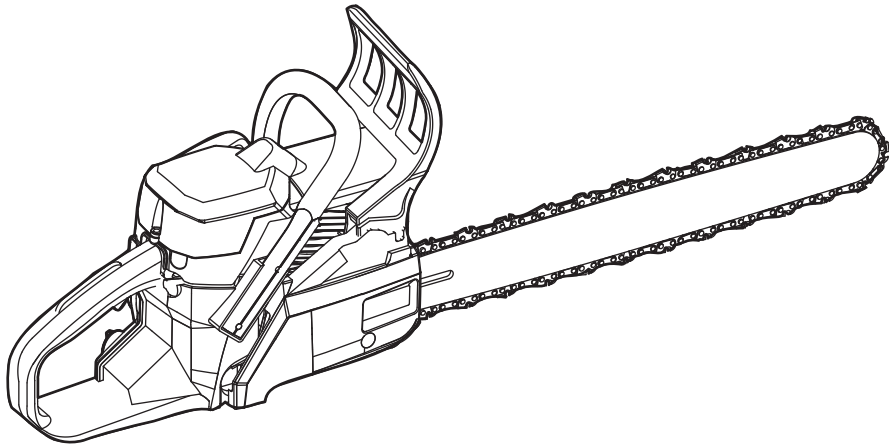


# KOSHIN

## CHAINSAWS OWNER'S MANUAL

### ECS-41



- Caution**
- Before using our chainsaws, please read this manual carefully to understand the proper use of your unit
  - Keep this manual handy

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## Contents

1、 Safety Precautions .....	2
2、 Technical Specification .....	4
3、 Operation	
Preparation before Using .....	5
Starting .....	8
Running .....	10
Stopping .....	15
4、 Maintenance .....	16
5、 Long Time Storage .....	19
6、 Troubleshooting Guide .....	20

## 1. Safety Precautions (read carefully and understand)



It is important that you read, fully understand and observe the following safety precautions and warning.

Careless or improper use of this machine may cause serious or fatal injury.

### △ WARNING

This mark indicates instructions, which must be followed in order to prevent accidents, which could lead to serious bodily injury or death.

### IMPORTANT

This mark indicates instructions, which must be followed, or it leads to mechanical failure, breakdown, or damage.

### NOTE

This mark indicates hints or directions useful in the use of the product.

### Warning Labels on the Machine



1. Read owner's manual before operating this machine



2. Wear head, eye and ear protection



3. Use the chainsaw with two hands



4. Warning! Danger of kickback



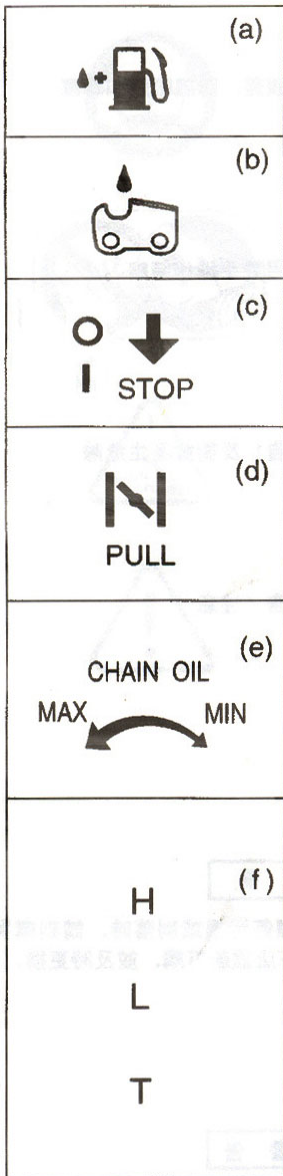
5. Warning/Attention

**Warning**

Never modify the product. We won't warrant the machine, if you use the remodeled product or if you don't observe the proper usage written in the manual.

**Symbols on the Machine**

For safe operation and maintenance, symbols are carved in relief on the machine. According to these indications, please be careful not to take a mistake.



- a. The port to refuel the “MIX GASOLINE”
- b. The port to refuel the “CHAIN OIL”
- c. Flipping the engine switch to the “I” (stop) direction, the engine stops
- d. Pulling out the choke knob, the choke closes.
- e. “MIN” direction—the oil flow decrease  
“MAX” direction—the oil flow increase
- f. The position of H-needle  
The position of L-needle  
The position of idle adjusting

## 2. Technical Specifications

Name	Chainsaw
Type	Single cylinder, air cooled, two stroke
Model	ECS-41
Displacement (cm <sup>3</sup> )	40.1
Max.Power/Speed(kW/r/min)	1.2/8500
Ignition System	Pointless(CDI)
Carburetor	Diaphragm
Start Mode	Recoil Starting
Spark Plug	RCJ6Y
Spark Plug Gap (mm)	0.6~0.7
Fuel	Mixture (gasoline 40 : oil 1)
Lubricating Oil	FC two-stroke engine oil
Chain Oil	SAE#10W-30
Fuel Tank Capacity (mL)	310
Oil Tank Capacity (mL)	210
Sprocket (Teeth*Pitch)	6T*0.375
Guide Bar Size (inch)	16
Pitch (inch)	3/8
Gauge (inch)	0.050
Weight(Power unit only) (kg)	5.0

### 3.Operation

#### Preparation before using

##### ■ Before using the machine

- a. Read this owner's manual carefully to understand how to operate this unit properly.
- b. You should never use the product when under the influence of alcohol, when suffering from exhaustion or lack of sleep, when suffering from drowsiness as a result of having taken cold medicine, or at any other time when a possibility exists that your judgment might be impaired or that you might not be able to operate the machine properly and in a safe manner.
- c. Never use the product under circumstances like those described below:
  1. When the ground is slippery or when you can't maintain a steady posture.
  2. At night, at times of heavy fog, or at any other times when your field of vision might be limited and it would be difficult to gain a clear view of the area.
  3. During rain storms, during lightning storms, at times of strong or gale-force winds, or at any other times when weather conditions might make it unsafe to use this products.
- d. Lack of sleep, tiredness, or physical exhaustion results in lower attention spans, and this in turn leads to accidents and injury. Limit the amount of time of using the machine continuously to somewhere around 10 minutes per session, and take 10~20 minutes of rest between work sessions.
- e. Never allow children or anyone unable to fully understand the directions given in this manual to use this product.

##### ■ Working Equipment and clothing

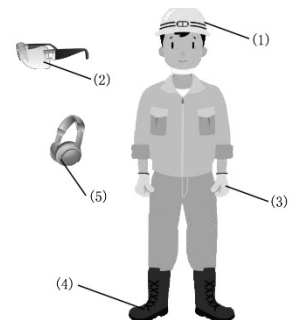
- a. When using the product, you should wear proper clothing and protective equipment as follows. Helmets, protective masks, etc. are not included. Please prepare them beforehand by yourself.

1. Helmet
2. Protection goggles or face protector
3. Thick work gloves
4. Non-slip-sole work boots
5. Ear protectors

- b. And you should carry with you.

1. Attached tools and files.
2. Properly reserved fuel and chain oil.
3. Things to notify your working area (Rope, warning signs)
4. Whistle (for collaboration or emergency)
5. Hatchet or saw (for removal of obstacles)

- c. Never use the product when wearing pants with loose cuffs, when wearing sandals,



or when barefoot.

## ■ Handling Fuel

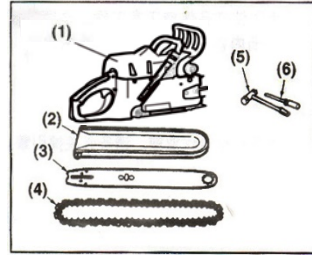


- a. The engine of this product is designed to run on a mixed fuel which contains highly flammable gasoline. Never store cans of fuel or refill the fuel tank in any place where there is a boiler, stove, wood fire, electrical sparks, welding sparks, or any other source of heat or fire which might ignite the fuel.
- b. Never smoke while operating the unit or refilling its fuel tank.
- c. When refilling the tank, always turn off the engine first and take a careful look around to make sure that there are no sparks or open flames anywhere nearby before refueling.
- d. If any fuel spillage occurs during refueling, use a dry rag to wipe up spills before turning the engine back on again.
- e. After refueling, screw the fuel cap back tightly onto the fuel tank and then carry the product to a spot 3m or more away from where it was refueled before turning on the engine again.

■ Installing Guide Bar and Saw Chain

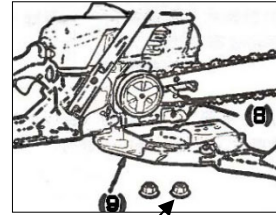
1. A standard saw unit package contains the items as illustrated

- 1) power unit
- 2) Bar protector
- 3) Guide bar
- 4) Saw chain
- 5) Plug wrench
- 6) Screwdriver for carburetor adjustment



2. Install the guide bar and the saw chain on the power unit as follows::

- 1. Loosen the nuts (7), then remove the chain cover.
- 2. Mount the bar to the studs of the power unit, and fit the saw chain around the guide bar, Adjust the position of chain tensioner nut on the chain cover to the lower hole of guide bar.

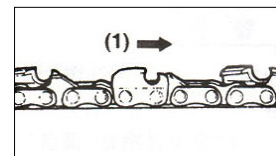


(7)

- 8) Tensioner nut
- 9) Chain cover

**Note**

Pay attention to the correct direction (1) of the saw chain



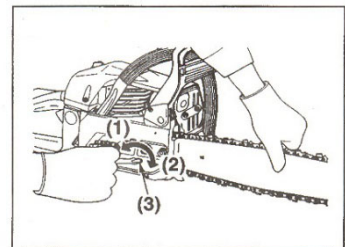
3. Fit the chain cover to the power unit and fasten the nuts to finger tightness.

Adjust the chain tension by turning the tensioner screw (12~15Nm) , Then check the chain for smooth rotation and proper tension while moving it by hand.

If necessary, readjust with the chain cover loose.

4. Tighten the tensioner screw.

- (1) Loosen
- (2) Tighten
- (3) Tensioner screw



**Note**

A new chain will expand its length in the beginning of use. Check and readjust the tension frequently as a loose chain can easily derail or cause rapid wear of itself and the guide bar.

## Starting

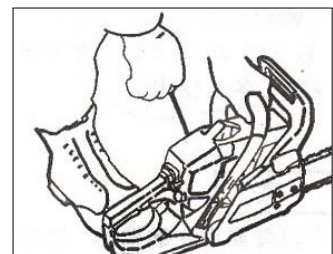
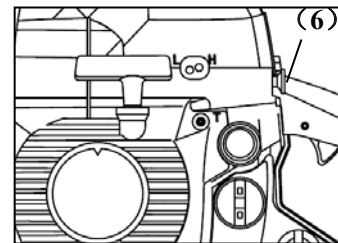
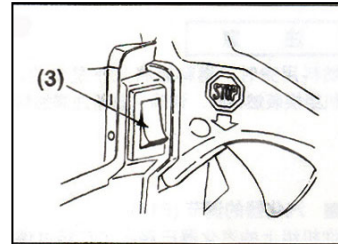
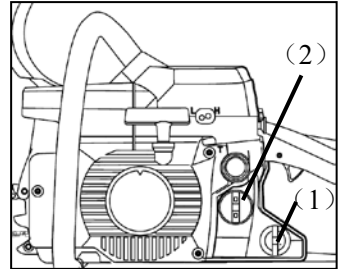
### ■ Before starting engine

1. Check working place, the cutting object and cutting direction. If there is obstacle, remove it.
2. Never start cutting until you have a clear work area, secure footing and a planned retreat path from the falling tree.
3. Work should be done by one person as a general rule, if there are multiple people working together, keep a distance of 15 meter or more.
4. Inspect the machine before each use for worn, loose, or damaged parts. Never operate the machine that is damaged, improperly adjusted, or is not completely and securely assembled. Make sure that the saw chain stops moving when the throttle control trigger is released.

■ Starting engine

- 1) Fill fuel and chain oil tanks respectively, and tighten the caps securely.
- 2) Put the switch to "I" position.
- 3) Press the primer pump quickly until it is full of fuel
- 4) Push the choke knob upward. The choke will close and the throttle lever will then be set in the starting position

- (1) Chain oil
- (2) Fuel
- (3) Switch
- (4) throttle lever
- (5) Throttle interlock
- (6) Choke knob



**Note**

When restarting immediately after stopping the engine, leave the chock knob at the open position.

**⚠ Warning**

Do not start the engine while hanging the chainsaw with a hand. The saw chain may touch your body. It's very dangerous.

5. After all the preparations, pull the starter again to start the engine.

6. When the engine start open the choke and allow the engine to warm up for 3 minutes.

### ■ Notes when starting the engine

1. Always hold the machine firmly with both hands when the engine is running. Use a firm grip with thumb and fingers encircling the handles.
2. Keep all parts of your body away from the machine when the engine is running.
3. Before starting the engine, make sure the saw chain is not contacting anything.

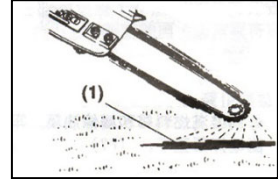
**△ Warning**

Keep clear of the saw chain as it will start rotating upon

### ■ Checking oil supply

After starting the engine, run the chain at medium speed and see if chain oil is scattered off as shown in the figure.

#### 1) Chain oil



## Running

### ■ Operating Instructions

1. Keep the handles dry, clean and free of oil or fuel mixture.
2. Never touch the muffler, spark plug or other metallic parts of the engine while the engine is in operation or immediately after stopping the engine. Doing so could result in serious burns or electrical shock.
3. Use extreme caution when cutting small size brush and saplings because slender material may catch the saw chain and be whipped toward you or pull you off balance.
4. When cutting a limb that is under tension, be alert for spring back so that you will not be struck when the tension in the wood fibers is released.
5. Check the tree for dead branches that could fall during the felling operation.
6. Always shut off the engine before setting it down.



**△ Warning**

1. Kickback may occur when the nose or tip of the guide bar touches an object, or when the wood closes in and pinches the saw chain in the cut. Tip contact in some cases may cause a lightning fast reverse reaction, kicking the guide bar up and back towards the operator. Either of these reactions may cause you to lose control of saw which could result in serious personal injury.
2. Do not rely exclusively on the safety devices built into your saw. As a chainsaw user you should take several steps to keep cutting jobs free from accident or injury.

(1) With a basic understanding of kickback you can reduce or eliminate the element of surprise. Sudden surprise contributes to accidents.

(2) Keep a good grip on the saw with both hands, the right hand on the rear handle, and the left hand on the front handle, when the engine is running. Use a firm grip with thumbs and fingers encircling the chainsaw handles. A firm grip will help you reduce kickback and maintain control of the saw.

(3) Make certain that the area in which you are cutting is free from obstructions. Do not let the nose of the guide bar contact a log, branch, or any other obstructions which could be hit while you are operating the saw.

(4) Cut at high engine speeds.

(5) Do not overreach or cut above shoulder height.

## ■ Sawing

### ⚠ Warning

- It is not necessary to force the saw into the cut. Apply only light pressure while running the engine at full throttle.
- When the saw chain is caught in the cut, do not attempt to pull it out by force, but use a wedge or a lever to open the way.

#### 1. Guard against kickback

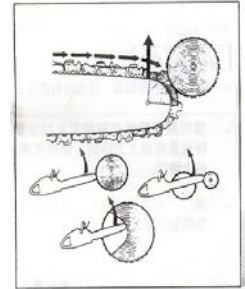
This saw is equipped with a chain brake that will stop the chain in the event of kickback if operating properly. You must check the chain brake operation before each usage by running the saw at full the throttle for 1-2 seconds and pushing the front hand guard forward.

The chain should stop immediately with the engine at full speed. If the chain is slow to stop or does not stop, replace the brake band and clutch drum before use.

It is extremely important that the chain brake be checked for proper operation before each use and that the chain be sharp in order to maintain the kickback safety level of the saw. Removal of the safety devices, inadequate maintenance, or incorrect replacement of the bar or chain may increase the risk of serious personal injury due to kickback.

#### 2. Felling a tree

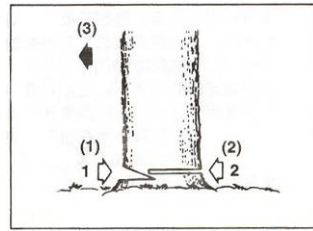
- 1) Decide the felling direction considering the wind, lean of the tree, location of heavy branches, ease of job after felling and other factors.
- 2) While cleaning the area around the tree, arrange a good foothold and retreat path.
- 3) Make a notch cut the one-third of the way into the tree on the felling side.
- 4) Make a felling cut from the opposite side of the notch and at a level slightly higher than the bottom of the notch.



**⚠ Warning**

When you fell a tree, be sure to warn your neighboring workers of the danger.

- 1) Notch cut
  - 2) Felling cut
  - 3) Felling direction
3. Bucking and Limbing

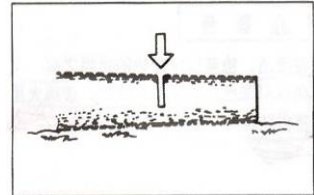


**⚠ Warning**

- Always ensure your foothold. Do not stand on the log.
- Be alert to the rolling over of a cut log. Especially when working on a slope, stand on the uphill side of the log.
- Follow the instructions in “sawing” to avoid kickback of the saw.

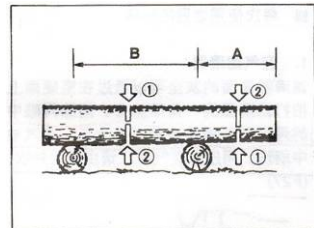
**A log lying on the ground**

Saw down halfway, then roll the log over and cut from the opposite side.



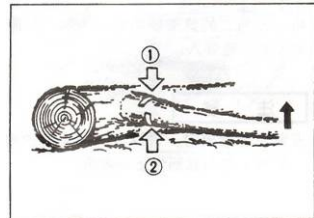
**A Log hanging off the ground**

In area A, saw up from the bottom one-third and finish by sawing down from the top, In area B, saw down from the top one-third and finish by sawing up from the bottom.



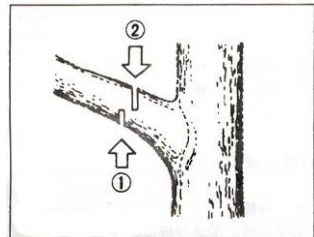
**Cutting limb of Fallen Tree**

First check to which side the limb is bent. Then make the initial cut from the bent side and finish by sawing from the opposite side.



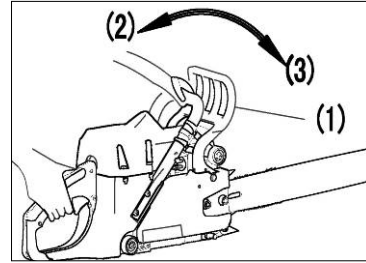
**Pruning of Standing Tree**

Cut up from the bottom, finish down from the top.



## ■ Brake

Pull the brake lever to the left handle direction to release the brake until you hear a sound. Otherwise, push forward will brake the machine.



- 1) Brake lever
- 2) release
- 3) brake

If the engine brakes in high speed, the clutch will be hot, and it will cause damage to machine.

When it brakes during operation, release the throttle lever immediately to allow the engine to idle.

## ■ Fuel and Chain Oil

### 1. Fuel

**⚠ Warning**

- Gasoline is very flammable. Avoid smoking or bring any flame or sparks near fuel. Make sure to stop the engine and allow it cool before refueling the unit. Select outdoor bare ground for fueling and move at least 3m away from the fueling point before starting the engine.



- Please use an anti-oxidant added quality oil expressly labeled for air-cooled 2-cycle engine use. (JASO FC GRADE OIL or ISO-L-EGC GRADE)
- Do not use BIA or TCW (2-stroke water-cooling type) mixed oil.
- Exhaust emission are controlled by the fundamental engine parameters and components (eq., carburetion, ignition timing and port timing) without addition of any major hardware or the introduction of an inert material during combustion.
- These engine are certified to operate on unleaded gasoline.
- Make sure to use gasoline with a minimum octane number of 89 RON (USA/Canada:87AL)
- If you use a gasoline of a lower octane value than prescribed, there is a danger that the engine temperature may rise and an engine problem such as piston seizing may consequently occur.
- Unleaded gasoline is recommended to reduce the contamination of the air for the sake of your health and the environment.
- Poor quality gasoline or oils may damage sealing rings, fuel lines or fuel tank of the engine.

## 2. How to mix fuel

**Important**

Pay attention to agitation

1. Measure out the quantities of gasoline and oil to be mixed.
2. Put some of the gasoline into a clean, approved fuel container.
3. Pour in all of the oil and agitate well.
4. Pour in the rest of gasoline and agitate again for at least one minute. As some oils may be difficult to agitate depending on oil ingredients, sufficient agitation is necessary for the engine to last long. Be careful that, if the agitation is insufficient, there is an increased danger of early piston seizing due to abnormally lean mixture.

### 3. Fueling the unit

1. Untwist and remove the fuel cap. Rest the cap on a dustless place.
2. Put fuel into the fuel tank to 80% of the full capacity.
3. Fasten the fuel cap securely and wipe up any fuel spillage around the unit.

**⚠ Warning**

1. Move at least 10feet (3meters) away from the fueling point before starting the engine.
2. Stop the engine before refueling the unit. Be sure to sufficiently agitate the mixed gasoline in the container.

**For your engine life, avoid:**

1. FUEL WITH NO OIL (RAW GASOLINE)-It will cause severe damage to the internal engine parts very quickly.
2. GASOHOL – It can cause deterioration of rubber and/or plastic parts and disruption of engine lubrication.
3. OIL FOR 4-CYCLE ENGINE USE –It can cause spark plug fouling, exhaust port blocking, or piston ring sticking.
4. In the case of storing the product for a long period of time, clean the fuel tank after rendering it empty

### 4. Chain Oil

Use motor oil SAE # 10w-30(all year round) or SAE # 30~# 40 (in summer and SAE # 20 in winter.

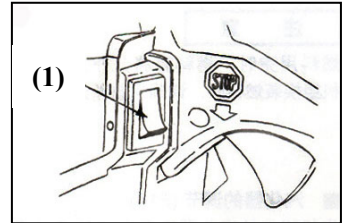
## Stopping engine

To stop the engine in an emergency, move the stop switch

to the “○” position. Under normal conditions, use the following procedure:

1. Release the throttle lever to allow the engine idling for 3 minutes.
2. Put the switch to the “○” position.

1)Switch



## 4. Maintenance

**△ Warning**

Before cleaning, inspecting or repairing your unit, make sure that engine has stopped and is cool.

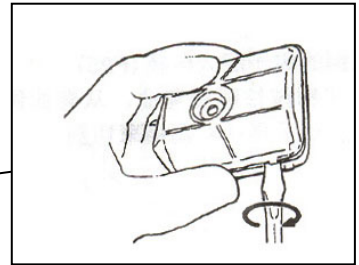
Disconnect the spark plug to prevent accidental starting.

**■ MAINTENANCE AFTER EACH USE**

a. Air Filter

To clean dirt in the meshes, brush in gasoline .  
When using compressed air, blow from the inside.

Air Filter



2. Oiling port

Dismount the guide bar and check the oiling port for clogging.

(1) Oiling port

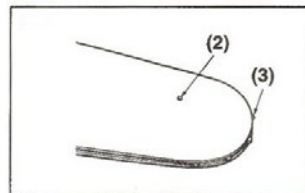
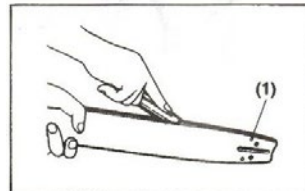
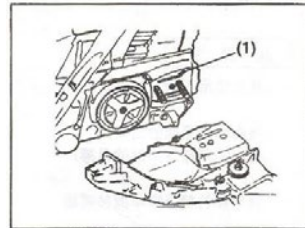
3. Guide bar

When the guide bar is dismounted, remove sawdust in the bar groove and the oiling port. Grease the nose sprocket from the feeding port on the tip of the bar.

(1) Oiling port

(2) Grease port

(3) Sprocket

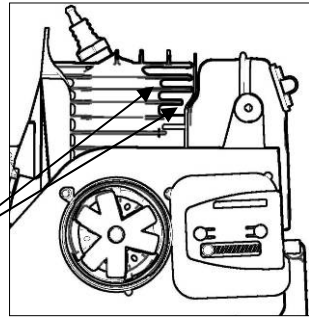


## ■ Periodical Service Point

### 1. Cylinder fins

Dust clogging between the cylinder fins will cause over heating of the engine. Periodically check and clean the cylinder fins after removing the air cleaner and the cylinder cover.

Cylinder fins



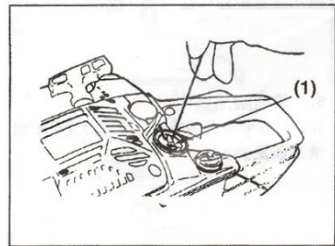
**Note**

Be sure to block the air intake hole.

### 2. Fuel filter

Using a wire hook, take out the filter from the filler port. Disassemble the filter and wash with gasoline. Replace with new one if needed.

#### (1) Fuel filter



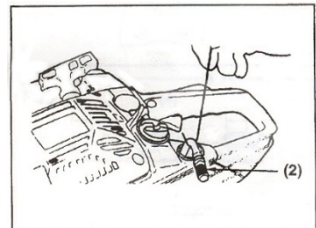
**Note**

After removing the filter, use a pinch to hold the end of the suction pipe, take care not to allow filters or dust inside the suction pipe.

### 3. Oil tank

With a spanner, take out the oil filter, and clean in gasoline. When putting the filter back into the tank, make sure that the filter does not fall off. Also clean the dirt around the tank.

#### (2) Oil filter

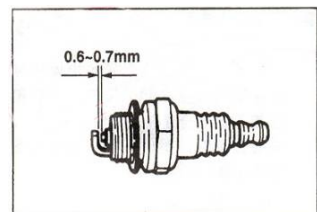


### 4. Spark plug

Clean the electrodes with a wire brush and reset the gap to 0.6~0.7 mm as necessary.

### 5. Sprocket

Check for cracks and for excessive wear interfering with the chain drive. If the wear is considerable, replace it with new one. Never fit a new chain on worn sprocket, or a worn chain on a new sprocket.



## ■ Saw Chain

### ⚠ Warning

It is very important for smooth and safe operation to keep the cutters always sharp.

1. Your cutters need to be sharpened when:

- Sawdust become powder-like.
- You need extra force to saw in.
- The cut way does not go straight.
- Vibration increases.
- Fuel consumption increases.

2. Cutter setting standards:

- Make sure the saw chain is held securely.
- Make sure the engine is stopped.
- Use a round file of proper size for your chain.

Place your file on the cutter and push straight forward.

Keep the file position as illustrated.

After every cutter has been filed, check the depth gauge and file it to the proper level as illustrated.

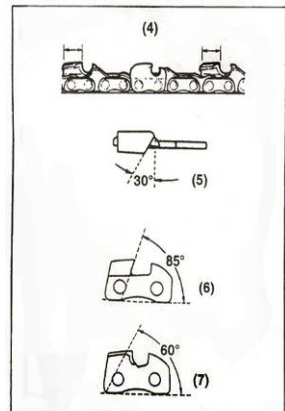
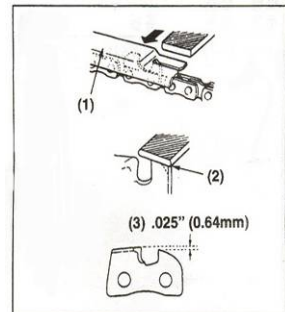
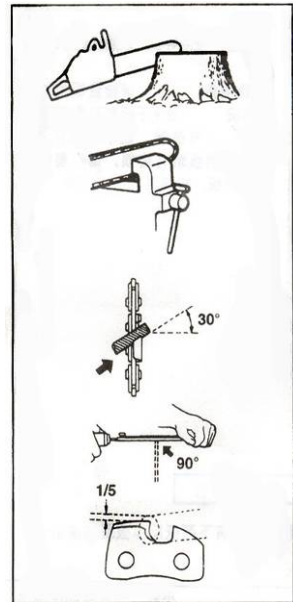
### ⚠ Warning

**Be sure to round off the front edge to reduce the chance of kickback or tie-strap breakage.**

- (1)Appropriate gauge checker
- (2)Make the shoulder round
- (3)Depth gauge standard

Make sure every cutter has the same length and edge angles as illustrated.

- (4)Cutter length
- (5)Filing angle
- (6)Side plate angle
- (7)Top plate cutting angle



## GUIDE BAR

Reverse the bar occasionally to prevent partial wear.

## **5、 Long Time Storage**

If the chainsaw isn't used for a long time, it must be maintained as follows:

- 1) Remove the fuel, the chain oil in the tank and in the carburetor.
- 2) Take down the spark plug, add certain oil from the spark plug hole into the cylinder, and draw the starter 2~3 times to move the piston to the top dead center, then replace the spark plug.
- 3) Use the soft cloth with engine oil to clean the surface of the engine, put the engine to the dry and ventilated place for the next use.

## 6、 Troubleshooting Guide

### 1) Starting Failure

Description	Cause	Countermeasure
No spark in the spark plug		
Spark plug	1) Wet spark plug electrodes	Make them dry
	2) Carbon deposited on the electrodes	Cleaning
	3) Insulation failure by insulator damage	Replace
	4) Improper spark gap	Adjust to 0.6-0.7mm
	5) Burn out of electrodes	Replace
Magneto	1) Damaged cable	Replace
	2) Ignition coil inside failure	Replace
	3) Disconnected cable	Repair
Sparks appears in the spark plug		
Compression & fueling is normal	1) Over sucking of fuel	Reduce
	2) Fuel is bad /dirty or mixed with water	change
Fueling normal but poor compression	1) Worn out cylinder and piston ring	replace
	2) Spark plug looseness	Tighten
No fuel supply	1) No fuel in the tank	Fill the tank
	2) Fuel tube clogged	Clean
	3)The valve of the fuel tank cap clogged	Clean

## 2) Lack of Power

Description	Cause	Countermeasure
Compression is normal and no misfire	1) Clogged element	Clean
	2) Air penetration from carburetor joint	Tighten
	3) Faulty fuel	Replace
	4.Engine overheating	Cool down, avoid long time operation in high speed or overloading
	5) Muffler choked with carbon	Clean
	6) Carbon deposited on the exhaust port of cylinder	Clean
Overheating	1) Fuel too lean	Adjust carburetor
	2) Carbon deposited in the cylinder	Clean
	3) Poor lubrication	Use 2-stroke engine oil, adjust fuel ratio
	4) Clogging of cylinder fin with dust	Clean
Abnormal knocking sound	1) Carbon deposited in the combustion chamber	Clean
	2) Running parts worn out	Check and replace

## 3) Stop during operation

Description	Cause	Countermeasure
Stop abruptly	1.Piston burn out	File the cylinder and piston, replace the piston ring
	2.Short circuit of spark plug electrodes	Clean
	3.Magneto inside failure	Check
Stop gradually	1.Lack of fuel	Refuel
	2.Clogged carburetor	Check and clean
	3.Fuel with water	Replace

## 4) Oil in the oil pump does not come out or the oil flow is very little

Description	Cause	Countermeasure
Oil flow is very little	1.Oil is not adjusted properly	Adjust the lever to the direction“+”
	2. Oil outlet tube clogged	Remove the guide bar, clean it.
	3.Oil tube broken	Check and replace oil tube
	4. Oil filter strainer clogged	Check and clean with gasoline
Oil does not come out	1.Lack of chain oil	Refill
	2.Oil outlet tube clogged	Remove the guide bar, clean it.
	3.Aging of the oil tube	Replace oil tube
	4.Oil pump clogged	Clean or replace oil pump
	5.Oil filter strainer clogged seriously	Replace the oil filter

