



**OWNER'S MANUAL**

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**SHINDAIWA AH230  
ARTICULATED HEDGE  
TRIMMER**



**WARNING!**

To minimize the risk of injury, read this manual and familiarize yourself with its contents.

**Versions EPA and EMC**

This engine meets U.S. EPA PHASE 1 and 1995-1999 California emission regulations for utility and lawn and garden equipment. This engine is certified to operate on a 40:1 mixture consisting of unleaded gasoline and 2-cycle engine mixing oil only. Please refer to this manual for all maintenance specifications and adjustments.

**shindaiwa**



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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" indicates an imminently hazardous situation which, if not avoided, WILL result in death or serious injury!



## **WARNING!**

A statement preceded by the triangular attention symbol and the word "WARNING" indicates a potentially hazardous situation which, if not avoided, COULD result in death or serious 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.

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## **NOTE**

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

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## Introduction

The Shindaiwa AH230 Articulated Hedge Trimmer is designed and built to deliver superior performance and reliability without compromise to quality, comfort, safety or durability.

Shindaiwa's high-performance engines represent the leading edge of 2-cycle engine technology, delivering exceptionally high power with remarkably low displacement and weight. 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 machines 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 AH230 and what is described here. Shindaiwa Inc. reserves the right to make changes to products without prior notice and without obligation to make alterations to machines 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, Inc. at the address printed on the back of this Manual.

## Safety Precautions



### DANGER!



#### THE ARTICULATED HEDGE TRIMMER IS NOT INSULATED AGAINST ELECTRICAL SHOCK!

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



### WARNING!

The engine exhaust from this product contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

An articulated hedge trimmer 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 trimmer!



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



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.



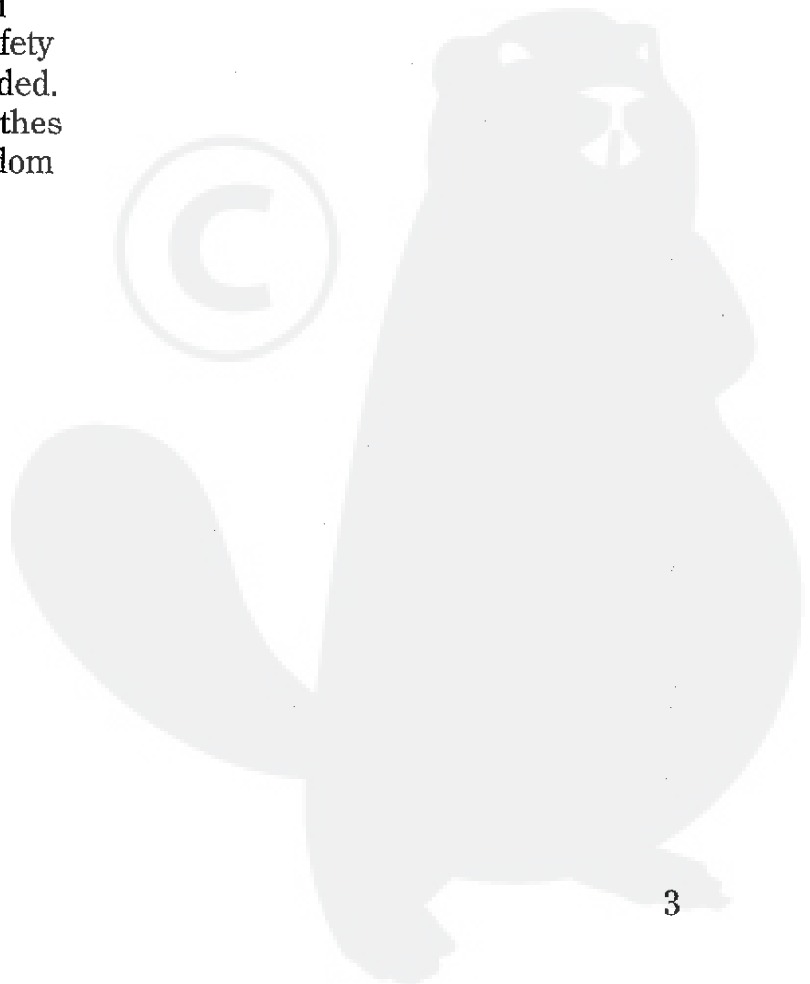
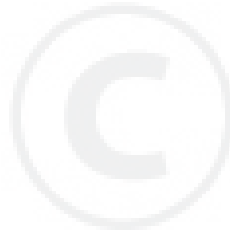
Always wear a hard hat to reduce the risk of head injuries during operation of this machine. In addition, always wear eye and hearing protection. Shindaiwa recommends wearing a face shield as additional face and eye protection.



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



Wear non-slip heavy-duty gloves to improve your grip on the trimmer handle. Wear sturdy footwear with nonslip soles to provide good footing. Steel-toed safety boots are recommended. Wear snug-fitting clothes that also permit freedom of movement.



## Operating Precautions



### WARNING!

- Always make sure the cutter attachment is properly installed and firmly tightened before operation.
- Never use a cracked or warped cutter or cutter bar; replace it with a serviceable one and make sure they fit properly.
- Before starting the engine, make sure the cutter is not contacting anything.
- 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.
- When cutting a branch that is under tension, be alert for spring-back so that you will not be struck by the moving branch.
- Stop the machine immediately if it suddenly begins to vibrate or shake. Inspect for broken, missing or improperly installed parts or attachments.
- Do not operate the articulated hedge trimmer with the muffler removed.
- Always stop the engine and allow it to cool before refueling. Avoid overfilling and wipe off any fuel that may have spilled.
- Make sure there is always good ventilation when operating the articulated hedge trimmer. Fumes from engine exhaust can cause serious injury or death. Never run the engine indoors!
- Never smoke or light fires near the hedge trimmer. Keep the trimmer away from excessive heat. Engine fuel is very flammable and fire could lead to serious personal injury or property damage.
- Always move the unit to a place well away from a fuel storage area or other readily flammable materials before starting the engine. Use caution when handling fuel. Move the hedge trimmer at least 10 feet (3 meters) from the fueling point before starting the engine.
- Make sure there are no missing or loose fasteners, and that the stop switch and throttle controls are working properly.
- If a cutter should bind fast in a cut, shut off the engine immediately. Push the branch or tree to ease the bind and free the cutter.
- Make sure the cutters are correctly adjusted before operating the articulated hedge trimmer (see page 22 for cutter adjustment procedures). Never attempt cutter adjustment with the engine running!



## WARNING!

- Never transport the articulated hedge trimmer nor set it down with the engine running. An engine that's running could be accidentally accelerated causing the blades to oscillate.
- Make sure the cover is in place when transporting the articulated hedge trimmer.
- When carrying the articulated hedge trimmer by hand, the cutter attachment should be pointing backward with the cutter blade in the retracted or transporting position (see page 12 for articulating adjustment procedures). See Figure 1.



Figure 1

## CAUTION!

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

## Operating the Articulated Hedge Trimmer

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

*Secure long hair so it is above shoulder level.*

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

*Wear non-slip heavy-duty gloves to improve your grip on the trimmer handle. Wear snug-fitting clothes that also permit freedom of movement. NEVER wear shorts!*

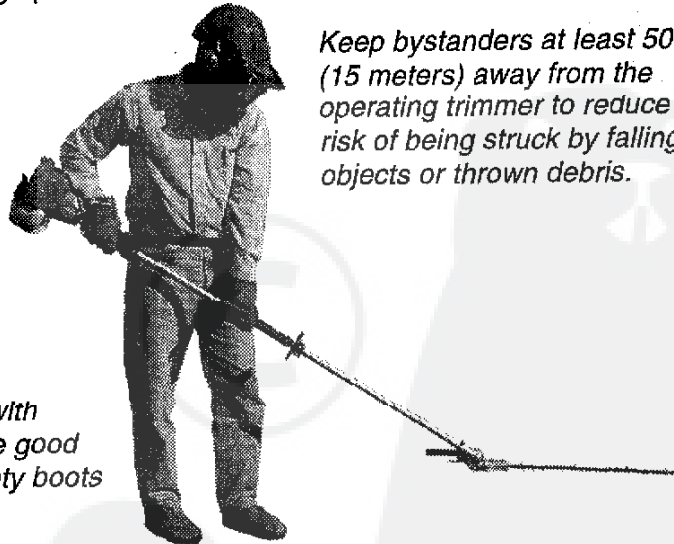
*Always operate with both hands firmly gripping the machine.*



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

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

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



**Figure 2**

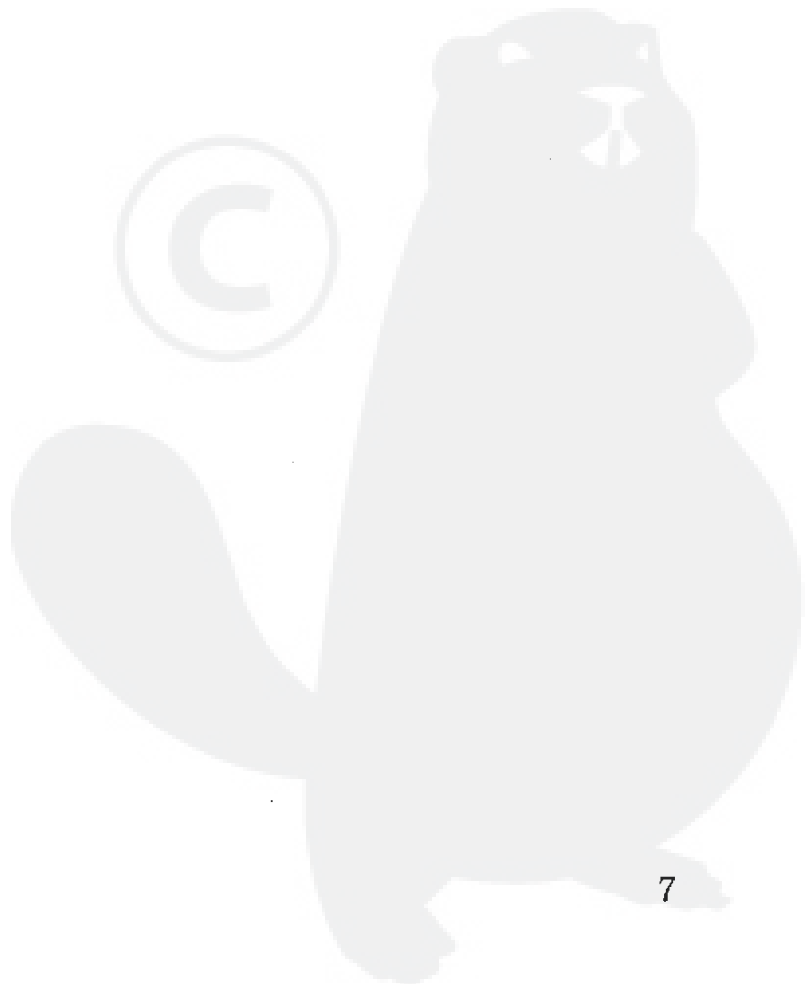
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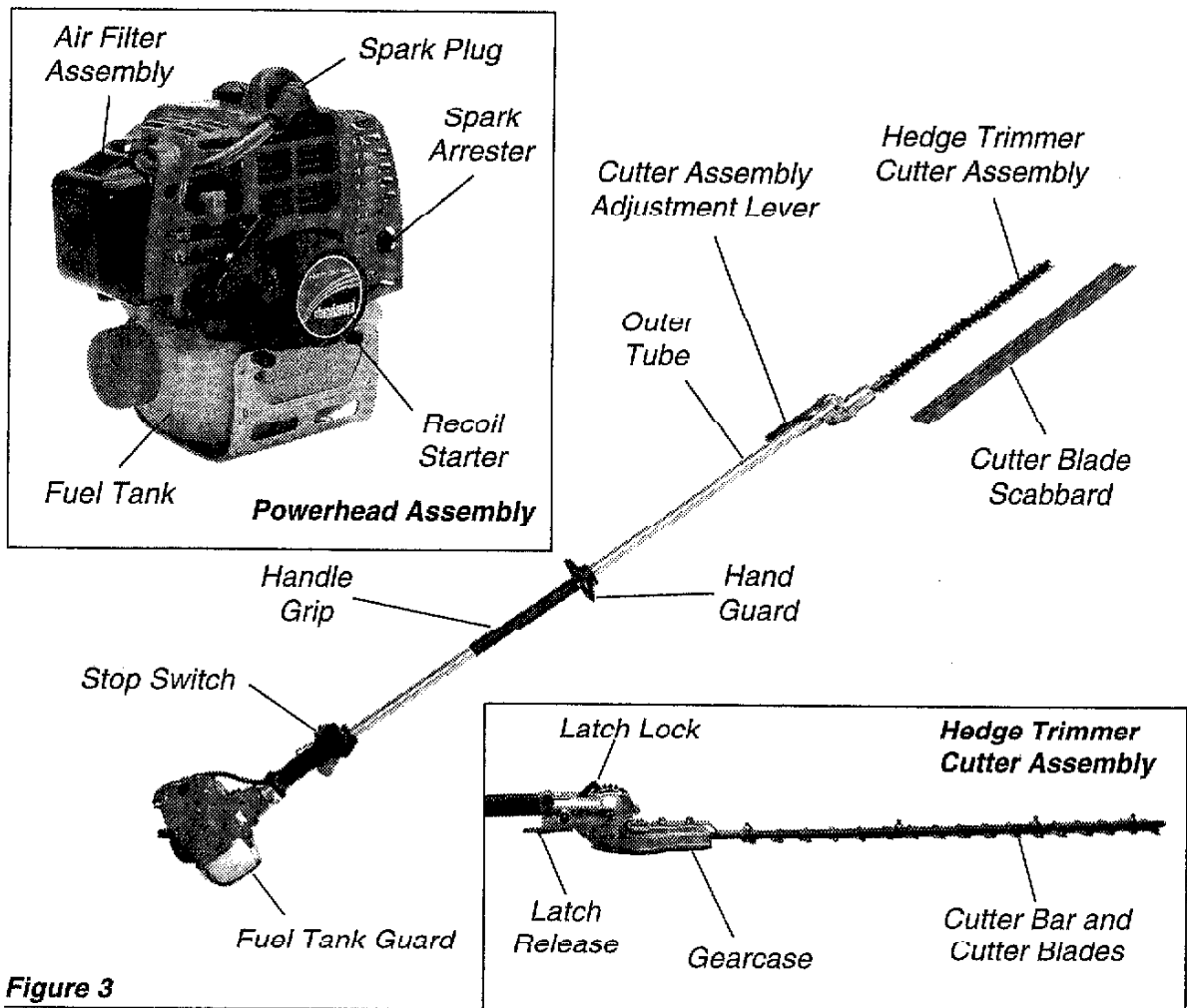
## AH230 Specifications

Dry Weight .....	5.9 kg/13.0 lb.	Air Filter .....	Semi-wet, quick-remove/install
Length (storage or transporting position) .....	2360mm/93.0 in.	Starting Method .....	Recoil
Engine Type .....	2-cycle, air-cooled, vertical-cylinder	Cooling System .....	Forced air
Bore x Stroke ....	32 x 28 mm/1.3 x 1.1"	Stopping Method .....	Slide switch
Displacement .....	22.5 cc/1.4 cu. in.	Transmission Type .....	Automatic, centrifugal clutch with bevel gear
Maximum Output .....	1.1 hp/0.8kW @ 7500 rpm	Blade Length .....	559 mm/22.0 in.
Fuel/Oil Ratio .....	40:1 with Shindaiwa Premium 2-cycle Engine Oil	Cutter Drive .....	Spur gear
Fuel Tank Capacity .....	600 cc/20.3 oz.	Gear Lubricant ..	Lithium-based grease
Carburetor Type .....	Walbro WYL-26	Standard Equipment .....	Tool kit containing a spark plug wrench, 4mm hex wrench, and 8 x 10mm spanner
Ignition .....	One-piece, electronic, transistor-controlled	Optional Equipment .....	Harness and bracket, front handle
Spark Plug			
EPA version .....	Champion CJ8		
EMC version .....	NGK BMR6A		

Specifications are subject to change without notice.



# Product Description



## Prior To Assembly

Using Figure 3 as a guide, familiarize yourself with the Shindaiwa AH230 articulated hedge trimmer 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:

- Engine assembly
- Outer tube/cutter assembly
- Kit with this manual and tool kit for routine maintenance.
- Cutter blade scabbard

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 articulated hedge trimmer or its components.

# Powerhead Installation

1. Place the powerhead on a clean, flat surface, spark plug facing up.

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

2. Use the 4mm allen wrench to loosen the tube clamp. Make sure the D-shaped shim washer is positioned as shown in Figure 4.

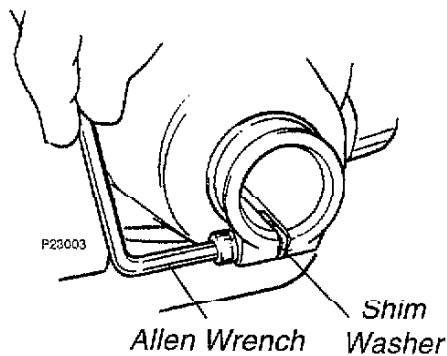


Figure 4

**CAUTION!**  
Do not force the outer tube into the powerhead! Excessive force can damage the components.

3. Remove the protective cap from the end of the outer tube, then slide the outer tube into the tube clamp until the outer tube bottoms. See Figure 5. If installation is difficult, rotate the outer tube until you feel the mainshaft splines engage the powerhead. When the outer tube is in place, the ruled line on the lower tube decal is flush with the tube clamp as shown in Figure 5.

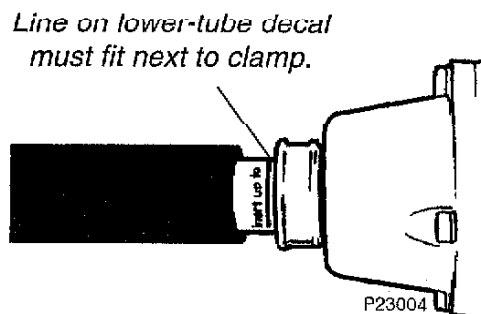


Figure 5

4. Position the outer tube so the stop switch is facing up. See Figure 6.
5. Tighten the clamp screw firmly.

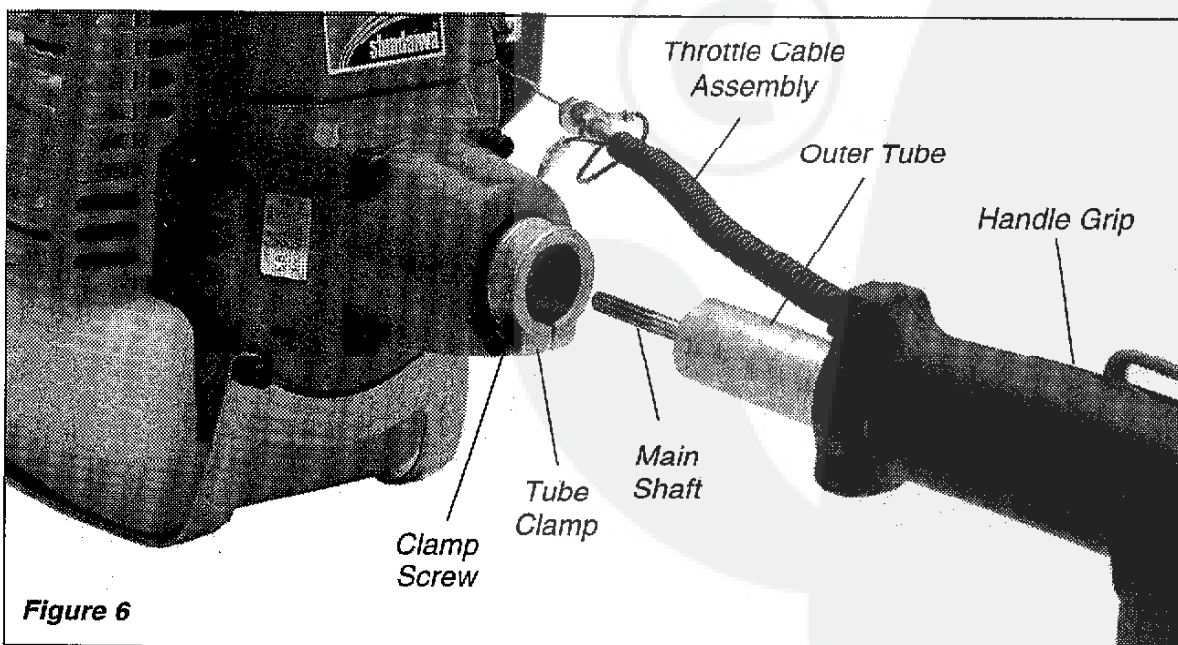


Figure 6

# Connecting the Throttle Cable

## Remove The Cylinder Cover

1. Remove the spark plug cap, then loosen the cylinder cover knob (about a dozen turns needed). See Figure 7.

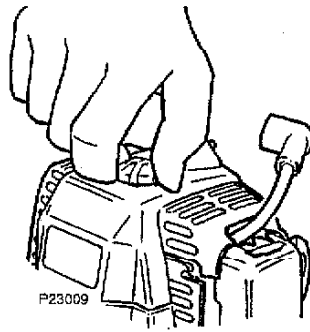


Figure 7

2. Lift the corner of the cylinder cover just below the muffler as shown in Figure 8, and lift off the cylinder cover. Figure 8

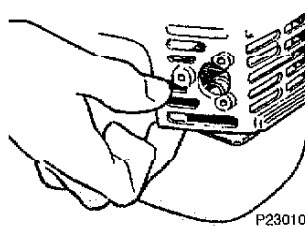


Figure 8

2. Connect the S-shaped end of the throttle cable to the throttle lever on top of the carburetor as shown in Figure 10.

Throttle Cable End

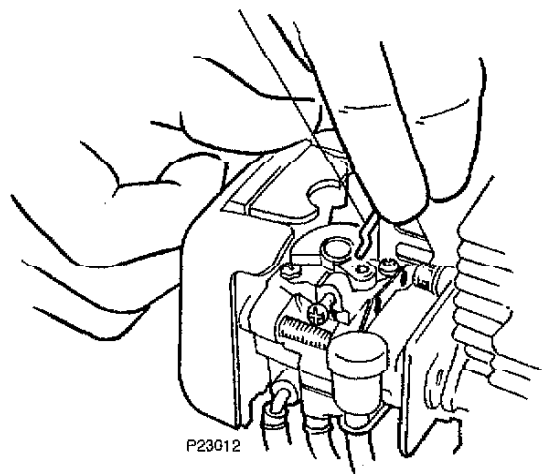


Figure 10

## Connect The Throttle Cable.

1. Loop the ribbed cable assembly to the top left side of the engine. Notice that the black ground wire (with a ring fitting on the end) is located between the two cable adjuster nuts as shown in Figure 9.

Cable Adjuster Nuts

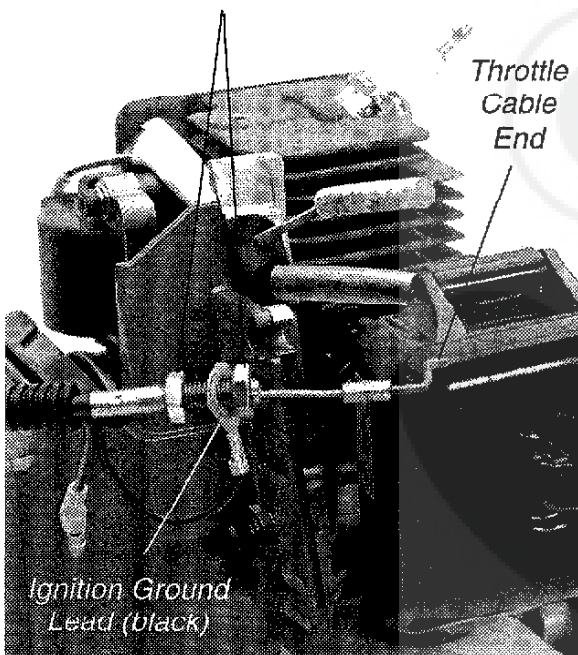


Figure 9

3. Turn the cable adjuster nuts sufficiently for the throttle cable to fit in the notch on the fan cover. Make sure the ignition ground lead is located on the rearward side of the notch. Then, connect the male fitting of the red ignition wire into the female fitting of the red wire attached to the engine. See Figure 11.

Female Ignition Wire Fitting

Notch

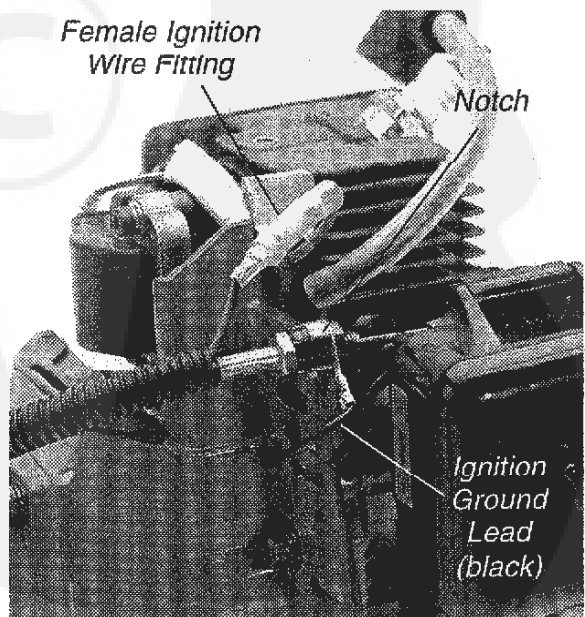
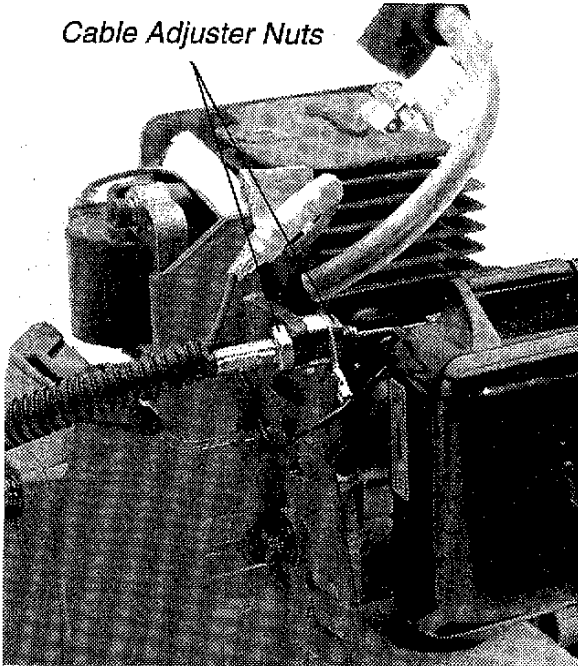


Figure 11

# Adjusting the Throttle Cable

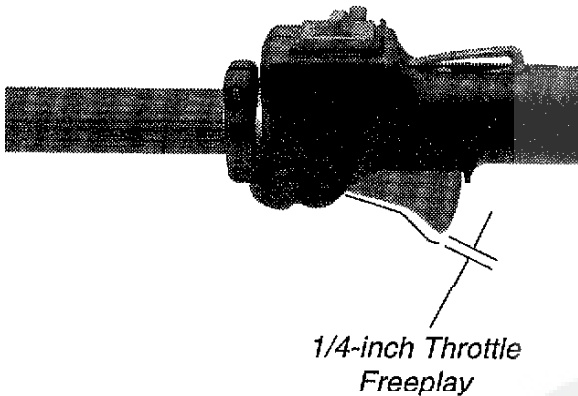
1. Loosen the two 10mm throttle cable nuts at the fan cover as shown in Figure 12.

*Cable Adjuster Nuts*



**Figure 12**

2. Adjust the throttle cable nuts until you achieve a free play on the throttle trigger of about 1/4 inch. See Figure 13.

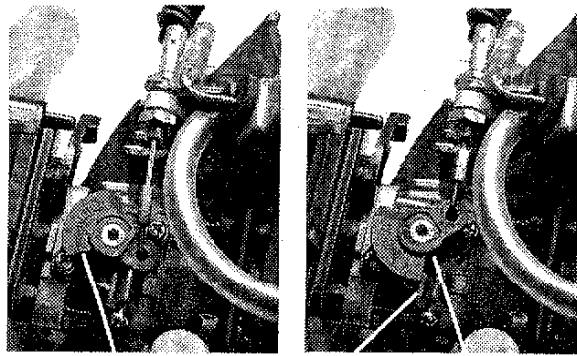


**Figure 13**

## IMPORTANT!

Make sure the stop switch wires do not interfere with throttle functions. Reposition wires if necessary.

3. When 1/4-inch free play is achieved, tighten the two 10mm throttle cable nuts. When the throttle cable is correctly adjusted, and the throttle trigger is fully depressed (full throttle), the throttle will contact the stop on the throttle body. See Figure 14.



*Idle Throttle Position*

*Stop on throttle body*

*Full Throttle Position*

**Figure 14**

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### NOTE:

Put some Never-Seez™ or equivalent on the cylinder cover knob for easier removal.

- 
4. Replace the cylinder cover.
  5. Replace the spark plug cap.

## Adjusting the Hedge Trimmer Cutter Assembly



### WARNING!

- The cutter blades are very sharp. Do not grasp the blades with your hands. Do not brush the blades against your body.
- Never run the engine nor operate the articulated hedge trimmer when the cutter assembly is in the storage/transport position.

### IMPORTANT!

Always use gloves when working near the cutter assembly.

Position the hedge trimmer on a flat, level surface with the engine resting on the fuel tank guard. Make sure the scabbard is in place on the blade.

1. With your right hand, grasp the handle, located immediately aft of the hand guard. With your left hand, grip the adjustment lever on the cutter assembly. See Figure 15.

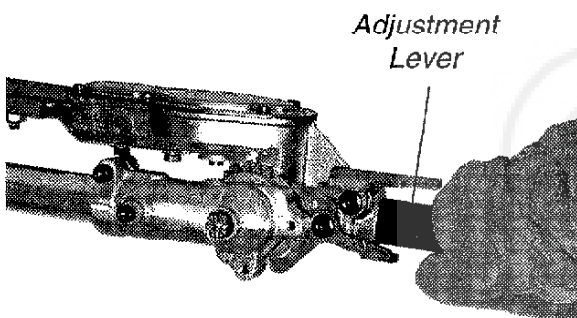


Figure 15

### IMPORTANT!

The latch lock provides an interlock to help prevent inadvertent depression of the latch release.

2. With the index finger of your left hand, press the latch release. With your left thumb, press the latch lock. See Figure 16

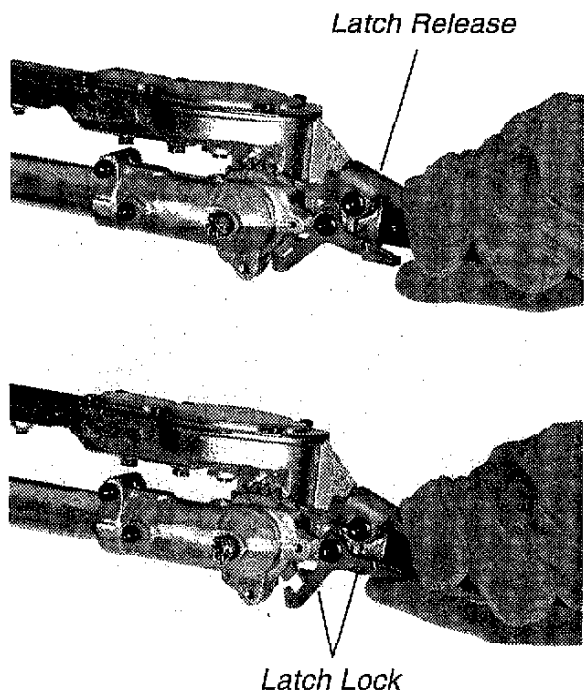


Figure 16

3. While holding the latch lock down, pivot the cutter assembly using the adjustment lever until it is straight with the outer tube (pivot 180°). See Figure 17.

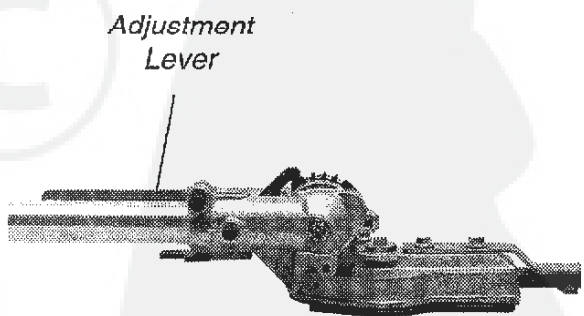


Figure 17

4. Release the latch lock and the latch release. Make sure the latch lock and the latch release return securely to a locking position.

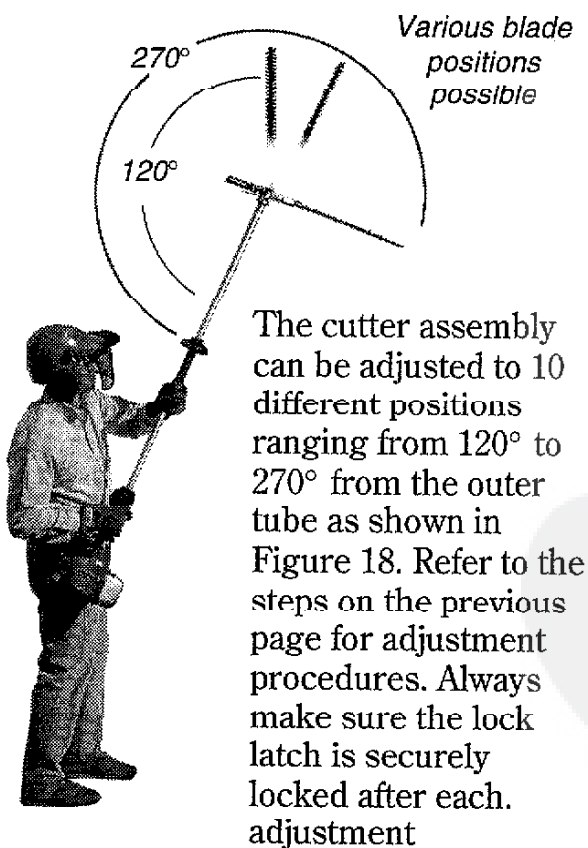
5. Remove the scabbard from the cutter blade. The engine now may be started (refer to page 15 for procedures).

### Adjusting the Hedge Trimmer Cutter Assembly for Desired Cutting Angles



#### **WARNING!**

Do not touch the cutter blades when the engine is running. The blades can oscillate even if the engine is idling.



**Figure 18**

### Adjusting the Cutter Assembly for Storage or Transportation

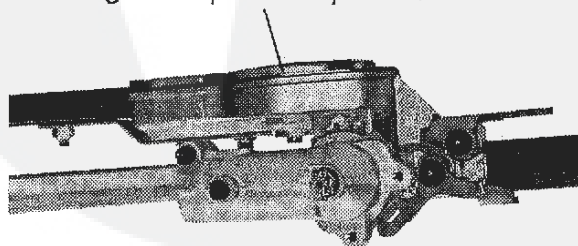


#### **WARNING!**

Never run the engine when adjusting the cutter assembly to the storage position.

1. With the engine off, install the scabbard onto the blade.
2. Using the procedures described on the previous page, rotate the cutter assembly so it is parallel to the tube. Make sure the latch lock and the latch release return securely to a locking position. See Figure 19.
3. Make sure the scabbard is in place on the cutters before storing or transporting.

*Gearcase rotated to the storage/transportation position*



**Figure 19**

## Mixing Fuel

### **CAUTION!**

This engine is certified to operate on a 40:1 mixture consisting of unleaded gasoline and 2-cycle mixing oil only.

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

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

- Use only fresh, clean unleaded gasoline with an octane rating of 87 or above.
- Mix all fuel with Shindaiwa Premium 2 cycle Engine Oil at a gasoline/oil ratio of 40:1 (1-gallon of gasoline to 3.2 ozs. mixing oil).

### **IMPORTANT!**

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

## Filling the Fuel Tank



### **WARNING!**

Always minimize the risk of fire when handling fuel!

- Always allow the hedge trimmer to cool before refueling!
- Wipe all spilled fuel and move the hedge trimmer at least 10 feet (3 meters) from the fueling point before restarting!
- Never smoke or light any fires near the hedge trimmer or fuels!
- Never place any flammable material near the engine muffler!
- Never operate the engine without the muffler and spark arrestor in place and properly functioning!

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



# Starting A Cold Engine – Restarting After Refueling

## Control Positions (cold engine)

1. Set the throttle trigger to “fast idle” as follows (Figure 20):

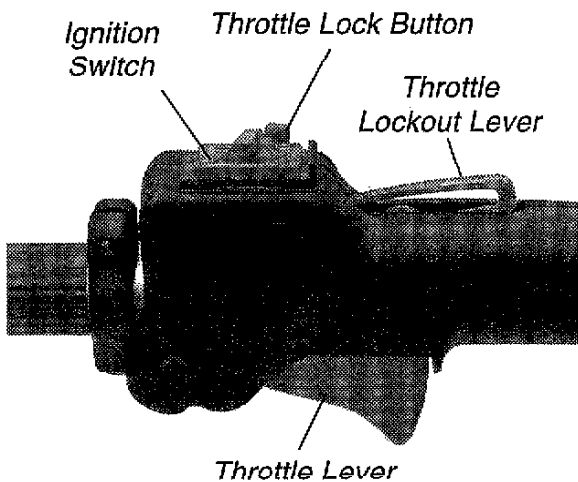


Figure 20

- a. Depress and hold the throttle lockout lever.
- b. Squeeze and hold the throttle lever.
- c. Depress the throttle lock button.
- d. While holding down the throttle lock button, release the throttle lever and throttle lockout lever.
- e. Release the throttle lock button.

### IMPORTANT!

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

2. Slide the ignition switch to the “I” (START) position. See Figure 21.

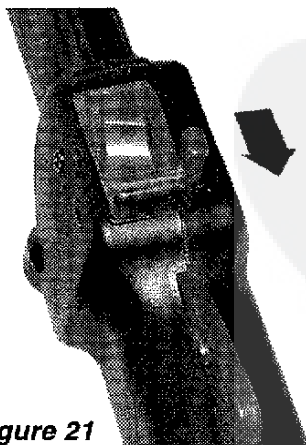


Figure 21

3. Prime the engine by depressing the carburetor primer bulb four or five times. See Figure 22. You should be able to see fuel inside the bulb.

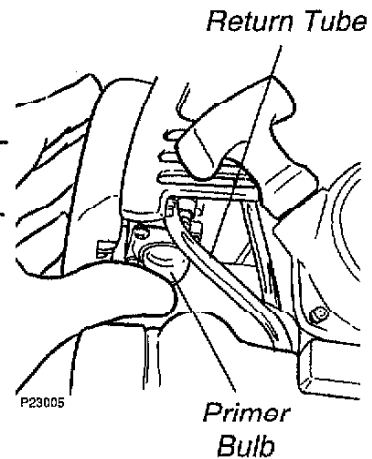


Figure 22

4. Choke the engine by moving the choke lever up to the “closed” position. See Figure 23.

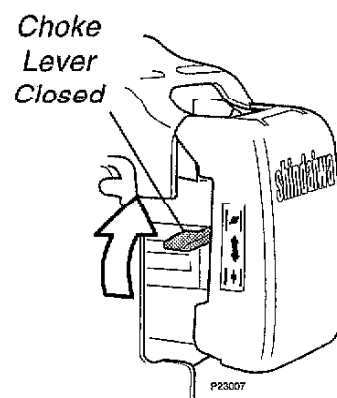


Figure 23

Before starting the engine, make sure the

cutter assembly is in the cutting position (extended). Refer to page 22 for adjustment procedures. Never start the engine with the cutter assembly in the storage/transportation position.

## Control Positions (warm engine)

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

## Cranking The Engine



### WARNING!

When the engine starts or is running—even at idle—the hedge trimmer cutter blade may move (oscillate). Keep your hands and your body away from the cutter assembly while starting the engine!



### WARNING!

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

### CAUTION!

Never operate the trimmer unless a cutter attachment is installed.

Before starting the engine, make sure the cutter assembly is in the cutting position (extended). Refer to page 12 for adjustment procedures. Never start the engine with the cutter assembly in the storage/transportation position.

1. Place the unit firmly on the ground, making sure it is stable and that the cutter attachment is free and clear of any bystanders or objects. Grip onto the outer tube with your left hand and grasp the starter rope handle with your right hand. See Figure 24.



Figure 24

### CAUTION!

The recoil starter can be damaged by abuse.

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

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

### When The Engine Starts Or Fires

Open the choke by moving the choke lever down. See Figure 25.

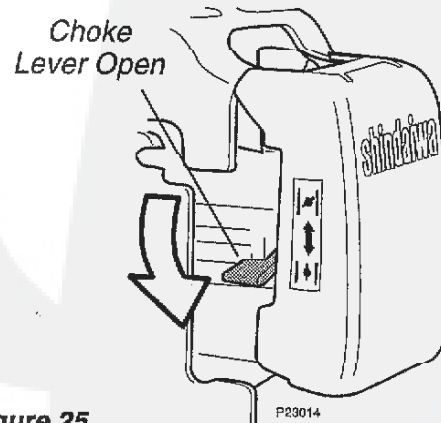


Figure 25



### **WARNING!**

The cutter attachment will engage and oscillate as the engine starts and accelerates.

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

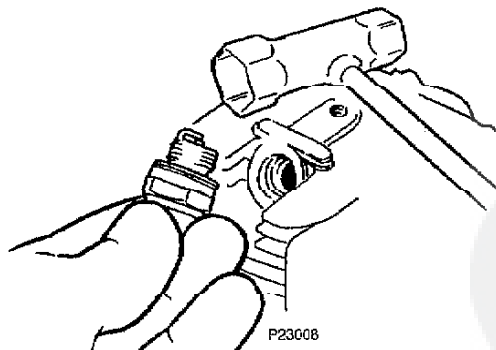
When the engine starts, clear excess fuel from the combustion chamber by revving the engine several times with the throttle trigger (operating the trigger will automatically disengage the "fast idle" setting).

### **If The Engine Fails To Start**

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

### **Starting A Flooded Engine**

1. Disconnect the spark plug lead and use the spark plug wrench to remove the spark plug (turn counter clockwise to remove). See Figure 26.
2. Slide the ignition switch to the "O" (STOP) position.



**Figure 26**

If the spark plug is fouled or soaked with fuel, clean the plug as necessary (for spark plug gapping specifications see page 20).

3. Open the choke (Figure 25) and fully depress the throttle lever with your left hand, then pull the starter handle rapidly with your right hand to clear excess fuel from the combustion chamber.

### **CAUTION!**

Incorrect spark plug installation can result in serious engine damage.

3. Reinstall the spark plug and tighten it firmly. If a torque wrench is available, torque the spark plug to 148–165 in.-lb (170–190 kg/cm).
4. Repeat the starting procedure for a warm engine.
5. If the engine still fails to start, refer to the troubleshooting section near the end of this manual.

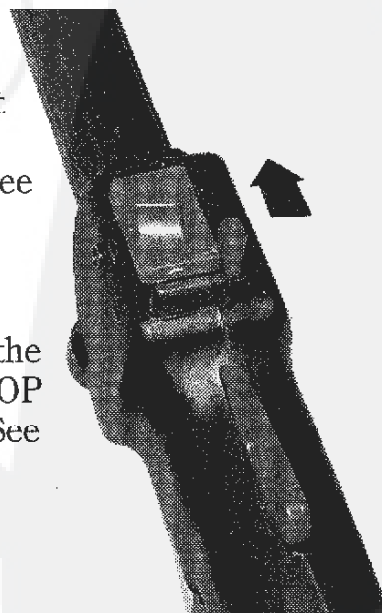
## **Stopping the Engine**



### **WARNING!**

The cutter attachment can continue moving after the engine is stopped!

1. Cool the engine by allowing it to idle for two or three minutes.
2. Slide the ignition switch to the "O" or STOP position. See Figure 27.



**Figure 27**

## Adjusting The Carburetor



### **WARNING!**

The cutter attachment must never oscillate at engine idle speed.

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

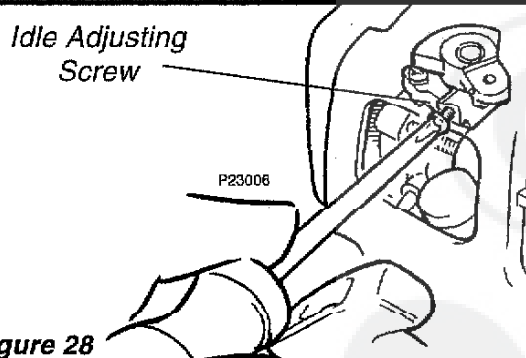
### **Check and Adjust Idle Speed**

1. Start the engine and allow it to idle two or three minutes, or until it warms up.
2. If the cutter attachment rotates at engine idle, reduce idle speed by turning the idle adjusting screw counter clockwise as necessary. See Figure 28.

### **IMPORTANT!**

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

2750, rpm +/- 250 rpm.



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

### **NOTE**

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

## General Maintenance

MAINTENANCE, REPLACEMENT, OR REPAIR OF EMISSION CONTROL DEVICES AND SYSTEM MAY BE PERFORMED BY ANY REPAIR ESTABLISHMENT OR INDIVIDUAL. HOWEVER, WARRANTY REPAIRS MUST BE PERFORMED BY A DEALER OR SERVICE CENTER AUTHORIZED BY SHINDAIWA KOGYO, LTD. AND USE OF PARTS THAT ARE NOT EQUIVALENT IN PERFORMANCE AND DURABILITY TO AUTHORIZED PARTS MAY IMPAIR THE EFFECTIVENESS OF THE EMISSION CONTROL SYSTEM AND MAY HAVE A BEARING ON THE OUTCOME OF THE WARRANTY CLAIM.



### **WARNING!**

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



### **WARNING!**

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

### **IMPORTANT!**

Using non-standard replacement parts could invalidate your Shindaiwa warranty.

## Daily Maintenance

### Muffler



#### **WARNING!**

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

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

### Spark Plug

Keep the spark plug and wire connections tight and clean.

Prior to each work day, perform the following:

- Remove all dirt and debris from the engine, check the cooling fins and air cleaner for clogging, and clean as necessary. See Figure 29.

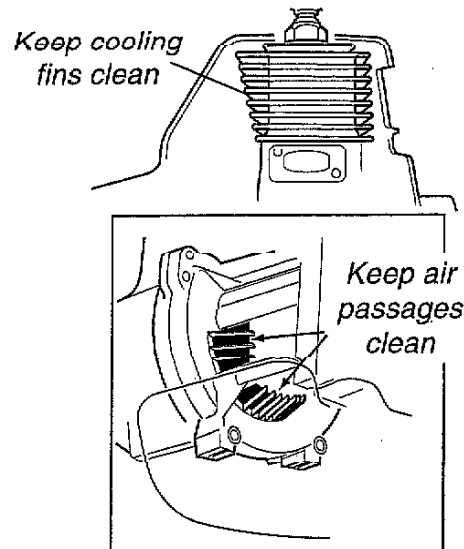


Figure 29

- 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.



#### **WARNING!**

Always wear gloves when working around the cutter assembly.

- Clean any debris or dirt from the hedge trimmer cutter blades. Lubricate the blades before use and after refueling. Check the cutters for damage or incorrect adjustment.
- Check for loose or missing screws or components. Make sure the cutter attachment is securely fastened.
- Check the entire machine for leaking fuel or grease.
- Make sure nuts, bolts, and screws (except carburetor adjusting screws) are tight.

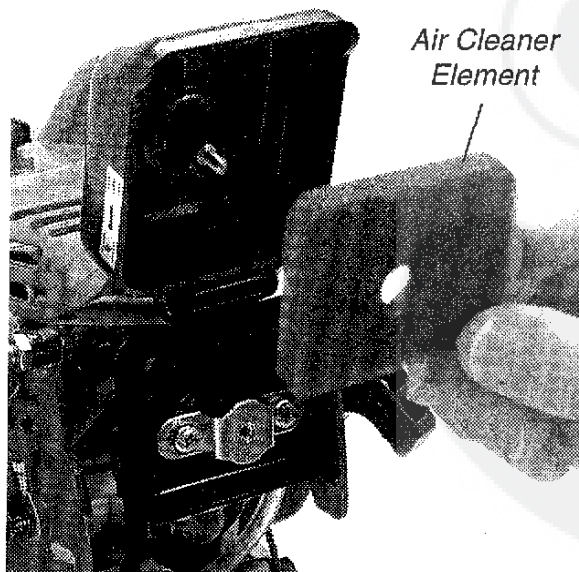
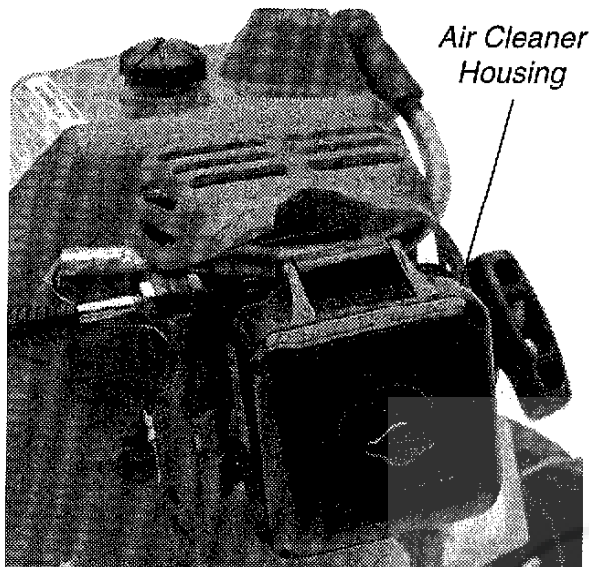
## 10-Hour Maintenance

### **CAUTION!**

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

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

Remove the air cleaner element from the air cleaner housing and clean it thoroughly with soap and water. Rinse and dry thoroughly. Add a few drops of oil and work it in, then reassemble the element. See Figure 30.



**Figure 30**

## 10/15-Hour Maintenance

### **CAUTION!**

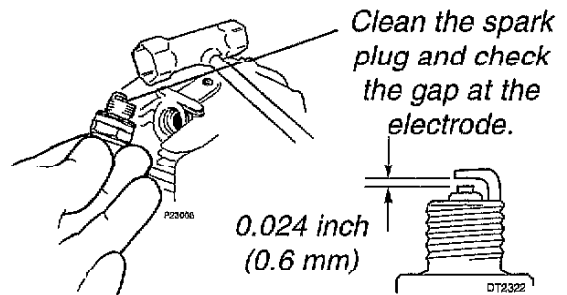
Before removing the spark plug, clean the area around the plug to prevent dirt and dust from getting into the engine's internal parts.

**Every 10 to 15 hours of operation:**

- Remove and clean the spark plug. See Figure 31. Adjust the spark plug electrode gap to 0.024-inch (0.6 mm). If the plug must be replaced, use only:

–For EPA version: Champion CJ8.

–For EMC version: NGK BMR6A.

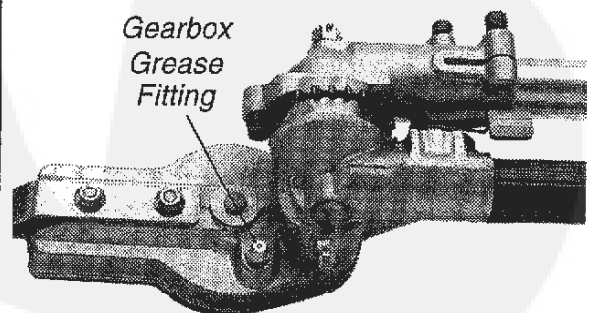


**Figure 31**

- Lubricate the cutter assembly gearbox by pumping one or two strokes of lithium-base grease into the grease fitting using a lever-type grease gun. See Figure 32.

### **CAUTION!**

Overlubricating can cause the gearbox to operate sluggishly and can cause grease to leak out.



**Figure 32**

## 50-Hour Maintenance

### Every 50 hours of operation

(more frequently in dusty or dirty conditions):

- Remove and clean the cylinder cover and clean dirt and debris from the cylinder cooling fins.
- **Lubricate the gearcase.** To perform this operation, first remove the gearcase from the outer tube as follows (Figure 33.):

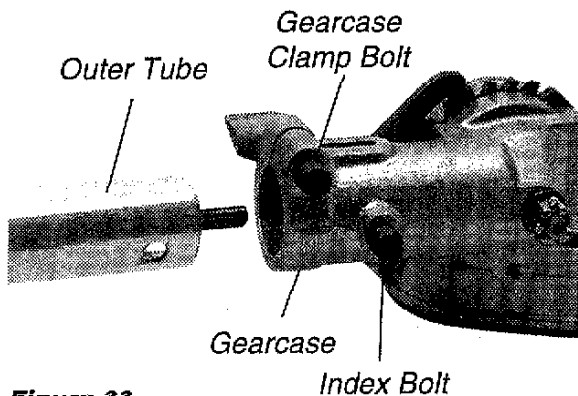


Figure 33

#### **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.

Using a grease gun, pump lithium-base grease (about 10 grams) into the grease fitting on the gearcase until you see old grease being purged from the gearcase (Figure 34). Purged grease will be visible in the outer tube cavity. Clean up excess grease, then reassemble the gearcase onto the outer tube. Make sure the index bolt fits into the hole on the outer tube. Securely tighten both bolts.

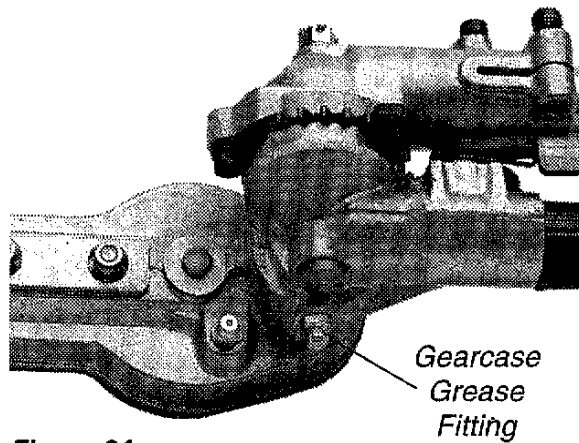


Figure 34

### Servicing the fuel filter

#### **CAUTION**

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

- Use a wire hook to extract the fuel filter from inside the fuel tank (Figure 35). Inspect the fuel filter element. If it shows signs of contamination from debris, replace it with a genuine Shindaiwa replacement fuel filter element. Before reinstalling the filter, inspect the fuel line. If you discover damage or deterioration, the unit should be removed from service until it can be inspected by a Shindaiwa-trained service technician.

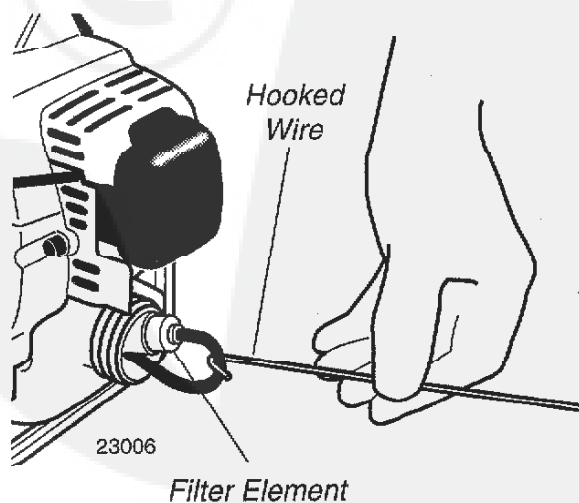


Figure 35

## Muffler Maintenance



### WARNING!

Never operate this machine with a damaged or missing muffler or spark arrester! Operating with missing or damaged exhaust components is a fire hazard, and could also damage your hearing.

Hard starting or a gradual loss of performance can be caused by carbon deposits lodged in the muffler's spark arrester screen. See Figure 36.

In such cases, performance can usually be restored by removing the arrester screen and giving it a thorough cleaning with a stiff bristle brush.

If carbon deposits are severe or if no performance improvement is noted, your machine should be returned to your Shindaiwa dealer for inspection.

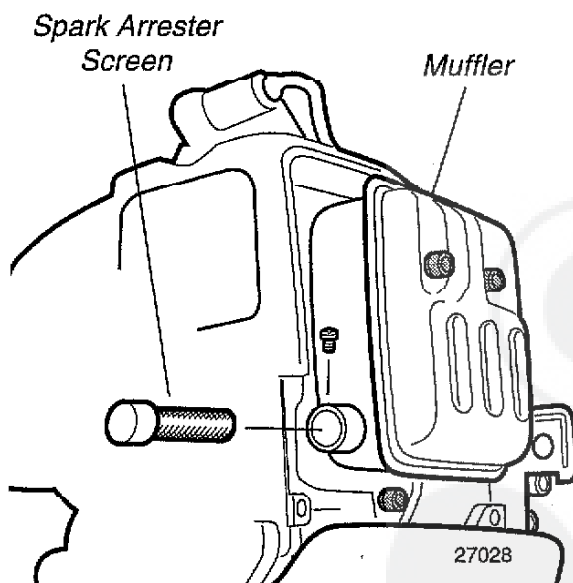


Figure 36

## Cutter Blade Adjustment



### WARNING!

The cutter blades are very sharp! Always wear gloves when working around the cutter assembly.

### CAUTION!

Operating the trimmer with worn or improperly adjusted cutters will reduce cutter performance and may also damage your machine

Cutter performance of your machine depends in great measure on cutter blade clearance. Properly adjusted blades will oscillate freely yet help prevent binding of cut material between blades. Adjust blades as follows (Figure 38):

1. Loosen all blade locknuts at least one full turn.
2. Tighten each blade shoulder bolt firmly, and then loosen the shoulder bolts  $1/4$  to  $1/2$  turn.
3. Working from the gearcase end, lock each bolt in place by firmly tightening its locknut while preventing the shoulder bolt from turning.

When shoulder bolt adjustment is correct, there should be a gap of 0.25–0.50 mm between the cutter blades and the flat washers, and the flat washer beneath each bolt head should turn freely.

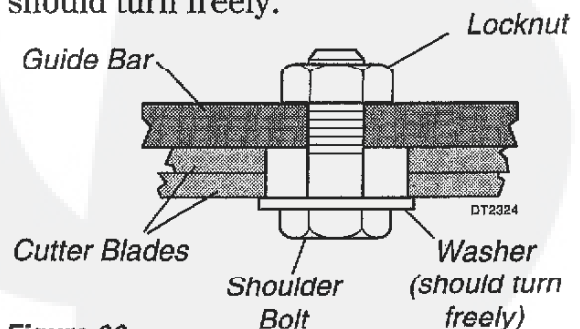


Figure 38



## Long Term Storage

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

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

### **CAUTION!**

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

### **NOTE**

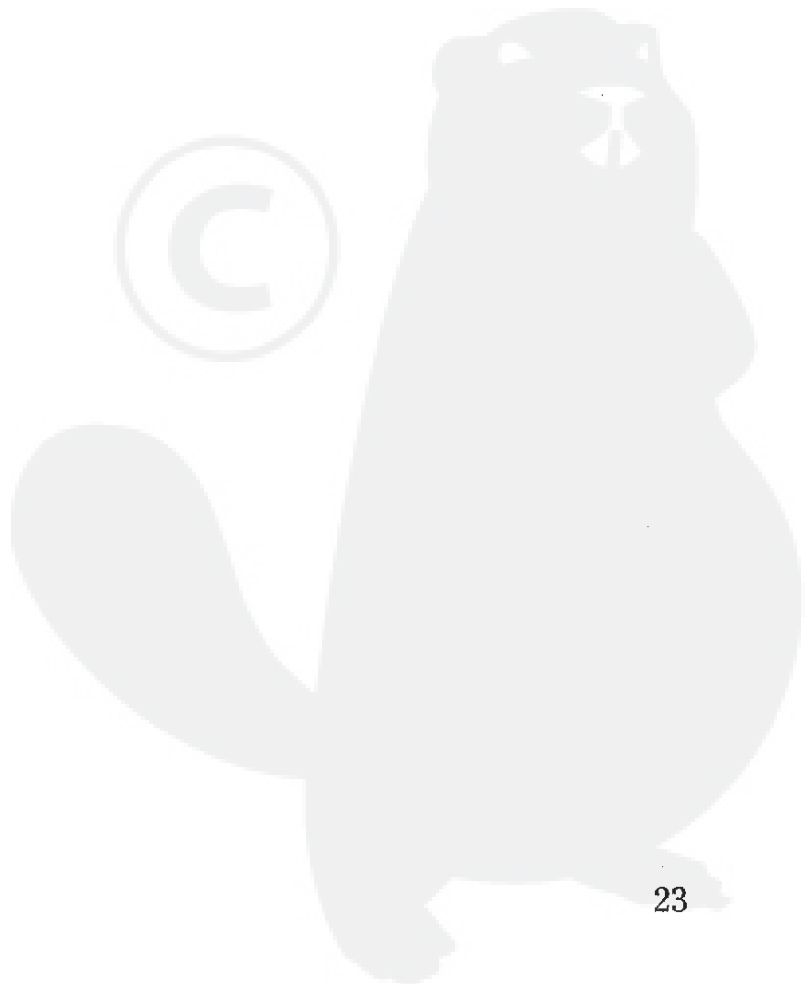
Damage resulting from stale or contaminated fuel is not covered by the Shindaiwa warranty policy

- 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®.

- 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 soap and water. Rinse and dry thoroughly, then add a few drops of oil and work it in. Reassemble.
- Store the machine in a clean, dust-free area.



# 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 → Fuel incorrect, stale, or contaminated. Fuel mixture incorrect	Refill with fresh fuel of the correct mixture (gasoline and Shindaiwa Premium 2-cycle Engine Oil, 40:1 ratio)
YES ↓		
Is fuel visible and moving in the return line when priming?	NO → Check for clogged fuel filter and/or vent.	Clean as required; restart.
YES ↓		
Is there spark at the spark plug wire terminal?	NO → The ignition switch is in "O" (Stop) position. Faulty ignition ground. Faulty transistor unit.	Move switch to "I" (Start) position and restart. Return unit to the dealer.
YES ↓		
Check the spark plug	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 0.24 inch (0.6 mm). Restart.  Replace the plug— EPA version: Champion CJ8. EMC version: NGK BMR6A Restart.

# Troubleshooting Guide (continued)

## LOW POWER OUTPUT

What To Check	Possible Cause	Remedy
<p>Is the engine overheating?</p>	Operator is overworking the machine.	Operate the trimmer 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 Shindaiwa Premium 2-cycle Engine Oil, 40:1 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.
<p>Engine is rough at all speeds. May also have black smoke and/or unburned fuel at the exhaust.</p>	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
<p>Engine is knocking.</p>	Overheating condition.	See above.
	Improper fuel.	Check fuel octane rating; check for presence of alcohol in the fuel. Refuel as necessary.
	Carbon deposits in the combustion chamber.	Decarbonize.

# Troubleshooting Guide (continued)

## ADDITIONAL PROBLEMS

Symptom	Possible Cause	Remedy
<div style="border: 1px solid black; padding: 5px; display: inline-block;">Poor acceleration.</div>	Clogged air cleaner element.	Clean the air cleaner element.
	Clogged fuel filter.	Replace the fuel filter.
	Carburetor mixture too lean.	Return the unit to the dealer.
	Idle speed set too low.	Adjust: 2750 rpm ( $\pm 250$ )
<div style="border: 1px solid black; padding: 5px; display: inline-block;">Engine stops abruptly.</div>	Switch turned off.	Reset the switch and re-start.
	Fuel tank empty.	Refuel.
	Clogged fuel strainer.	Replace strainer.
	Water in the fuel.	Drain; replace with clean fuel.
	Shorted spark plug or loose terminal.	Clean and replace spark plug, tighten the terminal.
	Ignition failure.	Replace the ignition unit.
	Piston seizure.	Return unit to the dealer.
<div style="border: 1px solid black; padding: 5px; display: inline-block;">Engine difficult to shut off.</div>	Ground (stop) wire is disconnected, or switch is defective.	Test and replace as required.
	Overheating due to incorrect spark plug.	Clean and regap to 0.024". Correct plug: Champion CJ8 – EPA NGK BMR6A – EMC
	Overheated engine.	Idle engine until cool.
<div style="border: 1px solid black; padding: 5px; display: inline-block;">Cutting attachment rotates at engine idle.</div>	Engine idle too high.	Set idle: 2750 rpm ( $\pm 250$ )
	Broken clutch spring or worn clutch spring boss.	Replace spring/shoes as required, check idle speed.
	Loose attachment holder.	Inspect and re-tighten holders securely.

# Troubleshooting Guide (continued)

## ADDITIONAL PROBLEMS

### Symptom

### Possible Cause

### Remedy

Excessive vibration

Warped or damaged attachment.

Inspect and replace attachment as required.

Loose gearcase.

Tighten gearcase securely.

Bent main shaft/worn or damaged bushings.

Inspect and replace as necessary.

Attachment will not rotate

Shaft not installed in powerhead or gearcase.

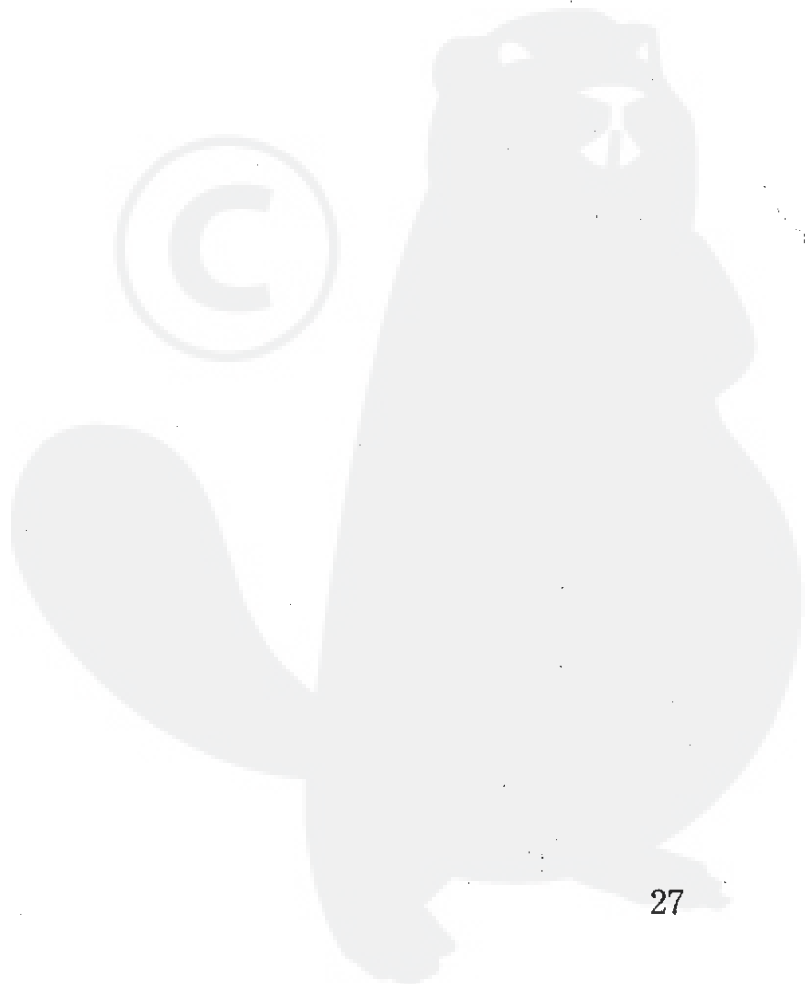
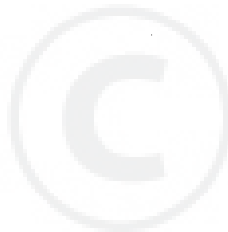
Inspect and reinstall as required.

Broken shaft.

Return unit to the dealer.

Damaged gearcase.

Return unit to the dealer.



# Emission System Warranty Statement: Users in the U.S.

## Your Warranty Rights and Obligations

The California Air Resources Board, the U.S. Environmental Protection Agency and Shin-Daiwa Kogyo Co., Ltd. are pleased to explain the **emission control system warranty** on your new lawn and garden equipment engine.

In the U.S., new utility lawn and garden equipment engines must be designed, built, and equipped to meet the federal government's stringent anti-smog standards. Shin-Daiwa Kogyo Co., Ltd. must warrant the **emission control system** on your lawn and garden equipment engine for the periods of time listed below, provided there has been no abuse, neglect, or improper maintenance of your lawn and garden equipment engine.

Your **emission control system** includes parts such as the carburetor and the ignition system. These parts are specifically listed below.

Where a warrantable condition exists, Shin-Daiwa Kogyo Co., Ltd. will repair your lawn and garden equipment engine at no cost to you including diagnosis, parts, and labor.

## Manufacturer's Warranty Coverage

When sold within the U.S., this engine's **emission control system** is warranted for a period of two (2) years from the date this product is first delivered to the original retail purchaser.

During the warranty period, Shin-Daiwa Kogyo Co., Ltd. will, at their option, repair or replace any defective emission-related component on this engine. During the original warranty period, these Warranty Rights are automatically transferable to subsequent owners of this product.

## What is Covered by this Warranty

1. Carburetor Internal Components
  - Throttle Valve, Needle, Jet, Metering Diaphragm
2. Ignition System Components
  - Ignition Coil
  - Flywheel Rotor

The emission control system for your particular Shindaiwa engine may also include certain related hoses and connectors.

## Owners Warranty Responsibilities

As the lawn and garden equipment engine owner, you are responsible for the performance of the required maintenance listed in this owners manual. Shin-Daiwa Kogyo Co., Ltd. recommends that you retain all receipts covering maintenance on your lawn and garden equipment engine, but Shin-Daiwa Kogyo Co., Ltd. cannot deny warranty solely for the lack of receipts or for your failure to ensure the performance of all scheduled maintenance.

As the lawn and garden equipment engine owner, you should be aware, however, that Shin-Daiwa Kogyo Co., Ltd. may deny you warranty coverage if your lawn and garden equipment engine or a part has failed due to abuse, neglect, improper maintenance, or unapproved modifications.

You are responsible for presenting your lawn and garden equipment engine to a Shin-Daiwa Kogyo Co., Ltd. service center as soon as a problem exists. The warranty repairs should be completed in a reasonable amount of time, not to exceed 30 days.

If you have any questions regarding your warranty rights and responsibilities, you should contact a Shin-Daiwa Kogyo Co., Ltd. customer service representative at (503) 692-3070.

### **Consequential Damages**

In the event that other component parts of this product are damaged by the failure of a warranted part, Shin-Daiwa Kogyo Co., Ltd. will repair or replace such component parts at no charge to you.

### **What is Not Covered**

- Failures caused by abuse, neglect, or improper maintenance procedures.
- Failures caused by the use of modified or non-approved parts or attachments.

### **Your Rights and Obligations**

As the owner of this Shindaiwa product, you are responsible for the timely performance of the periodic maintenance procedures described in your Shindaiwa Owner's Manual.

Shin-Daiwa Kogyo Co., Ltd. recommends that you retain all receipts as records of such service, but Shin-Daiwa Kogyo Co., Ltd. cannot refuse a warranty claim solely on the basis of missing receipts or your failure to ensure timely performance of required maintenance.

Shin-Daiwa Kogyo Co., Ltd. may nonetheless deny warranty coverage for an equipment failure resulting from abuse, neglect, improper maintenance, or non-approved modifications to this product.

### **How to Obtain Warranty Service**

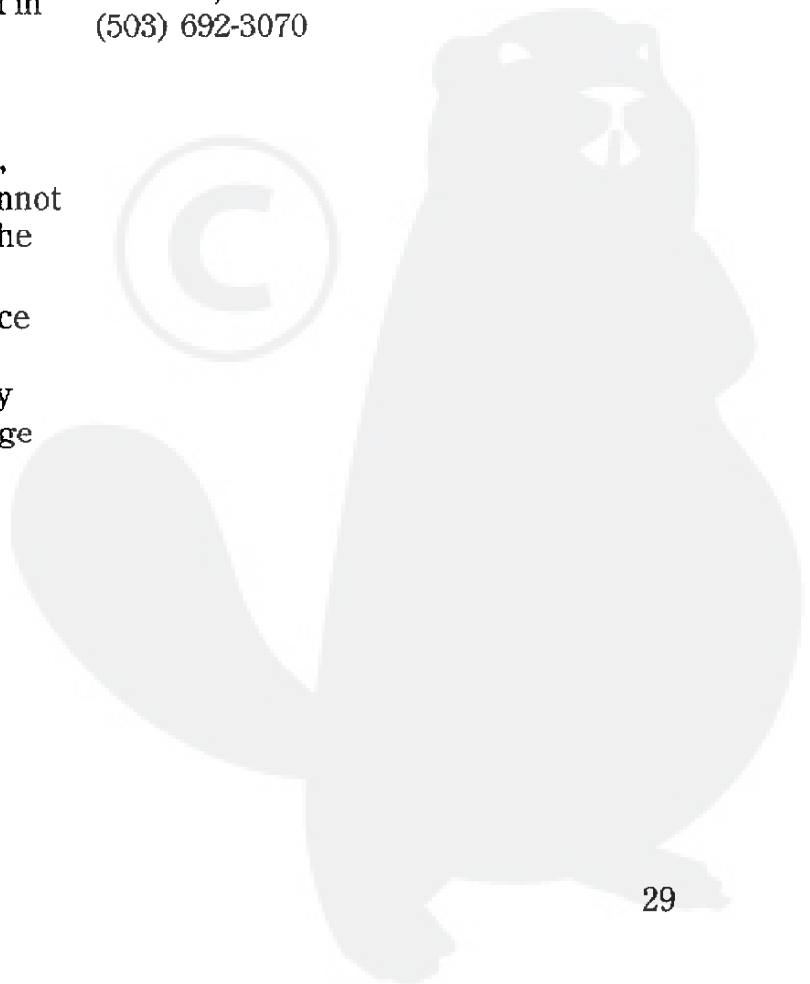
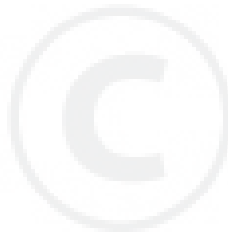
If you have a warrantable difficulty with this Shindaiwa product, it is your responsibility to present the product to an authorized Shindaiwa Dealer as soon as the problem is discovered. Your Shindaiwa Dealer will then complete any required repairs within a reasonable period of time, not to exceed 30 days.

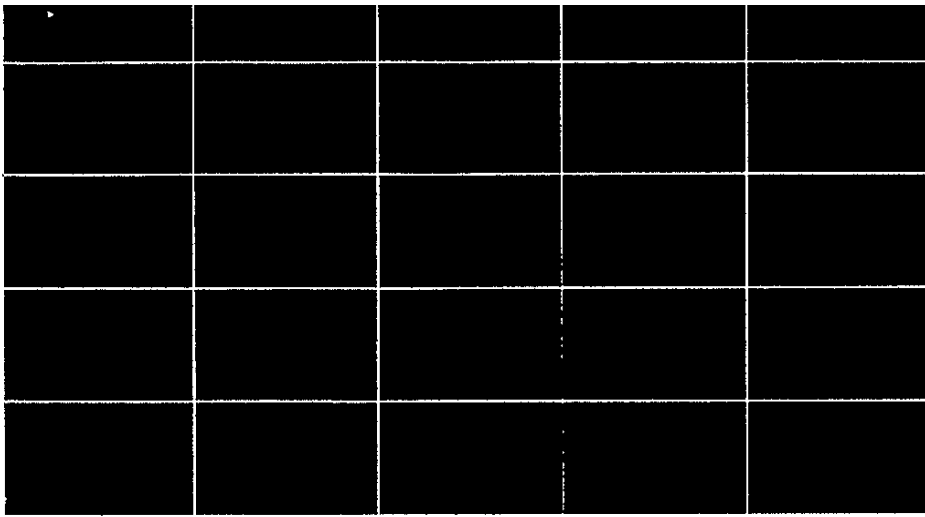
If your Shindaiwa Dealer is unable to answer questions regarding your warranty rights and responsibilities, you should then contact your Shindaiwa Distributor.

For the name and telephone number of the Shindaiwa distributor in your area, please call Shindaiwa Inc. at (503) 692-3070 between the hours of 8AM and 5PM Pacific Standard Time.

### **This Warranty is Administered by:**

Shindaiwa Inc.  
11975 S.W. Herman Rd.  
Tualatin, OR 97062  
(503) 692-3070





# shindaiwa

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