




52CC 20" GAS CHAINSAW



 **WARNING:** This product can expose you to chemicals including LEAD, CADMIUM and Di(2-ethylhexyl) phthalate (DEHP), which are known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to: www.P65Warnings.ca.gov

**Actual product may vary slightly*

Please carefully read and save these instructions before attempting to assemble, maintain, install, or operate this product. Observe all safety information to protect yourself and others. Failure to observe the instructions may result in property damage and/or personal injury. Please keep instructions for future reference.

For warranty purchases, please keep your dated proof of purchase. File or attach to the manual for safe keeping.

For Customer Service:

Please call 877-713-3189 (Toll Free), or email: Support@fot-usa.com

IMPORTANT SAFETY INSTRUCTIONS

IMPORTANT!

When using equipment, a few safety precautions must be observed to avoid injuries and damage. Please read the complete operating manual with due care. Keep this manual in a safe place, so that the information is available at all times. If you give the equipment to any other person, give them these operating instructions as well. We accept no liability for damage or accidents which arise due to non-observance of these instructions and the safety information herein.

SAFETY WARNINGS



IMPORTANT!

READ CAREFULLY BEFORE USE.

KEEP FOR FUTURE REFERENCE.

1. Petrol powered chain saw safety warnings

1. This product is dangerous if used carelessly or incorrectly and can cause serious or even fatal injuries.
2. Read all instructions carefully. When using petrol powered products, always follow stated safety precautions to reduce the risk of serious personal injury and/or damage to the product.
3. The product should only be operated by those who have read and understood all safety and operating instructions in this manual. Local regulations can restrict the age of the operator.
4. Keep your work area free from pets, animals, children and bystanders.
5. Follow instructions for lubricating, chain tensioning and changing accessories. Improperly tensioned or lubricated chain may either break or increase the chance for kickback. It may cause the chain to snap, which could lead to serious or even fatal injuries.
6. Running this product in a confined or badly ventilated area can result in death due to asphyxiation or carbon monoxide poisoning. The product is for outdoor use only.
7. Take extreme care in wet and freezing weather conditions. Do not work in rain, windy or stormy weather.
8. Do wear a face and breathing mask. The use of this product can generate exhaust gases, lubrication oil mist and saw dust containing chemicals known to cause respiratory damage.
9. Do use safety steel toe capped footwear, sturdy cut retardant snug-fitting protective clothing, protective gloves, eye, hearing and head protection devices.
10. Do always visually check the product before use.
11. Do not attempt to tackle any job that you are not adequately trained for.
12. Do not allow other persons to be near when starting or cutting with the product.
13. Keep bystanders and animals at least 15 metres out of the work area.

14. Do not operate the product if it has faulty safety equipment or damaged parts!
15. Do not under any circumstances modify the product. Modifications can result in serious personal injury or death.
16. Do not start cutting until you have a clear work area, secure footing, and a planned retreat path from the falling tree.
17. All product servicing & maintenance, other than the items listed in the user manual, safety and maintenance instructions, should be performed by an authorised service centre.
18. A first time user should have practical instruction in the use of the product and protective equipment from an experienced operator.
19. National regulation can restrict the use of the product.

2. Clothing and protective equipment

1. Do secure long hair so that it is above shoulder level.
2. Do not wear loose fitting clothing or jewelry as this could be drawn into the engine, catch the chain or undergrowth.
3. Use the following safety clothing and protective equipment when operating the product:
 - Helmet with visor and neck guard
 - Hearing protectors
 - Breathing mask
 - Gloves with approved saw protection
 - Protective leggings with approved saw protection
 - Slip-resistant steel toe cap boots with approved saw protection
 - First Aid kit in case of injury

3. Fuel handling

1. Always switch the product off, disconnect the spark plug connector and let the product cool down, before refuelling it. Fuel and fuel vapour are highly flammable. Take care when handling fuel. Never smoke when you are refuelling the product. Do not refuel the product, if there is an open fire in the vicinity!

2. Always use suitable aids such as funnels and filler necks. Do not spill any fuel on the product or its exhaust system. There is a risk of ignition. Remove spilled fuel carefully from all parts of the product. Any residue which may be present must have completely volatilised, before the product is put into operation!
3. Never refuel indoors.
4. Never use the product in environments where there is a risk of explosion. Exhaust gases and fuel fumes are noxious. Fuel fumes can ignite.
5. Never breathe in any fuel fumes, when you are refuelling the product. Never fill the tank in enclosed spaces, such as basements or sheds. There is a risk of poisoning and explosion!
6. Avoid skin contact with petrol.
7. Do not eat or drink, while you are refuelling the product. If you have swallowed petrol or oil, or if petrol or oil has got into your eyes, then seek the advice of a doctor immediately.
8. Close the tank lid immediately after filling the tank. Make sure that it is properly closed.
9. Never use the product without an air filter.
10. Fuel vapour pressure may build up inside the fuel tank depending on the fuel used, weather conditions and the tank venting system. To reduce the risk of burns and other personal injuries, remove the fuel cap carefully to allow any pressure build up to release slowly.
11. Be aware of fire risks, explosion and inhalation risks.
12. Do not smoke while operating the product, handling fuel or near fuel.
13. Ensure the spark plug lead is secured; a loose lead may cause electrical arcing that could ignite combustible fumes and cause a fire or explosion.
14. Check regularly for leaks from the fuel cap and fuel lines.
15. Use caution when handling fuel. To avoid any accidental fires, move the product at least 3 metres (10') from the fuelling point before starting the engine.
16. Tighten the fuel cap thoroughly after refilling the fuel tank.
17. Do not operate the product if it is leaking fuel. Do not remove the fuel tank cap while the engine is running.
18. Use only an approved container.

19. Do not 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 other sources of heat or fire which might ignite the fuel.
20. If any fuel spillage occurs during refuelling, use a dry rag to wipe up spills and allow remaining fuel to evaporate before turning the engine on again.
21. If you have spilt fuel on yourself or on your clothes, change your clothes and wash any part of your body that has come in contact with fuel before turning the engine on again.
22. If fuel is ignited, put out the fire with a dry powder fire extinguisher.
23. If the fuel tank is drained, this should be done outdoors.

4. Getting started

LONGER TIME UNUSED MACHINE RESTARTING

Unused machine be in storage for longer than 90days, the ignition coil be not damaged, it's only carburetor issue. Please follow these Instructions to restart the machine.

1. Check either the fuel pipe aging or cracking, if any, easy to buy new one for replacement at local store.
2. Check either the fuel pipe joint of carburetor loosening or aging, if any, cut the pipe joint a little bit to rejoin as well.
3. Please pull the starting rope 5-8 times before fuel refilling to the carburetor is in an operating state.
4. Refilling the fuel and then restart the machine according to the cold start mode
5. Do not operate the product indoors, it produces poisonous exhaust fumes whilst the engine is running and may be colorless and odourless.
6. Do not wrap the recoil starter rope around your hand whilst starting the product. This may result in injuries to your hand or fingers.
7. Do keep handles dry, clean, and free from oil and grease. Greasy, oily handles are slippery causing loss of control.
8. Do not operate the product with a slack chain. A slack chain may jump off the guide bar and cause serious or even fatal injury.
9. Do not operate the product with one hand! Serious injury to the operator or bystanders may result from one handed operation.
10. Keep all parts of the body away from the saw chain when the chain saw is operating. Before you start the chain saw, make sure the saw chain is not contacting anything and free from obstructions. A moment of inattention while operating chain saws may cause entanglement of your clothing or body with the saw chain.
11. Do shut off the engine before setting the product down.
12. Before using the product and after any impact or dropping, check for signs of wear or damage and repair as necessary.

5. Operation

1. When sawing, ensure the product does not touch any foreign materials such as rocks, fences, nails etc. Such objects may be flung out and could result in damage to the product or serious personal injury or even death.
2. Never operate the product on a ladder or other insecure support.

3. If the chain jams in the cut: STOP THE ENGINE. Do not try to pull the product free. Use a lever to open the cut and free the chain. Failure to do so could result in serious injuries or death.
4. Do only cut with the engine at high speeds.
5. Do use extreme caution when cutting small size bushes and saplings. Slender material may catch the saw chain and whip toward you or put you off balance.
6. Do operate the product only in well ventilated areas.
7. Do not operate the product with one hand! This product is intended for two handed use only, with your right hand on the rear handle and your left hand on the front handle. You cannot control reactive forces and you may lose control of the saw, which can result in the skating or bouncing of the bar and chain along the limb or log.
8. Do not operate the product if you are tired.
9. Do not operate the product if you have any medical conditions that might be aggravated by strenuous work. Check with your doctor before operating this product.
10. Do not operate the product under the influence of drugs, alcohol or medication.
11. Do not touch the exhaust during use - IT GETS VERY HOT.
12. Do not operate a product that is damaged, improperly adjusted, or not completely and securely assembled. Be sure that the saw chain stops moving when the throttle trigger is released.
13. Do not operate this product in a tree unless you have been specifically trained to do so. Operation of the product while up in a tree may result in personal injury.
14. Do not operate your product near or around flammable liquids or gases.
15. Do not smoke whilst operating the product.
16. Do not lock the product over fixed stands.
17. Do not grip the handles with constant or excessive pressure; this will increase the feeling of vibration and the risk of 'whitefinger' disease.
18. Do not over reach when operating the product or cut above shoulder height.
19. Do not operate the product if it is leaking fuel or chain oil.
20. When cutting a limb (branch) that is under tension, be alert for spring back so that you will not be struck when the tension in the wood fibres is released.

21. Always keep proper footing and operate the chain saw only when standing on fixed, secure and level surface. Slippery or unstable surfaces such as ladders may cause a loss of balance or control of the chain saw.
22. Cut wood only. Do not use the product for purposes not intended. For example: do not use chain saw for cutting plastic, masonry or non-wood building materials. Use of the chain saw for operations different than intended could result in a hazardous situation.

6. Transport and storage

1. Do ensure the engine is off and engage the chain brake before transporting the product.
2. Do carry the product with the engine stopped, the guide bar and saw chain to the rear, and the exhaust away from your body.
3. Do use the guide bar cover and ensure that is fitted to the product during transportation or storage.
4. Only carry the product in a horizontal position. Grip the front handle in a manner that the product is balanced horizontally.
5. Keep the hot exhaust away from your body and the saw chain behind you.
6. Correctly secure your product when transporting in a vehicle to prevent turnover, fuel spillage and damage to the product.
7. Always store the product and fuel so that there is no risk of leakages or fumes coming into contact with sparks or naked flames from electrical equipment, electric motors, relays/switches, boilers etc.
8. For longer periods of storage or transportation the fuel and chain oil tanks must be emptied. Dispose of waste oil and fuel at a local petrol station, local authority centre or where facilities exist.
9. Do store fuel in an approved container designed for that purpose.
10. Do ensure that the product is cleaned and that a complete service is conducted before any long-term storage.

7. Causes and operator prevention of kickback

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 sudden reverse reaction, kicking the guide bar up and back towards the operator.

Pinching the saw 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 upon the safety devices built into your saw. As a chain saw user, you should take several steps to keep your cutting jobs free from accident or injury.

Kickback is the result of tool misuse and/or incorrect operating procedures or conditions and can be avoided by taking proper precautions as given below:

1. **Maintain a firm grip, with thumbs and fingers encircling the chain saw handles, with both hands on the saw and position your body and arm to allow you to resist kickback forces.** Kickback forces can be controlled by the operator, if proper precautions are taken. Do not let go of the chain saw.
2. **Do not overreach and do not cut above shoulder height.** This helps prevent unintended tip contact and enables better control of the chain saw in unexpected situations.
3. **Only use replacement bars and chains specified by the manufacturer.** Incorrect replacement bars and chains may cause chain breakage and/or kickback.
4. **Follow the manufacturer's sharpening and maintenance instructions for the saw chain.** Decreasing the depth gauge height can lead to increased kickback.

8. Vibration and noise reduction

To reduce the impact of noise and vibration emission, limit the time of operation, use low-vibration and low-noise operating modes as well as wear personal protective equipment.

Take the following points into account to minimise the vibration and noise exposure risks:

1. Only use the product as intended by its design and these instructions.
2. Ensure that the product is in good condition and well maintained.
3. Use correct attachments for the product and ensure they are in good condition.
4. Keep tight grip on the handles/gripping surface.
5. Maintain this product in accordance with these instructions and keep it well lubricated (where appropriate).

6. Plan your work schedule to spread any high vibration tool use across a longer period of time.
7. Prolonged use of the product exposes the user to vibrations that can cause a range of conditions collectively known as hand-arm vibration syndrome (HAVS) e.g. fingers going white; as well as specific diseases such as carpal tunnel syndrome.
 - To reduce this risk when using the product, always wear protective gloves and keep your hands warm.
 - The symptoms of HAVS include any combination of the following: Tingling and numbness in the fingers; Not being able to feel things properly; Loss of strength in the hands; Fingers going white (blanching) and becoming red and painful on recovery (particularly in the cold and wet, and probably only in the tips at first). Seek medical advice immediately if such symptoms are experienced.

9. Emergency

Familiarise yourself with the use of this product by means of this instruction manual. Memorise the safety directions and follow them to the letter. This will help to prevent risks and hazards.

1. **Always be alert when using this product, so that you can recognise and handle risks early.** Fast intervention can prevent serious injury and damage to property.
2. **Stop the engine and unplug the spark plug connector if there are malfunctions.** Have the product checked by a qualified professional and repaired, if necessary, before you operate it again.
3. **In case of fire stop the engine and unplug the spark plug connector.** Take fire-extinguishing measures immediately if the product switch is no longer accessible.



WARNING! Never use water to extinguish a product on fire. Burning fuel must be extinguished with special extinguishing agents. We recommend that you keep a suitable fire extinguisher within reach in your work area!

10. Residual risks

Even if you are operating this product in accordance with all the safety requirements, potential risks of injury and damage remain. The following dangers can arise in connection with the structure and design of this product:

1. Health defects resulting from vibration emission if the product is being used over long periods of time or not adequately managed and properly maintained.
2. Injuries and damage to property due to broken attachments or the sudden impact of hidden objects during use.
3. Danger of injury and property damage caused by flying objects.
4. Prolonged use of this product expose the operator to vibrations and may produce 'whitefinger' disease. In order to reduce the risk, please wear gloves and keep your hands warm. If any of the 'whitefinger' symptoms appear, seek medical advice immediately. 'Whitefinger' symptoms include: numbness, loss of feeling, tingling, pricking, pain, loss of strength, changes in skin color or condition. These symptoms normally appear in the fingers, hands or wrists. The risk increases at low temperatures.



WARNING! This product produces an electromagnetic field during operation! This field may under some circumstances interfere with active or passive medical implants! To reduce the risk of serious or fatal injury, we recommend persons with medical implants to consult their doctor and the medical implant manufacturer before operating this product!

11. Symbols

On the product, the rating label and within these instructions you will find among others the following symbols and abbreviations. Familiarise yourself with them to reduce hazards like personal injuries and damage to property.

kW	Kilowatt
cm ³	Cubic centimetre
min ⁻¹ or /min	per minute
mm	Millimetre
kg	Kilogram
l	Litre
dB(A)	Decibel (A-rated)

m/s²

Metres per second squared



Lock / to tighten or secure



Unlock / to loosen



Note / Remark.



Caution / Warning.



Read the instruction manual.



Wear a helmet, safety goggles and hearing protection.



Wear protective gloves.



Wear a dust mask.



Wear respiratory protection.



Wear protective, slip-resistant footwear.



Wear tight-fitted protective clothes.



Use appropriate protection for foot-leg and hand-arm.



Do not expose the product to rain or wet conditions.



Open flames in the work area, around the product and in the vicinity of flammable materials are prohibited!



Do not smoke in the work area, around the product and in the vicinity of flammable materials!



Risk of fire / flammable materials



Hot surface, do not touch! High temperatures on the product's surfaces and structural parts that could cause burns, if they are touched. The product can also stay hot for a longer period of time after operation!



This product produces noxious exhaust fumes. If the product is used improperly, these fumes can lead to poisoning, a loss of consciousness or death!



Noxious exhaust fumes; do not operate or start the product in indoor rooms!



Switch the product off and disconnect the spark plug connector before assembly, cleaning, adjustments, maintenance, storage and transportation.



Kickback! Tip contact may cause the guide bar to move suddenly upward and backwards what may cause serious injury to user.



Contact of the guide bar tip with any object should be avoided.



Always use the product with two hands. Do not use one hand when operating the product.



Objects thrown by the product could hit the user or other bystanders. Always ensure that other people and pets remain at a safe distance from the product when it is in operation. In general, children must not come near the area where the product is.



Keep a distance of at least 15 m.



Only use petrol/oil mixture with a ratio of 40:1. Do not use any other mixture ratio. Always switch the product off and let it cool down, before refuelling it.



Choke – CLOSE position



Choke – OPEN position



Ignition switch positions. Stop the engine

H

H - Set the max. engine speed

L

L - Set the min. engine speed



Engine manual start; recoil starter



Correct direction of cutting-teeth



Chain oil fill



Indication of chain oil adjuster screw; location: bottom

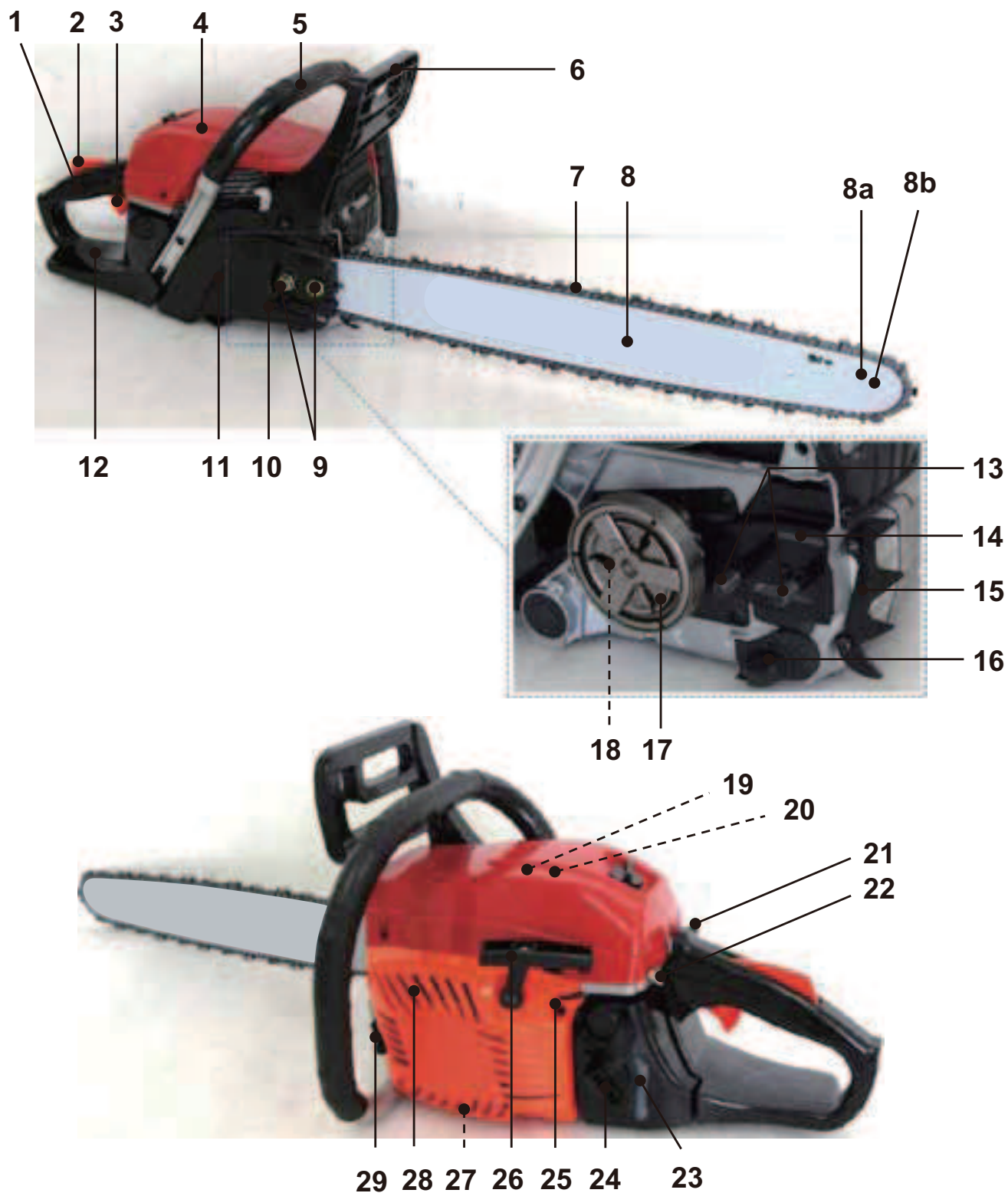


Chain brake (the (O) symbol shows the position in which the brake is released)



Guaranteed sound power level value in dB

PRODUCT DESCRIPTION





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- | | |
|-----|--|
| 1. | Rear handle |
| 2. | Throttle interlock |
| 3. | Throttle trigger |
| 4. | Air filter case <ul style="list-style-type: none">a. Fixation knob*b. Cover*c. Air filter* |
| 5. | Front handle |
| 6. | Front hand guard (Chain brake lever) |
| 7. | Saw chain |
| 8. | Guide bar <ul style="list-style-type: none">a. Lubrication holeb. Sprocket wheelc. Tension hole* |
| 9. | Retaining nut (x 2) |
| 10. | Tension screw <ul style="list-style-type: none">a. Tension pin* |
| 11. | Cover |
| 12. | Rear hand safeguard |
| 13. | Bolt (x2) |
| 14. | Oiling port |
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- | | |
|-----|-----------------------------------|
| 15. | Spiked bumper |
| 16. | Chain catcher |
| 17. | Clutch |
| 18. | Drive sprocket |
| 19. | Spark plug connector |
| 20. | Spark plug |
| 21. | Choke |
| 22. | Ignition switch |
| 23. | Fuel gauge |
| 24. | Fuel tank cap |
| 25. | Adjustment screw (engine speed) |
| 26. | Recoil starter handle |
| 27. | Adjustment screw (chain oil flow) |
| 28. | Air vents |
| 29. | Chain oil tank cap |
| 30. | Guide bar cover |
| 31. | Multi tool |
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NOTE: Parts marked with * are not shown in this overview. Please refer to the respective section in the instruction manual.

SCOPE OF SUPPLY

- | |
|--------------------------|
| 1 x Chainsaw |
| 1 x Saw chain (7) |
| 1 x Guide bar (8) |
| 1 x Guide bar cover (30) |
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1 x Multi tool (32)

Please check the completeness of the delivery and ensure that all parts are free from any transport-related damage or any damage in general. Please contact the supplier from whom you purchased the product should there be any parts missing or damaged.

ACCESSORIES (NOT SUPPLIED)

Suitable personal protective equipment

Petrol and engine oil

Fuel mixing container

Funnel with filter

Lubricant for saw chain

Fuel collecting container

Lubrication oil/grease

Air filter oil

Soft cloth

Suitable slot head screwdriver

Sharpening set (chain file)

TECHNICAL DATA

1. General

Dimensions	540 x 470 x 305 mm
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Machine mass (without guide bar and chain, empty tanks and in normal operating configuration)	approx. 5.6 kg
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Machine mass (with guide bar and chain, empty tanks and in normal operating configuration)	approx. 7 kg
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Fuel tank capacity	500 cm ³ (ml)
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Petrol type	#93, unleaded
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Engine oil type	2-stroke engine oil
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Mixture ratio petrol/oil	40:1
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Chain lubrication oil tank capacity	240 cm ³ (ml)
Fuel consumption at max. engine power	0.91 Kg/h

2. Engine

Engine model	SPS1E46F
Engine type	air cooled, 2-stroke engine
Engine displacement	51.5 cm ³
Engine idling speed range	2700 - 3400 min ⁻¹
Maximum operating engine speed	11000 min ⁻¹
Maximum engine power (acc. to ISO 7293)	2.1 kW
Spark plug type	L7T
Spark plug gap	0.6 - 0.7mm

3. Saw chain and guide bar

Saw Chain Type	Ridgeline 97010
Guide Bar Type	Ridgeline 97013
Cutting length	48 cm (20")
Chain pitch	8.255 mm (0.325")
Chain gauge	1.27 mm (0.050") 1.47 mm (0.058")
Drive sprocket	7 teeth x 8.255 mm
Max. chain speed	21.2 m/s

4. Alternative saw chain / guide bar combinations

Saw chain	Guide bar	Cutting length
20LPX078X 0.325", Oregon	200PXBW095 0.325", Oregon	48 cm (20")
21LPX078X 0.325", Oregon	208PXBK095 0.325", Oregon	48 cm (20")
Ridgeline 97010	Ridgeline 97013	48 cm (20")

5. Sound values

Sound pressure level at operator's position L_{pA}	102.89 dB(A)
Uncertainty K_{pA}	2.5 dB(A)
Measured sound power level L_{WA}	111.68 dB(A)
Uncertainty K_{WA}	2.5 dB(A)
Guaranteed sound power level L_{WA}	115 dB(A)

6. Vibration values

Front handle, $a_{front\ hv,eq}$	7.256 m/s ²
Rear handle, $a_{rear\ hv,eq}$	8.497 m/s ²
Uncertainty K	1.5 m/s ²

The sound values have been determined according to noise test code given in EN ISO 11681-1, using the basic standard ISO 22868.

The noise figures quoted are emission levels and are not necessarily safe working levels. Factors that influence the actual level of exposure of work-force include the characteristics of the work room, the other sources of noise, etc. i.e. the number of products and other adjacent processes, and the length of time for which an operator is exposed to the noise. Also the permissible exposure level can vary from country. This information, however, will enable the user of the product to make a better evaluation of the hazard and risk.

Wear hearing protection! The sound intensity level for the operator may exceed 80 dB(A) and ear protection measures are necessary!

The declared vibration value has been measured in accordance with a standard test method (according to basic standard ISO 22867) and may be used for comparing one product with another. The declared vibration value may also be used in a preliminary assessment of exposure.

This product may cause hand-arm vibration syndrome if its use is not adequately managed.



WARNING! Depending on the actual use of the product the vibration values can differ from the declared total! Adopt proper measures to protect yourself against vibration exposures! Take the whole work process including times the product is running under no load or switched off into consideration!

Proper measures include among others regular maintenance and care of the product and cutting attachments, keeping hands warm, periodical breaks and proper planning of work processes!

INTENDED USE

This petrol chain saw is designated with a rated power output of 2.1 KW.

The product is intended for cutting logs and limbs with a thickness of max. 480mm.

It must not be used for cutting other materials, such as plastic, stone, metal, wood that contains foreign objects, or materials that are harmful to health. This product should not be used outside of domestic premises e.g. for cutting firewood in forested areas.

The product may only be used with the guide bar/saw chain combination stated within these instructions. The use of other types or sizes is not allowed.

With this product vertical and horizontal cuts can be performed. Longitudinal sections may only be cut by professionals.

For safety reasons it is essential to read the entire instruction manual before first operation and to observe all the instructions therein.

This product is intended for private domestic use only, not for any commercial trade use. It must not be used for any purposes other than those described.

ASSEMBLY

1. Unpack

1. Unpack all parts and lay them on a flat, stable surface.
2. Remove all packing materials and shipping devices if applicable.
3. Make sure the delivery contents are complete and free of any damage. If you find that parts are missing or show damage do not use the product but contact your dealer. Using an incomplete or damaged product represents a hazard to people and property.

4. Ensure that you have all the accessories and tools needed for assembly and operation. This also includes suitable personal protective equipment.



WARNING! The product and the packaging are not children's toys! Children must not play with plastic bags, sheets and small parts! There is a danger of choking and suffocation!



WARNING! The product must be fully assembled before operation! Do not use a product that is only partly assembled or assembled with damaged parts!



Follow the assembly instructions step-by-step and use the pictures provided as a visual guide to easily assemble the product!



Disconnect the spark plug connector (19) from the spark plug! Reconnect it after assembly!

Always wear protective gloves during assembly!



NOTE: Take care of small parts that are removed during assembly or when making adjustments. Keep them secure to avoid loss.

2. Chain and guide bar

Assemble the guide bar (8) and saw chain (7) before operation.

Use only the guide bar (8) and saw chain (7) according to the technical parameter of this product.



WARNING! Always use a saw chain designed as “low-kickback” or a saw chain which meets the low-kickback requirements! A standard saw chain (a chain which does not have the kickback reducing guard links) should only be used by an experienced professional operator!

Nevertheless, a low-kickback saw chain does not completely eliminate kickback! A low-kickback or “safety” chain should never be regarded as complete protection against injury! Therefore always use a low-kickback saw chain in conjunction with other kickback protection devices such as the front hand guard!



WARNING! Move the front guard (6) fully backward to disengage chain brake.

1. Place the product on a suitable flat surface.

2. Pull the front hand guard **(6)** back toward the front handle **(5)** to disengage the chain break, if necessary.
3. Loosen the retaining nuts **(9)** with the multi tool **(31)** and remove them together with the cover **(11)** (Fig. 1).

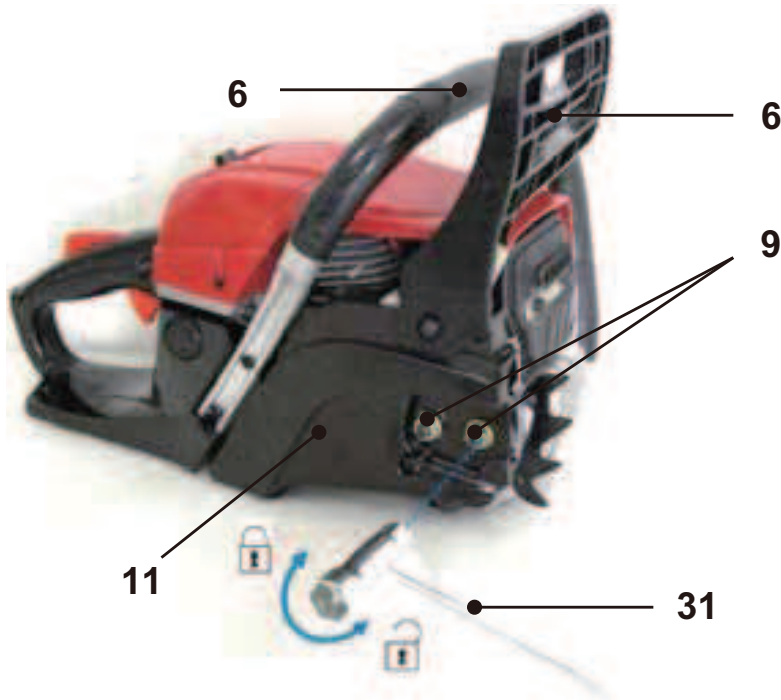


Fig. 1

4. Place the slot in the guide bar **(8)** over the bolts **(13)**. Ensure to fit the guide bar with the saw chain 'cutter' symbol at the top of the bar (Fig. 2).

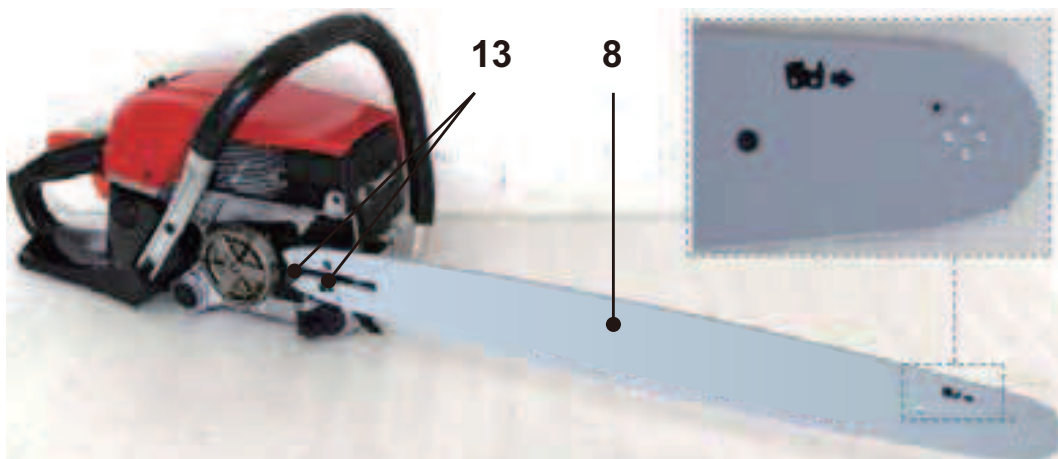


Fig. 2

5. Push the guide bar **(8)** to the left towards the drive sprocket **(18)** (behind the clutch **(17)**) (Fig. 3).



Fig. 3



WARNING! The direction of the saw chain 'cutters' must be as indicated by the symbol and arrow on the guide bar!

6. Place the saw chain (7) over the drive sprocket (18) (behind the clutch (17)) and fit around the guide bar (8). Make sure the saw chain is placed above the chain catcher (16) (Fig. 4).

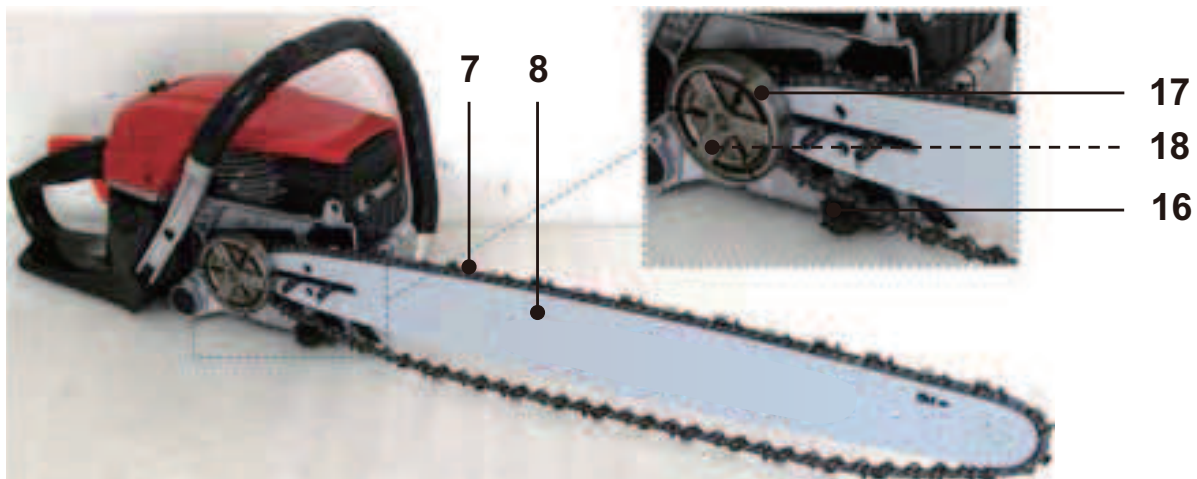


Fig. 4

7. The saw chain movement is as indicated by the arrow (Fig. 5). Make sure the chain is properly placed over the sprocket wheel (8b) of the guide bar (8).
8. Pull the guide bar (8) carefully towards the right to tighten the saw chain (7) (Fig. 5).

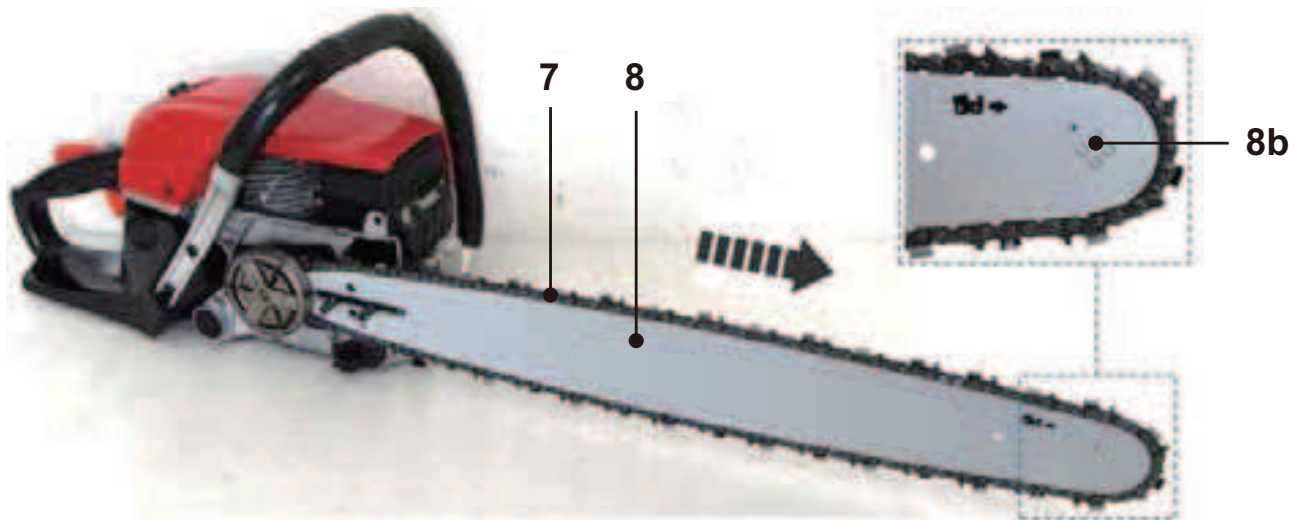


Fig. 5

9. Refit the cover (11). If necessary, turn the tension screw (10) clockwise or anticlockwise with the multi tool (31) to adjust the tension pin (10a) until it reaches a position where it can be inserted into the tension hole (8c) (Fig. 6).

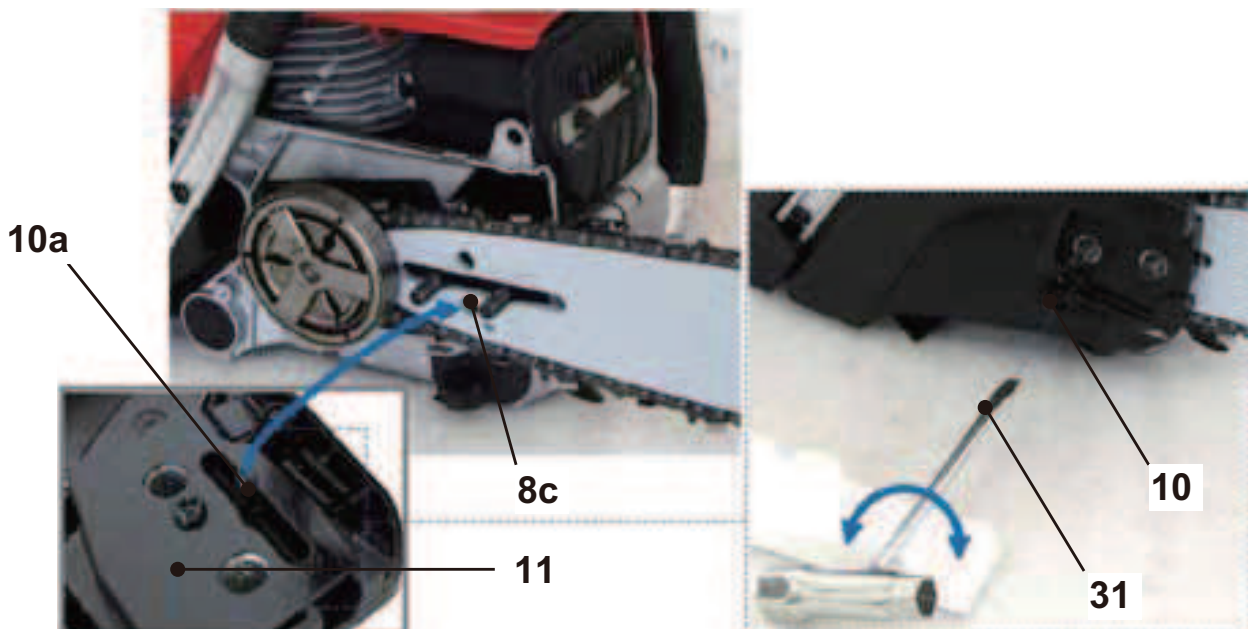


Fig. 6

10. Secure the cover (11) with the retaining nuts (9) (Fig. 7).

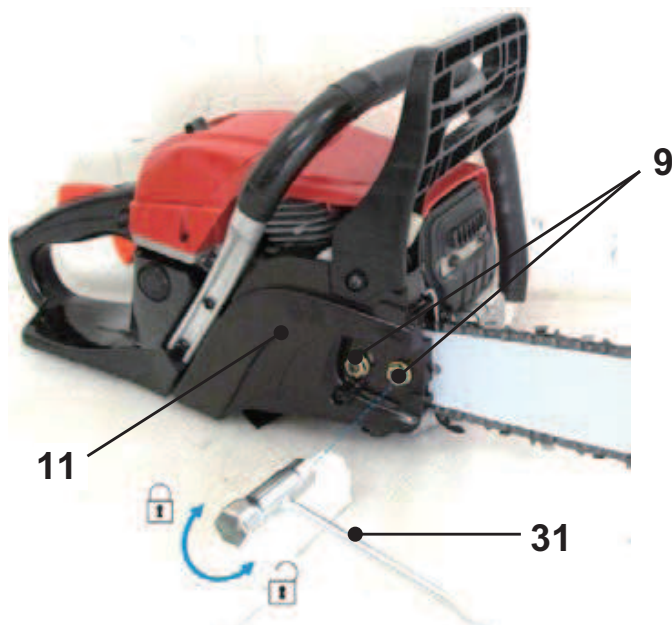


Fig. 7



NOTE: Fix the nuts finger tight only at this stage. The chain tension cannot be adjusted with the retaining nut tightened - they must be loosened first.



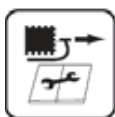
NOTE: The saw chain (7) has not yet been tensioned. Tension the chain as described under “Saw chain tensioning”. After operating the product for approximately one hour, adjust the chain tension again.

Saw chain tensioning

Always check the saw chain tension before use, after the first cuts and regularly during use. Upon initial operation, new chains can lengthen considerably. This is normal during the break-in period and the interval between future adjustments will lengthen quickly.



WARNING! Disconnect the spark plug connector before adjusting saw chain tension!



The cutting edges of the saw chain are sharp! Always wear protective gloves when handling chain!



Always maintain proper chain tension! A loose chain increases the risk of kickback! A loose chain may jump out of the guide bar groove! This may injure the operator and damage the chain! A loose chain will cause rapid wear to the chain, guide bar and sprocket!

Tensioning the chain too tightly will overload the engine and cause damage, and insufficient tension can cause chain derailing,

whereas a correctly tightened chain provides the best cutting characteristics and prolonged working life! The chain life mainly depends upon sufficient lubrication and correct tensioning!



NOTE: The chain tension cannot be adjusted with the retaining nuts tightened - they must be loosened first.

1. Lift up the tip of the guide bar (8) and keep it there as you adjust the tension (Fig. 8).

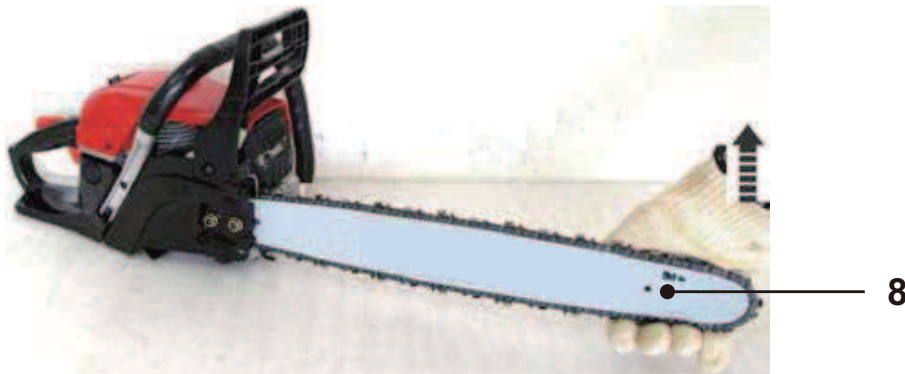


Fig. 8

2. Turn the tension screw (10) clockwise until the chain 'tie straps' are just touching the bottom edge of the guide bar (8) (Figs. 9, 10).

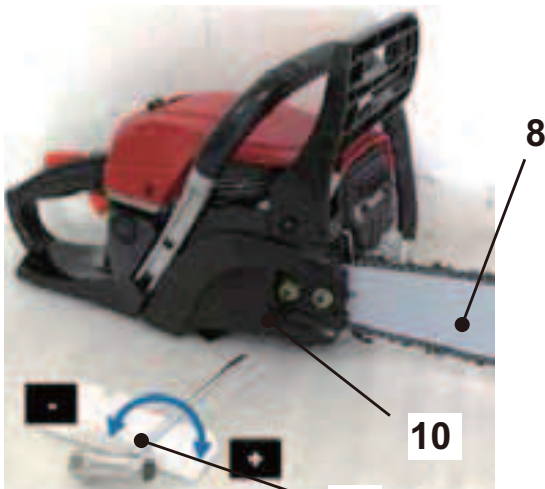


Fig. 9

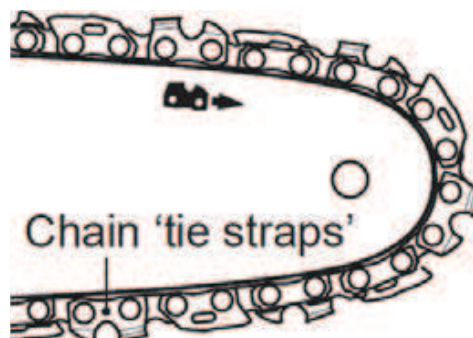


Fig. 10

3. Lift up the tip of the guide bar (8) and tighten the retaining nuts (9).
4. Pull the saw chain (7) along the top of the guide bar (8) by hand from one end to the other, several times. The chain should feel tight but still move freely.

Tension test

1. Check the chain tension using one hand to lift the saw chain (7) against the weight of the product. The correct chain tension is achieved when the saw

chain can be lifted by approximately 2 - 4 mm from the guide bar (8) in the centre (Figs. 11, 12).

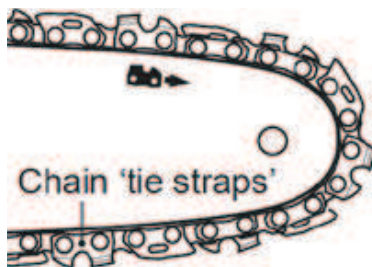


Fig. 11



Fig. 12

2. Adjust the tension if you find that the chain saw is too loose or tight.

3. Chain lubrication



WARNING! The product is not filled with chain oil. It is essential to fill the product with chain oil before using it! Never operate the product without chain oil as this will result in extensive damage to the product!

Operating the saw chain dry or with too little chain oil will decrease cutting efficiency, shorten the product life span and cause rapid wear to the saw chain and guide bar from overheating!

Insufficient chain oil is evident by smoke or bar discoloration! Adequate lubrication of the saw chain during cutting operations is essential to minimise friction with the guide bar!

1. Place the product on a stable, level surface with the chain oil tank cap (29) facing upward. We recommend laying a non-flammable sheet under the product.
2. Unscrew and remove the oil tank cap (29) (Fig. 13).

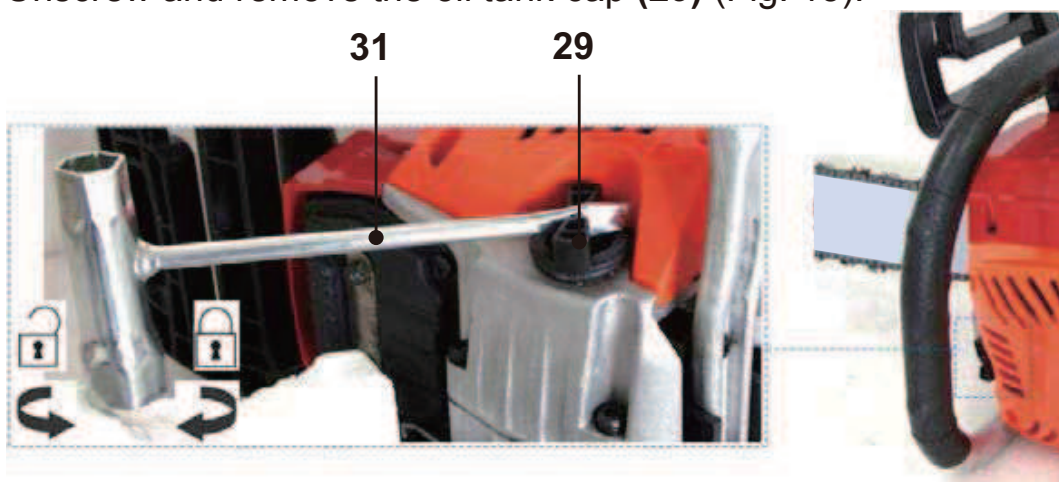


Fig. 13

3. Fill suitable lubricant into the tank using a funnel fitted with a filter to avoid debris entering the tank. Do not overfill and leave approximately 5 mm of space between the top of the oil and the inside edge of the tank to allow for expansion (Fig. 14).



NOTE: Use engine oil SAE#10W-30 all year round or SAE#30-#40 in summer and SAE#20 in winter.

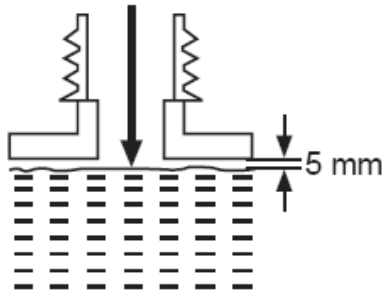


Fig. 14



NOTE: Towards the end of the season, it is advisable to put only as much lubricant in the tank as you need for each cut, so that it is completely used up before you store the product.

4. Wipe up spilled lubricant with a soft cloth and refit the oil tank cap (29). Use the multi tool (31) to tighten the cap properly.



NOTE: Always dispose of lubricant, used oil and objects contaminated with them in accordance with local regulations.

Checking



NOTE: Perform the following test before operating your product.

This product is equipped with an automatic oiling system! The oiling system automatically delivers the proper amount of oil to the bar and chain!

Checking the lubrication requires starting the engine. Before checking, the product must be fully assembled and all instructions must have been read.

1. Make sure the guide bar (8) and the saw chain (7) are in place when you check the oil delivery.
2. Start the engine; keep it running at medium power and check if the chain oil is delivered as shown in the figure (Fig. 15).



Fig. 15

3. Turn the adjustment screw (27) of the oiler on the bottom of the product to adjust the chain oil flow using a suitable slot head screwdriver (Fig. 16).

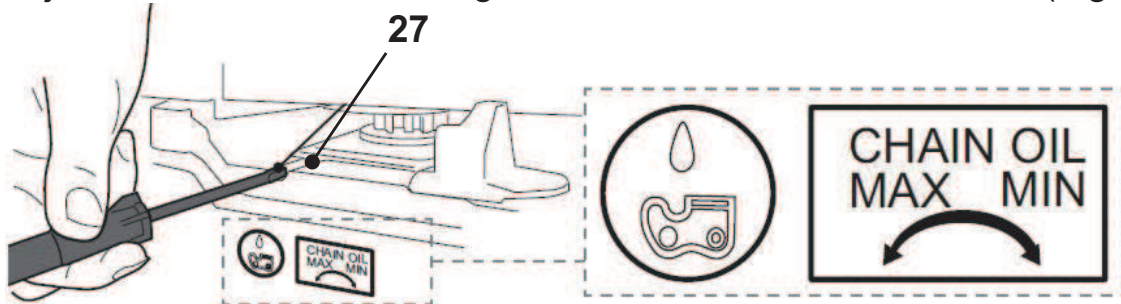


Fig. 16

4. Fuel and engine oil

This product is equipped with a 2-stroke engine, the fuel and oil tank are combined and it is essential to fill a fuel-oil mixture before operating this product. Observe the technical specifications for suitable fuel and engine oil.

1. Place the product on a stable, level surface. We recommend laying a non-flammable sheet under the product.
2. Avoid spilling and overfilling the tanks.



WARNING! Fuel and oil are highly inflammable! Fumes will explode if lit! Ensure that there are no naked flames around the product! Do not smoke while filling fuel and oil!



3. Always dispose of fuel, used oil and soiled objects according to local regulations (see section “**Recycling and disposal**”).



WARNING! This product is not supplied with petrol-oil mixture in the engine! Before operating this product it is essential to fill it with petrol-oil mixture!

1. Mix a regular-grade unleaded petrol and a quality engine oil for air cooled 2-stroke engines in the fuel mixing container (**not included**) (Fig. 17).
2. Fill half the quantity of the petrol to be used into the container. Then add the entire quantity of oil and shake the prepared fuel mixture. Add the remaining quantity of petrol. Shake the fuel mixture thoroughly before filling the fuel tank.
3. Use an anti-oxidant added quality oil expressly labelled for air-cooled 2 stroke engine use (JASO FC GRADE OIL or ISO EGC GRADE). Do not use BIA or TWC (2 stroke water-cooling type) mixed oil.
4. The recommended mixing ratio for petrol:oil is 40:1.






				 (not included)
100 ml	+	2.5 ml	=	40:1
200 ml	+	5 ml	=	
300 ml	+	7.5 ml	=	
400 ml	+	10 ml	=	

Fig. 17



NOTE: Never mix fuel and oil directly in the tank of the product. Use a fuel mixing container that helps to ensure the correct mixing ratio. Shake gently to ensure a thorough mix of fuel and oil.

5. Always use clean, fresh unleaded petrol.
6. Avoid getting dirt, dust or water in the fuel tank.
7. Unscrew and remove the fuel tank cap (**24**) (Fig. 18).
8. Fill correctly mixed fuel / oil into the tank using a fuel funnel fitted with a filter to avoid debris entering the tank. Do not overfill. Leave a minimum 5 mm of space between the top of the fuel and the inside edge of the tank to allow for expansion (Fig. 19).
9. Wipe any spilled fuel with a soft cloth and reattach the fuel tank cap.

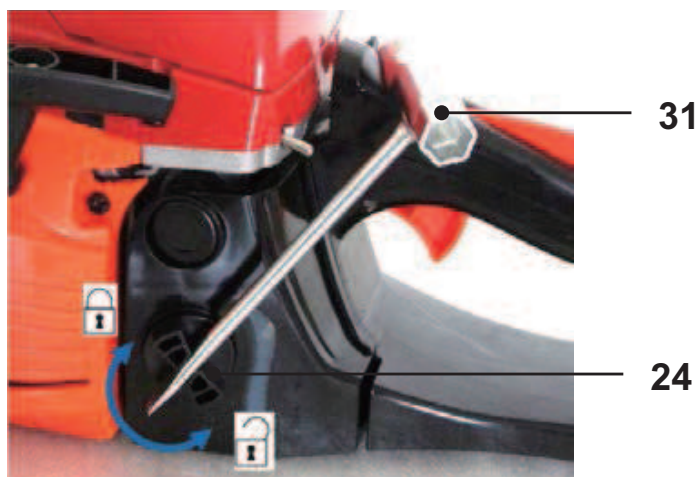


Fig. 18

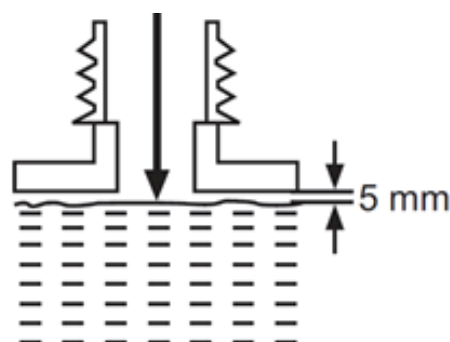


Fig. 19

OPERATION INSTRUCTIONS

1. General

1. Check the product as well as accessories for damage before each use. Do not use the product if it is damaged or shows wear.
2. Double check that accessories and the guide bar/saw chain are properly fixed.
3. Check the fuel level and chain oil level, refill if necessary.
4. Always hold the product on its handles. Keep the handles dry and free from lubricant to ensure safe support.
5. Ensure that the air vents are always unobstructed and clear. Clean them if necessary with a soft brush. Blocked air vents may lead to overheating and damage the product.
6. Switch the product off immediately if you are disturbed while working by other people entering the working area. Always let the product come to complete stop before putting it down.
7. Do not overwork yourself. Take regular breaks to ensure you can concentrate on the work and have full control over the product.



WARNING! In some countries regulations define at what time of the day and on what special days products are allowed to be used and what restrictions apply! Ask your community for detailed information and observe the regulations in order to preserve a peaceful neighborhood and avoid committing administrative offences!

2. Chain brake

The chain brake is a safety mechanism activated by the front hand guard (6). When kickback occurs, the saw chain stops immediately.



Fig. 20

The chain brake in the disengaged position, the product can be operated (Fig. 20).



Fig. 21

The chain brake in the engaged position, the saw chain is stopped as soon as the chain brake is activated (Fig. 21).

Chain brake test



WARNING! Before operating this product, always check that the chain brake is in perfect working condition!

The following function check should be carried out before each use. The purpose of the chain brake testing is to reduce the possibility of injury due to kickback.

1. Start the product as described below.
2. Press the throttle interlock (2), then fully squeeze the throttle trigger (3) with your index finger and hold in this position.
3. While the engine is running, activate the chain brake by rolling your left hand forward against the front hand guard (6). Saw chain (7) and engine should stop immediately.
4. Release the throttle trigger afterward.



WARNING! If the saw chain and engine fail to stop when the chain brake is engaged, take the product to the nearest authorised service centre or a similarly qualified person! Do not use the product if the chain brake is not in working properly!



WARNING! The front hand guard should not be used for starting and stopping the product during normal operation!

3. Chain speed



NOTE: Perform the following test before operating your product.

Start the product as described below and keep it in idle speed. The saw chain (7) must not move when the engine is running idle.



WARNING! If the saw chain shows any signs of moving, stop the engine immediately! Wait for all moving parts to stop! Contact an authorised service centre or a similarly qualified person to re-adjust idling speed!


4. Starting/Stopping



WARNING! Make sure the cutting device is not touching the ground or other objects when starting the product!


Ensure the rear handle (1) is in the upright position!

Cold start

1. Push front hand guard (6) forward (Fig. 22, step 1). The saw chain is now locked.
2. Set the ignition switch (22) to upper position (ON position) (Fig. 22, step 2).
3. Fully pull out the choke (21) to CLOSE position  (Fig. 22, step 3).
4. Hold the chain saw firmly on the ground with left hand on the front handle (5). Your thumb and fingers shall grasp the handle.
5. Place the right foot onto the rear hand safeguard (12) and step down.
6. Pull the recoil starter handle (26) lightly until you feel resistance then pull it rapidly (Fig. 22, step 4). Repeat until hearing a blasting sound (it usually needs 4 – 6 pulls).



WARNING! Allow the rope to return slowly and in a controlled manner after each pull! Do not pull out the recoil starter beyond the red color band at the end of the recoil starter!

7. Push the choke (21) fully back to OPEN position  (Fig. 22, step 5).
8. Pull the recoil starter handle (26) lightly until you feel resistance then repeat until engine starts.
9. Carefully pull the front hand guard (6) back toward the front handle (5) (Fig. 22, step 6).

10. Let the product run idle for about 30 seconds to warm it up.



NOTE: When pushing the choke back to OPEN position and the engine speed gets inconsistent. Then pull the choke slightly out to middle position to allow additional time for warming up. After warm up push the choke back to OPEN position.

11. Hold the product with the left hand on front handle (5) and the right hand on rear handle (1).

12. Press the throttle interlock (2) and then squeeze throttle trigger (3) (Fig. 22, step 7). The saw chain runs.

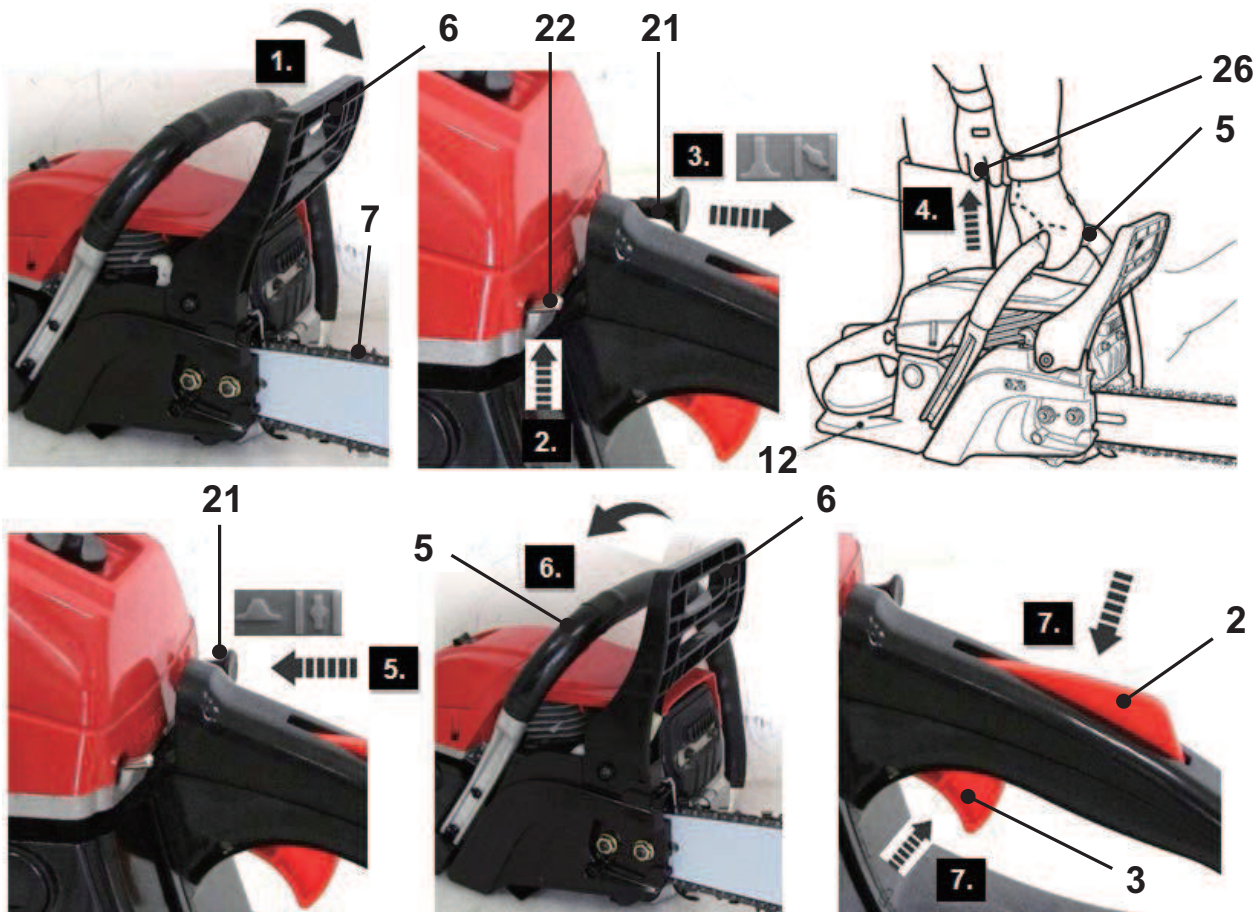



Fig. 22

Warm start

1. Push front hand guard (6) forward (Fig. 23, step 1). The saw chain is now locked.
2. Ensure the choke (21) is at the OPEN position . Push the choke fully back to the OPEN position if necessary (Fig. 23, step 2).
3. Set the ignition switch (22) to upper position (ON position) (Fig. 23, step 3).

4. Hold the chain saw firmly on the ground with left hand on the front handle (5). Your thumb and fingers shall grasp the handle.
5. Place the right foot onto the rear hand safeguard (12) and step down.
6. Pull the recoil starter handle (26) lightly until you feel resistance then pull it rapidly (Fig. 23, step 4). Do it again until the engine starts.



WARNING! Allow the rope to return slowly and in a controlled manner after each pull! Do not pull out the recoil starter beyond the red color band at the end of the recoil starter!

7. Carefully pull the front hand guard (6) back toward the front handle (5) (Fig. 23, step 5).
8. Hold the product with the left hand on front handle (5) and the right hand on rear handle (1).
9. Press the throttle interlock (2) and then squeeze throttle trigger (3) (Fig. 23, step 6). The saw chain runs.

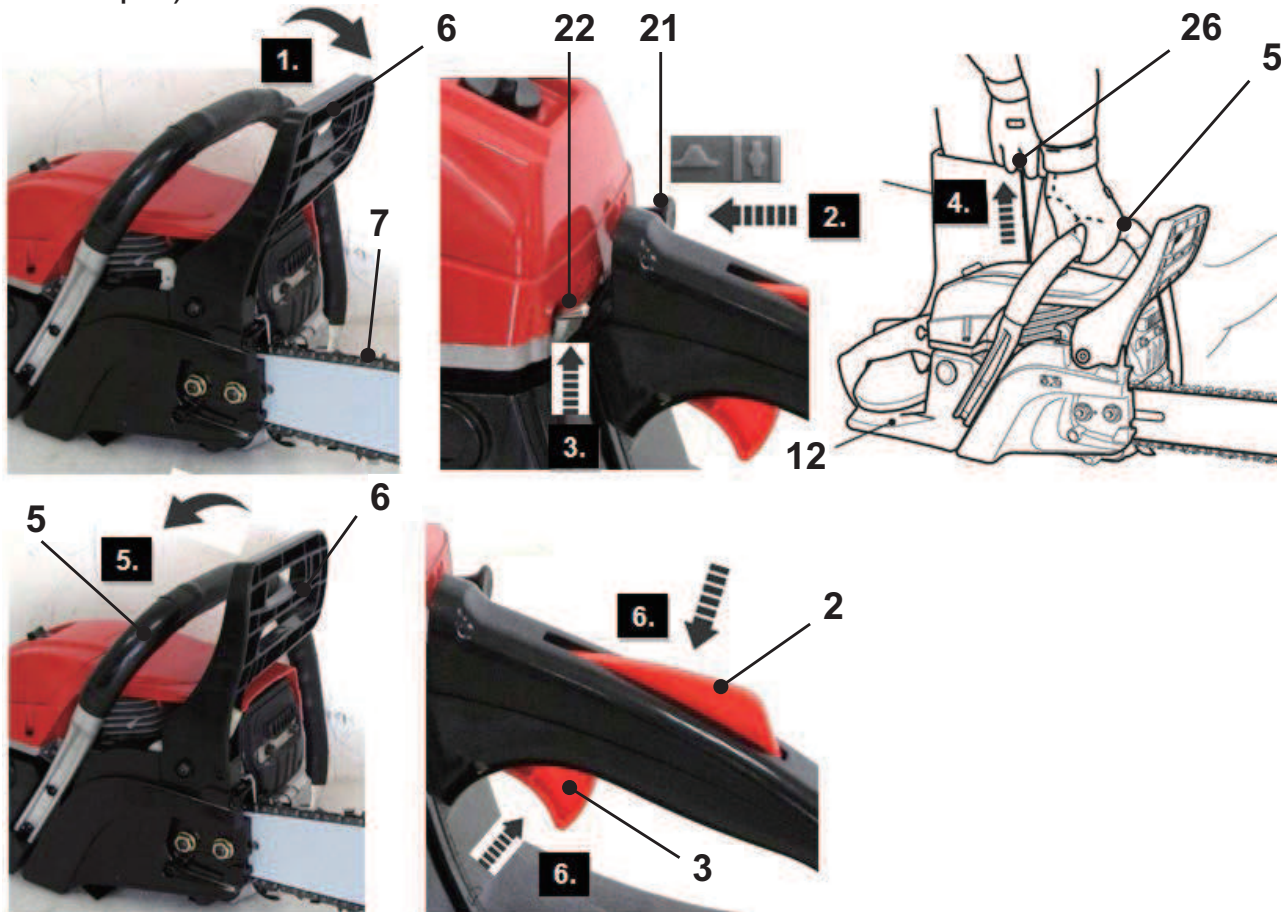




Fig. 23




NOTE: If the engine does not start, the engine may be flooded. Flooding is caused by too much fuel mixture applied at the wrong time and can prevent a product from starting. Follow below

procedure:

Set the ignition switch (22) to lower position  (STOP position). Push the choke (21) fully back to OPEN position . Remove the spark plug (20) and dry it. Pull the recoil starter handle (26) for several times to drain the fuel from the combustion chamber.

Wait until fuel vapours and refit the spark plug. Clean up any spilled fuel and move the product at least 3 metres (10') away before starting the engine to avoid any accidental fire. Wait the engine to cool down and then start the product as described in section "*Cold start*".

Stopping

1. Release the throttle interlock (2) / throttle trigger (3) and let the product run at its idle speed for 10 – 15 seconds.
2. Set the ignition switch (22) to lower position  (STOP position) (Fig. 24).

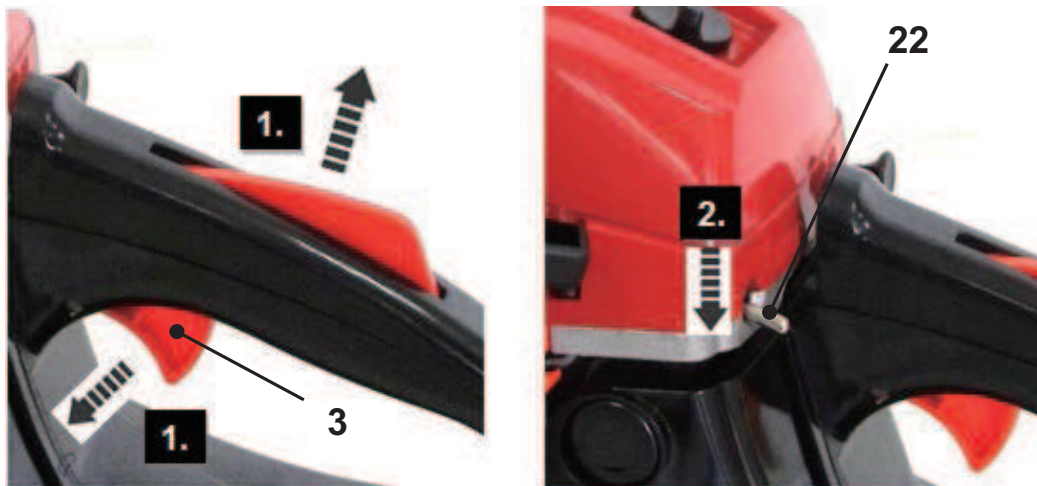


Fig. 24



WARNING! The cutting device (saw chain) will continue to run for short time even after the engine has been switched off! Wait until the cutting device has come to a complete stop before placing the product on the ground!



NOTE: The product will become very warm after a long time using; allow it to cool down completely before restart. If the product cannot be switched on with warm start procedure, then refer to the cold start procedure.

5. Basic operating / cutting procedure

1. To become proficient attend a recognised chain saw training course to learn how to operate chain saws safely and effectively. Familiarise yourself with all the controls and switches. Practise all movements with the product switched off.
2. Always hold the product firmly with both hands. Front handle **(6)** with the left hand and rear handle **(1)** with the right hand. Fully grip both handles at all times during operation. Never operate the product using only one hand.
3. Only use the product with a secure stance. Hold the product at the right-hand side of your body (Fig. 25).

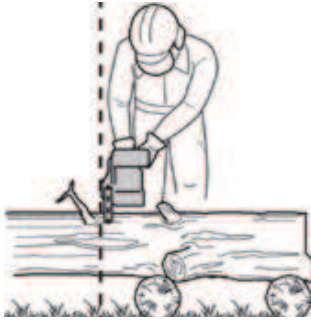


Fig. 25

4. Check the proper lubrication as described in section “**Operating instructions - Chain lubrication**” before performing any cut.
5. Ensure the saw chain **(7)** is running at full speed before it makes contact with the wood. Use the spiked bumper to secure the product onto the wood before starting to cut and use it as a leverage point while cutting (Fig. 26).

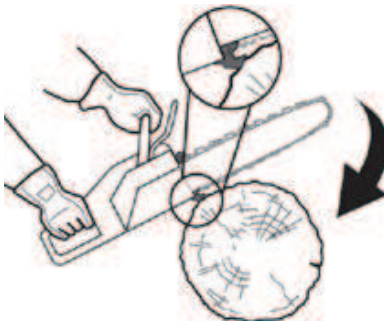


Fig. 26

6. Reset the spiked bumper at a low point when cutting thicker logs by pulling the product slightly backwards until the gripping teeth release, and reposition at lower level to continue sawing. Do not remove the product completely from the wood.
7. Do not force the saw chain while cutting, let the chain do the work, using the gripping teeth to apply minimal leverage pressure.

8. Do not operate the product with arms fully extended or attempt to saw areas which are difficult to reach, or on a ladder. Never use the product above shoulder height (Fig. 27).

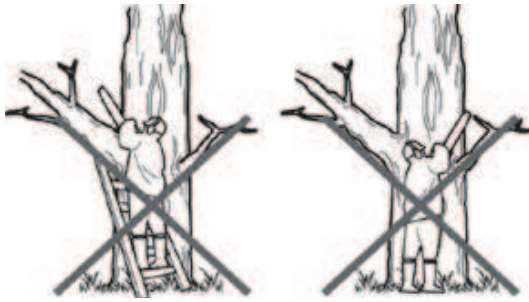


Fig. 27

9. Optimum sawing is achieved if the chain speed remains constant during cutting.
10. Be careful when reaching the end of the cut. The weight of the product may change unexpectedly as it cuts free from the wood. This can cause accidents to the legs and feet. Always remove the product from a wood cut while the product is running.
11. Check that the oil feed to the chain is operating correctly; run the chain saw at medium speed and ensure that the chain has received a consistent coating of oil.

6. Kickback



WARNING! Beware of kickback! Kickback can lead to dangerous loss of control of the product and result in serious or fatal injury to the operator or anyone standing close by! Always be alert because rotational kickback and pinch kickback are major product operational dangers and the leading cause of most accidents!

Kickback may occur if the nose or tip of the guide bar touches an object, or if wood pinches the saw chain in the cut.

In some cases, contact with the tip of the guide bar **(8)** may cause a lightning-fast reverse reaction, kicking the guide bar up and back toward the operator (Figs. 28 - 30).

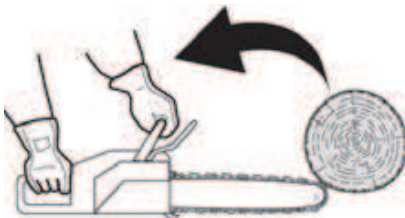


Fig. 28

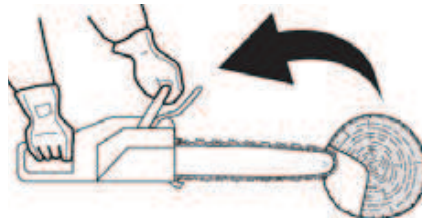


Fig. 29

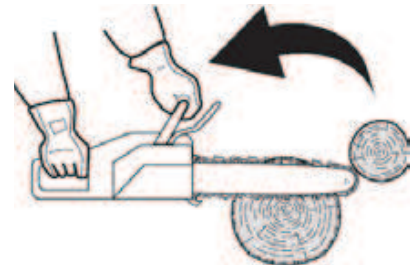


Fig. 30

1. Pinching the saw chain (7) along the bottom of the guide bar (8) may pull the product forward away from the operator ("skating") (Fig. 31).

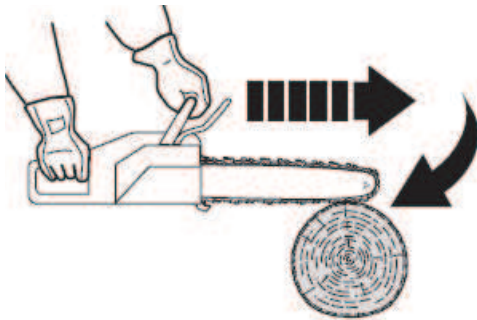


Fig. 31

2. Pinching the saw chain (7) along the top of the guide bar (8) may push the guide bar rapidly back toward the operator ("bouncing") (Fig. 32).

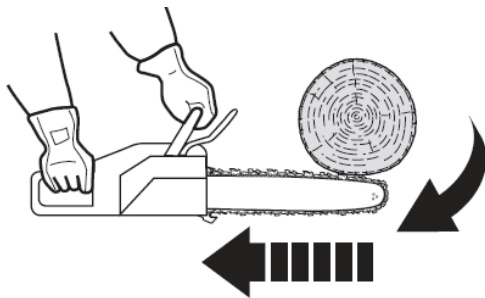


Fig. 32

3. Any of these reactions may cause losing control of the product, which could result in serious personal injury or even death.
4. With a basic understanding of 'kickback', the element of surprise can be reduced or eliminated. Sudden surprise contributes to the majority of accidents.
5. Keep a good firm grip on the product with both hands, the right hand on the rear handle (1) and the left hand on the front handle (6), when the engine is running. Maintain a firm grip with your thumbs and fingers encircling the handles. A firm grip will help you reduce 'kickback' and maintain control of the product.
6. You should carefully read all safety warnings and user instructions before attempting to operate this product.

To avoid kickback:

- Saw with guide bar at a flat angle.
- Never work with a loose, widely stretched or the heavily worn out chain.
- Ensure chain is sharpened correctly.
- Never saw above shoulder height.
- Never work with the tip of the guide bar.
- Always hold the product firmly with both hands.
- Always use a low kickback chain.
- Apply the metal gripping teeth for leverage.
- Ensure correct chain tension.
- Do only cut with the engine at high speeds.
- Do not let the nose of the guide bar contact a log, branch, or any other obstruction which could be hit while you are operating the product.
- Follow manufacturer's sharpening and maintenance instructions for the saw chain.
- Only use replacement guide bars and saw chains specified by the manufacturer or equivalent replacements.



WARNING! Most 'kickback' accidents happen during limbing! Pay close attention to the position of the 'kickback' zone of the bar when you are 'limbing' branches that are under tension.

7. Felling a tree

1. When bucking and felling operations are being performed by two or more persons at the same time, the felling operations should be separated from the bucking operation by a distance of at least twice the height of the tree being felled. Trees should not be felled in a manner that would endanger any person, strike any utility line or cause any property damage. If the tree does make contact with any utility line, the company should be notified immediately.
2. The product operator should keep on the uphill side of the terrain as the tree is likely to roll or slide downhill after it is felled.

3. An escape path should be planned and cleared as necessary before cuts are started. The escape path should extend back and diagonally to the rear of the expected line of fall (Fig. 33).

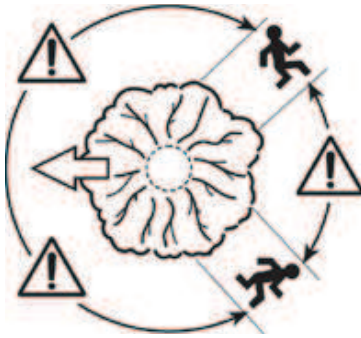


Fig. 33

4. Before felling is started, consider the natural lean of the tree, the location of larger branches and the wind direction to judge which way the tree will fall.
5. Remove dirt, stones, loose bark, nails, staples and wire from the tree.

8. Notching undercut

Make the notch (Fig. 34, B) 1/3 the diameter of the tree, perpendicular to the direction of falls (Fig. 34). Make the lower horizontal notching cut first. This will help to avoid pinching either the saw chain or the guide bar when the second notch is being made.

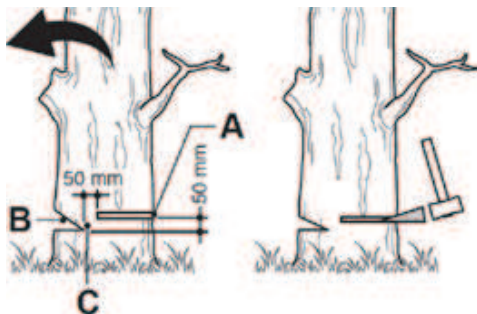


Fig. 34

9. Felling back cut

1. Make the felling back cut (Fig. 34, A) at least 50 mm higher than the horizontal notching cut (Fig. 34). Keep the felling back cut parallel to the horizontal notching cut. Make the felling back cut so enough wood is left to act as a hinge. The hinge (Fig. 34, C) wood keeps the tree from twisting and falling in the wrong direction. Do not cut through the hinge.
2. As the felling gets close to the hinge, the tree should begin to fall. If there is any chance that the tree may not fall in desired direction or it may rock back and bind the saw chain, stop cutting before the felling back cut is complete

and use wedges of wood, plastic or aluminum to open the cut and drop the tree along the desired line of fall.

3. When the tree begins to fall remove the product from the cut, stop the engine, put the product down, then use the retreat path planned. Be alert for overhead limbs falling and watch your footing.

10. Limbing and pruning

Limbing is removing the branches from a fallen tree. When limbing leave larger lower limbs to support the log off the ground. Remove the small limbs in one cut (Fig. 35). Branches under tension should be cut from the bottom up to avoid binding the product.



Fig. 35



WARNING! Never climb into a tree to limb or prune! Do not stand on ladders, platforms, logs, or in any position which may cause you to lose the balance or control of the saw! When pruning trees, it is important not to make the flush cut next to main limb or trunk until you have cut off the limb further out to reduce the weight! This prevents stripping the bark from the main member!



WARNING! If the limbs to be pruned are above chest height, hire a professional to perform the pruning!

11. Cutting spring poles

A spring pole is any log, branch, rooted stump, or sapling which is bent under tension by other wood so that it springs back if the wood holding it is cut or removed (Fig. 36).

On a fallen tree, a rooted stump has a high potential of springing back to the upright position during the bucking cut to separate the log from the stump.

Watch out for spring poles, they are dangerous.



Fig. 36

12. Bucking a log

Bucking is cutting a log into lengths. It is important to make sure your footing is firm and your weight is evenly distributed on both feet. When possible, the log should be raised and supported by the use of limbs, logs or chocks.

1. Follow the simple directions for easy cutting. When the log is supported along its entire length (Fig. 37), it is cut from the top (overbuck).

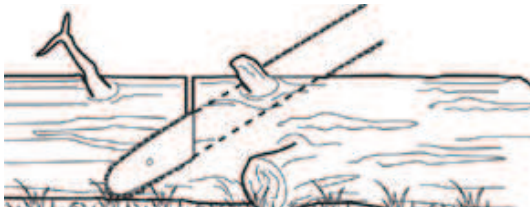


Fig. 37

2. When the log is supported on one end (Fig. 38), cut $\frac{1}{3}$ the diameter from the underside (underbuck). Then make the finished cut by overbucking to meet the first cut.

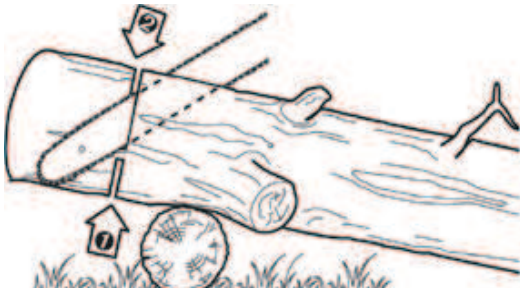


Fig. 38

3. When the log is supported on both ends (Fig. 39), cut $\frac{1}{3}$ the diameter from the top (overbuck). Then make the finished cut by underbucking the lower $\frac{2}{3}$ to meet the first cut.



Fig. 39

4. When bucking on a slope always stand on the uphill side of the log (Fig. 40). When “cutting through”, to maintain complete control release the cutting pressure near the end of the cut without relaxing your grip on the product handles. Do not let the chain contact the ground. After completing the cut, wait for the saw chain to stop before you move the product. Always stop the engine before moving from tree to tree.



Fig. 40

5. Support small logs on a sawing stand or another log while bucking (Fig. 41).

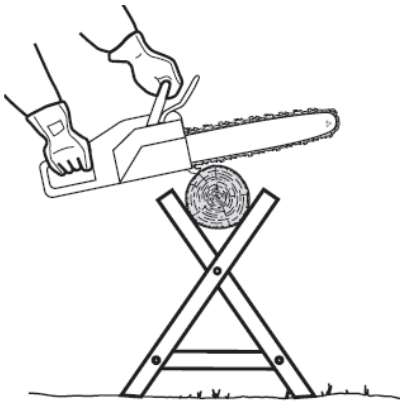


Fig. 41

6. If the wood diameter is large enough for you to insert a soft bucking wedge without touching the chain, you should use the wedge to hold the cut open to prevent pinching (Fig. 42).

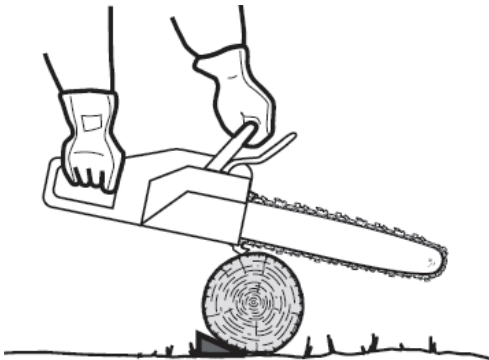


Fig. 42

13. After use

1. Switch the product off, disconnect the spark plug connector and let it cool down.
2. Check, clean and store the product as described below.

MAINTENANCE AND CARE



WARNING! Always switch the product off, disconnect the spark plug connector and let the product cool down before performing inspection, maintenance and cleaning work!

Maintain this product regularly and carefully! If the product is improperly maintained, it may fail at its intended task, which may produce fatal consequences.

1. Keep the product clean. Remove debris from it after each use and before storage.
2. Regular and proper cleaning will help ensure safe use and prolong the life of the product.
3. Inspect the product before each use for worn and damaged parts. Do not operate it if you find broken and worn parts.



WARNING! Only perform repairs and maintenance work according to these instructions! All further works must be performed by a qualified specialist!

1. General cleaning

1. Clean the product with a dry cloth and mild soap. Use a brush for areas that are hard to reach.
2. In particular clean the air vents **(28)** after every use with a cloth and brush.
3. Remove stubborn dirt with high pressure air (max. 3 bar).



NOTE: Do not use chemical, alkaline, abrasive or other aggressive detergents or disinfectants to clean this product as they might be harmful to its surfaces.

4. Check for any damage and wear. Repair damages in accordance with this instruction manual or take it to an authorised service centre or a similarly qualified person before using the product again.

2. Maintenance table

Inspect and maintain this product regularly based on below maintenance table.

Part	To do	Before/after each use	10 hours	25 hours	50 hours / half year	100 hours / once a year
Spark plug	check			x		
Spark plug	clean			x		
Spark plug	replace	whenever necessary				
Air filter	check	x				
Air filter	clean		x			
Air filter	replace	whenever necessary				
Saw chain	check	x				
Saw chain	lubricate	x				
Saw chain	clean	x				
Saw chain	replace	whenever necessary				

3. Sprocket wheel



NOTE: It is not necessary to remove the saw chain (7) to lubricate the sprocket. Lubrication can be done on the job.

1. Clean the sprocket wheel **(8b)**.
2. Using a disposable lube gun, insert the needle nose into the lubrication hole **(8a)** and inject grease until it appears at the outside edge of the sprocket (Fig. 43).

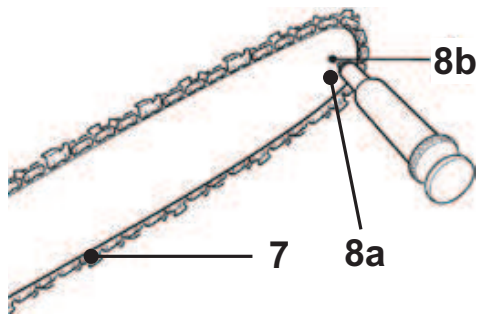


Fig. 43

3. Make sure that the chain brake is disengaged. Rotate the saw chain (7) by hand. Repeat the lubrication procedure until the entire sprocket has been greased.

4. Guide bar and saw chain maintenance

Most guide bar problems can be prevented merely by keeping the product well maintained. Incorrect filing and non-standard cutter and depth gauge settings are the causes of most guide bar problems, primarily resulting in uneven bar wear. As the bar wears unevenly, the rails widen, which may cause the chain to clatter and make it difficult to complete straight cuts. If the guide bar is insufficiently lubricated and the product is operated with a saw chain which is too tight, this will contribute to rapid bar wear. To help minimise bar wear, maintenance of the guide bar as well as the saw chain is recommended.

1. Disassemble the guide bar and saw chain in reversed order from assembly.
2. Check the oiling port (14) for clogging and clean if necessary to ensure proper lubrication of the guide bar and saw chain during operation. Use a soft wire small enough to insert into the oil discharge hole (Fig. 44).

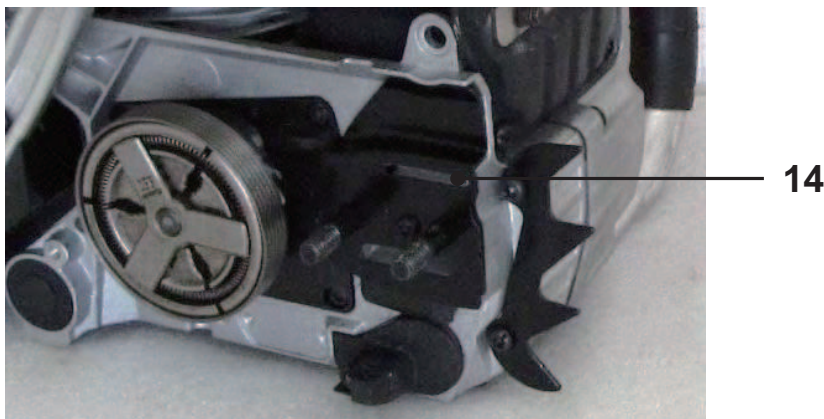


Fig. 44



NOTE: The condition of the oil passages can be easily checked. If the passages are clear, the chain will automatically give off a spray of oil within seconds of the product starting. Your product is

equipped with an automatic oiling system.

3. Check the drive sprocket. If it is worn or damaged due to strain, have it replaced by an authorised service centre or a similarly qualified person.
4. Clear residue from the rails on the guide bar **(8)** using a screwdriver, putty knife, wire brush or other similar tool. This will keep the oil passages open to provide proper lubrication to the guide bar **(8)** and saw chain **(7)** (Fig. 45).

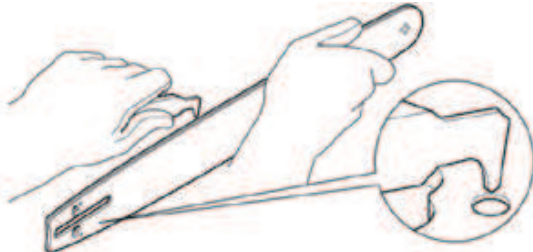


Fig. 45

5. Check the guide bar 'rail' for wear: Hold a ruler (straight edge) against the side of the guide bar and 'cutter side plates'. If there is a gap between the ruler and guide bar the guide bar 'rail' is normal. If there is no gap (ruler flush against the side of the guide bar) the guide bar 'rail' is worn and needs to be replaced with a new one of the same type (Fig. 46).

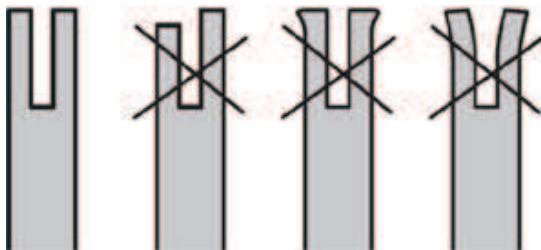


Fig. 46

6. Turn the guide bar 180° to allow even wear, thereby extending the life span of the guide bar **(8)**.
7. Check the saw chain for possible wear and damages. Replace it with a new one if required. Experienced user can sharpen a dull saw chain (see section "**Saw chain sharpening**" below).
8. Refit the saw chain **(7)** and the guide bar **(8)** as described under section "**Assembly**".

5. Saw chain sharpening



NOTE: Saw chain sharpening may be required:

- after damp wood is cut (mealy sawdust),
- when handling the product becomes difficult (pulls to the left

or right),

- when the saw chain is blunt (excessive force is required to penetrate the wood), or obviously damaged.

Never saw with a blunt chain. The saw chain is blunt if you have to push the product into the tree and the chips are very small.

1. Have the saw chain (7) sharpened professionally at an authorised service centre or sharpen the chain yourself by using a proper sharpening kit. Also observe the sharpening instructions supplied with the sharpening kit.



WARNING! Only sharpen the saw chain yourself if you are trained and have experience! Use proper tools to sharpen the saw chain!

2. The height difference between the tooth and the ridge is the cutting depth. When sharpening the saw chain (7) you have to consider the following points (Fig. 47).

- File angle
- Cutting angle
- File position
- Diameter of round file
- File depth

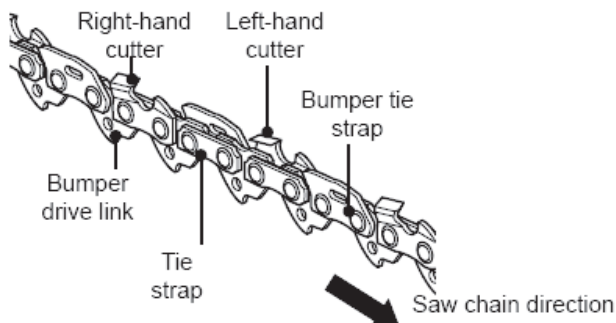


Fig. 47

3. To sharpen the chain proceed as follows:
 - Use protective gloves.
 - Ensure the chain is correctly tensioned.
 - Engage the chain brake to lock the chain on the bar.
4. Use the chain file (not delivered), whose diameter is 1.1 times the cutting tooth depth. Make sure 20% of the file diameter is above the cutter's top plate.



NOTE: A file guide is available from most reputable tool merchants and is the easiest way to hold the file at the correct position.

5. File at an angle perpendicular to the bar, and at an angle of 30° to the direction of travel (Fig. 48).

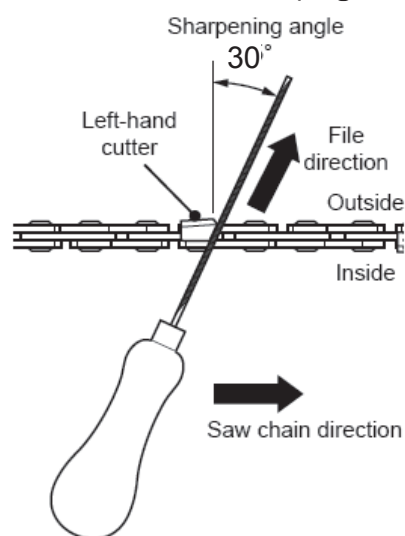


Fig. 48

6. File each tooth from the inside towards outside only. File one side of the chain first than turn the saw around and repeat the process.
7. Sharpen each tooth equally by using the same number of strokes.
8. Keep all cutter lengths equal. Check the safety depth gauge height every 5 sharpenings. If the depth gauges are also trimmed it is essential that the original profile be restored.
9. Use a depth gauge measuring instrument to check the height of the depth gauge. Depth gauge measuring jigs are available from most reputable tool merchants (Fig. 49).

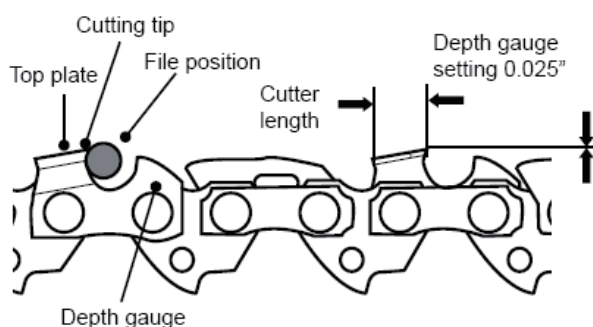


Fig. 49

6. Air filter

Wash the air filter every 25 hours (if too dusty, every 10 hours) with clear water and dry it. Dip the air filter into clean machine oil if necessary. It can be used after superfluous oil is eliminated.

Inspect the air filter regularly. Replace it with a new one if necessary (Fig. 50).

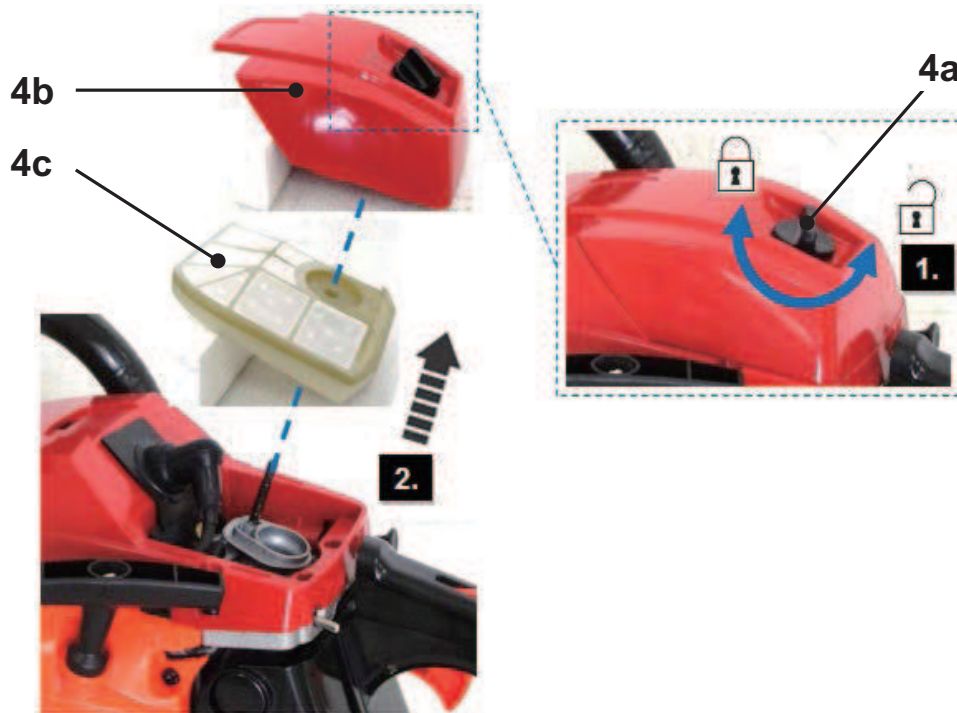


Fig. 50

1. Loosen the fixation knob **(4a)** and remove the cover **(4b)** to open the air filter case **(4)**.
2. Remove the filter **(4c)** and tap it on a solid surface to remove dust.
3. Apply a small amount of air filter oil on the filter **(4c)** to increase the performance of the filter. Wring out surplus oil and put the filter back to the air filter case.
4. Re-attach the cover **(4b)** and secure it with the fixation knob **(4a)**.

7. Spark plug

Inspect the spark plug every 25 hours or prior to long-term storage over 30 days if the use has not been this high. Clean or replace with a new one if necessary.

1. Open the air filter case **(4)** and remove the air filter **(4c)** as described.
2. Disconnect the spark plug connector **(19)** (Fig. 51).
3. Loosen the spark plug **(20)** anticlockwise using the multi tool **(31)** and remove it carefully (Fig. 52).

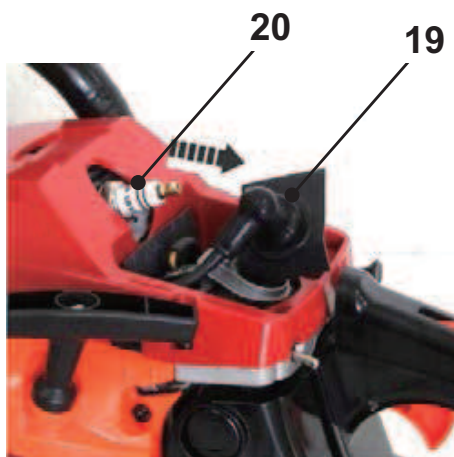


Fig. 51



Fig. 52

4. Check the spark plug **(20)** for damage and wear. The color of the electrode should be light-brown colored.
5. Remove debris from the electrode with a soft wired brush; avoid heavy cleaning of the electrode.
6. Dry the spark plug with a soft cloth, if it is wet from fuel.
7. Check the spark plug gap. It should be 0.6 - 0.7mm (Fig. 53).

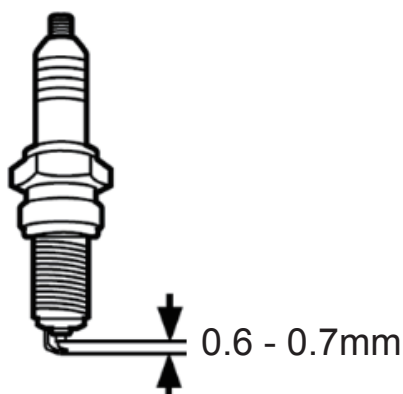


Fig. 53

8. Replace with a new spark plug if either the electrode or the insulation is damaged.
9. When replacing the spark plug, first screw it in hand tight and then lightly tighten it with the multi tool **(31)**.
10. Refit the spark plug connector **(19)**; ensure the rubber pad around the spark plug connector is in correct position.



WARNING! Do not over tighten the spark plug to avoid any damage!

11. Place the filter **(4c)** back into the air filter case **(4)**, re-attach the cover **(4b)** and secure it with the fixation knob **(4a)** afterward.

8. Fuel tank

1. Empty the fuel tank when storing the product over 30 days to prevent the fuel deteriorating.
2. Unscrew and remove the fuel tank cap **(24)** and empty the fuel into a suitable container.



WARNING! Do not store the fuel in the fuel mixing container!

9. Fuel filter

The fuel tank of this product is fitted with a filter, which is attached on the end of the fuel pipe. Ask an authorised service centre or a similarly qualified person to check and replace the filter at regular intervals if required.

10. Carburetor

The carburetor is pre-set by the manufacturer. Should it be necessary to make any changes please contact an authorised service centre or a similarly qualified person. Do not attempt to make any adjustments by yourself.

11. Muffler

If it be necessary to modify or replace the muffler, please contact an authorised service centre or a similarly qualified person.

12. Spare parts/Replacement parts

The following parts of this product may be replaced by the consumer. Spare parts are available at an authorised dealer or through our customer service.

Description	Model no. or Specification
Guide bar	200PXBW095 / 208PXBK095 / Ridgeline 97013
Saw chain	20LPX078X / 21PX078X / Ridgeline 97010
Spark plug	BM6A L8RTC/Torch L8RTF/NHSP LD L8RTF/BOSCH L7T/TORCH



WARNING! Saw chain must be fitted with guide bar according to above combination. Use only the same brand and same type of saw chain and guide bar as above. The use of non-approved guide bar / saw chain combinations poses a severe risk of injury!

13. Repair

This product does not contain any parts that can be repaired by the consumer. Contact an authorised service centre or a similarly qualified person to have it checked and repaired.

14. Storage

1. Switch the product off and disconnect the spark plug connector.
2. Clean the product as described above.
3. Attach the guide bar cover.
4. Store the product and its accessories in a dark, dry, frost-free, well-ventilated place.
5. Always store the product in a place that is inaccessible to children. The ideal storage temperature is between 10°C and 30°C.
6. We recommend using the original package for storage or covering the product with a suitable cloth or enclosure to protect it against dust.
7. Empty the tank if you are not going to use the product for an extended period of time (more than 30 days) and before storing it for the winter.

15. Transportation

1. Switch the product off and disconnect the spark plug connector.
2. Attach the guide bar cover.
3. Always carry the product by its handles **(1, 5)**.
4. Protect the product from any heavy impact or strong vibrations which may occur during transportation in vehicles.
5. Secure the product to prevent it from slipping or falling over, loss of fuel, damage and injury.

16. Recycling and disposal

1. Old products are potentially recyclable and do not, therefore, belong in your household rubbish. You are requested to assist us and our contribution to

saving resources and protecting the environment by handing in this product at an equipped collection centre (if there is one available).

2. Petrol, oil, used oil, a mixture of oil and petrol and objects soiled with oil e.g. cleaning cloths do not belong in the household rubbish. Dispose of oil-contaminated items in accordance with the local guidelines and hand them in at recycling centres.
3. The product comes in a package that protects it against damage during shipping. Keep the package until you are sure that all parts have been delivered and the product is function properly. Recycle the package afterwards.

TROUBLE SHOOTING

Suspected malfunctions are often due to causes that the user can fix themselves. Therefore check the product using this section. In most cases the problem can be solved quickly.



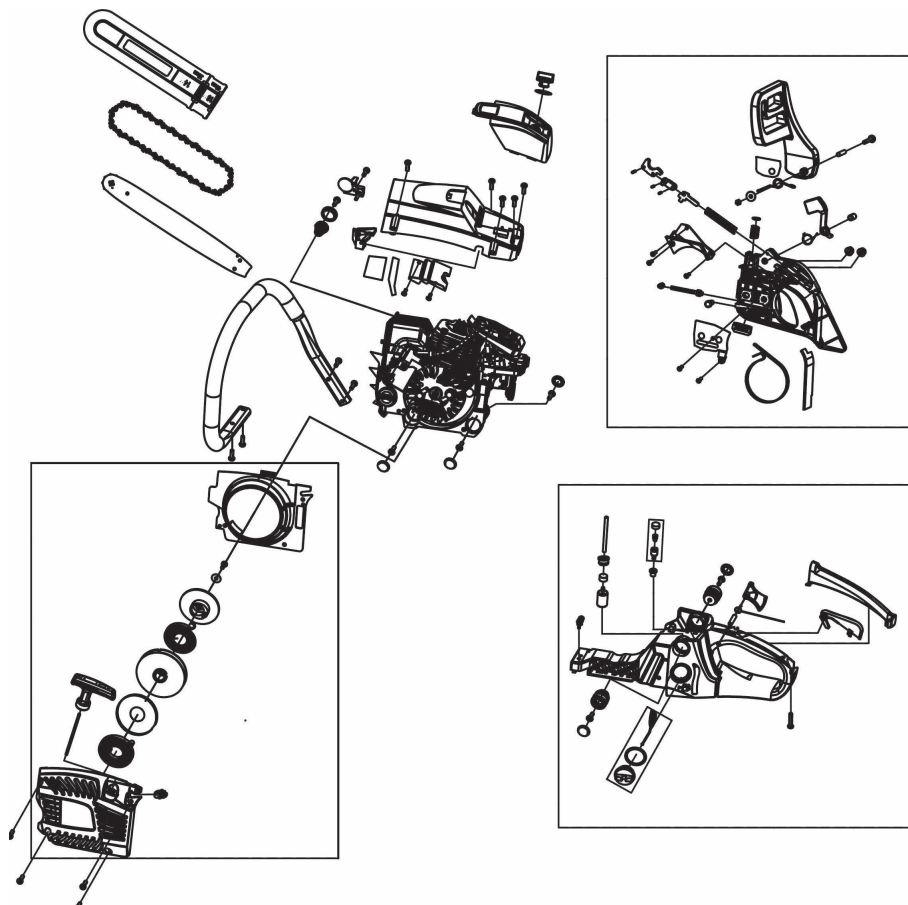
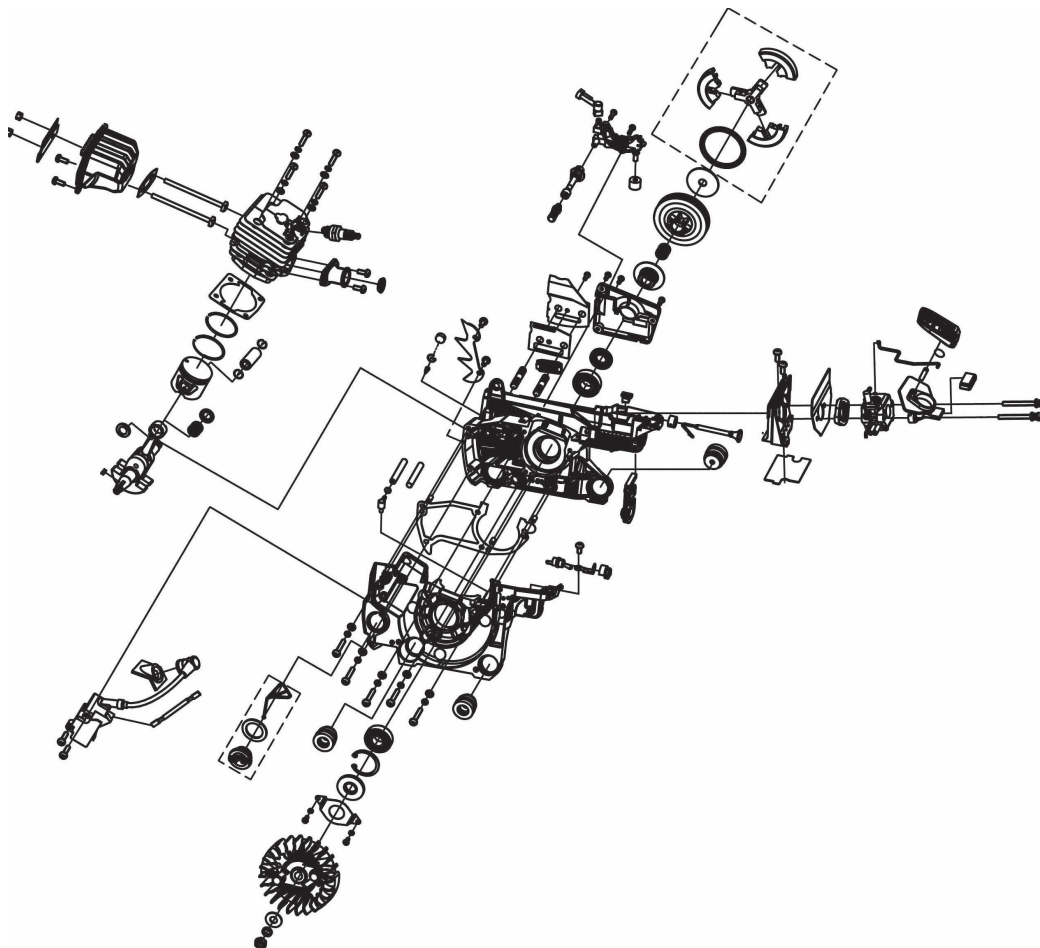
WARNING! Only perform the steps described within these instructions! All further inspection, maintenance and repair work must be performed by an authorised service centre or a similarly qualified specialist if you cannot solve the problem yourself!

Problem	Possible cause	Solution
1. Engine does not start	1.1. Not enough fuel in fuel tank	1.1. Add fuel
	1.2. Spark plug is wet	1.2. Dry spark plug
	1.3. Spark plug is damaged	1.3. Replace spark plug
	1.4. Spark plug connector lose	1.4. Attach properly
	1.5. Ignition switch is not set to upper position	1.5. Set ignition switch to upper position
	1.6. Air filter is dirty	1.6. Clean air filter
	1.7. Spark plug loose	1.7. Tighten spark plug
	1.8. Spark plug gap is incorrect	1.8. Set gap between electrodes at 0.6 - 0.7mm

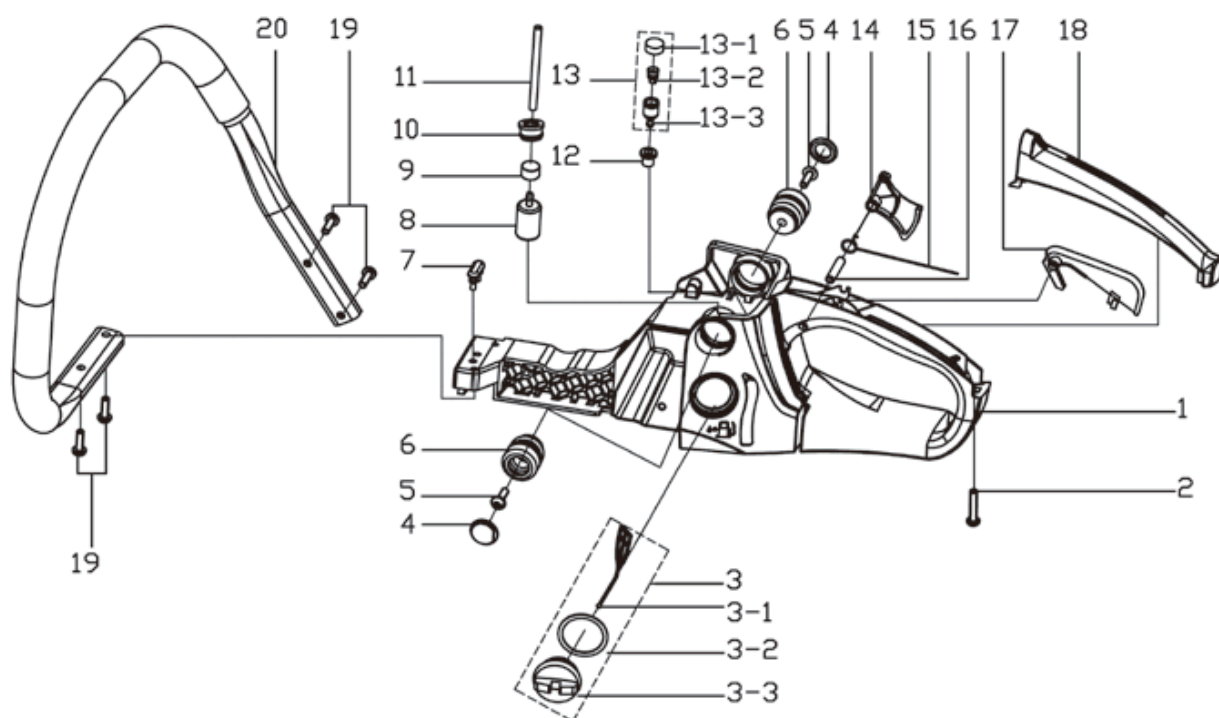
	1.9. Carburetor is flooded with fuel	1.9. Remove air filter and pull recoil starter handle continuously until carburetor clears itself and install air filter
	1.10. Faulty ignition module	1.10. Contact an authorised service centre or a similarly qualified person
2. Engine stops	2.1. Not enough fuel in fuel tank	2.1. Add fuel
	2.2. Saw chain is blocked	2.2. Remove blockage
3. Engine difficult to start or loses power	3.1. Dirt, water or stale fuel in the tank	3.1. Drain fuel and clean tank. Fill tank with clean, fresh fuel
	3.2. Air filter is dirty	3.2. Clean air filter
	3.3. Fuel filter/fuel tube clogged/worn	Contact authorised service centre or a similarly qualified person
	3.4. Vent hole in fuel tank cap is clogged	3.4. Clean or replace fuel tank cap
4. Engine operates erratically	4.1. Spark plug is defective	4.1. Install new, correctly gapped plug
	4.2. Spark plug gap is incorrect	4.2. Set gap between electrodes at 0.6 - 0.7mm
	4.3. Air filter is dirty	4.3. Clean air filter
	4.4. Engine requires to warm up	4.4. Allow engine to completely warm up and run at idle speed for 3min minutes

5. Engine idles poorly	5.1. Air filter is dirty	5.1. Clean air filter
	5.2. Air vents are clogged	5.2. Remove debris from vents
6. Engine skips at high speed	6.1. Gap between electrodes of spark plug is too close	6.1. Set gap between electrodes at 0.6 - 0.7mm
7. Engine overheats	7.1. Air vents are clogged	7.1. Remove debris from vents
	7.2. Incorrect spark plug	7.2. Install correct spark plug and cylinder fins on engine
	7.3. Saw chain is blocked	7.3. Remove blockage
8. Unsatisfactory result	8.1. Saw chain is worn	8.1. Have a specialist to sharpen or replace it
	8.2. Saw chain not tensioned properly	8.2. Tension properly
	8.3. Blunt saw chain	8.3. Only cut branches within the limits
	8.4. Improper chain speed	Have a specialist to adjust it
9. Excessive vibration/noise or exhaust	9.1. Saw chain is dull/damaged	9.1. Have it replaced with a new one
	9.2. Bolts/nuts are loosen	9.2. Tighten bolts/nuts
	9.3. Fuel is incorrect	9.3. Empty out unused fuel and refill with the correct fuel

52cc Chainsaw Exploded View

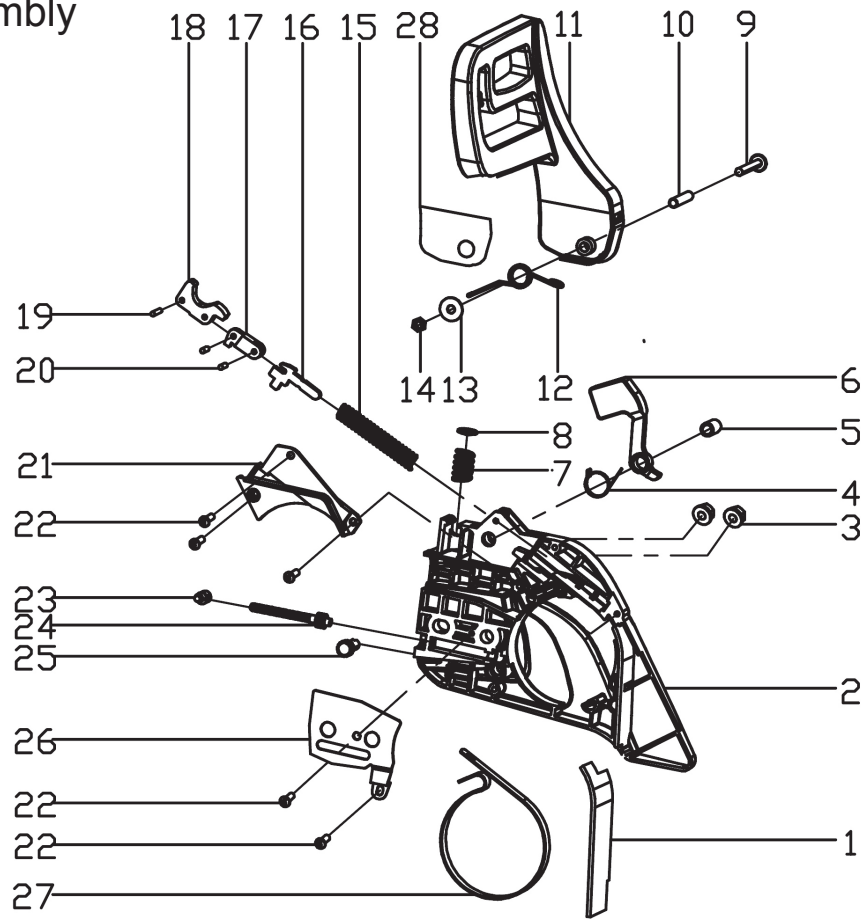


A. Handle, Fuel Tank



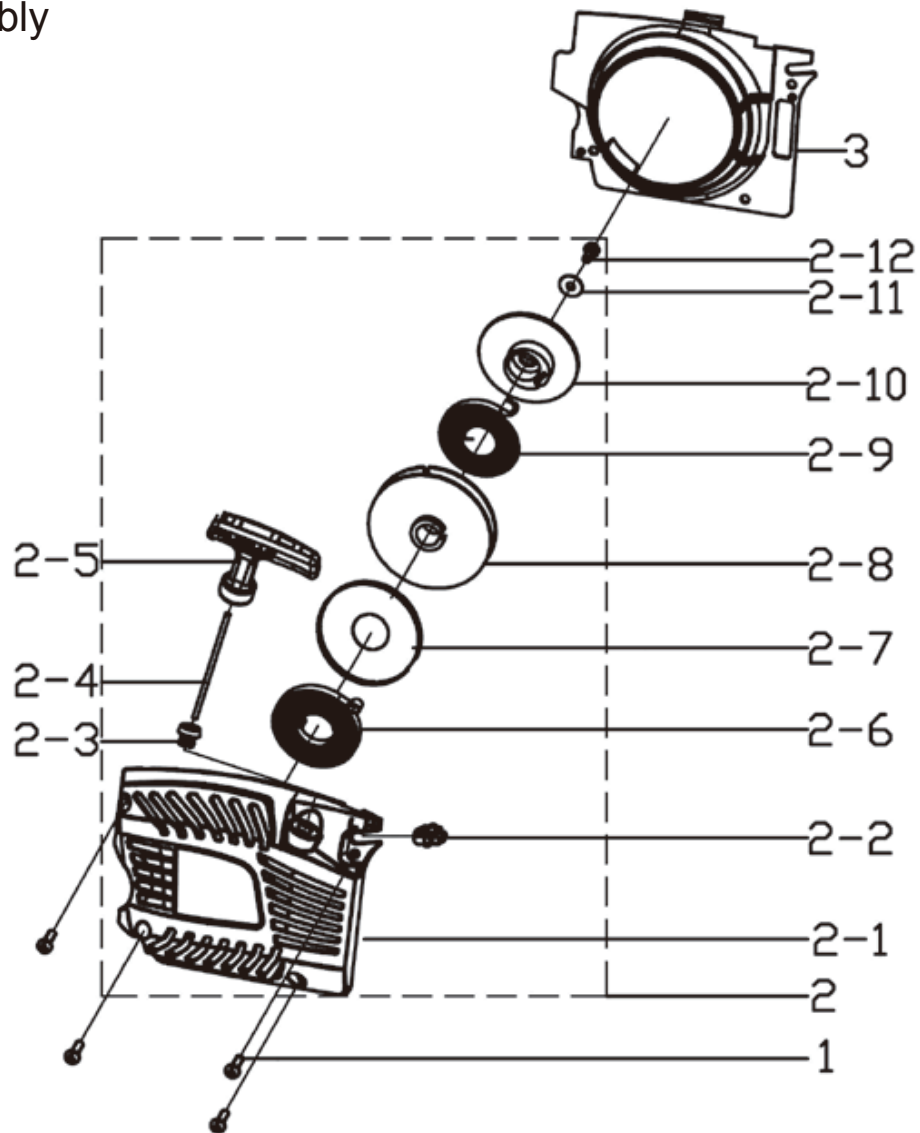
Part No.	Parts Description	Quantity
A1	Fuel Tank	1
A2	Screw St4.2x19	1
A3	Gasoline Tank Cap Assembly	1
A3-1	Fuel Cap Retainer	1
A3-2	Packing Washer	1
A3-3	Fuel Tank Cap	1
A4	Dust Cover	2
A5	Screw M5x16	2
A6	Anti-Vibration Cushion C	2
A7	Damping Block	1
A8	Fuel Filter	1
A9	Increase Block	1
A10	Fuel Tube Base	1
A11	Fuel Tube	1
A12	Block Balancer	1
A13	Balancer Assembly	1
A14	Trigger	1
A15	Trigger Torsion Rod Spring	1
A16	Pin 6x24	1
A17	Trigger Controller	1
A18	Handle Cover	1
A19	Screw St4.8x16	4
A20	Front Handle	1

B. Right Cover Assembly



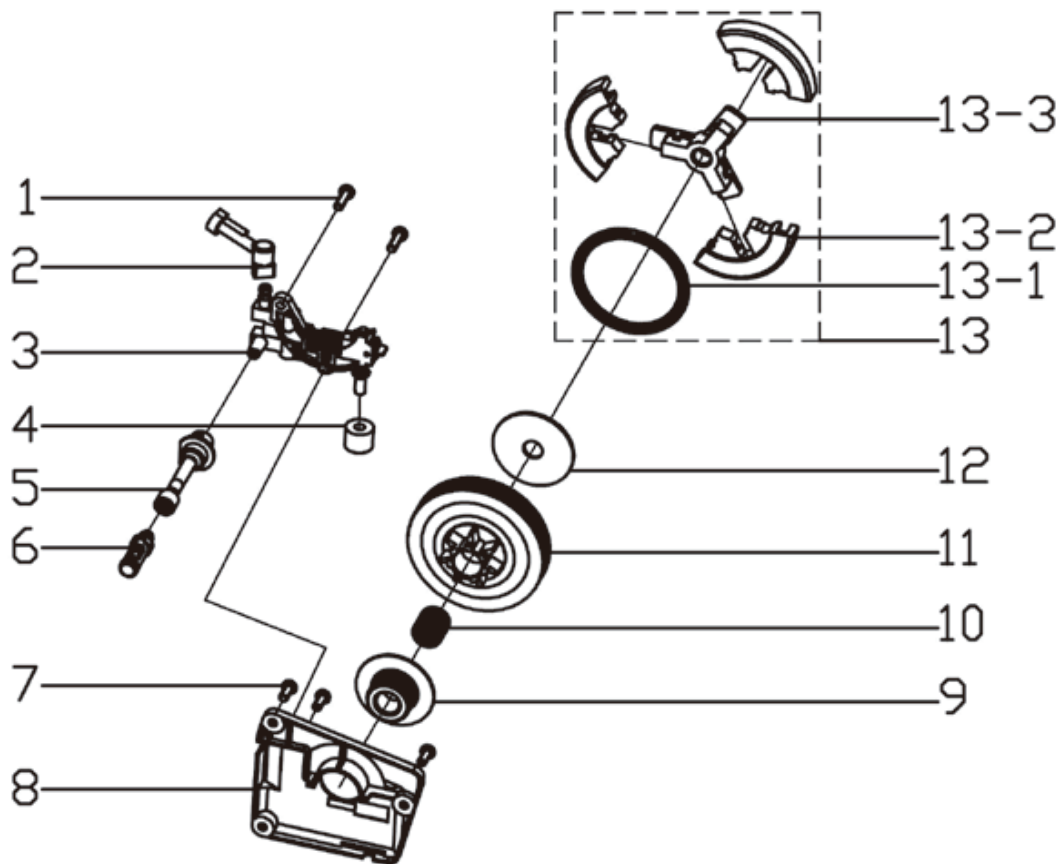
Part No.	Parts Description	Quantity
B1	Dust Board	1
B2	Right Cover	1
B3	Nut M8	2
B4	Heavy Block Torsion Spring	1
B5	Heavy Block Tube	1
B6	Heavy Block	1
B7	Front Guard Spring	1
B8	Spring Intake	1
B9	Screw M5x37.5	1
B10	Front Guard Tube	1
B11	Front Guard	1
B12	Brake Torsion Rod Spring	1
B13	Flat Washer 5x18x1	1
B14	Nut M5	1
B15	Brake Spring	1
B16	Brake Control Rod	1
B17	Secondary Pull-rod	1
B18	Main Pull-rod	1
B19	Pin 3x14	1
B20	Pin 3x9	2
B21	Brake Spring Pressure Plate	1
B22	Screw St4.2x9.5	5
B23	Tightener	1
B24	Screw M5x50	1
B25	Tightening Gear	1
B26	Tightener Cover	1
B27	Brake Belt	1
B28	Aluminized Paper	1

C. Starter Assembly



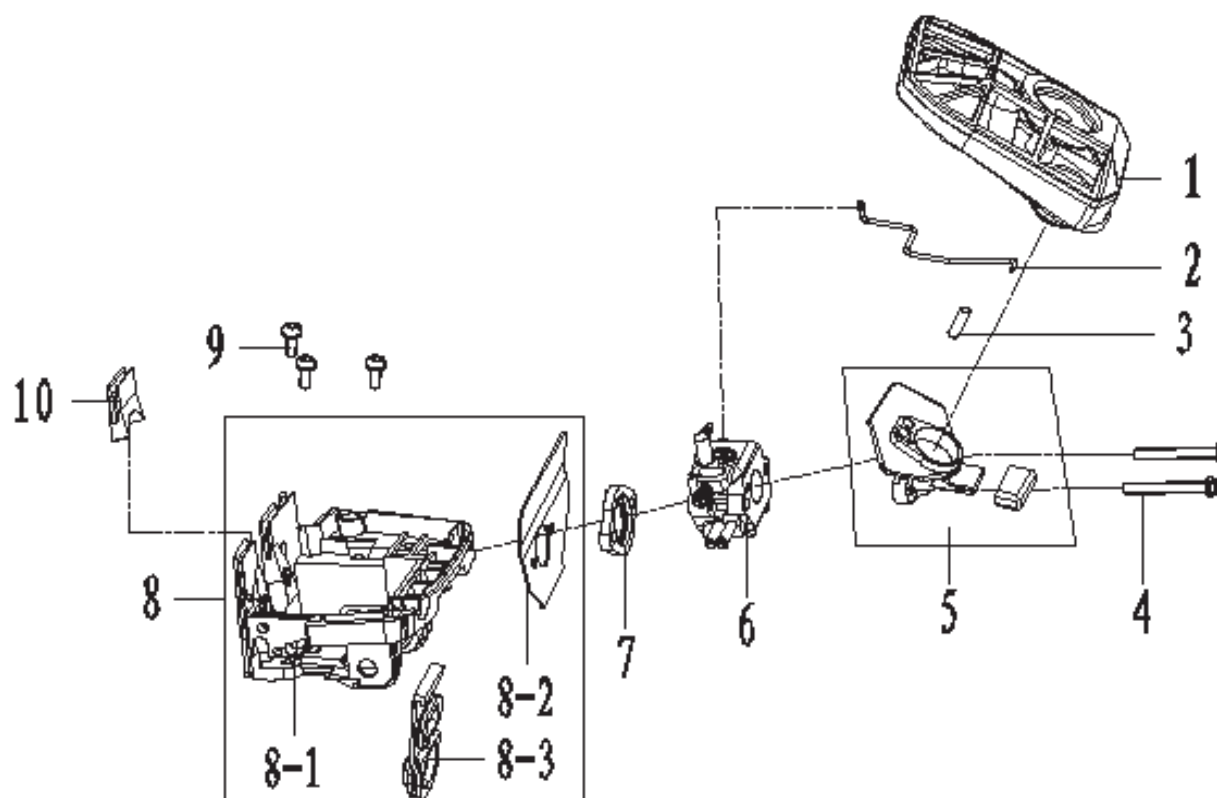
Part No.	Parts Description	Quantity
C1	Screw M5x16	4
C2	Starter Assembly	1
C2-1	Super Easy Starter Cover	1
C2-2	L H Sheathing	1
C2-3	Rope Sheathing	1
C2-4	Starting Rope	1
C2-5	Starting Handle	1
C2-6	Main Coil Spring	1
C2-7	Main Coil Spring Shell	1
C2-8	Reel	1
C2-9	Second Coil Spring	1
C2-10	Starter Wheel	1
C2-11	Flat Washer 5.4x16x1	1
C2-12	Screw St4.8x13	1
C3	Cooling-Air Mask	1

D.Clutch, Oil Pump



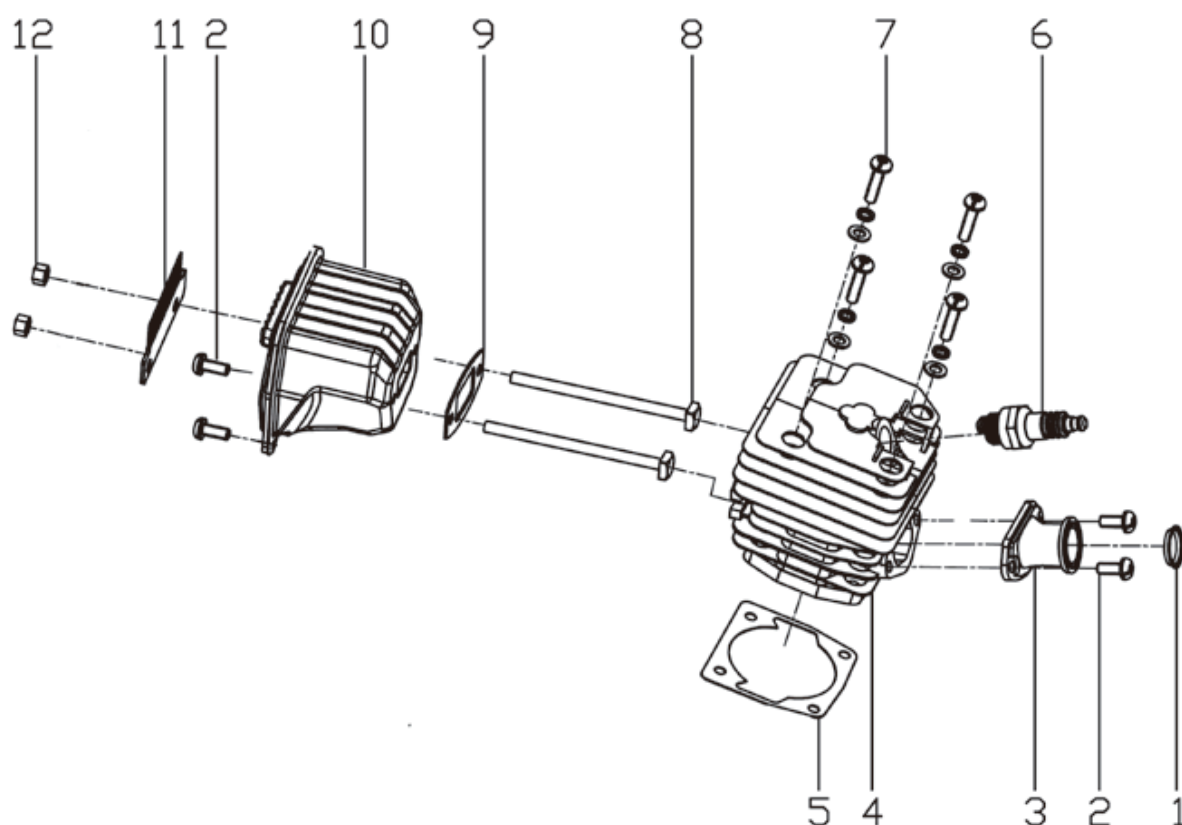
Part No.	Parts Description	Quantity
D1	Screw M4x14	2
D2	Oil Nozzle	1
D3	Oil Pump	1
D4	Sponge Ring	1
D5	Oil Tube	1
D6	Oil Filter	1
D7	Screw M4x10	3
D8	Oil Pump Cover Plate	1
D9	Worm	1
D10	Needle Bearing 12x15x14.5	1
D11	Clutch Shell	1
D12	Clutch Washer	1
D13	Clutch Assembly	1

E .Carburetor, Air Filter



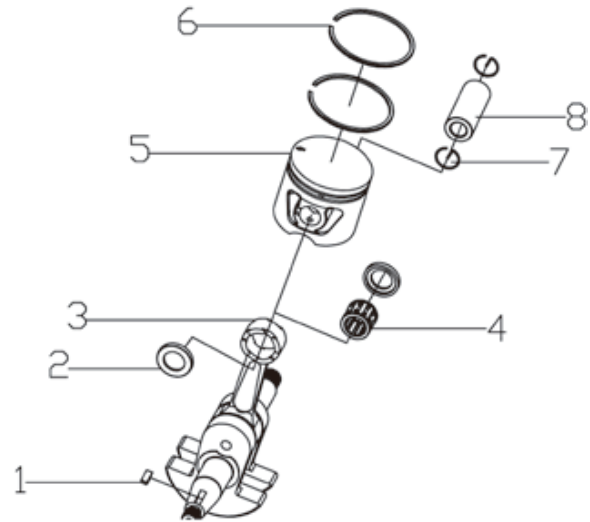
Part No.	Parts Description	Quantity
E1	air filter	1
E2	accelerator rod	1
E3	screw M5*39	1
E4	screw M5*52	2
E5	air intake	1
E6	carburetor	1
E7	air intake flange	1
E8	hot start backset assembly	1
E8-1	hot start backset	1
E8-2	air intake tube gasket	1
E8-3	dustproof block	1
E9	screw M5*12	3
E10	heat insulation spile	1

F. Cylinder, Silencer



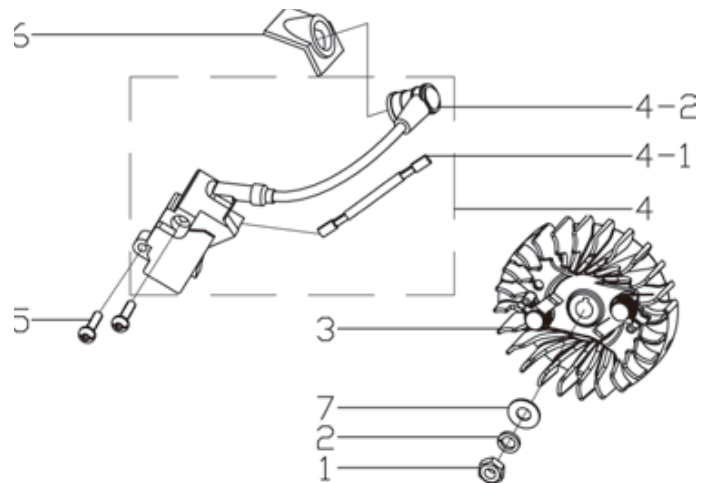
Part No.	Parts Description	Quantity
F1	Retainer Ring	1
F2	Screw M5x12	4
F3	Air Intake Tube	1
F4	Cylinder	1
F5	Cylinder Gasket	1
F6	Spark Plug	1
F7	Screw M5x20	4
F8	Silencer Bolt M5*87	2
F9	Silencer Gasket	1
F10	Catalyst Silencer	1
F11	Silencer Support	1
F12	Nut M5	2

G. Crankshaft, Piston



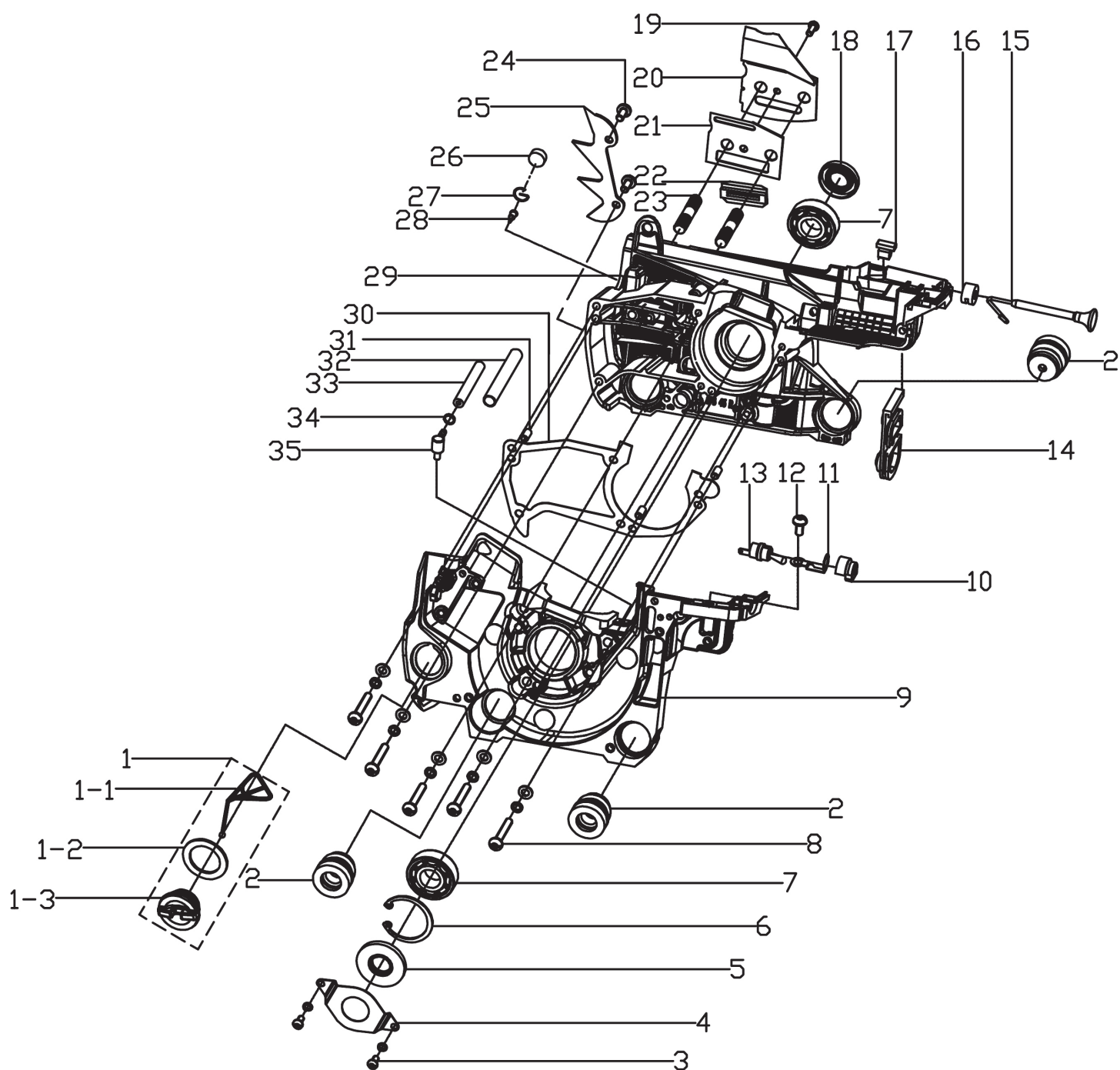
Part No.	Parts Description	Quantity
G1	Woodruff Key M3x10	1
G2	Needle Bearing Ring	2
G3	Crankshaft	1
G4	Needle Bearing 11x15x12.5	1
G5	Piston	1
G6	Piston Ring	2
G7	Piston Pin Circlip	2
G8	Piston Pin	1

H. Flywheel, Igniter



Part No.	Parts Description	Quantity
H1	Nut GB/T 6184 M8	1
H2	Spring Washer GB/T 93 8	1
H3	Flywheel	1
H4	Igniter	1
H5	Screw GB/T 70.1 M5x20	2
H6	Igniter Sheath	1
H7	Flat Washer 10x16x1.5	1

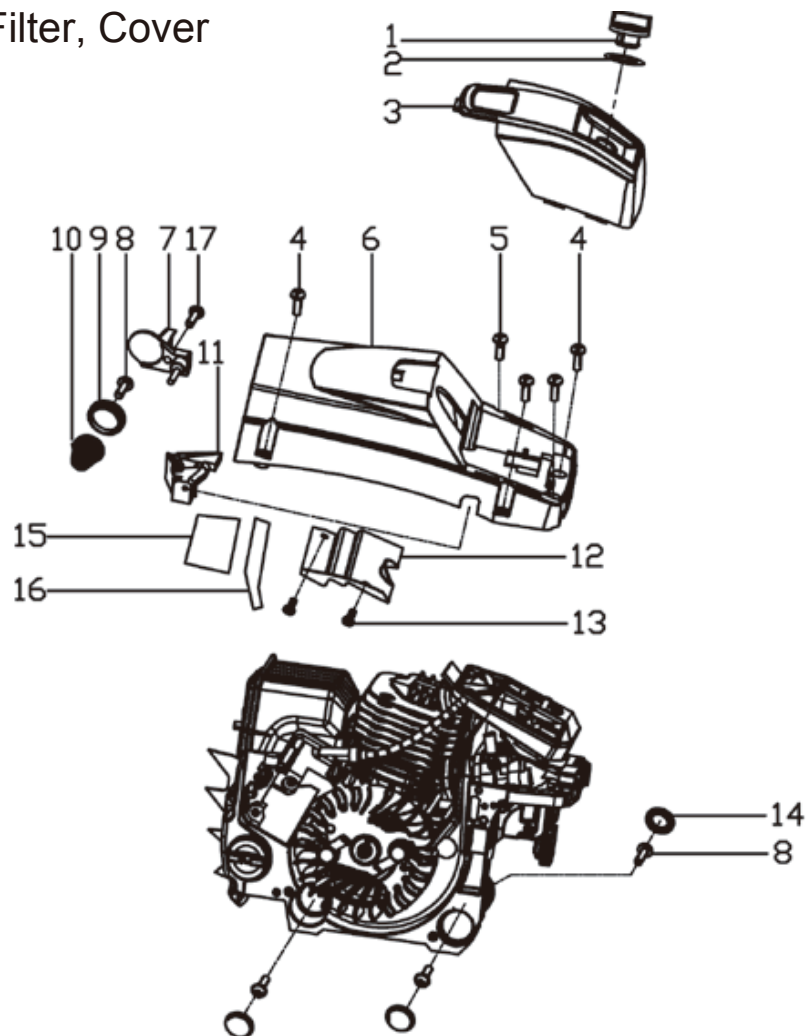
J. Engine Assembly



A. Handle, Fuel Tank

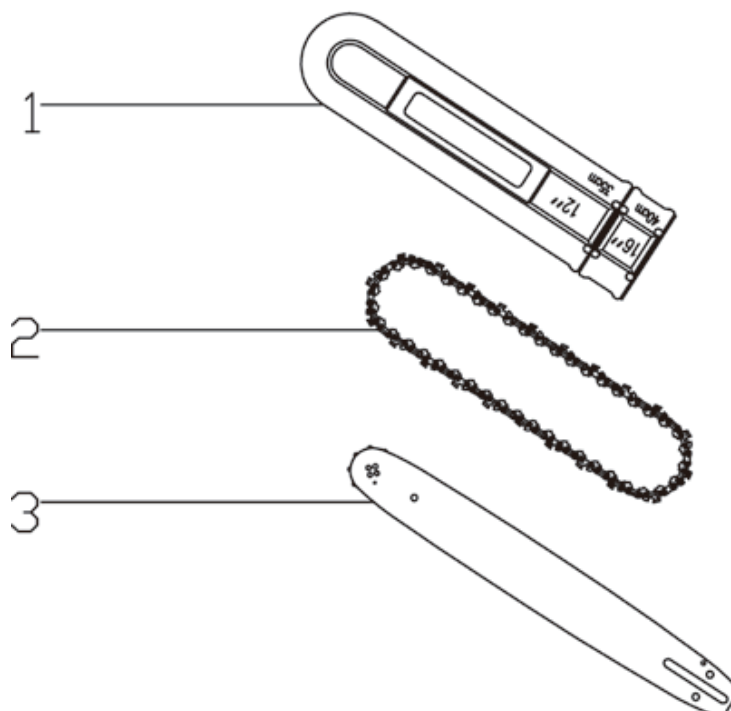
Part No.	Parts Description	Quantity
J1	Oil Tank Cap Assembly	1
J1-1	Oil Tank Cap	1
J1-2	Packing Washer	1
J1-3	Cap Retainer	1
J2	Short Damping Block	3
J3	Screw M4x8	2
J4	Oil Seal Protector	1
J5	Oil Seal 15x35x5	1
J6	Ring 35	1
J7	Bearing 6202	2
J8	Screw M5x30	5
J9	Left Crank Shaft Case	1
J10	Flameout Switch Retainer	1
J11	Flameout Switch	1
J12	Screw M5x10	1
J13	Ground Strip	1
J14	Dust Plate	1
J15	Throttle Rod	1
J16	Throttle Lever Retainer	1
J17	Anti-shock Block	1
J18	Oil Seal 15x28x5	1
J19	Screw St4x10	1
J20	Protecting Shield	1
J21	Protecting Shield Gasket	1
J22	Chain Guide	1
J23	Stud	2
J24	Screw M5*12	2
J25	Spiked Bumper	1
J26	Sponge Block	1
J27	Aeration Nozzle Circlip	1
J28	Aeration Nozzle	1
J29	Right Crank Shaft Case	1
J30	Pin 5x10	3
J31	Crank Shaft Case Gasket	1
J32	Insulating Bush	1
J33	Suction Tube	1
J34	Aeration Nozzle Circlip	1
J35	Suction Nozzle	1

K. Upper Cover, Air Filter, Cover



Part No.	Parts Description	Quantity
K1	Air Filter Lock Nut	1
K2	Lock Nut Washer	1
K3	Air Filter Cover	1
K4	Screw M5x16	4
K5	Screw M5x14	1
K6	Upper Cover	1
K7	Chain Catcher	1
K8	Screw St4.8x16	4
K9	Conical Spring Base	1
K10	Conical Spring	1
K11	Idle Adjusting Guide	1
K12	Air Flue Board	1
K13	Screw St4.2x8	2
K14	Dust Cover	3
K15	Aluminized Paper 1	1
K16	Aluminized Paper 2	1
K17	Screw M5x16	1

L. Bar Sleeve, Chain, Bar



Part No.	Parts Description	Quantity
L1	Bar cover	1
L2	Chain	1
L3	Bar	1