

Manual # 346

Machine type - 701 chainsaw large 2 stroke
0729 chainsaw small 2 stroke.

Chain Saw Safety Manual

SCANNED

Safety Precautions



Because a chainsaw is a high-speed wood-cutting tool some **special safety precautions** must be observed in addition to those that generally apply when working with an axe or hand saw.



It is important that you read and understand the owner's manual before using your chainsaw for the first time. Non-observance of the

following safety precautions may cause serious or even fatal injury.

Always observe local safety regulations, standards and ordinances.

If you have never used this chainsaw model before:

Have your STIHL dealer show you how to operate your chainsaw or attend a special course of training in chainsaw operation.

Minors should never be allowed to use a chainsaw.

Children, bystanders and animals should not be allowed in the area where a chainsaw is in use.

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

Do not lend or rent your chainsaw without the owner's manual. Be sure that anyone using your saw understands the information contained in this manual.

You must be in good physical condition and mental health and not under the influence of any substance (drugs, alcohol) which might impair vision, dexterity or judgment.

STIHL recommends only **guide bars, saw chains and chain sprockets** supplied by STIHL and explicitly approved for your chainsaw model by STIHL (see specifications and sales documentation).

The characteristics of these components are specifically designed to match your chainsaw model and meet your performance requirements (cutting capacity, vibration, kickback behavior).

Only use **attachments** supplied by STIHL or explicitly approved for your chainsaw model by STIHL. Other attachments must not be used because of the increased risk of accidents and negative effects on the chainsaw.

Never attempt to modify your chainsaw in any way since this can be extremely dangerous and result in serious or fatal injury. STIHL cannot accept any liability for personal injury or damage to property caused by modifications to the chainsaw, using attachments not approved by STIHL or non-approved guide bars and saw chains.

Clothing and equipment

Wear proper protective clothing and equipment.



Clothing must be sturdy and snug-fitting, but allow complete freedom of movement. Wear overalls with a cut-retardant inlay - a STIHL safety coverall is

recommended.

Do not wear loose-fitting garments, scarves, jewelry or anything that could restrict movement or become entangled with the saw, wood or brush. Confine long hair (e.g. with a hair net).



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



Wear a **safety hard hat** to protect your head.
Wear **safety glasses** and **sound barriers**, i.e. ear plugs or ear muffers.



Wear **heavy-duty, non-slip gloves**, preferably made of chrome leather.

STIHL offers a comprehensive range of safety clothing and equipment.

Transporting the chainsaw

Always engage the chain brake and fit the chain guard (scabbard) before carrying the saw short distances. Also stop the engine before carrying the saw longer distances (more than about 50 m).

Always carry the saw by the front handle – with the hot muffler away from your body – the guide bar must point to the rear. To avoid serious burn injuries, avoid touching hot parts of the machine, especially the surface of the muffler.

Transporting by vehicle: When transporting in a vehicle, properly secure your saw to prevent turnover, fuel spillage and damage.

When your saw is not in use, put it down in a safe place so that it does not endanger anybody.

Fueling



Gasoline is an extremely flammable fuel. Keep clear of naked flames and fire. Do not spill any fuel.

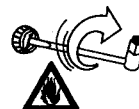
Stop the engine before refueling.

Do not refuel while the engine is still hot since fuel may overflow and catch fire.

In order to reduce risk of burns or other personal injury from escaping gas vapor and fumes, unscrew the fuel cap carefully to allow any pressure build-up in the tank to release slowly.

Fuel your chainsaw in a well-ventilated area, outdoors only. If you spill fuel, wipe the saw immediately - if fuel gets on your clothing, change immediately.

A number of different filler caps are installed as standard at the factory.



After fueling, tighten the screw cap as firmly as possible by hand




Place the cliplock filler cap (bayonet-type) in position, turn as far as stop and fold the cliplock down.

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

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

Before starting

Check that saw is properly assembled and in good condition - refer to appropriate chapters in the owner's manual:

- Check operation of chain brake
- Correctly mounted guide bar
- Correctly tensioned chain
- Correctly tensioned chain
- Smooth action of throttle trigger and throttle trigger interlock - throttle trigger must return automatically to idle position
- Master control/stop switch must move easily to **STOP** or 
- Check that 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 pitch – for safe control.

To reduce risk of personal injury, do not operate your saw if it is damaged or not properly assembled.

Starting the engine

Start the engine at least 3 meters (10 feet) from the fueling spot, outdoors only.

Your chain saw is a one-person saw. Do not allow other persons near the running chainsaw. Start and operate your saw without assistance.

To reduce risk of chain rotation and personal injury, lock the chain with the chain brake before starting.

Do not drop start the chainsaw. The correct starting procedure is described in your owner's manual.

When the engine is running:

Note that the chain continues to rotate for a short period after you let go of the throttle trigger.

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

Operate your chainsaw so that it produces a minimum of noise and emissions – do not run engine unnecessarily, accelerate the engine only for cutting.

During operation



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

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



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

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

If you get tired, take a break in good time.



The use of this machine may produce dust (sawdust), vapor (oil mist from chain lubrication) and smoke containing chemical substances. Such substances may cause serious injuries and health problems, i.e. respiratory diseases, cancer, genetic or hereditary defects.

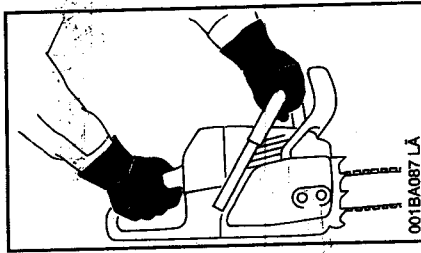
If you are not aware of the possible risks associated with dust, vapor and smoke emissions, ask your employer or the responsible authority to provide the relevant information.

If a high level of dust, vapor or smoke cannot be avoided in spite of using appropriate working techniques, you should wear a respirator approved for the substance concerned. This also applies to helpers.

General precautions:

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

In the event of impending danger or in an emergency, switch off the engine immediately by moving the Master Control/stop switch to  or .



Always hold your saw 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 the front handle and control handle.

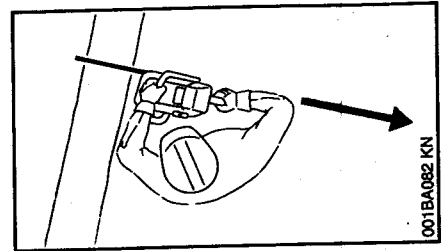
Take special care to maintain good footing.

Run the engine at full throttle, engage the spiked bumper firmly in the wood and then start cutting.

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

If your chainsaw 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 cutting work.

Check the fuel system for leaks and make sure the safety devices are working properly. Do not continue operating your saw if it is damaged. In case of doubt, have saw checked by your STIHL servicing dealer.



Position the saw so that your body is clear of the cutting attachment.

Always pull the saw out of the cut with the chain running.

Never work without the spiked bumper n - the saw may pull you forwards and off balance.

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

Use the shortest possible guide bar: The chain, guide bar and chain sprocket must match each other and your saw.

Make sure that the idle speed is properly adjusted: The chain must stop rotating when you release the throttle trigger.

Check idle speed adjustment regularly. If the chain rotates, have the saw checked by your STIHL dealer.

Take special care in slippery conditions – damp, snow, ice, on slopes, uneven ground and freshly debarked logs.

Always use a lift bucket when working at heights.

Never work on a ladder, in a tree or on any other insecure support.

Do not work above shoulder height.

Never operate the saw with one hand.

Use your saw for cutting wood or wooden objects only. It is not designed for prying or shoveling away limbs, roots or other objects.

Make sure your saw does not touch any foreign materials:

Stones, nails, etc. may be flung off, damage the saw chain or cause the saw to kick back unexpectedly.



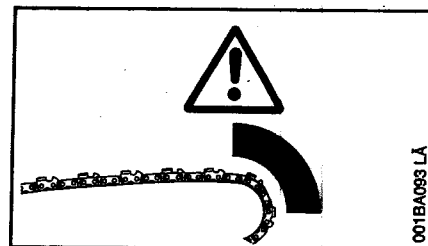
General working techniques

If on a slope, stand on the uphill side of the log. Watch out for rolling logs.

Avoid stumbling on stumps, roots, rocks or in ditches.

Do not stand on a log while limbing it – do not underbuck freely hanging limbs.

Take special care when cutting shattered wood – sharp slivers of wood may be caught and flung in your direction.



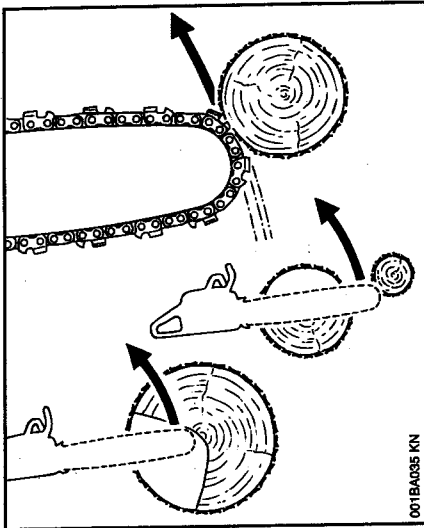
Dangers of kickback



Kickback can result in serious or fatal injury.

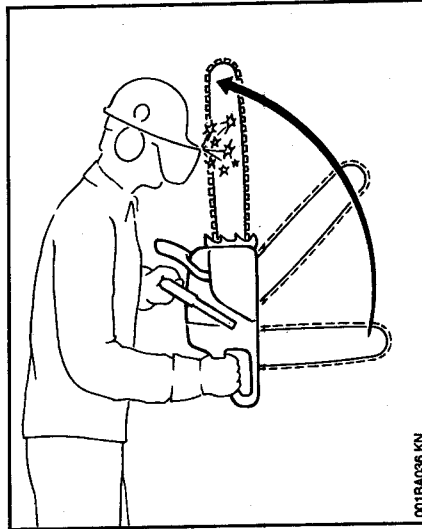
Kickback occurs when the saw is suddenly thrown up and back in an uncontrolled arc towards the operator, e.g.

- when the upper quadrant of the bar nose unintentionally contacts wood or another solid object,
- when the chain at the nose of the guide bar is pinched in the cut,
- when another limb is touched accidentally during limbing.



To reduce the risk of kickback

- Hold the chainsaw firmly with both hands and maintain a secure grip.
- Always cut at full throttle.
- Be aware of the location of the guide bar nose at all times.
- Do not cut with the bar nose.
- Take special care with small, tough limbs, they may catch the chain.
- Never cut several limbs at once.
- Do not overreach.
- Never cut above shoulder height.



Quickstop chain brake:

This device reduces the risk of injury in certain situations - it cannot prevent kickback. If activated, the brake stops the saw chain within a fraction of a second - for a description of this device refer to chapter "Chain Brake" in this manual.

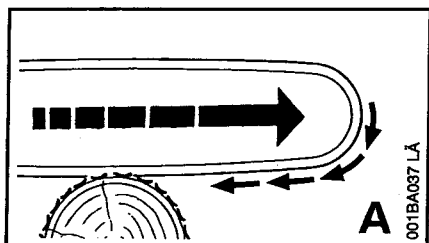
Cutting attachment:

The risk of kickback can be reduced by using correctly sharpened low-kickback chains and narrow radius guide bars.

STIHL offers a full line of special reduced kickback chains and bars.

The best method of avoiding kickback is to work cautiously and avoid situations which could cause kickback.

- Use extreme caution when re-entering a previous cut.
- Do not attempt plunge cuts if you are not experienced in this cutting technique.
- Be wary of position of log and forces that may cause the cut to close and pinch the chain.
- Always cut with a correctly sharpened, properly tensioned chain - the depth gauge setting must not be too large.

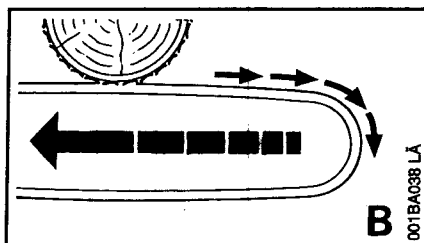


Avoid pull-in and pushback

A = Pull-in

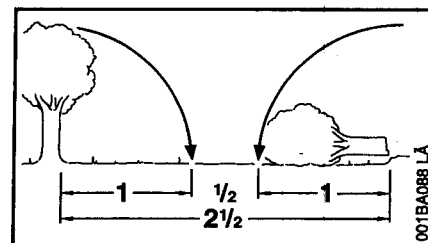
Pull-in occurs when the chain on the bottom of the bar is suddenly pinched, caught or encounters a foreign object in the wood. The reaction of the chain pulls the saw forward.

Always hold the spiked bumper securely against the tree or limb.



B = Pushback

Pushback occurs when the chain on the top of the bar is suddenly pinched, caught or encounters a foreign object in the wood. The reaction of the chain drives the saw straight back toward the operator.



Felling and limbing

Do not attempt felling or limbing unless you have been trained in the necessary techniques.

Before felling a tree, check the following points:

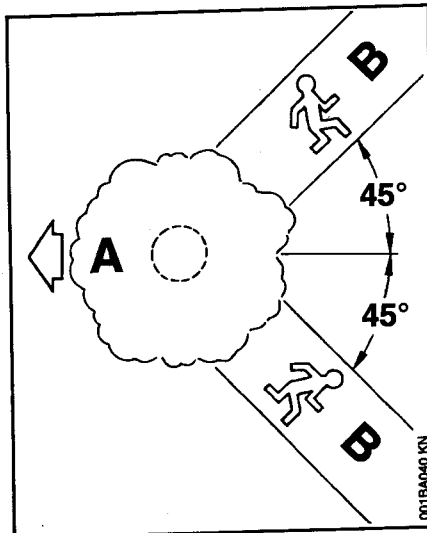
- No-one in the felling area – other than helpers.
- Paths of escape for everyone free from obstacles – opposite to fall of tree, at angle to rear.
- Work area at tree base free from obstacles.
- Safe footing for all persons concerned.

Pay special attention to the following points:

- The natural lean of the tree.
- Any unusually heavy limb structure.
- The wind direction and speed – do not fell in high winds.
- Maintain a distance of at least $2\frac{1}{2}$ tree lengths from next felling site.
- Make sure no-one is endangered by falling tree – the noise of your engine may drown any warning calls.

Felling:

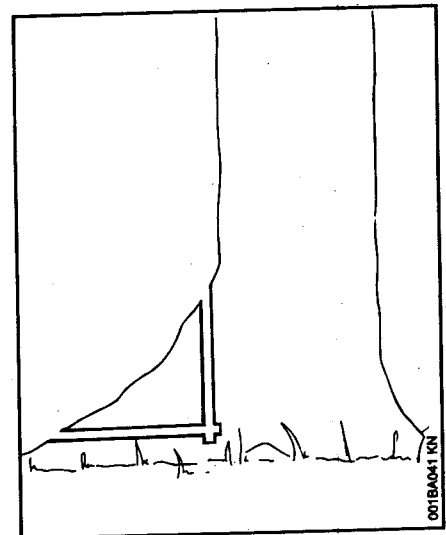
- First clear the tree base and work area from interfering limbs and brush.
- Clean lower portion of tree base with an axe. Sand, stones and other foreign objects will dull the saw chain.
- Determine the direction of fall.
- Establish paths of escape for everyone concerned – opposite to direction of fall at about 45° .



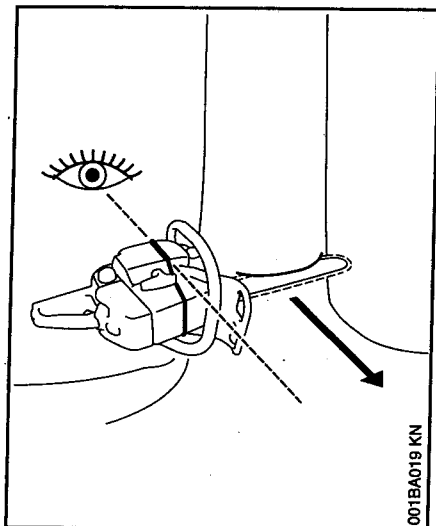
A = Direction of fall

B = Escape paths

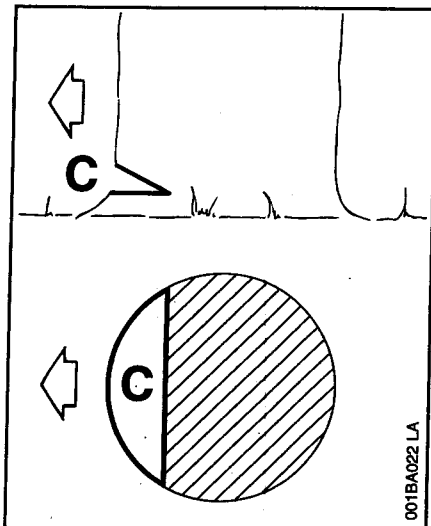
- Remove all obstacles from escape paths.
- Place all tools and equipment a safe distance away from the tree, but not on the escape paths.
- Always keep to the side of the falling tree. When the tree starts to fall, withdraw the bar, shut off the engine and walk away on the preplanned escape path.
- Watch out for falling limbs.



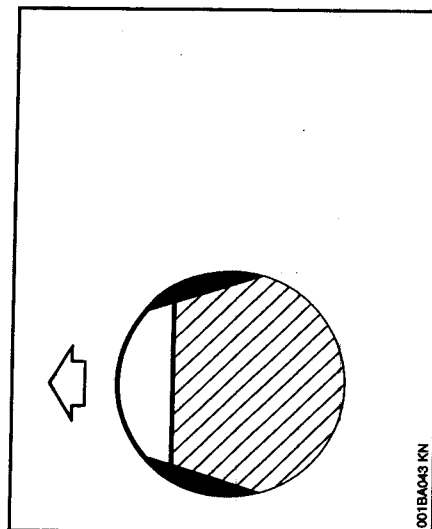
Remove large buttress roots: Make vertical cut first, then horizontal.



001BA019 KN



001BA022 LA



001BA043 KN

Check direction of fall with gunning sight

When making the felling notch, make use of the gunning sight on the shroud and housing to check the planned direction of fall.

Position your saw so that the gunning sight points in exactly in the direction you want the tree to fall.

Note: There are a number of factors that may affect and change the intended direction of fall, e.g. wind, lean of tree, sloping ground, one-sided limb structure, decay, snow load, etc.

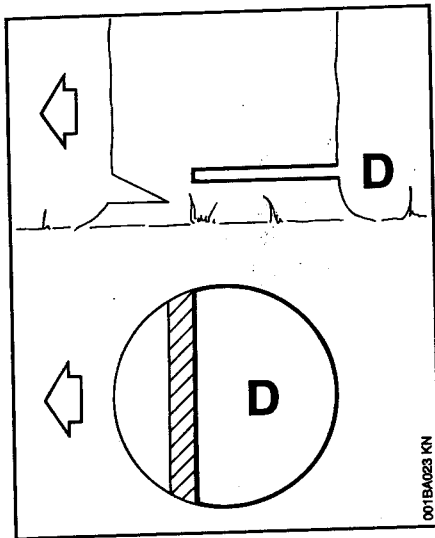
C = Felling notch - determines direction of fall

- Make notch very carefully.
- At a right angle to planned direction of fall.
- As close to ground as possible.
- Cut to a depth of about $\frac{1}{5}$ of the trunk diameter.
- Height of notch opening must never be more than depth.

Making sapwood cuts

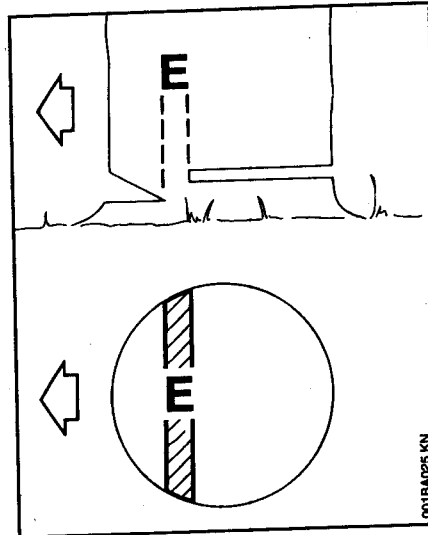
This is especially important in soft wood in summer – it helps prevent sapwood splintering when the tree falls.

- At both sides of the trunk.
- At same height as subsequent felling cut.
- Leave approx. $\frac{1}{10}$ of diameter of trunk uncut. On large diameter trees, cut to no more than width of guide bar.



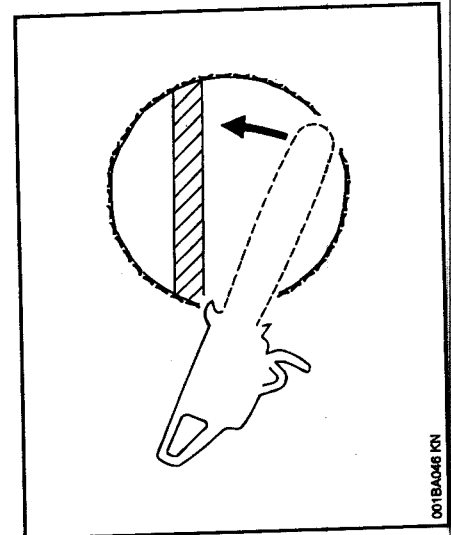
D = Felling cut

- Slightly higher than bottom of felling notch.
- Cut horizontally.
- Leave approx. $\frac{1}{10}$ of tree diameter uncut. This is the hinge.
- Drive wedges into the felling cut in good time - use only wooden, aluminum or plastic wedges – never steel, which can damage the chain and cause kickback.



E = Hinge

- Helps control the falling tree.
- Do not cut through the hinge – you could lose control of the direction of fall – this could result in an accident.



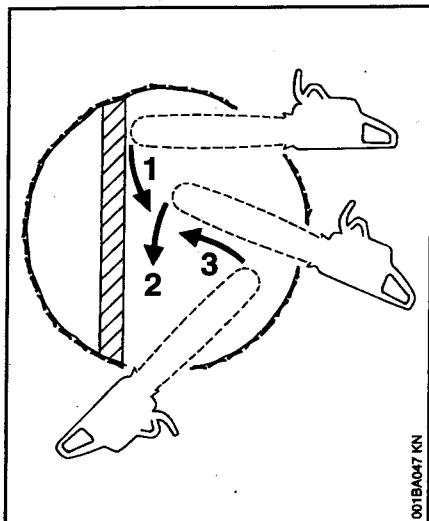
**Small diameter trees:
simple fan cut**

Apply the spiked bumper behind the hinge – pivot the saw around this point – only as far as the hinge. The spiked bumper rolls against the trunk.

Large diameter trees:

If the diameter is greater than the length of the guide bar –
use sectioning method.

Use the spiked bumper as a pivot – avoid repositioning the saw more than necessary.



First cut (1):

Nose of guide bar should enter wood just behind the hinge – hold the saw horizontally and swing it as far as possible. When repositioning for the **next cut (2)**, keep the guide bar fully engaged in the kerf to keep felling cut straight – apply the spiked bumper.

Last cut (3):

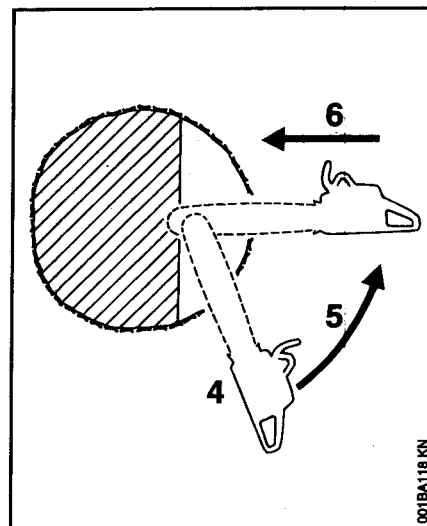
Apply the spiked bumper as for the simple fan cut – do not cut through the hinge!

If the saw begins to pinch: Stop the engine – insert a wedge in the cut – if necessary, use block and tackle, cable winch or tractor.

Plunge-cut method

- For heartwood cut.
- For felling leaners.
- For relieving cuts during bucking.
- For DIY projects.

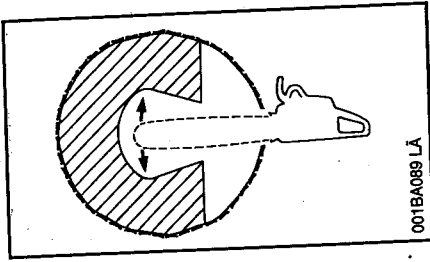
Use a low kickback chain and exercise particular caution.



Begin cut (4) by applying lower portion of the guide bar nose – do not use upper portion because of risk of kickback. Cut until depth of kerf is twice the width of the guide bar.

Swing saw slowly (5) into plunge-cutting position: Take care because of the risk of kickback or pushback.

Make the plunge cut (6) very carefully. Danger of pushback.



Heartwood cut

Enlarge the plunge cut to both sides as shown

- if tree diameter is more than twice the length of the guide bar.
- if a large portion of heartwood remains uncut on large diameter trees.
- on trees that are difficult to fell (oak, beech), to prevent heartwood splintering and maintain planned direction of fall.
- on soft deciduous trees to relieve tension in lying log and prevent slivers in the center of the hinge being torn out of the log.

Exercise extreme caution:

- with leaners
- with trees that have fallen unfavorably between other trees and are under strain
- when working in blowdown areas.

Do not work with the chainsaw in such circumstances – Use block and tackle, cable winch or tractor.

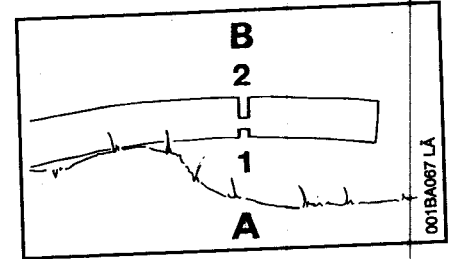
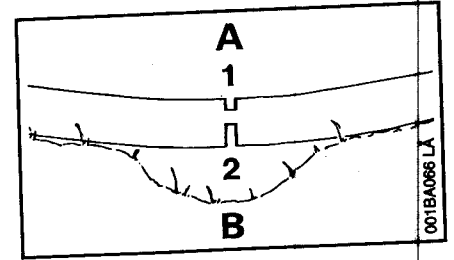
Pull out exposed and cleared logs. Select clear area for cutting.

When felling in the vicinity of roads, railways, power lines, etc.

Take extra precautions. If necessary, inform the police, utility company or railway authority.

When limbing

- Use a low kickback chain.
- Work with the saw supported wherever possible.
- Do not work with the bar nose.
- Watch for limbs which are under tension.
- Never attempt to cut several limbs at once.



Lying or standing logs under tension

Always start relieving cut (1) at the compression side (A).

Make relieving cut (1) and then perform bucking cut (2) at the tension side (B) – the saw will otherwise pinch or kick back.

If not otherwise possible, make the bucking cut from the bottom upwards (underbuck) – be wary of pushback.

Lying logs must not touch the ground at the point where the cut is made – this will damage the chain.

When cutting small logs

- Use a sturdy and stable support - sawhorse.
- Never hold the log with your leg or foot.
- Never allow another person to hold the log or help in any other way.

Vibrations

Prolonged use of the unit 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)
- Operation with frequent breaks

The period of usage is shortened by:

- Any personal tendency to suffer from poor circulation (symptoms: frequently cold fingers, itching)
- Low outside temperatures
- Gripping force (a tight grip hinders circulation)

Continual and regular users should monitor closely the condition of their hands and fingers. If any of the above symptoms appear, seek medical advice.

Maintenance and Repairs

Service the machine regularly. Do not attempt any maintenance or repair work not described in your owner's manual.

Have all other work performed by your STIHL dealer. Only use genuine STIHL replacement parts. Never modify your machine in any way as this could result in serious injury.

Always shut off the engine

- before checking chain tension
- before retensioning the chain
- before replacing the chain
- before rectifying problems

Check the chain catcher – and replace it if damaged.

Observe sharpening instructions for safe and correct handling of saw chain and guide bar.

Keep the chain in good condition at all times. It must be properly sharpened, tensioned and well lubricated.

Always change the chain, guide bar and sprocket in good time.

Check condition of clutch drum periodically.

Check the fuel tank for leaks at short regular intervals.

Do not touch a hot muffler. Check condition of muffler at regular intervals to reduce the risk of fires and damage to hearing. Do not operate your machine if the muffler is damaged or missing.

Use only a spark plug of the type approved by STIHL and make sure it is in good condition (see chapter "Specifications"). Inspect ignition lead (insulation in good condition, secure connection).

To reduce the risk of fire and burn injury as a result of sparking outside the cylinder, move the stop switch to STOP before turning the engine over on the starter with the spark plug boot removed or the spark plug unscrewed.

Store fuel and chain lubricant in properly labelled, safety-type canisters only. Take care when handling gasoline. Avoid direct contact with the skin and avoid inhaling fuel vapour.

To reduce the risk of injury, shut down your chainsaw immediately in the event of a chain brake malfunction. Take the saw to your STIHL dealer. Do not use your chainsaw until the fault has been fixed (see chapter "Chain Brake").

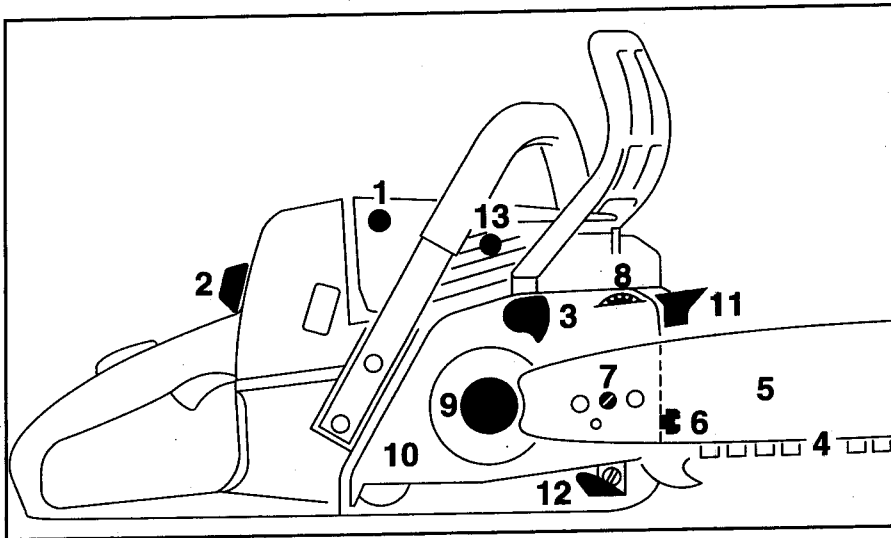
Maintenance Chart

Please note:

Different models may have different parts and controls.

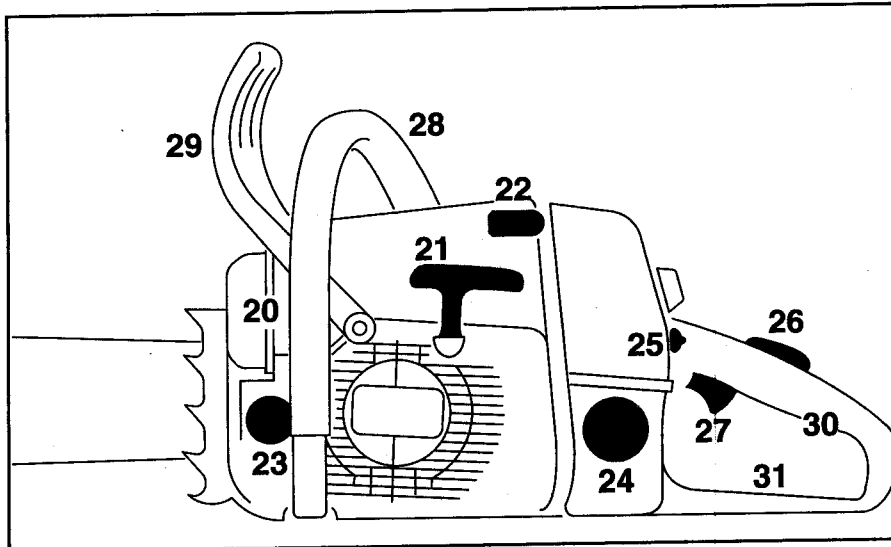
		before starting work	after finishing work or daily	after each refueling stop	weekly	monthly	if faulty	if damaged	as required	see page:
Complete machine	Visual inspection (condition, leaks)	x		x						
	Clean		x							
Throttle trigger, throttle trigger interlock, Master Control, depending on model	Check operation	x		x						
Chain brake	Check operation	x		x						
	Clean by STIHL dealer									
Filter in fuel tank	Check								x	
	Clean, Replace filter element					x				
Fuel tank	Clean							x		
Chain oil tank	Clean					x				
Chain lubrication	Check					x				
Saw chain	Inspect, also check sharpness	x								
	Check chain tension	x		x						
	Sharpen			x						
Guide bar	Check (wear, damage)	x							x	
	Clean and turn over									
	Deburr				x		x			
Chain sprocket	Replace									
	Check				x			x	x	
Air filter	Clean	x					x			
	Replace									
Cooling inlets	Clean		x					x		
Cylinder fins	Clean									
Carburetor	Check idle adjustment – chain must not turn	x		x		x				
	Readjust idle									
Spark plug	Replace								x	
All accessible screws and nuts (not adjusting screws)	Retighten						x			
Rubber vibration buffers	Have replaced by STIHL dealer								x	
Muffler	Inspect					x		x		
	Inspect spark arrestor screen	x								
	Clean or replace spark arrestor screen									
Chain catcher	Check	x						x	x	
	Replace							x		

Main Parts of the Saw



- 1 = Fuel pump (easy start*)
- 2 = Twist lock
- 3 = Chain brake
- 4 = Oilomatic saw chain
- 5 = Guide bar
- 6 = Front chain tensioner
- 7 = Side chain tensioner
- 8 = Adjusting wheel of quick tensioner *)
- 9 = Chain sprocket
- 10 = Chain sprocket cover
- 11 = Bumper spike
- 12 = Chain catcher
- 13 = Decompression valve (easy start*)

*) Special option



- 20 = Muffler
- 21 = Starter grip
- 22 = Spark plug boot
- 23 = Oil filler cap
- 24 = Fuel filler cap
- 25 = Master control lever
- 26 = Throttle trigger interlock
- 27 = Throttle trigger
- 28 = Front handle
- 29 = Front hand guard
- 30 = Rear handle
- 31 = Rear hand guard