Thank you for choosing this product

Silverline Tools 1 Year Guarantee

- This guarantee becomes effective at the date of retail purchase. **PLEASE KEEP YOUR RECEIPT.**
- If this product develops a fault within 30 days of purchase, return it to the stockist where it was purchased, with your receipt, stating details of the fault. You will receive a replacement or refund.
- If this product develops a fault within 1 year of purchase return it to;

Silverline Tools Service Centre
PO Box 2988
Yeovil
BA21 1WU

Include your original receipt, details of the fault, your name and address, place and date of purchase. We do not refund carriage. All product should be in a suitably clean and safe state for repair, and should be packaged carefully to prevent damage or injury during transportation. We may reject unsuitable or unsafe deliveries.

- You must provide proof of purchase before any work can be carried out.
- All work will be carried out by Silverline Tools or its authorised repair agents.
- Any parts which are replaced will become the property of Silverline Tools.
- The repair or replacement of the product will not extend the period of guarantee.
- The repair or replacement of your product under guarantee provides benefits which are additional to and do not affect your statutory rights as a consumer.

What is covered:

- The repair of the product, if found to be defective due to faulty materials or workmanship within 1 year of purchase. If any part is not available or out of manufacture, Silverline Tools will replace it with a functional replacement part.
- Use of the product in the UK.

What is not covered:

Silverline Tools does not guarantee repairs required as a result of:

- Normal wear and tear e.g blades, brushes, belts, bulbs, batteries etc.
- Accidental damage, faults caused by negligent use or care, misuse, neglect, careless operation or handling of the product.
- Use of the product for anything other than normal domestic purposes.
- Change or modification of the product in any way.
- Use of parts and accessories which are not Silverline Tools genuine components.
- Faulty installation (except installed by Silverline Tools).
- Repairs or alterations carried out by parties other than Silverline Tools or its authorised repair agents.

SILVERLINE®

Users Manual
45cc Petrol Chainsaw
455mm (18") Bar
Product Code 633855
© December 2006

Introduction

This manual is an integral part of the chainsaw and should be kept with it at all times. If the chainsaw is re-sold this manual should be included in the sale.

Safety Messages

A safety message is to alert you to potential dangers that could hurt you or others. Each safety message is preceded by one of three words **DANGER, WARNING or CAUTION.**

These words mean

DANGER: YOU WILL BE KILLED OR SERIOUSLY INJURED IF YOU FAIL TO FOLLOW THE INSTRUCTIONS.

WARNING: YOU CAN BE KILLED OR SERIOUSLY INJURED IF YOU FAIL TO FOLLOW THE INSTRUCTIONS.

CAUTION: YOU CAN BE SERIOUSLY INJURED IF YOU FAIL TO FOLLOW INSTRUCTIONS.

Each safety message tells you what the hazard is, what can happen and what you can do to avoid and reduce injury.

There are other important messages preceded with the word **NOTICE**.

NOTICE: MEANS YOUR CHAINSAW OR OTHER PROPERTY COULD BE DAMAGED IF YOU FAIL TO FOLLOW INSTRUCTIONS.

The purpose of these messages is to help prevent damage to you, your chainsaw, other property and the environment.

General Safety Instructions

Even when used as prescribed it is not possible to eliminate all residual risk factors. Use with caution.

Keep guards in position

- Always keep guards in position, in good working order, correctly adjusted and aligned. Never attempt to use a tool without any guard supplied with it.

Remove adjusting keys

- Always check to see that keys and adjusting wrenches are removed from tool before turning on.

Clean work area

- Accidents occur where benches and work areas are cluttered or dirty, floors must be kept clear, avoid working where the floor is slippery.

Dangerous environment

- Provide adequate surrounding work space and keep area well lit. Do not use tools where there is a risk of explosion or fire from combustible material, flammable liquids, flammable gases or dust of an explosive nature.

Children & Pets

- Children and pets should always be kept at a safe distance from your work. Make your workshop child-proof. Lock tools away where children can't get access to them.

Use the correct tool

- Don't force, or attempt to use a tool for a purpose it was not designed for. Do not use a small tool to do the job of a heavy duty tool.

Wear correct clothing and footwear

- Don't wear loose clothing, neckties or jewellery or other items which may get caught in moving parts. Wear non-slip footwear, cover or tie back long hair. Use safety footwear if necessary.

Protect your head

- Wear safety goggles at all times, every day glasses are not sufficient for eye protection, as lenses are not impact resistant and could shatter. Use an approved face or dust mask when operation creates dust. Ensure dust extraction equipment is functioning and correctly used. Hearing protection should be used if the sound intensity level for the operator could exceed 80dB(A). Use a hard hat where there is a risk of falling objects or striking your head on low level obstructions.

Protect yourself from vibration.

- Hand held tools may produce vibration. Vibration can cause disease. Gloves to keep the operator warm and dry and therefore maintain good blood circulation in the fingers may help. This tool has not been designed for extended or industrial operation.

Secure work

- Always secure work. Where practical use a clamp or vice, it will allow you to use both hands to operate your tool.

Keep your balance

- Don't over reach, keep proper footing at all times to ensure correct balance.

Maintain your tool

- Keep your tool in good working order, keep tools sharp and clean for best and safest performance. Ensure ventilation holes are kept clean and unrestricted at all times.

Accessories

- The use of any attachment or accessory other than those mentioned in this manual could result in damage or injury. The use of improper accessories could be dangerous.

Never stand on your power tool

- Standing on your tool could cause serious injury if the tool is tipped or if the cutting tool is accidentally contacted. Do not store materials above or near the tool so that it is necessary to stand on the tool or its stand to reach them.

Check for damaged or missing parts.

- Before each use check if any part of the power tool is damaged or missing, check carefully that it will operate properly and perform its intended function. Check alignment of moving parts for binding. Any guard or other part that is damaged should be correctly repaired or replaced. Do not use if the power switch does not turn the power on and off. Check any other condition that may affect the safety of the power tool. **DO NOT USE IF DEFECTIVE.**

Direction of feed

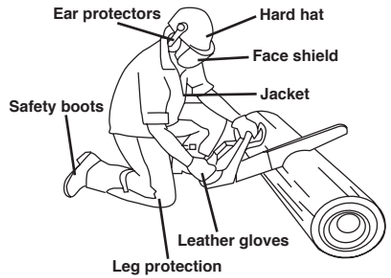
- Feed work into a blade or cutter against the direction of rotation of the blade or cutter only.

Don't leave the tool running unattended

- Always wait until your power tool has come to a complete stop before leaving it.

GENERAL WARNINGS

Wear close fitting, durable work clothing that will provide adequate protection. Long trousers, jacket, safety work shoes, heavy duty work gloves, hard hat, safety face shield or safety glasses for eye protection and a good grade of ear protection.



Turn unit off before, setting down, or checking fittings.

Hold unit firmly, hold with both hands, the thumb and fingers encircling both handles.

Keep all screws and fastener tightened, never operate machinery improperly adjusted or unsecurely assembled.

Keep handles dry, keep clean and free of fuel mixture.

Do not use any other fuel, always use recommended fuel. Follow instructions in the fuel and lubrication section of the user guide. Failure to do this will result in permanent engine damage voiding manufacturer's warranty.

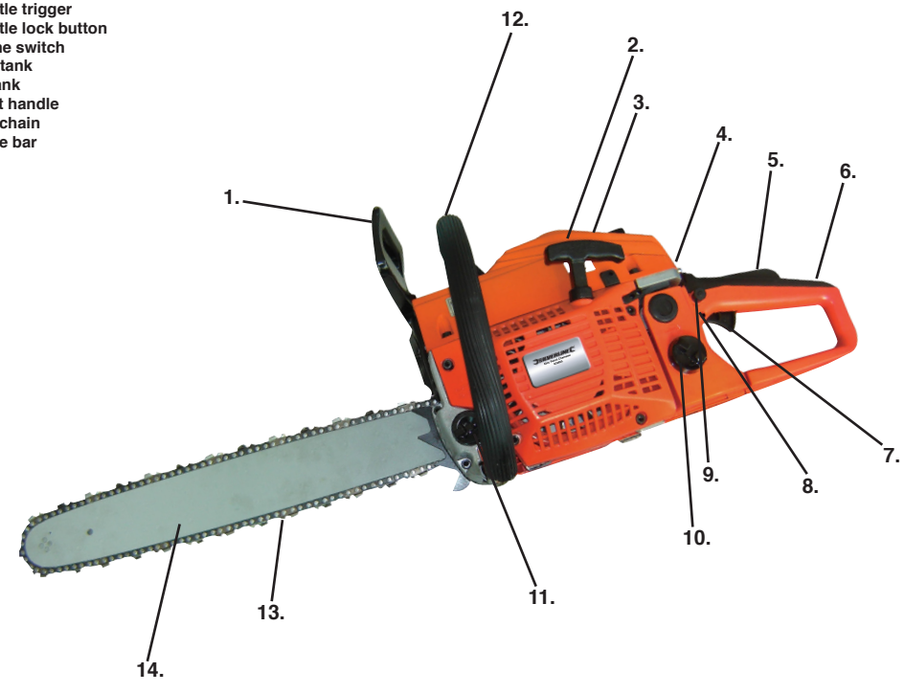
Do not smoke while refuelling or operating unit.

Do not touch or let hands or body come into contact with the units muffler. Hold unit with both hands, thumb and fingers encircling both the handles.

NEVER allow children to operate unit.

Product Familiarisation
Petrol Chainsaw
45cc, 455mm Bar

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



SPECIFICATION

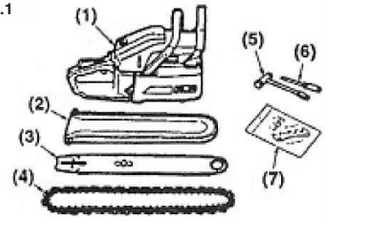
Net weight:	**7.0kg**	Sprocket:	**7Tx0.325**
Dimensions (without guide bar and chain):	**480x250x300mm**	Saw chain type:	**K2 (Carlton)**
Fuel:	**Mixture (petrol 25:Two-cycle oil 1)**	Saw chain pitch:	**0.325in**
Fuel tank capacity:	**550ml**	Saw chain gauge:	**0.058in**
Oil tank capacity:	**260ml**	Guide bar type:	**Sprocket nose**
Engine displacement:	**45cm^3**	Guide bar size:	**18in**
Maximum engine power:	**1.7KW/7500RPM**	Oil feeding system:	**Automatic pump with adjuster**
Maximum engine speed with cutting attachment:	**1000RPM**	Sound pressure	**90dB**
		Sound Power	**110dB**
Maximum engine speed at idling:	**2800RPM**	Weighted vibration	**2.92m/s^2**
Maximum cutting:	**450mm**		

PRIOR TO USE

Installing guide bar and saw

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

Fig.1



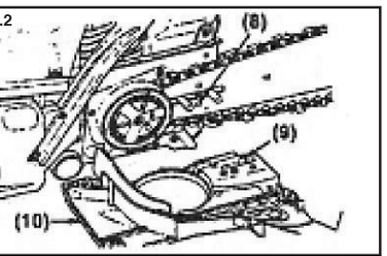
(1) Power unit
(2) Bar protector
(3) Guide bar
(4) Chainsaw
(5) Plug wrench
(6) Screwdriver for carburetor adjustment
(7) Spike and mounting screws

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.

1. Pull the guard towards the front handle to check that the chain brake is not on.
2. Loosen the nuts and remove the chain cover.
3. Install the attached spike to the power unit.
4. 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 chain tensioner nut on the chain cover to the lower hole of guide bar. (Fig.2).

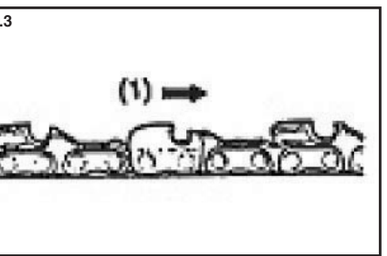
Fig.2



(8) Hole
(9) Tensioner nut
(10) Chain cover

Pay attention to the correct direction of the saw. (Fig.3)

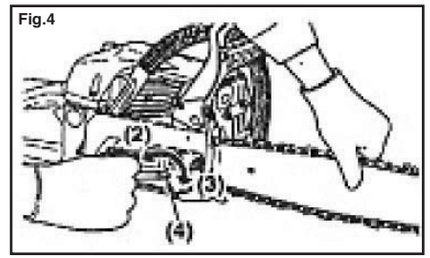
Fig.3



(1) Moving direction

5. Fit the chain cover to the power unit and fasten the nuts to finger tightness.
6. While holding up the tip of the bar, adjust the chain tension by turning the tensioner screw until the tie straps just touch the bottom side of the bar rail. (Fig.4).

Fig.4



7. Tighten the nuts securely with the bar tip held up (12 ~ 15N.m). Then check the chain for smooth rotation and proper tension while moving it by hand. If necessary, re-adjust with the chain cover loose.
8. Tighten the tensioner screw.

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

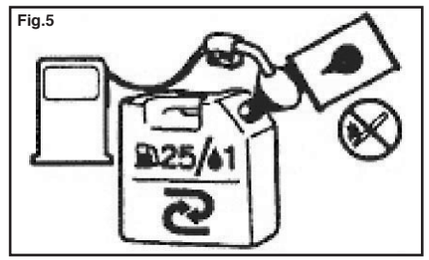
NOTE:
A new chain will expand in length at the beginning of use. Check and re-adjust the tension frequently as a loose chain can easily de-rail or cause rapid wear of itself and the guide bar.

Fuel and chain oil

Fuel

- The motor uses two stroke fuel, a mixture of petrol and a 2 stroke lubricant at 25:1.
- Use a branded 90 octane or higher unleaded petrol.
  NOTE two stroke fuel may separate, Shake fuel container thoroughly before each use. Do not mix more fuel than you expect to use within one month. (Fig.5).

Fig.5



Recommended mixing ratio:

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

25:1 Mix chart

Petrol litres	1	2	3	4	5
2-Cycle oil ml.	40	80	120	160	200

WARNING!

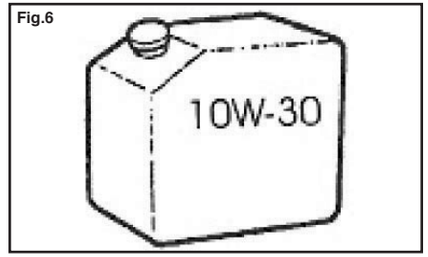
- **Keep open flames away from the area where fuel is handled or stored.**
- **Mix and store fuel only in an approved petrol container.**

NOTE:
Most engine troubles are caused, directly or indirectly, by the fuel used on the machine. Take special care when mixing.

Chain oil

Use motor oil SAE# 10W ~ 30 all year round or SAE #30 ~ #40 in summer and SAE#20 in winter. (Fig.6).

Fig.6



NOTE:
Do not use wasted or re-generated oil as this will cause damage to the oil pump.

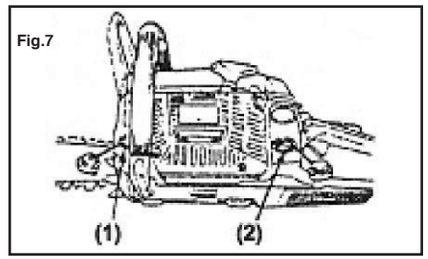
WARNING!
2-Stroke engines have a specific horse power and we therefore recommend the use of branded petrol with a rating of not less than 90.

OPERATING INSTRUCTIONS

Starting engine

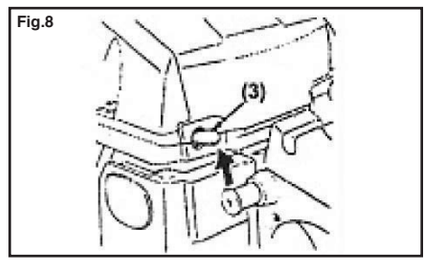
1. Fill fuel and chain oil tanks respectively and tighten the caps securely. (Fig.7).

Fig.7



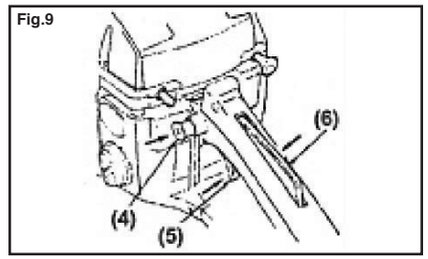
2. Put the switch to “I” position. (Fig. 8).

Fig.8



3. While holding the throttle lever together with the throttle interlock, push in the side throttle lock button and release the throttle lever to hold it at the starting position. (Fig. 9).

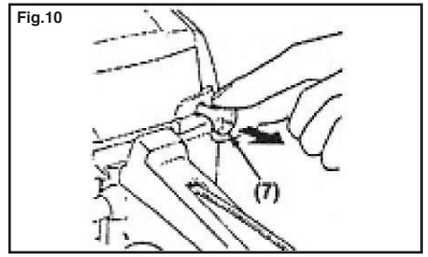
Fig.9



(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. (Fig. 10).

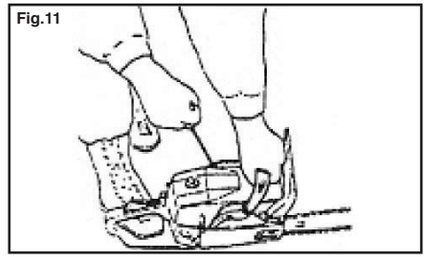
Fig.10



NOTE:
When re-starting immediately after stopping the engine, leave the choke knob at the open position.

5. While holding the saw unit securely on the ground, pull the starter rope vigorously. (Fig. 11)

Fig.11



WARNING!
Do not attempt to start the chainsaw whilst holding in one hand as this can cause injury.

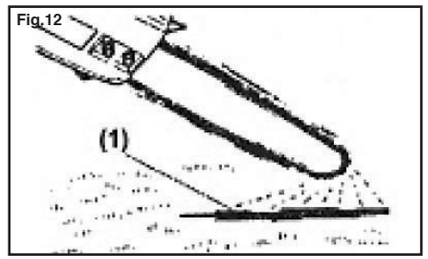
6. When engine has ignited first, push in the choke knob and pull the starter again to start the engine.
7. Allow the engine to warm up with the throttle lever pulled slightly.

WARNING!
Keep clear of the saw chain as it will start rotating once the engine has started.

Check oil supply

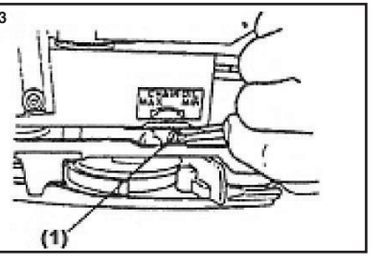
After starting the engine, run the chain at medium speed and see if chain oil is scattered off as shown (Fig. 12).

Fig.12



(1) Chain oil
The chain oil flow can be changed by inserting a screwdriver in the hole on bottom of the clutch side. Adjust according to your work conditions. (Fig. 13).

Fig.13

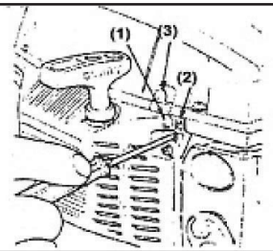


(1) Adjuster

NOTE:
The oil tank should become nearly empty by the time fuel is used up. Be sure to refill the oil tank every time when re-fuelling the unit.

Adjusting carburetor (Fig. 14)

Fig.14



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

NOTE:
Be sure to adjust the carburetor with the bar chain attached.

1. Stop engine and screw in both H and L needles until they stop. Do not force or over tighten. Then set them back the intial number of turns as shown below.

H Needle: 1⅜
L Needle: 1¼

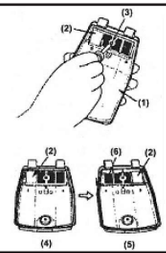
2. Start engine and allow it to warm up at half-throttle.
3. Turn L needle slowly clockwise to find a position where idling speed is maximum, then set the needle back a quarter (¼) turn counterclockwise.
4. Turn idle adjusting screw (T) counterclockwise so that the saw chain does not turn. If idling speed is too slow, turn the screw clockwise.
5. Make a test cut and adjust the H needle for best cutting power, not for maximum speed..

(1) L Needle
(2) H Needle
(3) Idle adjusting screw

Carburetor anti-freeze mechanism

Operating the chainsaw in temperature 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 at 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.

Fig.15



How to switch between operating modes (Fig. 15)

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. Re-attach the screen right side left so the anti-icing plate is on the right. Re-install the cover.

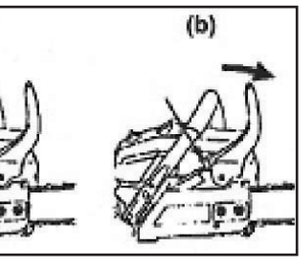
(1) Air cleaner cover
(2) Anti-icing plate
(3) Screw
(4) Normal operating mode
(5) Anti-freeze mode
(6) Screen

WARNING!
Continuing to use the product in anti-freeze mode even when temperatures have risen and returned to normal may result in the engine failing to start properly or in the engine failing to operate at 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 of icing occurring.
When using the saw with the anti-freeze mode, frequently check the screen and keep it clean of saw dust.

Chain brake

This machine is equipped with an automatic brake to stop the saw chain rotation should kickback occur during cutting operation. The brake is automatically operated by inertial 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. (Fig.16).

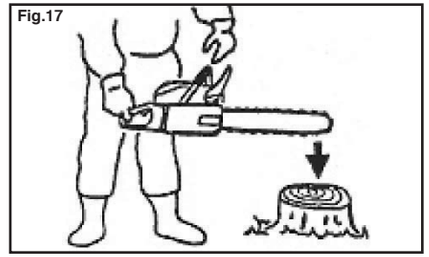
Fig.16



To release brake, pull up the front guard toward the front handle until “click” sound is heard.

CAUTION
Ensure the brake is fully operational prior to use.
To do this:
(1) Turn off the engine.
(2) Holding the chainsaw 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. (Fig. 17). In case the brake is not effective, ask our dealer about inspection and repairing. The engine, if being kept rotated at high speed with the brake engaged, will heat the clutch, causing a problem. When the brake is operated while in operation, immediately release your fingers from the throttle lever and keep the engine idling.

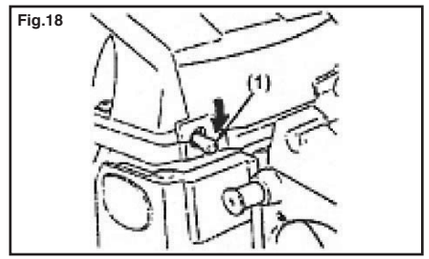
Fig.17



Stopping engine

1. Release the throttle lever to allow the engine idling for a few minutes.
2. Put the switch to the “O” (STOP) position. (Fig. 18).

Fig.18



(1) Switch

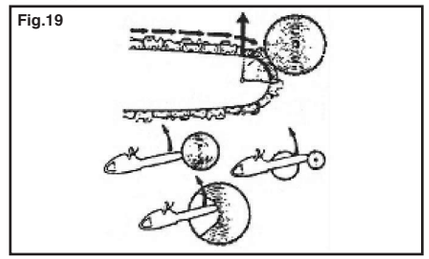
Sawing

WARNING!

- **Before proceeding to your job, read the following sections. 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 chainsaw as a lever for lifting, moving or splitting objects. Do not lock it over fixed stands.**
- **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 (Fig. 19)

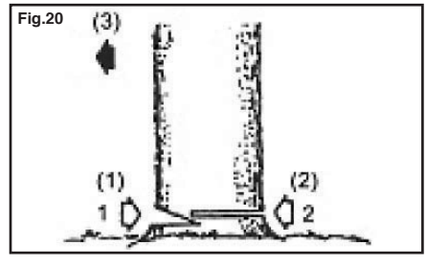
Fig.19



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 running the saw at full 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 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 (Fig. 20)

Fig.20



(1) Notch cut
(2) Felling cut
(3) Felling direction

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 clearing the area around the tree, arrange a good foothold and retreat path.
3. Make a notch cut 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 any neighbouring workers of the danger.

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 previous sections instructions “guard against kick back” 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 bar from being caught in the cut.

A log lying on the ground (Fig. 21)
Saw down halfway, then roll the log over and cut from the opposite side.

Fig.21

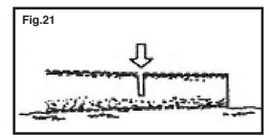
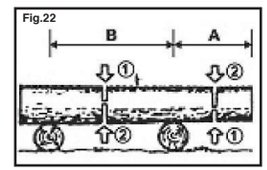


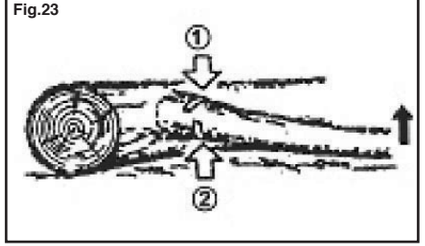
Fig.22



A log hanging off the ground (Fig. 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 (Fig. 23)

Fig.23

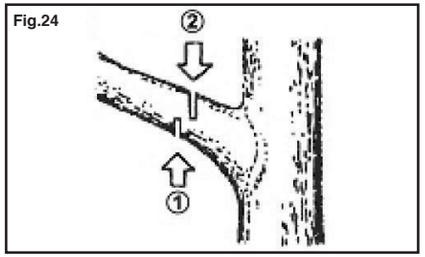


First check to which side the limb is bent. Then make the initial cut from the bent side and finish by sawing from the opposite side.

WARNING!
Be alert to the possibilities of spring back from a cut limb.

Pruning of standing tree (Fig. 24)

Fig.24



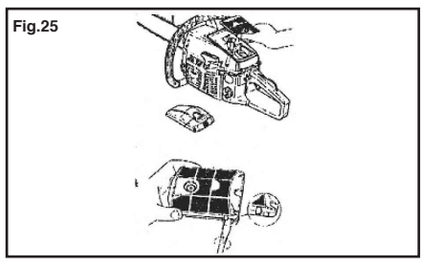
Cut up from the bottom, finish down from the top.

WARNING!
• Do not use an unstable foothold or ladder
• Do not overreach.
• Do not cut above shoulder height.
• Always use both hands to grip the saw.

MAINTENANCE & STORAGE
WARNING!
Before cleaning, inspecting or repairing your unit, make sure the engine has stopped and is cool. Disconnect the spark plug to prevent accidental starting.

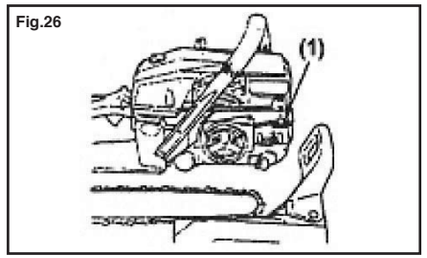
Maintenance after each use
1. Air filter
Dust on the filter surface can be removed by tapping a corner of the filter against a hard surface. To clean dirt in the meshes, split the filter into halves and brush in petrol. (Fig. 25).

Fig.25



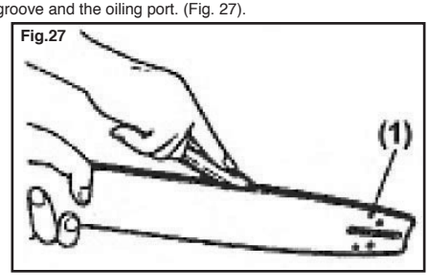
2. Oiling port
Dismount the guide bar and check the oiling port for clogging. (Fig. 26).

Fig.26



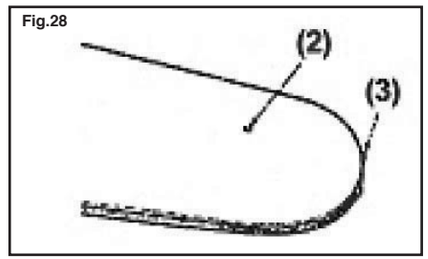
3. Guide bar
When the guide bar is dismounted, remove saw dust in the bar groove and the oiling port. (Fig. 27).

Fig.27



Grease the nose sprocket from the feeding port on the tip of the bar. (Fig. 28).

Fig.28

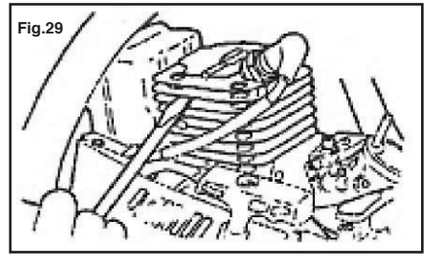


(1) Oiling port
(2) Grease port
(3) Sprocket

4. Others
Check for fuel leakage and loose 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. (Fig. 29).

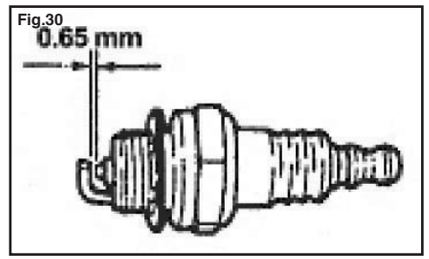
Fig.29



NOTE:
Be sure to block the air intake hole.

2. Spark plug (Fig.30)

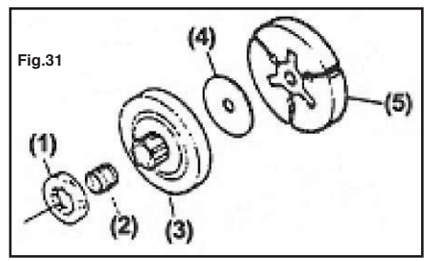
Fig.30



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

3. Sprocket (Fig. 31)

Fig.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 new one if needed.

5. Oil filter
Disassemble the filter and wash with gasoline, or replace with 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 guide bar
Saw chain
WARNING!
It is very important for smooth and safe operation to keep the cutters always sharp.

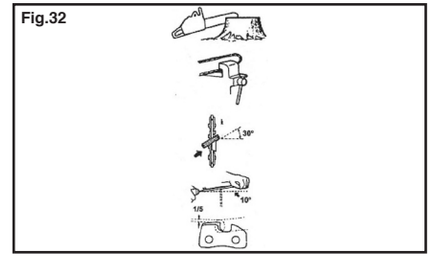
Your cutters need to be sharpened when:
• Saw dust becomes powder-like
• You need extra force to saw in
• The cut way does not go straight
• Vibration increases
• Fuel consumption increases

Cutter setting standards
WARNING!
Be sure to wear safety gloves
Before filing:
• Make sure the saw chain is held securely
• Make sure the engine is stopped
• Use a round file of proper size for your chain

Chain type: 21VB
File size: 3/16 in (4.76mm)

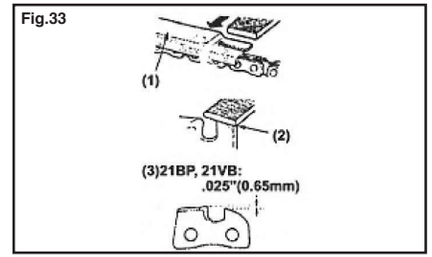
Place your file on the cutter and push straight forward. Keep the file position as illustrated. (Fig. 32)

Fig.32



After every cutter has been set, check the depth gauge and file it to the proper level as illustrated. (Fig. 33).

Fig.33

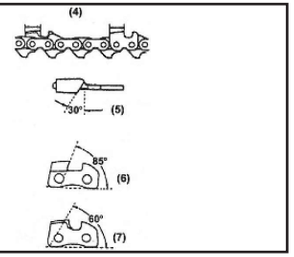


WARNING!
Be sure to round off the front edge to reduce the chance of kickback or tie-strap breakage.

(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 (Fig. 34).

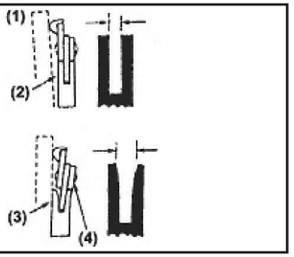
Fig.34



(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.
- The bar rail should always be a 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. (Fig. 35).

Fig.35



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

- Always wear protective gloves during maintenance operations.
- NEVER perform maintenance when motor is hot.
- Ensure that all screws and bolts are tightly fastened so that the unit can be used safely.
- Regular maintenance is essential for safety and a consistently high performance.
- Do not use the unit if any parts are damaged or worn.
- These parts MUST be REPLACED not repaired, use only original spare parts.

Chain sharpening
- Sharpen the chain wearing protective gloves and a round file.
- Sharpen the cutting links with outward strokes only.
- Every 3-4 times the chain is sharpened check the height of the depth gauges, if necessary lower them using a flat file, then round off the front corner.

WARNING!
A sharp chain produces well defined chips. When the chainsaw is producing saw dust it is time to sharpen the chain.

Sharpening the chain
In order to extend the saw chains life and the efficiency of the saw the teeth should be sharpened regularly. Use a round file with a 4mm diameter to sharpen the teeth. Always sharpen the teeth in accordance with the original angles.
- When sharpening teeth all blades must be the same length. To keep all teeth the same shape and size always start with the most worn blade and file the other blades to match the length.
- Always file the blades on same side and in the same direction by pushing from the inside to the outside of the teeth. In order to avoid cuts when handling the chain always wear gloves.
- Every 3 times the blades are sharpened check the height of the depth limiter. The depth limiter spacing is 0.5mm. Adjust the height of the depth limiter by using a flat file. Make sure when filing the depth limiter to follow the front angle in order to maintain the shape of the blade.

Guide bar
- The guide bar is provided with a sprocket at the tip, this must be lubricated with grease at all times.
- The guide bar should be reversed every 8 working hours to ensure uniform wear.
- Keep the bar groove and lubrication hole clean using the bar groove cleaner supplied.
- Check the bar rails frequently for wear and if necessary remove the burs and square up the rails using a flat file.

WARNING!
NEVER mount a new chain on a worn sprocket
Air filter
Check air filter every use. Wash the filter in a non-flammable liquid detergent, (i.e. hot soap water) and dry well.
WARNING!
When refitting the air filter ensure that it is correctly positioned before reassembly.

Fuel filter
Check fuel filter periodically. Replace if too dirty.
- NEVER store the unit with fuel in the tank in an environment where petrol fumes could come into contact with a flame, spark or sources of extreme heat.
- Store the unit in a clean and dry environment.
- Allow the motor to cool before storing.
- If fuel tank needs to be drained, do so outdoors when the motor is cold.
- Respect the environment do not dispose of oil or petrol by pouring into the drainage system or into the ground.
- Do not add, remove or modify any of the units components. To do so could result in:
  Injuries to the operator and other persons present.
  Damage to the unit.
  Moreover this will invalidate the warranty.

Extended storage
- Inspect, clean and repair if necessary.
- Remove all fuel from tank safely.
- Remove spark plug and pour one tea spoon of clean oil into spark plug hole cylinder replace spark plug.
- Store in clean, dry area.

DANGER THIS UNIT PRODUCES CARBON MONOXIDE.
UNDER NO CIRCUMSTANCES USE THIS PRODUCT INDOORS.

Failures such as difficulty starting unit, poor performance can normally be prevented if careful attention is paid to all operating instructions and maintenance procedures.

Trouble Shooting Guide

Problem	Possible cause	Remedy
The motor is not functioning properly	Is there fuel in the tank?	Refill the fuel tank
	Is the correct fuel being used?	Check the mix is 25:1 Unleaded petrol to oil
	Is the fuel flowing into the motor?	Turn the engine switch to the OFF position and loosen the drain screw at the base. Petrol should flow from the drain when the engine switch is turned on. Drain petrol into a suitable container.
	There is no spark from the spark plug?	Replace/check the spark plug
	Is the compression correct?	Check compression
Motor stalls	Water in fuel	Replace fuel
	Spark gap is wrong	Adjust spark gap

Checking the spark plug
Remove the spark plug cap and clean any dirt or debris from around the plug. Remove the spark plug and install it in the spark plug cap. Set the plugs electrode on the cylinder head. Crank the engine and sparks should jump across the gap.
Spark gap 0.6 - 0.7mm (.23" .028")

WARNING!: Be sure that there is no spilled fuel around the spark plug. Split fuel may ignite.

WARNING!: Petrol is extremely flammable and is potentially explosive under certain circumstances. Do not smoke or allow sparks or flames in the area.

WARNING!: Never try to repair the unit, take to a licensed professional.