

Chain Saw Safety

Kickback Safety Precautions

⚠ Warning!

Kickback may occur when the nose or tip of the guide bar touches an object, or when the wood closes in and pinches the saw chain in the cut. Tip contact in some cases may cause a lightning fast reverse reaction, kicking the guide bar up and back towards the operator. Pinching the saw chain along the top of the guide bar may push the guide bar rapidly back towards the operator. Either of these reactions may cause you to lose control of the saw which could result in serious personal injury.

Section 5.12 of ANSI B 175.1-2000 sets certain performance and design criteria related to chainsaw kickback. STIHL has developed a color code system using green and yellow to help you select a power head, bar and chain combination that complies with the kickback requirements of the ANSI Standard. See the sections entitled “Safety Precautions” and “Specifications” of this manual.

Do not rely exclusively upon the safety devices built into your saw. As a chainsaw user, you should take several steps to keep your cutting jobs free from accident or injury.

- A. With a basic understanding of kickback, you can reduce or eliminate the element of surprise. Sudden surprise contributes to accidents.
- B. Keep a good firm grip on the saw with both hands, the right hand on the rear handle, and the left hand on the front handle, when the engine is running. Use a firm grip with thumbs and fingers encircling the chainsaw handles. A firm grip will help you reduce kickback and maintain control of the saw. Don't let go.
- C. Make sure the area in which you are cutting is free from obstructions. Do not let the nose of the guide bar contact a log, branch or any other obstruction while you are operating the saw.
- D. Cut at high engine speeds.
- E. Do not overreach or cut above shoulder height.
- F. Follow manufacturer's sharpening and maintenance instructions for the saw chain.
- G. Only use replacement bars and chains specified by the manufacturer or the equivalent.
- H. Reduced kickback bars and low kickback chains are designed to reduce the risk of kickback injury. Ask your STIHL dealer about these devices.

Other Safety Precautions

1. Do not operate a chainsaw with one hand! Serious injury to the operator, helpers, bystanders, or any combination of these persons may result from one-handed operation. A chainsaw is intended to be used with two hands.

2. Do not operate a chainsaw when you are fatigued.
 3. Use safety footwear; snug-fitting clothing; protective gloves; and eye, hearing, and head protection devices.
 4. Use caution when handling fuel. Move the chainsaw at least 10 feet (3 m) from the fueling point before starting the engine.
 5. Do not allow other persons to be near the chainsaw when starting or cutting the chainsaw. Keep bystanders and animals out of the work area.
 6. Do not start cutting until you have a clear work area, secure footing, and a planned retreat path from the falling tree.
 7. Keep all parts of your body away from the saw chain when the engine is running.
 8. Before you start the engine, make sure that the saw chain is not contacting anything.
 9. Carry the chainsaw with the engine stopped the guide bar and saw chain to the rear, and the muffler away from you body.
 10. Do not operate a chainsaw that is damaged, improperly adjusted, or not completely and securely assembled. Be sure that the saw chain stops moving when the throttle trigger is released.
 11. Shut off the engine before setting the chainsaw down.
 12. Use extreme caution when cutting small size brush and saplings because slender material may catch the saw chain and be whipped toward you or pull you off balance.
 13. When cutting a limb that is under tension be alert for spring back so that you will not be struck when the tension in the wood fibers is released.
 14. Keep the handles dry, clean, and free of oil or fuel mixture.
 15. Operate the chainsaw only in well ventilated areas.
 16. Do not operate a chainsaw in a tree unless you have been specifically trained to do so.
 17. All chainsaw service, other than the items listed in the Owner's Manual maintenance instructions, should be performed by competent chainsaw service personnel. (For example, if improper tools are used to remove the flywheel or if an improper tool is used to hold the flywheel in order to remove the clutch, structural damage to the flywheel could occur and could be subsequently cause the flywheel to burst).
 18. When transporting your chainsaw, use the appropriate chain guard (scabbard).
- Other important safety precautions are contained in the body of the Owner's Manual.

Note:

When using a chainsaw for logging purposes, refer to the Code of Federal Regulations, Parts 1910 and 1928.

Safety Precautions

The use of any chainsaw may be hazardous. The saw chain has many sharp cutters. If the cutters contact your flesh, they will cut you, even if the chain is not moving. At full

throttle, the chain speed can reach 45 mph (20 m/s). It is important that you read, fully understand and observe the following safety precautions and warnings. Read the Owner's Manual and the Safety Precautions periodically.

Pay special attention to the section on reactive forces.

⚠ Warning!

Reactive forces, including kickback, can be dangerous. Careless or improper use of any chainsaw may cause serious or fatal injury.

All safety precautions that are generally observed when working with an axe or a hand saw also apply to the operation of chainsaws. However, because a chainsaw is a high-speed, fast-cutting power tool, special safety precautions must be observed to reduce the risk of personal injury.

Have your STIHL, dealer show you how to operate your chainsaw. Observe all applicable local safety regulations, standards and ordinances.

⚠ Warning!

Minors should never be allowed to use a chainsaw. Bystanders, especially children, and animals should not be allowed in the area where a chainsaw is in use. Never let the saw run unattended. Store it in a locked place away from children and empty the fuel tank before storing for longer than a few days.

Safe use of a chainsaw involves:

1. the operator
2. the saw
3. the use of the saw

The Operator

Physical Condition

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.

Do not operate a chainsaw when you are fatigued. Be alert-if you get tired while operating your chainsaw, take a break. Tiredness may result in loss of control. Working with any chainsaw can be strenuous. If you have any condition that might be aggravated by strenuous work, check with your doctor before operating a chainsaw.

⚠ Warning!

Prolonged use of chainsaws (or other machines) exposing the operator to vibrations may produce white finger disease (Raynaud's phenomenon) or carpal tunnel syndrome.

These conditions reduce the hand's ability to feel and regulate temperature, produce numbness and burning sensations and may cause nerve and circulation damage and tissue necrosis.

All factors which contribute to white finger disease are not known, but cold weather, smoking and diseases or physical conditions that affect blood vessels and blood transport, as well as high vibration levels and long periods of exposure to vibration are mentioned as factors in the development of white finger disease. In order to reduce the risk of white finger disease and carpal tunnel syndrome, please note the following:

- Many STIHL models are available with an anti-vibration (AV) system designed to reduce the transmission of vibrations created by the engine and cutting attachment to the operator's hands. An AV system is recommended for those persons using chainsaws on a regular or sustained basis.
- Wear gloves and keep your hands warm. Heated handles, which are available on most STIHL power-heads, are recommended for cold weather use.
- Keep the saw chain sharp and the saw, including the AV system, well maintained. A dull chain will increase cutting time, and pressing a dull chain through wood will increase the vibrations transmitted to your hands. A saw with loose components or with damaged or worn AV buffers will also tend to have higher vibration levels.
- Maintain a firm grip at all times, but do not squeeze the handles with constant, excessive pressures. Take frequent breaks.

All the above mentioned precautions do not guarantee that you will not sustain white finger disease or carpal tunnel syndrome. Therefore, continual and regular users should monitor closely the condition of their hands and fingers. If any of the above symptoms appear, seek medical advice immediately.

⚠ Warning!

The ignition system of your unit produces an electromagnetic field of a very low intensity. This field may interfere with some pacemakers. To reduce the risk of serious or fatal injury, persons with pacemaker should consult their physician and the pacemaker manufacturer before operating this tool.

Proper Clothing

⚠ Warning!

To reduce the risk of injury, the operator should wear proper protective apparel.

Clothing must be sturdy and snug-fitting, but allow complete freedom of movement. Avoid loose fitting jackets, scarf's, neckties, jewelry, flared or cuffed pants, unconfined long hair or anything that could become entangled with the saw or brush. Wear overalls or jeans with reinforced cut retardant insert or cut retardant chaps.

Protect your hands with gloves when handling saw and saw chain. Heavy-duty, nonslip gloves improve your grip and protect your hands.

Good footing is most important in chainsaw work. Wear sturdy boots with nonslip soles. Steel toed safety boots are recommended.

Never operate a chainsaw unless wearing goggles or properly fitted safety glasses with adequate top and side protection complying with your nations standard.

Wear an approved safety hard hat to protect your head. Chainsaw noise may damage your hearing. Always wear sound barriers (ear plugs or ear mufflers) to protect your hearing. Continual and regular users should have their hearing checked regularly.

The Saw

Parts of the chainsaw; for illustrations and definitions of the parts see the chapter on "Main Parts of Saw".

⚠ Warning!

Never modify a chainsaw in any way. Only attachments and parts supplied by STIHL or expressly approved by STIHL for use with the specific STIHL saw models are authorized. Although certain unauthorized attachments are usable with the STIHL power-head, their use may, in fact, be extremely dangerous.

The Use of the Saw

Transporting the chainsaw

Warning!

Always stop the engine before putting a chainsaw down or carrying it. Carrying a chainsaw with the engine running is extremely dangerous.

Accidental acceleration of the engine can cause the chain to rotate. During operation, the power-head muffler and the material around it reach extremely high temperatures. Avoid touching the hot muffler, you could receive serious burns.

By hand: When carrying your saw by hand, the engine must be stopped and the saw must be in the proper position.

Grip the front handle and place the muffler away from the body.

The chain guard (scabbard) should be over the chain and the guide bar, which should point backwards. When carrying your saw, the bar should be behind you.

By vehicle: When transporting in a vehicle, keep chain and bar covered with the chain guard. Properly secure your saw to prevent turnover, fuel spillage and damage to the saw or vehicle.

Preparation for the use of the Saw

Take off the chain guard and inspect for safety in operation. For assembly, follow the procedure described in the chapter “Mounting the Bar and Chain” of your Owner’s Manual.

STIHL Oilomatic chain, guide bar and sprocket must match each other in gauge and pitch. Before replacing any bar and chain, see the sections on “Specifications”, “Kickback” and the “ANSI B 175.1-2000 chainsaw kickback standard” in this manual.

⚠ Warning!

Proper tension of the chain is extremely important. In order to avoid improper setting, the tensioning procedure must be followed as described in your manual. Always make sure the hexagonal nut(s) for the sprocket cover is (are) tightened securely after tensioning the chain. Never start the saw with the sprocket cover loose. Check chain tension once more after having tightened the nut(s) and thereafter at regular intervals (whenever the chainsaw is shut off). If the chain becomes loose while cutting, shut off the engine and then tighten. Never try to adjust the chain while the engine is running!

Fueling

Your STIHL chainsaw uses an oil-gasoline mixture for fuel (see chapter “Fuel” of your Owner’s Manual).

⚠ Warning!

Gasoline is extremely flammable fuel. If spilled or ignited by a spark or other ignition source, it can cause fire and serious burn injury or property damage. Use extreme caution when handling gasoline or fuel mix.

Do not smoke or bring any fire or flame near the fuel or the chainsaw. Note that combustible fuel vapors may be vented from the fuel system.

Fueling Instructions

Warning!

Fuel your chainsaw in well-ventilated areas, outdoors only. Always shut off the engine and allow it to cool before refueling. Gasoline vapor pressure may build up inside the gas tank depending on the fuel used, the weather conditions, and the venting system of the tank. In order to reduce the risk of burns or other personal injury from escaping gas vapor and fumes, remove the fuel filler cap on the STIHL product carefully so as to allow any pressure build-up in the tank to release slowly. Never remove fuel filter cap while engine is running.

Select bare ground for fueling and move at least 10 feet from fueling spot before starting the engine. Wipe off any spilled fuel before starting your saw, and check for leakage.

Warning!

Check for fuel leakage while refueling and during operation. If fuel or oil leakage is found, do not start or run engine until leak is fixed and spilled fuel has been wiped away. Take care not to get fuel on your clothing. If this happens change your clothing immediately. Different models may have different types of caps.

Cap with Grip

Warning!

In order to reduce the risk of fuel spills and fire from an improperly tightened fuel cap, correctly position and tighten the fuel cap in the fuel tank opening.

To do this with this STIHL cap, raise the grip on the top of the cap until it is upright at a 90 degree angle. Insert the cap and the fuel tank opening with the triangular marks on the grip of the cap and on the fuel tank opening lining. Using the grip, turn the cap firmly clockwise as far as it will go (approximately quarter turn).

Fold the grip flush with the top of the cap. If the grip does not lie completely flush with the cap and the detent on the grip does not fit in the corresponding recess in the filler neck, the cap is not properly seated and tightened and you must repeat the above steps.

Slotted Cap

Warning!

Unit vibrations can cause an improperly tightened fuel filler cap to loosen or come off and spill quantities of fuel. In order to reduce the risk of fuel spillage and fire, tighten fuel filler cap by hand with as much force as possible.

The screwdriver end of the STIHL combination wrench or other similar tool can be used as an aid in tightening slotted fuel filler caps.

See “Fueling” chapter in your Owner’s Manual.

Starting

The chain brake must be engaged when starting the saw.

⚠ Warning!

Your chainsaw is a one-person saw. Do not allow other persons to be near the running chainsaw. Start and operate your saw without assistance. For specific starting instructions, see the appropriate section of the Owner’s Manual. Proper starting methods reduce the risk of injury. Do not drop start. This method is very dangerous because you may lose control of the saw.

There are two recommended methods for starting your chainsaw.

With the first recommended method, the chainsaw is started on the ground. Make sure the chain brake is engaged (see “Chain Brake” chapter in your Owner’s Manual) and place the chainsaw on firm ground or other solid surface in an open area. Maintain good balance and secure footing.

Grip that front handlebar of the saw firmly with your left hand and press down. For saws with a rear handle level with the ground, put the toe of your right foot into the rear handle and press down. With your right hand pull out the starter grip slowly until you feel a definite resistance and then give it a brisk, strong pull.

The second recommended method for starting your chainsaw allows you to start the saw without placing it on the ground. Make sure the chain brake is engaged; grip the front handle of the chainsaw firmly with your left hand. Keep your arm on the front of the handle in a locked (straight) position. Hold the rear handle of the saw tightly between your legs just above the knees. Maintain good balance and secure footing. Pull the starting grip slowly with your right hand until you feel a definite resistance and then give it a brisk, strong pull.

⚠ Warning!

Be sure that the guide bar and chain are clear of you and all other obstructions and objects, including the ground. When the engine is started, the engine speed with the starting throttle lock engaged will be fast enough for the clutch to engage the sprocket and, if the chain brake is not activated, turn the chain. If the upper quadrant of the tip of the bar touches any object, it may cause kickback to occur (see section on reactive forces). To reduce this risk, always engage the chain brake before starting. Never attempt to start the chainsaw when the guide bar is in a cut or kerfs.

⚠ Warning!

When you pull the starter grip, do not wrap the starting rope around your hands. Do not allow the grip to snap back, but guide the starter rope slowly back to permit the rope to rewind properly. Failure to follow this procedure may result in injury to hand or fingers and may damage the starter mechanism.

Important Adjustments**⚠ Warning!**

To reduce the risk of personal injury from loss of control or contact with the running chain, do not use a saw with incorrect idle adjustment. At correct idle speed, the chain should not rotate. For directions to adjust idle speed, see the appropriate section of your Owner's Manual. If you cannot see the correct idle speed, you have your STIHL dealer check your saw and make proper adjustments or repairs. After adjusting a chain, start the saw, let the engine run for a while, then switch engine off and recheck chain tension. Proper chain tension is very important at all times.

Catalytic converter**⚠ Warning!**

Some STIHL chainsaw models are equipped with catalytic converter, which is designed to reduce the exhaust emissions of the engine by a chemical process in the muffler. Due to this process, the muffler does not cool down as rapidly as conventional mufflers when the engine returns to idle or is shut off. To reduce the risk of fire and burn injuries, specific safety precautions must be observed.

⚠ Warning!

Since a muffler with a catalytic converter cools down less rapidly than conventional mufflers never set your chainsaw down on or near dry brush, grass, wood chips or other combustible materials while it is still hot. Let the engine cool down sitting on concrete, metal, bare ground or solid wood (e.g. the trunk of a felled tree away from any combustible substances).

⚠ Warning!

To reduce the risk of fire or burn injury let the unit cool down before refueling your chainsaw after use.

⚠ Warning!

Never disassemble or modify your muffler. The muffler could be damaged and cause an increase in heat radiation or sparks, thereby increasing the risk of fire or burn injury. You may also permanently damage the engine your muffler serviced and repaired your STIHL Servicing Dealer only.

⚠ Warning!

To reduce the risk of fire or burn injury, keep the area around the muffler clean. Remove all debris such as pine needles, branches or leaves.

⚠ Warning!

Improperly mounted or damaged cylinder housing or a damaged/deformed muffler shell may interfere with the cooling effect of the catalytic converter. To reduce the risk of fire or burn injury, do not continue work with damaged or improperly mounted cylinder housing or damaged/deformed muffler shell. Your catalytic converter is furnished with screens designed to reduce the risk of fire from the emission of hot particles. Due to the heat from the catalytic reaction, these screens will normally stay clean and need no service or maintenance. If you experience loss of performance and you suspect a clogged screen, have your muffler maintained by a STIHL Servicing Dealer.

Working Conditions

Operate the chainsaw under good visibility and daylight conditions only.

⚠ Warning!

Your chainsaw produces poisonous exhaust fumes as soon as the combustible engine is running. These gases (e.g. carbon monoxide) may be colorless and odorless. To reduce the risk of serious or fatal injury from breathing toxic fumes, never run the chainsaw indoors or in poorly ventilated locations. Ensure proper ventilation when working in trenches or other confined areas.

The muffler and other parts of the engine (e.g. fins of the cylinder, spark plug) become hot during operation and remain hot for a while after stopping the engine. To reduce the risk of burns do not touch the muffler and other parts while they are hot. Don't work alone. Keep within calling distance of others in case help is needed.

Your chainsaw is equipped with a chain catcher. It is designed to reduce the risk of personal injury in the event of a thrown or broken chain. From time to time the catcher may be damaged or removed.

To reduce the risk of personal injury, do not operate a chainsaw with a damaged or missing catcher.

Inspect buffers periodically. Replace damaged, broken or excessively worn buffers immediately, since they may result in loss of control of the saw.

A "sponginess" in the feel of the saw, increased vibration or increased "bottoming" during normal operation may indicate damage, breakage or excessive wear. Buffers should always

be replaced in sets. If you have any questions as to whether the buffers should be replaced, consult your STIHL servicing dealer.

⚠ Warning!

Take extreme care in wet and freezing weather (rain, snow, ice). Put off the work when the weather is windy, stormy or rainfall is heavy.

⚠ Warning!

Avoid stumbling on obstacles such as stumps, roots or rocks and watch out for holes or ditches. Clear the area where you are working. Be extremely cautious when working on slopes or uneven ground. There is increased danger of slipping on freshly debarked logs.

⚠ Warning!

To reduce the risk of serious or fatal injury to the operator or bystanders, never use the saw with one hand.

You cannot control reactive forces and you may lose control of the saw, which can result in the skating or bouncing of the bar, and chain along the limb or log.

Even for those compact saws designed for use in confined spaces, one-handed operation is dangerous because the operator may lose control.

Cutting Instructions

Grip: Always hold the saw firmly with both hands when the engine is running. Place your left hand on front handle and your right hand on rear handle throttle trigger. Left-handers should follow these instructions too.

Wrap your fingers tightly around the handles, keeping the handles cradled between your thumb and forefinger. With your hands in this position, you can oppose and absorb the push; pull and kickback forces of your saw without losing control (see section on reactive forces). Make sure your chainsaw handles and grip are in good condition and free of moisture, pitch oil.

⚠ Warning!

Do not operate your chainsaw with the starting throttle lock engaged. Cutting with the starting throttle lock engaged does not permit the operator proper control of the saw or chain speed.

⚠ Warning!

Never touch a chain with your hand or any part of your body when the engine is running, even when the chain is not rotating. The chain continues to rotate for a short period after the throttle trigger is released.

⚠ Warning!

Do not cut any material other than wood or wooden objects. Use your chainsaw for sawing only. It is not designed for prying or shoveling away limbs, roots or other objects. When sawing, make sure that the saw chain does not touch any foreign materials such as rocks, fences, nails and the like. Such objects may be flung off, damage the saw chain or cause the saw to kickback.

⚠ Warning!

In order to keep control of your saw, always maintain a firm foothold. Never work on a ladder, or any other insecure support. Never use the saw above shoulder height.

⚠ Warning!

Never work in a tree unless you have received specific, professional training for such work, are properly secured (such as tackle and harness system or a lift bucket), have both hands free for operating the chainsaw in a cramped environment and have taken proper precautions to avoid injury from falling limbs or branches.

Position the chainsaw in such a way that your body is clear of the cutting attachment whenever the engine is running. Stand to the left of cut while bucking.

Don't put pressure on the saw when reaching the end of a cut. The pressure may cause the bar and rotating chain to pop out of the cut or kerf, go out of control and strike the operator or some other object. IF the rotating chain strikes some other object, a reactive force may cause the moving chain to strike the operator.

Reactive forces including kickback**⚠ Warning!**

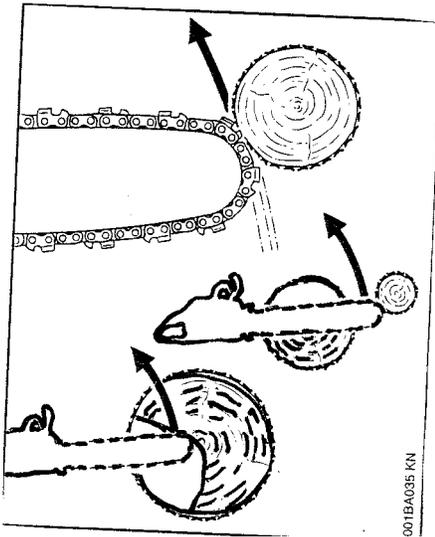
Reactive forces may occur any time the chain is rotating. Reactive forces can be dangerous! In any chainsaw, the powerful force used to cut wood can be reversed (and work against the operator). If the rotating chain is suddenly stopped by contact with any solid object like a log or branch or is pinched, there active forces may occur instantly. These reactive forces may result in loss of control which may, in turn, cause serious or fatal injury. An understanding of the causes of these reactive forces may help you avoid loss of control.

The most common reactive forces are:

- Kickback,
- Pushback,
- Pull-in

Kickback:

Kickback may occur when the moving saw chain near the upper quadrant of the bar nose contacts a solid object or is pinched.



The reaction of the cutting force of the chain causes a rotational force on the chainsaw in the direction opposite to the chain movement. This may fling the bar up and back in an uncontrolled arc mainly in the plane of the bar. Under some cutting circumstances the bar moves towards the operator, who may suffer severe or fatal injury.

Kickback may occur, for example, when the chain near the upper quadrant of the bar nose contacts the wood or is pinched during limbing or when it is incorrectly used to begin a plunge or boring cut.

The greater the force of the kickback reaction, the more difficult it becomes for the operator to control the saw. Many factors influence the occurrence force of the kickback reaction. This includes chain speed, the speed at the bar and chain contact the object angle of contact, the condition of chain and other factors.

The type of bar and saw chain is an important factor in the occurrence and force of the kickback reaction. STIHL bar and chain types are to reduce kickback forces. STIHL recommends the use of reduced kickback bars and low kickback.

ANSI B 175.2000 chainsaw kickback standard

Section 5.12 of ANSI standard B 175. 1-2000, sets certain perform and design criteria related to chainsaw kickback.

- a) Saws with a displacement of less than 3.8 cubic inches (62cm³).
 - Must, in their original condition, meet at a 45 degree computer derived kickback angle when equipped with certain cutting attachments.

- And must be equipped with at least two devices to reduce the risk of kickback injury, such as a chain brake, low kickback chain, reduced kickbar, etc.
- b) Saws with a displacement of 3.8 cubic inches and above
- Must be equipped with at least one device designed to reduce the risk of kickback injury such as a chain brake, low kickback chain, reduced kickbar, etc.

The computer derived angles for saws below 3.8 cubic inch displacement are measured by applying a computer program to test results from a kickback test machine.

⚠ Warning!

The computer derived angles of 5.12 of ANSI B 175. 1-2000 may bear no relationship to actual kickback bar rotation angles that may occur in real life cutting situations.

Compliance with 5.12 of ANSI B 175. 1-2000 does not automatically mean that in a real life kickback the bar and chain will rotate at most 45 degrees.

⚠ Warning!

In order for power-heads below 3.8 cubic inch displacement to comply with the computed kickback angle requirements of 5.12 of ANSI B 175. 1-2000 use only the following cutting attachments:

- Bar and chain combinations listed as complying in the “Specifications” section of the Owner’s Manual or
- other replacement bar and chain combinations marked in accordance with the standard for use on the power-head or
- replacement chain designated “low kickback saw chain”.

See the section on “Low kickback saw chain and reduced kickback bars”

Devices for reducing the risk of the kickback injury

STIHL recommends the use of the STIHL Quick stop chain brake on your power-head with green labeled reduced kickback bars and low kickback chains.

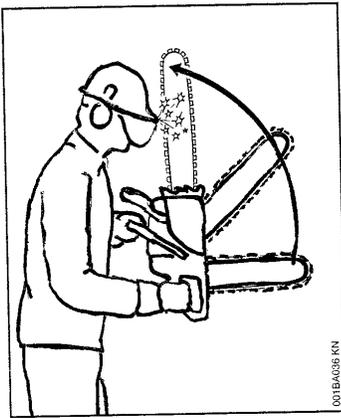
⚠ Warning!

To reduce the risk of injury, stop using the saw immediately if the chain brake does not function properly. Take the saw to your local STIHL Service Center! Do not use the saw until the problem has been rectified (see the section “Chain Brake”).

Quick stop chain brake

STIHL has developed a chain stopping system designed to reduce the risk of injury in certain kickback situations. It is called a Quick stop chain brake. The Quick stop is

available as standard equipment on your STIHL chainsaw and is available for installation on most older STIHL saws. Ask your dealer to retrofit your older model saw with a chain brake.



When a kickback occurs, the guide bar may rotate around the front handle. If the cutting position is such that the operator's left hand is gripping the front handle behind the hand guard, and if the left hand rotates around the front handle and makes a sufficiently forceful contact with the front hand guard, which is the Quick stop activating lever, this contact will activate the Quick stop. The chain brake on most new model STIHL chainsaws can also be activated by inertia. See the chapter entitled "Chain Brake" of your Owner's Manual.

⚠ Warning!

Never operate your chainsaw without a front hand guard. In a kickback situation this guard helps protect your left hand or other parts of your body. In addition, removal of the hand guard on a saw equipped with a chain brake will deactivate the chain brake.

⚠ Warning!

No Quick stop or other chain brake device prevents kickback. These devices are designed to reduce the risk of kickback injury, if activated, in certain kickback situations. In order for the Quick stop to reduce the risk of kickback injury, it must be properly maintained and in good working order. See the chapter entitled "Chain Brake" and "Maintenance, Repair and Storing" of your Owner's Manual. In addition, there must be enough distance between the bar and the operator to ensure that the Quick stop has sufficient time to activate and stop the chain before potential contact with the operator.



Warning!

An improperly maintained chain brake may increase the time needed to stop the chain after activation or may not activate at all.

⚠ Warning!

Never run the chainsaw above idle speed for more than 3 seconds when chain brake is engaged or the chain pinched or otherwise caught in the Clutch slippage can cause excessive heat, leading to severe damage of the motor housing, clutch and oiler component and may interfere with the operation of the chain brake. If clutch spillage in excess of 3 seconds has occurred, allow the motor housing to cool before proceeding and check the operation of your chain brake as described in the chapter entitled “Chain Brake”. Also make sure that the chain is not turning at idle speed (see above “Important Adjustments”).

Low kickbacks saw chain and reduce kick bars

STIHL offers a variety of bars and chains. STIHL reduced kickback bar and low kickback chains are designed to reduce the risk of kickback injury. Other chains are designed to obtain higher cutting efficiency or sharpening ease but may result in higher kickback tendency.

STIHL has developed a color codesystem to help you identify the STIHL reduced kickback bars and low kickback chains. Cutting attachments with green warning decals or green labels on the packaging are designed to reduce the risk of kickback injury. The matching of green decaled powerheads under 3.8 Cubic inch displacement with green labeled chains gives compliance with the computed kickback angle requirements of ANSI B 175,1-2000 when the products are in their original condition. Products with yellow decals or labels are for users with extraordinary cutting needs and experience and specialized training for dealing with kickback.

STIHL recommends the use of its green labeled reduced kickback bars, green labeled low kickback chains and a STIHL Quickstop chain brake for both experienced and inexperienced chainsaw users.

Please ask your STIHL dealer to properly match your powerhead with the appropriate bar/chain combinations to reduce the risk of kickback injury. Green labeled bars and chains are recommended for all powerheads. See your “STIHL Bar and Chain Information” leaflet for details.

⚠ Warning!

Use of other, non-listed bar/chain combinations may increase kickback forces and increase the risk of kickback injury. New bar/chain combinations may be developed after publication of this literature, which will, in combination with certain powerheads, comply with 5.12 of ANSI B 175.1-2000. Check with your STIHL dealer for such combinations.

⚠ Warning!

Reduced kickback bars and low kickback chains do not prevent kickback, but they are designed to reduce the risk of kickback injury. They are available from your STIHL dealer.

⚠ Warning!

Even if your saw is equipped with a Quickstop, a reduced kickback bar and/or low kickback chain, this does not eliminate the risk of injury by kickback. Therefore, always observe all safety precautions to avoid kickback situations.

Low kickback chain

Some types of saw chain have specially designed components to reduce force of nose contact kickback. STIHL has developed low kickback chain for your powerhead.

“Low kickback saw chain” is a chain which has met the kickback performance requirements of 5.12.2.4 of ANSI B 175.1-2000. (Safety Requirements for Gasoline-Powered ChainSaws) when tested on a selected representative sample of chainsaws below 3.8 cubic inch displacement specified in ANSI B. 175.1-2000. Some low kickback chains have not been tested with all powerhead and bar combinations.

⚠ Warning!

A dull or improperly sharpened chain may reduce or negate the effects of the design features intended to reduce kickback energy. Improper lowering or sharpening of the depth gauges or shaping of the cutters may increase the chance and the potential energy of a kickback. Always cut with a properly sharpened chain.

Reduced kickback bar

STIHL green labeled reduced kickback bars are designed to reduce the risk of kickback injury when used with STIHL green labeled low kickback chains.

⚠ Warning!

When used with other, more aggressive chains, these bars may be less effective in reducing kickback, and may result in higher kickback forces.

Bow Guides**⚠ Warning!**

Do not mount a bow guide on any STIHL chainsaw. Any chainsaw equipped with a bowguide is potentially very dangerous. This risk of kickback is increased with a bow guide because of the increased kickback contact area. Low kickback chain will not significantly reduce the risk of kickback injury when used on a bow guide.

To avoid kickback

The best protection form personal injury that may result from kickback is to avoid kickback situations:

1. Hold the chainsaw firmly with both hands and maintain a secure grip.
2. Be aware of the location of the guide bar nose at all times.

3. Never let the nose of the guide bar contact any object. Do not cut limbs with the nose of the guide bar contact any object. Do not cut limbs with the nose of the guide bar. Be especially careful when cutting small, tough limbs, small size brush and saplings which may easily catch the chain.
4. Don't overreach.
5. Don't cut above shoulder height.
6. Begin cutting and continue at full throttle.
7. Cut only one log at a time.
8. Use extreme caution when reentering a previous cut.
9. Do not attempt to plunge cut if you are not experienced with these cutting techniques.
10. Be alert for shifting of the log or other forces that may cause the cut to close and pinch the chain.
11. Maintain saw chain properly. Cut with a correctly sharpened, properly tensioned chain at all times.
12. Stand to the side of the cutting path of the chainsaw.

A=Pull-in:

Pull-in occurs when the chain on the bottom of the bar is suddenly stopping when it is pinched, caught or encounters a foreign object in the wood. The reaction of the chain pulls the saw forward and may cause the operator to lose control.

Pull-in frequently occurs when the bumper spike of the saw is not held securely against the tree or limb and when the chain is not rotating at full speed before it contacts the wood.

 Warning!

Using extreme caution when cutting size brush and saplings which may easily catch the chain and pull your balance.

To avoid pull-in

1. Always start a cut with the chain rotating at full speed and the bumper spike in contact with the wood.
2. Pull-in may also be prevented using wedges to open the cut.

B=Pushback:

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

Pushback frequently occurs when the top of the bar is used for cutting.

To avoid pushback

1. Be alert to forces or situations that may cause material to pinch the top of the chain.
2. Do not cut more than one log at a time.
3. Do not twist the saw when withdrawing the bar from a plunge cut or underbuck cut because the chain can pinch.

Cutting Techniques**Felling**

Felling is cutting down a tree.

Before felling a tree, consider carefully all conditions which may affect the direction of fall, including:

- The intended direction of the fall.
- The natural lean of the tree.
- Any unusually heavy limb structure.
- Surrounding trees and obstacles.
- The wind direction and speed.

⚠ Warning!

Always observe the general condition of the tree. Inexperienced users should never attempt to cut trees which are decayed or rotted inside or which are leaning or otherwise under tension. There is an increased risk that such trees could snap or split while being cut and cause serious or fatal injury to the operator or bystanders. Also look for broken or dead branches which could vibrate loose and fall on the operator. When felling on a slope, the operator should stand on the uphill side if possible.

Felling Instructions:

When felling, maintain a distance of at least 2 ½ tree lengths from the nearest person.

When felling in the vicinity of roads, railways and power lines, etc. take extra precautions. Inform the police, utility company or railway authority before beginning to cut.

⚠ Warning!

The noise of your engine may drown any warning call.

⚠ Warning!

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, wood structure, decay, snow load, etc. To reduce the risk of severe or fatal injury to yourself or others, look for these

conditions prior to beginning the cut, and be alert for a change in direction while the tree is falling.

Escape path

First clear the tree base and work area from interfering limbs and brush and clean its lower portion with an ax.

Then, establish two paths of escape (B) and remove all obstacles. These paths should be generally opposite to the planned direction of the fall of the tree (A) and about a 45 degree angle. Place all tools and equipment a safe distance away from the tree, but not on the escape paths.

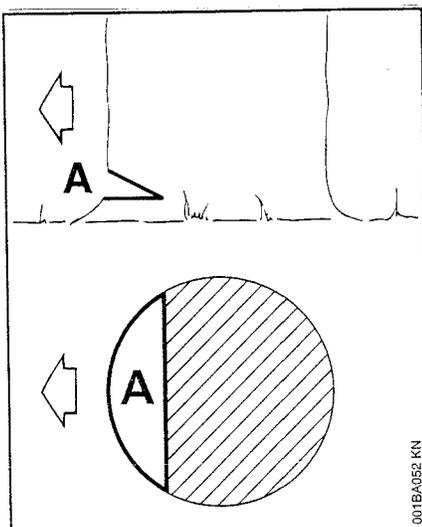
Buttress roots

If the tree has large buttress roots, cut into the largest buttress vertically first (horizontally next) and remove the resulting piece.

Gunning sight

When making the felling notch, use gunning sight on the shroud to check the required direction of

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



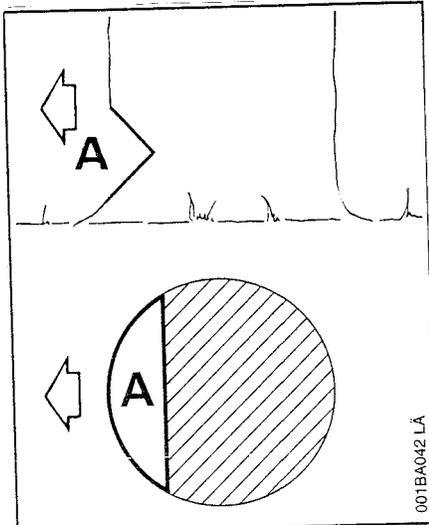
Conventional cut

A=felling notch- determines the direction of the fall.

For a conventional cut:

- Properly place felling notch perpendicular to the line of fall, close to the ground
- Cut down at app. 45-degree angle to depth of about 1/5 to 1/4 of the trunk diameter
- Make second cut horizontal

- Remove resulting 45-degree piece

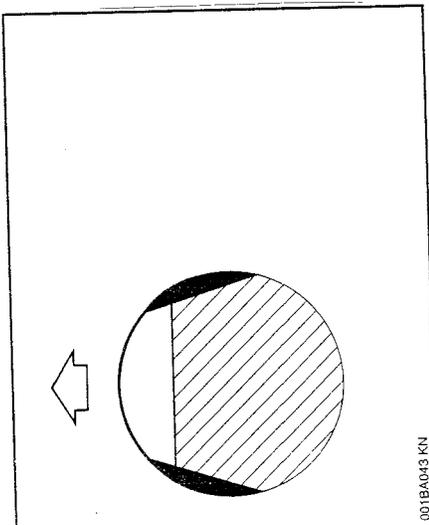


Open-face technique

A=felling notch-determines the direction of fall

For an open-face cut:

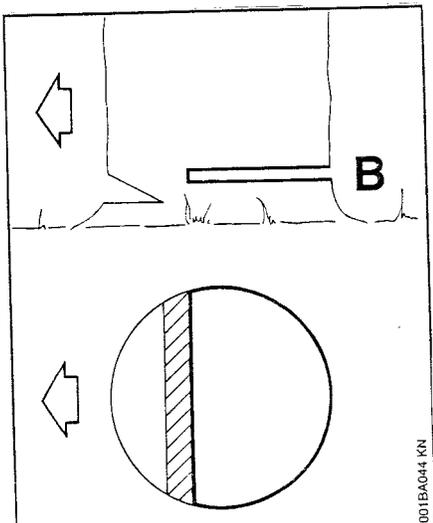
- Properly place felling notch perpendicular to the line of fall, close to the ground
- Cut down at app. 50-degree angle to a depth of app. 1/5 to 1/4 of the trunk diameter
- Make second cut from below at app. 40 degree angle
- Remove resulting 90-degree piece



Making sapwood cuts

- For medium sized or larger trees make cuts at both sides of the trunk,
- At same height as subsequent felling cut.
- Cut to not more than width of guide bar.

This is especially important in softwood in summer-it helps prevent sapwood splintering when the tree falls.

**B=Felling cut**

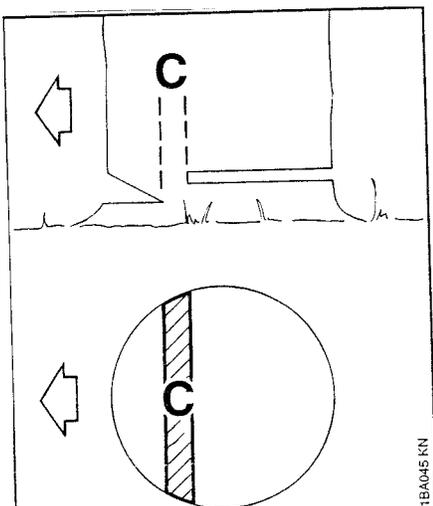
Conventional and open-face technique:

- Begin 1 to 2 inches higher than centre of felling notch
- Cut horizontally towards the felling notch
- Leave approximately 1/10 of diameter uncut. This is the hinge- you could lose control of the direction of the fall

Drive wedges into the felling cut where necessary to control the fall.

⚠ Warning!

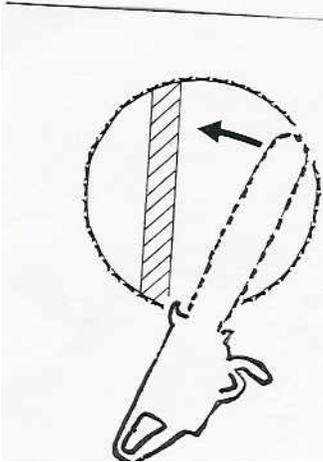
If the tip of the bar contacts a wedge, it may cause kickback. Wedges should be of wood or plastic-never steel, which can damage the chain.

**C=Hinge**

- Helps control the falling trees
- Do not cut through the hinge-you could lose control of the direction of the fall

⚠ Warning!

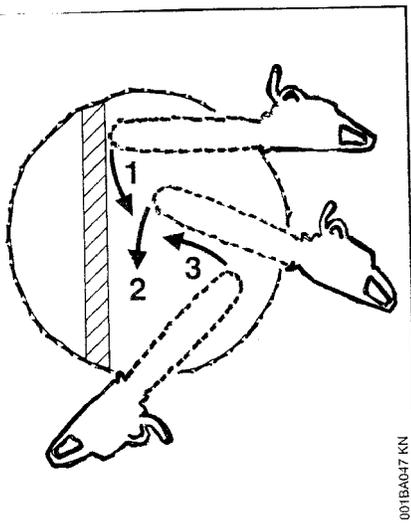
In order to reduce the risk of personal injury, never stand directly behind the tree when it is about to fall, since part of the trunk may split and come back toward the operator (barber-charing), or the tree may jump backwards off the stump. Always keep to the side of the falling tree. When the tree starts to fall withdraw the bar, shut off the engine and walk away on the preplanned escape path. Watch out for falling limbs.

**⚠ Warning!**

Be extremely careful with partially fallen trees which are poorly supported. When the tree hangs or for some other reason does not fall completely, set the saw aside and pull the tree down with a winch, block and tackle or tractor. If you try to cut it down with your saw, you can be injured.

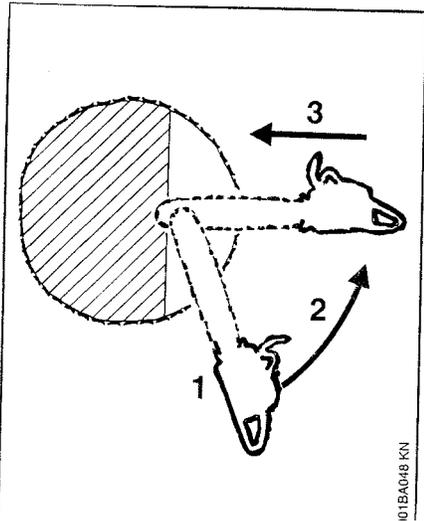
Felling cut for small diameter tree**Simple fan cut**

Engage the bumper spikes of the chainsaw directly behind the location the intended hinge and pivot the saw around this point only as far as the hinge. The bumper spike rolls again the trunk.



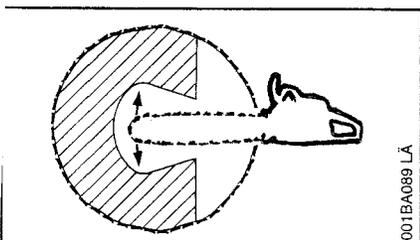
Felling cut for large diameter trees:**⚠ Warning!**

Felling a tree that has a diameter greater than the length of the guide bar requires use of either the sectioning felling cut or plunge cut-method. These methods are extremely dangerous because they involve the use of the nose of the guide bar and can result in kickback. Only properly trained professionals should attempt these techniques.

**Sectioning Method**

For the sectioning method make the first part of the felling cut with the guide bar fanning in toward the hinge. Then, using the bumper spike as a pivot, reposition the saw for the next cut.

Avoid repositioning the saw more than necessary. When repositioning for the next cut, keep the guide bar fully engaged in the kerf to keep the felling cut straight. If the saw begins to pinch, insert a wedge to open the cut. On the last cut, do not cut the hinge.

**Plunge-cut method**

Timber having a diameter more than twice the length of the guide bar requires the use of the plunge-cut method before making the felling cut.

First, cut a large, wide felling notch. Make a plunge cut in the centre of the notch.

The plunge cut is made with the guide bar nose. Begin the plunge cut by applying the lower portion of the guide bar nose to the tree at an angle. Cut until the depth of the kerf is

about the same as the width of the guide bar. Next, align the saw in the direction in which the recess is to be cut.

With the saw at full throttle, insert the guide bar in the trunk.

Enlarge the plunge cut as shown in the illustration.

 **Warning!**

There is an extreme danger of kickback at this point. Extra caution must be taken to maintain control of the saw. To make the felling cut, follow the sectioning method described previously.