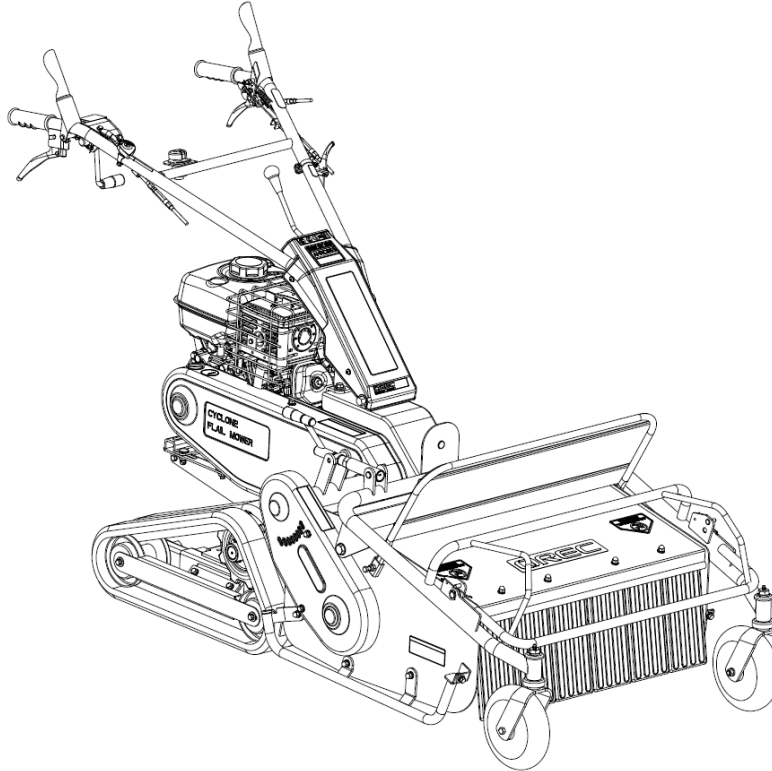


Operating Instructions

Cyclone Flail Mower - Track

AHRC 663



0336-0071



- Please fully read and understand all the important points in these instructions before operating this machine.
- When you purchase this machine, please ask the retailer to explain the safest way to operate it.
- Please keep these operating instructions and the warranty safe so that they may be easily referred to at anytime.

OREC America Inc.

(To the retailer)

Please inspect this machine before shipping it to the customer, and register for warranty at www.orecamerica.com/warranty

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 to 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.

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 brush, it is not a lawn mower. Therefore it can not offer the same quality cut as a finishing mower. This machine is designed for agricultural areas and is intended for commercial users.

Definitions and Symbols

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 symbols.

Symbol	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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For Safe Operation

Please read these instructions regarding safety and operation before operating this machine. In order for this machine to satisfactorily demonstrate its true performance, please perform regular maintenance and inspection as outlined on page 39.

Warning Symbols

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



- Always wear safety glasses or goggles, and ear protection while operating the machine. (0215-83200)



- Do not use on slopes of more than 15° (0223-72900)

⚠ WARNING
Avoid serious injury or death

- Read the operator's manual.
- Go across slopes, NOT up and down.
- Do NOT mow when children or others are around.
- Look down and behind before and while moving backwards.
- Remove objects that could be thrown by the blades.
- Keep safety devices (guards, shields, switches, etc.) in place and working.
- Do NOT operate this machine unless you have been trained.

(0220-70700)

⚠ DANGER
Amputation and thrown objects hazard

To avoid injury from rotating blades, stay clear of cover edge and keep others away. Do not mow without discharge chute or front guard cover in place.

(0304-71200)

⚠ DANGER
KEEP HANDS and FEET AWAY

(0220-70800) × 2

⚠ DANGER

<p>Fire hazard</p> <ul style="list-style-type: none"> • Keep unit free of grass, leaves and excess oil. • Do NOT add fuel while engine is hot or running. • STOP engine and allow to cool for at least 3 minutes prior to adding fuel. • Do NOT add fuel indoors, in an enclosed trailer, garage or other enclosed areas. • Clean up spilled fuel. • Do NOT smoke while operating this machine. 	<p>Carbon monoxide hazard</p> <p>The engine emits poisonous carbon monoxide gas.</p> <ul style="list-style-type: none"> • Avoid inhaling exhaust fumes. • Only operate outdoors.
--	---

(0304-71100)

⚠ WARNING
Amputation and pinch point hazard

To avoid injury from rotating parts, stay clear of parts and keep all shields and guards in place.

(0220-70800) × 2

⚠ DANGER
KEEP HANDS and FEET AWAY

⚠ DANGER
Amputation and thrown objects hazard

To avoid injury from rotating blades, stay clear of cover edge and keep others away. Do not mow without discharge chute or front guard cover in place.

(0304-71200)

*Position of symbols affixed to installed engine will be slightly different.

NOTICE

- In the case that these warning symbols become difficult to see, please replace them so that they can be easily seen and understood.

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's 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, accident and injury can result. Please check and observe local law which may place age limits on the operation of machinery.
- Do not operate if suffering from fatigue or illness 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 measures are carried out.

- The owner should explain how to operate the machine and have new operator 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. 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 fully explaining its safe operation.
- 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 before lending it to anyone.

■ Managing gasoline safely

⚠ DANGER

- Absolutely do not handle gasoline in the presence of lit cigarettes, naked flame, or other sources of ignition. Gasoline is an extremely flammable liquid and there is a danger of fire and explosions.
- Do not use a type of gasoline other than that described. There is a danger of fire and explosions.

⚠ WARNING

- Store gasoline and oil safely away from sources of flame and out of reach of children. Accidents and injury can result.
- Please refuel in a place that is well ventilated. 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, 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 ignition. There is a danger of fire.
- If you spill gasoline, move the machine a safe distance away without starting the engine. Starting the machine in close proximity to a fuel spill can result in a fire or other accident. Use a waste cloth to wipe away the spill and dispose the 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, they could move unexpectedly. Refuel after placing your fuel container safely on the ground, away from vehicles. Fuel spills can cause fire and other accidents.
- When refueling from a truck or trailer, remove gas-powered refueling equipment from the vehicle and refuel the machine on the ground. If this is not possible, refuel the machine with a portable container rather than from a gasoline dispenser nozzle. Fuel spills can cause fire and other accidents.
- Do not remove the refueling nozzle from the fuel tank until you have finished refueling. Fuel spills can cause fire and other accidents.

■ Caution when starting the engine

DANGER

- Do not modify the engine as this can cause accidents or explosions. Altering this machine in any way will void the warranty. Orec America Inc. will bear no responsibility for damage or injury caused by alterations or modifications.
- 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 is odorless and contains carbon monoxide which can cause death or serious injury.

WARNING

- Do not allow highly flammable substances near the engine or in the path of the exhaust as this can cause a fire.
- Do not touch the engine or muffler as they become extremely hot during operation and can cause severe burns.
- Do not allow weeds and leaves to accumulate in the engine, especially in the recoil cover, air filter, and near the muffler. Overheating and fire can result.
- Ensure that the drive clutch 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. Taking precautions when starting the engine can avoid injury and accidents.
- After starting the engine with the blade clutch and drive clutch in the [OFF] position, check the V-belt to be absolutely certain that it is not moving. If the V-belt is moving even a little, immediately switch off the engine and adjust the belt guard and the wire. Not taking precautions can avoid 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 lower the running of the engine. The speed change lever should be put in the forward [1] 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

WARNING

- Absolutely 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 warranty. Orec America Inc. will bear no responsibility for damage or injury caused by alterations or modifications.
- Do not needlessly change or tamper with the safety apparatus. Inspection should be performed periodically to ensure the safety apparatus is working correctly.
- For reasons of safety, use the 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 protection

Cuffs, loose clothing, and jewelry can become entangled in the machine. Avoid wearing such items to help prevent 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 amputation.
- 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.
- Be sure that there are no people, animals or vehicles close by. Taking precautions can avoid injury and accidents.
- Before starting, remove any rocks or branches that could be thrown and cause injury to bystanders or damage to the machine.
- When working in a dangerous area, erect markers stop to you from mistakenly getting too near to obstacles, ditches, soft path edges, slopes (over 15°), or uneven ground.
- Display a (MOWING) sign and erect a guard rope to prevent people (especially children) from coming within 100FEET of 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 be fully aware of your surroundings. Failure to notice dangerous objects and bystanders is a cause of injury and accidents.
- Absolutely 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

WARNING

- During operation, blades, chains and belts are hidden by a cover, be sure to keep hands and feet well away. Touching these parts can cause serious injury such as the severing of hands and feet.
- Do not operate the machine with the safety cover raised. There is a danger of injury and damage, especially at the front of the machine, from rocks and other debris being thrown from the blades.
- This machine is designed to minimize flying debris but there is the possibility of flying debris coming out of the front cutting structure. For this reason, do not work under the assumption that debris cannot fly out and hit people and property.
- When mowing, always proceed forward in gear [1] or [2], never in reverse [R]. This not only decreases the performance of the machine but also increases the likelihood of flying debris.
- During operation, the rotating blades come right to the edge of the blade cover. Absolutely do not put your hands inside the cover to try to clear weeds, etc. Taking precautions can avoid injury.
- Do not raise the front cover while the blades are moving.
- Before removing entangled weeds 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 you and bystanders. If people or animals come near, release the blade clutch and switch off the engine. Taking precautions can avoid injury and accidents.
- For safety reasons, do not make sudden starts/stops or sharp turns.
- Take care to move and turn the machine gently. Stop the blades when not cutting weeds or brush. Taking precautions can avoid injury and accidents.
- The person using this machine should always operate it from behind (handlebar side). When this machine's engine is running, do not stand in the path where you are cutting weeds or brush or try to cut sideways. Taking precautions can avoid injury and accidents.
- If you notice any strange noises, smells or heat/vibrations during the operation of this machine, switch off the engine immediately, remove the spark plug cord and ensure that all movable parts have completely stopped. Be sure to have the machine inspected for damage and obstructions and have any damaged parts repaired.
- Watch for holes in the ground and protruding tree roots. Also watch for obstructions that could be hidden in long weeds or brush. 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 operate 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, put the speed change lever in [N] and confirm that the parking brake is ON. Injury and accidents can be caused if the machine moves while unattended.

CAUTION

- Use caution when operating the machine near buildings, shrubs and trees, as damage and accidents can occur. If you do hit something, switch off the engine immediately. Confirm that the blades have stopped moving and then check them for damage such as bending and twisting. Check all areas of the machine for damage and have parts repaired or replaced if necessary.

■ Using the machine on slopes

WARNING

When operating on slopes, serious accidents can be caused by you 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 weeds and brush. 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 treat the following points with great care.

- 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 local law 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.

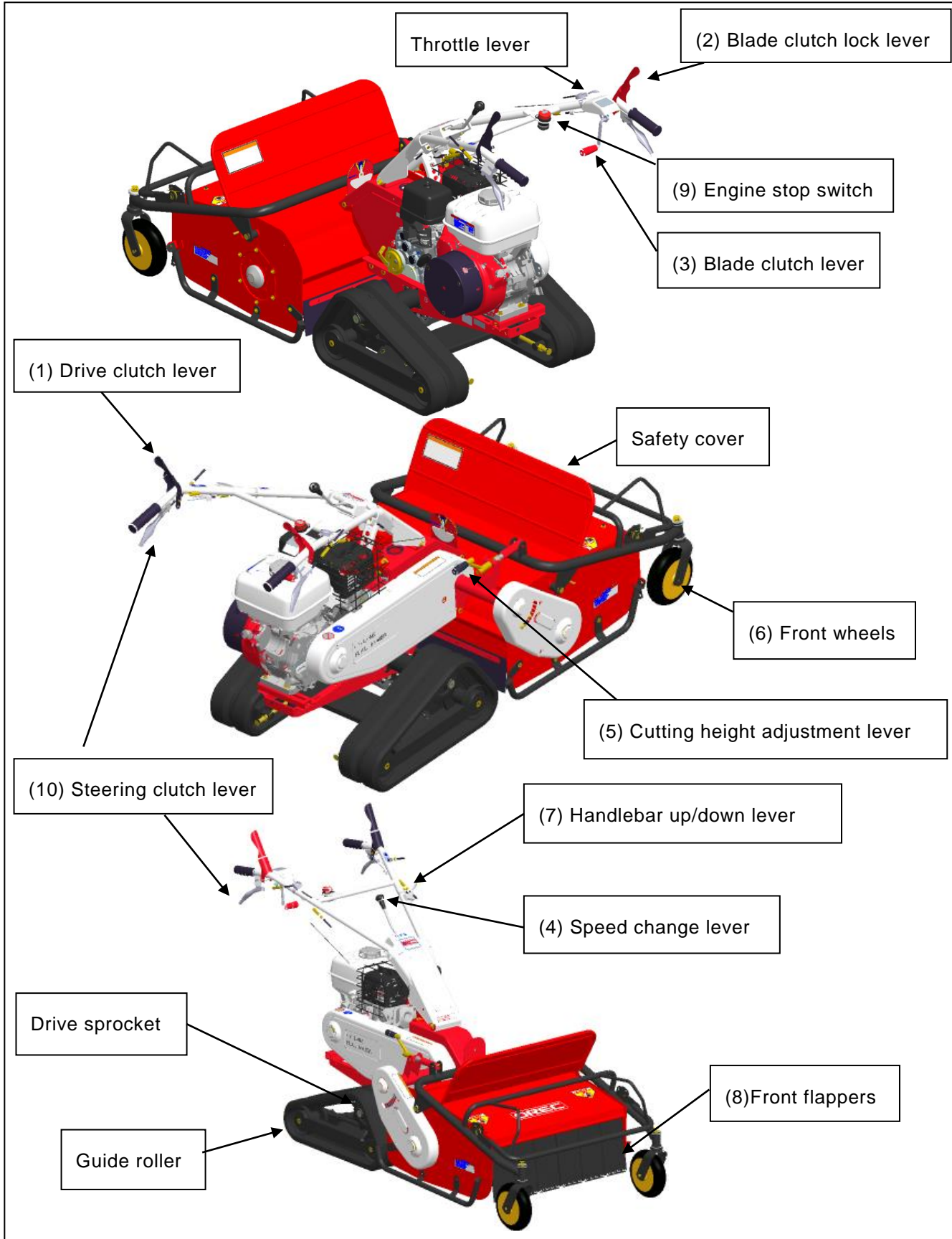
■ Maintenance

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 performing inspection, adjustment or maintenance, use 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. Taking this precaution can avoid 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.
- Check that all nuts and bolts are securely tightened.
- Perform comprehensive inspection and adjustment of such parts as drive clutch, blade clutch, brake, throttle, and gear change.
- 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.
- 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.
- Remove fuel when storing or transporting the machine. Accidents and damage can be caused by fuel spills or spoiled fuel.
- When storing the machine, place it on a flat surface away from sources of flame. Taking precautions can avoid accidents and damage.
- Before storing the machine, remove foreign material such as weeds and leaves. Clean away any oil spills or unsure of meaning.
- 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 in this manual. The operator should always use common sense and put safety first when using this machine.

Name of Parts



Working of Each Part

(1) Drive clutch lever

Operates by turning power [ON]/ [OFF] from the engine to the drive transmission.

Lower the lever and grip it together with the handlebars to transfer power to the transmission and start driving the machine [ON].

To stop the machine, release your grip on the lever and it will automatically return to its raised position, power will be cut and the machine will stop.

(2) Blade clutch lock lever (3) Blade clutch lever

Operates by turning power [ON] / [OFF] between the engine and blades.

To start the blades rotating, first, lower the blade clutch lock lever (2) and grip the handlebars.

Next, raise the blade clutch lever (3) until it is in the lock position.

To stop, release your grip on the blade clutch lock lever (2) and the blade clutch lever will automatically return to its lowered position. Power to the blades will be cut and rotation will stop.

WARNING

- Regardless of the position of the drive clutch lever, the blades will continue to rotate at high speed if the blade clutch lever is raised [ON] while the engine is running. Use caution regarding lever operation.

(4) Speed change lever

Use this lever to select drive speed. There are 3 speed levels forward gear, 1 reverse gear, and also neutral [N].

The position and speed of each lever is as follows.

	Forward			Reverse
	1	2	3	1
Speed(mph)	0.565	1.199	2.051	0.565

CAUTION

- To operate speed change, be sure to put the drive clutch lever in the [OFF] position and allow the machine to stop.

(5) Cutting height adjustment lever

This lever adjusts the height at which weeds and brush are cut.

Turn the lever to the right to lower the cutting height and turn the lever left to raise the cutting height.

When working on uneven ground, adjust the cutting height so that the blades do not cut into mud or rocks.

⚠ CAUTION

- Raise the cutting height immediately if you experience any of the following.

- An increase in flying debris such as rocks.

Cutting into mud, thrown mud is stuck to the inside of the blade cover and the ejection of cut weeds, etc, is getting worse, resulting in a wasteful loss of power output.

- Wear and tear of the blades occurs extremely quickly. Blades may break soon.

(6) Front wheels

The front wheels run freely, enabling smooth steering on level ground.

(7) Handlebar up/down lever

Adjust the height of the handlebars in accordance with the operator's size or the type of work being performed.

Please adjust the handlebar position to the height of the operator's hips.

(8) Front flappers

The front flappers automatically open and close according to the quantity of weeds. Always operate with the front flapper in a free state. Do not operate with the front flappers in the raised position.

(9) Engine stop switch

Switches the engine power (ON) / (OFF) .

(10) Steering clutch lever

Grip the left clutch lever to turn left and grip the right clutch lever to turn right.

How to Assemble Machine



1. Packaged product should resemble picture at left. Please ensure that wires are properly fitted and be careful not to damage wires during assembly of machine.



2. The bolts and pin in picture at left should be tightened with a 17mm wrench.



3. First set the handlebar as in the picture at left. The notch on the deck should be fitted into one of the bottom 3 holes of the handlebar. The last hole should not be used as this will place the wires too close to the radiator, causing a fire hazard.



4. Place the pin through the fitting at the base of the handlebar and, using two 17mm wrenches, tighten the bolts as shown at left.



Brake Wire runs parallel to the handlebar (ok)

Brake wire comes out from handlebar (danger)

5. Please ensure that the brake wire is fitted beneath the handlebars (as shown in picture on far left). If the brake wire comes out from the handlebars, there will be too much stress on the drive belt when the clutch is released.



6. Tools Included:

- a. One (1) 10x12mm Double-Ended Wrench
- b. One (1) 14x17mm Double-Ended Wrench
- c. One (1) Pair Anti-Fog Safety Goggles
- d. Four (4) Axle Pins

Note: When replacing axle pins, please use only pins supplied by OREC for use on the AHRC663.

These are specially designed pins that protect the transmission if the machine comes in contact with solid objects like metal or concrete. Use of other pins may cause serious damage to the transmission in these cases.

How to Run the Machine

Initial inspection before running the machine (Please refer to the engine use manual)

In order to safely operate the machine, please refer to the [Periodic voluntary inspection table] on page 39. Please have any defective parts repaired immediately, before operating the machine again.

How to move the machine manually with the engine switched off

1. Put the speed change lever in the [N] position.
2. Grip the drive clutch lever [ON] and push the machine forward.

How to start and stop the engine

▲ DANGER

- Do not start the engine in a confined space or a place with insufficient ventilation. Engine exhaust is odorless and contains carbon monoxide which can cause death.
- Absolutely do not handle gasoline in the presence of lit cigarettes, naked flame, or other sources of ignition. Gasoline is an extremely flammable liquid and there is a danger of fires and explosions.
- Ensure that the drive clutch 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. Taking precautions when starting the engine can prevent injury and accidents.

▲ WARNING

- Fully read the caution and danger labels which have been attached to this machine.

■ Before starting the engine

Place the machine on a flat surface and perform the following procedures to check the quantity of engine oil and fuel.

Prep 1 : Check engine oil

▲ WARNING

- Make sure the engine has cooled down before checking oil. There is a danger of burns.

NOTICE

- **This machine is shipped WITHOUT ENGINE OIL.** Fill with the engine oil to the correct level before starting the engine, even if there are traces of residual oil in the engine from factory testing.
- Inspect with the engine horizontal and do not screw in the dipstick.
- Please use good quality, new engine oil of SD level or higher.
 - Engine oil: SAE10W-30 Transmission oil: SAE90 or SAE80W-90



1. Unscrew the oil cap with attached oil gauge.
2. Check the oil level.
If the oil does not lie between the upper level and lower level, replenish to bring the oil to the upper level.

Prep 2 : Check fuel

⚠ DANGER

- Absolutely do not handle gasoline in the presence of lit cigarettes, naked flame, or other sources of ignition. Gasoline is an extremely flammable liquid and there is a danger of fires and explosions.

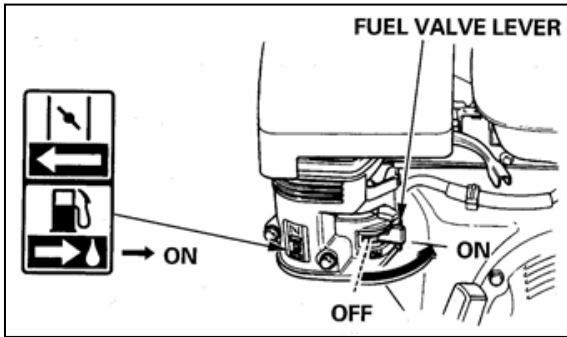
⚠ WARNING

- Please refuel in a well ventilated area. 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 you spill gasoline, move the machine a safe distance away without starting the engine. Starting the machine in close proximity to a fuel spill can result in fire or other accident. Use a cloth to wipe away waste gasoline then dispose in a suitable manner.
- When working on slopes, avoid fuel spillage by making sure fuel is below the maximum level on the inside of the refueling neck.




1. Refuel the machine with **regular** gasoline.
(Refer to fuel tank specifications on quantity, page 37)
2. After refueling, securely close the fuel cap.

■ How to start the engine



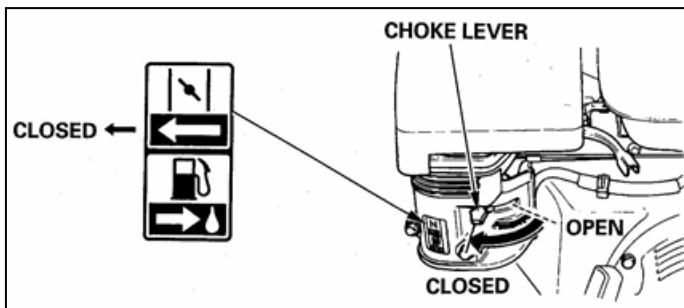
1. Move the fuel valve lever to the [ON] position.



2. Turn the throttle lever to the [ (HI)] position.



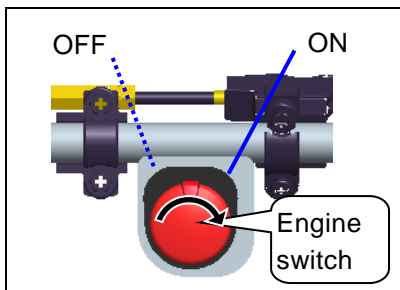
3. Confirm the drive clutch lever and blade clutch lever are the [OFF] position.



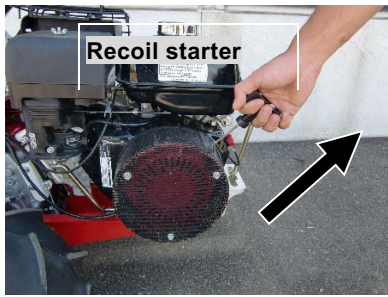
4. To start a cold engine, move the choke lever to the [closed] position.

NOTICE

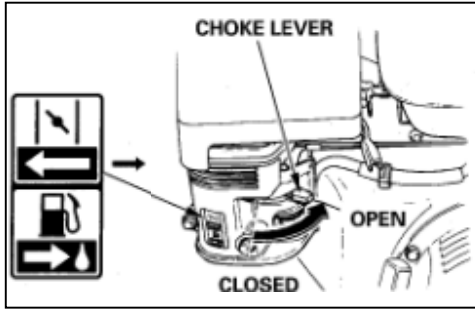
- If the engine has been warmed up, there is no need to use the choke.



5. Push and move the engine switch to the [ON] position.



6. 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 start knob to its original position.

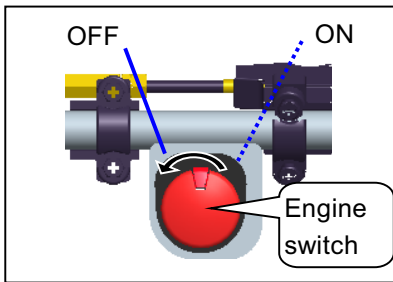


7. If the choke lever was moved to the [CLOSED] position to start the engine, gradually move it to the [OPEN] position as the engine warms up.

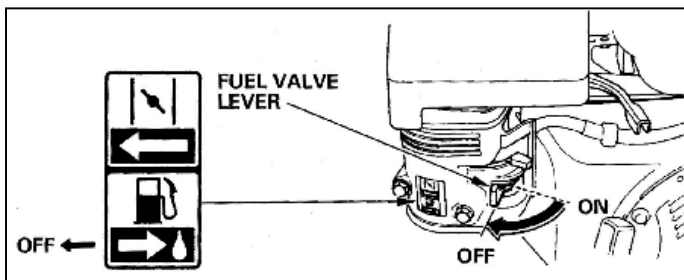
■ How to stop the engine



1. Turn the throttle lever to the [🐢 (LOW)] position.



2. Push the engine switch to the [OFF] position to allow the engine to stop.





Turn the fuel valve lever to the [OFF] position.

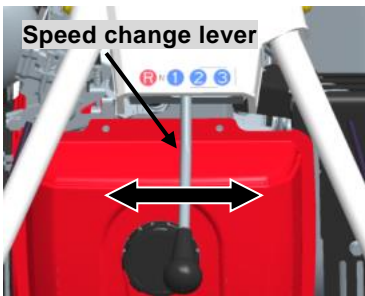
- Do not touch the hot engine immediately after switching off. Allow time for it to cool down as there is a danger of burns.

How to drive, change speed, turn, stop (park)

⚠ WARNING

- Confirm that all 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. Use caution when operating the machine on soft ground.
 - Do not operate the machine on slopes of more than 15°. There is a danger of the machine rolling over or running out of control.
 - Danger exists if you suddenly release the drive clutch while driving at high speed [ (HI)] with the throttle lever, as the emergency brake will be initiated. Put the throttle lever to [ (LOW)] and lower the speed of the machine before stopping.

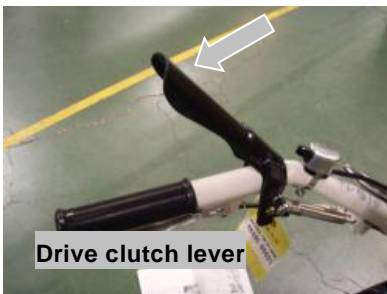
■ How to drive



1. Start the engine.
(Refer to page 15 for how to start the engine)
2. Be sure to put the speed change lever securely in the necessary position.

⚠ WARNING

- If the speed change lever is not securely in place, there is a danger that gears could be released while driving the machine. If a gear is difficult to engage, do not force it. Shift the drive clutch a little to the [ON] position and be certain to check the gear change one more time.
- There are 3 forward speeds. Do not operate at excessive speeds.



3. Put the throttle lever in the [half open] position and grip the drive clutch lever [ON] to drive the machine.

⚠ CAUTION

- Before driving, adjust the cutting height to avoid contacting the ground and other obstacles. Also be sure to have the blade clutch lever in the [OFF] position.

How to change speed



1. Release the drive clutch lever [OFF].

⚠ CAUTION

- Do not try to change speed with the drive clutch lever [ON]. This can cause injury and accidents.



2. Be sure to put the speed change lever securely in the necessary position. Refer to 'How to drive' (page 17).

⚠ WARNING

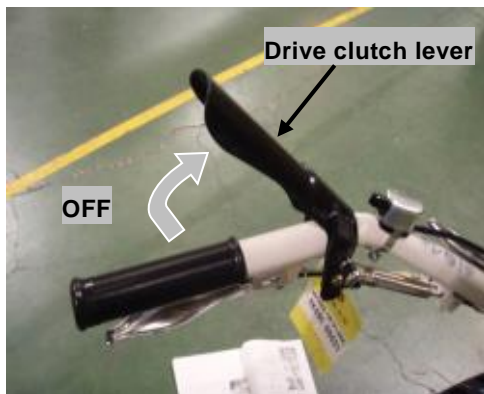
- If the speed change lever is not securely in place, there is a danger that gears could be released while driving the machine. If a gear is difficult to engage, do not force it. Shift the drive clutch **a little** to the [ON] position and be certain to check the gear change one more time.

3. Grip the drive clutch lever to the [ON] position and start off again.

■ How to turn

Grip the left clutch lever to turn left and grip the right clutch lever to turn right.

■ How to stop (park)



1. Release the drive clutch lever [OFF] and allow the machine to stop.
The parking break is automatically engaged at the same time.
2. Allow the engine to stop.
(Refer to 'How to stop the engine' page 16.)

NOTICE

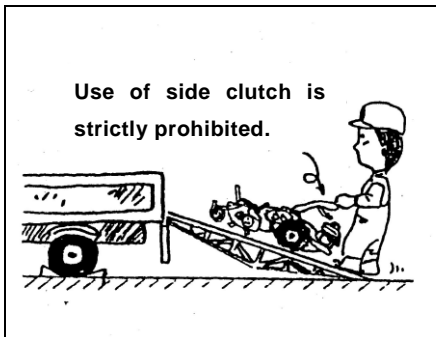
- Always park the machine on flat, open ground with no obstacles nearby.
- By putting the drive clutch lever in the [OFF] position, the parking break will be initiated regardless of the position of the speed change lever.



How to load and unload using a truck

▲ WARNING

- Park the truck on a flat and stable surface. Switch off the truck's engine, engage reverse gear, and pull the parking brake. Also place chucks under the truck's wheels to stop it from moving.
- Before loading or unloading, raise the height of the blades so that they will not contact the ramp. There is a danger of the blades catching on the ramp, possibly causing the machine to roll over.
- Attach the ramp's hook so that there is no bump where it attaches to the truck's loading bed. Also make sure that the ramp is securely attached.
- Use caution when the machine crosses from the ramp to the truck's loading bed and the location of the center of gravity is suddenly changed.
- Do not stand on the front of the machine.
- Do not operate any of the machine's levers while on the ramp as there is a danger of the machine rolling over.
- Make sure that the rubber crawler tracks on either side of the machine are positioned centrally on the ramp.
- When loading and transporting by truck, engage the machine's parking break and secure the machine in the loading bed with a rope that is sufficiently strong enough. Also place chucks under the machine's wheels to stop it from moving.

■ How to load and unload



1. Park your vehicle on a flat surface with no dangerous objects nearby.
2. Attach a ramp which conforms to the standards below.
3. Put the throttle lever in the intermediate position between [ (HI)] and [ (LOW)].
4. Only load the machine in forward gear [1] and only unload in reverse [R]. Do not use any other gear.

Ref: Ramp standards

Make sure that your ramp is comprised of materials strong enough to conform to the following standards.

- Length: 3.5 times longer than the truck's loading bed is high.
- Width: At least as wide as the wheel span of the machine.
- Strength: Sufficiently strong enough to take the weight of the sum total of the machine and the operator.
- Surface: Use a ramp with a non-slip surface.

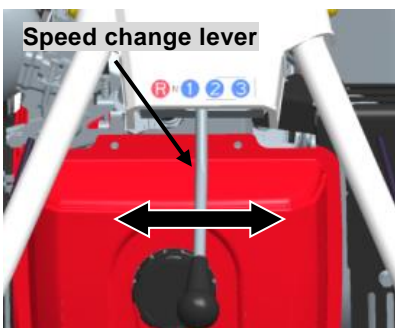
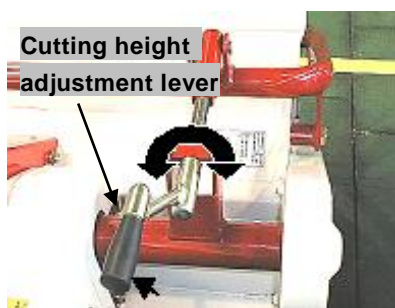
How to Operate the Machine

How to cut weeds and brush

Please again read the safety precautions (pages 3-9) and confirm the points regarding your work environment and general 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 weeds, etc, you may need to mow the area twice. Mow one time at a reduced work speed with the blades set higher than usual to avoid damaging the machine. Mow for a second time with the blades set lower when you are confident you have reduced the weeds to a more manageable length,
- When mowing, always proceed forward in gear [1] or [2], never in reverse [R]. This not only decreases the performance of the machine but also increases the likelihood of flying debris.



1. Adjust the cutting height using the cutting height adjustment lever.

NOTICE

- At first, adjust the blades a little high, then readjust the height to best suit the conditions while you are working.

2. Start the engine.
Refer to 'How to start the engine' (page 15).
3. Use the handlebar up/down lever to adjust the handbars to best suit the type of work being performed and the size of the person operating the machine.

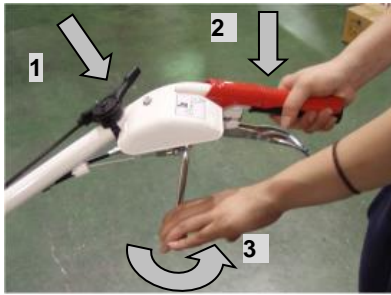
WARNING


- Be sure to stop working before making adjustments using the handlebar up/down lever.

4. Be sure to put the speed change lever securely in the necessary position.

NOTICE

- At first, position the blades a little high, then readjust the height to best suit the conditions after performing some test cuts.
- If the speed change lever is not securely in position, there is a danger that gears could be released while driving the machine. Without forcing too hard, shift the drive clutch a little to the [ON] position and check again that the lever is securely in position.



5. Turn the throttle lever [1] to the [ (HI)] position, grip the blade clutch lock lever [2], and gently raise the blade clutch lever [3] to the [ON] position.
The engine may stall if you pull the blade clutch lever up suddenly.

⚠ WARNING

- Use extreme caution as the blades are now rotating.



6. Gently grip the drive clutch lever together with the handlebar and start work.

■ How to stop

⚠ WARNING

- If you need to leave the machine unattended, be sure to switch the engine off, put the speed change lever in the [N] position and confirm that the parking brake is ON. Accidents and damage can be caused by an unattended machine running out of control.



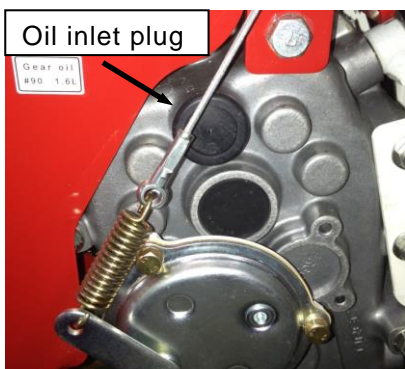
1. Release your grip on the drive clutch lever [OFF] and allow the machine to stop. The parking brake is automatically engaged at the same time. The blades stop rotating after 3 to 5 seconds.
2. Stop the engine.
Refer to 'How to stop the engine' (page 19).

Oiled Parts Inspection, Replacement, and Lubrication

⚠ WARNING

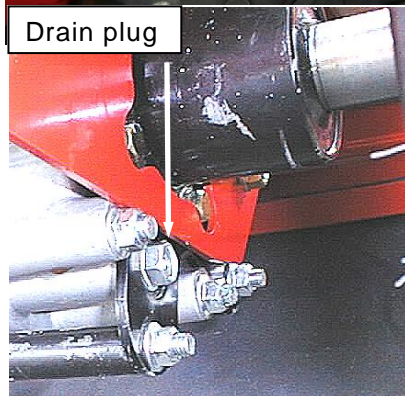
- This machine is shipped WITH GEAR OIL. However, please check if it's lubricated with the described oil, in the described parts, and in the described quantities before use. Low oil level can cause machine damage. This type of damage is not covered by manufacture warranty.
- To always operate this machine in good condition, perform oil changes as recommended.
- When performing inspection, replacement, or lubrication of oiled parts, place the machine on a flat, open surface. 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, please wait at least 5 minutes for all parts to cool down before you touch the machine. Immediately after the engine has stopped, the body will be very hot and can cause burns if touched.
- After switching off the engine, oil will still be in the engine and transmission so the quantity of oil remaining will not be exactly displayed.
- After changing the oil, please dispose of waste oil in accordance with local laws and regulations.

Transmission oil lubrication, inspection, and replacement



Inspection

Remove the oil inlet plug from the upper part of the transmission case on the left side of the transmission, and check oil. Check that the oil is fill to the inlet opening, if so, the oil is at the correct level.



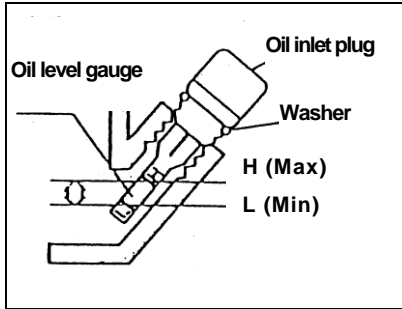
Replacement/Lubrication

Prepare a suitable container for removed oil. Replace oil after the first **20 hours** of operation and roughly every 100 hours thereafter by removing the drain plug from the bottom left side of the transmission case. After reattaching the drain plug, fill with 1.7 US qt (1.6L) of transmission oil (SAE 90 or SAE 80W-90) by pouring through the oil inlet.

⚠ CAUTION

- After putting in oil, be sure to properly reattach the oil inlet plug to avoid any leakages.
- Make sure the drain plug gasket contacts the mounting surface and then turn it 3/4 of a rotation.

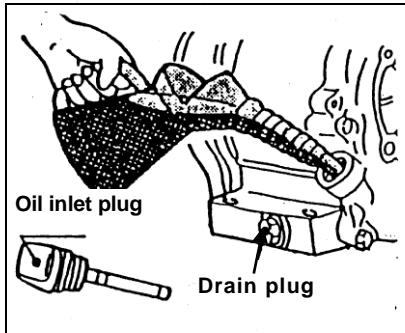
Engine oil inspection, replacement, lubrication



Inspection

Use the oil inlet plug with its attached level gauge to check the quality and quantity of the engine oil. Perform this inspection before every use or after every 8 hours of operation.

- Make sure that engine oil is always at the maximum level on the level gauge. Inspect with the engine horizontal and do not screw in the dipstick.



Replacement/Lubrication

Replace engine oil after the first 5 hours of operation and roughly every 50 hours thereafter.

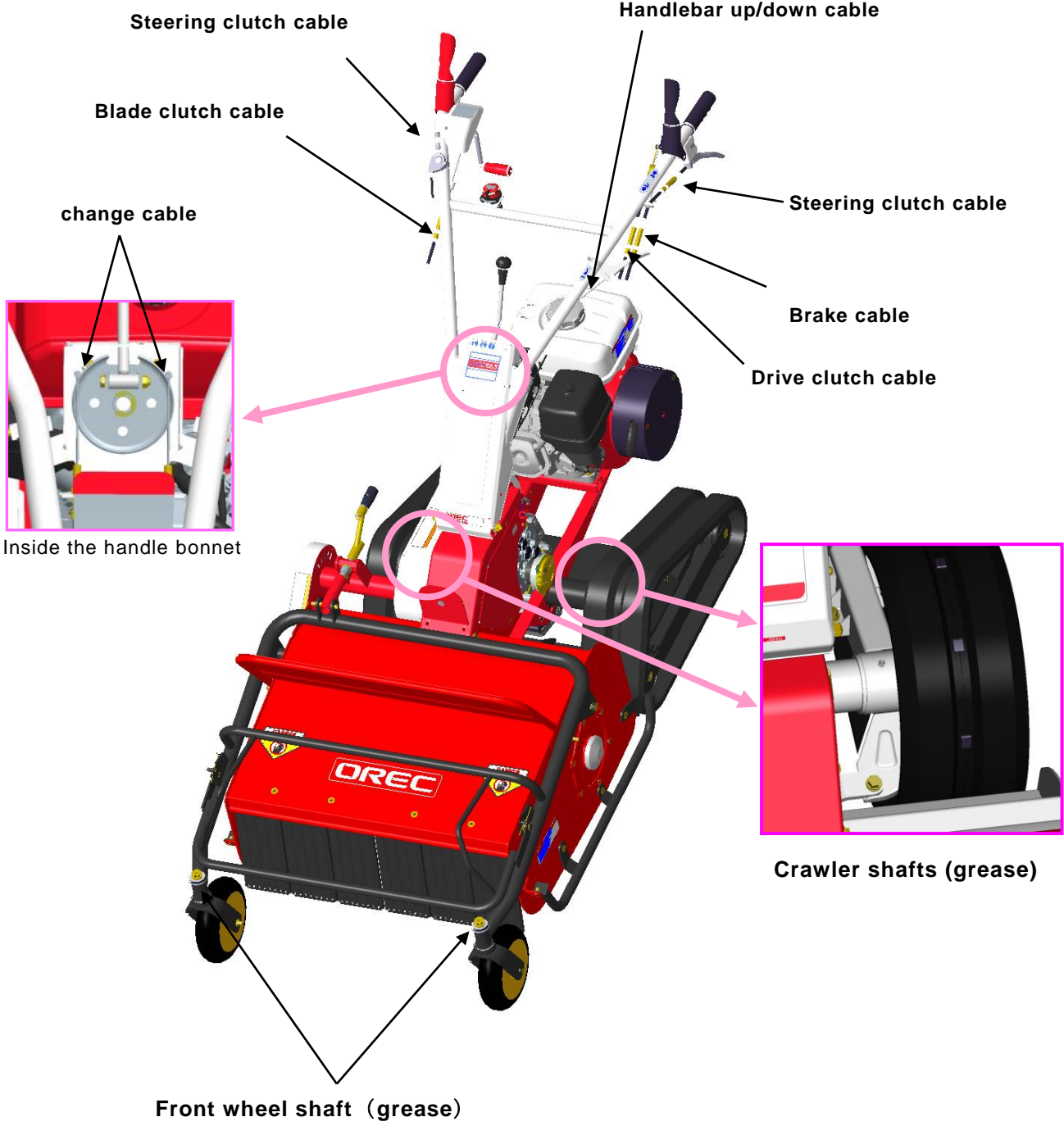
However, we recommend changing the engine oil earlier if severe loads are placed on the machine, if you are working in a hot environment, or if you are using the machine for many hours continuously.

1. Place the machine on a flat surface in order to keep the engine horizontal when adjusting the cutting height.
2. Prepare a suitable container in which to receive oil. Remove the oil inlet plug and then remove the drain plug from the back of the engine with a tool.
3. After the oil has been removed, securely return the drain plug to its original position.
4. Put in new engine oil while referring to page 13. (For oil quantity, please refer to page 33 for Specifications.)
5. After filling with engine oil, securely reattach the oil inlet plug so that oil does not leak out.

How to Lubricate Each Part

CAUTION

- Be sure to lubricate each part with grease or lubricating oil (SAE 30) every 30 hours. Operation will become difficult and the machine could be damaged if you neglect lubrication and allow oil to run out.



How to Inspect, Maintain, and Adjust Each Part

How to clean the air filter

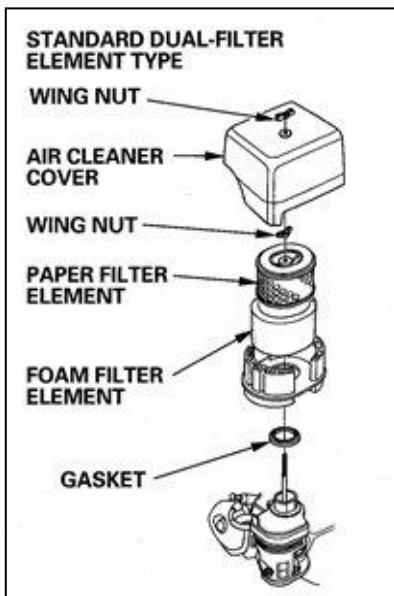
⚠ DANGER

- If you continue to use the machine with the air filter and recoil starter clogged with weeds, etc, exhaust gas temperature will increase and could ignite fuel, resulting in a fire. Be sure to periodically clean these parts.
- When washing the foam element, remove gently to avoid tearing.
 - Cleaning and replacement times of the foam element (approx)

Cleaning	Every 25 hours
Replacement	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.

⚠ CAUTION

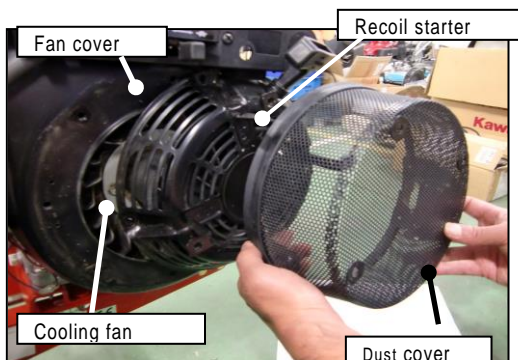
- Do not start the engine with the air filter removed. Dirt and dust will be sucked into the engine, causing engine trouble and abnormal wear and tear.



1. Release the wing nut and air cleaner cover.
2. Remove the paper and foam elements and check whether they are damaged. **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 equivalent), wring it out hard, 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
5. Wipe any dirt from the inside of the case and reassemble back to its original position.

NOTICE

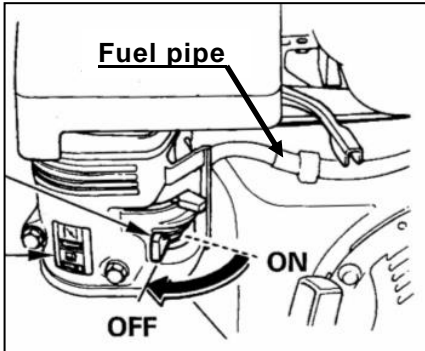
- Before starting operation, check there are no weeds or leaves blocking the inside the dust cover or recoil starter. As for the cooling fan, remove accumulations of weeds or leaves from inside of the fan cover by blowing compressed air through it after every 100 hours or 1 year of usage
- If you continue to operate the machine with the engine blocked, the engine will lose the ability to stay cool, causing engine trouble and possible burns if touched.
- The bolts securing the dust cover and recoil starter are firmly fixed. Please remove the bolts in order to clean inside the dust cover and recoil starter. **However, cleaning of the inside of the fan cover should be performed by the authorized OREC dealer.** Please request this from the retailer where you purchased the machine. (Please note, there is a charge for this service.)



How to inspect the fuel lines

⚠ DANGER

- When inspecting the fuel line, be absolutely sure not to be in the presence of lit tobacco, naked flame, or other sources of ignition. These can cause fire and explosions.



NOTICE

- The rubber parts of the fuel pipe will deteriorate even if you do not use the machine. Change the attaching bands together with new fuel line parts every 3 years or immediately if they have split.
- Always take care that the fuel line and fastening bands do not become loose or split.
- When changing the fuel line, be sure there is no dust or dirt inside.

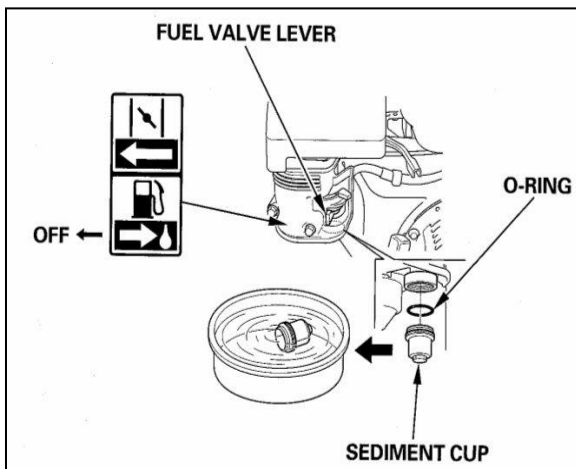
How to clean the fuel valve

⚠ DANGER

- When cleaning the fuel valve, be absolutely sure not to be in the presence of lit tobacco, naked flame, or other sources of ignition. These can cause fire and explosions.
- Do not wash with highly flammable substances such as gasoline or thinner.

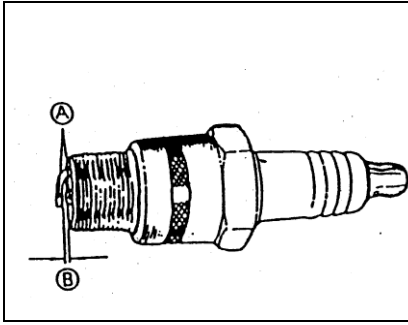
⚠ CAUTION

- Clean inside the fuel valve after every 50 hours of operation.
- Perform this work in a clean place free from dust and dirt. Accidents can be caused if dust and dirt enter the machine.



1. Move the fuel valve to the OFF position, and then remove the fuel sediment cup and O-ring.
2. Wash the sediment cup in non-flammable solvent, and dry it thoroughly.
3. Place the O-ring in the fuel valve, and install the sediment cup. Tighten the sediment cup securely.
4. Move the fuel valve to the ON position, and check for leaks. Replace the O-ring if there is any leakage.

How to inspect and adjust the spark plug



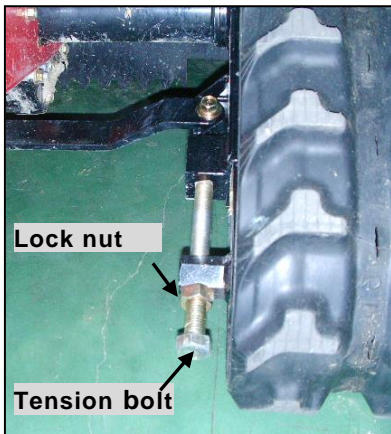
1. Remove the spark plug with a plug wrench and clean away any carbon deposits on the electrode (A) with a wire brush and wipe away any moisture if present.
2. Replace the spark plug with a new one if the ceramic part has cracked or the electrode have suffered extensive wear and tear.
3. Please adjust the spark plug electrode clearance (B) to 0.028-0.031in (0.7-0.8mm).

NOTICE

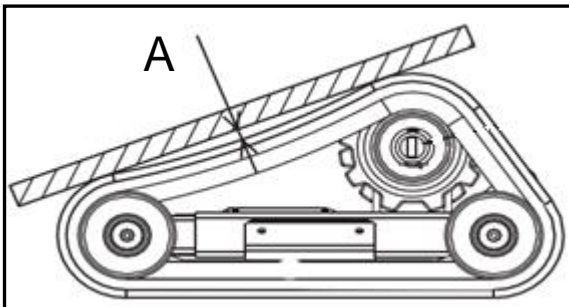
- When attaching a spark plug onto the engine, screw by hand at first before tightening with a plug wrench. If you start by using a plug wrench to screw in the spark plug, there is a danger of cross-threading it. (Refer to spark plug standards, page 33.)

How to adjust the tension on the crawler tracks

New crawler track parts will stretch and become loose after a period of use, as they become acquainted with the sprocket. If the crawler tracks are not adjusted to the correct tension, they can slip off during operation and their lifespan can decrease. Follow the steps below to adjust crawler track tension.



1. Loosen the crawler track tensioning bolt's lock nut, located at the rear of the machine.
2. Turn the crawler track tensioning bolt to tighten it.
3. Adjust tension so that there is a clearance of 5/8in to 3/4 in along line [A] when you push down on the crawler track.
4. Adjust the left and right crawler tracks so that equal tension is placed on them.
5. Securely tighten the lock nut after adjusting.



NOTICE

- As there is an initial lengthening of new belts and wires, please readjust after 2-3 hours of use.
- Check for strange noises and overheating when you move the machine.
- Avoid strenuous work for the first 2-3 hours, to allow all parts sufficient time to break-in.
- Please perform recommended maintenance and periodic inspections after use.

How to adjust each cable and belt

⚠ WARNING

- When adjusting each type of cable, place the machine on flat, open ground with the engine switched off and making sure you take safety precautions.

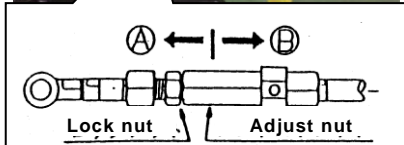
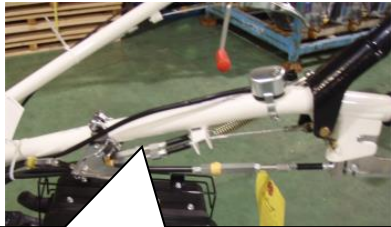


Diagram 1

■ Adjusting the drive clutch cable

Refer to diagram 1 and use the adjust nut to loosen or tighten the drive clutch cable.

- If you engage the clutch and place a load on the machine but the belt slips and the machine stops, you need to **move the adjust nut in the direction of (B)**.
- If you release the drive clutch lever but the belt still keeps rotating and the machine is difficult to switch off, **move the adjust nut in the direction of (A)**.

After adjusting, fix the adjust nut by tightening the lock nut.

NOTICE

- Put the drive clutch lever in the [OFF] position, leaving 1/8-3/16in of room for it to maneuver.

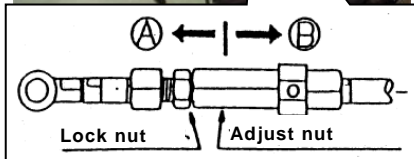
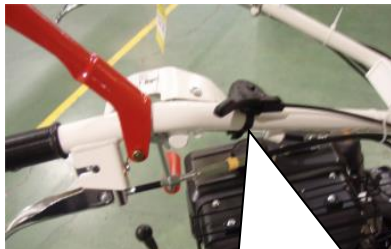


Diagram 2

■ Adjusting the blade clutch cable

Refer to diagram 2 and use the adjust nut to tighten or loosen the blade clutch cable.

After adjusting, fix the adjust nut by tightening the lock nut.

- If you engage the blade clutch lever and place a load on the machine but the blades stop rotating, **you move the adjust nut in the direction of (B)**.
- If you release the blade clutch lever but the blades fail to stop, move the adjust nut in the direction of (A).

⚠ CAUTION

- The blade brake is moved by operating the blade clutch lever. After adjusting the blade clutch cable, please check the effect on the blade brake. The machine is working well if the blades stop rotating around 3 seconds after releasing the blade clutch lever.

NOTICE

- Put the blade clutch lever in the [OFF] position, leaving 1/8-3/16in of room for it to maneuver.

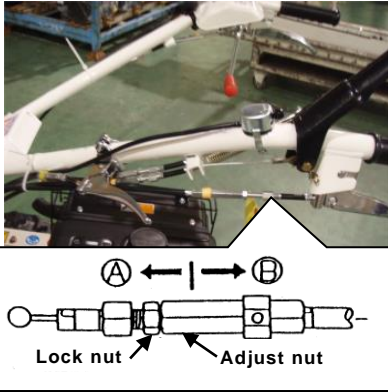


Diagram 3

■ Adjusting the steering clutch cable

Refer to diagram 3 and use the adjust nut to tighten or loosen the steering clutch cable.

- If you return the steering clutch lever but drive will not engage, **move the adjust nut in the direction of (A).**
- If you grip the steering clutch lever but drive will not stop, **move the adjust nut in the direction of (B).**

After adjusting, fix the adjust nut by tightening the lock nut.

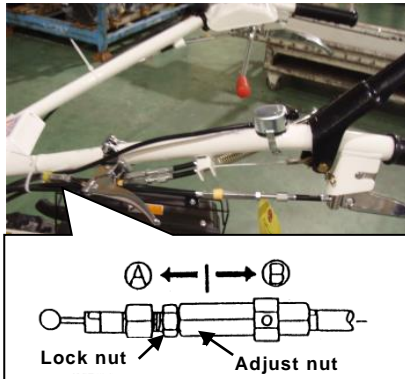


Diagram 4

■ Adjusting the handlebar up/down cable

Refer to diagram 4 and use the adjust nut to tighten or loosen the handlebar up/down cable.

- If you move the lever but the handlebars do not move up or down, **move the adjust nut in the direction of (B).**
- If you do not move the lever but the handlebars move up or down when a load is placed on the machine, **move the adjust nut in the direction of (A).**

After adjusting, fix the adjust nut by tightening the lock nut.

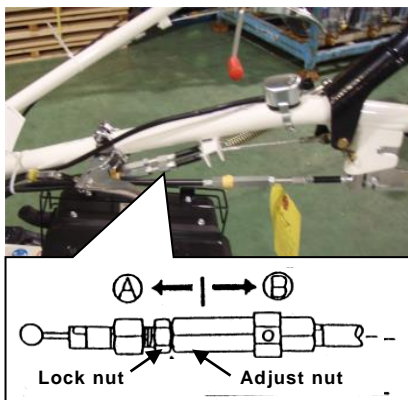


Diagram 5

■ Adjusting the parking brake cable

⚠ CAUTION

- If you neglect to adjust the parking brake, it could drag while you are driving the machine, or the brake could fail while you are on a slope, causing the machine to run out of control.

Refer to diagram 5 and use the adjust nut to tighten or loosen the parking brake if you detect any abnormalities.

- If you release the drive clutch lever but the parking brake is ineffective, **move the adjust nut in the direction of (B).**
- If the parking brake is on while driving (parking brake can not be released), **move the adjust nut in the direction of (A).**

After adjusting, fix the adjust nut by tightening the lock nut.

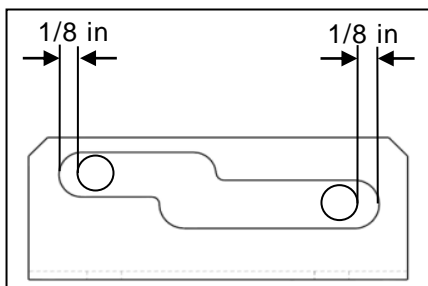


Diagram 6

■ Adjusting Change Cable

This machine speed will be controlled by wires. It could be out of alignment during driving position because wires could be stretched in the initial stage. Please adjust the wires after stop engine. If machine will keep working, might be happened accident because of the gear slipping.

1. Please adjust tension of wires by nut. Please make sure there is a space 1/8 in at the both ends when the gear is "Forward 3" and "Reverse" .[Refer to Diagram 6]

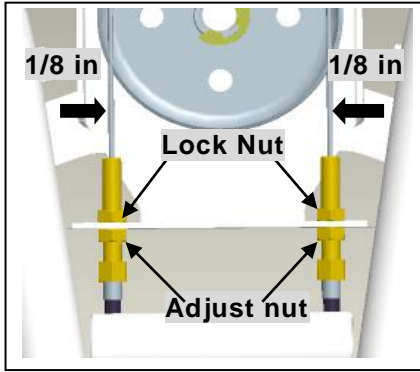


Diagram 7

※During the adjustment of wires, please make sure that the wire goes inside 1/8 in when be pushed by finger at arrow points. Do not tighten wires too much. [Refer to Diagram 7]

1. Please make sure that the machine runs perfectly at each speed.
2. After adjusting, fix the adjust nut by tightening the lock nut.

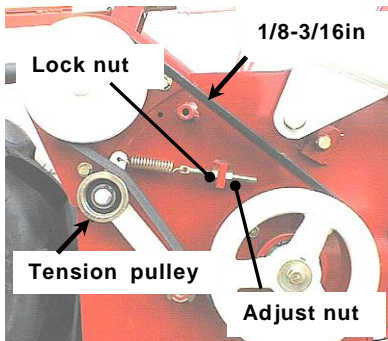


Diagram 8

■Adjusting the blade belt

Make sure that the blade belt is always in a state of tension. Refer to diagram 6 and follow the steps below to adjust the belt tension when you replace the belt or if the belt slips when a load is placed on the machine.

1. Push the center of the belt with your finger and tighten the adjust nut so that there is 1/8-3/16 in of clearance.
2. After adjusting, fix in place by tightening the lock nut.

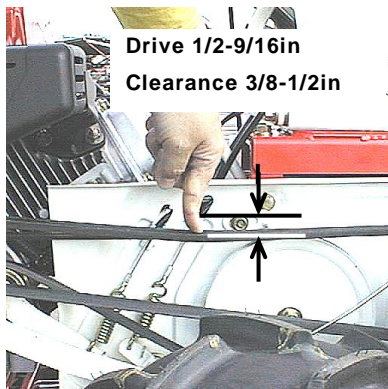


Diagram 9

■Adjusting the drive/middle belt guard

If you replace the belt, refer the diagrams 7 and 8 for how to adjust the tension of the belt and belt guard.

Adjust the drive and blade clutch levers to the **[ON]** position.

● Adjusting the belt tension

When you push the center of the belt with your finger (roughly until the tension pulley moves), the drive belt should bend 1/2-9/16in and the middle belt should bend 3/8-1/2in. At first, adjust belt tension by tightening or loosening the adjust nuts of the wires. If the belt still needs further adjustment, you can also adjust its tension by pushing the engine forward or backward.

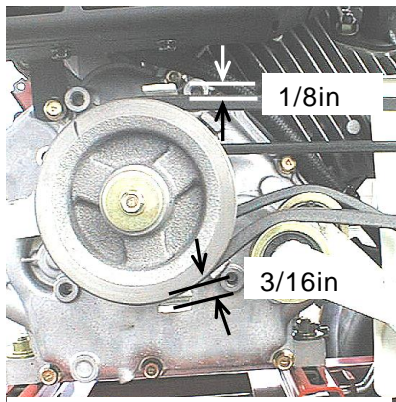


Diagram 10

■Adjusting the belt guide

To adjust the position of the belt guide, adjust the middle belt.

Adjust the belt so that when it is under tension, the clearance on the upper side is 1/8in and the clearance on the lower side is 3/16in.

▲ CAUTION

- Be sure to securely reattach any removed covers back to their original positions after removing to perform adjustments.
- After adjusting, be sure to check the [ON] / [OFF] movement of each clutch lever.
- Please readjust new belts as they will stretch slightly after 2-3 hours of use.
- Belts are consumable parts. Replace with new parts if you notice any abnormalities. Adjust after the first 20 hours and then every 100 hours thereafter. For belt size, refer to page 33.

Precautions in cold climate

▲ CAUTION

- In winter, be sure to remove any mud and debris from the machine and park it on a concrete or other hard surface after using it. Material stuck to the machine can freeze and cause damage.
- If you are unable to drive the machine due to freezing, do not force the machine to move but pour hot water on the affected frozen parts and wait for the ice to melt. Orec America Inc. cannot be responsible for damage caused by improper use in cold conditions.

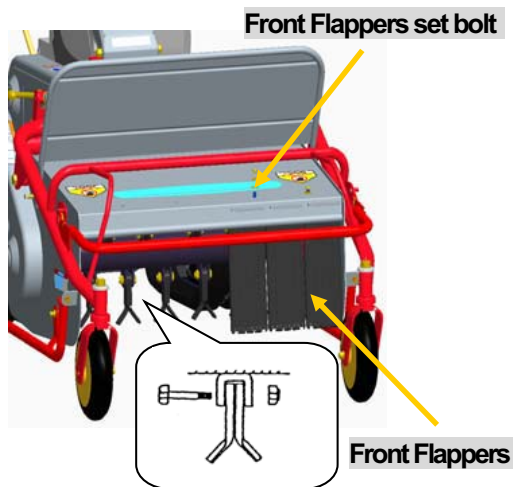
Blade Inspection and Replacement

In order to work as safely as possible, perform an inspection of the blades before you start.

⚠ WARNING

- When inspecting or replacing the blades, always 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.
- To avoid injury, wear safety gloves when performing inspection or replacement and wrap the tips of the blades in cloth.
- 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 specified purpose.
- Before using the machine, check for evidence of recent blade contact with foreign objects blade bending, damage, and wear and tear.
- If you neglect blade wear and tear, breakage, bending, and other damage, and continue to operate machine, blades could snap and fly out, possibly severely injuring the operator or bystanders. Engine fires can also be caused by abnormal vibrations.
- When running the blades at high speed, vibration can be caused even if only 1 blade is missing or broken. The machine cannot be operated safely in a continuous state of vibration, it is very dangerous. Vibration can also cause damage such as cracks and breaks to each part of the machine.

How to inspect and replace the blades



1. Stop the engine and remove the spark plug cap. (Refer to page 16 for how to stop the engine)
2. Use the cutting height adjustment lever to raise the blades to their highest position.
3. Raise the front flappers to inspect the blades for breakage, bending, and wear and tear.
4. Remove the front flappers when replacing any abnormal blades. To remove the front flappers, first remove the front flappers set bolt. After finishing replacement work, be sure to return the front flappers securely to their original position.

NOTICE

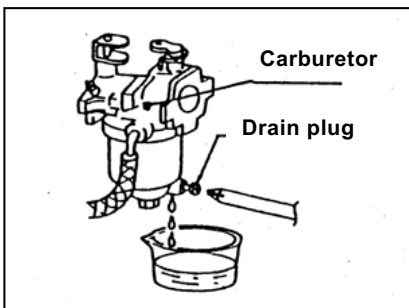
- More frequent inspection the blades is necessary if using the machine on areas including dry earth and sand which cause faster wear and tear of the blades.
- We recommend purchasing spare blades in advance and keeping them in a safe location.
- Use only the manufacturer's blades and blade attaching bolts.
- Shaking of the blade drum is also a cause of vibration. In this case, the blade drum ASSY has to be replaced as the blade drum can not be repaired.
- Replace blades according to damage suffered. Please change all blades at the same time except in the case that only 1 or 2 are damaged. Do not use old and new blades together as this will result in abnormal vibrations.

Regarding Long-Term Storage

If you do not use the machine for more than 30 days, please carry out the following procedures for maintenance. If the machine is not stored properly, there is a danger of fuel spoilage, the machine failing to start, or trouble running the machine.

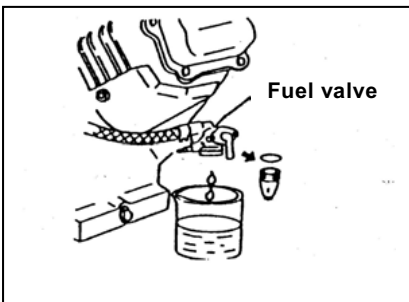
⚠ WARNING

- Please work on the machine in a place that is well ventilated. Fuel gas can fill a room and cause accidents.
- Before storing the machine, switch off the engine and remove the spark plug cord.
- Store the machine on a flat surface in a room that is cool, well ventilated and protected from the outdoor elements.
- When removing fuel, do not work anywhere near lit cigarettes, naked flame or any sources of ignition. There is a danger of the machine catching fire.
- Before removing fuel, wait for the engine and muffler to cool down sufficiently before you touch them. There is a danger of burns. Take care to handle removed fuel according to local laws and regulations.
- If you neglect to clean accumulations of weeds and dust from inside the machine, blockages can cause the engine to overheat, burn or catch fire the next time you use the machine.



1. Loosen the drain bolt, drain the fuel from inside the carburetor. Remove fuel from fuel valve and fuel tank. In a dry location store the machine.

2. Use a cloth to wipe away any traces of oil from the outside of the engine and machine body.



3. Replace engine oil.
(Refer to page 26 for how to replace the engine oil.)

4. Be sure to clean each part thoroughly.
In particular, clean out accumulations of weeds and dust from such places as the recoil starter, air filter, carburetor, and inside the belt cover. Clean any rust from exposed parts and apply anti-corrosion paint.

5. Refuel and relubricate all parts that need fuel, oil, or grease.

6. Engage the parking brake and store the machine on a flat surface in a room that is cool, well ventilated and protected from the outdoor elements.

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

NOTICE

- It is relatively easy to wash out waste weeds, etc, from inside the blade cover if you use a pressurized water hose and clean the waste out before it dries. At this time, make sure that water only contacts the cover, not the engine's electrics, carburetor, air filter, and muffler exhaust opening. This can damage the engine's ability to start.
- During storage, check the tire pressure periodically and add air as necessary.

Specifications *(Reference values)

Name		Cyclone Flail Mower - Track
Model		AHRC663
Length x Width x Front height (inch)		74.8 x 31.5 x 39.3
Cutting width (inch)		25.6
Weight (lb)		452
Cutting height (inch)		2.0 – 3.9
Blade (no.)		OREC's flail blade x38
Belt	Drive	LA47 x 1
	Middle	LB63 x 1
	Blade	SB39 x 1
Crawler track size		Width6.3inch Pitch2.4inch No. of links 24 × 2
Handlebars		Square handlebars (one-touch adjustable, 3 positions)
Brakes		Equipped with parking brake and blade brake
Speed (mph)	Forward	1 st :0.57 2 nd :1.20 3 rd :2.05
	Reverse	0.57
Engine	Name	Honda
	Model	GX270U-SAX4
	Exhaust vol.(cc)	270
	Engine Oil vol.	1.2 US qt (1.1L)
	Max. output	6kw (8.2ps) / 3,600 rpm
	Start up method	Recoil starter
	Spark plug	BPR6ES(NGK),W20EPR-U(DENSO)
	Fuel Tank vol.	1.40 US gal (5.3L)

*Changes may be made to improve the specification without prior notice.

Included Parts and Tools

No.	Part name	Standard/size	Quantity	Note
1.	Instruction manual		1	
2.	Engine tool	Attached to engine	1	
3.	Double-ended wrench	10×12	1	
4.	Double-ended wrench	14×17	1	
5.	Goggles	Anti-fog type	1	Protective equipment

Consumable Parts

No.	Part name	Part no.	Quantity	Note
1.	Flail blade	0304-70300	38	
2.	Blade bolt	0304-70100	19	
3.	Blade nut	0304-70200	19	
4.	Drive belt	89-6122-004700	1	LA47
5.	Middle belt	89-6123-006300	1	LB63
6.	Blade belt	89-6123-003901	1	SB39
7.	Throttle cable	0301-71100	1	Including throttle lever
8.	Drive/Blade cable	0304-70410	1 of each	
9.	Brake cable	0304-70610	1	
10.	Steering clutch cable	0304-70510	2	
11.	Change cable	0336-70100	2	
12.	Handlebar up/down cable	83-1110-965-20	1	
13.	Parking brake shoe set	85-1711-318-00	1	
14.	Blade brake	0231-37100	1	
15.	Caution symbol (big)	0220-70700	1	
16.	Blade cover danger symbol A	0220-70800	2	
17.	Belt cover warning symbol	0220-71100	2	
18.	Engine danger symbol	0304-71100	1	
19.	Blade cover danger symbol	0304-71200	2	
20.	Sprocket pin	0282-31310	2	

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. Please perform annual and monthly inspections as indicated, and starting checks before each use.

Item		Inspection Content		Inspection freq.			
				d	m	y	
		Check for:	Desired Result:				
Engine	Engine (Main body)	Condition at startup, abnormal noise.	Machine starts up easily.	√	√	√	
		Power and acceleration state	Power 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 secure.	√	√	√	
	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 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 wires connections	Harness connections are suitable, not loose or damaged.		√	√	
	Engine Purity	Dirtying of air filter element	Air filter element is not dirty.	√	√	√	
		Element breakage	Element is not torn or worn out.	√	√	√	
	Engine Cooling	Weeds etc clogged in the recoil cover	Recoil cover is not clogged with weeds.	√	√	√	
		Accumulation of weeds in the muffler	There is no accumulation of weeds around the muffler.	√	√	√	
	Transmission	Belt	Loosening	There is suitable tension on the belt.	√	√	√
			Damage, cleanliness	Not cracked, damaged, dirty.		√	√
Transmission		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 clean.			√	
	Oil leakage	Oil seal, packing parts are not leaking oil.	√	√	√		
Body	Body	Cracking or deformity, mounting nuts and bolts are loose or have fallen off	Frame is not cracked or deformed. Nuts and bolts are secure.		√	√	

Item		Inspection Content		Inspection freq.		
		Check for:	Desired Result:	d	m	y
	Body	Cracking or deformity, mounting nuts and bolts are loose or missing.	Frame is not cracked or deformed. Nuts and bolts are secure.		√	√
	Cover	Cracking, deformity, corrosion	No cracking, deformity, corrosion.			√
	Levers /Wires	Damage, loosening, rattling of levers and wires, loss of split pins	When moving, there is no damage, rattling, or loose or missing parts.	√	√	√
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 easily readable.		√	√

*For new labels, please consult with your local retailer. Charges apply.

Self Diagnosis Table





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

Effect	Cause	Treatment
Cut weeds are not released properly.	Weeds are wet.	Operate machine when weeds are dry.
	Weeds are too long.	Raise the cutting height and cut twice.
	Cutting height is too low.	Raise the cutting height.
	Engine power is too low.	Increase engine power.
	You are moving the machine too fast.	Reduce your own speed of operation.
Weed deposits come out of the machine.	You are moving the machine too fast.	Reduce your own speed of operation.
	Engine power is too low.	Increase engine power.
	Blade is worn out, broken.	Replace with a new blade.
	Weeds have accumulated inside the blade cover.	Clean inside the blade cover.
	Weeds are too long.	Raise the cutting height and cut twice.
Machine starts cutting into the ground.	Cutting height is too low.	Raise the cutting height.
	Swing speed is too fast.	Reduce swing speed.
	Undulating ground.	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.
	Weed 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.
Strong or unusual vibration.	Blades are poorly balanced.	Readjust all blades
	Blades are damaged	Replace with new blades.
	Accumulation of weeds inside the blade neck guard. Damage.	Clean or replace the blade neck guard.
	Blade axle is bent	Replace blade axle.
	Belt breakage	Replace with a new belt.
	Mixing of old and new blades.	Do not mix old and new blades.
Cutting workload is too heavy.	Engine power is too low.	Increase engine power.
	You are moving the machine too fast.	Reduce your own speed of operation.
	Weeds have accumulated or are wrapped around the blade axle.	Clean the blades.
	Weeds are too long.	Raise the cutting height and cut twice.
	Cutting height is too low.	Raise the cutting height.
Tires are slipping.	Ground is too soft.	Stop working until ground is dry.
Fuel cap springs off while operating the machine.	Too much transmission oil has been put in. (internal pressure increase)	See that oil level is straight.

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

Troubleshooting

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

Effect	Possible 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 along with any other attached dirt.
	There is air or water mixed in the fuel delivery system.	Remove foreign object, inspect fastening bands, replace damaged parts with new ones.
	In cold weather, oil becomes thick, and so the rotation of the engine heavy.	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 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.	See that oil level is straight.
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.	Check that oil level is straight.
	Cylinder or piston ring is worn out	Replace the ring.
Engine power 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 abnormal odor.	Poor quality fuel.	Replace with good quality fuel.

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

CONFORMITY CERTIFICATE

I undersigned : OREC CO LTD 548-22 HIYOSHI HIROKAWA-MACHI YAME-GUN JAPAN

Certify that the mower :

1. Class :internal combustion engine.....
 2. Mark :OREC.....
 3. Type :AHRC663.....
 4. Serial Identification (to be completed) :
 5. Engine :
 - Manufacturer : HONDA.....
 - Model :GX270.....
 - Speed during tests : 2900 +/- 20.....(rpm)
- is complying with directive 2000/14 EC specifications.
- Granted acoustic power level :97.....dB(A)
Granted acoustic pressure level :87.....dB(A)
- Cutting device :rotative.flails.....
 - Cutting width :650.....mm
 - Cutting width speed : 2800+/-20..... (rpm)

made atFukuoka..... Date : october 20-2010.....

Signed : Haruhiko Imamura
Function : Managing Director



CONFORMITY DECLARATION

I undersigned : OREC CO LTD 548-22 HIYOSHI HIROKAWA-MACHI YAME-GUN JAPAN

Certify that the mower :

2. Mark :OREC.....
 3. Type :AHRC663.....
 4. Serial number (to be completed):
- Distributed by :

complies with directive 2006/42, 2000/14 EC and EN 12733.

made at.....Fukuoka.....Date : ... october 20-2007

Signed : Haruhiko Imamura
Function : Managing Director



MEASUREMENT OF VIBRATIONS

Mark : OREC
Engine : HONDA GX270

Machine : grassland mower Model : AHRC663
Speed during test : 3600^{+/-20} rpm

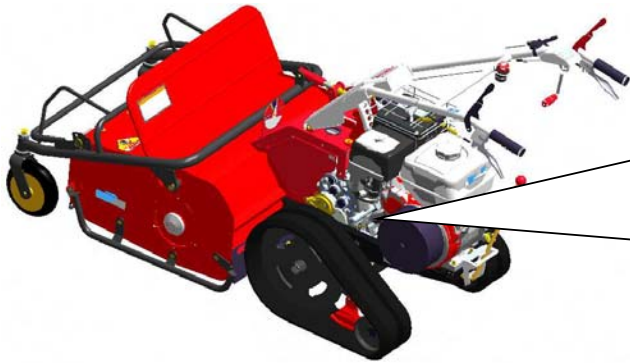
ACCELEROMETER POSITION	Awp
100 mm of the end of handlebar (left side)	5,79 m/s ²
100 mm of the end of handlebar (right side)	5,77 m/s ²

PARTS SUPPLY TERM LIMIT

The supply term (period) during which replacement parts will be supplied is 9 years from 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 availability and prices.

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

Position of identifying seal :



Orec America, Inc.
47545 Avante Dive
Wixom, MI 48393 U.S.A.

MODEL : _____

SERIAL NO. : _____

MODEL YEAR : _____

ENGINE POWER : _____

ENGINE SPEED : _____

WEIGHT : _____

MADE IN JAPAN

FABRIQUE AU JAPON

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.

The 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 adjustment, as defined by the manufacturer’s owner’s 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 with in 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 manager will make a report and submit it to Orec America for consideration of warranty.
- 4) Orec will research 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.