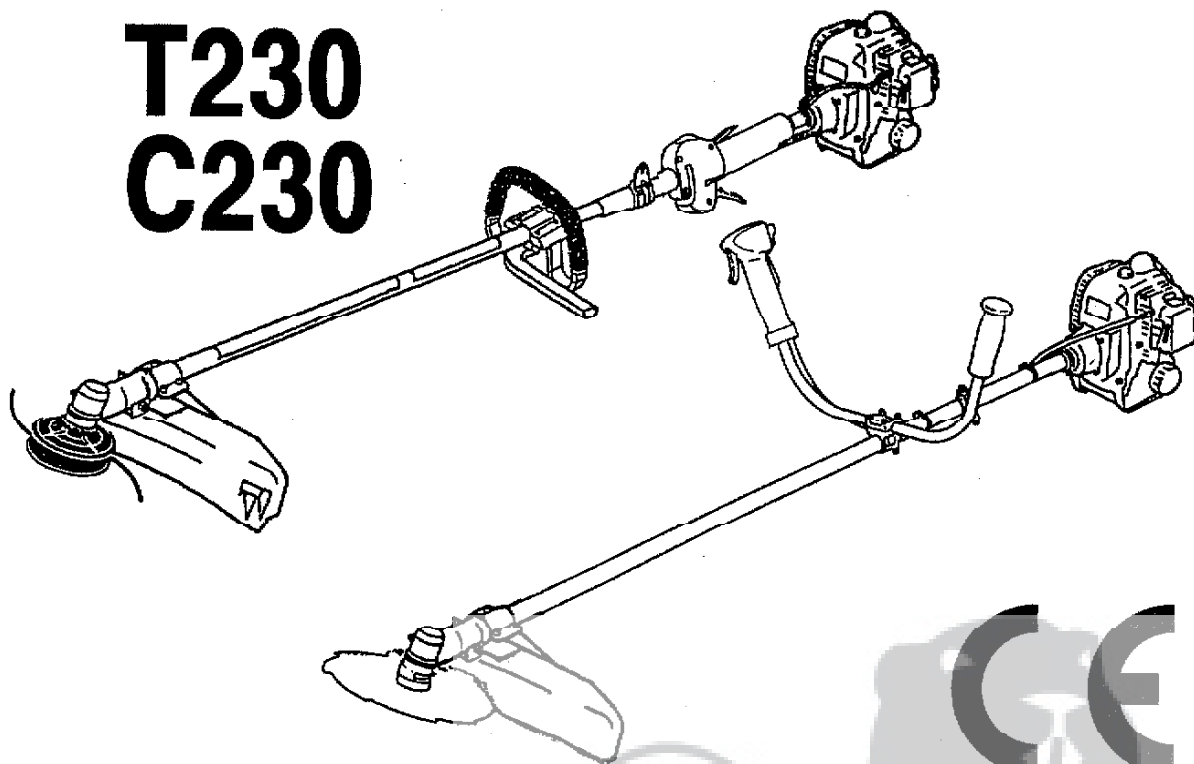


**ISO 9001**  
CERTIFIED

# shindaiwa

## INSTRUCTION MANUAL

### T230 C230



#### **WARNING!**



Read this manual and familiarize yourself with its contents.

This machine is designed for cutting grass, weed and bushes. 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.

**ENGLISH**

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## 1 ATTENTION SYMBOL

Throughout this manual are special "attention statements" surrounded by boxes and preceded by the triangular Attention Symbol.



### WARNING!

A statement preceded by 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 prevent machine damage.

### 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.

## 2 WARNING LABELS

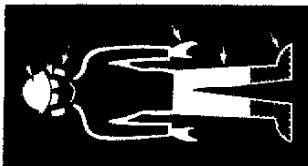
Warning labels stuck to the machine mean as follows.



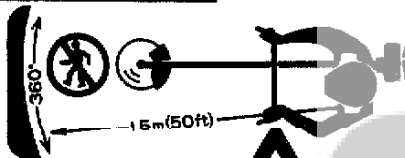
READ AND FOLLOW THE OPERATOR'S MANUAL. FAILURE TO DO SO COULD RESULT IN SERIOUS INJURY.



WEAR HEAD, EYE AND HEARING PROTECTION DURING THE OPERATION OF THIS MACHINE.



WEAR NON-SLIP GLOVES, LONG TROUSERS AND NON-SKID BOOTS DURING THE OPERATION OF THIS MACHINE.



MAKE SURE NO ONE IS WITHIN 15 METERS (50 FEET) OF AN OPERATING ATTACHMENT.



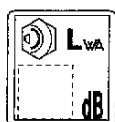
BEWARE OF THROWN OBJECTS.



MAX

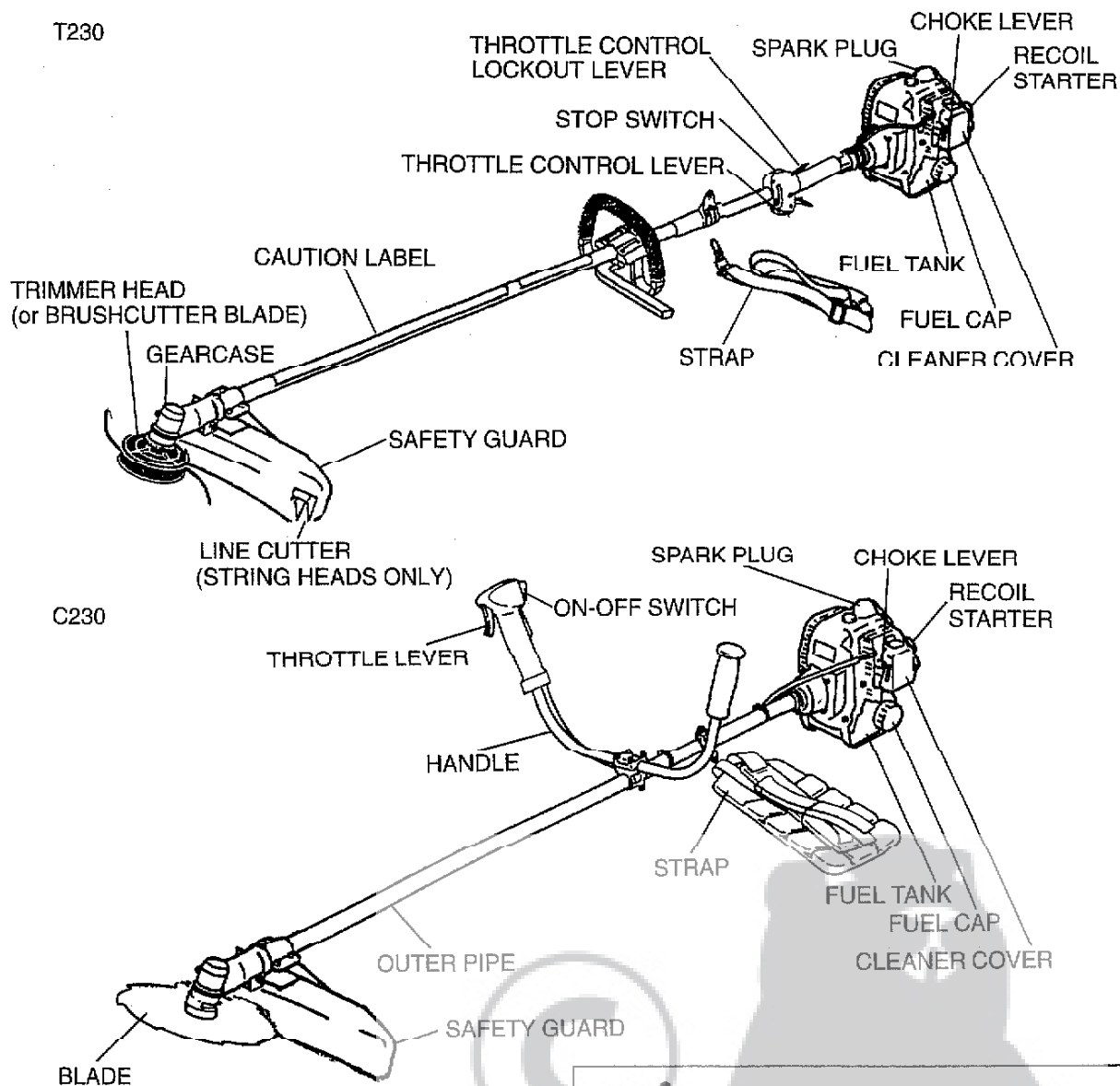
8500min<sup>-1</sup>

THE MAXIMUM SPEED OF THE CUTTING ATTACHMENT SHAFT IN min<sup>-1</sup>



SOUND POWER LEVEL (MEASURED IN ACCORDANCE WITH 2000/14/EC)

### 3 PRODUCT DESCRIPTION



Using the accompanying illustrations as a guide, familiarize yourself with your machine and its various components. Understanding your machine helps ensure top performance, long service life, and safer operation.

**WARNING!**  
Do not make unauthorized modifications or alterations to any of these units or their components.

**WARNING!**  
The engine exhaust from this product contains chemicals which may cause cancer, birth defects or other reproductive harm.

## 4 TECHNICAL SPECIFICATIONS

Model Name	T230	C230	
Engine Model	Shindaiwa S230-1	Shindaiwa S230-2	
Engine Type	2-cycle, vertical-cylinder, air-cooled		
Displacement	22.5 cm <sup>3</sup>		
Bore × Stroke	32 mm × 28 mm		
Engine Speed at Idling	2,750 min <sup>-1</sup>		
Maximum Engine Speed	10,000 min <sup>-1</sup>		
Engine Speed at Max Power Output	7,500 min <sup>-1</sup>		
Maximum Power Output	0.8 kW		
Ignition	Fully electronic, transistor-controlled		
Spark Plug	NGK, BMR6A		
Starting Method	Recoil		
Stopping Method	Slide switch		
Air Cleaner Type	Semi-wet		
Fuel/Oil Ratio	25 : 1		
Fuel Tank Capacity	600 cm <sup>3</sup>		
Carburetor Type	Walbro WYL, Diaphragm		
Dry Weight without cutting attachment and guard	4.8 kg	5.0 kg	
Dimensions	1710 × 365 × 285 mm	1710 × 605 × 450 mm	
Sound Pressure Level*	95 dB (A) note.1	90 dB (A) note.1	
Sound Power Level*	105 dB (A) note.2		
Vibration Level*	Idling [left/right]	3.6/2.4 m/s <sup>2</sup> note.3	2.6/2.3 m/s <sup>2</sup> note.3
	Racing [left/right]	5.4/5.3 m/s <sup>2</sup> note.3	3.1/4.7 m/s <sup>2</sup> note.3
Handle Type	Loop Handle	Bicycle Handlebar	

\*Sound Pressure Level: in accordance with EN ISO 11806 and EN 27917

\*Sound Power Level: in accordance with EN ISO 11806 and ISO 10884

\*Vibration Level: in accordance with EN ISO 11806 and ISO 7916

note1: Measured by Shindaiwa with 3-tooth blade equipped.

Sound pressure level on trimmer head use are as follows.

T230: 95 dB(A) C230: 93 dB(A)

note2: Measured by Shindaiwa with 3-tooth blade equipped.

Sound power level on trimmer head use are as follows.

107 dB(A)

note3: Measured by Shindaiwa with 3-tooth blade equipped.

Vibration level on trimmer head use are as follows.

T230: Idling (left/right) : 2.9 / 2.3 m/s<sup>2</sup>

Racing (left/right) : 8.0 / 4.6 m/s<sup>2</sup>

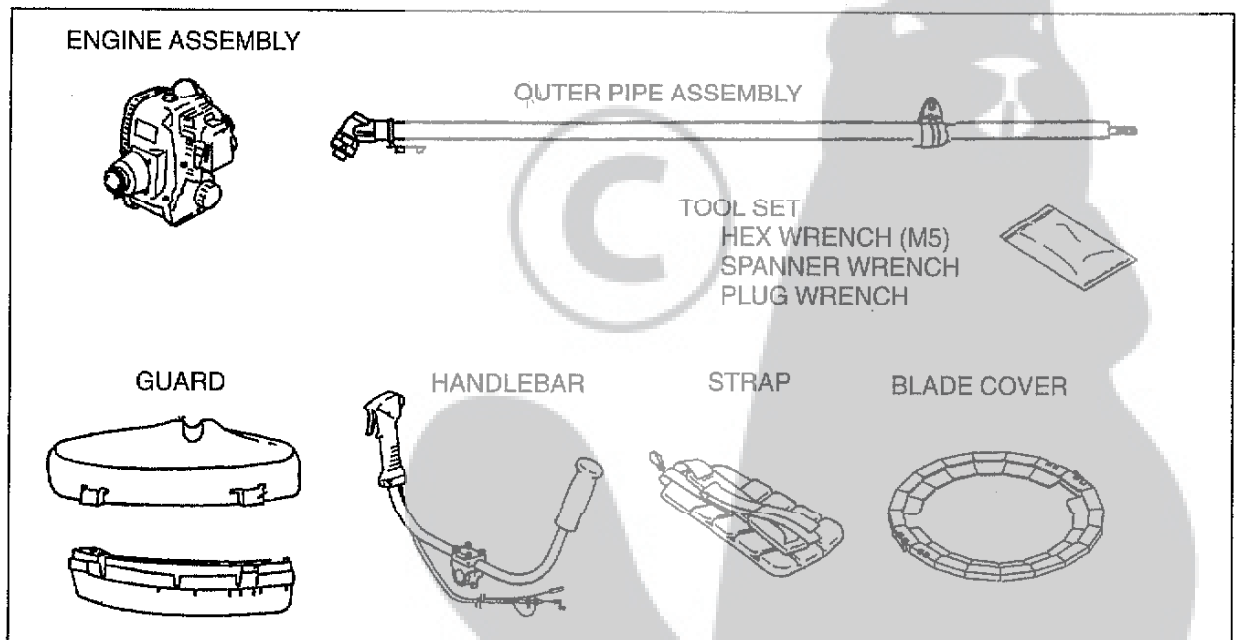
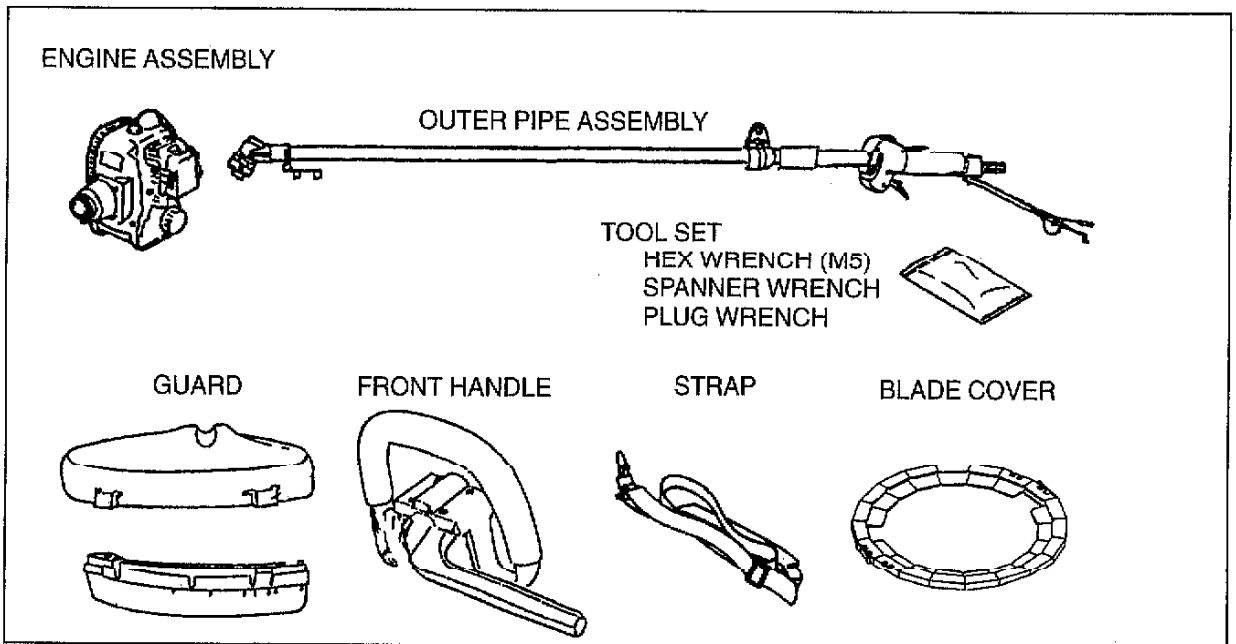
C230: Idling (left/right) : 1.5 / 2.4 m/s<sup>2</sup>

Racing (left/right) : 3.1 / 5.4 m/s<sup>2</sup>

## 5 ASSEMBLY PROCEDURE

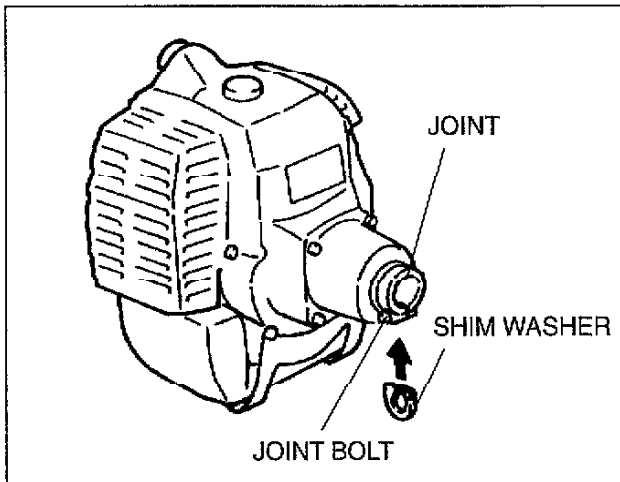
### 5-1 Prior to Assembly

Before assembling, make sure you have all the components required for a complete unit. This machine consists of the following components and accessories. Carefully inspect all components for damage. If you find any damage or missing items, ask your Shindaiwa dealer for consultation.



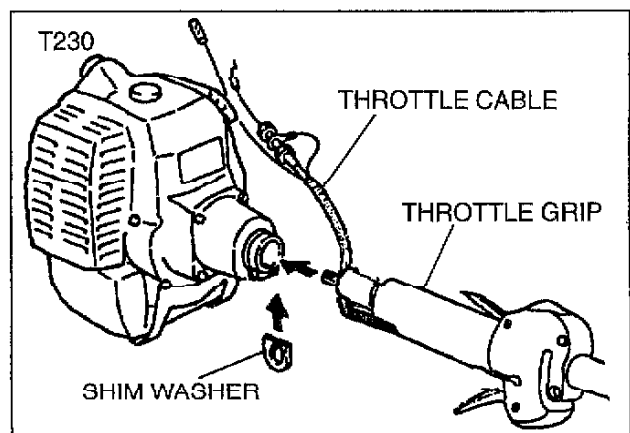
## 5-2 Before Assembling the Outer Pipe

Using the hex wrench, loosen the joint bolt. Do not lose the shim washer.



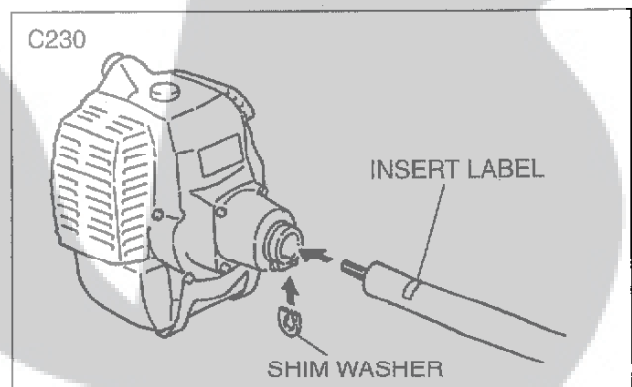
## 5-3 Assembly of the Outer Pipe

- (1) Slip the outer pipe into the joint until the pipe bottoms. The outer pipe or gear case shaft may have to be rotated slightly for the splines on the mainshaft to fully engage to the engine.
- (2) Place the D-shaped shim washer with its flat side up in the gap of the joint. Then, tighten the joint bolt securely using the hex wrench.



**CAUTION!**  
DO NOT REMOVE THE SHIM WASHER!

The shim washer prevents over-tightening of the outer pipe joint. Over-tightening the outer pipe joint could damage the outer pipe assembly.



## 5-4 Assembly of the Handle



### WARNING!

NEVER operate this machine without the front handle. Operating without the front handle may result in serious injury.

#### (A) T230

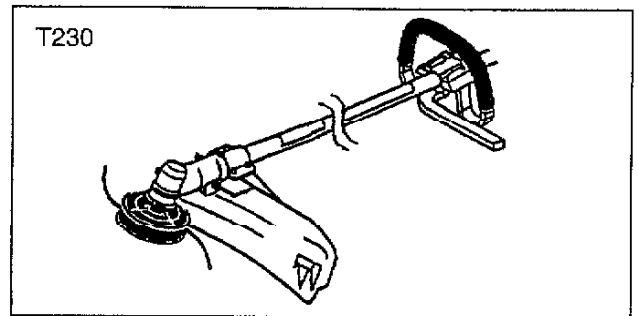
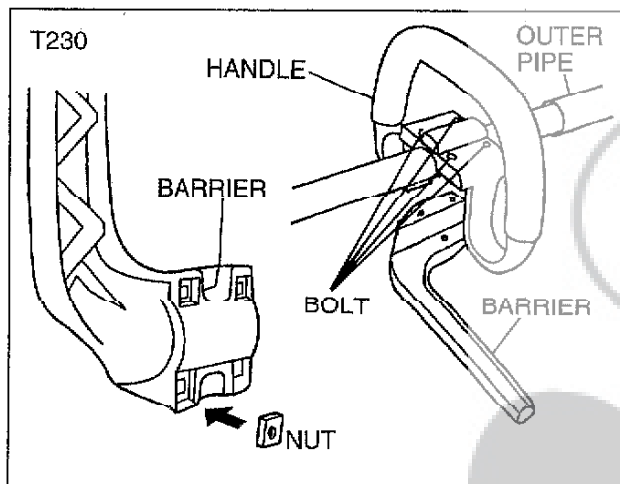
- (1) Put 4 square nuts in the frame of barrier.
- (2) Fit the handle and barrier over the outer pipe and tighten four bolts.

#### NOTE:

Tighten four bolts in order of the diagonal for protection of a handle.

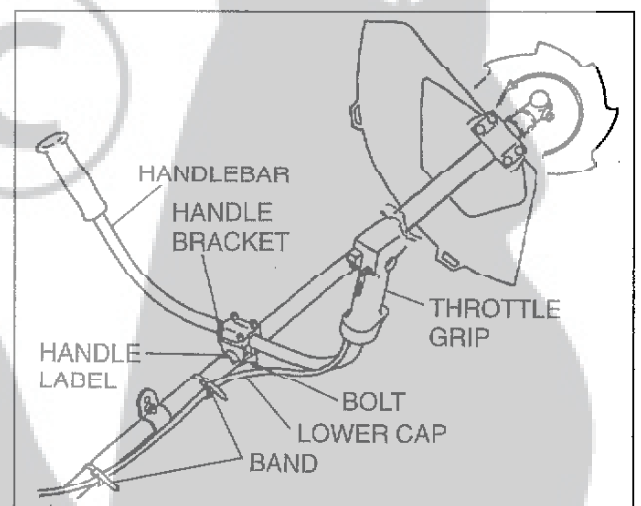
#### NOTE:

Adjust the handle at the best position for operator comfort



#### (B) C230

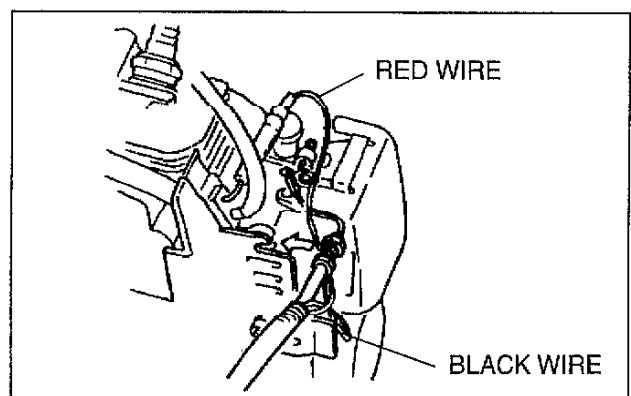
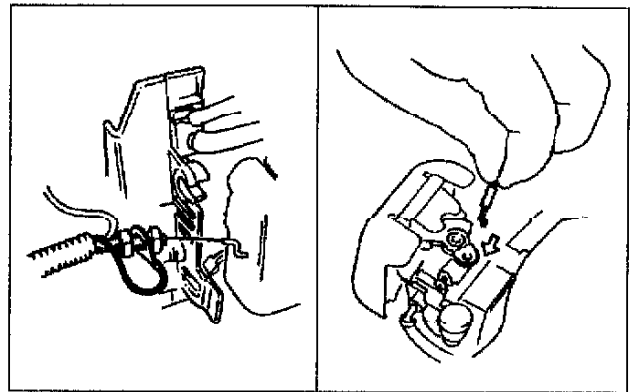
- (1) Loosen the 2 bolts of the lower cap and remove the lower cap.
- (2) Position the handle bracket on the handle label stuck to the outer pipe.
- (3) Attach the lower cap with the 2 bolts and tighten the bolts. Make sure the handle stays as the illustration shows.
- (4) Secure the cable to the outer pipe with the 2 bands as the illustration shows. The 2 bands are in the tool bag.



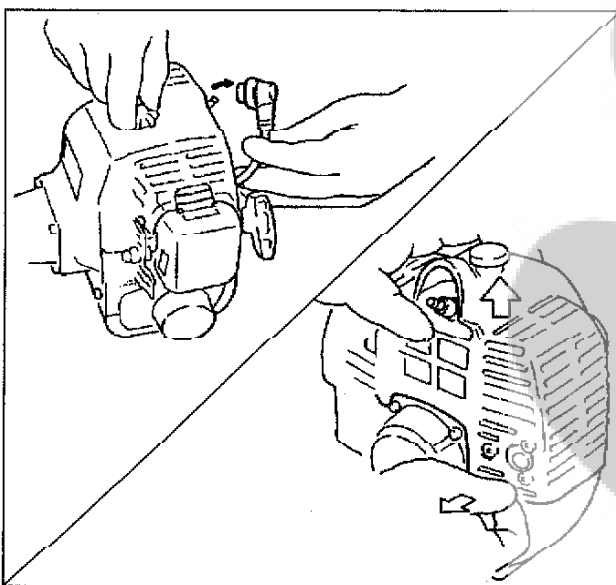


## 5-5 Assembly and Adjustment of the Throttle Cable

- (1) Remove the plug cap from the spark plug.
- (2) Loosen the black cylinder cover knob (about a dozen full turns are required) and lift off the cylinder cover. You may have to pull back slightly on the right-rear corner of the cover to clear the muffler outlet tube.
- (3) Loop the ribbed throttle cable tube (extending from the rear of the throttle grip) to the top left side of the engine.
- (4) Route the black wire from the cable tube beyond the fan cover beneath the cable notch and loop it onto the throttle cable housing.
- (5) Connect the S-shaped end of the throttle cable to the throttle lever on top the carburetor.
- (6) Insert the throttle cable housing into the throttle cable notch on the fan cover.



- (7) Route the red ignition wire from the cable tube.
- (8) Keeping the red wire on the cylinder-side of the throttle cable and spark plug wire, connect it to the red switch wire on the powerhead. Finger pressure only is required.
- (9) Fit the throttle cable housing to the fan cover and secure it with the two nuts. Make sure the black wire terminal is between the metal fan cover and the cable.




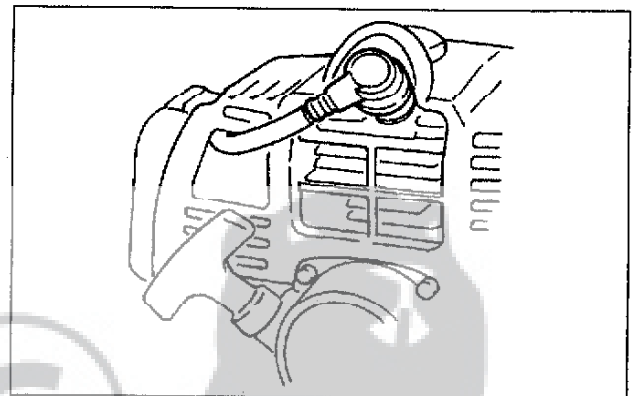
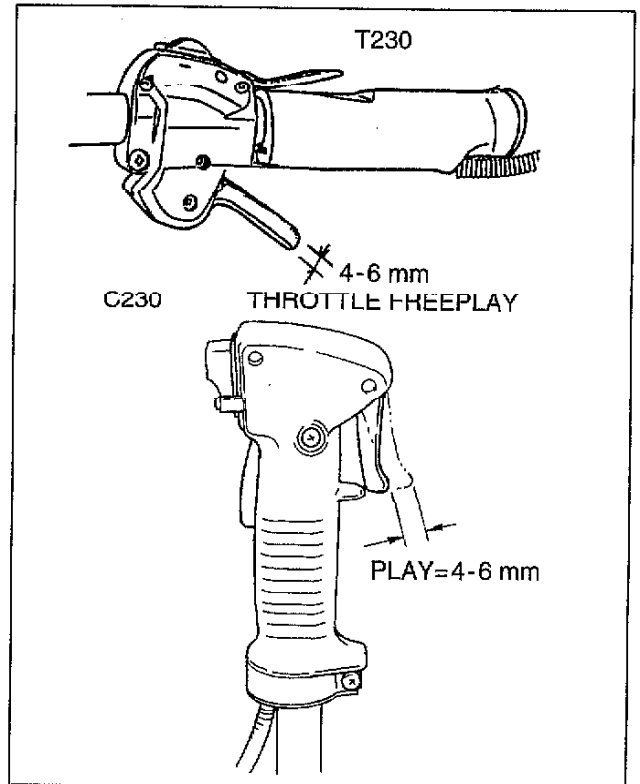
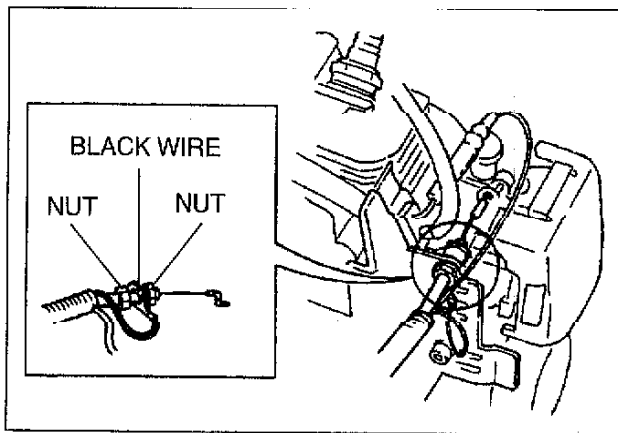
### CAUTION!

Adjust the tighten the cable nuts to allow approximately 4-6mm free play at the throttle trigger.


(10) Reinstall the cylinder cover and tighten the cover knob.

(11) Reinstall the cap onto the spark plug.

 **CAUTION!**  
Wiring runs must be clear of throttle cable and lever assembly.



## 5-6 Assembly of the Safety Guard

 **WARNING!**  
NEVER operate this machine without the safety guard. Operating without the safety guard may result in serious injury.

(A) Guard

(1) Insert the safety guard between the outer pipe and the lower clamp. Loosen the nut and bolt which are

tightening the lower clamp if the safety guard does not fit with the lower clamp

(2) Fit the two spacers and the upper clamp over the outer pipe and tighten with four bolts.

**NOTE:**

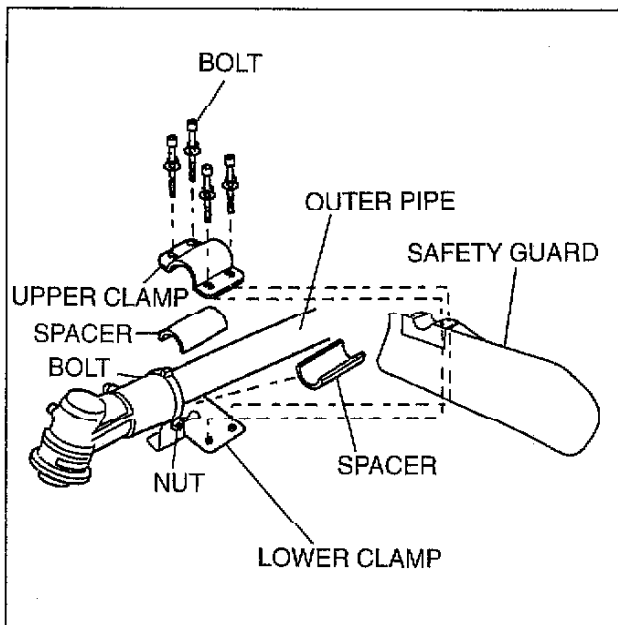
Tighten four bolts in order of the diagonal line.

(3) Tighten securely the nut and bolt which are tightening the lower clamp.



### WARNING!

Carefully inspect the safety guard installation to make sure it is tightened securely and does not wobble.

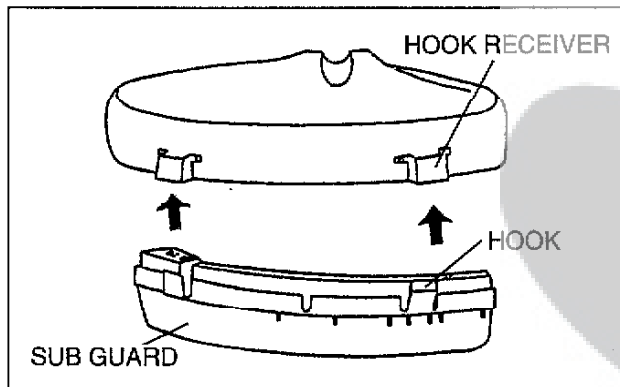


(B) Sub guard  
(When trimmer head is equipped)

(1) Attach the sub guard in the safety guard.

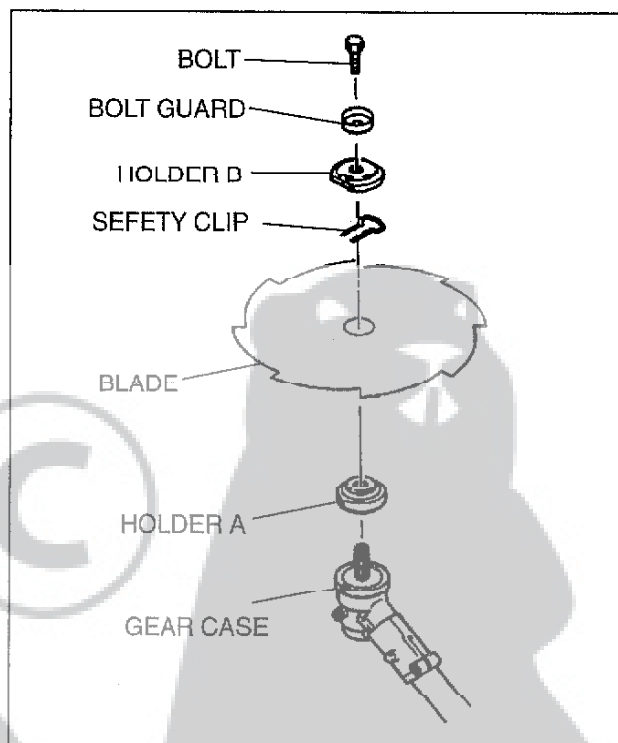
### NOTE:

Make sure the sub guard is completely hooked at the hook receiver.



## 5-7 Mounting of Saw Blade

- (1) Make sure the switch is off and the engine is stopped.
- (2) Wear gloves to protect your hands.
- (3) Turn the unit over so that the saw holder flange extending from the gear case is facing up.
- (4) Using the small end of the plug wrench, loosen the bolt (turn clockwise) and remove the bolt, bolt guard and holder B.
- (5) Slide the safety clip as the illustration shows.



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**WARNING!**

Never operate this machine without the safety clip in place.

- (6) Fit the blade over the safety clip and onto the holder A. Then, slide the safety clip back to the original position.



**WARNING!**

The blade must fit flat against the holder A. The blade's mounting hole must be centered over the raised boss of the holder A.

- (7) Put the holder B and bolt guard back and tighten the bolt fingertight only at this time. Make sure the holder B is flat against the blade and the recess in the holder B must face the blade and completely cover the safety clip.

- (8) Rotate the holder A until the hole in its skirt aligns with the hole in the gear case. Insert the hex wrench through both holes (to prevent the shaft from turning).

- (9) Holding the hex wrench and the blade with one hand, tighten the bolt (turn counter-clockwise) securely using the small end of the plug wrench.

- (10) Remove the hex wrench.



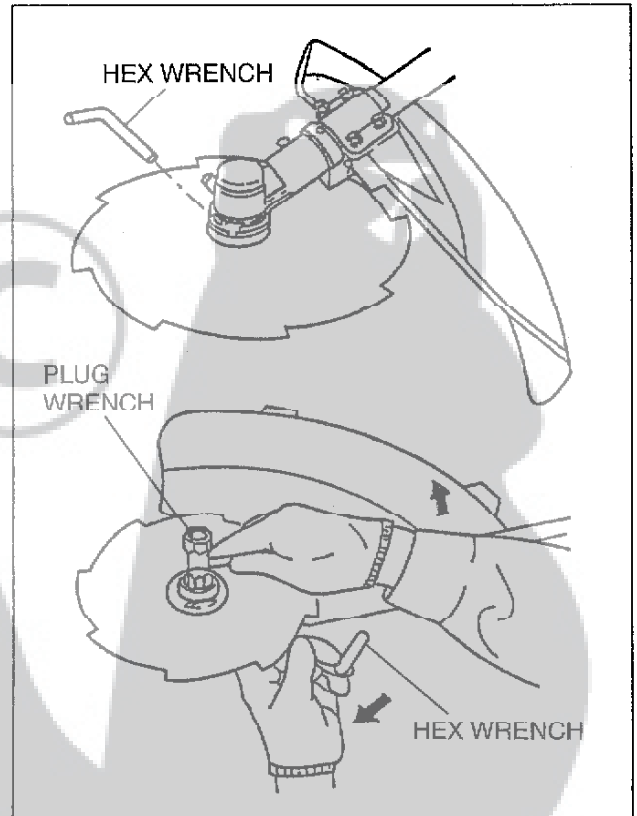
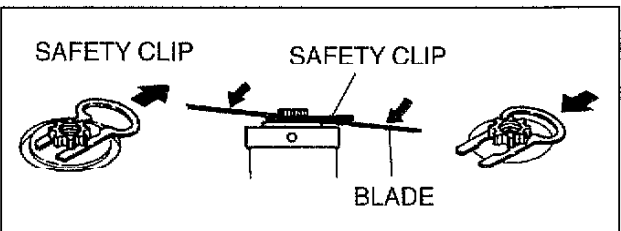
**WARNING!**

Before operating, make sure the blade is securely mounted. Turn the blade with your hand slightly and make sure the blade turns smoothly without wobbling.



**WARNING!**

Make sure the direction of the arrow indicated on the blade corresponds with the arrow indicated on the safety guard.



## 6 STARTING/STOPPING/ADJUSTING THE ENGINE

### 6-1 Fuel filling



#### **WARNING!**

When filling fuel, make sure the engine is stopped and it is cooled down.

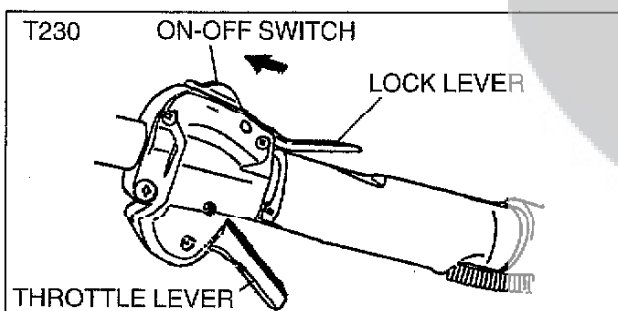
Filling fuel or mixing fuel and oil must be done in a place where there is no fire around.



#### **CAUTION!**

Use Shindaiwa Premium 2-cycle Engine Oil mixed for a gasoline/oil ratio of 40:1. If Shindaiwa Premium 2-cycle oil is not available, you may use a fuel that consists of gasoline and 2-cycle mixing oil pre-mixed to a ratio of 25:1.

- (1) Turn the fuel cap counterclockwise and take it off.
- (2) With the fuel cap hanging down from the filler opening, fill the fuel tank with fresh, clean fuel (mixture of fuel and oil) and tighten the fuel cap securely.
- (3) If there is any fuel spilt on the machine, make sure it is wiped off completely.



### 6-2 Starting the Engine



#### **WARNING!**

**MAKE SURE THE BLADE IS WELL CLEAR OF ANY INTERFERENCE.** Before starting the engine, place the unit on a clean, level surface. Make sure you have good secure footing and always keep a firm grip on the machine. **THE CUTTING ATTACHMENT MAY ROTATE WHEN THE ENGINE STARTS.**



#### **WARNING!**

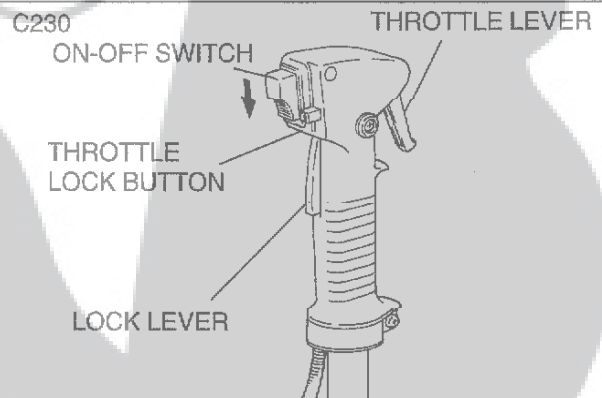
Move at least 3 m away from fueling site before starting the engine.



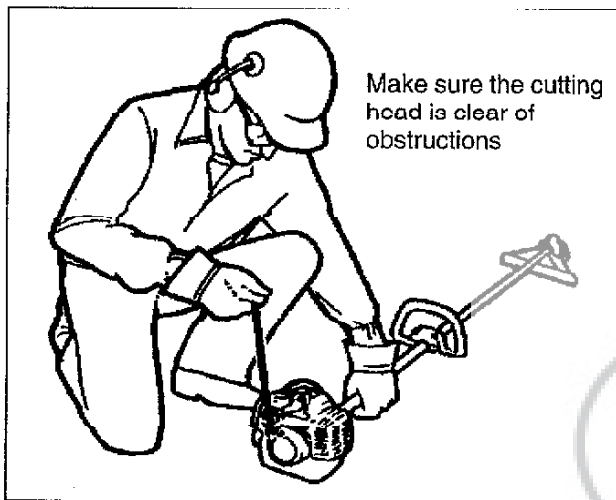
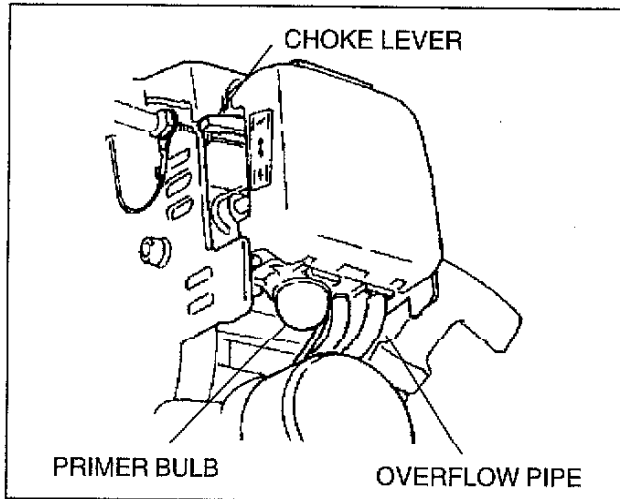
#### **WARNING!**

Never operate the engine without the cutting attachment installed.

- (1) Starting a Cold Engine and/or Restarting After Refueling



- ① Slide the ON-OFF switch to the "I" position.
- ② Press the primer bulb until fuel overflows from the overflow pipe.



- ③ Push the choke lever upward ("I" position).
- ④ Depressing the lock lever, pull the throttle lever fully and depress the throttle lock button. While depressing the throttle lock button, release the throttle lever and the lock lever. Now the throttle stays at high-idle (starting speed).

- ⑤ While firmly holding the outer pipe with one hand, pull the recoil starter handle upward with your other hand. Pull slowly at first until you feel the starter engage, then pull quickly to start the engine. Do not pull the starter rope to the end of its travel.



### CAUTION!

Pulling the starter rope to the end of its travel can damage the starting mechanism.

### IMPORTANT!

Repeated cranking of the engine with the choke CLOSED ("I") will lead to engine flooding. If the engine fails to start after several attempts, move the choke lever to the OPEN position and continue cranking.

- ⑥ When the engine first fires, gradually return the choke to the OPEN ("I") position (if have not already done so).
  - If the engine stops before the choke is fully open, restart with the choke closed.
  - If the engine stops after initial firing, restart with choke closed.
- ⑦ When the engine starts and is running, set the engine to idle by tapping the throttle lever to release the throttle lock.



### WARNING!

Never start the engine from the operating position.

## (2) Starting a Warm Engine

Starting a warm engine involves all the steps of starting a cold engine, EXCEPT:

- DO NOT press the primer bulb, and
- The choke should be in the OPEN position.

If the engine does not start, follow the cold starting procedure.

## (3) When the engine starts...

- After the engine starts, disengage the throttle lock and allow the engine to warm up at idle 2 or 3 minutes before operating the machine.
- After the engine is warm, pick up the machine and clip on to the strap.
- Advancing the throttle makes the cutting attachment faster; releasing the throttle makes the attachment stop turning. If the cutting attachment continues to rotate, carburetor idle speed should be adjusted.

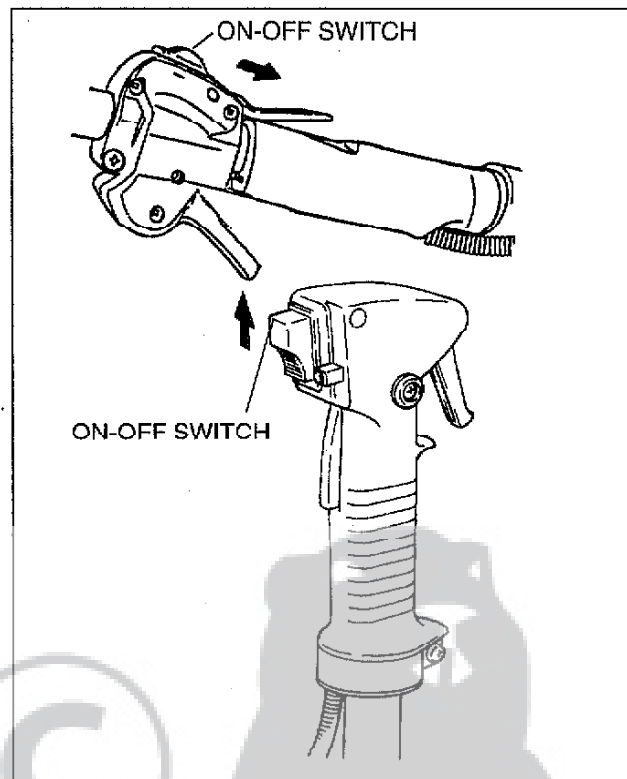
## 6-3 Stopping the Engine

Idle the engine briefly before stopping, then slide the ON-OFF switch to the "O" (for STOP) position.



### WARNING!

The cutting attachment continues rotating for a while after the switch is turned off.



## 6-4 Adjusting the Engine

Start the engine and allow it to warm up at low rpm. If the cutting attachment rotates at engine idle, reduce idle adjust screw counterclockwise.



### **WARNING!**

The cutting attachment should **NEVER** rotate at engine idle.

### **NOTE:**

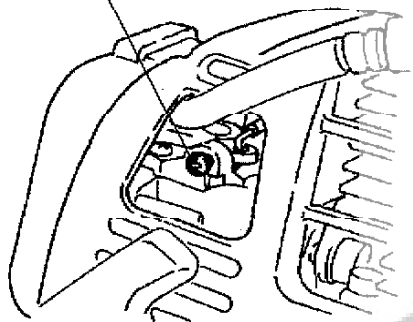
Standard idle speed is  $2,750 \text{ min}^{-1}$   
 $\pm 250 \text{ min}^{-1}$ .



### **WARNING!**

When adjusting the engine, the cutting attachment may rotate. Make sure the cutting attachment is well clear of any interference.

IDLE ADJUST SCREW





## 7 UNIT CONDITION CHECK

NEVER operate the unit with the safety guard or other protection devices (strap, blade retention clip, etc.) removed.

NEVER cut with dull blades. Doing so will increase the risk of blade thrust and may also damage your equipment.



### **WARNING!**

A safety guard or other protective device is no guarantee of protection against ricochet. **YOU MUST ALWAYS GUARD AGAINST FLYING DEBRIS!**

Use only authorized Shindaiwa parts and accessories with this machine. Do not make modifications to the machine without the written approval of Shindaiwa.

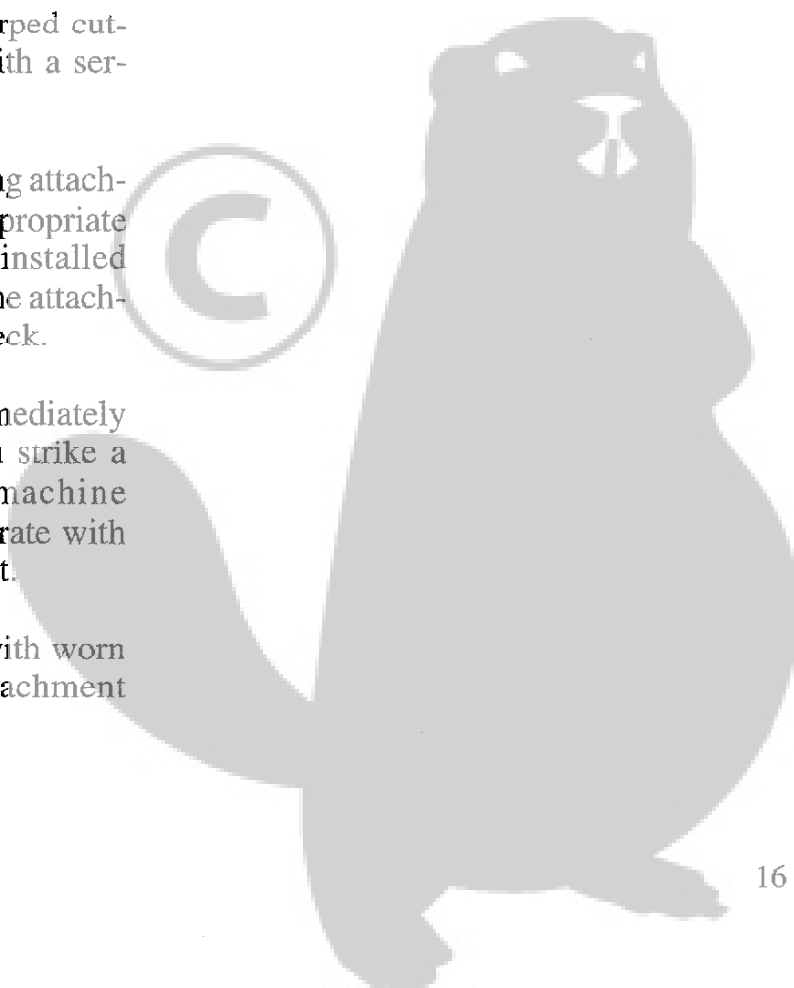
ALWAYS make sure the cutting attachment is properly installed and firmly tightened before operation.

NEVER use a cracked or warped cutting attachment: replace it with a serviceable one.

ALWAYS make sure the cutting attachment fits properly into the appropriate cutter holder. If a properly installed attachment vibrates, replace the attachment with new one and re-check.

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.

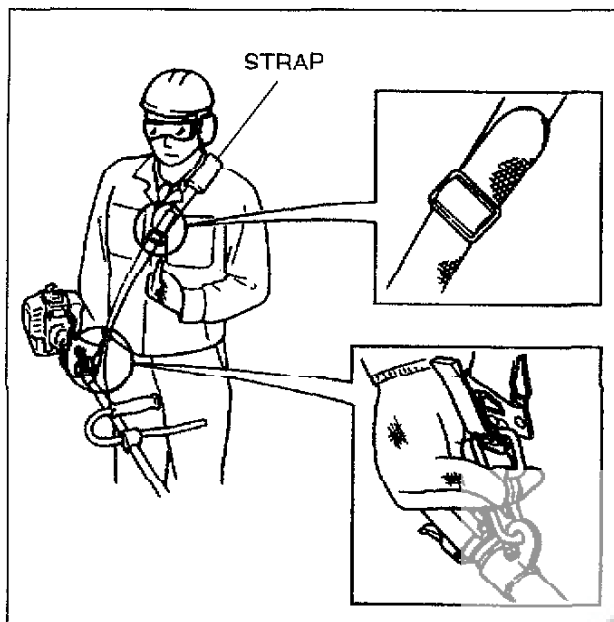
NEVER operate a machine with worn or damaged fasteners or attachment holders.



## 8 PRIOR TO OPERATION

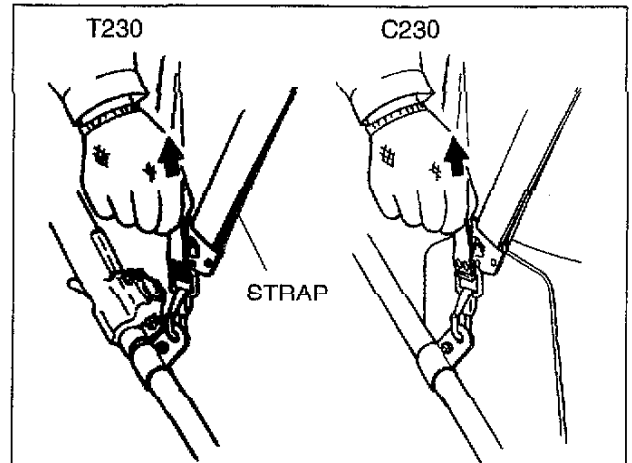
### 8-1 To Wear The Strap

- (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.

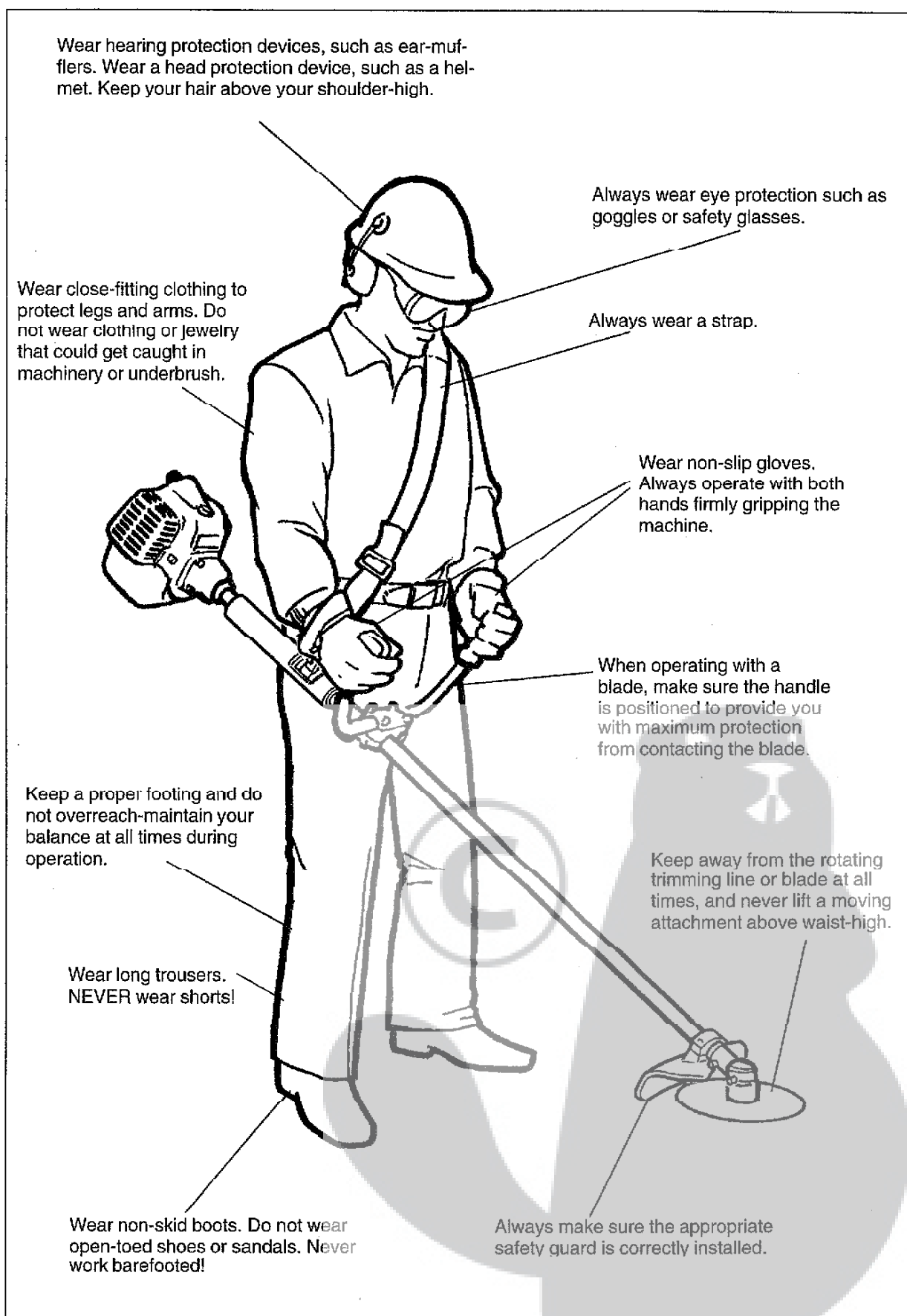


### 8-2 Emergency Release

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



## 8-3 The Properly Equipped Operator



ENGLISH

## 8-4 General Safety Instructions

### Work Safely

Trimmers and brushcutters run at very high speeds and can do serious damage or injury if they are misused or abused. Never allow a person without training or instruction to operate your machine.



#### **WARNING!**

Never make unauthorized attachment installations.

### Stay Alert

You must be physically and mentally fit to operate this machine safely.



#### **WARNING!**

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



#### **WARNING!**

Minimize the Risk of Fire  
**NEVER** smoke or light fires near the trimmer or brushcutter. **ALWAYS** stop the engine and let it cool before refueling. Avoid overfilling and wipe off any fuel that may have spilled. **ALWAYS** move the unit to a place well away from a fuel storage area or other readily flammable materials before starting the engine. **NEVER** place flammable material close to the engine muffler.



#### **WARNING!**

Use Good Judgment  
**ALWAYS** wear eye protection to shield against thrown objects.

**NEVER** run the engine when transporting the machine.

**NEVER** run the engine indoors—make sure there is always good ventilation. Fumes from engine exhaust can cause serious injury or death.

**ALWAYS** clear your work area of trash or hidden debris that could be thrown back at you or toward a bystander.

**ALWAYS** use the proper cutting tool for the job.

**ALWAYS** stop the machine immediately if it suddenly begins to vibrate or shake. Inspect for broken, missing or improperly installed parts or attachments.

**NEVER** extend trimming line beyond the length specified for your unit.

**ALWAYS** keep the unit as clean as practical. Keep it free of loose vegetation, mud, etc.

**ALWAYS** hold the machine firmly with both hands when cutting or trimming, and maintain control at all times.

**ALWAYS** keep the handles clean.

**ALWAYS** disconnect the spark plug wire before performing any maintenance work.

**ALWAYS**, 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.

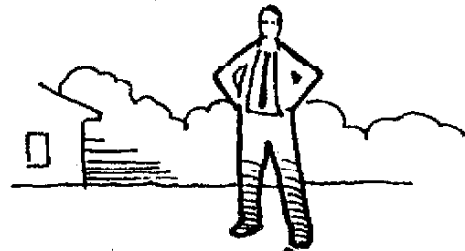
## 8-5 Be Aware of the Working Environment

Avoid long-term operation in very hot or very cold weather.

Make sure bystanders or observers outside the 15 meters "danger zone" wear eye protection.



Reduce the risk of bystanders being struck by flying debris. Make sure no one is within 15 meters.—that's about 16 paces—of an operating attachment.



Be extremely careful of slippery terrain, especially during rainy weather.

Always make sure the appropriate safety guard is correctly installed.

Beware of a coasting blade when brushcutting. A coasting blade can injure while it continues to spin after the throttle trigger is released or after the engine is stopped.

If contact is made with a hard object, stop the engine and inspect the cutting attachment for damage.

When operating in rocky terrain or near electric wires or fences, use extreme caution to avoid contacting such items with the cutting attachment.

Be constantly alert for objects and debris that could be thrown either from the rotating cutting attachment or bounced from a hard surface.

ENGLISH

## 9 OPERATION

- (1) After starting the engine, pull the throttle lever gradually. The engine speed increases and the blade will start rotating.
- (2) When the throttle lever is released, the engine goes back to idle speed automatically.
- (3) Operate the machine at full throttle while cutting. Best fuel efficiency is obtained by releasing the throttle when swinging back after cut.
- (4) The blade rotates counter-clockwise. For best performance and to minimize being stuck by debris, move the blade from right to left while advancing on your work.



### CAUTION!

DO NOT use 2-tooth blades with this machine.



### CAUTION!

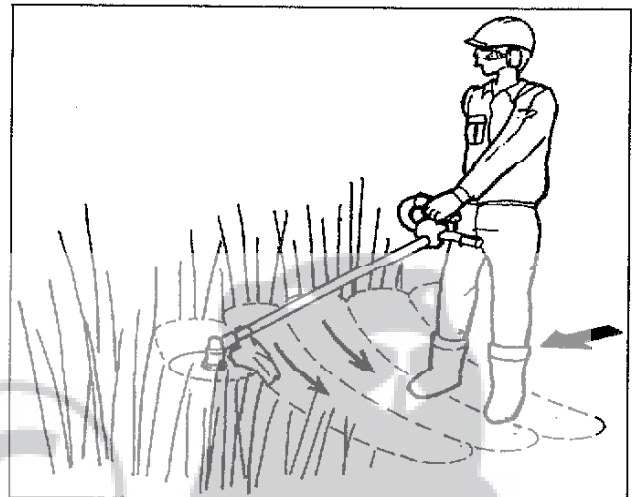
To prevent possible engine damage, do not allow the machine to run at high speeds without a load.

Avoid operating the engine at low speeds. Doing so can lead to rapid clutch wear. In addition, slow-speed operation tends to cause grass and debris wrap around the cutting attachment.



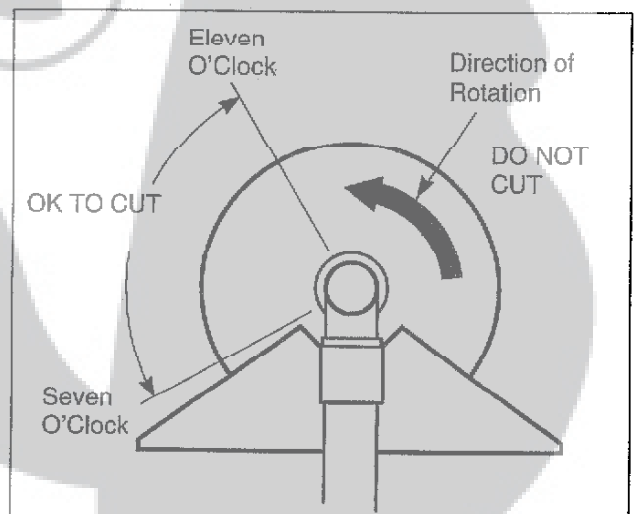
### WARNING!

Position the blade so cuts are made between blade's 7 o'clock and 10 o'clock positions (as viewed from above). DO NOT cut between the 11 o'clock and 5 o'clock positions.



### WARNING!

"BLADE THRUST" is a sudden sideway or backward motion of the machine. Such motion may occur when the blade jams or catches on an object such as a sapling tree or tree stump. BE CONSTANTLY ALERT FOR BLADE THRUST AND GUARD AGAINST ITS EFFECTS.





**WARNING!**

NEVER strike or slam the spinning blade against the wood.



**WARNING!**

When transporting, make sure the engine is not running and the blade is covered with the blade cover.

## 10 RECOMMENDED CUTTING ATTACHMENT

Make sure to use the following recommended Shindaiwa blades with this machine.

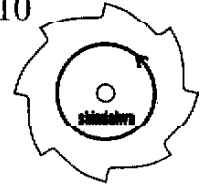
PART NUMBER 60903-98310

8-TOOTH BLADE

INNER BORE: 25.4mm

DIAMETER: 255.0mm

THICKNESS: 2.0mm



PART NUMBER 72430-92142

3-TOOTH BLADE

INNER BORE: 25.4mm

DIAMETER: 255.0mm

THICKNESS: 2.2mm



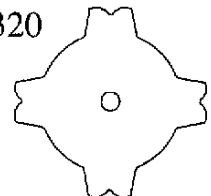
PART NUMBER 60903-98320

4-TOOTH BLADE

INNER BORE: 25.4mm

DIAMETER: 255.0mm

THICKNESS: 2.0mm



PART NUMBER 67000-65010

TAP&FEED TRIMMER

HEAD

BOLT DIAMETER: 7mm


THREAD: LEFT, 1.0mm PITCH



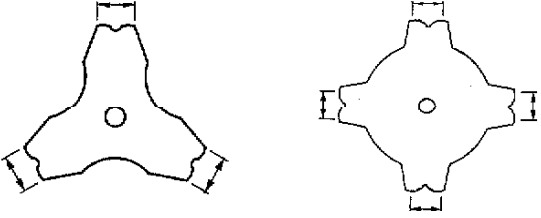
ENGLISH

# 11 BLADE SHARPENING

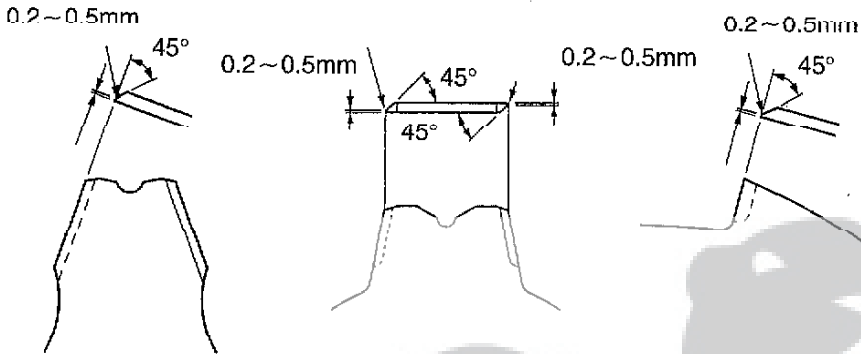
With a file or a grinder, file a blade as follows.

 **WARNING!**  
Sharpen only the cutting teeth of a blade. **DO NOT** alter the contour of the blade in any way.  
In order to keep the blade in balance, all cutting edges must be sharpened equally.  
**DO NOT** file the tips of the teeth too sharp.

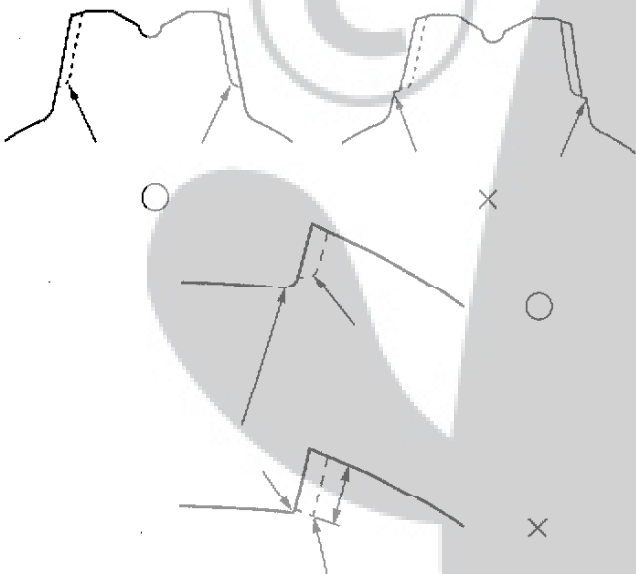
Make sure the width of the 3 sides/4 sides is all the same.



The sharpening angle should be 45° approx.  
Do not file the tips of the blade too sharp. Leave 0.2 ~ 0.5mm unsharpened.



The bottom of each tooth must remain unsharpened.





## 12 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!

Never repair a damaged blade by welding, straightening, or by modifying its shape. An altered blade may break during operation, resulting in serious personal injury.

### 12-1 Daily Maintenance

Prior to each work day, perform the following:

- Remove the dirt and debris from the engine, check the cooling fins and air cleaner for clogging, and clean them as necessary.
- 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 securely fastened.
- Check the machine for leaking fuel or grease.

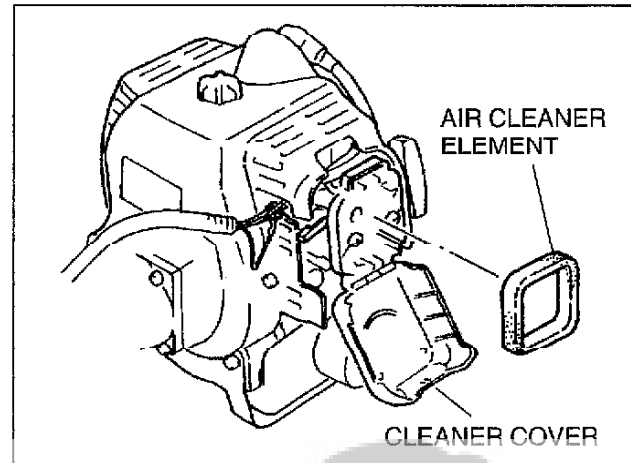
### 12-2 10-Hour Maintenance

Remove the air cleaner element from the carburetor and clean it thoroughly with mixed fuel. Squeeze out the fuel and reassemble the element.



### CAUTION!

Do not operate the machine if the air cleaner or element is damaged, or if the element is wet or watersoaked.



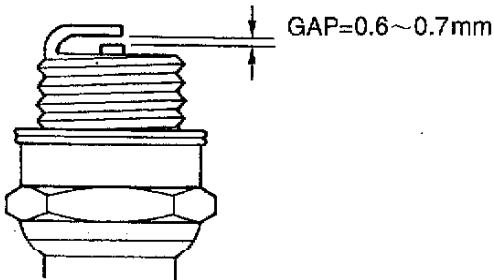
### 12-3 10/15-Hour Maintenance

Remove and clean the spark plug. Adjust the spark plug electrode gap to 0.6~0.7mm. If the plug must be replaced, use only an NGK BMR6A.



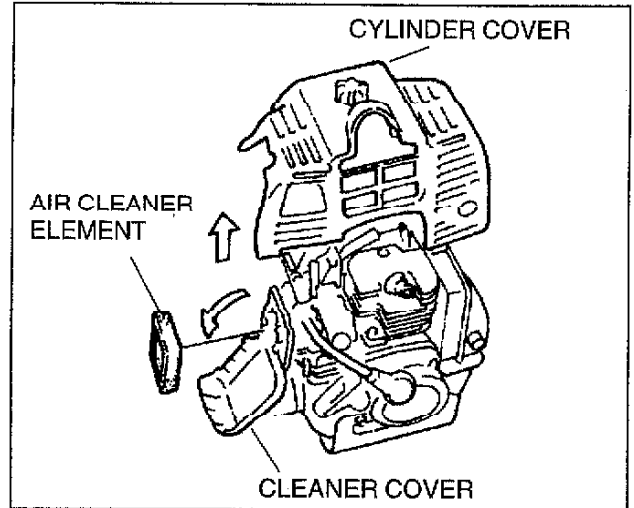
#### CAUTION!

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

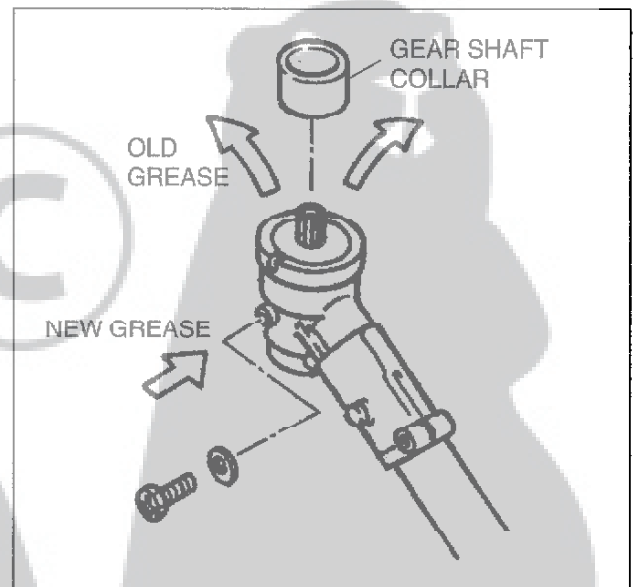


### 12-4 50-Hour Maintenance

Remove and clean the cylinder cover and clean grass and dirt from the cylinder fins.



Remove the cutting attachment and the gear shaft collar, and press new grease into the gear case until the old grease has been pushed out. Use only lithium-base grease (such as Shindaiwa Gear Case Lubricant).



## 12-5 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.
- Drain all the fuel from the carburetor and the fuel tank.

### **IMPORTANT!**

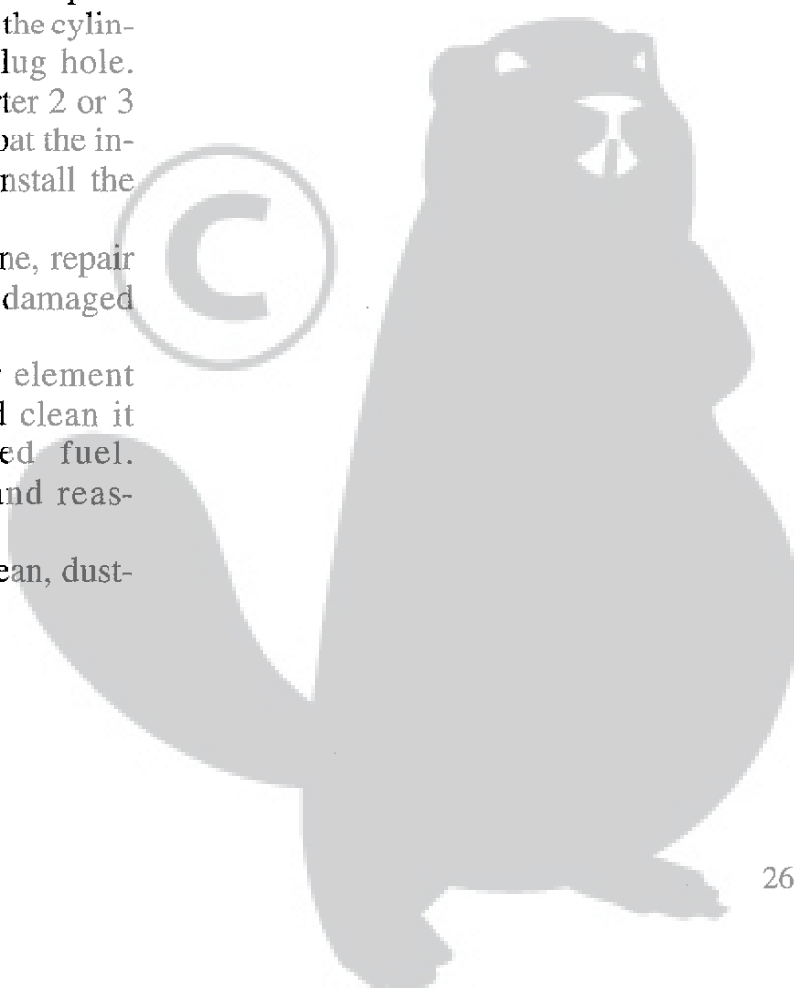
All stored fuels should be stabilized with a fuel stabilizer such as STA-BIL®.



### **CAUTION!**

Gasoline stored in the carburetor for a long time will likely cause hard starting and could lead to increased service and maintenance costs.

- Remove the spark plug and pour about 1/4 ounce of oil into the cylinder through the spark plug hole. Slowly pull the recoil 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 mixed fuel. Squeeze out the fuel and reassemble the element.
- Store the machine in a clean, dust-free area.



# 13 TROUBLESHOOTING GUIDE

## ENGINE DOES NOT START

What To Check	Possible Cause	Remedy
<div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;">Does the engine crank?</div> <p style="text-align: center;">YES</p>	<p>NO → Faulty recoil starter. Fluid in the crankcase. Internal damage.</p>	Return unit to the dealer.
<div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;">Good compression?</div> <p style="text-align: center;">YES</p>	<p>NO → Loose spark plug. Excess wear on cylinder, piston, rings.</p>	Tighten and re-test. Return unit to the dealer.
<div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;">Does the tank contain fresh fuel of the proper grade?</div> <p style="text-align: center;">YES</p>	<p>NO → Re-fill with fresh fuel of the correct mixture (Shindaiwa Premium 2-cycle Engine Oil and gasoline, 40:1 ratio; other brands-25:1)</p>	Re-start.
<div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;">Is fuel visible and moving in the return line when priming?</div> <p style="text-align: center;">YES</p>	<p>NO → Check for clogged fuel filter and/or vent. Clean as required.</p>	Re-start.
<div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;">Is there spark at the spark plug wire terminal?</div> <p style="text-align: center;">YES</p>	<p>NO → Is the ignition switch "ON"? Faulty ignition ground. Faulty transistor unit.</p>	Move switch to "ON" and re-start.  Return unit to the dealer.
<div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;">Check the spark plug</div>	<p>NO → If the plug is wet, excess fuel may be in the cylinder.  The plug may be fouled or improperly gapped.  The plug may be damaged internally or the wrong size.</p>	<p>Crank the engine with the plug removed, replace the plug, and re-start.</p> <p>Clean and re-gap the plug to 0.6~0.7 mm. Restart.</p> <p>Replace the plug with an NGK, BMR6A. Re-start.</p>

## LOW POWER OUTPUT

What To Check	Possible Cause	Remedy
<div style="border: 1px solid black; padding: 5px;">                     Is the engine overheating?                 </div>	Operator is overworking the machine.	Adjust trimmer line. Cut at a slower rate.
	Carburetor mixture is too lean.	Adjust the carburetor (authorized personnel only).
	Improper fuel ratio.	Re-fill with fresh fuel of the correct mixture (Shindaiwa Premium 2-cycle Engien Oil and gasoline—40:1 ratio; other brands—25:1 ratio).
	Fan, fan cover, cylinder fins dirty or damaged.	Clean, repair or replace as necessary.
	Carbon deposits on pistons or in the muffler.	Decarbonize.
<div style="border: 1px solid black; padding: 5px;">                     Engine is rough at all speeds                      May also have black smoke and/or unburned fuel at the exhaust.                 </div>	Clogged air filter.	Service the filter.
	Loose or damaged spark plug.	Tighten or repalce.
	Air leakage or clogged fuel line.	Repair or repalce filter and/or fuel line.
	Water in the fuel.	Replace the fuel.
	Piston seizure.	Return unit to the dealer.
	Faulty carburetor and/or diaphragm.	Return unit to the dealer.
<div style="border: 1px solid black; padding: 5px;">                     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.

## ADDITIONAL PROBLEMS

Symptom	Possible Cause	Remedy
Poor acceleration.	<ul style="list-style-type: none"> <li>Clogged air filter.</li> <li>Clogged fuel filter.</li> <li>Carburetor mixture too lean.</li> <li>Idle speed set too low.</li> </ul>	<ul style="list-style-type: none"> <li>Clean the air filter.</li> <li>Replace the fuel filter.</li> <li>Adjust carburetor (authorized personnel only)</li> <li>Adjust: <math>2,750 \text{ min}^{-1}</math> (+/-250)</li> </ul>
Engine stops abruptly.	<ul style="list-style-type: none"> <li>Switch turned off</li> <li>Fuel tank empty.</li> <li>Clogged fuel strainer.</li> <li>Water in the fuel.</li> <li>Shorted spark plug or loose terminal.</li> <li>Ignition failure.</li> <li>Piston seizure.</li> </ul>	<ul style="list-style-type: none"> <li>Reset the switch and re-start.</li> <li>Refuel.</li> <li>Replace strainer.</li> <li>Drain; replace with clean fuel.</li> <li>Clean and replace spark plug, tighten the terminal.</li> <li>Replace the ignition unit.</li> <li>Return unit to the dealer.</li> </ul>
Engine difficult to shut off.	<ul style="list-style-type: none"> <li>Ground (stop) wire is disconnected, or switch is defective.</li> <li>Overheating due to incorrect spark plug.</li> <li>Overheated engine.</li> </ul>	<ul style="list-style-type: none"> <li>Test and replace as required.</li> <li>Clean and regap to 0.6~0.7mm. Correct plug: NGK, BMR6A.</li> <li>Idle engine until cool.</li> </ul>
Cutting attachment rotates at engine idle.	<ul style="list-style-type: none"> <li>Engine idle too high.</li> <li>Broken clutch spring or worn clutch spring boss.</li> <li>Loose attachment holder.</li> </ul>	<ul style="list-style-type: none"> <li>Set idle: <math>2,750 \text{ min}^{-1}</math> (+/-250)</li> <li>Replace spring/shoes as required, check idle speed.</li> <li>Inspect and re-tighten holders securely.</li> </ul>
Excessive vibration	<ul style="list-style-type: none"> <li>Warped or damaged attachment.</li> <li>Loose gearcase.</li> <li>Bent main shaft/worn or damaged bushings.</li> </ul>	<ul style="list-style-type: none"> <li>Inspect and replace attachment as required.</li> <li>Tighten gearcase securely.</li> <li>Inspect and replace as necessary.</li> </ul>

## 14 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 73 91 93 51	(33) 04 73 90 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	PLM Power Products Ltd.	Unit 5-6, The Shires Industrial 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 2859177	(353) 1 2858810
6	Holland	Matracom Int. B.V.	Hogelandseweg 51, 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	Joaquim Verdasca Junior Heads Lda	Apartado 11-2490, Ourem	(351) 249 544540	(351) 249 544361
10	Greece	Technellas S.A.	92, Athinon Avenue, 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

## 15 DECLARATION OF CONFORMITY

# DECLARATION OF CONFORMITY

We hereby declare the Shindaiwa Engine Brushcutter,  
Model R230 (C230/CE,C230/DYB231CE,C230/IMG,T230/CE,T230/DYB232CE,  
T230/IMG,T230/VAL,F230/IMG,F230/DYB222)

meets the following respective requirements.

**Council Directives:**

89/336/EEC as amended

98/37/EC as amended

2000/14/EC as amended

**Standard taken:**

EN 292 parts 1&2

ISO 11806

CISPR 12

Measured sound power level: 110dB(A)

Guaranteed sound power level: 111dB(A)

Technical documentaiton is kept by:


K. Maeda DIV. Manager

Engineering Research and Development DIV.

**Shindaiwa Kogyo Co.,Ltd.**

Head office : 6-2-11, Ozuka-Nishi, Asaminami-Ku,  
Hiroshima, 731-3167, Japan

TEL:81-82-849-2003 , FAX:81-82-849-2482

2002-12-10  


T. Yoshitomi

DIV. Manager

Quality Assurance DIV.

**Shindaiwa Kogyo Co.,Ltd.**

Head office : 6-2-11, Ozuka-Nishi, Asaminami-Ku,  
Hiroshima, 731-3167, Japan

TEL:81-82-849-2206 , FAX:81-82-849-2481