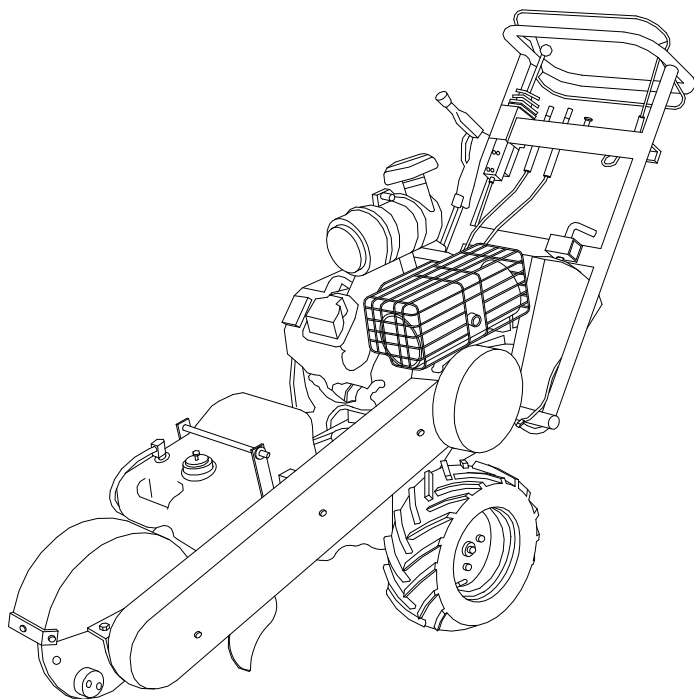


USE AND MAINTENANCE INSTRUCTION MANUAL

Stump Grinder SP series



TRANSLATION OF THE ORIGINAL INSTRUCTIONS

**BEFORE USING THE MACHINE, READ THE INSTRUCTION
MANUAL.**

Caravaggi Srl - Via Monte Adamello, 20 - 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
STUMP GRINDER SP SERIES

model **SP petrol**

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.

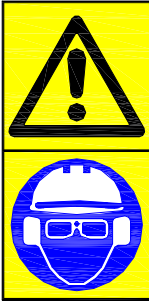
Person authorised to draw up the declaration of conformity: **Valerio Gianpaolo Caravaggi**

The Legal Representative
(Valerio Gianpaolo Caravaggi)

CARAVAGGI s.r.l.
Via Monte Adamello, 20
25037 PONTOGGIO (Brescia)
Telefono 030.7470464
Partita IVA 01743270983

Pontoglio, 01 / 01 / 2016

1. HAZARD PICTORIALS



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



Warning!
Wear protective gloves.



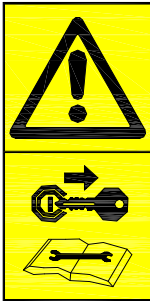
Warning!
Wear safety shoes.



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



Warning!
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.



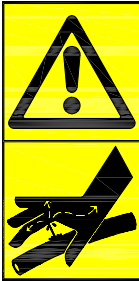
Caution!
Only one person must operate the machine.



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



Caution!
Machine lifting point.



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

2. HOW TO USE AND KEEP THE INSTRUCTION MANUAL

This instruction manual is aimed at the user of the machine, the owner, the maintenance cleaning operator and the repair technician and must always be available for consultation.

The instruction manual shows the user for which the machine was designed and the machine's technical characteristics. It also supplies instructions for transport, cleaning adjustment, use, personnel informations, maintenance, spare parts ordering and residual risk, and warnings with regard to operations that must be carried out with particular care.

The machine is for professional use, so the instruction manual can never be a substitute for suitable user experience.

The manual should be considered a part of the machine and must be kept for future reference until the machine is demolished.

The instruction manual must always be available for consultation and must be kept in a dry, protected place.

In the case of loss or damage the user may request a replacement from the manufacturer, quoting the series reference, type and year of construction which are shown on the plate fixed to the stump grinder (section 5).

The manufacturer reserves the right to update production and manual without the obligation to update earlier production and manuals.

The manufacturer is relieved from all responsibility in cases of:

- improper use of the stump-grinder;
- uses not conforming with what is expressly specified in this documentation;
- serious deficiencies in prescribed and recommended maintenance;
- unauthorised modifications or interferences;
- use of spare parts that are not original or model specific;
- total or partial failure to follow the instructions;
- force majeure;

3. IDENTIFICATION OF MAIN PARTS

1. Command lever
2. Handlebar
3. Engine
4. Adjustment handlebar
5. Wheels
6. Cutter tools disc
7. Cutter tools
8. Engine / Self-propelled command

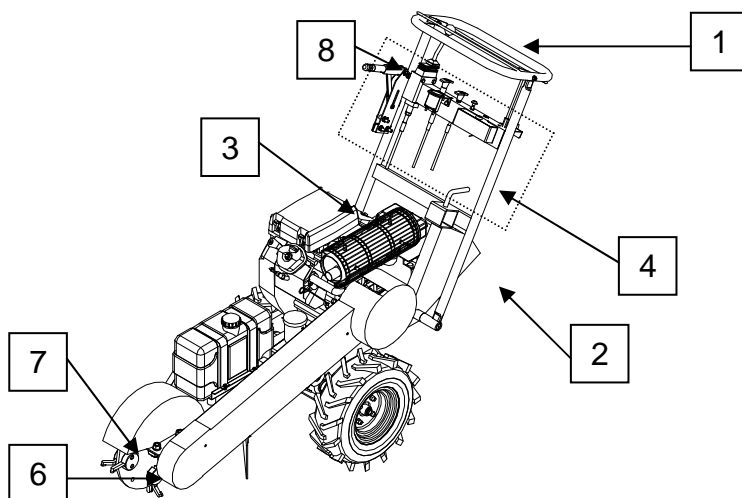


Fig. 1

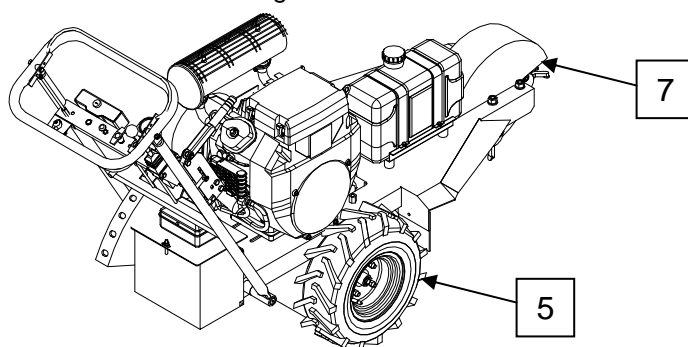


Fig. 2

4. CORRECT USE OF THE MACHINE

The machine must be run by one operator only.

The operator must have read and fully understood the instructions in this manual in order to use the machine correctly.

The operator must ensure that person or animals do not come within the field of action while the machine is running.

The Stump-grinder series SP Caravaggi has been built to shred logs and roots of cut trees in gardens, parks, banks of canals, etc., etc., helping to restore the landscape.

It is not suitable for chopping products other than those listed above.

To work with other products, contact the machine manufacturer or authorised dealers.

The operator must be aware of all the instructions given in the instruction manual.

5. UNPACKING AND PREPARATION

The Stump-grinder can 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 similar with a load capacity of around 300 kilos.

Avoid:

- hoisting the stump-grinder with ropes or unsuitable hoists;
- dragging the stump-grinder;
- bumps or shocks;
- exposing the machine to rain, frost or any bad weather.

On taking delivery check that the contents correspond with the delivery note. Should damage or deformity due to transport be noted, make an immediate complaint to the carrier and advise the authorised dealer or the manufacturer. In particular, check that:

- there are no dents, signs of bumps or deformations;
- there are no damp areas or signs that may lead to suppose that the pack has been exposed to foul weather;
- there are no signs of tampering;

After checking that transport has been carried out correctly, proceed to prepare the machine as follows:

- cut sections of packaging, freeing the machine from the pallet.
- bring the lever of the clutch differential in the OFF position, as shown in Fig. 5.
- move the machine from the pallet, using the handle to balance and move on wheels, down from the pallet and being careful not to damage the group of milling.
- bring back the clutch lever of the differential in the original position ON, as shown in Fig. 6.

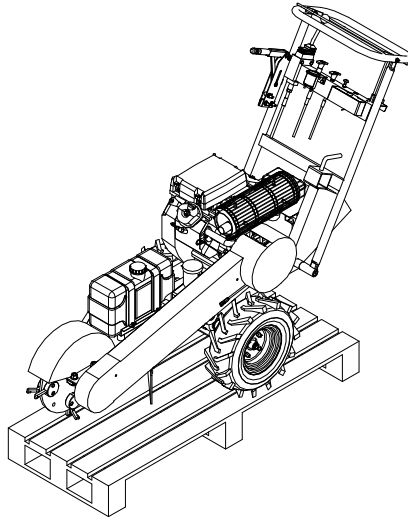


Fig. 4

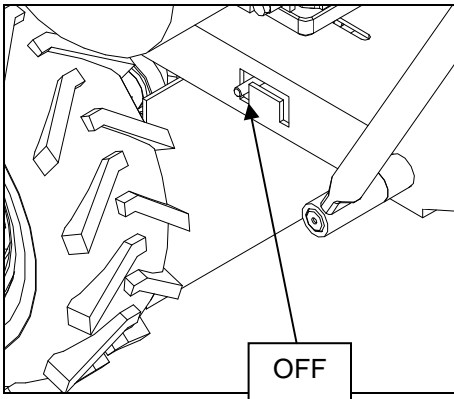


Fig. 5

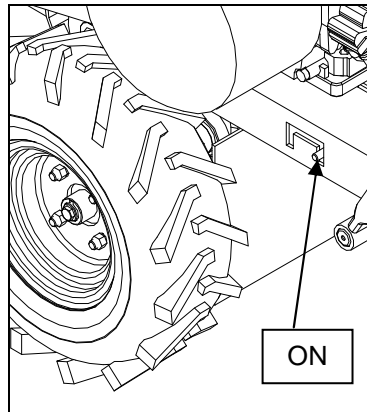


Fig. 6

6. TECHNICAL CHARACTERISTICS

The EC identification plate is clearly visible on the Stump-grinder SP Series (fig. 6).

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



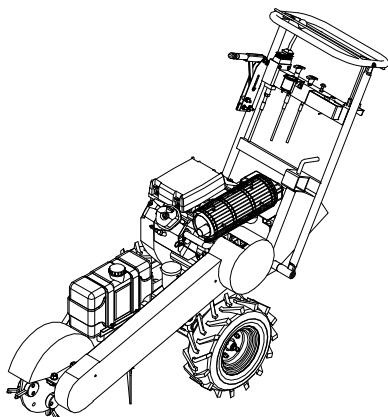
	
25037 PONTOLIO (BS) - VIA M. ADAMELLO, 20 TEL. 030 7470464 - FAX 030 7470004 - ITALY	
MODEL <input type="text"/>	SERIAL No. <input type="text"/>
TYPE <input type="text"/>	YEAR <input type="text"/>

Fig. 6

Version	Power HP / kW	Supply
20 SP	20 / 14.9 Kohler	Petrol
24 SP	24 / 17.9 Honda	Petrol
27 SP	27 / 20.1 Kohler	Petrol

6.1 Overall dimensions



Length (mm): 1320÷1700

Breadth (mm): ~ 700

High (mm): 900÷1360

Weight (kg.): ~ 240

L_{WA} MAX (dB): 104

Safety distance: radius 2 mt

Fig. 7

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 stump grinder can only be used for the milling of stumps and roots of trees felled. It is not allowed to use it for other purposes (eg. Milling rocks or other materials).

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 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 stump grinder 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 stump grinder 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 cutting disc), 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 stump grinder is on a stable surface and there are no animals or unauthorised persons in the work area.

Adjust the handlebar in a comfortable position and lock it with the pin before starting the engine.

Check that the brake is locked.

Lower the dumbbell so that the cutting wheel is raised off the ground.

8.1 Starting engine

- Read the engine manufacturer's instruction book carefully.
- Check the oil and fuel levels and top up if necessary.
- Pull choke if engine is cold.
- Be sure the on- off switch is in the "off" position.
- Open throttle to 1/4 open - throttle has twist lock - turn left and pull in or out, then twist to the right to lock.
- Engage Operator stop switch handle.
- Turn key to start the engine.
- Push choke in, turning throttle slowly, to full open position.

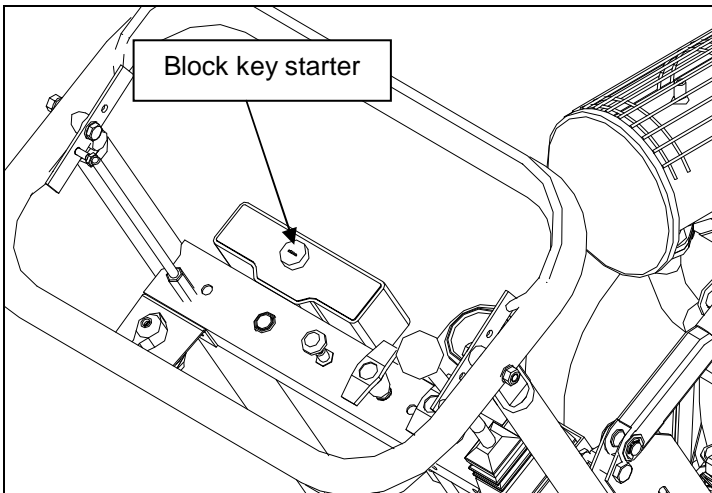


Fig. 8

Functioning

Having correctly prepared the Stump-grinder you can now proceed to working the material to be chopped.

Place the cutting wheel directly in front of the block.

Using lever on handle, lock the one wheel brake- for tighter brake adjustment, turn the knob on top of the brake lever (fig. 9).

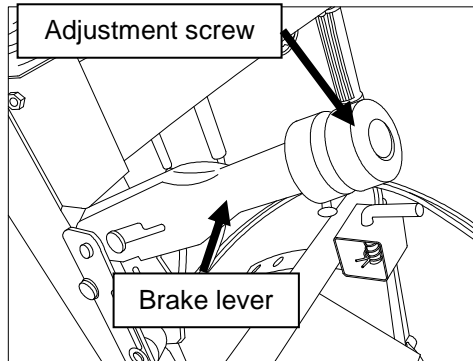


Fig. 9

Pull throttle full on & twist to lock. Turn clutch switch to ON position. Continue to grind to desired depth.

For operations of chopping up to 25.4 cm both above and below ground level, adjust the handlebar for better control of the car and for convenience.

Working larger strains, the chips may accumulate under the wheels.

Position the machine so that the accumulation of chips you find yourself directly under the wheel cut.

Place the cutting wheel on the accumulation of chips: All materials in the machine will now be taken.

When processing larger strains, **do not allow the wheels to finish in the pit:** filled with chips, or change the position.

Completing the ground level of the chopping block, then go back and cut to the desired depth.

After grinding:

- Allow engine to cool
- Clean the Stump-grinder.
- Inspect grinder.
- Load for transport.

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

IMPORTANT

In order to avoid shutdown and consequently serious damage to the engine and the operator, it is absolutely critical that the inclination of the cutter wheel below the working plane does not exceed 30 °.

8.2.1 Hydrostatic drive disengagement and adjustment

When the engine is not running, the grinder cannot be moved, since the hydrostatic drive is in locked position (fig.5b Capt. 4): on the belt guard side, there is a handle push handle forward and down, this will unlock the hydrostat unit and allow freewheeling.

When the engine is running, there is power to the transmission, Be careful to only move slowly, the control valve to transport the machine in a forward or reverse direction. The travel speed is determined by the rpm of the engine, and how quickly the control valve is moved.

When using grinder on unlevel ground, the grinder may have a tendency to creep down hills. The brake control located on the control panel can be pulled so as to lock the disc brake on the transmission.

Attention: damage can occur to brake if to much pressure is applied.

Handbrake adjustment:

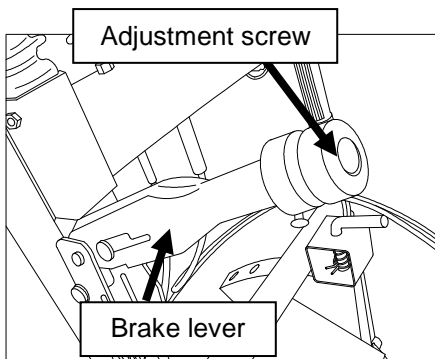


Fig. 10

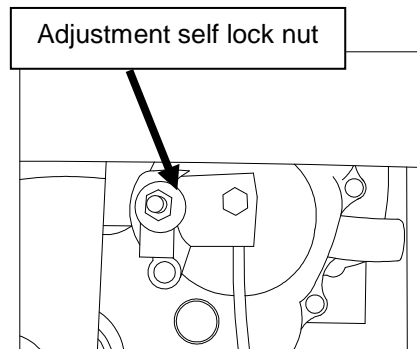


Fig. 11

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.

8.1 Cutter tools replacement

- Unscrew the screws of the blocks holder tools.
- Remove the tools and replace them, take care to replace the in the same position previously (fig. 10-13).
- Adjust the position of the tools with the plate calibration (fig. 11-12).
- Screw the screws of the blocks holder tools.

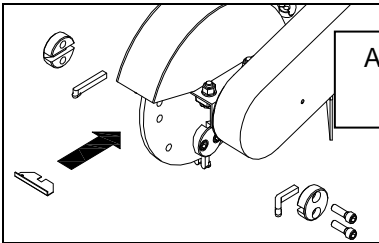


Fig. 12

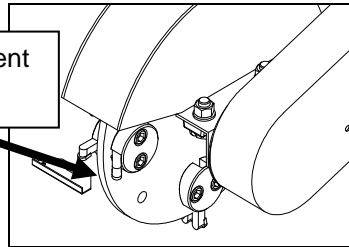


Fig. 13

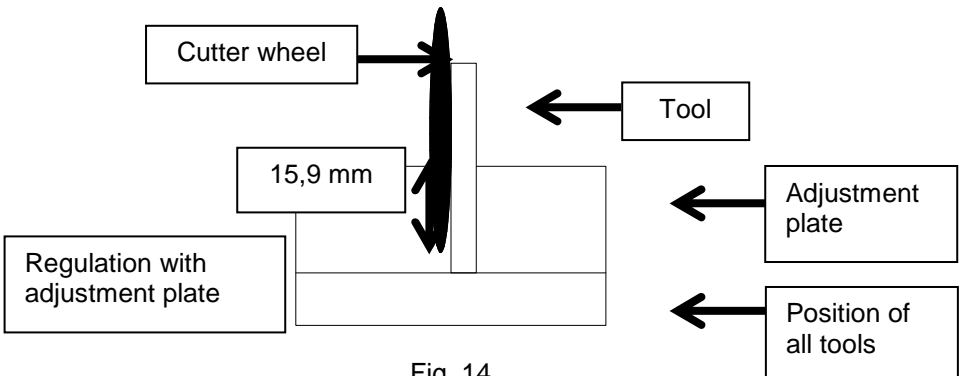


Fig. 14

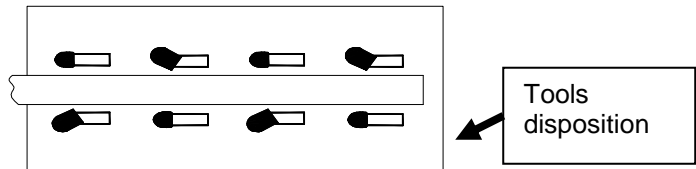


Fig. 15

Caution: never use the machine with missing tools or badly worn tools, this will cause the cutter wheel to be out of balance & cause wear on bearings & shaft.

The pockets are reversible, when turning, position them in exact location- this will ensure the cutter wheel remains in balance.

Tool should be kept sharp.

9.2 Belt tension adjustment

- Remove belt guard
- Loosen inner guard bolts (2) attached to engine
- Loosen hydrostatic drive belt idler
- Loosen (4) engine base bolts
- With long socket extension drive, move engine forward with rear adjusting bolt
- When belt tension is proper retighten all loosened bolts
- Reposition belt idler for hydrostatic drive
- Reassemble belt guard

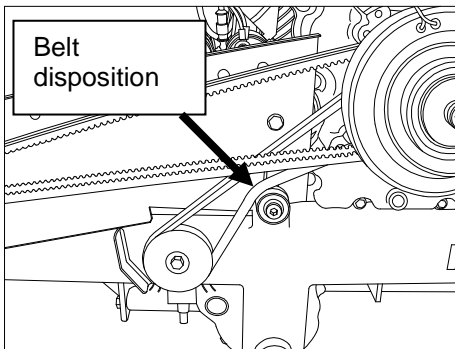


Fig. 16

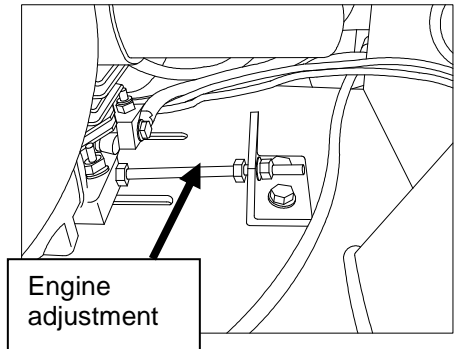


Fig. 17

Note: new belts require a break-in period of approx 2 hours readjustment maybe needed at this time.

Caution: Over tightening this belt will damage the hydrostatic pulley.

9.3 Routine maintenance

	Beginning of season	Before each job	End of season
Check engine oil level		◆	
Check hydraulic oil level		◆	
Greasing bearings and shaft		◆	
Check screws, tightness, casing, etc.	◆	◆	
Check belt tension and state of wear	◆	◆	
Check wear on cutters		◆	
Check rubbers protection	◆	◆	◆
Cleaning machine			◆
Check tyre pressure and wear	◆		◆
Check command wiring		◆	
Check engine (see booklet)		◆	
Check wear on bearings and transmission shafts.	◆		◆
Check clean air filter and enveloping motor.		◆	

10. TROUBLESHOOTING - REMEDIES

Troubleshooting	Remedies
The Stump-grinder does not start	<p>Check belt tension and condition, blocked pulleys.</p> <p>Check cutter tools.</p> <p>Check state of engine/motor (consult the instruction manual supplied).</p>
The Stump-grinder does not move on run command	<p>Check tension and condition of the cable command.</p> <p>Check the position of the differential connection.</p> <p>Check the pump condition and hydraulic oil level in the tank.</p>
Difficult start-up or loss of power	<p>Check belt tension and condition, blocked pulleys.</p> <p>Check state of engine/motor (consult the instruction manual supplied).</p>
The Stump-grinder loses revs and functions irregularly	<p>Check belt tension and condition, blocked pulleys.</p> <p>Check cutter tools.</p> <p>Check state of engine/motor (consult the instruction manual supplied).</p> <p>Examine the material being chopped at the moment of breakdown.</p>
Excessive vibration	<p>Check cutter tools.</p>

11. GUARANTEE

1. The Manufacturer hereby guarantees its Stump-grinders 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 Stump-grinders and any components for which a claim has been made under the guarantee, 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 guarantee period.
5. This warranty does not cover reimbursement for labour, consumables or transport charges for repairs under guarantee.

THIS WARRANTY DOES NOT APPLY IN THE FOLLOWING CASES

1. The Manufacturer may in no way held liable for general damage, including damage or injury, loss due to halts in production, loss of earnings, leasing costs or any moral or commercial damage.
2. All claims concerning motors or engines mounted on Stump-grinders will be handled by the relevant Manufacturers' after - sales service.
3. This warranty does not cover damage caused by misuse, abuse, insufficient maintenance, accident or damage caused during transport.
4. Parts which are subject to wear, such as hammers, blades, anvil blades , etc. are not covered under this guarantee.
5. All expenses for setting the machine to work will be charged to the distributor or dealer.
6. This warranty is not valid if the repairs, maintenance or modifications are performed by an unauthorised persons or dealers.
7. The owner is responsible for routine maintenance and settings, which are thus excluded herefrom.
8. The use or fitting of components and accessories that are not original will immediately invalidate this warranty.

PROCEDURE FOR MAKING CLAIMS UNDER THIS WARRANTY

If the Stump-grinder is found to be defective due to faults material or workmanship, you are required to send the Manufacturer a written claim and proceed as follows:

1. The machine must be returned to the Seller or the authorised CARAVAGGI importer.
2. You are required to present the guarantee duly filled in or the bill, if this is not available.
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.

Any disputes will be put before the Court of Brescia, Italy.

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