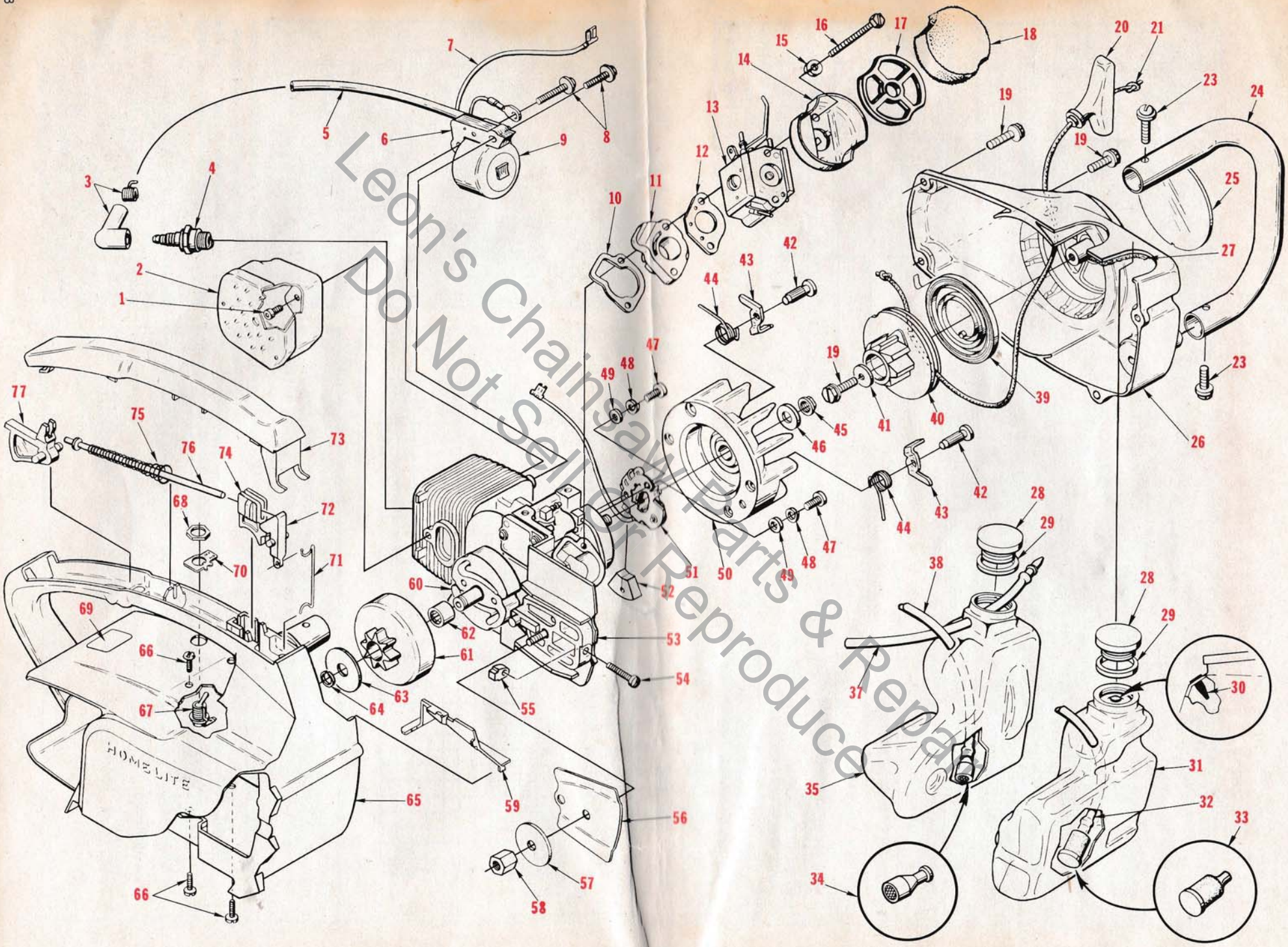
ADDRESS _____

INVOICE NO. _____

STORAGE



Chemicals and moisture in the atmosphere will attack an unprotected saw. Store the chain in oil. Clean the guide bar and wrap it in oiled paper or an oily rag. Add STA-BIL to fuel (according to directions on the Sta-Bil can) and fill fuel tank to the top. Run engine for a few seconds on this mixture and stop engine by pushing the choke lever all the way up. Apply auto wax to painted external surfaces of the engine. Store saw in a cool, dry place away from garden chemicals, fertilizers and de-icing salts.



1 SCREW-soc. hd., 10-24 x ½ (1)
2 MUFFLER
3 SPARK PLUG TERMINAL
4 SPARK PLUG-Champion DJ-7J
5 HI-TENSION LEAD
6 COIL CORE
7 STOP SWITCH LEAD
8 SCREW-fil hd. w/flat washer, 8-32 x ¾ (2)
9 COIL
10 INTAKE MANIFOLD GASKET
11 INTAKE MANIFOLD
12 CARBURETOR GASKET
13 CARBURETOR-HDC-15
14 FILTER CUP
15 LOCKWASHER (2)
16 SCREW-hex hd., 10-32 x 2¼ (2)
17 FILTER RETAINER
18 AIR FILTER
19 SCREW-hex washer hd., 10-32 x ⅝ (5)
20 STARTER ROPE GRIP
21 STARTER ROPE-#4, 30" long
23 SCREW-pan washer hd., 10-32 x ⅝ (2)
24 HANDLE BAR
25 DECAL-XL2 Automatic
26 STARTER HOUSING
27 FUEL TANK VALVE FILTER
28 CAP-tanks (fuel & oil) (2)
29 TANK CAP GASKET (2)
30 FUEL TANK CHECK VALVE
31 FUEL TANK
32 FUEL LINE
33 FUEL LINE FILTER
34 OIL LINE FILTER
35 OIL TANK
37 PRESSURE LINE-oil
38 OIL LINE
39 REWIND SPRING
40 STARTER PULLEY
41 FLAT WASHER-pulley (1)
42 STARTER PAWL PIN
43 STARTER PAWL
44 STARTER PAWL SPRING
45 ROTOR NUT
46 FLAT WASHER-rotor (1)
47 SCREW-point set (2)
48 LOCK WASHER (2)
49 FLAT WASHER (2)
50 ROTOR
51 BREAKER POINT SET
52 LEAD SEAL-stop switch
53 SHORT BLOCK
54 SCREW-guide bar adjusting
55 PIN-guide bar adjusting
56 GUIDE BAR PLATE
57 FLAT WASHER
58 GUIDE BAR NUT
59 AIR FILTER COVER
60 "S" CLUTCH
61 SPROCKET & DRUM
62 NEEDLE BEARING
63 THRUST WASHER
64 RETAINING RING
65 ENGINE HOUSING
66 SCREW-pan hd., 10-24 x ½ (4)
67 STOP SWITCH
68 STOP SWITCH NUT-hex
69 DECAL-instructions
70 "ON-OFF" PLATE
71 THROTTLE ROD-front
72 THROTTLE LEVER
73 HANDLE COVER
74 TRIGGER-front
75 THROTTLE ROD SPRING
76 THROTTLE ROD-rear
77 TRIGGER-rear

HOMELITE®

A textron DIVISION

PORT CHESTER, N.Y. U.S.A.

We warrant each chain saw manufactured by HOMELITE to be free from defects in material and workmanship.

We will repair this chain saw free of charge during the first ninety days if it is defective.

However, if the saw is used to produce any income (commercial or rental use) this warranty is in effect for 30 days only.

To exercise your warranty take the saw to a HOMELITE dealer or HOMELITE branch office.

HOMELITE
a division of Textron Inc.

SPECIFICATIONS and INFORMATION

Engine Type	2-cycle, loop-scavenged with Power Boost™ combustion chamber.
Dry Weight	7 lb., 3 oz. (3,26 kg)
Displacement	1.6 cu. in. (26, 2cc)
Bore and Stroke	1-5/16" x 1-3/16" (33,34mm x 30, 16 mm)
Operating Speed	7000—8000 rpm
Idle Speed Range	2900—3200 rpm
Bearings	Roller bearings throughout.
Connecting Rod	One-piece, hardened steel.
Starter	Rewind, nylon rope, one piece pulley.
Clutch	One-piece ductile iron, centrifugal.
Muffler	Softone™ diffuser type
Throttle Control	Twin Trigger™ dual control system.
Ignition System	Breaker point magneto.
Ignition Timing	23° BTDC
Breaker Point Air Gap	.015" (0, 38mm)
Coil Core-to-Rotor Air Gap	.008"—.012" (0,20mm—0,30mm)
Spark Plug	Champion DJ-7J
Spark Plug Electrode Gap	.025" (0,64mm)
Chain Oil Capacity	6.1 U.S. fl. oz. (180cc)
Chain Oil System	Automatic positive displacement, piston type pump.
Chain Oil Tank Pick-Up Filter	Mesh screen
Air Filter	Polyurethane sponge (replace when dirty)
Carburetor	HDC-15 w/fuel pump
Intake Valving	Flat reed valve into crankcase
Fuel Tank Capacity	8.45 U.S. fl. oz. (250 cc)
Fuel Pick-Up Filter	Sintered bronze.
Continuous Operating Time per Filling	15 minutes.
Ratio Regular Gasoline to Oil in Fuel	
with PREMIUM HOMELITE® 32:1 SAE 40 Oil	32:1
with HOMELITE® SAE-30 (or other 2 cycle) Motor Oil	16:1
Recommended Gasoline	Regular or low lead, 85 to 100 octane.
Disapproved Fuel Ingredients	Leaded high-test gasolines; multi-grade and non 2-cycle engine oil products.
Sprocket	9-tooth, 1/4" pitch
Guide Bar	12" hard nose
Chain	HOMELITE 1/4" pitch, .050" gauge.
Chain Speed per 1000 rpm engine speed	375 fpm (114,3 M/min.)

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