

Operating instructions

4-in-1 Multi Gardening Tool with 4-stroke Motor 64757

wiltec



Illustration similar, may vary depending on model

Please read and follow the operating instructions and safety information prior to initial operation.

Technical changes reserved!

Illustrations, functional steps, and technical data may deviate insignificantly due to continuous further developments.



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Introduction

Thank you for choosing to purchase this quality product. To minimise the risk of injury, we ask you to always take some basic safety precautions when using this product. Please read this operating manual carefully and make sure that you understand it.

Keep these operation instructions in a safe place.



This instruction manual contains information about the operation of the appliance and the safety precautions to be taken. Thoroughly read all safety warnings and instructions contained within this operation manual.

Warning! Always use the device strictly in accordance with the information and instructions in this manual. Failure to do so may result in property damage, serious injury, or even death.

Please note that this manual cannot cover all possible circumstances that may arise while working with the device. Therefore, be careful and attentive at all times and use the device appliance with common sense.

Keep this manual in a safe place for future reference. This manual contains important information about the safety, operation, maintenance, and storage of this device. Read all information carefully and familiarise yourself with the device before using it, otherwise its use may result in property damage, serious injury, or even death.

Upon receipt, take the device and its individual parts out of the box and check that they are complete and undamaged.

Under no circumstances may the device be modified without the manufacturer's consent. Only use spare parts identical in construction to the original parts for repair. Contact your nearest dealer for spare parts. Unauthorised modifications and/or accessories could result in serious injury or death to the operator or others. The warranty may not cover damage or liability caused by the use of non-approved accessories or non-approved spare parts.

Before using the product, please make sure that local laws and regulations do not impose restrictions on this type of product, or that the product meets the requirements of local laws and regulations.

Proper use

This device is designed exclusively **to trim and cut back shrubbery and hedges, prune branches, and trim and cut back grass and thin weeds** with the appropriate attachment. Any other use may cause damage to the device and its surroundings and also serious injury.

This device must not be used by children and other persons with reduced physical, sensory, or mental capabilities, or lack of experience and knowledge. Young persons over the age of 16 may use the device if they have been instructed in its correct use by a person familiar with its use and responsible for their safety, and if they are supervised by that person when using the device. Children should be supervised to ensure that they do not play with the device.





General safety instructions

Work area safety

- Always ensure that the work area is clean and adequately lit. Untidy or insufficiently lit work areas increase the risk of accidents.
- Do not operate the device in explosive environments or near flammable substances, liquids, gases, or dusts. When using the device, sparks may occur which may ignite gases or dusts.
- Bystanders must stay clear of the work area when the device is operated, as distractions can cause loss of control. Keep all bystanders, especially children, at least 15 m (50 ft) away from the work area.
- Always comply with local laws and regulations governing the use of electrically powered tools.


Personal safety

- Always be alert and do not use the device when being tired or under the influence of alcohol, drugs, or medicine.
- Take all necessary safety precautions to prevent the device from starting unintentionally. Do not press the switch when wearing the device and make sure that it is switched off before connecting it to the power supply. Any loss of control use can lead to material damage and/or serious injury.
-  **WARNING!** Long-term exposure to noise can lead to permanent hearing damage. Therefore, always use approved hearing protection. Also, always wear appropriate protective equipment, including but not limited to safety glasses, work gloves, and non-slip safety shoes when operating the device.
-  **WARNING!** Listen for warning signals or shouts when wearing hearing protection. Always remove your hearing protection as soon as the engine stops.
- Make sure that all adjustment tools or wrenches have been removed from the device before switching it on. These tools can be caught by moving parts and cause damage to the device and serious injury.
- Do not reach out too far and always maintain a firm footing.
- Always handle the device with care, keep it clean, sharp, and in pristine condition by servicing it regularly; this will prevent its function from being impaired. Operating sharpened and cleaned tools is easier and safer; poorly maintained or unmaintained tools increase the risk of accidents.
- Before operating the device, make sure that its moving parts cannot be obstructed in their movement.
- Have damaged parts repaired or replaced by a qualified electrician and do not use the device until it is in perfect condition again.
- Only use tools for their intended use and at the appropriate speed. It affects the performance of a tool and increases the risk of accidents when force is applied to the tool.
- Wear clothes made of sturdy fabric and avoid loose clothing that can get caught on twigs and branches. Always wear heavy, long trousers. Do not wear jewellery, short sandals; do not go barefoot. Tie your hair up at shoulder length.
- Always have a first-aid kit at hand.
- Always wear goggles to protect your eyes. Wear appropriately; do not wear loose clothing or jewellery that could get caught in moving parts. You should always wear safe, sturdy, and non-slip footwear. Long hair should be tied back. It is recommended to cover legs and feet to protect them from flying parts during operation.
- Use only recommended spare parts. Serious injury to the operator or bystanders and damage to the device could result.
- Keep the handles free from oil and fuel. Always use the right handles when cutting.
- Inspect the entire device for loose parts (nuts, bolts, screws, etc.) and possible damage. Repair or replace damage as necessary before using the device.
- Pay particular attention to operation in the rain or shortly after rain, as the ground can be slippery. If you slip or fall on the ground or in a hole, release the throttle immediately.
- Be careful not to drop the machine or hit it against obstacles.



- Never touch hot parts such as the muffler, high-voltage cable, or spark plug when starting or during operation of the engine.
- After the engine has been switched off, the muffler is still hot. Never place the device where there are flammable materials (dry grass, etc.), flammable gases, or flammable liquids.

Maintenance




- All maintenance and repair work on the device requires special training. This applies in particular to the safety equipment of the device. If the device fails any of the tests described below, you must contact your service partner.
-  **WARNING!** Never use a machine with defective safety equipment.
- Do not clean your machine with a high-pressure cleaner. The strong water jet can damage parts of the machine.
- Store the device in a dry place in a high place or under lock and key and out of the reach of children.
- Before storing the machine for more than a few days, always empty the fuel tank. Store fuel and the chain oil only in approved and properly labelled safety canisters. Be careful when handling petrol, avoid direct contact with the skin, and avoid inhaling fuel vapours!


Strap

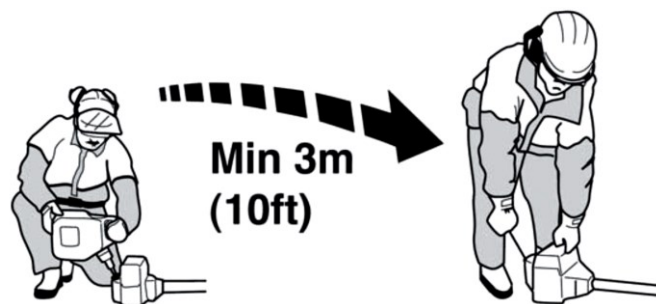
You should always use the strap with the device to have as much control over the device as possible and to reduce the risk of fatigue in your arms and back as much as possible.

1. Put on the harness.
2. Hang the machine on the hook of the harness holder.
3. Adjust the length of the belt so that the support hook is approximately at the level of your right hip.

Dangers associated with the use of fuel

- Use high-quality unleaded brand petrol with 89 octane or more.
- Never start the machine,
 - if you have spilt fuel on it. Wipe up the spilled fuel and allow the remaining fuel to evaporate.
 - if you have spilt fuel on yourself or your clothes. Change your clothes. Wash all parts of the body with soap and water that have come into contact with the fuel.
 - if fuel is leaking from the machine. Check regularly for leaks in the fuel-filler cap and fuel lines.
- Store and transport the device and fuel in such a way that there is no risk of escaping liquids or vapours coming into contact with sparks or open flames, e.g., from electrical machines, electric motors, electrical relays/switches, or boilers.
- Always use the designated, approved containers for storing and transporting fuel.
- If you store the machine for a longer period of time, the fuel tank must be emptied. Contact your local petrol station to find out where you can dispose of excess fuel.
- Make sure that the device is cleaned and fully serviced before long-term storage.
- The transport lock must always be attached to the cutting tool when transporting or storing the device.
- Secure the device during transport. To prevent accidental starting of the engine, the spark-plug cap must always be removed during long-term storage, when the device is not under close supervision, and when you perform any maintenance.
-  **WARNING!** Use caution when handling fuel. Remember the danger of fire, explosion, and inhalation of vapours.
-  **WARNING!** Fuel and fuel vapours are highly flammable and can cause serious injury if inhaled or in contact with skin. Therefore, be especially careful when handling fuel and ensure adequate ventilation.
-  **WARNING!** If you observe the following precautions, you will reduce the risk of fire:

- Do not smoke or place hot objects near the fuel.
- Always switch off the engine before refuelling and let it cool down for a few minutes before adding fuel.
- When refuelling, open the fuel filler cap slowly so that the excess pressure does not escapes abruptly.
- Carefully close the tank again with the cap after refuelling.
- Always remove the machine from the tank area before starting.
- Clean the area around the fuel filler cap. Contaminants in the tank can lead to operating faults.
- Make sure htat the fuel is well mixed by shaking it before filling the tank.
-  **WARNING!** The catalytic-converter silencer becomes very hot during and after use. This also applies to the idle speed. Be aware of fire hazards, especially when working near flammable substances and/or vapours.



Dangers associated with vibrations

The so-called Raynaud's phenomenon, which attacks the fingers of certain people, is generally believed to be triggered by vibrations and cold. Exposure to vibrations and cold can cause tingling and burning sensations, followed by discolouration and numbness of the fingers. Certain precautions are strongly recommended as the minimum exposure that can cause the disease is not known.

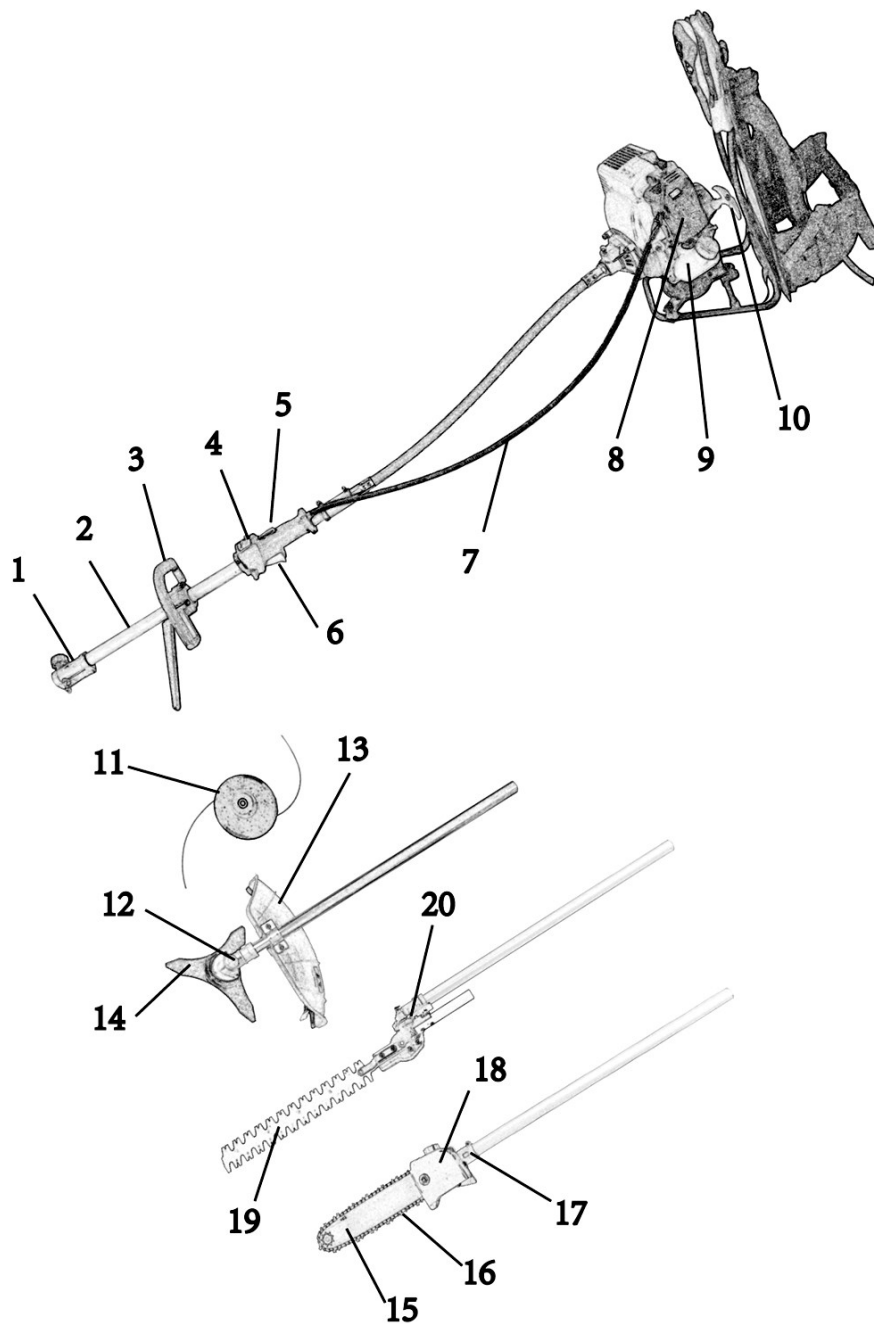
- Operation at low speed can reduce noise and vibrations.
- To reduce noise pollution, the pole pruner should be operated in an open environment.
- The vibrations can be reduced if you grip the handle tightly.
- To avoid disturbing others, the device should only be operated during the day.
- Put on personal protective equipment, e.g., gloves and ear protection, during the operation.
- The device is not suitable for professional work and not for continuous operation.
- To preserve the user's health and prolong the life of the device, do not use the device for more than 2 hours a day and do not use it for more than 10 min at a time. Change your working position often.
- Keep your body warm, especially your head, neck, feet, ankles, hands, and wrists.
- Ensure good blood circulation by doing vigorous arm exercises during frequent work breaks and by not smoking.
- Limit the working hours.
- If you notice discomfort, redness, and swelling on your fingers, followed by whitening and loss of sensation, you should consult your doctor before further exposure to cold and vibration.

Residual risks

Even if the device is used according to the instructions in this manual, certain residual dangers may remain. The following dangers may occur depending on the design and characteristics of the device:

- Operating the unit without a dust mask or protective mask can affect the lungs.
- Operating the device without hearing protection may damage hearing.
- Operating the device for a long period of time without a break can be harmful to health due to vibrations; furthermore, a poorly maintained or incorrectly operated device can be harmful to health.

Overview of the main components of the entire device




Nº	Name	Nº	Name	Nº	Name
1	Knob screw	8	Air filter cover	15	Guide rail
2	Driveshaft housing	9	Fuel tank	16	Saw-chain
3	Curved handle	10	Starting motor	17	Gear housing
4	Ignition switch	11	Cutting-thread housing	18	Chain cover
5	Throttle cable	12	Gear housing	19	Blade
6	Throttle lever	13	Protective shield	20	Gear housing
7	Throttle cable	14	Blade		





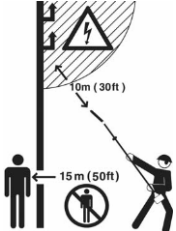








PART 1: HEDGE CUTTER

Safety instructions

Warning symbols

 Some of the following symbols may be on or near the device. Please take note of them and learn their meaning. Knowing the meaning of these icons will help you operate the device better and more safely.

Symbol	Name	Meaning
	Danger warning	Indicates danger, warns, or urges caution. Attention! It is about your safety!
	Read instructions	Read the operating instructions and follow all warnings and safety instructions.
	Cutting device	Do not touch the tool without first switching off the motor.
	Keeping away spectators	Keep all bystanders at least 15 m (50 ft) away and maintain a sufficient safety distance between the cutter handle and power lines.
	Keep a distance from high-voltage power lines	Always keep a minimum distance of 10 m between the device and a high-voltage line and/or objects touching it.
	Solid shoes	Wear non-slip safety footwear when using the device.
	Gloves	Wear non-slip work gloves.
	Do not smoke.	Do not smoke when mixing or refilling fuel.
	Fuel	Use unleaded petrol intended for use in motor vehicles and having an octane rating of 91 ([R+M]/2) or higher.
	—	Press the primer button all the way down 5 times and release it again.
	—	All relevant directives that apply to CE marking and the product are fulfilled.



	<p>—</p>	<p>Wear eye, ear, and head protection when operating this device.</p>
	<p>—</p>	<p>To reduce the risk of injury or damage, avoid contact with any hot surface.</p>
	<p>—</p>	<p>Guaranteed sound power level</p>

Special safety instructions for hedge cutters

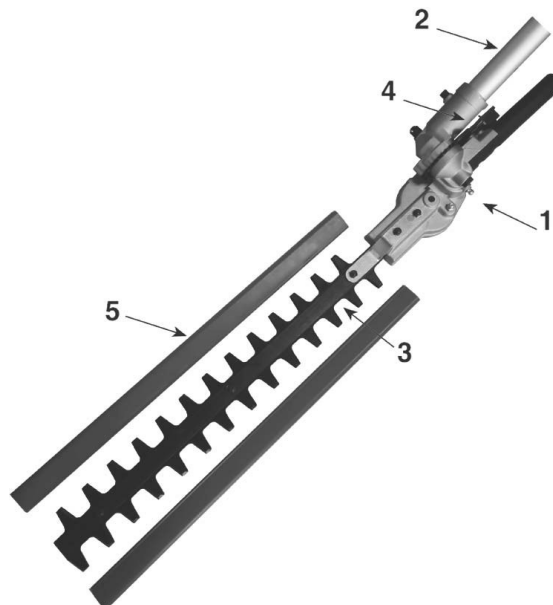
- The device is only suitable for cutting branches and twigs. Never use a device that has been modified in any way from its original purpose.
- Never use the device when you are tired, under the influence of alcohol or medication. Your vision, judgement, or coordination may be affected.
- Never use the device in extreme weather conditions such as severe cold, very hot, and/or humid climates.
- Never use a defective device. Carry out the inspection, maintenance, and service instructions described in this manual. Some maintenance and servicing must be carried out by trained personnel.
- All covers and guards must be in place before take-off.
- Make sure that the spark-plug cap and the ignition cable are undamaged to avoid the risk of electric shock.
- **WARNING!** This machine generates an electromagnetic field when in operation. This field can affect the functioning of active or passive medical implants under certain conditions. To reduce the risk of serious injury or death, we recommend that persons with medical implants consult their physician and the medical implant manufacturer before operating this device.
- **WARNING!** Operating an engine in a confined or poorly ventilated area can result in death by suffocation or carbon monoxide poisoning.
- **WARNING!** Never allow children to use the device or be near it. Since it can be started with low speed and force on the starter handle, even small children may be able to muster the necessary strength to start it. This may result in a risk of serious injury. Therefore, remove the spark-plug connector when the machine is not under supervision.
- **WARNING!** Defective knives can increase the risk of accidents.



Technical specifications

	Functional part	PART 1: HEDGE CUTTER			
Main device	Drive type	Spiral bevel gear; drive shaft			
	Max. Speed of the gearbox/motor (rpm)	1628 / 10000			
	Idle speed (rpm)	2800 + 150			
	Reduction	7:43			
	Direction of rotation of the blade	Counterclockwise (seen from above)			
	Handle type	D-shaped handle			
	Empty weight (kg)	9			
	Cutting attachment	Type of cut	Cutting knife		
		Number of teeth	26		
		Distance of teeth (mm)	30		
Usable cutting width (mm)		390			
Max. cutting diameter (mm)		5			
Motor	Motor designation	139FN	139F	140F	
	Type	Air-cooled 4-stroke petrol engine with vertical piston valve			
	Displacement (ml)	31	31	37.7	
	Max. power (kW / min)	0.7 / 6500	0.7 / 6500	1.0 / 6500	
	Tank volume (l)	0.7	0.9	0.65	
	Empty weight (kg)	3.5	4.2	3.8	
	Carburettor	Diaphragm			
	Ignition	Contact-free electronic ignition			
	Starting procedure	Pull starter			
	Fuel	Petrol			

Main components

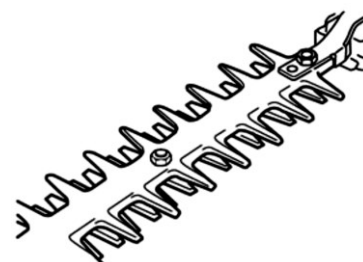


Nº	Name	Nº	Name	Nº	Name
1	Gear housing	3	Cutting device (blade)	5	Blade guard
2	Connecting rod	4	Release lever (for tilt adjustment)		

Commissioning

Checks before start

- Examine the work area. Remove all objects that could be thrown up.
- Check the cutting attachment. Never use dull, cracked, or damaged blades.
- Check if the device is working properly. Check that all nuts and bolts are tight.
- Make sure that the gearbox housing is properly lubricated. See instructions of section "Gearbox housing."
- Make sure that the cutting unit always stops when the engine is idling.
- Only use the device for applications that is has been designed for.
- Make sure that the handle and safety devices are in good condition. Never use a device from which a part is missing or has been modified outside the specifications.
- All covers must be properly fitted and undamaged before starting the machine.




Starting and stopping

! WARNING! The entire coupling cover and shaft must be fitted before starting the device, otherwise the coupling may come loose and cause injury.

! WARNING! Always move the machine about 3 m away from the refuelling point before starting it. Place the device on a solid surface. Remember that the blades may already be moving when the engine



is started. Make sure that the knives do not come into contact with any object. Make sure that no unauthorised persons are in the working area, otherwise there is a risk of serious injury.

 **WARNING!** The safety distance is 15 m.

Starting

- **Primer bulb:** Press the vent button repeatedly until the bulb fills with fuel. It does not need to be completely filled.
- **Choke:** Set the choke control to choke.
- Hold the machine housing on the floor with your left hand (**CAUTION! Not with the foot!**). Take the starter handle in your hand, pull the rope out slowly with your right hand until you feel resistance (the starter pawls grip), and now pull the rope quickly and firmly.
- Push the choke lever back to the starting position as soon as the engine fires and keep trying until the engine starts.
- **CAUTION!** Do not pull the starter cable all the way out and do not release the starter handle when the cable is fully pulled out. This may damage the machine.
- **CAUTION!** Do not hold any part of your body in the marked area. Contact may cause burns to the skin or electric shock if the spark plug connector is damaged. Always use gloves. Do not use a machine with a damaged spark plug connector.




Stopping


The motor is switched off by setting the stop switch to stop.

Working techniques

General work instructions

IMPORTANT! This section covers the basic safety precautions for working with a hedge cutter. If you get into a situation where you are unsure how to proceed, you should ask a professional. Contact your dealer or service workshop. Avoid any use that you find overwhelming.

 **WARNING!** The device can cause serious injuries. Thoroughly read the safety instructions. Learn how to use the machine.

 **WARNING! Cutting tool!** Do not touch the tool without first switching off the motor.

Protection of the own person

- Always wear boots and other equipment described under “Personal safety.”
- Always wear work clothes and durable long trousers.
- Never wear loose clothing or jewellery.
- Make sure that your hair does not hang down over your shoulder.
- Never work from a ladder, stool, or other elevated position that is not fully secured.

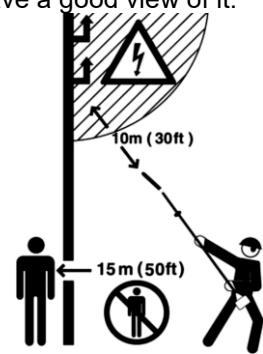


Protection of other persons

- Never allow children to use the device.
- Make sure that no one comes closer than 15 m to you while you are working.
- Never allow other people to use the device without first making sure that they know the contents of the user manual.
- Remember that the operator is responsible for accidents to other people or for hazards to which they or their property are exposed.

Safety instructions during work

- Always ensure a safe and stable working position.
- Always hold the device with both hands. Hold the device at the side of your body.
- Use your right hand to operate the throttle.
- Make sure that your hands and feet do not come close to the cutting unit when the engine is running.
- When the engine is stopped, keep your hands and feet away from the cutting unit until it has come to a complete stop.
- Watch out for branch stumps that can be thrown out when cutting.
- Always place the device on the floor when not in use.
- Do not cut too close to the ground. Stones and other objects can be thrown around.
- Check the working area for foreign objects such as power cables, insects, and animals, etc., or other objects that could damage the cutting attachment, e.g., objects made of metal.
- If you encounter a foreign object or if vibrations occur, stop the device immediately. Disconnect the connection between the ignition coil and the spark plug. Check if the device has been damaged. Repair any possible damage.
- If anything gets caught in the blades while you are working, switch off the engine and wait until it has come to a complete stop before cleaning the blades. Disconnect the connection between the ignition coil and the spark plug.
- Never put down the machine with the engine running unless you have a good view of it.
- This device is not electrically insulated. If the device touches or comes close to high-voltage power lines, death or serious injury may result. Electricity can jump from one point to another, forming an arc. The higher the voltage, the greater the distance that the current can jump. Electricity can also flow through branches and other objects, especially if they are wet. Always keep a distance of at least 10 m between the device and a high-voltage line and/or objects touching it. If you need to work within this safety distance, you should always contact the relevant power-supply company to ensure that the power is switched off before you start work.



Safety instructions after completing work

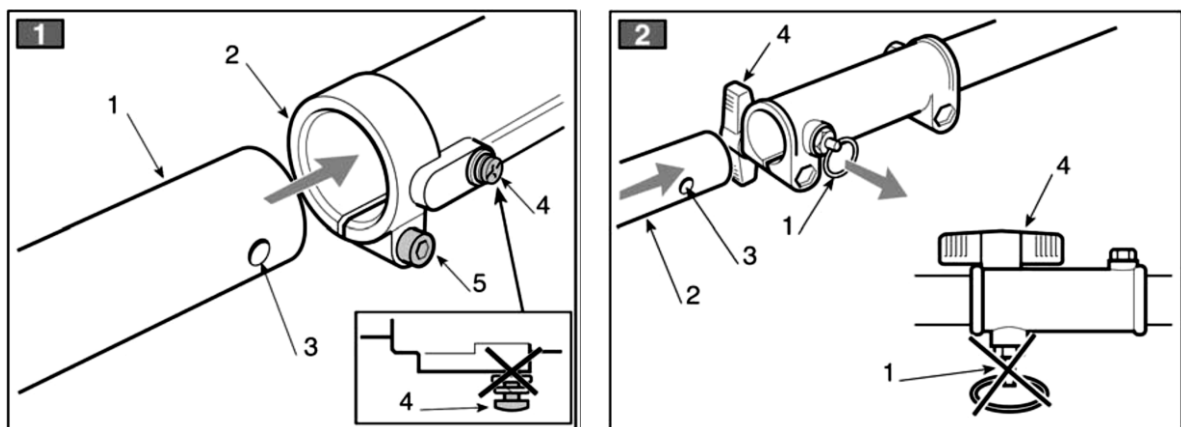
- The transport lock should always be attached to the cutting tool when the machine is not in use.
- Make sure the cutting unit has stopped before cleaning, servicing, or inspecting it.
- Disconnect the connection between the ignition coil and the spark plug.
- Always wear heavy-duty gloves when repairing the cutting attachment. The attachment is extremely sharp and can easily cause cuts.
- Always keep the device out of children's reach.
- Only use original spare parts for repairs.



Basic working techniques

- When cutting the sides, work with a sweeping motion from the bottom to the top.
- Adapt the throttle setting to the load.
- When cutting a hedge, the motor should always point away from the hedge.
- Hold the device as close to your body as possible to achieve good balance.
- Make sure that the tip does not touch the ground.
- Do not rush the work, but work evenly until all branches are neatly cut back.

Using the device



Assembling the bars (Fig. 1)

- Insert the shaft (1) into the sleeve (2) so that the hole (3) and screw (4) are aligned.
- Tighten the two screws (4) and (5) completely; the head of the screw (4) must no longer protrude when it is tightened.

Connecting the hedge-cutter attachment (Fig. 2)

- Latch the locking pin (1) into the hole (3) in the shaft, which is easier if you turn the bottom of the shaft (2) slightly in both directions.
- (1) is in place when it is fully inserted in the hole.
- Tighten the knob (4) firmly after insertion.

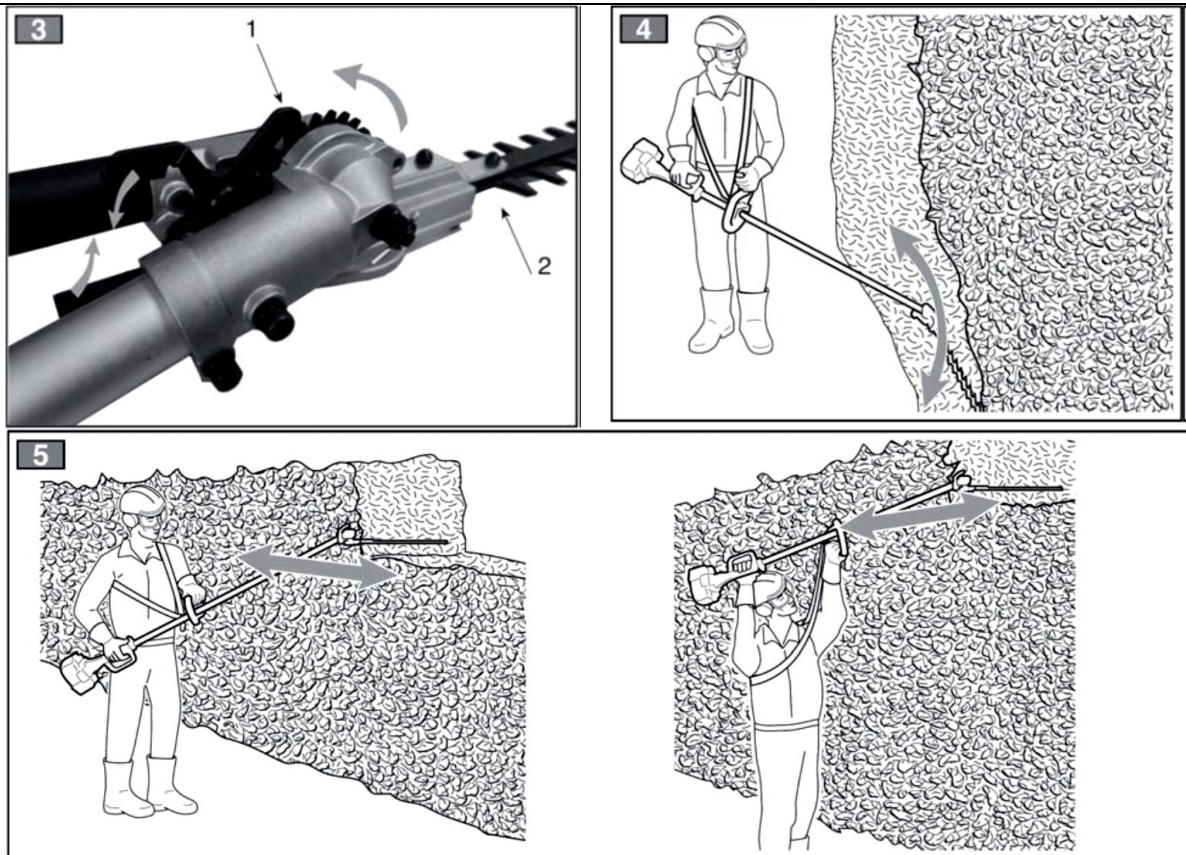
Check before operation

IMPORTANT! Also read the operating instructions for the hedge cutter carefully.
Before you start working:

- Check that all screws on the machine and on the blade are tight.
- Check that the blades are sharp and show no signs of damage.
- Check that the guards are properly attached and working correctly.
- Check that the handles are properly attached.

Use

- Cut branches up to a maximum diameter of 4.5 mm; cutting larger diameter branches could damage the hedge trimmer.
- Adjust the tilt angle EXCLUSIVELY with the motor switched off. Switch off the engine before removing branches that have become caught in the blades.
- Never bring the blades close to body parts while working.
- Do not attach the blade guard until the device is switched off.



Adjusting the blade tilt (Fig. 3)

- Switch off the engine and wait until the blade stops.
- Loosen the knob (1) and tilt the cutter (2) as desired.
- Tighten the rotary knob (1). If the knob does not move sufficiently to ensure that it is tightened, pull out and reposition it so that it can be tightened securely.

WARNING! Do not work if the cutter is not securely fastened.

Vertical trimming (Fig. 4)

Cut in an arching motion from bottom to top, keeping the blade as far away from the body as possible.

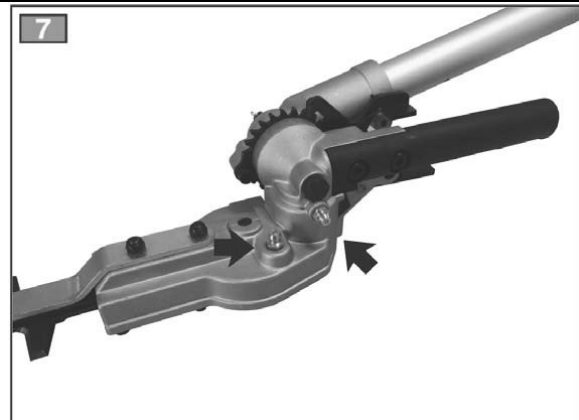
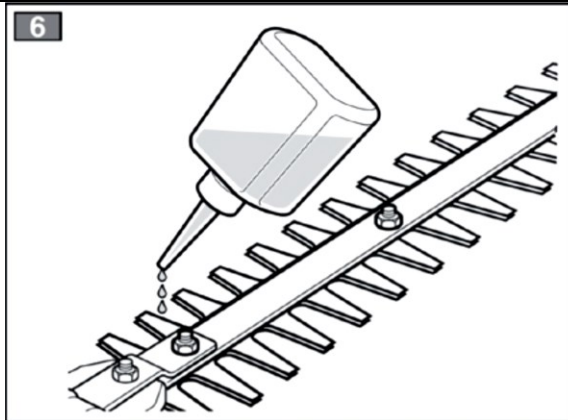
Horizontal trimming (Fig. 5)

For best results, tilt the blade slightly (5–10°) in the cutting direction. Continue with an arching movement slowly and without interruption, especially if the hedge is very dense.

Lubricating the blades during work (Fig. 6)

If the cutter becomes excessively hot during operation, lubricate the inner surfaces of the blade with special oil.

WARNING! This operation must only be carried out when the blades have stopped running and the engine is switched off.



Maintenance and storage

⚠ WARNING! Only work on the device when the motor is switched off.

Blade reduction gear in protective housing (Fig. 7)

- Apply lubricant every 20 hours of operation via the grease nipples provided.
- Use only lithium-based grease at high temperatures and extreme pressure.

Maintenance and sharpening of the blade

⚠ WARNING! Check regularly that the blades are not bent or damaged and that the fixed comb on the blade is intact.

- It is not necessary to adjust the distance between the blades, as this is specified by the manufacturer.
- If you use the blades correctly and follow all the instructions provided, you will not need to maintain or sharpen them.
- You only need to sharpen the blades when the cutting performance decreases and the branches tend to get stuck.

NOTE: Any intervention on the blade should always be carried out in a specialised workshop that has the most suitable tools and where one is able to carry out the work without endangering the safety of the machine.

Maintenance schedule

The following is a list of maintenance tasks that need to be performed on the device. Some of these points are described in the section “Maintenance.” The user may only carry out the maintenance and service work described in this manual. Further work must be carried out by a specialist workshop.



Maintenance action	Daily	Weekly	Monthly
Cleaning the outside of the device	X		
Ensuring that the throttle lock and lever function properly in terms of safety	X		
Checking the correct function of the stop switch	X		
Making sure that the blade does not move when the engine is idling or the choke is on starting throttle	X		
Checking that the blades are undamaged and show no signs of cracks or other damage. Replacing the blades when necessary	X		
Cleaning the air filter Replacing when necessary	X		
Checking that the nuts and bolts are tight.	X		
Ensuring that no fuel leaks from the engine, tank, or fuel lines	X		
Checking the starter motor and cable		X	
Check if the vibration-damping elements are damaged		X	
Cleaning the outside of the spark plug – removing and checking the electrode gap – adjusting the gap to 0.5 mm or replacing the spark plug – checking if the spark plug is installed with silencer		X	
Cleaning the cooling system of the device		X	
Cleaning or replacing the spark arrester grid on the exhaust (only applies to mufflers without catalytic converter)		X	
Cleaning the outside of the carburettor and the space around it		X	
Fill the gearbox housing with grease – approximately every 60 hours of operation		X	
Checking that the screws holding the blades together are properly tightened		X	
Cleaning the fuel tank			X
Check fuel filter for dirt and fuel hose for cracks or other damage – replace if necessary.			X
Checking all cables and connections			X
Checking the clutch, the clutch springs, and the clutch drum for wear – replace, if necessary, in a specialist workshop.			X
Replacing the spark plug – make sure that the spark plug is fitted with a spark arrestor			X
Checking and cleaning the spark arrester grid on the exhaust (only applies to mufflers with catalytic converter)			X
Clearing the exhaust and engine of dirt, leaves, and excess lubricant, etc. to reduce the risk of fire			X

PART 2 POLE PRUNER

Safety instructions

Warning symbols

Some of the following symbols may be on or near the device. Please take note of them and learn their meaning. Knowing the meaning of these icons will help you operate the device better and more safely.





Symbol	Name	Meaning
	Danger warning	Indicates danger, warns, or urges caution. Attention! It is about your safety!
	Read instructions	Read the operating instructions and follow all warnings and safety instructions.
	Solid shoes	Wear non-slip safety footwear when using the device.
	Gloves	Wear non-slip work gloves.
	Keep a distance from high-voltage power lines	Always keep a minimum distance of 10 m between the device and a high-voltage line and/or objects touching it.
	Do not smoke.	Do not smoke when mixing or refilling fuel.
	—	Wear eye, ear, and head protection when operating this device.
	Beware of the chain saw – avoid kickback and contact with the pole tip!	Move the chainsaw upwards from the trunk!

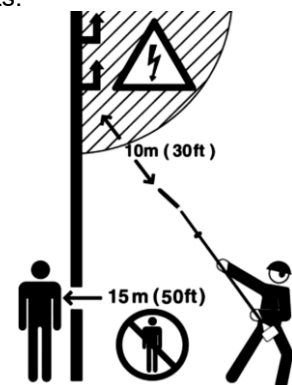
WARNING! DANGER! Exhaust fumes contain chemicals that can cause cancer, birth defects, or other reproductive harm.

Special safety instructions for pole pruners

- Never use the device when you are tired, under the influence of alcohol or medication. Your vision, judgement, or coordination may be affected.
- Never use the device in extreme weather conditions such as severe cold, very hot, and/or humid climates.

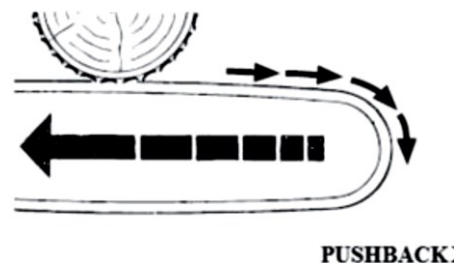
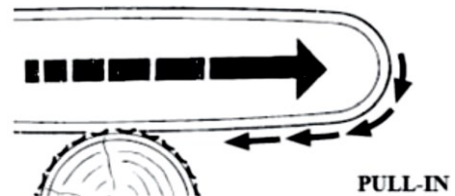
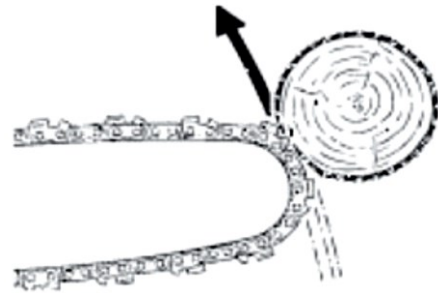


- Never use a defective device. Carry out the inspection, maintenance, and service instructions described in this manual. Some maintenance and servicing must be carried out by trained personnel.
- All covers and guards must be in place before take-off.
- Make sure that the spark-plug cap and the ignition cable are undamaged to avoid the risk of electric shock.
- Make sure that the parts do not become loose or overheat. If there are any unusual phenomena on the device, stop operation immediately and check it carefully. If necessary, have the device serviced by a specialist. Never continue to operate a machine that may be malfunctioning.
- Never touch hot parts such as the muffler, high-voltage cable, or spark plug when starting or during operation of the engine.
- This device should only be worn in a horizontal position. Grasp the handle so that the device is balanced horizontally. Keep the hot muffler away from your body and the cutting tool behind you. Accidental starting of the engine can cause the chain to rotate and cause serious injury.
- Always switch off the engine and place the sheath over the cutting unit of the attachment before transporting the power tool over long distances. When transporting the device in a vehicle, secure it properly to prevent overturning, fuel spillage, and damage to the device.
- After switching off the engine, the muffler is still hot. Never place the machine where there are flammable materials (dry grass, etc.), flammable gases, or flammable liquids.
- Before starting adjusting or repairing of the machine, you must stop the engine and remove the spark-plug cap from the spark plug.
- Never attempt to operate the device with one hand. Loss of control of the device can result in serious or fatal injury.
-  **WARNING!** This machine generates an electromagnetic field when in operation. This field can affect the functioning of active or passive medical implants under certain conditions. To reduce the risk of serious injury or death, we recommend that persons with medical implants consult their physician and the medical implant manufacturer before operating this device.
-  **WARNING!** Operating an engine in a confined or poorly ventilated area can result in death by suffocation or carbon monoxide poisoning.
-  **WARNING!** Never allow children to use the device or be near it. Since it can be started with low speed and force on the starter handle, even small children may be able to muster the necessary strength to start it. This may result in a risk of serious injury. Therefore, remove the spark-plug connector when the machine is not under supervision.
-  **WARNING!** Defective knives can increase the risk of accidents.
- This device is not electrically insulated. If the device touches or comes close to high-voltage power lines, death or serious injury may result. Electricity can jump from one point to another and form an arc. The higher the voltage, the greater the distance that the current can jump. Electricity can also flow through branches and other objects, especially if they are wet. Always keep a distance of at least 10 m between the device and a high-voltage line and/or objects touching it. If you need to work within this safety distance, you should always contact the relevant power-supply company to ensure that the power is switched off before you start work.



Dangers associated with kickback

- Kickback may occur if the moving saw chain hits a solid object near the top nose or becomes wedged. The reaction of the cutting force of the chain causes a rotational force on the chainsaw opposite to the movement of the chain. This can cause the bar to move upwards.
- This is how you avoid a kickback: The best protection against kickback is to avoid certain working conditions:
 1. Always be aware of where the nose of the guide bar is.
 2. Make sure that the nose of the guide bar never touches an object. Do not cut through branches with the nose of the guide bar. Be particularly careful near wire fences and when cutting small, tough branches in which the chain can easily get caught.
 3. Only cut one branch at a time.
- Sudden forward movement: It occurs when the chain is suddenly stopped at the bottom of the pole, when it is caught, gets stuck, or hits a foreign object in the wood. The reaction of the chain pulls the saw forward.
- It often occurs when the chain does not rotate at full speed before it hits the wood.
- Avoid sudden forward movement:
 1. Watch out for forces or situations that could cause the material that the saw is cutting through to warp the chain at the bottom of the guide bar.
 2. Always start a cut at the full speed of the chain.
- Sudden backward movement: It occurs when the chain is suddenly stopped at the top end of the bar, when it gets caught, gets stuck, or hits a foreign object in the wood. The reaction of the chain can drive the saw quickly and directly back at the operator. A sudden backward movement often occurs when the upper part of the bar is used for cutting.
 1. Be aware of forces or situations that may cause the chain to become trapped at the top of the bar.
 2. Do not cut more than one branch at a time.
 3. Do not twist the bar when pulling it back from an undercut as the chain may get caught.



⚠ WARNING! Keep the chain, bar, and sprockets clean; replace worn sprockets or chains. Keep the chain sharp. You can recognise a blunt chain by the fact that wood easy to cut is difficult to cut or burn marks appear on the wood. Retighten all nuts, bolts, and screws except the carburettor adjustment screws after each use. For maintenance work, please also refer to the maintenance schedule in this manual.



Technical specifications

Functional part		PART 2: POLE PRUNER			
Main device	Drive type	Spiral bevel gear; drive shaft			
	Max. Speed of the gearbox/motor (rpm)	9530 / 9000			
	Idle speed (rpm)	2800 + 150			
	Reduction	18:17			
	Handle type	D-shaped handle			
	Empty weight (kg)	7.3			
	Cutting attachment	Cutting length (mm)	255		
		Nose sprocket (number of teeth)	9		
Oil tank volume (ℓ)		0.1			
Saw-chain type		OREGON 91 VG (Picco Micro Mini (3/8" P))			
Guide-bar type		JF10-40-50 A			
Motor	Motor designation	139F N	139F	140F	
	Type	Air-cooled 4-stroke petrol engine with vertical piston valve			
	Displacement (mℓ)	31	31	37.7	
	Max. power (kW / min)	0.7 / 6500	0.7 / 6500	1.0 / 6500	
	Tank volume (ℓ)	0.7	0.9	0.65	
	Empty weight (kg)	3.5	4.2	3.8	
	Carburettor	Diaphragm			
	Ignition	Contact-free electronic ignition			
	Starting procedure	Pull starter			
	Fuel	Petrol			

Cutting guide

Cutting order

- To allow the branches to fall freely, always cut the lower branches first.
- Cut back heavy branches (large diameter) in several controllable pieces.
- Never stand directly under the branch that you are pruning.
- Be careful of falling branches. Note that a branch can bounce off the ground after impact. **Risk of injuries!**

Removing the cut branches

Do not throw the cuttings in the rubbish bin. Feed it into the composting process.

Working techniques

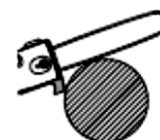
Hold the handle with your right hand and the shaft with your left hand, with your left arm comfortably extended. Always hold the handle with your left hand where the choke cable disappears into the handle. The handle should always be held at an angle of 60° or smaller. The least tiring working position is an angle of 60°. Depending on the circumstances, a smaller angle can also be formed.



! WARNING! If you are using the machine and the saw chain is blocked by the branch, you must turn the saw around and saw the branch again.

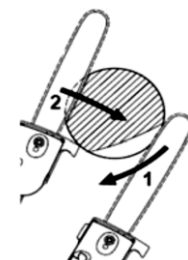
Cross-section

To avoid pinching the handle when cutting, position the cutting attachment with the hook against the branch and then pass the scissors crosswise from top to bottom.



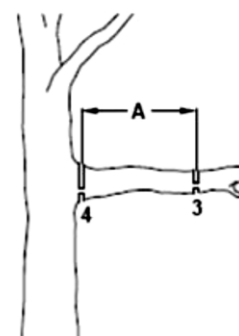
Relief cutting

To avoid that the bark of thick branches tears, always make a relief cut **(1)** on the underside of the branch first. To do this, place the cutting attachment and pull it in an arc over the underside of the branch to the tip of the stem. Make the cross cut **(2)** – position the shaft with the hook against the branch and then cut across.



Pruning thick branches on both sides

If the diameter of the branch is more than 10 cm (4 in), first make a cut from the bottom **(3)** and then make a cross-section at a distance of about 20 cm **(A)** from the last cut. Then make the next cut **(4)**, starting with a relief cut and ending with a cross cut.



Cutting over obstacles

The long reach of the device enables pruning of branches over obstacles such as rivers or lakes. The tool angle in this case depends on the position of the branch.

Cutting from a lifting bucket

The long reach of the device allows cutting at trunk height without the lifting bucket damaging other branches. The angle of the tool in this case depends on the position of the branch.



Attaching the rail and chain

Removing the sprocket cover

- Unscrew and remove the cover (1).
- Turn the screw (2) anticlockwise until the tensioner slide rests against the left end of the housing slot and then turn it back 5 full turns.

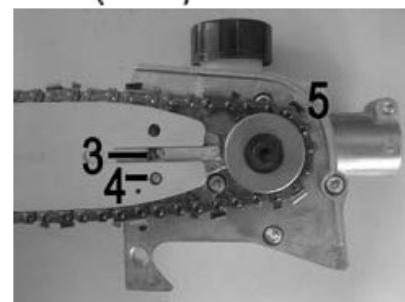
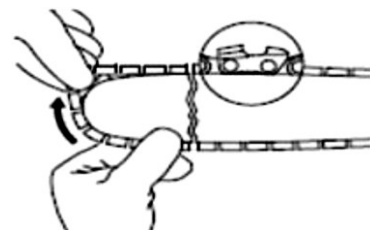
! WARNING! Adjustment of the guide bar and chain may only be carried out with the engine stopped.



Attaching the chain

! WARNING! Wear work gloves to protect your hands from the sharp blades.

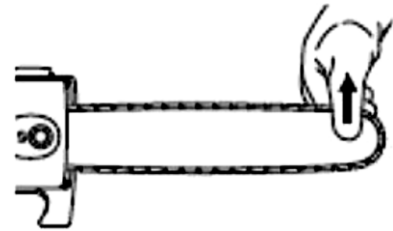
- Fit the chain, starting at the nose of the rail.
- Put the guide rod over the screw hole (3) and engage the pin of the tensioner slide in the hole (4). At the same time, place the chain over the sprocket (5).
- Turn the tensioning screw (1) clockwise until the chain sags only slightly on the underside of the bar and the drive pins are engaged in the groove of the bar.
- Replace the cover and screw the nut hand-tight. Now continue with "Tighten the chain."



Tensioning the chain

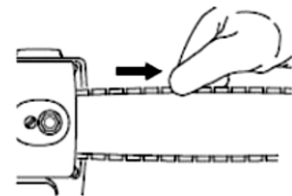
Re-tensioning during cutting work:

- switch off the engine.
- Loosen the nut.
- Hold the bar with the nose pointing upwards.
- Turn the tensioning screw **(1)** clockwise with a screwdriver until the chain is tight against the bottom of the bar.
- Firmly tighten the nut. While doing this, still hold the nose of the bar upwards.
- A new chain needs to be retensioned more often than a chain that has been running for a long time.
- Check the chain tension regularly – see section “Operating instructions.”



Checking the chain tension

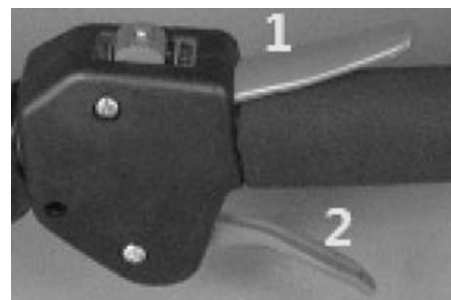
- Switch off the engine.
- Wear work gloves to protect your hands.
- The chain must fit tightly against the underside of the bar. However, it must still be possible to pull the chain along the bar by hand.
- Retighten the chain if necessary. A new chain needs to be retensioned more often than one that has been running for a long time.
- Check the chain tension regularly – see section “Operating instructions.”



Adjusting the choke cable

A properly adjusted throttle cable is a prerequisite for proper operation in the full throttle, starting throttle and idle modes.

- Do not adjust the choke cable until the device is fully and properly assembled.
- Press down the throttle lock **(1)** and operate the throttle lever **(2)** (full throttle) – this will set the throttle cable correctly.



Lubricating the chain

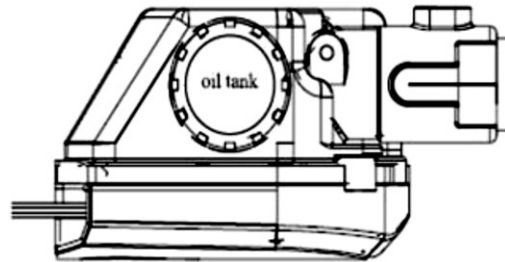
- For automatic and reliable lubrication of the chain and guide bar, use only an environmentally friendly quality lubricant for chain and bar.
- Biological chain oil must be resistant to ageing, otherwise it will quickly turn into resin. This leads to hard deposits that are difficult to remove, especially in the area of the chain drive and the chain. It may even cause the oil pump to get stuck. The service life of the chain and guide bar depends on the quality of the lubricant. It is therefore important to use only a chain lubricant with a special formula.

WARNING! Do not use waste oil. Repeated contact with used oil can cause skin cancer. Moreover, waste oil is harmful to the environment. Used oil does not have the necessary lubricating properties and is not suitable for chain lubrication.

- A full chain-oil tank is only enough for half a tank of fuel. Check the oil level regularly during cutting operations. Never allow the oil tank to run empty.

Preparations

- Clean the oil-filler cap and the area around it thoroughly to ensure that no dirt falls into the tank.
- Place the device so that the filler cap is facing upwards.



Opening the filler cap

- The bayonet oil-tank cap with hinge handle can be opened and closed without tools.
- To open the tank, swing the handle to the vertical position.
- Turn the filler cap anticlockwise as far as it will go and remove it.

Refilling chain oil

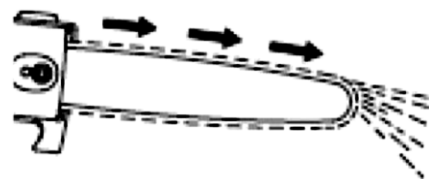
- Top up with chain oil.
- Be careful not to spill chain oil when refilling and do not overfill the tank.

Closing the filler cap

- To close the oil tank, put on the tank cap with the handle facing upwards and make sure that the recesses are correctly aligned.
- Turn the filler cap clockwise as far as it will go.
- Fold the handle down so that it is flush with the top of the lid.
- If the oil level in the tank does not drop, the cause may be a fault in the oil-supply system: Check the chain lubrication, clean the oil channels.

Checking the chain lubrication

- The saw chain must always secrete a small amount of oil.
- Never operate your saw without chain lubrication. If the chain runs dry, the entire cutterbar will be damaged within a very short time.
- Each new chain must be run in for about 2–3 min. After running in the chain, check the chain tension and adjust it if necessary – see “Checking the chain tension.”



Preparing the commissioning

Adjusting the telescopic handle

!WARNING! Always switch off the engine and fit the chain guard.

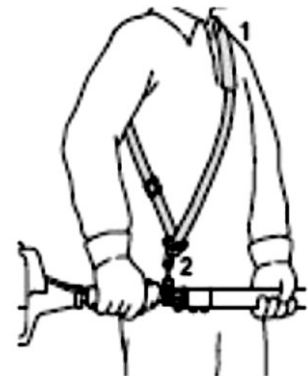
- Loosen the screw.
- Adjust the handle to the desired length.
- Tighten the screw again firmly.

Putting on the harness

NOTE: The type and shape of the belt depend on the model.

- Put the shoulder strap on **(1)**.
- Adjust the length of the belt.
- When you attach the tool, the snap hook **(2)** must be approximately at the level of your right hip.

!WARNING! To quickly release the pole pruner from the shoulder strap, pull the quick release upwards.

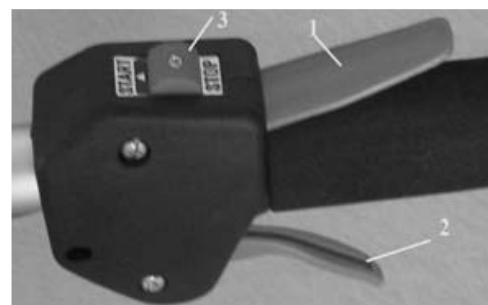


QUICK-RELEASE LATCH



Controls

No	Name
1	Throttle lock
2	Butterfly valve
3	Slide control



Starting motor


Press the throttle lock down and operate the throttle. Hold it in this position, move the slider to START, and hold it there. Now release the throttle, the slider, and the trigger lock one after the other. Adjust the choke control: to warm start when the engine is cold, – also use this setting when the engine has already run but is still cold. Press the fuel-pump suction button at least five times – even if the piston is already filled with fuel.

Start method 1

- Remove the blade sheath. Make sure that the chain does not touch the ground or other obstacles. Place the device on the floor: Support it securely on the motor mount and hook.
- If necessary, place the hook on a raised surface (e.g., a branch, a hill, etc.). Make sure that you have a safe and firm footing.
- Hold the device with your left hand on the fan housing and press it down firmly. Your thumb should be under the fan housing.
- Make sure that no one is in the working area of the pruner.
- Do not stand or kneel on the drive tube. This would bend the drive tube and cause permanent damage.




Start method 2


- Remove the chain guard. Place the shaft on a branch so that it is held by the hook. Hold the device by the fan housing with your left hand. Your thumb should be under the fan housing.
- Hold the starter handle with your right hand. Slowly pull the starter handle until you feel it engage, then pull firmly. Do not let the starter handle snap back, but slowly guide it back into the housing so that the starter rope can wind up properly.
- Crank the engine until it starts to fire. After no more than five attempts, turn the choke control to  and keep cranking.
- Do not pull the starter rope all the way out – it could break.



Once the engine is running

 **WARNING!** Make sure that the carburettor is correctly adjusted. The saw chain must not rotate when the engine is idling. Your machine is now ready for operation.

Switch off engine



 **WARNING!** Move the slider in the direction of the arrow to STOP.



For very low outdoor temperatures

- Once the engine is running, pull the throttle lever to disable the cranking throttle position. The slider moves to the normal running position and the engine settles to idle speed.
- Open the throttle slightly.
- Warm up the engine for a short time.

When the engine does not start

- If you have not turned the choke knob to  quickly enough after the engine has started to fire, the combustion chamber will be flooded. Turn the choke knob to .
- Set the slider, lock lever, and throttle lever to the cranking throttle position.
- Start the engine by pulling the starter rope quickly – 10 to 20 pulls may be necessary.

Use

During the run-in phase

- A brand new device should not be operated at high speeds (full throttle without load) during the first three tank fillings. This avoids an unnecessarily high load during the run-in phase. As all moving parts must run in during the running-in period, the frictional resistances in the engine are greater during this time. 5 to 15 tank fillings later, the engine develops its maximum power.
- Do not dilute the fuel mixture to achieve an apparent increase in power – this could damage the engine.
- Check the chain tension frequently: A new chain needs to be retensioned more often than one that has been in use for some time.
- Cold chain: The tension is correct when the chain is tight against the bottom of the bar and still pulled along the bar by hand. Retension the chain if necessary – see “Tensioning the chain.”
- Chain at operating temperature: The chain stretches and begins to sag. The drive links must not come out of the bar groove – otherwise the chain can jump off the bar. Retension the chain – see “Tensioning the chain.”
- After prolonged full-throttle operation: Let the engine run briefly at idle speed so that the engine heat can be dissipated by the cooling air flow. This protects the components mounted on the engine (ignition, carburettor) from overheating.
- The chain contracts when it cools down. If not loosened, it may damage the gear shaft and bearings.

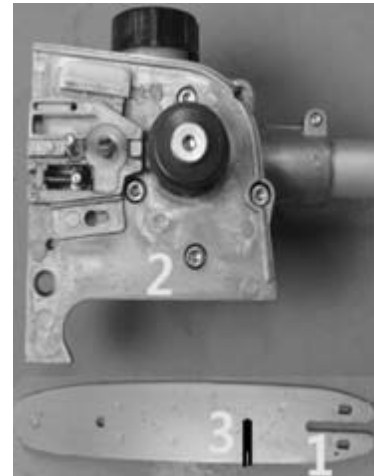
After finishing the work

- Loosen the chain when you have retensioned it at operating temperature during cutting work.
- To store the saw for a short period, wait until the engine has cooled down. Empty the fuel out of the fuel tank. Store the machine in a dry place. Check the tightness of all accessible screws and nuts (not the adjustment screws) at regular intervals and tighten them if necessary.
- To store the saw for a longer period: see section “Storage.”
- Always leave the chain slack when the work is done. The chain contracts when it cools down. If not loosened, it may damage the gear shaft and bearings.

Maintenance

- Turn the bar over every time you sharpen the chain and every time you replace the chain. This helps to avoid one-sided wear, especially on the nose and underside of the bar.
- Clean the oil inlet **(1)**, oil channel **(2)**, and shaft regularly. If the groove depth is less than specified, replace the guide bar, otherwise the pins of the drive links will scrape along the underside of the groove – cutters and tension belts will then no longer move along the groove of the bar rails **(3)**.
- Measure the groove depth – with the scale on the filing gauge (special accessory) – in the area that is used most for cutting.

WARNING! Before each cut, make sure that the cutting tool stops rotating when the engine is idling.



Handling the engine

- Dust accumulated in the air filter reduces the efficiency of the engine. It increases fuel consumption and allows abrasive particles to enter the engine. Remove the air filter as often as necessary to keep it clean.
- Dust on the surface can be easily removed by tapping the filter. Heavy deposits should be washed out with a suitable solvent.
- Remove the filter cover by loosening the air filter cover knob.

WARNING! Always have the carburettor adjusted by your specialist dealer and do not adjust it yourself.

Spark plug

- Install a new spark plug after about 100 hours of operation or sooner if the electrodes are badly worn. Incorrect fuel mixture (too much engine oil in the petrol), a dirty air filter and unfavourable running conditions (mostly in the partial load range, etc.) influence the condition of the spark plug. These factors cause deposits to form on the insulator nose, which can lead to malfunctions during operation.
- Remove the spark plug:
- Set the slider to STOP. Pull off the spark plug connector **(1)**.
- Unscrew the spark plug.
- Check the spark plug:
 - Clean it when it is dirty.
 - Check the electrode gap **(A)** and adjust it if necessary (see “Technical data”).
 - Only use resistance spark plugs in the specified range.
- Correct problems having led to fouling of the spark plug: too much oil in the fuel mixture; dirty air filter; unfavourable operating conditions, e.g., operation at partial load.

- **WARNING!** To reduce the risk of fire and burns, use only spark plugs approved by us.
- Always press the spark plug connector **(1)** firmly onto the spark-plug connector **(2)** with the correct size. (Note: If the connection has a removable SAE adaptor nut, this must be fitted.)





- A loose connection between the ignition-cable terminal and the ignition wire can cause an arc which can ignite flammable vapours and cause a fire.
- Install the spark plug:
 - Screw the spark plug (2) into the cylinder.
 - Attach the spark plug connector (1) (press it down firmly).



Storage

Over periods of 3 months or longer:

- Empty and clean the fuel tank in a well-ventilated area. Dispose of fuel properly according to local environmental regulations.
- Run the engine until the carburettor is dry – this helps to prevent the carburettor diaphragms from sticking.
- Remove the saw chain and guide bar, clean them, and spray them with anti-corrosion oil.
- Clean the device thoroughly – pay special attention to the cylinder ribs and the air filter.
- If you use a biological lubricant for chain and bar, fill the chain oil tank completely.
- Store the device in a dry place in a high place or under lock and key, out of the reach of children and other unauthorised persons.

Checking and replacing the sprocket

- Remove the sprocket cover, chain, and guide bar.
- Replace the chain sprocket,
 - after using two saw chains or earlier
 - if the wear marks (a) are deeper than 0.5 mm (0.02 in.), as this would shorten the life of the chain. Use a gauge (optional accessory) to check the depth of the wear marks.
- It is best to use two saw chains alternating with one sprocket.



Maintaining and sharpening the saw chain

Properly sharpened chain for effortless cutting

A properly sharpened chain cuts effortlessly through the wood and requires very little pressure. Do not work with a dull or damaged chain, as this will increase the effort required and lead to unsatisfactory results and a higher wear rate.

- Clean the chain.
- Check the chain for cracks in the links and damaged rivets. Replace all damaged or worn parts of the chain and fit the new parts to the shape and size of the original parts.
- Carbide-tipped saw chains are particularly wear-resistant. The saw chain cannot be locked on the guide bar. Therefore, it is best to remove the chain from the bar and sharpen it on a suitable sharpening device.

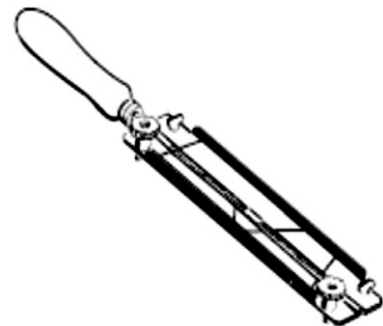


The angle of inclination of the chain is shown on the depth stop of the individual chain links.

- **⚠ WARNING!** Be sure to keep the angles and dimensions as indicated. If the saw chain is not properly sharpened – and especially if the depth limiter is set too low –, there is an increased risk of kickback and thus an increased risk of injury.
- Only use special sharpening files for saw chains. Select the file diameter according to the chain pitch – see table “Sharpening tools.” When resharpener the chain cutter, you must observe certain angles.

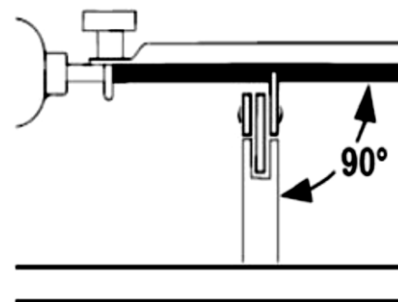
Cutter shapes: Micro = half chisel

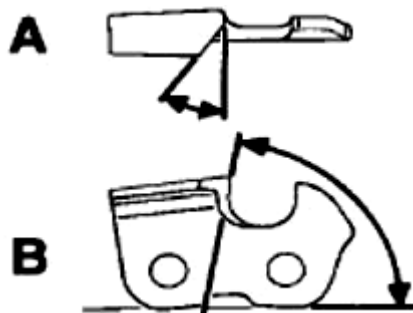
The specified angles A and B are achieved by themselves if the recommended files or sharpening tools and the correct settings are used. If the angles are unequal, the chain runs out of round, not in a straight line, wears out quickly, and eventually breaks. As these requirements can only be met after sufficient and constant practice, use a file holder: A file holder must be used for resharpener by hand. The correct filing angles are indicated on the holder.



Checking angles

- Select the sharpening tools according to the chain pitch.
- If you are using an FG-2, HOS, or USG sharpener, remove the chain from the bar and sharpen it according to the instructions supplied with the tool.
- Clamp the shaft in a vice if necessary.
- Sharpen the chain frequently, taking away as little metal as possible – two or three strokes with the file are usually sufficient.
- Hold the file horizontally (at right angles to the side of the guide rail) and file according to the angles marked on the file holder. Always file from the inside to the outside of the cutting link.
- The file only sharpens when moving forward – lift the file off the knife when moving backwards.
- Avoid touching the tensioning belts and driving links with the file.
- Rotate the file at regular intervals during filing to avoid one-sided wear. Use a piece of hardwood to remove burrs from the cutting edge.
- Check the angles with the file gauge. All cutting links must be the same length. If this is not the case, the chain runs out of round and can break. Find the shortest link and then file all the other links back to the same height. It is best to have this work done with an electric grinder in a workshop.



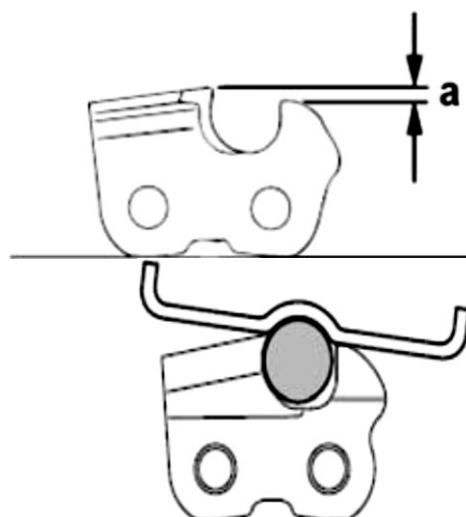


A – sharpening angle	B – side angle	
Chain type	Angle (°)	
Rapid Micro (RM)	A: 30	B: 75
Picco Micro (PM)	A: 30	B: 75

Setting the depth gauge

The depth limiter determines the height at which the chain link penetrates the wood and thus the thickness of the chip removed (a – set distance between depth limiter and cutting edge). This setting can be increased by 0.2 mm to cut softwood in the mild season – under frost-free conditions.

⚠ WARNING! You must use the saw chain and guide bar recommended in the technical data table. If you use non-approved cutting accessories (saw chain and guide bar), there is a risk of injury.



Maintenance schedule

The following is a list of maintenance tasks that need to be performed on the device. The user may only carry out the maintenance and service work described in this manual. Further work must be carried out by a specialist workshop. The following maintenance periods apply only to normal operating conditions. If your daily working time is longer or the operating conditions are difficult (very dusty work area, etc.), shorten the specified periods accordingly.



Place of maintenance	Maintenance	Period of maintenance									
		before work	after work/daily	after refuelling	daily	weekly	monthly	all 12 months	with problem	with damage	if necessary
Entire device	Visual inspection (condition, leakage)	X		X							
	Cleaning		X								
Handle	Check usability	X		X							
Air filter	Cleaning							X			
	Replace.								X	X	
Fuel suction in fuel tank	Checking				X			X			
	Replace.						X		X	X	
Fuel tank	Cleaning				X			X		X	
Carburettor	Check idle adjustment – chain must not rotate	X		X							
	Readjust idle speed										X
Spark plug	Adjust electrode gap							X			
	Replace after all 100 operating hours			X							
Cooling inlets	Visual inspection										X
	Cleaning										X
All accessible screws and nuts (not set screws)	Retighten										X
Vibration damper	Checking	X						X			X
	Ask specialist for replacement								X		
Chain	Visual inspection, also check sharpness	X		X							
	Checking the chain tension	X		X							
	Sharpen										X
	Check lubrication	X									
Guide bar	Check (wear, damage)	X									
	Clean and turn over				X			X			
Chain sprocket	Deburr				X						
	Replace.								X	X	
	Checking				X						
	Have replaced by specialist										X
Safety sticker	Replace								X		



NOTE! Daily maintenance, including checking for loose attachments, fuel leaks, and damaged parts (e.g., cracks in the saw chain).

! WARNING! Before operating the device, you must familiarise yourself with regular maintenance, pre-commissioning procedures, and daily maintenance routines, otherwise improper maintenance and care may result in risk of injury and damage.

PART 3: LAWN TRIMMER

Safety instructions

Warning symbols

! Some of the following symbols may be on or near the device. Please take note of them and learn their meaning. Knowing the meaning of these icons will help you operate the device better and more safely.

Symbol	Name	Meaning
	Danger warning	Indicates danger, warns, or urges caution. Attention! It is about your safety!
	Read instructions	Read the operating instructions and follow all warnings and safety instructions.
	Beware of kickback	Danger of kickback
	Keep bystanders away	Keep all bystanders at least 15 m (50 ft) away.
	Do not use a toothed blade	This device is not intended for use with a toothed saw blade.
	Sticker speed indicating	Direction of rotation and maximum speed of the shaft for the cutting tool
	Solid shoes	Wear non-slip safety footwear when using the device.
	Gloves	Wear non-slip work gloves.
	Do not smoke.	Do not smoke when mixing or refilling fuel.
	Fuel	Use unleaded petrol intended for use in motor vehicles and having an octane rating of 91 ([R+M]/2) or higher.





	—	Press the primer button all the way down 5 times and release it again.
	—	All relevant directives that apply to CE marking and the product are fulfilled.
	—	Wear eye, ear, and head protection when operating this device.
	—	To reduce the risk of injury or damage, avoid contact with any hot surface.
	—	Guaranteed sound power level
	Beware of the thrust of the blade	Continued movement of the saw blade after cutting
	—	Fire hazard near flammable substances!

Special safety instructions for lawn trimmers

- The device is intended exclusively for lawn trimming. Never use a device that has been modified in any way from its original purpose.
- Never use the device when you are tired, under the influence of alcohol or medication. Your vision, judgement, or coordination may be affected.
- Never use the device in extreme weather conditions such as severe cold, very hot, and/or humid climates.
- Never use a defective device. Carry out the inspection, maintenance, and service instructions described in this manual. Some maintenance and servicing must be carried out by trained personnel.
- Do not place the machine on the ground while the engine is running (e.g., idling).
- All covers and guards must be in place before take-off.
- Make sure that the spark-plug cap and the ignition cable are undamaged to avoid the risk of electric shock.
- Inspect the area to be cut and remove any debris that may get caught in the nylon cutting head. Also remove any objects that the device might throw up when cutting.
- Keep hands and feet away from the nylon cutting head while the device is in operation.
- Do not use this type of device to sweep up debris.
- Use a nylon cutting head that is not damaged. If you hit a stone or other obstacle, stop the engine and check the nylon cutting head. A broken or unbalanced nylon cutting head must never be used.
- **WARNING!** This machine generates an electromagnetic field when in operation. This field can affect the functioning of active or passive medical implants under certain conditions. To reduce the risk of serious injury or death, we recommend that persons with medical implants consult their physician and the medical implant manufacturer before operating this device.
- Never touch the nylon cutting head when the motor is running. If you need to adjust the guard or nylon cutting head, stop the engine and make sure that the nylon cutting head stops running.



- Unreasonably rough operation will shorten the life of the machine and create an unsafe environment for you and those around you.
- Pay particular attention to operation in the rain or shortly after rain, as the ground can be slippery. If you slip or fall on the ground or in a hole, release the throttle immediately.
-  **WARNING!** Operating an engine in a confined or poorly ventilated area can result in death by suffocation or carbon monoxide poisoning.
-  **WARNING!** Never allow children to use the device or be near it. Since it can be started with low speed and force on the starter handle, even small children may be able to muster the necessary strength to start it. This may result in a risk of serious injury. Therefore, remove the spark-plug connector when the machine is not under supervision.

Technical specifications

	Functional part	PART 3: LAWN TRIMMER		
Main device	Drive type	Automatic centrifugal clutch; spiral bevel gear; drive shaft		
	Max. Speed of the gearbox/motor (rpm)	7800 / 10000		
	Idle speed (rpm)	2800 + 150		
	Vibration values at each handle (m/s^2)	≤ 15 (uncertainty of measurement: 2.1)		
	Sound power level L_{WA}^{av} (in accordance with ISO 10884) (dB)	≤ 120 (uncertainty of measurement: 3)		
	Sound power level L_{PA}^{av} (in accordance with ISO 10884) (dB)	≤ 102 (uncertainty of measurement: 3)		
	Reduction	17:22		
	Direction of rotation of the blade	Counterclockwise (seen from above)		
	Handle type	D-shaped handle		
	Empty weight (kg)	6.8		
	Standard blades (mm)	CG420-2/255 mm/3-blade (255 × 1.4)		
	Standard nylon head/nylon rope	CG520-HL.17/CG520-HS.1/∅ 2.5 mm (nylon 66)		
Motor	Motor designation	139FN	139F	140F
	Type	Air-cooled 4-stroke petrol engine with vertical piston valve		
	Displacement (ml)	31	31	37.7
	Max. power (kW / min)	0.7 / 6500	0.7 / 6500	1.0 / 6500
	Tank volume (ℓ)	0.7	0.9	0.65
	Empty weight (kg)	3.5	4.2	3.8
	Carburettor	Diaphragm		
	Ignition	Contact-free electronic ignition		
	Starting procedure	Pull starter		
	Fuel	Petrol		

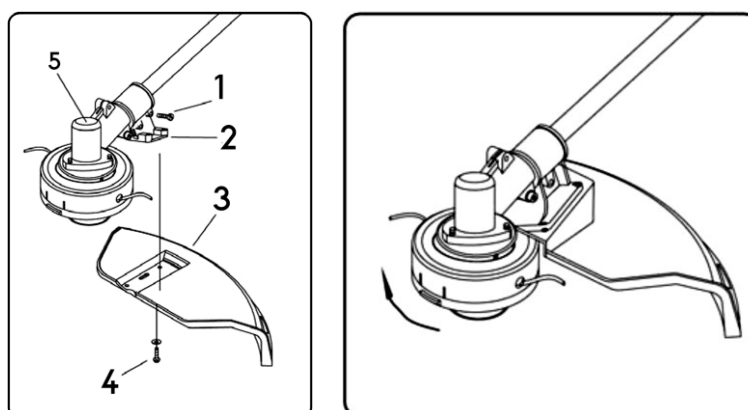
Description of main components

Name	Description
Nylon cutting head	Includes a replaceable nylon cutting rope that moves forward when the head is pressed lightly against the ground at normal operating speed.
Driving shaft	Includes a specially designed flexible drive shaft.
Handle	Can be adjusted as desired to make it more comfortable for you to use.
Harness	This allows the operator to hang the device around his body; adjustable in length.
Ignition switch	Slide the switch forward to start the engine and BACK to stop it.
Safety lever	Press before acceleration.
Tank cap	Sits on the fuel filler neck and prevents fuel leakage.
Suction knob	Pressing 7 to 10 times before starting removes all air and used fuel from the fuel system and directs fresh fuel into the carburettor.
Fuel tank	Contains fuel and fuel filter.
Throttle lever	When starting the device, press the trigger gradually for best performance and do not hold the trigger when starting.
Air filter cover	Contains a replaceable felt element.
Choke	The choke control is located on the top of the filter cover. Cold start: Pull the lever up to close the choke for cold starting and push the lever down to start the engine.
Starter handle	Pull the handle until the engine starts, then let it slide back slowly, otherwise the starter motor will be damaged.
Protective shield	Installed directly above the cutting attachment, it protects the operator by deflecting the solid pieces produced during cutting.
Knife	Shorten the nylon thread to the correct length (7"), from the head to the end of the string. If the nylon cutting head touches the ground during operation, more thread is ejected. If the trimmer is operated without a cutting blade and the line becomes too long (more than 7"), the motor will slow down in operation.

Assembly

Attaching the plastic shield

Attach the safety cover to the handle using the safety-cover bracket and screws provided. Tighten the screws after placing the safety-cover bracket in the correct position.





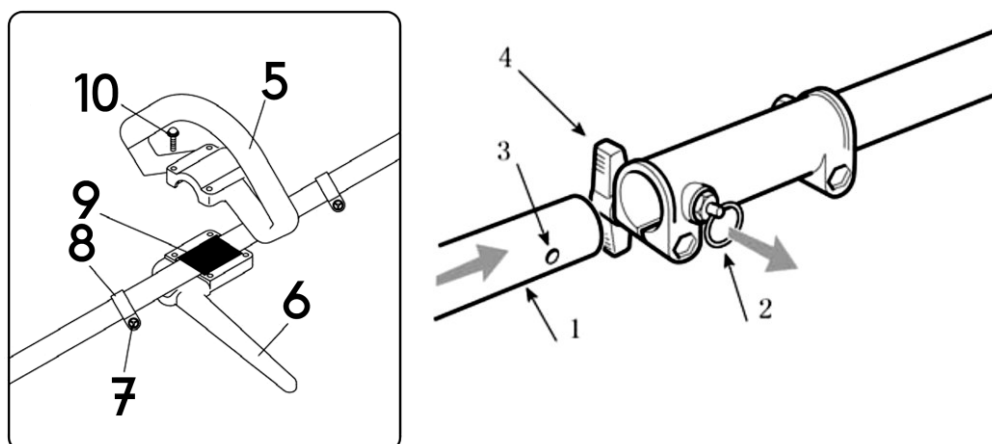
No	Name	No	Name
1	Screw (5×30)	4	Screw (5×16)
2	Bracket	5	Gear housing
3	Shield		

! WARNING! CAUTION! INSTALLING THE NYLON-ROPE CUTTING HEAD – Align the hole in the adapter plate with the hole in the shaft and introduce the tightening tool. Screw the cutter head onto the shaft (clockwise) until it is tight. Remove the tightening tool.

Attaching the handle

Attach the D-shaped handle and lower straight handle to the rubber cover and tighten the four M5×25 screws.

! WARNING! CAUTION! Do not try to remove the two special screws. — Do not attempt to remove or move the two brackets as this might cause severe injuries.



No	Name	No	Name
5	D-shaped handle	8	Fastener
6	Straight handle	9	Rubber cover
7	Special screw	10	Screws (M5×25)

Pull out the stop pin (2) and push the lower part of the handle (1) all the way down until the stop pin (2) engages in the hole (3) in the handle. This is easier if you turn the lower part of the handle slightly in both directions. The pin (2) is firmly seated when it is fully engaged in the hole. Finally, tighten the knob (4).

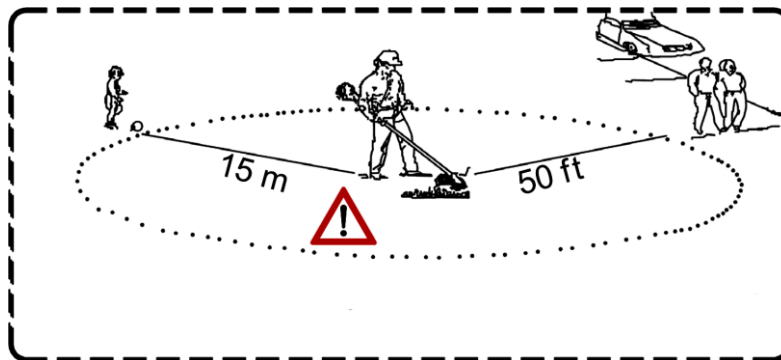
Rules for safe operation

! WARNING! CAUTION! All models can throw up small stones, metallic or other small objects as well as the material to be cut. Read these “Rules for safe operation” carefully. Follow the instructions in your user manual.

- Read the user manual carefully. Familiarise yourself thoroughly with the controls and proper use of the device. You need to know how to stop the device and turn off the engine, and how to quickly unbuckle a device hanging on the strap.



- As an operator, wear foot, leg, eye, face, and ear protection. Do not rely on the protective shield of the shield to protect your eyes from bouncing or thrown objects. Keep bystanders, children, and pets away. Never allow children to operate the device or play with it.
- Do not allow anyone to enter the danger zone with you. This area has a radius of 15 m (about 16 steps) or 50 feet.
- Insist that people who are in the danger area wear eye protection against flying objects. If the device must be used in a place where there are unprotected people, work at low speed to reduce the risk of objects being thrown up.



NO ONE OTHER THAN THE USER IS ALLOWED WITHIN A RADIUS OF 15 METRES. THE USER MUST PUT ON EYE, EAR, FACE, FOOT, LEG, AND BODY PROTECTION. OTHER PERSONS IN THE DANGER ZONE OR JUST BEHIND IT SHOULD WEAR EYE PROTECTION. THE DANGER DECREASES WITH INCREASING DISTANCE FROM THE DANGER AREA.

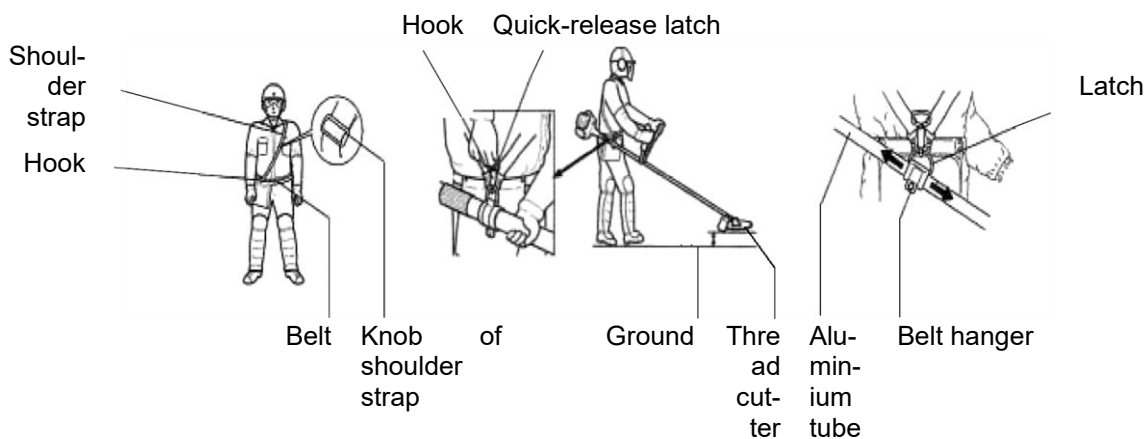
- Set the stop switch to “Stop” when the engine is idling. Before cutting, make sure that the switch works reliably. You may only continue to operate the device if the stop switch is in good condition. Always develop the same measures to check that the cutter stops turning when the engine is idling.
- Hold the lawn trimmer with your right hand on the trigger handle and with your left hand on the front handle.
- Keep a firm grip on the machine with both hands during operation.
- Hold the lawn cutter in a comfortable position. The release handle should be at about hip height. Hold the handle firmly and stand on both feet. Position yourself so that you cannot be thrown off balance by the machine due to the kickback reaction of the nylon head.
- Adjust both the strap and the strap clamp on the device so that the device hangs a few centimetres above the ground. The cutting head and the plastic guard should be horizontal in all directions. Strap the device to the right side of your body.

! WARNING! CAUTION! In addition to head, eye, face, and hearing protection, wear shoes that protect your feet and improve your grip on slippery surfaces. Do not wear a tie, jewellery, or loose hanging clothing that could get caught in the device. Do not wear open-toed footwear and do not walk bare-foot or with bare legs. In certain situations, you must wear full face and head protection. Make sure that you cannot bump into the cutting thread.

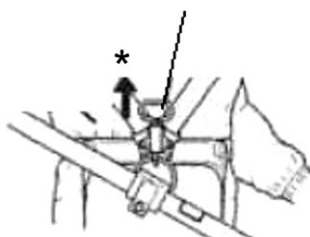
Assembling and using the shoulder strap

- Attach and adjust the shoulder strap and harness as shown.
- Adjust the shoulder strap button and slide the hook towards your hip, then adjust the strap (if there is one).
- Hook the locking latch into the hook of the belt.
- If the device is not balanced, adjust the harness suspension and the handle until the device is balanced.

! WARNING! CAUTION! The hook should be at the level of your right hip, the quick-release fastener on the outside.



Quick-release latch

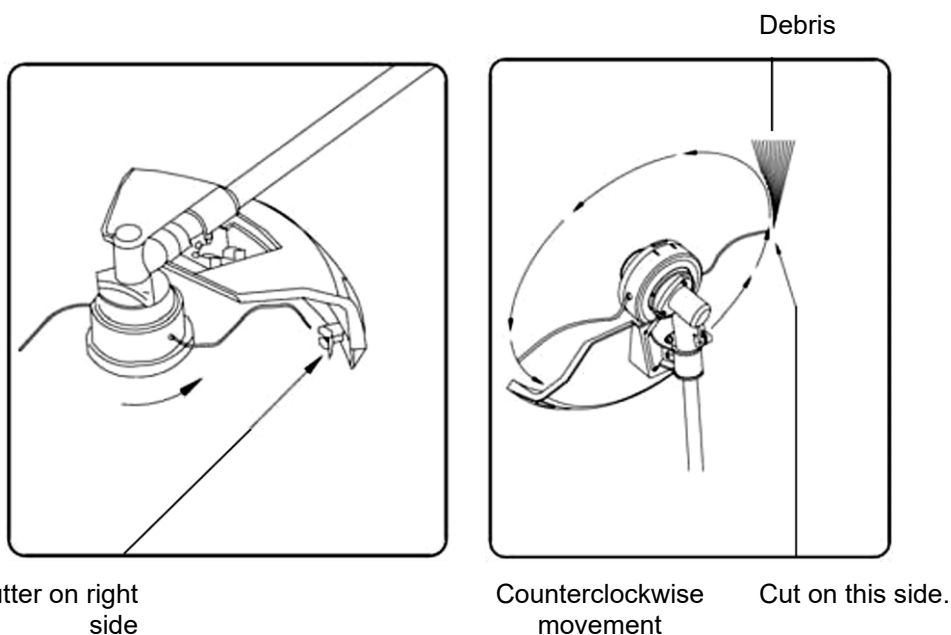


* = pull

- To quickly release the lawn trimmer from the belt, pull the quick release upwards.
- Insert the tongue of the buckle into the slot of the quick-release buckle to reattach the lawn trimmer to the harness.


! WARNING! CAUTION! Before use, check the shoulder strap and make sure that it is in good order. In case of danger, immediately stop the lawn trimmer and pull the quick-release latch to release the lawn trimmer from your body.

Cutting with the nylon-thread head








- The nylon thread head rotates counterclockwise. The thread cutter is located on the right side of the dirt guard.

 **WARNING! CAUTION!** If you use a nylon-cutting belt, the device must be equipped with the correct protective shield. The rope can flutter around if too much of it is exposed. Always use the plastic dirt guard with thread cutter when using nylon-cutting heads.

- For almost all cuts, the cutting head should be tilted so that contact is made on the side of the circle facing away from you and the dirt shield (see corresponding picture). This causes the debris to be thrown away from you.


 **WARNING! CAUTION!** If the nylon-thread head is tilted in the wrong direction, fragments will be thrown towards you. If the nylon-thread head is held flat on the ground so that the thread can cut in the whole circle, the fragments will be thrown at you, the motor will slow down, and you will use up a lot of thread.

 **WARNING! CAUTION!** Only use quality nylon threads with a diameter of 2.5 mm, consisting of one thread. Never use wire or wire-reinforced thread instead of nylon thread. Only load the nylon-thread cutting head with nylon thread of the correct diameter.

 **WARNING! CAUTION!** Be extremely careful when moving the device over bare patches and gravel, as the thread can throw away pieces of rock at high speed. The guards of the device cannot stop objects bouncing off hard surfaces.


Trimming

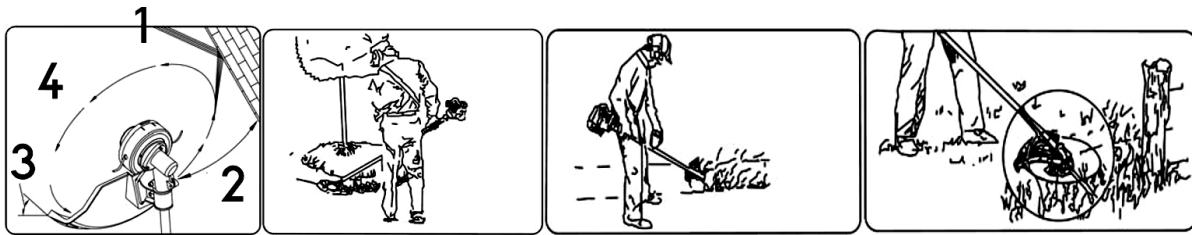
Carefully insert the cutter into the material to be cut. Tilt the head slowly to deflect the cuttings away from you. When cutting up to an obstacle such as a fence, wall, or tree, approach from an angle where ricocheting clippings will fly away from you. Move the thread head slowly until the grass is cut up to the obstacle, but do not allow any contact between the thread and the obstacle. When cutting up to a wire mesh or chain-link fence, make sure that you only cut to just before the wire. If you go too far, the thread will break. You can also use the thread to cut off whole weed stems. Where the weeds are, keep the head of the thread close to the ground – but never point it upwards, because then the weeds could get caught in the thread. Do not cut through all the weeds at once, but move the end of the string slowly from stem to stem.

 **WARNING! CAUTION!** Do not cut where fence wires are located! Wear safety protection! Do not cut where you cannot see what exactly is being cut!

Cutting free and trimming edges

When cutting free, the upper vegetation is removed so that the soil is exposed. When cutting edges and trimming free, hold the device at a steep angle and in a position where the cuttings and dislodged dirt and stones will not be thrown back at you, even if they bounce off the hard surface. The illustration shows how to cut edges and cut free; however, each user must find for himself or herself the angle that suits his height and respective situation.

 **WARNING! CAUTION!** Do not use a steel blade for free cutting or edge trimming!



Trimming

Cutting free

Cutting edges

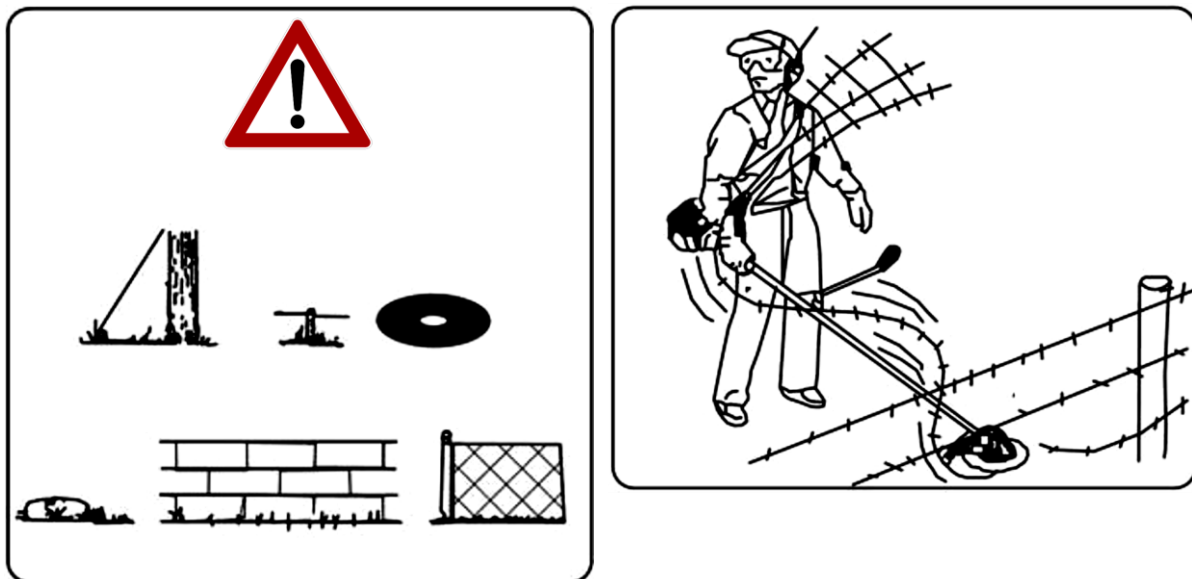
Avoid wire fences!

1	Debris
2	Angle to wall
3	Angle to ground
4	Cutting side upwards

Cutting with blade

There are many different types of blades, but the two most commonly used are the following:

- Weed brushes are used for cutting brushwood and weeds up to ¾" in diameter. For this type of brush cutter, you can only use triple blades type CG420-2 with a diameter of 255 mm together with this lawn trimmer.
- Saw blades are used for pruning plants with a diameter of ¾" to 3".



WARNING! CAUTION!

Do not touch these types of objects with the blades:

- Wire – metal stakes – rubber
- Stones – masonry – fences

WARNING! DANGER! DO NOT USE LAWN TRIMMERS TO CUT TREES.

WARNING! DANGER! Do not cut with blunt, cracked, or otherwise damaged metal blades. Before cutting the plants, check for obstacles such as stones, metal stakes, or wire strands hanging down from damaged fences. If an obstacle cannot be removed, mark it to be able to avoid it with the blade. Stones

and metal can blunt or damage the blade. Wires can get caught on the cutter head and be thrown around or into the air.

Blade kickback is the behaviour occurring when the spinning blade touches something that it cannot cut through. This touch may cause the blade to pause for a moment and suddenly push the device away from the object that has been hit. This behaviour can be so violent that the operator loses control of the device. Blade kickback can occur without prior indication if the knife gets stuck, stalls, or jams. This is more likely where the material to be cut is not easily visible. For safety reasons, approach from right to left the weeds that you want to cut; if you hit an unpredictable object, this could make the kickback less violent.

Scything weeds

Cutting is done by pivoting the blade in an even arc. You can use it to quickly clear areas of grass and weeds. The scythe should not be used for cutting large, tough weeds or woody plants.

WARNING! DANGER! Do not cut trees that exceed 1.25 to 2 cm in diameter with a saw blade.

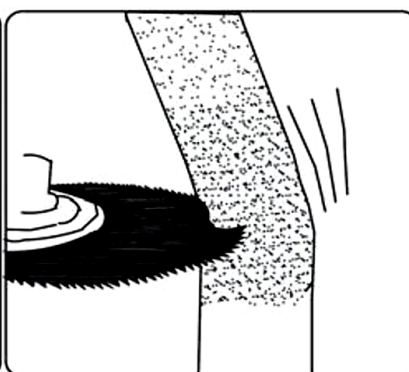
Scything can be done in both directions or only in one direction; this results in fragments being thrown away from you. That is, you use the side of the knife that is facing away from you. Tilt the blade slightly downwards on the same side. If you scythe in both directions, you could otherwise be hit by individual pieces.

Sawing

- If the weeds are too dense and too vigorous, a saw blade must be used to cut them down. In this case, scything is unsuitable.
- If there is a kickback, this may be because of a blunt saw blade or too thick and strong a material. Then use a saw blade instead of the brush blade.
- Plants with a diameter of up to 7.5 cm, which is too thick for scything, can be cut off by sawing. When sawing, you must decide whether you cut on the side where the saw blade moves away from you but throws the cut material back, or on the side where the cut material is thrown away from you but which can cause kickback.
- Always cut a tree so that it falls away from the device. If a tree falls on the device and the blade gets caught, it may kick back or something may get caught in the saw blade.
- Do not exert force on the saw blade to make it cut. Do not change the cutting angle after you have penetrated into the wood. Avoid any pressure or leverage that could cause the blade to get stuck or break.



Sawing off young trees



Jamming of the saw blade



Do not cut down trees that are too thick!

Fuel

WARNING! DANGER!

- Never fill the fuel tank to the brim.
- Never fill fuel into the tank in a closed, unventilated area.
- Do not fill fuel into this device near open flames or sparks.
- Be sure to wipe off any spilled fuel before attempting to start the engine.
- Do not try to refuel a hot engine.
- Exhaust from the engine of this device contains chemicals known to cause cancer, birth defects, or other reproductive harm.

Petrol

Use high-quality unleaded brand petrol with 89 octane or more.

Storing fuel

Store fuel only in a clean, safe, and approved container. Check and follow local ordinances on the type and location of the storage container.

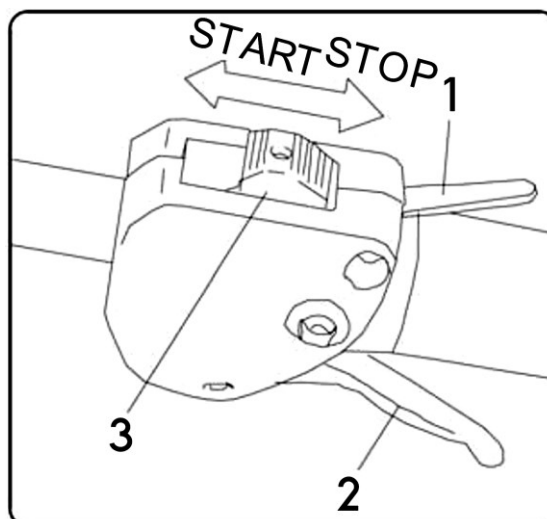
Preparations prior to use

- Check the device for loose screws, nuts, and fittings.
- Check the air filter for dirt. Clean any dirt, etc. from the air filter before operation.
- Make sure that the protective shield is firmly in place.
- Make sure that no fuel leaks out.
- Make sure that the blade is not cracked.

Use



Starting and stopping the engine





No	Name	No	Name
1	Safety lever	3	Stop switch
2	Throttle lever		

Starting a cold engine

1. Set the stop switch to “START.”
1. Press the primer pump lightly repeatedly (7–10 times) until fuel enters the primer pump.
2. Pull the lever up to close the choke.
3. Pull the starter until the engine misfires.
4. Push the choke lever inwards (excessive starting with the choke lever causes the engine to stall and makes starting more difficult).
5. Pull the starter handle until the engine starts.
6. Let the engine warm up for a few minutes before using it.

Starting a warm engine

- If the fuel tank has not run dry, pull the starter motor one to three times and the engine should start.
- DO NOT USE THROTTLE!
- If the fuel tank was empty, repeat steps 3 to 7 under “Starting a cold engine” after refilling.

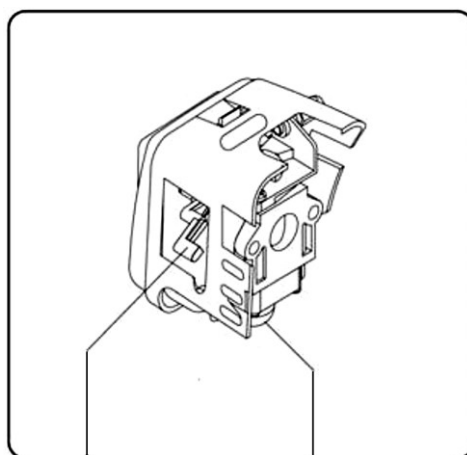
Turning off the engine

Set the switch to “STOP.”

Maintenance and care

⚠ WARNING! DANGER! Only use original spare parts, accessories, and attachments from the manufacturer. Failure to do so may result in injury, poor performance, and invalidation of the warranty. If this is not so, the coupling must be adjusted or the device must be serviced by a specialist.

- You can carry out yourself the settings and repair work described here. To carry out other repair work, the device should be serviced by a specialist.
- Improper maintenance can cause excessive amounts of carbon to build up, resulting in reduced performance and black oily residue dripping from the muffler.
- Ensure that all guards, harnesses, shields, and handles are properly and securely fastened to avoid risk of injury.



Choke

Filter-cover knob

Exhaust port and muffler

Depending on the type of fuel used, the type and amount of oil used, and/or your operating conditions, the exhaust port and muffler may become clogged with carbon deposits. If you notice a loss of performance in your device, a specialist must remove these deposits to restore performance.

Air filter

- Accumulated dust in the air filter reduces the performance of the engine. It increases fuel consumption and allows abraded particles to enter the engine. Remove the air filter as often as necessary to keep it clean.
- Surface dust can be easily removed by tapping the filter. Heavy deposits should be washed out with a suitable solvent. Remove the filter cover by loosening the air filter cover knob.

Adjusting the carburettor

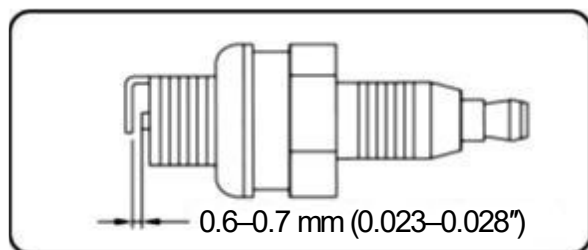
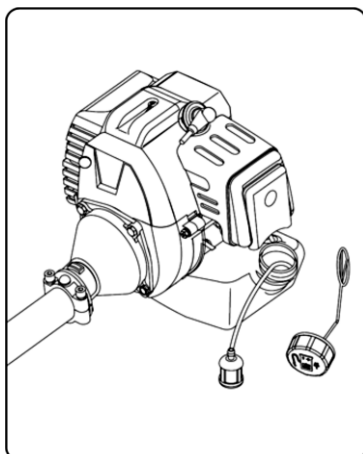
Only adjust the carburettor when necessary. If you have problems with the carburettor, contact a specialist workshop. Improper adjustment may cause engine damage and invalidate the warranty.

Fuel filter

- The fuel tank is equipped with a filter. The filter is located at the free end of the fuel line and can be pulled out through the fuel connection with a piece of hook wire or similar.
- Check the fuel filter regularly. Do not allow dust to enter the fuel tank. A clogged filter leads to starting difficulties or reduced engine performance.
- If the filter is dirty, replace it.
- If the inside of the fuel tank is dirty, you can clean it by flushing it out with petrol.

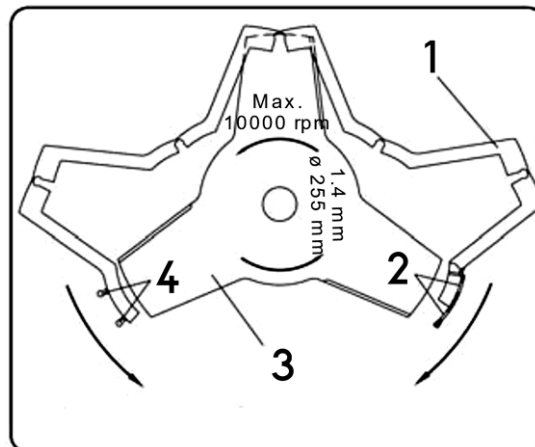
Checking the spark plug

- Do not attempt to remove the spark plug cap from a hot engine to avoid possible damage to the thread.
- Clean or replace the spark plug if it is soiled by heavy oily deposits.
- Replace the spark plug when the centre electrode has become round at the end.
- Spark gap: 0.6–0.7 mm (0.023"–0.028")
- Tightening torque: 145–155 kg-cm (125–135 in.lb)



Transporting and storing the device

- The engine should be switched off when moving the device between work areas.
- After the engine has been switched off, the muffler is still hot. Never touch hot components such as the muffler.
- Make sure that no fuel has leaked from the tank.
- Allow the engine to cool down, empty the fuel tank, and secure the device before transporting it in a vehicle. When a blade is fitted, always use the blade guard.
- Fit the blade guard. Open the blade guard and mount it on the blade, then insert the pin into the notch of the guard.



No	Name	No	Name
1	Blade guard	3	Blade
2	Notch	4	Pin

WARNING! DANGER!

- Always place the blade guard on the blade when you are not using the device. Remove the blade guard before using the device. If the guard is not removed, it can be thrown around when the blade starts to rotate.
- Empty the fuel tank before transport to avoid engine leakage.
- To prevent the cutting attachment from damaging the brush cutter and people, remove it and return the brush cutter to its factory conditions. Then check all the parts again and pack them securely.

Further information on storage

- Check, clean, and repair the device as necessary.
- Remove all the fuel from the tank.
- Start the engine – this will use up all the fuel in the fuel line and carburettor.
- Remove the spark plug and put a teaspoon of clean engine oil into the spark-plug hole of the cylinder – reinsert the spark plug.
- Store in a clean, dry, and dust-free place.

WARNING! DANGER! Do not store the product in an enclosed area where fuel vapours can reach an open flame from water heaters, heaters, stoves, etc. Store it only in a closed, well-ventilated area.



Troubleshooting

False start

Problem			Possible cause	Solution	
Cylinder-compression pressure normal	Spark-plug spark normal	Deviation in the fuel system	No fuel in tank	Fill fuel into the tank.	
			Fuel filter clogged	Clean fuel filter.	
		Fuel system normal	Fuel	Fuel too dirty	Replace fuel.
				Water in fuel	Replace fuel.
				Too much fuel in the cylinder	Remove spark plug and allow to dry.
				Incorrect mixing ratio	Change mixture.
	Fuel system normal	Spark from high-voltage wire normal	Spark-plug connector	Spark plug contaminated with oily deposits	Remove oily deposits.
				Damage to spark-plug insulation	Replace spark plug.
				Spark gap too large or too small	Adjust spark gap: 0.6–0.7 mm.
			Deviation with sparks from high-voltage wire	High-voltage wire broken or torn off	Replace or retighten.
Loose coil	Retighten.				
Fuel system normal	Ignition system normal	Insufficient compression pressure	Worn piston ring	Replace.	
			Broken piston ring	Replace.	
			Stuck piston ring	Remedy.	
			Loose spark plug	Retighten.	
			Leakage in crankcase	Remove.	
	Compression normal	Poor contact between high-voltage wire and spark plug	Tighten spark-plug cap.		
		Failure of stop switch or short circuit	Repair or replace.		



Low performance

Problem	Possible cause	Solution
Flame break on acceleration, thin smoke, carburettor discharge backwards	Fuel filter clogged	Clean fuel filter.
	Not enough fuel	Clean fuel line.
	Muffler soiled by oil deposits	Adjust carburettor, remove oily deposits.
Compression pressure insufficient	Piston	Replace piston.
	Piston ring	Replace piston ring.
	Worn cylinder	Replace cylinder.
Leakage from engine	Leakage in crankcase	Repair.
Leakage from one end of crankshaft	Incorrect gasket	Replace gasket.
	Engine overheating	Do not use for a long time at high speed and high load.
	Combustion chamber contaminated with oily deposits	Clean, remove.

Engine runs unevenly

Problem	Possible cause	Solution
Knocking noises in the engine	Wear on piston, piston ring, cylinder, piston pin, crankshaft bearing	Replace worn component.
Metallic knocking noises	Engine overheating	Do not use for a long time at high speed and high load.
	Combustion chamber contaminated with oily deposits	Clean, remove.
	Petrol used unsuitable	Replace with suitable petrol.
Engine ignition abort	Water in fuel	Replace fuel.
	Wrong spark gap	Adjust spark gap: 0.6–0.7 mm.
	Coil gap wrong	Adjust gap. 0.3–0.4 mm.

Engine stops suddenly

Possible cause	Solution
Fuel consumed	Add fuel.
Spark plug contaminated with oily deposits and short circuit	Clean.
High-voltage wire dropped	Reconnect.

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