

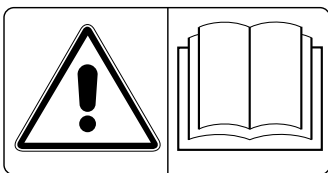


MaterMacc

USE AND MAINTENANCE MANUAL

SOWING MACHINE

ML



Code 58314421
Rev.0/2013



CE

Matermacc S.p.A.

Via Gemona, 18 - 33078 San Vito al Tagliamento (PN) ITALIA



0434/85267



0434/85517

www.matermacc.it - info@matermacc.it

INTRODUCTION

This manual contains the description of the functioning and the instructions necessary in order to execute the main operations of use, the ordinary and periodic maintenance of the machine correctly.

This manual is divided in chapters that are easy to identify and consult.

The indications contained in this manual are intended for a professional user, who must have specific knowledge of the modalities of use of the machine, must be an authorized person, instructed and opportunely trained.

The use of original accessories and spare parts is recommended. Besides losing the warranty, the use of non original spare parts could cause danger and reduce the duration and the performances of the machine.

In case of cession or sale this manual must be always delivered with the machine. If damaged or lost a new copy must be requested to the machine Manufacturer or previous owner. The manual is considered an integrating part of the machine.

COPYRIGHTS

The copyright of this manual belong to the machine's Manufacturer. This manual contains texts, drawings and technical illustration that cannot be disclosed or transmitted to third parties, in whole or partially, without prior written authorization by the machine's Manufacturer.

INFORMATION ON THE MANUAL

This manual is to be considered an integrating part of the machine and must accompany it if it is resold and until it is demolished.

In case of loss or damaging of this manual, request a new copy to the manufacturing company (insert Manufacture's name, address and telephone number) or to the Retailer (insert Retailer's name, address and telephone number).

The specific pictograms are inserted on the machine and the operator must ensure that they are kept in perfect state and replaced when illegible.

The presence of this symbol indicates that it is necessary to pay the maximum attention to the topic that is dealt.



The CE Declaration of Conformity is attached to this manual (if the machine is CE marked).

It is possible that some devices described in the manual are not present on Your machine, due to the chosen preparation and the market for which the machine is intended.

MANUAL UPDATING

The information, descriptions and illustrations in this manual reflect the state of the machine at the moment of commercialization of the machine.

The Constructor reserves the right to make change, at any time, to the machines for commercial or technical reasons. These alterations do not obligate the Manufacturer to intervene on commercial vehicles sold up to that moment nor to consider this handbook an inadequate publication.

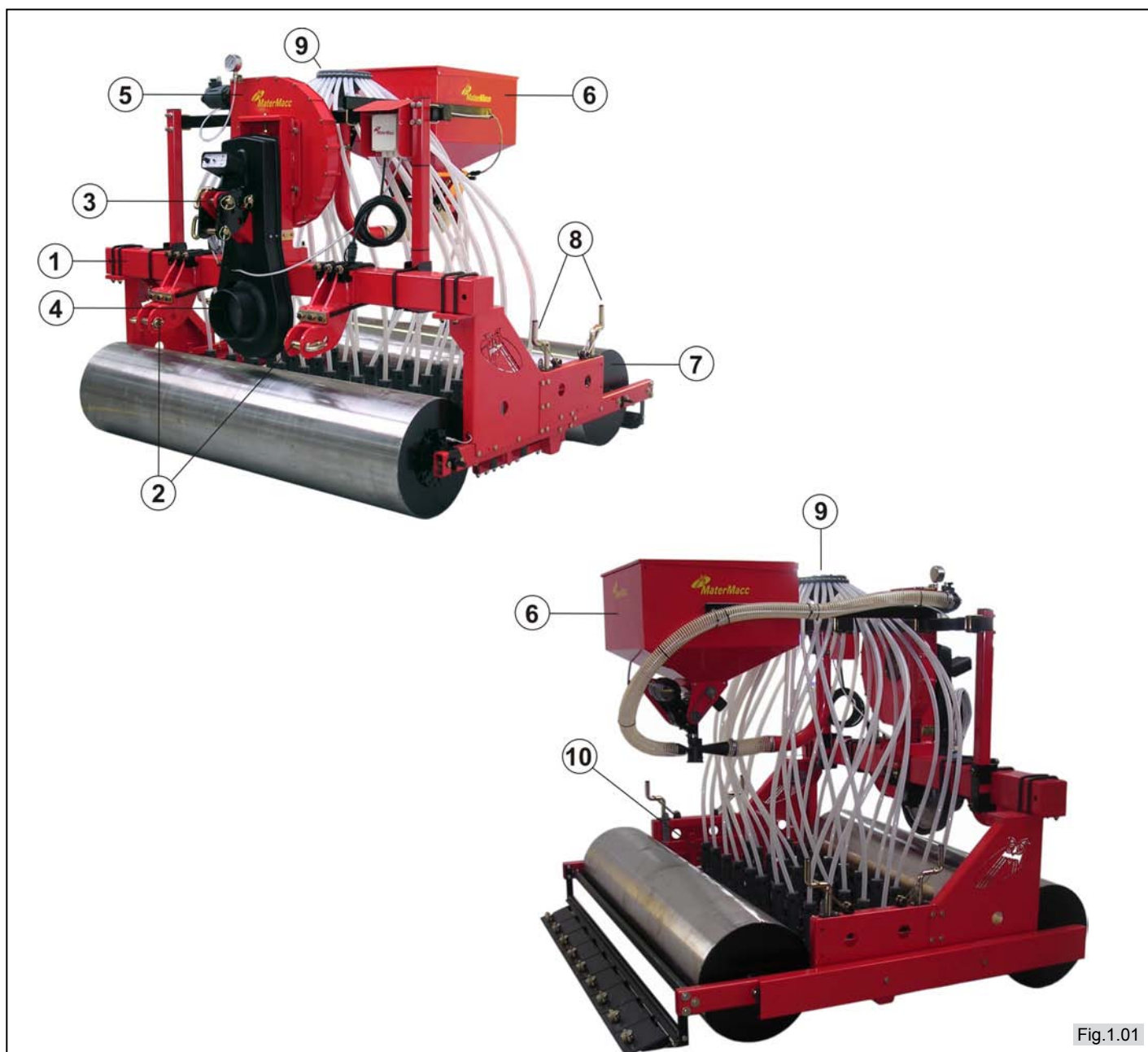
Any integration that the Manufacturer considers opportune to make later will have to be preserved together with this handbook and considered as an integrating part of it.

WARRANTY

- Verify on delivery that the equipment has not been damaged during the transport and that the accessories are integral and complete.
- Any claims must be made in writing within 8 days from reception.
- The warranty against any defect of the materials is valid one year from the delivery date of the machine.
- The warranty does not include shipment expenses (the material travels at risk and danger of the addressee).
- Any damage caused to people or things are excluded from the warranty.
- The warranty is limited to the repair or free replacement of the faulty piece.
- The retailers and the users are not entitled to any indemnification from the manufacturer for any damages (costs for work, transport, defective job, direct or indirect incidents, no profit on harvests, etc).

WARRANTY DECLINE

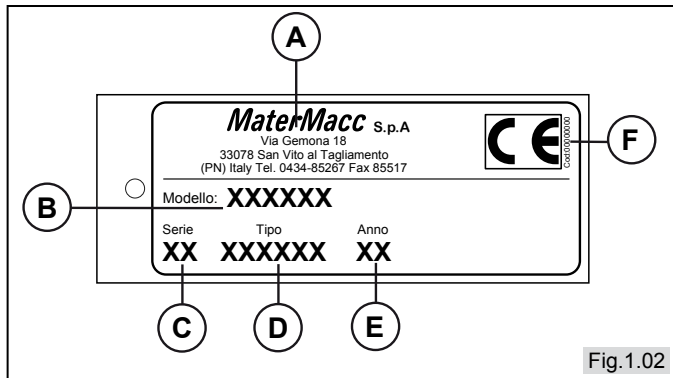
- Besides what is reported in the supply contract the warranty declines:
- In case the limits referred to in the technical data table or in other tables in the manual are exceeded.
- In case the instructions described in this handbook have not been followed carefully.
- In case of wrong use, faulty maintenance or mistakes made by the client.
- In case of non original spare parts.
- The contractual guarantee is not applied if the cited conditions are not respected even only partially.
- The use of spare parts not approved by the Manufacturer invalidates every guarantee and releases the Manufacturer of Retailer from every liability due to malfunctioning or incidents.
- The removal or modification of the shelters and protections releases the Manufacturer from every liability due to damages to things and/or people.
- However, the Manufacturing Company is available to assure an immediate and accurate technical attendance and all that can be necessary for the better functioning maximum production of the equipment.

1. IDENTIFICATION OF THE MACHINE

Fig.1.01

- 1) Supporting frame
- 2) 1 and 2 point connectors
- 3) 3 point connector
- 4) Power take-off
- 5) Fan
- 6) Seed tank
- 7) Seed compression rollers
- 8) Coulter depth adjustment handle
- 9) Distribution head
- 10) Seeding coulter

1.1. IDENTIFICATION DATA PLATE AND CE MARKING

Every single machine is equipped with an identification plate (Fig.1.02), containing the following data:



- A) Name, company name and address of the manufacturer.
- B) Machine model.
- C) Machine type.
- D) Machine serial no.
- E) Year of manufacture.
- F) CE marking.

1.2. INFORMATION ON THE MACHINE

1.2.1. INTENDED USES

The sowing machine can only operate by means of tractor supplied with a lifting group and a universal three-points connection.

It is suitable for sowing leaf vegetables in rows.

The quantity of the seed and the air flow are managed separately by an electronic system ensuring optimum sowing.

This agricultural equipment can operate through a cardan shaft or hydraulic power take-off (optional) applied to the power take-off of an agricultural tractor.

The machine has been designed and built in order to operate in open air, so the performances are not conditioned by atmospheric agents.

!! CAUTION !!

Every use of the machine different from that indicated above is to be considered non-authorized and dangerous.

1.3. TECHNICAL SPECIFICATIONS

The data related to the ML sowing machine is given below.

MODEL	N° of rows	Minimum inter-row spacing	Weight	Power required	Tank Capacity
ML	On request	cm	Kg	Hp	dmc
		2.5	450	40	150

The technical data is not binding on MATERMACC S.p.A. We reserve the right to make modifications without any prior notice.

1.4. NOISE LEVELS

The only noise emitted from the SVA Fertilizer Spreader that does not depend on the interaction of the machine with external factors, is connected to the fan blower.

This noise has been measured and the value of continuous acoustic pressure is above **80 db (A)**.

!! CAUTION !!

When the limit of 80 db (A) is exceeded, it is mandatory for the operator or anyone who approaches the sowing machine while in function to use suitable protections for the auditory system like, for example, a sound-proofed cabin, earplugs etc.

1.5. STORAGE

If the machine is not used for long periods, it is necessary to store it in a place protected from atmospheric agents and protect it in order to avoid damaging.

Before storage it is advised to clean all the machine carefully and lubricate all the mechanical units adequately in order to protect it from rust.

Verify that the storage temperature is comprised between 0 °C and 50 °C.

Before storing the machine for long periods, it is opportune to operate as follows:

- wash the equipment with abundant water, in particular the chemical substances tanks, then dry it;
- check it carefully and replace any damaged or worn parts;
- grease the depressor strap and replace if necessary;
- grease all the mechanical units, the blocking pins;

- grease the transmission chains, use a lubricant over all the non painted parts;
- keep the machine in a sheltered area, if possible, on a flat a strong surface;
- verify the correct blocking of all nuts and bolts;

1.6. SCRAPPING

In case of scrapping, the machine will have to be disposed of in specific rubbish dumps, in keeping with the enforced legislation.

Before proceeding to the scrapping, it is necessary to separate the plastic or rubber parts.

Recuperate any exhausted oils and dispose them in the appropriate collection centres.

!! CAUTION !!

The used oil must be opportunely recovered and not dispersed in the environment, in accordance with legal regulations in force since it is classified as dangerous waste and as such it must be sent to the specific collection centres.

For the collection of exhausted oils, it is obligatory to refer to the "Obligatory Consortium of Used Oils".

The parts made up only from plastic material, aluminium, steel, can only be recycled, if collected in the specific centres.

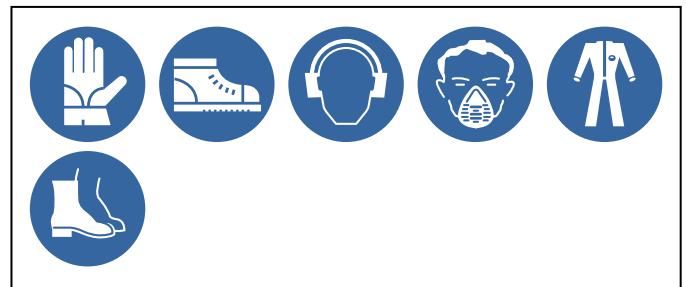
1.7. SAFETY AND ACCIDENT-PREVENTION RULES

Correct use of the appliance, careful attention paid to the rules listed below and strict application of all precautions to prevent any risk of accidents, will ensure better long-term operation of the appliance and will reduce the likelihood of faults.

The Company, Matermacc declines any responsibility, objective or subjective, where the below mentioned are not applied and where rules, provided in this manual, governing behaviour are disregarded .

- The machine is not recommended for use in fields other than the agriculture sector.
- The machine must be used by a single operator driving the tractor.
- Any use which differs from the one specified is considered improper.
- The machine must only be used by authorised, instructed and properly trained personnel. The assigned operator, in addition to having read the instructions provided in this manual, must undergo adequate training on the use of the machine and must have a valid driving licence. The operator must contact the manufacturer should they have any doubts on the use of the machine with or understanding the present manual.
- The manual must be kept somewhere so that it is accessible and in proximity, so that the operator can consult it at any time, where necessary. If the manual is misplaced or damaged, contact the Matermacc Company for a replacement copy.
- The operator must ensure that during operation, no persons or animals are found in close proximity of the machine. Never operate the machine near persons stopped or in transit within the machine operating area.
- Do not use the machine if suffering from fatigue, illness or under the effects of alcohol, prescribed medication or drugs.
- This machine is only used during the day. If there is an exceptional requirement to use the machine at night or in conditions of reduced visibility, the lighting system provided with the tractor, or an auxiliary lighting system, must be used.
- Any arbitrary modification made to the machine takes away all responsibility from the Matermacc Company for damages or injuries which may be experienced by operators, third parties and objects.
- Before you switch the machine on, check it every time.
- The Matermacc Company cannot list every improper use which may reasonably lead to a potential hazard.

- The label applied to the machine provides a list of important instructions: please observe them to ensure your safety.
- Make sure that the emergency pictograms are readable. Clean them and replace them, when necessary, with new labels.
- Before using the machine, ensure that all safety devices are in the correct place and in good condition; where they are faulty or damaged, immediately replace them.
- Before descending from the tractor and before every maintenance operation, activate the stationing parking brake, turn the engine off, remove the ignition key from the dashboard and take care of it.
- Personnel must use the safety provisions and individual protection devices when using or carrying out maintenance of the machine.
- We recommend that operators of the machine do not wear items of clothing which may become tangled in the aforementioned.



- During use, the machine may emit dust. It is advised to verify the filters on the cabin ventilation system periodically or use suitable protection systems for the respiratory tracts such as anti-dust masks.
- During use, the operator must have sufficient visibility on working areas considered as dangerous, therefore it is opportune to keep the mirrors supplied on the tractor clean and in a perfect state.
- The machine must not be left unsupervised where the traction engine is on.
- Keep the machine clean from foreign material (debris, tools, various objects), that could damage the functioning or cause damages to the operator.
- Avoid using it on muddy or soft ground.
- Verify the wear of the hydraulic tubes. Replace them if deteriorated.
- Do not use the controls or flexible tubes as handles; these components are mobile and do not offer a stable support.

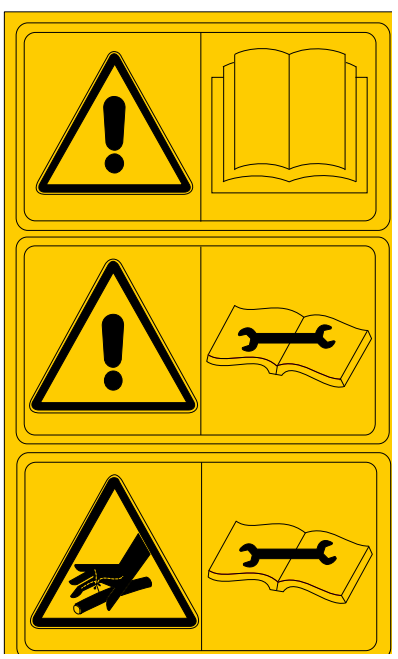
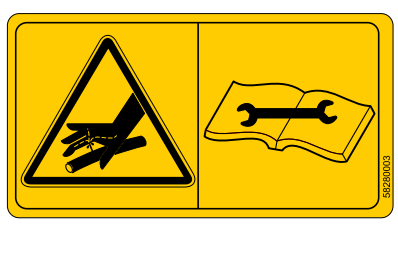


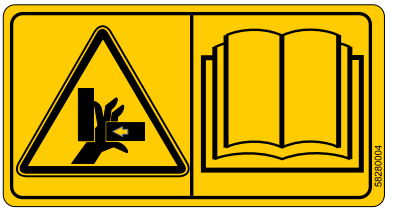
- Any modifications to the machine may raise safety concerns. In such an instance, the operator will be wholly responsible for any incidents.
- It is strictly forbidden to remove or tamper with safety devices.
- Check that the emergency pictograms are in a good condition. If the pictograms are deteriorated they must be replaced with other original ones requested from the manufacturer and placed in the position indicated in the use and maintenance handbook (paragraph 1.8.2).
- Pay attention to the risk of unintentional contact of the sowing machine's arms with high voltage cable.
- Never use the machine to transport people, animals or objects.
- Attach the machine, as provided, to a tractor that has suitable power and configuration by means of the appropriate device (lifter) and is in compliance with regulations.
- The attachment pins category of the equipment must correspond to that of the lifter attachment.
- Pay attention when operating in areas with the arms lifted.
- Attach the machine, as provided, to a tractor that has a suitable power and configuration by means of the appropriate device (lifter), in compliance with the norms.
- Pay the maximum attention during the equipment coupling and uncoupling phases.
- it is absolutely prohibited to stand between the all-purpose tractor and the attachment to manoeuvre the lifting control from outside.
- it is absolutely prohibited to stand between the all-purpose tractor and the machine with the engine on and cardan inserted.
- Do not remove the protection grid inside the loading hopper, in order to avoid risks of possible contacts with mobile elements.
- The application of an additional equipment to the tractor involves a different distribution of the masses on the axles. Therefore it is advisable to add suitable ballasts to the front part of the all-purpose tractor in order to balance the masses on the axles.
- Respect the maximum mass provided for the axles, the mobile mass, the regulation on the transport and the street code.


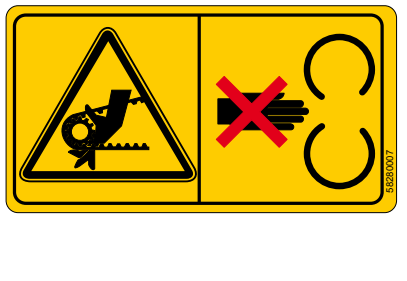

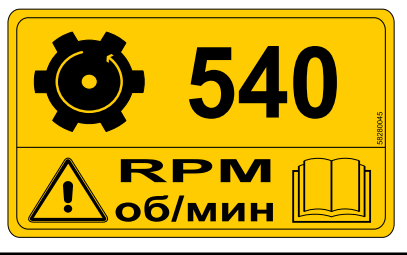


1.8. SAFETY SIGNS




Assess the good conditions of the emergency pictograms. If the pictograms are deteriorated, they must be replaced with other original ones requested from the manufacturer and placed in the position indicated in the use and maintenance handbook.


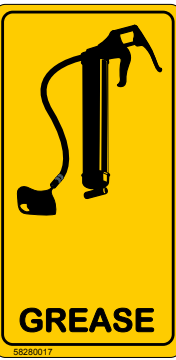
Make sure that the emergency pictograms are readable. Clean them using a cloth, water and soap.

1.8.1. DESCRIPTION OF THE PICTOGRAMS

<p>CAUTION The regulation and maintenance operations must be carried out after reading the use and maintenance handbook, with the machine switched off and the ignition key removed.</p>	
<p>CAUTION DANGER of fluids under pressure. Read the handbook before intervening and consult a doctor in case of wounds.</p>	
<p>CAUTION - DANGER of crushing. Do not stop between the tractor and the machine.</p>	
<p>CAUTION - DANGER of crushing. Do not stop between the tractor and the machine.</p>	
<p>CAUTION - DANGER of chopping of the hands.</p>	

<p>CAUTION Do not climb up or be transported by the machine</p>	
<p>CAUTION Kinematic mechanisms in movement.. If you approach the machine without the due precautions there is a high risk of accident.</p>	
<p>CAUTION - RISK of catching and dragging. Do not put your hands near the driving shaft in motion.</p>	
<p>CAUTION Maximum limit of rpm. DANGER - of contact with cardan shaft in motion.</p>	
<p>CAUTION - DANGER of toxic substances.</p>	
<p>CAUTION - DANGER of falling of suspended parts.</p>	

<p>CAUTION - NOISY AREA</p> <p>This sign marks the areas of the machine where the noise level may be high enough to provoke damage to the auditory apparatus. In presence of this, it is mandatory to use protective devices for the auditory apparatus of the type prescribed by the regulations in force.</p>	
<p>LIFTING POINT</p>	 <p>58280011</p>
<p>CAUTION</p> <p>Use the required Personal Protection Equipment.</p>	

<p>GREASING POINTS</p>	 <p>OIL</p> <p>58280016</p>	 <p>GREASE</p> <p>58280017</p>
-------------------------------	---	--

2. MOVEMENT AND TRANSPORT

Pay the maximum attention to safety during the loading and unloading operations which are to be carried out by qualified staff (people assigned to slinging operations and to the carriage, etc.).

In case of lifting the machine, it is obligatory to use the appropriate lifting points indicated by the pictograms. A motor vehicle with suitable power and dimensions must be used for the transport of the machine, opportunely pre-disposed.

Once loaded, the machine must be fixed using anchorage ropes.

3. DRIVING ON A PUBLIC STREET

!! CAUTION !!

If it is required to drive on a public street, it is mandatory to strictly respect the Driving Code paying particular attention to the speed.

When driving on the street it is fundamental to respect the driving code of the residing Country. Any accessory used for the transportation must be equipped with specific signals and adequate protections.

Before starting to drive, install optional lights. It is mandatory to equip the machine with a yellow or orange flashing light.

Before starting to drive on a public street from a non-paved or dirty surface, it is required to clean the wheels of the tractor carefully from any presence of mud.

When driving on a public street, the machine must be in the transport position and the power socket of the tractor must be unplugged.

The weight of the machine modifies the stability of the combination tractor-seeder, influencing the steering ability as well as the breaking ability, it is thus important to proceed with a moderate speed. In particular, always remember that the front axle must always be loaded with a weight equal to 20% of the combination tractor-seeder.

Verify the lifting ability and the stability of the tractor through the following formula and, if needed, apply the ballasts.

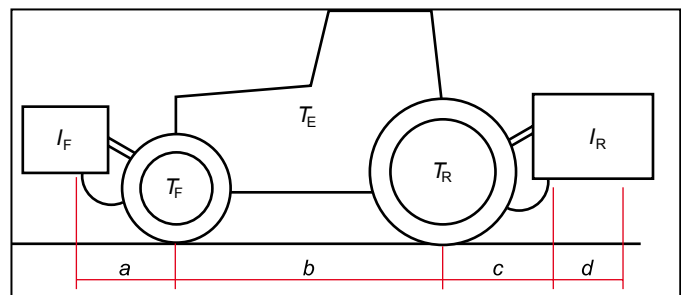
$$I_{F,min} = \frac{(I_R \times (c + d)) - (T_F \times b) + (0,2 \times T_E \times b)}{a + d}$$

Please Note: in the present calculation the accessories mounted on the rear and the combinations front/rear have been taken into consideration.

Example of instructions for the stability of the combination tractor-seeder.

Legend	
TE [kg] Weight of unloaded sowing machine.	①
TF [kg] Load on the front axle of the unloaded tractor.	①
TR [kg] Load on the rear axle of the unloaded tractor.	①
IR [kg] Combined weight of the equipment carried on the rear/rear ballast.	②
IF [kg] Combined weight of the equipment carried on the front/front ballast.	②
a [m] Distance between the centre of gravity of the combined equipment carried on the front/front ballast and the centre of the front axle.	② ③
b [m] Tractor's wheelbase.	
c [m] Distance between the rear axle centre and the centre of the lower connection points.	① ③
d [m] Distance between the centre of the lower connection points and the centre of gravity of the combination of the equipment carried on the rear/rear ballast	① ③

①	See the instruction manual of the tractor.
②	See the instruction manual of the equipment.
③	To measure.



- It is very important to remember that the road-holding and the steering and breaking abilities may be influenced, even heavily, by the presence of any equipment which is being carried or towed.
- On bends, particular attention must be paid to the centrifugal force on the machine with or without the carried equipment, especially on sloping streets or grounds.

- For the transportation, set and fix the chains of the lifting side arms of the tractor; verify that the lids of the seed and fertilizer tanks are well sealed; put the lifting lever of the hydraulic lifter in the blocked position.
- All transports on public roads must be made with empty tanks and with a maximum speed of 25 km/h.
- The transports outside the working area must be carried out with the equipment in transport position. This also implies that all hydraulic connection must be unplugged from the tractor.
- If the loads on the fully-loaded or semi-loaded equipment blocks the visibility of the signalling devices and illumination of the tractor, they must be adjusted on the equipment in compliance with the street code of the respective country.

4. FUNCTIONING OF THE MACHINE

!! CAUTION !!

Verify that during the work, all the machine parts function correctly.

Please note that most of the accidents and damages are often caused for not tightening up correctly the fixing parts.

- Since during the first period of the machine's life there is a general settlement of all the mechanical parts and of the hydraulic connections, it is fundamental to carry out inspections on the machine with the maximum precision.
- Before using the machine, verify that no animals or people are standing in or within the working area.
- It is absolutely prohibited to take off and/or modify the protections on the machine.
- Do not use the machine when ill, tired or under the effect of medications, drugs or alcohol.
- Before using the machine, it is fundamental to learn the layout of the controls on the panel and their function.
- The machine must be used by a single operator driving the tractor.

4.1. CONTROLS

All the controls are highlighted by the specific signals indicating their function and explaining through pictorials their actions and positions in the cabin.

4.2. VISIBILITY

Checking of the operation areas is possible through the rear mirrors located on the tractor and by the sight of the operator.

!! CAUTION !!

While driving in reverse gear some shade areas may be created which are not visible through the rear mirrors

5. USE OF MACHINE

!! CAUTION !!

Before using the machine, it is necessary for the operator to familiarize himself with the controls and its operating abilities.

In every circumstance the body of the operator must be all inside the cabin, in order to reduce the possibility of being exposed to any external dangers.

Before coming down from the tractor and before every operation of maintenance and regulation, action the parking brake, switch the engine off, remove the ignition key from the dashboard and wait for all the mobile elements to stop.

The safety of the operator and the people present around the machine depends on the ability of judgement and caution in using the machine. Therefore, it is necessary to know the position and the functions of all the controls well).

The machine must be always found in perfect state of operation and must be repaired with original replacement parts only.

5.1. CONNECTING THE MACHINE TO THE TRACTOR

The machine must be connected to the tractor with weight and suitable power, in compliance with the enforced requirements in the country in which the machine is used.

!! CAUTION !!

During the phases of use, regulation, maintenance, repair or movement the operator must use adequate Individual Protection Devices (DPI)

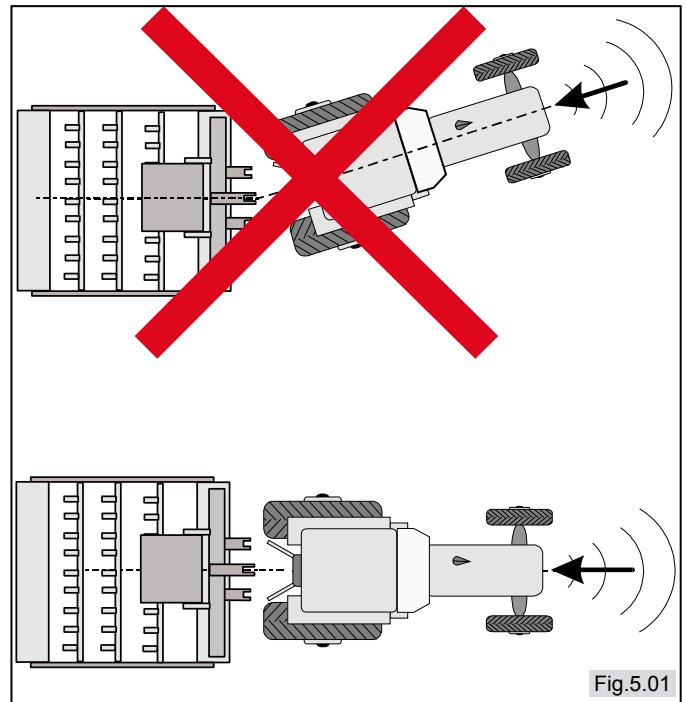
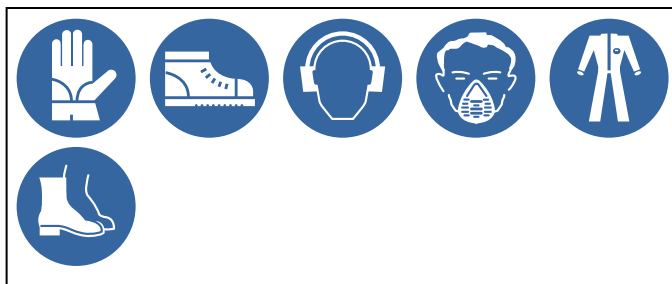


Fig.5.01

For the coupling of the tractor to the machine, the operator must move the tractor with the reverse gear until it reaches the connections on the machine with the back lifters (Fig. 5.01).

- Action the parking brake of the tractor, switch the engine off, remove the ignition key and step down.
- Insert the pivot and the relative pins/split pin.
- Connect the third point (tightener) of the machine to the tractor, lift the machine until the power of the machine and tractor are at the same height and register the tightener bringing the machine in the horizontal position.
- Block the lifting bars of the tractors, in order to avoid the machine oscillating laterally, as this compromises the cross-sectional stability of the complex.

5.2. ASSEMBLY OF THE CARDAN SHAFT

!! CAUTION !!

Before using the cardan transmission, carefully read the rules attached.

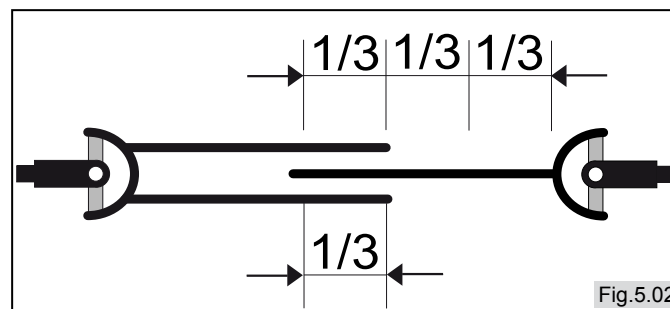
The sowing machine uses a CE certified cardan transmission.

The use of non certified cardan transmissions is prohibited. Failure to respect these rules automatically invalidates the safety certification of the sowing machine.

Accidental catching and dragging by parts of the transmission could have dire and lethal consequences and would be due to the lack of protection of these parts and the use of clothing which could be caught by the moving parts.

The cardan shafts must have the emergency pictograms

- The cardan shaft must be correctly attached to the P.D.P, respecting the direction of the assembly indicated and fixing the chains to avoid breaking the protection.
- Before inserting the PTO check that there are no persons or animals in the area and that the system chosen corresponds to the one allowed. Never exceed the maximum allowed.
- Insert the cardan shaft on the grooved shaft of the tractor, keeping the pin pressed, release the pin and pull the cardan back until the pin engages with an audible "clack". If this is not heard, repeat the process. The protection must not show any signs of being broken.
- Do not under any circumstances step across the area between the tractor and the machine with or without the cardan moving.
- If the machine is to be connected to the tractor for the first time check that: Under maximum turning conditions the cardan is not completely closed so as to avoid damaging the multiplier. If the cardan is too long it should be shortened by cutting off a suitable amount.
- Under all work conditions the telescopic tubes must overlap by at least 1/3 of their length (Fig.5.02).
- Work with contained and equal joint corners.
- Disconnect the drive in the manoeuvres where the joint angles exceed 35°.
- Always reduce the number of revolutions when they exceed 10°.
- After disassembling the cardan shaft, replace the protective cap on the PTO shaft.



5.3. STARTING-UP THE MACHINE

Before using the machine, it is necessary for the operator to familiarize himself with the controls and its operating abilities.

Before starting work, make sure that there are no people or animals in the working area.

Before starting the job, check that ALL the protections of the machine are integral and in perfect working order.

5.4. REFILLING THE TANK

!! CAUTION !!

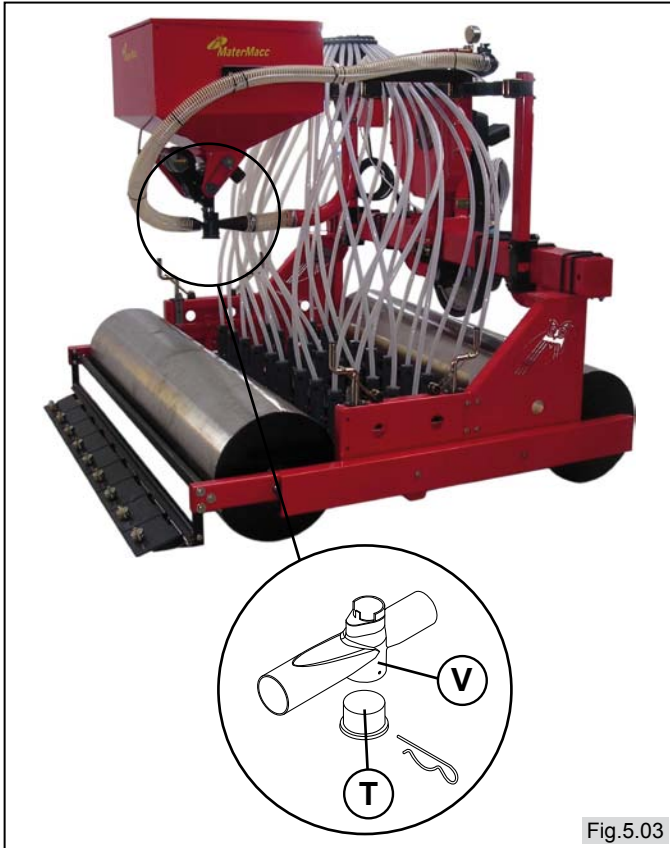
During the loading and unloading phases of the tanks, the operator must use adequate Individual Protection Devices (gloves, overalls, masks, etc)

- Refilling the tanks can be carried out manually. Remember that when lifting weights exceeding 30 kg, more than one operator is required.
- Lower the lifter completely and activate the tractor's parking brake.
- Check that each tank cap is closed, then start filling the tanks.
- All the tank loading and unloading operations are carried out on the land to be sowed, with the sowing machine stopped on the land, the frame open, parking brake engaged, engine off and ignition key removed from the control panel.
- It is advisable to carry out these operations in a flat area without obstacles.
- Ensure that nobody can approach the chemical substances.
- When the loading operations have terminated, put the loading platform back into the transport position and secure it to the machine.
- Pay careful attention to the cleanliness of the product to be sown: stones and foreign bodies may damage the machine parts.

5.5. UNLOADING SEEDS FROM THE DISTRIBUTOR

To thoroughly clean the distributor, remove the plug **T** installed below the venturi **V**.

Once the plug has been removed it is possible to then clean the distributor by allowing it to turn whilst empty.



5.6. DETACHING FROM THE MACHINE

When you park the machine, it is necessary to:

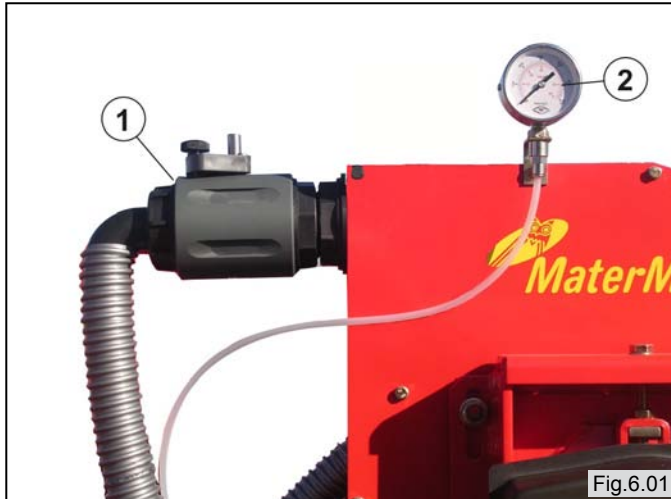
- Apply the tractor parking brake;
- Disconnect the power socket from the tractor;
- Place the machine on flat ground, making sure that it is stable;
- Stop the tractor's engine;
- Extract the ignition key from the control panel and guard it;
- Descend from the driving position;
- Disconnect the cardan shaft acting on the anti-slip trigger.
- Rest the cardan shaft on the appropriate support;
- Remove the pins and pivots of the three point connection and disconnect the tie rod (third point);
- Remove the pin and pivot and detach the tie-rod (third point);
- Return on the tractor;
- Start the tractor and move away carefully.

6. ADJUSTMENTS

6.1. PRESSURE ADJUSTMENT

It is possible to adjust the pressure approximately to between 10 and 15 mBar.

These values may be set using the pressure regulating valve **1** and checked using the manometer **2**.



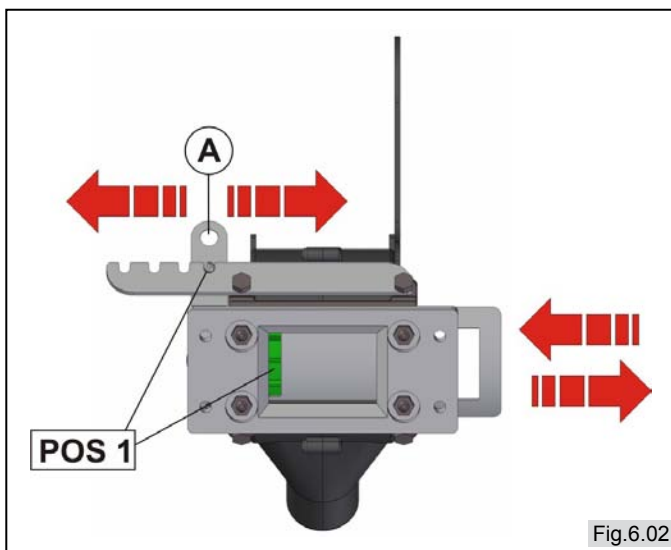
6.2. SEED DISTRIBUTION ADJUSTMENT

The ML seed distributor can be set for different types of seeds, both small and medium/large.

Proceed as follows to prepare the seed distributor on the basis of the seed type:

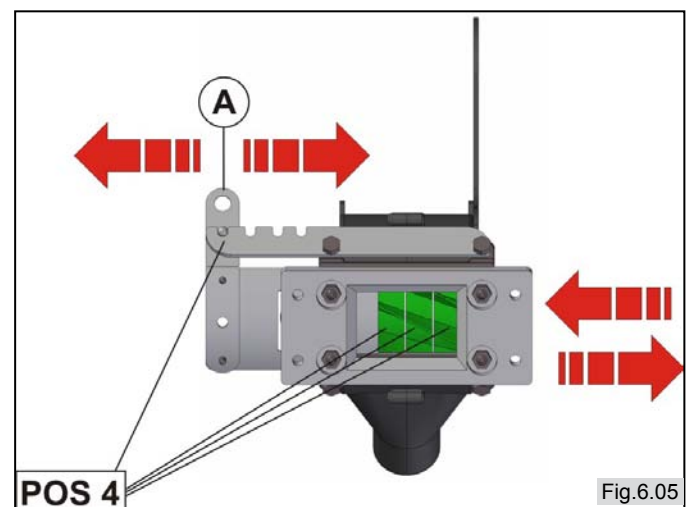
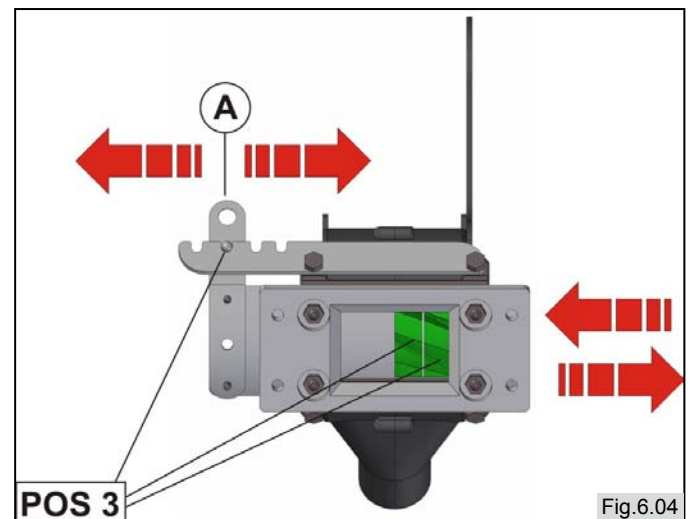
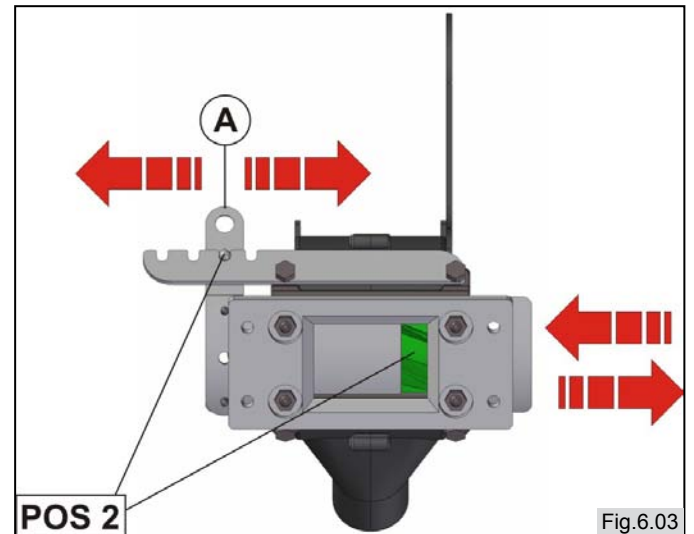
SETTING THE SEED DISTRIBUTOR FOR SMALL SIZED SEEDS

Set the seed distributor to **POS 1** moving the adjustment blade **A** (Fig.6.02).



SETTING THE SEED DISTRIBUTOR FOR MEDIUM/ LARGE SIZED SEEDS

For medium/large sized seed the distributor can be set from **POS 2** to **POS 4**. This facilitates the refilling of the distributor rollers considering the roller rotation speed.



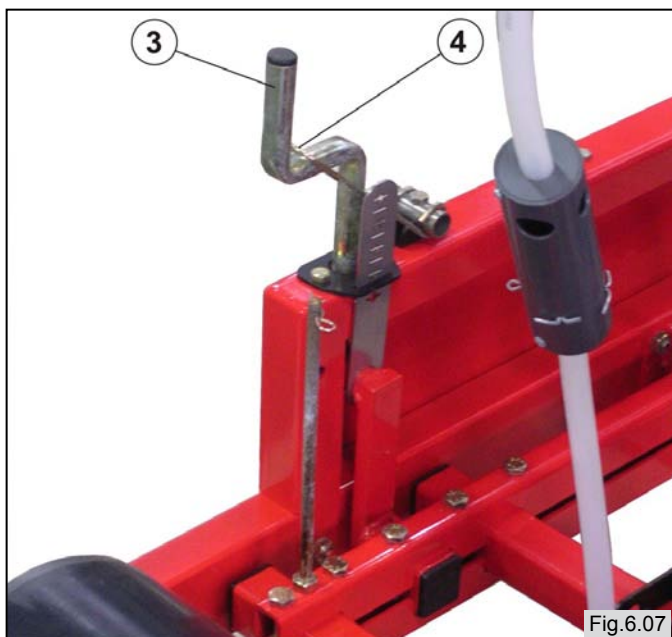
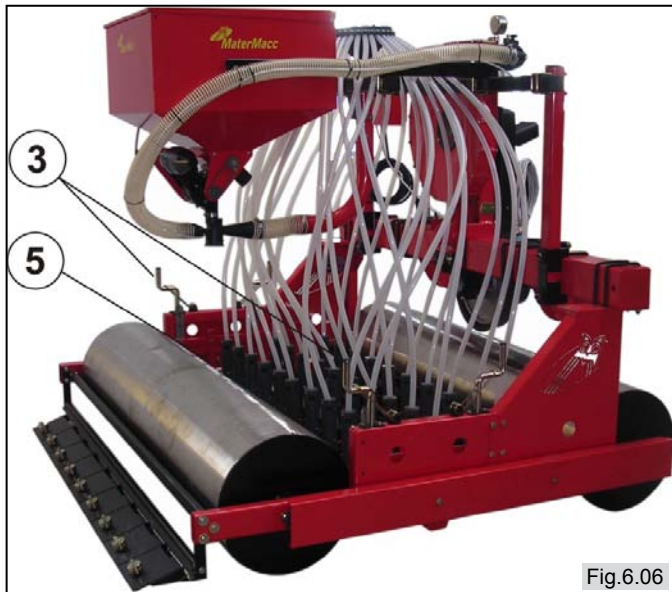
6.3. SOWING DEPTH ADJUSTMENT

Sowing depth can be adjusted depending on the condition of the soil and personal preference.

The sowing machine is equipped with two handles **3** through which the working depth of the coulter bearing frame **5** can be adjusted.

Proceed as follows to adjust the sowing depth:

- Release the handles **3** from the spring **4**.
- Turn the handle in a clockwise direction to reduce the sowing depth. Turn it in an anti-clockwise direction to increase the sowing depth.
- Reattach the springs **4**;



7. USE OF THE CENTRAL POWER UNIT



7.1. ASSEMBLY

Carry out control unit assembly in a level area with no obstacles and with the traction engine off.

- Assemble the central control unit near the driver's seat and somewhere where it is easy to handle and be seen.
- Connect the power board cable to the central control unit cable.
- Connect the RED (+) and BLACK (-) power cables to a free 12 Volt power point in the tractor. **(The central control unit is equipped with a 2 A fuse, when replacing the aforementioned, use the one supplied, located in the bottom part of the plastic container, DO NOT use fuses with greater output).**

CPU INTERFACE

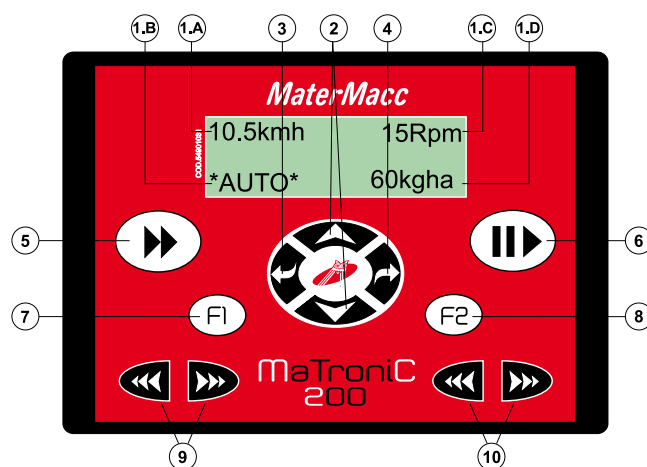
■ DISPLAY

The display presents values during the operational phases.

- 1.A) Speed in km/h
- 1.B) Operational mode AUTO or MAN
- 1.C) RPM of distributor axle
- 1.D) Quantity of product distributed in Kg/Ha

■ KEYS

- 2) UP/DOWN Increases/Decreases the values.
- 3) ENTER to confirm data or to access the SETTING/CONFIGURATION mode.
- 4) ESC to exit the menu.
- 5) BOOST restarts axle rotation.
- 6) START/STOP stops/restarts axle rotation.
- 7) F1
- 8) F2
- 9) ON/OFF Left keys with the function of non-retentive exclusion/activation switches of left area of the machine.
- 10) ON/OFF Right keys with the function of non-retentive exclusion/activation switches of right area of the machine.



7.2. OPERATING PRINCIPLE

The control unit controls the product distribution proportionally to the vehicle advancement (DPA) .

The control unit can operate in two modes:

■ AUTOMATIC

The operator sets the quantity of product in **KG/HA** to be distributed, the central control unit automatically adjusts the distributor **RPM** based upon the machine configuration data and the speed.

In this case, the operator does not have to consult the distribution table.

We solely ask you to pay attention to **NOT** exceed and select a speed which the distributor rotation **CANNOT** sustain.

In the case of MATERMACC distributors, the limit is at around **80 RPM**.

■ MANUAL

In this case, the operation is reversed. The operator consults the distribution table and sets the distributor RPM based upon the speed it must sustain.

In this case, the central power unit is limited to maintaining the set RPM and it provides visual information on the actual quantity distributed based upon the actual speed.

■ EMERGENCY

The EMERGENCY mode can be used when the speed detection system is faulty or not available. This mode allows the operator to set a constant working speed which the system will comply with.

7.3. AUTOMATIC OPERATING MODE

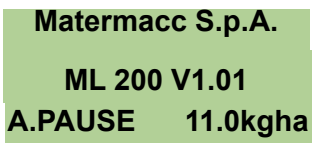

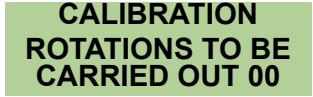

The control unit is supplied in **AUTOMATIC** operating mode and with all the machine operational parameters set on the basis of the type of machine purchased.

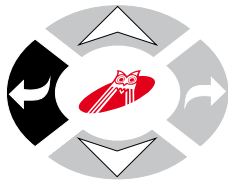

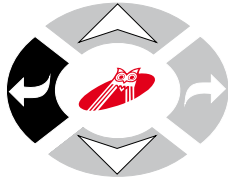
The only procedure which must be carried out before using the sowing control unit is the **PRODUCT CALIBRATION TEST** and the **PRODUCT MEMORY** for the product which is to be distributed.

7.3.1. PRODUCT CALIBRATION TEST

The **TEST** procedure allows for establishment of the genuine product quantity, expressed in grams, dispensed by the distributor with each turn.

To carry out the calibration **TEST**, carry out the following operations:

<p>Switch on the central control unit</p> <p>The display shows the first screen.</p> <p>After this, it shows the first screen shot.</p>	
<p>Press the “UP” + “DOWN” keys at the same time for 3 seconds.</p>	
<p>The display will show:</p>	
<p>Enter the number of distributor turns to be carried out by pressing the “UP” or “DOWN” keys.</p> <p>Note: if the product is light, we recommend setting a high number of turns in order to reduce the probability of errors.</p>	

Position the tray provided below the machine.	
Press the "ENTER" key to activate distributor rotation.	
The display will present:	"CALIBRATION.." (EXPECTED)
The distributor will stop once it has completed the number of set turns.	
Weigh the net product. The weighing scale used must be accurate. Any inaccuracies may lead to variations in the amount spread and distributed.	
Enter the net weight value in grams using the "UP" or "DOWN" keys.	
Confirm the value by pressing the ENTER key.	
The saved value represents the current operational data.	

7.3.2. SAVING PRODUCTS

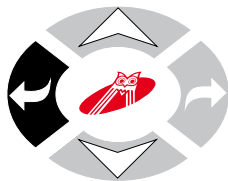

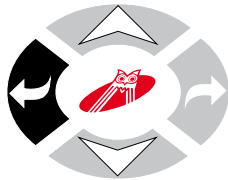

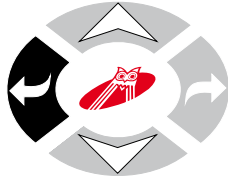
The central power unit allows you to save up to 10 product types to be distributed and described by:

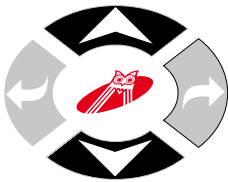
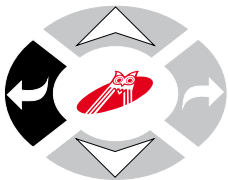
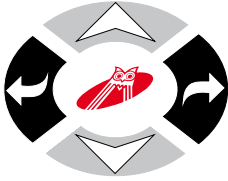

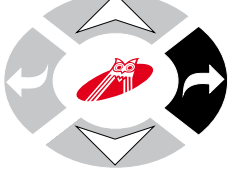
Name

Amounts to distribute in kg/ha

Grams per turn

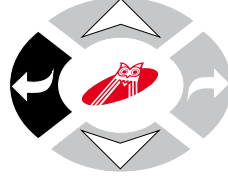


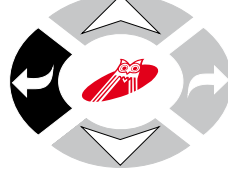
To save the product values, proceed as follows:

Press the "ENTER" key.	
The display will present:	NO RECIPE PRESS ESC or UP
Press the "UP" key.	
Press the "ENTER" key for 3 seconds to edit the data.	
The display will present:	PRG: DOSE: 0.0kg/ha
Enter the value by pressing the "UP" or "DOWN" keys.	
Press the ENTER key to confirm.	

The display will present:	PRG: G/ROTATION: 0.0g
Enter the value by pressing the “UP” or “DOWN” keys.	
To obtain the gram/turn value, divide the weight of the product resulting from the TEST with the number of rotations set to carry out the TEST.	Example: TEST grams 110 TEST axle rotations 10 $110/10 = 11 \text{ g/rotation}$
Press the ENTER key to confirm.	
The display will present:	PRG: NAME JOBSET NAME
Press the “UP” + “DOWN” keys to enter the letter. To store each letter press ENTER .	 
Press the “ESC” key to save product values.	

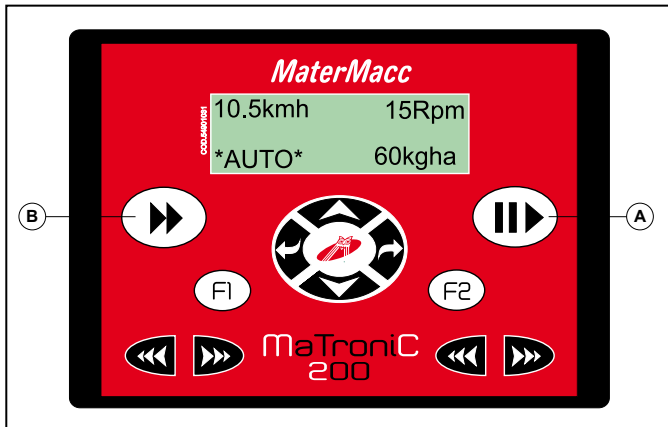
7.3.3. STARTING-UP PRODUCT DISTRIBUTION

After having memorized the products to be distributed, distribution can begin.

Press the “ENTER” key.	
The display will present:	NO JOBSET active press ESC or UP
Press the “UP” key to continue	
The display will present the first ten saved products. (for example).	1-ROCKET---1 11 kgha 11 gr
Press the “UP” or “DOWN” keys to scroll through subsequent saved products.	
Confirm the product to be distributed using the “ENTER” key.	

7.3.4. FUNCTIONS DURING DISTRIBUTION

During the distribution phase, it is possible to carry out certain functions:



A) **START/STOP** stops/restarts axle rotation.

B) **BOOST** starts predosing at the start of each pass

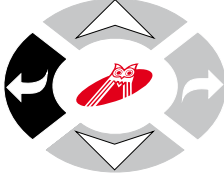
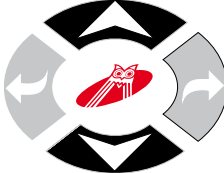

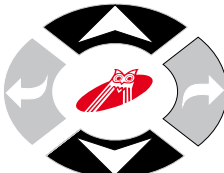
7.3.5. HECTARE COUNTER FUNCTION

To view the value of the machined surface, press the "ESC" + "UP" keys for **3 seconds**.



7.4. MANUAL OPERATING MODE

Proceed as follows to go into MANUAL mode:

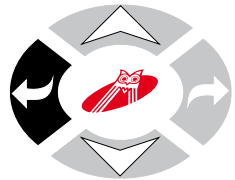

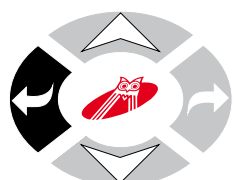
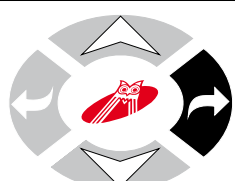
Press the ENTER key for 3 seconds.	
The display will show:	P00 CONFIG. MODE: AUTOMATIC
Set the MANUAL mode by pressing the "UP" or "DOWN" keys.	
The display will show:	P00 CONFIG. MODE: MANUAL
Press the "ESC" key to confirm.	
The display will show:	0.0kmh 0 rpm * MAN * 0.0kg/ha
Set the number of distributor axle turns to be carried out by pressing the "UP" or "DOWN" keys.	

7.5. SETTING OPERATIONAL PARAMETERS

As described previously, the control unit is supplied with all operational parameters set on the basis of the type of machine purchased.

Below however, is a description (if needed) of how to modify the operational parameters.

Proceed as follows to access the parameter menu and modify the parameters if necessary:

To access the operational parameters press the “ENTER” key for 3 seconds	
To set or modify a parameter, press the “UP” or “DOWN” keys.	
Press the “ENTER” key to move onto subsequent parameters.	
To leave the parameters menu and confirm the choices made press the “ESC” key.	

7.5.1. OPERATIONAL PARAMETERS

Before operation, you must set all the values necessary to control the quantity to be distributed.

#	Parameter	Description	UM	Range	Default
0	FUNC.	Operational mode	Flag		AUTO-MATIC
1	WHEEL CIRC.	Wheel circumference to measure the speed	cm	30...300	126
2	No. PUL. SPIN	Number of pulses for every turn of the measuring wheel	no.	1...150	3
3	WORK WIDTH	Working width	cm	10...200	41
4	No. DISTRIBUTORS	Number distributors	no.	1	1
5	EXT. GEAR RATIO	External gear ratio expressed in thousandths	no.	1...3.000	0,236
6	MIN.SPEED	Minimum activation/deactivation threshold speed	km/h	0.5...5.0	0.1
7	SOWING SPEED	Set operation speed (emergency)	km/h	1.0...40.0	0
8	T.BOOST	Boost time	s	0...20	2
9	V.BOOST	Simulated speed during boost phase	Km/h	0.1...20.0	3.2

Parameter 1 (Wheel circumference to measure the speed)

The wheel circumference value used to detect the speed is obtained using the following:

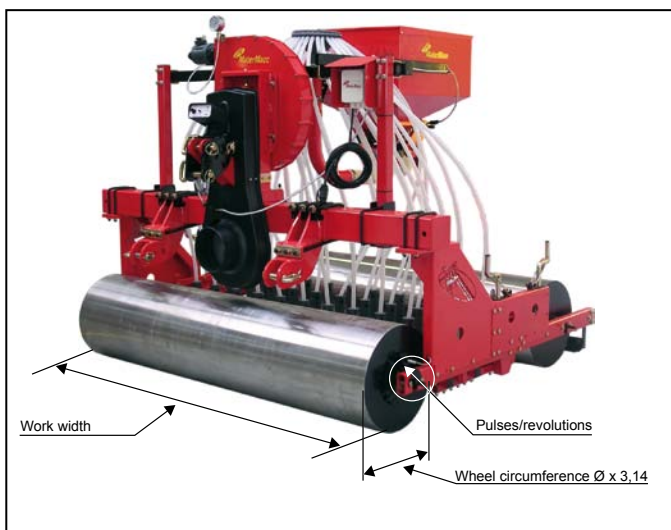
$$\text{Wheel diameter} \times 3.14$$

Parameter 2 (Pulses per turn)

If, for example, an inductive sensor, placed on the wheel fixing bolts is used to measure the speed, we have: 4

Parameter 3 (Work width)

The work width is expressed in cm.



It can be used in an emergency (e.g. faults) or where the control unit is used alongside a carrying machine.

!! CAUTION !!

If the speed is set, in automatic mode, in order to have an actual distribution equal to the one set, it is necessary to proceed and maintain a speed as close as possible to that set by parameter 9

Parameter 8 (BOOST Time)

Predosing time at the start of each pass.

Parameter 9 (BOOST Speed)

Simulates the speed during the predosing phase.

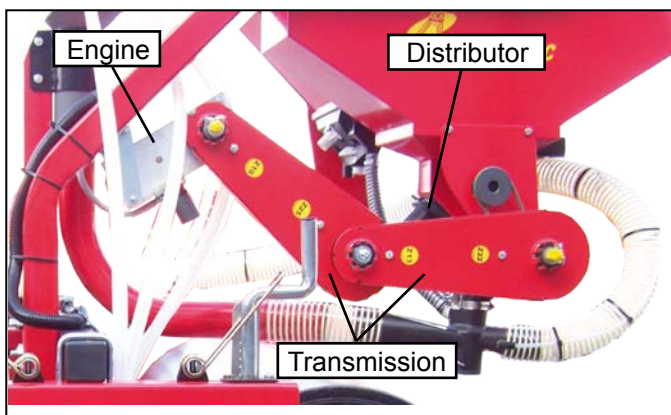
Parameter 5 (Gear ratio) RTX

Enables modification of the gear ratio between the gear motor and distributor outlet so that the distributor operational range may be expanded with the aim of keeping the electrical engine rotation within the optimum zone.

GEAR (Z10 - Z25) / (Z13 - Z22)

Calculation of gear ratio

$$\text{RTX} = 10/25 \times 13/22 = 0.236$$



Parameter 6 (Minimum Speed)

In order to avoid wastage and/or environmental damage owing to fruitless spillages, it is possible to set a speed - when the device falls below this set speed, the machine is considered off and will stop distributor rotation. Rotation will restart when the speed exceeds this threshold ("start/stop" function).

Parameter 7 (Set working speed (emergency))

When using this parameter, it is possible to bypass the speed warning issued by the sensor.



MaterMacc

www.matermacc.it

Matermacc S.p.A.

Via Gemona, 18 - 33078 San Vito al Tagliamento (PN) ITALIA



0434/85267



0434/85517

info@matermacc.it
