STIHL GS 461



2 - 28 Instruction Manual

HSS2138 (J02A)

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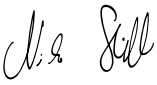
Dear Customer,

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 Image Symbols

The meanings of the image symbols on the tool are explained in this manual.

Depending on the model concerned, the following image symbols may be on your machine.



Fuel tank; fuel mixture of gasoline and engine oil



Direction of chain rotation



Tension diamond abrasive chain



Operate decompression valve



Water connection, shut-off cock

1.2 Symbols in text

WARNING

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

NOTICE

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

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.

Original Instruction Manual
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2 Safety Precautions and Working Techniques



Because the chain of a concrete cutter runs at very high speeds, special safety precautions must be observed to reduce the risk of personal injury.



It is important 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 never used a power tool before: Have your dealer or other experienced user show you how to operate your machine – or attend a special course to learn how to operate it.

Minors should never be allowed to use the machine – except for apprentices over the age of 16 when working under supervision.

Children, animals and bystanders must remain at a distance.

When not using the machine, it must be laid down in such a way that it does not endanger anyone. Ensure that the machine cannot be used without authorization.

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

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

Anyone operating the machine must be well rested, in good physical health and in good mental condition.

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

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. STIHL recommends that persons with pacemakers consult their physician and the pacemaker manufacturer to reduce any health risk.

Anyone who has consumed alcohol or drugs or medicines affecting their ability to react must not operate a power tool.

To reduce the risk of accidents or injury, put off the work in poor weather conditions (rain, snow, ice, wind).

The machine may only be used for cutting.

The machine must not be used for any other purposes – **risk of accidents!**

It is not suitable for cutting wood or wooden objects.

Asbestos dust is extremely toxic - the machine must therefore **never be used to cut asbestos!**

Only use tools, guide bars, diamond abrasive chains or accessories which have been approved by STIHL for this machine or which are technically equivalent. If you have any questions in this respect, consult your dealer. Use only high quality parts and accessories. in order to avoid the risk of accidents and damage to the machine.

STIHL recommends the use of genuine STIHL guide bars, diamond abrasive chains, chain sprockets and accessories. They are specifically designed to match the product and meet your performance requirements.

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

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

2.1 Clothing and equipment

Wear proper protective clothing and equipment.



Clothing must be sturdy but allow complete freedom of movement. Wear close-fitting clothes such as a boiler suit, not a loose jacket.

Do not wear garments that could get caught in moving parts of the machine – such as scarves, neckties, jewelry. Tie up and confine long hair above your shoulders.



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

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 face protection and make sure it is a good fit. Face protection alone is not sufficient to protect the eyes.

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

Wear a safety hard hat where there is a danger of head injuries from falling objects.

Dust (e.□g., crystalline material from the object being cut), fumes and smoke may be produced while cutting - **health hazard!**

Always wear a **dust mask** if dust is generated.

If fumes or smoke are anticipated (e. g., when cutting composite materials), wear **respiratory protection**.



Wear sturdy protective gloves made of a resistant material (e. g. leather).

STIHL can supply a comprehensive range of personal protective equipment.

2.2 Transporting the machine

Always stop the engine and attach the chain scabbard.

Carry the machine only by the handlebar – guide bar towards the rear – with the hot muffler facing away from the body.

To **avoid serious burn injuries**, avoid touching hot parts of the machine, especially the surface of the muffler.

By vehicle: When transporting in a vehicle, properly secure your machine to prevent turnover, damage and fuel spillage.

2.3 Refueling



Gasoline is highly flammable – keep away from fire or flame – 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 avoid fuel spillage.

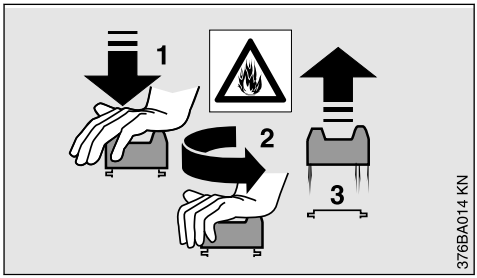
Only refuel the machine in a well ventilated place. If fuel has been spilled, immediately clean the machine – do not allow your clothes to be splashed with fuel. If that happens, change your clothes at once.

Dust may collect on the engine unit, particularly around the carburetor. If dust gets mixed with fuel – risk of fire. For this reason, ensure that the dust is always removed.



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

2.3.1 Bayonet-type fuel cap



Never use a tool to open or close the bayonet-type fuel cap. This could damage the cap and cause fuel to leak out.

Close the bayonet-type fuel cap carefully after refueling.

2.4 Diamond abrasive chain

The diamond abrasive chain, guide bar and chain sprocket must match each other and your concrete cutter.

Use only approved diamond abrasive chains. If unauthorized chains are used, aggressive cutting behavior cannot be ruled out. This may lead to uncontrolled and exceedingly dangerous reaction forces (kickback) in the machine – **risk of fatal injuries!**

Only use diamond abrasive chain for the specified materials, observe diamond abrasive chain codes.

Always cut with water.

Before fitting used diamond abrasive chains, check that they are not cracked, chipped, check

also that there are no damaged or missing segments, signs of overheating (discoloration).

Never use diamond abrasive chains that are cracked or have chipped segments. contact your servicing dealer.

2.5 Before starting

Check that concrete cutter is properly assembled and in good condition – refer to appropriate chapters in the User Manual:

- 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 commissioning
- Check operation of front hand guard
- Check the chain sprocket
- Sprocket nose moves easily
- Correctly mounted guide bar
- The diamond abrasive chain must be suitable for the material to be cut. It must be in good condition and fitted correctly (direction of running)
- Correctly tensioned diamond abrasive chain
- Smooth action of throttle trigger and throttle trigger lockout – throttle trigger must return automatically to idle position
- Master control lever can be moved to **STOP** or **0**
- Check that the spark plug boot is secure – a loose boot may cause arcing that could ignite combustible fumes **and cause a fire!**
- Never attempt to modify the controls or safety devices
- Keep the handles dry and clean, free from oil and dirt – important for safe control of the concrete cutter

The concrete cutter should only be used if it is in full working order – **risk of accident!**

2.6 Starting the engine

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

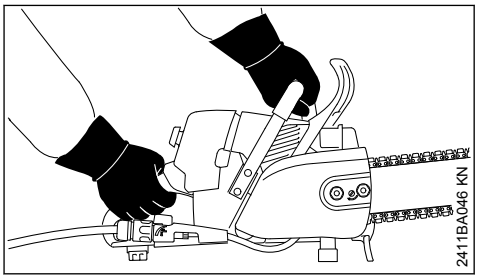
The machine may only be used on level ground. Ensure a firm and secure footing and hold the machine firmly. The diamond abrasive chain must not touch any objects or the ground and must not be in the cut, because it may begin to rotate when the machine is started.

The machine is operated by a single person only – do not allow any person to stay within the working area – nor with starting.

Do not drop-start the power tool – start the engine as described in the user manual.

Before starting, open the shut-off valve completely and ensure a supply of water to the diamond abrasive chain – do not allow diamond abrasive chain to run dry.

2.7 Holding and guiding the machine



Always hold the machine **firmly with both hands:** Right hand on the rear handle – even if you are left-handed. To ensure safe control, wrap your fingers tightly around both handles.

The object to be cut off has to be firmly supported. Always guide the machine towards the workpiece – never the other way round.

2.8 While working

Make sure you always have good balance and secure footing.

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

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

Use extreme caution with openings, recesses, etc., someone could be standing behind them – look beforehand.

Never leave a running machine unattended.

When the engine is running: The diamond abrasive chain continues to run for some time after the throttle trigger has been released – **Risk of injury due to coasting effect!**

Beware of **slipping** on ice, water, snow or uneven ground!

Don not work while standing on a ladder – not on an insecure support – not over your shoulder height – not with one hand only – **risk of accident!**

Keep clear the working area – bear in mind obstacles, holes and pitches.

Do not work alone – keep within calling distance of others in case help is needed.

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!**

Keep easily combustible materials away from hot exhaust gases and hot mufflers – **risk of fire!** Mufflers with catalytic converters can become especially hot.



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 run the engine indoors or in poorly ventilated locations, even if your model is equipped with a catalytic converter.

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

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!**

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.

Examine the diamond abrasive chain periodically at short intervals, check that they are not cracked, chipped, check also that there are no damaged or missing segments, signs of overheating (discoloration).

Never use diamond abrasive chains that are cracked or have chipped segments. contact your servicing dealer.

In the event of noticeable changes in cutting behavior (e. g., increased vibration, reduced cutting performance), stop work and eliminate the causes of the changes.

– Switch off the engine and wait until the diamond abrasive chain is stationary
– Check condition and correct tension of diamond abrasive chain
– Ensure that the cutting blades are sharp

Never touch the diamond abrasive chain when the motor is running. If the diamond abrasive chain becomes jammed by an object, switch off the engine immediately before attempting to remove the object – **risk of injury!**

To change the diamond abrasive chain, switch off the engine – **risk of injury!**

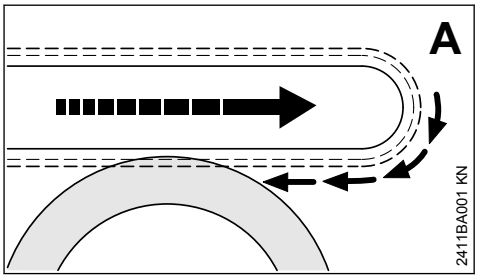
If your power tool is subjected to unusually high loads for which it was not designed (e.g. heavy impact or a fall), always check that it is in good condition before continuing work – see also "Before Starting". Check in particular that the fuel system has no leaks and the safety equipment is fully operative. Do not continue operating your power tool if it is damaged. In case of doubt, contact a dealer.

Check for correct idling, so that the diamond abrasive chain stops moving when the throttle trigger is released. Check and correct the idle speed setting at regular intervals. Have the machine repaired by a STIHL servicing dealer if the diamond abrasive chain continues to run nevertheless.

2.9 Reactive forces

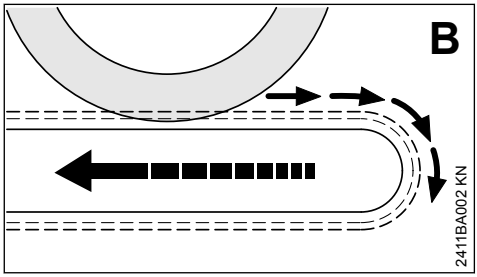
The most frequently occurring reactive forces are pull-in and pushback.

2.9.1 Pull-in (A)

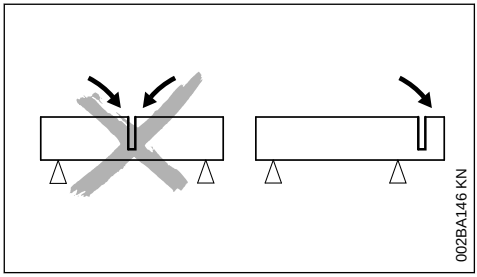


When the diamond abrasive chain on the bottom of the guide bar – overbucking – is jammed or encounters a solid object, the concrete cutter may suddenly be drawn forward to the workpiece.

2.9.2 Pushback (B)



When the diamond abrasive chain on the top of the guide bar – underbucking – is jammed or encounters a solid object, the concrete cutter may suddenly be pushed straight back toward the operator



– Do not allow the guide bar to become jammed
– Always be aware that the object to be cut may move and other factors may cause the cut to close and jam the diamond abrasive chain
– The object to be cut must be secured and supported so that the cut remains open during and after cutting
– Do not twist the guide bar in the cut

2.10 Working – cutting off

Ensure sufficient water supply to diamond abrasive chain – do not allow diamond abrasive chain to run dry.

Always make wet cuts – regardless of the material to be cut.

The diamond abrasive chain must be guided straight in the cut, without wedging. Never exert lateral pressure on the diamond abrasive chain.

Do not use for lateral grinding or scrubbing.

Do not operate your saw with the starting throttle lock engaged. Engine speed cannot be controlled with the throttle trigger in this position.

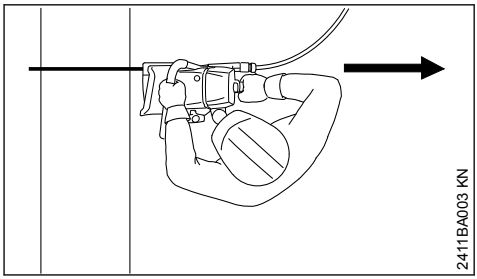
Examine the workplace. Avoid all danger due to damaged piping or electrical wiring.

The machine must not be used near inflammable substances or gases.

Do not cut into pipes, metal tanks or other containers if you are not sure that they do not contain any volatile or inflammable substances.

Never leave the machine unattended with the engine running. Stop the engine before leaving the machine unattended (e. g. for breaks).

Work calmly and carefully – in daylight conditions and only when visibility is good. Ensure you do not endanger others – stay alert at all times.



Make certain that all parts of your body are well clear of the extended **range of travel** of the diamond abrasive chain.

The diamond abrasive chain must be running when you pull the concrete cutter out of the object being cut.

Only use the concrete cutter for cutting – not for prying off or shoveling away objects.

Always decide the cutting direction before positioning the concrete cutter. After that, do not change the cutting direction. Never push or hit with the device into the cutting gap – do not let the concrete cutter fall into the cutting depth – **risk of breakage!**

If cutting performance begins to deteriorate, check the sharpness of the diamond abrasive chain, resharpen as needed. To do this, briefly cut through abrasive material, e. g., sandstone, aerated concrete or asphalt.

When working at heights:
– Always use a lift bucket
– Never use the machine while standing on a ladder
– Never work on an insecure support
– Never work above shoulder height
– Never use the machine with just one hand

Begin cutting with the concrete cutter at full throttle.

At the end of the cut, the concrete cutter is no longer supported by the cutting attachment in the cut. The user must bear the weight of the machine – **risk of loss of control!**

Keep water and sludge away from alive electrical cables – **risk of electric shock!**

2.11 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.

2.12 Maintenance and repairs

The machine must be serviced regularly. Do not attempt any maintenance or repair work not described in the Instruction Manual. All other work should be carried out by a servicing dealer.

STIHL recommends that maintenance and repair work be carried out only by authorized STIHL dealers. STIHL dealers receive regular training and are supplied with technical information.

Use only high-quality spare parts. Otherwise, there may be a risk of accidents or damage to the machine. Contact a servicing dealer if in doubt.

STIHL recommends the use of genuine STIHL spare parts. Such parts have been optimized for the machine and the user's requirements.

Before starting any maintenance or repair work and before cleaning the machine, always **stop the engine – risk of injury!** – Exception: adjustment of carburetor and idle speed.

To reduce the **risk of fire** due to ignition outside the cylinder, move the slide control to **STOP** or **0** before turning the engine over on the starter with the spark plug boot removed or the spark plug unscrewed.

Do not service or store the machine near a naked flame – **risk of fire** due to the fuel.

Check fuel cap regularly for tightness.

Use only spark plugs that are in perfect condition and have been approved by STIHL – see "Specifications".

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

Check that the muffler is in perfect working condition.

Do not use the machine if the muffler is damaged or missing – **risk of fire!** – **Hearing damage!**

Never touch a hot muffler – **risk of burns!**

The condition of the antivibration elements influences vibration behavior – inspect antivibration elements periodically.

2.12.1 Switch off the engine

– to check the chain tension
– to retension the chain
– to change chains
– for remedying malfunctions

3 Sample Applications



Use diamond abrasive chain only with water. Connect concrete cutter to water supply network (min. 1.5 bar).

The water introduced is used to cool the diamond abrasive chain and rinse the cutting attachment, and for binding dust.

After finishing work, run the concrete cutter for a few seconds with water and at operating speed to rinse the cutting attachment.

If the water pressure or water volume is too low, this leads to significantly increased wear and irreparable damage to the cutting attachment – **danger of breakage!**

3.1 Objects to be cut

– Must be fully supported
– Must be secured so it cannot roll or slip off
– Must be prevented from vibrating

3.2 Severed parts

With openings, recesses, etc., the sequence of the cuts is important. Always make the last cut so that the diamond abrasive chain does not become jammed and so that the operator is not endangered by the severed or separated part.

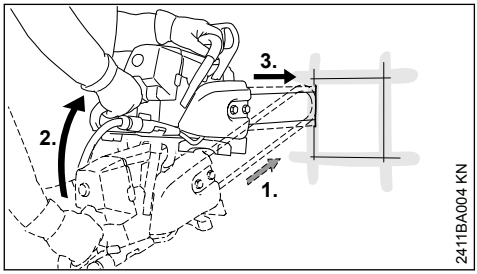
If necessary, use wedges and if necessary, leave small ridges that hold the part that is to be separated in position. Break these ridges later.

Before finally separating the part, determine:
– how heavy the part is
– how it can move after separation
– whether it is under tension

When breaking out the part, do not endanger assistants.

3.3 Plunge-cutting

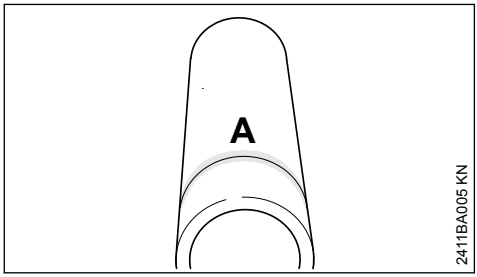
Begin cutting with the concrete cutter at full throttle.



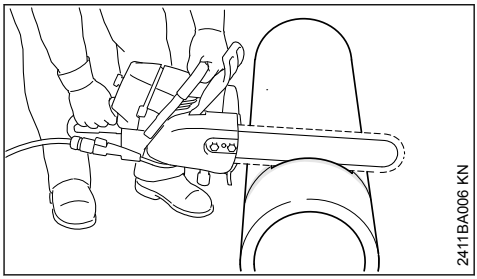
1.Apply the lower portion of the guide bar nose2.Swing slowly into the plunge-cutting position3.Make the plunge cut very carefully

When making the plunge cut into existing, narrower joints, proceed with extreme care.

3.4 Cut in several passes

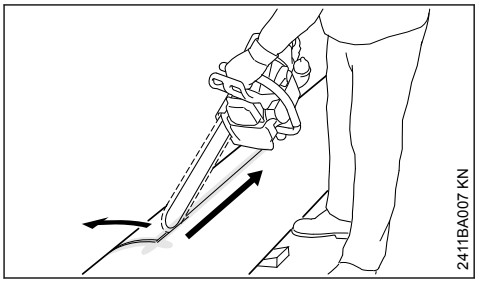


► Mark cutting line (A)



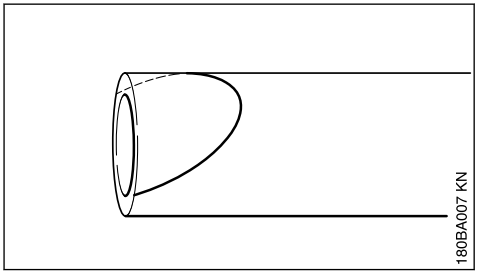
► Work along the cutting line. When making corrections, do not tilt the diamond abrasive chain, always reposition it afresh

3.5 Cutting round and hollow bodies



► Secure pipes, round bodies, etc. against rolling away
► Mark a cutting line - when determining the cutting line, avoid reinforcement, especially in the direction of the severing cut
► Make the plunge cut very carefully
► Feed with full cutting depth along the cutting line – for small corrections of direction, do not tilt the diamond abrasive chain, but always position it anew instead – if necessary, use wedges and if necessary, leave small ridges that hold the part that is to be separated in position. Break these ridges later

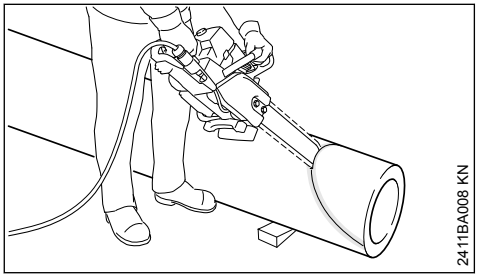
3.6 Shaping pipe



- Secure pipes, round bodies, etc. against rolling away
- Mark a cutting line - when determining the cutting line, avoid reinforcement, especially in the direction of the severing cut

DANGER

Manual cutting along this line requires particular caution and precision.

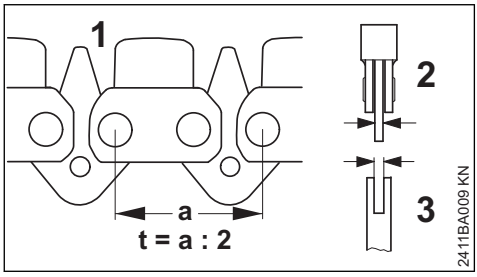


- Cut into pipes, round bodies, etc. in the area at the ends of the cutting line, so that the material does not break away
- Make the plunge cut very carefully at the apex and cut outward on both sides - feed with full cutting depth along the cutting line – for small corrections of direction, do not tilt the diamond abrasive chain, but always position it anew instead – if necessary, use wedges and if necessary, leave small ridges that hold the part that is to be separated in position. Break these ridges later

4 Cutting Attachment

Diamond abrasive chain, guide bar and chain sprocket make up the cutting attachment.

The cutting attachment that is supplied has been optimized for the concrete cutter.



– The pitch (t) of the diamond abrasive chain (1), chain sprocket and sprocket nose of the Rollomatic guide bar must match
– The drive link gauge (2) of the diamond abrasive chain (1) must be matched to the groove width of the guide bar (3)

When pairing components that are not compatible with each other, the cutting attachment may become damaged beyond repair after only a short period of operation.

4.1 Diamond abrasive chain

The correct use of the STIHL diamond abrasive chain ensures economical use and avoids accelerated wear.

The STIHL diamond abrasive chain is suitable for cutting the following materials:
– Concrete
– Reinforced concrete
– General blocks
– Masonry
– Stone pipes
– Ductile cast iron pipes
– Abrasive stone*, e.g. asphalt and bricks (sandstone)
– Hard stone*, granite*

*) Restrictions on power and service life are possible

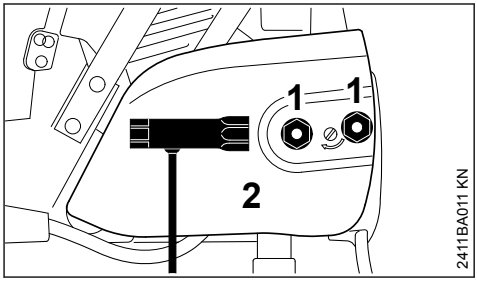
Do not cut any other materials – **risk of accident!**

4.2 Chain scabbard

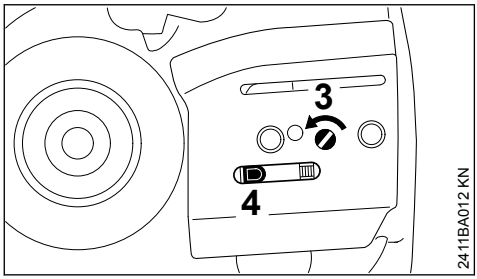
The product contents includes a chain scabbard that is suitable for the bar and chain.

5 Mount Guide Bar and Diamond Abrasive Chain

5.1 Removing the chain sprocket cover

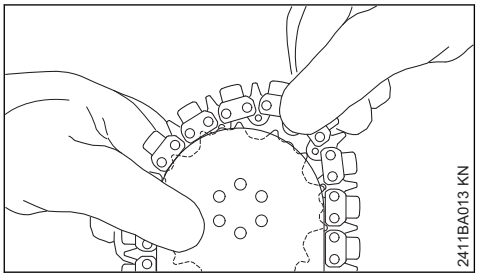


- Unscrew nuts (1) from the studs – nuts are fastened to the chain sprocket cover so that they are secured against loss
- Remove the chain sprocket cover (2)

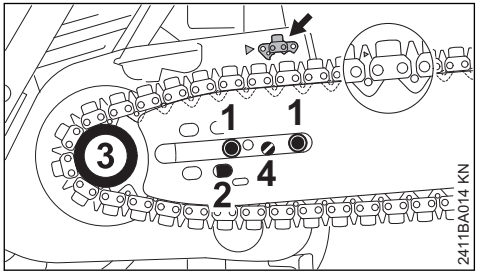


- Turn the screw (3) to the left until the tensioner slide (4) butts against the left end of the housing slot

5.2 Fit diamond abrasive chain



- Fit the diamond abrasive chain starting at the nose of the guide bar



- Position the guide bar over the bolts (1) – align drive links so that the position lines up with the symbol (arrow)

WARNING

If the drive links are not directionally aligned one behind the other correctly, the diamond abrasive chain and chain sprocket will be damaged beyond repair.

NOTICE

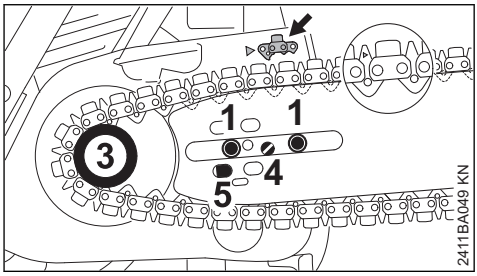
Diamond abrasive chain 36 GGM can be mounted in any orientation.

- Position the right locating hole (2) over the peg of the tensioner slide – simultaneously place the diamond abrasive chain over the sprocket wheel (3)
- Turn screw (4) to the right until there is very little diamond abrasive chain sag on the underside of the bar and the lugs of the drive links engage in the bar groove
- Refit the sprocket cover and screw on the nuts only fingertight.
- Go to chapter "Tensioning the diamond abrasive chain"

5.3 Moving the guide bar

Only move the guide bar if the diamond abrasive chain cannot be tensioned properly.

- Removing the chain sprocket cover
- Remove guide bar with diamond abrasive chain
- Fit the diamond abrasive chain starting at the nose of the guide bar



- Position the guide bar over the bolts (1) – align drive links so that the position lines up with the symbol (arrow)

WARNING

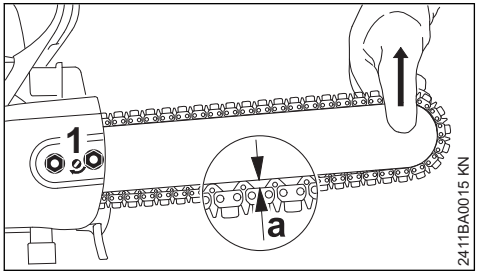
If the drive links are not directionally aligned one behind the other correctly, the diamond abrasive chain and chain sprocket will be damaged beyond repair.

NOTICE

Diamond abrasive chain 36 GGM can be mounted in any orientation.

- ► Position the left locating hole (5) over the peg of the tensioner slide – simultaneously place the diamond abrasive chain over the sprocket wheel (3)
- ► Turn screw (4) to the right until there is very little diamond abrasive chain sag on the underside of the bar and the lugs of the drive links engage in the bar groove
- ► Refit the sprocket cover and screw on the nuts only fingertight.
- ► Go to chapter "Tensioning the diamond abrasive chain"

6 Tension Diamond Abrasive Chain

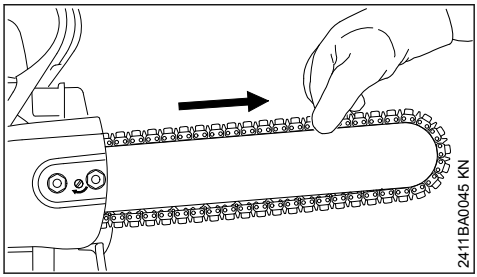


Re-tensioning during cutting work:

- ► Shut off the engine
- ► Wear work gloves to protect your hands
- ► Loosen nuts
- ► Raise the guide bar at the nose
- ► Use the screwdriver to turn the screw (1) to the right to distance (a) = approx. 5 mm

If the distance (a) = approx. 5 mm cannot be set due to an elongated diamond abrasive chain, move guide bar – see installing "Guide bar and diamond abrasive chain".

- ► Raise the guide bar further and tighten the nuts securely

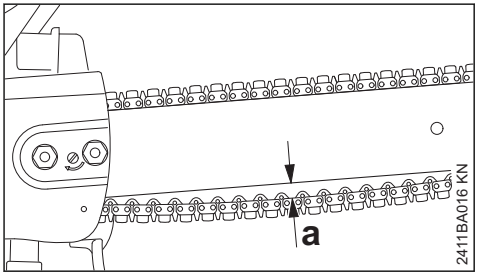


- ► Check tension of diamond abrasive chain – diamond abrasive chain can be pulled across the guide bar by hand

A new diamond abrasive chain will need to be retensioned more frequently than one that has already been in use for an extended period.

- ► Check chain tension frequently – see chapter on "Operating Instructions"

7 Check Tension of Diamond Abrasive Chain



- ► Shut off the engine
- ► Diamond abrasive chain can sag a maximum of a = 15 mm
- ► Retension diamond abrasive chain if necessary – see "Tensioning the diamond abrasive chain".

If the diamond abrasive chain sags too much, this leads to significantly increased wear of the cutting attachment.

A new diamond abrasive chain will need to be retensioned more frequently than one that has already been in use for an extended period.

- ► Check chain tension frequently – see chapter on "Operating Instructions"

8 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.

8.1 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.

8.2 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.

8.2.1 Gasoline

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

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).

8.2.2 Engine Oil

If you mix the fuel yourself, use only STIHL two-stroke engine oil or another high-performance engine oil in accordance with 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.

8.2.3 Mix Ratio

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

8.2.4 Examples

Gasoline	STIHL engine oil 50:1
Liters	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.

8.3 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.

9 Fueling



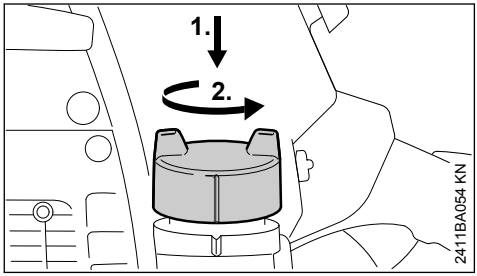
9.1 Preparations

- 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 tank cap faces up.

WARNING

Never use a tool to open the bayonet-type fuel cap. This may damage the cap and cause fuel leakage.

9.2 Open the cap.

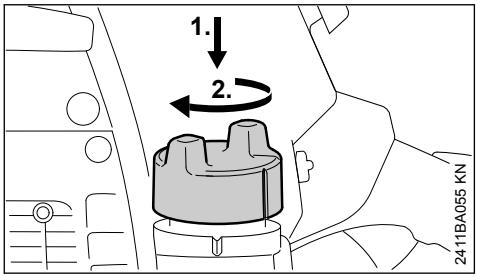


- Press the cap down as far as stop, turn it counterclockwise (about 1/8 turn) and remove.

9.3 Filling Up with Fuel

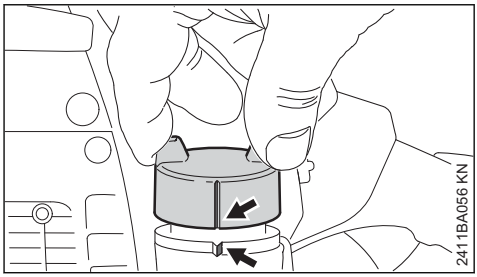
Take care not to spill fuel while fueling and do not overfill the tank. STIHL recommends you use the STIHL filler nozzle for fuel (special accessory).

9.4 Closing the Cap



- Place the cap on the tank opening and turn it until it slips into position.
- Press the cap down by hand as far as stop and turn it clockwise (about 1/8 turn) until it engages.

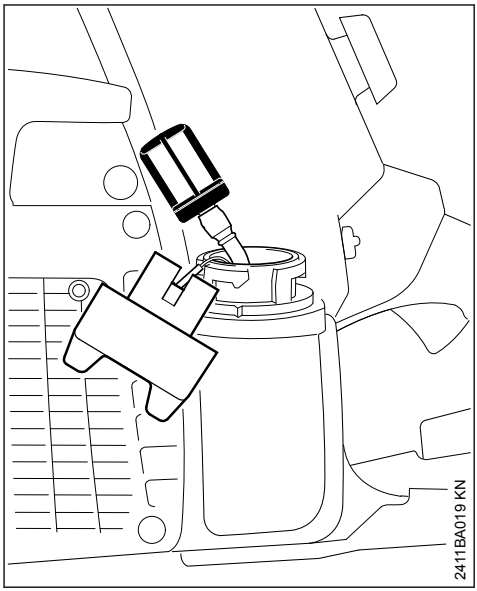
9.5 Checking Security of Cap



- Grip the cap – it is properly locked if it cannot be pulled off and the marks (arrows) on the cap and fuel tank are in line.

If the cap can be pulled off or the marks are not in line, refit it – see sections on “Closing the Cap” and “Checking Security of Cap”.

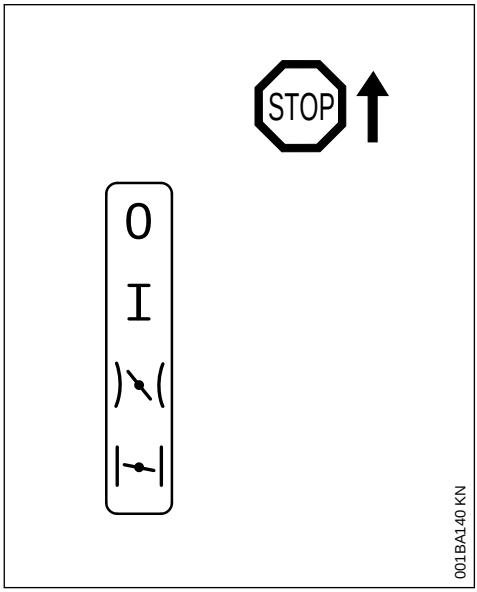
9.6 Change the Fuel Pickup Body Every Year



- Drain the fuel tank.
- Use a hook to pull the fuel pickup body out of the tank and take it off the hose.
- Push the new pickup body into the hose.
- Place the pickup body in the tank.

10 Starting / Stopping the Engine

10.1 The four positions of the Master Control lever



STOP or **0** – engine off – ignition is switched off

Normal run position **I** – engine runs or can fire

Warm start ( ) – this position is used to start a warm engine.

Cold start ( ) – this position is used to start a cold engine.

10.2 Adjust Master Control lever

The throttle trigger lockout and throttle trigger must be pressed simultaneously to adjust the Master Control lever from Run **I** to Cold start .

To set the Master Control lever to Warm start , first set it to Cold start , then push the Master Control lever to the Warm start position.

The change to Warm start ( ) is only possible from the Cold start position ( ).

When the throttle trigger is squeezed, the Master Control lever returns from Warm start to Run **I**.

To switch off the engine, set the master control lever to **STOP** or **0**.

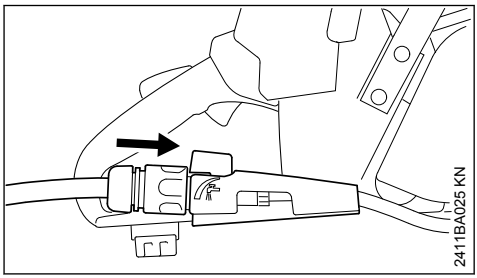
10.2.1 Position choke shutter closed

– if the engine is cold
– if the engine stalls during opening of throttle after starting
– if the fuel tank was run until empty (engine stopped)

10.2.2 Position starting acceleration

– if engine is warm (once the engine has been running for approx. one minute)
– when Engine Begins to Fire
– after ventilation of the combustion chamber, if the engine was flooded

10.3 Connect concrete cutter to water supply network

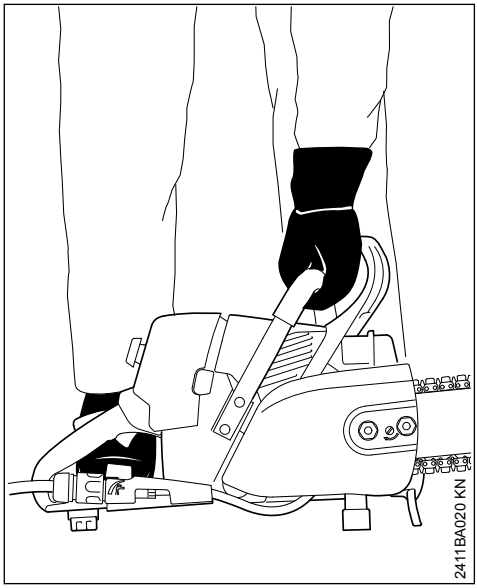


- Connect concrete cutter to water supply network (min. 1.5 bar at 6 l/min).
- Before starting, open shut-off valve (arrow) completely

10.4 Hold concrete cutter

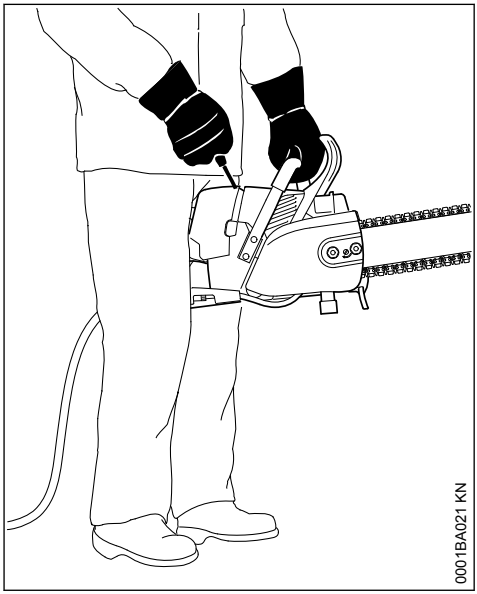
There are two ways to hold the concrete cutter during starting.

10.4.1 On the ground



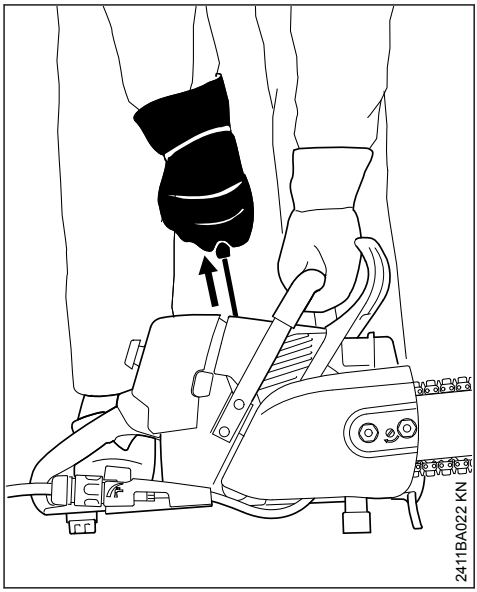
- Place the concrete cutter securely on the ground – ensure your footing is firm – the diamond abrasive chain must not be touching any objects or the ground.
- Press the concrete cutter firmly against the ground, holding the front handle with your left hand, with thumb wrapped round the handle
- place your right foot through the rear handle.

10.4.2 Between knees



- clamp the rear handle between the knees or thighs
- Hold the front handle firmly with your left hand – your thumb should be under the handle.

10.5 Actuating

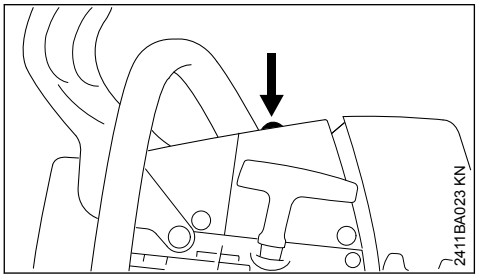


► Pull the starter grip slowly with your right hand until you feel it engage – and then give it a brisk strong pull and push down the front handle at the same time. Do not pull out the starter rope to full length – **it might otherwise break**. Do not let the starter grip snap back. Guide it slowly back into the housing so that the starter rope can rewind properly.

10.6 Starting the concrete cutter

Before starting, open the shut-off cock fully so that water flows to the diamond abrasive chain – never allow chain to run dry.

10.6.1 Decompression valve

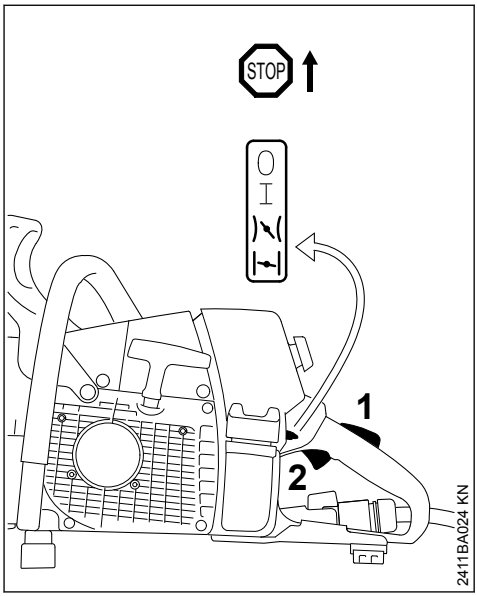


► Press the button, the decompression valve will be opened

The decompression valve closes as soon as the engine fires. For this reason you must press in the button before each starting attempt.

WARNING

There must not be anyone within the swivel range of the concrete cutter.

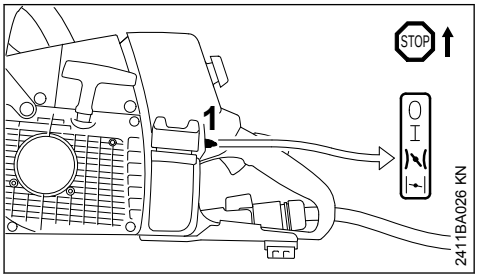


► Simultaneously press the throttle trigger lockout (2) and throttle trigger (3) – set master control lever

Position choke shutter closed
– if engine is cold (even if the engine has stalled during opening of throttle after starting)

Position starting acceleration
– if engine is warm (once the engine has been running for approx. one minute).
► Hold and start the concrete cutter.

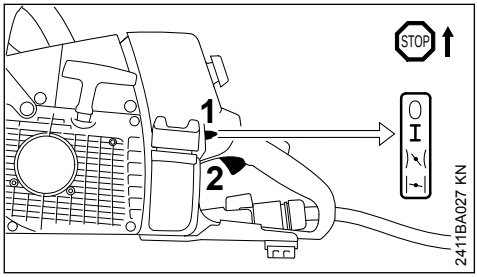
10.7 When Engine Begins to Fire



► Move the Master Control leve (1) to the position warm start

- Press in button to open the decompression valve.
- Hold and continue cranking the concrete cutter.

10.8 As Soon As the Engine Runs



- Briefly press the throttle trigger (2); the master control lever (1) jumps to Run I and the engine begins to idle.

The concrete cutter is now ready for use.

10.9 At Very Low Outside Temperatures

- Let the engine warm up briefly with the throttle slightly open.

10.10 Shut off the engine

- Set master control lever to **STOP** or **0**

10.11 If Engine Does Not Start

The master control lever was not returned to its Warm start)ϟ(position in time when the engine turned over for the first time and the engine has now flooded.

- Remove the spark plug – see "Spark Plug".
- Dry the spark plug
- Set master control lever to **STOP** or **0**
- Crank the engine several times with the starter to clear the combustion chamber.
- Refit the spark plug – see "Spark Plug".
- Set master control lever to Warm start)ϟ(– even if the engine is cold.
- Restart the engine.

10.11.1 Wet filter

- Dry wet filter if necessary – do not expose to extreme heat.
- If the filter is very dirty, clean the filter thoroughly – see "Cleaning the air filter"

11 Operating Instructions

11.1 During the break-in period

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

11.2 During work

⚠ CAUTION

Always work with water.

⚠ CAUTION

Do not make the mixture leaner to achieve an apparent increase in power – this could damage the engine – see "Adjusting the Carburetor".

11.2.1 Check chain tension frequently

The diamond abrasive chain stretches and begins to sag. The drive links on the underside of the bar must not come out of the bar groove by more than 15 mm – the diamond abrasive chain may otherwise jump off the bar – retension the diamond abrasive chain – see "Tensioning the diamond abrasive chain".

If the diamond abrasive chain sags too much, this leads to significantly increased wear of the diamond abrasive chain and chain sprocket – retension the diamond abrasive chain – see "Tensioning the diamond abrasive chain".

A new diamond abrasive chain must be retensioned more frequently than one that has been in use already for an extended period.

11.2.2 After a long period of full-throttle operation

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

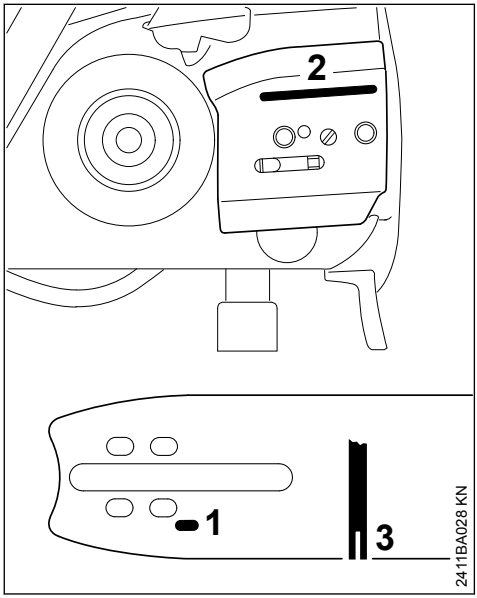
11.3 After finishing work

11.3.1 Short-term storage

Wait for engine to cool down. Keep the machine with a full tank of fuel in a dry place, well away from sources of ignition, until you need it again.

Clean and dry guide bar and diamond abrasive chain, and spray with STIHL multispray – in particular the bearing of the sprocket nose – corrosion protection. Do not spray engine unit!

18 Taking Care of the Guide Bar



- ► Flip the guide bar – each time the chain is changed – to avoid uneven wear, especially at the sprocket nose and on the bottom
- ► Periodically clean the water inlet hole (1), water outlet channel (2) and bar groove (3)
- ► Measure groove depth – using the measuring tool on the file gauge (special accessory) – in the area with the greatest wear

If the groove is not at least 6 mm deep:

- ► Replace guide bar

Otherwise the drive links will grind against the base of the groove – tie straps will not lie against the bar.

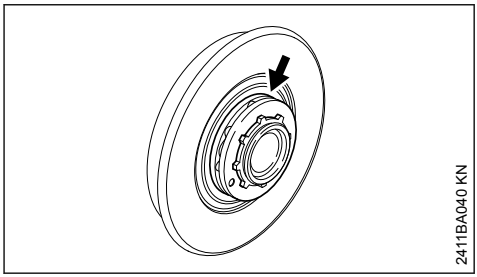
If the guide bar runs in the cut:

- ► Check guide bar for uneven wear (ridge offset)
- ► Flip the guide bar, if necessary remove the bore of the guide bar with guide bar straightener

19 Checking and Replacing the Chain Sprocket

- ► Remove chain sprocket cover, diamond abrasive chain and guide bar

19.1 Replacing rim sprocket

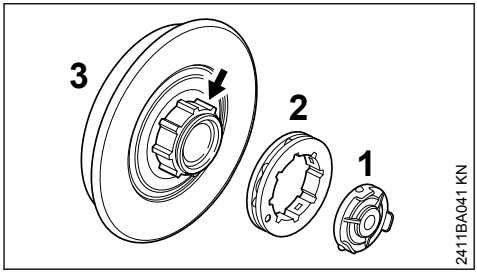


- – If the diamond abrasive chain is being replaced, also replace the rim sprocket
- – If the wear marks (arrows) are deeper than 0.5 mm – otherwise the service life of the diamond abrasive chain is reduced – use check gauge (special accessory) to test

Using two diamond abrasive chains in alternation helps preserve the chain sprocket.

19.1.1 Removing rim sprocket

If only the rim sprocket is removed, the clutch drum does not need to be removed.

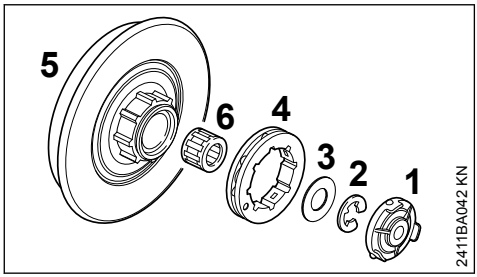


- ► Remove cap (1)
- ► Remove rim sprocket (2)
- ► Inspect transport profile on the clutch drum (3) – if there are also heavy signs of wear, also replace the clutch drum (3)

19.1.2 Installing rim sprocket

- ► Fit rim sprocket (2)
- ► Fit cap (1)

19.2 Replacing clutch drum



- Remove cap (1)
- Remove rim sprocket (4)
- Use a screwdriver to remove the E-clip (2)
- Remove washer (3)
- Remove clutch drum (5) with needle cage (6) from the crankshaft

19.3 Installing the clutch drum

- Clean crankshaft stub and needle cage and lubricate with STIHL lubricant (special accessory)
- Slip the needle cage onto the crankshaft stub.
- Fit clutch drum
- Fit rim sprocket
- Refit washer and E-clip on the crankshaft
- Fit cap

20 Maintain and Sharpen Diamond Abrasive Chain

20.1 Maintaining the diamond abrasive chain

- Remove diamond abrasive chain and guide bar
- Rinse diamond abrasive chain and guide bar with water
- Dry diamond abrasive chain and guide bar
- Spray diamond abrasive chain and guide bar with STIHL multispray – in particular the bearing of the sprocket nose – corrosion protection

20.2 Check diamond abrasive chain regularly

- Check the diamond abrasive chain for cracks and damaged rivets
- Replace damaged or worn chain components – contact a servicing dealer

Never use a dull or damaged diamond abrasive chain – this leads to increased physical strain, increased vibration load, unsatisfactory results and increased wear.

If cutting performance begins to deteriorate, check the sharpness of the diamond abrasive chain, resharpen as needed. To do this, briefly cut through abrasive material, e. g., sandstone, aerated concrete or asphalt.

After finishing work:

21 Maintenance and Care

The following maintenance intervals apply for normal operating conditions only. 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						

1) STIHL recommends STIHL servicing dealer
2) During initial use, tighten the cylinder block screws after 10 to 20 hours of operation
3) When diamond abrasive chain is mounted or changed

The following maintenance intervals apply for normal operating conditions only. 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**
	Clean		X							
Throttle trigger, throttle trigger lockout, master control lever	Function test	X		X						
Manual fuel pump (if present)	check	X								
	Have repaired by a specialist dealer[1)]								X	
Fuel pickup body in fuel tank	check							X		
	replace						X		X	X
Fuel tank	Clean					X				
Water supply, chain lubrication	check	X								
Diamond abrasive chain	Check, pay attention to sharpness	X		X						
	Check chain tension, retension if necessary; also check every 15 minutes while working, retension if necessary	X		X						
	sharpen									X
	clean and spray with STIHL Multispray		X							
Guide bar	check (wear, damage, action of sprocket nose)	X								
	clean and spray with STIHL Multispray		X							
	Flip									X
	Deburr				X					
	replace								X	X
Chain sprocket	Check, replace if necessary	X[3)]						X	X	
Air filter	Clean							X		X
	replace								X	
Anti-vibration elements	check	X						X		
	Have replaced by servicing dealer[1)]								X	
Cooling air intake slits	Clean		X							
Cylinder fins	Clean		X			X				
Carburetor	Check idle adjustment – chain must not rotate	X		X						

1) STIHL recommends STIHL servicing dealer
2) During initial use, tighten the cylinder block screws after 10 to 20 hours of operation
3) When diamond abrasive chain is mounted or changed

The following maintenance intervals apply for normal operating conditions only. 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
	Adjust idle speed									X
Spark plug	Adjust electrode gap							X		
	Replace after 100 operating hours									
All accessible screws, nuts and bolts (not adjusting screws) [2]	Tighten									X
Safety information label	replace								X	

22 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.

22.1 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.

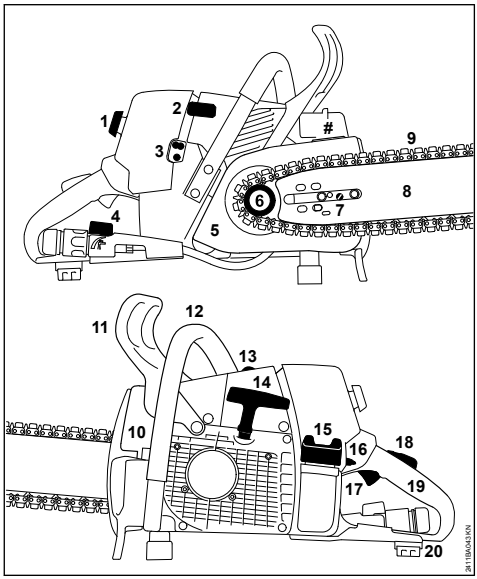
22.2 Parts Subject to Wear and Tear

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:
– Diamond abrasive chain, guide bar

[1] STIHL recommends STIHL servicing dealer
[2] During initial use, tighten the cylinder block screws after 10 to 20 hours of operation
[3] When diamond abrasive chain is mounted or changed

– Drive components (clutch, clutch drum, chain sprocket)
– Filters (air, fuel)
– Rewind starter
– Spark plug
– Components of antivibration system

23 Main Parts



1 Twist lock
2 Spark plug boot
3 Carburetor adjusting screws
4 Water connection, shut-off cock
5 Chain sprocket cover
6 Chain sprocket
7 Chain tensioner
8 Guide bar
9 Diamond abrasive chain
10 Muffler
11 Front hand guard
12 Front handle (handlebar)
13 Decompression valve
14 Starter grip
15 Fuel filler cap
16 Master Control lever
17 Throttle trigger
18 Throttle trigger lockout
19 Rear handle
20 Rear hand guard
 # Serial number

24 Specifications

24.1 Engine

STIHL single-cylinder two-stroke engine

Displacement:	76.5cm^3
Cylinder bore:	52 mm
Piston stroke:	36 mm
Engine power to ISO 7293:	4.3 kW (5.8 hp) at 9800 1/min
Idle speed:	2500 rpm
Cut-off speed:	13500 rpm

24.2 Ignition system

Electronic magneto ignition

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

24.3 Fuel system

All-position diaphragm carburetor with integral fuel pump

Fuel tank capacity:	780 cm^3 (0.78 l)

24.4 Weight

dry, without cutting attachment:	7.6 kg

24.5 GS 461 cutting attachment

The actual cutting length may be less than the specified cutting length.

24.5.1 Rollomatic G guide bar

Bar lengths (3/8" pitch):	30, 40 cm
Groove width:	1.6 mm

24.5.2 3/8" diamond abrasive chains

36 GBM, type 3210, 3213
36 GBE, type 3211, 3214

Pitch:	3/8" (9.32 mm)
Drive link gauge:	1.6 mm

24.5.3 Chain Sprockets

8-tooth for 3/8" (rim sprocket)

24.5.4 Rollomatic G guide bar

Bar lengths (3/8" pitch):	45 cm
Groove width:	1.6 mm

24.5.5 3/8" diamond abrasive chains

36 GGM Type 3212

Pitch:	3/8" (9.32 mm)
Drive link gauge:	1.6 mm