



# chainsaws



## what are they?

They are lightweight, hand-held mechanical saws mostly used for cutting timber – for felling trees or cross-cutting (across the grain) logs to lengths that can be split with a splitting axe for firewood. They have a petrol or electric power source that drives a specialist chain that has a series of cutter links built into it. (no diesel chainsaws – the engine would be too heavy.) With both petrol and electric chainsaws, there is a lubrication system for the chain. The chain runs around a flat guide bar, and there must be lubrication at all times to prevent excess friction and seizure. Petrol chainsaws need to be fuelled with a petrol / two-stroke oil mix (50:1). Electric chainsaws must use a circuit breaker, as you would do with all externally-used electric tools. Electric chainsaws are quieter, but are limited by the availability of electricity. Petrol chainsaws use a more expensive fuel (petrol), are noisier and smellier, but have the advantage of extreme mobility. The safety features can be seen below. The chain brake is an internal band brake that can either be manually applied or will self-apply in cases of kickback – this stops the chain instantly. The chain catcher slows the chain down and catches it in cases of derailment or snapping. The safety trigger is a form of 'dead man's handle' (if you let go of it the trigger, the chain stops) so it's essential to have a good grip on the handle (to compress the dead man's handle) before the trigger can be used. Chainsaws developed from

early machines in the mid-20th century that vibrated excessively, and were very noisy and unpleasant to use. However, modern developments in chainsaw technology have reduced pollution and vibration.

The chain always runs forwards on the top of the guide bar, and so backwards (towards the user) on the bottom of the guide bar. The most dangerous part is where the chain starts to go round the nose – called the kickback zone. At the kickback zone, the cutter tries to grab too much wood and stops. This causes the machine to fly backwards violently towards the operator. So you use the bottom to cut, not the nose (unless you are extremely skilled).

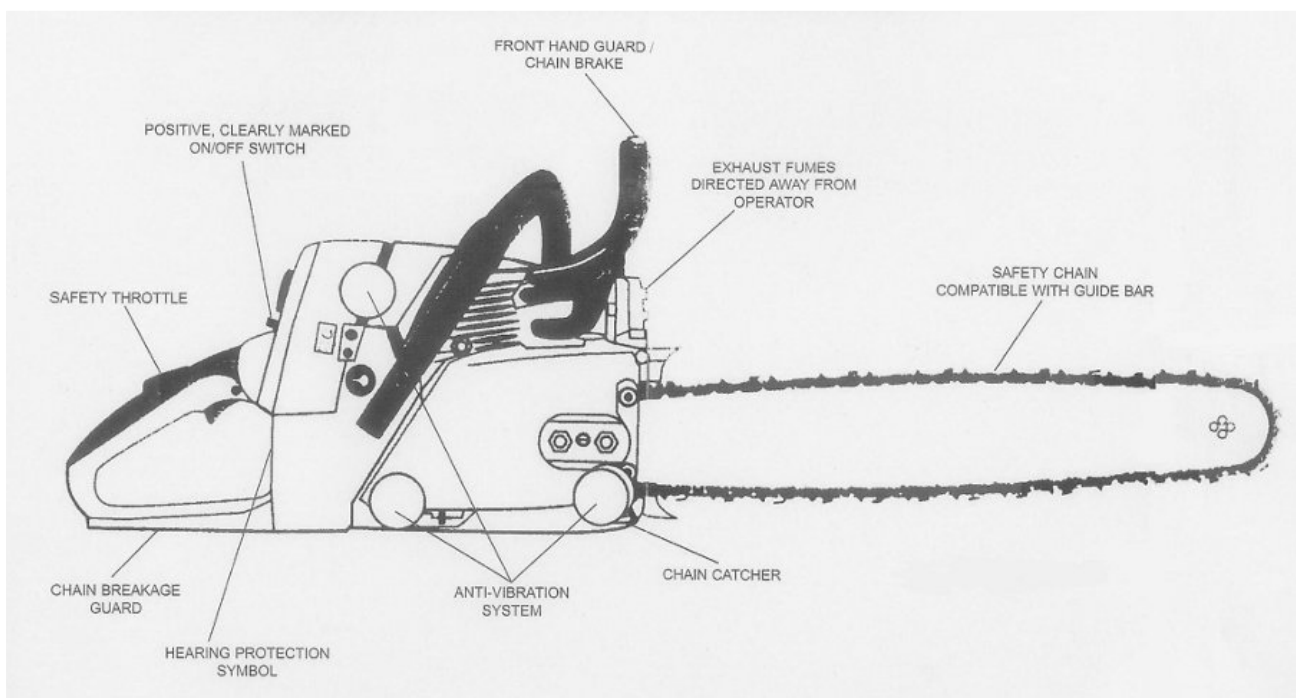
By the way, there's no such thing as a left-handed chainsaw, so unfortunately if you're left-handed, you have to use them as if you're right-handed.

## what are the benefits?

Chainsaws are mobile, fast, easy (if sharp), and able to deal with various shapes. You don't have to lift material to cut it – you can cut pieces that are too heavy to lift in situ, or cut large pieces into easily-transportable smaller pieces.

There are two alternatives to chainsaws for cutting cordwood. The first is a benchsaw run off a tractor. The environmental benefit with this option is that the tractor can be run on biodiesel made from waste oil. But logs can't be cut in situ.

The other alternative is the pre-chainsaw option – a two-person cross-cut saw. This is manual, and you wouldn't want to do it for too long - say 20



chainsaw showing safety features; source: Lantra (see resources)



minutes a day, and saws need to be kept in razor-sharp condition. This option is best for the environment – no fuel, emissions etc - and healthier, if you're fit enough, and have time. Only a few diehards would use this system nowadays. But good luck to you if you do.

There is a cost benefit in cutting your own cordwood as opposed to buying firewood pre-cut and split. However, you need space, and the will to cut and split your own firewood regularly. Prices depend on where you live, but cordwood is around £30 a tonne, often delivered in 25 tonne loads, plus £200 for delivery. Split firewood is a lot more expensive – up to £100 for a half-tonne load delivered. So a chainsaw is worth it financially if you are going to heat your space with wood; and of course you're going to need one if you have your own woodland, or if you have a 'gleaning' licence (from the Forestry Commission - to collect firewood from certain blocs of woodland).

## what can I do?

Using a chainsaw can be very dangerous. The first thing to do is get trained. See Lantra to find a local accredited instructor. Your first course will be 'cross-cut and maintenance', which includes safe starting, correct use, and maintenance – including sharpening and servicing. Next you'll need PPE – that's personal protective equipment - chainsaw boots, trousers and gloves (PPE contains chain clogging fibres so that if you cut into it, it will stop the chain instantly), plus forestry helmet with visor and earmuffs. Accredited PPE will be CE marked – with an image of a chainsaw in a shield.

When you buy a chainsaw, make sure it's a brand with a good reputation – e.g. Stihl or Husqvarna. Don't get a cheap one – it's false economy. Get it from a chainsaw dealer, not a DIY chain - that way you've got expert back up if anything goes wrong, and when you need to replace bits from time to time. It also means that your choice of brand will probably depend on the preference of your local dealer. 40-50cc (for the petrol models) and with a bar length of between 12-15inches (30-40cm) is adequate for the average domestic situation. A cross-cutting / chainsaw horse makes cutting firewood from the length easier, although it's not absolutely necessary.

You will learn about maintenance on a course, but you need to sharpen the chain regularly. If you



*personal protective equipment (PPE): helmet with visor and earmuffs, chainsaw gloves, trousers and boots*

use a chainsaw all day, you could sharpen it 4 or 5 times. Use the correct sized round file. If the chain is blunt, you will use lots of fuel and oil, and put excess strain on you and the chainsaw.

If you want to fell trees, go on courses – after the cross-cut and maintenance course, go on a felling small trees course (up to 15in/40cm diameter) – see Lantra. Once you've done this one, there are further courses for larger trees. Or you can get a tree surgeon or competent forester in.

If you want to cut your own firewood, you could aspire to keep up to 20 tonnes in stock – 4 years supply for an average house. Then you'll be sure it's nice and seasoned.

## resources

- *Chainsaw Operator's Manual*, Bernard Kester – available from LILI
- Stihl, [stihl.co.uk](http://stihl.co.uk), 01276 670510, manufacturers
- Husqvarna, [husqvarnachainsaws.co.uk](http://husqvarnachainsaws.co.uk), 01704 896246, manufacturers
- Forestry Commission, [forestry.gov.uk](http://forestry.gov.uk), 0845 367 3787 – gleaning licences to collect firewood from woodland
- Lantra, [lantra.co.uk](http://lantra.co.uk), 0845 707 8007 – listings of local accredited chainsaw instructors

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