WARNING!
Minimize the risk of injury to yourself and others! Read this manual and familiarize yourself with the contents. Always wear eye and hearing protection when operating this unit.
Introduction
The Shindaiwa 3410 Series hand held power equipment has been designed and built to deliver superior performance and reliability without compromise to quality, comfort, safety or durability.
Shindaiwa engines represent the leading edge of high-performance 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 this owner's/operator's manual describes units available at the time of publication.

Echo Inc. reserves the right to make changes to products without prior notice, and without obligation to make alterations to units previously manufactured.

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

Attention Statements
Throughout this manual are special "attention statements".

WARNING!
A statement preceded by the triangular attention symbol and the word "WARNING" contains information that should be acted upon to prevent serious bodily injury.

CAUTION!
A statement preceded by the word "CAUTION" contains information that should be acted upon to prevent mechanical damage.

IMPORTANT!
A statement preceded by the word "IMPORTANT" is one that possesses special significance.

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

Safety Instructions

Work Safely
Shindaiwa trimmers operate at very high speeds and can do serious damage or injury if they are misused or abused. Never allow a person without training or instruction to operate this unit!

WARNING!
Never make unauthorized attachment installations. Do not use attachments not approved by Shindaiwa for use on this unit.

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

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.

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**Warning! Use Good Judgment**

**Always** wear eye protection to shield against thrown objects.

**Never** run the engine when transporting the unit.

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

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

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

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

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

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

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

**Always** keep the handles clean.

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

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

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**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!
- **Always** wear eye protection such as goggles or safety glasses.
- **Always** operate with both hands firmly gripping the unit.
- **Always** make sure the appropriate cutting attachment shield is correctly installed and in good condition.
- Keep away from the rotating trimmer line or blade at all times, and never lift a moving attachment above waist-high.
- Always wear hearing protection devices and a broad-brimmed hat or helmet.
- Keep a proper footing and do not over-reach—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!
- **Always** wear a shoulder strap or a harness when operating a unit equipped with a blade.

---

*Figure 1*
Be Aware of the Working Environment

Avoid long-term operation in very hot or very cold weather. Make sure bystanders or observers outside the 50-foot "danger zone" wear eye protection.

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

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

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

Always make sure the appropriate cutting attachment shield is correctly installed.

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

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

Safety Labels

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.
Product Description

Using the accompanying illustrations as a guide, familiarize yourself with this unit and its various components. See Figure 4. Understanding your unit helps ensure top performance, long service life, and safer operation.

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

Specifications C3410

C3410 dry weight (less attachments) ........................................ 14.1 lb./6.4 kg
Engine model .................................................................SF3410E
Engine type ................................................................. with Power Boost Chamber
Bore x stroke .............................................................. 1.5 x 1.2 in./38 x 30 mm
Displacement ............................................................... 21 cu. in./34 cc
Maximum power .......................................................... 1.4 HP/1.0 kW
Fuel/oil ratio ................................................................. 50:1 with ISO-L-EGD or JASO FC class 2-cycle mixing oil*
Carburetor type ........................................................... Walbro WYL, diaphragm-type
Fuel tank capacity ........................................................ 23.7 oz./700 ml
Ignition .......................................................................... One-piece electronic, program-controlled
Spark plug ...................................................................... NGK CMR5H
Air cleaner type ........................................................... Non-reversible heavy-duty filter element
Starting method ............................................................. Recoil
Stopping method ........................................................... Slide switch
Transmission type ........................................................ Automatic, centrifugal clutch w/bevel gear
EPA Emission Compliance Period** ................................ Category A

* Meets or exceeds these specifications and is recommended for all Shindaiwa products.

** The EPA emission compliance referred to on the emission compliance label located on the engine, indicates the number of operating hours for which the engine has been shown to meet Federal emission requirements. Category C = 50 hours (Moderate), B = 125 hours (Intermediate) and A = 300 hours (Extended).

Specifications are subject to change without notice.

This unit comes fully assembled with the exception of the handlebar cutting attachment shield and cutting attachment.

Prior to Assembly

Before assembling, make sure you have all the components required for a complete unit and inspect unit and components for any damage.

- Engine/Outer tube assembly
- Handlebar and Throttle assembly
- Cutting attachment
- Kit containing cutting attachment shield mounting bracket and hardware, this owner’s/operator’s manual and tool kit for routine maintenance. Tool kits vary by model and may include a hex wrench set, a spark plug/screwdriver combination wrench, and a spanner.

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.
Assembly
Cutting Attachment Shield

Install the Cutting Attachment Shield C3410.

1. Insert the cutting attachment shield between the outer tube and the cutting attachment mounting plate. See Figure 9.

**NOTE:**

It may be necessary to loosen the retaining nut and clamp screw to adjust cutting attachment shield mounting plate.

2. Fit the two shims and the bracket over the outer tube and loosely install the four socket-head screws. See Figure 9.

3. Tighten the four socket-head cap screws to secure the cutting attachment shield.

**CAUTION!**

Make sure the clamp screw and retaining nut are securely tightened before tightening the four socket-head cap screws.

---

**WARNING!**

NEVER operate the unit without the cutting attachment shield installed and tightly secured!

Sub-Shield C3410.
(when trimmer head is in use)

1. Attach the shield extension to the cutting attachment shield. See figure 9B.

**WARNING!**

NEVER use this machine without sub-shield when using a trimmer head.

**CAUTION!**

Make sure the sub-guard is completely hooked at the hook receiver.
Assembly (continued)
Handle Bar C3410

Install the handlebar:
1. Use the 4 mm hex wrench to remove the lower cap retaining screws from the handlebar bracket. Remove the cap from the bracket, and note the position of the two 2” long spacers to be installed between the bracket halves. See Figure 5.
2. Position the handle on the outer tube forward of Handle Positioning Label as shown in Figure 5. Reassemble the lower cap to the handlebar bracket in the reverse order of disassembly.
3. Locate the handle in the best position for operator comfort.
4. Firmly tighten both lower cap retaining screws.
5. Secure the cable to the outer pipe with the two bands provided in the tool kit. See Figure 5.

Adjustments
Adjust Throttle Lever Free Play
The throttle lever free play should be approximately 3/16-1/4 inch (4-6 mm). See Figure 6. Make sure that the throttle lever operates smoothly without binding. If it becomes necessary to adjust the lever free play, follow the procedures and illustrations that follow.

1. Remove the air cleaner cover by loosening the two thumbscrews. See Figure 7.
2. Loosen the lock nut on the cable adjuster. See Figure 8.
3. Turn the cable adjuster in or out as required to obtain proper free play 3/16-1/4 inch (4-6 mm). See Figure 8.
4. Tighten the locknut.
5. Reinstall the air cleaner cover.
Installing a Trimmer Head

NOTE:
The C3410 is shipped with Holder A, the blade retainer (safety clip), Holder B, shaft bolt, and bolt guard installed. The shaft bolt is a LEFT-HAND thread. Remove it by turning CLOCKWISE!

1. With the gear case output shaft facing up, rotate the gearshaft and holder A until the hole in holder A aligns with the matching hole in the gear case flange, and then lock the holder to the gear by inserting the long end of the hex wrench through both holes. See Figure 10.

2. Using the combination spark plug/screwdriver wrench, remove the shaft bolt and bolt guard. See Figure 10.

NOTE:
Make sure holder B is installed on the gear-case with the splined hole engaging the gear-case shaft.

3. Using the hex wrench to secure Holder A, install and hand-tighten the trimmer head (counter-clockwise to install). See Figure 11.

5. Remove the hex wrench from the gear case and holder.

The C3410 should now be completely assembled to operate as a trimmer.
Installing a Blade

Turn the C3410 upside down so the gear case output shaft is facing UP and remove the shaft bolt, bolt guard and holder B from the gear case shaft.

1. Align the hole in blade holder A with the matching hole in the gear case flange and then temporarily lock the output shaft by inserting a hex wrench through both holes. See Figure 12.

2. Slide the safety clip off-center. See Figure 13.

3. Fit the blade over the safety clip and then center it over the flange on holder A. See Figure 14.

**CAUTION!**

Install the blade so its printed surface is visible to the operator when the brushcutter is in the normal operating position.

**NOTE:**

When installing certain blades, it may be necessary to temporarily remove the safety clip.

4. Lock the blade in place by centering the safety clip on the output shaft. See Figure 14.

**WARNING!**

The blade must fit flat against the holder flange. The blade mounting hole must be centered over the raised boss on blade holder A.

5. Install blade holder B on the output shaft. See Figure 15. The recess in the holder must completely cover the safety clip, and must fit tightly against the blade.

**WARNING!**

Never operate the C3410 without the safety clip in place!

**IMPORTANT!**

The machined recess in holder B must completely surround the safety clip, and both holders must be flat against the surface of the blade.

6. Install the bolt guard and then the blade retaining bolt. Using the combination spark plug wrench/screwdriver, tighten the bolt firmly in a counter-clockwise direction.

7. Remove the hex wrench.

The C3410 should now be completely assembled and ready for use with a blade.
Mixing Fuel

**CAUTION!**
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. Never use any type of gasoline containing more than 10% alcohol by volume! 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.

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

**Examples of 50:1 mixing quantities**
- 1 gallon of gasoline to 2.6 oz. mixing oil
- 5 liters of gasoline to 100 ml. mixing oil

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

Filling the Fuel Tank

**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.

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

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

Starting the Engine

**IMPORTANT!**
Engine ignition is controlled by a two position switch mounted on the throttle housing labeled, “I” for ON or START and “O” for OFF or STOP.

1. Slide the ignition switch to the “ON” position. See Figure 16.
2. Set the throttle lever to the “fast idle”;
   a. Squeeze the throttle lever toward the handgrip.
   b. Depress and hold the throttle lock button.
   c. While depressing the throttle lock button, release the throttle lever. See Figure 16.
3. Press the primer bulb until fuel can be seen flowing in the transparent return tube.
4. Set the choke lever to the CLOSED position if engine is cold.
5. While holding the outer tube firmly with left hand. Use your other hand to slowly pull the recoil starter handle until resistance is felt, then pull quickly to start the engine.

**CAUTION!**
Do not pull the recoil starter to the end of the rope travel. Pulling the recoil starter to the end of the rope travel can damage the starter.
Starting the Engine (continued)

**WARNING!**
The cutting attachment may rotate when the engine is started!

**WARNING!**
Never start the engine from the operating position.

6. When the engine starts, slowly move the choke lever to the "OPEN" position. See Figure 20. (If the engine stops after the initial start, close the choke and restart.)

7. Operating the throttle will automatically disengage the fast idle setting.

**IMPORTANT!**
If the engine fails to start after several attempts with the choke in the closed position, the engine may be flooded with fuel. If flooding is suspected, move the choke lever to the open position and repeatedly pull the recoil starter to remove excess fuel and start the engine. If the engine still fails to start, refer to the troubleshooting section of this manual.

When the Engine Starts.
- After the engine starts, allow the engine to warm up at idle 2 or 3 minutes before operating the unit.
- After the engine is warm, pick up the unit and clip on the shoulder strap. See page 12.
- Advancing the throttle makes the cutting attachment turn faster; releasing the throttle permits the attachment to stop turning. If the cutting attachment continues to rotate when the engine returns to idle, carburetor idle speed should be adjusted (see "Adjusting Engine Idle" below).

Stopping the Engine

_idle the engine briefly before stopping (about 2 minutes), then slide the ignition switch to the "O" (Engine OFF) position.

Adjusting Engine Idle

1. Place the trimmer on the ground, then start the engine, and then allow it to idle 2-3 minutes until warm.
2. If the attachment rotates when the engine is at idle, reduce the idle speed by turning the idle adjustment screw counter-clockwise. See Figure 22.
3. If a tachometer is available, the engine idle speed should be final adjusted to 3,000 (±300) RPM (min⁻¹).
4. Carburetor fuel mixture adjustments are preset at factory and cannot be serviced in the field.

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

**Idle Speed Adjustment**

**WARNING!**
The cutting attachment must NEVER rotate at engine idle! If the idle speed cannot be adjusted by the procedure described here, return the trimmer to your Shindaiwa dealer for inspection.
**Checking Unit Condition**

NEVER operate the unit with the cutting attachment shield or other protective devices removed!

⚠️ **WARNING!**

A cutting attachment shield or other protective device is no guarantee of protection against ricochet. YOU MUST ALWAYS GUARD AGAINST FLYING DEBRIS!

Use only authorized Shindaiwa parts and accessories with your Shindaiwa trimmer.

Do not make modifications to this unit without written approval from Shindaiwa, Inc.

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

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

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

**ALWAYS** stop the engine immediately and check for damage if you strike a foreign object or if the unit becomes tangled. Do not operate with broken or damaged equipment.

**NEVER** allow the engine to run at high RPM without a load. Doing so could damage the engine.

**NEVER** operate a unit with worn or damaged fasteners or attachment holders.

---

**Shoulder Strap C3410**

**IMPORTANT!**

Adjust the shoulder strap so the shoulder pad rests comfortably on the off-side shoulder and the cutting path of the cutting attachment is parallel to the ground. Make sure all hooks and adjustment devices are secure.

⚠️ **WARNING!**

Always wear a shoulder strap or harness when operating this unit. Using a harness with a brushcutter allows you to maintain proper control of the unit and reduces fatigue during extended operation.

---

**Cutting Grass—Units equipped with a trimmer head**

Your Shindaiwa unit may be equipped with one of several Shindaiwa trimmer head models, each with features for specific applications and/or operational requirements.

**NOTE:**

For proper operation, always refer to the instructions accompanying the trimmer head being used. Available trimmer head styles include:

- **Semi-automatic.** Trimmer line is indexed when the operator taps the trimmer head on the ground during operation.
- **Manual.** The operator indexes line manually with the grass trimmer stopped.
- **Fixed.** The operator must stop the unit and add new lengths of trimmer line manually.
- **Flail.** This device, designed for clearing weeds and light brush, features three nylon blades attached to the head by pivots.

**NOTE:**

Additional hardware may be required to mount the Fixed Line or the Flail type trimmer heads.

**CAUTION!**

Do not push the rotating line into trees, wire fences or any material that could tangle or break line ends.

**Engine Operating Speeds**

Operate the unit at full throttle while cutting grass.

**CAUTION!**

Operation of trimmer without a cutting attachment shield and using excessive line length can lead to premature clutch failure.

**CAUTION!**

Operation at low RPM can lead to premature clutch failure.

Hold the trimmer so the trimmer head is angled slightly into the area to be cut. To ensure maximum trimmer-line service life, cut only with the tip of the trimmer line. Cut grass by swinging the trimmer from left to right. Keep the trimmer head horizontal. See Figure 24.

**Trimming and Mowing Grass**

Hold the trimmer so the trimmer head is angled slightly into the area to be cut. To ensure maximum trimmer-line service life, cut only with the tip of the trimmer line. Cut grass by swinging the trimmer from left to right. Keep the trimmer head horizontal. See Figure 24.

**Edging**

Tilt the handle about 100° to the left (from horizontal) and move forward, holding the trimmer vertically as shown in Figure 25.
**Using a Blade C3410**

**WARNING!**
- Before working with a blade-equipped unit, always inspect and clean the area of objects that could interfere with or damage the blade.
- Never use a blade near sidewalks, fence posts, buildings or other objects that could cause injury or damage.
- Never use a blade for purposes other than those for which it was designed.
- Whenever you strike a hard object with a blade, always stop the brushcutter and carefully inspect the blade for damage. NEVER OPERATE THE BRUSHCUTTER WITH A DAMAGED BLADE!
- A blade-equipped unit must be equipped with a bicycle-type handlebar or barrier bar as well as a harness or shoulder strap.
- Always make sure the cutting attachment shield is properly installed before operating this unit.

**Blade Thrust**
‘Blade thrust’ is a sudden sideways or backward motion of the brushcutter. Such motion may occur when the blade jams or catches on an object such as a sapling tree or tree stump. BE CONSTANTLY ALERT FOR BLADE THRUST AND GUARD AGAINST ITS EFFECTS!

**Brushcutter Handlebar**
A brushcutter handlebar or barrier bar helps prevent the operator from moving forward, or the unit moving rearward, thus preventing inadvertent bodily contact with the blade. ALWAYS KEEP THE HANDLE-BAR OR BARRIER BAR SECURELY IN PLACE ON THE UNIT!

**Brushcutter Shoulder Strap**
A shoulder strap provides additional protection against blade thrust. In addition, a shoulder strap gives significant support and comfort to help ensure safe and efficient operation. When operating a C3410 with a blade, make sure both the handle and shoulder strap are adjusted to the size of the operator using the unit.

**Operating Units with a Blade**

The blade rotates counter-clockwise. For best performance and to minimize being stuck by debris, move the blade from right to left while advancing on your work.

Position the blade so cuts are made between the blade’s 8 o’clock and 10 o’clock positions (as viewed from above). DO NOT cut between the 10 o’clock and 5 o’clock positions.

**WARNING!**
When cutting wood with a saw, feed the blade slowly—never strike or “slam” a spinning blade against the wood.

**WARNING!**
DO NOT use 2-tooth or non-Shindaiwa approved 4-tooth cutting blades with Shindaiwa trimmers and brushcutters.

**Engine Operating Speeds**
Operate the unit at full throttle while cutting. Best fuel efficiency is obtained by releasing the throttle when swinging back after a cut.

- To prevent possible engine damage, do not allow the brushcutter to run at high speeds without a load.
- Avoid operating the engine at low speeds. Doing so can lead to rapid clutch wear. In addition, slow-speed operation tends to cause grass and debris to wrap around the cutting head.

**Vertical Cuts**
Hold the brushcutter with the blade at a 90° angle to the ground so the blade’s bottom edge rotates toward the operator. Move the blade from top to bottom through the cut, and cut only with the bottom edge of the blade.

**WARNING!**
When making vertical cuts, never allow the blade to exceed waist height.
General 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 CORPORATION 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!**
Before performing any maintenance, repair or cleaning work on the unit, make sure the engine and cutting attachment are completely stopped. Disconnect the spark plug wire before performing service or maintenance work.

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

**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.

**Blades**
Keep blades sharp and check blade condition frequently. If a blade’s performance changes suddenly, stop the engine and check the blade for cracks or other damage. Replace a damaged blade IMMEDIATELY!

**WARNING!**
- Never repair a damaged blade by welding, straightening, or by modifying its shape. An altered blade may break during operation, resulting in serious personal injury.
- Blades are not interchangeable between Shindaiwa edgers and trimmer/brushcutter models. Operating any unit with a blade or attachment not approved for that unit can be hazardous and may cause serious injury.

**Daily Maintenance**

**Prior to each work day, perform the following:**
- Remove dirt or debris from the engine, check the cooling fins and air cleaner for clogging and clean them as necessary.
- Carefully remove any accumulation of dirt or debris from the muffler or the fuel tank. Dirt build-up in these areas could cause engine overheating, induce premature wear, or create a fire hazard.
- Check for loose or missing screws or components. Make sure the cutting attachment is securely fastened.
- Check the entire unit for leaking fuel or grease.

**10-Hour Maintenance**
**(more frequently in dusty conditions)**
1. Remove the air cleaner cover by loosening the two thumbscrews. See Figure 28A.
2. Remove and inspect the pre-filter. If the pre-filter is torn or otherwise damaged, replace it with a new one. See Figure 28B.
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.
6. Install the filter element, pre-filter and cover in the reverse order of removal.

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

**CAUTION!**
Never operate the unit if the air cleaner assembly is damaged or missing!
10/15-Hour Maintenance

Every 10 to 15 hours of operation:
Remove and clean the spark plug. Adjust the spark plug electrode gap to 0.024 - 0.028 inch (0.6 - 0.7 mm). If the spark plug must be replaced, use only an NGK CMR5H or equivalent resistor type spark plug of the correct heat range. See Figure 29.

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

CAUTION!
Before removing the spark plug, clean the area around the plug to prevent dirt and debris from getting into the engine’s internal parts.

50-hour Maintenance

Every 50 hours of operation (more frequently in dusty or dirty conditions):

- Remove and clean the cylinder cover and clean grass and dirt from the cylinder fins.
- Remove the cutting attachment, cutting attachment holder and gear shaft collar. Remove the filler plug from the side of the gear case and press new grease into the gear case until old grease is pushed out. Use only lithium-base grease such as Shindaiwa Gear Case Lubricant or equivalent. See Figure 30.
- Lubricate main shaft splines.
- Use a hooked wire to extract the fuel filter from inside the fuel tank. See Figure 31.

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.

Remove and replace the filter element. Before reinstalling the new filter element, inspect the condition of all the fuel system components (fuel pick-up line, fuel return line, tank vent line, tank vent, fuel cap and fuel tank). If damage, splitting or deterioration is noted, the unit should be removed from service until it can be inspected or repaired by a Shindaiwa-trained service technician.
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.

Valve Adjustment

1. Remove cylinder cover, rocker arm cover, and set piston at TDC-compression.

**CAUTION!**

- Performing a valve adjustment incorrectly may cause hard starting and/or can damage the engine.
- If you are unfamiliar with this engine or uncomfortable with this procedure, consult with an authorized Shindaiwa servicing dealer.

2. Loosen adjuster locknut so that the 2.5 mm Allen socket head adjustment screw can turn freely.

3. Insert .004” (0.10 mm) feeler gauge for both intake and exhaust between valve stem tip and rocker arm.

4. Turn adjustment screw (clockwise = tighter, counter-clockwise = looser) until feeler gauge is almost snug. Back off just enough to allow gauge to slip out with limited resistance.

5. While holding adjustment screw in place with Allen driver, tighten locknut with wrench.

6. Turn engine over several times, and return to TDC-compression. Recheck with proper feeler gauge to make sure clearance adjustment did not change as a result of tightening locknut. Readjust as necessary.

7. Replace rocker arm cover gasket to assure proper sealing and install cover.

**IMPORTANT!**

If new gasket is not available and/or old gasket is not damaged, old gasket may be reused. Never use cracked or damaged gaskets!

NOTE:

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

Spark Arrester Screen Maintenance

If the engine becomes sluggish and low on power, check and clean the spark arrester screen.

**WARNING!**

Never operate the unit with a damaged or missing muffler or spark arrester! Operating with a missing or damaged spark arrester is a fire hazard and could also damage your hearing.

1. With a 3 mm hex wrench remove the 3 engine cover screws and the engine cover. See Figure 32.

2. With a 4 mm hex wrench remove the 3 muffler bolts and the muffler. See Figure 32.

3. With a small flat bladed screwdriver remove the 2 screws holding the spark arrester screen and cover to the muffler. See Figure 32.

4. Remove the screen and clean it with a stiff bristle brush.

5. Inspect the cylinder exhaust port for any carbon buildup.

**IMPORTANT!**

If you note excessive carbon buildup, consult with an authorized Shindaiwa servicing dealer.

6. Reassemble the spark arrester, muffler and engine cover in the reverse order of disassembly.

**NOTE:**

The NGK CMR5H also meets the requirements for electro magnetic compliance (EMC).
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 oil with fuel stabilizer is not used.

**CAUTION!**
Gasoline stored in the carburetor for extended periods can cause hard starting and could also lead to increased service and maintenance cost.

- Remove the spark plug and pour about 1/4 ounce 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 carburetor and clean it thoroughly with soap and water. Let dry and reassemble the element.
- Store the unit in a clean, dust-free area.

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.

Blade Sharpening
When the cutting edges of the blade become dull, they can be resharpened with a few strokes of a file.

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

**Shindaiwa Tornado™ Blade**
To sharpen the cutters on a Shindaiwa Tornado Blade, use a 7/32-inch round file. File the leading edge of each tooth to a razor edge. The top plate of each tooth should angle back 30°.

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

**Multiple-tooth Circular Blade**
Use a round file to maintain a radius of 0.04 to 0.06" (1 to 1.5 mm) at the base of each tooth. Cutting edges must be offset equally on each side.
**Troubleshooting Guide**

## ENGINE DOES NOT START

<table>
<thead>
<tr>
<th>What To Check</th>
<th>Possible Cause</th>
<th>Remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does the engine crank?</td>
<td>NO</td>
<td>Faulty recoil starter. Fluid in the crankcase. Internal damage.</td>
</tr>
<tr>
<td>Good compression?</td>
<td>NO</td>
<td>Fuel incorrect, stale or contaminated; mixture incorrect.</td>
</tr>
<tr>
<td>YES</td>
<td></td>
<td>Check for clogged fuel filter and/or vent. Priming pump not functioning properly.</td>
</tr>
<tr>
<td>Does the tank contain fresh fuel of the proper grade?</td>
<td>NO</td>
<td></td>
</tr>
<tr>
<td>YES</td>
<td></td>
<td>The ignition switch is in “O” (OFF) position. Shorted ignition ground. Faulty ignition unit.</td>
</tr>
<tr>
<td>Is fuel visible and moving in the return line when priming?</td>
<td>NO</td>
<td></td>
</tr>
<tr>
<td>YES</td>
<td></td>
<td>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.</td>
</tr>
<tr>
<td>Is there spark at the spark plug wire terminal?</td>
<td>NO</td>
<td></td>
</tr>
<tr>
<td>YES</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Check the spark plug.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## LOW POWER OUTPUT

<table>
<thead>
<tr>
<th>What To Check</th>
<th>Possible Cause</th>
<th>Remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engine is rough at all speeds. May also have black smoke and/or unburned fuel at the exhaust.</td>
<td>Clogged air cleaner element. Loose or damaged spark plug. Air leakage or clogged fuel line. Water in the fuel. Piston seizure. Faulty carburetor and/or diaphragm. Valve clearance set incorrectly.</td>
<td>Service the air cleaner element. Tighten or replace. Repair or replace filter and/or fuel line. Replace the fuel. See page 10. Consult with an authorized servicing dealer. Adjust valves. See page 16.</td>
</tr>
</tbody>
</table>
## Troubleshooting Guide (continued)

### ADDITIONAL PROBLEMS

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Possible Cause</th>
<th>Remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poor acceleration.</td>
<td>Clogged air filter.</td>
<td>Clean the air filter.</td>
</tr>
<tr>
<td></td>
<td>Clogged fuel filter.</td>
<td>Replace the fuel filter.</td>
</tr>
<tr>
<td></td>
<td>Lean fuel/air mixture.</td>
<td>Consult with an authorized servicing dealer.</td>
</tr>
<tr>
<td></td>
<td>Idle speed set too low.</td>
<td>Adjust: 3,000 (±300) RPM (min⁻¹)</td>
</tr>
<tr>
<td>Engine stops abruptly.</td>
<td>Switch turned off.</td>
<td>Reset the switch and and restart.</td>
</tr>
<tr>
<td></td>
<td>Fuel tank empty.</td>
<td>Refuel. See page 10.</td>
</tr>
<tr>
<td></td>
<td>Clogged fuel filter.</td>
<td>Replace fuel filter.</td>
</tr>
<tr>
<td></td>
<td>Water in fuel.</td>
<td>Drain; replace with clean fuel. See page 10.</td>
</tr>
<tr>
<td></td>
<td>Shorted spark plug or loose terminal.</td>
<td>Clean and replace spark plug, tighten the terminal.</td>
</tr>
<tr>
<td></td>
<td>Ignition failure.</td>
<td>Replace the ignition unit.</td>
</tr>
<tr>
<td></td>
<td>Piston seizure.</td>
<td>Consult with an authorized servicing dealer.</td>
</tr>
<tr>
<td>Engine difficult to shut off.</td>
<td>Ground (stop) wire is disconnected or switch is defective.</td>
<td>Test and replace as required.</td>
</tr>
<tr>
<td></td>
<td>Overheating due to incorrect spark plug.</td>
<td>Idle engine until cool.</td>
</tr>
<tr>
<td></td>
<td>Overheated engine.</td>
<td>Clean and regap the plug to 0.024 - 0.028 inch (0.6 - 0.7 mm). Correct plug: NGK CMR5H or equivalent resistor type spark plug of the correct range.</td>
</tr>
<tr>
<td>Top of engine is getting dirty and oily.</td>
<td>Valve cover is leaking.</td>
<td>Replace valve cover gasket.</td>
</tr>
<tr>
<td>Cutting attachment rotates at idle.</td>
<td>Engine idle too high.</td>
<td>Set Idle: 3,000 (± 300) RPM (min⁻¹)</td>
</tr>
<tr>
<td></td>
<td>Broken clutch spring or worn clutch spring boss.</td>
<td>Replace spring/shoes as required, check idle speed.</td>
</tr>
<tr>
<td></td>
<td>Loose attachment holder.</td>
<td>Inspect and re-tighten holders securely.</td>
</tr>
<tr>
<td>Engine will not idle down.</td>
<td>Engine idle set too high.</td>
<td>Set Idle: 3,000 (± 300) RPM (min⁻¹)</td>
</tr>
<tr>
<td></td>
<td>Engine has an air leak.</td>
<td>Consult with an authorized servicing dealer.</td>
</tr>
</tbody>
</table>

### ADDITIONAL PROBLEMS

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Possible Cause</th>
<th>Remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excessive vibration.</td>
<td>Warped or damaged cutting attachment.</td>
<td>Inspect and replace attachment as required.</td>
</tr>
<tr>
<td></td>
<td>Loose gearcase.</td>
<td>Tighten gearcase securely.</td>
</tr>
<tr>
<td></td>
<td>Bent main shaft/worn or damaged bushings.</td>
<td>Inspect and replace as necessary.</td>
</tr>
<tr>
<td></td>
<td>Trimmer line not wound properly on spool.</td>
<td>Rewind trimmer line.</td>
</tr>
<tr>
<td>Cutting attachment will not rotate.</td>
<td>Shaft not installed in powerhead or gearcase.</td>
<td>Inspect and reinstall as required.</td>
</tr>
<tr>
<td></td>
<td>Broken shaft.</td>
<td>Consult with an authorized servicing dealer.</td>
</tr>
<tr>
<td></td>
<td>Damaged gearcase.</td>
<td></td>
</tr>
</tbody>
</table>
SHINDAIWA LIMITED WARRANTY STATEMENT FOR
PRODUCT SOLD IN USA AND CANADA BEGINNING 01/01/2010

ECHO, INC’S RESPONSIBILITY
ECHO Incorporated’s (ECHO, INC.) Limited Warranty, provides to the original purchaser that this Shindaiwa product is free from defects in material and workmanship. Under normal use and maintenance from date of purchase, ECHO, INC. agrees to repair or replace at it’s discretion, any defective product free of charge at any authorized Shindaiwa servicing dealer within listed below application time periods, limitations and exclusions. THIS LIMITED WARRANTY IS ONLY APPLICABLE TO SHINDAIWA PRODUCTS SOLD BY AUTHORIZED SHINDAIWA DEALERS. IT IS EXTENDED TO THE ORIGINAL PURCHASER ONLY, AND IS NOT TRANSFERABLE TO SUBSEQUENT OWNERS EXCEPT FOR EMISSION RELATED PARTS. Repair parts and accessories replaced under this warranty are warranted only for the balance of the original unit or accessory warranty period. Any damage caused by improper installation or improper maintenance is not covered by this warranty. All parts or products replaced under warranty become the property of ECHO, INC. This warranty is separate from the Emission control warranty statement supplied with your new product. Please consult the Emission Control Warranty Statement for details regarding emission related parts. For a list of Authorized Shindaiwa Dealers refer to WWW.SHINDAIWA.COM or call 1-877-986-7783.

OWNER’S RESPONSIBILITY
To ensure trouble free warranty coverage it is important that you register your Shindaiwa equipment on-line at WWW.SHINDAIWA.COM or by filling out the warranty registration card supplied with your unit. Registering your product confirms your warranty coverage and provides a direct link if we find it necessary to contact you.

The owner shall demonstrate reasonable care and use, and follow preventative maintenance, storage, fuel and oil usage as prescribed in the operator’s manual. Should a product difficulty occur, you must, at your expense, deliver or ship your Shindaiwa unit to an authorized Shindaiwa servicing dealer for warranty repairs (within the applicable warranty period), and arrange for pick-up or return of your unit after the repairs have been made. For your nearest authorized Shindaiwa servicing dealer, call Shindaiwa’s Dealer Referral Center, at 1-877-986-7783 or you can locate a Shindaiwa servicing dealer at WWW.SHINDAIWA.COM. Should you require assistance or have questions concerning Shindaiwa’s Warranty Statement, you can contact our Consumer Product Support Department at 1-800-673-1558 or contact us through the web at WWW.SHINDAIWA.COM.

PRODUCT WARRANTY PERIOD

RESIDENTIAL APPLICATION
• 2 YEAR WARRANTY - Units for residential, or non-income producing use will be covered by this limited warranty for two (2) years from date of purchase.

  EXCEPTIONS:
  • For engine powered products, the electronic ignition module, flexible drive cable, and solid drive shaft are warranted for the life* of the product on parts only.
  • Cutting attachments such as, but not limited to, bars, chains, sprockets, tines, blades, Power Broom™, belts, and nylon trimmer heads for residential or non-income producing use will be covered for failures due to defects in material or workmanship for a period of 60 days from original product purchase date. Any misuse from contact with concrete, rocks, or other structures is not covered by this warranty.
  • Multipurpose Tool Attachments carry the same warranty duration as the units they are designed to fit.

COMMERCIAL APPLICATION
• 90 DAY WARRANTY - All Chain Saws and Cut-Off Saws for commercial, institutional, agricultural, industrial, or income producing use will be covered by this limited warranty for 90 Days from the date of purchase.
• 2 YEAR WARRANTY - Units for commercial, institutional, agricultural, industrial, or income producing use will be covered by this limited warranty for two (2) years from the date of purchase.

  EXCEPTIONS:
  • For engine powered products, the electronic ignition module, flexible drive cables, and solid drive shafts are warranted for the life* of the product on parts only.
  • Cutting attachments such as, but not limited to, bars, chains, sprockets, tines, blades, Power Broom™, belts, and nylon trimmer heads for commercial, institutional, agricultural, industrial, rental, or income producing will be covered for failures due to defects in material or workmanship for a period of 30 days from original product purchase date. Any misuse from contact with concrete, rocks, or other structures is not covered by this warranty.
  • Multipurpose Tool Attachments carry the same warranty duration as the units they are designed to fit.

RENTAL APPLICATION - 90 DAYS WARRANTY
• Units for rental use will be covered against defects in material and workmanship for a period of 90 days from the date of purchase.

* ECHO INC’S liability under the “Lifetime” coverage is limited to furnishing parts specified under the PRODUCT WARRANTY PERIOD section of this warranty statement for “Life” free of charge for a period of ten (10) years after the date of the complete unit’s final production.
PURCHASED REPAIR PARTS AND ACCESSORIES
• 90-day all applications

ATTENTION ENGINE POWERED PRODUCT OWNERS
This Shindaiwa engine powered product is a quality-engineered unit which has been manufactured to exact tolerances to provide superior performance. To help ensure the performance of the unit, it is required to use engine oil which meets the ISO-L-EGD Standard per ISO/CD 13738 and JASO M345/FD Standards. Shindaiwa Red Armor™ and Shindaiwa One™ are a premium engine oil specifically formulated to meet ISO-L-EGD (ISO/CD 13738) and JASO M345/FD Standards. The use of engine oils designed for other applications, such as for outboard motors or lawnmowers can result in severe engine damage, and will void your engine limited warranty.

THIS WARRANTY DOES NOT COVER DAMAGE CAUSED BY:
• Lack of lubrication or engine failure, due to the use of engine oils that do not meet the ISO-L-EGD (ISO/CD 13738) and JASO M345/FD Standards. Shindaiwa One™ Engine Oil meets the ISO-L-EGD and JASO M345/FD Standard. Emission related parts are covered for 2 years regardless of engine oil used, per the statement listed in the EPA or California Emission Control Warranty Explanation.
• Damage caused by use of gasohol, containing methanol (wood alcohol), or gasoline containing less than 89 octane. Only use gasoline which contains 89 octane or higher. Gasohol which contains a maximum 10% ethanol (grain alcohol) or 15% MTBE (methyl/tertiary/butyl/ether) is also approved. The prescribed mixing ratio of gasoline to oil is listed on the Shindaiwa oil label and covered in your operator’s manual.
• Engine damage caused by use of ether or any starting fluids.
• Damage caused by tampering with engine speed governor or emission components, or running engines above specified and recommended engine speeds as listed in your operator’s manual.
• Operation of the unit with improperly maintained/removed cutting shield or removed/damaged air filter.
• Damage caused by dirt, pressure or steam cleaning the unit, salt water, corrosion, rust, varnish, abrasives, and moisture.
• Defects, malfunctions or failures resulting from abuse, misuse, neglect, modifications, alterations, normal wear, improper servicing, or use of unauthorized attachments.
• Incorrect storage procedures, stale fuel, including failure to provide or perform required maintenance services as prescribed in the operator’s manual. Preventative maintenance as outlined in the operators manual is the customer’s responsibility.
• Failures due to improper set-up, pre-delivery service or repair service by anyone other than authorized Shindaiwa servicing dealer during the warranty period.
• Certain parts and other items are not warranted, including but not limited to: lubricants, starter cords, and engine tune-ups.
• Use of spark plugs other than those meeting performance and durability requirements of the OEM spark plug listed in the Operator’s Manuals.
• Overheating or carbon scoring failures due to restricted, clogged exhaust port or combustion chamber, including damage to spark arrester screen.
• Adjustments after the first (30) thirty days and beyond, such as carburetor adjustment and throttle cable adjustment.
• Damage to gears or gear cases caused by contaminated grease or oil, use of incorrect type or viscosity of lubricants, and/or failure to comply with recommended grease or oil change intervals.
• Damage caused by pump or sprayer running dry, pumping or spraying caustic or flammable materials, or lack of or broken strainers.
• Additional damage to parts or components due to continued use after operational problem or failure occurs. Should operational problem or failure occur, the product should not be used, but delivered as is to an authorized Shindaiwa servicing dealer.

It is a dealer’s and/or customer’s responsibility to complete and return the warranty registration card supplied with your Shindaiwa product or by visiting WWW.SHINDAIWA.COM. Your receipt of purchase including date, model and serial number must be maintained and presented to an authorized Shindaiwa servicing dealer for warranty service. Proof of purchase rests solely with the customer. Some states do not allow limitations on how long an implied warranty lasts, so the above limitations may not apply to you. Some states do not allow the exclusion or limitation of incidental or consequential damages, so you may also have other specific legal rights which vary from state to state. This limited warranty is given by ECHO Incorporated, 400 Oakwood Rd., Lake Zurich, IL 60047.

DISCLAIMER OF IMPLIED WARRANTIES
This limited warranty is in lieu of all other expressed or implied warranties, including any warranty of FITNESS FOR A PARTICULAR PURPOSE OR USE and any implied warranty of MERCHANTABILITY otherwise applicable to this product. ECHO, INC. and its affiliated companies shall not be liable for any special incidental or consequential damage, including lost profits. There are no warranties extended other than as provided herein. This limited warranty may be modified only by ECHO, INC.

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02/05/2010
MANUFACTURER'S WARRANTY COVERAGE:
The emission control system is warranted for 2 years or the length of the ECHO Inc. warranty, whichever is longer. If any emission-related part on your equipment is defective, the part will be repaired or replaced by ECHO Inc. or its Authorized Service Representative.

OWNER'S WARRANTY RESPONSIBILITIES:
As the equipment/SORE owner, you are responsible for the performance of the required maintenance listed in your Operator's Manual. ECHO Inc. recommends that you retain all receipts covering maintenance on your equipment/SORE however, ECHO Inc. cannot deny warranty solely for the lack of receipts or for your failure to ensure the performance of all scheduled maintenance. As the equipment/SORE owner, you should be aware that ECHO Inc. may deny you warranty coverage if your equipment/SORE or a part has failed due to abuse, neglect, improper maintenance or unapproved modifications.

You are responsible for presenting your equipment/SORE to an ECHO Inc. authorized service representative as soon as a problem exists. The warranty repairs should be completed in a reasonable amount of time, not to exceed 30 days. If a warrantable condition exists and there is no Authorized Dealer within 100 miles, ECHO Inc. will pay to ship the unit to the nearest authorized dealer. If you have questions regarding your warranty coverage, you should contact ECHO Inc. at 1-800-673-1558, web site WWW.ECHO-USA.COM or contact Shindaiwa at 1-877-986-7783, web site WWW.SHINDAIWA.COM.

WHAT DOES THIS WARRANTY COVER?
ECHO Inc. warrants that your equipment/SORE was designed, built and equipped to conform with applicable EPA and C.A.R.B. emissions standards and that your equipment/SORE is free from defects in material and workmanship that would cause it to fail to conform with applicable requirements for 2 years or the length of the ECHO Inc. warranty, whichever is longer. The warranty period begins on the date the product is purchased by an end user.

HOW WILL A COVERED PART BE CORRECTED?
If there is a defect in a part covered by this warranty, any ECHO Inc. Authorized Service Dealer will correct the defect. You will not have to pay anything to have the part adjusted, repaired or replaced. This includes any labor and diagnosis for warranted repairs performed by the dealer. In addition, engine parts not expressly covered under this warranty but whose failure is a result of a failure of a covered part will be warranted.

WHAT PARTS ARE COVERED?
Any applicable emission related part not scheduled for "required maintenance" will be repaired or replaced within the warranty period. The repaired or replaced part will be warranted for the remaining ECHO Inc. warranty period.

Any warranted part that is scheduled only for regular inspection in the written instructions supplied is warranted for the warranty period stated above. Any such part repaired or replaced will be warranted for the remaining warranty period.

Any emission related part scheduled for replacement during "required maintenance" is warranted for the period of time prior to the first scheduled replacement point for that part. Any such part repaired or replaced under warranty shall be warranted for the remainder of the period prior to the first scheduled replacement point for that part.

Any manufacturer-approved replacement part may be used in the performance of any warranty maintenance or repairs on emission related parts, and must be provided without charge if the part is still under warranty.

Any replacement part that is equivalent in performance and durability may be used in non-warranty maintenance or repairs, and shall not reduce the warranty obligations of the manufacturer.

Throughout the equipment/SORE warranty period, ECHO Inc. will maintain a supply of warranted parts sufficient to meet the expected demand for such parts.

SPECIFIC EMISSION RELATED WARRANTED PARTS:
- Electronic Ignition System
- Catalytic Converter / Muffler Assembly
- Spark Plug
- Carburetor (complete assembly or replaceable components)
- Choke
- Fuel-Injection Assembly (or replaceable components)
- Fuel Tank
- Fuel Cap Assembly
- Air Filter
- Fuel Feed Line (and associated clamps/connectors as applicable)

WHAT IS NOT COVERED?
Any failure caused by abuse, neglect, improper maintenance, unapproved modifications, use of unapproved add-on parts/modified parts or unapproved accessories.

This Emission Control Warranty is valid only for the U.S.A., it's Territories, and Canada.

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01/2010
Servicing Information

Parts/Serial Number
Genuine Shindaiwa Parts and Assemblies for your Shindaiwa products are available only from an Authorized Shindaiwa Dealer. When you do need to buy parts always have the Model Number, Type and Serial Number of the unit with you. You can find these numbers on the engine. For future reference, write them in the space provided below.

Model No. _____________ Type _________ SN. ______________

Service
Service of this product during the warranty period must be performed by an Authorized Shindaiwa Service Dealer. For the name and address of the Authorized Shindaiwa Service Dealer nearest you, ask your retailer or call: 1-877-986-7783. Dealer information is also available on WWW.SHINDAIWA.COM. When presenting your unit for Warranty service/repairs, proof of purchase is required.

Consumer Product Support
If you require assistance or have questions concerning the application, operation or maintenance of this product you may call the Shindaiwa Consumer Product Support Department at 1-877-986-7783 from 8:30 am to 4:30 pm (Central Standard Time) Monday through Friday. Before calling, please know the model and serial number of your unit.

Warranty Registration
To ensure trouble free warranty coverage it is important that you register your Shindaiwa equipment by filling out the warranty registration card supplied with your unit. Registering your product confirms your warranty coverage and provides a direct link if we find it necessary to contact you.

Additional or Replacement Manuals
Replacement Operator and Parts Catalogs are available from your Shindaiwa dealer or at WWW.SHINDAIWA.COM or by contacting the Consumer Product Support Department (1-877-986-7783). Always check WWW.SHINDAIWA.COM for updated information.