

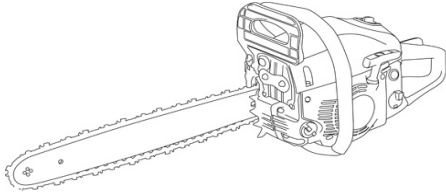
CHAIN SAW OWNER'S MANUAL

Caution!

Before using our chain saw, please read this manual carefully to understand the proper use of your unit.

Keep this manual handy.

CHAIN SAW MANUAL



Hold and operate the electric chainsaw properly with both hands.



Never cut with the tip of the chain saw as this may result in kickback and cause personal injury.



Read instruction manual before operating or attempting any maintenance work.



Switch off and remove the plug from the mains before cleaning or maintenance.



DO NOT leave or use this appliance in the rain.



Wear hearing and eye protection.



Keep Bystanders away.

SAFETY INSTRUCTIONS

WARNING: When using power tools or garden power tools basic safety precautions including the following safety instructions should always be followed to reduce the risk of fire, electric shock and personal injury. Read all these instructions before operating this product and retain these instructions for future reference.

- Do not operate this product in an explosive atmosphere, such as in the presence of flammable liquids, gases or dust.
- Keep children and bystanders away while operating the power tools or garden power tools. Distractions can cause you to lose control.
- Power tools or garden power tools plug must match the outlet. Never modify the plug in any way. Do not use any adapter plugs with earthed (grounded) power tools. Unmodified plugs and matching outlets will reduce risk of electric shock
- Avoid body contact with earthed or grounded surfaces such as tubes, radiators and refrigerators. There is an increased risk of electric shock if your body is earthed or grounded.
- Do not expose power tools garden power tools to rain or wet conditions. Water entering a power tool garden power tool will increase the risk of electric shock.
- Do not modify or change the cord. Never use the cord for carrying, pulling or unplugging the power tool. Keep the cord away from heat, oil and sharp edges or moving parts. Damaged or entangled cords increase the risk of electric shock.
- When operating this power tool outdoors,

use an extension cord suitable for outdoor use. Use of a cord suitable for outdoor use reduces the risk of electric shock.

- Stay alert. Watch what you are doing and use common sense when operating the power tool or garden power tools.
- Do not operate the power tools or garden power tools when you are tired or under the influence of drugs, alcohol or medication.
- Use safety equipment. Always wear eye protection. Safety equipment such as dust mask, non-skid safety shoes, hardhat, or hearing protection used for appropriate conditions will reduce personal injuries.
- Remove any adjusting key or wrench before turning power tools or garden power tools on. A wrench or a key left attached to a rotating part of power tools or garden power tools may result in personal injury.
- Do not over reach. Keep proper footing and balance at all times. This enables better control of power tools or garden power tools in unexpected situations.
- Dress properly. Do not wear loose clothing or jewellery; Keep your hair, clothing and gloves away from moving parts. Loose clothes, jewellery or long hair can be caught in moving parts.
- Do not force the power tools or garden power tools. Use the correct the power tools or garden power tools for your application, The correct power tools will do the job better and safer at the rate for which it was designed.
- Do not use the power tools or garden power tools if the switch does not turn it on and off. Any the power tools or garden power tools that cannot be controlled with the switch is dangerous and must be repaired.
- Disconnect the plug from the power source before making any adjustments, changing accessories, or storing the power tools or garden power tools. Such preventive safety measures reduce the risk of starting the power tools or garden power tools accidentally.
- Store out of the reach of children and do not allow persons unfamiliar with the power tools or garden power tools or these instructions to operate the power tools or garden power tools. Power tools or garden power tools are dangerous in the hands of untrained users.
- Use the power tools or garden power tools, in accordance with these instructions and in the manner intended for particular type of power tools or garden power tools, taking

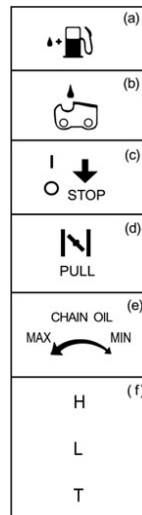
into account the working conditions and the work to be performed.

- Use of the power tools or garden power tools for operations different from intended could result in a hazardous situation.
- Have your power tools or garden power tools serviced by a qualified repair person using only identical replacement parts. This will ensure that the safety of the power tools or garden power tools is maintained.

Symbols on the machine

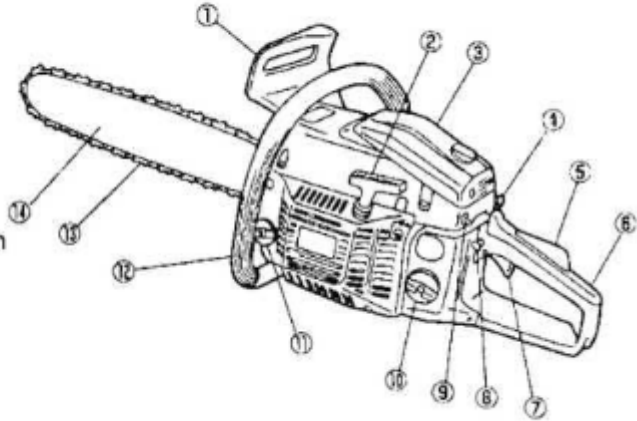
For safe operation and maintenance, symbols are carved in relief on the machine. According to these indications, please be careful not to make a mistake.

- The port to refuel 'Mix Gasoline' - Position: fuel tank cap
 - The port to refuel the 'Chain Oil' - Position: oil cap
 - The indication regarding the switch. Flipping the engine switch to the "O" (stop) direction, the engine stops - Position: rear-left of the unit
 - The indication regarding the choke. Pulling out the choke knob, the choke closes- Position: rear-right of the unit
 - The indication regarding the chain oil adjuster nut- "Min" direction the oil flow decrease "Max" direction the oil flow increases - Position: bottom of the clutch side
- The position of H needle
The position of L needle
The position of idle adjusting screw
Position: rear left of the unit



1. PARTS LOCATION

1. Front guard
2. Starter knob
3. Air cleaner
4. Choke knob
5. Throttle interlock
6. Rear handle
7. Throttle trigger
8. Throttle lock button
9. Engine switch
10. Fuel tank
11. Oil tank
12. Front handle
13. Saw chain
14. Guide Bar



Safety Precautions

Before using the machine

- a. Read this owners 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, drowsiness as a result of haven taken cold medicine or at any other time when a possibility exist that your judgement might be impaired ot that you mightnot be able to operate the machine pproperly and in a safe manner.
- c. Avoid running the engine indoors. The exhaust gasses contain harmful carbon monoxide.
- d. Never use the product under the circumstances listed below.
 1. When the ground is slippery or when other conditions exist which might take it not possible to maintain a steady posture.
 2. At night, at times of heavy fog or at any othertimes when your field of vision might be limited and it would be difficult to gain clear view of the area.
- e. During rain storms, lightning storms and gale-force or strong winds or at any other times times when weather conditions might make it unsafe to use this product.
- f. Lack of sleep, tiredness or physical exhaustion results in lower attention spans and this In turn leads to accidents and injury. Limit the amzount of time of using the machine con-

tinuously to somewhere around 10 minutes per session and take 10- 20 minutes tog rest between work sessions. Also try to keep the total amount of work performed in a single day under 2 hours or less.

- g. Be sure to keep this manual handy so that you may refer to it later whenever any questions arise.
- h. Always be sure to include this manual when selling, lending or otherwise transferring the ownership of the product
- i. Never allow children or anyone unable to fully understand the dirctions givend l this manual to use this product.

Working Gear and Clothing

When using the product you shoud wear proper clothing and protective equipment as follows

1. Helmet
2. Protection goggles
3. Thick work gloves
4. Non-slip-sole work boots
5. Ear protection



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)

Never use the product when wearing pants with loose cuffs, when wearing sandals or when barefoot.

Warning considering handling of fuel

- A. The engine of this product is desined to run on a mixed fuel wshich contains highly flammable gvasoline. Never store cans of fuel or refill the fuel tank in any place where there is a boiler, stove, wood fired , electrical sparks, welding sparks or any other source of the heat or fire which might ignite the fuel.
- B. Smoking while operating the product or refilling its fuel tank is extremely dangerous. Always be sure to keep lit cigarettes away from the product at all times.
- 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 or nearby before refueling.
- D. If any fuel spillage occurs during refueling, use a dry rag to wipe up spills before turning the engine back oneagain.
- E. After refueling, screw the fuel cap back tightly onto the fuel tank and then carry the product to a spol 3m or more away from where it was refueled before turning on the engine

Before starting the engine

- Check working place, the cutting object and the cutting direction. If there is obstacle red-move it.
- Never start cutting until you have a clear working area, secure footing and a planned retreat path from the falling tree.
- Use caution and keep bystanders and animals out of the working area whose diameter is 2.5 times of the cutting object.
- Inspect the machine 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.

When starting the engine

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

Operation

- Keep the handles dry, clean and free of oil or fuel mixture.
- 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.
- Use extreme caution when cutting small size brush and saplings toward you or pull you off balance.
- When cutting a limb that is under tension, be alert for spring back to you that wont be struck when the tension in the wood fibers is released.
- Check the tree for dead branches that could fall during the felling operation.
- Always shut the engine off befor setting it down.

Kickback safety precautions for chain saw users

WARNING

- Kickback may occur when the nose or tip of the guide bat touches an object, or when the wood closes in and punches the saw chain in the cut. Tip contact in some cases may cause a lightning fast reverse reaction, kicking the guide bar up amd back towards the operator. Pinching the saws chain along the top of the guide bar may push the guide bar rapidly back towards the operator. Either of these reactions may cause you to lose control of the saw which could result in serious personal injury.
- Do not rely exclusively on the safety devices built into your saw. As a chain saw user you should take several steps to keep cutting jobs free from accident or injury.
- When basic understanding of kickback you can reduce or eliminate the element of surprise. Sudden surprise contributes to acci-

dents.

- Keep good grip on the saw with both hands, the right hand on the rear handle, and the left on the front handle when the engine is running. Use a firm grip with thumbs and fingers encircling the chain saw handles. A firm grip will help you reduce kickback and maintain control of the saw.
- Make certain that the area in which you are cutting is free from obstructions. Do not let the nose of the guide bar contact the log, branch or any other obstruction which could be hit while you are operating the saw.
- Cut at high engine speeds.
- Donnot overreach or cut above shoulder height.
- Follow manufacturers sharpening and maintenance instructions for saw chains.
- Only use replacement bars and chains specified

WARNING

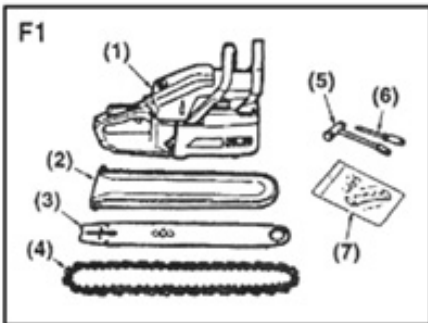
The metallic parts reach high temperatures immediately after stopping the engine

- Leave all maintenance other than the items listed in the owners manual to your competent servicing dealer.

Installing Guide bar and saw chain

A standard saw until package contains the items as illustrated (F1)

- 1.Power unit
- 2.Bar protector
- 3.Guide bar
- 4.Chainsaw
- 5.Plug wrench
- 6.Screwdriver
- 7.Spike and mounting screws

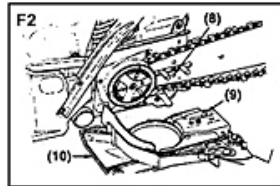


Open the box and install the guide bar and the saw chain on the power unit as follows.

WARNING

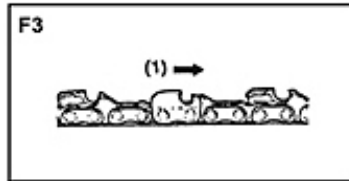
The saw chain has very sharp edges, use thick protective gloves for safety.

- Pull the guard towards the front handle to check that the chain not on.
- Loosen the nuts and remove the chain cover.
- Install the attached spike to the power unit.
- Gear the chain to the sprocket and while fitting the saw chain around the guide bar, mount the guide bar to the power unit. Adjust the position of the chain tensioner nut on the chain cover to the lower hole of the guide bar (F2)



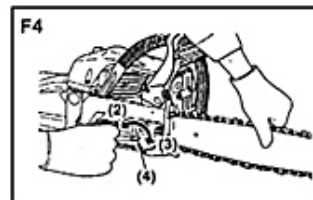
NOTE

Pay attention to the correct direction of the saw chain



(1) Moving Direction

- Fit the chain cover to the power unit and fasten the nuts to finger lightness.
- While holding up the tip of the bar, adjust the chain tension by turning the tensioner screw until the lie straps just touch the bottom side of the bar rail (F4).
- Tighten the nuts securely with the tip bar held up (12-15Nm). Then check the chain for smooth rotation and proper tension while moving it by hand if necessary, re-adjust with the chain cover loose.
- Tighten the tensioner screw.



- 2) Loosen
- 3) Tighten
- 4) Tensioner screw

Note

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

FUEL AND CHAIN OIL

Fuel

Mix a regular gasoline (leaded or unleaded, alcohol-free) and a quality-proven motor oil for air cooled 2 cycle engines.

Recommended mixing ratio:

Condition	Gasoline:Oil
Up to 20 hours use	20:1
After 20 hours use	25:1

25:1 Mix chart

Gasoline liters	1	2	3	4	5
2-stroke oil in ml.	40	80	120	160	200

WARNING

- Keep open flames away from the area where fuel is handled or stored.
- Mix and store fuel only in an approved gasoline container.

NOTE

Most engine troubles are caused directly or indirectly by the fuel used on the machine. Take special care not to mix a motor oil for 4 cycle engines.

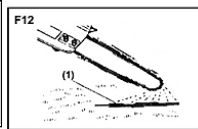
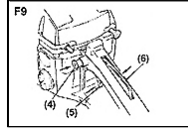
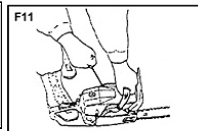
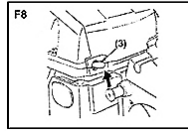
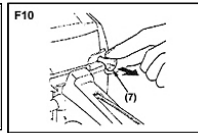
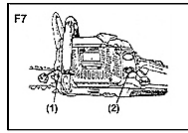
NOTE

Do not use wasted or regenerated oil that can cause damage to the oil pump.

Operating the engine

Starting Engine

1. Fill the fuel chain and oil tanks respectively, and tighten the caps securely (F7).
2. Put the switch to 'j' position (F8).
3. While holding the throttle lever together with the throttle interlock, push in the side throttle lock button and release the throttle lever and hold it at the starting position (F9).
 - (1)Chain oil
 - (2)Fuel
 - (3)Switch
 - (4)Throttle lock button
 - (5)Throttle lever
 - (6)Throttle interlock
 - (7)Choke knob



4. Pull out the choke knob to the closed position (F10).

NOTE: When restarting immediately after stopping the engine, leave the choke knob at the open position

5. While holding the saw until securely on the ground. Pull the starter rope vigorously (F11).

WARNING

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

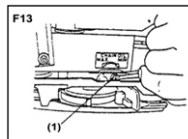
6. When the engine has ignited first, push in the choke knob and pull the starter again to start the engine.
7. Allow the engine to warm up with the throttle lever pulled slightly.

WARNING

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

Checking oil supply

After starting the engine, run the chain at medium speed and see if chain oil is scattered off as shown in figure (F12).



- (1) chain oil

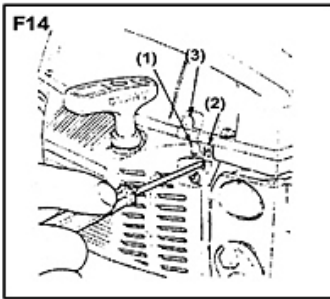
The chain oil flows can be changed by inserting a screwdriver in the hole on the bottom of the clutch side. Adjust according to your work conditions(F13).

(1) Adjuster

NOTE: The oil tank should become nearly empty by the time the fuel is up. Be sure to refill the oil tank everytime when refueling the unit.

Adjusting the Carburetor (F14)

The carburetor on your unit has been factory adjusted, but may require fine tuning due to change in operation conditions. Before adjusting the carburetor, make sure that provided are clean air/fuel filters and fresh, properly mixed fuel. When adjusting, take the following steps.



NOTE

Be sure to adjust the carburetor with the chain attached.

1. Stop engine and screw in both H and L needles until they stop. Never force, then set them back the initial number of turns as shown below. H Needle: $1 \frac{3}{4}$, L Needle: $1 \frac{1}{4}$
2. Start the engine and allow it to warm up at half throttle.
3. Turn L needle slowly clockwise to find a position where idling speed is maximum, then set the needle back a quarter ($\frac{1}{4}$) turn.
4. Turn the idle adjusting screw (T) counter clockwise so that the saw chain does not turn. If idling speed is too slow, turn the screw clockwise.
5. Make a test and adjust the H needle for the best cutting power, not for maximum speed.
 1. L needle
 2. H needle
 3. Idle adjusting screw

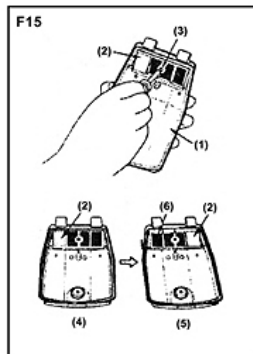
Carburetor anti-freeze mechanism

Operating the chain saw in temperatures of 0-5 °c at times of high humidity may result in ice forming within the carburetor, and this in turn may cause the output power of the engine to

be reduced or for the engine to fail to operate smoothly. This product has accordingly been designed with a ventilation hatch the back of the air cleaner cover to allow warm air to be supplied to the engine and to thereby prevent icing from occurring. Under normal circumstances the product should be used in normal operating mode i.e in the mode to which it is set at the time of shipment. However when the possibility exists that icing may occur, the unit should be set to operate in anti-freeze mode before use (F15).

1. Flip the engine switch to turn off the engine.
2. Remove the air cleaner cover from the cylinder cover.
3. Loosen a screw and remove the screen on the back of the air cleaner cover.
4. Reattach the screen right side left so as to the anti-icing plate is on rite. Reinstall the cover.

- (1) Air cleaner cover
- (2) Anti-icing plate
- (3) Screw
- (4) Normal operating mode
- (5) Anti-freeze mode
- (6) Screen



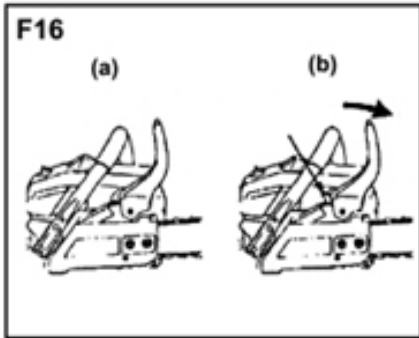
WARNING!

Continuing to use the product in anti-freeze mode even when temperatures have rise and returned to normal may result in the engine failing to start properly or in the engine failing to operate in its normal speed, and for this reason you should always be sure to return the unit to normal operating mode if there is no danger or icing occurring.

When using the saw with the anti-freeze mode frequently check the screen and keep it clean of saw dust.

Chain Break

This machine is equipped with an automatic brake system to stop chain saw rotation upon occurrence of kickback while in saw cutting operation. The brake is automatically operated by an internal force which acts on the weight fitted inside the front guard. This brake can also be operated manually with the front guard turned down to the guide bar (F16). To release the brake, pull up the front guard toward the front handle till 'click' sound is heard.

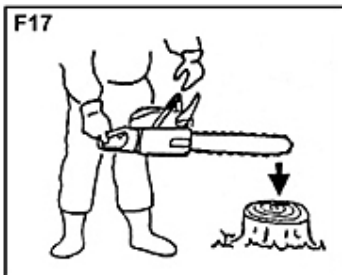


CAUTION

Be sure to confirm brake operation on the daily inspection.

How to confirm?

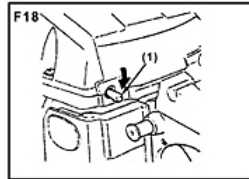
1. Turn off the engine.
2. Holding the chain saw horizontally, release your hand from the front handle, hit the tip of the guide bar to a stump or a piece of wood, and confirm brake operation. Operating level varies by bar size (F17). In case the brake is not effective, ask our dealer inspection and repairing the engine. If being kept rotated at a high speed with the brake engaged, heats the clutch, causing trouble, immediately release your fingers from the throttle lever and keep engine idling.



Stopping the engine

1. Release the throttle lever to allow the engine idling for a few minutes.
2. Put the switch to the "O" (stop) position (F18).

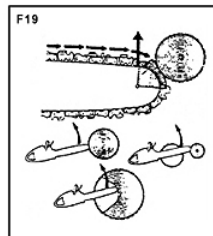
(1) Switch



Sawing

- Before proceeding to your job, read "for safe operation" section. It is recommended to first practice sawing easy logs. This also helps you get accustomed to your unit.
- Always follow the safety regulations. The chain saw must only be used for cutting wood. It is forbidden to cut other types of material. Vibrations and kickback vary with different materials and the requirements of the safety regulations would not be respected. Do not use the chain saw as a lever for lifting, moving or spilling objects. Do not lock over fixed stands. It is forbidden to hitch tools or the applications to the P.T.O that are not specified by the manufacturer.
- 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.

Guard against kickback (F 19)

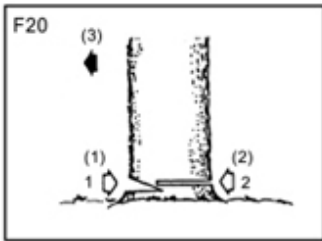


- This saw is equipped with a chain brake that will stop the chain in the event of kickback if operating properly. You must check the chain brake operation before each usage by run-

ning the saw at the full throttle 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 this 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.

Felling a tree (F 20)



- Decide the felling direction considering the wind, lean of the tree, location of heavy branches, ease of job after felling and other factors.
- While clearing the area around the tree, arrange a good foot hold and retreat path.
- Make a notch cut one-third of the way into the tree on the felling side.
- 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
2. Felling cut
3. Felling direction

Bucking and climbing

WARNING!

- Always ensure your foothold. Do not stand on a 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 “ For safe operation

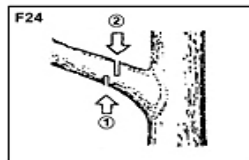
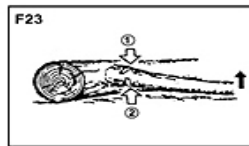
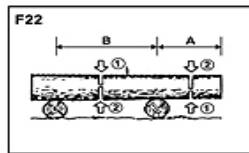
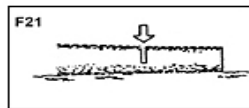
“ to avoid kickback of the saw.

- Before starting work, check the direction of bending force inside the log to be cut. Always finish cutting from the opposite side of bending direction to prevent the guide from being cut.

A log lying on the ground (F 21). Saw down halfway, then roll the log over and cut from the opposite side. (**A log hangingv of the ground (F 22)** 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 (F 23)** 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.

WARNING!

Be alert to the spinning back of a cut limb. Pruning of standing tree (F 24). Cut from the bottom, finish down from the top.



WARNING!

- Do not use an unstable foothold or ladder
- Do not over reach
- Do not cut above shoulder length
- Always use your both hands to grip the saw

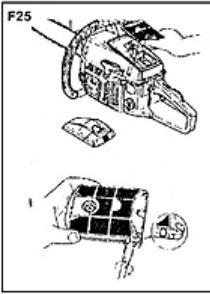
MAINTENANCE:

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.

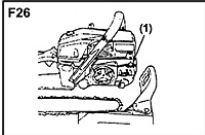
1. Air filter

Dust that has accumulated on the cleaner surface can be removed by tapping on a corner of the cleaner against a hard surface. To clean dirt in the meshes, split the cleaner into halves and brush in gasoline. When using compressed air, blow from the inside (F 25).



2. Oiling port

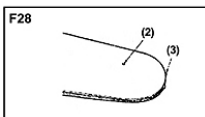
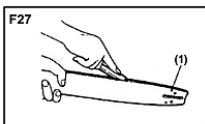
Dismount the guide bar and check the oiling port for clogging (F 26).



3. Guide Bar

When the guide bar is dismounted, remove saw dust in the bar groove and the oiling port (F 27). Grease the nose sprocket on the tip of the bar (F 28).

- 1) Oiling Port
- 2) Grease Port
- 3) Sprocket



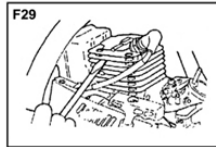
4. Others

Check for the fuel leakage and loosen fastenings and damage to major parts, especially handle joints and guide bar mounting. If any defects are found, make sure to have them repaired before operating again.

Periodical Service Points

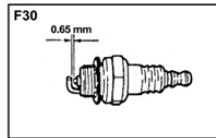
1. Cylinder Fins

Dust clogging between the cylinder fins will cause overheating of the engine. Periodically check and clean the cylinder fins after removing the air cleaner and the cylinder cover. When installing the cylinder cover, make sure that switch wires and grommets are positioned correctly in place (F 29).



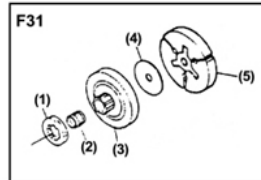
2. Spark plug (F 30)

Clean the electrodes with a wire brush and reset the gap to 0.65mm as necessary



3. Sprocket (F 31)

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



- (1) Sprocket
- (2) Needle bearing
- (3) Clutch drum
- (4) Spacer
- (5) Clutch shoe

4. Fuel filter

Disassemble the filter and wash with gasoline, or replace with a new one if needed.

5. Oil Filter

Disassemble the filter and wash with gasoline, or replace with a new one if needed.

6. Front and rear dampers

Replace if adhered part is peeled or crack is observed on the rubber part.

Maintenance of saw chain and guided bar

Saw chain

WARNING!

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

Your cutters need to be sharpened when:

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

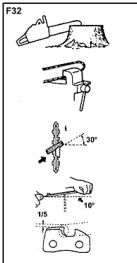
Cutting setting standards

WARNING!

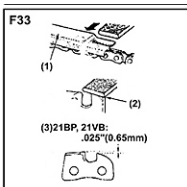
Be sure to wear safety gloves

- Before filling make sure the saw chain is held securely.
- Make sure the engine is off
- Use round file or proper size for your chain.

Place your file on the cutter and push straight forward. Keep the file position as illustrated (F 32).



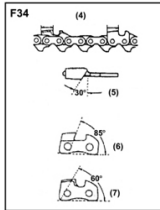
After every cutter has been set, check the depth gauge and file it to the proper level as illustrated. (F33)



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 (F 34).
4. Cutter length
5. Filling angle
6. Side plate angle
7. Top plate cutting angle



Guide bar

- Reverse the bar occasionally to prevent partial wear.
- The bar rail should always be square. Check for wear of the bar rail. Apply a ruler to the bar and the outside of a cutter. If a gap is observed between them the rail is normal. Otherwise the rail is worn. Such a bar needs to be corrected or replaced (F 35).

- (1) Ruler
- (2) Gap
- (3) No gap
- (4) Chain tilts

