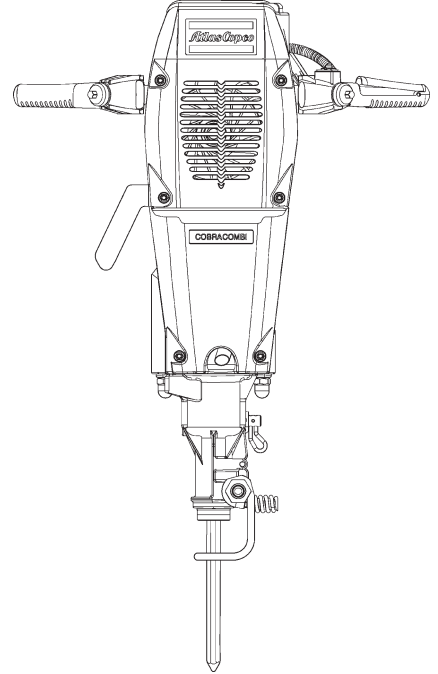


COBRA

COBRA COMBI

Overhauling instructions Petrol drills and breakers



Crowder Supply Co., Inc. • 8495 Roslyn St., Commerce City, CO 80022 • Toll Free: 888-883-5144 • www.CrowderSupply.com



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ABOUT THE OVERHAULING INSTRUCTIONS

The aim of these instructions is to provide you with knowledge of how to make basic overhauling on CobraCombi.

Only qualified and trained persons may operate or maintain the machine. Use only authorized parts. Any damage or malfunction caused by the use of unauthorized parts is not covered by Warranty or Product Liability.

For major service to the machine, contact your nearest authorized Atlas Copco workshop.

SAFETY INSTRUCTIONS




To reduce risk of serious injury or death to yourself or others, read these safety instructions before operating the machine.

Post these safety instructions at work locations, provide copies to employees, and make sure that everyone reads the safety instructions before operating or servicing the machine.

Comply with all safety regulations.

Safety symbols used

The indications **Danger**, **Warning** and **Caution** have the following meanings:

- | | |
|---|---|
|  Danger | Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury. |
|  Warning | Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury. |
|  Caution | Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. |

Machine and tool operating hazards

Warning

Sudden or unexpected movement of the machine may occur during operating, which may cause injuries. In addition losing your balance or slipping may cause injury. To reduce such risks:

- ▶ Make sure that you always keep a stable position with your feet as wide apart as your shoulder width, and keep a balanced body weight.
- ▶ Stand firmly and always hold on to the machine with both hands.
- ▶ Do not start the machine when it is laying on the ground.
- ▶ Make sure that the handles are clean and free of grease and oil.

Warning

Unintended start of the machine may cause injury.

- ▶ Keep your hands away from the start and stop device until you are about to start work.

Warning

The insertion tool is exposed to heavy strains when the machine is used and after a certain amount of use the tool may break due to fatigue. If the tool breaks, there may be sudden or strong movements. Such sudden or strong movements may cause serious injury.

- ▶ Make sure that you always keep a stable position with your feet as wide apart as your shoulder width, and keep a balanced body weight.
- ▶ Keep your feet away from the insertion tool.
- ▶ Do not 'ride' on the machine with one leg over the handle, since you could be seriously injured if the tool suddenly were to break.
- ▶ Check regularly for any wear on the insertion tool, and if there are any risks of damages or fractures.
- ▶ Do not use worn out or damaged insertion tools.

Warning

Incorrect dimension of the insertion tool's shank can result in that the insertion tool may be dropped or ejected. A dropped or ejected insertion tool can cause personal injury.

- ▶ Before the insertion tool is mounted, make sure that the shank is correct for the machine.
- ▶ An insertion tool without a collar should not be used.

Warning

If the insertion tool retainer on the machine is not in a locked position, the tool can be ejected with great force, which can cause serious injury.

- ▶ After the insertion tool is mounted and locked, the lock function must be checked by pulling the insertion tool powerful.
- ▶ Make sure that the tool is fully inserted and the tool retainer is in a locked position before the machine is started.

Warning

Changing the inserted tool while the machine is running may cause serious injury.

- ▶ Before changing the insertion tool, always stop the machine and close down the machine by pushing the start and stop device.

⚠ Warning

The exhaust pipe and the bottom of the machine can become very hot during operation, and can remain hot during a period of time after the machine has been shut off.

- ▶ To reduce the risk of burns or related injuries, avoid contact with the exhaust pipe or the bottom of the machine.

⚠ Warning

If the drill steel gets caught during operation, the whole machine will start to rotate if you lose your grip. Such an unexpected rotation of the entire machine may cause serious injury.

- ▶ Stand firmly and always hold the machine with both hands.
- ▶ Make sure that the handles are clean and free of grease and oil.
- ▶ Never drill in an old hole.

⚠ Warning

There is a risk of objects getting dragged into or getting caught by a rotating drill steel. This may cause serious injury.

- ▶ Never grab or touch a rotating drill steel.
- ▶ Avoid wide cloths that may get caught. If you have long hair, cover with a hair net.

Fume and exhaust hazard**⚠ Danger**

The exhaust fumes from the machine's combustion engine contain carbon monoxide which is poisonous. Inhalation of exhaust fumes can cause serious injury or death.

- ▶ Do not inhale exhaust fumes.
- ▶ Never operate the machine indoors or in poorly ventilated areas.

Explosion and fire hazard**⚠ Danger**

If the machine comes in contact with explosives, an explosion may occur. Explosions may cause serious injury or death.

To reduce risk of explosion:

- ▶ Never drill or operate the equipment near any explosives, including dynamite or other explosives in the rock.
- ▶ Make sure that there are no explosives in the rock.
- ▶ Never break or drill in an old hole.

⚠ Warning

Breaking, drilling and working with certain materials can cause sparks, which may ignite explosive gases which can cause explosions. Explosions may cause serious injury or death.

To reduce risk of explosion:

- ▶ Never operate the equipment in any explosive environments.
- ▶ Do not use the machine near flammable materials, fumes or dust.
- ▶ Make sure that there are no undetected sources of gas.

⚠ Warning

During operation of the machine, the exhaust pipe gets very hot and may stay hot for a period of time even after you have shut off the engine. Materials that come in contact with a hot exhaust pipe may ignite and cause fire or explosion, which can cause serious injury. To reduce risk of fire or explosion:

- ▶ Do not use the machine near flammable materials, fumes or dust. During breaks in work, remember not to place the machine near flammable materials.
- ▶ Do not operate the machine in explosive environments.
- ▶ Keep the workplace clean and free from foreign objects.

Explosion and fire hazard, continued

Warning

Fuel is highly flammable, and its vapors can explode if ignited, which can cause serious injury or death. To reduce risk of fire or explosion:

- ▶ Store fuel only in containers that are specifically designed and approved for storage of fuel. Empty fuel containers must be properly taken care of and sent back to the retailer.
- ▶ Operate the machine with the fuel cap securely in place. Never remove the fuel cap or add fuel when the engine is hot. Stop the engine and allow it to cool before adding fuel. When opening the fuel cap, always loosen the cap slowly to relieve any pressure in the tank. Do not overfill the tank.
- ▶ Always mix and add fuel in a clean and well-ventilated area. Make sure that this outdoor area is free from any flames or sparks. Never smoke while fuelling, mixing fuel, operating or servicing the machine. Avoid spilling fuel. Wipe up any fuel that is spilled on the machine. Fill the tank at least ten meters (30 feet) away from where you intend to use the machine.
- ▶ Do not use a machine that is leaking fuel. Regularly check for any leakage.
- ▶ To minimize the risk of fuel leakage during transportation, secure that the machine is in an upright position during transportation.
- ▶ Do not use the machine near flammable materials, fumes or dust. During breaks in work, do not place the machine near flammable materials.
- ▶ Do not operate the machine near any materials that create sparks. Remove all hot objects and objects that create sparks prior to using machine.
- ▶ Do not operate the machine in an explosive environment.
- ▶ Protect your skin from contact with fuel.

Electrical/Concealed object hazards

Warning

The machine is not electrically insulated. If the machine comes in contact with electricity, serious injuries or death may result.

- ▶ To reduce the risk of injury or death, never drill or break near any electric wire or other source of electricity.
- ▶ Make sure that there are no concealed wires or other sources of electricity.

Warning

During drilling and breaking, concealed wires and pipes constitute a danger that can result in serious injury.

- ▶ Before you start drilling or breaking, check the composition of the material you are to work on.
- ▶ Watch out for concealed electrical wiring, water, sewage and gas pipes and phone lines.
- ▶ If the tool seems to have hit a concealed object, immediately switch off the machine.
- ▶ Make sure that there is no danger before continuing.

Projectile hazard

Warning

During breaking, drilling or hammering, splinters or other particles of rock may become projectiles and cause bodily injury by striking the operator or other persons.

- ▶ Use approved personal protective equipment, including impact resistant safety glasses with side protection, to reduce the risk of being injured by a projectile.

Noise hazard

Warning

High sound levels may cause permanent hearing loss.

- ▶ Use hearing protection in accordance with occupational health and safety regulations.

Silica/Dust hazard

⚠ Warning

Exposure to crystalline silica (sometimes called “silica dust”) as a result of breaking, drilling, or hammering of rock, concrete, asphalt or other materials may cause silicosis (a serious lung disease), silicosis-related illnesses, cancer, or death. Silica is a major component of rock, sand and mineral ores.

To reduce silica exposure:

- ▶ Use proper engineering controls to reduce the amount of silica in the air and the build-up of dust on equipment and surfaces. Examples of such controls include: exhaust ventilation and dust collection systems, water sprays, and wet drilling. Make sure that controls are properly installed and maintained.
- ▶ Wear, maintain, and correctly use approved particulate respirators when engineering controls alone are not adequate to reduce exposure below permissible levels.
- ▶ Participate in air monitoring, medical exams, and training programs offered by your employer and when required by law.
- ▶ Wear washable or disposable protective clothes at the worksite; shower and change into clean clothes before leaving the worksite to reduce exposure of silica to yourself, other persons, cars, homes, and other areas.
- ▶ Do not eat, drink, or use tobacco products in areas where there is dust containing crystalline silica.
- ▶ Wash your hands and face before eating, drinking, or using tobacco products outside of the exposure area.
- ▶ Work with your employer to reduce silica exposure at your worksite.

⚠ Warning

- ▶ Some dust or other airborne material created during use of the machine may contain chemicals known to the State of California to cause cancer and birth defects or other reproductive harm. Some examples of such chemicals are:
 - ▶ Crystalline silica and cement and other masonry products.
 - ▶ Arsenic and chromium from chemically-treated rubber.
 - ▶ Lead from lead based paints.

To reduce your exposure to these chemicals, work in a well ventilated area, and work with approved safety equipment, such as dust masks that are specially designed to filter out microscopic particles.

Vibration hazard

⚠ Warning

Repetitive tasks, awkward working positions or vibrations may cause injury to your fingers, hands, arms, and other body parts. Exposure to vibrations may restrict blood supply to the hands and fingers, which may cause injury. If numbness, tingling, pain, whitening of the skin, or reduction in feeling occurs when you use the machine, or even when you are not using the machine, do not use the machine and contact a physician.

The inserted tool creates vibrations that may cause injury. Do not grab, hold, or touch the tool when using the machine.

Machine modification hazard

⚠ Warning

Any machine modification may result in bodily injuries to yourself or others.

- ▶ The hydraulic breaker must not be modified.
- ▶ Use only original parts and accessories approved by Atlas Copco.

Additional safety instructions

- ▶ Machines and accessories must only be used for their intended purpose.
- ▶ Only qualified and trained persons may operate or maintain the machine.
- ▶ Keep your hand away from the start and stop device until work is to begin.
- ▶ Learn how the machine is switched off in the event of an emergency.
- ▶ The machine should be operated at reduced power when drilling is started.
- ▶ Release the start and stop device in case of interruption of the energy supply.
- ▶ Always inspect the equipment prior to use. Do not use equipment if you suspect that it could be damaged.
- ▶ Check the insertion tools for wear or damages at regular intervals. Do not use worn out or damaged insertion tools.
- ▶ Always use your common sense and good judgment.
- ▶ Do not use the machine when you are tired or under the influence of drugs, alcohol or anything else that may affect your vision, reactions or judgement.
- ▶ Participate in safety and training courses.
- ▶ Never strike or abuse any equipment.
- ▶ Keep the machine and tools in a safe and locked place out of reach of children.
- ▶ Make sure that the all attached and related equipment is properly maintained.
- ▶ Signs and stickers that are important for your safety and the care of the machine are included with every machine. New signs and stickers can be ordered using the spare parts list.

Protective equipment

Always use approved personal protective equipment. Operators and other persons in the work area must wear protective equipment, including at a minimum:

- ▶ Protective helmet
- ▶ Hearing protection
- ▶ Impact resistant eye protection with side protection
- ▶ Respiratory protection when appropriate
- ▶ Protective gloves
- ▶ Protective boots

Service and maintenance


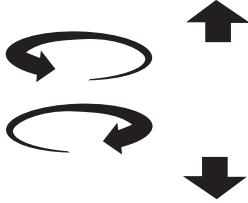


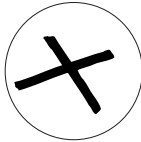










Regular maintenance is a prerequisite for keeping the machine a safe tool. Carefully follow the operating instructions.








- ▶ Use only authorized parts. Any damage or malfunction caused by the use of unauthorized parts is not covered by Warranty or Product Liability.
- ▶ Change damaged parts immediately.
- ▶ Replace damaged and worn out components in good time.
- ▶ For major service to the machine, contact your nearest authorized Atlas Copco workshop.
- ▶ When cleaning mechanical parts with solvent, make sure that current health and safety regulations are complied and that the ventilation is satisfactory.

Machine tools

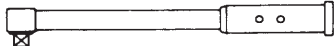
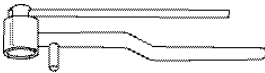


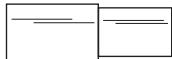

- ▶ Keep the tools clean and in a good condition. Check tools regularly and make sure that they are sharp.

SYMBOLS

 <p>Warning, Caution</p>	 <p>Directions</p>	 <p>Inspect and if necessary, replace damaged or worn out parts</p>
 <p>Replace with a new part</p>	 <p>Do not to do this!</p>	 <p>In working order</p>
 <p>Force, power</p>	 <p>Turn to the end position</p>	 <p>Use Oil</p>
 <p>Use Loctite 243</p>	 <p>Check the hose</p>	 <p>Scrap and replace with new part</p>
 <p>Indicator instrument</p>	 <p>Thickness gauge</p>	 <p>Noice</p>

 <p>Feeler gauge</p>	 <p>Check for cracks</p>	 <p>Use grease</p>
 <p>Freezed, very cold</p>	 <p>Tighten with this torque</p>	 <p>Recycle this part</p>
 <p>Bigger than</p>	 <p>Smaller than</p>	 <p>Time</p>
 <p>Important positional relationship</p>	 <p>In turn</p>	 <p>Wear safety glasses and gloves</p>
 <p>Clean carefully</p>	 <p>Earth</p>	 <p>Go to step</p>

SPECIAL TOOLS

	<p>1. Torque wrench 0 - 100 Nm</p>
	<p>2. Flywheel puller. Ordering No. 9238 2700 51</p>
	<p>3. Drift for collet. Ordering No. 9238 2713 70</p>
	<p>4. Drift for piston pin bearing. Ordering No. 9238 2704 30</p>
	<p>5. Drift for main bearing. Ordering No. 9238 2707 10</p>
	<p>6. Drift for piston pin. Ordering No. 9238 2706 70</p>

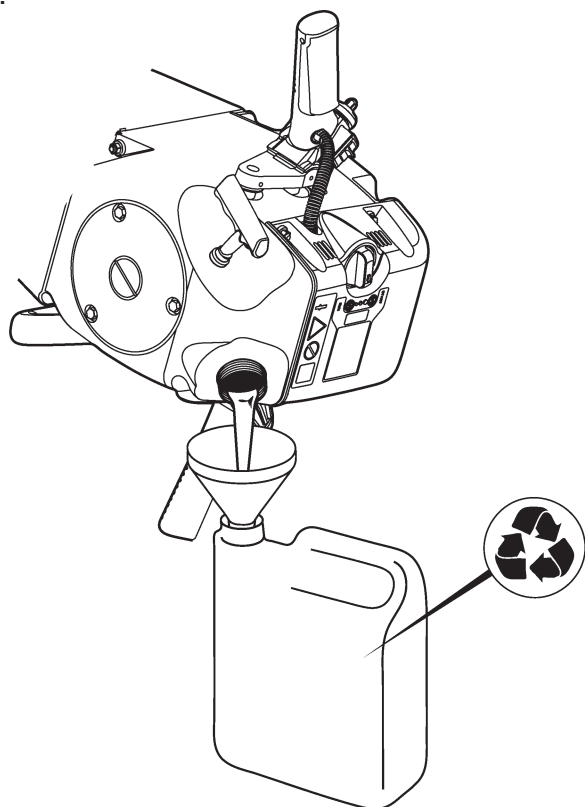
DISASSEMBLY

⚠ Warning

Fuel is highly flammable, and its vapors can explode if ignited, which can cause serious injury or death.

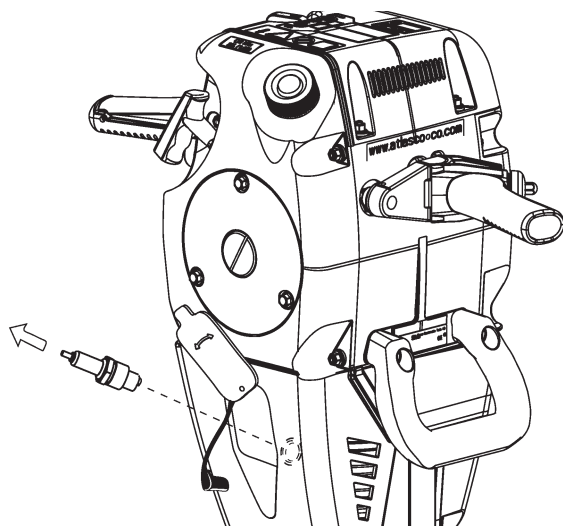
- ▶ Be very careful when handling fuel.

1.



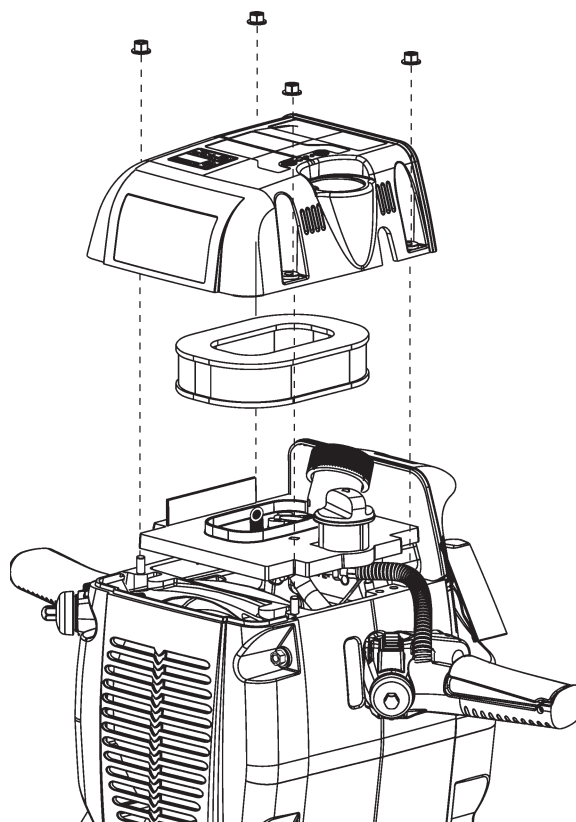
Spark plug

2.



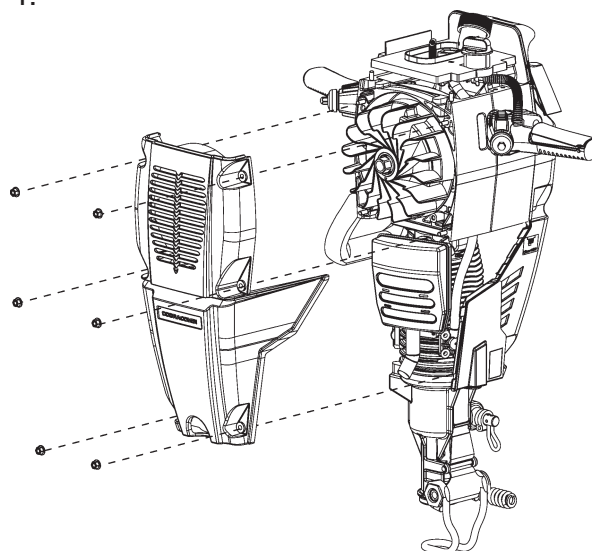
Top cover

3.



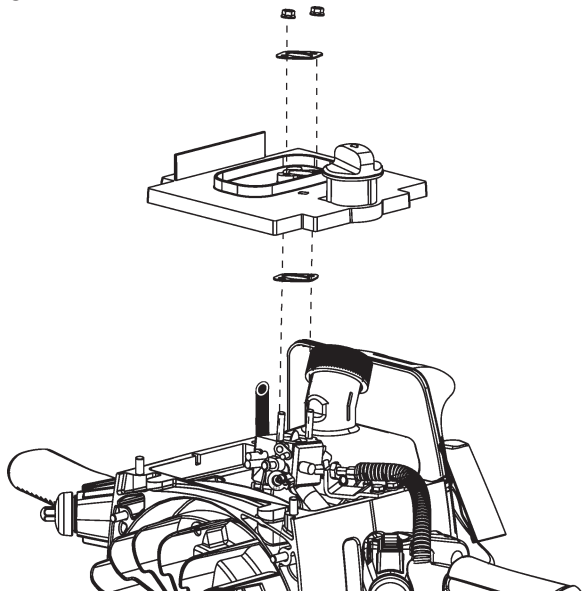
Front cover

4.

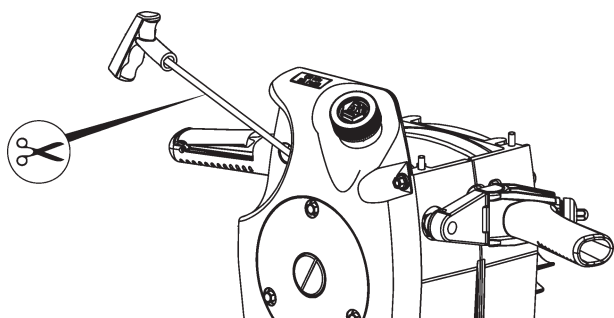


Filter cassette

5.



6.



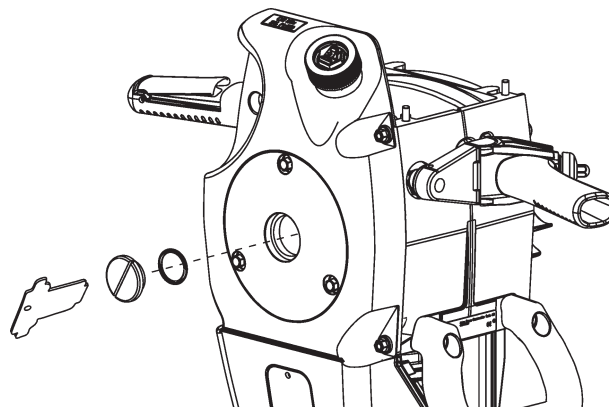
Starter cover

7.

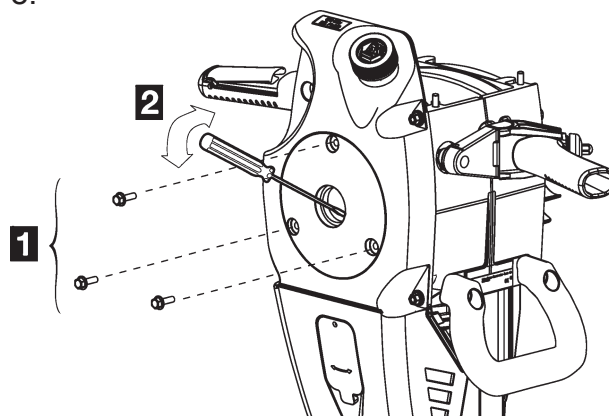
⚠ Warning

Rewinding or replacing the starter spring uncarefully can cause serious eye and hand damages.

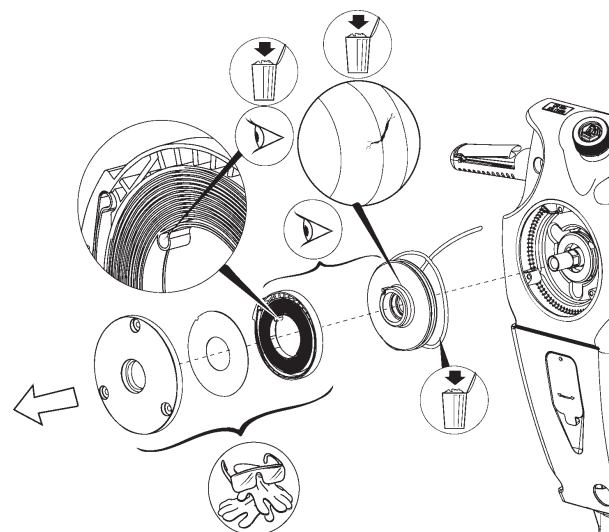
- ▶ Always wear protective glasses and industrial grade gloves when rewinding or replacing the starter spring.



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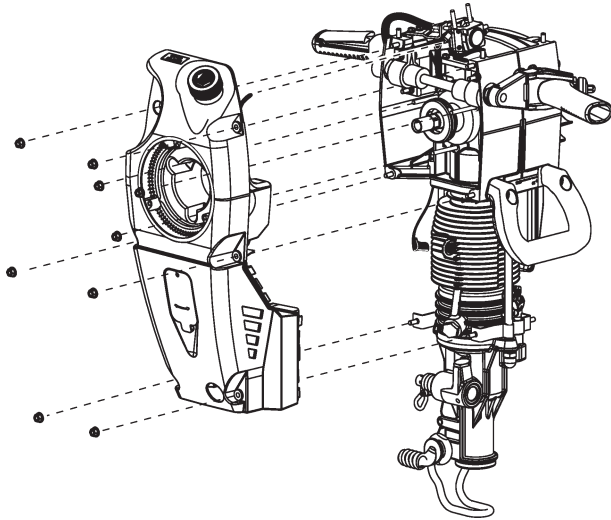


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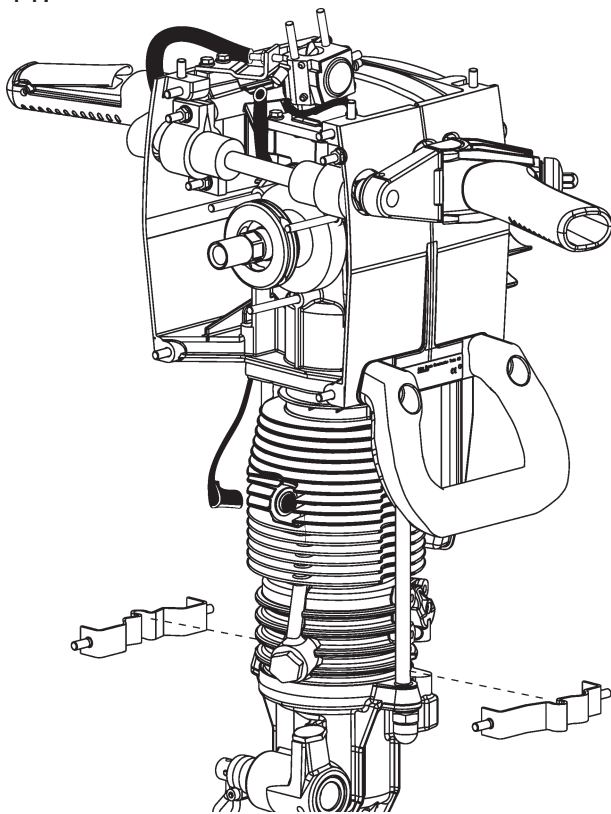
Back cover

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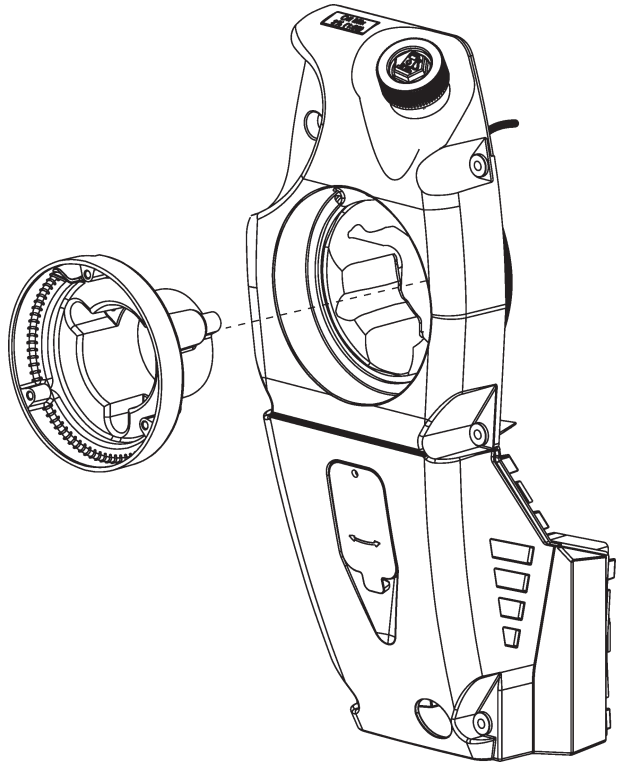


Bracket

11.

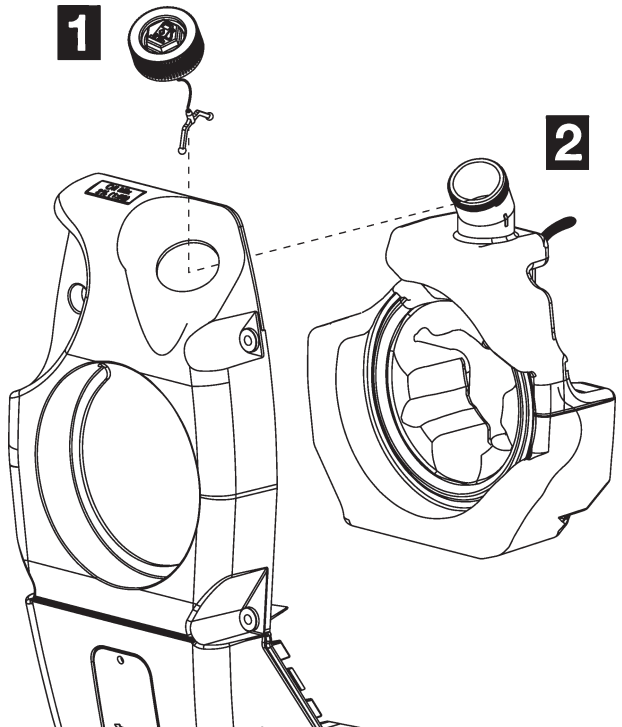


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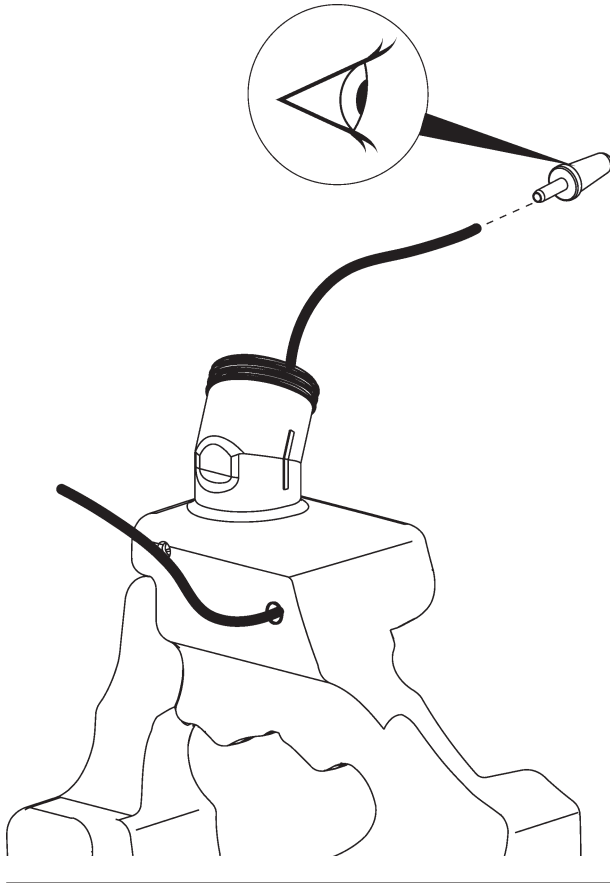


Fuel tank

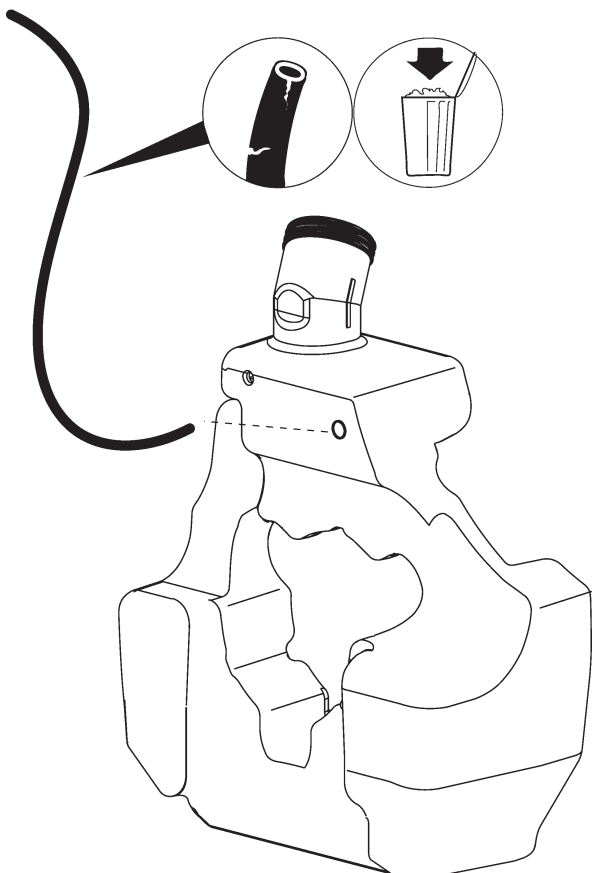
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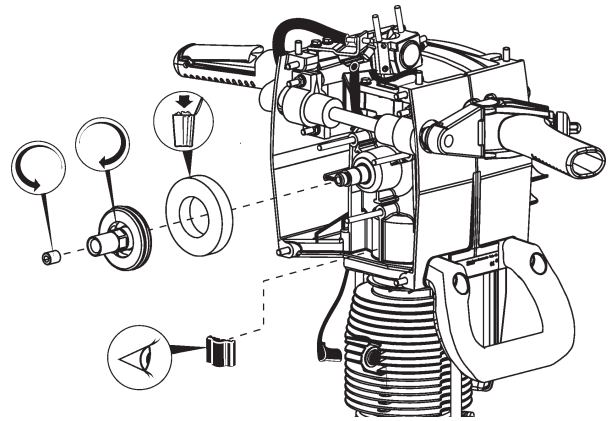


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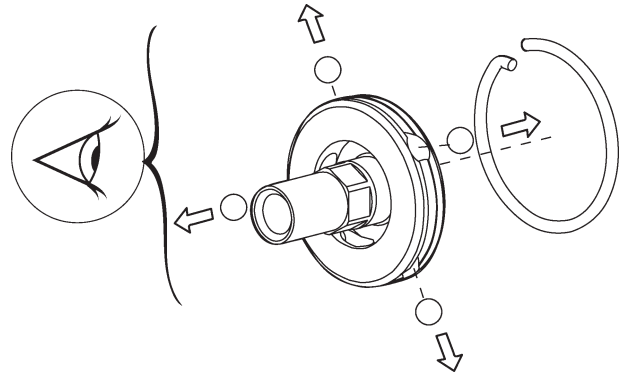


Clucht, complete

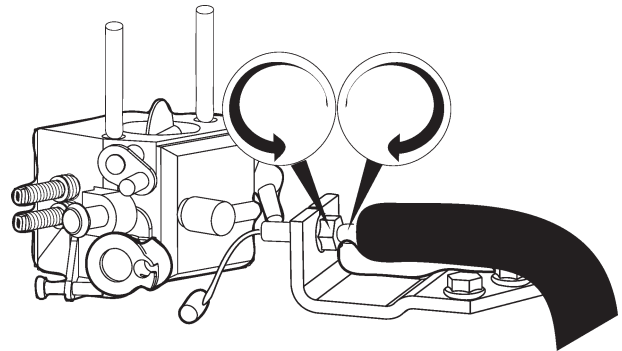
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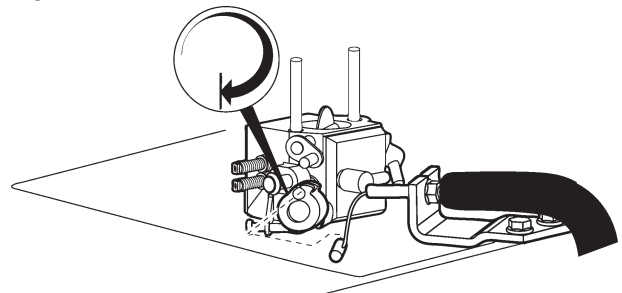
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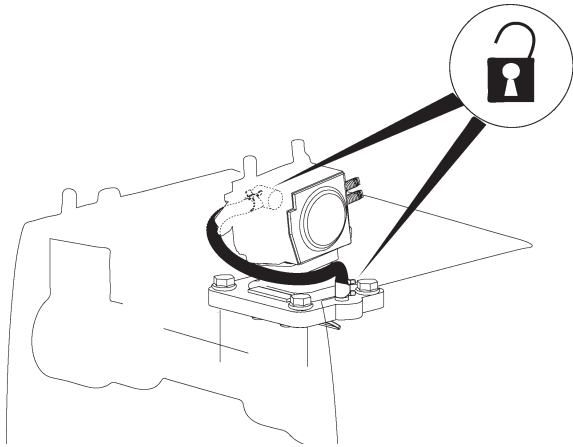


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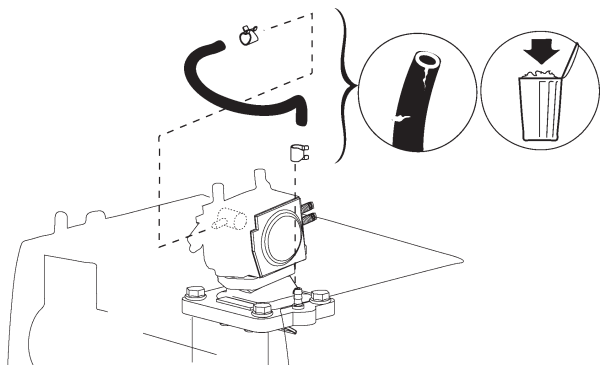


Carborettor

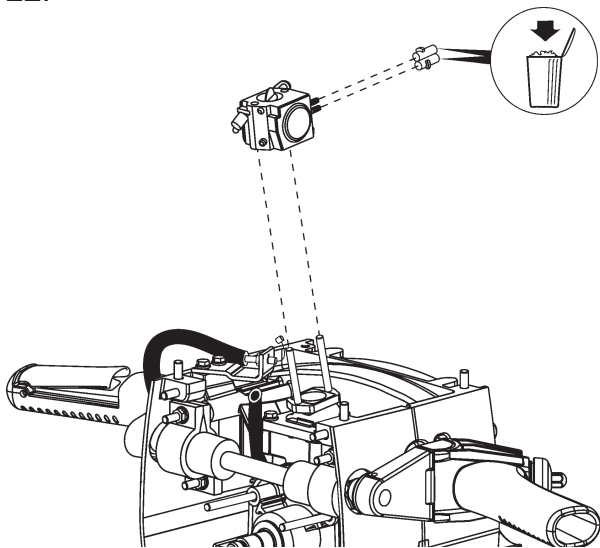
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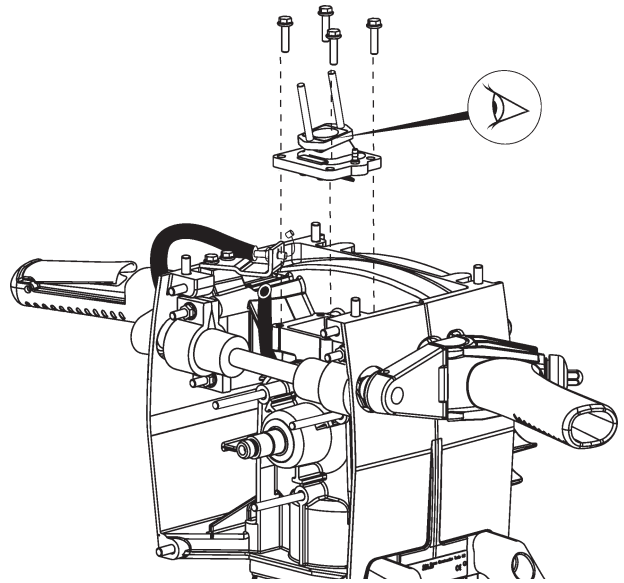


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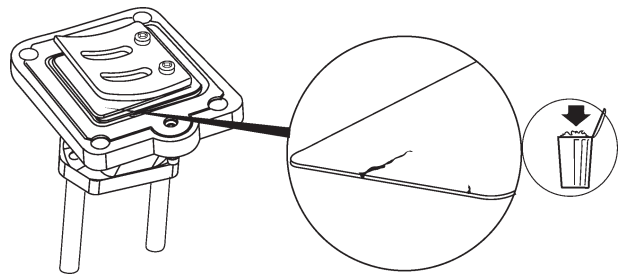


Read valve

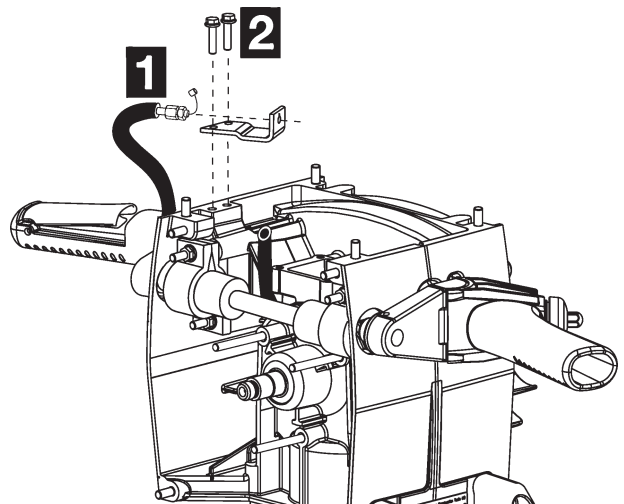
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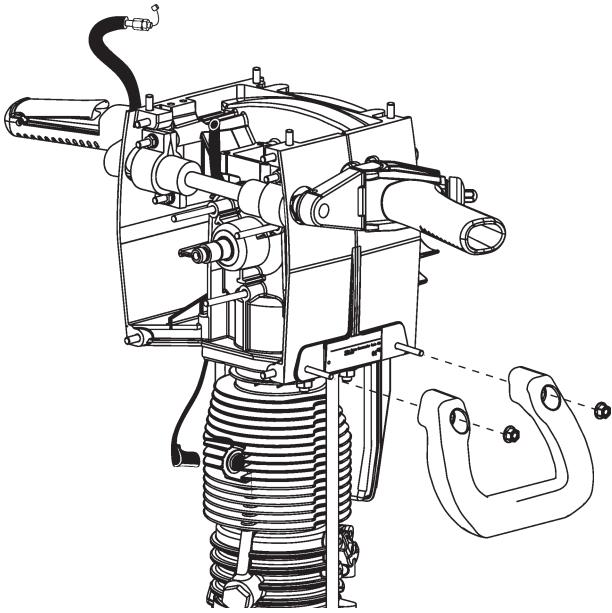
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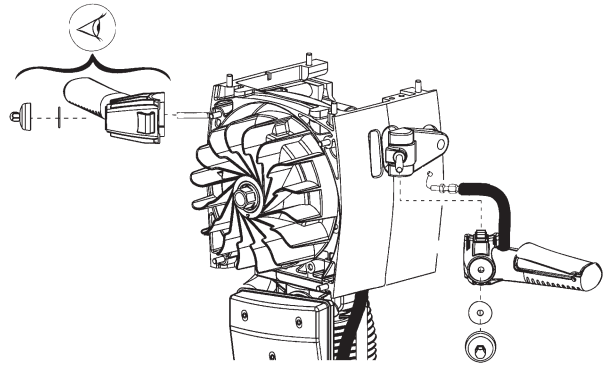


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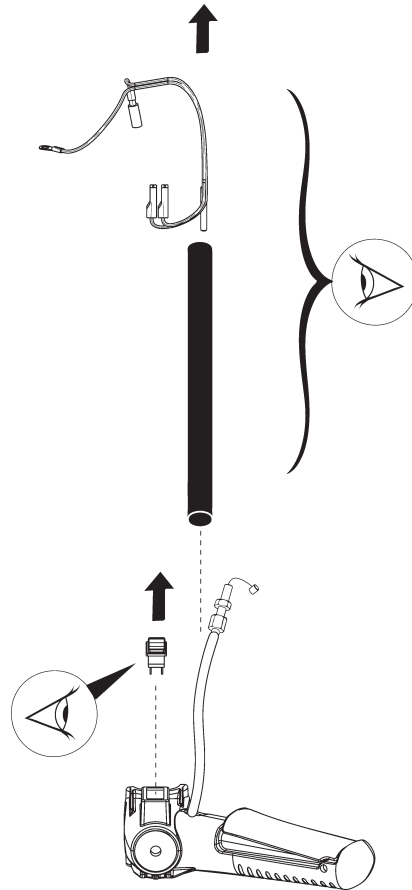


Handles and tube cover

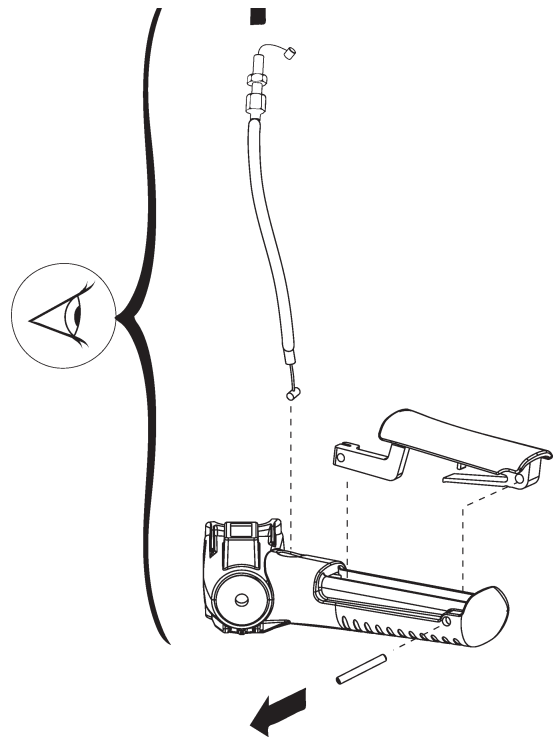
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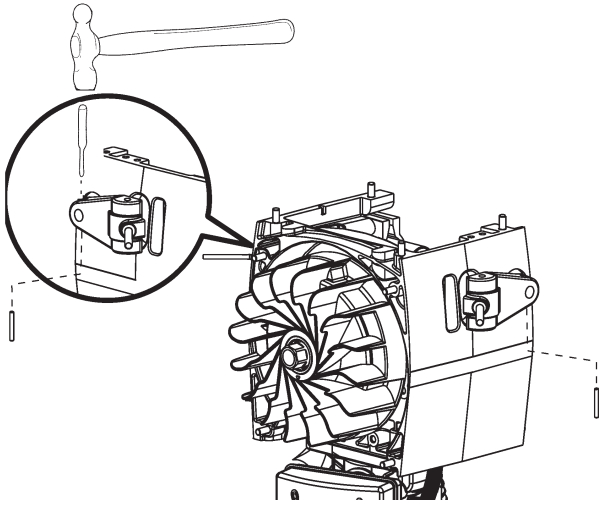
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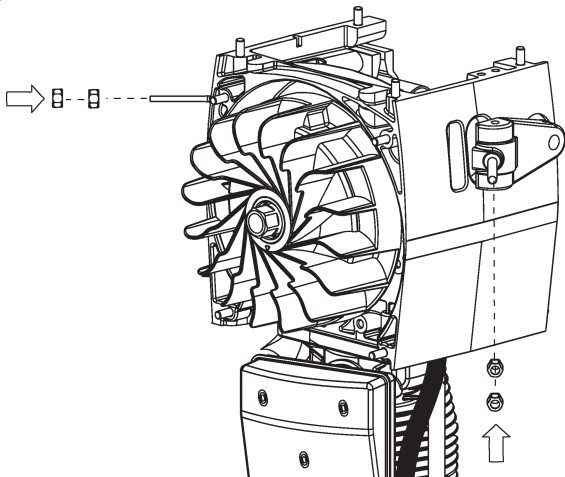
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Handle bar

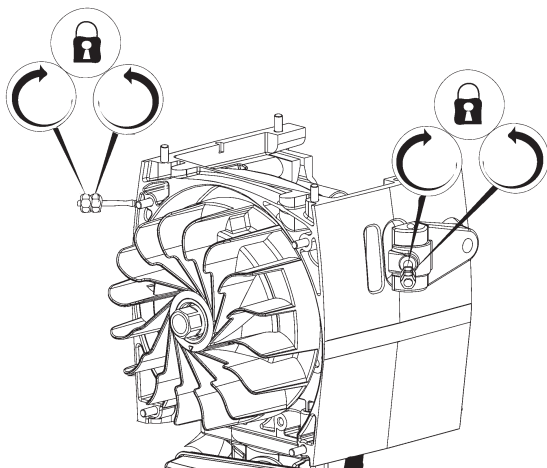
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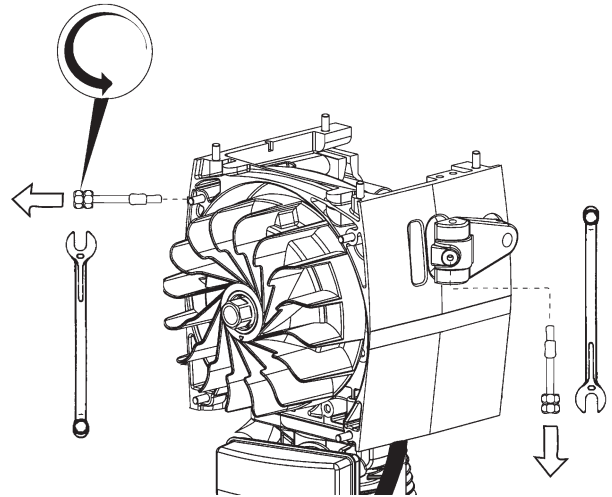
31.



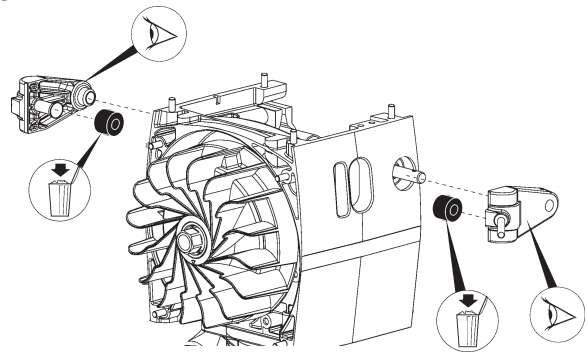
32.



33.

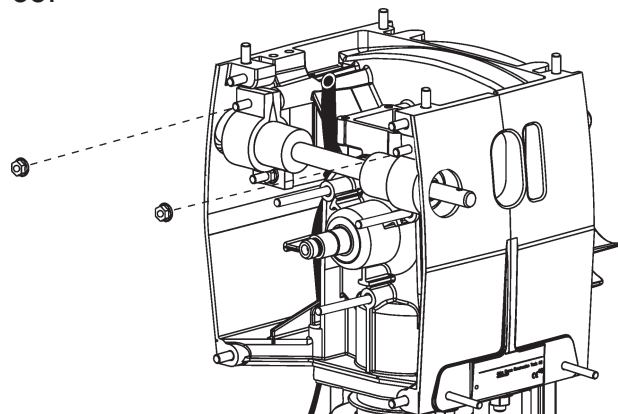


34.



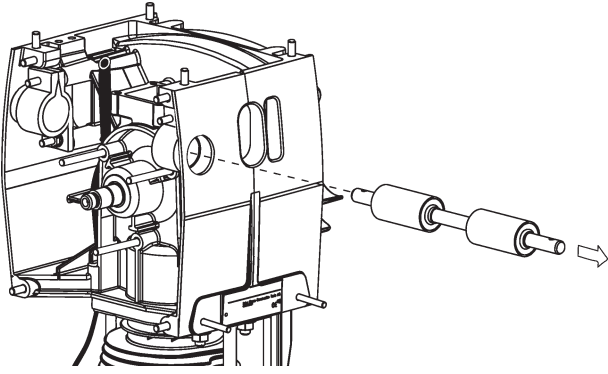
Handle springs

35.

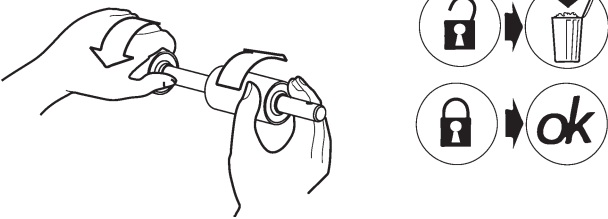


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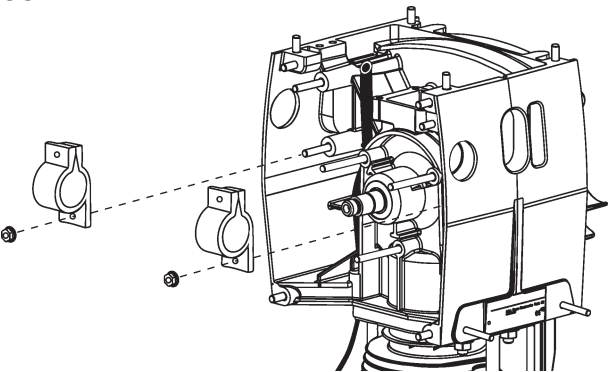
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37.

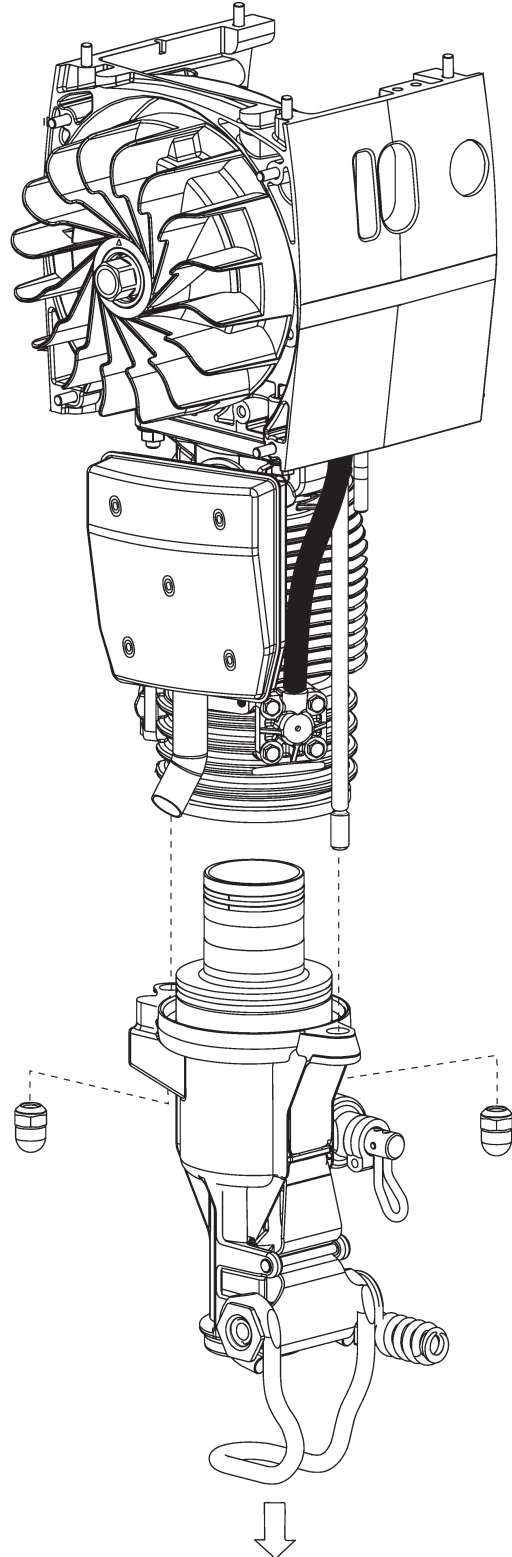


38.

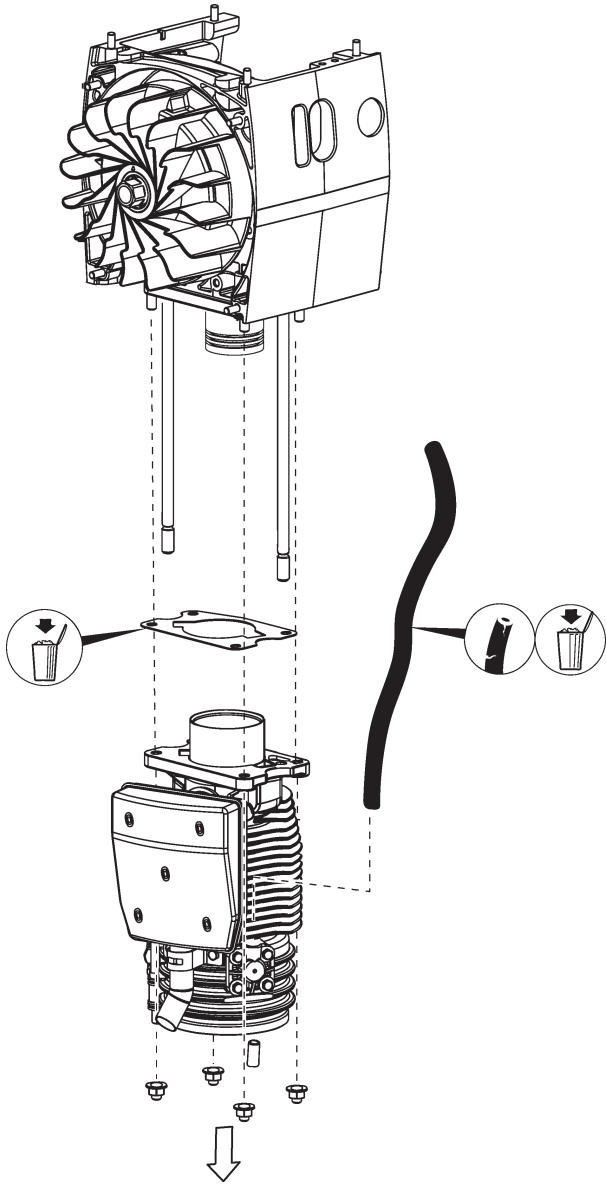


Drill housing, complete

39.

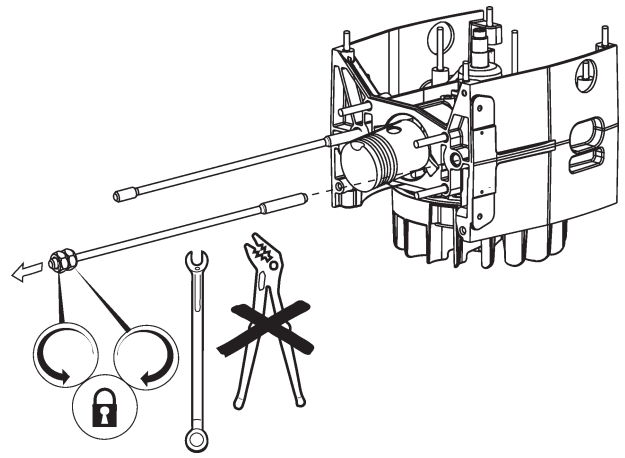


40.

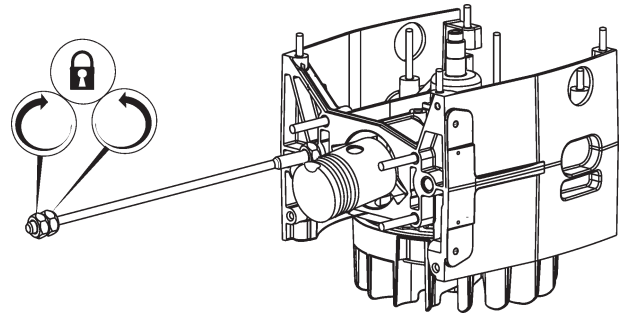


Draw bolt

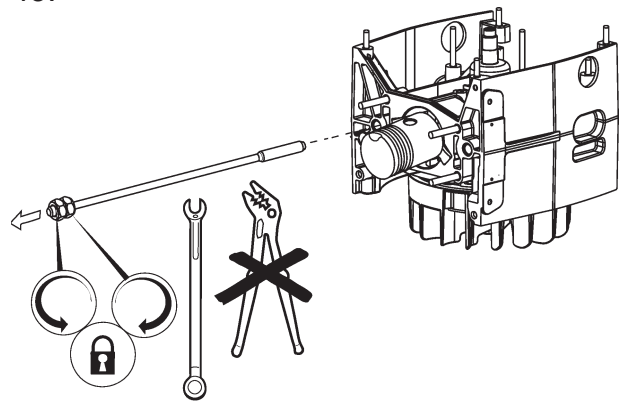
41.



42.

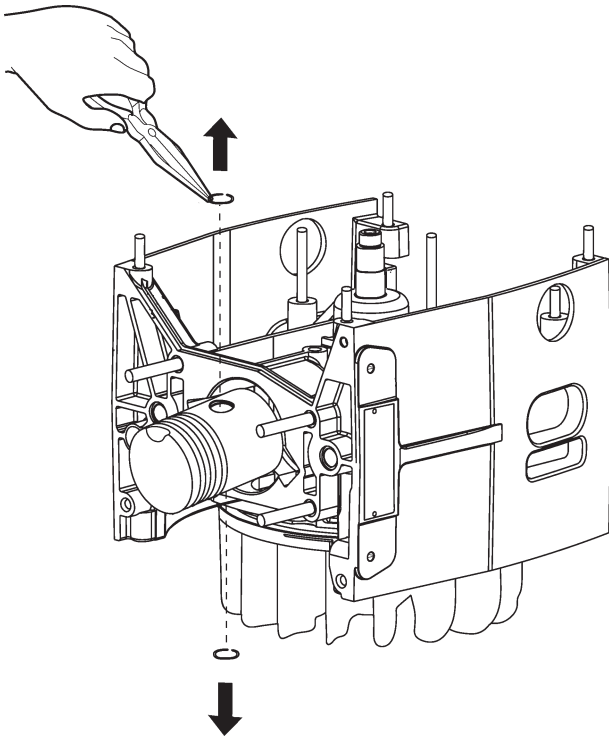


43.

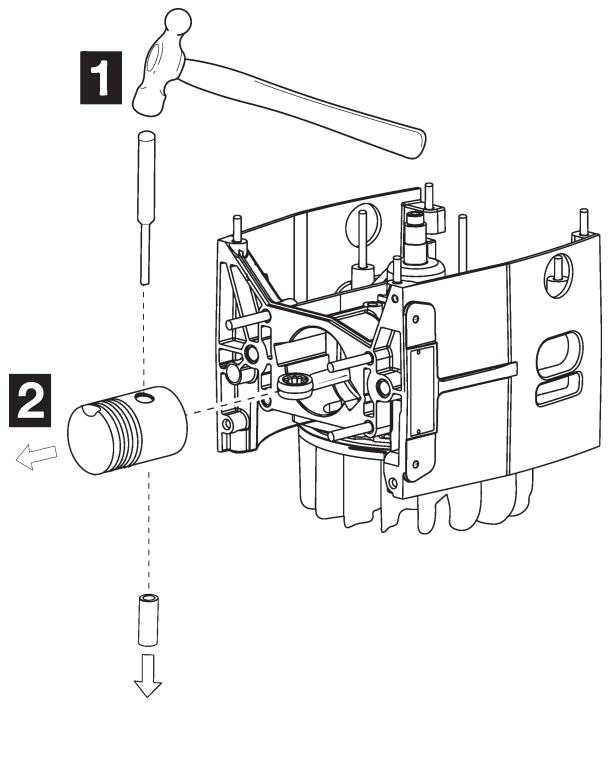


Engine piston

44.



45.

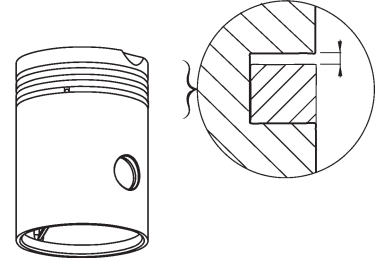
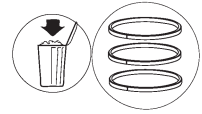


46.



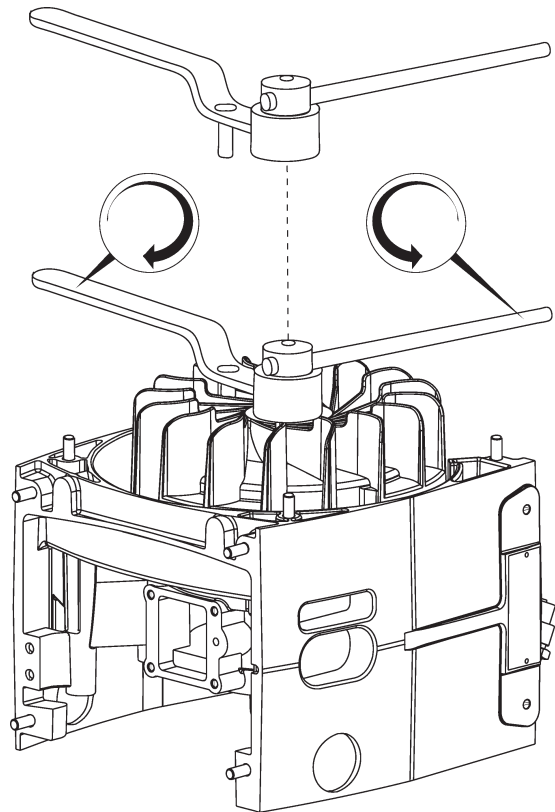
0.05–0.15 mm **ok**

0.20 mm

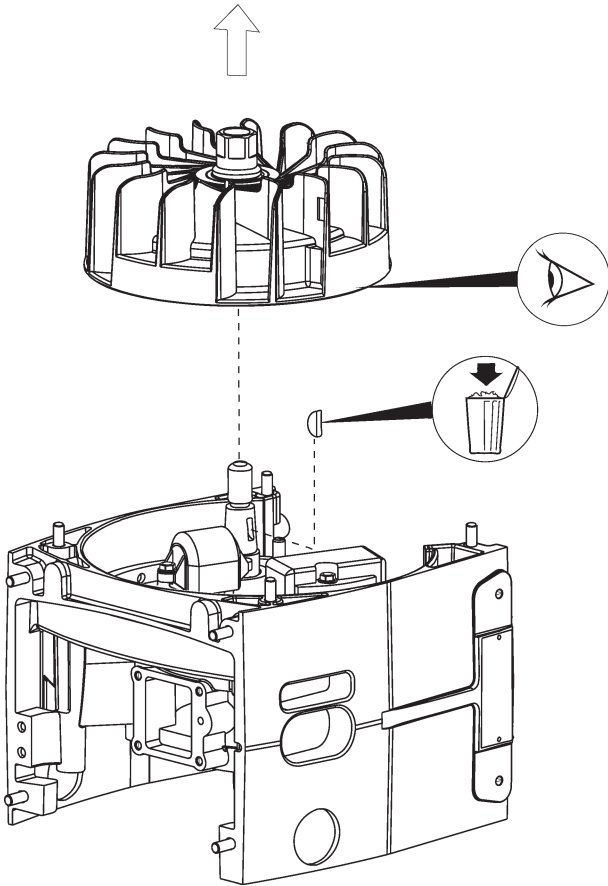


Flywheel

47.

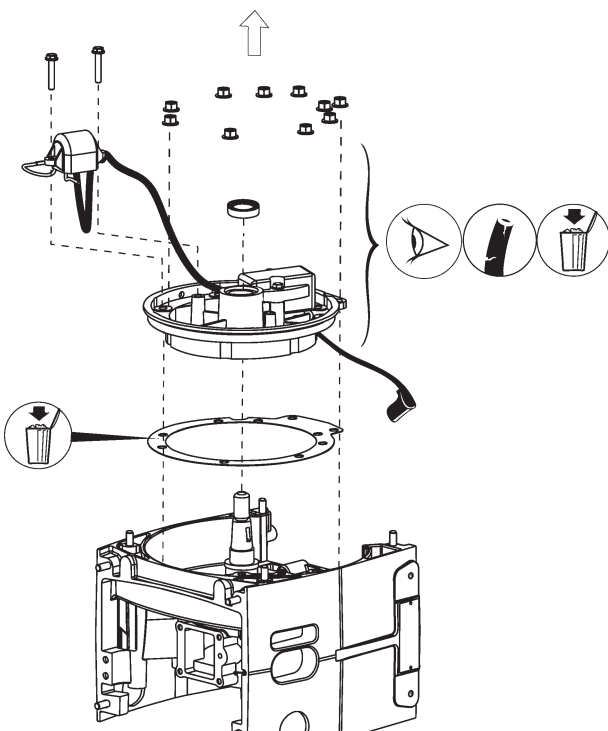


48.

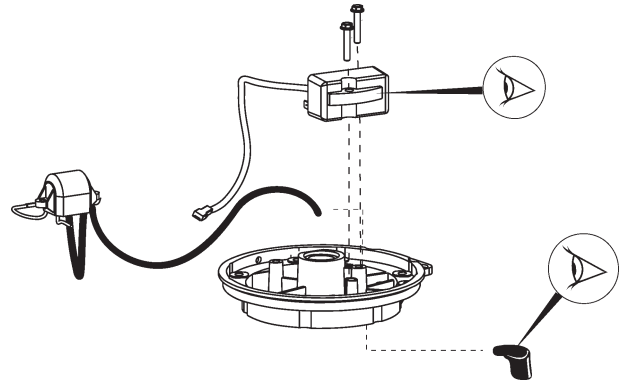


Electronic unit and induction coil

49.

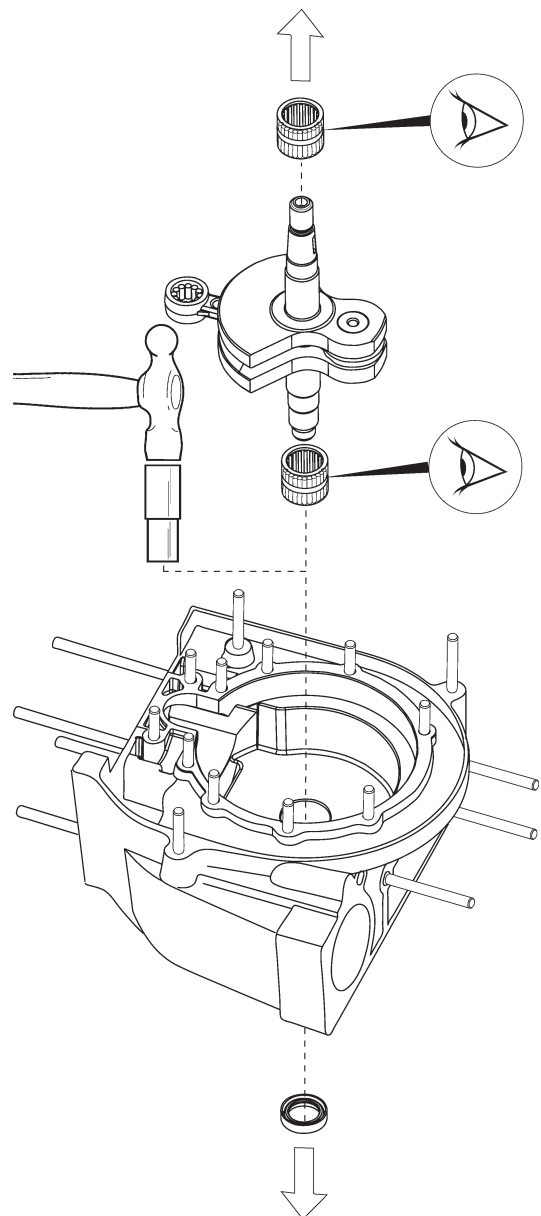


50.



Crankshaft

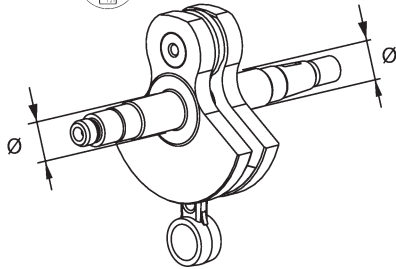
51.



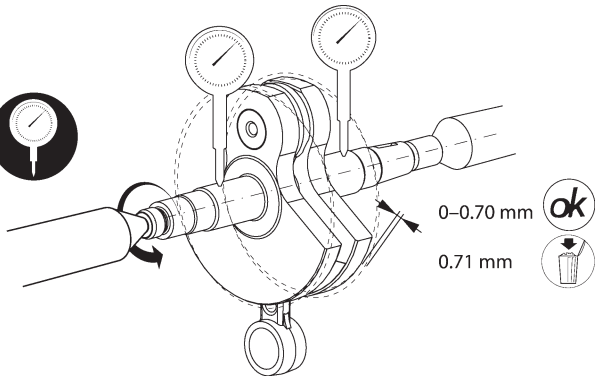
52.



Ø 21.92 mm **ok**
 Ø 21.91 mm



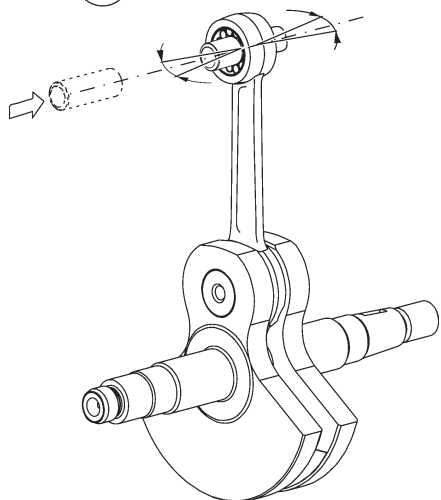
53.



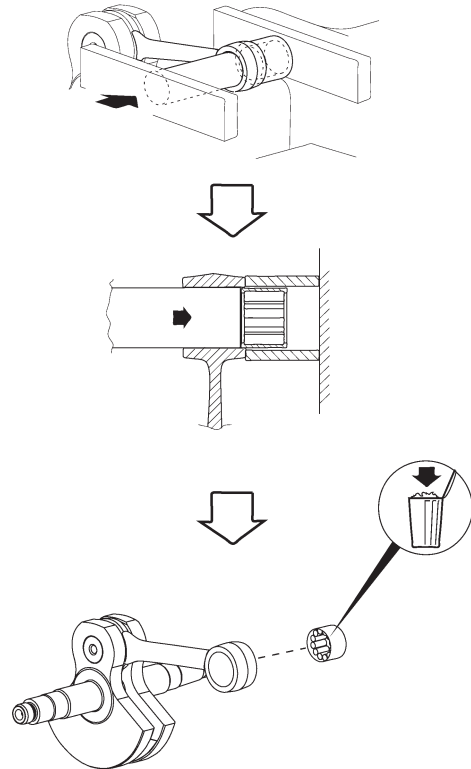
54.



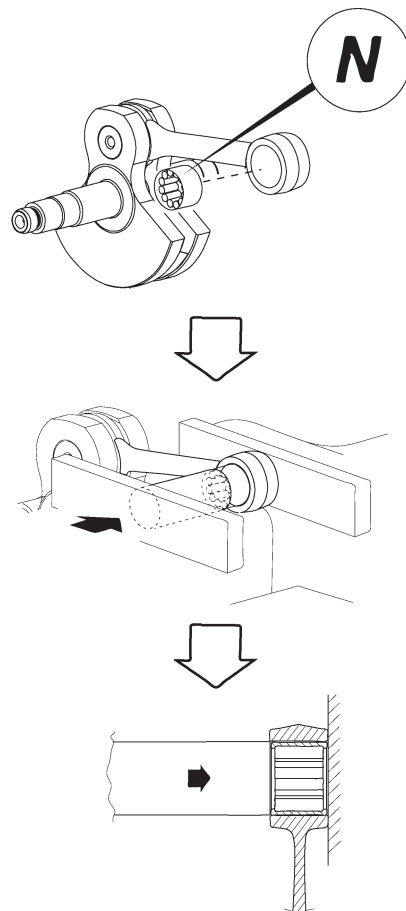
0-0.70 mm **ok**
 0.70 mm **55**



55.



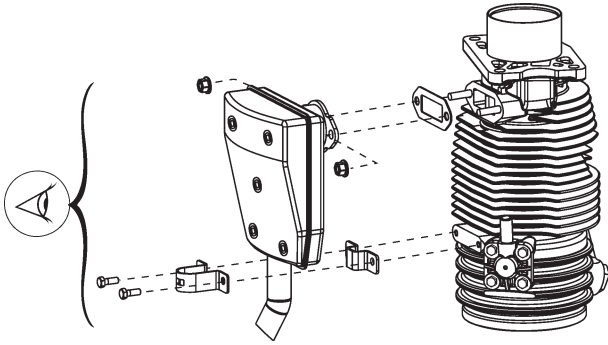
56.



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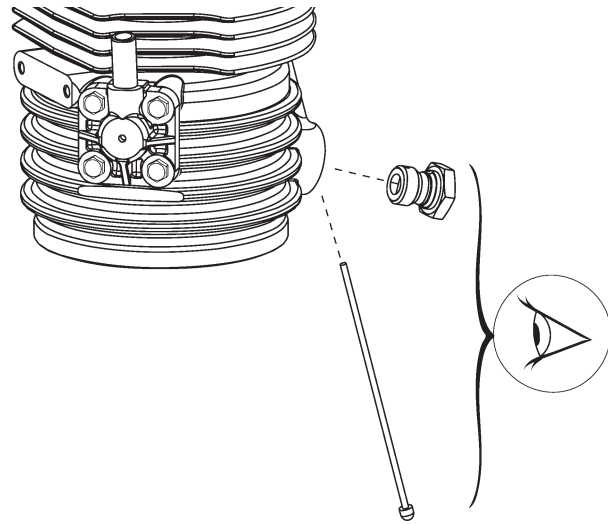
Muffler

57.

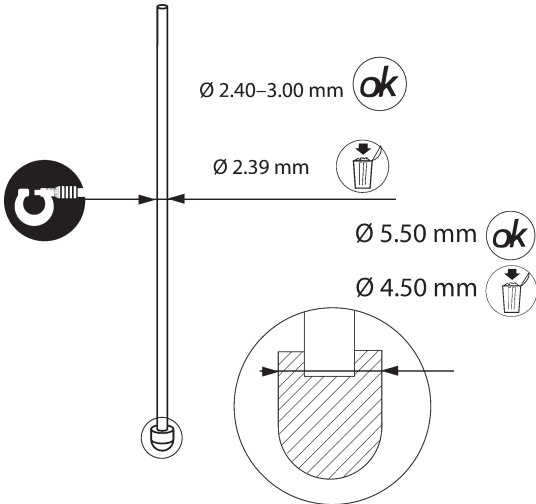


Cylinder, complete

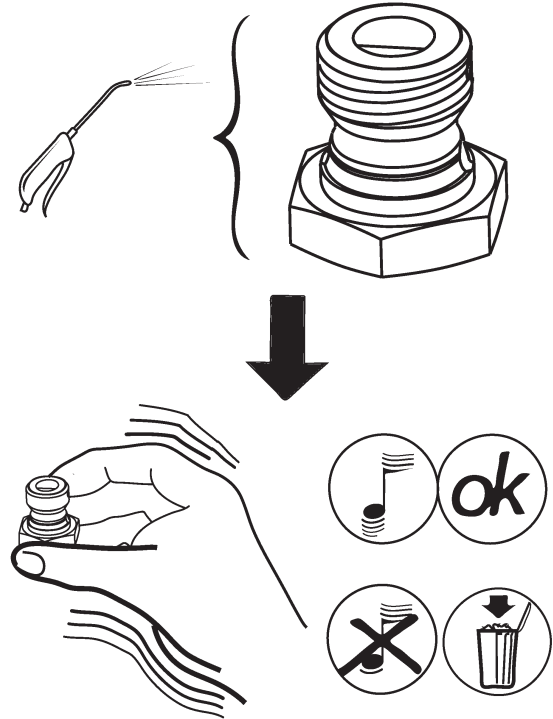
58.



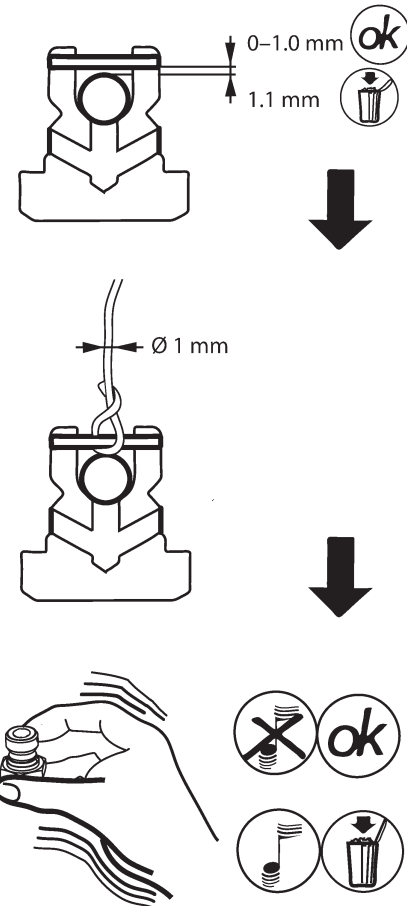
59.



60.

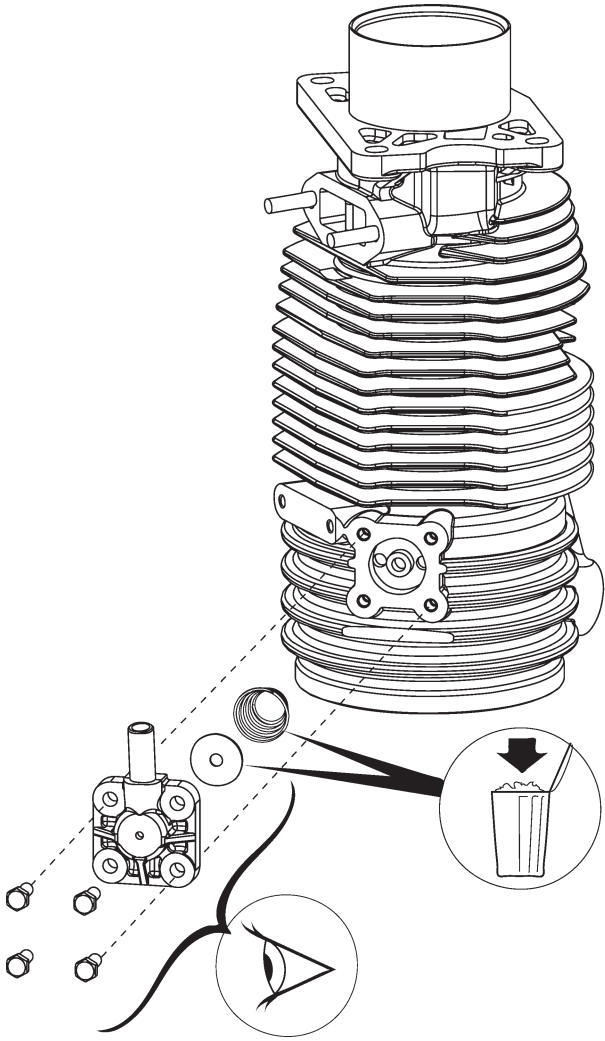


61.

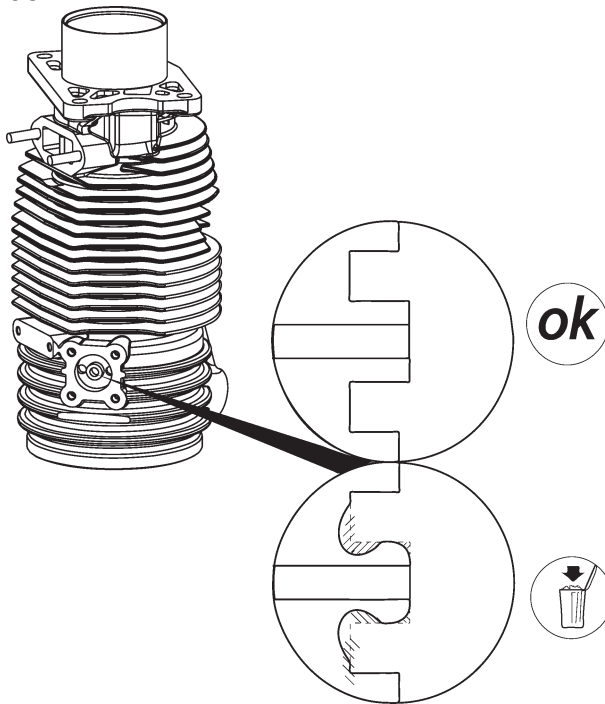


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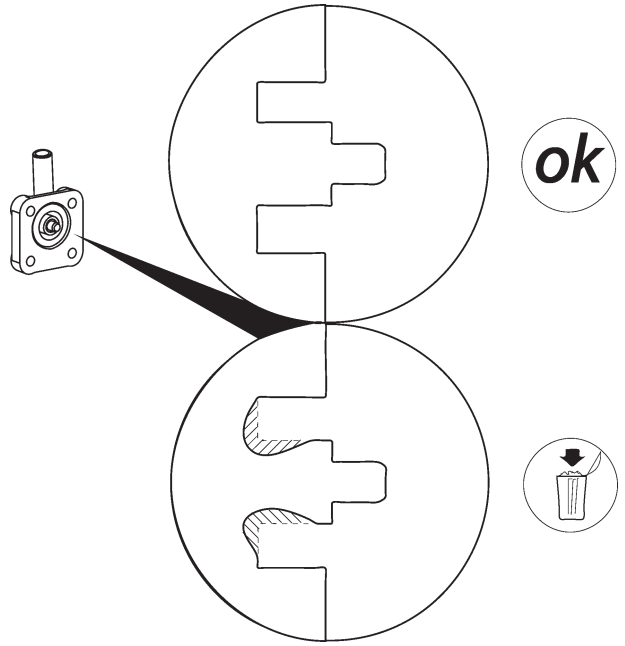
62.



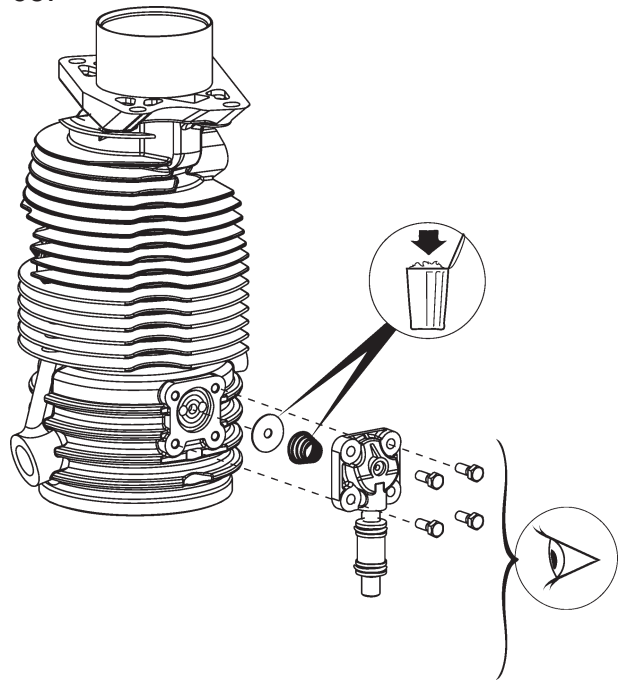
63.



64.

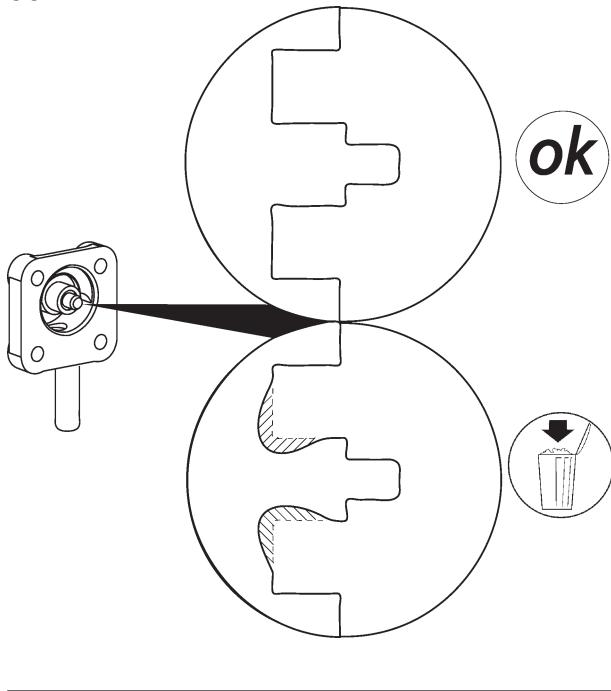


65.

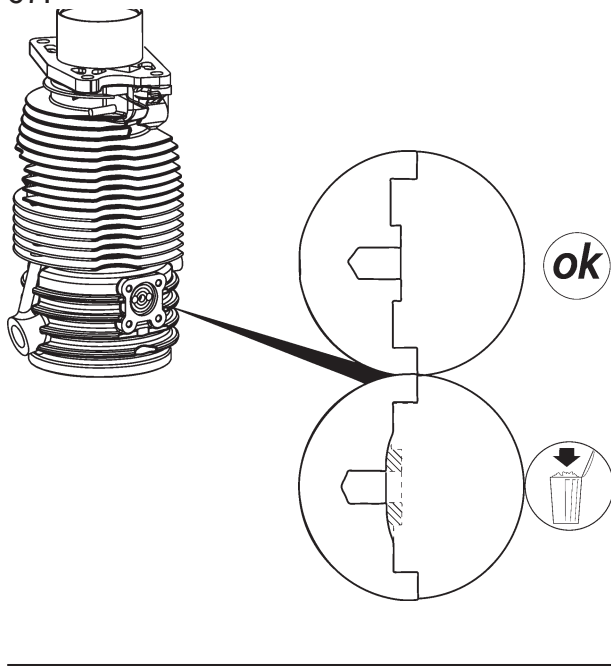


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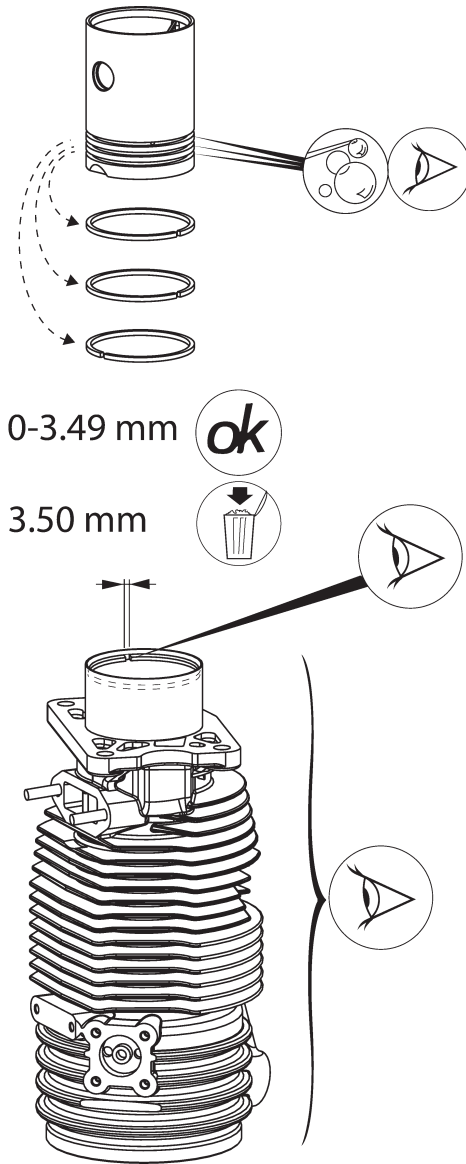
66.



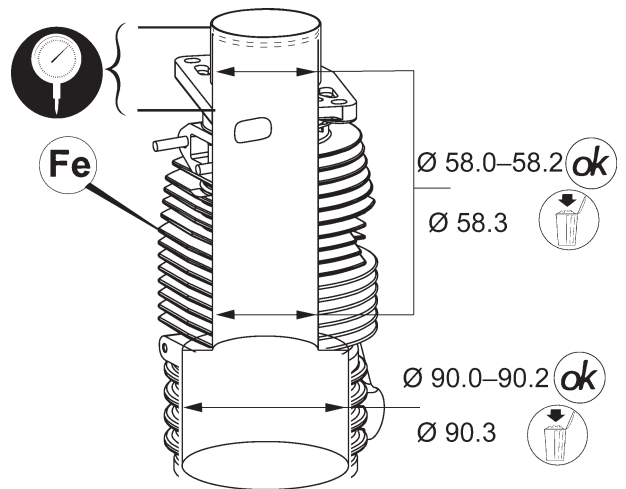
67.



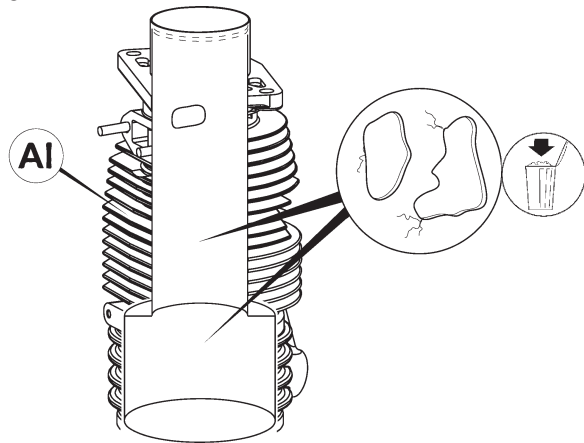
68.



69.

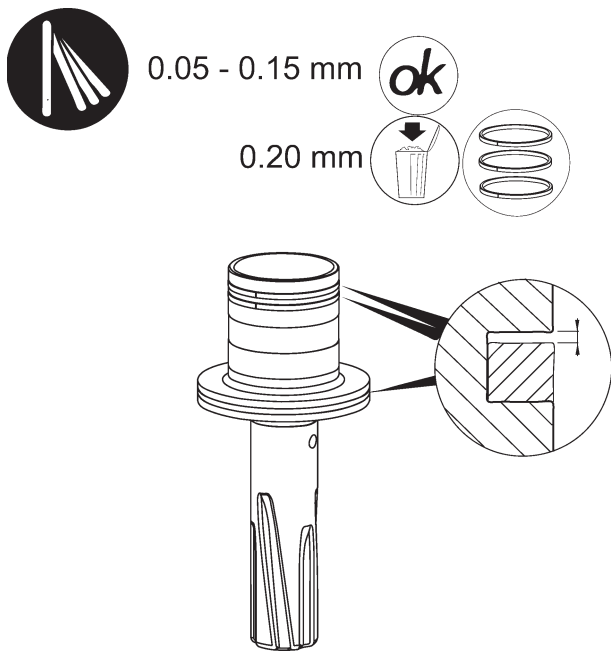


70.

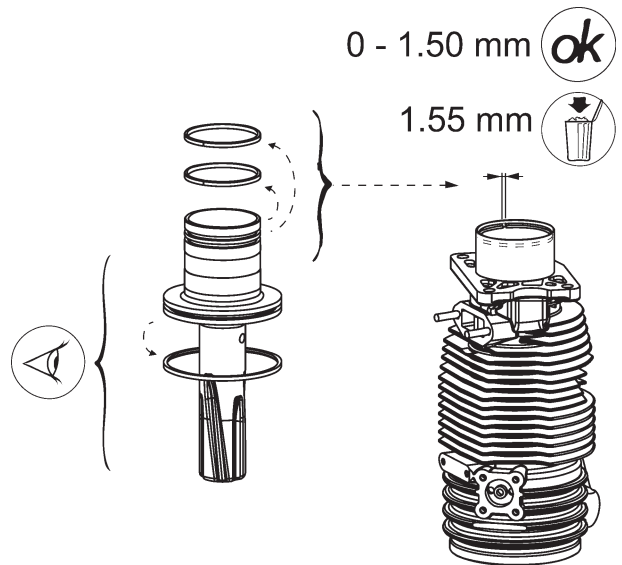


Hammer piston

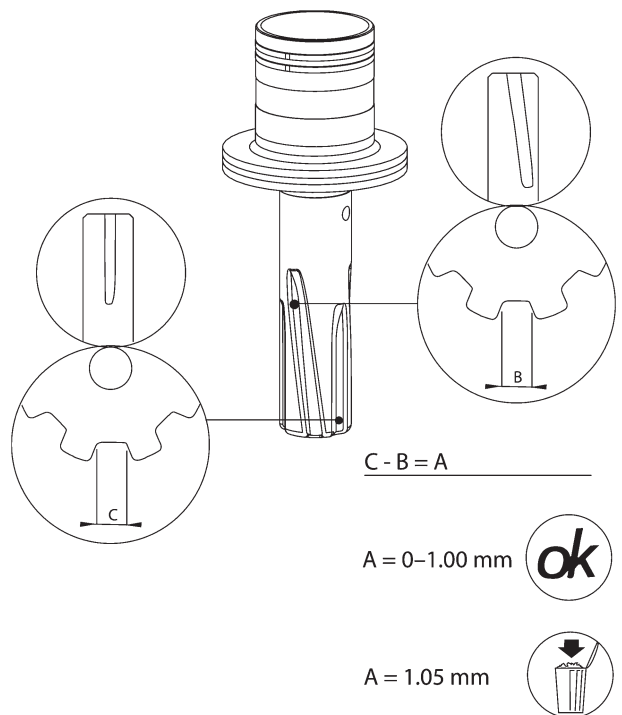
71.



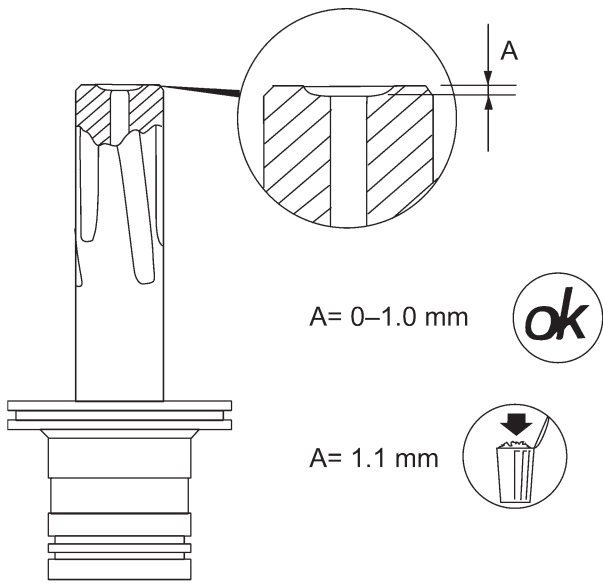
72.



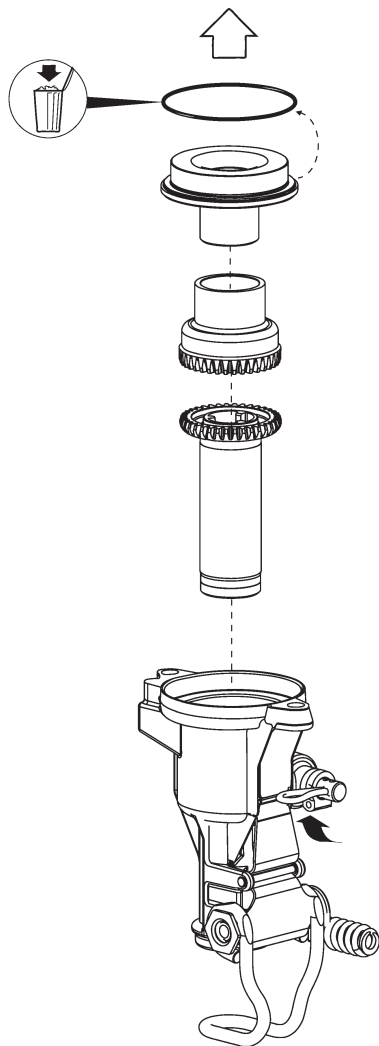
73.



74.

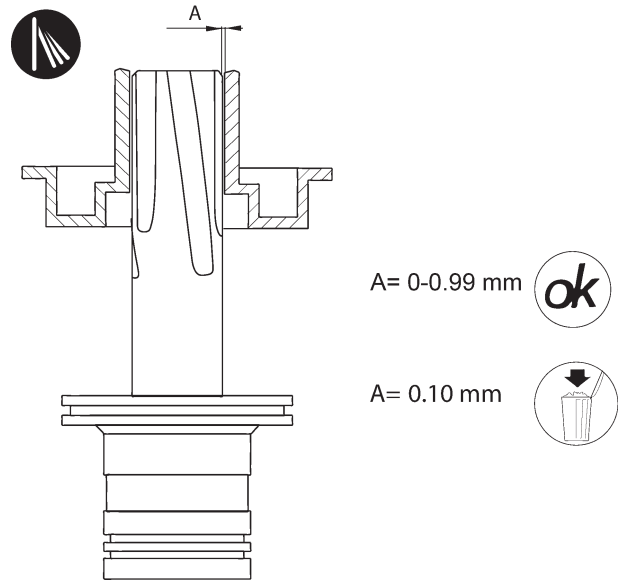


75.

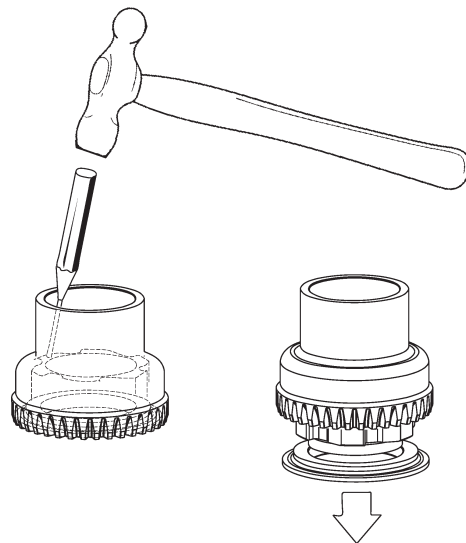


Piston guide

76.

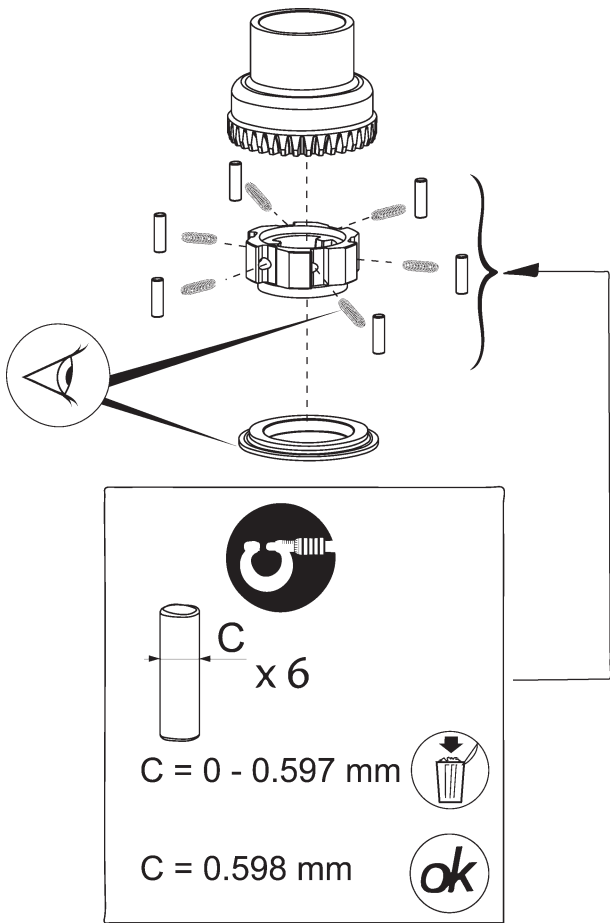


77.

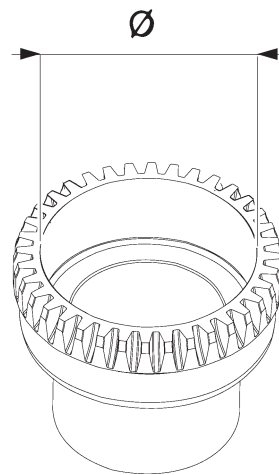


Ratchet housing

78.



79.



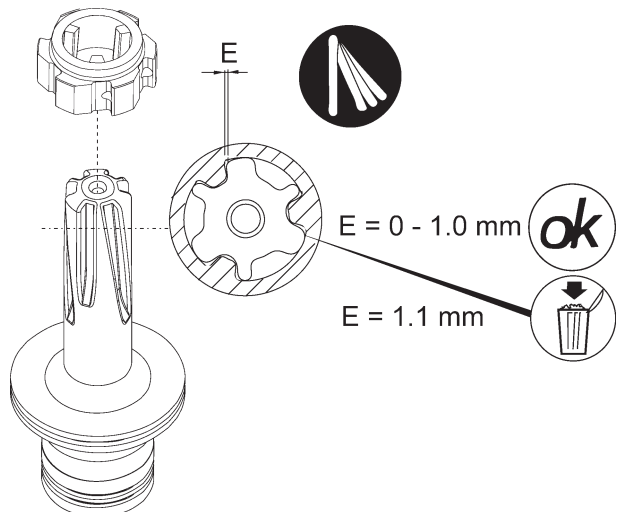
Ø = 0 - 62.07 mm



Ø = 62.08 mm



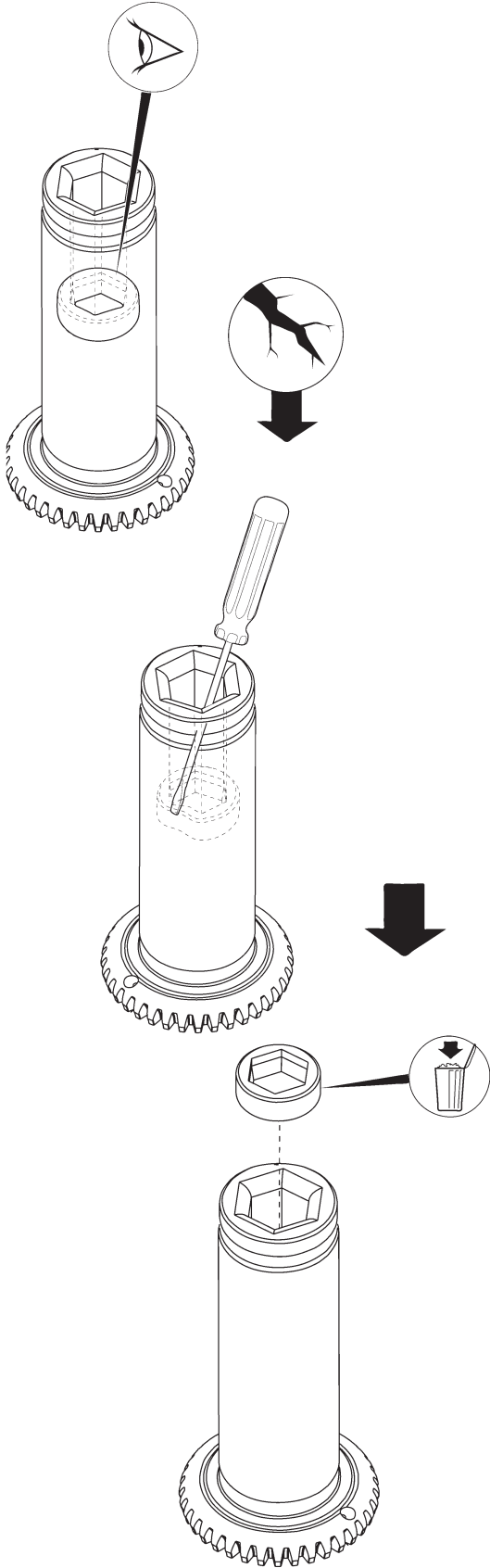
80.



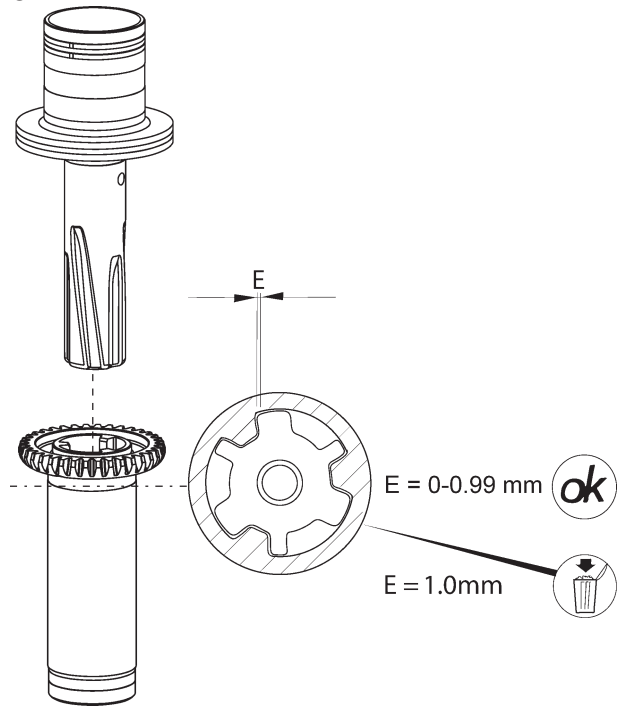
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Drill chuck

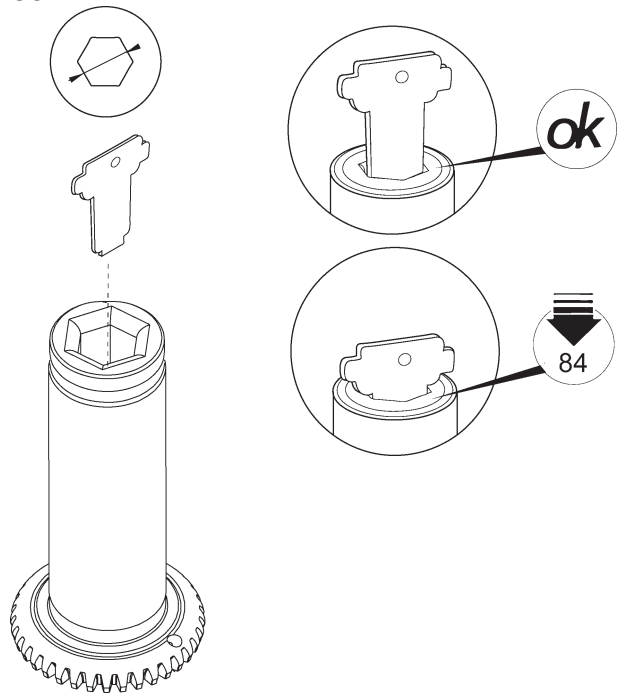
81.



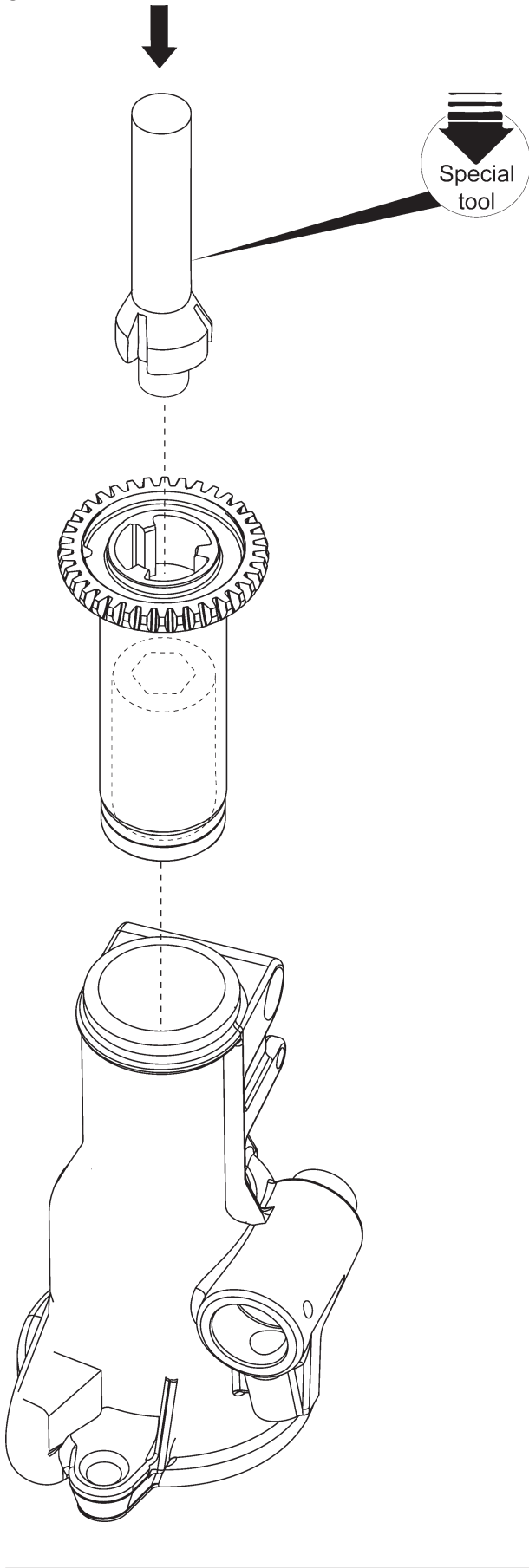
82.



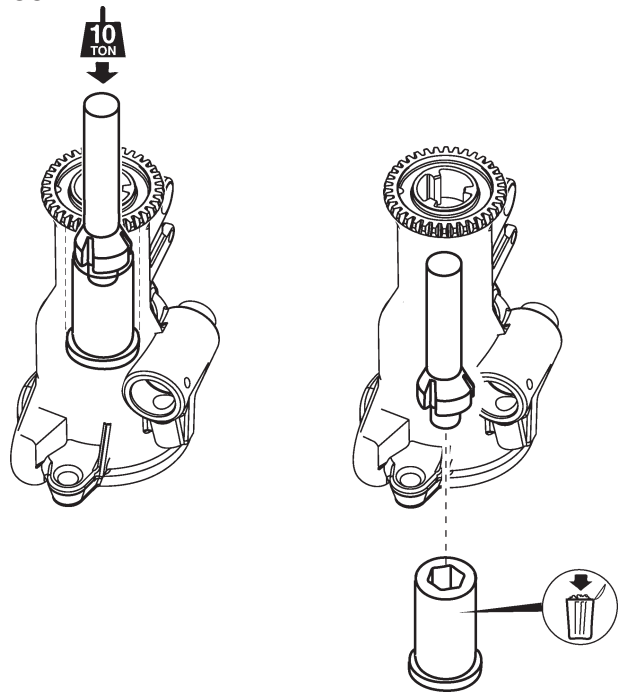
83.



84.

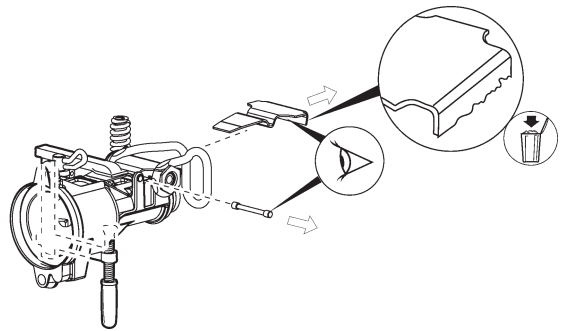


85.

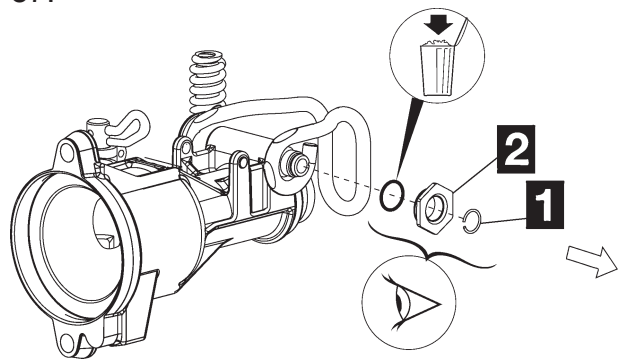


Drill housing

86.

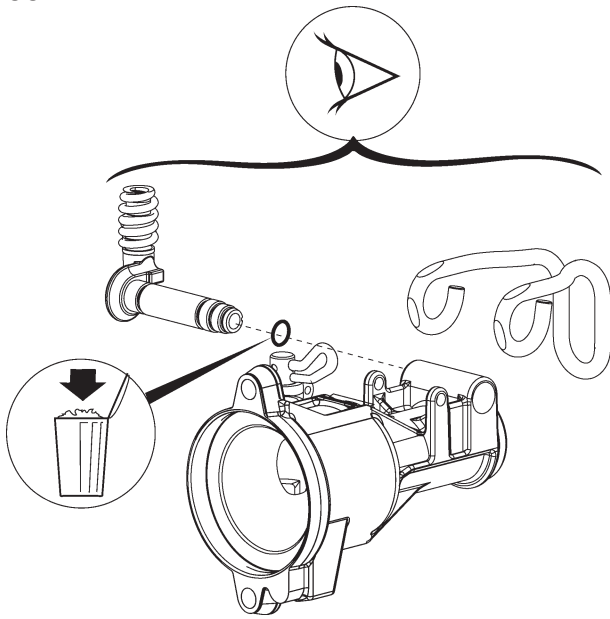


87.

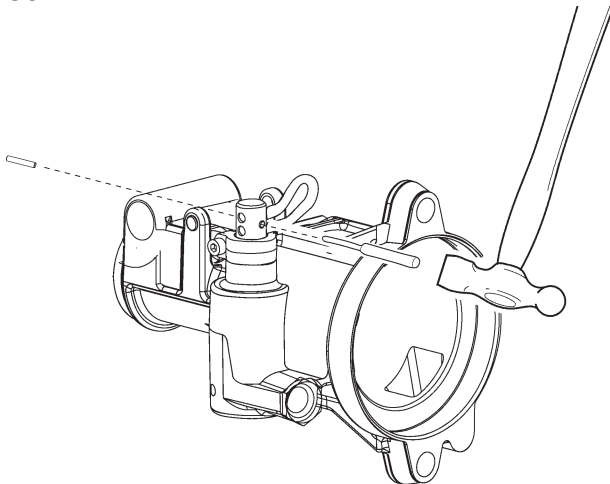


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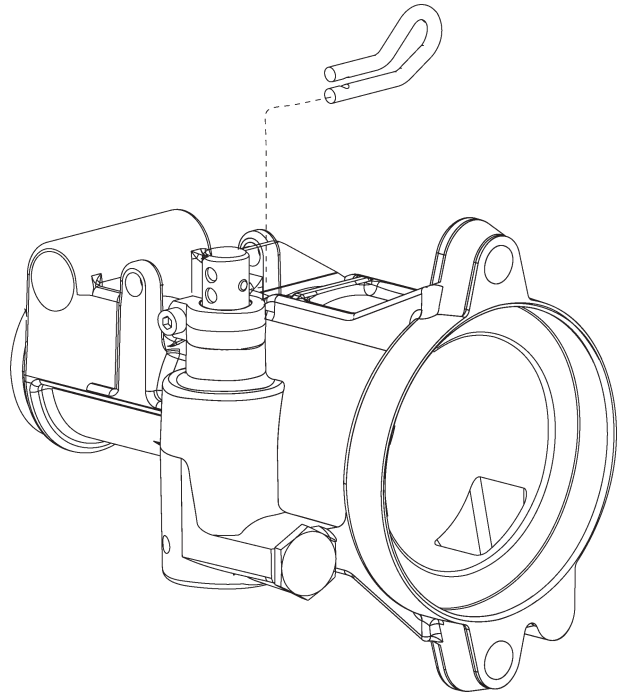
88.



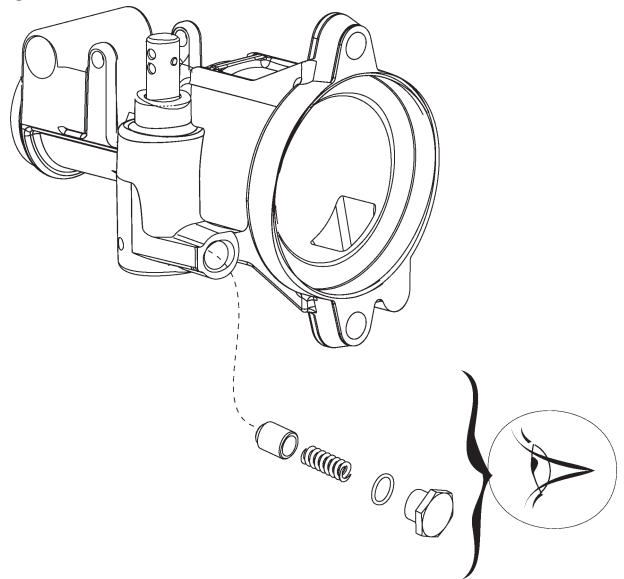
89.



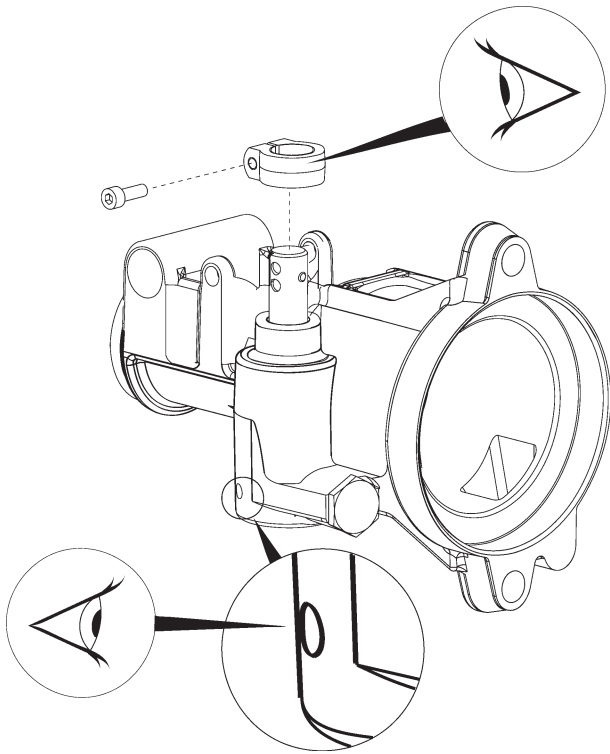
90.



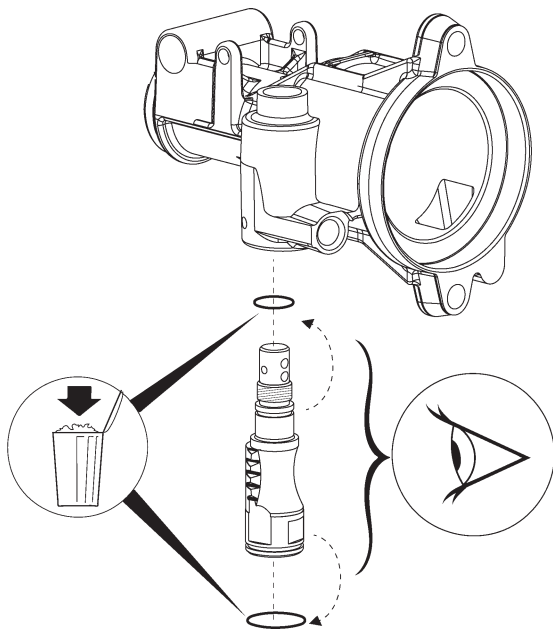
91.



92.



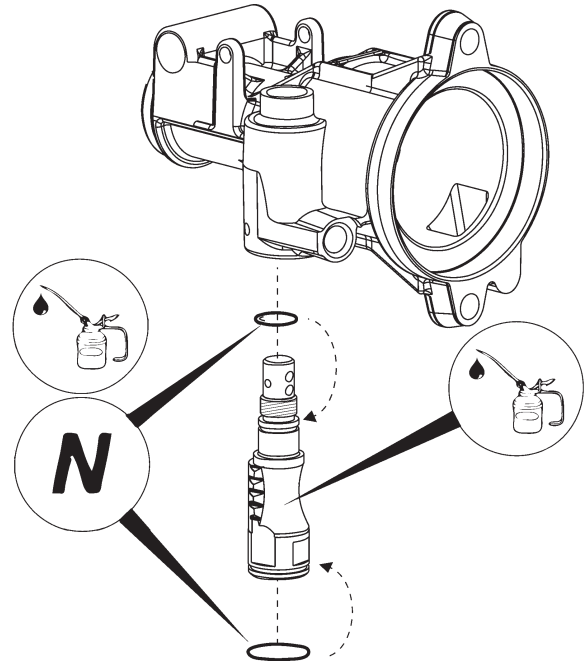
93.



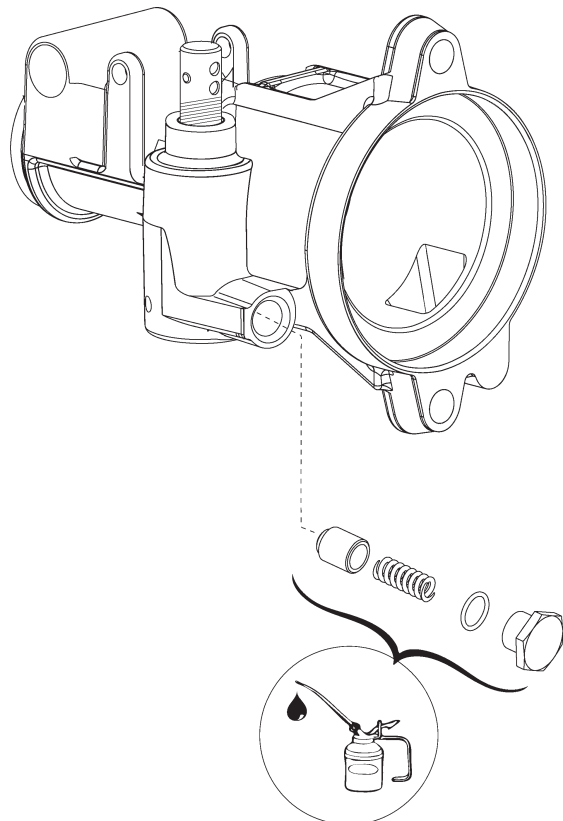
ASSEMBLY

Drill housing

94.

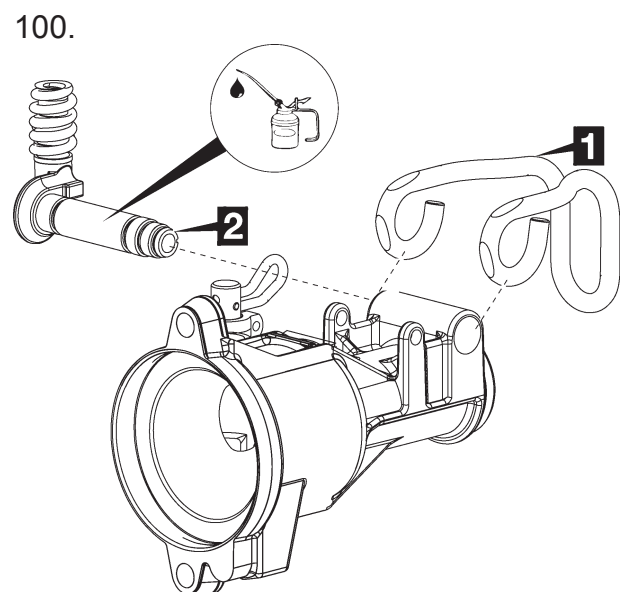
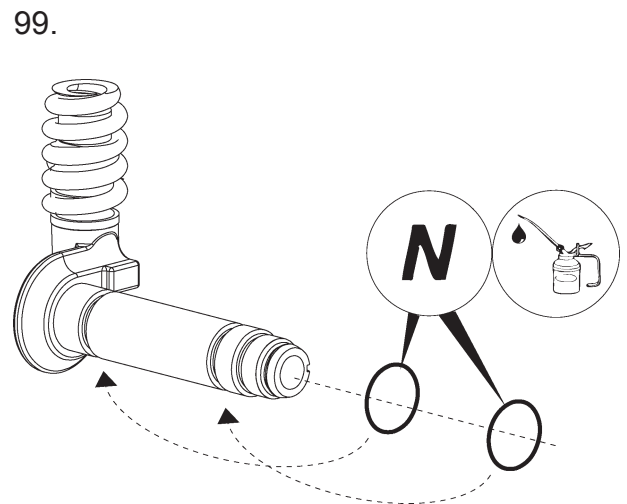
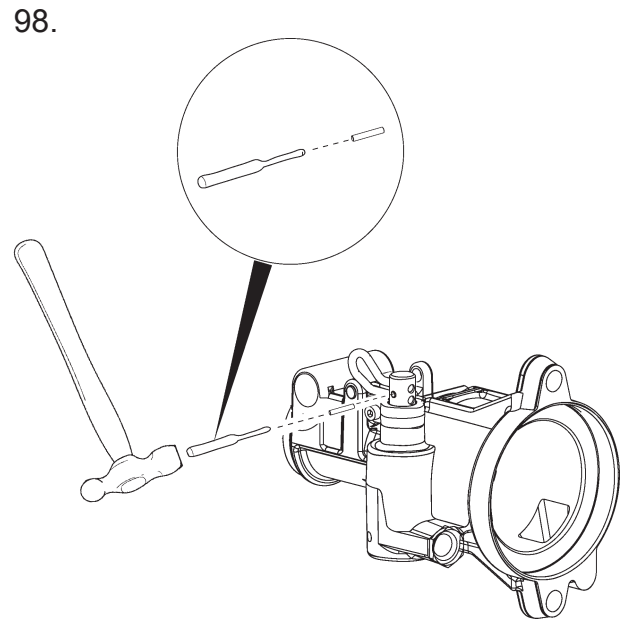
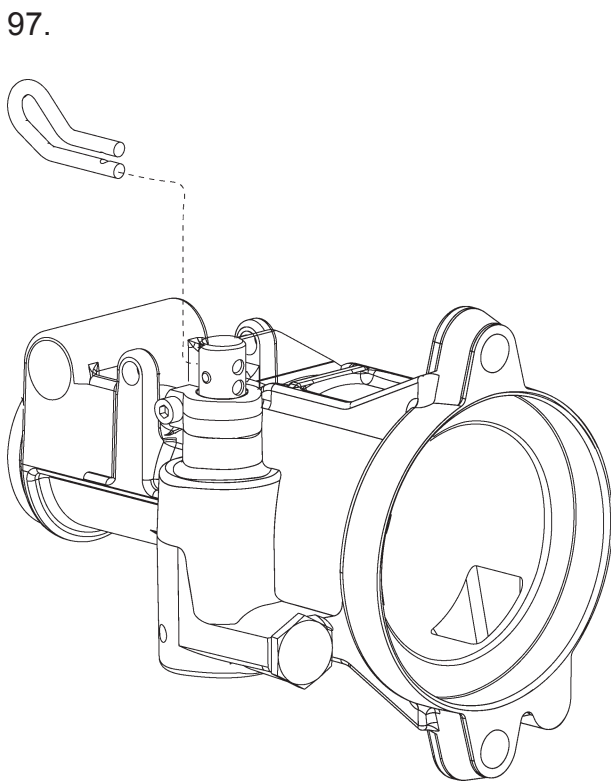
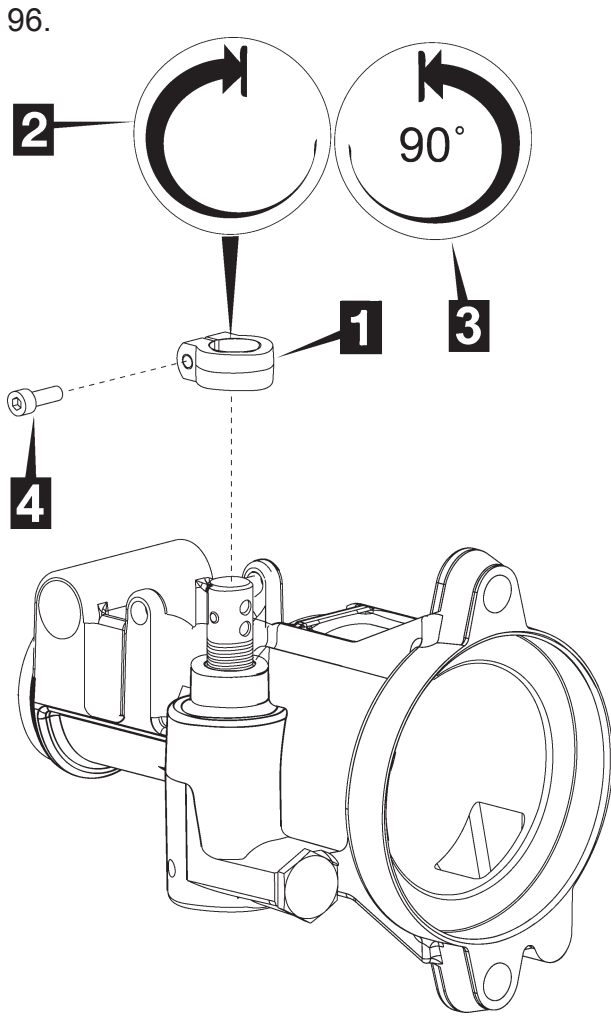


95.



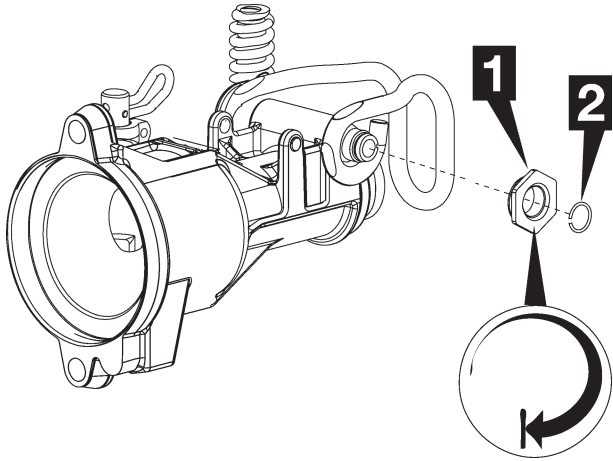
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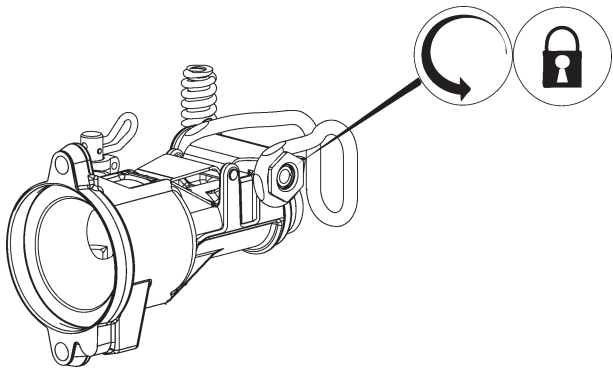


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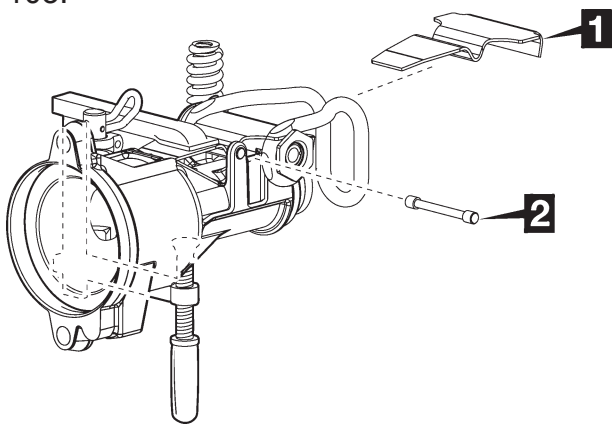
101.



102.

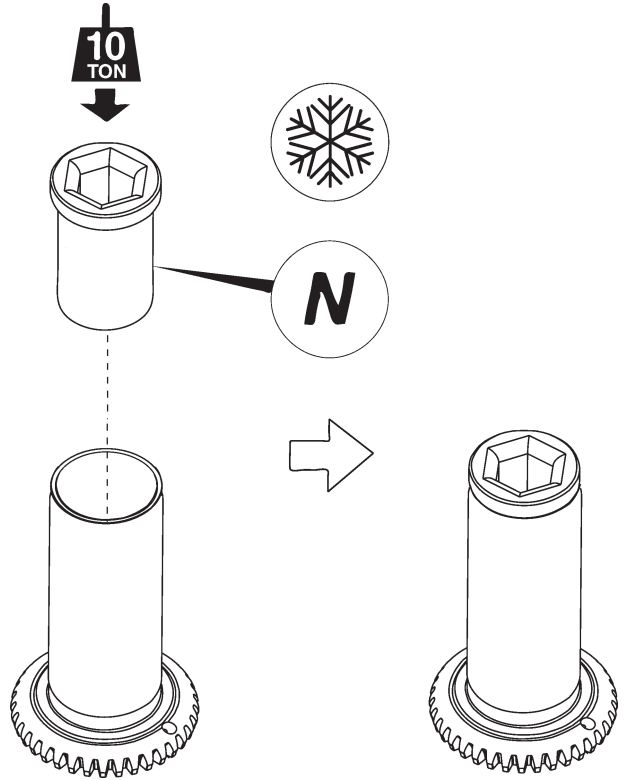


103.



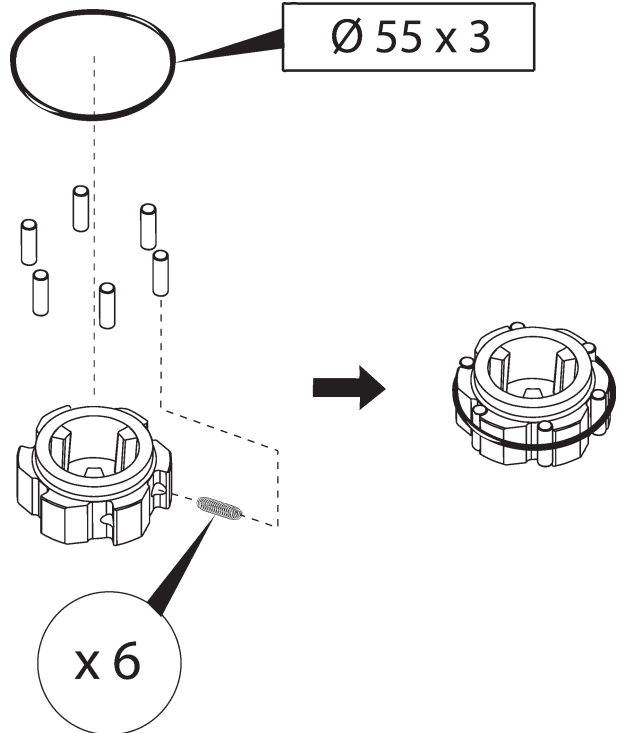
Drill chuck

104.



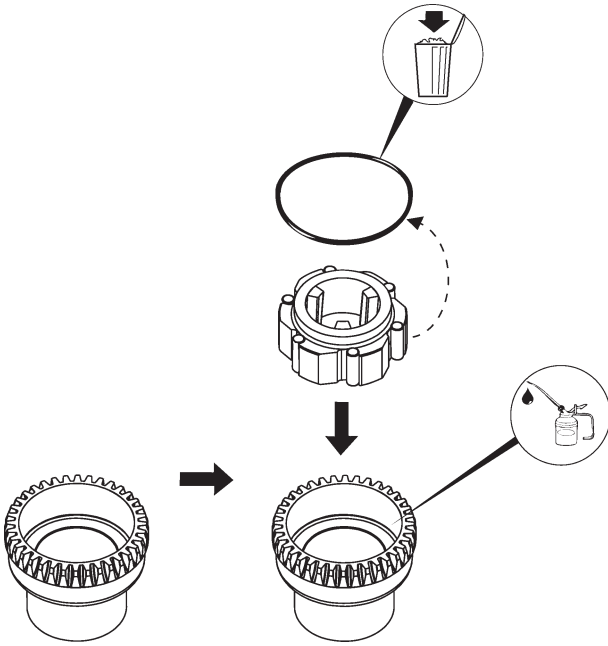
Ratchet

105.

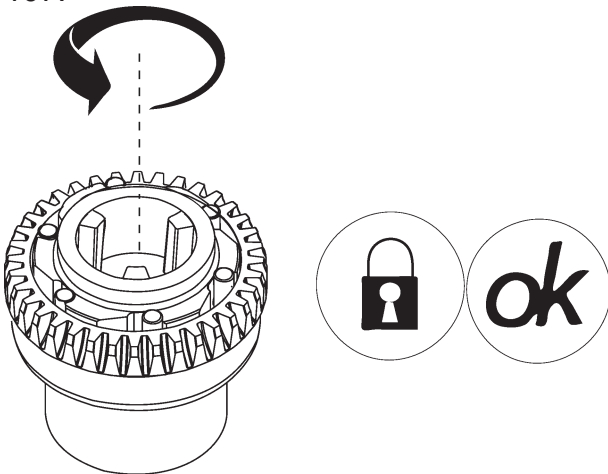


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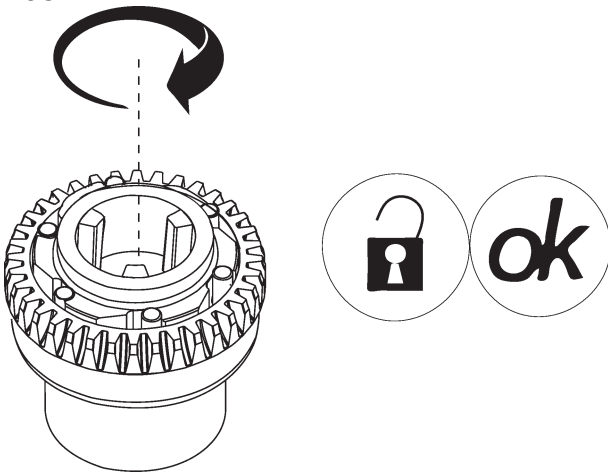
106.



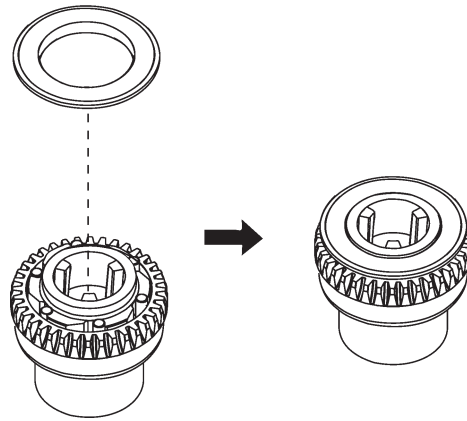
107.



108.

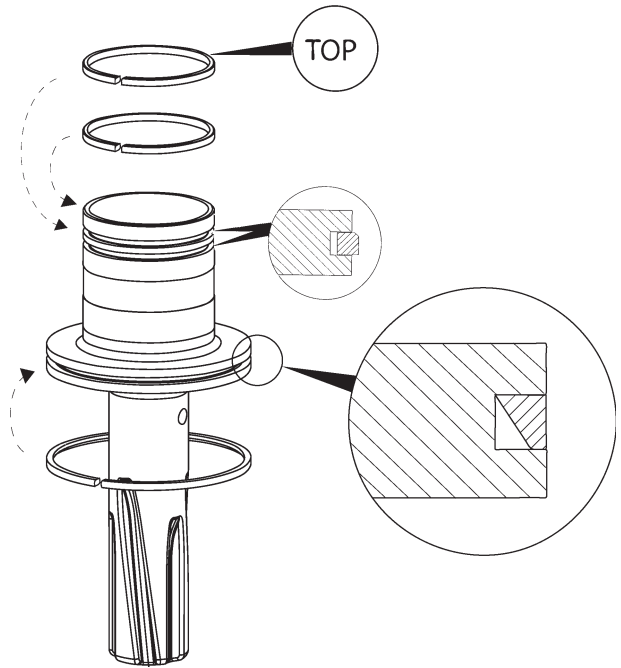


109.



Hammer piston

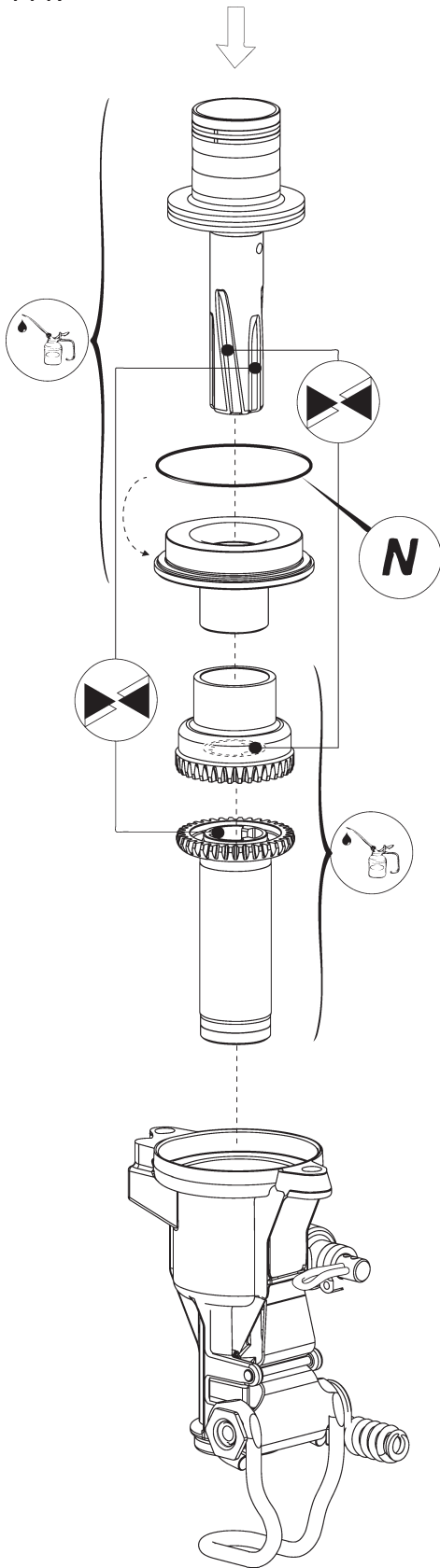
110.



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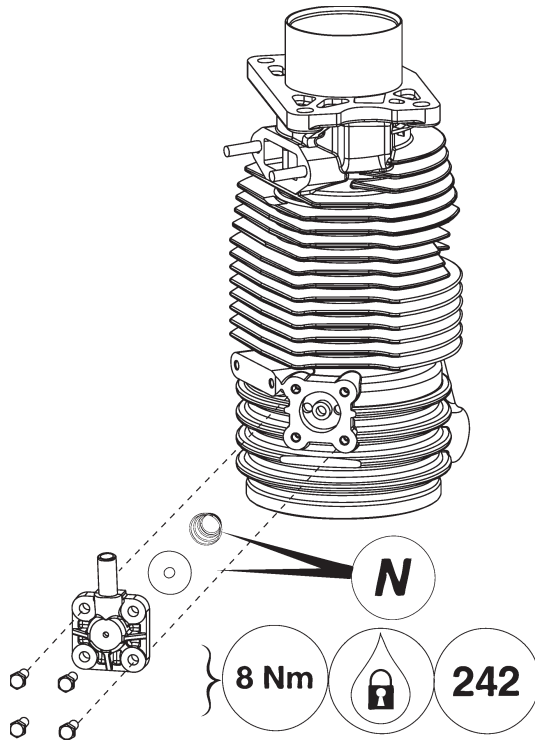
Drill function

111.

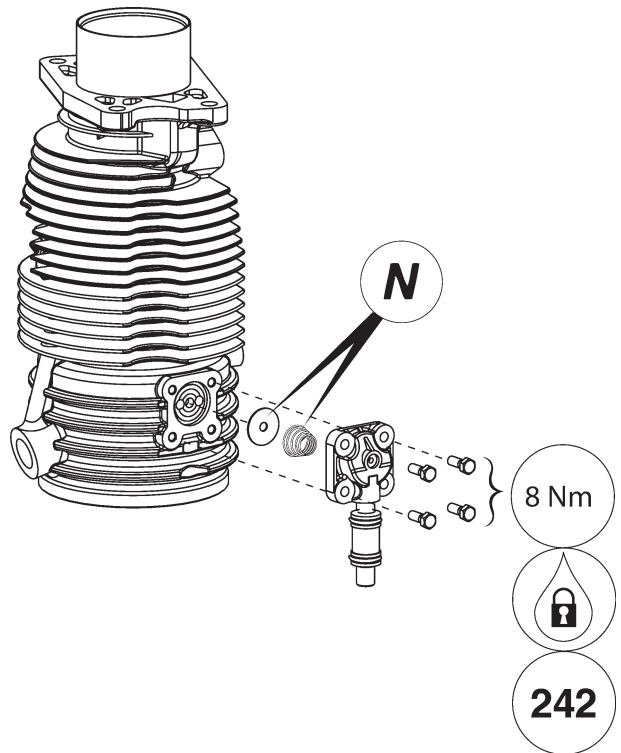


Cylinder

112.

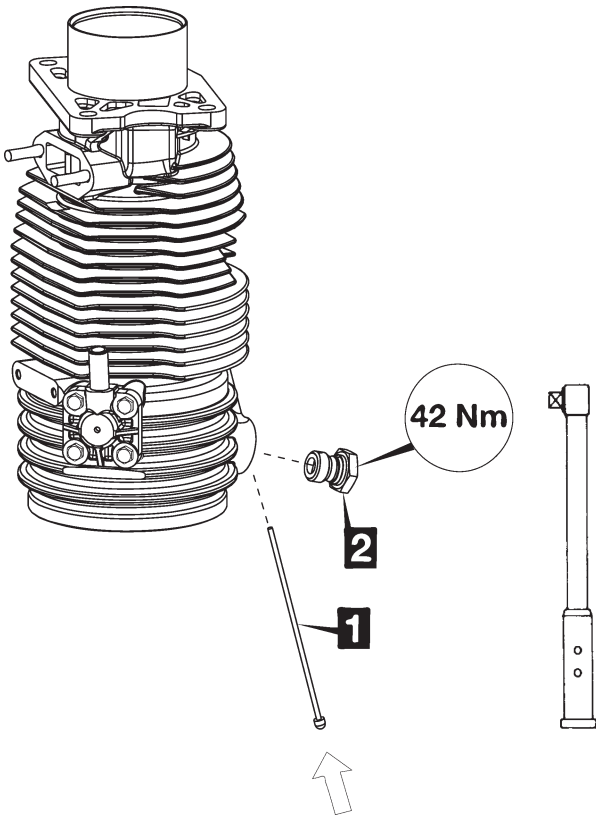


113.

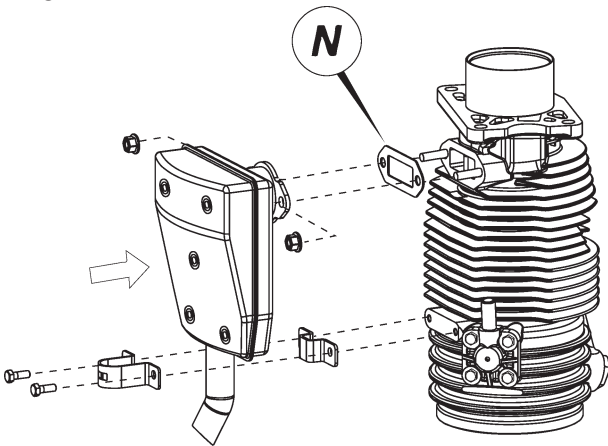


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114.

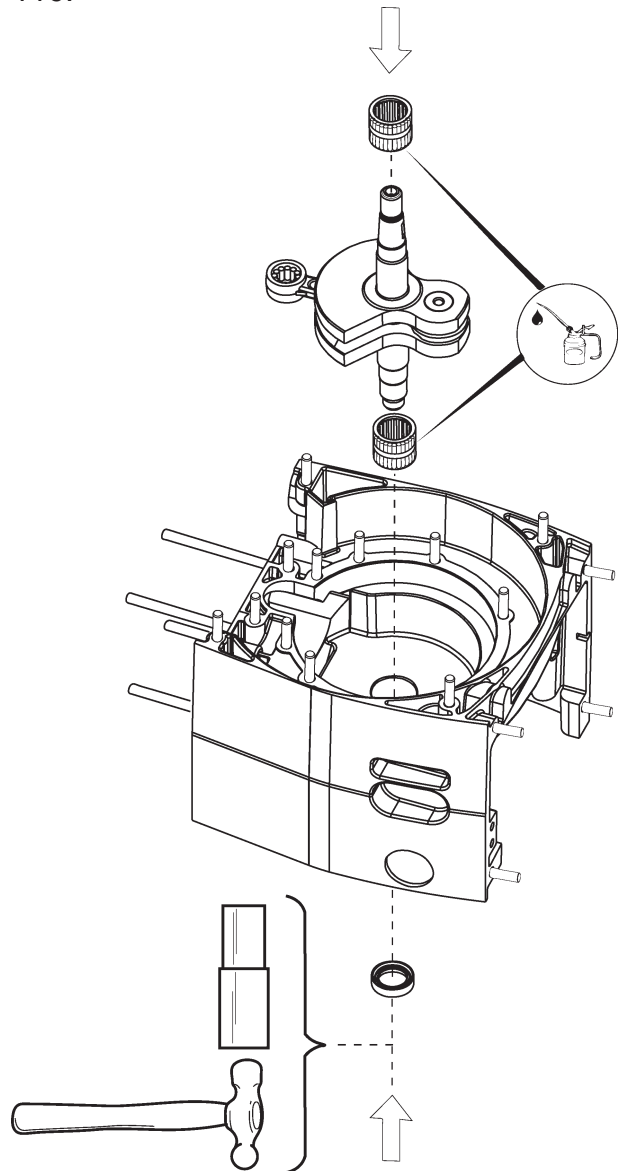


115.



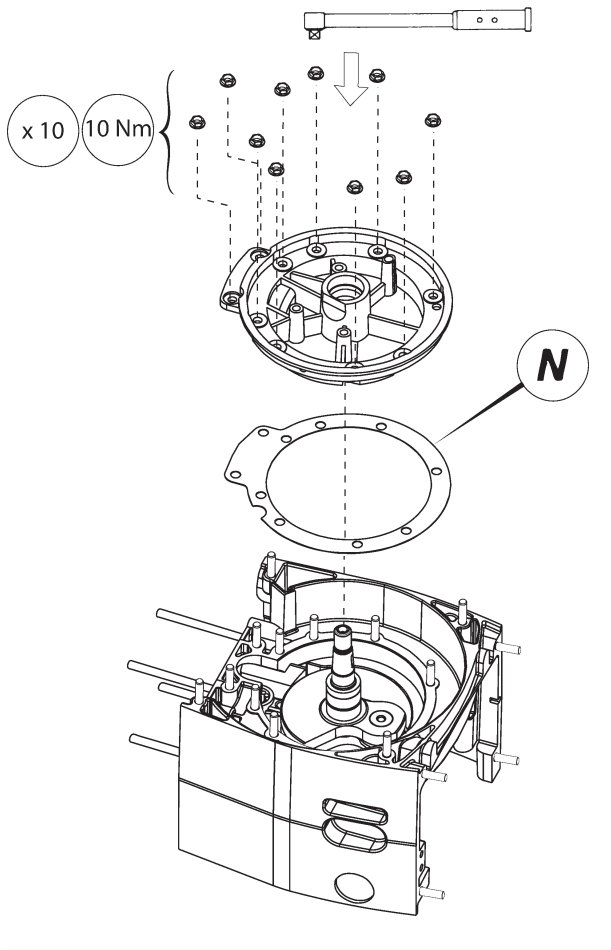
Crankcase and crankshaft

116.



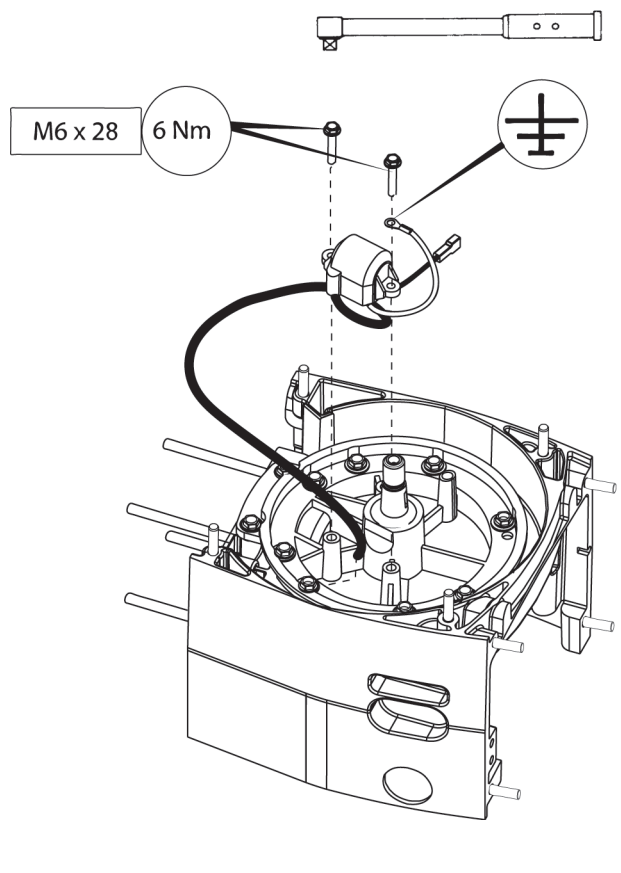
Crankcase cover

117.

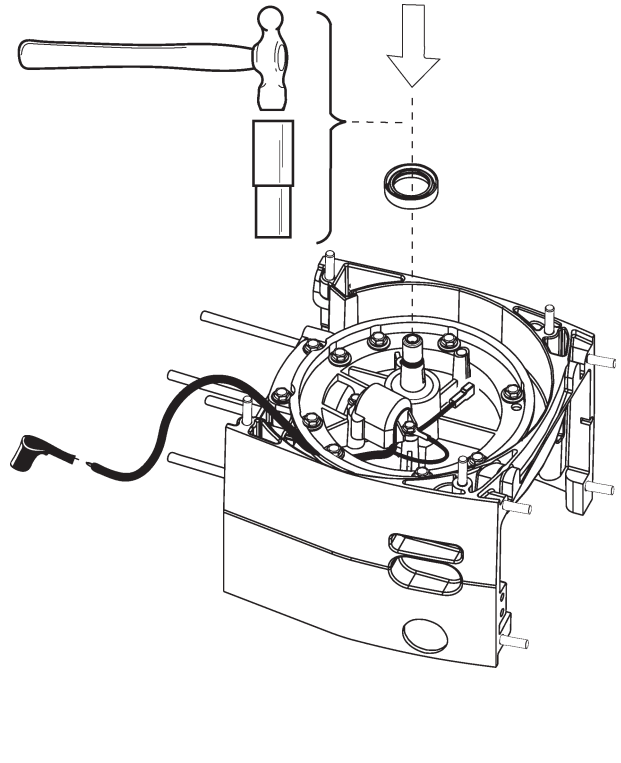


Induction coil

118.

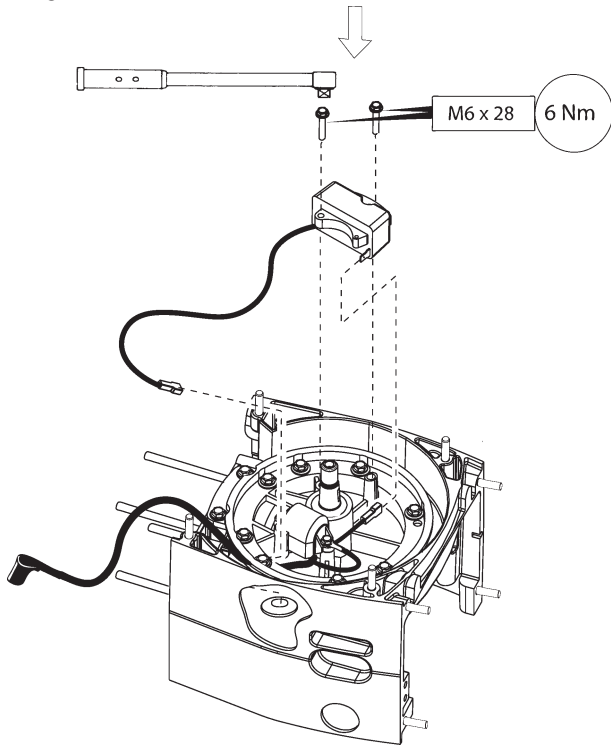


119.



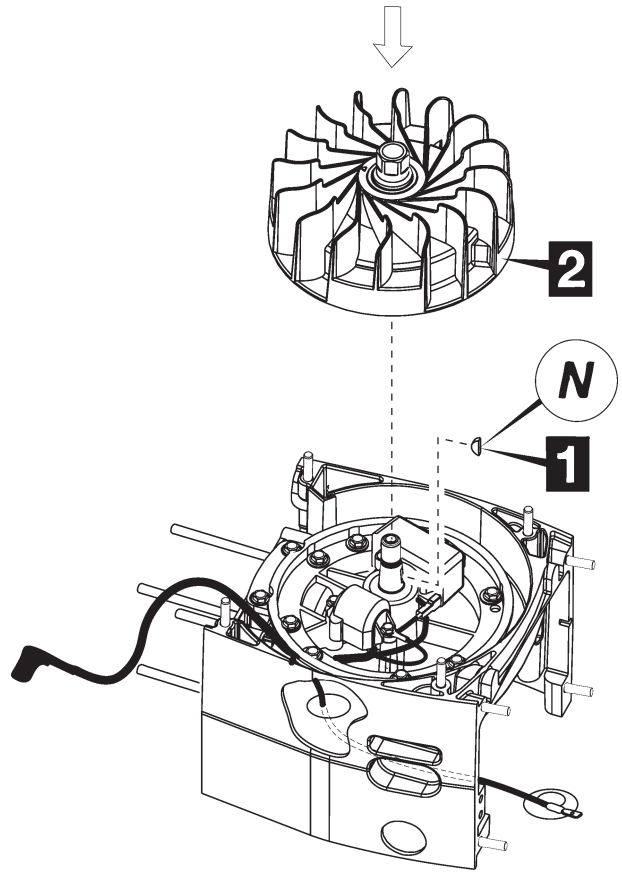
Electronic unit

120.

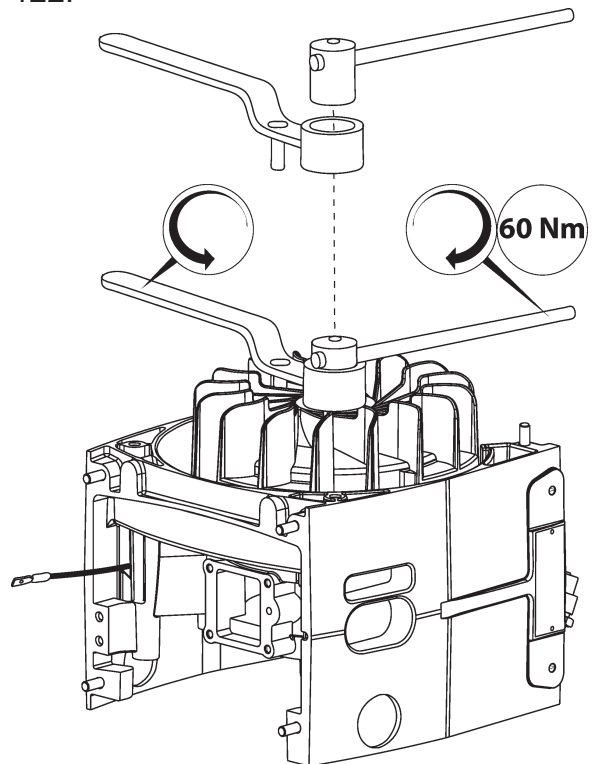


Flywheel

121.

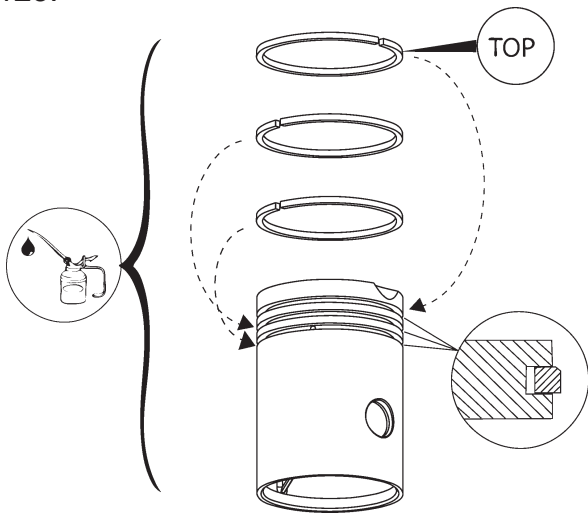


122.

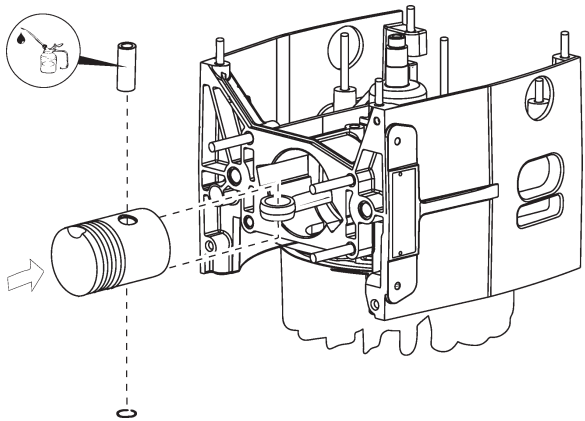


Engine piston

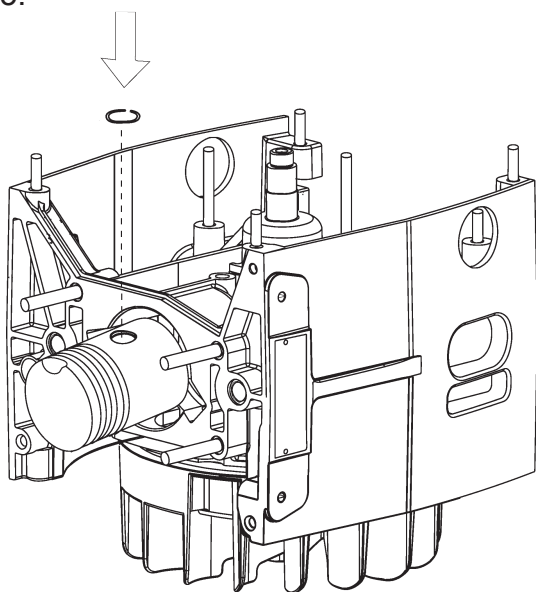
123.



124.

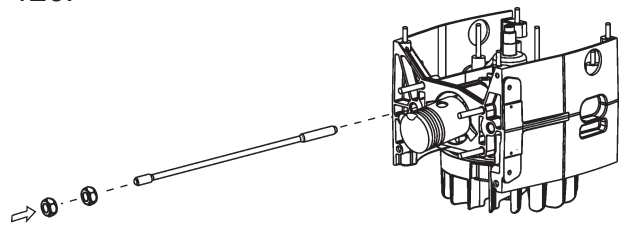


125.

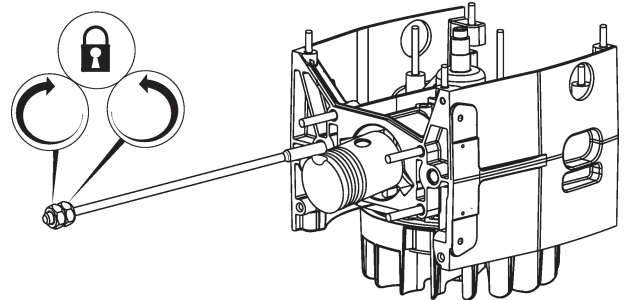


Draw bolt

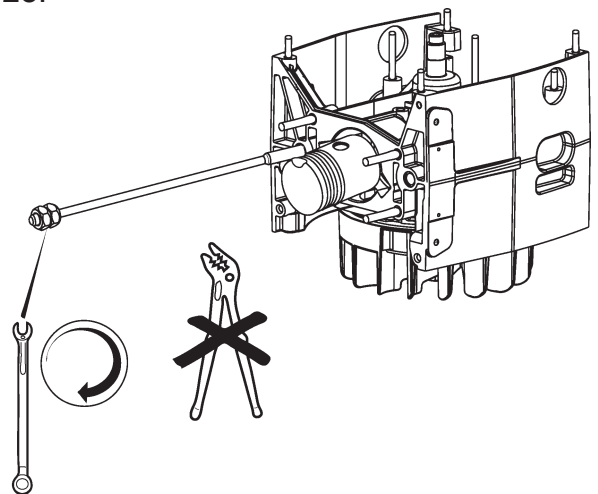
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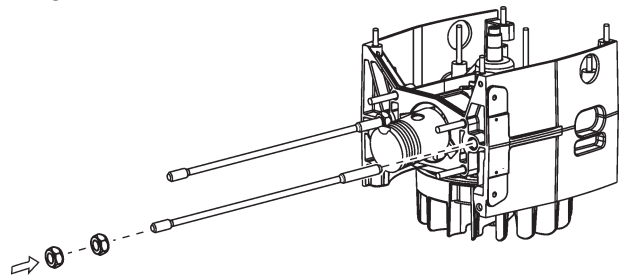
127.



128.

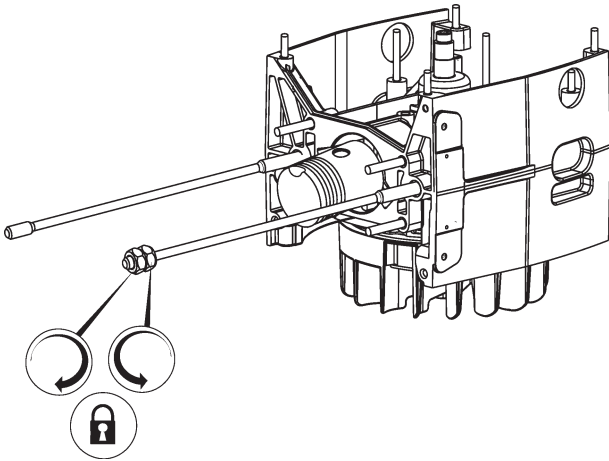


129.

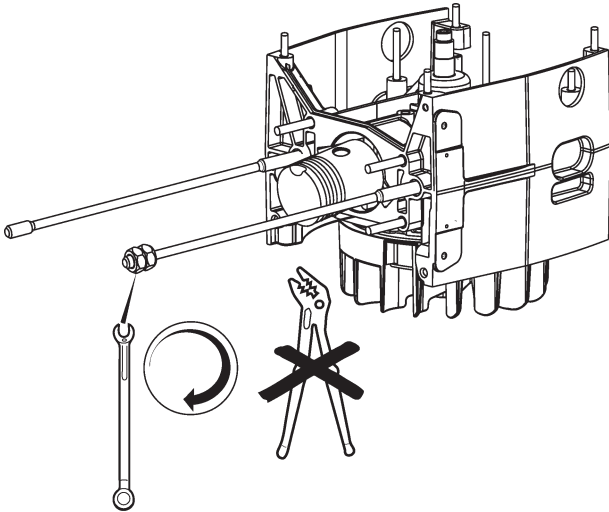


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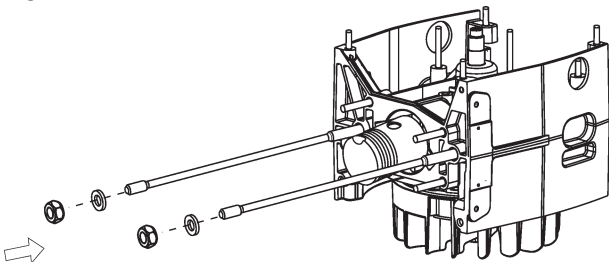
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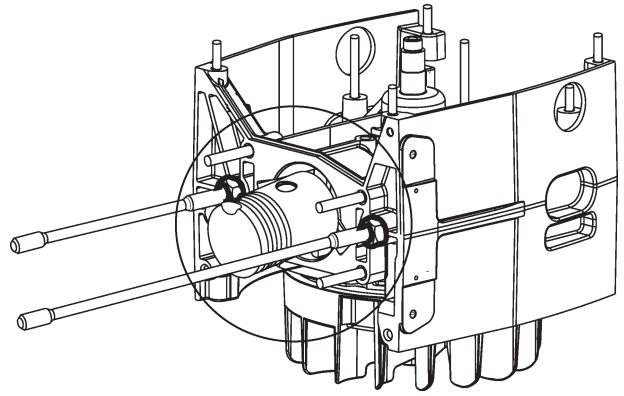
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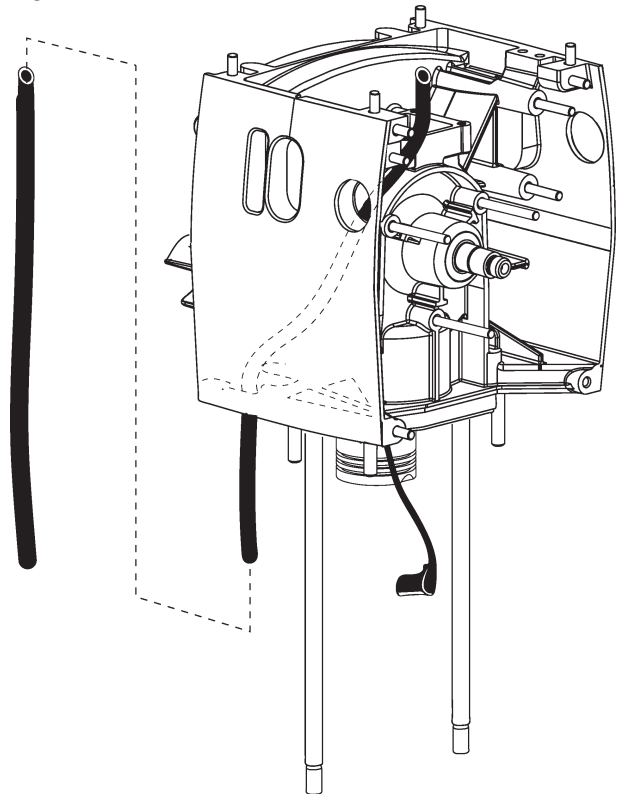
132.



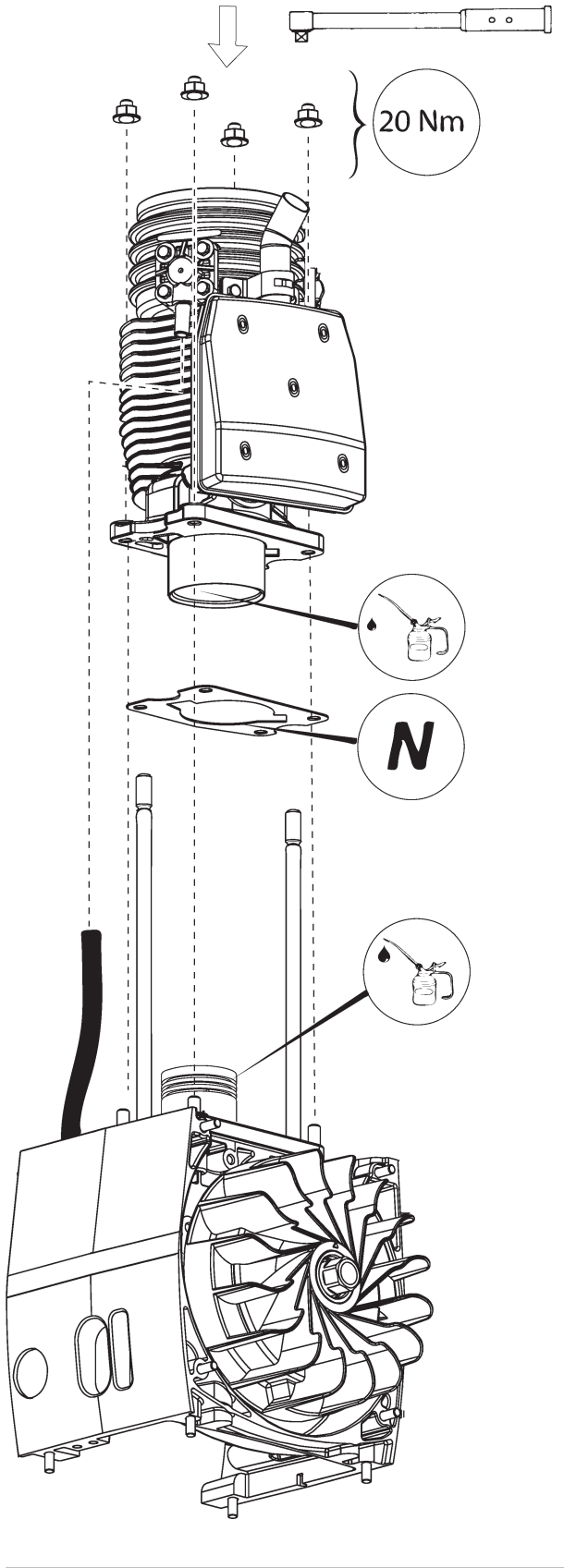
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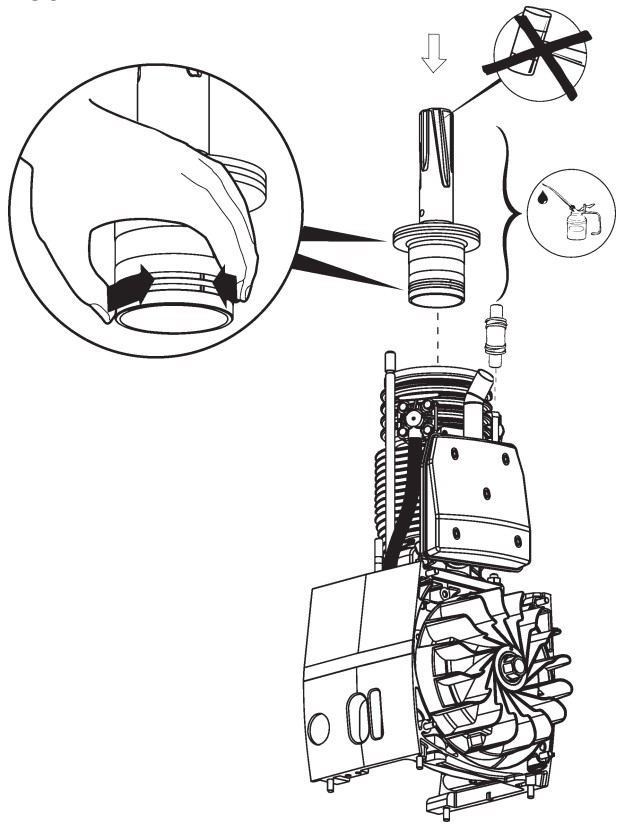
134.



135.



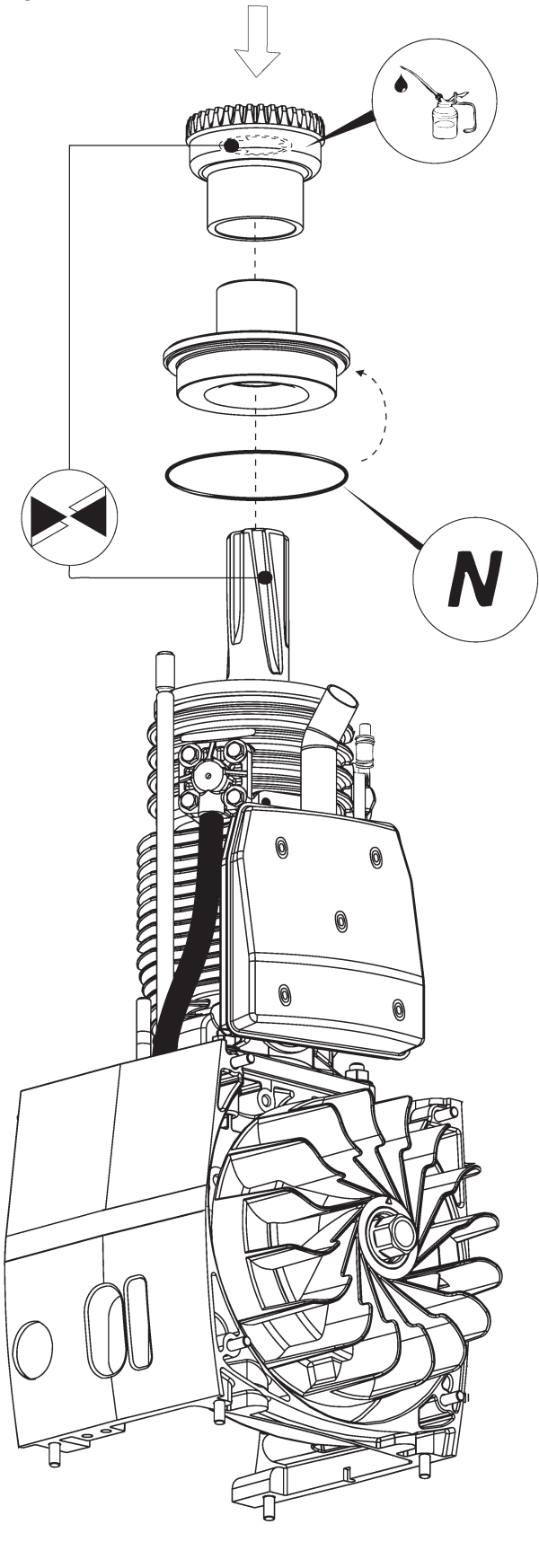
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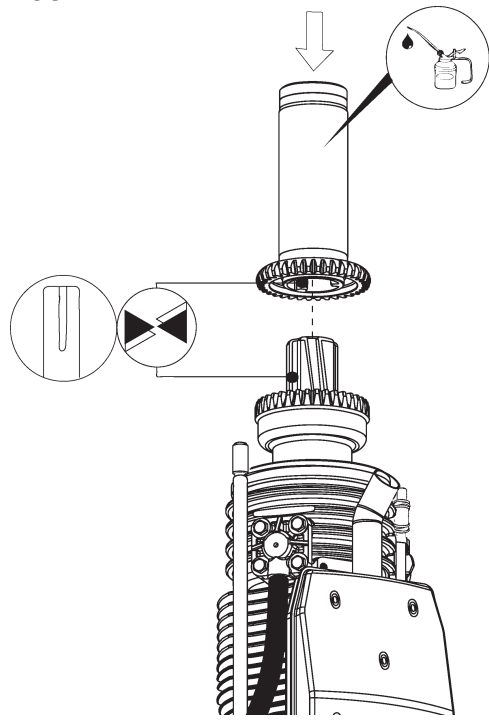
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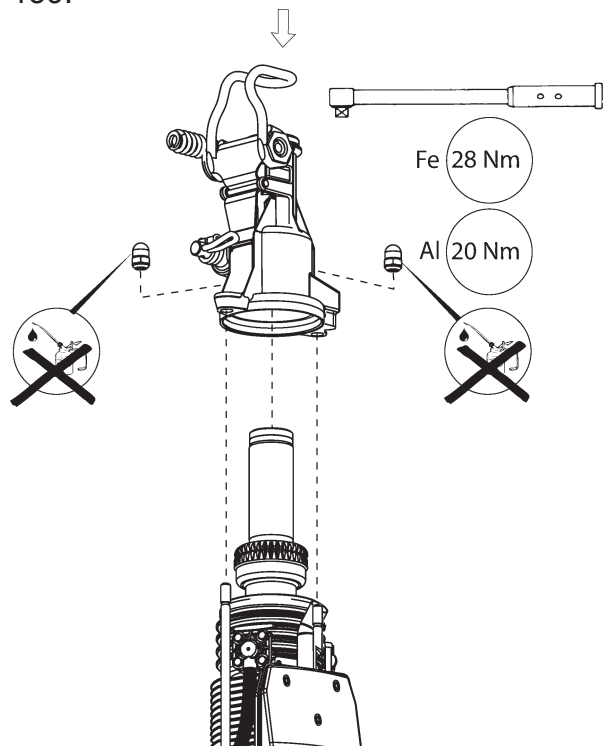
137.



138.

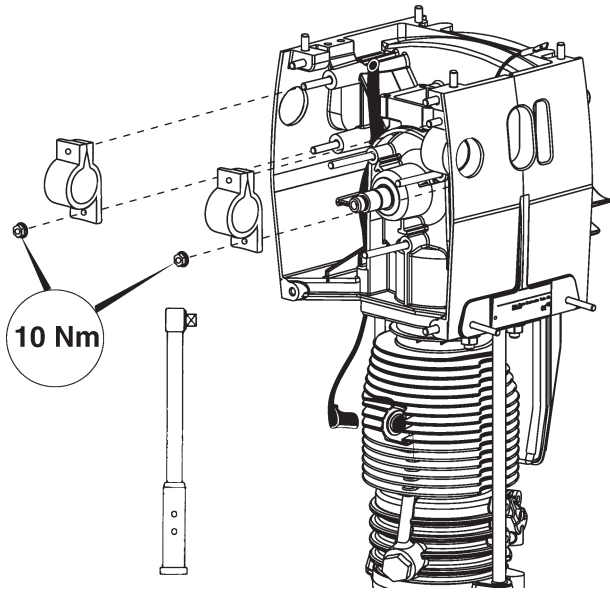


139.

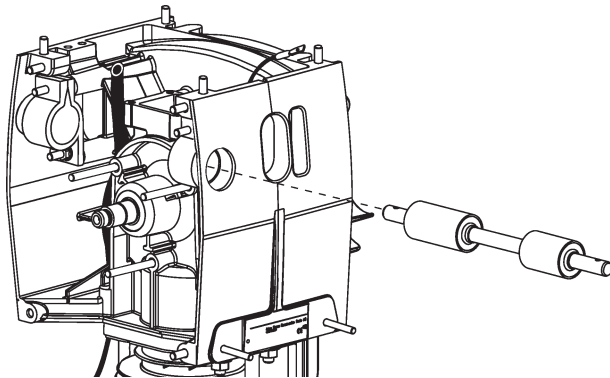


Handle springs

140.

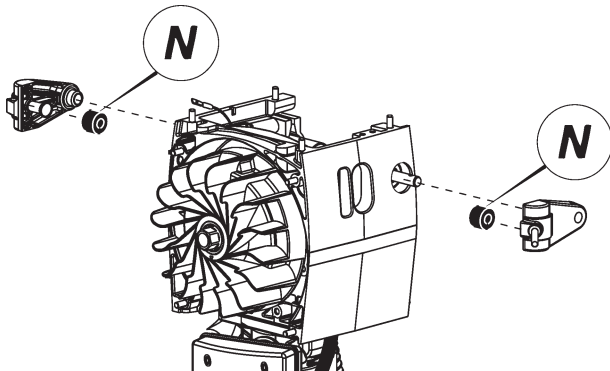


141.

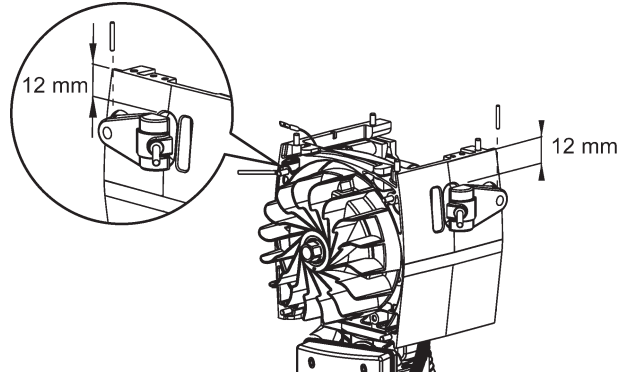


Handle bar

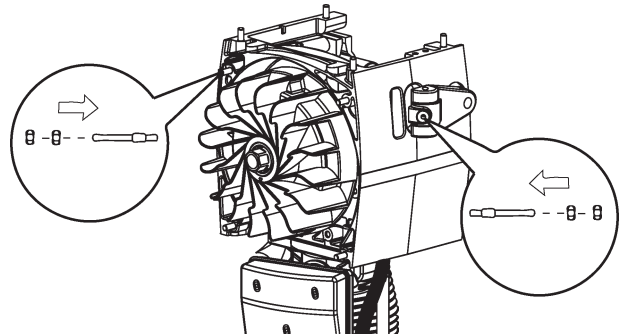
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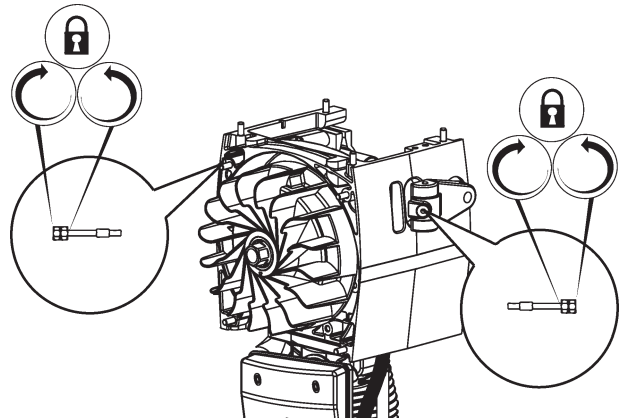
143.



144.

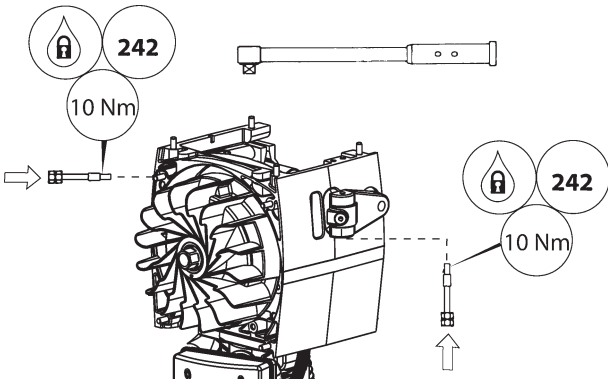


145.

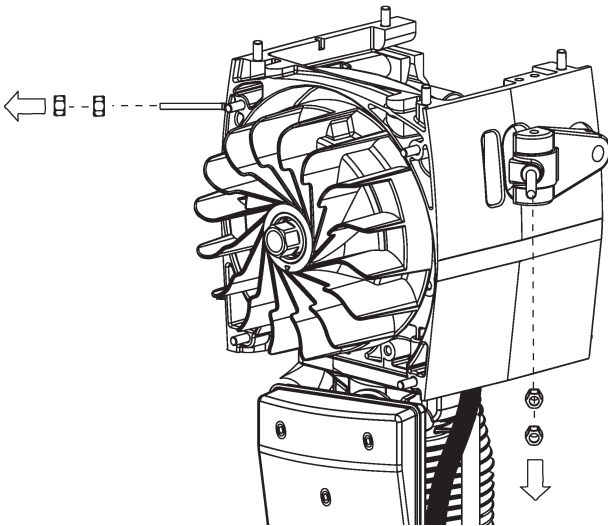


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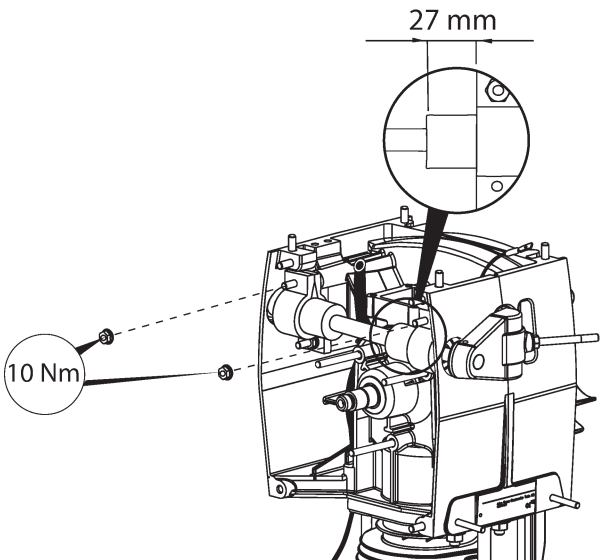
146.



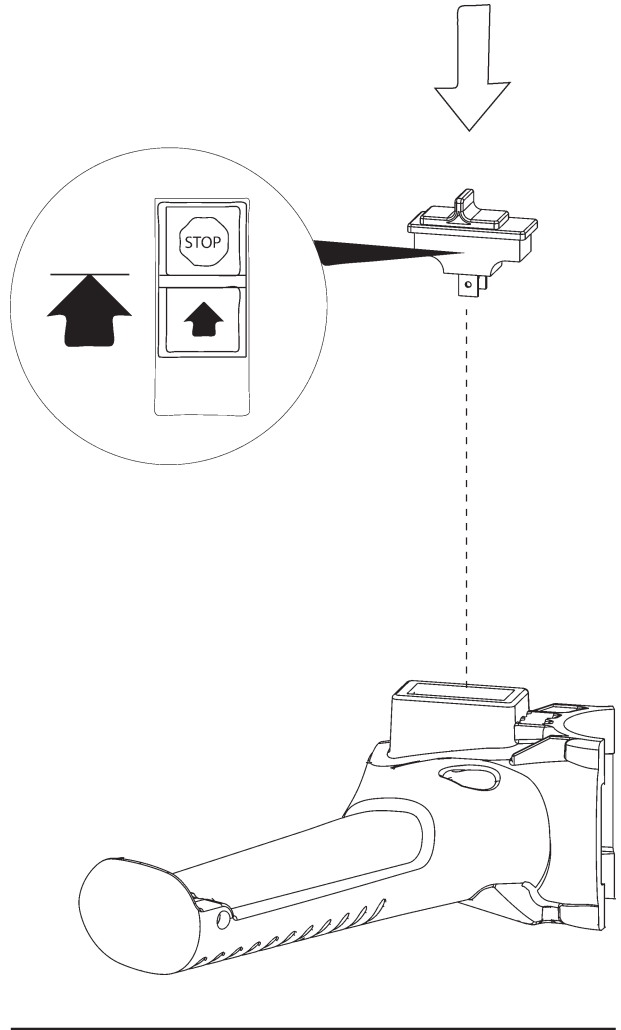
147.



148.

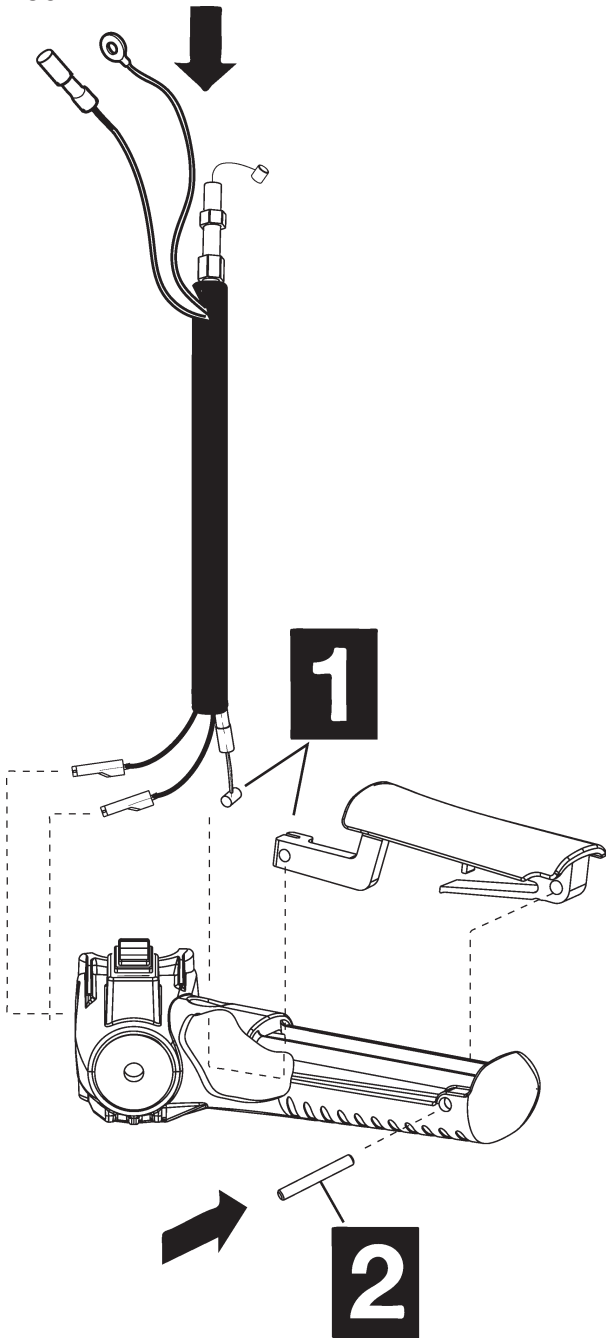


149.

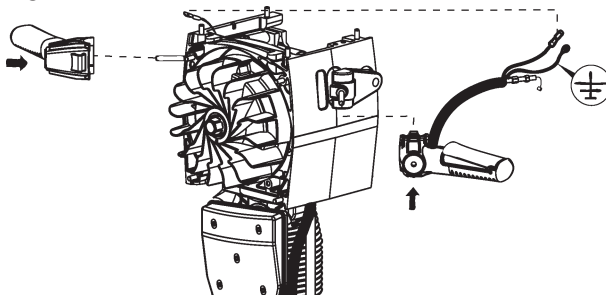


Handle and wiring

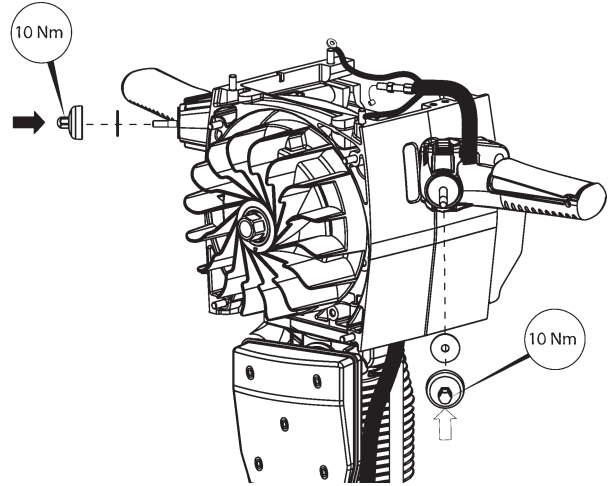
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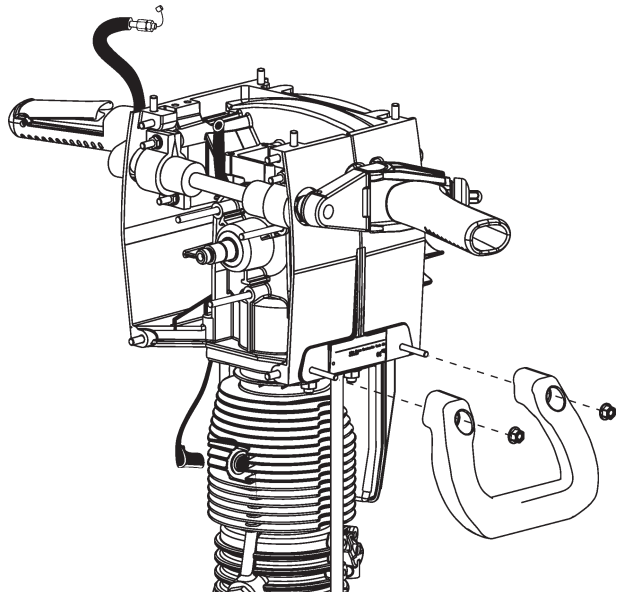
151.



152.

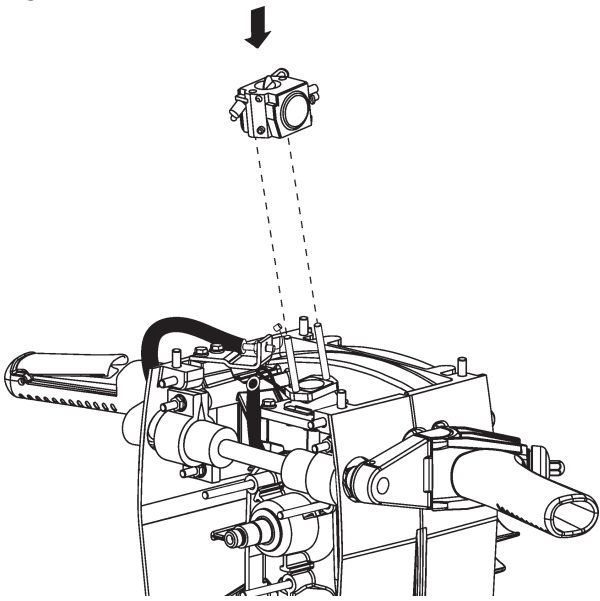


153.

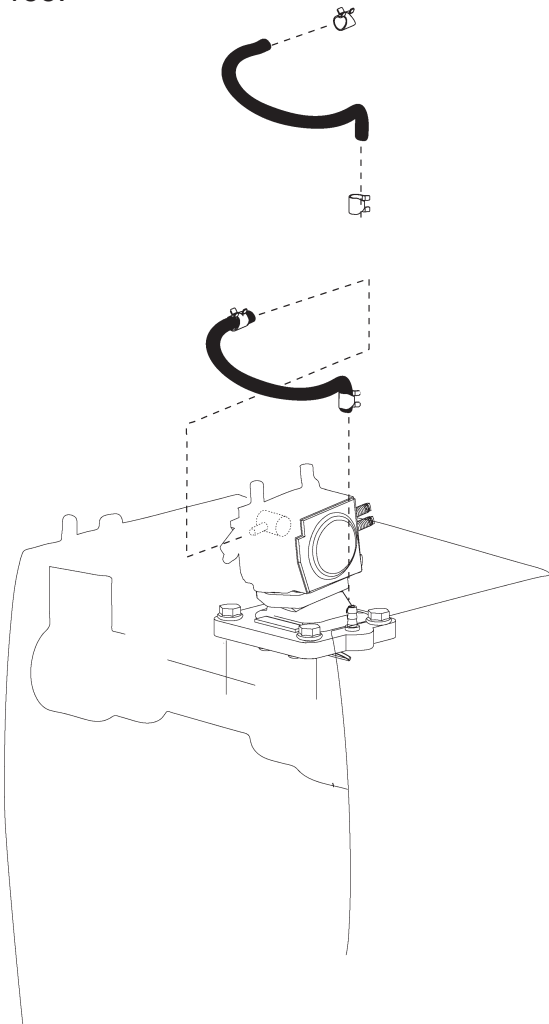


Carburettor

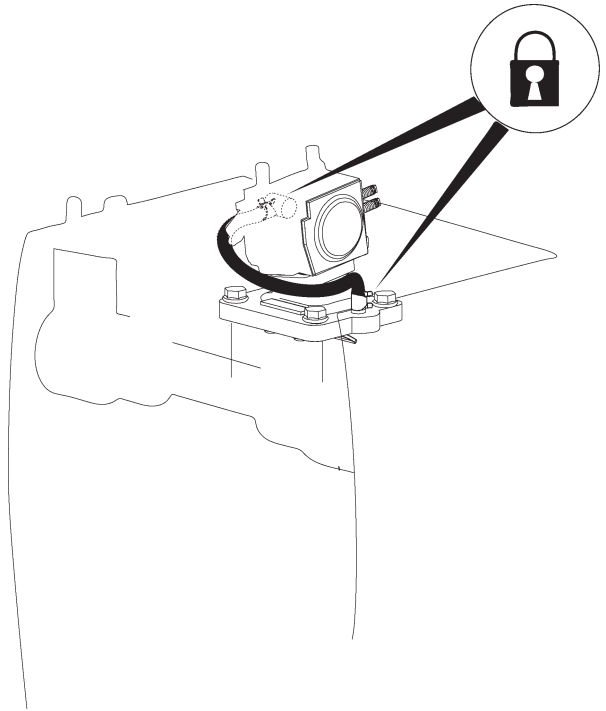
154.



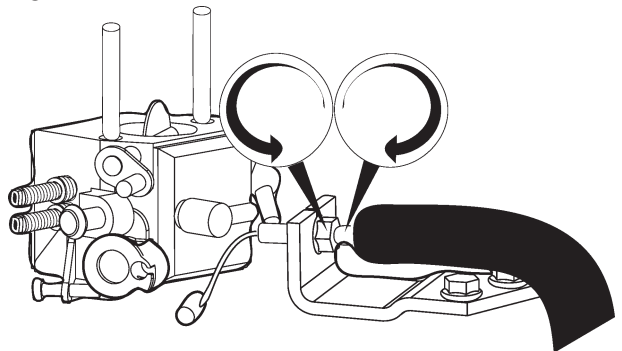
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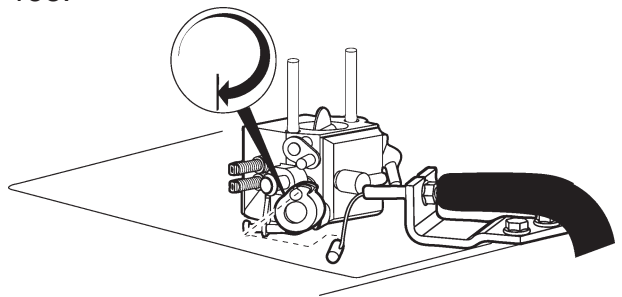
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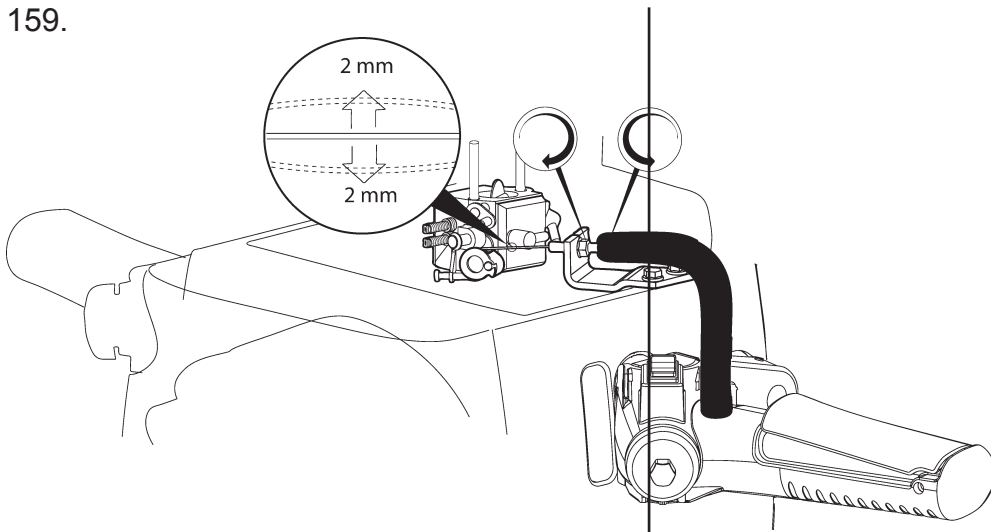
157.



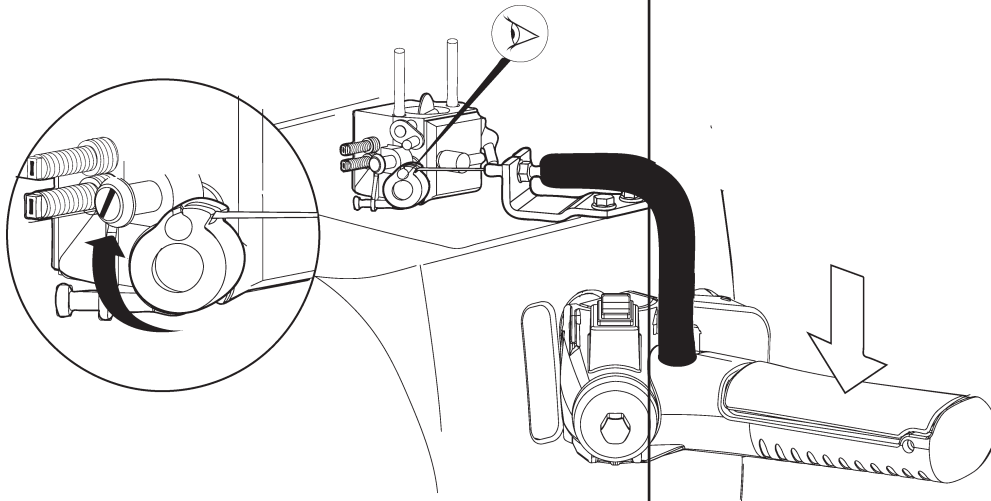
158.



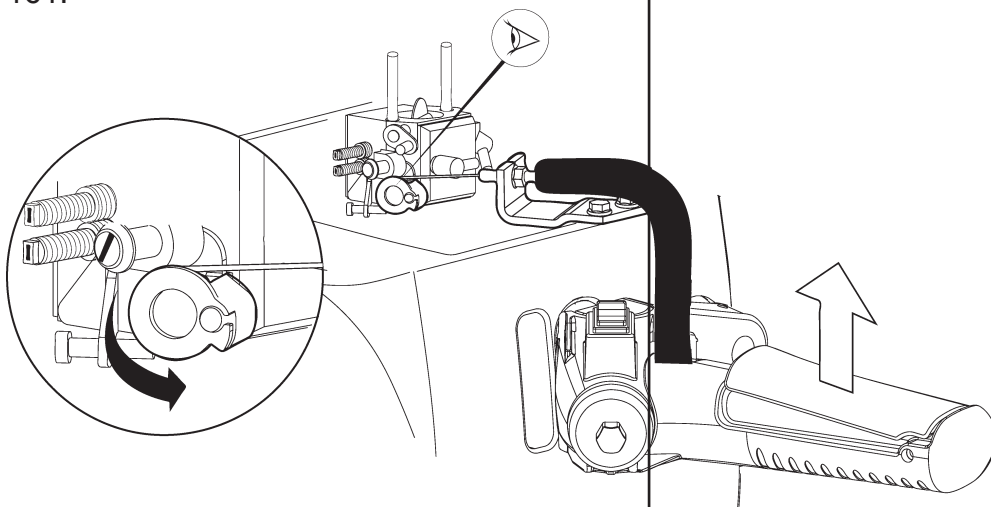
159.



160.



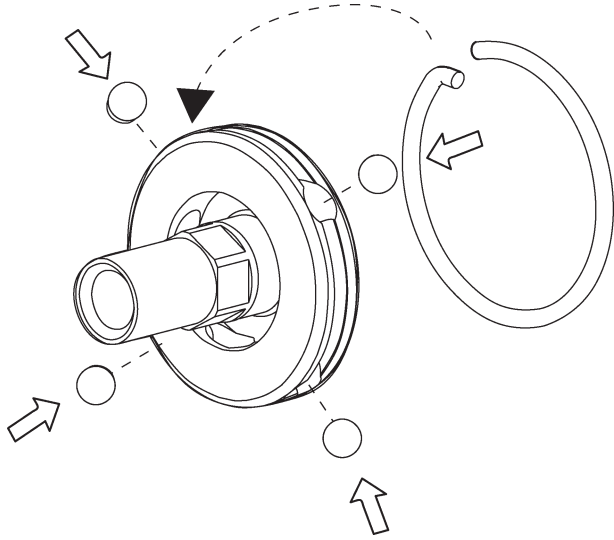
161.



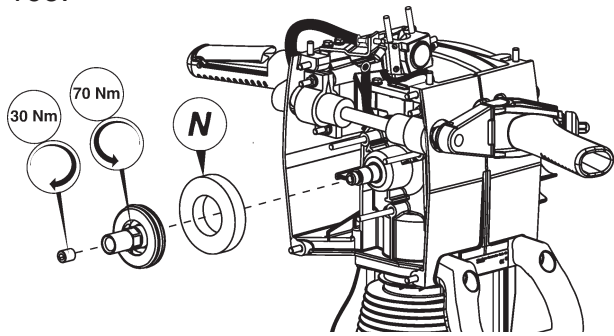
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Clutch

162.

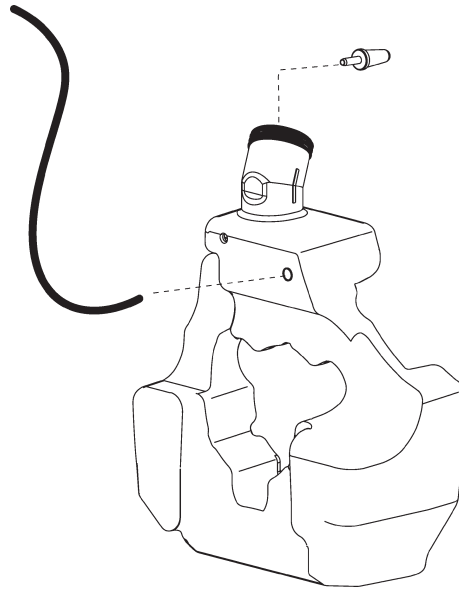


163.

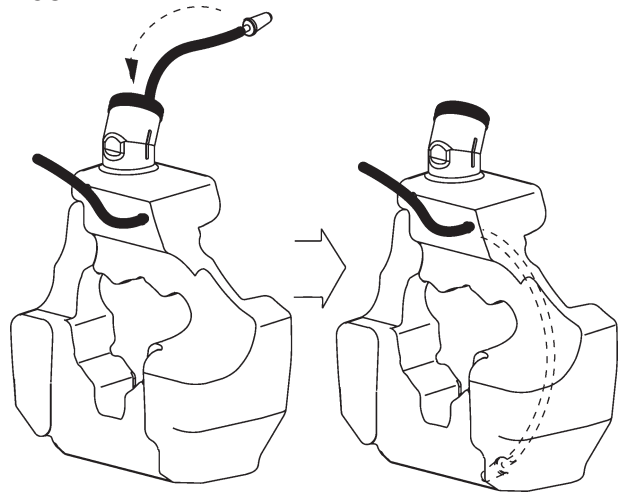


Fuel tank

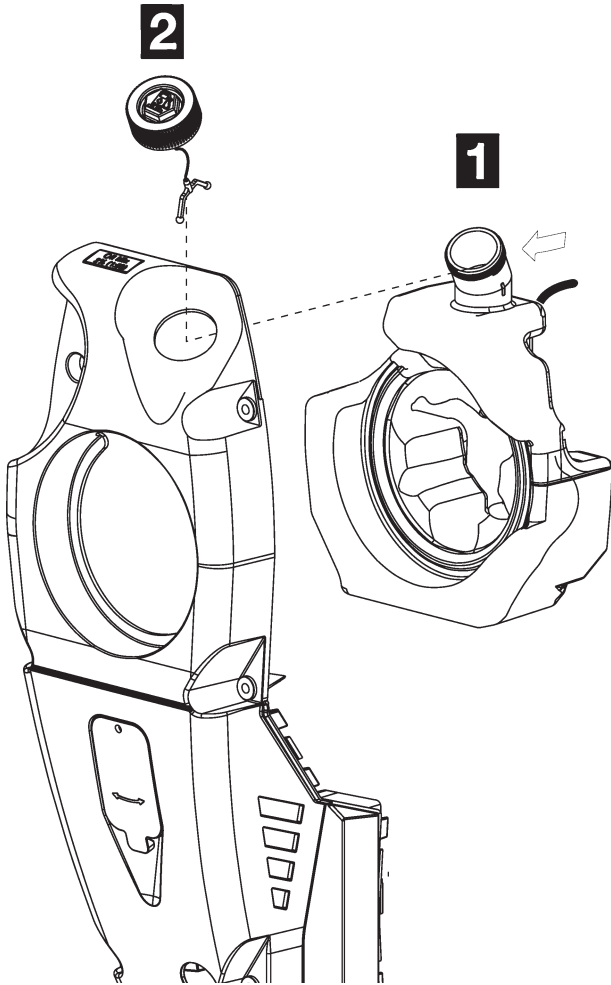
164.



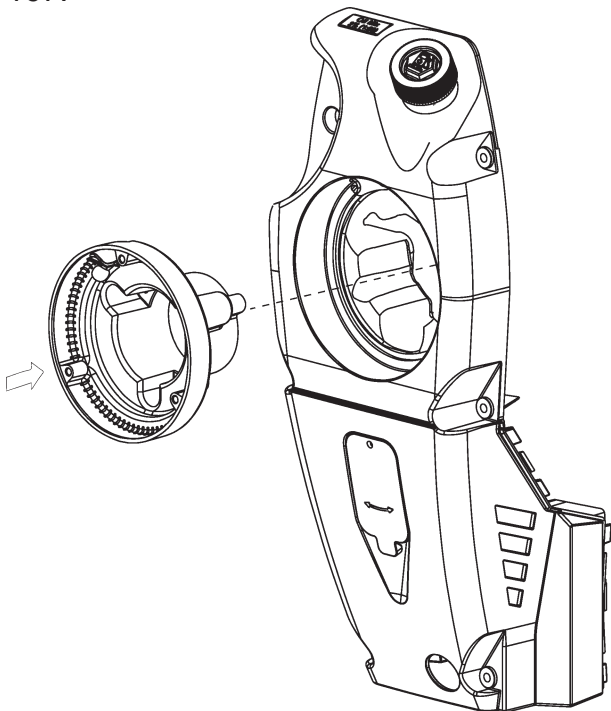
165.



166.

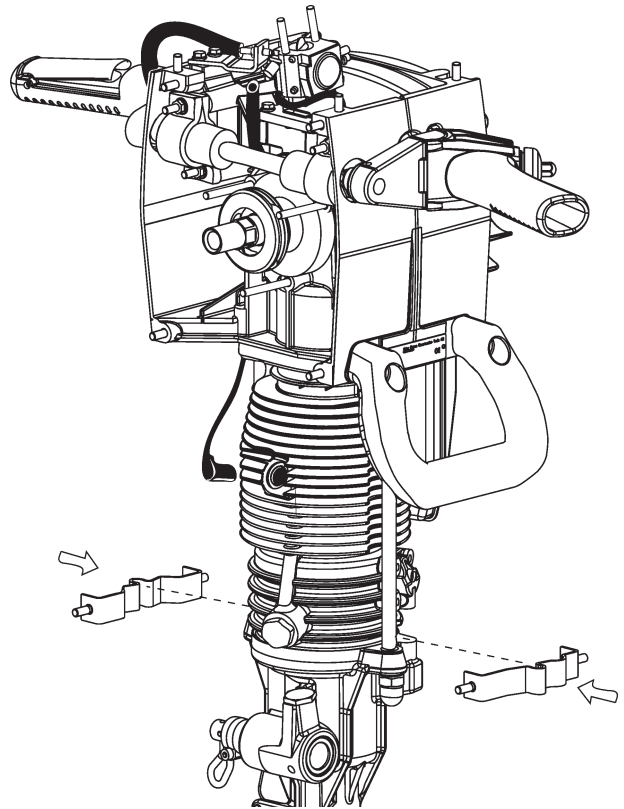


167.



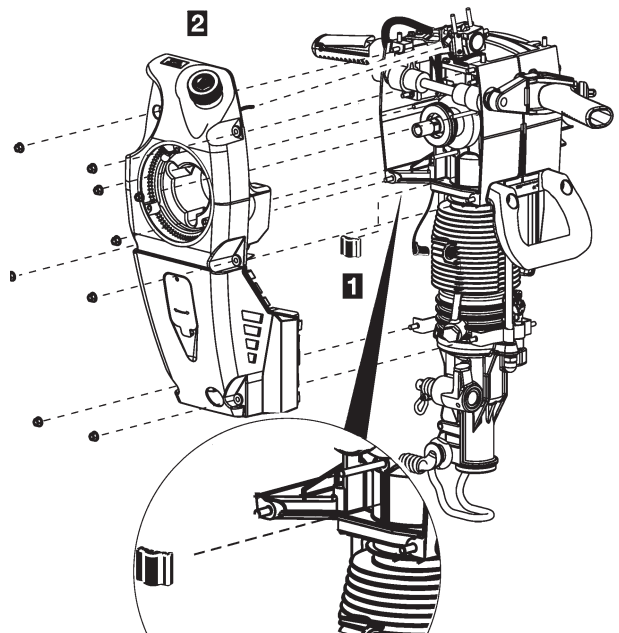
Bracket

168.



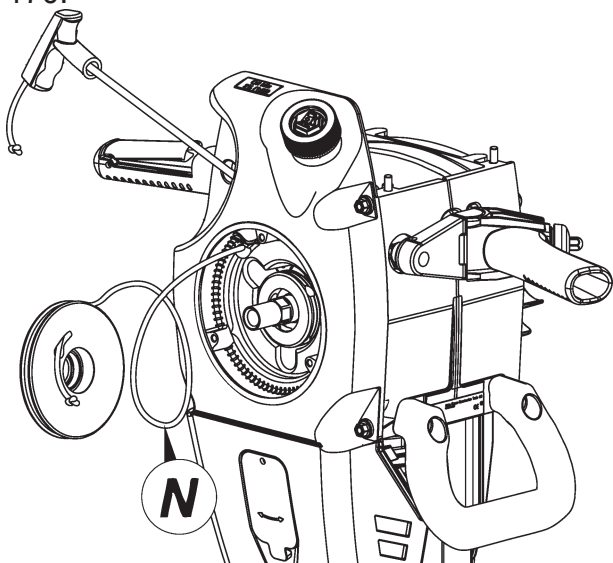
Back cover

169.



Start cover

170.

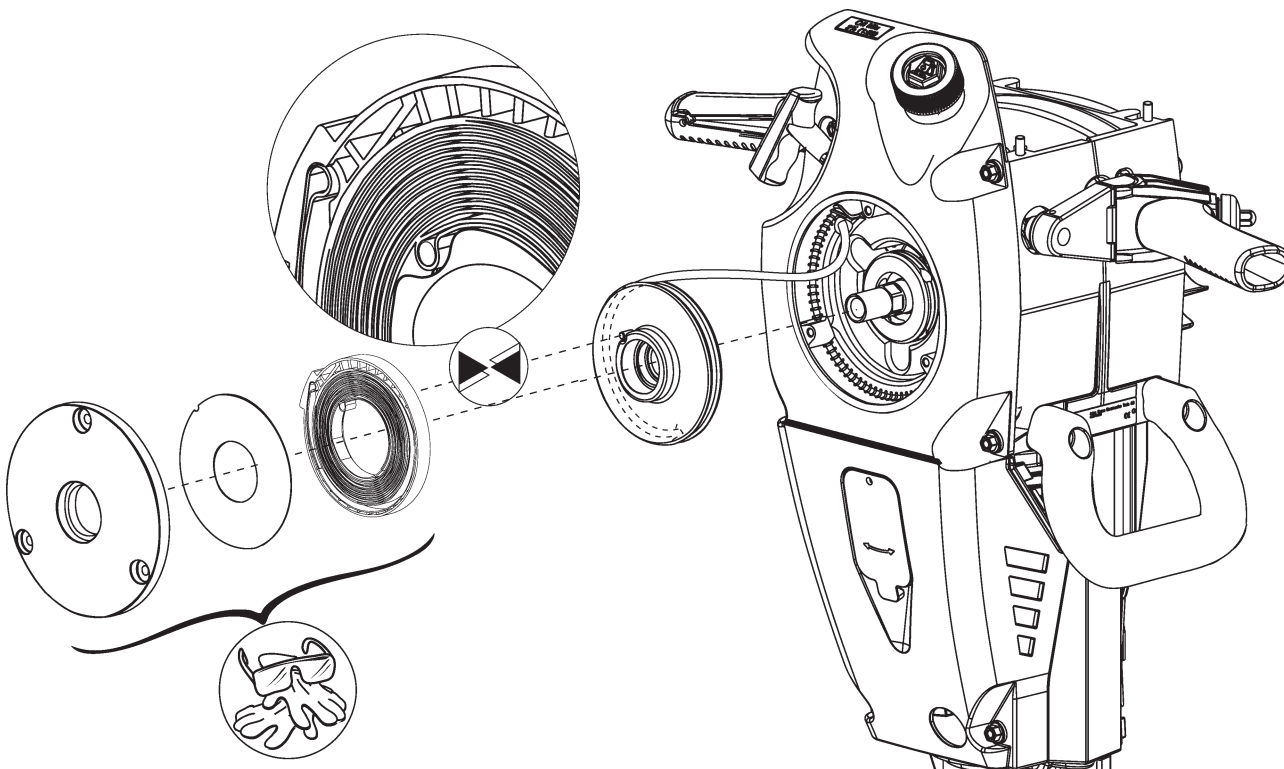


171.

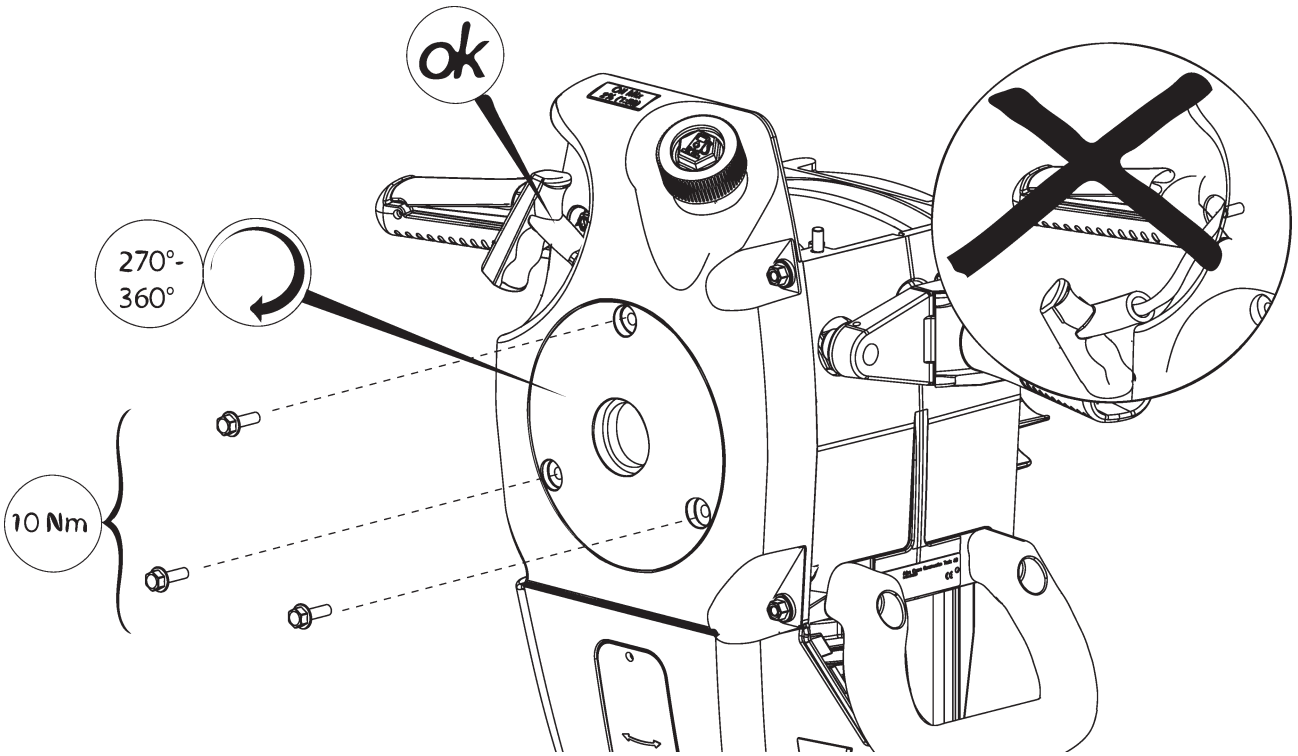
⚠ Warning

Rewinding or replacing the starter spring uncarefully can cause serious eye and hand damages.

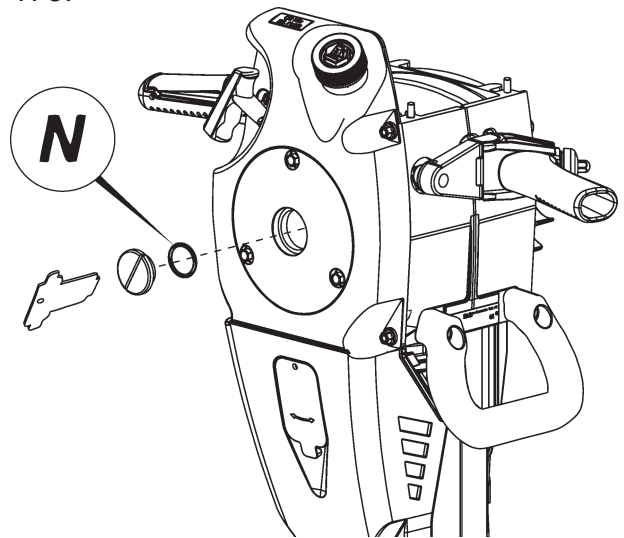
- ▶ Always wear protective glasses and industrial grade gloves when rewinding or replacing the starter spring.



172.

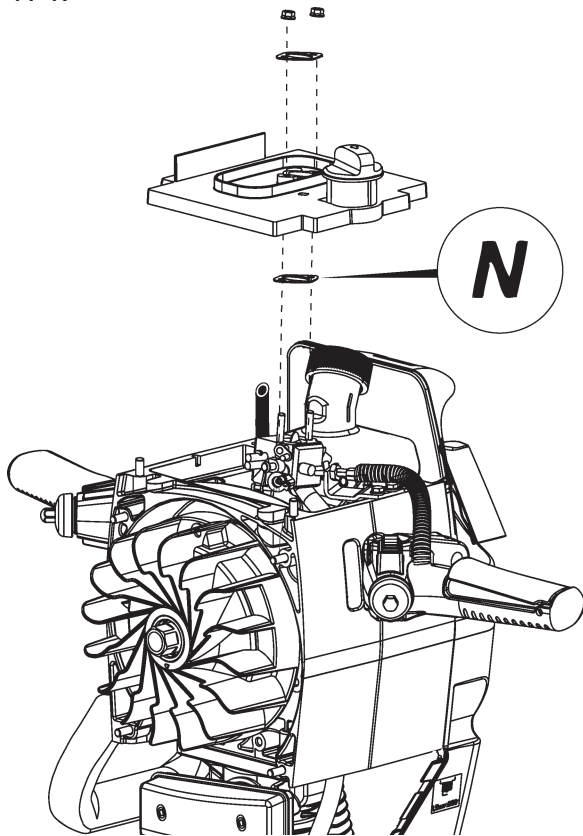


173.



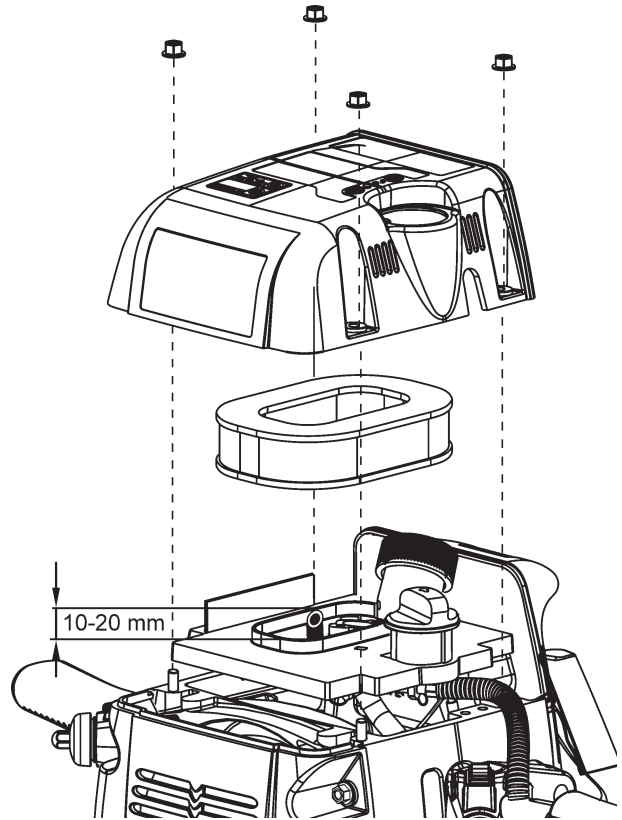
Filter cassette

174.



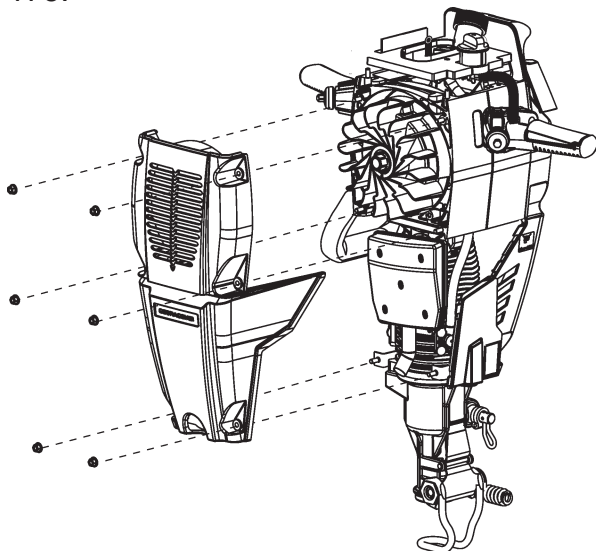
Top cover

176.



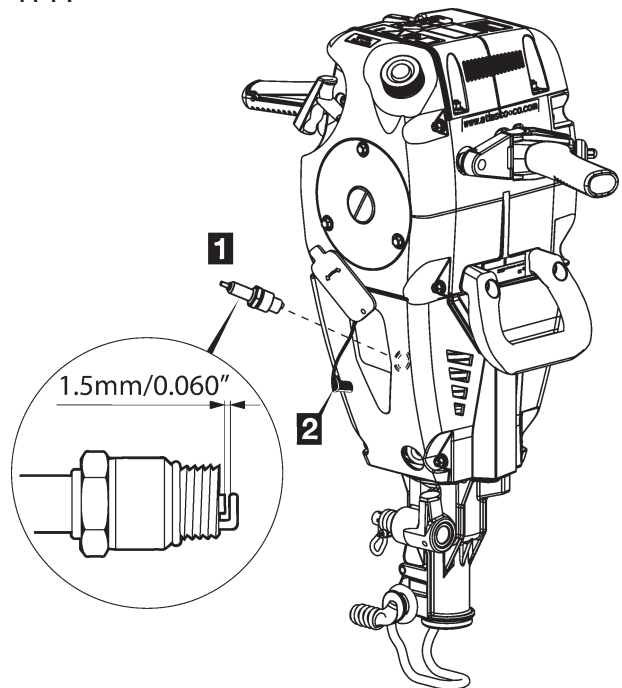
Front cover

175.



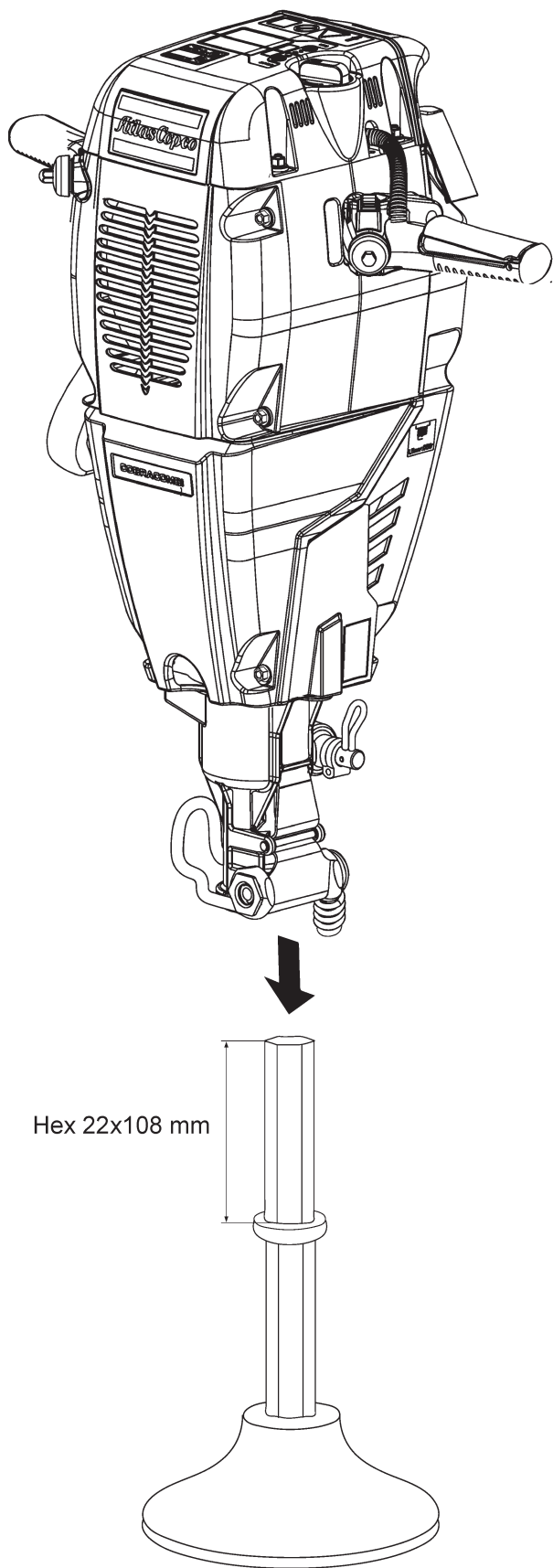
Spark plug

177.

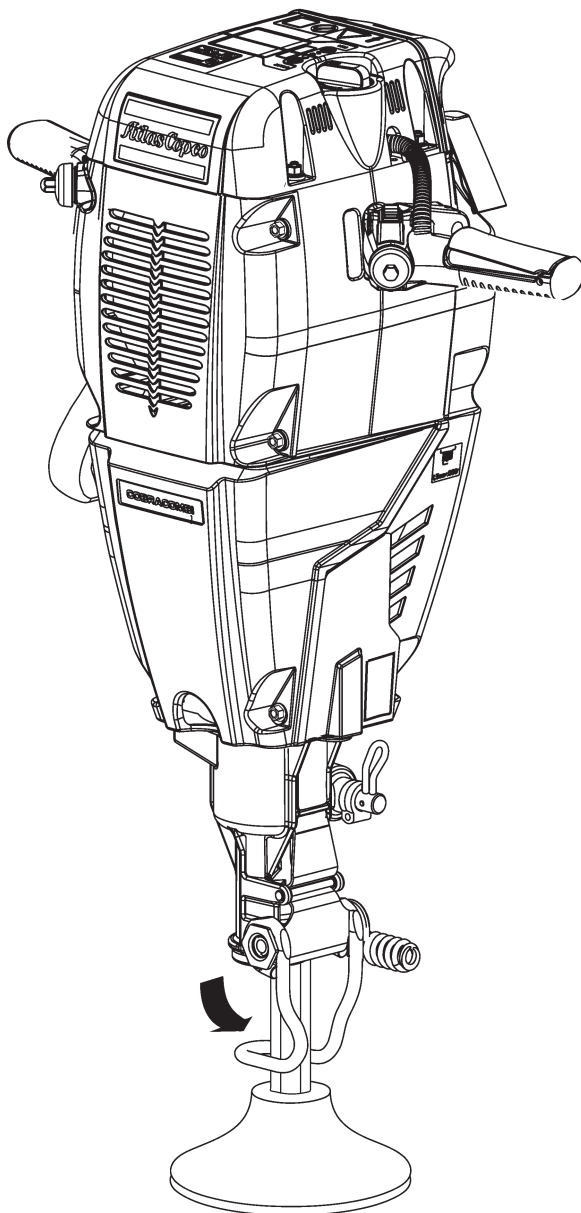


TEST RUN

178.



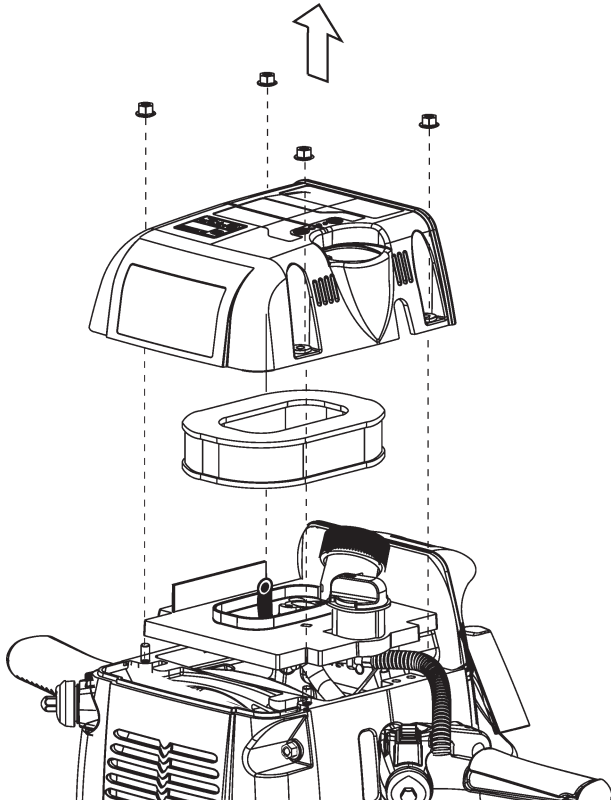
179.



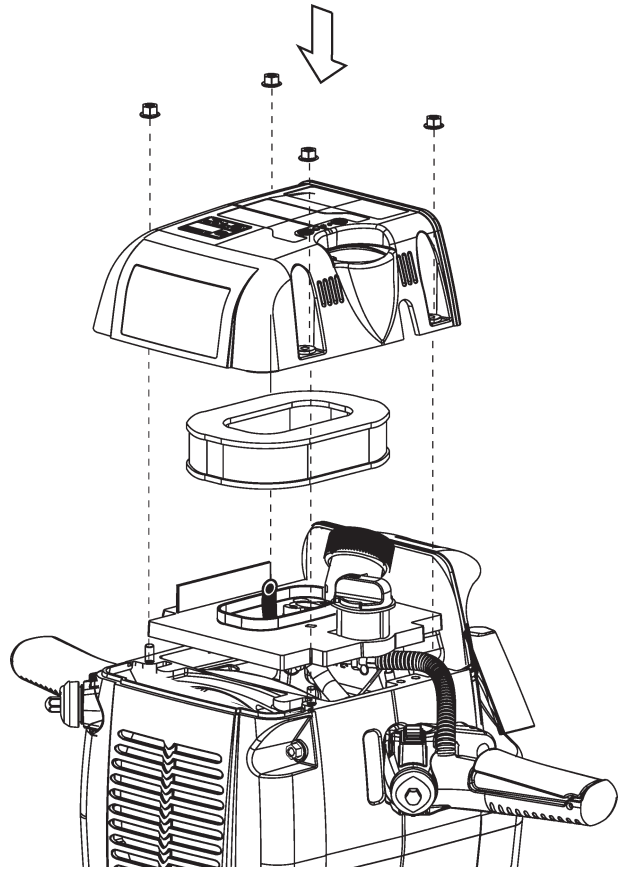
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Start preparations

180.

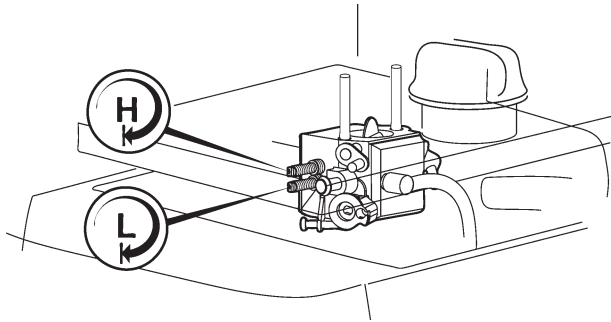


183.

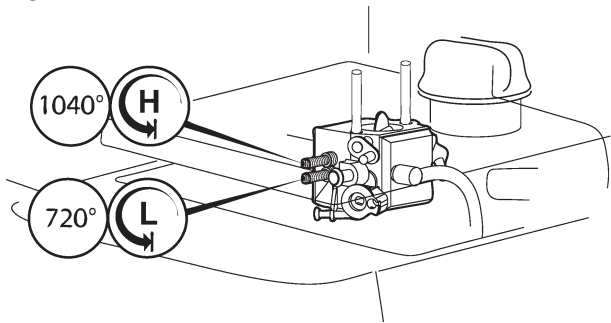


Setting nozzle

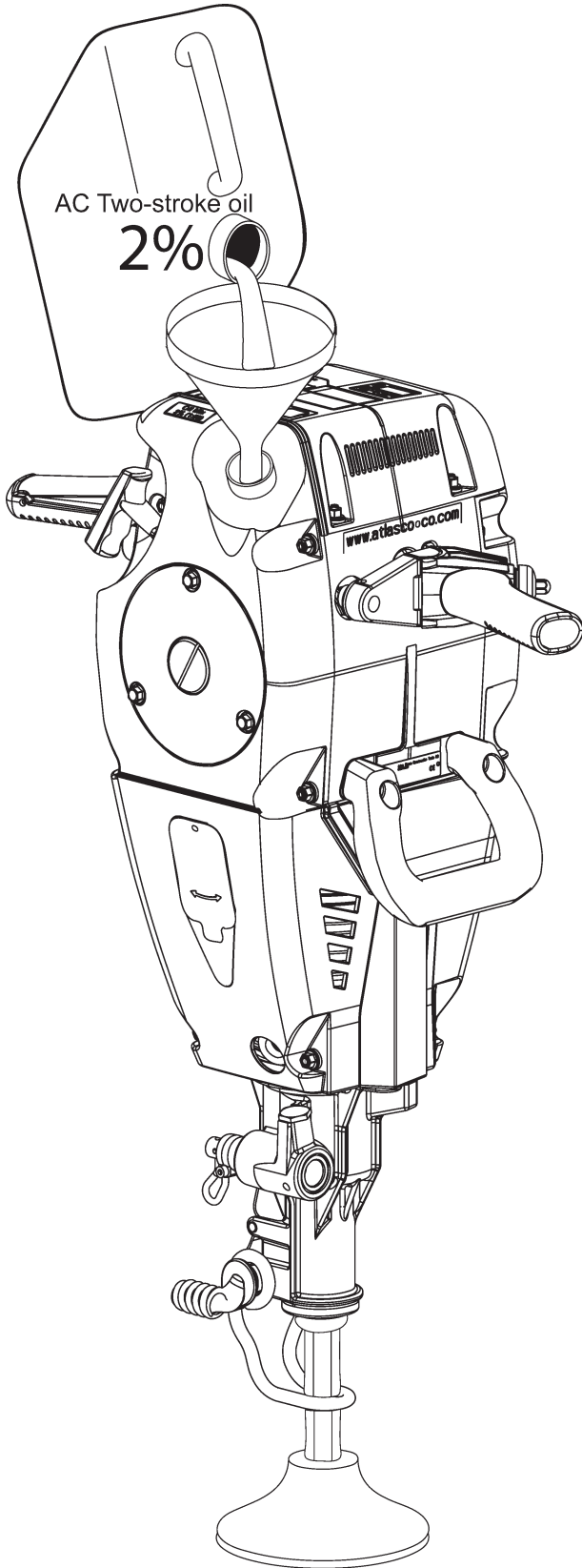
181.



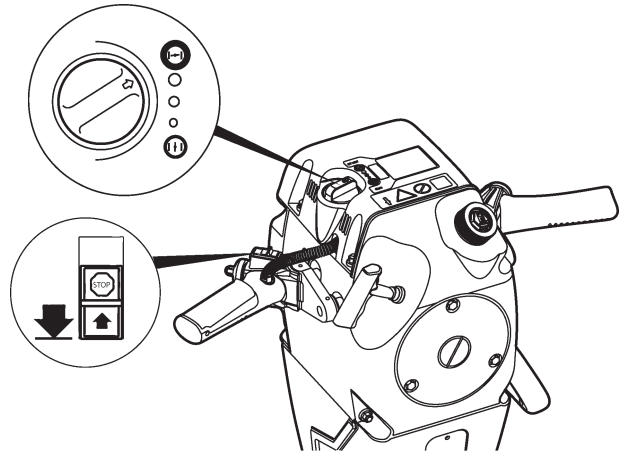
182.



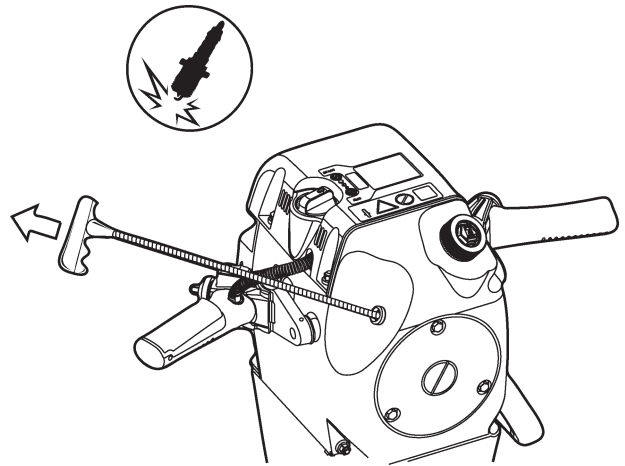
184.



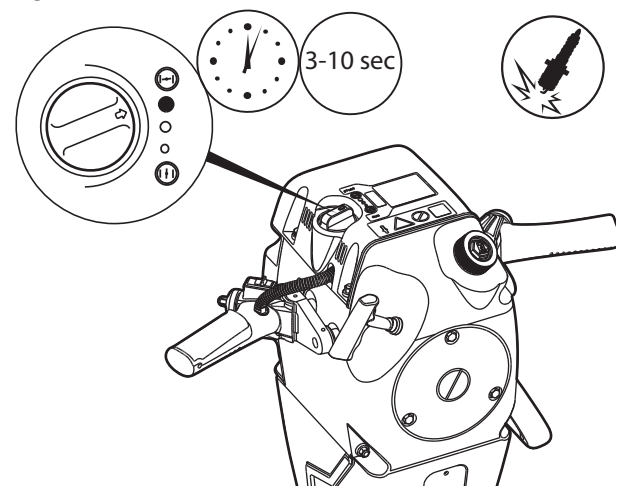
185.



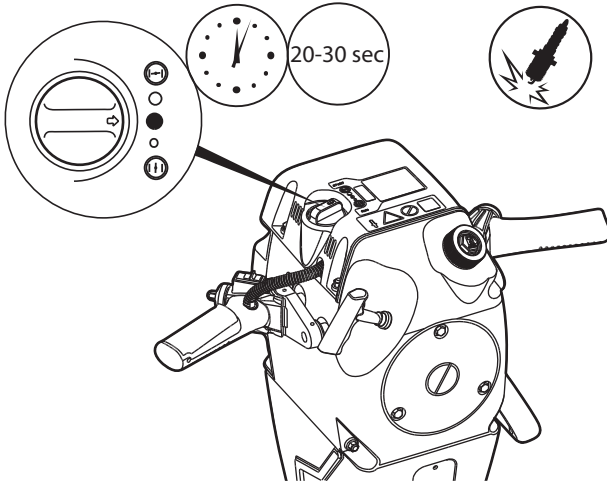
186.



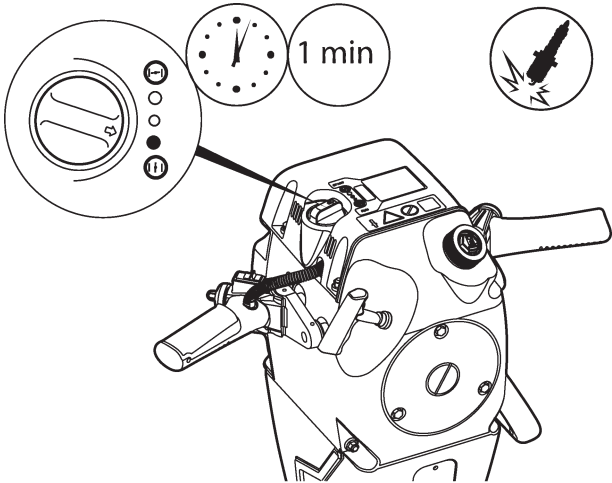
187.



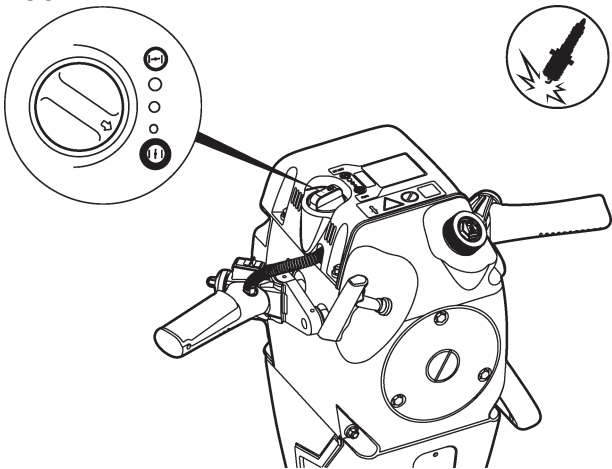
188.



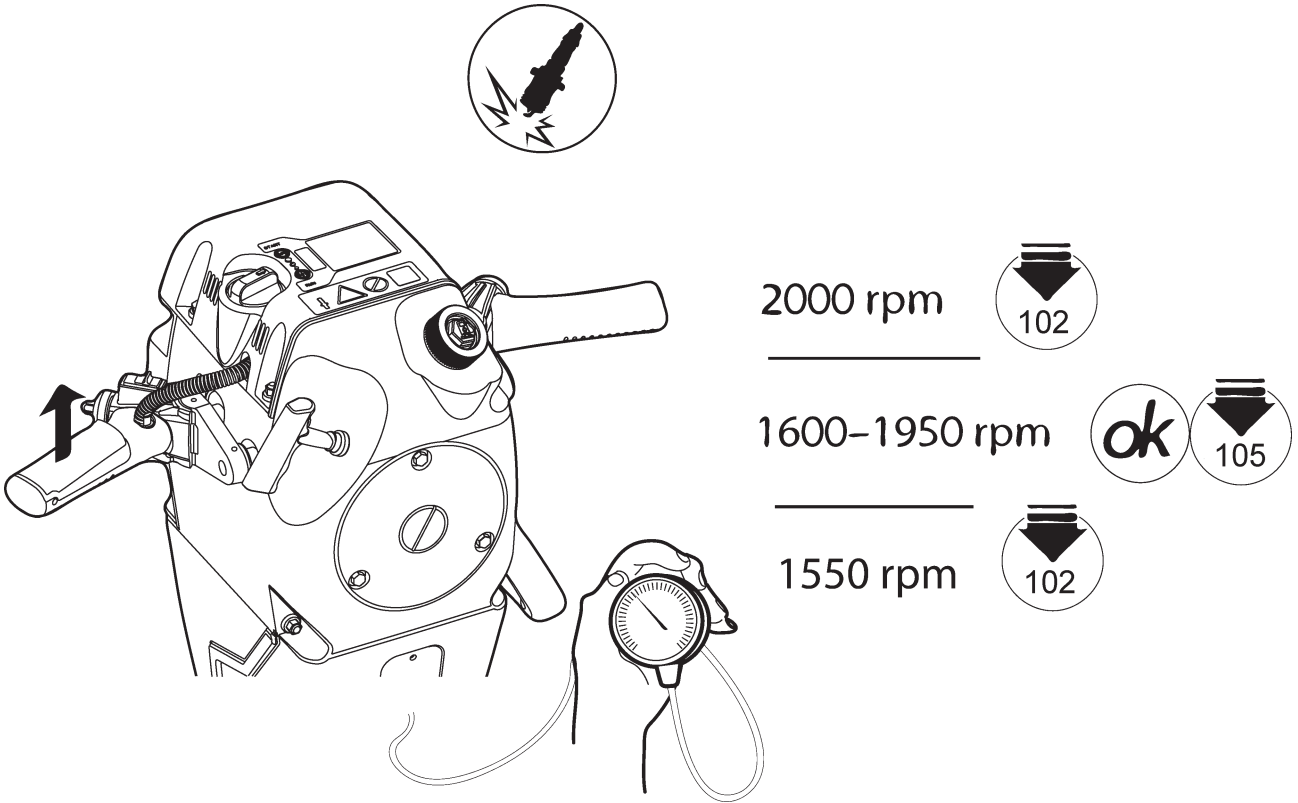
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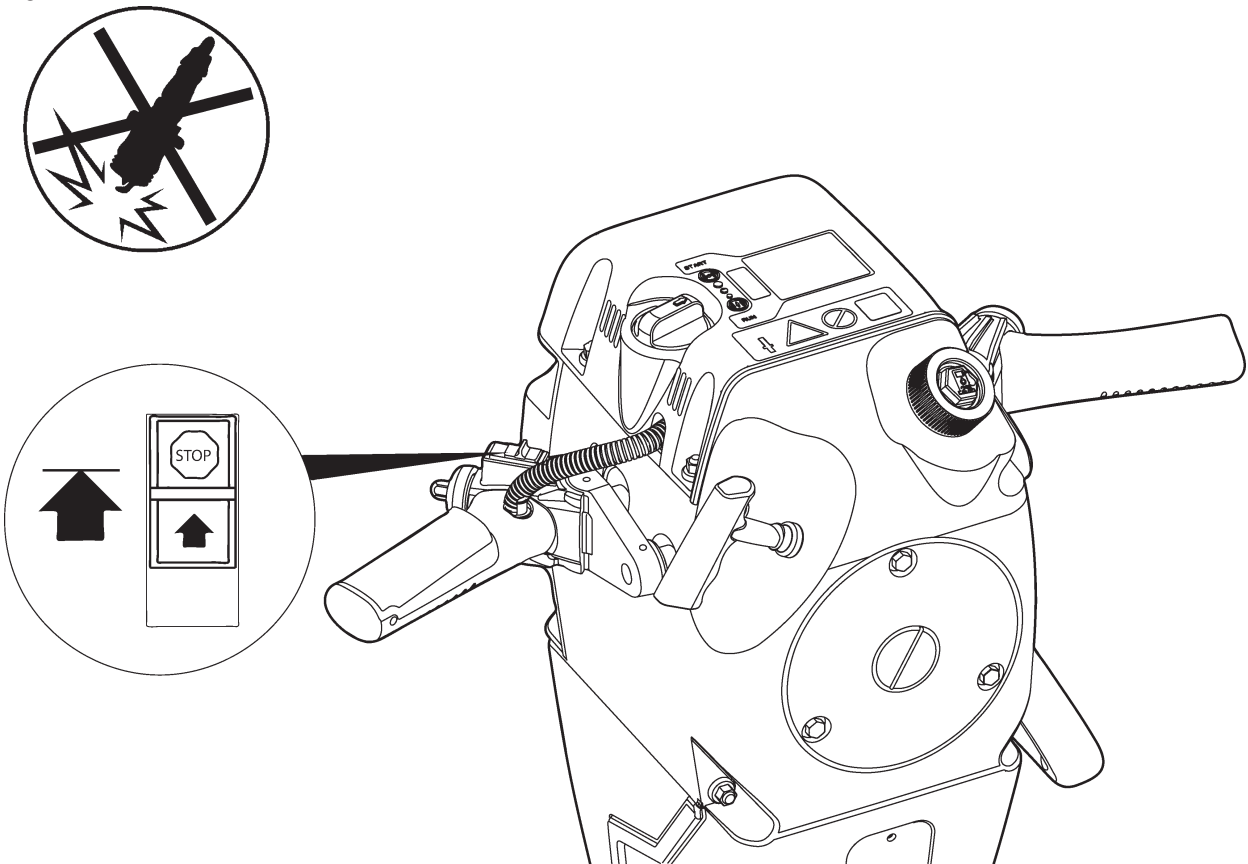
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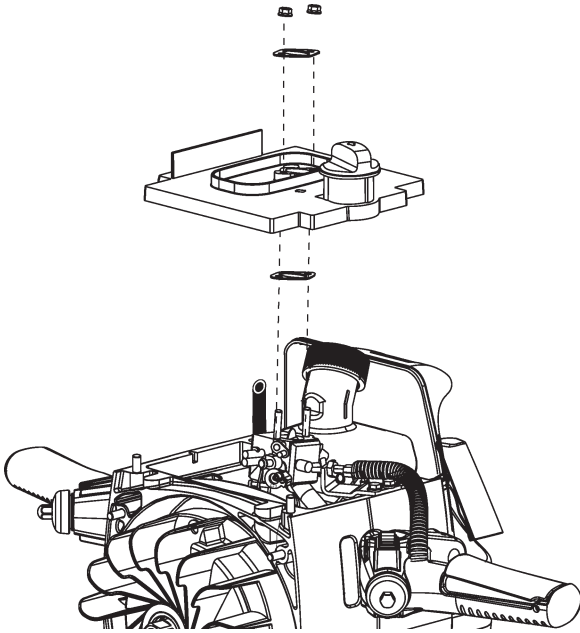
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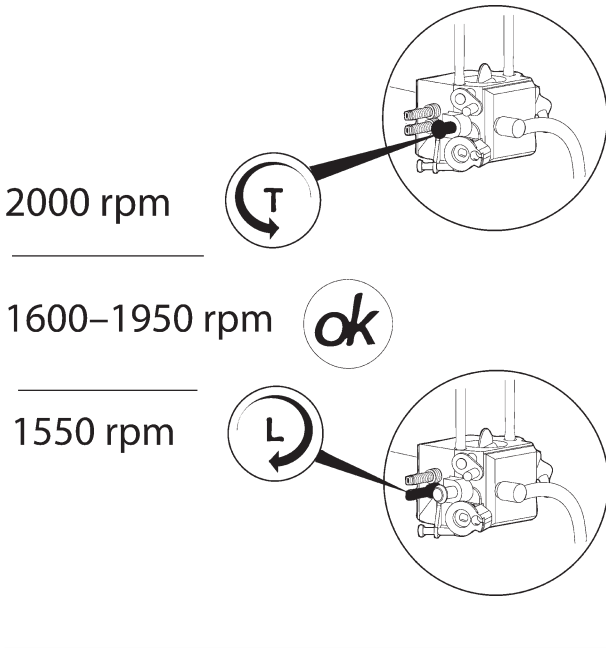
192.



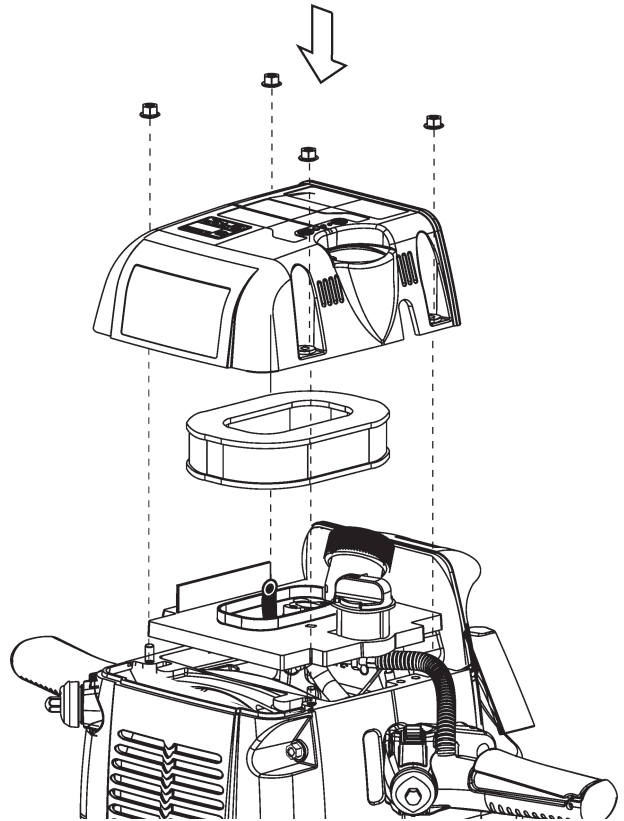
193.



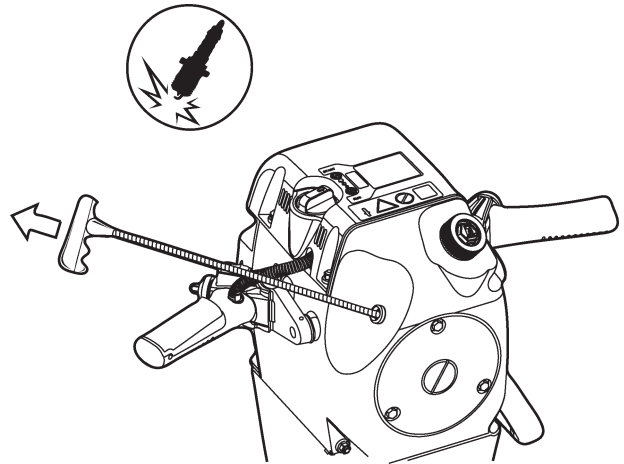
194.



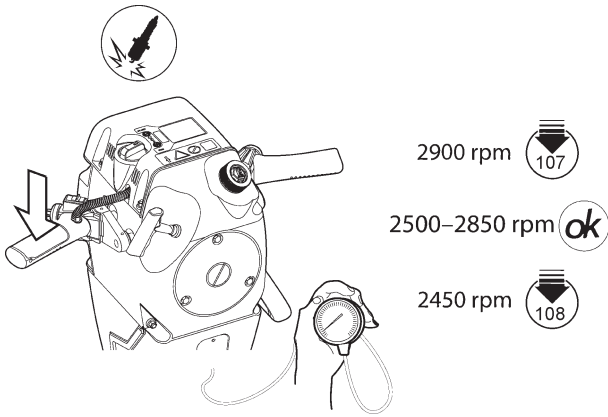
195.



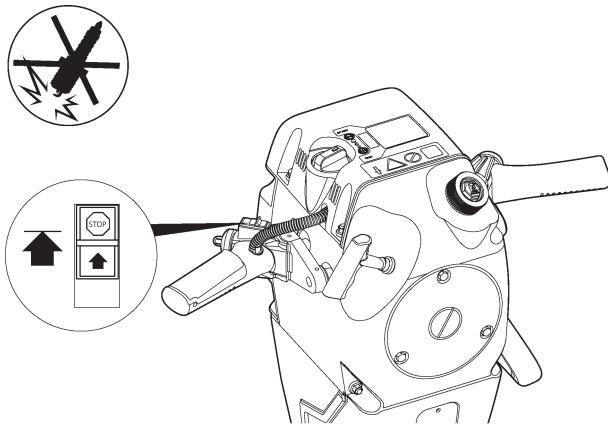
196.



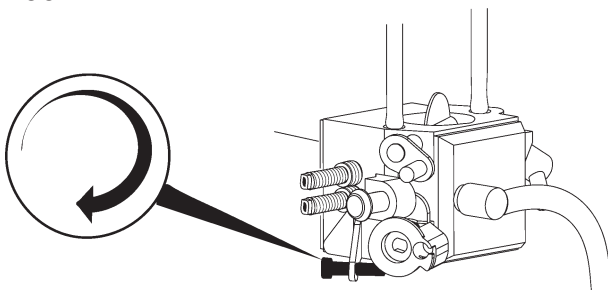
197.



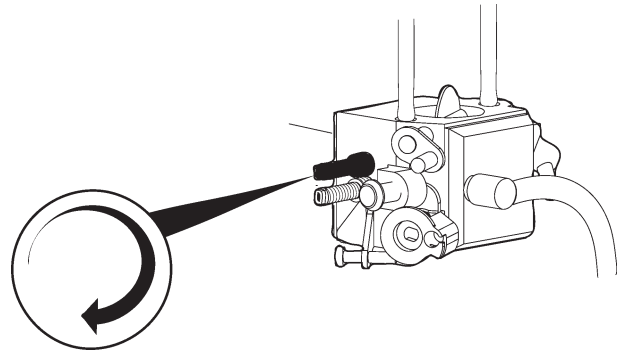
198.



199.



200.





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