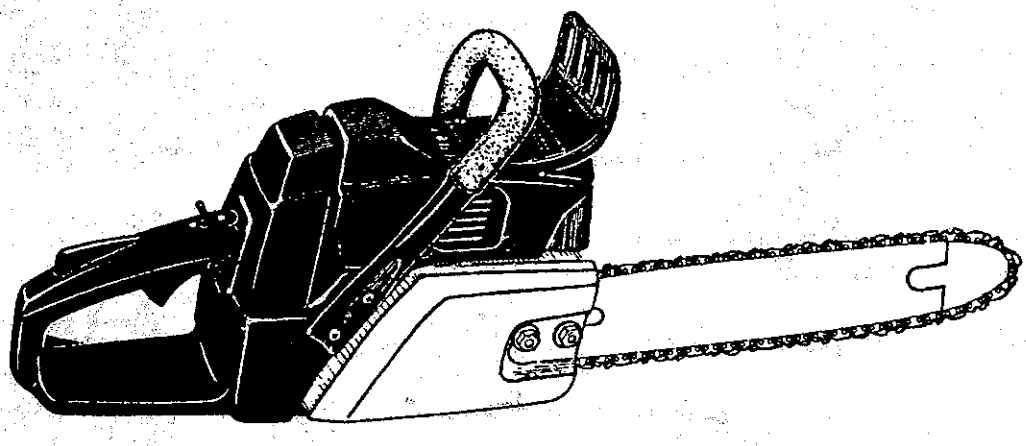
IMPORTANT MANUAL **Do Not Throw Away**

Poulan PRO™



OPERATOR'S MANUAL

MODELS:

285 & 305

GAS POWERED CHAIN SAW

⚠ WARNING:
Carefully read the Operator's Manual and follow all Warnings and Safety Instructions. Failure to do so can result in serious injury.

Always Wear Eye Protection

POULAN PRO
Shreveport, Louisiana 71139-9329

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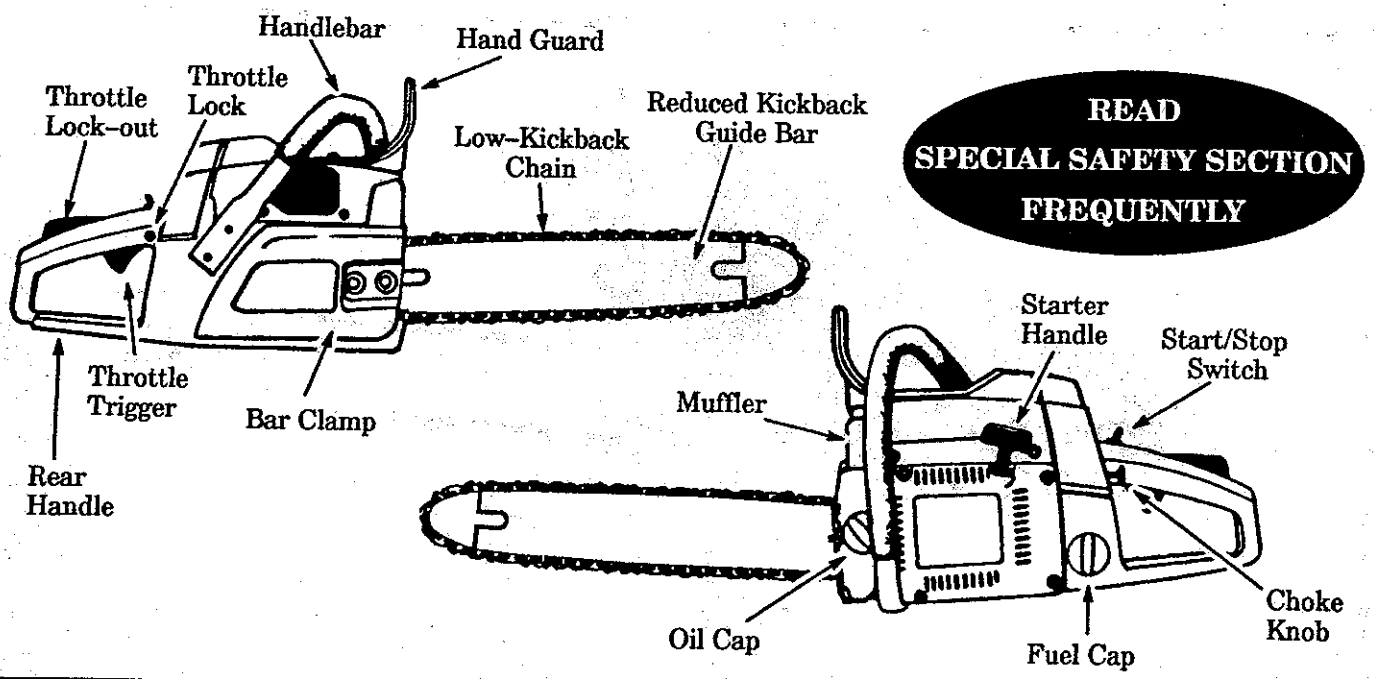


SPECIFICATIONS

MODEL:	285	305
DISPLACEMENT:	2.8 cu. in. (46cc)	3.0 cu. in. (49cc)
GUIDE BAR 18":		18" Guide Bar — Part No. 952-044375
CHAIN 18":		.325 Pitch, P33S-72 — Part No. 952-051321
GUIDE BAR 16":	16" Guide Bar — Part No. 952-044372	
CHAIN 16":	.325 Pitch, P33S-66 — Part No. 952-051320	
GUIDE BAR 20":	20" Guide Bar — Part No. 952-044377	
CHAIN 20":	.325 Pitch, P33S-78 — Part No. 952-051322	
SPARK PLUG:	Champion (CJ-4)	
SPARK PLUG GAP:	.025"	
IGNITION:	Solid State	
MODULE AIR GAP:	.008" to .014"	
OILER:	Adjustable Automatic	
FUEL MIX:	Gasoline/Oil Mixture - 40:1 (see "Fueling Your Engine")	
MUFFLER:	Temperature Limiting/Spark Arresting	

WARNINGS AND SAFETY INSTRUCTIONS

(See Additional Safety Instructions throughout this Manual)

GUARD AGAINST KICKBACK

Kickback is a dangerous reaction that can lead to serious injury. Do not rely only on the safety devices provided with your saw. As a chain saw user, you must take special safety precautions to help keep your cutting jobs free from accident or injury.

⚠ KICKBACK WARNING

Kickback can occur when the moving chain contacts an object at the upper portion of the tip of the guide bar or when the wood closes in and pinches the saw chain in the cut. Contact at the upper portion of the tip of the guide bar can cause the chain to dig into the object, which stops the chain for an instant. The result is a lightning fast, reverse reaction which kicks the guide bar up and back toward the operator. If the saw chain is pinched along the top of the guide bar, the guide bar can be rapidly driven back toward the operator. Either of these reactions can cause loss of saw control which can result in serious injury.

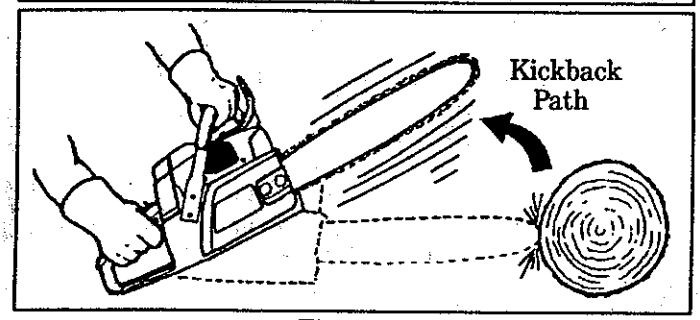


Figure 1

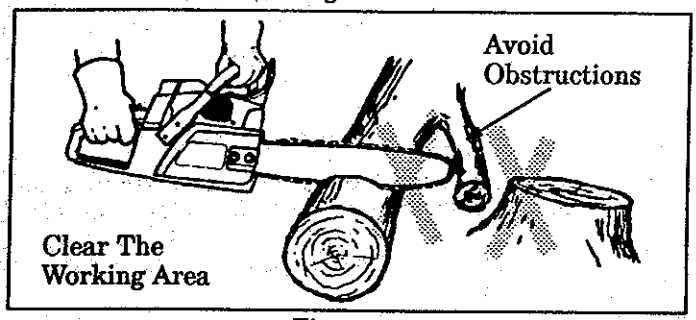


Figure 2

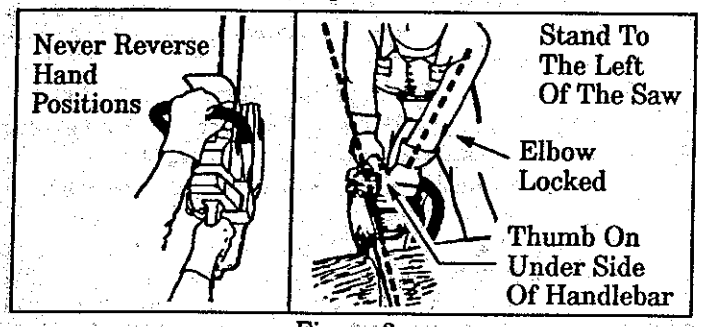


Figure 3

REDUCE THE CHANCE OF KICKBACK

1. **Recognize that kickback can happen.** With a basic understanding of kickback, you can reduce the element of surprise which contributes to accidents.
2. **Never let the moving chain contact any object at the tip of the guide bar.** Figure 1 .
3. **Keep the working area free from obstructions** such as other trees, branches, rocks, fences, stumps, etc. Figure 2 . Eliminate or avoid any obstruction that your saw chain could hit while you are cutting through a particular log or branch.
4. **Keep your saw chain sharp and properly tensioned.** A loose or dull chain can increase the chance of kickback to occur. Follow manufacturer's chain sharpening and maintenance instructions. Check tension at regular intervals with the engine stopped, never with the engine running. Make sure the bar clamp nuts are securely tightened after tensioning the chain.
5. **Begin and continue cutting at full throttle.** If the chain is moving at a slower speed, there is greater chance for kickback to occur.
6. **Cut one log at a time.**
7. **Use extreme caution when re-entering a previous cut.**
8. **Do not attempt plunge cuts.**
9. **Watch for shifting logs** or other forces that could close a cut and pinch or fall into chain.
10. **Use the Reduced-Kickback Guide Bar and Low-Kickback Chain** specified for your saw.

MAINTAIN CONTROL

1. **Keep a good, firm grip on the saw with both hands when the engine is running and don't let go.** Figure 3 . A firm grip can neutralize kickback and help you maintain control of the saw. Keep the fingers of your left hand encircling and your left thumb under the front handlebar. Keep your right hand completely around the rear handle whether your are right handed or left handed. Keep your left arm straight with the elbow locked.
2. **Position your left hand on the front handlebar so it is in a straight line with your right hand on the rear handle when making bucking cuts.** Figure 3 . Never reverse right and left hand positions for any type of cutting.
3. **Stand with your weight evenly balanced on both feet.**
4. **Stand slightly to the left side of the saw to keep your body from being in a direct line with the cutting chain.** Figure 3 .
5. **Do not overreach.** You could be drawn or thrown off balance and lose control of the saw.
6. **Do not cut above shoulder height.** It is difficult to maintain control of the saw above shoulder height and places the moving chain dangerously close to your upper body.

WARNINGS AND SAFETY INSTRUCTIONS (continued)

⚠ WARNING

Because a chain saw is a high–speed wood–cutting tool, special safety precautions must be observed to reduce the risk of accidents. Careless or improper use of this tool can cause serious injury.

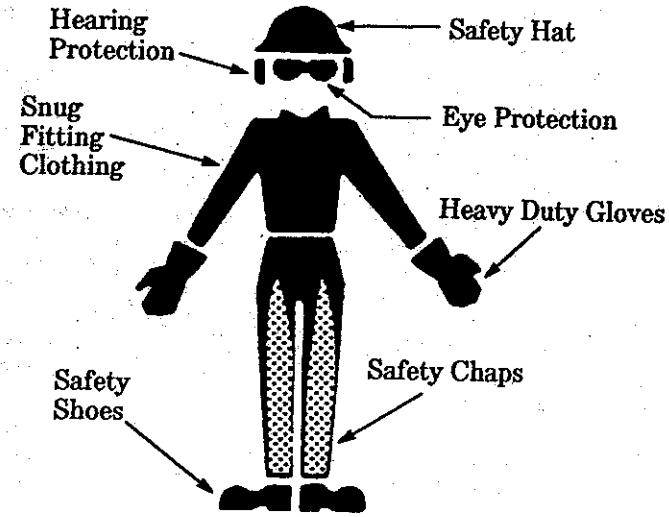


Figure 4

KNOW YOUR SAW

1. **Read your operator's manual carefully** until you completely understand and can follow all safety rules, precautions, and operating instructions before attempting to operate the unit.
2. **Restrict the use of your saw to adult users** who understand and can follow safety rules, precautions, and operating instructions found in this manual.

PLAN AHEAD

1. **Wear protective gear. Figure 4.** Always use steel–toed safety footwear with non–slip soles; snug–fitting clothing; heavy–duty, non–slip gloves; eye protection such as non–fogging, vented goggles or face screen; an approved safety hard hat; and sound barriers—ear plugs or mufflers to protect your hearing. Regular users should have hearing checked regularly as chain saw noise can damage hearing.
2. **Keep children, bystanders, and animals a minimum of 30 feet (10 Meters) away from the work area.** Do not allow other people or animals to be near the chain saw when starting or operating the chain saw.
3. **Do not handle or operate a chain saw when you are fatigued, ill, or upset, or if you are under the influence of alcohol, drugs, or medication.** You must be in good physical condition and mentally alert. Chain saw work is strenuous. If you have any condition that might be aggravated by strenuous work, check with your doctor before operating a chain saw.
4. **Do not attempt to use your chain saw during bad weather** conditions such as strong wind, rain, snow, ice, etc., or at night.
5. **Carefully plan your sawing operation in advance.** Do not start cutting until you have a clear work area, secure footing, and, if you are felling trees, a planned retreat path.

AVOID REACTIVE FORCES

Pinch–Kickback and Pull–In occur when the chain is suddenly stopped by being pinched, caught, or by contacting a foreign object in the wood. This sudden stopping of the chain results in a reversal of the chain force used to cut wood and causes the saw to move in the opposite direction of the chain rotation. **Pinch–Kickback** drives the saw straight back toward the operator. **Pull–In** pulls the saw away from the operator. Either reaction can result in loss of control and possibly serious injury.

To avoid Pinch–Kickback:

1. **Be extremely aware of situations or obstructions** that can cause material to pinch the top of or otherwise stop the chain.
2. **Do not cut more than one log at a time.**
3. **Do not twist the saw** as the bar is withdrawn from an under–cut when bucking.

To avoid Pull–In:

1. **Always begin cutting with the engine at full throttle and the saw housing against wood.**
2. **Use wedges made of plastic or wood, (never of metal)** to hold the cut open.

HANDLE FUEL WITH CAUTION

1. **Eliminate all sources of sparks or flame in the areas where fuel is mixed, poured, or stored.** There should be no smoking, open flames, or work that could cause sparks. Allow engine to cool before refueling.
2. **Mix and pour fuel in an outdoor area** on bare ground; store fuel in a cool, dry, well ventilated place; and use an approved, marked container for all fuel purposes.
3. **Wipe up all fuel spills before starting saw.**
4. **Move at least 10 feet (3 meters) from the fueling site before starting the engine.**
5. **Do not smoke while handling fuel or while operating the saw.**
6. **Turn the engine off and let your saw cool in a non–combustible area,** not on dry leaves, straw, paper, etc. Slowly remove fuel cap and refuel unit.
7. Store the unit and fuel in an area where fuel vapors cannot reach sparks or open flames from water heaters, electric motors or switches, furnaces, etc.

If situations occur which are not covered in this manual, use care and good judgment. Contact your Service Dealer if you need assistance.

WARNINGS AND SAFETY INSTRUCTIONS (continued)

OPERATE YOUR SAW SAFELY

1. **Do not operate a chain saw that is damaged, improperly adjusted, or not completely and securely assembled.**
2. **Operate the chain saw only in outdoor areas.**
3. **Do not operate saw from a ladder or in a tree.**
4. **Position all parts of your body to the left of cut and away from the saw chain when the engine is running.**
5. **Cut wood only.** Do not use your saw to pry or shove away limbs, roots, or other objects.
6. **Make sure the chain will not make contact with any object while starting the engine.** Never try to start the saw when the guide bar is in a cut or kerf.
7. **Use extreme caution when cutting small size brush and saplings.** Slender material can catch the saw chain and be whipped toward you or pull you off balance.
8. **Be alert for springback** when cutting a limb that is under tension so you will not be struck by the limb or saw when the tension in the wood fibers is released.
9. **Do not put pressure on the saw at the end of a cut.** Applying pressure can cause you to lose control when the cut is completed.
10. **Stop the engine before setting the saw down.**

MAINTAIN YOUR SAW IN GOOD WORKING ORDER

1. **Have all chain saw service performed by a qualified service dealer** with the exception of the items listed in the maintenance section of this manual. For example, if improper tools are used to remove or hold the flywheel when servicing the clutch, structural damage to the flywheel can occur and cause the flywheel to burst.
2. **Keep fuel and oil caps, screws, and fasteners securely tightened.**
3. **Keep the handles dry, clean, and free of oil or fuel mixture.**
4. **Make certain the saw chain stops moving when the throttle trigger is released.** For correction, refer to "Carburetor Adjustments."
5. **Stop the saw if the chain strikes a foreign object.** Check for alignment, binding, breakage, and mounting of moving parts and any other condition that may affect the operation of the unit. Check guards and all other parts to see if each will operate properly and perform its intended function. Any part that is damaged should be properly repaired or replaced by using the instructions in this manual or by taking your unit to your Authorized Service Dealer.
6. **Disconnect the spark plug before performing any maintenance** except for carburetor adjustments.
7. **Never modify your saw in any way.** Use only attachments supplied or specifically recommended by the manufacturer.
8. **Always replace the handguard immediately if it becomes damaged, broken, or is other wise removed.**

CARRY AND STORE YOUR SAW SAFELY

1. **Hand carry with the engine stopped, the muffler away from your body,** and the guide bar and chain to the rear covered preferably with a scabbard.
2. **Before transporting in any vehicle or storing in any enclosure,** allow your saw to cool completely, cover the bar and chain, and properly secure to avoid turnover, fuel spillage, or damage.
3. **Empty the fuel tank before storing the tool.** Use up the fuel left in the carburetor by starting the engine and letting the engine run until it stops.
4. **Store unit and fuel in a dry area out of the reach of children.** Do not store where fuel vapors can reach sparks or an open flame from hot water heaters, electric motors or switches, furnaces, etc.

NOTE: Exposure to vibrations through prolonged use of gasoline powered hand tools could cause blood vessel or nerve damage in the fingers, hands, and wrists of people prone to circulation disorders or abnormal swellings. Prolonged use in cold weather has been linked to blood vessel damage in otherwise healthy people. If symptoms occur such as numbness, pain, loss of strength, change in skin color or texture, or loss of feeling in the fingers, hands, or wrists, discontinue the use of this tool and seek medical attention. An anti-vibration system does not guarantee the avoidance of these problems. Users who operate power tools on a continual and regular basis must monitor closely their physical condition and the condition of this tool.

NOTICE: Refer to the Code of Federal Regulations, Section 1910.266(5); ANSI 133.1 (American National Standard Safety Requirements); and relevant state safety codes when using a chain saw for producing income.

NOTE: **When cutting fibrous material such as palms, pampas grass, yucca, etc., clean the cooling system (including cylinder cooling fins) after every other refueling.**

KNOW YOUR UNIT

A. INTRODUCTION

Your saw has been designed with safety in mind and includes the following safety features as standard equipment:

- Reduced–Kickback Guide Bar
- Low–Kickback Chain
- Handguard
- Spark Arrestor
- Temperature Limiting Muffler
- Anti–vibration System
- Turbo Clean™ Air Filter System

⚠ WARNING
The following features are included on your saw to help reduce the hazard of kickback; however, such features will not totally eliminate this dangerous reaction. As a chain saw user, do not rely only on safety devices. You must follow all safety precautions, instructions, and maintenance in this manual to help avoid kickback and other forces which can result in serious injury.

B. KICKBACK SAFETY FEATURES

- **Reduced–Kickback Guide Bar,** designed with a small radius tip which reduces the size of the kickback danger zone on the bar tip. Figure 5 . A Reduced–Kickback Guide Bar is one which has been demonstrated to significantly reduce the number and seriousness of kickbacks when tested in accordance with the safety requirements for gasoline powered chain saws as set by the American National Standards Institute, Inc., Standard B175.1 – 1991.
- **Low–Kickback Chain,** designed with a contoured depth gauge and guard link which deflect kickback force and allow wood to gradually ride into the cutter. Figure 5 . Low–Kickback Chain is chain which has met kickback performance requirements of ANSI B175.1 (Safety Requirements for Gasoline–Powered Chain Saws) when tested on a representative sample of chain saws below 3.8 cubic inch displacement specified in ANSI B175.1.
- **Handguard,** designed to reduce the chance of your left hand contacting the chain if your hand slips off the front handlebar.
- **Position of front and rear handlebars,** designed with distance between handles and "in–line" with each other. The spread and "in–line" position of the hands provided by this design work together to give balance and resistance in controlling the pivot of the saw back toward the operator if kickback occurs.

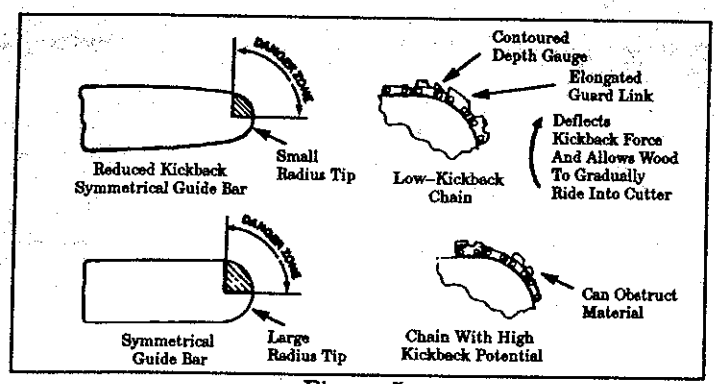


Figure 5

C. STATE AND LOCAL REQUIREMENTS

Your saw is equipped with a temperature limiting muffler and spark arresting screen which meets the requirements of California Codes 4442 and 4443. All U.S. forest land and the states of California, Maine, Washington, and Oregon require many internal combustion engines to be equipped with a spark arrestor screen by law.
If you operate a chain saw in a state or locale where such regulations exist, you are legally responsible for maintaining the operating condition of these parts. Failure to do so is a violation of the law. Refer to the "Spark Arrestor" section for maintenance.

SAVE THESE INSTRUCTIONS

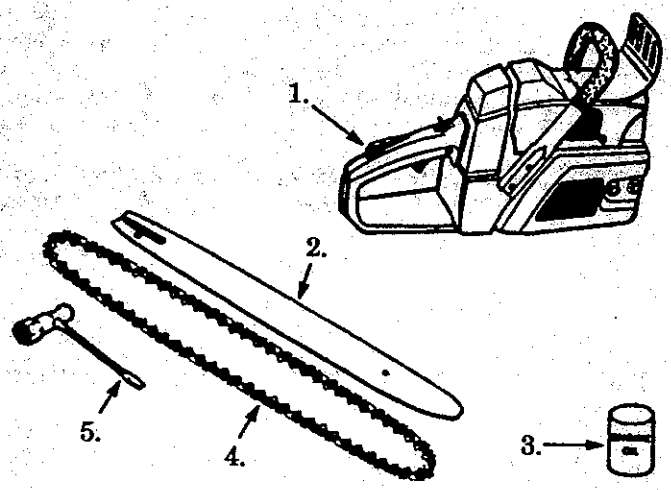
D. CARTON CONTENTS

KEY NO.		QTY
1.	Engine	1
2.	Guide Bar	1
3.	Engine Oil	1
—	Operator's Manual (not shown)	1
—	Loose Parts Bag (not shown)	1
	LOOSE PARTS BAG CONTENTS:	
4.	Chain	1
5.	Scrench	1

E. UNPACKING INSTRUCTIONS

1. After removing the contents from the carton, check parts against the Carton Contents list.
2. Examine the parts for damage. Do not use damaged parts.
3. *Notify your POULAN PRO dealer immediately if a part is missing or damaged.*

NOTE: It is normal to hear the fuel filter rattle in an empty fuel tank.



ASSEMBLY

A. GETTING READY

1. **READ YOUR OPERATOR'S MANUAL CAREFULLY**
   Your Operator's Manual has been developed to help you prepare your saw for use and to understand its safe operation. It is important that you read your manual completely to become familiar with the unit *before* you begin assembly or attempt operation. Your POULAN PRO dealer is available to show you how to operate your saw. Be sure to ask for his assistance.

2. **HAVE THE FOLLOWING AVAILABLE:**
   a. Protective gloves.
   b. Approved, marked fuel container.
   c. One gallon regular unleaded gasoline.
   d. 2 cycle, air-cooled engine oil (See the "Fueling Your Engine" section).
   e. Bar and Chain Oil (See the "Bar and Chain Oil" section).
   f. Scrench.

B. ATTACHING THE SPUR (Optional)

The spur is a special piece of equipment designed to assist the cutting operation. When assembled to saw, the spur will dig into tree or log and:

- **relieve contact pressure adding ease to the sawing operation.**
- **allow the saw to be more easily rotated or pivoted into the cut.**

To Install:

1. Remove the bar clamp nuts, bar clamp, and plastic spacer. Figure 6 . Discard plastic spacer.

NOTE: Be sure to remove the plastic spacer on the bar stud (between bar clamp and crankcase).

2. Remove the isolator bracket screw. Figure 7 .
3. Remove and discard the spacer under the isolator bracket. Figure 7 .
4. Position the spur over the two holes in the shroud. Figure 6 . Make sure the bottom screw hole tab on the spur is positioned between the shroud and the isolator bracket (where the spacer was removed).
5. Insert the two spur screws and tighten evenly and securely.

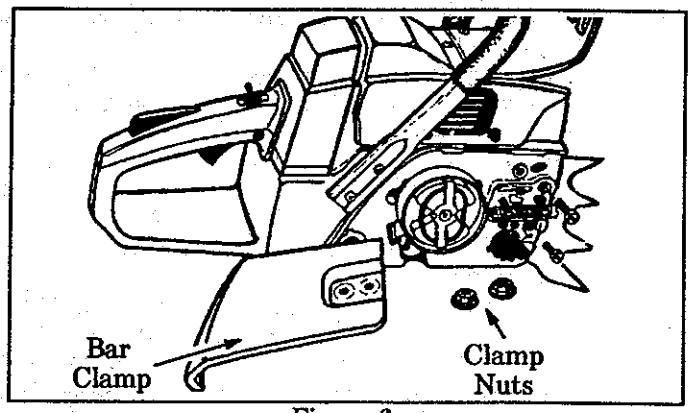


Figure 6

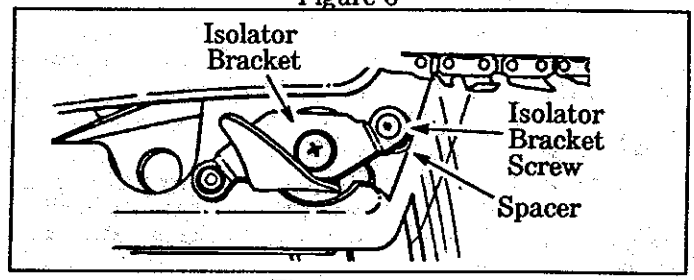


Figure 7

NOTES

C. ATTACHING THE BAR AND CHAIN

- **Your saw is equipped with a Reduced-Kickback Bar and a Low-Kickback Chain.**
- **Always use the Reduced-Kickback Guide Bar and Low-Kickback Chain specified for your chain saw model when replacing these parts. See the "Specifications" section.**

⚠ WARNING
Do not start the engine without the guide bar and chain completely assembled. Otherwise, the clutch can come off and serious injury can result.

CAUTION: Wear protective gloves when handling or operating your saw. The chain is sharp and can cut you even when it is not moving!

1. Remove the bar clamp nuts, bar clamp, and plastic spacer if you have not already done so. Discard plastic spacer.
2. Turn the adjusting screw (Figure 10) counterclockwise to move the adjusting pin almost as far as it will go to the rear.
3. Mount the guide bar with the slotted end over the mounting studs. Figure 8 . Position the adjusting pin in the adjusting pin hole. Figure 8 .
4. Hold the chain with the cutters facing as shown in Figure 9 (inset).
5. Place the chain over and behind the clutch drum and onto the sprocket. Figure 9 . Fit the bottom of the drive links between the teeth in the sprocket.
6. Slide the guide bar toward the rear of the saw as far as possible.
7. Start at the top of the bar and fit chain drive links into the groove around the guide bar. Figure 9 .
8. Turn the adjusting pin clockwise until the chain is snug in the guide bar groove. Figure 10 .
9. Hold the guide bar against the saw frame and install the bar clamp.
10. Replace the bar clamp nuts and tighten finger tight *only*. Tighten bar clamp nuts after chain is tensioned.
11. Proceed to the "Chain Tension" section.

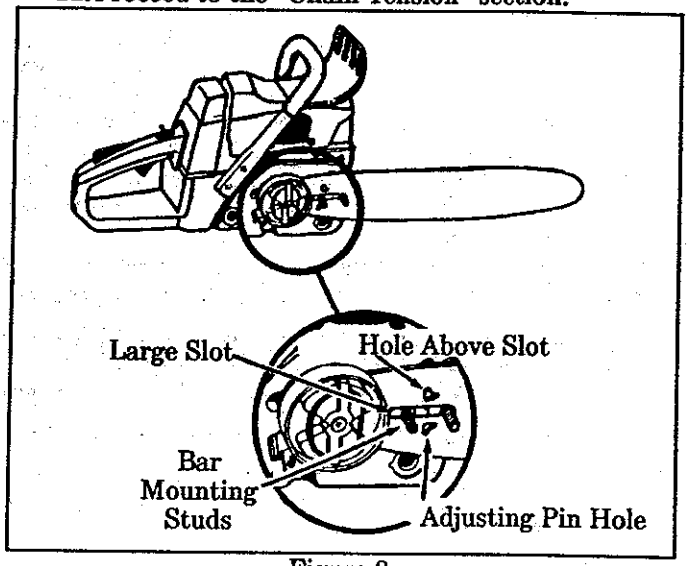


Figure 8

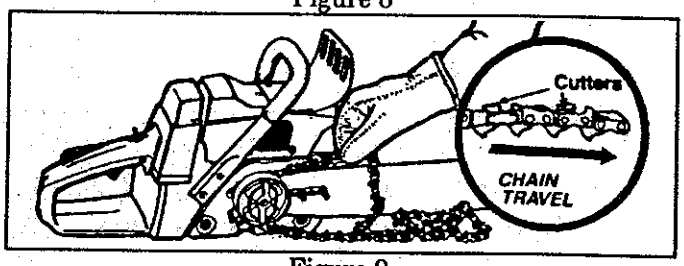


Figure 9

D. CHAIN TENSION

- **Correct Chain Tension is very important--**
  - A loose chain will wear the bar and itself.
  - A loose chain can jump off the bar while you are cutting
  - A tight chain can break or damage the saw and/or bar.
- **The chain stretches during use,** especially when new. Check tension periodically as follows:
  - each time the saw is used;
  - more frequently when the chain is new;
  - as the chain warms up to normal operating temperature.
- **Chain tension is correct when the chain:**
  — can be lifted about 1/8" from the Guide Bar at a point near the middle of the bar and
  — will move freely around the bar.
  When installing a new chain, allow the chain to be lifted 1/4" from the bar. Thereafter, follow the instructions as indicated.
- **Chain tensioning procedure:**

WARNING: Always wear gloves when handling the chain. The chain is sharp and can cut you even when it is not moving!

NOTE: The bar clamp nuts must be no more than finger tight to tension the chain correctly.

NOTE: Hold tip of guide bar up through step 4.

1. Lift up the tip of the guide bar and turn the adjusting screw clockwise until the chain does not sag beneath the guide bar. Figure 10 .
2. Check the tension by lifting the chain from the guide bar at the center of the bar. Figure 11 .
3. Continue adjusting the adjusting screw until the tension is correct.
4. Lift up the tip of the guide bar and tighten the bar clamp nuts with the scrench.
5. Recheck chain tension. Figure 11 .

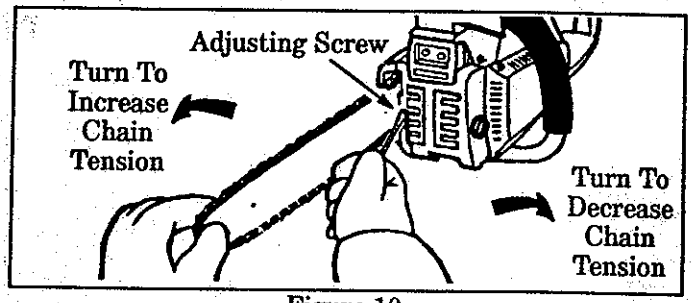


Figure 10

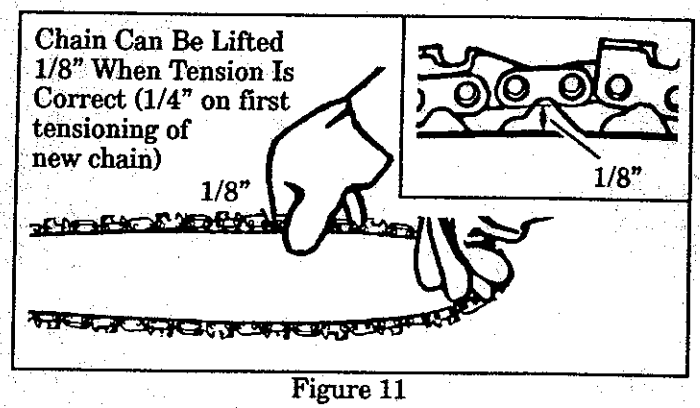


Figure 11

PREPARING YOUR SAW FOR USE

A. FUEL SAFETY

1. Use only recommended fuel mixtures.
2. Mix and pour fuel outdoors and where there are no sparks or flames.
3. Use a container approved for fuel.
4. Do not smoke or allow smoking near fuel or the tool or while using the tool.
5. Wipe up all fuel spills before starting the engine.
6. Move at least 10 feet away from the fueling site before starting the engine.
7. Stop the engine before removing the fuel cap. Allow the engine to cool before refueling.
8. Empty the fuel tank before storing the tool. Use up fuel left in the carburetor by starting the engine and letting it run until it stops.
9. Store unit and fuel in an area where fuel vapors cannot reach sparks or open flames from water heaters, electric motors or switches, furnaces, etc.

B. FUEL MIXTURE

- **Your unit is powered by a two–cycle engine which requires a fuel mixture of regular unleaded gasoline and a high quality engine oil specially made for 2–cycle, air–cooled engines.** The internal design of the 2–cycle engine requires lubrication of moving parts. Lubrication is provided when the recommended mixture of gasoline and oil is used.
- **Genuine POULAN PRO 40:1 engine oil is strongly recommended for the protection of your unit.** Extensive engineering tests have proven that POULAN PRO oil resists break–down at operating temperatures common to 2–cycle engines, resulting in dependable performance and longer engine life.
- **Gasoline must be clean and not over two months old.** Gasoline will chemically break down and form compounds that cause hard starting and damage in 2–cycle engines.
- **The correct measure of gasoline to oil is very important.** Too much oil in the mixture will foul the spark plug.

CAUTION: **Too little oil or incorrect oil will cause the engine to overheat and seize.**

- **Always mix the fuel thoroughly in a container** since gasoline and oil do not readily combine. *Do not mix gasoline and oil directly in the fuel tank.*

C. USE THE FOLLOWING ONLY:

POULAN PRO 40:1 engine oil is strongly recommended. Any other POULAN PRO, POULAN, WEED EATER, or PARAMOUNT brand engine oil is acceptable if mixed according to the instructions on the container.

If POULAN PRO, POULAN, WEED EATER, or PARAMOUNT brand oil is not available, use a good quality, 2–cycle engine oil mixed at a ratio of 16:1 (8 oz. oil to 1 gal. gasoline).

D. DO NOT USE THE FOLLOWING:

- **NMMA OIL (National Marine Manufacturer's Association)––formerly BIA oil––**

  Does not have proper additives for air–cooled, 2–cycle engines and can cause engine damage.
- **AUTOMOTIVE OIL––**

  Does not have proper additives for air–cooled, 2–cycle engines and can cause engine damage.

⚠ WARNING

Alcohol blended fuels (called gasohol or using ethanol or methanol) can attract moisture which leads to separation and formation of acids during storage. Acidic gas can damage the fuel system of an engine while in storage. To avoid engine problems, the fuel system should be emptied before storage. Drain the gas tank, start the engine, and let it run until the fuel lines and carburetor are empty. Use fresh fuel after taking the unit out of storage. See the "Storage" section for additional information. Never use engine or carburetor cleaner products in the fuel tank or permanent damage may occur.

E. HOW TO MIX FUEL AND FILL TANK

1. Pour the proper measure of engine oil into an approved, marked fuel container. Then, fill the container with regular unleaded gasoline.

NOTE: If fuel is already in the container, add the proper measure of engine oil. Then, close the container tightly and shake it momentarily.

NOTE: *Do not mix gasoline and oil directly in the fuel tank.*

2. Using a spout or funnel, fill the fuel tank with fuel mix.
3. Reinstall the fuel cap securely.

NOTES

F. BAR AND CHAIN OIL

- **The Guide Bar and Cutting Chain require continuous lubrication to remain in operating condition.** Lubrication is provided by the automatic oiler system when the oil tank is kept filled.
  - — **Lack of oil will quickly ruin the Bar and Chain.**
  - — **Too little oil will cause overheating** shown by smoke coming from the chain and/or discoloration of the guide bar rails.
- **Genuine POULAN or POULAN PRO Bar and Chain Oil is recommended to protect your unit against excessive wear from heat and friction.** POULAN or POULAN PRO oil resists high temperature thinning. If POULAN or POULAN PRO Bar and Chain Oil is not available, use a good grade SAE 30 oil. Never use waste oil for bar and chain lubrication.
- **In freezing weather oil will thicken, making it necessary to thin bar and chain oil with a small amount of #1 Diesel Fuel or kerosene.** Bar and chain oil must be free flowing for the oil system to pump enough oil for adequate lubrication.

6. USE THE FOLLOWING:

30° or above — 100% lubricant — undiluted.
30°–0°F — 95% lubricant to 5% #1 Diesel Fuel or kerosene.
Below 0°F — 90% lubricant to 10% #1 Diesel Fuel or kerosene.

7. HOW TO FILL THE OIL TANK

a. Stop the engine.
b. Turn saw on its side with oil cap up. Figure 12 .
c. Loosen cap slowly and wait for pressure in the tank to be released before removing the cap.
d. Fill the oil tank.
e. Replace the oil cap securely.

8. ADJUSTING THE AUTOMATIC OILER

- **The adjustable automatic oiler is set for maximum output at the factory. some types of cutting will require adjusting the oiler.**
  - **— less oil is required for soft or freshly cut wood.**
  - **— maximum oil is required for hardwood or wood that has been cut for a period of time.**
- **The adjusting screw** is located at the bottom of the saw on the crankcase next to the bar clamp housing (Figure 13) and can be adjusted with the screwdriver end of the scrench provided with your saw.
  - — **To increase the oil flow,** turn the oil adjusting screw counterclockwise.
  - — **To decrease the oil flow,** turn the oil adjusting screw clockwise.
- **If the oiler is adjusted to decrease the oil flow,** be sure to readjust the oiler before returning to types of cutting that require greater lubrication.
- **When the saw is run at high speed for long periods of time during certian types of cutting,** such as pruning and debranching, more oil can be delivered than is required. To avoid running out of chain oil before running out of fuel, check the oil tank periodically.

9. IMPORTANT POINTS TO REMEMBER

a. **Fill the oil tank each time you refill the fuel tank** to ensure that there will be sufficient oil for the chain whenever you start and run the saw.
b. **Keep sawdust and debris cleaned from the oil holes in the guide bar** to allow an adequate oil flow to the bar and chain.
c. **Keep spilled and spattered oil wiped from the unit to avoid sawdust and debris build-up.** Pay particular attention to oil on the fan housing and starter assembly to avoid overheating the engine.
d. **It is normal for a small amount of oil to appear under the saw after the engine stops.** This is excess oil draining from the bar and chain when the saw is not in use.

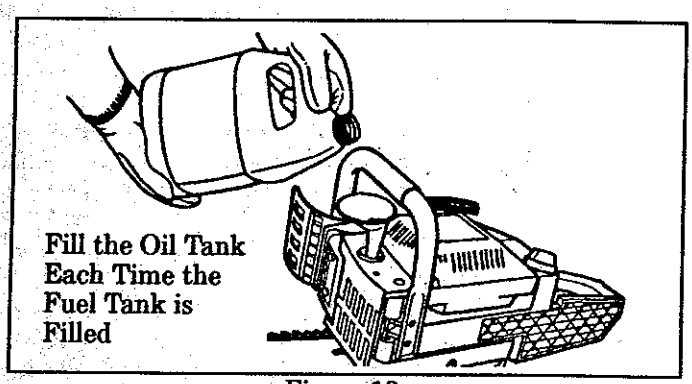


Figure 12

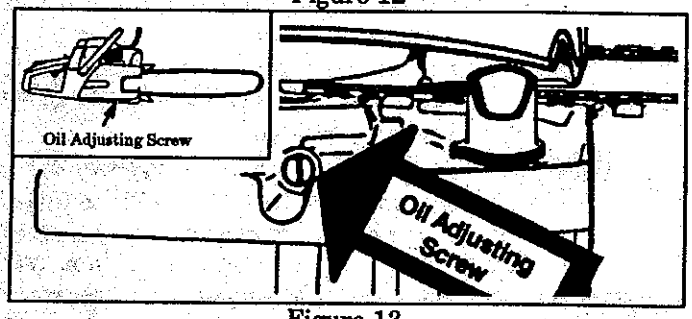


Figure 13

NOTES

USING YOUR SAW

A. PRE-OPERATION CHECKS

Each time before operating your saw, always:

1. ✔**Check over the safety rules and precautions in this manual.** Make certain you completely understand and can apply each one.
2. ✔**Check protective gear.** Always use eye, hearing, and head protection devices; safety footwear; protective gloves; and snug fitting clothing.
3. ✔**Check the saw for loose bolts, nuts, or fittings.** Tighten, repair, or replace parts as necessary. Tools required are listed in "Getting Ready" section.
4. ✔**Check the air filter.** Clean the filter before starting the engine. For location, see the "Air Filter" section.
5. ✔**Check the saw chain.** The chain should be sharp and at the correct tension.
6. ✔**Check the fuel tank and oil tank.** Both tanks should be filled.
7. ✔**Check the handles.** Handles should be dry and free of fuel mixture and oil.
8. ✔**Check weather conditions.** Do not use your saw at night or during bad conditions such as strong wind, rain, snow, etc.
9. ✔**Check the work area.** Keep children, bystanders, and animals a safe distance away from the work area when starting or operating the saw—a minimum of 30 feet.

B. CONTROL DEVICES

Understanding the control devices on your saw is an important part of learning how to properly and safely operate the unit.

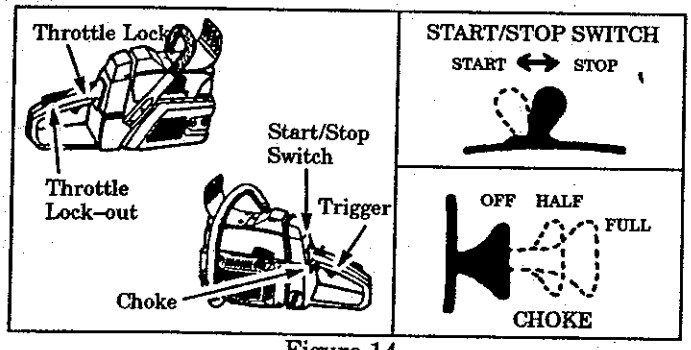


Figure 14

1. The **Start/Stop Switch** is moved forward for the "Start" position and rearward for the "Stop" position.
2. The two–position **Choke** helps to start the saw by controlling the air flow the the fuel system.
3. The **Trigger** accelerates and controls the speed of the engine and is designed to be used with the throttle lock–out.
4. The **Throttle Lock–out** prevents the trigger from becoming accidentally engaged. The throttle lock–out must be pressed before the trigger can be activated.
5. The **Throttle Lock** holds the throttle lock–out and trigger in position while the engine is being started. Release the throttle lock after the engine is started by lightly squeezing the trigger.

C. STARTING INSTRUCTIONS (Refer to the "Specifications" section for location of controls.)

⚠ WARNING
Always wear gloves; safety footwear; snug fitting clothing; and eye, hearing, and head protection devices when operating a chain saw.

1. BASIC PROCEDURE

a. Hold saw firmly on the ground as shown in Figure 15 . Make sure the saw chain is free to turn without contacting any object.
b. Move Start/Stop Switch to the "Start" position. Figure 14 .
c. Push down on the throttle lock–out, then squeeze the trigger. Press and hold down the throttle lock, then slowly release the trigger.
d. Adjust the choke according to "Starting Procedure for Varying Conditions," this page.
e. Hold the front handlebar with your left hand and place your right foot through the rear handle to stabilize the saw.
f. Pull the starter rope quickly with your right hand.
g. After the engine has started, squeeze the trigger to release the throttle lock, allowing the engine to return to idle.

⚠ WARNING
The chain must not move when the engine runs at idle speed. Refer to the "Carburetor Adjustments" section for correction.

h. Stop the engine by moving the Start/Stop Switch to the "Stop" position. Figure 14 .

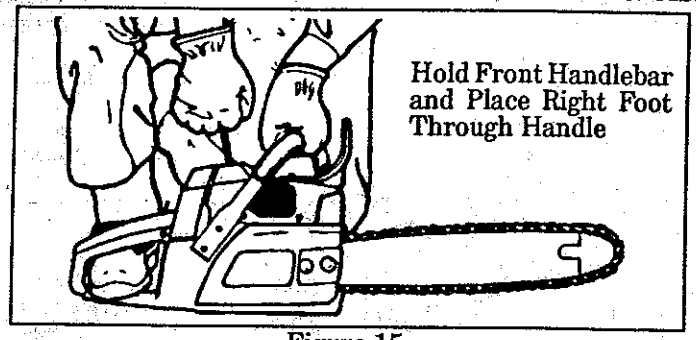


Figure 15

2. STARTING PROCEDURE FOR VARYING CONDITIONS

NOTE: Be sure to follow "1. Basic Procedure," as described on this page.

a. For a cold engine:

1.) Pull choke lever to full choke. Figure 14 .
2.) Pull starter rope quickly with your right hand until engine attempts to start, then push the choke lever to the half position. Figure 14 .
3.) Pull the starter rope quickly with your right hand until the engine starts. Figure 15 .
4.) Allow the engine to run for approximately five seconds. Then, push the choke lever to the off position. Figure 14 .

⚠ WARNING
Avoid bodily contact with the muffler when starting or using a warm engine to avoid serious burns.

b. For a warm engine:
1.)Leave choke lever in off position. Figure 14 .
2.) Pull the starter rope quickly with your right hand until the engine starts. Figure 15 .
3.) Stop the engine by moving the Start/Stop Switch to the "Stop" position. Figure 14 .

c. For a refueled warm engine after running out of fuel:
1.) Pull the choke lever to full choke. Figure 14 .
2.) Pull the starter rope quickly with your right hand until the engine attempts to start.
3.) Push the choke lever to off. Figure 14 .
4.) Pull the starter rope quickly with your right hand until the engine starts. Figure 15 .

3. IMPORTANT POINTS TO REMEMBER

a. **When pulling the starter rope,** do not use the full extent of the rope as this can cause the rope to break. Do not let the starter rope snap back—hold the handle and let the rope rewind slowly.

b. **If the engine floods,** let the unit sit for a few minutes, then repeat starting procedure using the half–choke position.

c. **For cold weather starting,** allow the engine to warm up (1–2 min.) at the half–choke position, then move choke to the"Off" position. Do not cut material with choke at "Full" or "Half" position.

TYPES OF CUTTING

A. BASIC CUTTING TECHNIQUE

1. IMPORTANT POINTS

a. **Cut wood only.** Do not cut metal; plastics; masonry; non–wood building materials; etc.

b. **Stop the saw if the chain strikes a foreign object.** Inspect the saw and repair or replace parts as necessary.

c. **Keep the chain out of dirt and sand.** Even a small amount of dirt will quickly dull a chain and thus increase the possibility of kickback.

⚠ WARNING

Kickback can occur when the moving chain contacts an object at the upper portion of the tip of the guide bar or when the wood closes in and pinches the saw chain in the cut. *Contact at the upper portion of the tip of the guide bar* can cause the chain to dig into the object and stop the chain for an instant. The result is a *lightning fast, reverse reaction which kicks the guide bar up and back toward the operator. If the saw chain is pinched along the top of the guide bar, the guide bar can be driven rapidly back toward the operator.* Either of these reactions can cause loss of saw control *which can result in serious injury.*

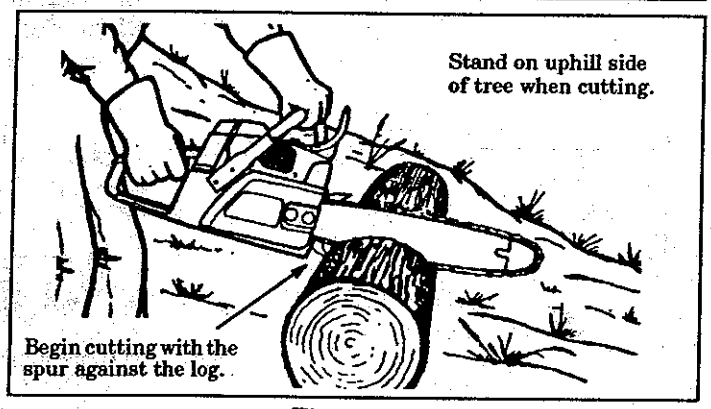


Figure 16

2. UNDERSTANDING REACTIVE FORCES

Pinch–kickback and Pull–In occur when the chain is suddenly stopped by being pinched, caught, or by contacting a foreign object in the wood. This stopping of the chain results in a reversal of the chain force used to cut wood and causes the saw to move in the opposite direction of chain rotation. Either reaction can result in loss of control and possible serious injury.

- **Pinch–Kickback––**
  — occurs when the chain on top of the bar is suddenly stopped.
  — rapidly drives saw straight back toward operator.
- **Pull–In––**
  — occurs when the chain on the bottom of the bar is suddenly stopped.
  — pulls the saw rapidly forward.

3. PROCEDURE

Practice cutting a few small logs using the following technique to get the "feel" of using your saw before you begin a major sawing operation.

a. **Accelerate engine to full throttle before entering cut** by squeezing the throttle trigger.

b. **Begin cutting with the saw frame against the log.** Figure 16 .

c. **Keep the engine at full throttle the entire time you are cutting.**

d. **Allow the chain to cut for you;** exert only light downward pressure. If you force the cut, damage to the bar, chain, or engine can result.

e. **Release the throttle trigger as soon as the cut is completed,** allowing the engine to idle. If you run the saw at full throttle without a cutting load, unnecessary wear can occur to the chain, bar, and engine.

f. To avoid losing control when cut is complete, **do not put pressure on saw at end of cut.**

g. **Stop the engine** before setting the saw down after cutting.

B. TREE FELLING TECHNIQUES

1. CAREFULLY PLAN YOUR SAWING OPERATION IN ADVANCE

a. **Clear the work area.** You need a clear area all around the tree where you can have secure footing at all times.

b. **Study the natural conditions** that can cause the tree to fall in a particular direction.
1.) The **WIND** direction and speed.
2.) The **LEAN** of the tree. The lean of a tree might not be apparent due to uneven or sloping terrain. Use a plumb or level to determine the direction of tree lean.
3.) **WEIGHTED** and **BRANCHES** on one side.
4.) Surrounding **TREES** and **OBSTACLES.**

c. **Look for decay and rot.** If the trunk is rotted, it can snap and fall toward the operator.

d. **Check for broken or dead branches** which can fall on you while cutting.

e. **Make sure there is enough room for the tree to fall.** Maintain a distance of 2 1/2 tree lengths from the nearest person or other objects. Engine noise can drown out a warning call.

f. **Remove dirt, stones, loose bark, nails, staples, and wire from the tree where cuts are to be made.**
g. **Plan to stand on the up-hill side when cutting on a slope.** Figure 17 .
h. **Plan a clear retreat path to the rear and diagonal to the line of fall.** Figure 18 .

2. FELLING SMALL TREES--LESS THAN 6" IN DIAMETER

a. If you know the direction of fall:
   1.) Make a single felling cut on the side away from the direction of fall.
   2.) Cut all the way through.
   3.) Stop the saw, put it down, and get away quickly on your planned retreat path.
b. If you are not sure which way the tree will fall, use the notch method described for felling large trees.

⚠ WARNING

DO NOT CUT:
--near electrical wires or buildings.
--if you do not know the direction of tree fall.
--at night since you will not be able to see well.
--during bad weather -- rain, snow, strong wind, etc.

3. FELLING LARGE TREES--6" IN DIAMETER OR MORE

The notch method is used to fell large trees. A notch is cut on the side of the tree in the desired direction of fall. After a felling cut is made on the opposite side of the tree, the tree will tend to fall into the notch.

NOTE: If the tree has large buttress roots, remove them before making the notch. Cut into the buttresses vertically, then horizontally. Figure 19 .

a. Make the notch cut. Figure 19 .
   1.) Cut the bottom of the notch first, through 1/3 of the diameter of the tree.
   2.) Complete the notch by making the slant cut.
   3.) Remove the notch of wood.
b. Make the felling cut on the opposite side of the notch about 2" higher than the bottom of the notch.
c. Leave enough uncut wood between the felling cut and the notch to form a hinge. Figure 20 .

NOTE: The hinge helps to keep the tree from twisting and falling in the wrong direction.

d. Use a wedge if there is any chance that the tree will not fall in the desired direction.

⚠ WARNING

Stay on the uphill side of the terrain to avoid injury from the tree rolling or sliding downhill after it is felled. Figure 18 .

NOTE: Before the felling cut is complete, use wedges to open the cut when necessary to control the direction of fall. Use wood or plastic wedges, but *never* steel or iron, to avoid kickback and chain damage.

e. Be alert to signs that the tree is ready to fall:
   1.) Cracking sounds.
   2.) Widening of the Felling Cut.
   3.) Movement in the upper branches.
f. As tree starts to fall, *stop the saw, put it down, and get away quickly on your planned retreat path.*
g. Be extremely cautious with partially fallen trees that may be poorly supported. When a tree doesn't fall completely, set the saw aside and pull down the tree with a cable winch, block and tackle, or tractor. To avoid injury, do not cut down a partially fallen tree with your saw.

Stay On Uphill Side Of Tree When Felling

Figure 17

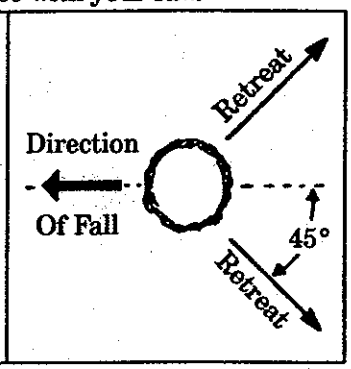


Figure 18

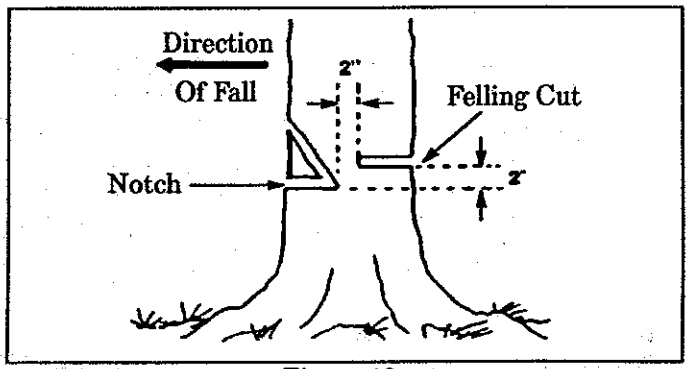
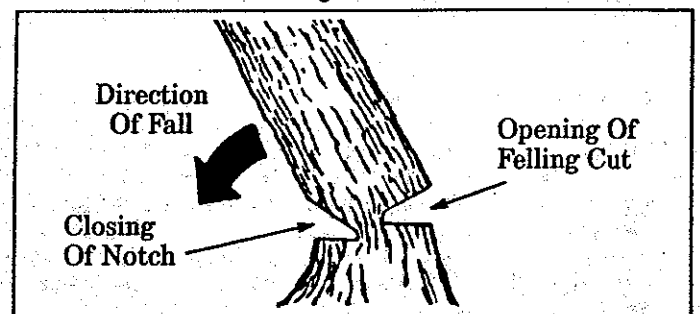


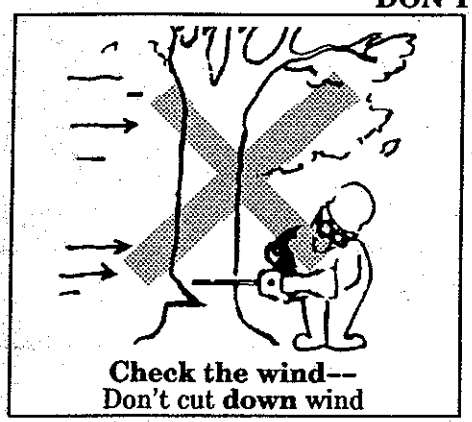
Figure 19

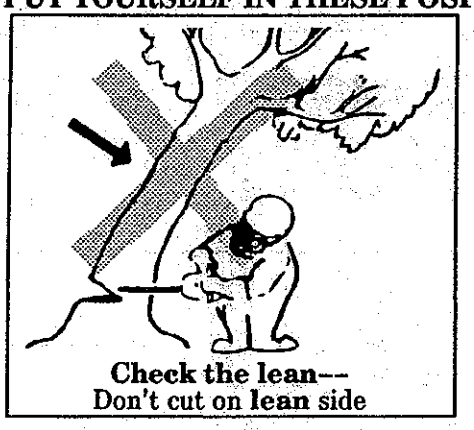


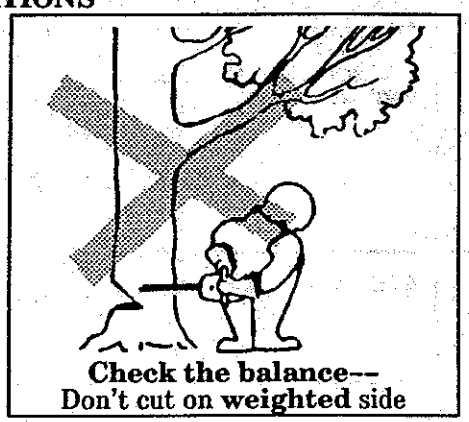
Hinge Holds Tree On Stump And Controls Fall

Figure 20

DON'T PUT YOURSELF IN THESE POSITIONS


Check the wind--
Don't cut **down** wind


Check the lean--
Don't cut on **lean** side


Check the balance--
Don't cut on **weighted** side

C. BUCKING

Bucking is the term used for cutting a fallen tree to the desired log size.

1. IMPORTANT POINTS

a. **Cut only one log at a time.**
b. **Cut shattered wood very carefully.** Sharp pieces of wood could be flung toward the operator.
c. **Use a sawhorse to cut small logs.** Never allow another person to hold the log while cutting and never hold the log with your leg or foot.
d. **Do not cut in an area where logs, limbs, and roots are tangled such as in a blown down area.** Drag the logs into a clear area before cutting by pulling out exposed and cleared logs first.
e. **Make the first bucking cut 1/3 of the way through the log and finish with a 2/3 cut on the opposite side.** As the log is being cut, it will tend to bend. The saw can become pinched or hung in the log if you make the first cut deeper than 1/3 of the diameter of the log.
f. **Give special attention to logs under strain to prevent the saw from pinching.** Make the first cut on the pressure side to relieve the stress on the log. Figure 21 .

2. TYPES OF CUTTING USED (Figure 22):

-- **Overcutting** — begin on the top side of the log with the bottom of the saw against the log; exert light pressure downward.
-- **Undercutting** — begin on the under side of the log with the top of the saw against the log; exert light pressure upward. During undercutting, the saw will tend to ***push*** back at you. Be prepared for this reaction and hold the saw firmly to maintain control.

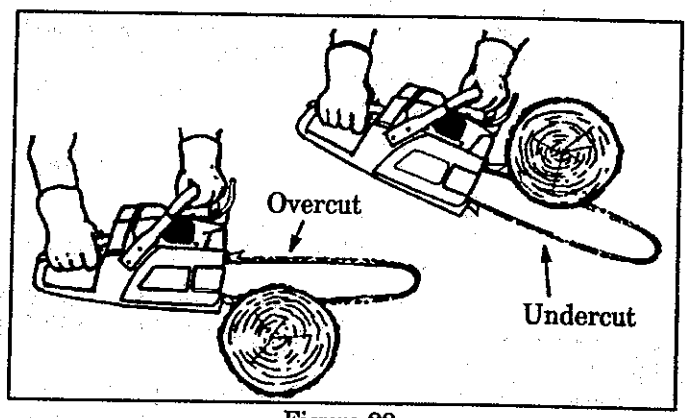


Figure 22

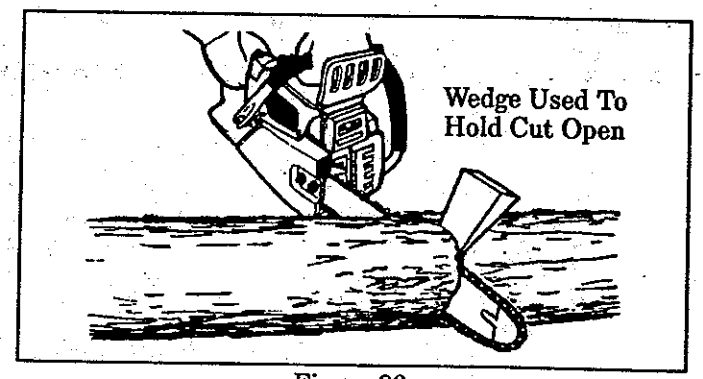


Figure 23

⚠ WARNING
Never turn the saw upside down to undercut. The saw cannot be controlled in this position.

⚠ WARNING
If saw becomes pinched or hung in a log, don't try to force it out. You can lose control of the saw resulting in injury and/or damage to the saw. Stop the saw, drive a wedge of plastic or wood into the cut until the saw can be removed easily. Figure 23 . Restart the saw and carefully reenter the cut. To avoid kickback and chain damage, do not use a metal wedge. Do not attempt to restart your saw when it is pinched or hung in a log.

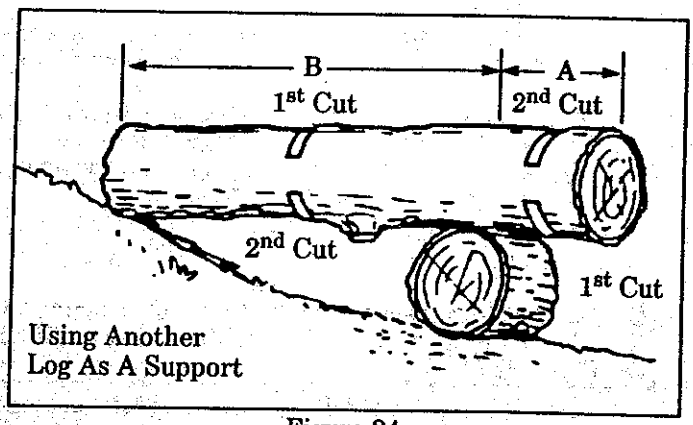


Figure 24

3. BUCKING WITHOUT A SUPPORT

a. Overcut with a 1/3 diameter cut.
b. Roll log over and finish with an overcut.

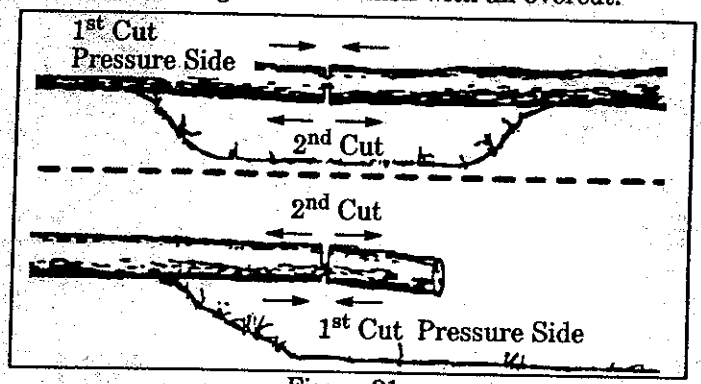


Figure 21

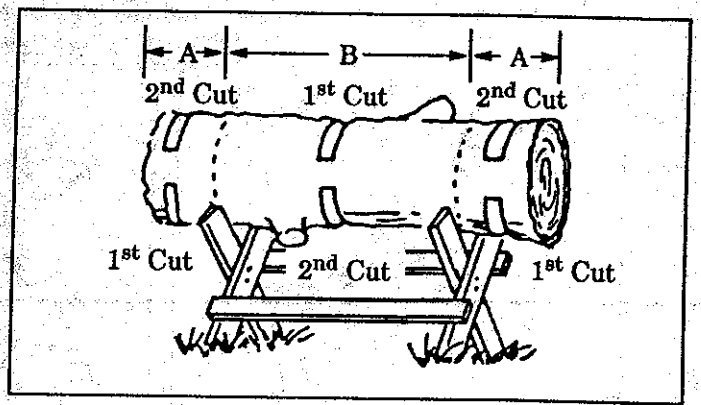


Figure 25

4. BUCKING USING ANOTHER LOG AS A SUPPORT

a. In area A:
1.) Undercut 1/3 of the way through the log.
2.) Finish with an overcut.

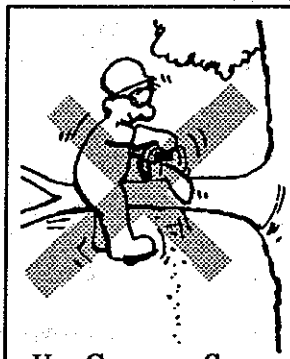
b. In area B:
1.) Overcut 1/3 of the way through the log.
2.) Finish with an undercut.

5. BUCKING USING A STAND

a. In area A:
1.) Undercut 1/3 of the way through the log.
2.) Finish with an overcut.

b. In area B:
1.) Overcut 1/3 of the way through the log.
2.) Finish with an undercut.

⚠ WARNING
Do not stand on the log being cut. Any portion can roll causing loss of footing and control.



Use Common Sense

Maintain Secure Footing

D. LIMBING AND PRUNING

- **Work slowly, keeping both hands firmly gripped on the saw.** Maintain secure footing and balance.
- **Watch out for springpoles.** Use extreme caution when cutting small size limbs. Slender material may catch the saw chain and be whipped toward you or pull you off balance.
- **Be alert for springback.** Watch out for branches that are bent or under pressure as you are cutting to avoid being struck by the branch or the saw when the tension in the wood fibers is released.
- **Keep a clear work area.** Frequently clear branches out of the way to avoid tripping over them.

⚠ WARNING
Never climb into a tree to limb or prune. Do not stand on ladders, platforms, a log, or in any position which can cause you to lose your balance or control of the saw.

1. LIMBING

a. **Always limb a tree after it is cut down.** Only then can limbing be done safely and properly.

b. **Leave the larger limbs underneath the felled tree to support the tree as you work.**

c. **Start at the base of the felled tree and work toward the top,** cutting branches and limbs. Remove small limbs with one cut. Figure 26 .

d. **Keep the tree between you and the chain.** Cut from the side of the tree opposite the branch you are cutting.

e. **Remove larger, supporting branches with the 1/3, 2/3 cutting techniques described in the bucking section.**
1.) Undercut 1/3 of the way through the log.
2.) Finish with an overcut.

f. **Always use an overcut to cut small and freely hanging limbs.** Undercutting could cause limbs to fall and pinch the saw.

2. PRUNING

a. **Limit pruning to limbs shoulder height or below.** *Do not cut* if branches are higher than your shoulder. Get a professional to do the job.

b. **Refer to Figure 27 for the pruning technique.**
1.) Undercut 1/3 of the way through the limb near the trunk of the tree.
2.) Finish with an overcut farther out from the trunk.
3.) Keep out of the way of the falling limb.
4.) Cut the stump flush near the trunk of the tree.

⚠ WARNING
Be alert for and guard against kickback. Do not allow the moving chain to contact any other branches or objects at the nose of the guide bar when limbing or pruning. Allowing such contact can result in serious injury.

Remove Small Limbs With One Cut

Figure 26

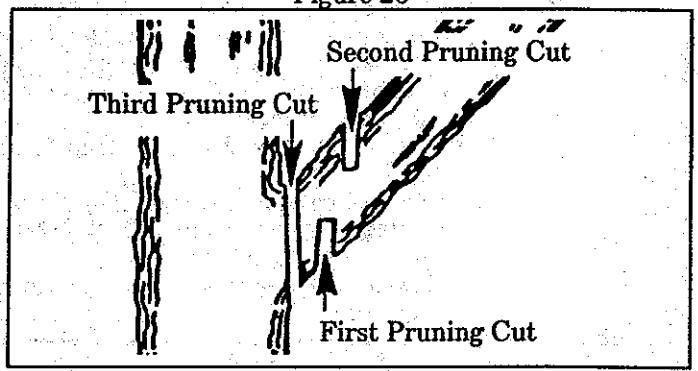


Figure 27

GENERAL MAINTENANCE

A good maintenance program of regular inspection and care will increase the service life and help to maintain the safety and performance of your saw.

- **Make all adjustments or repairs (except carburetor adjustments) with:**
  - — spark plug wire disconnected.
  - — engine cool as opposed to a saw that has just been run.
- **Check saw for loose bolts, screws, nuts, and fittings regularly.** Loose fasteners can cause an unsafe condition as well as damage to your saw.

⚠ WARNING
Have all chain saw service performed by a qualified service dealer other than the items listed in the maintenance section of this manual.

A. GUIDE BAR AND CHAIN

Increase the service life of your Guide Bar and Chain by:

— Using the saw properly and as recommended in this manual.
— Maintaining correct chain tension, page 8.
— Proper lubrication, page 10.
— Regular maintenance as described in this section.

1. CHAIN MAINTENANCE

- **Sharpen the chain when:**
  - **— wood chips are small and powdery.** Wood chips made by the saw chain should be about the size of the teeth of the chain.
  - **— saw has to be forced through the cut.**
  - **— saw cuts to one side.**

CAUTION: Always wear gloves when handling the chain. The chain can be sharp enough to cut you even though it is too dull to cut wood.

a. SHARPENING INSTRUCTIONS

Items required:
Gloves
4.5mm Diameter File
Flat File
Depth Gauge
6" File Holder

1.) **Stop the engine and disconnect the spark plug.**
2.) Adjust the chain for proper tension. Page 8.
3.) Work at the midpoint of the bar, moving the chain forward by hand as each cutter is filed.
4.) Sharpen Cutters.
   a.) Position the file holder level at a 10° angle on the top plate of the cutter and depth gauge. Figure 28 .
   b.) Align the 25° file holder marks with the bar and parallel to the center of the chain. Figures 29 & 31 .

NOTE: If your file holder has a 30° mark, disregard this mark and file at a 25° angle.

   c.) File from inside toward outside of cutter, straight across on forward stroke in one direction only. Use 2 or 3 strokes per cutting edge. Figure 30 .
   d.) Keep all cutters the same length. Figure 30 .
   e.) File enough to remove any damage to the cutting edges (side plate and top plate) of the cutter. Figure 30 .
   f.) File chain to meet specifications shown in Figure 31 .

⚠ WARNING
Maintain the proper hook angle according to the manufacturer's specification for the chain you are using. Too much hook angle will increase the chance of kickback which can result in serious injury. Figures 31 & 33 .

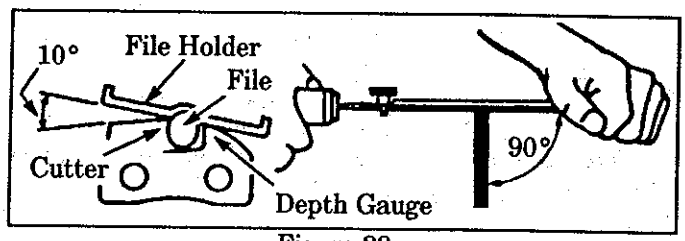


Figure 28

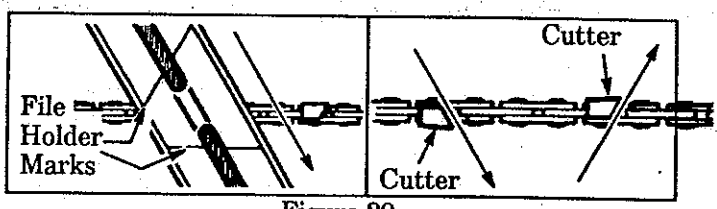


Figure 29

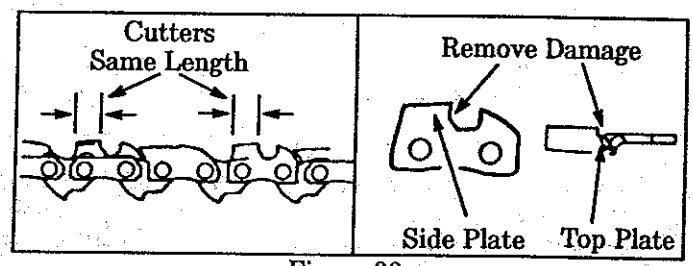


Figure 30

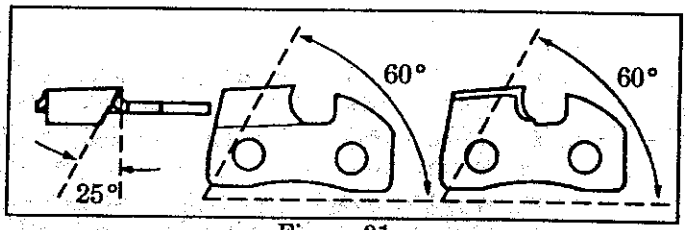


Figure 31

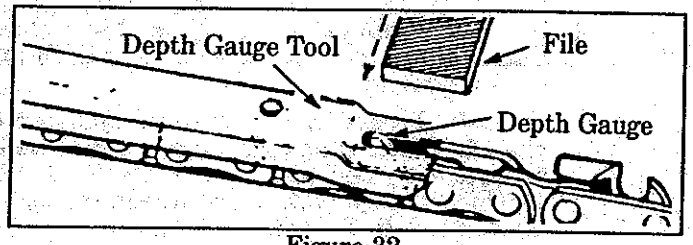


Figure 32

5.) **Correct Depth Gauges**
   a.) Place depth gauge tool over each cutter depth gauge. Figure 32 .
   b.) File depth gauge with a flat file until it is level with the top of the depth gauge tool.
   c.) Maintain rounded front corner of depth gauge with a flat file. Figures 32 & 33 .

NOTE: The very top of the depth gauge should be flat with the front half rounded off with a flat file.

⚠ WARNING
The Depth Gauge Tool is required to insure proper depth gauge. Filing the depth gauge too deep will increase the chance of kickback which can result in serious injury.

b. CHAIN REPLACEMENT

1.) **Use only the Low-Kickback replacement chain specified for your saw in the "Specifications" section.**
2.) **Replace the chain when cutters or links break.**
3.) **See a qualified service dealer to replace or sharpen your chain.**
4.) **Always have a worn sprocket replaced by a qualified service dealer when installing a new chain to avoid excessive wear to the chain.**

2. GUIDE BAR MAINTENANCE

- **Conditions which can require guide bar maintenance:**
  - **— saw cuts to one side.**
  - **— saw has to be forced through a cut.**
  - **— inadequate supply of oil to bar and chain.**
- **Check the condition of the guide bar each time the chain is sharpened.** A worn guide bar will damage the chain and make cutting more difficult.
- **Replace the guide bar when:**
  - — the inside groove of guide bar rails is worn.
  - — the guide bar is bent or cracked. See Figure 35 .
- **Use only the replacement Reduced-Kickback Guide Bar specified for your saw in the "Specification" section.**

a. Remove the guide bar to service.

b. Clean the oil holes at least once after every five hours of operation.

c. Remove sawdust from the guide bar groove periodically with a putty knife or a wire. Figure 34 .

d. Remove burrs by filing the side edges of the guide bar grooves square with a flat file. Figure 35 .

e. Restore square edges to an uneven rail top be filing with a flat file. Figure 35 .

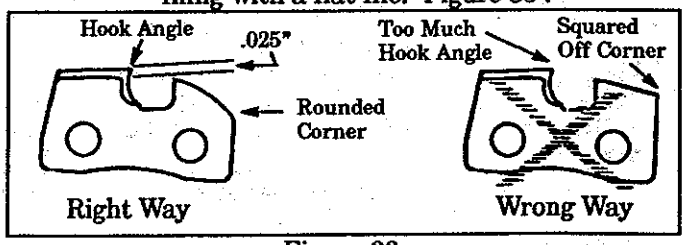


Figure 33

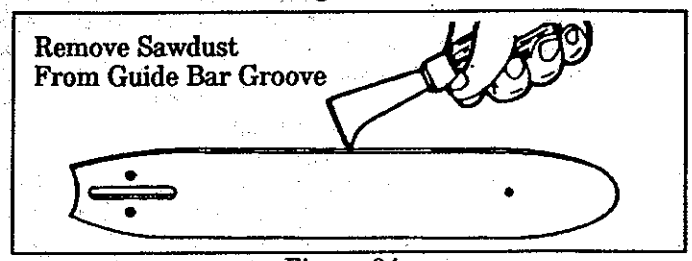


Figure 34

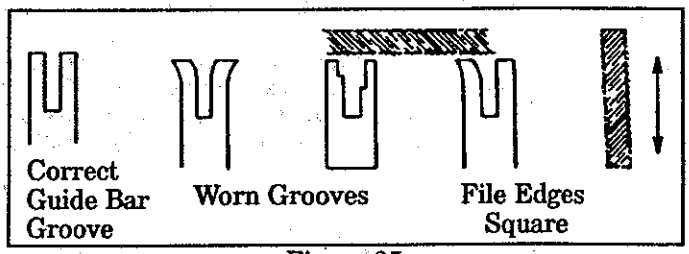


Figure 35

B. SPARK ARRESTOR

- **Carbon deposits build up on the spark arrestor** as the saw is used and must be removed to avoid creating a fire hazard or causing engine damage.
- **Replace the spark arrestor if breaks occur.**
- **Keep the spark arrestor clean at all times.**
  Clean: —as required.
  —at least once for each 25-30 hours of operation.

Items required: wire brush, 3/8" wrench

1. Disconnect the spark plug wire.
2. Remove the muffler cover screws and washers. Remove the muffler cover. Figure 36 .
3. Remove the spark arrestor screen. Figure 36 .
4. Clean the screen with a wire brush or replace if breaks are found.
5. Reassemble parts.

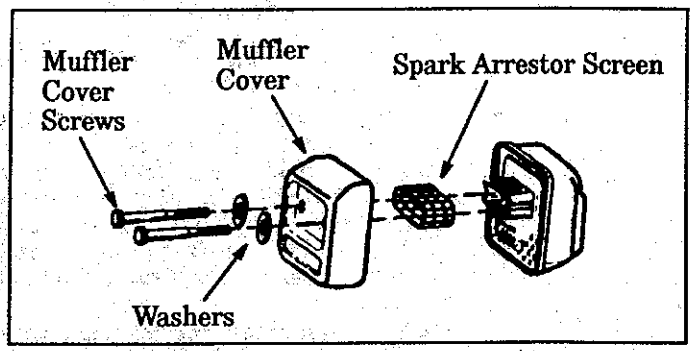


Figure 36

READ SPECIAL SAFETY SECTION FREQUENTLY

C. STARTER ROPE

- **Replace a broken starter or a rope that is badly frayed.**

NOTE: A recoil spring lies beneath the pulley and is under tension. **If the recoil spring is disturbed, considerable time and effort will be required to reinstall.** For this reason you may want to let a qualified service dealer handle this repair. If you try to repair the starter rope and the recoil spring pops out, take the unit to your dealer.

⚠ WARNING

Always wear eye protection when servicing the starter rope. The recoil spring beneath the pulley is under tension. If the spring pops out, serious injury can result.

1. Remove the four screws on the side of the fan housing. Figure 37 .

CAUTION: **Do not mix chrome–colored fan housing screws with the black–colored cylinder shroud screws. Other than color, these screws are similar in appearance; but if interchanged, they can strip out and/or cause permanent engine damage.**

2. Remove the fan housing.
3. If the starter rope is not broken, release the spring tension by pulling about 10 inches of rope from the pulley as shown in Figure 38 . Catch the rope in one of the notches. Figure 38 .
4. Carefully turn the pulley counterclockwise until the spring tension is released.
5. Remove the pulley screw in the center of the pulley. Be sure to note the position of the cam when removing it from the pulley. Figure 39 .
6. Lift the pulley *carefully* while gently twisting it counterclockwise.
7. Remove the rope retainer screw and remove the old rope. Figure 39 .
8. Move away from the fuel tank and melt the end of the rope to be installed.
9. Allow the melted end to drip once. Then, while the rope is still hot, pull the melted end through a rag to obtain a smooth, pointed end.
10. Insert one end of the rope through the handle and secure with a knot. Leave a 3/16" pigtail behind the knot. Figure 40 (inset).
11. Feed the rope through the round starter rope hole in the fan housing. Figure 39 .
12. Guide the rope inside the pulley, then up through the pulley hole (on the pulley ratchet side). Figure 39 . It might be necessary to insert a small screwdriver through the underside hole to push the rope through the pulley hole. Figure 39 (inset).
13. Tie a knot in the end of the rope leaving no more than 3/8 to 1/4 inch tail and pull the knot snugly into the corner of the groove in the pulley. Pull the rope tightly.
14. Tuck the tail on the rope knot into the inner curved section to avoid interference with the flywheel.
15. Set the pulley into the housing; push it down and engage the spring.
16. Replace and tighten the pulley screw. Make sure the starter dog, retainer, cam, and wave washer are positioned and installed properly. Figure 39 .

NOTE: Make sure the cam is installed on the starter dog in the direction shown in Figure 39 . Also, make sure the wave washer is seated around the top outer edge of the retainer and not caught between the top of the retainer and the pulley screw.

17. Pull out 10 inches of rope. Catch the rope in the slot in the pulley. Figure 40 .
18. Turn the pulley clockwise to wind up the spring until it will turn no more without forcing. *Hold the pulley by hand. Do not let go of the pulley.* Let the pulley slowly unwind one full turn and release the rope from the slot. Continue to hold the pulley.
19. Hold the pulley and pull the starter rope to the full extent of length. Let the rope rewind slowly.
20. Reinstall the fan housing using the chrome–colored screws. Tighten the screws securely.

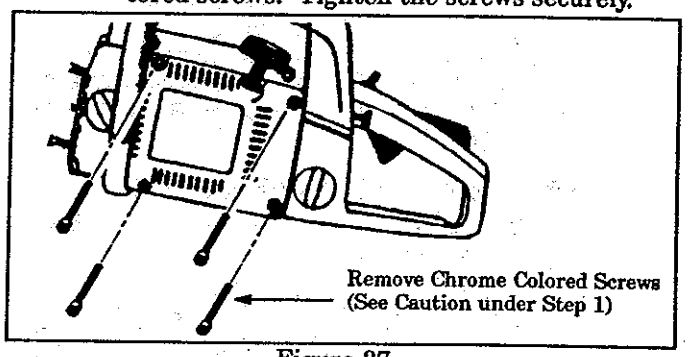


Figure 37

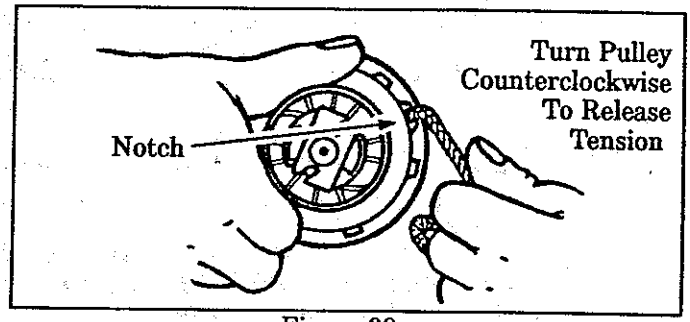


Figure 38

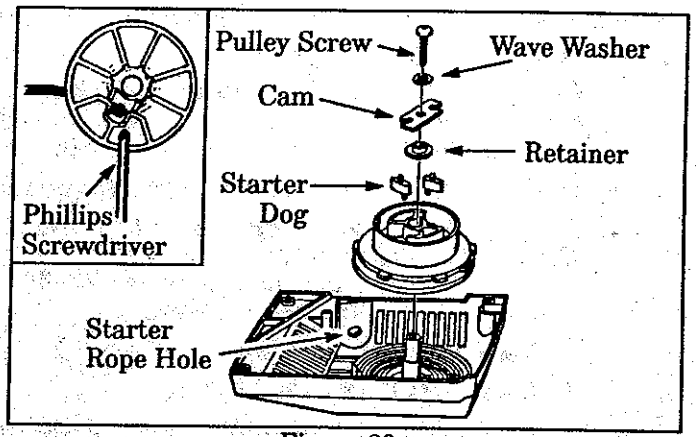


Figure 39

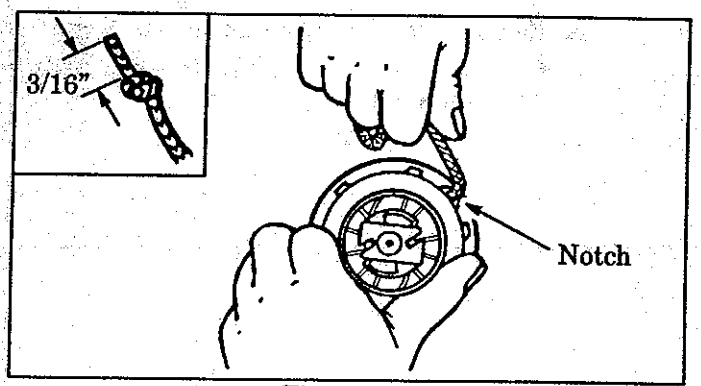


Figure 40

D. CARBURETOR ADJUSTMENTS

- **Poor engine performance can be a result of other causes such as dirty air filter, carbon build-up on muffler outlets, etc. See the "Trouble Shooting Chart" before proceeding with carburetor adjustments.**
- **For best results, it is recommended that you have a qualified service dealer make all carburetor adjustments.** Your dealer has the training, experience, and tools necessary to properly adjust you saw to meet our factory performance specifications. *This service is not covered by warranty.* If it becomes necessary for you to make carburetor adjustments yourself, follow the described procedures very carefully.
- **The carburetor has been adjusted at the factory for sea level conditions.** Adjustments may become necessary if the saw is used at significantly higher altitudes or if you notice any of the following conditions:

  NOTE: Be sure to properly prepare the saw as described in "1. Preparation" (below) before making any adjustments.

  — Chain moves when the engine runs at idle speed. See "2. Idle Speed Adjustment."

  — Saw will not idle. See "2. Idle Speed Adjustment" and "3. Low Speed Mixture Adjustment."

  — Engine dies or hesitates when it should accelerate. See "4. Acceleration Adjustment."

  — Loss of cutting power which is not corrected by air filter cleaning. See "5. High Speed Mixture Adjustment."

CAUTION: **Permanent damage will occur to any 2-cycle engine if incorrect carburetor adjustments are made.**

- **If the unit will not operate properly after making these adjustments, take the saw to a qualified service dealer.**

⚠ WARNING

The chain will be moving during most of this procedure. Wear your protective gear and observe all safety precautions.

1. PREPARATION

a. Stop the engine.

b. Use a fresh fuel mixture with proper gasoline/oil ratio.

c. Place the saw on a solid, flat surface and make sure the chain will not contact any object.

d. Locate the three (3) carburetor adjusting screw openings to the right of the air filter cover. Figure 41 .

e. Start the engine and allow engine to idle three (3) minutes to warm up. *The engine must be at operating temperature for proper adjustments to be made.*

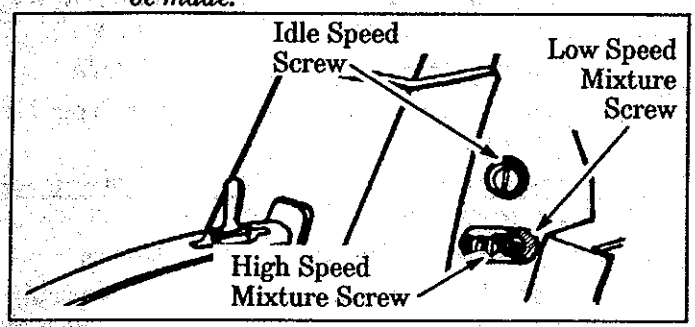


Figure 41

2. IDLE SPEED ADJUSTMENT

a. Allow the engine to idle.

b. Adjust the Idle Speed Screw until the engine continues to run without stalling and without the chain moving.

— *Turn screw clockwise to increase engine speed if engine stalls or dies.*

— *Turn screw counterclockwise to slow engine down and/or to keep the chain from turning.*

c. **No further adjustments are necessary if the chain does not move at idle speed and if performance is satisfactory.**

⚠ WARNING

In "3. Low Speed Mixture Adjustment," recheck idle speed after each adjustment. The chain must not move at idle speed.

3. LOW SPEED MIXTURE ADJUSTMENT

a. Allow engine to idle.

b. Turn the Low Speed Mixture Screw slowly clockwise until the RPM starts to drop. Note the position.

c. Turn the Low Speed Mixture Screw slowly counterclockwise until the RPM speeds up and starts to drop again. Note the position.

d. Set the Low Speed Mixture Screw at the midpoint between the two positions.

4. ACCELERATION ADJUSTMENT

If the engine dies or hesitates instead of accelerating, turn the Low Speed Mixture Screw 1/16 of a turn at a time counterclockwise until you have smooth acceleration.

5. HIGH SPEED MIXTURE ADJUSTMENT

CAUTION: **Adjustments as small as 1/16 of a turn can affect engine performance. It is important to turn the screw only 1/16 of a turn per adjustment and test the performance of the saw before making further adjustments.**

a. Make a test cut.

b. Adjust the High Speed Mixture Screw 1/16 of a turn as follows:

— Clockwise if saw smokes or loses power.

— Counterclockwise if the saw has speed out of the cut but lacks power in the cut.

c. Repeat test cut.

d. Continue 1/16 of a turn adjustments until the saw runs smoothly in cut.

CAUTION: **A too lean high speed setting (clockwise adjustment) will cause engine damage to any 2-cycle engine from overheating and lack of lubrication. Never set the high speed mixture screw so far clockwise that you have high speed but lack power while cutting. An effective approach follows.**

— Turn screw counterclockwise until engine loses power while cutting.

— Then, turn screw clockwise in 1/16 of a turn increments *only until* the engine has power while cutting.

NOTE: If the unit will not operate properly after making these adjustments, take the saw to a qualified service dealer.

E. AIR FILTER

- **A dirty air filter:**
  - — reduces cutting power.
  - — increases fuel consumption.
- **Clean the air filter as follows:**
  - — check filter after every 10 tanks of fuel or 5 hours of operation, whichever is less.
  - — more frequently in very dusty conditions.

1. Clean off carburetor cover and the area around it.
2. Pull the choke to the full position to prevent dirt from entering the carburetor.
3. Remove the carburetor cover. Figure 42 .
4. Carefully remove the air filter.
5. Remove the single air filter screw and separate the two halves.

CAUTION: Do not use gasoline or other flammable liquid to clean the filter to avoid creating a fire hazard.

6. Wash the filter in soap and water.
7. Brush away all dust and debris from the filter.
8. Allow the filter to dry.
9. Reassemble the filter.
10. Brush away all dust and debris from the surfaces on which the filter is to be placed.
11. Reinstall the filter and carburetor cover.

CAUTION: To avoid damage to the engine, do not operate the unit without the air filter in place.

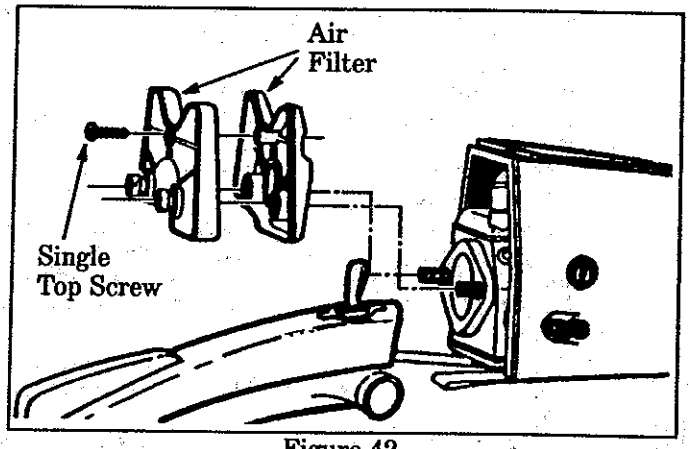


Figure 42

F. CLUTCH AND DRUM/SPROCKET

⚠ WARNING

Do not start the engine without the guide bar, chain, and bar clamp housing completely assembled. The clutch can come off without the guide bar and chain completely assembled, and serious injury can result. The clutch shoes and drum can separate causing the clutch to violently fly apart and serious injury can result.

- **Take the saw to your Authorized Service Dealer for full clutch inspection and service after each 100 hours of operation.** *It is recommended that you do not trey to service the clutch or drum/sprocket yourself unless you are a competent small engine mechanic and have the proper clutch service tools.* Proper disassembly and repair of the clutch is extremely important to the life of the engine and the safety of the operator.
- **Inspect the sprocket regularly for wear.** A worn sprocket will make the chain run erratically and will shorten the life of the bar and chain. Figure 43 .
- **Clutch maintenance is required when:**
  - — the chain continues to turn while the engine idles after the idle speed screw has been adjusted to its capacity.
  - — slippage occurs during a cut.
  - — a chattering noise occurs during cutting.
- **Clean the clutch, drum, sprocket, and surrounding area daily during heavy use of the saw.** Check to see that the clutch drum turns freely and smoothly.
- **Always have a worn sprocket replaced by your Authorized Service Dealer whenever a new chain is installed** to gain the full life expectancy of the chain.

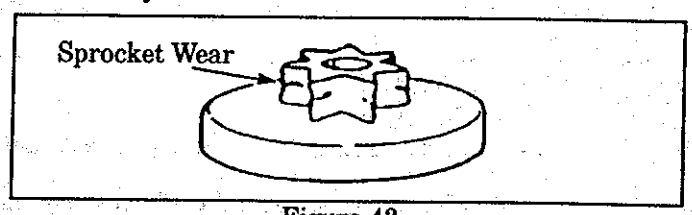


Figure 43

G. STORAGE

When your saw is to be stored for over 30 days, always:

1. Drain fuel tank in a safe manner. See "Fueling Your Engine—Fuel Safety."
2. Start engine and allow to run at idle speed until the engine stops.

   NOTE: Running the engine until it stops will remove most of the fuel from the fuel system.

   NOTE: It is important to prevent gum deposits from forming in essential fuel systems parts such as the carburetor, fuel filter, fuel hose, or tank during storage. Alcohol blended fuels (called gasohol or using ethanol or methanol) can attract moisture which leads to separation and formation of acids during storage. Acidic gas can damage the fuel system of an engine while in storage.
3. Drain oil from oil tank.

CAUTION: Wear protective gloves when handling the chain. The chain is sharp and can cut you even when it is not moving.

4. Remove, clean, and dry the bar and chain.
5. Store the chain in a container filled with oil to prevent rust.
6. Apply a coating of oil to the entire surface of the bar and wrap it in heavy paper, cloth, or plastic.
7. Clean the outside surfaces of the engine.
8. Store the saw in a dry place, out of the reach of children, and away from where fuel vapors can reach open flames from hot water heaters, furnaces, etc.

G.TROUBLE SHOOTING CHART

SYMPTOM	CAUSE	REMEDY
Engine will not start or will run only for a few seconds after starting.	1. Fuel tank empty. 2. Engine flooded. 3. Spark plug not firing. 4. Fuel not reaching carburetor. 5. Carburetor requires adjustment. 6. Ignition Switch Off. 7. None of the above.	1. Fill tank with correct fuel mixture 2. See "Starting Instructions." 3. Install new plug/check ignition system. 4. Clean fuel filter; inspect fuel line. 5. See "Carburetor Adjustments." 6. Move switch to the "START" position. 7. Contact your Service Dealer.
Engine will not idle properly.	1. Idle speed set too fast or too slow. 2. Low speed mixture requires adjustment. 3. Crankshaft seals worn. 4. Compression low. 5. None of the above.	1. See "Carburetor Adjustments." 2. See "Carburetor Adjustments." 3. Contact your Authorized Service Dealer. 4. Contact your Authorized Service Dealer. 5. Contact your Authorized Service Dealer.
Engine will not accelerate,lacks power, or dies under a load.	1. Air filter dirty. 2. Spark plug fouled. 3. Carburetor requires adjustment. 4. Exhaust ports or muffler outlets plugged. 5. Compression low. 6. None of the above.	1. Clean or replace air filter. 2. Clean or replace spark plug and re-gap. 3. See "Carburetor Adjustments." 4. Contact your Authorized Service Dealer. 5. Contact your Authorized Service Dealer. 6. Contact your Authorized Service Dealer.
Engine smokes excessively.	1. Air filter dirty. 2. Fuel mixture incorrect. 3. High speed mixture requires adjustment. 4. Choke partially on. 5. Crankcase leak.	1. Clean or replace air filter. 2. Refuel with correct fuel mixture. 3. See "Carburetor Adjustments." 4. Push Choke knob in. 5. Contact your Authorized Service Dealer.
Engine runs hot.	1. Fuel mixture incorrect. 2. High speed mixture set too low (Lean). 3. Spark plug incorrect. 4. Exhaust ports or muffler outlets plugged. 5. Carbon build-up on muffler outlet screen. 6. Fan housing/cylinder fins dirty. 7. None of the above.	1. See "Fueling Your Unit." 2. See "Carburetor Adjustments." 3. Replace with correct plug. 4. Contact your Authorized Service Dealer. 5. Clean spark arrestor screen. 6. Clean area. 7. Contact your Authorized Service Dealer.
Oil inadequate for bar and chain lubrication.	1. Oil tank empty. 2. Improperly adjusted oiler (if so equipped). 3. Oil pump or oil filter clogged. 4. Guide bar oil hole blocked.	1. Fill oil tank. 2. Adjust oiler. 3. Contact your Authorized Service Dealer. 4. Remove bar and clean.
Chain moves at Idle Speed.	1. Idle speed requires adjustment. 2. Clutch requires repair.	1. See "Carburetor Adjustments." 2. Contact your Authorized Service Dealer.
Chain does not move when engine is accelerated.	1. Chain tension too tight. 2. Carburetor requires adjustment. 3. Guide bar rails pinched. 4. Clutch slipping.	1. See "Chain Tension." 2. See "Carburetor Adjustments." 3. Repair or replace. 4. Contact your Authorized Service Dealer.
Chain clatters or cuts roughly.	1. Chain tension incorrect. 2. Cutters damaged. 3. Chain worn. 4. Cutters dull, improperly sharpened, or depth gauges too high. 5. Sprocket worn.	1. See "Chain Tension." 2. Contact your Authorized Service Dealer. 3. Resharpen or replace chain. 4. See the chain sharpening instructions. 5. Contact your Authorized Service Dealer.
Chain stops within the cut.	1. Chain cutter tops not filed flat. 2. Guide bar burred or bent; rails uneven. 3. Clutch slipping.	1. See the chain sharpening instructions. 2. Repair or replace guide bar. 3. Contact your Authorized Service Dealer.
Chain cuts at an angle.	1. Cutters damaged on one side. 2. Chain dull on one side. 3. Guide bar bent or worn.	1. Resharpen until all cutters have equal angles and lengths. 2. Resharpen until all cutters have equal angles and lengths. 3. Replace guide bar.

H. MAINTENANCE CHART

		before starting work	after finishing work or daily	after each refueling stop	weekly	monthly	annually
Complete machine.	Visual inspection (condition, leaks)	✓					
	Clean		✓				
Throttle trigger; safety throttle lock; stop switch.	Check operation	✓	✓				
Filter in fuel tank.	Replace pick–up — when clogged or dirty.						
Fuel tank.	Inspect	✓					✓
Chain oil tank.	Clean						✓
Chain lubrication.	Fill			✓			
Saw chain.	Inspect (sharpness, wear, damage)	✓		✓			
	Check chain tension	✓		✓			
	Sharpen — when dull						
Guide bar.	Inspect (wear, damage)	✓		✓			
	Clean				✓		
	Deburr					✓	
	Replace — when worn or damaged						
Chain sprocket.	Check — when replacing chain						
Air filter.	Clean				✓		
	Replace — when worn or damaged						
Cylinder fins.	Clean	✓					
Carburetor	Check idle adjustment — chain must not turn at idle	✓					
	Readjust idle — when engine runs poorly						
Spark plug.	Replace — when fouled or damaged						
All accessible screws and nuts (not adjusting screws).	Retighten	✓					
Vibration mounts.	Inspect — for broken or disconnected springs	✓					
	Replace — when broken						
Spark arrestor screen.	Clean — when clogged or dirty						
	Replace — when worn or damaged						

ACCESSORIES

See your dealer for accessories and parts.

File – flat – 6" 952–055027
File – round – 4.5mm – Model 336 952–055070
File – round – 5/32" – Model 365 952–055004
Safety Glasses 952–062003
Spark Plug – Model 336 952–030120
Spark Plug – Model 365 952–030164
Fuel & Oil Cap Kit 952–010859
Air Filter 952–014450
Chain Brake Kit 952–069356
Reduced Kickback Guide Bar
16" 952–044372
20 952–044377
Low–Kickback Chain
16" 952–051320
20" 952–051322
Reduced Kickback Guide Bar – Model 305 Only
18" 952–044375
Low–Kickback Chain – Model 305 Only
18" 952–051321
2–cycle Engine Oil
3.2 oz.–40:1 952–030132
8 oz.–40:1 952–030127
Bar & Chain Lubricant
32 oz. 952–030129
1 gal. 952–030130
Scrench 530–031135
Operator's Manual 530–068802

NOTES

PARTS AND SERVICE

Your POULAN PRO product has been expertly engineered and carefully manufactured to rigid quality standards. As with all mechanical products, some adjustments or part replacement may be necessary during the life of your unit.

FOR SERVICE OR REPLACEMENT PARTS:

1. Consult your dealer/place of purchase.
2. Consult the yellow pages of your phone directory for the name of the nearest Poulan/Weed Eater Master Service Dealer (under "saws" for Chain Saws or under "lawnmowers" for Trimmers, Brushcutters, and Blowers).
3. For replacement parts, have available the following information:
   a. Description of the tool.
   b. Model Number.
   c. Description of part.

NOTE: Poulan/Weed Eater Division provides parts and service through its authorized distributors and dealers; therefore, all requests for parts and service should be directed to your local dealer(s). The philosophy of Poulan/Weed Eater Division is to continually improve all of its products. If the operating characteristics or the appearance of your product differs from those described in this Operator's Manual, please contact your local Poulan/Weed Eater Dealer for updated information and assistance. Always update your tool when improvements are made available, especially those related to safety. Parts and repair service are not available directly from Poulan/Weed Eater Division of WCI Outdoor Products, Inc.

POULAN/WEED EATER
DIVISION OF WCI OUTDOOR PRODUCTS, INC.
Shreveport, Louisiana 71139-9329

530-068802-1-06/05/92