OWNER'S MANUAL

SH72H
Samurai Mower Hydro

Samurai walk behind mower

Read this instuction manual carefully before any use of the machine, keep it as a reference. Also, the engine manual is included as a set with the owners manual. Please read both carefully. For any questions about this manual, please contact your OREC dealer, the distributor in your country, or go to : http://www.orecamerica.com

0320-71000

Getting Started

Thank you for purchasing this machine. These instructions explain the correct and easy way to always keep this machine in fine working order and operate it safely.
Please read these instructions fully before using this machine in order to understand the safest, most efficient way of operating it, and the correct way maintain it.
Please keep these instructions in a safe place where they can be easily referred to at any time. We hope you will use this machine for many years to come.
Furthermore, please understand that ongoing enhancements in quality and performance, and other possible parts improvements may cause the actual machine to vary slightly from what is described in these instructions.

Machine Regulations

This machine is designed to cut overgrown weeds and bush, and is not a lawn mower. Therefore it can not offer the same quality cut as a finishing mower.
This machine is designed mainly for commercial and agricultural users.

Definitions and Signs

In these instructions, the following signs and definitions are used to indicate the level of danger that exists. Please obey the following warnings and have a full understanding of the meaning of the signs.

Sign	Definition
⚠ DANGER	Displayed when failure to obey instructions can result in death or serious injury.
⚠ WARNING	Displayed when there is a danger of death or serious injury.
⚠ CAUTION	Displayed when failure to obey instructions can result in injury, or when not attending to the machine and correcting it can also result in injury.
NOTICE	Displayed when it is important to know about operation and maintenance specific to this machine, or at times when misunderstanding and mistakes are common.

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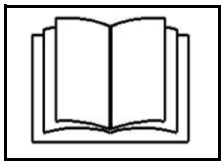
1. For Safe Operation

Please read the safety and engine manuals carefully before operating this machine.
Furthermore, please prepare protective clothing and equipment such as gloves, helmet, ear and eye protection, non-hanging shirt sleeves and pant legs.
Finally, please carefully inspect the machine to ensure that it works properly.

1) Warning Labels

The warning labels are attached to the machine to draw attention to particularly serious dangers. Please be sure to fully understand the meaning of each warning label before operating this machine.



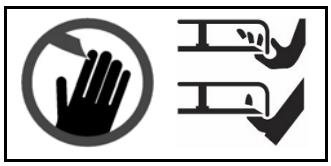
・Read the safety and operating manual

・Remove all objects that could be thrown by the mower blades.
Beware of thrown objects.

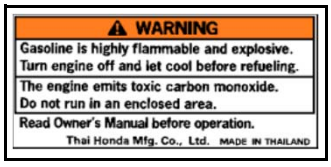
・Keep body parts away from rotating parts

・Always wear safety glasses or goggles, and ear protection while operating the machine.

・Do not use on slopes of more than 15°



・Keep body parts away from the mower blades.



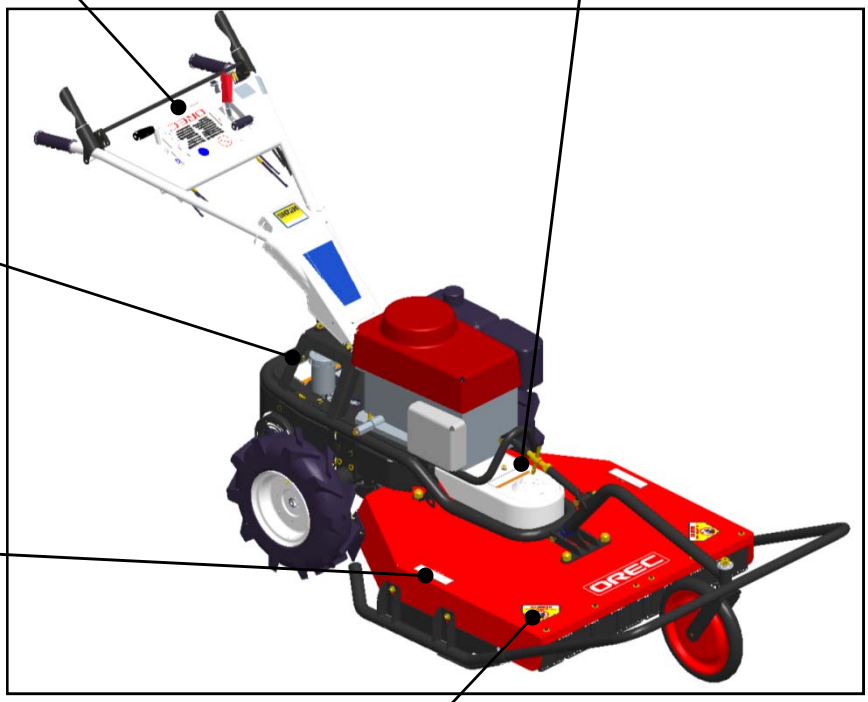
・**For the Engine**
Read Engine instruction manual before using.
Pay attention to exhaust, hot surfaces, and flammable gasoline.
(Engine Parts)

(0320-73200)

(0220-71100)

(0220-70700)

(0220-70900)



(0220-70800)

NOTICE

- If these warning labels become difficult to see, please replace them so that they can be easily seen and understood.
- Contact your Orec America dealer and request the part numbers indicated above.

2) Important safety points

This machine is equipped with a high-powered engine and fast moving blades. Misuse of this machine can result in serious injury or death. Before using this machine, please be sure to read these instructions and understand and obey the following warnings.

■Notes for the operator of this machine

⚠WARNING

- The operator of this machine should fully read these instructions. You can safely use this machine only after gaining a full understanding of its operation and safety use guidelines.
- Operate this machine only after fully reading and understanding the included engine instructions.
- The operation and maintenance of this machine should only be performed by trained persons.
- Do not allow children, expectant mothers or any untrained person to use this machine as accident and injury can result. Furthermore, please check and observe local laws which may place age limits on the operation of machinery.
- Do not operate if fatigued, ill, or if under the influence of alcohol or drugs. Accidents and injury can result.

■When lending this machine to another person

⚠WARNING

When lending this machine to another person it is the owner's responsibility that the following steps are taken:

- The owner should explain how to operate the machine and get the new operator to fully read these instructions. The owner should then guide the new operator until they have a comprehensive understanding of the machine's operation and safety guidelines. Furthermore, the owner should lend these instructions to the new operator together with the machine.
- When lending this machine to a person who can not read English, the owner should take responsibility for completely explaining its safe operation.
- Before lending this machine to another person, the owner holds responsibility for the management of this machine, including checking that all parts are correctly attached and that all functions are working correctly.

■Managing gasoline safely

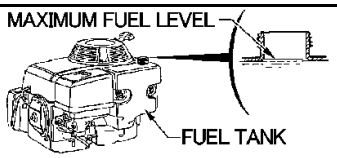
⚠ DANGER

- Under no circumstances should you smoke, operate firearms, or use any open flame while using gasoline. Also, please be careful of static electricity as gasoline is extremely flammable.In addition, gasoline is highly volatile and may cause fire or an explosion
- Do not use a type of gasoline other than that described. There is a danger of fires and explosions.

⚠WARNING

- Gasoline and oil should be stored away from fire in vented, metal, non-flammable approved containers. Also, please keep out of reach of children, to prevent fire or other accidents.
- Please refuel in a place that can be well ventilated. As gasoline is a highly volatile substance, there is a danger that you will feel unwell if you operate the machine in a poorly ventilated place.
- Do not open the fuel cap while running the engine.
- When refueling, please stop the engine and wait until it has cooled. Failure to do so could cause fire or other accidents, and presents a burn hazard.

- When refueling, do not fill the fuel tank over the maximum level. If you do overfill the fuel tank, remove fuel until it sits below the maximum level. Over-fueling can cause fire and other accidents.



- After refueling, tightly close the fuel tank cap, make sure there is no leakage of gas and make sure there is no open flame in the operating area, as this could start a fire.
- If gasoline is spilled, move the machine a safe distance away without starting the engine. Starting the machine in close proximity to spilled fuel could result in a fire or other accidents. Use a cloth to wipe away the spilled gasoline and dispose of any such cloth in a suitable manner.
- Be sure to change your clothes immediately if they come into contact with gasoline. There is a danger that any gasoline on your clothes could ignite or cause you to feel unwell.
- Do not refuel in places such as inside a car or on a truck, as they could move unexpectedly. Refuel after placing your fuel container safely on the ground, away from vehicles. Spilt fuel can cause fire and other accidents.
- Please do not refuel while the machine is on a vehicle or trailer, as this could cause fire or accident
- Do not remove the refueling nozzle from the fuel tank until you have finished refueling. Spilt fuel can cause fire and other accidents.

■Caution when starting the engine

⚠ DANGER

- Please do not modify the engine, as this could cause fires, malfunctions or other accidents. Orec assumes no liability for accidents or injuries resulting from modification or addition to the machine. Any additions or modifications will also void warranty claims.
- Do not try to alter the position of the engine governor or change the set rotation speeds.
- Do not run the engine in a place that is poorly ventilated. Engine exhaust gas is odorless and contains carbon monoxide which can cause death or serious illness.

⚠ WARNING

- Do not allow highly flammable substances near the engine or the path of the exhaust as this can cause a fire.
- When starting the engine please ensure that the blade clutch is disengaged and the V-Belt has stopped. If the belt is moving even a little, stop the engine immediately, disconnect the spark plug wire and adjust the belt wire.
  Belt movement while starting the engine could lead to an accident or injury.
- Do not touch the engine or muffler as they become extremely hot during operation and can cause severe burns.
- Ensure that no material builds up in the engine or muffler as this can result in a fire.
- Ensure that the operator presence lever and blade clutch are in the [OFF] position, the speed change lever is in the [N] position, and the brake is ON, before starting the engine. Not taking these precautions when starting the engine can cause injury and accidents.

■Caution when loading and unloading

⚠ WARNING

- When loading or unloading using a truck, proceed carefully and be certain to park on a flat and safe surface. A truck moving suddenly could cause injury and accidents.
- Attach a gently sloping ramp securely to the truck's loading platform and reduce engine power to low. The speed change lever should be put in the neutral [N] position for loading, and in the reverse [R] position for unloading. Proceed with caution as injury and accidents can be caused by the machine tipping over or running out of control.

■Before operating the machine

⚠ DANGER

- Do not remove any parts of this machine that have been fitted as standard. To prevent accidents, be sure to use all covers and parts in the same state as they have been fitted.

⚠ WARNING

- DO NOT try to modify this machine (including modification of the protective cover and safety cover) as this can cause injury and accidents.
  Altering this machine in any way will void the warrant. Orec America Inc. will bear no responsibility for damage or injury caused by alterations or modifications.
- Do not automatically change or tamper with the safety apparatus. Inspections should be performed periodically to ensure the safety apparatus is working correctly.
- For reasons of safety, use OREC's recommended accessories and attachments that are best suited to the ground you are working on and the type of work you are performing.
- This machine can not be ridden -- do not try to ride it or allow children or pets to ride on it. This can cause injury to people/pets and damage to the machine.
- Wear suitable clothing when operating this machine. Please wear the following items to protect against injury and reduce the possibility of accidents.

Long sleeves, long pants	Protective glasses
Non-slip shoes	Gloves
Helmet	Ear protectors

  In particular, avoid wearing items such as cuffs, hems of loose clothing, and jewelry. Such items can become entangled in the machine, causing injury and accidents. Long hair should be tied up inside a helmet.
- Ensure that no part of your body comes into contact with the moving blades of this machine There is the possibility of serious injury such as the severing of hands and feet.
- Be sure that there are no people, animals or vehicles close by. Not taking these precautions can avoid injury and accidents.
- Before you start mowing, remove any rocks or branches that could be thrown and cause injury to bystanders or damage to the machine.
- Use this machine during daylight or with sufficient artificial light. Do not operate this machine at night when poor visibility will not allow you to have a complete grasp of your surroundings. Not being able to notice dangerous objects and bystanders is a common cause of injury and accidents.
- DO NOT operate this machine in places where there are dangerous drops, ditches or embankments. Accidents can be caused by the machine tipping over.
- Do not use this machine on wet grass. It is easy to slip on wet grass, causing injury and accidents.

■Caution during operation

⚠ DANGER

- During operation, blades, chains and belts are hidden by a cover, be sure to keep hands and feet well away. The engine is also hot. Therefore touching these parts can cause serious injury such as the severing of hands and feet.

⚠ WARNING

- During operation, the rotating blades come right to the edge of the blade cover. **DO NOT** put your hands inside the cover to try to clear grass, etc. Not taking these precautions can cause injury.
- Make sure the front guard is properly attached before operation.

- Before removing entangled grass or other foreign objects from the blades, be sure to stop the engine and remove the spark plug cord. Check that the blades have stopped moving before carefully removing any entangled material.
- Be sure that there are no people, animals or vehicles close by. When operating this machine, always maintain a distance of 100 FEET between yourself and bystanders. If people or animals come near, release the blade clutch and switch off the engine. Not taking these precautions can cause injury and accidents.
- For safety reasons, do not make sudden starts/stops or sharp turns.
- Take care to move and turn the machine slowly. Furthermore, stop the blades when not cutting grass. Not taking these precautions can cause injury and accidents.
- The person using this machine should always operate it from behind the handlebars. When this machine's engine is running, do not stand in front of the path where you are cutting grass or try to cut sideways. Not taking these precautions can cause injury and accidents.
- Look out for holes in the ground and protruding tree roots. Also look out for obstructions that could be hidden in long grass. The handlebars can be taken from your control, causing injury and accidents.
- Be careful when approaching blind corners, bushes, and trees which block your line of sight. Such obstructions can hide children and animals from view.
- Do not drive this machine in the direction of rivers and drop-offs, people and buildings. Accidents can be caused by falls and collisions.
- When moving the machine backwards, check that there are no people or obstacles behind you and that you have a secure foothold. When reversing, there is a danger of being trapped between the machine and a wall or falling from drop-offs.
- Exercise caution when operating the machine alongside fences, buildings and trees. The machine's handlebars can be taken from your control if you come into contact with obstacles, possibly causing injury and accidents.
- Do not leave the machine unattended with the engine running. When leaving the machine unattended, park on a flat surface with the engine switched off and the operator presence lever in the [OFF] position. Injury and accidents can occur if the machine moves while unattended.

NOTICE

- When working near trees, shrubs, and building corners, please take care not to run the unit into hard surfaces as this could cause accident or injury. If you do hit a hard surface, please stop the engine immediately. Once you have checked that the blade has stopped rotating, please disengage the spark plug and check the blade, belts, wires and brakes.
  If there are any problems with these parts, please repair or replace them before operating the unit again.
- If you notice any unusual smells, noises, or any heat coming from the unit, please stop the engine immediately, disengage the spark plug and ensure safe shutdown of the unit.
  Once the machine has completely stopped: being careful to avoid burns, check for any obstructions that may be interfering with the machine's operation

■Using the machine on slopes

⚠WARNING

When operating on slopes, serious accidents can be caused by the operator slipping and the machine rolling over. Be especially careful when working in such areas and stop operating the machine immediately if you feel in any danger at all.

- Do not operate the machine on slopes of more than 15°.
- Mow across the face of slopes; never up and down. Exercise extreme caution when changing direction on slopes.

- When changing direction on a slope, do it slowly and carefully. The machine could roll over causing injury and accidents.
- Do not operate the machine on wet slopes. It is easy to slip on wet grass and suffer injury and accidents.
- Look out for holes in the ground and protruding tree roots. Also look out for obstructions that could be hidden in long grass. The handlebars can be taken from your control, causing injury and accidents.
- When operating on slopes, do not leave the machine with its clutch off or the speed change lever in neutral. The machine could run out of control, causing injury and accidents.

■Children

⚠WARNING

When operating this machine, be particularly aware of children. Children are often interested in mowers and may be drawn to you. As children may not be concentrating on their surroundings, tragic accidents can occur if you take your eyes off them. Please observe the following precautions at all times:

- Please operate machine at least one hundred (100) feet away from children
- Do not allow children to come into the area where you are working. Make sure that young children are securely in the care of an adult other than the operator.
- Switch off the engine immediately if children enter the area where you are working.
- Do not allow children to operate the machine. Furthermore, check and obey all local laws which may place age limits on the operation of machinery.
- Be careful when approaching blind corners, bushes, and trees which block your line of sight. Such obstructions can hide children from view.

■Maintenance

⚠ DANGER

- Remove fuel when storing or transporting the machine. Accidents and damage can be caused by spilt or spoiled fuel.

⚠ WARNING

- Be sure to switch off the engine and remove the spark plug cord before performing any inspection, adjustment or maintenance on this machine.
- When inspecting, repairing or adjusting the machine please wear protective gear to prevent injury.
- When performing inspection, adjustment or maintenance, use the appropriate tools in order to work as safely as possible.
- Perform periodic inspection in order to work as safely as possible. If you discover any worn or damaged parts, please replace them with recommended parts only.
- This machine is equipped with extremely sharp blades. When inspecting or handling the machine, do not directly touch the blades. Exercise caution by wearing gloves and wrapping the blades in cloth. Furthermore, if you notice any abnormalities in the blades, do not try to repair them but have them replaced. Not taking this precaution can cause injury and accidents.
- Damage to the belt cover, blade cover, or flying debris prevention cover, could cause injury or accidents. Be sure to have any damaged parts replaced before using the machine again.
- Be sure to check that the covers of rotating parts are refitted correctly in their original positions after being removed. Poorly fitted covers could open during operation and cause serious injury.
- Please make sure that all components such as nuts and bolts have been properly secured after maintenance.
- Perform comprehensive inspection and adjustment of such parts as operator presence, blade clutch, brake, throttle, and gear change.
- Be sure to check that the bolts in the wheels and blades are tightly fastened. Make sure that the detachable cover used for changing the blades is closed before operating the machine.
- When replacing the blades, also replace the attached nuts and bolts. There is a possibility of accidents caused by worn or damaged parts. Never substitute nuts and bolts with those that are not recommended.
- When storing the unit, please do so on a level surface and in a vented place away from open flame.Failure to do so may result in injury or accident.

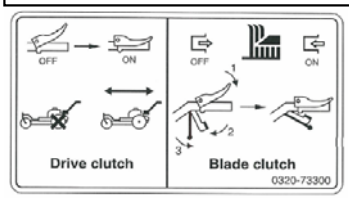
NOTICE

- When rubber fuel lines become old, they can split and dangerous fuel leaks can occur. Change rubber parts if they split or every 3 years regardless of damage. At this time, also change the fastening bands for the new parts.
- Before storing the machine, remove such foreign material as grass and leaves. Clean away any spilt oil or fragments stained with oil.
- Make sure that the engine has completely cooled before covering the machine with a storage cover.

Depending on operating conditions, there may be occasions when incidents arise which are not covered by the warnings of this manual. The operator should use common sense and put safety first when using this machine.

2. Mower Controls and Features

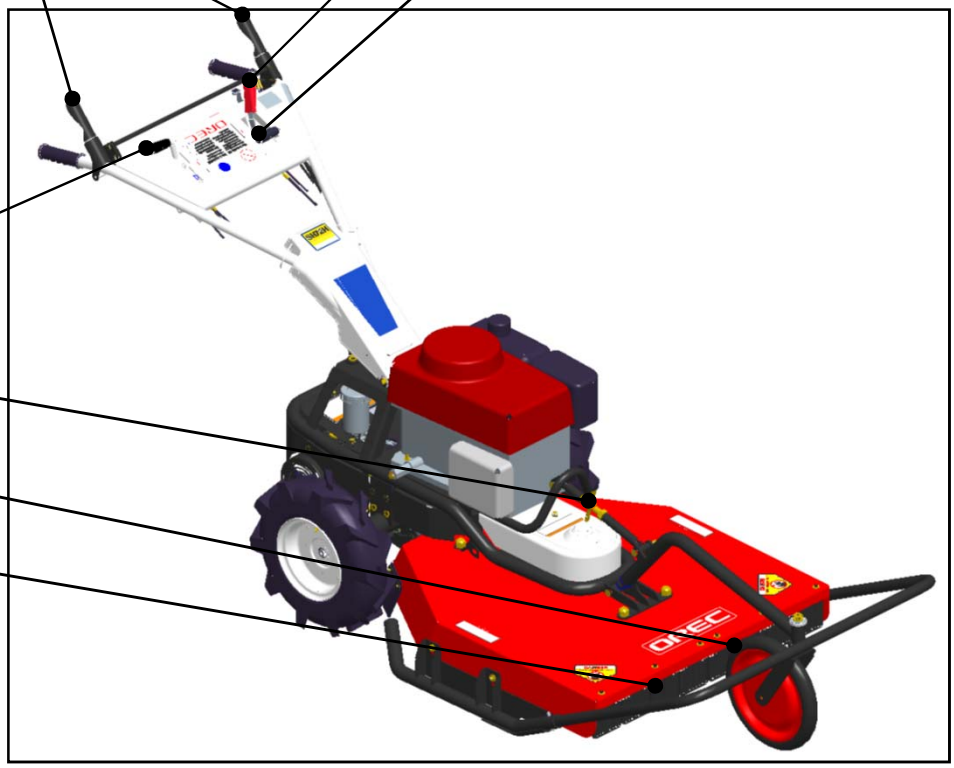
Note: The model shown in the Figure below may looks slightly different from your machine.



1: Operator presence lever (Parking brake)

4: Throttle lever

5: Diff lock lever

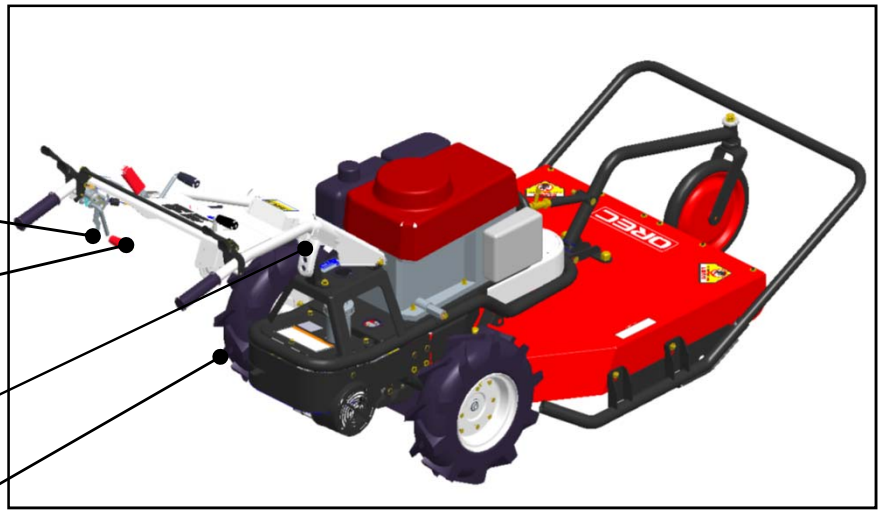


6: Speed change lever

8: Cutting height adjustment lever

10:Front wheel

9: Front flap



2: Blade safety lock lever

3: Blade clutch lever

11: Handle Height Setting bolt

7: Drive clutch release

1: Operator presence lever

Operates by turning power [ON] / [OFF] from the engine to the drive transmission.
Push down the lever and grip the handlebars at the same time to start driving the machine [ON].
Release your grip on the lever to stop the machine [OFF].
When the operator presence lever is released, the parking brake is engaged. When this lever is depressed, the brake is released.

2: Blade safety lock lever, 3: Blade clutch lever,

Operates by turning power transmission [ON] / [OFF] between the engine and blades.
While pushing the Blade safety lock lever, pull the Blade clutch lever up to
start blade rotation.
*The Operator presence lever must be engaged before engaging the blades

4: Throttle lever

The throttle lever adjusts the rotating speed of the engine. This also acts as the choke when starting the engine and the switch for stopping the engine.

5: Diff lock lever, 10: Front wheel

When the lever is put into its forward position, the differential gear lock is [ON].
Normally, the machine should be operated with this lever [OFF].
When operating on a slope or soft ground where it may be difficult to go in a straight line, when unloading from a truck, or when you really want to
operate the machine in a straight line: switch the diff lock lever on to stop the tires from moving left and right and to increase the machine's ability to move forward in a straight line.

⚠ CAUTION

- There is a danger of damage to the gears if the diff lock lever is operated while driving the machine.
- For safety reasons, turn the diff lock lever [ON] when on slopes.

6: Speed change lever

This lever changes the variable drive speed.
Push the Speed change lever forward to increase speed, backward to decrease speed.
*The Operator presence lever must be engaged before changing speeds

7: Drive clutch release

Turn to the [ON] Position to Operate the machine
Turn to the [OFF] position to move the machine when the engine is off

8: Cutting height adjustment lever

Adjusts the height at which grass is cut. Loosen the lock nut before adjustment then tighten it again after the adjustment. Operating the machine without locking the nut may cause the cutting height to change due to vibration.

9: Front flap

Prevents objects from being thrown from machine while mowing.

11: Handle Height Setting bolt

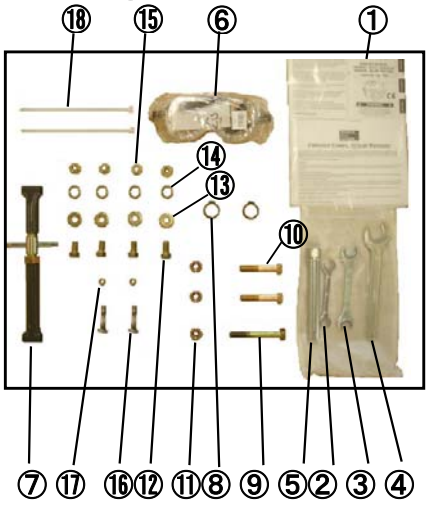
Choose the handlebar height that is most comfortable for the operator.
Tigten the bolt properly when setting.

3. How to Assemble Machine

NOTICE

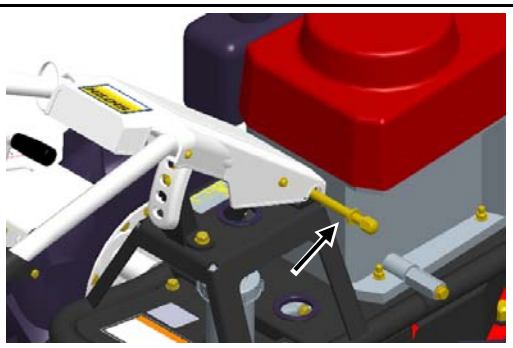
- Assembly should be done on a flat surface.
- Assembly requires at least **two (2) people**.
- Do not remove the pallet from the unit until assembly is completed.
- This unit is shipped WITHOUT OIL. After assembly, see owner's manual for proper oil amount and fill location.
- Dispose of packaging materials in accordance with all federal, state, and local regulations.

■Package Contents List



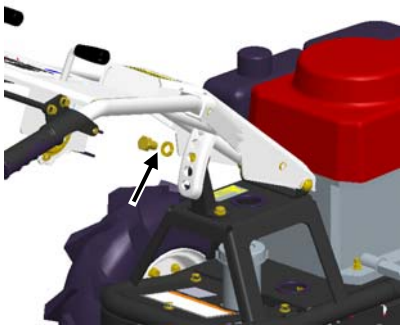
Ref.	Parts Name	Qty	✓	Ref.	Parts Name	Qty	✓
1	Manual	1		11	U Nut M12	3	
2	10/12mm Wrench	1		12	Mini Hexagonal Bolt (8T) M10×20	4	
3	14/17mm Wrench	1		13	Flat Washer 10	4	
4	24mm Wrench	1		14	Spring Washer 10	4	
5	Plug Wrench	1		15	Hexagonal Nut (SW) M10	4	
6	Goggles	1		16	Handle Fixing Bolt M8*45	2	
7	Adjustment Lever set	1		17	U Nut M8	2	
8	Snap Ring(S22)	2		18	Wire Tie	2	
9	Bolt M12(Long)	1		-			
10	Bolt M12(Short)	2		-			

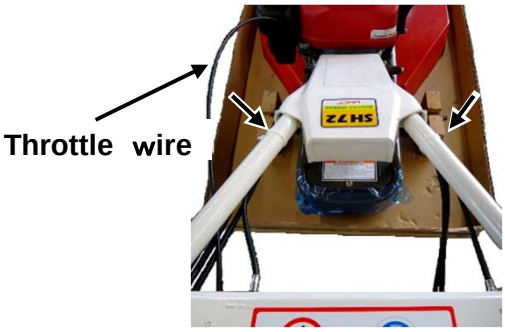
■ Install the handle



1. Cut the wire ties and remove the handlebar.

2. Attach the handlebar to the main unit.

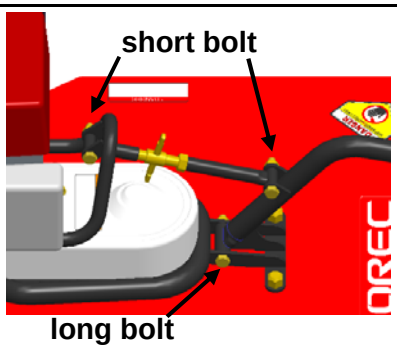




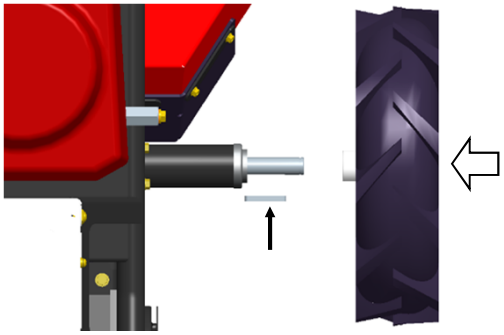
3. Adjust and Set the height of the handlebar .

4. Fix the wires from the control panel to the handlebar with wire ties⑱. (Excluding the throttle wire)

■ Install the front arm

	
1. Install the front arm with the bolts and nuts shown in the photo ⑨⑩⑪ (The bolts and nuts are in the tool bag).	2. First, attach the front arm to the main unit with the longer bolt. Next, connect the front arm and the other part of the frame with the adjustment lever SET ⑦ (Do not tighten the nuts all the way and let them a little loose).

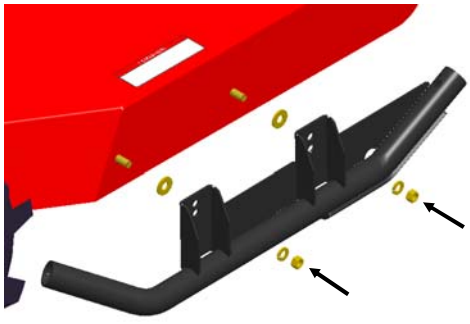
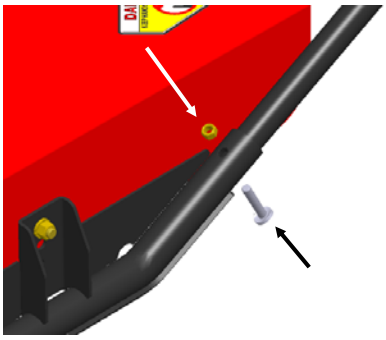
■ Install the tires

	
1. Lift the handle and install the tire without dropping the key.	2. Atattch Snap ring ⑧ into the ditch on the axle. (Please ensure that the snap ring is firmly attached to the end of the axle.)

■ Remove the unit from the pallet, and then fill with oil according to the owner's manual.

■ Be sure to do a delivery inspection before operating the unit.

■ Attaching front guard

	
1. Install the skid with the bolts⑫,flat washers ⑬,spring washers⑭ and nuts⑮.(The bolts washers and nuts are in the tool bag)	2. Install the front guard with the bolts⑯ and nuts⑰. (The bolts and nuts are in the tool bag)

4. How to Operate

■How to move the machine manually with the engine switch OFF

1. Move the operator presence arm to the [OFF] position.

2. Push down and hold the operator presence lever.
Remember to return the operator presence arm to the [ON] position when parking the machine.

1) How to start and stop the engine (Please refer to the engine use manual)

■Before starting the engine

Place the machine on a flat, level surface and perform the following procedures to check the engine's oil and fuel levels.

Prep. 1 :Check engine oil

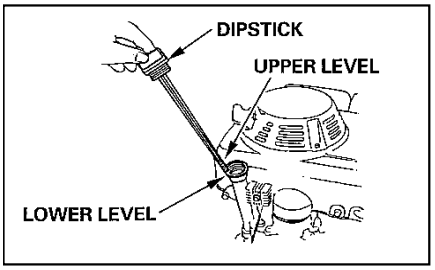
NOTICE

- This machine is shipped without oil inside. Be sure to put oil in before starting the engine, even if there are traces of residual oil in the engine left over from factory testing.

・Engine oil: SAE10W-30、1.16qt.(1.1 Liter)

⚠WARNING

- Make sure the engine has cooled before inspecting. Danger of burns exists.



1. Use the dipstick to check the oil level.
Note: When measuring with the dipstick, do not screw it in place. (GXV340)

2. If the oil does not lie between the upper level and lower level, replenish to bring the oil to the upper level.
Note: Take care not to overfill with oil.

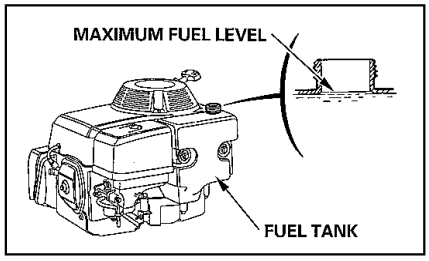
Prep. 2 :Check fuel

⚠ DANGER

- Under no circumstances should you smoke, operate firearms, or use any open flame while using gasoline, as gasoline is extremely flammable.
  Also, please be careful of static electricity as gasoline is highly volatile and exposure to electricity may cause fire or an explosion.

⚠WARNING

- Please refuel in a place that can be well ventilated. As gasoline is a highly volatile substance, there is a danger that you will feel unwell if you operate the machine in a poorly ventilated place.
- When refueling, be sure to stop the engine and allow it to cool down. There is a danger of suffering burns.
- When refueling, be sure not to fill the fuel tank over the maximum level. If you do overfill the fuel tank, remove fuel until it sits below the maximum level. Over-fueling can cause fire and other accidents.
- After refueling, securely close the fuel cap and store the machine in a safe place with no sources of flame. There is a danger of fire.
- If gasoline is spilled, move the machine a safe distance away without starting the engine. Starting the machine in close proximity to spilled fuel could result in fire or other accident. Use a cloth to wipe away waste gasoline and dispose of any such cloth in a suitable manner.

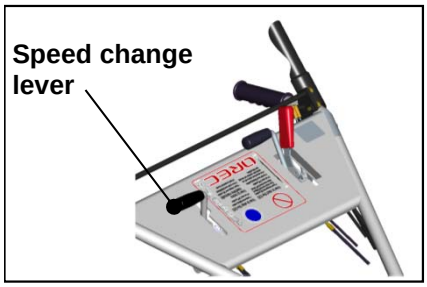


1. Refuel the fuel tank with unleaded gasoline.
(Please refer to the engine use manual)

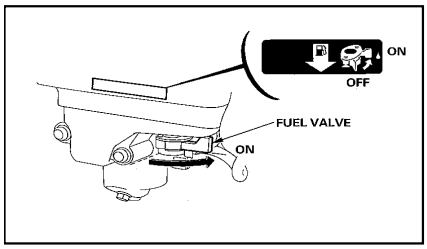
■How to start the engine

⚠ DANGER

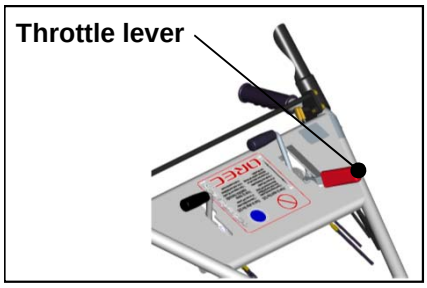
- Do not start the engine in a confined space or a place with insufficient ventilation. Engine exhaust gas is odorless and contains carbon monoxide which can cause death.



1. Make sure that the operator presence lever is released [OFF]. Shift the speed change lever to the [N] position.

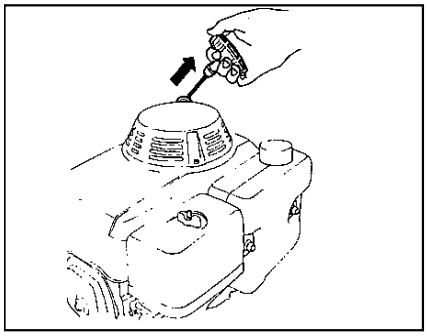


2. Shift the fuel valve to the [ON] position.



3. Shift the throttle lever to the choke [ ] position.

When the engine has finished warming up, shift to the full throttle [(HI)] position



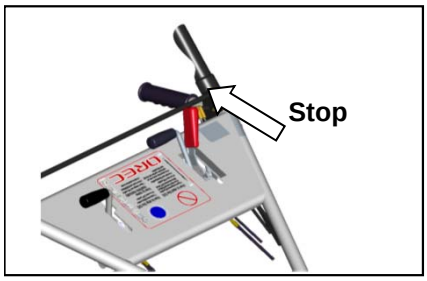
4. Grip the starter knob, pull slowly until you feel tension and then pull strongly from this position.
Immediately after the engine has started, slowly return the starter knob to its original position.

5. Once the engine has started and run for 30 seconds, shift the throttle lever from the choke [ ] position to the full throttle [(HI)] position.

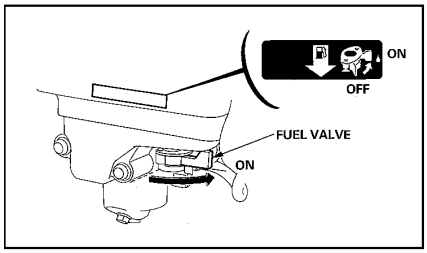
NOTICE

- Please warm up the engine by leaving it engaged, with the throttle in [(LOW)] for approximately 2 minutes.

■How to stop the engine



1. Shift the throttle lever to the [Stop] position to stop the engine.



2. Shift the fuel valve to the [OFF] position.

⚠WARNING

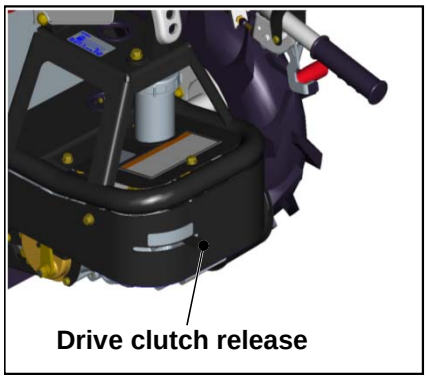
- Do not touch the hot engine immediately after switching off. Allow time for it to cool down as there is a danger of burns.

2) How to drive, turn, change speed, and stop

⚠WARNING

- Confirm that the area around you is safe before proceeding to drive the machine.
  - — If driving the machine alongside ditches or the edges of paths, there is a danger that the weight of the machine could cause the ground to collapse. Exercise sufficient caution when operating the machine on soft ground.
  - — Do not operate the machine on slopes of more than 15° or on slippery ground. There is a danger of the machine rolling over or running out of control.
  - — Danger exists if you suddenly release the operator presence lever while driving at high speed [🐇(HI)] with the throttle lever, as the emergency brake will be initiated.
  - — Shift the throttle lever to [🐢 (LOW)] and lower the speed of the machine before stopping.

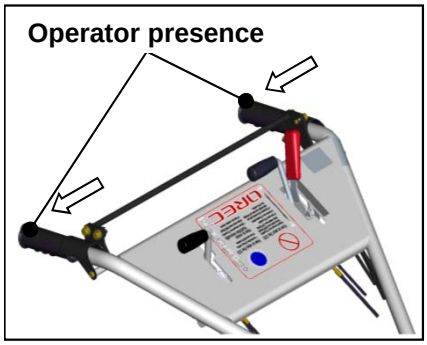
■How to drive



1. Make sure the drive clutch arm is in the [ON] position. Then, start the Engine.
   ＜Ref. P17　How to start engine＞

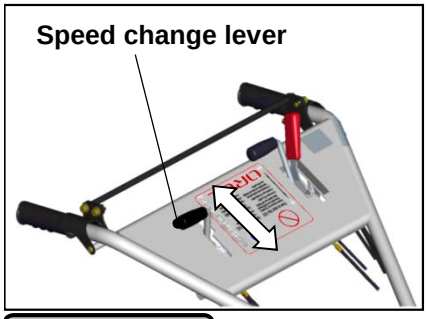
2. Slide the throttle lever to a point between the [🐢（LOW）] and [🐇（HI）] position.

3. Ensure that the speed change lever is in [N] position. Push and then hold the operator presence lever.



⚠WARNING

- If the drive clutch release is NOT locked in the [ON] position. the gear may disengage while driving.
  If it is difficult to lock the drive clutch release, push down the operator presence lever, move the machine back and forth and then try to lock the drive clutch release again.



4. Choose desired speed with speed change lever.

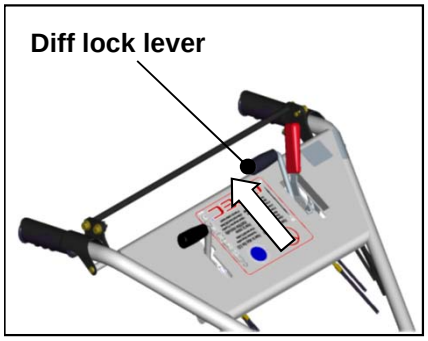
⚠ WARNING

- Before driving, position the front wheel at its highest setting and do not switch the blade clutch [ON], in order to avoid hitting rocks and other foreign objects.
  The rotating blades are extremely dangerous.

NOTICE

- Place the machine on a flat surface and release the diff lock lever [OFF].
- When you are operating on a slope where the tires may slip and it may be difficult to go in a straight line, switch the diff lock lever [ON] to help your move forward.

■How to turn



⚠ WARNING

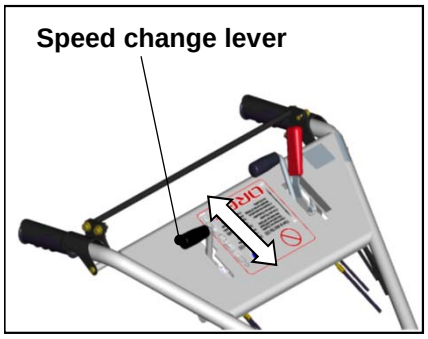
- Always be sure to release the blade clutch [OFF] when turning. Injury and accidents can be caused.

1. Steer the machine using the handlebars.

NOTICE

- Release the diff lock lever [OFF] when turning. Release the operator presence lever [OFF] to operate the diff lock lever.

■How to change speed

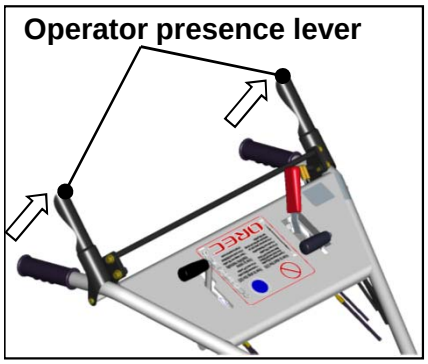


1. Push the operator presence lever down, then shift the speed change lever to your desired speed position.

⚠ WARNING

- The operator presence lever needs to be pushed down before changing speeds. Please pay attention to machine movement and surroundings while operating the machine.

■How to stop



1. Release the operator presence lever [OFF] and allow the machine to stop.

2. Make sure the speed change lever returns to the [N] position.
   Note: Shift the throttle lever to the [🐢(LOW)] position and then shift it to the [STOP] position to stop the engine.

⚠ WARNING

- When leaving the machine unattended, park on a flat surface with the engine switched off. Make sure the parking brake isworking properly.
  (The operator presence lever should be [OFF])
- Accidents and damage can be caused by an unattended machine running out of control.

3) Mowing

Please read the safety guidelines again (pages 4-10) and follow the precautions related to your work environment and safety.

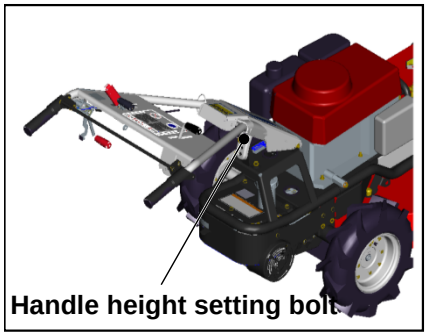
NOTICE

- When using the machine for the first time, choose a flat area free from rocks and foreign objects and slowly cut a path by going over the area in a straight line.
- If the engine stops due to a large quantity of grass, reduce your work speed and increase the cutting height then mow again using a lower setting.
- If debris is frequently thrown from the blade cover, secure the front guard bolt and raise the cutting height.

1. Turn the cutting height adjustment lever to change the height of the front wheel, depending on your job. Tighten the lock nut to fix the cutting height.

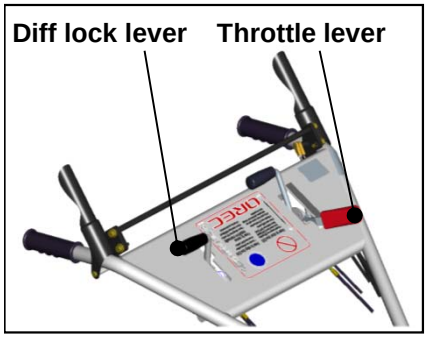
⚠ WARNING

- Make sure the front flaps are attached properly before mowing. Mowing without the front flaps may cause objects to be thrown which will cause injury and damage.



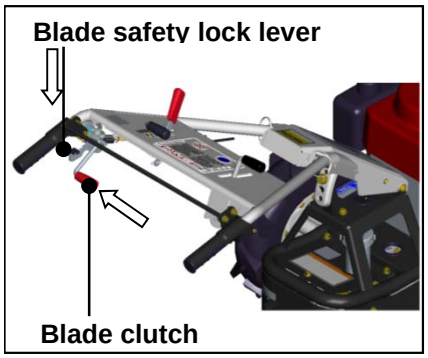
2. Set the handlebar to a height that is suitable for the operator.

3. Start the engine.



4. Engage the diff lock lever depending on the operational conditions.
   Note: Shift to the [OFF] position when operating on flat ground in good conditions.
   When operating on slopes or soft ground, shift the diff lock lever to the [ON] position.

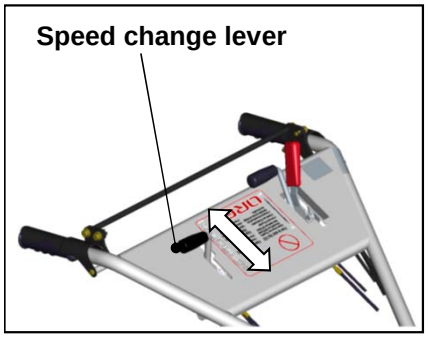
5. Shift the throttle to the [🐇(HI)] position.



6. Push down and then hold the operator presence lever.
   While pushing the Blade safety lock lever, pull the Blade clutch lever up until it is in the [ON] position.

⚠ DANGER

- Exercise caution as blades are rotating.



7. Start driving by operating the speed change lever.
   You can change speeds while driving or mowing.

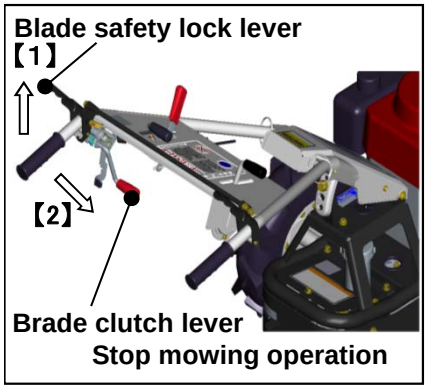
NOTICE

- Start at a slow speed and then gradually increase to a safe speed
- Always mow in forward. Mowing in reverse may not only provide an insufficient cut, but also increases the risk of thrown objects.

■How to stop

⚠ WARNING

- Please do not leave the machine while the engine is running. If you need to leave the machine, park it on a flat, level suface, stop the engine and leave the operator presence lever in [OFF] position so that the parking brake is engaged. The movement of the unattended machine may cause accident or injury.



1. Release the operator presence lever. Make sure the lever is all the way up.

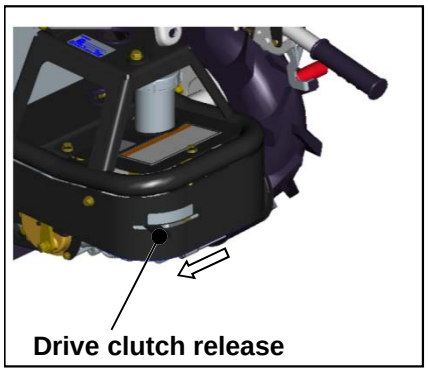
2. The blade clutch lever will automaticaly release, diesengaging the blade.

⚠ DANGER

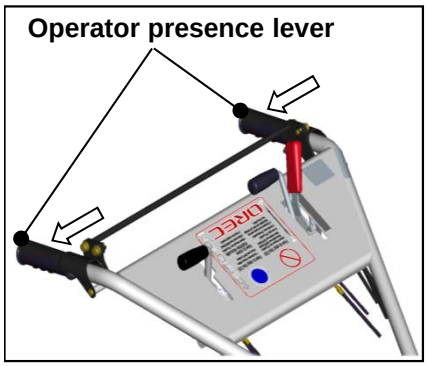
- The blade may not stop immediately.
  Do not place hands or feet in the cutting deck.

3. To stop the engine.
   Shift the throttle lever to the [🐢(LOW)] position and then shift it to the [STOP] position to stop the engine.

4) How to move machine manually with the engine switch OFF



1. **Slide the drive clutch release to the [OFF] position.**



2. Push the operator presence lever down to disengage the parking brake. Then move the machine manually.

3. Return the operator presence arm to the [ON] position.

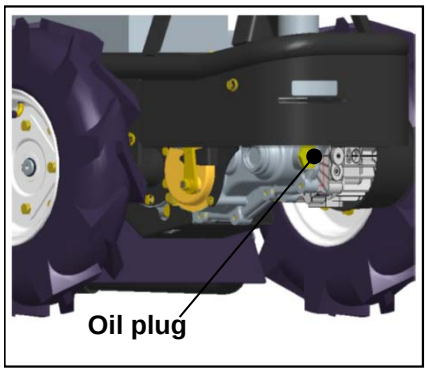
5. How to Inspect and Service Parts

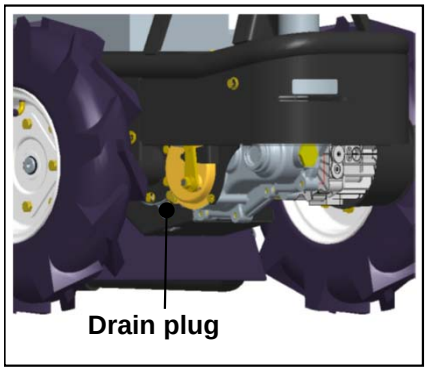
1) Oiled Parts inspection, Change, and refill

⚠WARNING

- When this machine is shipped, it is not lubricated with oil. Before operating the machine, be sure to check that it is lubricated with the described oil, in the described parts, and in the described quantities.
- To keep the machine in good operating condition, perform oil changes periodically.
- When performing inspection, replacement, or lubrication of oiled parts, place the machine on a flat level surface in a venilated area. Switch on the engine and warm it up to confirm it is working properly. Then switch off the engine, allow it to cool down and remove the spark plug cord. After switching off the engine, please wait at least 10 minutes for all parts to cool down sufficiently before touching the machine. After the engine has stopped, the body will be very hot and can cause burns if touched. Furthermore, oil will still be in the engine and transmission so the quantity of oil remaining will not be exactly indicated by the dipstick.
- After changing the oil, please dispose of waste oil appropriately.

■Transmission oil inspection, change, and refill.





Inspection
Take off the oil plug at the end of transmission.
Look at the oil level through the oil inlet.
If the oil level is just below the oil inlet, there is sufficient oil in the transmission.

Oil Change
After the first 20 hours and then every 100 hours.

Place the oil drain pan under the transmission.
Remove the drain plug to drain the oil.

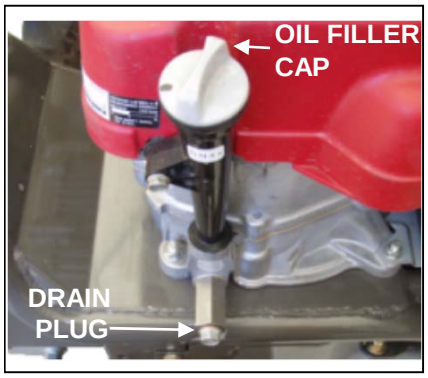
Refill
Tighten the drain plug again, then remove the oil plug.
Refill with 1.06 qt.(1.0 litter) of transmission oil (#90).

■Engine oil inspection, change and refill

⚠WARNING

- When performing engine oil lubrication or replacement, wait for at least 10 minutes for the engine to cool down and proceed with caution to avoid burns.

Inspection
Use the dipstick to check the oil level and quality.
If the oil does not lie between the upper level and lower level, replenish to bring the oil up to the upper level. Take care not to over fill with oil.
When measuring with the dipstick, do not screw it in place.(GXV340)



Oil change

Change engine oil after the first 5 hours of actual use or after the first month of ownership. After that, replace after every 50 hours of use or every 6 months of ownership.

Refill

Remove the oil filler cap and insert **1.16qt (1.1 liters)** of the recommended **SAE10w-30 oil.**

1. Remove the oil filler cap and then use a tool to remove the drain plug located under the engine to allow the oil to drain out.

Note: If you remove the drain plug, then please tighten with a tool to keep the hexagonal shaft from becoming loose.

2. After draining the oil, use a tool to replace the drain plug to its original position before pouring new oil in from the oil filler cap.

Note: Drain plug torque (closed): 435lbf・in (49N・m)

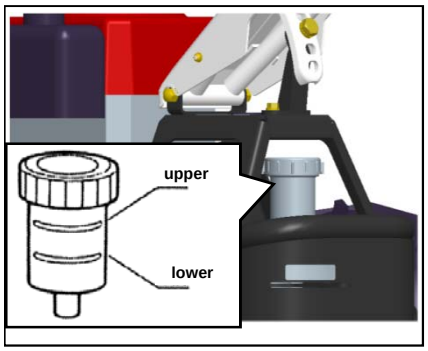
3. After lubricating with engine oil, tighten the oil filler cap securely by hand to keep it from becoming loose.

Note: If the oil filler cap and drain plug are loose, oil could leak out. Be sure to fasten them securely.

■HST oil inspection, change, and refill

Note: HST oil, also known as hydraulic fluid, plays an important role in converting engine power to the drive. It works as a lubricant--preventing rust-- and as a coolant. However, insufficient or improper maintence may cause driving problems.
Always use proper HST oil to replenish or replace the HST oil.

HST oil gets extremaly hot after the mowing. Please service the oil when the machine is coc

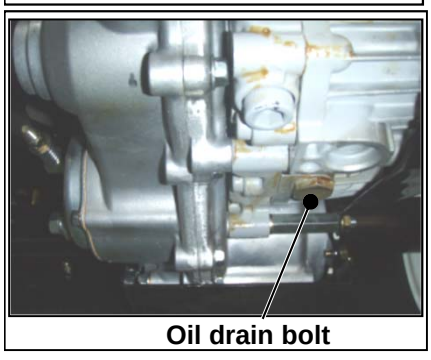


Inspection and replenish

Check the oil level in the HST oil tank visualy.
If the oil level is not in between the upper and lower gauge, open the tank cap and replenish with HST oil.

Oil change

Change HST oil after the first 30 hours of actual use.
After that, change oil after every 200 hours of use or every 1 year of ownership, whichever occurs first.


Oil drain bolt

1. Place the oil drain pan under the HST unit.
2. Loosen the oil drain bolt at the bottom of the HST unit with a 22mm wrench. Then drain the oil.
3. Tighten the drain bolt. Open the oil tank cap and refill slowly with 0.52qts. (0.5litter) of HST oil (ISO 46 hydraulic oil).
   Do not spill
4. Leave the machine off to release air until the oil level reaches the middle of the oil tank. Then idle the engine for one minute to remove air bubbles

5. Drive the machine back and forth, so that the HST unit is operating and removing air bubbles. If the air bubbles remain in the HST unit, the machine will vibrate and will not move smoothly. Repeat this step until the machine moves smoothly.
6. The HST oil level may change after the air bubbles are gone. Always keep the oil level between the lower and upper levels when the oil is cold.

⚠ CAUTION

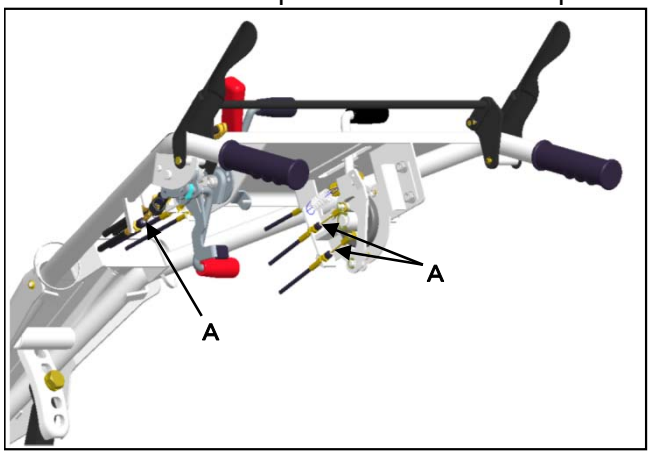
- **DO NOT** get water in the HST unit, as water can cause permanent damage to the HST.
- **DO NOT** mix different types of oil. Doing so may damage the machine.
- Engine oil and hydraulic oil are both pollutants to the environment. Dispose of used oil at a certified recycling center or according to your state and local regulations.
- This product is shipped from the factory pre-filled with ISO 46 hydraulic (HST) oil.

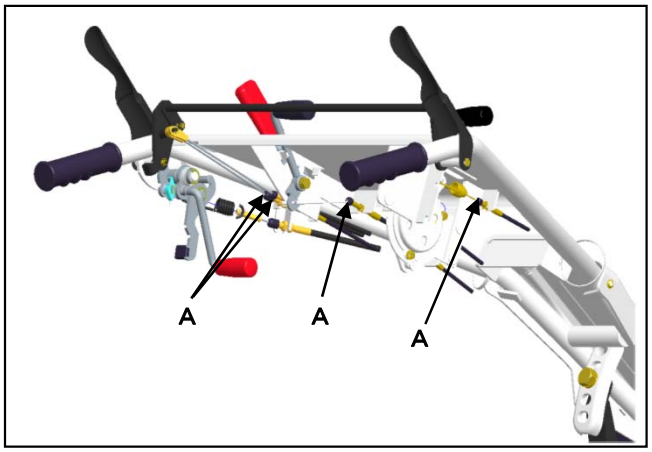
■Lubrication of parts

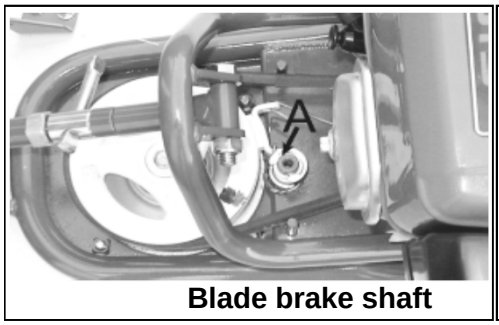
NOTICE

- Grease or lubricate these parts approximately every 30 hours.
  There is a real danger of damage to the engine if you neglect to lubricate it.

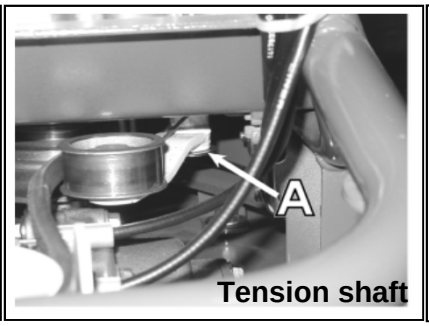
Please lubricate the parts indicated in the pictures below.



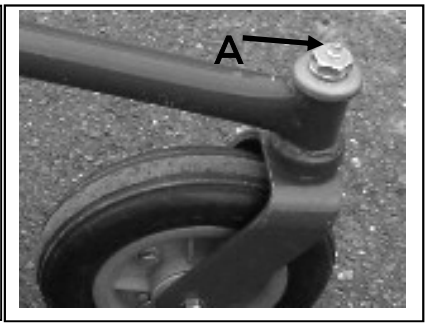




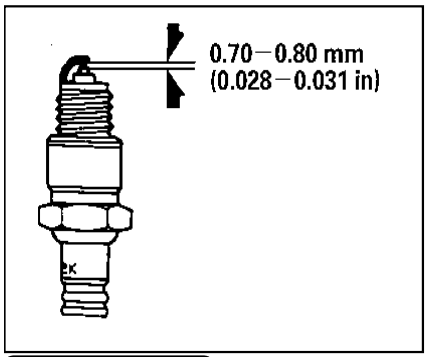
Blade brake shaft



Tension shaft



2) Checking and adjusting the spark plug



1. Remove the spark plug with a plug wrench and clean away any carbon deposits on the electrodes with a wire brush and wipe away any moisture if present.
2. Replace the spark plug with a new one if the ceramic part has cracked or the electrodes have suffered extensive wear and tear.
   ・Spark plug to be used:
   Plug ----BPR5ES (NGK)
3. Please adjust the spark plug electrode clearance to 0.028-0.031ir (0.7-0.8mm).

NOTICE

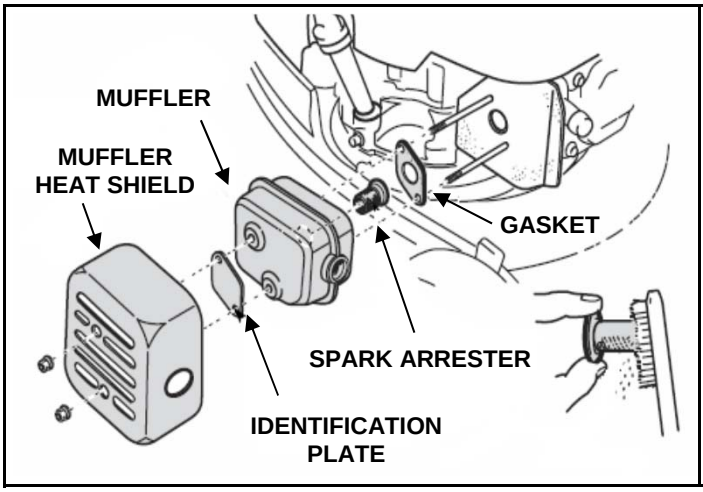
- When attaching a spark plug onto the engine, screw by hand before tightening with a plug wrench. If you start by using a plug wrench to screw in the spark plug, there is a danger of cross-threading it.

3) Spark Arrester (optional equipment)

The engine is not factory-equipped with a spark arrester.

In some areas, it is illegal to operate an engine without a spark arrester. Check local laws and regulations. An optional USDA approved spark arrester is available.

The spark arrester must be serviced every 100 hours to keep it functioning as designed.



1. Allow the engine to cool and disconnect the spark plug cap.
2. Remove the muffler heat shield, identification plate, muffler, and gasket.
3. Remove the spark arrester from the muffler.
4. Check for carbon deposits on the spark arrester and the exhaust port. Brush carbon deposits away. Be careful to avoid damaging the spark arrester screen.
5. Installation is the reverse of removal. Tighten all hardware securely.
6. Install the spark plug cap on the spark plug.

4) Cleaning the air filter

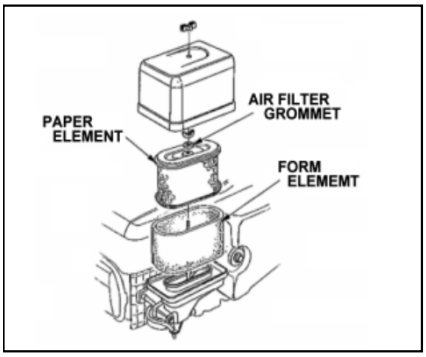
⚠ WARNING

Failure to clean the air filter regularly will cause not only output deficiency and higher fuel consumption but will also lead to an increase in exhaust gas temperature and the possibility of a fire.

Cleaning, replacement time (approx.)

	Cleaning	Replacement
Foam element	Every 25 hours	Every 200 hours or 1 year
Paper element	Every 50 hours	Every 200 hours or 1 year

Take care to clean the filter more frequently when operating in an environment with a lot of dust or grime.



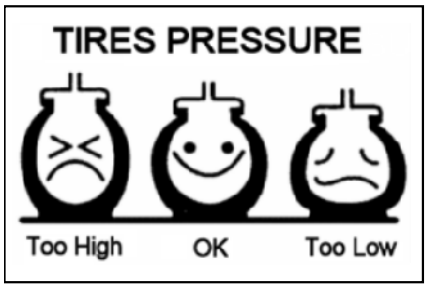
1. Release the wing nut and filter cover.
2. Remove the paper and foam elements and check them for damage.
   Note: Replace with new parts if damaged.
3. Wash the foam element with a pH neutral detergent. After washing, be sure to squeeze out all the water and allow it to dry. After that, soak it in new engine oil (SAE10W-30 or equivalent), wring it out thoroughly, and then shake to remove any surplus oil.
4. Lightly tap the paper element several times to remove any waste. Blow any dirt from the inside of the filter in an outward direction.

NOTICE

- Replace the paper element with a new one if it is very dirty.
- When lubricating, tap the paper element so as not to cause any damage to the filter.
- Do not use a brush as this could scrape the filter.
- When cleaning the filter, please keep foreign objects out of the air intake.

5. Wipe any dirt from the inside of the case and reassemble back to its original position.

5) Tire pressure adjustment



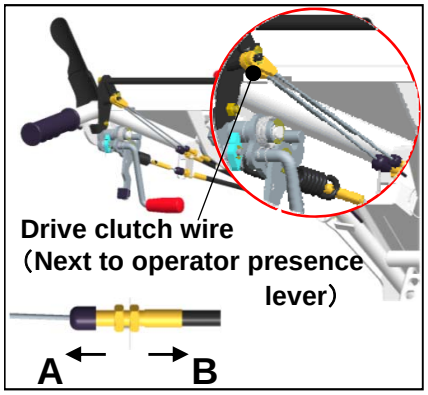
Please adjust tire pressure to 17.4 psi (0.12 Mpa)
If the air pressure of the left and right tires is not equal, there is a danger of losing control of the handlebars.

6) Adjusting each wire

⚠WARNING

- Check that you are taking sufficient safety precautions when adjusting each type of wire by placing the machine on a flat, open surface with the engine switched off and the spark plug cord removed.

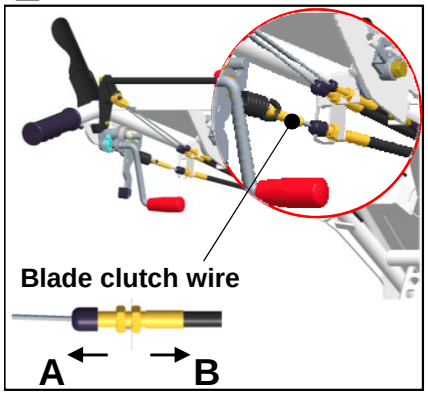
■Drive clutch wire



Dirive clutch wire

- If the drive belt slips when you depress the operater presence lever down.
  - Move the adjuster nuts toward B
- If the machine moves when you release the operator presence lever.
  - Move the adjuster nuts toward A

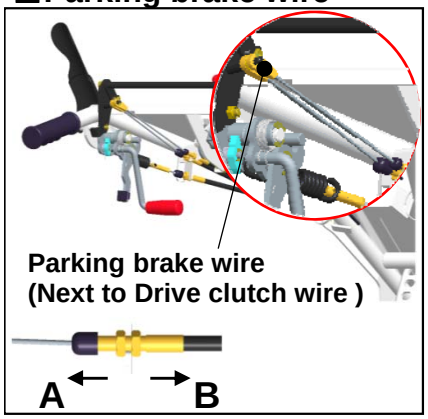
■Blade clutch wire



Blade clutch wire

- If the blade belt slips when you engage the Blade clutch lever.
  - Move the adjuster nuts towards B
- If the blade does not stop when you disengage the Blade clutch lever.
  - Move the adjuster nuts towards A

■Parking brake wire



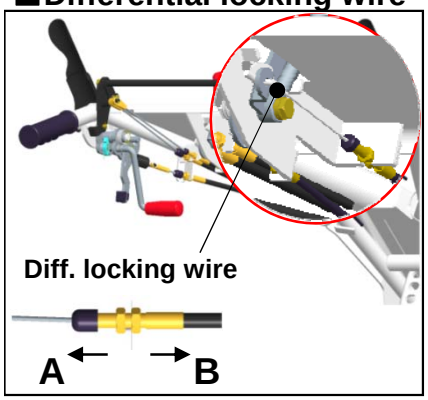
Parking brake wire

- If the unit moves when you release the operator presence lever.
  - Move the adjuster nuts toward A

NOTICE

- If there is no improvement even after performing the adjustments above, it is possible that the brake pads are worn out. Please inspect the brake pads.
- For safety reasons, replace the parking brake before 100 hours of operation has elapsed.

■Differential locking wire

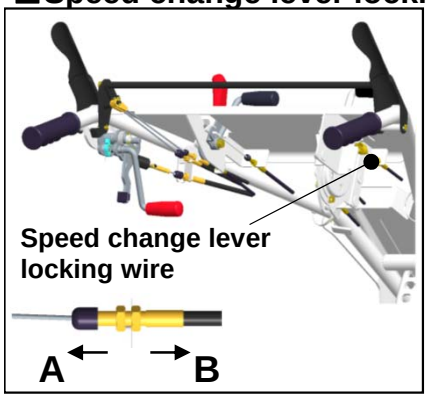


Differential locking wire

- If the Diff lock doesn't work when the Diff lock lever is ON
  - Move the adjuster nuts towards B

- If the Diff lock works even when the Diff lock lever is OFF
  - Move the adjuster nuts towards A

■Speed change lever locking wire



Speed change lever locking wire

- If the Speed change lever stays in the moved position when you depress the opreator presence lever
  - Move the adjuster nuts towards B

- If the Speed change lever does not move smoothly when the operator presence lever is depressed
  - Move the adjuster nuts towards A

7) Inspecting the Belts

Please check the blade belt and driving belt regularly as they are consumable parts and subject to wear and tear. If you notice wear or cracks in any of these parts, please replace them as soon as possible.

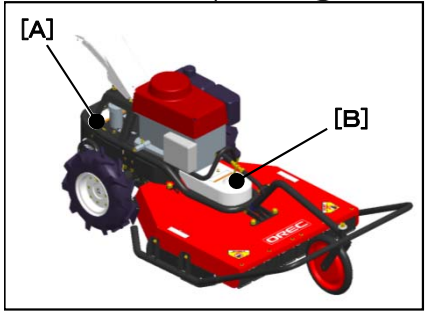
V-belt: Drive belt--- LA40
Blade belt--- LB45

- **Inspection time:**
  After the first 2-3 hours of operation and then every 30 hours of operation thereafter.

⚠WARNING

- Before working on the machine, stop the engine and remove the spark plug cord. Not taking this precaution could lead to serious injury and accident.
- Please dispose of used belts properly.

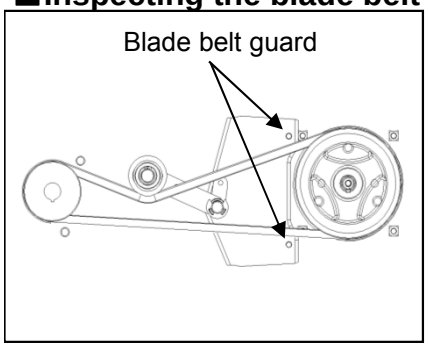
■Before Inspecting the Belts



When inspecting the engine belt,
please be sure to remove the transimission pulley cover [A]

When inspecting the blade belt,
please be sure to remove the blade pulley cover [B]

■Inspecting the blade belt

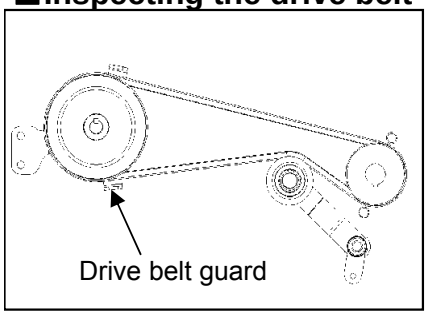


The blade guard has been welded to the machine in order to control it.

1. Make sure that when the blade clutch lever is [ON], the gap between the belt and the belt guard is between 0.078-0.118 in. (2-3mm)

2. Release the blade clutch lever [OFF] so that the belt guard only lightly controls the belt. The belt should now have risen up above the pulley gutter. Check that the belt does not move, even when you turn the pulley by hand.

■Inspecting the drive belt



Do not move the belt guard on the engine side other than when completely necessary.

1. Depress the operator presence lever to [ON] and adjust the transmission side belt guard and the belt so that the gap between them is between 0.118-0.196 in. (3-5mm)

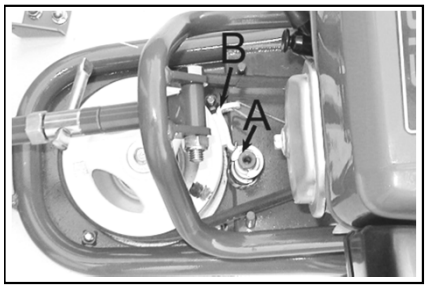
2. After adjusting, release the operator presence lever [OFF] so that the belt guard only lightly controls the belt. The belt should now have risen up above the pulley gutter. Check that the belt does not move, even when you turn the pulley by hand.

Confirming the attachment of the belt after replacing

Return the spark plug cord to its original position and run the engine for approximately 2 minutes with the blade clutch lever and operator presence lever both in the [ON] and [OFF] positions to confirm that the belt is operating normally.

After confirming, set nuts, bolts, and covers securely to their original positions.

8) Inspecting the blade brake



If you release the blade clutch lever but the blades fail to stop rotating within 5 seconds, perform an inspection of the blade brakes.

Please replace damaged or worn brake pads [B] as necessary

⚠ WARNING

- Before working on the machine, stop the engine and remove the spark plug cord. Not taking this precaution could lead to serious injury and accident.

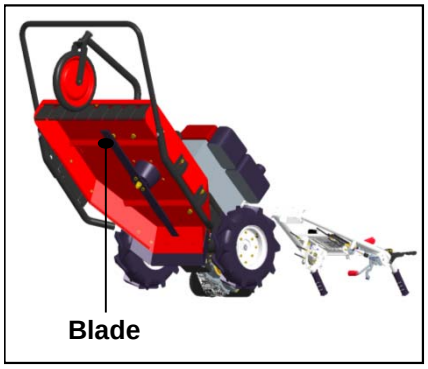
NOTICE

- For safety reasons, replace the blade brake before 100 hours of operation has elapsed.

9) Inspecting and replacing blades

⚠ WARNING

- When inspecting or replacing the blade, always be sure to switch off the engine as there is a danger of injury.
- When having the blades replaced or repaired, always have any such work performed by a person with adequate tools and experience.
- The inspection or replacement of blades should be performed by 2 people. The handlebars should be held firmly to stop the front of the machine from falling down. Not taking this precaution can cause injury.
- To avoid injury, wear safety gloves when performing inspection or replacement and wrap the tips of the blades in cloth.
- Replace the blades if you detect any abnormalities. If you neglect wear and tear, cracks, and bending, there is a danger that the blades could break and fly out of the machine, severely injuring the operator or any bystanders.
- When replacing the blades, be sure to also replace the nuts and bolts which tighten the blades. This prevents accidents caused by wear and tear on the nuts and bolts. Never use nuts and bolts that are not recommended for this specific purpose.



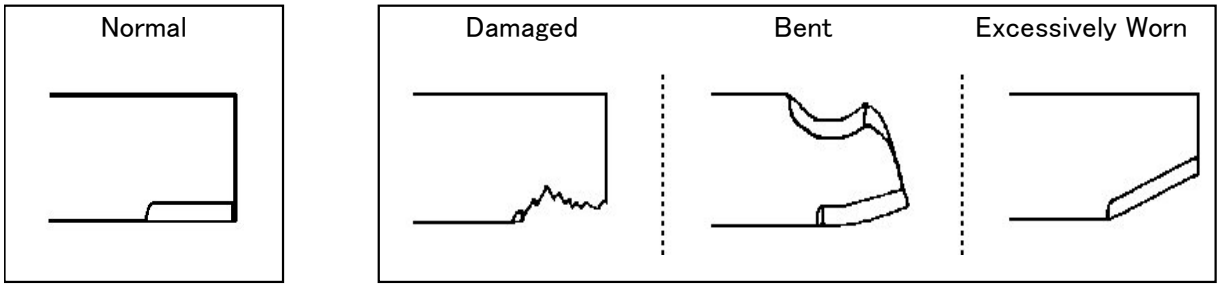
1. Stop the engine and remove the spark plug cap.

2. Push the machine's handlebars down to raise the cutting part of the machine.

NOTICE

- Do not neglect a decline in the machine's performance. Promptly make repairs to avoid permanent damage.

3. Inspect the blades for cracking, bending, and wear and tear.
If the blades become damaged in the ways shown in the diagram below, have them replaced.
(The blades are attached with 2 attaching bolts and a head bolt.)



4. Check that the bolts holding the blades in place are not loose.

Note: M10 bolts tightning torque: 435 lbf・in.(49 N・m)
M16 Nut tightning torque: 955 lbf・in.(107.8 N・m)

NOTICE

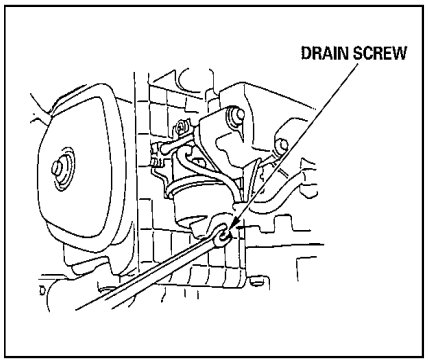
- More frequent inspection of the blades is necessary if using the machine on areas including dry earth and sand which cause faster wear and tear of the blades.
- We recommend purchasing a spare blade in advance and keeping it in a safe location.

6. Regarding Long-term Storage

If you do not use the machine for more than 30 days, please follow these procedures for maintenance. If the machine is not stored properly, there is a danger of fuel spoilage, the machine failing to start, or difficulty in running the machine.

⚠ DANGER

- Please work on the machine in a place that is well ventilated. Gas fumes can fill a room and cause accidents.
- Before working on the machine, switch off the engine and remove the spark plug cord.
- Store the machine on a flat surface in a place protected from the elements that is well ventilated and cool.
- When removing fuel, do not work anywhere near lit cigarettes or other sources of naked flame.
- Furthermore, keep fireworks and firearms away as there is a danger of the machine catching fire.
- When removing fuel, be sure that the engine and muffler have cooled before touching the machine. There is a danger of burns. Also, take care to dispose of fuel in accordance with local laws and regulations.



1. Empty fuel from inside the fuel tank and the carburetor.
To remove fuel from inside the carburetor, remove the drain screw from underneath and allow any fuel to flow out.

2. Clean away any fuel on the outside of the engine or machine with a rag.

3. Please replace the engine oil.
(Refer to [Replacing Engine Oil] page 23)

4. Wash all parts well.
- Clean the recoil starter, air filter, muffler, around the carburetor, and inside the belt cover by blowing air through them to remove dirt and dust.
- Remove rust from affected areas and apply anti-corrosion paint.
- If you continue to operate with an accumulation of grass and dust in the machine, the engine can become clogged, causing it to overheat and possibly catch fire.

5. Refuel and lubricate the necessary parts and have any defective parts repaired.

6. Put a cover over the machine to keep dust out.

NOTICE

- During storage, check the tire pressure periodically and add air as necessary.

7. Specifications (Reference values)

Name		Samurai Mower Hydro
Type		SH72H
Total length × Total width × Total height (Inch)		90.9×33.8×41.7 (2310×860×1060mm)
Cutting width (Inch)		27.5 (700mm)
Cutting height (Inch)		2.3----4.5 (60---115mm)
Blade		Bar blade
Size of V-belt		Drive belt : LA-40 / Blade belt: LB-45
Weight		304.9 lb (138kg)
Size of Tire		400-7 (φ15.75in. (400mm))
Clutch system (Drive, Blade)		Belt tension clutch
Speed	Forward (MPH)	[F] 0～2.3 (0～3.8km/h)
	Backward (MPH)	[R] 0～1.2 (0～2.0km/h)
Engine	Model	HONDA GXV340
	Type	T2DN4
	Power (PS)	6.6Kw (8.9Ps)
	Oil	1.16qt (1.1L)
	Fuel tank capacity	0.55 gallon (2.1L)

8. Tools

No	Name of Tool	Specification	Qty	Remarks
1	Wrench	10-12 (mm)	1	
2	Wrench	14-17 (mm)	1	
3	Wrench	24 (mm)	1	
4	Plug Wrench		1	Engine tool

9. Consumable Parts List

No	Name of the Parts	Parts No	Qty/Unit	Remarks
1	Blade	80-1445-821-00	1	
2	V-Belt (Drive)	89-6122-004001	1	LA-40
3	V-Belt (Knife)	89-6123-004501	1	LB-45
4	Operator presence wire	0320-70700	1	
5	Blade clutch wire	0320-70600	1	
6	Parking brake wire	0320-70800	1	
7	Throttle wire	0320-70900	1	
8	Speed change wire	0320-71200	2	
9	Blade set cap nut	83-1732-175-00	1	Fine pitch thread M16
10	Spring washer	89-1750-160002	1	Φ16
11	Hexagon head bolt	89-1213-100252	2 pcs	8T/M10×25
12	Spring washer	89-1750-100002	2 pcs	Φ10

10. Optional Equipment

No	Name of the Parts	Parts No	Qty/Unit	Remarks
1	Spark arrester parts	18335-ZE8-000	1	Arrester kit

11. Periodic Voluntary Inspection Table

Neglecting inspection and maintenance is a cause of accidents and damage. Perform inspection referring to [Periodic voluntary inspection table] in order to always keep the machine functioning correctly.
Perform annual inspection once a year and monthly inspection once a month, and starting checks every time you use the machine.

D: Daily M: Monthly Y: Yearly

		Inspection Content		Inspection freq.		
				D	M	Y
Engine	Engine (Main body)	Condition at startup, abnormal noise	Machine starts up easily.	✓	✓	✓
		Revolution and acceleration state	Revolution speed increases gradually and smoothly.	✓	✓	✓
		State of exhaust and gas leakage	Exhaust color, smell, and sound are normal.	✓	✓	✓
		Air filter damage, loosening, cleanliness	No damage, loosening, or noticeably dirty.		✓	✓
		Loosening of the attachment of cylinder head and manifolds	Gas leak, cracking, noticeable corrosion. (Tightened to the correct torque, not loose)			✓
		Valve tappet clearance	Clearance looks straight.			✓
		Compressive pressure	Compressive pressure looks straight.			✓
		Engine base cracking or deformity, loosening of nuts and bolts	The engine base is not cracked or deformed and the nuts and bolts are not loose.	✓	✓	✓
	Engine Lubrication	Quantity, cleanliness	Oil quantity is suitable, not dirty or mixed with any water or metals.	✓	✓	✓
		Oil leakage	Oil seal and gasket are not leaking oil.	✓	✓	✓
	Engine Fuel	Fuel leakage	Fuel is not leaking。	✓	✓	✓
		Fuel filter blockage	Not noticeably dirty, deformed, or clogged.		✓	✓
		Fuel quantity/quality	There is fuel in the engine and it is of good quality.	✓	✓	✓
	Engine Electrics	Loosening. damage to electrical wire connections	Harness connections are suitable, not loose or damaged		✓	✓
		Spark Plug	There are no cracks in the ceramic, the electrodes are not worn, and there are no carbon deposits	✓	✓	✓
	Engine Purity	Dirtying of air filter element	Air filter element is not dirty.	✓	✓	✓
		Element breakage	Element is not torn or worn out.	✓	✓	✓
	Engine Cooling	Grass etc clogged in the recoil cover	Recoil cover is not clogged with grass.	✓	✓	✓
		Accumulation of grass in the muffler	There is no accumulation of grass around the muffler.	✓	✓	✓
Trans	Belt	Loosening	There is suitable tension on the belt.	✓	✓	✓
		Damage, cleanliness	Belt is not cracked, damaged or noticeably dirty.		✓	✓
	Trans mission	Abnormal noise, strange heat/movement	There are no abnormalities, strange noises or heat, when running the machine.		✓	✓
		Oil quantity, cleanliness	There is a suitable quantity of oil and it is not dirty.			✓
		Oil leakage	Oil seal and packing parts are not leaking oil.	✓	✓	✓

		Inspection Content		Inspection freq.		
				D	M	Y
Body	Body	Cracking or deformity, mounting nuts and bolts are loose or have fallen off	Frame is not cracked or deformed. Nuts and bolts have not fallen off.		✓	✓
	Cover	Cracking, deformity, corrosion	No cracking, deformity or corrosion.			✓
	Levers /Wires	Damage, loosening, rattling of levers and wires, loss of split pins	When moving or loading there is no damage, loosening, rattling and nothing has fallen off.	✓	✓	✓
Drive	Tires (Wheels)	Air pressure and tread depth	Standard values are observed.	✓	✓	✓
		Cracking, damage, wear and tear	No cracks, damage or wear and tear.	✓	✓	✓
		Metal, stones, etc, stuck in the tires	There is no debris in the tires.	✓	✓	✓
		Loose or missing nuts and bolts	Nuts and bolts are not loose or missing.	✓	✓	✓
		Rattling, strange noise	Mounted parts do not rattle or are missing.		✓	✓
	Labels	Damage	Warning labels and nameplate are attached and not damaged.		✓	✓

If you do not understand any of these points, please consult with the retailer where you purchased this machine.

12. Self Diagnosis Table

If any of the following effects occur, refer to the instruction manual and take the appropriate action.

Effect	Cause	Treatment
Cut grass is not discharged properly.	Grass is wet.	Operate machine when grass is dry.
	Grass is too long.	Raise the cutting height and cut twice.
	Cutting height is too low.	Raise the cutting height.
	Engine revolution speed is too low.	Increase revolution speed.
	You are moving the machine too fast.	Reduce your own speed of operation.
Grass deposits come out of the machine.	You are moving the machine too fast.	Reduce your own speed of operation.
	Engine revolution speed is too low.	Increase revolution speed.
	Blade is worn out, broken.	Replace with a new blade.
	Grass has accumulated inside the blade cover.	Clean inside the blade cover.
	Grass is too long.	Raise the cutting height and cut twice.
Machine starts cutting into the ground.	Cutting height is too low.	Raise the cutting height.
	Turning speed is too fast.	Reduce turning speed.
	Rolling hills	Change the direction of your cut.
	Bumpy ground	Raise the cutting height.
	Bending of the blade.	Replace with a new blade.
Slipping blade.	Belt tension is too low.	Adjust belt tension.
	Debris is clogged inside the blade cover.	Clean inside the blade cover.
	Grass accumulation in the pulley.	Clean the pulley.
	Belt wear and tear.	Replace with a new belt.
Machine does not change gear.	Gear position is misaligned.	Adjust gear rod.
	Transmission is in poor condition.	Repair transmission.
Excessive Vibration	Blade is poorly balanced.	Repair blade.
	Blade is broken.	Replace with a new blade, or repair.
	Grass has accumulated inside the blade neck guard. Breakage.	Clean blade neck guard, or replace.
	Blade axis is bent.	Replace blade axis.
	Belt breakage.	Replace with a new belt.
Cutting workload is too high.	Engine revolution speed is too low.	Increase engine revolution.
	You are moving the machine too fast.	Reduce your own speed of operation.
	Grass has accumulated or is wrapped around the blade axis.	Clean the blade.
	Grass is too long.	Raise the cutting height and cut twice.
	Cutting height is too low.	Raise the cutting height.
Tires are slipping.	Ground is too moist.	Stop working until ground is dry.

If you do not understand any of these points, please consult with the retailer where you purchased this machine.

13. Troubleshooting

If the engine is defective, perform diagnosis by referring to the following table and then taking the appropriate action.

Effect	Cause	Treatment
You have trouble starting the machine, or the machine will not start at all.	Safety switch is not in the [start up] position.	Put the safety switch to the [start up] position.
	Choke lever has not been pulled out.	When cooling the engine, put the choke bar in the position.
	Fuel is not flowing properly.	Inspect fuel tank, remove impure deposits or water. Remove the fuel valve strainer and clean out any sediment deposited inside the cap together with any other attached dirt.
	There is air or water mixed in the fuel delivery system.	Remove foreign objects, inspect fastening bands, replace damaged parts with new ones.
	In cold weather, oil becomes thick, and and the engine rotation is sluggish	Use the correct oil depending on the outside temperature.
	Ignition coil or unit is defective.	Replace the ignition coil or unit.
	Defective spark plug.	Inspect the gap between spark plug electrodes and adjust. Replace with a new spark plug.
Output shortage	Fuel shortage.	Refuel the machine.
	Clogged air filter.	Clean the element.
	Poor quality fuel.	Replace with good quality fuel.
	Choke has not been fully opened.	Return the choke bar completely. Put it in the position.
	Cooling system is clogged.	Clean around the recoil starter.
The machine stops suddenly.	Fuel shortage.	Refuel the machine.
	Fuel valve is closed.	Open the fuel valve.
Exhaust gas is abnormally black	Poor quality fuel.	Replace with good quality fuel.
	Overfilled with engine oil.	Adjust to correct fuel level
Muffler emits black smoke and power output falls.	Air filter element is clogged.	Clean the element.
	Choke has not been fully opened.	Return the choke bar completely. Put it in the position.
Muffler emits gray smoke.	Overfilled with engine oil.	Adjust to correct fuel level
	Cylinder or piston ring is worn out	Replace the ring.
Engine revolution is not stable (does not increase).	Choke has not been fully opened.	Return the choke bar completely. Put it in the position
	Poor quality fuel.	Replace with good quality fuel.
Momentary stall.	Defective ignition coil.	Replace the ignition coil.
	Fuel filter is clogged.	Clean the fuel filter.
Exhaust has an irritating smell.	Poor quality fuel.	Replace with good quality fuel.

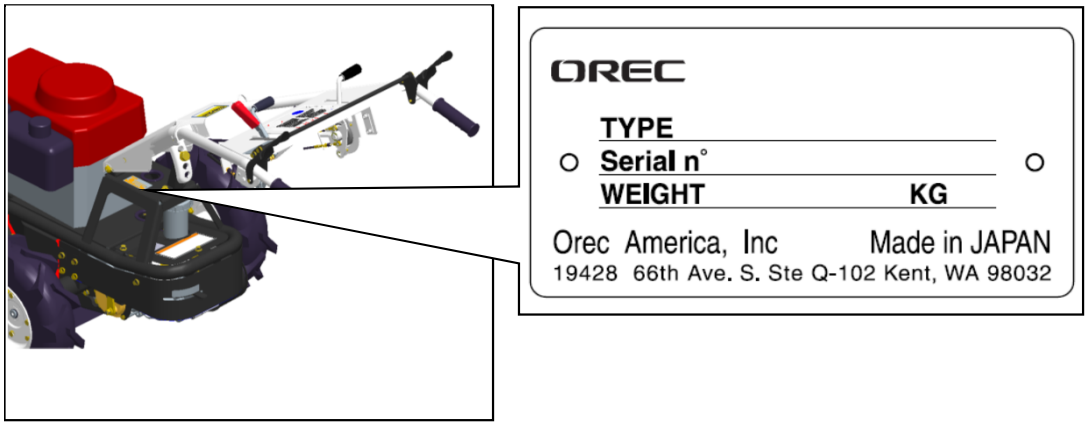
For new labels, please consult with your local retailer. Charges may apply.
If you do not understand any of these points, please consult with the retailer where you purchased this machine.

14. Parts Supply Term Limit

The supply term (period) during which replacement parts will be supplied is 9 years from the time the last OREC product is produced. However, even during the supply period, it may be necessary to consult with OREC when seeking to purchase specific parts. If you have a request for replacement parts after this period has passed, please consult with OREC for prices and availability.

If you have any questions please talk to staff at the point of purchase or at our head office. At that time, please inform us of your machine's model type, serial number, and engine type.

Position of identifying seal:



15. Limited Warranty

Terms and Conditions

• Orec America, Inc. provides a limited warranty of two (2) years for residential users, one (1) year for commercial users, and one (1) year for rental companies, of its products against defects in workmanship and materials when said products are put to ordinary and normal use. The terms and conditions of the limited warranty are as set forth herein.

• The second year of the residential warranty shall cover only parts and NOT service.

• Crawlers are guaranteed for one hundred eighty (180) days after initial purchase. This warranty covers defects in materials or workmanship only, and does not include damage to crawlers from normal use and other external factors.

• The warranty shall commence from the date of purchase. This warranty is available only to the original purchaser, and is not transferable.

• OREC reserves the right to inspect covered machines and parts in order to determine the validity of warranty claims

• For the purposes of the above warranties “ordinary and normal use” does not include misuse, accidents, or damage due to inadequate maintenance.

• Under this warranty, the responsibility of Orec America is limited to replacement or repair of defective parts at Orec America, or at an authorized Orec dealer.

• Routine maintenance and adjustments, as defined by the manufacturer’s owners’ manuals, are the responsibility of the user and are not covered by the warranty.

•Degradation or deterioration of the product due to everyday use are excluded from the warranty

•Expendable components including but not limited to such as belts, blades, filters, spark plugs, bags, wheels hoses, cables, wires, brake pads and flappers, are excluded from the warranty.

This warranty does NOT cover tire replacement or repair caused by punctures from outside objects, such as nails, thorns, stumps or glass.

• During the warranty period, the warranty holder is responsible for equipment transportation charges, and transportation expenses needed to process the claim will not be reimbursed.

• **The following are excluded from the warranty:**

- ・Repairs necessary due to inappropriate use or abuse including, but not limited to, damage caused by towing objects or overspeeding the engine.
- ・Paint peeling or rust that occur through exposure to the elements or through everyday use shall not be covered by the warranty.
- ・Repairs necessary because of operator negligence, including but not limited to, electrical and mechanical damage caused by improper storage, failure to use the proper grade and amount of engine oil, failure to keep the mowing deck clear of flammable debris, or the failure to maintain the equipment according to the instructions contained in the owner’s manual.
- ・Repairs necessary because of accidents.
- ・Engine (fuel system) cleaning or repairs caused by fuel determined to be contaminated or oxidized (stale). In general, fuel should be used within thirty (30) days of its purchase date.
- ・Claims made after expiration of the warranty.
- ・Claims that are NOT specifically covered by warranty.

• Repairs, maintenance and/or modifications performed by unauthorized persons or dealers, as well as the use of unauthorized parts or accessories will lead to the immediate forfeiture of the warranty.

• Under NO circumstances shall Orec America be liable for damages or expenses of any kind resulting from inappropriate use of its products.

• Orec America shall NOT be responsible for incidental or consequential costs or damages resulting from defects in its machinery.
Such excluded costs and damages may include 1) Labor 2) Lost sales 3) Cost of replacement parts.
• This warranty shall apply only to models sold within the United States and purchased from authorized dealers.

Note: to request warranty service, please contact an authorized Orec dealer or refer to your owner's manual for the proper procedure

THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS AND YOU MAY HAVE OTHER RIGHTS WHICH MAY VARY FROM STATE TO STATE. SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATIONS MAY NOT APPLY TO YOU.

Warranty Registration

Register your information within 30 days of purchase at **http://www.orecamerica.com/warranty**

Warranty Claim Procedure

Should this Orec product fail due to a defect in materials and/or workmanship, the owner should use the following procedure to make a warranty claim:

1) The owner must take the machine to the dealer from whom they purchased the machine or to an authorized Orec America dealer.

2) The owner must present the warranty registration sheet or the invoice or receipt received at time of purchase.

3) The warranty claim will be taken and verified by the Orec Dealer or distributor service manager and submitted to an Orec distributor. The dealer or distributors service managerwill make a report and submit it to Orec America for consideration of Warranty.

4) Orec will research the claim and may request that parts be returned for further examination. Orec will report their decision to the distributor service manager or dealer from whom the claim was received.

5) In the event that OREC approves the claim, parts will be exchanged free of charge and repairs performed by the dealer.

6) The decision by the Quality/Service department to approve or reject a warranty is final and binding.

Note: to process a warranty claim, it is necessary to include the model name and serial number which are printed on the Orec Serial Plate (See page 37)