



shindaiwa

SHINDAIWA OWNER'S MANUAL

SHINDAIWA ATTACHMENT ATT-P230

FOR MODELS T230, AH230



WARNING!

Read this manual and the manuals provided with Shindaiwa T230 or AH230 and familiarize yourself with its contents.

This machine is designed for cutting branches with Shindaiwa T230 or AH230.

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 Shindaiwa Attachment ATT-P230 is designed and built to deliver superior performance and reliability without compromise to quality, comfort, safety or durability.

As an owner/operator, you'll soon discover for yourself why Shindaiwa is simply in a class by itself!

IMPORTANT!

The information contained in these instructions describes components available at the time of publication. While every attempt has been made to provide the latest information about your Shindaiwa product, there may be some differences between your attachment and what is described here. Shindaiwa reserves the right to make changes to products without prior notice and without obligation to make alterations to components previously manufactured.

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.

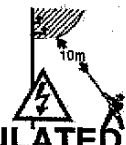
If you have questions regarding your power tool, or if you do not understand something in this manual, your Shindaiwa dealer will be glad to assist you.

You may also contact Shindaiwa, at the address printed on the back of this Manual.

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 away from electrical lines or branches that contact electrical lines.

NOTE:

For specific maintenance and safety information about your T230, AH230 powerhead, consult the owner's manual provided with it. If it has been lost or misplaced, contact Shindaiwa for a replacement.

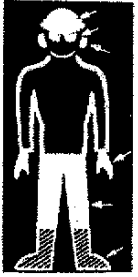
A pole pruner runs at very high speeds and has the potential to do serious damage if misused, abused or mishandled. To reduce the risk of injury, you must maintain control at all times, and observe all safety precautions during operation. **Never permit a person without training or instruction to operate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



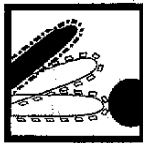
Never touch the saw chain when starting the engine and while operating this machine.



Chain of fill/oil pump



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



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!



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 a 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!

- This Shindaiwa pole pruner attachment is specifically designed for use on the Shindaiwa T230, AH230 articulating hedge trimmers. Installation and/or use on any other model, brand or type of power tool is not approved by Shindaiwa. Attempts to use on non-approved models can damage the equipment and cause accidents, serious injury or death.
- Make sure the chain and sprocket are correctly adjusted before operating the pruner (see page 13 for adjustment procedures). **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.
- 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.
- 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.
- Make sure of no fuel leaking from Fuel tank, Fuel cap, Fuel pipe and Carburetor and other parts which fuel may leak. Repair the machine if fuel leaking, make sure no leaking again.
- 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.
- 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 scabbard is in place when transporting and storing the pruner.
- When carrying the unit with the pole pruner attachment, the chain should be pointing backward.
- Never operate this machine 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.

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 Shindaiwa parts and accessories when repairing or maintaining this machine.
- Do not make unauthorized modifications or substitutions to the guide bar or chain.
- When transporting the pruner in a vehicle, tie it down securely to prevent damage and fuel spillage.
- 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.



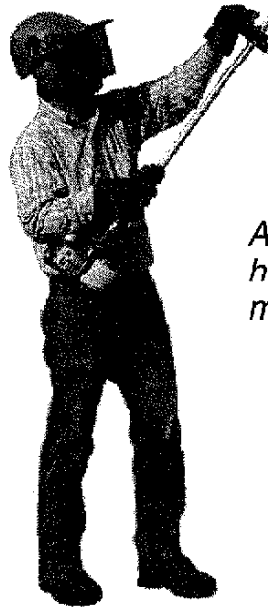
Operating the Pruner

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.

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



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.

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

Figure 1

Specifications: Pole Saw Attachment

Dry Weight 0.91 kg (gearcase (dry), bar and chain)	Chain Lubrication Automatic adjustable oiler
Length 2007 mm (with 10-in. bar mounted on T230)	Chain Lubricant Shindaiwa Premium Bar and Chain Oil
Transmission Type Automatic, centrifugal clutch with bevel gear	Oil tank Capacity 100ml
Chain Guide Bar 3/8" pitch, .043" gauge, 10-inch Micro Lite™	Standard Equipment Gearcase/ cutting head, scabbard, owner's manual, caution labels, and tool kit
Chain Type 3/8" pitch Micro Lite™, .043" gauge	Tool Kit Contents Plug wrench with 10 mm x 19 mm sockets/flat blade screwdriver and 4 mm hex wrench
Sprockets 3/8-inch, fixed spur	Optional Bars ... 8-inch or 10-inch or 12-inch
Gearcase Ratio 1.06 : 1	Specifications are subject to change without notice.
Chain Speed 23.5 m/sec. @ 10,000 min ⁻¹	

Sound Pressure Level*		91dB(A)
Sound Power Level*		106dB(A)
Vibration Level* (Attached to AH230)	Idling [Front/Rear]	3.6/2.6m/s ²
	Racing [Front/Rear]	5.2/5.0m/s ²
Vibration Level* (Attached to T230)	Idling [Front/Rear]	3.7/3.4m/s ²
	Racing [Front/Rear]	4.0/6.2m/s ²

*Sound Pressure Level : in accordance with ISO 11680-1(Annex B)

*Sound Power Level : in accordance with ISO 11680-1(Annex B)

*Vibration Level : in accordance with ISO 11680-1(Annex C)

Product Description

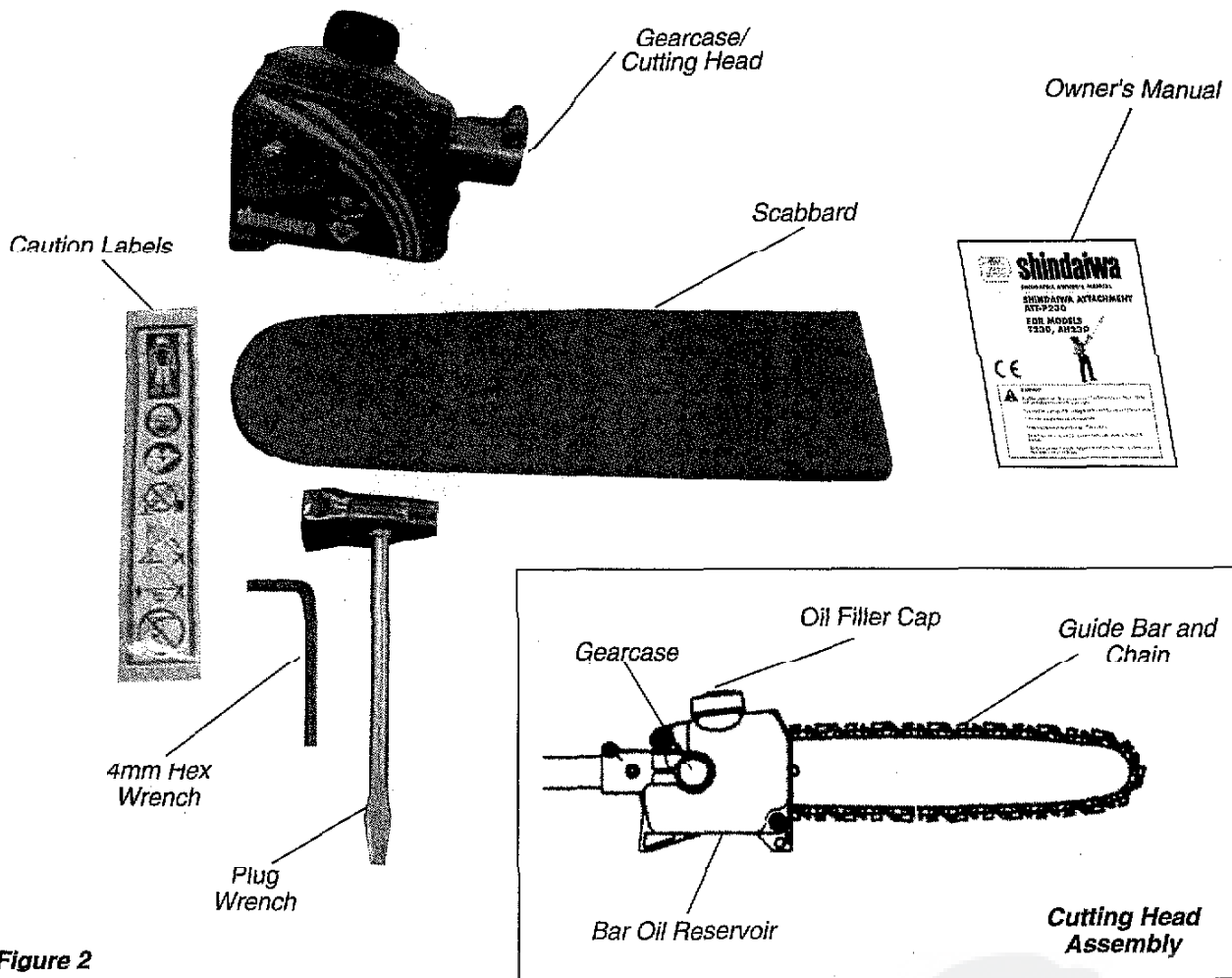


Figure 2

Prior To Assembly

Using Figure 2 as a guide, familiarize yourself with the Shindaiwa pole pruner attachment 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:

- Cutting Head
- Scabbard
- Caution labels
- Owner's manual
- Tool kit for routine maintenance

Carefully inspect all components, making sure they are not damaged.

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.

Removing the Gearcase from T230 & AH230

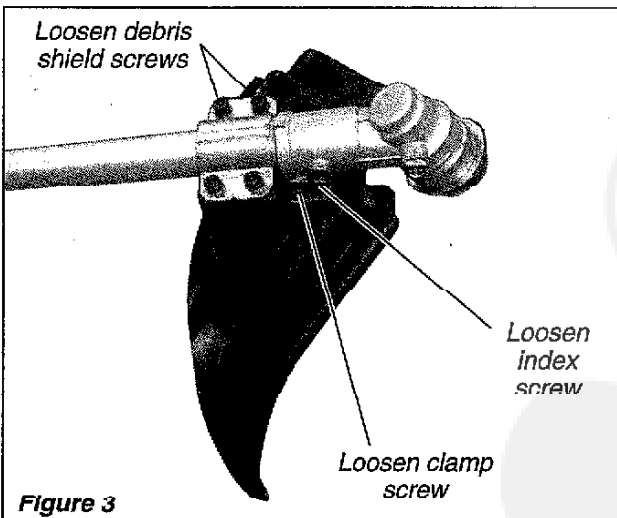
1. Place the T230 or AH230 on a clean, flat surface in an upright position.

For the T230:

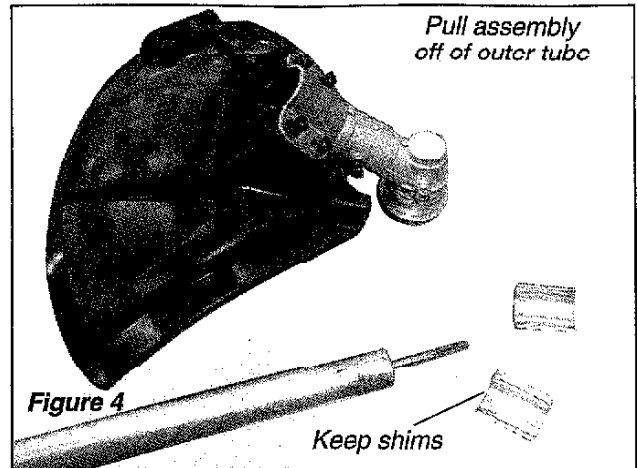
2. Loosen, but don't remove the gearcase clamp screw and nut using a 4 mm hex (Allen) wrench and an 8 mm open end wrench.
3. Use the 4 mm hex (Allen) wrench to loosen the gearcase index screw until it is almost free.
4. Use the 4 mm hex (Allen) wrench to loosen the four debris shield attachment screws. Loosen them only enough to free the debris shield assembly from the outer tube. This will make it easier to reattach the debris shield when converting back to a brushcutter.
5. Pull and rotate the debris shield, gearcase until it slides off the outer tube. Note: the gearcase and debris shield are connected by the clamp screw.

NOTE:

The gearcase and debris shield are connected by the clamp screw.



6. The debris shield has two spacers located on either side of the outer tube and the debris shield bracket. Put the shims and the debris shield/gearcase assembly in a safe place, so that they can be reinstalled later if desired.




For the AH230 Hedge Trimmers:

2. Loosen, but don't remove the gearcase clamp screw using a 4 mm hex (Allen) wrench.
3. Use the 4 mm hex (Allen) wrench to loosen the gearcase index screw until it is almost free.
4. Pull and rotate the gearcase/articulating hedge trimmer assembly until it slides off the outer tube.

NOTE:

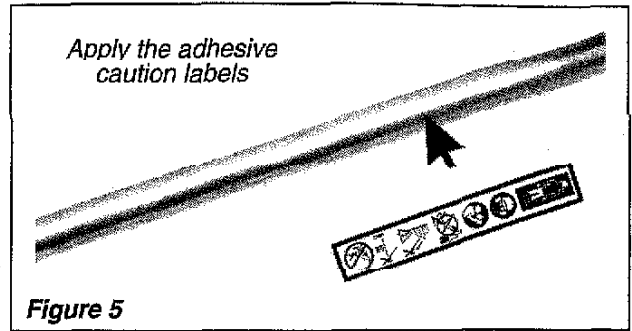
For help reinstalling the original gearcase and attachments, consult the owner's manual that came with your T230, AH230.

Installing the Caution Labels

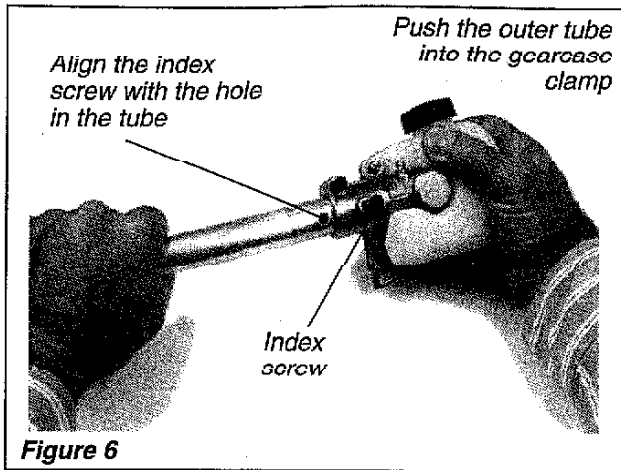
 **WARNING!**

■ Warning: The provided labels offer important safety information about pole pruners. Do not operate, or allow others to operate, this machine unless the labels are properly installed.

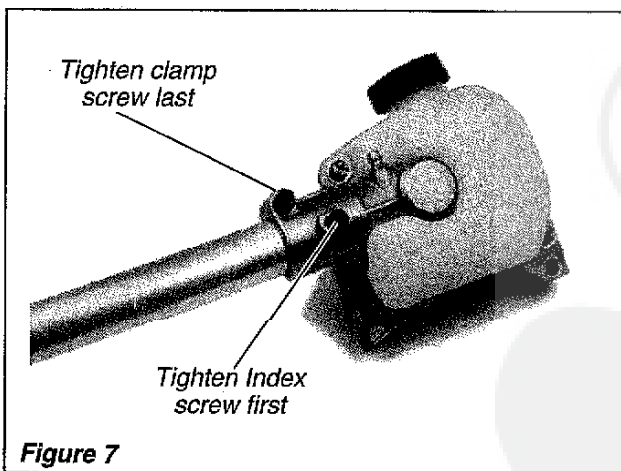
1. Clean outer tube so the labels will adhere properly.
2. Peel the backing off the multiple warning label and attach below similar label on lower part of outer tube. Make sure label faces up and that it is legible from the operator's position.



Installing the Cutting Head Assembly



1. Insert the end of the outer tube into the pole saw gearcase clamp assembly and push until it bottoms. The outer tube should go into the gearcase about 38 mm. If the outer tube stops before bottoming, rotate it until you feel the inner mainshaft (driveshaft) splines engage the gearcase. Then push the outer tube all the way in. See Figure 6.
2. Rotate the gearcase assembly so that the index screw aligns with hole in outer tube.
3. Use a 4 mm hex (Allen) wrench to tighten the gearcase index screw first, then the gearcase clamp screw.



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 the longest chain life, let new or replacement chain loops soak 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 8.

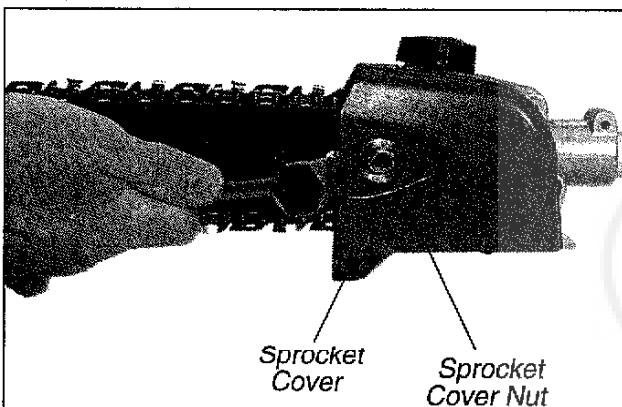


Figure 8

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 9.

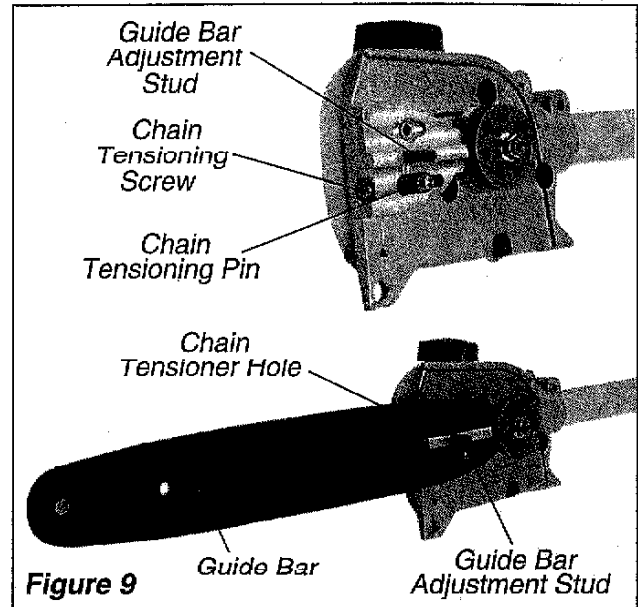


Figure 9

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 10. If the chain installation is difficult or if the chain appears too tight, refer to the section "Adjusting the Chain" on the next page.

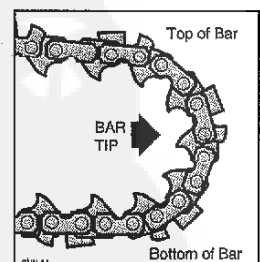


Figure 10



WARNING!

Never operate the pole pruner tool 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 machine.

1. Place pole pruner tool 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 11).

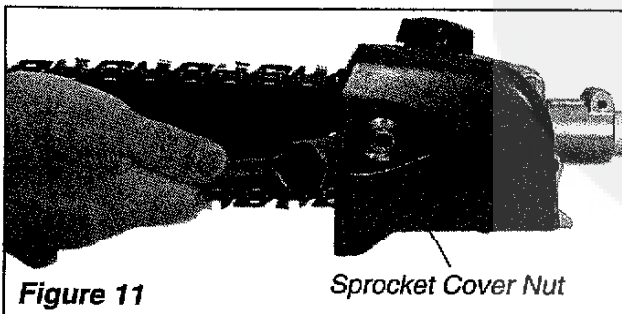


Figure 11

Sprocket Cover Nut

3. Lift the nose of the guide bar while turning the chain tensioning screw.
See Figure 12.

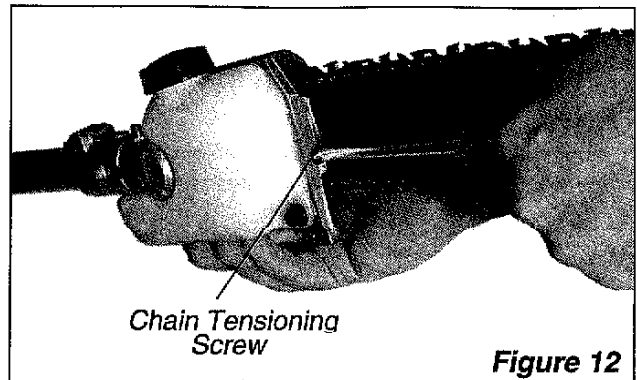


Figure 12

- clockwise to tighten the chain
 - counter clockwise 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 13.

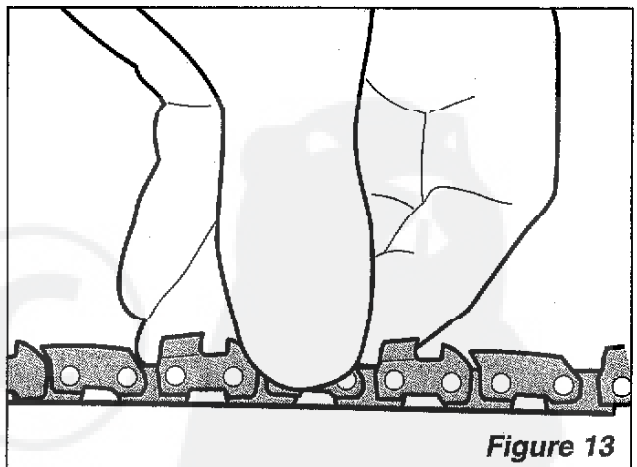


Figure 13

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

Filling the Chain Oiler Reservoir



WARNING!

Never fill the oil reservoir or 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 Shindaiwa Bar and Chain Oil will help ensure a long service life. For cold weather operation, mix the bar and chain oil with an equal part of kerosene.

NOTE:

The oil reservoir has a capacity sufficient to provide about 40 minutes of cutting time (when set to deliver the minimum flow rate, or about as long as you'll get from a tank of fuel).

1. Place the pole pruner on a clean, flat surface with the oil filler cap facing up. See Figure 14. Wipe off any debris from the oil cap and from around the oil filler neck.

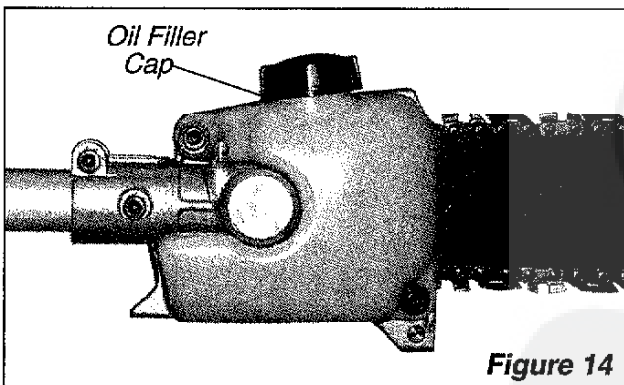


Figure 14

2. Remove the oil filler cap and fill the reservoir with bar and chain oil, then replace the cap.
3. Wipe up any 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 minimum 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 OFF position.
2. Place the unit on its side with the oil reservoir up. See Figure 15.

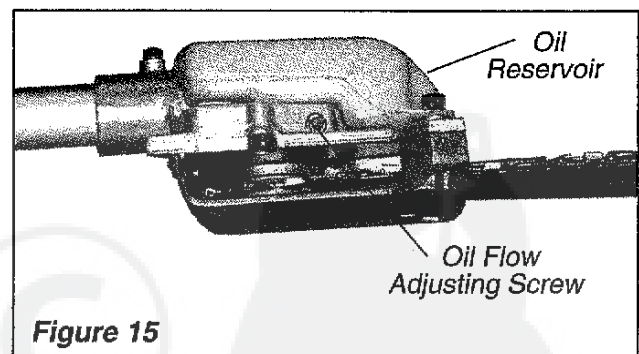


Figure 15

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.
 - counter clockwise—increase lubrication.

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.

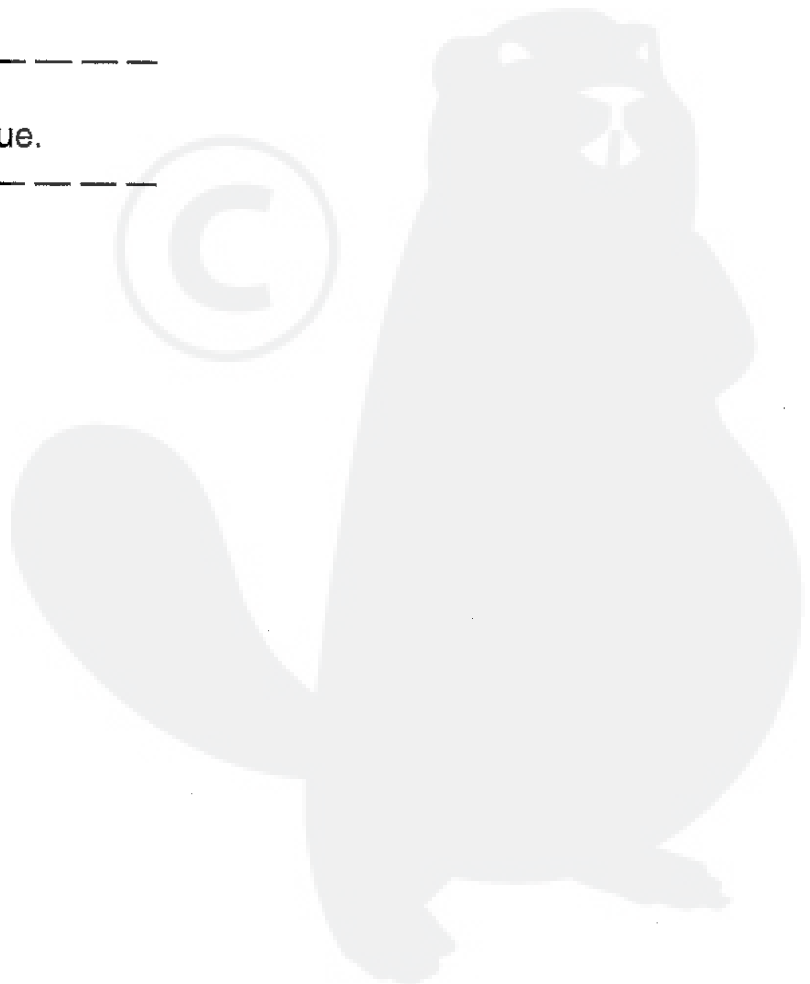
Working position:

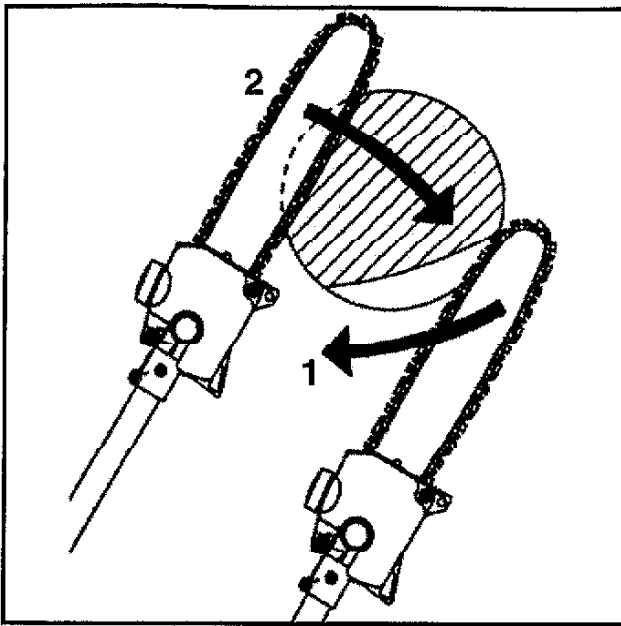
Hold the control handle with your right hand, and the shaft with your left hand. Your left arm should be extended to the most comfortable position.

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

NOTE:

Take a rest when you feel fatigue.



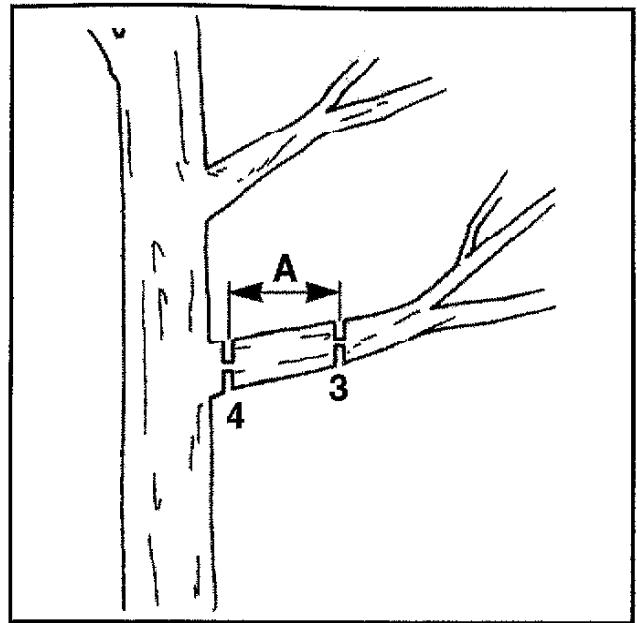


Working techniques

Relieving cut:

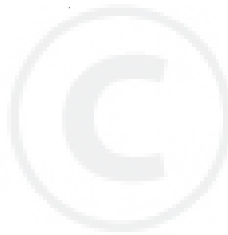
To avoid tearing the bark, kickback or pinching the bar when pruning thick branches, always start by performing a relieving cut (1) on the underside of the branch.

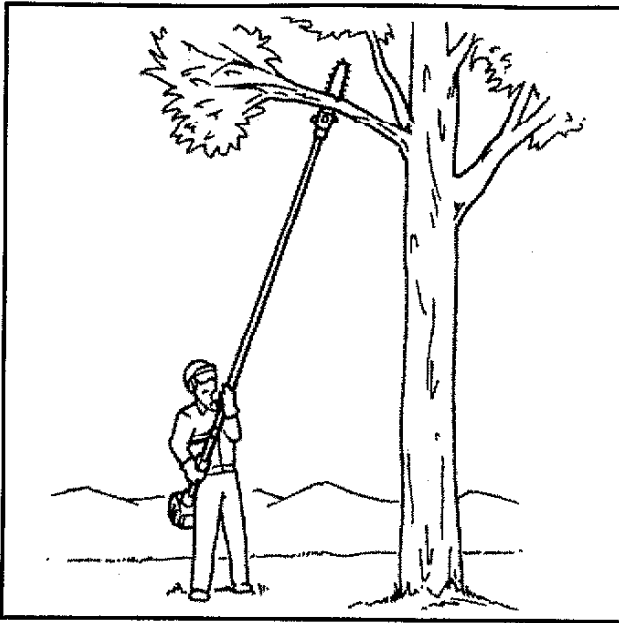
To do this, apply the cutting attachment and pull it across the bottom of the branch as far as the bar nose. Perform the cross-cut (2).



Flush-cutting thick branches:

If branch diameter is more than 10cm (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.

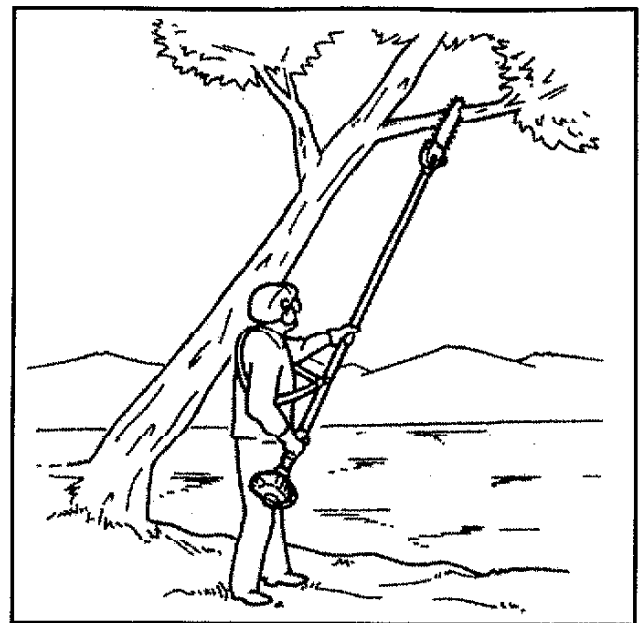




Typical applications

Standard cut:

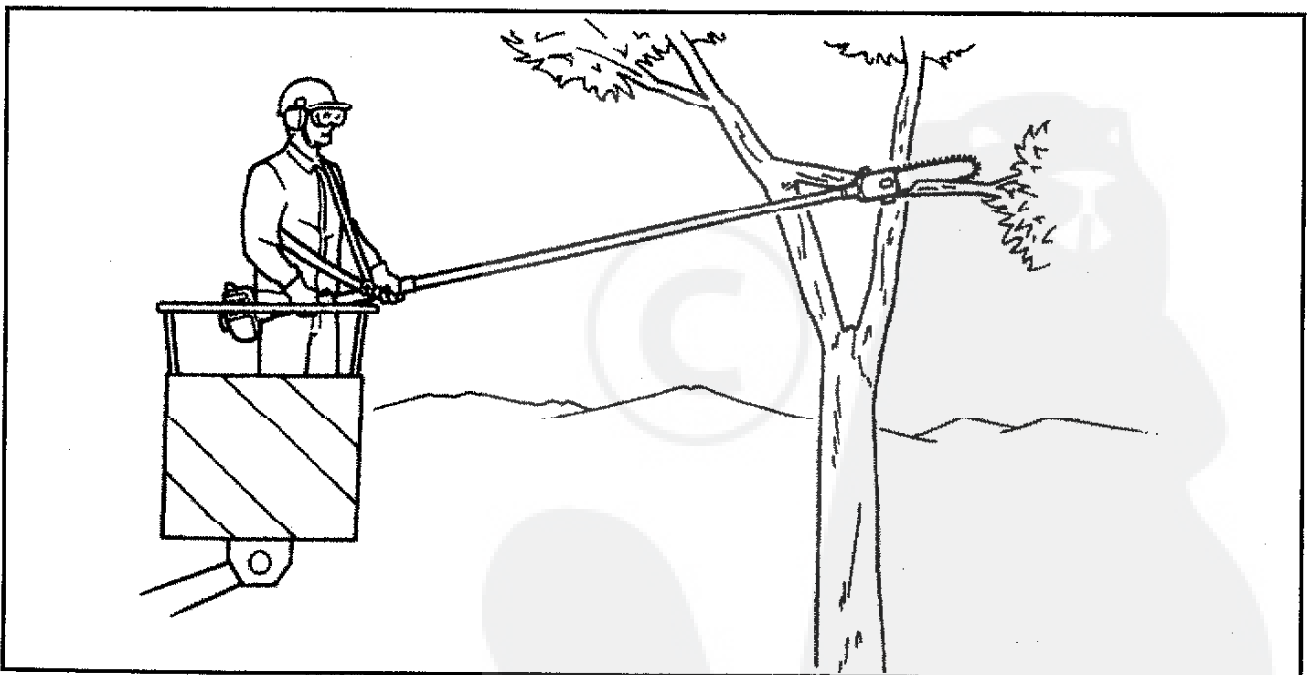
The most convenient working position is a tool angle of 60° , but any other angle may be used to suit the situation concerned.



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.

General Maintenance

IMPORTANT!

For detailed maintenance information about your T230, AH230 powerhead, consult the owner's manual that was provided with it. If it has been lost or misplaced, contact Shindaiwa for a replacement.



WARNING!

Before performing any maintenance, repair, or cleaning work on the unit, 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.

Daily Maintenance

Prior to each work day, perform the following:

- Carefully remove any accumulations of 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 that nuts, bolts, and screws (except carburetor adjusting screws) are tight.

50-Hour Maintenance

Every 50 hours of operation
(more frequently in dusty or dirty conditions):

- 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 16.

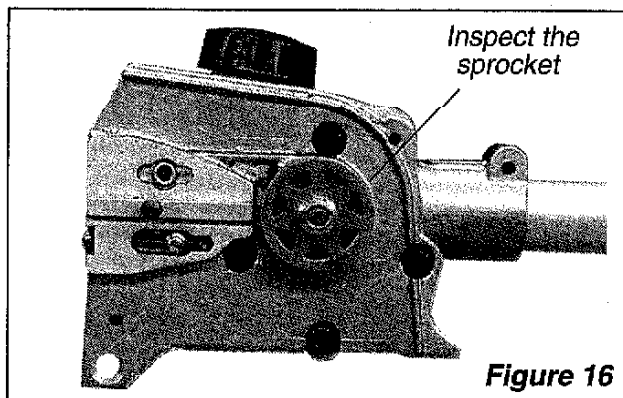


Figure 16

- **Lubricate the gearcase.** To perform this operation, first remove the gearcase from the upper outer tube as follows (Figure 17):

CAUTION!

Do not remove the D-shaped shim washer from the gearcase clamp! The shim washer prevents damage from overtightening the tube clamp screw.

- loosen the gearcase clamp bolt.
- remove the index bolt from the gearcase.
- slide the gearcase out of the tube.

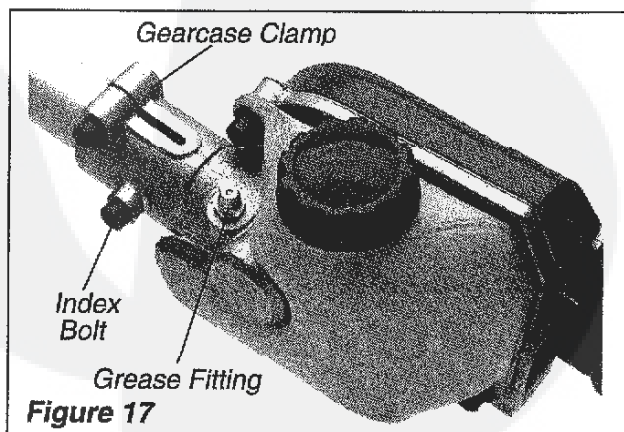


Figure 17

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.

Long Term Storage

Whenever the machine will not be use 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!

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

- Drain all the flue 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 plug 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 18. Refer to page 13 for adjustment procedures.

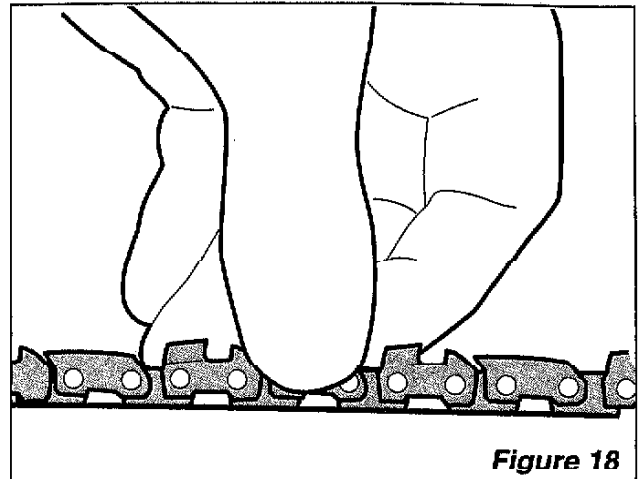


Figure 18

Sharpening Instructions (Fig.19)

IMPORTANT!

File all the 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 0.020 inch.
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.

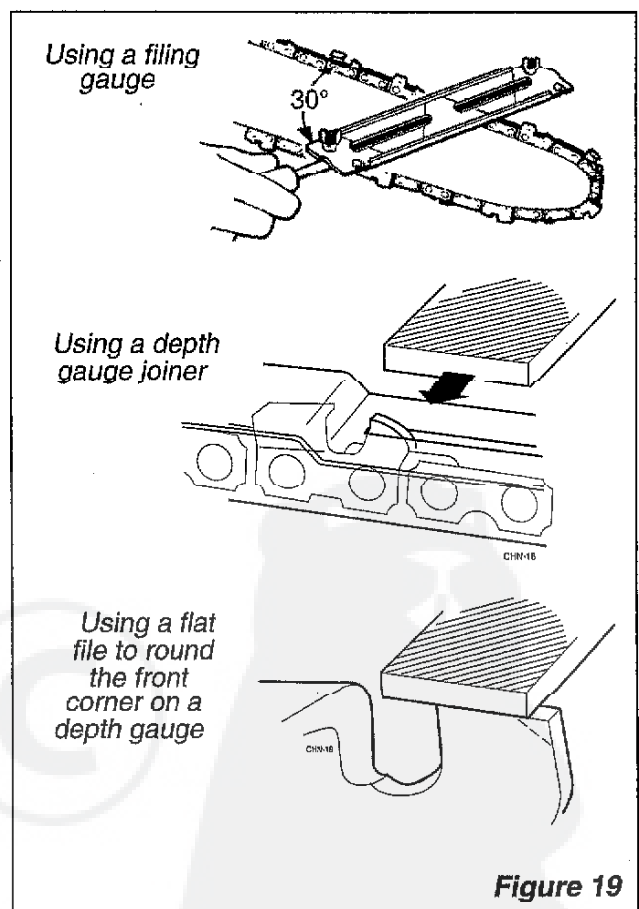
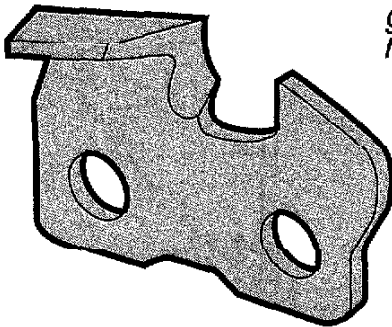


Figure 19

Correct Filing Technique

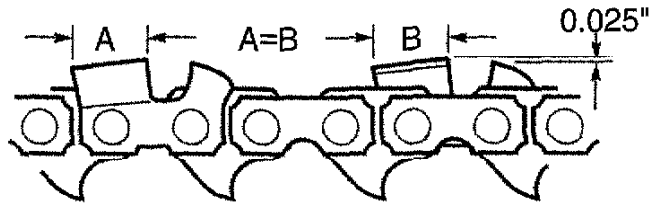
Correct angle on top plate

Slightly protruding hook or point (curve on non-chisel chain)



Top of depth gauge at correct height below top plate

Front of depth gauge rounded



Keep all cutter lengths equal

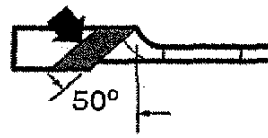
Filing Problems

Top plate angle less than recommended



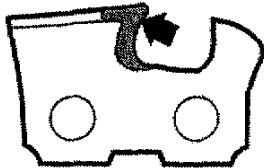
Cause
File held at less than recommended angle.
Result
Slow cutting. Requires extra effort to cut.
Remedy
File cutters to recommended angle.

Top plate angle more than recommended



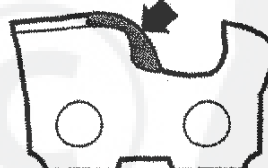
Cause
File held at more than recommended angle.
Result
Cutting angle is very sharp but will dull fast. Cutting action rough and erratic.
Remedy
File cutters to recommended angle.

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

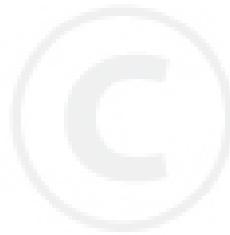


Cause
Wrong gauge setting or no gauge used
Result
Rough cutting. Chain grabs. Saw won't pull chain through wood. Excessive wear on the cutter heel.
Remedy
If depth gauges are too low, the chain is no longer serviceable.

Troubleshooting Guide

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.
Chain will not rotate	Shaft not installed in powerhead or gearcase.	Inspect and reinstall as required.
	Broken shaft.	Consult with an authorized servicing dealer
	Damaged gearcase.	Consult with an authorized servicing dealer
Chain rotates at engine idle.	Engine idle too high.	Set idle: 2,750 min ⁻¹ (±250)
	Broken clutch spring or worn clutch spring boss.	Replace spring/shoes as required, check idle speed.



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3	Germany	Iseki Maschinen GmbH	Rudolf-Diesel-Str. 4, 40670 Meerbusch	(49) 02159 5205 0	(49) 02159 520512
4	England	PLM Power Products Ltd.	Unite 5-6, The Shires Indust- rial Estate, Essington Close, Birmingham Road, Lichfield, Staffs, WS14 9AZ	(44) 01543 414477	(44) 01543 414541
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10	Greece	Technellas S.A.	92, Athinon Avenue, 104 42 Athens	(30) 1 5193 110	(30) 1 5193 114
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