

For Husqvarna Parts Call 606-678-9623 or 606-561-4983

Husqvarna Power Cutters

Workshop Manual
Supplement for models 371K and 3120K

101 90 71-26

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Workshop manual – power cutters

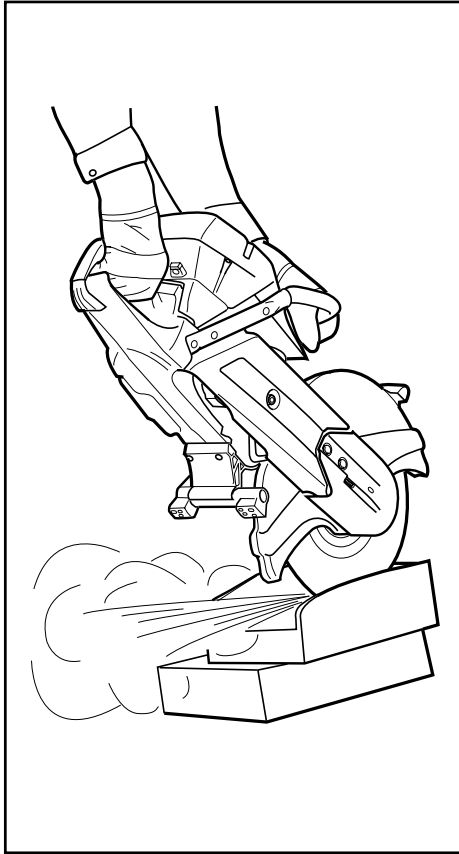
Supplement for models 371K and 3120K

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This supplement only covers the tasks that are specific to the above-named models. For complete information on service procedures we recommend that this supplement is studied in conjunction with workshop manuals 101 88 55-26 and 101 89 83-26.

FILTER SYSTEM



Dust

The cutting of stone and concrete produces small particles of dust that must not be allowed to get into the engine under any circumstances. The design of the air filter and its maintenance are by far the most important factors that affect the service life of a power cutter. Designing a good air filter is a question of getting the right balance between effective filtration and long intervals between services.

The development of more effective filters has improved air filtration, but for power cutters the service interval has remained impractically short. Tool hire companies often have problems due to service work that is not carried out by the user during the hire period, or due to the cost of regular service visits that have to be made to the work site.

Dust consists of very fine particles, usually so small that we cannot see a single particle with the naked eye, but in large quantities it appears as a dust cloud. The stone and concrete dust particles that are often produced during cutting operations cause the greatest damage to the sliding or rotating components of an engine. If it gets into the engine this dust combines with oil to produce the perfect grinding paste, resulting in rapid wear to pistons, piston rings, cylinder walls and engine bearings.

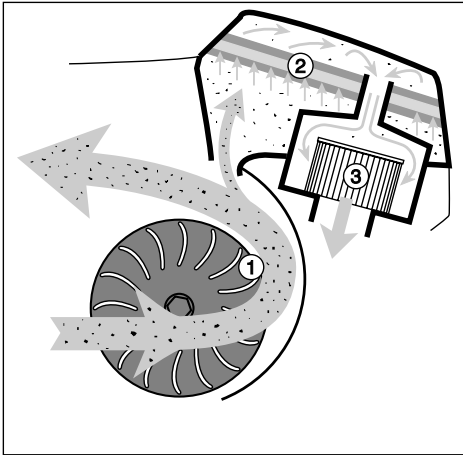
We usually measure dust particles in microns, μm ($1 \mu\text{m} = 0.001 \text{ mm}$) or thousandths of a millimetre, and the particles that are trapped by the filter system are generally in the size range $50 \mu\text{m}$ down to $5 \mu\text{m}$. (It takes about 2 minutes for a $10 \mu\text{m}$ stone particle to fall one metre in stationary air).

One physical property that is vital to the effectiveness of Husqvarna Air Injection Filtration is the way that the size of dust particles affects their behaviour in a stream of air:

A small particle is affected more by a moving air stream than a large particle.

The reason for this is that small particles have a larger surface area in relation to their mass. A small particle is therefore deflected more easily by moving air, while a larger particle is affected more by centrifugal force or gravity.

FILTER SYSTEM



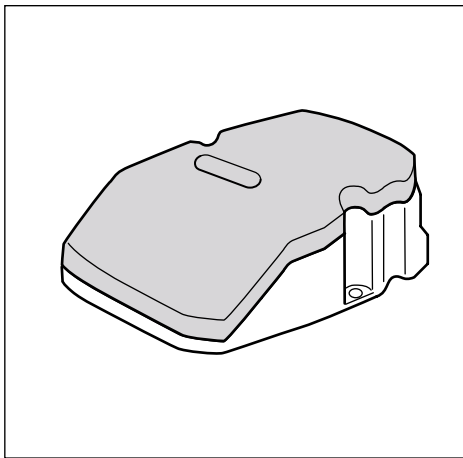
Husqvarna Air Injection is a filter system that efficiently cleans the engine intake air in three separate stages that use different methods of filtering.

The obvious practical benefit of Air Injection is that the service interval is considerably longer than with previous systems.

1. Centrifugal cleaning is the first stage of filtering the intake air on the 371K/3120K Air injection. Centrifugal cleaning was originally only used on larger machines in dusty environments, e.g. on contracting machinery (cyclone air cleaning).

The fan blades on the flywheel supply cooling air to the cylinder while also forming the active component of the centrifugal cleaning system for the engine intake air. An intake nozzle is located close to the fan blades.

Centrifugal force prevents large particles from following the bent air stream into the nozzle. Instead they are thrown past the nozzle. Only very small dust particles are able to follow the diverted air stream towards the engine air intake. Tests show that up to 80% of all dust is separated out by centrifugal air cleaning.

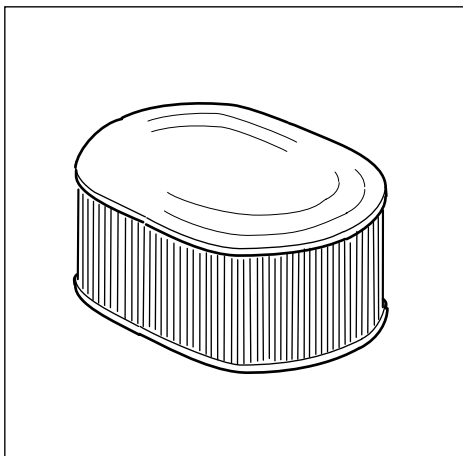


2. The foam plastic air filter is the next separation stage in cleaning the air. The filter covers the whole area of the engine cover and thanks to this design has a total filter area of 3.5 dm² (371K), 3.7 dm² (3120K). The filter base plate spreads the air over the entire filter area so that the filter is equally effective across its whole area.

The filter is soaked with oil and has three layers with different pore sizes.

The route the air takes through filter is like a labyrinth. Dust particles that come into contact with the filter material do not bounce off the surface, but are instead caught by the sticky oil. A dry foam plastic filter is much less effective at filtering air than one soaked with oil.

An oiled foam plastic filter is by far the most effective filter for stone dust, since the entire volume of the filter is used as a dust trap, not just the surface. The total dust-capturing area of the filter is therefore extremely large. The foam filter absorbs around 95% of the total volume of dust that passes through the centrifugal cleaning stage. The foam filter can be washed clean and must be soaked in clean oil during servicing.



3. The paper filter takes care of the small amount of dust that escapes through the foam filter, mostly by chance. Only a very small amount of very fine dust particles reaches the paper filter. The filter's dense, mesh-like structure of cellulose fibres traps these particles. The paper filter also acts as a protective filter during a filter service. The paper filter must be replaced at each service.

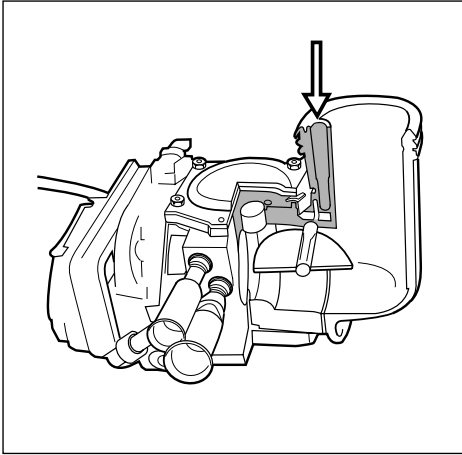


Husqvarna air filter oil

Use Husqvarna's pine needle oil, which is made from renewable ingredients and is completely biodegradable, for oiling foam plastic filters. This oil can be washed off with soap and water. It collects and traps dust particles very effectively in the filter, leading to a cleaner engine and less wear. The oil is thixotropic, which gives it an actively sticky surface, and it does not contain solvents or ingredients that dry out.

Soak the filter thoroughly and squeeze out.

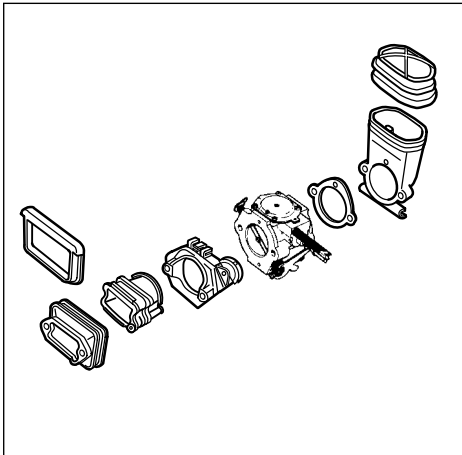
CARBURETTOR



Carburettor with built-in filter compensation

The carburettor has a built-in filter compensation mechanism that ensures the machine gets the right fuel/air mixture almost regardless of how badly the filters are clogged. The results of this design are:

- consistently high engine output
- better filter economy, long service intervals
- lower fuel consumption
- less air pollution



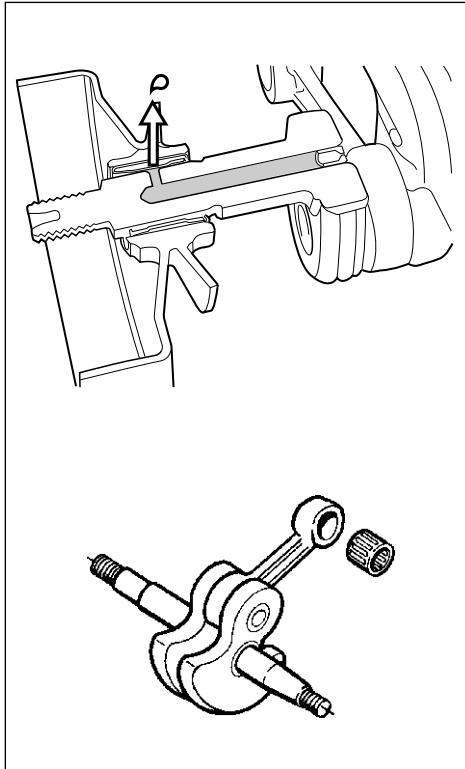
Thermally insulated, vibration-damped carburettor

Every engine produces some vibration. The carburettor contains a number of moving parts, such as the inlet needle with its control lever and diaphragm, and the choke and throttle shafts. Their operation is affected by vibration, and the greater the mass (weight) of the parts, the greater the effect. (Lightweight parts can accommodate fluctuating vibration more easily than heavy parts).

The moving parts of the carburettor are larger in large machines, and the 371K and 3120K Air Injection therefore have a vibration-damping element between the cylinder and carburettor.

The element between the cylinder and carburettor also acts as a thermal insulator and prevents vapour locks forming in the carburettor.

CLUTCH



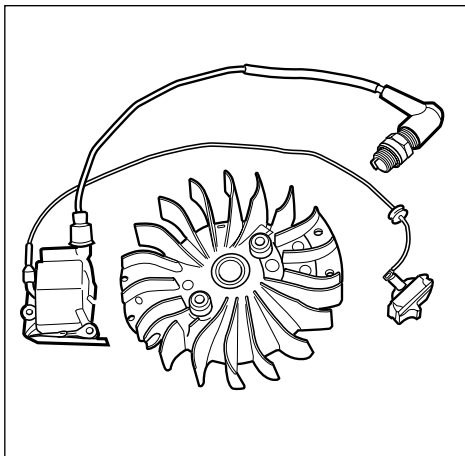
Self-lubricating clutch bearing

The clutch bearing fitted to the 371K and 3120K Air Injection is lubricated automatically, which is an old Husqvarna speciality. A channel through the crankshaft has a vent under the clutch bearing. The positive pressure that is developed inside the crankcase is transferred to the clutch bearing. This prevents external dust particles from getting inside the bearing and lubricates the bearing at the same time.

NOTE!

The channel must be plugged before pressure-testing the crankcase.

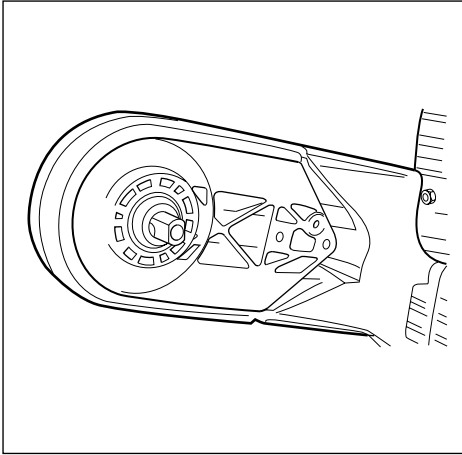
IGNITION SYSTEM



The ignition system is fully sealed and has no moving parts. It is resistant to damp and dirt. It is designed so that there is no need to adjust the timing.

The Husqvarna 371K and 3120K Air Injection have a rev limiter built into the electronic unit which limits engine revs to 9,750 rpm.

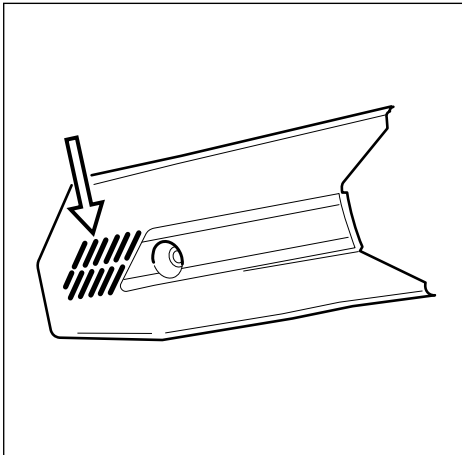
CUTTING HEAD



Belt drive

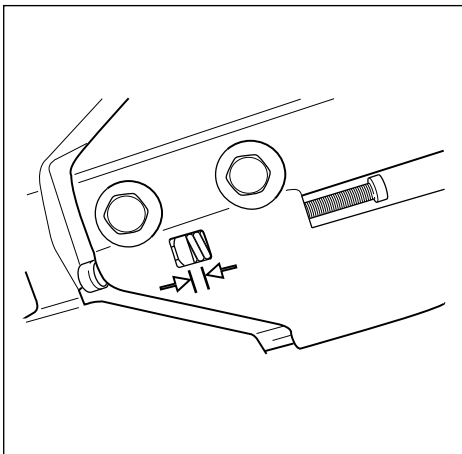
As with most other Husqvarna power cutters, the cutting disc on the 371K/3120K Air Injection is driven by a drive belt running between the pulley on the crankcase and the pulley on the drive shaft. As well as being simple, this type of transmission is also lightweight.

This design also has a safety feature. If the cutting disc stops suddenly the drive belt will slip and allow the engine to slow down more gently.



Sealed transmission cover

Large machines, such as the 371K and 3120K Air Injection, are frequently used for wet-cutting. If water gets on the belt it acts as a lubricant and can lead to slipping. These machines are therefore fitted with a sealed cover that prevents water from reaching the belt. It also prevents dust from reaching the belt, which reduces wear. In order to provide cooling for the transmission there are cooling vents in the cover near the clutch (3120K).

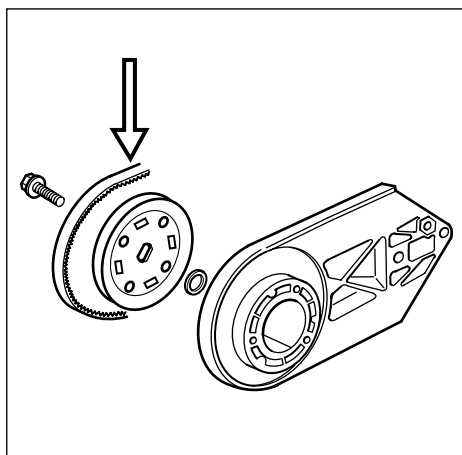


Semi-automatic belt tensioning

There are almost as many different ideas about what is the correct belt tension as there are power cutter operators. Husqvarna's semi-automatic belt tensioning system is designed to solve this problem. A standard spring ensures the correct tensioning force.

Under controlled laboratory conditions Husqvarna has determined the ideal belt tension to ensure maximum belt life and ensure the right torque before the belt slips on the pulley.

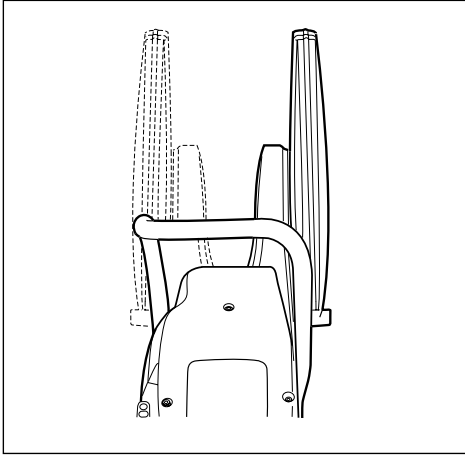
However it is still necessary to adjust the belt tension occasionally to compensate for belt wear and stretching. This involves just three quick steps.



Drive belt

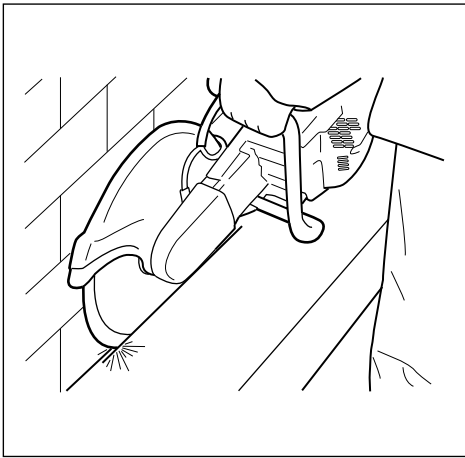
The drive belt on a power cutter is subjected to harsh, uneven wear and sometimes high transient loads. The drive belt is also bent round a relatively tight radius over the pulleys, which places special demands on the belt. The original belts fitted to Husqvarna power cutters may look like any other belt, but they have been specially designed for this purpose. The belt tensioning force that is set by the tensioning spring has been chosen to suit original Husqvarna belts.

CUTTING HEAD



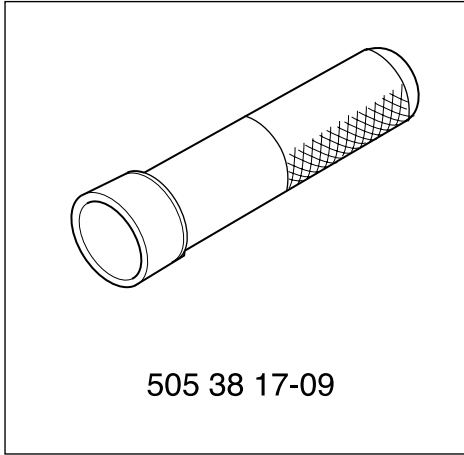
Reversible arm

The cutting arm can be reversed on the machine. This makes it possible to cut right up against a wall or floor as close as the disc guard allows, i.e. around 20 mm from the cutting disc.



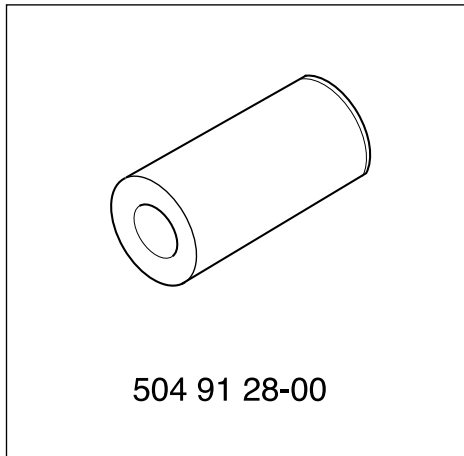
Naturally some of ergonomic benefits of the machine are sacrificed by reversing the cutting arm, but for certain jobs the ability to reverse the arm can be essential in order to do the job.

TOOLS



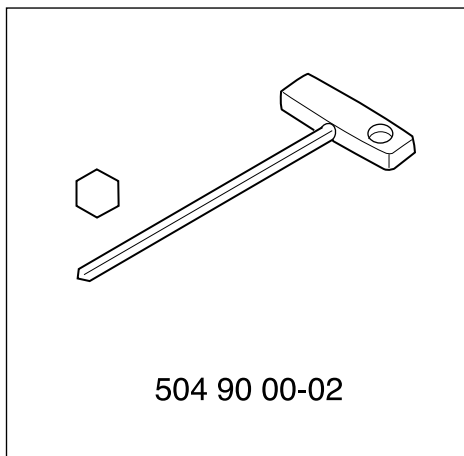
Drift for ball-bearing

505 38 17-09



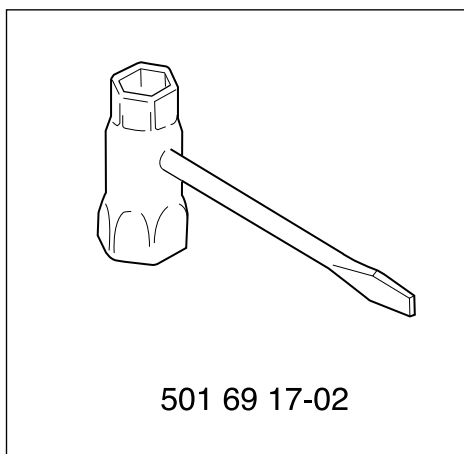
Drift

504 91 28-00



Allen key NV 4 M

504 90 00-02



Combination tool NV 13/19

501 69 17-02

CUTTING EQUIPMENT

NOTE!

The cutting disc is driven by a drive belt that is correctly tensioned throughout its life by a powerful spring, on condition that the belt tensioning screw is correctly adjusted.

The belt is subjected to hard, uneven loading. The pulleys also have relatively small radii, which places special quality requirements on the belt. Always replace the belt with an original Husqvarna belt that has been thoroughly tested to meet these special requirements.

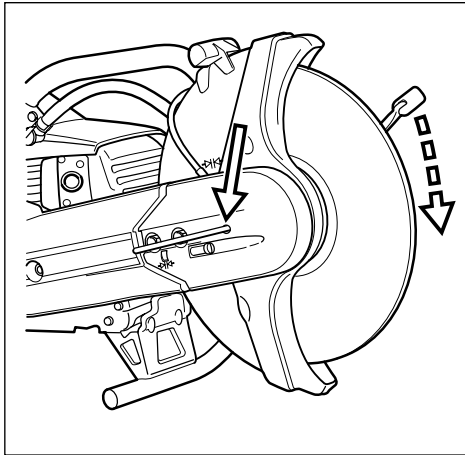
When servicing or repairing cutting equipment it is important to visually inspect the guard for cracks and wear, and ensure that the guard locking mechanism works in all positions.

Correct all faults as soon as you discover them to eliminate any risk of danger to the user!

Removal

Models 371K, 3120K

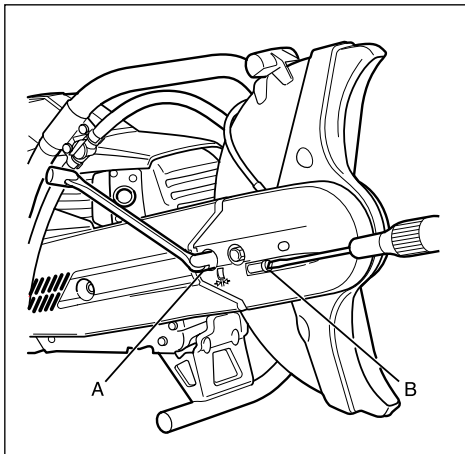
Remove the cutting disc.



Do as follows!

Lock the cutting disc by inserting a suitable drift through the hole in the cutting arm. Undo and remove the bolt, flange washer and cutting disc.

Release the tension in the belt and remove the front belt guard and cutting arm.

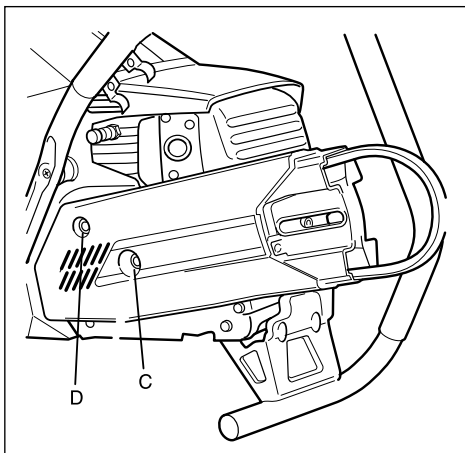


Undo the nuts (A).

Unscrew the belt tensioning screw (B) to release the belt tension.

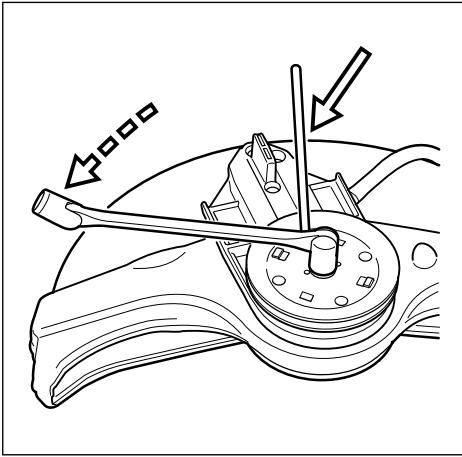
Remove the front belt guard and the cutting arm.

Remove the rear belt guard and drive belt.



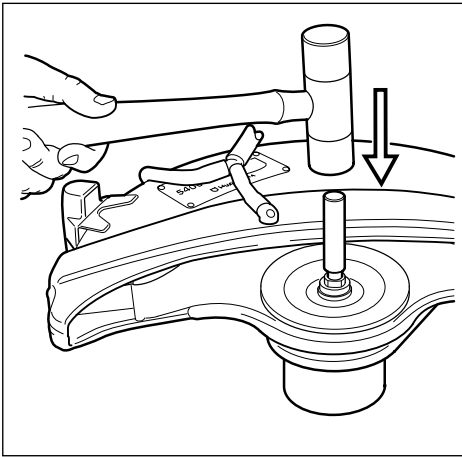
Remove the nuts (C) and screw (D) (371K). Then lift off the guard and drive belt.

CUTTING EQUIPMENT



Remove the pulley from the cutting arm.

Lock the pulley using a suitable drift and unscrew the bolt that holds the pulley. Lift off the pulley and the washer that is between the pulley and the ball-bearing.



Drive out the shaft with the aid of a drift and hammer.

Place a suitable socket underneath the cutting arm and drive out the shaft using a drift and hammer.

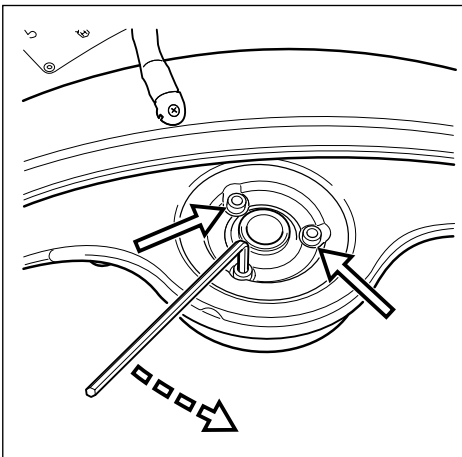
Lift off the spacer and flange washer.

NOTE!

If it is only necessary to remove the spacer and flange washer, this can be done by inserting two screwdrivers between the flange washer and the disc guard and prising upwards. Remove the bolts, cover plate, the friction washers and the disc guard.

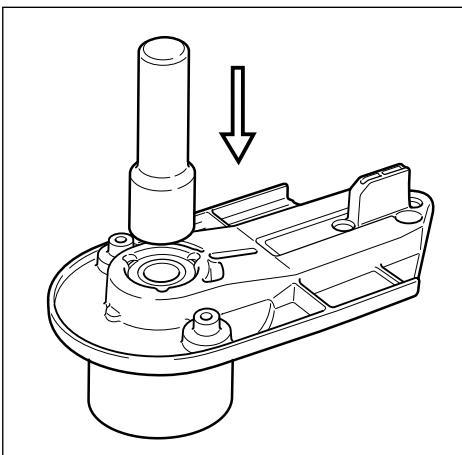
NOTE!

If it is only necessary to remove the spacer and flange washer, this can be done by inserting two screwdrivers between the flange washer and the disc guard and prising upwards. Then prise off the flange washer and spacer.



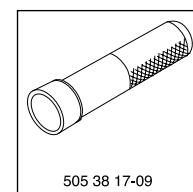
Remove the bolts, cover plate, friction washers and disc guard.

Remove the three bolts, cover plate, plastic washer, rubber washer and disc guard.



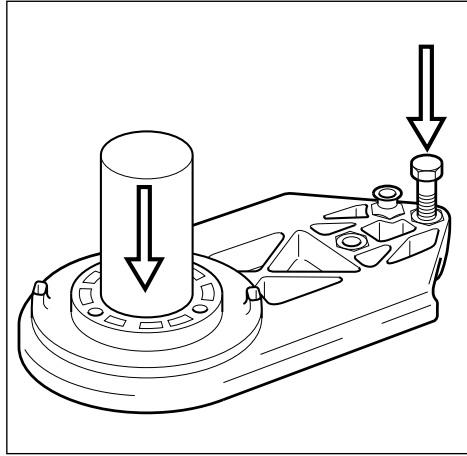
Remove the ball-bearings from their housing in the cutting arm.

Heat the cutting arm to around 150°C using a hot air gun and remove the bearings. If necessary use a suitable drift (505 38 17-09) and hammer to tap them out.



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CUTTING EQUIPMENT

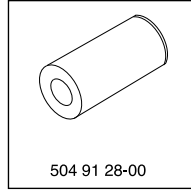


Refitting

Models 371K, 3120K

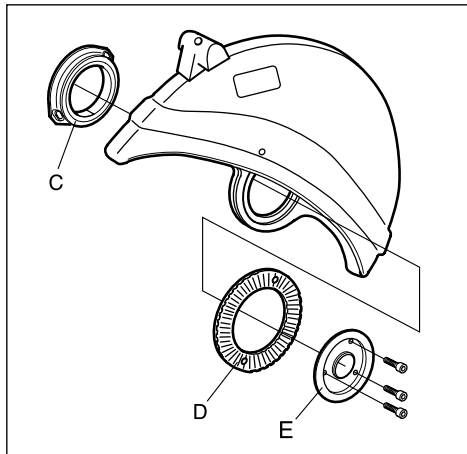
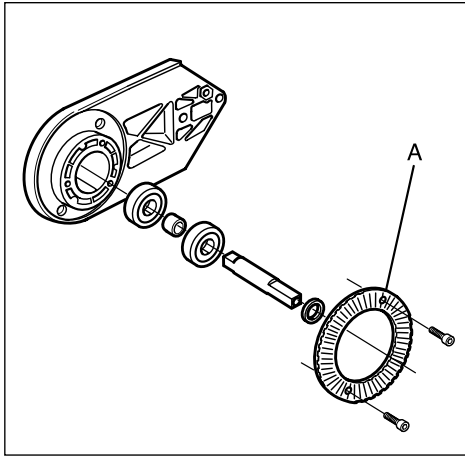
Clean and inspect the various parts.
Heat up the cutting arm and fit new bearings. Do not forget the spacer ring between the ball-bearings!

Fit new mounting bolts if necessary.

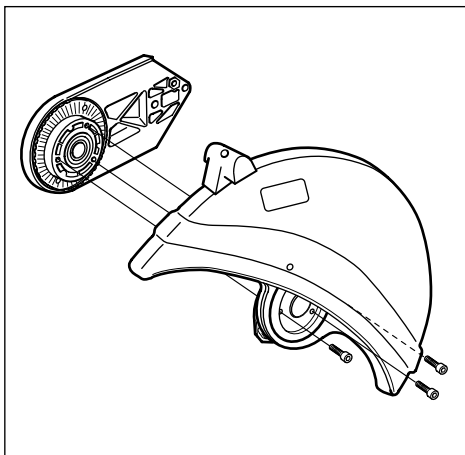


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Spread a little grease on the indicator washer and place it on the disc guard.



Reassemble the cutting arm and disc guard.



Do as follows!

Models 371K, 3120K

Clean and inspect the various parts.
Replace the cutting arm mounting bolts if the threads are damaged. Tap out the bolts with a hammer.

Heat the cutting arm to around 150°C with a hot air gun and fit new ball-bearings.

Don't forget the spacer ring between the bearings and make sure that they are pressed in as far as they will go.

Fit new mounting bolts, if required, while the cutting arm is still hot.

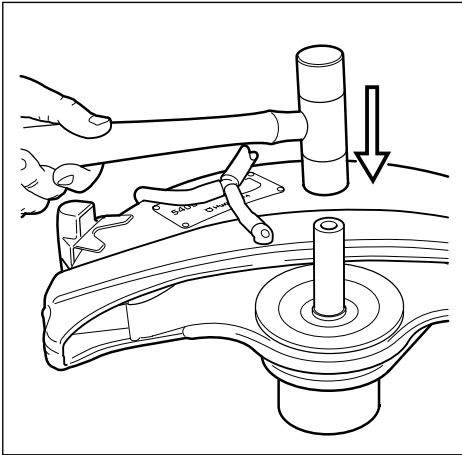
Spread a little grease on the indicator washer (A) and place it on the disc guard.

Turn over the disc guard while holding the other parts in place.

Now fit the rubber washer (C) tight to the disc guard, followed by the indicator washer (D) and cover plate (E).

Reassemble the cutting arm and disc guard. Tighten the three bolts and check that the disc guard can rotate.

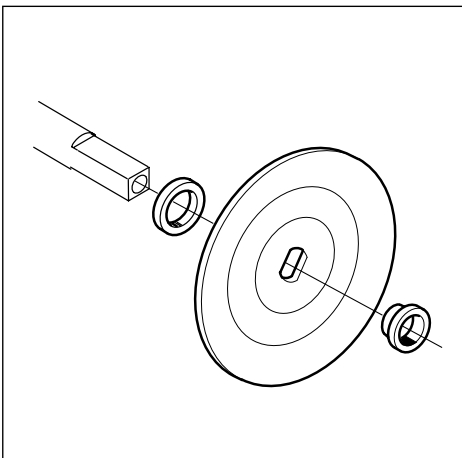
CUTTING EQUIPMENT



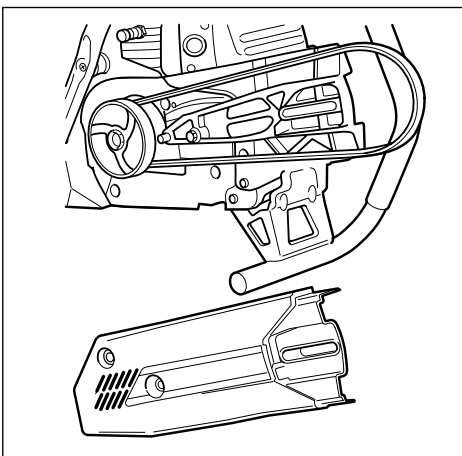
Drive the shaft in through the bearings until it projects out 5.5 mm on the other side.

Fit the pulley (with the reinforcing washer inwards), not forgetting the spacer ring over the ball-bearing.

Tighten the bolt.

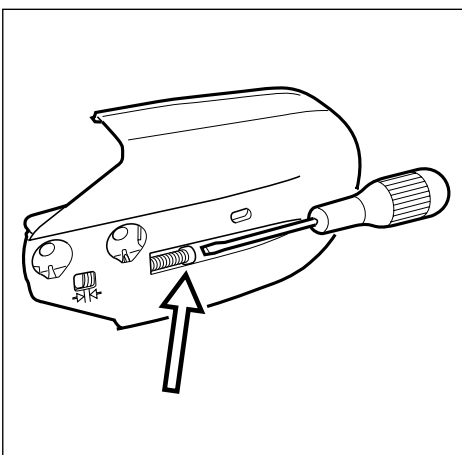


Fit the spacer sleeves and flange washer as illustrated.



Fit a new drive belt around the clutch drum and fit the rear belt guard.

Screw out the adjuster screw.



Release the belt guard.

Drive in the shaft using a plastic mallet so that it goes through the ball-bearings and projects about 5.5 mm beyond the other side. Use a sleeve or socket that supports the inner race of the ball-bearing.

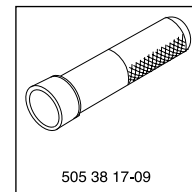
Fit the pulley. Place the spacer ring on the ball-bearing, followed by the pulley, with its welded reinforcing washer facing in towards the cutting arm.

Tighten the bolt.

Fit the spacer sleeves and flange washer as illustrated.

Use a hot air gun to heat the spacer sleeve separately to around 150°C so that it fits on the shaft more easily. Fit the spacer sleeve with the bevelled end towards the cutting arm.

Press it down using a suitable drift.



Fit a new drive belt around the clutch drum.

Fit the rear belt guard. Do not forget the screw on the underside of the guard (on 371K).

Screw out the adjuster screw to reduce the belt tension.

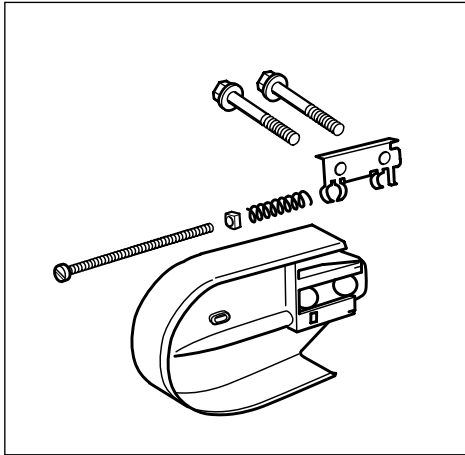


WARNING!

Wear protective glasses and gloves when fitting the spring. The spring is very powerful and could cause serious injury if it jumps out.

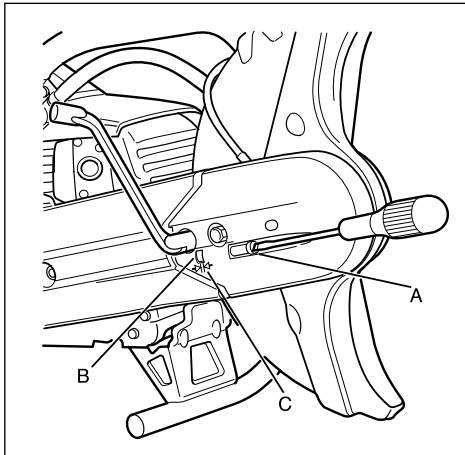
Release the belt guard by removing the (2) screws, adjuster plate, spring and square nut.

CUTTING EQUIPMENT



Clean, refit and adjust.

Clean and replace damaged or worn parts of the belt tensioning mechanism before fitting.



Lift the cutting arm into position and fit the front belt guard and belt tensioning mechanism.

Tension the drive belt and tighten the nuts.

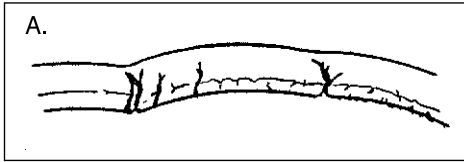
Lift the cutting arm into position. Place the front belt guard and belt tensioning mechanism in position.

Partially tighten the nuts.

Tension the drive belt by screwing in the belt tensioning screw (A) until the nut (B) is in line with the arrow (C).

Then tighten the nuts.

CUTTING EQUIPMENT



Inspect the drive belt for wear and damage before fitting.

Fig. A. Normal appearance of a belt after extended use.

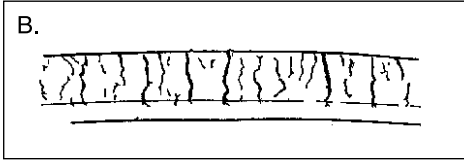


Fig. B. Replace the belt if there are cracks running through the thickness of the belt after a short time in use, even if there is minimal wear to the sides.

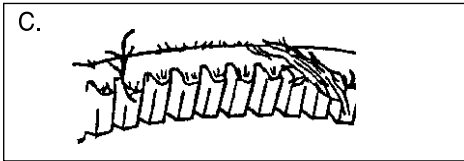


Fig. C. Worn, frayed edges on a belt are the result of incorrect alignment with the pulleys or poorly tightened nuts on the cutting arm.

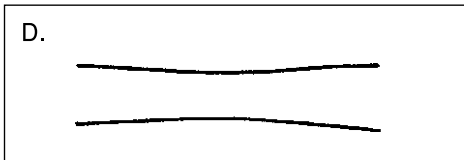


Fig. D. Uneven wear caused by belt being too loose or engine idle speed being too high.

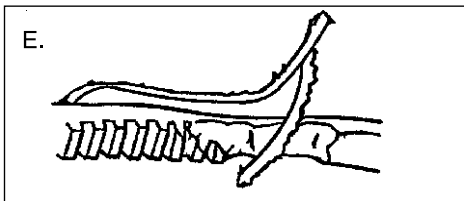
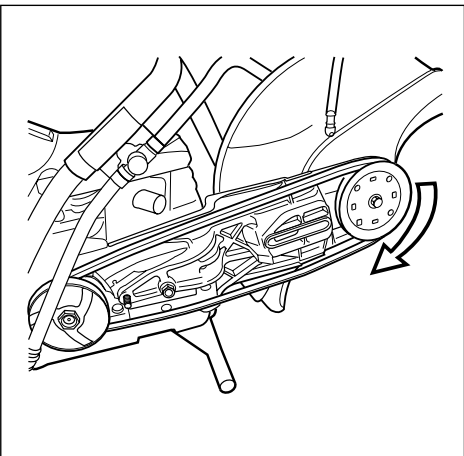


Fig. E. Tears in belt and damaged reinforcement caused by poor alignment, oil on pulleys or substandard belt. Use Husqvarna original belts.



Fit a new belt around the clutch drum and fit the cutting arm in its rearmost position.

Work the drive belt over the front pulley and tension the belt.

Tighten the cutting arm nuts and fit the belt guards.

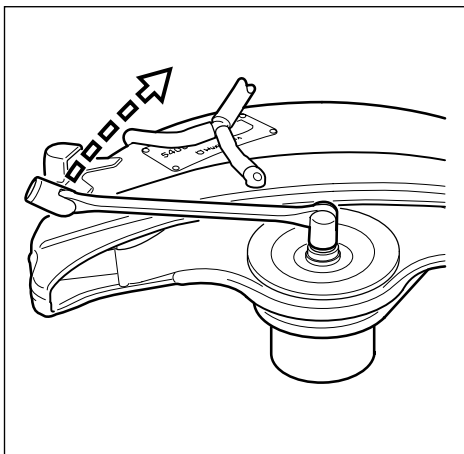
Fit a new drive belt around the clutch drum.

Fit the cutting arm and fit the nuts loosely.

Work the drive belt over the front pulley.

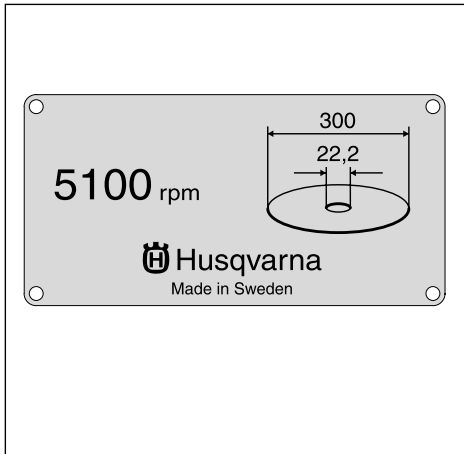
Tension the drive belt by screwing in the belt tensioning screw (A) until the nut (B) is in line with the arrow (C).

Then tighten the nuts.



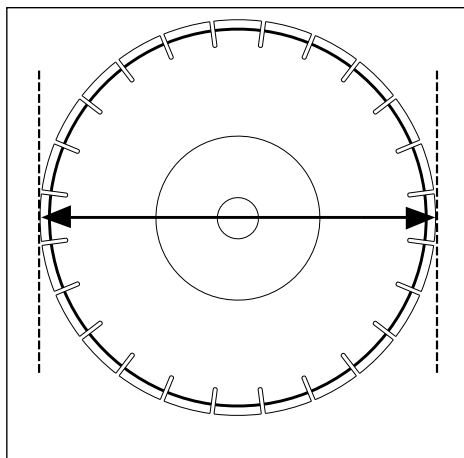
Check that the pulley does not rub on the front belt guard. If it does, fit the cutting disc and tighten the centre bolt hard. This should move the drive shaft and pulley sufficiently to prevent the pulley touching the guard.

CUTTING DISCS



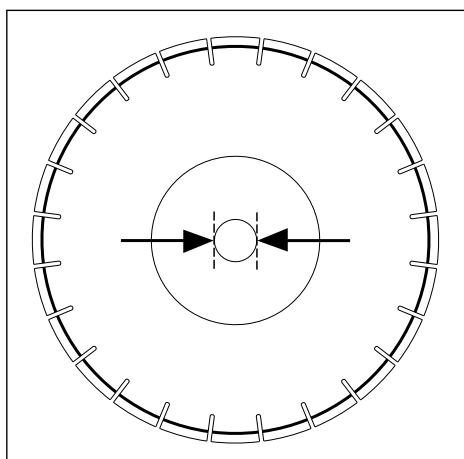
Rating plate

All Husqvarna power cutters are fitted with a plate on the guard that provides valuable information when selecting cutting discs for a machine. The measurements that the operator should be familiar with are as follows:



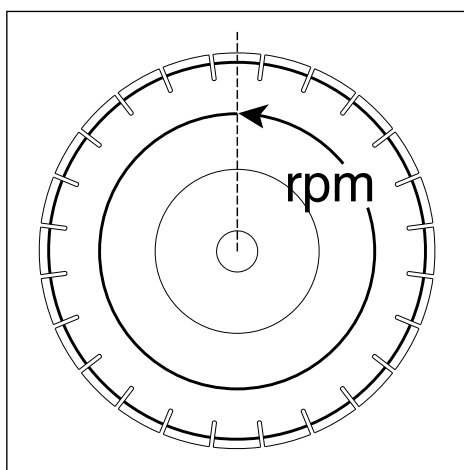
Disc diameter

The disc diameter is given in mm or inches. Husqvarna 371K Air Injection can be used with the following cutting discs: 12" (300 mm), 14" (350 mm) or 16" (400 mm). Husqvarna 3120K Air Injection can be used with the following cutting discs: 14" (350 mm) or 16" (400 mm).



Centre diameter

The size of the mounting hole in the cutting disc must match the diameter of the bushing on the drive shaft exactly. There are various standards depending on the country the machines are sold in. Common standard diameters are 20.0, 22.2, 25.4 (1") and 30.5 mm. Replaceable bushings are available for Husqvarna power cutters for all these diameters.

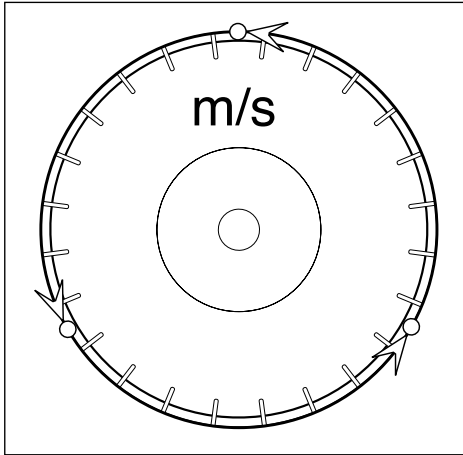


Speed

All cutting discs are marked with a speed that is usually measured in revolutions per minute (rpm). This is the maximum speed of rotation of the disc. The maximum speed of a disc is determined by the disc manufacturer. The rating plate on the power cutter gives a different speed that is determined by the machine manufacturer and is known as the rated speed. The rated speed is the speed given on the rating plate and it determines what speed rating a disc must have in order to be used with the power cutter. A cutting disc must be rated at the same speed or a higher speed than that given on the machine's rating plate.

The maximum speed of the machine is a measurement that does not concern the machine operator and is not even stated on the machine, but is used for inspection purposes by the workshops. The maximum speed is the highest permissible speed that the drive shaft may reach with no load on the disc and the engine at full throttle. According to a European standard the maximum speed must not exceed the rated speed on the machine's rating plate by more than 10%. For example, a machine with a speed rating of 5,100 rpm must never exceed a maximum speed of $5,100 \times 1.1 = 5,610$ rpm.

CUTTING DISCS



Peripheral speed

Peripheral speed is measured in metres per second and is directly proportional to the rotational speed. The definition of peripheral speed is the speed at which a given point on the edge of the blade travels through the air. It is also the speed that, for example, a given diamond particle will have in relation to the point of contact during cutting. Another way of visualising peripheral speed is to imagine the power cutter as a vehicle, and the cutting disc as its driving wheel. A rotational speed of 5,100 rpm with a 300 mm cutting disc would give the following speed:

Circumference of disc: $0.3 \text{ m} \times \pi = 0.94 \text{ m}$. Rotational speed of disc: 5,100 rpm = 85 rps. Circumference x rotational speed = peripheral speed. So the peripheral speed = $0.94 \text{ m} \times 85 \text{ rps} = 80 \text{ m/s}$.

Expressed in terms of a vehicle travelling down a road, this speed is roughly 290 km/hr!

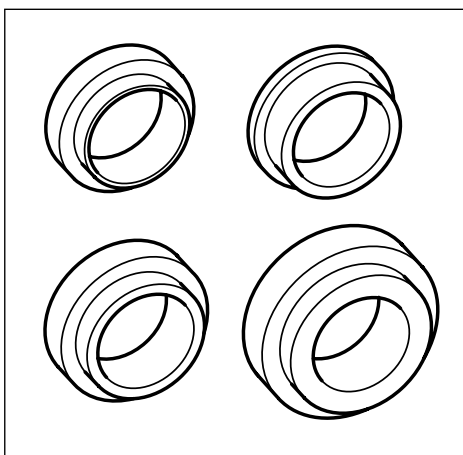
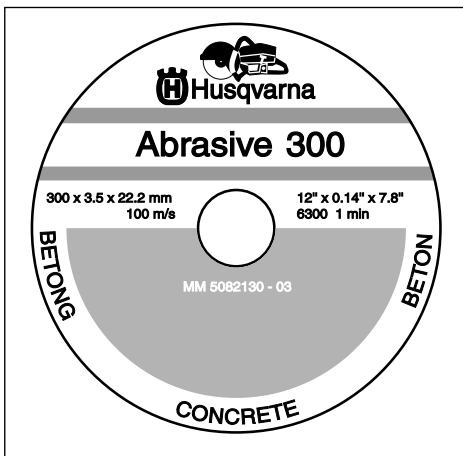
Husqvarna cutting discs are designed for a peripheral speed of 100 m/s. A European colour code prescribes a green label for a maximum peripheral speed of 100 m/s, while a red label indicates a maximum speed of 80 m/s.



Types of disc

Hand-held power cutters require cutting discs that are approved for use with hand-held power cutters. It is not permitted to use blades intended for bench-mounted power cutters, for example. The speed marking must be equal to or higher than that given on the machine's rating plate. Husqvarna cutting discs are naturally designed for hand-held cutting.

- **Diamond blades** are a type of cutting disc that is becoming increasingly common for cutting stone, concrete, asphalt and similar materials. The main advantage of a diamond blade is that it maintains practically the same cutting depth throughout its working life and has a high cutting speed. If used correctly it is a very economical blade. Husqvarna sells diamond blades for professional and occasional users. The range includes several grades, which should be chosen to suit the material to be cut. Diamond blades are available for both wet and dry-cutting.
- **Abrasive discs**, which were originally the commonest type of disc for cutting all materials, are now used mainly for cutting metal. Husqvarna sells abrasive discs for cutting steel and concrete, and its concrete discs are also suitable for cutting soft steel, such as reinforcing bar and structural steel.
- **Husqvarna Rescue** is a special blade with carbide bits. It can only be used by trained personnel in rescue work.













Replaceable disc bushings

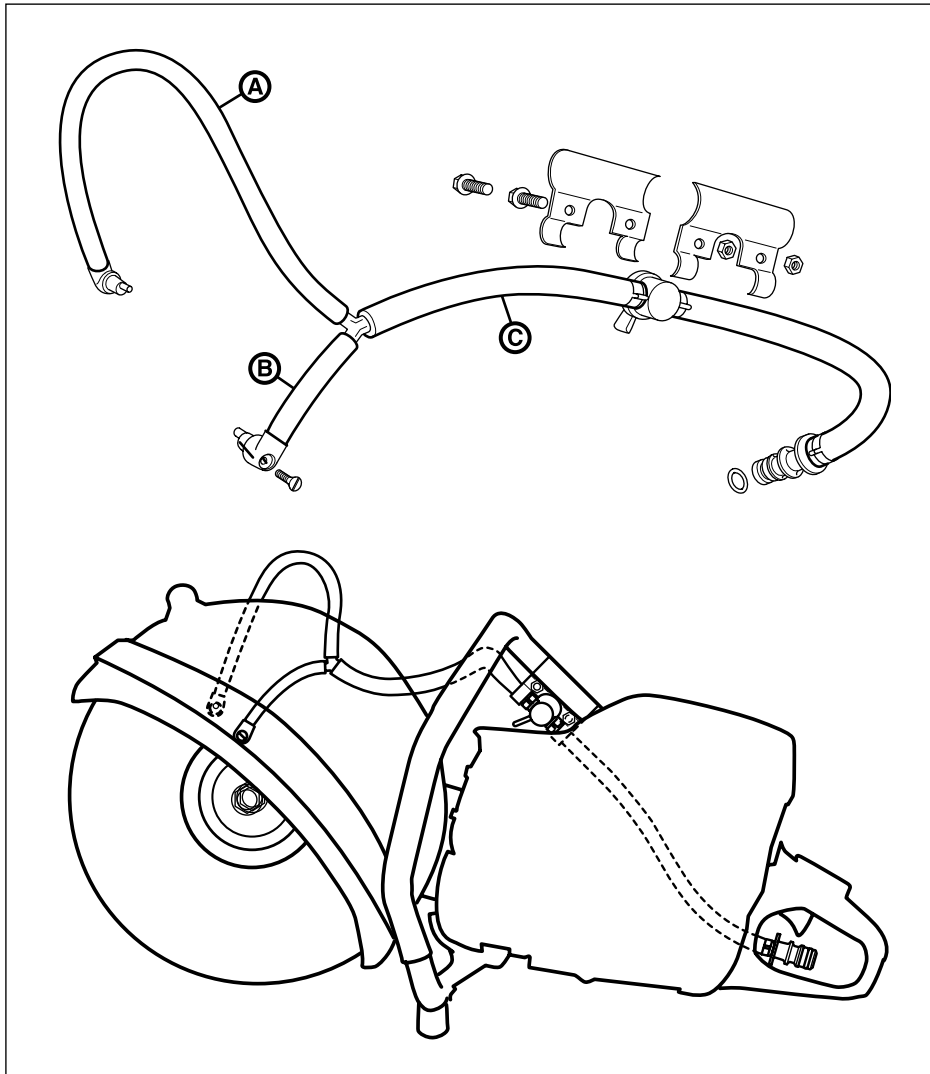
Husqvarna power cutters can be fitted with a centre bushing to fit various standard disc sizes. Replaceable bushings are available for 20.0 mm, 22.2 mm, 25.4 mm (1") and 30.5 mm hole diameters. The Husqvarna 371K/3120K Air Injection is supplied as standard with various centre bushings depending on the country of sale.

CUTTING DISCS

Which type of disc should I use?

	Hard steel	Stainless steel	Soft steel + other metals	Granite	Hard brick	Pre-cast concrete	Hard concrete	General concrete	Concrete pipe	Abrasive building block	Soft brick	Green concrete	Asphalt
 HDC 410													
 HDC 500													
 HDA 900													
 Steel													
 Concrete													

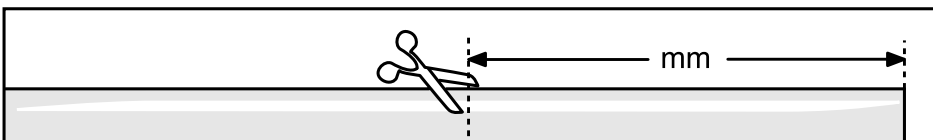
WET-CUTTING WITH DIAMOND DISCS



Wet-cutting practically eliminates cutting dust, while also cooling the cutting disc, which extends its working life.

The disc guard has been prepared to accept Husqvarna's wet-cutting kit.

The wet-cutting kit has been redesigned and can be fitted very quickly. The nozzles are easily fitted to the disc guard and secured in place by tightening a single screw from the outside. A tap mounted on the handle allows the water flow to the cutting disc to be controlled. The supply hose is now fitted with a standard Gardena coupling.



Husqvarna Power Cutter		(A)	(B)	(C)
371K	12"	180	50	290
371K	14"	230	50	290
3120K	14"	230	50	340
3120K	16"	290	50	340

For Husqvarna Parts Call 606-678-9623 or 606-561-4983

Husqvarna
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