

**STIHL®**

# STIHL SR 420

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



SR 420

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## Guide to Using this Manual

### Pictograms

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

### Symbols in text

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#### 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

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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



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



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 model 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 this product.

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

When the power tool is not in use, put it in a place where 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 unit 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.

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

Operate the sprayer only if it is complete and properly assembled.

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

### Physical Condition

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To operate this 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. To reduce health risks, STIHL recommends that persons with pacemakers consult their physician and the pacemaker manufacturer before operating this power tool.

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

## 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 itself. Never attempt to modify the product in any way since this may result in accidents or damage to the product.

## Accessories and Spare 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 a servicing dealer. Use only high quality parts and accessories in order to avoid the risk of accidents and damage to the unit.

STIHL recommends the use of genuine STIHL replacement parts. 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.

## Clothing and Equipment

Wear proper protective clothing and equipment when using, filling and cleaning the sprayer. Follow the chemical manufacturer's instructions 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 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 (e.g. with a hair net, cap, hard hat, etc.).



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

Do not wear sandals or go barefoot.

## ! 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 suitable respirator.

Wear "personal" noise protectors – for example, ear protectors.

Inhaling 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 directions for use of the plant protection product and all applicable local safety regulations, standards and ordinances.



Wear impermeable gloves resistant to plant control chemicals.

## Handling of Chemicals

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

Observe legal requirements for handling plant control chemicals.

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

## English

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

Keep instructions 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.

### 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 in 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.

### Filling the Solution Container

- Stand the sprayer on a level surface – do not fill the solution container above the maximum mark.
- To **reduce the risk of injury**, do not fill the unit 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.

### Application

- 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 control 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 sprayer, never operate the sprayer with:

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

### Storage

- During work breaks, do not leave the unit in the hot sun or near any heat source.
- Do not store spray solution in the sprayer 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 sprayer in a place secured against unauthorized use.
- Store the spray solution and sprayer in a dry place protected from frost.

### Disposal

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

- Dispose of residual plant protection products and used containers in accordance with local waste disposal regulations.

### Transporting the Unit

Always stop the engine.

Transporting in a vehicle:

- Properly secure your power tool to prevent turnover, fuel spillage and damage.
- The container must be empty and clean.

### 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.



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



After fueling, tighten down the screw-type fuel 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.

### 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, 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.
- The setting lever must move easily to **STOP** or **0**

- Throttle trigger must move freely and spring back to the idle position when released.
- Check that the spark plug boot is secure – a loose boot may cause arcing that could ignite combustible fumes **and cause a fire**.
- Check the fuel system for leaks.
- Check 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**, do not operate the unit if it is not properly assembled and in good condition.

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

### 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.

Start the engine as described in the instruction manual.

Place the power tool on level ground, make sure you have secure footing, hold the power tool securely.

## English

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 must leave the work area immediately after you have put the power tool on your back.

### Dusting and Spreading Attachment (Special Accessory)

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

Observe legal requirements for handling the chemicals.

Observe the directions for use or the label of the plant protection product.

#### Application

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.

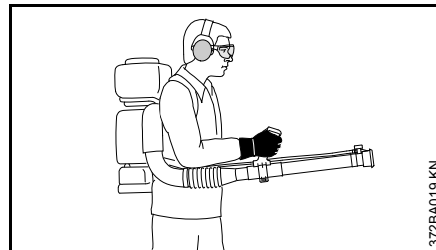
To reduce the risk of sparking, explosion or fire, make sure the antistatic system is completely and properly mounted to the machine. It consists of a conductive wire in the spray tube connected to a metal chain. The metal chain must make contact with a conductive surface to dissipate electrostatic charges.

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 Spreading Attachment".

### Holding and Controlling the Power Tool



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.

Walk slowly forwards as you work – observe the nozzle outlet at all times – do not walk backwards – **risk of stumbling.**

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

### During Operation



**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**.

Throwing off power tool in an emergency:

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

Never leave a running power tool unattended.

**Take special care in slippery conditions** – damp, 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.

**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.

Never work on a ladder or any other insecure support.

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

To reduce the **risk of electrocution**, never work 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.



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 operate the power tool in enclosed or poorly ventilated locations.

**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.

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.

#### **After Finishing Work**

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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. **To reduce the risk of fire**, do not put it down near easily combustible materials (e.g. wood chips, bark, dry grass, fuel).

Check all parts of the unit for leaks.

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

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

#### **Vibrations**

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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).

## English

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.

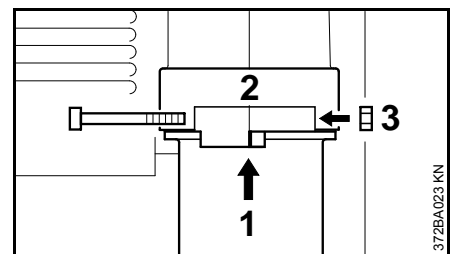
Vibration behavior is influenced by the condition of the AV elements – check the AV elements at regular intervals.

## Assembling the Unit



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

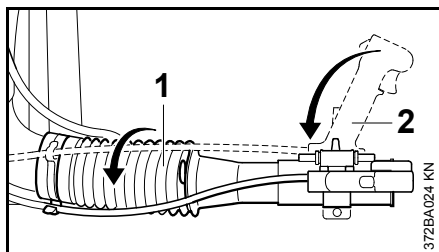
### Mounting the Elbow



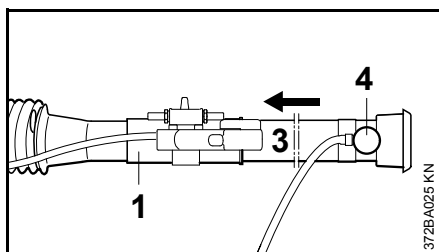
The combination wrench and carburetor screwdriver are stowed on the underside of the machine.

- 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.

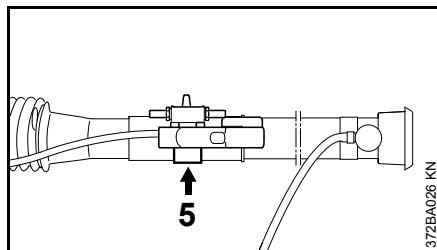
### Mounting the Extension Tube



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

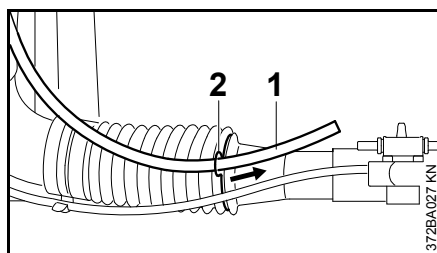


- Push the extension tube (3) into the pleated hose (1) as far as it will go.
- The metering unit (4) must point in the same direction as the control handle.

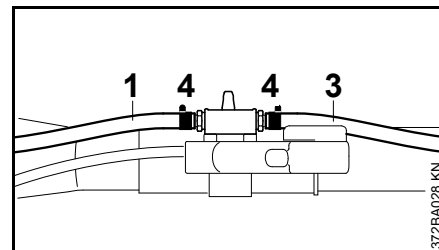


- Tighten down the clamp screw (5) (see "Adjusting the Control Handle").

### Fitting the Liquid Hose

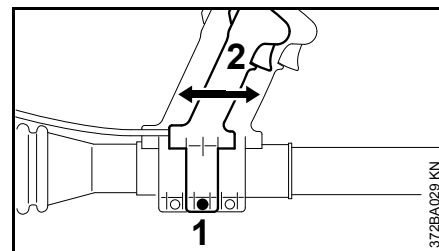


- Secure liquid hose (1) from the container to the pleated hose with the retainer (2).



- 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.

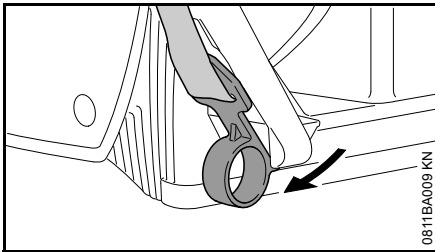
### Adjusting the Control Handle



- 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).

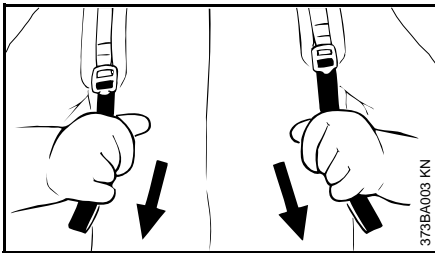
## Harness

### Attaching the Harness



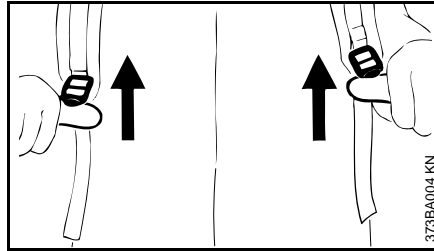
- Attach strap hook to the backplate.

### Adjusting the Harness



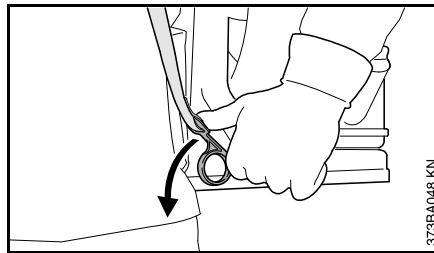
- Pull the ends of the straps downward to tighten the harness.

### Loosening the Harness



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

### 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.

## 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.

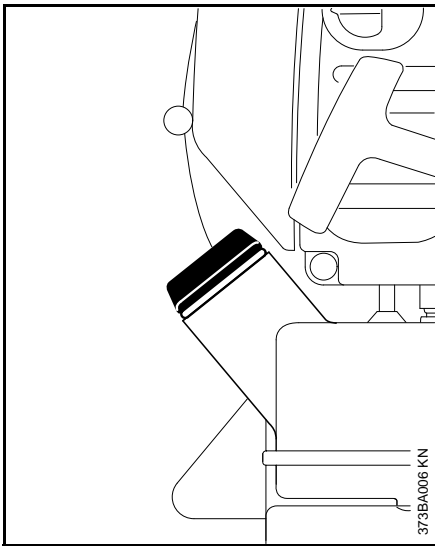
- Clean the fuel tank and canister from time to time.

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 filler cap is facing up.

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

### 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

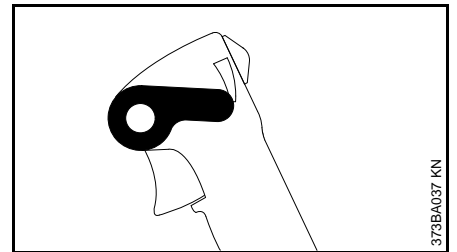
After fueling, tighten down the filler cap as securely as possible by hand.

## 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.



- Move the setting lever to the idle position.

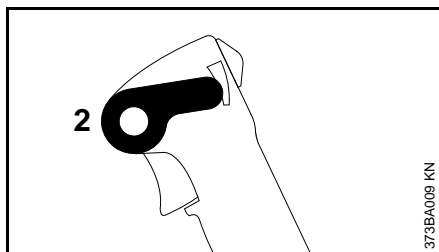
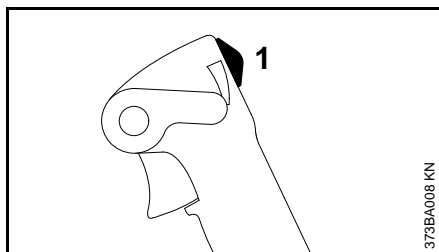
The throttle cable disconnects itself from the throttle trigger if the engine is not shut off in the idle position.

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

## Starting / Stopping the Engine

### Starting the Engine

- Observe safety precautions.

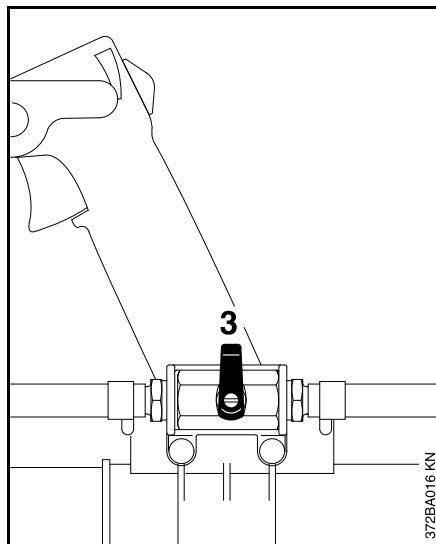


- Slide the stop switch (1) to →
- Move setting lever (2) to center position – starting throttle.

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

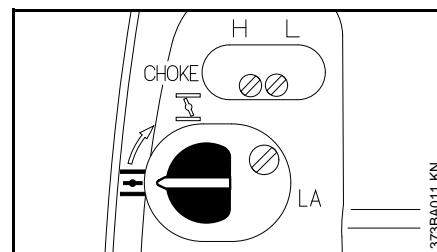
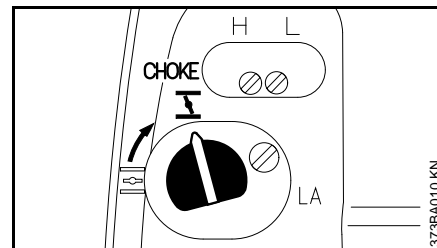
Set the lever to the idle position before switching off the engine.

### Before Starting



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

### If the engine is cold

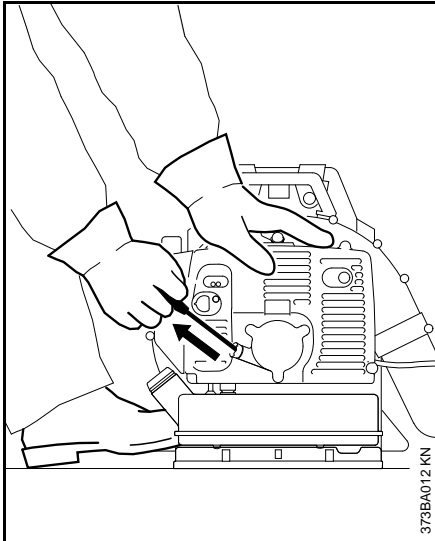


- Turn the choke knob to **F**.

### If the engine is warm

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

## 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.

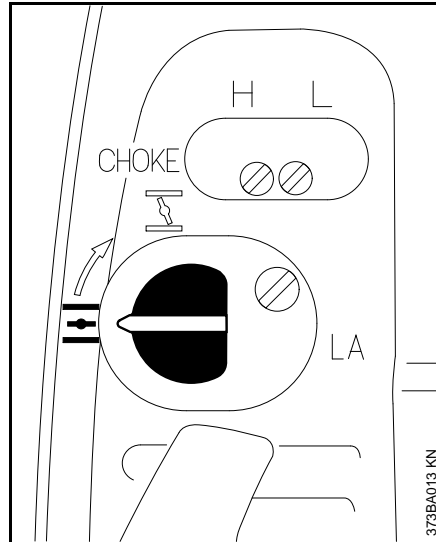


### NOTICE


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



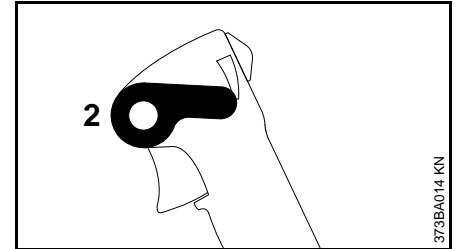
### If the engine is **cold**:

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

### If the engine is **warm**:

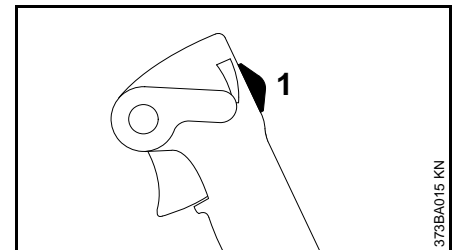
- continue cranking until the engine runs.

## As Soon as Engine Runs



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

## Stopping the Engine



- Move the stop switch (1) to 

## Other Hints on Starting

### 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.



**If engine does not start**

If you did not turn the choke knob to  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  and set the choke knob to  – even if the engine is cold.
- Now start the engine.

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

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

## Calculating Required Quantity of Solution

### Determining surface area (m<sup>2</sup>)

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:

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

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

### 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:

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

### Determining quantity of solution

The quantity of solution required is calculated as follows:

$$\frac{T_W}{K} \times 100 = T_B$$

$T_W$  = Quantity of active ingredient in l

$K$  = Concentration in %

$T_B$  = Required quantity of solution in l

**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:

$$\frac{0.144 \text{ l}}{0.1 \%} \times 100 = 144 \text{ l}$$

### Determining walking speed

Carry out a trial run with the machine fueled and the container filled with water. Operate the spray tube (swing it

## English

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:

$$\frac{10 \text{ m}}{1 \text{ min}} = 10 \text{ m/min}$$

### Determining discharge rate

The setting of the metering unit is calculated as follows:

$$\frac{V_a(l) \times v_b(m/min) \times b(m)}{A(m^2)} = V_c(l/min)$$

$V_a$  = 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:

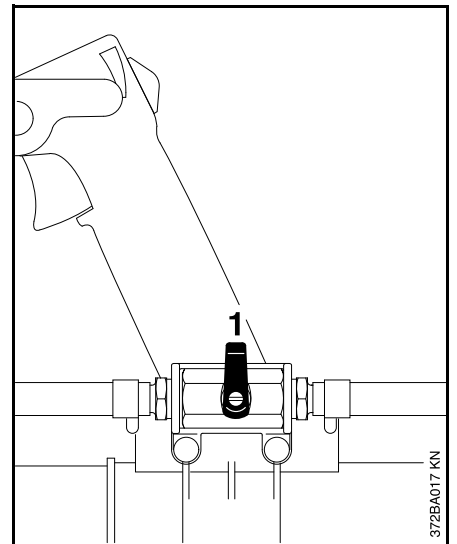
$$\frac{144 \text{ l} \times 10 \text{ (m/min)} \times 4 \text{ m}}{3,600 \text{ m}^2} = 1.6 \text{ l/min}$$

Hectares (ha) have to be converted into  $\text{m}^2$  ( $\text{ha} \times 10,000 = \text{m}^2$ ).

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

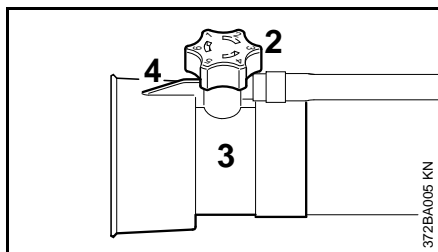
## Metering Unit

### 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.

## 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.

### Discharge rate without pressure pump

Spray tube 0° to -30° to the horizontal

Knob position	Discharge rate (l/min) (mean value)
1	0.12
2	0.44
3	0.86
4	1.27
5	1.58
6	1.81

### Discharge rate without pressure pump, with ULV nozzle

Spray tube 0° to -30° to the horizontal

Knob position	Discharge rate (l/min) (mean value)
0.5	0.03
0.65	0.07
0.8	0.10

### Discharge rate with pressure pump (special accessory)

Spray tube horizontal (0°)

Knob position	Discharge rate (l/min) (mean value)
1.0	0.64
1.6	1.88
2.0	3.13

### Discharge rate with pressure pump (special accessory), with ULV nozzle

Spray tube horizontal (0°)

Knob position	Discharge rate (l/min) (mean value)
0.5	0.10
0.65	0.20
0.8	0.42

### 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 spray 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.

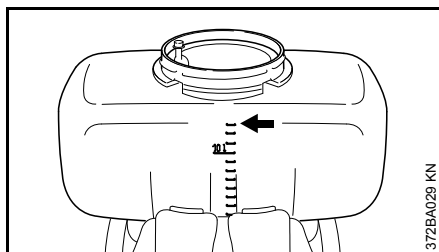
In case of deviations:

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

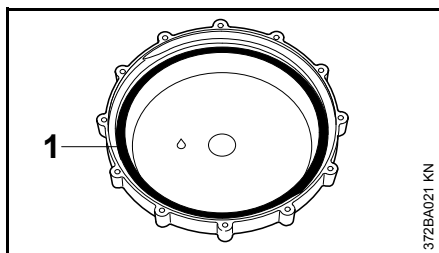
If there is no improvement, contact your dealer for assistance.

### 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**).



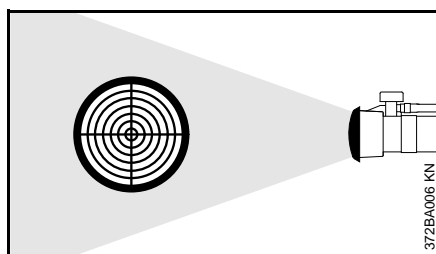
- The gasket (1) in the cap must always be lubricated with grease.
- Fit the cap and tighten it down firmly.

### Mistblowing

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

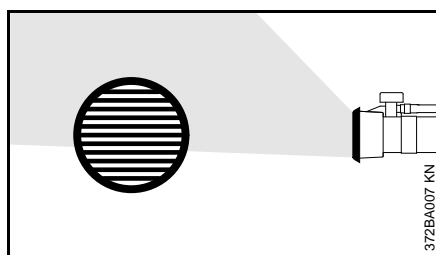
Different baffle screens enable the shape of the spray jet to be varied.

#### Conical Screen



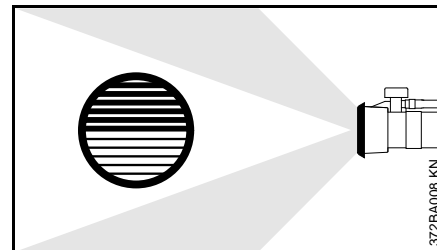
Spray solution is finely atomized – short, broad and dense spray mist.

#### Deflector Screen



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

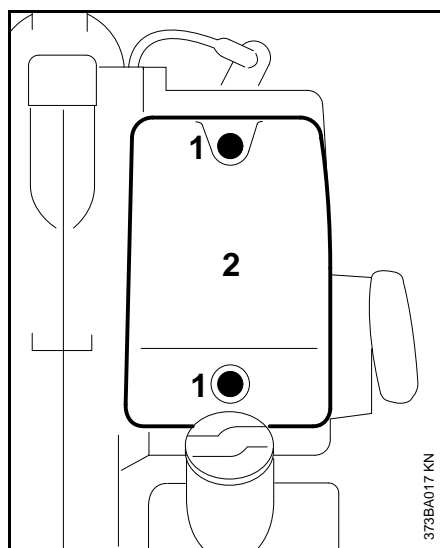
#### Dual Deflector Screen



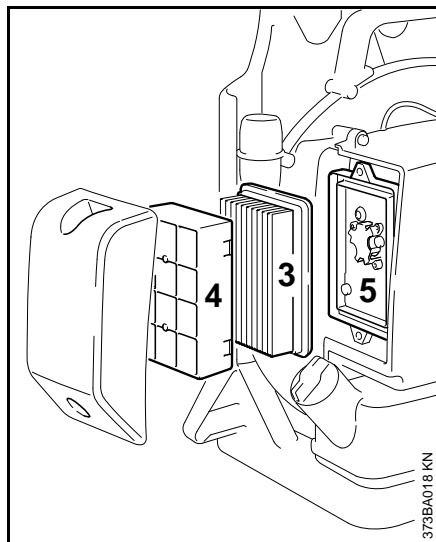
Splits the spray jet in two – allows two closely planted rows to be treated in one pass.

## Cleaning the Air Filter

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.

## Adjusting the Carburetor

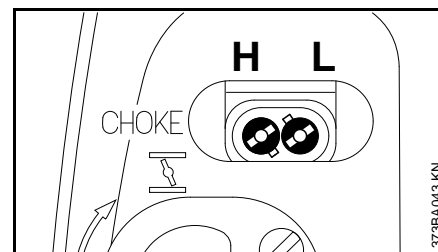
The carburetor comes from the factory with a standard setting.

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.

### Standard Setting

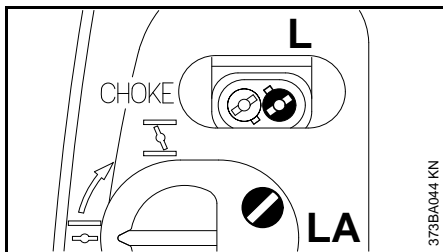
- Shut off the engine.
- Check the air filter and clean or replace if necessary.
- Check the spark arresting screen (not in all models, country-specific) in the muffler and clean or replace if necessary.



- 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.

### Adjusting Idle Speed

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



#### Engine stops while idling

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

#### 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.

#### 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).

### 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.

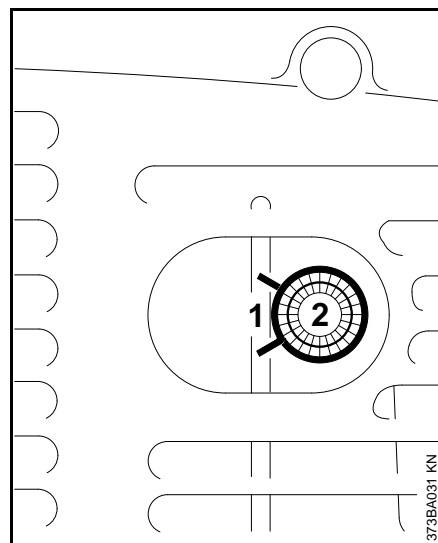


#### NOTICE

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.

### Spark Arresting Screen in Muffler



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



#### WARNING

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

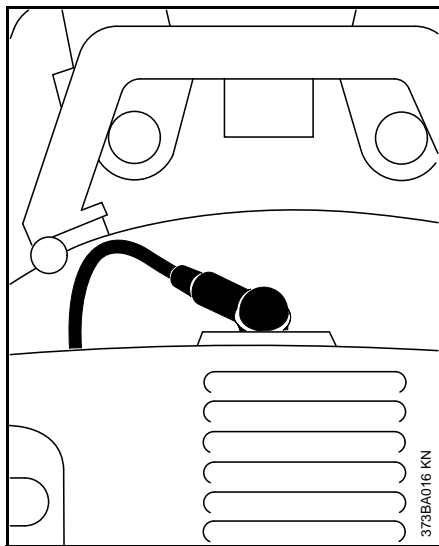
- Use suitable tool to squeeze ends of clip (1) together and then lift the clip away.
- Pull the spark arresting screen (2) out of the muffler.
- Clean the spark arresting screen if necessary.
- If the spark arresting screen is damaged or heavily carbonized, fit a new one.

## 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".

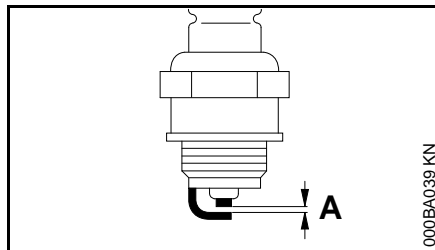
### Removing the Spark Plug

- Move the stop switch to 0.



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

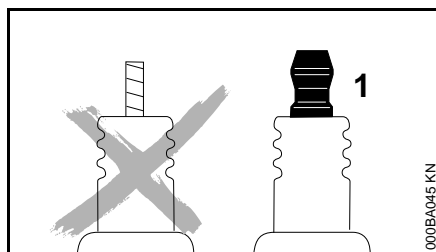
### Checking the Spark Plug



- 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

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 result in serious injuries or damage to property.

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

### 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

## Storing the Machine

- Store the machine in a dry, high or locked location sheltered from frost – out of the reach of children and other unauthorized persons.

### 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.
- Thoroughly clean the machine – pay special attention to the cylinder fins and air filter.
- Do not expose the container to direct sunlight for unnecessarily long periods. UV rays can make the container material brittle, which could result in leaks or breakage.



## Maintenance and Care

The following intervals apply to normal operating conditions only. If your daily working time is longer or operating conditions are difficult (very dusty work area, etc.), shorten the specified intervals accordingly.		before starting work	after finishing work or daily	after each refueling stop	weekly	monthly	every 12 months	if problem	if damaged	as required
Complete machine	Visual inspection (condition, leaks)	X		X						
	Clean		X							
Control handle	Check operation	X		X						
Air filter	Clean							X		
	Replace								X	
Manual fuel pump (if fitted)	Check	X								
	Have repaired by servicing dealer <sup>2)</sup>								X	
Pickup body in fuel tank	Check							X		
	Replace						X			X
Fuel tank	Clean					X				
Carburetor	Check idle adjustment	X		X						
	Readjust idle									X
Spark plug	Readjust electrode gap							X		
	Replace after every 100 operating hours									
Cooling inlets	Visual inspection		X							
	Clean				X					
Spark arresting screen <sup>1)</sup> in muffler	Check									X
	Clean or replace							X		
All accessible screws and nuts (not adjusting screws)	Retighten									X
Container with hose	Visual inspection (condition, leaks)	X								
	Clean		X							
Strainer in container	Clean or replace								X	X
Metering unit	Check					X		X		

English

The following intervals apply to normal operating conditions only. If your daily working time is longer or operating conditions are difficult (very dusty work area, etc.), shorten the specified intervals accordingly.		before starting work	after finishing work or daily	after each refueling stop	weekly	monthly	every 12 months	if problem	if damaged	as required
Anti-vibration elements	Check	X						X		X
	Have replaced by servicing dealer <sup>2)</sup>								X	
Air intake screen	Check	X		X						
	Clean									X
Safety labels	Replace								X	

1) not in all versions, market-specific

2) STIHL recommends an authorized STIHL servicing dealer.

## 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.

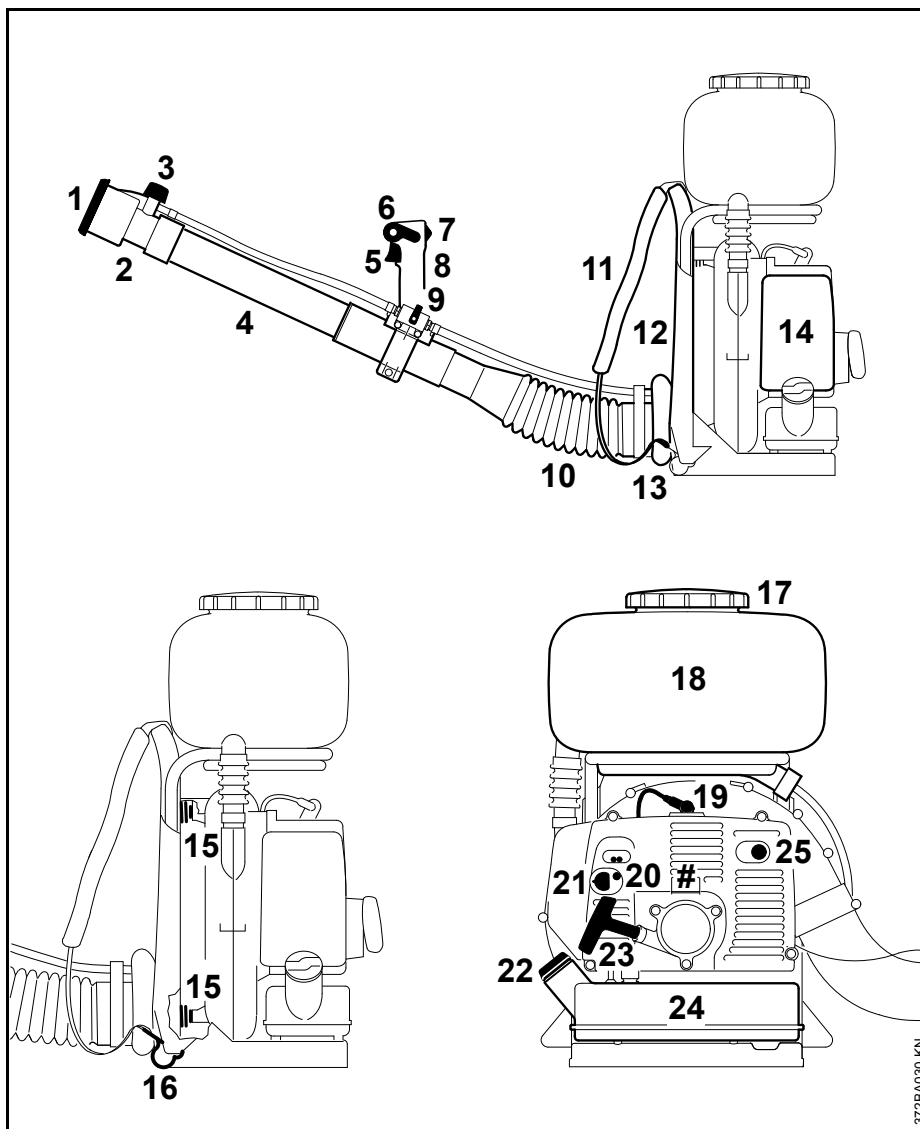
## Parts Subject to Wear and Tear

### 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

## 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

372BA030 KN

## Specifications

### 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

### Ignition System

Electronic magneto ignition

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

### Fuel System

All position diaphragm carburetor with integral fuel pump

Fuel tank capacity:	1500 cc (1.5 l)
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### Blowing Performance

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

### Spraying Attachment

Container capacity:	13 l
Quantity left in container:	0.1 l
Mesh size of filler strainer:	1 mm
Discharge rate (without pressure pump, infinitely variable):	0.12 – 1.81 l/min
Spraying distance, horizontal:	12 m

### Weight

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

### Noise and Vibration Data

Noise and vibration data are measured at idling and maximum rated speed in a ratio of 1:6.

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

### Sound pressure level $L_{peq}$ to DIN 11201

SR 420:	101 dB(A)
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### Sound power level $L_{wep}$ to DIN 3744

SR 420:	113 dB(A)
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### Vibration measurement $a_{hv,eq}$ to ISO 8662

SR 420:	Handle, right 2.3 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.

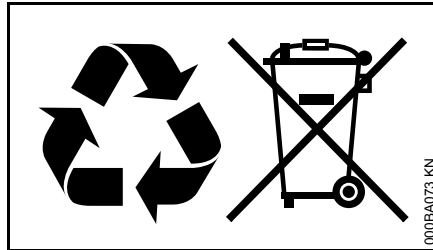
When repairing the machine, only use replacement parts which have been approved by STIHL for this power tool or are technically identical. Only use high-quality replacement parts in order to avoid the risk of accidents and damage to the machine.

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

Germany

confirms that the product described below

Category:	Sprayer
Make:	STIHL
Type:	SR 420
Serial identification:	4203
Displacement:	56.5 cc

conforms to the relevant requirements of the Directives 2006/42/EC and 2004/108/EC (up to 19.04.2016), 2014/30/EU (from 20.04.2016) and has been developed and manufactured in compliance with the following standards in the versions valid at the time of production:

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

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, 11.03.2016

ANDREAS STIHL AG & Co. KG

A handwritten signature in black ink that reads "Thomas Elsner". The signature is written in a cursive style with a large initial 'T' and 'E'.

Thomas Elsner

Director Product Management and  
Services

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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