

SR 420

STIHL



2 - 25 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 trouble-free use of the product.

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

Your



Dr. Nikolas Stihl

1 Guide to Using this Manual

1.1 Pictograms

All the pictograms attached to the machine are shown and explained in this manual.

1.2 Symbols in text



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.

1.3 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.

2 Safety Precautions and Working Techniques



Special safety precautions must be observed when working with the power tool.



It is important that you read and understand the User Manual before commissioning and keep it in a safe place for future reference. Non-compliance with the User Manual may cause serious or even fatal injury.

Observe all applicable local safety regulations, e.g. by trade organizations, social insurance institutions, labor safety authorities etc.

If you have not used this machine before: Have your dealer or other experienced user show you how to handle your machine safely or attend a specialist course.

Minors must never work with the machine – except for young people over the age of 16 who are being trained under supervision.

Children, animals and onlookers must not be allowed near the machine.

When the machine is not in use, put it in a place where it does not endanger others. Secure the machine against unauthorized access.

The user is responsible for accidents or risks involving third parties or their property.

Do not pass on or lend the machine to persons who are not familiar with this model and its handling – always include the User Manual.

The use of machines that emit noise may be limited to certain hours of the day as specified by national and/or regional or local regulations.

Do not operate your machine if any of its components are damaged. Pay special attention to the tightness of the container (no leaks).

Operate the power tool only if it is complete and properly assembled.

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

2.1 Physical fitness

To operate the power tool you must be rested, in good physical condition and mental health. If you have any condition which may be aggravated by strenuous work, check with your doctor before operating a power tool.

If you have a pacemaker: The ignition system of your machine produces an electromagnetic field of very low intensity. This field may interfere with some pacemakers. To reduce health risks, STIHL recommends that persons with pacemakers consult their physician and the pacemaker manufacturer before operating this tool.

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

2.2 Applications

This mistblower is suitable for applying fungicides, herbicides and pesticides at ground level. Spraying overhead is possible with mistblowers equipped with a pressure pump. Typical areas of application are in fruit, vegetable, wine and crop growing, plantations, flower growing, grassland and forestry.

Only use plant protection products that are specifically approved for use in sprayers/mistblowers.

Do not use your power tool for any other purpose because of the increased risk of accidents and damage to the power tool. The product must not be modified in any way - this may also lead to accidents or damage to the unit.

2.3 Accessories and replacement parts

Only use parts and accessories that are explicitly approved for this power tool by STIHL or are technically identical. If you have any questions in this respect, consult your dealer. Use only high quality parts and accessories. Otherwise there is a risk of accidents and damage to the unit.

STIHL recommends the use of original STIHL parts 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.

2.4 Clothing and equipment

Wear proper protective clothing and equipment when using, filling and cleaning the power tool. Follow the chemical manufacturer's user manual with respect to protective equipment.

Immediately change work clothes contaminated with plant control chemicals.



Clothing must be snug-fitting but allow complete freedom of movement.



For some plant control chemicals it is necessary to wear impermeable coveralls.

If you are spraying overhead, wear impermeable head covering.



Avoid any clothing, scarves, neckties, jewelry or anything that could get into the air intake. Tie up and confine long hair above your shoulders so that it cannot be pulled into the machine.



Wear impermeable safety boots with a non-slip sole which are resistant to plant protection products.

Do not wear sandals or go barefoot.



WARNING



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

Wear a suitable respirator.

Wear "personal" sound protection, e.g. ear defenders.

Breathing plant control chemicals may endanger your health. Always wear a suitable respirator to protect yourself against health risks and allergic reactions. Observe warnings in the user manual of the plant protection product and all applicable local safety regulations, standards and ordinances.



Wear impermeable gloves resistant to plant control chemicals.

2.5 Handling Plant Control Chemicals

Read the user manual supplied with the plant protection chemical prior to use. Follow the instructions with respect to mixing, using, personal protective equipment, storage and disposal.

Observe the legal requirements for handling plant protection products.

Plant protection chemicals may contain substances that are harmful to humans, animals, plants and the environment – **risk of poisoning and risk of serious or fatal injuries!**

Plant protection chemicals may be used only by persons trained in their handling and the appropriate first-aid measures.

Keep the user manual or label of the plant control chemical available at all times in order to inform the doctor about the chemical concerned in an emergency. In an emergency, follow the chemical manufacturer's instructions provided or on the label.

2.5.1 Mixing the Spray Solution

Mix the plant protection product strictly in accordance with the manufacturer's instructions – incorrect mixtures may produce toxic fumes or explosive solutions.

- Never spray liquid plant control chemicals undiluted
- Prepare solution and fill the container outdoors only or in well-ventilated locations.
- Only prepare sufficient solution for the job on hand so that nothing is left over
- Mix different chemicals only in accordance with the manufacturer's instructions – incorrect mixtures may produce toxic fumes or explosive solutions

- Do not mix different plant protection products unless such a mixture is approved by the manufacturer

2.5.2 Filling the Solution Container

- Stand the power tool securely on a level surface – do not fill the container above the maximum mark
- To **reduce the risk of injury**, do not fill the power tool while wearing it on your back.
- Close the valve lever before filling.
- When filling from central water supply, do not immerse the end of the hose in the solution – sudden low pressure in the system may cause the solution to be sucked back into the water supply
- Before filling the container with spray solution, carry out test run with fresh water and check all parts of the sprayer for leaks
- After filling, fit the filler cap and tighten it down firmly

2.5.3 UseUse

- Work only in the open or in very well ventilated locations, e.g. open greenhouses
- Do not eat, drink or smoke while working with plant protection chemicals
- Never blow through nozzles or other components by mouth
- Avoid contact with plant control chemicals – immediately change clothing contaminated with plant control chemical
- Do not spray in windy conditions

Unfavorable weather conditions may result in an incorrect concentration of the plant protection product. Overdosing may damage plants and the environment. Under-dosing may result in unsuccessful plant treatment.

In order to reduce the risk of damage to the environment and plants, do not operate the sprayer:

- in windy conditions
- at temperatures above 25°C in the shade
- in direct sunlight

In order to reduce the risk of accidents and damage to the power tool, never operate the power tool with:

- flammable liquids
- viscous or sticky liquids
- caustic or corrosive chemicals
- liquids hotter than 50 °C

2.5.4 Bearing

- During work breaks, do not leave the power tool in the hot sun or near any heat source
- Do not store spray solution in the container for longer than one day

- Store and transport spray solution only in approved containers
- Never store the spray solution in containers intended for foods, drinks or animal feed
- Do not store spray solution with foods, drinks or animal feed
- Keep spray solution out of the reach of children and animals
- Store the power tool empty and clean
- Store the spray solution and power tool in a place secured against unauthorized use.
- Store the spray solution and power tool in a dry place protected from frost.

2.5.5 Disposal

Never dispose of residual chemicals or contaminated rinsing solutions in waterways, drains, sewers, street gutters or manholes.

- Dispose of residual chemicals and used containers in accordance with local waste disposal regulations

2.6 Transporting the machine

Always stop the engine.

Transporting in a vehicle:

- Secure the machine against overturning, damage and fuel spillage
- The container must be empty and clean

2.7 Refueling



Gasoline is extremely flammable – keep it away from naked flames – do not spill any fuel – no smoking.

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 to prevent fuel spraying out.

Only refuel the machine in a well ventilated place. If you spill fuel, wipe the machine immediately – if fuel gets on your clothing, change immediately.



Check for fuel leakage! Never start the engine if fuel has been spilled or is leaking – **Fatal burns may result!**



After fueling, tighten down the screw-type fuel cap as securely as possible.

This helps reduce the risk of unit vibrations causing an incorrectly tightened fuel cap to loosen or come off and spill quantities of fuel.

2.8 Before starting

Check that your power tool is properly assembled and in good condition, especially if it has been subjected to unusually high loads for which it was not designed (e.g. heavy impact or a fall).

- Check the fuel system for leaks, especially the visible parts, e. g., fuel cap, hose connections, manual fuel pump (only in machines with a manual fuel pump). In case of leakage and damage, do not start the engine – **risk of fire!** Have the machine serviced by a dealer before using it
- The setting lever must move easily to **STOP** or **0**
- Throttle trigger must move freely and spring back by itself to the idle position
- Check that the spark plug boot is secure – a loose boot may cause sparking that could ignite combustible fumes **and cause a fire!**
- Check the fuel system for leaks
- Check the condition and tightness of container, hose and metering unit
- Check condition of harness straps and replace damaged or worn straps

To reduce the risk of accidents and personal injury, do not operate your power tool if it is not properly assembled and in good condition!

For emergencies: Practice removing and putting down the power tool. To avoid damage, do not throw the machine to the ground when practicing.

2.9 Starting the engine

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

Your power tool is designed to be operated by one person only. Do not allow other persons in the work area – even when starting.

Always proceed as described in the user manual.

Place the machine on level ground only, ensure that you have a secure footing and hold the machine securely.

If an assistant is required to put the power tool on your back, make sure that

- the engine is running at idle speed
- the assistant is not standing in the area of the exhaust outlet and breathing exhaust fumes
- the valve lever is closed

- the assistant is not standing in the area of the outlet nozzle
- The assistant leaves the work area immediately after you have put the power tool on your back

2.10 Dusting and Granulate Spreading Attachment (Special Accessory)

Powder or dry granulate can be applied in the dusting and spreading mode.

Observe legal requirements for handling the chemicals.

Observe the User Manual or the label of the plant protection product.

Use

Electrostatic charging with sparking can occur when working with the dusting and spreading attachment.

The risk is greatest

- in extremely dry weather conditions
- When using powdered products, which create a highly concentrated dust cloud

To reduce the risk of accidents and damage to the power tool, never operate it with explosive or combustible materials

Do not apply sulphur or compounds containing sulphur since they are highly explosive and have a very low ignition point.

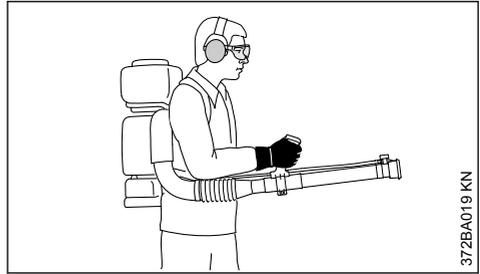
To reduce the risk of sparking, explosion or fire, make sure the discharge system is completely and properly mounted to the machine. It consists of a conductive wire in the spray tube connected to a metal chain. The metal chain must make contact with a conductive surface to dissipate electrostatic charges.

Do not operate your machine on a non-conductive surface (e.g. plastic, asphalt).

Never operate your machine with a missing or damaged discharge system.

Follow the mounting instructions supplied with the "Dusting and Granulate Spreading Attachment".

2.11 Holding and guiding the machine



Carry the power tool on your back with both harness straps – do not hang it over one shoulder. Hold and control the blower tube with your right hand on the control handle – even if you are left-handed.

Work only slowly, moving in a forwards direction – always observe the discharge area of the blower tube – do not move backwards – **risk of tripping!**

Keep the power tool and container upright. To avoid the risk of chemical leaking from the container and causing injury, **do not bend forwards.**

2.12 While working



Do not direct the air blast towards bystanders since the air flow can blow small objects at great speed.

In the event of impending danger or in an emergency, switch off the engine immediately by moving the setting lever to **STOP** or **0**.

Quickly releasing power tool in an emergency:

- Open the fastener on the hip belt (special accessory)
- Slip the straps off your shoulders
- Drop the power tool to the ground

Never leave a running machine unattended.

Take special care in slippery conditions – **dampness, snow, ice**, on slopes or uneven ground.

Watch out for obstacles: Be careful of refuse, tree stumps, roots and ditches which could **cause you to trip or stumble**

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

Take breaks when you start getting tired or feeling fatigue – **risk of accidents!**

Work calmly and carefully – in daylight conditions and only when visibility is good. Proceed with caution, do not put others in danger.

Do not work on a ladder or in unstable locations.

When working in open ground and gardens take special care to avoid harming small animals.

To reduce the **risk of electrocution**, never operate this power tool in the vicinity of live wires or power cables.

Always clean the spray container and hose system before changing to a different plant protection product.



As soon as the engine is running, the power machine generates toxic exhaust gas. As soon as the engine is running, the power machine generates toxic exhaust gas. These gases may be odorless and invisible and may contain unburned hydrocarbons and benzene. Never work with the machine in closed or poorly ventilated rooms.

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.

Stop work immediately if you start suffering from nausea, headaches, impaired vision (e.g. your field of vision gets smaller), impaired hearing, dizziness, or impaired concentration – these symptoms may possibly be the result of too-high exhaust gas concentration – **Risk of accidents!**

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. Combustible fuel vapor may escape from the fuel system.

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 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, contact a dealer.

2.13 After finishing work

Close the valve lever.

Always shut off the engine before taking the power tool off your back.

After finishing work, put the power tool down on a level, non-flammable surface. Do not place the machine near easily flammable materials (e.g. wood chips, bark, dry grass, fuel) – **risk of fire!**

Check all parts of the power tool for leaks.

After finishing work, thoroughly clean the power tool and wash your hands, face and, if necessary, your clothes.

Keep other people and animals away from the areas that have been sprayed and do not walk on them until the plant protection chemical has dried.

2.14 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.

2.15 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.

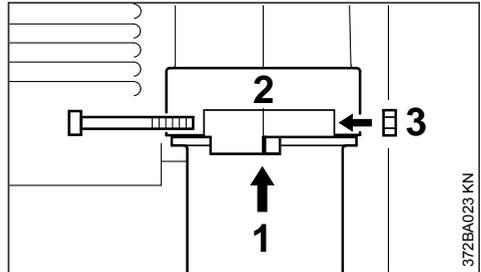
Vibration behavior is influenced by the condition of the AV elements – check the AV elements at regular intervals.

3 Assembling the Unit

NOTICE

The throttle cable is already connected and must not be kinked during assembly.

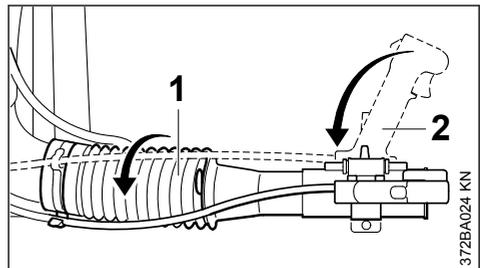
3.1 Mounting the Elbow



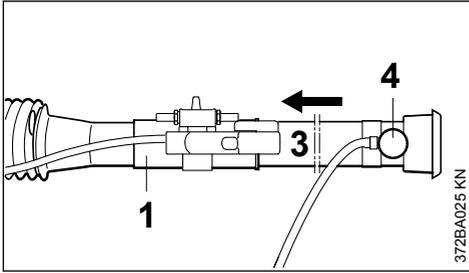
The combination wrench and carburetor screwdriver are stowed on the underside of the machine.

- ▶ Line up the stops on the elbow and stub and push the elbow (1) into the stub (2) as far as it will go. Fit the nut (3) in the hexagon recess in the stub
- ▶ Insert the screw in the nut from the other side and tighten moderately – the elbow must still turn.

3.2 Mounting the Extension Tube

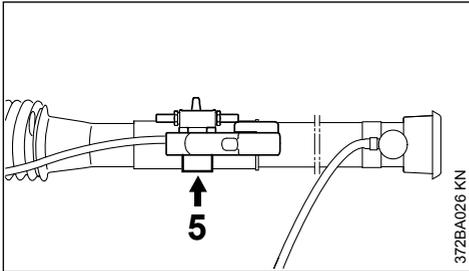


- ▶ Rotate the pleated hose (1) as far as stop.
- ▶ Swing control handle (2) to horizontal position.



372BA025 KN

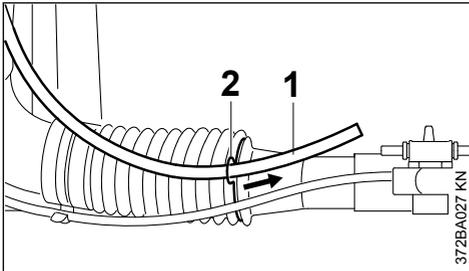
- ▶ Push the extension tube (3) into the pleated hose (1) as far as it will go.
- ▶ The metering unit (4) must point in the same direction as the control handle.



372BA026 KN

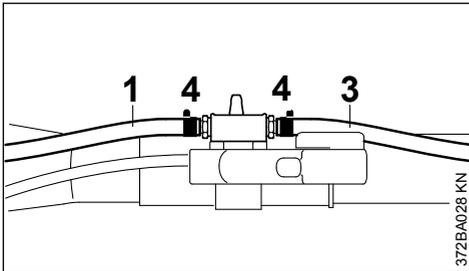
- ▶ Tighten down the clamp screw (5) (see “Adjusting the Control Handle”).

3.3 Fitting the Liquid Hose



372BA027 KN

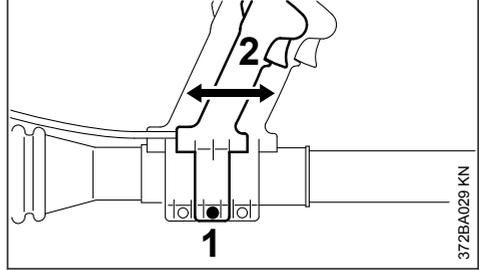
- ▶ Secure liquid hose (1) from the container to the pleated hose with the retainer (2).



372BA028 KN

- ▶ Use hose clips (4) to secure hose (1) and hose (3) to the stubs on the stop cock.
- ▶ Close the stop cock (move lever to vertical position).
- ▶ Fill up with water and check all hose connections for leaks.

3.4 Adjusting the Control Handle

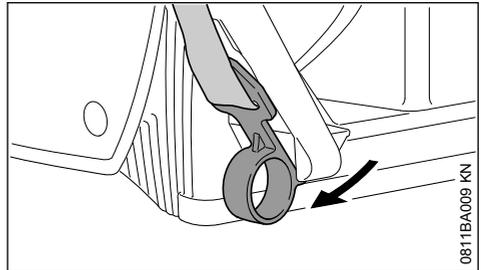


372BA029 KN

- ▶ Put the machine on your back.
- ▶ Loosen the clamp screw (1).
- ▶ Move the control handle (2) along the tube to the most comfortable position.
- ▶ Tighten down the clamp screw (1).

4 Harness

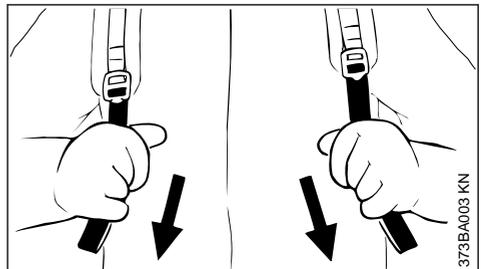
4.1 Attaching the Harness



0811BA009 KN

- ▶ Attach strap hook to the backplate.

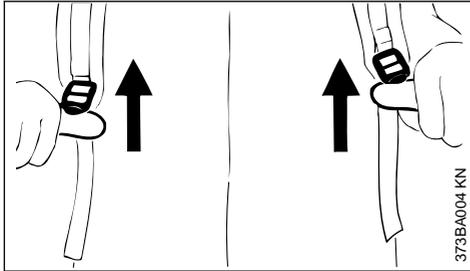
4.2 Adjusting the Harness



373BA003 KN

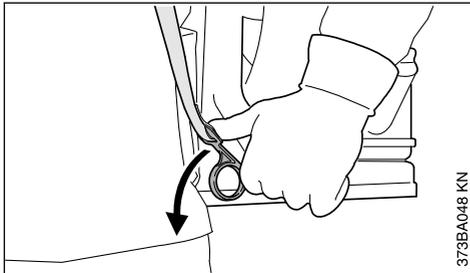
- ▶ Pull the ends of the straps downward to tighten the harness.

4.3 Loosening the Harness



- ▶ Lift the tabs of the sliding adjusters.
- ▶ Adjust the harness so that the backplate fits snugly and securely against your back.

4.4 Throwing Off Machine



Before using the machine, make yourself familiar with how to release and throw off the backpack.

In an emergency, quickly throw the machine off your back as follows:

- ▶ Open the quick-release fastener on the waist belt (special accessory).
- ▶ Open the strap hook on the backplate by snapping it forwards (**arrow**).
- ▶ Throw the machine to the rear.

5 Fuel

The engine requires a mixture of gasoline and engine oil.



Avoid direct skin contact with fuel and breathing in of gasoline fumes.

5.1 STIHL MotoMix

STIHL recommends using STIHL MotoMix. This pre-blended fuel is free of benzene and lead, is distinguished by a high octane rating, and always provides the proper mixing ratio.

STIHL MotoMix uses STIHL HP Ultra two-stroke engine oil for optimum engine life.

MotoMix is not available in all markets.

5.2 Mixing fuel

NOTICE

Unsuitable fuels or a mixing ratio that deviates from the specification can lead to severe engine damage. The engine, seals, fuel lines and fuel tank may be damaged if low-quality gasoline or engine oil is used.

5.2.1 Gasoline

Use only **high-quality gasoline** with an octane rating of at least 90 ROC – leaded or unleaded.

Gasoline with an alcohol component exceeding 10% can cause impaired engine performance in engines with manually adjustable carburetors and thus should not be used in these engines.

Engines with M-Tronic deliver full engine performance using gasoline with an alcohol component of up to 27% (E27).

5.2.2 Engine oil

If you mix the fuel yourself, use only STIHL two-stroke engine oil or another high-performance engine oil classified as JASO FB, JASO FC, JASO FD, ISO-L-EGB, ISO-L-EGC or ISO-L-EGD.

STIHL specifies STIHL HP Ultra two-stroke engine oil or an equivalent high-performance engine oil in order to maintain emission limits over the machine's service life.

5.2.3 Mixing ratio

with STIHL two-stroke engine oil 1:50; 1:50 = 1 part oil + 50 parts gasoline

5.2.4 Examples

Quantity of gaso- line Liters	STIHL two-stroke engine oil 1:50	
	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)

- ▶ Pour oil into an approved safety fuel canister first, then add gasoline and mix thoroughly

5.3 Storing fuel mixture

Store in approved safety fuel canisters only in a dry, cool and secure place protected against light and sunlight.

Fuel mixture deteriorates with age – mix only as much as needed for a few weeks. Do not store fuel mixture for longer than 30 days. The fuel mixture can become unusable more quickly if exposed to light, sunlight or low or high temperatures.

STIHL MotoMix however can be stored for up to 5 years without any problems.

- ▶ Shake the canister containing the fuel mixture thoroughly before refueling



WARNING

Pressure may have built up in the canister – open it carefully.

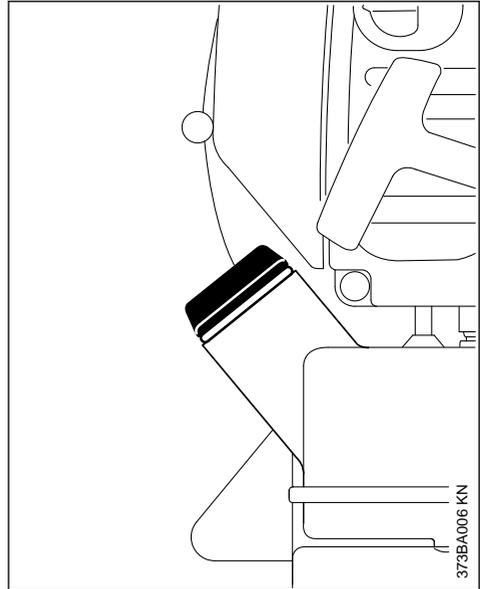
- ▶ The fuel tank and the canister in which fuel mixture is stored should be cleaned thoroughly from time to time

Residual fuel and the liquid used for cleaning must be disposed of in accordance with regulations and without harming the environment!

6 Fueling



6.1 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 filler cap is facing up.

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

6.2 Filling up with fuel

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

- ▶ Open the filler cap.
- ▶ Fill up with fuel.
- ▶ Close the filler cap.

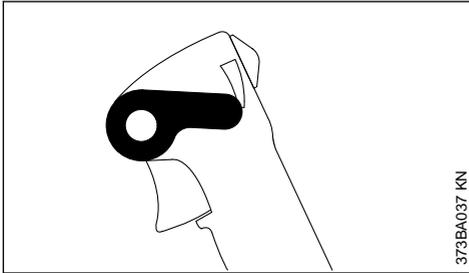
 **WARNING**

After fueling, tighten down the filler cap as securely as possible by hand.

7 Information Before You Start

NOTICE

With the engine stopped and before starting, check the air intake grille between the backplate and powerhead for blockages and clean if necessary. A protective screen is available as a special accessory to keep the air intake clear.



2

- ▶ Slide the stop switch (1) to →
- ▶ Move setting lever (2) to center position – starting throttle.

The setting lever enables you to select and hold any throttle position between (lower stop) idle and full throttle (upper stop).

Set the lever to the idle position before switching off the engine.

8.1.1 Before Starting

- ▶ Move the setting lever to the idel position.

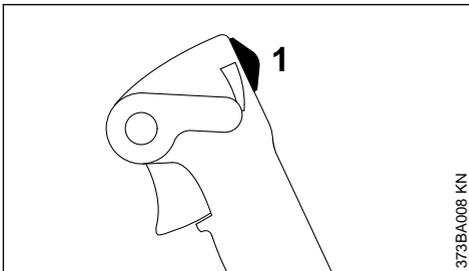
The throttle cable disconnects itself from the throttle trigger if the engine is not shut off in the idle position.

The throttle cable reconnects itself automatically when the setting lever is moved to the idle position.

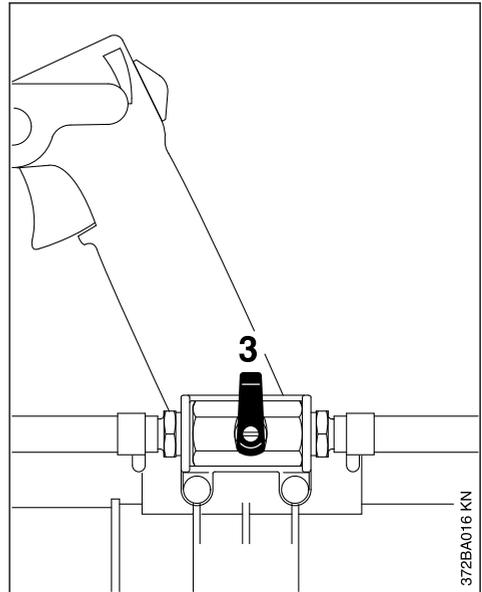
8 Starting / Stopping the Engine

8.1 Starting the Engine

- ▶ Observe safety precautions.



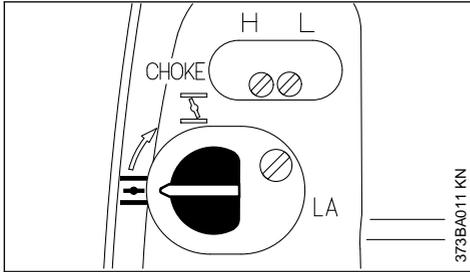
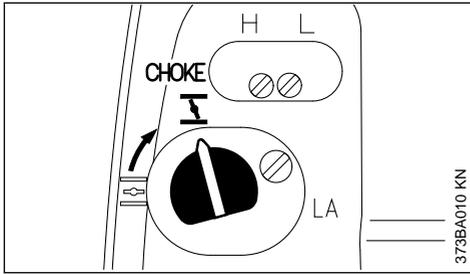
1



3

- ▶ Close the stop cock (3) (set to upright position).

8.1.2 If the engine is cold

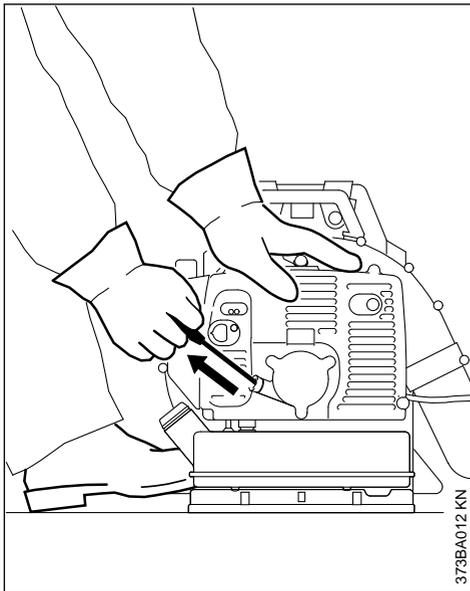


- ▶ Turn the choke knob to **I**.

If the engine is warm

- ▶ Turn the choke knob to **II**.
- ▶ Also use this setting if the engine has been running but is still cold.

8.2 Cranking

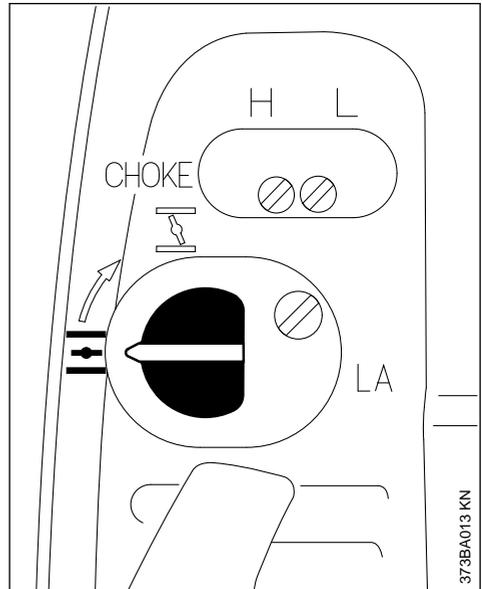


- ▶ Place the unit securely on the ground and make sure that bystanders are well clear of the nozzle outlet.
- ▶ Make sure you have a firm footing: Hold the unit with your left hand on the housing and put one foot against the base plate to prevent it slipping.
- ▶ Hold the starter grip with your right hand.
- ▶ Pull the starter grip slowly until you feel it engage and then give it a brisk strong pull.

NOTICE

Do not pull out the starter rope all the way – it might otherwise break.

- ▶ Do not let the starter grip snap back. Guide it slowly back into the housing so that the starter rope can rewind properly.

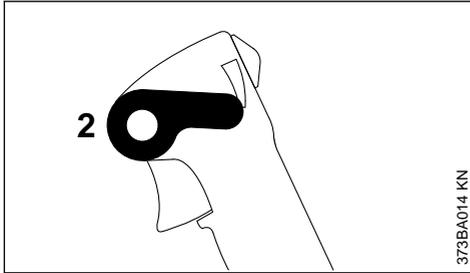
When engine begins to fire**If the engine is cold:**

- ▶ Move the choke knob to **II** and continue cranking until the engine runs.

If the engine is warm:

- ▶ continue cranking until the engine runs.

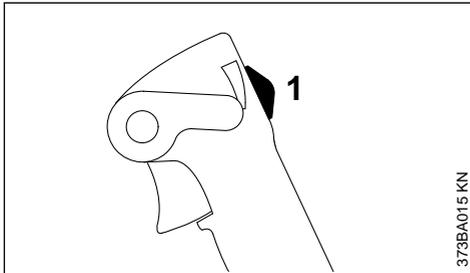
8.3 As Soon as Engine Runs



373BA014 KN

- ▶ Move setting lever (2) to lower stop – the engine settles down to idle speed.

8.4 Stopping the Engine



373BA015 KN

- ▶ Move the stop switch (1) to →

8.5 Other Hints on Starting

8.5.1 At very low outside temperatures

- ▶ Warm up the engine.

As soon as the engine runs:

- ▶ Move setting lever to lower stop – the engine settles down to idle speed.
- ▶ Open throttle slightly – warm up the engine for a short period.

8.5.2 If engine does not start

If you did not turn the choke knob to $\overline{\text{II}}$ quickly enough after the engine began to fire, the combustion chamber is flooded.

- ▶ Remove the spark plug – see "Spark Plug".
- ▶ Dry the spark plug.
- ▶ Open the throttle wide.
- ▶ Crank the engine several times with the starter to clear the combustion chamber.
- ▶ Install the spark plug – see "Spark Plug".
- ▶ Slide the stop switch to \rightarrow and set the choke knob to $\overline{\text{II}}$ – even if the engine is cold.
- ▶ Now start the engine.

8.5.3 If fuel tank has been run completely dry and then refueled

- ▶ Pull the starter rope several times to prime the fuel system.

9 Calculating Required Quantity of Solution

9.1 Determining surface area (m²)

In the case of ground crops, simply multiply the length of the field by its width.

The surface area of high-growing plants is calculated approximately by measuring the length of the rows and the average height of the foliage. The result is multiplied by the number of rows and then by two if both sides have to be treated.

The surface area in hectares is obtained by dividing the number of square meters by 10,000.

Example:

A field 120 meters long and 30 meters wide has to be treated with a pesticide.

Area:

$$120 \text{ m} \times 30 \text{ m} = 3,600 \text{ m}^2$$

$$3,600 / 10,000 = 0.36 \text{ ha}$$

9.2 Determining quantity of active ingredient

Refer to the instructions supplied with the active ingredient to determine:

- Required quantity of active ingredient for 1 hectare (ha).
- Concentration of active ingredient (mix ratio).

Multiply the required quantity of active ingredient for 1 hectare by the area determined in hectares. The result is the quantity of active ingredient required for the area to be treated.

Example:

According to the maker's instructions, 0.4 liters of active ingredient are required per hectare to obtain a concentration of 0.1%.

Quantity of active ingredient:

$$0.4 \text{ (l/ha)} \times 0.36 \text{ (ha)} = 0.144 \text{ l}$$

9.3 Determining quantity of solution

The quantity of solution required is calculated as follows:

$$T_W \times 100 = T_B$$

K

T_W = Quantity of active ingredient in liters

K = Concentration in %

T_B = Required quantity of solution in liters

Example:

The calculated quantity of active ingredient is 0.144 liters. According to the maker's instructions, the concentration is 0.1%.

Quantity of solution:

0.144 l	x 100 = 144 l
0.1 %	

9.4 Determining walking speed

Carry out a trial run with the machine fueled and the container filled with water. Operate the spray tube (swing it back and forth) as for the real run described below. Determine the distance walked in one minute.

Also use the trial run to check the selected working width. The best working width for low-growing crops is 4–5 m. Mark the working width with stakes.

Dividing the distance walked in meters by the time in minutes gives you the walking speed in meters per minute (m/min).

Example:

The distance covered in one minute is 10 meters.

Walking speed:

10 m	= 10 m/min
1 min	

9.5 Determining discharge rate

The setting of the metering unit is calculated as follows:

$V_a(l) \times v_b(m/min) \times b(m)$	= $V_c(l/min)$
A (m²)	

V_a = Quantity of solution

v_b = Walking speed

V_c = Discharge rate

b = Working width

A = Area

Example:

The values determined above and a working width of 4 meters require the following setting on the metering unit:

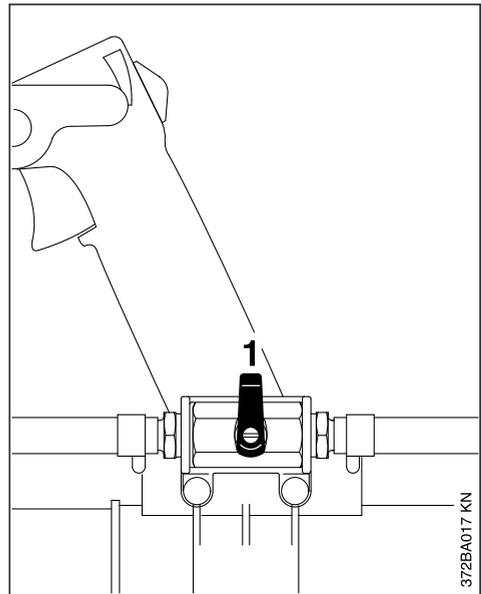
$144 l \times 10 (m/min) \times 4 m$	= 1.6 l/min
$3600 m^2$	

Hectares (ha) have to be converted into m² (ha x 10,000 = m²).

To adjust the required discharge rate see "Metering Unit".

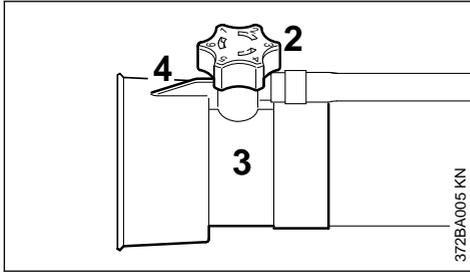
10 Metering Unit

10.1 Stop cock



- ▶ The stop cock (1) is closed when the lever is upright.
- ▶ The stop cock (1) is open when the lever is parallel to the hose.
- ▶ Adjust the discharge rate with the metering knob – not the stop cock.

10.2 Metering knob



- ▶ The discharge rate can be infinitely varied by turning the metering knob (2) on the nozzle (3).

Position 1 = minimum flow rate

Position 6 = maximum flow rate

The numbers on the metering knob must be lined up with the lug (4) under the knob.

10.3 Discharge rate without pressure pump

Standard metering knob

Discharge rate in l/min

Knob setting	Blower tube angle		
	-30°	0°	+30°
1	0.384	0.290	0.257
2	1.062	0.908	0.782
3	1.947	1.614	1.336
4	2.848	2.402	1.903
5	3.471	2.993	2.413
6	3.844	3.251	2.526

ULV metering knob

Discharge rate in l/min

Knob setting	Blower tube angle		
	-30°	0°	+30°
0.5	0.054	0.041	0.043
0.65	0.087	0.077	0.064
0.8	0.138	0.117	0.098

10.4 Discharge rate with pressure pump (special accessory)

Standard metering knob

Discharge rate in l/min

Knob setting	Blower tube angle		
	-30°	0°	+30°
1	0.654	0.651	0.636
1.6	1.666	1.747	1.700
2	2.928	2.896	2.864

ULV metering knob

Discharge rate in l/min

Knob setting	Blower tube angle		
	-30°	0°	+30°
0.5	0.142	0.132	0.128
0.65	0.216	0.212	0.203
0.8	0.352	0.403	0.377

10.5 Checking metering unit

- ▶ Place the machine on the ground.
- ▶ Remove the baffle screen and pressure pump.
- ▶ Fill the container with water up to 10 liter mark.
- ▶ Set the metering knob to position 6.
- ▶ Start the machine.
- ▶ Hold the blower tube horizontally, run the engine at full throttle, spray the contents of the container down to the 5 liter mark and note the time taken.

The time required to spray 5 liters fluid should be between 140 and 170 seconds.

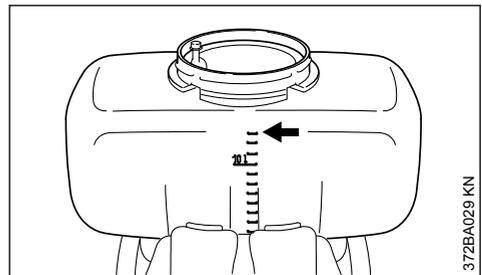
In case of deviations:

- ▶ Check the metering unit for contamination and clean it if necessary.
- ▶ Check engine setting and correct if necessary.

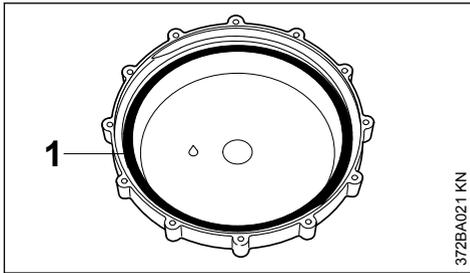
If there is no improvement, contact your dealer for assistance.

11 Filling the Container

- ▶ Stand the sprayer on a level surface.
- ▶ Close the stop cock.



- ▶ Fill up with thoroughly mixed spray solution – do not exceed 13 liter mark (arrow).



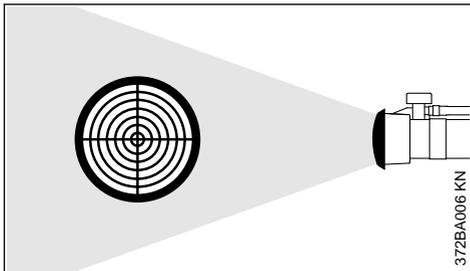
- ▶ The gasket (1) in the cap must always be lubricated with grease.
- ▶ Fit the cap and tighten it down firmly.

12 Mistblowing

- ▶ Stop cock must be fully open while mistblowing – do not vary the flow rate with the stop cock.

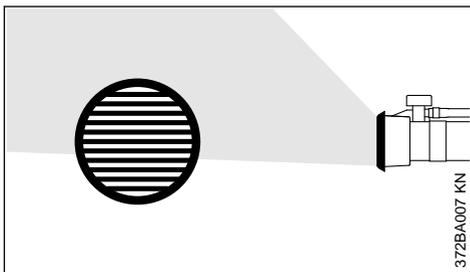
Different baffle screens enable the shape of the spray jet to be varied.

12.1 Conical Screen



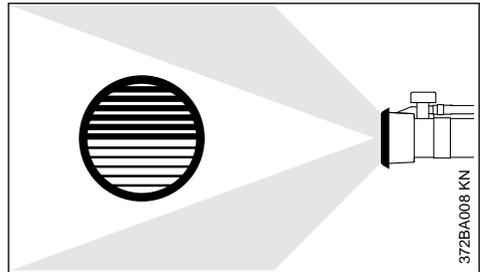
Spray solution is finely atomized – short, broad and dense spray mist.

12.2 Deflector Screen



Diverts spray jet at an angle – for under-leaf treatment of low-growing crops.

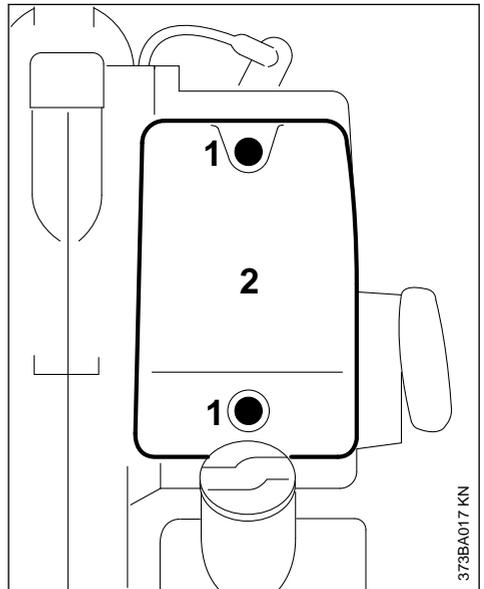
12.3 Dual Deflector Screen



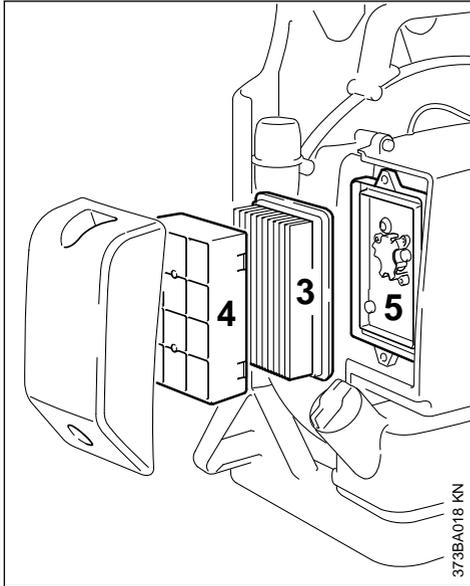
Splits the spray jet in two – allows two closely planted rows to be treated in one pass.

13 Cleaning the Air Filter

13.1 If there is a noticeable loss of engine power



- ▶ Turn the choke knob to **I**.
- ▶ Take out the screw (1) and remove the filter cover (2).



- ▶ Remove the main filter (3) from the cover and inspect it – if it is dirty or damaged, fit a new one.

Always install a new prefilter together with the new main filter.

- ▶ Take the prefilter (4) out of the filter cover.
- ▶ If prefilter is wet, dry it – then knock it out on the palm of your hand or blow it out with compressed air.

Always replace a damaged prefilter.

- ▶ Clean loose dirt from the filter cover and filter chamber.
- ▶ Install the main filter (3) and prefilter (4) in the filter cover.
- ▶ Fit the cover on the filter base (5) and tighten it down firmly.

14 Adjusting the Carburetor

The carburetor comes from the factory with a standard setting.

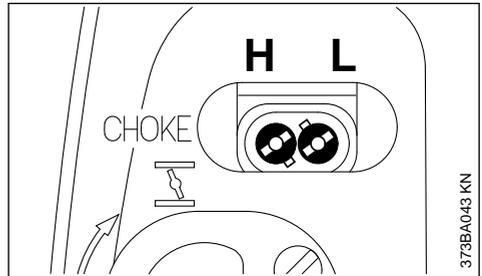
This setting provides an optimum fuel-air mixture under most operating conditions.

With this carburetor it is only possible to adjust the high speed and low speed screws within fine limits.

14.1 Standard Setting

- ▶ Shut off the engine.
- ▶ Check the air filter and clean or replace if necessary.

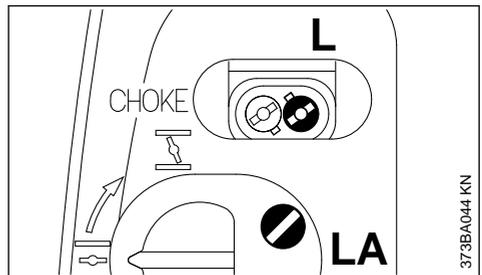
- ▶ Check the spark arresting screen (not in all models, country-specific) in the muffler and clean or replace if necessary.



- ▶ Carefully turn both adjusting screws counterclockwise as far as stop.
- ▶ The high speed screw (H) is 1/4 turn open.
- ▶ The low speed screw (L) is 1/4 turn open.

14.2 Adjusting Idle Speed

- ▶ Carry out the standard setting.
- ▶ Start and warm up the engine.



14.2.1 Engine stops while idling

- ▶ Turn the idle speed screw (LA) slowly clockwise until the engine runs smoothly.

14.2.2 Erratic idling behavior, engine stops even though setting of LA screw has been corrected, poor acceleration

Idle setting is too lean

- ▶ Turn the low speed screw (L) counterclockwise, no further than stop, until the engine runs and accelerates smoothly.

14.2.3 Erratic idling behavior

Idle setting is too rich

- ▶ Turn the low speed screw (L) clockwise, no further than stop, until the engine runs and accelerates smoothly.

It is usually necessary to change the setting of the idle speed screw (LA) after every correction to the low speed screw (L).

14.3 Fine Tuning for Operation at High Altitude

A slight correction of the setting may be necessary if engine does not run satisfactorily:

- ▶ Carry out the standard setting.
- ▶ Warm up the engine.
- ▶ Turn high speed screw (H) slightly clockwise (leaner) – no further than stop.

NOTICE

After returning from high altitude, reset the carburetor to the standard setting.

If the setting is too lean there is a risk of engine damage due to insufficient lubrication and overheating.

15 Spark Arresting Screen in Muffler

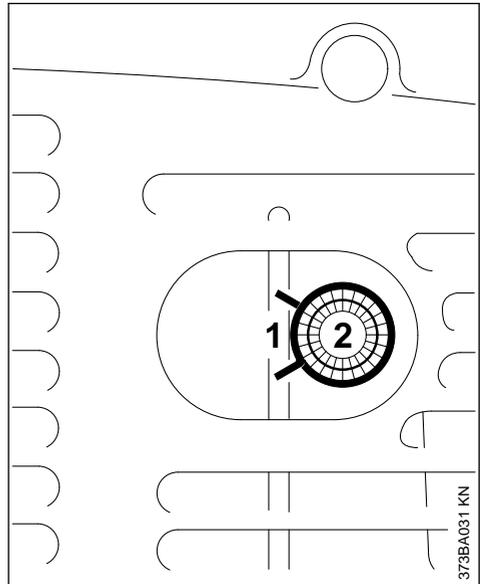


WARNING

To reduce the risk of fire caused by hot particles escaping from the machine, never operate the machine without a spark arresting screen, or with the spark arresting screen damaged. Do not modify the muffler or spark arresting screen.

NOTICE

According to the law or regulations in some countries or states, certain operations may only be carried out if a properly serviced spark arresting screen is provided.



If the engine power is decreasing or does not run smoothly at maximum RPM, check the spark arresting screen (not available in all versions) in the muffler.

! WARNING

Wait for the engine to cool down completely before performing this work.

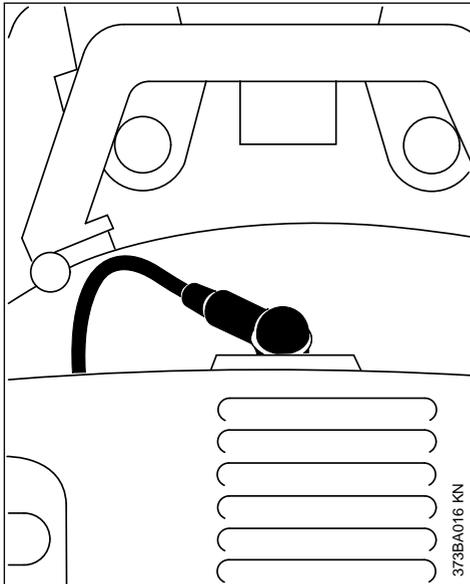
- ▶ Use suitable tool to squeeze ends of clip (1) together and then remove the clip.
- ▶ Pull the spark arresting screen (2) out of the muffler.
- ▶ Clean the spark arresting screen if necessary.
- ▶ Replace the spark arresting screen if it is damaged or heavily carbonized.

16 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".

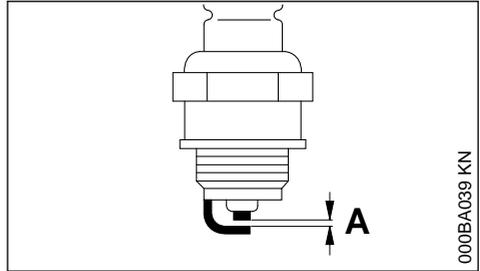
16.1 Removing the Spark Plug

- ▶ Move the stop switch to 0.



- ▶ Pull boot off the spark plug.
- ▶ Unscrew the spark plug.

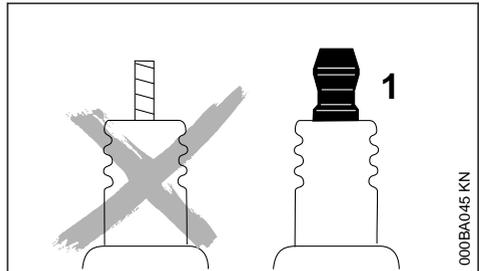
16.2 Checking the Spark Plug



- ▶ 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

Arcing may occur if the adapter nut (1) is loose or missing. Working in an easily combustible or explosive atmosphere may cause a fire or an explosion. This can result in serious injuries or damage to property.

- ▶ Use resistor type spark plugs with a properly tightened adapter nut.

16.3 Installing the spark plug

- ▶ Fit the spark plug by hand and screw it in
- ▶ Tighten spark plug with combination wrench
- ▶ Press the spark plug boot firmly onto the spark plug

17 Storing the Machine

- ▶ Store the machine in a dry, frost-free and secure location. Keep out of the reach of children and other unauthorized persons

17.1 If not used for periods of about 30 days or longer

- ▶ Drain and clean the fuel tank in a well ventilated area.
- ▶ Dispose of fuel properly in accordance with local environmental requirements.
- ▶ If a manual fuel pump is fitted: Press the manual fuel pump at least 5 times.

- ▶ Start the engine and run it at idling speed until it stops
- ▶ Thoroughly clean the machine, especially the cylinder fins and air filter
- ▶ Do not expose the solution container to direct sunlight for unnecessarily long periods. UV rays can make the container material brittle, which could result in leaks or breakage.

18 Maintenance and Care

The following intervals apply for 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	Annually	If faulty	If damaged	As required
Complete machine	Visual inspection (condition, leaks)	X		X						
	Clean		X							
Control handle	Function test	X		X						
Air filter	Clean							X		
	replace								X	
Manual fuel pump (if present)	check	X								
	Have repaired by a specialist dealer ²⁾								X	
Fuel pickup body in fuel tank	check							X		
	replace						X			X
Fuel tank	Clean					X				
Carburetor	Check idle speed	X		X						
	Readjust idle speed									X
Spark plug	Adjust electrode gap							X		
	Replace after every 100 hours of operation									
Intake port for cooling air	Visual inspection		X							
	Clean				X					
Spark arresting screen ¹⁾ in muffler	Check if installed	X								
	Check or replace ²⁾						X			
All accessible screws, nuts and bolts (not adjusting screws)	Tighten									X
Solution container with hose	Visual inspection (condition, leaks)	X								
	Clean		X							
Strainer in solution container	Clean or replace								X	X

The following intervals apply for 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	Annually	If faulty	If damaged	As required
Output regulating valve	check					X		X		
Anti-vibration elements	check	X						X		X
	Have replaced by servicing dealer ²⁾								X	
Air intake screen	check	X		X						
	Clean									X
Safety information label	replace								X	
¹⁾ present only in some countries										
²⁾ STIHL recommends STIHL dealers										

19 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.

19.1 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.

20 Parts Subject to Wear and Tear

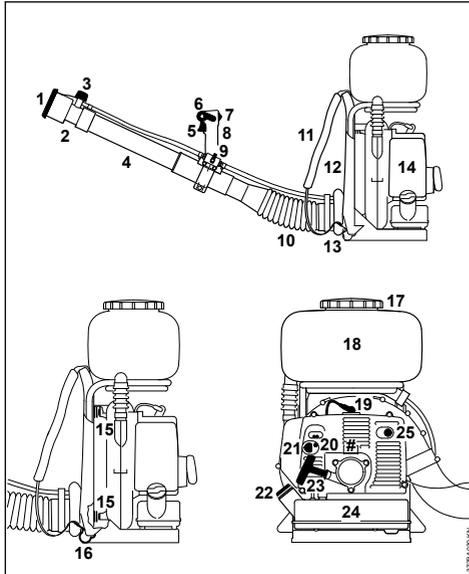
20.1 Parts Subject to Wear and Tear

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:

- Filters (air, fuel)

- Rewind starter
- Spark plug
- Damping elements of anti-vibration system

21 Main Parts



- 1 Baffle screen
- 2 Standard nozzle
- 3 Metering knob
- 4 Extension tube
- 5 Throttle trigger
- 6 Setting lever
- 7 Stop switch
- 8 Control handle
- 9 Stop cock
- 10 Pleated hose
- 11 Harness
- 12 Backplate
- 13 Back padding
- 14 Air filter
- 15 Antivibration elements
- 16 Strap hook
- 17 Container cap
- 18 Container
- 19 Spark plug boot
- 20 Carburetor adjusting screws
- 21 Choke knob

22 Fuel filler cap

23 Starter grip

24 Fuel tank

25 Muffler

Serial number

22 Specifications

22.1 Engine

Single cylinder two-stroke engine

Displacement:	56.5 cc
Bore:	46 mm
Stroke:	34 mm
Engine power to ISO 7293:	2.6 kW (3.5 bhp)
Idle speed:	3,100 rpm
Engine/blower speed during operation:	7,500 rpm

22.2 Ignition System

Electronic magneto ignition

Spark plug (resistor type): Bosch WSR 6 F,
NGK BPMR 7 A
0.5 mm

Electrode gap:

22.3 Fuel System

All position diaphragm carburetor with integral fuel pump

Fuel tank capacity: 1500 cc (1.5 l)

22.4 Blowing Performance

Air velocity:	101 m/s
Max. air flow rate without blower tube	1260 m ³ /h
Air flow rate with nozzle:	750 m ³ /h

22.5 Spraying Attachment

Tank volume:	13 l
Quantity left in container:	0.1 l
Mesh size of filler strainer:	1 mm
Discharge rate (without pressure pump, infinitely variable):	0.257 – 3.844 l/min
Spraying distance, horizontal:	12 m

22.6 Weight

Dry:	11.1 kg
Max. operating weight (fueled and filled)	25.2 kg

22.7 Sound and Vibration Levels

When determining sound and vibration levels, idling and the nominal maximum engine speed are taken into account in a ratio of 1:6.

For further details concerning compliance with the Employers' Directive on Vibration 2002/44/EC, see www.stihl.com/vib/.

22.8 Sound pressure level L_{peq} in accordance with DIN 11201

SR 420: 101 dB(A)

22.9 Sound power level L_{weq} in accordance with DIN 3744

SR 420: 113 dB(A)

22.10 Vibration level $a_{hv,eq}$ in accordance with ISO 8662

SR 420: **Handle, right**
2.3 m/s²

The K-factor in accordance with Directive 2006/42/EC is 2.0 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/s² for the vibration level.

22.11 REACH

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

For information on compliance with the REACH regulation (EC) No. 1907/2006 see

www.stihl.com/reach

22.12 Exhaust Emissions

The CO₂ value measured in the EU type approval procedure is specified at

www.stihl.com/co2

in the product-specific technical data.

The measured CO₂ value was determined on a representative engine in accordance with a standardized test procedure under laboratory conditions and does not represent either an explicit or implied guarantee of the performance of a specific engine.

The applicable exhaust emission requirements are fulfilled by the intended usage and maintenance described in this User Manual. The operating license shall be void if the engine is modified in any way.

23 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.

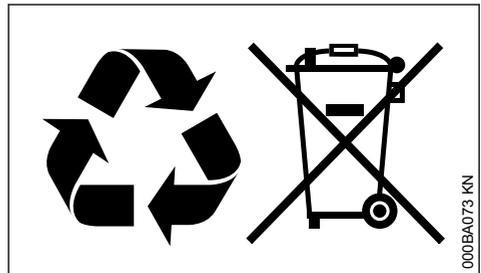
STIHL recommends the use of original STIHL replacement parts.

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).

24 Disposal

Contact the local authorities or your STIHL servicing 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.

25 EC Declaration of Conformity

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

declares under our sole responsibility that

Designation: Mistblower
Make: STIHL
Series: SR 420
Serial identification number: 4203
Displacement: 56.5cm³

conforms to the relevant provisions of Directives 2011/65/EU, 2006/42/EC and 2014/30/EU and has been developed and manufactured in compliance with the following standards in the versions valid on the date of production:

ISO 12100, EN 55012, EN 61000-6-1,
EN ISO 28139

Technical documents deposited at:

ANDREAS STIHL AG & Co. KG
Produktzulassung

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

Done at Waiblingen, 03.02.2020

ANDREAS STIHL AG & Co. KG

pp



Dr. Jürgen Hoffmann

Director Product Certification & Regulatory
Affairs

CE

www.stihl.com



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