

OWNER'S MANUAL

36cc Pole Chainsaw



POLE PRUNER SAW BBT-PCS-4ST



WARNING!

Read this manual and familiarise yourself with its contents.

This machine is designed for cutting branches.

Do not use this machine for other purposes.

Minimize the risk of injury to yourself and others.

Do not operate or service this machine unless you clearly understand this manual.

Keep this manual at a particular place so that you can reread it whenever you have a question about its use.

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Attention Statements

Throughout this manual are special attention statements.

DANGER!

A statement preceded by the triangular attention symbol and the word "DANGER" contains information that should be acted upon to prevent serious injury or death.

WARNING!

A statement preceded by the triangular attention symbol and the word "WARNING" contains information that should be acted upon to prevent serious bodily injury.

CAUTION!

A statement preceded by the word "CAUTION" contains information that should be acted upon to avoid damage to the machine.

IMPORTANT

A statement preceded by the word "IMPORTANT" is one that possesses special significance.

NOTE

A statement preceded by the word "NOTE" contains information that is handy to know and may make your job easier.

Introduction

The BM-52-PS Pole Pruner is designed and built to deliver superior performance and reliability without compromise to quality, comfort, safety or durability.

The total length of BM-52-PS is optional. Operator can choose the length of 2220mm or 3040mm according to the working condition. It makes your work easy and efficient.

The procedures described in this manual are intended to help you get the most from your machine as well as to protect you and others from harm.

These procedures are guidelines for safe operation under most conditions, and are not intended to replace any safety rules and/or laws that may be in force in your area.

Safety Precautions



DANGER!



THE PRUNER IS NOT INSULATED AGAINST ELECTRICAL SHOCK!

Approaching or contacting electrical line with the pruner could cause death or serious injury. Keep the pruner at least 10 meters (33 feet) away from electrical lines or branches that contact electrical lines.

A pole pruner runs at very high speeds and has the potential to do serious damage if misused, abused or mishandled. To reduce the risk of injury, you must maintain control at all times, and observe all safety precautions during operation. **Never permit a person without training or instruction to operate this pruner!**



Read and follow this manual, make sure anyone using the pruner does likewise. Failure to do so could result in serious personal injury or machine failure. Keep this manual for future reference.



Always wear a hard hat to reduce the risk of head injuries during operation of this machine. In addition, always wear eye and hearing protection. manufacturer recommends wearing a face shield as additional face and eye protection.



Wear nonslip heavy-duty work gloves to improve your grip on the pole pruner handle. Wear sturdy footwear with nonslip soles to provide good footing. Steel-toes safety boots are recommended. Wear snug-fitting clothes that also permits freedom of movement.



Never operate this tool or any other power equipment if you are tired, ill, or under the influence of alcohol, drugs, or any substance that could affect your ability or judgement.



Keep bystanders at least 15 meters (50 feet) away from the operating pruner to reduce the risk of being struck by falling objects or thrown debris.



Never cut off branches over your head. The cut-off branches may hit you and cause serious injury.



Never operate the pruner at an angle greater than 60° in order to reduce the risk of being struck by falling objects during operation.

For chainsaws only



Beware of kickback! Kickback can occur whenever the tip of the guide bar touches an object while the saw is operating. Kickback may force the bar up and back toward the operator with lightning-like speed!



Never touch the saw chain when starting the engine and while operating this machine.



Chain oil fill/oil pump



Sound Power Level (measured in accordance with 2000/14/EC)



Beware of pinching. Pinching the saw along the tip of the guide bar may force the bar back rapidly toward the operator. Pinching can occur whenever wood closes in around the moving chain.

Kickback and Pinching Safety Precautions



WARNING!

Both kickback and pinching may cause you to lose control of the pole pruner which could result in serious personal injury. **Do not rely exclusively on the safety device built into the pruner!** You must take several steps to keep your jobs free from accident or injury:

1. Understand kickback and pinching! You can reduce or eliminate the element of surprise. Sudden surprises contributes to accidents.
2. Keep firm grip on the pole pruner with both hands whenever the engine is running. A firm grip will help you reduce the affects of kickback and pinching as well as maintain control of the machine.
3. Make sure the area in which you are cutting is free from obstructions. Do not let the nose of the guide bar contact a log, branch, or any other obstructions which could be hit while you operation the pole pruner.
4. Cut at high engine speeds.
5. Follow the manufacturer's instructions for sharpening and maintaining the chain.
6. Use only the replacement bar and chain or equivalent as specified by the manufacturer.

Operating Precautions



WARNING!

- Make sure the chain and sprocket are correctly adjusted before operating the pruner. **Never attempt chain adjustment with the engine running!**
- Always make sure the cutting attachment is properly installed and firmly tightened before operation.
- Never use a cracked or warped guide bar: replace it with a serviceable one and make sure it fits properly.
- Never smoke or light fires near the pruner. Keep the pruner away from excessive heat. Engine fuel is very flammable and fire could lead to serious personal injury or property damage.
- If a saw blade should bind fast in a cut, shut off the engine immediately. Push the branch or tree to ease the bind and free the blade.
- Make sure there are no missing or loose fasteners, and that the stop switch and throttle controls are working properly.
- Always move the unit to a place well away from a fuel storage area or other readily flammable materials before starting the engine. Use caution when handling fuel. Move the pole pruner at least 3 meters (10 feet) from the fueling point before starting the engine.
- Make sure there is always good ventilation when operating the pruner. Fumes from engine exhaust can cause serious injury or death. **Never run the engine indoors!**
- Before starting the engine, make sure the saw chain is not contacting anything.
- Do not operate the pole pruner with the muffler removed.
- When cutting a limb that is under tension, be alert for springback so that you will not be struck by the moving limb.
- Always stop the engine immediately and check for damage if you strike a foreign object or if the machine becomes tangled. Do not operate with broken or damaged equipment.
- Stop the machine immediately if it suddenly begins to vibrate or shake. Inspect for broken, missing or improperly installed parts or attachments.
- Never transport the pruner nor set it down with the engine running. An engine that's running could be accidentally accelerated causing the chain to rotate.
- Make sure the chain cover is in place when transporting and storing the pruner.
- When carrying by hand, the chain should be pointing backward. See Figure 1.

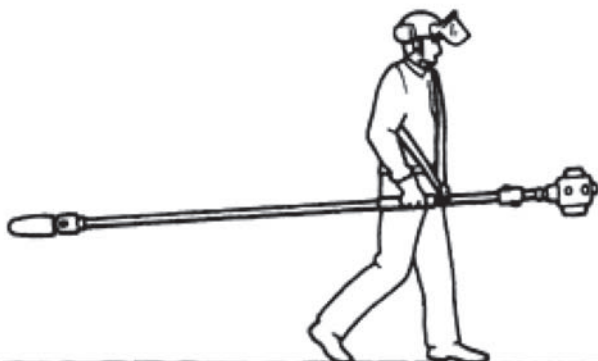


Figure 1

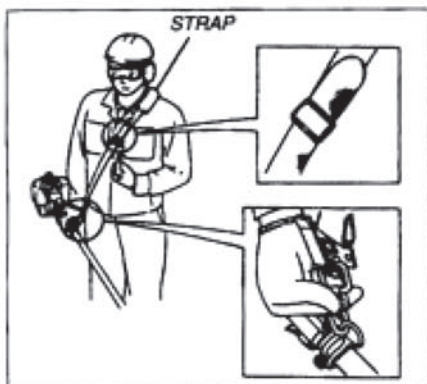
CAUTION!

- Always maintain this pole pruner according to the this owner's manual and follow the recommended scheduled maintenance.
- Never modify or disable any of the pole pruner's safety devices.
- Always use genuine parts and accessories when repairing or maintaining this machine.
- Do not make unauthorized modifications or substitutions to the guide bar or chain.
- Never allow the engine to run at high RPM without a load. Doing so could damage the engine.
- When transporting the pruner in a vehicle, tie it down securely to prevent damage and fuel spillage.
- Always stop the engine and allow it to cool before refueling. Avoid overfilling and wipe off any fuel that may have spilled.
- Never place flammable material close to the engine muffler and never run the engine without the spark arrestor screen in place.
- Always clear your work area of trash or hidden debris to help ensure good footing.
- Keep the saw chain sharp and properly adjusted.
- Keep the pruner as clean as possible. Keep it free of loose vegetation, mud, etc.

Operating the Pruner

To Wear the Strap

- 1 Hook the strap hook to the hanger on the outer pipe.
- 2 Wear the strap so that the hook stays at your right hand side.
- 3 Adjust the length of the strap so that you can hold and operate the machine comfortably.



Always wear eye and hearing protection. manufacturer recommends wearing a face shield as additional face and eye protection.

Always wear a hard hat to reduce the risk of head injuries during operation of this machine.

Wear nonslip heavy-duty work gloves to improve your grip on the pole pruner handle. Wear snug-fitting clothes that also permits freedom of movement. NEVER wear shorts!

Wear sturdy footwear with nonslip soles to provide good footing. Steel-toes safety boots are recommended.

Keep bystanders at least 15 meters (50 feet) away from the operating pruner to reduce the risk of being struck by falling objects or thrown debris.

Emergency Release

In case of emergency, strongly pull the white tab at the hook. The machine will be released from the strap.



Never operate the pruner at an angle greater than 60° in order to reduce the risk of being struck by falling objects during operation.

Always operate with both hands firmly gripping the machine.

Keep a proper footing and do not overreach—maintain your balance at all times during operation.

Figure 2

Product Description

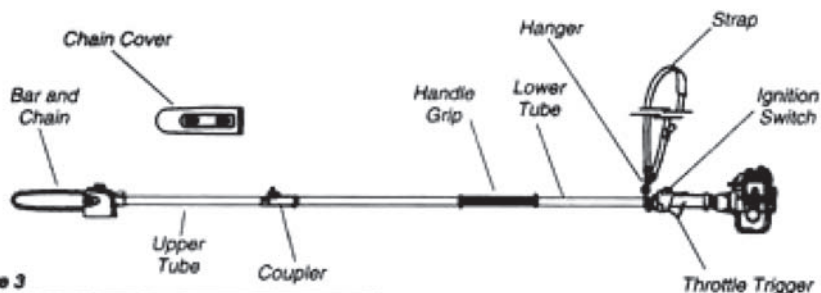
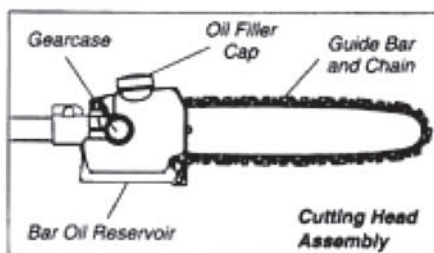
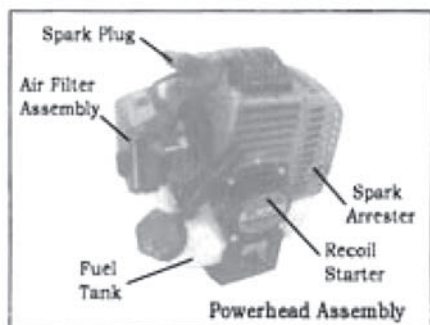


Figure 3

Prior To Assembly

Using Figure 3 as a guide, familiarise yourself with the BM-52-PS pole pruner and its various components. Understanding your machine helps ensure top performance, longer service life, and safer operation.

Before assembling, make sure you have all the components required for a complete unit:

- Powerhead assembly
- Lower tube assembly
- Upper tube/saw assembly, chain and guide bar
- Kit with this manual and tool kit for routine maintenance.
- Chain cover.

Carefully inspect all components for damage.

IMPORTANT

The terms "left", "left-hand", and "LH"; "right", "right-hand", and "RH"; "front" and "rear" refer to directions as viewed by the operator during normal operation.



WARNING!

Do not make unauthorized modifications or alterations to your pruner or its components.

Installing the Powerhead

1. Place the powerhead on a clean, flat surface, spark plug facing up.
2. Use the phillips screwdriver to loosen the tube clamp as shown in Figure 4.



Figure 4

3. Slip off the protective covers from two ends of tube.

CAUTION!

Do not force the lower tube into the powerhead! Excessive force can damage the components.

4. Push the lower tube towards the tube clamp and rotate it by hand to check that the mainshaft splines engage the powerhead. See Figure 5.
5. Insert the lower tube into the tube clamp until it bottoms and align the positioning holes on the tube and clamp, then install the screw.
6. Fasten the clamp securely with 2 clamp screws

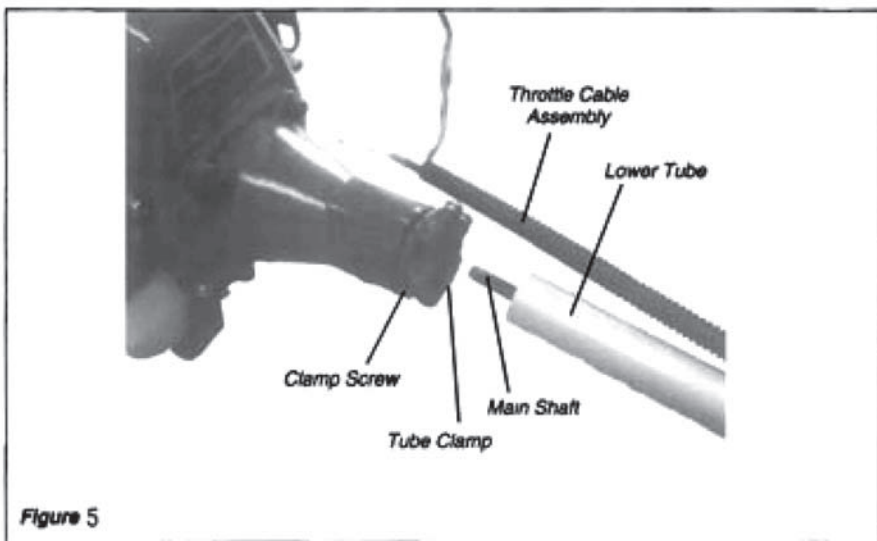


Figure 5

Connecting the Throttle Cable

1. Remove the air cleaner cover.
2. Connect the end of the throttle cable to the joint on the top of the carburetor. See Figure 6, Figure 7.



Figure 6



Figure 7

Connecting switch wires

Connect the switch wires between the engine and the main unit. Pair the wires of the same color. See Figure 8.



Figure 8

Adjusting the Throttle Cable

1. Loosen the throttle cable nut at fan cover as shown in Figure 9.

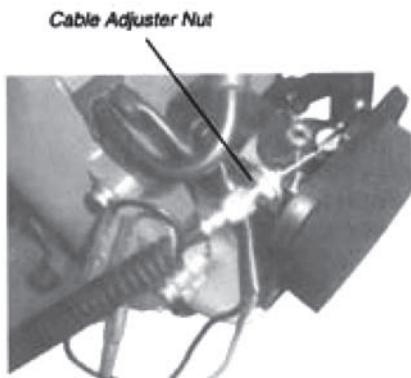


Figure 9

2. Adjust the throttle cable adjuster nuts until you achieve a free play on the throttle trigger of about 6mm. See



Figure 10

3. When 6mm free play is achieved, tighten the two 10mm throttle cable nuts. When the throttle cable is correctly adjusted, and the throttle trigger is fully depressed (full throttle), the throttle will contact the stop on the throttle body. See Figure 11.

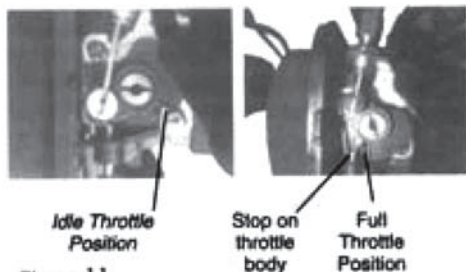


Figure 11

NOTE

A dab of Never-Seez™ or equivalent eases removal.

4. Replace the air cleaner cover.

Assembling the Tube Sections

1. Place the powerhead/lower tube assembly and the upper tube assembly on a clean, flat surface so that both assemblies fit end to end. The powerhead/lower tube assembly should be facing up, and the upper tube assembly should be positioned with the Latch Protector facing up.

CAUTION!

Keep the open ends of the tubes clean and free of impurities!

2. Loosen the couplerscrew.
3. Depress the latch and insert the powerhead/lower tube assembly into the coupler until it bottoms. Release the latch. Rock the upper tube assembly back and forth until you are sure it snaps in place by the coupler lock. See Figure 12.

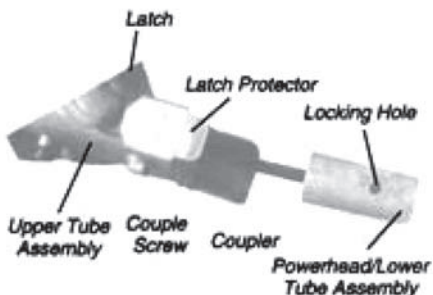


Figure 12

4. When the two tube halves are locked together, slide the latch protector into groove of latch, then tighten the couper screw. See Figure 13.

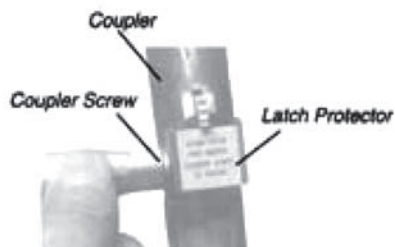


Figure 13

Disassembling The Pole Sections

1. With the pole pruner on a clean, flat surface, loosen the coupler screw. Slide the latch protector out of groove of latch.
2. Depress the latch. This release the coupler lock. See Figure 14.



Figure 14

3. Pull the upper tube assembly out of the coupler.

Use unit without upper tube

If the lower tube assembly is long enough, you can use it only without upper tube according to the working condition
Operate as follows:

1. Follow "disassembling the pole sections" section to remove the upper tube/coupler assembly from gearcase.
2. Follow "assembling the tube sections" section to assemble the gearcase onto the lower tube assembly. See figure 15 .

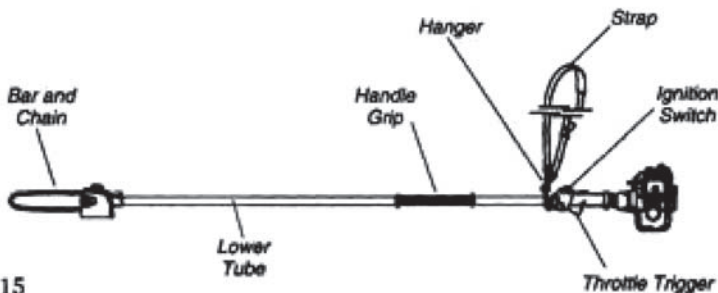


Figure 15

Installing and Adjusting the Bar and Chain

Installing The Chain



WARNING!

Never attempt to install, replace, or adjust the chain with the engine running.



WARNING!

The saw chain is very sharp. Wear gloves to protect your hands when handling.

NOTE

For longest chain life, let new or replacement chain loops sock in oil overnight before installation.

1. Using the small end of the plug wrench, remove the sprocket cover nut (turn counterclockwise to remove) and remove the sprocket cover. See Figure 16.

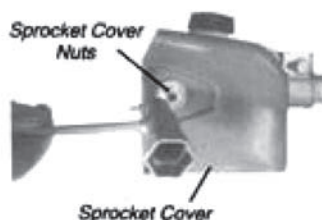


Figure 16

CAUTION!

Failure to align the guide bar and chain tensioning pin can cause serious damage to the sprocket cover, guide bar, chain tensioning pin and cutting head assembly.

2. Place the guide bar over the guide bar adjustment stud on the cutting head assembly. Align the chain tensioning pin with the hole in the guide bar. See Figure 17.

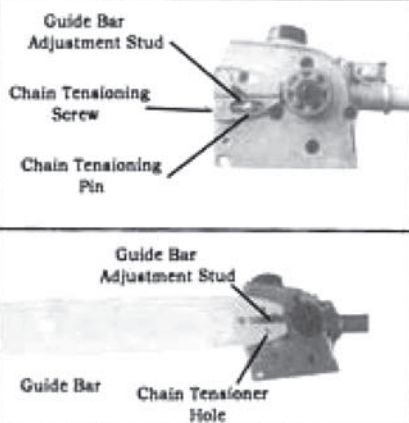


Figure 17

3. Install the chain loop over the drive links within the guide bar groove, and then align the chain over the drive sprocket. Make sure the cutter are properly oriented as shown in Figure 18. If chain installation is difficult or if the chain appears too tight, refer to the section "Adjusting the Chain" on the next page.



Figure 18



WARNING!

Never operate the pole pruner without the sprocket cover installed.

4. Install the sprocket cover over the bar stud. Using finger-pressure only, install the sprocket cover nut.
5. Refer to the next page for chain adjusting procedures.

Adjusting the Chain



WARNING!

Never attempt to install, replace, or adjust the chain with the engine running.



WARNING!

The saw chain is very sharp. Wear gloves to protect your hands when handling.

CAUTION!

A loose chain can jump off the guide bar causing damage to the chain and associated equipment. Always make sure the chain is properly adjusted; check more often when you are breaking in a new chain.

IMPORTANT

Proper chain adjustment is essential for maximum performance, long chain life, and operator safety. Always inspect chain tension before operating the pole pruner.

1. Place the pole pruner on a clean, flat surface. (For readjustment during operation, shut down the engine, then allow the guide bar and chain to cool before proceeding with the adjustment procedure.)
2. Loosen the sprocket cover nut with a plug wrench (Figure 19).



Sprocket Cover Nut

Figure 19

3. Lift the nose of the guide bar while turning the chain tensioning screw. See Figure 20.



Chain Tensioning Screw

Figure 20

- Clockwise to tighten the chain
 - Counterclockwise to loosen the chain.
4. Pull the chain by hand along the top of the guide bar several times from the engine to the bar's tip. The chain should feel snug but still pull freely. See Figure 21.



Figure 21

5. Tighten the sprocket cover nut securely while lifting the tip of the guide bar.
6. Inspect the chain for correct adjustment (more frequently with a new chain). The chain should feel snug but still pull freely.

Chain Oiler



WARNING!

Never fill the oil reservoir nor adjust the oiler with the engine running.

IMPORTANT

The service life of the chain and guide bar is affected by the quality of the lubricant. Using superior lubricant such as **genuine Bar and Chain Oil** will help ensure a long service life. For cold weather operation, mix bar and chain oil with an equal part of kerosene.

Filling The Oil Reservoir

NOTE

The oil reservoir has a capacity sufficient to provide about 40 minutes of cutting time (when set to deliver the minimum flow rate).

1. Place the pole pruner on a clean, flat surface with the oil filler cap facing up. See Figure 22. Wipe off any debris from the oil cap and from around the oil filler neck.

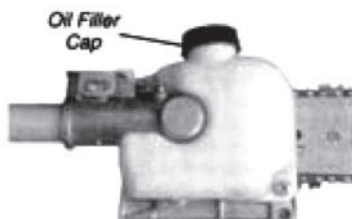


Figure 22

2. Remove the oil filler cap and fill the reservoir with bar and chain oil, then replace the cap.
3. Wipe up spilled oil from the unit before restarting the pole pruner.

Adjusting Oil Flow Rate

CAUTION!

An increase in bar oil flow rate will speed oil consumption, requiring more frequent checks on the oil reservoir. To ensure sufficient lubrication, it may be necessary to check the oil level more frequently than at fuel tank refills.

The guide bar and chain are lubricated automatically by a pump that operates whenever the chain rotates. The pump is set at the factory to deliver a medium flow rate, but it can be adjusted in the field. A temporary increase in oil flow is often desirable when cutting things like hardwood or wood with a lot of pitch.

Adjust the pump as follows:

1. Stop the engine and make sure the stop switch is in the STOP position.
2. Place the unit on its side with the oil reservoir up. See Figure 23.

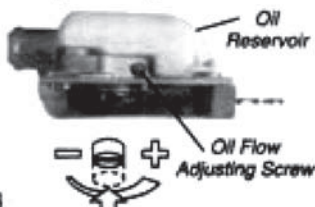


Figure 23

CAUTION!

The oil flow adjusting screw must be pressed in slightly in order to turn. Failure to do so could damage the pump and screw.

3. With a screwdriver, push in on the oil flow rate adjusting screw and turn in the desired direction (there are three incremental settings):
 - Clockwise—decrease lubrication.
 - Counterclockwise—increase lubrication.

Mixing Fuel

CAUTION!

This engine is to be operated on a 25:1 mixture consisting of unleaded gasoline and 2-cycle mixing oil only.

Some gasolines contain alcohol as an oxygenate! Oxygenated fuels may cause increased operating temperatures. Under certain conditions, alcohol-based fuels may also reduce the lubricating qualities of some mixing oils. Never use any fuel containing more than 10% alcohol by volume! When an oxygenated fuel must be used, fuel containing an oxygenate such as MTBE is to preferred over an alcohol based fuel.

Generic oils and some outboard motor oils may not be intended for use in high-performance air cooled 2-cycle engines, and should never be used in a engine!

- Use only fresh, clean unleaded gasoline with an octane rating of 87 or above.
- Mix all fuel with 2-cycle Engine Oil at a gasoline/oil ratio of 25:1.

IMPORTANT

Mix only enough fuel for your immediate needs! If fuel must be stored longer than 30 days, it should first be treated with a stabilizer such as StaBil™.

Filling the Fuel Tank

WARNING!

Always minimize the risk of fire when handling fuel!

- Always allow the pruner to cool before refueling!
- Wipe all spilled fuel and move the pruner at least 3 meters (10 feet) from the fueling point before restarting!
- Never smoke or light any fires near the pruner or fuels!
- Never place any flammable material near the engine muffler!
- Never operate the engine without the muffler and spark arrestor in place and properly functioning!
- Never operate this machine if fuel system components are damaged or are leaking.

1. Place the pruner on a flat, level surface.
2. Clear any dirt or other debris from around the fuel filler cap.
3. Remove the fuel cap, and fill the fuel tank with clean, fresh fuel mixture.
4. Install and firmly tighten the fuel cap.
5. Wipe up any spilled fuel from the powerhead before restarting.

Starting A Cold Engine – Restarting After Refueling

Control Positions (cold engine)

1. Set the throttle trigger to “fast idle” as follows (Figure 24):

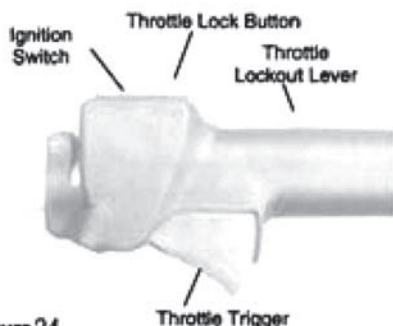


Figure 24

- Depress and hold the throttle lockout lever.
- Squeeze and hold the throttle trigger.
- Depress the throttle lock button.
- While holding down the throttle lock button, release the throttle trigger and throttle lockout lever.
- Release the throttle lock button.

IMPORTANT

Engine ignition is controlled by a two-position START-STOP switch mounted on the throttle body, typically labelled “I” for START and “O” for STOP.

2. Slide the ignition switch to the “I” (start) position. See Figure 25.



Figure 25

3. Prime the engine by depressing the carburetor primer bulb four or five times. See Figure 26. You should be able to see fuel inside the bulb.

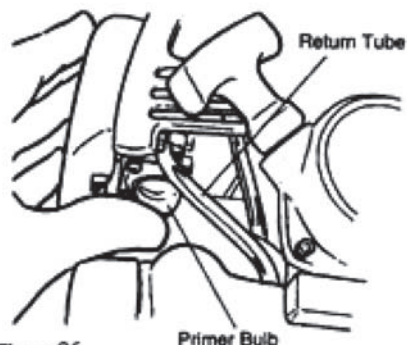


Figure 26

4. Choke the engine by moving the choke lever up to the “closed” position. See Figure 27.



Figure 27

Control Positions (warm engine)

1. Set the throttle trigger to “fast idle” (see Step 1 above).
2. Slide the ignition switch to the “I” (START) position.
3. Moving the choke lever down to the “open” position.

Cranking The Engine



WARNING!

When starting the engine, make sure the cutting attachment is well clear of bystanders, pets or objects. The attachment may rotate during start-up.

CAUTION!

Never operate the pole pruner unless a cutting attachment is installed.

1. Place the unit firmly on the ground, making sure it is stable and that the cutting attachment is free and clear of any bystanders or objects. Hold onto the hand grip on the outer tube with your left hand and grasp the starter rope handle with your right hand. See Figure 28.



Figure 28

CAUTION!

The recoil starter can be damaged by abuse.

- Always engage the starter before attempting to crank the engine.
- Never pull the starter cord to its full length.
- Always rewind the starter cord slowly.

2. Pull the starter handle slowly until you feel the starter engage.
3. Pull the starter handle quickly to start the engine.

When The Engine Starts Or Fires

Open the choke by moving the choke lever down. See Figure 29.



Figure 29



WARNING!

The cutting attachment will engage and rotate as the engine starts and accelerates.

If the engine did not continue to run, repeat the appropriate cranking procedure (warm or cold engine).

When the engine starts, clear excess fuel from the combustion chamber by revving the engine several times with the throttle trigger (operating the trigger will automatically disengage the "fast idle" setting).

If The Engine Fails To Start

Repeat the appropriate cranking procedure (warm or cold engine). If the engine fails to start after repeated attempts, the engine is likely flooded. Proceed to the following procedure.

Starting A Flooded Engine

1. Disconnect the spark plug lead, and then use the spark plug wrench to remove the spark lug (turn counterclockwise to remove). See Figure 30.

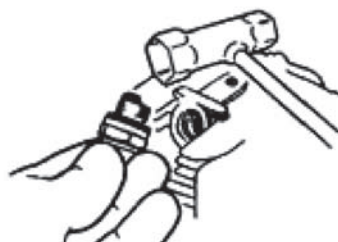


Figure 30

If the spark plug is fouled or soaked with fuel, clean the lug as necessary.

2. Open the choke (Figure 31) and fully depress the throttle trigger with your left hand, then pull the starter handle rapidly with your right hand to clear excess fuel from the combustion chamber.

CAUTION!

Incorrect spark plug installation can result in serious engine damage.

3. Reinstall the spark plug and tighten it firmly. If a torque wrench is available, torque the spark plug to 16.7—18.6 N.m.
4. Repeat the starting procedure for a warm engine.
5. If the engine still fails to start, refer to the troubleshooting section near the end of this manual.

Stopping The Engine



WARNING!

The cutting attachment can continue rotating after the engine is switched off!

1. Cool the engine by allowing it to idle for two or three minutes.
2. Slide the ignition switch to the "0" or STOP position. See Figure 31.



Figure 31

Adjusting The Carburetor



WARNING!

The cutting attachment must never rotate at engine idle speed.

The engine must return to idle speed whenever the throttle trigger is released. Idle speed is adjustable and must be set low enough to permit the engine clutch to disengage the chain saw when throttle trigger is released.

Check and Adjust Idle Speed

1. Start the engine and allow it to idle two or three minutes, or until it warms up.
2. If the cutting attachment rotates at engine idle, reduce idle speed by turning the idle adjusting screw counter clockwise as necessary. See Figure 32.

IMPORTANT

Use a tachometer, if one is available, to set engine idle. Standard idle speed is:

$3000 \pm 200\text{rpm}$



Figure 32

3. If the engine is stalling and won't idle, increase idle speed by turning the idle adjustment screw clockwise.

NOTE

The mixture of the carburetor on this unit cannot be adjusted.

Safety Operation

This machine is designed especially for cutting branches.

Never use this machine for any other purposes. Never try to cut stones, metals, plastics or any other hard objects.

Using for other purposes than cutting branches may damage the machine or cause serious injury.

Preparations

- Wear suitable protective clothing and equipment - see section "Safety Precautions".
- Choose the best work position for safety against the falling object (Branch etc)
- Start the engine.
- Put on the strap.

Never stand directly underneath the branch you are cutting - be wary of falling branches. Note that a branch may spring back at you after it hits the ground.

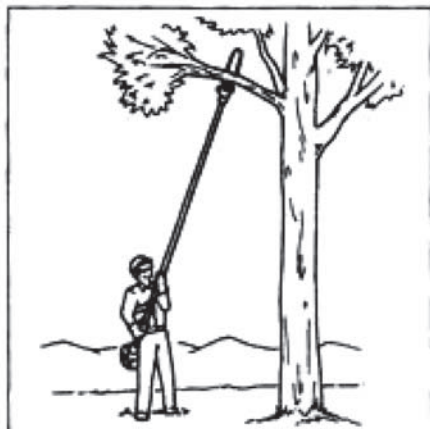
Cutting sequence:

To allow branches a free fall, always cut the lower branches first. Prune heavy branches (large diameter) in several controllable pieces.

Working position:

Hold the control handle with your right hand, and the shaft with your left hand. Your left arm should be extended to the most comfortable position.

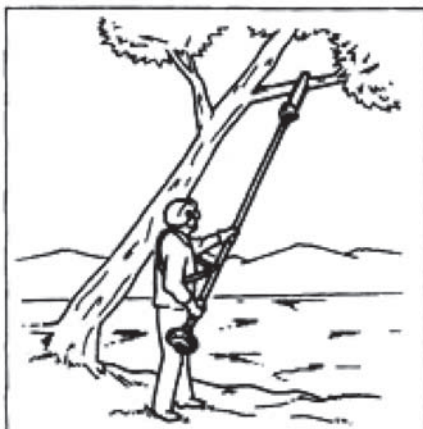
The shaft should always be held at an angle of 60° or less.



Typical applications

Standard cut:

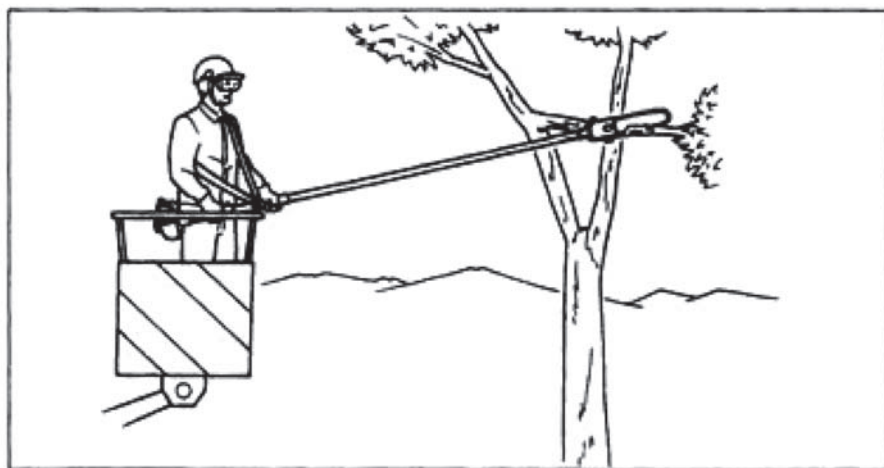
The most convenient working position is a tool angle of 60° , but any other angle may be used to suit the situation concerned.



Cutting above obstacles:

Thanks to the unit's long reach it is possible to prune branches that are overhanging obstacles, such as rivers or lakes.

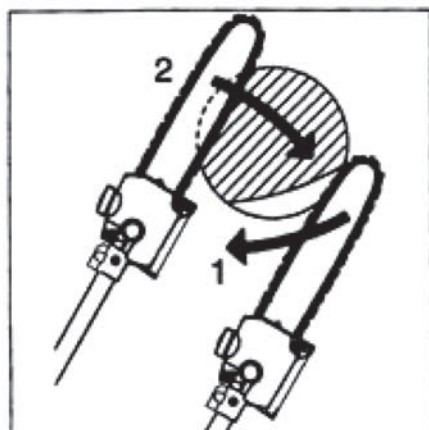
The tool angle in this case depends on the position of the branch.



Cutting on a work platform:

The unit's long reach enables cutting to be performed next to the trunk without the risk of the work platform damaging other branches.

The tool angle in this case depends on the position of the branch.

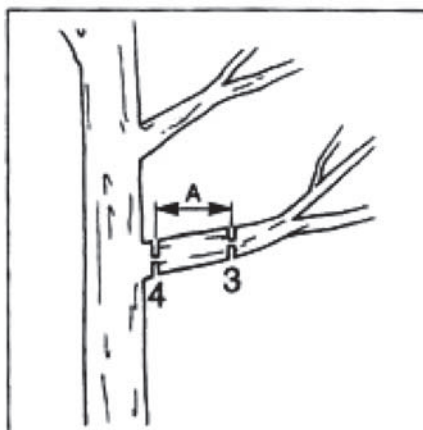


Working techniques

Relieving cut:

To avoid tearing the bark, kickback or pinching the bar when pruning thick branches, always start by performing a relieving cut (1) on the underside of the branch.

To do this, apply the cutting attachment and pull it across the bottom of the branch as far as the bar nose. Perform the cross-cut (2).



Flush-cutting thick branches:

If branch diameter is more than 10 cm (4"), first perform undercut (3) and cross-cut at a distance (A) of about 25cm (10") from the final cut. Then carry out the flush-cut (4), starting with a relieving cut and finishing with a cross-cut.

General Maintenance



WARNING!

Before performing any maintenance, repair, or cleaning work on the machine, make sure the engine and cutting attachment are completely stopped. Disconnect the spark plug wire before performing service or maintenance work.



WARNING!

Non-standard parts may not operate properly with your unit and may cause damage and lead to personal injury.

Muffler



WARNING!

Operating the engine without a muffler or with a muffler that is damaged or improperly installed can increase engine noise sufficiently to lead to hearing loss.

This machine must never be operated with a faulty or missing spark arrestor or muffler. Make sure the muffler is well secured and in good condition. A worn or damaged muffler is a fire hazard and may also cause hearing loss.

Spark Plug

Keep the spark plug and wire connections tight and clean.

Daily Maintenance

Prior to each work day, perform the following:

- Remove all dirt and debris from the engine, check the cooling fins and air cleaner for clogging, and clean as necessary. See Figure 33.

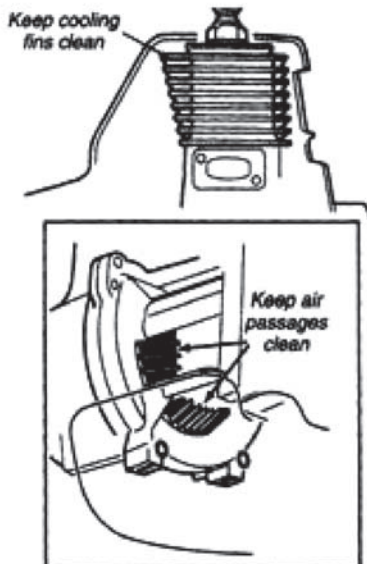


Figure 33

- Carefully remove any accumulating dirt or debris from the muffler and fuel tank. Dirt build-up in these areas can lead to engine overheating, fire, or premature wear.
- Check for loose or missing screws or components. Make sure the cutting attachment is free of debris and securely fastened.
- Check the entire machine for leaking fuel or grease.
- Make sure nuts, bolts, and screws (except carburetor adjusting screws) are tight.

10-Hour Maintenance

CAUTION!

Do not operate the machine if the air cleaner or element is damaged, or if the element is wet or water-soaked.

Every 10 hours of operation, (more frequently in dusty or dirty conditions):

Remove the air cleaner element from the air cleaner housing and clean it thoroughly with soap and water. Rinse and dry thoroughly. Add a few drops of oil and work it in, then reassemble the element. See Figure 34.

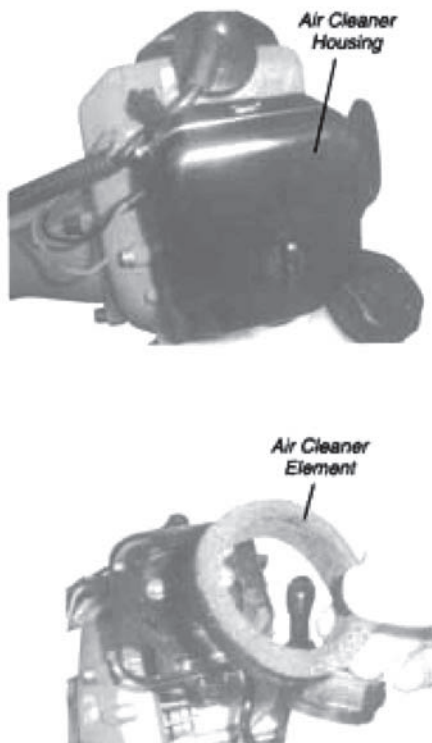


Figure 34

10/15-Hour Maintenance

CAUTION!

Before removing the spark plug, clean the area around the plug to prevent dirt and dust from getting into the engine's internal parts.

Every 10 to 15 hours of operation: Remove and clean the spark plug. See Figure 35. Adjust the spark plug electrode gap to 0.6–0.7mm. Replace the spark plug as necessary.

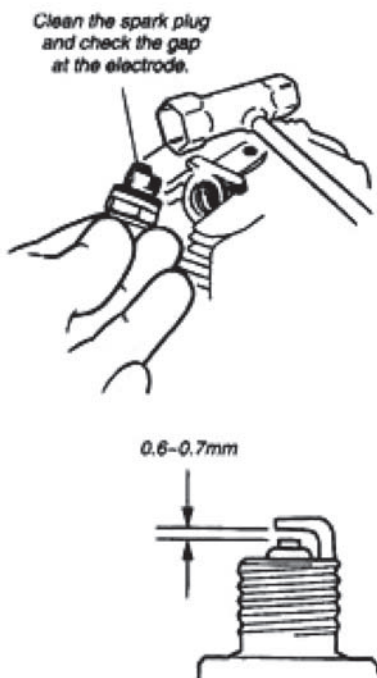


Figure 35

50-hour Maintenance

Every 50 hours of operation

(more frequently in dusty or dirty conditions):

- Remove and clean the cylinder cover and clean dirt and debris from the cylinder cooling fins.
- Remove the sprocket cover and inspect the sprocket for excessive dirt, debris, or wear. Remove the guide bar and clean out the guide bar groove. If the sprocket is excessively worn, replace it with a new one. See Figure 36.

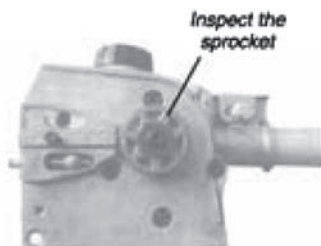


Figure 36

- **Lubricate the gearcase.** To perform this operation, first remove the gearcase from the upper outer tube as follows (Figure 37):
 1. Follow "Disassembling the pole sections" section to remove the upper tube from the gearcase.
 2. Using a lever-type grease gun, pump lithium-base grease (about 10 grams) into the grease fitting until you see old grease being purged from the gearcase, which can be seen in the outer tube cavity. Clean up excess grease, then reassemble the gearcase onto the outer tube.

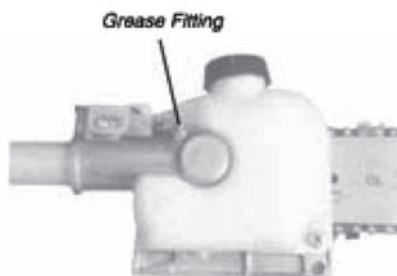


Figure 37

old grease being purged from the gearcase, which can be seen in the outer tube cavity. Clean up excess grease, then reassemble the gearcase onto the outer tube.

CAUTION!

Make sure you do not pierce the fuel line with the end of the hooked wire. The line is delicate and can be damaged easily.

- Use a wire hook to extract the fuel filter from inside the fuel tank (Figure 38). Inspect the fuel filter element for signs of contamination. Replace it with a new one if required. Before reinstalling the filter, inspect the fuel line. If you find damage or deterioration, remove the unit from service until it can be inspected by a trained service technician.

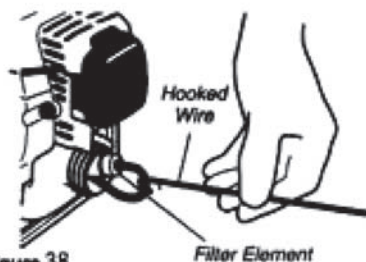


Figure 38

Long Term Storage

Whenever the machine will not be used for 30 days or longer, use the following procedures to prepare it for storage:

- Clean external parts thoroughly and apply a light coating of oil to all metal surfaces.

CAUTION!

Fuel stored in the carburetor for extended periods can cause hard starting, and could also lead to increased service and maintenance costs.

- Drain all the fluid from the carburetor and the fuel tank.

IMPORTANT

All stored fuels should be stabilized with a fuel stabilizer such as STABIL®.

- Remove the spark plug and pour about 3cm³ of oil into the cylinder through the spark lug hole. Slowly pull the recoiled starter 2 or 3 times so oil will evenly coat the interior of the engine. Reinstall the spark plug.
- Before storing the machine, repair or replace any worn or damaged parts.
- Remove the air cleaner element from the carburetor and clean it thoroughly with soap and water. Rinse and dry thoroughly, then add a few drops of oil and work it in. Reassemble.
- Store the machine in a clean, dust-free area.

Sharpening the Chain

When the cutting edges of the blade become dull, they can be re-sharpened with a few strokes of a file.

In order to keep the blade in balance, all cutting edges must be sharpened equally.

In addition, inspect the chain for correct adjustment (more frequently with a new chain). The chain should feel snug but still pull freely. See Figure 40.



Figure 40

Sharpening Instructions (Fig. 41)

IMPORTANT

File all cutters to the same angle and depth! Unequal filing may cause the saw to vibrate or cut erratically!

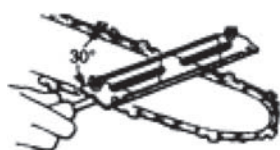
1. Using a 4.5 mm round file, sharpen all cutters to a 30° angle. Make sure that one fifth (20%) of the file's diameter is always held above the cutter's top plate.

NOTE

For consistent filing angles, use a filing guide such as Oregon® p/n 31692 or equivalent.

2. After all cutters are sharpened, use a depth gauge joiner (Oregon® p/n 106738 or equivalent) to measure the height of each depth gauge.
3. As required, lower the depth gauges to a height of 0.5mm. Use a flat file; Oregon p/n 12211 or equivalent.
4. After all depth gauges have been adjusted, use a flat file to round each depth gauge leading edge to its original curvature and angle.

Using a fill gauge



Using a depth gauge joiner

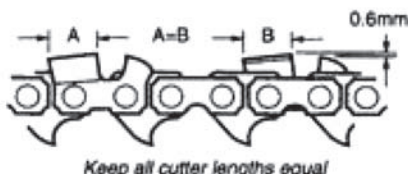
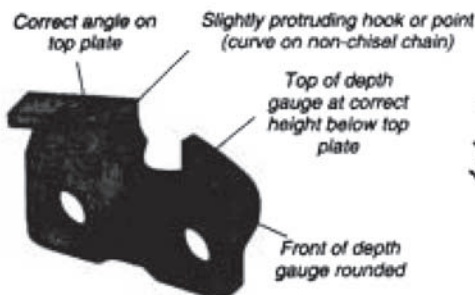


Using a flat file to round the front corner on a depth gauge



Figure 41

Correct Filing Technique



Filing Problems

Top plate angle less than recommended

Cause
File held at less than recommended angle.
Result
Slow cutting. Requires extra effort to cut.
Remedy
File cutters to recommended angle.



Top plate angle more than recommended

Cause
File held at more than recommended angle.
Result
Cutting angle is very sharp but will dull fast. Cutting action rough and erratic.
Remedy
File cutters to recommended angle.



Hook in side plate cutting edge

Cause
File held too low or the file was too small.
Result
Rough cutting. Chain grabs. Cutters dull quickly or won't hold a cutting edge.
Remedy
File cutters at recommended angle. Check file size.



Backslope on side plate cutting edge

Cause
File held too high or the file was too large.
Result
Cutters won't feed into wood. Slow cutting. Must force chain to cut. Causes excessive bottom wear.
Remedy
File cutters at recommended angle. Check file size.



High depth gauge

Cause
Depth gauge never filed.
Result
Slow cutting. Must force chain to cut. Will cause excessive wear on the cutter heel.
Remedy
Lower gauges to recommended setting



Low depth gauge

Cause
Wrong gauge setting or no gauge used
Result
Rough cutting. Chain grabs. Saw won't pull chain through wood. Excessive wear on the cutter heel.
Remedy
If depth gauges are too low, the chain is no longer serviceable.



Troubleshooting Guide

ENGINE DOES NOT START

What to check	Possible cause	Remedy
Does the engine crank? YES ↓	NO → Faulty recoil starter. Fluid in the crankcase. Internal damage.	Return unit to the dealer.
Good compression? YES ↓	NO → Loose spark plug. Excess wear on cylinder, piston, rings.	Tighten and re-test. Return unit to the dealer.
Does the tank contain fresh fuel of the proper grade? YES ↓	NO → Fuel incorrect, stale, or contaminated. Fuel mixture incorrect	Refill with fresh fuel of the correct mixture (gasoline and 2-cycle Engine Oil, 25:1 ratio)
Is fuel visible and moving in the return line when priming? YES ↓	NO → Check for clogged fuel filter and/or vent.	Clean as required; restart.
Is there spark at the spark plug wire terminal? YES ↓	NO → The ignition switch is in "0" (Stop) position. Faulty ignition ground. Faulty transistor unit.	Move switch to "I" (Start) position and restart. Return unit to the dealer.
Check the spark plug	NO → If the plug is wet, excess fuel may be in the cylinder. The plug is fouled or improperly gapped. The plug is damaged internally or of the wrong size.	Crank the engine with the plug removed, replace the plug, and restart. Clean and re-gap the plug to 0.6–0.7mm. Restart. Replace the plug and restart.

Troubleshooting Guide (continued)

LOW POWER OUTPUT

What to check	Possible cause	Remedy
Is the engine overheating?	Operator is overworking the machine.	Operate the pruner at a slower rate.
	Carburetor mixture is too lean.	Return unit to dealer.
	Improper fuel ratio.	Re-fill with fresh fuel of the correct mixture (gasoline and 2-cycle Engine Oil, 25:1 ratio)
	Fan, fan cover, cylinder fins dirty or damaged.	Clean, repair or replace as necessary.
	Carbon deposits on the piston or in the muffler.	Decarbonize.
Engine is rough at all speeds. May also have black smoke and/or unburned fuel at the exhaust.	Clogged air cleaner element.	Service the air cleaner element.
	Loose or damaged spark plug.	Tighten or replace.
	Air leakage or clogged fuel line.	Repair or replace filter and/or fuel line.
	Water in the fuel.	Replace the fuel.
	Piston seizure.	Return unit to dealer.
	Faulty carburetor and/or diaphragm.	Return unit to dealer.
Engine is knocking.	Overheating condition.	See above.
	Improper fuel.	Check fuel octane rating; check for presence of alcohol in the fuel. Refuel as necessary.
	Carbon deposits in the combustion chamber.	Decarbonize.

Troubleshooting Guide (continued)

ADDITIONAL PROBLEMS

Symptom	Possible cause	Remedy
<div style="border: 1px solid black; padding: 2px; display: inline-block;"> Poor acceleration. </div>	Clogged air cleaner element.	Clean the air cleaner element.
	Clogged fuel filter.	Replace the fuel filter.
	Carburetor mixture too lean.	Return the unit to the dealer.
	Idle speed set too low.	Adjust 2750 min ⁻¹ (±250)
<div style="border: 1px solid black; padding: 2px; display: inline-block;"> Engine stops abruptly. </div>	Switch turned off.	Reset the switch and re-start.
	Fuel tank empty.	Refuel.
	Clogged fuel strainer.	Replace strainer.
	Water in the fuel.	Drain; replace with clean fuel.
	Shorted spark plug or loose terminal.	Clean and replace spark plug, tighten the terminal.
	Ignition failure.	Replace the ignition unit.
	Piston seizure.	Return unit to the dealer.
<div style="border: 1px solid black; padding: 2px; display: inline-block;"> Engine difficult to shut off. </div>	Ground (stop) wire is disconnected, or switch is defective.	Test and replace as required.
	Overheating due to incorrect spark plug.	Clean and regap to 0.6-0.7mm.
	Overheated engine.	Idle engine until cool.
<div style="border: 1px solid black; padding: 2px; display: inline-block;"> Cutting attachment rotates at engine idle. </div>	Engine idle too high.	Set idle: 2750 min ⁻¹ (±250)
	Broken clutch spring or worn clutch spring boss.	Replace spring/shoes as required, check idle speed.
	Loose attachment holder.	Inspect and re-tighten holders securely.

Troubleshooting Guide (continued)

ADDITIONAL PROBLEMS

Symptom	Possible cause	Remedy
Excessive vibration	Warped or damaged attachment.	Inspect and replace attachment as required.
	Loose gearcase.	Tighten gearcase securely.
	Bent main shaft/worn or damaged bushings.	Inspect and replace as necessary.
Attachment will not rotate	Shaft not installed in powerhead or gearcase.	Inspect and reinstall as required.
	Broken shaft.	Return unit to the dealer.
	Damaged gearcase.	Return unit to the dealer.