FSA 110.1 R

STIHL



2 - 20 Instruction Manual





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IMPORTANT! READ AND UNDERSTAND BEFORE USING AND KEEP IN A SAFE PLACE FOR REFERENCE.

1 Guide to Using this Manual

1.1 Markings

Unless expressly described otherwise, this User Information (User Manual) applies to products that are marked in one of the following ways: STIHL, ALLPRO 40V MAX.

1.2 Applicable documents

The local safety regulations apply.

- In addition to this User Manual, you should also read, understand and retain the following documents:
  - User manual and packaging of the cutting attachment being used
  - User Manual for the carrying system being used
  - User Manual for AR battery
  - User Manual for "AP belt bag with connecting cable"
  - Safety information for AP battery
  - User Manual for AL 101, 301, 301-4, 501 chargers
  - Safety information for batteries and products with a built-in battery: stihl.link/safety

Further information on STIHL connected, compatible products and FAQs are available at stihl.link/connected or from a STIHL authorized dealer.

The Bluetooth® word mark and logos are registered trademarks owned by Bluetooth SIG, Inc. These word marks and logos are used by STIHL under license.

Batteries with  are equipped with a Bluetooth® radio interface. Local operating restrictions (in aircraft or hospitals, for example) must be complied with.

1.3 Symbols used with warnings in the text

WARNING

- This symbol indicates dangers that can cause serious injuries or death.
  - The measures indicated can avoid serious injuries or death.

NOTICE

- This symbol indicates dangers that can cause damage to property.
  - The measures indicated can avoid damage to property.

1.4 Symbols in Text

This symbol refers to a chapter in this instruction manual.

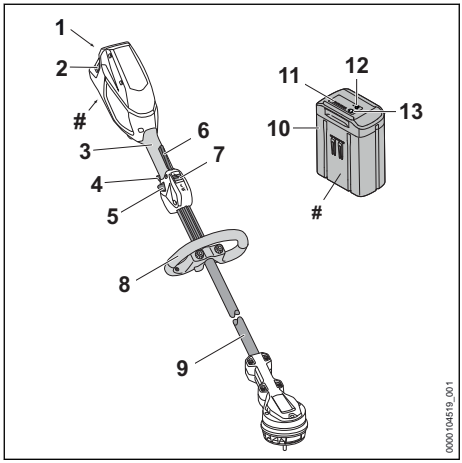
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2 Overview

2.1 Brushcutter and battery



1 Battery compartment
The battery compartment holds the battery.

2 Locking lever
The locking lever holds the battery in the battery compartment.

3 Control handle
The control handle is used for operating, holding and guiding the brushcutter.

4 Trigger
Switches the brushcutter on and off.

5 Release slide
The release slide releases the trigger.

6 Ergo lever
The Ergo lever holds the release slide in position when the trigger is released.

7 Power setting switch
The power setting switch is used to select the power level.

8 Loop handle
The loop handle is used for holding and guiding the brushcutter.

9 Shaft
The shaft connects all components.

10 Battery
The battery supplies power to the brushcutter.

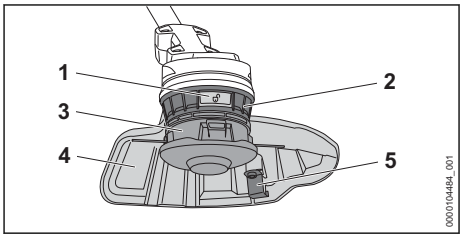
11 LEDs
The LEDs indicate the state of charge of the battery and any errors.

12 Button
The pushbutton activates the LEDs on the battery. It activates and deactivates the Bluetooth® interface (if available).

13 "BLUETOOTH®" LED (only for batteries with)
The LED indicates whether the Bluetooth® radio interface is activated or deactivated.

 # Rating plate with machine number

2.2 Deflector and cutting attachments



1 Release button
The release button disengages the mowing head.

2 Fanwheel
The fanwheel cools the electric motor.

3 Mowing head
The mowing head holds the mowing lines.

4 Deflector
Protects the user from flying debris and contact with the cutting attachment.

5 Line limiting blade
The line limiting blade trims mowing lines to the correct length.

2.3 Symbols

Meanings of symbols that may be on the brushcutter, deflector and battery:


1 LED lights up steady red. The battery is too warm or too cold.


4 LEDs flash red. There is an error in the battery.


This symbol indicates the direction of rotation of the cutting attachment.

max Ø XXX This symbol shows the maximum diameter of the cutting attachment in millimeters.


This symbol shows the maximum speed of the cutting attachment.


Guaranteed sound power level in accordance with Directive 2000/14/EC in dB(A) for the purpose of comparing the sound emissions of products.


Recharge this battery with a AL charger. The permissible chargers are listed in these safety instructions.


The battery is equipped with a Bluetooth® radio interface and can be paired with the STIHL connected app.


The information next to the symbol indicates the energy content of the battery according to the cell manufacturer's specification. The energy content available in operation is lower.


Do not dispose of the product with domestic waste.


Maximum power level.


ECO power level.

IPX4 IP marking (degree of protection)
IPX5

3 Safety Precautions

3.1 Warning symbols

Meanings of warning signs and labels on the brushcutter, battery and charger:


Observe safety notices and take the necessary precautions.


Read and understand the User Manual and keep it in a safe place for reference.


Wear safety glasses.


Observe the safety advice concerning flying objects and associated measures.



Remove the battery during work interruptions, transport, storage, maintenance or repair.



Maintain a safe distance.


Do not use metal cutting attachments.


Protect the battery against heat and fire.



Do not immerse the battery in liquids.

3.2 Intended Use

The STIHL FSA 110.1 R brushcutter is designed for mowing grass.

The brushcutter may be used in the rain.

A AP, AR battery supplies this brushcutter with power.

⚠ WARNING

- Batteries not explicitly approved for the brushcutter by STIHL may cause a fire or an explosion. Persons may be seriously or fatally injured, and property may be damaged.
  - ► Use the brushcutter with a AP, AR battery.
- Using the brushcutter or the battery for purposes for which they were not designed may result in serious or fatal injuries and damage to property.
  - ► Use the brushcutter as described in this User Manual.
  - ► Use the battery as described in these safety instructions, the User Manual of the AR battery, the STIHL connected app and at stihl.link/connected.

3.3 The Operator

⚠ WARNING

- Users without adequate training or instruction cannot recognize or assess the risks involved in using the trimmer and battery. The user or other persons may sustain serious or fatal injuries.


  - ► Read, understand and save the instruction manual.
  - ► If the trimmer or battery are passed on to another person: Always give them the instruction manual.
  - ► Make sure the user meets the following requirements:
    - – The user must be rested.

– The user must be in good physical condition and mental health to operate and work with the trimmer and battery. If the user's physical, sensory or mental ability is restricted, he or she may work only under the supervision of or as instructed by a responsible person.
– The user is able to recognize and assess the risks involved in using the trimmer and battery.
– The user must be of legal age or is being trained in a trade under supervision in accordance with national rules and regulations.
– The user has received instruction from a STIHL servicing dealer or other experienced user before working with the trimmer for the first time.
– The user must not be under the influence of alcohol, medication or drugs.

► If you have any queries: Contact a STIHL servicing dealer for assistance.

3.4 Clothing and equipment

⚠ WARNING

- Objects can be thrown at high speed during operation. This may result in injury to the user.



► Wear close-fitting safety glasses. Suitable protective glasses tested in accordance with European standard EN 166, EN ISO 16321 or in accordance with national standards and bearing the corresponding label are available from retailers.

► If your face may be injured during work, STIHL recommends wearing a face protection over the safety glasses.
► Wear long pants made of robust material.

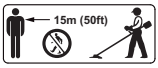
- Dust may be whipped up during operation. Whipped up dust can damage the respiratory passages and cause allergic reactions.
► If dust is generated: Wear a dust respirator mask.
- Inappropriate clothing can snag on wood, brush or the brushcutter. Users not wearing suitable clothing may be seriously injured.
► Wear close-fitting clothing.
► Remove scarves and jewelry.
- The user may come into contact with the rotating cutting attachment during operation. This may result in serious injury to the user.
► Wear robust footwear.
► Wear long pants made of robust material.
- There is a risk of the user coming into contact with the cutting attachment or the line limiting blade during cleaning and maintenance work and when the cutting attachment is mounted or removed. This may result in injury to the user.
► Wear work gloves made of robust material.
- Wearing unsuitable footwear may cause the user to slip. This may result in injury to the user.
► Wear sturdy, closed-toed footwear with non-slip soles.

3.5 Work Area and Surroundings

3.5.1 Brushcutter

⚠ WARNING

- Bystanders, children and animals are not aware of the dangers of the brushcutter or flying debris. This may result in serious injury to bystanders, children and animals and damage to property.



► Do not allow bystanders, children or animals within 15 meters of the work area.

► Maintain a clearance of 15 meters from objects.
► Do not leave the brushcutter unattended.
► Make sure that children cannot play with the brushcutter.

- Electrical components of the brushcutter can produce sparks. Sparks may cause fires and explosions in highly flammable or explosive environments. Persons may be seriously or fatally injured and property may be damaged.
► Do not work in a highly flammable or explosive environment.

3.5.2 Battery

⚠ WARNING

- Bystanders, children and animals cannot recognize or assess the dangers of the battery. Bystanders, children and animals may be seriously injured.
► Keep bystanders, children and animals away from the work area.
► Do not leave the battery unattended.
► Make sure that children cannot play with the battery.
- The battery is not protected against all ambient conditions. If the battery is exposed to certain ambient conditions, the battery may catch fire, explode or be irreparably damaged. This may result in serious injury to people and damage to property.



- Protect battery from heat and fire.
- Do not throw the battery into a fire.
- Do not charge, use and store the battery outside of the specified temperature limits, 19.3.



- Do not immerse the battery in liquids.
- Keep battery away from small metal parts.
- Do not expose the battery to high pressure.
- Do not expose the battery to microwaves.
- Protect the battery against chemicals, salts and fertilizers.

3.6 Safe Condition

3.6.1 Brushcutter

The brushcutter is in a safe condition if the following points are observed:
– The brushcutter is not damaged.
– The brushcutter is clean.
– The controls function properly and have not been modified.
– A combination of cutting attachment and deflector recommended in this user manual is mounted.
– The cutting attachment and deflector are properly mounted.
– Genuine STIHL accessories for this brushcutter are fitted.
– The accessories are correctly attached.

⚠ WARNING

- If not in safe condition, components may no longer operate correctly and safety devices may be disabled. This may result in serous or fatal injury to people.
  - Work only with an undamaged brushcutter.
  - If the brushcutter is dirty: Clean the brushcutter.
  - Never attempt to modify your brushcutter. Exception: Mounting one of the combinations of cutting attachment and deflector recommended in this user manual.
  - If the controls do not function properly: Do not use your brushcutter.
  - Fit genuine STIHL accessories for this brushcutter.
  - Mount the cutting attachment and deflector as described in this user manual.
  - Attach accessories as described in this User Manual or in the User Manual for the accessories.
  - Never insert objects in the openings of the brushcutter.
  - Replace worn or damaged labels.
  - If you have any doubts, be sure to consult a STIHL dealer.

3.6.2 Deflector

The deflector is in a safe condition if the following points are observed:
– The deflector is not damaged.
– The line limiter blade is correctly installed.

⚠ WARNING

- If the product does not comply with safety requirements, components will no longer function properly or safety devices may be rendered inoperative. This can result in serious injuries.
  - Work only with an undamaged deflector.
  - Work with a correctly installed line limiter blade.
  - If you have any queries: Contact your STIHL servicing dealer.

3.6.3 Mowing head

The mowing head is in a safe condition if the following points are observed:
– The mowing head is not damaged.
– The mowing head is not jammed.
– The mowing head is attached correctly.
– The mowing lines are properly installed.
– If a Polycut mowing head with polymer blades is used:
  – The polymer blades are free of damage and tears.
  – The polymer blades are properly mounted.
– The wear limits are not exceeded.

⚠ WARNING

- If they are in an unsafe condition, parts of the mowing head, mowing lines or polymer blades may come off and be ejected at high speed. People may suffer serious injuries as a result.
  - Work only with an undamaged mowing head.
  - If a PolyCut mowing head with polymer blades is used: Never work with damaged polymer blades.
  - Never use metal objects in place of the nylon mowing lines or polymer blades.
  - Note and comply with the wear limits.
  - If you are unsure: Contact a STIHL authorized dealer.

3.6.4 Battery

The battery is in a safe condition if the following points are observed:
– Battery is undamaged.
– The battery is clean and dry.
– Battery functions properly and has not been modified.

⚠ WARNING

- A battery that is not in a safe condition cannot operate safely. Persons may be seriously injured.
  - ► Never work with a damaged battery.
  - ► Never attempt to charge a damaged or defective battery.
  - ► If the battery is dirty: Clean the battery.
  - ► If the battery is wet or damp: Allow the battery to dry, 🕮 19.4.
  - ► Never attempt to modify the battery.
  - ► Never insert objects in the battery's openings.
  - ► Never bridge the battery's contacts with metallic objects (short circuit).
  - ► Do not open the battery.
  - ► Replace worn or damaged labels.
- Fluid may leak from a damaged battery. If that liquid comes into contact with the skin or eyes, the skin or eyes may be irritated.
  - ► Avoid contact with the liquid.
  - ► If skin contact occurs: Wash affected areas of skin with plenty of water and soap.
  - ► In the event of contact with eyes: Rinse eyes with plenty of water for at least 15 minutes and consult a doctor.
- A damaged or defective battery may smell unusual, emit smoke or burn. Persons may be seriously or fatally injured, and property may be damaged.
  - ► If the battery smells unusual or emits smoke: do not use the battery and keep it away from combustible substances.
  - ► If the battery catches fire: Attempt to extinguish the battery with a fire extinguisher or water.

3.7 Working

⚠ WARNING

- In certain situations, the user may no longer be able to concentrate on their work. This may result in the user stumbling, falling and suffering serious injury.
  - ► Work calmly and methodically.
  - ► If light and visibility are poor: Do not use your brushcutter.
  - ► Operate the brushcutter alone.
  - ► Keep the cutting attachment close to the ground and horizontal to the surface.
  - ► Watch out for obstacles.
  - ► Work standing on the ground and keep your balance.
  - ► If you start feeling fatigue: Take a break.
- The rotating cutting attachment can cut the user. This may result in serious injury to the user.
  - ► Do not touch the rotating cutting attachment.
  - ► If the cutting attachment is blocked by an object: Switch off the brushcutter and remove the battery. Only then remove the object.
- If the brushcutter has been subjected to unusually high loads for which it was not designed (e.g., a heavy impact or fall), the brushcutter may not be in a safe condition. This may result in serious injury to people and damage to property.
  - ► Check that the brushcutter is in a safe condition.
  - ► If you are unsure: Contact a STIHL authorized dealer.
- If the behavior of the brushcutter changes during operation or feels unusual, it may no longer be in a safe condition. This may result in serious injury to people and damage to property.
  - ► Stop working, remove the battery and contact a STIHL authorized dealer.
- Vibrations may occur while using the brushcutter.
  - ► Wear gloves.
  - ► Take breaks.
  - ► If signs of a circulatory disorder (white fingers disease) occur: Consult a doctor.
- If the cutting attachment makes contact with a foreign object during operation, the object or parts of it may be ejected at high speed. Persons may be injured or property may be damaged.
  - ► Remove foreign objects from the working area.
- If the rotating cutting attachment makes contact with a hard object, sparks may occur and the cutting attachment may be damaged. Sparks can cause fires in a flammable environment. Persons may be seriously or fatally injured, and property may be damaged.
  - ► Do not use in a flammable environment.
  - ► Make sure the cutting attachment is in a safe condition.
- Note that the cutting attachment continues to rotate for a short period after you release the

trigger. People may suffer serious injuries as a result.
- ► Wait until the cutting attachment comes to a complete stop.

3.8 Transporting

3.8.1 Trimmer

⚠ WARNING

- The trimmer may turn over or shift during transport. This may result in personal injuries and damage to property.
  - ► Remove the battery.



  - ► Secure the trimmer with lashing straps or a net to prevent it turning over and moving.

3.8.2 Battery

⚠ WARNING

- The battery is not protected against all ambient conditions. The battery may be damaged if it is exposed to certain ambient conditions, and damage to property may occur.
  - ► Never transport a damaged battery.
- The battery may turn over or shift during transport. This may result in injury to people and damage to property.
  - ► Pack the battery in packaging in such a way that it cannot move.
  - ► Secure the packaging so that it cannot move.

3.9 Storing

3.9.1 Trimmer

⚠ WARNING

- Children are not aware of and cannot assess the dangers of a trimmer and can be seriously injured.
  - ► Remove the battery.



  - ► Store the trimmer out of the reach of children.
- Dampness can corrode the electrical contacts on the trimmer and metal components. This can damage the trimmer.
  - ► Remove the battery.



  - ► Store the trimmer in a clean and dry condition.

3.9.2 Battery

⚠ WARNING

- Children are not aware of and cannot assess the dangers of the battery Children may be seriously injured.
  - ► Store the battery out of the reach of children.
- The battery is not protected against all ambient conditions. If the battery is exposed to certain ambient conditions, the battery may be irreparably damaged.
  - ► Store the battery in a clean and dry condition.
  - ► Store the battery in an enclosed space.
  - ► Store the battery separately from the brushcutter.
  - ► If the battery is stored in the charger, disconnect the mains plug and store the battery at a state of charge between 40% and 60% (2 lit green LEDs).
  - ► Do not store the battery outside of the specified temperature limits, 🕮 19.3.

3.10 Cleaning, Maintenance and Repair

⚠ WARNING

- The brushcutter may start up unintentionally if the battery is left in place during cleaning, maintenance or repair operations. This may result in serious injury to people and damage to property.
  - ► Remove the battery.



- Aggressive cleaning agents, a water jet or pointed objects can damage the trimmer, deflector, cutting attachment, battery and the charger. If the trimmer, deflector, cutting attachment, battery or charger are not cleaned correctly, components may no longer function properly or safety devices may be rendered inoperative. They may cause serious injury to persons.
  - ► Clean the trimmer, deflector, cutting attachment, battery and charger as described in this instruction manual.
- If the trimmer, deflector, cutting attachment, battery and charger are not properly serviced or repaired, components may no longer function properly or safety devices may be ren-

dered inoperative. This may result in serous or fatal injury to people.
- ► Do not attempt to service or repair the trimmer, deflector, cutting attachment, battery or charger.
- ► If the trimmer, deflector, cutting attachment, battery or the charger require servicing or repairs: Contact your STIHL servicing dealer for assistance.

4 Preparing Trimmer for Operation

4.1 Preparing the brushcutter for operation

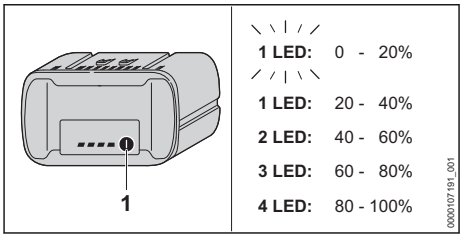
The following steps must be performed before commencing work:
- ► Ensure that the following components are in a safe condition:
  - – Brushcutter, 🕮 3.6.1.
  - – Deflector, 🕮 3.6.2.
  - – Mowing head, 🕮 3.6.3.
  - – Battery, 🕮 3.6.4.
- ► Check the battery, 🕮 10.2.
- ► Fully recharge the battery as described in the User Manual for the AL 101, 301, 301-4, 501 chargers.
- ► Clean the brushcutter, 🕮 15.1.
- ► Attach the loop handle, 🕮 6.2.
- ► Select combination of cutting attachment and deflector, 🕮 20.
- ► Attach the deflector, 🕮 6.1.
- ► Mount the mowing head, 🕮 6.3.1.
- ► Adjust the loop handle, 🕮 6.2.
- ► Check the controls, 🕮 10.1.
- ► If you cannot carry out these steps: Do not use the brushcutter and instead contact a STIHL authorized dealer.

5 Charging the Battery, LEDs

5.1 Charging the battery

The charging time depends on various factors, e.g. the battery temperature or the ambient temperature. For optimal performance, note the recommended temperature ranges, 🕮 19.4. The actual charging time may vary from the charging time indicated. For the charging time, see stihl.link/charging.
- ► Recharge the battery as described in the user manual for the AL 101, 301, 301-4, 501 charger.

5.2 Displaying the state of charge



- ► Depress the pushbutton (1).
  The LEDs light up green for about 5 seconds and indicate the state of charge.
- ► If an LED flashes green: Charge the battery.

5.3 LEDs on Battery

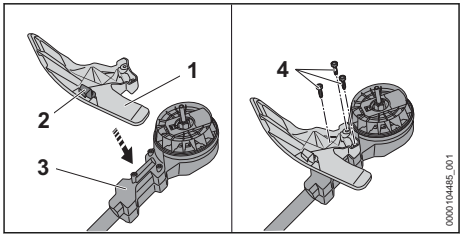
The LEDs can show the state of charge or malfunctions. The LEDs can glow or flash green or red.

The state of charge is indicated when the LEDs glow or flash green.
- ► If the LEDs glow or flash red: Troubleshooting, 🕮 18.
  Malfunction in trimmer or battery.

6 Assembling the Trimmer

6.1 Attaching the deflector

- ► Switch off the brushcutter and remove the battery.

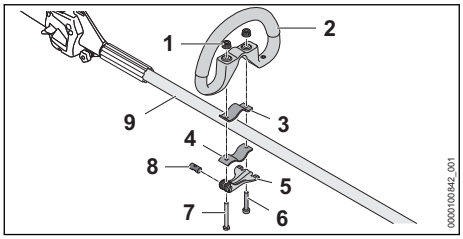


The line limiting blade (2) has already been installed in the deflector (1) and must not be removed.
- ► Fit the deflector (1) on the housing (3) and line up the holes.
- ► Insert screws (4) and tighten them.

The deflector (1) must not be removed.

6.2 Attaching the loop handle

- ► Switch off the brushcutter and remove the battery.



- Guide the pin (8) into the gap of the quick release clamp (5).
  Align the pin (8) so that the groove of the pin points down.
- Fit the clamp (3) in the loop handle so that the holes align.
- Place the loop handle (2) with clamp (3) on the shaft (9).
- Guide the long screw (7) through the bores in the pin and in the quick release clamp (5).
- Press the clamp (4) against the shaft and align it so that the holes are in alignment.
- Guide the short screw (6) through the holes.
- Guide the long screw (7) through the holes.
- Turn open the knurled nuts (1).
- Close the quick release clamp (5).

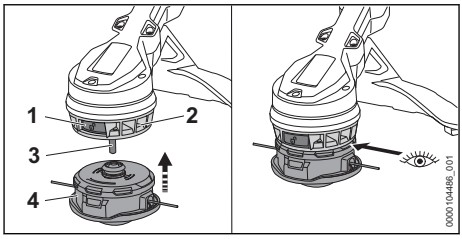
If the loop handle (2) cannot be moved any further, the loop handle is properly adjusted.

- If the loop handle (2) can still be adjusted:
  - Fold open the quick release clamp (5).
  - Tighten the knurled nuts (1).
  - Close the quick release clamp (5).
    The loop handle (2) cannot be adjusted any further.
- If the quick release clamp (5) cannot be folded flat:
  - Fold open the quick release clamp (5).
  - Release the knurled nuts (1).
  - Close the quick release clamp (5).
    The loop handle (2) cannot be moved any further.

6.3 Mounting and Removing the Mowing Head

6.3.1 Attaching the mowing head

- Switch off the brushcutter and remove the battery.



- If the release button (1) is not pressed: Press the release button (1) until it engages.
- Push the mowing head (4) onto the shaft (3) and press it against the fanwheel (2).
  The mowing head engages with a click.
  The release button pops out, and the mowing head fits flush against the fanwheel.
- If the mowing head does not engage: Press the mowing head against the fanwheel and rotate it until it engages.

6.3.2 Removing the mowing head

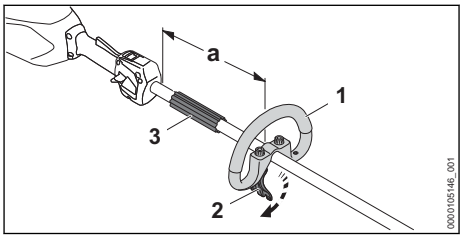
- Switch off the brushcutter and remove the battery.
- Hold the mowing head firmly with one hand.
- With the other hand, press the release button until it engages.
  The mowing head pops up from the shaft and can be removed.

7 Adjusting Trimmer for User

7.1 Adjusting and setting the loop handle

The loop handle can be set to different positions to suit the height and reach of the user.

- Switch off the brushcutter and remove the battery.

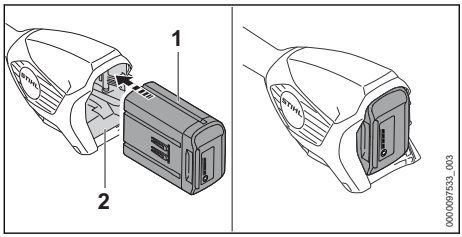


- Release the quick release clamp (2).
- Move the loop handle (1) to the required position and check that the following conditions are met:
  – The bump guard (3) fits between the loop handle (1) and the control handle.
  – The distance (a) of no more than 30 cm is not exceeded.

- Close the quick release clamp (2) so that the loop handle (1) cannot be rotated on the shaft any longer.

8 Removing and Fitting the Battery

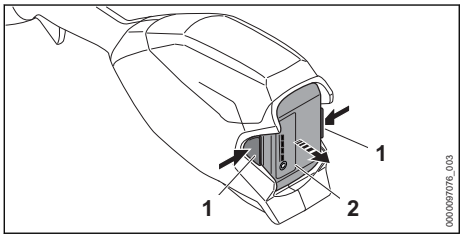
8.1 Inserting the battery



- Insert the battery (1) into the battery compartment (2) as far as it will go.
  The battery (1) engages with a click and is locked.

8.2 Removing the battery

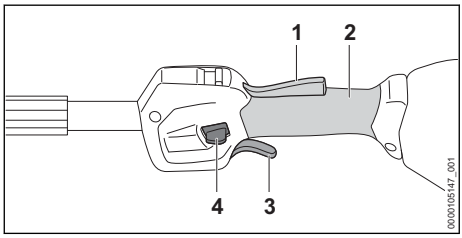
- Keep one hand in front of the battery compartment so that the battery (2) cannot fall out.



- Press both locking levers (1).
  The battery (2) is released and can be removed.

9 Switching the Trimmer On/Off

9.1 Switching on the brushcutter



- Hold the brushcutter firmly with one hand on the control handle so that your thumb wraps around the grip (2) of the control handle.
- Hold the brushcutter firmly with your other hand on the loop handle so that your thumb wraps around the loop handle or the handle hose.
- Press the release slide (4) down with your thumb and hold it there.
- Press the trigger (3) with your index finger and keep it pressed.
  The brushcutter accelerates and the cutting attachment rotates.
  You can now release the release slide (4).

If the ergo lever (1) is pressed, the trigger switch (3) remains unlocked. This means that the trigger can then be released and pressed again without having to push the release slide down again.

If the trigger (3) and the ergo lever (1) are released, the trigger (3) is locked. The release slide (4) must be pressed down again to unlock the trigger (3).

9.2 Switching off the brushcutter

- Release the trigger and the Ergo lever.
- Wait for the cutting attachment to stop rotating.
- If the cutting attachment continues to rotate: Remove the battery and contact your STIHL dealer.
  The brushcutter is defective.

10 Testing the Trimmer and Battery

10.1 Checking the controls

Release slide, ergo lever and trigger

- Remove the battery.
- Try squeezing the trigger switch without activating the release slide.
- If you can press the trigger: Stop using your brushcutter and contact a STIHL authorized dealer.
  The release slide is faulty.
- Press and hold the release slide.
- Press and hold the ergo lever.
- Press the trigger.
  The release slide can be released.
- Release the trigger and ergo lever.

► If the release slide, trigger or ergo lever is stiff or does not spring back to the initial position: Stop using the brushcutter and contact a STIHL authorized dealer.
The release slide, trigger or ergo lever is defective.

Switching on the brushcutter

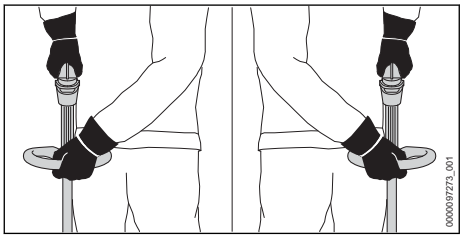
► Insert the battery.
► Press and hold the release slide.
► Press and hold the trigger.
The cutting attachment rotates.
► If 3 LEDs flash red: Remove the battery and consult a STIHL authorized dealer.
The brushcutter has a malfunction.
► Release the trigger.
The cutting attachment stops rotating after a short period of time.
► If the cutting attachment continues to rotate: Remove the battery and contact a STIHL authorized dealer.
The brushcutter is defective.

10.2 Testing the Battery

► Press button on battery.
The LEDs glow or flash.
► If the LEDs do not glow or flash: Do not use the battery and contact your STIHL servicing dealer.
There is a malfunction in the battery.

11 Operating the Trimmer

11.1 Holding and guiding the brushcutter



► Hold the brushcutter firmly with one hand on the control handle so that your thumb wraps around the grip of the control handle.
► Hold the brushcutter with the other hand on the loop handle so that your thumb wraps around the loop handle.

11.2 Setting the power level

Depending on the application, 2 power levels can be selected. The position of the power level slide (1) indicates the selected power level.

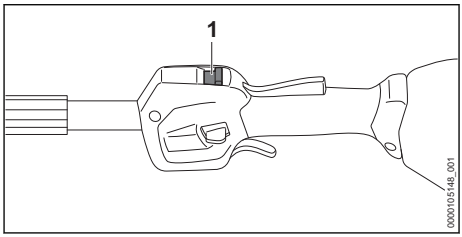
The selected power level affects the battery's runtime.

– ECO : ECO power level, low speed

– : Maximum power level, maximum speed

When you select the ECO power level, the speed is reduced.

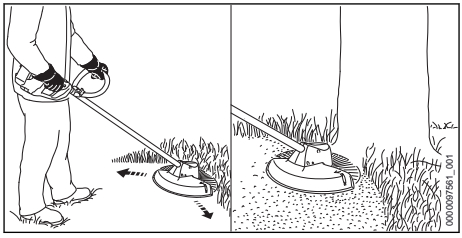
This can extend the battery runtime.



► Slide the power level slide (1) with your thumb to the selected position.

11.3 Mowing

The cutting height is determined by the distance of the cutting attachment from the ground.

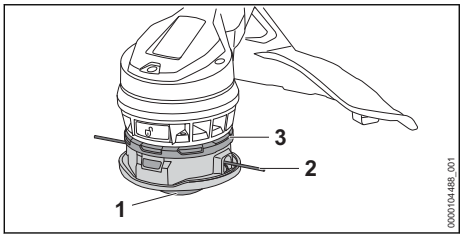


► Swing the brushcutter steadily back and forth in an arc.
► Walk forward slowly and steadily.

For optimal performance, note the recommended temperature ranges, 📖 19.4.

11.4 Adjust the mowing lines on the AutoCut mowing heads

► Briefly tap the rotating mowing head on the ground.
About 30 mm of fresh nylon line is advanced. The line limiting blade in the deflector automatically cuts the mowing lines to the correct length.



Automatic feed will not take place if the mowing lines are shorter than 25 mm.

- ► Switch off the brushcutter and remove the battery.
- ► Press the bottom part (1) in the direction of the top part (3) and keep it pressed.
- ► Pull out the mowing lines (2) by hand.
- ► If the mowing lines (2) cannot be pulled out to the required length: Replace the spool or the mowing lines (2).
  The spool is empty.

If the mowing head is dirty under the top part (3), the mowing lines cannot be automatically adjusted.

- ► Remove the mowing head.
- ► Pull off the top (3) from the mowing head.
- ► Clean the area underneath the top (3).
- ► Push the top (3) onto the mowing head.
  The top (3) engages with an audible click.

12 After Finishing Work

12.1 After Finishing Work

- ► Switch off the brushcutter and remove the battery.
- ► If the brushcutter is wet: Allow the brushcutter to dry.
- ► If the battery is moist or wet: Allow the battery to dry, 🕮 19.4.
- ► Clean the brushcutter.
- ► Clean the deflector.
- ► Clean the cutting attachment.
- ► Clean the battery.

13 Transporting

13.1 Transporting the brushcutter

- ► Switch off the brushcutter and remove the battery.

Carrying the Brushcutter

- ► Carry the brushcutter in one hand properly balanced by the shaft, with the cutting attachment behind you.

Transporting the brushcutter in the car

- ► Secure the brushcutter to prevent turnover and movement.

13.2 Transporting the battery

- ► Switch off the brushcutter and remove the battery.
- ► Check that the battery is in a safe condition.
- ► Pack the battery in packaging in such a way that it cannot move inside the packaging.
- ► Secure the packaging so that it cannot move.

The battery is subject to the Carriage of Dangerous Goods regulations. The battery is classified as UN 3480 (lithium ion batteries) and has been tested pursuant to UN Manual Tests and Criteria Part III, Subsection 38.3.

For the transport regulations, see stihl.link/safety.

14 Storing

14.1 Storing the brushcutter

- ► Switch off the brushcutter and remove the battery.
- ► Ensure that the following conditions are met when storing the brushcutter:
  - – The brushcutter cannot tip over or shift.
  - – The brushcutter is out of the reach of children.
  - – The brushcutter is clean and dry.
- ► If you store the brushcutter for more than 30 days: Remove the cutting attachment.

14.2 Storing the Battery

STIHL recommends keeping the battery in a charging state between 40% and 60 % (2 green LEDs lit).

- ► The battery should be stored in such a way that the following conditions are fulfilled:
  - – The battery is out of the reach of children.
  - – The battery is clean and dry.
  - – The battery is in an enclosed space.
  - – The battery is separated from the brushcutter.
  - – If the battery is stored in the charger, disconnect the mains plug and store the battery at a state of charge between 40% and 60% (2 lit green LEDs).
  - – Do not store the battery outside of the specified temperature limits, 🕮 19.3.

NOTICE

- ■ If the battery is not stored as described in this User Manual, the battery may become deeply discharged and irreparably damaged.

- Charge a discharged battery before storing it. STIHL recommends keeping the battery state of charge between 40% and 60% (2 lit green LEDs).
- Store the battery separately from the brushcutter.

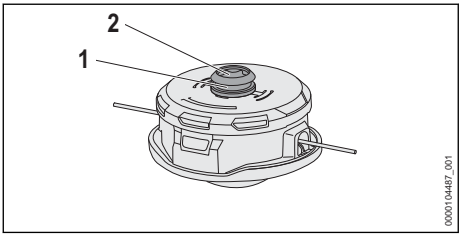
15 Cleaning

15.1 Cleaning the Brushcutter

- Switch off the brushcutter and remove the battery.
- Clean the brushcutter with a damp cloth.
- Clean vents with a paintbrush.
- Remove foreign objects from the battery compartment and clean the battery compartment with a damp cloth.
- Clean the electrical contacts in the battery compartment with a paintbrush or soft brush.
- Clean the area underneath the fanwheel with a soft brush.

15.2 Cleaning the deflector and cutting attachment

- Switch off the brushcutter and remove the battery.
- Clean the deflector and cutting attachment with a damp cloth or a soft brush.



- Clean the groove (1) and mounting of the shaft (2) with a damp cloth or a soft brush.

15.3 Cleaning the battery

- Remove the battery.
- Clean the battery with a damp cloth.

Enhanced cleaning options for batteries compliant with IPX5

A battery certified according to IPX5 can be briefly rinsed under clear, running water if it becomes heavily soiled. STIHL recommends that you do not clean the battery regularly, and only do so if absolutely necessary. The IP rating (degree of protection) is stated on the rating plate.

- Do not use any cleaning agents.
- Make sure that the water can drain completely from the battery.
- Allow the battery to dry, 🕮 19.4.

16 Maintenance

16.1 Maintenance Intervals

The maintenance intervals are dependent on the environmental and operating conditions. STIHL recommends the following maintenance intervals:

Every 12 months

- Have the trimmer checked by a STIHL servicing dealer.

17 Repairing

17.1 Repairing the Trimmer and Cutting Attachment

The trimmer and cutting attachment cannot be repaired by the user.

- If the trimmer or cutting attachment is damaged: Do not use your trimmer or cutting attachment and contact your STIHL servicing dealer.

17.2 Servicing and Repairing the Battery

The battery requires no servicing and cannot be repaired.

- If the battery has a malfunction or is damaged: Replace the battery.

18 Troubleshooting

18.1 Troubleshooting the brushcutter or battery

Error	LEDs on the battery	Cause	Remedy
The brushcutter does not start when switched on.	1 LED flashes green.	The state of charge of the battery is too low.	► Fully recharge the battery as described in the User Manual for the AL 101, 301, 301-4, 501 chargers.

Error	LEDs on the battery	Cause	Remedy
	1 LED lights up red.	The battery is too warm or too cold.	► Remove the battery. ► Allow the battery to cool down or warm up.
	3 LEDs flash red.	The brushcutter has a malfunction.	► Remove the battery. ► Clean the electrical contacts in the battery compartment. ► Insert the battery. ► Switch on the brushcutter. ► If 3 LEDs continue to flash red: Do not use the brushcutter and instead contact a STIHL authorized dealer.
	3 LEDs light up red.	The brushcutter is too hot.	► Remove the battery. ► Allow the brushcutter to cool down.
	4 LEDs flash red.	There is an error in the battery.	► Remove the battery and reinsert it. ► Switch on the brushcutter. ► If 4 LEDs continue to flash red: Do not use the battery and instead contact a STIHL authorized dealer.
		No electrical contact between brushcutter and battery.	► Remove the battery. ► Clean the electrical contacts in the battery compartment. ► Insert the battery.
		The brushcutter or battery is damp.	► Allow the brushcutter or battery to dry, 🕮 19.4.
		The trigger is already pressed before operating the release slide.	► Switch on the brushcutter as described in this User Manual.
The brushcutter cuts out during operation.	3 LEDs light up red.	The brushcutter is too hot.	► Remove the battery. ► Allow the brushcutter to cool down.
		There is an electrical error.	► Remove the battery and reinsert it. ► Switch on the brushcutter.
The runtime of the brushcutter is too short.		The battery is not fully charged.	► Fully recharge the battery as described in the User Manual for the AL 101, 301, 301-4, 501 chargers.
		The battery service life has been exceeded.	► Replace the battery.
The power levels cannot be set.		The trigger is pressed and the brushcutter switched on.	► Select the power level as described in this User Manual.
Mowing head cannot be attached.		The release button on the fanwheel is not pressed.	► Press the release button. ► Attach the mowing head.
		The mowing head, shaft or fanwheel is dirty.	► Clean the mowing head, shaft and fanwheel.
		The release button does not pop out and remains pushed in.	► Clean the mowing head, shaft and fanwheel. ► If the release button remains pushed in: Contact a STIHL authorized dealer.
The mowing head cannot be removed even though the		The mowing head, shaft or fanwheel is dirty.	► Pull off the mowing head from the shaft. ► Clean the mowing head, shaft and fanwheel.

Error	LEDs on the battery	Cause	Remedy
release button is pressed.			

19 Specifications

19.1 STIHL FSA 110.1 R brushcutter

– Approved batteries: AP, AR
– Weight with heaviest mowing head and associated heaviest deflector, without battery: 3,2 kg
– Length without cutting attachment: 1710 mm
– Maximum speed of cutting attachment: 6500 rpm
– Degree of electrical protection: IPX4 (protection against splash water from any direction)

For runtime, see stihl.link/battery-life.

19.2 AP Battery

– Battery technology: lithium-ion
– Rated voltage: 36 V
– Maximum voltage: 40 V
– Capacity in Ah: See rating label
– Energy content in Wh: see rating label
– Weight in kg: See rating label

The power output of the battery may vary depending on the battery product used.

19.3 Temperature limits

WARNING

- The battery is not protected against all ambient conditions. If the battery is exposed to certain environmental conditions, it may catch fire or explode. This may result in serious injury to people and damage to property.
  - ► Do not charge the battery below -20°C or above 50°C.
  - ► Do not use the brushcutter or battery below -20°C or above 50°C.
  - ► Do not store the brushcutter or battery below -20°C or above +70°C.

19.4 Recommended temperature ranges

For optimum performance of the brushcutter and battery, note the following temperature ranges:
– Charging: 5°C to 40°C
– Use: - 10 °C to + 40 °C
– Storage: - 20 °C to + 50 °C

If the battery is charged, used or stored outside the recommended temperature ranges, performance may be restricted.

If the battery is wet or moist, allow the battery to dry for at least 48 h between 15°C and 50°C and with less than 70% humidity. Higher humidity may extend the drying time.

19.5 Sound and vibration values

STIHL recommends wearing hearing protection.
– Guaranteed sound power level L_{WAd} according to 2000/14/EC: 93 dB(A).

For use with any mowing head except PolyCut 12-2

– Sound pressure level L_{pA} measured according to IEC 62841-4-4: 77 dB(A), uncertainty K_{pA}: 2 dB(A)
– Sound power level L_{wA} measured according to IEC 62841-4-4: 91 dB(A), uncertainty K_{WA}: 2 dB(A)
– Vibration value a_{hv} measured in accordance with IEC 62841-4-4
  – Control handle: 1,8 m/s², uncertainty K_a: 2,0 m/s²
  – Loop handle: 4,0 m/s², uncertainty K_a: 2,0 m/s²
– Vibration value p_F measured according to EN ISO 5349-3
  – Control handle: 22 m/s², uncertainty K_p: 7,0 m/s²
  – Loop handle: 37 m/s², uncertainty K_p: 7,0 m/s²

Use with a PolyCut 12-2 mowing head

– Sound pressure level L_{pA} measured according to IEC 62841-4-4: 78 dB(A), uncertainty K_{pA}: 2 dB(A)
– Sound power level L_{wA} measured according to IEC 62841-4-4: 90 dB(A), uncertainty K_{WA}: 2 dB(A)
– Vibration value a_{hv} measured in accordance with IEC 62841-4-4
  – Control handle: 1,1 m/s², uncertainty K_a: 2,0 m/s²
  – Loop handle: 1,9 m/s², uncertainty K_a: 2,0 m/s²

– Vibration value p_F measured according to EN ISO 5349-3
  – Control handle: 14 m/s², uncertainty K_p: 7,0 m/s²
  – Loop handle: 25 m/s², uncertainty K_p: 7,0 m/s²

The sound and vibration values indicated were measured in accordance with a standardized test method and can be used as a basis for comparing electric power tools. The actual sound and vibration levels may vary from the values indicated, depending on the type of application and the accessories used. The sound and vibration levels indicated can be used for an initial estimate of the sound and vibration load. The actual sound and vibration stress has to be estimated. This estimate may take into account the times when the electric power tool is switched off and also when it is switched on but running without any load.

For information on compliance with the Physical Agents (Vibration) Directive 2002/44/EC, see www.stihl.com/vib.

19.6 REACH

REACH is an EC regulation and stands for the Registration, Evaluation, Authorisation and Restriction of Chemical substances.

For information on compliance with the REACH regulation see www.stihl.com/reach.

20 Combinations of Cutting Attachments and Deflectors

20.1 STIHL FSA 110.1 R brushcutter

The following mowing heads may be mounted with the deflector:
– STIHL AutoCut C 12-2 mowing head:
  – with round, low-noise mowing line with a diameter of 2.0 mm or 2.4 mm
– PolyCut 12-2 mowing head:
  – with orange blades (330 mm diameter)
– SuperCut C 12-2 mowing head:
  – with round, low-noise mowing lines with a diameter of 2.4 mm

21 Spare Parts and Accessories

21.1 Spare parts and accessories

These symbols indicate original STIHL spare parts and original STIHL accessories.

STIHL recommends the use of original STIHL spare parts and accessories.

Despite ongoing market observation, STIHL is unable to judge the reliability, safety and suitability of other manufacturers' spare parts and accessories; accordingly, STIHL cannot warrant for the use of those parts.

Original STIHL spare parts and original STIHL accessories are available from STIHL dealers.

22 Disposal

22.1 Disposing of the Trimmer and Battery

Contact the local authorities or your STIHL dealer for information on disposal.

Improper disposal can be harmful to health and pollute the environment.
► Take STIHL products including packaging to a suitable collection point for recycling in accordance with local regulations.
► Do not dispose with domestic waste.

23 EU conformity

The EU Declaration of Conformity is available at stihl.link/compliance.

Further information and a form for reporting security vulnerabilities are available at vdp.stihl.com.

24 Addresses

www.stihl.com

25 General Power Tool Safety Warnings

25.1 Introduction

WARNING

■ **Read all safety warnings, instructions, illustrations and specifications provided with this power tool.** Failure to follow all instructions listed below may result in electric shock, fire

and/or serious injury. **Save all warnings and instructions for future reference.**

The term "electric power tool" in the safety warnings refers to mains-operated (corded) power tools or battery-operated (cordless) power tools.

25.2 Work area safety

a) **Keep work area clean and well lit.** Cluttered or dark areas invite accidents.

b) **Do not operate power tools in explosive atmospheres, such as in the presence of flammable liquids, gases or dust.** Power tools create sparks which may ignite the dust or fumes.

c) **Keep children and bystanders away while operating a power tool.** Distractions can cause you to lose control.

25.3 Electrical safety

a) **Do not expose power tools to rain or wet conditions.** Water entering a power tool will increase the risk of electric shock.

25.4 Personal safety

a) **Stay alert, watch what you are doing and use common sense when operating a power tool. Do not use a power tool while you are tired or under the influence of drugs, alcohol or medication.** A moment of inattention while operating power tools may result in serious personal injury.

b) **Use personal protective equipment. Always wear eye protection.** Protective equipment such as a dust mask, non-skid safety shoes, hard hat or hearing protection used for appropriate conditions will reduce personal injuries.

c) **Prevent unintentional starting. Ensure the switch is in the off-position before connecting to power source and/or battery pack, picking up or carrying the tool.** Carrying power tools with your finger on the switch or energising power tools that have the switch on invites accidents.

d) **Remove any adjusting key or wrench before turning the power tool on.** A wrench or a key left attached to a rotating part of the power tool may result in personal injury.

e) **Do not overreach. Keep proper footing and balance at all times.** This enables better control of the power tool in unexpected situations.

f) **Dress properly. Do not wear loose clothing or jewellery. Keep your hair and clothing away from moving parts.** Loose clothes, jewellery or long hair can be caught in moving parts.

g) **If devices are provided for the connection of dust extraction and collection facillities, ensure these are connected and properly used.** Use of dust collection can reduce dust-related hazards.

h) **Do not let familiarity gained from frequent use of tools allow you to become complacent and ignore tool safety principles.** A careless action can cause severe injury within a fraction of a second.

25.5 Power tool use and care

a) **Do not force the power tool. Use the correct power tool for your application.** The correct power tool will do the job better and safer at the rate for which it was designed.

b) **Do not use the power tool if the switch does not turn it on and off.** Any power tool that cannot be controlled with the switch is dangerous and must be repaired.

c) **Disconnect the plug from the power source and/or remove the battery pack, if detachable, from the power tool before making any adjustments, changing accessories, or storing power tools.** Such preventive safety measures reduce the risk of starting the power tool accidentally.

d) **Store idle power tools out of the reach of children and do not allow persons unfamiliar with the power tool or these instructions to operate the power tool.** Power tools are dangerous in the hands of untrained users.

e) **Maintain power tools and accessories. Check for misalignment or binding of moving parts, breakage of parts and any other condition that may affect the power tool's operation. If damaged, have the power tool repaired before use.** Many accidents are caused by poorly maintained power tools.

f) **Keep cutting tools sharp and clean.** Properly maintained cutting tools with sharp cutting edges are less likely to bind and are easier to control.

g) **Use the power tool, accessories and tool bits etc. in accordance with these instructions, taking into account the working conditions and the work to be performed.** Use of the power tool for operations different from those

intended could result in a hazardous situation.

h) **Keep handles and grasping surfaces dry, clean and free from oil and grease.** Slippery handles and grasping surfaces do not allow for safe handling and control of the tool in unexpected situations.

25.6 Battery tool use and care

a) **Recharge only with the charger specified by the manufacturer.** A charger that is suitable for one type of battery pack may create a risk of fire when used with another battery pack.

b) **Use power tools only with specifically designated battery packs.** Use of any other battery packs may create a risk of injury and fire.

c) **When battery pack is not in use, keep it away from other metal objects, like paper clips, coins, keys, nails, screws or other small metal objects, that can make a connection from one terminal to another.** Shorting the battery terminals together may cause burns or a fire.

d) **Under abusive conditions, liquid may be ejected from the battery; avoid contact. If contact accidentally occurs, flush with water. If liquid contacts eyes, additionally seek medical help.** Liquid ejected from the battery may cause irritation or burns.

e) **Do not use a battery pack or tool that is damaged or modified.** Damaged or modified batteries may exhibit unpredictable behaviour resulting in fire, explosion or risk of injury.

f) **Do not expose a battery pack or tool to fire or excessive temperature.** Exposure to fire or temperature above 130 °C may cause explosion.

g) **Follow all charging instructions and do not charge the battery pack or tool outside the temperature range specified in the instructions.** Charging improperly or at temperatures outside the specified range may damage the battery and increase the risk of fire.

25.7 Service

a) **Have your power tool serviced by a qualified repair person using only identical replacement parts.** This will ensure that the safety of the power tool is maintained.

b) **Never service damaged battery packs.** Service of battery packs should only be performed by the manufacturer or authorized service providers.

25.8 Grass Trimmer, Brush Cutter and Brush Saw Safety Warnings

a) **Do not use the machine in bad weather conditions, especially when there is a risk of lightning.** This increases the risk of being struck by lightning.

b) **Thoroughly inspect the area for wildlife where the machine is to be used.** Wildlife may be injured by the machine during operation.

c) **Thoroughly inspect the area where the machine is to be used and remove all stones, sticks, wires, bones, and other foreign objects.** Thrown objects can cause personal injury.

d) **Before using the machine, always visually inspect to see that the cutter or blade and the cutter or blade assembly are not damaged.** Damaged parts increase the risk of injury.

e) **Follow instructions for changing accessories.** Improperly tightened blade security nuts or bolts may either damage the blade or result in it becoming detached.

f) **The rated rotational speed of the blade must be at least equal to the maximum rotational speed marked on the machine.** Blades running faster than their rated rotational speed can break and fly apart.

g) **Wear eye, ear, head and hand protection.** Adequate protective equipment will reduce personal injury by flying debris or accidental contact with the cutting line or blade.

h) **While operating the machine, always wear non-slip and protective footwear. Do not operate the machine when barefoot or wearing open sandals.** This reduces the chance of injury to the feet from contact with the moving cutters or lines.

i) **While operating the machine, always wear safety footwear. Do not operate the machine when barefoot or wearing open sandals.** This reduces the chance of injury to the feet from contact with a moving cutter, line or blade.

j) **While operating the machine, always wear long trousers.** Exposed skin increases the likelihood of injury from thrown objects.

k) **Keep bystanders away while operating the machine.** Thrown debris can result in serious personal injury.

l) **Always use two hands when operating the machine.** Holding the machine with both hands will avoid loss of control.

m) **Hold the machine by insulated gripping surfaces only, because the cutting line or blade may contact hidden wiring or its own cord.** Cutting line or blades contacting a “live” wire may make exposed metal parts of the machine “live” and could give the operator an electric shock.

n) **Always keep proper footing and operate the machine only when standing on the ground.** Slippery or unstable surfaces may cause a loss of balance or control of the machine.

o) **Do not operate the machine on excessively steep slopes.** This reduces the risk of loss of control, slipping and falling which may result in personal injury.

p) **When working on slopes, always be sure of your footing, always work across the face of slopes, never up or down and exercise extreme caution when changing direction.** This reduces the risk of loss of control, slipping and falling which may result in personal injury.

q) **Keep all parts of the body away from the cutter, line or blade when the machine is operating. Before you start the machine, make sure the cutter, line or blade is not contacting anything.** A moment of inattention while operating the machine may result in injury to yourself or others.

r) **Do not operate the machine above waist height.** This helps prevent unintended cutter or blade contact and enables better control of the machine in unexpected situations.

s) **When cutting brush or saplings that are under tension, be alert for spring back.** When the tension in the wood fibres is released, the brush or sapling may strike the operator and/or throw the machine out of control.

t) **Use extreme caution when cutting brush and saplings.** The slender material may catch the blade and be whipped toward you or pull you off balance.

u) **Maintain control of the machine and do not touch cutters, lines or blades and other hazardous moving parts while they are still in motion.** This reduces the risk of injury from moving parts.

v) **Carry the machine with the machine switched off and away from your body.** Proper handling of the machine will reduce the likelihood of accidental contact with a moving cutter, line or blade.

w) **When transporting or storing the machine, always fit the cover on metal blades.** Proper handling of the machine will reduce the likelihood of accidental contact with the blade.

x) **Only use replacement cutters, lines, cutting heads and blades specified by the manufacturer.** Incorrect replacement parts may increase the risk of breakage and injury.

y) **When clearing jammed material or servicing the machine, make sure the switch is off and the battery pack is removed.** Unexpected starting of the machine while clearing jammed material or servicing may result in serious personal injury.



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