

OPERATION MANUAL

Before attempting to operate this machine, read and fully understand the contents of this Operation Manual. Make yourself familiar with safety instructions, controls, servicing and maintenance of the machine. Operators must also read through the engine manual which is separately provided by the engine manufacturer.

ORIGINAL INSTRUCTIONS

— WOOD CHIPPER ES73G —



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INTRODUCTION

To operate this machine most comfortably and effectively, it is essential for you to perform daily checks and regular inspection, servicing and maintenance jobs. This can be likened to your medical check-up. To keep the machine in optimum condition at all times and prevent accident and injury, carry out daily checks and servicing on a routine basis.

Take care of detecting even a small problem in the early stage before it becomes a big problem. If you have some problem with the machine, do not put the machine into operation. Please feel free to contact and consult the dealer from whom you purchased the machine to solve the problem.

When notifying the dealer, please report MODEL NUMBER and SERIAL NUMBER of the machine,

For the purpose of product improvement, specifications including spare parts may change without prior notice.

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SAFETY INSTRUCTIONS

CAUTION

1. This operation manual must be retained within easy access of operators. Operators must be careful not to lose or damage the operation manual.
2. If the operation manual is missing or illegible due to damage, obtain new one from our dealers and retain it within easy access.
3. If the machine discussed in this operation manual is rented, be sure to provide the manual with the machine. Let the renter read and understand the manual. Give new operators proper instructions and training before they start operating the machine.
4. If the machine is transferred to other people, make sure that this operation manual is provided with the machine.

CAUTION

1. Operators of this machine must read and understand the contents of this operation manual before attempting to operate it.
2. If safety decals are torn and illegible, obtain new ones from our dealers and replace them.

1. Read through this operation manual and make yourself familiar with the operation, servicing and maintenance of this machine before use.
2. Never operate the machines without repairing or replacing the deformed or defective parts.
3. Never alter or modify this machine.
4. The machine cannot be towed or driven on crawlers on a public road. Extended towing on crawlers will damage machine.
5. If towing very short distances on crawlers at no more than allowable top speed of gear in use, always tow using a vehicle with enough driving and braking force. Be very careful on slopes.
6. When towing, ensure the vehicle has enough driving and braking power especially on slopes.
7. When a machine is loaded/unloaded on/from truck or trailer for transport, stop the truck on a level surface, engage the truck's parking brake, and position it securely with wheel stoppers. Extreme caution must be taken not to topple the machine from the ramps or truck. (refer "**Loading, Unloading & Slopes**")
8. Never operate the machine alone. This machine must be operated by two or more operators.

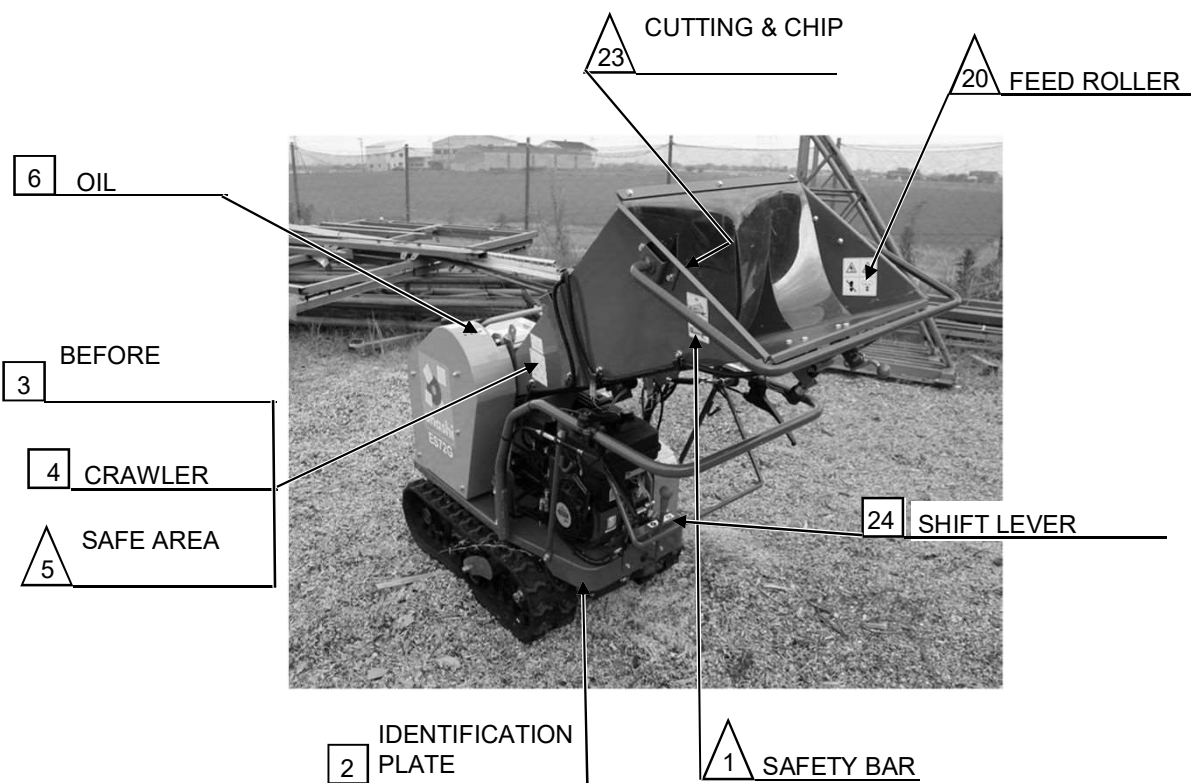
9. Never attempt to touch the muffler and surroundings during or directly after operation because it becomes very hot.
10. Don't directly touch the feed roller or its attaching portions.
11. Do not insert your fingers into the shooter or low dispatch unit. Your hands might be caught in the rotor and this could cause serious injury.
12. Gasoline is extremely flammable. Extreme caution must be taken when handling the fuel.
 - (1) Use only fresh, clean gasoline.
 - (2) Use an approved fuel container for the fuel tank. Fuel container's outlet must fit the fuel tank's inlet. Check to see if these ports fit. If not, use a suitable fuel pump.
 - (3) Do not remove the fuel tank cap or add fuel while the engine is running or hot.
 - (4) Do not fill the fuel tank indoors.
 - (5) Wipe off any spilled fuel.
 - (6) Do not use gasoline as a cleaning fluid.
 - (7) Never smoke while handling gasoline.
 - (8) Do not handle fuel near a naked flame or uncovered electric light.
 - (9) Keep the fuel container away from open flames and equipment that may spark.
13. Wait until the machine has cooled before storing indoors and remove key.
14. When performing maintenance with two or more people stay aware of each others location by talking to avoid accidents.
15. Remove chips or other material in and around the crawlers as this could cause transmission troubles.
16. Never perform chipping operations inside a building.
17. Dirt, chips or spilt fuel if left around the battery, muffler, engine, or around the belts could become a source for a fire hazard, so remove and clean these areas regularly.
18. When handling the knives wear gloves.



DECALS

Before attempting to operate the machine, read these decals and fully understand the instructions and meaning. If any decal is worn, damaged, illegible or missing, obtain new one from our dealers. Safety decals must be placed to their proper location as indicated below.

For locations of other decals, see the following photographs and illustrations and affix them to their respective places. Keep all decals always legible.

Location of SAFETY decals

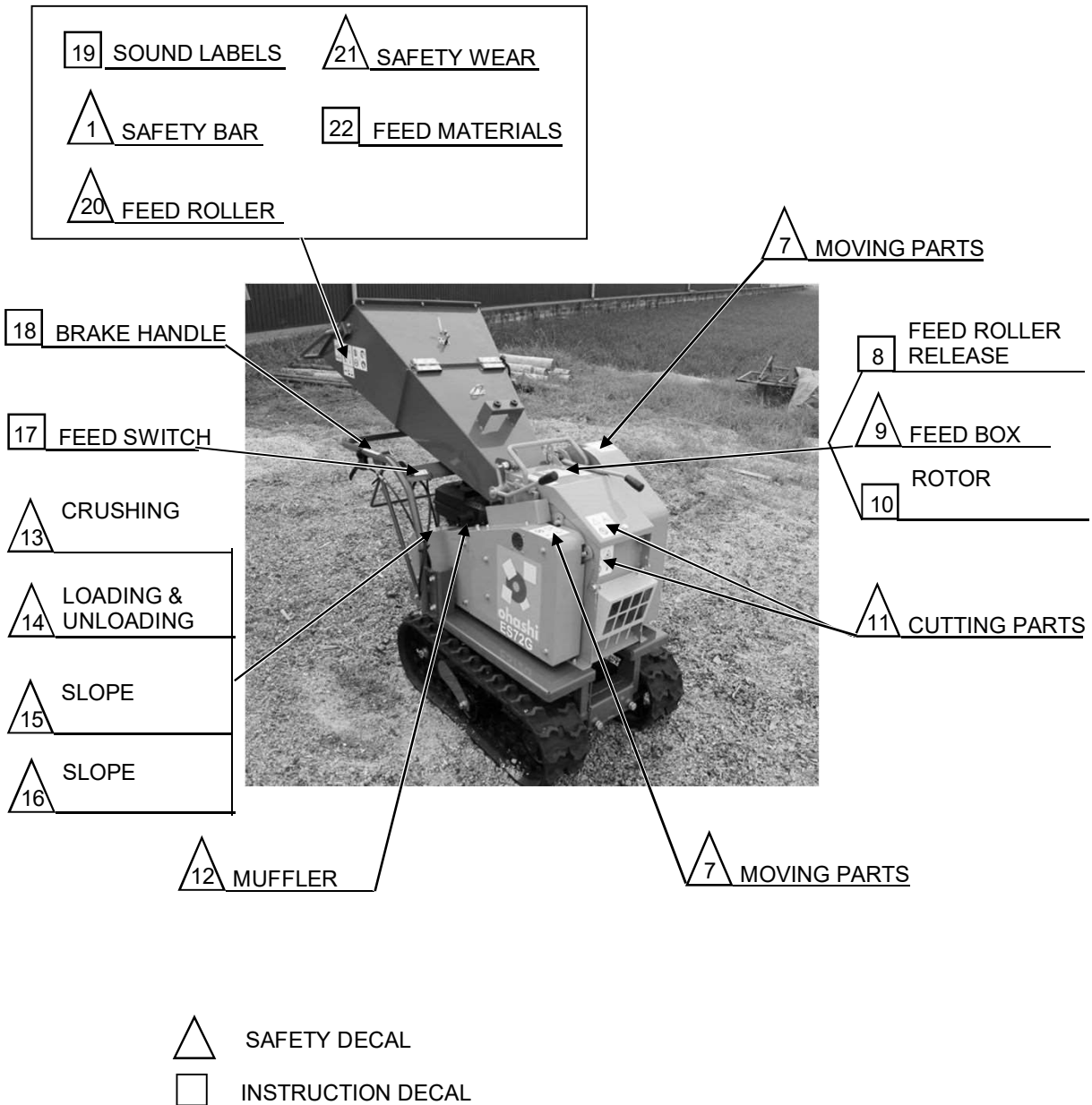


-  SAFETY DECAL
-  INSTRUCTION DECAL

DECALS

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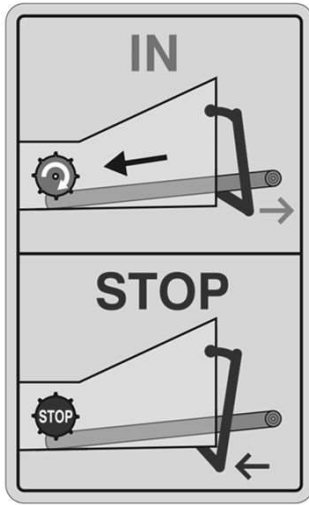
Location of SAFETY decals



△	SAFETY DECAL
□	INSTRUCTION DECAL

DECALS

1 SAFETY BAR

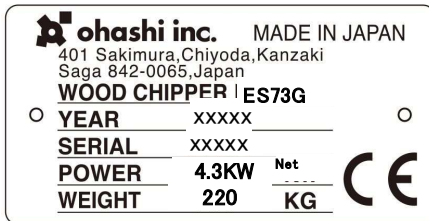


The safety bar operates to stop the feed roller in the case of an emergency.

Pull the safety bar out to activate the feed roller so that feed material is pulled into the machine.

Push the safety bar in to de-activate the feed roller so that the feed roller no longer move.

2 IDENTIFICATION PLATE



The details of Ohashi inc., the CE mark and the specific details of the machine purchased.

3 BEFORE

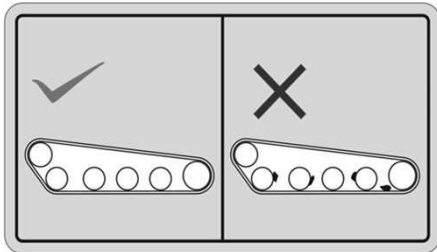


Before starting the engine perform the following to maintain the machine in good condition.

As well as reading the user manual and checklists before starting the engine users must especially take care of the following 4 points to maintain the machine in good condition and prevent damage to the machine.

DECALS

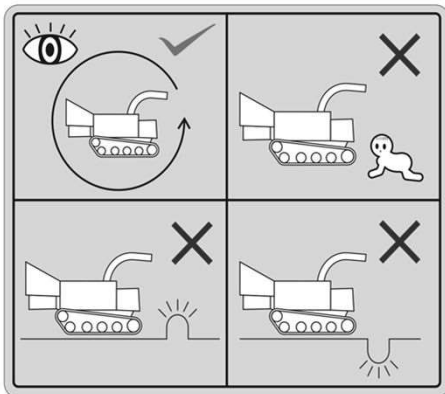
4 CRAWLER



The crawlers and the area between the crawler wheels should be kept clean and free of materials.

Be sure to clear the crawlers from any materials as this may damage the transmission.

5 SAFE AREA



The area around the machine should be checked thoroughly before operating the machine.

Check around the machine before use. Check for things you may not see from the operators control area.

Be careful not to damage the crawlers or the transmission by driving into holes or over obstacles.

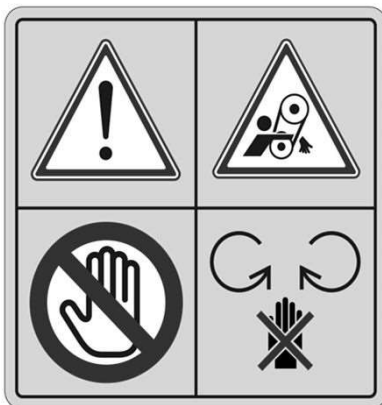
6 OIL



Oil lubrication points.

Refer to "**Lubrication Chart**" in this user manual for further instructions.

7 MOVING PARTS



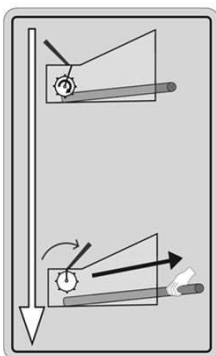
Moving parts of the engine and machine are dangerous and may cause injury.

Engine belts and other moving parts of the engine and machine can cause injury if touched during motion.

Do not attempt to remove covers while the machine is running or moving parts are moving.

DECALS

8 FEED ROLLER RELEASE



The feed roller can be rotated manually if it becomes clogged.

Refer to "**Feed Roller Clogging Release**" section in this user manual for further instructions.

9 FEED BOX



The feed box when in motion can be dangerous and cause injury.

The feed roller when activated can move up and down creating movement of the feed box. This movement can cause injury so therefore do not approach or put your hands or body near the feed box when the machine is operating.

10 ROTOR CLUTCH LEVER



The rotor clutch lever activates the rotor.

Pull the rotor clutch lever from OFF to ON slowly. Ensure the throttle is at full. Pause between OFF and ON so that the rotor clutch engages.

11 CUTTING PARTS



Moving parts here will cut flesh and cause serious injury if touched by a persons hands or other body parts.

Do not remove safety covers while the engine is on or moving parts have not yet stopped.

DECALS

12 MUFFLER



The muffler is hot during and after operation. Do not touch or a burn injury may occur.

Even after use the muffler may remain hot. Wait until the machine cools down before making any contact with the muffler.

13 CRUSHING RISK



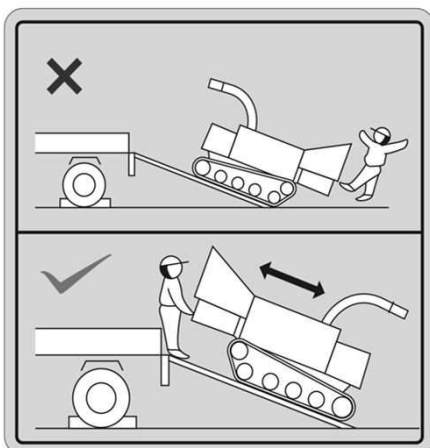
Be careful to avoid being crushed by the machine.

Be careful not to have your feet or other body parts crushed under the moving crawlers.

Be careful not to be crushed while driving the machine between the machine and another object.

Be careful not to drive the machine at a dangerous speed on a slope or on a slope which is too steep or the machine may tip and crush you.

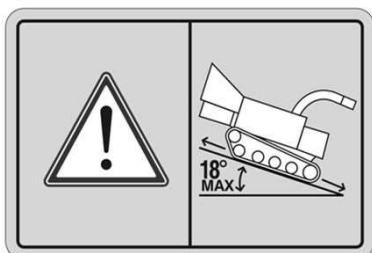
14 LOADING & UNLOADING



Load and unload the machine in the correct manner or injury may occur.

When loading or unloading the machine onto a truck, trailer, van or higher platform using ramps do not stand on the downward side of the machine. Always stand upward from the machine in the higher position so that if the machine rolls or tumbles you are in a safe position.

15 SLOPE STABILITY 1

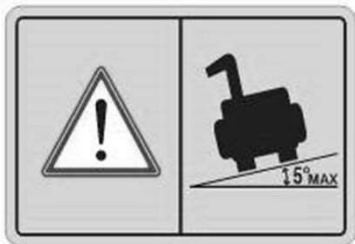


Only drive the machine up/down a slope of 18° or less.

When unloading or loading or when driving the machine anywhere do not drive the machine on a slope of more than 18° in a straight up or down direction on the slope.

DECALS

16 SLOPE



Only drive the machine across a slope of 5° or less.

When unloading or loading or when driving the machine anywhere do not drive the machine on a slope of more than 5° in a horizontal across direction along the slope.

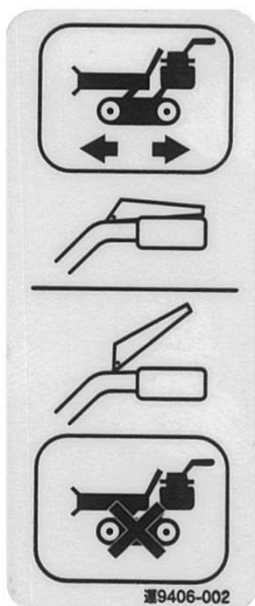
17 FEED SWITCH



The feed switch controls the movement of the feed roller.

Move the switch to START to activate the feed roller to pull materials into the rotor. Move the switch to the STOP area to stop the feed roller movement.

18 BRAKE HANDLE



The brake handle activates the transmission and initiates the movement of the machine.

To initiate the movement of the machine hold down the brake handle.

To stop the movement of the machine let go of the brake handle and let it rise to the up position.

19 SOUND LABELS



Sound labels display the sound levels which users are likely to be exposed to.

Users must use ear protection equipment when operating this machine and must insist other people close to the machine also wear ear protectors.

DECALS

20 FEED ROLLER



If caught in the feed roller serious injury will occur.

Do not place your hands, feet or any other body part near the feed rollers.

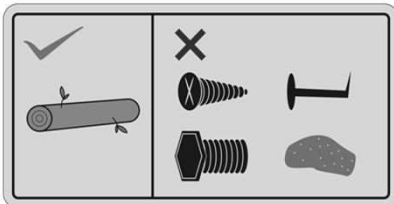
Do not attempt to climb into or on the lower edge of the hopper or you may be caught in the feed roller.

21 SAFETY WEAR



Read the user manual, and wear helmet, ear protectors, eye protectors, gloves and non-s snag clothing before using the machine.

22 FEED MATERIALS



The machine is only designed to chip organic material like wood.

Do not place sand, dirt, metal, stones, plastic, rope, clothing, cardboard, books, newspapers rubber, glass or any other non-wood material into the hopper to be chipped or damage will occur to the machine.

23 CUTTING & CHIP PROJECTILE



Moving parts may cut flesh and cause serious injury. Feed material occasionally projected out of the hopper can cause injury.

Do not place hands or body parts near the area where moving parts may cut flesh and cause injury. Do not remove covers while the machine is on or moving parts have not stopped.

Do not stand in front of the hopper while the machine is processing feed material. Stand to the side to avoid being struck by feed material that occasionally projects out of the hopper.

DECALS

24 SHIFT LEVER _____



The shift lever allows the machine to move forward or in reverse.

To initiate the movement of the machine, move the shift lever to FORWARD or REVERSE and hold down the brake handle.

USE OF THIS MACHINE AND SPECIFICATIONS

USE OF THIS MACHINE

This operating machine is designed to chip / shred wood and other similar organic materials. Make sure before chipping that no materials such as soil, sand, stones, metals, bottles etc. are contained in the woods.

Do not use the machine in any other way than its intended use.

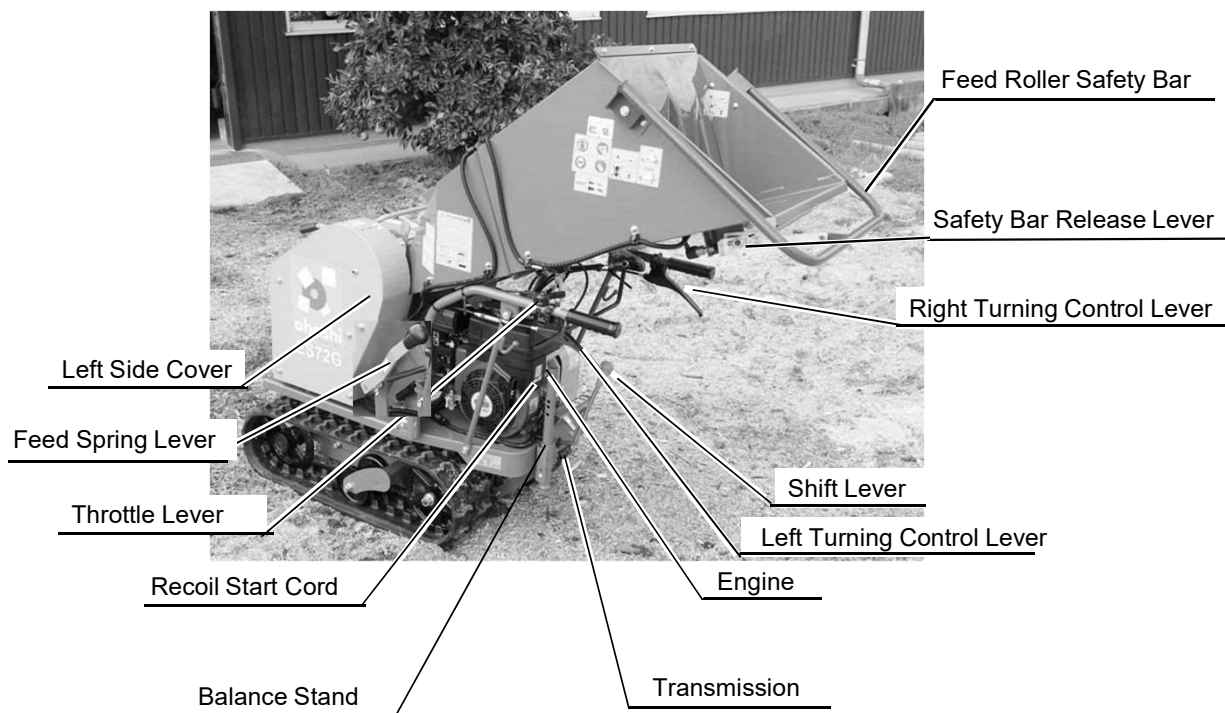
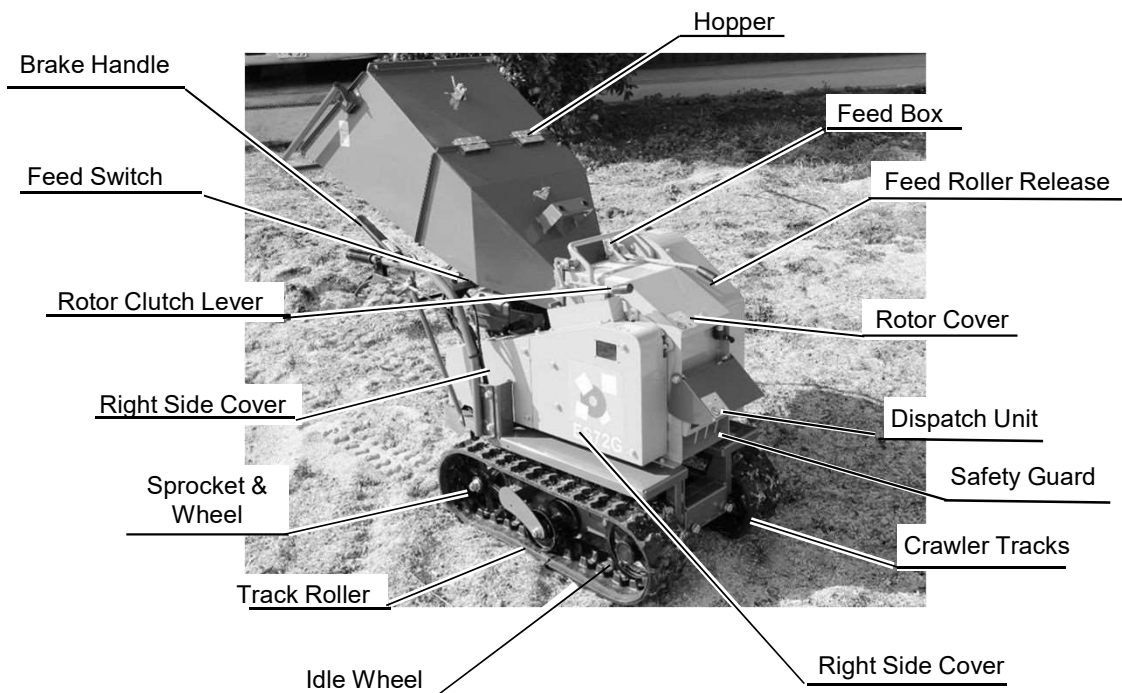
SPECIFICATIONS

Description	Wood chipper / shredder
Model No.	ES73G
Overall LengthxWidthxHeight (mm)	In use - 1690x660x1370 In transport - 1280x660x1455
Weight (kg)	220
Drive	Belt clutch, V-belt
Max. diameter of wood treated (mm)	70
Cutting	2 chipper knives and a counter knife
Infeed dimensions (mm)	180x90
Feeding system	Electromagnetic clutch with automatic no stress & brake system
Discharge system	Forced by air
Height of duct (mm)	540
Discharge angle	Adjustable
Transport system	Rubber crawler
Transport speed	Forward : 1.9 Km/h
	Reverse : 1.9 Km/h
Engine Model	Honda GX200
Max. output	6.5 HP gross estimate (5.8 HP / 4.3 kW net)
Fuel tank capacity (ℓ)	Approx. 3.1, Unleaded gasoline

Note: As product improvement takes place, specifications may change without prior notice.
For engine and battery, refer to respective manufacturer handling manuals.

NAME OF THE COMPONENT PARTS

See the machine with your own eyes and identify each component.



PRE-OPERATING SAFETY CHECKLIST

To prevent injuries and fire hazards, comply strictly with the following instructions.

BEFORE STARTING ENGINE AND ACTIVATING TRACK CRAWLERS

1. All safety and operating sections of User Manual **MUST** have been read, understood and applied where applicable.
2. **CHECK** all machine safety covers, guards and housing are closed and fitted securely with securing devices, bolts, locks etc and if engine is running **DO NOT REMOVE**. Do not lose covers' nuts and bolts.
3. Walk at least once around machine to **ENSURE** there are no obstacles, people or small children near machine and Track Crawlers and maintain your visibility of surrounding areas at all times.
4. **ENSURE** Rotor Clutch Lever is in OFF position, Shift Lever in N Position, Feed Switch in STOP position and that Brake Handle is in the up position.
5. **ENSURE** machine is in a well ventilated, open area. Exhaust fumes are very dangerous when breathed.
6. **ENSURE** machine is located on a flat, stable area.
7. **DO NOT** stop or park the machine on a slope.
8. **CHECK** for fluid leaks. If found **CONSULT** User Manual or dealer to locate the source and apply a remedy.
9. **WEAR** appropriate clothing, helmet, protectors for eyes, ears and gloves for hands. Clothing **MUST** fit operator tightly. Loose clothing **MUST** be avoided as it may get caught and pull operator into machine, causing serious injury or death.
10. **NEVER** smoke while operating machine or when handling fuel for refueling or transport. **NEVER** refuel or handle fuel near open flames or uncovered electric lighting.

BEFORE OPERATING THE CHIPPING FUNCTIONS (Feed Roller and Rotor)

1. **TEST** Feed Roller Safety Bar is working properly in Emergency Stop Position and Forward Feed Roller Position. If it is not working contact your dealer to repair the bar and / or it's sensor immediately.
2. This machine is designed to chip / shred wood and similar organic material. **ENSURE** soil, sand, stones, metals, rope, glass, wires and other such non-organic man-made materials are **NOT** contained in material to be inserted for chipping / shredding.
3. **DO NOT** operate machine's chipping / shredding functions on slopes and / or inside a building.
4. **ENSURE** that no person is located close enough to Dispatch Unit to be struck by wood chips and that Dispatch Unit is securely fixed in position so as not to move during operation.
5. **ENSURE** before chipping and switching the Rotor Clutch Lever ON, that the engine is at full throttle.
6. **SET** the Balance Stand so that the machine is stable.

BASICS


1. **NEVER** refuel, perform inspections, maintenance, remove covers or the hopper at the base with the engine on, parts still moving, machine still hot or brake handle in the up position.
2. **PERFORM** inspections or tests of machine in an open, flat area free of obstacles and hazards.
3. **REPLACE** all covers, guards and housing parts after any inspection is performed.
4. If you feel any strange noise / vibration in machine, **STOP** the engine and **AFTER** moving parts have stopped consult your User Manual, inspect machine and if necessary contact your dealer.
5. Before leaving machine unattended, **CONFIRM** that engine is off, and all moving parts stop, and the Rotor Clutch Lever and Feed Switch are in the OFF/STOP position and the Brake Handle is up.
6. **INSPECT** and clean machine parts after use.
7. **NEVER** drive up / down a slope slanting more than 18 ° or drive sideways on a slope slanting more than 5° and always stand up slope from the machine when driving.
8. **DO NOT** operate in insufficient lighting or in a situation where visibility is poor.
9. **DO NOT** operate machine if tired, sick or under the influence of drugs or alcohol.
10. **DO NOT** allow a child and / or untrained person to operate machine.
11. Where materials become caught in Feed Roller **DO NOT** remove directly with hands. **USE** a wooden broom or other such long wooden object to remove stuck material.
12. If clearing chips or material from near the feed roller, **ENSURE** the engine is off and the rotor has stopped.
13. **STAND** to the side of Hopper during operation to avoid being hit by infeed materials returning irregularly.
14. **DO NOT** place hands near the Feed Box while the Feed Roller is in operation.
15. While the engine is on, **DO NOT** reach into the hopper beyond the plastic chip guard.
16. When moving the machine, be aware of possible dangers around you and **KEEP WATCHING** your path and surrounds and carefully proceed accordingly.

PRE-OPERATING MACHINE CHECKLIST

To keep machine in top working condition, comply strictly with the following instructions.

	<ol style="list-style-type: none">1. CLEAN air cleaner2. CHECK engine oil level, cleanliness and for any spillage (SE grade or above) ※13. CHECK for cracks and / or wear on the chipper knives4. CHECK for cracks and / or wear on the counter knife5. CHECK for cracks and / or wear on the shredder knives and that the knives axle is secure ※26. RETIGHTEN the bolts of chipper knives and counter knife7. GREASE Lubrication Points as per the User Manual Lubrication Chart using a lithium grease8. LUBRICATE machine parts as per the User Manual Lubrication Chart and ensure machine has sufficient transmission oil, and gasoline ※39. CLEAN engine and track crawlers.10. CHECK for incorrect tension, cracks and / or wear of belts and chains11. LUBRICATE with Shell Spirax S3 T 15W-40 oil, WD-40 or its equivalent all wire and lever supporting points and any friction and sliding sections12. RECORD the hours indicated on the Hour Metre.13. CHECK that the tension of the wires engaging the parking brake, side clutch, transport clutch and rotor clutch is appropriate and effective. <p>Notes:</p> <p>※1 Engine oil must be replaced in first 25 hours and then every 50 hours.</p> <p>※2 Shredder knives are optional</p> <p>※3 Shell Spirax S3 T 15W-40; Gasoline unleaded</p> <p>Refer to the User Manual List of Consumable Parts and the Regular Service and Maintenance sections for parts details and instructions for regular service and maintenance.</p>
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HOW TO OPERATE MACHINE

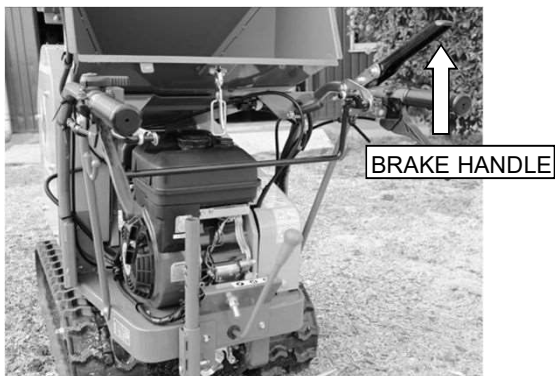
**DANGER**

Read the Pre-Operating Safety Checklist and Pre-Operating Machine Checklist before starting the engine.

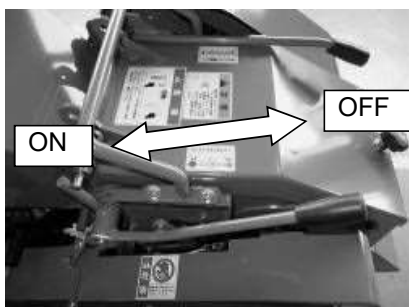
Whenever the terms "Right", "Left", "Forward" and "Reverse" are used in this manual, they indicate the directions from the operator facing forward looking into the hopper.

STARTING THE ENGINE

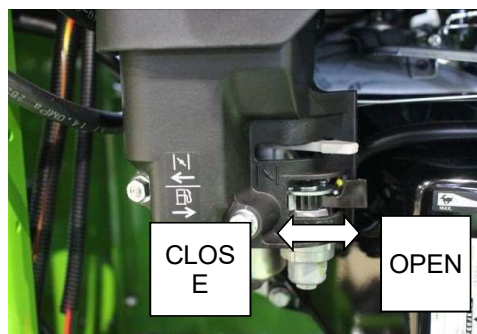
1. Make sure that the Brake Handle is in the UP position.



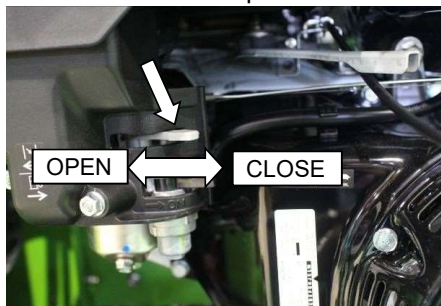
2. Rotor clutch lever should be in the "OFF" position.



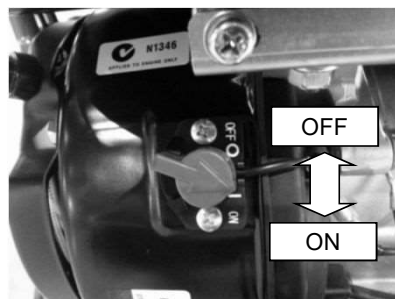
3. Turn the fuel cock to "OPEN"



4. If cold move the choke lever to CLOSED before starting the engine. Move back to OPEN after engine starts.
5. If engine is not cold, you may start engine with choke in the OPEN position.



6. Switch the Engine Switch to ON.



7. Grasp recoil start cord , to a compression position, pull smoothly and with sufficient vigor.
8. After the engine starts, allow the engine to warm up for 1-2 minutes with low running speed.

CAUTION

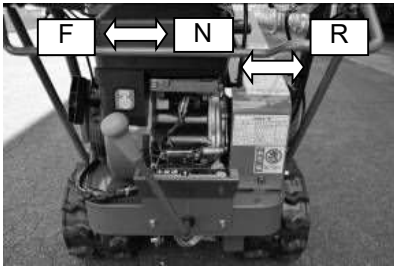
If recoil start cord is used 3 or more time in a row engine may flood. Move the choke lever to OPEN and throttle lever to full throttle and try again. Too much fuel in the engine cylinder makes it difficult to start the engine.

HOW TO DRIVE THE MACHINE

CAUTION 1

Prevent materials getting caught between the crawler wheels and crawler tracks or damage to the transmission may occur.

1. Ensure brake handle is up.
2. Move the throttle lever to LOW
2. Place shift lever in Forward or Reverse.



3. Hold the brake handle down and adjust throttle.

CAUTION 2

When the brake handle is up, the parking brake is engaged automatically.
When the brake handle is held down, the parking brake is disengaged automatically.

CAUTION 3

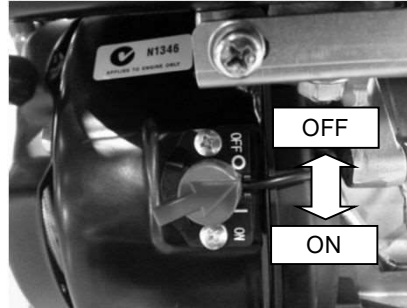
Because the brake handle is connected with the parking brake, it is sometimes hard to move the shift lever.

CAUTION 4

When moving the shift lever from Forward to Reverse allow the brake handle to move up.

HOW TO STOP THE MACHINE

1. Turn the throttle lever to the LOW position and slow down the machine speed.
2. At a flat area release the brake handle up.
3. Switch the engine switch to OFF.



4. Close the fuel cock.

ADJUSTING THE THROTTLE

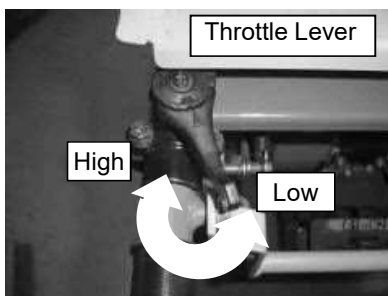
CAUTION 1

When adjusting the throttle, ensure that the surroundings are clear of obstacles and people who may be in the path of the machine.

CAUTION 2

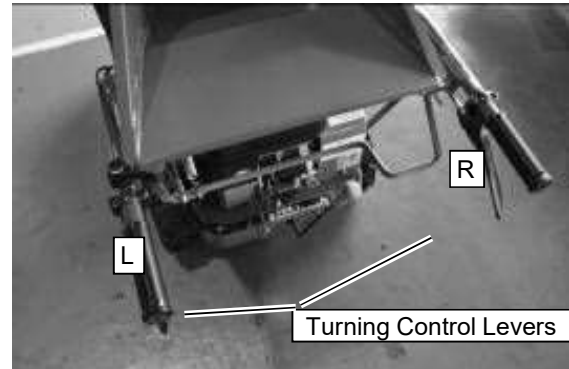
Be careful of adjusting the throttle too quickly as any slopes or obstacles may unbalance the machine or cause it to tip over which may cause serious injury.

1. Locate the throttle lever close to the left turning control handle.
2. Adjust throttle slowly to control the speed of the machine.



TURNING THE MACHINE

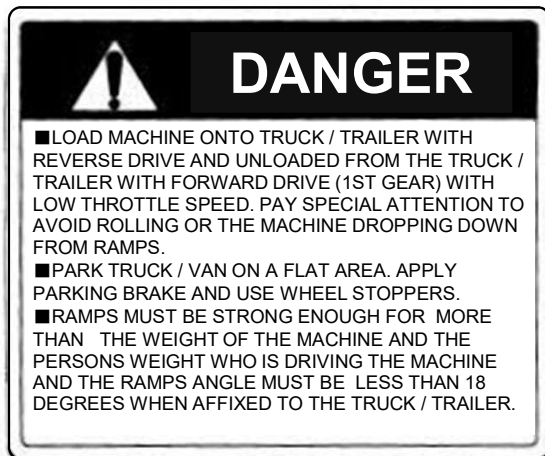
1. To turn the machine to the left hand side, grip the left turning control lever side clutch lever under the left handle.
2. To turn the machine to the right hand side, grip the right turning control lever side clutch lever under the right handle.



CAUTION 1

When both levers are applied at the same time, the machine stops.

LOADING AND UNLOADING



1. How to load and unload on/from the truck / trailer.
 - a) Loading and unloading must be carried out at a flat and safe area.
 - b) Stop truck engine, apply parking brake. Wheel stoppers should also be used so that the truck / trailer does not move at all.
 - c) Use the ramps which are strong enough and put it in the correct position so that the rubber crawlers of the machine are positioned in the center of the ramps.
2. Suitable ramps for loading and unloading
 - a) Strength, width, length and grip must be sufficient for loading the machine on the truck / trailer.
 - b) Ramps must have affixing devices such as hooks to affix to the truck / trailer.
 - c) The ramps length should be at least 3.5 times longer than the height between the ground and the truck / trailer platform.
 - d) The ramp sloping angle when attached to the truck trailer / should be no more than 18 degrees.
 - e) Ramp width should be wide enough to meet the width of rubber crawler.

- f) The ramps must be strong enough to accept the machine and operator weight.
- g) Ramps must have enough gripping power so that the machine does not slip on the ramps.

WARNING 1

If using a truck / trailer with a roof, ensure that the operator does not breath exhaust gas when starting the engine to load / unload machine from the truck / trailer. Ensure adequate ventilation.

WARNING 2

Loading and unloading should be carried out on a flat area. Unexpected accident may happen.

WARNING 3

Make sure that the ramps hooks are fixed firmly at the truck / trailer platform and there should not be any significant gap and / or step.

WARNING 4

When loading and unloading, never try to change the machine direction or to shift the driving speed on the ramps.

WARNING 5

When the machine passes over the border between the truck / trailer and ramps, the center of gravity of the machine changes suddenly. The operator should know this fact so as to avoid the machine tipping or falling off the ramps.

WARNING 6

During transportation in a truck / trailer, the machine brake handle must be up and fuel cock in the CLOSED position. The machine should be fixed firmly inside the truck / trailer to prevent the machine moving and wheel stoppers should be put against the wheel crawlers. Serious accident may happen if the machine is not fixed firmly inside the truck / trailer.

WARNING 7

When loading and unloading, ensure the rubber crawlers are positioned in the center of the ramps.

WARNING 8

The machine must be loaded to truck / trailer in backward drive and unloaded in forward drive with the first gear.

CHIPPING OPERATIONS

DANGER

1. Read the **Pre-Operating Safety Checklist** and **Pre-Operating Machine Checklist** before starting the chipping operation.
2. Make sure that no metals, steels, stones, sand etc. are contained in the woods to be chipped / shredded before starting the operation.
3. During chipping operation:
 - a) When the chipping operation is carried out, the brake handle must be up.
 - b) The chipping work must be carried out only when the engine is running at full throttle.
 - c) Pay attention to machine noise when the machine is operated in a place where people are living.
4. Pay attention to the muffler and surrounds because it becomes very hot during the operation and after operation.

DISPATCH UNIT ANGLE

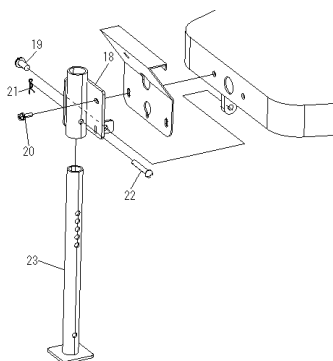
1. Chips are dispatched swiftly from the dispatch unit. Therefore, before starting the operation, decide the dispatch unit angle and securely fix the dispatch unit in position.



2. Dispatch angle can be adjusted.

BALANCE STAND

1. Set the balance stand so that the machine is stable.



CAUTION 1

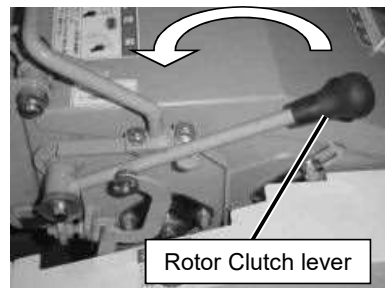
Do not face the dispatch unit towards the engine so as to protect the engine from dust.

CAUTION 2

During operation, ensure there are no obstacles, people or small children near the machine.

ROTOR CLUTCH

1. Make sure that the rotor clutch lever is OFF completely before engine starts. Move the engine throttle lever to the high position, running the engine in full throttle.
2. Slowly move the rotor clutch lever from the OFF position to the ON position checking that there is no extra-ordinary vibrations. Hold the rotor clutch lever in the middle position between OFF and ON for 5 seconds, before fully moving it to the ON position.



4. The machine should be operated for chipping at the maximum engine speed only.
5. To stop the rotor, stop the feed roller, turn the throttle lever to low and turn the rotor clutch lever OFF.

CAUTION

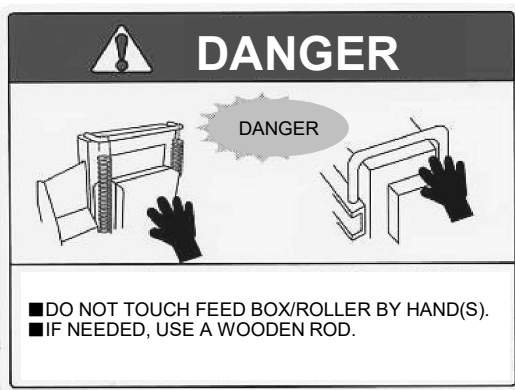
The engine will stop suddenly or a belt will be damaged if the rotor clutch lever is shifted to the ON position suddenly.

Therefore, always move the the rotor clutch lever SLOWLY from OFF to ON.

FEED ROLLER OPERATION

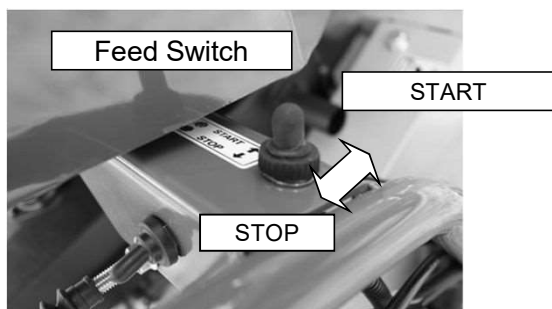
DANGER

1. Do not place hands or feet near the feed roller at any time.
2. Do not attempt to remove materials stuck in the feed roller directly with your hands.
3. Ensure that the machine and engine parts have stopped when removing stuck materials from the feed roller.
4. Do not place hands near the feed box while the feed roller is operating as sudden movements may cause injury.



5. Do not place hands near the feed roller while feeding material into the hopper. Be very careful not to be caught in the feed roller.
6. Do not place your hands into or near the dispatch unit while the engine is running.

1. Switch the feed switch to START so that the feed roller starts rotating.



2. Switch the feed switch to STOP so that the feed roller stops.

FEED ROLLER SAFETY BAR

The feed roller safety bar allows the user to stop the feed roller in an emergency and if necessary without using their hands (as shown below).



CAUTION 1

Before machine use, check that the feed roller safety bar when engaged halts the movement of the feed rollers. If when engaged (pushed in) the feed rollers do not stop, contact your dealer to repair the device immediately.

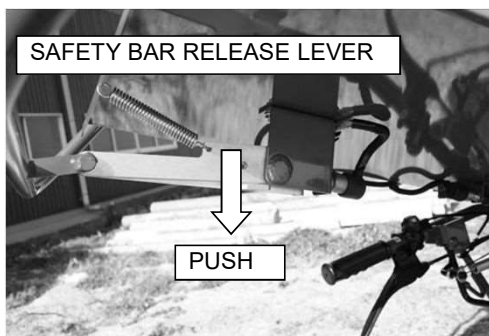
ENGAGE FEED ROLLER SAFETY BAR

1. After starting the engine, putting the engine to full throttle and putting the rotor clutch to ON, check that the feed switch is in the START position.
2. Push the feed roller safety bar in (toward the rotor) and check that the feed roller has stopped.

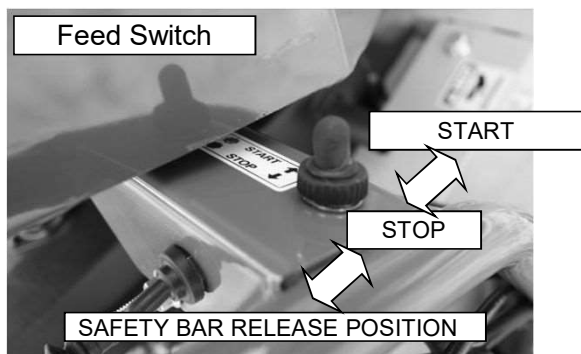


DISENGAGE FEED ROLLER SAFETY BAR

1. Push the safety bar release lever down to release the feed roller safety bar.



2. Return the feed roller safety bar to its original position, pulled in the direction toward the operator. At this moment, the feed roller must not start yet.
3. Switch the feed switch to the safety bar release position and then return the feed switch to start to check that the feed roller starts again.



CAUTION 1

Do not remove, jam, disable, bypass, override or otherwise impede the effectiveness of the feed roller safety bar.

CAUTION 2

Do not position the hopper in higher or lower positions such that the effectiveness of the safety bar is compromised.

FEED ROLLER CLOGGING PREVENTION

To prevent clogging during chipping operations:

1. Begin chipping operations only when the engine is running at full throttle.
2. The rotor clutch lever must be all the way in the ON position and not half way.
3. Check the belt tension on the rotor and ensure the power is transmitted to the rotor sufficiently.
4. When leaves and wood etc are wet they are not chipped efficiently and are more likely to clog the machine.

START CHIPPING WORK OPERATIONS

After reading and understanding all the instructions in this "How to Operate Machine" section you may commence chipping operations.

Note

Maximum diameter of infeed materials allowed is 7 cm for soft wood.

FEED ROLLER CLOGGING RELEASE

DANGER

Ensure the engine and chipping components have come to a complete stop before attempting to release any clogged material from the machine.

Do not use your hands to remove materials stuck in the feed roller.

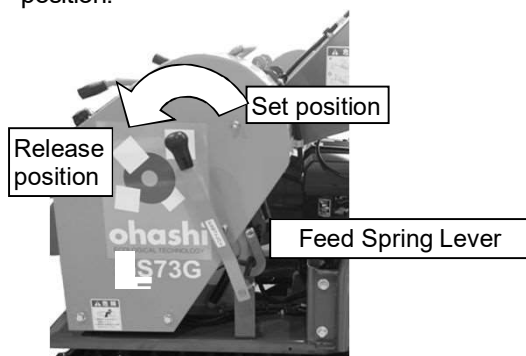
Use a wooden broom or other wooden instrument to remove stuck materials.

Do not place hands near the feed roller / feed box.

Be careful of the feed roller and feed box when clogged material is released from under the feed roller. When clogged material is released, the feed roller suddenly drops down and would crush a persons hands.

Avoid injury and be very careful of sharp knives when unclogging the rotor.

1. Move the rotor clutch lever and then the engine switch to the OFF position.
2. Wait for all engine parts and chipping components to stop moving.
3. Move the rotor clutch lever to the ON position which will stabilize the rotor.
4. Open the rotor cover.
5. Unclog the rotor of clogged materials.
6. Replace the rotor clutch lever to the OFF position.
7. Lightly and carefully rotate the rotor manually to check it is revolving freely without obstruction.
8. Close and secure the rotor cover.
9. Move the Feed Spring Lever to the Release position.



10. Pull the feed roller release lever to raise the feed roller.



11. Any remaining clogged material can be removed via the hopper.
12. Return the Feed Spring Lever to the Set position before restarting the engine.

Note

If the fuse 7.5A is blown, the feed rollers will stop working. Replace the fuse.

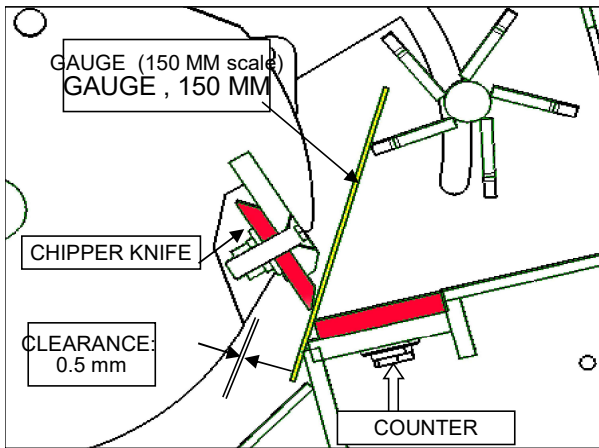
13. Should the feed material become lodged in the feed roller teeth, remove the left hand side cover and manually turn the feed belt anti-clockwise until the struck material become loose and can be removed.

REGULAR MAINTENANCE

DANGER

1. Before any inspection or maintenance:
 - a) Switch Rotor Clutch Lever - OFF
 - b) Put Brake Handle - UP
 - c) Switch Feed Switch - STOP
 - c) Switch Engine Switch - OFF**
2. ENSURE that machine and engine parts are not moving and / or hot.
3. WEAR gloves when handling chipper knives. Be careful as the knives are very sharp.
4. REPLACE all covers, guards and housing parts after inspection.

KNIFE BASICS



Cutting Edges	Use
Edge 1	25 hrs

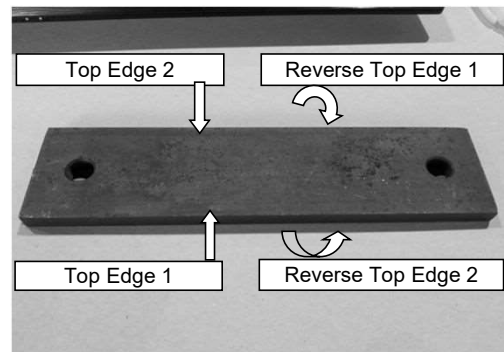
Alternate edge (Turn)

Edge 2	25 hrs
--------	--------

Sharpen both edges and use again

Note: Sharpen approx. 5 times (300 hrs knife life). Refer "Remove & Affix Knives" to alternate edge.

COUNTER KNIFE - LIFE AND SHARPENING



Top Edge 1	50 hrs
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Alternate edge (Turn)

Top Edge 2	50 hrs
------------	--------

Alternate edge (Flip)

Reverse Top Edge 1	50 hrs
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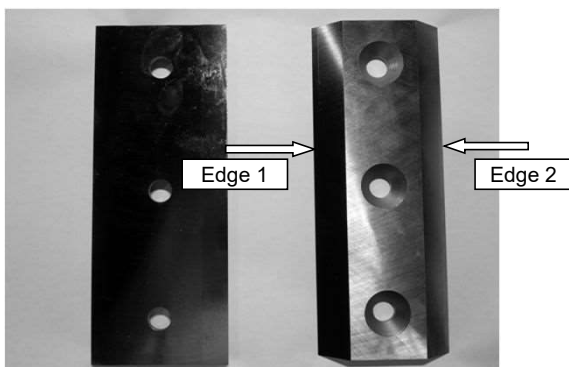
Alternate edge (Turn)

Reverse Top Edge 2	50 hrs
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Sharpen all four edges and use again

Note: Can sharpen approx. 3 times = 800 hrs knife life. Refer to "Remove & Affix Knives" to alternate edges.

CHIPPER KNIFE - LIFE AND SHARPENING



REGULAR MAINTENANCE

If chipper or counter knives becomes dull, it can cause clogging, extra noise, and rotor overloading. Check knives regularly for damage, cracks or dullness. or chipping efficiency is reduced.

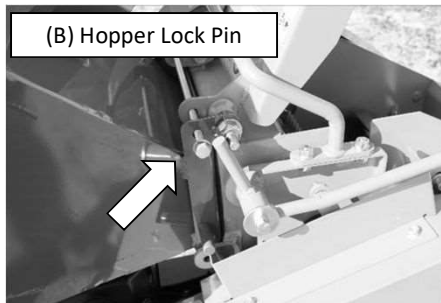
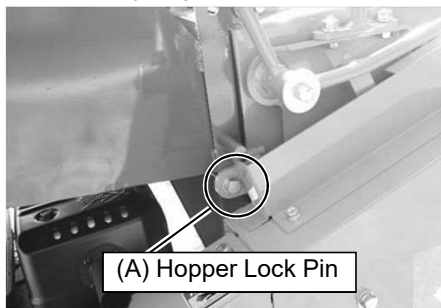
Always clear dust, dirt or chips before affixing knife bolts or they may become loose easily.

REMOVE & AFFIX KNIVES - CHIPPER KNIVES

WARNING

ALWAYS turn engine OFF before opening covers. ALWAYS secure rotor by placing rotor clutch lever to ON before removing / affixing / adjusting knives.

1. Put rotor clutch lever to ON with engine off, loosen the securing bolt on the rotor cover and open.
2. Remove the Hopper Lock Pin (location per photo A) and affix to rotor cover (per photo B) to secure rotor cover in open position.



3. With the rotor cover affixed open, insert a hex key into the 3 socket bolts affixing the chipper knife to the rotor and loosen the nuts on the other side.
4. Remove chipper knife and alternate edges by turning knife or replace knife. Tightly secure socket bolts (110 N.m torque wrench).
5. After mounting the chipper knives, the clearance between chipper knives and counter knife must be adjusted according to "**Knife Adjustment**".
6. When replacing knives, replace both knives and not just one of them to mitigate rotor weight imbalance and irregular rotation.

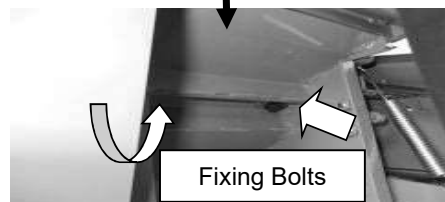
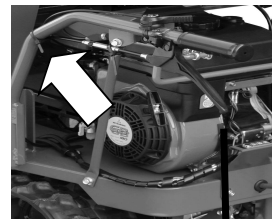
REMOVE & AFFIX KNIVES - COUNTER KNIFE

If the counter knife becomes dull, chipping efficiency is reduced.

1. Fold the hopper and place over the rotor and onto the discharge unit.



2. Loosen and remove the 2 x M12 bolts fixing the counter knife to its bed.



3. Open rotor cover to remove counter knife. Alternate edges or replace knife with a new one. Tightly secure the 2 fixing bolts.
4. After mounting the counter knife, the clearance between chipper knives and counter knife must be adjusted according to "**Knife Adjustment**".

IMPORTANT

ALWAYS perform knife adjustment after moving knives. Refer "**Knife Adjustment**" in this manual.

- 1) Replace spring washers after moving knives.
- 2) When replacing knives, also replace bolts, nut spring washers and plain washers.

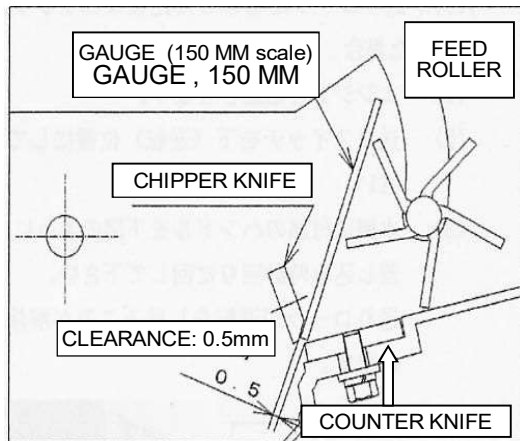
REGULAR MAINTENANCE

KNIFE ADJUSTMENT (IMPORTANT)

After removing or affixing either chipper or counter knives **clearance between the chipper knife and the counter knife must be adjusted correctly.**

Refer to "**Remove & Affix Knives**" section of this manual for instructions on loosening knife fixing bolts.

1. Loosen chipper or counter knife fixing bolts per instructions at "**Remove & Affix Knives**".
2. Insert 0.5mm gauge instrument between the each chipper knife and the counter knife as shown in the diagram below.



3. Ensure the 0.5mm gauge can only just barely fit between the counter knife and chipping knives. A 0.6mm gauge should not be able to fit between the chipper knives and the counter knife. A 0.4mm gauge should pass smoothly.
4. Lightly adjust the position of the chipper knives while the bolts are not fully tightened by tapping on them with a soft plastic or rubber hammer.
5. Check clearance with gauge.
6. When exactly 0.5mm clearance is achieved fix chipper knife bolts securely. Tighten with a 110 N.m torque wrench.
7. Rotate the rotor by hand to ensure that the chipper knives do not hit the counter knife on passing.

8. Close the rotor cover and affix the rotor cover fixing bolt.

CAUTION

Always clear dust, dirt or chips before affixing knife bolts or they may become loose easily.

Be sure all the fixing bolts are tightened firmly. If they are loose during operation, not only could they damage the machine, but could also hurt you.

REGULAR MAINTENANCE

RE-FUELING

DANGER

1. NEVER remove safety covers or refuel with engine on, parts still moving or machine still hot.
2. Never smoke while handling fuel or when servicing engine. Do not handle fuel or service engine near naked flames or uncovered electrical lighting.
3. Carry out any test drives on a level ground in an open and safe place where there is no obstruction.
4. Replace all covers, guards and housing parts after inspection and service.

* According to the operating situation, parts exchanging interval could be shortened. Recommend you to carry out the inspection and maintenance often.

ADDING GASOLINE

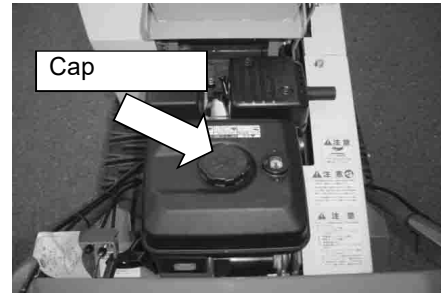
1. Ensure engine is NOT running.
2. Remove the Hopper Lock Pin and open the hopper.



3. Fold the hopper and place over the rotor and onto the discharge unit.



11. Open the fuel tank cap and add gasoline.



CAUTION



OIL CHANGE

1. Deteriorated engine oil decreases the machine's operating ability and can cause engine failure. Periodically change engine oil.

	Oil type	Capacity	Oil change interval
Engine crank case	SJ grade or better	0.6ℓ (with gauge)	After first 20 hours
			Every 100 hours
Transmission	Shell Spirax S3T 15W-40	0.7ℓ	After first 50 hours
			Every 200 hours

2. Drain the oil while it is warm, because warm oil drains better.

CAUTION

1. Use quality oil of SJ grade or better. Do not start machine without sufficient oil in the engine.
2. When using multi-grade oil, remember that oil consumption rate increases as the ambient temperature increases.

REGULAR MAINTENANCE

TRANSPORT CLUTCH ADJUSTMENT

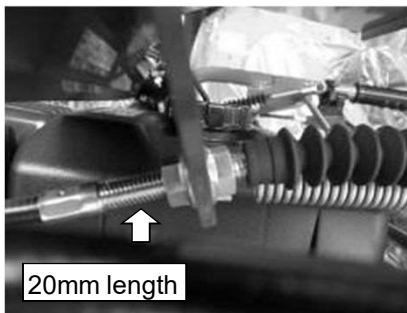
WARNING

NEVER have safety covers off with engine on.

It is very dangerous if the transport clutch does not work properly.

Stop machine if you feel abnormal movement.

1. Shift the brake handle down for transport.
2. If the transport clutch wire is loose extend the wire by adjusting the wire adjusting nuts on each side of the metal brace.



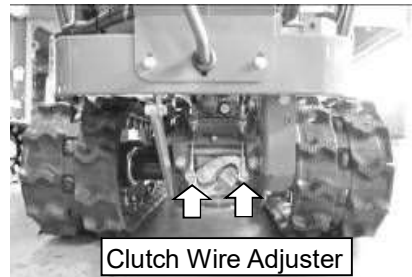
The threaded part of the wire on the side of the metal brace closest to the rotor should be approximately 20mm when brand new. This may change slightly with age so always check if the transport clutch is engaging the transport belt efficiently at the source.

3. Tighten the wire adjusting nuts securely.
4. Release the brake handle up and replace the covers. Start engine and confirm that the transport clutch is fully disengaged.
5. When elasticity of transport belt weakens such that it can not be engaged by adjusting transport clutch wire, replace the transport belt.

TURNING CONTROL LEVER ADJUSTMENT

When the side clutch does not work properly or machine does not turn smoothly, adjust wires for the side clutch.

1. So that the gears in the gear box remain correctly engaged, first without touching the turning control levers, start the engine and move the machine straight forward 2~3 metres.



2. Adjust the side clutch wire adjusting nuts on each side of the metal brace until the turning handle responds as desired when engaged.
3. Tighten the adjuster nuts securely.

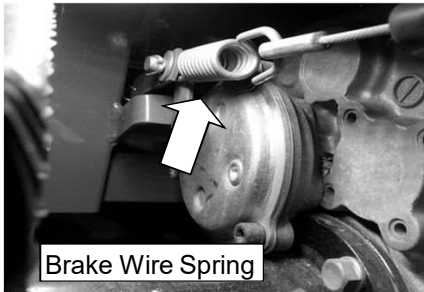
REGULAR MAINTENANCE

PARKING BRAKE

It is very dangerous that the parking brake does not work properly. Immediately stop operating the machine when you feel abnormal conditions and carry out the adjustment mentioned below.

1. Adjustment of the parking brake

- (a) Move the brake handle up thus engaging the parking brake. Check that the brake wire is tensed fully. If brake wire is adjusted correctly, the spring at the end of the wire next to the parking brake shoe cover will lengthen approx. 10mm.

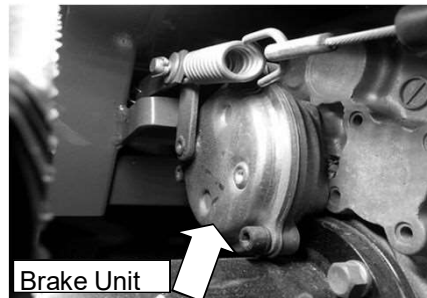


- (b) If the parking brake is not engaging efficiently the wire may be loose. Adjust the wire adjusting nuts on each side of the metal brace to achieve desired response from the parking brake handle.
- (c) Tighten the wire adjusting nuts securely.

2. Checking and replacing parking brake shoe

If even after adjusting the parking brake wire, the parking brake does not respond well, inspect the parking brake pad and replace if necessary.

- (a) Put the brake handle up and loosen the parking brake wire with the adjuster nuts to the maximum possible.
- (b) Remove M3 screws x 3, seal / gasket without damaging it and then the brake unit.



- (c) Remove the snap ring and at the same time the brake drum.
- (d) Replace the brake shoe. Replace the seal / gasket too if necessary. Refit all parts tightly.
- (e) Adjust the parking brake wire to achieve adequate response from the brake handle.
- (f) Replace the parking brake wire if required.
- (g) Tighten the wire adjusting nuts securely.

Note: The minimum usable thickness of the brake pad is 1.5mm but it is recommended to be replaced at 2mm. However, always replace brake shoe if the adequate response is not achieved when engaging the brake handle.

Note 2: The parking brake wire can be further adjusted using the wire adjusting nuts located underneath the feed switch near the right turning control handle.

Note 3: It can be presumed that if the parking brake shoe needs replacing so does the transmission shoe. Inspect.

REGULAR MAINTENANCE

ROTOR CLUTCH

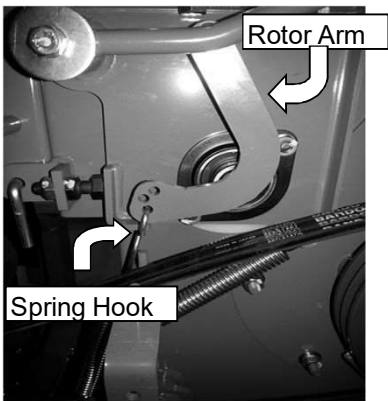
If rotor belt tension weakens engine power is not transmitted efficiently. Check tension regularly. Belt tension can loosen sooner than usual with new machines. Check and adjust when this occurs.

WARNING

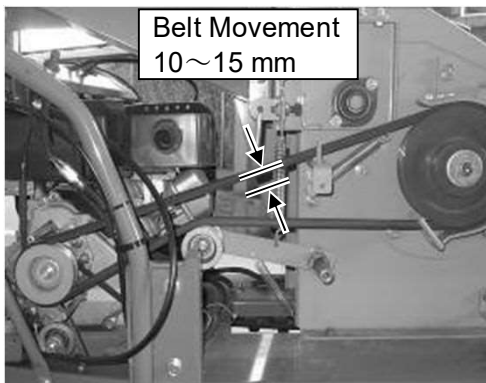
NEVER have safety covers off with engine on.

1. Adjust the rotor arm spring

- a) Remove the right side belt housing cover. If the tension of the rotor belt is weak, adjust by moving the spring hook attached to the rotor clutch arm into one of the 3 holes. (Must detach rotor arm first)



- c) To check the belt is positioned with the correct tension move the spring hook attached to the rotor arm into the hole closest to the ground and move the rotor clutch lever to ON. Now push lightly with your finger into the middle of the belt as shown in the picture below. Movement should be 10 ~ 15mm.

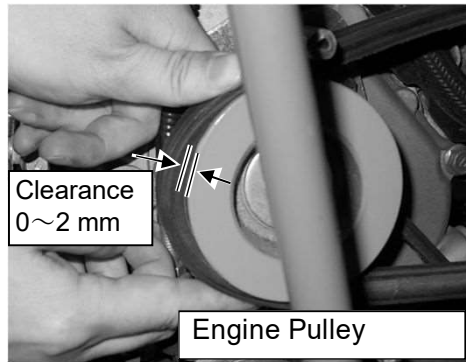


- d) Ensure that when the rotor clutch lever is OFF the rotor belt is not engaging the rotor.

2. Re-tensing of the rotor belt

Where using the 3 holes in the rotor clutch arm no longer provides the desired belt tension adjust the rotor belt:

- a) Put the rotor clutch lever to OFF and place the spring hook attached to the rotor arm in the bottom hole so that the tension of the rotor belt is weakest.
- c) Loosen and remove the M10 bolts x 4 attaching the engine to the machine frame.
- d) Move the engine in the direction away from the rotor, thus tightening the rotor clutch belt. The gap between the outer edge of the engine pulley and inside edge of the rotor belt should be between 0 ~ 2 mm when pulled lightly.



- e) Refit and tighten the 4 bolts securing the engine to the machine frame.
- f) Adjust the rotor arm spring if necessary as explained at 1 above.
- g) Ensure that when the rotor clutch lever is OFF the rotor belt is not engaging the rotor.

REGULAR MAINTENANCE

3. Replacement of Rotor Belt

In the case where adjustments of the engine position, and / or the rotor arm spring do not result in the correct tension of the rotor belt and / or the rotor belt is damaged or frayed, replace the rotor belt.

- a) Shift the rotor clutch lever to the OFF position.
- b) Remove the front, center and rear covers on the right hand side.
- c) Place the spring hook attached to the rotor arm in the bottom hole so that the tension of the rotor belt is weakest.
- d) Loosen and remove the M10 bolts x 4 attaching the engine to the machine frame.
- e) Remove the bolts (M10) fixing the rotor belt holder and remove the rotor belt holder and the rotor belt.
- f) Place a new rotor belt in the position around the rotor and engine pulleys and refit the rotor belt holder.
- g) Adjust the belt tension according to the item **2. Re-tensing of the rotor belt.**

4. Disengagement of the rotor clutch

Reattach safety covers securely and use the transparent window to view the rotor belt.

- a) Shift the rotor clutch lever to the OFF position.
- b) Turn the fuel cock to the OPEN position.
- c) Start the engine and locate the throttle lever to the full throttle.
- d) Shift the rotor clutch lever from the OFF to the ON gradually.
- e) Repeat ON and OFF action of clutch lever and check that when ON the rotor belt moves and when OFF the belt stops moving immediately.
- f) If not, stop the engine, close the fuel cock, re-adjust the wire and rotor arm spring and re-tense the rotor belt as per item **1** and **2** above.

- g) When the adjustment is completed, place the covers on the machine and fit tightly.

CAUTION

If letters are printed on the rotor belt, attach the rotor belt to the pulleys so that the written sentence begins at the direction of the engine pulley and ends in the direction of the rotor pulley.

FEED ROLLER CHAIN

Regularly apply oil to the feed chain or the chain can become loose and damaged

If there is any considerable dirt or things attached to the chains remove them before oiling.

Use machine oil SAE20.

If the chain becomes partly detached, reattach. When the chain becomes damaged to the point it can no longer be used, replace.

REGULAR MAINTENANCE

RUBBER CRAWLER

Rubber crawler tension must be checked regularly.

Especially, when the machine is new, the rubber crawlers extend quickly due to following reasons:

- When the rubber crawlers are new, they extend quickly.
- Tightness of the rubber crawler become loose due to the sprocket fitness.

For adjusting the rubber crawler, proceed as follows:

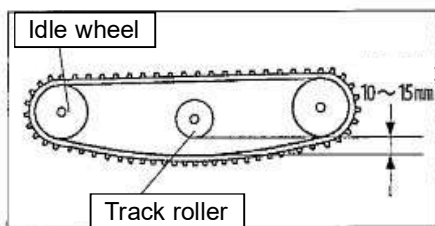
1. Place machine on a level surface of the vehicle body
2. Use a jack to elevate the crawler so that one side of the machines tracks can hang free and loose.

WARNING

Be careful that the machine does not fall from the jack and is secure.

3. Loosen the crawler's lock nuts.

- 4 Turn the crawler bolt, and adjust so that the clearance between crawler and wheel (illustration) is about 10-15 mm (wheels in parallel).



5. Tighten the lock nuts securely.

CAUTION 1

Re-tighten the crawler tension within first 10-20 hours operation.

CAUTION 2

The crawler tension on both sides should be same so that the crawler drives straight.

CAUTION 3

If the rubber crawler is not tensed correctly, life of the rubber crawler is shortened and trouble happens on the parts.

If the crawlers are tensed too much, too much friction will reduce the life of the crawlers.

The machine will also not drive efficiently.

So therefore check that the tension is correct regularly and adjust if necessary.

REGULAR MAINTENANCE

ENGINE

* Refer to the engine manual for details.

1. Engine oil change

(* Refer to "Re-fueling")

After first 20 hours of operation

Every 100 hours

- (1) Stop engine. Drain the oil while it is warm.
The oil drains quickly if yellow oil gauge is removed.
- (2) When refilling, be sure that the drain plug is fixed firmly to the tank. 0.55 liter of oil can be filled in.
- (3) Deteriorated engine oil causes not only decrease in machine ability but also machine failure. Periodically drain old oil, and pour required amount of new oil.

CAUTION

Be very careful of hot oil and avoid getting burned.

2. Clean maintain the spark plug

Every 100 hours of operation

- (1) If the spark plug is blackened by carbon, remove the carbon attached to the electrode, polish the electrode with emery paper.
- (2) If the electrode gap is not correct, adjust the gap to 0.7mm.
- (3) If the engine will not run even after cleaning the spark plug and adjusting the electrode gap, replace the old spark plug with new one.
* Spark plug product Nos.
NGK BPR6ES
DENSO W20EPR-U
- (4) When install a new or re-adjust spark plug, insert the plug cap securely.

3. Inspection and cleaning of the sediment cup

DANGER

Keep Fire Away

- (1) Check that water and dirt has not collected in the sediment cup.
- (2) If there is dirt in the sediment cup, set the fuel cock to CLOSE position and remove the sediment cup.
- (3) Remove the deposit in the cup, and clean the net. Replace the strainer cup, seating it fully into the hole.

CAUTION

If the engine carburetor and governor are not working correctly the feed roller process and chipping process are effected. If these areas are not working properly consult your dealer immediately.

REGULAR MAINTENANCE

ENGINE (cont.)

* Refer to the engine manual for details.

4. Air cleaner inspection and maintenance

Check before each operation.

The air inlet in the cleaner is an important component that sucks in cooled air for the engine. Failure to clean regularly may lead to overheating of the engine and decrease engine power and the life of engine.

Keep it clean at all times.

DANGER

Keep Fire Away

- (1) When foam element of air cleaner gets dirty, clean it as follows:
 - a) Clean in non-flammable solvent and allow to dry. Dip the filter element in clean engine oil, then squeeze out all excess oil. The engine will smoke when started if too much oil is left in the foam.

- (2) Also clean the paper element before each use and replace it every 300 hours of use.
 - a) Remove the urethane foam element from around the paper element and tap the paper element several times on a hard surface to remove dirt, or blow compressed air through the filter element from the inside. Never to brush off dirt; brushing will force dirt into the fibers.
 - b) After cleaning replace the urethane foam element over the paper element and reinstall the assembled air filter. Be sure the gasket is in place beneath the air filter. Tighten the air wing nut securely.

5. Replace the fuel tubes

Every 2 years or when necessary by an authorized dealer

DANGER

Keep Fire Away

If you find flawed or cracked pipe that may lead to fuel leak, immediately replace it. Fuel leak can cause a fire.

DANGER

Never perform any of these tasks with the engine on.

REGULAR MAINTENANCE

6. Daily check

Before driving the engine, do the check out as follows.



7. Regular check

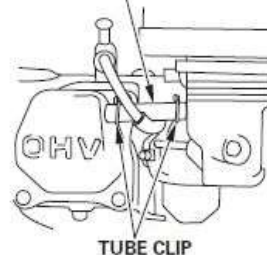
To keep the engine in good conditions, be sure to perform inspection and maintenance according to the following schedule.

REGULAR SERVICE PERIOD (3) Perform at every indicated month or operating hour interval, whichever comes first.		Each Use	First Month or 20 Hrs	Every 3 Months or 50 Hrs	Every 6 Months or 100 Hrs	Every Year or 300 Hrs
ITEM						
Engine oil	Check level	○				
	Change		○		○	
Reduction case oil (applicable types)	Check level	○				
	Change		○		○	
Air filter	Check	○				
	Clean			○ (1)	○ * (1)	
	Replace					○ **
Sediment cup	Clean				○	
Spark plug	Check-adjust				○	
	Replace					○
Spark arrester (applicable types)	Clean				○	
Idle speed	Check-adjust					○ (2)
Valve clearance	Check-adjust					○ (2)
Combustion chamber	Clean	After every 500 Hrs. (2)				
Fuel tank & filter	Clean				○ (2)	
Fuel tube	Check	Every 2 years (Replace if necessary) (2)				

- * • Internal vent carburetor with dual element type only.
- Cyclone type every 6 months or 150 hours.

INTERNAL VENT CARBURETOR TYPE

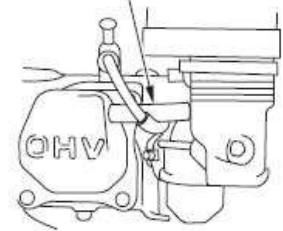
BREATHER TUBE



TUBE CLIP

STANDARD TYPE

BREATHER TUBE



- ** • Replace paper element type only.
- Cyclone type every 2 years or 600 hours.

- (1) Service more frequently when used in dusty areas.
- (2) These items should be serviced by your servicing dealer, unless you have the proper tools and are mechanically proficient. Refer to Honda shop manual for service procedures.
- (3) For commercial use, log hours of operation to determine proper maintenance intervals.

LUBRICATION CHART (Lubrication Points)

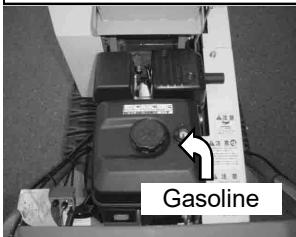
↙ Machine oil

↶ refer to picture information

↑ Lithium Grease

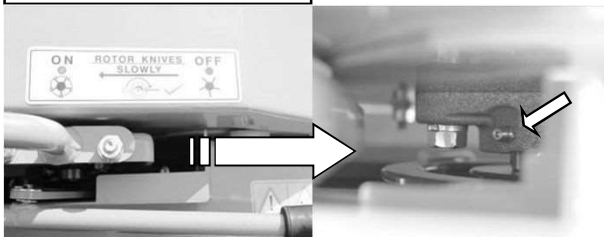


Gasoline tank

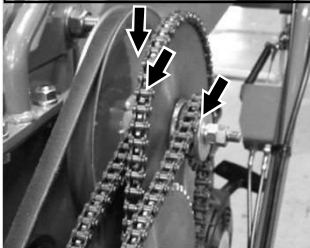


Gasoline

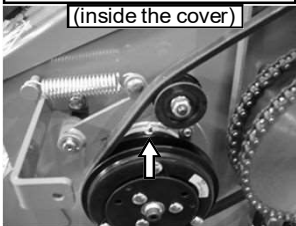
Rotor bearing



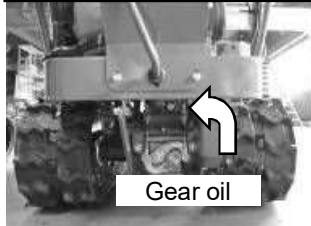
Sprocket



Rotor bearing
(inside the cover)

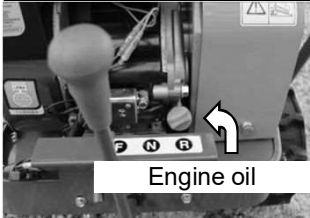


Transmission



Gear oil

Engine



Engine oil

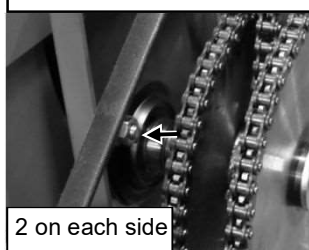
TIGHTENING NUTS & BOLTS

CAUTION

Before operating the machine, check if the parts are well fastened.

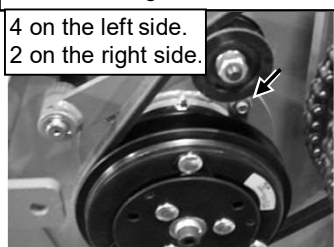


Feed Roller Arm Fixed Bolt



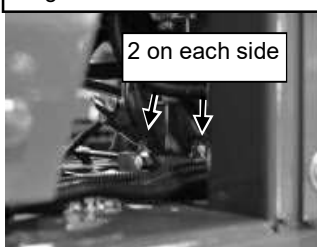
2 on each side

Rotor Bearing Unit Fixed Bolts



4 on the left side.
2 on the right side.

Engine Fixed Bolts and Nuts



2 on each side

SERVICING AFTER OPERATION/LONG TERM STORAGE

SERVICING AFTER OPERATION

1. Follow the following steps to prepare for servicing and maintenance.

- (a) Ensure the brake handle is up.
- (b) Move the rotor clutch lever to OFF position
- (c) Turn the fuel cock to CLOSE position.

Components to clean.

- (1) Hopper
- (2) Feed rollers
- (3) Rotor housing
- (4) Rubber crawlers

CAUTION

Do not use water to clean the components near the engine, oil reservoir or electronic components. Use compressed air, a brush or cloth to clean dirt, dust and debris from these sections.

- 1. Wash the machine after use on the same day.
- 2. After washing, let the washed areas dry naturally and completely. After drying them out, lubricate the rotating and sliding parts with adequate amount of lubrication oil.
- 3. Pour oil and lubricant on and in all other parts of the machine that require it per the lubrication chart.

SERVICING AFTER OPERATION/LONG TERM STORAGE

LONG TERM STORAGE

1. Pour oil and lubricant on and in all other parts of the machine that require it per the lubrication chart after washing.
2. Drain the fuel from the fuel tank, following the steps described below.
 - (a) Turn the fuel cock to CLOSE position.
 - (b) Clean and empty the fuel cup and strainer. per "**Inspection and cleaning of the fuel cock**".
 - (c) Place an oil pan beneath the fuel cock. Turn the fuel cock to OPEN, and let the fuel drain from the fuel tank.
 - (d) Replace the strainer cup.
3. Start engine and run it until the no more fuel remains.
4. Change the engine oil.
5. Clean the element of the air cleaner and replace it.
6. Run the engine once a month and make the lubricating oil circulate in the engine.
7. Clean each components of the machine with oil cloth. Cover the machine to protect it and keep it clean. Store the machine in a clean, dry storage area.

CAUTION

In the cold area, mud or other obstacles stuck on the machine must be removed immediately after finishing the operation. Frozen obstacles cause machine trouble. Store the machine on the concrete or treated wood planks. If the machine would not run due to freeze, do not try to make the machine run. Use boiled water and wait until the parts could be defrosted. If the machine is moved forcibly under the above condition and machine damage may happens, we, manufacturer, do not take any responsibility for the damage.

ACCESSORY TOOL LIST

Check if you have all accessory tools needed.

NO	Name	Part No.	Qty
1	Box spanner	KN12007AA	1
2	150mm scale	—	1
3	T wrench 13mm	10729900300	1

LIST OF CONSUMABLE PARTS

Part name	Part No.	Life (per unit)	Remarks
Main Body			
Chipper knife	10616220001	300 hrs	Knife x2, bolt x6, spring washer x6, plain washer x6, nut x6
Counter knife	10636320000	800 hrs	Knife x1, bolt x2, spring washer x2, plain washer x2
Rotor belt (2R-3V-630)	A813V020630	at proper time	
Transport belt (SA-30)	A81SA010030	at proper time	
Feed belt (SA-40)	A81SB010036	at proper time	
Rotor bearing unit (right) (UCFL205L2)	A7030205000	500 hrs	Estimated life varies on usage
Rotor bearing unit (left) (UC205)	A7040205000	500 hrs	Estimated life varies on usage
Feed roller bearing unit (SBPFL204)	A7055204000	1000 hrs	
Sprocket bearing (68032ZZ)	A70690300ZZ	200 hrs	
Feed roller chain (35-60RB)	A8335000600	at proper time	
Engine			
Air Cleaner elements	17210Z4M821	300 hrs	
Fuel hose	9807956876	Every 2 years	
Spark plug (BPR6ES)	9807956876	300 hrs	
Electric System			
Fuse A (7.5A) (feed roller)	A9920003207	at proper time	
Safety bar sensor	-	at proper time	

Estimate life time could vary on usage conditions.
Regarding oil change, refer to the oil change section.

TROUBLESHOOTING

Stop the engine before inspecting.

Problems	Probable causes	Remedial actions
Engine will not start	(1) Empty fuel tank	Add fuel
	(2) Fuel is not suctioned into the combustion chamber.	Check suction carburetor and fuel strainer.
	(3) Wrong engine starting procedures.	Refer to " Starting the Engine ".
	(4) Water in the fuel	If water is trapped in the fuel filter, remove the carburetor and fuel strainer to drain the water. After draining, clean the carburetor and the fuel strainer.
	(5) Deteriorated fuel retained after long term storage	Drain the old fuel in the fuel tank, fuel filter, and carburetor. Fill new fuel. In particular, check for clogged main jet of the carburetor and clean it thoroughly.
	(6) Spark plug not in working condition	Remove the spark plug. If the plug is wet, dry it over a flame or wipe it with dry cloth. Dry the spark plug thoroughly. Adjust the air gap to 0.6 to 0.7mm. If the engine will not start even after the air gap adjustment, replace the spark plug. <div style="border: 1px solid black; padding: 2px; display: inline-block; margin: 5px 0;">CAUTION</div> Replace the re-adjusted or new plug, and insert the plug cap securely.
Low engine power	(1) Dirty air cleaner	Clean the air cleaner and element with white kerosene.
	(2) Clogged engine air inlet section.	Thoroughly clean the air inlet.
	(3) Low engine oil level	Refill the engine oil. If the engine oil is deteriorated, drain it and fill new oil.
	(4) Low engine speed	Reduce the play in the throttle lever. Adjust and correct the creeping of the throttle wire.
	(5) Poor compression of engine	Tighten the spark plug and cylinder head bolts. Otherwise contact your dealer to check for wear on the piston rings.
Clogging	Engine stops due to clogging of woods in the feed roller	Refer to " Feed Roller Clogging Release ".
Abnormal vibration of the machine	(1) Engine vibration due to improper mounting	Check and re-tighten the engine mounting bolts fully and securely.
	(2) Chipper knife comes off or bolts are loose.	Fit the chipper knife. Re-tighten the bolts.
	(3) The rotor housing vibrates	Re-tighten the bolts fixing the rotor housing.
	(4) The rotor shaft bearing is damaged.	Replace with new one.

TROUBLESHOOTING

FEED ROLLER CHECK

FEED ROLLER DOES NOT ROTATE.

A) When the feed roller does not rotate forward:

Check points	Causes	Solutions
1) Engine power	Too low. Throttle wire loose.	Turn throttle to increase power & tighten throttle wire.
2) Feed switch	Defective	Replace it
3) Feed roller	Clogging	Remove the clogged material.
4) Feed roller chain	Defective	Replace it
5) Electric wiring	Defective wiring	Re-wiring
6) Fuse 7.5A	Defective	Replace it
7) Safety bar	Engaged or broken	Disengage or repair
8) Safety bar release switch	Defective	Replace it

B) Automatic control does not work

(The roller does not stop automatically and engine cuts out eventually)

Check points	Causes	Solutions
1) Electric wiring	Defective wiring	Re-wiring
2) Fuse 7.5A	Defective	Replace it

REGULAR MAINTENANCE

Maintenance Schedule	Daily	100 hours	200 hours	300 hours	800 hours
Clean air cleaner.	✓				
Check engine and transmission oil level, cleanliness and for any spillage.	✓				
Check for cracks and / or wear on the knives.	✓				
Clean engine and rubber crawlers.	✓				
Retighten the bolts and nuts of the knives and at each place.	✓				
Check fuel level and for any spillage.	✓				
Grease lubrication points.	✓	(Refer to "Lubrication Chart")			
Lubricate all wire and lever supporting points and any friction.	✓	(Refer to "Lubrication Chart")			
Check for cracks and / or wear of belts and chains.	✓				
Check turning control levers.	✓				
Check rotor clutch.	✓				
Check all machine safety covers, guards and housing are closed and fitted securely.	✓				
Test Safety Bar is working properly.	✓				
Check rubber crawler tension.	✓	(Adjust first 10-20 hrs.)			
Sharpen the chipper knives.		✓(*1)			
Check and cleaning of spark plug.		✓			
Check and cleaning of sediment cup.		✓			
Sharpen the counter knife.			✓		
Replace chipper knives.				✓	
Replace counter knives.					✓
Change engine oil.		✓(*2)			
Change transmission oil.		✓(*3)			
Check transport clutch and parking brake.	Every 3 months				
Replace fuel tubes.	Every 2 years (or when necessary)(*4)				
Service engine.	(Refer to the engine manual)				

*1 Every 50 hours approximately.

*2 First 20 hours of operation and then every 100 hours.

*3 First 50 hours of use in transportation. After every 200 hours of use in transportation.

*4 By an authorised dealer.

NOISE TEST

CAUTION 1

Wear ear protection at all times when using the machine.
People in close proximity to the machine should also wear ear protection to protect from ear damage.

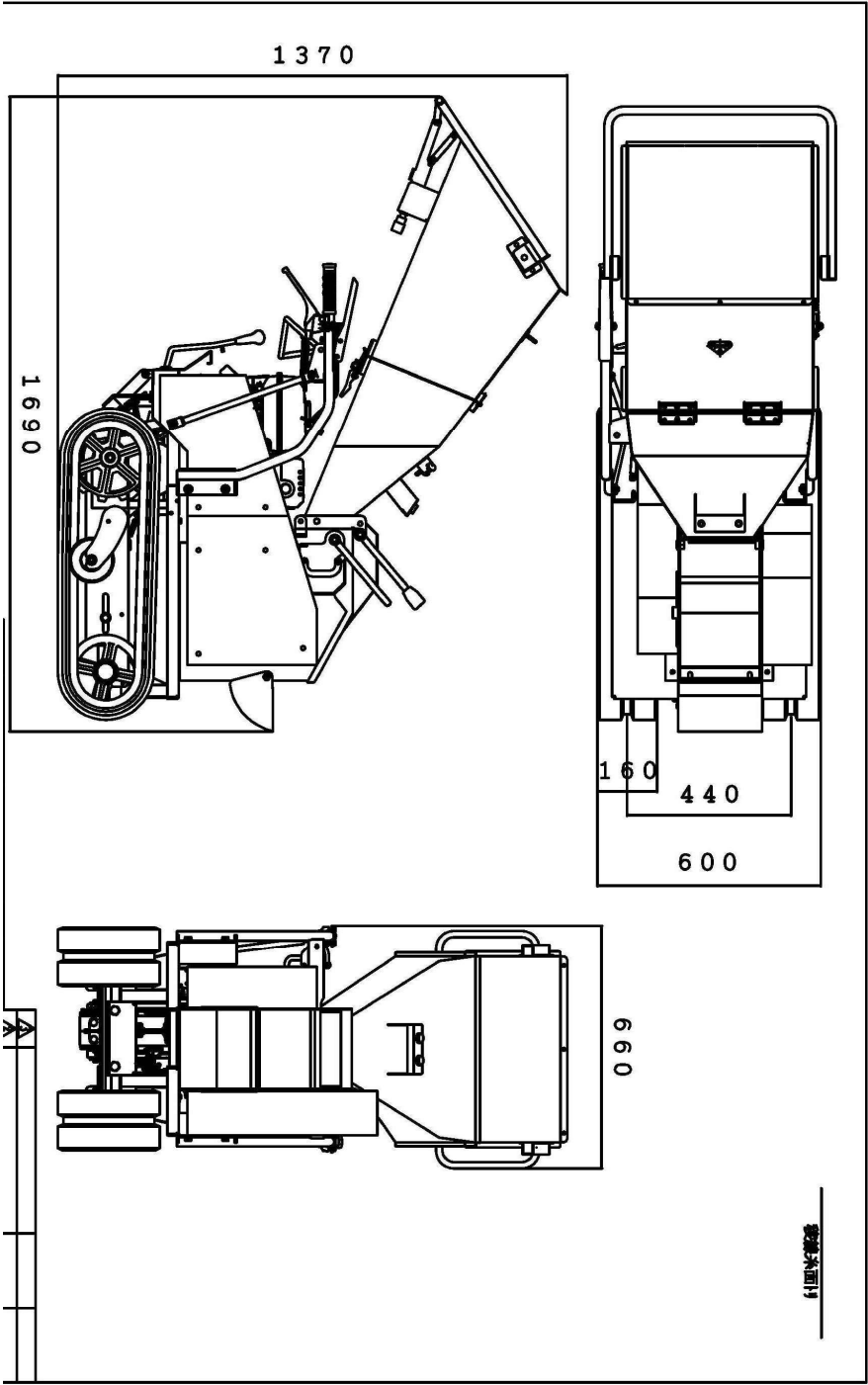
The Guaranteed Sound Power Level for this machine was recorded at 111dB (Lwa).

The Sound Pressure Level for this machine was recorded at 83.2dB (Laeq).

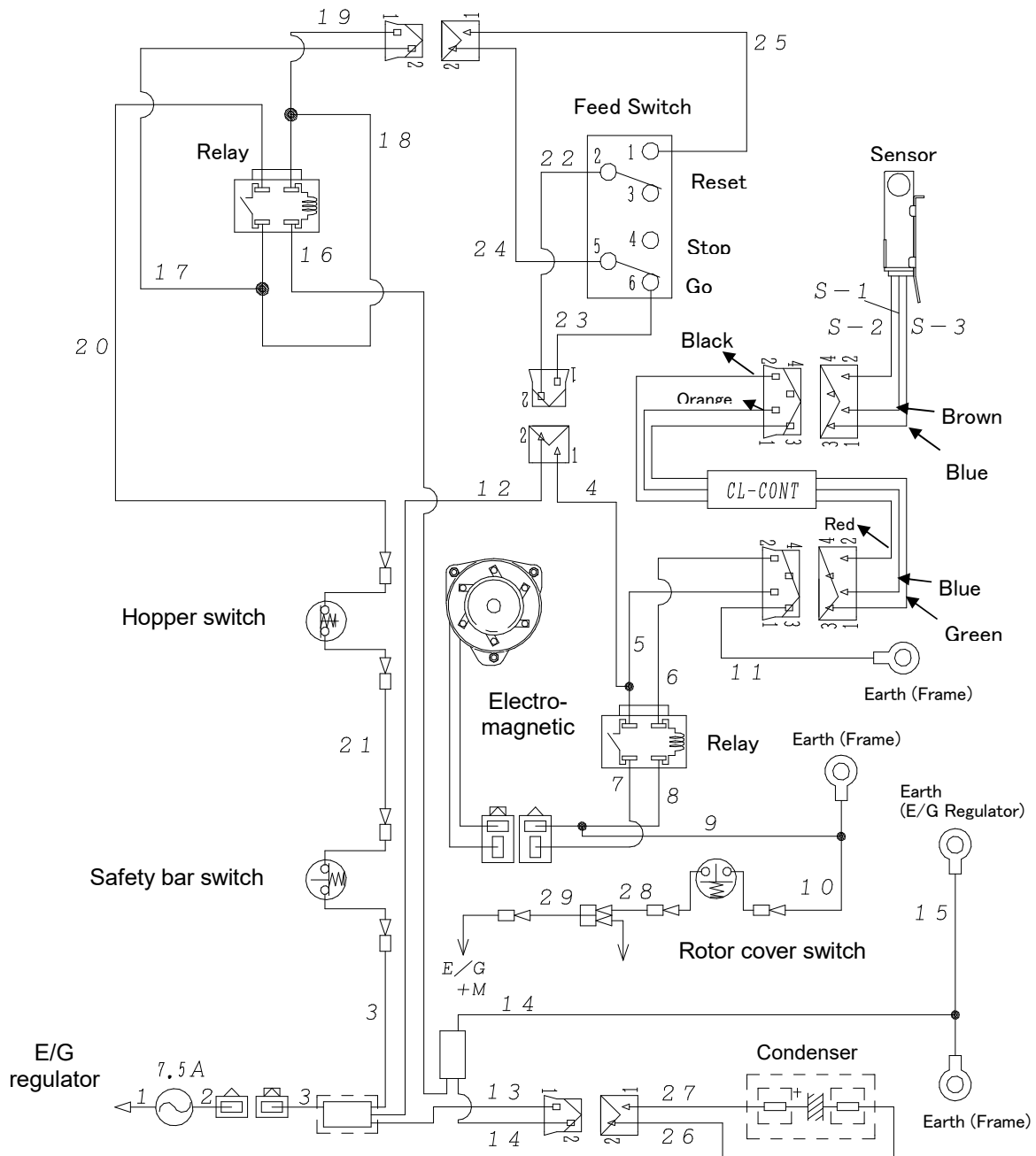
The measurements were conducted according to:
Directive 2000/14/EC



MACHINE DIMENSIONS



ELECTRONIC WIRING DIAGRAM



EC Declaration of Conformity

Ohashi Inc.

401 Sakimura, Chiyoda, Kanzaki, Saga 842-0065, Japan
TEL +81-952-44-3135
FAX +81-952-44-3137

We declare, under our solo responsibility, that the product:

Product: Wood Chipper

Model: ES73G

Serial No. Range: 00101 ~ 00XXX

to which this declaration relates complies with the provisions of following European Directives:

- Directive 2006/42/EC on Machinery;
- Directive 2014/30/EU Electromagnetic compatibility Directives;
- Directive 2000/14/EC on Noise emission in the environment;
- The Guaranteed Sound Power Level for this machine was recorded at 111dB (Lwa);
- The Sound Pressure Level for this machine was recorded at 83.2dB (Laeq);
- Directive 2011/65/EU on the Restriction of the use of certain Hazardous;

Applied Harmonized Standards:

EN ISO 13857:2019 Safety of Machinery - Safety distances to prevent hazard zones being reached by upper and lower limbs.

EN ISO 12100:2010 Safety of machinery - general principles for design – Risk assessment and risk reduction;


EN ISO 14982:2009 Electromagnetic compatibility

EN ISO 3744:2010

EN ISO 50851:2012 Substances in electrical and electronic equipment

Authorized representative:

Mr. Thierry Fruhauff of Sapag Jardins at 2551 Chemin de Saint Claude, 06600 Antibes, France, can compile the technical file on request.

Signature 
Hiroyuki Ohashi
President, Ohashi Inc.

Date of issue: 13 December, 2019

WARRANTY STATEMENT

The warranty period for the wood chipper commences on the date of sale to the first end user and continues for a period of 24 months. The guarantee is to the first end user only and is not transferable. However, should any damage or fault occur from a cause for which Ohashi is not responsible, then even within the aforementioned period, Ohashi will not be responsible for any warranty obligation.

The warranty is applicable only to the following:

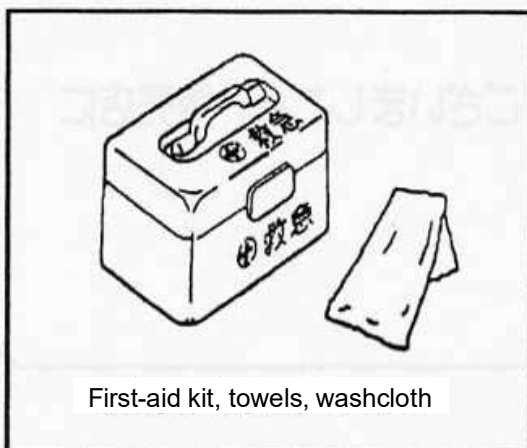
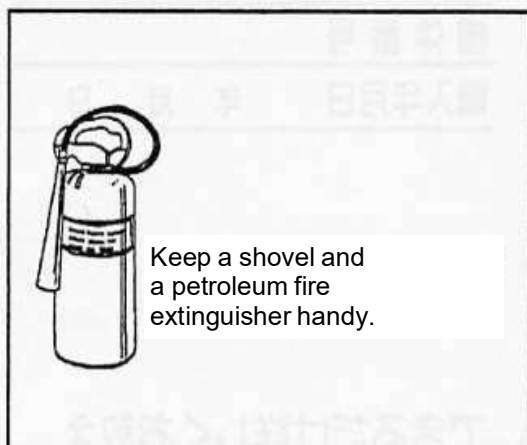
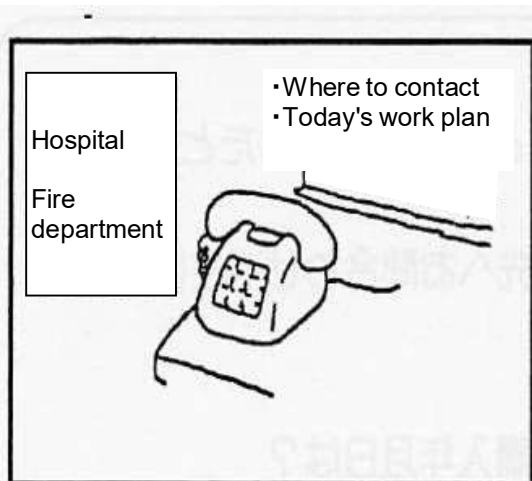
- Machine parts which are damaged or faulty from a cause for which Ohashi is responsible, and require replacing, as well as any other machine parts which as a consequence of the aforementioned damaged or faulty parts, require replacing for the effective operation of the machine.

The warranty is not applicable to the following:

- The entire machine as a whole.
- Faults which arise due to actions / inactions that are not part of the correct and appropriate handling of the machine guidance given by Ohashi.
- Any faults or damage attributed to the handling, assembly and / or maintenance conducted on the machine.
- Any faults or damage attributed to or arising as a consequence of unauthorized modifications conducted and / or the use of parts not authorized and / or supplied by Ohashi.
- Parts which degenerate with time and use of the machine and are generally accepted to be consumable parts which require replacing at the cost of the user.
- Any faults or damage arising as a result of natural disasters or accidents and are unrelated to production errors.

Ohashi warrants to the first end user to be free from manufacturing defects both in materials and workmanship in normal service for the period mentioned above. The faulty or damaged parts should be sent to Ohashi for investigation if Ohashi requests.

JUST IN CASE OF EMERGENCY



● Preparation before starting operation

- Just in case, clearly write up telephone numbers of medical institution and fire station (also to call an ambulance) in a prominent place close to telephones. In case of an emergency call, it is useful to write up a sketch map of work site (indicating address and land marks) to facilitate an emergency contact.
- Let other people know where the work is being done. Write where to contact and work plan up on the blackboard. This information will be useful should you get injured and become paralyzed being unable to call for help yourself.
- Bring a whistle to the work site.

● In case of fire

DANGER

If engine takes fire or emits smoke, stop the machine immediately, switch Engine Switch to OFF position. Extinguish the fire. Pay extreme caution to protect yourself from personal injury while fighting the fire.

- If engine takes fire or emits smoke from other sections than exhaust outlet, stop the machine immediately, switch Engine Switch to OFF position. Extinguish the fire.
- Pay extra caution to protect yourself from fire and personal injury.
- Do not let trees and grasses become fuel for the fire.
- Smother the fire with sand using a shovel or extinguish the fire with petroleum fire extinguisher.

● In case of personal injury

- Just in case of personal injury, keep a first-aid kit handy. Just in case of injury involving bleeding, keep towels and wash cloth handy, which will be useful to stop the bleeding. It is advisable to always bring extra towels and washcloth to your work site just in case.

● First-aid

- To acquire fundamental knowledge and skills related to first-aid, it is recommended to take courses and trainings that are provided by local fire institution and organization.



Ohashi Inc.

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www.ohashi-inc.com