



Husqvarna

Great experience



**How to
work with a
chainsaw**



Benefit from the experience of professionals.

At Husqvarna, we have always listened carefully to professional chainsaw users. Our aim is to take their experience and build it into our products. We want to be able to meet their ambitious demands for efficiency, safety, ergonomics, and to fulfil their wish not to affect the environment unnecessarily.

In this way, we have built up an extensive knowledge bank over the years. Now we want to share this knowledge with you. Because even if you only use your saw once in a while, you can benefit a lot from knowing how the professional users do it. The advice we give you is general. There may be specific regulations in your country, and it is imperative that you follow these. Naturally, the saw's appearance, and the placement of controls, can vary according to the model. Our aim here is to give you a good idea of the best way to use a chainsaw. It might seem like a lot to learn, but with a little practice you'll soon become competent with the saw. In the beginning, bring an experienced person along, if possible. Apart from studying this manual, we recommend that you read the saw's instructions carefully before using the saw. We hope you will enjoy using your saw, and that you'll be satisfied with the results of your work.

Safety first.

The chainsaw is an efficient tool. Yet it can be dangerous if used incorrectly. That's why safety must always come first. Your clothing is a very important part of this. Even if you're just cutting some firewood outside the back door of your house, you must use the personal protective equipment that is required in your country. Of course, protective equipment cannot prevent an accident from happening, but it can help to reduce the level of injury if one does occur.

Protect head and hands

Never saw without a helmet with a full-coverage visor and hearing protection. And protect your hands with a pair of strong gloves. (1, 2)

Sturdy footwear

Make sure your boots have a protective toecap, saw protection and a heavy tread. (3)

Protective trousers and jacket

You're safest if you have trousers with saw protection. That way the chain is stopped quickly and effectively should the saw come into contact with your leg (4a, 4b). Also recommended is a highly-visible, ventilated protective jacket.

If you need to call for help

Ensure you have a First Aid kit easily accessible (5). And it's a good idea to carry a mobile phone and a whistle, so you can call for help easily, if something happens.

About the saw

Take your time to get acquainted with the saw, so you have a good idea how it works and so you know its most important parts. Especially important are those that have to do with safety.

Chain catcher

On the bottom of the saw is the chain catcher, which catches the chain if it breaks or derails. (6)

Throttle lock

On the inside of the rear handle is the throttle control. To prevent accidental throttle advance, when you squeeze the throttle control you must also depress the throttle lock on the top of the handle. (7)

Stop control

With the easy-access stop control you can stop the engine quickly. (8)

Right-hand guard

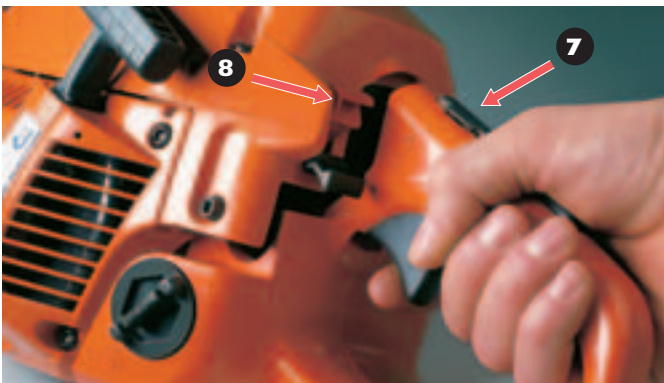
If the chain were to break or derail, your right hand would be protected by the right-hand guard on the bottom of the handle. (9)

Kickback protection

Kickback can occur during most types of operations due to lack of care, and is caused by the saw contacting something with the upper part of the bar nose (the kickback zone). In a kickback situation, the saw is thrown as a result of the force of the rotating chain. Usually the saw is thrown upward and backward.

The saw has a chain brake to stop the chain in the event of a kickback. The chain brake can be triggered in two ways. One, by the user's hand pushing the kickback protection forward, and two, by the inertial forces that arise during a kickback.





Operating the saw.

Starting the saw is easy if you follow the instructions. But make sure you read the user's manual for your saw first, so you know how it works and are familiar with all its parts and controls.

Checking the chain

If the chain isn't new, it's probably a good idea to file it, since cutting is both easier and safer when the chain is sharp. Also make sure the chain is tensioned properly (1). Don't forget that a new chain should always be re-tensioned after operating the saw for a short period (2).

Fuel

When filling the saw with fuel and chain oil, place the saw on a stable surface. To reduce dangerous emissions, choose environmental petrol and vegetable-based chain oil. The overfill protection helps you avoid unnecessary spillage (3). And considering the risk of fires, you should always move the saw before starting it.

Safe distance

It's good to work together with someone, but make sure they are at least five metres away when you start to use the saw. Of course, when felling trees, this distance should be increased considerably.

Start

When you're ready to start, place the saw flat on the ground and clear the area around the bar.

1. Activate the chain brake by pushing the kickback protection forward, as otherwise the chain will start to rotate when the saw starts.
2. Depress the SmartStart decompression control, if the saw has this feature.
3. If the engine is cold, pull the choke out fully.
4. Put your right foot partway through the rear handle and hold the front handle firmly with your left hand. Pull the starter handle with your right hand until the engine starts (4).
5. Now push the choke in again, with the throttle on half way. Continue to pull the starter handle until the saw starts. Hit the throttle once so the engine speed drops to idle. If the engine is already warm, don't use the choke, but the other steps are the same.

If the saw is difficult to start despite being warm, pull out the choke like you do during cold starts, but push it back in right away. When you've got the saw started, don't disengage the chain brake until you're ready to saw.

Checking the chain brake

Now check that the chain brake works. Place the saw on a stable surface and squeeze the throttle. Activate the chain brake by pushing your left wrist against the kickback protection, without releasing the handle. The chain should stop straight away. (5)

Does chain lubrication work?

Also check the chain lubrication. Hold the saw above a light surface, such as a stump, and hit the throttle. A line of oil should be visible on the surface. (6)

Sawing practice

If you're not used to using a chainsaw, we recommend you first get acquainted with the saw by practising a while on a suitable log. (7)

How to operate the saw

There are some basic rules for using a chainsaw. Hold it firmly by both handles and hold your thumbs and fingers right around the handles. Make sure you hold your left thumb under the front handle, to reduce the force of a possible kickback.

Good balance

It's good to have respect for the saw, but don't be afraid of it. If you hold it close to your body it won't feel as heavy. Also, you'll be more balanced and in better control of the saw. For the best balance, stand with your feet apart. (7)

Pulling and pushing chain

You can saw with both the upper and the lower edge of the bar. When using the lower edge, you're sawing with a pulling

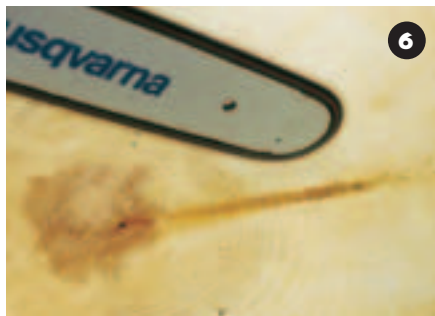
chain, which means that the chain pulls the saw away from you. Using the upper edge of the chain, you're sawing with a pushing chain, so the chain pushes the saw towards you.

Bend your knees

Save your back by not working with a bent back. Instead, bend your knees if you're working at a low level.

Moving around

When moving around the worksite, make sure the chain is not rotating by activating the chain brake or turning off the engine. For longer distances, use the bar guard. (8)



Felling trees.

Felling a tree is something that requires thought and planning. If you're not experienced, you should have someone with you who is. Work calmly and carefully.

Environmental regulations

Before felling any trees, find out which environmental regulations apply and make sure you have the necessary permits.

Prevent accidents

When you have decided to fell a tree, you should think about what you can do to prevent accidents. Take note of everything that can affect safety. Are there any roads, overhead lines or buildings nearby? If so, and if you're a beginner, you should leave the job to someone with more experience. If you know that people often pass through the area, you should set up warning signs.

Decide direction

Assess the tree and take note of various factors that can affect the felling. Is the tree leaning? Which way is the wind blowing? Considering the surroundings and ease of subsequent work, which direction should it be felled in? (1)

Safe retreat

Clear obstructive undergrowth from around the tree. Also, remove branches and other obstacles on the ground. On both sides of the tree, you should be able

to walk unobstructed at an angle away from the falling tree, and remain there, at a safe distance. (2)

Limbing, buttress roots

To work efficiently, you might need to limb the lower part of the trunk. The safest way to do this is with a pulling chain, moving from above, downwards. Use the trunk as protection between you and the saw. Never limb higher than shoulder height. (3)

Directional felling

The general idea of directional felling is that you first saw a directional notch, which determines which direction the tree will fall. The directional notch can be made in a variety of ways. The one we're showing here is called the open directional notch.

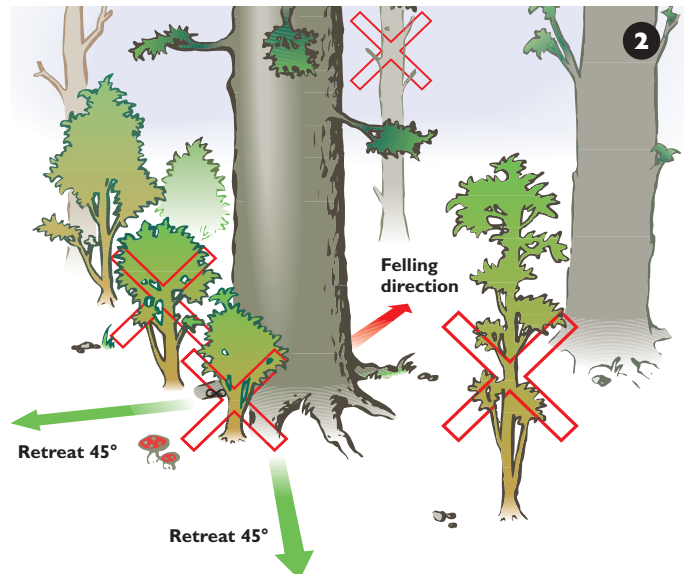
Stand by the tree and decide exactly which direction you want to fell it in (4). Choose some feature from the surroundings as a guide (5). If the tree has buttress roots, it's a good idea to remove them (6). First, you make a top cut into the stem, at an angle of about 60 degrees. Saw to a depth of about 20–25% of the tree's diameter. Then make a horizontal under cut which meets the top cut. (7)

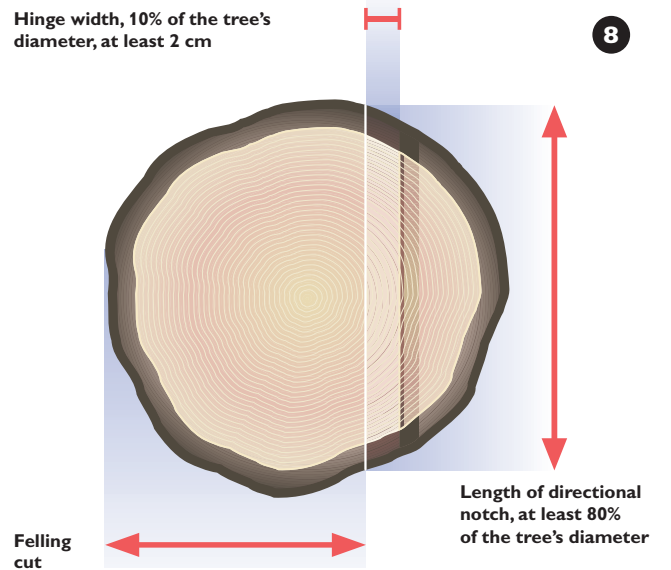
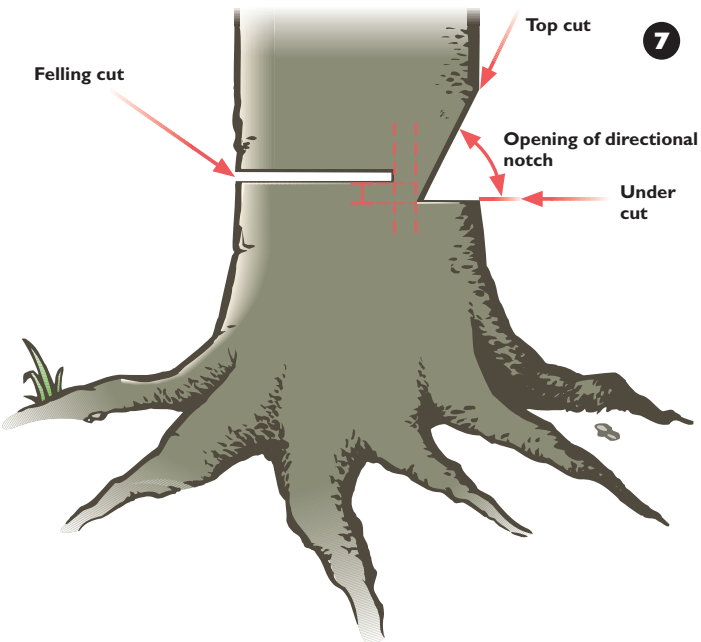
Hinge

Next you saw a horizontal felling cut slightly above the level of the under cut. It's important that you stop sawing just before you reach the directional notch, leaving what is called a hinge. The hinge guides the tree as it falls. Its width should be 10% of the tree's diameter or at least two centimetres. (8)

Keep a safe distance

Make sure that there are no people within the safety radius, which is at least twice the length of the tree that you plan to fell.





Tree thickness determines technique

How you use the saw when felling is decided in part by the thickness of the tree. First we'll look at what you do when the bar is longer than the diameter of the tree.

Working position

Stand with your legs apart and lean against the tree trunk with your shoulder. To avoid an unnecessarily high stump, make the directional notch low.

Top cut

Hold the saw at the correct angle and sight towards the physical feature in the surroundings that you selected. It should coincide with the felling sights on the top of the saw. Give the saw full throttle and start sawing. From time to time, check that you're keeping the correct angle and direction. (1)

Under cut

Stay in the same position and make the under cut. Make sure you meet the top cut exactly. (2)

Felling cut

When it's time for the felling cut, you use either a pushing or a pulling chain. Saw until you have enough room to push in a breaking bar or a felling wedge. Make sure you don't touch the breaking bar/felling wedge with the chain when you continue sawing. Leave a hinge that is as even in thickness as possible. Remove the saw and work the bar/wedge until the tree starts to fall. (3)

Felling tools

Felling tools are used to prevent the tree from falling in the wrong direction or from pinching the blade while sawing. The breaking bar is a felling tool for smaller trees (4). For larger trees, a felling wedge is best (5).

Directional notch, large trees

When the bar is shorter than the diameter of the trunk, a slightly more complicated felling technique is required. The basic principle is the same as in the previous examples, but as the bar doesn't reach through the trunk, you have to complete the directional notch from the other side. Make sure that the new cuts meet up with the old ones as closely as possible. If you're not particularly experienced, it's wise to have someone with you who is.

Plunge cut

What you're going to do now is called a plunge cut (6). With full throttle, start by inserting the lower part of the bar nose into the trunk, just behind the intended hinge (7). Be careful not to touch the tree with the upper part of the bar nose.

When the tip of the saw has moved into the trunk a little bit, turn the saw carefully until it is parallel with the directional notch (8). Press the bar into the tree (9). Then, saw away from the hinge a small distance approximately the width of the bar. This is to prevent you from sawing into the hinge when you turn the saw around. Now saw carefully around the trunk. When you've passed the

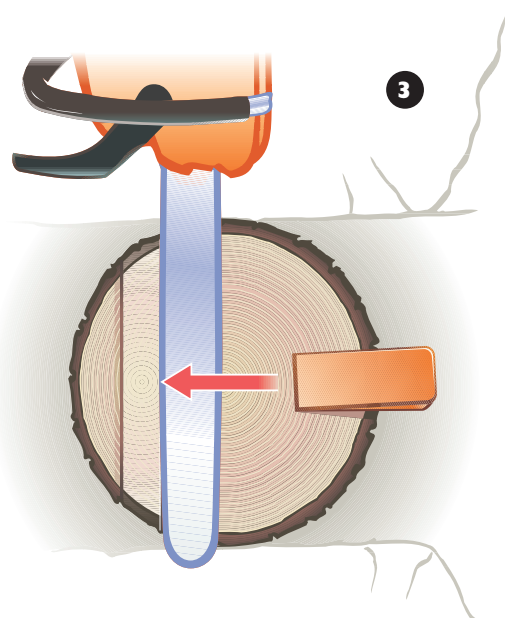
middle, insert a felling wedge (10). Keep sawing until the bar is parallel with the directional notch on the other side (11). You might need to hammer in the felling wedge to get the tree to fall. Sometimes several wedges are required.

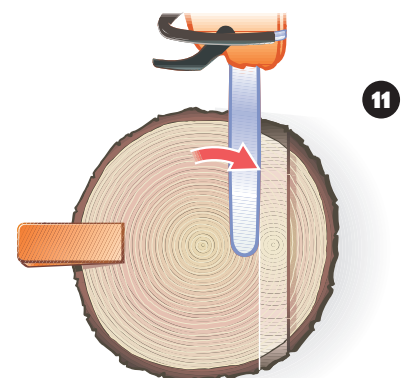
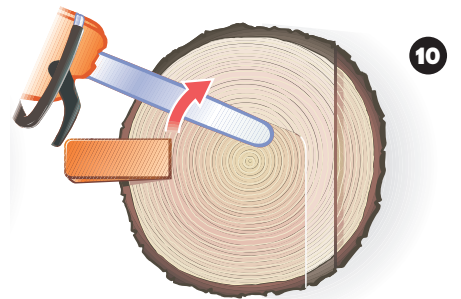
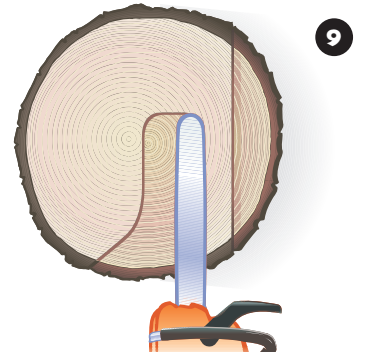
Rot

If the tree has rot damage, you have to be very careful, and preferably get help from an experienced person if you're not that skilled yourself. If the trunk looks damaged or abnormal, there may be a rot problem. The rot-damaged part of the tree is discoloured and feels softer. As rot weakens the tree, you have to make the hinge much bigger, to get the tree to fall safely.

Lodged trees

You should also get assistance from someone with experience if the tree gets stuck in another tree on the way down. Don't leave the tree unattended if you have to call for help.





Limbing and crosscutting.

It's easy to get kickbacks when limbing and crosscutting. That's why you should work calmly and methodically, and take care not to touch anything with the upper part of the bar nose.

The best working height is when the trunk is at hip height. Stand on the left of the trunk and work from the base of the tree upwards. Stand firmly, with your feet apart and keep the saw close to your body. Work with both a pulling and a pushing chain and always try to rest the saw on the trunk or against your hip. Only move when you have the trunk between yourself and the bar of the saw (1).

Branches on the upper side of the trunk can be cut with the saw lying on its side (2). You can limb the branches on the underside of the trunk at the same time as the rest if you have a good working height. Observe how the branches are tensioned, so you can saw them from the correct side, otherwise, there is a risk that the saw will get caught. If the tree is lying right on the ground, you'll have to wait with the branches on the bottom until you're finished with the others and can roll the trunk over. Be careful when the trunk is close to the ground, since there is quite a risk that you'll touch something with the tip of the bar, which will cause a kickback.

Limbing large branches

If the tree has thick branches, you should first remove other branches that are in the way. Since thick branches can be under

great tension, limb them in stages from the end, in towards the trunk.

Saw with the bar held vertically, to reduce the risk of it getting caught. If the branch is very thick, you might have to cut it from two sides. (3)

Crosscutting

Study the tree and your surroundings before you start, especially if the trunk is thick. First, try to see how it is tensioned. Watch how the trunk reacts when you start to saw. You might have misjudged the tension.

Stand off to the side of the cut, since the trunk can jump up when it comes apart. Never stand below the trunk if the ground is sloping.

Pressure on the top

If the trunk lies so that the pressure comes from above, start with a cut from above. Saw about one third of the way through the trunk or until it starts to pinch the bar (4a).

Then cut from underneath, to meet the first cut (4b).

Pressure on the bottom

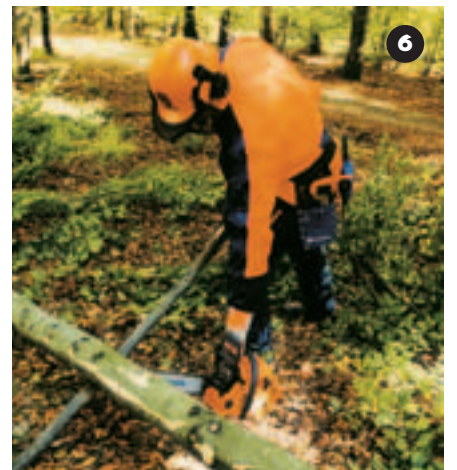
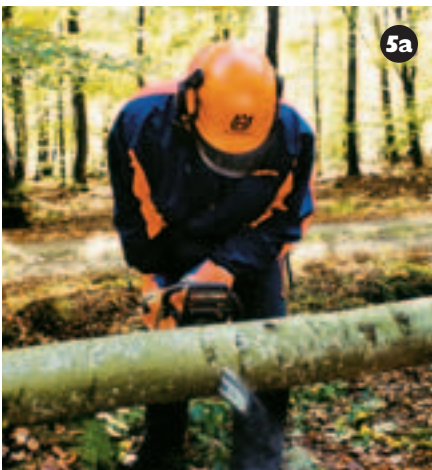
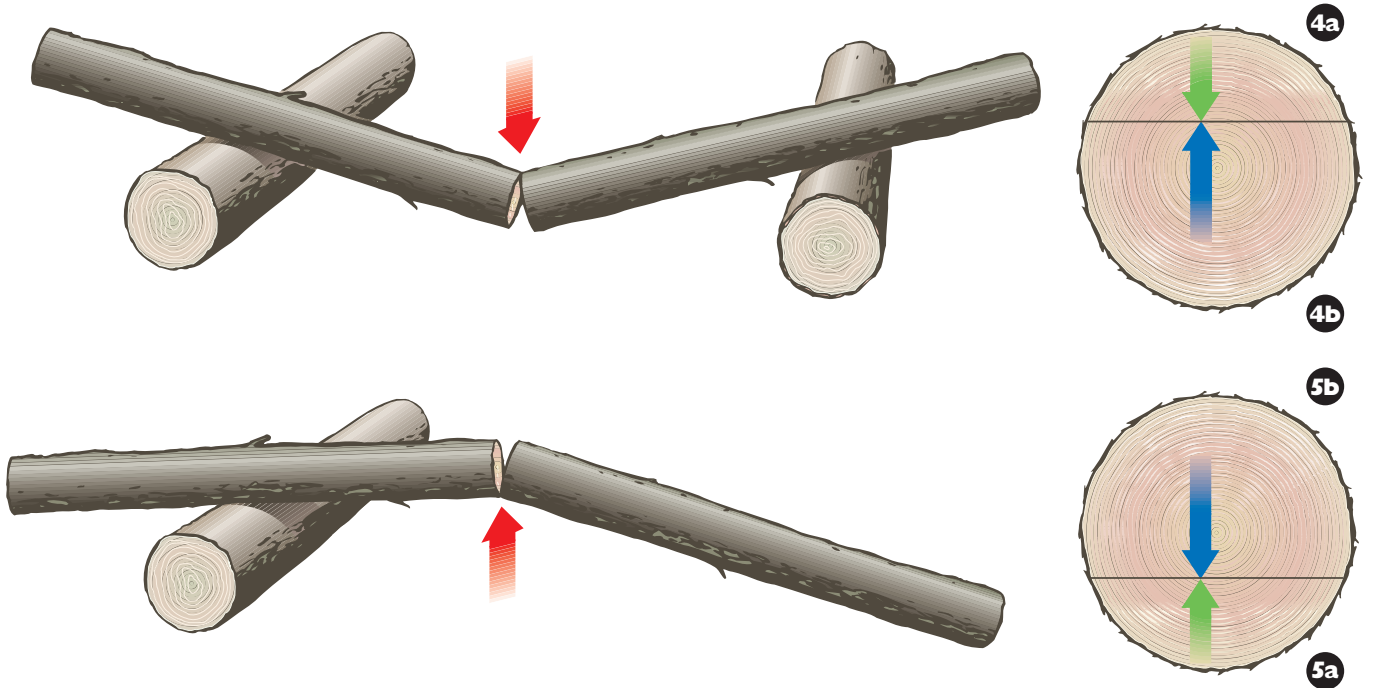
If instead the trunk lies so that the

pressure comes from below, you work the other way around. Start by sawing from underneath, about one third of the way through the trunk or until it starts to pinch the bar (5a). Then cut from above, to meet the first cut (5b).

If the saw gets stuck

If the bar gets stuck, don't try to pull out the saw. Instead, stop the engine and bend open the trunk until the saw comes loose. (6)





Maintenance.

When you've finished work, it's worth spending a little time on maintenance. To make sure it's functioning properly, is safe and is ready to go, next time you need it. Of course, maintenance requirements depend on how much you use the saw.

Sharpening the chain

Filing the chain is an important part of maintaining the saw, and is not difficult if you use Husqvarna's instructions and equipment (2). It's easiest if you file the chain relatively frequently.

Fix the saw in place. Then lock the chain by activating the chain brake (1). Start with the cutting teeth. Place the file gauge on the chain with the arrows pointing towards the bar nose (3). Place the file at right angles to the rollers. File every second tooth with an even, pushing stroke (4). Then turn the saw around and file the rest of the cutting teeth (5).

Filing the depth gauges

About every third time you file the cutting teeth, file the depth gauges between them as well. Hold the file gauge steady with one hand (6). Select "hard" or "soft" depending on which type of wood you normally saw. Hold the flat file in your other hand and file the depth gauge until the file contacts the file gauge (7).

Changing the chain and bar

After a number of sharpenings, when the longest part of the cutting tooth is

less than 4 mm, the chain should be replaced (8).

Remove the bar and put the new chain in place. Adjust the chain tension carefully. A loose chain can jump off and if it's too tight it will wear out the bar. You should be able to lift the chain approximately one cm from the track at the middle of the bar, and it should be easy to pull the chain around by hand.

Cleaning

When it comes to other maintenance, there are a few parts that you need to clean now and then.

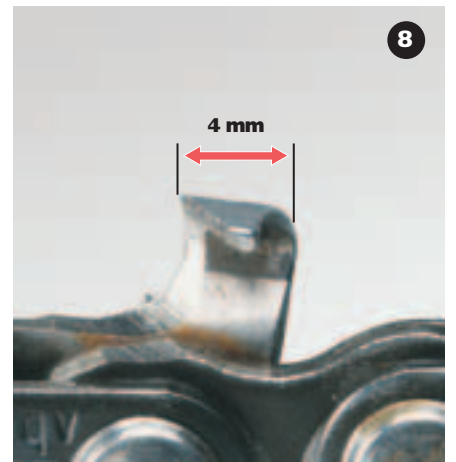
Remove the clutch cover and clean the chain brake band. You should also clean the bar occasionally. Remove the cylinder cover and wash the air filter (9). Clean the cooling fins and the air intake if necessary. Check periodically that the flywheel fins are clean, to ensure good engine cooling (10).

Checks

There are other things that should be checked periodically, to make sure they're working as they should. In particular the

chain brake, throttle control, chain catcher and chain lubrication. Also, check that the chain drive wheel is whole and not too worn. And that screws, bolts and nuts are tightened. Read more about service in the saw's user's manual.





With more than 300 years' experience of engineering, Husqvarna offers world-leading solutions for the care of forests, parks and gardens. Through products that combine professional performance and user focus in an optimal way, you get efficiency, satisfaction and results of the highest quality.



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