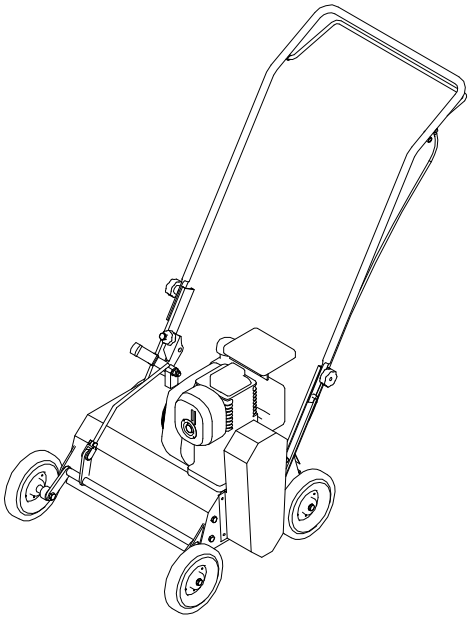
USE AND MAINTENANCE INSTRUCTION MANUAL

Ario
40-50-60



TRANSLATION OF THE ORIGINAL INSTRUCTIONS

BEFORE USING THE MACHINE, READ THE INSTRUCTION MANUAL.

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

NOTES

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
LAWN AERATOR ARIO 40/50/60 B

Model **Ario 40/50/60 petrol 5 HP/ 6.5 HP**

Serial number: **see rating plate**
Year built: **see rating plate**
Complies with all the provisions regarding the following European Directives:

Machinery Directive 2006/42/CE as an amendment to Directive 95/16/CE
And since the machine has been adapted to the following harmonized standards and specifications, where applicable:
UNI EN ISO 12100-1-2:2005 Machine safety – Basic concepts, general design principles, basic terminology, methodology, technical principles.
UNI EN ISO 4254-1:2006 Farming machinery - Safety - Part 1: General requirements.
UNI EN 13683:2010 Garden machines - Shredders / Chippers with built-in motor - Safety.
ISO 11684: Tractors, machinery for agriculture and forestry, powered lawn and garden equipment - Safety signs and hazard pictorials – General principles.

The Legal Representative
(Gianlorenzo Caravaggi)

CARAVAGGI s.r.l.
Via Monte Adamello, 20
25037 PONTOGLIO (Brescia)
Telefono 030.7470...
Partita IVA ...

Pontoglio, 01 / 01 / 2010

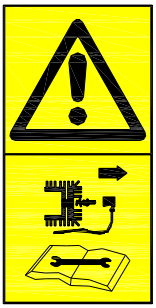
1. HAZARD PICTORIALS

Warning!
Wear a hard hat, hearing protectors and protective glasses or goggles.

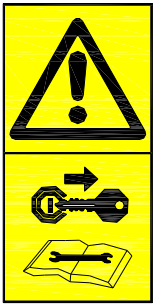
Warning!
Wear protective gloves.

Warning!
Wear safety shoes.

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



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 lifting point.

2. HOW TO USE AND PRESERVE THE INSTRUCTION HANDBOOK

This handbook is intended for use by the operator, the owner and the service engineer and it must be kept within easy reach for consultation.
It provides a description of the applications for which the machine was designed, its technical features and full instructions on how to move, clean, adjust and operate the machine, information for the operator and service engineers, an easy guide for ordering spare parts, an indication of residual risks, and any notices or warnings regarding operations that require special care.
This machine is designed for professional use and the instruction handbook shall in no way replace the user's qualification and experience.
The handbook is an integral part of the machine and must kept available for future reference up until the machine is dismantled.
It must always be kept available for consultation in a safe, dry place.
If this handbook gets lost or damaged, a replacement copy can be obtained from the manufacturer, specifying the serial number, the type and year of construction, which are marked on the rating plate affixed to the lawn aerator (Chapter 5).
The manufacturer reserves the right to update the machine and this handbook without any obligation to update previously supplied machines and handbooks.
The manufacturer shall be held harmless against all liability arising out of or in connection with:

- improper use of the lawn aerator
- non-compliance with the instructions set out in this handbook
- failure to carry out scheduled maintenance, as recommended
- any unauthorised changes or interventions
- the use of spares that are not original or specific for the model
- partial or total failure to comply with the instructions provided
- exceptional events;

3. IDENTIFICATION OF THE MAIN PARTS

1. Handle
2. Control lever
3. Depth adjusting lever
4. Stop lever
5. Petrol engine
6. Discharge

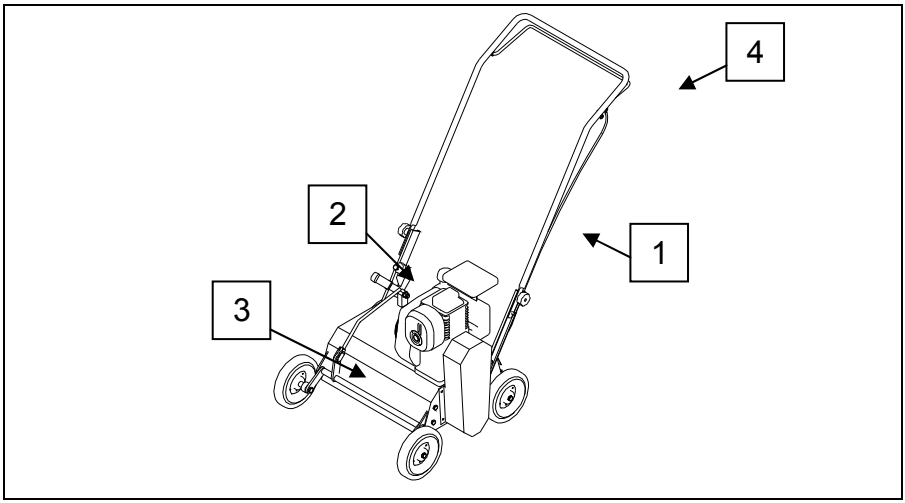


Fig. 1

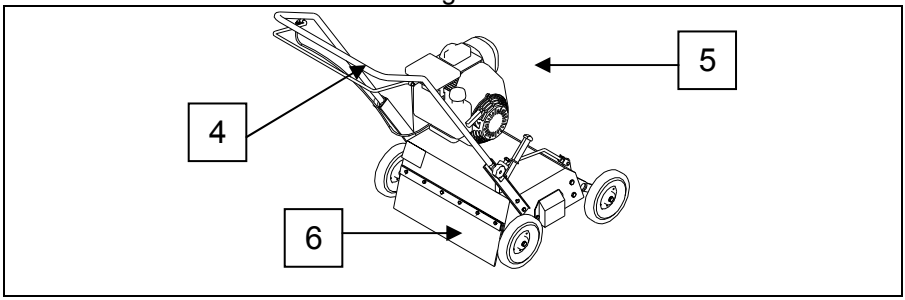


Fig. 2

4. INTENDED USE OF THE MACHINE

The machine must be used by an operator only, who must remain at the controls at all times during operation.
For this machine to run smoothly, the operator must read all the instructions contained in this handbook and understand them properly.
The operator must make sure that no persons or animals are within the operating range of the machine when it is running.
The Ario 40-50-60 by Caravaggi is designed to aerate lawns and gardens.
The machine is not suitable for use in the presence of large stones and rocks.
Contact the manufacturer or an authorised dealer if you need for different applications.
The operator must be well acquainted with all the instructions contained in the handbook.

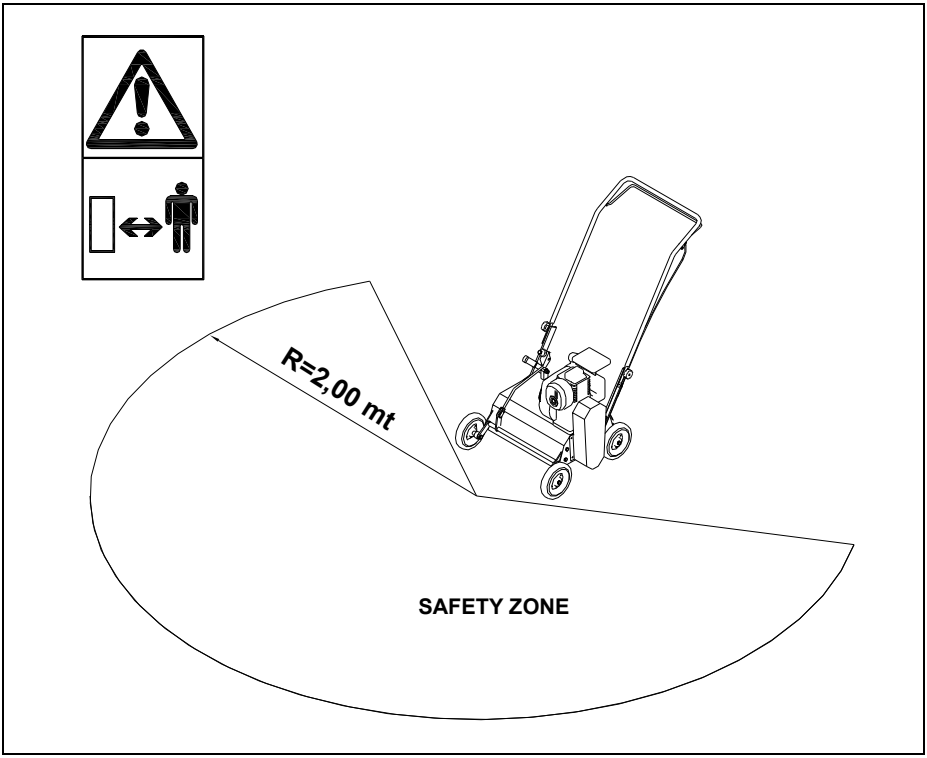


Fig. 3

5. UNPACKING AND PREPARING THE MACHINE TO WORK

The Ario 40-50-60 is delivered partially dismounted. It can be supplied fully assembled or packed in cardboard boxes to facilitate handling and transport to its final location.
It can be handled using a transpallet or forklift truck of a capacity of about 60 kg. Do not:

- raise the lawn aerator with unsuitable cables or lifting devices
- drag it with the rotor blades in contact with the soil;
- subject it to impact
- expose it to rain, snow or other atmospheric agents.

On receiving the machine, check that the parts supplied coincide with those listed in the delivery note.
In the event of damage or discrepancy occurring during transport, the carrier must be informed immediately of any claims and the authorised dealer or the manufactured must be informed accordingly. In particular, it is necessary to verify that

- there are no dents or signs of impact or deformation
- there are no damp areas or signs indicating that the packaging has been exposed to atmospheric agents
- there are no signs of tampering

After checking that the machine has been transported correctly, assemble it as shown in fig. 6:

- Make sure the box is correctly oriented before opening it.
- Remove the handle and the machine chassis from the box.
- Fit the handle to the aerator using the locking knobs provided.
- Connect the accelerator cable to the safety switch.

Electric motor or engine-operated machines are equipped with two wheels for transporting over short distances.
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. Take great care and 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.
To move the machine, grasp the handle (1), place your foot on the wheel axle (2) to act as a lever and tilt the machine slightly towards the rear.

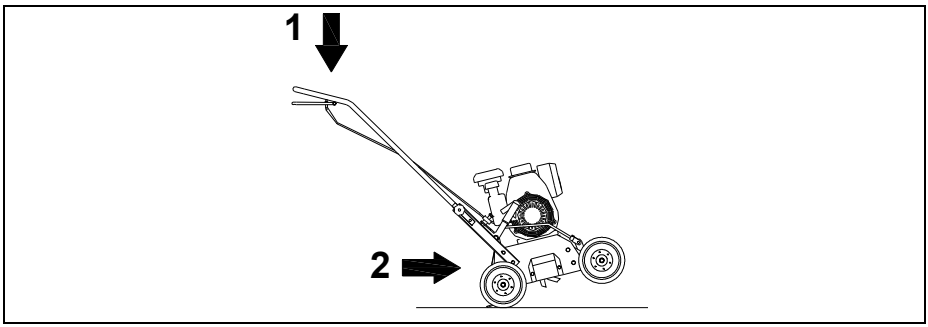


Fig. 4

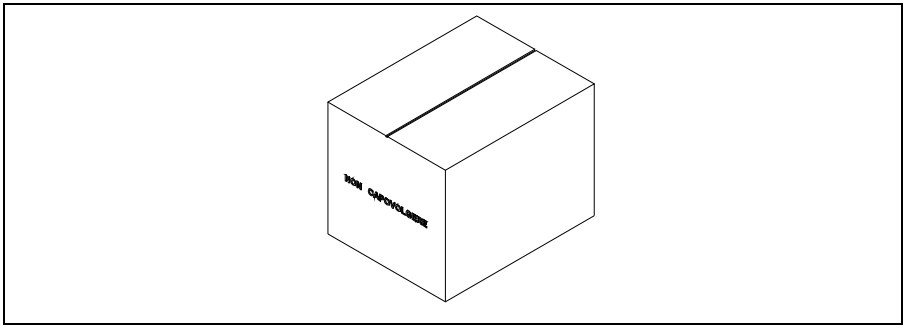


Fig. 5

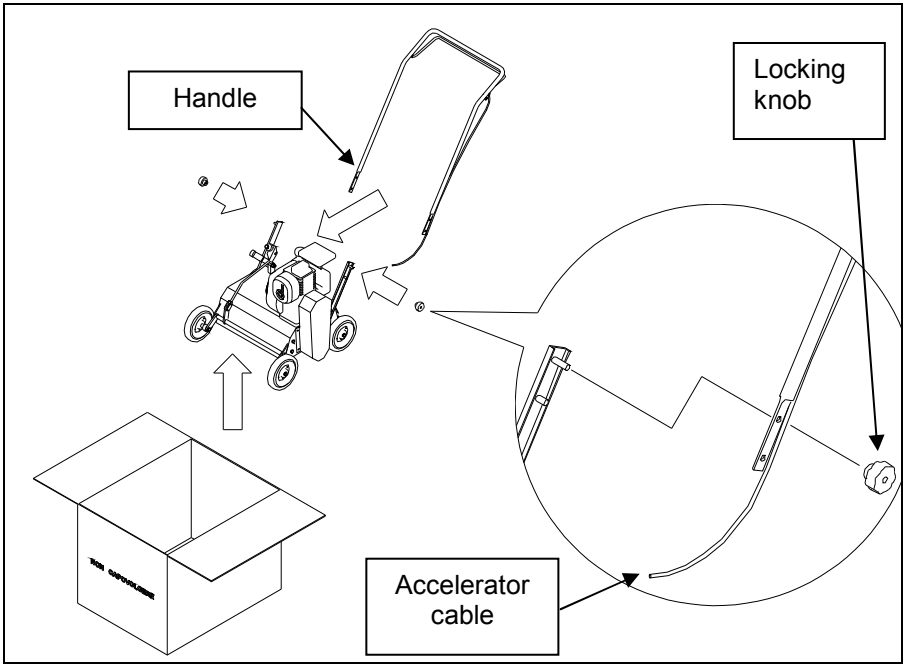


Fig. 6

6. TECHNICAL FEATURES

A CE rating plate is affixed to the Ario 40-50-60 in a visible position (Fig. 7).
In all communications to the manufacturer, state the serial number marked on the rating plate

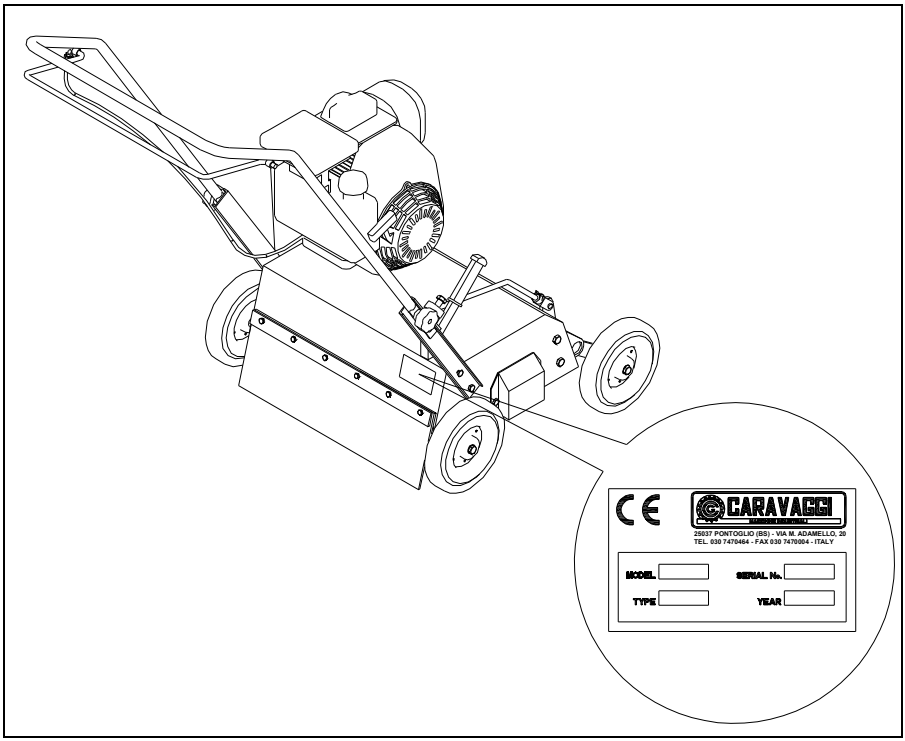
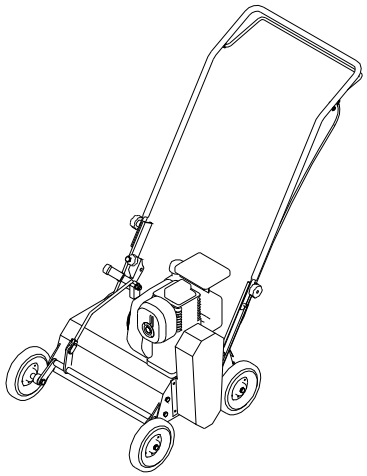


Fig. 7

Version	HP / kW	Power supply
ARIO 40 F / M	**5÷6,5 (3.7÷4.8)**	Petrol
ARIO 50 F / M	**5÷6,5 (3.7÷4.8)**	Petrol
ARIO 60 F / M	**5÷6,5 (3.7÷4.8)**	Petrol

6.1 Operating range and overall dimensions



Model	W	L	H
Ario 40	580	1200	950
Ario 50	700	1200	950
Ario 60	830	1200	950

Weight (kg.): ~ 60

$L_{WA\ MAX}$ (dB): 104

Fig. 8

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 aerator must only be used in gardens and on lawns. It must not be used for any other purpose or on ground with large stones and rocks.
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 manual before setting to work. The machine must not be operated by children.

7.1 GENERAL SAFETY AND ACCIDENT PREVENTION RULES

- **Basic rules**: 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 always be used when there is plenty of manoeuvring space, on flat firm ground free from obstacles.
- The machine must not be used when it is raining.

- 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 the 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 a single operator, who must remain at the controls at all times.
- 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 protective goggles must always be worn when operating the machine.
- The aerator must not be left unattended while the engine 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

- Before setting to work, make sure the rotor is free from debris and other materials, which would prevent it rotating.
- Keep the face and arms well away from the rotor.
- It is important to keep your balance while operating the machine.
- Before starting to use the machine, clear the area of any large stones, pieces of metal, tin cans, bottles and similar items.
- Switch off the engine immediately if you notice a malfunction, excessive vibration or a strange noise. Disconnect the power supply (spark plug cable) and seek the cause of the problem.

7.2 SPECIFIC SAFETY AND ACCIDENT PREVENTION RULES

7.2.1 Petrol version

- If the machine malfunctions, and prior to each regulation, maintenance or cleaning operation (e.g. removing foreign bodies from the rotor assembly), switch off the engine and disconnect the spark plug cable.
- Before using the aerator, please read this handbook and the attached engine handbook carefully and follow the instructions during operation.
- Never use the machine in an enclosed or poorly ventilated environment such as a greenhouse (even if the windows and doors are open) because the exhaust gas is highly 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

Important! Before switching on the motor or engine, make sure the is standing on a flat surface and there are no animals or unauthorised persons within the range of action of the machine.

- Read the engine/motor manufacturer's instruction book carefully.
- Check that there is oil and fuel in the tank. Fill if necessary.
- Put the selector at position "I" (Start) (fig.9). Grasp the starting knob (fig.10-11) and pull the cord without force until you feel the resistance caused by compression, release the knob and 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 accelerator lever) and proceed with normal use.

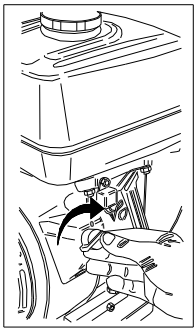


Fig. 9

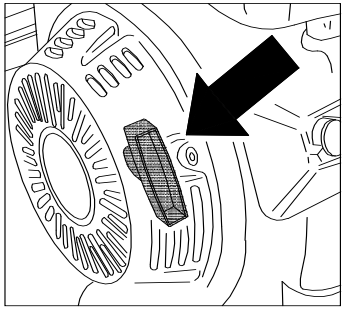


Fig. 10

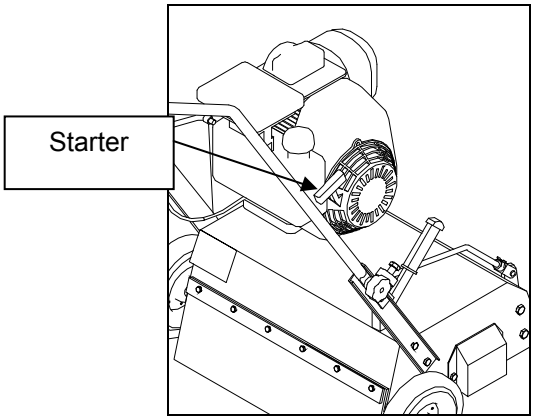


Fig. 11

8.1 Using the machine

Operate the relevant lever to adjust the aerating depth.

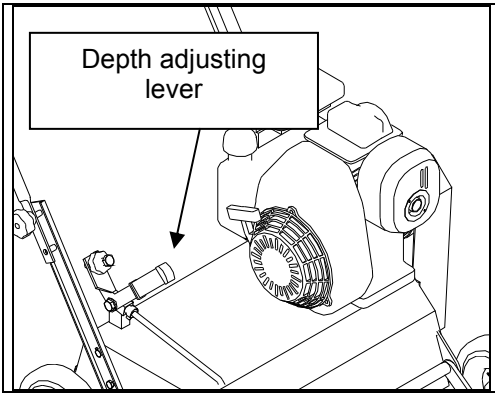


Fig. 12

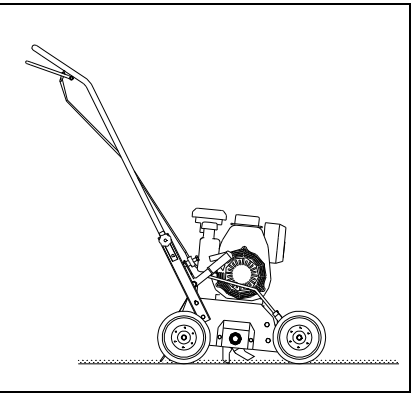


Fig. 13

Grasp the handle and push the machine along the direction of work at a regular pace, keeping the control lever pressed, so as to obtain optimal results.
Release the control lever whenever you wish to stop the motor or on an emergency.

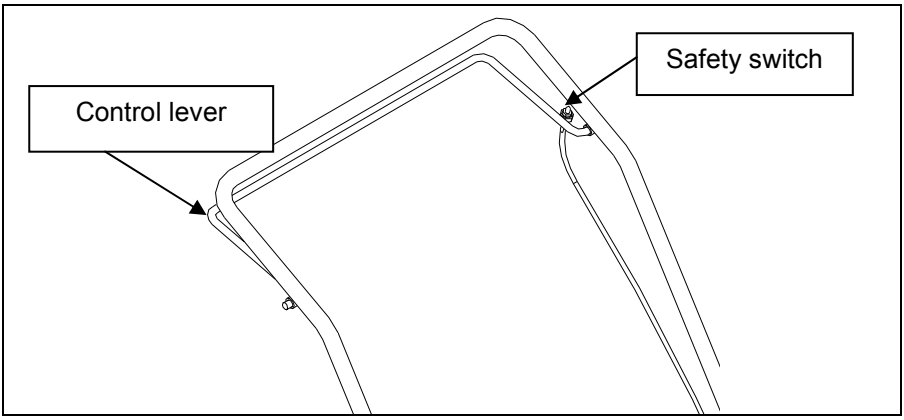


Fig. 14

9. MAINTENANCE

Caution! Before proceeding with any maintenance operation switch off the engine / motor and in any case ensure that there is no possibility of the machine functioning. Suitable gloves are obligatory for all maintenance operations.

9.1 Replacing the fixed blades

- Remove the belt guard, the belt, the bearing guard and the bearing supports from the machine casing: pull out the rotor from the casing.
- Unscrew the locking ring nut and pull out the blades and spacers, taking care to take note of the position of the spacers in-between the blades.
- Replace the blades and remount the spacers on the hexagonal shaft, taking care to place them back in the same position.
- Retighten the locking ring nut and the bearings, remount the rotor, the transmission belt and guards.

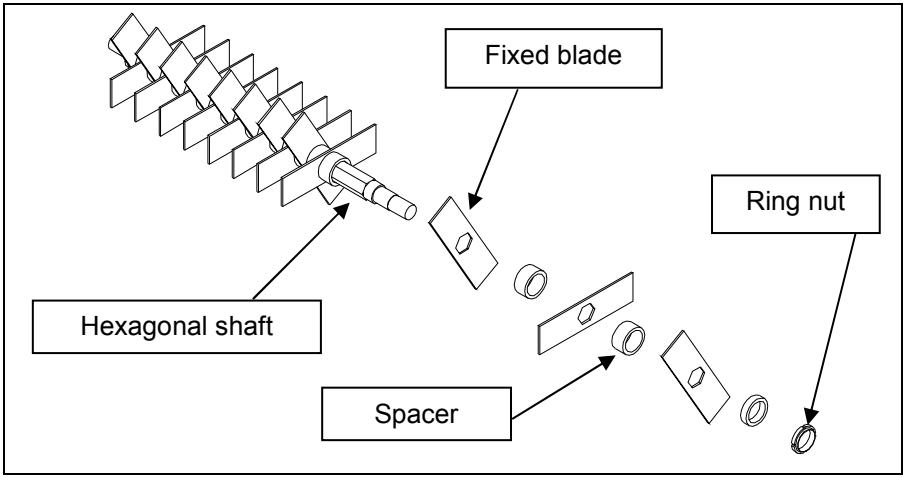


Fig. 15

9.2 Replacing the mobile blades

- Remove the belt guard, the belt, the bearing guard and the bearing supports from the machine casing.
- Pull out the blade shaft from the casing.
- Remove the spring pins and pull out the blades and spacers, taking care to take not of the position of the spacers in-between the blades.
- Replace the blades and remount the spacers on the blade holding rod, taking care to place them back in the same position: remount the spring pins.
- Remount the guards, the transmission belt and the bearings.

Important! When replacing the mobile blades, always change the opposing ones as well.

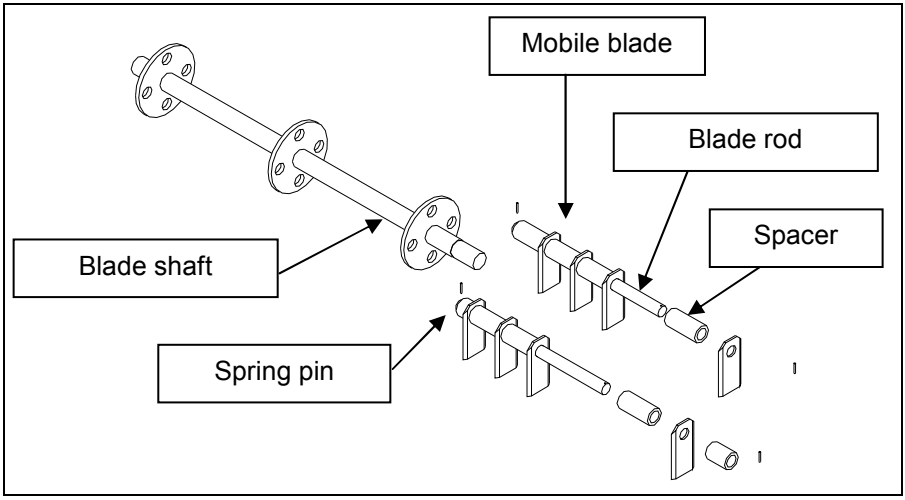


Fig. 16

9.3 Replacing the transmission belt

- Remove the belt guard and the transmission belt.
- Replace the belt with a new one.
- Remount the belt guard.

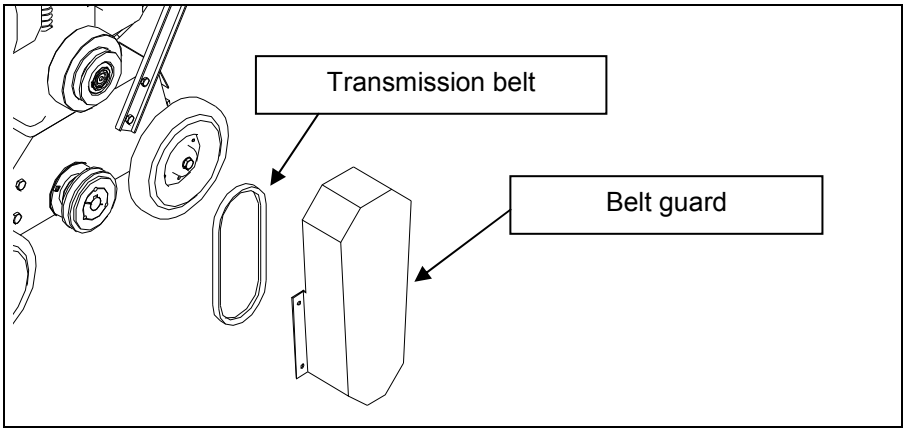


Fig. 17

9.4 Replacing the centrifuge ring

- Remove the belt guard and the transmission belt.
- Unscrew the end screw of the motor and pull out the centrifuge.
- Remove the snap ring and the pulley guard.
- Dismount the worn ring and replace it with a new one.
- Remount the centrifuge components, the belt and the belt guard.

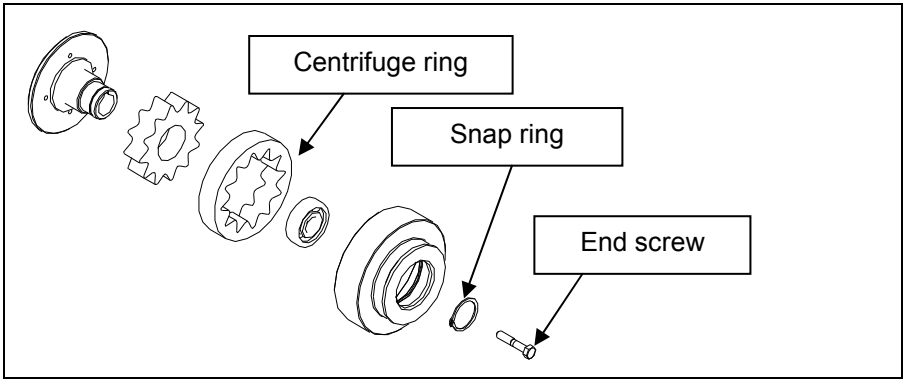


Fig. 18

9.5 Maintenance schedule

	at the start of each season	before each use	at the end of each season
Motor oil level		♦	
Screw torque, guard, and other components	♦	♦	
Tension and state of wear of the belt	♦	♦	
Blades	♦		♦
Rubber protection	♦	♦	♦
Cleaning the machine			♦
Bearings and drive shafts	♦		♦

10. FAULT-FINDING

Problem	Remedies
The aerator will not start	Check that the belt is tensioned properly and in good order, the pulleys have not jammed. Check the blades. Check the state of the motor or engine (consult the attached handbook).
Engine will not start or lacks power	Check that the belt is tensioned properly and in good order, the pulleys have not jammed. Check the state of the motor or engine (consult the attached handbook).
The speed falls or runs unevenly	Check that the belt is tensioned properly and in good order, the pulleys have not jammed. Check the blades. Check the state of the motor or engine (consult the attached handbook).
Excessive vibration	Check the blades.
Unsatisfactory results	Check that the belt is tensioned properly and in good order, the pulleys have not jammed. Check the blades. Check the state of the motor or engine (consult the attached handbook).

11. WARRANTY

1. CARAVAGGI guarantees its LAWN AERATORS against breakage caused by material or manufacturing defects.
2. The warranty covering your LAWN AERATOR comes into effect on the date of purchase and/or delivery, and is valid only for the first owner for a period of 12 months.
3. CARAVAGGI has the right to inspect the LAWN AERATOR and the components for which claims are made under the warranty in order to verify the validity of the warranty.
4. The warranty covers the free replacement only of components found to be faulty due to material or manufacturing defects. Trade parts and accessories are not covered by the warranty.
5. Charges for labour, consumable materials and transport connected with repairs under the warranty will not be reimbursed.

WARRANTY INVALIDATION

1. CARAVAGGI cannot be held liable for damage in general, including damage or personal injury, lost income or production stoppages, hire charges and any moral or commercial damage, all of which are therefore excluded from the warranty.
2. All warranty claims regarding the motors mounted on the LAWN AERATORS are the responsibility of the service network and therefore not of CARAVAGGI.
3. The warranty does not cover damage caused by improper use, misuse, insufficient maintenance, accidents or **damage caused during transport**.
4. Consumable items subject to wear and tear, such as bearings and belts, are not covered by the warranty.
5. The distributor, seller or dealer is responsible for the settings and set-up.
6. Repairs, maintenance or modifications performed by unauthorised dealers or other persons will immediately render the warranty null and void.
7. Routine maintenance and adjustments are the responsibility of the owner and are thus excluded from the warranty.
8. The mounting and use of non-original components and accessories will immediately invalidate the warranty.

WARRANTY CLAIM PROCEDURE

If the LAWN AERATOR presents material or manufacturing defects, the owner should send a written claim under the warranty, as instructed below:

1. The machine must be taken to the dealer from which it was purchased or to an authorised CARAVAGGI dealer.
2. The owner must present a fully-compiled warranty coupon or, if not available, the purchase invoice.
3. The warranty claim will be compiled by the dealer, who will send it on to CARAVAGGI.
4. CARAVAGGI has the sole discretion for accepting or rejecting claims made under the warranty.
5. The Court of Brescia will have sole jurisdiction in the event of a dispute.

The warranty comes into effect on the date on which the machine is put into operation, provided it does not exceed 30 days from the date of despatch, and is valid for 12 calendar months.

NOTES

NOTES

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