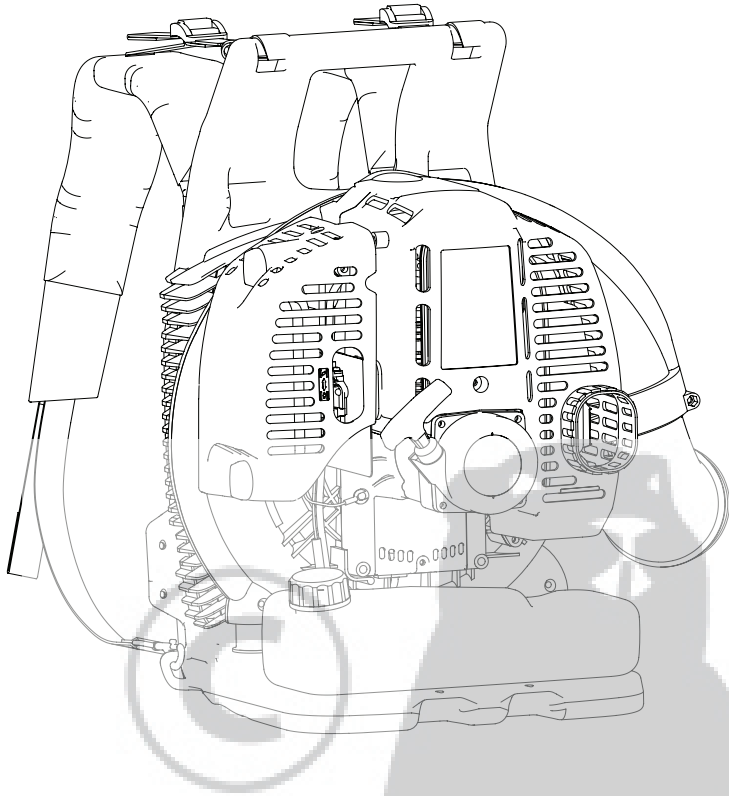


English ..... 1  
Français..... FR\_1  
Italiano.....IT\_1

## SHINDAIWA OWNER'S/OPERATOR'S MANUAL

# EB8520RT BLOWER



- Read this manual and familiarize yourself with its contents.
- Minimize the risk of injury to yourself and others.
- Always wear eye protection when operating this machine.
- Do not operate or service this machine unless you clearly understand this manual.
- Keep this manual available at all times so that you can reference it whenever you have a question about the use of this unit.

# shindaiwa

Part Number 68919-94310 Rev. 10/08

## Introduction

The Shindaiwa EB8520RT has been designed and built to deliver superior performance and reliability without compromise to quality, comfort, safety, or durability.

The information contained in this manual describes units available at the time of production. While every attempt has been made to give you the very latest information about your Shindaiwa EB8520RT blower. There may be some differences between your EB8520RT blower and what is described here.

### CAUTION!

This blower is equipped with a spark-arresting muffler! Never operate this unit without both the muffler and spark arrester installed and properly functioning!

Shindaiwa Inc. reserves the right to make changes in production without prior notice, and without obligation to make alterations to units previously manufactured.

### IMPORTANT!

Before using this unit, consult local regulations concerning noise restrictions and hours of operation!

## Contents

	PAGE		PAGE		PAGE
Attention Statements .....	2	Mixing Fuel .....	8	Maintenance .....	13
Safety .....	3	Filling the Fuel Tank .....	8	Storage .....	15
Unit Description .....	5	Starting and Stopping the Blower .....	9	Troubleshooting Guide .....	16
Specifications .....	5	Adjusting Engine Idle Speed.....	10	Declaration of Conformity.....	19
Assembling the Blower .....	6	Using the Blower .....	12		

### IMPORTANT!

The operational procedures described in this manual are intended to help you get the most from this unit and also to protect you and others from harm. These procedures are general guidelines only, and are not intended to replace any safety rules/laws that may be in force in your area. If you have any questions regarding your EB8520RT blower, or if you do not understand something in this manual, your Shindaiwa dealer will be glad to assist you. For additional information, you may also contact Shindaiwa Inc. at the address printed on the back of this manual.

## Attention Statements

Throughout this manual are special "Attention Statements".



### 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 damaging the unit.

### 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.

## Safety and operation labels



Read and follow this manual. Failure to do so could result in serious injury.



Wear eye and hearing protection at all times during the operation of this unit.



**WARNING!** Surface can be hot. Always wear gloves when handling this unit.



Sound Power Level (measured in accordance with 2000/14/EC)

# Safety

## Work Safely

Blowers operate at a very high speed and can do serious damage or injury if they are misused or abused. *Never allow a person without training or instruction to operate your blower!*

## Stay Alert

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



### WARNING!

Never make unauthorized modifications or attachment installations. Never use attachments not approved by Shindaiwa for use on this unit.



### WARNING!

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



### IMPORTANT!

This engine is equipped with a heat sensor in order to prevent the engine from overheating. If the sensor is activated, engine speed will be reduced to 5,000 min-1 (RPM). If the engine speed is automatically reduced, please cool the engine as described in the section "Using the Blower".



### WARNING! Minimize the Risk of Fire

**NEVER** smoke or light fires near the unit.  
**ALWAYS** stop the engine and allow it to cool before refueling. Avoid overfilling and wipe off any fuel that may have spilled.  
**ALWAYS** inspect the unit for fuel leaks before each use. During each refill, check that no fuel leaks from around the fuel cap and/or fuel tank.

If fuel leaks are evident, stop using the unit immediately. Fuel leaks must be repaired before using the unit.

**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.

**NEVER** run the engine without the spark arrester screen in place.



### WARNING! Use Good Judgment

**ALWAYS** wear eye protection that complies with your applicable national standard to shield against thrown objects.

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

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

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

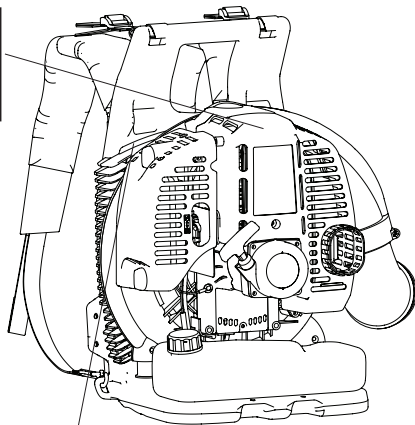
**ALWAYS** keep the handles clean.

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

**ALWAYS** turn off the engine before putting the unit down. When transporting the unit in a vehicle, properly secure it to prevent the unit from overturning, fuel spillage and damage to the unit.

**NEVER** insert any foreign objects into the air intake or outlet opening of the blower while in operation.

## Safety Labels



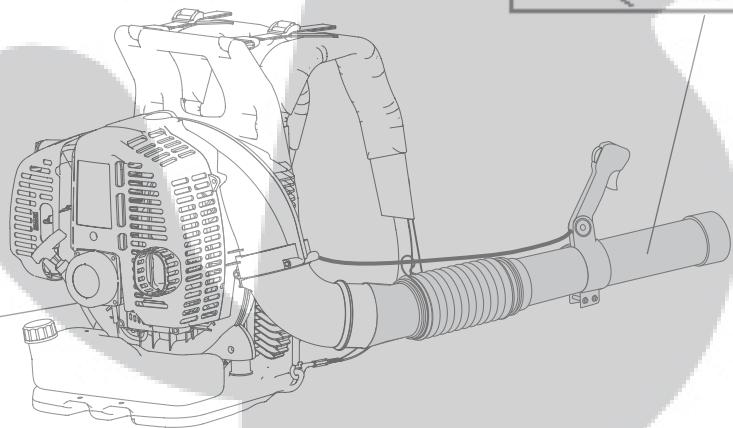
### IMPORTANT!

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



### WARNING!

**Metal surfaces of crankcase may be hot!** Always wear gloves when handling this unit.



## Safety (continued) The Properly Equipped Operator

Wear close-fitting clothing to protect legs and arms. Gloves offer added protection and are strongly recommended. Do not wear clothing or jewelry that could get caught in machinery or underbrush. Secure hair so it is above shoulder level. NEVER wear shorts!

Wear hearing protection when operating this unit.

Always wear eye protection such as a face shield or goggles while operating this unit. Never operate the blower when visibility is poor.

Wear a dust mask to reduce the risk of inhalation injuries.

Always be aware of the strength and direction of the blower discharge stream. Never direct the blower discharge stream toward people or animals!

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

Wear appropriate footwear (non-skid boots or shoes): do not wear open-toed shoes or sandals. Never operate the unit while barefoot!



Figure 1

## Be Aware of the Working Environment

Debris sometimes collects on the blower intake. Never clean out debris from the blower while the engine is running!

Make sure bystanders or observers outside the 15 m (50-foot) "danger zone" wear eye protection.

15 METERS

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

Reduce the risk of bystanders being struck by flying debris. Make sure no one is within 15 meters (50 feet)—that's about 16 paces—of an operating blower.

Never operate the blower if any component parts are damaged, loose, or missing!

Be extremely careful of slippery terrain, especially during rainy weather. Never operate this blower on a roof, ledge or ladder.

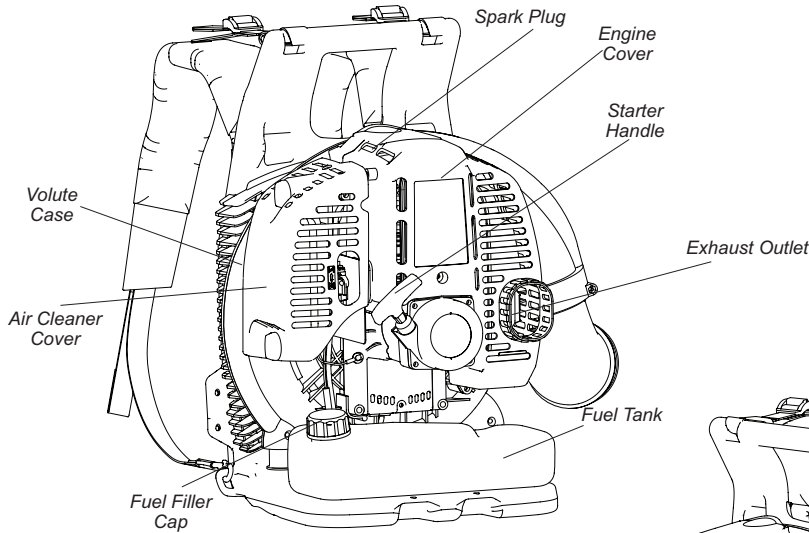
Be constantly alert for objects and debris that could be thrown from the air blast and bounced from a hard surface.

Do not direct the air blast towards bystanders. The high air flow could blow small objects at great speed causing possible eye injury.



Figure 2

## Unit Description



Using this illustration as a guide, familiarize yourself with the blower and its components. Understanding the unit helps ensure top performance, longer service life, and safer operation.

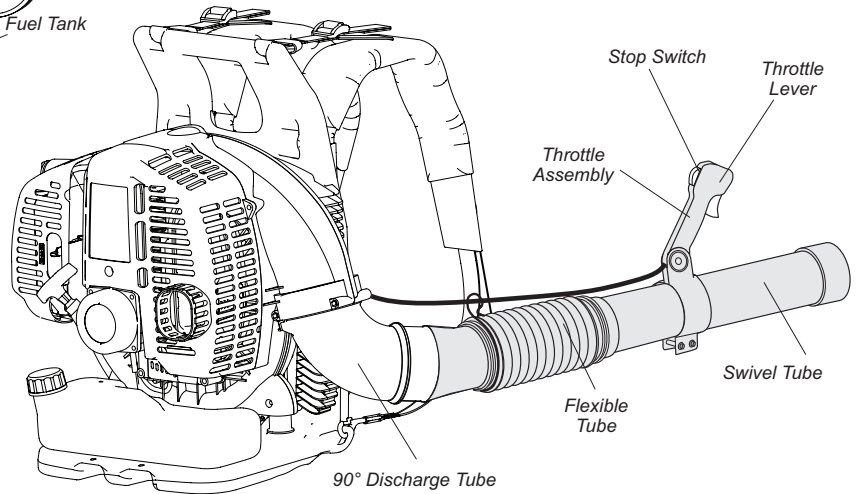


Figure 3

## Specifications

<b>Model</b>	<b>EB8520RT/EC2</b>
<b>Dry Weight (without Blower Tubes)</b>	11.5kg/25.35 lbs
<b>Dimensions (L xWxH)</b>	350 x 465 x 545 mm
<b>Engine Type</b>	4 cycle air-cooled gasoline engine, vertical-cylinder
<b>Bore &amp; Stroke</b>	51 x 39 mm (2.01 x 1.54 inches)
<b>Displacement</b>	79.7cc (4.86 cu. inches)
<b>Max Output/min<sup>-1</sup></b>	3.2 kW @ 7,900 min <sup>-1</sup>
<b>Fuel/Oil Ratio</b>	50:1 with Shindaiwa Premium 2-cycle mixing oil
<b>Carburetor</b>	Walbro rotary-type with primer bulb
<b>Ignition</b>	CDI (Capacitor Discharge Ignition)
<b>Spark Plug</b>	NGK CMR5H
<b>Starting</b>	Recoil Starter
<b>Stopping</b>	Slide Switch (Grounding type)
<b>Fuel Tank Capacity</b>	2.0 liters (67.6 oz)
<b>Exhaust</b>	Spark Arrester Muffler
<b>Air Filtration</b>	Dry Element with pre-filter
<b>Sound Pressure Level (in accordance with ISO 22868)</b>	
with long nozzle Idling	75 dB (A)
Racing	97 dB (A)
with short nozzle Idling	74 dB (A)
Racing	98 dB (A)
<b>Sound Power Level (in accordance with ISO 11094)</b>	
with long nozzle	109 dB (A)
with short nozzle	109 dB (A)
<b>Vibration Level (in accordance with ISO ISO22867)</b>	
with long nozzle Idling	1.3 m/s <sup>2</sup>
Racing	1.4 m/s <sup>2</sup>
with short nozzle Idling	1.2 m/s <sup>2</sup>
Racing	1.6 m/s <sup>2</sup>

Specifications are subject to change without notice.

## Assembly Prior to Assembly

Before assembling the blower, make sure you have all required components.

- Power unit and blower assembly.
- Flexible tube, swivel tube, two nozzles and straight tube.
- Throttle assembly.
- Two tube clamps (102 and 89mm).

- This Owner's/Operator's Manual and a tool kit containing a tool bag, 4 mm hex wrench, 5 mm hex wrench and a combination spark plug wrench/screwdriver.

- Lead wire assembly (anti-static).

Carefully inspect all components for damage.

### IMPORTANT!

The terms "left", "left-hand", "LH"; "right", "right-hand", and "RH"; "front" and "rear" refer to directions as viewed by the operator during normal operation.

## Assembling the Blower

### IMPORTANT!

This unit is equipped with a static discharge reduction wire. This wire helps direct static buildup into the air stream reducing the felt amount to the operator.

1. Place the blower upright on the ground or a sturdy work surface and note parts orientation as shown in Figure 4.
2. Remove static wire from package and fix eyelet to right hand engine cover screw. See Figure 5.
3. Turn the discharge tube out to a right angle and slip anti-static wire through the 102mm clamp and flexible tube.
4. Install throttle cable holder just forward of the 102 mm clamp, pinching loops together to fit over end of flexible tube. See Figures 6A and 6B.
5. Slip the flexible tube over the end of the 90° discharge tube, and secure with the 102 mm clamp.
6. Slide the throttle assembly over the swivel tube. Do not tighten clamp at this time.

### NOTE:

Check to make sure that the 90° discharge tube swivels freely. If any binding is present, loosen 102 mm clamp and pull wire towards engine to get more slack and recheck for free movement.

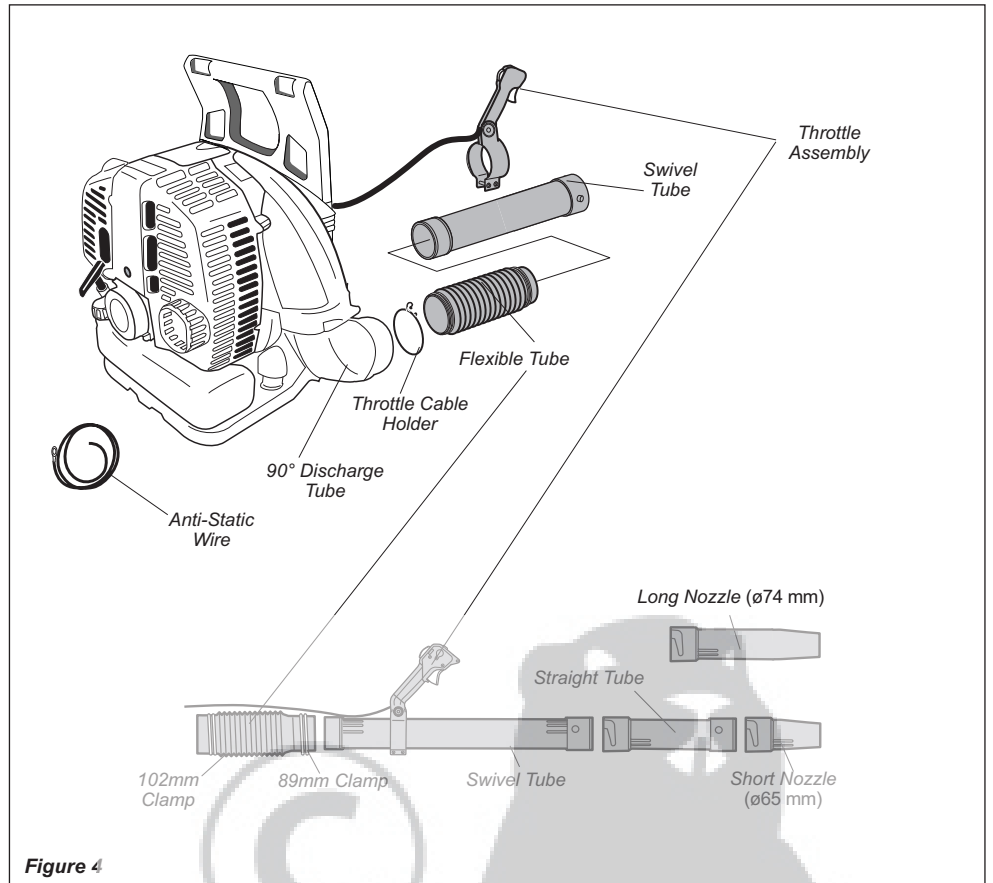
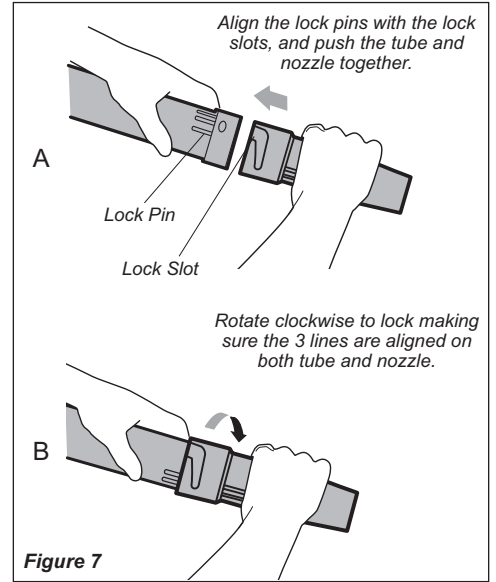
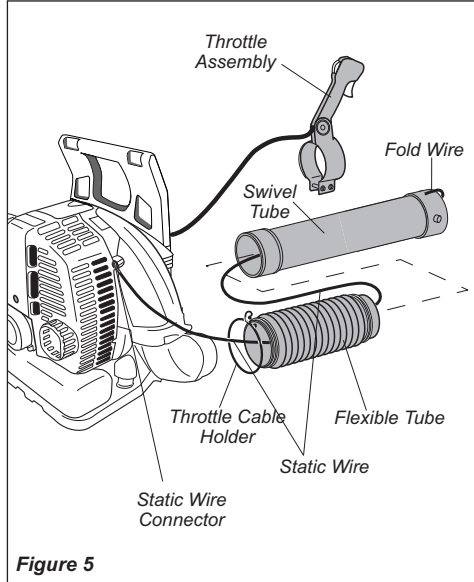


Figure 4

# Assembly

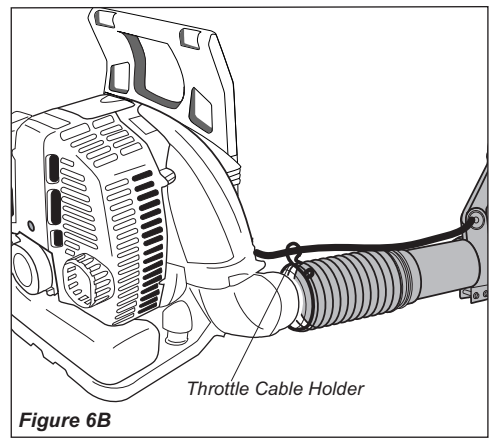
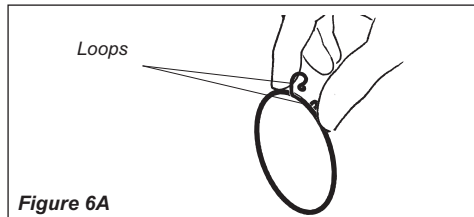
## Assembling the Blower (continued)

7. Insert the static wire through the swivel tube, then install and tighten the 89mm clamp over the rotating band on the swivel tube.
8. Fold the end of the static wire back over the connection of the swivel tube. See Figure 5.
9. Grasp the nozzle, and push the nozzle over the swivel tube locking pins securing the static wire. See Figure 7A.
10. Lock the nozzle to the swivel tube by rotating the nozzle noting the alignment marks. See Figure 7B.
11. Adjust throttle assembly for best operator comfort and tighten two socket-head screws.



### IMPORTANT!

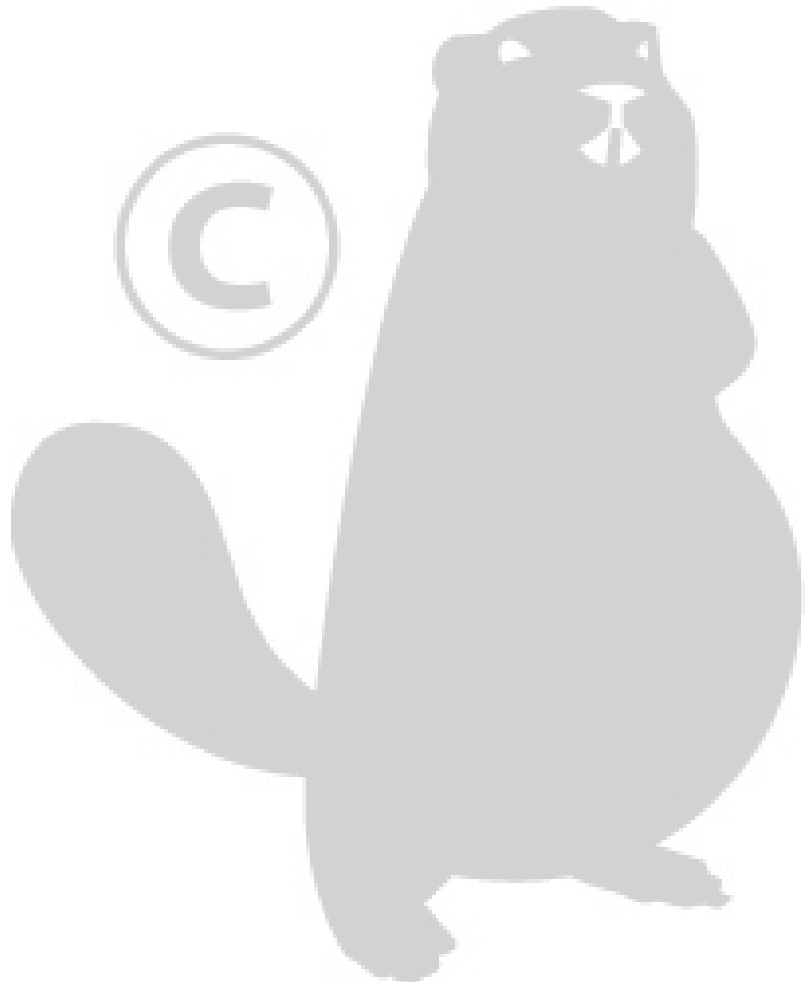
Blower tube installation affects blower performance! Make sure the tubes and nozzle are correctly assembled per above, and that all connections are tight. Blower tubes may come apart during use unless tubes are aligned and locked into place.



**WARNING!**  
**Danger from rotating impeller!**

Stop the engine before installing or removing the blower tubes! Never perform any maintenance or assembly procedures on this unit while the engine is running!

**The blower should now be ready for use.**



## Mixing fuel

### CAUTION!

- Never use any type of gasoline containing more than 10% alcohol by volume! Some types of gasoline contain alcohol as an oxygenate. Oxygenated gasoline may cause increased operating temperatures. Under certain conditions, alcohol-based gasoline may also reduce the lubricating qualities of some 2-cycle mixing oils.
- Generic oils and some outboard oils may not be intended for use in high-performance C4 engines, and should never be used in your Shindaiwa engine.

### CAUTION!

This engine is designed to operate on a 50:1 mixture consisting of unleaded gasoline and ISO-L-EGD or JASO FC class 2-cycle mixing oil only. Use of non-approved mixing oils can lead to excessive carbon deposits.

- Use only fresh, clean unleaded gasoline with a pump octane of 87 or higher.
- Mix all fuel with a 2-cycle air-cooled mixing oil that meets or exceeds ISO-L-EGD and/or JASO FC classified oils at 50:1 gasoline/oil ratio.

### Examples of 50:1 mixing quantities

Gasoline liters	2-cycle mixing oil milliliters
2.5 - 1	50 ml
5 - 1	100 ml
10 - 1	200 ml
20 - 1	400 ml

### IMPORTANT!

Mix only enough fuel for your immediate needs! If fuel must be stored longer than 30 days and <sup>A</sup> oil with fuel stabilizer is not used, it should first be treated with a fuel stabilizer such as STA-BIL™.



Oil is a registered JASO FC classified oil and also meets or exceeds ISO-L-EGD performance requirements. Shindaiwa One is recommended for use in all Shindaiwa low emissions engines. Shindaiwa One also includes a fuel stabilizer.

## Filling the fuel tank



### WARNING!

#### Minimize the Risk of Fire

- **NEVER** smoke or light fires near the engine.
- **ALWAYS** stop the engine and allow it to cool before refueling.
- **ALWAYS** Wipe all spilled fuel and move at least 3 meters from the fueling point and source before starting.
- **NEVER** place flammable material close to the engine muffler.
- **NEVER** operate the engine without the muffler and spark arrester screen in place.
- **FUEL IS HIGHLY FLAMMABLE.**
- **ALWAYS** store gasoline in a container approved for flammable liquids.
- **ALWAYS** inspect the unit for fuel leaks before each use. During each refill, check that no fuel leaks from around the fuel cap and/or fuel tank. If fuel leaks are evident, stop using the unit immediately. Fuel leaks must be repaired before using the unit.
- **ALWAYS** move the unit at least 3 meters away from a fuel storage area or other readily flammable materials before starting the engine.

1. Place the unit 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 tank with clean, fresh fuel.
4. Reinstall the fuel filler cap and tighten firmly.
5. Wipe away any spilled fuel before starting the unit.

Remove the Fuel Filler Cap

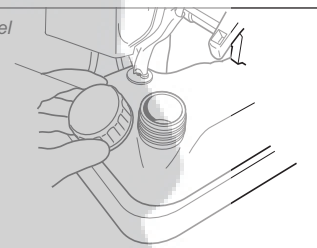


Figure 8



## Starting the Engine



### **WARNING!** Danger from rotating impeller!

The impeller will rotate whenever the blower is operated! Never operate this blower unless the intake cover and blower tubes are properly installed and in good working order!



### **WARNING!** Danger from thrown dust or debris!

Always wear eye protection when operating this machine! Never direct the blower stream toward people or animals!

Never operate this blower unless all controls are properly installed and in good working order.

### **CAUTION!**

The recoil starter can be damaged by abuse!

- Never pull the starter cord to its full length!
- Always engage the starter before cranking the engine!
- Always rewind the starter cord slowly!
- Never operate the blower if blower tubes are missing or damaged!

## Starting procedure

1. Place the blower on the ground.
2. Prime the fuel system by repeatedly depressing the fuel primer bulb until no air bubbles are visible in the fuel discharge line.
7. As the starter engages, pull the starter handle upward rapidly.
8. If necessary, repeat Steps 6 and 7 until the engine starts.

### **IMPORTANT!**

The primer system only pushes fuel through the carburetor. Repeatedly pressing the primer bulb will not flood the engine with fuel.

3. **Cold Engine Only.** Choke the engine by moving the choke lever up (choke is closed). See Figure 9.
4. Move the throttle lever to half throttle. Slide the ignition switch to the "I" (ON) position, then depress the throttle lever half way and lock throttle by moving throttle lock lever halfway down. See Figure 10.
5. Hold the blower firmly with your left hand on the volute case.
6. Using your right hand, pull the starter handle slowly until you feel the starter engage. See Figure 11.

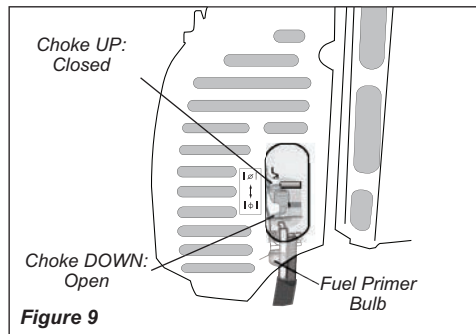


Figure 9

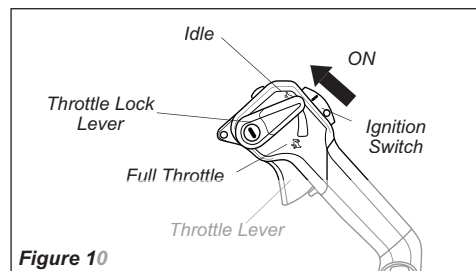


Figure 10

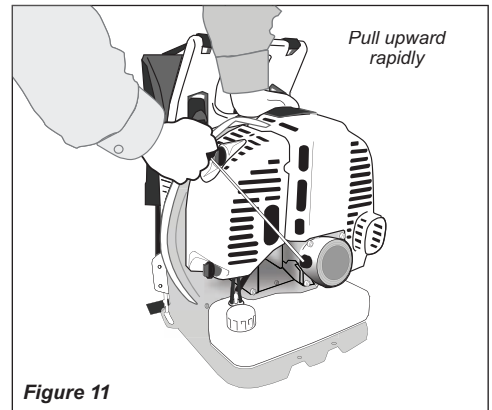


Figure 11



### **WARNING!**

Never operate the blower unless all controls are properly installed and in good working order. Never operate the blower if the engine cover is missing or damaged!

## When The Engine Starts

- Open the choke (if it is not already open) by moving the choke lever down.
- If the engine does not continue to run, repeat the appropriate starting procedures for a cold or warm engine.
- After the engine starts, allow the engine to warm up at idle 2 or 3 minutes before operating the unit.

## Starting the Engine (continued)

### If The Engine Does Not Start

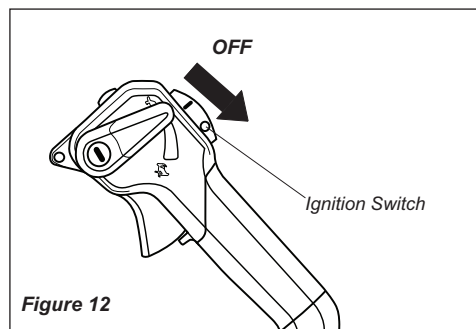
Repeat the appropriate starting procedures for warm or cold engine. If the engine still will not start, follow the "Starting a Flooded Engine" procedure.

### Starting A Flooded Engine

1. Disconnect the spark plug lead, and remove the spark plug (see page 14 for procedures).
2. If the spark plug is fouled or is soaked with fuel, clean or replace the plug as required.
3. With the spark plug removed, open the choke, put the throttle lever in the full throttle position, then clear excess fuel from the combustion chamber by cranking the engine several times.
4. Install and tighten the spark plug, and reconnect the spark plug lead.
5. Repeat the starting procedures for a warm engine.
6. If the engine still fails to start or fire, refer to the troubleshooting flow chart at the end of this manual.

## Stopping The Engine

1. Cool the engine by allowing it to run at idle for 2-3 minutes.
2. Push and hold the Stop button down until the engine stops. Slide the ignition switch towards the rear to "O" (OFF). See Figure 12.



## Adjusting Engine Idle Speed

### IMPORTANT!

A clean and unrestricted airflow is essential to your blower's engine performance and durability! Before attempting any carburetor adjustments, inspect and clean the engine air filter as described in the maintenance section of this manual.

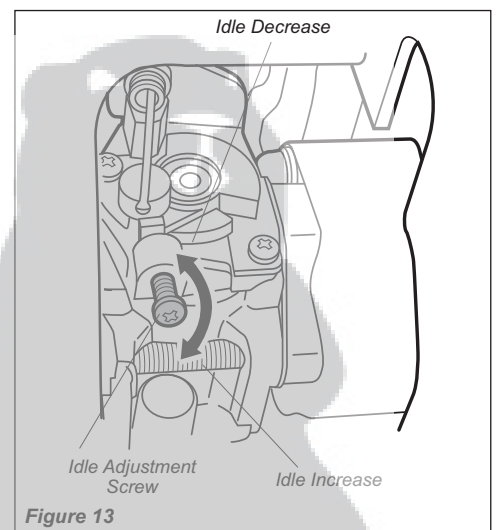
### IMPORTANT!

Blower tubes and the air cleaner must be in place while adjusting engine idle! Engine idle speed will also be affected if the blower tubes are blocked or incorrectly installed!

1. Place the unit on the ground and start the engine, then allow it to idle 2-3 minutes until warm.
2. If a tachometer is available, the engine idle speed should be final adjusted to 2,000 ( $\pm 200$ )  $\text{min}^{-1}$ . See Figure 13.

### NOTE:

Carburetor fuel mixture adjustments are preset at factory on units with emission control systems and cannot be serviced in the field.



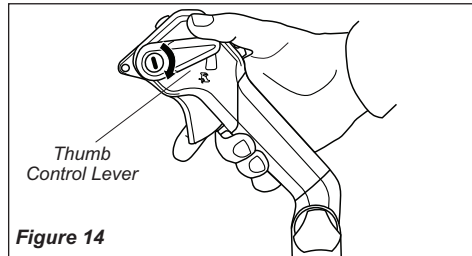
## Throttle Control

The blower is equipped with a multi-function throttle control. The “Cruise” function allows the operator to use a thumb controlled lever for constant speed use without using the throttle trigger. This is useful for limiting the fatigue caused from holding the throttle for extended periods of time.

### Cruise Function

Using the right thumb, push the throttle lock lever down until the desired  $\text{min}^{-1}$  setting is reached. See Figure 14.

On the opposite side, a two position “Limiter” control allows full engine speed when set for “Turbo” or limits the throttle to a pre-set engine speed when set to low noise (dB) setting.



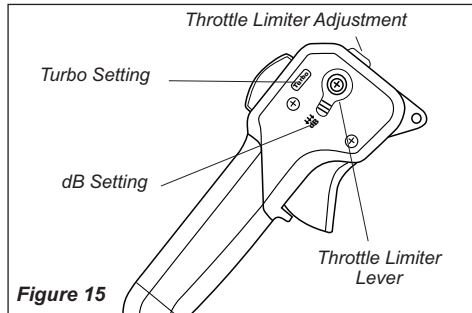
To bring  $\text{min}^{-1}$  down to idle, push lever back up into original position.

### Throttle Limiter

The blower has a throttle limiter function that allows the operator to pre-set the maximum engine speed. This is useful for reducing the noise emitted by the blower in noise sensitive areas.

#### Setting Throttle Limiter:

For reduced noise setting, move the throttle limiter located on the right side of the throttle control to the dB setting. See Figure 15.

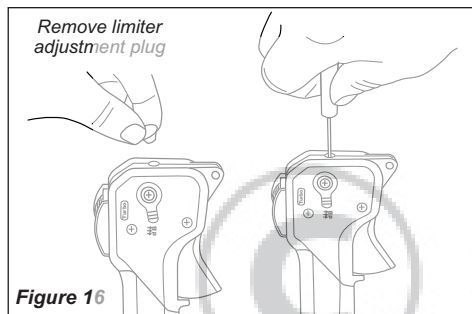


#### NOTE:

With the throttle limiter adjusted to 3,850  $\text{min}^{-1}$ , the blower will have a sound level of 65 dB(A) measured at 15m (50 feet).

#### Adjusting Throttle Limiter:

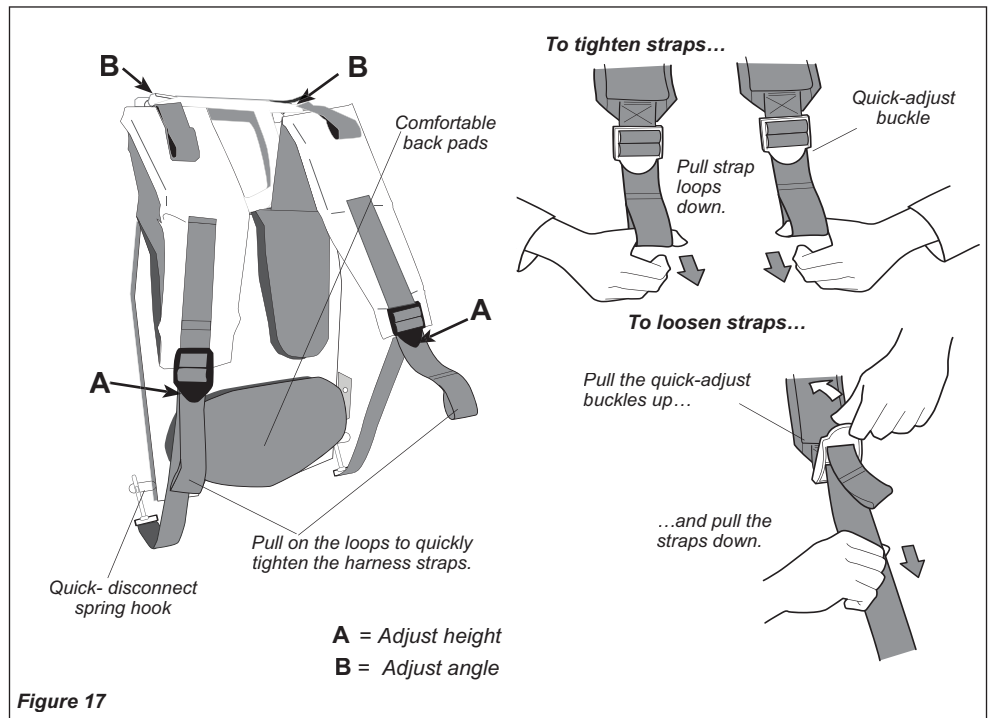
1. Remove the plug located at the top of the throttle assembly. See Figure 16
2. Move the throttle limiter lever to the “dB” setting. See Figure 16.
3. With the engine running and while depressing the throttle trigger, use a small Phillips screw driver to turn the adjustment screw clockwise to decrease  $\text{min}^{-1}$  and counter-clockwise to increase until desired limited  $\text{min}^{-1}$  is achieved.
4. Reinstall limiter adjustment plug.



## Adjusting The Harness

The Shindaiwa blower features an advanced harness system that helps ensure maximum operator comfort and ease of operation.

- The shoulder harness is filled with soft padding for reduced operator fatigue.
- The simplified adjustment system makes it easy to match the harness to every body size and type.



## Using The Blower

### Operating Tips

In the hands of an experienced operator, the blower can efficiently move a wide variety of debris ranging from grass clippings to gravel. As a general rule, operate your blower at the lowest throttle setting required to get the job done:

- Use low throttle settings when clearing lightweight materials from around lawns or shrubbery.
- Use medium to higher throttle settings to move grass or leaves from parking lots or walkways.

- Use full throttle when moving heavy loads such as dirt or snow.

### IMPORTANT!

Blower noise increases at higher throttle settings! Always use the lowest throttle setting required to get the job done!

### Heat sensor

This engine is equipped with a heat sensor in order to prevent overheating. If engine overheating occurs, the engine speed will be reduced to 5,000 min<sup>-1</sup> (RPM). If the engine speed will not rise above 5,000 min<sup>-1</sup> (RPM), please cool the engine as follows .

- Stop the engine.
- Remove any leaves and debris blocking intake cover.
- Keep the engine speed at idle for 1 minute.

### CAUTION!

If the engine speed is automatically reduced again after cooling the engine, please consult with an authorized servicing dealer.

## Maintenance

### IMPORTANT!

MAINTENANCE, REPLACEMENT OR REPAIR OF EMISSION CONTROL DEVICES AND SYSTEMS MAY BE PERFORMED BY ANY REPAIR ESTABLISHMENT OR INDIVIDUAL, HOWEVER, WARRANTY REPAIRS MUST BE PERFORMED BY A DEALER OR SERVICE CENTER AUTHORIZED BY SHINDAIWA INC. THE 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 A WARRANTY CLAIM.



### WARNING!

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

## Daily Maintenance



### WARNING!

To reduce fire hazard, keep the engine and muffler free of dirt, debris, and leaves.

**Prior to each workday, perform the following:**

- Remove all dirt and debris from blower exterior and the engine. Check the cooling fins and air cleaner for clogging and clean as necessary.

## Every 10 Hours

(more frequently in dusty conditions)

1. Remove the air cleaner cover by loosening the thumbscrews and lifting.
2. Remove and inspect the pre-filter. If the pre-filter is torn or otherwise damaged, replace it with a new one.

### IMPORTANT!

The blower uses a special high capacity dry-type air filter element. The filter should not be cleaned with a liquid cleaner and must NEVER be oiled!

3. Clean the pre-filter with soap and water. Let dry before reinstalling.
4. Inspect the air cleaner element. If the element is damaged or distorted, replace it with a new one.
5. Tap filter gently on a hard surface to dislodge debris from element or use compressed air from the inside to blow debris out and away from the air filter element.



### WARNING!

Before performing any maintenance, repair or cleaning work on the unit, make sure the engine is completely stopped. Disconnect the spark plug wire before performing service or maintenance work.

### NOTE:

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

### Muffler

This unit must never be operated with a faulty or missing spark arrester 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.

## Fasteners

Make sure nuts, bolts, and screws (except carburetor adjusting screws) are tight.

## Air Filter

The C4 engine that powers your Shindaiwa model is a hybrid 4-stroke engine. As a hybrid, the engine is lubricated by oil mixed with the gasoline and air from the carburetor that moves through and around the internal parts of the engine in a similar way that a 2-stroke engine is lubricated. Without the heavy duty 2-stage air filter equipped on all C4 engines, dust and dirt could also move through the engine, decreasing engine life, increasing valve wear and the need for more frequent valve adjustments. To keep your C4 engine strong and reliable, Shindaiwa recommends that you check and service the air filter as instructed in the 10-Hour Maintenance section that follows.

### CAUTION!

The engine is cooled by air drawn into the air intake cover on the blower housing. The blower fan then pushes the cooling air through an opening in the fan housing, forcing it past the cylinder cooling fins. Failure to keep the cooling system and its passages clear of debris will likely result in engine overheating, a major cause of serious engine problems that can lead to failure.

- Inspect the engine, tank, and hoses for possible fuel leaks, and repair as necessary.
- Inspect the entire blower for loose, damaged, or missing components, and repair 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.

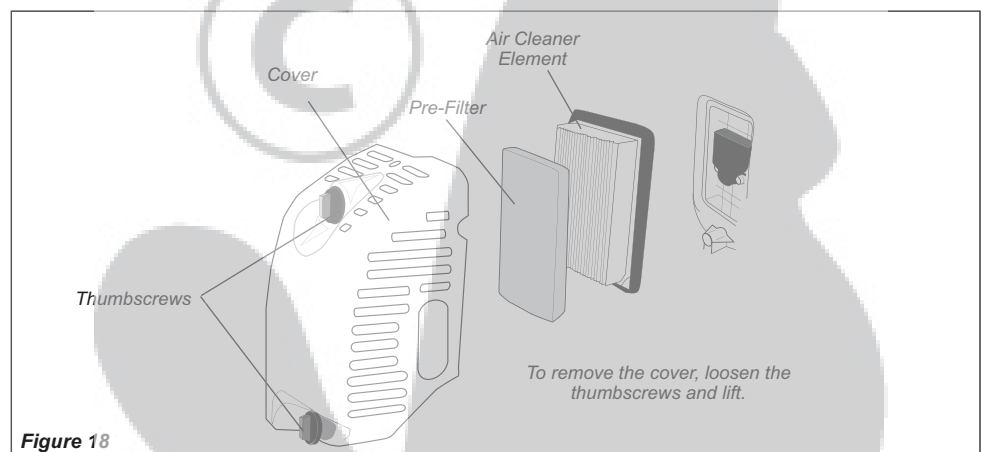


Figure 18

### IMPORTANT!

Direct the air stream at the inside face of the filter only!

6. Install the filter element, pre-filter and cover in the reverse order of removal.

### CAUTION!

Never operate the blower if the air cleaner assembly is damaged or missing!

## Maintenance

### Every 10/15 Hours

#### CAUTION!

Never allow dirt or debris to enter the cylinder bore! Before removing the spark plug, thoroughly clean the spark plug and cylinder head area!

Allow the engine to cool before servicing the spark plug! Cylinder threads can be damaged by tightening or loosening the spark plug while the engine is hot!

1. Use the spark plug wrench to remove the spark plug.
2. Clean and adjust the spark plug gap to 0.6mm (0.024"). If the plug must be replaced, use a NGK CMR5H or equivalent type plug of the correct heat range.
3. Install the spark plug finger-tight in the cylinder head, then tighten it firmly with the spark plug wrench. If a torque wrench is available, torque the spark plug to 16.7-18.6 Nm (148-165 inch-pounds).

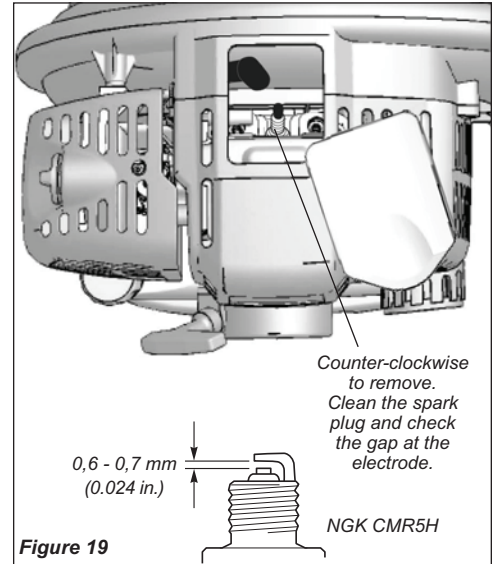


Figure 19

### Every 50 Hours

(more frequently if reduced performance is noted)

- **INSPECTION** Inspect the entire blower and tubes for damage, including loose or missing components, and repair as necessary.
- **SPARK PLUG** Replace the spark plug with a NGK CMR5H (or equivalent), gapped to 0.6 mm (0.024").
- **FUEL FILTER** Use a hooked wire to extract the fuel filter from inside the fuel tank.

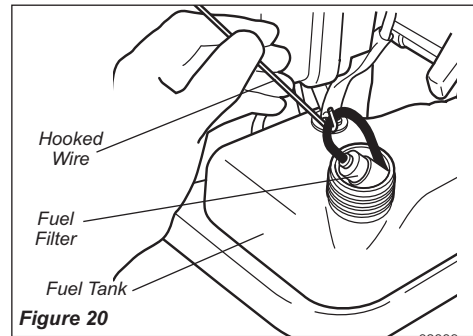


Figure 20

#### 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.

- Inspect the filter element for signs of contamination from debris. A contaminated fuel filter should be replaced with a new Shindaiwa replacement element. Before reinstalling the filter, inspect the condition of the fuel line. If you note damage or deterioration, the blower should be removed from service until it can be inspected by a Shindaiwa-trained service technician.
- **COOLING SYSTEM** Use a wood or plastic scraper and a soft brush to remove dirt and debris from the cylinder fins and crankcase.

### 139/150-Hour Maintenance

Maintenance after first 139-hours, then every 150-hours thereafter.

- Combustion chamber should be decarbonized, and the valve clearance should be adjusted. It is highly recommended that this is done by a Shindaiwa-trained service technician.

- Replace the spark plug annually: Use only NGK CMR5H or equivalent resistor type spark plug of the correct heat range. Set spark plug electrode gap to 0.6 mm (0.024 inch).

#### NOTE:

The NGK CMR5H also meets the requirements for electro magnetic compliance (EMC).

## Maintenance

### Spark Arrester



#### WARNING!

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

Hard starting or a gradual loss of performance can be caused by carbon deposits lodged in the spark arrester screen. For maximum performance, the spark arrester screen should be periodically cleaned as follows:

1. Remove engine cover to expose muffler. Remove the spark arrester from the muffler. The arrester is press-fit in place; there are three screws to remove.
2. Use a plastic scraper or wire brush to remove carbon deposits from the arrester screen and wipe clean exhaust base.

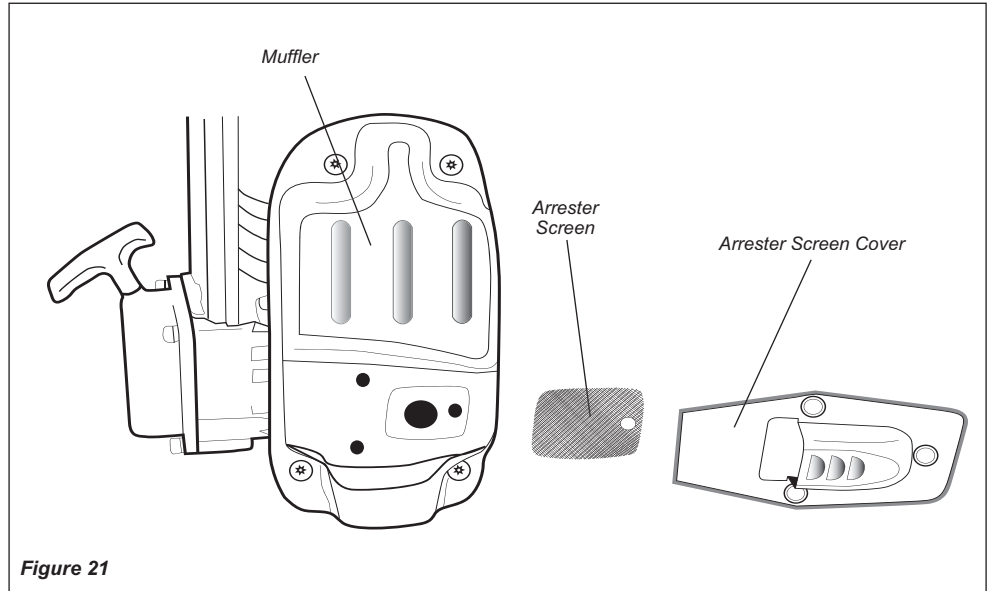


Figure 21

3. Inspect the screen carefully, and replace any screen that has been perforated, distorted, or is otherwise unserviceable.
4. Press the spark arrester into the exhaust base.

If carbon accumulation in the muffler or cylinder is severe, or if you do not notice an improvement in performance after servicing, have the unit inspected by an authorized servicing Shindaiwa dealer.

## Long Term Storage

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

- Clean external parts thoroughly.
- Drain all the fuel from the fuel tank.

#### IMPORTANT!

All stored fuels should be stabilized with a fuel stabilizer such as STA-BIL™ if Shindaiwa One oil with fuel stabilizer is not used.

- Remove the remaining fuel from the fuel lines and carburetor:

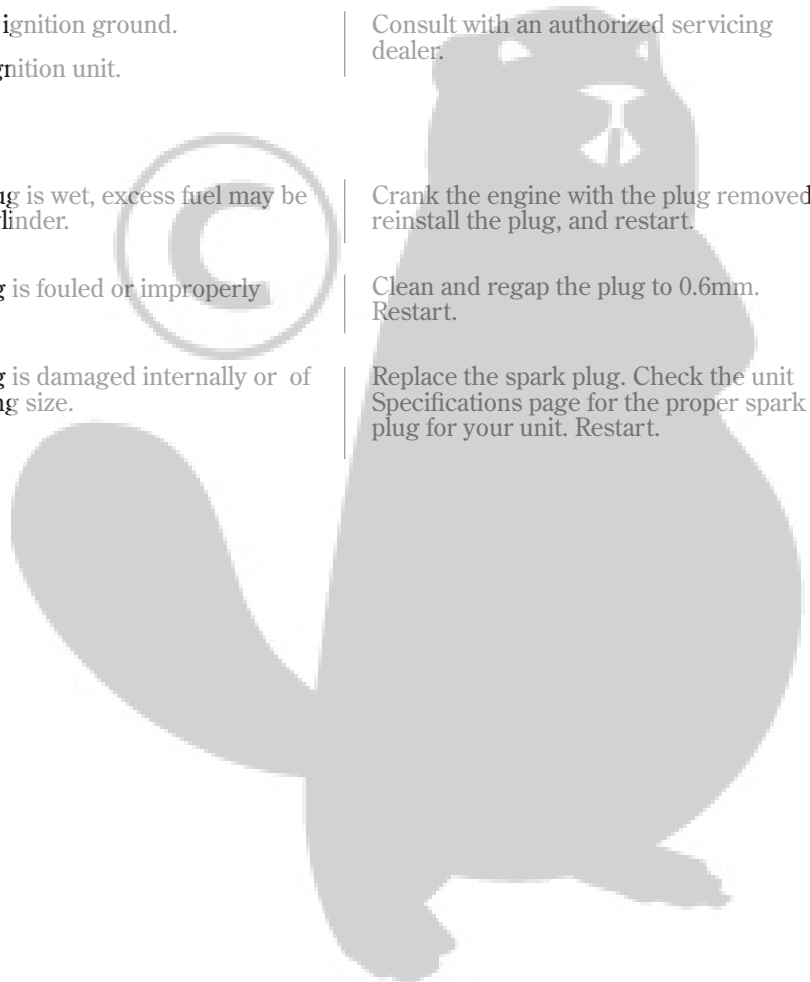
1. Prime the primer bulb until no more fuel is passing through.
2. Start and run the engine until it stops running.
3. Repeat steps 1 and 2 until the engine will no longer start.

#### CAUTION!

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

- Remove the spark plug and pour about 10 cm<sup>3</sup> of 2-cycle mixing 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 unit, repair or replace any worn or damaged parts.
- Remove the air cleaner element from the unit and clean it as outlined in the section, "10-Hour Maintenance".
- Store the unit in a clean, dust-free area.

What To Check	Possible Cause	Remedy
<p>Does the engine crank?</p> <p><b>NO</b> →</p> <p><b>YES</b> ↓</p>	<p>Faulty recoil starter.</p> <p>Fluid in the crankcase.</p> <p>Internal damage.</p>	<p>Consult with an authorized servicing dealer.</p>
<p>Good compression?</p> <p><b>NO</b> →</p> <p><b>YES</b> ↓</p>	<p>Loose spark plug.</p> <p>Excess wear on cylinder, piston, rings.</p>	<p>Tighten and re-test.</p> <p>Consult with an authorized servicing dealer.</p>
<p>Does the tank contain fresh fuel of the proper grade?</p> <p><b>NO</b> →</p> <p><b>YES</b> ↓</p>	<p>Fuel incorrect, stale, or contaminated; mixture incorrect.</p>	<p>Refill with fresh, clean unleaded gasoline with a pump octane of 87 or higher mixed with 50:1 Shindaiwa Premium 2-cycle mixing oil or with an equivalent high quality 2-cycle mixing oil.</p>
<p>Is fuel visible and moving in the return line when priming?</p> <p><b>NO</b> →</p> <p><b>YES</b> ↓</p>	<p>Check for clogged fuel filter and/or vent.</p> <p>Priming pump not functioning properly.</p>	<p>Replace fuel filter or vent as required. Restart.</p> <p>Consult with an authorized servicing dealer.</p>
<p>Is there spark at the spark plug wire terminal?</p> <p><b>NO</b> →</p> <p><b>YES</b> ↓</p>	<p>The ignition switch is in "O" (OFF) position.</p> <p>Shorted ignition ground.</p> <p>Faulty ignition unit.</p>	<p>Move switch to "I" (ON) position and restart.</p> <p>Consult with an authorized servicing dealer.</p>
<p>Check the spark plug.</p>	<p>If the plug is wet, excess fuel may be in the cylinder.</p> <p>The plug is fouled or improperly gapped.</p> <p>The plug is damaged internally or of the wrong size.</p>	<p>Crank the engine with the plug removed, reinstall the plug, and restart.</p> <p>Clean and regap the plug to 0.6mm. Restart.</p> <p>Replace the spark plug. Check the unit Specifications page for the proper spark plug for your unit. Restart.</p>





# Troubleshooting Guide

## LOW POWER OUTPUT

What To Check	Possible Cause	Remedy
<p>Is the engine overheating?</p>	<p>Operator is overworking the unit.</p> <p>Carburetor mixture is too lean.</p> <p>Improper fuel ratio.</p> <p>Fallen leaves or debris on intake cover..</p> <p>Fan, fan cover, cylinder fins dirty or damaged</p> <p>Carbon deposits on the piston or in the muffler.</p>	<p>Operate at slower rate.</p> <p>Consult with an authorized servicing dealer.</p> <p>Refill with clean fresh unleaded gasoline with a pump octane of 87 or higher, mixed with Premium 2-cycle mixing oil at a 50:1 gasoline/oil ratio.</p> <p>Clean intake cover..</p> <p>Clean, repair or replace as necessary.</p> <p>Consult with an authorized servicing dealer</p>
<p>Engine is rough at all speeds. May also have black smoke and/or unburned fuel at the exhaust.</p>	<p>Clogged air cleaner element.</p> <p>Loose or damaged spark plug.</p> <p>Air leakage or clogged fuel line.</p> <p>Water in the fuel.</p> <p>Piston seizure.</p> <p>Faulty carburetor and/or diaphragm</p>	<p>Clean or replace the air filter</p> <p>Tighten or replace the spark plug. Restart. Check the Product Specifications page in this manual for the correct spark plug for this unit.</p> <p>Repair or replace fuel filter and/or fuel line.</p> <p>Refill with fresh fuel/oil mixture.</p> <p>Consult with an authorized servicing dealer.</p>
<p>Engine is knocking.</p>	<p>Overheating condition.</p> <p>Improper fuel.</p> <p>Carbon deposits in the combustion chamber.</p>	<p>Consult with an authorized servicing dealer.</p> <p>Check fuel octane rating; check for presence of alcohol in the fuel. Refuel as necessary.</p> <p>Consult with an authorized servicing dealer.</p>
<p>Engine speed is reduced.</p>	<p>Heat sensor is activated, due to restricted air flow at intake cover.</p>	<p>Stop the engine. Clean debris blocking intake cover. Restart. Idle more than 1 minute. If engine speed is reduced again, consult with an authorized servicing dealer.</p>

# Troubleshooting Guide

## ADDITIONAL PROBLEMS

What To Check	Possible Cause	Remedy
Poor acceleration.	Clogged air filter. Clogged fuel filter. Lean fuel/air mixture. Idle speed set too low.	Clean or replace the air filter. Replace the fuel filter. Consult with an authorized servicing dealer. Adjust: 2,000 ( $\pm 200$ ) min <sup>-1</sup> .
Engine stops abruptly.	Ignition switch turned off. Fuel tank empty. Clogged fuel filter. Water in the fuel. Shorted spark plug or loose terminal. Ignition failure. Piston seizure.	Reset the switch and re-start. Refuel. See Fuel section of manual. Replace fuel filter. Drain; replace with clean fuel. See Fuel section of manual. Clean or replace spark plug. Check the Specifications page in this manual for the proper spark plug for your unit. Tighten the terminal. Replace the ignition unit. Consult with an authorized servicing dealer.
Engine difficult to shut off.	Ground (stop) wire is disconnected or switch is defective Overheating due to incorrect spark plug Overheated engine.	Test and replace as required. Replace the spark plug. Check the Specifications page in this manual for the proper spark plug for your unit. Idle engine until cool.
Excessive vibration.	Debris build up in impeller. Loose or damaged impeller. Loose or damaged engine mounts.	Clean debris from impeller as required. Inspect and replace impeller as required. Tighten or replace engine mounts as required.
Engine overspeeding.	Blower intake or discharge ports or tubes are clogged with debris.. Impeller blades are missing or damaged.	Inspect and remove debris. Consult with a authorized servicing dealer.
Engine speed is reduced.	Heat sensor is activated, due to restricted air flow at intake cover.	Stop the engine. Clean debris blocking intake cover. Restart. Idle more than 1 minute. If engine speed is reduced again, consult with an authorized servicing dealer.

# DECLARATION OF CONFORMITY

We hereby declare the Shindaiwa Engine Blower, Model EB8520EC (EB8520RT/EC2), meets the following respective requirements.

Council Directives:	Standard taken:
2004/108/EC as amended	ISO 12100 - 1&2
98/37/EC as amended	CISPR 12
2000/14/EC as amended	
2004/26/EC as amended	

Measured sound power level: 109 dB(A)  
Guaranteed sound power level: 110 dB(A)

Serial Number: All

Authorized representative in the European Community:

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K. Maeda DIV. Manager  
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10 October 2008



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