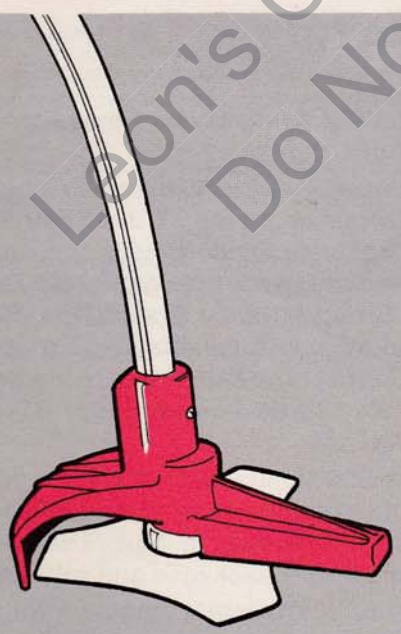


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HOMELITE®
OWNERS
OPERATION & MAINTENANCE
MANUAL

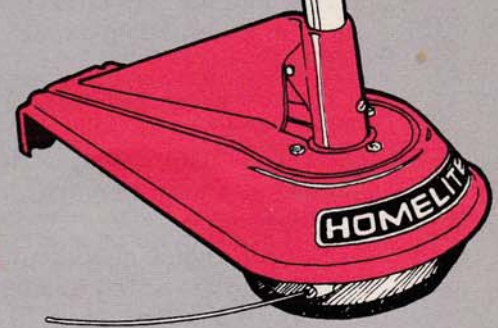
ST-200
STRING TRIMMER / BRUSH CUTTER



TRI-ARC® BLADE

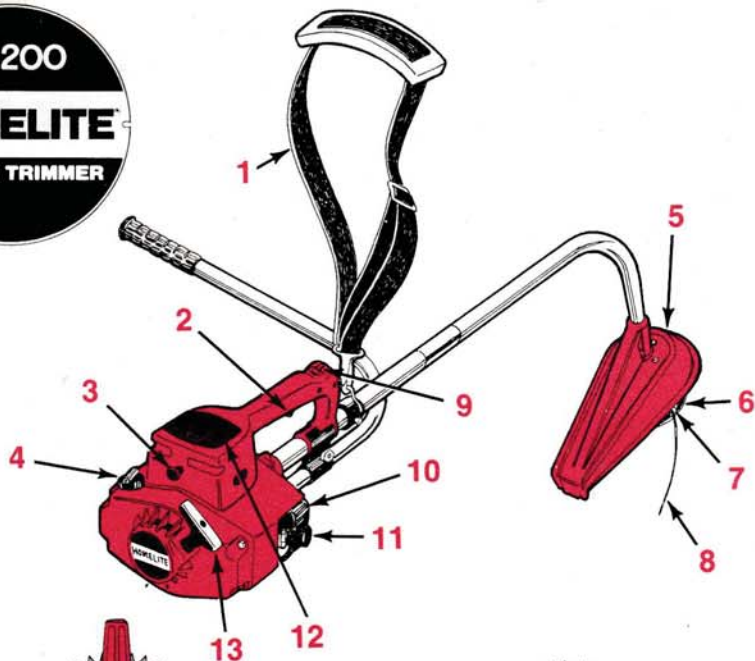


SAW BLADE

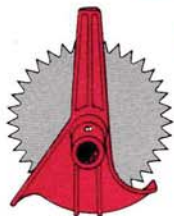


STRING TRIMMER

313
105
1/78



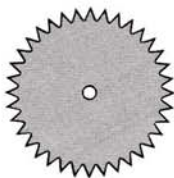
1. HARNESS
2. THROTTLE TRIGGER
3. CHOKE
4. FUEL CAP
5. STRING HEAD HOUSING
6. STRING HEAD
7. EYELET-STRING (Pat. Pending)
8. STRING
9. IGNITION "RUN-STOP" SWITCH
10. MUFFLER
11. SPARK PLUG
12. AIR FILTER COVER
13. STARTER GRIP



- 14. BRUSHCUTTER KIT**
#A-94479 CONTAINS BLADE HEAD AND SAW BLADE PARTS FOR CONVERSION OF ST-200 TO A BRUSHCUTTER.



- 15. TRIM GLIDE**
BLISTER PACK PART # D-94429



- 16. SAW BLADE**
BLISTER PACK PART #D-94469-1



- 17. TRI-ARC® BLADE**
BLISTER PACK PART #D-94422-1



- 18. REPLACEMENT STRING**
BLISTER PACK PART # DA-93954 CONTAINS 75 FEET OF STRING PREWOUND ON REPLACEMENT SPOOL AND WITH WELDNOT™ (Pat. Pending) ANTI-WELD STRING FEED TUBE PREASSEMBLED ON STRING.

THE FACTS OF STRING TRIMMER OPERATION MODEL ST-200

The ST-200 is designed to handle the roughest growths of grass and weeds. Care should be taken to feed into the vegetation only as fast as the string can cut. Overfeeding causes excessive string wear and breakage.

The exclusive Idle-Line™ String Advance System (Pat. Pending) is fully automatic. Yet operator control is maintained to prevent unexpected or unneeded string advance. It's simple as 1-2-3 to advance string:

1. Run the engine at full throttle for a second or two, allowing the string to whirl in "free" air.
2. Allow the unit to return to and remain at idle (no throttle) speed for an additional second or two.
3. Resume cutting with a fresh supply of string.

When the string is worn very short before being allowed to advance, or the spool is nearly empty, several full throttle-to-idle cycles may be required to reestablish the full 20-inch cutting diameter. For

further details of string advance operation, refer to page 10 of this manual.

The famous Super 2 Chain Saw Engine was selected and modified for the ST-200 String Trimmer. The modifications chiefly provide the wide-range throttle speed sensitivity required for the Idle-Line™ Automatic String Advance System. But the engine still runs on a 2-cycle fuel mixture of gasoline and motor oil. There are no batteries to recharge, and no extension cord to tie you and your ST-200 to a power outlet.

This Owner's Manual includes instructions (on page 15) for the conversion and maintenance of the ST-200 to a Brushcutter or Saw. The conversion parts and blades are packaged and sold separately.

Please read this Owner's Manual through carefully and make sure that you understand how to operate the ST-200 properly and in safety.

BASIC SAFETY PRECAUTIONS

- The operator must wear full eye protection.
- Leg and foot protection — full length slacks and sturdy shoes — should be worn to protect against small objects thrown by the unit.
- Always use the harness when operating the unit.
- Do not wear loose articles such as necklaces, scarfs or ties which could be sucked into the engine air intake or entangled in the rotating string.
- Long or continuous exposure to high noise levels, such as in the operation of a gasoline engine-powered unit, 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."
- Do not let any part of your body contact the hot muffler or cylinder. The muffler is the black box next to the spark plug. It will become hot while the unit is being operated and will remain hot for a short period after shutdown.
- Keep all children, spectators and pets away from where the unit is being operated. The unit can throw small objects.
- Keep gasoline and fuel in cans designed for the safe storage of gasoline fuels. Do not smoke or bring any flame or sparks near the fuel.
- Fuel the engine outdoors over bare ground. Wipe up any spilled fuel completely. Move at least 10 feet (3 m) from the fueling spot before starting the engine.
- Do not operate if there is a fuel leak. A fuel leak can cause a fire.
- After use drain all gasoline from the unit and then run unit dry.
- Keep the unit head close to ground level, and use it in a slightly angled position which will cause the trimmings to be thrown away from your body.
- Run this engine only out-of-doors. Carbon monoxide exhaust fumes can be lethal in a confined area.
- Do not engage in horse play with the unit. Do not leave the unit unattended where it could be started up by persons untrained in its operation.
- Air leaking into the engine through a crack or faulty seal, is also dangerous because it can cause overspeeding.
- Disconnect the spark plug when servicing the ST-200.
- Never operate a machine that is damaged, improperly adjusted, or is not completely and securely assembled. All maintenance and service other than that given in the maintenance instructions in this Owner's Manual should be performed by competent Service Personnel. If improper tools are used to remove the flywheel, or hold it during unit disassembly, structural damage to the flywheel could occur which could cause the flywheel to burst.
- Do not operate the unit while holding it with one hand. Use both hands with one holding the handlebar and the other hand holding the engine housing handle.

SAFE STRING TRIMMER USE

- Use only Homelite Monofilament String designed for use with the Model ST-200 String Trimmer. Improper string could cause problems with the Automatic String Advance System.* Monofilament string should not cause serious injury to anyone who follows these precautions for safe String Trimmer use.
- Do not attempt to touch or stop the string when it is rotating.
- Under no circumstances should metal wire or metal reinforced string be used, because pieces can break off and become dangerous projectiles.
- Leg and foot protection — full length slacks and sturdy shoes — should be worn to protect against the whirling string and small objects thrown by it.
- Keep all children, spectators and pets away from where the String Trimmer is being operated. The whirling trimmer string can throw small objects.
- Always use the harness when operating the unit.

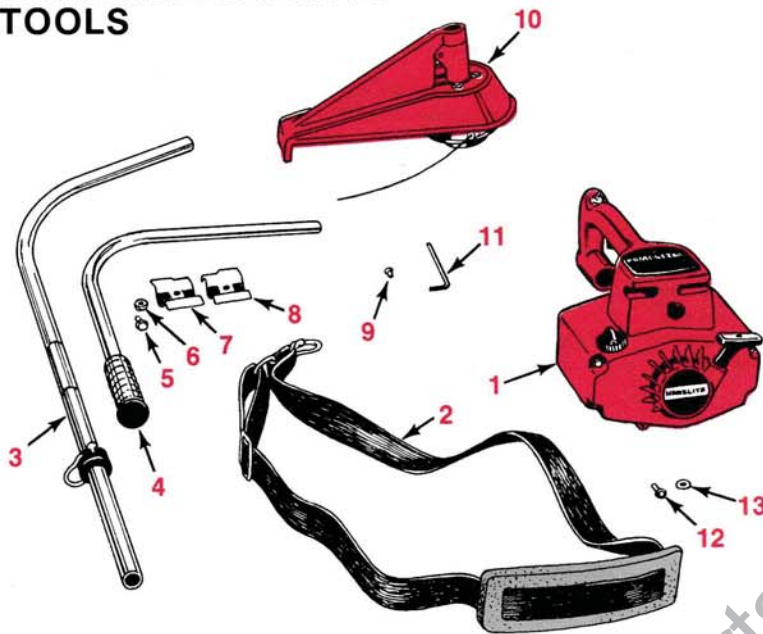
*Pat. Pending

SAFE BLADE HEAD USE

- For safe operation of the saw blade, begin cutting on the designated blade area as shown on page 17.
- Use only blades designed and manufactured by Homelite for the Blade Head. Never modify the String Trimmer Head for blades.
- Do not attempt to touch or stop the blade when it is rotating.
- Always use the harness supplied with the ST-200 when using the Blade Head.
- Leg and foot protection — full length slacks and sturdy shoes — should be worn to protect against the whirling blade and small objects thrown by it.
- Keep all children, spectators and pets away from where the unit is being operated. The whirling blade can throw small objects or may cut someone if they are standing to close.
- Scything with the saw blade should be done with extreme care and caution.
- Watch for wire, metal or glass objects when cutting. These objects could cause injury by being thrown at you, or if caught in the blade, could damage the blade.
- To maintain control of the unit, hold the unit with firm grip.
- Do not cut anything wider than 3/4 inch with the tri-arc blade or a violent kick could occur.
- If wood, vines, wire, etc. should jam the blade and keep it from turning, shut the engine off before removing the obstruction. Turn the unit off by flipping the ignition switch to "STOP."
- Always keep the blades sharp.

ASSEMBLY INSTRUCTIONS

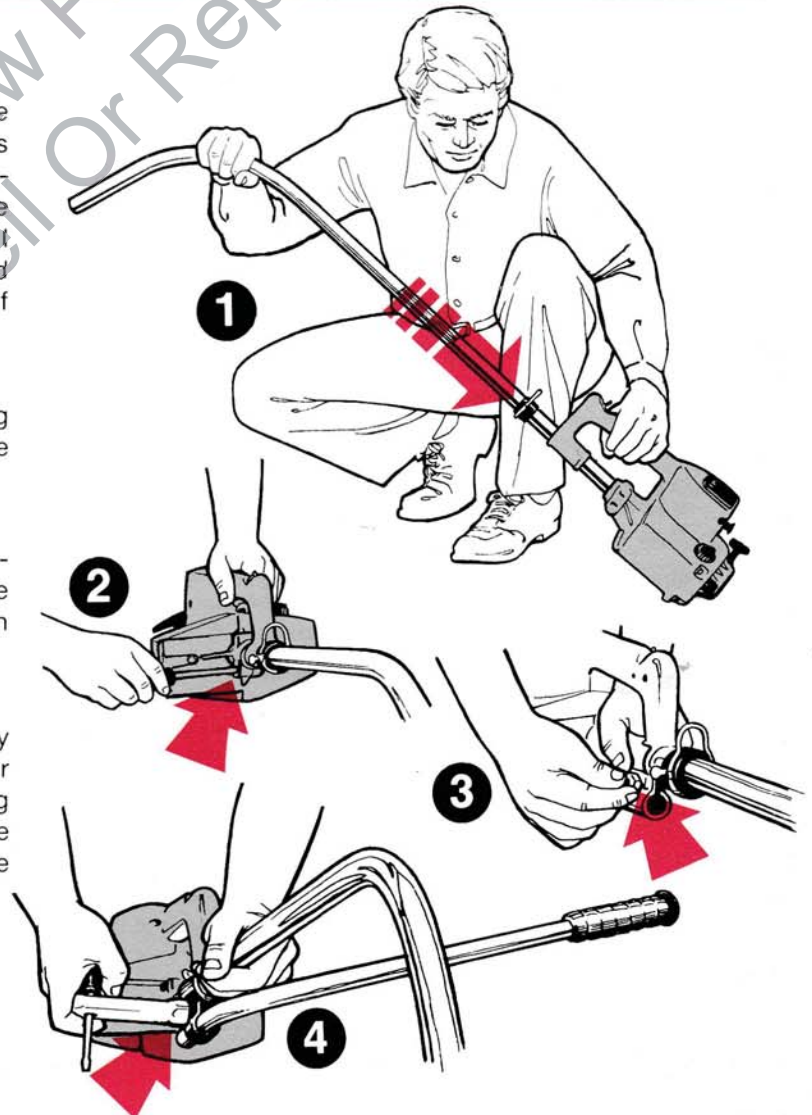
UNASSEMBLED PARTS & TOOLS



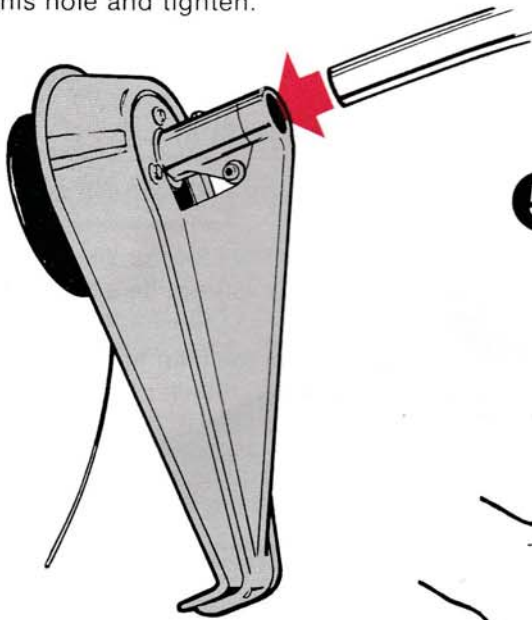
1. ENGINE HOUSING
2. HARNESS
3. DRIVE SHAFT HOUSING
4. HANDLE BAR
5. CARRIAGE BOLT
6. HEX NUT
7. LEFT CLAMP
8. RIGHT CLAMP
9. #6 SELF-TAPPING SCREW
10. STRING HEAD HOUSING
Includes String Head, Spool and String, and Spool Retainer
11. HEX KEY
12. SOCKET HEAD CAP SCREW
13. WASHER

ASSEMBLY

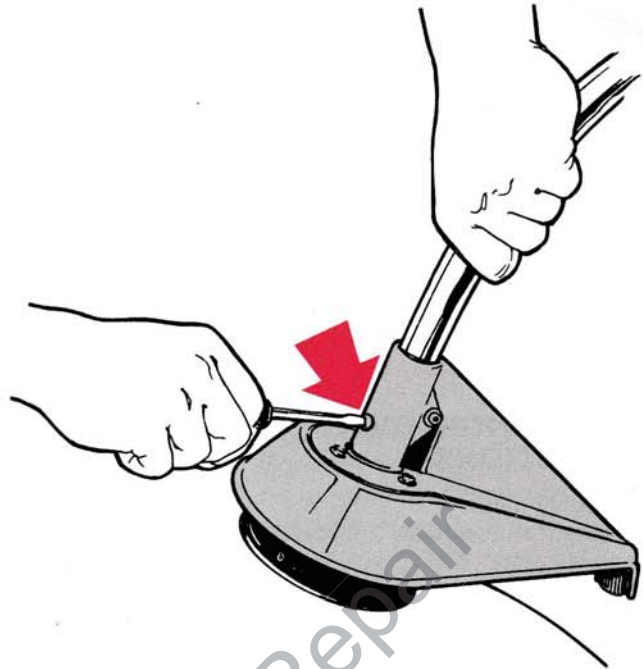
- 1 Push the drive shaft housing into the handle hole in the String Trimmer engine housing as shown. Be sure the drive shaft housing is pushed in as far as it will go. Twist the drive shaft housing back and forth until it will physically go in no farther. If not inserted far enough the flexible drive shaft inside of the housing may not engage.
- 2 Tighten the bottom clamp screw on the String Trimmer engine housing. This will secure the drive shaft housing.
- 3 Assemble the left and right clamps on the bottom of the engine housing handle. Fasten the clamps with the carriage bolt. Do not tighten completely.
- 4 Insert the handle bar into the hole formed by the left and right clamp. Adjust the handle bar to a comfortable position and finish tightening the bolt. NOTE: The handle bar should be positioned on the left side of the engine housing.



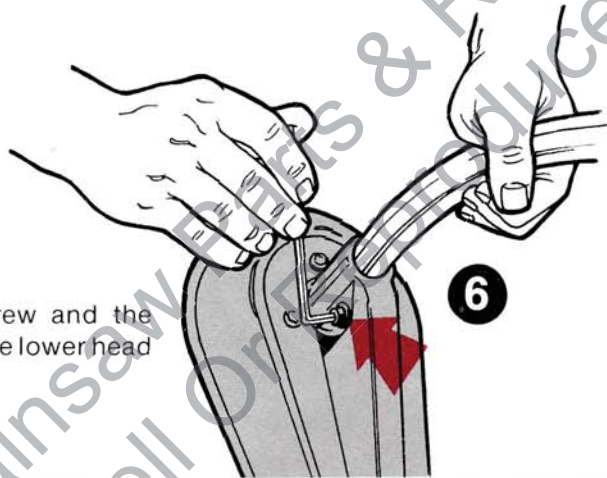
- 5 Insert the drive shaft housing into the lower head housing. Line up the small hole in the lower head housing with that in the drive shaft housing. Insert the #6 self-tapping screw in this hole and tighten.



5

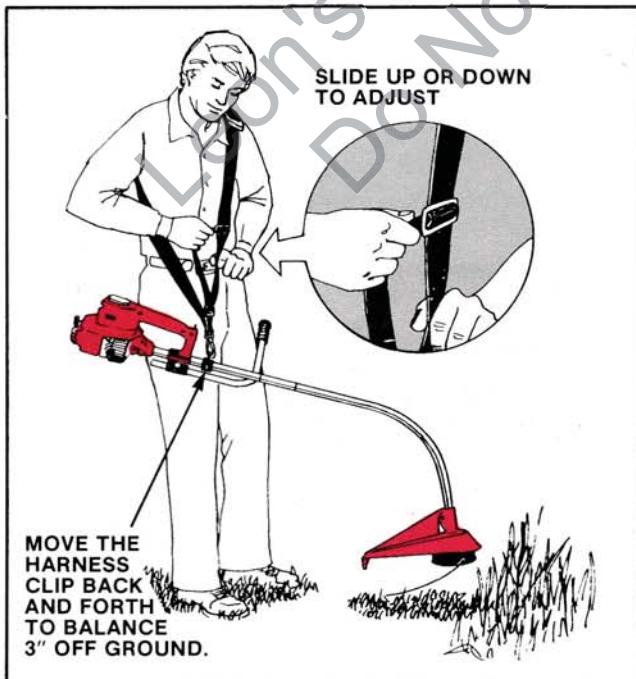


- 6 Install the socket head cap screw and the washer in the hole on the side of the lower head assembly and tighten.



6

ADJUSTING THE HARNESS



Clip the harness to the metal hanger on the drive shaft housing. Be sure the hanger is securely fastened. Put the harness on as shown. Adjust the strap by sliding the buckle up and down. Adjust the harness so that the String Trimmer is balanced. The lower head assembly should be off the ground about 3 inches. The harness should be adjusted so that it is comfortable for you. NOTE: The harness and the harness pad are replaceable. Order from your Homelite dealer harness #A-94470 and harness pad #94476.

WARNING:

Do not operate the unit without the harness in place. While wearing the harness, always keep the body between the engine housing and the handle bar. The harness can become disconnected from the unit during operation. Watch for this. As long as the harness is properly attached to the unit the danger of being cut is probably zero.

PREPARING FOR USE

FUELING

WARNING:

Always pour and mix the fuel outdoors over bare ground. Move at least 10 feet (3 m) from the fueling site before starting the engine.

FUELING INGREDIENTS AND PROPORTIONS

1. ENGINE OIL:

Homelite® Premium 2-cycle 32:1 Engine Oil is recommended. This should be mixed in the ratio of 1 part oil to 32 parts of gasoline (4 oz. per U.S. gallon of gasoline or 3% oil). You may also use **Homelite® 2-cycle 16:1 Engine Oil** or any other high quality 2-cycle engine oil. These should be mixed in the ratio of 1 part oil to 16 parts of gasoline (8 oz. oil per U.S. gallon of gasoline or 6% oil).

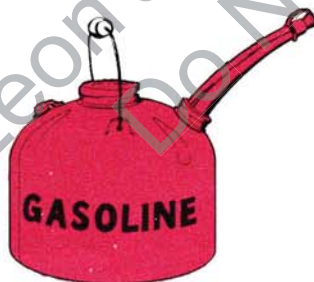
2. FRESH GASOLINE:

We recommend a regular grade gasoline, either leaded or unleaded. Premium (Hi Test) gasoline can be used occasionally, but prolonged use will contribute to spark plug fouling. The gasoline must be clean and also fresh. Gasoline begins to age as soon as manufactured. We have found gasoline to be unfit for small engine use after 90 days from the date of purchase. However, if treated with an anti-oxidant fuel stabilizer such as STA-BIL,®* when newly purchased, the gasoline may be kept "fresh" for a longer period. Follow the directions on the STA-BIL®* can.

HOW TO MIX FUEL THOROUGHLY

NOTE

Gasoline and oil do not mix readily. Prolonged shaking or stirring is required.



1. Always use an approved type fuel can designed to hold gasoline fuels. Never mix the fuel directly in the fuel tank of the 2-cycle engine, because it cannot be done with good results.
2. Measure out the quantities of gasoline and oil which are to be mixed as fuel. Pour half of the gasoline into your fuel can, then all of the measure of oil.

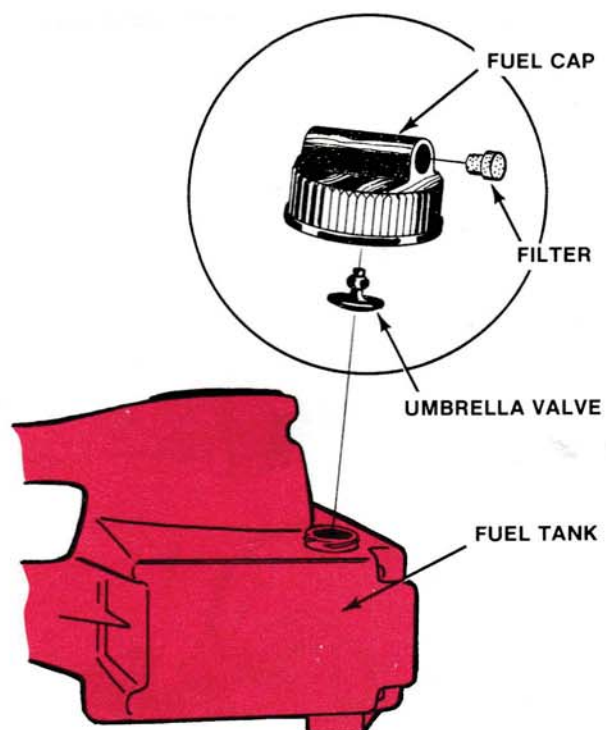
3. Stir with a clean paddle, or agitate can vigorously to mix the gasoline and oil. Then pour in the rest of the gasoline measure.
4. Now stir or agitate the contents of the can vigorously to be sure of a uniform mixture.

HOW AND WHEN TO FUEL

1. The fuel tank cap is the black cap at the rear of the engine housing.
2. Untwist and remove the fuel cap. Rest the cap on a clean surface so it will not be a source of fuel contamination.
3. Hold the unit so that the filler hole is uppermost. Pour in fuel carefully, fill near the top, but avoid spillage (by not overfilling).
4. Screw the fuel cap on tightly. Wipe up any fuel spillage immediately.

FUEL SYSTEM INFORMATION

The fuel cap contains a filter and an umbrella type check valve. A clogged filter will cause failure to accelerate, and inability to reach the speed required for actuation of the automatic string advance mechanism. A leaking fuel cap (faulty umbrella valve) could possibly be a fire hazard. Repair of the filter and check valve should be done by one of our factory-owned Homelite Service Branches or by an authorized servicing dealer.



*STA-BIL is a product of Knox Laboratories, Chicago, Illinois 60616

STARTING AND STOPPING

OPERATING CONTROLS

IGNITION SWITCH



The ignition switch is an ignition grounding button or "kill switch." Flip the switch to the "STOP" position to stop the engine.

CHOKE

The choke has three positions: OUT for full choke effect, HALFWAY OUT for half choke effect, and IN for wide open (No choke effect). Choking off the air intake enriches the fuel mixture and is required only for starting a cold engine.

HOLDING DURING CRANKING

Lay the unit down on a flat bare surface. The unit should be rested on the lower string housing support and the engine housing. Hold the unit down with your left hand and pull the starter with your right hand.

WARNING

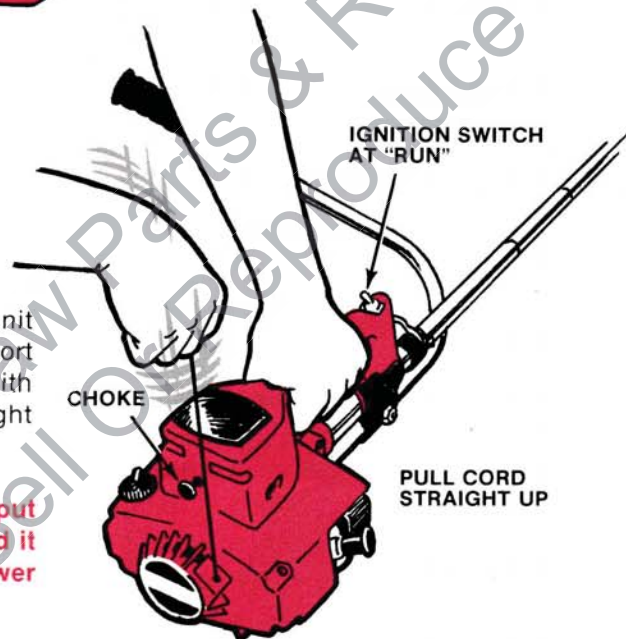
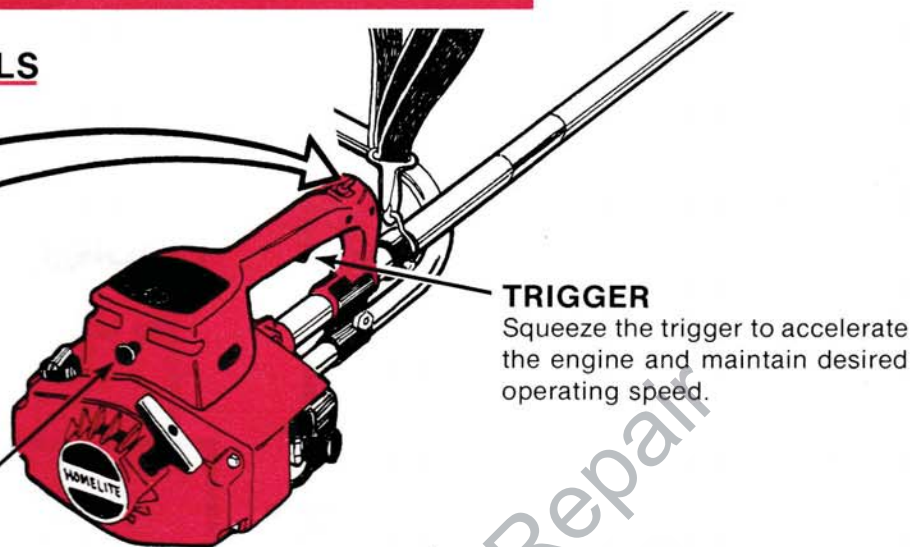
The unit is so light, that you will have a desire to put your foot on the lower housing support to hold it down. **DO NOT DO THIS** or the life of the lower string housing support will be shortened.

STARTING AND STOPPING THE ENGINE

1. Flip the ignition switch to "RUN."
2. Pull the choke all the way out to choke the cold engine.
3. Depress the throttle trigger and hold while starting.
4. Assume the cranking stance and pull the starter cord briskly on each crank to start. Pull out a good bit of cord, but not to the end as this will damage the starter mechanism or break the cord. Always hold onto the grip and let it rewind smoothly so it will not kink up and fray.
5. Crank the unit until it fires. Push the choke to the halfway position.
6. Now crank until the engine starts.
7. When the engine is running smoothly push the choke in all the way.
8. Make sure the string or blade is stopped before you attach the harness and operate the unit.
9. Depress the trigger to run the unit.
10. To stop, flip the ignition switch to "STOP."
11. To restart a warm engine try no choke first. If the unit does not start up after a few pulls, try 1/2 choke or full choke as required to start the engine.

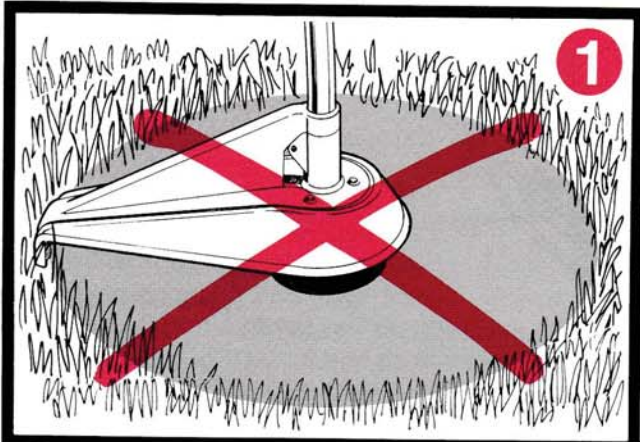
NOTE

Anytime you have trouble starting the engine you should clean the spark plug and check for good ignition spark while the plug is out. (See Maintenance.) Also while the plug is out, you should hold the throttle open and crank the engine several times to clear it of fuel.

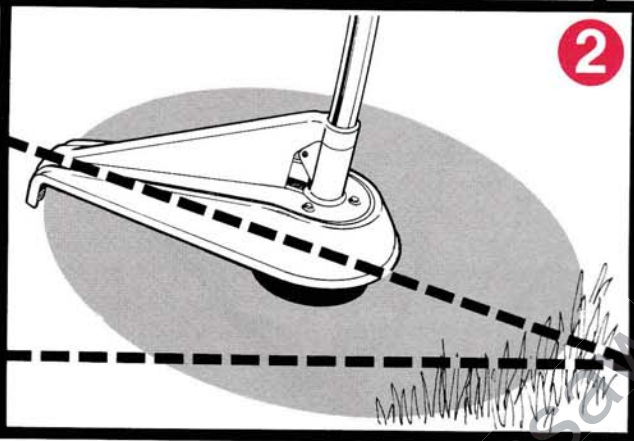


OPERATING DO'S AND DONT'S

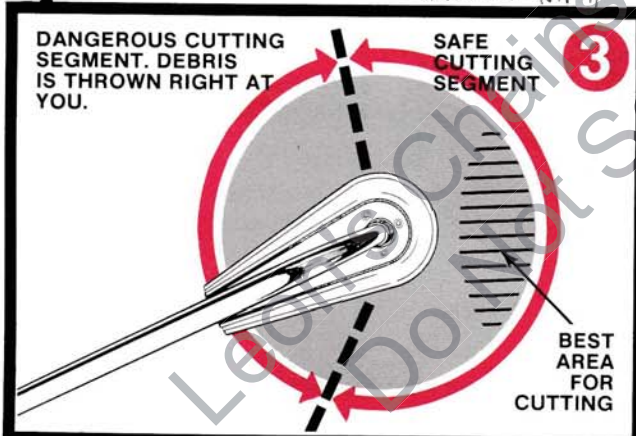
STRING TRIMMER



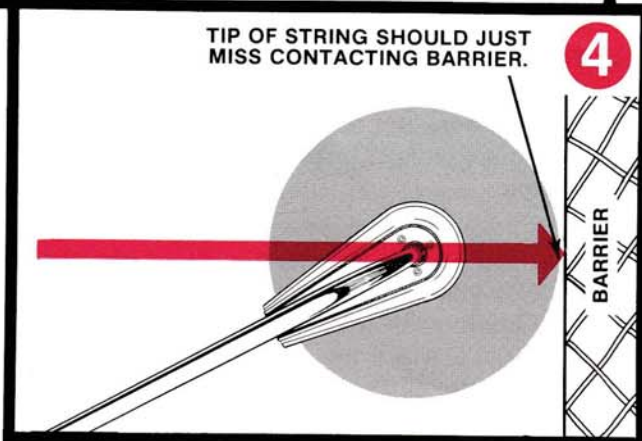
1. **DON'T** use the whole 360 degree string circle to cut. If you do, you'll use up too much string.



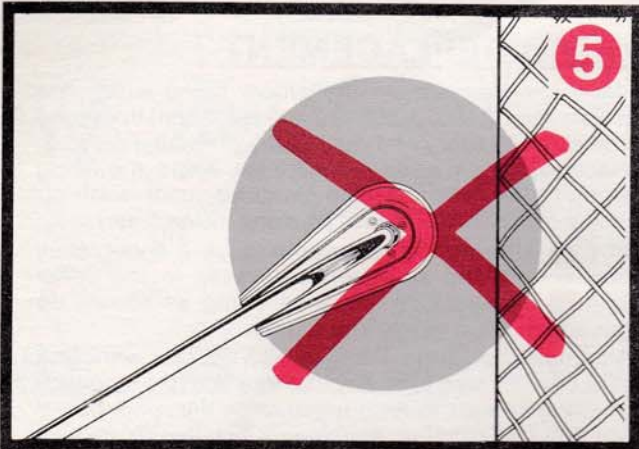
2. **DO** use String Trimmer on a slight tilt so string contact occurs at one point (away from you, for best cutting and minimum string wear).



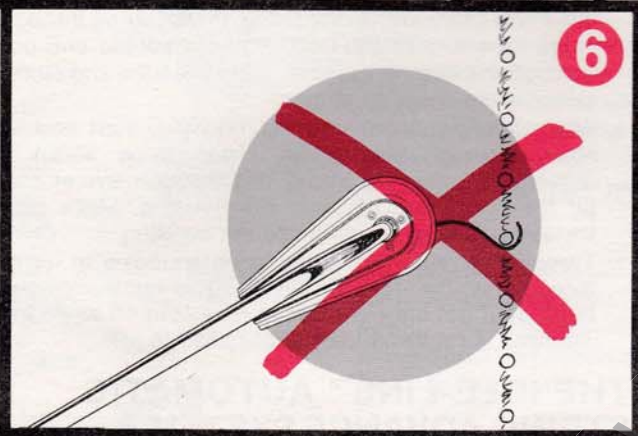
3. **DO** keep the String Trimmer head tilted so as to confine trimming action to the segment of the string circle away from you. Safe and unsafe segments of the cutting circle are illustrated. Best point of contact is marked. If you cut with the unsafe segment you will be bombarded with the debris.



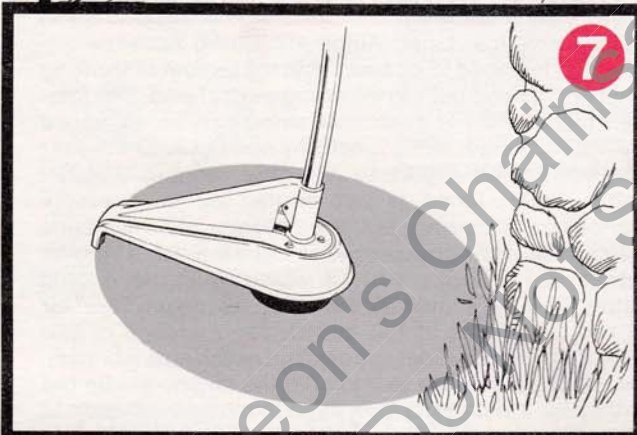
4. **DO** approach your target position gradually, — so that you will cut only with the tip of the string and not smash it broadside into a barrier.



5. **DON'T** overfeed string, — overfed string will break off.



6. Wire and picket fences are hard on string. Learn to feed slowly. Every time you catch the string around a wire or picket it will break off.



7. Stone and brick walls and curbs wear string rapidly. Be sure not to overfeed. Even with minimum exposure of the string tip to the barrier, string wear will be high during this kind of trimming.



8. Trim around trees. Take your time. Walk around the tree. Do not whip the bark with an excessive length of string.

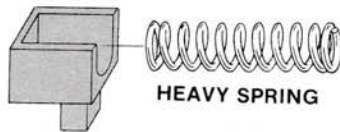
MAINTENANCE and ADJUSTMENT

STRING HEAD

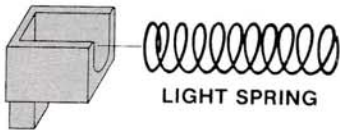
You should be aware of the construction of the String Head so that you can reinstall parts properly if they ever get out of place.

1. All threaded connections are left hand thread. Turn clockwise to loosen.
2. Any time the sliders have been removed from the slides in the string housing, always be sure to match up the **High Speed Slider** with the **Heavy Coil Spring** and the **Low Speed Slider** with the **Light Coil Spring**.

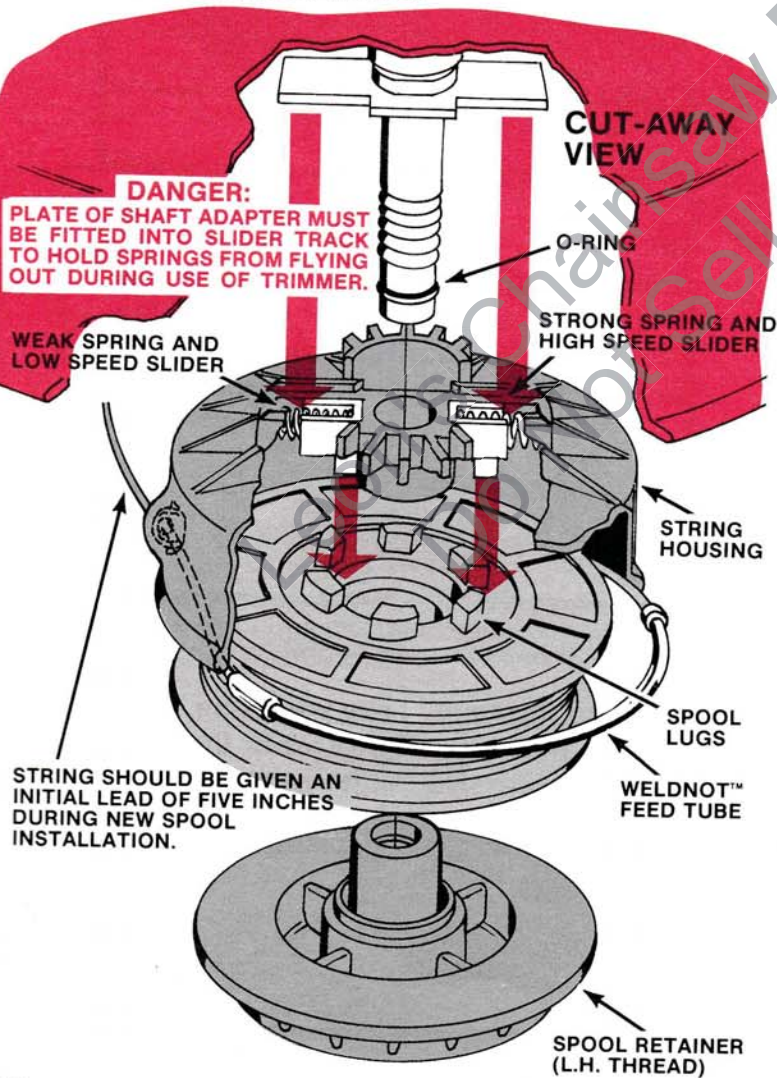
HIGH SPEED SLIDER



LOW SPEED SLIDER



SHAFT ADAPTER DOES NOT REQUIRE REMOVAL FOR STRING HEAD MAINTENANCE. REMOVAL DURING UNIT SERVICING SHOULD BE DONE ONLY BY A TRAINED SERVICEMAN.



STRING REPLACEMENT

1. Use only Homelite monofilament string which has a diameter of $.095" \pm .005$ (2.3 mm to 2.5 mm) this string comes in 75 foot (24.4 m) lengths prewound on a replacement spool as part number DA-93954. If winding string rather than replacing complete spool, wash out inside of WELDNOT™ tube so string moves freely in it.
2. In case a string requires winding on a spool, stick one end of the string into the hole in the spool spindle. Hold spool and wind string as shown on the spool. Wind neatly and tightly.
3. Although the String Trimmer will operate without a WELDNOT™ feed tube, it will be free from the tendency of string strands to weld together on the spool only if our WELDNOT™ (Pat. Pending) is installed. To do this, cut a new sharp end on the string, thread string through small tube end of WELDNOT™ and draw the end out through the large brass end. Wrap the tube and string back on the spool as shown.
4. When loading spool into the housing, start end of string through the eyelet. Then draw about 5 inches (127 mm) of string out through eyelet and tilt the spool into place in the housing. Make sure the spool is resting flat inside the housing.
5. Thread the spool retainer counterclockwise (L.H. thread) onto the shaft. Be sure to hand-tighten snugly, because if not tight enough, it may spin off when the Trimmer is returned from high speed to idle.

THE IDLE-LINE™ AUTOMATIC STRING ADVANCE SYSTEM (Pat. Pending)

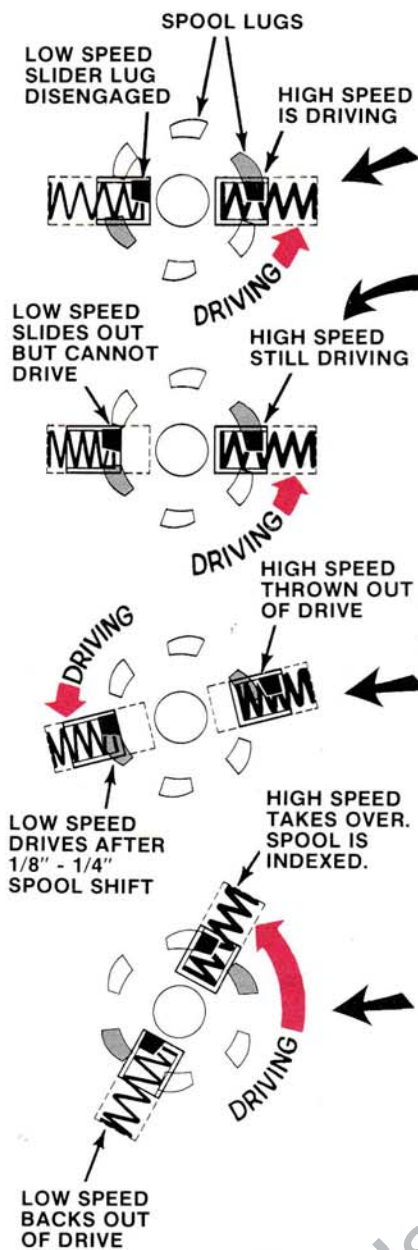
The exclusive Idle-Line™ Automatic String Advance System is designed to do away with the tedium of shutting off the engine and pulling the string out by hand. The Idle-Line™ mechanism is such that string can be advanced only when a longer string is actually needed AND the user has returned the engine to idle after running it at full throttle. Thus, string is not wasted by unnecessary advancement of string, but the operator still maintains control to prevent unexpected string advance. The user controls the advancement of string with the engine throttle: First, he should lift the string head into "free" air and run the engine at full throttle for a second or two (allows high speed slider to cock, but no string advances). Next, he should return to and hold the engine at idle (no throttle) for a second or two, allowing low speed slide to release the storage spool and string to be let out.

If the string has been worn very short, or the spool is nearly empty, several full throttle to idle cycles may be required to reestablish the full 20 inch cutting path.

NOTE:

The amount of string advanced each time the spool is indexed is determined by the amount of string on the spool. About 2 1/4 inches of string will be advanced from a full spool, and about 3/4 inches from a nearly empty spool. However, the automatic advance system may not operate properly if the length of string outside the string head is reduced to less than 1 1/2 inches. If this should occur and string cannot be advanced automatically, SHUT OFF ENGINE, remove string head and advance five inches of string manually per instructions and illustrations on this page.

Keep the system working for you by ordering a string advance whenever you hear the engine running faster than normal "full string" speed. This will prevent wearing the string too short to be advanced automatically. Remember, string advance will occur only when the string is worn short enough to warrant more string. Thus, cycling the unit (throttling up, then idling) before more string is needed will not cause an advance.



EVENTS

Below 3500 rpm

Low idle speed. String spool is engaged by high speed slider.

Above 3500 rpm

String spool engagement is by the high speed slider.

6500 rpm

Average operating rpm with "full string" (20-inch string circle).

7200 - 7500 rpm

Full throttle speed achieved when string wears to 15" - 16" string circle: Cocking speed at which string spool engagement switches from high speed slider to low speed slider.

10,000 - 11,000 rpm

Carburetion-controlled top speed. Achievable when string circle has reduced to 12 inches or shorter.

Return to Below 3500 rpm

Change-over of spool engagement from low speed to high speed slider results in a 1/6th turn indexing of the spool, which advances string.

NOTE:

If the low speed slider is not in engagement with the spool, as should occur at the cocking rpm, the spool will not be indexed.

TROUBLE SHOOTING AUTOMATIC STRING ADVANCE

1. When Engine Cannot Reach Cocking Speed

- String not worn short enough. System should cock after the string has worn to a 15" - 16" or shorter string circle.
- Incorrect string used. Use only Homelite string.
- Plugged or dirty air filter. (See "Air Filter.")
- Choke not fully open. Push choke all the way in.
- Improper fuel-oil mixture; wrong proportions, wrong oil used, insufficient mixing, old gasoline. Drain and refill fuel tank with fresh, proper fuel mixture.
- Dirt in carburetor. Have carburetor serviced.
- Spark plug loose. Tighten plug enough to prevent a leak.
- Ignition system not working properly. Have system serviced.

2. Engine Not Returning To Idle RPM Or Will Not Idle

- Idle speed screw improperly adjusted. Adjust idle speed as low as practicable. An idle speed just below 3500 rpm is required for Automatic String Advance. (See "Slow Idle Speed Adjustment.")
- Air leaking into engine prevents stable idling. Have engine tested for an air leak and serviced.
- Ignition system not functioning properly. Have engine serviced by authorized Homelite Service Center or dealer.
- Spark plugs worn or dirty. Replace spark plug. Install Champion DJ-7J or its equal. (See "Spark Plug Removal.")
- Improper or stale fuel mixture. Refill tank with fresh fuel mixture — proper oil, correct proportions, fresh gasoline, thoroughly mixed.

3. Engine Idles Properly And Does Reach Cocking RPM But No String Will Advance

- String used up. Install new spool of string.
- Improper string. Replace with Homelite string #DA-93954.
- String retracted inside the string head. (Usually the result of improper trimming technique by the operator.) Allow engine to return to idle RPM after cocking RPM is reached. This will allow string to advance so that it never becomes short enough to be returned into the head.
- String welded together inside head. Be sure Weldnot™ is installed properly.
- String wound backwards on spool. Rewind the string in direction indicated by arrows stamped on spool.
- Weldnot™ tube installed backwards. Tube should be reinstalled with large brass fitting end towards the string head eyelet. (See illustration on page 10). If the weldnot tube has been installed and run backwards, permanent damage to the tube will result, and the tube must be replaced.
- String tangled on spool. String should be tightly wound and Weldnot™ tube installed properly.

NOTE:

After proper initial string winding and installation of Weldnot tube, string may appear loose on spool but will not become tangled.

- Slider or spool lugs broken or damaged. Replace with new parts as required.
- Slider springs installed incorrectly. Be sure heavy spring is used with high speed slider and the light spring with the low speed slider.

NOTE:

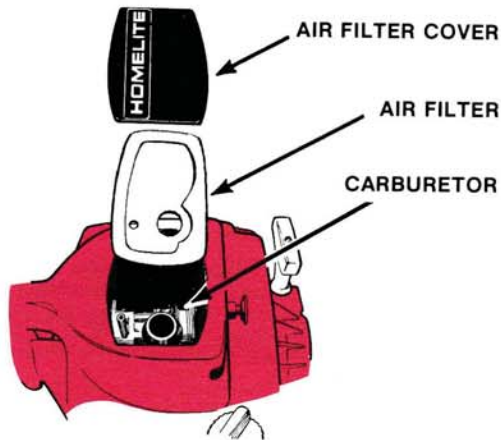
Troubles and their repair can often if not most always be attended to by the String Trimmer owner. Exceptions are where special diagnostic equipment or tools, and training in small engine repair work are required. In these few cases where we believe it best for the unit to be looked at by Homelite-trained personnel, we will tell you to have the unit "checked", "repaired" or "serviced". Authorized Homelite Servicing Dealers have factor-trained service personnel as do our Homelite-owned Factory Service Outlets listed on the back page of your String Trimmer Limited Warranty Folder.

CLEANING

The lower unit will become plastered with dirt, plant fibers and juices as will your shoes and trousers. The unit should be wiped clean immediately after use, before the material hardens. A detergent and water solution can be used for cleaning.

AIR FILTER

Except under abnormally dusty operating conditions, the air filter element requires cleaning only once per trimming season. At this rate it will never require replacement. But under severely dusty conditions where frequent cleanings are necessary, eventual replacement of the element should be made. This is because cleaning never removes all of the dirt.



1. To remove the air filter element, pry the outer cover off the engine housing and pull out the element. It may be necessary to use a screw driver to pry between the cover and the housing.
2. Blow and wipe off any debris that has collected around the carburetor. (NOTE: Do not remove the carburetor.)
3. Wash the air filter in a non-oily cleaning solvent. Let the element dry thoroughly before use.
4. Fit the clean filter element carefully into place and snap the outer cover back onto the engine housing.

CYLINDER AND AIR INTAKE

Keep the air intake slots clean. These are the slots in the starter/fan housing. Whenever you see material caked between the cooling fins of the cylinder remove it. A toothbrush with bristles trimmed to fit between the fins will do the job. You can also use a knife or a screwdriver blade to scrape the fins down to bare metal. These fins must be kept clean or the engine will not get rid of its heat.



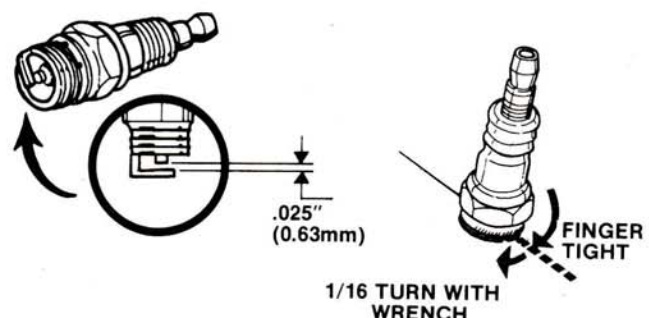
GREASING THE DRIVE SHAFT

Grease the drive shaft every 25 operating hours. Use a lithium base grease. Greasing can be done by hand but it is less messy to use a grease gun. Always grease the drive shaft from the top (i.e. from the end that is connected to the engine). Shaft rotation will distribute the grease along the entire length of the shaft. Distribution will not occur if the shaft is greased from the bottom. Do not overgrease. Four or five pumps of the grease gun handle is enough. Remove flexible shaft before greasing with grease gun. After greasing install flexible shaft from the top to help distribute grease.



SPARK PLUG REMOVAL

The solid state ignition system of this engine uses electronic triggering rather than mechanical breaker points to time the ignition. No regular maintenance is required. The spark plug should be left in place unless there is trouble. When the engine cannot be started, always check to be sure that there is fresh, proper fuel in the tank. Then disconnect the rubber boot and use the spark plug wrench to remove the spark plug. Select a new Champion DJ-7J spark plug or an equivalent plug of the same heat range. Use a feeler gauge to make sure the air gap (firing gap) between the center and side electrodes is .025" (0.63 mm). If necessary, adjust the gap by bending the side electrode. To install the tapered seat type spark plug to the correct torque, screw it in finger tight and then tighten it 1/16 turn more with your spark plug wrench for a gas-tight seal. (See illustration.)



It may be possible to restore the old plug by carefully cleaning and regapping it. Start by scraping or filing the deposits off the electrodes. The electrodes should be dressed so the edges are square, and sharp enough for good spark jump-off. Then carefully remove all matter which could narrow down or bridge the insulated space between the porcelain and the metal body. Wash or wipe all deposits from the spark plug.

NOTE

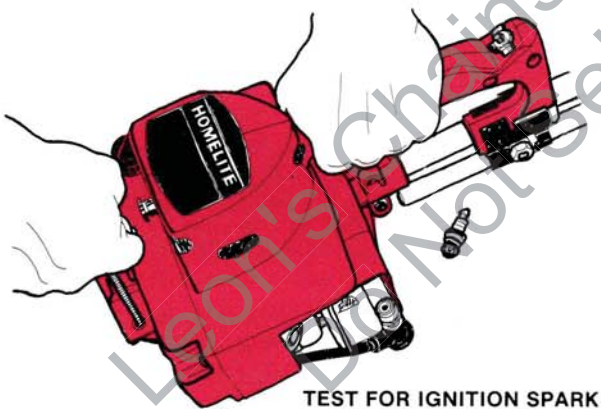
Hand-brushing and hydro-honing are recommended spark plug cleaning methods. Do not sand-blast or power-brush spark plugs, because those cleaning methods leave foreign substances in the porcelain which later can score the piston and cylinder.

When you have occasion to remove the spark plug, this is your opportunity to test the ignition spark. Do this in a dark shady area where the spark will show up brightly.

1. Make a test gap spark plug by breaking the side element off a spare (good condition) DJ-7J spark plug or any other non-resistor type 14mm spark plug you have on hand. With the side gap removed, the plug has a firing gap of about 1/8" or 3mm which is just right to test the solid state system's ability to fire a spark in open air.

WARNING

During this test the open spark can ignite fuel vapors blown out through the open spark plug hole to produce a "poof" of flame. Accordingly, wipe saw dry of fuel, conduct test only where a fire cannot be started, and keep your face away from the spark plug hole during test cranking. Also, during cranking avoid touching the plug because to do so would include you in the path to ground.



TEST FOR IGNITION SPARK

2. Turn the ignition switch to "RUN."
3. Push the test plug terminal into the spark plug boot.
4. Put the metal body of the plug in contact with any bare metal part of the engine (except not too near the open spark plug hole, because the switch is at "RUN"). (See illustration.)
5. Maintain plug-to-metal contact, but be sure to hold well back on the insulation boot, away from the plug so you won't get the shock when the spark is fired.
6. Watch for sparks to jump the test gap while you vigorously crank the engine with the starter rope. A spark should jump the gap every upstroke of the piston.

After many hours of use, the porcelain of the spark plug becomes discolored, usually light tan or gray. This is normal and nothing to worry about.

CARBURETOR ADJUSTMENTS

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

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

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

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

ADJUSTMENT FOR STARTING

NOTE:

The idle speed screw is the larger diameter screw on the right. The idle mixture screw is the smaller diameter screw on the left.

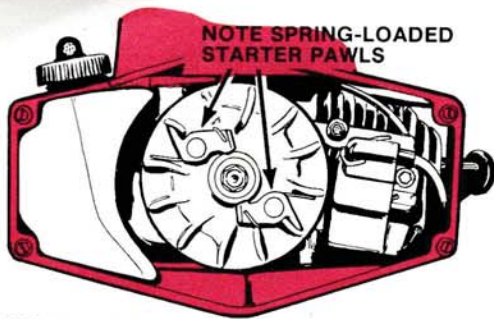


1. No adjustments are required for starting a cold engine at full throttle (trigger depressed) or for operating.
2. Adjustment for proper idle speed and mixture may be required if a hot or warm engine cannot be started at idle throttle or if the engine idles roughly or refuses to accelerate.
 - a) Turn the idle mixture adjustment screw 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

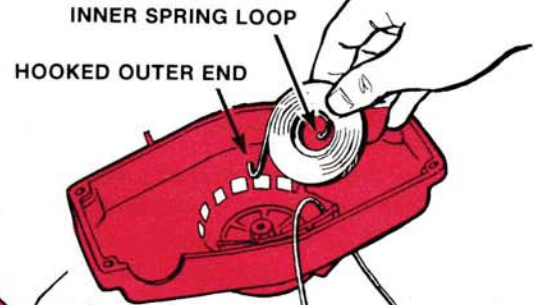
The String Trimmer should be started and a few cuts made to warm it up. Then idle the String Trimmer and make the following adjustment:

1. Set idle mixture screw at 3/4 of a turn open.
2. If this idle speed is too slow, the engine will falter. Turn the idle speed screw slowly clockwise to increase the speed until the engine no longer falters at idle.
3. If the speed (in Step 1) is so fast that the string rotates rapidly turn the idle speed screw counterclockwise until the string stops turning (but no slower than this setting).

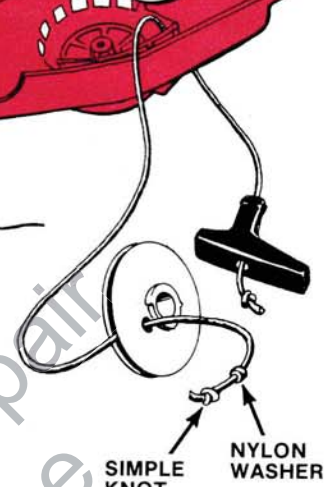
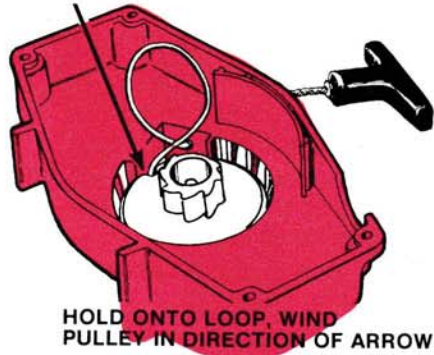


RECOIL STARTER

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



PULLEY NOTCH



INCREASING STARTER REWIND TENSION

The starter has few parts and can be disassembled and repaired.

1. Remove the four screws through the starter/fan housing to the engine housing. Lift the starter/fan housing off the engine.
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. Use 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. Integrally-banded replacement springs are installed by hooking outer end in housing notch (as illustrated) and pushing coils into housing.

Original equipment springs are unbanded. These must be installed by hooking outer end, then winding coils into housing. Be very careful not to let coils fly apart. Tape or tie coils together before disposal.

7. Clean the pulley post and the pulley.
8. 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.
9. 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.
10. 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.
11. 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.

OFF-SEASON STORAGE AND SEASONAL START-UP

Trimmers that are not to be used for several months should be prepared and stored as follows:

1. Protect against formation of gum and varnish EITHER by draining the fuel system and running the engine until it stops from lack of fuel OR by filling the tank with STA-BIL® - treated fuel, starting the engine and flooding it to a stop by choking it.
2. Store the clean unit in a dry, ventilated area away from fertilizers, garden chemicals and de-icing salts and off the floor.

When the unit taken from storage can not be started:

1. Drain all fuel from the tank.
2. Fill the tank with freshly made fuel mixture.
3. Remove the spark plug. Regap it to .025" (0.6mm) if worn. Clean and wash the plug. See page 12.
4. Before installing the spark plug, hold the throttle trigger depressed and crank the engine five to ten times. This is sufficient to clear the carburetor of any oil which may have separated out of the fuel.
5. Now install the cleaned spark plug, flip the switch to "RUN" and follow instructions on page 7 for starting a cold engine.

USE OF ST-200 AS A BRUSHCUTTER OR SAW

The parts for conversion of the ST-200 for use with various types of cutting blades are packaged separately as a kit. The kit contains a Blade Head Assembly, a #6 self-tapping screw, socket head cap screw, flat washer and Saw Blade. The Tri-Arc Blade is packaged separately in another kit.

1. Loosen the socket head cap screw in the String Head. Then back out the #6 self-tapping screw. Remove the String Head from the drive shaft housing. Screw the #6 screw back into the String Head. The Blade Head has its own socket head cap screw, washer and #6 self-tapping screw.
2. Slide the Blade Head onto the drive shaft housing. Align the shaft hole with the hole in the Blade Head and secure with the #6 self-tapping screw. You may have to rotate the Blade Head shaft so that the flexible shaft engages.
3. Install the flat washer and socket head cap screw and clamp the head to the shaft by tightening the screw. Use a hex wrench.
4. The grass shield goes hollow-side-up onto the shaft on the underside of the Blade Head. Put this in place. Then install the cutting blade, the cupped washer and left-hand-threaded nut.
5. Insert the long end of a hex wrench into the slot provided in the shield. The wrench will keep the shaft and shield from turning so that you can securely tighten the nut. (Left hand thread — tighten counterclockwise as viewed from the bottom of the blade.)

NOTE:

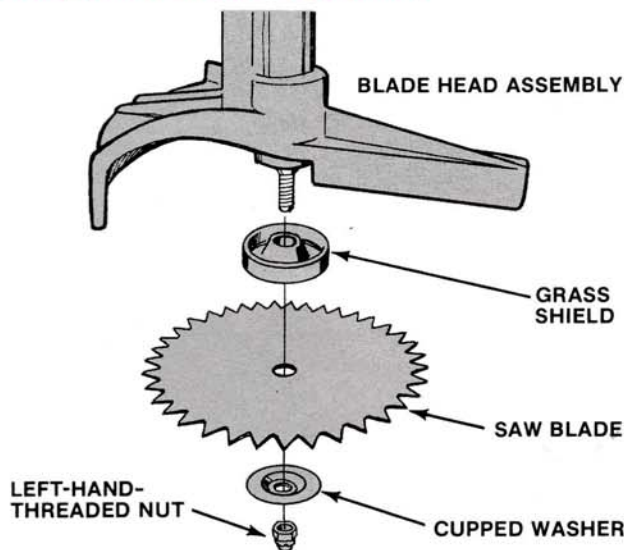
To control unit movement, hold the unit with a firm grip when cutting. Always use the harness provided when using the unit. Be careful that the harness does not disconnect from the unit.

CAUTION:
Scything done with the Saw Blade should be done with extreme care and caution.

CAUTION:
If the blade becomes jammed with vegetation, flip the ignition switch to "STOP" before removing the obstruction.

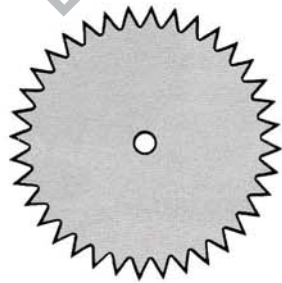
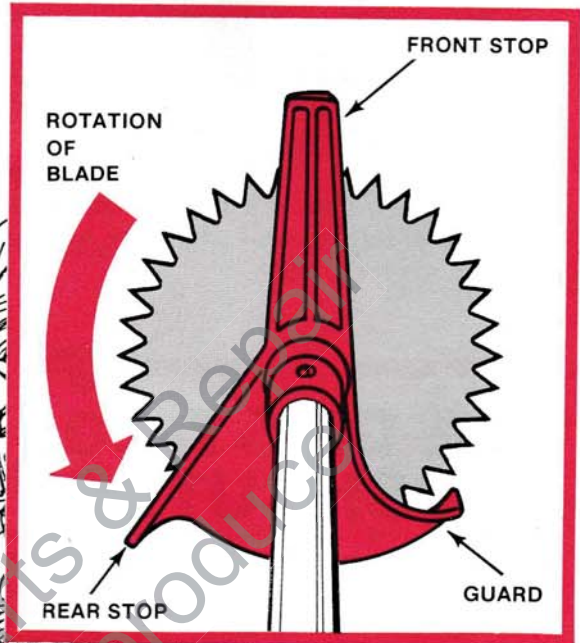
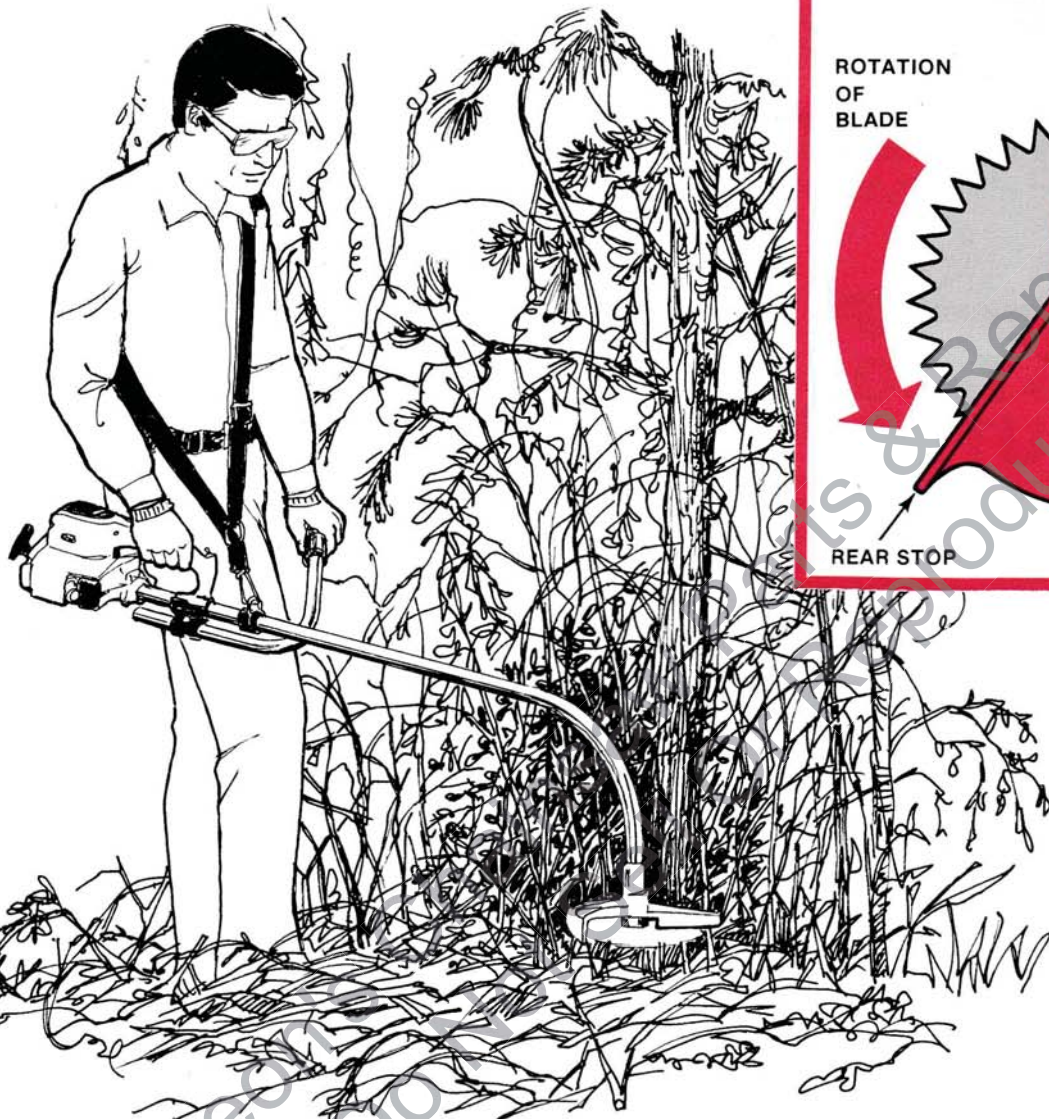
NOTE:
With any cutting unit that will swing from side to side be careful of back strain.

NOTE:
Cutting blades must be kept sharp.



BLADE HEAD DO'S AND DONT'S

Unless care is taken to rest the wood against one of the stops (See Diagram) there will be a tendency for the unit to kick. The kick will be in a direction tangent to the blade at the point of contact. For cutting ease and safety always place the right side of the front stop or the left side of the rear stop against the wood before allowing the saw blade to cut.

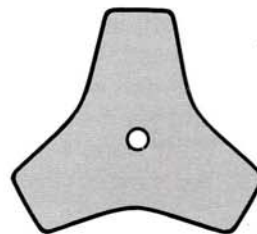


SAW BLADE

The Saw Blade can be used for the same cutting projects as the Tri-Arc Blade but it was designed to cut trees up to 3 inches.



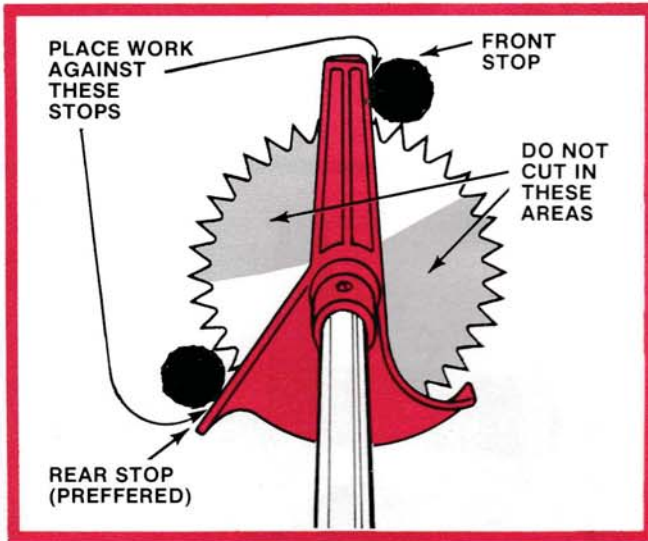
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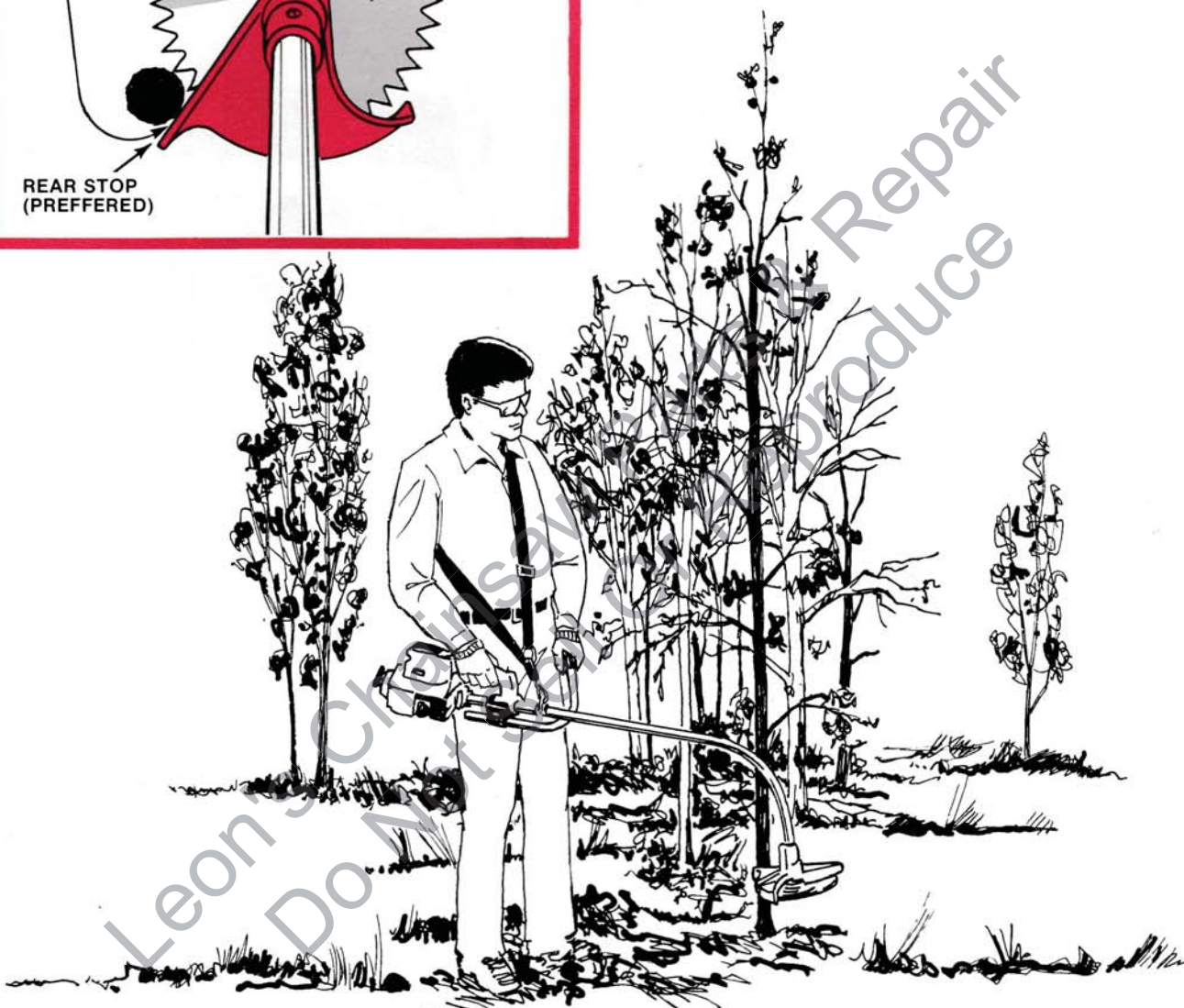
TRI-ARC BLADE

Recommended for general clearing work. Best suited for cutting brush, vines, weeds, etc., up to 3/4 inches. Not recommended for sizes which require sawing. The blade is self-sharpening and can be used to cut on either side.

SAW BLADE DO'S AND DONT'S

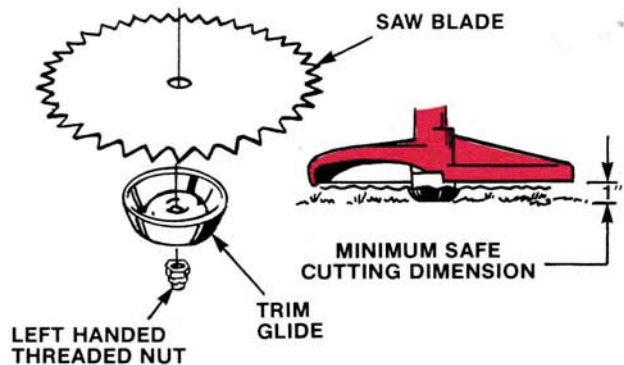


Before cutting with the Saw Blade, always place the right side of the front stop or the left side of the rear stop against the tree.



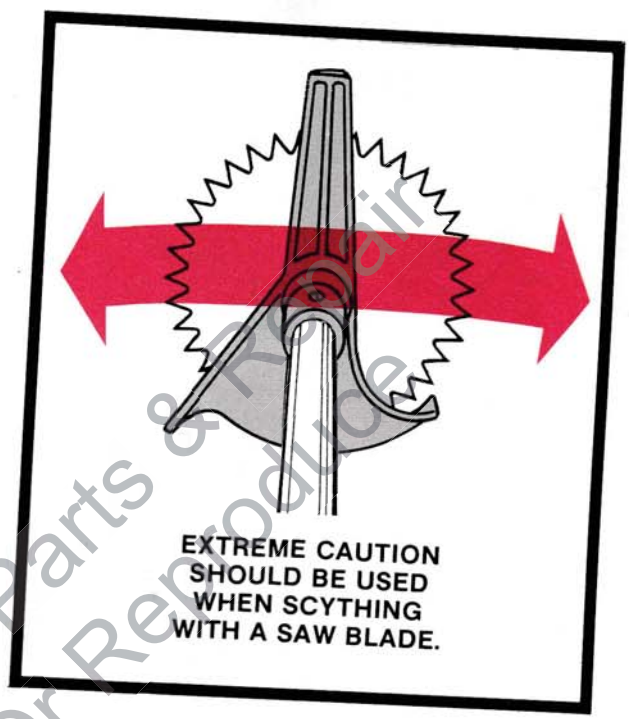
The Trim Glide allows you to move the blade along, cutting brush, trees, etc. without having the blade touch the ground. The Trim Glide replaces the standard cupped washer.

To install the Trim Glide remove the left-hand-threaded nut and the cupped washer. Save the washer and install the Trim Glide. Reinstall the nut as directed on page 15.



SCYTHING TECHNIQUE

PREFERRED WITH
TRI-ARC BLADE



EXTREME CAUTION
SHOULD BE USED
WHEN SCYTHING
WITH A SAW BLADE.

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