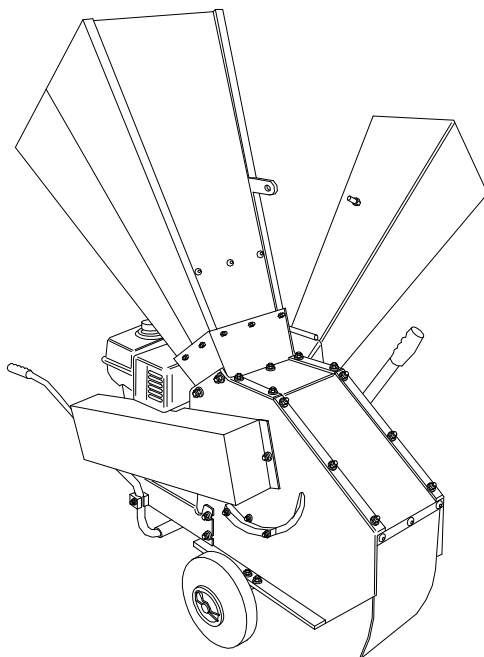


USE AND MAINTENANCE INSTRUCTION MANUAL

Bio 150



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 150 BIOSHREDDER

model **Bio 150 petrol**
Bio 150 for two-wheel tractor
Bio 150 PTO 540 RPM

serial number: **see rating plate**

year built: **see rating plate**

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 PONTOGGIO (Brescia)
Telefono 030.7470484
Partita IVA 01743270883

Pontoglio, 01 / 01 / 2013

EC DECLARATION OF CONFORMITY



The company
CARAVAGGI Srl

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

declares under its own responsibility that the
Bio 150 E BIOSHREDDER

model **Bio 150 Electric**

serial number: **see rating plate**

year built: **see rating plate**

complies with all the provisions of the following European Directives:

Machinery Directive 2006/42/CE amending Directive 95/16/CE

Directive 2004/108/CE on the harmonisation of the laws of member countries relating to electromagnetic compatibility.

Directive 2006/95/CE on the harmonisation of the laws of member countries relating to electrical equipment designed for use within certain voltage limits.

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
(Valerio Gianpaolo Caravaggi)

CARAVAGGI s.r.l.
Via Monte Adamello, 20
25037 PONTOGGIO (Brescia)
Telefono 030.7470464
Partita IVA 01743270833

Pontoglio, 01 / 01 / 2013

1. HAZARD PICTORIALS



Warning!

Wear a hard hat, hearing protectors and safety goggles.



Warning!

Wear protective gloves.



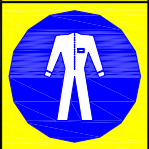
Warning!

Wear safety shoes.



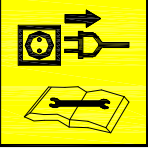
Warning!

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

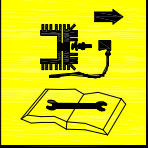




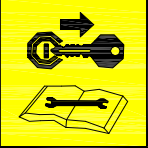
Warning!
Unplug from the mains before carrying out any maintenance.



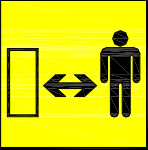
Warning!
Remove the engine spark plug before carrying out any maintenance.



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.

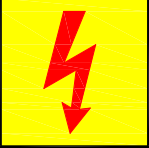




Caution!
Do not use petrol engines in closed environments. Risk of intoxication.



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.

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. Chipping hopper
3. Petrol engine/electric motor
4. Handles for transport
5. Outlet
6. Three-point hitch
7. Power take-off for two-wheel tractor
8. Power take-off for tractor

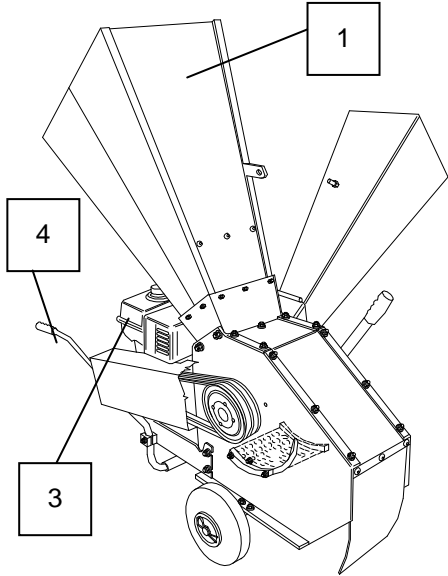


Fig. 1

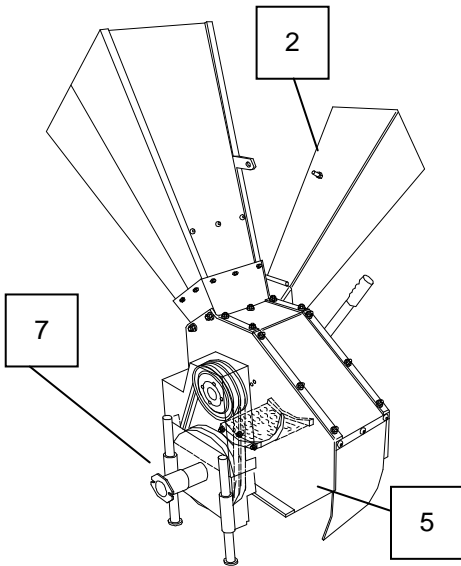


Fig. 2

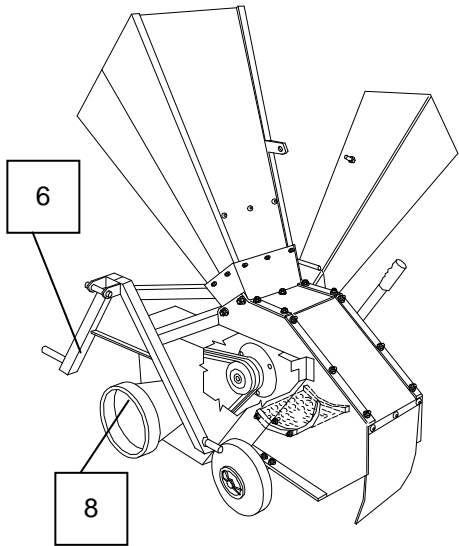


Fig. 3

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 150 bio-shredder has been built to shred vegetable matter, leaves and wood up to 3 cm in diameter the top hopper, and up to 9 cm in diameter in the side 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.

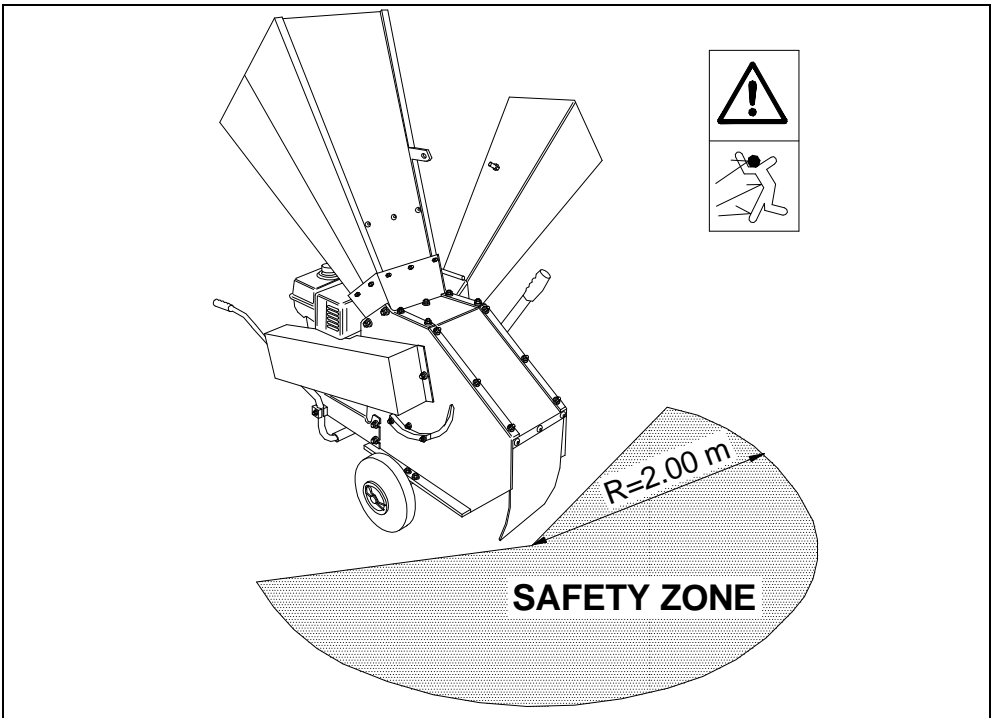


Fig. 4

5. UNPACKING AND PREPARATION

The Bio 150 bio-shredder is delivered partially dismantled. It may be arranged on pallets to facilitate handling and transport before installation, depending on the versions.

To transport the machine in these conditions it is indispensable to use a transpallet or the like with an overall load capacity of around 300 kilos.

Do not:

- lift the machine using ropes or other unsuitable means;
- drag the machine along the ground;
- subject the machine to 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.

After checking there is no damage due to transport, assemble the machine as shown in Figs. 6, 7 and 8.

Electric motor or engine-operated machines are equipped with two 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 handles (1) and tilt slightly forwards.

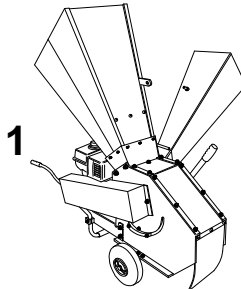


Fig. 5

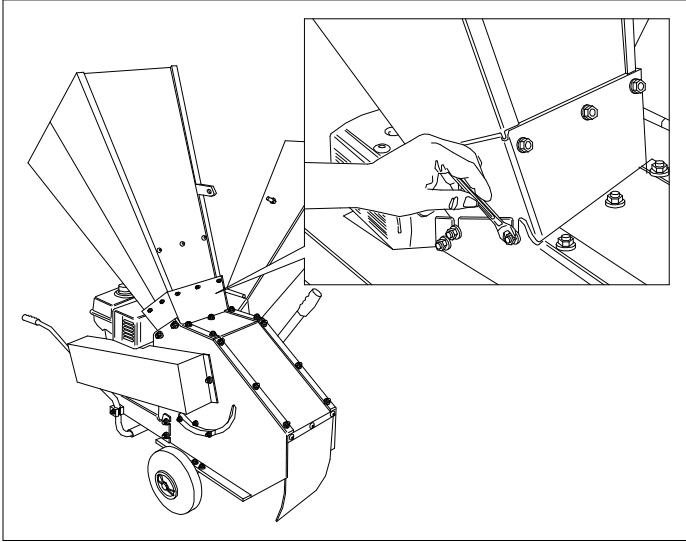


Fig. 6

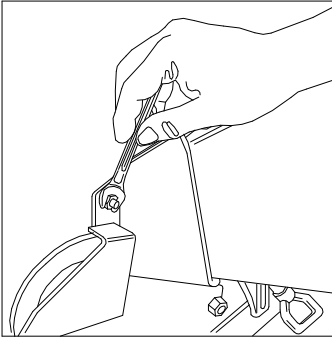


Fig. 7

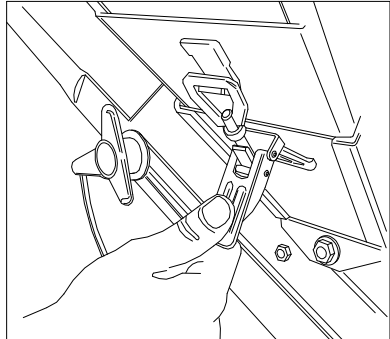


Fig. 8

6. TECHNICAL CHARACTERISTICS

The EC identification plate is clearly visible on the Bio 150 bio-shredder (Figs. 9a, 9b, 9c).

In all communications with the manufacturer state the serial number on the identification plate.

Electric / Petrol version

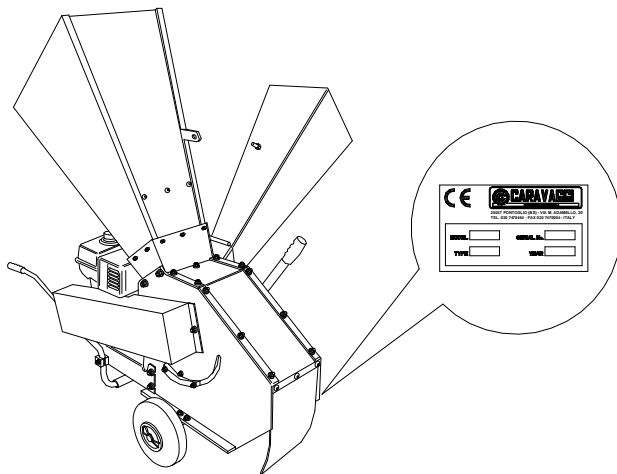


Fig. 9a

Two-wheel tractor version

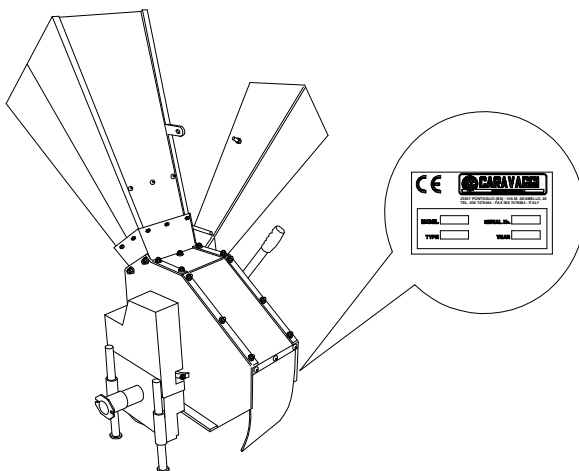


Fig. 9b

Tractor Version

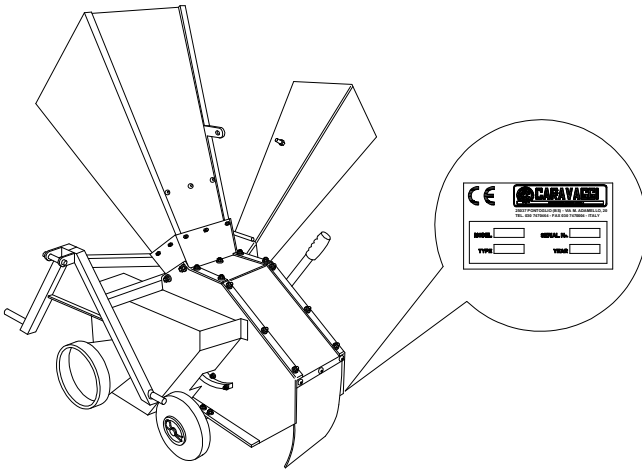


Fig. 9c

Version	Power HP / kW	Supply	Prod. m ³ / h
BIO 150 B	9-13 / 6.6-9.7	Petrol	6-8*
BIO 150 E	7.5 / 5.5	Electric 380V	6-8*
BIO 150 MTC	8-15 / 5.9-11.1	Two-wheel tractor	6-8*
BIO 150 T	20-30 / 14.9-22.3	Tractor	6-8*

*depends on material quality and feed rate

6.1 Overall dimensions

Electric / Petrol version

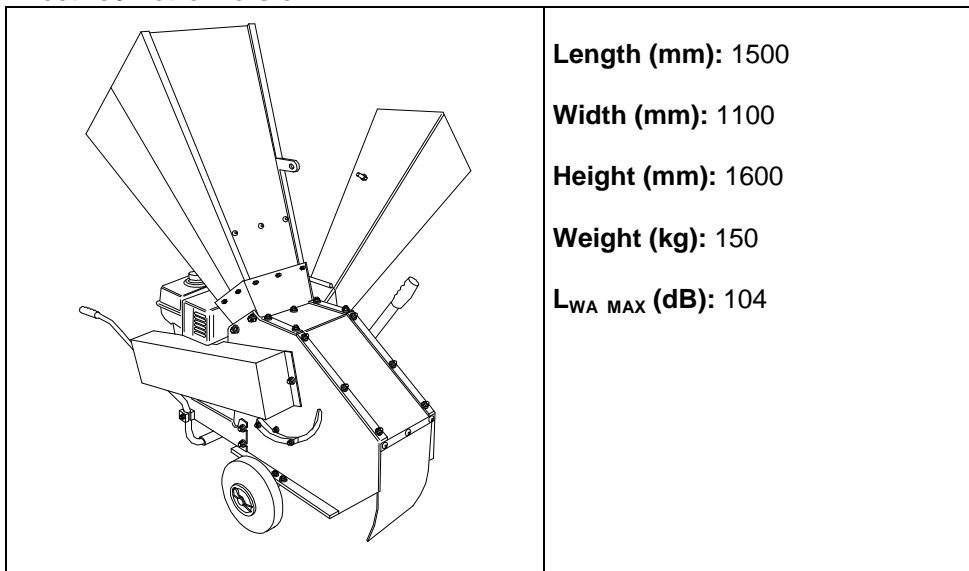


Fig. 10a

Two-wheel tractor version

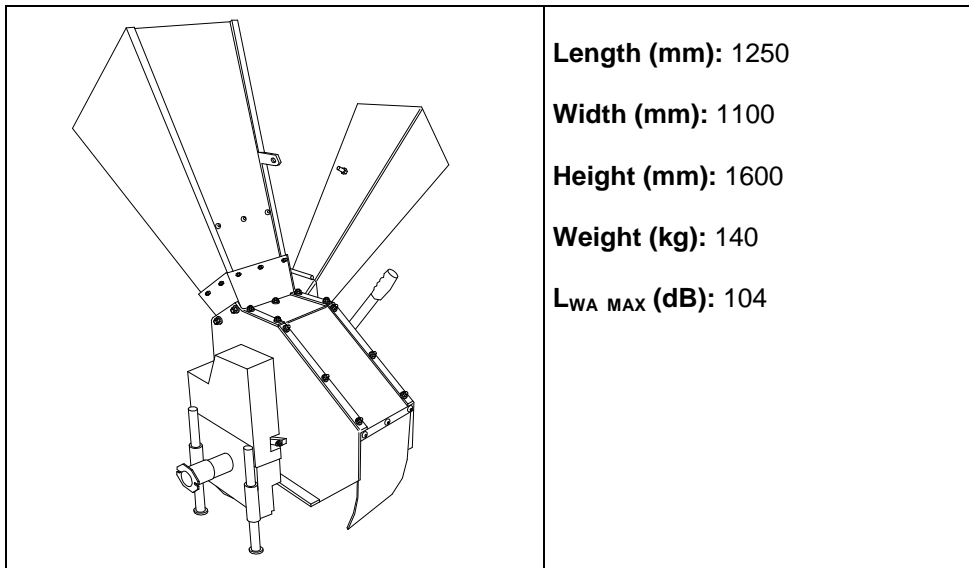
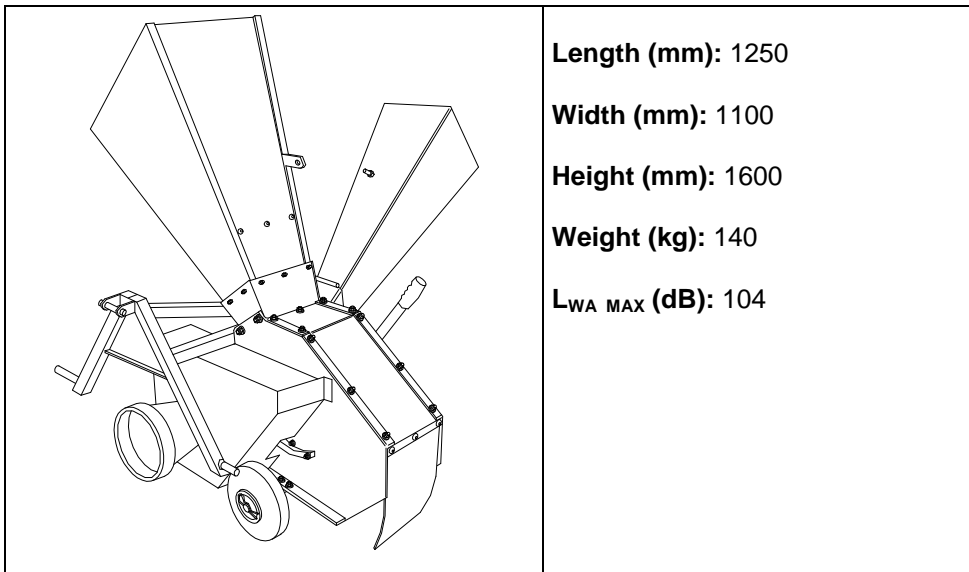


Fig. 10b

Tractor Version



Length (mm): 1250

Width (mm): 1100

Height (mm): 1600

Weight (kg): 140

L_{WA} MAX (dB): 104

Fig. 10c

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 Motor-cultivator models

- Any maintenance, adjustment or cleaning operations (e.g. removal of foreign bodies from the hoppers) must be done with the machine standing firmly on the ground, the motor-cultivator engine switched off, the hand brake engaged, and the ignition switched off and the key removed.
- Never stand between the motor-cultivator and the machine when the engine is on and the power take-off connected.
- Make sure the drive shaft guards are in good condition and in place.
- Any damaged or inefficient guards must be replaced immediately.
- Never use the machine in an enclosed or poorly ventilated room (even if the doors and windows are open) because the exhaust fumes are highly toxic.
- Before disconnecting the machine from the motor-cultivator, make sure they are standing still on firm, flat ground.

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.

7.2.4 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.

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.

8.1 Petrol engine version

- Read the engine manufacturer's instruction book carefully.
- Check that there is oil and fuel in the tank. Top up if necessary.
- 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.
- 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.



Fig. 11

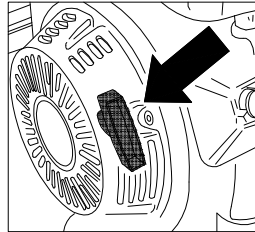


Fig. 12

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.

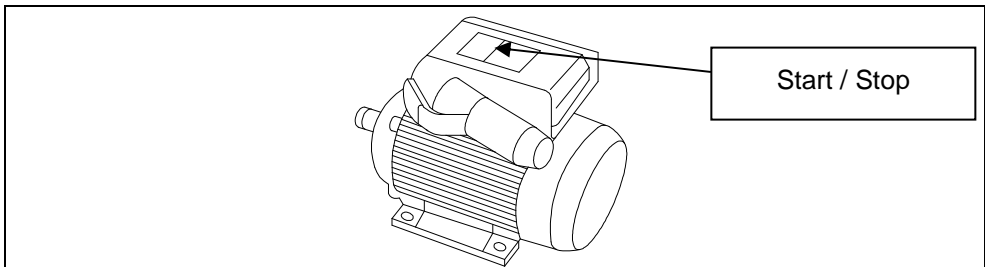


Fig. 13

8.3 Version for connecting to a two-wheel tractor

- The bio-shredder must be connected to the motor-cultivator with the engine switched off.
- Check that the coupling on the bio-shredder is suitable for use with the motor-cultivator.
- The motor-cultivator power takeoff coupling and the bio-shredder must be correctly aligned prior to connection.
- Connect the shaft of the bio-shredder to the motor-cultivator power takeoff.
- Insert the safety pin in the sleeve and lock it with the split pin (R).
- Check that the motor-cultivator power takeoff rotates in the same direction as the bio-shredder rotor.
- Caravaggi S.r.l. declines all liability for damage or injury caused by incorrect connection or operation of the motor cultivator and bio-shredder.

8.4 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.

8.4.1 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.**

8.5 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. 14).

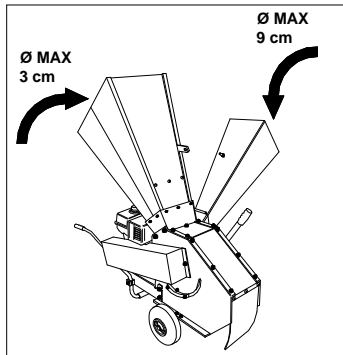


Fig. 14

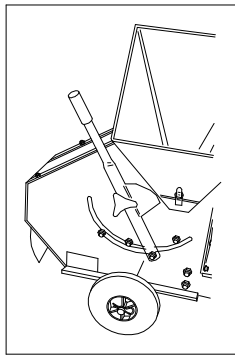


Fig. 15

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

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

This hopper can take material up to 3 cm diameter.

The sieve control lever (Fig. 15) is located on the left of the Bio-shredder. When the machine gets clogged with material, release the lever to free it, then return it to the initial position and resume work.

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

Side hopper

Mount the hopper (as instructed in section 3), making sure the latch (Fig. 8) is secure.

This hopper can take branches up to 7 cm diameter (Fig. 14).

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.

To facilitate transportation of the bio-shredder its overall size can be reduced by folding the side hopper inwards as follows:

- open the latch shown in Fig. 7.
- tilt the side hopper inwards (Fig. 16) and tighten the wing nut 1 to lock it in position.

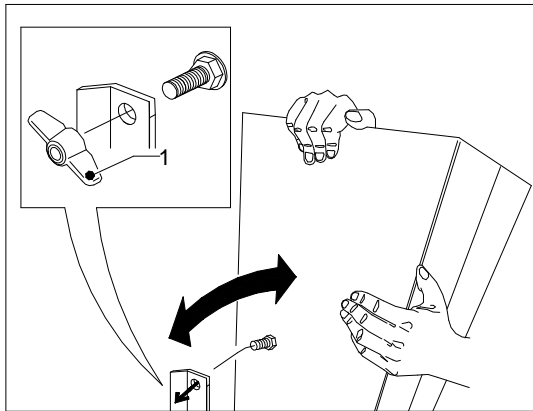


Fig. 16

9.1 Replacing the blade

- Unscrew the 4 nuts and remove the upper hopper, as shown in Fig. 6.
- Remove the side hopper by unscrewing the 3 nuts, as shown in Fig. 7.
- Insert the key in the two apertures (Fig. 17) and remove the blade.
- Sharpen the blade or replace it with a new one. In the latter case, an original spare part can be obtained from the manufacturer. Remount the blade, following the instructions in the reverse order.

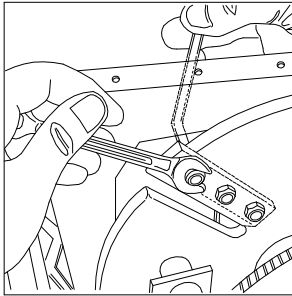


Fig. 17

9.2 Replacing the counter-blade

- Unscrew the 4 nuts and remove the upper hopper, as shown in Fig. 6.
- Remove the side hopper by unscrewing the 3 nuts, as shown in Fig. 7.
- Unscrew the two safety nuts and remove the counter-blade (Fig. 18).

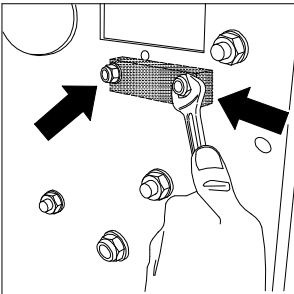


Fig. 18

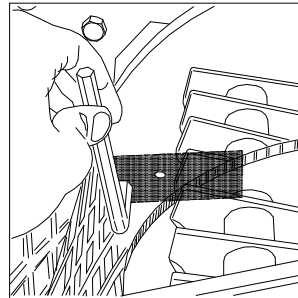


Fig. 19

Important. Remove the blade as instructed under point 9.1.

- Sharpen the blade or replace it with a new one. In the latter case, an original spare part can be obtained from the manufacturer. Remount the blade, following the instructions in the reverse order.

9.3 Removing, inverting and replacing the breaker bars

- Unscrew the 4 nuts and remove the upper hopper, as shown in Fig. 6.
- Remove the side hopper by unscrewing the 3 nuts, as shown in Fig. 7.
- Remove the transmission belt casing, as shown in Fig. 20.
- Remove the galvanised perforated plate (Fig. 21).
- Turn the rotor by hand to align the cutter shaft with the aperture.
- Insert the seeger pliers and remove the ring, as shown in Fig. 22 (on the side hopper side).
- Remove the shaft, and note the position of the spacers separating the breaker bars (Fig. 23).
- Replace the breaker bars if necessary. Make sure you mount the spacers in the same position on the cutter shaft.

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

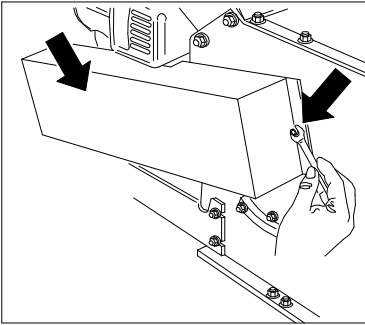


Fig. 20

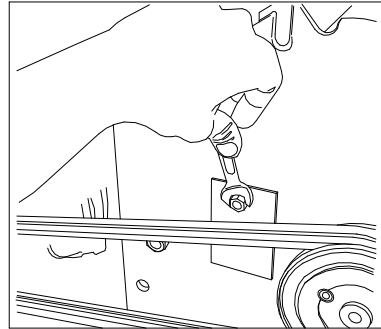


Fig. 21

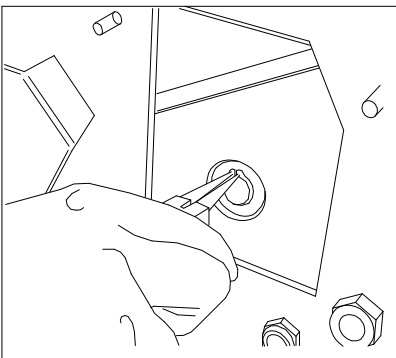


Fig. 22

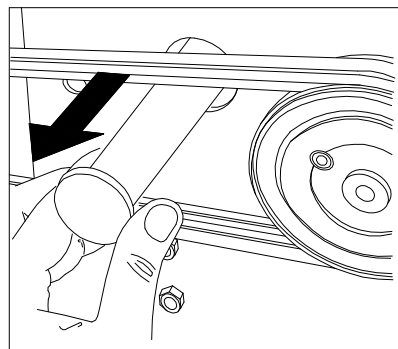


Fig. 23

9.4 Replacing the sieve

- Unscrew the nuts and counter-nuts of the guides and sieve lever (Fig. 24).
- Remove the sieve lever and extract the pins.
- Remove the sieve and mount a new one.
- Remount the pins and guides in the reverse order.
- Apply and tighten all the nuts and counter-nuts.

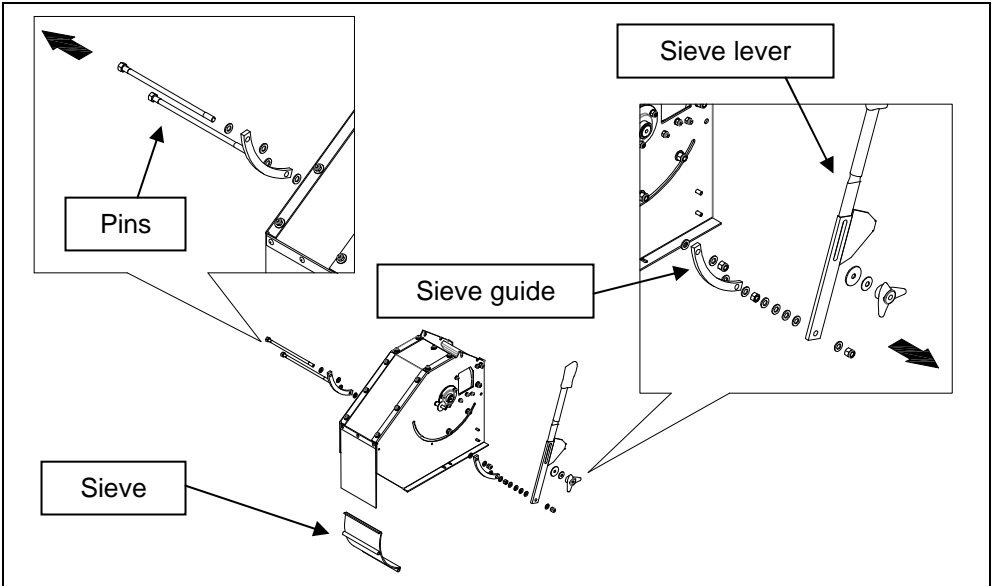


Fig. 24

9.5 Replacing and tensioning the transmission belt

9.5.1 Petrol and electric versions

- Remove the belt guard (Fig. 25).
- Adjust belt tension on the motor tensioner.
- If the belts need to be replaced, slacken them completely, remove and mount new ones.
- Regulate the tension on the motor tensioner.
- Mount the belt guard.

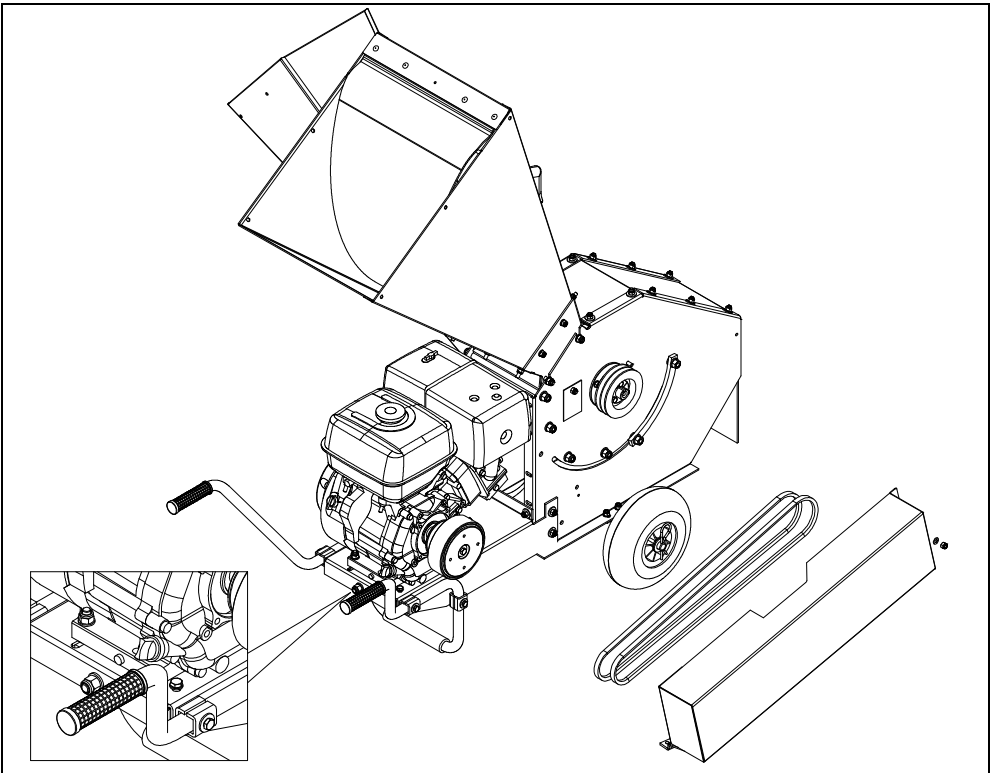


Fig. 25

9.5.2 Tractor version

- Remove the belt guard (Fig. 26a).
- Adjust belt tension by unscrewing the 4 screws in the MTC plate (1) and pull in the direction of the arrow (Fig. 26c).
- To replace the belts, push the MTC plate in the direction of the arrow (Fig. 26b), remove them and mount new ones.
- Tension the belts by unscrewing the 4 screws in the MTC plate (1) and pull in the direction of the arrow (Fig. 26c).
- Mount the belt guard.

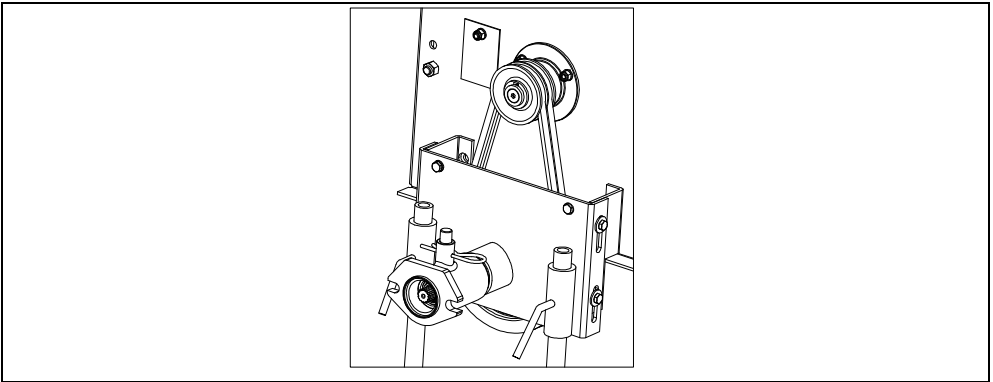


Fig. 26a

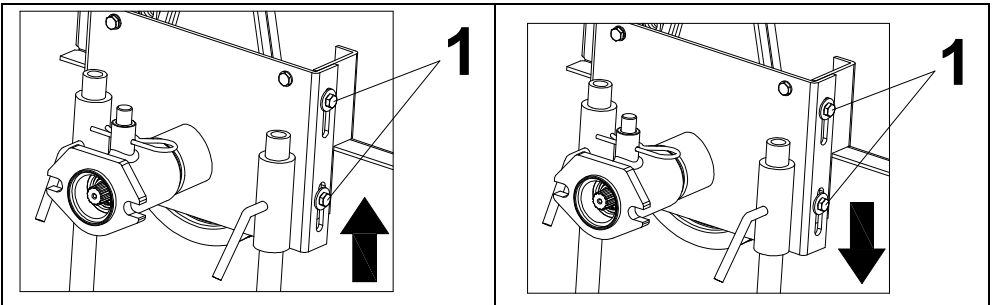


Fig. 26b

Fig. 26c

9.5.3 Cardan shaft version

- Remove the belt guard (Fig. 27).
- Adjust the belt tension by tightening the adjusting screw (1) and the locking screw in the tensioner (2).
- To replace the belts, unscrew both screws, remove the old ones and mount new ones.
- Tension the belts optimally by tightening the adjusting screw (1) and the locking screw in the tensioner (2).
- Mount the belt guard.

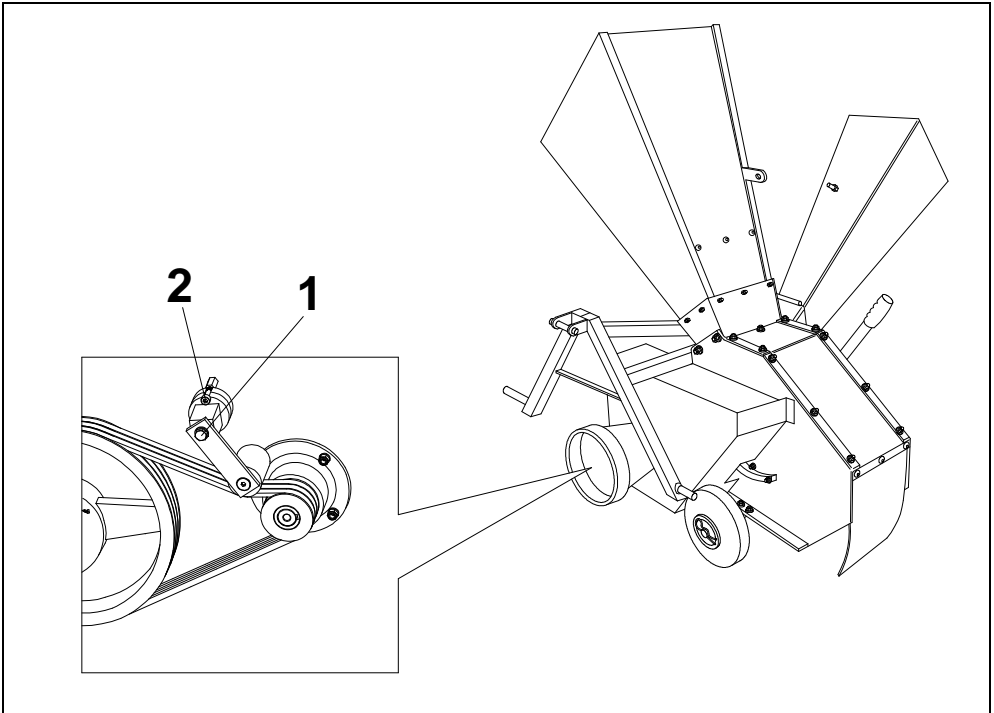


Fig. 27

9.6 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 cutters	◆		◆
Check wear on blade	◆		◆
Check wear on counter-blade	◆		◆
Check hopper rubber protection	◆	◆	◆
Clean machine			◆
Check wear on bearings and transmission shafts	◆		◆

10. TROUBLESHOOTING CHART

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

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 under the warranty.
5. This warranty does not cover reimbursement for labour, consumables or transport charges for repairs under the warranty.

THIS 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.

The Court of Brescia, Italy has sole jurisdiction in the event of disputes between the parties.

CARAVAGGI MACCHINE INDUSTRIALI S.r.l.
20 Via Monte Adamello
25037 Pontoglio (BS), ITALY
Tel. (+39) 030 7470464 - Fax (+39) 030 7470004
Website www.caravaggi.com
E-mail info@caravaggi.com