Husqvarna

Workshop manual

K770

English

651 - 001 - 27.06.2018

Contents

1 Introduction

1.1 Document description

This manual gives a full description of how to do maintenance and repair on the product. It also gives safety instructions that the personnel must obey.

1.2 Target group

This manual is for personnel with a general knowledge of how to do repair and do servicing. All personnel that do repair or do servicing on the product must read and understand the manual.

1.3 Revisions

Changes to the product can cause changes to the maintenance work and spare parts. Separate information is sent out for each change.

Read the manual together with all received information about changes to maintenance and spare parts for the product.

1.4 Safety

WARNING: All personnel that repair or do servicing on the product must read and understand the safety instructions in this workshop manual.

1.5 Servicing tools

The manual gives information about necessary servicing tools. Always use original tools from Husqvarna.

2 Safety

2.1 Safety definitions

The definitions below give the level of severity for each signal word.

WARNING: Injury to persons.

CAUTION: Damage to the product.

Note: This information makes the product easier to use.

2.2 General safety instructions

- Do not repair the product unless you have read and understood this workshop manual.
- The service center where the product is repaired must have safety equipment approved by local bylaws.
- The product is examined and approved only with the equipment given or recommended by the manufacturer.
- Prevent health and safety risks. All personnel must obey laws and requirements when they do the procedures given in this manual.
- Obey the local waste regulations.
- Always make sure that all nuts and bolts are correctly tightened.
- Use protective gloves and eye protection. Goggles must obey the ANSI Z87.1 for US or EN166 for EU countries.
- When using compressed air, do not point it to your body. Air can go into the bloodstream.
- Use hearing protection when the engine is started.
- The product can make sparks and cause ignition of flammable materials.
- Replace all damaged or missing warning symbol decals.
- Gasoline and its fumes are poisonous.
- Gasoline can cause damage to the eyes and the skin.
- Gasoline can cause breathing problems.
- Gasoline is flammable.

2.3 Symbols on the product

WARNING: Careless or incorrect use can result in injury or death to the operator or others.

Read the manual carefully and make sure you understand the instructions before using the product.

Always put on personal protective equipment:
- Hearing protection
- Protective goggles or a visor
- Breathing mask.

This product in compliance with applicable EC directives.

WARNING! Dust from cutting can cause breathing problems. Use breathing protection. Do not breathe exhaust fumes. Always make sure there is good airflow.

WARNING! Sparks from the cutting blade can cause a fire in materials such as, gasoline, wood, fabric and dry grass.

WARNING! Kickbacks can be sudden, fast and can cause injuries. Read and understand the instructions in the manual before using the product.

Make sure the cutting disc is not damaged.

WARNING! Do not use circular saw blades.

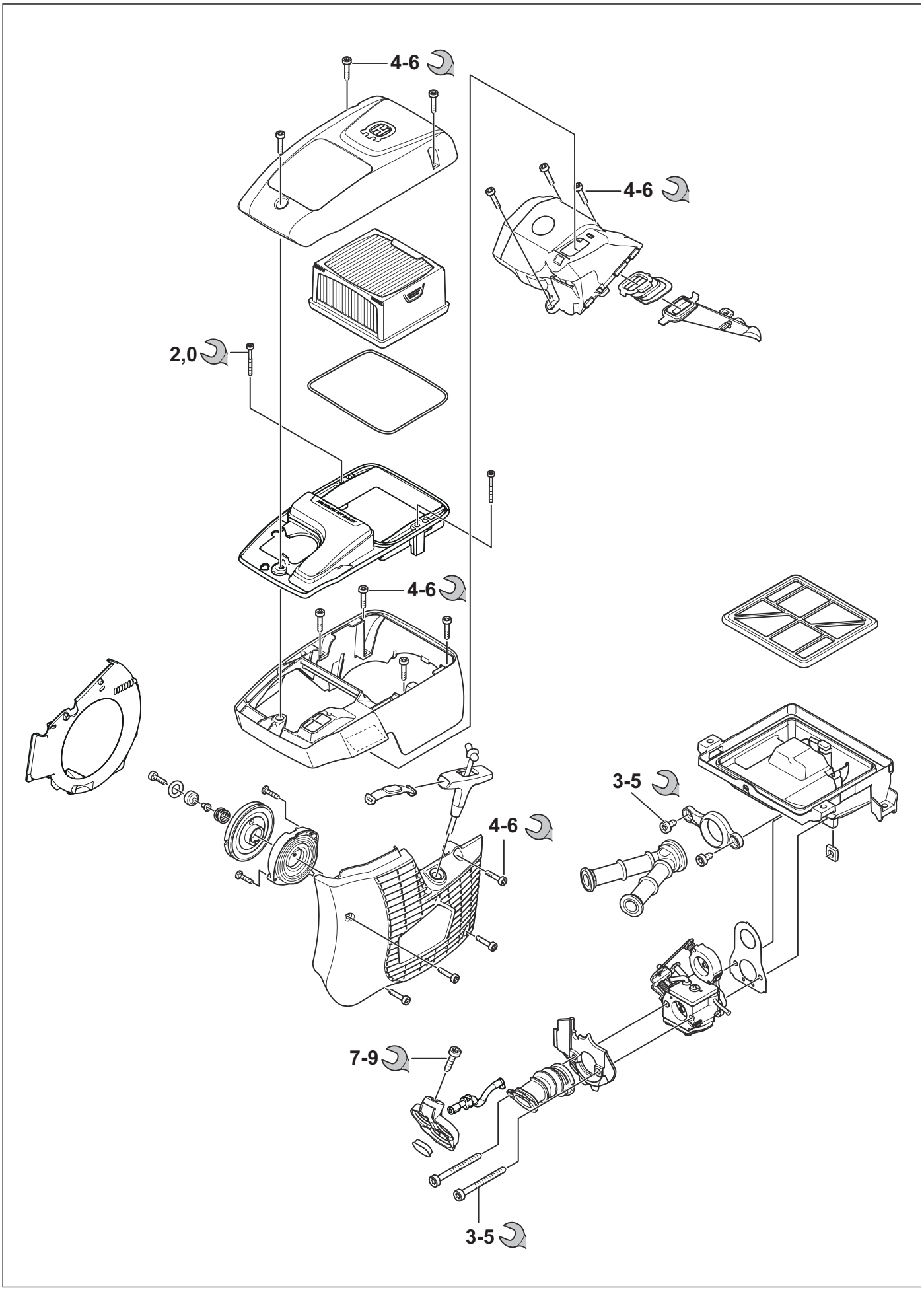
Note: Other symbols/decals on the product refer to special certification requirements for some markets.

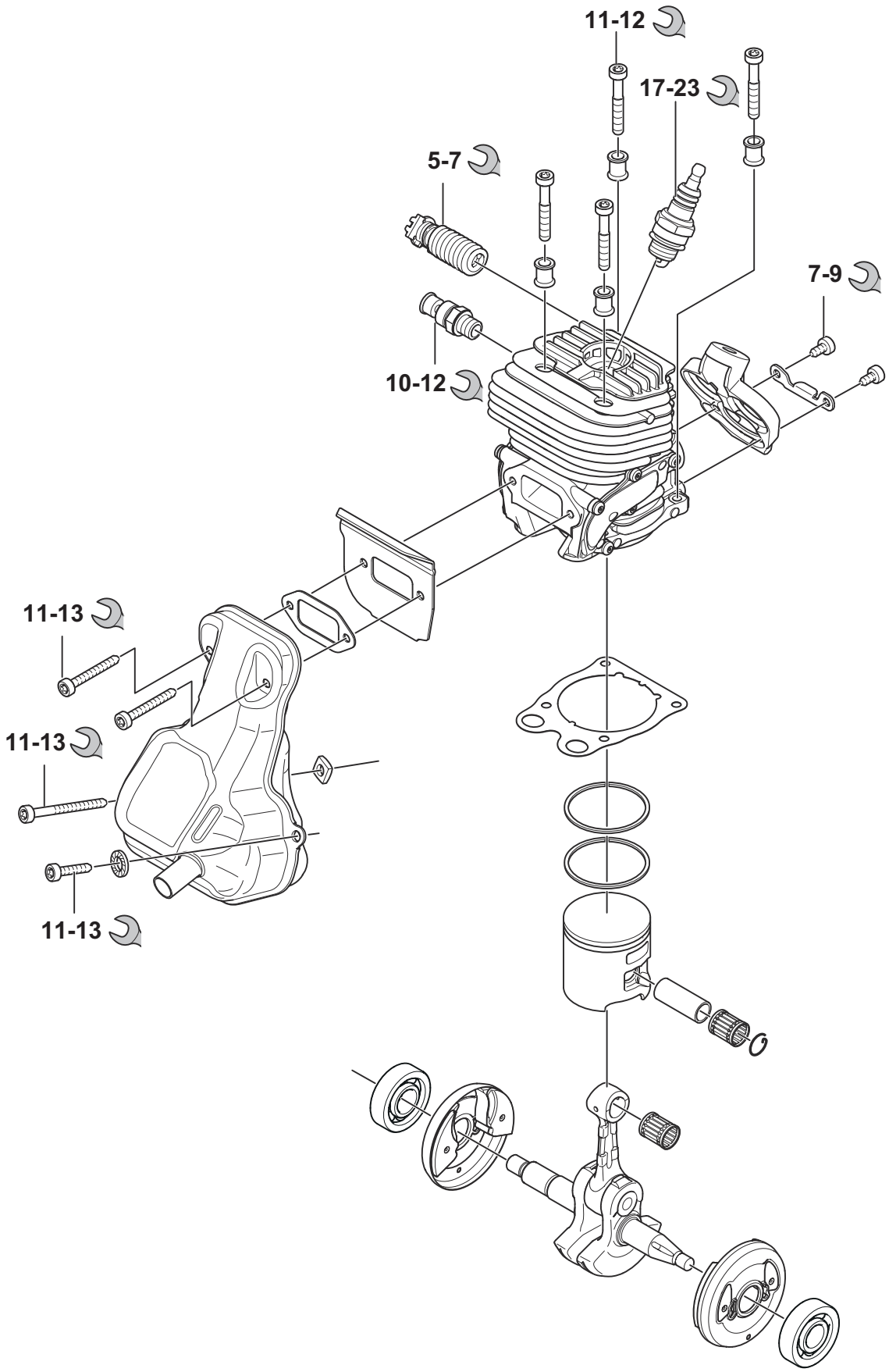
3 Servicing data

3.1 Symbols in the diagrams

Tightening torque, Nm

3.2 Tightening torques

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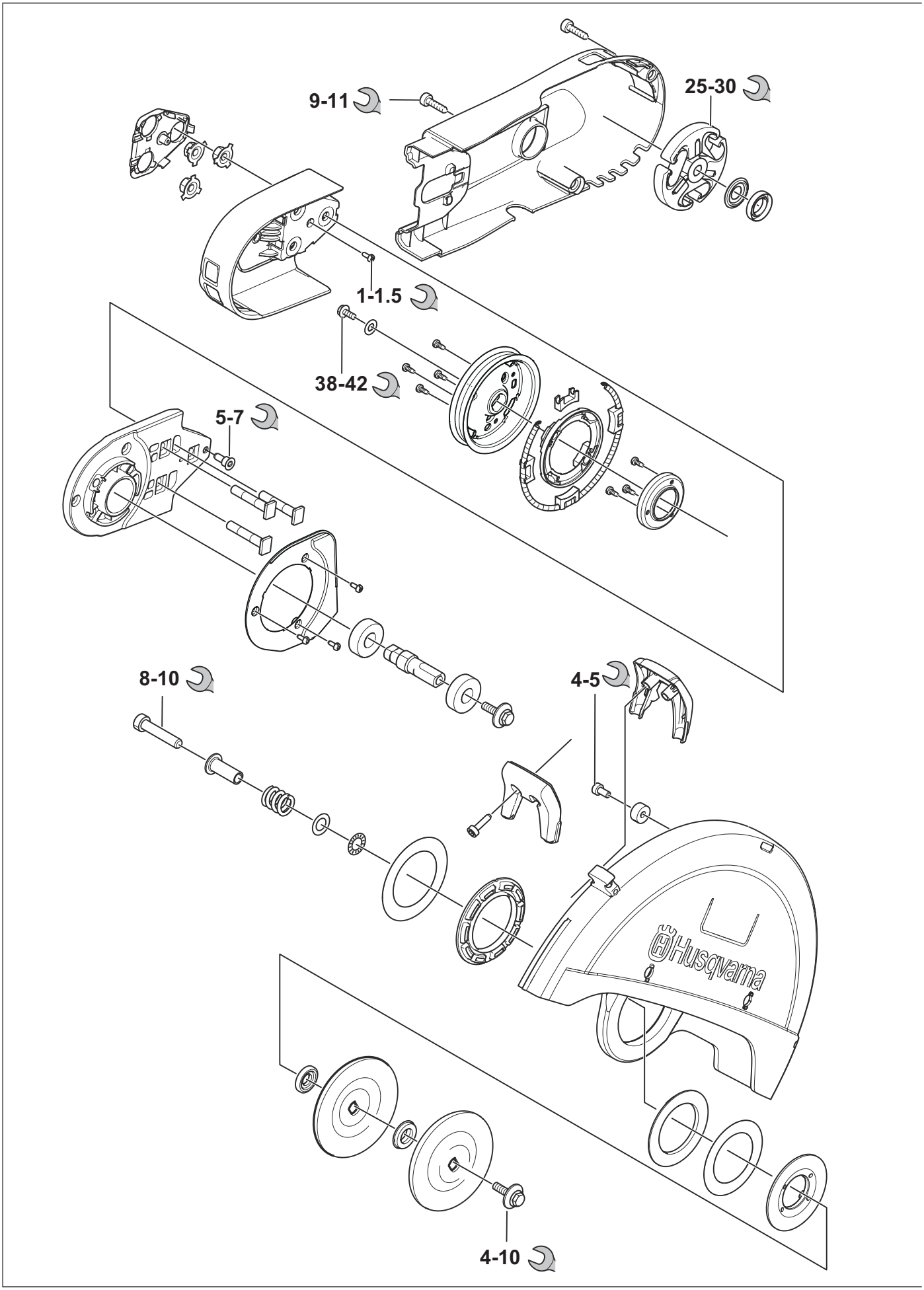
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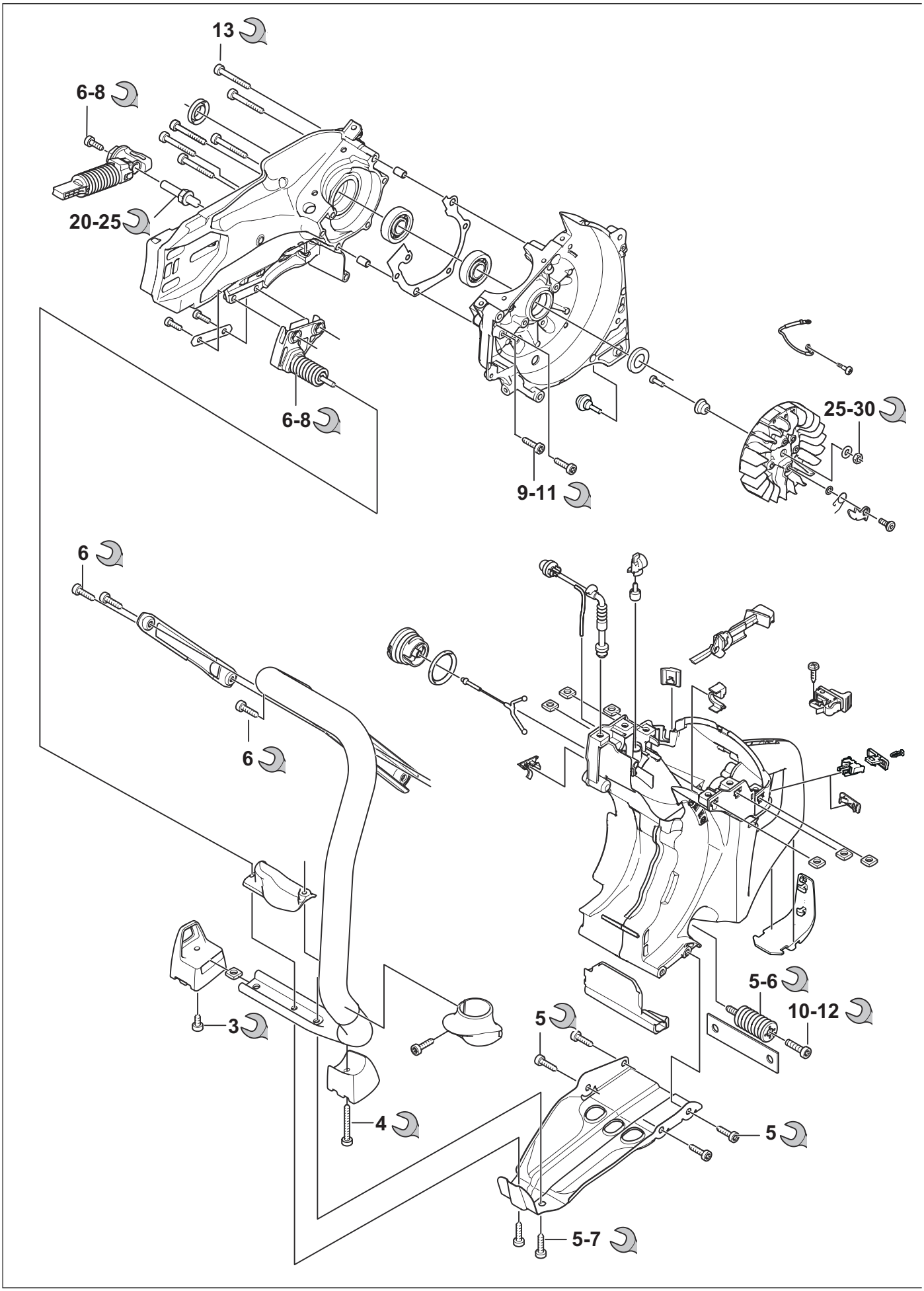
Husqvarna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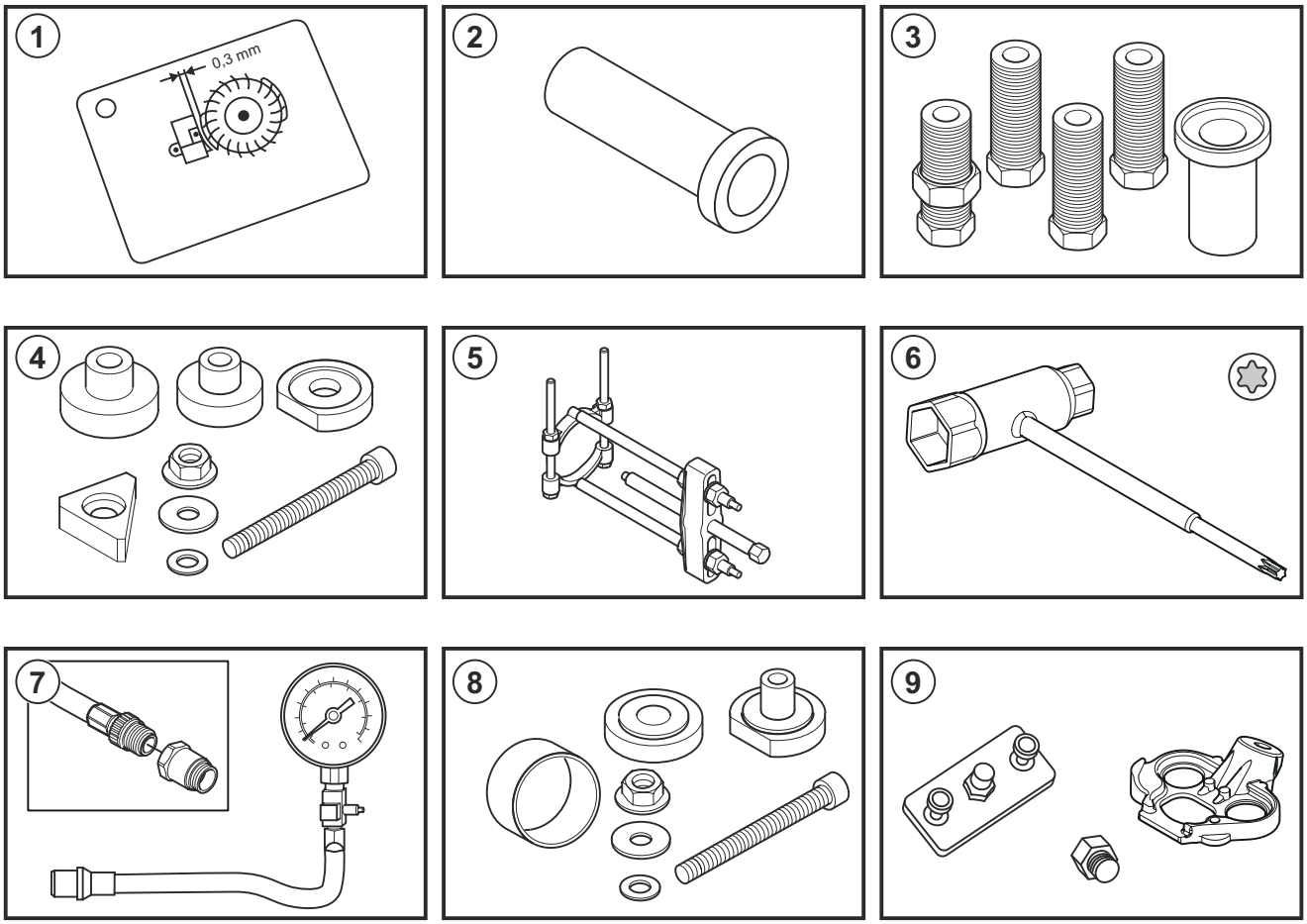
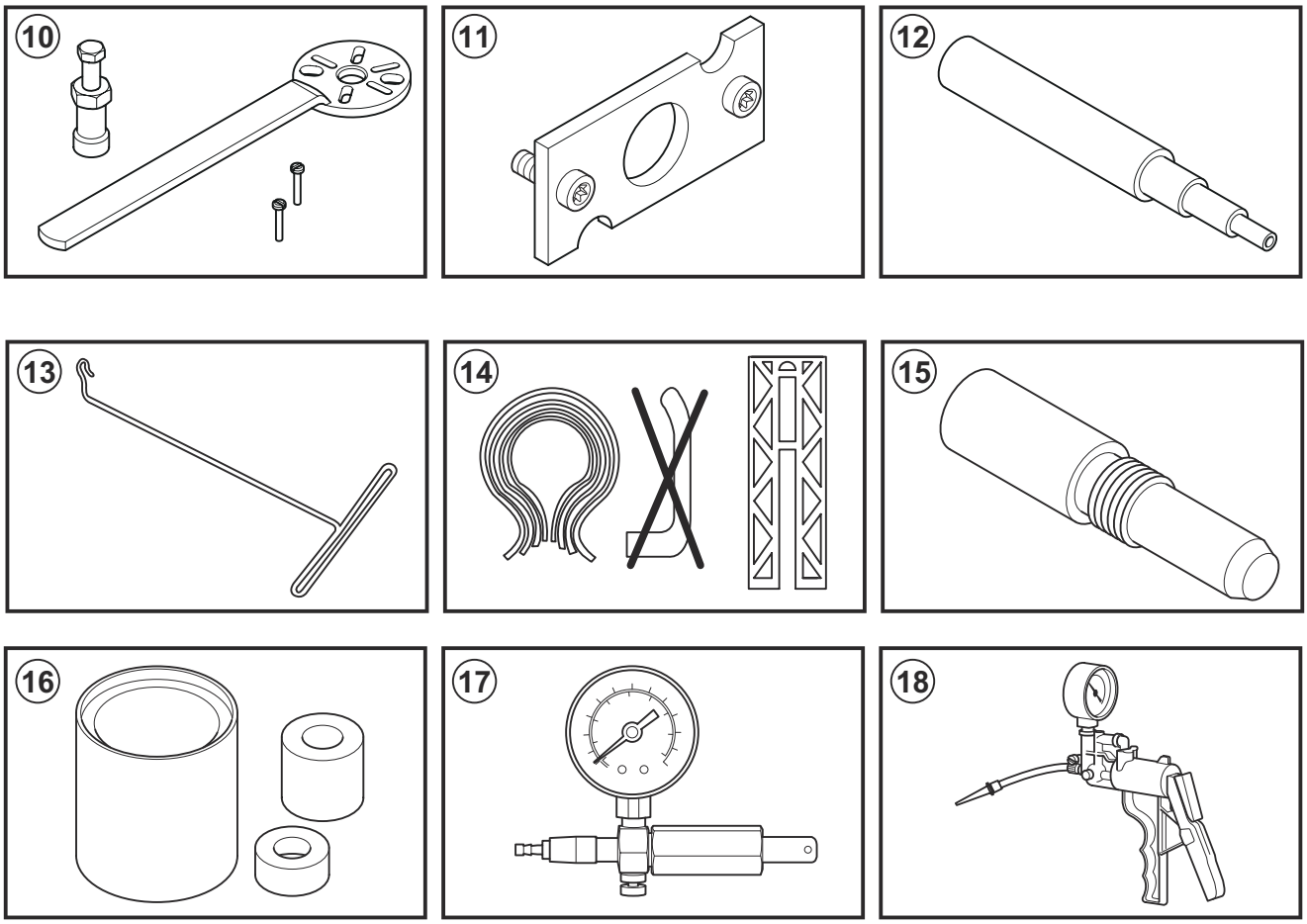
4.1 Servicing tools overview



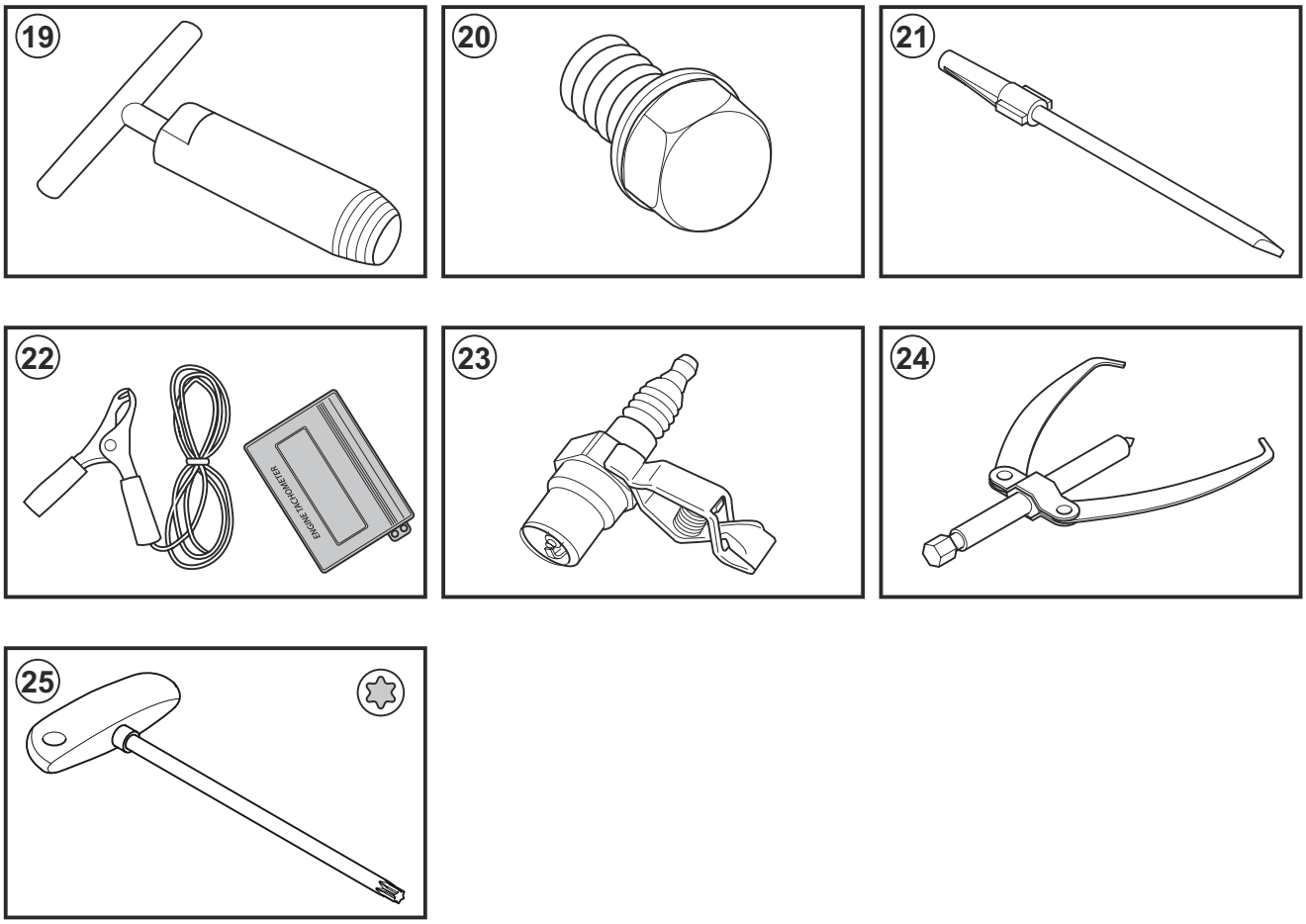
Position	Designation	Used for	Order No./ Source
1	Air clearance gauge	To adjust the air clearance between the ignition module and the flywheel.	502 51 34-02
2	Assembly punch	To assemble the sealing rings of the crankshaft in the crankcase.	502 50 82-01
3	Bearing press	To disassemble the primary bearing and assemble the crankshaft.	544 10 36-02
4	Bearing press	To assemble the primary bearing and assemble and disassemble blade shaft bearing and axle.	506 37 61-02
5	Bearing puller	Remove the primary bearing from the crankshaft.	531 00 48-67
6	Combination wrench	General.	506 38 26-01
7	Compression tester	To examine the compression in the cylinder.	531 03 16-86
8	Bearing press	To disassemble and assemble the clutch drum ball bearing.	504 56 79-01
9	Cylinder seal	To examine the crankcase for leaks.	544 10 33-01

4.2 Servicing tools overview



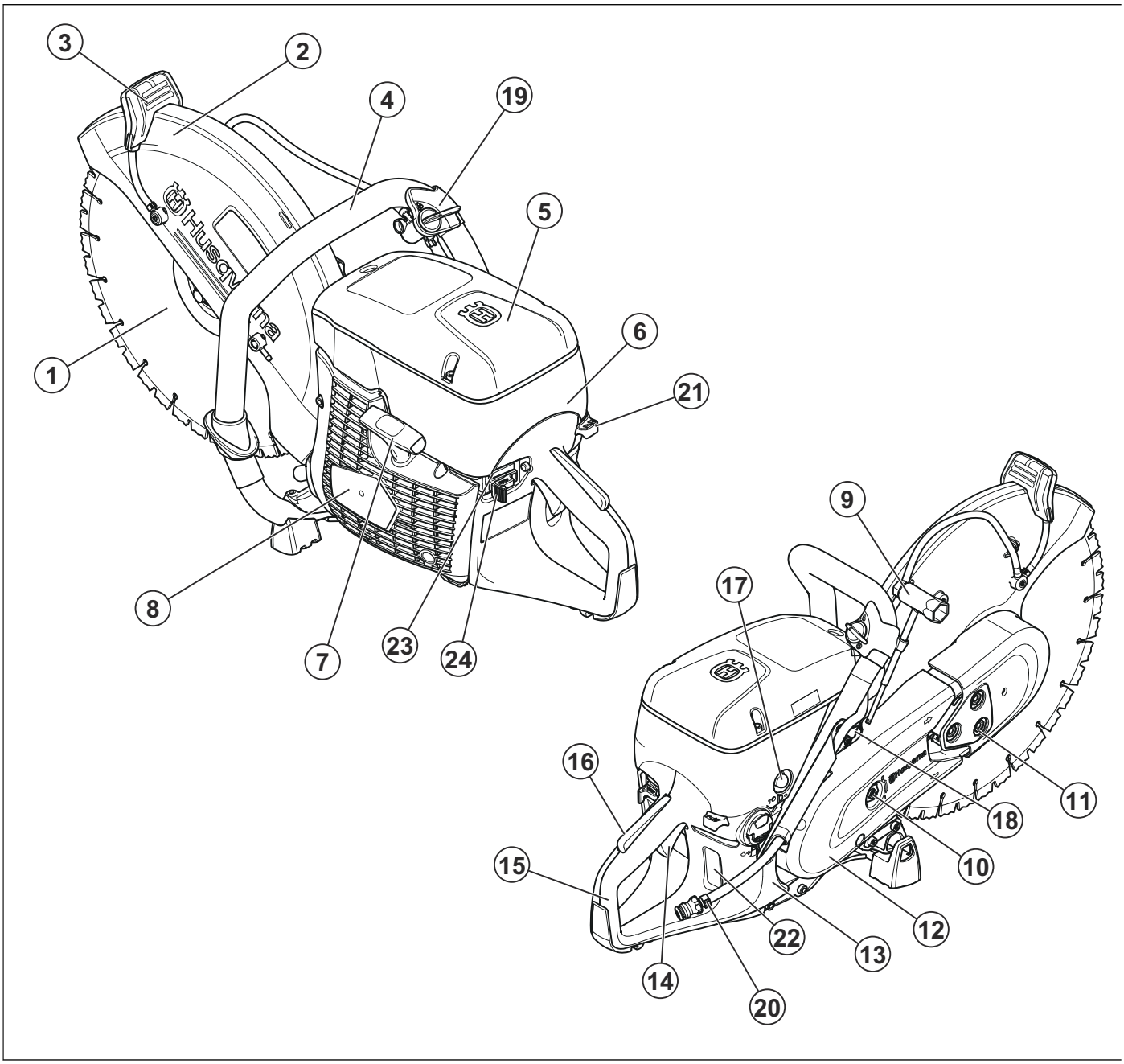
Position	Designation	Used for	Order No./Source
10	Flywheel puller	To disassemble the flywheel.	502 51 49-02
11	Grip plate	To divide the crankcase.	544 06 00-02
12	Gudgeon pin punch	To disassemble and assemble the gudgeon pin.	505 38 17-05
13	Hose catcher	To catch the fuel filter in the tank.	502 50 83-01
14	Kit for piston service	To do service on the piston.	502 50 70-01
15	Piston stop	To disassemble the clutch.	504 91 06-05
16	Pressing device	To disassemble and assemble the blade shaft bearings and axle.	575 96 20-01
17	Pressure tester	To examine the carburetor, fuel lines and check valve.	501 56 27-01
18	Pressure tester	To examine the crankcase for leaks.	531 03 06-23

4.3 Servicing tools overview



Position	Designation	Used for	Order No./ Source
19	Puller	To disassemble the sealing rings of the crankcase in the crankcase.	504 91 40-01
20	Sealing plug	To examine the crankcase for leaks.	503 55 22-01
21	Special screwdriver	To adjust the idle speed.	501 60 02-03
22	Tachometer	To adjust the idle and maximum speed.	502 71 14-01
23	Test spark plug	To do service on the ignition unit.	502 71 13-01
24	Universal puller	To disassemble the support washer of the clutch on the crankshaft. To divide the crankcase.	504 90 90-02
25	Key Torx T27	General use.	502 71 27-02

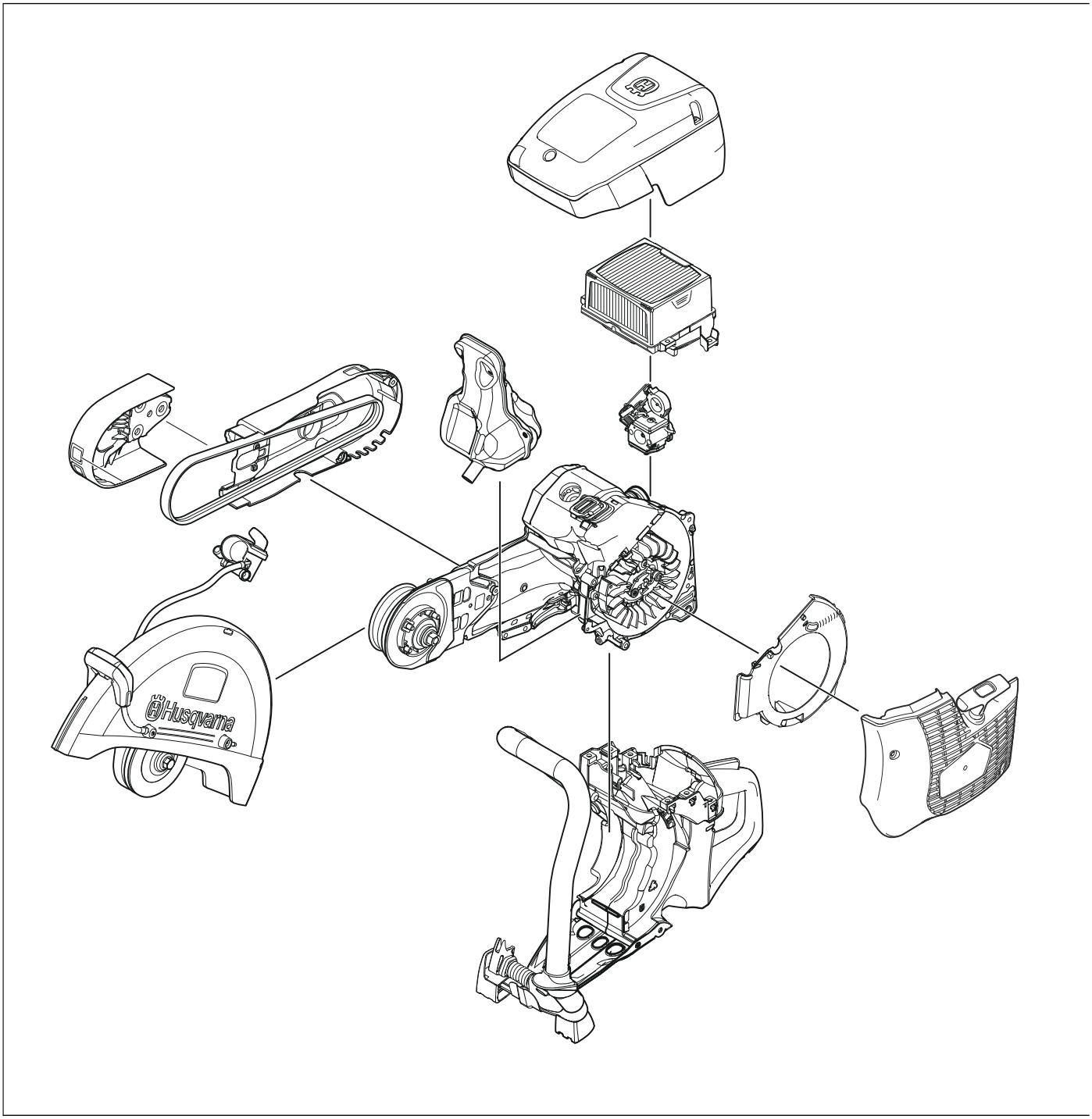
5.1 Components



1. Cutting blade
2. Blade guard
3. Handle for the blade guard
4. Front handle
5. Air filter cover
6. Cylinder cover
7. Starter rope handle
8. Starter
9. Combination wrench
10. Belt adjustment screw
11. Lock screws for belt adjustment
12. Rear belt guard
13. Fuel tank
14. Throttle control
15. Rear handle
16. Throttle trigger lock
17. Air purge bulb
18. Decompression valve
19. Water valve with tool holder
20. Water connector
21. Choke lever
22. Viewing glass for fuel
23. Oil guard button
24. Stop switch

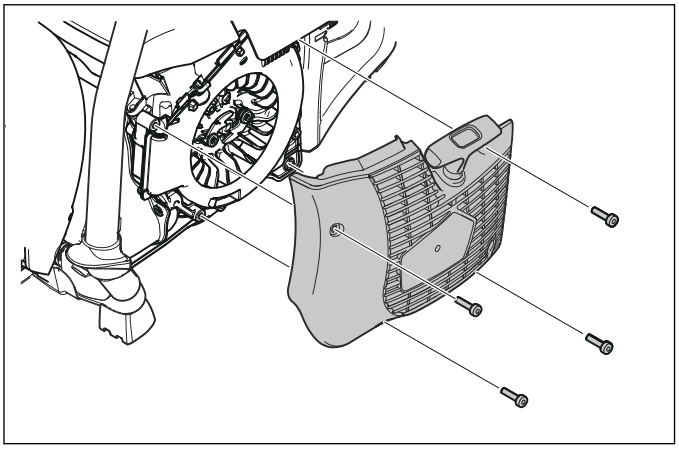
5.2 To disassemble into basic modules

This chapter shows how you can disassemble and assemble the product in its basic modules.



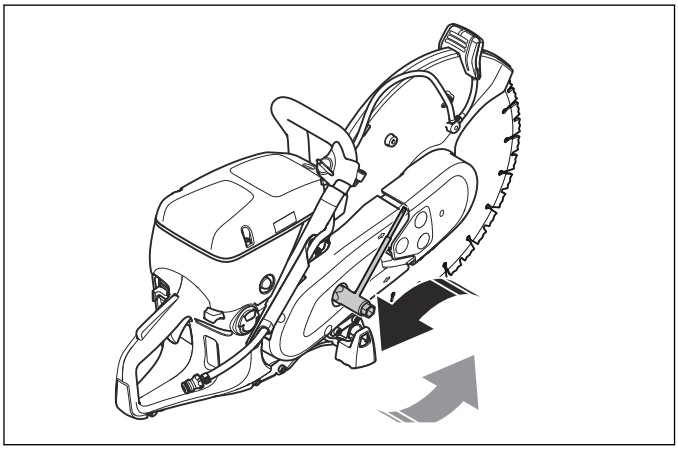
5.2.1 To remove the starter

1. Loosen the 4 screws on the guard.
2. Remove the starter.

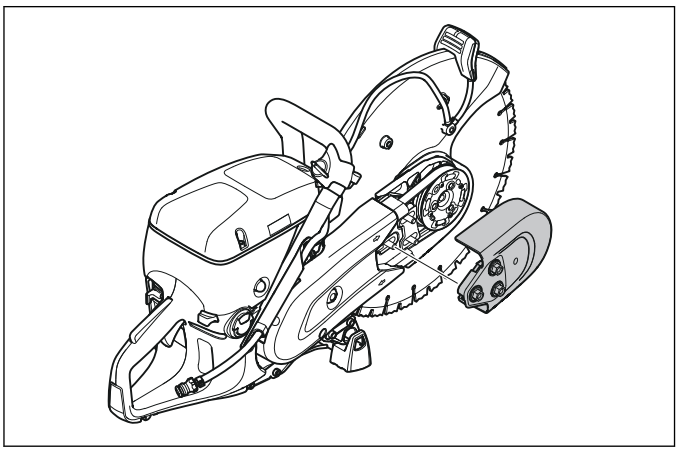


5.2.2 To remove the cutting head

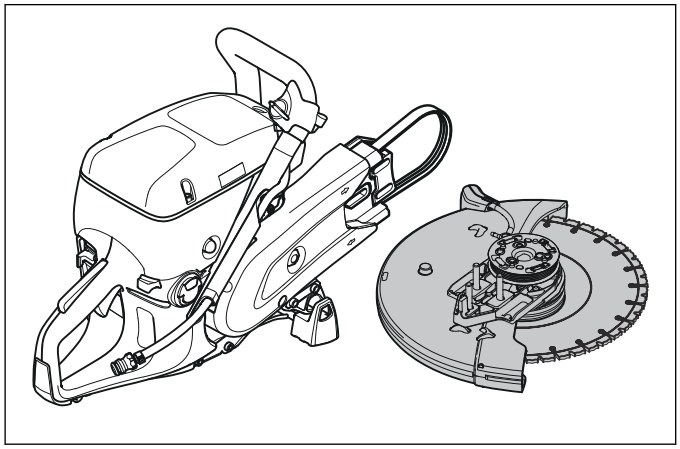
1. Loosen the nuts on the cutting head. Loosen the belt tension with the adjuster screw.



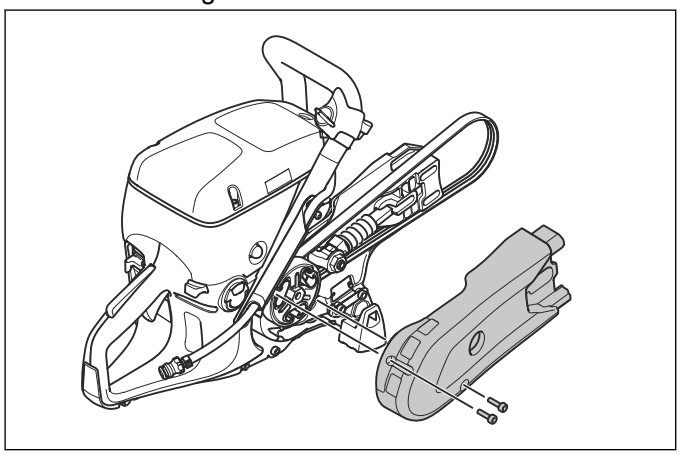
2. Loosen the hose clip, see *To disassemble the wet system on page 60*. Loosen the nuts and remove the front belt cover .



3. Loosen the hoses by the water valve. Remove the belt from the pulley and remove the cutting head.



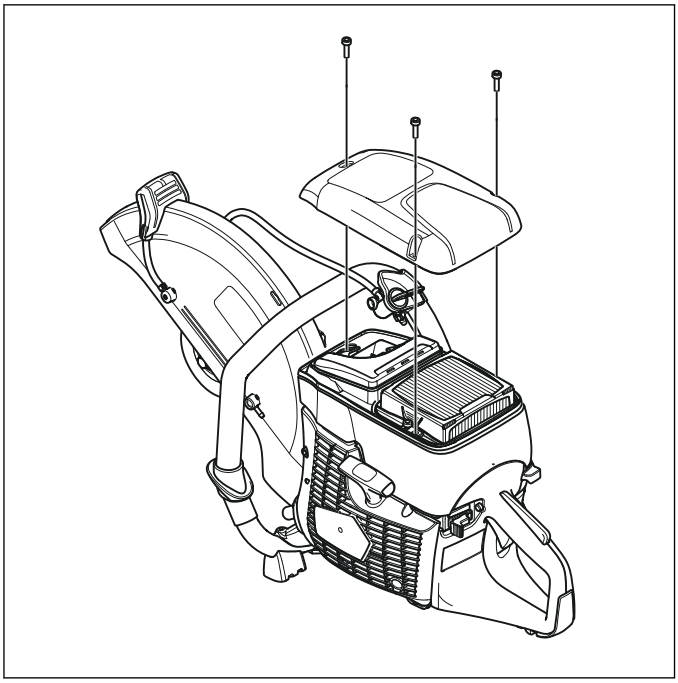
4. Remove the 2 screws on the rear belt guard. Remove the guard.



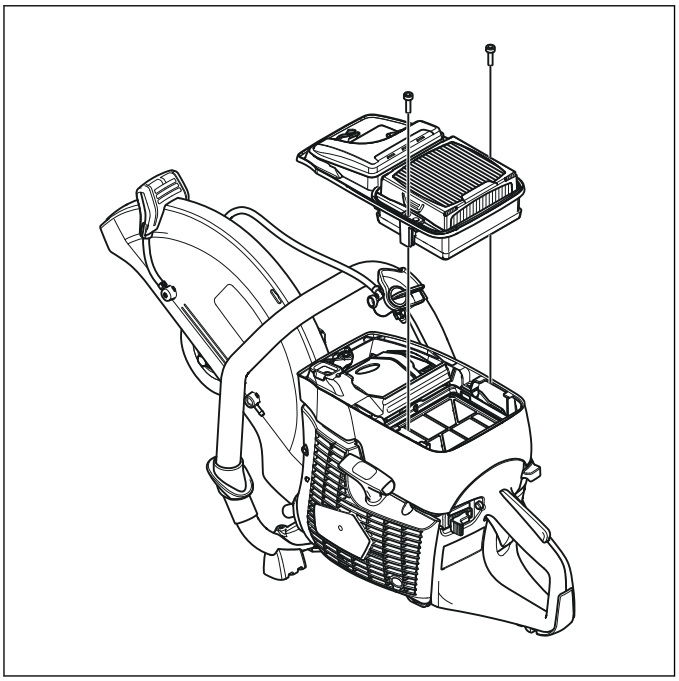
Note: Tightening torque when you assemble: 9–11 Nm.

5.2.3 To remove the air filter

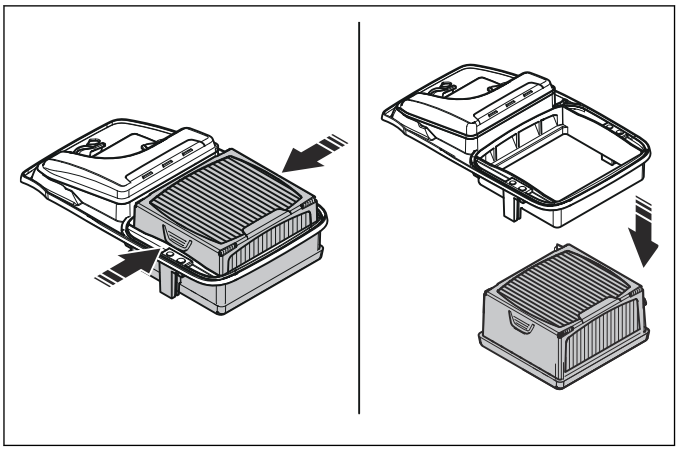
1. Remove the 3 screws and remove the cover.



2. Remove the 2 screws and remove the filter holder and the filter.

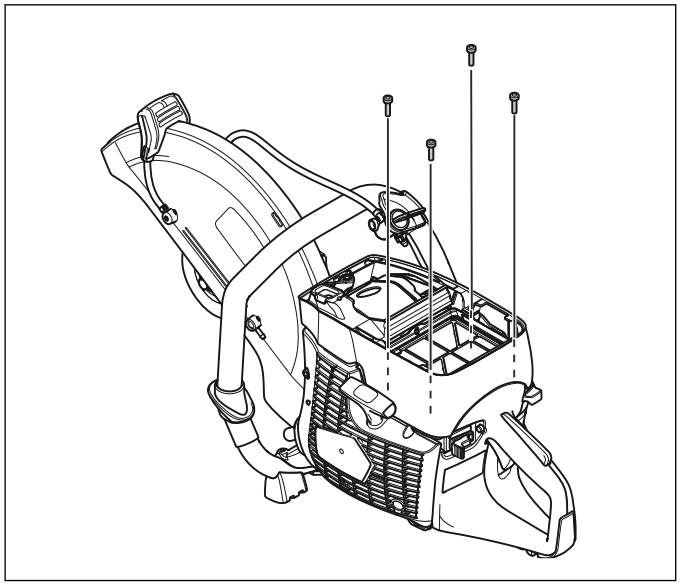


3. Remove the filter.

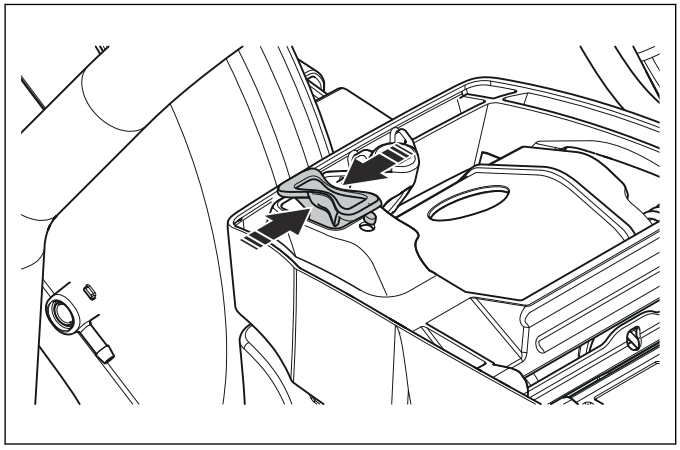


5.2.4 To remove the cylinder cover

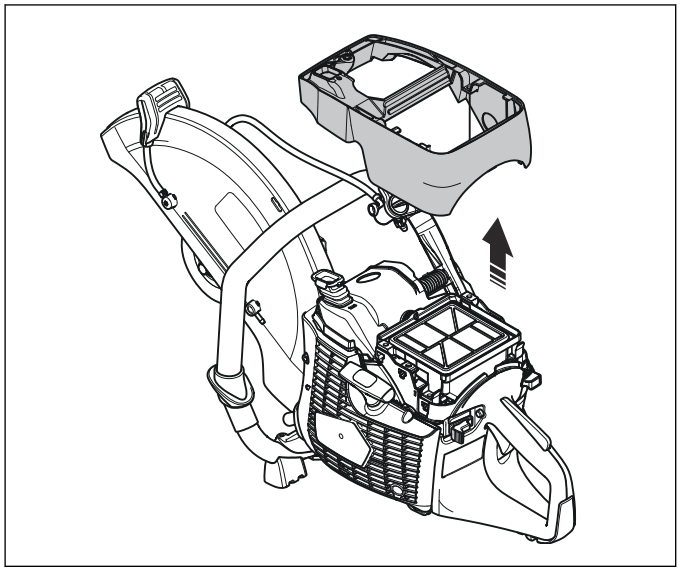
1. Remove the 4 screws.



2. Push the collar of the rubber seal through the hole.

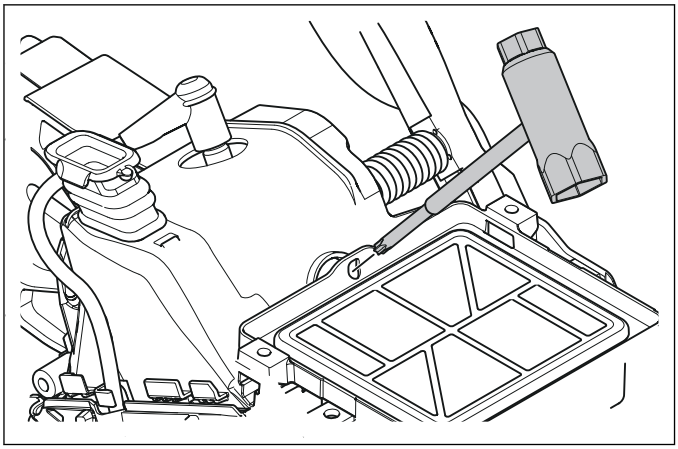


3. Remove the cylinder cover.

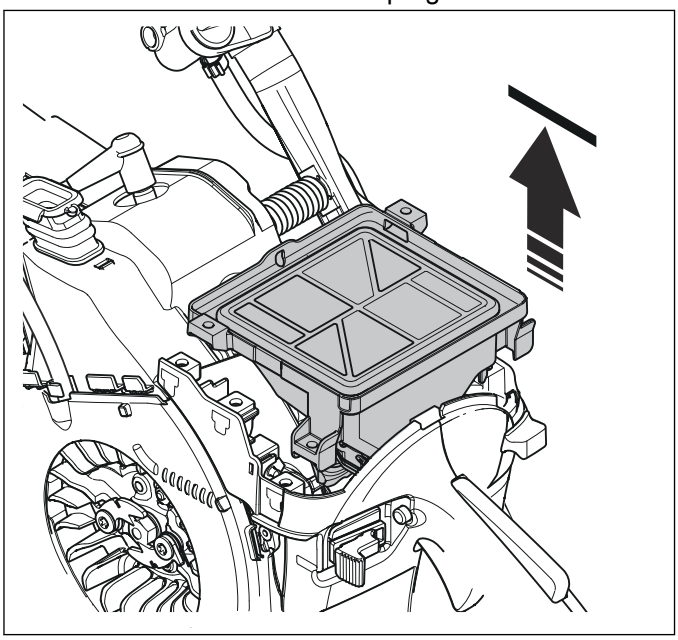


5.2.5 To remove the carburetor

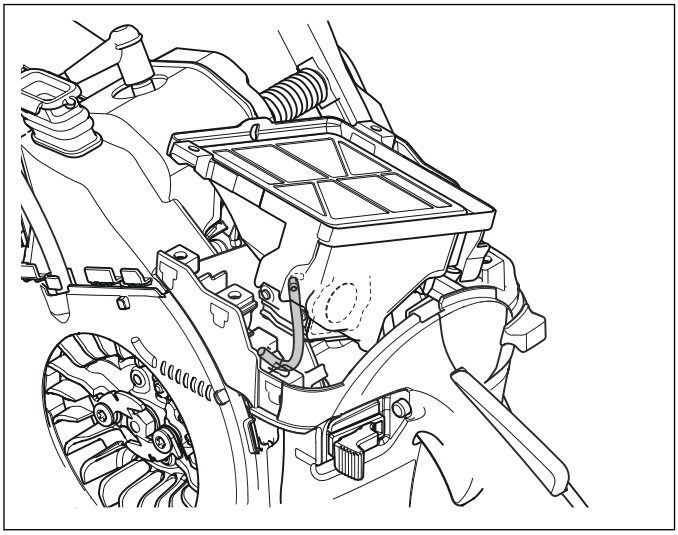
1. Remove the screw.



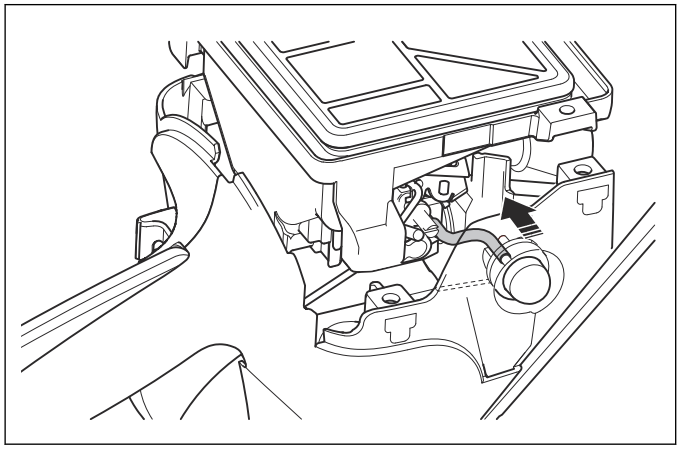
2. Lift the carburetor until you can access the gasoline hose and the hose to the air purge bulb.



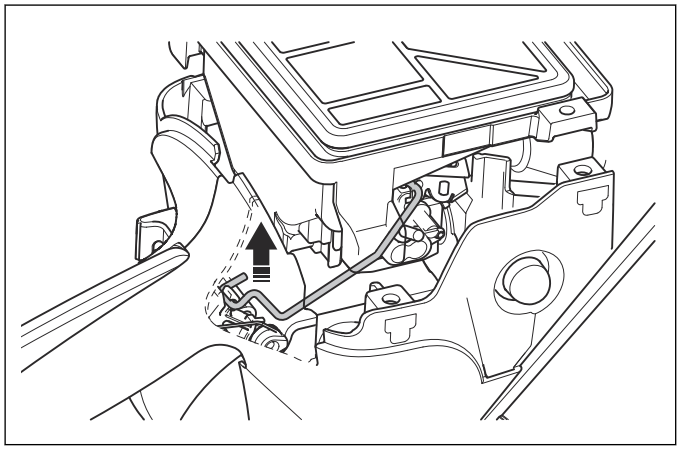
3. Remove the gasoline hose from the carburetor.



4. Remove the hose to the air purge bulb.



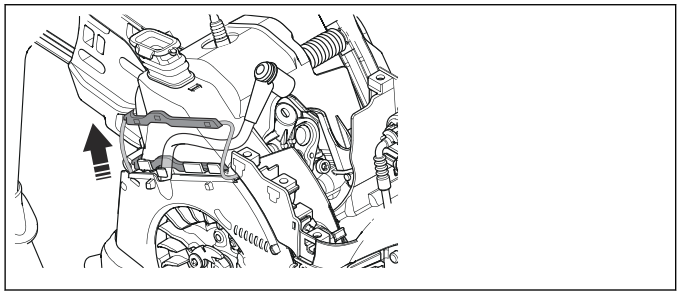
5. Remove the throttle rod from the throttle control.



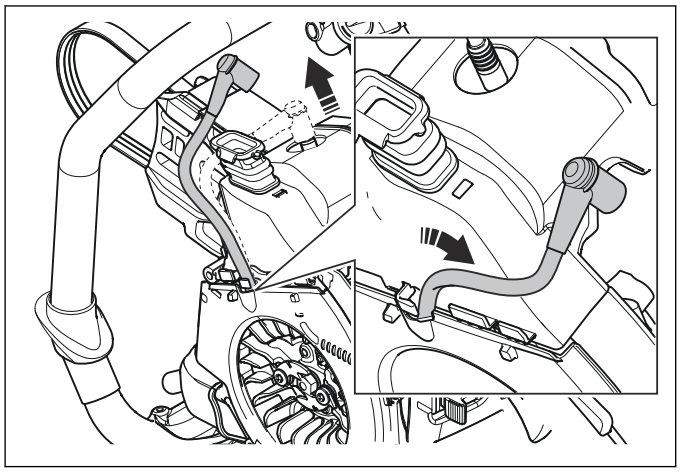
5.2.6 To remove the air duct

Remove the starter, air filter cover and cylinder cover before you remove the air duct.

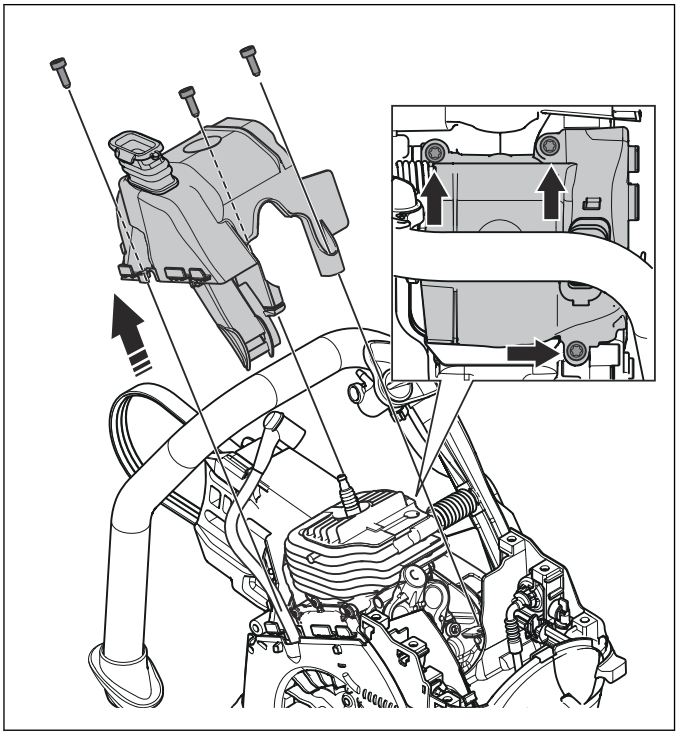
1. Lift the cable for the stop switch out of its holders.



2. Remove the ignition cable at the spark plug and lift the cable out of its holder in the cover.



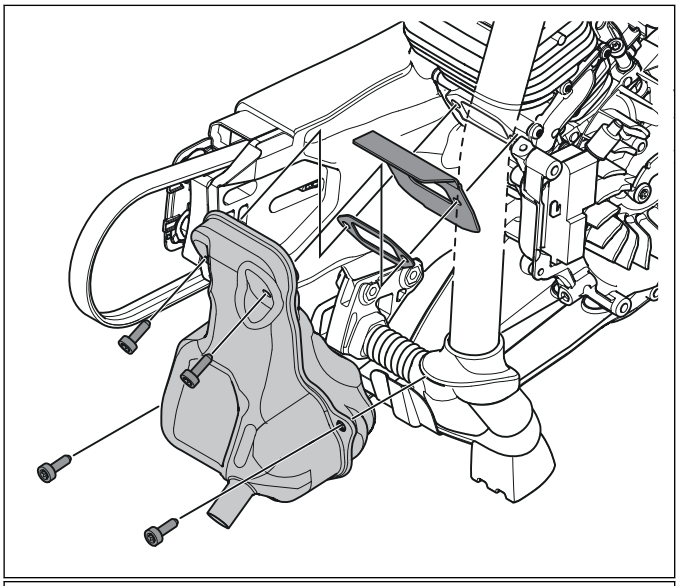
3. Remove the 3 screws on the air duct cover. Remove the air duct cover.

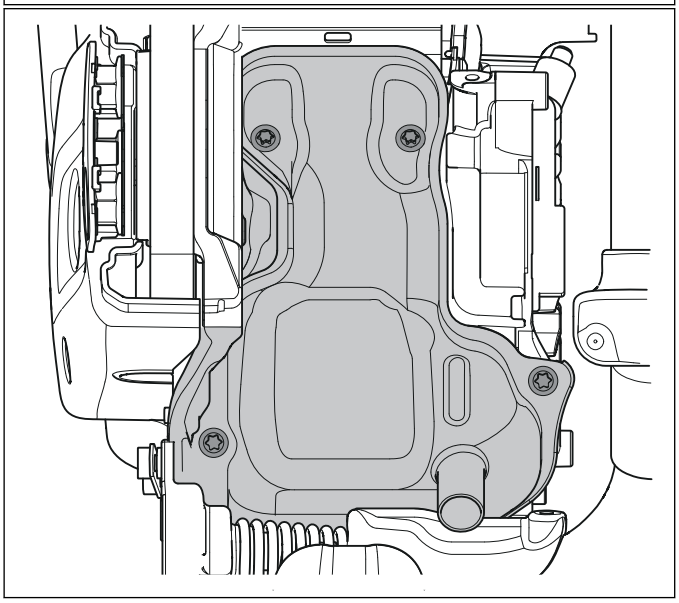


5.2.7 To remove the muffler

Remove the cutting head the and the starter before you remove the muffler.

1. Loosen the four screws.
2. Remove the muffler.





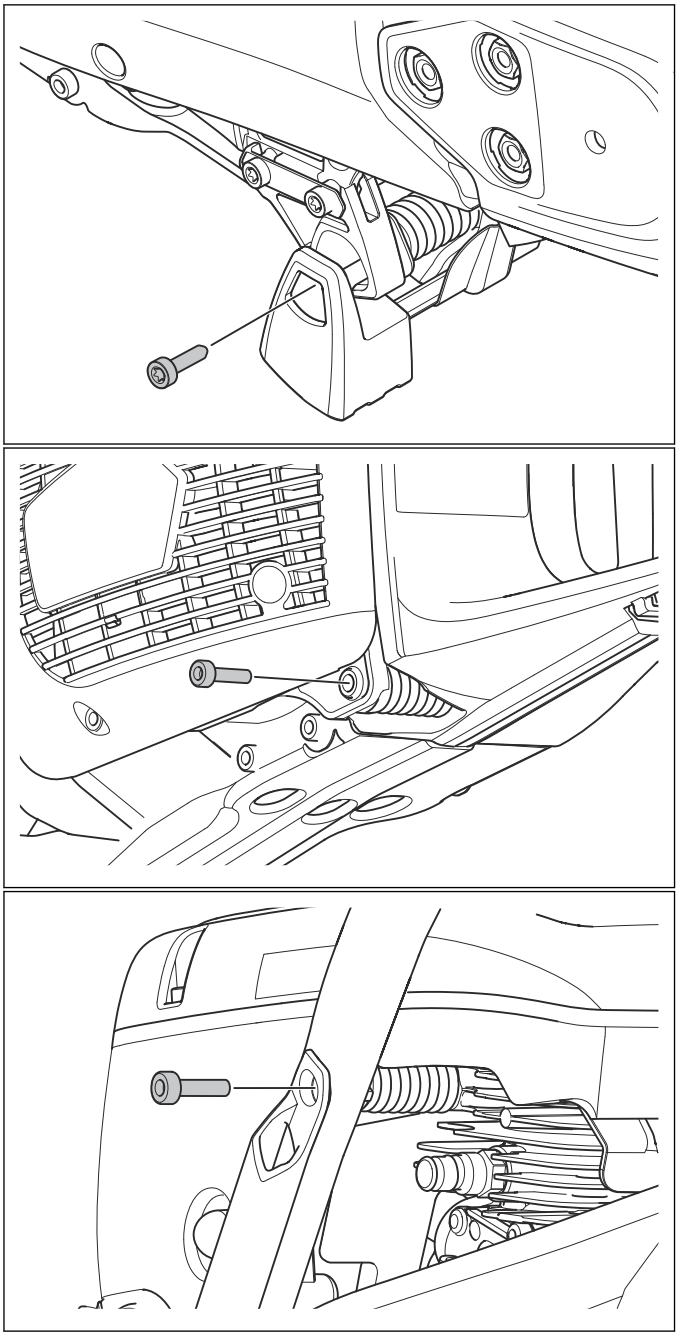
5.2.8 Before you remove the vibration absorbers

Before you remove the vibration absorbers you must remove the following parts.

- Air filter
- Cylinder cover
- Top air duct cover
- The screw holding the carburetor
- Starter
- Air duct cover
- Cable lug by the ignition module
- Cable at the ground point

5.2.9 To remove the vibration absorbers

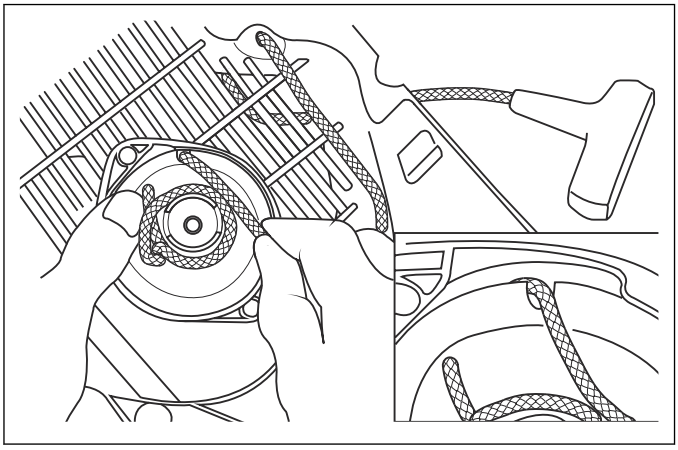
1. Remove the screws of the vibration dampers.



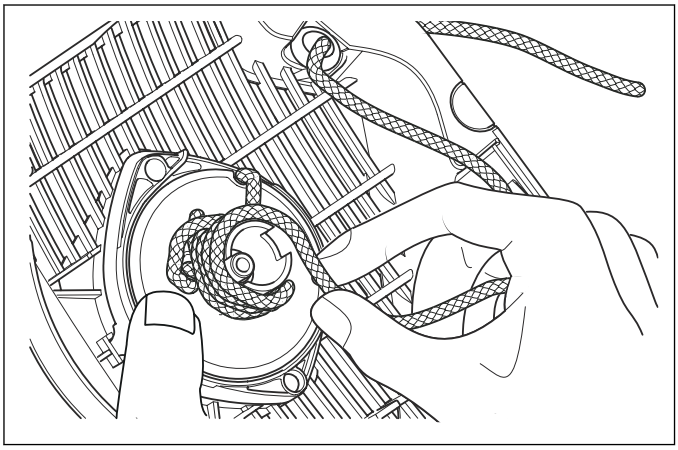
6.1 Starter

6.1.1 To remove the starter rope

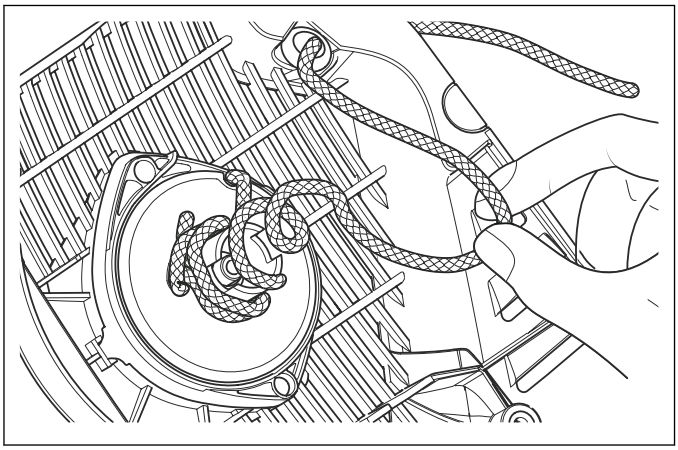
1. To remove the spring force from the return spring, pull out the starter rope approximately 12 in/30 cm. Hold the starter pulley with your thumb and put the starter rope in the notch on the starter pulley.



2. Let the starter pulley rotate slowly and wind up the starter rope on the metal sleeve.

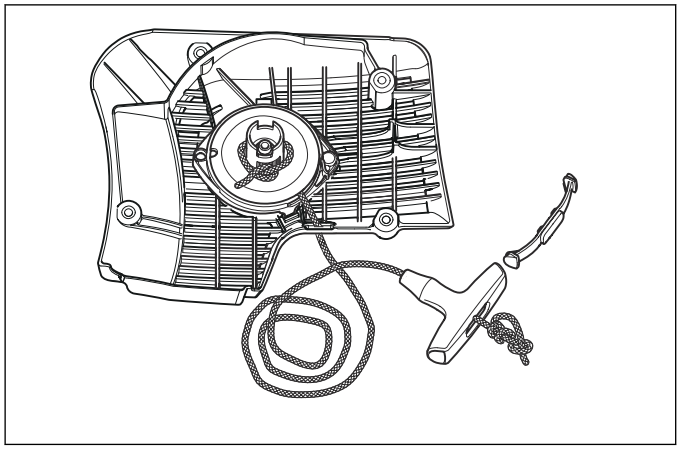


3. Remove the starter rope from the starter pulley.



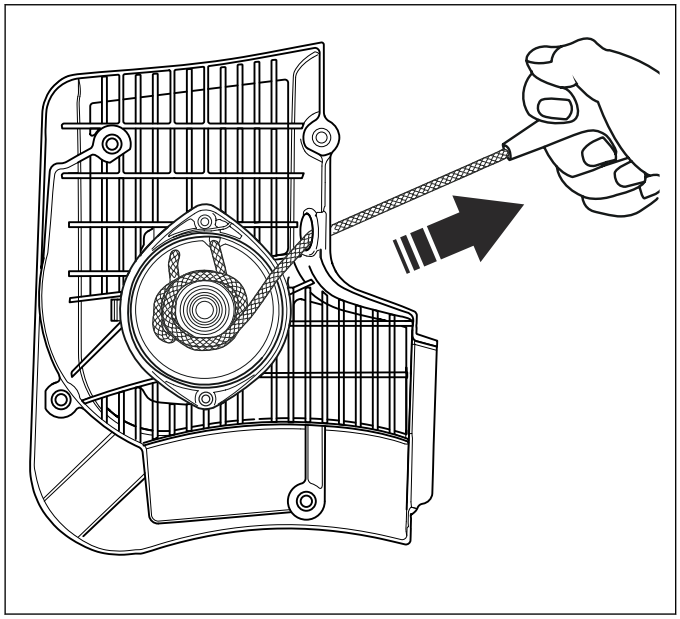
6.1.2 To attach the new starter rope

1. Put one end of the starter rope from the top through the hole in the starter pulley. Then pull it out through the notch for the starter rope. Pull out most of the starter rope but keep some to make a knot.
2. Put the other end through the cover and on through the handle. Make two knots as in the illustration.



6.1.3 To load the return spring

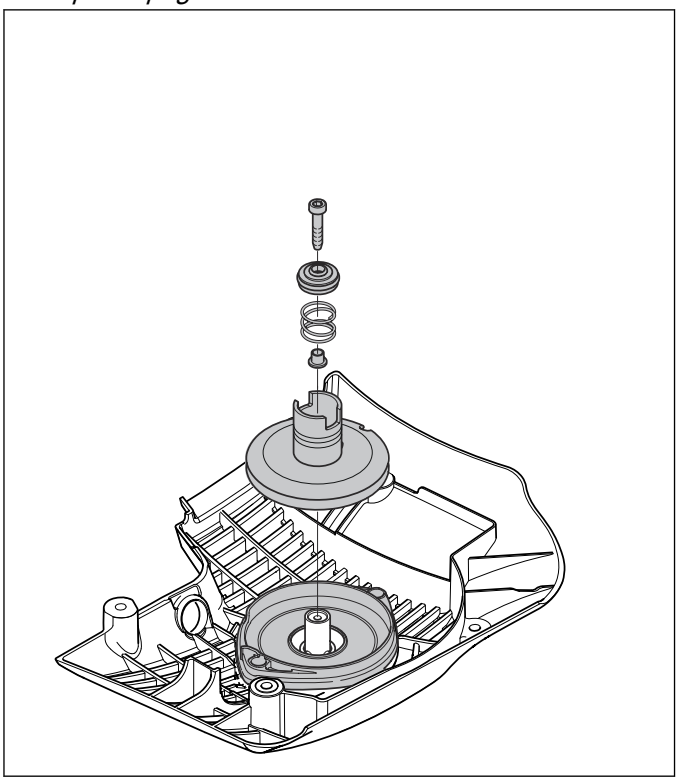
1. Put the starter rope in the notch.
2. Wind the starter rope handle 4 turns around the hub.
3. Pull out the starter rope handle to make the rope come off the hub.



4. Release the rope. Let it wind on the starter pulley. Do it again with 3 turns of rope around the hub.
5. Extending the cord fully to make sure that the return spring is not an end stop. It must be possible to turn the starter pulley half a turn or more before the spring stops the movement.

6.1.4 To remove the starter pulley

1. Remove the spring force. See *To remove the starter rope on page 20*.



2. Remove the center screw.
3. Remove the starter pulley.

6.1.5 To clean and lubricate the starter pulley

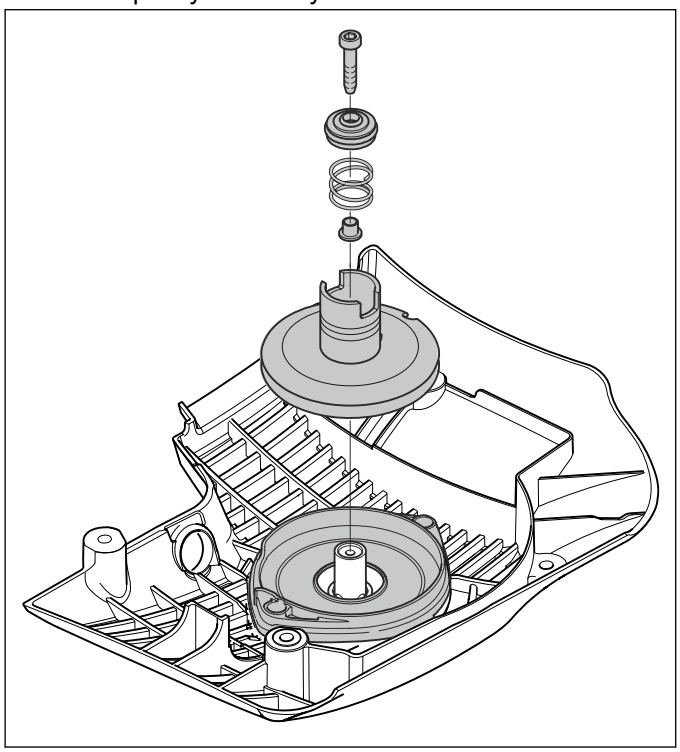
1. Clean the surfaces between the starter pulley and the spring assembly.
2. Lubricate the hub with grease. Also apply some grease around the starter pulley hub to make the grease seal against the spring assembly.

6.1.6 To assemble the starter pulley

The spring in the starter pulley decreases vibrations. The spacer sleeve around the center screw is the top bearing point for the starter pulley.

Note: Make sure that the spacer sleeve does not fall off.

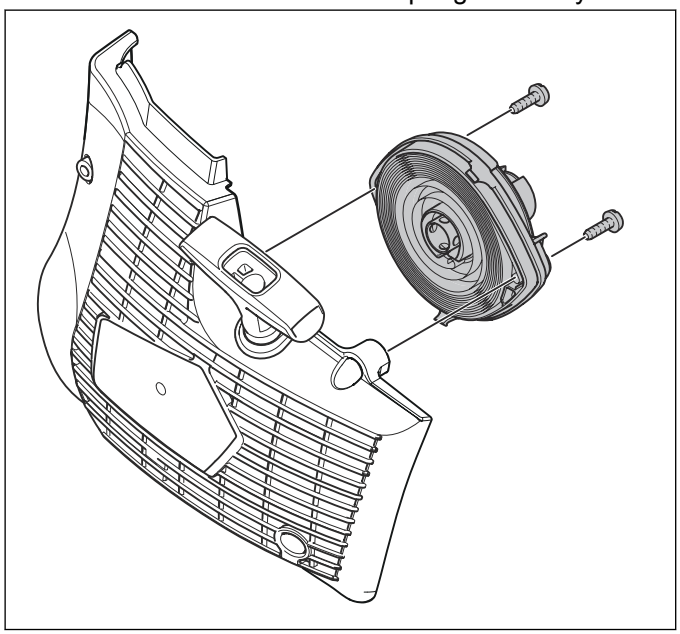
1. Align the starter pulley notch with the end of the spring when assembling. Put the center bolt into the starter pulley assembly.



6.1.7 To remove the spring assembly

WARNING: Always use protective glasses when you disassemble the spring unit. Risk for eye injuries, especially if a spring is broken.

1. Remove the 2 screws on the spring assembly.



2. Push out the 2 hooks from the snap locks with a screwdriver.

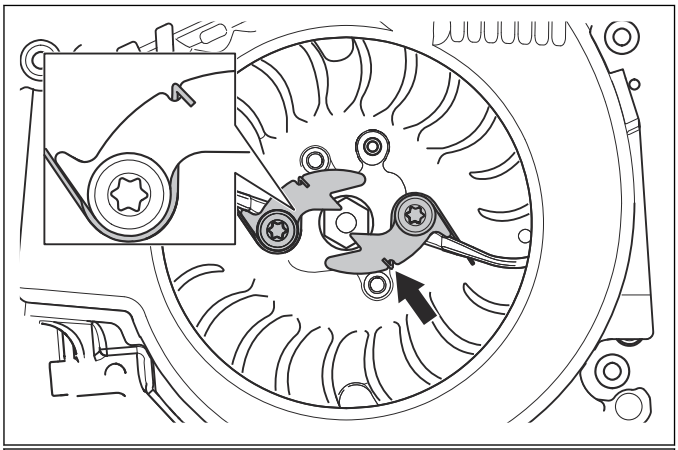
6.1.8 To clean the spring assembly

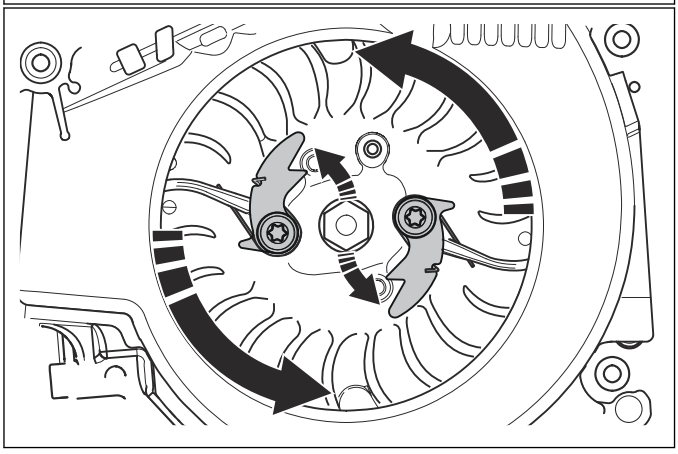
Note: Do not remove the spring from the assembly.

1. If the spring is dirty, blow clean with compressed air.
2. Apply a light oil on the spring.

6.1.9 Starter pawls

When the flywheel does not move, the starter pawls are pushed in the direction of the center by springs. When the flywheel rotates, the turning force pushes out the center pawls.





6.1.10 To examine the starter pawls

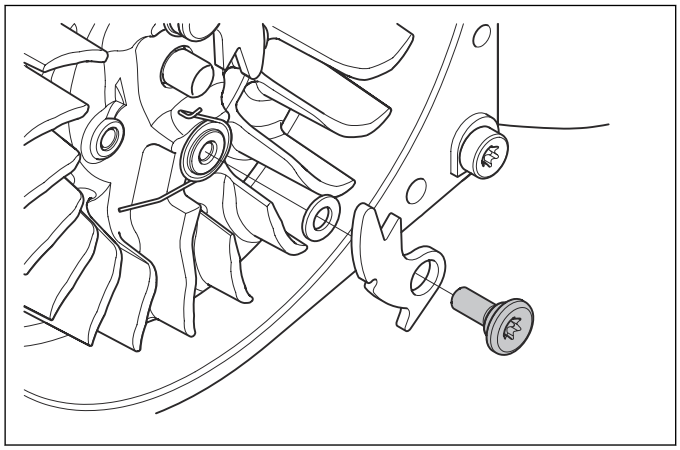
Note: Do not lubricate the starter pawls.

1. Make sure the springs work and the starter pawls move freely. Disassemble and clean, if necessary.

6.1.11 To disassemble the starter pawls

Note: The position of the washer is below the starter pawls against the flywheel. Make a note of the position of the springs in relation to the flanges on the flywheel.

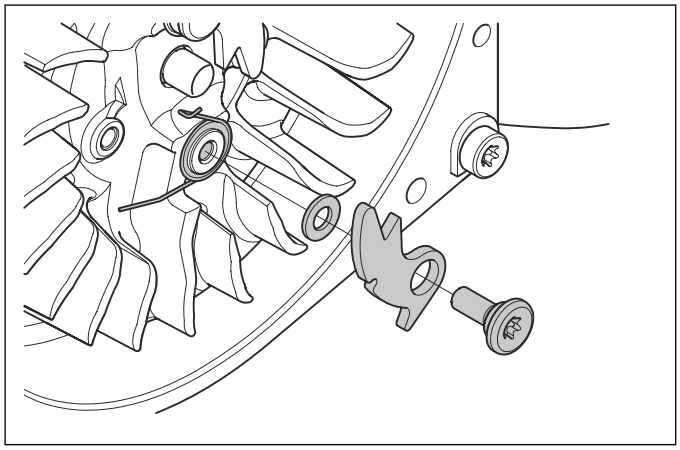
1. Remove the shoulder screws.



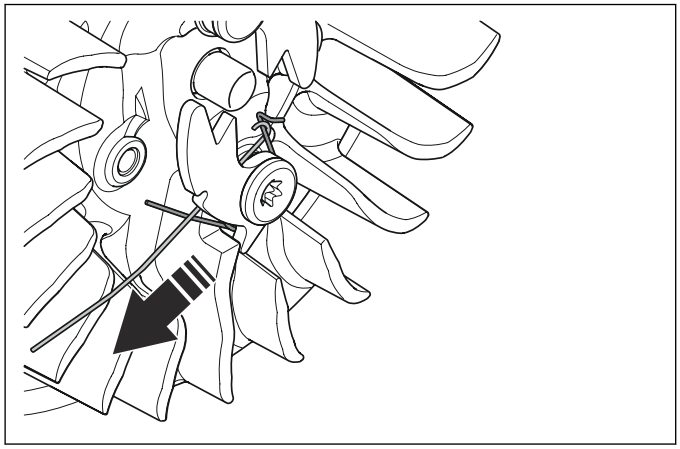
6.1.12 To assemble the starter Pawls

Note: The spring must not get caught between the starter pawl and the flywheel.

1. Press the spring into position in the flywheel.



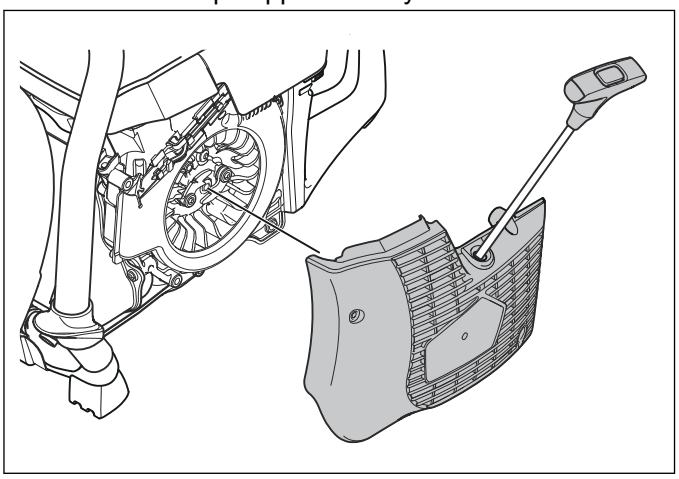
2. Install the washer, starter pawl and shoulder screw.
3. Bend the end of a thin steel wire. Use it to pull the spring to the mounting on the opposite side.



6.1.13 To install the starter

The starter pawls must come into the correct position against the starter pulley sleeve.

1. Pull out the rope approximately 0.5 m.



2. Keep this position and set the starter against the product.
3. Slowly release the rope until the starter pawls come into the correct position.
4. Tighten the 4 screws on the starter to a torque of 7–9 Nm.

6.2 Ignition system

6.2.1 Function

The ignition system has no moving parts and it is not sensitive to moisture and dirt.

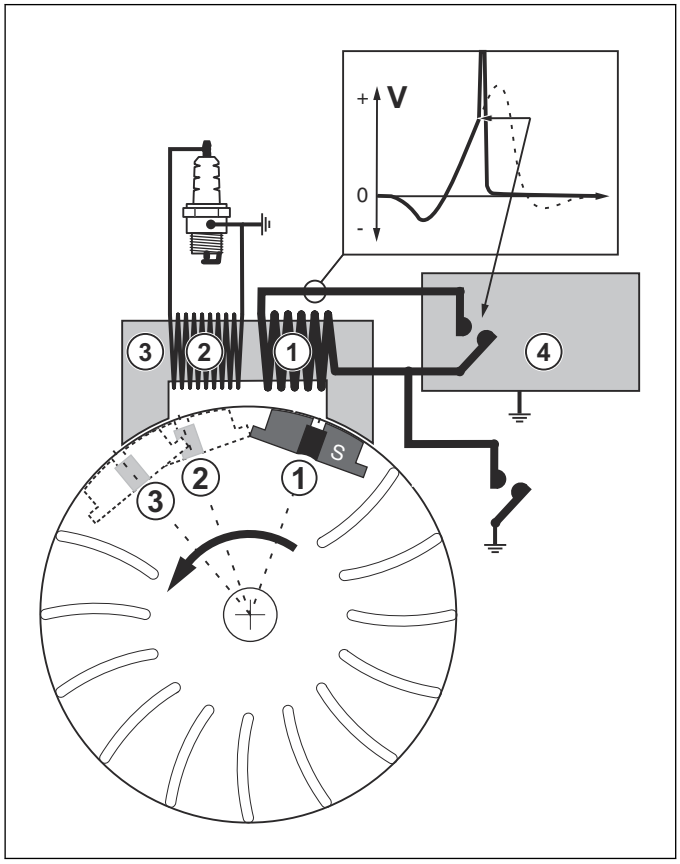
It is not necessary to adjust the ignition point.

The product has an overspeed protection rev limiter. The limit is 9300 rpm.

The ignition system has a primary coil (1) and a secondary coil (2). They are wound around an iron core (3). An electronic digital unit (4) controls the switch function.

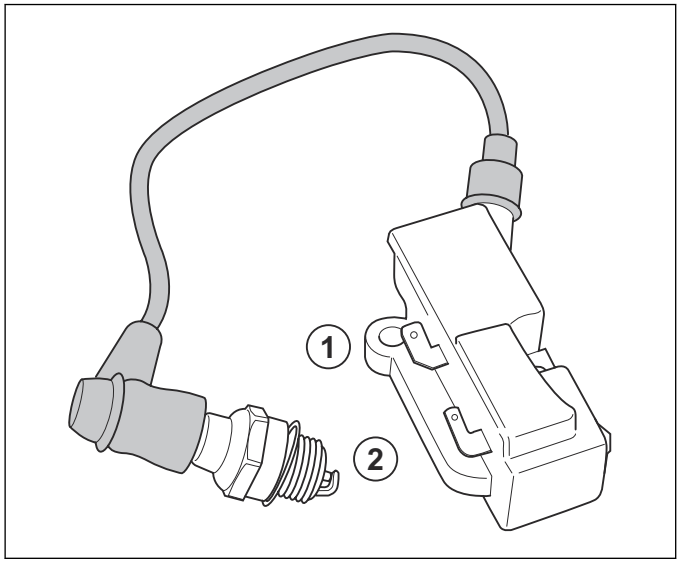
The voltage sequence is in the diagram in the illustration. The dotted line shows the voltage if the current is not broken.

Current moves through the coil by the permanent magnet on the flywheel. The electronic digital unit senses the voltage in the primary coil. It breaks the current before the piston is at the high turning point. Until this point, the primary coil is in a closed circuit. With an open circuit the current stops flowing and voltage increases from 5V (Volt) to approximately 200V. The primary and secondary coil work as a step-up transformer. The secondary coil increases the voltage to 20 000V. This causes a spark.



6.2.2 Ignition unit

The ignition unit is sealed and cannot be repaired. The spark plug cable, the contact unit to the spark plug and the seal on the ignition unit can be replaced.



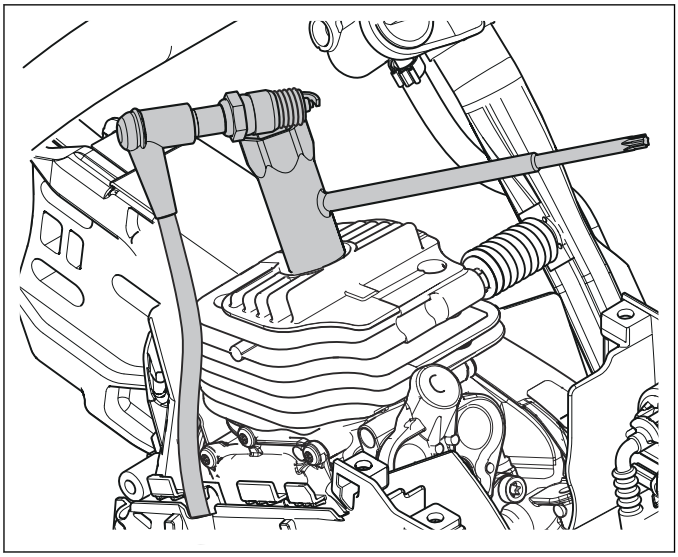
1. Stop switch
2. OilGuard

6.2.3 To examine the ignition system

Examine the ignition system first if the engine does not start.

6.2.4 To examine the ignition spark

1. Ground the spark plug against the cylinder.



2. Move the stop button to the operation position.
3. Pull the starter rope handle as if starting.

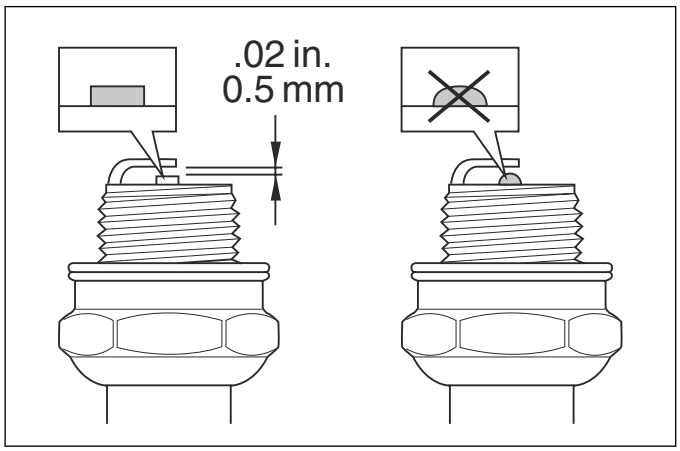
If there is no spark, the problem can be a defective spark plug, defective ignition lead or a damaged short circuit cable. Examine the spark plug.

6.2.5 To examine the spark plug

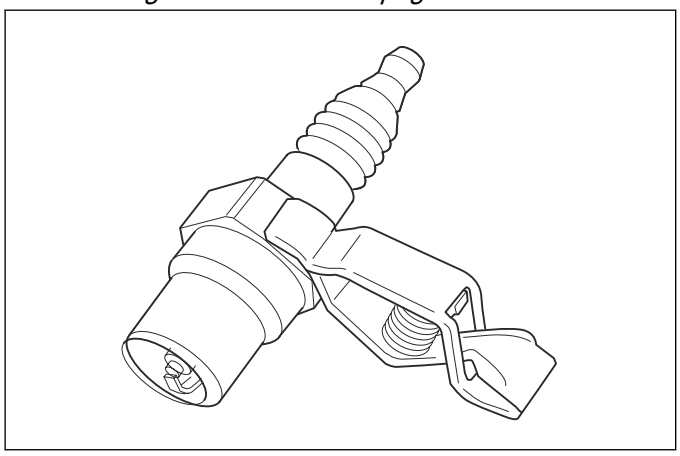
The electrode gap must be .02 in/0.5 mm.

The electrodes must be free of dirt and oil. Clean with a wire brush.

Note: An electrode with soft edges and damaged ceramic around it can cause pre-ignition. You must replace a spark plug with soft edges.



1. Replace the spark plug with the test spark plug. See *Servicing tools overview on page 12*.

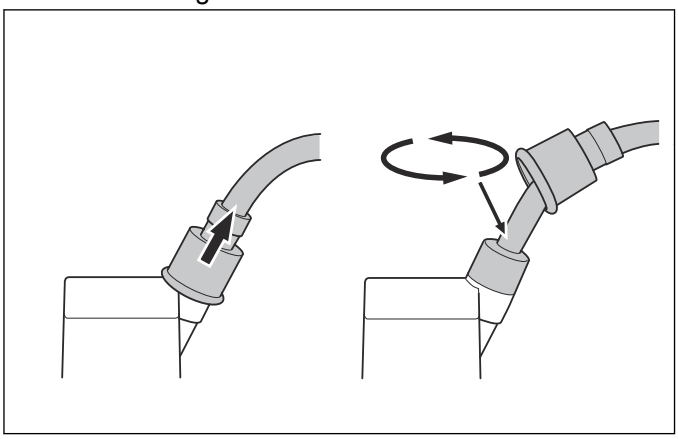


2. Move the stop button to the run position. Ground the test spark plug. Pull the starter rope handle as if you start the product.
3. Ground the test spark plug.
4. Pull the starter rope handle as if you start the product.

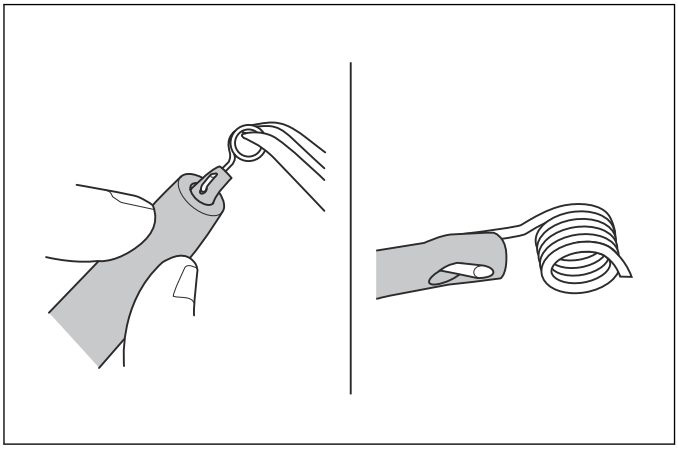
If there is a spark, the spark plug is defective. Replace the spark plug. If there is no spark, examine the ignition lead and the short circuit cable.

6.2.6 To examine the ignition cable

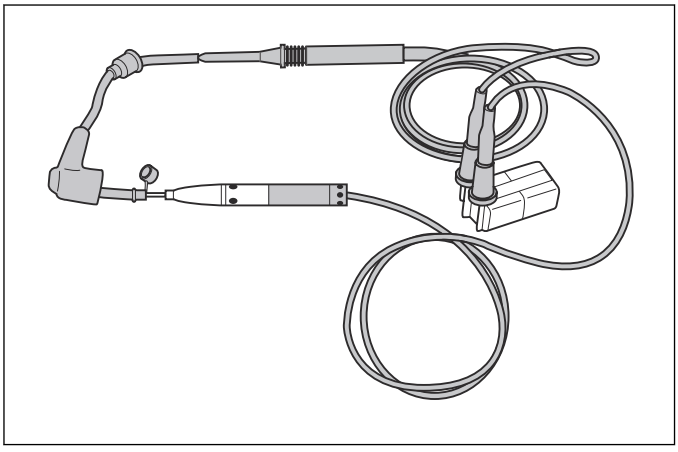
1. Pull up the rubber seal by the ignition unit and remove the ignition cable.



2. Put a pair of pointed pliers in the spark plug connection and pull out the spring and cable end.



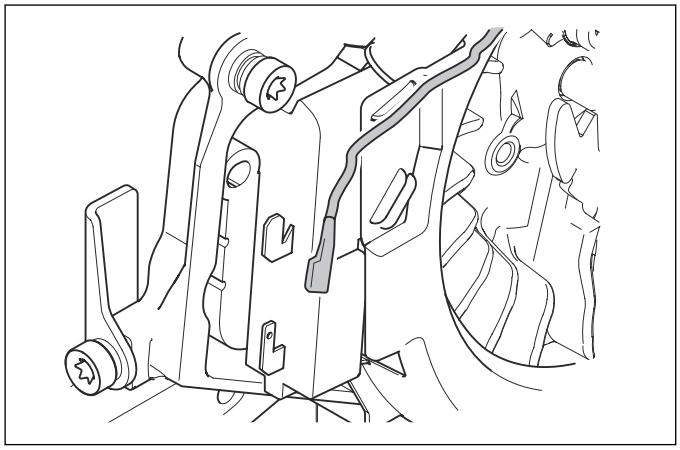
3. If the connection is defective, the ignition cable can be made shorter. Make a new hole in the cable and attach the connection spring.
4. The connection in the illustration can be used to make sure that the ignition cable is not broken. The battery is connected in series with a test lamp. A resistance control can also be made with a multimeter.



If there is no spark after this test, examine the short circuit cable.

6.2.7 To examine the short circuit cable and the stop switch

1. Remove the starter and the short circuit cable on the ignition unit.



2. Put back the starter and check if the spark plug makes a spark.
3. Examine the short circuit cable.
   a) Use an instrument or a battery in series with a test lamp.
   b) Connect to the short circuit cable and the engine body.

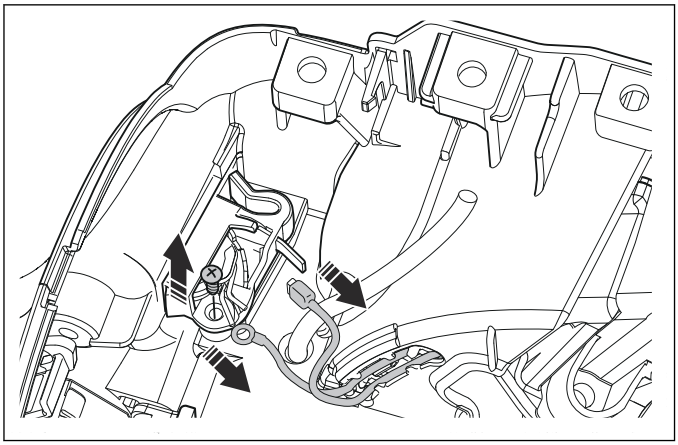
The lamp must not come on when the switch is in operation mode.

If the lamp comes on, first examine the insulation on the cable.

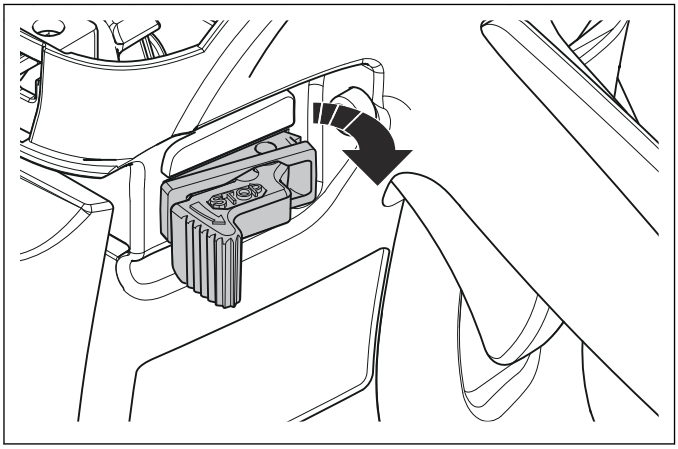
If the cable is not damaged, examine the stop switch. If the cable and the stop switch are in working order, replace the ignition unit.

6.2.8 To remove the stop switch

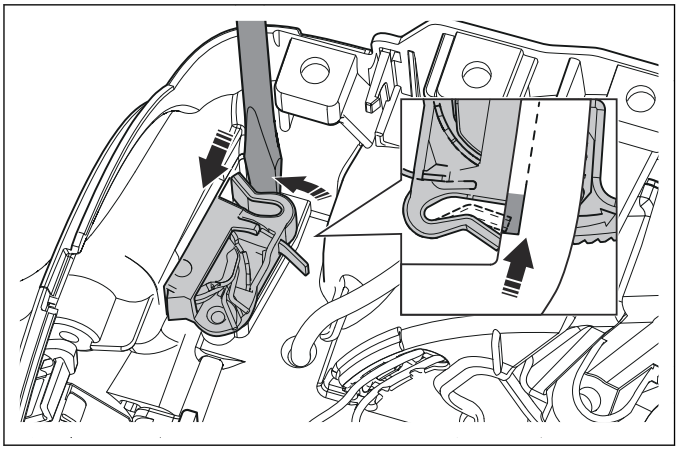
1. Remove the screw and the cable.



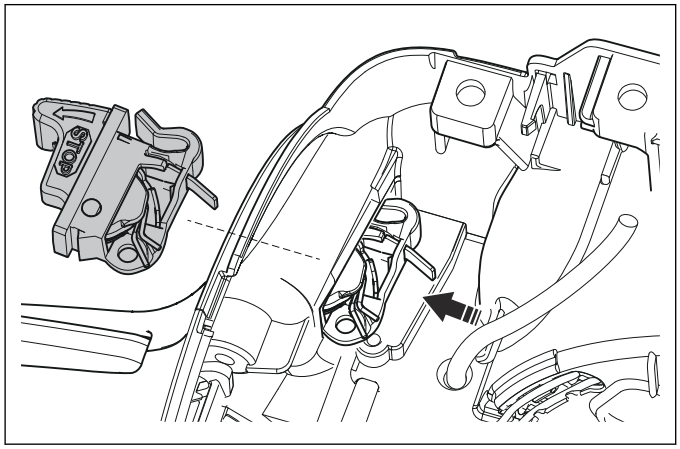
2. Pull the right side of the switch halfway out.



3. Push in the notch on the left side with a screwdriver and pull the right side half way out.

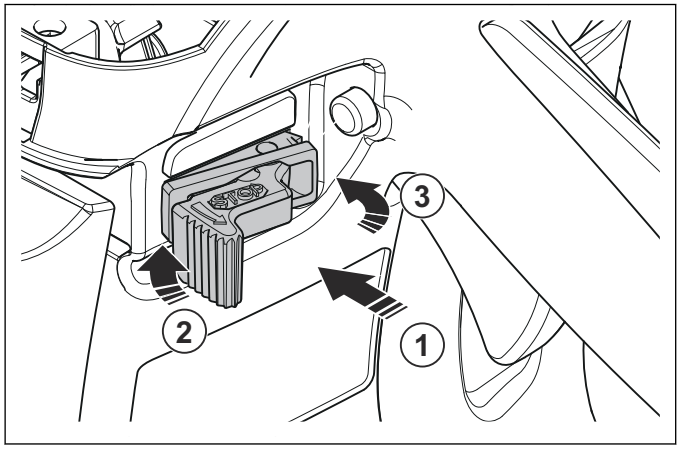


4. Remove the switch.

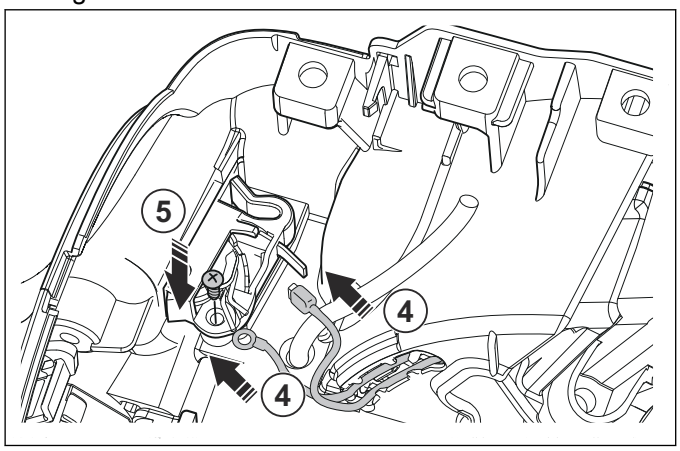


6.2.9 To assemble the stop switch

1. Push the switch halfway into position.
2. Push in the left side until it locks.
3. Push in the right side.

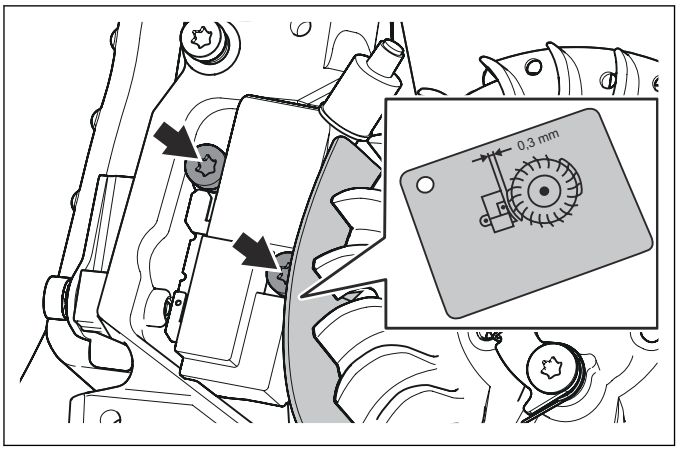


4. Put the cables back on the stop switch..
5. Tighten the screw.



6.2.10 To assemble the ignition unit

1. Align the magnet on the flywheel with the ignition unit.



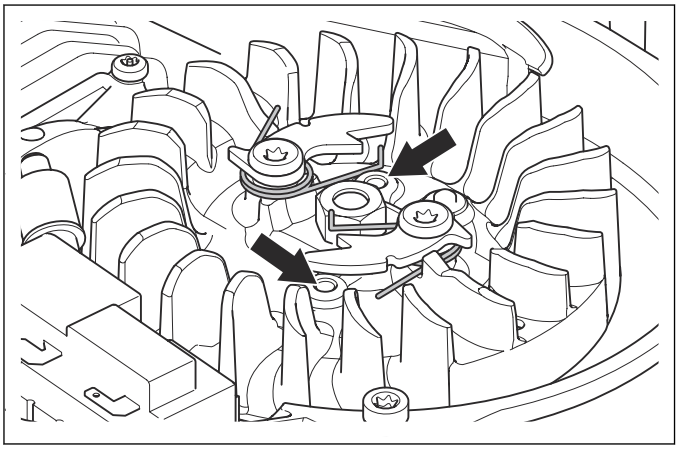
2. Put the air clearance gauge (.01 in/0.3 mm) against the magnets. See *Servicing tools overview on page 10*.
3. Put the new unit in position. Push it against the gauge as you tighten the screws. Tighten them with a torque of 10–12 Nm.

6.3 Flywheel

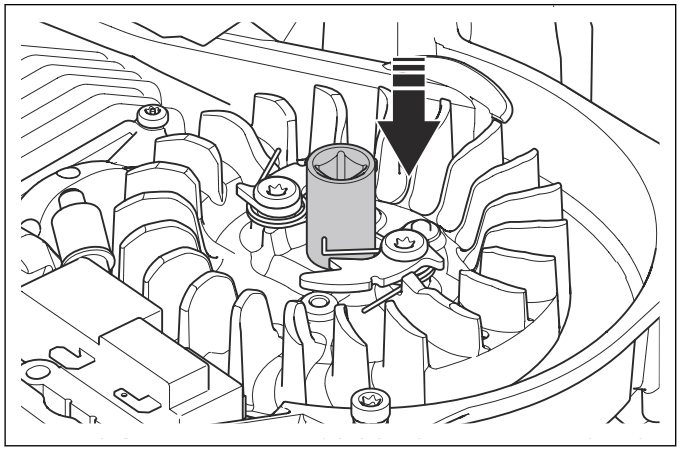
6.3.1 To remove the flywheel

A special tool from Husqvarna must be used to disassemble and assemble the flywheel. See*Servicing tools overview on page 11*. The tool can be used on most flywheels on Husqvarna power cutters.

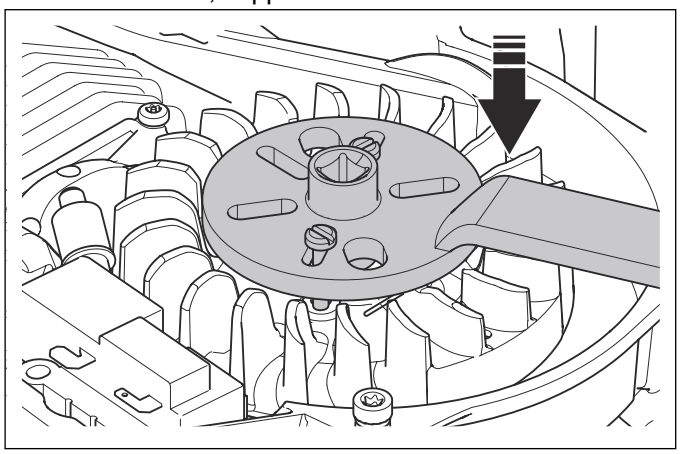
1. Remove the starter and lower air duct.
2. Loosen the springs and put the start hooks in their outer positions.



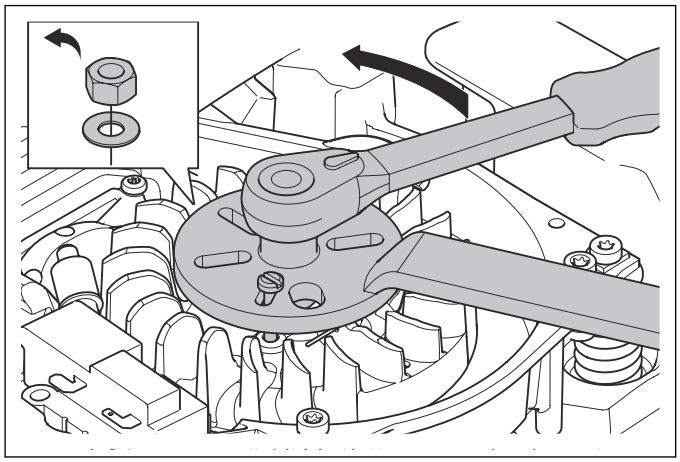
3. Put a 13 mm socket on the centre screw of the flywheel.



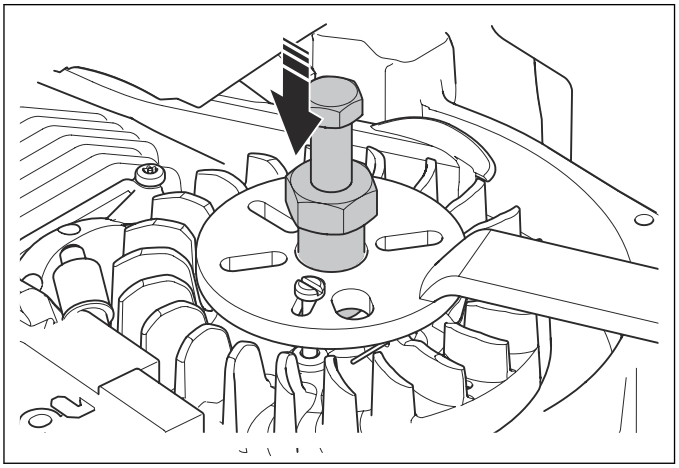
4. Attach the flywheel puller over the socket. Use the correct screw, supplied with the tool.



5. Lock the flywheel from turning with the handle of the special tool. Remove the nut and washer.



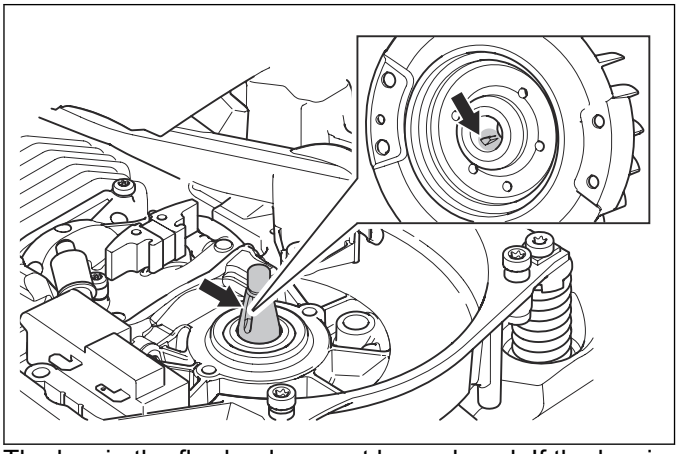
6. Put the screw press in the center and tighten it sufficient to make sure it is attached.



7. Lock the outer socket with a wrench and tighten the center screw until the flywheel releases.

Note: If the flywheel is tight you can release it by using a hammer on the center screw. At the same time, lift the product with the tool handle.

6.3.2 To examine the seat and key

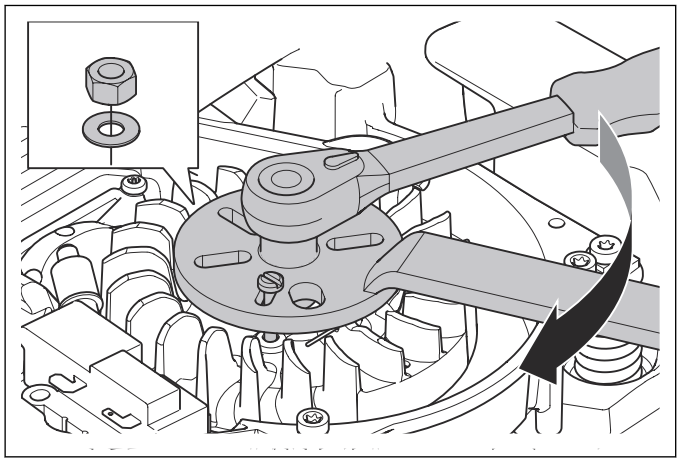


The key in the flywheel can not be replaced. If the key is damaged the flywheel must be replaced. For a correct ignition point, the position of the flywheel must align with the position of the crankshaft. The force of the center nut is not sufficient to hold the flywheel in the right position.

6.3.3 To assemble the flywheel

The crankshaft and the center of the flywheel must be free from grease. Tightening torque 18–22 lbf·ft /25–30 Nm. Use a torque wrench to tighten the nut.

1. Align the key in the flywheel with the keyway on the crankshaft. Install the washer and nut.

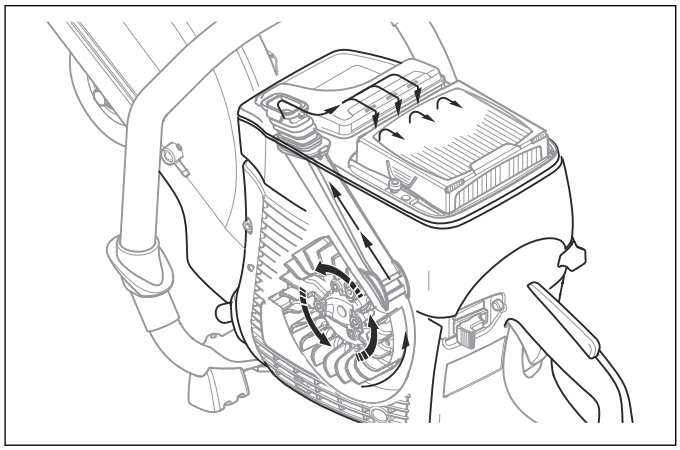


2. Remove the tool and put the springs on the start hooks.

6.4 Air filter

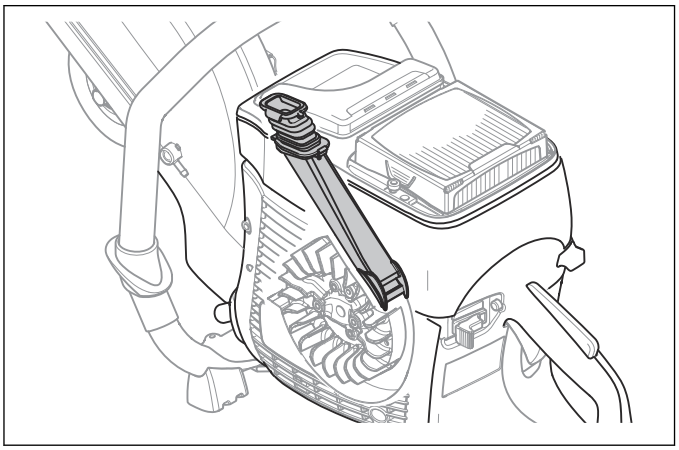
6.4.1 Function

The centrifugal cleaning is the first step in the air cleaning of the inlet air. The blades on the flywheel supplies the cylinder with cool air (large arrows). They are also the part in operation on the centrifugal cleaning of the inlet air of the engine. An inlet tube is installed near the blades on the flywheel. The centrifugal force stops large particles to follow the air to the inlet tube. They are moved out, past the tube. Only small dust particles will follow the air to the inlet.

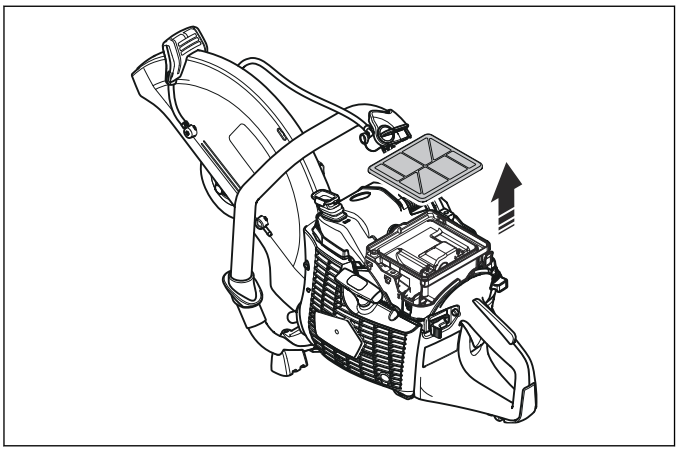


The inlet tube must be examined and cleaned in connection with filter replacement. Blow clean dust from dry cutting with compressed air. Material from wet cutting must be removed mechanically. Make sure the

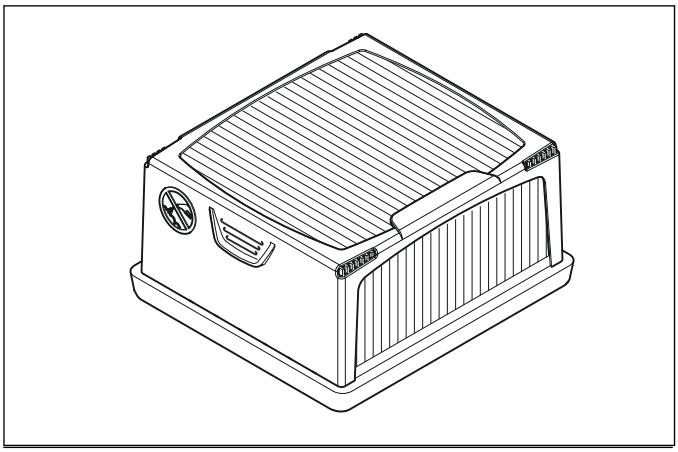
rubber seal on the air duct cover is not damaged and that it is correctly attached in the cylinder cover.



The task of the service filter is to stop dirt from entering the engine. The service filter must only be replaced when damaged.



The paper filter must not be cleaned. It must be replaced when necessary. The material to be cut and if the cutting is wet or dry controls how frequent. Replace the filter when the power of the machine starts to decrease.



Note: Be careful when the filter is removed so no dust particles fall down in the carburetor inlet. Removal of waste is best done with a vacuum cleaner.

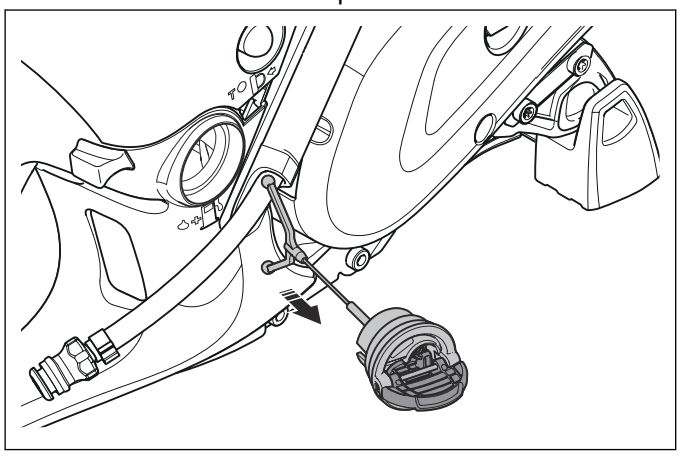
Note: Make sure the inlet pipes are not damaged and that it has a tight seal to the filter and the carburetor. Dust in the inlet pipes is a sign of dangerous faults in the filter system. They must be repaired before operating this product.

6.5 Fuel system

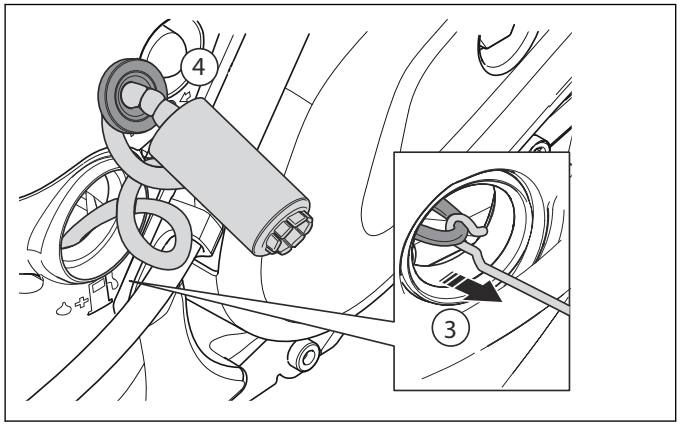
6.5.1 To remove the fuel filter

To remove the fuel filter, use Husqvarna hose catcher. Refer to *Servicing tools overview on page 11*.

1. Remove the fuel tank cap.



2. Catch the fuel hose with Husqvarna hose catcher.



3. Pull out the fuel filter.
4. Move back the metal weight and pull off the hose.

6.5.2 To examine the fuel filter

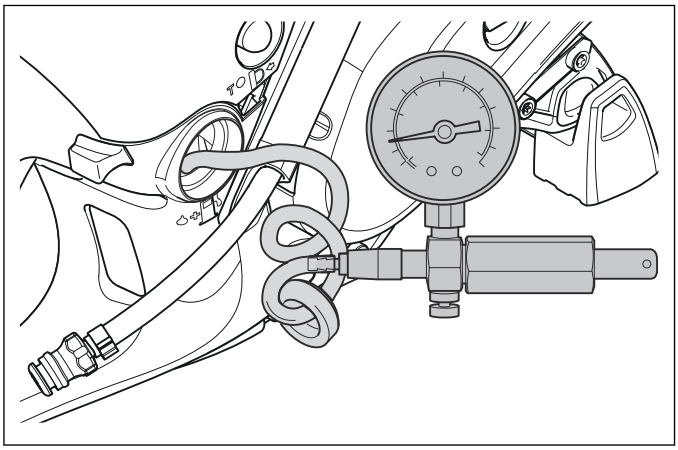
1. Examine the filter, make sure it is not damaged.
2. If the filter is very dirty, it can be because of dirty fuel. If necessary, drain the fuel and filter it before using it in the product.

Note: Dirty filters must not be cleaned but replaced with a new one.

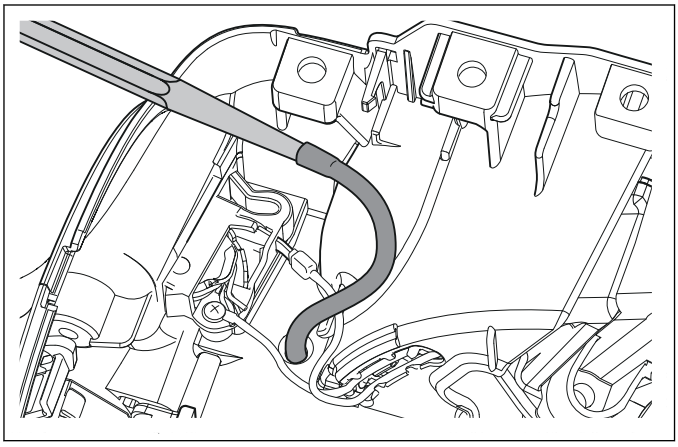
6.5.3 To examine the fuel system for leakages

To examine the fuel hose, use a pressure monitor. Refer to *Servicing tools overview on page 11*. Connect the adapter to the pressure monitor with a short hose.

1. Pump up the pressure to approximately 7 psi/0.5 bar. Move to the next test if the pressure drops.

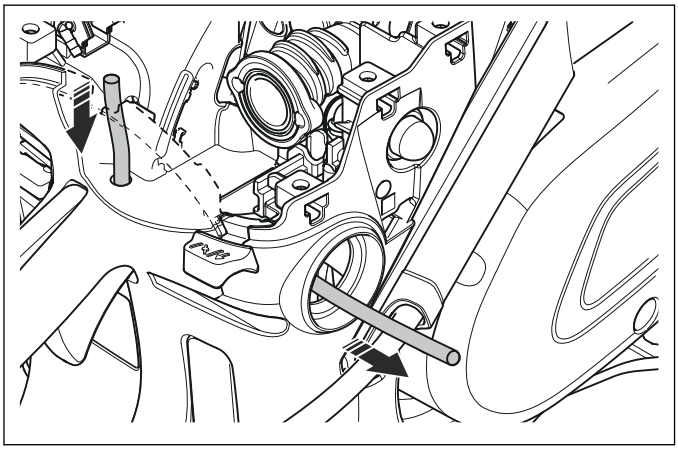


2. To make sure the fuel hose does not cause the leakage, remove the carburetor unit. Seal the hose by the carburetor and do the pressure test again. If the hose is not damaged, the carburetor must be examined.



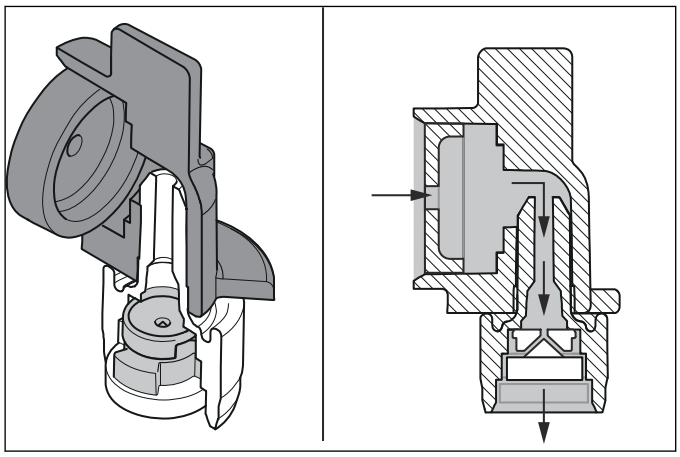
6.5.4 To remove the fuel hose

1. Push the hose down in the tank. At the same time, pull it out from the hole for the fuel tank cap.



6.5.5 Function tank venting

The tank has a check valve that let air enter the tank, but prevents fuel from running out. The filter lets air through slowly.

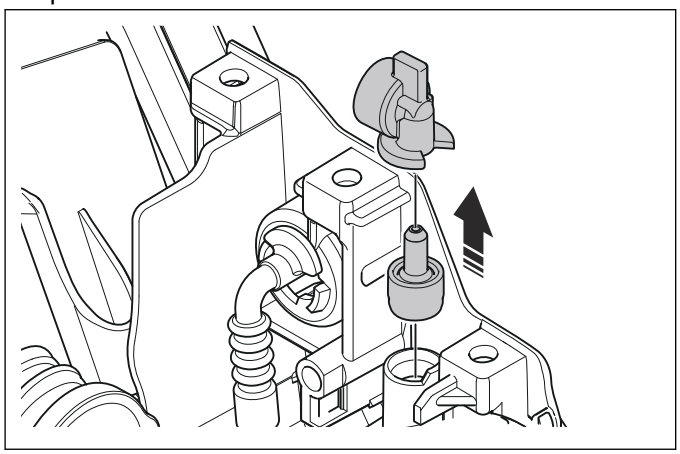


6.5.6 Tank air flow fault indication

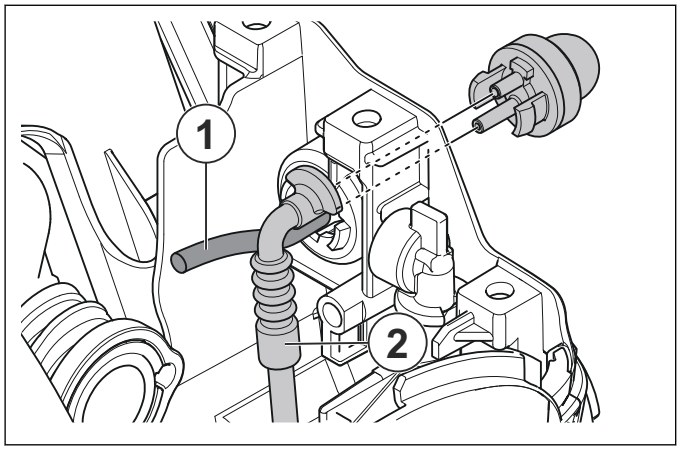
If the tank air flow is blocked and the engine is running, the tank will have low pressure. This decreases fuel supply and the power. When you open the fuel tank cap you will hear the sound of air suction. A clogged filter must not be blown clean, but replaced.

6.5.7 To remove the tank air flow filter

1. Lift the check valve and then the filter with a pair of pliers.



6.5.8 Function air purge



The air purge removes air from the fuel chamber of the carburetor and fills it with fuel.

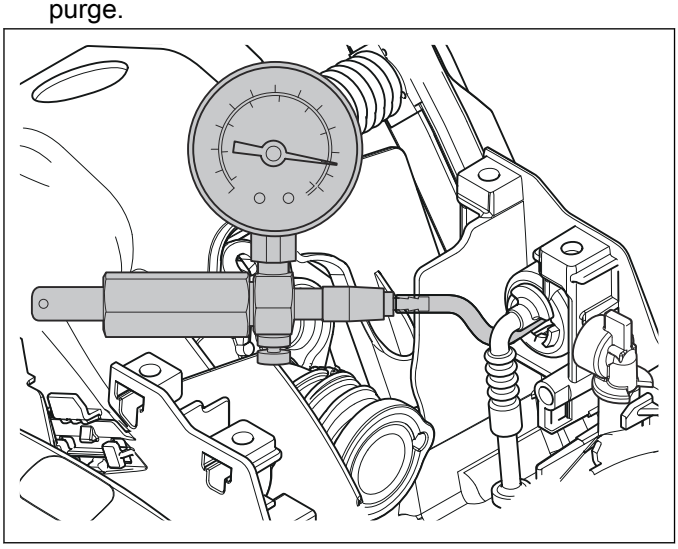
Hose 1 is connected to the carburetor. The pump causes a vacuum in the fuel chamber and fuel is pulled into it. When the fuel chamber has been fully filled, unwanted fuel is pushed to the tank through return hose 2. This means that the fuel level in the carburetor does not get too high.

6.5.9 To examine the air purge

To examine the air purge, use Husqvarna test instrument for fuel lines and check valves. See *Servicing tools overview on page 11*

Press the bladder of the pump. It must be filled with fuel. If it is not filled with fuel, the pump must be examined.

1. Connect the test instrument to the hose from the air purge.

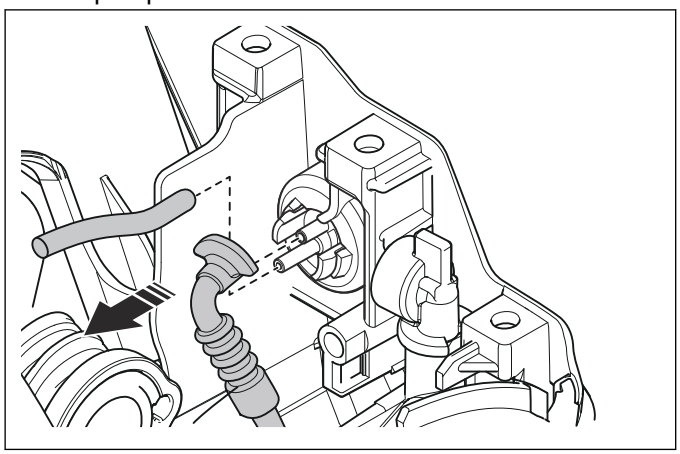


2. Set the test instrument for vacuum test.
3. Pump up a vacuum to 0.3–0.5 bar using the air purge – not the tester.

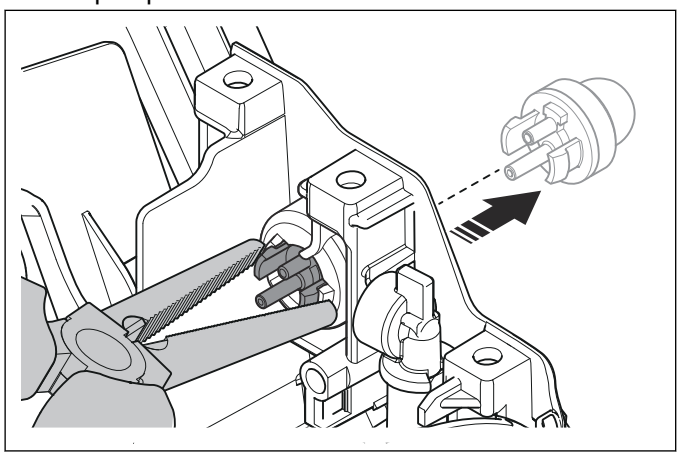
If this can be done, the pump and hose connection are not damaged. You must then look for the fault in the other components of the fuel system.

6.5.10 To remove the air purge

1. Remove the return hose and carburetor hose from the pump.



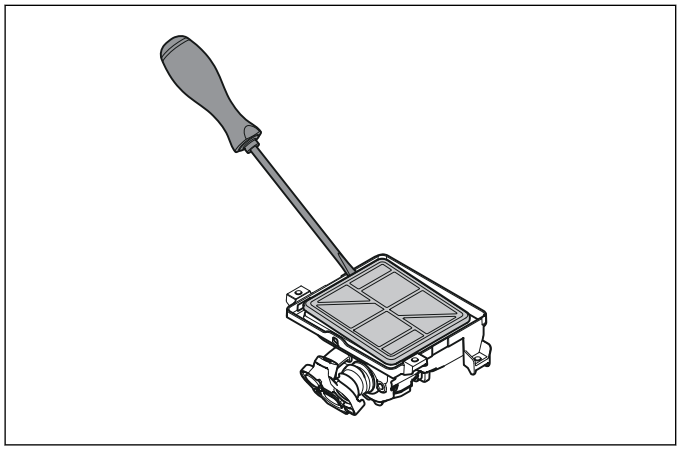
2. Press the click locks together with pliers and push the pump out.



6.6 Carburetor

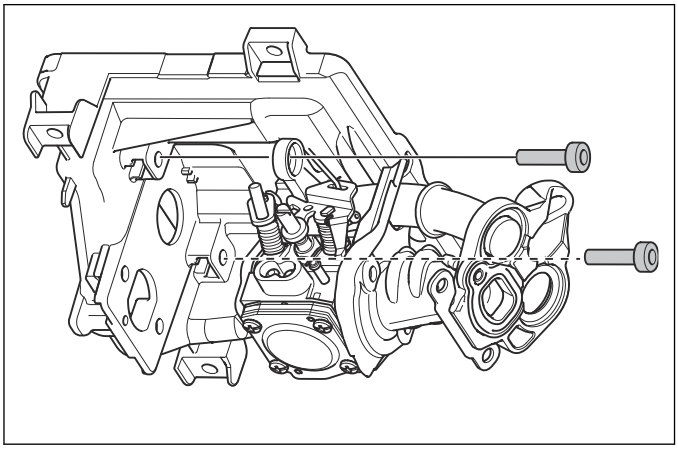
6.6.1 To remove the carburetor from the inlet system

1. Remove the service filter.

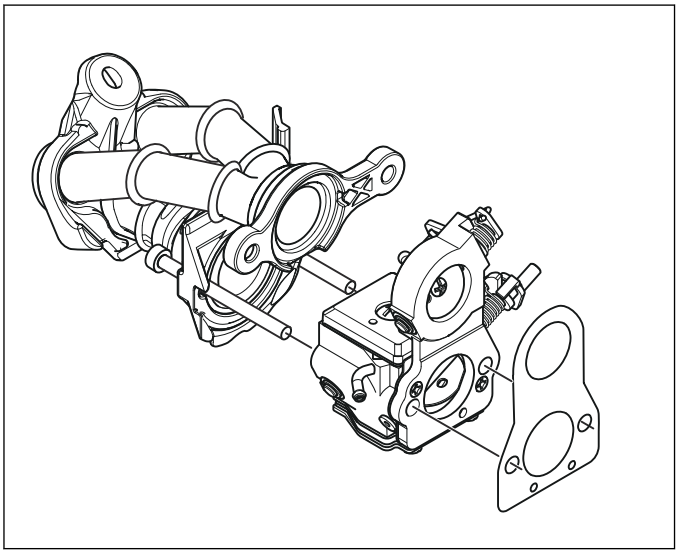


2. Clean the outer parts of the carburetor before you remove it from the inlet system.

3. Remove the carburetor from the bracket.

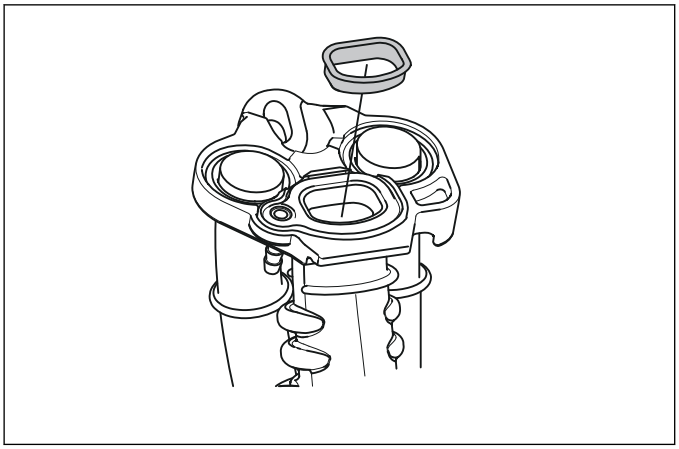


4. Pull off the hose from the carburetor and divide the units.

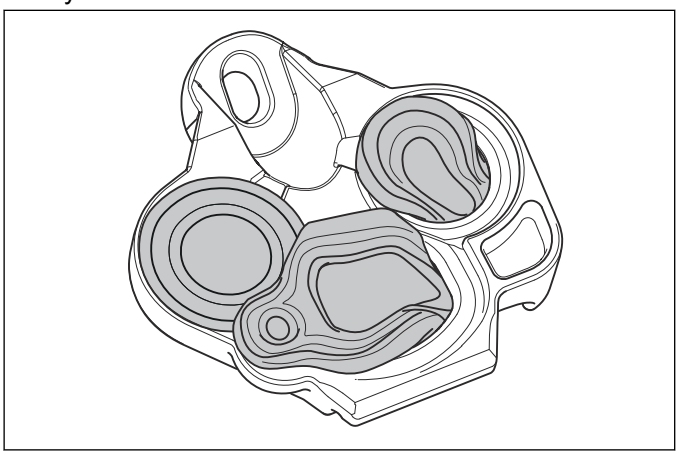


6.6.2 To disassemble the guides

1. Remove the support insert.



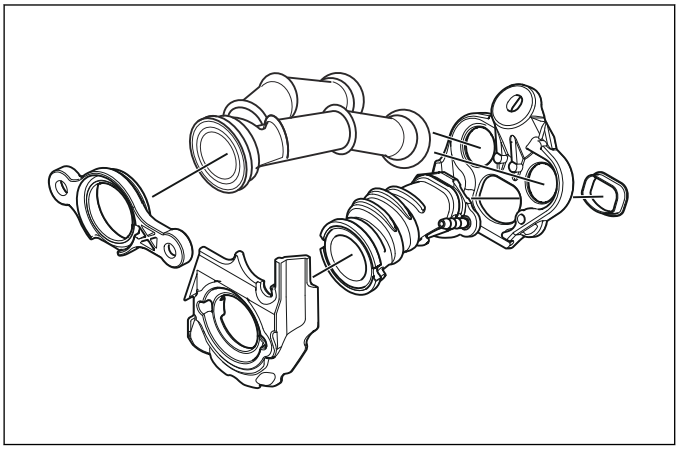
2. Push out an edge of the guides, then push them out by hand.



6.6.3 To examine the inlet system

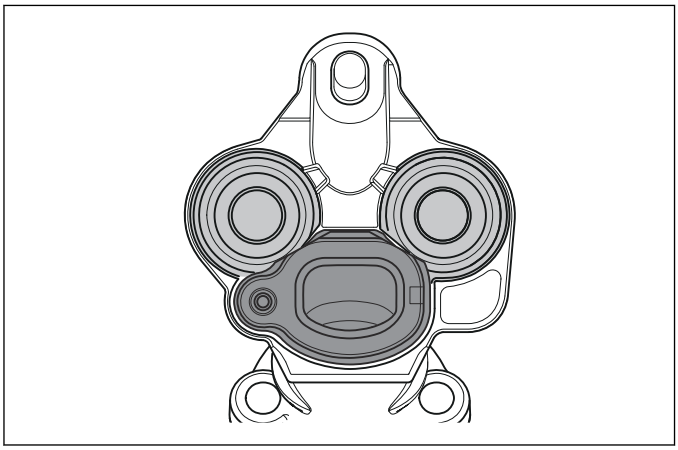
Dust can decrease the life of the engine. Dust on the inner side of the seals means there is defective or incorrectly installed components.

1. Look for leaks. Make sure the rubber guides are not cracked.

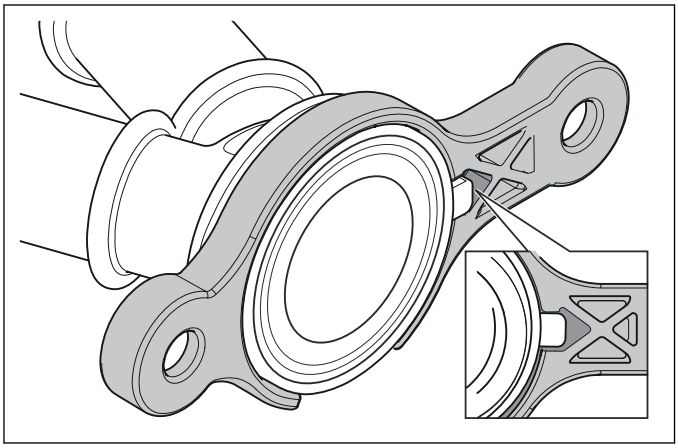


6.6.4 To assemble the inlet manifolds

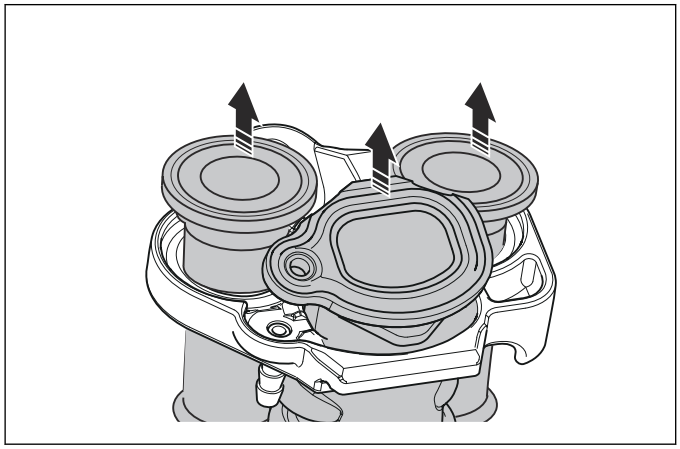
The parts must be installed correctly. Make a note that the guide to the inlet is irregular.



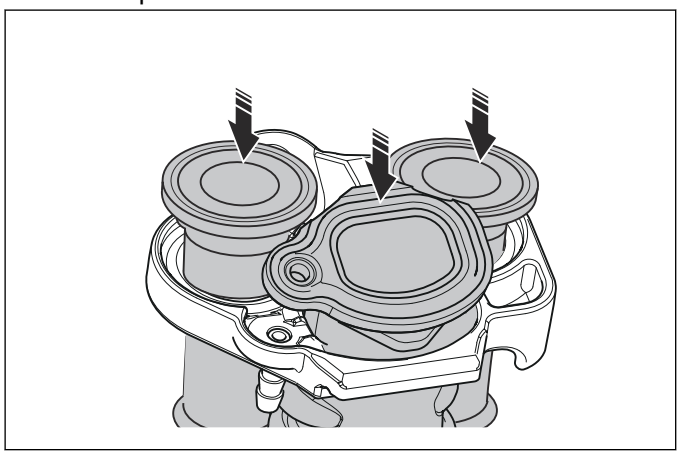
Make a note of the groove on the holder.



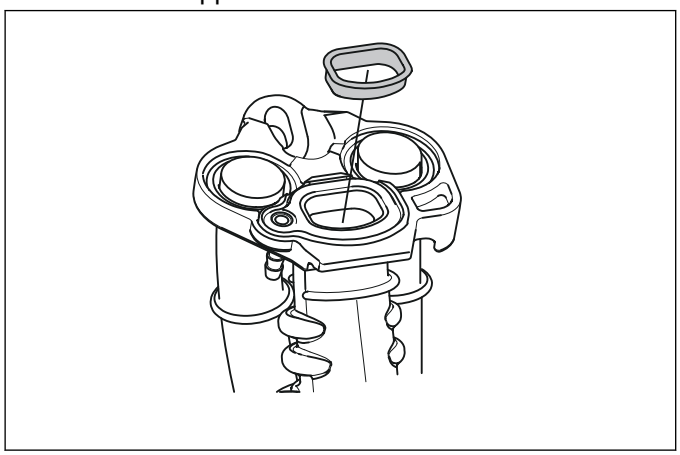
1. Pull in the manifolds past their grooves on the plate.



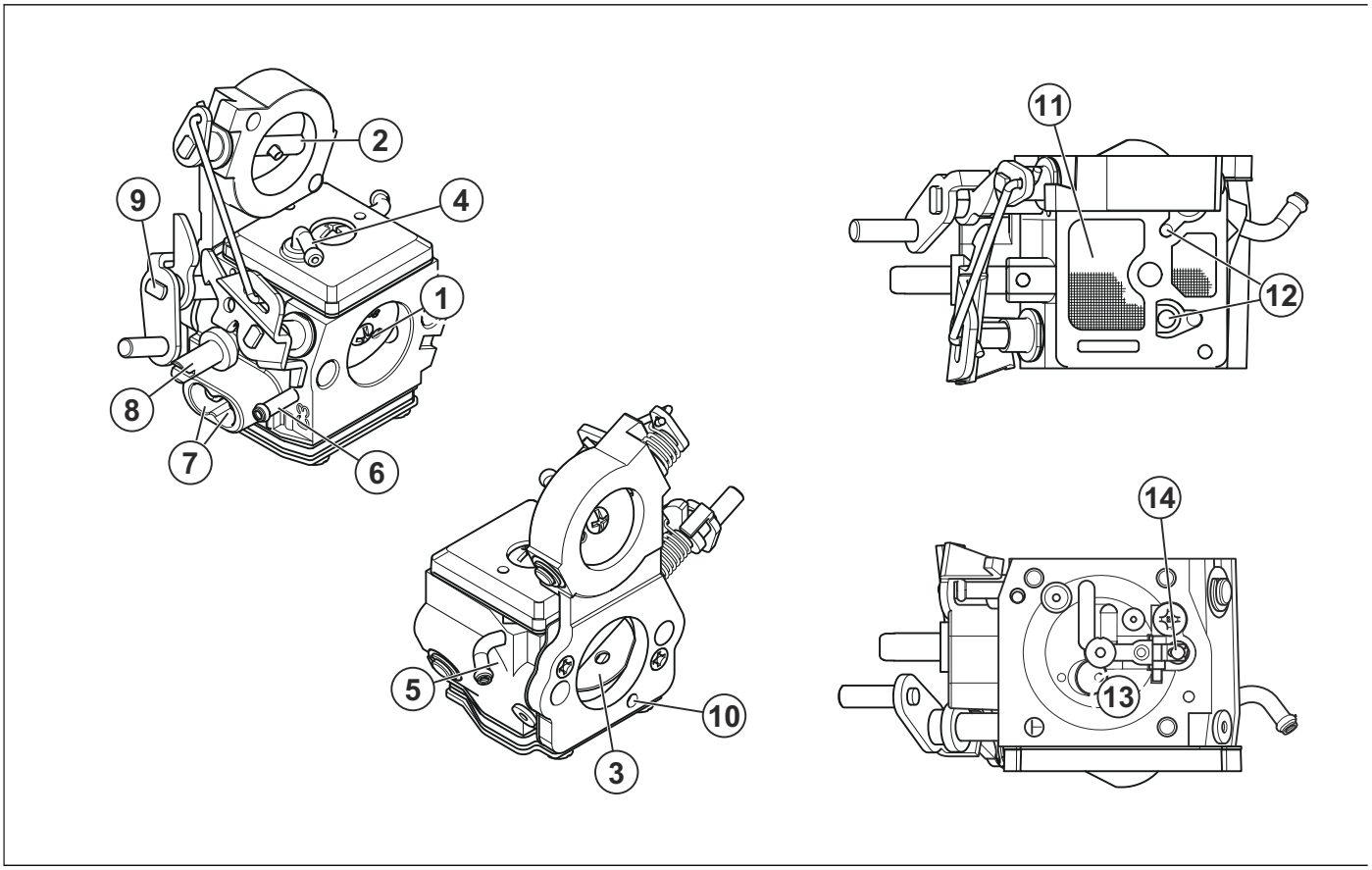
2. Push out the manifolds, one at a time, into their correct position.



3. Install the support insert.



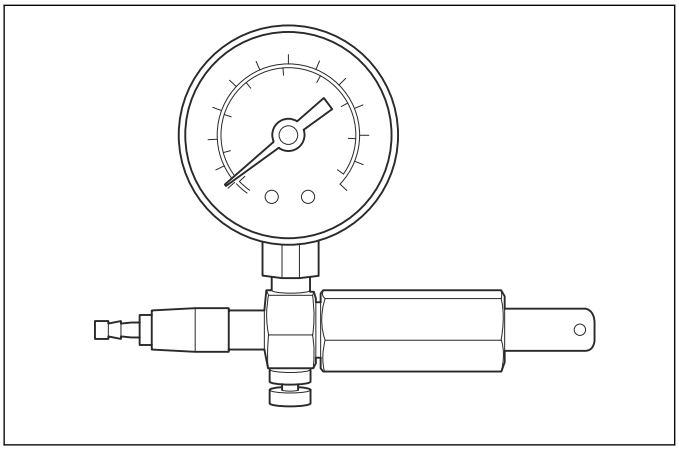
6.6.5 Carburettor components



1. Throttle valve
2. Air valve
3. Choke valve
4. Pulse line, to the pump diaphragm of the carburetor
5. Fuel line
6. Connection to air purge
7. High and low speed jet (set at the factory)
8. Idle screw, speed adjustment
9. Throttle rod for the choke
10. SmartCarb
11. Pump diaphragm – on top in relation to the crankcase through the pulse line – fuel below the diaphragm
12. Valves of the fuel pump
13. Fuel chamber, measurement chamber diaphragm above
14. Needle valve for pressure regulator

6.6.6 Pressure tester

The pump piston of the pressure tester (refer to *Servicing tools overview on page 11*) must be operated with one hand. The pressure tester is supplied with an adapter for small dimensions. Make the hose connection as short as possible, this gives a more accurate test result.

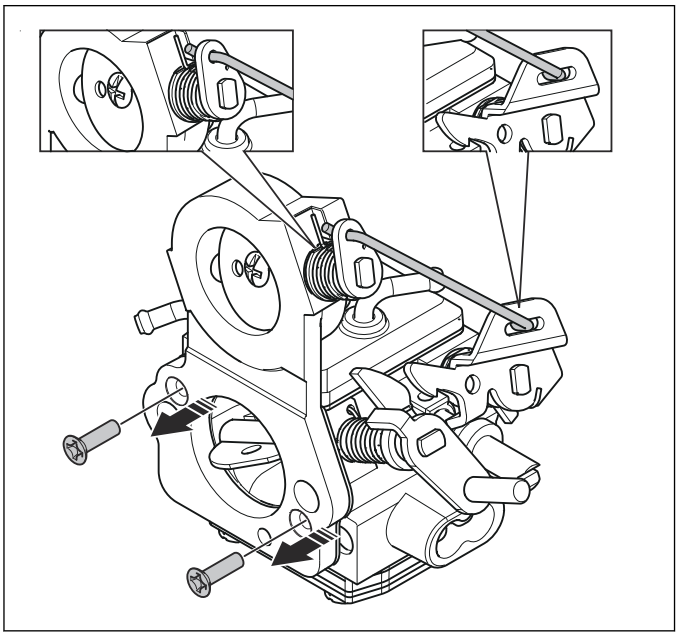


6.6.7 To remove the air valve

It is not necessary to remove the air valve to do servicing on the carburetor, but it makes it easier.

Make a note of the connection of the link rod.

- Remove the 2 screws.



6.6.8 Needle valve

6.6.8.1 Indications of a needle valve leak

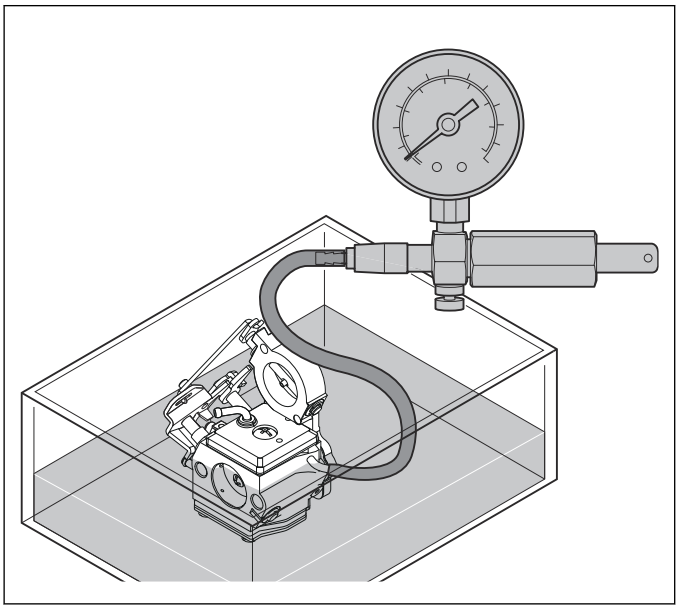
There are many symptoms of a needle valve with a leak.

A product that is used for short periods is usually not easy to start when it is warm. Fuel leaks into the venturi and gives too much fuel for the next warm start.

With a cold start, the fuel chamber above the needle valve is dry. This is the situation especially when the product has not been used for a long period. After trying to start many times, new fuel has gone into the carburetor and the product starts.

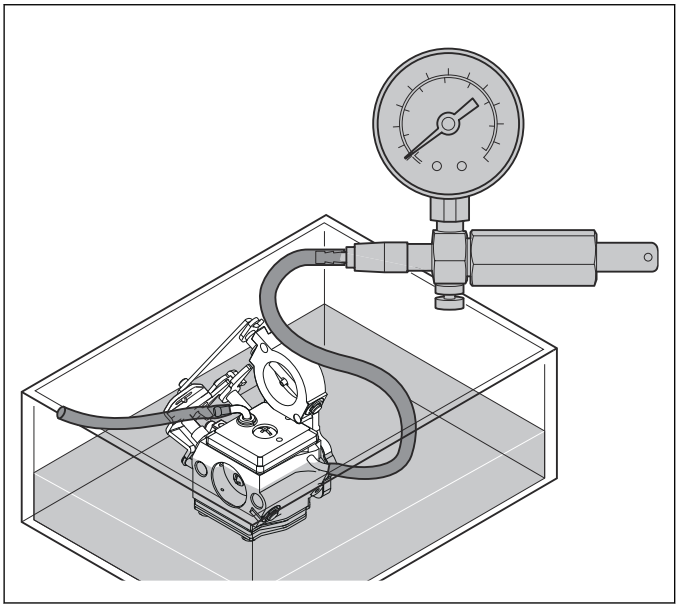
6.6.8.2 Test conditions

The best test result is from a carburetor that is drained, but has some fuel left. Do not examine a fully dry carburetor, or a carburetor that has not been used for a long time. The result will not be accurate. When the carburetor is full, turn the carburetor with the pulse line up, as shown in the picture. Pump up the pressure to approximately 30 psi/2 bar. Let the fuel run out through the venturi which is fully in water. Not until air bubbles come from the venturi, can the function of the needle valve be examined as set out below.



6.6.8.3 Water test

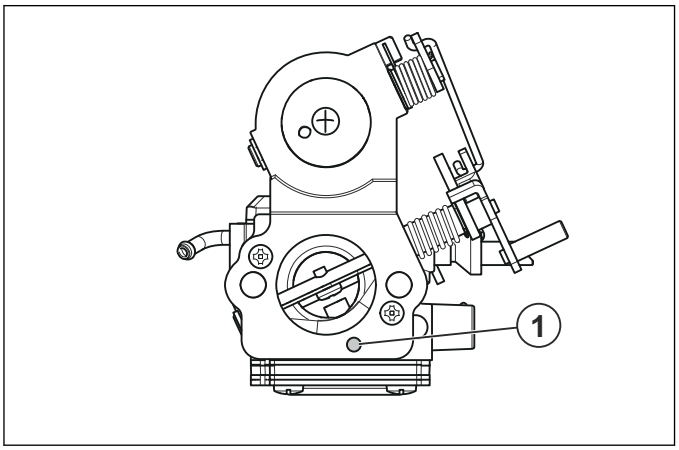
To examine external leakage and the function of the needle valve, lower the carburetor into water.



1. Connect a piece of hose to the pulse line. It must come out above the water line.
2. Connect a thin, short hose from the pressure tester to the fuel pipe of the carburetor.
3. Increase the pressure to 15–36 psi/100–2.5 bar.

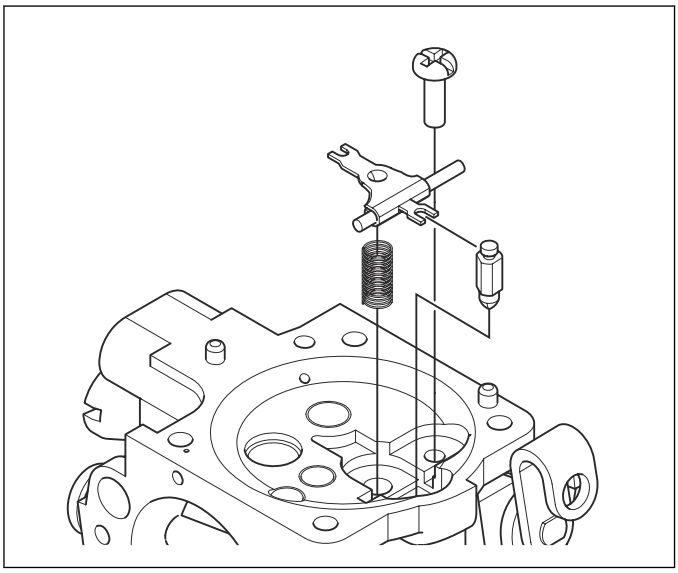
The needle valve must lift and air bubbles come out of the jets in the venturi. The pressure must then decrease to approximately 15–7 psi/100–0.5 bar and then decrease much slower or stop. A pressure drop after 7 psi/0.5 bar means there is a leak at the needle valve. If the needle valve does not open at 36 psi/2.50 bar (max. permitted pressure test) blow through the hole for filter compensation (1) to open it. If the pressure does not

increase, the cause can be a damaged pump diaphragm.

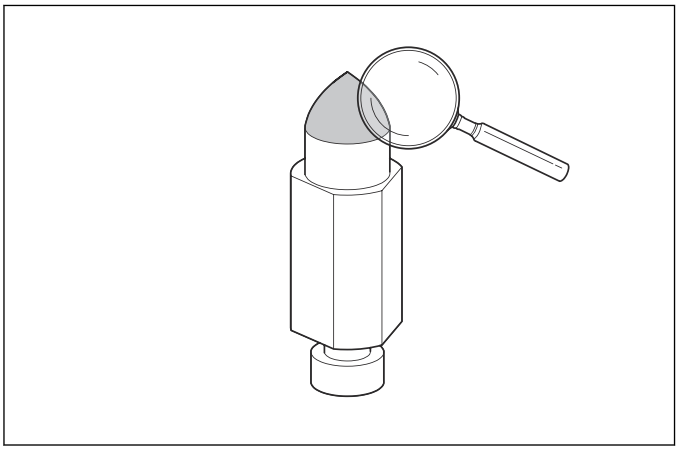


6.6.8.4 To examine and clean the needle valve

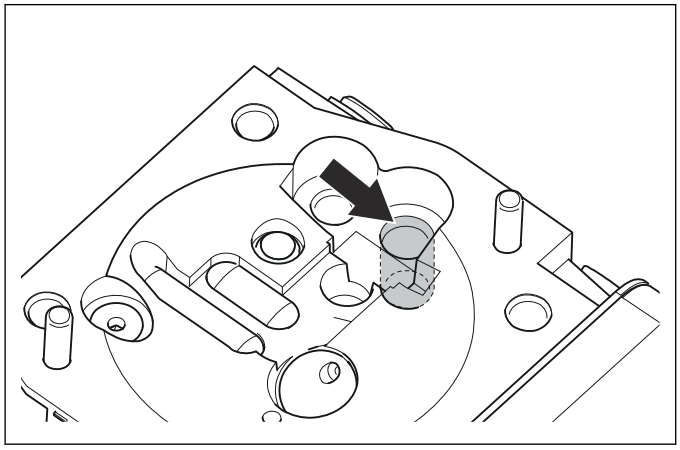
Do a pressure test, refer to *Water test on page 35*. If the test shows the needle valve has a leak, remove the needle valve.



1. Examine the spring and make sure that the lever runs easily on the axle.
2. Examine the needle end with a magnifying glass. If there are signs of particles or if the end of the needle is damaged, replace the needle.

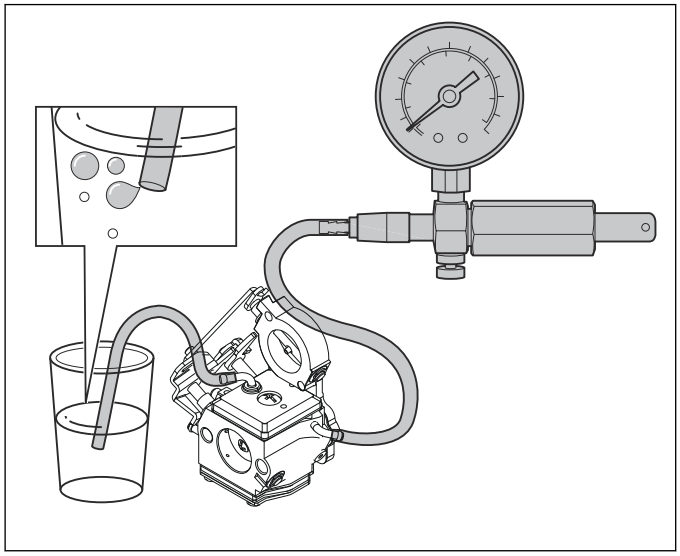


3. Clean the seating.



6.6.9 To examine the pump diaphragm

1. Connect the pressure tester to the fuel pipe.
2. Put a hose from the impulse line into water.



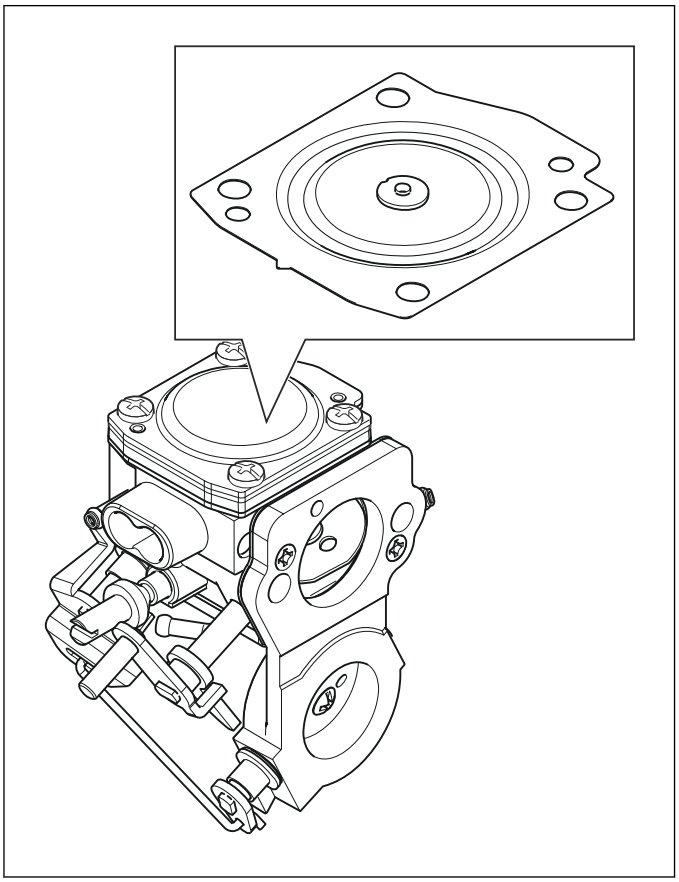
3. Apply pressure with the tester.

If air comes out of the impulse channel, the pump diaphragm is broken.

6.6.10 To examine the chamber diaphragm

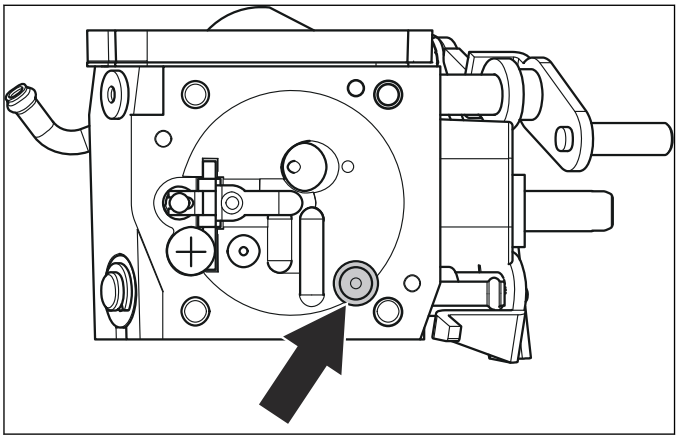
You cannot examine the chamber diaphragm with a pressure check. To examine the diaphragm, see *To*

examine the measurement chamber diaphragm on page 38. A hole in the diaphragm stops the fuel supply.

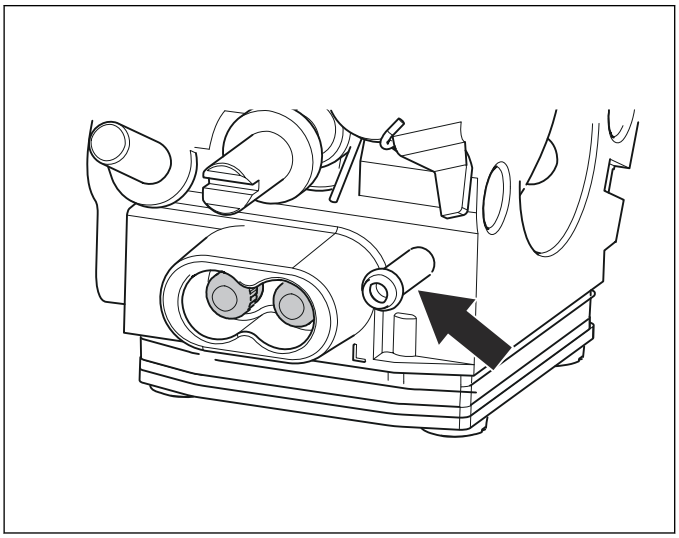


6.6.11 To examine the check valve for the air purge bulb

This valve in the carburetor stops fuel leaks out of the carburetor if leaks occur in the air purge bulb or connections.



1. Put a hose on the air purge bulb connection of the carburetor

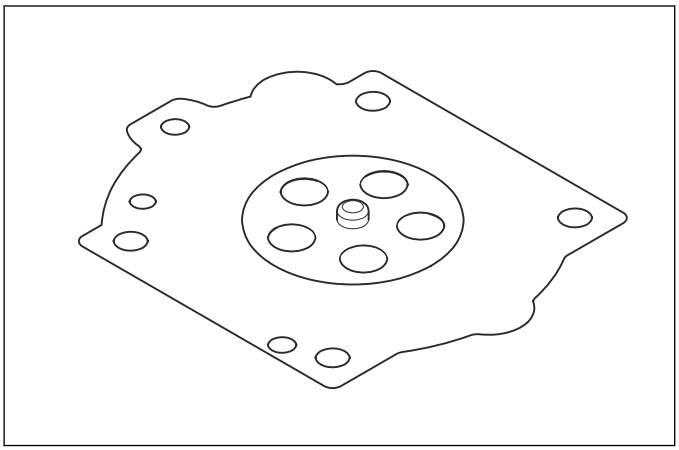


2. Blow in and out.

The valve must close when you blow in to the carburetor and open when you blow out.

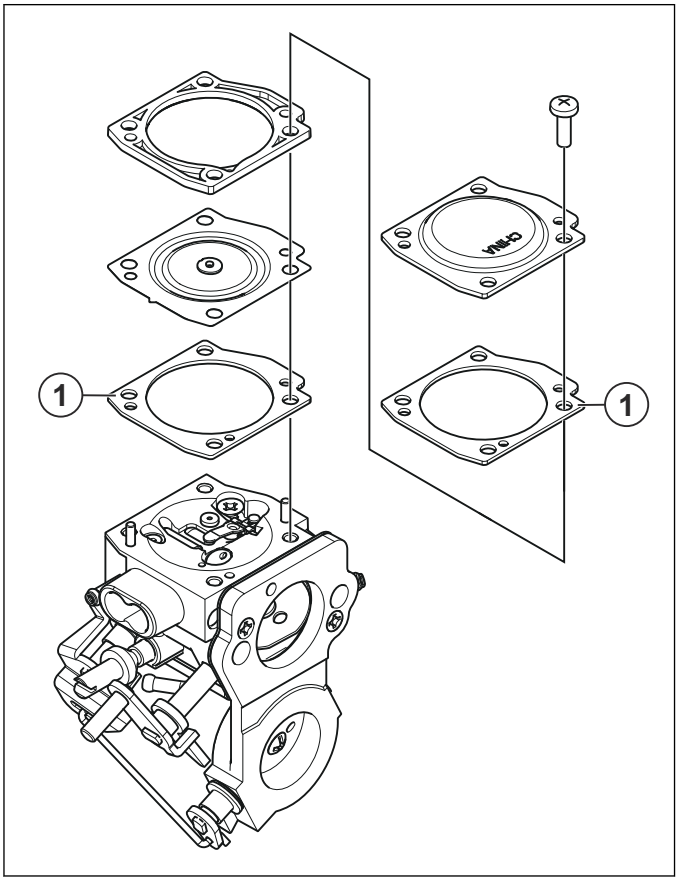
6.6.12 Function measurement chamber

The product has SmartCarb ™ filter compensation. The measurement chamber has 2 chambers. The air chamber to the cover and a fuel chamber to the carburetor body. These are divided by the measurement chamber diaphragm. The diaphragm controls and keeps a constant level of fuel in the fuel chamber through the mechanically connected needle valve. The air chamber is near the inlet, after the air filters, and gives the air chamber the same pressure.

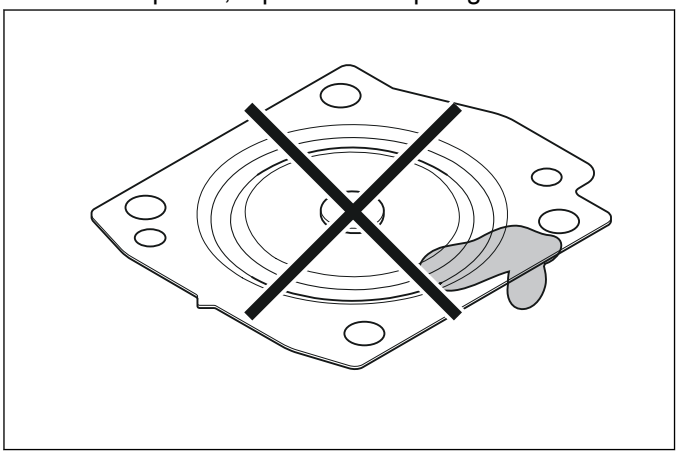


6.6.13 To examine the measurement chamber diaphragm

Assemble the parts in the order shown in the figure. The gaskets (1) are the same.

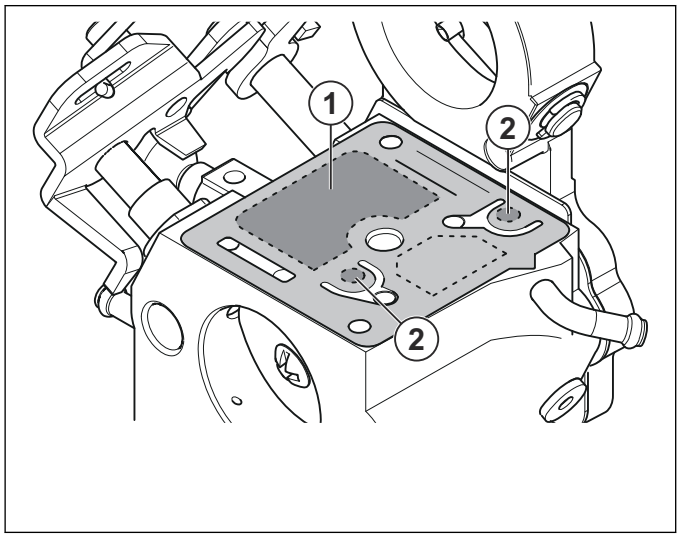


1. Examine the diaphragm visually. Fuel on the top side, to the cover, is a sign of leaks. If there is fuel on the top side, replace the diaphragm.



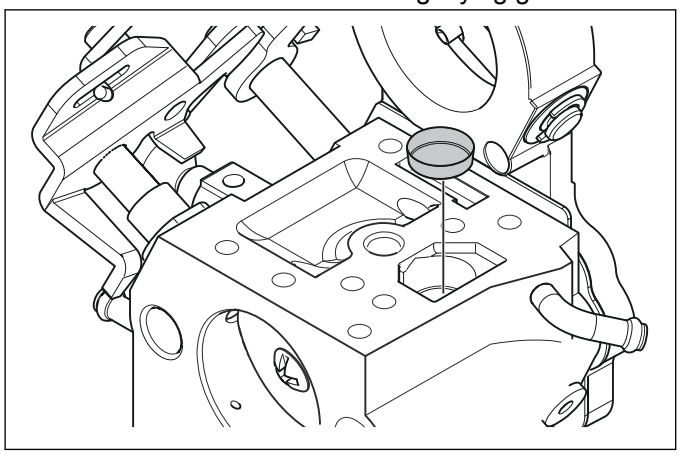
6.6.14 Function pump unit

The pump diaphragm (1) gets power by changes of pressure in the crankcase. They are caused by the movement of the piston. They are transmitted to the top of the pump diaphragm. The fuel below the diaphragm is pushed to the valves (2). Pressure from the measurement chamber diaphragm to the needle valve in the measurement chamber controls how much the valve opens. It also controls the quantity of fuel transmitted to the fuel side of the measurement chamber.



6.6.15 To examine the fuel strainer

1. Examine the strainer with a magnifying glass.



2. Remove loose dirt particles from the seating of the needle valve with air.

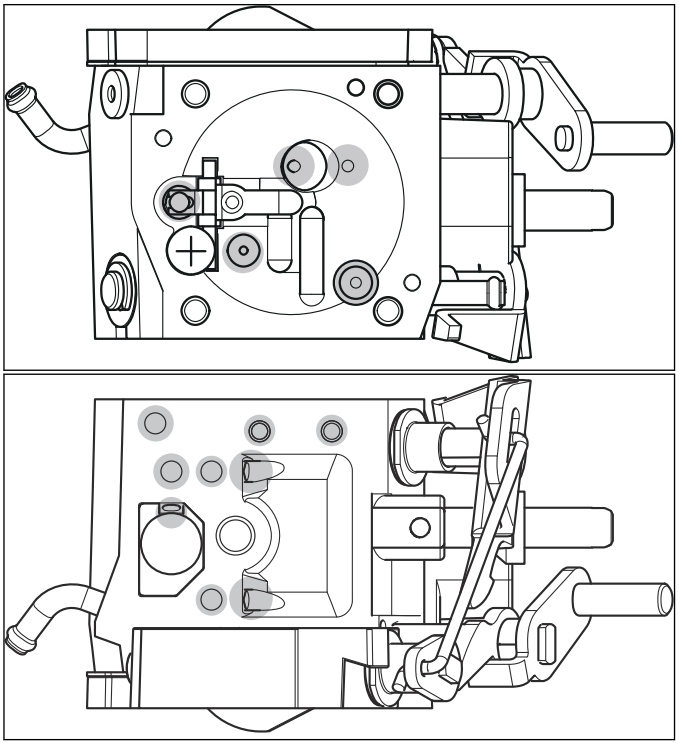
Replace the strainer if it is damaged. Remove with a needle and install with a 7 mm pin punch.

6.6.16 To clean the carburetor channels

When you do servicing on the carburetor, also blow out particles from the channels with compressed air.

1. Disassemble the chamber diaphragm, the pump diaphragm and the needle valve.
2. Open the choke valve to give free air flow through the venturi.

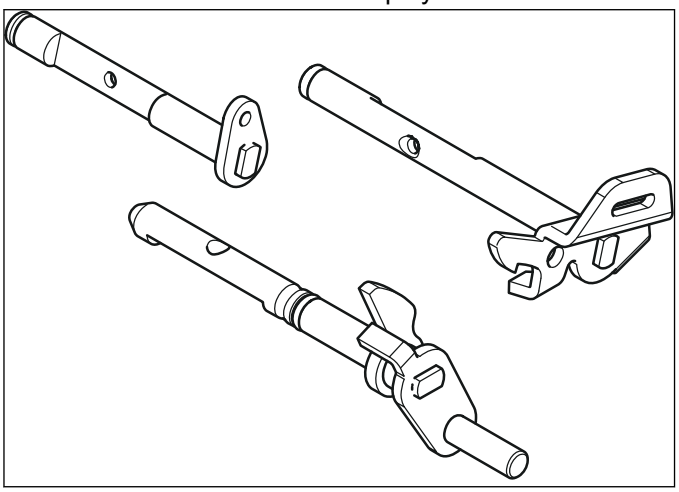
3. Clean the channels with compressed air. The rings show where to blow clean.



6.6.17 To examine the valve axles

Leakage from the valve axles results in incorrect fuel/air mixture and dust in the engine.

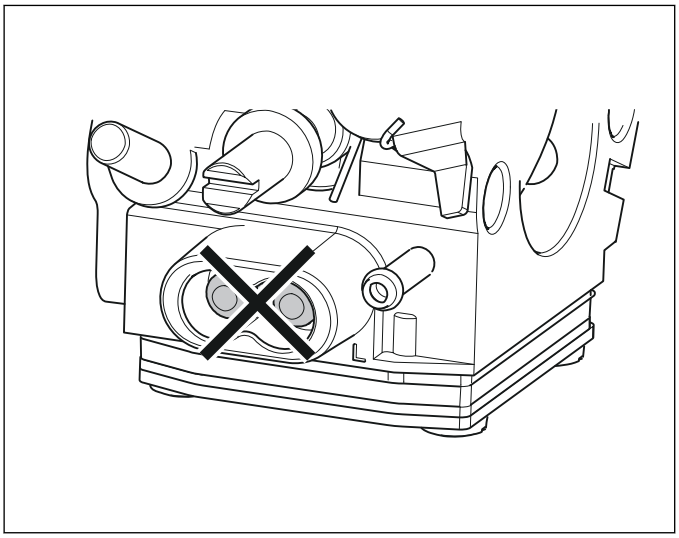
1. Make sure there is no radial play on the valve axles.



2. Replace parts if necessary.

6.6.18 High and low speed jets

The low and high speed nozzles on the carburetor have been factory set. They must not be adjusted.



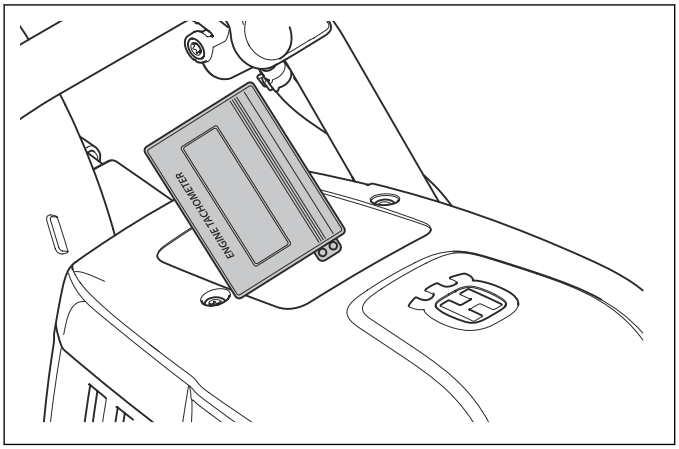
6.6.19 To adjust the idle speed

The idle speed must be examined during service. Use a special screwdriver and tachometer. See *Servicing tools overview on page 12*. The cutting blade must be attached.

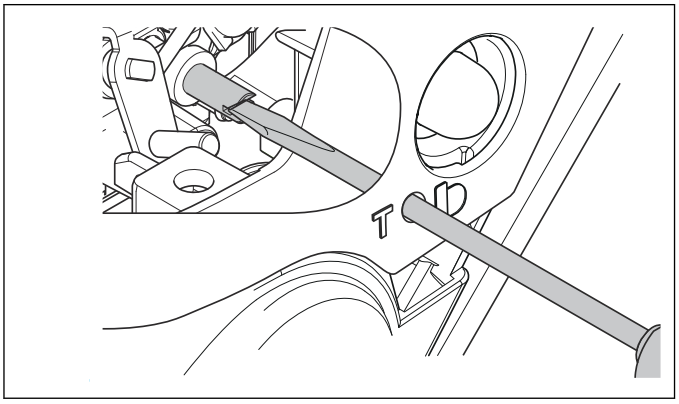
The tachometer is induction sensing. It must not be connected directly to the ignition lead. The air filter cover must not be removed. The antenna cable supplied with the tachometer is not usually used.

WARNING: The exhaust fumes are poisonous. Adjust the idle speed outdoors.

1. Run the machine warm for approximately 5 minutes.
2. Keep the instrument with the arrow pointing down to the position of the spark plug.



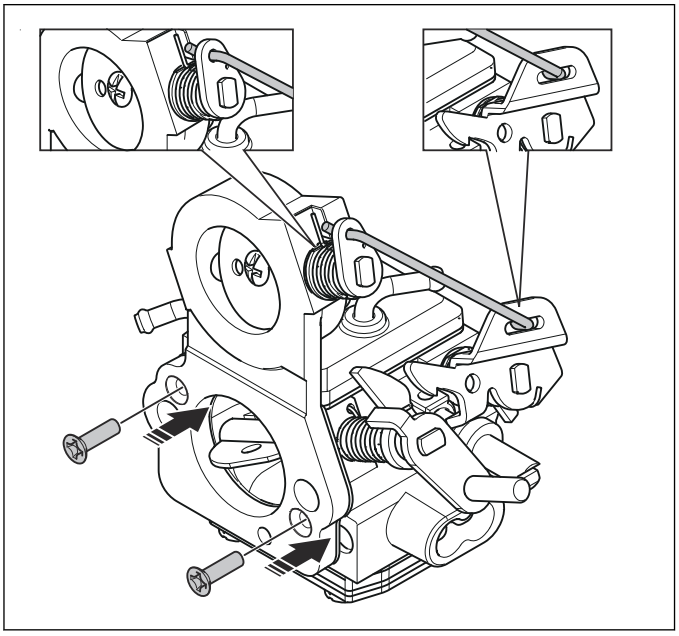
3. Adjust the idle screw to an idle speed of approximately 2,700 rpm.



If the cutting blade rotates at this speed, the clutch or the friction retarder must be examined.

6.6.20 To assemble the air valve

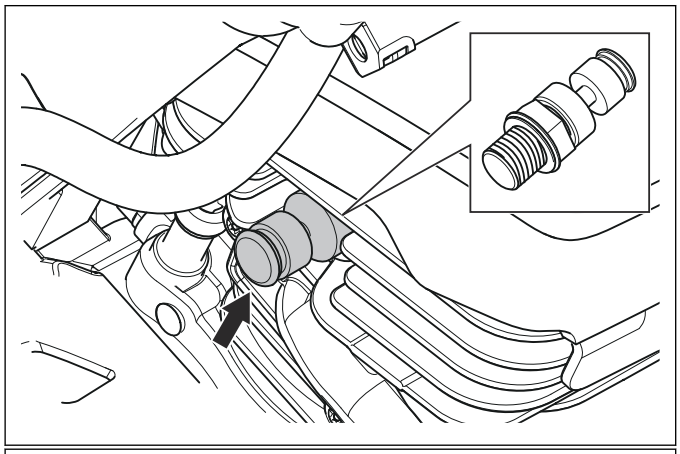
1. Attach the air valve to the carburetor with 2 screws.

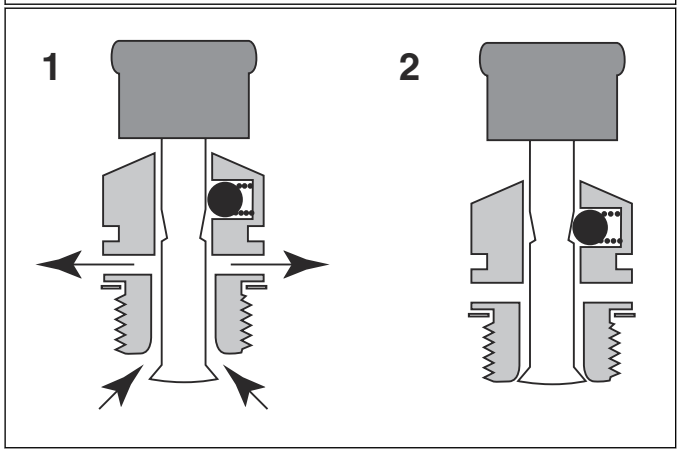


6.7 Decompression valve

6.7.1 Function

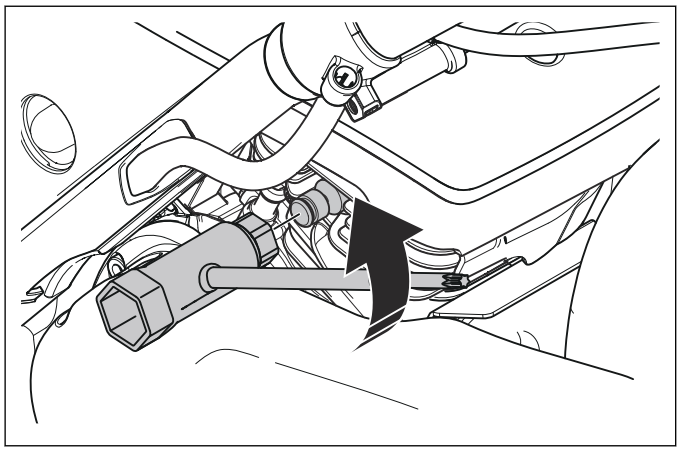
The decompression valve decreases the compression in the cylinder when the engine is started. A small quantity of fuel/air mixture leaks out through the decompression valve, as shown in fig. 1. When the engine fires the valve will close because of the combustion pressure, as in fig. 2.





6.7.2 To disassemble the decompression valve

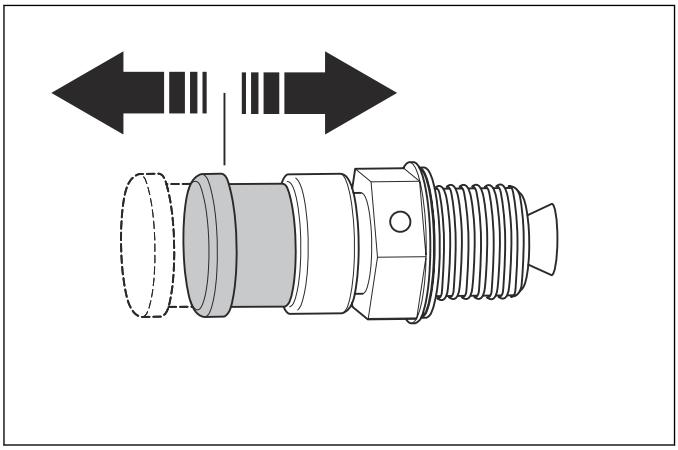
1. Remove the decompression valve with a long socket or the combination wrench.



6.7.3 To examine the decompression valve

It is not necessary to start the product to examine the decompression valve.

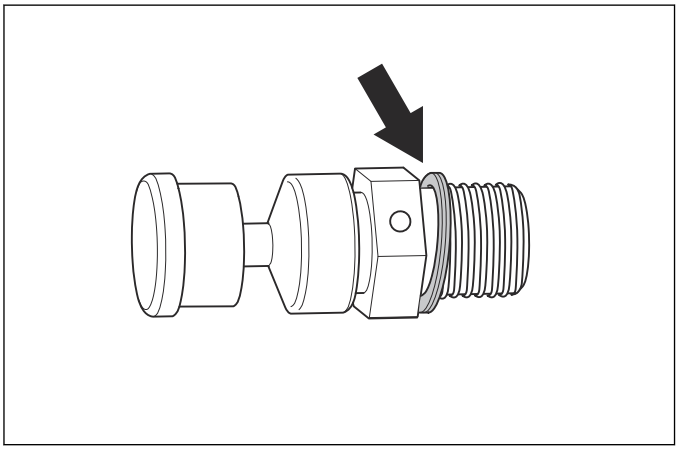
1. Make sure that the decompression valve moves.



2. Clean the decompression valve.
3. Apply leakage spray or soap water on the decompression valve before installation.
4. Install the decompression valve. See *To install the decompression valve on page 41*.
5. Move the stop button to the stop position.
6. Slowly pull the starter rope handle and look at the decompression valve to make sure that there are no leaks.

6.7.4 To install the decompression valve

1. Clean and examine the sealing washer before you install the decompression valve.

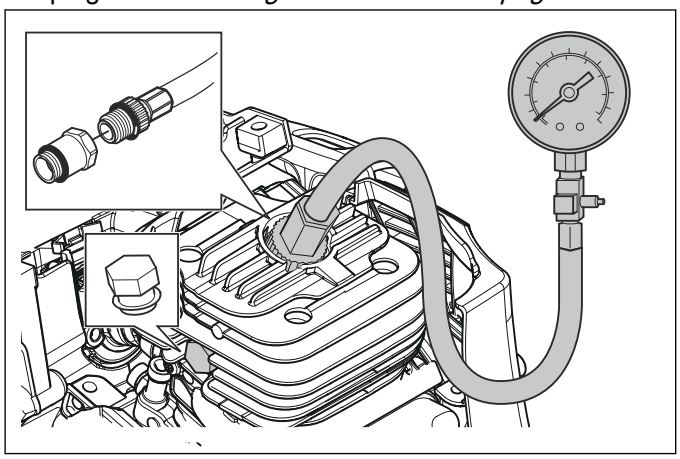


6.8 Cylinder and piston

6.8.1 To examine the compression of the cylinder

The test shows leakage from the combustion chamber.

1. Run the engine warm for some minutes.
2. Close the decompression valve or put in the sealing plug. See *Servicing tools overview on page 12*.

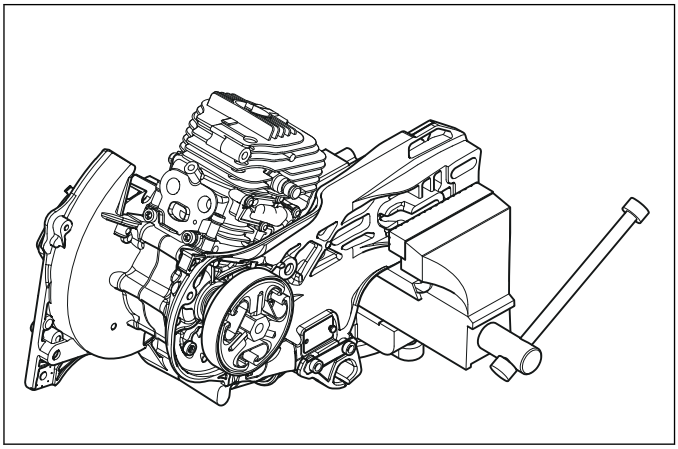


3. Remove the spark plug.
4. Connect the compression tester to the spark plug hole.
5. Pull the starter rope 5-6 times and read the pressure on the gauge. Remove the pressure from the cylinder and do the procedure some more times. Make a note of the mean value of the tests.

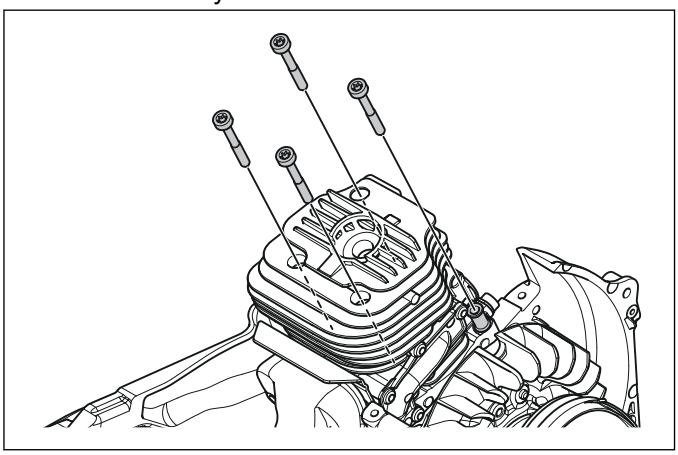
The mean value for a new engine is approximately 10 bar (150 psi). Values less than 8 bar (120 psi) show faults with or on the cylinder, piston or piston rings.

6.8.2 To remove the cylinder

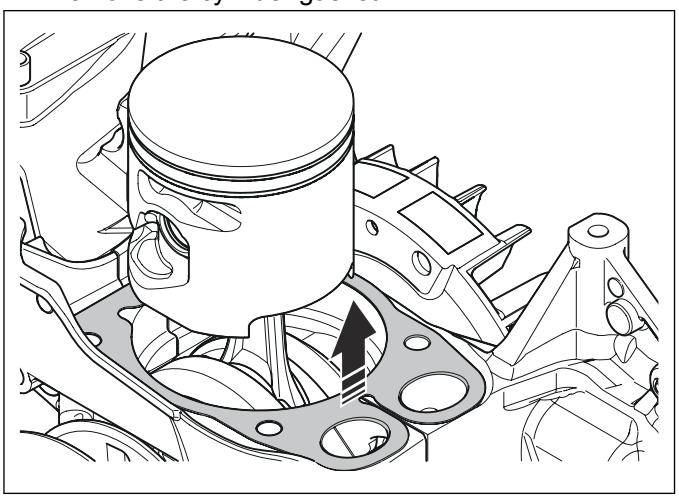
Divide the machine at the vibration dampening element for easier access to the cylinder. You can tighten the engine body in a vice. Use soft guards.



1. Remove the cylinder.



2. Remove the cylinder gasket.

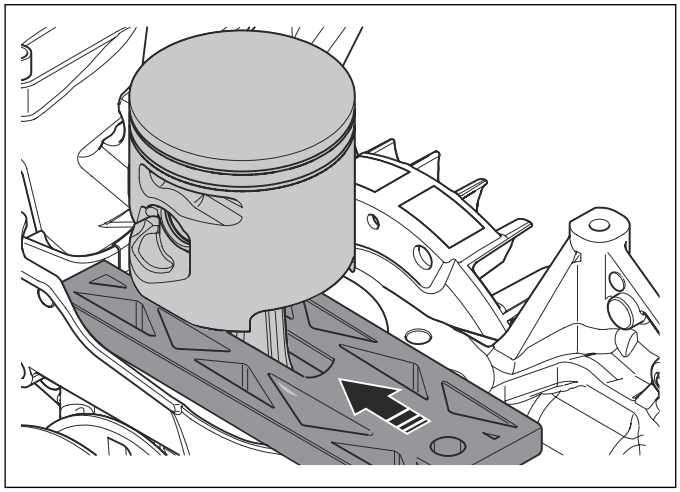


6.8.3 To remove the piston

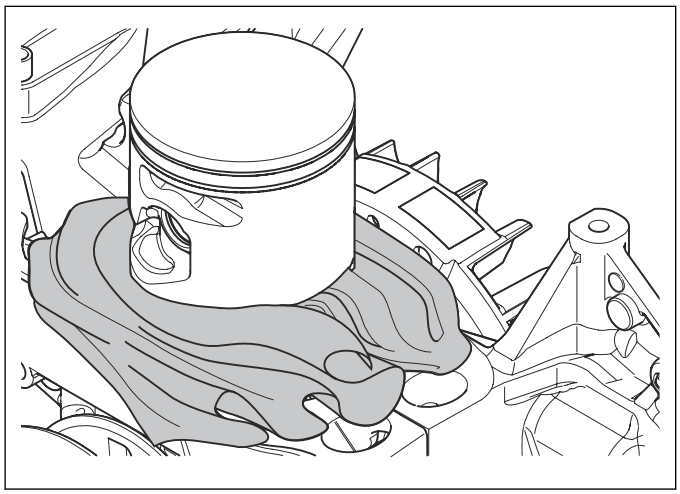
To remove the piston, use a kit for piston service. See *Servicing tools overview on page 11*. The kit contains piston ring compressors, a piston stop, and a support plate for the piston. To remove the wrist pin, use the wrist pin punch. See *Servicing tools overview on page 11*.

CAUTION: Do not use the piston stop on this product.

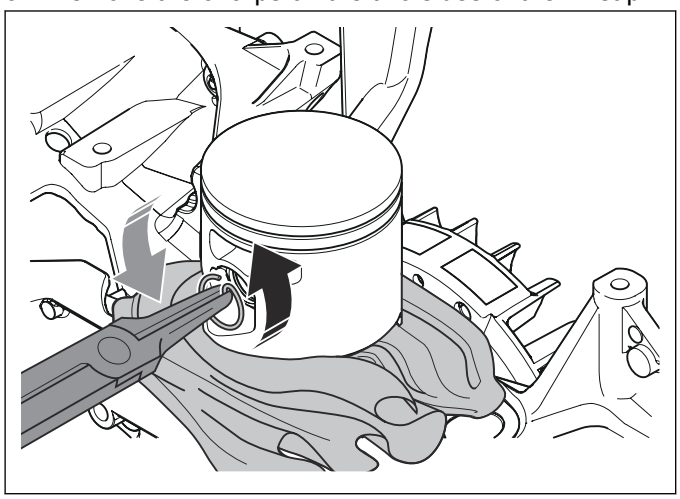
1. Put the support plate below the piston.



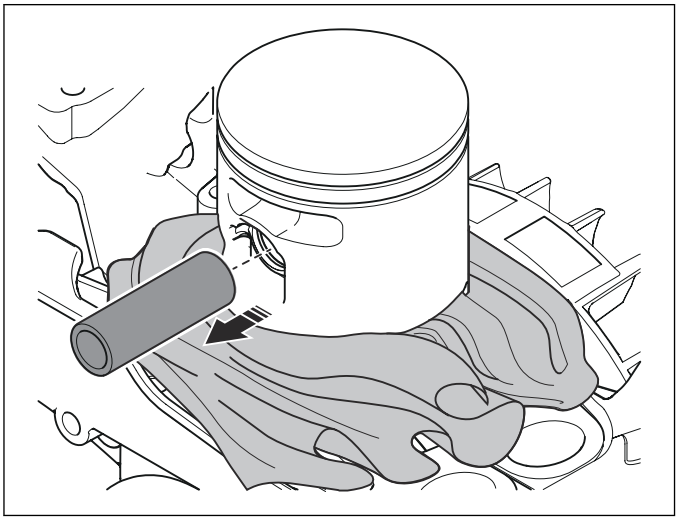
2. Seal with a cloth or paper to make sure that parts do not fall into the crankcase.



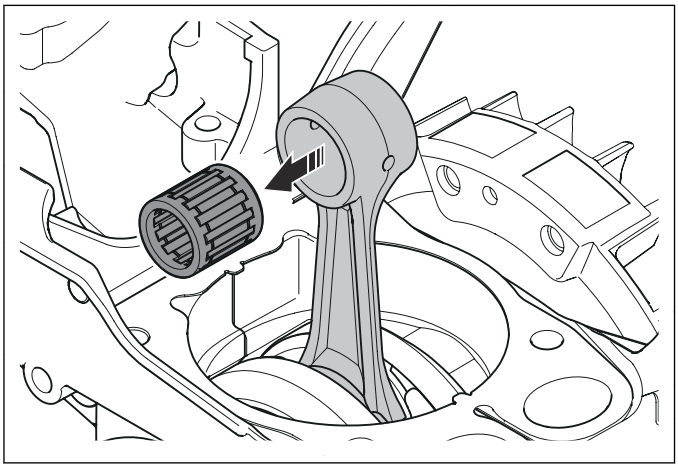
3. Remove the circlips on the two sides of the wrist pin.



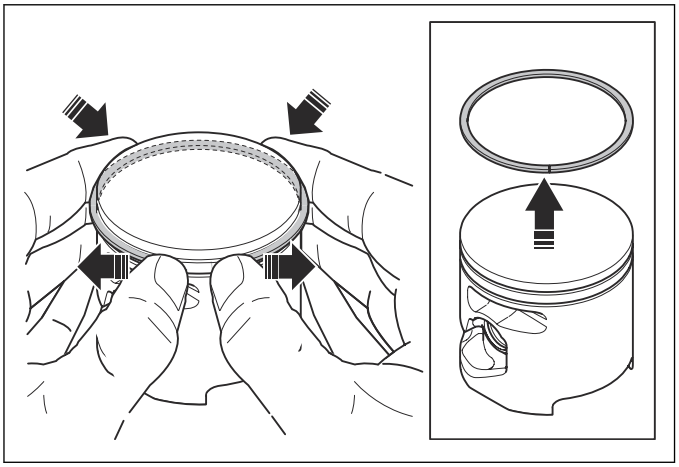
4. Push out the wrist pin by hand. If it is tight, use a small hammer and light force.



5. Press the needle bearing out of the connecting rod.

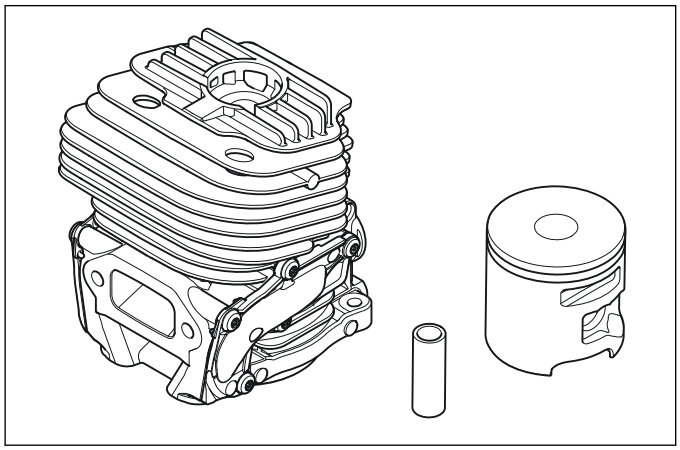


6. Remove the piston rings.



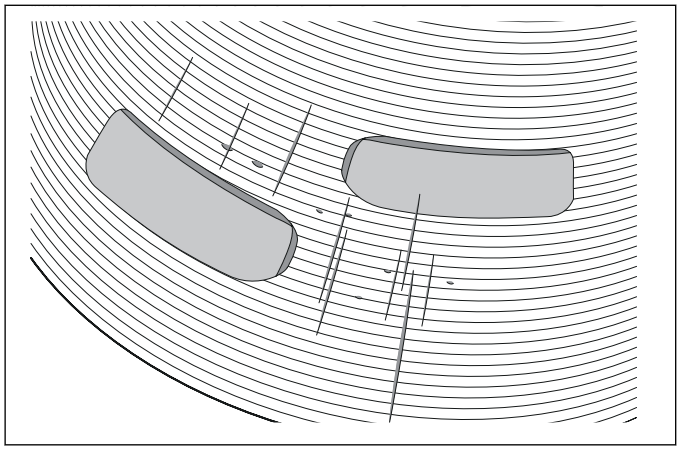
6.8.4 Examine the cause of failure

Examine the cause of low compression or failure. With usual wear and many hours of operation, components must be examined and replaced if necessary. A product that has not been used for many hours must be examined carefully. It is important to identify the cause of the unusual wear.



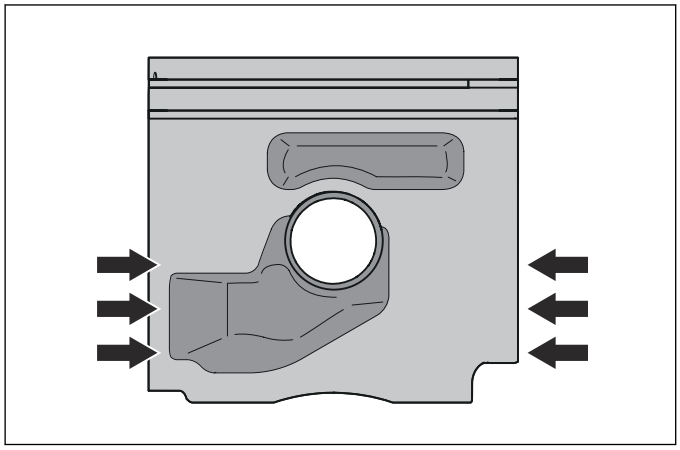
6.8.5 To examine cylinder wear

Examine the cylinder bore against the light. You can continue to use the cylinder if the surface layer has not been broken through. Aluminium from the piston can be removed using emery cloth.



6.8.6 To examine the piston

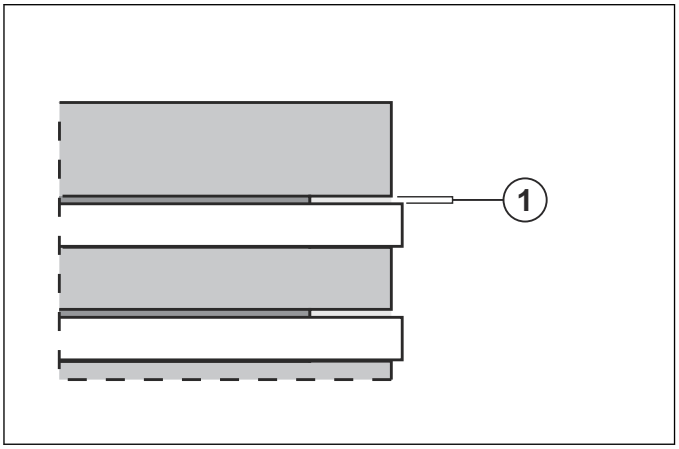
The bottom of the piston, near the inlet and exhaust ports, usually shows the largest signs of wear. Examine the lines made by the manufacturing process. Replace the piston if the bottom has been worn smooth. A product with a worn piston is difficult to start because of the decreased valve function of the piston.



6.8.7 Piston wear tolerances

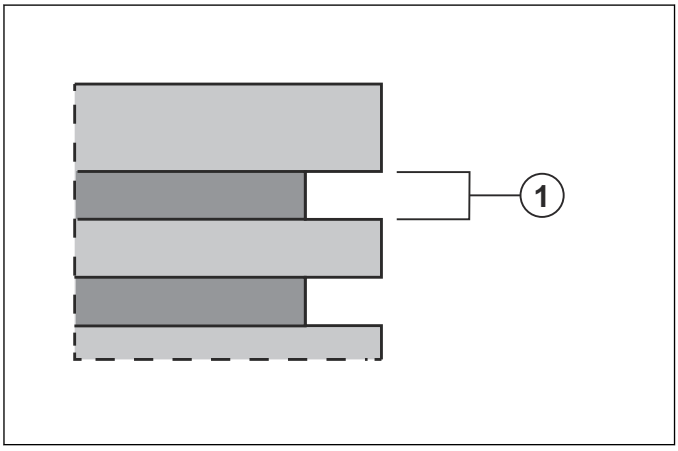
6.8.7.1 Piston ring play

If the piston ring play is more than .006 in/0.15 mm, the piston ring groove must be measured as set out below.

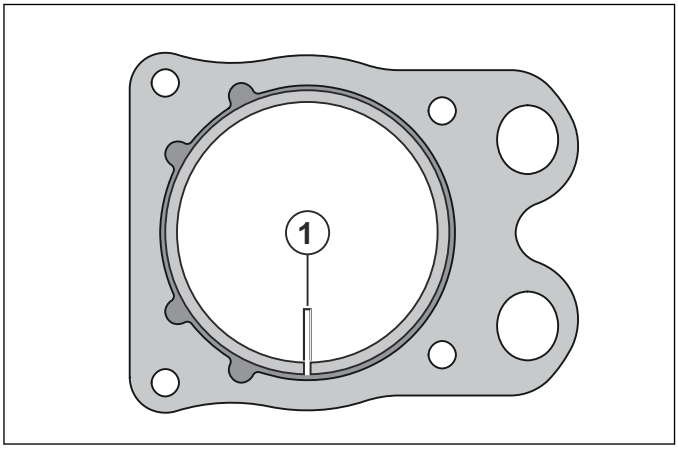


6.8.7.2 Piston ring groove

If the piston ring groove is larger than .06 in/1.6 mm, the piston must be replaced. Install a complete piston kit with piston rings, needle bearing and wrist pin.



6.8.7.3 Piston ring wear



Put the piston ring in the cylinder with the aid of the piston. Put it around 1 in/2.5 cm from the bottom of the cylinder. The piston ring distance (1) must be max. .04 in/1.0 mm.

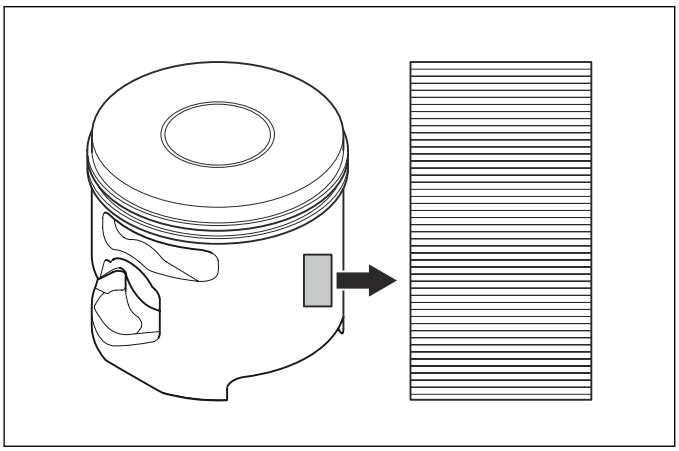
6.9 Piston wear

The cause of engine failure can be hard to find if the previous operation and service of the product is not available. Use the following examples for help.

6.9.1 Usual wear

Usual wear is easiest to see on the piston sections that point at the exhaust and inlet sides. The picture shows that the piston has been polished to give a bright surface. The lines from the production can also be seen.

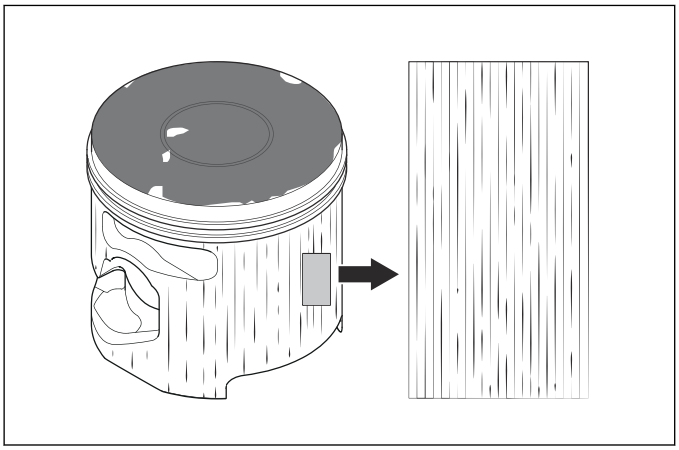
Oil on the piston rings shows correct lubrication. The piston rings can move freely in the piston ring groove.



6.9.2 Dust

If dust enters the engine, the engine life decreases. The effect of dust can be seen with a magnifying glass. Rounded lines in line with the travel of the piston are clear signs. The lines after production cannot be seen. The surface is matt.

The usual cause is a bad filter and/or leakage. Examine the condition of the filters and gaskets. Also examine the rubber guides between the cylinder, the carburetor and the connections. Look for dust from the filter units to the inlet by the cylinder. Carbon particles on the top of the piston show that the product is used at short intervals. The engine has not become fully warm.

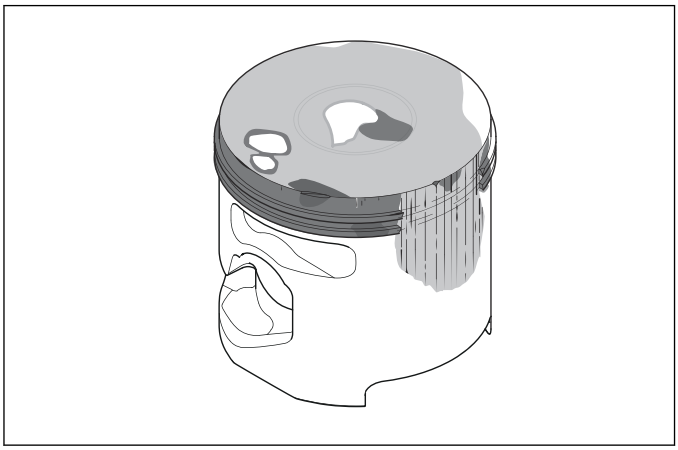


6.9.3 Scoring

Scoring occurs when the engine is too hot. The scores are usually on the exhaust side, which is the hottest. The inlet side can show equivalent damage.

Examine the product to see if it has broken down because of an incorrect oil mixture, or no oil at all. If there is oil on a piston that is too hot it can carbonize. If not, check if the connecting rod or the crankcase has a thin layer of oil.

If there is sufficient oil, inlet leakage can be the cause. When the engine leaks air on the inlet side, the fuel/air mixture changes. This causes scoring, mainly on the exhaust side. Look for scoring damage in combination with a piston top that has become too hot.



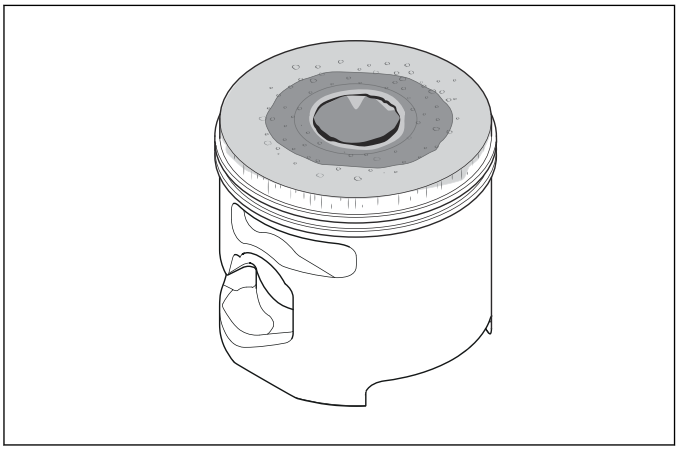
6.9.4 Too hot piston top

If the engine has been too hot, aluminum particles are frequently found on the top of the piston. This can cause the piston to melt.

Too much air in relation to the fuel volume increases the temperature in the combustion chamber. Examine if the inlet system is blocked. Examine that the fuel supply has not been blocked by a defective fuel hose, tank vent or the pulse hose.

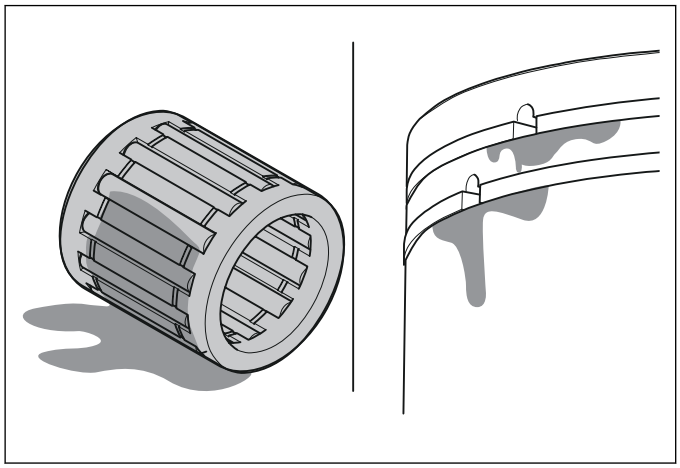
Gasoline with a too low octane grade can cause ignition at the incorrect position. Spark plugs with incorrect heat rated value can cause the same problem. They can increase the temperature in the combustion chamber.

Make sure that the key on the flywheel of the crankshaft is not damaged. The flywheel position on the crankshaft controls the ignition point.

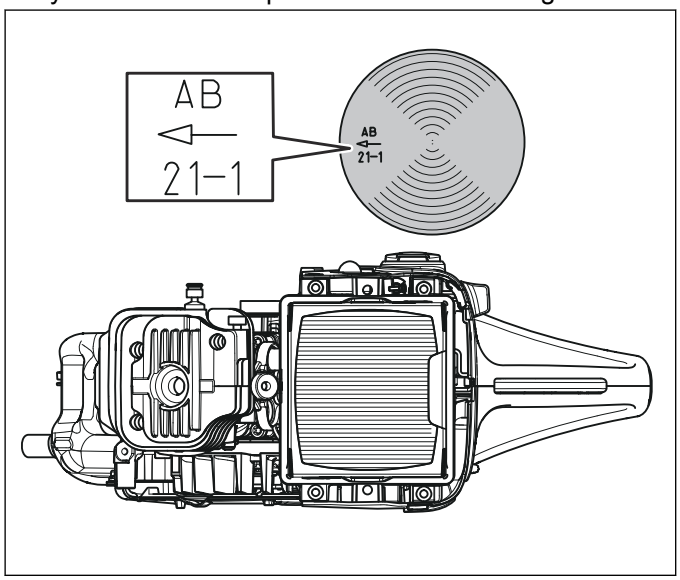


6.10 To assemble the piston

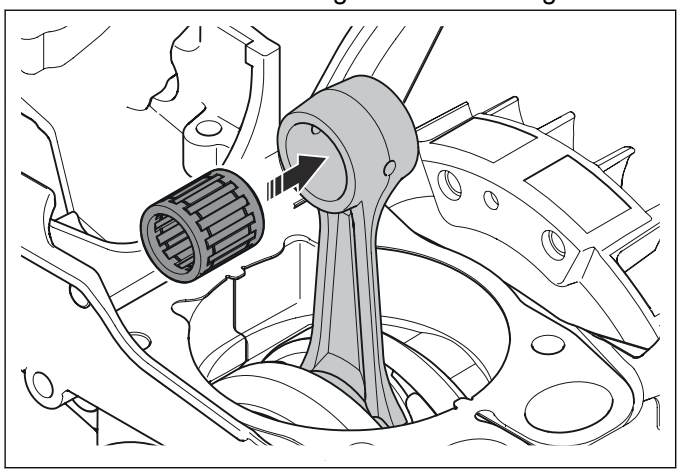
Lubricate new or cleaned bearings and piston rings with 2-stroke oil before you assemble them.



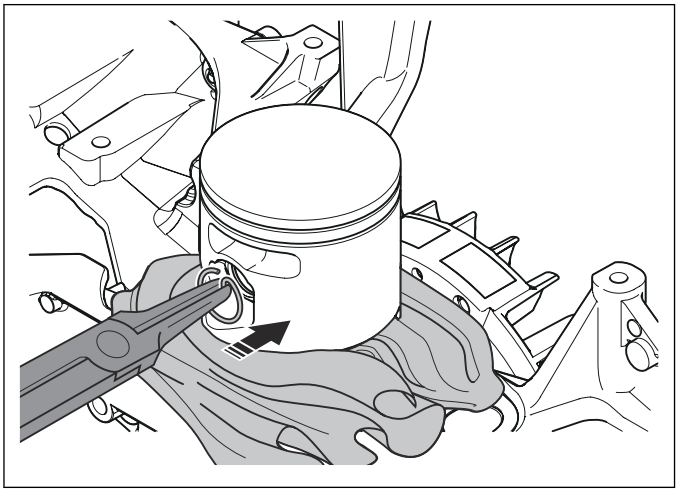
1. Turn the arrow in the direction of the muffler when you assemble the piston on the connecting rod.



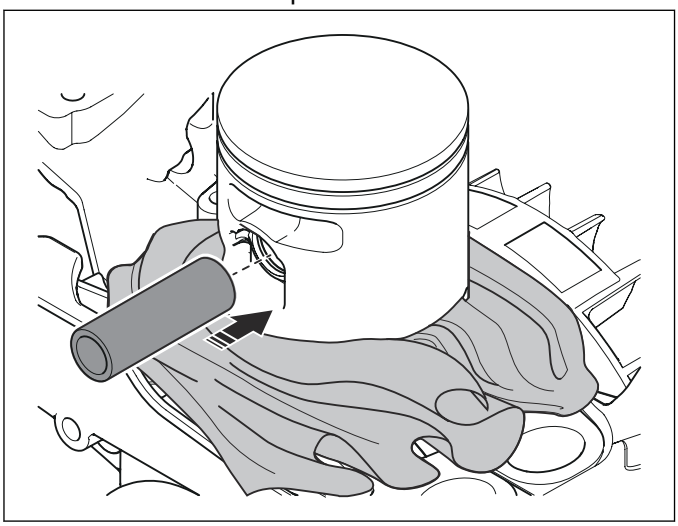
2. Install the needle bearing in the connecting rod.



3. Install a circlip in the piston.



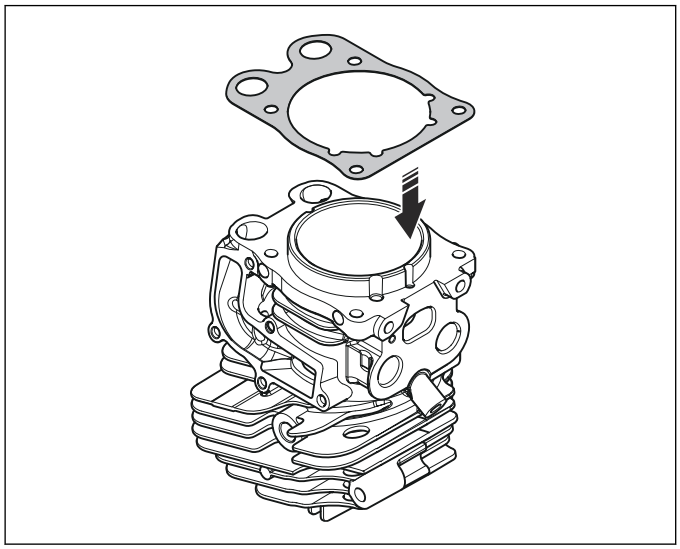
4. Hold the piston in position, push in the wrist pin and install the other circlip.



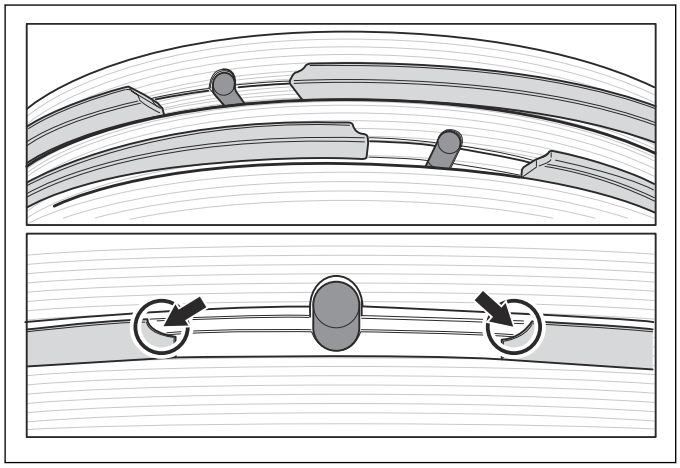
6.11 To assemble the cylinder

Clean off remaining bits of the first gasket from the surfaces that connect with the gasket.

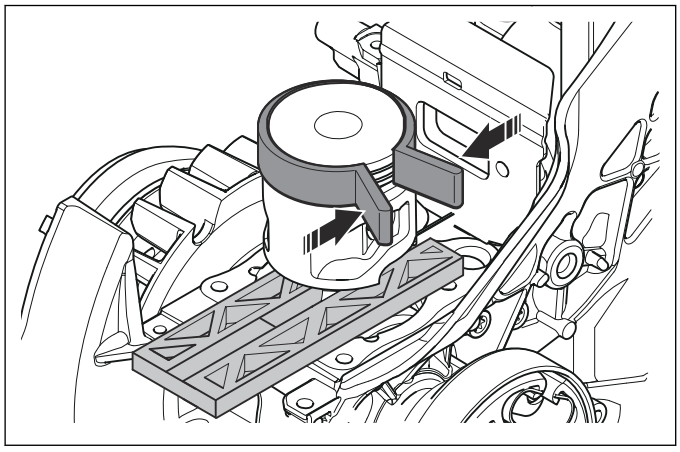
1. Put the gasket on the cylinder.



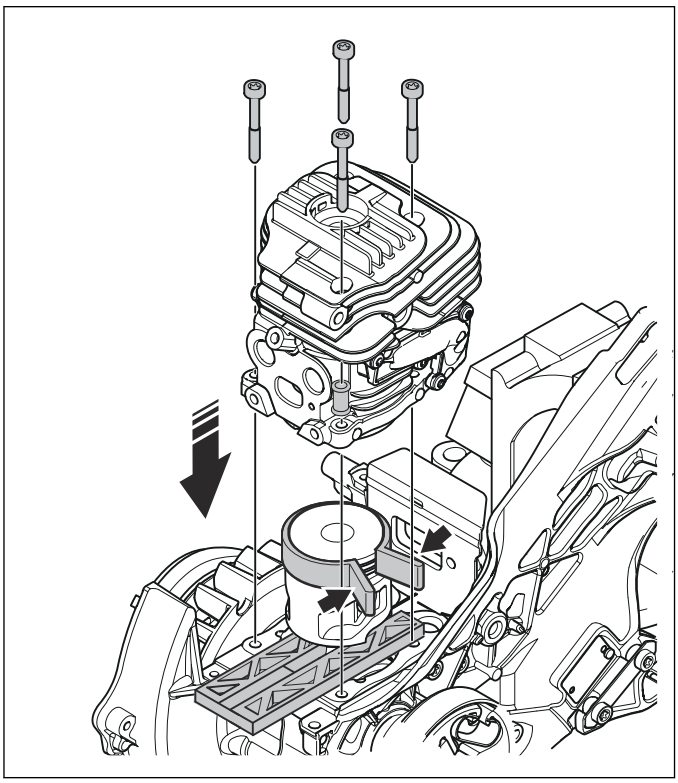
2. Make sure that the opening on the piston rings aligns with the guide pin.



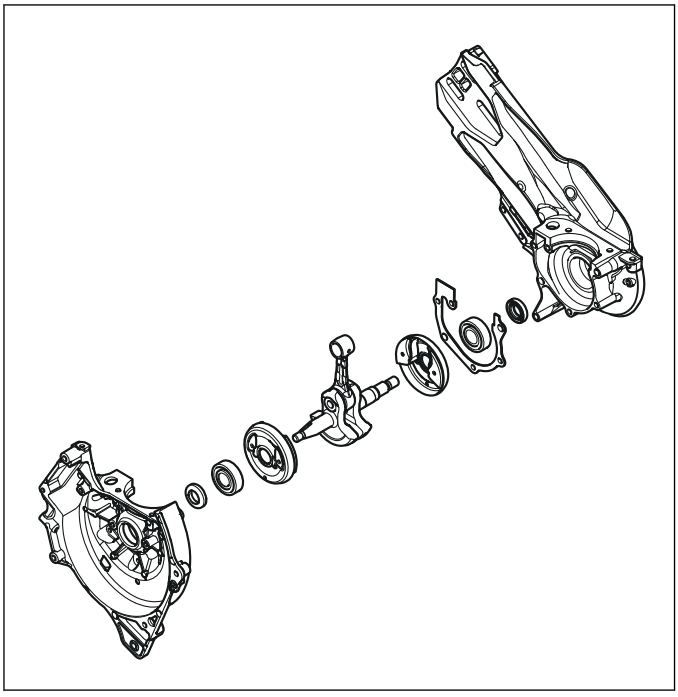
3. Press the piston rings together using the piston ring compressor.



4. Press down the cylinder on the piston and let the piston ring compressor move along the piston. Tighten the screws crosswise to a torque of 10–11 lbf·ft/14–15 Nm.



6.12 Crankcase

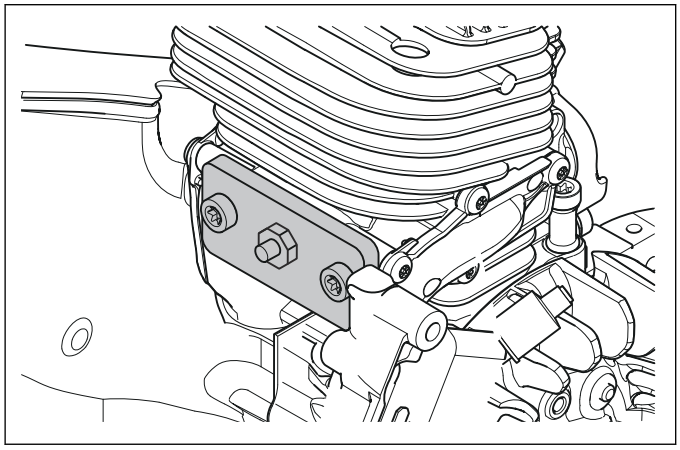


6.12.1 To examine the crankcase for leaks

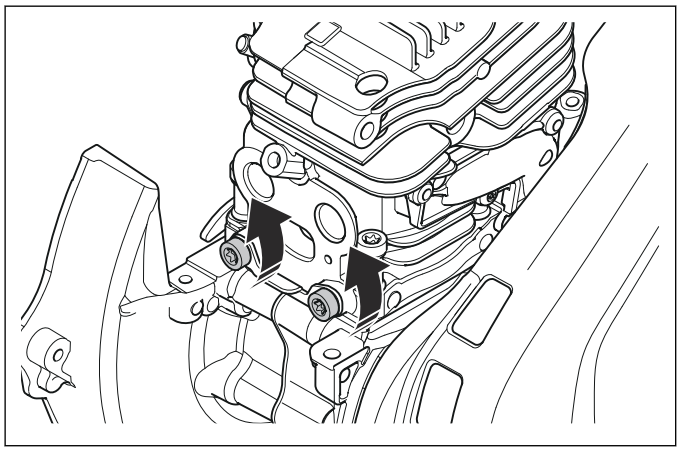
A crankcase with a leak has lower crankcase compression. A typical sign is that the product cannot easily start.

The tool kit cylinder seal, refer to *Servicing tools overview on page 10*, has parts for sealing the exhaust and inlet ports of the cylinder. It also has a sealing plug that replaces the decompression valve. Use a pressure tester or equivalent for the test, refer to *Servicing tools overview on page 11*. Before the test, turn the crankshaft until the exhaust port is fully open. The piston must be at its bottom turning point.

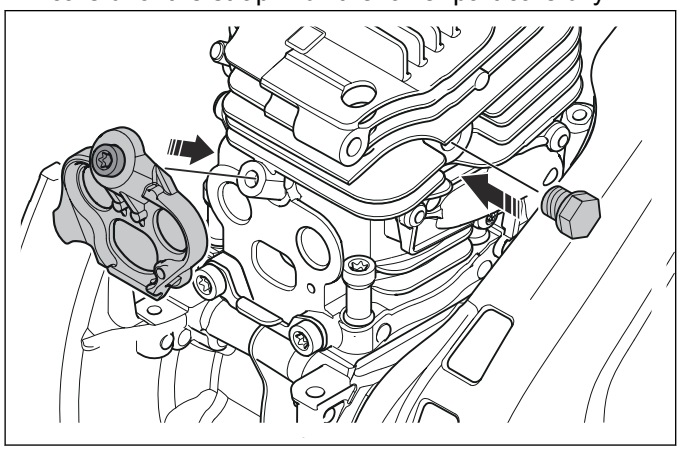
1. At the exhaust port, attach the exhaust port seal on the cylinder by the position of the muffler.



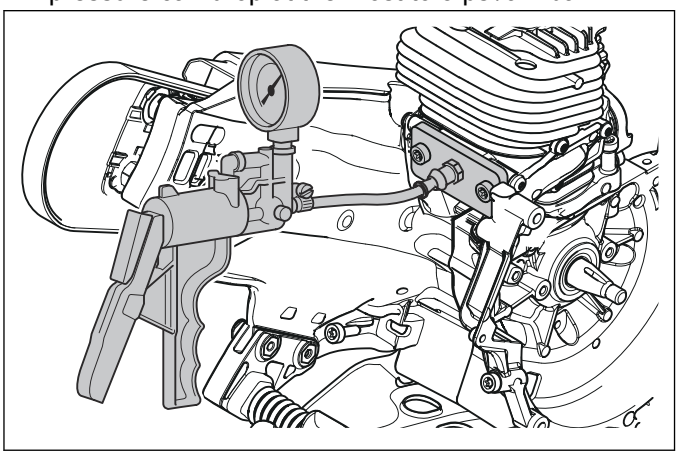
2. At the inlet port, loosen the screws at the lower part of the carburetor.



3. Put the inlet seal in position and put in the screw. Be careful of the strap. Pull the lower part carefully.



4. Connect the pressure tester on the nipple at the exhaust port seal. With the pressure tester, increase the pressure to 7 psi/0.5 bar. After 30 seconds the pressure can drop at the most to 3 psi/0.2 bar.

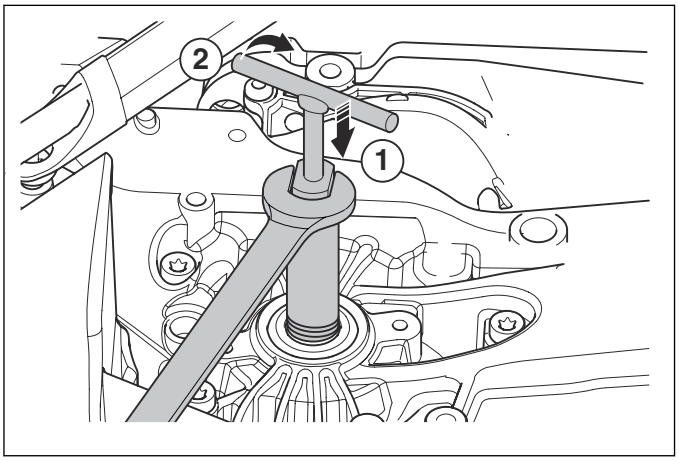


5. If there is a leakage, apply a solution of soap and water or use a leakage spray to find it.
   a) Examine the seals on the crankshaft.
   b) Examine around the gaskets where the crankcase halves are joined and at the base of the cylinder.
   c) Look for cracks on the crankcase.

6.12.2 To remove the crankcase seal

To replace the crankcase seal rings, use a Husqvarna puller and an assembly punch. See *Servicing tools overview on page 12* and *Servicing tools overview on page 10*.

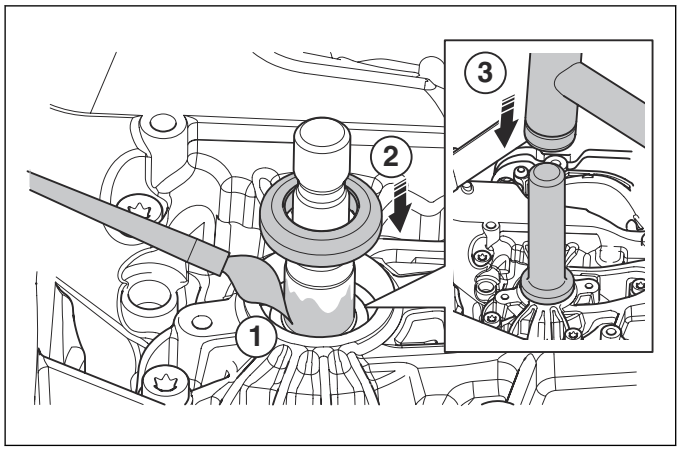
1. Press down the puller and tighten the outer thread of the puller in the sealing ring.



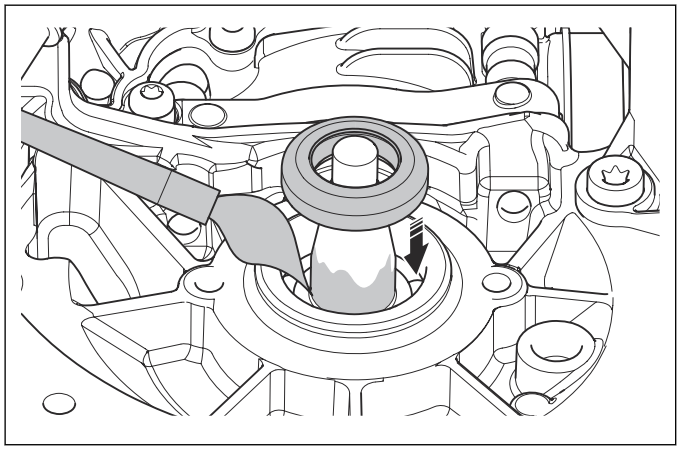
2. Turn the center bolt (T-handle) of the tool to pull up the sealing.
3. Remove the seal in the same way on the flywheel side.

6.12.3 To assemble the crankcase seal

1. On the clutch side, lubricate the axle at the taper for the clutch drum.



2. Press down the sealing ring past the taper.
3. Hit the sealing ring into position with the assembly punch.
4. On the flywheel side, lubricate the axle.



5. Press the sealing ring down.
6. Hit the sealing ring into position with the assembly punch.
7. Clean the grease from the axle before you install the flywheel.

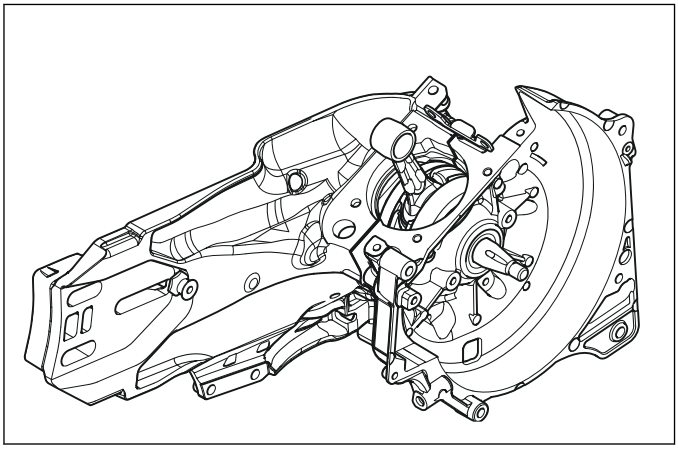
6.12.4 To examine the crankcase seals

1. Apply leakage spray or a solution of soap and water to examine the seals for leaks.
2. Use the pressure tester to find leaks.

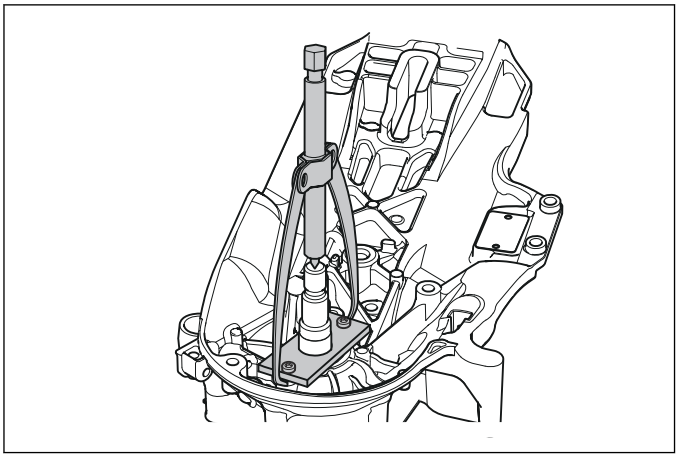
6.12.5 To disassemble the crankcase

Divide the crankcase with a universal puller and a grip plate from Husqvarna. Refer to *Servicing tools overview on page 12* and *Servicing tools overview on page 11*.

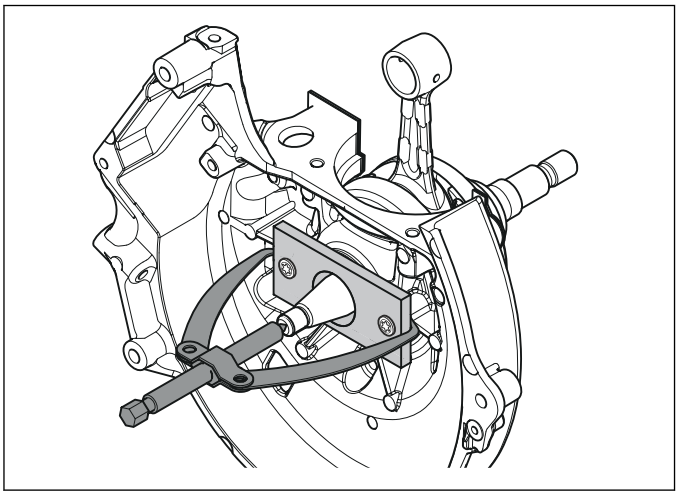
1. Disassemble the basic modules from the crankcase.



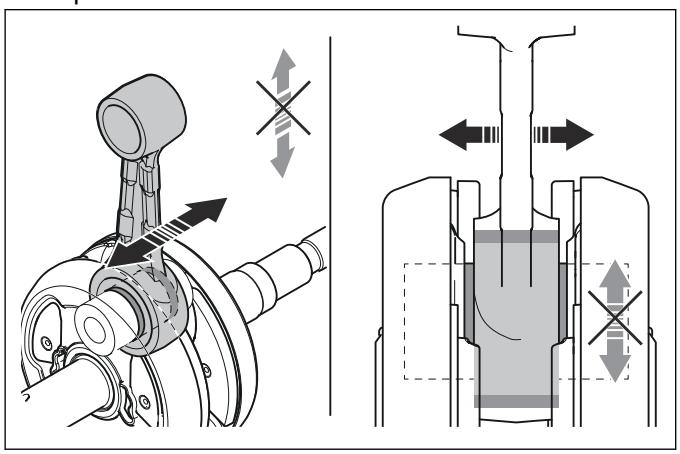
2. Remove the 6 screws that hold the crankcase halves together.
3. Put the grip plate over the hole for the crankshaft and push out the crankshaft with the puller.



4. Push out the crankshaft from the other crankcase half in the same way.



5. Make sure there is no radial play on the connecting rod by the crankshaft journal. If so, the unit must be replaced.



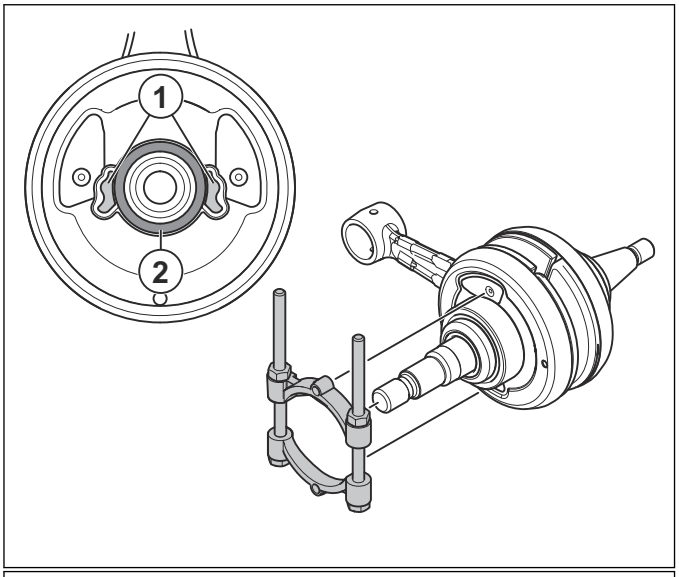
6. Carefully clean the gasket surfaces.

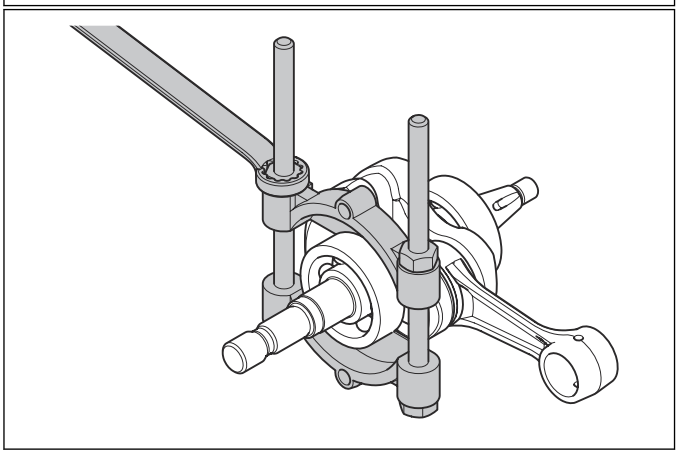
6.12.6 To the remove bearings from the crankcase

Usually the bearing releases from the crankshaft during disassembling. If not, you can remove the bearing with the puller. See *Servicing tools overview on page 10*. To change the bearing you must use two Husqvarna

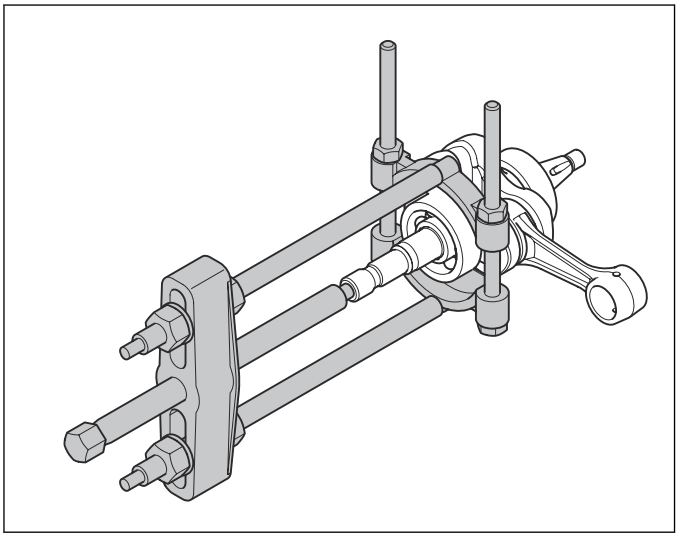
bearing press kits. See *Servicing tools overview on page 10*.

1. Put the puller plate behind the bearing. Make sure that the plastic components on the balance weights are not damaged. The puller must be in a position where the ears (1) are free. The two parts of the puller head must not come nearer together than to the center ring (2). If they do, the plastic ring will be damaged.

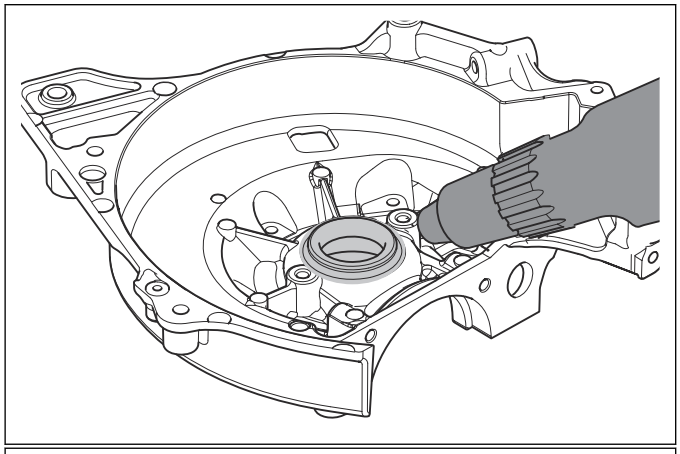


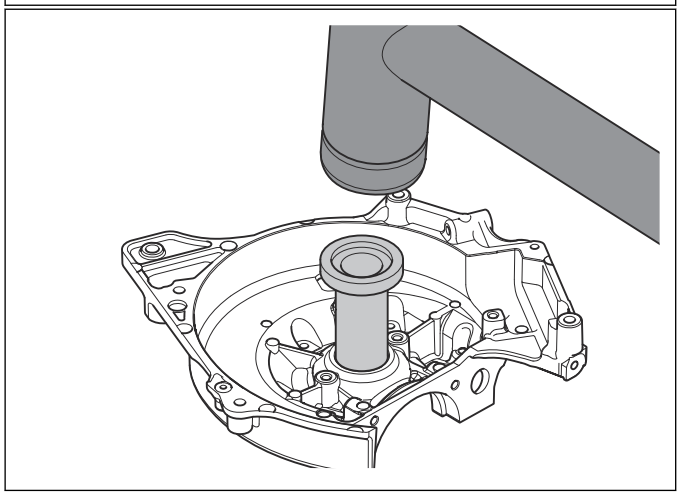


2. Attach the puller unit and press the bearing off from the crankshaft.

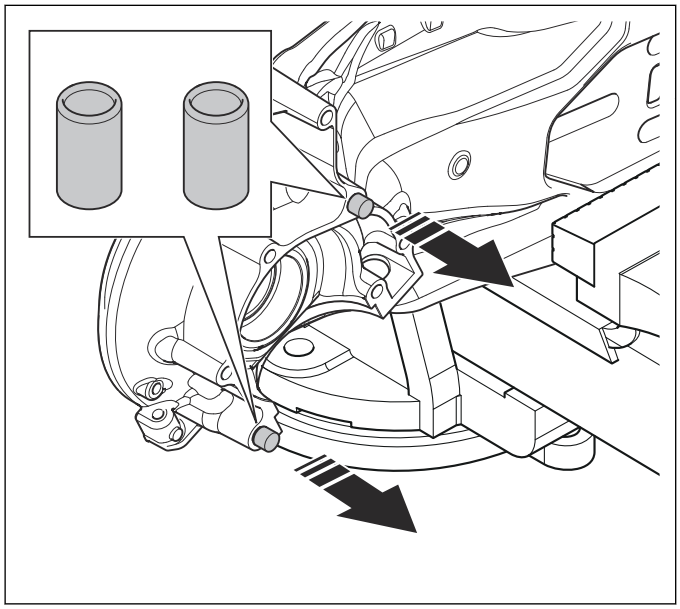


3. Put the crankcase halves against a flat piece of wood or equivalent. Use a hot air gun around the bearing, max. 300 °F/150 °C. Put the sleeve from the tool kit against the bearing and hit it with a large plastic mallet.





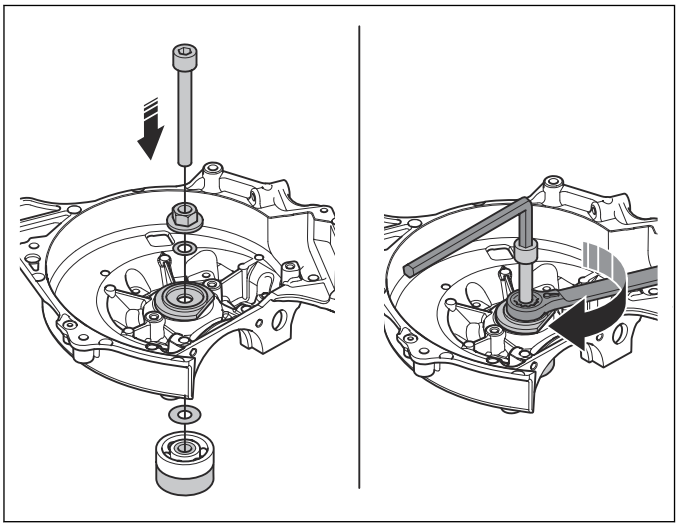
4. Remove the guides for the crankcase halves.



6.12.7 To install the crankcase bearings

Use a Husqvarna bearing press (refer to *Servicing tools overview on page 10*) to assemble the bearings in the 2 crankcase halves.

1. Put the bearing on the support plate and hold it below the crankcase half.

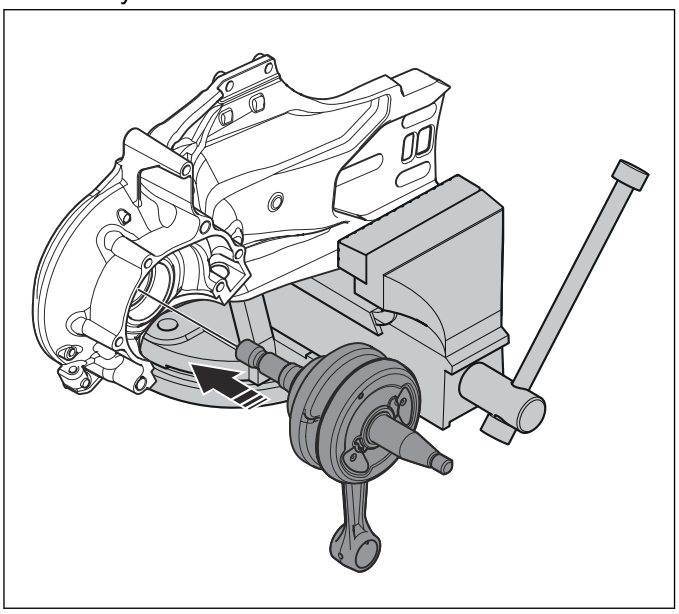


2. Put the screw through the washer and put the screw in the support plate.
3. Lock the screw and turn the nut until the bearing is in the stop in the crankcase half.

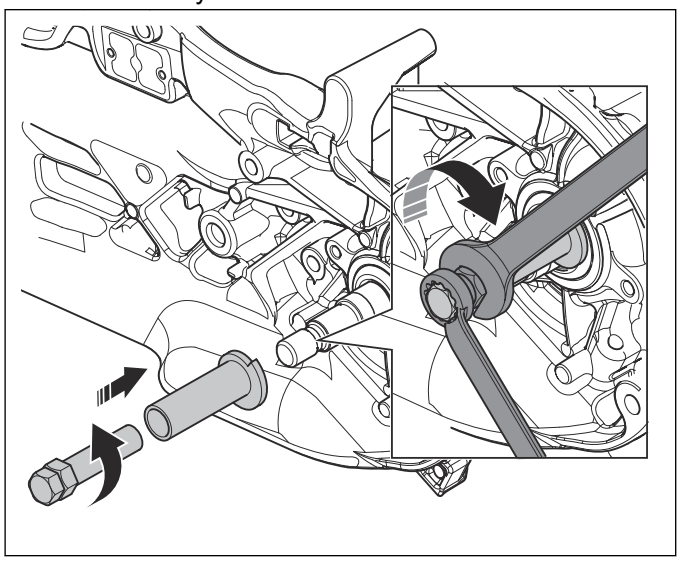
6.12.8 To assemble the crankcase

Use the bearing press (refer to *Servicing tools overview on page 10*) to press the crankshaft into the bearing. The mandrel threads for the clutch side is M10V and for the flywheel side it is M8X1.

1. Lock the crankcase half with the bottom of the cylinder plane pointing down. This makes sure that the connecting rod does not push on the crankcase when you assemble the crankcase.

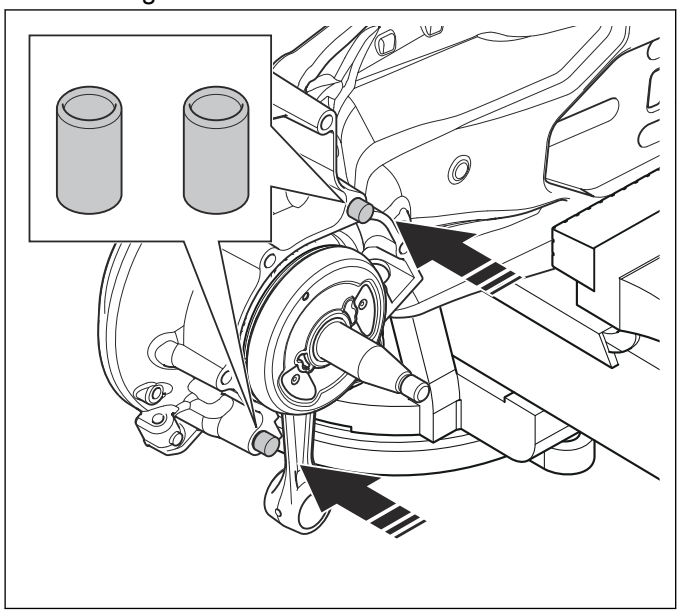


2. Push the crankshaft in the bearing.
3. Put the sleeve from the tool kit against the crankcase half. Tighten the mandrel on the crankshaft by hand.

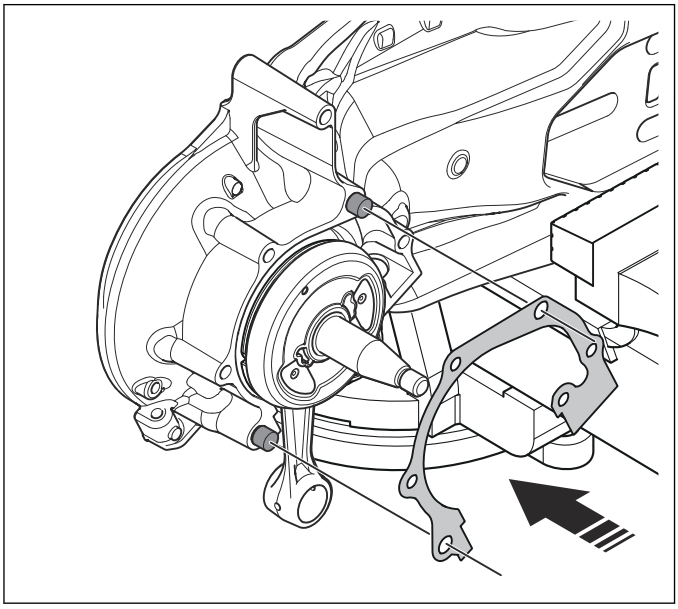


Note: The crankshaft has a reverse thread on the clutch side.

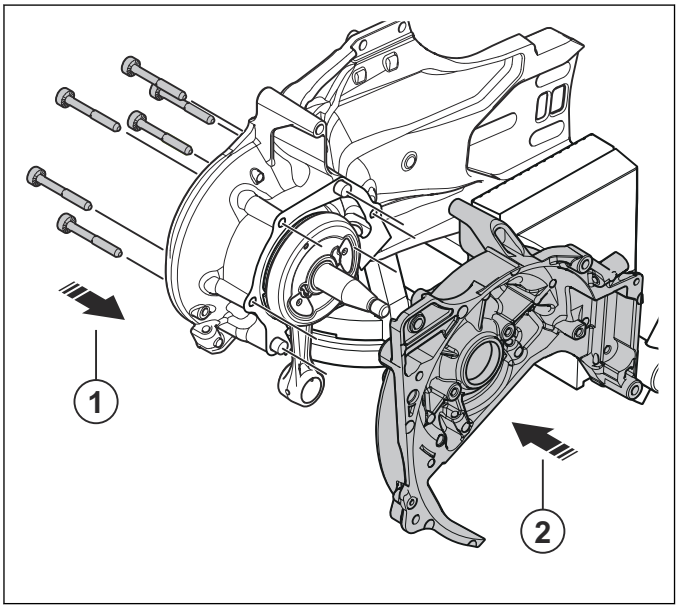
4. Lock the movement of the mandrel. Turn the nut to push in the crankshaft until the bearing is at the end of the crankcase half. Make sure that the connecting rod is not held against the crankcase half.
5. Put the guides in the holes.



6. Install the new crankcase gasket.

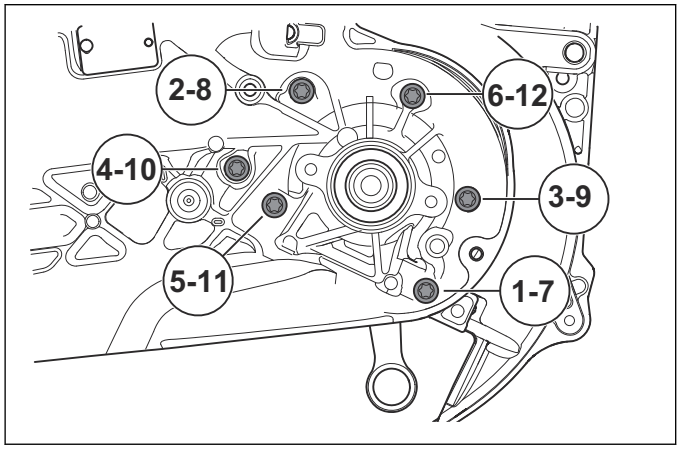


7. Assemble the other crankcase half using the same procedure.

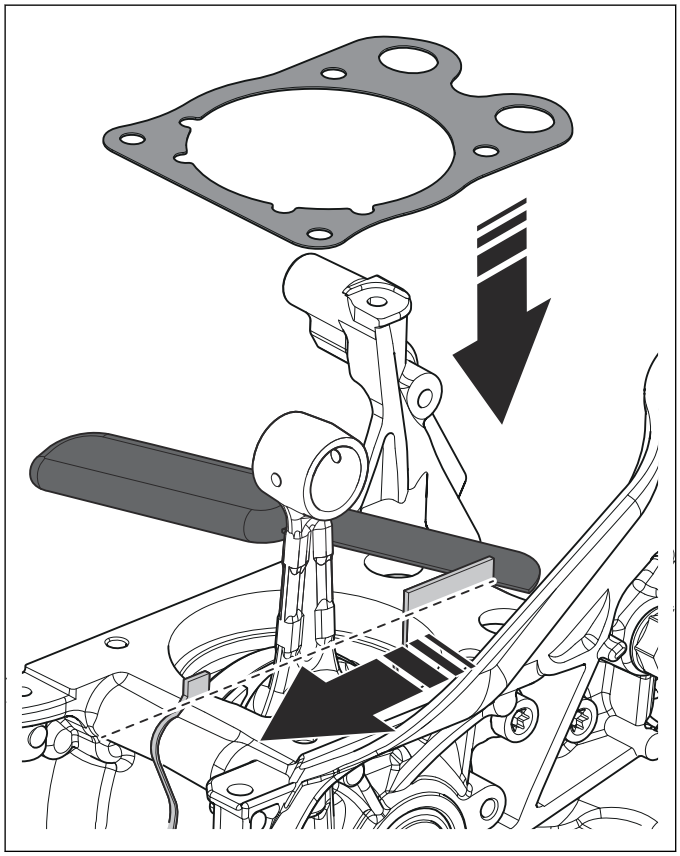


a) Change to the other mandrel.
b) Make sure the position of the connecting rod is correct.
c) Align the guides to prevent damage to the crankcase gasket.
d) Put in the screws before the crankcase halves are put together. This helps put the gasket into position.

8. Tighten the screws in the order shown in the illustration, torque 10–11 lbf·ft/14–15 Nm. Make sure the crankshaft moves freely after it is assembled. Hit the ends of the shaft with a small plastic hammer to release tension.



9. Cut the gasket at the cylinder face.



Examine the crankcase for leakages after the cylinder is assembled.

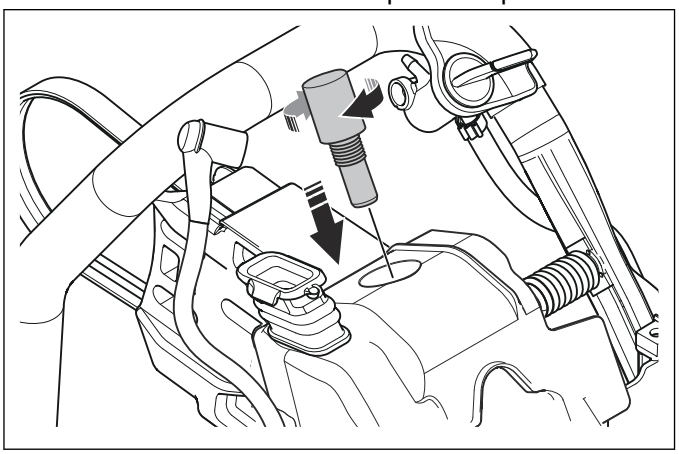
6.13 Clutch

6.13.1 To remove the clutch

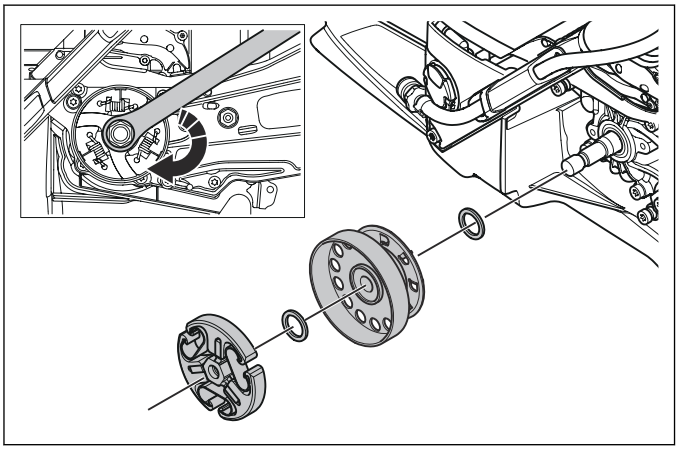
To remove the clutch you must use a Husqvarna piston stop. See *Servicing tools overview on page 11*. Before you remove the clutch you must remove the cutting

head, the rear belt guard, the air filter cover and the filter bracket.

1. Lock the crankshaft with the piston stop.



2. Release the clutch clockwise. It is has a mark with the direction “Off”.



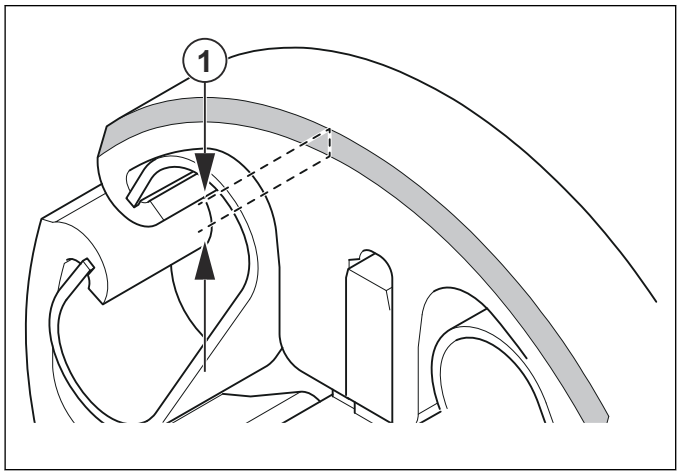
CAUTION: Do not hit the puller. This will break the piston. If you use a hammer or equivalent without the piston stop it can damage the locking mechanism of the flywheel (keyway/key).

3. When the clutch is removed, the clutch drum can be pulled off the axle. Make a note of the positions of washer between the clutch and the drum and the washer against the bearing nearest the crankcase.

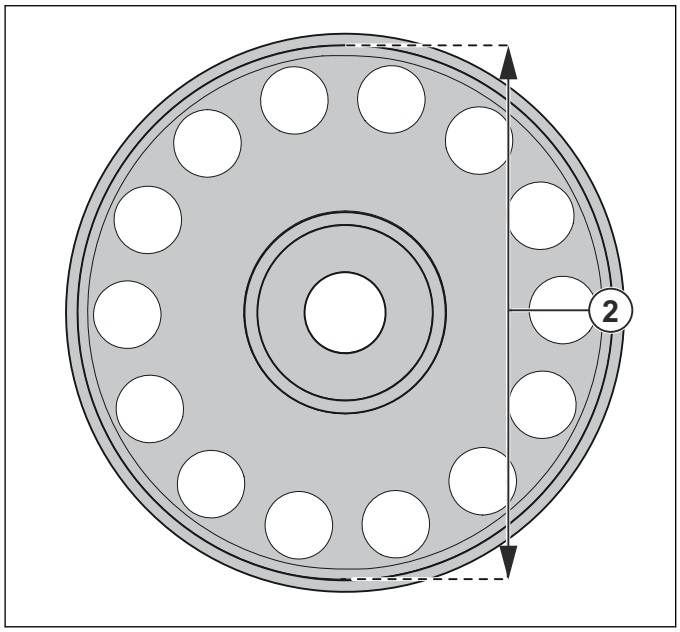
6.13.2 To examine clutch wear

Repair the clutch if the cutting blade is engaged at engine speeds less than 3,100 rpm

The height of the clutch shoes edge must not be less than 1 mm. Replace if necessary with a complete clutch assembly. Do not replace one shoe from a different clutch as this causes bad balance.



The inner diameter of the clutch drum must not be more than 79.8 mm. Replace if necessary with a new clutch drum.



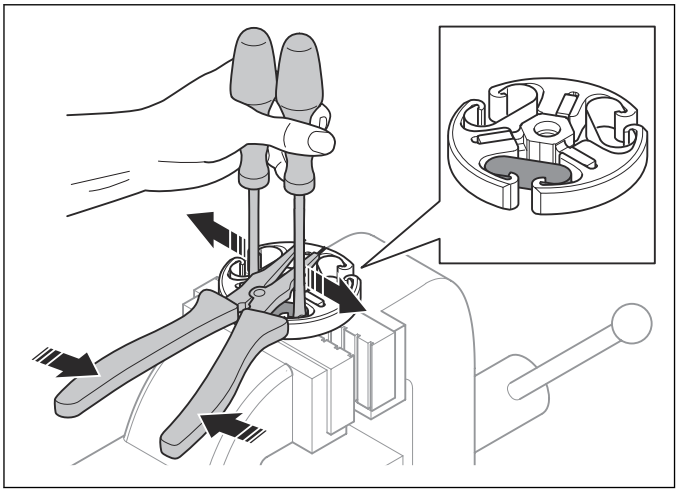
6.13.3 To assemble the clutch

WARNING: Risk of injury. Assemble the clutch with the correct tightening torque. Use a torque wrench.

1. Tighten the clutch with a torque of 37–43 Nm.

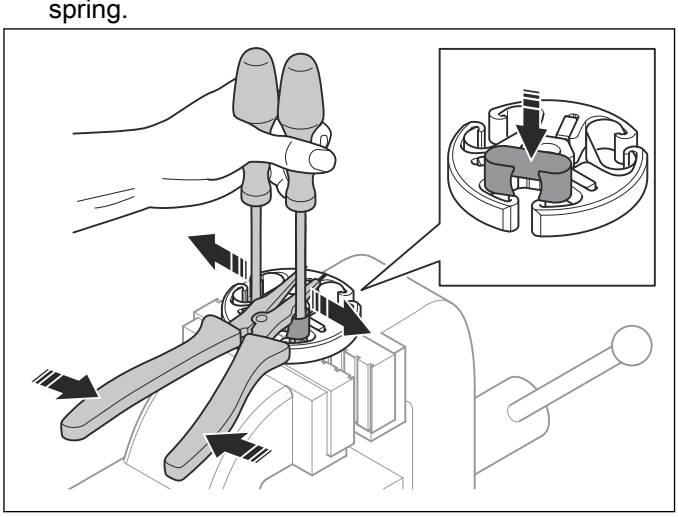
6.13.4 To remove the clutch springs

1. Put a large screwdriver in each spring end.
2. Expand the spring using circlip pliers and remove the spring.



6.13.5 To install the clutch springs

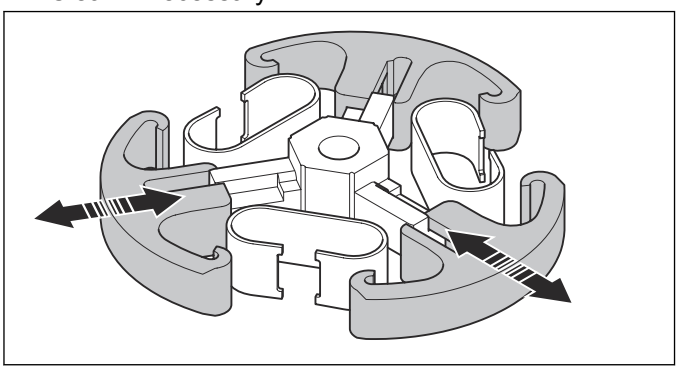
1. Put a large screwdriver in each spring end.
2. Expand the spring using circlip pliers and install the spring.



6.13.6 To examine the clutch shoes and hub

CAUTION: Do not lubricate the clutch.

1. Make sure the shoes move easily in their grooves. Clean if necessary.

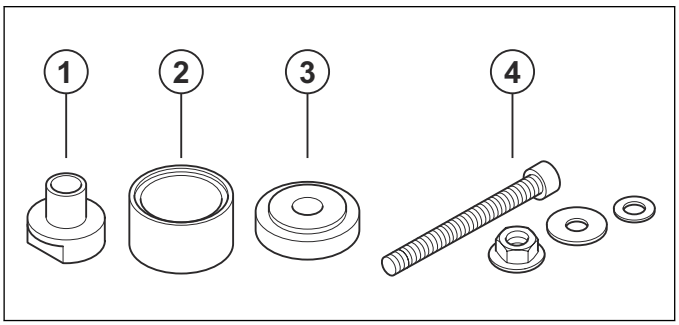


6.13.7 Belt pulley bearings

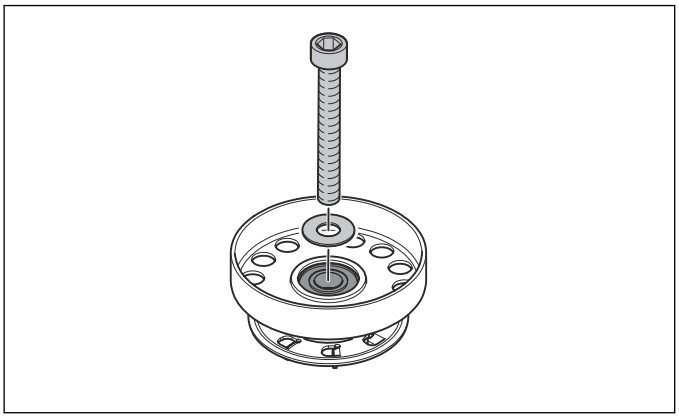
The clutch drum and belt pulley are connected units. The belt pulley has two permanently lubricated ball bearings that are adjacent to each other without spacers. The outer rings of the ball bearings are installed with a light force on the belt pulley. They are installed with a sliding fit against the crankshaft. This means that the belt pulley can easily be pulled from the crankshaft when disassembling the clutch.

6.13.8 To remove the belt pulley bearings

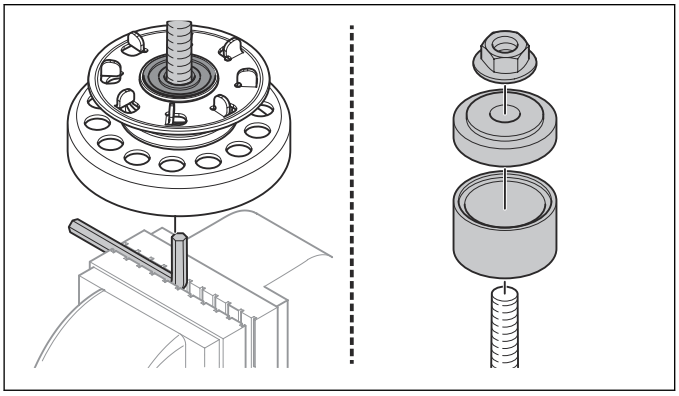
Use the bearing press for the clutch drum bearing. See *Servicing tools overview on page 10*. Use the tool to disassemble and install the bearing. The tool kit has a support plate for the bearing (1), the sleeve (2) and the cover (3). The cover has different contours. One side aligns with the sleeve when disassembling and the other aligns with the clutch drum when installing. The kit also contains the screw (4) with washers and nut. Lubricate the threads of the screw and the washers.



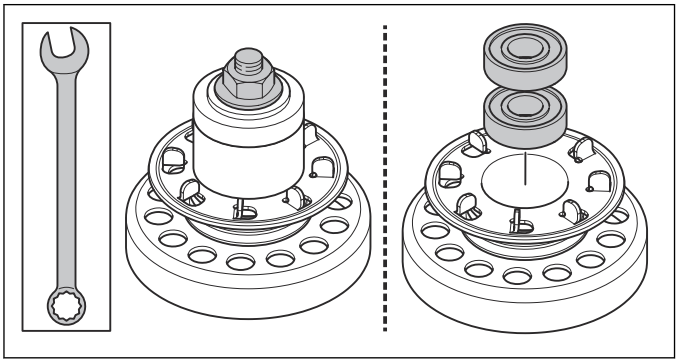
1. Put the screw with the large washer on the bearing.



2. Put the hex key in a vice. Put the head of the screw on the hex key. Put the socket and cover in position. Install washer and nut.

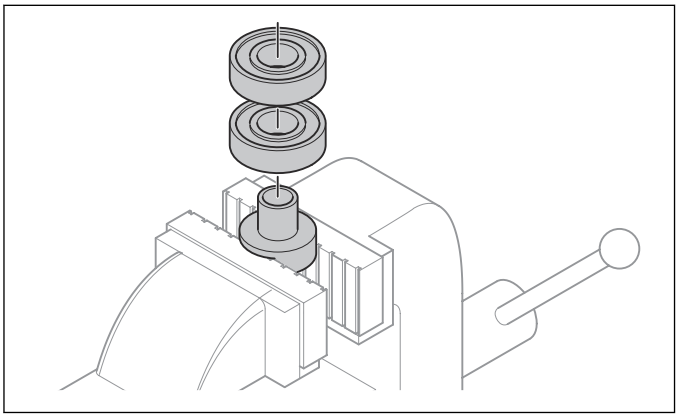


3. Pull out the bearing by tightening the nut.

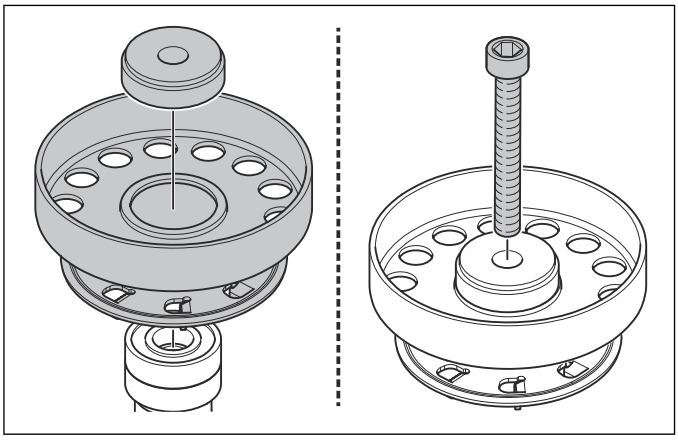


6.13.9 To install the belt pulley bearings

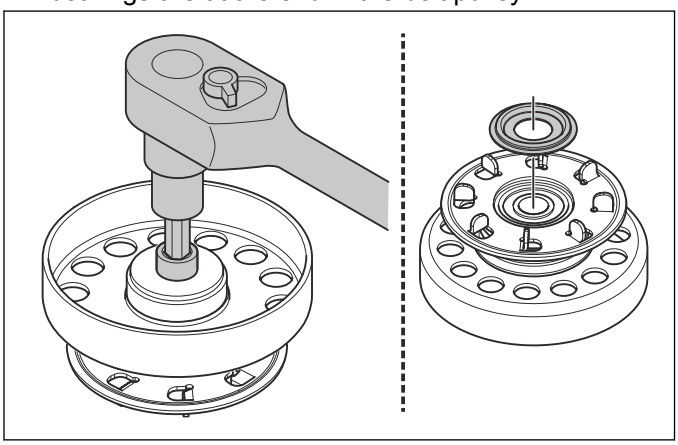
1. Put the support plate of the bearings in a vise. Put the two ball bearings on the support plate.



2. Put the belt pulley on top of the bearings. Put the cover and washers on top of the belt pulley. Put the screw through the assembly.



3. Tighten the screw to push the bearing in until the bearings are at the end in the belt pulley.

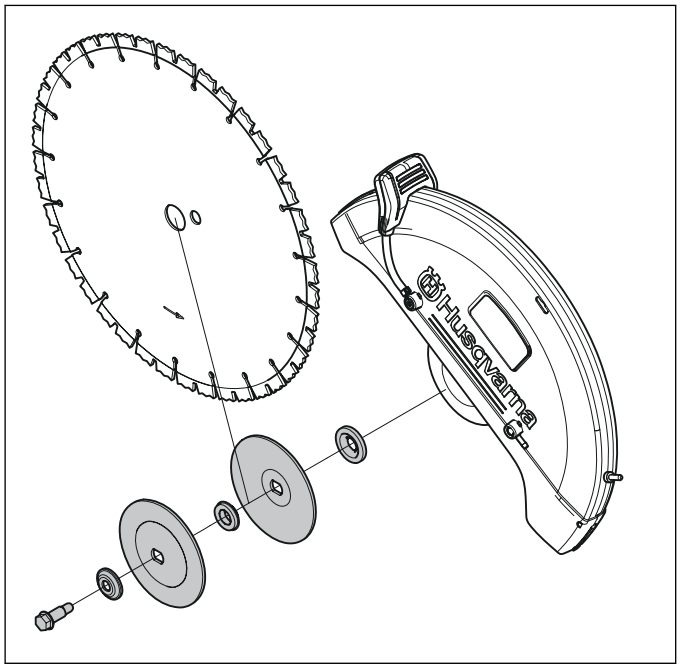


Note: When you install the clutch, you must first put the washer on the crankshaft.

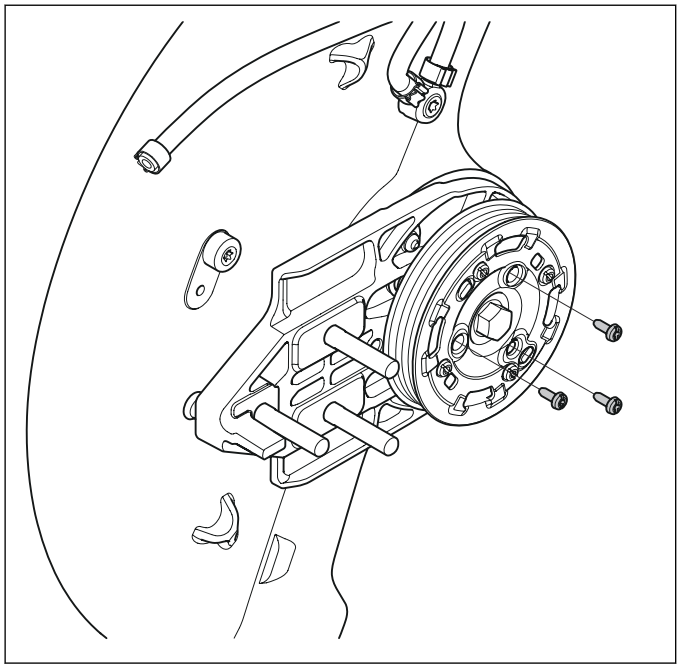
6.14 Cutting head

6.14.1 To disassemble the blade guard/bearing housing

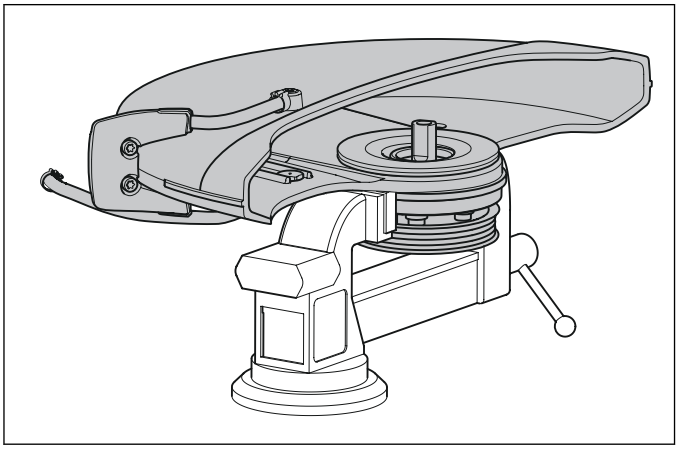
1. Remove the cutting head from the product.



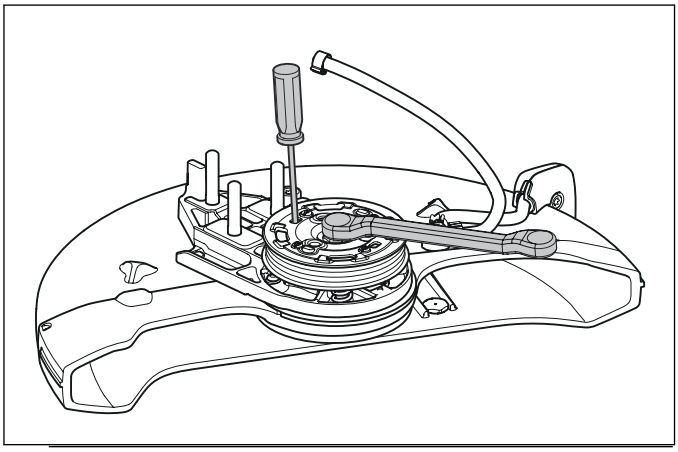
2. Remove the 3 brake drum screws with a screwdriver.



3. Put the cutting head in a vise with the pulley pointing down.

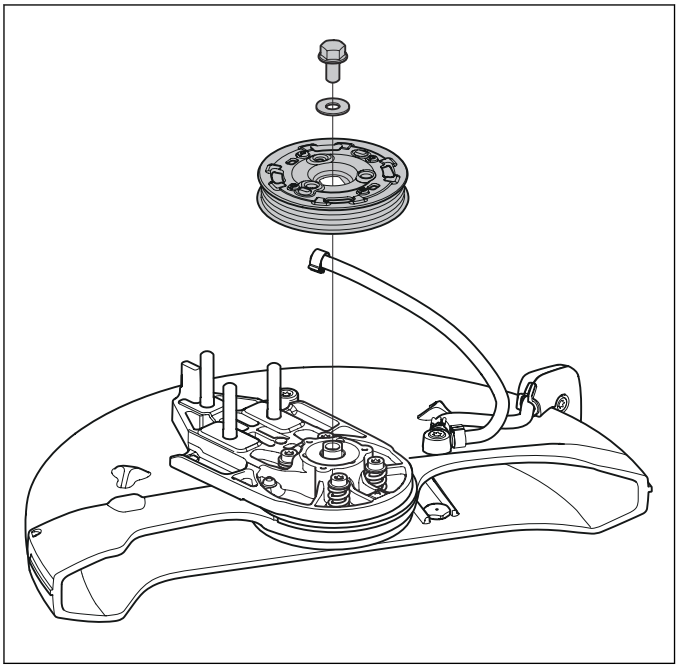


4. Lock the belt pulley with a mandrel or a screwdriver.

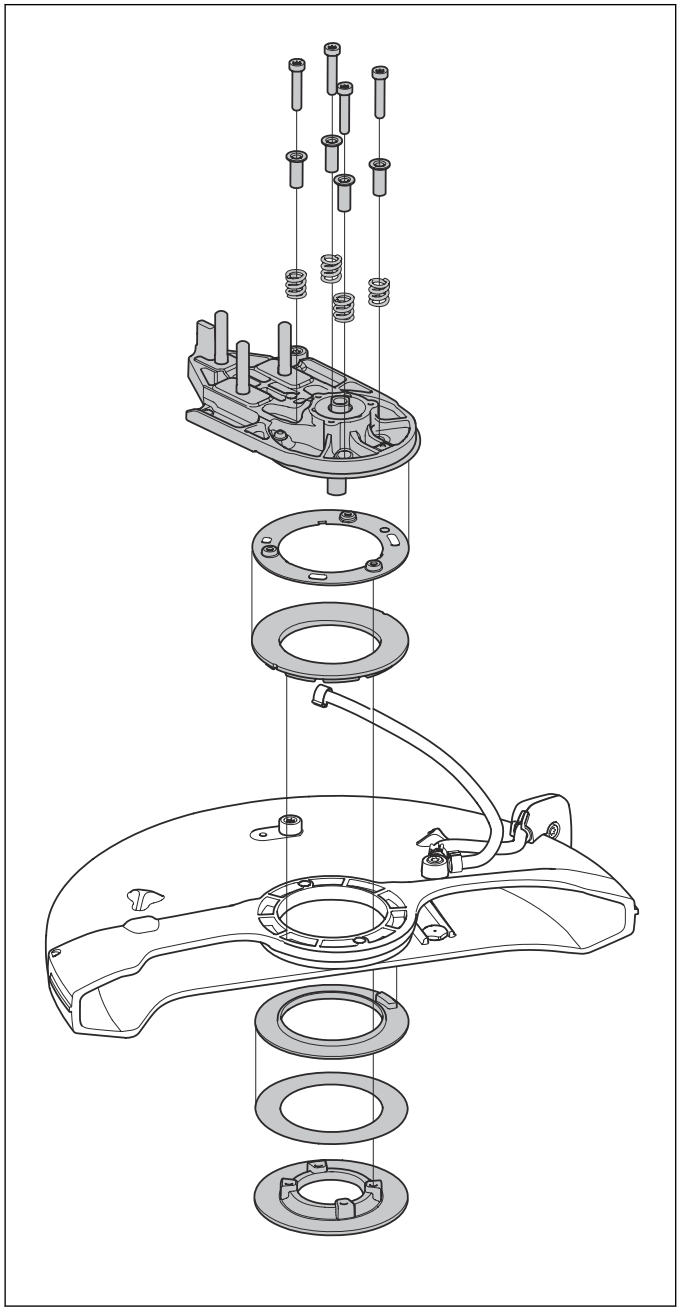


Note: The illustration shows the screwdriver and the wrench from below.

5. Remove the pulley.



6. Loosen the screws. Remove the seals and screen rings.

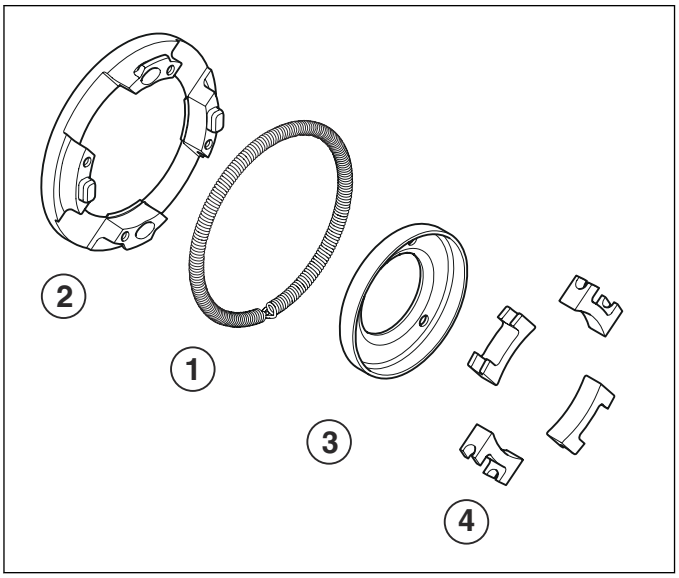


6.14.2 Function friction retarder

The friction retarder has a number of loosely assembled parts that are held together by the spring. Always replace the complete unit, as shown in the illustration. The brake drum is attached to the bearing housing with 3 screws. The guide plate is attached to the belt pulley with 4 screws.

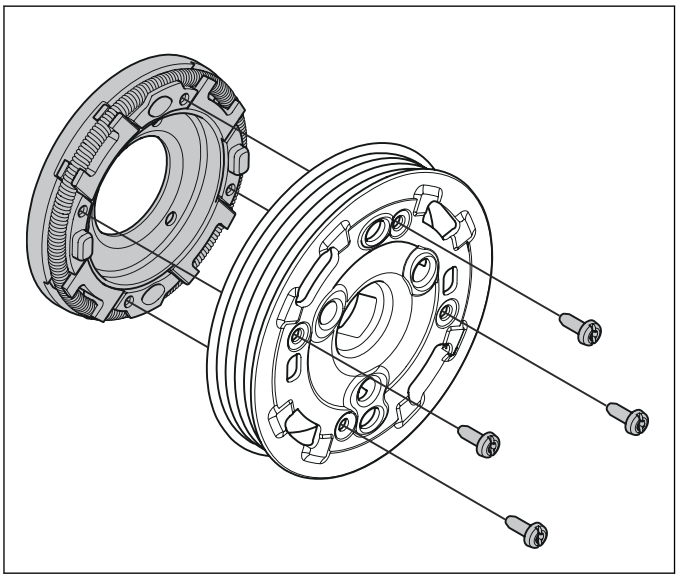
The friction retarder slowly stops the cutting blade after operation. It operates when below work speed. The brake shoes (4) are pressed against the brake drum (3) by the spring (1). These units are held in position by the guide plate (2). When the speed goes above work

speed, the brake shoes are pushed out from the brake drum. The retarder does not operate.



6.14.3 To disassemble the friction retarder

1. Remove the four screws.



2. Release the retarder unit from the belt pulley .

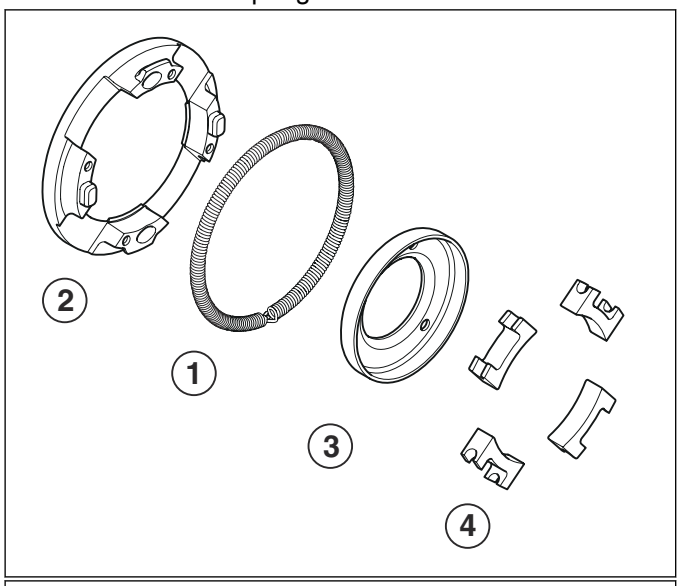
6.14.4 To clean the friction retarder

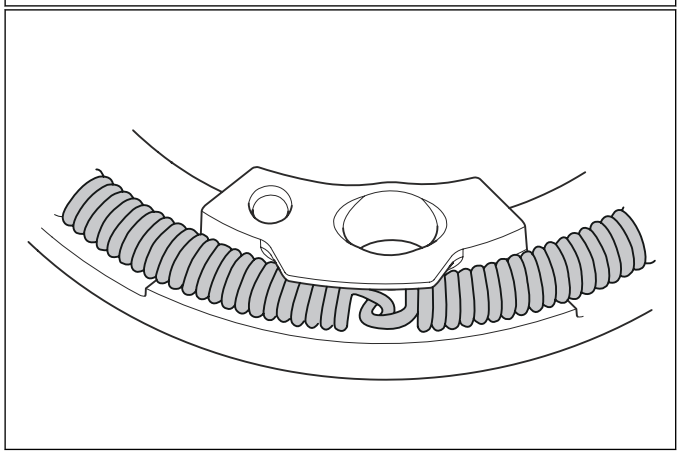
Note: The retarder must not be lubricated.

1. If necessary, clean off dust with compressed air.

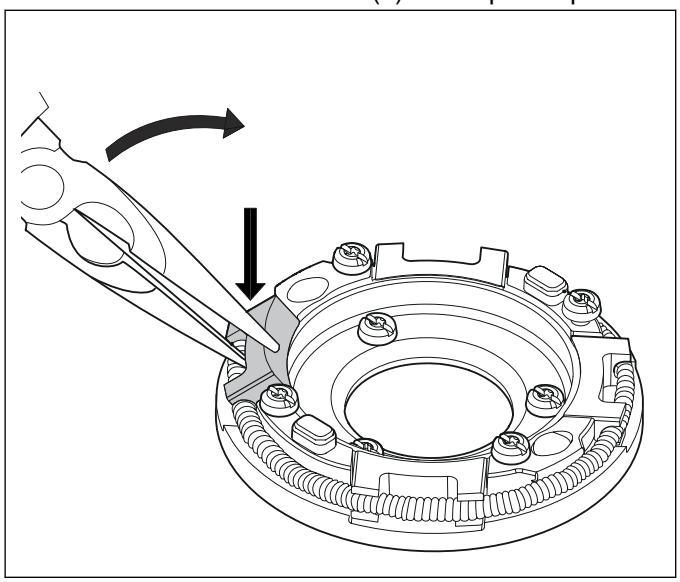
6.14.5 To assemble the retarder unit

1. Put the spring (1) in position in the guide plate (2). Note where the spring ends must be.



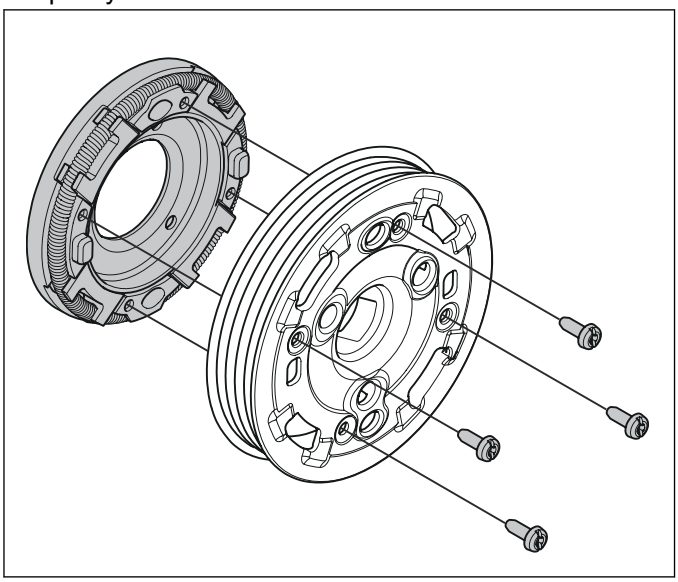


2. Put the brake drum (3) in position in the center of the guide plate.
3. Assemble the brake shoes (4) with a pair of pliers.

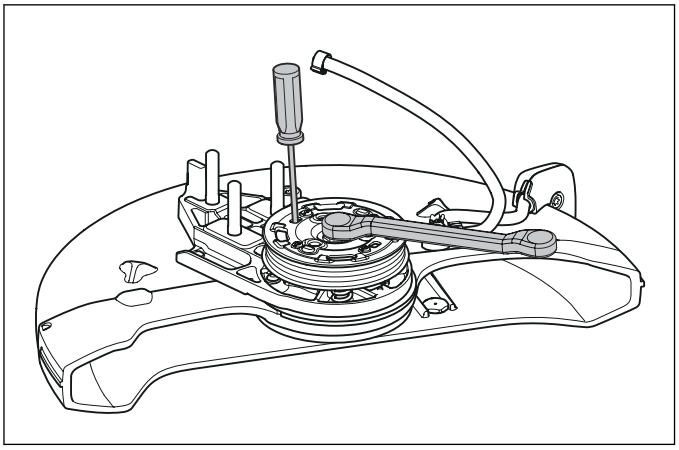


6.14.6 To assemble the retarder and belt pulley

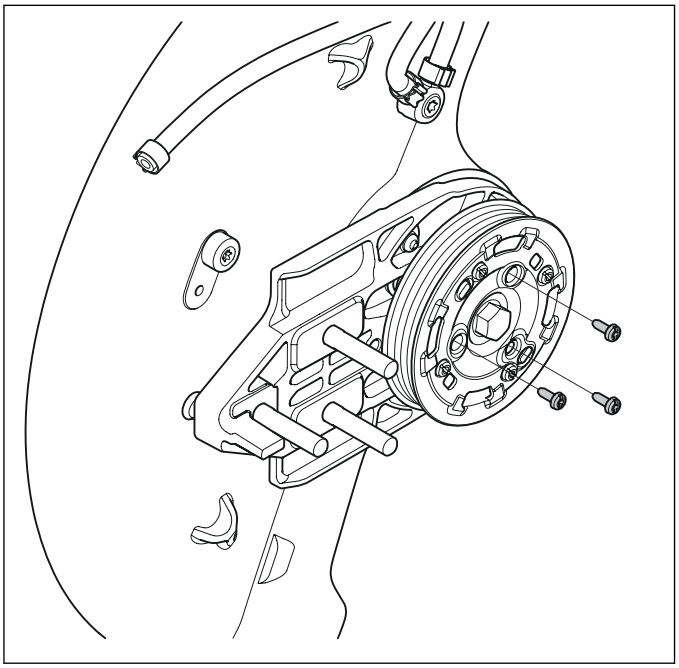
1. Assemble the plate of the retarder unit and the belt pulley with the 4 screws.



2. Put the retarder unit on the bearing housing. Lock the belt pulley with a mandrel and put the center screw with the washer on the blade shaft. Tightening torque: 28–31 lbf·ft/38–42 Nm.



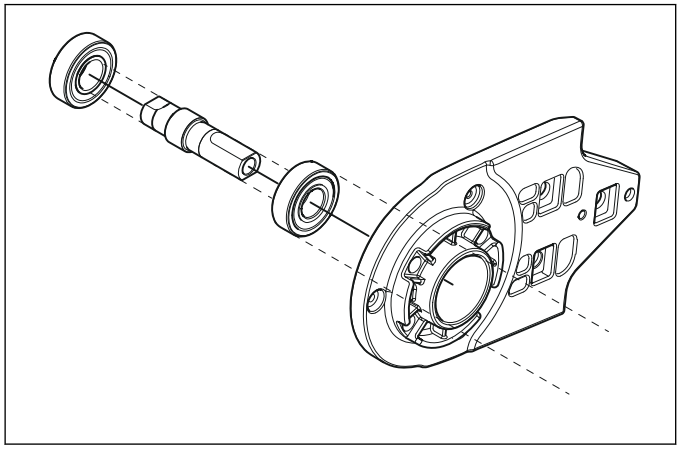
3. Assemble the the brake drum and the bearing housing.



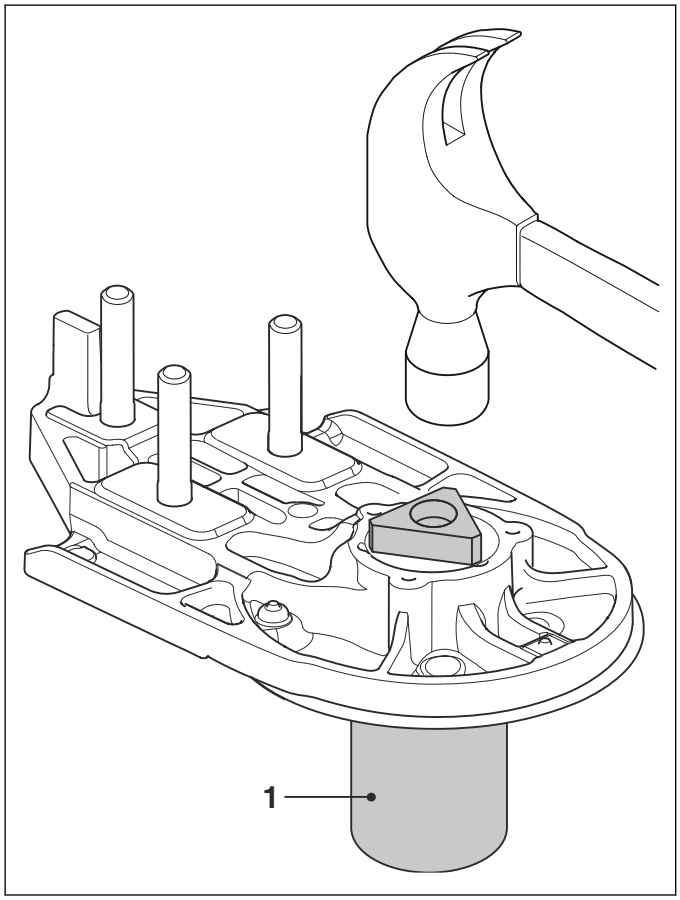
6.14.7 To remove the blade shaft bearings

If you replace the blade shaft bearings with a hydraulic press, use the Husqvarna bearing press made to disassemble the bearing. See *Servicing tools overview on page 10*. The tools remove and replace the bearings. If you replace the bearings without a hydraulic press, use the bearing press kit made to assemble the bearing. See *Servicing tools overview on page 10*.

The blade shaft has a spacer that the bearings must be pressed against. The inner rings of the bearing are press-fitted against the shaft. The outer rings of the bearings are press-fitted against the bearing housing.

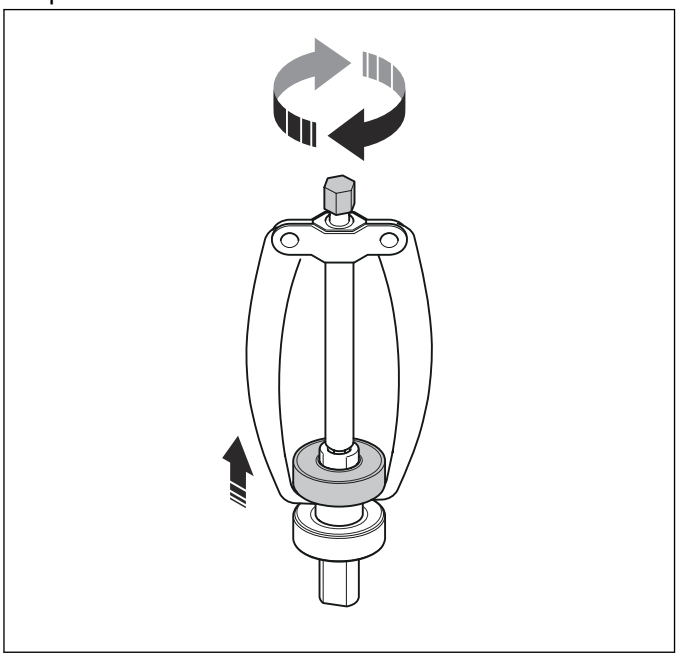


1. Turn the disassembling support (1) with shoulder up and put the bearing housing on top of it.



2. Put the triangle from the tool kit, or assembly support from the pressing device, on top of the bearing. See *Servicing tools overview on page 10* and *Servicing tools overview on page 11*.

3. Push out the bearing unit as far as possible. Then extend with a tool socket to push out the bearing unit fully from the housing.
4. Remove the bearings from the shaft with a universal puller.

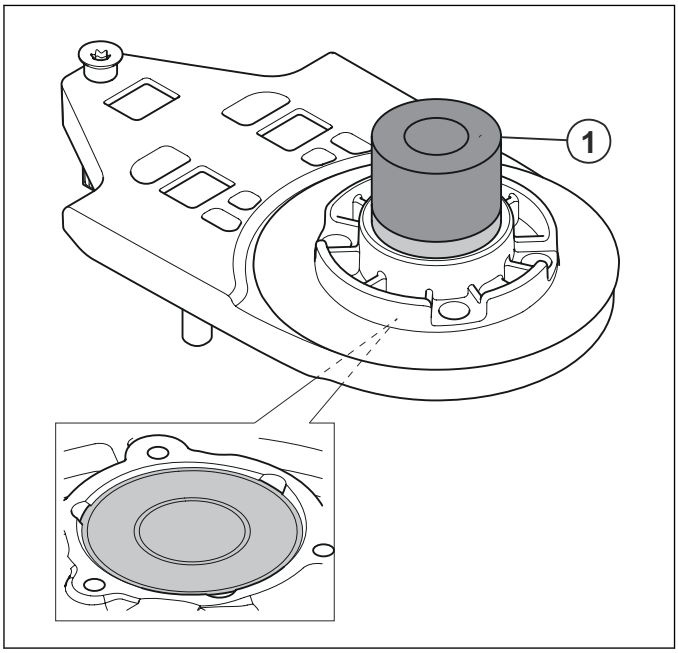


6.14.8 To assemble the blade shaft bearings

If you replace the blade shaft bearings with a hydraulic press, use the Husqvarna bearing press made to disassemble the bearing. See *Servicing tools overview on page 10*. If you replace the bearings without a hydraulic press, use the Husqvarna bearing press kit, made for bearing assembly. See *Servicing tools overview on page 10*.

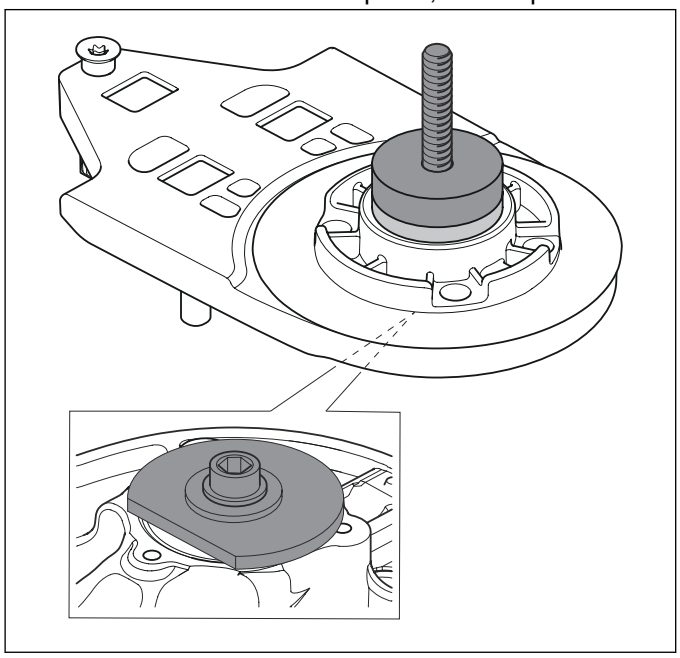
CAUTION: Do not put force between the inner and outer rings of the bearing.

1. To assemble with a press, do this procedure.



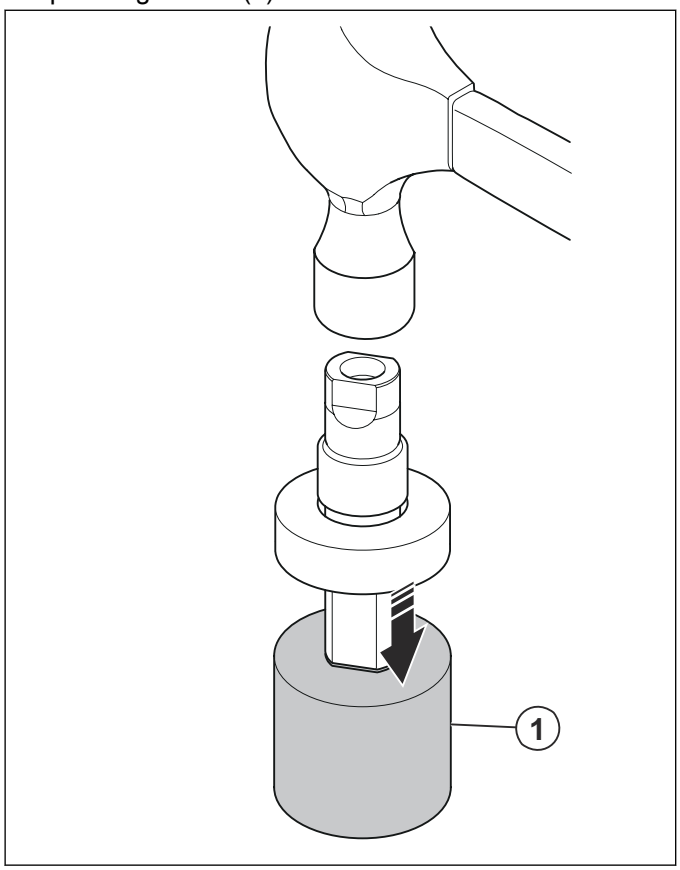
a) Put a piece of wood below the area for the bearing to make the bearing housing level.
b) Put the bearing on the housing and put the pressing device (1) on top of the bearing.
c) Push down the bearing fully to the stop in the bearing housing.

2. To assemble with a screw press, do this procedure.

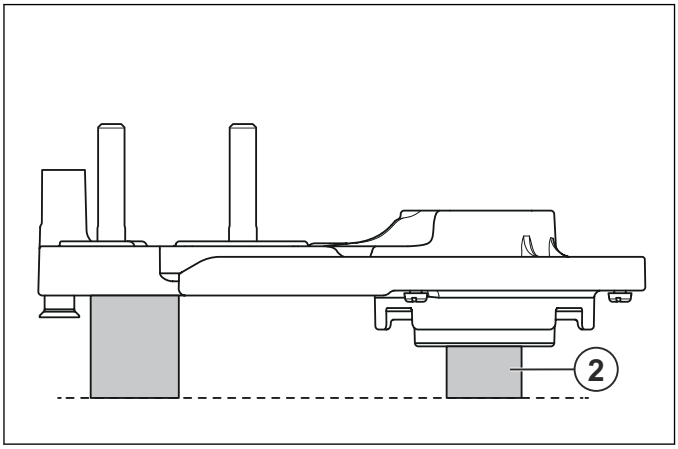


a) Put the bearing press made for bearing assembly as in the illustration.
b) Pull in the bearing to the stop in the bearing housing.

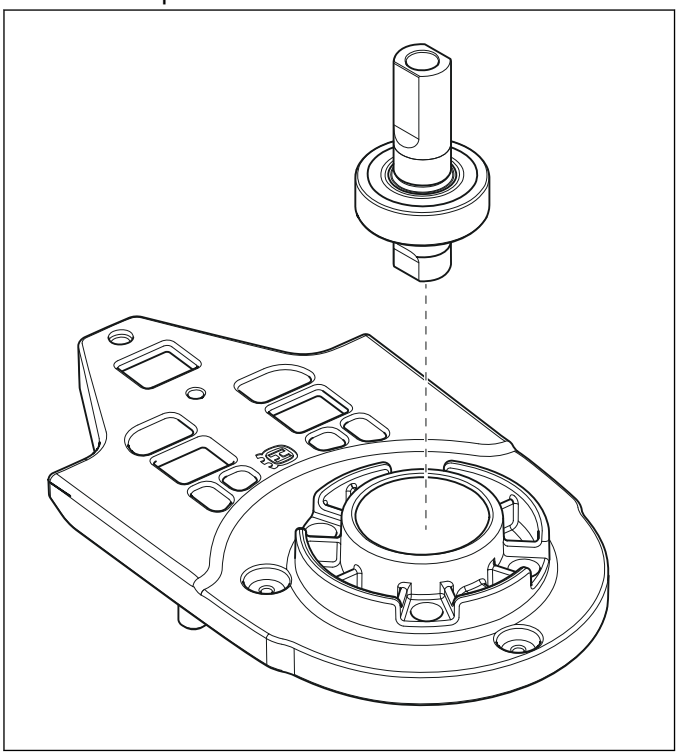
3. Put the bearing on the axle and put the axle in pressing device (1).



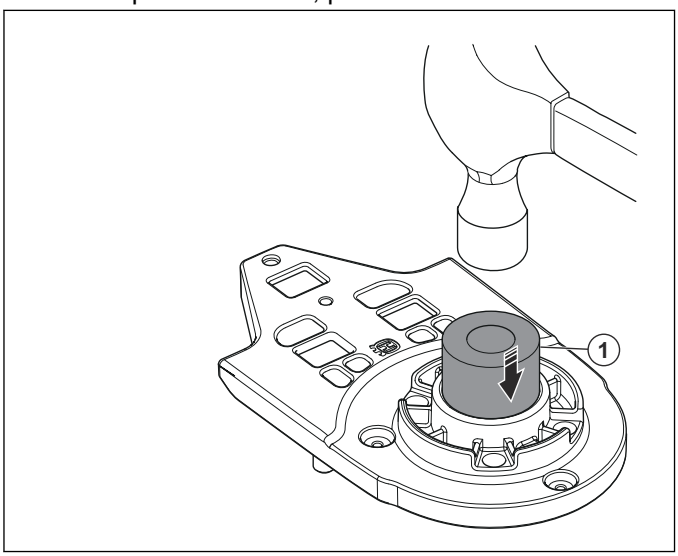
4. With a plastic hammer, push or hit the axle down until the spacer touches the inner ring of the bearing.
5. Use the assembly support (2) to make the bearing housing level. Put the support on the first bearing.



6. Put the axle with the bearing in the bearing housing with the spacer down.



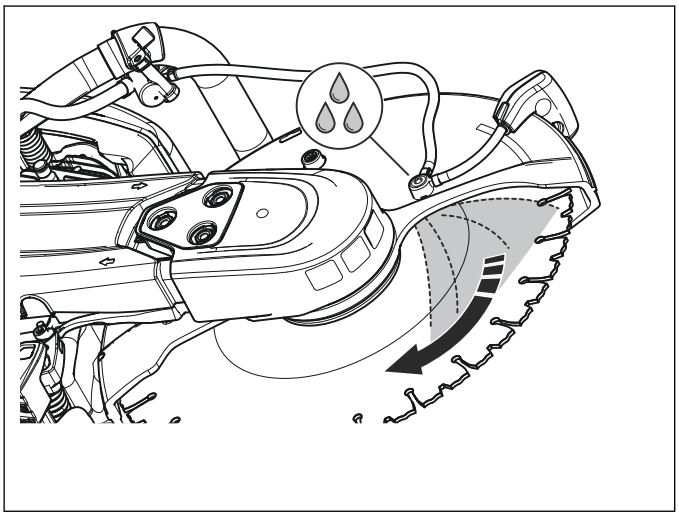
7. With a plastic hammer, push or hit the axle down.



6.15 Wet system

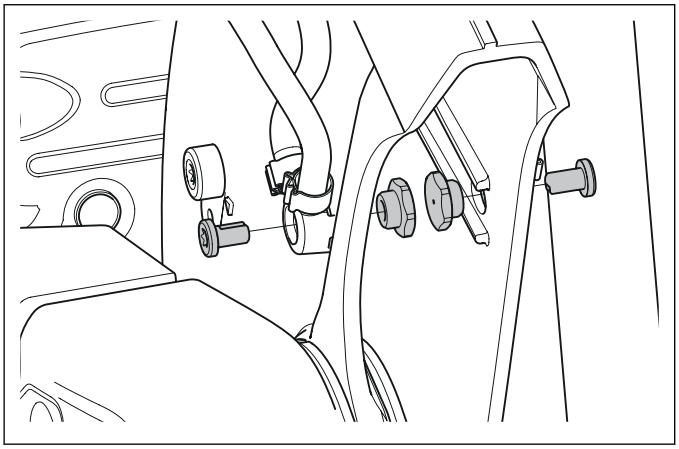
6.15.1 Function

Each side of the blade guard has a spray nozzle. The water hits a section of the cutting blade and the centrifugal force moves it out to the edge. The spray nozzles are available with many different hole diameters made for different types of machines and uses. Find the correct nozzle in the spare parts list.

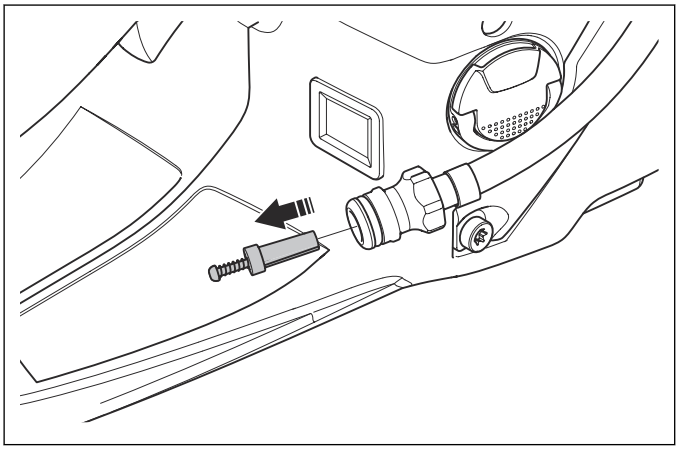


6.15.2 To disassemble the wet system

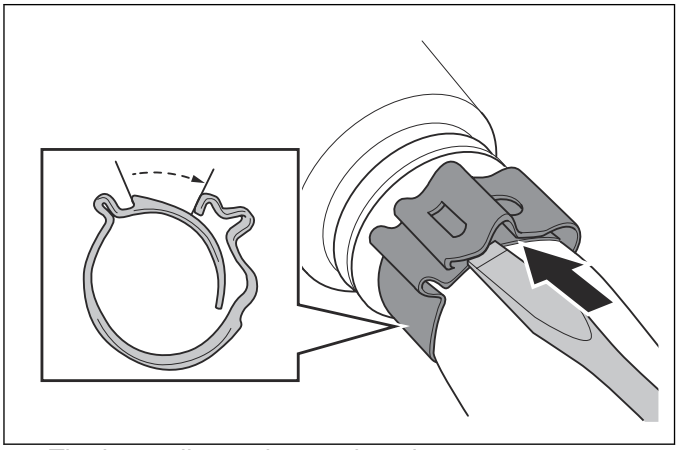
1. Remove the screws that hold the spray nozzle.



2. Remove the filter with a wood screw.



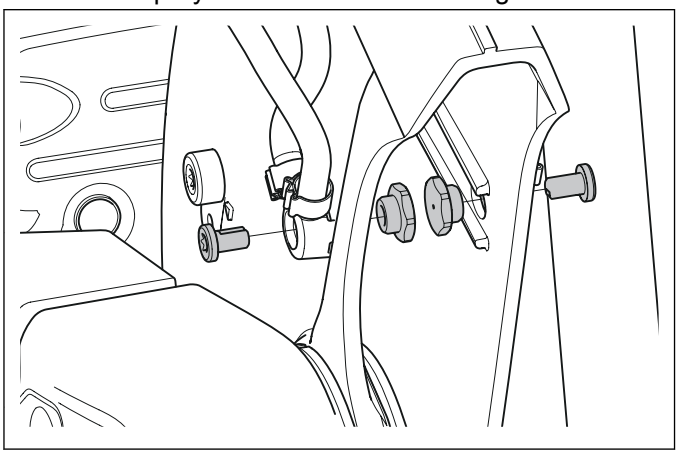
3. Open the hose clip with a screwdriver.



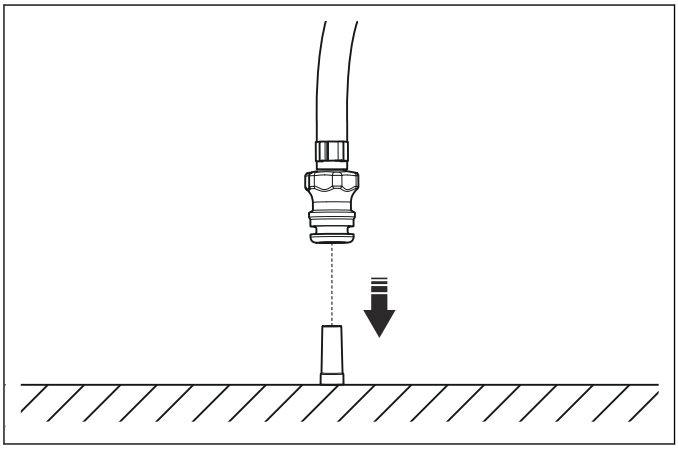
The hose clip can be used again.

6.15.3 To assemble the wet system

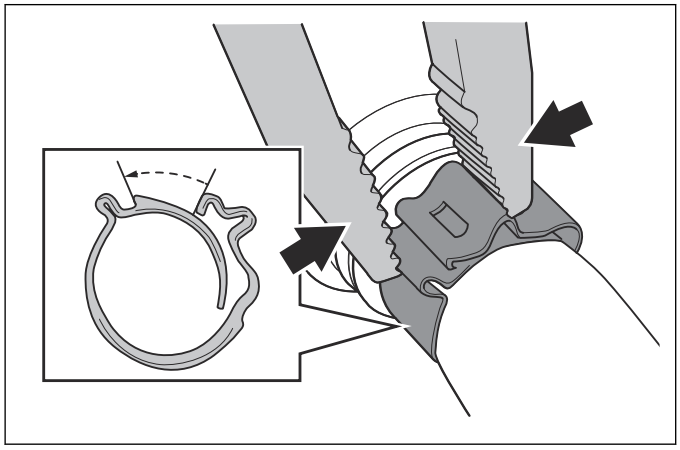
1. Put the spray nozzles on to the blade guard.



2. To put the filter in the connector, press it in on a flat surface.



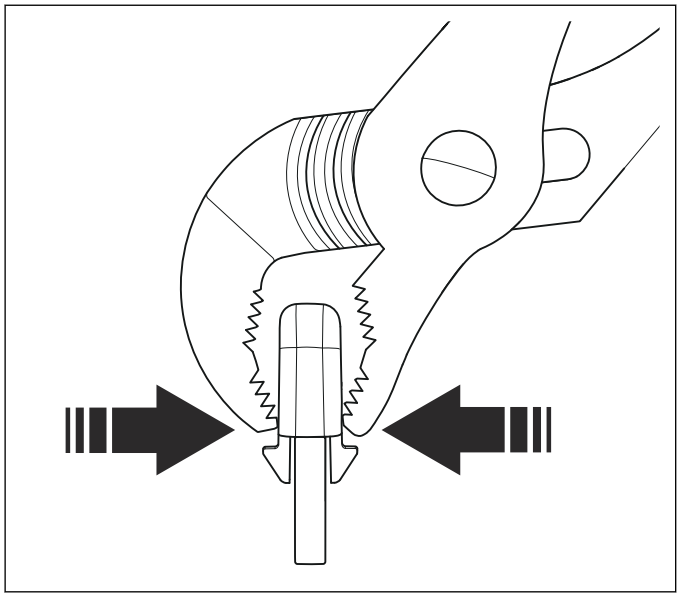
3. Close the hose clip with a pair of pliers.



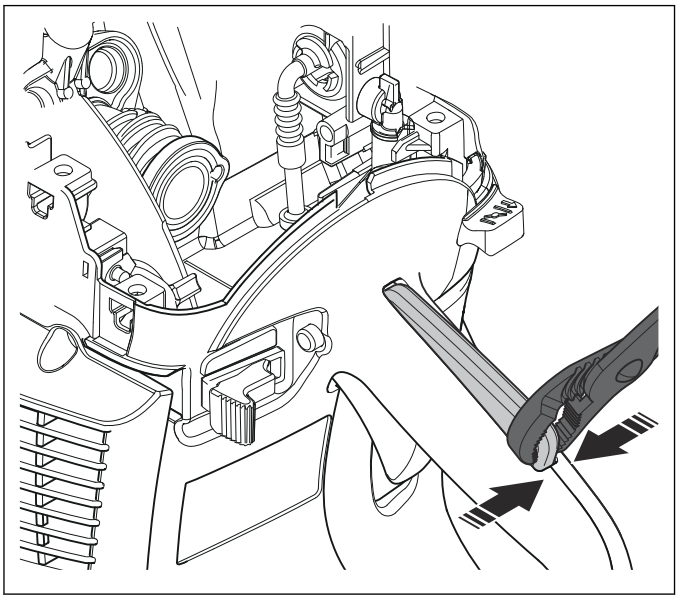
6.16 Throttle trigger and throttle lock

6.16.1 To remove the throttle trigger and throttle lock

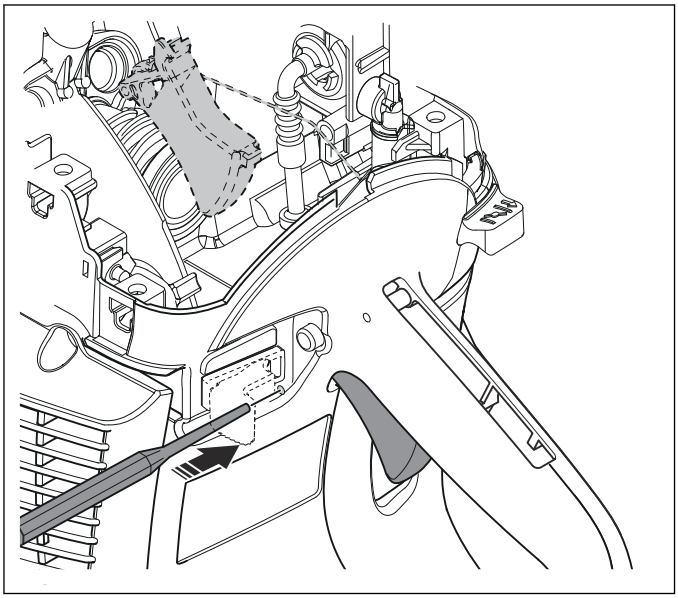
Note: When you remove the throttle lock, use a v-jaw tongue-and-groove pliers. Make sure that the jaws of the pliers are as close as possible to the handle. Put a cloth on the throttle lock before you apply the pliers to prevent damage to the surface.



1. Remove the carburetor. See *To remove the carburetor on page 17*.
2. Push in the lower part of the throttle lock with a v-jaw tongue-and-groove pliers.



3. Lift the lower part of the throttle lock and pull it out from the pin.
4. Push out the spindle to the right side. Use a rod with a diameter of .08–.01 in/2–2.5 mm and approximately 4 in/10 cm in length.



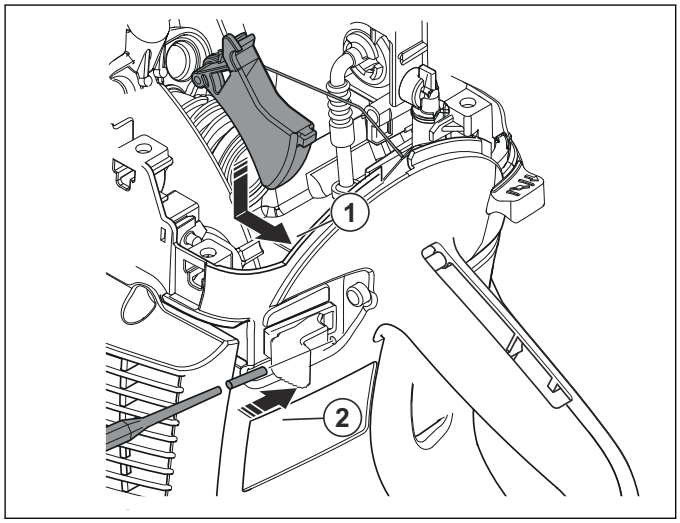
6.16.2 To examine the throttle lock

The throttle lock operates correctly if the throttle is locked at idle speed.

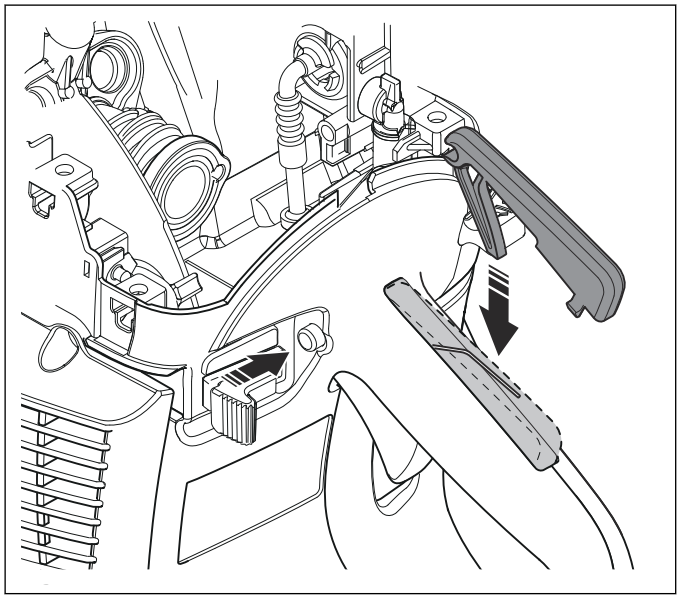
1. Make sure the throttle cannot be released until the top handle is pressed.

6.16.3 To assemble the throttle trigger and throttle lock

1. Install the throttle trigger from the carburetor compartment. Make sure that the spring comes out through the handle.



2. Push in the spindle from the left side.
3. Push the throttle lock onto the shaft. Push the throttle lock into position.



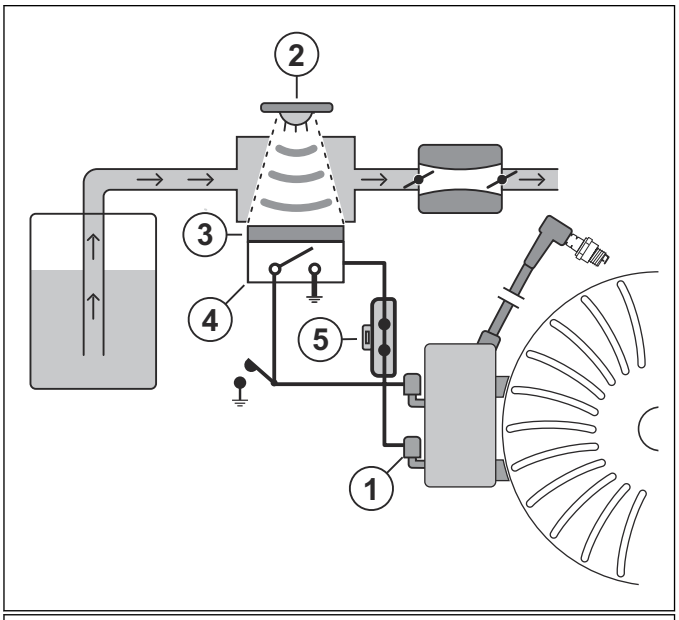
6.17 OilGuard

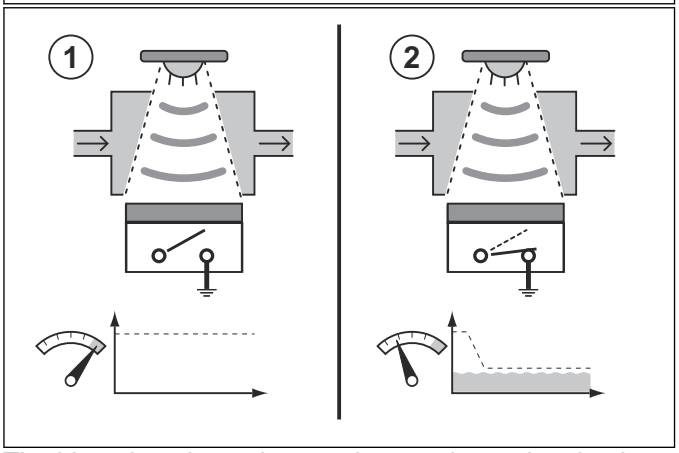
6.17.1 Function

The OilGuard prevents the product from running with incorrect fuel. For the OilGuard to operate, an oil containing dye, “Husqvarna OilGuard oil”, must be added. Fuel analysis starts 10 seconds after startup and continues for 50 seconds. If the OilGuard identifies incorrect fuel, the engine speed limit is 3800 rpm.

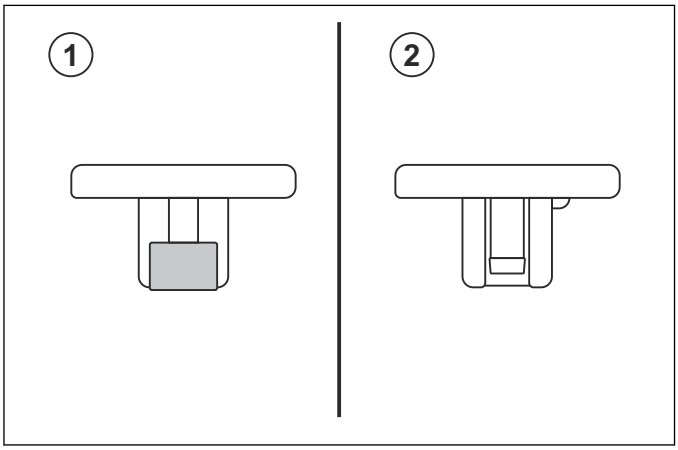
A winding in the ignition module (1) gives electric current to the OilGuard. The analysis unit has a light-emitting diode (2). The light hits a light sensitive phototransistor (3). The fuel flows between the diode and the phototransistor. The OilGuard oil contains a yellow dye which absorbs the light from the light-emitting diode. In this mode, the product is operating as usual. If the product is filled with clean gasoline or a different type of

oil, the light goes through the fuel. The light hits the phototransistor and an electronic switch (4) engages and sets the engine speed limit to 3800 rpm.



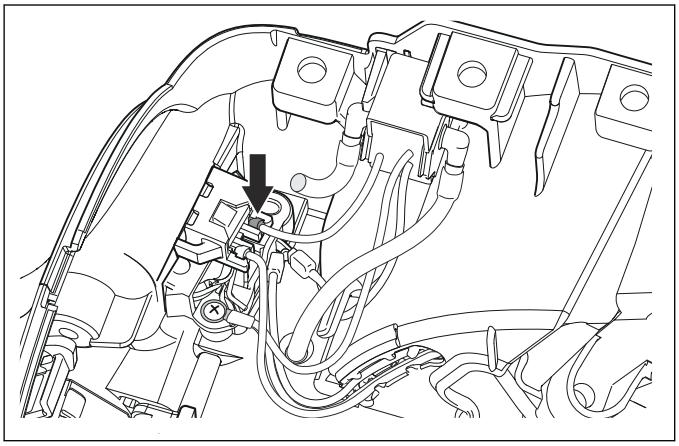


The blue plug above the stop button closes the circuit to OilGuard. To override the OilGuard function, remove the blue plug with a screwdriver and replace it with an orange plastic plug.



6.17.2 To examine the power supply for the OilGuard

1. Remove the filter and cylinder cover.
2. Connect a multimeter to a ground point and the point of measure. Measure at idle rpm. The voltage must be 20–40 V AC.



7.1 Engine does not start

Remove the spark plug from the cylinder. Hold the cylinder, pull the starter rope and see if there are sparks between the spark plug electrodes.

There are no sparks at the spark plug		
Examine	**Cause**	**Solution**
Spark plug	The spark plug electrodes are wet	Dry them
	There is carbon on the spark plug electrodes	Remove the carbon or replace the spark plug
	The insulation on the ignition cable is damaged	Replace the spark plug
	The space between the spark plug electrodes is too small or large	Champion RCJ 6Y/NGK BPMR 7A: Adjust to 0.5 mm
Ignition coil	The coil insulation is defective	Replace
	The cable trunks are damaged or the cable is broken	Repair or replace
	The distance between the rotor and coil is not correct	Adjust to 0.3 mm
Switch	The switch is OFF	Set the switch to the left position
	The switch is defective	Replace
	The primary wire is grounded	Repair or replace

There are sparks at the spark plug		
Symptom/Category	**Cause**	**Solution**
Compression is good and fuel flows	There is too much fuel	Remove the fuel
	The carburetor is adjusted to give too rich mixture	Repair, adjust or replace the carburetor
	There is too much fuel mixture	Adjust or replace the carburetor
	The air filter is too dirty	Replace the air filter
	Low quality fuel is being used	Replace with good quality fuel
Fuel flows but compression is low	The spark plug is loose	Tighten
	There is wear or damage on the cylinder and piston	Replace
	There is a gas leak around the cylinder and crankcase	Replace the gasket
No fuel flows	The carburetor is not adjusted	Adjust
	There is a blockage in the carburetor	Clean
	There is a blockage in the fuel filter	Clean or replace the fuel filter
	The fuel hose is damaged or blocked	Adjust

7.2 Engine stops during operation - no sparks

There are no sparks at the spark plug		
Symptom/Category	**Cause**	**Solution**
Engine suddenly stops	The switch is accidentally set to off	Set the switch to the left position
	The plug cap is not attached	Attach the plug cap fully
	The switch cable or high-voltage cable is worn	Replace
	Internal fault in the coil	Replace
	The engine has burned out	Disassemble and repair
	The air flow filter is blocked	Clean
Engine speed gradually decreases and the engine stops	There is no fuel	Fill with fuel
	There is a blockage in the carburetor	Clean
	There is water in the fuel	Empty the fuel tank, clean the inner surface of the tank and then fill with good quality fuel
Engine speed suddenly increases, and then the engine stops	There is no fuel	Fill with fuel
	There is a blockage in the carburetor	Clean

7.3 Engine stops during operation

Remove the spark plug from the cylinder. Hold the cylinder and pull the starter to see if there are sparks between the spark plug electrodes.

Symptom/Category	**Cause**	**Solution**
Engine suddenly stops	The engine runs lean	Adjust, repair or replace the carburetor
	Dirt causes blockage in the air flow. This decreases the temperature of the engine	Clean
	Dirt on the cylinder fin causes blockage	Clean
	Low quality fuel is used	Replace with good quality fuel
	There is carbon in the combustion chamber (run-on occurs)	Clean
	The edge of the spark plug is red hot	Champion RCJ 6Y/NGK BPMR 7A: Adjust to 0.5 mm
Switch	The switch is defective	Replace
	The cable is broken	Replace
	There is an internal fault in the ignition module	Replace

7.4 Weak output or change of speed

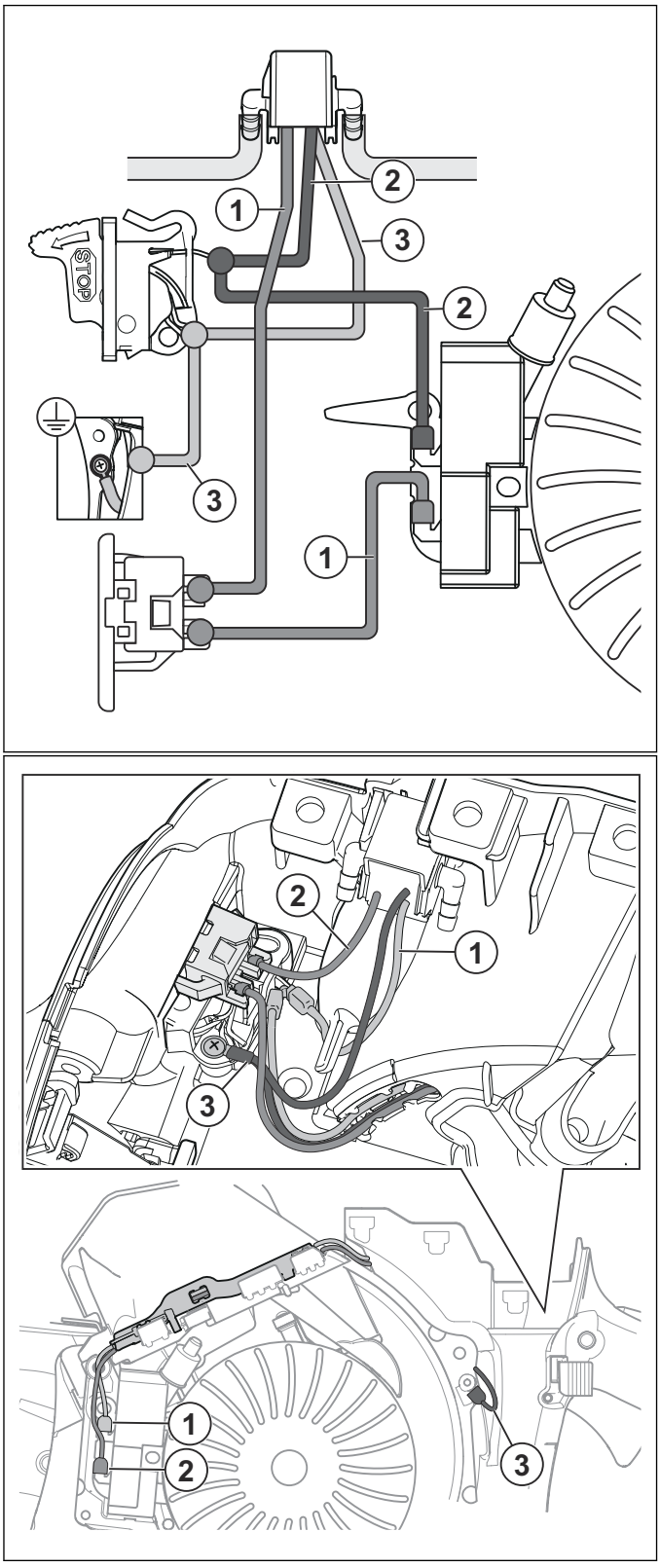
There are no sparks at the spark plug		
Symptom/Category	**Cause**	**Solution**
Compression is good and there is no flame out	Air has gone through the fuel pipe joint.	Make sure it is tight
	Air has gone into the fuel pipe because of a crack or pin hole	Replace
	Air has gone through the pulse pipe	Make sure it is tight
	Air has gone through the insulator and carburetor installation part	Replace or tighten the gasket
	Air has gone through the oil seal	Replace
	There is water in the fuel	Empty and clean the tank, then fill with good quality fuel
	The piston is burned	Remove the burn with a file, or replace
	Carbon blockage in the muffler	Clean
Overheating	The engine is running lean	Repair or replace the carburetor
	Blockage because of dirt in the air channel for decreasing temperature	Clean
	Blockage because of dirt on the cylinder fin	Clean
	Low quality fuel is being used	Replace with good quality fuel
	The level of carbon has increased in the combustion chamber	Clean
	The spark plug tip is red hot	Champion RCJ 6Y/NGK BPMR 7A: Adjust to 0.5 mm
Other	The air filter is too dirty	Replace the air filter
	Too high load	Lower the load

7.5 Other engine problems

There are no sparks at the spark plug		
Symptom/Category	**Cause**	**Solution**
When the engine revolution decreases, the blade does not stop	The clutch spring is broken	Replace the clutch spring of the engine
	The clutch is open because of rusty clutch bolts	Remove corrosion from clutch bolts, apply grease and assemble
When the engine revolution increases, the blade does not rotate	The drum bearing does not move	Replace
Strong vibration	The blade not balanced	Install a new blade. Make sure that the right bushing is used
	The vibration dampening element is broken	Replace

8 Wiring diagram

8.1 Wiring diagram OilGuard



1. OilGuard - OilGuard plug - ignition module
2. OilGuard - stop switch - ignition module
3. OilGuard - stop switch - ground

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