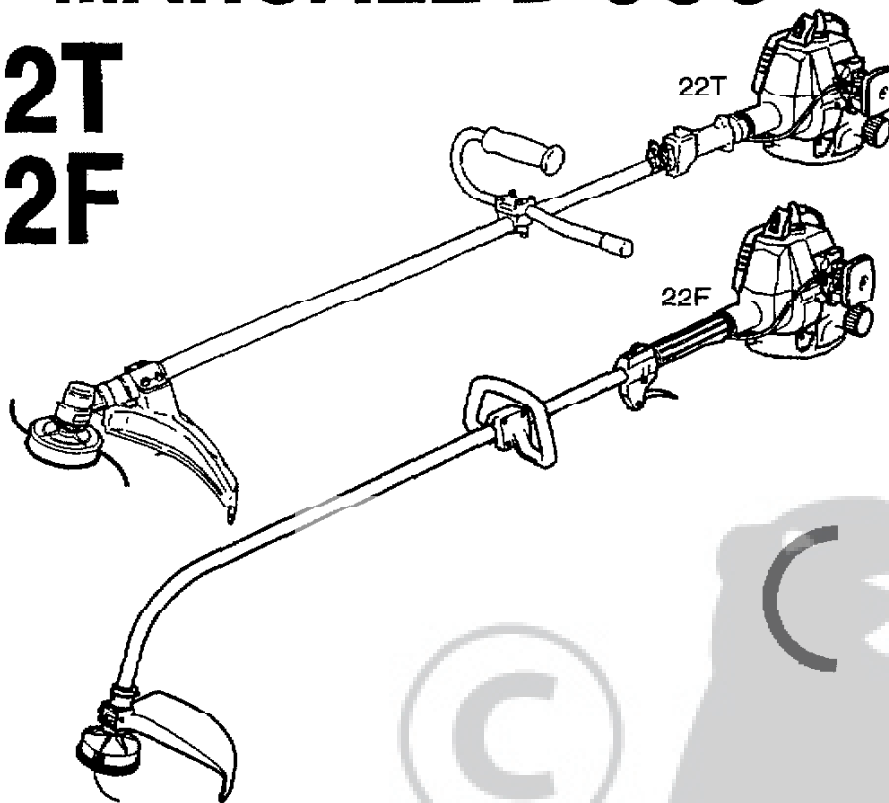


# shindaiwa

## INSTRUCTION MANUAL MANUALE D'USO

22T  
22F



ENGLISH

ITALIAN

### 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.

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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.

## 2 WARNING LABELS

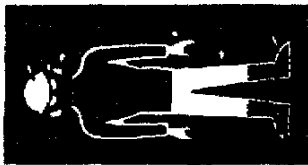
Warning labels stuck to the machine mean as follows.



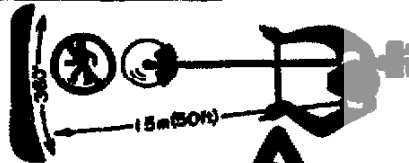
READ AND FOLLOW THE OPERATOR'S MANUAL. FAILURE TO DO SO COULD RESULT IN SERIOUS INJURY.



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



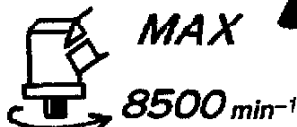
WEAR NON-SLIP GLOVES, LONG TROUSERS AND NON-SKID BOOTS DURING THE OPERATION OF THIS MACHINE.



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



BEWARE OF THROWN OBJECTS.



THE MAXIMUM SPEED OF THE CUTTING ATTACHMENT SHAFT IN RPM (REVOLUTIONS PER MINUTE)



DO NOT USE METAL BLADES. (22F ONLY)

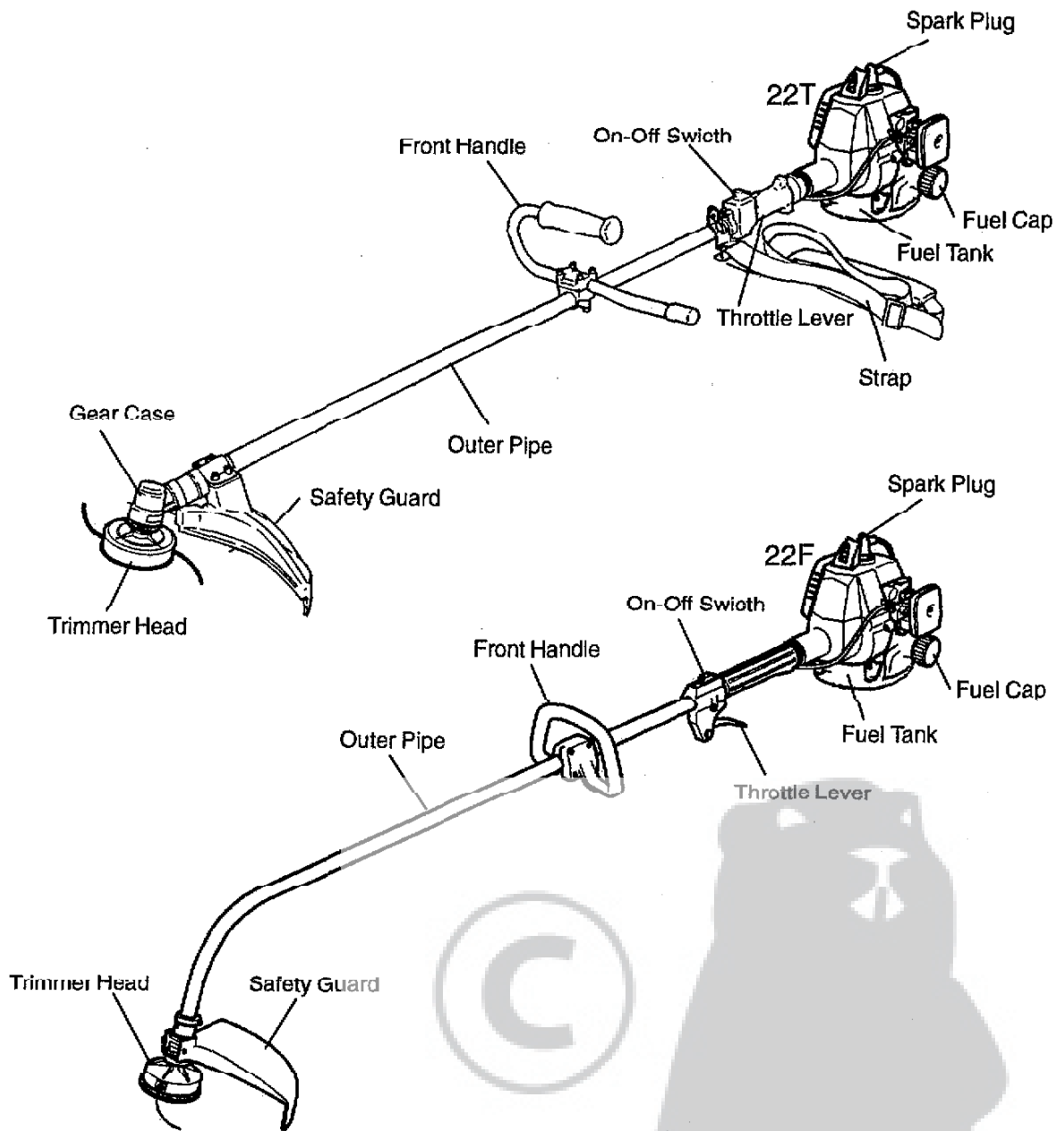
### IMPORTANT!

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.

### 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.

## 4 TECHNICAL SPECIFICATIONS

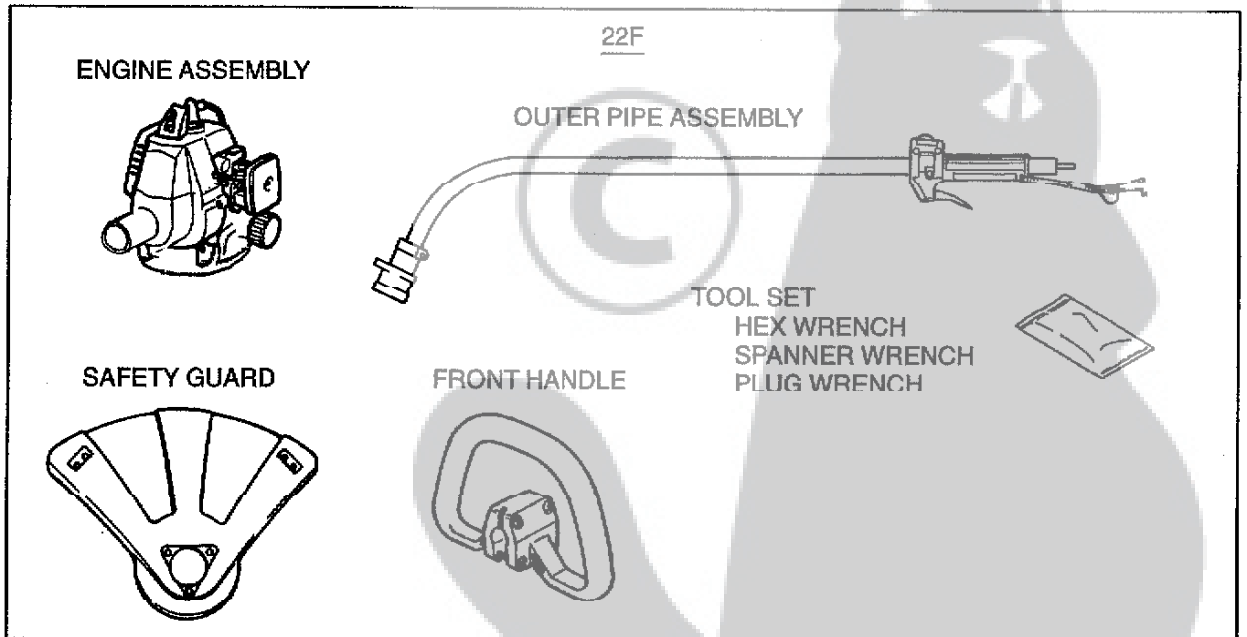
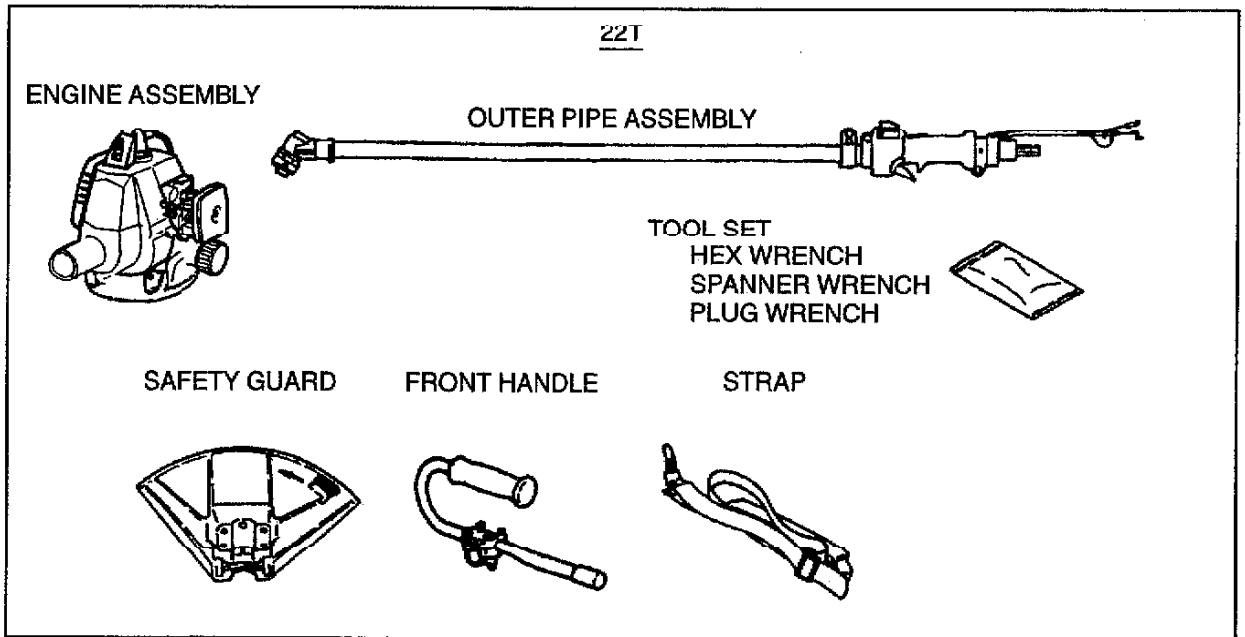
Model Name		22T	22F
Engine Model		Shindaiwa S220	
Engine Type		2-cycle, vertical-cylinder, air-cooled	
Displacement		21.1 cm <sup>3</sup>	
Bore × Stroke		31mm × 28mm	
Engine rpm at Idle		3,000 min <sup>-1</sup>	
Max Cutting Attachment Speed		8,500 min <sup>-1</sup>	
Engine Maximum rpm		9,000 min <sup>-1</sup>	8,500 min <sup>-1</sup>
Engine rpm at Max Power Output		7,500 min <sup>-1</sup>	
Maximum Power Output		0.9 PS / 0.7 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		430 cm <sup>3</sup>	
Carburetor Type		Walbro WYL, Diaphragm	
Dry Weight without cutting attachment / guard		4.2 kg	4.2 kg
Dimensions		1,690 × 345 × 335mm	1,560 × 255 × 430mm
Sound Pressure Level*	Idling	76 dB (A)	74 dB (A)
	Racing	98 dB (A)	97 dB (A)
Sound Power Level*	Idling	84 dB (A)	84 dB (A)
	Racing	106 dB (A)	106 dB (A)
Vibration Level*	Idling [left/right]	5.1/2.7m/s <sup>2</sup>	4.4/2.6m/s <sup>2</sup>
	Racing [left/right]	8.4/7.4m/s <sup>2</sup>	6.8/9.7m/s <sup>2</sup>
Handle Type		J-Shaped Handle	Loop Handle

- \* 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

## 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.

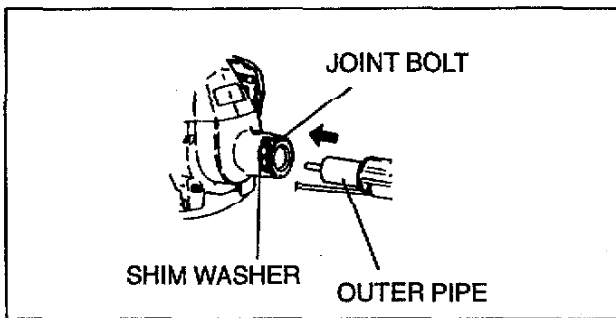


### 5-2 Before Assembling the Outer Pipe

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 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

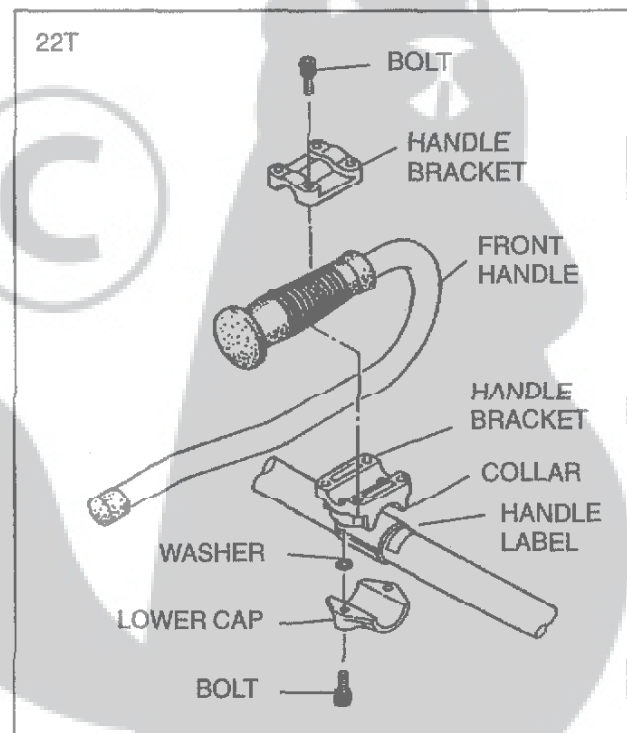


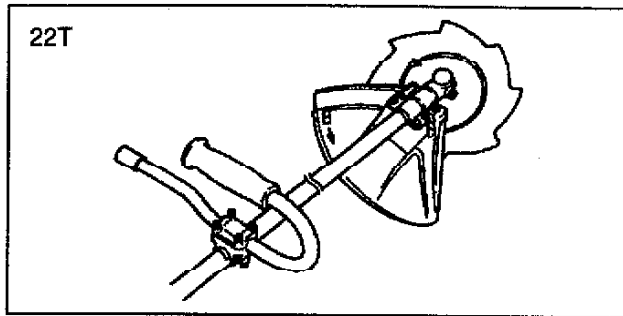
#### **WARNING!**

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

#### (A) 22T

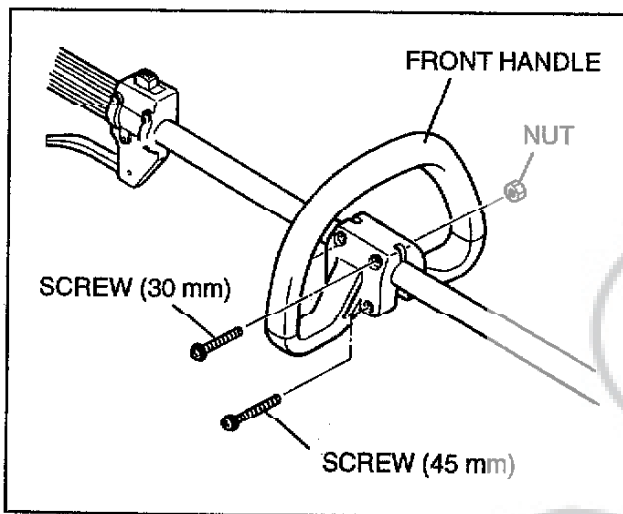
- (1) Loosen the 2 bolts in the lower cap and remove the lower cap.
- (2) Position the handle bracket on the handle label/collar stuck to the outer pipe.
- (3) Place the washer on one of the bolt holes between the lower cap and the handle bracket. Attach the lower cap with the 2 bolts and tighten the bolts. Make sure the front handle stays as the illustration shows.





(B) 22F

- (1) Position the front handle on the outer pipe where the "Handle Label" is stuck.
- (2) Press the handle on the outer pipe gently so that the handle stays as shown.
- (3) Tighten two 30 mm screws on upper and two 45 mm screws on lower on the handle with nuts.

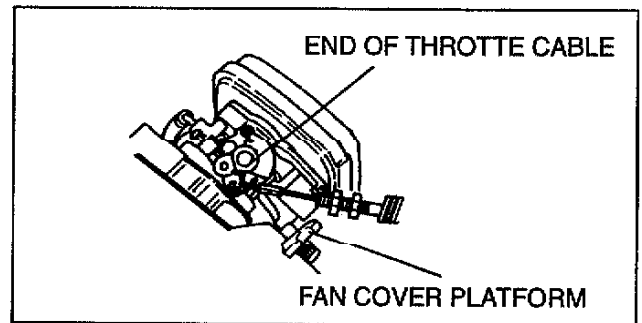


**NOTE:**

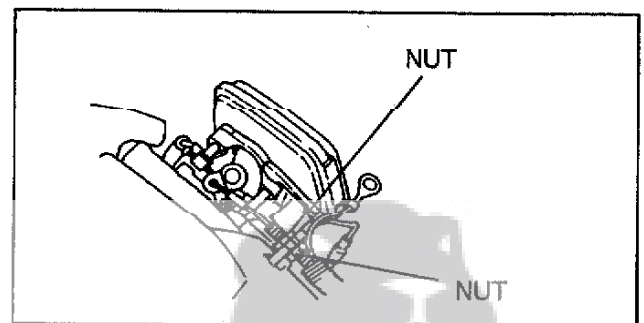
The screws and nuts are packed in the tool bag.

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

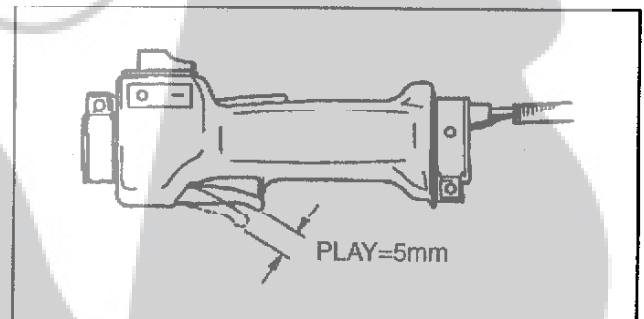
- (1) Hook the end of throttle cable to the carburetor.



- (2) Place the throttle cable to the fan cover platform and tighten (finger tight only) the nuts so that the nuts sandwich the platform.



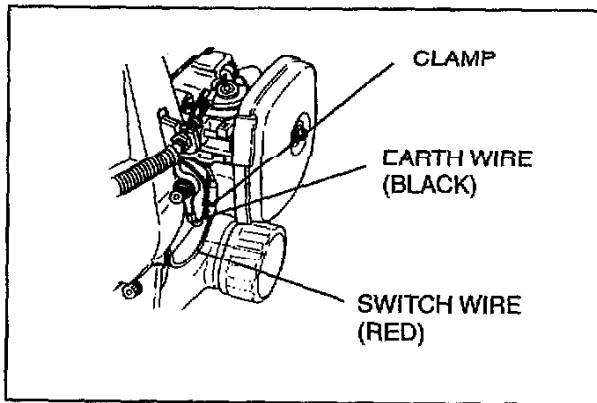
- (3) Adjust the nuts so that the play of trigger lever becomes 5 mm and then tighten the nuts securely.



- (4) Fix the earth wire (black) to the fan cover using the bolt below the fan cover platform which holds the throttle cable.



- (5) Connect the switch wire (black and white) to the red wire from the engine.
- (6) Bundle the earth wire and the switch wire together using the clamp which is in the tool set.



#### 5-6 Assembly of the Safety Guard



#### WARNING!

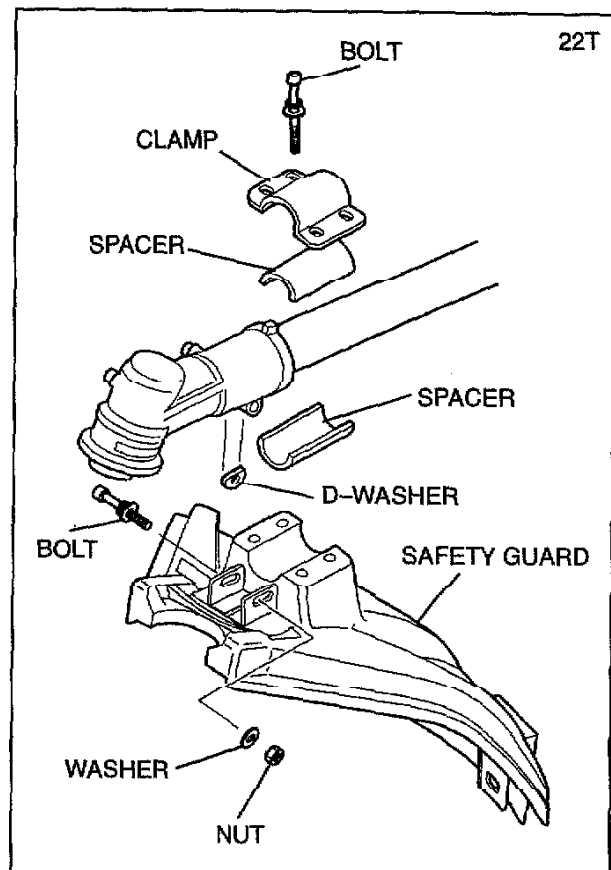
NEVER operate this machine without the safety guard. Operating without the safety guard may result in serious injury.



#### WARNING!

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

(A) 22T



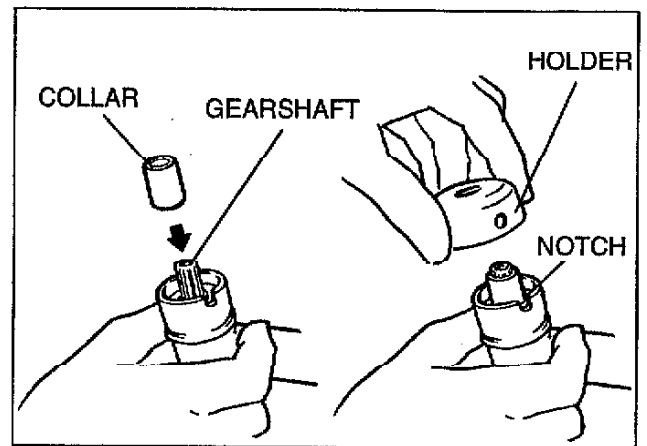
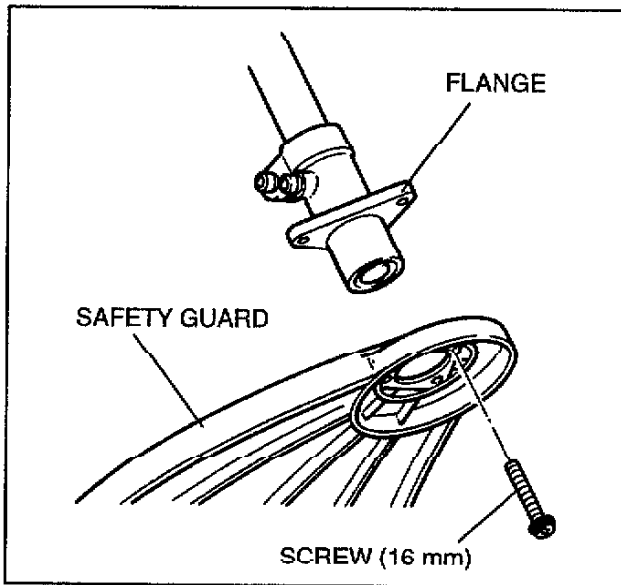
- (1) Putting the 2 spacers between clamp and the guard, attach them to the outer pipe.
- (2) Tighten the 4 bolts provisionally to assemble to the clamp and the guard to the outer pipe.
- (3) Taking special care to avoid losing the D-washer in the gearcase clamp, assemble the guard to the gearcase with the bolt, washer and nut.  
Tighten the bolt with the hex wrench securely.
- (4) Now tighten the 4 bolts in the clamp securely with hex wrench.

(B) 22F

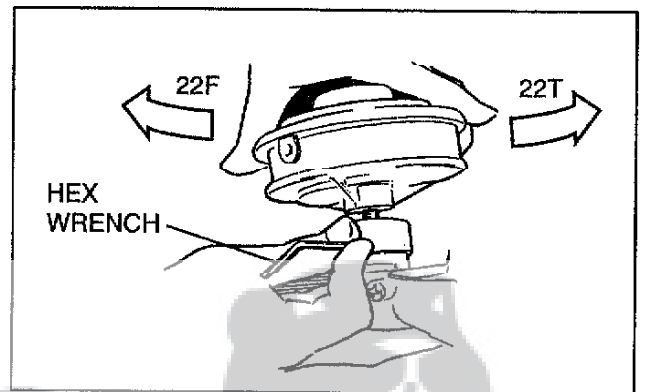
- (1) Place the safety guard under the triangular flange.
- (2) Tighten 3 screws (16 mm).

**NOTE:**

The 3 screws (16 mm) are in the tool bag.



- (4) Rotate the holder until the hole in the holder aligns with the notch on the gearcase flange. Using the hex wrench, lock the gearcase as shown.



### 5-7 Mounting of Trimmer Head

- (1) Make sure the switch is turned off and the engine is stopped.
- (2) Turn the unit over so the shaft from the gearcase faces up.
- (3) Install the collar to the gear-shaft and place the holder onto the gear-shaft.

**NOTE:**

The collar and the holder are in the tool bag.

- (5) While holding the holder with the hex wrench, thread the trimmer head onto the gear-shaft and install securely using hand pressure.

(A) 22T  
Turn counter clockwise to install.

(B) 22F  
Turn clockwise to install.

- (6) Remove the hex wrench.

## 5-8 Mounting of Saw Blade [Optional, Only for 22T]



### WARNING!

Never operate 22F with a saw blade. This may result in serious injury.

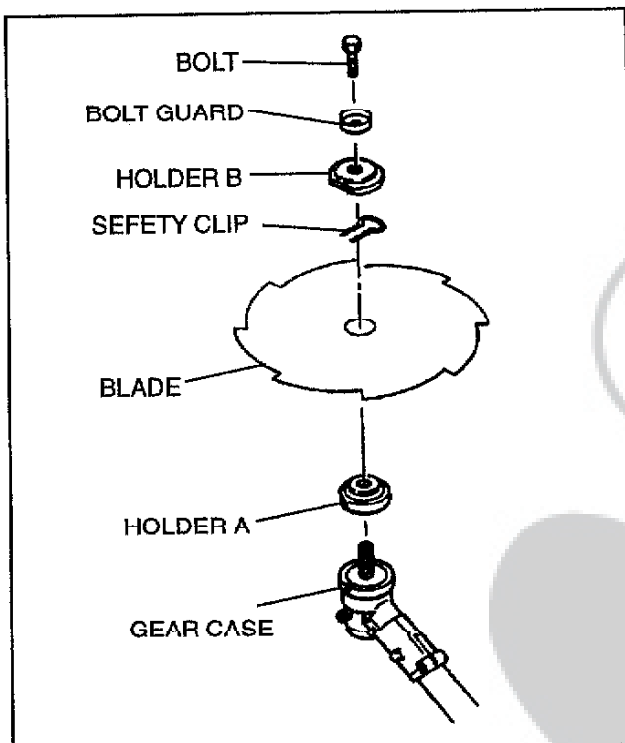
### NOTE: 1)

Consult with your Shindaiwa dealer for necessary items for blade-use.

### NOTE: 2)

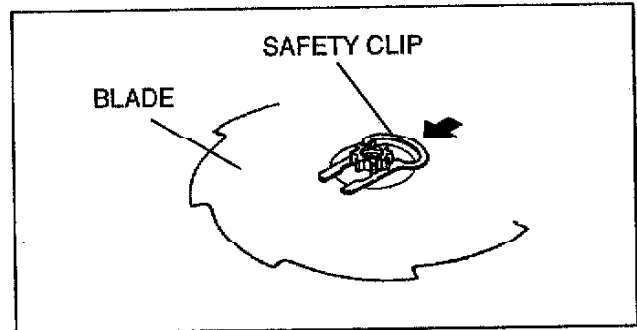
The collar and the holder for trimmer-head-use are not to be used.

- (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 the shaft from the gearcase faces up.

- (4) Place the holder A onto the gear-shaft and then a blade.
- (5) Slide the safety clip into the holder A as shown.

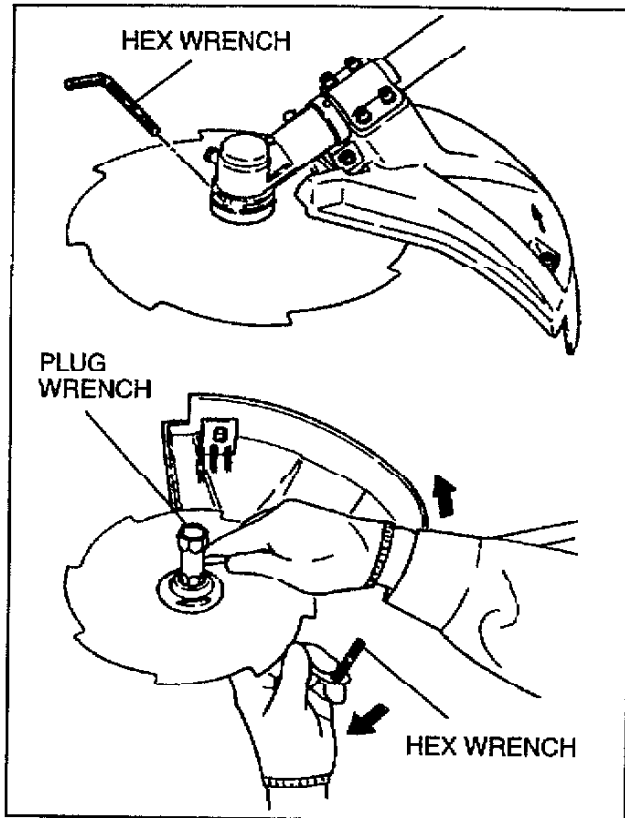


### WARNING!

Never operate this machine without the safety clip in place.

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.

- (6) Place the holder B and the bolt guard and tighten the bolt finger-tight 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.
- (7) Rotate the holder A until its hole aligns with the notch on the gear-case. Using the hex wrench, lock the gearcase as shown.
- (8) While holding the holder with the hex wrench, tighten the bolt (turn counter-clockwise) securely using the small end of the plug wrench.



(9) Remove the hex wrench.

## 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.

When any fuel leakage is found, take the machine to Shindaiwa dealer for repair. Never use the machine with fuel leaking. This may result in serious injury.



#### **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 CUTTING ATTACHMENT 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.

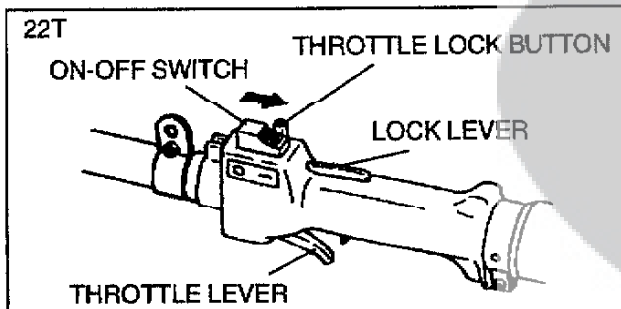


### WARNING!

Never operate the engine without the cutting attachment installed.

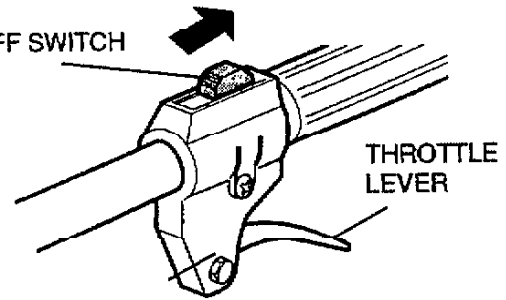
### (1) Starting a Cold Engine and/or Restarting After Refueling

- ① Slide the ON-OFF switch toward the engine ("I" position).

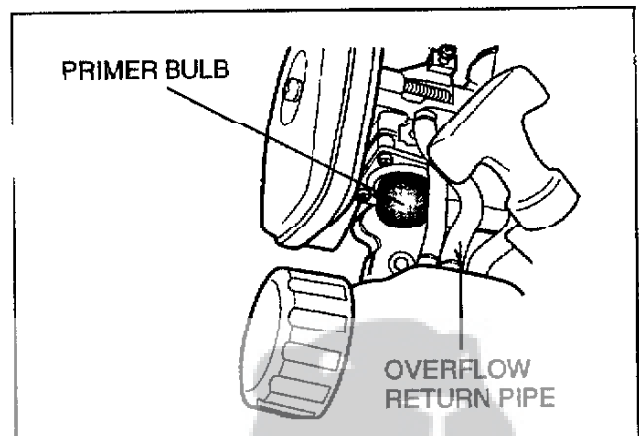


22F

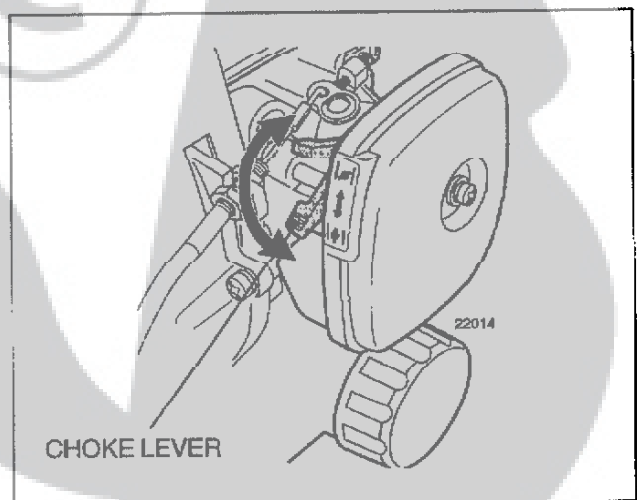
ON-OFF SWITCH



- ② Prime the engine by repeatedly depressing the carburetor primer bulb until fuel can be seen flowing through the transparent overflow return pipe.



- ③ Push the choke lever upward ("I" position).

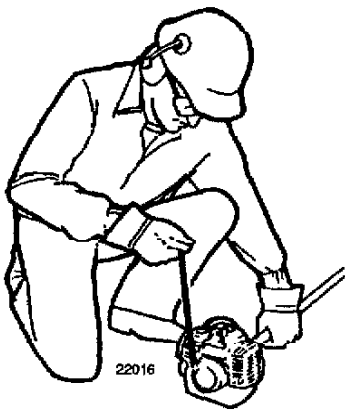


- ④ [22T Only]  
Depressing the lock lever, pull the throttle lever fully and depress the throttle lock button. While depressing the throttle lock button, release the throttle lever and the lock lever. Now the throttle stays at high-idle (starting speed).
- ⑤ While firmly holding the outer pipe with 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 (“|/|”) 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 (“|/|”) 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 [22T Only]  
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, allow the engine to warm up at idle 2 or 3 minutes before operating the machine.

### 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.

#### NOTE:

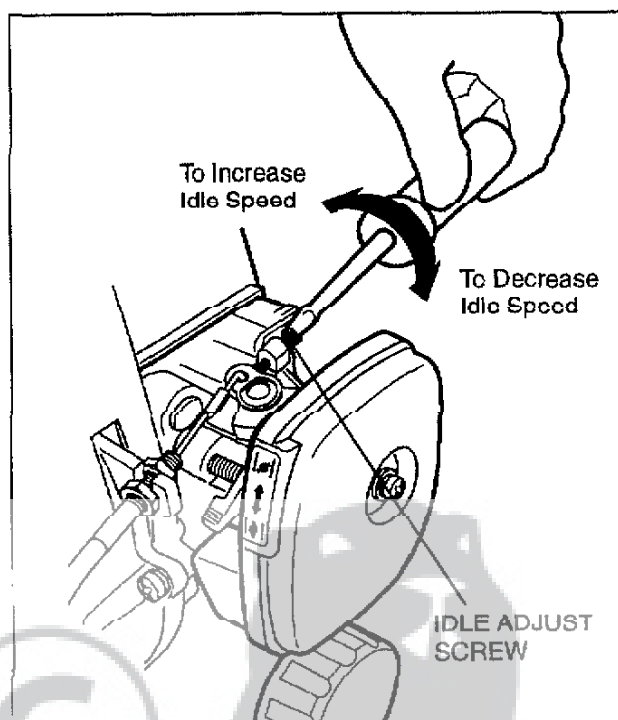
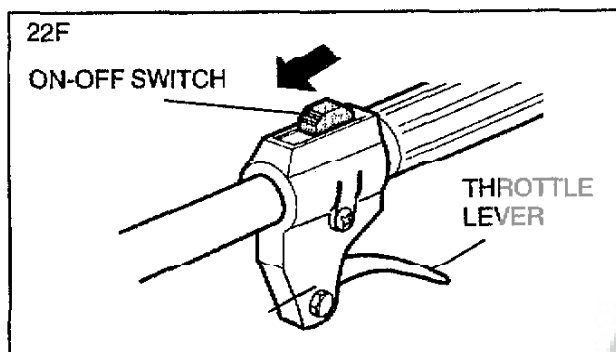
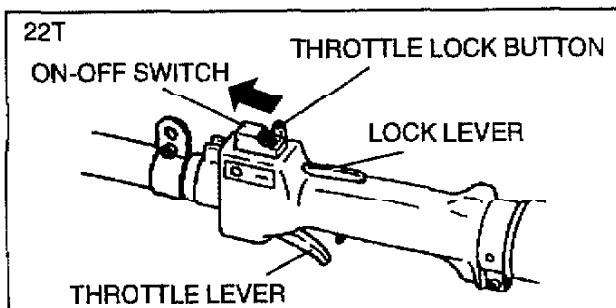
Standard idle speed is 3,000 min<sup>-1</sup>, +/-250 min<sup>-1</sup>.



#### WARNING!

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

ENGLISH



### 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.



## 7 UNIT CONDITION CHECK

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



### WARNING!

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



### WARNING!

NEVER use any cutting attachments which are not recommended in this manual. Using non-recommended cutting attachment may result in serious injury.



### WARNING!

When using a trimmer head, make sure each of the line length is no longer than 15 cm. Using a trimmer head with lines longer than 15 cm may damage the machine.

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.

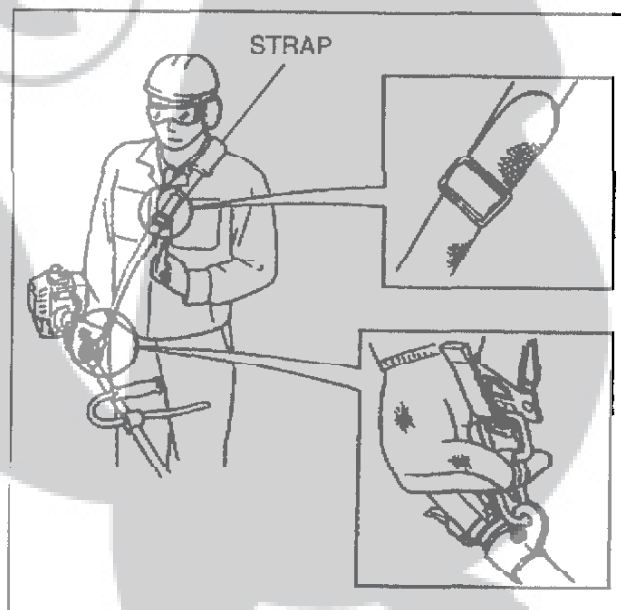
NEVER operate a machine with worn or damaged fasteners or attachment holders.

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

## 8 PRIOR TO OPERATION

### 8-1 To Wear The Strap [22T Only]

- (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 The Properly Equipped Operator

ENGLISH

Wear hearing protection devices, such as ear-mufflers. Wear a head protection device, such as a helmet. Keep your hair above your shoulder-high.

Wear close-fitting clothing to protect legs and arms. Do not wear clothing or jewelry that could get caught in machinery or underbrush.

Wear non-slip gloves. 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.

Wear long trousers. NEVER wear shorts!


Wear non-skid boots. Do not wear open-toed shoes or sandals. Never work barefooted!

Always wear eye protection such as goggles or safety glasses.

Always wear a strap. [22T Only]

Keep away from the rotating trimming line or blade at all times, and never lift a moving attachment above waist-high.

Always make sure the appropriate safety guard is correctly installed.



22T

Wear hearing protection devices, such as ear-mufflers. Wear a head protection device, such as a helmet. Keep your hair above your shoulder-high.

Wear close-fitting clothing to protect legs and arms. Do not wear clothing or jewelry that could get caught in machinery or underbrush.

Wear non-slip gloves. 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.

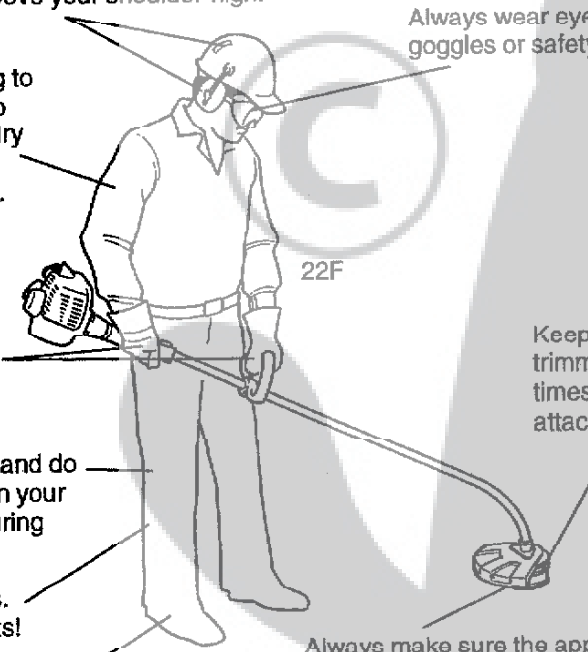
Wear long trousers. NEVER wear shorts!

Wear non-skid boots. Do not wear open-toed shoes or sandals. Never work barefooted!

Always wear eye protection such as goggles or safety glasses.

Keep away from the rotating trimming line or blade at all times, and never lift a moving attachment above waist-high.

Always make sure the appropriate safety guard is correctly installed.



22F

## 8-3 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 overfiling 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.

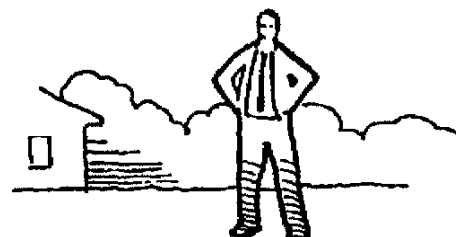
**ALWAYS**, if a saw blade should bind fast in a cut, shut off the engine immediately. Push the branch or tree to ease the bind and free the blade.

Improper maintenance, use of nonconforming replacement components, or the removal of safety devices, such as the safety guard could result in serious injury.

## 8-4 Be Aware of the Working Environment

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

Make sure bystanders or observers outside the 50-foot "danger zone" wear eye protection.



Reduce the risk of bystanders being struck by flying debris. Make sure no one is within 50 feet (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.

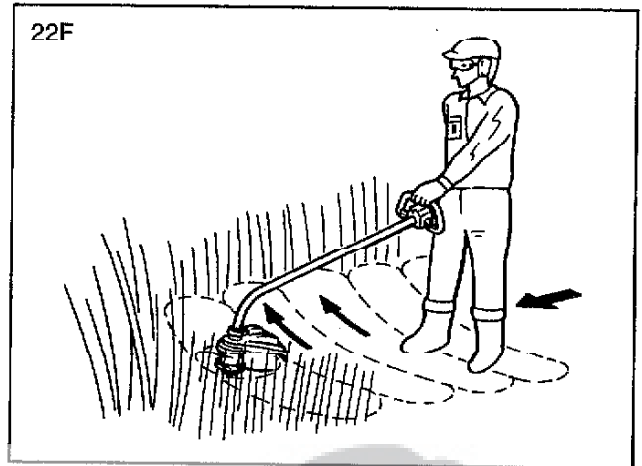
When operating in rocky terrain or near electric wires or fences, use extreme caution to avoid contacting such items with the cutting attachment.

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

## 9 OPERATION

- (1) After starting the engine, pull the throttle lever gradually. The engine speed increases and the cutting attachment 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) (A) 22T  
The cutting attachment 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.

(B) 22F  
The cutting attachment rotates clockwise. For best performance and to minimize being stuck by debris, move the cutting attachment from left to right while advancing on your work.



### 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.

■ When using a blade



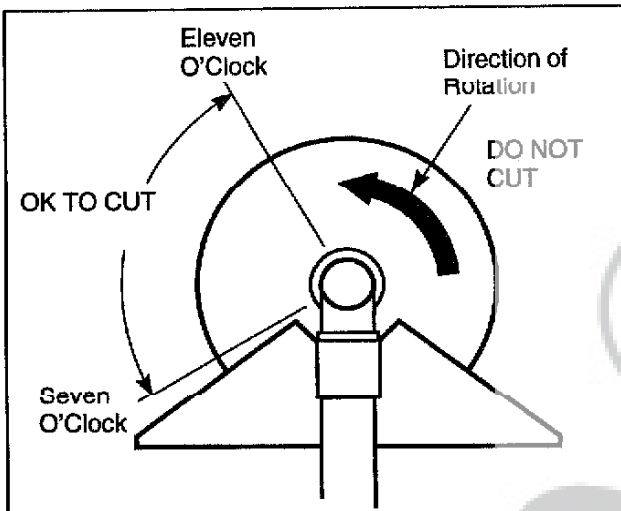
**WARNING!**

“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!**

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!**

**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 cutting attachment with this machine.

(A) 22T

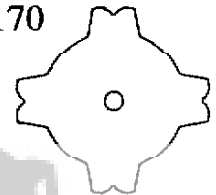
PART NUMBER: UN-34-7L  
TAP & FEED TRIMMER HEAD



BOLT DIAMETER: 7mm  
THREAD: LEFT, 1.0mm PITCH

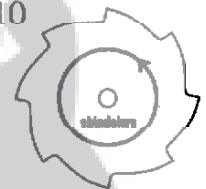
PART NUMBER 72430-92170

4-TOOTH BLADE  
INNER BORE: 25.4mm  
DIAMETER: 255.0mm  
THICKNESS: 2.0mm



PART NUMBER 72430-92110

8-TOOTH BLADE  
INNER BORE: 25.4mm  
DIAMETER: 255.0mm  
THICKNESS: 2.0mm



(B) 22F

PART NUMBER: UN-34-8R  
TAP & FEED TRIMMER HEAD



BOLT DIAMETER: 8mm  
THREAD: RIGHT, 1.25mm PITCH

## 11 BLADE SHARPENING

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



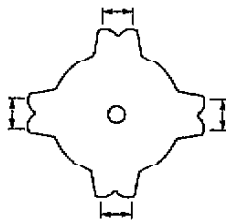
### WARNING!

Sharpen only the cutting teeth of a blade. DO NOT alter the contour of the blade in any way.

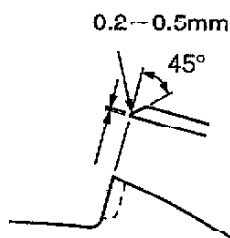
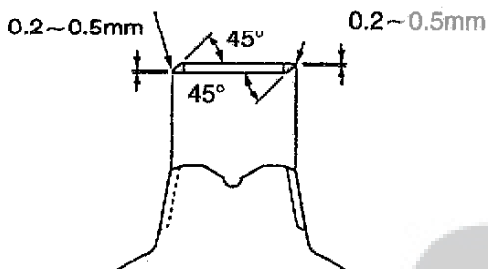
In order to keep the blade in balance, all cutting edges must be sharpened equally.

DO NOT file the tips of the teeth too sharp.

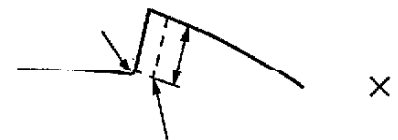
Make sure the width of the 4 sides is all the same.



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.

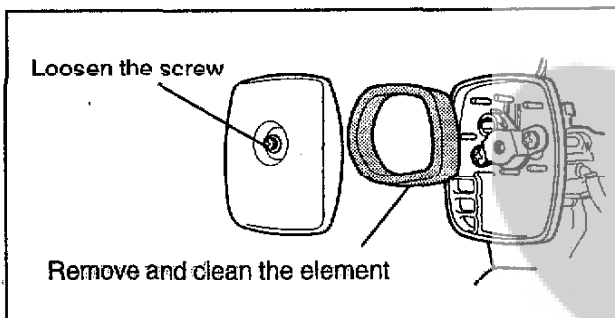
## 12-2 10-Hour Maintenance

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

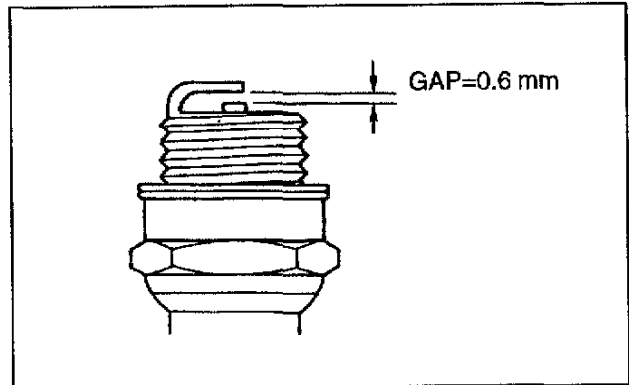
Remove and clean the spark plug. Adjust the spark plug electrode gap to

0.6 mm. 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.

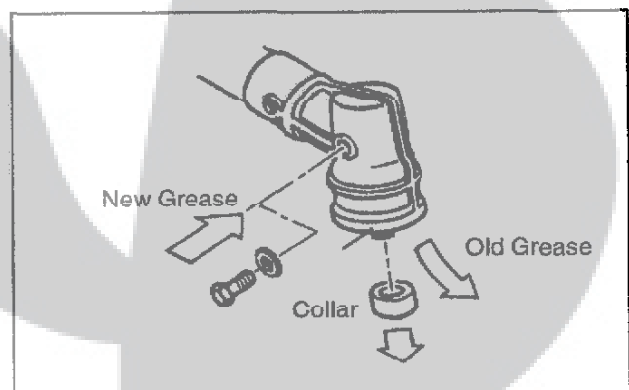


## 12-4 50-Hour Maintenance

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

(A) 22T

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).

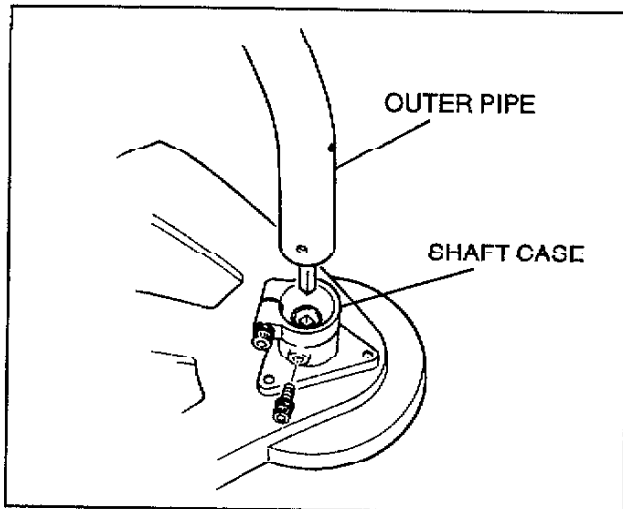




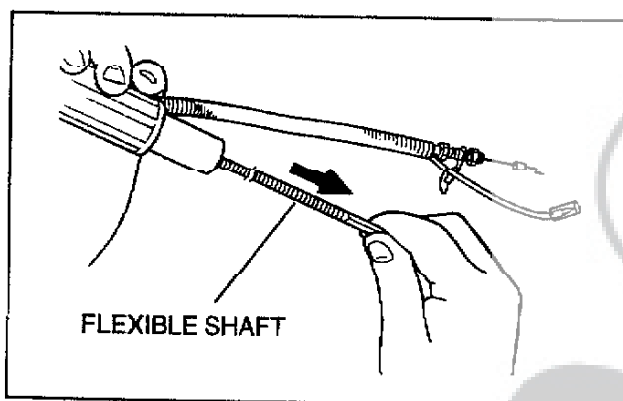
(B) 22F

Apply new grease to the flexible shaft.

- (1) Disassemble the shaft case from the outer pipe.



- (2) Disconnect the throttle wire and the other wires, and disassemble the outer pipe from the engine.
- (3) Take the flexible shaft out and apply new grease evenly on the shaft.



- (4) Reassemble.

## 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.

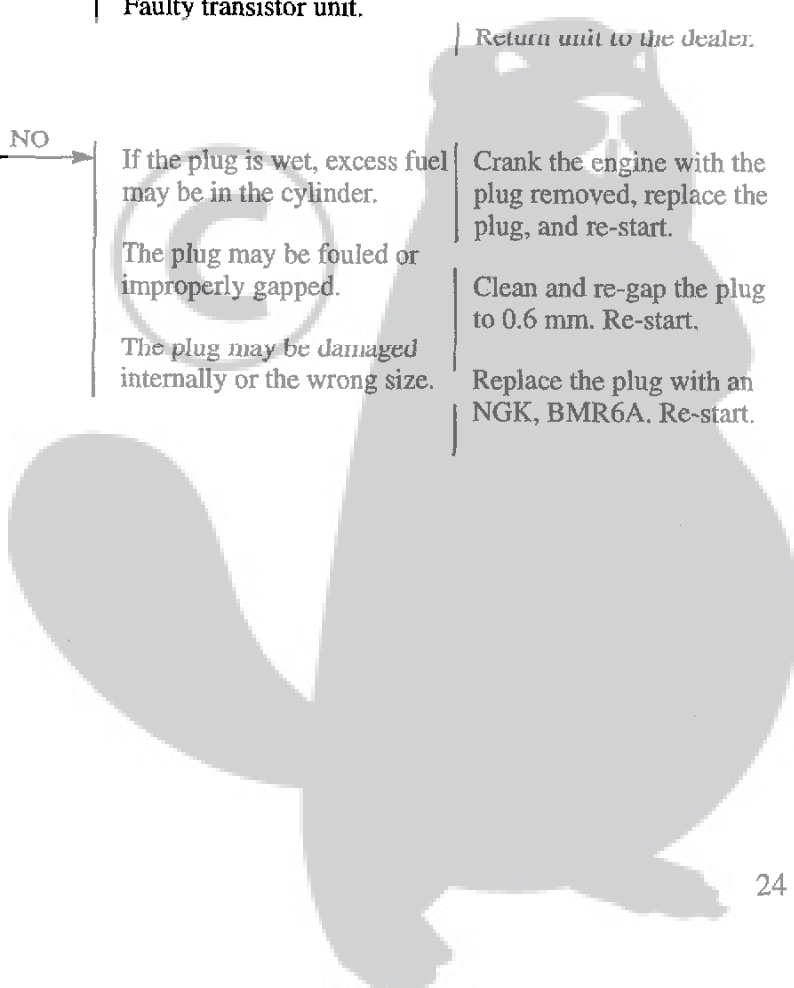


# 13 TROUBLESHOOTING GUIDE

## ENGINE DOES NOT START

What To Check	Possible Cause	Remedy
Does the engine crank? NO	Faulty recoil starter. Fluid in the crankcase. Internal damage.	Return unit to the dealer.
YES		
Good compression? NO	Loose spark plug. Excess wear on cylinder, piston, rings.	Tighten and re-test. Return unit to the dealer.
YES		
Does the tank contain fresh fuel of the proper grade? 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)	Re-start.
YES		
Is fuel visible and moving in the return line when priming? NO	Check for clogged fuel filter and/or vent. Clean as required.	Re-start.
YES		
Is there spark at the spark plug wire terminal? NO	Is the ignition switch "ON"? Faulty ignition ground. Faulty transistor unit.	Move switch to "ON" and re-start. Return unit to the dealer.
YES		
Check the spark plug 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.	Crank the engine with the plug removed, replace the plug, and re-start. Clean and re-gap the plug to 0.6 mm. Re-start. Replace the plug with an NGK, BMR6A. Re-start.

ENGLISH



## LOW POWER OUTPUT

What To Check	Possible Cause	Remedy
<div style="border: 1px solid black; padding: 5px; display: inline-block;">                     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; display: inline-block;">                     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; display: inline-block;">                     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.	Clogged air filter.	Clean the air filter.
	Clogged fuel filter.	Replace the fuel filter.
	Carburetor mixture too lean.	Adjust carburetor (authorized personnel only)
	Idle speed set too low.	Adjust: 3000 min <sup>-1</sup> (+/-250)
Engine stops abruptly.	Switch turned off.	Reset the switch and re-start.
	Fuel tank empty.	Refuel.
	Clogged fuel strainer.	Replace strainer.
	Water in the fuel.	Drain; replace with clean fuel.
	Shorted spark plug or loose terminal.	Clean and replace spark plug, tighten the terminal
	Ignition failure.	Replace the ignition unit.
	Piston seizure.	Return unit to the dealer.
Engine difficult to shut off.	Ground (stop) wire is disconnected, or switch is defective.	Test and replace as required.
	Overheating due to incorrect spark plug.	Clean and regap to 0.6 mm. Correct plug: NGK, BMR6A.
	Overheated engine.	Idle engine until cool.
Cutting attachment rotates at engine idle.	Engine idle too high.	Set idle: 3000 min <sup>-1</sup> (+/-250)
	Broken clutch spring or worn clutch spring boss.	Replace spring/shoes as required, check idle speed.
	Loose attachment holder.	Inspect and re-tighten holders securely.
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.

# DECLARATION OF CONFORMITY

We hereby declare that the Shindaiwa brushcutter:  
Model: 22T, 22F

meets the following respective requirements

Council Directives:

89/336/EEC

89/392/EEC

91/368/EEC

93/44/EEC

93/68/EEC

Harmonized EN-standards complied with:  
EN 292-2

En-standard taken:  
EN ISO 11806



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