

# **Operator's manual K 970 Ring**



Please read the operator's manual carefully and make sure you understand the instructions before using the machine.

**English**

# KEY TO SYMBOLS

## Symbols on the machine

**WARNING!** The machine can be a dangerous tool if used incorrectly or carelessly, which can cause serious or fatal injury to the operator or others.



Please read the operator's manual carefully and make sure you understand the instructions before using the machine.



Wear personal protective equipment. See instructions under the heading "Personal protective equipment".



This product is in accordance with applicable EC directives.



**WARNING!** Dust forms when cutting, this can cause injuries if inhaled. Use an approved breathing mask. Avoid inhaling petrol fumes and exhaust fumes. Always provide for good ventilation.



**WARNING!** Kickbacks can be sudden, rapid and violent and can cause life threatening injuries. Read and understand the instructions in the manual before using the machine.



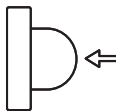
**WARNING!** Sparks may appear and start a fire when you work with the machine.



Choke



Air purge



Decompression valve



Refuelling, petrol/oil mix



Noise emission to the environment according to the European Community's Directive. The machine's emission is specified in chapter Technical data and on label.



**Other symbols/decals on the machine refer to special certification requirements for certain markets.**

## Explanation of warning levels

The warnings are graded in three levels.

### WARNING!



**WARNING!** Used if there is a risk of serious injury or death for the operator or damage to the surroundings if the instructions in the manual are not followed.

### CAUTION!



**CAUTION!** Used if there is a risk of injury to the operator or damage to the surroundings if the instructions in the manual are not followed.

### NOTICE!



**NOTICE!** Used if there is a risk of damage to materials or the machine if the instructions in the manual are not followed.

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# CONTENTS

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## Contents

### KEY TO SYMBOLS

Symbols on the machine .....	2
Explanation of warning levels .....	2

### CONTENTS

Contents .....	3
----------------	---

### PRESENTATION

Dear Customer, .....	4
Features .....	4

### WHAT IS WHAT?

What is what on the power cutter? .....	5
---	---

### MACHINE'S SAFETY EQUIPMENT

General .....	6
---------------	---

### BLADES

General .....	8
Water cooling .....	8
Diamond blades for different materials .....	8
Sharpening diamond blades .....	8
Vibrations on diamond blades .....	8
Drive .....	8
Transport and storage .....	9

### ASSEMBLING AND ADJUSTMENTS

Fitting the blade .....	10
Water hose .....	11

### FUEL HANDLING

General .....	12
Fuel .....	12
Fueling .....	12
Transport and storage .....	12

### OPERATING

Protective equipment .....	14
General safety precautions .....	14
Transport and storage .....	17

### STARTING AND STOPPING

Before starting .....	18
Starting .....	18
Stopping .....	19

### MAINTENANCE

General .....	20
Maintenance schedule .....	20
Cleaning .....	21
Functional inspection .....	21
Reconstructing the blade .....	26

### TROUBLE SHOOTING

Troubleshooting schedule .....	27
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### TECHNICAL DATA

Technical data .....	28
Cutting equipment .....	28
EC-declaration of conformity .....	29

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# PRESENTATION

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## Dear Customer,

Thank you for choosing a Husqvarna product!

It is our wish that you will be satisfied with your product and that it will be your companion for a long time. A purchase of one of our products gives you access to professional help with repairs and services. If the retailer who sells your machine is not one of our authorised dealers, ask him for the address of your nearest service workshop.

This operator's manual is a valuable document. Make sure it is always at hand at the work place. By following its content (using, service, maintenance etc) the life span and the second-hand value of the machine can be extended. If you will sell this machine, make sure that the buyer will get the operator's manual.

## More than 300 years of innovation

Husqvarna AB is a Swedish company based on a tradition that dates back to 1689, when the Swedish King Charles XI ordered the construction of a factory for production of muskets. At that time, the foundation was already laid for the engineering skills behind the development of some of the world's leading products in areas such as hunting weapons, bicycles, motorcycles, domestic appliances, sewing machines and outdoor products.

Husqvarna is the global leader in outdoor power products for forestry, park maintenance and lawn and garden care, as well as cutting equipment and diamond tools for the construction and stone industries.

## User responsibility

It is the owner's/employer's responsibility that the operator has sufficient knowledge about how to use the machine safely. Supervisors and operators must have read and understood the Operator's Manual. They must be aware of:

- The machine's safety instructions.
- The machine's range of applications and limitations.
- How the machine is to be used and maintained.

National legislation could regulate the use of this machine. Find out what legislation is applicable in the place where you work before you start using the machine.

## The manufacturer's reservation

All information and all data in the Operator's Manual were applicable at the time the Operator's Manual was sent to print.

Husqvarna AB has a policy of continuous product development and therefore reserves the right to modify the design and appearance of products without prior notice.

## Features

Values such as high performance, reliability, innovative technology, advanced technical solutions and environmental considerations distinguish Husqvarna's products.

Some of the unique features of your product are described below.

## SmartCarb™

Built-in automatic filter compensation maintains high power and reduces fuel consumption.

## Dura Starter™

Dust sealed starter unit, where the return spring and the pulley bearing are sealed which makes the starter virtually maintenance free and even more reliable.

## X-Torq®

The X-Torq® engine provides a more accessible torque for a wider range of speeds which results in maximum cutting capacity. X-Torq® reduces the fuel consumption with up to 20% and the emissions with up to 60%.

## EasyStart

The engine and starter are designed to ensure quick and easy starting of the machine. Reduces the pull resistance in the starter cord with up to 40%. (Reduces the compression during starting.)

## Air purge

When you push the air purge diaphragm, fuel is pumped through to the carburettor. Fewer pulls are required for starting, meaning the machine becomes easier to start.

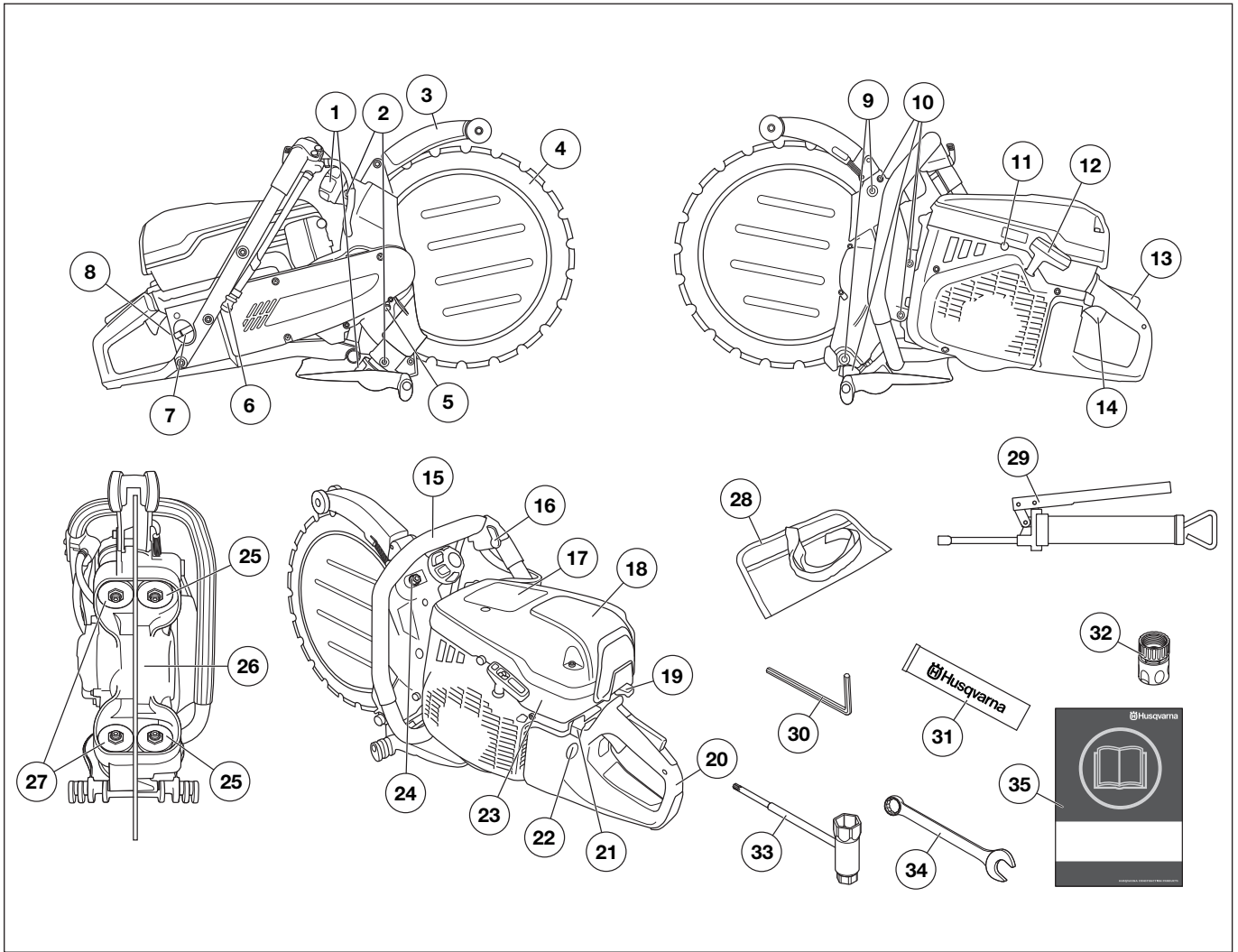
## Efficient vibration damping system

Efficient vibration dampers spare arms and hands.

## Large cutting depth

Gives a cutting depth of 260 mm (10") which is double the depth compared to traditional blades. Cuts can be made efficiently from one side.

# WHAT IS WHAT?



## What is what on the power cutter?

- |                                      |   |
|--------------------------------------|---|
| 1 Control for the guide rollers      | 19 Choke                                    |
| 2 Grease nipples                     | 20 Rear handle                              |
| 3 Blade guard/spray guard            | 21 Stop switch                              |
| 4 Diamond blade                      | 22 Air purge                                |
| 5 Locking button for the drive wheel | 23 Cylinder cover                           |
| 6 Water connection with filter       | 24 Locking nuts for the support roller arms |
| 7 Fuel cap                           | 25 Support rollers                          |
| 8 Rating plate                       | 26 Drive wheel                              |
| 9 Adjuster screws                    | 27 Guide rollers                            |
| 10 Cover screws                      | 28 Tool bag                                 |
| 11 Decompression valve               | 29 Grease gun                               |
| 12 Starter handle                    | 30 6 mm hex key                             |
| 13 Throttle lockout                  | 31 Bearing grease                           |
| 14 Throttle trigger                  | 32 Water connector, GARDENA®                |
| 15 Front handle                      | 33 Combination spanner, torx                |
| 16 Water tap                         | 34 Open-ended spanner, 19 mm                |
| 17 Warning decal                     | 35 Operator's manual                        |
| 18 Air filter cover                  |   |

# MACHINE'S SAFETY EQUIPMENT

## General



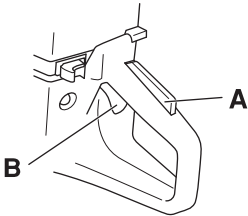
**WARNING! Never use a machine that has faulty safety equipment! If your machine fails any of these checks contact your service agent to get it repaired.**

**The engine should be switched off, and the stop switch in STOP position.**

This section describes the machine's safety equipment, its purpose, and how checks and maintenance should be carried out to ensure that it operates correctly.

## Throttle lockout

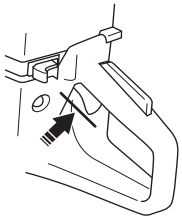
The throttle trigger lock is designed to prevent accidental operation of the throttle. When the lock (A) is pressed in this releases the throttle (B).



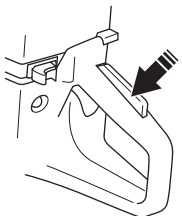
The trigger lock remains pressed in as long as the throttle is pressed. When the grip on the handle is released the throttle trigger and the throttle trigger lock both return to their original positions. This is controlled by two independent return spring systems. This means that the throttle trigger is automatically locked in the idle position.

## Checking the throttle lockout

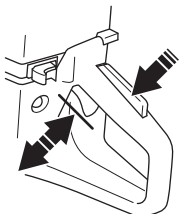
- Make sure the throttle control is locked at the idle setting when the throttle lockout is released.



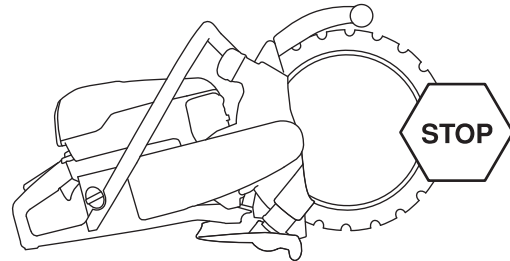
- Press the throttle lockout and make sure it returns to its original position when you release it.



- Check that the throttle trigger and throttle lockout move freely and that the return springs work properly.

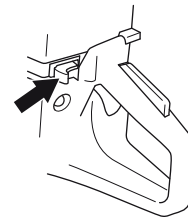


- Start the power cutter and apply full throttle. Release the throttle control and check that the cutting blade stops and remains stationary. If the cutting blade rotates when the throttle is in the idle position you should check the carburettor's idle adjustment. See instructions in the section "Maintenance".



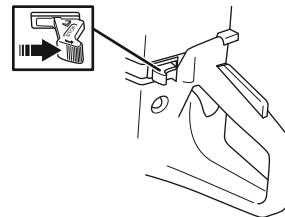
## Stop switch

Use the stop switch to switch off the engine.



## Checking the stop switch

- Start the engine and make sure the engine stops when you move the stop switch to the stop setting.

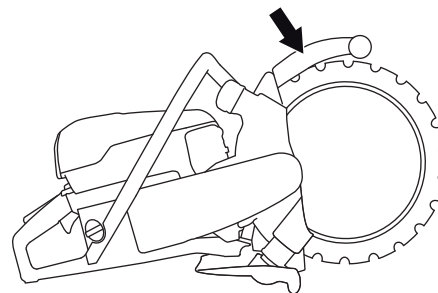


## Blade guards



**WARNING! Always check that the guard is correctly fitted before starting the machine.**

This guard is fitted above the blade and is designed to prevent parts of the blade or cutting fragments from being thrown towards the user.



## Check the blade guards

- Check that the guard over the blade is not cracked or damaged in any other way. Replace when damaged.
- Also check that the blade is fitted correctly and is not damaged in anyway. A damaged blade can cause personal injuries.

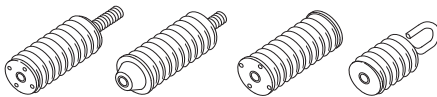
# MACHINE'S SAFETY EQUIPMENT

## Vibration damping system



**WARNING!** Overexposure to vibration can lead to circulatory damage or nerve damage in people who have impaired circulation. Contact your doctor if you experience symptoms of overexposure to vibration. Such symptoms include numbness, loss of feeling, tingling, pricking, pain, loss of strength, changes in skin colour or condition. These symptoms normally appear in the fingers, hands or wrists. These symptoms may be increased in cold temperatures.

- Your machine is equipped with a vibration damping system that is designed to minimize vibration and make operation easier.
- The machine's vibration damping system reduces the transfer of vibration between the engine unit/cutting equipment and the machine's handle unit. The engine body, including the cutting equipment, is insulated from the handles by vibration damping units.



## Checking the vibration damping system



**WARNING!** The engine should be switched off, and the stop switch in STOP position.

- Check the vibration damping units regularly for cracks or deformation. Replace them if damaged.
- Check that the vibration damping element is securely attached between the engine unit and handle unit.

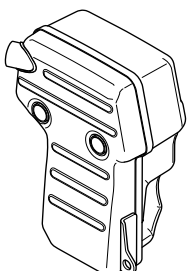
## Muffler



**WARNING!** Never use a machine without a muffler, or with a faulty muffler. A damaged muffler may substantially increase the noise level and the fire hazard. Keep fire fighting equipment handy.

The muffler gets very hot during and after use. This also applies during idling. Be aware of the fire hazard, especially when working near flammable substances and/or vapours.

The muffler is designed to keep noise levels to a minimum and to direct exhaust fumes away from the user.



## Inspecting the muffler

Check regularly that the muffler is complete and secured correctly.

# BLADES

## General



**WARNING! Cutting plastics with a diamond blade can cause kickback when the material melts due to the heat produced when cutting and sticks to the blade.**



**WARNING! Diamond blades get very hot when used. An overheated blade is a result of improper use, and may cause deformation of the blade, resulting in damage and injuries.**

- Diamond blades consist of a steel core provided with segments that contain industrial diamonds.

## Water cooling



**WARNING! Cool diamond blades for wet cutting continuously with water to prevent overheating, which may deform the blade and cause damage to the blade and injury to the user.**

- Water cooling must always be used. When wet cutting, the blade is continuously cooled to prevent overheating.

## Diamond blades for different materials

- Diamond blades are ideal for masonry, reinforced concrete and other composite materials.
- We offers a number of blades for different materials in its range. Check with your Husqvarna dealer to see which blades are best suited for your usage.

## Sharpening diamond blades

- Always use a sharp diamond blade.
- Diamond blades can become dull when the wrong feeding pressure is used or when cutting certain materials such as heavily reinforced concrete. Working with a blunt diamond blade causes overheating, which can result in the diamond segments coming loose.
- Sharpen the blade by cutting in a soft material such as sandstone or brick.

## Vibrations on diamond blades

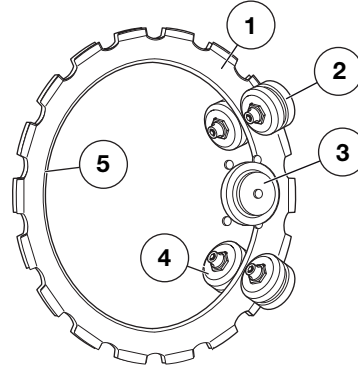
- The blade can become out of round and vibrate if a too high feed pressure is used.
- A lower feed pressure can stop the vibration. Otherwise replace the blade.

## Drive

On account of the machine's unique design the driving power is not transferred at the centre of the blade.

The flanges on the two guide rollers run in the blade's groove. Springs on the guide rollers press out the rollers, which in turn press the V-shaped edge on the inside diameter of the blade against the V-shaped groove in the drive wheel. The drive wheel is fitted on an axle which is driven by the engine via a drive belt.

This allows a total cutting depth of 260 mm (10 inches) with a 350 mm (14 inches) diamond blade.



- 1 Blade
- 2 Support rollers
- 3 Drive wheel
- 4 Guide rollers
- 5 V-shaped edge

## Checking wear

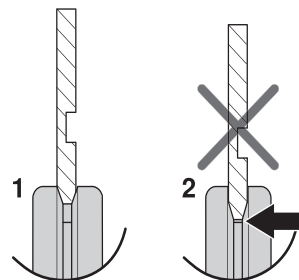
As the blade is used the inside diameter and the groove in the drive wheel become worn.

The ring cutter will also work well in the future if:

- the drive wheel is not too worn

1) New

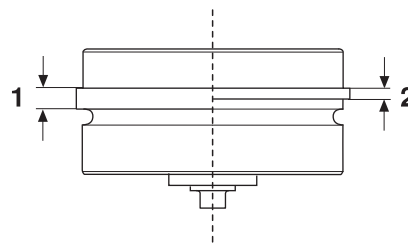
2) Worn



- the guide rollers are not too worn

1) New, 3 mm (0.12")

2) Worn, ≤ 1,5 mm (0.06")



- adjustment between the rollers and blade is correct. See instructions in the section "Assembling and adjustments".



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# BLADES

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The roller setting should be checked twice during the life of the diamond blade, once after fitting the blade and when the blade is semi worn.

## **Transport and storage**

- Store the blade in a dry place.
- Inspect new blades for transport or storage damage.

# ASSEMBLING AND ADJUSTMENTS

## Fitting the blade



**WARNING!** It is forbidden to reconstruct a used blade. A used blade may be weakened. A reconstructed blade can crack or break into pieces and seriously injure the operator or other persons.

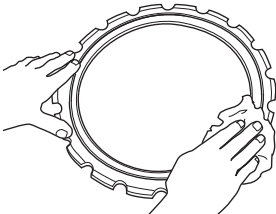


**WARNING!** Check that the blade is not damaged before fitting it on the machine. Damaged blades can disintegrate and cause serious personal injury.

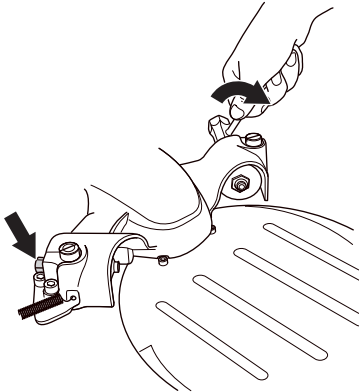
**NOTICE!** Replace the drive wheel when fitting a new blade. A worn drive wheel can result in the blade slipping and becoming damaged.

Inadequate water flow drastically shortens the life of the drive wheel.

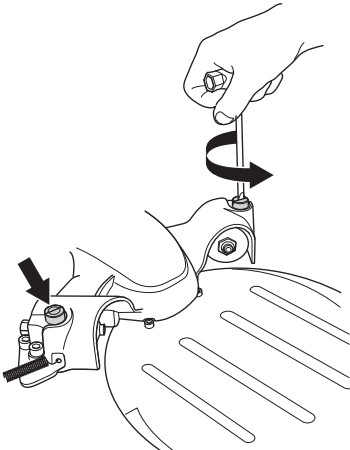
- Wipe off any dirt from the surface of the blade.



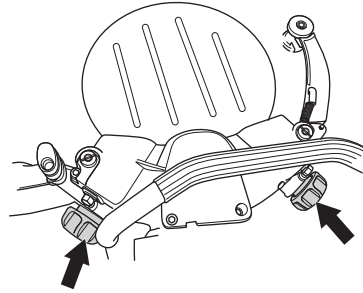
- Loosen the locking nuts on the support roller cover.



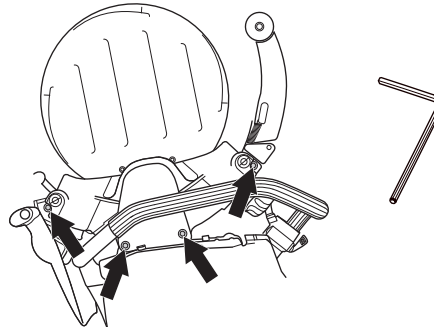
- Unscrew the adjuster screws a few turns.



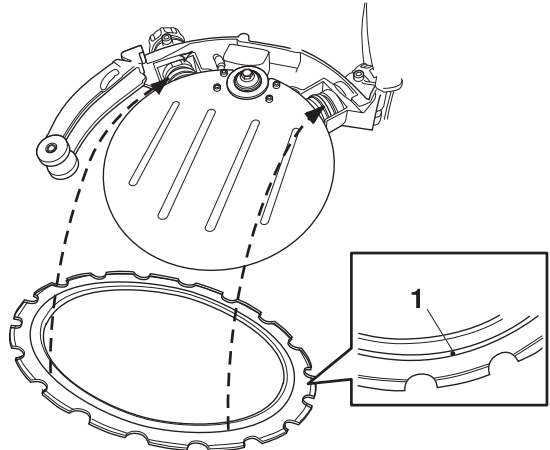
- Loosen the knob to offload the springs.



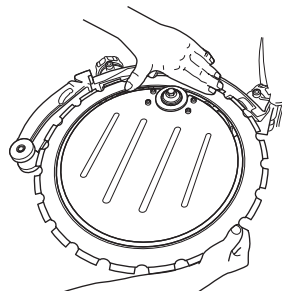
- Remove the four screws holding the support roller guard using a 6 mm hex key and lift off the cover.



- Fit the blade.
- The blade has a groove (1) on one side that acts as the guide groove for the support rollers. Ensure that the V-shaped edge of the blade enters the drive wheel and that the blade's guide groove fits in the guide rollers.

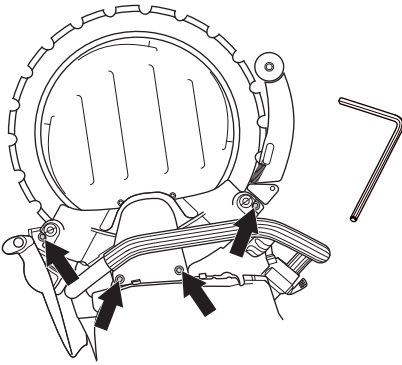


- Ensure that the V-shaped edge of the blade enters the drive wheel and that the blade's guide groove fits in the guide rollers. See instructions in the section "Blades".
- Press in the guide roller if necessary, so that it climbs into the groove on the blade.

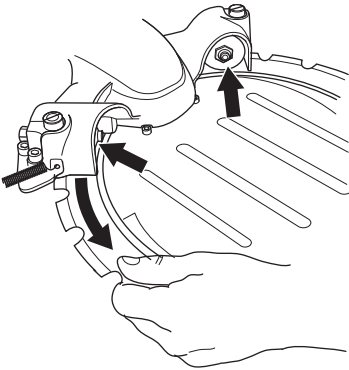


# ASSEMBLING AND ADJUSTMENTS

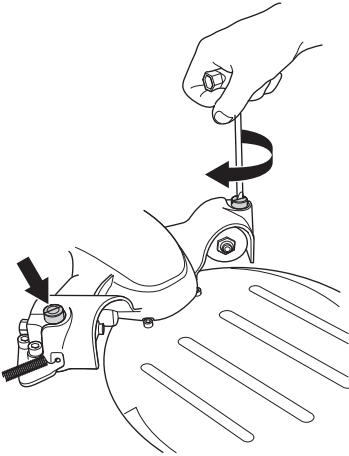
- Fit the support roller cover. Now tighten the four screws fully.



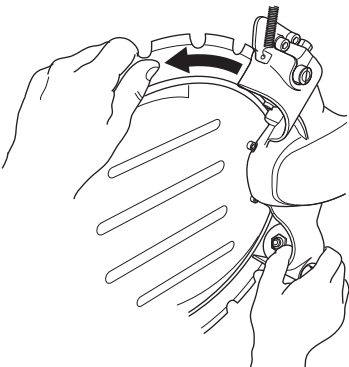
- Rotate the blade and make sure that the support rollers are not clamped against the blade.



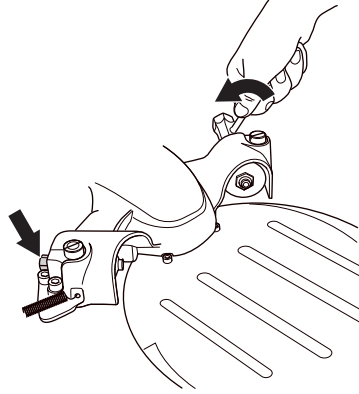
- Adjust the adjuster screws so that the support rollers make contact against the blade.



- Adjust so you can easily stop the support rollers using your thumb when the blade is rotated. The support rollers should only follow the blade occasionally.

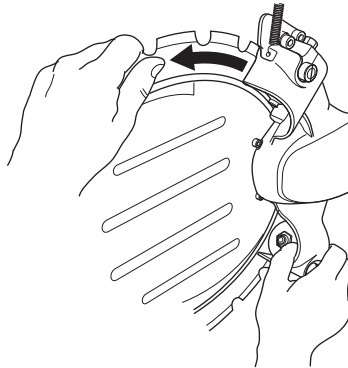


- Tighten the locking nuts on the support roller guard.

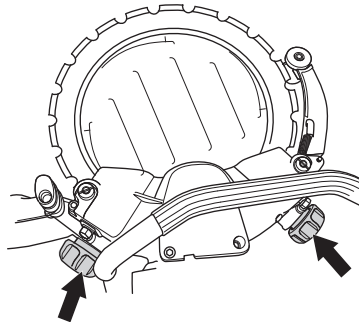


- Rotate the blade and make sure you can still hold the rollers with your thumb when the blade is rotated.

The machine shall stand upright when checking the roll pressure. If the machine lies on its side the weight of the blade makes it difficult to make a correct adjustment.



- Tighten the knobs fully and the machine is ready to use.

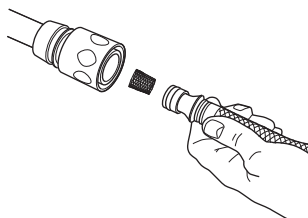


**CAUTION!** Incorrect adjustment can result in damage to the blade.

If the blade rotates slowly or stops, stop cutting immediately and trouble shoot.

## Water hose

Connect the water hose to the water supply. The water flow is activated by opening the check valve. Minimum water flow: 4 l/min Note that the machine's hose nipple is fitted with a filter.



# FUEL HANDLING

## General



**WARNING! Running an engine in a confined or badly ventilated area can result in death due to asphyxiation or carbon monoxide poisoning. Use fans to ensure proper air circulation when working in trenches or ditches deeper than one meter.**

**Fuel and fuel fumes are highly inflammable and can cause serious injury when inhaled or allowed to come in contact with the skin. For this reason observe caution when handling fuel and make sure there is adequate ventilation.**

**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!**

**Do not smoke and do not place any hot objects in the vicinity of fuel.**

## Fuel

**NOTICE!** The machine is equipped with a two-stroke engine and must always be run using a mixture of petrol and two-stroke oil. It is important to accurately measure the amount of oil to be mixed to ensure that the correct mixture is obtained. When mixing small amounts of fuel, even small inaccuracies can drastically affect the ratio of the mixture.

## Petrol

- Use good quality unleaded or leaded petrol.
- The lowest octane recommended is 90 (RON). 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.
- When working at continuous high revs a higher octane rating is recommended.

## Environment fuel

The use of environment fuel (alkylate fuel), or environment fuel for four-stroke engines blended with two-stroke oil as set out below is recommended.

Ethanol blended fuel, E10 may be used (max 10% ethanol blend). Using ethanol blends higher than E10 will create lean running condition which can cause engine damage.

## Two-stroke oil

- For best results and performance use HUSQVARNA two-stroke engine oil, which is specially formulated for our air-cooled two-stroke engines.
- Never use two-stroke oil intended for water-cooled engines, sometimes referred to as outboard oil (rated TCW).
- 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 the 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 machine's fuel tank.
- Do not mix more than one month's supply of fuel at a time.

## Mixing ratio

- 1:50 (2%) with HUSQVARNA two-stroke oil or equivalent.
- 1:33 (3%) with oils class JASO FB or ISO EGB formulated for air-cooled, two-stroke engines.

Petrol, litre	Two-stroke oil, litre	
	<b>2% (1:50)</b>	<b>3% (1:33)</b>
<b>5</b>	0,10	0,15
<b>10</b>	0,20	0,30
<b>15</b>	0,30	0,45
<b>20</b>	0,40	0,60

## Fueling



**WARNING! Always stop the engine and let it cool for a few minutes before refuelling. The engine should be switched off, and the stop switch in STOP position.**

**When refuelling, open the fuel cap slowly so that any excess pressure is released gently.**

**Clean the area around the fuel cap.**

**Tighten the fuel cap carefully after refuelling. Negligence may lead to the start of a fire.**

**Move the machine at least 3 m from the refuelling point before starting it.**

Never start the machine:

- If you have spilt fuel or engine oil on the machine. Wipe off the spill and allow the remaining fuel to evaporate.
- If you have spilt fuel on yourself or your clothes, change your clothes. Wash any part of your body that has come in contact with fuel. Use soap and water.
- If the machine is leaking fuel. Check regularly for leaks from the fuel cap and fuel lines.

## Transport and storage

- Store and transport the machine and fuel so that there is no risk of any leakage or fumes coming into contact with sparks or naked flames, for example, from electrical machinery, electric motors, electrical relays/switches or boilers.
- When storing and transporting fuel always use approved containers intended for this purpose.

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# FUEL HANDLING

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## Long-term storage

- When storing the machine for long periods the fuel tank must be emptied. Contact your local petrol station to find out where to dispose of excess fuel.

# OPERATING

## Protective equipment

### General

- Do not use the machine unless you are able to call for help in the event of an accident.

### Personal protective equipment

You must use approved personal protective equipment whenever you use the machine. Personal protective equipment cannot eliminate the risk of injury but it will reduce the degree of injury if an accident does happen. Ask your dealer for help in choosing the right equipment.



**WARNING! The use of products such as cutters, grinders, drills, that sand or form material can generate dust and vapours which may contain hazardous chemicals. Check the nature of the material you intend to process and use an appropriate breathing mask.**

**Long-term exposure to noise can result in permanent hearing impairment. So always use approved hearing protection. Listen out for warning signals or shouts when you are wearing hearing protection. Always remove your hearing protection as soon as the engine stops.**

Always wear:

- Approved protective helmet
- Hearing protection
- Approved eye protection. If you use a face shield then you must also wear approved protective goggles. Approved protective goggles must comply with standard ANSI Z87.1 in the USA or EN 166 in EU countries. Visors must comply with standard EN 1731.
- Breathing mask
- Heavy-duty, firm grip gloves.
- Tight-fitting, heavy-duty and comfortable clothing that permits full freedom of movement.
- Boots with steel toe-caps and non-slip sole.

### Other protective equipment



**CAUTION! Sparks may appear and start a fire when you work with the machine. Always keep fire fighting equipment handy.**

- Fire Extinguisher
- Always have a first aid kit nearby.

## General safety precautions

This section describes basic safety directions for using the machine. This information is never a substitute for professional skills and experience.

- Please read the operator's manual carefully and make sure you understand the instructions before using the machine.
- Keep in mind that it is you, the operator that is responsible for not exposing people or their property to accidents or hazards.
- The machine must be kept clean. Signs and stickers must be fully legible.

### Always use common sense

It is not possible to cover every conceivable situation you can face. Always exercise care and use your common sense. If you get into a situation where you feel unsafe, stop and seek expert advice. Contact your dealer, service agent or an experienced user. Do not attempt any task that you feel unsure of!



**WARNING! The machine can be a dangerous tool if used incorrectly or carelessly, which can cause serious or fatal injury to the operator or others.**

**Never allow children or other persons not trained in the use of the machine to use or service it.**

**Never allow anyone else to use the machine without first ensuring that they have understood the contents of the operator's manual.**

**Never use the machine if you are fatigued, while under the influence of alcohol or drugs, medication or anything that could affect your vision, alertness, coordination or judgement.**



**WARNING! Unauthorized modifications and/or accessories may lead to serious injury or death to the user or others. Under no circumstances may the design of the machine be modified without the permission of the manufacturer.**

**Do not modify this product or use it if it appears to have been modified by others.**

**Never use a machine that is faulty. Carry out the checks, maintenance and service instructions described in this manual. Some maintenance and service measures must be carried out by trained and qualified specialists. See instructions under the heading Maintenance.**

**Always use genuine accessories.**

# OPERATING



**WARNING!** This machine produces an electromagnetic field during operation. This field may under some circumstances interfere with active or passive medical implants. To reduce the risk of serious or fatal injury, we recommend persons with medical implants to consult their physician and the medical implant manufacturer before operating this machine.

## Work area safety



**WARNING!** The safety distance for the power cutter is 15 metres. You are responsible to ensure that animals and onlookers are not within the working area. Do not start cutting until the working area is clear and you are standing firmly.

- Observe your surroundings to ensure that nothing can affect your control of the machine.
- Ensure that no one/nothing can come into contact with the cutting equipment or be hit by parts if the blade breaks.
- Do not use the machine in bad weather, such as dense fog, heavy rain, strong wind, intense cold, etc. Working in bad weather is tiring and can lead to dangerous conditions, e.g. slippery surfaces.
- Never start to work with the power cutter before the working area is clear and you have a firm foothold. Look out for any obstacles with unexpected movement. Ensure when cutting that no material can become loose and fall, causing operating injury. Take great care when working on sloping ground.
- Ensure that the working area is sufficiently illuminated to create a safe working environment.
- Make sure that no pipes or electrical cables are routed in the working area or in the material to be cut.

## Basic working techniques



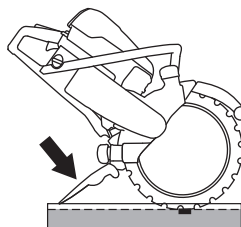
**WARNING!** Do not pull the power cutter to one side, this can cause the blade to jam or break resulting in injury to people.

**Under all circumstances avoid cutting with the side of the blade, as this will definitely result in damage, breakage or can cause serious injuries. Only use the cutting section.**

**Cutting plastics with a diamond blade can cause kickback when the material melts due to the heat produced when cutting and sticks to the blade. Never cut plastic materials with a diamond blade!**

- The machine is designed and intended for cutting with diamond blades intended for ring cutters. The machine shall not be used with any other type of blade, or for any other type of cutting.
- Remain at a distance from the blade when the engine is running.

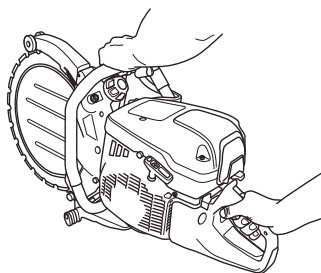
- Never move the machine when the cutting equipment is rotating. The machine is equipped with a friction retarder to shorten the stop time.
- The guard for the cutting equipment should be adjusted so that the rear section is flush with the work piece. Spatter and sparks from the material being cut are then collected up by the guard and led away from the user. The guards for the cutting equipment must always be fitted when the machine is running.



- Never use the kickback zone of the blade for cutting. See instructions under the heading "Kickback".
- Keep a good balance and a firm foothold.
- Never cut above shoulder height. Never cut from a ladder. Use a platform or scaffold when working at high altitude.



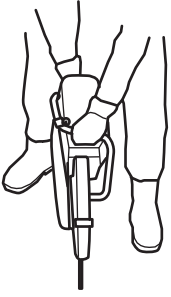
- Always hold the machine in a firm grip with both hands. Hold it so that the thumbs and fingers grip round the handles.



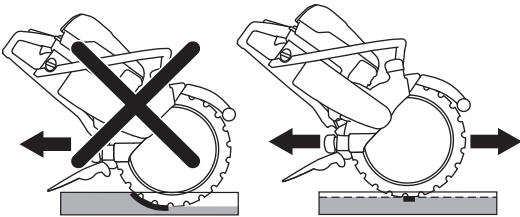
- Stand at a comfortable distance from the work piece.
- Check that the blade is not in contact with anything when the machine is started.
- Apply the cutting blade gently with high rotating speed (full throttle) Maintain full speed until cutting is complete.
- Let the machine work without forcing or pressing the blade.
- Use a small part of the blade's cutting area.

# OPERATING

- Feed the machine in line with the blade. Side pressure can destroy the blade and is extremely dangerous.

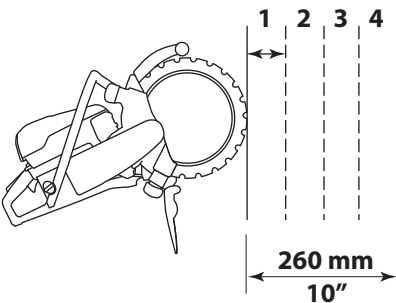


- Move the blade slowly backwards and forwards to give a small contact surface between the blade and material to be cut. This will mean the blade temperature is kept down resulting in efficient cutting.



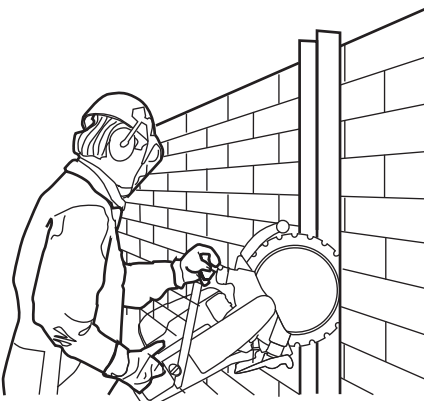
## Cutting depth

K 970 Ring can cut up to a depth of 260 mm (10 inches). Making a guide cut of 50-70 mm (2-3 inches) first, gives you better control of the machine. This means the water disc can penetrate into the workpiece and help control the machine. Attempting to saw the entire depth in one run takes longer. Working with several runs, 3 to 4 when the cut is 260 mm (10 inches) in depth, is much quicker.



## Large work

Cuts exceeding 1 m - secure a batten along the line to be cut. The batten acts as a guide. Use this guide to make a marking cut along the entire length of the cut, 50-70 mm (2-3 inches) in depth. Remove the guides once the marking cut has been made.



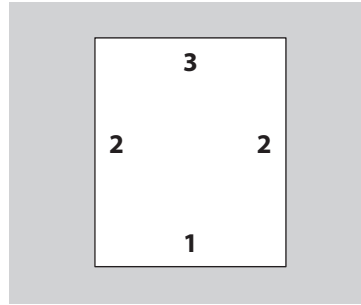
## Small work

First make a shallow marking cut, max 50-70 mm (2-3 inches) in depth. Now make the final cut.

## Cutting holes

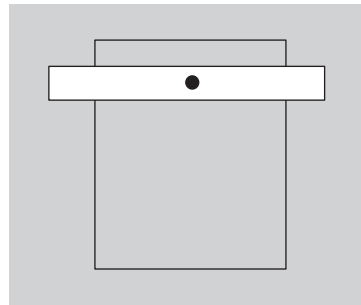
**NOTICE!** If the upper horizontal cut is made before the lower horizontal cut, the work piece will fall on the blade and jam it.

- First make the lower horizontal cut. Now make the two vertical cuts. Finish with the upper horizontal cut.



- Remember to divide the blocks up into manageable pieces so that they can be transported and lifted safely.

When cutting out large holes it is important that the piece to be cut out is braced so that it cannot fall against the operator.





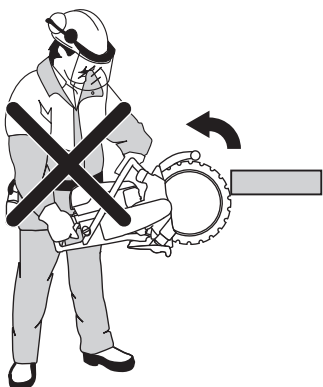
# OPERATING

## Kickback



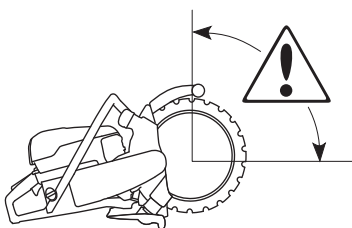
**WARNING!** Kickback can happen very suddenly and violently; kicking the power cutter and cutting blade back at the user. If this happens when the cutting blade is moving it can cause very serious, even fatal injuries. It is vital you understand what causes kickback and that you can avoid it by taking care and using the right working technique.

The word kickback is used to describe the sudden reaction that causes the power cutter and cutting blade to be thrown from an object when the upper quadrant of the blade, known as the kickback zone, touches an object.



### General rules

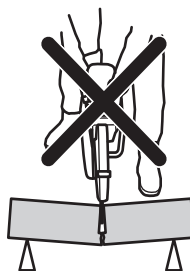
Kickback only occurs when the cutting blades kickback zone touches an object.



- Never use the kickback zone of the blade for cutting.
- Keep a good balance and a firm foothold. Stand at a comfortable distance from the work piece.
- Always cut at maximum speed.
- Take care when inserting the blade in an existing cut. Never cut in a narrower pre-cut cut.
- Never cut above shoulder height.
- Be alert to movement of the work piece or anything else that can occur, which could cause the cut to close and pinch the blade.

## Pinching kickback

Pinching is when the cut closes and pinches the blade. If the blade is pinched or stalled the reactive force will be strong and you might not be able to control the power cutter.

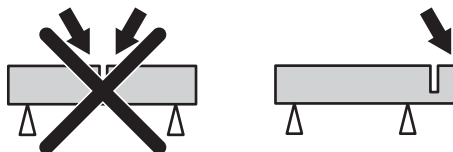


If the blade is pinched or stalled in the kickback zone, the reactive force will push the power cutter up and back towards the user in a rotating motion causing serious or even fatal injury.

### How to avoid kickback

Avoiding kickback is simple.

- The work piece must always be supported so that the cut stays open when cutting through. When the cut opens there is no kickback. If the cut closes and pinches the blade there is always a risk of kickback.



- Take care when inserting the blade in an existing cut.
- Be alert to movement of the work piece or anything else that can occur, which could cause the cut to close and pinch the blade.

## Transport and storage

- Secure the equipment during transportation in order to avoid transport damage and accidents.
- For transport and storage of Blades, see the section "Blades".
- For transport and storage of fuel, see the section "Fuel handling".
- Store the equipment in a lockable area so that it is out of reach of children and unauthorized persons.

# STARTING AND STOPPING

## Before starting



**WARNING!** Please read the operator's manual carefully and make sure you understand the instructions before using the machine.

Wear personal protective equipment. See instructions under the heading "Personal protective equipment".

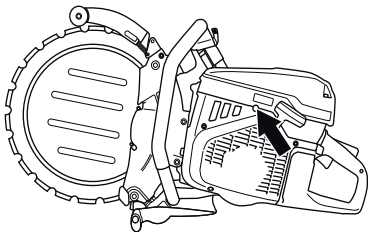
Make sure no unauthorised persons are in the working area, otherwise there is a risk of serious personal injury.

Check that the fuel cap is properly secured, and that there is no fuel leakage. Risk of fire.

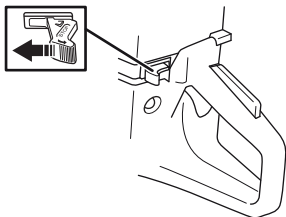
- Perform daily maintenance. See instructions in the section "Maintenance".

## Starting

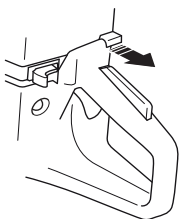
- **Decompression valve:** Press in the valve to reduce the pressure in the cylinder, this is to assist starting the power cutter. The decompression valve should always be used when starting. The valve automatically returns to its initial position when the machine starts.



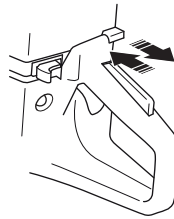
- **Stop switch:** Make sure that the stop switch (STOP) is in the left position.



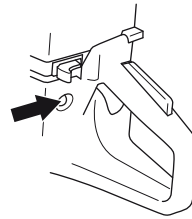
- **Start throttle position - cold engine:** Start throttle position and choke is obtained by pulling out the choke completely.



- **Start throttle position - warm engine:** The correct choke/start throttle setting is obtained by pulling the choke control to the choke position and then pushing it in again. This only engages the start throttle setting without any choke.



- **Air purge:** Press the air purge diaphragm repeatedly until fuel fills the diaphragm (at least 6 times). The diaphragm need not be completely filled.



## Start the engine



**WARNING!** The cutting blade rotates when the engine is started. Make sure it can rotate freely.

- Grip the front handle with your left hand. Put your right foot on the lower section of the rear handle pressing the machine against the ground. **Never twist the starter cord around your hand.**



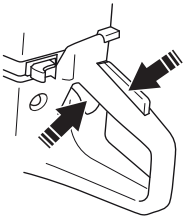
- Grip the starter handle, slowly pull out the cord with your right hand until you feel some resistance (the starter pawls grip), now quickly and powerfully pull the cord.

**NOTICE!** Do not pull the starter cord all the way out and do not let go of the starter handle when the cord is fully extended. This can damage the machine.

- **With a cold engine:** The machine stops when the engine fires because the choke control is pulled out. Press the choke control and the decompression valve. Pull the starter handle until the engine starts.

# STARTING AND STOPPING

- When the engine starts, quickly apply full throttle to automatically disengage fast idle.

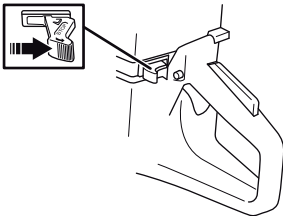


## Stopping



**CAUTION!** The cutting blade continue to rotate up to a minute after the motor has stopped. (Blade coasting.) Make sure that the cutting blade can rotate freely until it is completely stopped. Carelessness can result in serious personal injury.

- Stop the engine by moving the stop switch (STOP) to the right.



# MAINTENANCE

## General



**WARNING!** The user must only carry out the maintenance and service work described in this Operator's Manual. More extensive work must be carried out by an authorized service workshop.

The engine should be switched off, and the stop switch in STOP position.

Wear personal protective equipment. See instructions under the heading "Personal protective equipment".

The life span of the machine can be reduced and the risk of accidents can increase if machine maintenance is not carried out correctly and if service and/or repairs are not carried out professionally. If you need further information please contact your nearest service workshop.

- Let your Husqvarna dealer regularly check the machine and make essential adjustments and repairs.

## Maintenance schedule

In the maintenance schedule you can see which parts of your machine that require maintenance, and with which intervals it should take place. The intervals are calculated based on daily use of the machine, and may differ depending on the rate of usage.

Daily maintenance	Weekly maintenance	Monthly maintenance
<b>Cleaning</b>	<b>Cleaning</b>	<b>Cleaning</b>
External cleaning		Spark plug
Cooling air intake		Fuel tank
<b>Functional inspection</b>	<b>Functional inspection</b>	<b>Functional inspection</b>
General inspection	Vibration damping system*	Fuel system
Throttle lockout*	Muffler*	Air filter
Stop switch*	Drive belt	Drive gear, clutch
Blade guards*	Carburettor	
Diamond blade**	Starter	
Guide rollers		
Support rollers		
Drive wheel		

\*See instructions in the section "Machine's safety equipment".

\*\* See instructions in the section "Blades" and "Assembly and settings".

# MAINTENANCE

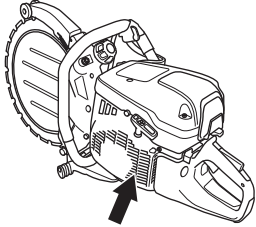
## Cleaning

### External cleaning

- Clean the machine daily by rinsing it with clean water after the work is finished.

### Cooling air intake

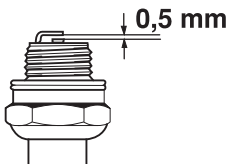
- Clean the cooling air intake when needed.



**NOTICE!** A dirty or blocked air intake results in the machine overheating which causes damage to the piston and cylinder.

### Spark plug

- If the machine is low on power, difficult to start or runs poorly at idle speed: always check the spark plug first before taking other steps.
- Ensure that the spark plug cap and ignition lead are undamaged to avoid the risk of electric shock.
- If the spark plug is dirty, clean it and at the same time check that the electrode gap is 0.5 mm. Replace if necessary.



**NOTICE!** Always use the recommended spark plug type! Use of the wrong spark plug can damage the piston/cylinder.

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

- An incorrect fuel mixture (too much or incorrect type of oil).
- A dirty air filter.

## Functional inspection

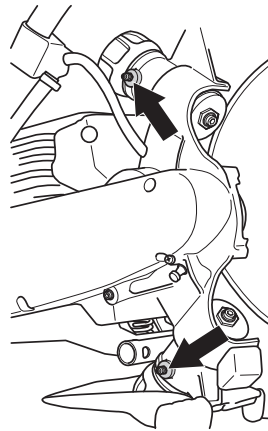
### General inspection

- Check that nuts and screws are tight.

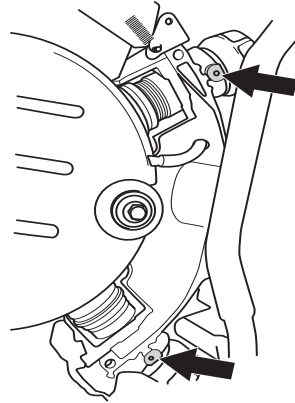
## Guide rollers

### Lubricating the guide rollers

- Connect the grease gun to the grease nipples.



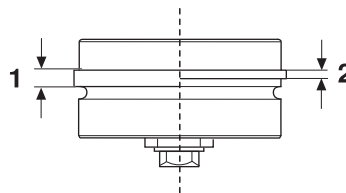
- Pump in grease until clean grease emerges from the overflow hole.



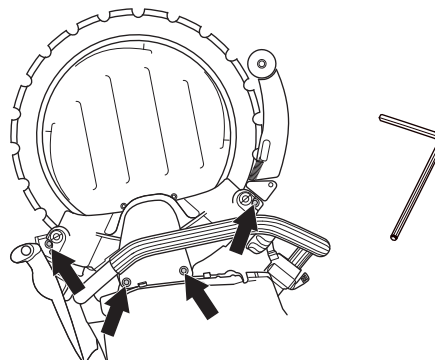
### Replacing the support guide rollers

Replace the guide rollers when half of the flange on the rollers is worn.

- 1) New, 3 mm (0.12")
- 2) Worn,  $\leq 1,5$  mm (0.06")

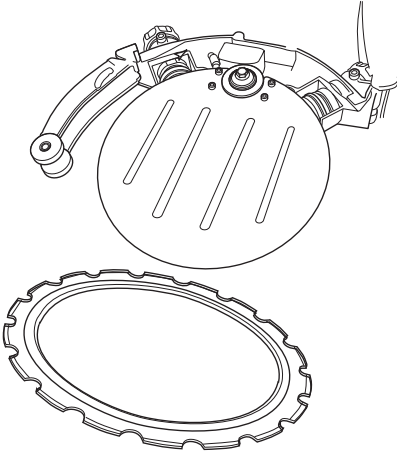


- Remove the support roller cover.



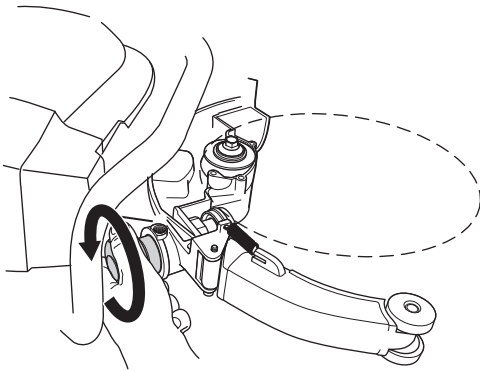
# MAINTENANCE

- Lift off the blade.

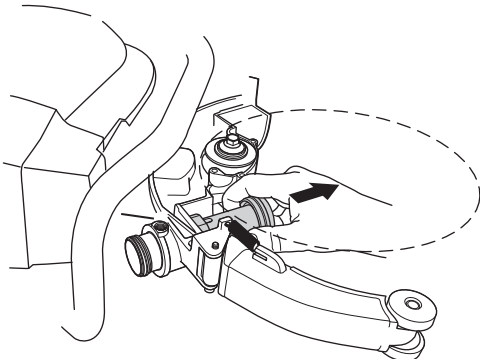


- Unscrew the knob. First turn the knob a few turns until you feel a resistance. The guide roller then follows the knob out and stops when it feels a resistance.

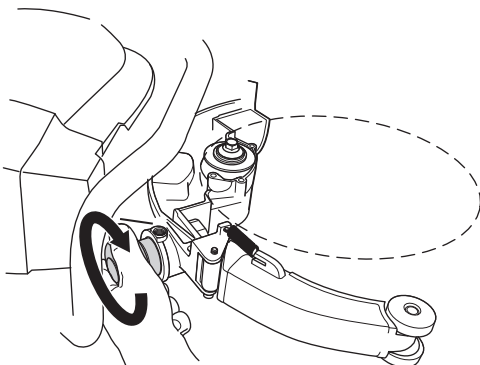
The guide roller is pressed into the knob. In order to loosen the guide roller, you need to continue turning the knob until it loosens completely.



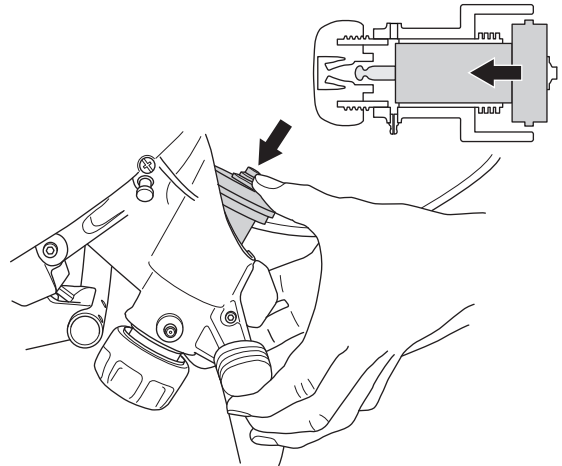
- The guide roller can now be pulled out of the chassis.



- Screw the knob until it bottoms, and then loosen the knob 2 turns.



- Insert the new guide roller in the chassis. Now press the guide roller into the knob.

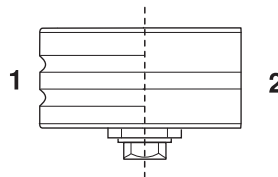


- Lubricate the guide rollers. See instructions under the heading "Lubricating the guide rollers".
- Fit the blade. See instructions in the section "Assembling and adjustments".

## Support rollers

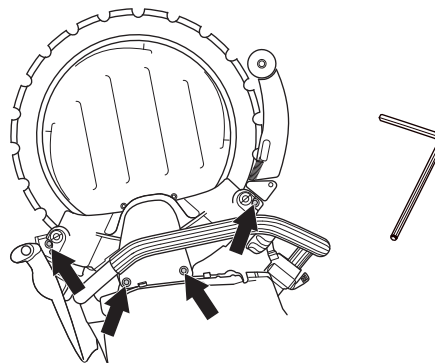
Replace the support rollers when the roller surface is flat, when the groove on the roller surface has worn away.

- 1) New
- 2) Worn



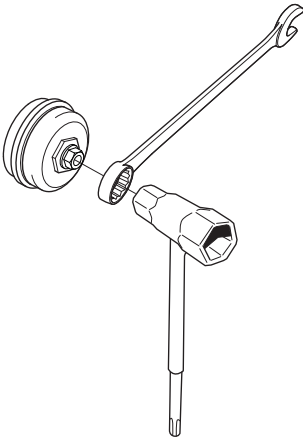
## Replacing the support rollers

- Remove the support roller cover.

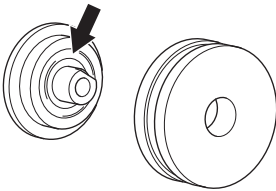


# MAINTENANCE

- Use a 19 mm fixed spanner and a 13 mm combination spanner to replace the rollers.



- Lubricate using bearing grease inside the rollers before the new rollers are fitted.



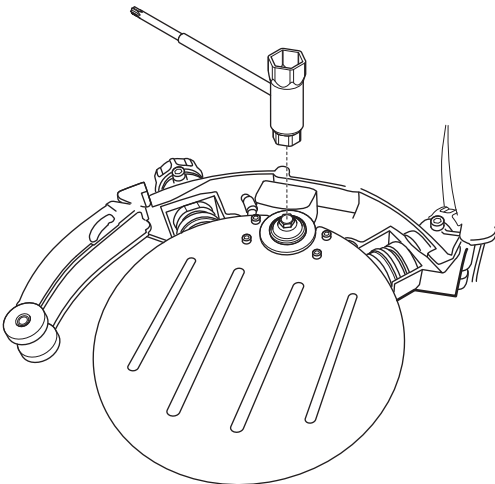
## Drive wheel

**NOTICE!** Replace the drive wheel when fitting a new blade. A worn drive wheel can result in the blade slipping and becoming damaged.

Inadequate water flow drastically shortens the life of the drive wheel.

## Replacing the drive wheel

- Lock the axle using the locking button.
- Loosen the centre screw and remove the washer.



- You can now lift off the drive wheel.

## Drive belt

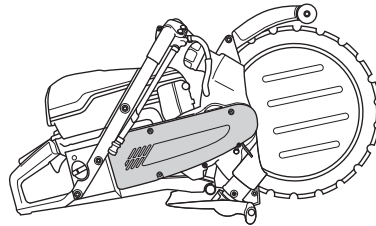
### Tensioning the drive belt

If the drive belt slips, it must be tensioned. The tension of a new drive belt must be readjusted after one or two tanks of fuel have been used.

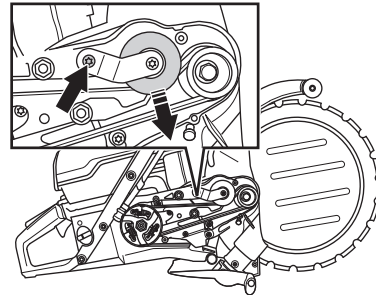
When the machine is equipped with a friction retarder, a scraping sound can be heard from the bearing housing when the blade is turned by hand. This is quite normal. Please contact an accredited Husqvarna workshop if you have any questions.

The drive belt is enclosed and well protected from dust and dirt.

- Dismantle the cover and loosen the belt tensioning screw.



- Press on the belt tensioner with your thumb to tension the belt. Now tighten the screw holding the belt tensioner.

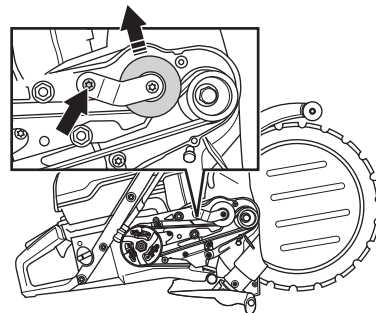


### Replacing the drive belt



**WARNING!** Never start the engine when the belt pulley and clutch are removed for maintenance. Do not start the machine without the cutting arm or cutting head fitted. Otherwise the clutch could come loose and cause personal injuries.

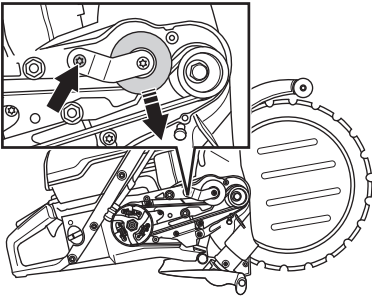
- Dismantle the cover and loosen the belt tensioning screw. Push back the belt tensioning roller and install a new drive belt.



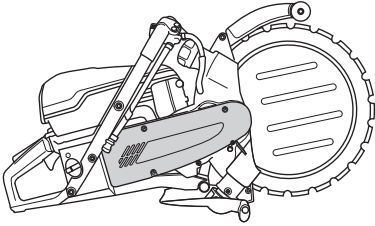
**NOTICE!** Make sure that both belt pulleys are clean and undamaged before a new drive belt is fitted.

# MAINTENANCE

- Press on the belt tensioner with your thumb to tension the belt. Now tighten the screw holding the belt tensioner.



- Fit the belt cover.



## Carburettor

The carburettor is equipped with fixed needles to ensure the machine always receives the correct mixture of fuel and air. When the engine lacks power or accelerates poorly, do the following:

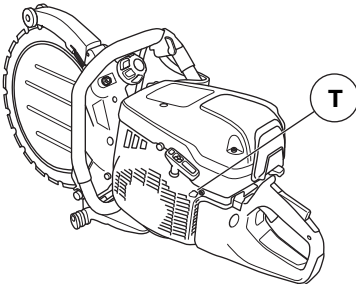
- Check the air filter and replace if necessary. When this does not help, contact an authorised service workshop.

## Adjusting the idle speed



**CAUTION!** If the idle speed cannot be adjusted so that the cutting attachment stops, contact your dealer/service workshop. Do not use the machine until it has been correctly adjusted or repaired.

- Start the engine and check the idling setting. When the carburettor is set correctly the cutting blade should be still while engine is idling.
- Adjust the idle speed using the T screw. When an adjustment is necessary, first turn the screw clockwise until the blade starts to rotate. Now turn the screw anti-clockwise until the blade stops rotating.



Rec. idle speed: 2700 rpm

## Starter

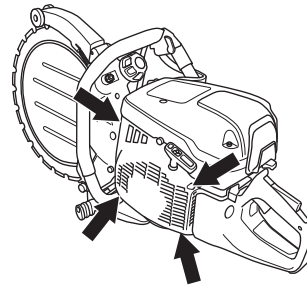


**WARNING!** When the recoil spring is wound up in the starter housing it is under tension and can, if handled carelessly, pop out and cause personal injury.

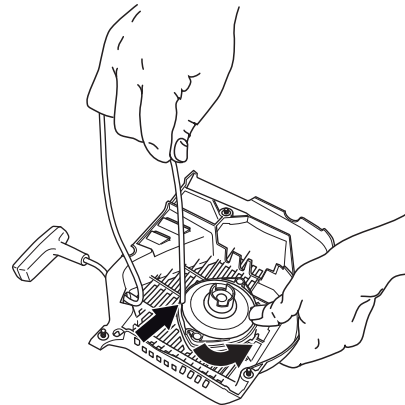
Always be careful when changing the recoil spring or the starter cord. Always wear protective goggles.

## Checking the starter cord

- Loosen the screws that hold the starter against the crankcase and remove the starter.

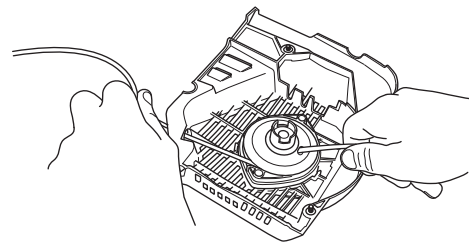


- Pull the cord out about 30 cm and lift it into the cut-out in the periphery of the starter pulley. When the cord is intact: Release the spring tension by letting the pulley rotate slowly backwards.



## Changing a broken or worn starter cord

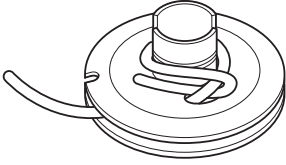
- Remove any remnants of the old starter cord and check that the return spring works. Insert the new starter cord through the hole in the starter housing and in the cord pulley.





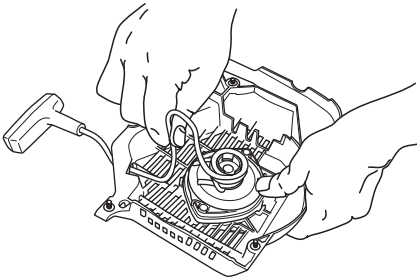
# MAINTENANCE

- Secure the starter cord around the cord pulley as illustrated. Tighten the fastening well and ensure that the free end is as short as possible. Secure the end of the starter cord in the starter handle.



## Tensioning the recoil spring

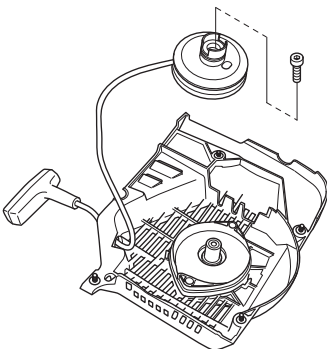
- Guide the cord through the cut-out in the periphery of the pulley and wind the cord 3 times clockwise around the centre of the starter pulley.



- Now pull the starter handle and in doing so tension the spring. Repeat the procedure once more, but this time with four turns.
- Note that the starter handle is drawn to its correct home position after tensioning the spring.
- Check that the spring is not drawn to its end position by pulling out the starter line fully. Slow the starter pulley with your thumb and check that you can turn the pulley at least a further half turn.

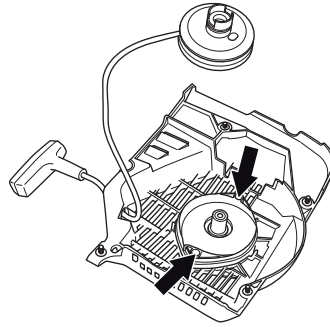
## Changing a broken recoil spring

- Undo the bolt in the centre of the pulley and remove the pulley.

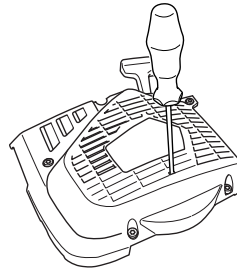


- Bear in mind that the return spring lies tensioned in the starter housing.

- Loosen the bolts holding the spring cassette.



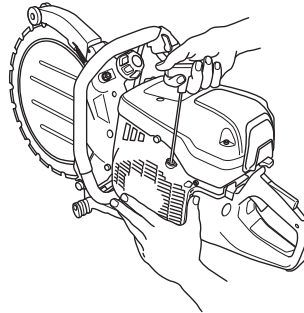
- Remove the recoil spring by turning the starter over and loosen the hooks, with the help of a screwdriver. The hooks hold the return spring assembly on the starter.



- Lubricate the recoil spring with light oil. Fit the pulley and tension the recoil spring.

## Fitting the starter

- To fit the starter, first pull out the starter cord and place the starter in position against the crankcase. Then slowly release the starter cord so that the pulley engages with the pawls.



- Tighten the screws.

## Fuel system

### General

- Check that the fuel cap and its seal are not damaged.
- Check the fuel hose. Replace when damaged.

### Fuel filter

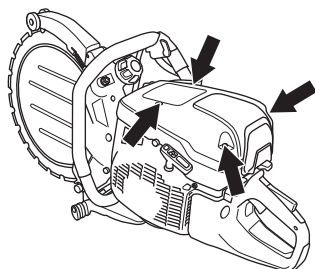
- The fuel filter sits inside the fuel tank.
- The fuel tank must be protected from contamination when filling. This reduces the risk of operating disturbances caused by blockage of the fuel filter located inside the tank.
- The filter cannot be cleaned but must be replaced with a new filter when it is clogged. **The filter should be changed at least once per year.**

# MAINTENANCE

## Air filter

The air filter only needs to be checked if the engine drops in power.

- Loosen the screws. Remove the air filter cover.

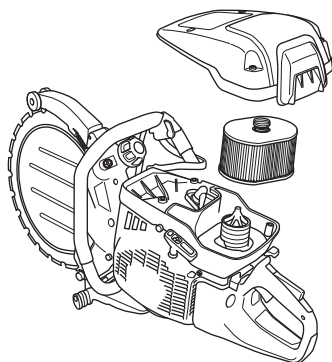


- Check the air filter and replace if necessary.

## Replacing the air filter

**NOTICE!** The air filter must not be cleaned or blown clean with compressed air. This will damage the filter.

- Loosen the screws. Remove the cover.



- Replace the air filter.

## Drive gear, clutch

- Check the clutch centre, drive gear and clutch spring for wear.

## Reconstructing the blade



**WARNING!** Ring cutter blades must not be reconstructed. Due to its design, a ring cutter blade is exposed to other strains than a centre driven 14 inch diamond blade. Firstly, the drive wheel is driven on the inner diameter of the blade so that both the surfaces of the drive wheel and the blade are exposed to wear. The core of the blade becomes thinner and the guide wider, which prevents the blade being driven by the wheel. Secondly, the blade is exposed to loads from the rollers and from the actual cutting process when the blade is not held completely straight. Strain builds up in the blade until it cracks or breaks if it has been reconstructed. A shattered blade can cause serious personal injuries to the user or other persons. For this reason Husqvarna does not approve ring cutting blades that have been reconstructed. Contact your Husqvarna dealer for instructions.

# TROUBLE SHOOTING

## Troubleshooting schedule



**WARNING!** If service operations or trouble shooting does not require the machine to be on, the engine should be switched off, and the stop switch in STOP position.

Problem	Probable cause
The blade does not rotate.	Roller knobs not tightened fully.
	The blade not fitted on guide rollers correctly.
	Rollers tensioned too much.
The blade rotates too slowly.	Roller knobs not tightened fully.
	Worn drive wheel.
	The V-shaped inner diameter of the blade is worn.
	The springs on the guide rollers are weakened.
	Defective roller bearings.
The blade jumps out of its position.	Roller setting too loose.
	Worn guide rollers.
	The blade not fitted on guide rollers correctly.
	Damaged blade.
The blade warps.	Rollers tensioned too much.
	Blade overheating.
Segments break.	Bent, twisted or badly maintained blade.
	Continue to use the blade only if one segment is missing or leave for reconstruction when the blade is worn max 50 %.
The blade cuts too slowly.	Wrong blade for the material in question.
The blade slips.	The guide rollers does not move in and out freely. A seized roller can not press the blade hard enough against the drive wheel.
	Worn drive wheel. Abrasive material and too little water when cutting increases the wear on the wheel.
	Worn guide roller flange. When more than half of the width of the flange is worn the blade slips.
	The blade's groove and inner edge are worn. Caused by inferior flushing of abrasive material and/or a worn drive wheel causing the blade to slip.

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# TECHNICAL DATA

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## Technical data

<b>Engine</b>	<b>K 970 Ring</b>
Cylinder displacement, cm <sup>3</sup>	93,6
Cylinder bore, mm	56
Stroke, mm	38
Idle speed, rpm	2700
Max. fast idle speed, rpm	9300 (+/- 150)
Power, kW/ rpm	4,8/9000
<b>Ignition system</b>	
Manufacturer of ignition system	SEM
Type of ignition system	CD
Spark plug	Champion RCJ 6Y/ (NGK BPMR 7A)
Electrode gap, mm	0,5
<b>Fuel and lubrication system</b>	
Manufacturer of carburettor	Walbro
Carburettor type	RWJ5
Fuel tank capacity, litre	1,0
<b>Weight</b>	
Power cutter without fuel and cutting blade, kg	13,6
<b>Noise emissions (see note 1)</b>	
Sound power level, measured dB(A)	114
Sound power level, guaranteed L <sub>WA</sub> dB(A)	116
<b>Sound levels (see note 2)</b>	
Equivalent sound pressure level at the operator's ear, dB(A)	103
<b>Equivalent vibration levels, a<sub>hveq</sub> (see note 3)</b>	
Front handle, m/s <sup>2</sup>	3,8
Rear handle, m/s <sup>2</sup>	5,1

Note 1: Noise emissions in the environment measured as sound power (L<sub>WA</sub>) in conformity with EC directive 2000/14/EC. The difference between guaranteed and measured sound power is that the guaranteed sound power also includes dispersion in the measurement result and the variations between different machines of the same model according to Directive 2000/14/EC.

Note 2: Equivalent sound pressure level, according to EN ISO 19432, is calculated as the time-weighted energy total for different sound pressure levels under various working conditions. Reported data for equivalent sound pressure level for the machine has a typical statistical dispersion (standard deviation) of 1 dB (A).

Note 3: Equivalent vibration level, according to EN ISO 19432, is calculated as the time-weighted energy total for vibration levels under various working conditions. Reported data for equivalent vibration level has a typical statistical dispersion (standard deviation) of 1 m/s<sup>2</sup>.

## Cutting equipment

Max. peripheral speed, m/s	55
Blade diameter, mm/inches	350/14
Cutting depth, mm/inches	260/10
Max. engine speed, rpm	10000
Blade weight, kg	0,8
<b>Dimensions</b>	
Height, mm/inches	410/16
Length, mm/inches	715/28
Width, mm/inches	260/10
Water consumption, litres/min	4

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# TECHNICAL DATA

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## EC-declaration of conformity

### (Applies to Europe only)

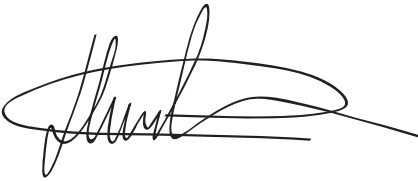
**Husqvarna AB**, SE-561 82 Huskvarna, Sweden, tel +46-36-146500, declares under sole responsibility that the power cutters **Husqvarna K 970 Ring** from 2011's serial numbers and onwards (the year is clearly stated in plain text on the rating plate with subsequent serial number), complies with the requirements of the COUNCIL'S DIRECTIVES:

- of May 17, 2006 "relating to machinery" **2006/42/EC**
- of December 15, 2004 "relating to electromagnetic compatibility" **2004/108/EC**.
- of May 8, 2000 "relating to the noise emissions in the environment" **2000/14/EC**. Conformity assessment according to Annex V.

For information relating to noise emissions, see the chapter Technical data.

The following standards have been applied: **EN ISO 12100:2010, CISPR 12:2007, EN ISO 19432:2008**.

Gothenburg February 2, 2011



Henric Andersson

Vice President, Head of Power Cutters and Construction Equipment

Husqvarna AB

(Authorized representative for Husqvarna AB and responsible for technical documentation.)





**Original instructions**



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