

**STIHL**<sup>®</sup>

# STIHL FS 90

Instruction Manual





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**Dear Customer,**

**Thank you for choosing a quality engineered STIHL product.**

**It has been built using modern production techniques and comprehensive quality assurance. Every effort has been made to ensure your satisfaction and troublefree use of the product.**

**Please contact your dealer or our sales company if you have any queries concerning this product.**

**Your**



**Dr. Nikolas Stihl**

# **STIHL**®

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## Guide to Using this Manual

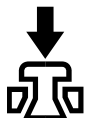
### Pictograms

The meanings of the pictograms attached to the machine are explained in this manual.

Depending on the model concerned, the following pictograms may be attached to your machine.



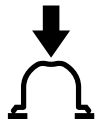
Fuel tank; fuel mixture of gasoline and engine oil



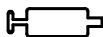
Operate decompression valve



Manual fuel pump



Operate manual fuel pump



Tube of grease



Intake air: Summer operation



Intake air: Winter operation



Handle heating

### Symbols in text



#### WARNING

Warning where there is a risk of an accident or personal injury or serious damage to property.



#### NOTICE

Caution where there is a risk of damaging the machine or its individual components.

### Engineering improvements

STIHL's philosophy is to continually improve all of its products. For this reason we may modify the design, engineering and appearance of our products periodically.

Therefore, some changes, modifications and improvements may not be covered in this manual.

## Safety Precautions and Working Techniques



Some special safety precautions must be observed to reduce the risk of personal injury when operating this power tool because of the very high speed of its cutting attachment.



It is important that you read the instruction manual before first use and keep it in a safe place for future reference. Non-observance of the instruction manual may result in serious or even fatal injury.

Observe all applicable local safety regulations, standards and ordinances.

If you have not used this type of power tool before: Have your dealer or other experienced user show you how to operate your machine or attend a special course in its operation.

Minors should never be allowed to use a power tool.

Keep bystanders, especially children, and animals away from the work area.

When the power tool is not in use, shut it off so that it does not endanger others. Secure it against unauthorized use.

The user is responsible for avoiding injury to third parties or damage to their property.

Do not lend or rent your power tool without the instruction manual. Be sure that anyone using it understands the information contained in this manual.

The use of noise emitting power tools may be restricted to certain times by national or local regulations.

To operate the power tool you must be rested, in good physical condition and mental health.

If you have any condition that might be aggravated by strenuous work, check with your doctor before operating a power tool.

Persons with pacemakers only: The ignition system of your power tool produces an electromagnetic field of a very low intensity. This field may interfere with some pacemakers. STIHL recommends that persons with pacemakers consult their physician and the pacemaker manufacturer to reduce any health risk.

Do not operate the power tool if you are under the influence of any substance (drugs, alcohol) which might impair vision, dexterity or judgment.

Depending on the cutting attachment fitted, use your power tool only for cutting grass, wild growth, shrubs, scrub, bushes, small diameter trees and similar materials.

Do not use your power tool for any other purpose because of the **increased risk of accidents**.

Only use cutting attachments and accessories that are explicitly approved for this power tool model by STIHL or are technically identical. If you have any questions in this respect, consult a

servicing dealer. Use only high quality tools and accessories in order to avoid the risk of accidents and damage to the machine.

STIHL recommends the use of genuine STIHL tools and accessories. They are specifically designed to match the product and meet your performance requirements.

Never attempt to modify your power tool in any way since this may increase the risk of personal injury. STIHL excludes all liability for personal injury and damage to property caused while using unauthorized attachments.

Do not use a pressure washer to clean the unit. The solid jet of water may damage parts of the unit.

The deflector on this power tool cannot protect the operator from all objects thrown by the cutting attachment (stones, glass, wire, etc.). Such objects may ricochet and then hit the operator.

### Clothing and Equipment

Wear proper protective clothing and equipment.



Clothing must be sturdy but allow complete freedom of movement. Wear snug-fitting clothing, an overall and jacket combination, do not wear a work coat.



Avoid clothing that could get caught on branches or brush or moving parts of the machine. Do not wear a scarf, necktie or jewelry. Tie up and confine long hair (e.g. with a hair net, cap, hard hat, etc.).



Wear steel-toed safety boots with non-slip soles.

Sturdy shoes with non-slip soles may be worn as an alternative only when using mowing heads.

### **! WARNING**



To reduce the risk of eye injuries, wear snug-fitting safety glasses in accordance with European Standard EN 166. Make sure the safety glasses are a good fit.

Wear a face shield and make sure it is a good fit. A face shield alone does not provide adequate eye protection.

Wear hearing protection, e.g. earplugs or ear muffs.

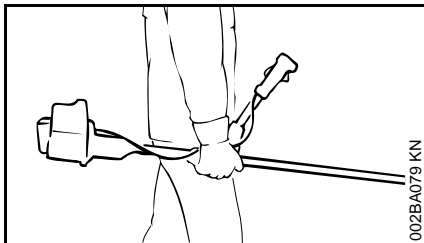
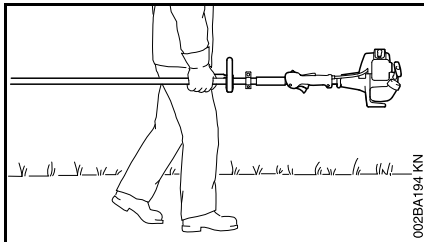
Wear a safety hard hat for thinning operations, when working in high scrub and where there is a danger of head injuries from falling objects.



Wear heavy-duty work gloves made of durable material (e.g. leather).

STIHL offers a comprehensive range of personal protective clothing and equipment.

### Transporting the Power Tool



Always turn off the engine.

Carry the unit hanging from the shoulder strap or properly balanced by the drive tube.

To reduce the risk of cut injuries, fit transport guard on the cutting attachment, even when carrying the tool for short distances – see also "Transporting the Unit".



**To reduce the risk of serious burn injuries**, avoid touching hot parts of the machine, including the gearbox housing.

Transporting by vehicle: Properly secure your power tool to prevent turnover, fuel spillage and damage.

### Fueling



**Gasoline is an extremely flammable fuel.** Keep clear of naked flames. Do not spill any fuel – do not smoke.

Always shut off the engine before refueling.

Do not fuel a hot engine – **fuel may spill and cause a fire.**

Open the fuel cap carefully to allow any pressure build-up in the tank to release slowly and avoid fuel spillage.

Fuel your power tool only in well-ventilated areas. If you spill fuel, wipe the machine immediately – if fuel gets on your clothing, change immediately.



After fueling, tighten down the fuel tank cap as securely as possible.

This reduces the risk of unit vibrations causing the fuel cap to loosen or come off and spill quantities of fuel.

**To reduce the risk of serious or fatal burn injuries**, check for fuel leakage. If fuel leakage is found, do not start or run the engine until leak is fixed.

### Before Starting

Check that your power tool is properly assembled and in good condition – refer to appropriate chapters in the instruction manual.

- Check the fuel system for leaks, paying special attention to visible parts such as the tank cap, hose connections and the manual fuel pump (on machines so equipped). If there are any leaks or damage, do not start the engine – **risk of fire**. Have your machine repaired by a servicing dealer before using it again.
- Use only an approved combination of cutting attachment, deflector, handle and harness. All parts must be assembled properly and securely.
- Slide control / stop switch must move easily to **STOP** or **0**.
- Smooth action of throttle trigger lockout (if fitted) and throttle trigger – the throttle trigger must return automatically to the idle position.
- Check that the spark plug boot is secure – a loose boot may cause arcing that could ignite combustible fumes **and cause a fire**.
- Check cutting tool or attachment for correct and secure assembly and good condition.

- Check protective devices (e.g. deflector for cutting attachment, rider plate) for damage or wear. Always replace damaged parts. Do not operate your machine with a damaged deflector or worn rider plate (lettering and arrows no longer legible).
- Never attempt to modify the controls or safety devices in any way.
- Keep the handles dry and clean – free from oil and dirt – for safe control of the power tool.
- Adjust the harness and handle(s) to suit your height and reach. See chapters on "Fitting the Harness" and "Balancing the Trimmer/Brushcutter".

**To reduce the risk of accidents**, do not operate your power tool if it is damaged or not properly assembled.

If you use a shoulder strap or full harness: Practice removing and putting down the power tool as you would in an emergency. To avoid damage, do not throw the power tool to the ground when practicing.

### Start the engine.

Start the engine at least 3 meters from the fueling spot, outdoors only.

Place the unit on firm ground in an open area. Make sure you have good balance and secure footing. Hold the unit securely. The cutting attachment must be clear of the ground and all other obstructions because it may begin to run when the engine starts.

Your power tool is a one-person unit. **To reduce the risk of injury** from thrown objects, do not allow other persons within a radius of 15 meters of your own position – even when starting.



**To reduce the risk of injury**, avoid contact with the cutting attachment.



Do not drop start the power tool – start the engine as described in the instruction manual. Note that the cutting attachment continues to run for a short period after you let go of the throttle trigger – **flywheel effect**.

Check idle speed setting: The cutting attachment must not rotate when the engine is idling with the throttle trigger released.

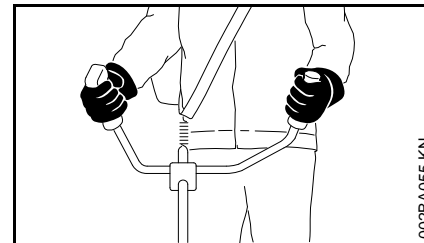
**To reduce the risk of fire**, keep hot exhaust gases and hot muffler away from easily combustible materials (e.g. wood chips, bark, dry grass, fuel).

### Holding and Controlling the Power Tool

Always hold the power tool firmly with both hands on the handles.

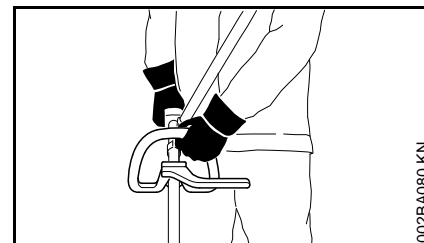
Make sure you always have good balance and secure footing.

### Models with bike handle



Right handle on control handle, left hand on left handle.

### Models with loop handle

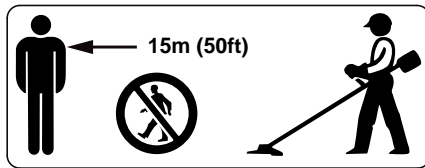


On models with a loop handle and barrier bar, left hand on loop handle, right hand on control handle, even if you are left-handed.

### During Operation

Make sure you always have good balance and secure footing.

In the event of impending danger or in an emergency, switch off the engine immediately by moving the slide control / stop switch to **STOP** or **0**.



The cutting attachment may catch and fling objects a great distance and cause injury - therefore, do not allow any other persons within a radius of 15 meters of your own position. **To reduce the risk of damage to property**, also maintain this distance from other objects (vehicles, windows). Even maintaining a distance of 15 meters or more cannot exclude the potential danger.

The correct engine idle speed is important to ensure that the cutting attachment stops rotating when you let go of the throttle trigger.

Check and correct the idle speed setting regularly. If the cutting attachment continues to rotate when the engine is idling, have the machine checked by your servicing dealer. STIHL recommends an authorized STIHL servicing dealer.

**Take special care in slippery conditions** (ice, wet ground, snow), on slopes or uneven ground.

Watch out for obstacles: Roots and tree stumps which **could cause you to trip or stumble**.

Always stand on the ground while working, never on a ladder, work platform or any other insecure support.

Be particularly alert and cautious when wearing hearing protection because your ability to hear warnings (shouts, alarms, etc.) is restricted.

**To reduce the risk of accidents**, take a break in good time to avoid tiredness or exhaustion.

Work calmly and carefully – in daylight conditions and only when visibility is good. Stay alert so as not to endanger others.



Your power tool produces toxic exhaust fumes as soon as the engine is running. These fumes may be colorless and odorless and contain unburned hydrocarbons and benzol. Never run the engine indoors or in poorly ventilated locations, even if your model is equipped with a catalytic converter.

**To reduce the risk of serious or fatal injury from breathing toxic fumes**, ensure proper ventilation when working in trenches, hollows or other confined locations.

**To reduce the risk of accidents**, stop work immediately in the event of nausea, headache, visual disturbances (e.g. reduced field of vision), problems with hearing, dizziness, deterioration in ability to concentrate. Apart from other possibilities, these symptoms may be caused by an excessively high concentration of exhaust gases in the work area.

Operate your power tool so that it produces a minimum of noise and emissions – do not run the engine unnecessarily, accelerate the engine only when working.

**To reduce the risk of fire, do not smoke** while operating or standing near your power tool. Note that combustible fuel vapor may escape from the fuel system.

The dusts, vapor and smoke produced during operation may be dangerous to health. If the work area is very dusty or smoky, wear a respirator.

If your power tool is subjected to unusually high loads for which it was not designed (e.g. heavy impact or a fall), always check that it is in good condition before continuing work – see also "Before Starting".

Check the fuel system in particular for leaks and make sure the safety devices are working properly. Do not continue operating your power tool if it is damaged. In case of doubt, consult your servicing dealer.

Do not operate your power tool in the starting throttle position – engine speed cannot be controlled in this position.



**To reduce the risk of injury** from thrown objects, never operate the unit without the proper deflector for the type of cutting attachment being used.





Inspect the work area: Stones, pieces of metal or other solid objects may be thrown more than 15 meters and **cause personal injury** or damage the cutting attachment and property (e.g. parked vehicles, windows).



Special care must be taken when working in difficult, over-grown terrain.

When cutting high scrub, under bushes and hedges: Keep cutting attachment at a minimum height of 15 cm to avoid harming small animals.

Always shut off the engine before leaving the unit unattended.

Check the cutting attachment at regular short intervals during operation or immediately if there is a noticeable change in cutting behavior:

- Turn off the engine. Hold the unit firmly and wait for the cutting attachment to come to a standstill.
- Check condition and tightness, look for cracks.
- Check sharpness.
- Replace damaged or dull cutting attachments immediately, even if they have only superficial cracks.

Clean grass and plant residue off the cutting attachment mounting at regular intervals – remove any build up of material from the cutting attachment and deflector.

To **reduce the risk of injury**, shut off the engine before replacing the cutting attachment.



The gearbox becomes hot during operation. To **reduce the risk of burn injury**, do not touch the gearbox housing.

### When using mowing heads

Equip the deflector with the additional components specified in the instruction manual.

Use only the deflector with properly mounted line limiting blade to ensure the mowing lines are automatically trimmed to the approved length.

To **reduce the risk of injury**, always turn off the engine before adjusting the nylon line of manually adjustable mowing heads

Using the unit with over-long nylon cutting lines reduces the engine's operating speed. The clutch then slips continuously and this causes overheating and damage to important components (e.g. clutch, polymer housing components) – **and this can increase the risk of injury** from the cutting attachment rotating while the engine is idling.

### Using metal cutting attachments

STIHL recommends the use of original STIHL metal cutting attachments. They are specifically designed to match your model and meet your performance requirements.

Metal cutting attachments rotate at very high speed. The forces that occur act on the machine, the attachment and the material being cut.

Sharpen metal cutting attachments regularly as specified.

Unevenly sharpened metal cutting attachments cause out-of-balance which can impose extremely high loads on the machine and increase the **risk of breakage**.

Dull or improperly sharpened cutting edges can put a higher load on the cutting attachment and increase the **risk of injury** from cracked or broken parts.

Inspect metal cutting attachments for cracks or warping after every contact with hard objects (e.g. stones, rocks, pieces of metal). To **reduce the risk of injury**, remove burrs and other visible build-ups of material (use a file) because they may become detached and be thrown at high speed during operation.

If a rotating metal cutting attachment makes contact with a rock or other solid object there is a risk of sparking which may cause easily combustible material to catch fire under certain circumstances. Dry plants and scrub are also easily combustible, especially in hot and dry weather conditions. If there is a risk of fire, do not use metal cutting attachments near combustible materials, dry plants or scrub. Always contact your local forest authority for information on a possible fire risk.

Do not continue using or attempt to repair damaged or cracked cutting attachments by welding, straightening or modifying the shape (out of balance).

This may cause parts of the cutting attachment to come off and hit the operator or bystanders at high speed and **result in serious or fatal injuries**.

To reduce the above-mentioned risks when using a metal cutting attachment, never use a metal cutting attachment with a diameter larger than specified. It must not be too heavy. It must be manufactured from materials of adequate quality and its geometry must be correct (shape, thickness).

**To reduce the risk of injury**, a metal cutting attachment not manufactured by STIHL must not be heavier, thicker, have a different shape or a diameter larger than the largest metal cutting attachment approved by STIHL for this power tool model.

### Vibrations

Prolonged use of the power tool may result in vibration-induced circulation problems in the hands (whitefinger disease).

No general recommendation can be given for the length of usage because it depends on several factors.

The period of usage is prolonged by:

- Hand protection (wearing warm gloves)
- Work breaks

The period of usage is shortened by:

- Any personal tendency to suffer from poor circulation (symptoms: frequently cold fingers, tingling sensations).
- Low outside temperatures.
- The force with which the handles are held (a tight grip restricts circulation).

Continual and regular users should monitor closely the condition of their hands and fingers. If any of the above symptoms appear (e.g. tingling sensation in fingers), seek medical advice.

### Maintenance and Repairs

Service the machine regularly. Do not attempt any maintenance or repair work not described in the instruction manual. Have all other work performed by a servicing dealer.

STIHL recommends that you have servicing and repair work carried out exclusively by an authorized STIHL servicing dealer. STIHL dealers are regularly given the opportunity to attend training courses and are supplied with the necessary technical information.

Only use high-quality replacement parts in order to avoid the risk of accidents and damage to the machine. If you have any questions in this respect, consult a servicing dealer.

STIHL recommends the use of genuine STIHL replacement parts. They are specifically designed to match your model and meet your performance requirements.

To reduce the risk of injury, **always shut off the engine** before carrying out any maintenance or repairs or cleaning the machine. – Exception: Carburetor and idle speed adjustments.

Do not turn the engine over on the starter with the spark plug boot or spark plug removed unless the slide control /

stop switch is on **STOP** or **0** since there is otherwise a **risk of fire** from uncontained sparking.

To reduce the **risk of fire**, do not service or store your machine near open flames.

Check the fuel filler cap for leaks at regular intervals.

Use only a spark plug of the type approved by STIHL and make sure it is in good condition – see "Specifications".

Inspect the ignition lead (insulation in good condition, secure connection).

Check the condition of the muffler.

To reduce the **risk of fire and damage to hearing**, do not operate your machine if the muffler is damaged or missing.

Do not touch a hot muffler since **burn injury** will result.

Vibration behavior is influenced by the condition of the AV elements – check the AV elements at regular intervals.

### Symbols on Deflectors

An **arrow** on the deflector shows the correct direction of rotation of the cutting attachments.

Some of the following symbols are applied to the outside of the deflector to indicate the approved combination of cutting attachment and deflector.



Deflector may be used with mowing heads.



Deflector may be used with grass cutting blades.



Deflector must not be used with mowing heads.



Do not use deflector with brush knives, shredder blades or circular saw blades.



Do not use deflector with brush knives, shredder blades, grass cutting blades or circular saw blades.



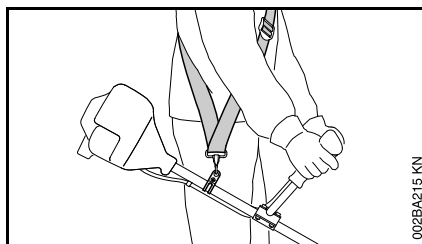
Deflector may be used with mowing heads. Not approved for use with brush knives, shredder blades or circular saw blades.



Deflector may be used with mowing heads – do not use metal cutting attachments.

## Harness / Strap

The harness is included in the scope of supply or available as a special accessory.

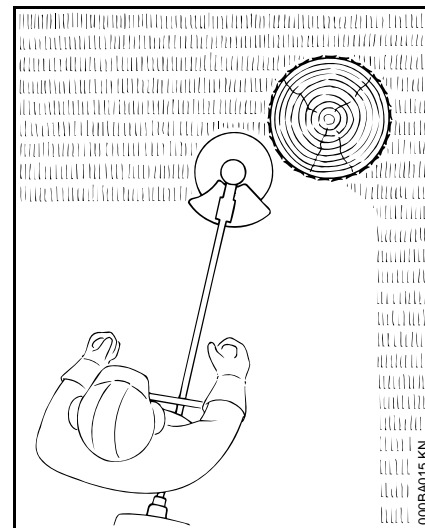


- Use a shoulder strap.
- With the engine running, attach the machine to the shoulder strap.

**Grass cutting blades and brush knives** must always be used in combination with a shoulder strap.

**Circular saw blades** must always be used in combination with a full harness with a quick-release system.

## Mowing Head with Nylon Line



Nylon line achieves a soft cut for edging and trimming around trees, fence posts, etc. – less risk of damaging tree bark.

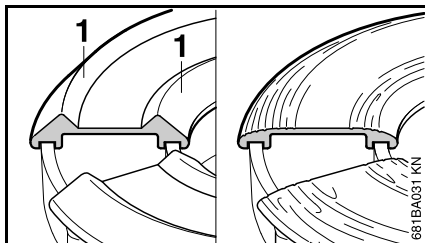
The mowing head comes with an instruction leaflet. Refill the mowing head with nylon line as described in the instruction leaflet.

### WARNING

To reduce the risk of serious injury, never use wire or metal-reinforced line in place of the nylon line.

## STIHL FixCut

**Check the wear limit marks!**

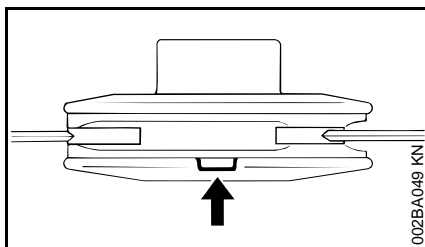


- If the raised moldings (1) on the base of the attachment are worn as shown in the illustration (above right), do not continue using the mowing head. Install a new one. There is otherwise a **risk of injury** from thrown parts of the head.

### STIHL Polycut Mowing Head with Polymer Blades

For mowing unobstructed edges of meadows (without posts, fences, trees or similar obstacles).

#### Check the wear limit marks!



If one of the wear limit marks on the PolyCut mowing head is worn through (arrow): Do not continue using the mowing head. Install a new one. There is otherwise a **risk of injury** from thrown parts of the head.

It is important to follow the maintenance instructions for the PolyCut mowing head.

The PolyCut can also be equipped with mowing line in place of the polymer blades.

The mowing head comes with instruction leaflets. Equip the mowing head with polymers blades or nylon line as described in the instruction leaflets.

#### **! WARNING**

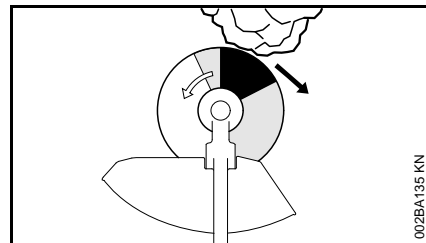
Never use wire in place of the nylon mowing line – **risk of injury**.

### Risk of kickback with metal cutting attachments

#### **! WARNING**

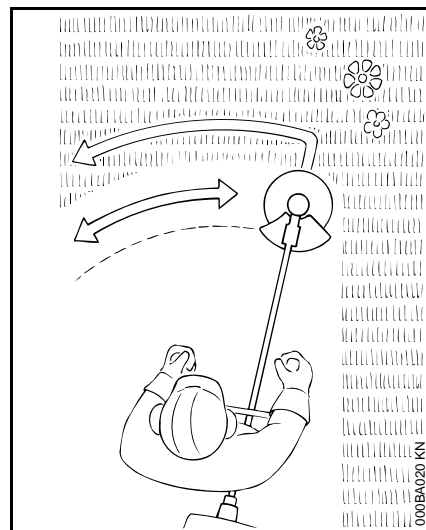


When using metal cutting attachments (grass cutting blade, brush knife, circular saw blade), there is the risk of kickback when the tool hits a solid object (tree trunk, branch, tree stump, stone and the like). The machine is flung back – against the direction of rotation of the tool.



**Increased risk of kickback** when the tool hits an obstacle within the **black area**.

### Grass Cutting Blade



Use for grass and weeds only – sweep the brushcutter in an arc like a scythe.

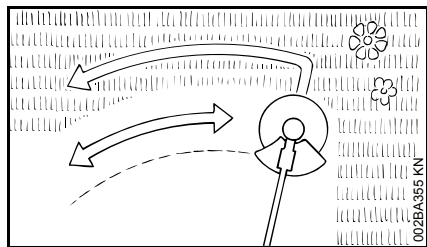
#### **! WARNING**

Improper use may damage the grass cutting blade – **risk of injury** from thrown parts.

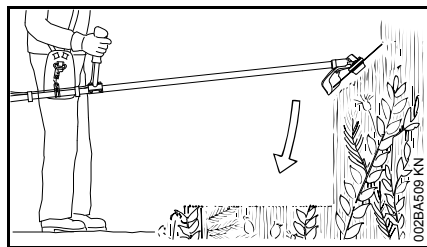
Resharpener the grass cutting blade according to instructions when it has dulled noticeably.

### Brush Knife

For cutting matted grass, wild growth and scrub and thinning young stands with a stem diameter of no more than 2 cm – do not cut thicker stems – **risk of accidents.**



Use the brushcutter like a scythe (sweep it to the right and left) at ground level when cutting grass and thinning young stands.



To cut wild growth and scrub, lower the brush knife down onto the growth to achieve a shredding effect – always keep the cutting attachment below hip level during this process.

Exercise extreme caution when using this method of cutting. The higher the cutting attachment is off the ground, the greater the risk of injury from cuttings being thrown sideways.

Warning! Improper use of a brush knife may cause it to crack, chip or shatter – **risk of injury** from thrown parts.

To reduce the risk of injury it is essential to take the following precautions:

- Avoid contact with stones, rocks, pieces of metal and other solid foreign objects.
- Never cut wood or shrubs with a stem diameter of more than 2 cm – use a circular saw blade for such work.
- Inspect the brush knife at regular short intervals for signs of damage. Do not continue working with a damaged brush knife.
- Resharpener the brush knife regularly and whenever it has dulled noticeably, and have it balanced if necessary (STIHL recommends a STIHL servicing dealer).

### Circular Saw Blade

Suitable for cutting shrubs and trees with a maximum stem diameter of 4 cm.

Before starting the cut, accelerate the engine up to full throttle. Perform cut with uniform pressure.

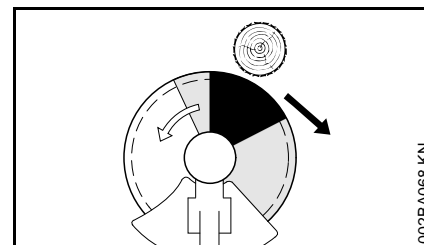
Use circular saw blades only with a matching limit stop of the correct diameter.

### ! WARNING

To reduce the risk of blade damage, avoid contact with stones and the ground. Resharpener the blade properly in good time – dull teeth may result in the blade cracking and shattering and causing serious injury.

When felling, maintain a distance of at least two tree lengths from the next felling site.

### Risk of kickout



The risk of kickout is highest in the black area of the blade: Do not use this area of the circular saw blade for cutting.

There is also a risk of kickout when using the lighter shaded areas of the blade: These areas of the blade should only be used by experienced operators with specialized training.

STIHL recommends that you use the non-shaded area of the circular saw blade. Always start the cut with this area of the blade.

## Approved Combinations of Cutting Attachment, Deflector, Handle and Harness

Cutting Attachment	Deflector, Limit Stop	Handle	Harness/Shoulder Strap
<p>1 2 3 4 5 6</p>	<p>14 15 16</p>	<p>19 20 21 22</p>	<p>23 25 24 25</p>
<p>7 8 9 10 11</p>	<p>17</p>	<p>20 21 22</p>	<p>24 25</p>
<p>12 13</p>	<p>18</p>	<p>22</p>	<p>26</p>

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## Approved Combinations

Select correct combination from the table according to the cutting attachment you intend to use.

### WARNING

For safety reasons only the cutting attachments, deflectors, handles and harnesses shown in each row of the table may be used together. No other combinations are permitted because of the **risk of accidents**.

## Cutting Attachments

### Mowing heads

- 1 STIHL SuperCut 20-2
- 2 STIHL AutoCut C 25-2
- 3 STIHL AutoCut 25-2
- 4 STIHL TrimCut 31-2
- 5 STIHL FixCut 25-2
- 6 STIHL PolyCut 20-3

### Metal cutting attachments

- 7 Grass cutting blade 230-2 (230 mm dia.)
- 8 Grass cutting blade 230-4 (230 mm dia.)
- 9 Grass cutting blade 230-8 (230 mm dia.)
- 10 Grass cutting blade 250-40 Spezial (250 mm dia.)
- 11 Brush knife 250-3 (250 mm dia.)

- 12 Scratcher tooth circular saw blade 200 (200 mm dia.)
- 13 Chisel tooth circular saw blade 200 (200 mm dia.)

### WARNING

Non-metal grass cutting blades, brush knives and circular saw blades are not approved.

## Deflectors, Limit Stop

- 14 Deflector for mowing heads
- 15 Deflector **with**
- 16 skirt and blade, for mowing heads
- 17 Deflector **without** skirt and blade, for metal cutting attachments 7 to 11
- 18 Limit stop for circular saw blades

## Handles

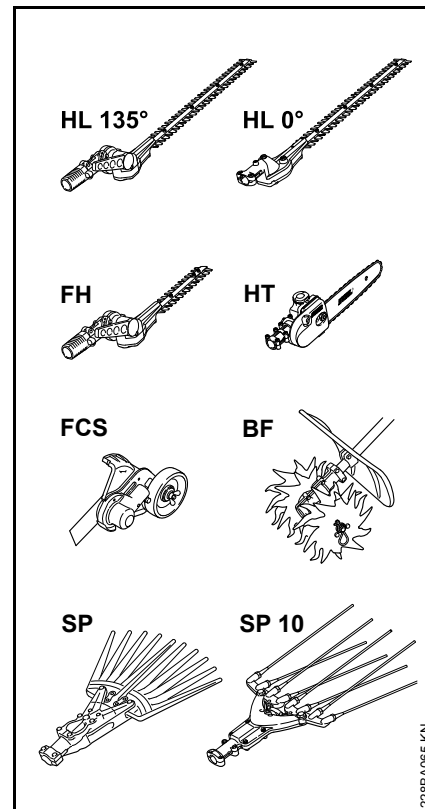
- 19 Loop handle
- 20 Loop handle **with**
- 21 barrier bar
- 22 Bicycle handle

## Harness

- 23 Shoulder strap may be used
- 24 Shoulder strap must be used
- 25 Full harness may be used
- 26 Full harness must be used

## Approved Power Tool Attachments

The following STIHL attachments may be mounted to the basic power tool:



Attachment	Application
BF	Pick tines
FCS <sup>2) 3)</sup>	Edger
FH	Power scythe, adjustable
HL 0° <sup>1)</sup>	Long reach hedge trimmer
HL 135° <sup>2)</sup>	Hedge trimmer, adjustable
HT <sup>1)</sup>	Pole pruners
SP <sup>1) 4)</sup>	Special harvester
SP 10 <sup>1)</sup>	Special harvester

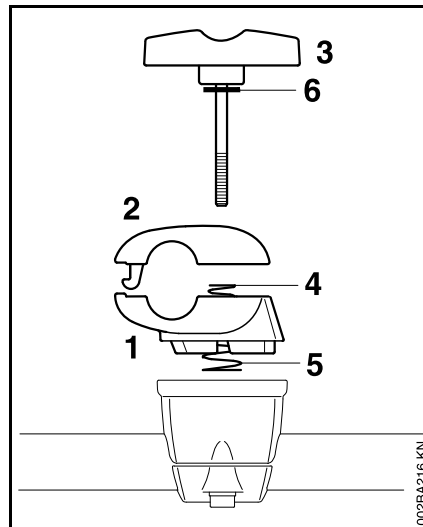
- 1) Unsuitable for models with bike handle
- 2) Limited suitability for models with bike handle
- 3) It is not necessary to use the shoulder strap
- 4) Use the handle hose supplied with the machine

## Mounting the Bike Handle

### Mounting Bike Handle with Swivelling Handle Support

The machine is supplied with the swiveling handle support already mounted on the shaft. To mount the handlebar it is necessary to remove the clamp moldings.

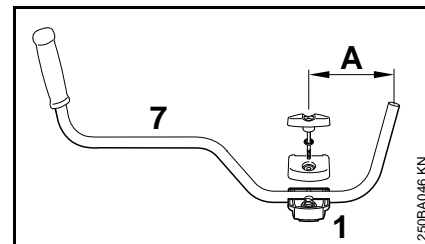
### Removing the clamp moldings



- Hold the lower clamp (1) and upper clamp (2) firmly together.
- Release the wing screw (3) – the clamps are loose once the wing screw has been released. They are pushed apart by the two springs (4 and 5).

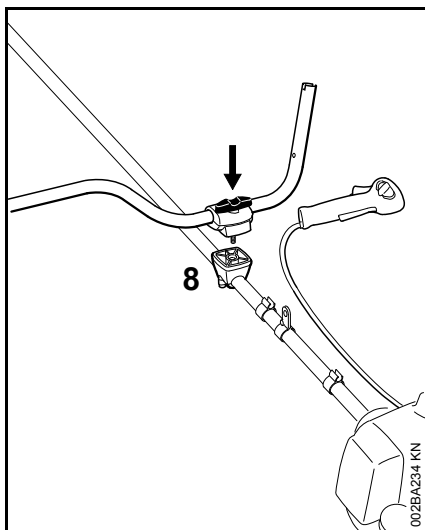
- Pull out the wing screw – the washer (6) remains on the wing screw.
- Separate the clamp moldings – the springs (4 and 5) remain in the lower clamp.

### Securing the handlebar



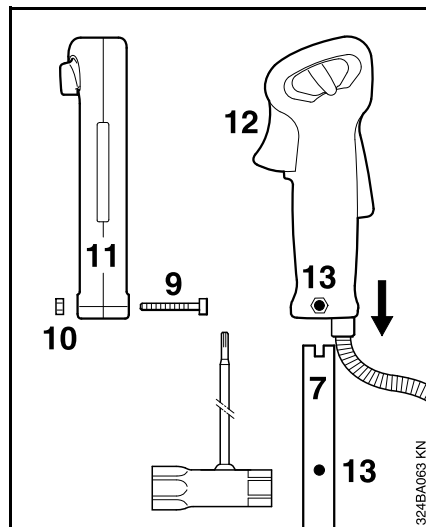
- Place the handlebar (7) in the lower clamp (1) so that distance A is no more than 15 cm (6 in).
- Place the upper clamp in position and hold both clamp moldings together.
- Push the wing screw through the two clamps as far as stop – hold all parts together and secure them.





- Place the secured assembly on the handle support (8) with the wing screw at the side nearest the engine.
- Push the wing screw into the handle support as far as stop and then screw it down – but do not finally tighten yet.
- Line up the handlebar at a right angle to the drive tube – check distance A again.
- Tighten down the wing screw firmly.

### Mounting the control handle

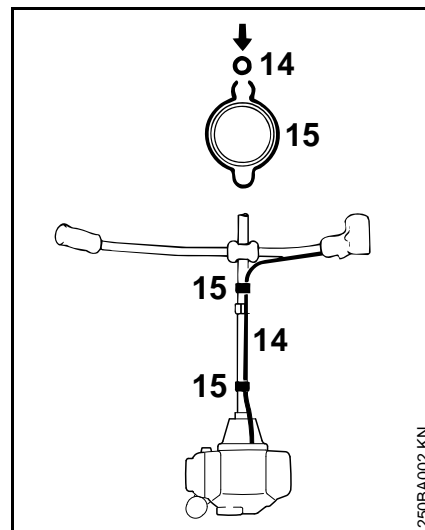


- Take out the screw (9) – the nut (10) remains in the control handle (11).
- Push the control handle onto the handlebar (7) until the holes (13) line up – the throttle trigger (12) must point towards the gearbox.
- Insert the screw (9) and tighten it down firmly.

### Fitting the throttle cable



Do not kink the throttle cable or lay it in tight radii – make sure the throttle trigger moves freely.



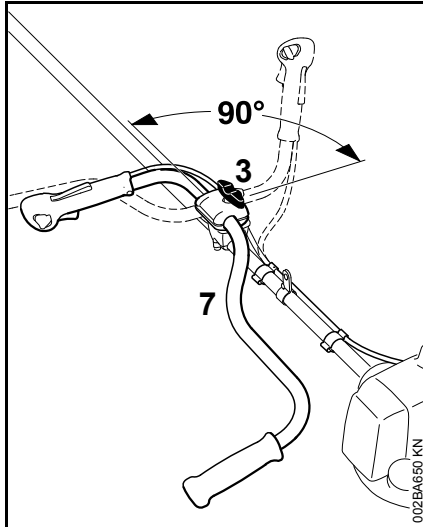
- Push the throttle cable (14) into the retainers (15).

### Adjusting the throttle cable

- Check adjustment of throttle cable – see chapter on "Adjusting the Throttle Cable".

## Swivelling the handlebar

### Transport position



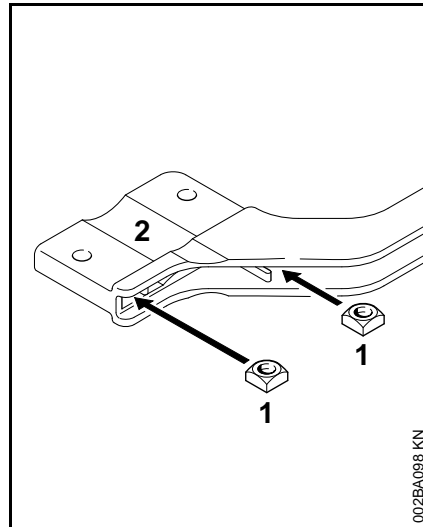
- Loosen the wing screw (3) and unscrew it until the handlebar (7) can be turned clockwise.
- Turn the handlebar 90° and then swing the handles down.
- Tighten down the wing screw (3) firmly.

### Working position

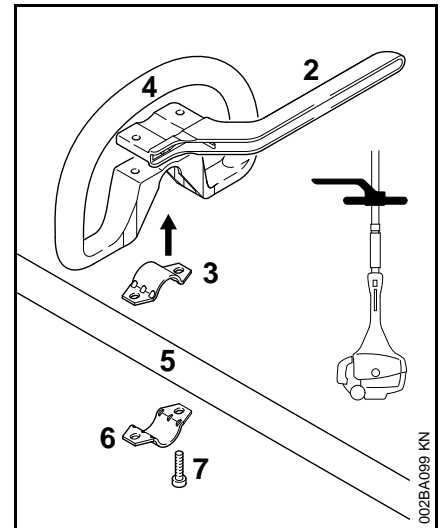
- Reverse the sequence described above to swing the handles up and turn the handlebar counterclockwise.

## Mounting the Loop Handle

### Mounting Loop Handle with Barrier Bar

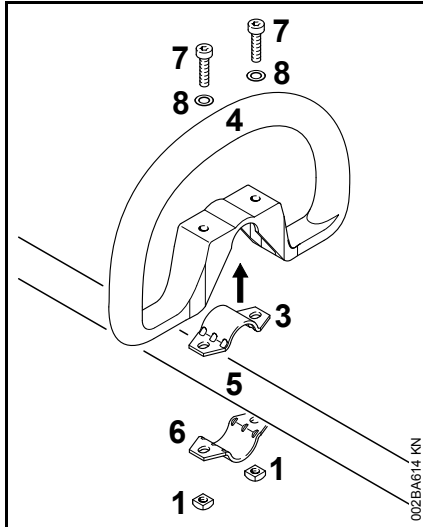


- Fit the square nuts (1) in the barrier bar (2); the holes must line up.



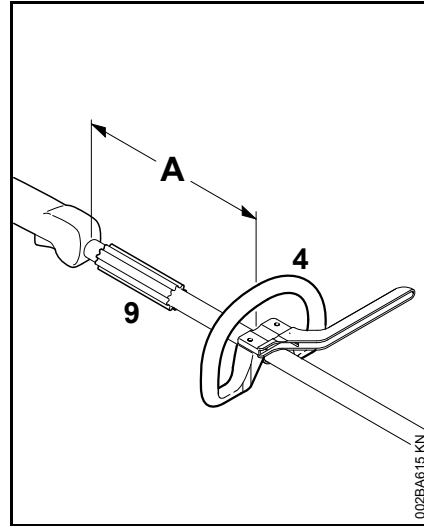
- Place the clamp (3) in the loop handle (4) and position them both against the drive tube (5).
- Position the clamp (6) against the drive tube.
- Place the barrier bar (2) in position as shown.
- Line up the holes.
- Insert the screws (7) in the holes and screw them into the barrier bar (2) as far as stop.
- Go to "Securing the Loop Handle".

## Mounting the Loop Handle without Barrier Bar



- Place the clamp (3) in the loop handle (4) and position them both against the drive tube (5).
- Position the clamp (6) against the drive tube.
- Line up the holes.
- Fit washers (8) on the screws (7) and insert the screws in the holes. Fit the square nuts (1) and screw them down as far as stop.
- Go to "Securing the Loop Handle".

## Securing the Loop Handle



The loop handle can be adjusted to suit the height and reach of the operator and the application by changing distance (A).

Recommendation: distance (A): about 20 cm (8 in)

- Slide the handle to the required position.
- Line up the loop handle (4).
- Tighten down the screws until the loop handle can no longer be rotated on the drive tube. If no barrier bar is fitted – lock the nuts if necessary.

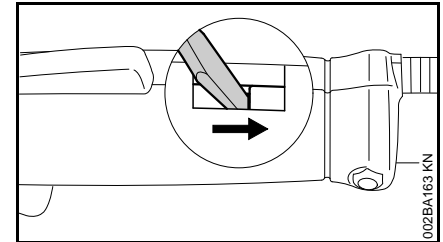
The sleeve (9) (not fitted on all models) must be between the loop handle and the control handle.

## Adjusting the Throttle Cable

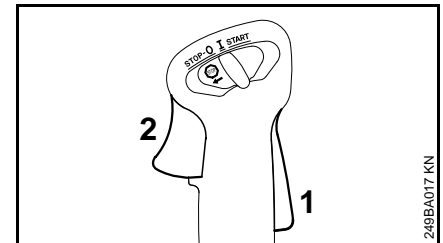
Some machine versions are equipped with a throttle cable adjuster on the control handle.

A properly adjusted throttle cable is the precondition for correct operation in the full throttle, starting throttle and idle positions.

Adjust the throttle cable only after the unit is fully assembled – the control handle must be in the normal operating position.



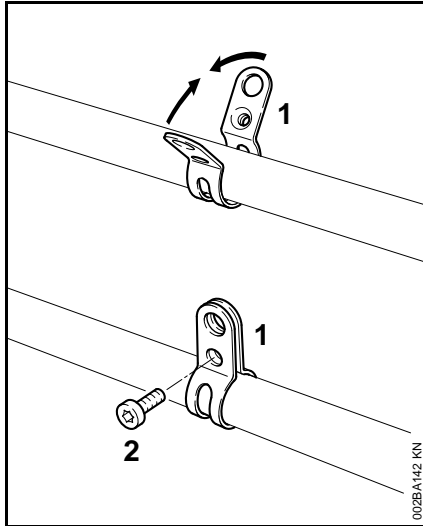
- Use a suitable tool to push the slide to the end of the slot (see illustration).



- Press down the throttle trigger lockout (1) and squeeze the throttle trigger (2) (full throttle) – this sets the throttle cable correctly.

## Fitting the Carrying Ring

The carrying ring comes standard with the machine or is available as a special accessory.

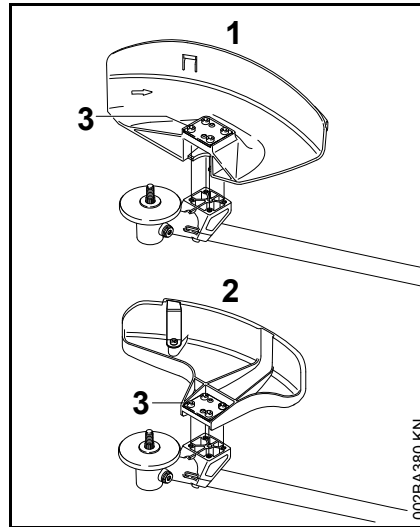


For position of carrying ring see "Main Parts".

- Place the clamp (1) against the drive tube **with the tapped hole on the left** (viewed from engine).
- Squeeze the two ends of the clamp together and hold in that position.
- Insert the M6x14 screw (2).
- Line up the carrying ring.
- Tighten down the screw firmly.

## Mounting the Deflector

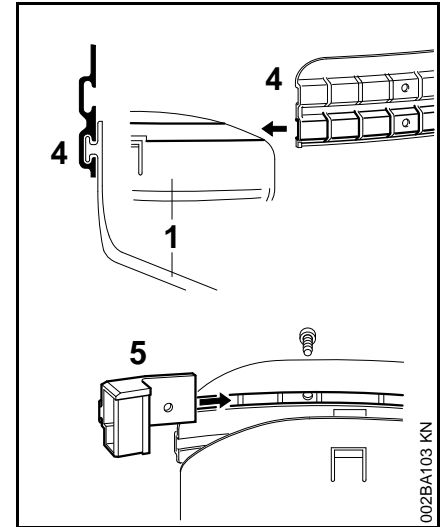
### Mounting the Deflector



- 1 Deflector for mowing attachments
  - 2 Deflector for mowing heads
- Deflectors (1) and (2) are both mounted to the gearbox in the same way.

- Place the deflector on the gearbox flange.
- Insert the screws (3) and tighten them down firmly.

## Fitting the Skirt and Blade

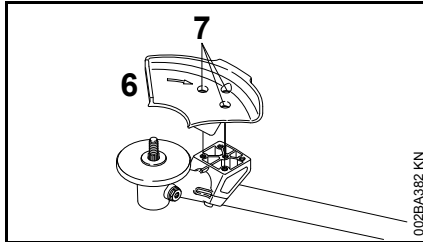


### ! WARNING

These parts must be fitted to the deflector (1) when you use a mowing head.

- Slide the lower guide slot of the skirt (4) onto the deflector (1) – it must snap into position.
- Push the blade (5) into the upper guide slot on the skirt and line it up with the first hole.
- Insert the screw and tighten it down firmly.

## Mounting the Limit Stop



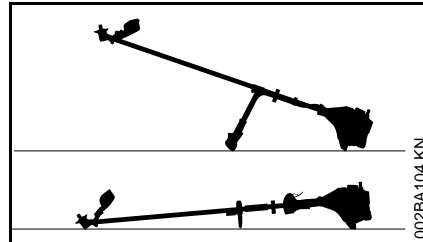
### **!** WARNING

Always fit the limit stop (6) when you use a circular saw blade.

- Position the limit stop (6) on the gearbox flange.
- Insert the screws (7) and tighten them down firmly.

## Mounting the Cutting Attachment

### Placing power tool on the ground



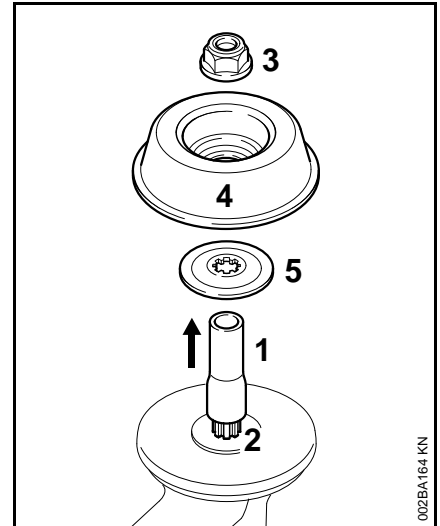
- Shut off the engine.
- Lay your power tool on its back so that the cutting attachment mounting face is pointing up.

### Mounting Hardware for Cutting Attachments

The mounting hardware supplied depends on the cutting attachment that comes as original equipment with the new machine.

#### If mounting hardware is packed with machine

Mowing heads and metal cutting attachments may be mounted.



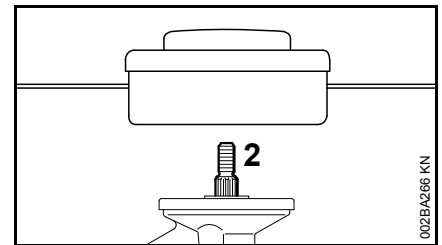
Depending on the cutting attachment, it may be necessary to use the nut (3), rider plate (4) and thrust washer (5).

These parts are included in a kit supplied with the machine and are also available as special accessories.

#### Removing the transport lock

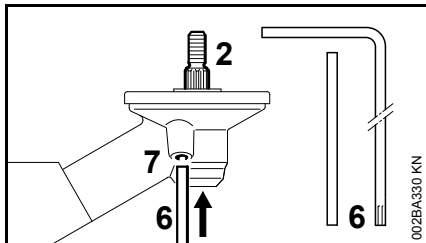
- Pull the hose (1) off the shaft (2).

#### If mounting hardware is not packed with machine



Only mowing heads may be used which mount directly to the shaft (2).

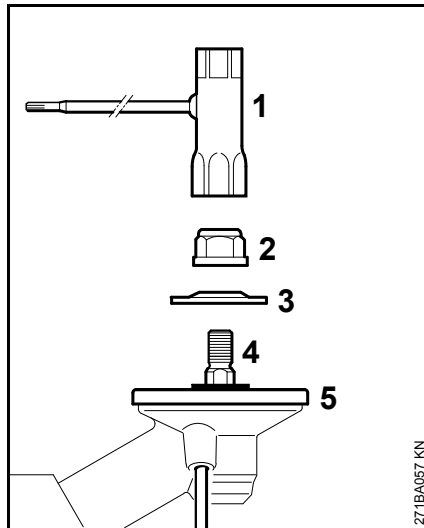
## Blocking the Shaft



The output shaft (2) must be blocked with the stop pin (6) or screwdriver (6) to mount or remove cutting tools. These parts come standard with the machine or are available as special accessories.

- Insert the stop pin (6) or screwdriver (6) in the hole (7) in the gearbox as far as stop – and apply slight pressure.
- Rotate shaft, nut or cutting attachment until the stop pin slips into position and blocks the shaft.

## Removing the Mounting Hardware



- Block the shaft.
- Use the combination wrench (1) to loosen and remove the nut (2) **clockwise** (left-hand thread).
- Take the thrust washer (3) off the shaft (4). **Do not** remove the thrust plate (5).

## Mounting the cutting attachment

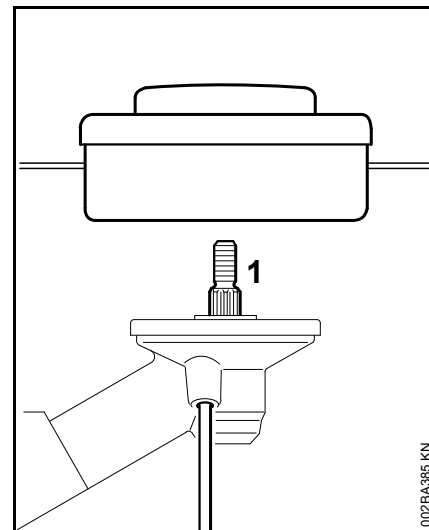


### WARNING

Use a deflector that matches the cutting attachment – see "Mounting the Deflector".

## Fitting Mowing Head with Screw Mounting

Keep the instruction leaflet for the mowing head in a safe place.



- Screw the mowing head counterclockwise on to the shaft (1) as far as stop.
- Block the shaft.
- Tighten down the mowing head firmly.



### NOTICE

Remove the tool used to block the shaft.

## Removing the Mowing Head

- Block the shaft.
- Unscrew the mowing head clockwise.

## Mounting Metal Cutting Attachments

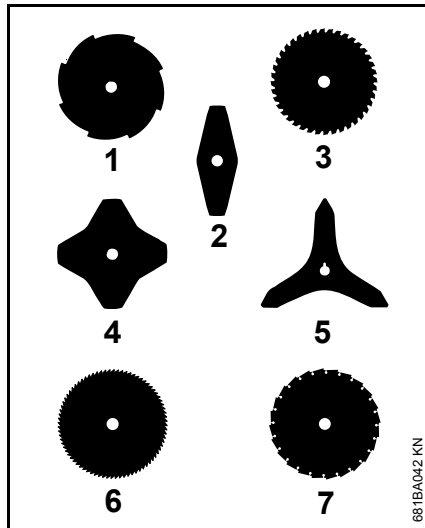
Keep the leaflet and packaging of the metal cutting tool in a safe place.

### ! WARNING

Wear protective gloves to reduce the risk of direct contact with the sharp cutting edges.

Mount only metal cutting attachments.

Check direction of rotation of cutting attachment

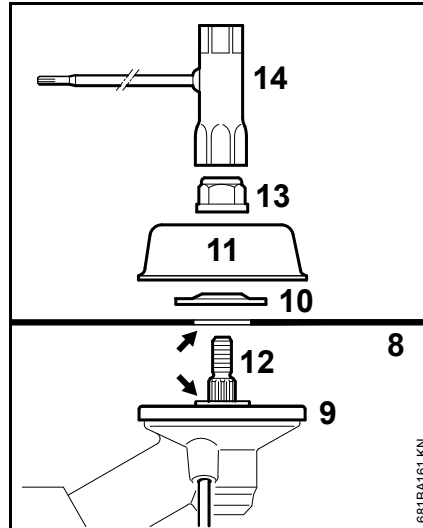


Cutting attachments with 2, 3 or 4 blades (2, 4, 5) may point in either direction – these cutting attachments must be turned over regularly to help avoid one-sided wear.

The cutting edges of cutting attachments 1, 3, 6 and 7 must point clockwise.

### ! WARNING

Direction of rotation is indicated by an arrow on the inside of the deflector.



- Place the cutting attachment (8) on the thrust plate (9).

### ! WARNING

Collar (see arrow) must engage the cutting attachment's mounting hole.

### Securing the cutting attachment

- Fit the thrust washer (10) – convex side must face up.
- Fit the rider plate (11).
- Block the shaft (12).
- Use the combination wrench (14) to screw the mounting nut (13) on to the output shaft counterclockwise and tighten it down firmly.

### ! WARNING

If the mounting nut has become too loose, fit a new one.

### ⚙ NOTICE

Remove the tool used to block the shaft.

## Removing the Metal Cutting Attachment

### ! WARNING

Wear protective gloves to reduce the risk of direct contact with the sharp cutting edges.

- Block the shaft.
- Unscrew the mounting nut clockwise.
- Remove cutting attachment and its mounting hardware from the gearbox – but **do not** remove the thrust plate (9).

## Fuel

Your engine requires a mixture of gasoline and engine oil.

### WARNING

For health reasons, avoid direct skin contact with gasoline and avoid inhaling gasoline vapor.

### STIHL MotoMix

STIHL recommends the use of STIHL MotoMix. This ready-to-use fuel mix contains no benzol or lead, has a high octane rating and ensures that you always use the right mix ratio.

STIHL MotoMix uses STIHL HP Ultra two-stroke engine oil for an extra long engine life.

MotoMix is not available in all markets.

### Mixing Fuel

### NOTICE

Unsuitable fuels or lubricants or mix ratios other than those specified may result in serious damage to the engine. Poor quality gasoline or engine oil may damage the engine, sealing rings, hoses and the fuel tank.

### Gasoline

Use only high-quality **brand-name** gasoline with a minimum octane rating of 90 – leaded or unleaded.

If your machine is equipped with a catalytic converter, you must use unleaded gasoline.

### NOTICE

A few tankfuls of leaded gasoline will greatly reduce the efficiency of the catalytic converter.

Gasoline with an ethanol content of more than 10% can cause running problems in engines with a manually adjustable carburetor and should not be used in such engines.

Engines equipped with M-Tronic deliver full power when run on gasoline with an ethanol content of up to 25% (E25).

### Engine oil

Use only high-quality two-stroke engine oil – preferably **STIHL HP, HP Super or HP Ultra, which are specially formulated for use in STIHL engines. HP Ultra guarantees high performance and a long engine life.**

These engine oils are not available in all markets.

Use only **STIHL 50:1 two-stroke engine oil** for the fuel mix in models with a catalytic converter.

### Mix Ratio

STIHL 50:1 two-stroke engine oil: 50 parts gasoline to 1 part oil

### Examples

Gasoline Liters	STIHL engine oil 50:1 Liters (ml)	
1	0.02	(20)
5	0.10	(100)
10	0.20	(200)
15	0.30	(300)
20	0.40	(400)
25	0.50	(500)

- Use a canister approved for storing fuel. Pour oil into canister first, then add gasoline and mix thoroughly.

### Storing Fuel

Store fuel only in approved safety-type fuel canisters in a dry, cool and safe location protected from light and the sun.

**Fuel mix ages** – only mix sufficient fuel for a few weeks work. Do not store fuel mix for longer than 30 days. Exposure to light, the sun, low or high temperatures can quickly make the fuel mix unusable.

STIHL MotoMix may be stored for up to 2 years without any problems.

- Thoroughly shake the mixture in the canister before fueling your machine.

### WARNING

Pressure may build up in the canister – open it carefully.

- Clean the fuel tank and canister from time to time.

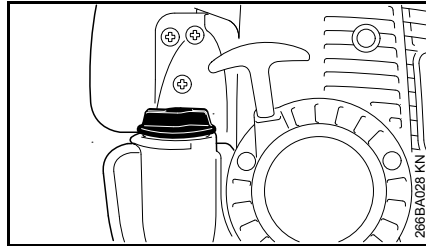


Dispose of remaining fuel and cleaning fluid properly in accordance with local regulations and environmental requirements.

## Fueling

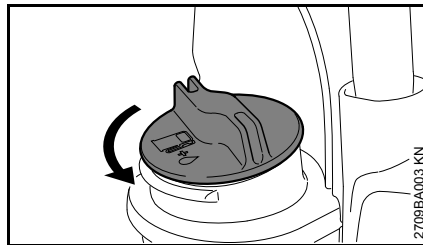


### Preparations



- Before fueling, clean the filler cap and the area around it to ensure that no dirt falls into the tank.
- Position the machine so that the tank cap faces up.

### Opening the filler cap



- Turn the cap counterclockwise until it can be removed from the tank opening.
- Remove the cap.

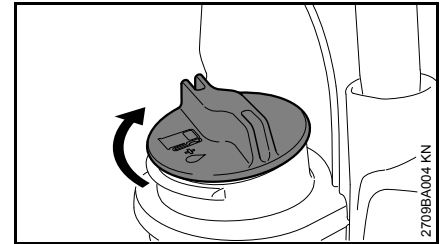
### Filling Up with Fuel

Take care not to spill fuel while fueling and do not overfill the tank.

STIHL recommends you use the STIHL filler nozzle for fuel (special accessory).

- Fill up with fuel.

### Closing the filler cap



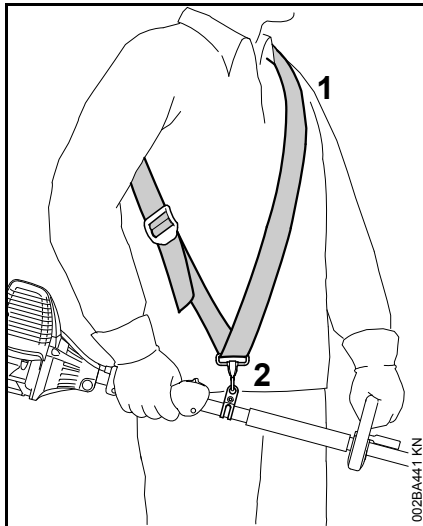
- Place the cap in the opening.
- Turn the cap clockwise as far as stop and tighten it down as firmly as possible by hand.

## Fitting the Harness

The type and style of the harness/shoulder strap depend on the market.

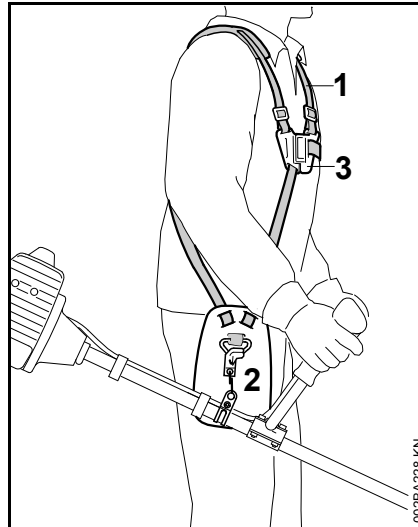
The use of the shoulder strap is described in the chapter on "Approved Combinations of Cutting Attachment, Deflector, Handle and Harness".

### Shoulder Strap



- Put on the shoulder strap (1).
- Adjust the length of the strap so that the carabiner (2) is about a hand's width below your right hip.
- Balance the machine – see "Balancing the Machine".

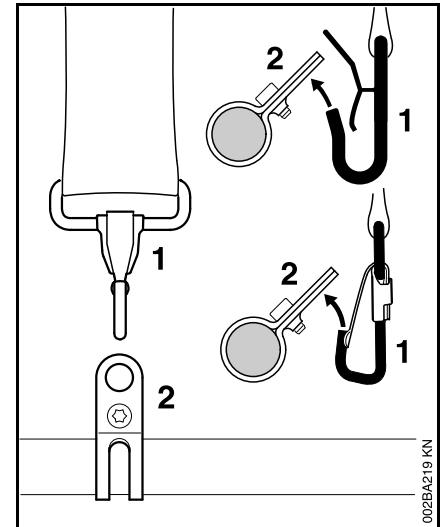
### Full Harness



- Put on the harness (1) and close the locking plate (3).
- Adjust the length of the strap – with the machine attached, the carabiner (2) must be about a hand's width below your right hip.
- Balance the machine – see "Balancing the Machine".

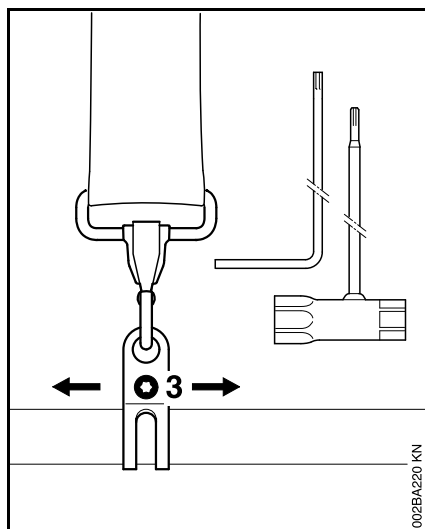
## Balancing the Machine

### Attaching the unit to the harness



The type and style of the harness and carabiner (spring hook) depend on the market.

- Attach the carabiner (1) to the carrying ring (2) on the drive tube.



- Loosen the screw (3).

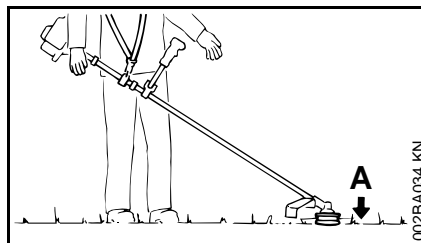
### Balancing the brushcutter

The unit is balanced differently, depending on the cutting attachment used.

Proceed as follows until the conditions specified under "Floating positions" have been met:

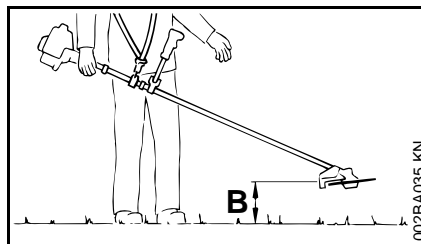
- Adjust the carrying ring.
- Tighten the screw moderately.
- Allow the unit to hang freely.
- Check the position obtained.

### Floating positions



Mowing tools (A) such as mowing heads, grass cutting blades and brush knives

- should just touch the ground.



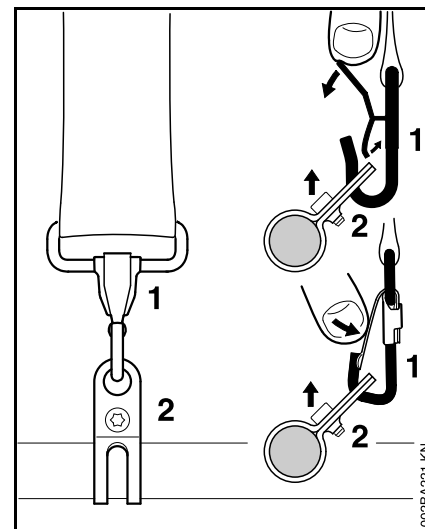
Circular saw blades (B)

- should "hover" about 20 cm (8 in) above the ground.

When the correct floating position has been reached:

- Tighten down the screw on the carrying ring firmly.

### Detaching the unit from the harness

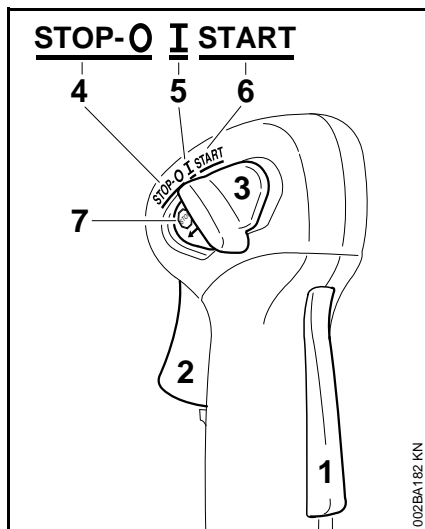


- Press down the bar on the carabiner (1) and pull the carrying ring (2) out of the carabiner.

## Starting / Stopping the Engine

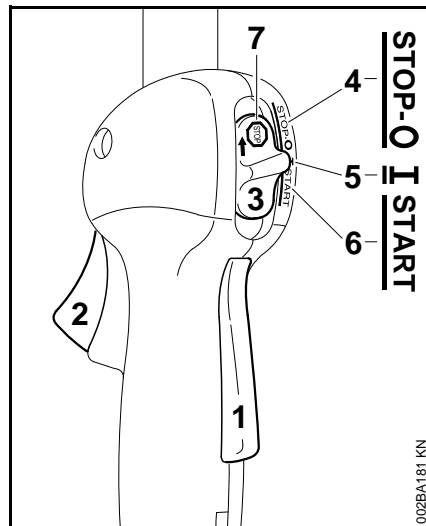
### Operating elements

#### Control handle on handlebar



- 1 Throttle lever lock
- 2 Throttle trigger
- 3 Slide control

#### Control handle on shaft





- 1 Throttle lever lock
- 2 Throttle trigger
- 3 Slide control

#### Slide control positions

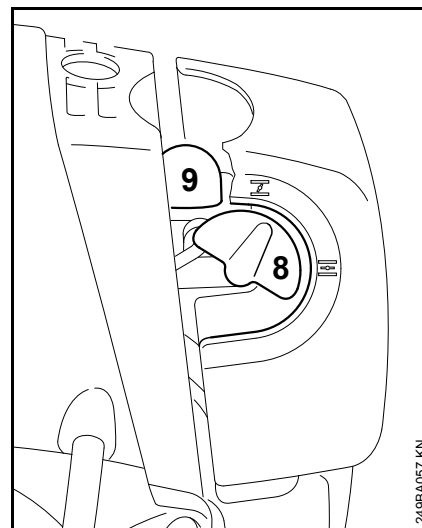
- 4 **STOP-0** – engine off – ignition is switched off
- 5 Operating position **I** – Run – engine is running or can start
- 6 **START** – Start – the ignition is switched on – the engine can be started



#### Symbol on slide control

- 7  – Stop sign and arrow – to switch off the engine, push the slide control in the direction of the arrow at the stop sign () to **STOP-0**

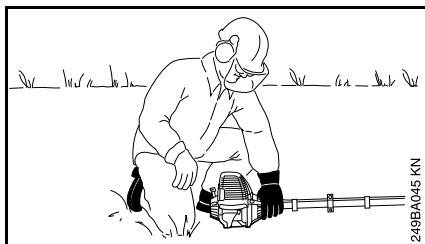
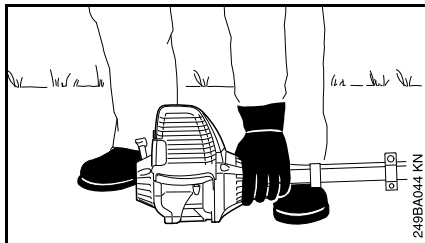
### Starting

- Press the throttle trigger lockout and throttle trigger in succession
- Hold both triggers down
- Move the slide control to **START** and hold it in position too
- Release the throttle trigger, slide control and throttle trigger lockout in succession = **starting throttle position**



- Set the choke knob (8)
-  If the engine is cold
-  If the engine is warm – even if the engine has already run but is still cold
- Press the manual fuel pump bulb (9) at least 5 times - even when bulb is filled with fuel

## Starting



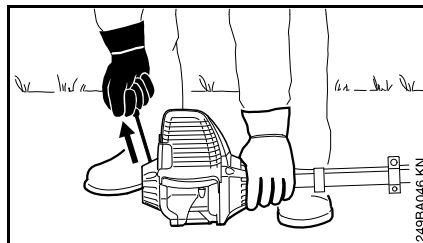
- Lay the machine on the ground in a secure position: It must rest on the engine support and the deflector for the cutting attachment
- (if present): Remove the transport guard on the cutting attachment

The cutting attachment must not touch the ground or any other objects – **risk of accident!**

- Assume a firm stance – possibilities: standing, bending or kneeling
- Press the machine **firmly** against the ground with the left hand – do not touch the throttle trigger or throttle trigger lockout while doing so – your thumb should be under the fan housing




Do not stand or kneel on the shaft!



- Grab the starter grip with your right hand
- Pull the starter grip slowly until you feel it engage and then give it a brisk, strong pull



Do not pull out the starter rope completely – **risk of breakage!**

- Do not let the starter grip snap back – guide it slowly back into the housing so that the starter rope can rewind properly
- crank until the engine starts – at the latest after the **fifth time** the starter rope is pulled, turn the choke knob to 
- continue cranking

### Once the engine is running


- Blip the throttle trigger, the slide control jumps to run \*I – the engine begins to idle



If the carburetor has been set correctly, the cutting attachment should not rotate when the engine is idling!

The machine is now ready for use.

## Switching off the engine

- Push the slide control in the direction of the arrow at the stop sign  to **STOP-0**


## At very low temperatures


As soon as engine is running:

- Blip the throttle trigger = disengage **starting throttle position** – the slide control jumps to run I – engine begins to idle
- Press the throttle trigger slightly
- Let the engine warm up briefly

## If the engine does not start

### Choke knob


If the choke knob was not returned to  in time after the engine turned over for the first time, then the engine has flooded.

- Turn the choke knob to .
- Move the slide control, throttle trigger interlock and throttle trigger to the **starting throttle position**
- Start the engine – to do this, pull the starter rope briskly – 10 or 20 pulls may be needed

## If the engine still does not start

- Set slide control to **STOP-0**
- Remove the spark plug - see "Spark plug"
- Dry the spark plug

## English

- Crank the engine several times with the starter – to clear the combustion chamber
- Replace the spark plug – see "Spark plug"
- Set the slide control to **START**
- Turn the choke knob to  – even if the engine is cold!
- Restart the engine

### Adjusting the throttle cable

- Check throttle cable adjustment – see "Adjusting the throttle cable"

### If the tank has been drained completely

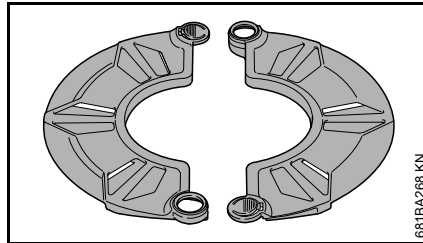
- After refueling, press the manual fuel pump bulb at least five times – even if it is full of fuel.
- Set choke lever depending on engine temperature
- Restart the engine

## Transporting the Unit

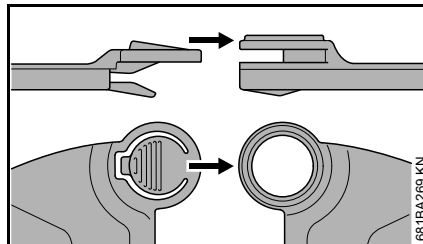
### Using a transport guard

The type of transport guard used depends on the type of metal cutting attachment supplied with the machine. Transport guards are also available as special accessories.

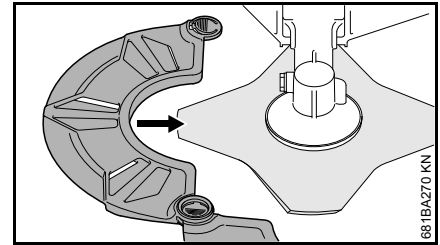
### Fitting the transport guard for grass cutting blades 230 and brush knives



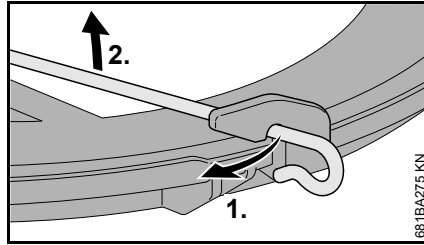
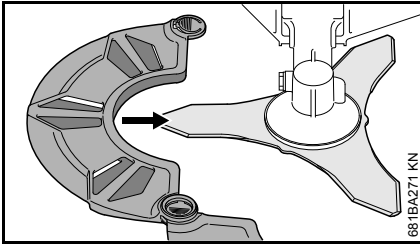
The transport guard can be used for grass cutting blades up to 230 mm (9.1 in.) in diameter and for brush knife 250-3.



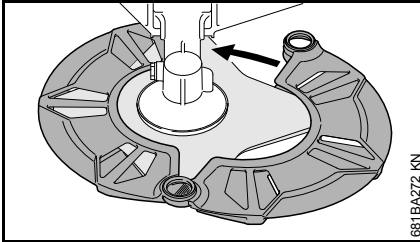
If a grass cutting blade 230 is fitted:



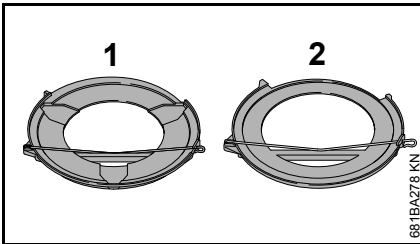
If a brush knife is fitted:



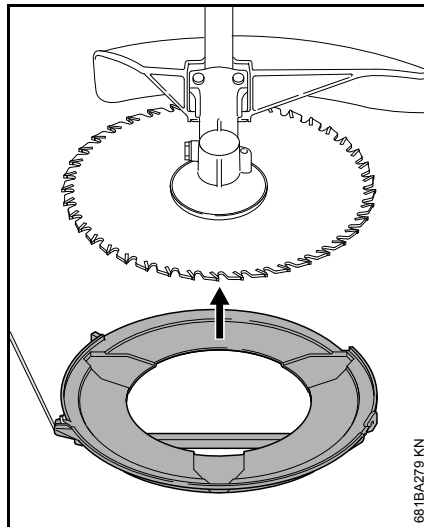
- Unhook the retainer on the transport guard and swing outward
- If a grass cutting blade 250 is fitted:



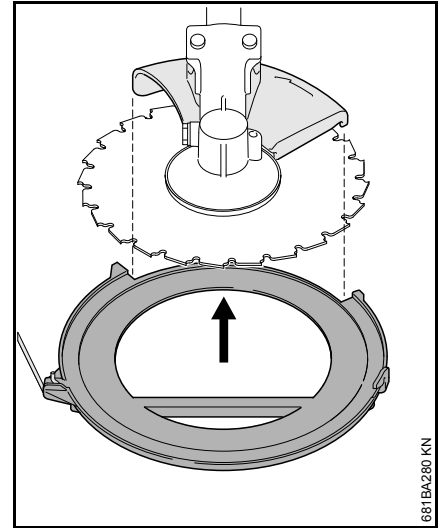
**Fitting the transport guards for grass cutting blades 250 and circular saw blades**



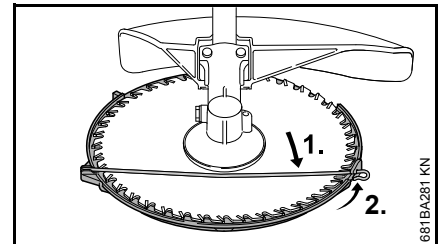
The transport guard (1) can be used for grass cutting blades with a diameter of 250 mm (9.8 in.) and the transport guard (2) for circular saw blades with a diameter of 200 mm (7.9 in.) .



- Fit the transport guard (1) to the cutting attachment from below.
- If a circular saw blade is fitted:



- Fit the transport guard (2) to the cutting attachment from below, ensuring that the stop is centered in the recess.



- Hook the retainer onto the hook of the transport guard

## Operating Instructions

### During break-in period

A factory-new machine should not be run at high revs (full throttle off load) for the first three tank fillings. This avoids unnecessary high loads during the break-in period. As all moving parts have to bed in during the break-in period, the frictional resistances in the engine are greater during this period. The engine develops its maximum power after about 5 to 15 tank fillings.

### During Operation

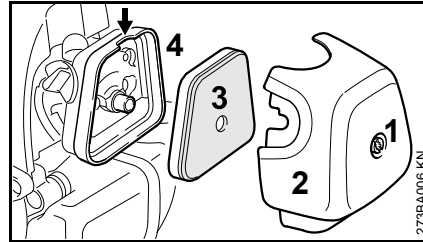
After a long period of full throttle operation, allow the engine to run for a short while at idle speed so that engine heat can be dissipated by the flow of cooling air. This protects engine-mounted components (ignition, carburetor) from thermal overload.

### After Finishing Work

Storing for a short period: Wait for the engine to cool down. Empty the fuel tank and keep the machine in a dry place, well away from sources of ignition, until you need it again. For longer out-of-service periods – see "Storing the Machine".

## Cleaning the Air Filter

If there is a noticeable loss of engine power



- Turn the choke knob to  $\bar{I}$
- Take out the screw (1) and remove the filter cover (2).
- Clean away loose dirt from around the filter.
- Grip the filter element (3) at the cutout (arrow) in the filter housing (4) and remove it.
- Fit a new filter element. As a temporary measure you can knock it out on the palm of your hand or blow it out with compressed air. Do not wash.
- Replace damaged parts.

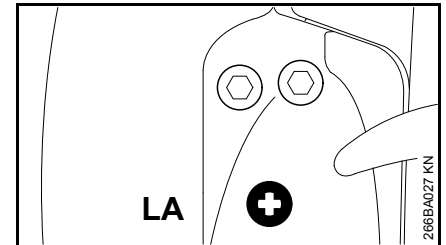
### Installing the filter

- Install the filter element in the filter housing and fit the cover.
- Insert the screw and tighten it down firmly.

## Adjusting the Carburetor

The carburetor of the machine has been adjusted for optimum performance and fuel efficiency in all operating states at the factory.

### Setting the idle speed



### Engine stops when idling

- Let the engine warm up for approx. 3 min
- Slowly turn idle speed screw (LA) clockwise until the engine runs smoothly – the cutting attachment must not rotate

### Cutting attachment turns when idling

- Turn the idle speed screw (LA) slowly counterclockwise until the cutting attachment stops moving – then turn another 1/2 to 3/4 turn in the same direction

### **!** WARNING

If the cutting attachment continues to keep rotating in idle even after adjustment, have the machine checked by a servicing dealer.

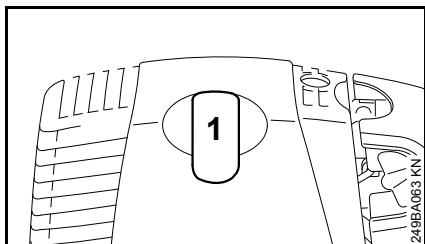


## Spark Plug

- If the engine is down on power, difficult to start or runs poorly at idle speed, first check the spark plug.
- Fit a new spark plug after about 100 operating hours – or sooner if the electrodes are badly eroded. Install only suppressed spark plugs of the type approved by STIHL – see "Specifications".

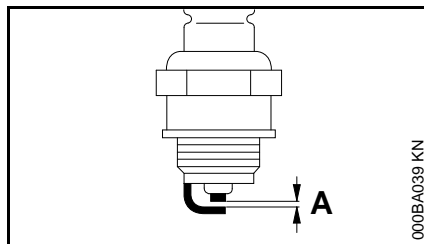
### Removing the spark plug

- Move the slide control to **STOP-0**.



- Pull off the spark plug boot (1).
- Unscrew the spark plug.

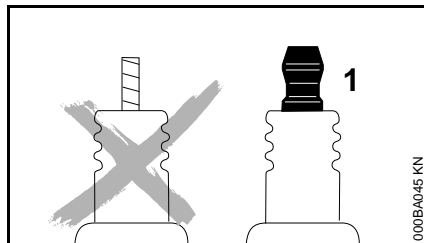
### Checking the spark plug



- Clean dirty spark plug.
- Check electrode gap (A) and readjust if necessary – see "Specifications".
- Rectify the problems which have caused fouling of the spark plug.

Possible causes are:

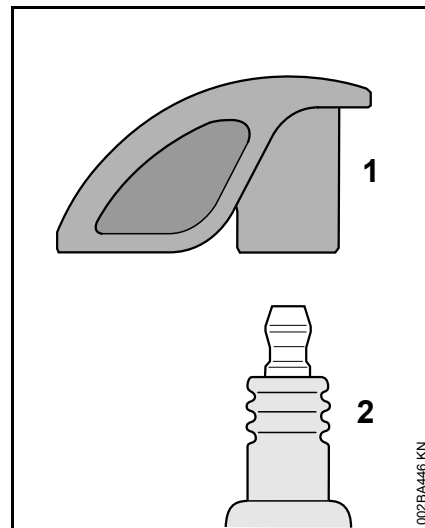
- Too much oil in fuel mix.
- Dirty air filter.
- Unfavorable running conditions.



### **!** WARNING

If the spark plug comes with a detachable adapter nut (1), screw the adapter onto the thread and tighten it down **firmly** to reduce the **risk of arcing and fire**.

### Installing the Spark Plug



- Screw the spark plug (2) into the cylinder and fit the boot (1) (press it down firmly).

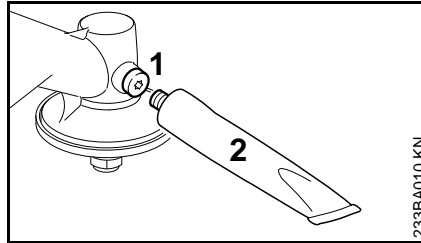
## Engine Running Behavior

If engine running behavior is unsatisfactory even though the air filter is clean and the carburetor is properly adjusted, the cause may be the muffler.

Have the muffler checked for contamination (carbonization) by your servicing dealer.

STIHL recommends that you have servicing and repair work carried out exclusively by an authorized STIHL servicing dealer.

## Lubricating the Gearbox



- Check the grease level regularly – about every 25 hours of operation.
- Unscrew the filler plug (1). If no grease can be seen on the inside of the filler plug, screw the tube (2) of STIHL gear lubricant (special accessory) into the filler hole.
- Squeeze up to 5 g grease into the gearbox.

### NOTICE

Do not completely fill the gearbox with grease.

- Remove the tube of grease (2).
- Refit the filler plug (1) and tighten it down firmly.

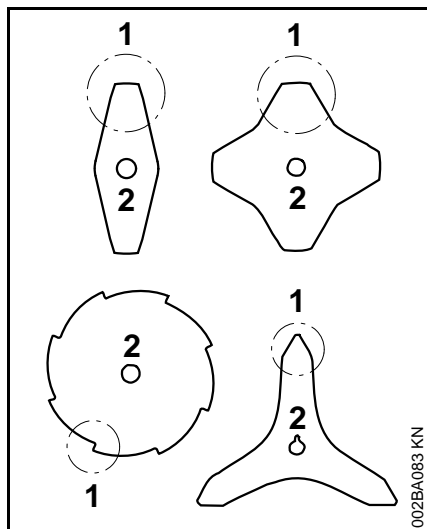
## Storing the Machine

For periods of 3 months or longer

- Drain and clean the fuel tank in a well ventilated area.
- Dispose of fuel properly in accordance with local environmental requirements.
- Run the engine until the carburetor is dry – this helps prevent the carburetor diaphragms sticking together.
- Remove, clean and inspect the cutting attachment. Coat metal cutting attachments with corrosion inhibitor.
- Thoroughly clean the machine.
- Clean the air filter.
- Store the machine in a dry and secure location – out of the reach of children and other unauthorized persons.

## Sharpening Metal Cutting Blades

- Use a sharpening file (see "Special Accessories") to sharpen dull cutting attachments. In case of more serious wear or nicks: Resharpener with a grinder or have the work done by a dealer – STIHL recommends a STIHL servicing dealer.
- Sharpen frequently, take away as little metal as possible – two or three strokes of the file are usually enough.



- Resharpener the teeth (1) uniformly – do not alter the contour of the parent blade (2) in any way.

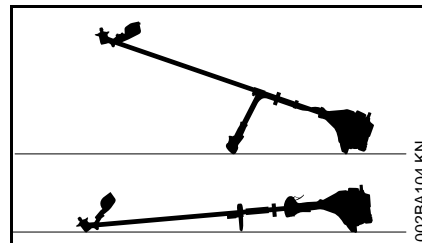
See cutting attachment packaging for additional sharpening instructions. Keep the packaging for future reference.

## Balancing

- After resharpener about 5 times, check the cutting attachment for out-of-balance on a STIHL balancer – see "Special Accessories" – or have it checked by a dealer and re-balanced as necessary – STIHL recommends a STIHL servicing dealer.

## Maintaining the Mowing Head

### Placing power tool on the ground



- Shut off the engine.
- Lay your power tool on its back so that the cutting attachment mounting face is pointing up.

### Replacing Nylon Line

Always check the mowing head for signs of wear before replacing the nylon line.

#### **! WARNING**

If there are signs of serious wear, replace the complete mowing head.

The nylon mowing line is referred to as "nylon line" or "line" in the following.

The mowing head is supplied with illustrated instructions for replacing the nylon line. Keep the instructions for the mowing head in a safe place.

- If necessary, remove the mowing head.

## Adjusting Nylon Line

### STIHL SuperCut

Fresh line is advanced automatically if the remaining line is **at least 6 cm (2 1/2 in)** long. The blade on the deflector trims overlong lines to the correct length.

### STIHL AutoCut

- With the engine running, hold the rotating mowing head above the grass surface.
- Tap it on the ground once – fresh line is advanced and the blade on the deflector trims it to the right length.

Fresh line is advanced every time the mowing head is tapped on the ground. For this reason observe the mowing head's cutting performance during operation. If the mowing head is tapped on the ground too often, the line limiter blade will unnecessarily cut off unused lengths of nylon line.

Line feed operates only if both lines are still at least **2.5 cm (1 in)** long.

### STIHL TrimCut



#### **WARNING**

**To reduce the risk of injury**, always shut off the engine before adjusting the nylon line by hand.

- Pull the spool up – rotate it about 1/6 turn counterclockwise until it engages – and allow it to spring back.
- Pull ends of the lines outward.

Repeat the above procedure as necessary until both lines reach the limiter blade on the deflector.

Rotating the spool from one stop to the next advances about **4 cm (1 1/2 in)** of fresh line.

## Replacing nylon line

### STIHL PolyCut

A length of nylon line can be fitted to the PolyCut in place of the cutting blades.

### STIHL FixCut, STIHL PolyCut



#### **WARNING**

**To reduce the risk of injury**, always shut off the engine before refilling the mowing head.

- Fit nylon line in mowing head as described in the instructions supplied.

## Replacing Cutting Blades

### STIHL PolyCut

Always check the mowing head for signs of wear before installing new cutting blades.



#### **WARNING**

If there are signs of serious wear, replace the complete mowing head.

The thermoplastic cutting blades are referred to as "blades" in the following.

The mowing head is supplied with illustrated instructions for replacing the blades. Keep the instructions for the mowing head in a safe place.



#### **WARNING**

**To reduce the risk of injury**, always shut off the engine before installing the blades.

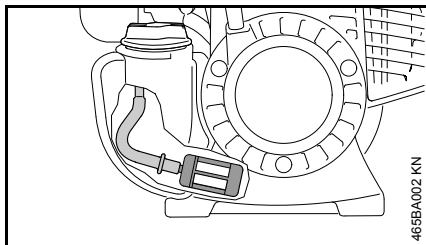
- Remove the mowing head.
- Replace blades as shown in the illustrated instructions.
- Mount the mowing head on the machine.

## Inspections and Maintenance by Dealer

### Maintenance Work

STIHL recommends that you have servicing and repair work carried out exclusively by an authorized STIHL servicing dealer.

### Fuel Pickup Body in Tank



- Check the pickup body in the fuel tank every year and have it replaced if necessary.

The pickup body should be positioned in the area of the tank shown in the illustration.

## Maintenance and Care

The following maintenance intervals apply in normal operating conditions. The specified intervals must be shortened accordingly when working for longer than normal or under difficult cutting conditions (extensive dust, etc.).		Before starting work	At the end of work and/or daily	Whenever tank is refilled	Weekly	Monthly	Yearly	If faulty	If damaged	As required
Complete machine	Visual inspection (condition, leaks)	X		X						
	Clean		X							
	Replace any damaged parts	X							X	
Control handle	Function tests	X		X						
Air filter	Visual inspection					X		X		
	Clean							X		X
	Replace								X	
Manual fuel pump (if present)	Check	X								
	Have repaired by a specialist dealer <sup>1)</sup>								X	
Fuel pickup body in fuel tank	Have checked by a specialist dealer <sup>1)</sup>							X		
	Have them replaced by a servicing dealer <sup>1)</sup>						X		X	X
Fuel tank	Clean							X		X
Carburetor	Check idle adjustment, cutting attachment must not turn	X		X						
	Setting the idle speed									X
Spark plug	Set electrode gap							X		
	Replace after every 100 hours of operation									
Cooling air intakes	Visual inspection		X							
	Clean									X
Cylinder fins	Have them cleaned by a servicing dealer <sup>1)</sup>						X			
Valve clearance	Check and adjust if necessary, once after 139 hours of operation, by servicing dealer <sup>1)</sup>									X

The following maintenance intervals apply in normal operating conditions. The specified intervals must be shortened accordingly when working for longer than normal or under difficult cutting conditions (extensive dust, etc.).		Before starting work	At the end of work and/or daily	Whenever tank is refilled	Weekly	Monthly	Yearly	If faulty	If damaged	As required
Combustion chamber	Clean after 139 hours of operation, then every 150 hours of operation, by servicing dealer <sup>1)</sup>									X
All accessible screws, nuts and bolts (not adjusting screws)	Retighten									X
Anti-vibration elements	Check	X						X		X
	Have them replaced by a servicing dealer <sup>1)</sup>								X	
Cutting attachments	Visual inspection	X		X						
	Replace								X	
	Check for secure fit	X		X						
Metal cutting attachments	Sharpen	X								X
Gear lubrication	Check				X					
	Top up									X
Safety information label	Replace								X	

<sup>1)</sup> STIHL recommends STIHL servicing dealers

## Minimize Wear and Avoid Damage

Observing the instructions in this manual helps reduce the risk of unnecessary wear and damage to the power tool.

The power tool must be operated, maintained and stored with the due care and attention described in this owner's manual.

The user is responsible for all damage caused by non-observance of the safety precautions, operating and maintenance instructions in this manual. This includes in particular:

- Alterations or modifications to the product not approved by STIHL.
- Using tools or accessories which are neither approved or suitable for the product or are of a poor quality.
- Using the product for purposes for which it was not designed.
- Using the product for sports or competitive events.
- Consequential damage caused by continuing to use the product with defective components.

### Maintenance Work

All the operations described in the "Maintenance Chart" must be performed on a regular basis. If these maintenance operations cannot be performed by the owner, they should be performed by a servicing dealer.

STIHL recommends that you have servicing and repair work carried out exclusively by an authorized STIHL

servicing dealer. STIHL dealers are regularly given the opportunity to attend training courses and are supplied with the necessary technical information.

If these maintenance operations are not carried out as specified, the user assumes responsibility for any damage that may occur. Among other parts, this includes:

- Damage to the engine due to neglect or deficient maintenance (e.g. air and fuel filters), incorrect carburetor adjustment or inadequate cleaning of cooling air inlets (intake ports, cylinder fins).
- Corrosion and other consequential damage resulting from improper storage.
- Damage to the machine resulting from the use of poor quality replacement parts.

### Parts Subject to Wear and Tear

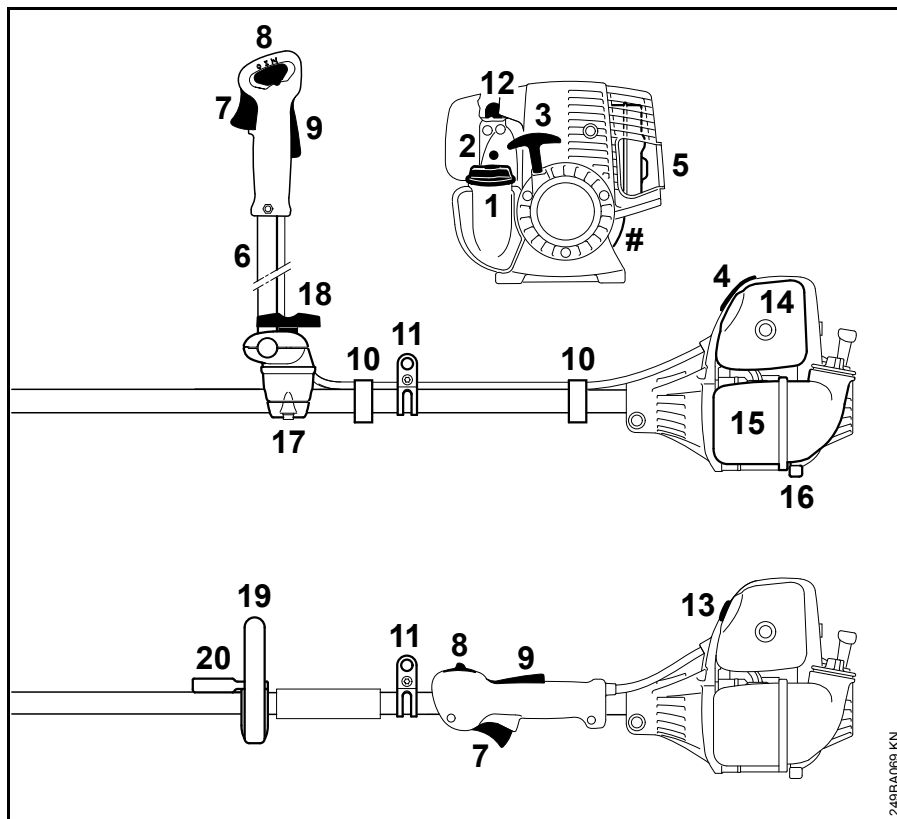
Some parts of the power tool are subject to normal wear and tear even during regular operation in accordance with instructions and, depending on the type and duration of use, have to be replaced in good time. Among other parts, this includes:

- Cutting attachments (all types)
- Mounting hardware for cutting attachments (rider plate, nut, etc.)
- Deflectors for cutting attachments
- Clutch
- Filters (air, fuel)
- Rewind starter

- Spark plug
- Antivibration elements

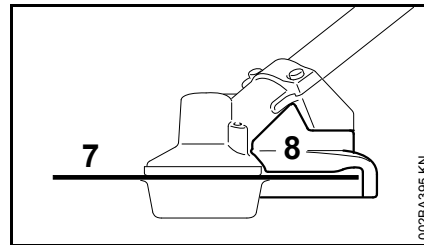
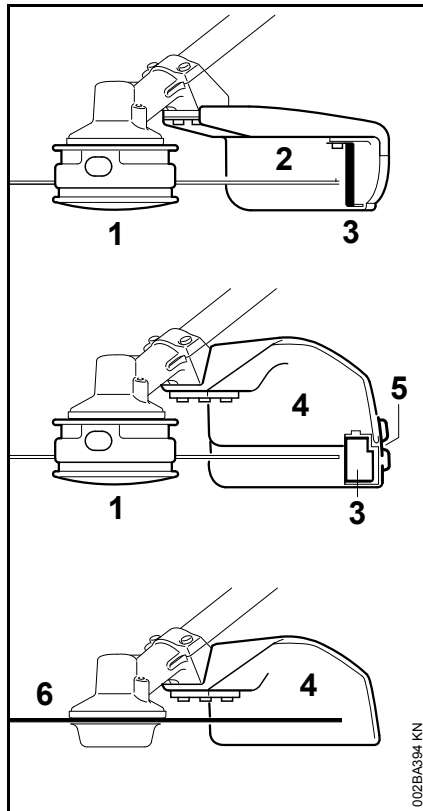


## Main Parts



- 1 Filler cap
  - 2 Carburetor adjusting screw
  - 3 Starter grip
  - 4 Spark plug boot
  - 5 Muffler
  - 6 Two-handed handle bar
  - 7 Throttle trigger
  - 8 Slide control
  - 9 Throttle lever lock
  - 10 Throttle cable support
  - 11 Carrying ring
  - 12 Manual fuel pump
  - 13 Choke knob
  - 14 Air filter cover
  - 15 Fuel tank
  - 16 Machine support
  - 17 Handlebar support
  - 18 Tommy screw
  - 19 Loop handle
  - 20 Barrier bar (present depending on country)
- # Machine number

249BA069 KN



- 7 Circular saw blade
- 8 Limit stop for circular saw blades only

## Specifications

### Engine

Single cylinder four-stroke engine with mixture lubrication

Displacement:	28.4 cc
Bore:	38 mm
Stroke:	25 mm
Engine power to ISO 8893:	0.95 kW (1.3 bhp) at 7,000 rpm
Idle speed:	2,800 rpm
Cut-off speed (rated):	10,200 rpm
Max. output shaft speed (cutting attachment):	7,500 rpm
Valve clearance	
Inlet valve:	0.10 mm
Exhaust valve:	0.10 mm

### Ignition System

Electronic magneto ignition

Spark plug (resistor type):	Bosch USR 7 AC
Electrode gap:	0.5 mm

### Fuel System

All position diaphragm carburetor with integral fuel pump

Fuel tank capacity: 530 cc (0.53 l)

**Weight**

Dry, without cutting attachment and deflector

FS 90: 5.8 kg

FS 90 R: 5.5 kg

**Overall length**

without cutting attachment 1800 mm

**Features**

R Loop handle

**Noise and Vibration Data****Cutting Attachment**

For further details on compliance with Vibration Directive 2002/44/EC see [www.stihl.com/vib](http://www.stihl.com/vib).

**Sound pressure level  $L_p$  to ISO 22868**

with mowing head

FS 90 with bike handle: 91 dB(A)

FS 90 R: 91 dB(A)

with metal mowing attachment

FS 90 with bike handle: 90 dB(A)

FS 90 R with barrier bar: 90 dB(A)

**Sound power level  $L_w$  to ISO 22868**

with mowing head

FS 90 with bike handle: 104 dB(A)

FS 90 R: 104 dB(A)

with metal mowing attachment

FS 90 with bike handle: 104 dB(A)

FS 90 R with barrier bar: 104 dB(A)

**Vibration measurement  $a_{hv,eq}$  to ISO 22867**

	Handle, left	Handle, right
with mowing head		

FS 90 with bike handle:	4.6 m/s <sup>2</sup>	5.4 m/s <sup>2</sup>
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FS 90 R:	5.1 m/s <sup>2</sup>	5.3 m/s <sup>2</sup>
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with metal mowing attachment	Handle, left	Handle, right
------------------------------	--------------	---------------

FS 90 with bike handle:	5.3 m/s <sup>2</sup>	6.1 m/s <sup>2</sup>
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FS 90 R with barrier bar:	3.5 m/s <sup>2</sup>	4.9 m/s <sup>2</sup>
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**Interchangeable attachment**

For version see "Approved Power Tool Attachments".

Noise and vibration data measurements include idling and rated maximum speed in the following ratios.

on FCS, FS, FH and HT	1 to 1
-----------------------	--------

on HL	1 to 4
-------	--------

on BF, SP and KW	1 to 6
------------------	--------

**Sound pressure level  $L_p$  to ISO 11201, 22868**

FS 90 with bike handle: 88 dB(A) ... 95 dB(A)

FS 90 R: 88 dB(A) ... 97 dB(A)

**Sound power level  $L_{weq}$  to ISO 22868, 3744**

FS 90 with bike handle: 99 dB(A) ... 102 dB(A)

FS 90 R: 99 dB(A) ... 102 dB(A)

**Vibration measurement  $a_{hv,eq}$  to ISO 11789, 20643, 22867, 8662****Handle, left**

FS 90 with bike handle: 1-5 m/s<sup>2</sup> ... 2.9 m/s<sup>2</sup>

FS 90 R: 3.4 m/s<sup>2</sup> ... 6.8 m/s<sup>2</sup>

**Handle, right**

FS 90 with bike handle: 2.1 m/s<sup>2</sup> ... 2.8 m/s<sup>2</sup>

FS 90 R: 4.1 m/s<sup>2</sup> ... 7.0 m/s<sup>2</sup>

The K-factor in accordance with Directive 2006/42/EC is 2.5 dB(A) for the sound pressure level and sound power level; the K-factor in accordance with Directive 2006/42/EC is 2.0 m/s<sup>2</sup> for the vibration measurement.

**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 (EC) No. 1907/2006 see [www.stihl.com/reach](http://www.stihl.com/reach).


## Maintenance and Repairs

Users of this machine may only carry out the maintenance and service work described in this user manual. All other repairs must be carried out by a servicing dealer.

STIHL recommends that you have servicing and repair work carried out exclusively by an authorized STIHL servicing dealer. STIHL dealers are regularly given the opportunity to attend training courses and are supplied with the necessary technical information.

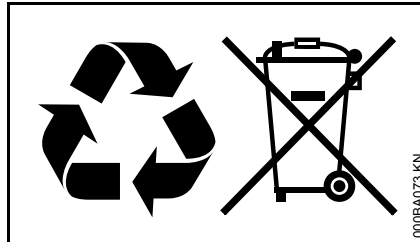
When repairing the machine, only use replacement parts which have been approved by STIHL for this power tool or are technically identical. Only use high-quality replacement parts in order to avoid the risk of accidents and damage to the machine.

STIHL recommends the use of original STIHL replacement parts.

Original STIHL parts can be identified by the STIHL part number, the **STIHL** logo and the STIHL parts symbol  (the symbol may appear alone on small parts).

## Disposal

Observe all country-specific waste disposal rules and regulations.



STIHL products must not be thrown in the garbage can. Take the product, accessories and packaging to an approved disposal site for environment-friendly recycling.

Contact your STIHL servicing dealer for the latest information on waste disposal.

## EC Declaration of Conformity

ANDREAS STIHL AG & Co. KG  
Badstr. 115  
D-71336 Waiblingen

confirms that the product described below

Category: Brushcutter  
Make: STIHL  
Model: FS 90  
FS 90 R

Serial identification: 4180  
Displacement: 28.4 cc

conforms to the provisions of Directives 2006/42/EC, 2004/108/EC and 2000/14/EC and has been developed and manufactured in compliance with the following standards in the versions valid at the time of production:

EN ISO 11806-1, EN 55012,  
EN 61000-6-1

The measured and guaranteed sound power levels were determined according to Directive 2000/14/EC, Annex V, using the ISO 10884 standard.

### Measured sound power level

104 dB(A)

### Guaranteed sound power level

106 dB(A)

Technical documents deposited at:

ANDREAS STIHL AG & Co. KG  
Produktzulassung (Product Licensing)

The year of manufacture and serial number are applied to the product.

Done at Waiblingen, 15.08.2014

ANDREAS STIHL AG & Co. KG

A handwritten signature in black ink that reads "Thomas Elsner". The signature is written in a cursive, flowing style.

Thomas Elsner

Director Group Product Management

The CE mark, consisting of the letters "C" and "E" in a bold, sans-serif font, positioned side-by-side.





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englisch



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