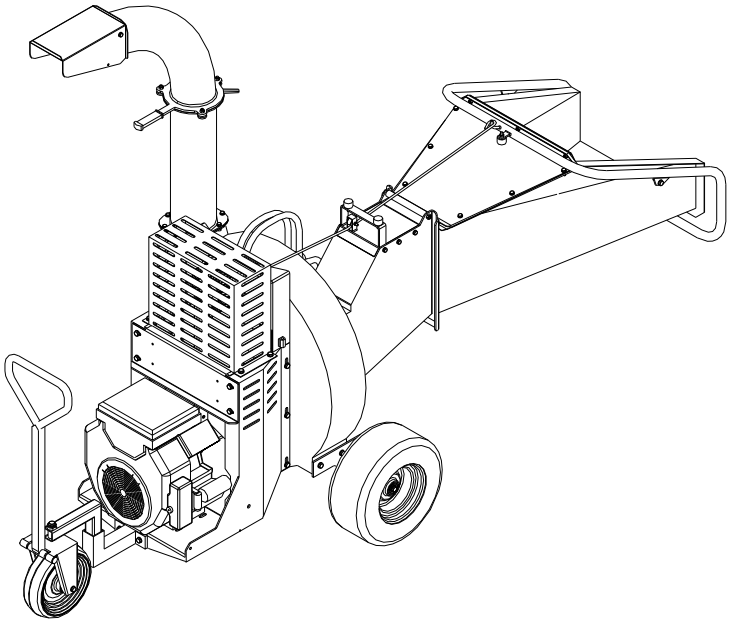
USE AND MAINTENANCE INSTRUCTION MANUAL

Bio 230



TRANSLATION OF THE ORIGINAL INSTRUCTIONS

READ THE INSTRUCTION MANUAL BEFORE USING THE MACHINE.

Caravaggi Srl – 20, Via Monte Adamello, 25037 Pontoglio (BS) – ITALY

EC DECLARATION OF CONFORMITY

The company
CARAVAGGI S.r.l.

REGISTERED OFFICE, FACTORY AND ADMINISTRATION:
20, Via Monte Adamello, 25037 Pontoglio (BS), ITALY

declares under its own responsibility that the
Bio 230 BIOSHREDDER

model **Bio 230 Petrol**

serial number: **96449**

year built: **2022**

complies with all the provisions of the following European Directives:
Machinery Directive 2006/42/CE amending Directive 95/16/CE

and since the machine has been adapted to the following harmonized standards and specifications, where applicable:
UNI EN ISO 12100: Safety of machinery – Basic concepts, general principles of design – Basic terminology, methodology, technical principles.
UNI EN ISO 4254-1: Agricultural machinery - Safety - Part 1: General requirements.
UNI EN 13683: Safety – Powered shredders/chippers.
ISO 11684: Tractors, machinery for agriculture and forestry, powered lawn and garden equipment – Safety signs and hazard pictorials – General principles.

Person authorised to draw up the declaration of conformity: **Valerio Gianpaolo Caravaggi**

The Legal Representative
(Valerio Gianpaolo Caravaggi)

CARAVAGGI s.r.l.
Via Monte Adamello, 20
25037 PONTOGLIO (Brescia)
Telefono 030.7470482
Partita IVA 01743270983

Pontoglio, 10 / 01 / 2022

EC DECLARATION OF CONFORMITY

The company
CARAVAGGI S.r.l.

REGISTERED OFFICE, FACTORY AND ADMINISTRATION :
20, Via Monte Adamello, 25037 Pontoglio (BS), ITALY

declares under its own responsibility that the
Bio 230 BIOSHREDDER

model **Bio 230 Electric**

serial number: **00000**

year built: **2022**

complies with all the provisions of the following European Directives:
Machinery Directive 2006/42/CE amending Directive 95/16/CE

And since the machine has been adapted to the following harmonized standards and specifications, where applicable:

UNI EN ISO 12100: Safety of machinery – Basic concepts, general principles of design – Basic terminology, methodology, technical principles.
UNI EN ISO 4254-1: Agricultural machinery - Safety - Part 1: General requirements.
UNI EN 13683: Safety – Powered shredders/chippers.
CEI EN 60204-1: Safety of machinery – Electrical equipment of machines - Part 1: General rules.
ISO 11684: Tractors, machinery for agriculture and forestry, powered lawn and garden equipment – Safety signs and hazard pictorials – General principles.

Person authorised to draw up the declaration of conformity: **Valerio Gianpaolo Caravaggi**

The Legal Representative
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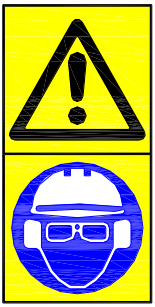
Pontoglio, 10 / 01 / 2022

FAC-SIMILE

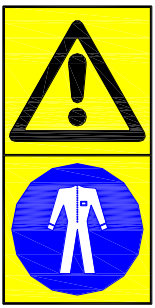
1. HAZARD PICTORIALS



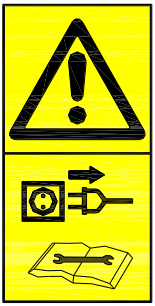
Warning!
Wear a hard hat, hearing protectors and safety goggles.

Warning!
Wear protective gloves.

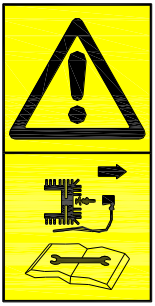
Warning!
Wear safety shoes.



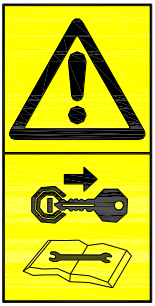
Warning!
Wear clothes that are suitable for work on machines with moving parts.



Warning!
Unplug from the mains before carrying out any maintenance.



Warning!
Remove the engine spark plug before carrying out any maintenance.



Warning!
Switch off the engine before carrying out any maintenance.

Hazard!
Projection of splinters. Keep to a safety distance from loading and unloading equipment.

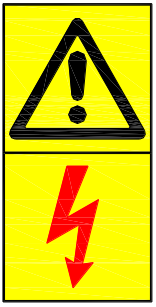
Hazard!
Keep arms well away from moving parts.

Hazard!
Keep fingers well away from cutting elements.

Hazard!
Make sure the blades have stopped completely before approaching.

Caution!
Only one person must operate the machine.

Caution!
Do not use petrol engines in closed environments. Risk of intoxication.

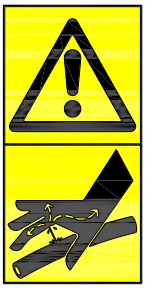


Caution!
Machine running on electricity.
Risk of electrocution.

Caution!
Machine lifting point.

Danger!
Keep well away from moving parts.

Important!
Keep to the correct machine power takeoff revs.



Caution!
Machine with hydraulic system. Risk of injury in the event of pressurised fluid leaks or pipe breakage.

2. ABOUT THIS INSTRUCTION MANUAL

This instruction manual has been written for the user of the machine, the owner, the maintenance operator and the repair technician and must always be available for consultation.
It explains the purposes for which the machine was designed and the machine's technical characteristics. It also contains instructions for transport, cleaning, adjustments, use, maintenance and ordering spare parts. It also contains information for the operator, details of residual risks, and warnings with regard to operations that must be carried out with particular care.
The machine must only be used by a fully qualified and authorized person who is well acquainted with the operating principles, correct method of use and hazards.
This handbook and the CE declaration of conformity are an integral part of the machine. They must be handed over to the buyer if the machine is resold and they must always be kept for future reference until the machine is scrapped.
The instruction manual must always be available for consultation and must be kept in a dry, protected place.
If the handbook gets lost or damaged, a replacement copy can be obtained from the manufacturer, quoting the serial number, type and year of construction shown on the plate fixed to the bio-shredder (section 6).
The manufacturer reserves the right to update its products and the instruction manual without the obligation to update earlier versions.
The manufacturer disclaims all liability in the following cases:

- improper use of the bio-shredder
- uses not in accordance with the instructions contained herein
- serious deficiencies in prescribed and recommended maintenance
- unauthorised modifications or interference
- use of spare parts that are not original or model-specific
- total or partial failure to follow the instructions
- force majeure.

3. IDENTIFICATION OF THE MAIN PARTS

1. Loading hopper with guards
2. Tow bar
3. Petrol engine / Diesel engine / electric motor
4. Power takeoff for tractor
5. Wheels
6. Grinding chamber
7. Outlet pipe
8. Feed roller unit

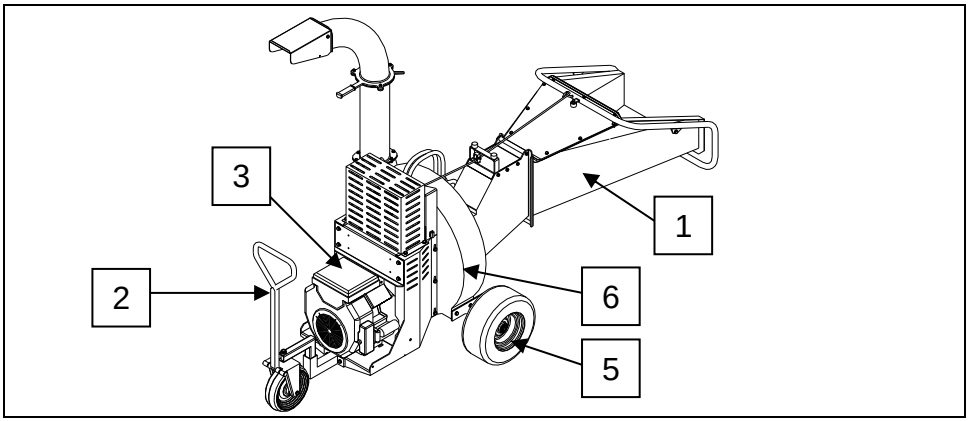


Fig. 1

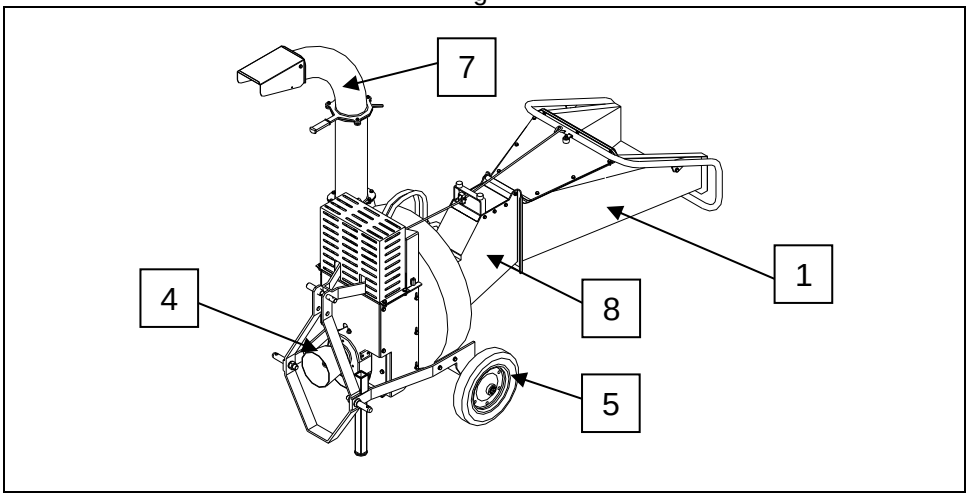


Fig. 2

4. CORRECT USE OF THE MACHINE

The machine must only be operated by one person at a time. The operator must remain in the work position by the loading hopper while the machine is in operation.
In order to use the machine correctly, the operator must first read and understand the instructions in this handbook.
The operator must ensure that no people or animals come within the range of action while the machine is running. Stop the machine immediately if anyone approaches.
The Caravaggi Bio 230 bio-shredder has been built to shred vegetable matter, leaves and wood up to 10 cm in diameter in the top hopper. The machine must never be used for any other purposes, such as breaking up bottles or tins.
It can be used for cutting up peat and the like.
It is not suitable for shredding products other than those listed above.
If you wish to handle other products, please contact the machine manufacturer or an authorised dealer.
The operator must be thoroughly acquainted with all the instructions provided in this instruction manual.

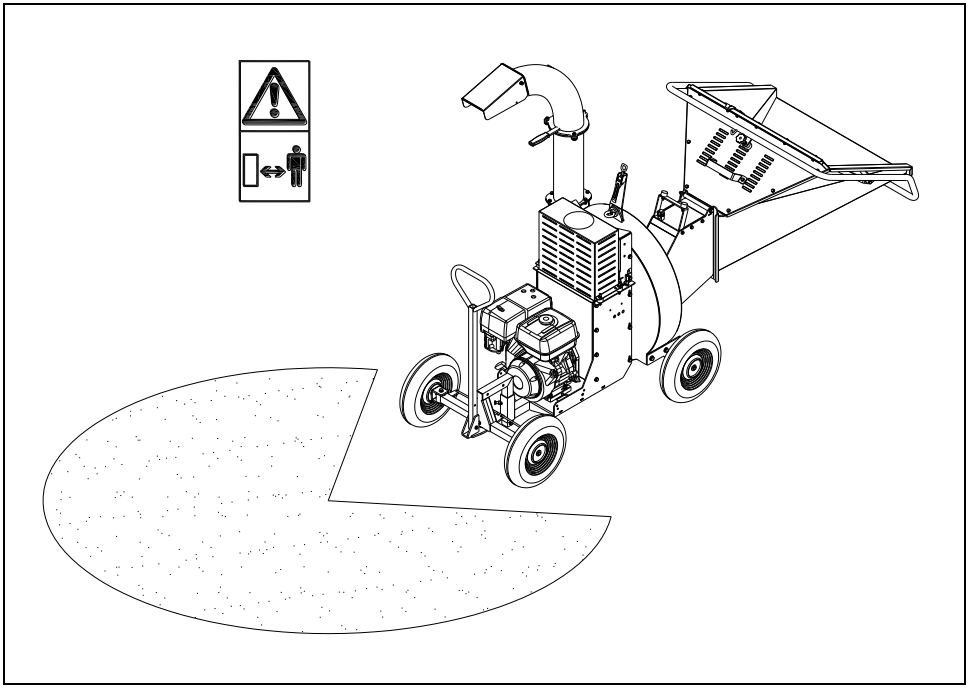


Fig. 3

5. UNPACKING AND PREPARATION

The Bio 230 bio-shredder may be arranged on pallets to facilitate handling and transport before installation.
To transport the machine in these conditions it is indispensable to use a transpallet or the like with an overall load capacity of around 800 kilos.
Do not:

- lift the machine using ropes or other unsuitable means;
- drag the machine along the ground;
- subject the machine knocks or impact;
- expose the machine to rain, frost or other bad weather conditions.

On taking delivery, check that the contents correspond to the delivery note.
If you find any damage or deformity due to transport, report this to the carrier immediately and inform the authorised dealer or the manufacturer. In particular, check the machine for:

- dents, bumps or deformation;
- damp areas or signs indicating that the pack has been exposed to foul weather;
- signs of tampering.

Electric motor or engine-operated machines are equipped with four wheels for transporting over short distances.
Machines with a cardan shaft can be hooked up and carried using the three-point hitch on the tractor.
All the machines can be lifted and transported by means of cranes or winches, using hooks and cables, which must be approved and of an adequate capacity. Hook up to the lugs, as shown in the pictogram affixed to the machine.
Only safe hooks, such as snap hooks, must be used for lifting. Exercise extreme caution when loading and unloading the machine. These operations must only be carried out by qualified personnel (slingers, truck operators, etc.). Never pass or stand underneath the machine when it has been raised off the ground.
When moving the machine, grasp the tow bar (1) and pull it along by hand (Fig. 4).

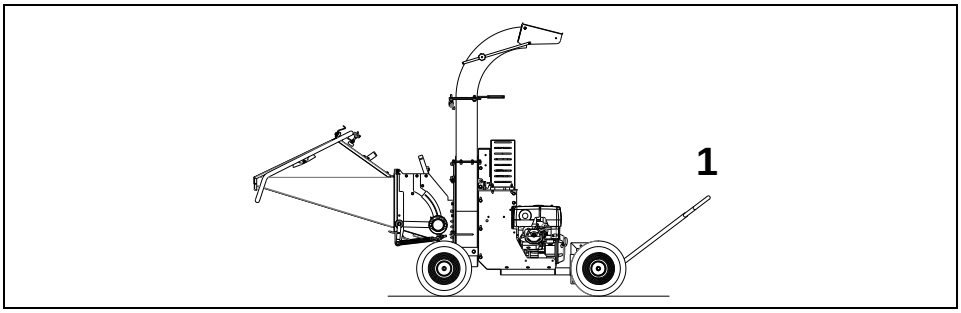


Fig. 4

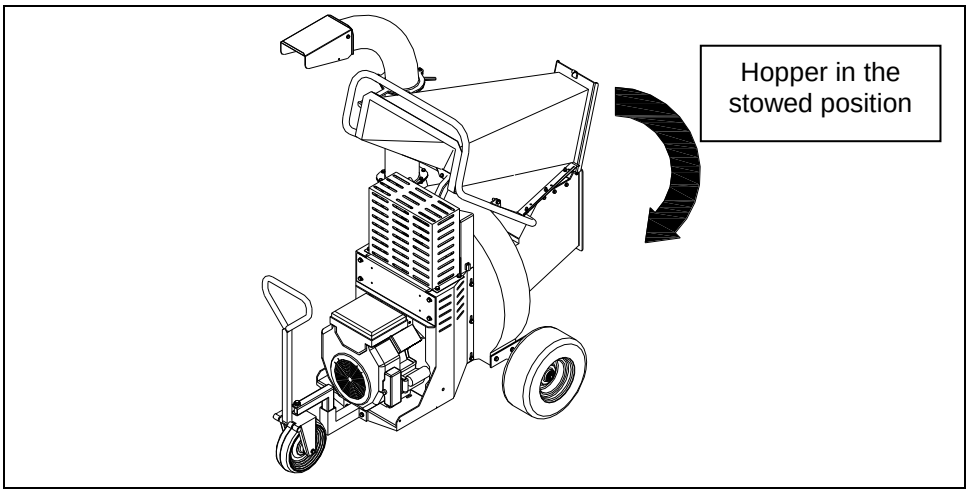


Fig. 5

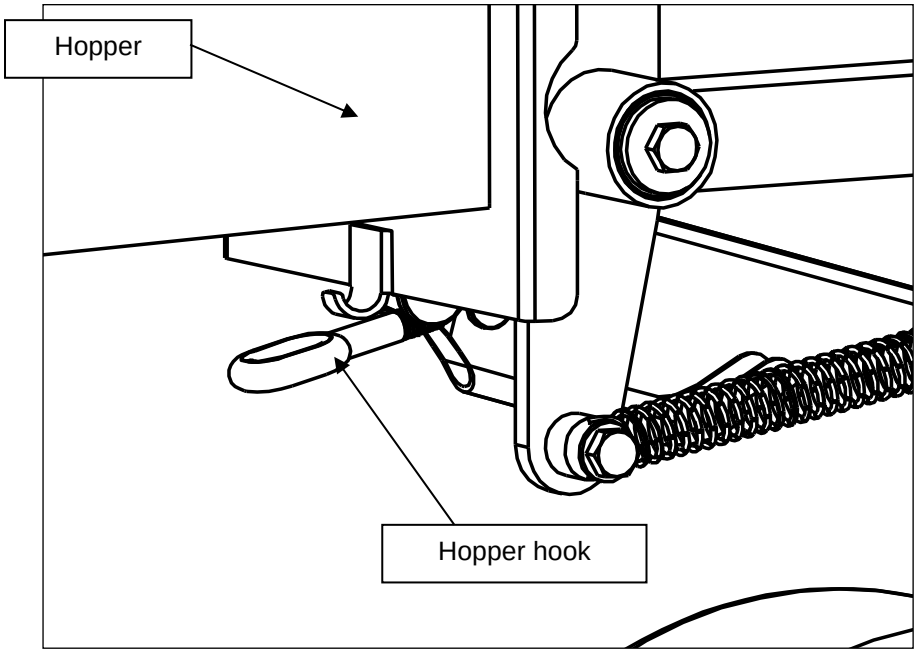


Fig. 6

6. TECHNICAL CHARACTERISTICS

The EC identification plate is clearly visible on the Bio 230 bio-shredder (Fig. 7).
In all communications with the manufacturer state the serial number on the identification plate.

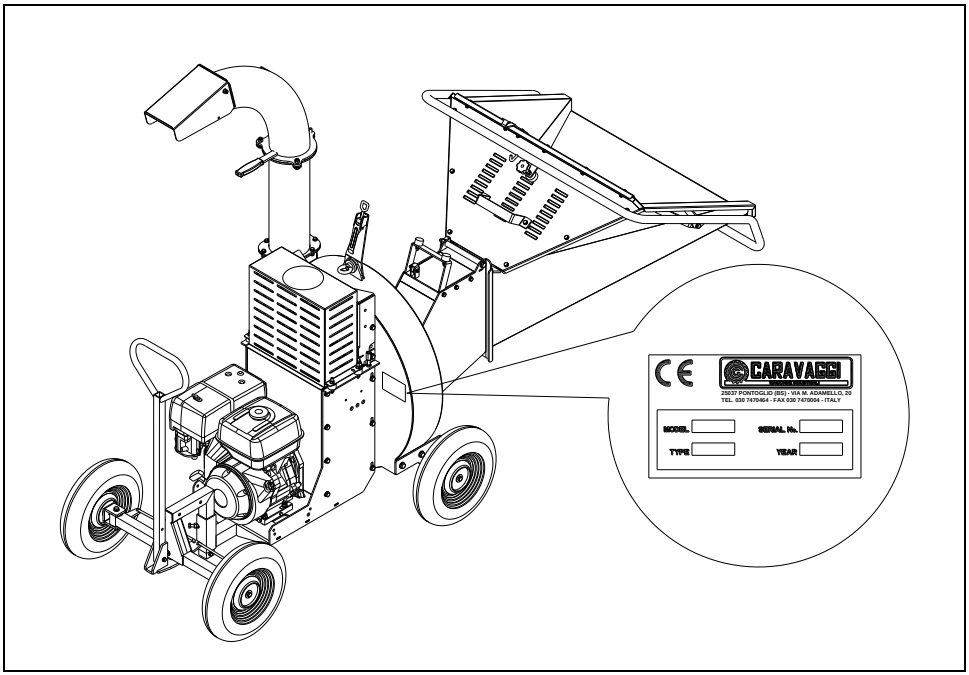


Fig. 7

Version	Power HP / kW	Supply	Output m^3 / h
BIO 230 E	**10 / 7.5**	**Electric 380 V**	**7 / 8***
BIO 230 E	**15 / 11.1**	**Electric 380 V**	**7 / 8***
BIO 230 B	**13÷20.8 / 9.7÷15.5**	**Petrol**	**7 / 8***
BIO 230 T	**20÷30 / 14.9÷22.3**	**PTO**	**7 / 8***

* depends on material quality and feed rate

6.1 Overall dimensions

Electric / Petrol version

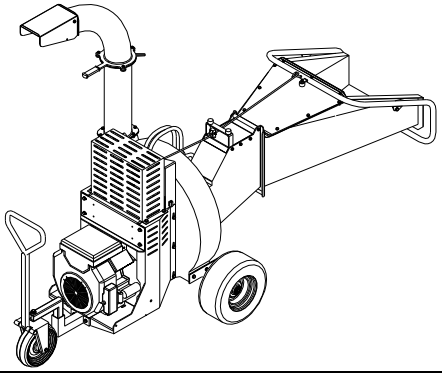
	**Length (mm):** 2500 **Width (mm):** 990 **Height (mm):** 1920 **Empty weight (kg.):** ~ 350 **$L_{WA\ MAX}$ (dB):** 104

Fig. 8

Electric / Petrol version

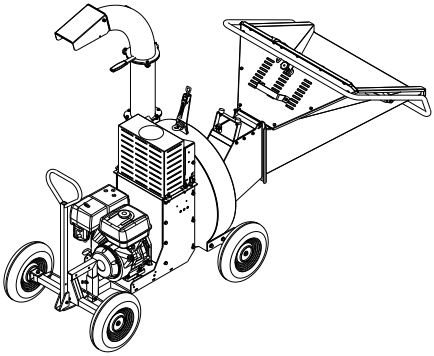
	**Length (mm):** 2500 **Width (mm):** 990 **Height (mm):** 1920 **Empty weight (kg.):** ~ 350 **$L_{WA\ MAX}$ (dB):** 104

Fig. 9

Tractor Version

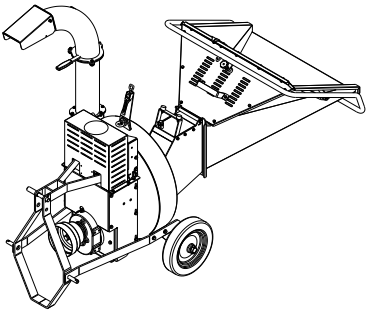
	**Length (mm):** 2500 **Width (mm):** 1170 **Height (mm):** 2270 **Empty weight (kg.):** ~ 350 **$L_{WA\ MAX}$ (dB):** 104

Fig. 10

7. SAFETY RULES

This handbook contains rules on how to use the machine properly and details of the hazards that may be encountered. Besides following the rules, the operator should use the machine sensibly, based on his experience, and adopt all the necessary precautions to prevent accident or injury.
The manufacturer cannot be held liable for any alterations to the machine that are not authorised in advance in writing.
The bio-shredder must only be used for shredding vegetables, leaves, wood and branches. It must never be used for any other purposes, such as breaking up bottles or tins.
The machine must only be operated by a fully qualified person who is authorised to do so and is thoroughly acquainted with the operating principles and the inherent hazards.
Read through the handbook before setting to work. The bio-shredder must not be operated by children.

7.1 GENERAL SAFETY AND ACCIDENT-PREVENTION RULES

- **Basic rule**: check the machine carefully each time before starting up.
- Besides following the recommendations contained in this handbook, it is important to follow the general safety and accident-prevention rules. Before using the machine, the operator must be fully acquainted with its features, devices, controls and functions.
- Before setting to work, make sure the shredding blades are properly secured. If they look damaged, they need to be sharpened or replaced. Mount the blades as instructed and only use original spares supplied by the manufacturer (or an authorised dealer).
- Before and after each work session, check that the guards, covers and safety devices are correctly installed and integral, and are properly secured with nuts and bolts.
- The notices on the machine provide a series of important instructions. They are there to enable you to work in complete safety. Read all the safety stickers on the machine and follow the instructions on them. If they become damaged or unreadable, they need to be cleaned or replaced in the exact position, as described in the relevant section.
- The machine must only be used in an open space, on flat, firm ground that is free from obstacles. Make sure the machine is positioned stably before operating.
- Do not use the shredder in the rain.

- Anyone approaching the machine enters the danger area and hence becomes an EXPOSED PERSON. It is up to the operator to prevent other people from entering the danger area and he himself must act with extreme caution. Stop the machine immediately if anyone enters the danger area.
- Caution: the blades continue to turn for several seconds after the engine has been switched off.
- Keep this handbook readily available so that you can consult it for details of the operating cycle and maintenance instructions. If it gets lost or damaged, a replacement copy can be obtained from Caravaggi.
- The machine is designed for use by one operator only, who must always stand in front of the loading hopper.
- Do not wear items of clothing that are likely to get caught up in the mechanism, such as long wide sleeves, belts, and necklaces.
- Hearing protectors and safety goggles must always be worn when operating the machine.
- Do not leave the bio shredder unattended while it is running.
- Do not place any tools or other objects on the machine as they could damage it or injure the operator.
- Use only original spares provided by Caravaggi.

Safety rules during operation

- Check the hopper is empty before starting up the machine.
- Keep the face and hands well away from the loading hopper.
- Stand firmly on the ground while operating the machine. Never stand in a raised position to feed material into the machine.
- Before feeding in any material, make sure the hopper contains no stones, pieces of metal, tin cans, bottles or similar objects.
- Switch off the machine if there is a malfunction, abnormal vibration or any strange noises. Disconnect the power supply (spark plug in the petrol version, power plug in the electric version, cardan shaft for tractor version) and determine the cause of the problem.
- Never attempt to move the machine while it is running.

7.2 SPECIFIC SAFETY AND ACCIDENT-PREVENTION RULES

7.2.1 Petrol version

- If there is a malfunction, and prior to any maintenance, adjustment and cleaning operations (e.g. removing foreign bodies from the hopper), switch off the motor and remove the spark plug cable.
- Before setting to work, read this handbook carefully and follow the instructions in it and the accompanying engine manual.
- Never use the machine in enclosed or poorly ventilated areas (even if the doors and windows are open), as the exhaust fumes are toxic.
- Avoid smoking and lighting flames when filling with petrol.
- Always fill the fuel tank in an open area with the engine switched off. Remember that petrol is highly flammable and explosive under certain conditions. Fuel must be stored in suitable canisters.
- Never place anything on the engine as it could catch fire.
- Never remove the fuel tank cap or top up with petrol with the engine running or when it is still hot.
- If any petrol gets spilt, do not attempt to start the engine immediately.
- The exhaust pipe gets very hot when the engine is running and remains hot for some time after it is switched off. Never touch the exhaust pipe. Keep to a safety distance.

7.2.2 Cardan-shaft models

- All maintenance, adjustment and cleaning operations (e.g. to remove foreign bodies from the hoppers) must be carried out with the machine standing on firm ground, the tractor engine off, the handbrake engaged, and the ignition switched off and the key removed.
- Never stand between the tractor and the machine with the power takeoff connected and the engine on.
- Make sure the cardan shaft guards are integral and in good condition.
- Any damaged or broken guards must be replaced immediately.
- When the machine is not connected to the power source, the cardan shaft must be placed on its support. Never use the machine in enclosed or poorly ventilated areas (even if the doors and windows are open), as the exhaust fumes are toxic.
- Cardan-shaft models must only be used when connected to the tractor's 3-point coupling.
- Before detaching the machine from the tractor, make sure they are standing still on flat, firm ground.

7.2.3 Electric models

- Maintenance, adjustment and cleaning operations (e.g. removing foreign bodies from the hopper) must be done with the machine resting firmly on the ground, switched off and disconnected from the power supply.
- The machine complies with the general principles of electrical safety. This means that if any changes are made to the structure or components, this will alter the characteristics of the system, which will no longer comply with the safety requirements.
- Make sure the controls and cables are integral and in good condition.
- The electrical protection rating is IP54.

8. STARTING UP

Caution! Before starting up the engine/motor check that the bio-shredder is on a stable surface and there are no animals or unauthorised persons in the work area.

Read the engine manufacturer's instruction book carefully.

Check the oil and fuel levels and top up if necessary.

8.1 Petrol engine version

- Turn the selector to position I (Start) (Fig. 11). Take hold of the starter grip (Fig. 12) and pull the cord lightly until you feel resistance caused by compression, then give a sharp tug to start the engine.

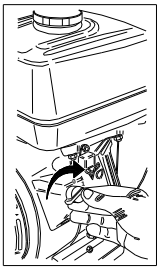


Fig. 11

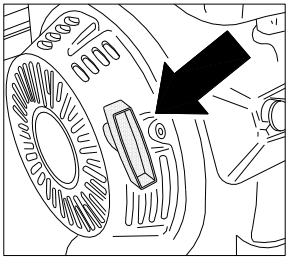


Fig. 12

- In the version with electrical ignition, insert the key in the panel and turn it to position "I" to power on and then to "Start" to switch on (Fig. 13).

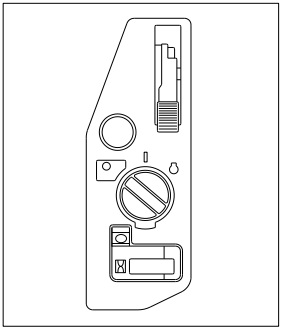


Fig. 13

- Before beginning work let the engine idle for about 1 minute, then take it to maximum revs (using the accelerator lever) and proceed with normal use.

8.2 Electric motor version

- Make sure the mains voltage corresponds to the motor rated voltage (check the rating plate on the motor).
- Check that the power cable is connected, then press the start/stop button.
- Regularly check that the power cable is in perfect condition. Never repair a damaged cable with insulating tape or a thermal lamp.
- The power cable must be type 05RN-F standardised rubber cable complying with DIN 57282/VDE 0282.
- Plugs must be made of rubber or rubber-coated.

8.3 Version with tractor 3-point hitch

- Before hooking the machine up to the 3-point hitch, position the tractor safety device so that the rear jack cannot be raised or lowered accidentally.
- The 3-point hitches of the tractor and bio-shredder must coincide or be adapted.
- Beware of the risk of getting crushed or cut in the rear jack boom tie rod area of the tractor.
- Do not use the tractor's external control to raise the machine.
- Drive the tractor towards the bio-shredder until the jack bars coincide with the 3-point hitch of the machine and connect them via the pivots provided.
- Insert the safety pins in the holes in the pivots, lock them and double check.
- Connect the third point to the upper coupling and adjust the length to position the bio-shredder parallel to the ground.
- Insert and lock the safety pin. Lock the third-point no-unscrew device.
- Raise the machine a few centimetres off the ground and secure the side tie rods of the jack bars to prevent lateral movement.

8.3.1 Installing the cardan shaft

- After connecting the machine to the tractor, insert the cardan shaft in the tractor power takeoff. This must be done with the engine off and the key removed from the ignition.
- Before using the cardan shaft, read the accompanying user manual. If you do not intend to use the cardan shaft provided with the machine, make sure the machine and tractor casings overlap the cardan shaft guard by at least the legal requirement of 5 cm.
- Clean and lubricate the power takeoff.
- Lubricate the cardan shaft periodically, following the manufacturer's instructions. Refer to the user maintenance manual.
- Mount the cardan shaft in the direction specified by the manufacturer, as marked on the outside of the guard (tractor icon on the outer tube of the shaft towards the tractor power takeoff).
- Hook up the anti-rotation chains.
- Make sure the extension-preventing safety device (button or ring nut) is correctly inserted and locked in position.
- Check the direction of rotation and make sure the power takeoff is set to 540 rpm, the speed for which the machine is designed.
- The cardan shaft must always be connected to the power takeoff last and disconnected first at the end of the job.
- Only use cardan shafts with integral guards.
- When the cardan shaft is disconnected from the power takeoff, it must always be placed on its support.
- Caravaggi declines all liability for damage or injury caused by incorrect installation and use of the cardan shaft.

IMPORTANT

At the end of the job, switch off the tractor and disconnect the cardan shaft from the power takeoff.

Before moving the machine, disconnect the cardan shaft from the power takeoff.

8.4 Operation
The bio-shredder has been prepared correctly and is now ready to work.

Upper hopper
Before loading trimmings and foliage into the upper hopper, check the power rating of your particular model. (Fig. 14a).

Important. Drop the material into the mouth of the hopper.

Caution! Never insert the hands and arms in the hopper!

To invert rotation of the feed roller, push the lever towards the hopper. When you release the lever, it returns into position, resuming normal rotation of the roller (Fig. 14b).

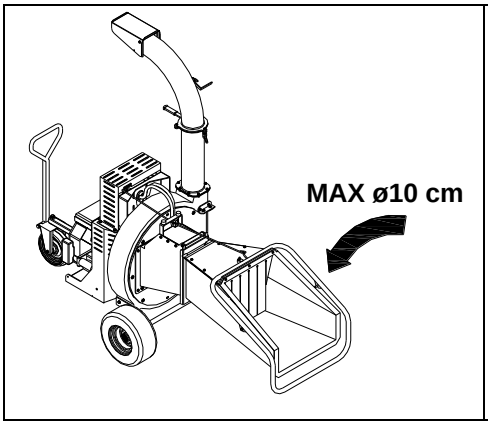


Fig. 14a

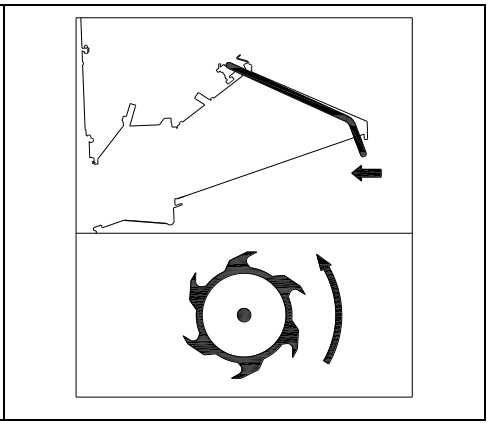


Fig. 14b

This hopper can take material up to 10 cm diameter.

To avoid the danger of intoxication from fumes, machines with internal combustion engines should never be used in enclosed environments.

8.5 Rules to follow when moving the machine

- Stand at the side of the machine and make sure there is no one within the operating range.
- When the motor/engine has reached the maximum number of revs, operate the control button to move the machine in the desired direction (Fig. 15).
- Do not attempt to exceed slopes of 25%. Only move the machine with the hopper downhill (Fig. 16).
- Before loading on or unloading from a vehicle, make sure the ramps are of a suitable type and capacity to bear the weight of the machine.

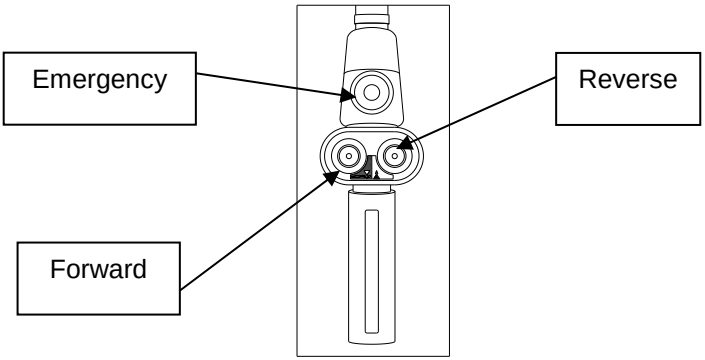


Fig. 15

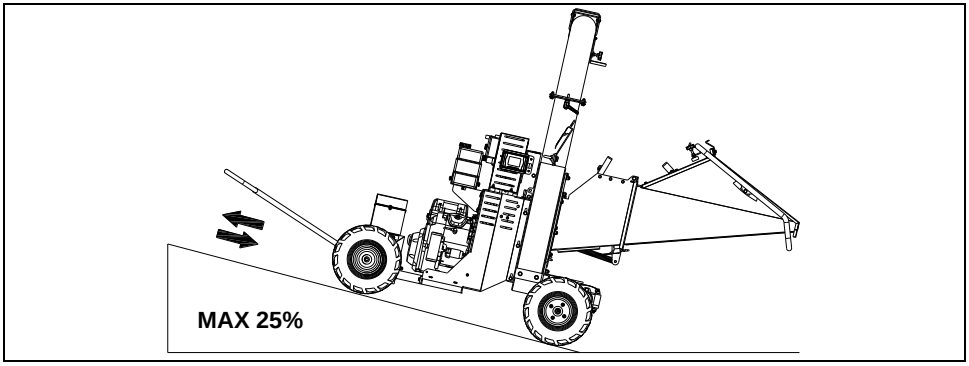


Fig. 16

9. MAINTENANCE

Caution! Before proceeding with any maintenance operations, switch off the engine/motor and make sure the machine cannot be started up. Safety gloves must be worn during maintenance operations.

9.1 Replacing the blades

- Unscrew the locking nuts and open the feed hopper (Fig. 17).
- Clean the hexagonal seat of the socket screws.
- Insert an Allen wrench right into the slot and tap lightly with a hammer.
- Unscrew the securing screws and remove the blades (Fig. 19).
- Fit the new blades.
- Tighten the securing screws.
- Close the feed hopper and tighten the locking nuts.

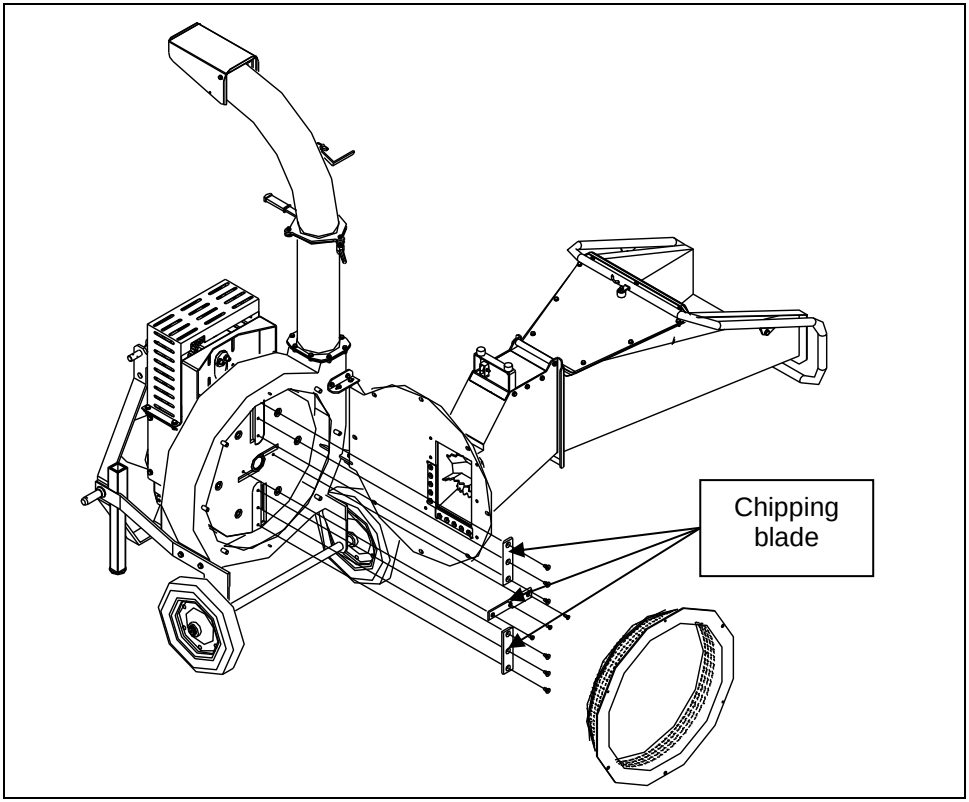


Fig. 17

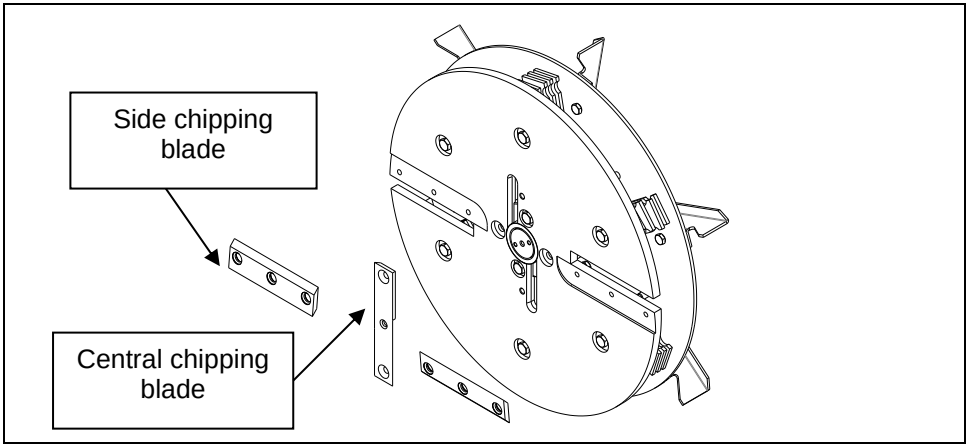


Fig. 18

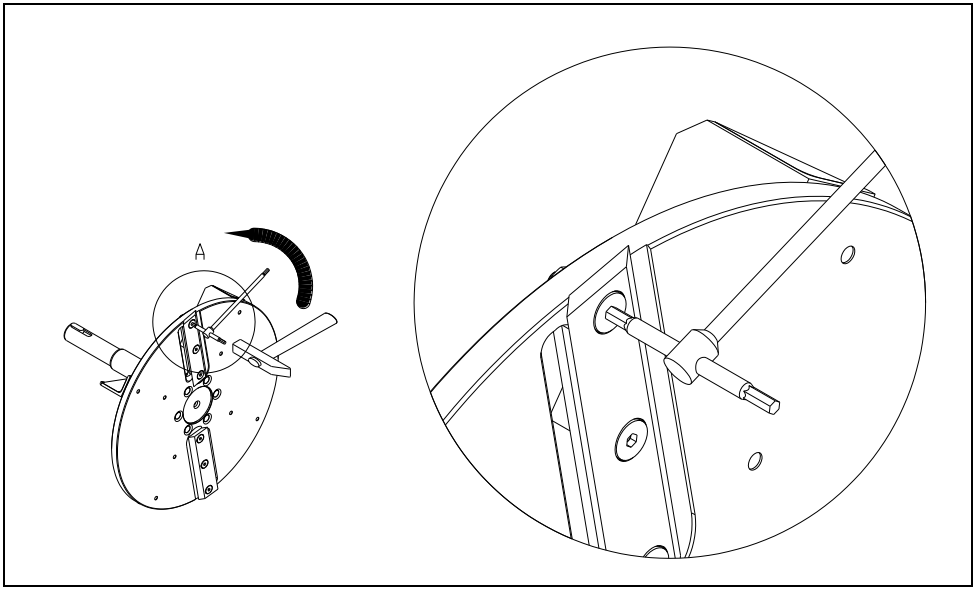


Fig. 19

9.2 Replacing the counter-blades

- Unscrew the locking nuts and open the feed hopper (Fig. 17).
- Clean the hexagonal seat of the socket screws.
- Insert an Allen wrench right into the slot and tap lightly with a hammer.
- Unscrew the securing screws and remove the blades.
- Replace the counter-blade with a new one.
- Tighten the 5 securing screws.
- Close the feed hopper and tighten the locking nuts.

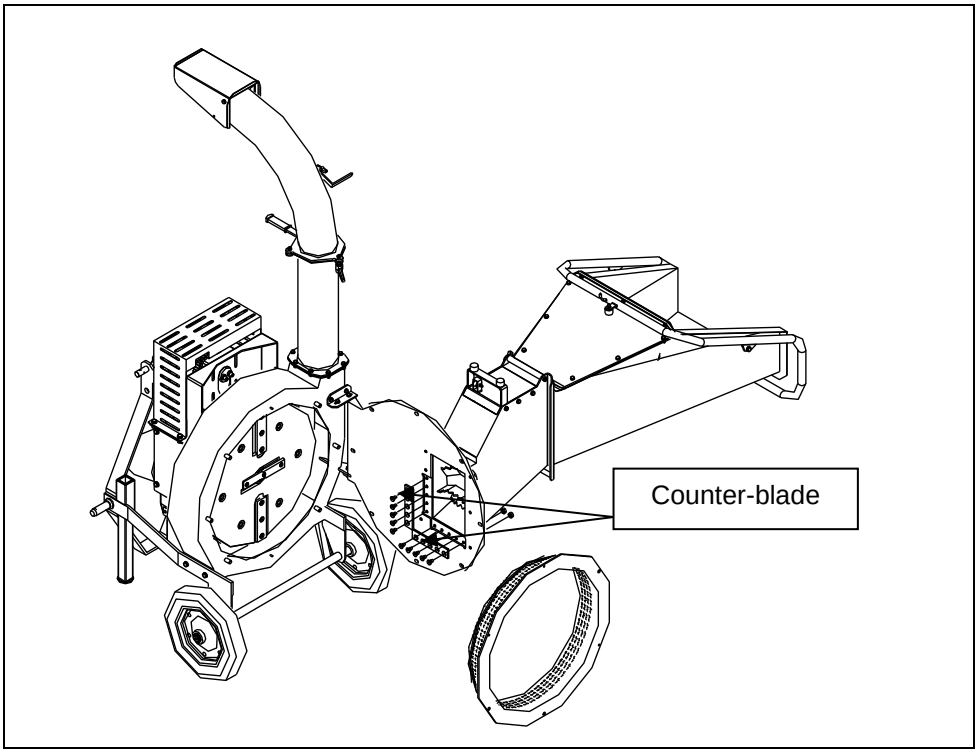


Fig. 20

9.3 Removing, inverting and replacing the knives

- Unscrew the locking nuts and open the feed hopper (Fig. 17).
- Pull the sieve out of the grinding chamber.
- Remove the central chipping blade and the aluminium cap.
- Unscrew the 6 screws and remove the front chipping disc.
- Remove the knives and spacers, taking care to note the position of the spacers separating the knives.
- If necessary replace knives. Take care to replace the previously removed spacers in the same position on the cutter shaft .
- Remount the front chipping disc and lock the 6 securing screws in position.
- Remount the aluminium cap and the central chipping blade.
- Close the feed hopper and tighten the locking nuts.

Important! If only some of the knives are replaced, make sure they are properly balanced.

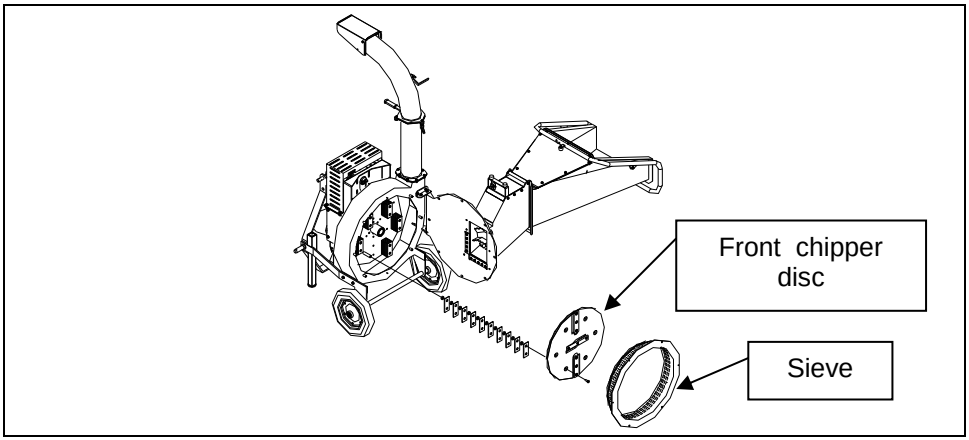


Fig. 21

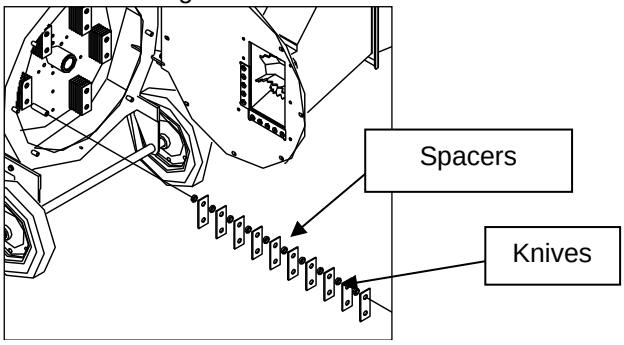


Fig. 22

9.4 Replacing the blades

Important! Before doing this, remove the rotor from the shredding chamber and then take it apart.

- Unscrew the locking nuts and open the feed hopper (Fig. 17).
- Remove the sieve from the shredding chamber.
- Remove the central chipping blade, the aluminium cap and the rotor screw.
- Remove the rotor, take it apart and take out the knives and spacers.
- Remove the securing screws and take off the blades.
- Mount the new blades.
- Remount the rotor.
- Remount the aluminium cap and the central chipping blade.
- Close the feed hopper and tighten the locking nuts.

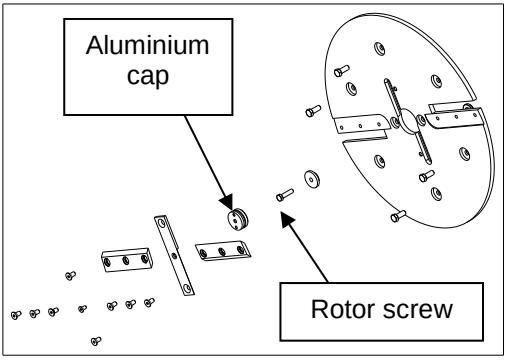


Fig. 23

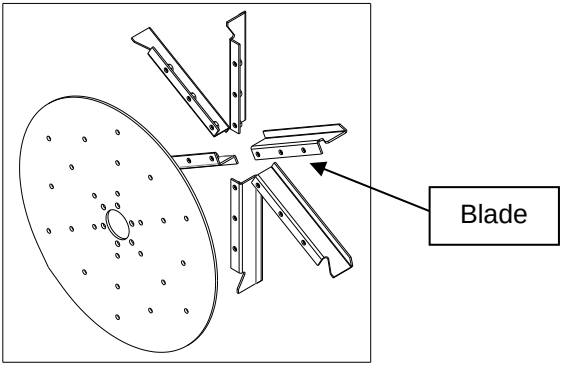


Fig. 24

9.5 Replacing the sieve

- Unscrew the locking nuts and open the feed hopper (Fig. 17).
- Pull the sieve out of the grinding chamber.
- Insert a new sieve in the grinding chamber.
- Close the feed hopper and tighten the locking nuts.

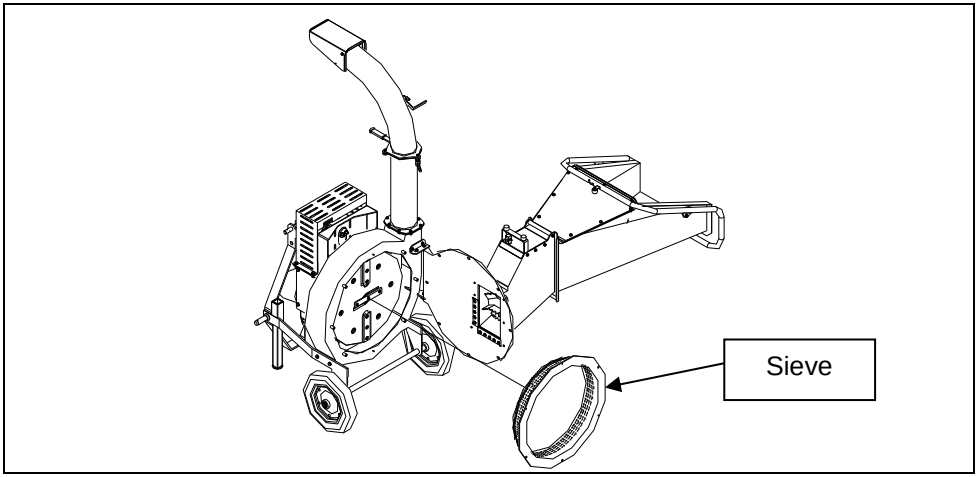


Fig. 25

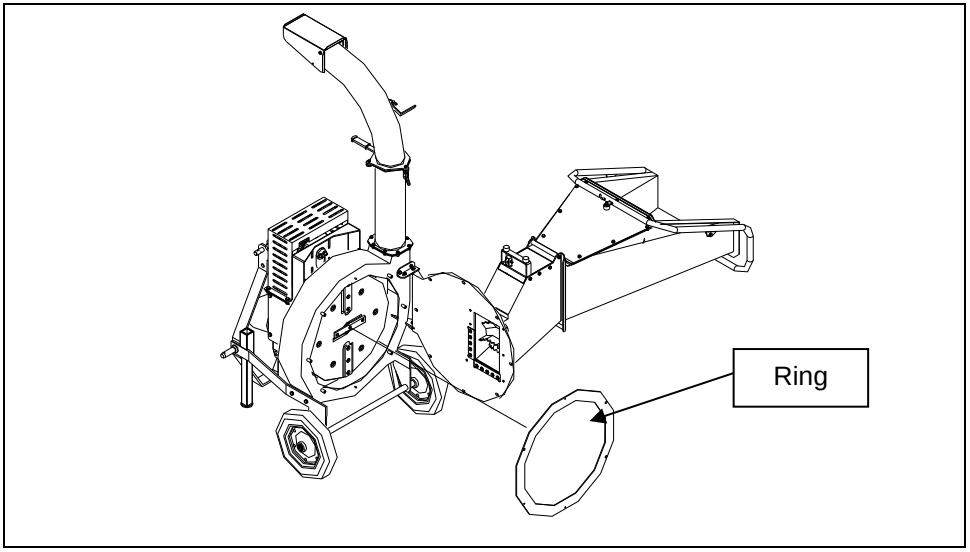


Fig. 26

9.6 Replacing and tensioning the belts

9.6.1 Replacing the belts

- Remove the pump guard and the front motor/engine block guard.
- Loosen the tensioning device screw to slacken the belt tension (Fig. 27).
- Remove the damaged or worn belts and mount new ones.
- Tension the belts by loosening the tensioning device screw.
- Reassemble the front motor/engine block guard and the pump guard.

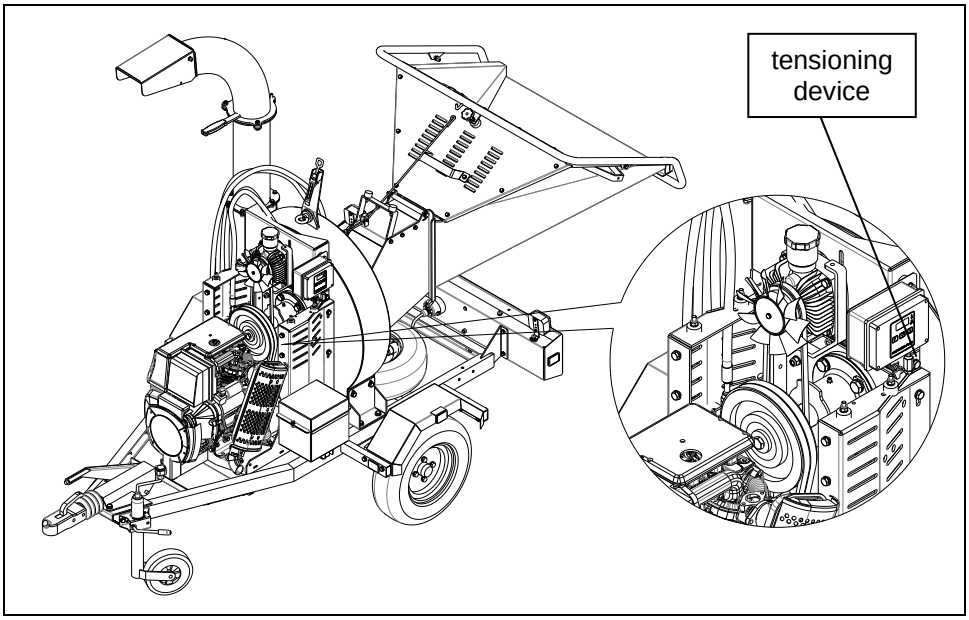


Fig. 27

9.6.2 Tensioning the pump belt

- Remove the pump guard.
- Loosen the screws **A** of the pump support (Fig. 28).
- Loosen screw **B** of the tensioning device to adjust belt tension (Fig. 28).
- Tighten the screws **A** of the pump support.
- Reassemble the pump protection guard.

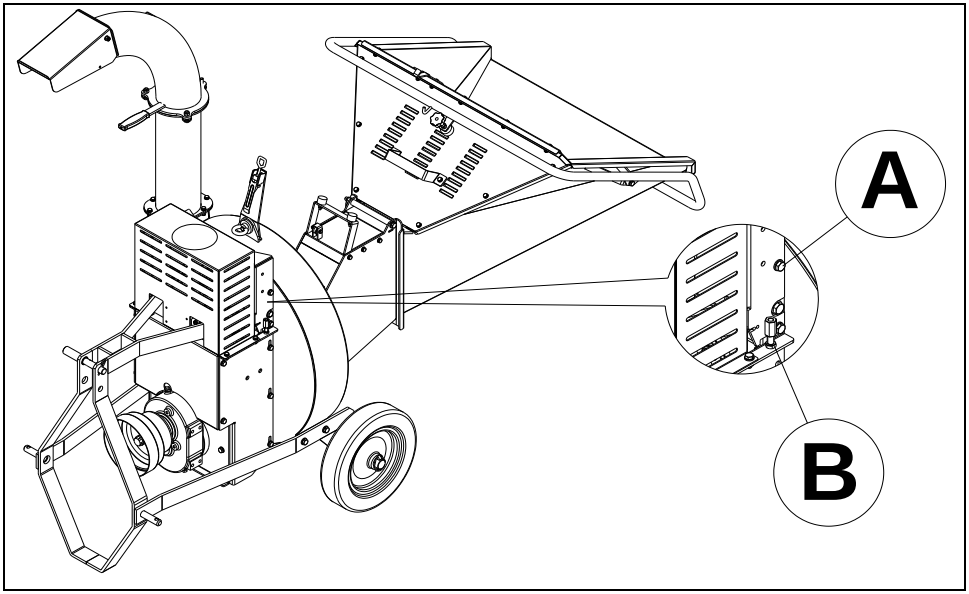


Fig. 28

9.6.3 Tensioning the rotor belts

- Remove the pump guard.
- Loosen the screws **C** of the motor/engine block (Fig. 29).
- Loosen the tensioning device screw **A** to adjust belt tensioning (Fig. 29).
- Tighten the screws **C** of the motor/engine block.
- Reassemble the pump guard.

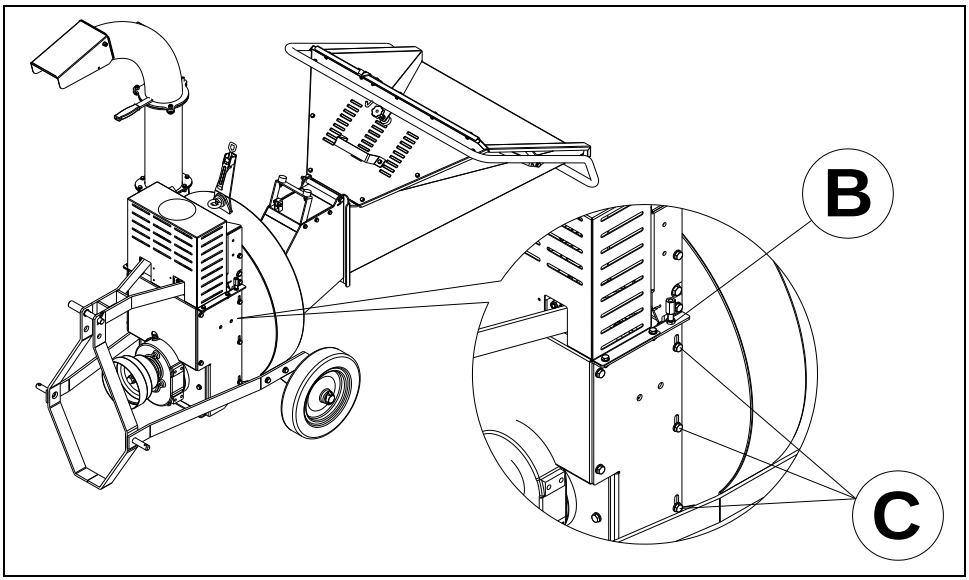


Fig. 29

9.7 Replacing and topping up with hydraulic oil

- Remove the pump guard.
- Remove the cap from the oil tank (Fig. 30).

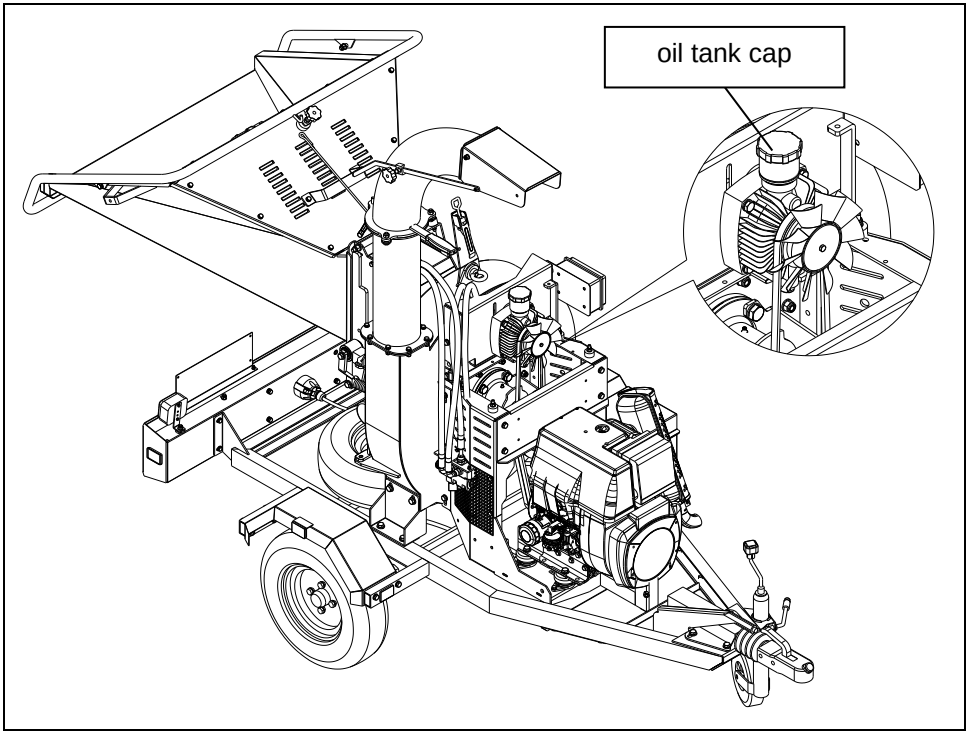


Fig. 30

9.7.1 Changing the oil

- Unscrew the pipe at the bottom of the pump and drain all the oil out into the container (Fig. 31).
- Screw on the pipe and fill the tank with oil up to the level mark (Fig. 32).
- Start up the engine and accelerate to the maximum number of revs. Bleed the pump to eliminate any air in the system (Fig. 32).
- Switch off the engine and screw the cap back onto the tank.

IMPORTANT

After bleeding the pump, with the engine cold make sure the level of hydraulic oil in the tank does not exceed the mark shown in Fig. 26.

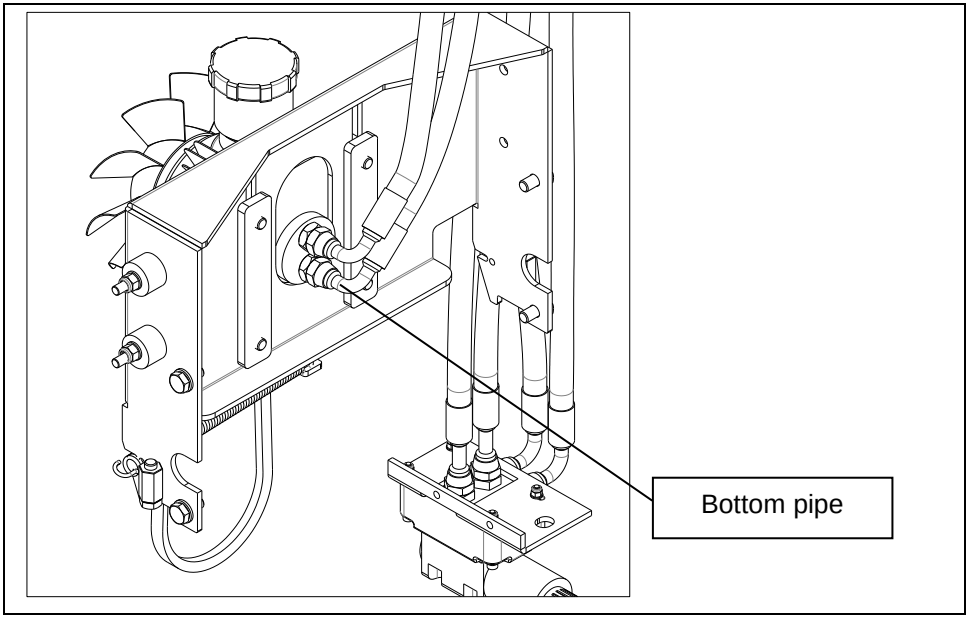


Fig. 31

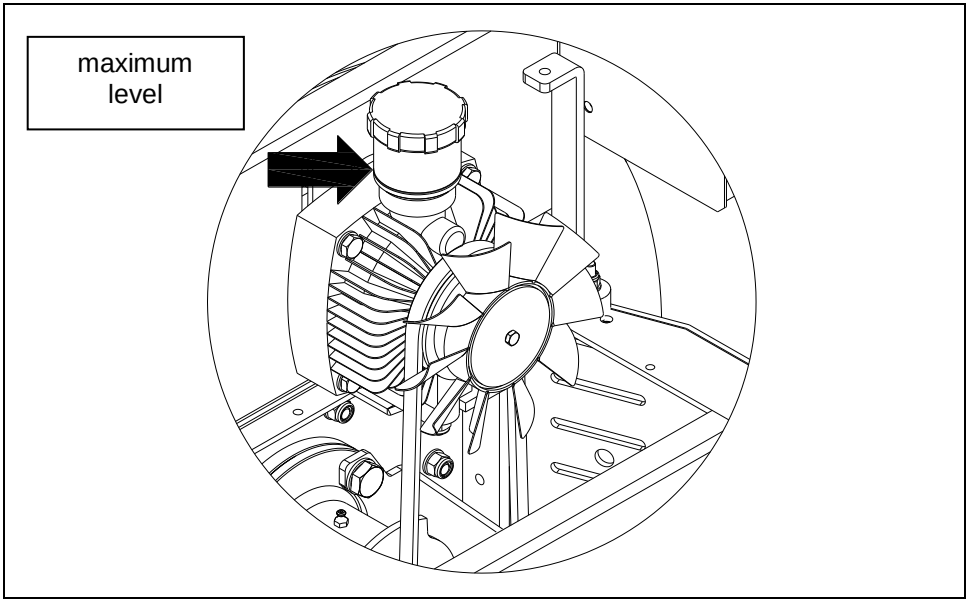


Fig. 32

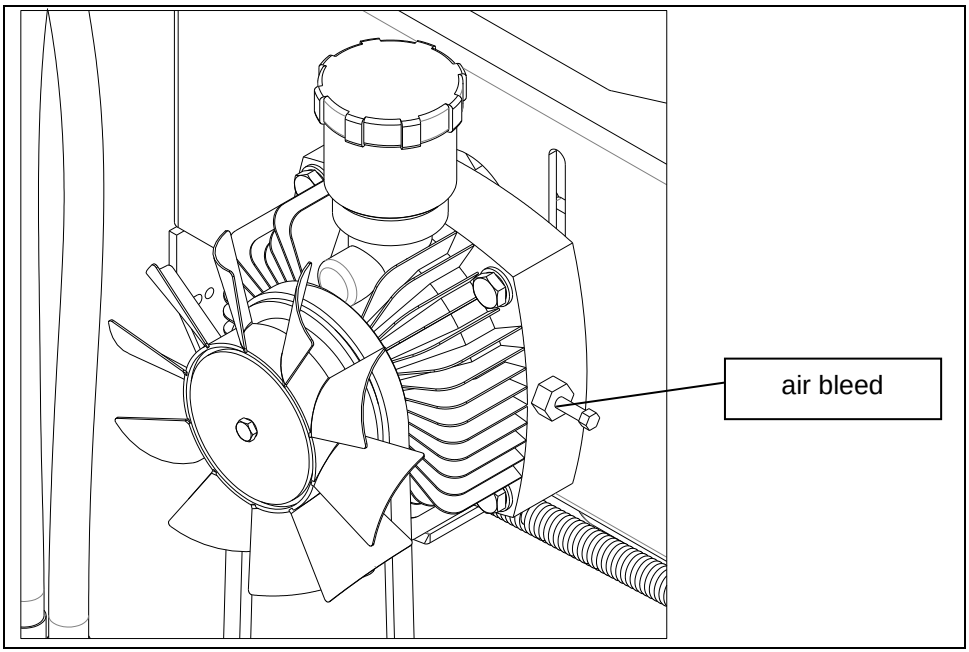


Fig. 33

Recommended oil
SAE 20 W20 (SAE 30)
Shell Tellus TD 46

9.7.2 Topping up the hydraulic oil

If the oil tank is empty or nearly empty, top up as follows.

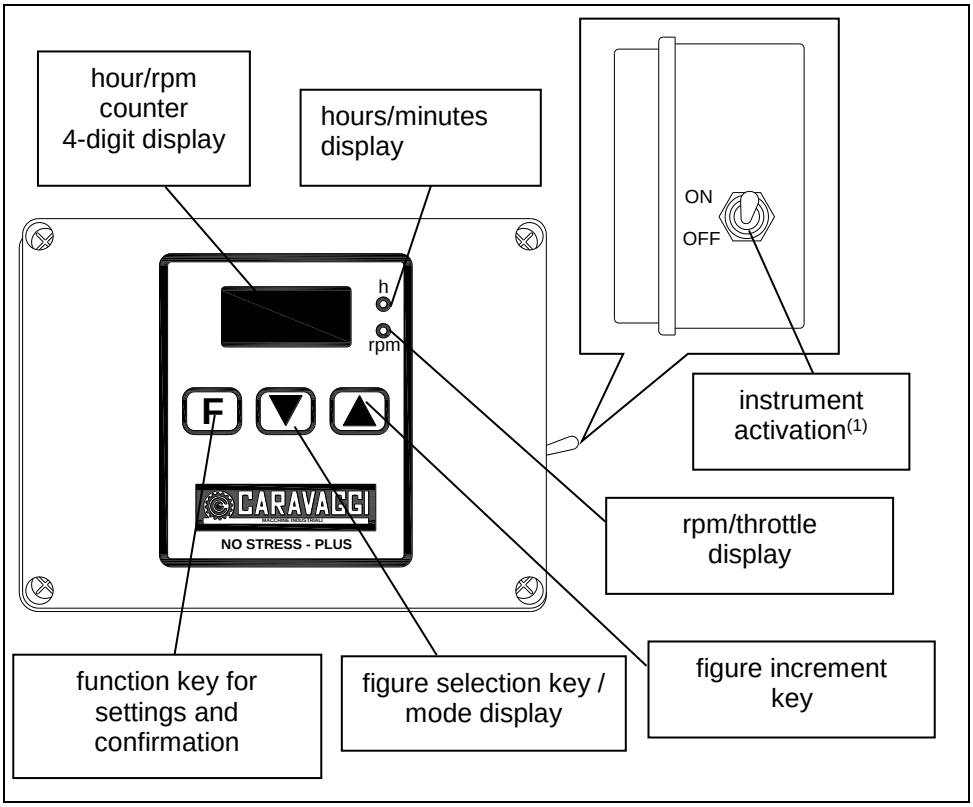
- Fill with hydraulic oil to just below the maximum mark on the tank, with the engine cold.
- Start up the engine and accelerate to the maximum number of revs. Bleed the pump to eliminate any air in the system (Fig. 32).
- Switch off the engine and screw the cap back onto the tank.
- Reassemble the pump guard.

IMPORTANT
The hydraulic oil needs to be replaced at least every 1000 hours of operation.

9.8 Routine maintenance

	Beginning of season	Before each job	End of season
Check engine oil level		♦	
Check screws, tightness, casing, hopper, etc.	♦	♦	
Check belt tension and state of wear	♦	♦	
Check wear on knives	♦		♦
Check wear on blade	♦		♦
Check wear on counter-blade	♦		♦
Check hopper rubber protection	♦	♦	♦
Clean machine			♦
Grease main rotation points	♦	♦	♦
Check wear on bearings and transmission shafts	♦		♦
Check safety stickers and pictorials	♦		♦

9.9 Programming and setting the No-Stress Plus device



Partial and total hour counter display

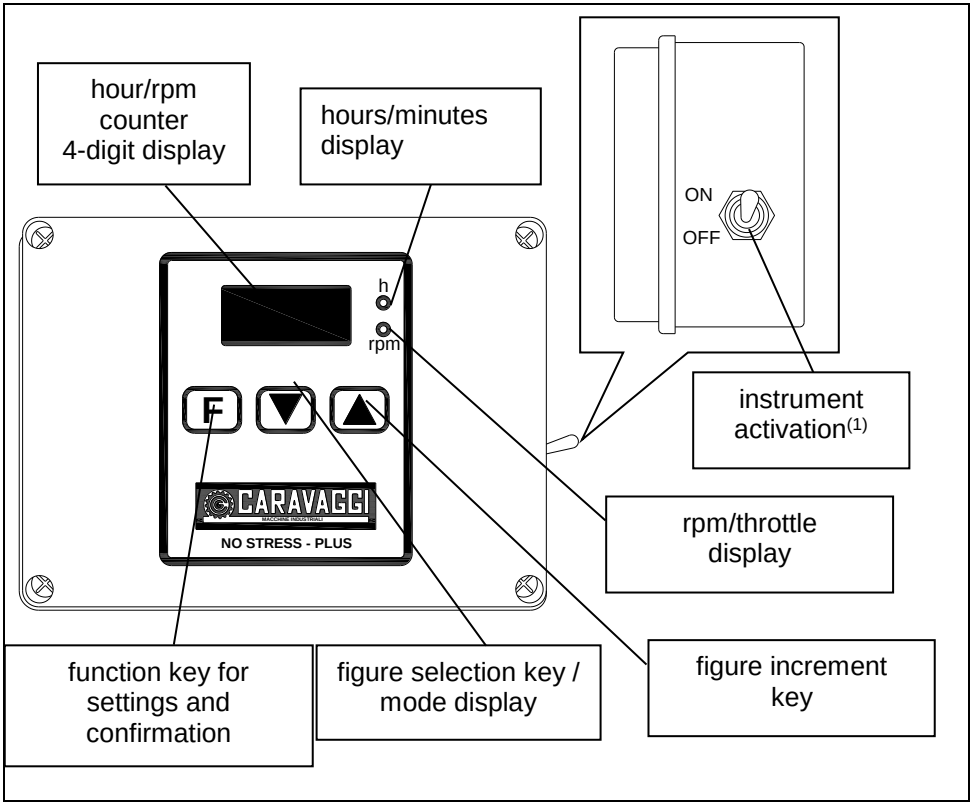
- On start-up, the instrument displays the number of rotor revolutions.
- Press ▼ to display the partial hour counter.
- Press ▼ again to switch to the total hour counter.

Only the partial hour counter can be reset in this operating mode.

(1) The hour counter continues to clock up the hours of operation of the machine, even when the instrument is deactivated. Deactivation only involves the No Stress-Plus.

Partial hour counter reset

- Press **F** for 3 seconds until the word “Code” appears.
- Enter the code 1234 and press **F** again.
- When “Clear” is displayed, it means the hour counter has reset.



Maximum threshold setting

- Switch on the machine and run it at the maximum number of revolutions.
- Press ▼ to switch to RPM mode and read the number of rotor revs.
- Press **F –** "Set 1" is displayed.
- Enter a value equal to 50 rpm less than the reading with the machine running at full speed.

Interval setting

- Press **F –** "Set 2" is displayed.
- Enter an interval of 70 revs using the keys ▼ and ▲.
- Press **F** again to terminate programming.

N.B. Press ▲ and hold it down to display the battery charge.

10. TROUBLESHOOTING CHART

Problem	Solution
The bio-shredder will not start.	Check belt tension and condition, PTO and gears. Check to see if the pulleys are jammed. Check the knives, blade and counter-blade. Check to see if there is any material in the shredding chamber. Check the state of the engine/motor (consult the instruction manual supplied).
Difficult start-up or loss of power.	Check belt tension and condition, PTO and gears. Check to see if the pulleys are jammed. Check the state of the engine/motor (consult the instruction manual supplied).
The bio-shredder loses revs and functions irregularly.	Check belt tension and condition, PTO and gears. Check to see if the pulleys are jammed. Check the knives, blade and counter-blade. Check to see if there is any material in the shredding chamber. Check the sieve for blockage. Check the state of the engine/motor (consult the instruction manual supplied). Examine the material being chopped at the time of breakdown.
Excessive vibration.	Check the knives, blade and counter-blade. Check to see if there is any material in the shredding chamber..
Drop in quality of output material.	Check belt tension and condition, PTO and gears. Check to see if the pulleys are jammed. Check the state of the engine/motor (consult the instruction manual supplied).
Hopper rejects material.	Check the knives, blade and counter-blade. Check to see if there is any material in the shredding chamber. Check the state of the engine/motor (consult the instruction manual supplied). Check state of wear of hopper rubber protection.

11. WARRANTY

1. The Manufacturer hereby guarantees its BIO-SHREDDERS against breakage caused by faulty materials or workmanship.
2. This warranty is valid for the first owner only, for 12 months as from the date of purchase and/or delivery.
3. The Manufacturer is entitled to inspect the Bio-Shredder and any components for which a claim has been made under the warranty, in order to determine the validity of the claim.
4. This warranty covers replacements free of charge only of components found to be defective due to faulty materials or workmanship. The warranty does not cover parts and accessories available from the trade.
5. This warranty does not cover reimbursement for labour, consumables or transport charges for repairs under the warranty.

WARRANTY EXCLUSIONS

1. The Manufacturer disclaims all liability for general damage or injury, loss due to halts in production, loss of earnings, leasing costs or any moral or commercial damage.
2. All claims concerning a motor or engine mounted on a Bio-Shredder will be handled by the relevant manufacturer's after-sales service.
3. This warranty does not cover damage caused by misuse, abuse, insufficient maintenance, accidents or **damage caused during transport**.
4. Parts subject to wear, such as hammers, blades and counter-blades, are not covered by this warranty.
5. All expenses for setting the machine to work will be charged to the distributor or dealer.
6. This warranty is not valid if repairs, maintenance or modifications are performed by an unauthorised person or dealer.
7. The owner is responsible for routine maintenance and settings, which are thus excluded from this warranty.
8. The installation or use of non-original components and accessories will immediately invalidate this warranty.

PROCEDURE FOR MAKING CLAIMS UNDER THIS WARRANTY

If you find the Bio-Shredder is defective due to faulty materials or workmanship, send the Manufacturer a written claim. The procedure is as follows:

1. The machine must be returned to the Seller or the authorised CARAVAGGI importer.
2. A duly compiled warranty or, in its absence, the original receipt must be presented.
3. The claim will be completed by the dealer, who will forward it to the Manufacturer.
4. The Manufacturer alone reserves the right to determine whether to accept the claim or otherwise.
5. The Court of Brescia, Italy has sole jurisdiction in the event of disputes between the parties.

The warranty is effective as from the date of start-up of the machine, provided it does not exceed 30 days of despatch from the factory and is valid for 12 calendar months.

NOTES

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Rev.1-2021