PBCS916

Instruction Manual

Use 25:1 2 Stroke Mix

Instruction Manual
1 - 57

Contents

Allow only persons who fully understand this manual to operate your chain saw.

To receive maximum performance and satisfaction from your chain saw, it is important that you read, understand and follow the safety precautions and the operating and maintenance instructions in chapter "Safety Precautions and Working Techniques" before using your chain saw. For further information you can go to

Contact your dealer or the distributor for your area if you do not understand any of the instructions in this manual.

Warning!

Because a chain saw is a high-speed wood-cutting tool, some special safety precautions must be observed as with any other power saw to reduce the risk of personal injury. Careless or improper use may cause serious or even fatal injury.

Guide to Using this Manual

Pictograms

The meanings of the pictograms attached to or embossed on the machine are explained in this manual.

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


Fuel tank; fuel mixture of gasoline and engine oil


Chain oil tank; chain oil


Engaging and disengaging the Quickstop chain brake


Direction of chain rotation

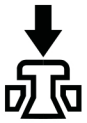

Ematic; chain oil quantity control

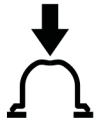

Tension the chain


Intake air preheating for winter operation


Intake air for summer operation


Handle heating


Operate decompression valve


Operate manual fuel pump

Symbols in Text

Many operating and safety instructions are supported by illustrations.

The individual steps or procedures described in the manual may be marked in different ways:

- A bullet marks a step or procedure.

A description of a step or procedure that refers directly to an illustration may contain item numbers that appear in the illustration. Example:

- Loosen the screw (1).
- Lever (2) ...

In addition to the operating instructions, this manual may contain paragraphs that require your special attention. Such paragraphs are marked with the symbols and signal words described below:

Danger!

Indicates an imminent risk of severe or fatal injury.

Warning!

Indicates a hazardous situation which, if not avoided, could result in severe or fatal injury.

Caution!

Indicates a risk of property damage, including damage to the machine or its individual components.

Engineering Improvements

philosophy is to continually improve all of its products. As a result, engineering changes and improvements are made from time to time. Therefore, some changes, modifications and improvements may not be covered in this manual. If the operating characteristics or the appearance of your machine differs from those described in this manual, please contact your dealer for assistance.

Safety Precautions and Working Techniques

Because a chain saw is a high-speed, fast-cutting power tool, special safety precautions must be observed to reduce the risk of personal injury.

It is important that you read, fully understand and observe the following safety precautions and warnings. Read the instruction manual and the safety instructions periodically. Careless or improper use may cause serious or fatal injury.

Warning!

Reactive forces, including kickback, can be dangerous. Pay special attention to the section on reactive forces.

Have your dealer show you how to operate your power tool. All safety precautions that are generally observed when working with an ax or a hand saw also apply to the operation of chain saws. Observe all applicable federal, state and local safety regulations, standards and ordinances. When using a chain saw for logging purposes, for instance, refer to the OSHA regulations for "logging operations" at 29 Code of Federal Regulations 1910.266.

Warning!

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

Warning!

The use of this machine 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.

Use your chain saw only for cutting wooden objects.

Warning!

Do not use it for other purposes, since misuse may result in personal injury or property damage, including damage to the machine

Warning!

Minors should never be allowed to use this power tool. Bystanders, especially children, and animals should not be allowed in the area where it is in use.

Warning!

To reduce the risk of injury to bystanders and damage to property, never let your power tool run unattended. When it is not in use (e.g. during a work break), shut it off and make sure that unauthorized persons do not use it.

Most of these safety precautions and warnings apply to the use of all chain saws. Different models may have different parts and controls. See the appropriate section of your instruction manual for a description of the controls and the function of the parts of your model.

Safe use of a chain saw involves

1 the operator

2 the power tool

3 the use of the power tool.

THE OPERATOR

Physical Condition

You must be in good physical condition and mental health and not under the influence of any substance (drugs, alcohol, etc.) which might impair vision, dexterity or judgment. Do not operate this machine when you are fatigued.

Warning!

Be alert – if you get tired, take a break. Tiredness may result in loss of control. Working with any power tool can be strenuous. If you have any condition that might be aggravated by strenuous work, check with your doctor before operating this machine.

Warning!

Prolonged use of a power tool (or other machines) exposing the operator to vibrations may produce whitefinger 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 whitefinger disease. In order to reduce the risk of whitefinger disease and carpal tunnel syndrome, please note the following:

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

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

Warning!

The ignition system of the 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 a 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. Wear long pants made of heavy material to help protect your legs from contact with branches or brush. To reduce the risk of cut injuries, wear pants or chaps that contain pads of cut retardant material. Avoid loose-fitting jackets, scarfs, neckties, jewelry, flared or cuffed pants, unconfined long hair or anything that could become caught on branches, brush or the moving parts of the unit. Secure hair so it is above shoulder level.

Good footing is very important. Wear sturdy boots with nonslip soles. Steel-toed safety boots are recommended.

Wear an approved safety hard hat to reduce the risk of injury to your head. Chain saw noise may damage your hearing. Wear sound barriers (ear plugs or ear mufflers) to help protect your hearing. Continual and regular users should have their hearing checked regularly.

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

Never operate your power tool unless wearing goggles or properly fitted protective glasses with adequate top and side protection complying with ANSI Z 87.1 (or your applicable national standard). To reduce the risk of injury to your face recommends that you also wear a face shield or face screen over your goggles or protective glasses.

Always wear gloves when handling the machine and the cutting tool. Heavy-duty, nonslip gloves improve your grip and help to protect your hands.

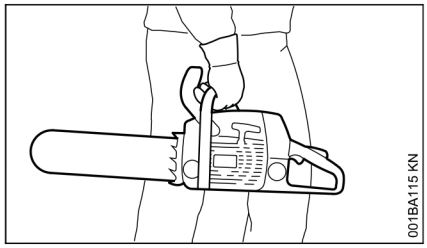
THE POWER TOOL

For illustrations and definitions of the power tool parts see the chapter on "Main Parts."

Warning!

Never modify this power tool in any way. Only attachments supplied by or expressly approved by for use with the specific model are authorized. Although certain unauthorized attachments are useable with power tools, their use may, in fact, be extremely dangerous.

If this 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. Check in particular that



the fuel system is tight (no leaks) and that the controls and safety devices are working properly. Do not continue operating this machine if it is damaged. In case of doubt, have it checked by your servicing dealer.

THE USE OF THE POWER TOOL

Transporting the Power Tool

Warning!

To reduce the risk of injury from saw chain contact, never carry or transport your power tool with the saw chain moving. Always engage the chain brake when taking more than a few steps.

Warning!

Always switch off the engine, and fit the chain guard (scabbard) over the chain and guide bar before transporting the power tool over longer distances. When transporting it in a vehicle, properly secure it to prevent turnover, fuel spillage and damage to the unit.

It may be carried only in a horizontal position. Grip the front handle in a manner that the machine is balanced horizontally. Keep the hot muffler away from your body and the cutting attachment behind you.

Fuel

Your power tool uses an oil-gasoline mixture for fuel (see the chapter on "Fuel" of your instruction manual).

Warning!

Gasoline is an extremely flammable fuel. If spilled and 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 power tool. Note that combustible fuel vapor may escape from the fuel system.

Fueling Instructions

Warning!

Fuel your power tool in well-ventilated areas, outdoors. Always shut off the engine and allow it to cool before refueling. Gasoline vapor pressure may build up inside the fuel tank depending on the fuel used, the weather conditions and the tank venting system.

In order to reduce the risk of burns and other personal injury from escaping gas vapor and fumes, remove the fuel filler cap on your power tool carefully so as to allow any pressure build-up in the tank to release slowly. Never remove the fuel filler cap while the engine is running.

Select bare ground for fueling and move at least 10 feet (3 m) from the fueling spot before starting the engine. Wipe off any spilled fuel before starting your machine.

Warning!

Check for fuel leakage while refueling and during operation. If fuel leakage is found, do not start or run the engine until the leak is fixed and any 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 be equipped with different fuel caps.

Screw 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 the fuel filler cap by hand as securely as possible.

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

See also the "Fueling" chapter in your Instruction Manual for additional information.

Before Starting

Take off the chain guard (scabbard) and inspect the saw for proper condition and operation. (See the maintenance chart near the end of the instruction manual.)

Warning!

Always check your power tool for proper condition and operation before starting, particularly the throttle trigger, throttle trigger lockout, stop switch and cutting tool. The throttle trigger must move freely and always spring back to the idle position. Never attempt to modify the controls or safety devices.

Warning!

Never operate your power tool if it is damaged, improperly adjusted or maintained, or not completely or securely assembled.

Warning!

Check that the spark plug boot is securely mounted on the spark plug – a loose boot may cause arcing that could ignite combustible fumes and cause a fire.

For proper assembly of the bar and chain follow the procedure described in the chapter "Mounting the Bar and Chain" of your instruction manual. Oilomatic chain, guide bar and sprocket must match each other in gauge and pitch. Before replacing any bar and chain, see the chapter entitled "Specifications" in the instruction manual and the section "Kickback" and the "ANSI B 175.1-2000 chain saw chain saw kickback standard" below.

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 in order to secure the bar. 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 saw 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!

Keep the handles clean and dry at all times; it is particularly important to keep them free of moisture, pitch, oil, fuel mix, grease or resin in order for you to maintain a firm grip and properly control your power tool.

Starting

Warning!

To reduce the risk of fire and burn injuries, start the engine at least 10 feet (3 m) from the fueling spot, outdoors only.

Start and operate your saw without assistance. For specific starting instructions, see the appropriate section of the instruction manual. Proper starting methods reduce the risk of injury.

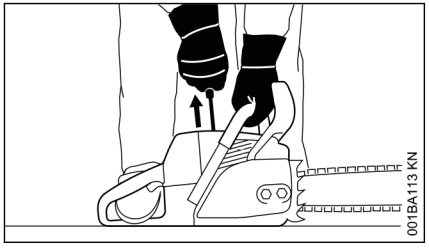
Warning!

To reduce the risk of injury from chain contact and / or reactive forces, the chain brake must be engaged when starting the saw.

Warning!

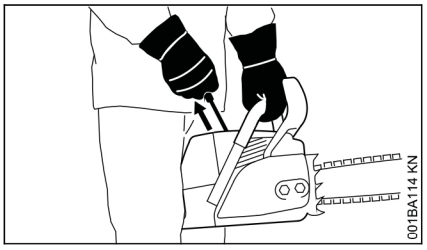
Do not drop start. This method is very dangerous because you may lose control of the saw.

There are two recommended methods for starting your chain saw.



With the **first** recommended **method**, the chain saw is started on the ground. Make sure the chain brake is engaged (see "Chain Brake" chapter in your instruction manual) and place the chain saw on firm ground or other solid surface in an open area. Maintain good balance and secure footing.

Grip the 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 chain saw 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 chain saw firmly with your left hand. Keep your arm on the front 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 chain saw when the guide bar is in a cut or kerf.

As soon as the engine is running, immediately blip the throttle trigger, which will disengage the starting throttle lock and allow the engine to settle down to idle.

Warning!

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

Important Adjustments

Warning!

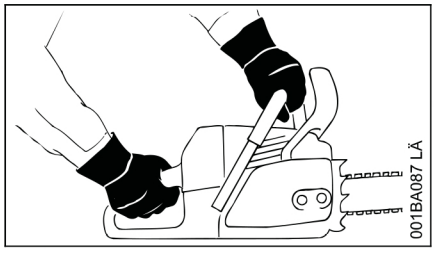
To reduce the risk of personal injury from loss of control and / or contact with the running cutting tool, do not use your unit with incorrect idle adjustment. At correct idle speed, the cutting tool should not move. For directions on how to adjust idle speed, see the appropriate section of your instruction manual.

If you cannot set the correct idle speed, have your dealer check your power tool and make proper adjustments and repairs.

During Operation

Holding and Controlling the Power Tool

Always hold the unit firmly with both hands on the handles while you are working. Wrap your fingers and thumbs around the handles.



Your right hand should grip the rear handle. This also applies to left-handers. With your hands in this position, you can best oppose and absorb the push, pull and kickback forces of your saw without losing control (see section on reactive forces).

Warning!

To reduce the risk of serious or fatal injury to the operator or bystanders from loss of control, never use the saw with one hand. It is more difficult for you to control reactive forces and to prevent the bar and chain from skating or bouncing 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.

Warning!

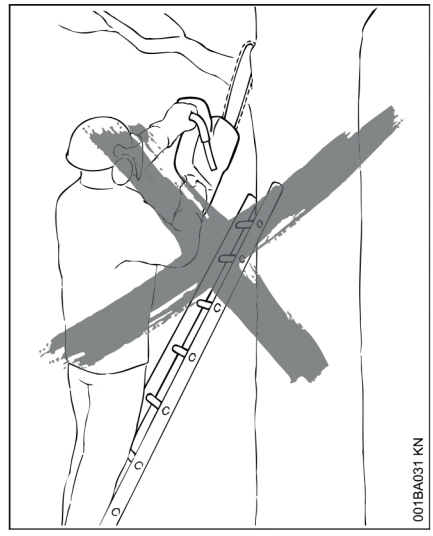
To reduce the risk of cut injuries, keep hands and feet away from the cutting tool. Never touch a moving cutting tool with your hand or any other part of your body.

Warning!

Keep proper footing and balance at all times. Special care must be taken in slippery conditions (wet ground, snow) and in difficult, overgrown terrain. Watch for hidden obstacles such as tree stumps, roots, rocks, holes and ditches to avoid stumbling. There is increased danger of slipping on freshly debarked logs. For better footing, clear away fallen branches, scrub and cuttings. Be extremely cautious when working on slopes or uneven ground.

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.

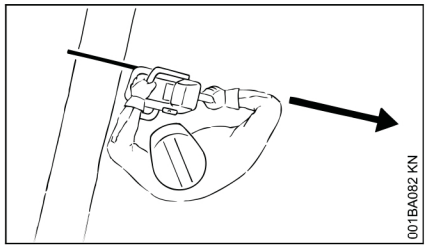


Warning!

To reduce the risk of injury from loss of control, never work on a ladder or any other insecure support. Never hold the machine above shoulder height. Do not overreach.

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 chain saw in a cramped environment and have taken proper precautions to avoid injury from falling limbs or branches.



Position the chain saw 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.

Never 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.

Working Conditions

Operate and start your power tool only outdoors in a well ventilated area. Operate it under good visibility and daylight conditions only. Work carefully.

Warning!

Your chain saw is a one-person machine. Do not allow other persons in the general work area, even when starting. Stop the engine immediately if you are approached.

Warning!

Even though bystanders should be kept away from the running saw, never work alone. Keep within calling distance of others in case help is needed.

Warning!

As soon as the engine is running, this product generates toxic exhaust fumes containing chemicals, such as unburned hydrocarbons (including benzene) and carbon monoxide, that are known to cause respiratory problems, cancer, birth defects, or other reproductive harm. Some of the gases (e.g. carbon monoxide) may be colorless and odorless. To reduce the risk of serious or fatal injury / illness from inhaling toxic fumes, never run the machine indoors or in poorly ventilated locations. If exhaust fumes become concentrated due to insufficient ventilation, clear obstructions from work area to permit proper ventilation before proceeding and / or take frequent breaks to allow fumes to dissipate before they become concentrated.

Warning!

Inhalation of certain dusts, especially organic dusts such as mold or pollen, can cause susceptible persons to have an allergic or asthmatic reaction. Substantial or repeated inhalation of dust and other airborne contaminants, in particular those with a smaller particle size, may cause respiratory or other illnesses. This includes wood dust, especially from hardwoods, but also from some softwoods such as Western Red Cedar. Control dust at the source where possible. Use good work practices, such as always cutting with a properly sharpened chain (which produces wood chips rather than fine dust) and operating the unit so that the wind or operating process directs any dust raised by the power tool away from the operator. Follow the recommendations of EPA / OSHA / NIOSH and occupational and trade associations with respect to dust ("particulate matter"). When the inhalation of dust cannot be substantially controlled, i.e., kept at or near the ambient (background) level, the operator and any bystanders should wear a respirator approved by NIOSH / MSHA for the type of dust encountered.

Warning!

Breathing asbestos dust is dangerous and can cause severe or fatal injury, respiratory illness or cancer. The use and disposal of asbestos-containing products have been strictly regulated by OSHA and the Environmental Protection Agency. If you have any reason to believe that you might be cutting asbestos, immediately contact your employer or a local OSHA representative.

Operating Instructions

Warning!

Do not operate your power tool using the starting throttle lock, as you do not have control of the engine speed.

In the event of an emergency, switch off the engine immediately – move the slide control / stop switch to **0** or **STOP**.

Warning!

Always stop the engine before putting a chain saw down.

Warning!

The saw chain continues to move for a short period after the throttle trigger is released (flywheel effect).

Accelerating the engine while the saw chain is blocked increases the load and will cause the clutch to slip continuously. This may occur if the throttle is depressed for more than a few seconds when the chain is pinched in the cut or the chain brake is engaged. It can result in overheating and damage to important components (e.g. clutch, polymer housing components) – which can then increase the risk of injury, e.g., from the saw chain moving while the engine is idling.

Warning!

Your chain saw 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 chain saw with a damaged or missing chain catcher.

Warning!

Inspect antivibration elements periodically. Replace damaged, broken or excessively worn antivibration elements 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. Antivibration elements should always be replaced in sets. If you have any questions as to whether the antivibration elements should be replaced, consult your servicing dealer.

Warning!

Your saw is not designed for prying or shoveling away limbs, roots or other objects. Such use could damage the cutting attachment or AV system.

Warning!

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!

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 risk of burns do not touch the muffler and other parts while they are hot.

Warning!

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

Never modify your muffler. A modified or damaged muffler could cause an increase in heat radiation or sparks, thereby increasing the risk of fire and burn injury. You may also permanently damage the engine. Have your muffler serviced and repaired by your servicing dealer only.

Catalytic Converter

Warning!

Some power tools are equipped with a 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, the following specific safety precautions must be observed.

Warning!

Since a muffler with a catalytic converter cools down less rapidly than conventional mufflers, always set your power tool down in the upright position and never locate it where the muffler is near dry brush, grass, wood chips or other combustible materials while it is still hot.

Warning!

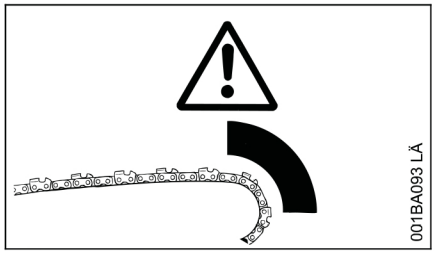
An improperly mounted or damaged shroud or a damaged / deformed muffler shell may interfere with the cooling process of the catalytic converter. To reduce the risk of fire or burn injury, do not continue work with a damaged or improperly mounted cylinder shroud or a damaged / deformed muffler shell.

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 servicing dealer.

Reactive Forces including Kickback

Warning!

Reactive forces may occur any time the chain is rotating. Reactive forces can cause serious personal injury.



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 such as a log or branch or is pinched, the reactive forces may occur instantly. These reactive forces may result in loss of control, which, in turn, may cause serious or fatal injury. An understanding of the causes of these reactive forces may help you avoid the element of surprise and loss of control. Sudden surprise contributes to accidents.

The most common reactive forces are:

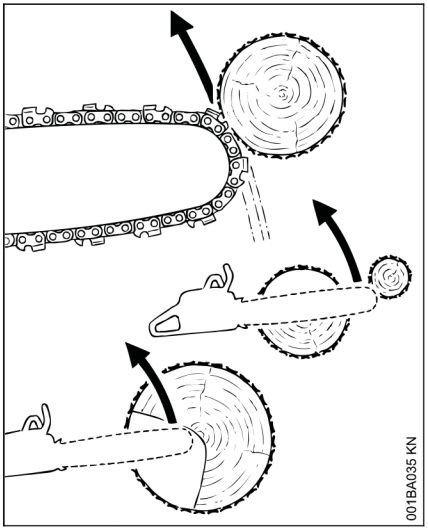
– kickback,

– 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 chain saw in the direction opposite to the chain movement. This may fling the bar up and back in a lightning fast reaction 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 and force of the kickback reaction. These include chain speed, the speed at which the bar and chain contact the object, the angle of contact, the condition of the chain and other factors.

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

ANSI B 175.1-2000 chain saw kickback standard

§ 5.11 of ANSI standard B 175.1-2000, sets certain performance and design criteria related to chain saw kickback.

To comply with § 5.11 of ANSI B 175.1-2000:

a) Saws with a displacement of less than 3.8 cubic inches (62 cm³)

– must, in their original condition, meet a 45° 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 kickback bar, etc.

b) Saws with a displacement of 3.8 cubic inches (62 cm³) 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 kickback bar, etc.

The computer derived angles for saws below 3.8 cubic inches (62 cm³) displacement are measured by applying a computer program to test results from a kickback test machine.

Warning!

The computer derived angles of § 5.11 of ANSI B 175.1-2000 may bear no relationship to actual kickback bar rotation angles that may occur in real life cutting situations.

In addition, features designed to reduce kickback injuries may lose some of their effectiveness when they are no longer in their original condition, especially if they have been improperly maintained. Compliance with § 5.11 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°.

Warning!

In order for powerheads below 3.8 cubic inches (62 cm³) displacement to comply with the computed kickback angle requirements of § 5.11 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 instruction manual or

– other replacement bar and chain combinations marked in accordance with the standard for use on the powerhead 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 Kickback Injury

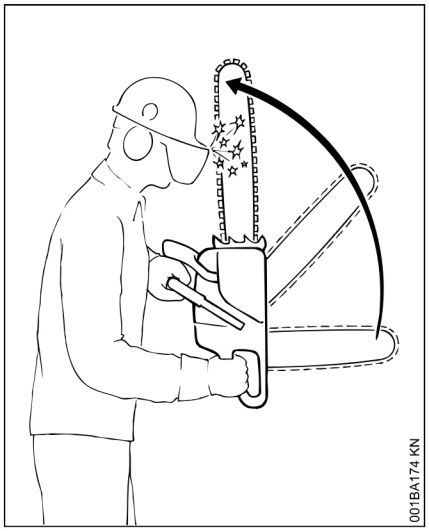
recommends the use of the Quickstop chain brake on your powerhead with green labeled reduced kickback bars and low kickback chains.

Warning!

To reduce the risk of injury, never use a saw if the chain brake does not function properly. Take the saw to your local servicing dealer. Do not use the saw until the problem has been rectified.

Quickstop Chain Brake

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



All chain saws are equipped with a Quickstop chain brake which can be activated by inertia. If the forces of an occurring kickback are sufficiently high, the hand guard is accelerated towards the bar nose even without hand contact. See the chapter entitled "Chain Brake" of your instruction manual.

Warning!

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

Warning!

No Quickstop 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 Quickstop to reduce the risk of kickback injury, it must be properly maintained and in good working order. See the chapter of your instruction manual entitled "Chain Brake" and the section "Maintenance, Repair and Storing" at the end of these Safety Precautions. In addition, there must be enough distance between the bar and the operator to ensure that the Quickstop 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 chain saw above idle speed for more than 3 seconds when the chain brake is engaged or when the chain is pinched or otherwise caught in the cut. 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 slippage 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" of your instruction manual. Also make sure that the chain is not turning at idle speed (see above at "Important Adjustments").

Low Kickback Saw Chain and Reduced Kickback Bars

offers a variety of bars and chains. reduced kickback bars 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.

has developed a color code system to help you identify the 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 inches (62 cm^3) displacement with green labeled bars and 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.

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

Please ask your dealer to properly match your powerhead with the appropriate bar / chain combination to reduce the risk of kickback injury. Green labeled bars and chains are recommended for all powerheads.

Warning!

Use of other, non-listed bar / chain combinations may increase kickback forces and 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 § 5.11 of ANSI B 175.1-2000. Check with your 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 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 the force of nose contact kickback. has developed low kickback chain for your powerhead.

"Low kickback saw chain" is a chain which has met the kickback performance requirements of § 5.11.2.4 of ANSI B 175.1-2000 (Gasoline-Powered Chain Saws–Safety Requirements) when tested in its original condition on a selected representative sample of chain saws below 3.8 cubic inches (62 cm^3) displacement specified in ANSI B 175.1-2000.

Warning!

There are potential powerhead and bar combinations with which low kickback saw chains can be used which have not been specifically certified to comply with the 45° computer derived kickback angle of § 5.11 of 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 Bars

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

Warning!

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

Warning!

For a properly balanced saw and in order to comply with § 5.12.1 of ANSI B 175.1-2000, use only bar lengths listed in the specifications chapter of the instruction manual for your chain saw powerhead.

Bow Guides

Warning!

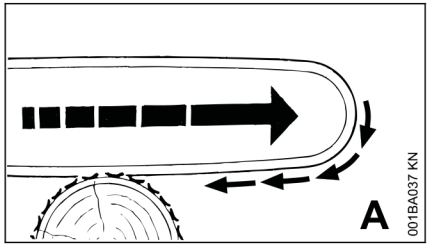
Do not mount a bow guide on any chain saw. Any chain saw equipped with a bow guide is potentially very dangerous. The risk of kickback is increased with a bow guide because of the increased kickback contact area. Low kickback chain will not significantly reduce the risk of kickback injury when used on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

To avoid Kickback

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

1. Hold the chain saw firmly with both hands and maintain a secure grip. Don't let go.
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. Be especially careful near wire fences and 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 chain saw.

A = Pull-in



Pull-in occurs when the chain on the bottom of the bar is suddenly stopped 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.

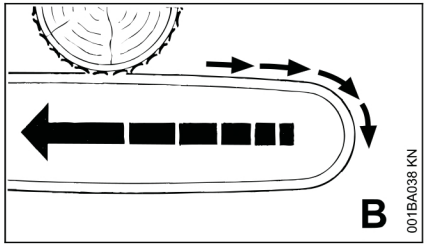
Warning!

Use extreme caution when cutting small size brush and saplings which may easily catch the chain, be whipped towards you or pull you off 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. The risk of pull-in may also be reduced by using wedges to open the kerf or 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 may drive the saw rapidly 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.

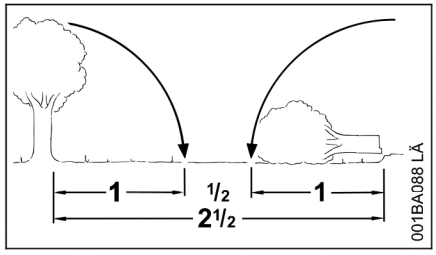
Warning!

There are a number of factors that may affect and change the intended direction of fall, e.g. wind direction and speed, lean of tree, surrounding trees and obstacles, 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.

Warning!

Always observe the general condition of the tree. Inexperienced users should never attempt to cut trees that are decayed or rotted inside or that 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



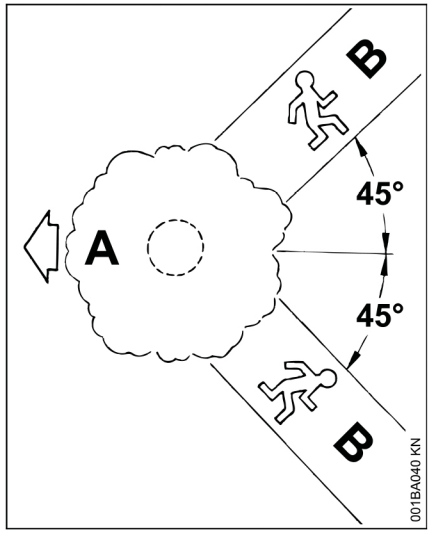
When felling, maintain a distance of at least 2 1/2 tree lengths from the nearest person.

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.

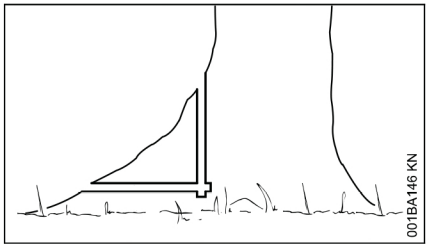
Escape Path



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

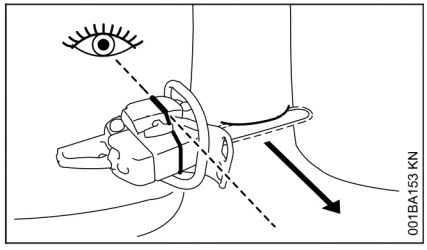
Then, establish two paths of escape (B) and remove all obstacles. These paths should be generally opposite to the planned direction of the fall of the tree (A) and about at a 45° angle. Place all tools and equipment a safe distance away from the tree, but not on the escape paths.

Buttress Roots



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

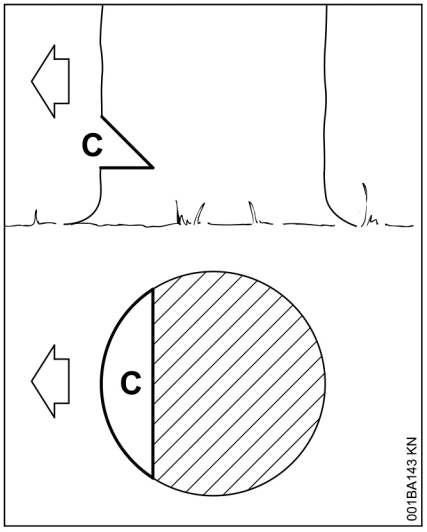
Gunning Sight



When making the felling notch, use the gunning sight on the shroud and housing to check the desired direction of fall:

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

Conventional Cut

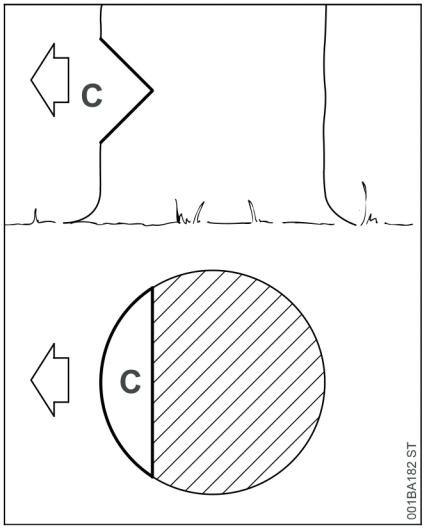


Felling notch (C) – determines the direction of the fall

For a conventional cut:

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

Open-face Technique

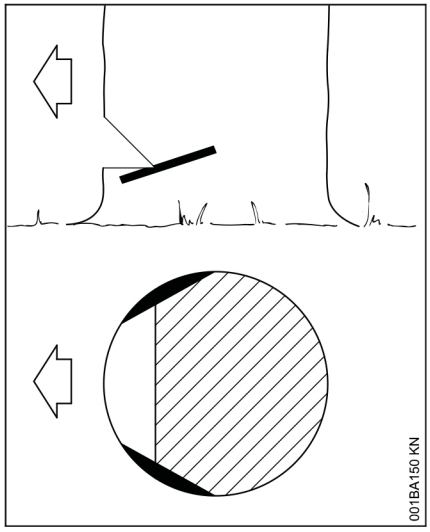


Felling notch (C) – determines the direction of the fall

For an open-face cut:

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

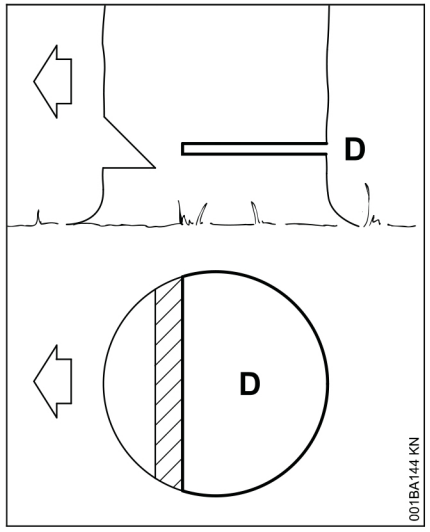
Making Sapwood Cuts



- For medium sized or larger trees make cuts at both sides of the trunk, at same height as subsequent felling cut.
- Cut to no more than width of guide bar.

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

D =Felling Cut



Conventional and open-face technique:

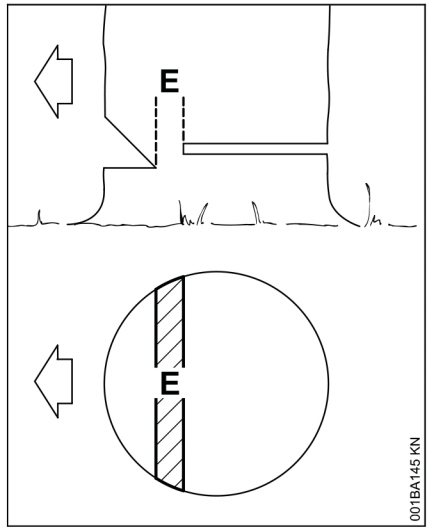
- Begin 1 to 2 inches (2,5 to 5 cm) higher than center of felling notch.
- Cut horizontally towards the felling notch.
- Leave approx.1/10 of diameter uncut. This is the hinge.
- Do not cut through the hinge – you could lose control of the direction of the fall.

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

Warning!

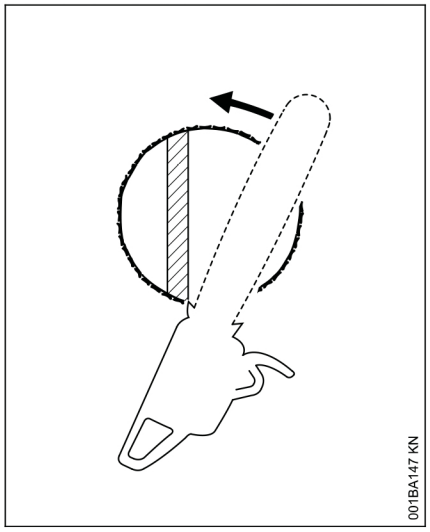
If the tip of the bar contacts a wedge, it may cause kickback. Wedges should be of wood or plastic – never steel, which can damage the chain.

E = Hinge



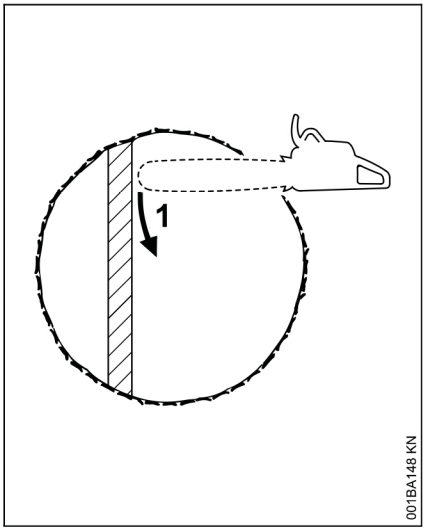
- Helps control the falling tree.
- Do not cut through the hinge – you could lose control of the direction of the fall.

Felling Cut for Small Diameter Trees: Simple Fan Cut



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

Felling Cut for Large Diameter Trees

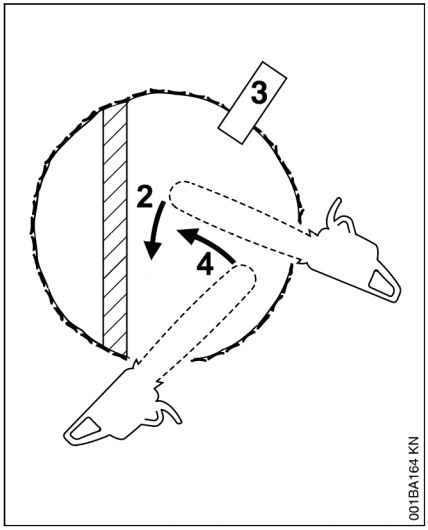


Warning!

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.

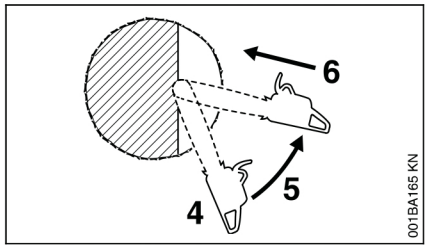


Avoid repositioning the saw more than necessary. When repositioning for the next cut, keep the guide bar fully engaged in the kerf to keep the felling cut straight. If the saw begins to pinch, insert a wedge to open the cut. On the last cut, do not cut the hinge.

Plunge-cut Method

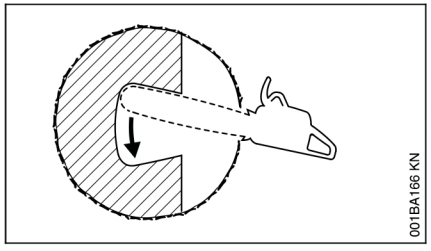
Timber having a diameter more than twice the length of the guide bar requires the use of the plunge-cut method before making the felling cut.

First, cut a large, wide felling notch. Make a plunge cut in the center 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 kick-back 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.

If you are inexperienced with a chain saw, plunge-cutting should not be attempted. Seek the help of a professional.

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 towards the operator (barber-chairing), 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 cable winch, block and tackle or tractor. If you try to cut it down with your saw, you may be injured.

Limbing

Limbing is removing the branches from a fallen tree.

Warning!

There is an extreme danger of kickback during the limbing operation. Do not work with the nose of the bar. Be extremely cautious and avoid contacting the log or other limbs with the nose of the guide bar.

Do not stand on a log while limbing it – you may slip or the log may roll.

Start limbing by leaving the lower limbs to support the log off the ground. When underbucking freely hanging limbs, a pinch may result or the limb may fall, causing loss of control. If a pinch occurs, stop the engine and remove the saw by lifting the limb.

Warning!

Be extremely cautious when cutting limbs or logs under tension (spring poles). The limbs or logs could spring back toward the operator and cause loss of control of the saw and severe or fatal injury to the operator.

Bucking

Bucking is cutting a log into sections.

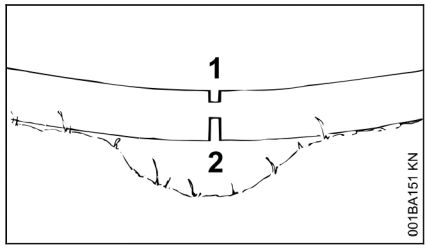
Warning!

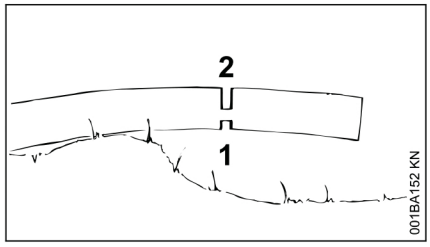
When bucking, do not stand on the log. Make sure the log will not roll downhill. If on a slope, stand on the uphill side of the log. Watch out for rolling logs.

Cut only one log at a time.

Shattered wood should be cut very carefully. Sharp slivers of wood may be caught and flung in the direction of the operator of the saw.

When cutting small logs, place log through "V"-shaped supports on top of a sawhorse. Never permit another person to hold the log. Never hold the log with your leg or foot.





Logs under strain:

Risk of pinching! Always start relieving cut (1) at compression side.Then make bucking cut (2) at tension side. If the saw pinches, stop the engine and remove it from the log.

Only properly trained professionals should work in an area where the logs, limbs and roots are tangled. Working in "blow down" areas is extremely hazardous. Drag the logs into a clear area before cutting. Pull out exposed and cleared logs first.

MAINTENANCE, REPAIR AND STORING

Maintenance, replacement, or repair of the emission control devices and systems may be performed by any nonroad engine repair establishment or individual. However, if you make a warranty claim for a component which has not been serviced or maintained properly or if nonapproved replacement parts were used, may deny coverage.

Warning!

Use only identical replacement parts for maintenance and repair. Use of non- parts may cause serious or fatal injury.

Strictly follow the maintenance and repair instructions in the appropriate section of your instruction manual. Please refer to the maintenance chart in this manual.

Warning!

Always stop the engine and make sure that the cutting tool is stopped before doing any maintenance or repair work or cleaning the power tool.

Warning!

Do not attempt any maintenance or repair work not described in your instruction manual. Have such work performed by your servicing dealer only. 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 subsequently cause the flywheel to burst.

Wear gloves when handling or performing maintenance on saw chains.

Warning!

Use the specified spark plug and make sure it and the ignition lead are always clean and in good condition. Always press spark plug boot snugly onto spark plug terminal of the proper size. (Note: If terminal has detachable SAE adapter nut, it must be securely attached.) A loose connection between spark plug terminal and the ignition wire connector in the boot may create arcing that could ignite combustible fumes and cause a fire.

Warning!

Never test the ignition system with the spark plug boot removed from the spark plug or with a removed spark plug, since uncontained sparking may cause a fire.

Warning!

Do not operate your chain saw if the muffler is damaged, missing or modified. An improperly maintained muffler will increase the risk of fire and hearing loss.

If your muffler was equipped with a spark-arresting screen to reduce the risk of fire, never operate your saw if the screen is missing or damaged. Remember that the risk of forest fires is greater in hot or dry weather.

Keep the chain, bar and sprocket clean; replace worn sprockets or chains. Keep the chain sharp. You can spot a dull chain when easy-to-cut wood becomes hard to cut and burn marks appear on the wood. Keep the chain at proper tension.

Tighten all nuts, bolts and screws except the carburetor adjustment screws after each use.

Warning!

In order for the chain brake on your chain saw to properly perform its function of reducing the risk of kickback and other injuries, it must be properly maintained. Like an automobile brake, a chain saw chain brake incurs wear each time it is engaged.

The amount of wear will vary depending upon usage, conditions under which the saw is used and other factors. Excessive wear will reduce the effectiveness of the chain brake and can render it inoperable.

For the proper and effective operation of the chain brake, the brake band and clutch drum must be kept free of dirt, grease and other foreign matter which may reduce friction of the band on the drum.

For these reasons, each chain saw should be returned to trained personnel such as your servicing dealer for periodic inspection and servicing of the brake system according to the following schedule:

Heavy usage – every three months,
Moderate usage – twice a year,
Occasional usage – annually.

The chain saw should also be returned immediately for maintenance whenever the brake system cannot be thoroughly cleaned or there is a change in its operating characteristics.

For any maintenance of the emission control system please refer to the maintenance chart **and to the limited warranty statement** near the end of the instruction manual.

Do not clean your machine with a pressure washer. The solid jet of water may damage parts of the machine.

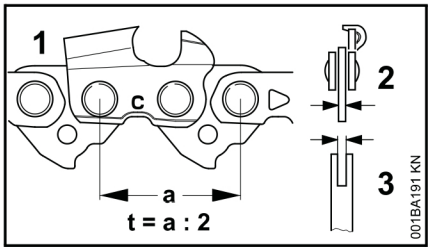
Store chain saw in a dry place and away from children. Before storing for longer than a few days, always empty the fuel tank (see chapter "Storing the Machine" in the instruction manual).

Cutting Attachment

is the only manufacturer in the industry to produce its own chain saws, guide bars, saw chains and chain sprockets.

A cutting attachment consists of the saw chain, guide bar and chain sprocket.

The cutting attachment that comes standard is designed to exactly match the chain saw.

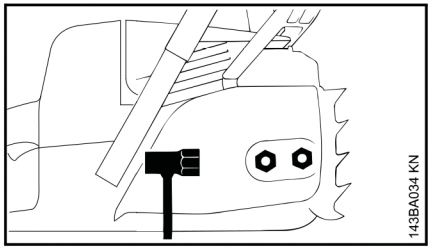


– The pitch (t) of the saw chain (1), chain sprocket and the nose sprocket of the Rollomatic guide bar must match.
– The drive link gauge (2) of the saw chain (1) must match the groove width of the guide bar (3).

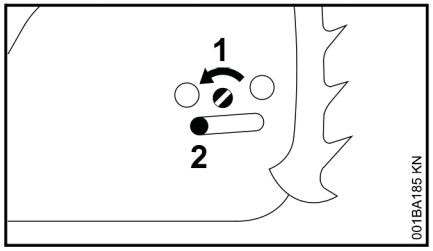
If non-matching components are used, the cutting attachment may be damaged beyond repair after a short period of operation.

Mounting the Bar and Chain

Removing the chain sprocket cover

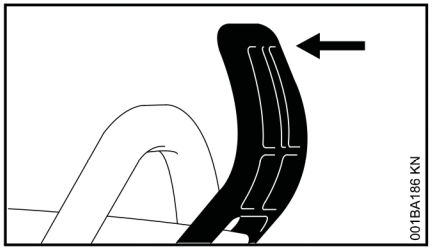


- Unscrew the nuts and take off the chain sprocket cover.



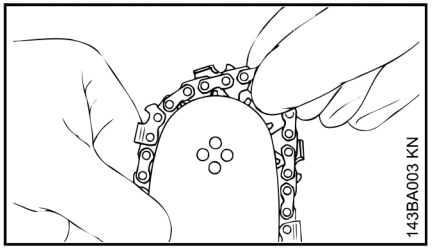
- Turn the screw (1) counterclockwise until the tensioner slide (2) butts against the left end of the housing slot.

Disengaging the chain brake.



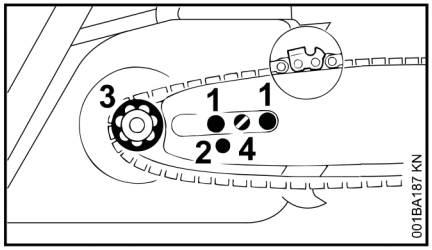
- Pull the hand guarad towards the front handle until there is an audible click – the chain brake is disengaged.

Fitting the chain



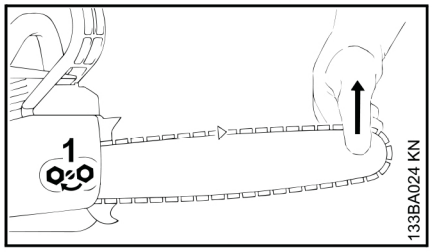
⚠ Wear work gloves to protect your hands from the sharp cutters.

- Fit the chain – start at the bar nose.



- Fit the guide bar over the studs (1) – the cutting edges on the top of the bar must point to the right.
- Engage the peg of the tensioner slide in the locating hole (2) –- place the chain over sprocket (3) at the same time.
- Turn the tensioning screw (4)clockwise until there is very little chain sag on the underside of the bar – and the drive link tangs are engaged in the bar groove.
- Refit the sprocket cover and screw on the nuts only fingertight.
- Go to chapter on "Tensioning the Saw Chain"

Tensioning the Chain



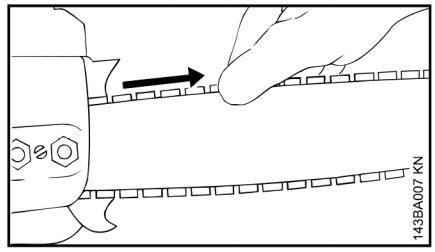
Retensioning during cutting work:

- Shut off the engine.
- Loosen the nuts.
- Hold the bar nose up.
- Use a screwdriver to turn the tensioning screw (1) clockwise until the chain fits snugly against the underside of the bar.
- While still holding the bar nose up, tighten down the nuts firmly.
- Go to "Checking Chain Tension".

A new chain has to be retensioned more often than one that has been in use for some time.

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

Checking Chain Tension



- Shut off the engine.
- Wear work gloves to protect your hands.
- The chain must fit snugly against the underside of the bar and it must still be possible to pull the chain along the bar by hand.
- If necessary, retension the chain.

A new chain has to be retensioned more often than one that has been in use for some time.

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

Fuel

This engine is certified to operate on unleaded gasoline and the two-stroke engine oil at a mix ratio of 25:1.

Your engine requires a mixture of high-quality gasoline and quality two-stroke air cooled engine oil.

Use mid-grade unleaded gasoline with a minimum octane rating of 89 (R+M/2). If the octane rating of the mid-grade gasoline in your area is lower, use premium unleaded fuel.

Fuel with a lower octane rating may increase engine temperatures. This, in turn, increases the risk of piston seizure and damage to the engine.

The chemical composition of the fuel is also important. Some fuel additives not only detrimentally affect elastomers (carburetor diaphragms, oil seals, fuel lines, etc.), but magnesium castings and catalytic converters as well. This could cause running problems or even damage the engine. For this reason recommends that you use only high-quality unleaded gasoline!

Gasoline with an ethanol content of more than 10% can cause running problems and major damage in engines with a manually adjustable carburetor and should not be used in such engines.

Engines equipped with M-Tronic can be run on gasoline with an ethanol content of up to 25% (E25).

Use only two-stroke engine oil or equivalent high-quality two-stroke engine oils that are designed for use only in air cooled two-cycle engines.

We recommend HP Ultra 2-Cycle Engine Oil since it is specially formulated for use in engines.

Do not use BIA or TCW rated (two-stroke water cooled) mix oils or other mix oils that state they are for use in both water cooled and air cooled engines (e.g., outboard motors, snowmobiles, chain saws, mopeds, etc.).

Take care when handling gasoline. Avoid direct contact with the skin and avoid inhaling fuel vapor. When filling at the pump, first remove the canister from your vehicle and place the canister on the ground before filling. Do not fill fuel canisters that are sitting in or on a vehicle.

The canister should be kept tightly closed in order to avoid any moisture getting into the mixture.

The machine‘s fuel tank and the canister in which fuel mix is stored should be cleaned as necessary.

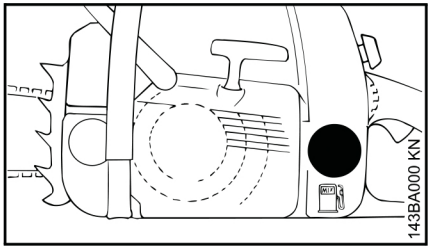
Fuel mix ages

Only mix sufficient fuel for a few days work, not to exceed 3 months of storage. Store in approved fuel-canisters only. When mixing, pour oil into the canister first, and then add gasoline. Close the canister and shake it vigorously by hand to ensure proper mixing of the oil with the fuel.

Ensure to use 25:1 2 Stroke Mix

Fueling

Preparations



- Before fueling, clean the filler cap and the area around it to ensure that no dirt falls into the tank.

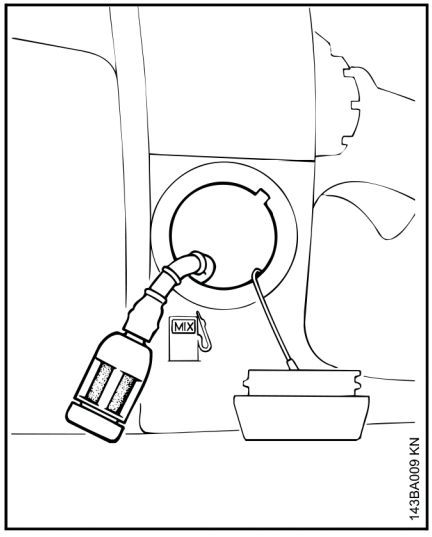
Always thoroughly shake the mixture in the canister before fueling your machine.

- Position the machine so that the filler cap is facing up.

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

After fueling, tighten fuel cap as securely as possible by hand.

Change the fuel pickup body



Change the fuel pickup body every year.

- Open the filler cap and drain the fuel tank.
- Use a hook to pull the fuel pickup body out of the tank and take it off the hose.

Do not kink the fuel hose – do not use any sharp or pointed tools.

- Push the new pickup body into the hose.
- Place the pickup body in the tank and close the filler cap.

Chain Lubricant

For automatic and reliable lubrication of the chain and guide bar – use only an environmentally compatible quality chain and bar lubricant. Rapidly biodegradable Bioplus is recommended.

Biological chain oil must be resistant to aging (e.g. Bioplus) since it will otherwise quickly turn to resin. This results in hard deposits that are difficult to remove, especially in the area of the chain drive, clutch and chain. It may even cause the oil pump to seize.

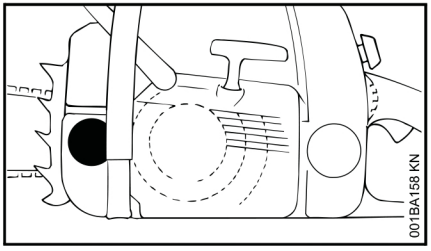
The service life of the chain and guide bar depends on the quality of the lubricant. It is therefore essential to use only a specially formulated chain lubricant.

Do not use waste oil. Renewed contact with waste oil can cause skin cancer. Moreover, waste oil is environmentally harmful.

Waste oil does not have the necessary lubricating properties and is unsuitable for chain lubrication.

Filling Chain Oil Tank

Preparing the machine



- Thoroughly clean the filler cap and the area around it to ensure that no dirt falls into the tank
- Always position the machine so that the filler cap is facing upwards
- Open the filler cap

Filling Chain Oil Tank

Standard oil pump

- Refill the chain oil tank every time you refuel

Oil pump with increased delivery rate (available option)

Frequent checking and refilling of the oil tank is necessary – see "Adjusting oil quantity".

- Refill the chain oil tank when the fuel tank is approximately half empty

All versions

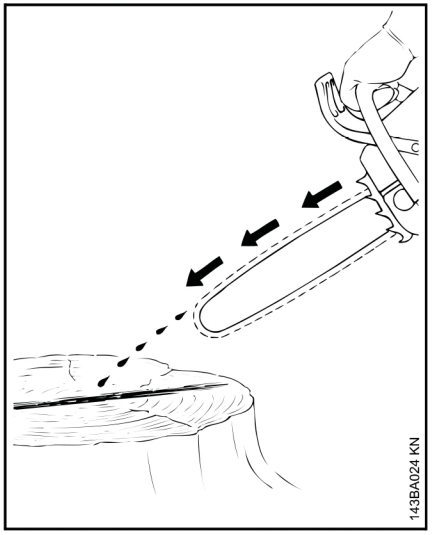
Take care not to spill chain oil during refilling and do not overfill the tank.

- Close the filler cap

There must still be a small amount of chain oil in the oil tank when the fuel tank is empty.

If the oil tank is still partly full, the reason may be a problem in the oil supply system: Check chain lubrication, clean the oil passages, contact your servicing dealer for assistance if necessary. recommends that maintenance and repair work be carried out only by authorized dealers.

Checking Chain Lubrication



The saw chain must always throw off a small amount of oil.

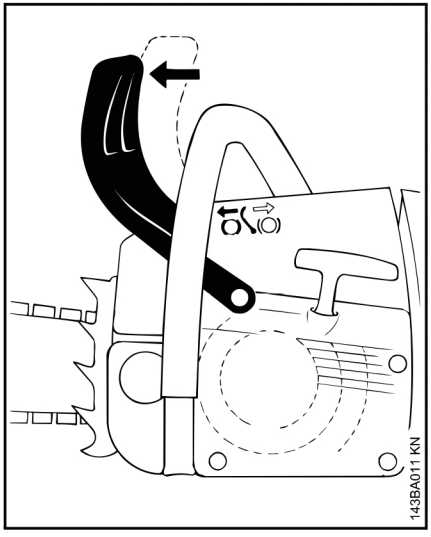
Never operate your saw without chain lubrication. If the chain runs dry, the whole cutting attachment will be irretrievably damaged within a very short time. Always check chain lubrication and the oil level in the tank before starting work.

Every new chain has to be broken in for about 2 to 3 minutes.

After breaking in the chain, check chain tension and adjust if necessary – see "Checking Chain Tension".

Chain Brake

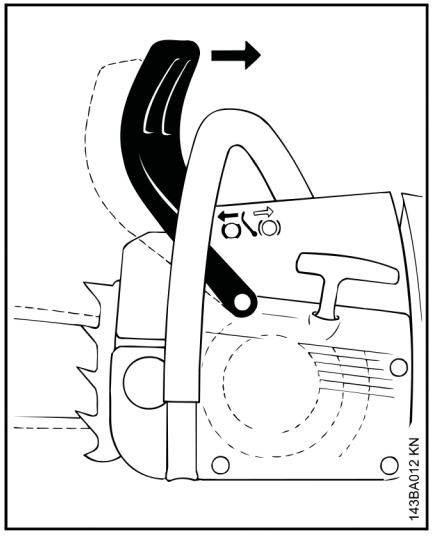
Locking chain with chain brake



– in an emergency
– when starting
– at idling speed

The chain is stopped and locked when the hand guard is pushed toward the bar nose by the left hand – or when brake is activated by inertia in certain kickback situations.

Releasing the chain brake



- Pull the hand guard back toward the front handle.

Always disengage chain brake before accelerating engine and before starting cutting work. The only exception to this rule is when you check operation of the chain brake.

High revs with the chain brake engaged (chain locked) will quickly damage the powerhead and chain drive (clutch, chain brake).

The chain brake is designed to be activated also by the inertia of the front hand guard

if the forces are sufficiently high. The hand guard is accelerated toward the bar nose - even if your left hand is not behind the hand guard, e.g. during a felling cut. The chain brake will operate only if it has been properly maintained and the hand guard has not been modified in any way.

Check operation of chain brake

Before starting work: Run engine at idle speed, engage the chain brake (push hand guard toward bar nose). Accelerate up to full throttle for no more than 3 seconds – the chain must not rotate. The hand guard must be free from dirt and move freely.

Chain brake maintenance

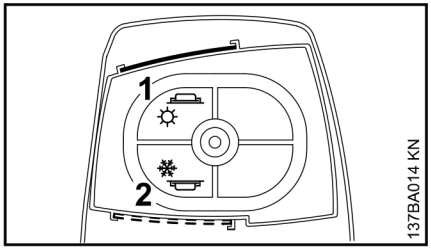
The chain brake is subject to normal wear. It is necessary to have it serviced and maintained regularly by trained personnel, such as your servicing dealer, at the following intervals:

Full-time usage:	every 3 months
Part-time usage:	every 6 months
Occasional usage:	every 12 months

Winter Operation

At temperatures below +50 °F (+10 °C)

- Remove the carburetor box cover



- in the carburetor box cover, move the slide (1) from summer position to winter position (2)

Heated air is now drawn in from around the cylinder and mixed with cold air – this helps prevent carburetor icing.

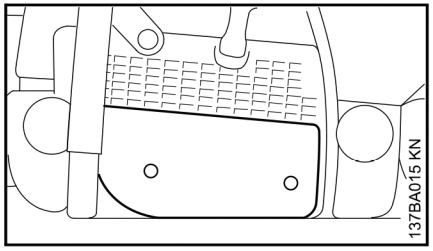
Above +70 °F (+20 °C): Always return the cover to the position for "summer operation" again! Risk of engine malfunction – overheating!

- Replace the carburetor box cover and tighten the knob

Air filter system

- Retrofit new air filter if necessary – see "Air filter system"

At temperatures below +14 °F (-10 °C)



Under extreme winter conditions (temperatures below +14 °F (-10 °C), powdered or drifting snow), it is recommended to mount the cover plate (special accessory) on the fan housing.

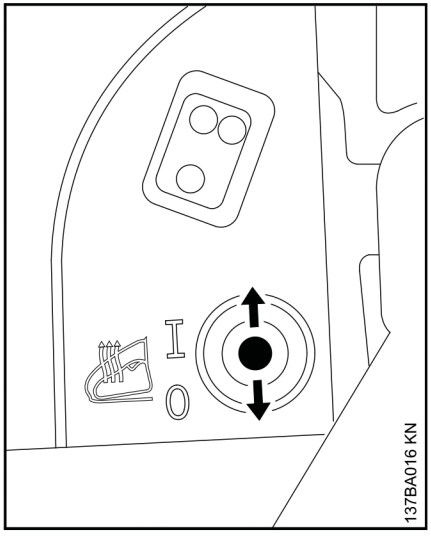
The partial covering of the slits in the fan housing keeps out powdered or drifting snow.

When the cover plate is mounted, the slide must be in winter position in the carburetor box cover.

- If the chain saw is extremely cold (frost formation) – after starting, bring the engine up to operating temperature at increased idle speed (disengage chain brake!)
- If engine trouble occurs, first check whether use of the cover plate is necessary

Electric Handle Heating

Switching on the handle heating system (depending on equipment version)

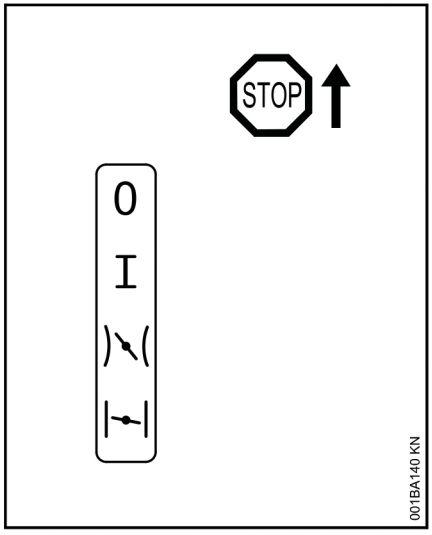


- To switch on, set switch to **I** and to switch off, return switch to the **0** position

Overheating during continuous use is impossible. The heating system is maintenance-free.

Starting / Stopping the Engine

Positions of the Master Control lever



Stop 0 – engine off – ignition is switched off

Operating position I – engine is running or can start

Warm start – this position is for starting the warm engine – the Master Control lever returns to the operating position when the throttle trigger is squeezed

Cold start – this position is for starting the cold engine

Adjust Master Control lever

To adjust the Master Control lever from the operating position **I** to cold start, press and hold down the throttle trigger lockout and throttle trigger simultaneously – set Master Control lever.

To set the Master Control lever to warm start, first set it to cold start, then push the Master Control lever into the warm start position.

Switching to the warm start position is only possible from the cold start position.

Simultaneously pressing the throttle trigger lockout and blipping the throttle trigger causes the Master Control lever to jump from the warm start position to the operating position **I**.

To switch off the engine, set the Master Control lever to Stop **0**.

Position cold start

– if engine is cold

– if the engine stalls during opening of throttle after starting

– the fuel tank has run empty (engine stalled out)

Position warm start

– if engine is warm (once the engine has been running for approx. one minute)

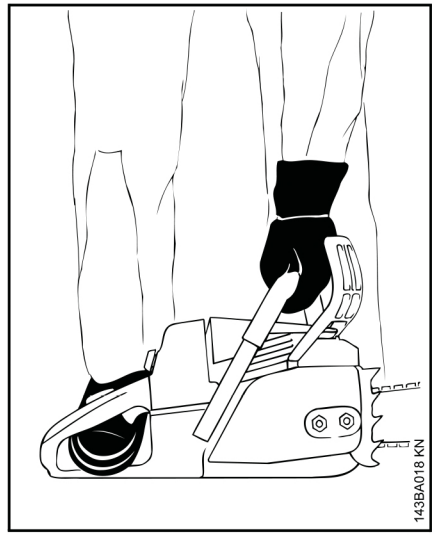
– when the engine has turned over for the first time

– after ventilation of the combustion chamber, if the engine was flooded

Holding the chain saw

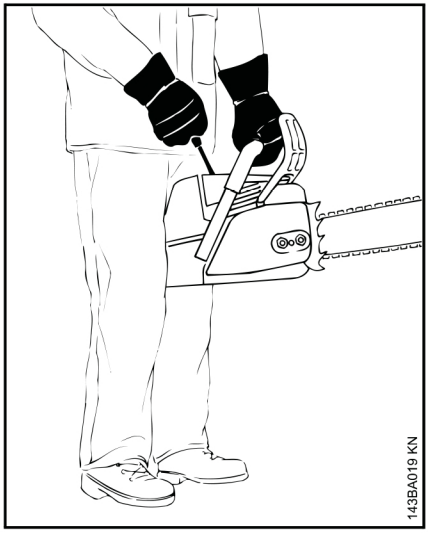
There are two ways to hold the chain saw during starting.

On the ground



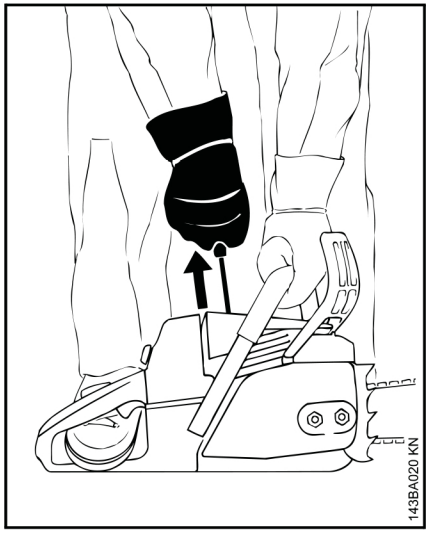
- Place the chain saw securely on the ground – assume a steady stance – the saw chain must not touch any objects and also must not touch the ground
- With the left hand on handlebar, press the chain saw firmly against the ground – thumb wrapped around the handlebar
- Place your right foot through the rear handle

Between the knees or thighs



- clamp the rear handle between the knees or thighs
- grip the handlebar firmly with the left hand – thumb wrapped around the handlebar

Starting

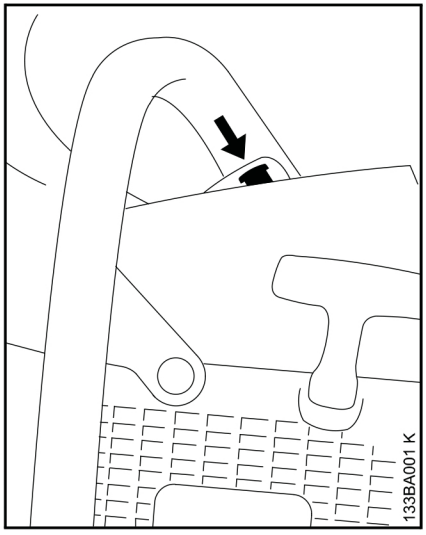


- with the right hand, pull the starter grip slowly until you feel it engage – and then give it a brisk strong pull – simultaneously press down on the handlebar – do not pull the starter rope out all the way – **risk of breakage!** Do not let the starter grip snap back – guide it slowly back into the housing so that it can rewind properly

With a new engine or after a long period of disuse, with machines without an additional manual fuel pump, it may be necessary to pull the starter rope several times - to prime the fuel line.

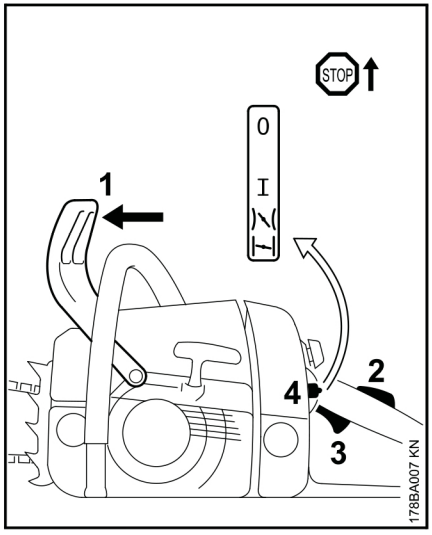
Starting the chain saw

⚠ There must not be anyone within the swivel range of the chain saw.



- Press the button, the decompression valve will be opened

The decompression valve is closed automatically when the engine starts for the first time. For this reason, press the button again before each additional starting procedure.



- Push the hand guard (1) forwards – the saw chain is blocked
- Simultaneously press the throttle trigger lockout (2) and throttle trigger (3) – set master control lever (4)

Position choke shutter closed

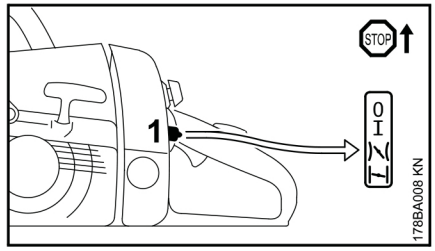
– if engine is cold (even if the engine has stalled during opening of throttle after starting)

Position starting acceleration

– if engine is warm (once the engine has been running for approx. one minute)

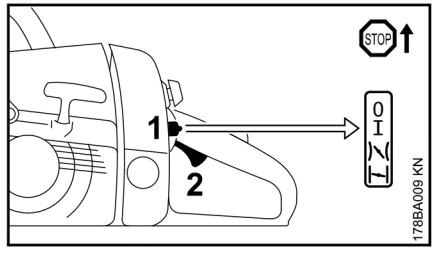
- Hold and start the chain saw

When the engine has turned over for the first time

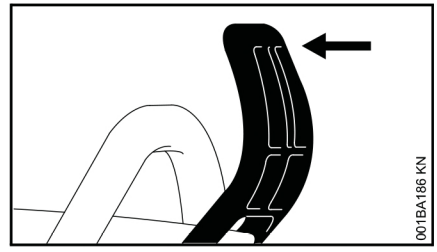


- Move the Master Control lever (1) to the position starting acceleration
- Press the button on the decompression valve
- Hold and start the chain saw

Once the engine is running



- Press the throttle trigger lockout and blip the throttle trigger (2); the Master Control lever (1) jumps to the operating position **I** and the engine begins to idle



- Pull the hand guard toward the handlebar

The chain brake is released – the chain saw is ready for use.

Open the throttle only when the chain brake is off. Increased engine speeds with the chain brake on (saw chain is stationary) lead to damage to the clutch and chain brake.

At very low outside temperatures

- let the engine warm up briefly with the throttle slightly open
- if necessary, configure for winter operation, see "Winter Operation"

Switch off engine

- Move the Master Control lever to the stop position **0**

If the engine does not start

The Master Control lever was not returned from the position choke shutter closed to starting acceleration in time, the engine may be flooded.

- Move the Master Control lever to the stop position **0**
- Remove the spark plug – see "Spark plug"
- Dry spark plug
- Crank the engine several times with the starter – to clear the combustion chamber
- Replace the spark plug – see "Spark plug"
- Set the Master Control lever to starting acceleration)\(– even if the engine is cold
- Press the button on the decompression valve
- Restart the engine

Operating Instructions

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.

During work

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

Open the throttle only when the chain brake is off. Running the engine at high revs with the chain brake engaged (chain locked) will quickly damage the shortblock and chain drive (clutch, chain brake).

Check chain tension frequently

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

Chain cold

Tension is correct when the chain fits snugly against the underside of the bar but can still be pulled along the bar by hand. Retension if necessary – see "Tensioning the Saw Chain".

Chain at operating temperature

The chain stretches and begins to sag. The drive links must not come out of the bar groove on the underside of the bar – the chain may otherwise jump off the bar. Retension the chain – see "Tensioning the Saw Chain".

The chain contracts as it cools down. If it is not slackened off, it can damage the crankshaft and bearings.

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.

After finishing work

- Slacken off the chain if you have retensioned it at operating temperature during work.

Always slacken off the chain again after finishing work. The chain contracts as it cools down. If it is not slackened off, it can damage the crankshaft and bearings.

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.

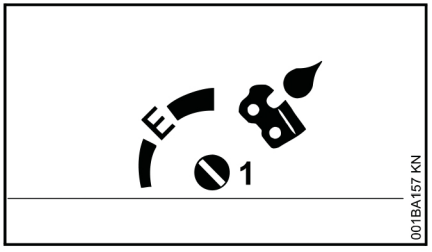
Long-term storage

See "Storing the machine"

Oil Quantity Control

Varying cutting lengths, types of wood and working techniques require varying quantities of oil.

Standard oil pump



The oil delivery rate can be adjusted as needed using the adjusting screw (1) (on the bottom of the machine).

Ematic setting (E), moderate oil delivery rate –

- Turn adjusting screw to "E" (Ematic setting)

Increase oil delivery rate –

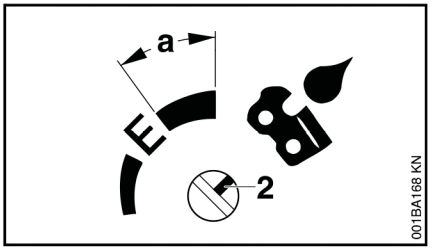
- Turn the adjusting screw clockwise

Reduce oil delivery rate –

- Turn the adjusting screw counterclockwise

The saw chain must always be coated with chain oil.

Oil pump with increased delivery rate (available option)

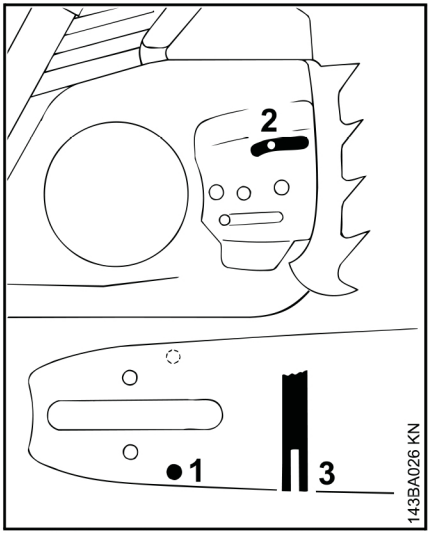


The oil pump with increased delivery rate can be identified by the groove (2) in the adjusting screw.

With this oil pump, in setting range **a**, the oil tank can run empty before the fuel tank, thus causing the saw chain to run dry.

- in setting range **a**, fill the fuel tank only half full or refill the oil tank when the fuel tank is approximately half empty

Taking Care of the Guide Bar



- Turn the bar over – every time you sharpen the chain and every time you replace the chain – this helps avoid one-sided wear, especially at the nose and underside of the bar.
- Regularly clean the oil inlet hole (1), the oilway (2) and the bar groove (3).
- Measure the groove depth – with the scale on the filing gauge (special accessory) – in the area used most for cutting.

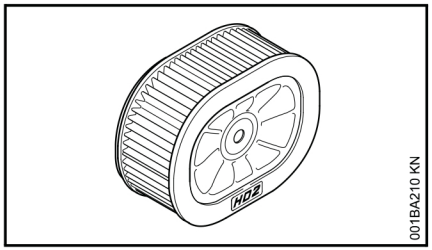
If groove depth is less than specified:

- Replace the guide bar.

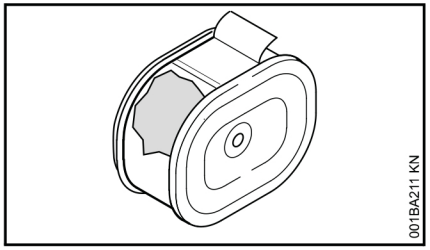
The drive link tangs will otherwise scrape along the bottom of the groove – the cutters and tie straps will not ride on the bar rails.

Air Filter System

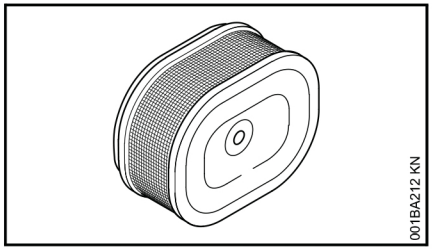
The air filter system can be adapted to different operating conditions by the insertion of different air filters. Retrofitting is simple.



- HD2 filter (black filter frame, pleated filter fabric) for normal, dry or extremely dusty operating environments



- HD air filter (black filter housing) with felt prefilter for normal, dry or very dusty operating environments



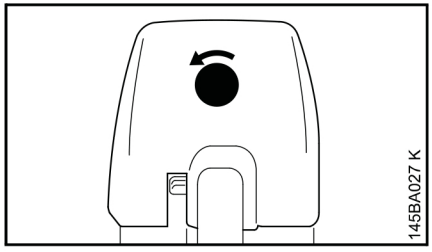
- Wire mesh air filter (green filter housing) for extreme winter conditions (e. g., powdered or flying snow or frost formation)

When dry, filters attain a long service life.

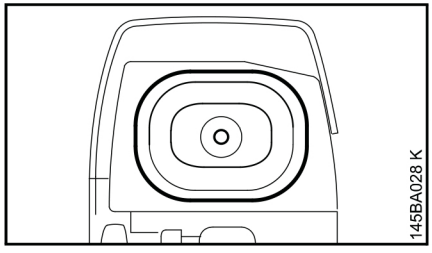
- Always use filters dry

Fouled air filters will impair engine performance, increase fuel consumption and make the machine more difficult to start.

Remove air filter



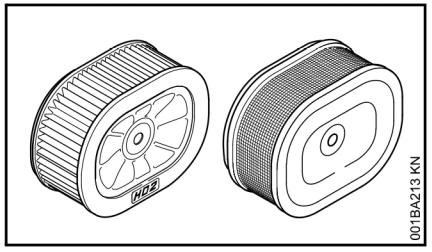
- Turn the knob above the rear handle in the direction of the arrow and remove the carburetor box cover



- Remove filter

Cleaning the Air Filter

HD2 filters and wire mesh filters



– HD2 filter – black filter frame, pleated filter fabric (left)

– Wire mesh filter – green filter housing (right)

If there is a noticeable loss of engine power:

- Knock out the filter or blow it clear with compressed air from the inside outwards

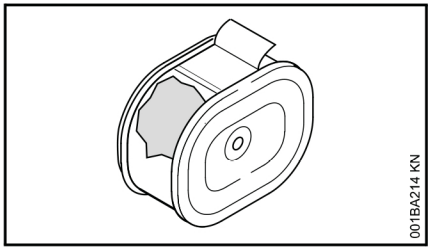
In case of stubborn dirt or stuck filter fabric

- Wash the filter in special-purpose cleaner (special accessory) or a clean, non-flammable cleaning liquid (e. g., warm soapy water) – rinse the filter from inside to out under a water jet – do not use high-pressure cleaners
- Dry all filter parts – do not expose to extreme heat
- Do not oil the filter

Always replace a damaged filter.

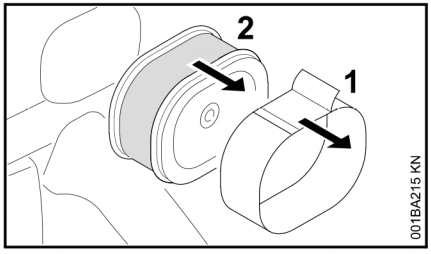
- Reinstall filter

HD filter



– HD filter – black filter housing with felt prefilter

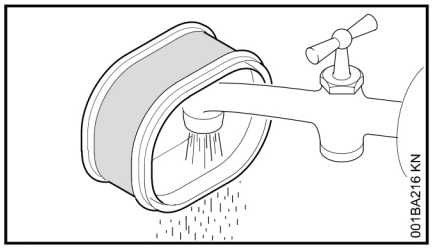
If there is a noticeable loss of engine power:



- Clean felt prefilter (1)

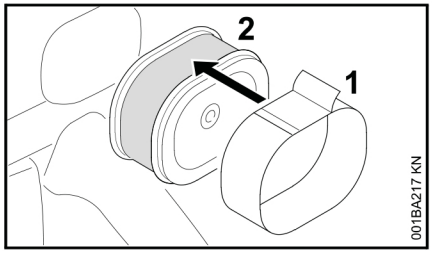
After repeated cleaning of the felt prefilter

- Separate the parts of the filter from one another
- Tap HD filter (2) clean and blow through compressed air from the inside outwards



In case of stubborn dirt or stuck filter fabric

- Wash the filter in STIHL special-purpose cleaner (special accessory) or a clean, non-flammable cleaning liquid (e. g., warm soapy water) – rinse the filter from inside to out under a water jet – do not use high-pressure cleaners
- Dry all filter parts – do not expose to extreme heat



- Fit the felt prefilter (1) over the HD filter (2), note installation position

The felt prefilter protects the HD filter and increases its service life. Thus it should be replaced at shorter intervals than the HD filter.

Always replace a damaged filter.

- Reinstall filter

Engine Management

Exhaust emissions are controlled by the design of the fundamental engine parameters and components (e.g. carburation, ignition, timing and valve or port timing) without the addition of any major hardware.

Adjusting the Carburetor

Basic information

The carburetor comes from the factory with a standard setting.

The carburetor has been adjusted for optimum performance and fuel efficiency in all operating states.

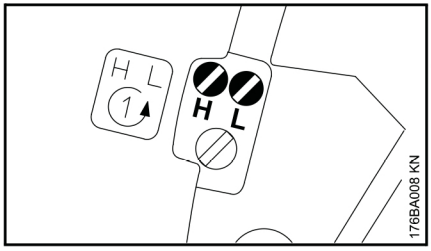
The high speed screw alters the engine's power output and the maximum off-load engine speed.

If you make the setting too lean it will increase the risk of engine damage through lack of lubrication and overheating.

Standard setting

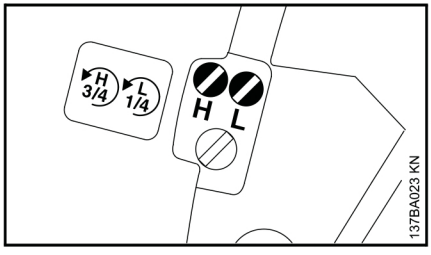
- Switch off engine
- Check the air filter – clean or replace it if necessary.
- Check the spark arresting screen in the muffler (present only in some countries) – clean or replace it if necessary

Carburetors with H = 1 and L = 1



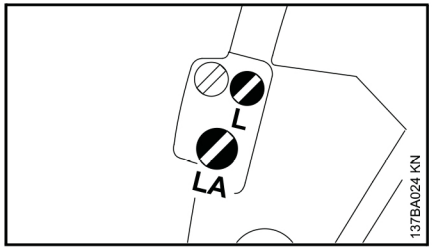
- Carefully turn both adjusting screws clockwise until they are seated firmly (clockwise)
- Turn the high speed screw (H) 1 full turn counterclockwise
- Turn the low speed screw (L) 1 full turn counterclockwise

Carburetor with H = 3/4 and L = 1/4



- Turn the high speed screw (H) counterclockwise as far as possible (max. 3/4 turn)
- Carefully turn the low speed screw (L) clockwise – as far as possible – then back off 1/4 turn.

Setting the idle speed



Engine stops when idling

- Set low speed screw to standard setting
- Turn the idle speed screw (LA) clockwise until the saw chain begins to run – then turn it back 1/4 turn.

Saw chain rotates at idle speed

- Set low speed screw to standard setting
- Turn the idle speed screw (LA) counterclockwise until the chain stops running – then turn another 1/4 turn in the same direction.

If the saw chain continues to keep rotating in idle even after adjustment, have the chain saw checked by a servicing dealer.

Speed erratic when idling; poor acceleration (despite low speed screw = standard setting)

- Idle setting too lean – turn low speed screw (L) counterclockwise until the engine runs smoothly and accelerates correctly – with carburetors with L = 1/4 max. up to the stop

Whenever the low speed screw (L) has been adjusted, it is usually also necessary to adjust the idle speed adjusting screw (LA).

Correcting the carburetor setting for use at high altitudes

The setting may have to be marginally corrected if engine performance is unsatisfactory at high altitudes:

- Check the standard setting
- Let the engine warm up
- Turn the high speed screw (H) slightly clockwise (leaner) – for carburetors with H = 3/4 max. up to the stop

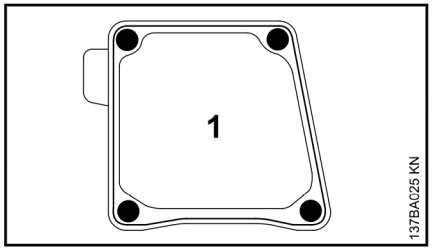
If you make the setting too lean it will increase the risk of engine damage through lack of lubrication and overheating.

Spark Arresting Screen in Muffler

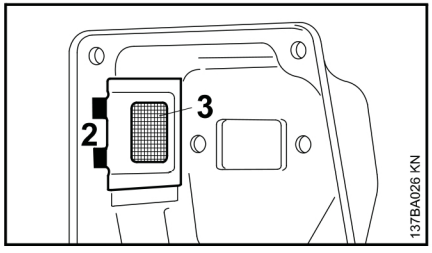
In some countries, the muffler is fitted with a spark arresting screen.

- If engine performance deteriorates, check the spark arresting screen in the muffler
- Let the muffler cool down

Version A



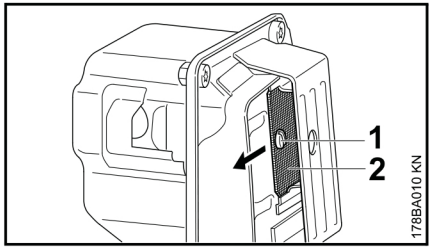
- Remove four screws
- Remove exhaust casing (1) of the muffler



- Bend back the retaining lugs (2)
- Pull out spark arresting screen (3)
- Clean the dirty spark arresting screen, replace if damaged or heavily carbonized
- Refit the spark arresting screen in reverse order of steps

Version B

In this version, the muffler is equipped with two spark arresting screens.



- Remove screw (1)
- Lift and pull out the spark arresting screen (2)
- Clean the dirty spark arresting screen, replace if damaged or heavily carbonized
- Refit the spark arresting screen in reverse order of steps
- Check second spark arresting screen – as with Version A

Spark Plug

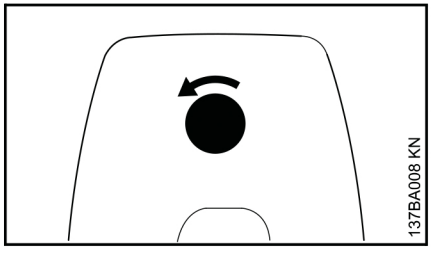
If engine is down on power, difficult to start or runs poorly at idling speed, first check the spark plug.

Fit a new spark plug after approx. 100 operating hours or earlier if the electrodes are badly eroded.

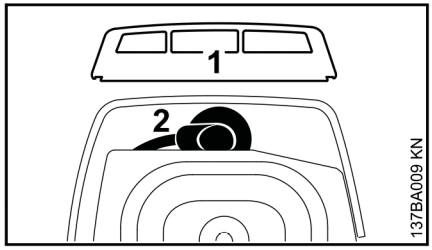
Wrong fuel mix (too much engine oil in the gasoline), a dirty air filter and unfavorable running conditions (mostly at part throttle etc.) affect the condition of the spark plug. These factors cause deposits to form on the insulator nose which may result in trouble in operation.

Remove the spark plug

- Move the Master Control lever to the stop position **0**

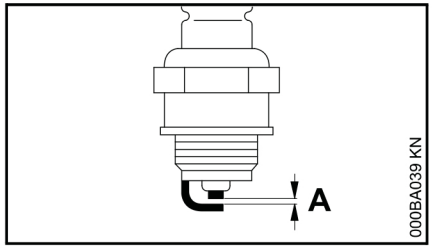


- Turn the knob above the rear handle in the direction of the arrow and remove the carburetor box cover



- Lift the air baffle (1) up and off
- Unplug spark plug boot (2)
- Unscrew spark plug

Checking the Spark Plug



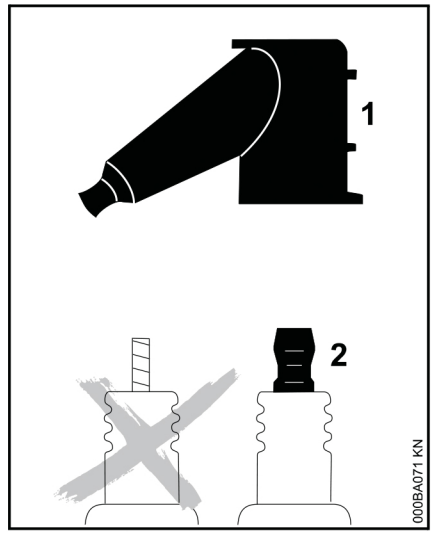
- Clean dirty spark plug.
- Check electrode gap (A) and readjust if necessary – see "Specifications".
- Use only resistor type spark plugs of the approved range.

Rectify problems which have caused fouling of spark plug:

– Too much oil in fuel mix.

– Dirty air filter.

– Unfavorable running conditions, e.g. operating at part load.



Warning!

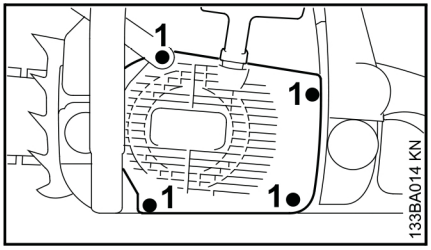
To reduce the risk of fire and burn injury, use only spark plugs authorized by Always press spark plug boot (1) snugly onto spark plug terminal (2) of the proper size. (Note: If terminal has detachable SAE adapter nut, it must be attached.) A loose connection between spark plug boot and ignition wire connector in the boot may create arcing that could ignite combustible fumes and cause a fire.

Install spark plug

- Screw in the spark plug and press on the spark plug boot
- Install air baffle
- Mount carburetor box cover

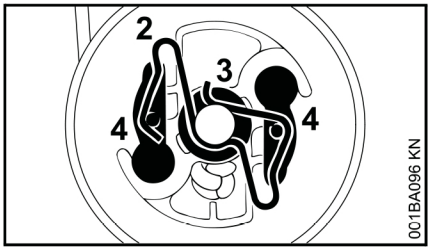
Replacing the Starter Rope and Rewind Spring

Removing the fan housing



- Remove screws (1)
- Push hand guard upward
- Pull the bottom of the fan housing away from the crankcase and remove downwards

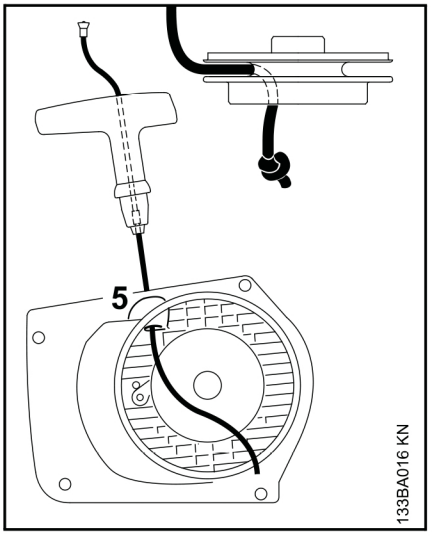
Replace torn starter rope



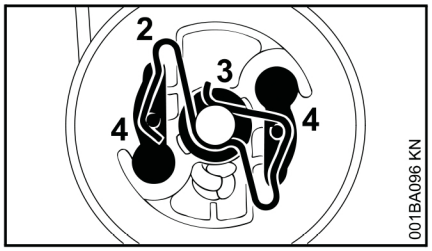
- Carefully press the spring clip (2) off of the axle with a screw driver or suitable pliers
- Carefully remove the rope rotor with washer (3) and pawl (4)

⚠ The rewind spring can jump out – **risk of injury!**

- Lever the rope out of the starter handle with a screwdriver
- Remove the remainder of the rope from the rotor and starter handle

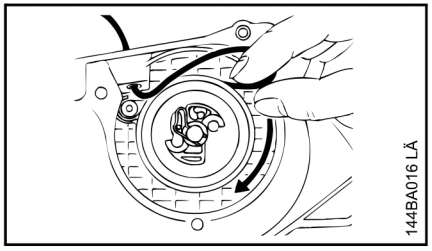


- Thread a new starter rope from top to bottom through the handle and rope guide bush (5)
- Thread the rope through the rotor and secure it in the rotor with a simple overhand knot
- Coat the bearing bore in the rope rotor with non-resinous oil
- Slip the rope rotor onto the starter post – turn it back and forth a little until the anchor loop of the rewind spring engages



- Refit the pawls (4) in the rotor and slip the washer (3) over the starter post
- Press the spring clip (2) on to the starter post and over the pegs of the pawl with a screwdriver or suitable pliers – the spring clip must point in the clockwise direction – as in the picture

Tensioning the rewind spring

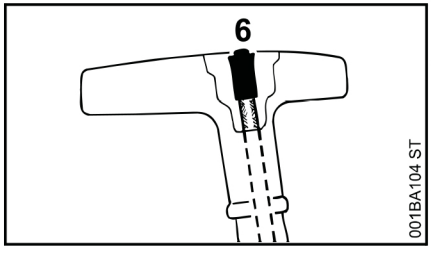


- Make a loop in the unwound starter rope and use it to turn the rope rotor six full revolutions in the direction of the arrow
- Hold the rope rotor tight – pull out the twisted rope and untangle it
- Release the rope rotor
- Slowly let go of rope so that it winds onto the rotor

The starter grip must be drawn firmly into the rope guide bush. If it tips sideways: increase the spring tension by another turn.

It must be possible to turn the rope rotor on another half-turn when the rope has been drawn out completely. If not, the spring has been tensioned too tightly **and may break!**

- Remove one turn of the rope from the rotor
- Mount the fan housing on the crankcase
- Move the Master Control lever to the stop position **0**

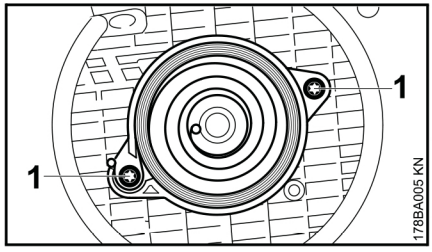


- Press the remaining rope into the handle until the nippel (6) is flush with the handle

Replacing broken rewind spring

- Remove the rope rotor

⚠ The broken pieces of spring may still be under tension and can spring apart unexpectedly on removal from the fan housing – **risk of injury!** Wear a face shield and protective gloves.



- Remove screws (1)
- Remove the spring housing and spring parts
- Apply a few drops of non-resinous oil to the new replacement spring
- Fit a new spring housing with the bottom downwards

If the spring has popped out: refit it – working counterclockwise – from the outside inwards

- Screw in screws (1) again
- Reinstall the rope rotor, tension the rewind spring, replace the fan housing and screw it into place

Storing the Machine

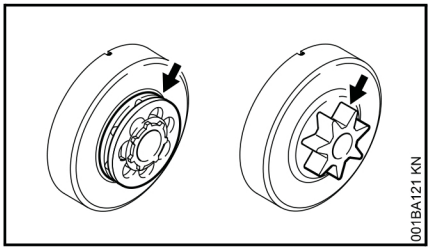
For periods of 3 months or longer

- Drain and clean the fuel tank in a well ventilated area.
- Dispose of fuel properly in accordance with local environmental requirements.
- Run the engine until the carburetor is dry – this helps prevent the carburetor diaphragms sticking together.
- Remove the saw chain and guide bar, clean them and spray with corrosion inhibiting oil.
- Thoroughly clean the machine – pay special attention to the cylinder fins and air filter.
- If you use a biological chain and bar lubricant, e.g. BioPlus, completely fill the chain oil tank.
- Store the machine in a dry, high or locked location, out of the reach of children and other unauthorized persons.

Checking and Replacing the Chain Sprocket

- Remove chain sprocket cover, saw chain and guide bar.
- Release chain brake – pull hand guard against the front handle

Fit new chain sprocket

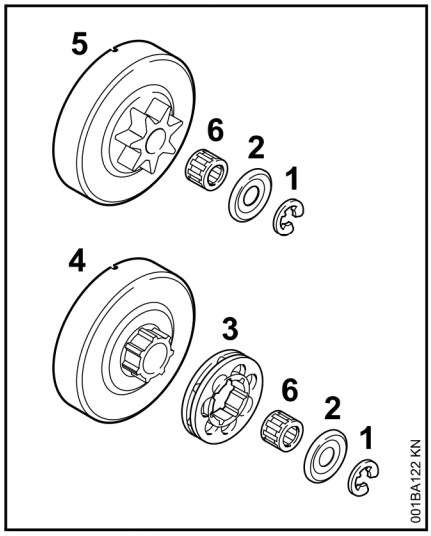


– after use of two saw chains or earlier

– if the wear marks (arrows) are deeper than 0.02 in (0.5 mm) – otherwise the service life of the saw chain is reduced – use check gauge (special accessory) to test

Using two saw chains in alternation helps preserve the chain sprocket.

Use only original chain sprockets to help ensure reliable functioning of the chain brake.



- Use a screwdriver to remove the E-clip (1)
- Remove the washer (2)
- Remove rim sprocket (3) (if so equipped), clutch drum (4) and needle cage (6).
- Inspect transport profile for rim sprocket on the clutch drum (4) – if there are also heavy signs of wear, also replace the clutch drum
- Remove clutch drum with integrated spur chain sprocket (5) (if so equipped) including needle cage (6) from the crankshaft – for powerheads with Quickstop Plus chain brake system, depress throttle trigger lockout beforehand

Install spur chain sprocket / rim sprocket

- Clean crankshaft stub and needle cage and lubricate with lubricant (special accessory)
- Slide needle cage onto the crankshaft stub
- After refitting, turn the clutch drum and/or spur chain sprocket approx. 1 full turn so that the carrier for the oil pump drive engages
- Refit the rim sprocket – cavities toward the outside
- Refit washer and E-clip on the crankshaft

Maintaining and Sharpening the Saw Chain

Cutting effortlessly with a correctly sharpened chain

A properly sharpened chain slices through wood effortlessly and requires very little feed pressure.

Do not work with a dull or damaged chain as it will increase the physical effort required, produce unsatisfactory results and a higher rate of wear.

- Clean the chain.
- Check the chain for cracks in the links and damaged rivets.
- Replace any damaged or worn parts of the chain and match the new parts to the shape and size of the original parts.

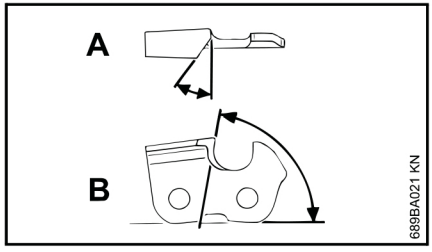
Carbide-tipped saw chains (Duro) are particularly wear resistant. recommends you have your chain resharpened by a servicing dealer.

⚠ It is absolutely essential to comply with the angles and dimensions specified below. If the saw chain is incorrectly sharpened – and in particular if the depth gauge is set too low – there is a risk of increased kickback of the saw, with resulting **risk of injury**.

Use only special saw chain sharpening files. Other files have the wrong shape and cut.

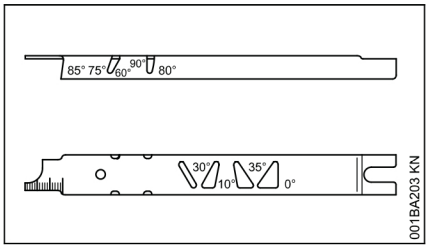
Select file diameter according to chain pitch – see table “Sharpening Tools”.

You must observe certain angles when resharpening the chain cutter.



A Filing angle
B Side plate angle

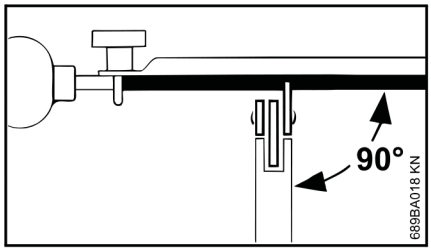
For checking angles

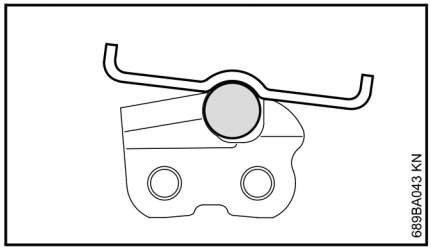


Use a filing gauge (special accessory, see table "Sharpening Tools"). This is a universal tool for checking the filing and side plate angles, depth gauge setting, cutter length and groove depth. It also cleans the guide bar groove and oil inlet holes.

File correctly

- Select sharpening tools according to chain pitch.
- Clamp the bar in a vise if necessary.
- Lock the chain – push hand guard forward.
- To rotate the chain – pull hand guard against handle to disengage the chain brake On models with Quickstop Plus, also press down the throttle trigger lockout lever.
- Sharpen the chain frequently, take away as little metal as possible – two or three strokes of the file are usually enough.





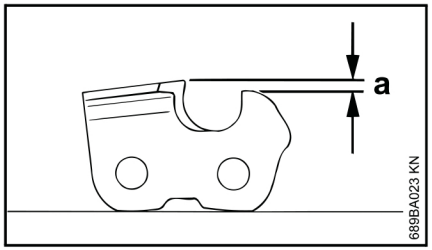
- Hold the file **horizontally** (at a right angle to the side of the guide bar) and file according to the angles marked on the file holder. Rest the file holder on the top plate and depth gauge.
- Always file from the inside to the outside of the cutter.
- The file only sharpens on the forward stroke – lift the file off the cutter on the backstroke.
- Avoid touching the tie straps and drive links with the file.
- Rotate the file at regular intervals while filing to avoid one-sided wear.
- Use a piece of hardwood to remove burrs from the cutting edge.
- Check angles with the filing gauge.

All cutters must be the same length.

If the cutters are not the same length, they will have different heights. This makes the chain run roughly and can cause it to break.

- Find the shortest cutter and then file all other cutters back to the same length. It is best to have this work done in the workshop on an electric grinder.

Depth gauge setting



The depth gauge determines the height at which the cutter enters the wood and thus the thickness of the chip removed.

a Specified distance or setting between depth gauge and cutting edge.

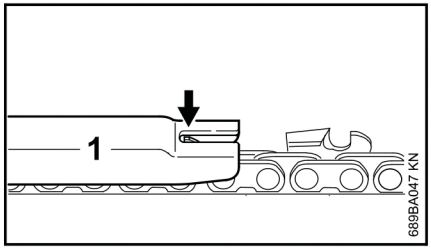
This setting may be increased by 0.2 mm (0.008") for cutting softwood in the mild weather season – no frost.

Chain pitch		Depth gauge setting (a)	
inch	(mm)	mm	(inch)
1/4	(6,35)	0,65	(0.026)
3/8 P	(9,32)	0,65	(0.026)
0.325	(8,25)	0,65	(0.026)
3/8	(9,32)	0,65	(0.026)
0.404	(10,26)	0,80	(0.031)

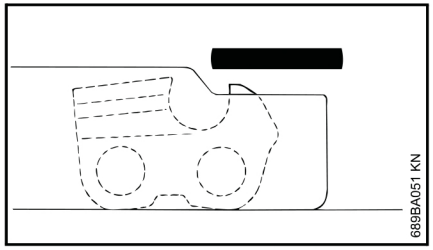
Lowering depth gauges

The depth gauge setting is reduced when the chain is sharpened.

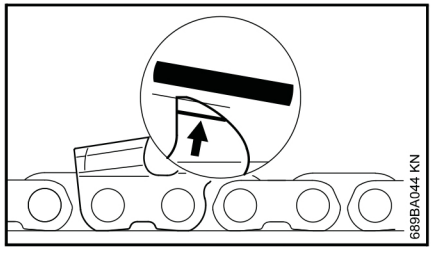
- Use a filing gauge to check the setting every time you sharpen the chain.



- Place a filing gauge (1) that matches the chain pitch on the chain and press it against the cutter – if the depth gauge projects from the filing gauge, the depth gauge has to be lowered.

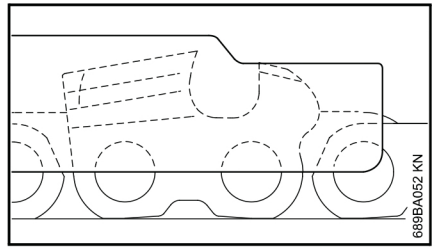


- File down the depth gauge until it is level with the filing gauge.



- File the top of the depth gauge parallel to the stamped service marking (see arrow) – but do not lower the highest point of the depth gauge in this process.

⚠ The kickback tendency of the saw is increased if the depth gauges are too low.



- Place the filing gauge on the chain – the highest point of the depth gauge must be level with the filing gauge.

RSC3, RMC3, PMC3, PMMC3

The upper part of the humped drive link (with service marking) is lowered along with the depth gauge.

⚠ The other parts of the humped drive link must not be filed since this may increase the kickback tendency of the saw.

- After sharpening, clean the chain thoroughly, remove filings or grinding dust – lubricate the chain thoroughly.
- Before a long out-of-service period, clean the chain and store it in a well-oiled condition.

Maintenance and Care

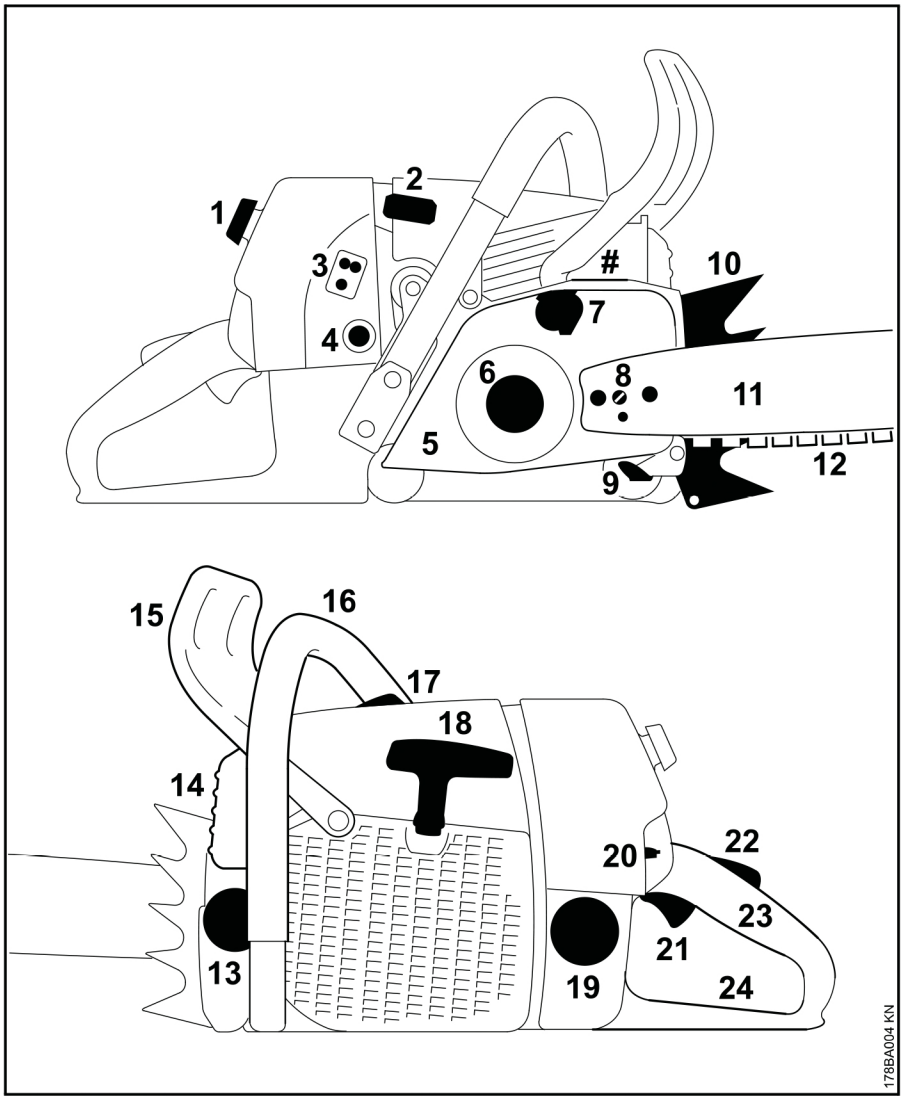
The following information applies under normal operating conditions. The specified intervals must be shortened accordingly when working for longer than normal each day or under difficult conditions (extensive dust, highly resinous lumber, lumber from tropical trees, etc.). If the machine is only used occasionally, the intervals can be extended accordingly.		before starting work	at the end of work and/or daily	whenever tank is refilled	weekly	monthly	yearly	if faulty	if damaged	as required
Complete machine	visual inspection (condition, leaks)	X		X						
	clean		X							
Throttle trigger, throttle trigger lockout, master control lever	Check operation	X		X						
Chain brake	Check operation	X		X						
	have checked by a specialist dealer [1)]									X
Fuel pick-up body / filter in fuel tank	check					X				
	clean, replace filter insert					X		X		
	replace						X		X	X
Fuel tank	clean					X				
Lubricating oil tank	clean					X				
Chain lubrication	check	X								
Saw chain	check, pay attention to sharpness	X		X						
	Check the chain tension	X		X						
	sharpen									X
Guide bar	check (wear, damage)	X								
	clean and turn over									X
	deburr				X					
	replace								X	X
Chain sprocket	check				X					
Air filter	clean							X		X
	replace								X	
Antivibration elements	check	X						X		
	have them replaced by a specialist dealer[1)]								X	

The following information applies under normal operating conditions. The specified intervals must be shortened accordingly when working for longer than normal each day or under difficult conditions (extensive dust, highly resinous lumber, lumber from tropical trees, etc.). If the machine is only used occasionally, the intervals can be extended accordingly.		before starting work	at the end of work and/or daily	whenever tank is refilled	weekly	monthly	yearly	if faulty	if damaged	as required
Cooling air intake slits	clean		X							
Cylinder fins	clean		X			X				
Carburetor	Check idle adjustment – chain must not rotate	X		X						
	Setting the idle speed									X
Spark plug	adjust electrode gap							X		
	Replace after 100 hours' operation									
All accessible screws, nuts and bolts (not adjusting screws)[2)]	retighten									X
Spark arresting screen in muffler	check[1)]							X		
	clean or replace if necessary[1)]								X	
Chain catcher	check	X								
	replace								X	
Combustion chamber	decarbonize after 139 hours of operation, subsequently after every 150 hours of operation									X
Safety information sticker	replace								X	

1) Recommends servicing dealers

2) During initial use of professional chain saws (with a power output of 3.4 kW or more), tighten the cylinder block screws after 10 to 20 hours of operation

Main Parts



1 Carburetor Box Cover Twist Lock
2 Spark Plug Boot
3 Carburetor Adjusting Screws
4 Handle Heating Switch (Depending on Model)
5 Chain Sprocket Cover
6 Chain Sprocket
7 Chain Brake
8 Chain Tensioner
9 Chain Catcher
10 Bumper Spike
11 Guide Bar
12 Oilomatic Saw Chain
13 Oil Filler Cap
14 Muffler with Spark Arresting Screen
15 Front Hand Guard
16 Front Handle (Handlebar)
17 Decompression Valve (Automatically Resetting)
18 Starter Grip
19 Fuel Filler Cap
20 Master Control Lever
21 Throttle Trigger
22 Throttle Trigger Lockout
23 Rear Handle
24 Rear Hand Guard
Serial Number

Definitions

1 **Carburetor Box Cover Twist Lock**
Lock for carburetor box cover.

2 **Spark Plug Boot**
Connects the spark plug with the ignition lead.

3 **Carburetor Adjusting Screws**
For tuning the carburetor.

4 **Handle Heating Switch (Depending on Model)**
For switching the electric handle heating on and off.

5 **Chain Sprocket Cover**
Covers the clutch and chain sprocket.

6 **Chain Sprocket**
The toothed wheel that drives the saw chain.

7 **Chain Brake**
A device to stop the rotation of the chain. Is activated in a kickback situation by the operator's hand or by inertia.

8 **Chain Tensioner**
Permits precise adjustment of chain tension.

9 **Chain Catcher**
Helps to reduce the risk of operator contact by a chain when it breaks or comes off the bar.

10 **Bumper Spike**
Toothed stop for holding saw steady against wood.

11 **Guide Bar**
Supports and guides the saw chain.

12 **Oilomatic Saw Chain**
A loop consisting of cutters, tie straps and drive links.

13 **Oil Filler Cap**
For closing the oil tank.

14 **Muffler with Spark Arresting Screen**
Muffler reduces engine exhaust noise and diverts exhaust gases away from operator.
Spark arresting screen is designed to reduce the risk of fire.

15 **Front Hand Guard**
Provides protection against projecting branches and helps prevent left hand from touching the chain if it slips off the handlebar. It also serves as the lever for chain brake activation.

16 **Front Handle (Handlebar)**
Handlebar for the left hand at the front of the saw.

17 **Decompression Valve (Automatically Resetting)**
Releases compression pressure to make engine starting easier – when activated.

18 **Starter Grip**
The grip of the pull starter, for starting the engine.

19 **Fuel Filler Cap**
For closing the fuel tank.

20 **Master Control Lever**
Lever for choke control, starting throttle, run and stop switch position.

21 **Throttle Trigger**
Controls the speed of the engine.

22 **Throttle Trigger Lockout**
Must be depressed before the throttle trigger can be activated.

23 **Rear Handle**
The support handle for the right hand, located at the rear of the saw.

24 **Rear Hand Guard**
Gives added protection to operator's right hand.

Guide Bar Nose
The exposed end of the guide bar. (not illustrated, see chapter "Tensioning the Saw Chain")

Clutch
Couples engine to chain sprocket when engine is accelerated beyond idle speed. (not illustrated)

Anti-Vibration System
The anti-vibration system includes a number of anti-vibration elements designed to reduce the transmission of vibrations created by the engine and cutting attachment to the operator's hands. (not illustrated)

Specifications

EPA / CEPA

The Emission Compliance Period referred to on the Emissions Compliance Label indicates the number of operating hours for which the engine has been shown to meet Federal emission requirements.

Category

A = 300 hours

B = 125 hours

C = 50 hours

Engine

single cylinder two-stroke engine

PBCS916

Displacement:	5.6 cu. in. (91.6 $cm^{3)}$
Bore:	2.13 in. (54 mm)
Stroke:	1.57 in. (40 mm)
Engine power to ISO 7293:	7.0 hp (5.2 kW) at 9,500 rpm
Idle speed:	2,500 rpm
Maximum permissible speed with bar and chain:	13,500 rpm

Ignition system

Electronic magneto ignition (breakerless)

Spark plug (suppressed):	NGK BPMR 7 A, Bosch WSR 6 F
Electrode gap:	0.02 in. (0.5 mm)

Fuel system

All position diaphragm carburetor with integral fuel pump

Fuel tank capacity: 27.9 fl.oz (0.825 l)

Chain lubrication

Fully automatic, speed-controlled oil pump with reciprocating piston – additional manual oil flow control

Oil tank capacity: 12.2 fl.oz (0.36 l)

Weight

dry, without bar and chain

PBCS916	16.5 lbs. (7.5 kg)
PBCS916	16.5 lbs. (7.5 kg)
PBCS916 with wrap around handlebar:	16.8 lbs. (7.6 kg)

Cutting attachment

Recommended cutting attachments in compliance with Sec. 5.11 of ANSI standard B 175.1-2000

Observe the information about ANSI standard B 175.1-2000 as well as the definition "low-kickback saw chain" in the section "Safety Precautions and Working Techniques".

Saw chains 3/8"

Pitch: 3/8" (9.32 mm)

Drive link gauge:

0.063 in. (1.6 mm)

Chain sprocket

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

In order to comply with the kickback performance requirements of Sec. 5.11 of ANSI standard B 175.1-2000, do not use replacement saw chains unless they have been designated as meeting the ANSI Sec. 5.11 requirements on this specific powerhead, or have been designated as "low kickback" saw chains in accordance with the ANSI B 175.1-2000 standard.

Since new bar/chain combinations may be developed after publication of this Manual, ask your dealer for the latest recommendations.

Special Accessories

Contact your dealer for information regarding special accessories that may be available for your product.

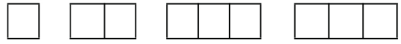
Ordering Spare Parts

Please enter your saw model, serial number as well as the part numbers of the guide bar and saw chain in the spaces provided. This will make re-ordering simpler.

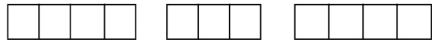
The guide bar and saw chain are subject to normal wear and tear. When purchasing these parts, always quote the saw model, the part numbers and names of the parts.

Model

Serial number



Guide bar part number



Chain part number

See "Specifications" in this manual for the recommended reduced kickback cutting attachments.

⚠ WARNING!

The engine exhaust from this product contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.