

250PS

Operator's manual



Read these instructions carefully and make sure you understand them before using the saw.

KEY TO SYMBOLS

Symbols



WARNING!
Pruning saws can be dangerous!
Careless or incorrect use can result
in serious or fatal injury to the
operator or others.



WARNING!
Observe the applicable safety
regulations for work in the
vicinity of overhead cables.



Read the instructions carefully and
make sure you understand them
before using the machine.

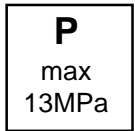


Always wear:

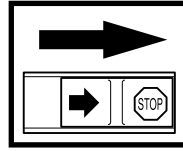
- Safety helmet
- Hearing protection
- Approved eye protection



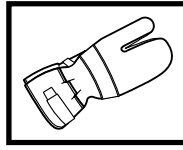
This product is in accordance with
applicable CE directives.



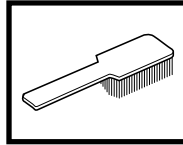
Max working pressure 130 bar



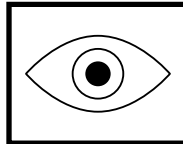
Switch off the engine by moving the
stop switch to the STOP position
before carrying out any checks or
maintenance.



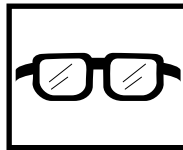
Always wear approved protective
gloves.



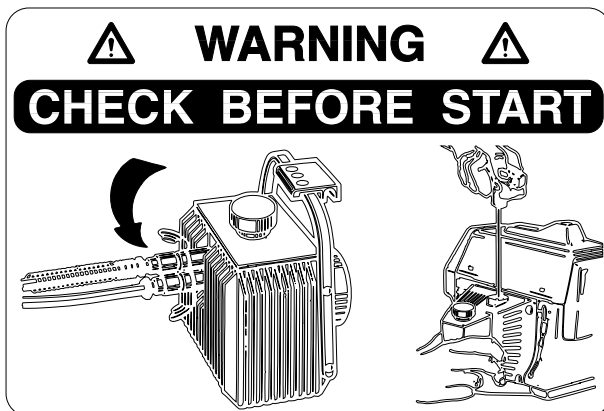
Regular cleaning is required.



Visual check.



Approved eye protection must
always be used.



Check that the quick couplings on the hydraulic hoses are
properly connected before you start the engine.

CONTENTS



WARNING!
Under no circumstances may the design of the machine be modified without the permission of the manufacturer. Always use genuine accessories. Non-authorised modifications and/or accessories can result in serious personal injury or the death of the operator or others.



WARNING!
The machine's cutting equipment must under no circumstances be connected to other hydraulic units than what it is designed for.



WARNING!
Only original cutting equipment must be connected to the hydraulic unit.



WARNING

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

SYMBOL EXPLANATION

Symbols 2

CONTENTS

Contents 3

SAFETY INSTRUCTIONS

Personal protective equipment 4

The machine's safety equipment 4

Control, maintenance and service of the machine's safety equipment 6

Cutting equipment designed to minimise kickback 7

Specification of blade and chain 8

Sharpening your chain and adjusting raker clearance 8

Tensioning the saw chain 10

Chain lubrication 10

Checking wear on cutting equipment 11

General safety instructions 12

General working instructions 13

Basic safety precautions 13

Basic clearing techniques 14

WHAT IS WHAT?

What is what on the machine? 15

ASSEMBLY

Connecting the hydraulic hoses 16

Adapter 16

Dismantling the hydraulic hoses 16

Assembly of throttle handle 16

FUEL HANDLING

Petrol 17

Two-stroke oil 17

Mixing 17

Fuelling 17

Hydraulic oil 18

START AND STOP

Cold engine 18

Warm engine 18

Stop 18

Start 19

Fitting the harness 19

Removing the harness 19

Quick release in case of hazard 19

MAINTENANCE

Carburettor 20

Air filter 21

Muffler 21

Spark plug 21

Cooling system 22

Replacement of chain drive wheel 22

Cleaning of the shaft 22

Adjustment of the ball joint 22

Maintenance schedule 22

TECHNICAL DATA

250 PS 24

SAFETY INSTRUCTIONS

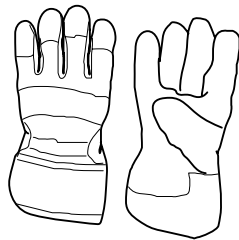
Personal protective equipment

IMPORTANT INFORMATION

- A pruning saw used incorrectly or carelessly can become a dangerous tool that can cause serious or fatal injury to the operator or others. It is extremely important that you read and understand the content of this manual.
- When using a pruning saw, personal protective equipment approved by the appropriate authorities must be used. Personal protective equipment does not eliminate the risk of accidents, however, it can reduce the effect of injury in the event of an accident. Ask your dealer for help when choosing protective equipment.

GLOVES

Gloves should be worn when necessary, e.g. when assembling cutting equipment.



HELMET

A helmet should be worn to eliminate headinjuries caused by downfalling branches.



EAR PROTECTION

Ear protection offering sufficient dampening effect should be used.



EYE PROTECTION

Blows from branches or other can damage the eyes.

SHOES OR BOOTS

Use anti-slip and sturdy footwear.

CLOTHING

Wear clothes made of a strong fabric and avoid loose clothing that can catch on shrubs and branches.



FIRST AID KIT

A first aid kit should always be easy to reach.



The machine's safety equipment

This section describes the machine's safety equipment, its function and how checks and maintenance are carried out to ensure that it operates correctly. (See the chapter "What is what" to locate where this equipment is positioned.)

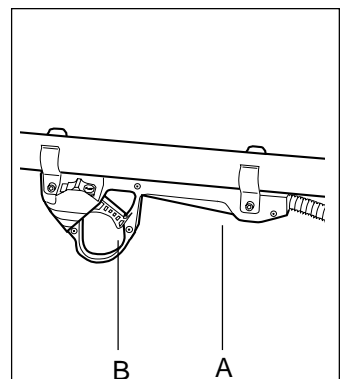


WARNING!

Never use a machine with defective safety equipment. Follow the control, maintenance and service instructions described in this section.

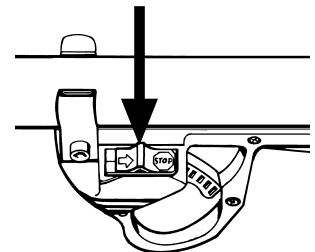
1. Throttle trigger lock

The throttle trigger lock is designed to prevent the throttle from accidentally being engaged. When the trigger lock (A) is pressed into the handle (= when you hold the handle) the throttle (B) is released. When the grip on the handle is released the throttle and the throttle trigger lock return to their original positions. This takes place via two independent return spring systems. This means that the throttle is automatically locked in its "idling" position.



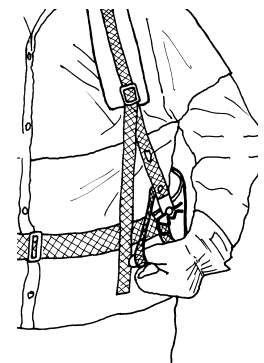
2. Stop switch

The stop switch should be used to stop the engine.



3. Emergency release

The harness is fitted with an emergency release. By pulling the red strap the hip and one shoulder belt release at the same time, and the harness and engine unit slide down to the ground.



SAFETY INSTRUCTIONS

4. Vibration damping system

Your machine is equipped with a vibration damping system, which is designed to give as vibration-free and comfortable use as possible.

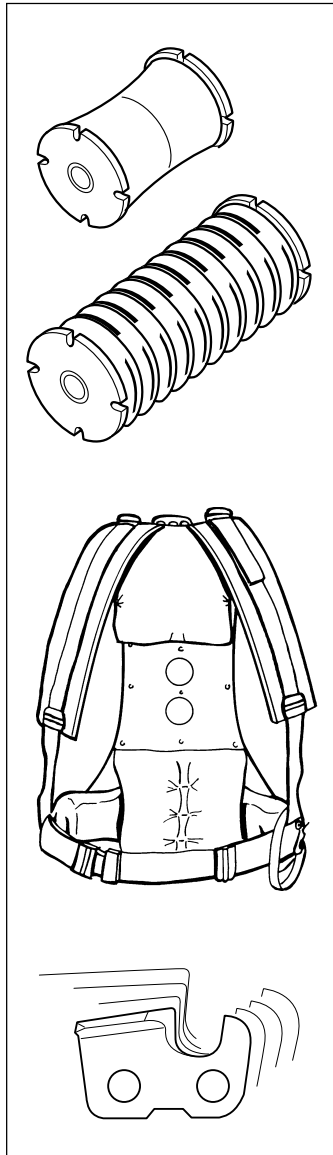
The machine's vibration system reduces the transfer of vibrations between the engine unit and the harness.

The harness is also well padded at the hip section and has wide shoulder belts to distribute the weight and vibrations.

The vibrations you are exposed to originate from the "irregular" contact which occurs between the chain and the wood during the sawing.

Sawing in "hard" wood (most deciduous trees) gives more vibrations than sawing in "soft" wood (most conifers).

Sawing with unsharp or incorrect (wrong type or incorrectly filed) cutting equipment increases the level of vibrations.



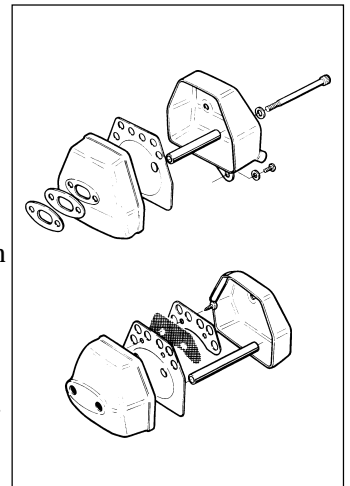
WARNING!

Over exposure to vibrations can result in blood-vessel or nerve injury to persons suffering with blood circulation problems. Seek medical attention if you experience physical symptoms that can be related to over exposure to vibrations. Examples of such symptoms are "numbness", lack of feeling, "tickling", "pricking", "pain", lack of or a reduction in normal strength, changes in the colour of the skin or its surfaces. These symptoms normally appear in the fingers, hands or wrists.

5. Silencer

The silencer is designed to give the lowest possible noise level and to direct the engine's exhaust fumes away from the operator.

In countries that have a warm and dry climate the risk of fire is obvious. We have therefore fitted certain silencers with a spark arrest screen. Check if your silencer is fitted with this kind of screen.



It is extremely important that the instructions for checking, maintaining and servicing the silencer are followed. (See the section "Control, maintenance and service of the machine's safety equipment")



WARNING!

The exhaust fumes from the engine are hot and may contain sparks which can start a fire. Never start the machine indoors or near combustible material!

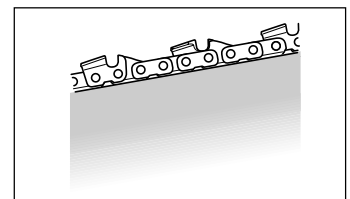
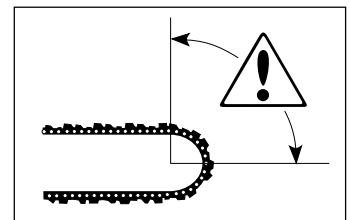


WARNING!

During use and for some time after the silencer is very hot. Do not touch the silencer if it is hot!

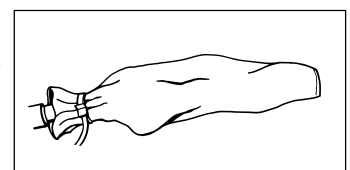
6. Cutting equipment

Observe care when using, and make sure that the blade's pitch sector never comes into contact with objects.



NOTE!

The guard should always be fitted over the cutting equipment during transport and storage.



SAFETY INSTRUCTIONS

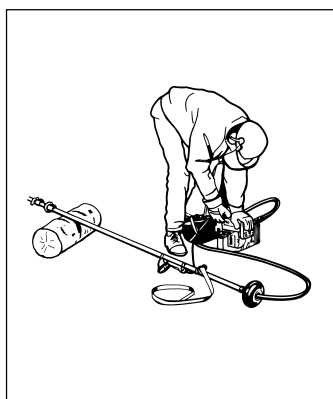
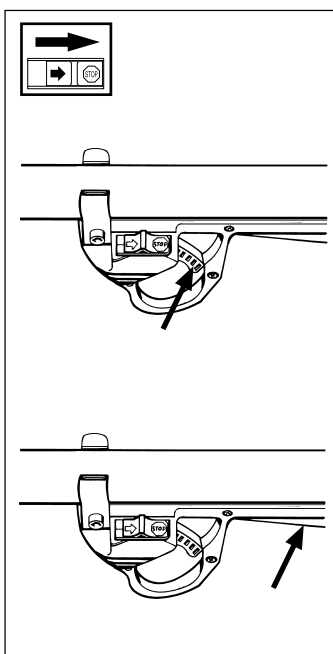
Control, maintenance and service of the machine's safety equipment

IMPORTANT INFORMATION

- All service and repairs to the machine require special training.
- This applies especially to the machine's safety equipment. If the machine does not meet any of the controls listed below you should contact your service workshop.
- The purchase of one of our products guarantees that professional repair and servicing will be carried out on it. If the point of purchase is not one of our servicing dealers, please ask for details of the closest service workshop.

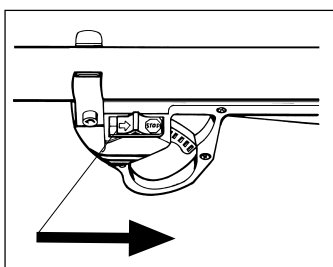
1. Throttle trigger lock

- Check that the throttle is locked in the "idling position" when the throttle trigger lock is in its original position.
- Press in the throttle trigger lock and make sure it returns to its original position when released.
- Ensure that the throttle and throttle trigger lock move easily and that their return spring systems function.
- See section "Start". Start the machine and apply full throttle. Release the throttle and check that the cutting equipment stops and remains at a standstill. If the cutting equipment rotates with the throttle in the idling position then the carburettor's idling setting must be checked. See chapter "Maintenance".



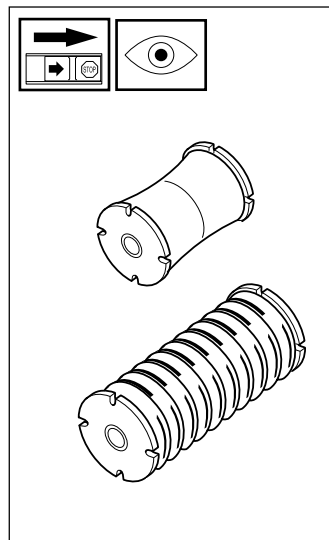
2. Stop switch

- Start the engine and make sure that the engine stops when the stop switch is moved to the stop position.



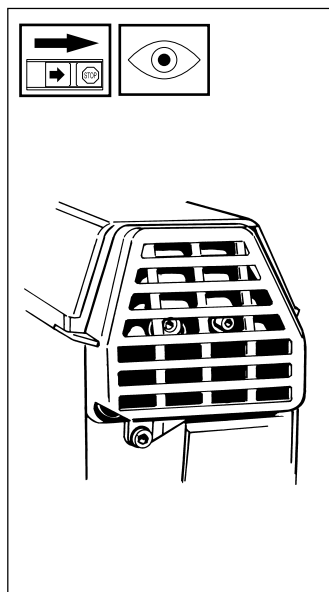
3. Vibration damping system

- Check the vibration damping elements regularly for material cracks and distortion.
- Check that the vibration damping elements are securely attached between the engine unit and the harness.



4. Silencer

- Never use a machine that has a defective silencer.
- Check regularly that the silencer is secure.
- If the silencer is fitted with a spark arrest screen then it should be cleaned regularly. A blocked screen leads to the engine overheating with serious damage as a result. Never use a silencer with a defective spark arrest screen.



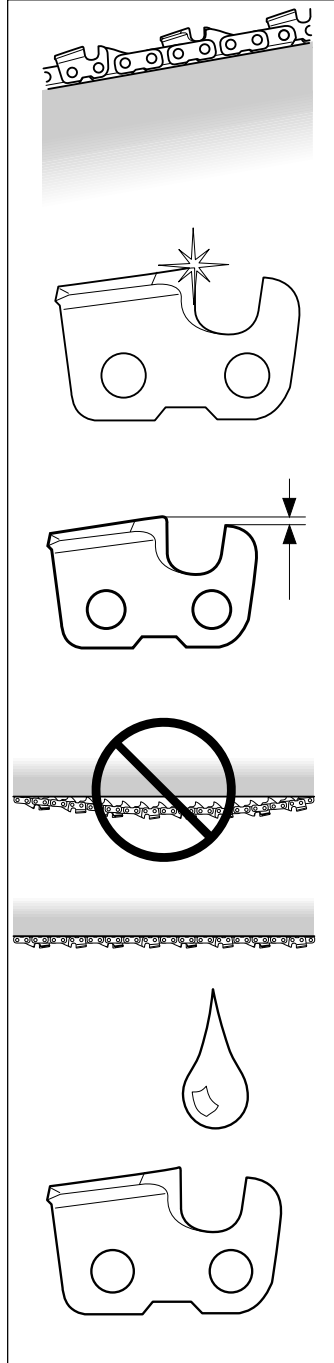
SAFETY INSTRUCTIONS


5. Cutting equipment

This section describes how through correct maintenance and through using the right type of cutting equipment you can:

- Obtain maximum cutting capacity.
- Increase the service life of the cutting equipment.


- A. Only use cutting equipment recommended by us! See the "Technical data" section.
- B. Keep the chain cutting teeth properly sharpened! Follow our instructions and use the recommended file gauge. A damaged or badly sharpened chain increases the risk of accidents.
- C. Maintain the correct raker clearance! Follow our instructions and use the recommended raker gauge. Too large a clearance increases the risk of kickback.
- D. Keep the chain properly tensioned! If the chain is slack it is more likely to jump off and lead to increased wear on the bar, chain and drive sprocket.
- E. Keep cutting equipment well lubricated and properly maintained! A poorly lubricated chain is more likely to break and lead to increased wear on the bar, chain and drive sprocket.





WARNING!
Never use a machine with defective safety equipment. The safety equipment should be maintained as described in this section. If your machine does not meet any of these controls you should contact your service workshop.

Cutting equipment designed to minimise kickback



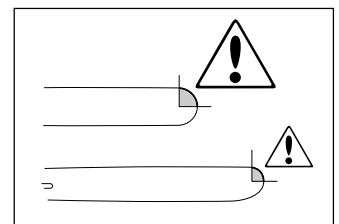
WARNING!
Faulty cutting equipment or the wrong combination of bar and chain increases the risk of kickback. Use only the bar and chain combinations recommended in the "Technical data" section.

The only way to avoid kickback is to make sure that the kickback zone of the bar never touches anything.

By using cutting equipment with "built-in" kickback protection and keeping the chain sharp and well-maintained you can reduce the effects of kickback.

Guide bar

The smaller the tip radius the smaller the kickback zone and the lower the chance of kickback.



Saw chain

A saw chain is made up of a number of links, which are available in standard and low-kickback versions.

	None	Standard	Low-kickback
Cutting link			
Drive link			
Side link			

Combining these links in different ways gives different degrees of kickback reduction. In terms of kickback reduction alone, four different types of link are available.

Kickback reduction	Cutting link	Drive link	Side link
Low			
Standard			
High			
Extra high			

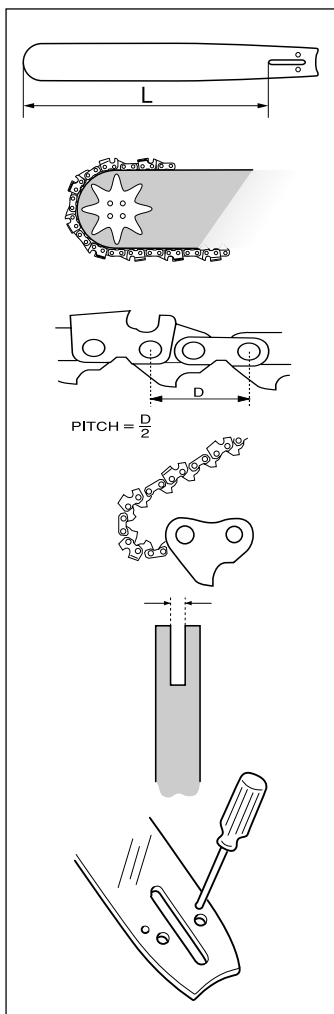
SAFETY INSTRUCTIONS

Specification of blade and chain

When the cutting equipment supplied with your saw becomes worn or damaged you will need to replace it. Use only the type of bar and chain recommended by us.

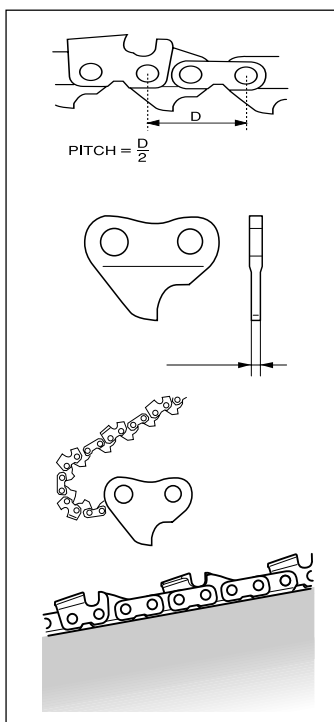
Guide bar

- Length (inches/cm)
- Number of teeth on bar tip sprocket (T).
Small number = small tip radius = low-kickback
- Chain pitch (inches)
The spacing between the drive links of the chain must match the spacing of the teeth on the bar tip sprocket and drive sprocket.
- Number of drive links
The number of drive links is determined by the length of the bar, the chain pitch and the number of teeth on the bar tip sprocket.
- Bar groove width (inches/mm)
The groove in the bar must match the width of the chain drive links.
- Saw chain oil hole and hole for chain tensioner
The bar must be matched to the chain saw design.



Saw chain

- Saw chain pitch (inches)
Spacing between drive links.
- Drive link width (mm/inches)
- Number of drive links
- Level of kickback reduction
The level of kickback reduction offered by a chain is indicated by its model number.



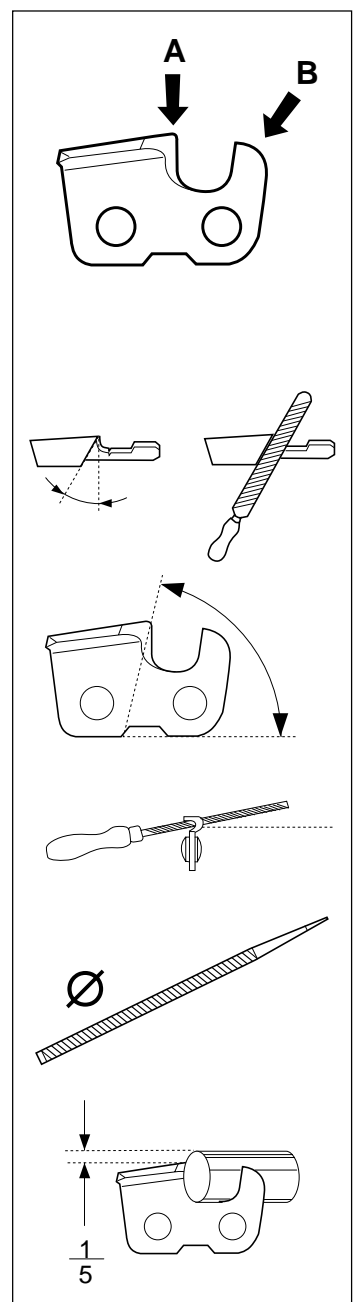
Sharpening your chain and adjusting raker clearance



WARNING!
The risk of kickback is increased with a badly sharpened chain!

A. General information on sharpening cutting teeth

- Never use a blunt chain. When the chain is blunt you have to exert more pressure to force the bar through the wood and the cuttings will be very small. If the chain is very blunt it will not produce any cuttings at all, just wood powder.
- A sharp chain eats its way through the wood and produces long, thick cuttings.
- The cutting part of the chain is called the CUTTING LINK and this consists of a CUTTING TOOTH (A) and the RAKER LIP (B). The cutting depth is determined by the difference in height between the two.
- When you sharpen a cutting tooth there are five important factors to remember:



FILING ANGLE

CUTTING ANGLE

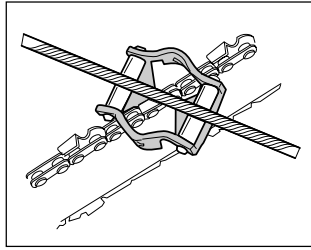
FILE POSITION

ROUND FILE DIA-
METER

FILE DEPTH

SAFETY INSTRUCTIONS

It is very difficult to sharpen a chain correctly without the right equipment. We recommend you to use a file gauge. This will help you obtain the maximum kickback reduction and cutting performance from your chain.



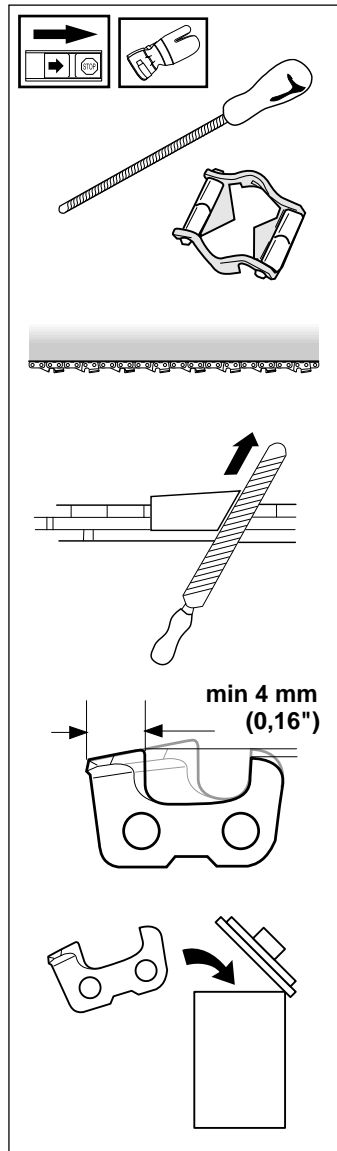
! The following faults will increase the risk of kickback considerably.

- FILE ANGLE TOO LARGE
- CUTTING ANGLE TOO SMALL
- FILE DIAMETER TOO SMALL

B. Sharpening cutting tooth

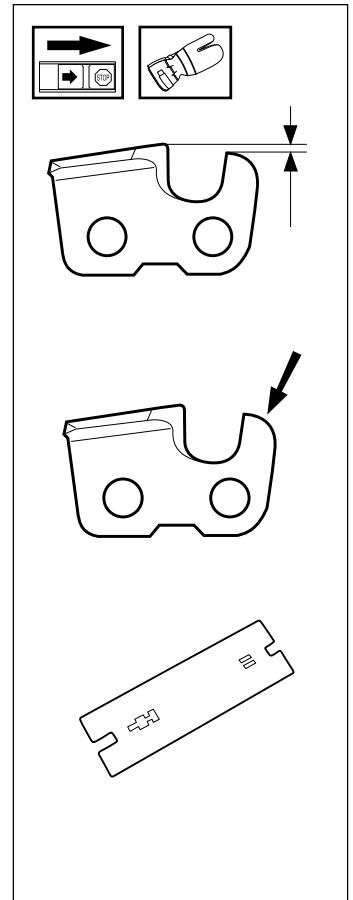
To sharpen cutting teeth you will need a ROUND FILE and a FILE GAUGE.

1. Check that the chain is correctly tensioned. A slack chain is difficult to sharpen correctly.
2. Always file cutting teeth from the inside face, reducing the pressure on the return stroke.
File all the teeth on one side first, then turn the saw over and file the teeth on the other side.
3. File all the teeth to the same length. When the length of the cutting teeth is reduced to 4 mm (.16") the chain is worn out and should be replaced.



C. General advice on setting raker clearance

- When you sharpen the cutting teeth you reduce the RAKER CLEARANCE (cutting depth). To maintain cutting performance you must file back the raker teeth to the recommended height.
- On a low-kickback cutting link the front edge of the raker lip is rounded. It is very important that you maintain this radius or bevel when you adjust the raker clearance.
- We recommend the use of a raker gauge to achieve the correct clearance and bevel on the raker lip.

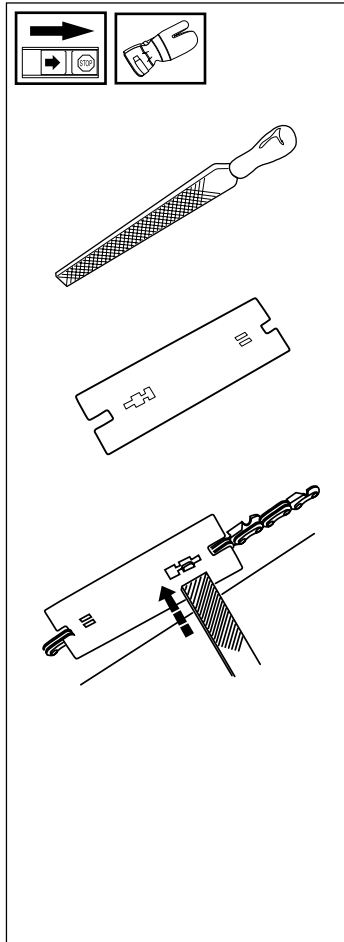


! WARNING!
The risk of kickback is increased if the raker clearance is too large!

SAFETY INSTRUCTIONS

D. Correction of raker clearance

- When correction of the raker clearance is made the teeth must be newly sharpened.
- We recommend that you adjust the raker clearance every third time you sharpen the chain.
- NOTE! This recommendation assumes that the length of the cutting teeth is not reduced excessively.
- A FLAT FILE and an RAKER CLEARANCE GAUGE are required to correct the raker clearance.
- Place the gauge over the raker lip.
- Place the file over the part of the lip that protrudes through the gauge and file off the excess. The clearance is correct when you no longer feel any resistance as you draw the file over the gauge.

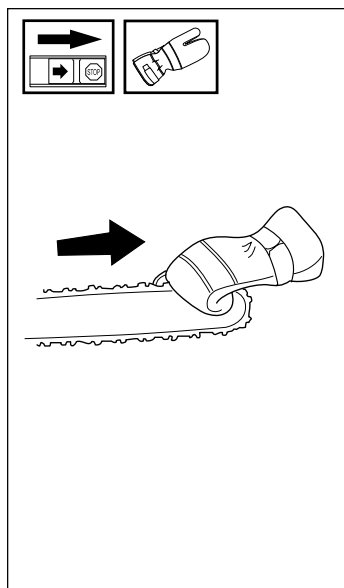


Tensioning the saw chain



WARNING!
A slack chain may jump off and cause serious or even fatal injury.

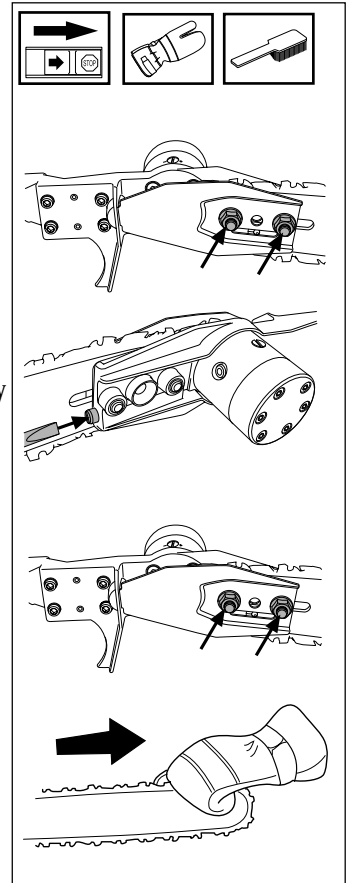
- The more you use a chain the longer it becomes. It is therefore important to adjust the chain regularly to take up the slack.
- Check the chain tension every time you refuel.
- NOTE! A new saw chain has a running-in period during which you should check the tension more frequently.
- Tension the chain as tightly as possible, but not so tight that you cannot pull it round freely by hand.



1. Release the two nuts.

2. Adjust the chain tension by turning the chain tensioning screw.

3. Tighten both nuts.

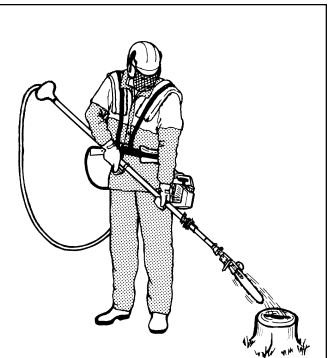


Chain lubrication

A. Checking

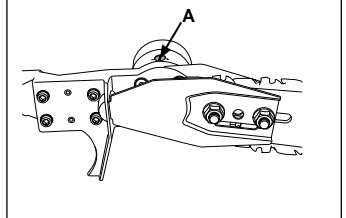
- Check the chain lubrication each time the petrol is replenished.

Aim the tip of the saw at a light coloured surface about 20 cm away. After 1 minute running at 3/4 throttle you should see a distinct line of oil on the light surface.



The oil flow can be regulated with the screw (A) on the hydraulic motor.

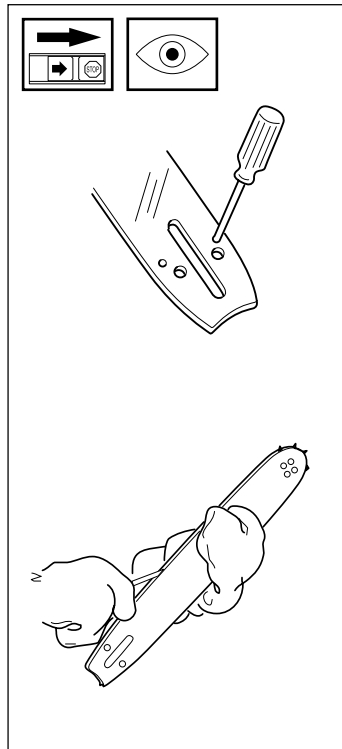
Turn the screw anti-clockwise to increase the flow.



SAFETY INSTRUCTIONS

B. Procedure if the lubrication does not function:

1. Check that the oil channel in the bar is not obstructed. Clean if necessary.
2. Check that the groove in the edge of the bar is clean. Clean if necessary.
3. Check that the bar tip sprocket turns freely.
If the chain lubrication system is still not working after carrying out the above measures you should **contact your service agent**.



Checking wear on cutting equipment

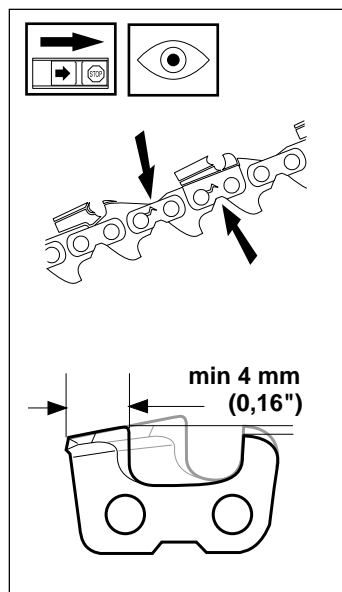
A. Saw chain

Check the saw chain daily for:

- Visible cracks in rivets and links.
- Whether the chain is stiff.
- Whether rivets and links are badly worn.

Use a new chain to compare the wear on the old one.

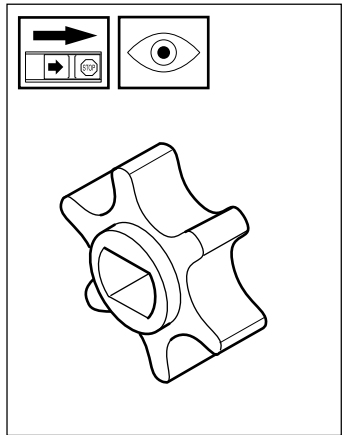
When the length of the cutting teeth has worn down to only 4 mm the chain must be replaced.



B. Chain drive wheel

Check regularly the degree of wear on the drive wheel. Change if it is irregularly worn.

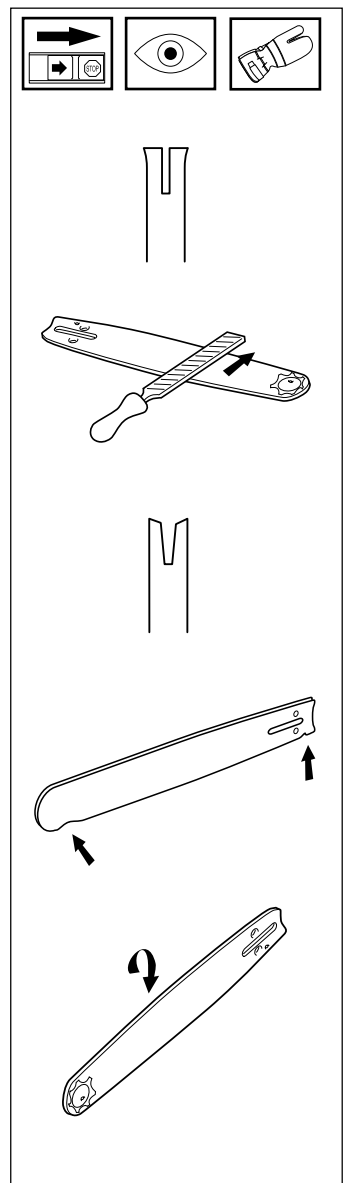
The chain drive wheel should be changed each time the chain is changed.



C. Guide bar

Check regularly:

- Whether there are burrs on the edges of the bar. Remove these with a file if necessary.
- Whether the groove in the bar has become badly worn. Replace the bar if necessary.
- Whether the tip of the bar is uneven or badly worn. If a hollow forms on one side of the bar tip this is due to a slack chain.
- To prolong the life of the bar you should turn it over daily.



WARNING!

Defective cutting equipment can increase the risk for accidents.

SAFETY INSTRUCTIONS

General safety instructions

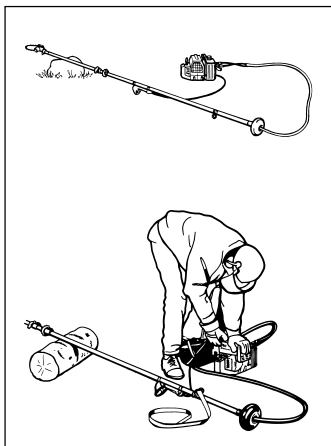
IMPORTANT INFORMATION

- The machine is only designed for tree pruning.
- The only accessories to be used with the engine unit as a drive source are the cutting units we recommend.
- Never use the machine if you are tired, if you have consumed alcohol, or if you are taking medicines that can affect your sight, your judgement or the control of your body.
- Use personal protective equipment. See the section "*Personal protective equipment*".
- Never use a machine that has been modified so that it no longer corresponds with the original design.
- Never use a machine that is faulty. Follow the maintenance, control and service instructions in this Operator's Manual.
Some maintenance and service actions should be carried out by trained and qualified specialists. See the chapter "*Maintenance*".

Start

- Never start the engine unless the hydraulic oil has been replenished and the hydraulic hoses are connected. Running without hydraulic oil or without connected hoses can result in damage to the hydraulic system.
- Never start the engine indoors. Pay attention to the danger of inhaling toxic exhaust fumes.
- Make sure that there is no risk of people or animals coming in contact with the cutting equipment.
- Place the machine on the ground and make sure that the cutting equipment is not in contact with branches or stones.

Press the engine to the ground with the left hand (NOTE! Not with the foot). Grip the start handle with the right hand and slowly pull out until a resistance is felt (the start hooks engage). Now give a quick and strong pull.



WARNING!

Starting with the start throttle function connected can give an uncontrolled activation of the cutting equipment.

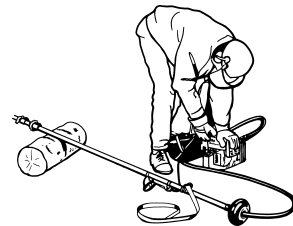
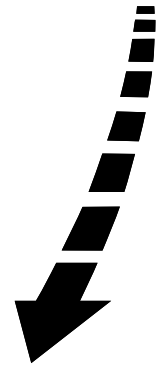
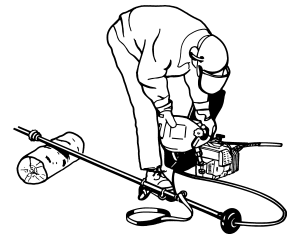


WARNING!

Never touch the cutting equipment when the engine is running.

Fuel safety

- Never fill the machine while the engine is running. Always stop the engine and let it cool for a few minutes before refuelling.
- Provide good ventilation when filling or mixing fuel.
- Move the machine at least 3 m from the filling position before starting.
- Never start the machine:
 - a) If you have spilt fuel on it:
Wipe up all spillage.
 - b) If you have spilt fuel on yourself or your clothes:
Change your clothes.
 - c) If there is a fuel leak:
Change damaged parts.



SAFETY INSTRUCTIONS

Transport and storage

- Store and transport the machine and fuel so that any leakage or fumes do not risk coming into contact with sparks or naked flames. For example, electric machines, electric motors, electrical switches/power switches, heaters or the like.
- When storing and transporting fuel approved containers intended for this purpose must be used.
- When storing the machine for long periods the fuel tank must be emptied. Contact your local petrol station to find out how to dispose of excess fuel.



WARNING!

Exercise great care when handling fuel. Bear in mind the risk of fire, explosions and inhaling fumes.

General working instructions

IMPORTANT INFORMATION

- This section takes up the basic safety precautions for working with the pruner.
- If you encounter a situation where you are uncertain how to proceed you should ask an expert. Contact your dealer or your service workshop.
- Avoid all usage which you consider to be beyond your capability.

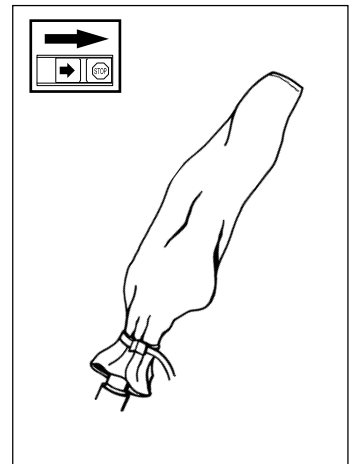
Basic safety precautions

1. Observe your surroundings:

- To ensure that people, animals or other things cannot affect your control of the machine.
- To ensure that the above mentioned do not come into contact with the cutting equipment or objects that can be thrown by the cutting equipment.

NOTE! Never use a machine without the possibility of calling for help in the event of an accident.

2. Avoid usage in un-favourable weather conditions. For example, thick fog, heavy rain, strong winds or extreme cold, etc. To work in bad weather conditions is tiring and can create dangerous circumstances, e.g. slippery surfaces.
3. Make sure you can walk and stand safely. Look out for any obstacles with unexpected movement (roots, stones, branches, pits, ditches, etc). Take great care when working on sloping ground.
4. When moving over longer distances and transporting the engine should be stopped and the transport guard should be used.
5. Never put the machine down with the engine running unless you have good sight of it.
6. Never allow children to use the machine.



SAFETY INSTRUCTIONS

Basic clearing techniques

- Always work with the engine at full throttle.
- Always drop to idling speed after each working operation. Longer periods running at full throttle without loading the engine can lead to serious engine damage.



WARNING!

Never stand immediately below a branch being cut. This can result in serious or even fatal injury.

Observe great care when working close to overhead power lines. Falling branches can result in short-circuiting.



WARNING!

Observe the applicable safety regulations for work in the vicinity of overhead cables.

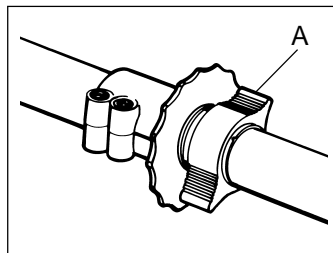


WARNING!

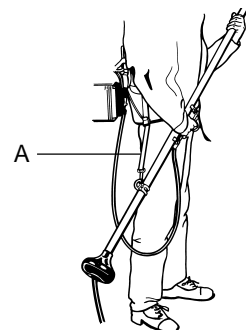
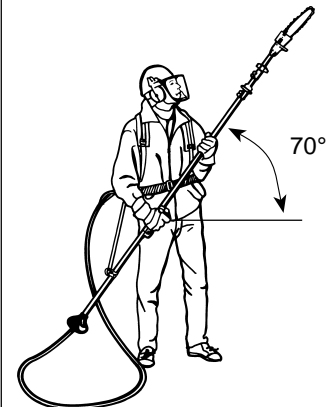
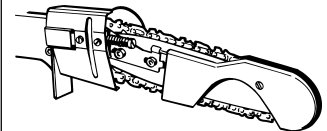
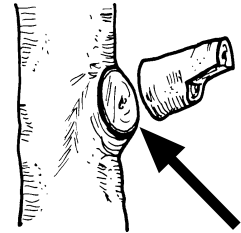
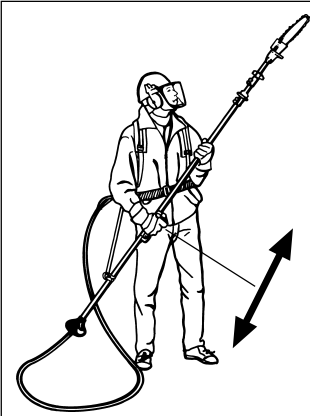
Check the shaft for cracks.
Clean the shaft each time it is used.

The length of the shaft is adjustable within certain limits.

Release the wheel (A) and push together or pull apart the shaft to the required length. Tighten the wheel well after adjusting.



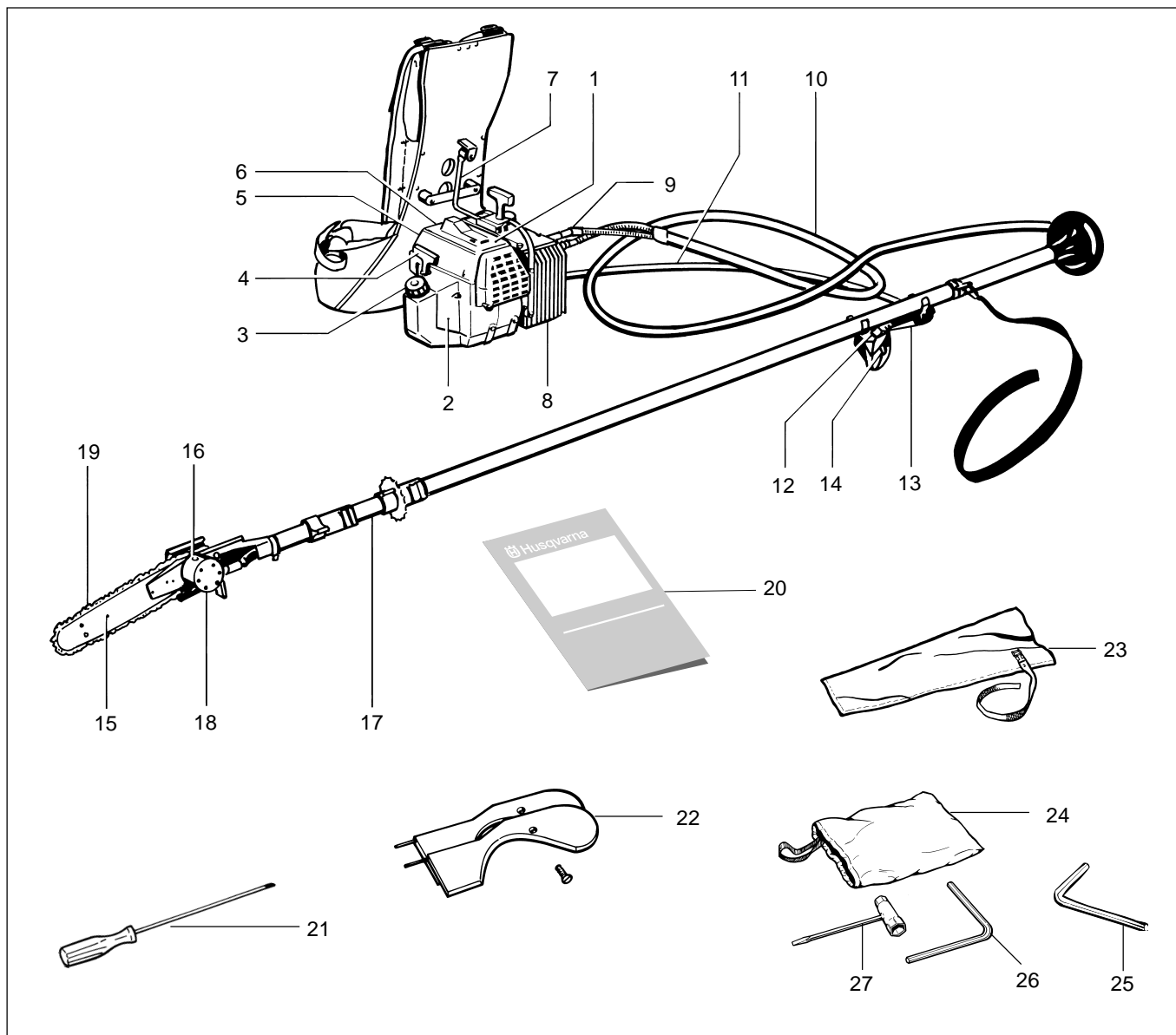
- When working with the cutting equipment at varying heights slide with the throttle handle on the shaft. Keep your feet in position.
- Never saw in the knot seat (it accelerates waxing and counteracts rot)!
- Fit the guard on the blade to prevent unintentional sawing in the tree.
- Search for the correct position in relation to the branch. Work with the shaft at an approx. 70° angle so that if possible the cut is at 90° to the branch.
- Do not work with shaft held straight out from the body (as with a fishing rod). This increases the strain of holding the cutting equipment.
- Use the support strap (A) to simplify handling of the shaft and relieve its weight.



WARNING!

Never use the throttle without having a full view of the cutting equipment.

WHAT IS WHAT?



What is what?

- | | |
|--|--|
| 1. Cylinder cover | 14. Throttle control |
| 2. Start unit | 15. Guide bar |
| 3. Fuel tank | 16. Adjuster screw for oil volume to chain |
| 4. Start handle | 17. Telescopic shaft |
| 5. Choke control/start throttle lock | 18. Hydraulic motor |
| 6. Air filter cover | 19. Chain |
| 7. Suspension fitting | 20. Owner's manual |
| 8. Hydraulic oil tank | 21. Screw driver |
| 9. Quick-couplings | 22. Trunk guard |
| 10. High-pressure hose and return hose | 23. Transport guard |
| 11. Cabling, ignition/throttle control | 24. Toolbag |
| 12. Stop switch. | 25. Hex key (5 mm) |
| 13. Throttle control lock. | 26. Hex key (4 mm) |
| | 27. Combination key |

ASSEMBLY



WARNING!

The cutting equipment of the pruning saw may under no circumstances be connected to another type of hydraulic pump than what it is constructed for.

Connecting the hydraulic hoses

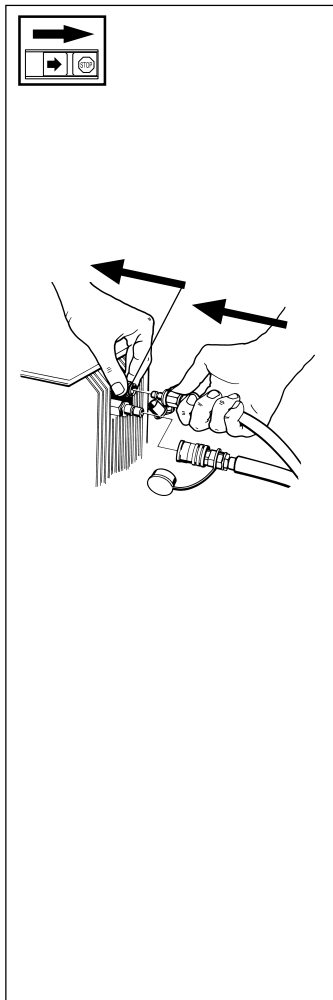
NOTE!

The hydraulic hoses and hydraulic oil tank's quick-couplings must be clean and free from impurities.

Impurities in the hydraulic oil can result in malfunction of the hydraulic system.

Connect the hydraulic hoses' quick-couplings with the hydraulic oil tank's quick-couplings.

1. Push in the locking sleeve on the quick coupling of the hydraulic tank inwards against the tank.
2. Thereafter push in the quick coupling of the hydraulic hose into the quick coupling of the oil tank as far as possible.
3. Release the locking sleeve.
4. Make sure the quick coupling connects securely.
5. Carry out the same procedure for the connection of the other hydraulic hose.

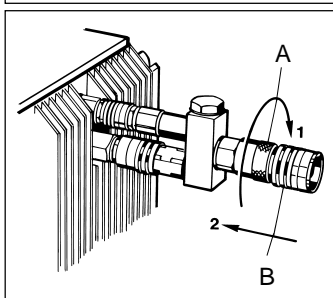
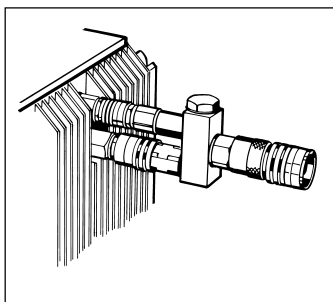


Adapter

The shaft from the pruning shears 235 P can also be connected to 250 PS by means of adapter 503 78 10-01. Carefully check that both couplings snap in correctly. Connect the hydraulic hose to the adapter.

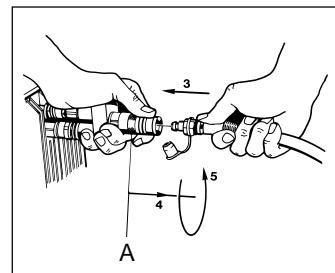
Check that the lock ring (A) has sprung in to the oil tank. If not, turn the ring until it does.

Now press the coupling ring (B) to the oil tank. Connect the hydraulic hose and release the coupling ring.



Check that the coupling snaps in correctly.

Lock the coupling by pushing the ring (A) from the tank and then turning it approx. 90°.

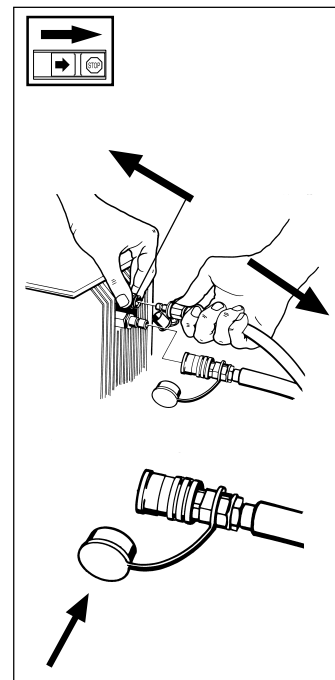


Dismantling the hydraulic hoses

Release the extra lock by turning the ring until it snaps back to the hydraulic tank. Push in the lock sleeve and pull out the hose's quick-coupling.

NOTE!

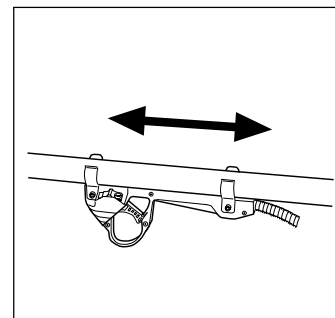
Make sure the protecting plugs are mounted when the quick couplings are not connected.



Assembly of throttle handle

Snap the throttle handle onto the shaft.

The throttle handle can be moved forwards or backwards to obtain a comfortable working position.




FUEL HANDLING

Fuel mix

NOTE!


The pruning saw is fitted with a two-stroke engine and must always be run on a mixture of petrol and two-stroke oil. To ensure the correct mixture proportions it is important to measure the quantity of oil accurately. When mixing small amounts of fuel small discrepancies in the amount of oil have a big effect on the proportions of the fuel mixture.

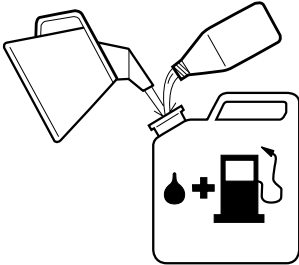



WARNING!
Always provide good ventilation when handling fuel.


Petrol


- Use unleaded or leaded high octane petrol mixed with oil.
- The lowest octane recommended is 90. If you run the engine on a lower octane grade than 90, so-called knocking can occur. This gives rise to a high engine temperature, which can result in serious engine damage.
- For work with continuously high revs a higher octane rating is recommended.













Two-stroke oil


- For the best results use Husqvarna two-stroke oil. Mixing ratio 1:50 (2%).
- If Husqvarna two-stroke oil is not available, you may use another two-stroke oil of good quality that is intended for air cooled engines. Contact your dealer when selecting an oil. Mixing ratio 1:33 (3%).
- Never use two-stroke oil intended for water cooled outboard engines, so-called outboard oil.
- Never use oil intended for four-stroke engines.

Mixing

- Always mix the petrol and oil in a clean container intended for fuel.
- Always start by filling half the amount of petrol to be used. Then add the entire amount of oil. Mix (shake) the fuel mixture. Add the remaining amount of petrol.
- Mix (shake) the fuel mixture thoroughly before filling the fuel tank.
- Do not mix more than max. one month's supply of fuel.
- If the pruner is not used for some time the fuel tank should be emptied and cleaned.

 Gasolin Benzin Essence Gasolina Lit.	 Oil • Öl Huile • Aceite Lit.	
	2% (1:50)	3% (1:33)
5	0,10	0,15
10	0,20	0,30
15	0,30	0,45
20	0,40	0,60
US gallon	US fl. oz.	
	2% (1:50)	3% (1:33)
1	2 1/2	3 3/4
2 1/2	6 1/2	9 3/4
5	12 7/8	19 1/4

Fuelling

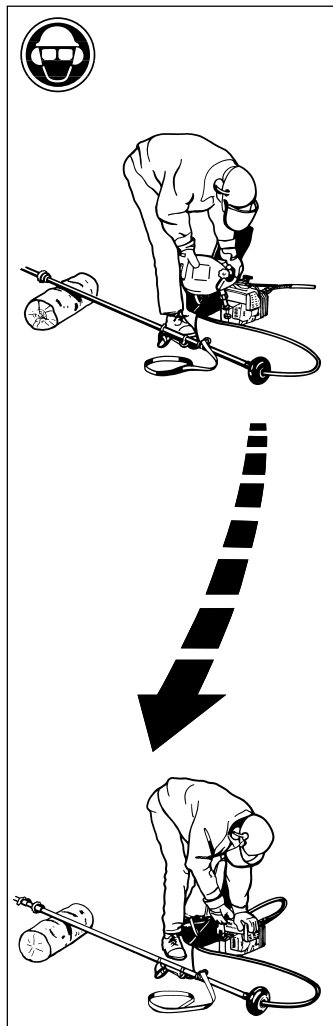


WARNING!
The following precautions reduce the risk of fire:

Do not smoke or place any sources of heat in the vicinity of the fuel. Never refuel when the engine is running. Always stop the engine and let it cool for a few minutes before refuelling. Open the fuel cap slowly when fuelling so that any over pressure is released slowly. Tighten the fuel cap carefully after refuelling. Always move the machine from the fuelling place before starting.

FUEL HANDLING – START AND STOP

- Clean around the fuel cap. Contamination in the tank can disrupt operations.
- Ensure that the fuel is well mixed by shaking the container before filling the tank.



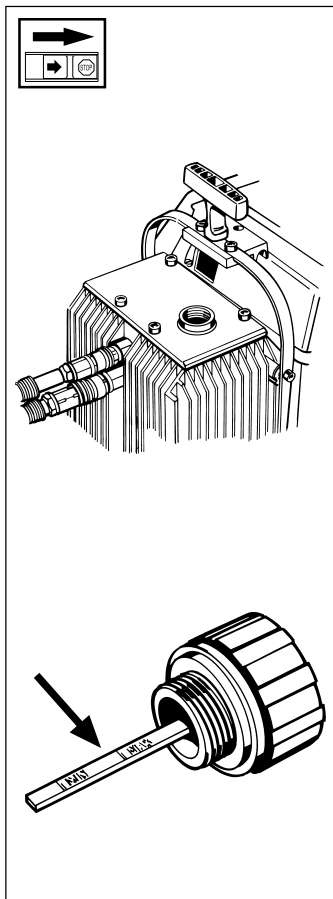
Hydraulic oil

ISO VG 32 hydraulic oil is recommended where the air temperature is below 20°C. ISO VG 45 hydraulic oil is recommended if the air temperature is above 20°C. We also recommend any equivalent grade of approved biodegradable hydraulic oil.

CAUTION!

The oil's flash point must be greater than +160°C. Fill the hydraulic oil until its level is visible in the sight-glass. Check the level of the hydraulic oil each time you refuel.

Fill with hydraulic oil until the level lies between the "Min" and "Max" markings on the oil stick. Screw down the tank cap completely after each check.



Start and stop



WARNING!

- Always move the machine from the place of filling before starting.
- Place the machine on a solid surface. Check that you stand steady when starting the engine.
- Make sure no unauthorized persons are within the working area.

NOTE!

Never start the engine without replenishing the hydraulic oil and with the hydraulic hoses fitted. Running the engine without hydraulic oil and without the hoses fitted can result in malfunction to the hydraulic system.

Cold engine

IGNITION:

Set the stop switch in start position.

CHOKE:

Set the choke lever in the choke position.

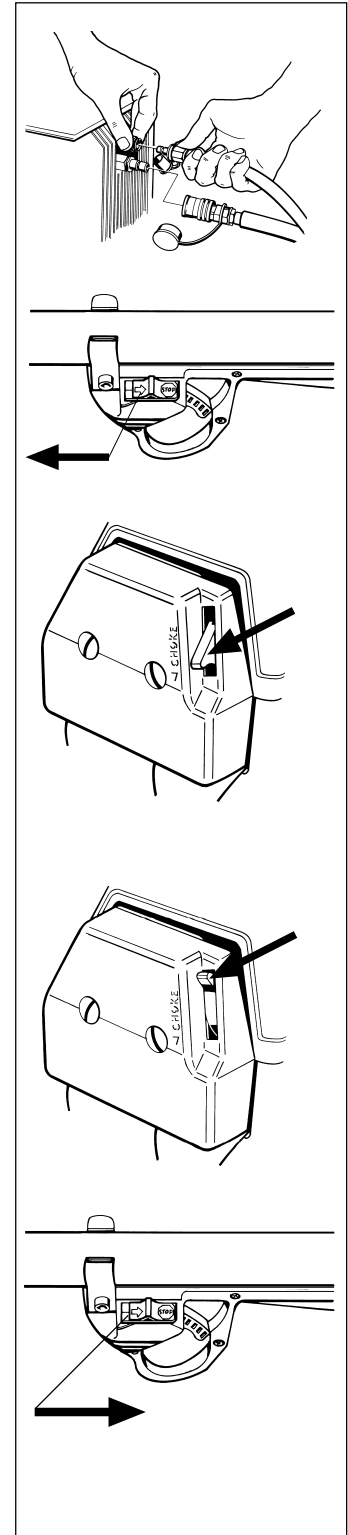
Varm engine

Use the same procedure as for the cold engine but do not set the choke lever in the choke position.

Start throttle is obtained by first moving the choke lever to the choke position and then back to the initial position.

Stop

The engine is stopped by switching the ignition off.



START AND STOP

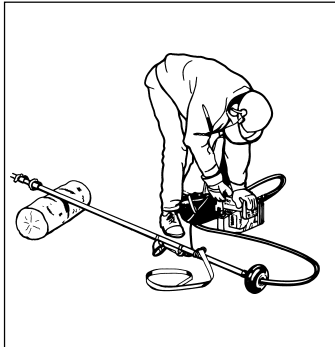


WARNING!

Starting with the start throttle function connected can give an uncontrolled activation of the cutting equipment.

Start

Press the machine body to the ground with the left hand. (NOTE: Not with the foot!) Grip the start handle, pull the start line slowly out with the right hand until a resistance is felt (the start hooks engage) and then make a quick and strong pull.



Open the choke

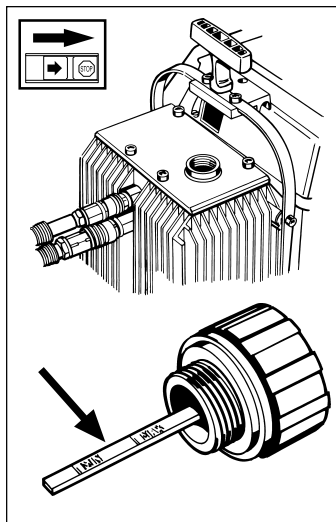
control immediately when the engine ignites and make repeated attempts to start until the engine starts. When the engine starts, give full throttle and the start throttle will automatically disconnect.

NOTE!

Do not pull the starter cord out completely and do not release the start handle from the fully drawn position. This can cause damage to the engine.

NOTE!

An new machine which is started for the first time should be run for a maximum of half a minute with repeated throttle starts, after which hydraulic oil must be replenished in the hydraulic oil tank until the level is correct. Repeat this procedure until the level in the hydraulic tank stabilises.

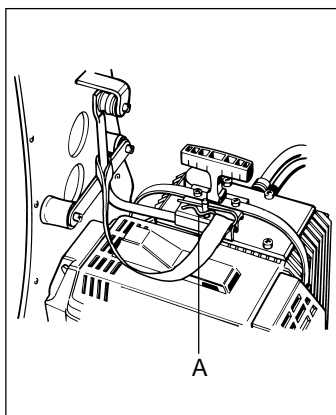


WARNING!

The hydraulic oil can during and after use be very hot. Avoid contact with the skin.

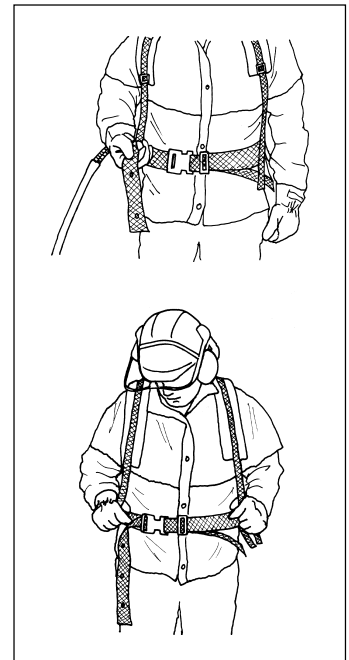
Connection of the engine unit

- Hang the engine unit on the harness.
- Make sure the hydraulic hoses are on the right side of the harness (viewed from behind). Exhaust fumes will then be directed backwards, away from the harness.
- Fit the lock spring (A).



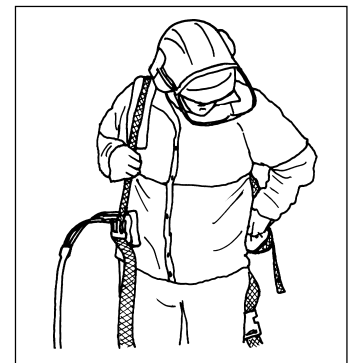
Fitting the harness

- Put on the harness with engine unit.
- Press together the hip belt's snap lock.
- Tension the hip belt so that it rests on the hips.
- Tension both shoulder belts so that the harness presses to the back.



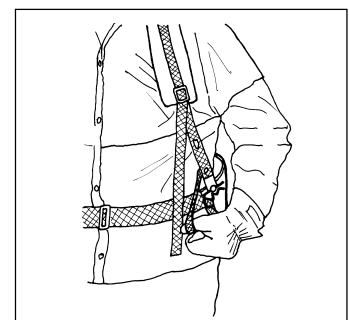
Removing the harness

- Switch off the engine.
- Release the hip belt's snap lock.
- Pull one arm out of the shoulder belt and lower the harness and engine unit to the ground with the other hand.



Quick release in case of hazard

- Pull out the red strap.
- The hip belt and one shoulder belt will be automatically released at the same time and the harness and engine unit will slide to the ground.



MAINTENANCE

Carburettor

Your Husqvarna product has been designed and manufactured to specifications that reduce harmful emissions.

After your unit has been run 8-10 tanks of fuel the engine has broken in. To ensure that your unit is at peak performance and producing the least amount of harmful emissions after break in, have your authorized servicing dealer, who has a revolution counter at his disposal, to adjust your carburettor for optimum operating conditions.

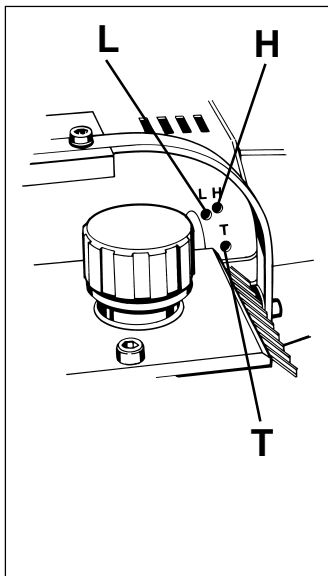


WARNING!

Do not start the engine without the hydraulic tank and hoses connected. If you do, the clutch might come loose and cause severe injuries.

Functioning

- The carburettor governs the engine speed via the throttle trigger. In the carburettor, air/fuel is mixed. This air/fuel mixture is adjustable. If you want to take advantage of the maximum power output of the engine, the setting must be correct.
- The setting of the carburettor means that the engine is adjusted to local conditions, for example climate, altitude, petrol and type of two-stroke oil.



- The carburettor has three adjustment possibilities:
 - L = Low speed needle
 - H = High speed needle
 - T = Idle speed adjustment screw
- The fuel quantity required in proportion to the airflow the throttle trigger position allows is adjusted by means of the L- and H-needles. Turning the needles clockwise gives a leaner fuel mixture (less fuel), turning them counter-clockwise gives a richer fuel mixture (more fuel). A lean mixture gives higher rpms and a rich one lower rpms.
- The idling speed screw (T) regulates the position of the throttle lever in the idling speed position. Turning the idling speed screw clockwise gives a higher idling speed, turning it counter-clockwise gives a lower idling speed.

Basic setting

The carburettor is adjusted to a basic setting at the factory. The basic setting is richer than the optimum setting and shall be maintained during the first working hours. The carburettor should be fine adjusted. The basic setting can be varied between H = 1 to 1 1/4 turns and L = 1 1/4 turns.

NOTE!

If the chain rotated during idling the T-screw should be turned anti-clockwise until the chain stops.

Fine adjustment

- When the tree pruner is "run in" the carburettor should be fine adjusted. Fine adjustment should be carried out by trained personnel. The L-nozzle is adjusted first, then the H-nozzle and finally the idling screw T. The following revs recommendations are applicable:

Max. race revs	= 11 000, rpm
Idling revs	= 2 500, rpm

Prerequisites

- During all adjustment the air filter should be clean and the cylinder casing fitted.
- Carefully screw in (clockwise) the L- and H-nozzles to the bottom. Then unscrew (anti-clockwise) the nozzles 1 turn. The carburettor now has the setting H = 1 and L = 1.
- Start the pruner as per the starting instructions and run for about 10 minutes until it is warm.

NOTE!

If the chain rotates during idling the T-screw should be turned anti-clockwise until the chain stops.

- Place the pruner on a flat surface so that the blade is pointing away from you and not in contact with the surface or any other object.

Low speed nozzle L

Search for the highest idling revs by means of slowly screwing the low speed nozzle clockwise or anti-clockwise. When the highest revs have been found screw the L-nozzle anti-clockwise 1/4 turn.

NOTE!

If the chain rotates during idling the T-screw should be turned anti-clockwise until the chain stops.

High speed nozzle H

The high speed nozzle H affects the engine output and revs. A lean mixture of the high speed nozzle (H-nozzle screwed in too far) gives over-revs resulting in damage to the engine. Run the engine at full throttle for about 10 seconds. The H-nozzle is correctly adjusted when the saw putters slightly. If there is excessive smoke from the exhaust while the pruner is puttering excessively the setting is too rich. Turn the H-nozzle clockwise until the setting sounds right.

NOTE!

To obtain an optimal setting contact a professional with access to a tachometer.

Fine adjustment of idling T

The setting of the idling speed is done with the screw marked T. If adjustment is necessary screw in (clockwise) the idling screw T with the engine running until the chain starts to rotate. Then open (anti-clockwise) until the chain stands still. The correct setting of the idling revs is obtained when the engine works regularly in all positions with a good margin until the revs when the chain begins to rotate.



WARNING!

Contact your servicing dealer, if the idle speed setting cannot be adjusted. Do not use the pruner until it has been properly adjusted or repaired.

MAINTENANCE

Correctly adjusted carburettor

A correctly adjusted carburettor implies that the engine accelerates without a pause and that the engine splutters slightly at full throttle. Also, the chain does not rotate at idling speed. An excessively lean setting for the L-nozzle can result in starting difficulties and poor acceleration. An excessively lean H-nozzle setting results in a lower output, poor acceleration, and/or damage to the engine.

An over rich setting of both L and H results in acceleration problems or excessively low working revs.

Air filter

The air filters must be regularly cleaned from dust and dirt in order to avoid:

- Carburettor malfunctions
- Starting problems
- Engine power reduction
- Unnecessary wear on the engine parts
- Abnormal fuel consumption

Cleaning/change

Clean the filter after 25 hours or more regularly if operating conditions are exceptionally dusty.

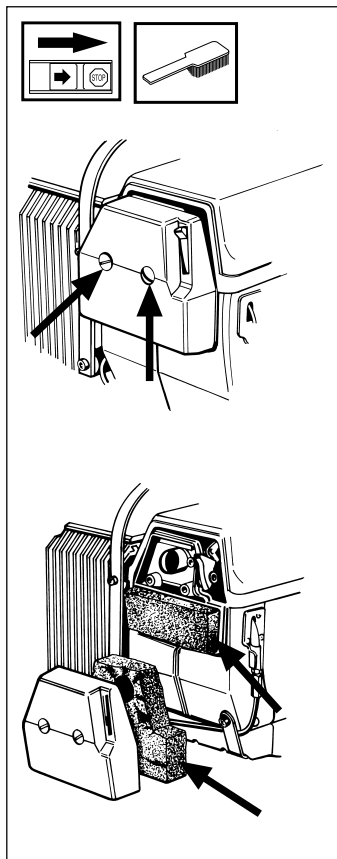
Dismantle the air filter cover and remove the air filters. Wash in clean, warm soapy water.

Ensure that the filters are dry before refitting.

An air filter used for a long period of time can never be cleaned completely.

Therefore it is necessary to replace the filter from time to time with a new filter.

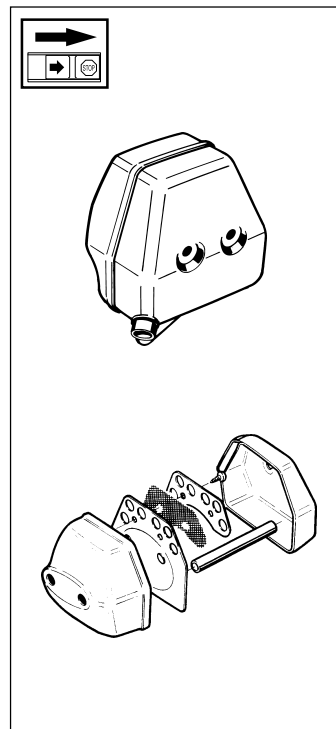
A damaged air filter must always be replaced.



Muffler

The muffler is designed in order to reduce the noise level and to direct the exhaust gases away from the operator. The exhaust gases are hot and can contain sparks, which may cause fire if directed against dry and combustible material.

Some mufflers are equipped with a special screen. If your saw has this type of muffler, you should clean the screen at least once a week. This is done with a wire brush. The screen must be replaced, if damaged. The engine will be overheated, if the screen is clogged. This results in damage on the cylinder and the piston.



CAUTION!

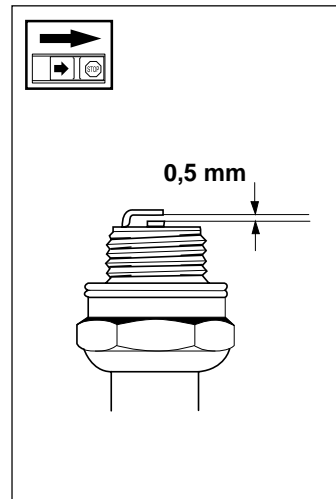
Never use a pruner with a clogged or defective muffler.

Spark plug

The spark plug condition is influenced by:

- An incorrect carburettor setting.
- An incorrect fuel mixture (too much or faulty oil).
- A dirty air filter.

These factors cause deposits on the spark plug electrodes, which may result in malfunction and starting difficulties.



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

If the spark plug is dirty, clean it and check the electrode gap. Readjust if necessary. The correct gap is 0.5 mm (.020"). The spark plug should be replaced after about one month or earlier if the electrodes are badly eroded.

IMPORTANT!

Always use the recommended spark plug type. Wrong type may ruin the piston/cylinder.

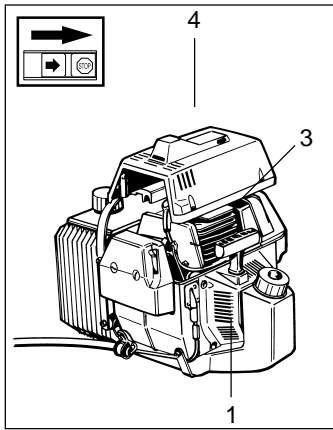
MAINTENANCE

Cooling system

To maintain as low an operating temperature as possible the engine is equipped with a cooling system.

The cooling system consists of:

1. An air intake on the starter unit.
2. Fins on the flywheel.
3. Cooling fins on the cylinder.
4. Cylinder cover (leads cold air onto the cylinder).



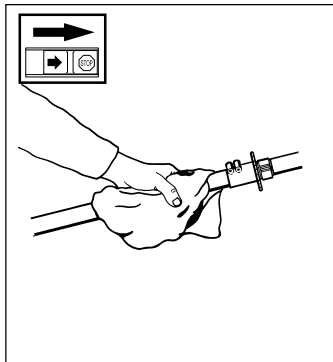
Clean the cooling system using a brush at least once a week, in difficult conditions more often.

A dirty or blocked cooling system leads to engine overheating resulting in damage to the cylinder and piston.

Cleaning of the shaft

Clean the shaft every time it is used.

Dirt which penetrates into cracks in the shaft can conduct electricity and result in personal injury in the event of contact with an electric cable.



Adjustment of the ball joint



WARNING!

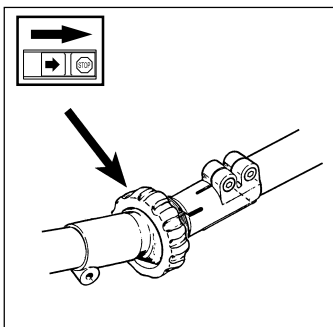
The engine must not be running during adjustment.

The fixture for the cutting tool is provided with a ball joint so that it is easy to change the cutting angle during work.

It is important the joint round the ball joint is correctly adjusted.

Tighten the locking nut for a more rigid ball joint.

Loosen the locking nut for a more manoeuvrable ball joint.



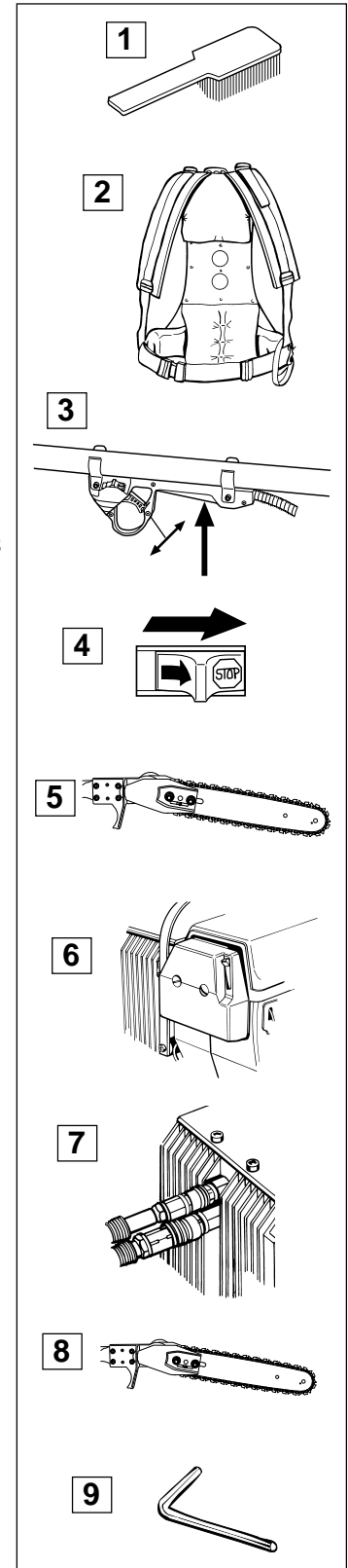
Maintenance schedule

Below follows some general maintenance instructions.

If you need further information please contact your service workshop.

Daily maintenance

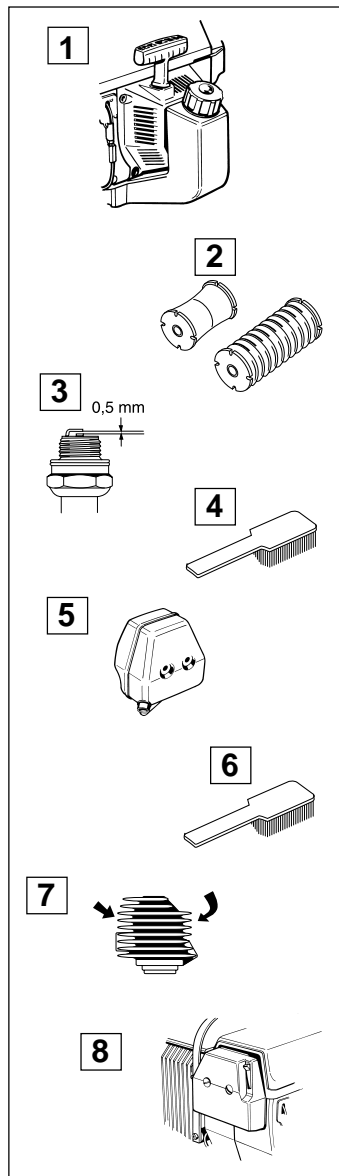
1. Clean the outside of the machine.
2. Check that the harness is undamaged.
3. Make sure the throttle trigger lock and the throttle function correctly from a safety point of view.
4. Check that the stop switch functions.
5. Check that the chain does not move at idling speed.
6. Clean the air filter. Replace if necessary.
7. Check hoses and hose connections for damage and wear.
8. Check the cutting equipment regarding damage, wear and oil leakage.
9. Check that all nuts and screws are tightened.



MAINTENANCE

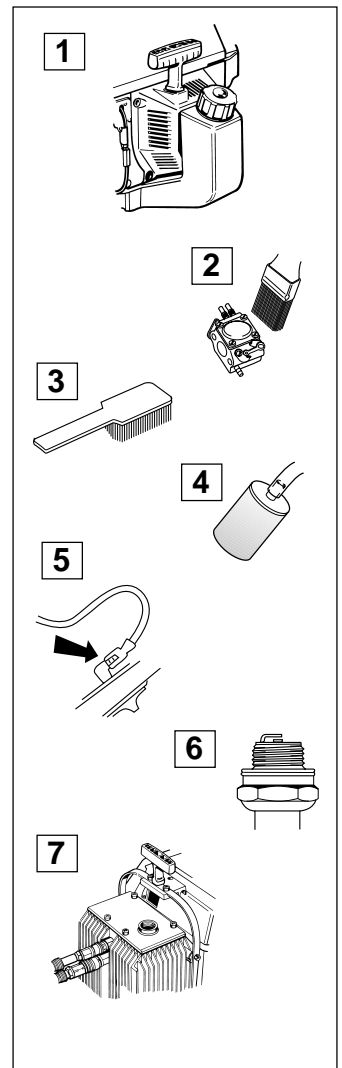
Weekly maintenance

1. Check the starter, the starter cord and the return spring.
2. Make sure that the vibration damping elements are not damaged.
3. Clean the outside of the spark plug. Remove and check the electrode gap. Adjust the gap to 0.5 mm (.020") or change the spark plug.
4. Clean the fins on the flywheel.
5. Clean or replace the spark arrest screen on the silencer.
6. Clean the carburettor space.
7. Clean the cooling fins on the cylinder and check that the air intake in the starter housing is not blocked.
8. Clean the air filter.



Monthly maintenance

1. Clean the fuel tank using petrol.
2. Clean the carburettor and the space surrounding it.
3. Clean the fan and the space around it.
4. Check the fuel filter and the fuel pipe, replace if necessary.
5. Check all cables and connections.
6. Replace the spark plug.
7. Clean the inside of the hydraulic tank.



TECHNICAL DATA

Technical data

Engine

Cylinder capacity, cm ³	48,7
Cylinder bore, mm	44,0
Stroke, mm	32,0
Idling speed, rpm	2 500
Recommended race speed, rpm	11 500
Max. engine output, acc. to. ISO 8893	2,1 kW/9 500 rpm

Hydraulic transmission

Hydraulic motor, capacity, cm ³ /rev	1,4
Hydraulic pump, capacity, cm ³ /rev	1,2
Working pressure, high pressure hose, bar	130
Flow, l/min	2–13

Ignition system

Manufacturer/type of ignition system	Electrolux, ET
Spark plug	Champion RCJ 7Y
Electrode gap, mm	0,5

Fuel/oil system

Manufacturer/type of carburettor	Walbro HDA 86
Volume, fuel tank, litre	0,90
Volume, hydraulic oil tank, litre	1,30
Type of chain lubrication	Automatic

Weight

Engine unit without cutting equip., kg	7,0
Shaft with cutting equipment, kg	
2 m	2,2
3 m	2,4
4 m	2,9
6 m	4,0

Noise levels

Equivalent noise level at ear level, with a balance between idling/max. output speed, unloaded engine of 50 % / 50 % , Lp _{balanced} , dB(A)	94
Equivalent noise level at a balance between idling /max. output speed, unloaded engine of 50 % / 50 % Lw _{balanced} , dB(A)	108

Vibration levels

Equivalent sound pressure level as per ISO 7505 max. output speed, unloaded engine.

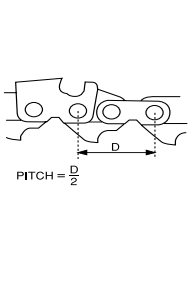
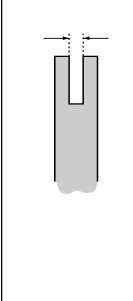
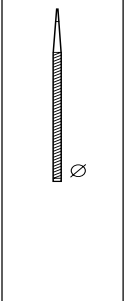
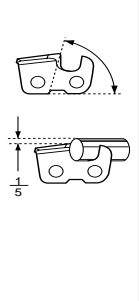
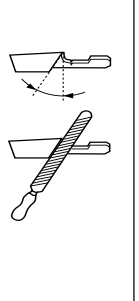
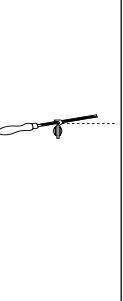
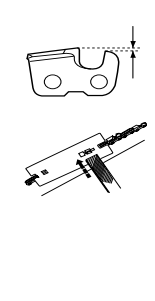
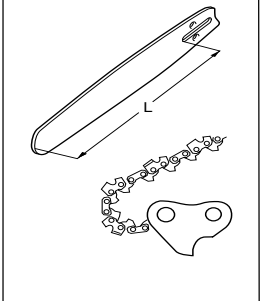
Left (shaft) idling/max. output speed, m/s ²	1,0/1,9
Right (throttle handle) idling/max. output speed, m/s ²	1,0/2,1

TECHNICAL DATA

Bar and chain combinations

The following combinations are CE approved.

Length, inches	Bar		Chain
	Pitch, inches	Max. no of teeth on tip sprocket	
10	3/8	7 T	Oregon 90 SG
12	3/8	7 T	Oregon 90 SG

								
Type	Inch	Inch/mm	Inch/mm	Angle	Angle	Angle	Inch/mm	Inch/cm: dl
90 SG	3/8"	0,028"/1,1	5/32" /4,0	85°	30°	0°	0,025"/0,65	10"/25:40 12"/30:45

EU declaration of conformity (Only applies to Europe)

(Directive 89/392/EEC, Annex II, A)


We, **Husqvarna AB**, S-561 82 Huskvarna, Sweden, tel. +46 36-146500, declare under sole responsibility that the pruner Husqvarna **250PS** from the serial numbers of 1997 and onwards (the year is clearly stated in plain text on the type plate with subsequent serial number), is in conformity with the following standards or other normative documents following the provisions in the COUNCIL'S DIRECTIVES:

- of June 14 1989 "relating to machinery" **89/392/EEC** and applicable supplements.
- of May 3 1989 "relating to electromagnetic compatibility" **89/336/EEC**, and applicable supplements.

The following standards have been applied: **EN292-2**.

SMP Svensk Maskinprovning AB, Fyrisborgsgatan 3, S-754 50 Uppsala, Sweden, has carried out voluntary type approval for Husqvarna AB. The certificate is numbered: **SEC/94/060**.

Huskvarna October 21, 1997



Bo Andréasson, Development manager.





2001W14