

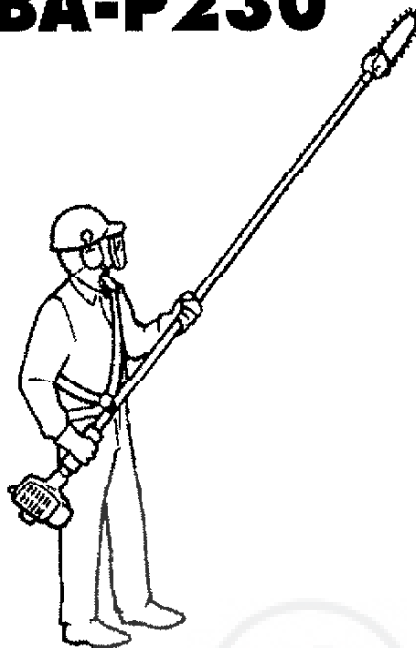
**ISO 9001**  
CERTIFIED

# shindaiwa

## **SHINDAIWA OWNER'S MANUAL**

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# **SPLITBOOM ATTACHMENT SBA-P230**



### **WARNING!**

Read this manual and the manual provided with Shindaiwa 230PH Multipurpose Engine and familiarize yourself with its contents.

This machine is designed for cutting branches with Shindaiwa 230PH Multipurpose Engine.

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 Splitboom Attachment SBA-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.

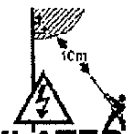
These procedures are guidelines for safe operation under most conditions, and are not intended to replace any safety rules and/or laws that may be in force in your area.

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 230PH Multipurpose Engine, consult the owner's manual provided with it. If it has been lost or misplaced, contact a Shindaiwa dealer for a replacement.

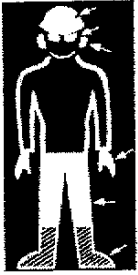
A pole pruner runs at very high speeds and has the potential to do serious damage if misused, abused or mishandled. To reduce the risk of injury, you must maintain control at all times, and observe all safety precautions during operation. **Never permit a person without training or instruction to operate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



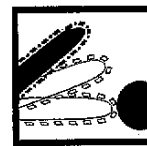
Never touch the saw chain when starting the engine and while operating this machine.



Chain of fill/oil pump



Never operate the pruner tool 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 tool 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 contribute 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 effects 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 operate the pole pruner tool.
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.

# Safety Labels

## IMPORTANT!

Safety and Operation Information Labels: Make sure all information labels are undamaged and readable. Immediately replace damaged or missing information labels. New labels are available from your local authorized Shindaiwa dealer.

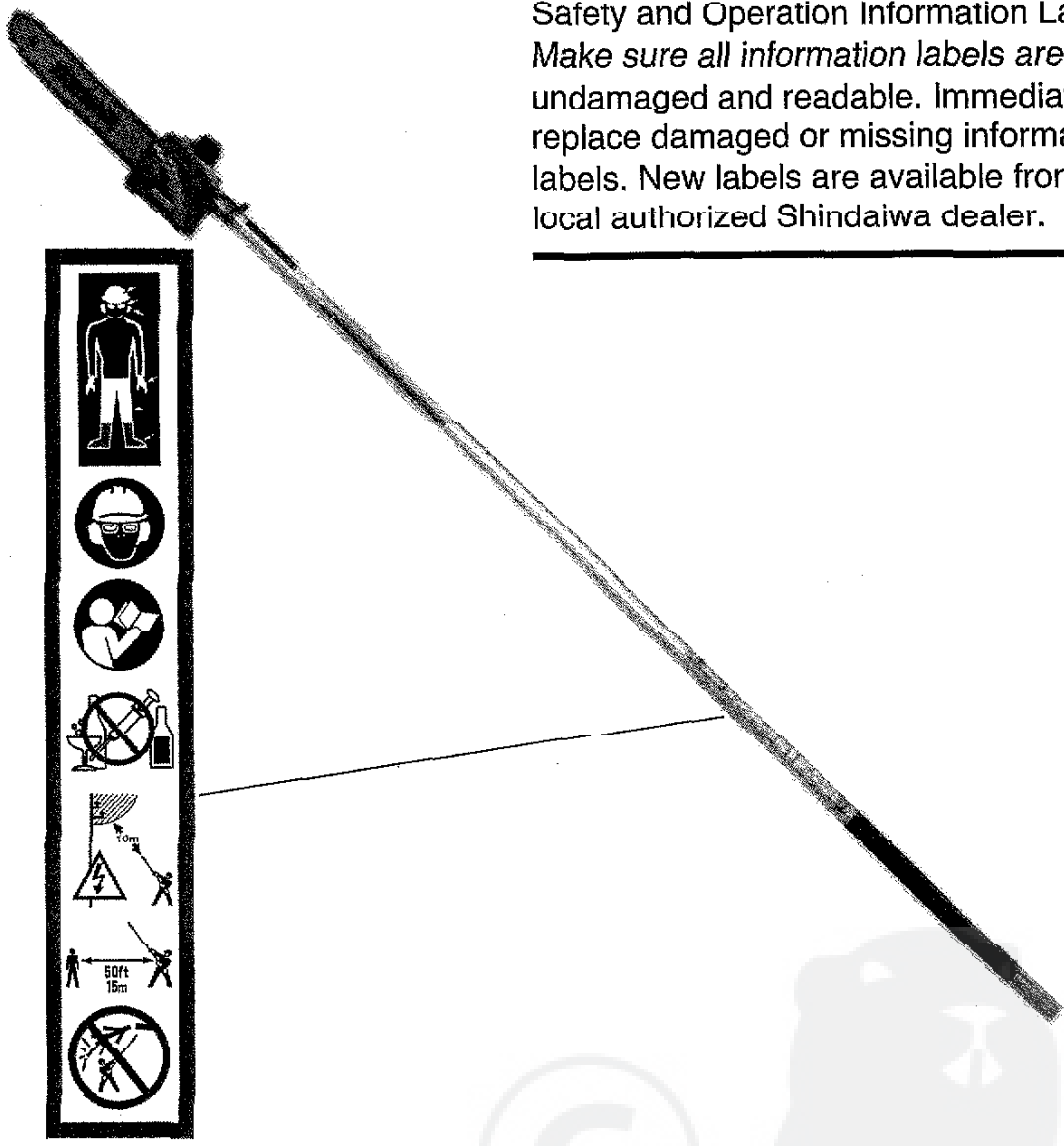


Figure 1

## Operating Precautions



### WARNING!

- This Shindaiwa splitboom Attachment SBA-P230 is specifically designed for use on the Shindaiwa 230PH Multipurpose Engine. Installation and/or use on any other model, brand or type of power tool is not approved by Shindaiwa. Attempts to use on nonapproved models can damage the equipment and cause accidents, serious injury or death. Never permit a person without training or instruction to operate this machine.
- Make sure the chain and sprocket are correctly adjusted before operating the pruner (see pages 11 and 12 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.
- 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 or 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 230PH Multipurpose Engine with the pole pruner tool, the chain should be pointing backward. See Figure 2.
- 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.
- *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.*
- 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.

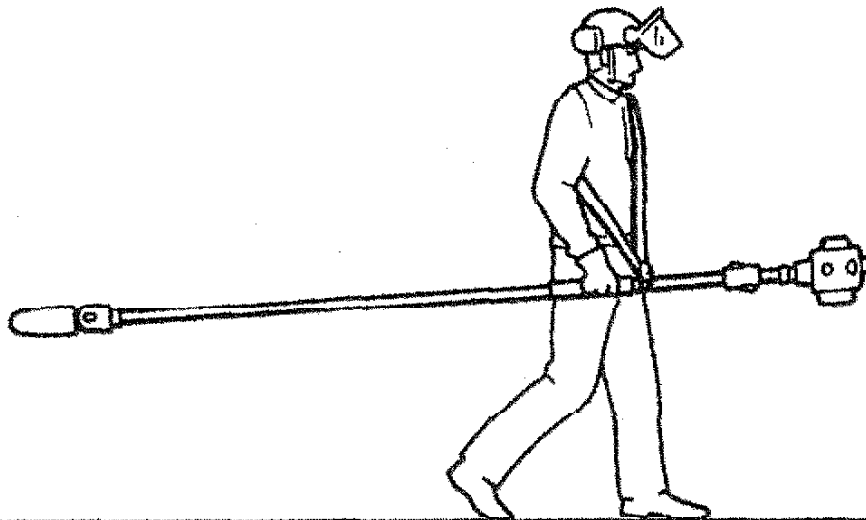


Figure 2

### CAUTION!

- Always maintain this pole pruner tool according to the this owner's/operator's manual and follow the recommended *scheduled maintenance*.
- Never modify or disable any of the machines 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

## 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.

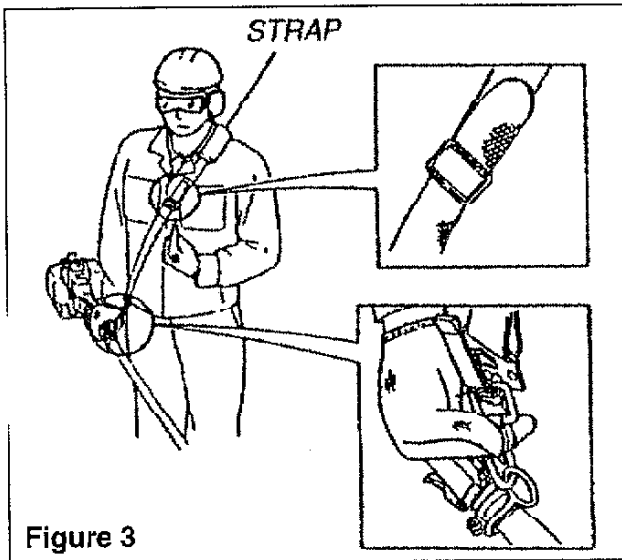


Figure 3

Always wear eye and hearing protection. Shindaiwa 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 (50feet) 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.

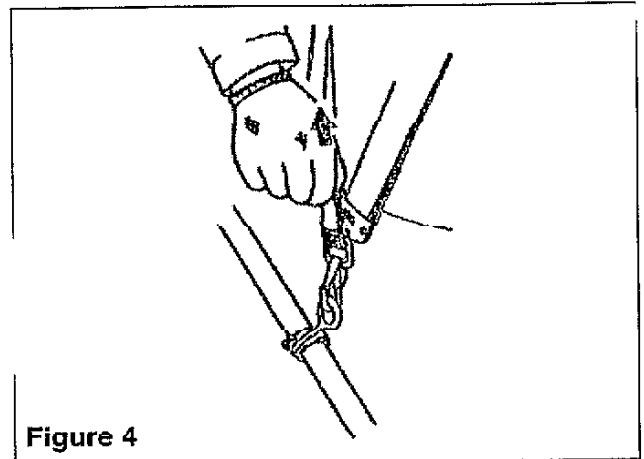
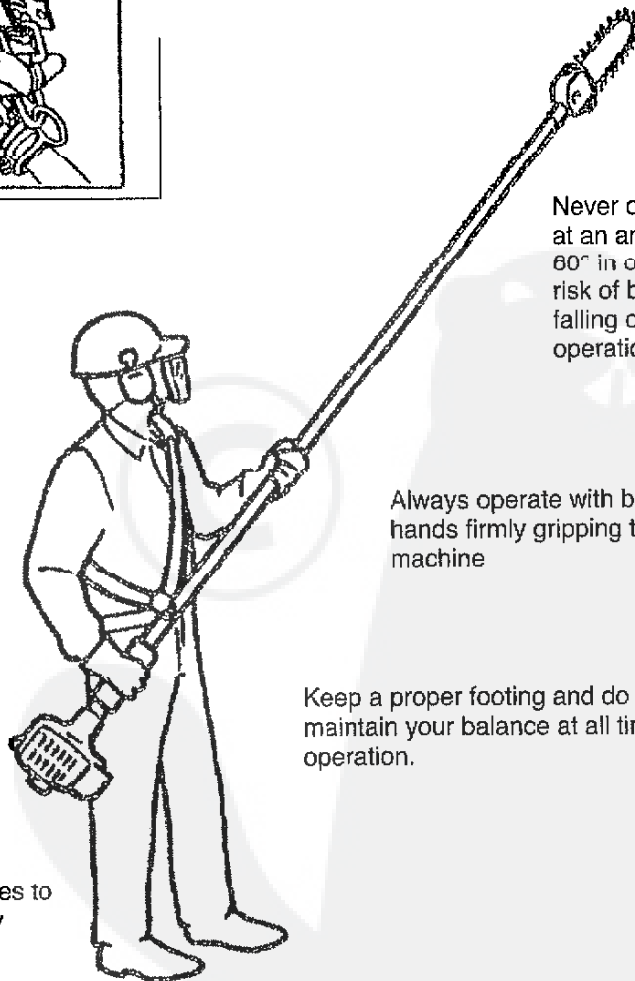


Figure 4

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.





## Specifications: Splitboom Attachment SBA-P230

Dry Weight SBA-P230(without bar and chain) .....	1.5 kg
Dry Weight SBA-P230 with 10-in. bar and chain .....	1.9 kg
Dry Weight (Installed on 230PH) with 10-in. bar and chain .....	6kg
Length (Installed on a 230PH) with 10-in. bar and chain.....	1872 mm
Chain Guide Bar 3/8" pitch, .....	.043" gauge, 10-inch Micro Lite™
Chain Type .....	3/8" pitch Micro Lite™, .043" gauge
Sprockets .....	3/8-inch, fixed spur
Gearcase Ratio .....	1.06 : 1
Chain Speed 23.5 m/sec. ....	@ 10,000 min <sup>-1</sup>
Chain Lubrication .....	Automatic adjustable oiler
Chain Lubricant .....	Shindaiwa Premium Bar and Chain Oil
Oil Tank Capacity .....	100 ml.
Standard Equipment .....	Gearcase/cutting head attachment, scabbard, owner's /operator's manual, and tool kit.
Tool Kit Contents: Plug wrench with 10 mm x 19 mm sockets/flat blade screwdriver and 4 mm hexwrench	
Optional Bars .....	8-inch or 10-inch or 12-inch

Specifications are subject to change without notice.

(with Shindaiwa 230PH Multipurpose Engine)

Sound Pressure Level*		91dB(A)
Sound Power Level*		106dB(A)
Vibration Level*	Idling[Front(Engine Side)]	1.5m/s <sup>2</sup>
	[Front(Gearcase Side)]	1.8m/s <sup>2</sup>
	[Rear]	2.5m/s <sup>2</sup>
	Racing[Front(Engine Side)]	2.1m/s <sup>2</sup>
	[Front(Gearcase Side)]	4.7m/s <sup>2</sup>
	[Rear]	4.3m/s <sup>2</sup>

\*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

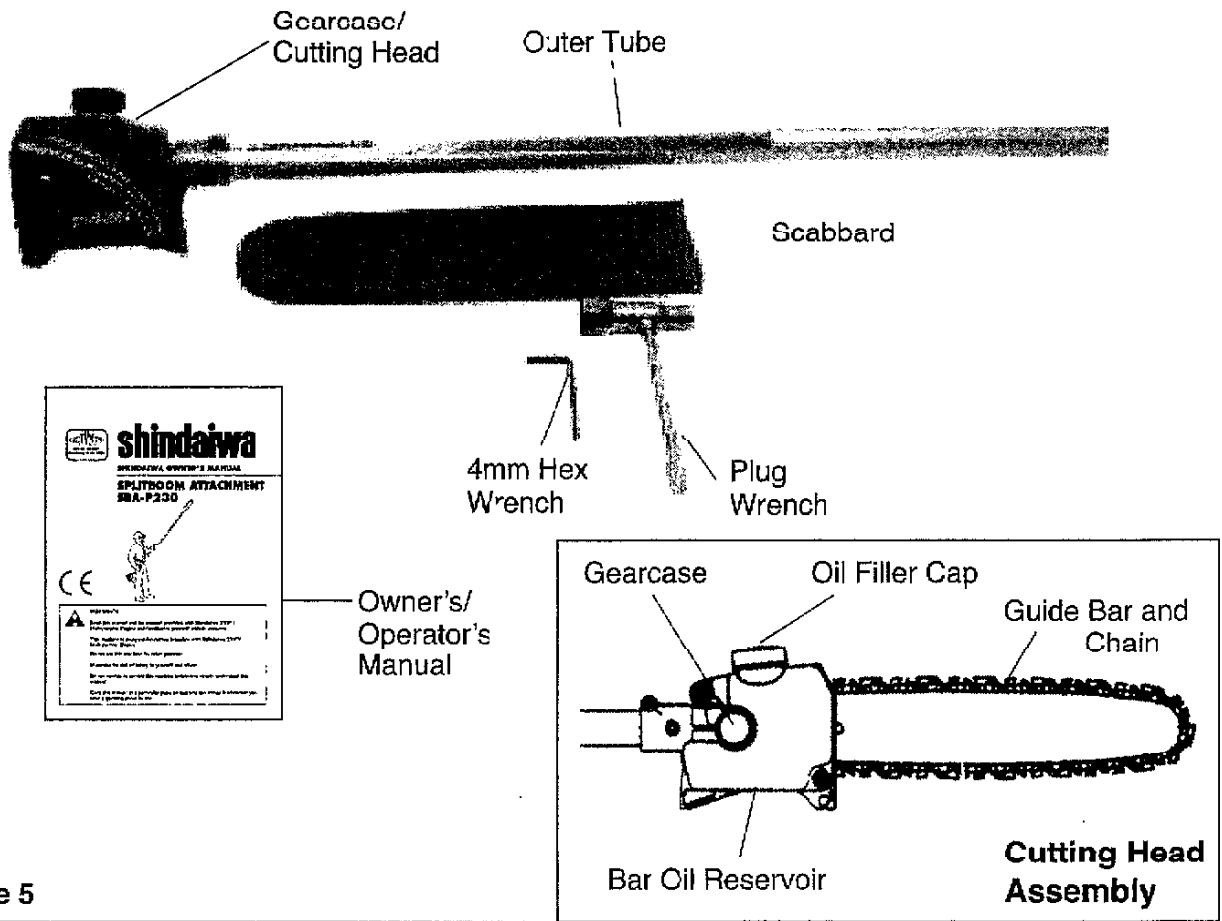


Figure 5

## Prior To Assembly

Using Figure 5 as a guide, familiarize yourself with the Shindaiwa Splitboom Attachment SBA-P230 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:

- Tool/Gearcase assembly
- Scabbard
- Owner's/Operator's manual
- Tool kit for routine maintenance

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 a Tool Attachment

1. Place 230PH Multipurpose Engine and Splitboom Attachment SBA-P230 on a clean, flat surface so that both assemblies fit end to end. The powerhead assembly should be facing up, and the Splitboom Attachment SBA-P230 should be positioned with the locking hole in the tube end facing up. See Figure 5.

### CAUTION!

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

2. Slip off the protective cover from the end of the tool, and loosen the coupler screw knob.
3. Insert the tube into the coupler, with the tool decal facing up, until the line of the decal is flush with the end of the coupler. Twist the tool back and forth until you are sure it snaps in place by the coupler latch. See Figure 6.

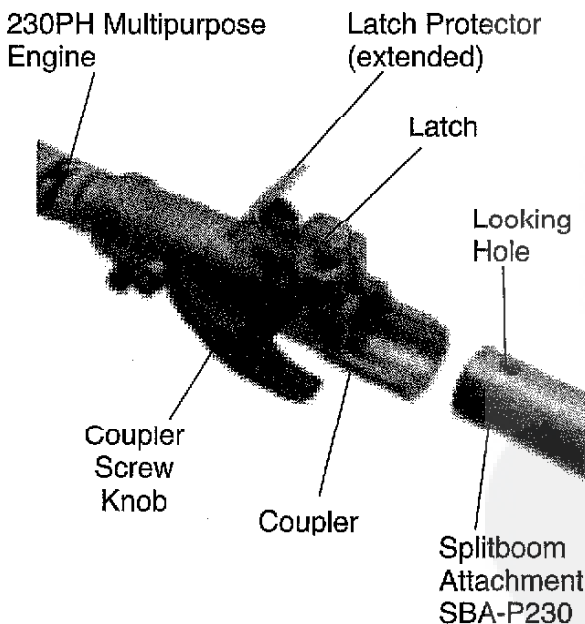


Figure 6

4. When the two tube halves are locked together, press down on the spring-loaded latch protector and tighten the coupler screw. See Figure 7.

### CAUTION!

Make sure no gap between the Latch Protector and the Coupler.

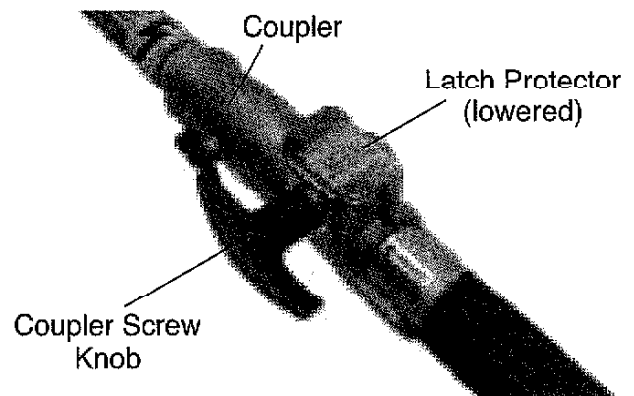


Figure 7

## Disassembling The Pole Sections

1. Place the unit on a clean, flat surface, loosen the coupler screw. The spring-loaded coupler protector should pop up.
2. Press down on the latch with your finger or thumb. This releases the coupler lock. See Figure 8.
3. Pull the tube out of the coupler.

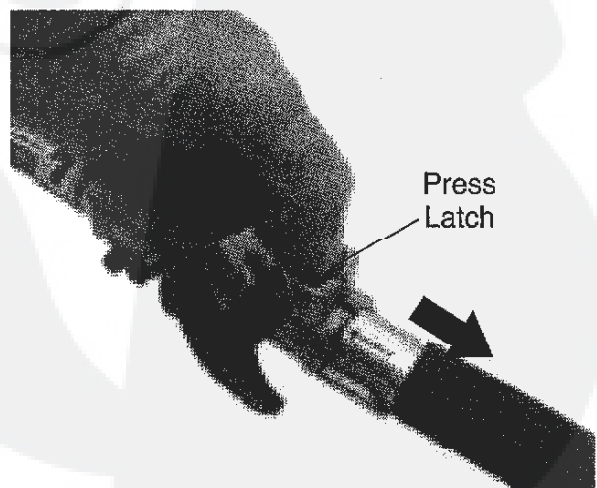


Figure 8

# 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 covernut (turn counterclockwise to remove) and remove the sprocket cover. See Figure 9.

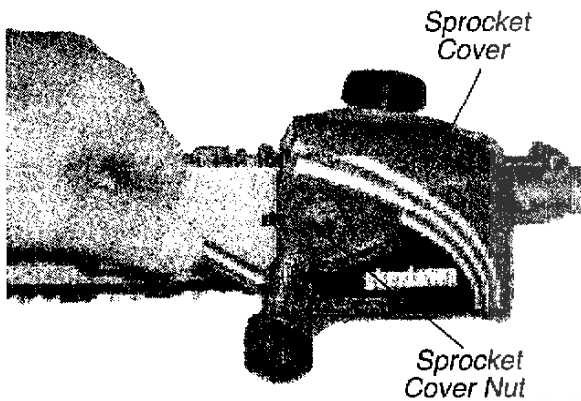


Figure 9

### 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 10.

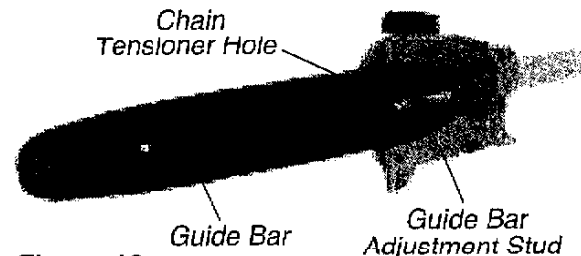
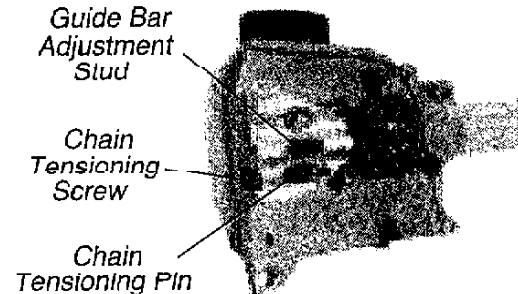


Figure 10

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 cutters are properly oriented as shown in Figure 11. If the chain installation is difficult or if the chain appears too tight, refer to the section "Adjusting the Chain" on the next page.

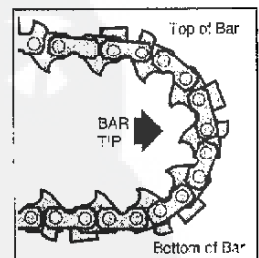


Figure 11



### 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 splitboom Attachment SBA-P230 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 the plug wrench. See Figure 12.

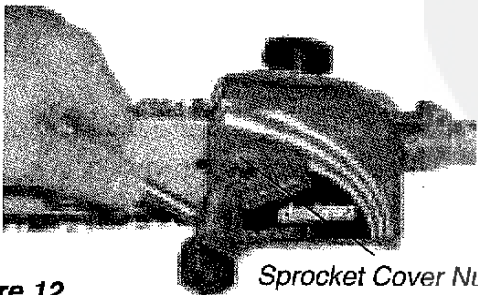


Figure 12

Sprocket Cover Nut

3. Lift the nose of the guide bar while turning the chain tensioning screw. See Figure 13.

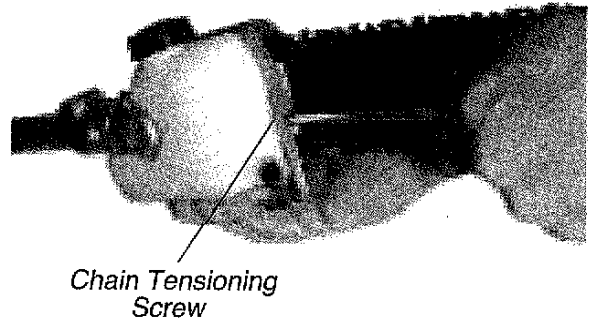


Figure 13

- 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 14.

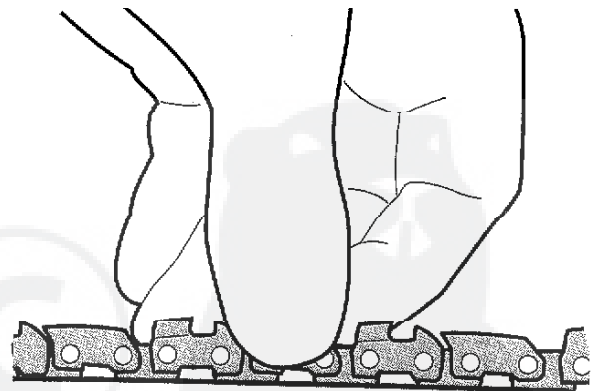


Figure 14

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 Shitboom Anachment SBA-P230 on a clean, flat surface with the oil filler cap facing up. See Figure 15. Wipe off any debris from the oil cap and from around the oil filler neck.
2. Remove the oil filler cap and fill the

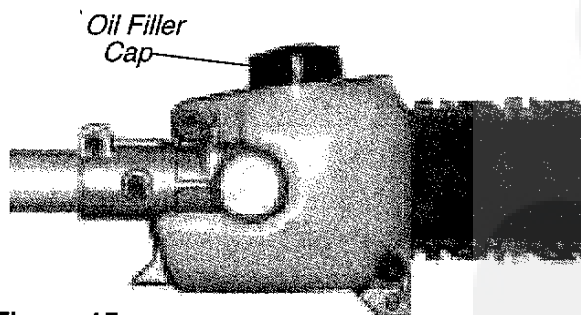


Figure 15

reservoir with bar and chain oil, then replace the cap.

3. Wipe up any spilled oil from the unit before restarting the machine.

## 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 16.

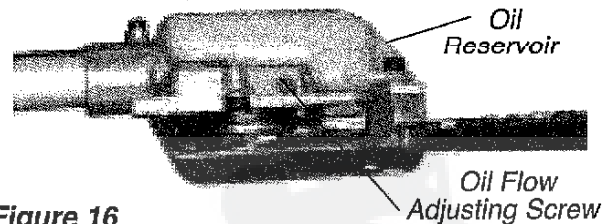


Figure 16

### 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.

### NOTE:

For the details of filling fuel, consult the owner's manual that was provided with 230PH Multipurpose Engine. If it has been lost or misplaced, contact a Shindaiwa dealer for a replacement.

## 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 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.

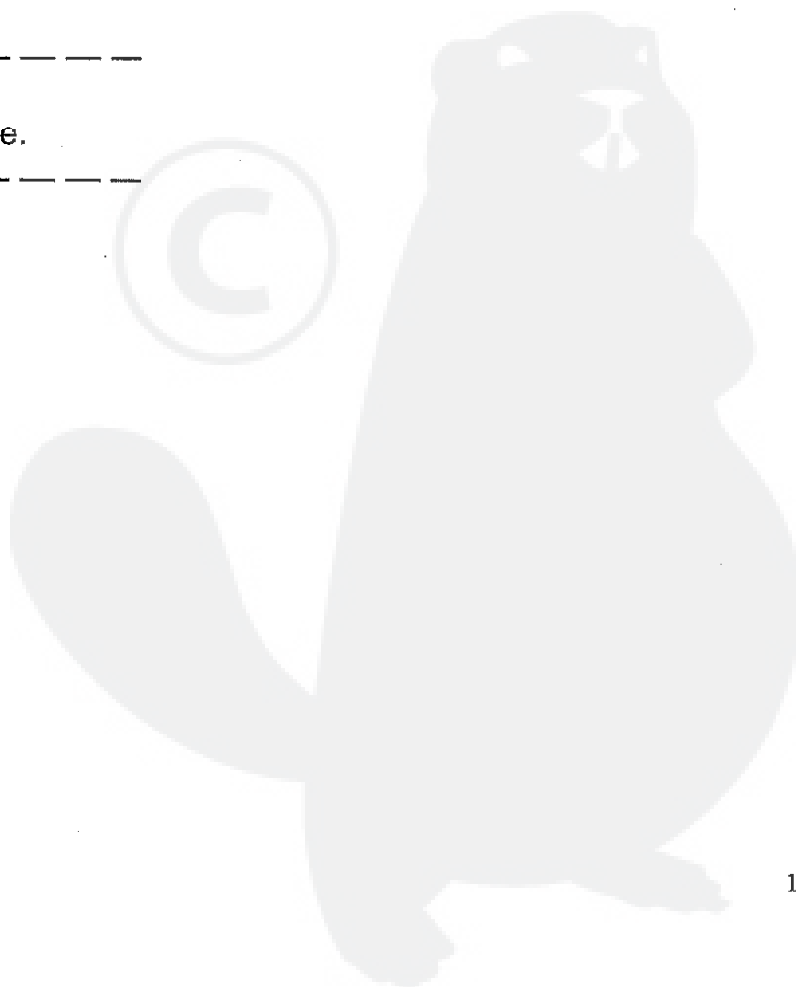
**The shaft should always be held at an angle of 60° or less.**

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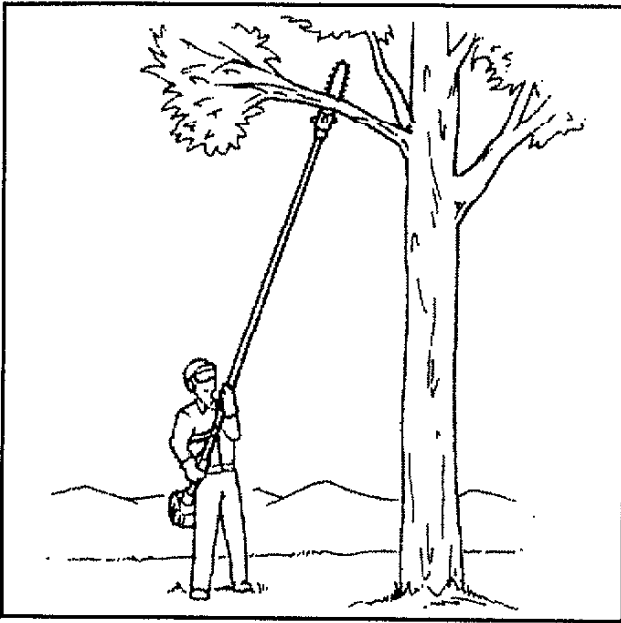
#### NOTE:

Take a rest when you feel fatigue.

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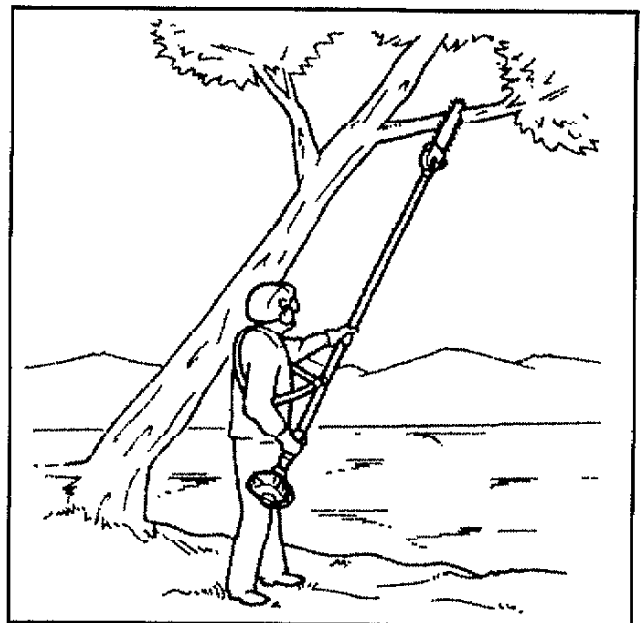




### Typical applications

#### Standard cut:

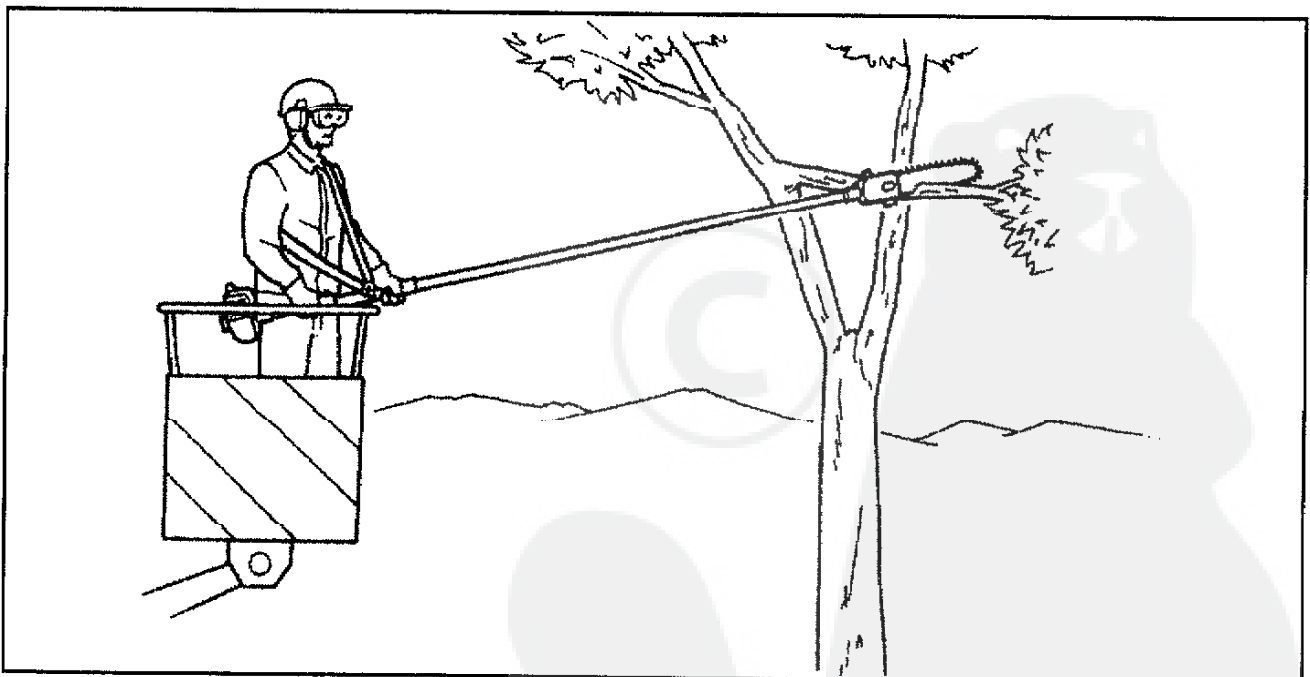
The most convenient working position is a tool angle of  $60^\circ$ , but any other angle may be used to suit the situation concerned.



#### 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.

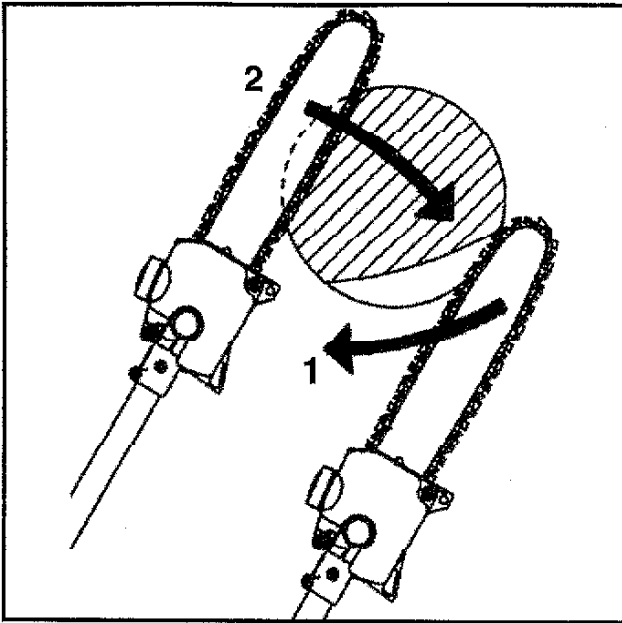
The tool angle in this cage depends on the position of the branch.



#### 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 cage depends on the position of the branch.

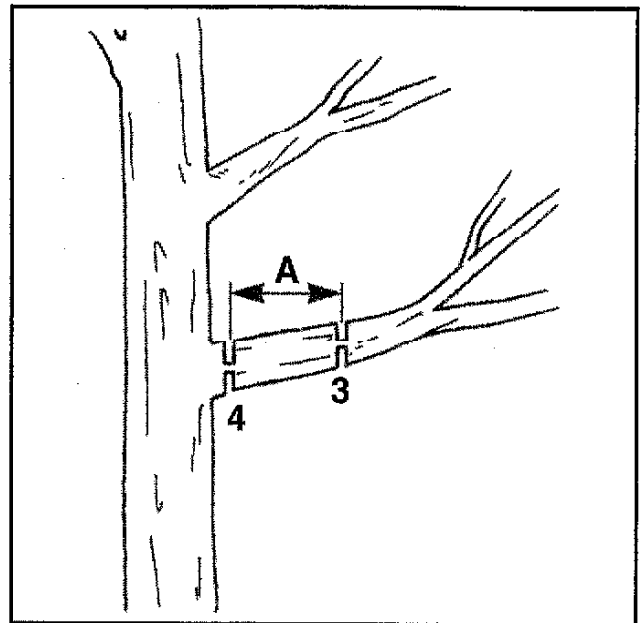


### Working techniques

#### Relieving cut:

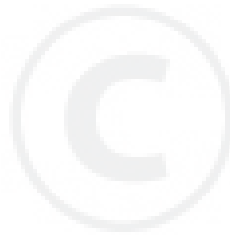
To avoid tearing the bark, kickback or pinching the bar when pruning thick branches, always start by performing a relieving cut (1) on the underside of the branch.

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 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.



## Maintenance

### IMPORTANT!

For detailed maintenance information about your 230PH Multipurpose Engine, consult the owner's manual that was provided with it. If it has been lost or misplaced, contact a Shindaiwa dealer 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. debris and securely fastened.

## Daily Maintenance

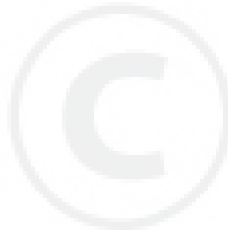


### WARNING!

The saw chain is very sharp. Wear gloves to protect your hands when working with or around the saw chain.

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 clean, 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.



## 15-hour Maintenance

### Every 15 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 17.

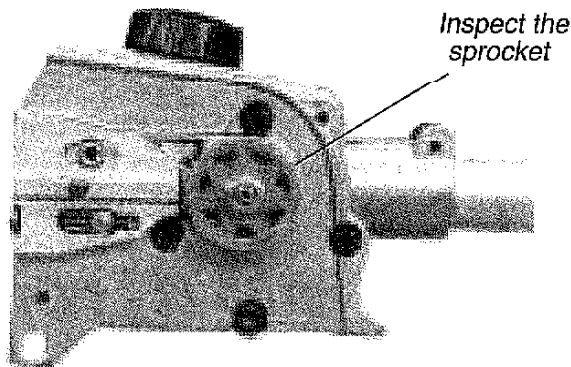


Figure 17

## 50-hour Maintenance

### Every 50 hours of operation

(more frequently in dusty or dirty conditions):

- **Lubricate the gearcase.** To perform this operation, first remove the gearcase from the upper outer tube as follows; Refer to Figure 18.

### 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.

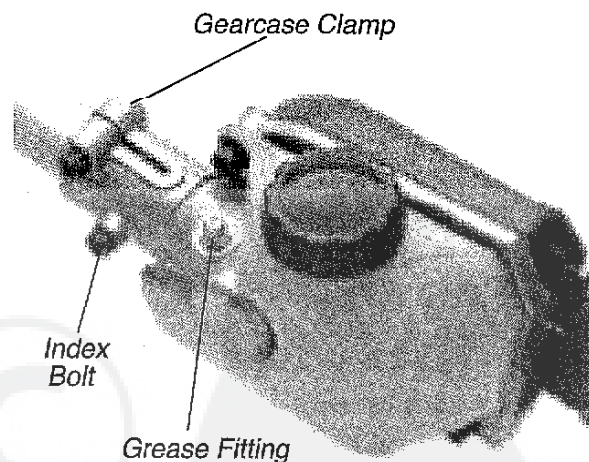


Figure 18

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.

## Storage

### Short Term Storage

(Less than 30 days)

- Clean the air filter.
- Clean cylinder fins, flywheel fins, and muffler surfaces.
- Clean cooling air intake grill.
- Clean debris from gearcase and outer tube exterior surfaces.
- Lubricate gearcase as outlined in page 32 of this manual.
- Drain fuel tank.
- Cover engine and store unit in a clean, dry place.

### Long Term Storage

(More than 30 days)

#### **CAUTION!**

Never store this unit for more than 30 days with fuel remaining in the tank, fuel lines or carburetor!  
Storing with fuel remaining in the fuel tank, fuel lines and carburetor may cause gum deposits in the fuel system.

- Remove the spark plug and pour about 7g of oil into the cylinder through the spark plug hole. Crank the engine over slowly two or three times so oil will coat the cylinder wall and piston rings.
- Reinstall the spark plug.
- Repair damaged or faulty components as necessary.
- Clean all external parts thoroughly and apply a light coating of oil to all metal surfaces.
- Cover the engine and store the brushcutter in a clean, dry place.
- Cover the blade with the blade cover.

#### **IMPORTANT!**

All units to be stored, for 30 days or longer, with fuel remaining in the fuel tank, hose, and carburetor and fuel system should be conditioned with a fuel stabilizer such as STA-BIL™.

Whenever the machine is going to be stored for 30 days and longer, prepare the unit for storage as follows:

- Drain all fuel from fuel tank and allow unit to run until all the fuel in the carburetor is spent.



## Sharpening the Chain

When the cutting edges of the blade become dull, they can be re-sharp-ened 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 19. Refer to page 12 for adjustment procedures.

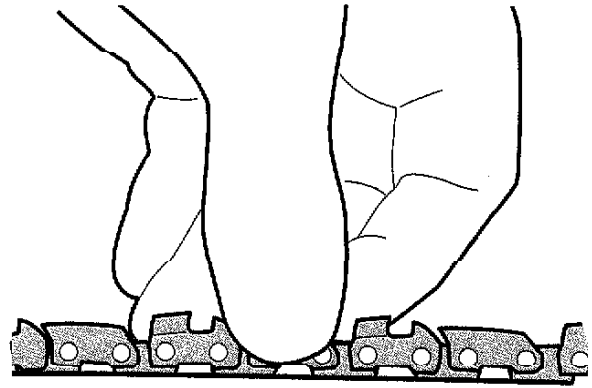


Figure 19

## Sharpening Instructions (Fig.20)

### IMPORTANT!

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

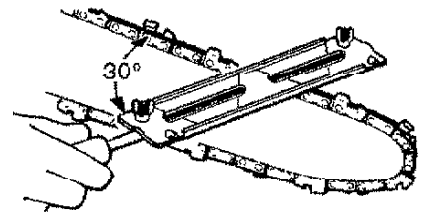
1. Using a 4.5 mm round file, sharpen all cutters to a 30° angle. Make sure that one fifth (20%) of the file's diameter is always held above the cutter's top plate.

### NOTE:

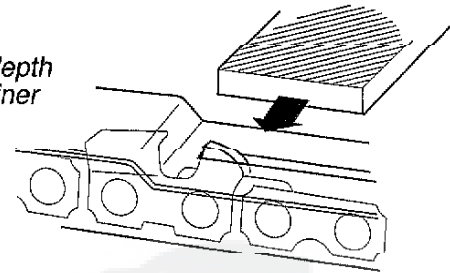
For consistent filing angles, use a filing guide such as Oregon® p/n 31692 or equivalent.

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. See Figure 20.

Using a filing gauge



Using a depth gauge joiner



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

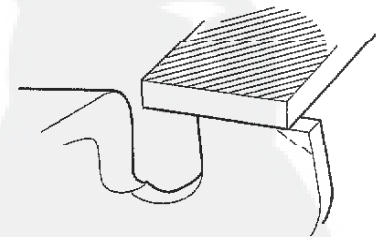
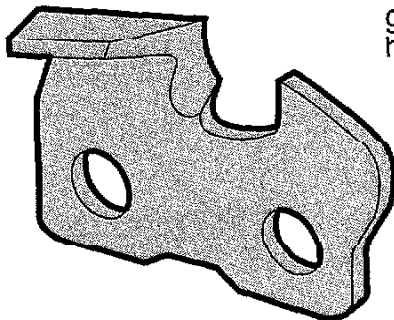


Figure 20

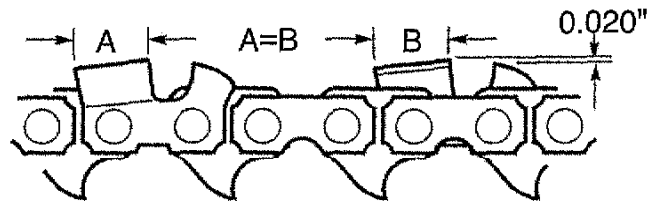
# Correct Filing Technique

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

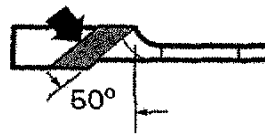
## Filing Problems

**Top plate angle less than recommended**



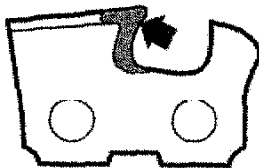
**Cause**  
File held at less than recommended angle.  
**Result**  
Slow cutting. Requires extra effort to cut.  
**Remedy**  
File cutters to recommended angle.

**Top plate angle more than recommended**



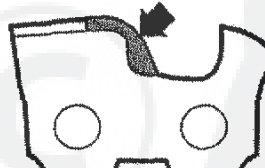
**Cause**  
File held at more than recommended angle.  
**Result**  
Cutting angle is very sharp but will dull fast. Cutting action rough and erratic.  
**Remedy**  
File cutters to recommended angle.

**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

## 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 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 wite 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 0.6mm(0.024 inch). Restart.  Rcplace the plug-NGK BMR6A Restart.

## Troubleshooting Guide (continued)

### LOW POWER OUTPUT

What to check	Possible cause	Remedy
<div style="border: 1px solid black; padding: 5px; width: fit-content;">                     Is the engine overheating?                 </div>	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 English 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.
<div style="border: 1px solid black; padding: 5px; width: fit-content;">                     Engine is rough at all speeds. May also have black smoke and/or unburned fuel at the exhaust.                 </div>	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.
<div style="border: 1px solid black; padding: 5px; width: fit-content;">                     Engine is knocking.                 </div>	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)

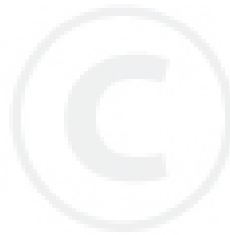
### ADDITIONAL PROBLEMS

Symptom	Possible cause	Remedy
Poor acceleration.	<p>Clogged air cleaner element.</p> <p>Clogged fuel filter.</p> <p>Carburetor mixture too lean.</p> <p>Idle speed set too low.</p>	<p>Clean the air cleaner element.</p> <p>Replace the fuel filter.</p> <p>Return the unit to the dealer.</p> <p>Adjust <math>2750\text{min}^{-1}(\pm 250)</math></p>
Engine stops abruptly.	<p>Switch turned off.</p> <p>Fuel tank empty.</p> <p>Clogged fuel strainer.</p> <p>Water in the fuel.</p> <p>Shorted spark plug or loose terminal.</p> <p>Ignition failure.</p> <p>Piston seizure.</p>	<p>Reset the switch and re-start.</p> <p>Refuel.</p> <p>Replace strainer.</p> <p>Drain:replace with clean fuel.</p> <p>Clean and replace spark plug, tighten the terminal.</p> <p>Replace the ignition unit.</p> <p>Return unit to the dealer.</p>
Engine difficult to shut off.	<p>Ground (Stop) wire is disconnected, or switch is defective.</p> <p>Overheating due to incorrect spark plug.</p> <p>Overheated engine.</p>	<p>Test and replace as required.</p> <p>Clean and regap to 0.6mm Correct plug: NGK BMR6A.</p> <p>Idle engine until cool.</p>
Cutting attachment rotates at engine idle.	<p>Engine idle too high.</p> <p>Broken clutch spring or worn clutch spring boss.</p> <p>Loose attachment holder.</p>	<p>Set idle:<math>2750\text{min}^{-1}(\pm 250)</math></p> <p>Replace spring/shoes as required, check idle speed.</p> <p>Inspect and re-tighten holders securely.</p>

## 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.



## European Distributors List

Ref. No.	Country	Name	Address	Tel. No.	Fax. No.
1	France	Yvan Beal	21, avenue De l'Agriculture, B.P.16-Zone Industrielle du Brezet, 63014 Clermont- Ferrand Cedex 1	(33) 04 7391 9351	(33) 04 7390 23 11
2	Italy	Fercad S.P.A.	Via Retrone, 49, 36077 Altavilla Vicentina, Vicenza	(39) 0444 220811	(39) 0444 348986
3	Germany	Iseki Maschinen GmbH	Rudolf-Diesel-Str. 4, 40670 Meerbusch	(49) 02159 5205 0	(49) 02159 520512
4	England	PLMPower Products Ltd.	Unite 5-6, The Shires Indust- rial Estate, Essington Close, Birmingham Road, Lichfield, Staffs, WS14 9AZ	(44) 01543 414477	(44) 01543 414541
5	Ireland	Danfay Ltd.	61D Sallynoggin Road, Dun Laoghaire, Co Dublin	(353)1 2859 177	(353)1 2858810
6	Holland	MatracomInt. B.V.	Hogelandseweg51, 6545 AB Nijmegen	(31) 024 373 1990	(31) 024 373 1765
7	Belgium	Intergarden Import N.V.	Brechtsebaan 284-B 2900 Schoten	(32) 03 652 02 61	(32) 03 652 02 40
8	Switzerland	Solo Motorgeraete AG	Seuzachstrasse 26, CH-8413 Neftenbach	(41) 52 315 1221	(41) 52 315 1004
9	Portugal	Inaqnim Verdasca Junior Heads Lda	Apartado 11-2490, Ourem	(351) 249 544540	(351) 249 544361
10	Greece	Technellas S.A.	92, Athinou Avenuc, 104 42 Athens	(30) 1 5193 110	(30) 1 5193 114
11	Finland	Tuonti Jarvela KY	Itkonniemenkatu 11, PB1234 70501 Kuopio	(358) 17 2652 845	(358) 17 2652 801
12	Turkey	Taral Tarim Makina VeAletleri Sanayi A.S.	Gumussuyu Caddesi Hastane Yolu No.1 34020 Topkapi- Maltepe, Istanbul	(90) 212 567 95 50	(90) 212 674 06 79



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