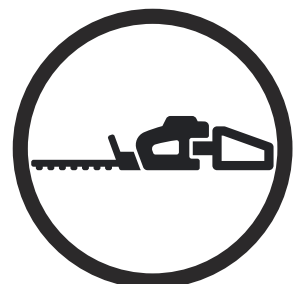


Workshop manual

CHTZ600, CHTZ600R, CHTZ750R



English

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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 Redmax.

2 Safety

2.1 Safety definitions

Warnings, cautions and notes are used to point out specially important parts of the manual.



WARNING: Used if there is a risk of injury or death for the operator or bystanders if the instructions in the manual are not obeyed.



CAUTION: Used if there is a risk of damage to the product, other materials or the adjacent area if the instructions in the manual are not obeyed.

Note: Used to give more information that is necessary in a given situation.

2.2 General safety instructions



WARNING: Read the warning instructions that follow before you use the product.

The service center that repairs the product must have safety devices that obey local regulations. Warnings and cautions are used to point out specially important parts of the workshop manual.

2.3 Symbols on the product



Stop.



Be careful and use the product correctly. This product can cause serious injury or death to the operator or others.



Read the operator's manual carefully and make sure that you understand the instructions before use.



Use approved hearing protection and approved eye protection.



Use approved protective gloves.



Use heavy-duty slip-resistant boots.



Idle adjustment screw.



High speed needle.



Low speed needle.



Noise emissions to the environment according to European Directive 2000/14/EC and New South Wales legislation "Protection of the Environment Operations (Noise Control) Regulation 2017". Noise emission data can be found on the machine label and in the Technical data chapter.



The product agrees with the applicable EC directives.

yyyywwxxxx

The rating plate shows serial number. **yyyy** is the production year and **ww** is the production week.

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

3 Prepare and do servicing on the product

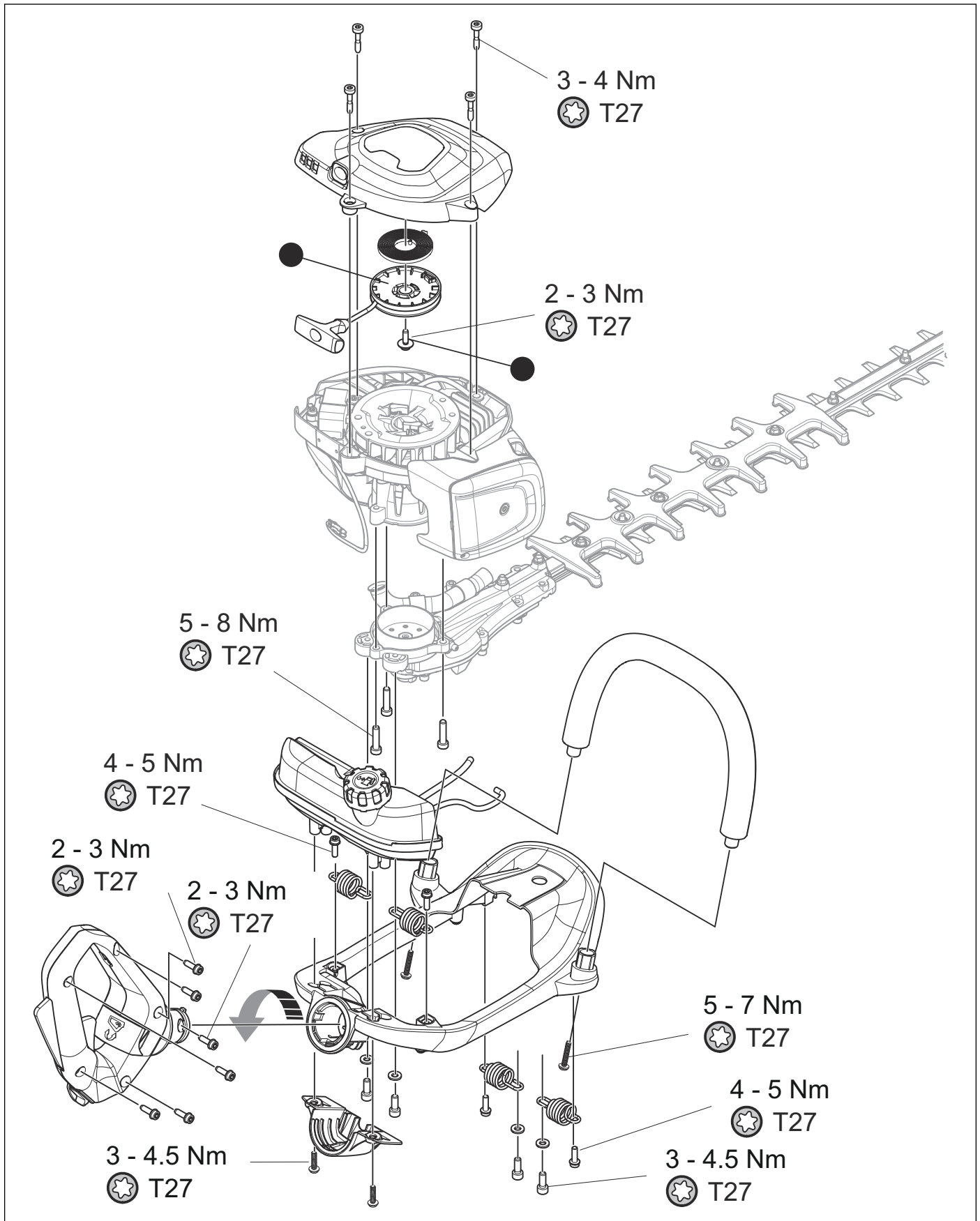
3.1 Maintenance schedule

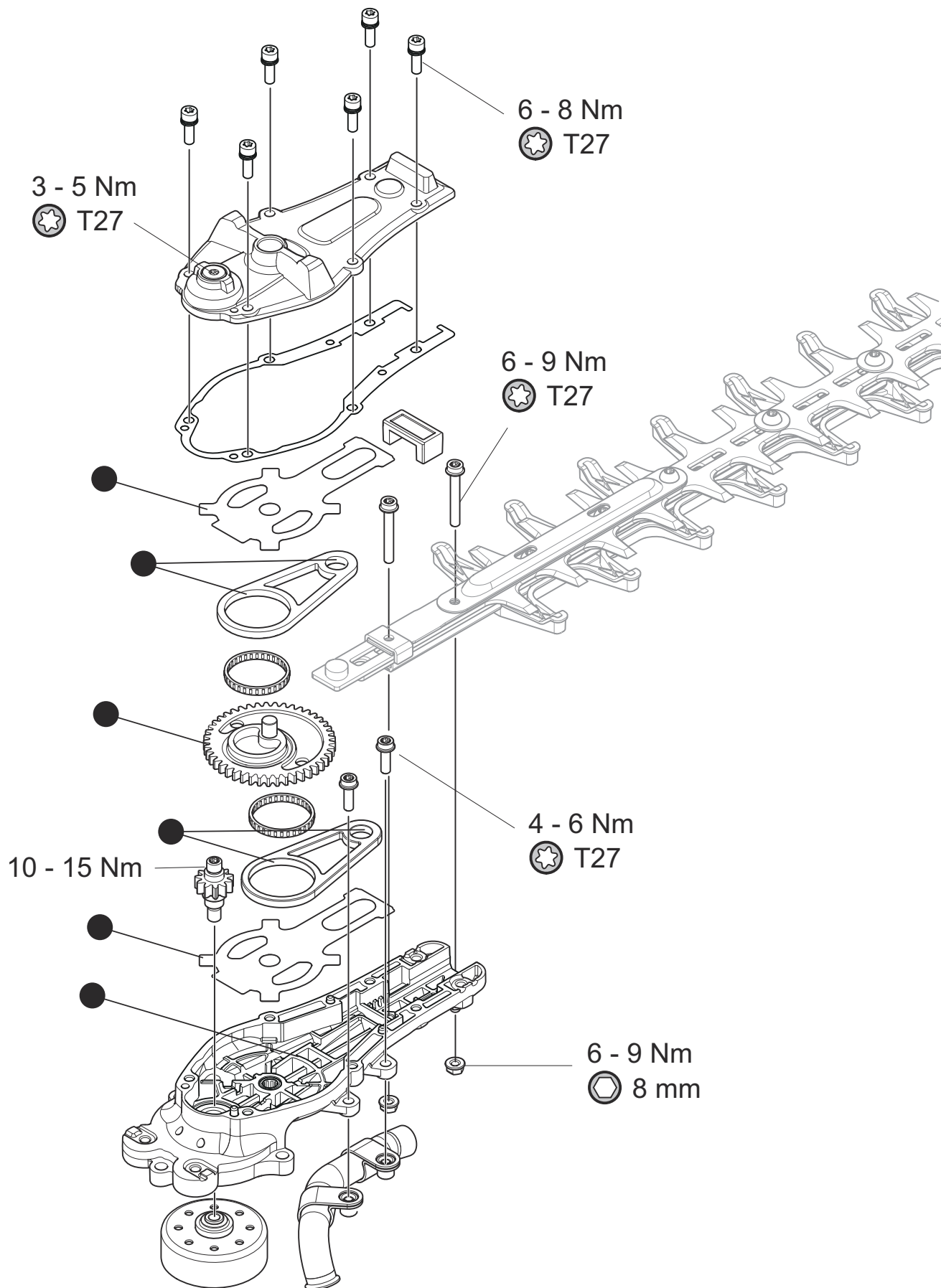
Maintenance	Before operation	After 40 h	After 100 h
Clean the external surface.	After each operation.		
Clean the muffler, exhaust pipe and engine from leaves, dirt and unwanted lubricant.	After each operation.		
Make sure that the cutting attachment does not move at idle speed.	X		
Do a check of the stop switch.	X		
Examine the cutting attachment and the cutting attachment guard for damages and cracks. Replace if it is damaged.	X		
Examine the hand guard for damages and cracks. Replace if it is damaged.	X		
Do a check of the throttle trigger lockout and the throttle trigger.	X		
Examine the engine, the fuel tank and the fuel lines for leaks.	X		
Tighten nuts and screws.	X		
Examine the fuel filter for contamination and the fuel hose for cracks and other defects. Replace if necessary.	X		
Examine the starter and the starter rope for damages.		X	
Clean the air filter. Replace if it is necessary.		X	
Examine the vibration damping units for damages and cracks.		X	
Examine the spark plug, refer to <i>To examine the spark plug on page 22.</i>		X	
Clean the cooling system.		X	
Clean the external surface of the carburetor and the area around it.		X	
Clean or replace the spark arrester mesh.			X
Clean the inner surface of the fuel tank.			X
Examine the spark plug.			X
Make sure that the gear housing is filled with grease.			X

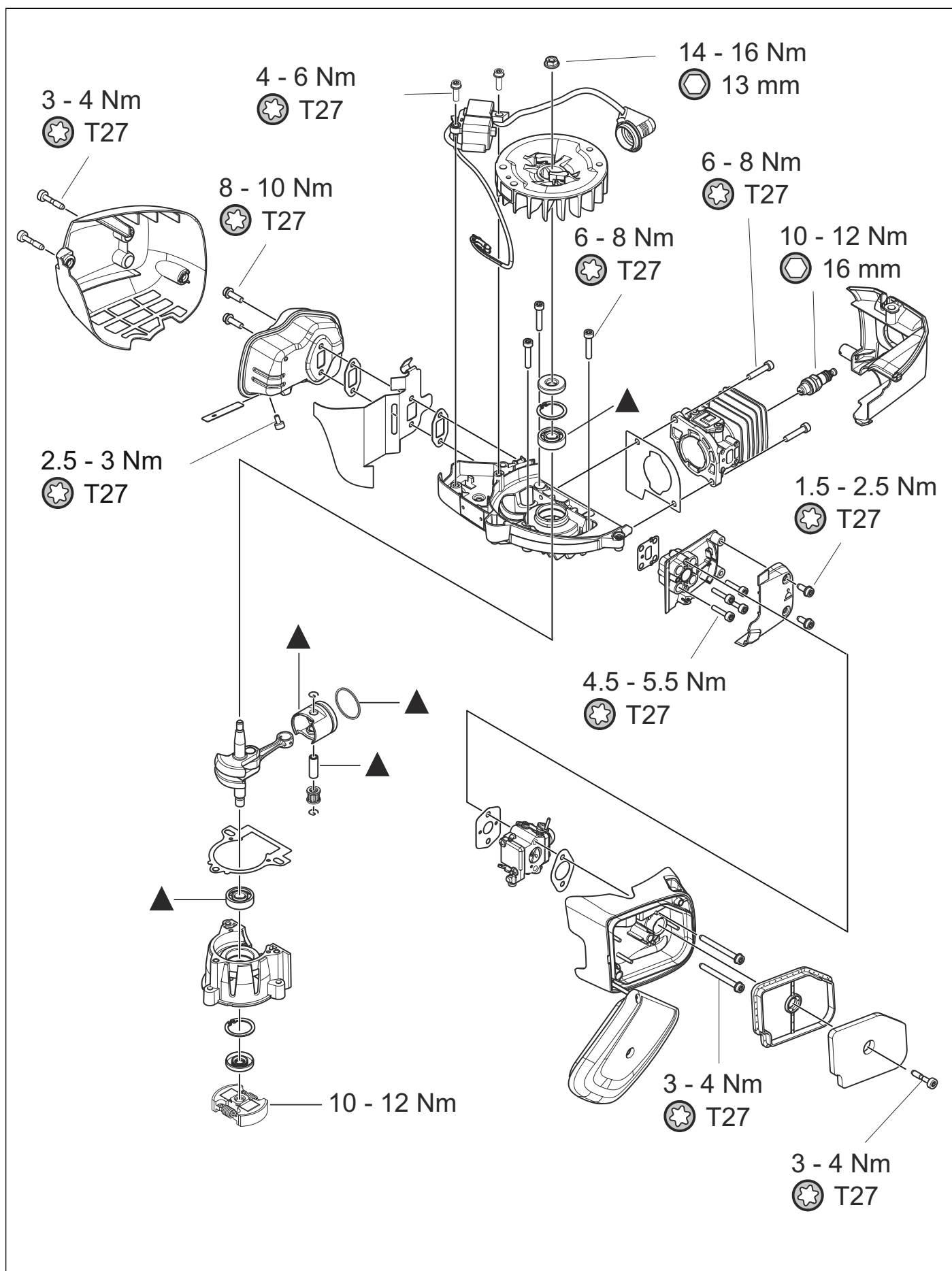
4 Servicing data

4.1 Servicing data

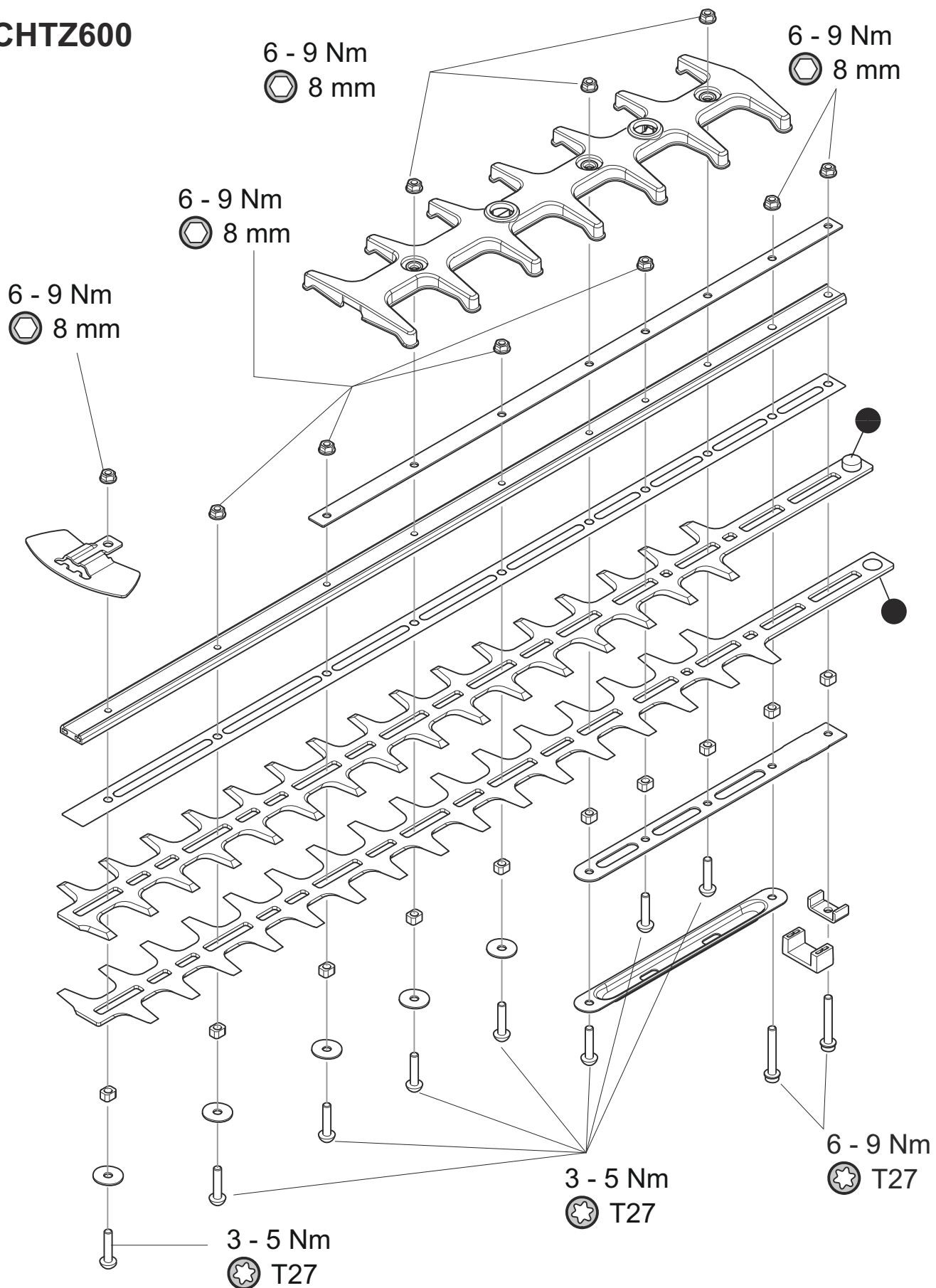
- ▲ Lubricate with 2-stroke oil.
- Lubricate with grease.



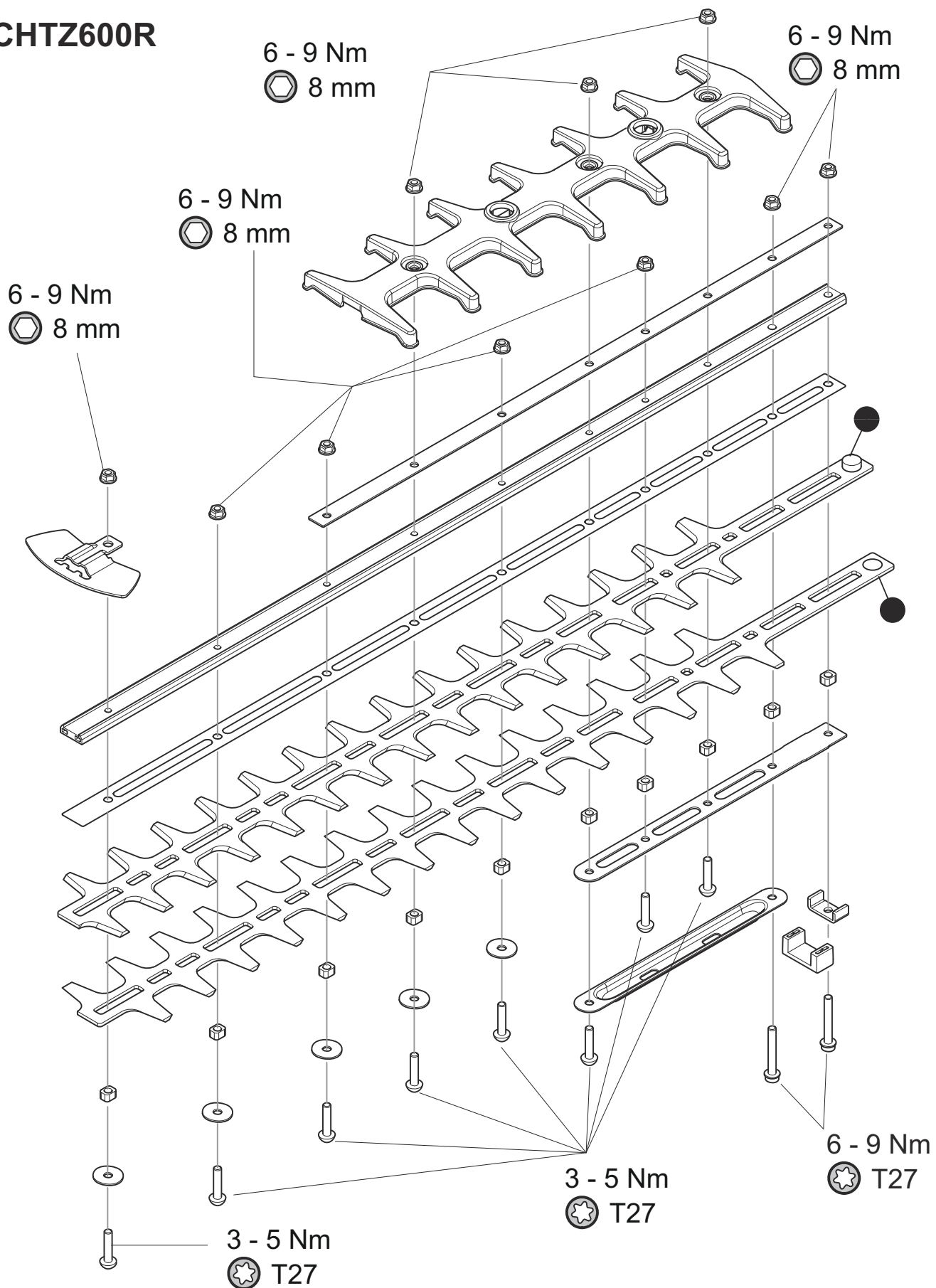




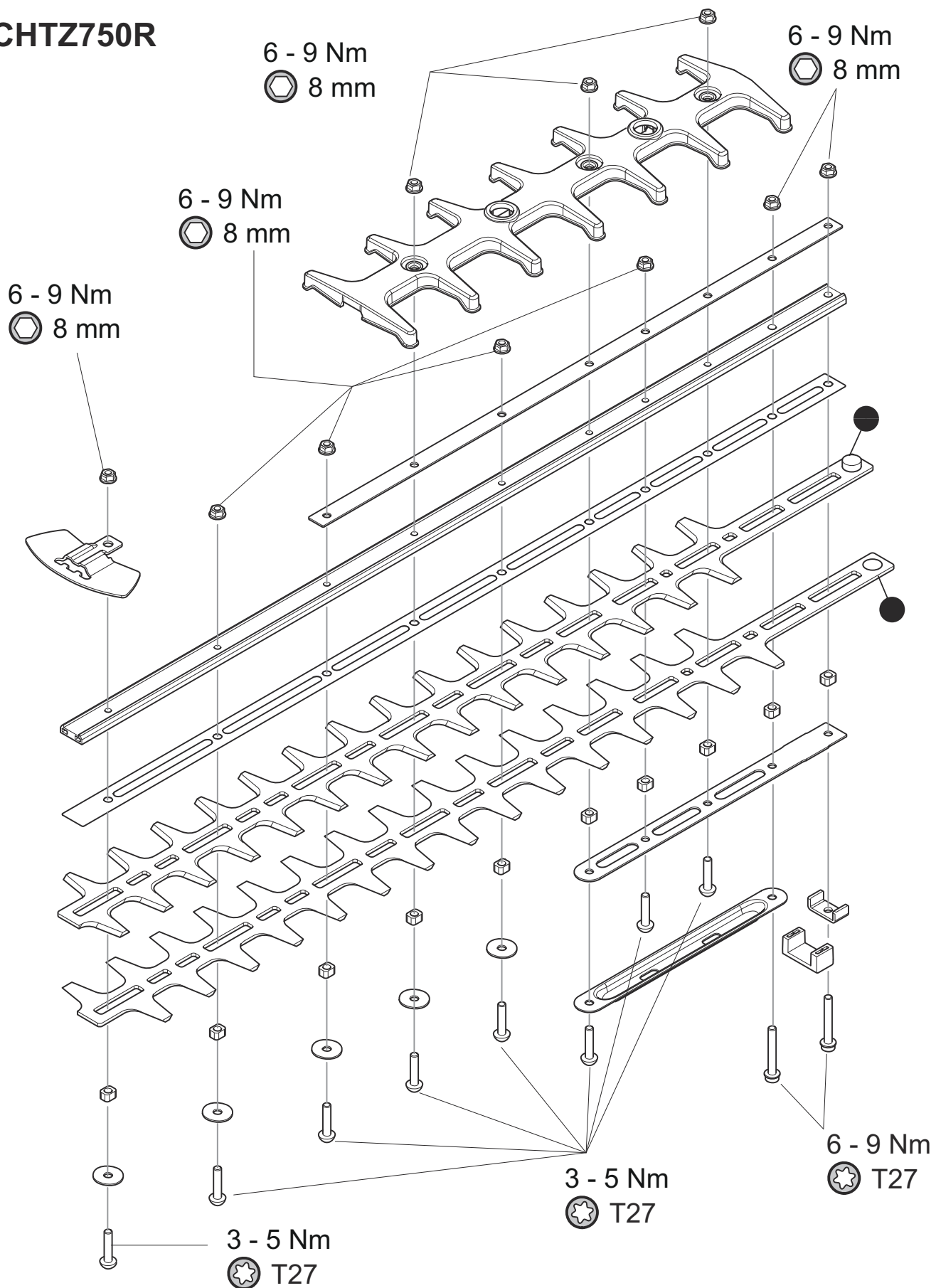
CHTZ600



CHTZ600R

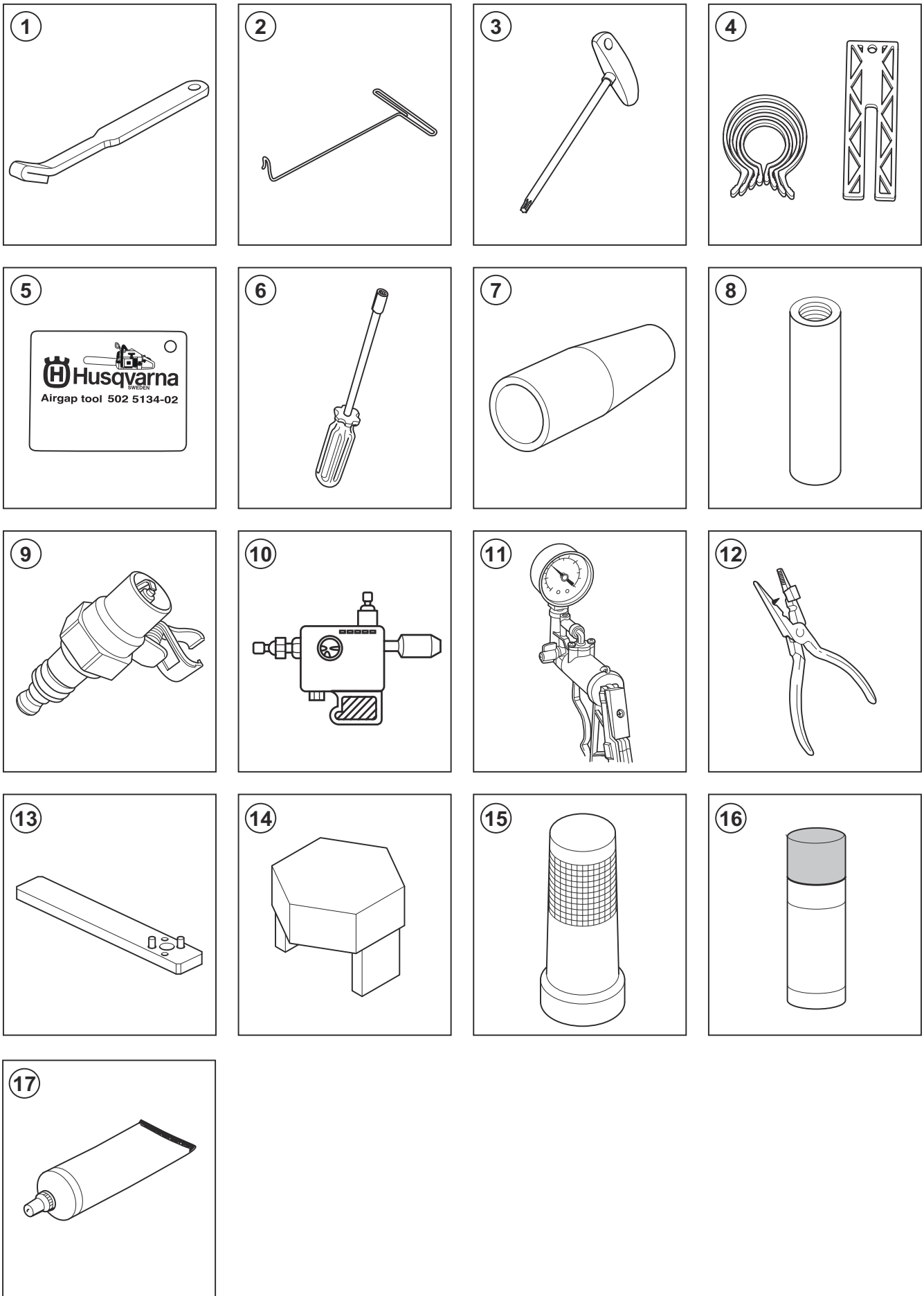


CHTZ750R



5 Servicing tools

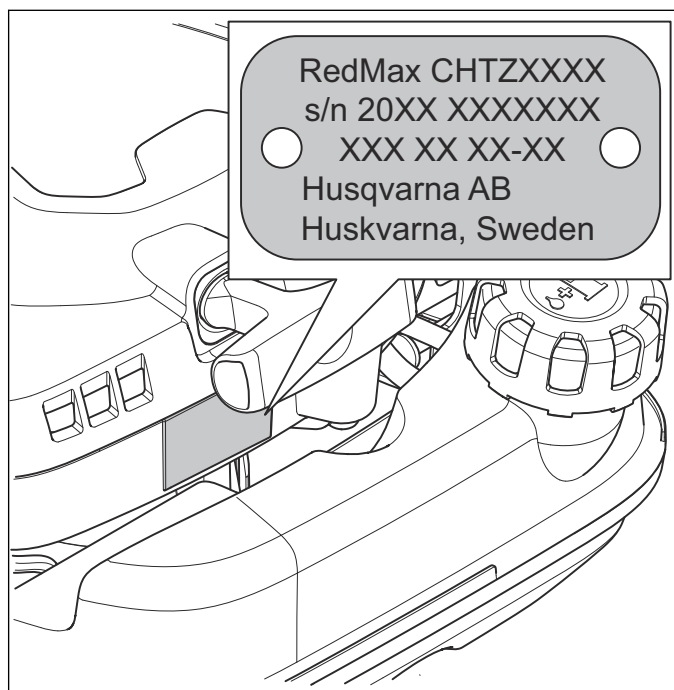
5.1 Servicing tools



Item	Description	Use for	Article number
1	Piston stop	To lock the crankshaft	521 54 83-01
2	Hook for fuel filter	To remove the fuel filter	502 50 83-01
3	T-handle Torx	For Torx screws	502 71 31-01
4	Piston assembly kit	To assemble the piston	502 50 70-01
5	Air gap tool	To measure the distance between the flywheel and the ignition module	502 51 34-02
6	Carburetor tool	To adjust the carburetor settings	597 10 85-01
7	Sleeve for crankshaft	Protection for the sealing ring	577 90 21-01
8	Flywheel removal tool	To remove the flywheel	577 90 66-01
9	Test spark plug	To do a check of the ignition module	502 71 13-01
10	Ignition tester	Spark strength check	501 97 64-01
11	Pressure gauge	Pressure test	531 03 06-23
12	Assembly pliers	To assemble spark plug caps	502 50 06-01
13	Gear drive removal tool	To remove the drive gear	597 10 95-01
14	Clutch removal tool	Centrifugal clutch	502 54 16-03
15	Ball bearing removal tool	Removal tool for the ball bearing	505 38 17-09
16	UL 21 spray	To lubricate the cutting unit	544 14 21-01
17	Grease	Lubricate the parts in the bevel gear and the gearbox	503 98 96-03

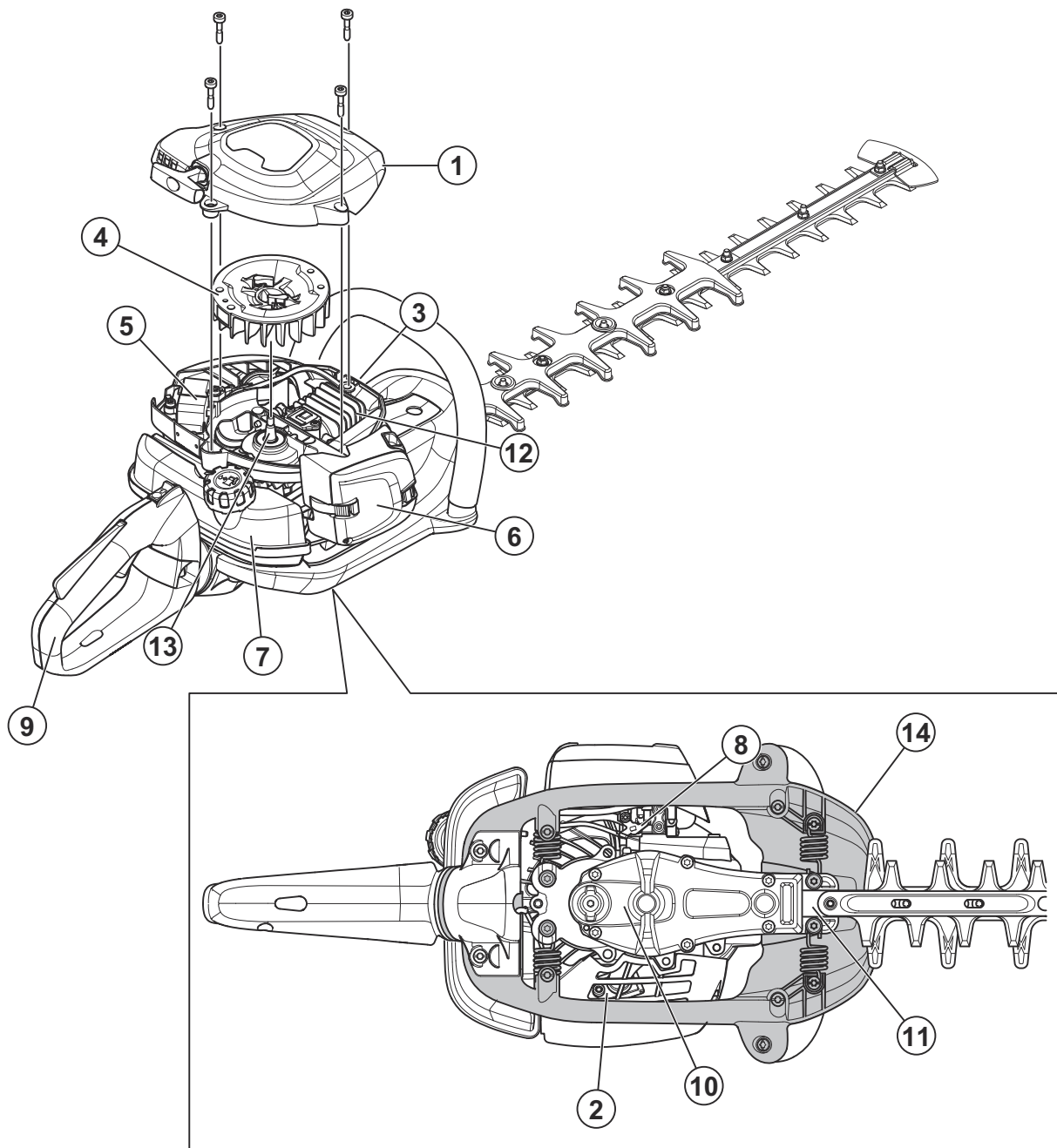
6 Function overview

6.1 Type plate and product serial number



7 Repair instructions

7.1 Product overview for repair instructions



1. Starter unit
2. Muffler
3. Spark plug
4. Flywheel
5. Ignition module
6. Air filter
7. Fuel tank
8. Carburetor
9. Handle
10. Gearbox
11. Cutting attachment
12. Cylinder and piston

13. Crankcase and crankshaft
14. Vibration damping system

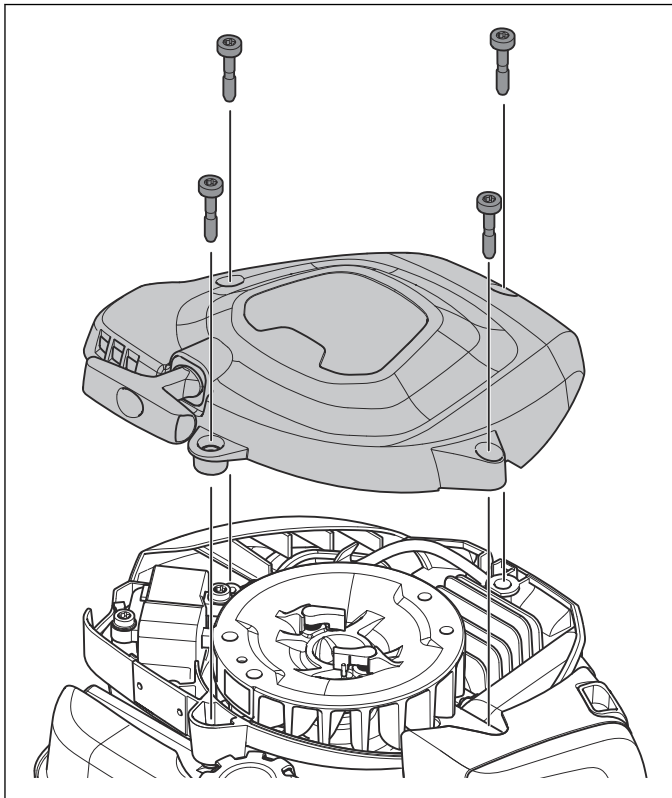
7.2 To clean and examine the product parts

- Clean and examine all parts fully. You find more instructions in the chapter for each part if special tools or procedures are necessary.
- Replace damaged or defective parts.
- Always use original spare parts.

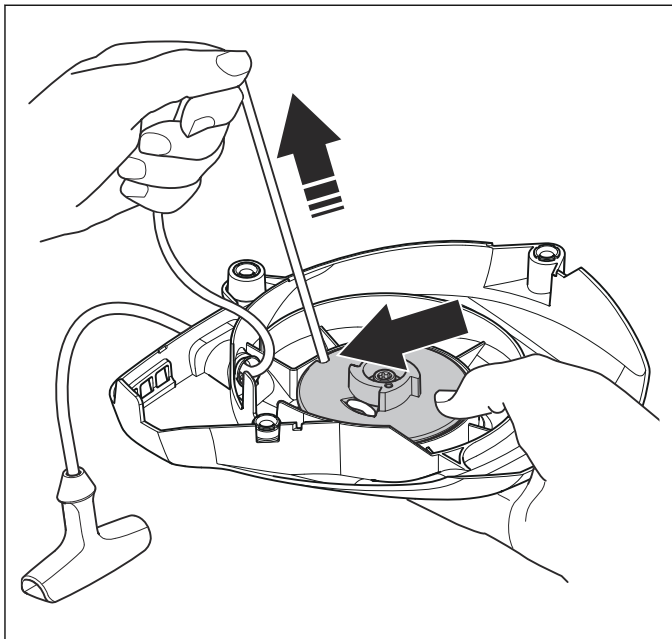
7.3 Starter

7.3.1 To disassemble the starter unit

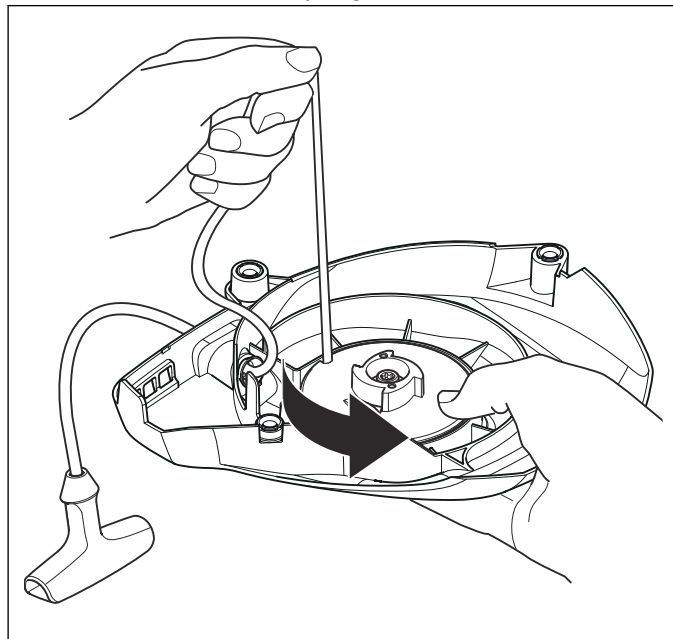
1. Remove the 4 screws and remove the starter unit.



2. Pull out the rope approximately 30 cm /12 in and put it into the notch in the pulley. Slow the starter pulley with your thumb.



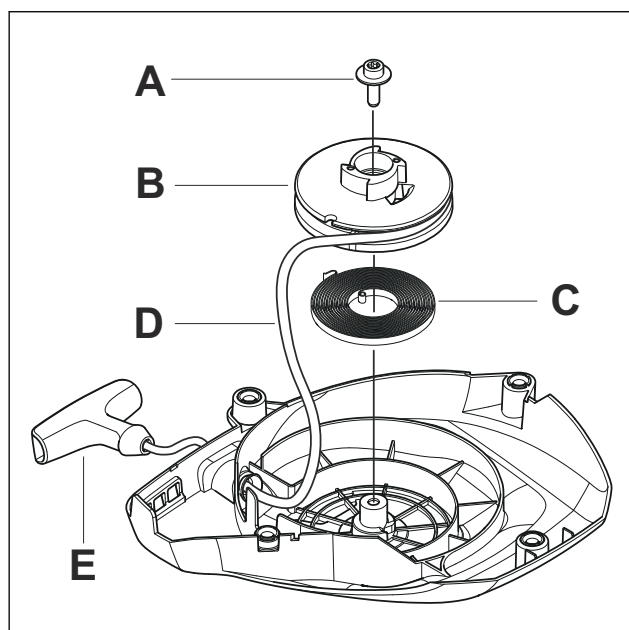
3. Let the pulley rotate slowly rearward to release the tension of the recoil spring.



4. Remove the bolt (A) and washer. Carefully remove the starter pulley (B) together with the recoil spring (C).



WARNING: The recoil spring can eject and cause injury. Use eye protection.



5. Use pointed pliers to pull out the ends of the starter rope (D) from the handle (E). Loosen the knot, if it is possible. If not, cut the rope.
6. Use pointed pliers to pull out the ends of the starter rope from starter pulley (B).

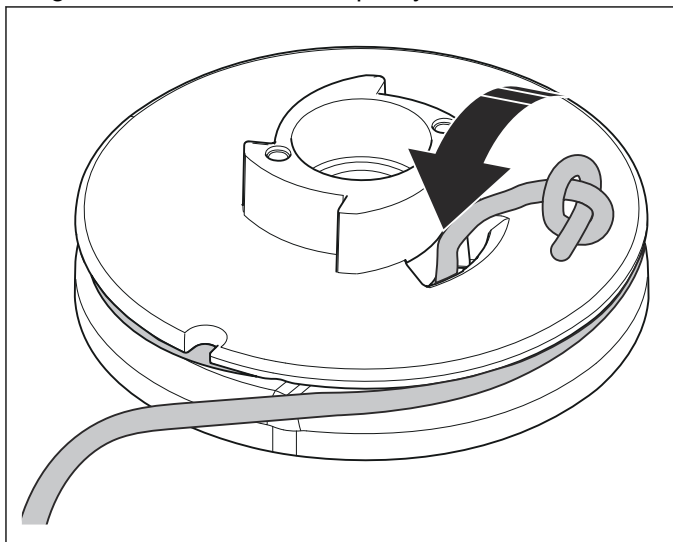
7.3.2 To clean and examine the starter unit

- Clean all components.
- Examine the starter rope. Replace the starter rope if it is damaged.

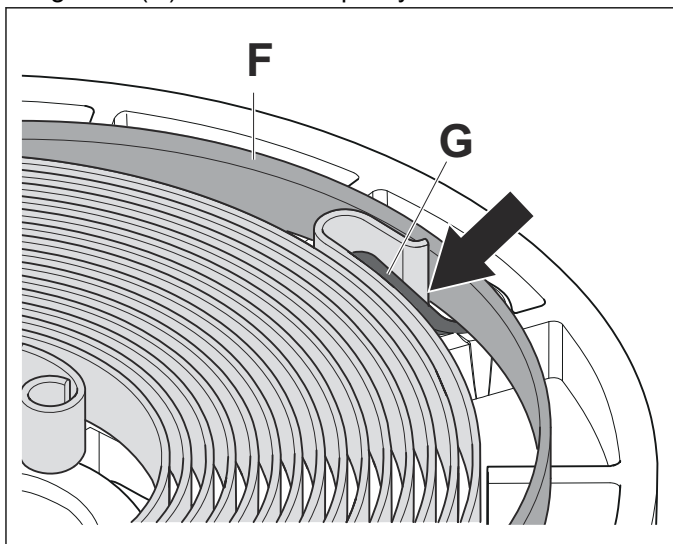
- Examine the starter pulley. Replace damaged parts.
- Make sure that the pawls on the flywheel are not damaged. Make sure that the pawl springs on the flywheel are attached correctly and move freely.
- Lubricate the pawls on the flywheel.
- Lubricate the recoil spring.

7.3.3 To assemble the starter unit

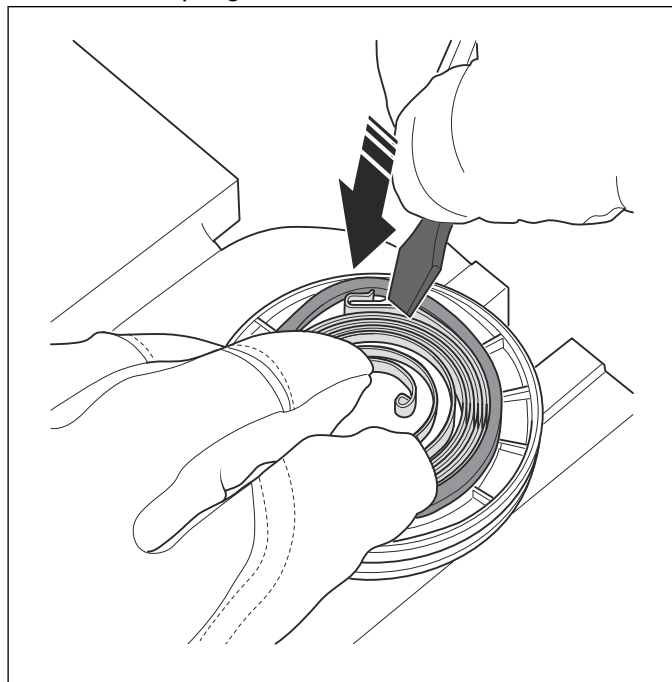
1. Attach a new starter rope to the starter pulley. Make sure that the knot is as small as possible and that it goes into the notch in the pulley.



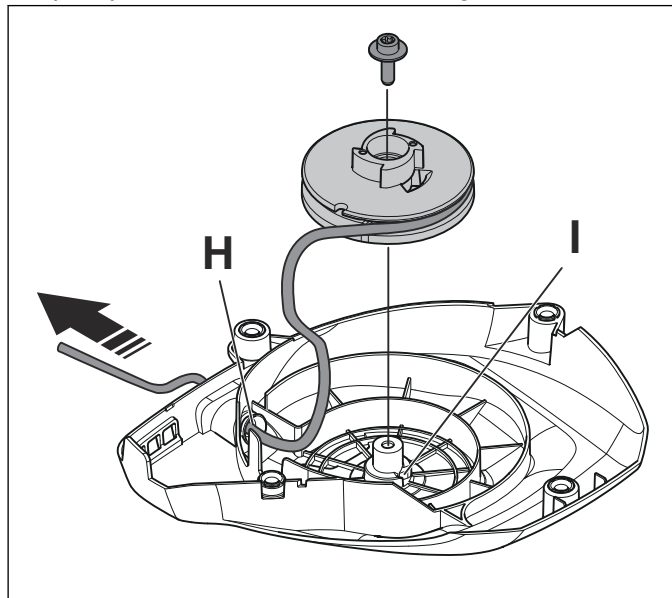
2. Put the starter pulley in a vise. The new spring is in full tension with a solid plastic strap (F). Put the recoil spring in the starter pulley, directly above the groove (G) in the starter pulley.



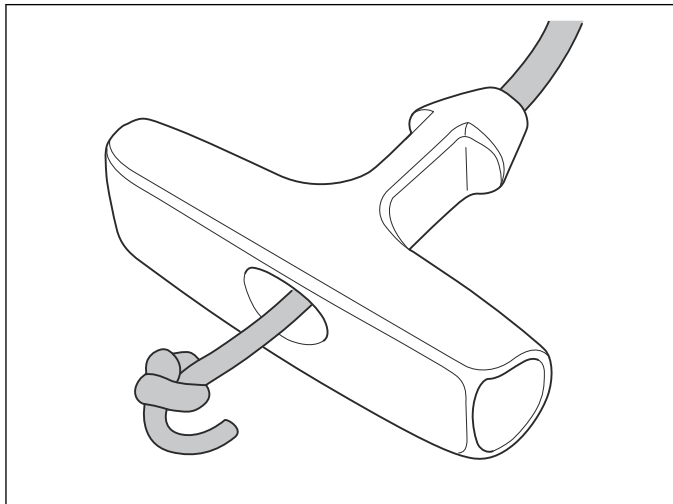
3. Hold the recoil spring with 2 fingers. Push the recoil spring down into the starter pulley with a screwdriver. The plastic strap comes off as you push the recoil spring down.



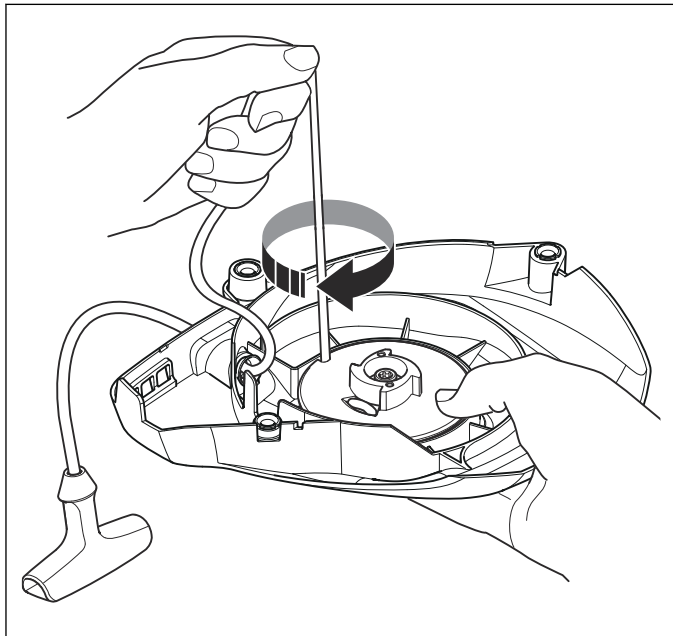
4. Lubricate the recoil spring and the stub axle of the starter pulley with Redmax grease.
5. Put the starter rope through the opening (H) in the starter housing. Put the starter pulley in position. Put the free end of the recoil spring into the notch (I) on the hub of the starter housing. Push the starter pulley down into the starter housing.



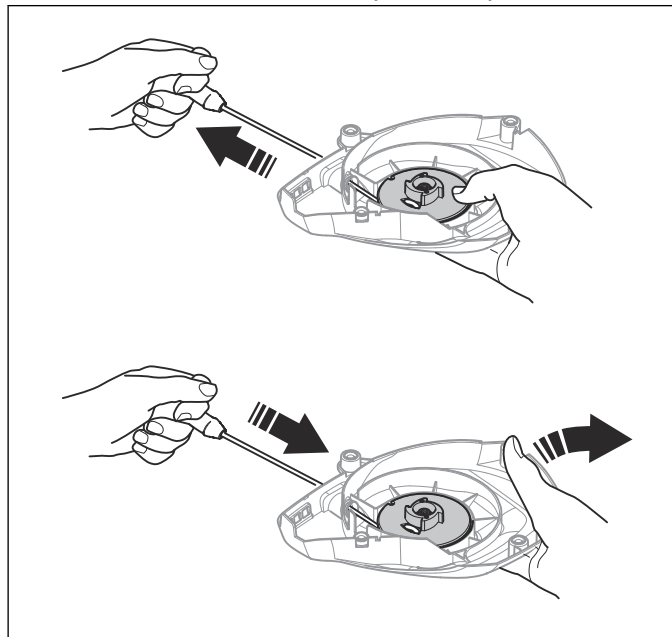
6. Put the starter rope handle on the starter rope.



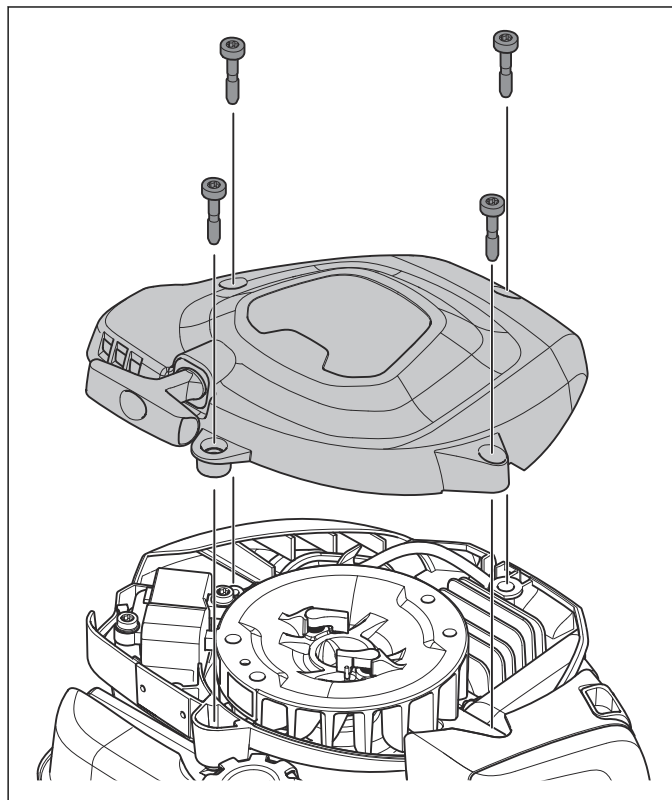
7. Pull the starter rope up into the notch in the starter pulley. Turn the starter pulley to wind the starter rope on the starter pulley. Continue to wind the starter pulley until the starter pulley stops. Hold the starter pulley with your thumb.



8. Pull the starter rope to make it straight, remove your thumb and let the starter rope wind up.



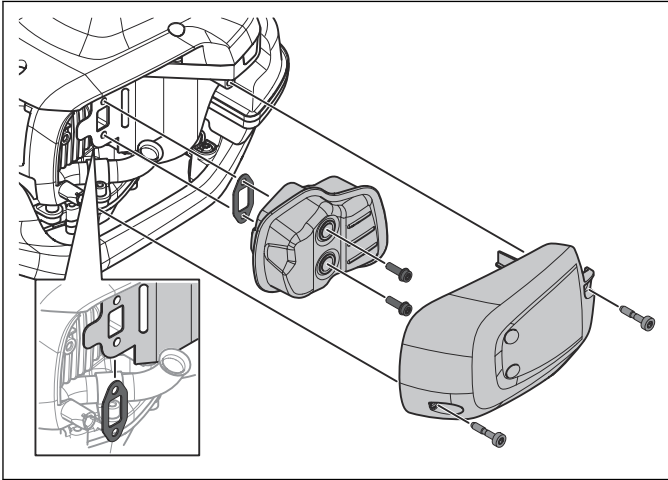
9. Attach the starter unit to the crankcase.



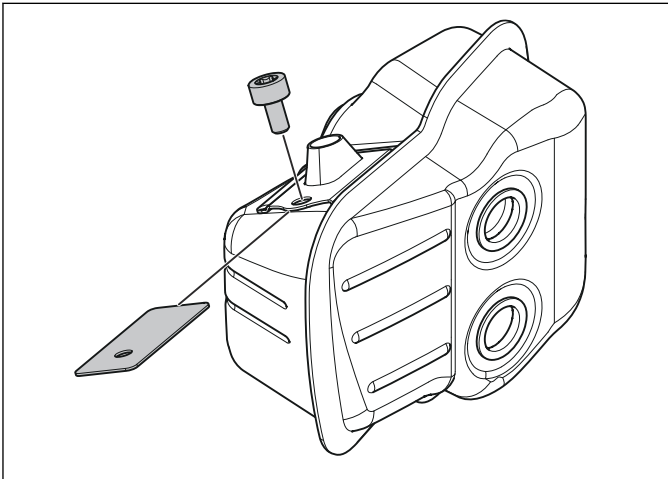
7.4 Muffler

7.4.1 To disassemble the muffler

1. Remove the 2 screws and remove the muffler cover.
2. Remove the 2 screws and remove the muffler.



3. Remove the gasket behind the heat shield.
4. Remove the screw and remove the spark arrester.



7.4.2 To clean and examine the muffler

1. Clean all components. Clean the contact surfaces of the gasket, the heat deflector and the cylinder.
2. Examine the spark arrester for damage.
3. Examine the muffler and the muffler holder for damage.
4. Examine the gasket for damage.
5. Replace all damaged parts.

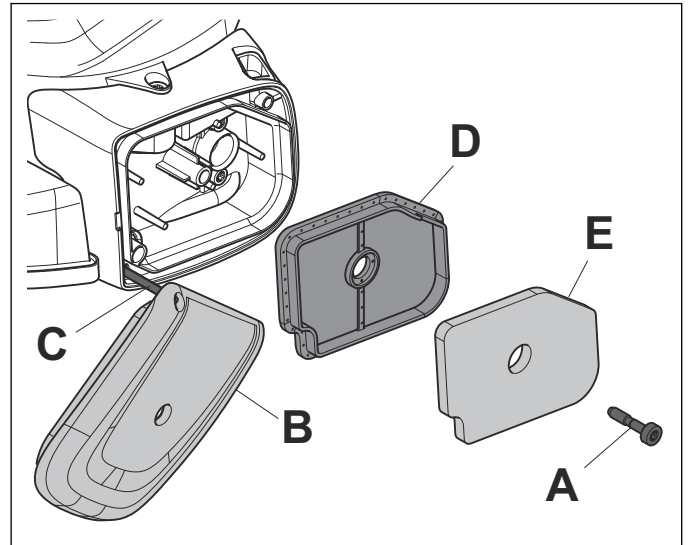
7.4.3 To assemble the muffler

1. Assemble the muffler in the opposite sequence of *To disassemble the muffler on page 19.*

7.5 Air filter

7.5.1 To disassemble the air filter

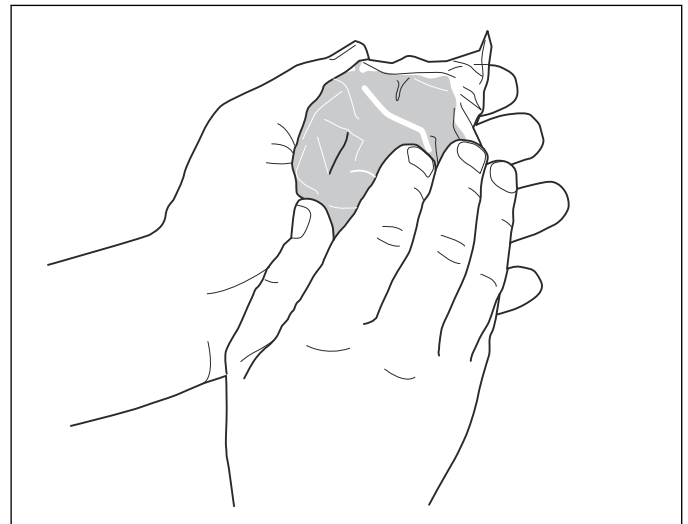
1. Pull the clips (A) to the side to release the air filter cover (B). The air filter cover is connected to the air filter holder by a rod (C).



2. Remove the air filter (D) and the foam filter (E).

7.5.2 To clean and examine the air filter

1. Put on protective gloves.
2. Spray the foam filter (E) with air-filter oil.
3. Put the air filter in a plastic bag.
4. Rub the plastic bag to supply the oil equally across the air filter.
5. Push the unwanted oil out of the air filter while in the plastic bag.



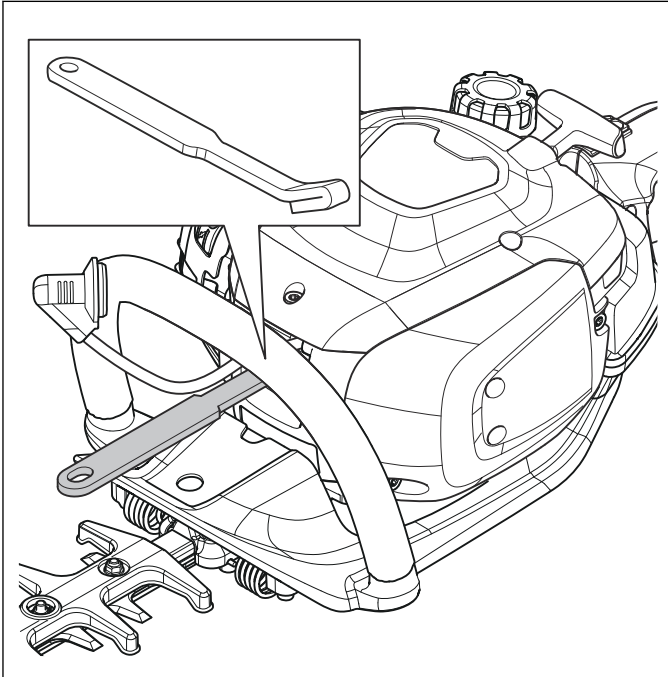
7.5.3 To assemble the air filter

1. Assemble in the opposite sequence of *To disassemble the air filter on page 19.*

7.6 Flywheel

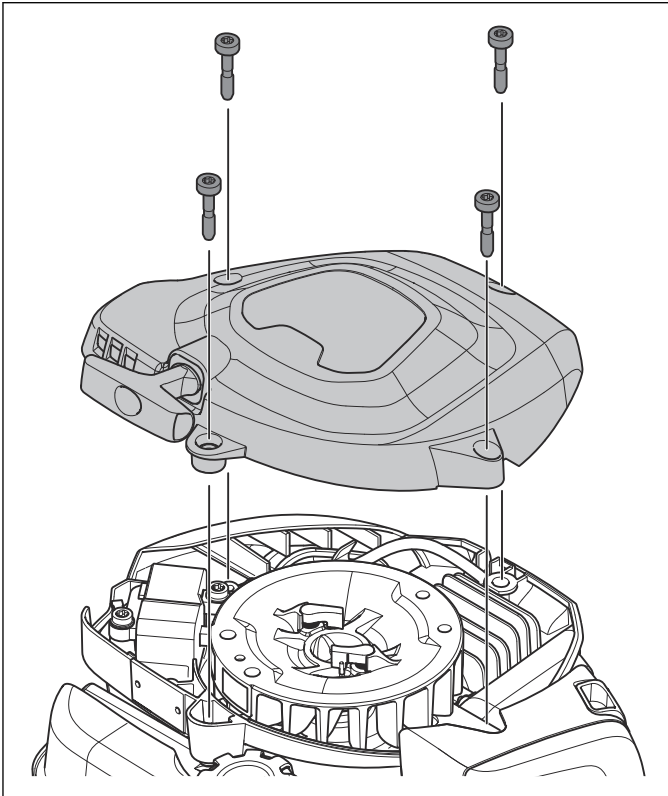
7.6.1 To disassemble the flywheel

1. Clean around the spark plug.
2. Remove the spark plug cap and the spark plug.
3. Put a piston stop in the spark plug hole.

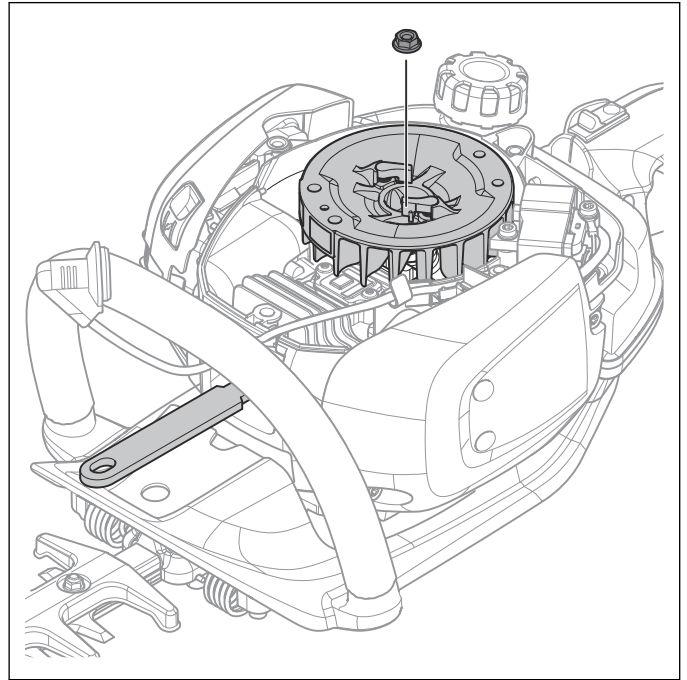


CAUTION: Make sure that the piston stop does not go into the exhaust port. There is a risk of engine damage.

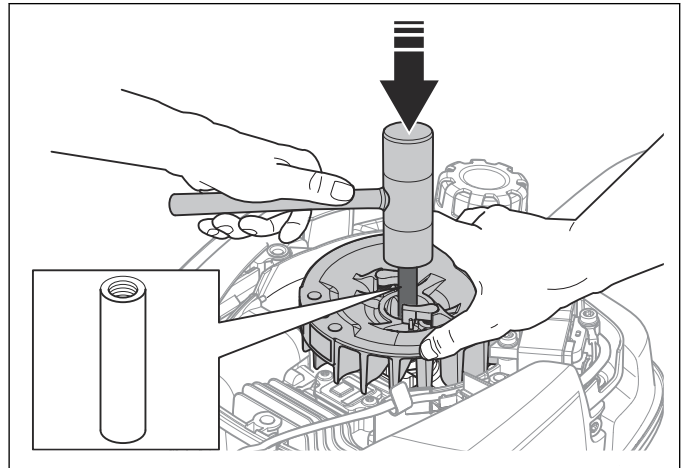
4. Remove the starter unit.



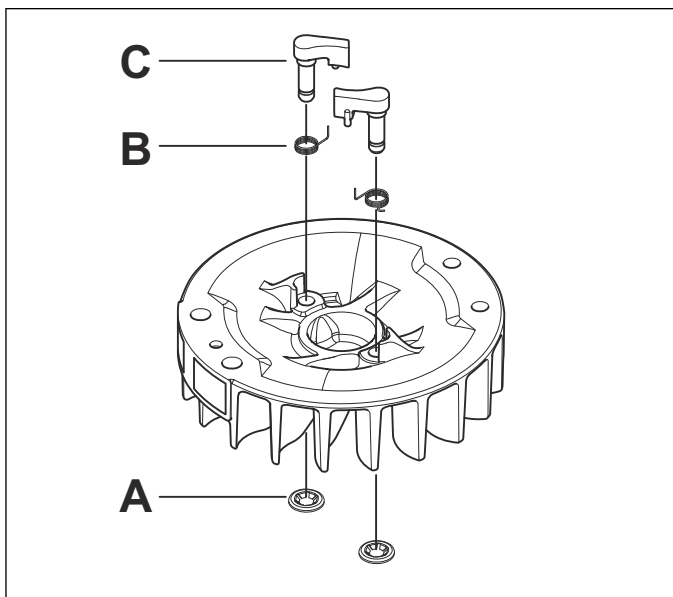
5. Remove the nut that holds the flywheel.



6. Attach the flywheel removal tool to the crankshaft, refer to *Servicing tools* on page 12. Keep a distance of approximately 2 mm between the flywheel removal tool and the flywheel. Hit the flywheel removal tool lightly with a hammer while you lift the flywheel with your other hand.



7. Remove the locking washer (A) with a screwdriver. This causes deformation of the washer. Discard the washer.



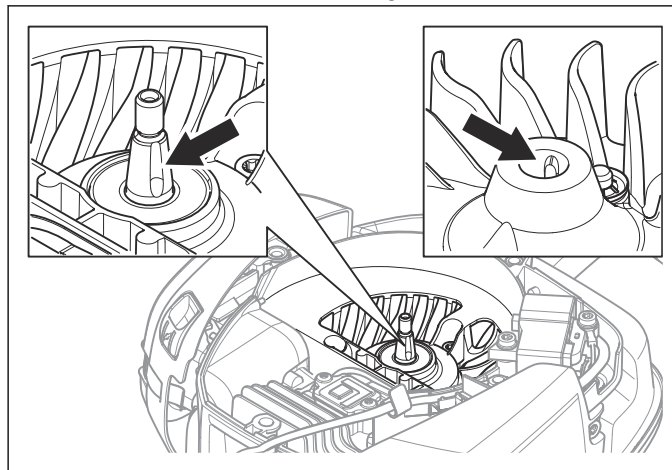
8. Remove the starter pawls (C) and springs (B).

7.6.2 To clean and examine the flywheel

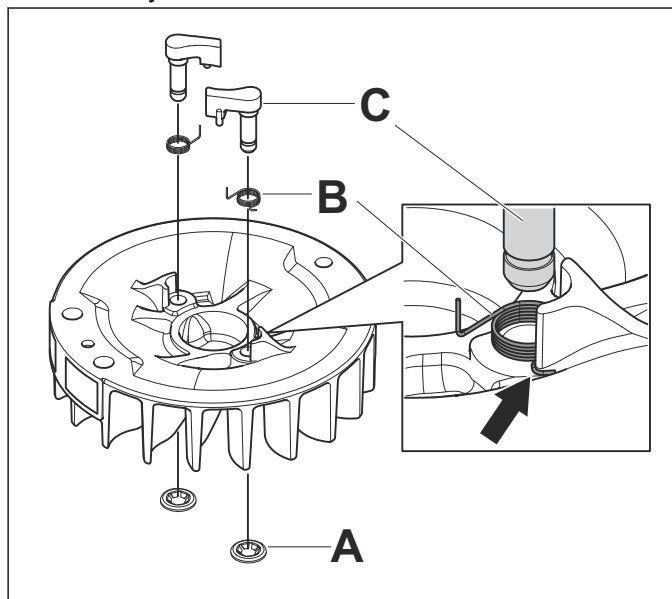
- Examine the flywheel for cracks and damage.
- Make sure that the key in the flywheel and keyway are not damaged.
- Clean the crankshaft from grease and oil.

7.6.3 To assemble the flywheel

1. Make sure that the key in the flywheel and keyway in the crankshaft are not damaged.



2. Attach the recoil spring (B) and the starter pawls (C) on the flywheel.



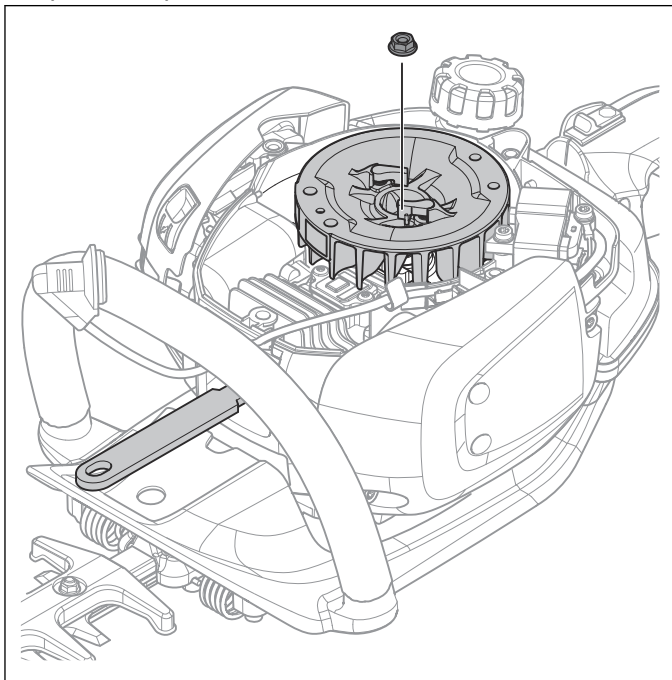
Note: Make sure that the recoil spring is attached to the flywheel.

3. Attach new locking washers.

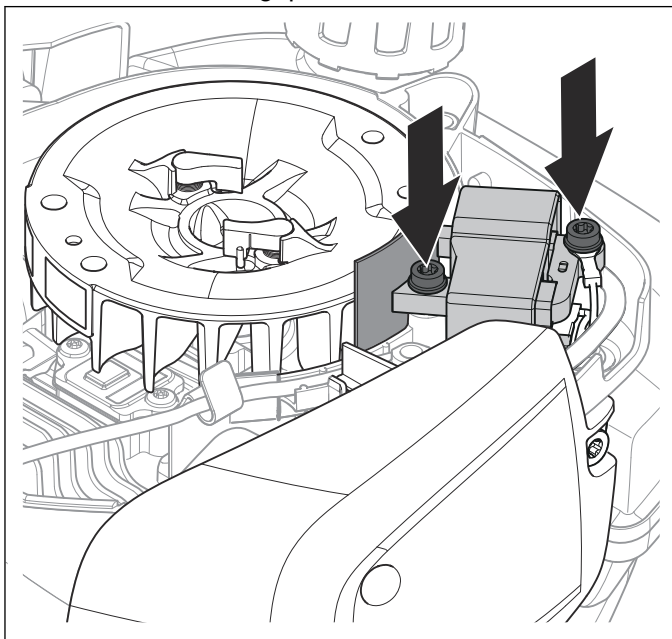


CAUTION: Always use new locking washers.

4. Install the flywheel and attach the nut. Remove the piston stop.

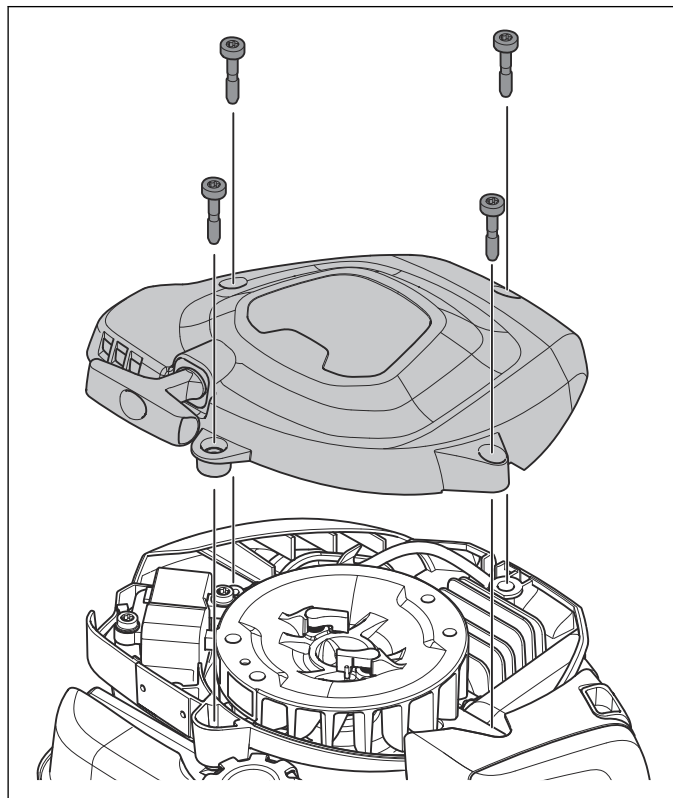


5. Put the air gap tool between the flywheel and the ignition module. Refer to *Servicing data on page 6* for the correct air gap.



- If it is necessary, loosen the screws to adjust the distance between the flywheel and the ignition module.
- Tighten the screws to the correct torque.

6. Install the starter unit.



7. Install the spark plug and the spark plug cap.

7.7 Ignition system

7.7.1 Introduction

The engine has an electronic ignition system fully without moving parts. A defective component cannot be repaired, but must be replaced by a new component.

If the engine does not fire, the ignition module can be damaged. Before you replace the ignition module, do the tests that follow.

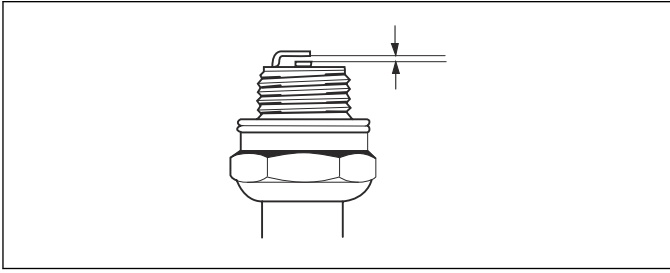
7.7.2 To examine the spark plug



CAUTION: Always use the recommended spark plug type. Incorrect spark plug type can cause damage to the product.

- Examine the spark plug if the engine is low on power, is not easy to start or does not operate correctly at idle speed.
- To decrease the risk of unwanted material on the spark plug electrodes, obey these instructions:
 - Make sure that the idle speed is correctly adjusted.
 - Make sure that the fuel mixture is correct.
 - Make sure that the air filter is clean.

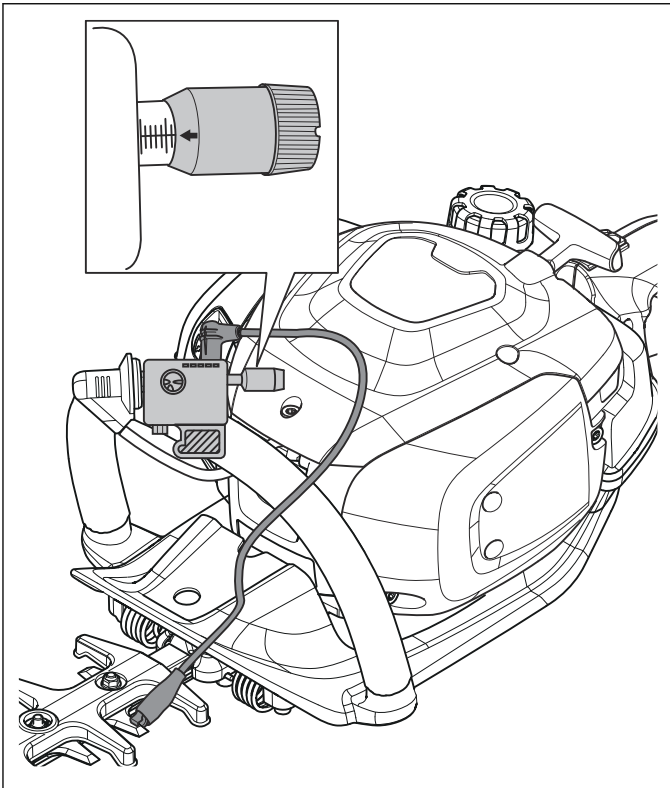
- If the spark plug is dirty, clean it and make sure that the electrode gap is correct, refer to *Technical data on page 56*.



- Replace the spark plug if it is necessary.

7.7.3 To do a test of the ignition module

1. Disconnect the spark plug cable from the spark plug.
2. Disconnect the spark plug from the cylinder.
3. Connect the ignition tester to the spark plug cap and ground the clip to the cutting equipment.



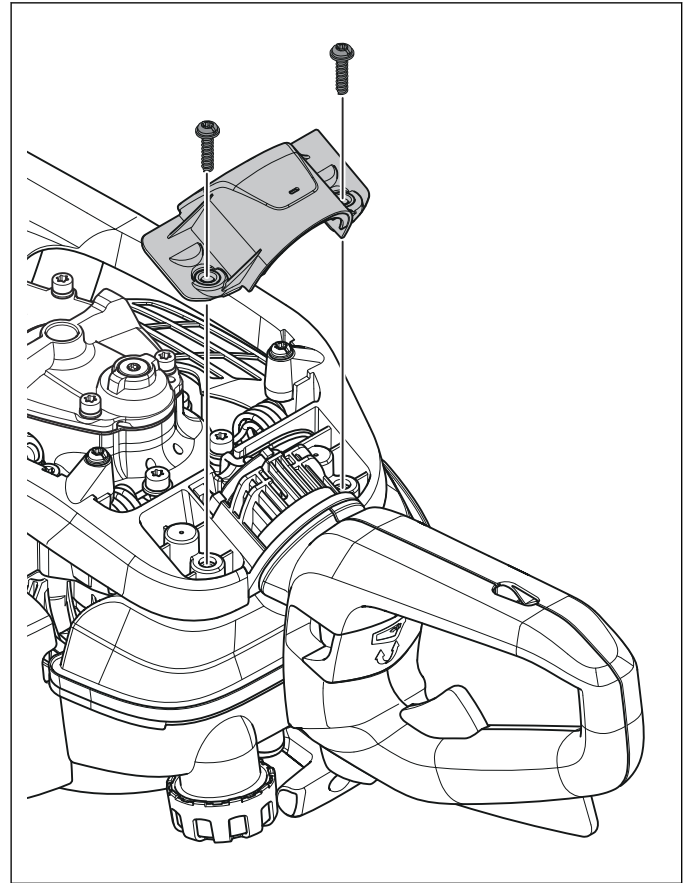
4. Use the knob to adjust the distance between the 2 electrodes to 6 mm.

Note: 6 mm is 6 marks on the scale.

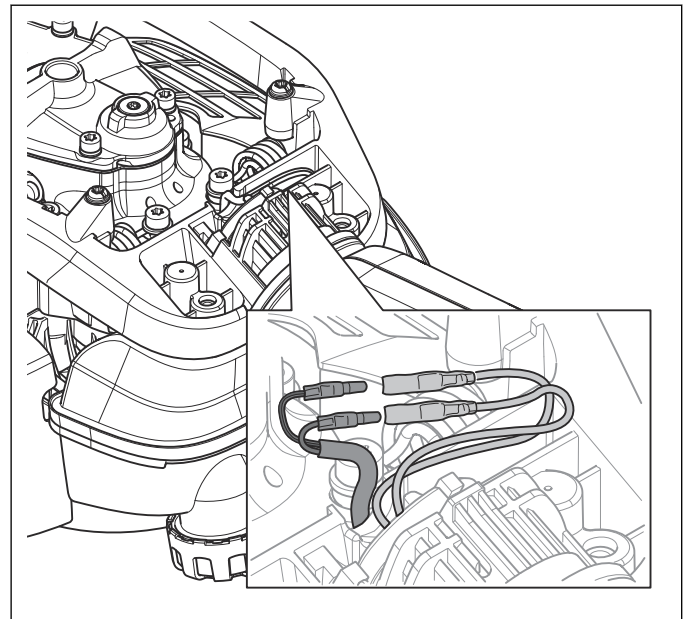
5. Pull with force in the starter rope handle.
6. If the ignition operates correctly, you see a clear blue spark between the electrodes. If you do not see a spark or if you see a weak spark, refer to *Troubleshooting on page 52*.

7.7.4 To do a test of the short circuit cable

1. Remove the 2 screws and remove the handle cover.



2. Disconnect the short circuit cables.

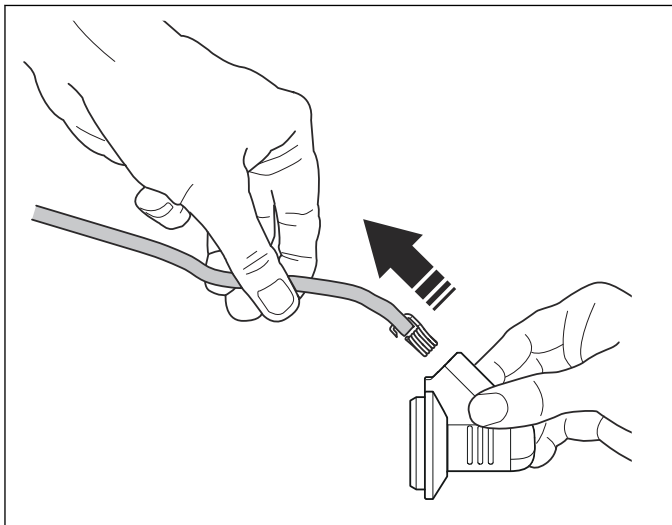


3. If there is no spark, disconnect the short circuit cables.
4. If there is a spark, the fault is in the ignition module or in the short circuit cable.

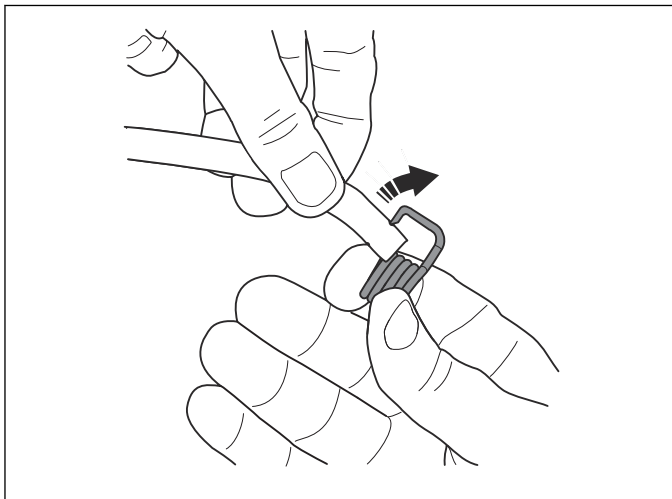
7.7.5 To examine the spark plug cable

If there is no spark, do the procedure that follows to examine the connection between the spark plug cable and the spark plug.

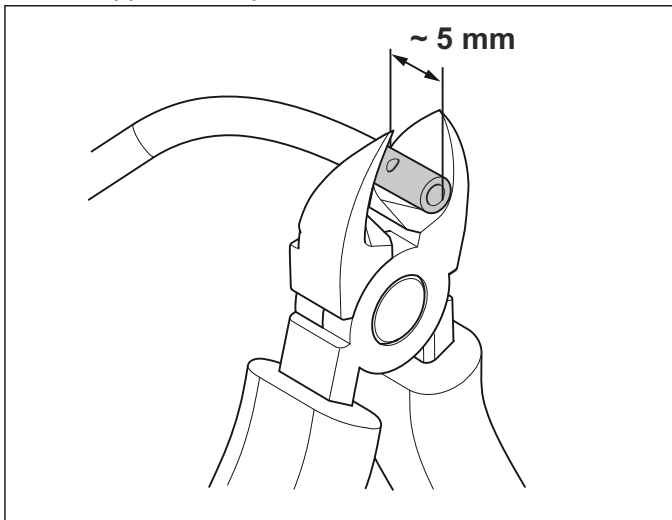
1. Pull the spark plug cable from the spark plug cap.



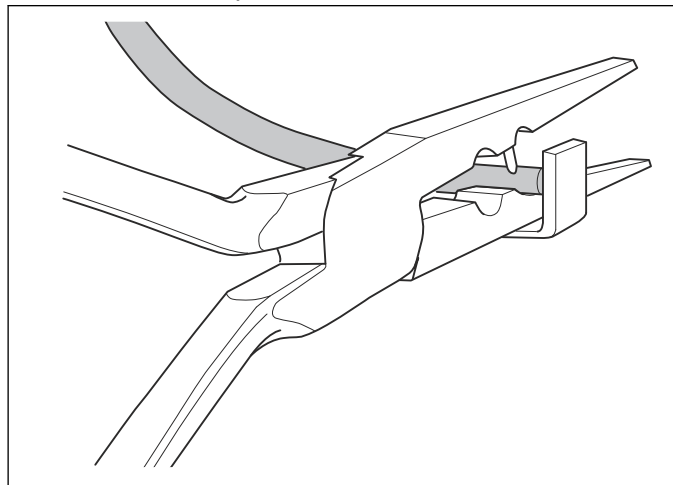
2. Turn the spring to remove it from the cable.



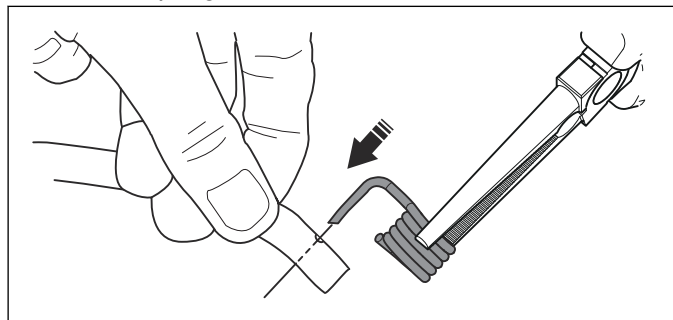
3. Cut approximately 5 mm of the cable.



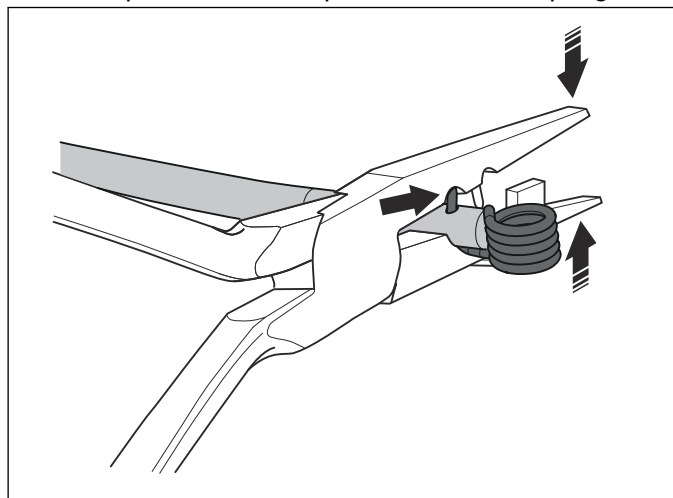
4. Put the end of the cable against the stop of the assembly pliers, refer to *Servicing tools* on page 12. Then close the pliers to make the new hole.



5. Put the spring into the new hole.



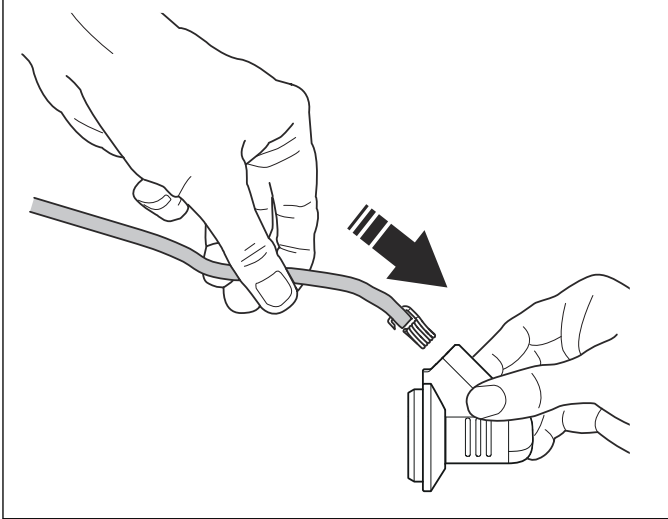
6. Put the cable with the open spring into the other slot in the pliers. Close the pliers to bend the spring.



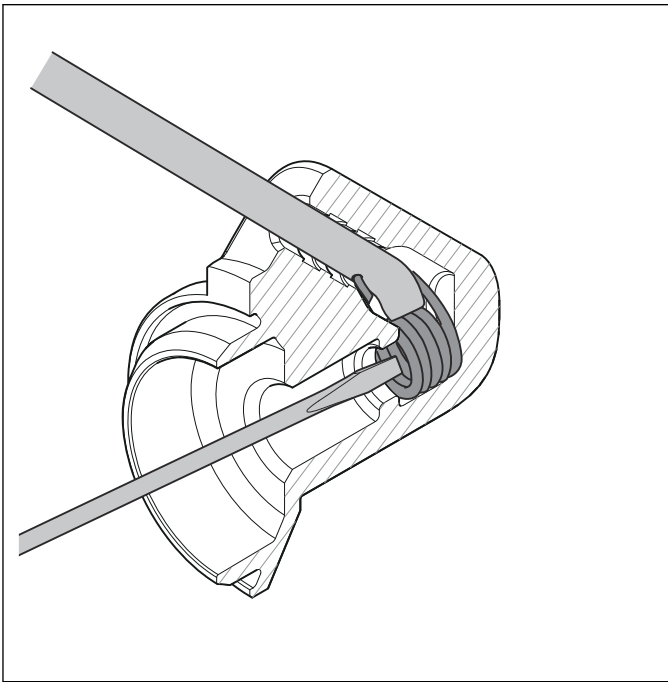
CAUTION: Make sure that the spring is bent 90 degrees along the cable.

7. Lubricate the cap with soap and water or equivalent to make it easier to push it into position.

8. Push the cable into the spark plug cap.



9. Use the pliers or a screwdriver to align the spring with the hole in the spark plug cap.

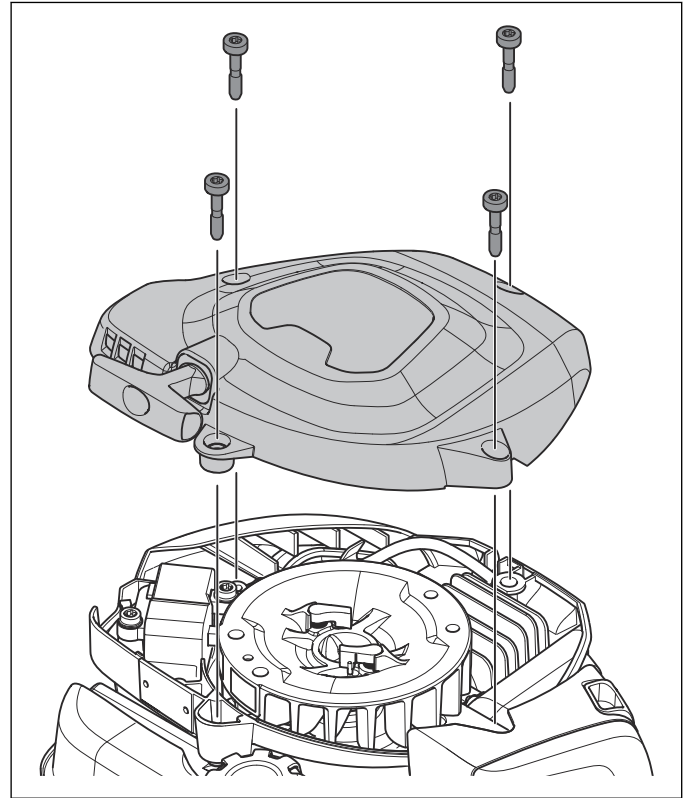


WARNING: Be very careful to prevent damage to the spark plug cap. A damaged spark plug cap can cause an electrical shock.

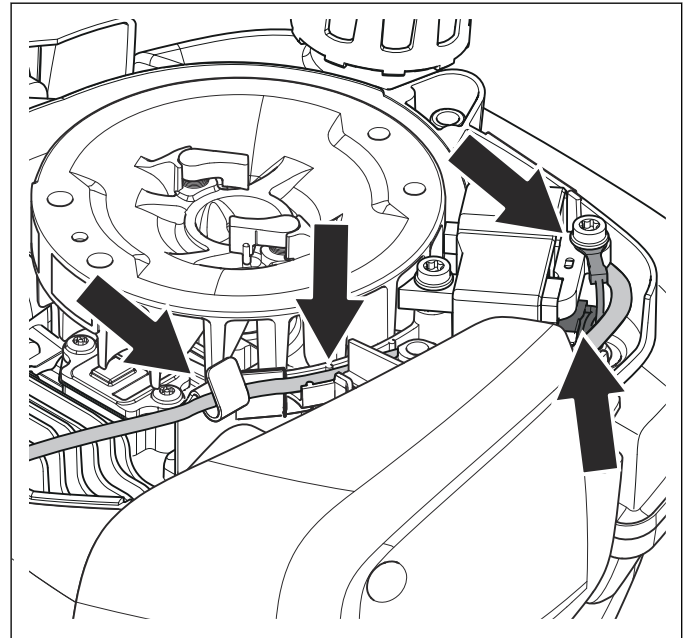
7.7.6 To examine the ignition module

If there is no spark, do the procedure that follows to examine the connection between the spark plug cable and the spark plug.

1. Remove the starter unit.

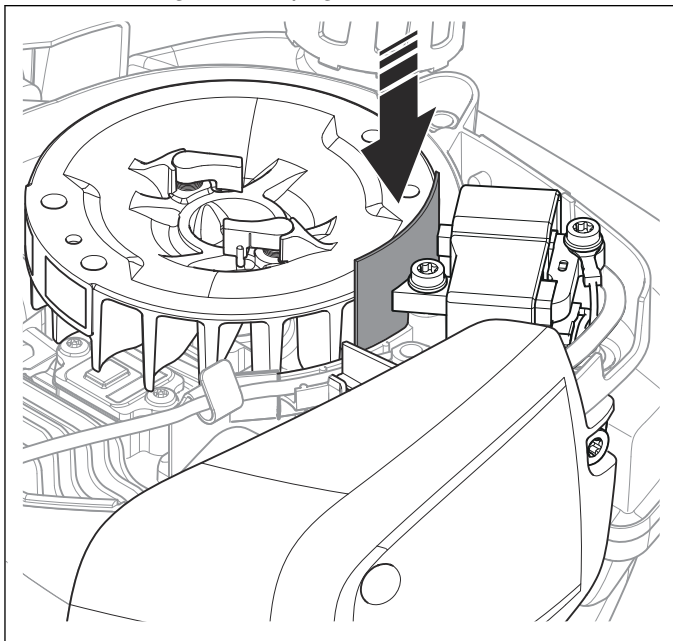


2. Examine the connections for damage that are unserviceable because of dirt or corrosion. Examine the cables for damage. Make sure that the cables are in their correct positions.

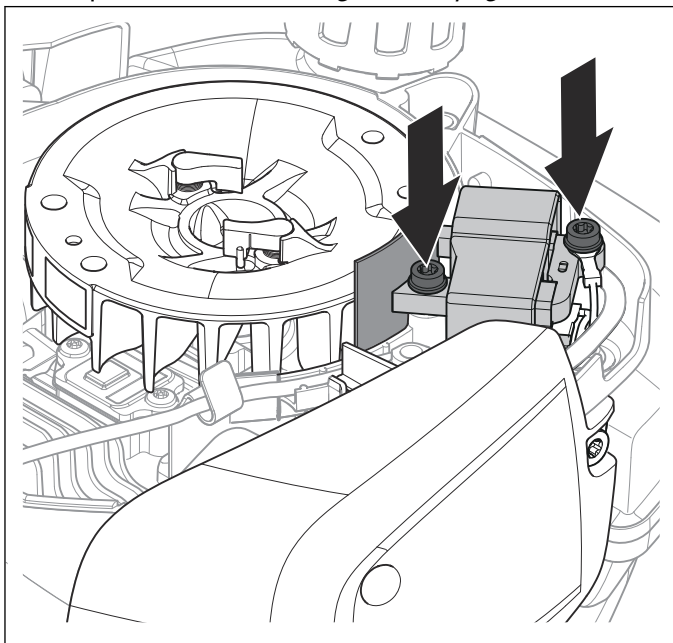


Note: Use an Ohmmeter to examine the cables for damages.

3. Examine the distance between the flywheel magnet and the ignition module with an air gap gauge. Refer to *Servicing data on page 6* for the correct distance.



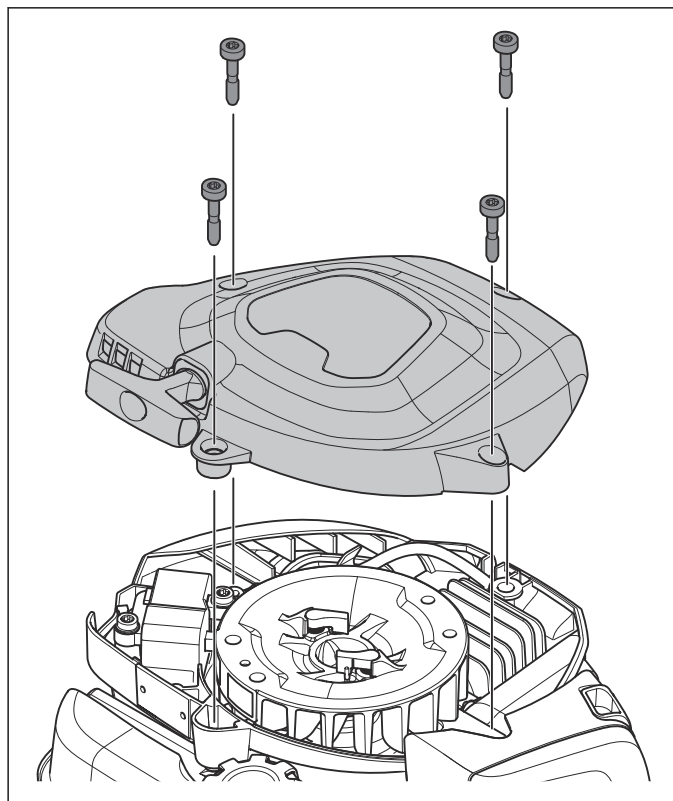
4. Adjust the distance, if it is necessary. Loosen the screws and adjust the ignition module until the distance is correct. Tighten the screws to the correct torque. Refer to *Servicing data on page 6*.



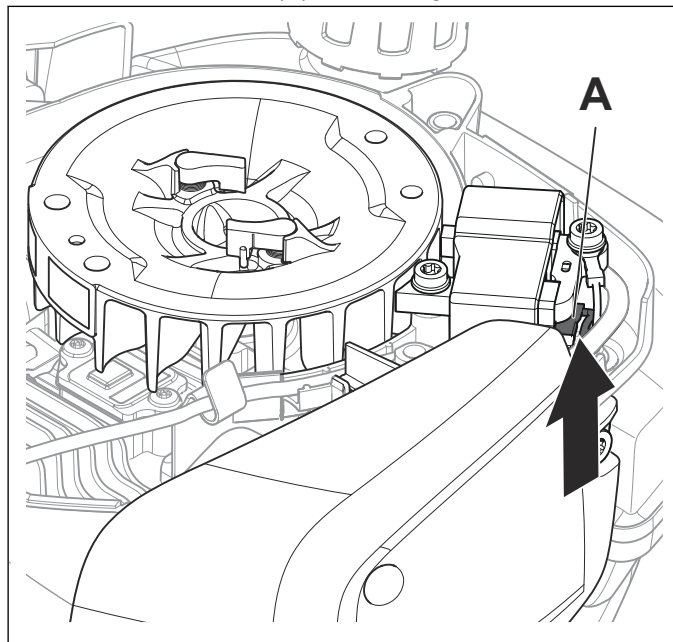
5. Install the muffler cover and the starter unit.
6. Do a spark test. If there is no spark, the ignition module is damaged and must be replaced.

7.7.7 To remove the ignition module

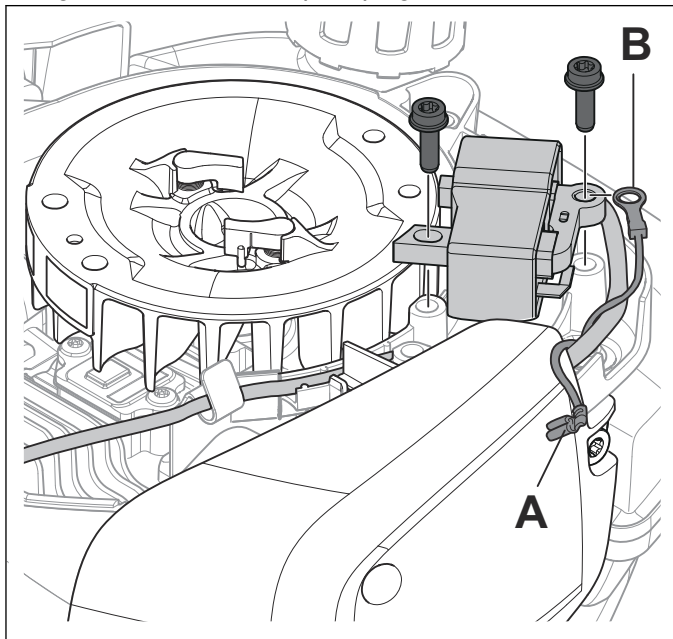
1. Remove the starter unit.



2. Remove the spark plug cap and the spark plug.
3. Remove the muffler cover.
4. Remove the cable (A) from the ignition module.



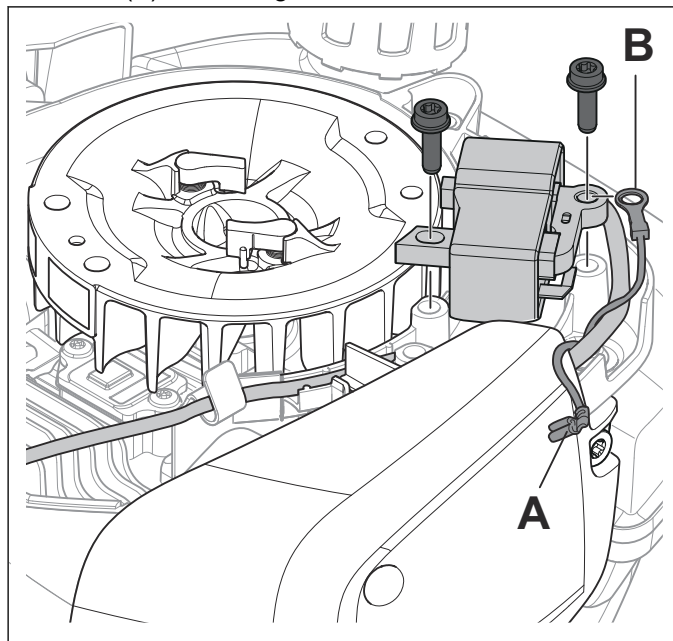
5. Remove the screws and cable (B). Pull up the ignition module and spark plug cable.



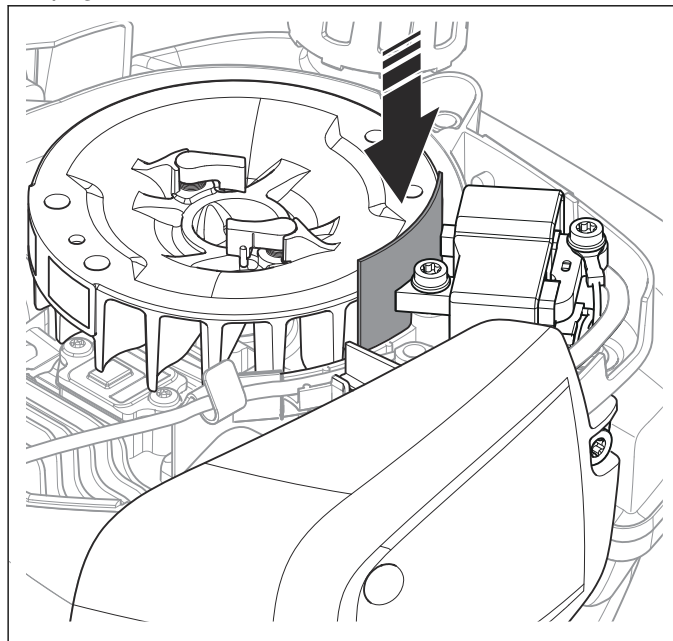
6. Replace the ignition module.

7.7.8 To install the ignition module

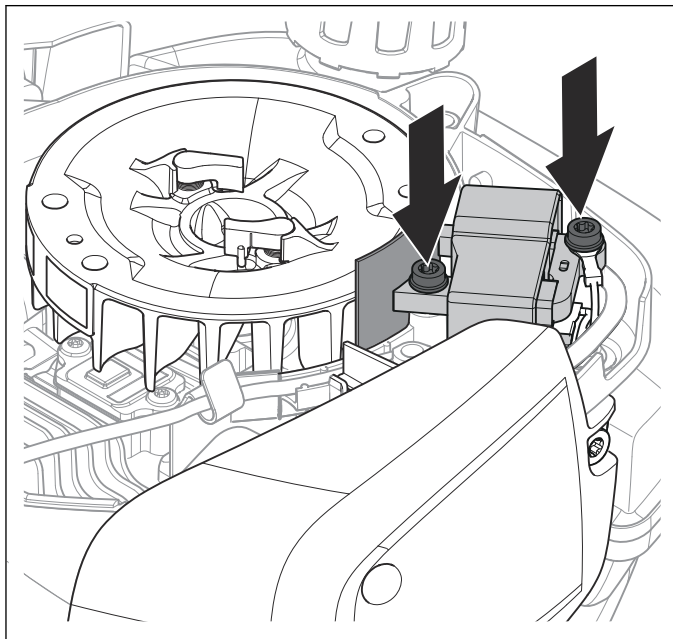
1. Attach cable (A) to the ignition module. Put the module in the crankcase. Attach the 2 screws and cable (B). Do not tighten the screws.



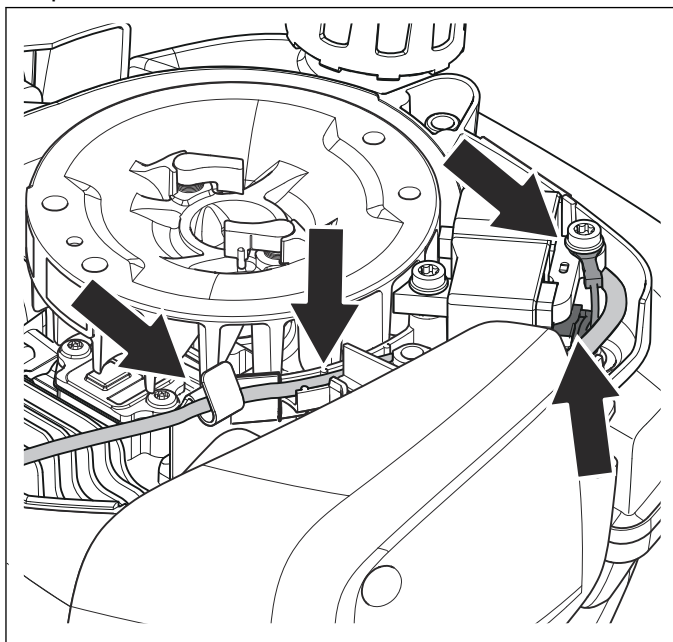
2. Put in the air gap gauge. Refer to *Servicing tools on page 12*.



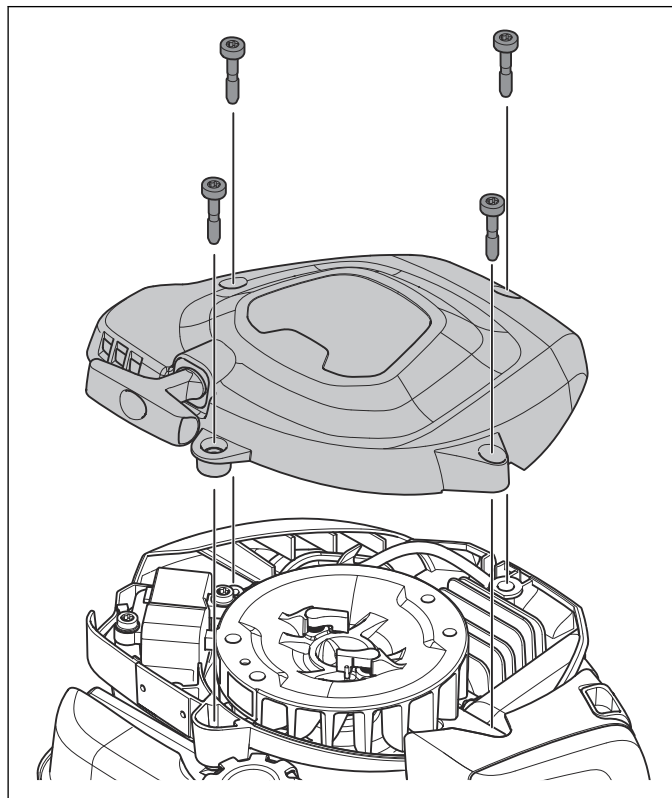
3. Adjust the distance. Tighten the screws when the distance is correct.



4. Make sure that the cables are in their correct position.



5. Install the starter unit.

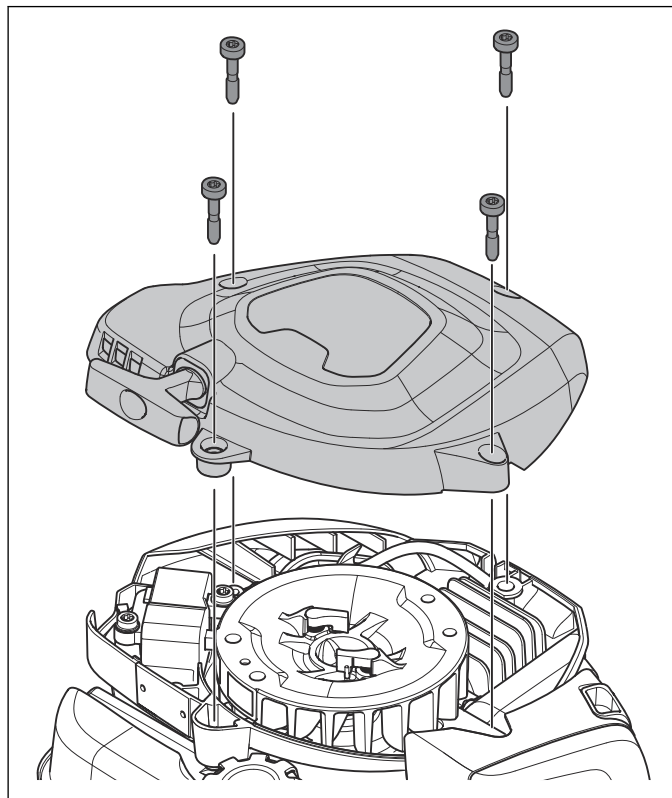


6. Install the spark plug and the spark plug cap.

7.8 Carburetor

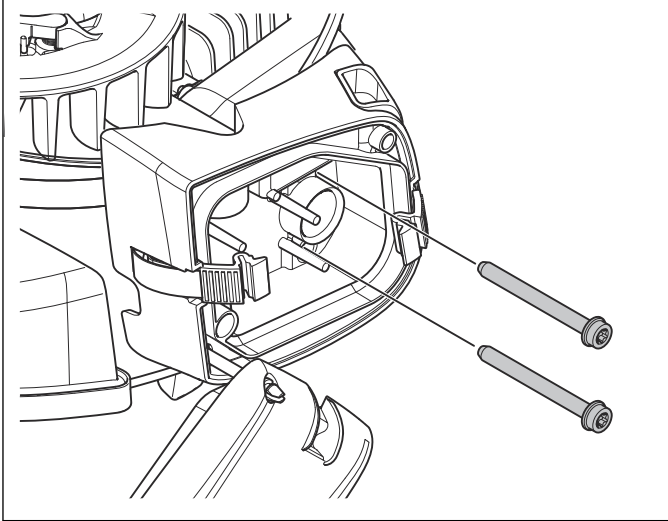
7.8.1 To disassemble the carburetor

1. Remove the starter unit.



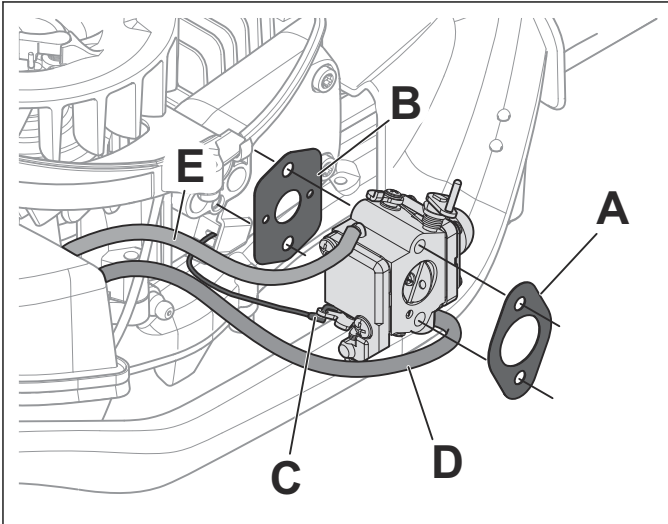
2. Remove the air filter. Refer to *To disassemble the air filter on page 19*.

3. Remove the 2 screws. Remove the air filter holder.



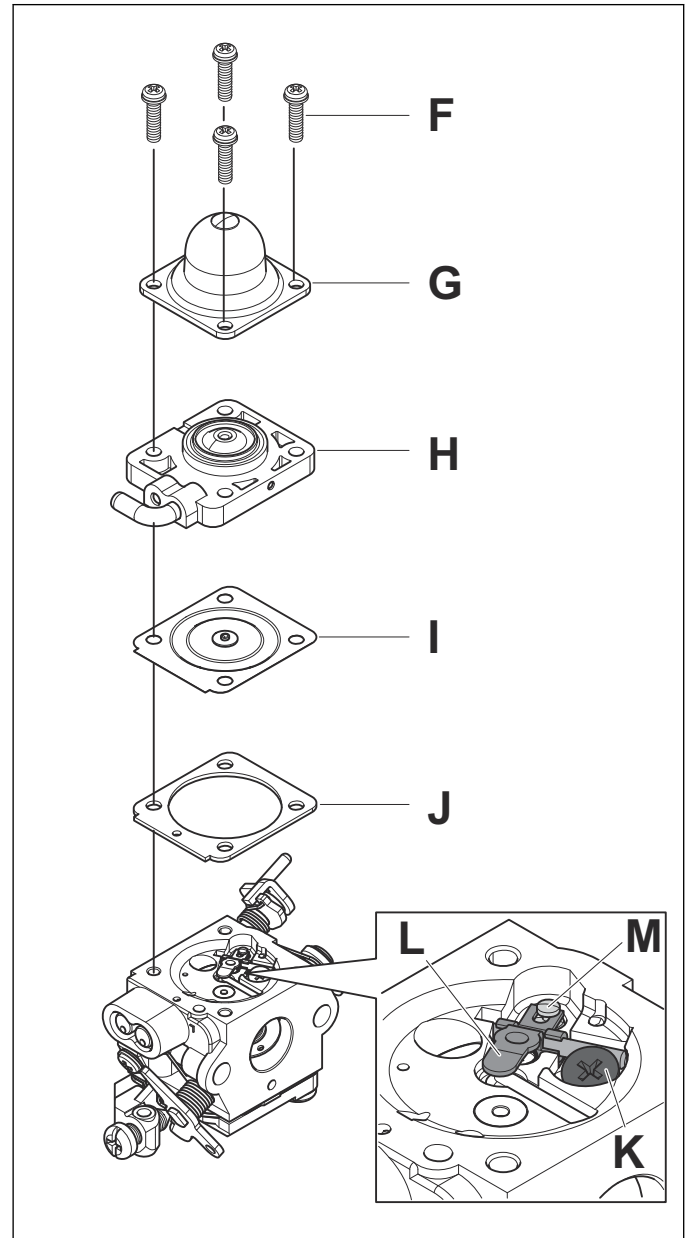
Note: The carburetor is only attached to the fuel hoses (D) and (E), the transparent hose and the throttle wire (C).

4. Make a note of the positions of the gaskets (A) and (B) as they can easily fall off.



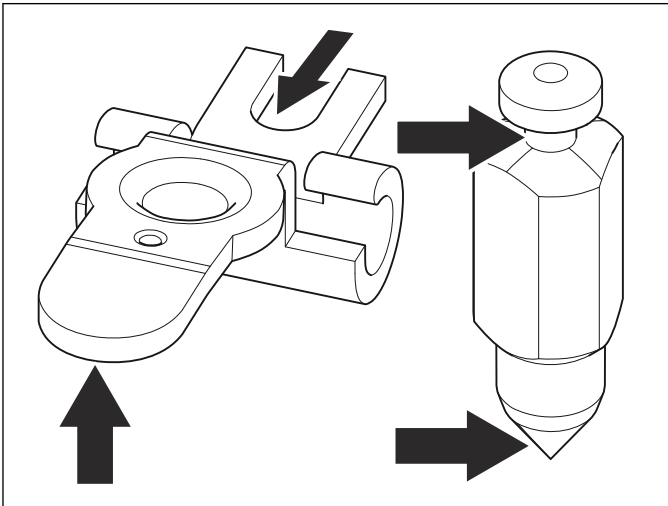
5. Remove the fuel hoses (E) and (D) and the throttle wire (C).

6. Remove the 4 screws (F).

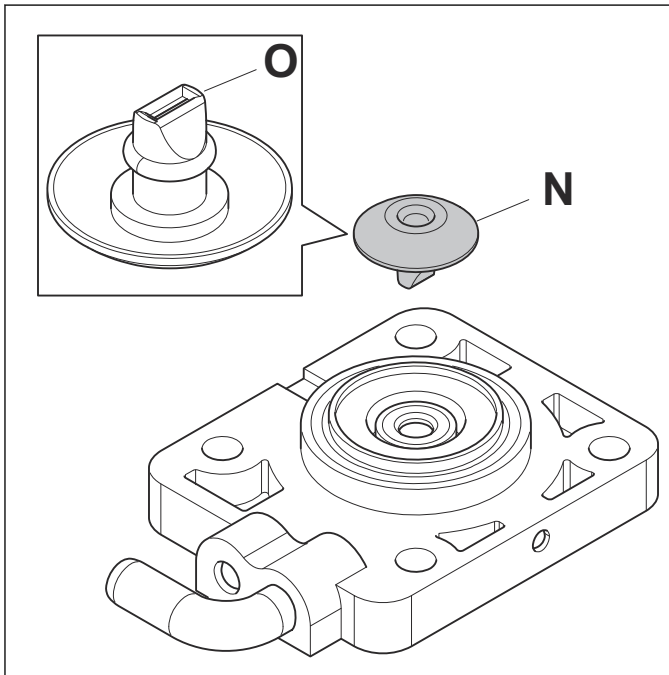


7. Remove the diaphragm (G) of the fuel pump and the valve housing (H).
8. Remove the control diaphragm (I) and check for damage and wear from the lever arm (L).
9. Remove the gasket (J).
10. Remove the screw (K) and carefully remove the lever arm (L) and the needle valve (M).

11. Examine the wear to the lever arm and the needle valve.



12. Carefully lift up check valve (N).



13. Clean the valve housing and make sure that the openings are clear.

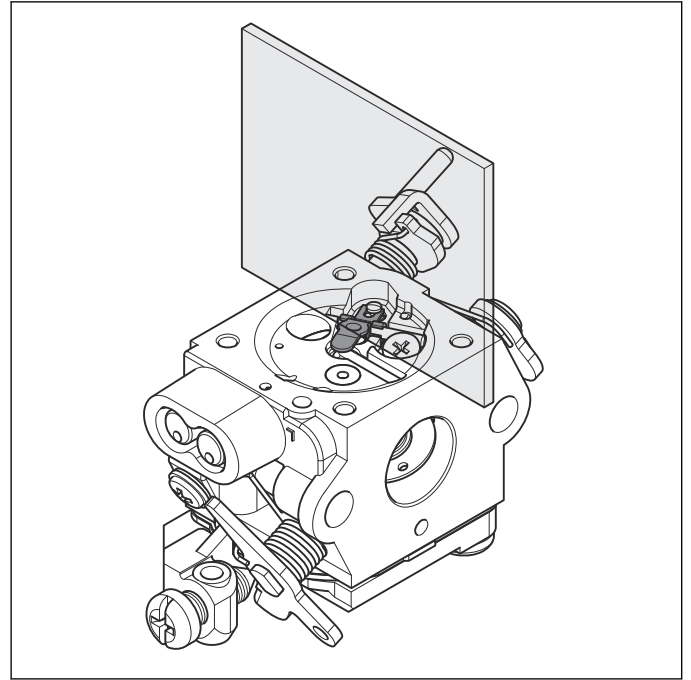
14. Examine the seals of the check valves (O) for damage.

7.8.2 To clean and examine the carburetor

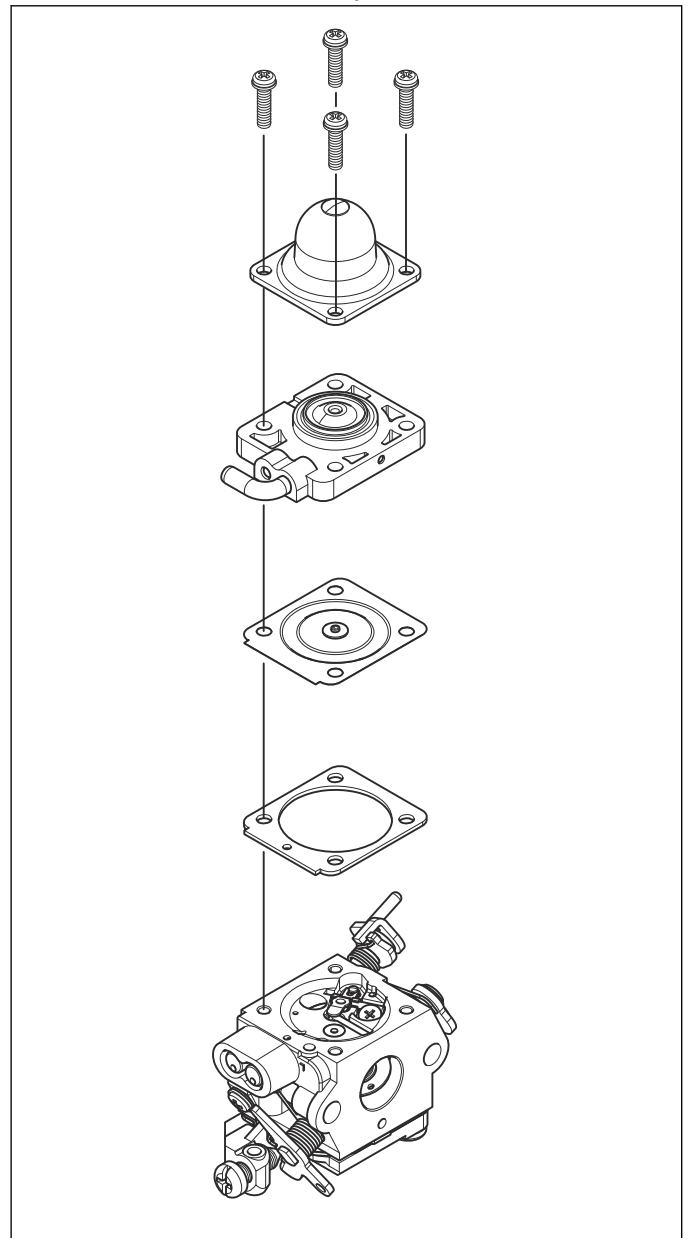
- If 1 or more parts of the carburetor are worn or damaged, replace the carburetor.
- Clean all parts.

7.8.3 To assemble the carburetor

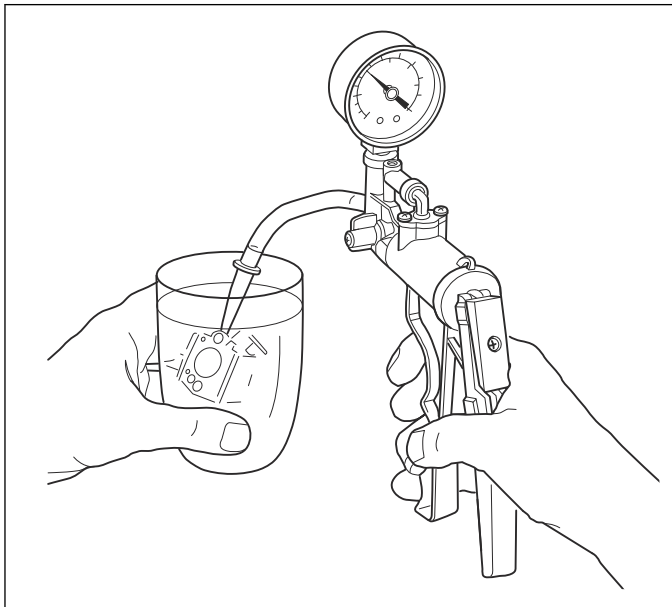
1. Examine that the lever arm is flush with the carburetor housing without a gasket.



2. Assemble the carburetor parts.

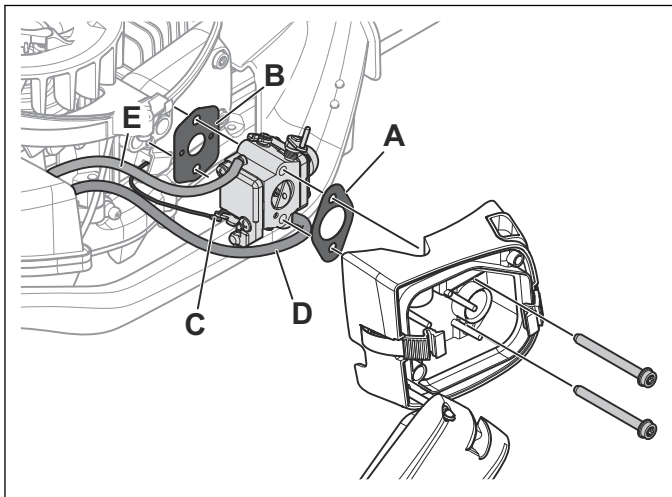


3. Examine that the carburetor is sealed.



- a) Connect a pressure tester to the fuel inlet on the carburetor. Pump up the pressure to 50kPa.
- b) Lower the carburetor in a container with gasoline to find leaks more easily.
- c) No leakage is permitted.

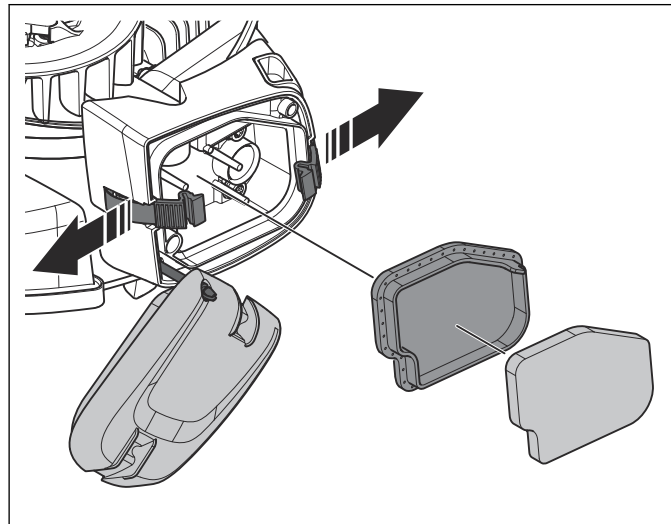
4. Connect the fuel hoses (E) and (D) to the carburetor.



5. Connect the throttle wire (C).

6. Attach the air filter housing and the gaskets (A) and (B) to the carburetor with the screws.

7. Attach the air filter.



8. Close the air filter cover with the clips.

7.8.4 To adjust the carburetor settings

To adjust the carburetor means that you adjust the engine to the local conditions such as weather, altitude and fuel.

The carburetor has 3 adjustment controls.

- L = low speed jet
- H = high speed jet
- T = idle adjustment

The low speed jet and the high speed jet adjust the fuel flow to align with the airflow from the throttle valve opening. Turn the low speed jet and high speed jet clockwise to decrease the quantity of fuel. Turn the low speed jet and high speed jet counterclockwise to increase the quantity of fuel. Less fuel increases the engine speed and a more fuel decreases the engine speed.

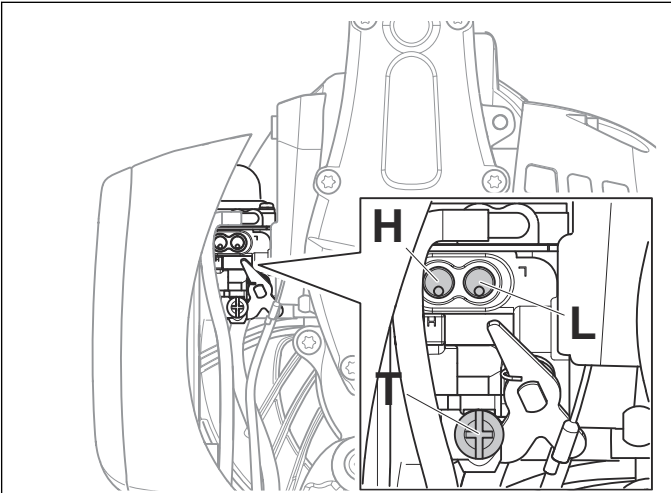
Note: Always start with the low speed needle when you adjust the carburetor.

The idle speed screw controls the throttle position. Turn the idle speed screw clockwise gives fast idle speed, turn it counterclockwise gives lower idle speed.

The high speed jet and the low speed jet in the carburetor can only be adjusted with the special tool. Refer to *Servicing tools on page 12*.

To adjust the carburetor, use the RPM measuring tool. Refer to *Servicing tools on page 12*. For recommended

settings, refer to *To adjust the carburetor settings on page 31.*



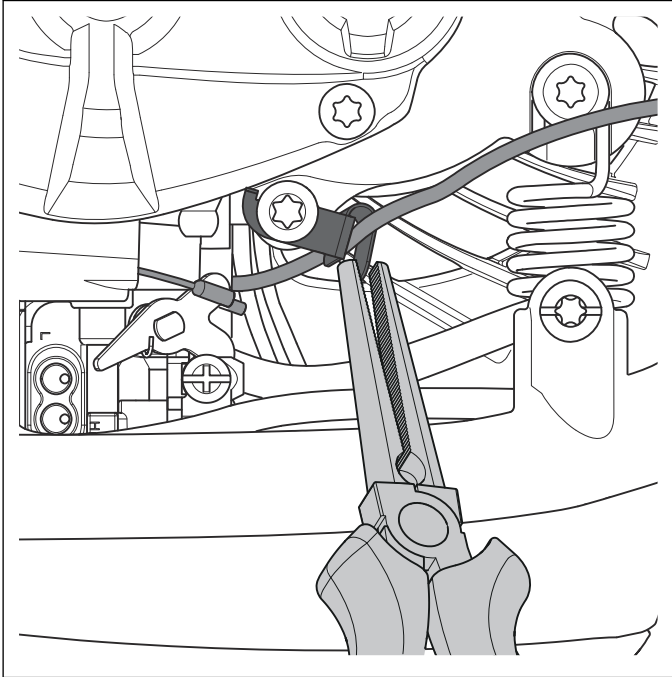
Basic factory settings

H = high speed jet	2.0
L = low speed jet	1.75

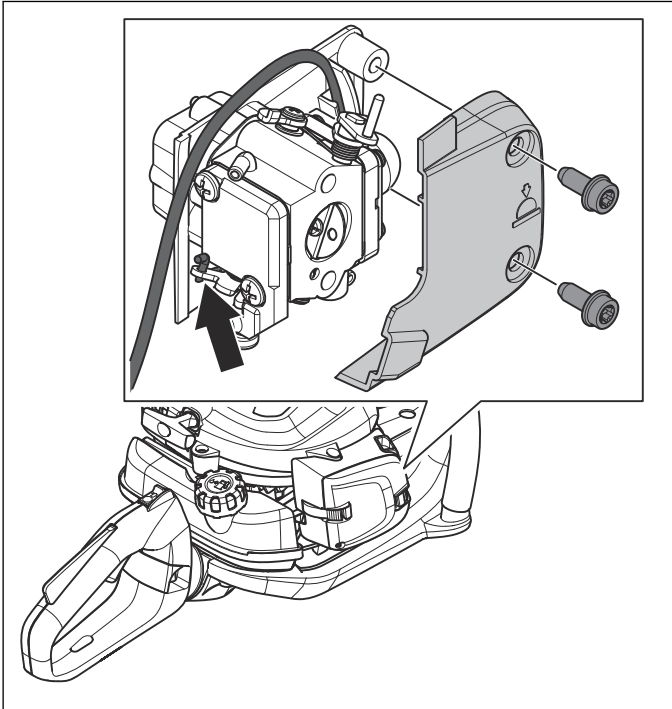
7.9 Handle and throttle trigger

7.9.1 To disassemble the handle

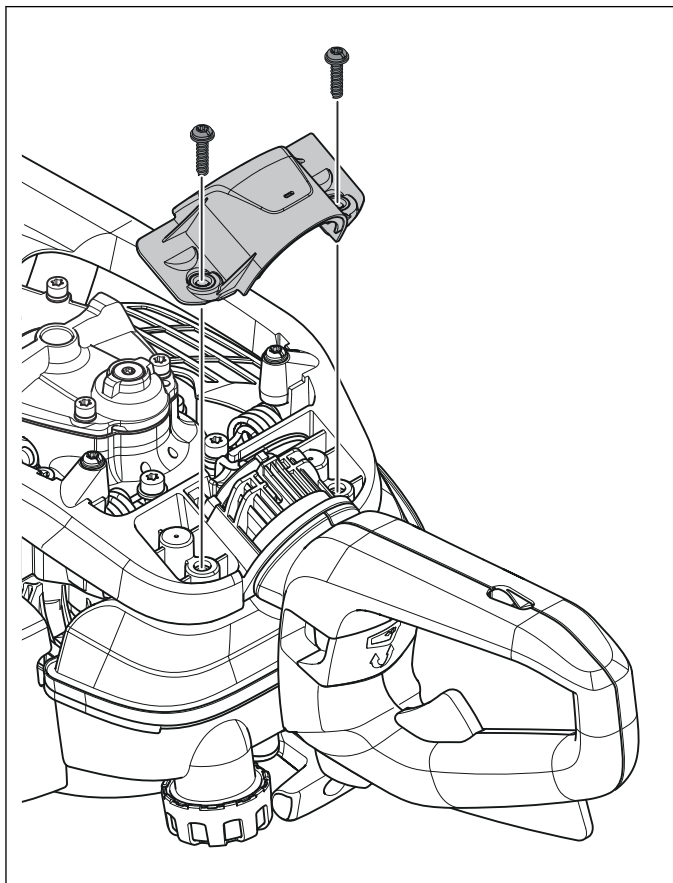
1. Use a pair of pliers to bend open the cable holder and remove the throttle wire from the cable holder.



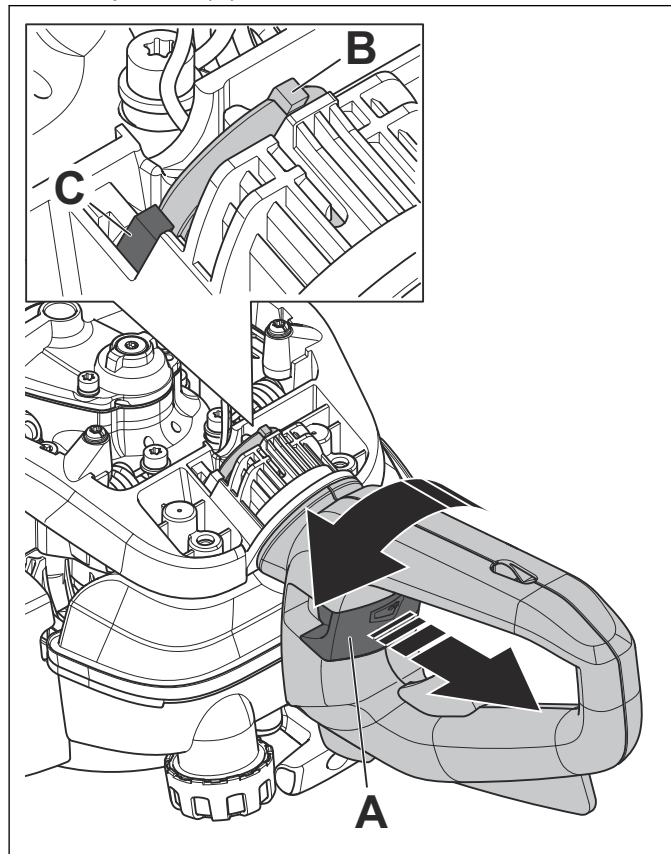
2. Remove the 2 screws, the throttle wire cover and the throttle wire from the carburetor.



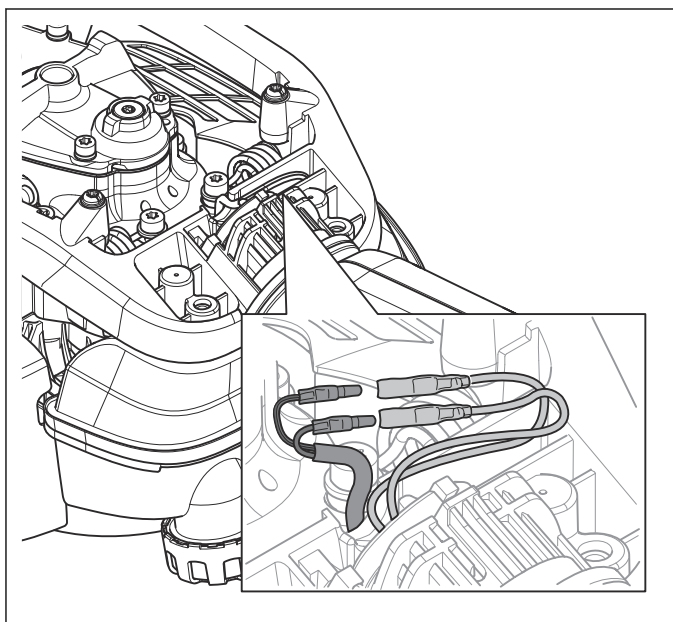
3. Remove the 2 screws and remove the handle cover.



5. Make a note of the plug (B) on the handle. Pull the safety catch (A) rearward and rotate the handle.

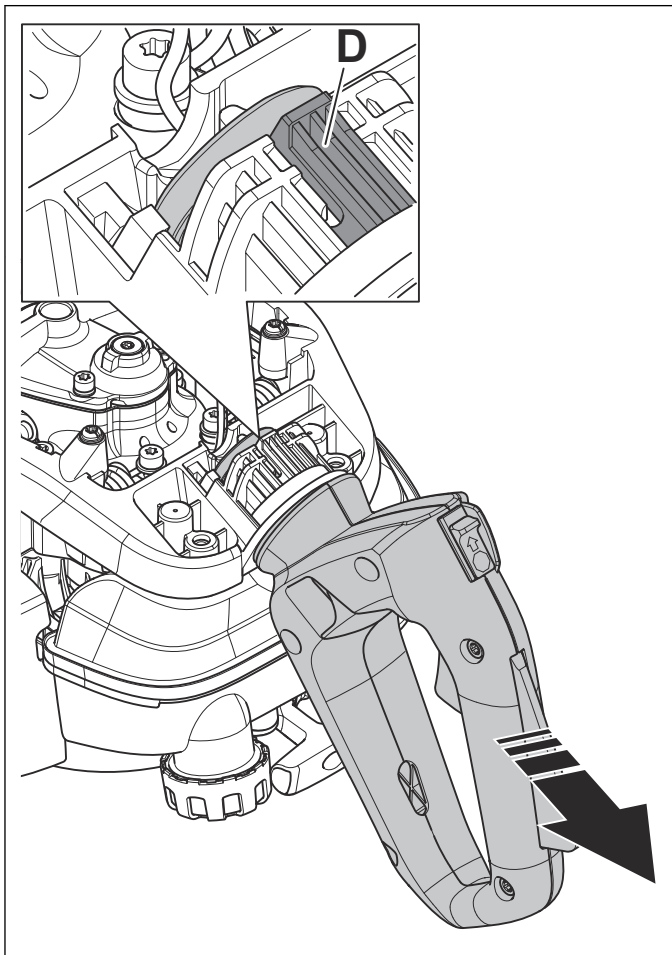


4. Disconnect the short circuit cables.

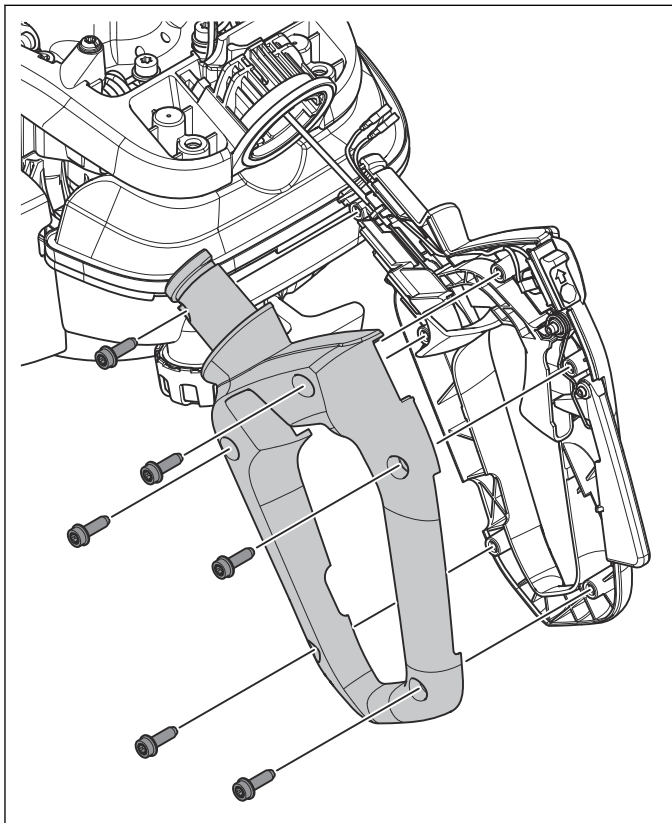


6. Push out the safety catch (C) with a small screwdriver to make the plug (B) go through. Make sure that the plug (B) continues to rotate.

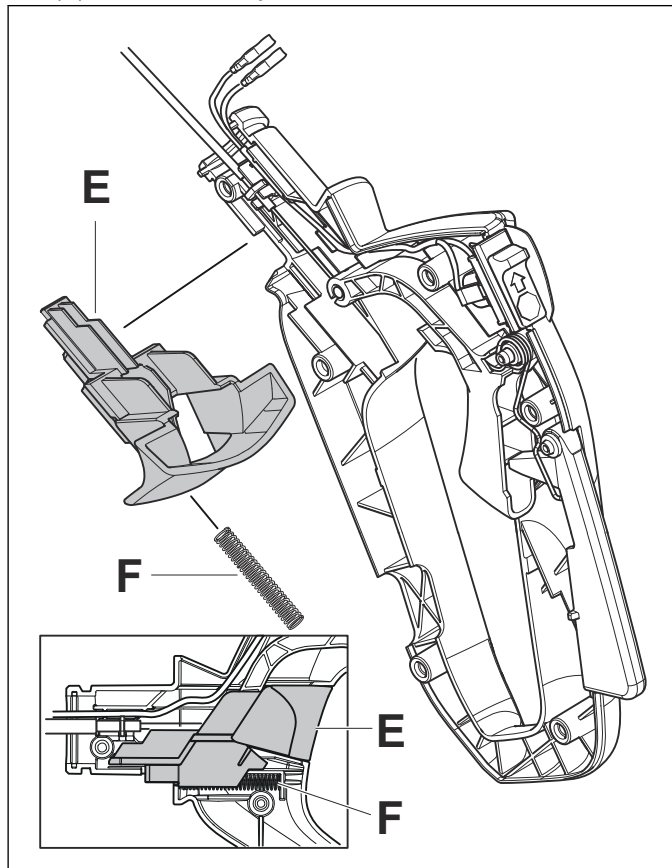
7. Open up the lock tab (D) with a very small flat screwdriver. Pull out the handle.



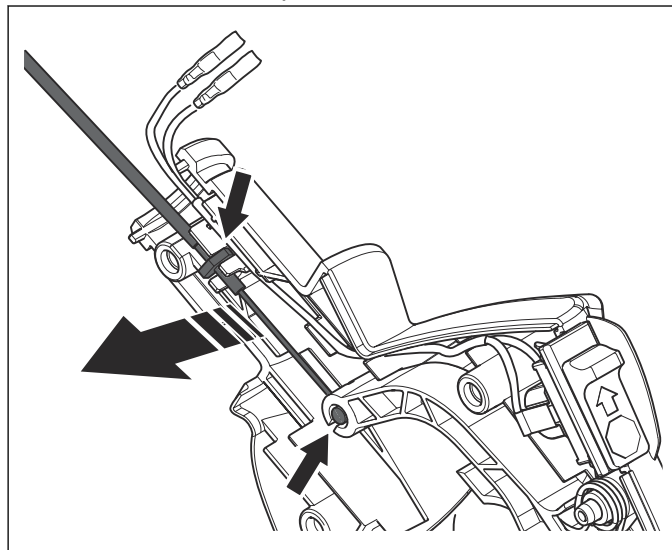
8. Remove the 6 screws.



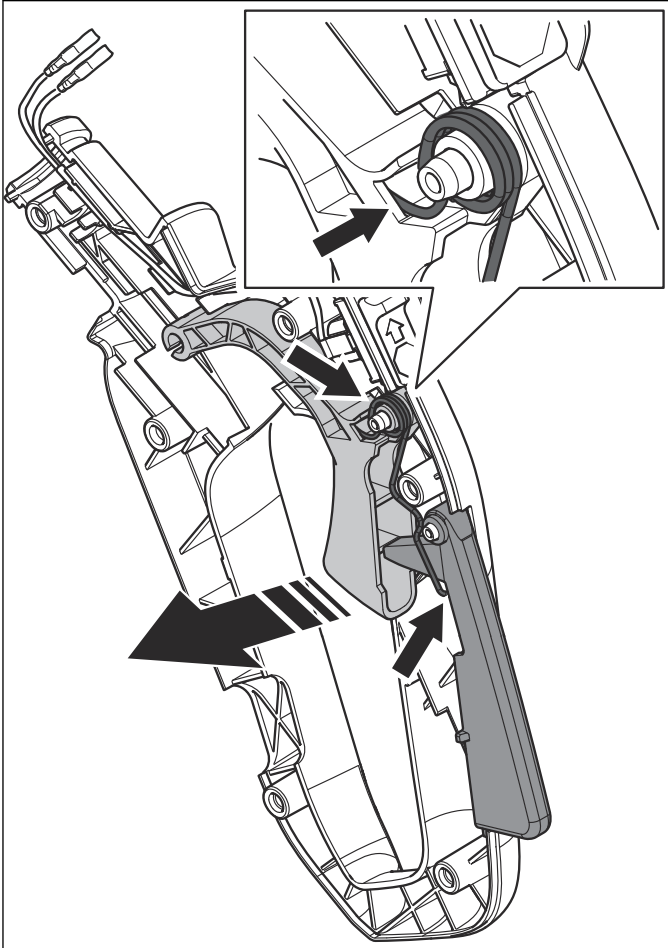
9. Remove the safety catch (E) and remove the spring (F) from the safety catch.



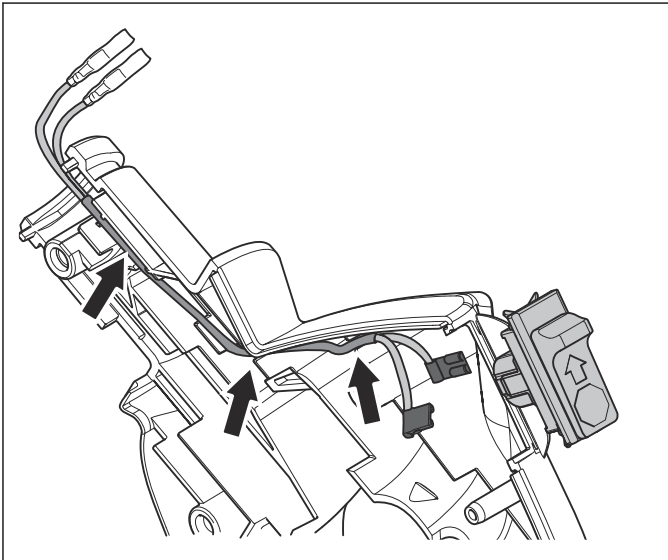
10. Remove the throttle wire from the throttle trigger. Make a note of the position of the throttle wire.



11. Remove the handle parts. Make a note of the position of the spring.



12. Remove the cables from the start switch. Make a note of the position of the cables.



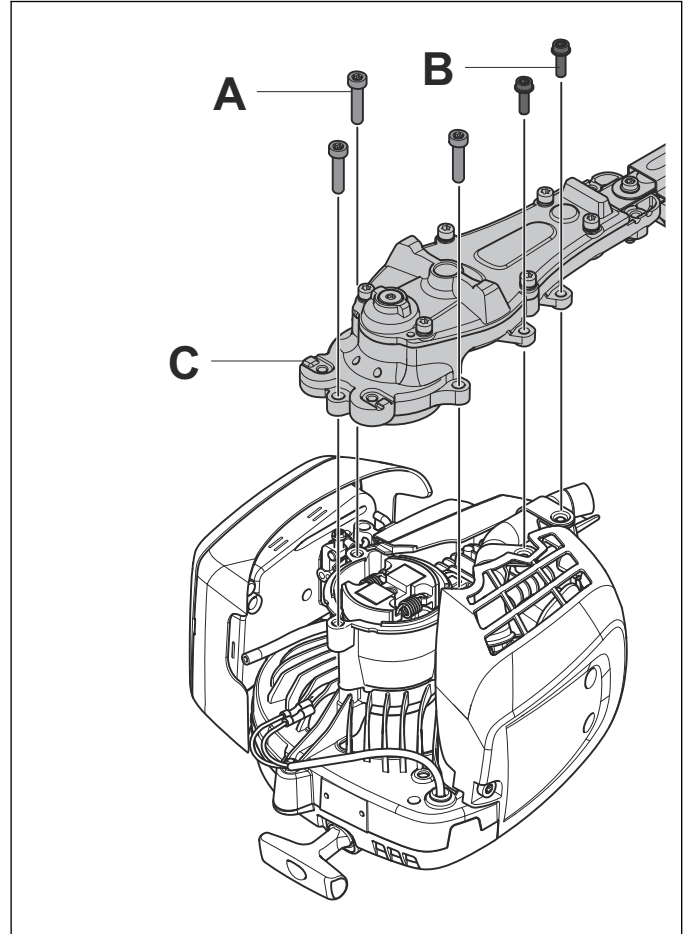
7.9.2 To assemble the handle

- Assemble in the opposite sequence of *To disassemble the handle on page 32.*

7.10 Clutch, clutch drum and gearbox

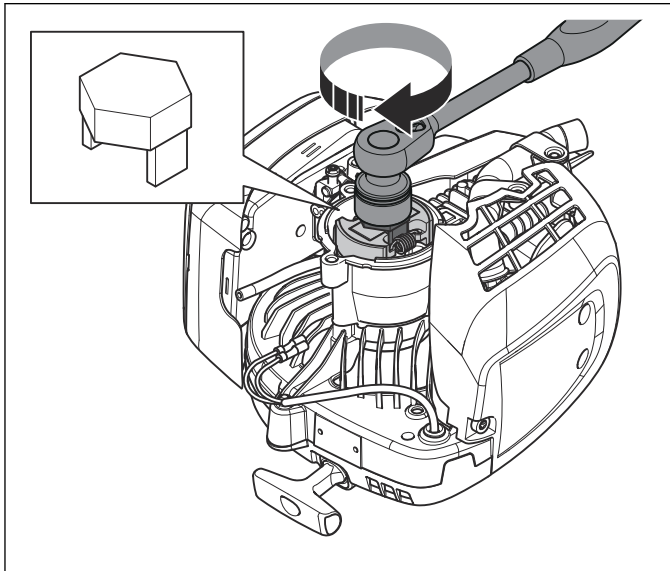
7.10.1 To disassemble the clutch, clutch drum and gearbox

1. Remove the spark plug.
2. Put a piston stop in the spark plug hole.
3. Remove the handle. Refer to *To disassemble the handle on page 32.*
4. Remove the 3 screws (A).

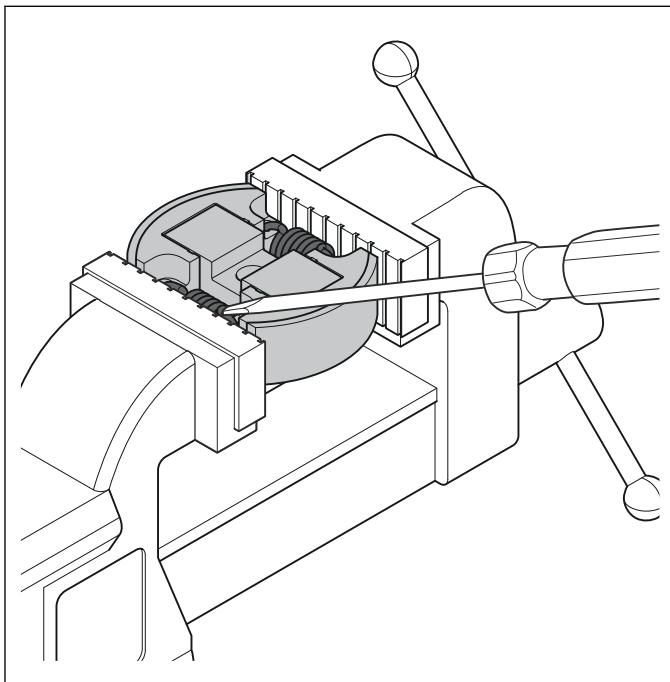


5. Remove the 2 screws (B) that are attached to the exhaust pipe brackets.
6. Remove the gearbox and cutting deck (C).

7. Use the clutch removal tool to remove the clutch. The clutch has a left hand thread. Refer to *Servicing tools on page 12*.

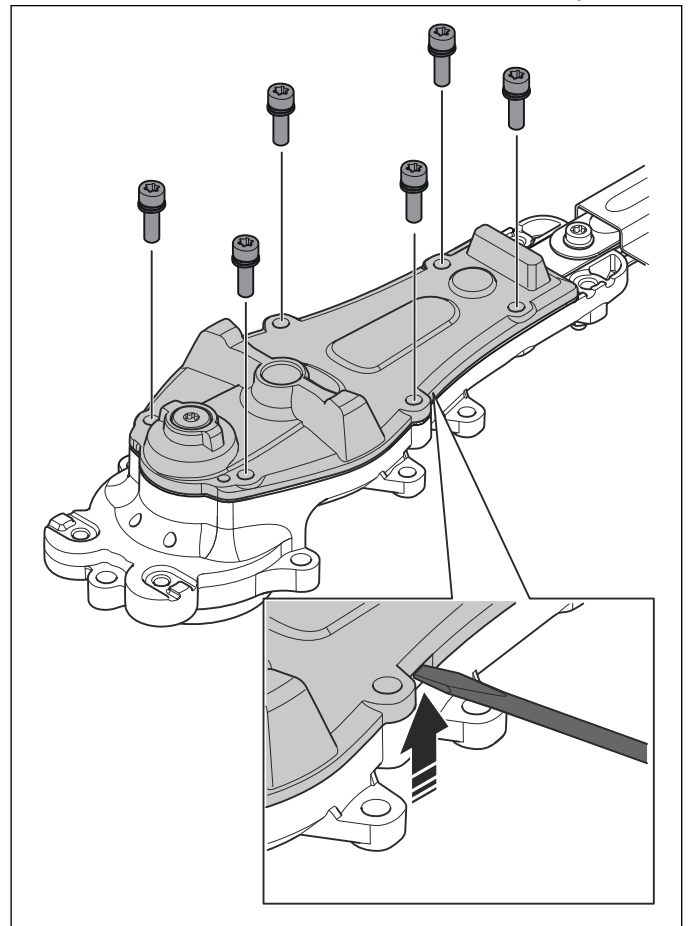


8. Remove the clutch springs.
9. Disassemble the clutch shoes from the hub with a small screwdriver.

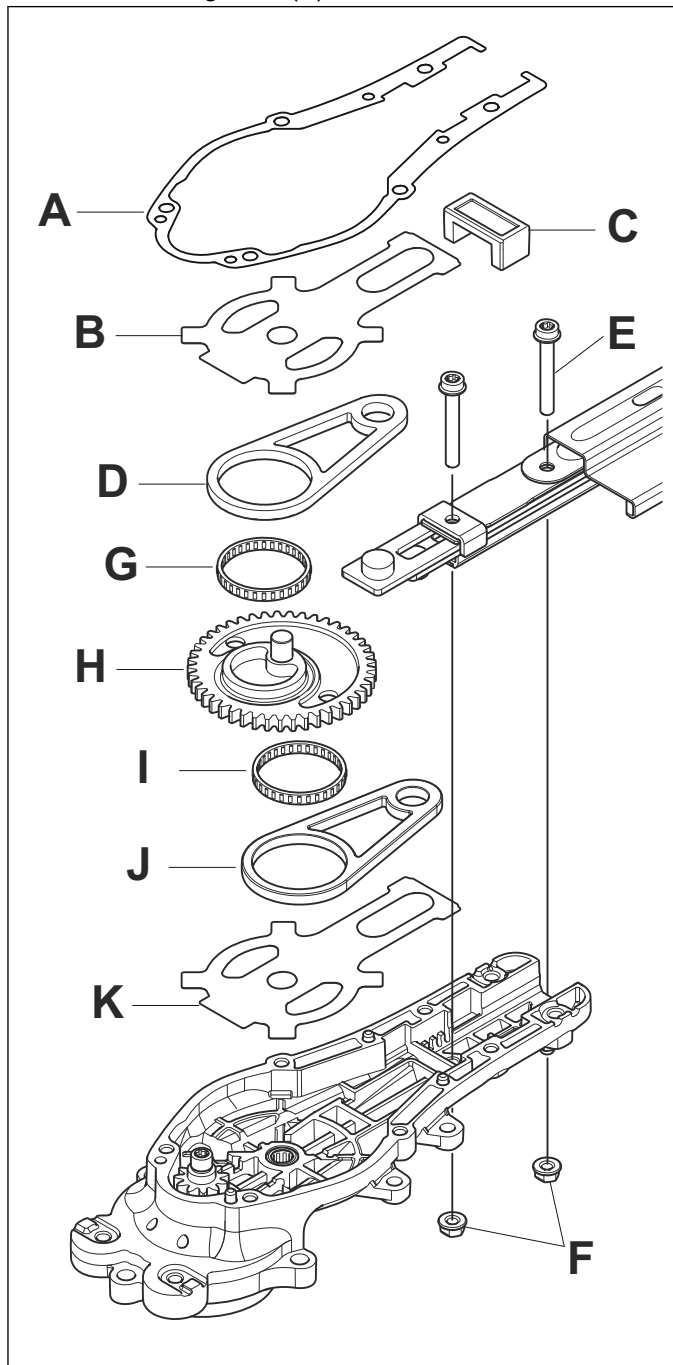


CAUTION: Use rubber brackets in the vise to prevent damage to the clutch.

10. Remove the 6 screws and remove the gearbox cover. Use a flat screwdriver if it is necessary.



11. Remove the gasket (A).



12. Remove the wear plate (B).

13. Remove the seal (C).

14. Remove the connecting rod (D).

15. Remove the 2 screws (E) and the nuts (F).

16. Remove the cutting attachment.

17. Remove the needle bearing (G).

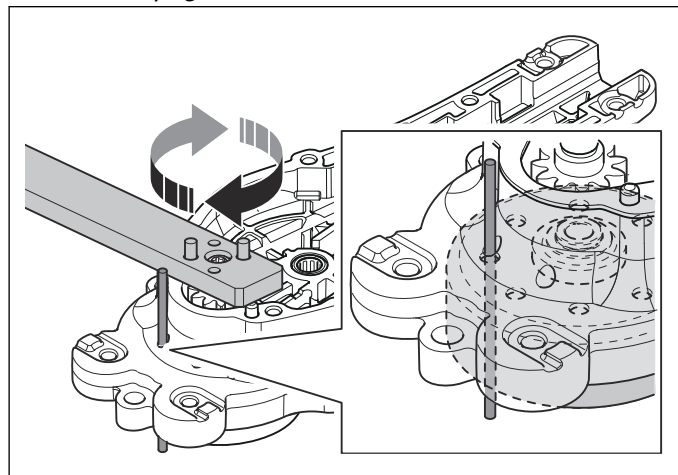
18. Remove the gear wheel (H).

19. Remove the needle bearing (I).

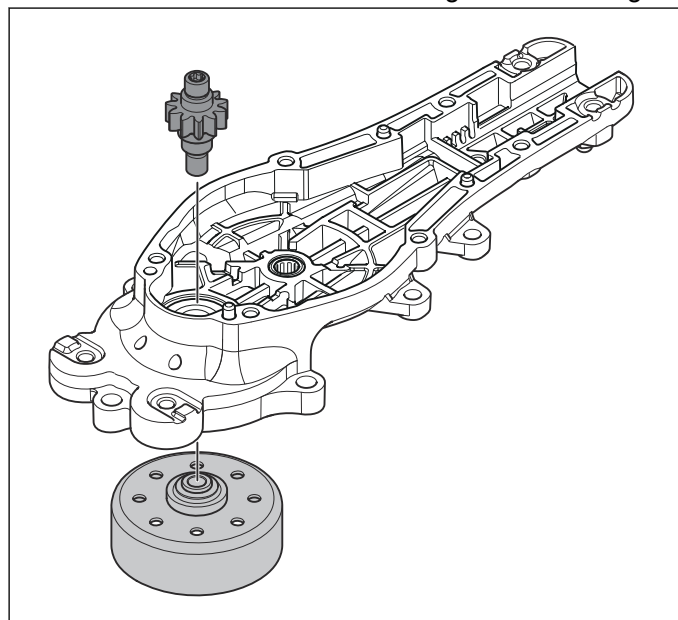
20. Remove the connecting rod (J).

21. Remove the wear plate (K).

22. Put the clutch drum in the thread holes in the gear housing to lock in position. Use a gear drive removal tool to remove the gear drive. Refer to *Servicing tools on page 12*.



23. Push the gear drive out of the ball bearing and remove the clutch drum from the gearbox housing.



24. Remove the ball bearing from the gearbox housing.



CAUTION: Install the connection rods with the text in the direction of the gear wheel.



CAUTION: Replaced or cleaned parts must be lubricated on all sides. Use Redmax bevel gear grease. Refer to *Servicing tools on page 12* and *Servicing data on page 6*.

7.10.2 To clean and examine the clutch, clutch drum and gearbox

- Examine the clutch drum for wear.
- Examine all the parts. Replace parts, if it is necessary.
- Examine the clutch and the clutch springs for damages.

7.10.3 To assemble the clutch, gearbox and clutch drum

Install the clutch shoes with the text on the clutch shoes visible.

1. Use approximately 20 g of grease to lubricate all parts. Refer to *Servicing data on page 6*.
2. Assemble in the opposite sequence of *To disassemble the clutch, clutch drum and gearbox on page 35*.
3. Add approximately 10 g of grease to the gearbox.

7.11 Cutting equipment

7.11.1 To remove the cutting equipment

1. Disassemble the cutting equipment as shown in *Servicing data on page 6*.

7.11.2 To clean and examine the cutting equipment

1. Clean all parts.
2. Examine the cutting equipment parts for cracks.
3. Examine the sharpness of the blades.

7.11.3 To assemble the cutting equipment

1. Assemble the cutting equipment as shown in *Servicing data on page 6*. Make sure to use the right type of distance between the blades.

7.12 Cylinder and piston

7.12.1 To prepare to remove the cylinder and piston

1. Remove the gearbox, the cutting equipment and the clutch. Refer to *To disassemble the clutch, clutch drum and gearbox on page 35*.

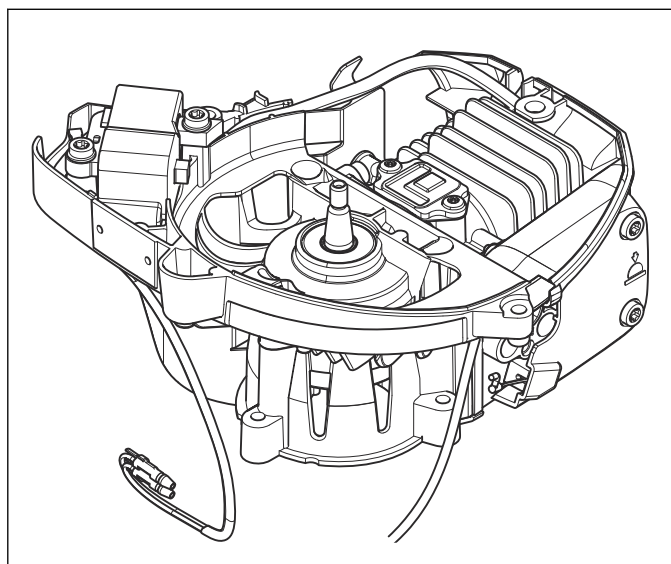
Note: Do this step only if it is necessary to also remove the crankcase.

2. Remove the starter unit. Refer to *To disassemble the starter unit on page 16*.
3. Remove the flywheel. Refer to *To disassemble the flywheel on page 20*.

Note: Do this step only if it is necessary to also remove the crankcase.

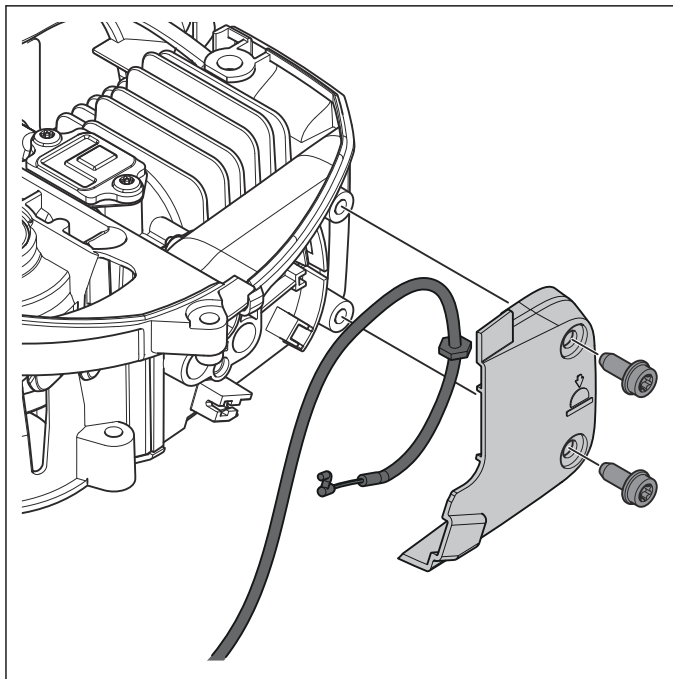
4. Remove the muffler and the exhaust pipe. Refer to *To disassemble the muffler on page 19*.
5. Remove the air filter. Refer to *To disassemble the air filter on page 19*.
6. Remove the air filter housing and the carburetor. Refer to *To disassemble the carburetor on page 28*.

The illustration shows how the product looks before you start to remove the cylinder and piston.

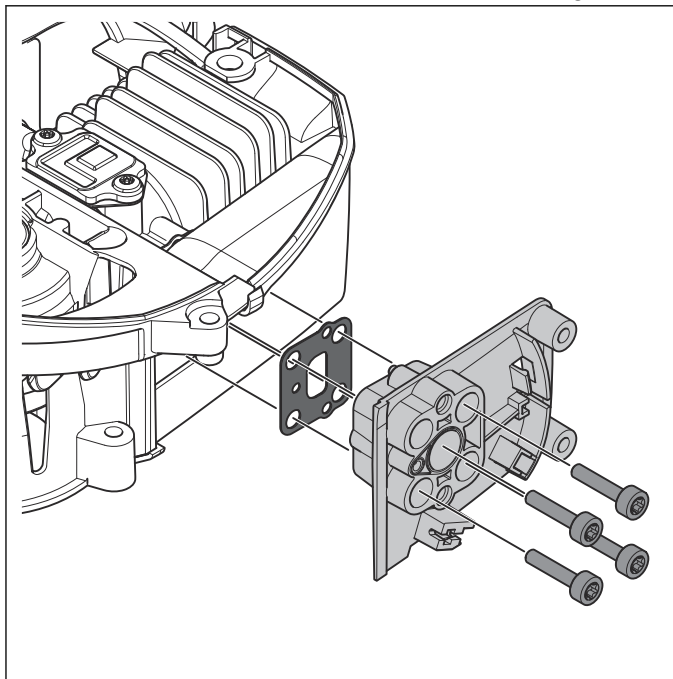


7.12.2 To remove the cylinder and piston

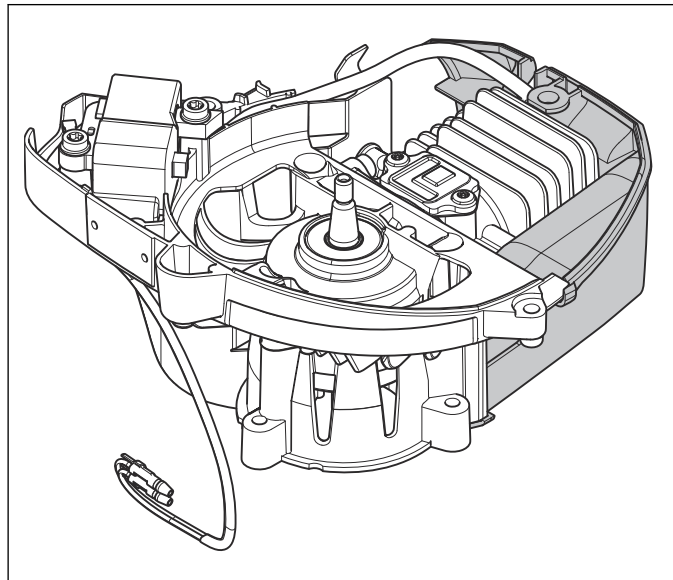
1. Remove the 2 screws, the throttle wire cover and throttle wire.



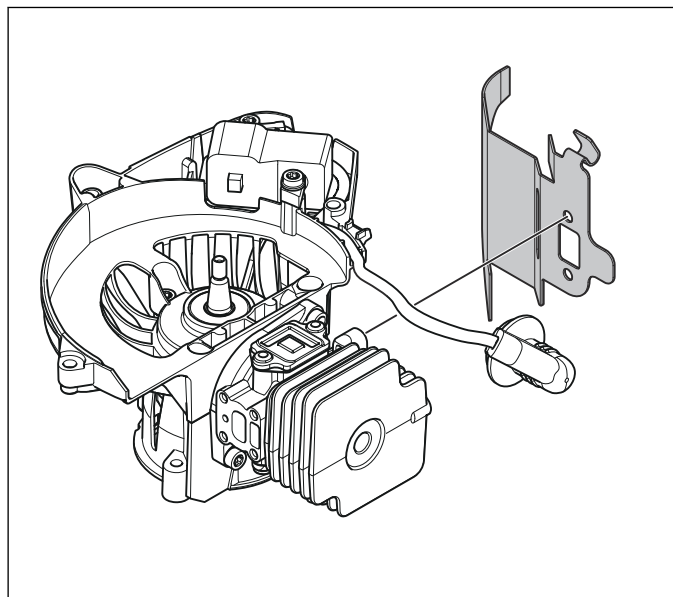
2. Remove the 4 screws, the manifold and the gasket.



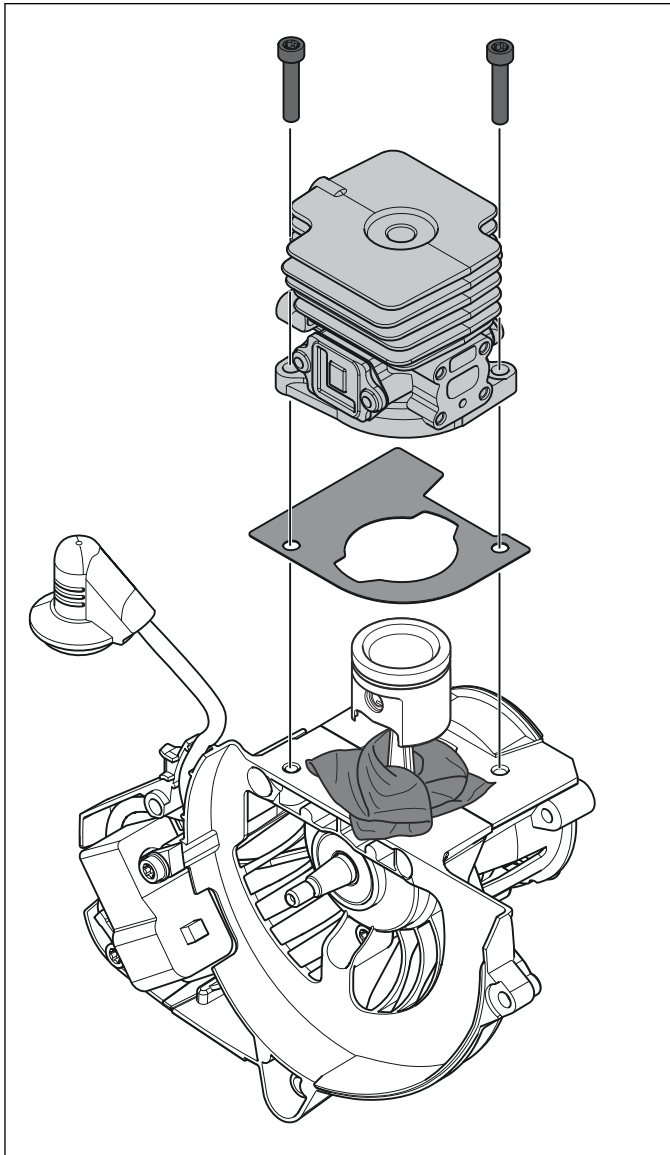
3. Remove the cylinder cover.



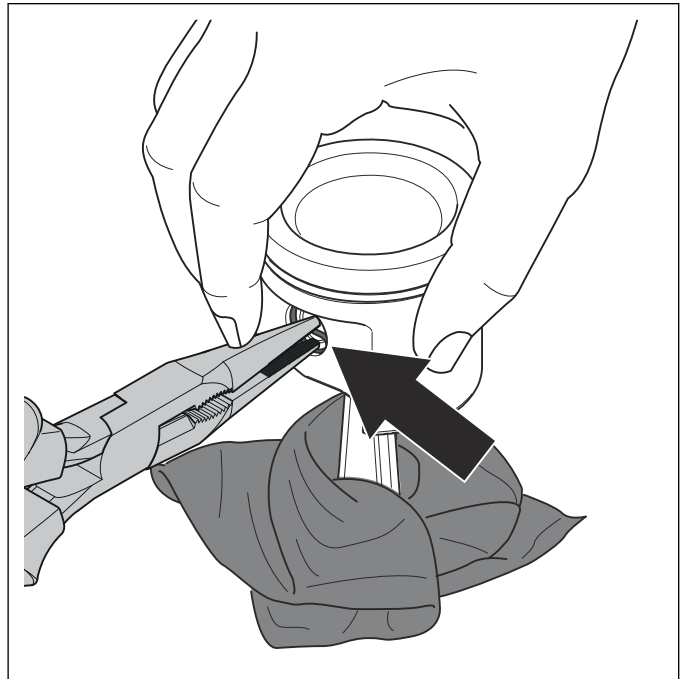
4. Remove the heat shield, if it is attached.



5. Remove the 2 screws, the cylinder and the cylinder base gasket. Put a cloth above the crankcase opening below the piston.



6. Remove the snap rings on the piston pin with a small flat nose pliers. Hold your finger on the snap ring to make sure it does not eject.

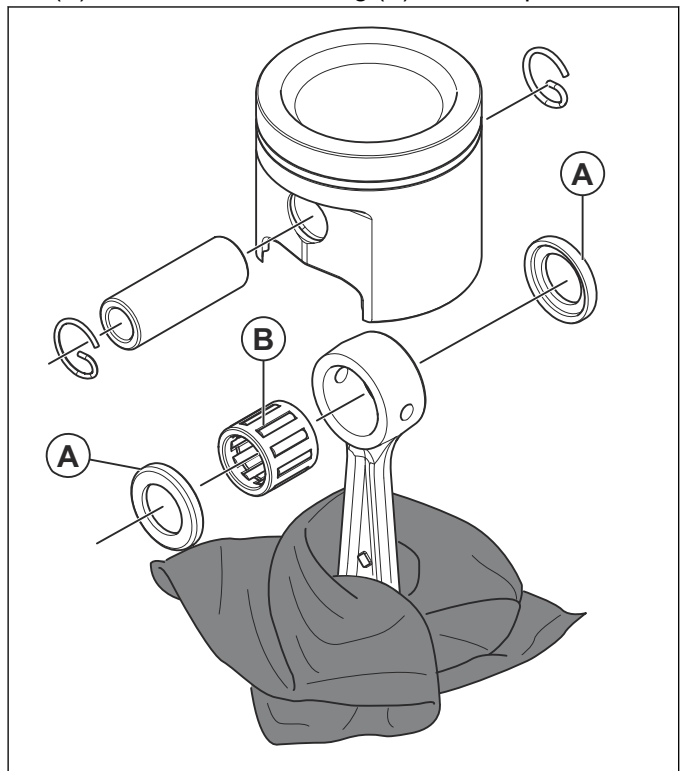


7. If the piston pin is too tight, carefully increase the temperature with a hot air gun.

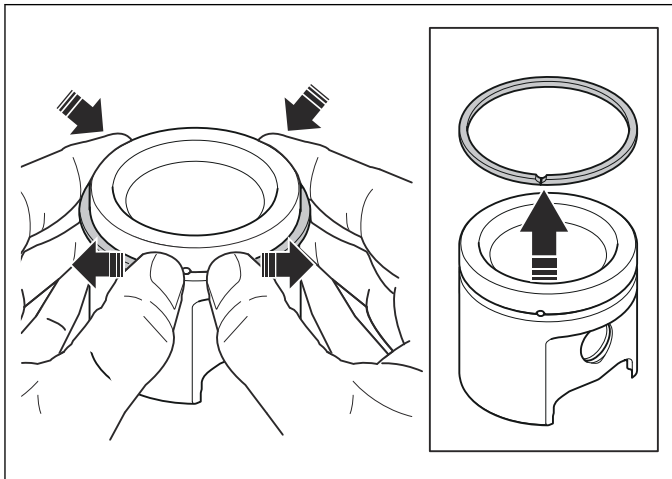


CAUTION: Make sure that you keep the 2 distance rings that are between the piston and the piston pin bearing.

8. Remove the snap rings and the piston pin. Remove the piston. Remove the crankshaft bearing sealing (A) and the needle bearing (B) from the piston rod.



9. Remove the piston ring, if it is necessary.

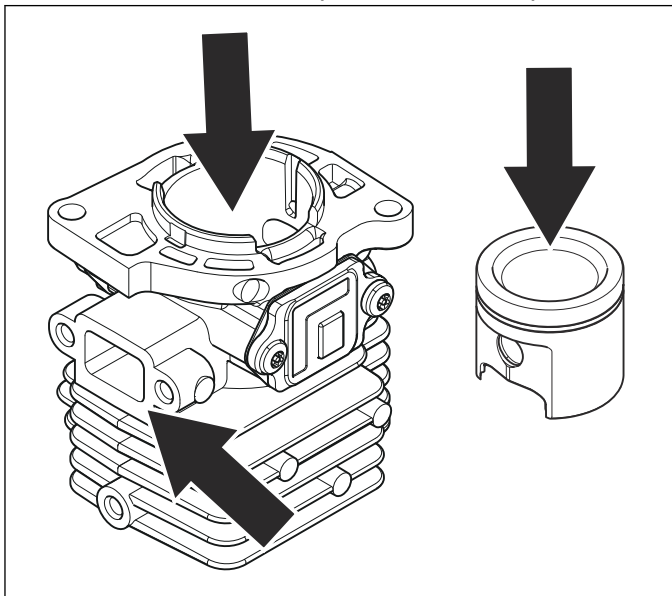


7.12.3 To clean and examine the cylinder and piston



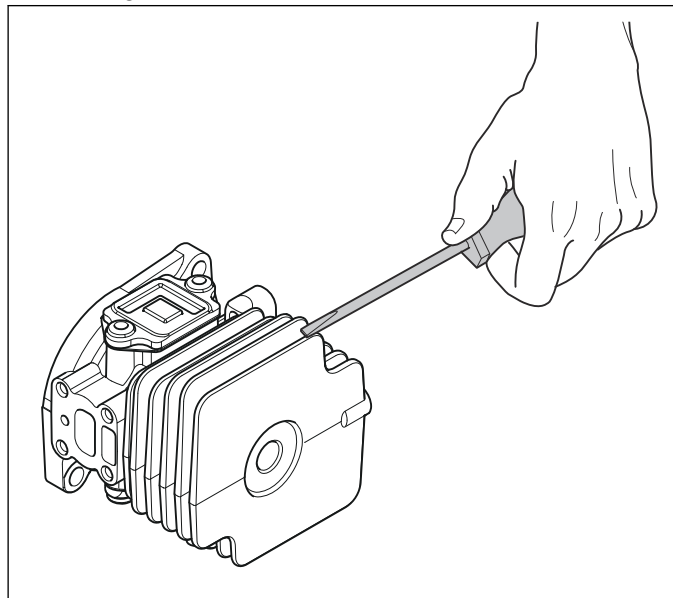
CAUTION: Clean carefully. The soft aluminum part are easily damaged.

- Remove the carbon deposits from these parts:

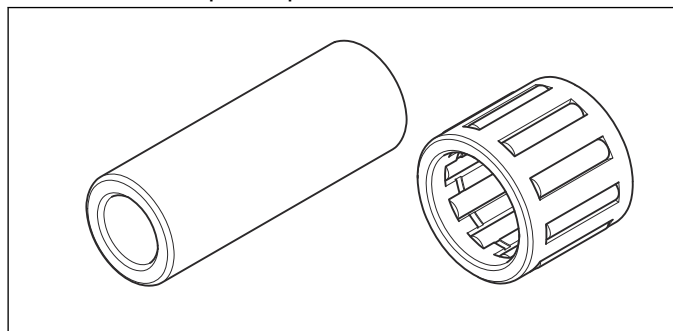


- a) The top of the piston.
- b) The combustion chamber of the cylinder.
- c) The exhaust port of the cylinder.

- Use a screwdriver to remove dirt particles from the cooling fins.



- Clean all parts.
- Examine all the parts for damage and wear. Examine the piston and cylinder for damage and wear. Refer to *To examine the piston on page 41* and *To examine the cylinder on page 42*.
- Examine the piston pin.

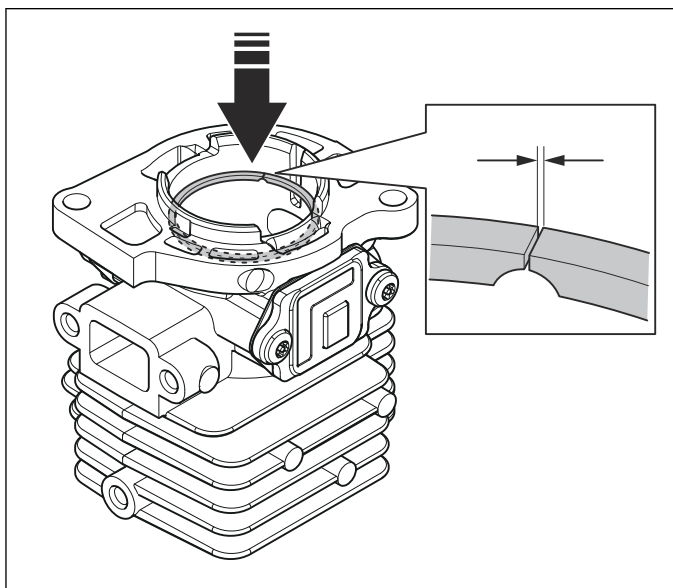


- a) If it is blue, it must be replaced.
 - b) The piston pin must be stable or the piston and the piston pin must be replaced.
 - c) If the needle bearing has discoloration or damages, replace it.
- Examine the snap rings. If they have cracks or discoloration, replace them.

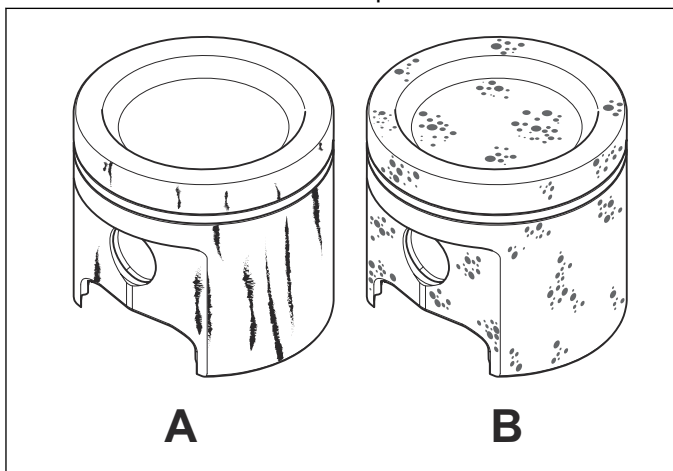
7.12.4 To examine the piston

- Make sure that the piston pin bearing is not damaged.
- Make sure that the piston pin does not have damages on the surface against the bearing.
- Make sure that the piston ring can move freely in the groove.

- Put the piston ring in the cylinder and measure the space with an air gap tool. The space must not be more than 1 mm.

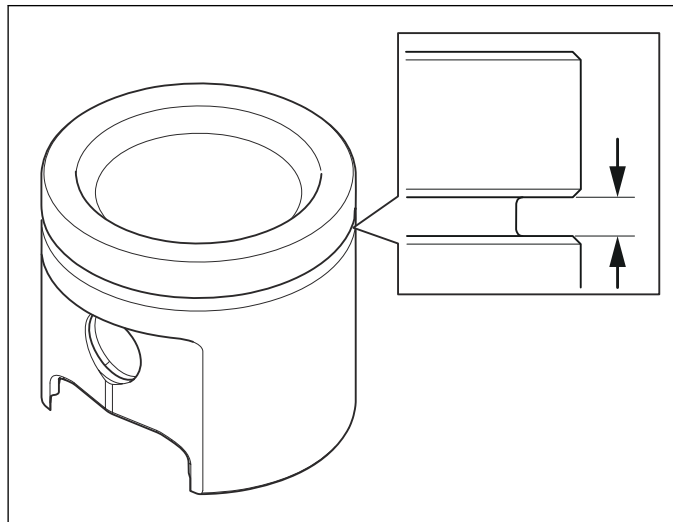


- Examine the surface of the piston.

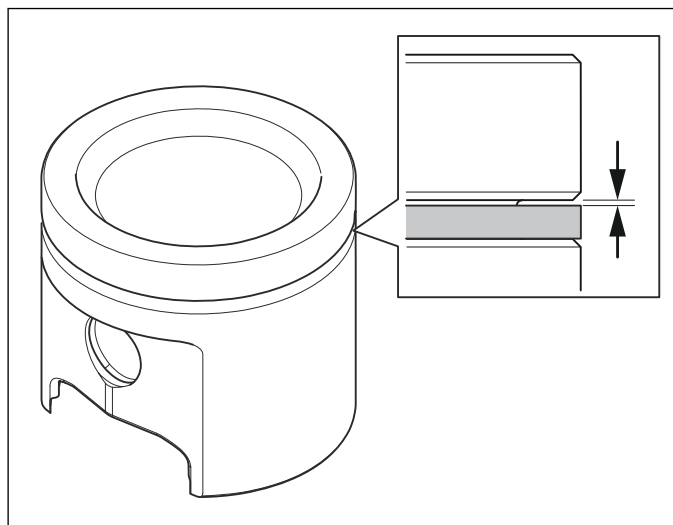


Score marks on the piston (A).	The carburetor is incorrectly adjusted. Too high engine speed
	Too low octane fuel.
	Incorrect oil mixture in the fuel.
Carbon buildup (B).	The carburetor is incorrectly adjusted.
	Incorrect oil mixture in the fuel.
Piston ring damage.	Too high engine speed.
	Piston ring worn out.
	Too large piston ring groove.

- Clean and examine the piston ring groove. It must not be more than 1.6 mm.

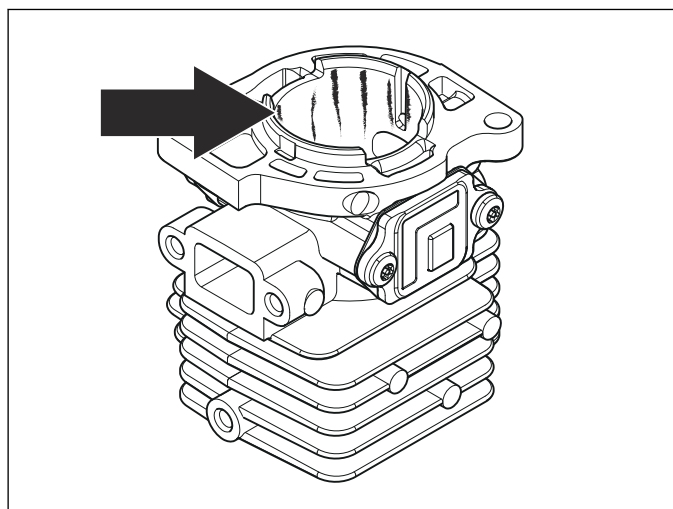


- Examine the piston ring play. It must not be more than 0.15 mm.



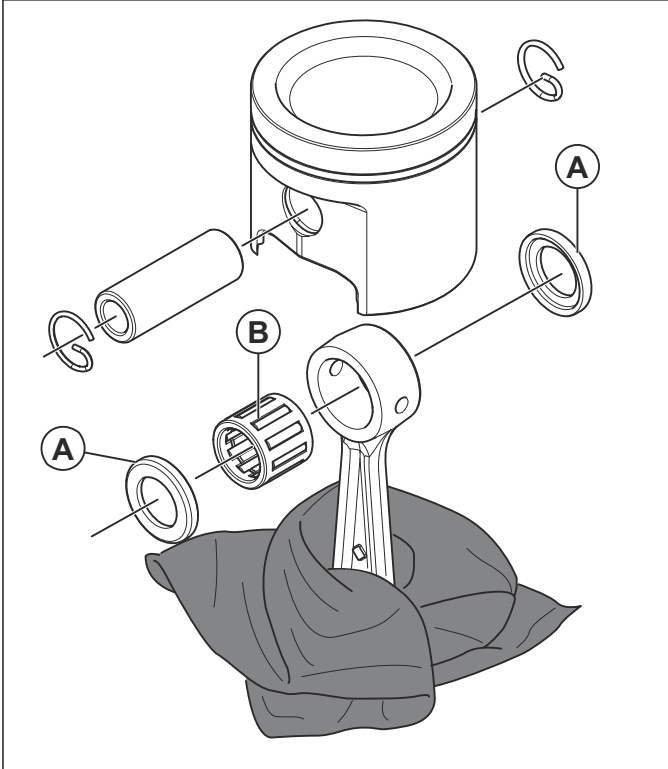
7.12.5 To examine the cylinder

- Make sure that the surface layer of the cylinder is not worn, especially in the top end of the cylinder.
- Make sure that the cylinder does not have score marks.



7.12.6 To assemble the cylinder and piston

1. Lubricate the needle bearing with two-stroke oil and put it into the connecting rod. Make sure the bearing moves freely in the connecting rod.

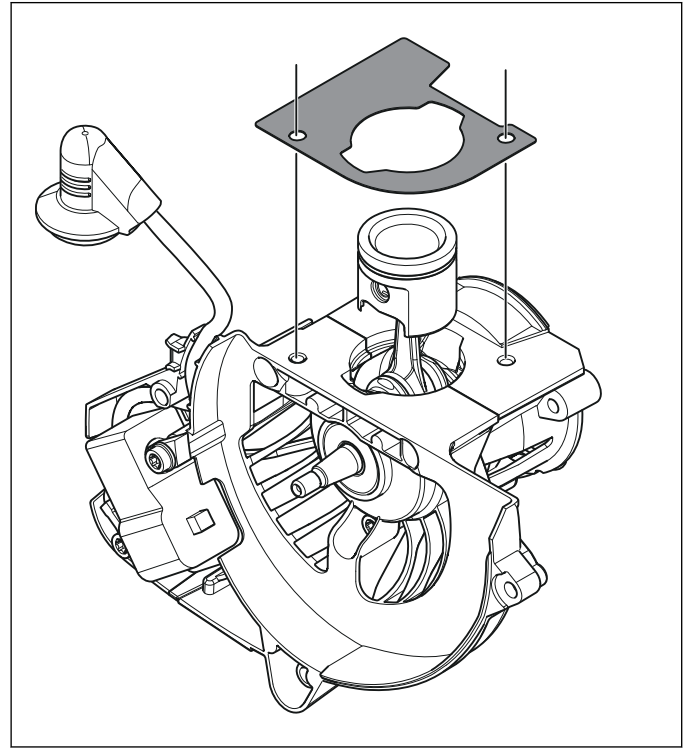


2. Install the piston. The arrow at the piston top must be in the direction of the exhaust port. Push in the piston pin and attach the snap ring.

Note: Always use a new snap ring.

3. Lubricate the piston and piston ring with two-stroke oil.
4. Carefully attach the piston ring on the piston. Make sure that you do not cause damage to the piston ring or the piston.

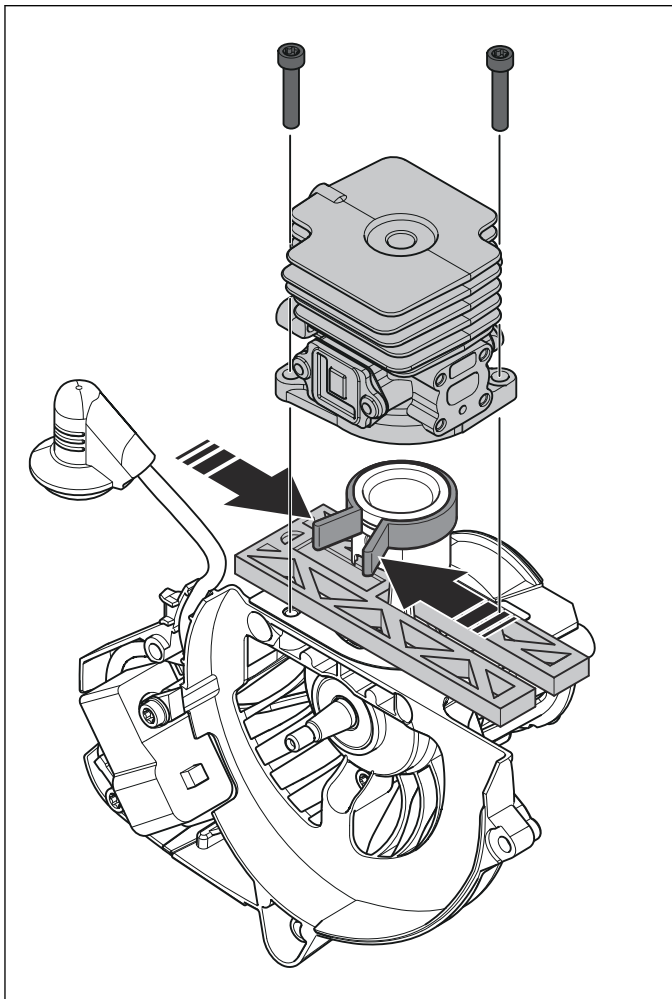
5. Put a new cylinder base gasket on the crankcase.



CAUTION: Make sure that the cylinder base gasket does not have signs of damage and wear.

6. Install the support plate from the piston assembly kit.

7. Use the clamp from the piston assembly kit to compress the piston ring. Carefully push the piston into the cylinder opening. Tighten the 2 screws to the specified torque. Refer to *Servicing data on page 6*.



8. Install the remaining parts in the opposite sequence to how they were removed.

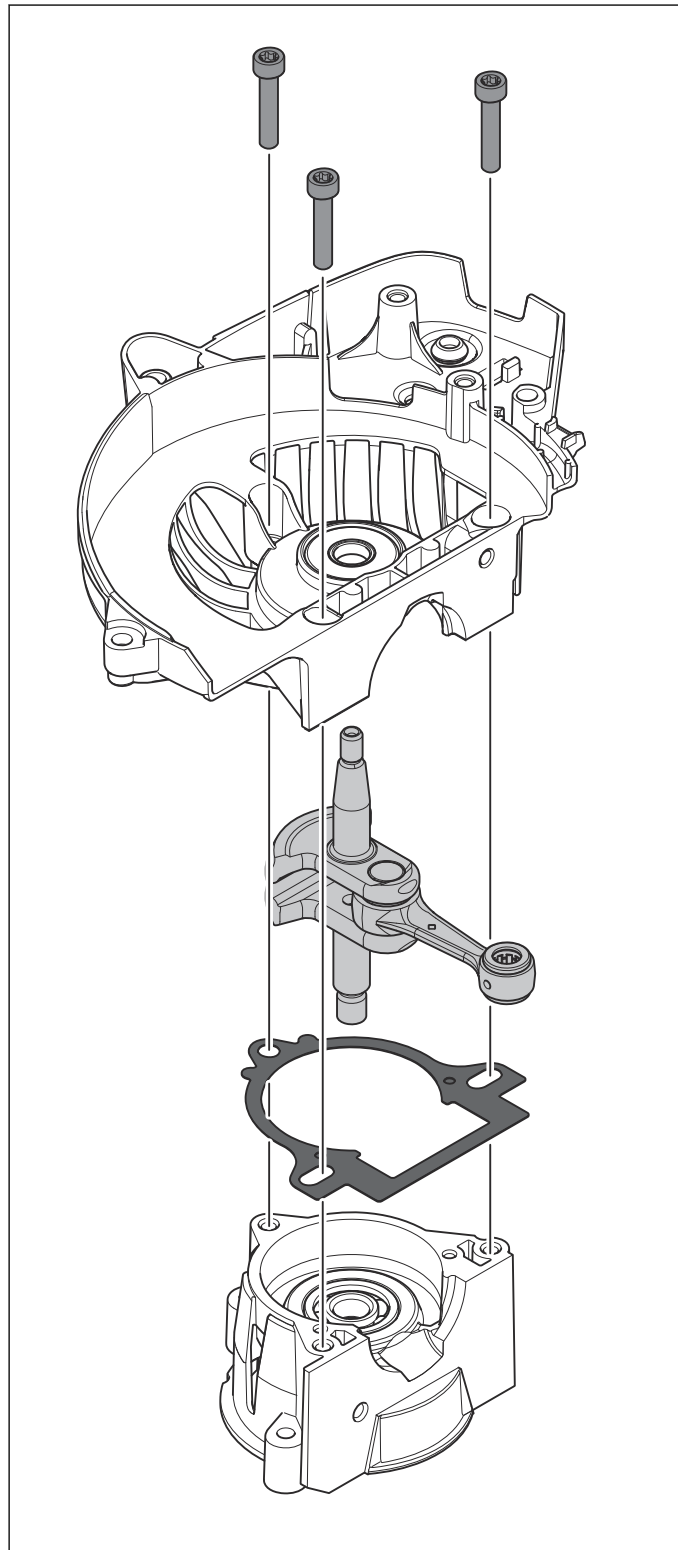
7.13 Crankshaft and crankcase

7.13.1 To get access to the crankcase and crankshaft

1. Do step 1-13 in *To remove the cylinder and piston on page 39*.
2. Remove the ignition module, if it is attached.

7.13.2 To disassemble the crankcase and crankshaft

1. Remove the 3 screws and disconnect the crankcase halves.



2. Lift the crankshaft out of the crankcase half on the starter side.

Note: The crankshaft has a tight fit in the crankshaft bearing.

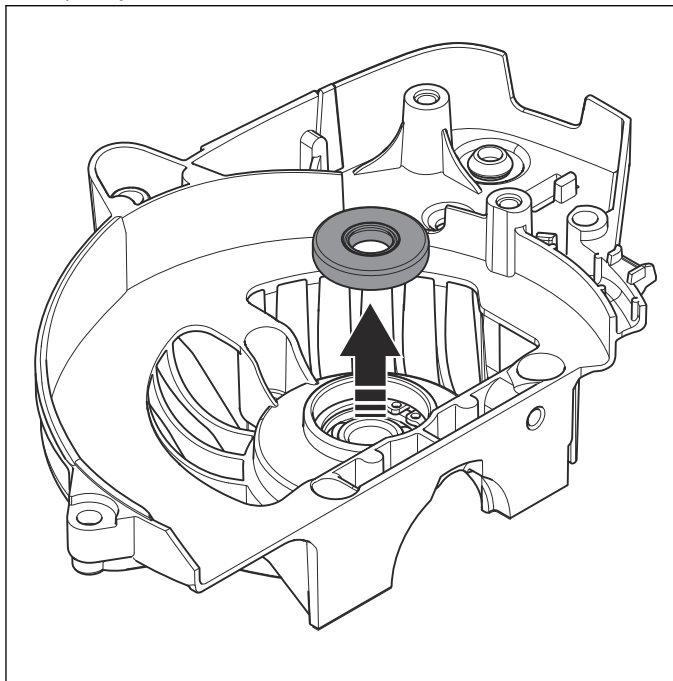
3. Remove the gasket and clean remaining gasket material from the surfaces.

4. Use a screwdriver or equivalent to remove the sealing ring from the crankcase halves.

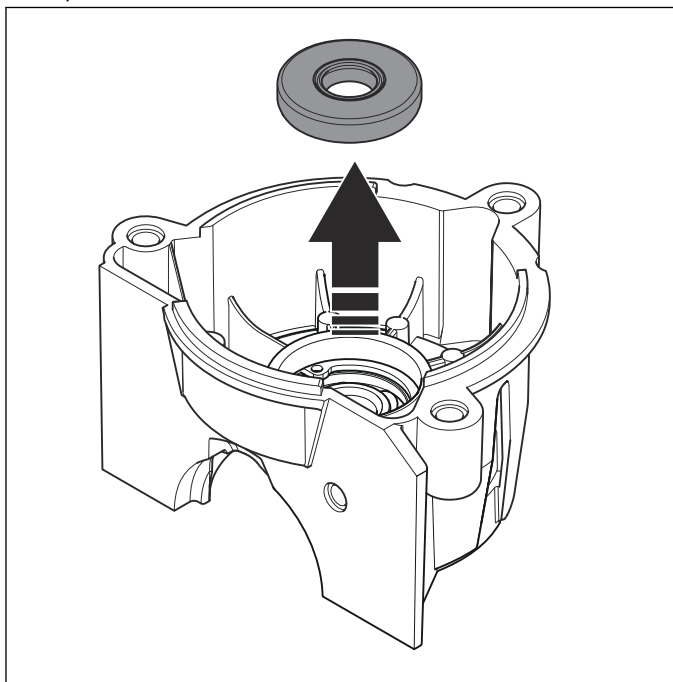


CAUTION: Remove the sealing rings carefully. The crankcase is easily damaged.

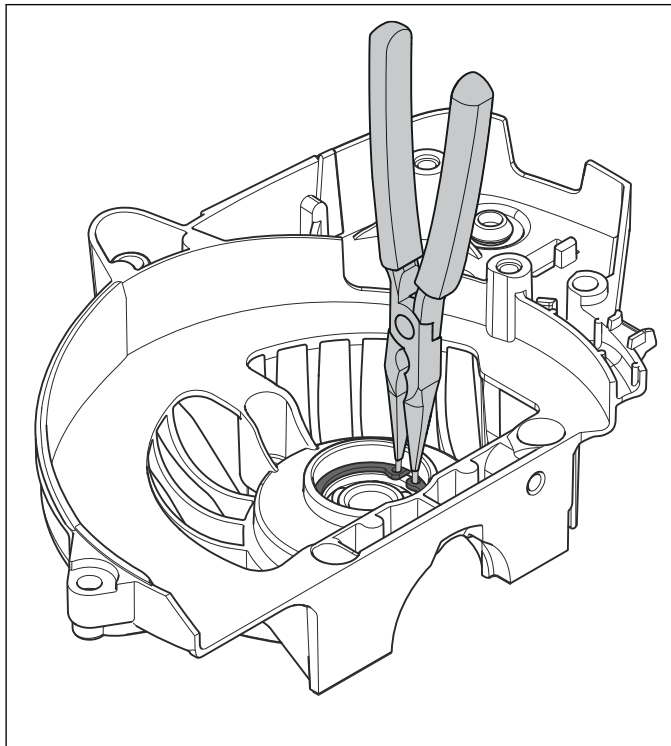
a) Flywheel side.



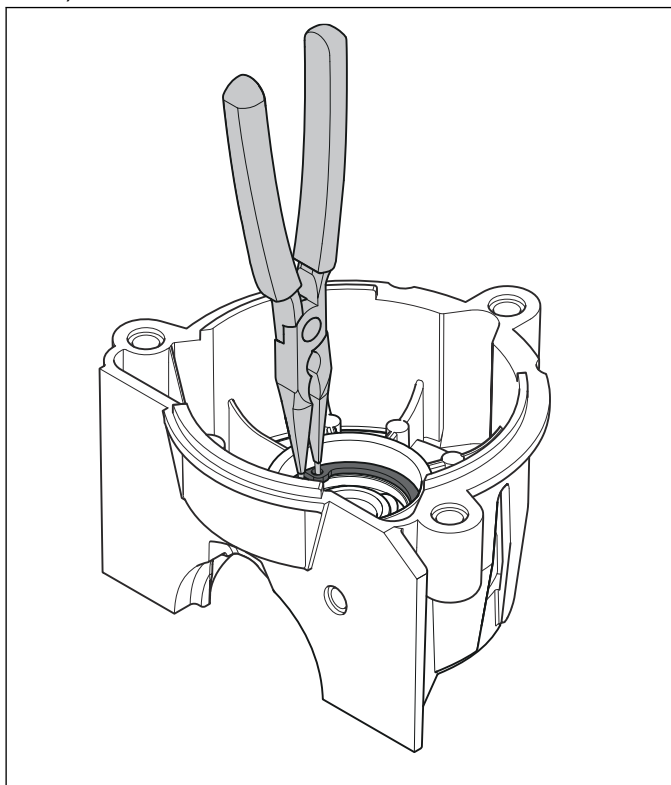
b) Clutch side.



a) Flywheel side.

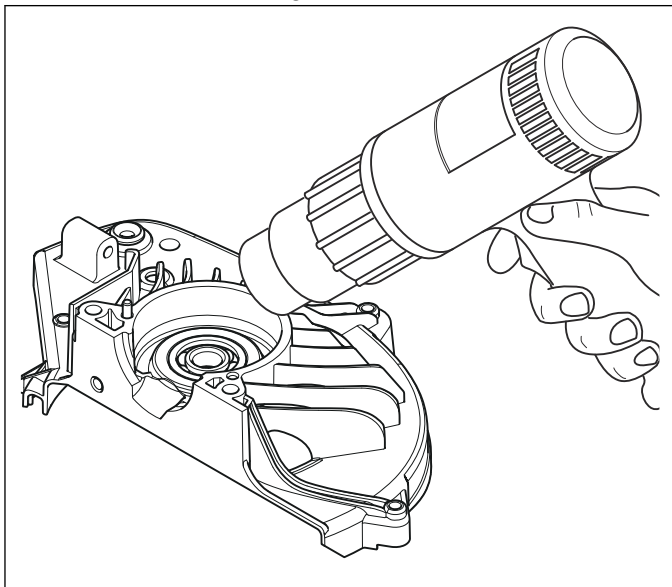


b) Clutch side.



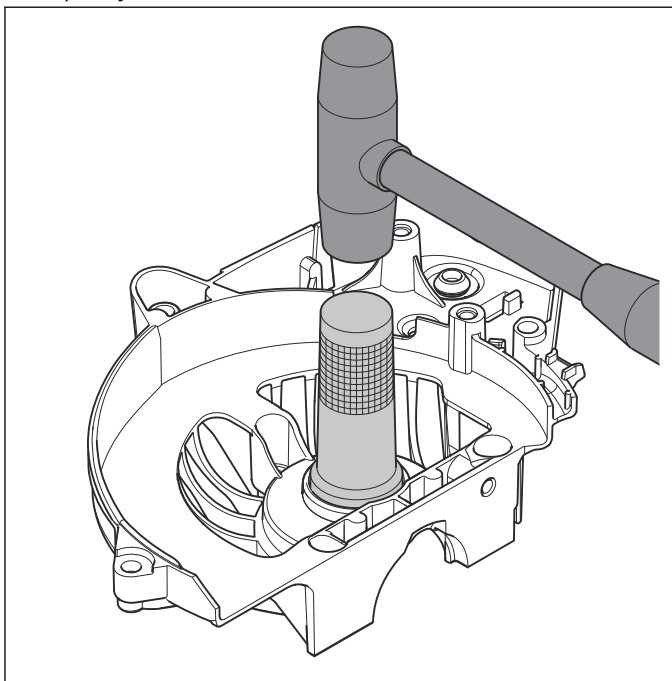
5. Discard the sealing ring.
6. Use a snap ring pliers to remove the snap ring from the crankcase halves.

7. Increase the temperature of the crankcase halves to 120°C with a hot air gun.

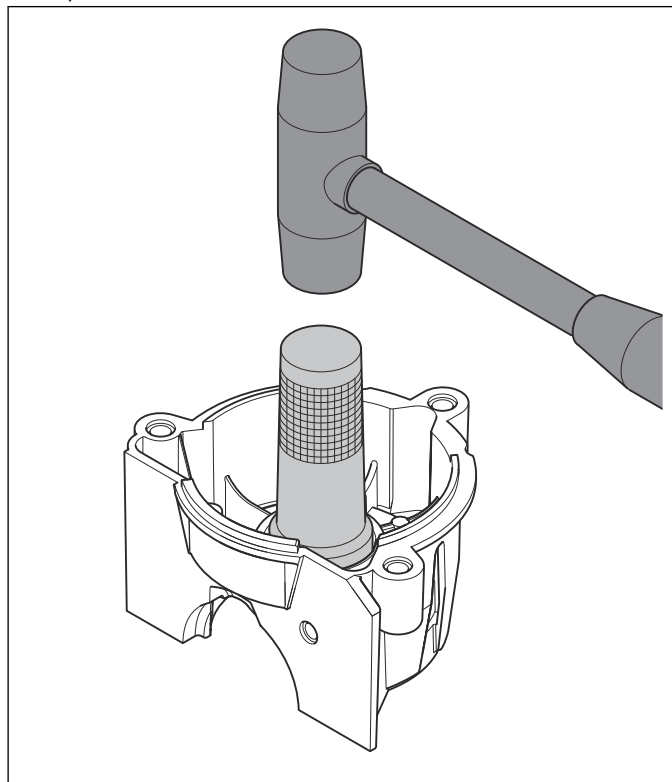


8. Use a ball bearing removal tool, refer to *To get access to the crankcase and crankshaft on page 44*, to remove the bearings from the crankcase halves.

a) Flywheel side.



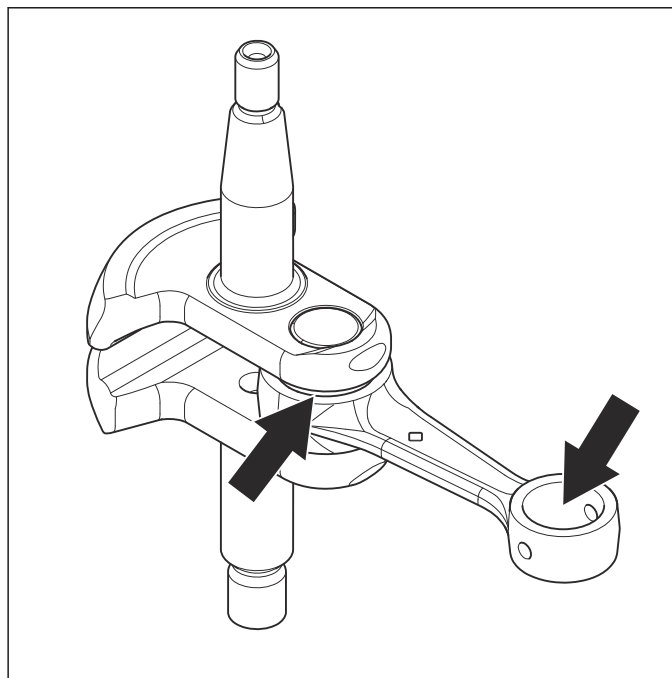
b) Clutch side.



7.13.3 To clean and examine the crankcase and crankshaft

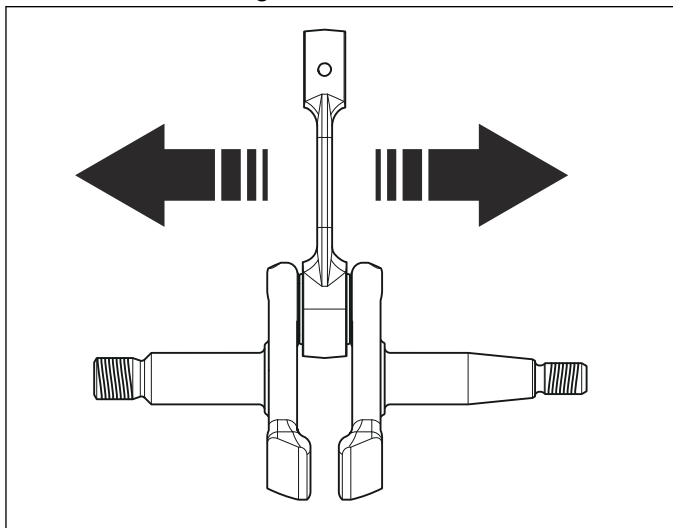
The crankshaft cannot be repaired. Replace it if it is worn or damaged.

- Examine the large end of the connecting rod. If there are marks, discoloration or damaged, replace the crankshaft.



- Examine the small end of the connecting rod. If there are marks or discoloration in the groove of the bearing, replace the crankshaft.

- Examine the crankshaft bearing. There must be no radial play in the connecting rod. Make sure that there is axial play to sufficiently lubricate the crankshaft bearing.

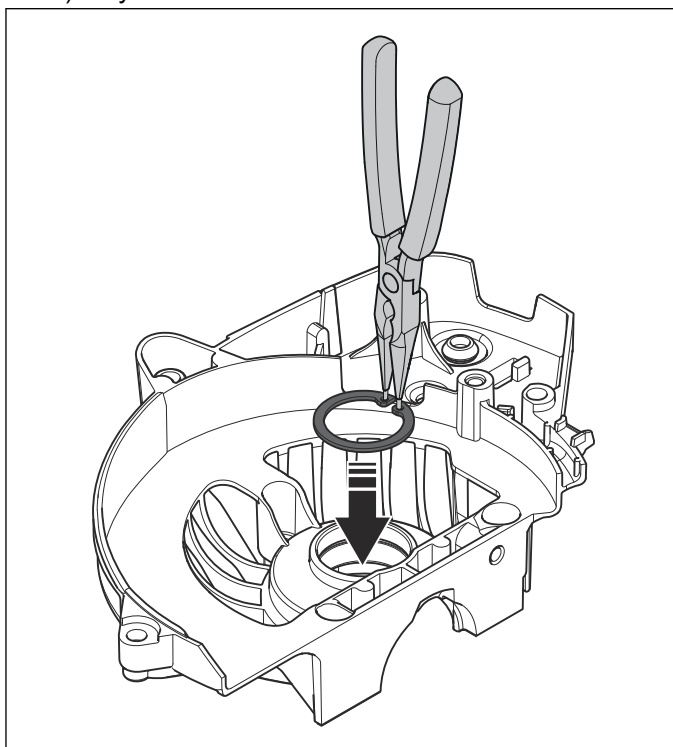


- Examine the crankcase halves for cracks and damages.

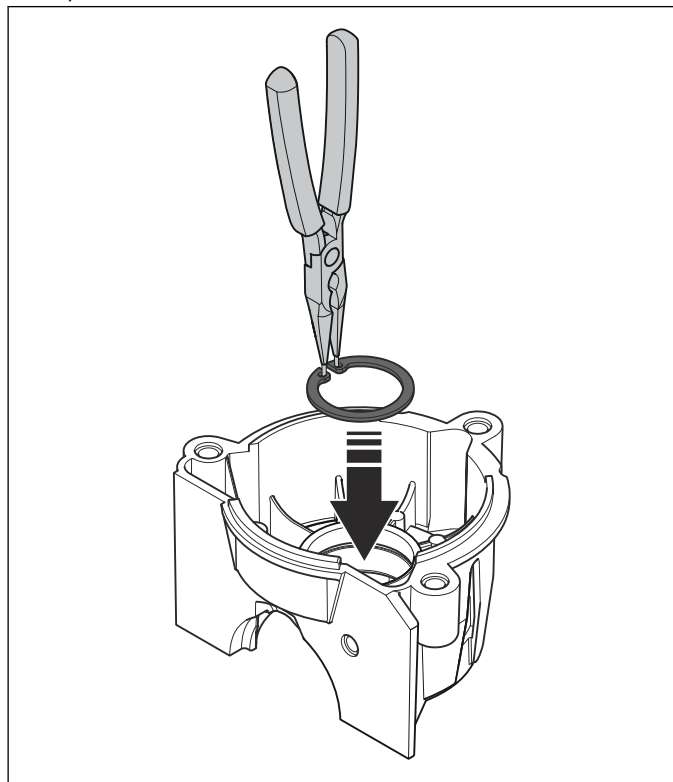
7.13.4 To assemble the crankcase and crankshaft

- Use a snap ring pliers to attach the snap ring on the crankcase halves.

a) Flywheel side.

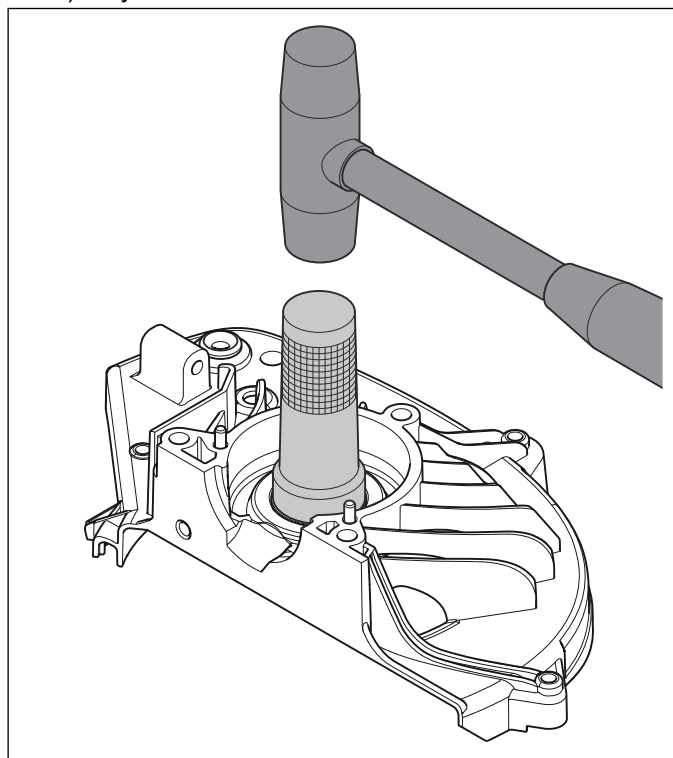


b) Clutch side.

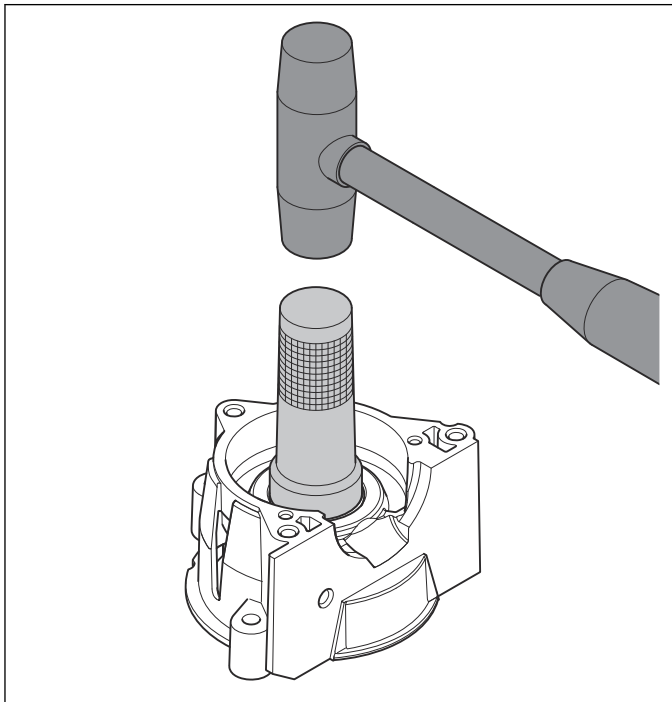


- Put the bearing in the crankcase. Carefully tap the removal tool for the ball bearing, refer to *To get access to the crankcase and crankshaft on page 44*, with a rubber hammer until the bearing is in position. Make sure that the ball bearings is against the snap ring.

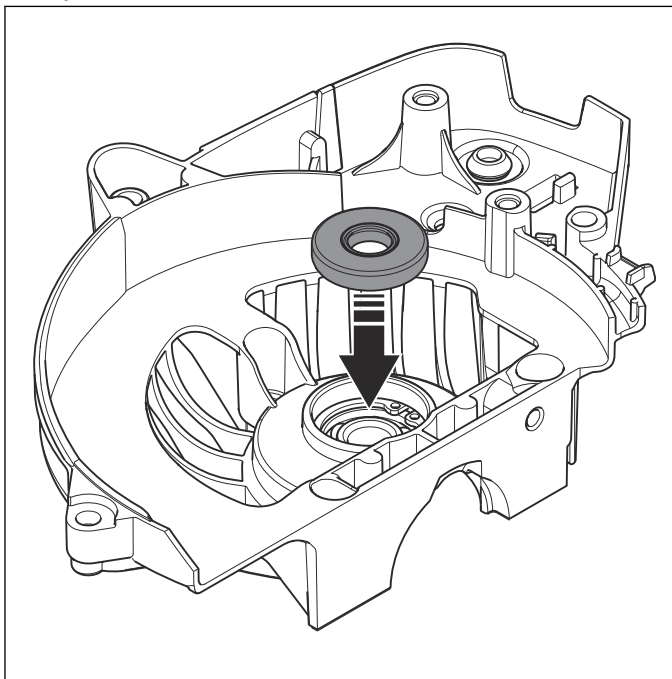
a) Flywheel side.



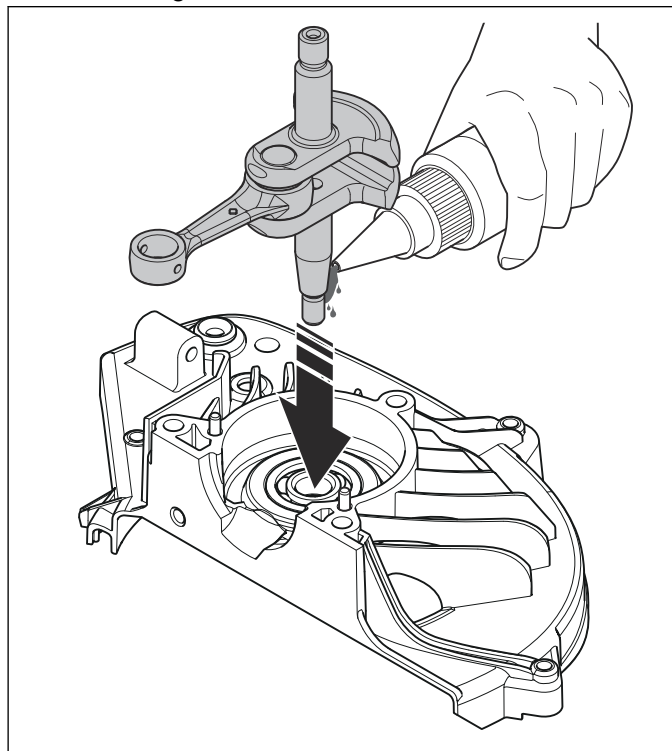
b) Clutch side.



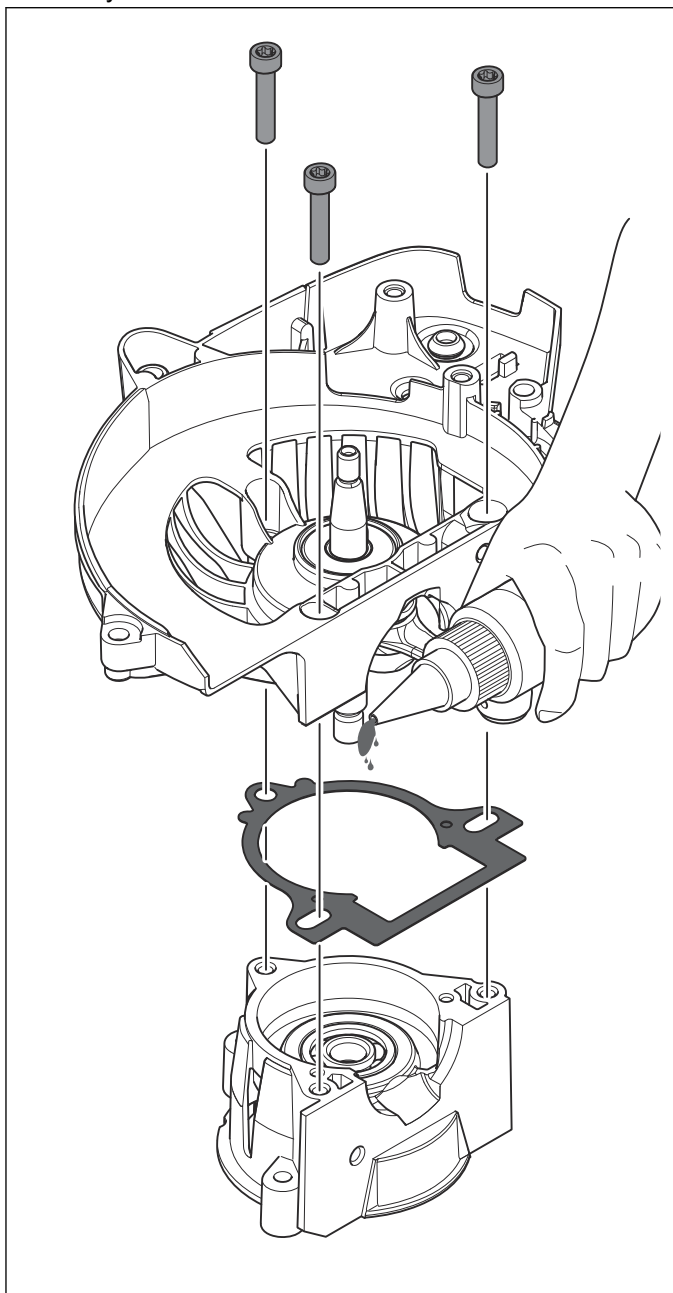
3. Put the sealing ring in the crankcase half on the flywheel side.



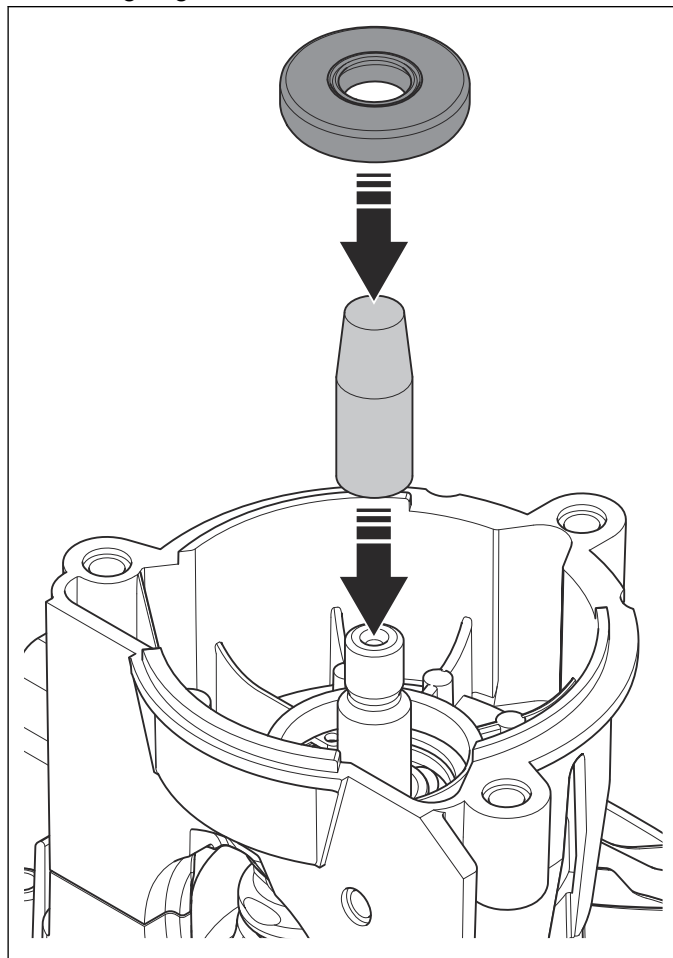
4. Put the crankshaft in the crankcase half on the flywheel side. Lubricate the stub axle with some drops of oil and carefully move the crankshaft into the bearing.



5. Install the gasket to the clutch side of the crankcase half. Lubricate the crankshaft pin with some drops of oil and move the crankcase half on the clutch side into position. Tighten the 3 crankcase screws in turns. Make sure that the crankshaft can rotate easily.



6. Put an assembly sleeve on the crankshaft on the clutch side to prevent damage to the sealing ring. Lubricate the crankshaft with oil and install the sealing ring.

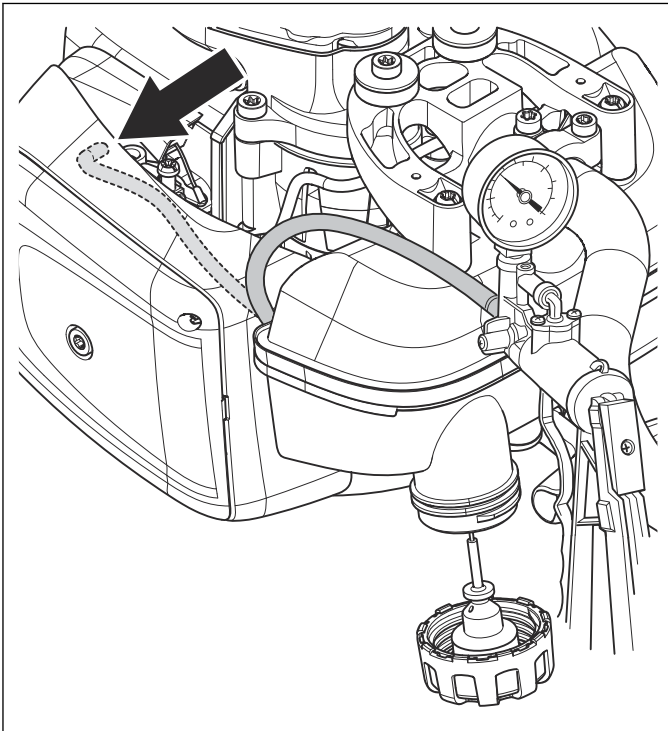


7. Assemble in the opposite sequence of *To assemble the crankcase and crankshaft on page 47.*

7.14 Fuel tank

7.14.1 To do a tank venting

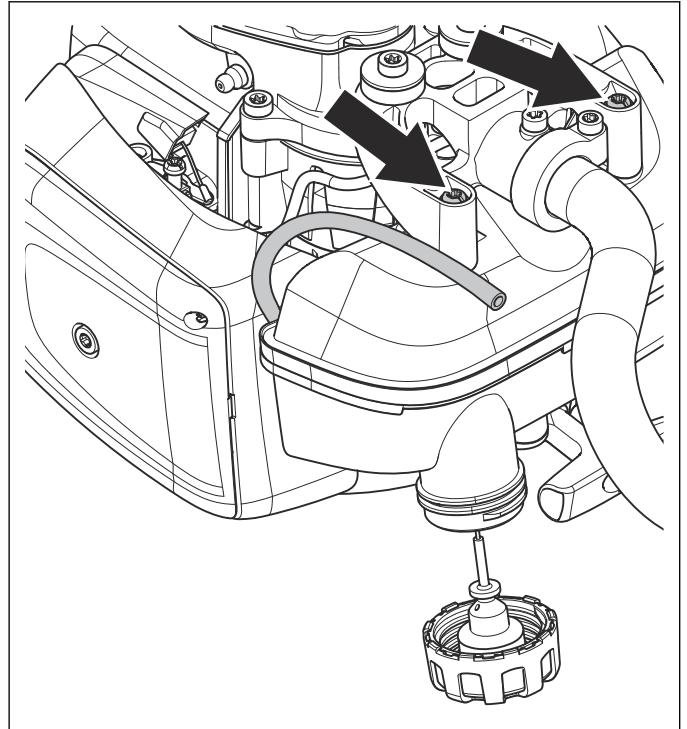
1. Drain the fuel tank and put the product with the top down.
2. Remove the transparent fuel hose from the carburetor and connect it to the pressure tester.



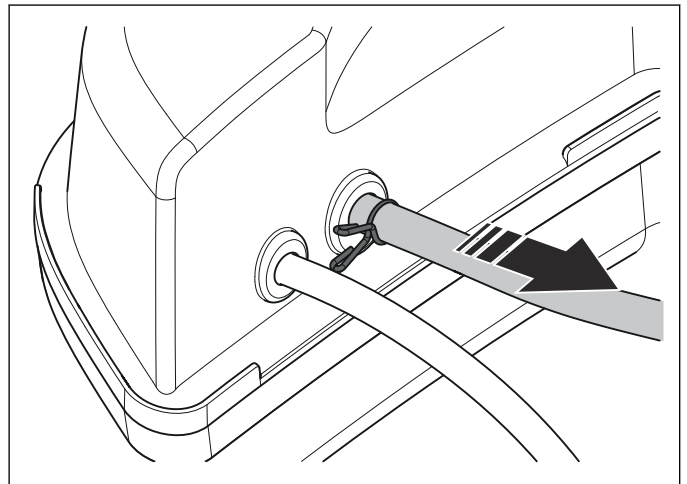
3. Tighten the fuel tank cap. Make sure that there are no leaks around the bushings in the fuel tank.
4. Use the pressure tester to make a negative pressure in the tank. If there is no pressure or the negative pressure is very low, replace the fuel tank.

7.14.2 To remove the fuel tank

1. Drain the fuel tank and put the product with the top down.
2. Remove the transparent fuel hose from the carburetor. Remove the 2 screws.

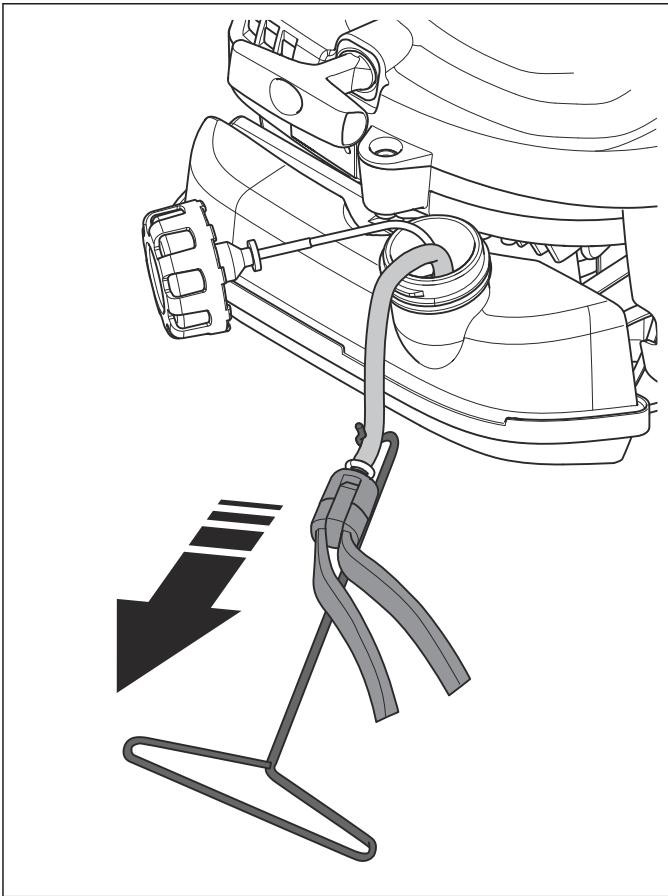


3. Remove the fuel tank.
4. Use pliers to open the clamp and remove the fuel hose from the fuel tank.



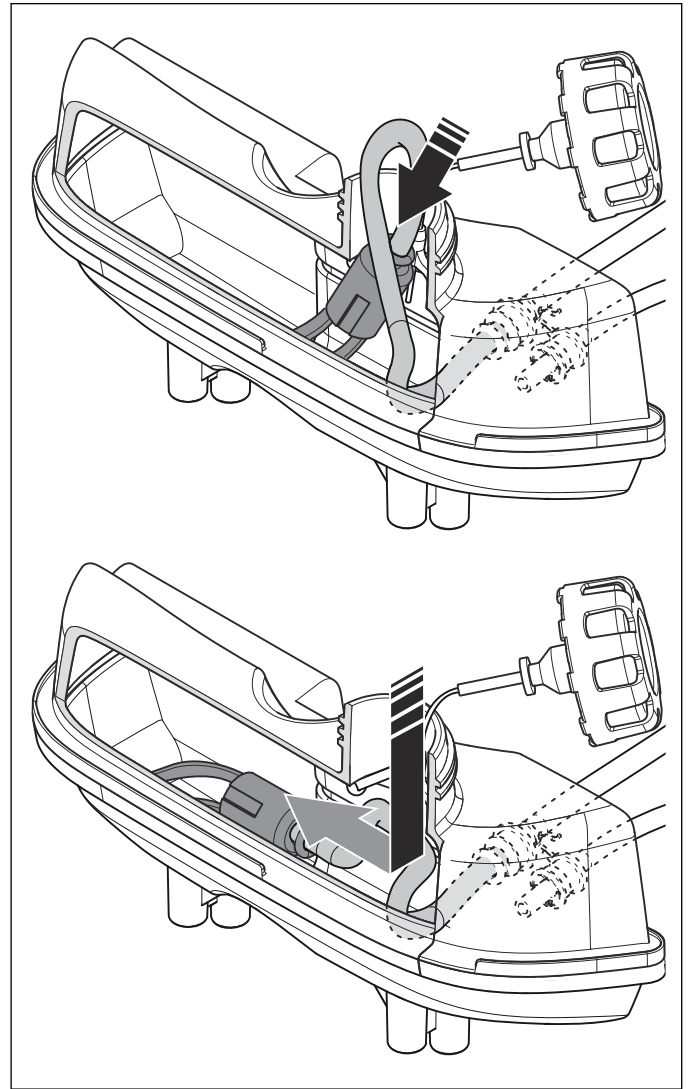
7.14.3 To clean and examine the fuel filter

1. Remove the fuel tank cap.
2. Pull the fuel hose and the fuel filter from the fuel tank with a hook. Remove the fuel filter.



3. Examine the fuel hose for cracks and leaks.
4. Clean the fuel filter with a brush. If the fuel filter cannot be fully cleaned, replace it.
5. Make sure that the connection neck of the fuel filter is put as far as possible into the fuel hose.

6. Put the fuel filter in the tank as shown in the illustration.



7.14.4 Fuel tank cap

The fuel tank cap cannot be repaired. If the engine stops after a short period of time or if the O-ring on the fuel tank cap is damaged, the fuel tank cap must be replaced.

7.14.5 To assemble the fuel tank

1. Assemble in the opposite sequence of *To remove the fuel tank on page 50*.

8 Troubleshooting

8.1 Troubleshooting

Starting

The engine is hard to start	The stop screw for the throttle does not operate correctly
	Blocked fuel filter
	Blocked fuel hose
	Air in fuel pipes
	Incorrect/unsatisfactory fuel
	The needle valve is defective
	The lever arm of the needle valve is damaged
	The lever arm of the needle valve does not operate correctly
	The control diaphragm is damaged
	The control diaphragm has a defective seal
	Blocked needle valve
	The needle valve is worn
	Object in the needle valve guide

Idle speed (low speed)

The engine does not operate on idle speed	The stop screw for the throttle does not operate correctly
	Blocked fuel filter
	Blocked fuel hose
	Air in fuel pipes
	The carburetor is not attached correctly
	The lever arm of the needle valve does not operate correctly
The idle speed is too low	Defective heat insulation seal
	The lever arm of the needle valve is damaged
	The lever arm of the needle valve is too high
	The lever arm of the needle valve does not operate correctly
	The needle valve is worn
	Object in the needle valve guide

Idle speed (low speed)	
The idle speed does not become stable	The stop screw for the throttle does not operate correctly
	Blocked fuel filter
	Blocked fuel hose
	Air in fuel pipes
	Incorrect/unsatisfactory fuel
	The needle valve is defective
	The carburetor is not attached correctly
	The lever arm of the needle valve does not operate correctly
	The needle valve spring is not attached correctly
	The control diaphragm is damaged
	The needle valve is worn
	Object in the needle valve guide
The engine stops when idling	The stop screw for the throttle does not operate correctly
	Blocked fuel filter
	Blocked fuel hose
	Air in fuel pipes
	The needle valve is defective
	Defective heat insulation seal
	The lever arm of the needle valve is too high
	The lever arm of the needle valve does not operate correctly
	The spring of the needle valve is damaged
	The needle valve spring is not attached correctly
	The needle valve is worn
	Object in the needle valve guide

High speed	
Unsatisfactory performance at high speed	Blocked fuel filter
	Blocked fuel hose
	Air in fuel pipes
	Incorrect/unsatisfactory fuel
	Vacuum pulse leakage
	Blocked vacuum pulse pipe
	Loose screws on the pump cover
	Defective pump diaphragm
	The needle valve is defective
	The carburetor is not attached correctly
	The lever arm of the needle valve is damaged
	The lever arm of the needle valve does not operate correctly
	The spring of the needle valve is damaged
	The needle valve spring is not attached correctly
	The control diaphragm is damaged
	The control diaphragm has a defective seal
	The needle valve is worn
	Object in the needle valve guide

Increasing and decreasing speed	
The engine does not increase speed	Blocked fuel filter
	Blocked fuel hose
	Air in fuel pipes
	Vacuum pulse leakage
	Blocked vacuum pulse pipe
	Loose screws on the pump cover
	Defective pump diaphragm
	The needle valve is defective
	The carburetor is not attached correctly
	The lever arm of the needle valve is damaged
	The lever arm of the needle valve is too low
	The lever arm of the needle valve does not operate correctly
	The needle valve spring is not attached correctly
	The control diaphragm is damaged
	Blocked needle valve
The engine stops when decreasing speed	Defective pump diaphragm
	The lever arm of the needle valve is too high
	The lever arm of the needle valve does not operate correctly
	The needle valve is worn
	Object in the needle valve guide

Increasing and decreasing speed	
Can not increase speed	Defective heat insulation seal

9 Technical data

9.1 Technical data

	CHTZ600	CHTZ600R	CHTZ750R
Engine			
Cylinder displacement, cm ³	21.7	21.7	21.7
Idle speed, rpm	3000	3000	3000
Recommended max speed, rpm	9200	9200	9200
Maximum engine power, acc. to ISO 8893, kW/hp @ rpm	0.6/0.8 @ 7800	0.6/0.8 @ 7800	0.6/0.8 @ 7800
Catalytic converter muffler	Yes	Yes	Yes
Ignition system			
Spark plug	NGK CMR6A	NGK CMR6A	NGK CMR6A
Electrode gap, mm	0.5	0.5	0.5
Fuel			
Fuel tank capacity, l/cm ³	0.45/450	0.45/450	0.45/450
Weight			
Without fuel, kg	5.0	5.1	5.3
Noise emissions ¹			
Sound power level, measured dB (A)	101	101	101
Sound power level, guaranteed L _{WA} dB (A)	102	102	102
Sound levels ²			
Equivalent sound pressure level at the operator's ear, measured according to EN ISO 10517, dB(A)	93	93	93
Vibration levels ³			
Equivalent vibration levels (a _{h_v,eq}) at handles, measured according to EN ISO 10517, m/s ² :			
Front/Rear, mm/s ²	2.8/2.5	2.8/1.3	3.1/2.2
Blades			
Type	Double sided	Double sided	Double sided
Cutting length, mm	600	600	750
Cutting speed, cuts/min	4400	3200	3200

¹ Noise emissions in the environment measured as sound power (L_{WA}) in conformity with EC directive 2000/14/EC. Reported sound power level for the product has been measured with the original cutting attachment that gives the highest level. The difference between guaranteed and measured sound power is that the guaranteed sound power also includes dispersion in the measurement result and the variations between different products of the same model according to Directive 2000/14/EC.

² Reported data for noise pressure level has a typical statistical dispersion (standard deviation) of 1 dB (A).

³ Reported data for vibration level has a typical statistical dispersion (standard deviation) of 1 m/s².



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