

**Mikasa**

**DRY ASPHALT CUTTER**

**MCD-RY14**

**INSTRUCTION MANUAL**

We thank you for selecting Mikasa Asphalt Cutter.  
For your safe and proper operation, please read this  
Manual and be sure to always keep it ready for  
reference.



**MIKASA SANGYO CO.,LTD.**

602-02002

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# 1. PREFACE

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This operation manual explains correct handling of the concrete cutter and its easy inspection and maintenance. To improve efficiency and effectiveness of your work, please read this manual before using this machine.

Please keep this manual at hand even after you have read it through so that you can refer to it whenever you have any question.

For handling of the engine, please refer to the separate Engine Operation Manual.

For inquiries about repair parts, parts lists, service manuals, and repair of the machine, please contact the shop where you purchased it, our sales office, or the Mikasa Parts Service Center. In addition, parts lists are available on the MIKASA website at:

<http://www.mikasas.com/english/>

**The illustrations and Figures in this manual may be different from the machine you actually purchased due to design changes and other reasons for improvement.**

## 2. USE OF THE MACHINE, WARNING, MACHINE STRUCTURE AND POWER TRANSMISSION MECHANISM

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### Use

This machine, with a diamond blade attached to the blade shaft, cuts on asphalt road surface. This is a dry type concrete cutter that does not require water during cutting. The blade used is also a special dry type.

### Warning about wrong application and wrong use

This machine should not be used for cutting road surfaces other than asphalt.

Do not cut earth and sand. If you try to do so, earth and sand would fly apart, leading to dangerous situation causing injury. This is a special machine for a diamond blade. Do not use a resinoid blade. Do not inject water in this machine. Also, do not use this machine in rain nor on wet road surface. Cut chips might be formed into a cake and clog the machine, leading to machine failure.

Do not use revolution that is higher than what is appropriate for the blade. Blade might get stuck, or blade chip might fly, leading to dangerous situation. Do not use the machine when it is unstable or when it is placed on an unprepared ground surface because the blade might get stuck or blade chips might fly apart. Do not use this machine for cutting of concrete secondary products. The dust collector installed on this machine is a device designed for collection of dust generated by road surface cutting. If this dust collector is used for collection of dust other than the one generated by cutting work, it might fail.

### Structure

The engine is fixed on the body base. With the V belt, power is transmitted to the blade shaft at the bottom of the base. The belt tension adjustment is done by sliding the engine back and forth or with the tightener pulley. To the base, a belt cover, guide handle, dust collector (3 stage circulation type cyclone method), blade lifting/lowering handle, and removable blade cover are installed. Cut depth is adjusted by turning the blade lifting/lowering handle to either raise or lower the arm with a front wheel attached. Direct push method is used to make this machine move forward.


### Power transmission


The motor used is 4 cycle air cooled single cylinder gasoline engine. To the engine output shaft, a V pulley is attached, and the blade shaft is driven by the V belt. Cutting is done by attaching a blade to the blade shaft. The V pulley is used also to drive turbo fan for suctioning at the dust collector. Cut depth is adjusted by turning the blade lifting/lowering handle to either raise or lower the arm with a front wheel attached. Push the handle during cutting to make the machine move forward.


### 3. WARNING SIGN


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The triangle shaped marks used in this manual and on machine labels is a warning sign. For your safety, please follow those signs.

 **Warning sign for your physical danger.**

 **DANGER:** Very high risk of death or serious injury accident if the instruction is not followed.

 **WARNING:** Potential for risk of death or serious injury accident if the instruction is not followed.

 **CAUTION:** Potential for injury or damage if the instruction is not followed.

**Caution (without a triangular mark):** Potential for damage if the instruction is not followed.

### 4. CAUTIONS FOR SAFETY




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#### 4.1 General Cautions

 **WARNING**

- You should not work when,
  - You are tired or not feeling well because of illness.
  - You are taking medication.
  - You are drunk.

 **CAUTION**

- Read the manual carefully, and work safely by using the machine correctly. 
- For handling of engine, please refer to the separate engine operation manual.
- Please have good understanding of the machine structure.
- For work safety, use protective gear (helmet, safety shoes, ear plugs, etc.) and wear appropriate work clothes.  
- Always check the machine. Start operating after you have confirmed the machine is in normal condition.
- The nameplate (plate showing operation method, warning plate, etc.) attached on the machine is very important for safe work. Clean the machine to make the nameplate easily readable. If it becomes difficult to read the nameplate, replace it with a new one.
- It is very dangerous for small children to touch the machine. Pay sufficient attention to the machine storing method and the storage location.
- When doing maintenance work on the machine, always stop the engine first.
- Our company will have no responsibility for any type of accident caused by remodeling or rework done on the machine.

## 4.2 Cautions During Fueling

### **DANGER**

#### ■ When fueling,

- Always do fueling in a well ventilated area.
- Always stop the engine, and wait until the engine cools down.
- Select a location with flat surface without any flammable material around. Be careful not to spill the gasoline. Any spill has to be thoroughly wiped off.
- Never place the machine near fire during fueling.  
(Fueling while smoking is strictly prohibited.)

- It is dangerous to fill the gasoline to the top because of potential for spill. Follow the instruction shown in the engine manual for filling level.

- After fueling, tightly fasten the tank cap.



## 4.3 Cautions For Use Location And Ventilation

### **DANGER**

- Do not use this machine indoor or in a poorly ventilated area such as inside a tunnel. The exhaust from the engine contains harmful carbon monoxide, and it is very dangerous.

- Do not operate the machine near fire.



## 4.4 Cautions Before Work Start

### **CAUTION**

- Check each part of the machine for tightening. If bolts are loosened by vibration, serious machine failure might occur. Securely tighten the bolts.
- Check the diamond blade for abnormality such as blade chipping or crack on the base plate.
- If the machine were not run more than 3 months, be sure to start at low speed in a few minutes to warm up thoroughly, for the reason to avoid engine seizure by oil film shortage.

## 4.5 Cautions During Work

### **CAUTION**

- Check the area around the machine before starting your work to make sure there is no danger to the people and objects around.
- Always pay attention to your footing, and work with a stable posture to properly maintain balance of the machine.
- The engine and the muffler become very hot. Do not touch them during operation or immediately after operation.
- If you notice any sign of machine failure or abnormality during operation, stop the machine immediately and stop your work.
- Be sure not to make the cutter with blade stand-by for work. In the case to be without avoidance, be sure to run the engine at low speed possibly in a short time.

***(In case of running the engine at high speed at the above position for long time, it might occur the engine seizure by oil film shortage.)***

- When you move away from the machine, stop the engine. Also, when moving the machine, stop the engine and shut the fuel cock.



## **⚠ CAUTION**

- Use the machine with the blade cover on.
- Be very careful because the blade start rotating once the engine is started. Especially, do not put your foot near the machine.
- Be careful not to have your hand or clothe get caught at the rotating part (inside the belt cover, etc.)

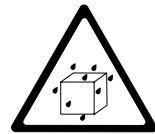
## **⚠ DANGER**

### ***Caution against water***

This machine is dry type, so do not use this machine in rain. Also, do not use on wet road surface or where there is a puddle of water. If wet, wait until the surface dries out.

### ***Caution for sloping road surface***

Various dangerous situations might occur if the machine is used on a sloping surface. At the least, please follow the instructions given below for safe work. If safety is not ensured, never use the machine on a sloping road surface.



- Do not leave the machine on a sloping surface. If the machine starts to move on the sloping surface, very serious accident might happen.
- On a sloping surface, hold the handle tightly, and never take off your hands from the machine. If you take off your hands, the machine might start moving because of its own weight, resulting in serious accident.
- If a grip comes off the handle, the machine might run out of control, which is very dangerous.
- When working on a sloping surface, you should stay at the higher side of the machine, and proceed your work with the machine moving directly down the slope.
- Stop the machine on a flat land. In case if it is necessary to stop on a sloping surface, always stop the engine and let the machine face straight downward with a wheel stopper applied to the front wheel. Even with the stopper on the front wheel, the machine might start moving if it is hit by a car or shaken to the left and right, so it is very dangerous. A stopper on the rear wheel will not be effective. Also, the parking brake for the rear wheel does not guarantee secure stabilization of the machine. When stopping, always use a wheel stopper on the front wheel.
- When using a wheel stopper, never stand on or cross the side where the stopper was placed for the machine. In case if the machine starts moving, you might be cut by the blade. Or if you are hit by the machine, death or injury might occur. When applying a wheel stopper, be careful not to touch the blade with your hand. Serious injury might happen. Always apply a wheel stop from the belt cover side.
- On a wet sloping surface, depending on the angle, a wheel stopper itself becomes slippery, and it cannot exhibit its function. In case if you need to stop on a sloping surface, always stop on a dry surface.
- Do not try to attach or remove the blade on a sloping surface because it is dangerous.
- Do not do work that involves crossing of a sloping road surface. Serious accident such as rollover of the machine and blade breakage might occur.

## **4.6 Cautions After Work**

### **⚠ CAUTION**

- Do not store the machine with cut chips remaining on the machine. The chips might be formed into a cake by absorbing moisture, which will negatively affect the function of the machine.

**⚠ CAUTION**

- If the machine is wet, always wipe off the moisture well and let the machine dry. The chips might be formed into a cake by absorbing water and moisture, which will negatively affect the function of the machine.
- The cut chips of asphalt is an industry waste. Please dispose of them properly.

#### 4.7 Cautions For Lifting

**⚠ DANGER**

- Before lifting, check the machine parts (especially, hook, antivibration rubber) for damage or loosened or missing bolts.
- During lifting, stop the engine and shut the fuel cock.
- Use a wire rope that is sufficiently strong.
- For lifting, use only the one point hanging hook. Do not lift at other location (such as the handle).
- While the machine is lifted, do not let someone or animal go underneath.
- For safety, do not lift to the height higher than necessary.



#### 4.8 Cautions For Transportation And Storing

**⚠ CAUTION**

- When transporting the machine, stop the engine.
- Transport after the engine and the machine get cooled down.
- Drain the fuel for transportation.
- Securely fix the machine to prevent it from moving or falling during transportation.
- When storing for a long period of time, drain the fuel inside the carburetor. If the fuel is left inside, it will deteriorate, which might lead to engine problem.

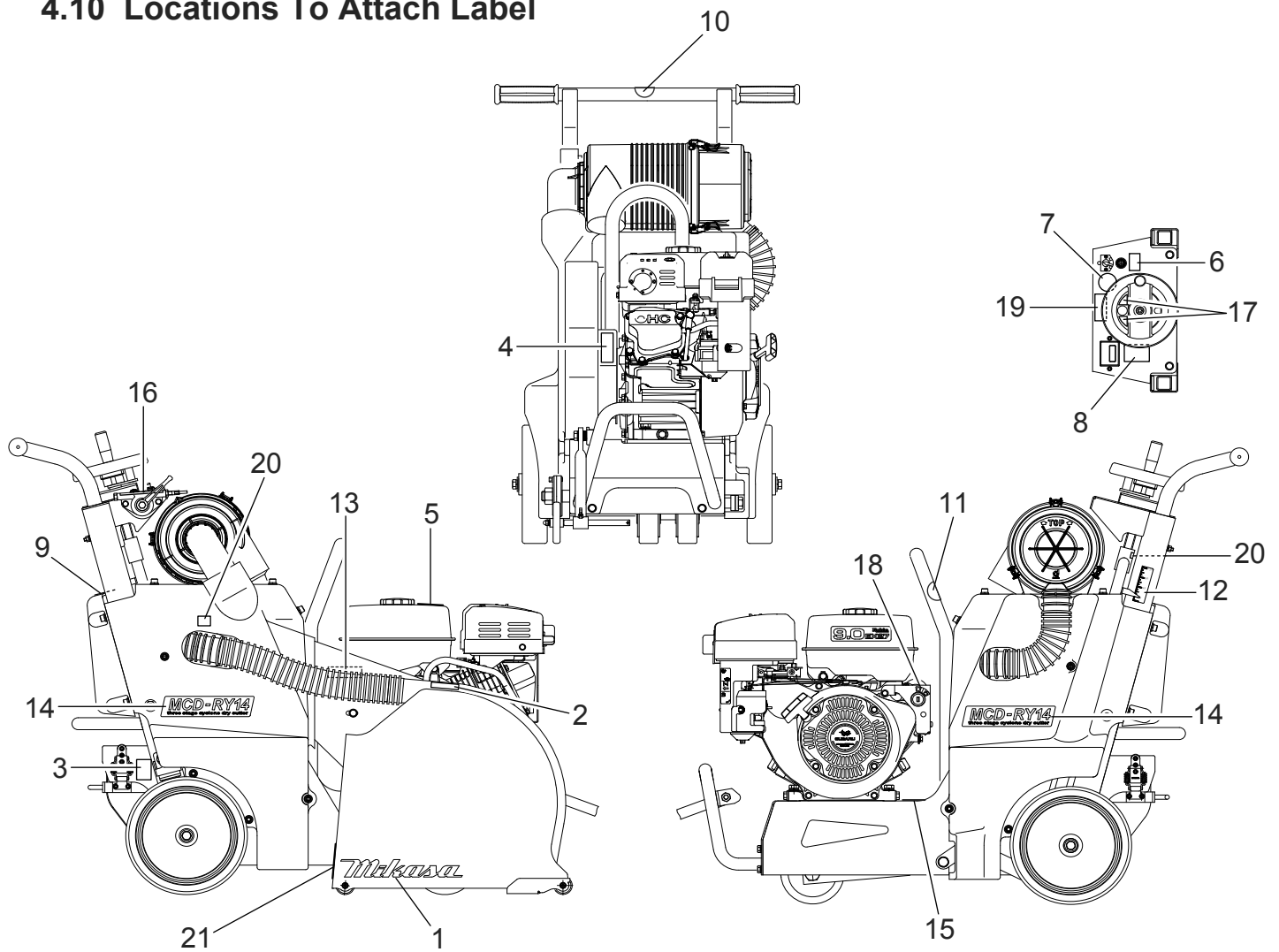
#### 4.9 Cautions For Maintenance

**⚠ CAUTION**

- To ensure safe use and to maintain machine performance, proper maintenance is necessary. Please pay attention to the condition of the machine well and keep it in a good condition. In particular, if the maintenance of the parts related to lifting is not done properly, serious accident might occur.
- When doing any maintenance work, please do so after the machine gets cooled down. Especially the muffler becomes very hot, and there is a danger of burn. The engine and the engine oil also get very hot. Be careful not to get a burn.
- Inspection and adjustment have to be done with the engine stopped. Otherwise, you might get caught in the rotating part, and serious injury might occur.
- After your maintenance work, check safety parts for their installation and safety. Carefully check bolts and nuts in particular.



## 4.10 Locations To Attach Label



REF.No	PART No.	PART NAME	Q'TY	REMARK
1	9201-09560	DECAL, MIKASA(250 WHITE)	1	
2	9201-09680	DECAL, DANGER/KJ,FJ	1	
3	9201-12320	DECAL, PARKING BRAKE	1	
4	9202-14810	DECAL, CAUTION(FOOT CUT)	1	
5	9202-14790	DECAL, CAUTION ICONS	1	
6	9201-12300	DECAL, DUST BAG/MCD-RY14	1	
7	9202-14680	DECAL, WEAR GOGGLES	1	
8	9201-12310	DECAL, CAUTION(IN THE RAIN)	1	
9	9201-06630	DECAL, CAUTION	1	
10	9202-14730	DECAL, DO NOT LIFTING	1	
11	9202-14740	DECAL, LIFTING POSITION	1	
12	9201-12280	DECAL, LINE GAUGE	1	
13	9201-12250	DECAL, V-BELT/3VX-475	1	
14	9201-12260	DECAL,MODEL/MCD-RY14	2	
15	9202-16490	PLATE,SERIAL NO./MCD-RY14	1	
16	9202-11690	DECAL, LEVER OPERATION	1	
17	9201-12270	DECAL UP-DOWN /MCD-RY14	1	
18	073-20044-60	DECAL, KEY SWITCH	1	
19	9201-12350	DECAL, KEY SWITCH (OFF)	1	
20	9201-02810	DECAL, GREASE /NP-281	2	
21	9201-12360	DECAL, ARROW /MCD-RY14	1	



## 4.11 Explanation Of Pictogram For Warning Label



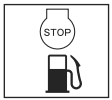
### Caution for exhaust gas.

If exhaust gas is inhaled, carbon monoxide poisoning might occur.



### Contact to rotating part prohibited.

Never touch the rotating blade and pulley or V belt. Be careful not to have your clothes or accessories get caught.



### Caution during fueling.

During fueling, always stop the engine.



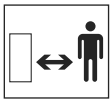
### Read manual well.

Before operation, read the manual carefully to fully understand the operation detail. Keep the operation manual at hand all the time.



### Do not touch hot parts.

Engine, muffler and the area around become very hot. Never touch those parts.



### Do not go near the source of danger.

During operation, do not go near the hot parts and rotating parts.



### Keep fire away.

During fueling, stop the engine. Do not put fire near the fuel and fuel tank.



### Caution for hearing problem by noise

During operation, wear ear plugs and ear muffler to protect yourself from noise.



### Caution for danger of blade on your foot.

During operation, pay attention to your feet. Do not put your foot near the blade.Bar, avoiding from standing back of Handle Bar.



### Wear eye protection gear.

During operation, to protect your eyes, wear goggles.



### Lifting by the handle prohibited.

Do not hang the machine by the handle or other part not designated.



### Specified hanging location.

When hanging, use the location specified. Do not use other location for hanging.

## Nameplates for engine



### ① Keep fire away .

During fueling, stop the engine. Do not put fire near the fuel and fuel tank.

### ② Caution for exhaust gas poisoning.

If inhaled, carbon monoxide poisoning might occur. Do not operate the machine in a poorly ventilated area.

### ③ Caution for hot muffler.

Muffler and the surrounding area are very hot. Do not touch the hot parts.

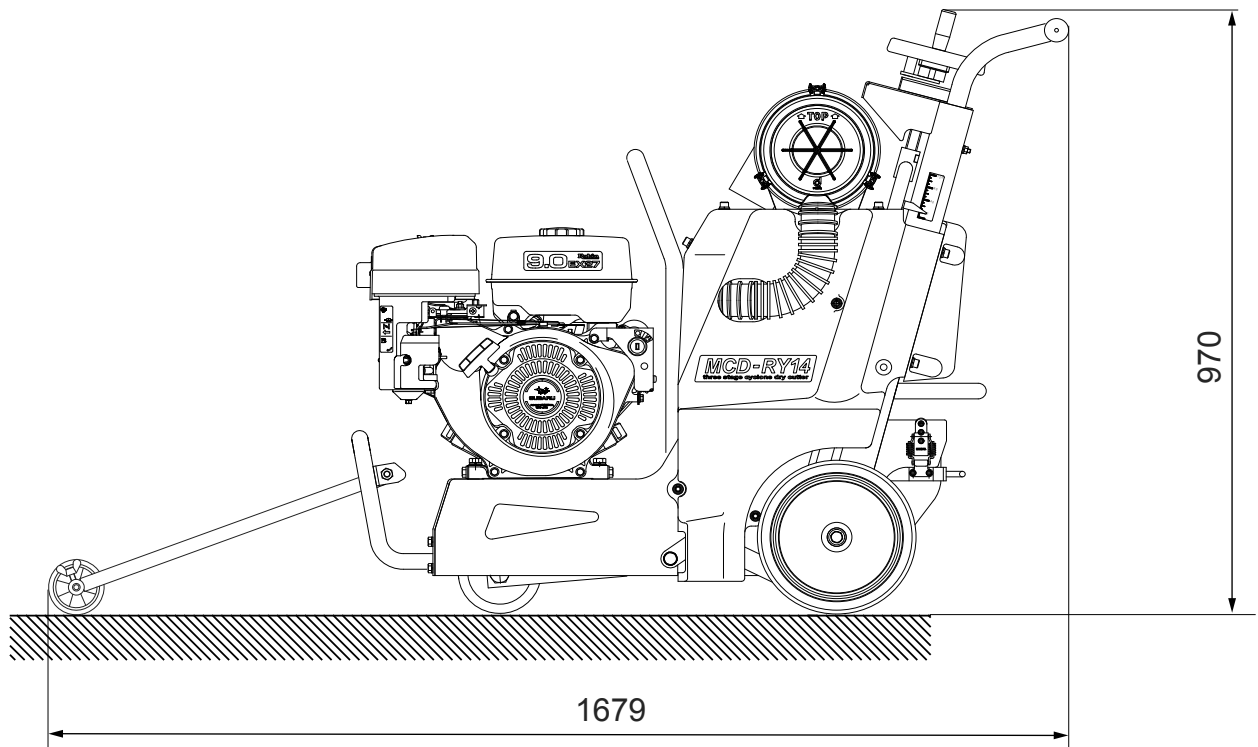
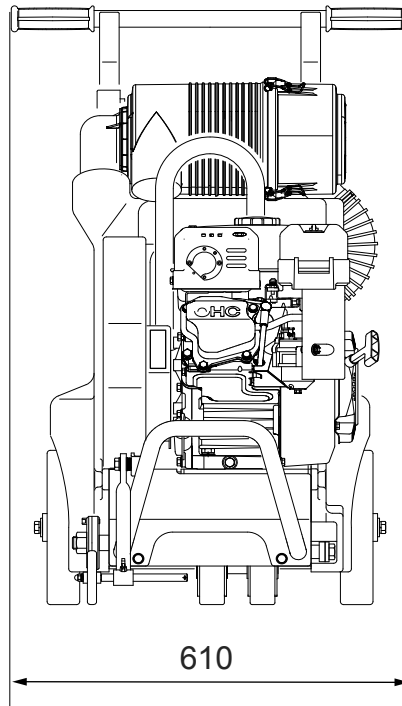
### ④ Read the manual well.

For safety, please read the manual well.

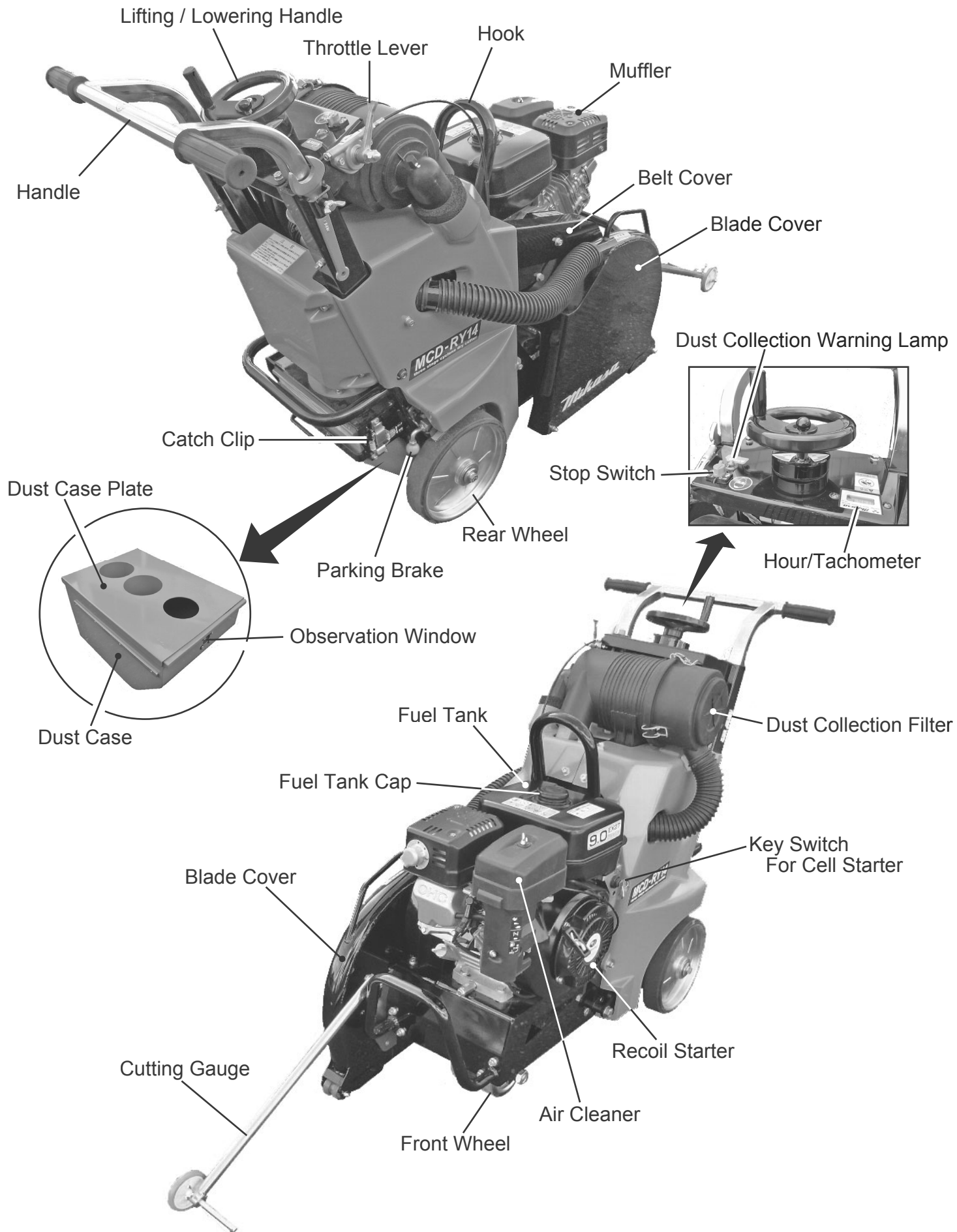
### ⑤ For fuel, use gasoline.

## 5. EXTERNAL VIEW

### 5.1 Dimension Of External View (mm)



## 5.2 Control Unit Positions And Names



## 6. SPECIFICATION

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### 6.1 Body

Model	MCD-RY14
Engine Mounted	Robin EX27DX
Major Dimension	
Overall Length (in operation) (in housing)	1,679mm 1,180mm
Overall Width	530mm
Overall Height	970mm
Weight	142kg
Travel Method	Hand Push Type
Cutting Depth Adjustment (Crank Handle)	Manual Screw Type
Dust Collection Capacity	20L
Blade Used And Max. Cut Depth (Blade Shaft Diameter $\Phi 27$ )	Maximum cut depth
Dimension Of Blade Used (12 in) 305mm (14 in) 356mm	50mm 100mm
Max. size of blade that can be attached	14 in. or less

### 6.2 Engine

Model	Robin EX27DX
Type	Air Cooled 4 Cycle Gasoline Engine
Maximum Output	6.6kW/4000min <sup>-1</sup> (9.0ps/4000rpm)
Fuel Tank Capacity	6.6L

# 7. INSPECTION BEFORE OPERATION

**⚠ DANGER**

Do inspection with the engine stopped. If you get caught in the rotating part, serious injury might occur.

Set the machine horizontal, and start inspection after making sure the machine will not move.

★ For the inspection points before work start, please refer to "Schedule table for inspection of each part" shown in page 14. For initial operation, check the following inspection items before your work.

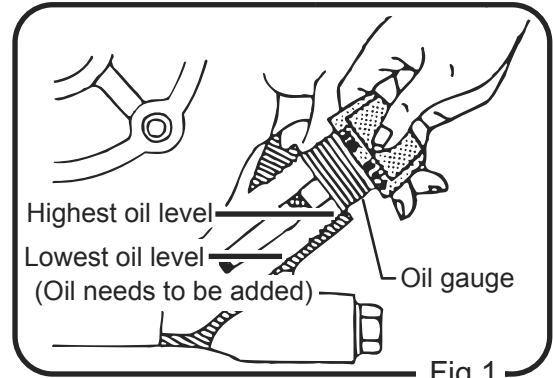


Fig.1

**1. Engine oil**

Check the oil with the engine held horizontal. If the oil is not enough, add some. (Fig. 1) Use the engine oil shown below.

	Temperature	Oil used (SE grade or higher)
Summer	25°C or higher	SAE#30
Spring / Fall	25 ~ 10°C	SAE#30, SAE#20
Winter	10 ~ 0°C	SAE#20
	0°C or lower	SAE#10

**2. Fuel**

Use unleaded gasoline for automobiles. For fueling, always stop the engine, and let the gasoline run through the net attached at the fueling inlet. Any spill has to be wiped off well.

**3. V belt**

Check V belt for looseness and damage. V-belts are located at both the blade shaft side and the dust collection fan side. With your finger, strongly push the belt at the middle of both shafts to check the tension. Normal tension is deflection of about 10mm. If tension is not sufficient, tighten or replace the belt. When replacing on the side of blade shaft, replace all the three.

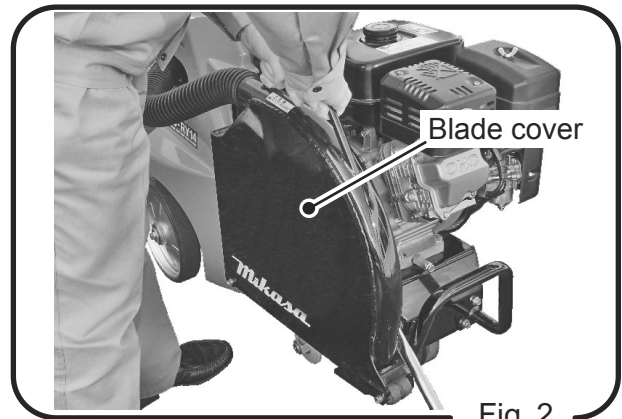


Fig. 2

**Belt adjustment method**

- Dust collection fan side
- A. Lift the blade cover and remove. (Fig. 2)

- B. Remove three bolts, and remove the belt cover (OUT) (Fig. 3)

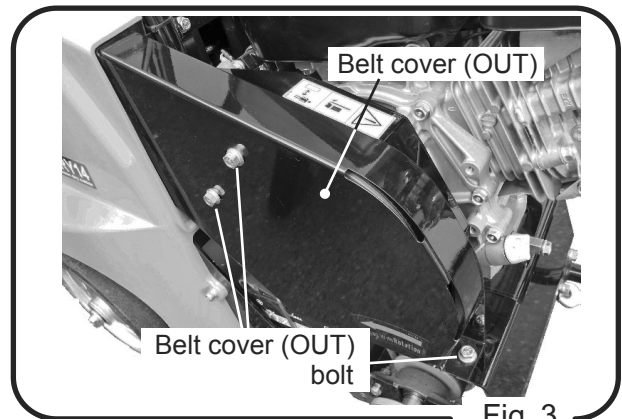


Fig. 3

- C. Loosen the bolt of the tension pulley. The bolt is installed on a long hole, so after moving the pulley up and down for adjustment, tighten the bolt. (Fig. 4, Fig. 5)

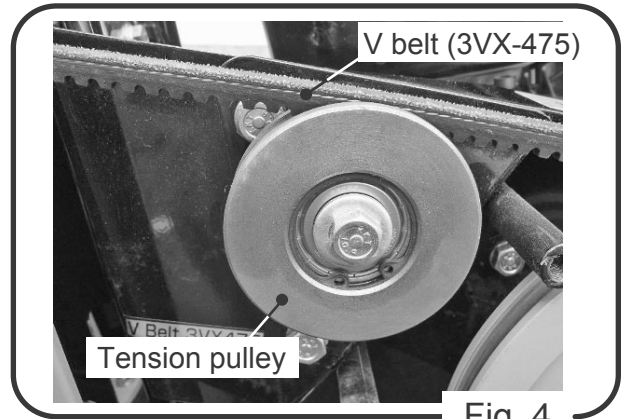


Fig. 4

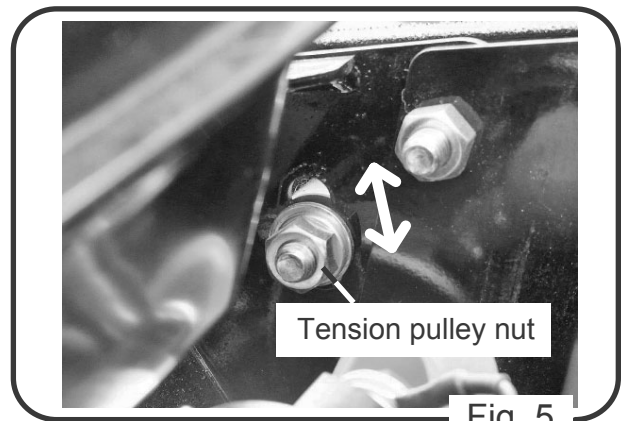


Fig. 5

**Belt adjustment method**

- Blade shaft side
- A. Remove the blade cover, and remove the three bolts to remove the belt cover (OUT). (Fig. 2, Fig. 3)
- B. Loosen the four engine bolts. (Fig. 6)

**Note:**  
Loosen the bolts, but do not remove them.

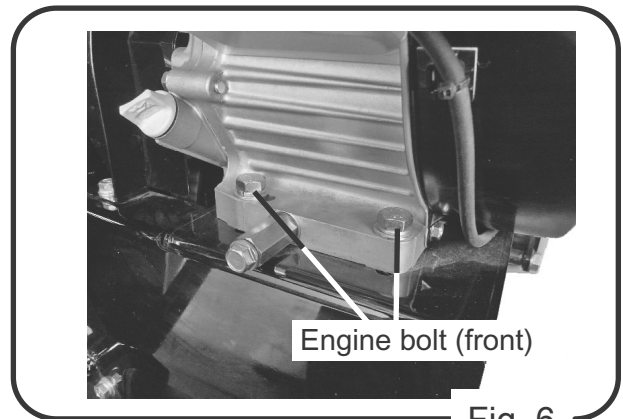


Fig. 6

- C. Adjust the belt tension with the belt adjustment bolt and nut behind the engine. If turned clockwise, the belt tension will increase. (Fig. 7)

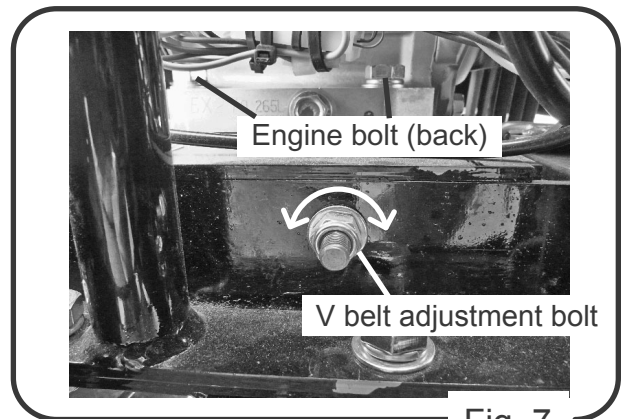


Fig. 7

#### 4. Dust case

##### ● Putting a dust collection bag

- A. Put a dust collection bag to the dust case. Use a commercially available plastic bag as a dust collection bag (capacity of 45L, with thickness of 0.03mm or more).

**Note:**

**Thin plastic bag might get torn and the chips might fly away when the dust is collected.**

- B. Remove the catch clips at both sides and lower the dust case guide until it stops. (Fig. 8, Fig. 9)

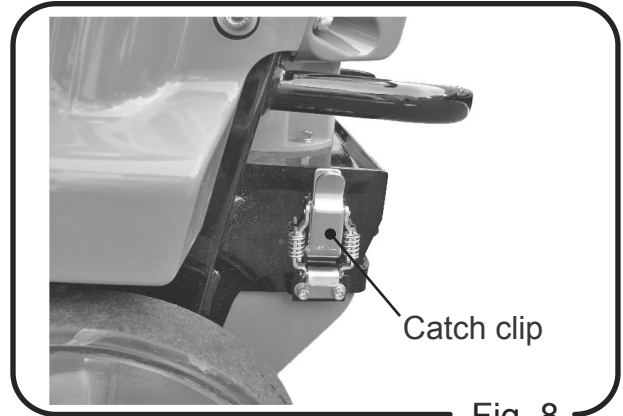


Fig. 8

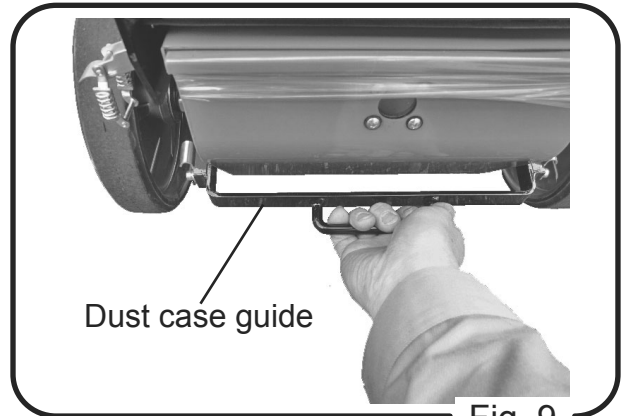


Fig. 9

- C. Pull out the dust case, and remove the dust case plate (Fig. 10)

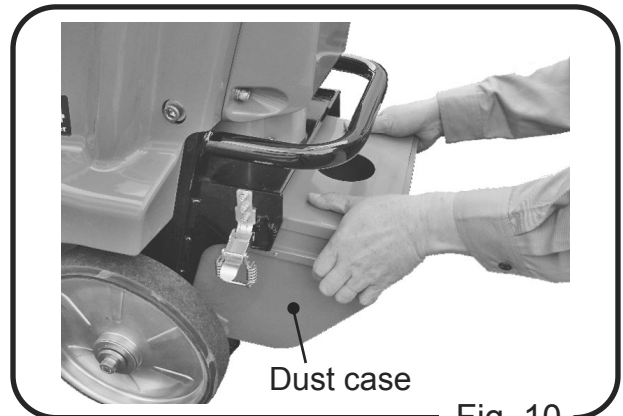


Fig. 10

- D. Set a plastic bag. Fold back the plastic bag to the outside of the dust case. Be careful not to let the plastic bag hang on the dust case slider. (Fig. 11)



Fig. 11

- E. Attach the dust case plate, and attach the dust case to the machine. Raise the dust case guide and engage the catch clips at both sides.

**Note:**

**After your work, always dispose of the cut chips. Do not store the machine with the chips left in the dust case. Always place a dust collection bag before your work.**

**Note:**

**If cut chips enter into the dust case directly, dust sensor might malfunction. When placing a dust collection bag, remove the chips that have entered the dust case.**

## 5 Attaching a diamond blad

**Note:**

**When attaching a diamond blade, always make sure that the engine is stopped. Do not remove the blade cover when the blade is rotating.**

- A. Pull the blade cover upward and remove.  
(Fig. 12)



Fig. 12

- B. On the blade shaft, install the flange (inside), diamond blade, and flange (outside) in this order. Set a washer and tighten well with a nut (right hand thread). (Fig. 13)

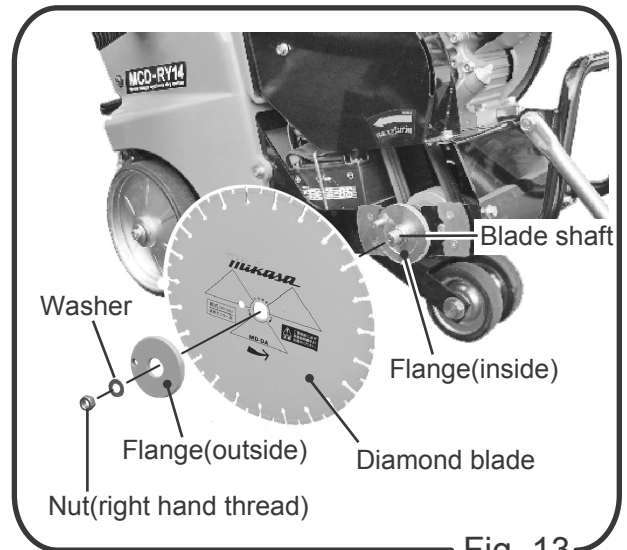


Fig. 13

- C. For tightening, use a 30mm wrench. With a 17 mm wrench, hold the blade shaft to prevent it from spinning. (Fig. 14)

**Note:**

**The cutting method of this machine is "up-cut", and the blade rotates counter-clockwise.**

- D. After the nut is tightened, attach the blade cover. The blade cover slides up and down, and when attached, it is in the position to touch the ground.

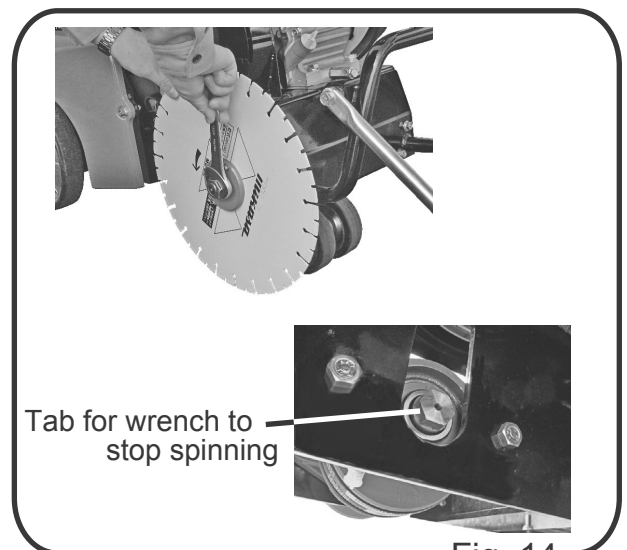


Fig. 14



**6. How to lift/lower the machine**

Pull up a tab below the lifting/lowering handle in the center. Then rotate, and set the pin at the side to the shallow groove. This will release the lock. When lowering the machine (for cutting start), turn the lifting/lowering handle clockwise. When lifting the machine, turn the lifting/lowering handle counter-clockwise. After the cut depth is determined, set the locking tab to the deeper groove. The lifting/lowering of the machine will be locked. (Fig. 15)

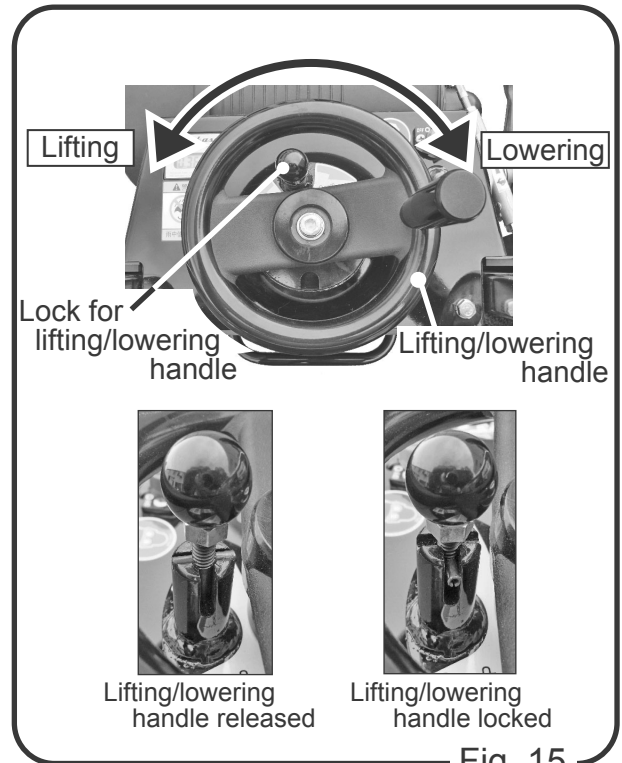


Fig. 15

7. Check for abnormality such as looseness and movement of bolts and nuts.

**8. Parking brake**

A parking brake is provided to the right rear wheel. Brake is engaged when the red tab (brake lever) is raised up. If it is pushed down, brake is released. Before your work release the brake. (Fig. 16)

● Adjustment method

Wear on the wheel might lower the parking brake function. Do make adjustment by the following method.

A. Remove the rear wheel. (Fig. 17)

**Note:**

**Always stop the engine when the wheel is removed. Work in a safe level surface.**

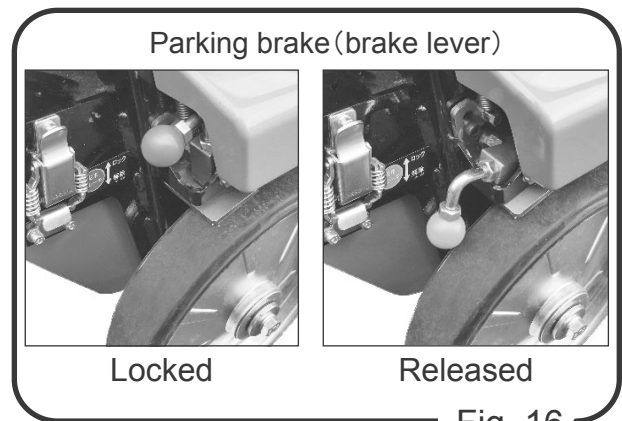


Fig. 16

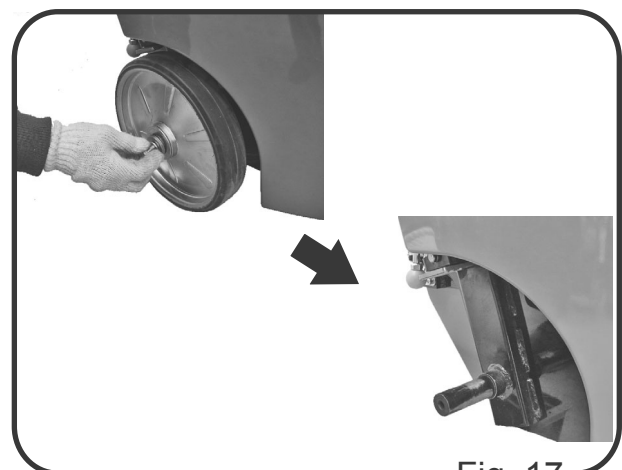


Fig. 17

- B. Raise the brake lever slightly so that the brake clasp is lowered slightly and the hexagon bolt at the lower part of the brake cam can be seen. (Fig. 18)
- C. Insert a hexagonal wrench into the hexagon bolt at the lower part of the brake cam. If turned to the right, the braking action increases. If turned to the left, the braking action decreases. (Fig. 18)
- D. Install the rear wheel.

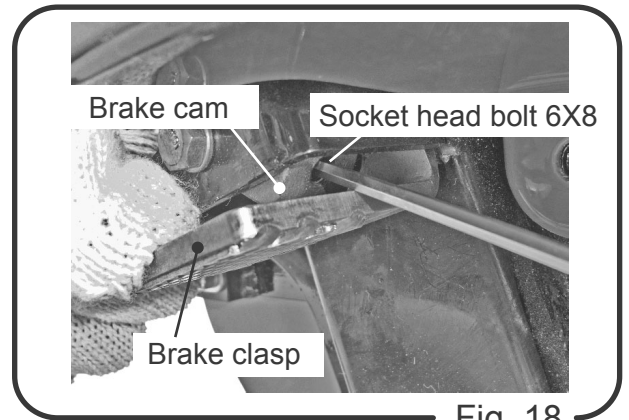


Fig. 18

**9. How to read cut depth**

**A. For 14 inch blade attached**

Lower the machine. With the attached blade touching the ground, the needle points to "0". As you cut, the needed indicates the depth. (Fig. 19)

※ The "0" position is adjusted to the 14 inch blade.

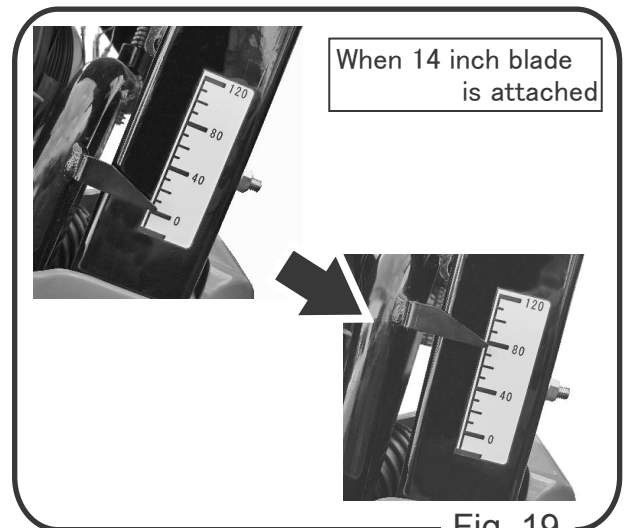


Fig. 19

**B. For 12 inch blade attached**

Lower the machine, and read the needle when the attached blade is touching the ground. With this position as "0", start the cut. The difference of the needle reading with this original value is the cut depth. (Fig. 20)

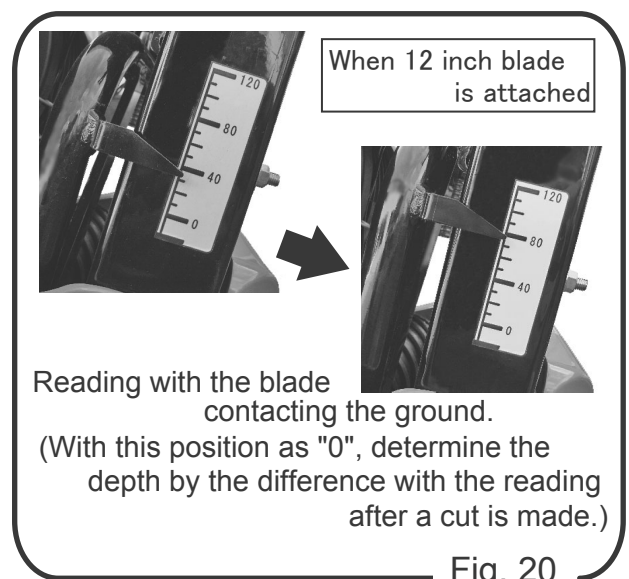


Fig. 20

## 8. OPERATION

### 8.1 Operation Start

1. Turn the fuel cock lever downward to let the fuel flow. (Fig. 21)

**⚠ WARNING**  
The engine exhaust gas contains carbon monoxide, and it is very dangerous.  
Do not use the machine in a poorly ventilated location.

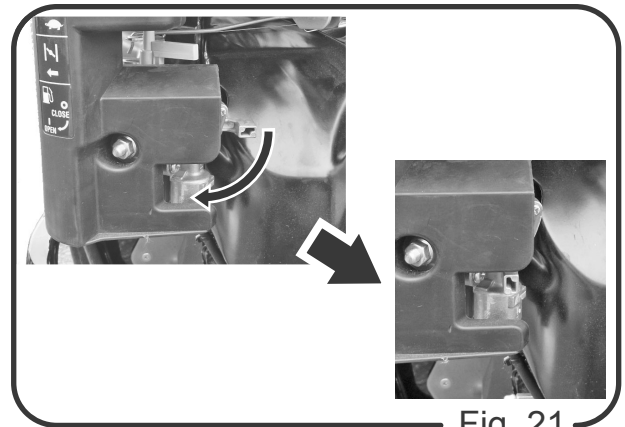


Fig. 21

2. Turn the stop switch to ON (I) side.(Fig. 22)

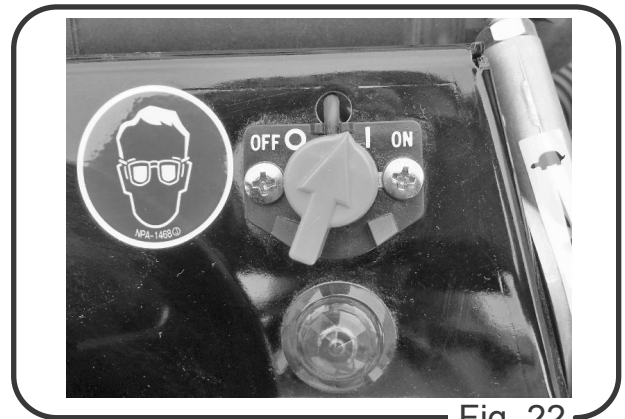


Fig. 22

3. Shut the carburetor choke lever, and make the throttle lever half open.  
If the choke is left fully closed, fuel will be sucked in too much, leading to unsuccessful start. So, set the choke to half open.  
(Fig. 23, Fig. 24)

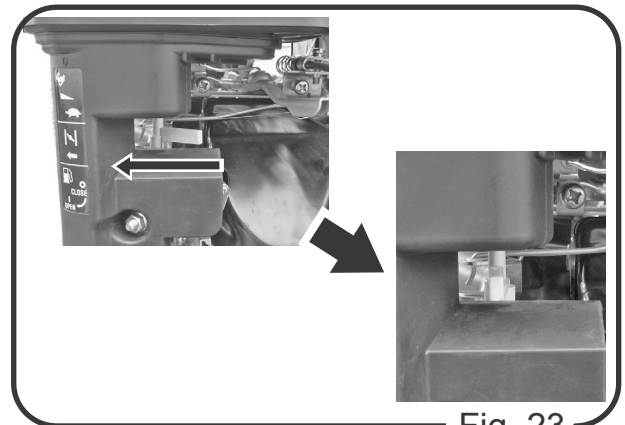


Fig. 23

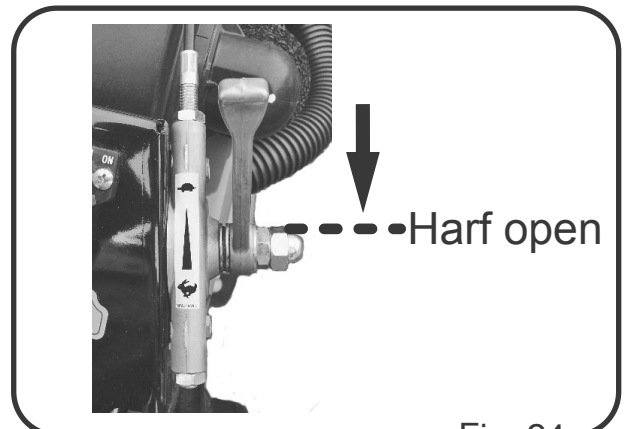


Fig. 24

#### 4. Cell starter/recoil starter0

##### 4-1. Cell starting method (Fig. 25)

- (a) Insert the key into the key switch.
- (b) Turn the key to "Operation" position.
- (c) Turn the key further to "Start" position, then the engine starts. After the engine start, take off your hand from the key. The key will move back to "Operation" position.

#### **⚠ DANGER**

With the start of the engine, the blade starts rotation. Be careful not to touch the blade.

#### **⚠ CAUTION**

If the engine does not start, do not turn the cell motor continuously for more than five seconds. Move the key back to "Operation" position, then wait for 10 seconds to restart.

#### **⚠ CAUTION**

While the engine is running, never turn the key switch to "Start" position.

##### 4-2. For recoil starter

Hold the recoil starter knob, pull slightly. You will feel some resistance. Then, pull with force, but be careful not to pull the rope too strongly because it might be pulled out. (Fig. 26)

#### **⚠ DANGER**

With the start of the engine, the blade starts rotation. Be careful not to touch the blade.

#### **⚠ CAUTION**

After the engine start, do not take off your hand from the recoil starter at the pulled position, but slowly return the rope. Otherwise, by the force of the recoil rope retracting, the coil starter knob might hit the engine, leading to damage or failure.

5. After the engine is started, while checking the engine noise, return the choke lever to full open position.

After the engine start, always do warm up at low speed for 3 to 5 minutes. This is important especially in cold weather. (Fig. 27)

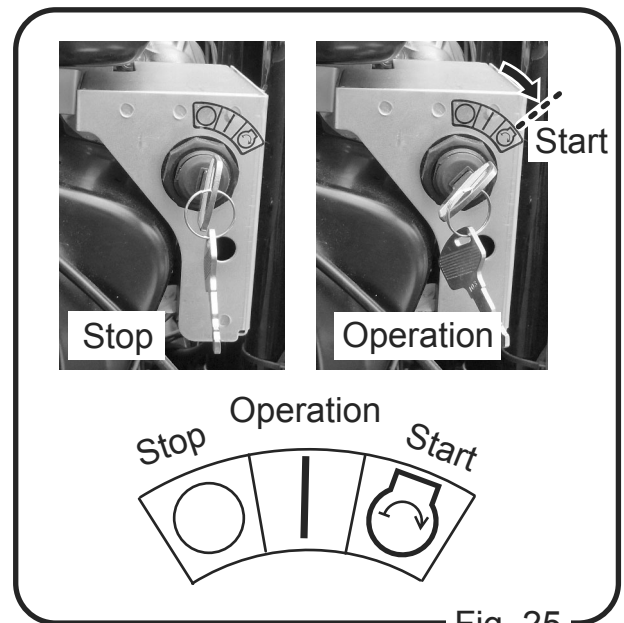


Fig. 25

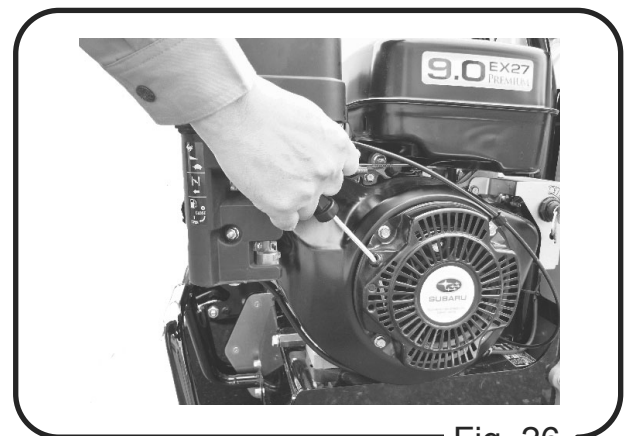


Fig. 26

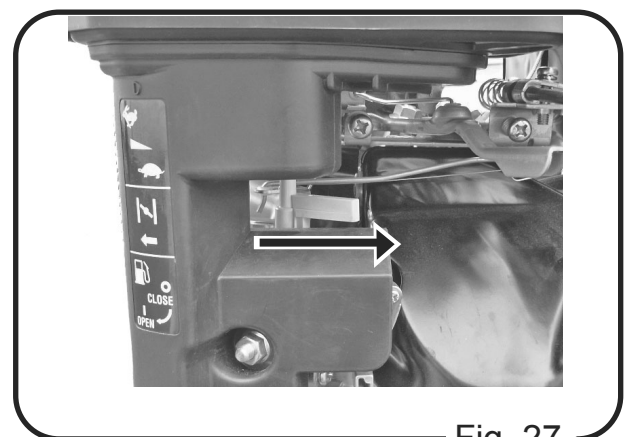
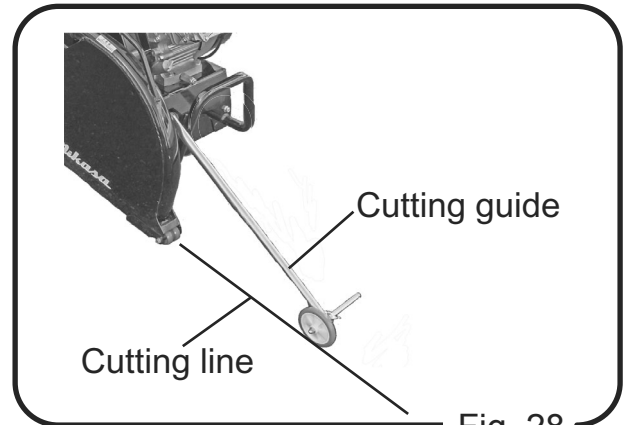


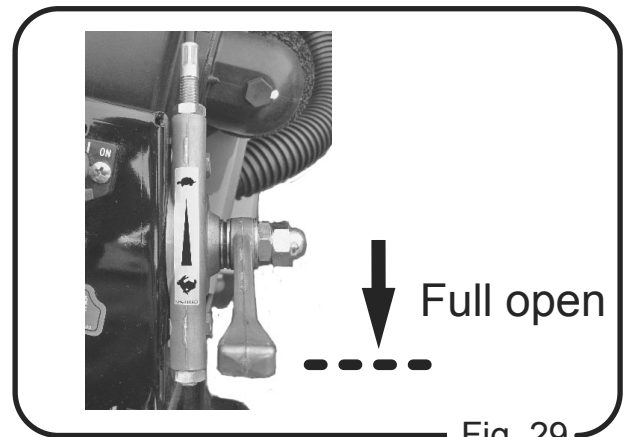
Fig. 27

## 8.2 Cutting Work

1. Align the cutting gauge to the cut line.  
(Fig. 28)

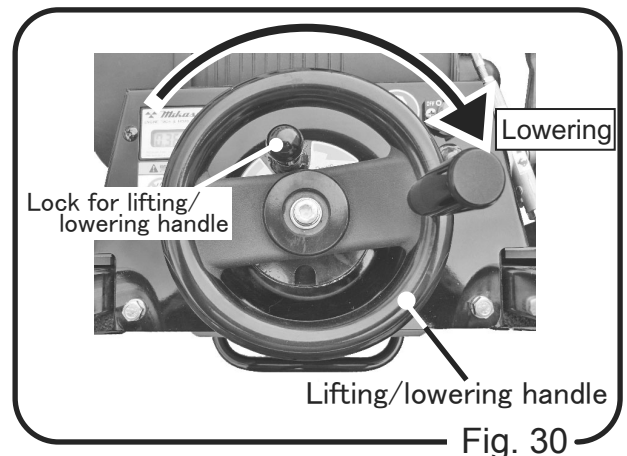


2. Gradually open the throttle lever, and set the engine revolution at high speed. (Fig. 29)



3. When start cutting with the blade by lowering the machine, turn the lifting/lowering handle in the center of the machine clockwise, and finish cutting at a speed that will not lower the engine revolution too much. After reaching the required cut depth, lock the lifting/lowering function by using the tab below the lifting/lowering handle. (Fig. 30)

**CAUTION**  
Do not try to do rapid cutting. Blade might be broken, and the durability of the engine and V belt might be affected.



4. By listening to the engine noise, slowly push the machine to do the cut.

**CAUTION**  
Do not try to do rapid cutting. Blade might be broken, and the durability of the engine and V belt might be affected.

## 5. Handling of cut chips

This machine is using "3 stage circulation type cyclone method" for dust collection. Dust is collected in three stages. The first stage collects dust in the dust case. Check inside of the dust case from the observation window on the case. When the chips inside exceed the capacity of the case, it is detected by the dust sensor, and LED lamp illuminates and a buzzer goes off.

### ● First stage (plastic bag in dust case)

When the chips inside the plastic bag in the dust case exceeds the specified level (about 80% of the dust case), a LED lamp lights up and a buzzer goes off. When that happens, remove the chips, then place a new plastic bag and set the dust case. (Fig. 30)

#### **Note:**

**If you keep cutting by ignoring the warning lamp and the buzzer, the chips will spill from the dust case. The dust will enter the air cleaner, causing clogging of the element.**

### ● Second stage (dust case plate)

At the second stage, the chips are collected in the recessed areas of the dust case plate. The amount of chips might be small, but if warning is issued, dispose of those chips. (Fig. 31)

### ● Third stage (filter)

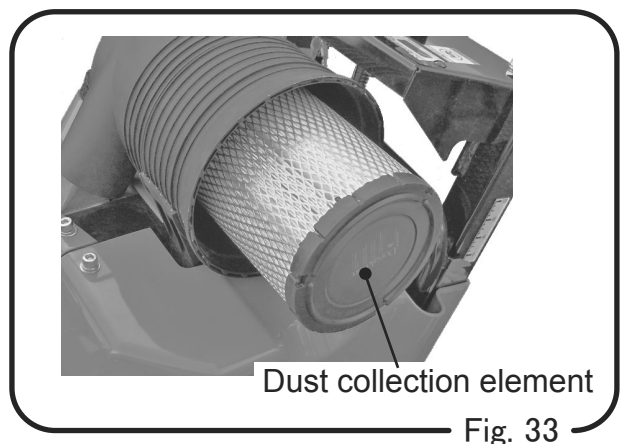
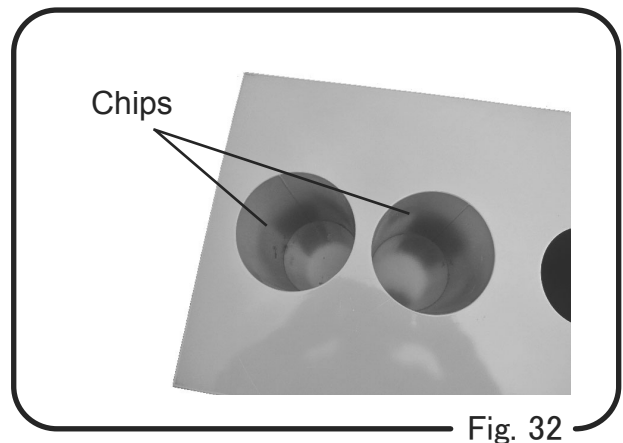
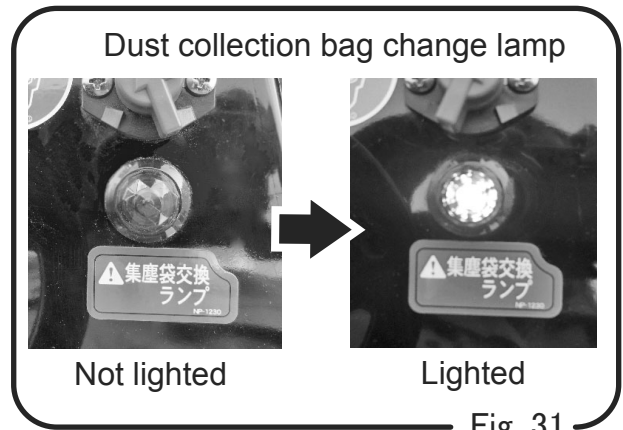
The third stage collection is done by the dust collection element. In case if dust collection efficiency is not good even after the chips inside the dust case are removed, check the element and clean. (Fig. 32)

#### (a) Guideline for cleaning

For each cutting distance of 100m to 120m

#### (b) Cleaning method

Blow air with an air gun, or bush off dust with a soft brush. Or use an industrial vacuum cleaner. Do not wash in water.



## 9. STOP

1. After cutting is finished, slowly turn the lifting/lowering handle counter-clockwise to lift the machine.
2. Return the throttle lever to lower the engine revolution. Run the engine for 2 to 3 minutes. After the engine temperature is dropped, stop the key (key switch). Even when emergency stop was used with the stop switch, always stop the key (key switch.) (Fig. 34)
3. Turn the stop switch to OFF (0) side.
4. Shut the fuel cock.

**⚠ CAUTION**  
After cutting operation, every part of the machine is very hot. Be careful not to get a burn.

**⚠ CAUTION**  
Even when the machine was stopped with the emergency stop kill switch at the side of the throttle lever, turn the key switch off.

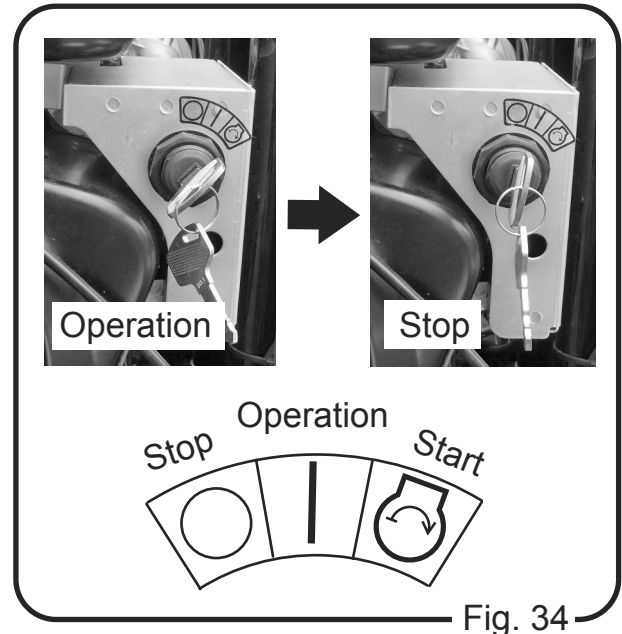


Fig. 34

## 10. TRANSPORTATION

### **⚠ WARNING**

- Do safety check by checking one point hang hook for breakage and loosened or missing bolts.
- When lifting, always remove the blade, stop the engine and shut the fuel cock.
- Never try to hang by the handle. Always hang at the location designated.
- Use a wire rope that is sufficiently strong that does not show kink nor deformation.
- Lift straight, and do not apply impact while lifting. Do not let someone or animal go beneath the lifted machine.
- For safety, do not lift to the level higher than necessary.

### 10.1 Loading And Unloading

1. For loading and unloading of this machine, use a crane.
2. For loading and unloading work, designate a supervisor, and have workers do their work under the instruction of the supervisor.
3. When lifting, use the one point lifting hook. Never try to lift by using a hook on the handle.

### 10.2 Cautions For Transportation

#### **⚠ WARNING**

- For transportation, stop the engine and shut the fuel cock.
- For transportation, always drain the fuel from the machine.
- For transportation, always remove the blade.
- Fix the machine securely to prevent it from moving or rolling over.

## 11. STORING

---

1. Remove the chips inside the dust case.
2. Wash with water to remove dirt and soil attached on the machine. Then, wipe off water well and let it dry.
3. After cleaning, apply oil on the blade attaching area on the blade shaft.
4. Put a cover over the machine to prevent accumulation of dirt and dust, and store in a dry location away from direct sunshine.

### **5. When storing the machine for a long time after it is used.**

- 5-1 Drain fuel from fuel tank, fuel pipe and carburetor.
- 5-2 Do necessary oiling, oil addition or change. Remove the spark plug and let several drops of engine oil run into the cylinder. Manually turn several times to make the oil completely distributed inside.
- 5-3 Pull the recoil starter until you feel some compression, then stop pulling.
- 5-4 Securely cover the inlet and exhaust port of the air cleaner and muffler.
- 5-5 Either disengage the terminal from the battery or remove the battery itself from the machine. Then, store the battery.
- 5-6 Do not leave the machine outdoor. Store it indoor.
- 5-7 When storing, do not lay the machine on its side.

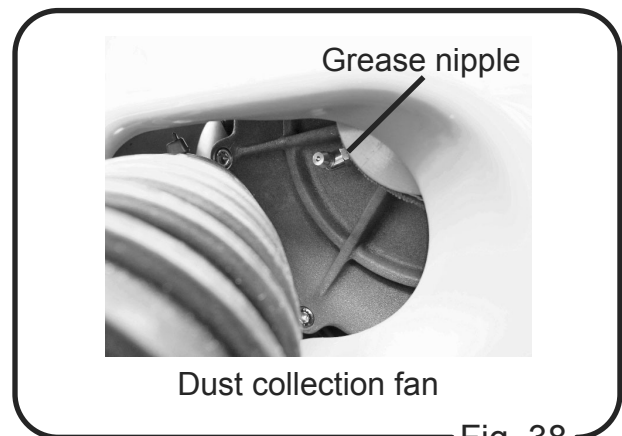
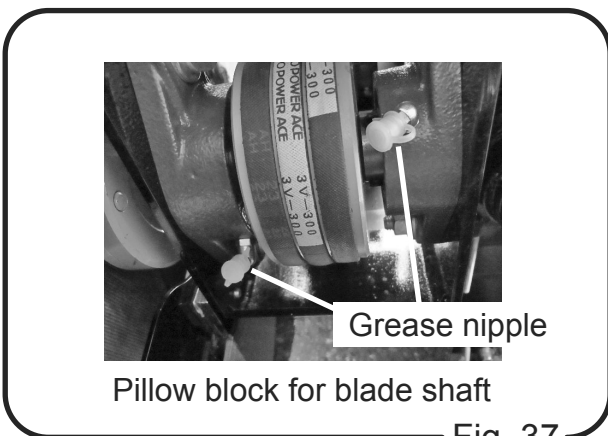
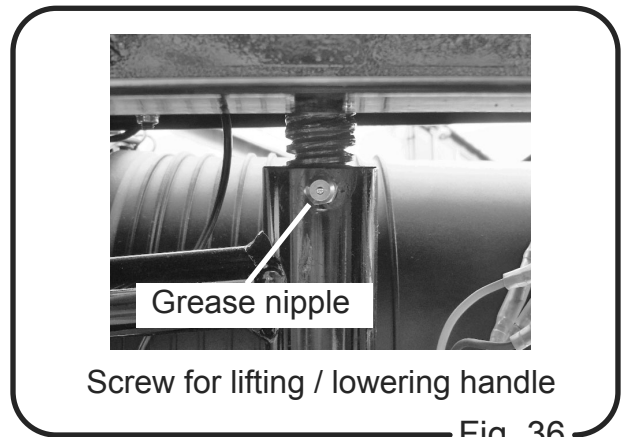


# 12. REGULAR INSPECTION AND ADJUSTMENT

## 12.1 Schedule Table For Inspection Of Each Par

Inspection timing	Inspection site	Inspection item	Oil and grease
Daily (before work)	Appearance	Scratch, distortion	
	Fuel tank	Leak, oil level, dirtiness	Gasoline
	Fuel system	Leak, fuel deterioration, dirtiness	
	Engine oil	Leak, oil level, dirtiness	Engine oil
	Air cleaner	Dust on sponge	
	Bleed	Scratch, breakage	
	Lifting/lowering device	Function check, oil/grease	Grease
	One point hang hook	Breakage, scratch, loosened/ missing bolts and nuts	
	Bolts and nuts	Loosening/missing	
	Dust case	Inside dirtiness	
	Dust collection filter (Fig. 35)	Clogging/il	
Every 20 hours	Engine oil	Change only for the first time	Engine oil
Every 100 hours	Engine oil	Change	Engine oil
	Lifting/lowering device		
	Lifting/lowering screw (Fig. 36)	Scratch, bending, greasing	Grease
	Pillow block (Fig. 37)	Greasing	Grease
	Dust collection fan (Fig. 38)	Greasing	Grease
Every 200 hours	V belt	Scratch, tension	
Every 2 years	Fuel pipes	Change	
Irregular time	Air cleaner element	Change	
	Pillow block	Wear, abnormal noise, looseness	

Check schedule (time to check) is for normal condition. It depends on use conditions.



Follow the Table of Tightening Torque to tighten the bolts and nuts.

**Table of Tightening Torque (kgf-cm)**

Material	Screw diameter							
	6mm	8mm	10mm	12mm	14mm	16mm	18mm	20mm
4T(SS41)	70	150	300	500	750	1,100	1,400	2,000
6-8T(S45C)	100	250	500	800	1,300	2,000	2,700	3,800
11T(SCM3)	150	400	800	1,200	2,000	2,900	4,200	5,600
In case counter part is made from aluminum	100	300~350	650~700					

※ For indication in SI Unit (International Unit System), use the conversion of 1kgf-cm=9.80665N-cm

## 12.2 Battery

Failed engine start or weak warning lamp and buzzer indicates the battery being discharged. Do auxiliary charging with the charging current and time shown on the battery, or replace the battery with a new one.

If you keep using the discharged battery, the battery will stop functioning.

**Note:**

**For charging of VRLA (control valve type) battery, use a special charger for VRLA (control valve type) battery.**

Type of battery used: YTX14-BS

### 1. Auxiliary charging

Before using a charger, make sure its power is turned off. Spark will occur if the charger is connected to the battery with the power turned on, which might result in ignition or explosion.

- Do charging in a well ventilated area away from fire. Fire will cause ignition and explosion.
- Connect the battery plus terminal to the plus side of the charger, and the battery minus terminal to the minus side of the charger. If incorrectly connected, electric circuit failure or burning of wire might occur.
- Do not try to charge by using a charger while the battery is connected to the machine. Ignition or explosion of the battery or damage of vehicle equipment might occur.
- For auxiliary charging, please follow the procedure sheet or the recommended charging current and time indicated on the battery. If those instructions are not followed, leakage or ignition/explosion might occur. Do not try to do quick charging as much as possible.

### 2. Battery life

The capacity of battery decreases as it is being used until it reaches its life.

After the battery reaches its life, it cannot perform as a battery even with auxiliary charging.

- Battery life gets shortened by the following factors.
  - High temperature (environment temperature such as engine heat)
  - Frequency of use (battery life is affected both by over-use and under-use.)
  - Insufficient charging (Insufficient power supply due to failure of generator)
  - Harsh use (over-use in cold climate, use while undercharge)
  - Poor maintenance (contact failure due to loosened terminal, dead battery due to the lamps left turned on)
  - Extreme overcharge (charging done too long due to regulator failure or charging continued even after the charge completion time is reached.)
- Near the end of battery life, you will notice the following signs.
  - The rotation noise of starter motor is lower and weaker. Lamp operation is slow and darker.
  - When you notice those signs, charge the battery according to the instruction in the section of "Auxiliary charging". If those signs remain even after the auxiliary charging, replace the battery with a new one.

3. How to remove battery (Fig. 38, Fig. 39)  
Remove the nylon nut M6 nut (2 pieces) at the bottom of the machine, and remove the battery clasp, battery holder and rubber cover.  
Disengage the battery terminal. When doing this, make sure that you disengage the minus side terminal (black) first. When installing, start with the plus side terminal (red).  
Remove the battery from the machine.

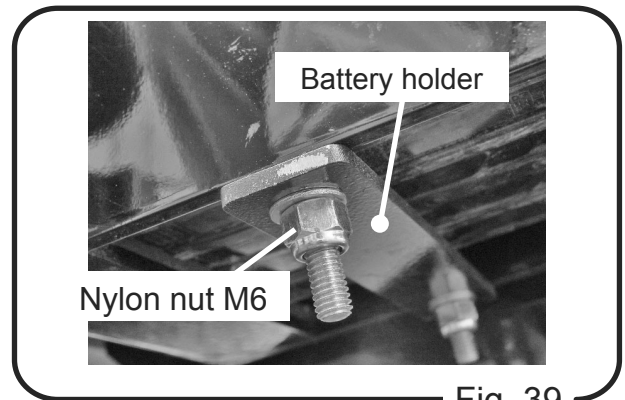


Fig. 39

- Inspection and cleaning of battery  
Check the battery to see if there is any crack or damage.  
Check the terminal for corrosion. If you find corrosion, grind with a wire brush or sand paper, then apply extreme pressure grease on the terminal part.  
Clean the outside of the battery.  
Check the area of the machine where the battery is placed, and clean there.
- After inspection of the battery, put the rubber cover back to its original location and fix firmly.

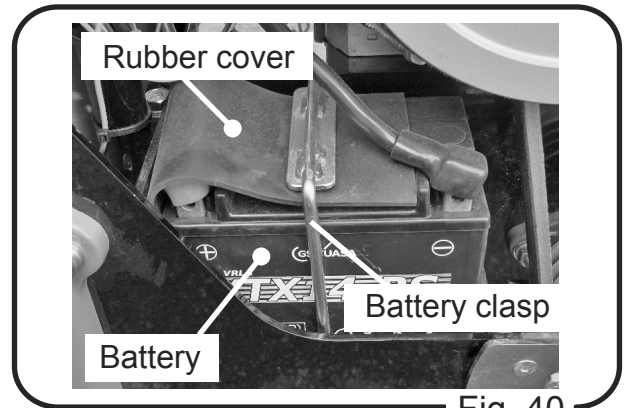


Fig. 40

**⚠ DANGER**

**Do not use the machine without the battery cover.**

**If the battery is left exposed, you might get electric shock if you touch the battery terminal, or electric leakage might occur. Also, by the impact and vibration from outside, the battery might be broken, which will result in battery liquid leakage.**

**Always put the battery cover before using the machine.**

## 12.3 Handling Of Dust Collection Element

1. Always stop the engine when removing the element.
2. Hold the end of the element, and slowly move it up and down, then to the left and to the right. Or you may rotate it. Slowly pull out the element from the air cleaner case by making sure that the chips will not fly away. If you handle the element carelessly, it might break.
3. Clean the outer surface inside the seal tube in the housing.
4. Clean the element as shown below. Be careful not to apply impact on the element, or hit it against something or drop it.
  - Use dry and clean compression air of less than 686kPa (7kgf/cm<sup>2</sup>).
  - Separate the air nozzle and the element (filter) about 50mm. From the inside of the element (clean side) towards the outside (dirty side: surface with dust attached), blow air in vertical motion along the folding line (crease).
  - Make sure that the blown out dust will not accumulate on element inside (clean side).
  - When the dust attached on the element contains oil or carbon, it becomes difficult to clean the element. In such case, replace the element with a new one.

## 12.4 How To Replace V belt For Blade Shaft

If the three V belts on the blade shaft side are broken or damaged, please change them as follows.

1. Remove the blade cover and belt cover. (p.11 Fig. 2, Fig. 3)
2. Remove four bolts (6X20), and remove the fan pulley (large). Remove four bolts (8X20) and remove the front guard. (Fig. 41)
3. Loosen the four engine bolts. Just loosen them. Do not remove those bolts. (Fig. 42, Fig. 43)
4. Loosen the belt adjustment bolt. Once this bolt is loosened, the engine moves forward. (Fig. 43)
5. Once the engine moves forward, the tension of the belt gets decreases. Remove the V belt. (Fig. 44)

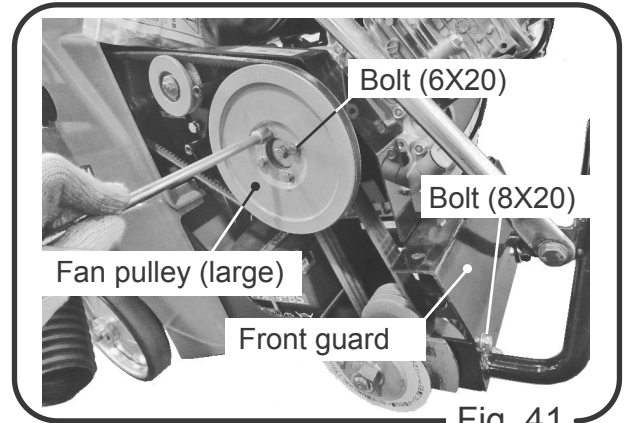


Fig. 41

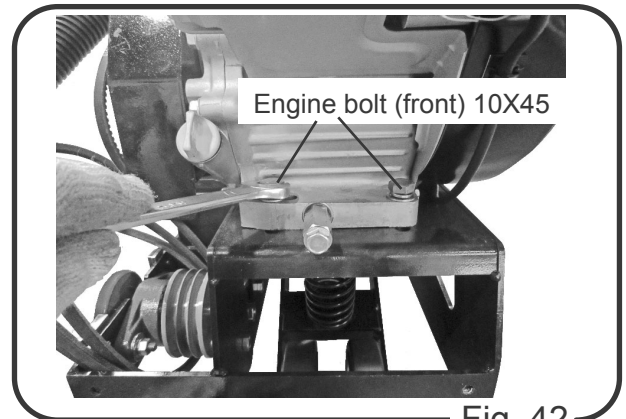


Fig. 42

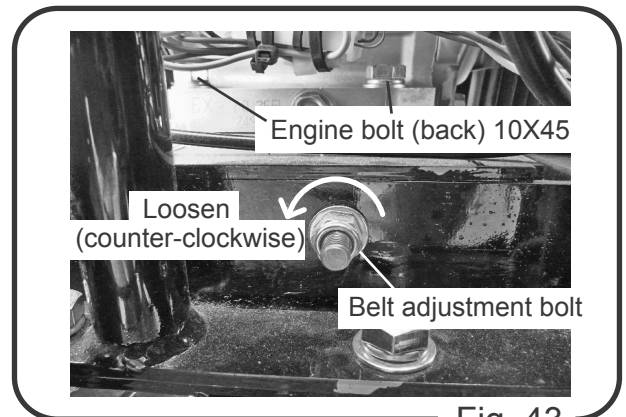


Fig. 43

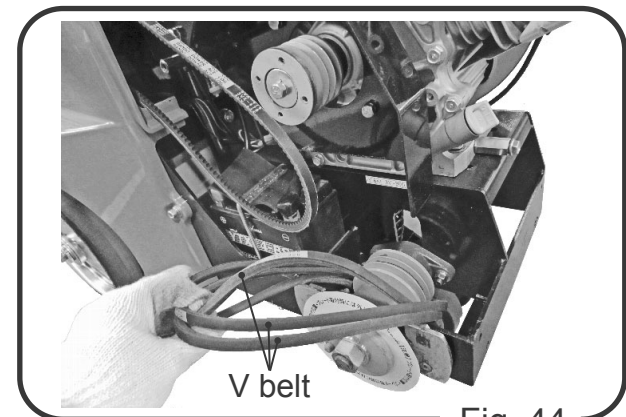


Fig. 44

6. Remove the pillow block (UCFL205D1-04) bolt (8X35) and nut M8 on the bleed side at two locations. Then, remove the pillow block (UCFL204D1-04) bolt (8X30) and nut M8 of the back side at two locations. (Fig. 45)

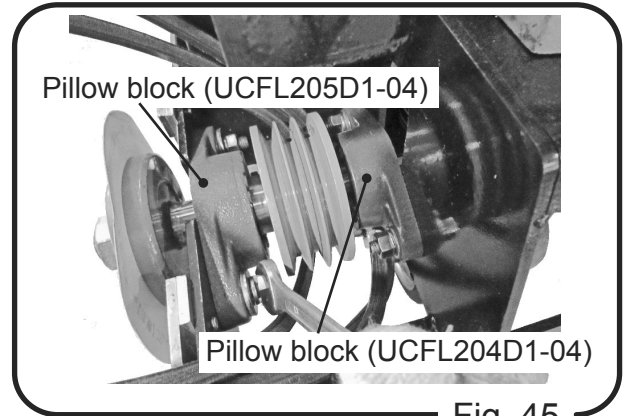


Fig. 45

7. With the pillow block mounted, remove the blade shaft from the machine. After taking out the old V belt, install the new V belt. (Fig. 46)

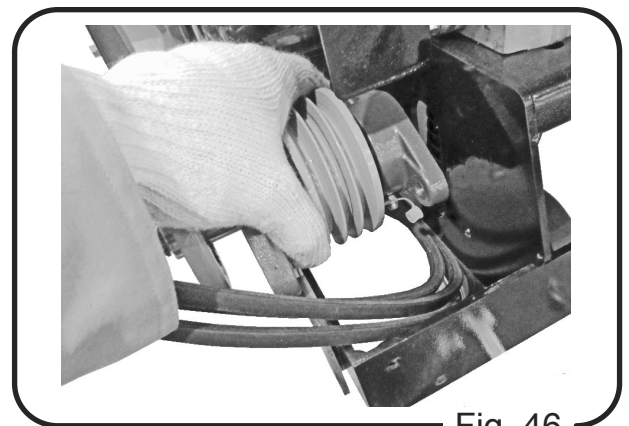


Fig. 46

8. Assembly is the reversal of the disassembly steps. But for the engine bolts, do the tightening after the tension is adjusted after V belt installation. (Fig. 47)

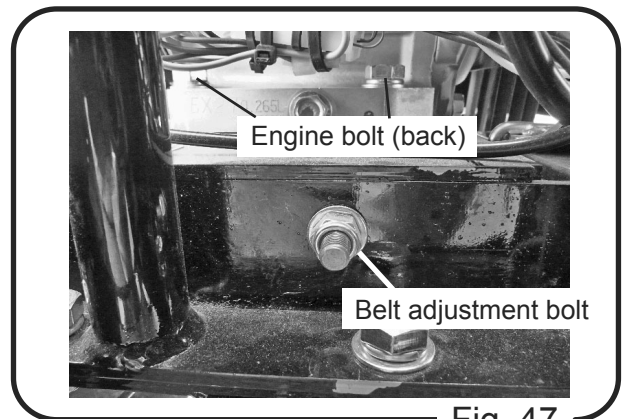


Fig. 47

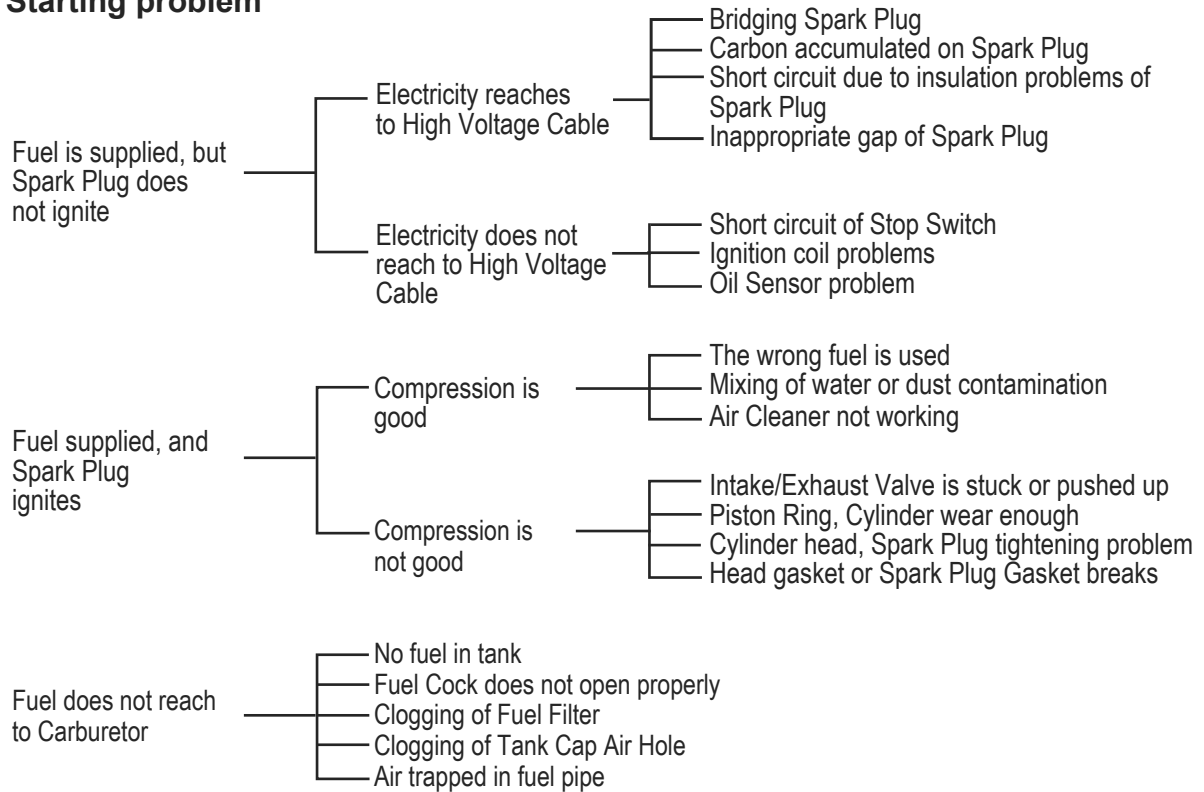
The above will complete the V belt change.

# 12. TROUBLESHOOTING

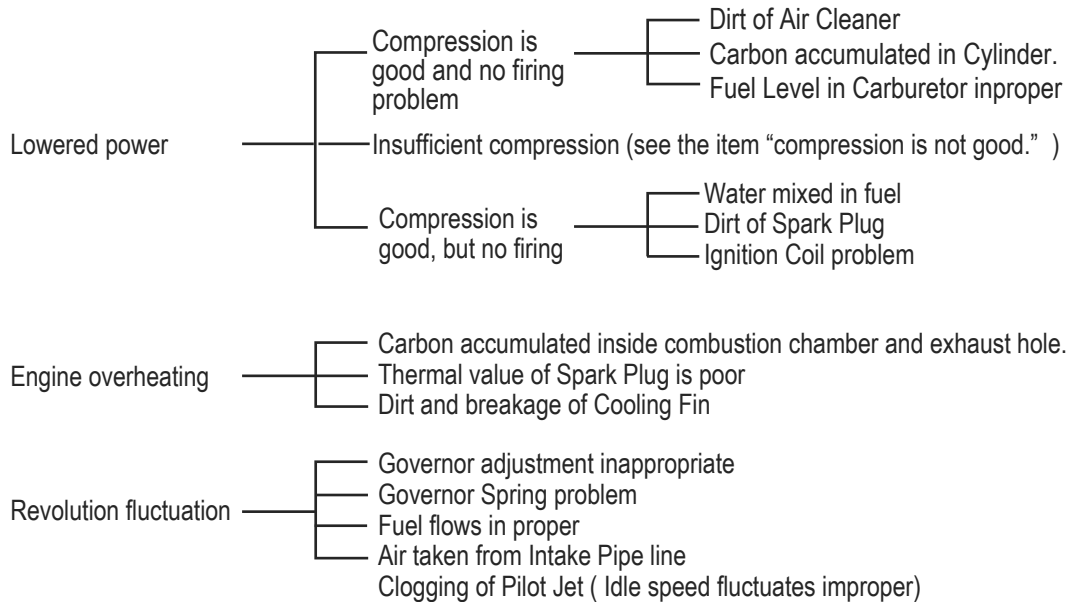
## 12.1 Engine

### 1. Gasoline engine

#### (1) Starting problem

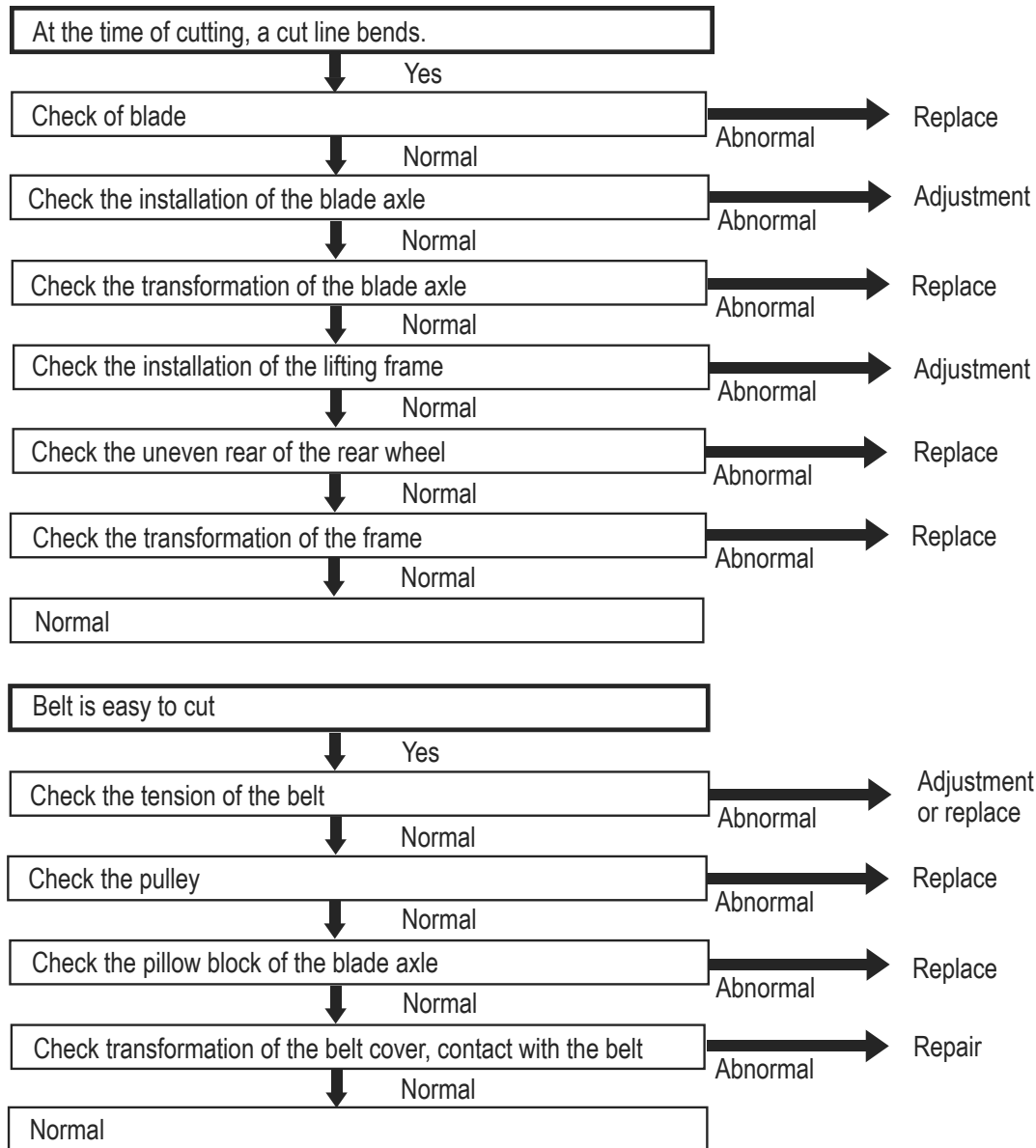


#### (2) Operation problem

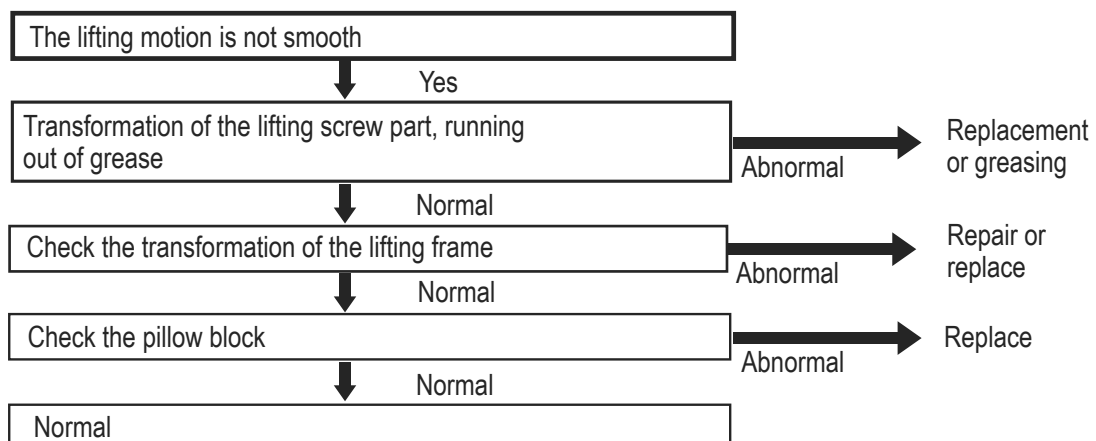


## 12.2 Machine

### (1) Blade system



### (2) Height Adjusting System





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