

## ARBOS

# USE AND MAINTENANCE HANDBOOK

MAGICSEM 8100 - 8200 SUPER - SUPER-L



Code 58312091 Rev.00



Matermacc S.p.A. Via Gemona, 18 - 33078 San Vito al Tagliamento (PN) ITALIA Tel. 0434/85267 - Fax 0434/85517

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#### **Use and maintenance handbook**

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#### 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 handbook is subdivided in chapters that are easily identifiable and consultable.

The indications contained in this handbook 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 handbook must be always delivered with to the machine. If damaged or lost a new copy must be requested to the machine Manufacturer or previous owner. The handbook is considered an integrating part of the machine.

#### **COPYRIGHTS**

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

#### INFORMATION ON THE HANDBOOK

This handbook is to be considered and 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 handbook 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 handbook (if the machine is CE branded).

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

#### HANDBOOK UPDATING

The information, descriptions and illustrations in this handbook 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.

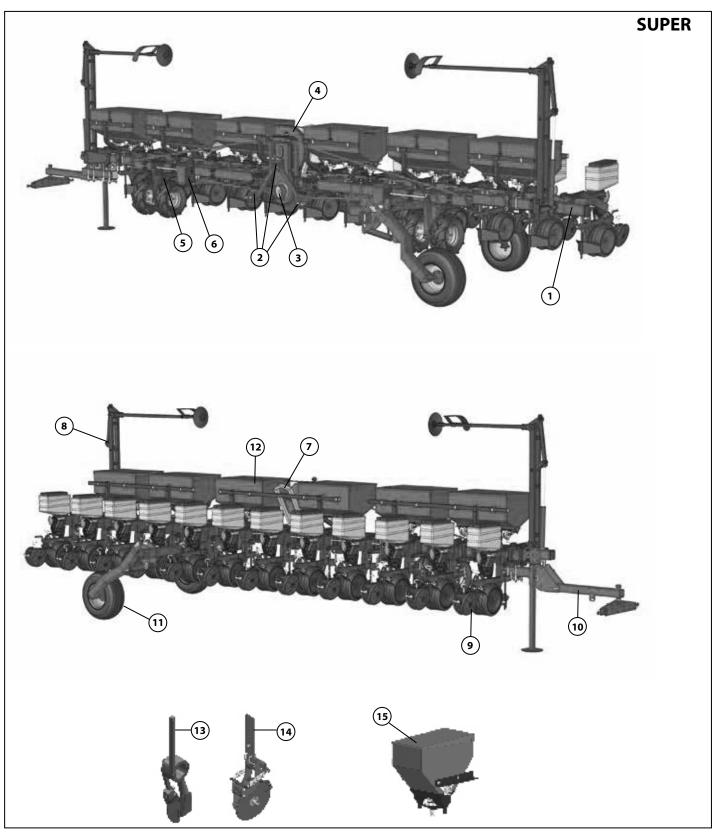
#### WARRANTY

- 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**

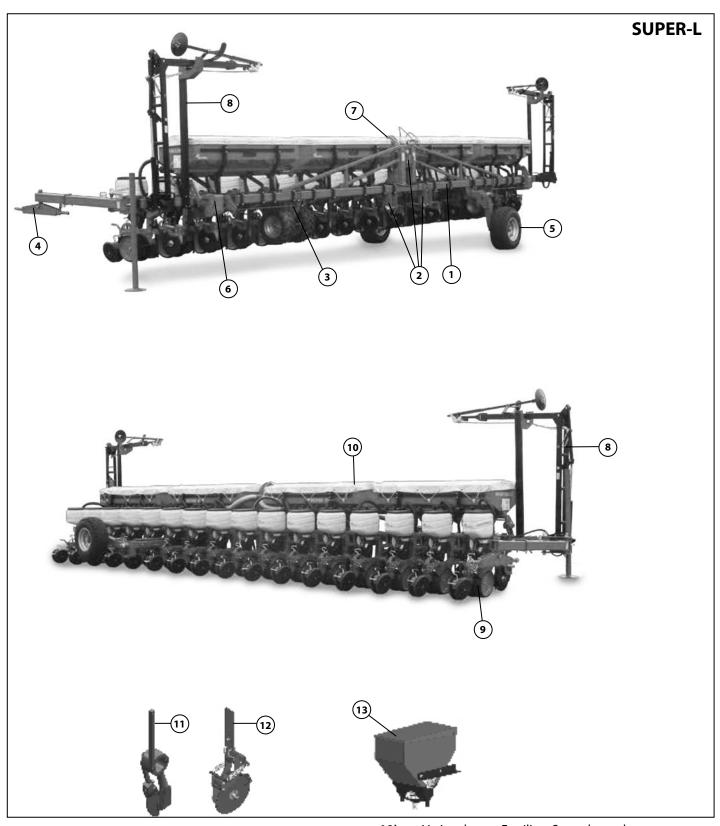
- Besides what is reported in the supply contract the warranty declines:
- In case the limits referred to in the technical data table or in other tables in the handbook are exceeded.
- In case the instructions described in this handbook have not been followed carefully.
- In case of wrong use, faulty 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



- 1) = Supporting frame
- **2)** = Three-points connection
- 3) = Power take-off
- 4) = Vacuum pump
- **5)** = Wheel supports
- **6)** = Gearbox
- **7)** = Lifting attachment
- 8) = Row marker

- 9)= Planting unit
- **10)** = Towbar for road transport
- **11)** = Transportation wheels for road transport
- **12)** = Variovolumex Fertilizer Spreader tank
- **13)** = Sowing element
- **14)** = Double disc fertiliser opener
- **15)** = Microvolumex tank

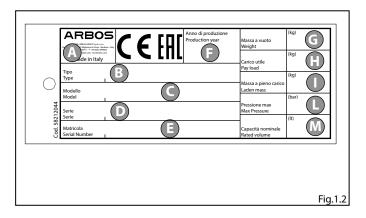


- 1) = Supporting frame
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- **13)** = Microvolumex tank

#### 1.1. IDENTIFICATION DATA

Every single machine is equipped with an identification plate (Fig. 1.2), containing the following data:



- **A)** Name, company name and address of the manufacturer.
- **B)** Machine type
- C) Machine model
- **D)** Machine serial number
- E) Serial number
- F) Year: Year of manufacture of the machine
- **G)** Unloaded weight: weight of the machine unloaded and fully kitted out.
- **H)** Payload: weight of the machine fully kitted out and with the tank full.
- **I)** Permitted loaded weight: total weight of the machine with the tank full.
- **L)** Maximum pressure: maximum pressure of the spray system, expressed in bars.
- M) Nominal capacity of the tank: expressed in litres.

#### 1.2. INFORMATION ON MACHINE

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

It is suitable for the seeding of: maize, Swiss chards, Soy, sunflower, colza, beans, cotton, peanuts, fennel, tomatoes, etc.

The seeds are distributed continuously and deposited in the land by means of plowers with hay-cutters or disc units.

The amounts to distribute are regulated through a gear that derives its motion from the movement of the wheel by traction.

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 planned and built in order to operate in open air, so the performances are not conditioned by atmospheric agents.

#### **ATTENTION**

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

#### 1.3. TECHNICAL DATA

Hereafter the data related to the various models of **MagicSem SUPER-L** sowers are reported.

| MODEL            | N° of | Row     | Working | Wei  | ght     | Power    |      | Capacity |        | Pneumatic   | Pneumatic |
|------------------|-------|---------|---------|------|---------|----------|------|----------|--------|-------------|-----------|
|                  | rows  | Spacing | width   | base | fertil. | required | seed | micro    | fertil |             | Pressure  |
| MC 0400          |       | (cm)    | (cm)    | (K   | g)      | (Hp)     |      | (litri)  |        |             | Psi       |
| MS 8100<br>SUPER | 12    | 75      | 860     | 1400 | 1710    | 130      | 420  | 24       | 1290   | 23x10.50-12 | 40        |
| 33.20            | 18    | 45      | 800     | 1820 | 2130    | 150      | 630  | 36       | 1290   | 23X10.50-12 | 40        |

| MODEL            | N° of | Row     | Working | Wei  | ight    | Power    |      | Capacity |        | Pneumatic   | Pneumatic |
|------------------|-------|---------|---------|------|---------|----------|------|----------|--------|-------------|-----------|
|                  | rows  | Spacing | width   | base | fertil. | required | seed | micro    | fertil |             | Pressure  |
| MC 0200          |       | (cm)    | (cm)    | (K   | (g)     | (Hp)     |      | (litri)  |        |             | Psi       |
| MS 8200<br>SUPER | 12    | 75      | 860     | 1720 | 2030    | 150      | 420  | 72       | 1290   | 22-10-50-12 | 40        |
| JOPER            | 18    | 45      | 800     | 2260 | 22570   | 160      | 630  | 108      | 1290   | 23x10.50-12 | 40        |

| MODEL              | N° of | Row     | Working | Wei  | ght     | Power    |      | Capacity |        | Pneumatic   | Pneumatic |
|--------------------|-------|---------|---------|------|---------|----------|------|----------|--------|-------------|-----------|
|                    | rows  | Spacing | width   | base | fertil. | required | seed | micro    | fertil |             | Pressure  |
| MC 0100            |       | (cm)    | (cm)    | (K   | g)      | (Hp)     |      | (litri)  |        |             | Psi       |
| MS 8100<br>SUPER-L | 16    | 70      | 1085    | 4200 | 4750    | 150      | 1120 |          | 1720   | 22,40 50 12 | 40        |
| JUPER-L            | 24    | 45      | 1060    | 4760 | 5400    | 160      | 630  |          | 1720   | 23x10.50-12 | 40        |

| MODEL              | N° of | Row     | Working | Wei  | ght     | Power    |      | Capacity |        | Pneumatic   | Pneumatic |
|--------------------|-------|---------|---------|------|---------|----------|------|----------|--------|-------------|-----------|
|                    | rows  | Spacing | width   | base | fertil. | required | seed | micro    | fertil |             | Pressure  |
| 145 0200           |       | (cm)    | (cm)    | (K   | g)      | (Hp)     |      | (litri)  |        |             | Psi       |
| MS 8200<br>SUPER-L | 16    | 70      | 1085    | 4400 | 4950    | 150      | 1120 |          | 1720   | 23x10.50-12 | 40        |
| JOP ER-L           | 24    | 45      | 1060    | 4960 | 5600    | 160      | 630  |          | 1720   | 23810.30-12 | 40        |

The technical data will not be binding on ARBOS GROUP S.p.A. We reserve the right to modify them without any prior notice.

#### 1.4. NOISE LEVELS

The only noise emitted from the machine that does not depend from the interaction of the machine with external factors, is connected to the depressor.

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



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 apparatus like, for example, a soundproofed, cabin, earplugs, etc.

#### 1.5. STORAGE

If the machine is stopped 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 stopping 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 it;
- grease all the mechanical units, the blocking hinges;
- grease the transmission chains, grease all 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;
- protect the equipment with a cloth;
- remove the control console from the tractor's cabin.

## 1.6. FIRST USE OR RESTART AFTER A LONG PERIOD OF INACTIVITY

Before using the machine for the first time or after along period of inactivity, it is necessary to carry out what follows:

- verify that the machine has no damaging;
- verify the mechanical units that must be in good state and not rusted;
- verify the correct functioning of the light bars (if present);
- · grease carefully all the mobile parts;
- verify that not there are leakages of oil coming from connections or pipings;
- verify that all the protections are placed correctly;
- set the sowing machine into action idly, the flow of air frees the ducts from the presence of condenses and removes any impurity.

#### 1.7. SCRAPPING

In case of scrapping, the machine will have to be disposed 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.



The used oil must be opportunely recuperated and not dispersed in the environment as according to the enforced norms it is classified like 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, aluminum, steel, can only be recycled, if collected in the specific centres.

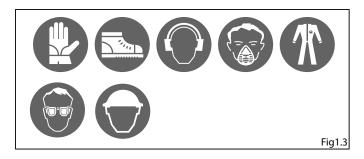
## 1.8. SAFETY REGULATIONS AND ACCIDENT PREVENTING

A correct use of the machine, the scrupulous observance of the norms listed here and the rigorous application of all the precautions for preventing any situation of danger will avoid danger of incidents or accidents, will make the machine operate better and longer and reduce breakdowns to the minimum.

ARBOS GROUP S.p.A. declines any and every objective or subjective responsibility if the behaviour norms referred in the handbook are not applied and respected.

- The machine is not indicated for being used in other sectors apart from that agricultural one.
- The machine must be used from by a single operator driving the tractor.
- A different use from that specified is considered improper.
- The machine must be used exclusively from authorized, instructed staff opportunely trained. The assigned operator, besides having read and assimilated the instructions contained in this handbook, must be sufficiently prepared on the correct use of the machine and must have a driver's license. We remind to refer to the manufacturer in case of doubts on the use of the machine and on the interpretation of this handbook.
- The handbook must be always at reach in order to be able to consult it if needed. Should it be lost or damaged, it is necessary to request the substitutive copy to ARBOS GROUP S.p.A..
- The operator must assess that during the machine's operation no person or animal stops within the operating range of the machine, Never action the machine near people who are close to the operating range (stopping or passing by).
- Do not use the machine if tired, ill or under the effect of alcohol, medicine or drugs.
- This machine is usually used during the day should it be, exceptionally, necessary to use the machine at night or in conditions of reduced visibility the lighting system supplied with the tractor must be used or an auxiliary system of lighting system.
- Any arbitrary modification to this machine releases AR-BOS GROUP S.p.A. from any responsibility for damages or lesions that can occur to the operators, third parties and things.
- Verify the machine carefully before starting it up.

- ARBOS GROUP S.p.A. cannot contemplate every improper use that is unpredictable and can cause a potential risk.
- The signs placed on the machine assure a series of important indications: their observance is necessary for YOUR safety.
- Make sure that all the safety pictograms are readable.
   Clean them and if necessary replace them with new labels.
- Before using the machine, to make sure that all the safety catches are placed correctly in their place and in good state; in case of breakdowns or damaging to the protections replace them immediately.
- Before descending from the tractor and before every maintenance operation, action the stationing parking brake, turn the engine off, remove the ignition key from the dashboard and to take care of it.
- The staff must use the emergency equipment and the personal protective devices while operating and carrying out maintenance on the machine.
- We recommend the operator assigned to the machine not to wear clothing that could be caught by the machine.



- During the use, the machine could 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 asd 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 never be left unguarded while in motion.
- Keep the machine clean from foreign material (detritus, tools, various objects), that could damage functioning or cause damages to the operator.

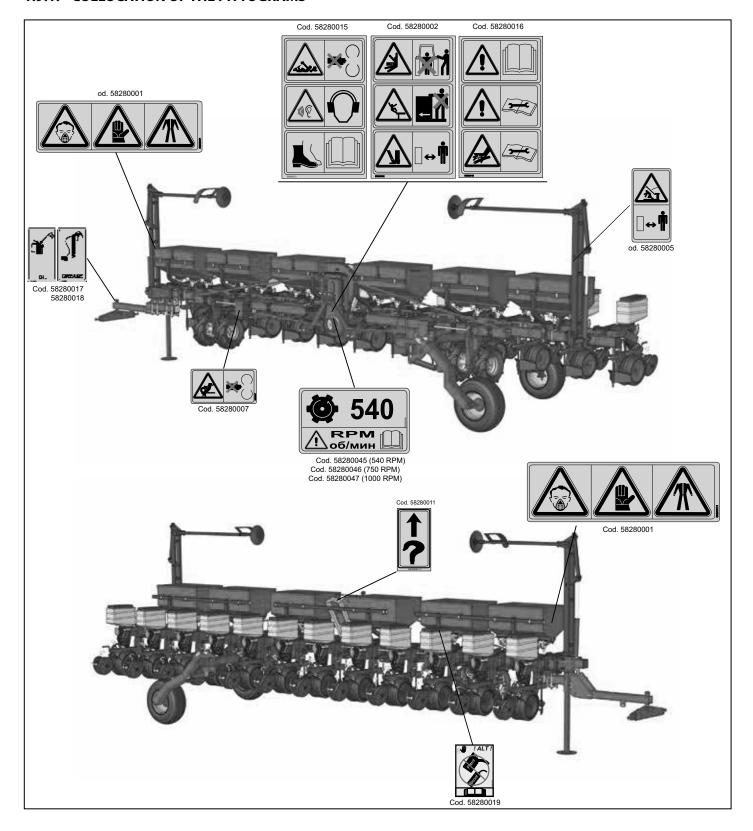
- · Avoid operating on muddy or loose soil.
- Verify the wear of the hydraulic tubes. Replace them if deteriorated.
- Do not use the controls or flexible tubes as handles; these components are mobile and do not offer a stable support.
- Any alteration on the machine could cause safety problems. Should this occur the user will be held the only person liable for any accident.
- It is absolutely prohibited to remove or to tamper the safety catches.
- Assess the good conditions of the emergency pictograms. If the pictograms are deteriorated they must be replaced with others original ones requested to the manufacturer and placed in the position indicated in the use and maintenance handbook (paragraph 1.9.2).
- Pay attention to the risk of not intentional contact of the sowing machine's arms with high voltage cables.
- Never use the machine to transport people, animals or objects.
- 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.
- The attachment hinges category of the equipment must correspond to that of the lifter attachment.
- Pay attention when operating in areas with the arms lifted.
- Pay the maximum attention during the equipment coupling and uncoupling phases.
- It is absolutely prohibited to stand between the allpurpose 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.

#### 1.9. SAFETY SIGNS

Assess the good conditions of the emergency pictograms. If the pictograms are deteriorated, they must be replaced with other original ones requested to 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.

#### 1.9.1. COLLOCATION OF THE PITTOGRAMS



#### 1.9.2. DESCRIPTION OF THE PICTOGRAMS

**ATTENTION** - the regulation and maintenance operations must be carried out after reading the use and maintenance handbook, with the machine stopped and the key removed.



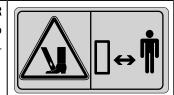
**ATTENTION DANGER** of fluids under pressure. Read the handbook before intervening and consult a doctor in case of wounds.



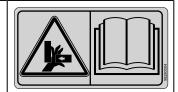
**ATTENTION DANGER** of crushing. Do not stop between the traction engine or and the machine.



**ATTENTION DANGER** of crushing. Do not stop between the traction engine or and the machine.



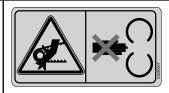
**ATTENTION - DANGER** of chopping of the hands.



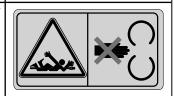
**ATTENTION** - Prohibited to mount and be transported.



**ATTENTION** - Kinematic mechanisms in movement. If you approach the machine without the due precautions there is a high risk of accident.



**ATTENTION - DANGER** of catching and dragging. Do not put your hands near the driving shaft in motion.



**ATTENTION** Maximum limit of rpm.

**DANGER** - of contact with cardan shaft in motion.



**ATTENTION - DANGER** of toxic substances.



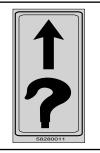
**ATTENTION - DANGER** of falling of suspended parts.



ATTENTION - NOISY AREA this sign marks the zones of the machine where the noise level can be such to provoke damages 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



enforced norms.



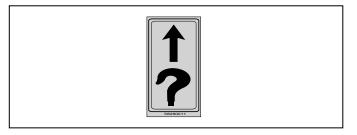
**GREASING POINTS** 



#### 1.10. MOVEMENT AND TRANSPORT

Pay the maximum attention to safety during the loading and unloading operations that have 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 of 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 predisposed.

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

#### 2. DRIVING ON A PUBLIC STREET



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 nonpaved 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-sower, 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 shaft must always be loaded with a weight equal to 20% of the combination tractor-sower.
- Verify the lifting ability and the stability of the tractor through the following formula and, if needed, apply the ballasts.

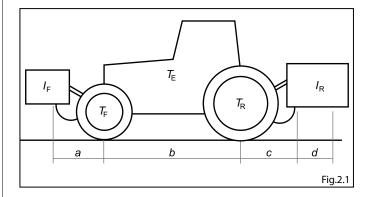
$$I_{F,min} = \frac{(I_R \times (c + d)) - (T_F \times b) + (0.2 \times T_E \times b)}{a + d}$$

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-sower.

| Legend:   |     |
|---|-----|
| <b>TE [kg]</b> Weight of unloaded sowing machine.   | 1   |
| <b>TF [kg]</b> Load on the front shaft of the unloaded tractor.   | 1)  |
| <b>TR [kg]</b> Load on the rear shaft of the unloaded tractor.  | 1)  |
| <b>IR</b> [kg] Combined weight of the equipment carried on the rear/rear ballast.   | 2   |
| <b>IF</b> [ <b>kg</b> ] Combined weight of the equipment carried on the front/front ballast.  | 2   |
| <b>a [m]</b> Distance between the centre of gravity of the combined equipment carried on the front/fron ballast and the centre of the front shaft.                      | 23  |
| <b>b</b> [m] Tractor's wheelbase.   |     |
| <b>c</b> [m] Distance between the rear shaft centre and the centre of the lower connection points.  | 1)3 |
| <b>d [m]</b> 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. | 13  |

|   | See the instruction manual of the trac-      |
|---|--|
|   | tor.   |
| 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, from the presence of the of any equipment or bear that is being carried.

- 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 seeds and fertilizer tanks are well sealed; put in block position the lifting lever of the hydraulic lifter.
- All transports on street must be made with empty tanks and with a maximum speed of 25 km/h.
- The transports made 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.
- When the equipment or other bears obstruct the visibility of the lighting disposals or signals, these must be correctly reproduced on the equipment, as regulated in the driving code of the residing Country.

#### 3. FUNCTIONING OF THE MACHINE



Verify that during the work, all of 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
  on the 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 learning the controls panel and their function.
- While opening or closing the folding frame, do not stand for any reason by the machine.
- The machine must be used by a single operator driving the tractor.

#### 3.1. CONTROLS

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

#### 3.2. VISIBILITY

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



WARNING- while driving in reverse gear there may create some shade zones which are not visible through the rear mirrors.

#### 4. USE OF MACHINE



Before using the machine, it is necessary to familiarize 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 judgment and caution in using of 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 replacement parts only originates them.

#### 4.1. CONNECTION OF MACHINE TO THE TRAC-TOR

The machine must be connected to the tractor with a power take off activated at 500 rpm, with weight and suitable power, in compliance with the enforced requirements in the country in which the machine is uses.



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

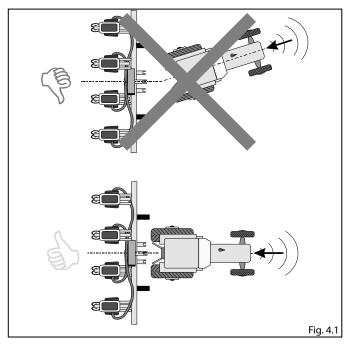


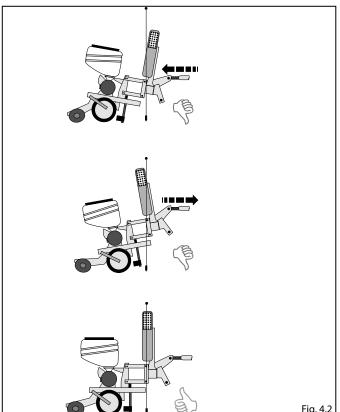












For the coupling of the tractor to the machine, the operator must move the tractor with the reverse gear until it reaches the connections on the machine with the back lifters (Fig. 4.1).

- Action the parking brake of the tractor, switch the engine off, remove the ignition key and step down.
- Insert the hinges and the relative plugs/safety forelocks.
- 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.
- It could happen that the compression wheels are not in axle with the track left from the plough discs or cutters and therefore they do not compress well. This is due to the fact that the sowing machine is NOT regulated well on the lifting connections. It is necessary then to regulate them without fixing them in a rigid way leaving some millimetres of space. The sowing machine must be connected as shown.

#### 4.2. CARDAN SHAFT ASSEMBLY



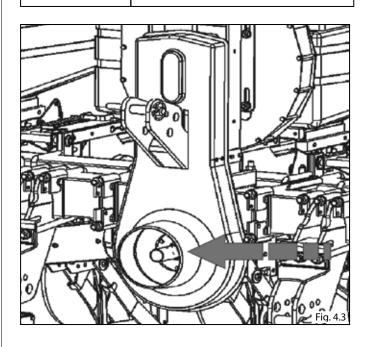
Before using the cardan transmission read the attached usage norms carefully.

The sowing machine provides the use of cardan transmissions certified CE.

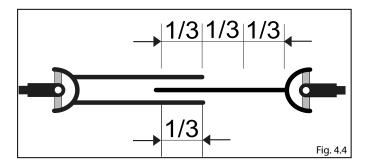
The use of not certified cardan transmissions is prohibited. The non compliance with this norm annuls the safety certification for the sowing machine automatically.

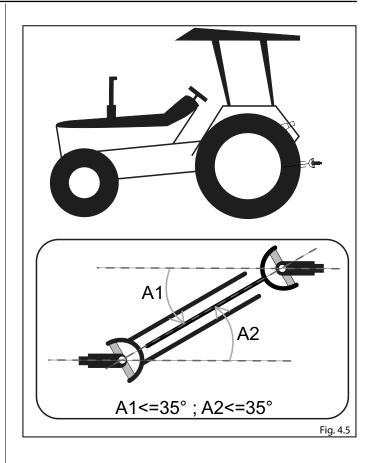
Accidents caused by catching and dragging in the transmission units can cause serious and mortal consequences and is due to the default of protections of these units and from the use of fluttering clothes that can be caught by moving parts.

The cardan shafts must be equipped with safety pictograms.



- The cardan shaft must be fixed correctly to the P.D.P, respecting the direction of assembling indicated on it and fixing the chains in order to avoid the spinning of the protection.
- Before inserting the power take-off, ensure that there are no people or animals in the operating area and that the chosen regime corresponds to the one that is allowed. Never exceed the provided maximum.
- Insert the cardan shaft on the grooved shaft of the sowing machine holding the safety plug, release the safety plug and withdraw with the cardan until the plug engages making a "clack" sound in its seat. If the release of the plug is not perceived, repeat the procedure.
- The protection must not show ruptures.
- Insert the cardan shaft on the grooved shaft of the sowing machine holding the safety plug, release the safety plug and withdraw with the cardan until the plug engages making a "clack" sound. If the release of the plug is not perceived, repeat the procedure.
- Avoid in any way to jump over the area comprised between the tractor and the machine with or without the moving cardan.
- If the machine is connected for the first time to the tractor, make sure that: In the conditions of maximum steering the cardan is not completely closed in order to avoid causing damages to the multiplier. In the event that the cardan is too long, it is necessary to shorten it by cutting it as much as necessary.
- In any operating condition the telescopic tubes must overlap for at least 1/3 of their length (Fig.4.4).
- Work with contained and equal joints corners.
- Disconnect the movement bite when the corners of the joints exceed 35°.
- Always reduce the number of revolutions when they exceed 10°.
- After disassembling the cardan shaft, replace the protection cap on the power take off shaft.





## 4.3. PARKING DEVICE OF THE SOWING MACHINE

The parking device (resting position) of the sowing machine is usually mounted in the first and last sowing elements.

To activate the parking device of the sowing machine, proceed as follows:

- Displace spring M from position A (Fig.4.6) to position B (Fig.4.7).
- Lift the element until you hear or see hook N clicking in on bolt P (Fig.4.8)

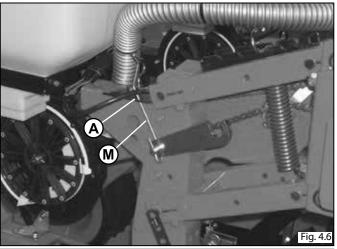


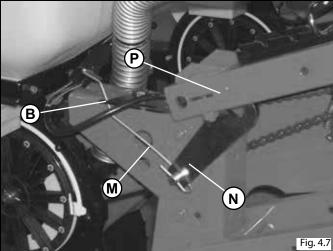
The strength needed for lifting the element is higher than 80 Kg, therefore please be extremely careful!

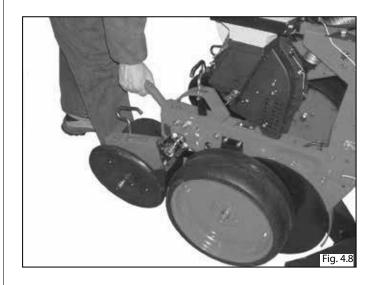
Release the element slowly until it is totally supported by the hook.

Repeat these operations for all the elements mounted on the device

To deactivate the device, carry out the operations above in the reverse order.







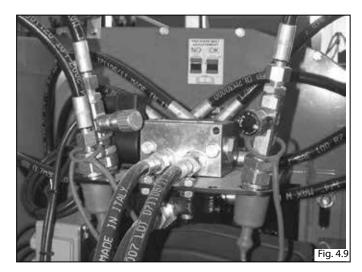
#### 4.4. HYDRAULIC CONNECTIONS



When connecting hydraulic tubes to the hydraulic system of the tractor, pay attention that the hydraulic systems of the operating machine and the tractor are not in pressure.

The hydraulic connections between tractor and machine must be marked by means of colours, in order to exclude wrong usage. If an exchange occurs there could be danger of accident.

During transport on road, the hydraulic connections between tractor and machine must be disconnected and fixed in the appropriate support (Fig.4.9).



#### 4.5. ELECTRICAL CONNECTIONS

Collegare i fili BLU E MARRONE del cavo alimentazione ad una tensione di 12V c.c.

Non è necessario rispettare alcune polarità nella connessione dei fili BLU e MARRONE al (+) e (-) 12v.



For your connection select a point of the electrical installation that assures a power capacity of at least 5A. Make sure the sections of the main cable and any connecting plugs are adequate and protected by fuses to assure the correct operation of the gearbox.

## 4.6. USING THE TRANSPORTATION WHEELS MS 8100 - 8200 SUPER

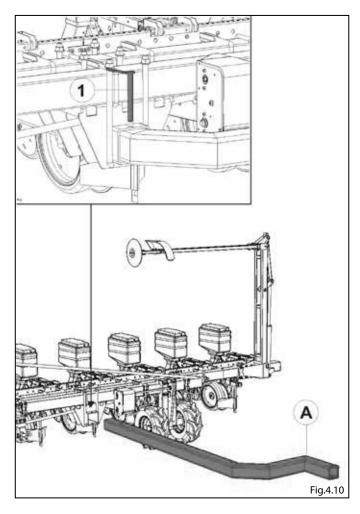
#### 4.6.1. ASSEMBLY OPERATION FOR THE TRAN-SPORTATION TROLLEY



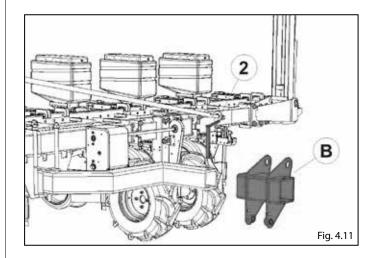
Assembly and disassembly operations must be carried out by at least 2 people.

For assembly and disassembly, proceed as follows:

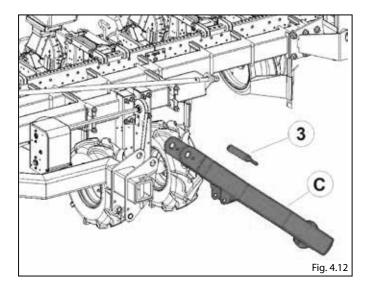
- Hook the third point of the hoist to the three points of the sowing machine.
- Stop on flat ground.
- Stop the PTO.
- Apply the parking brake.
- Hoist the sowing machine.
- Make sure that no people or animals get close to the sowing machine.
- Mount wheel supporting frame A by fixing it with pins
   1 (Fig.4.10)



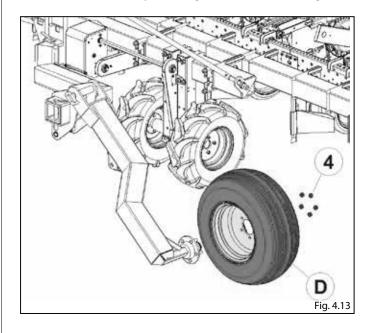
Mount supports **B** by fixing them with pins **2** (Fig.4.11).



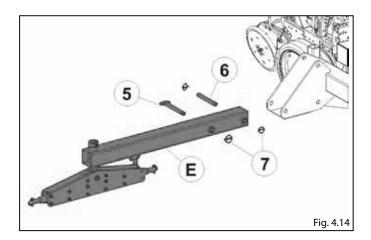
Mount wheel supports **C** by fixing them with pins **3** (Fig.4.12).



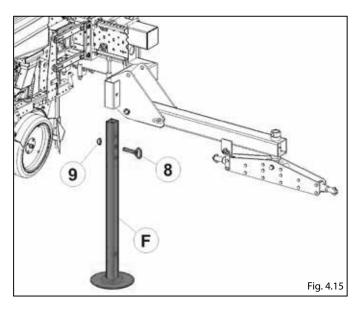
Mount wheels **D** by blocking them with nuts **4** (Fig.4.13).



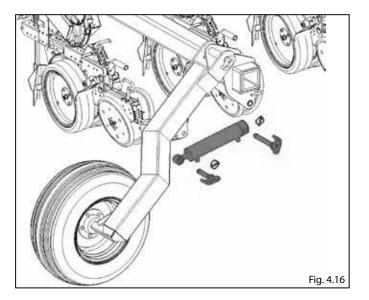
Mount the towbar **E** by fixing it with pins **5 - 6 - 7** (Fig.4.14).



Mount the support foot F by fixing it with pins 8 - 9
(Fig.4.15).



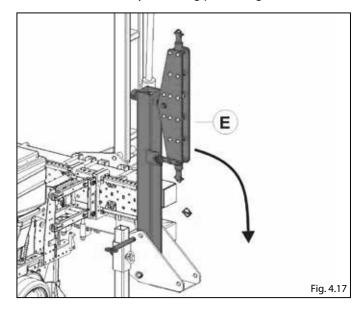
Mount the support foot F by fixing it with pins 8 - 9
(Fig.4.15).

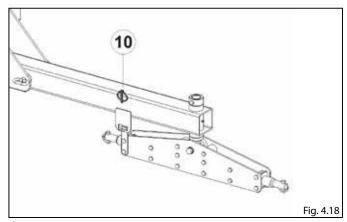


#### 4.6.2. HOW TO TOW FOR ROAD TRANSPORTATION

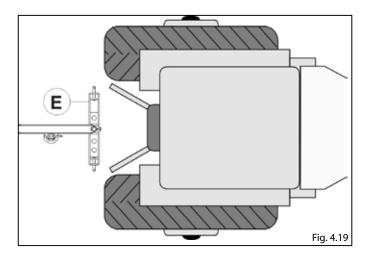
In order to tow the machine for road transportation, the sowing machine must be on solid ground (flat if possible) and be supported by carrying wheels and by the support foot **F.** After these checks, the sowing machine can be towed to the tractor: to do so, proceed as follows

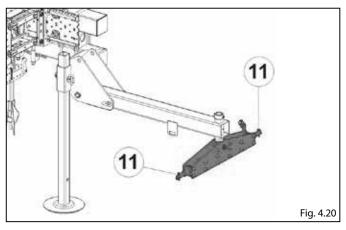
- Put the towbar arm **E** to a horizontal position (Fig.4.17).
- Free the towbar by removing pin **10** (Fig.4.18).

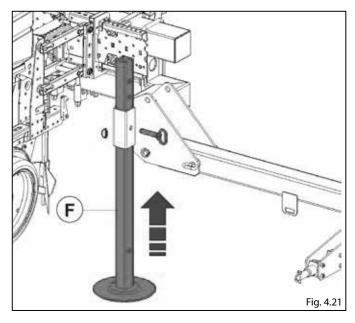




- With the tractor, approach the towbar **E** in order to let the two longitudinal axles coincide at such a distance that the ends of the hoist arms are near the towbar (Fig.4.19).
- Adjust the hoist so the arms are positioned at the required height.
- Hook the towbar to the hoist and fix it with pins **11** (Fig.4.20).
- Lift the support foot **F** (Fig.4.21).







## 4.7. USING THE TRANSPORTATION WHEELS MS 8100 - 8200 SUPER-L

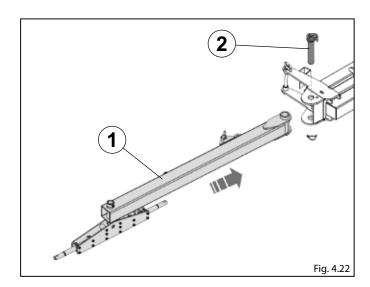
#### 4.7.1. ASSEMBLY OPERATION FOR THE TRAN-SPORTATION TROLLEY



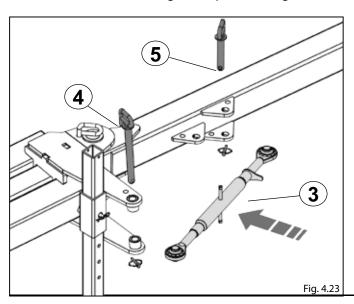
These operations must be carried out by at least 2 people.

For assembly and disassembly, proceed as follows:

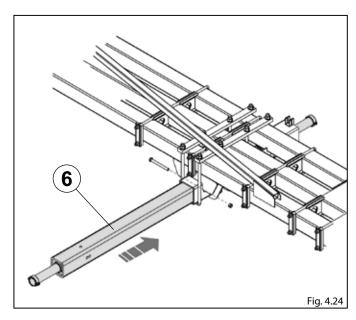
- Hook the third point of the hoist to the three points of the sowing machine.
- Stop on flat ground.
- Stop the PTO.
- Apply the parking brake.
- Make sure that no people or animals get close to the sowing machine.
- Mount the towbar 1 on the frame inserting pin 2
   (Fig.4.22)



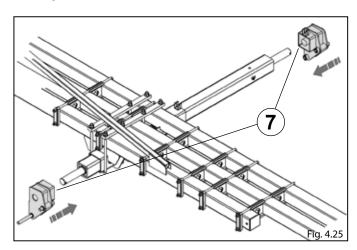
Mount the tie rod **3** fixing it with pins **4 - 5** (Fig.4.23).



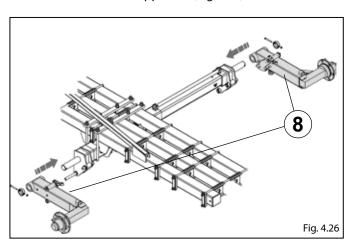
• Mount the wheel supporting tube **6** (Fig.4.24).



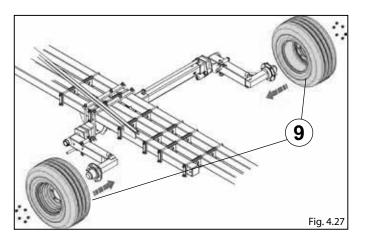
Mount the attachments for the wheel supports 7
 (Fig.4.25)



Mount the wheel supports 8 (Fig.5.27).

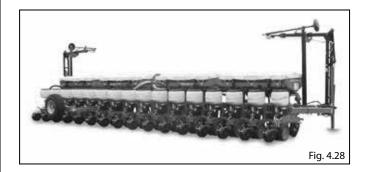


Mount the wheels 9 (Fig.4.27).

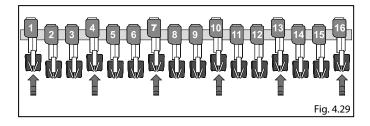


## 4.7.2. PREPARING THE SOWING MACHINE FOR ROAD TRANSPORT

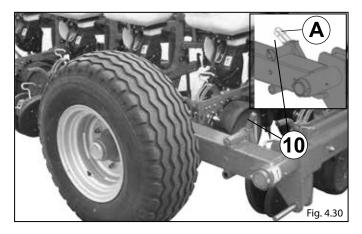
 After having carried out the assembly operations for the transportation wheels and the towbar, proceed as follows:



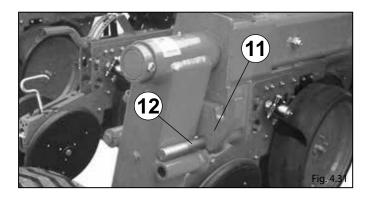
Position the elements 1 - 4 - 7 - 10 - 13 - 16 in a blocked position (Fig.4.29) (Chapter 4.3).



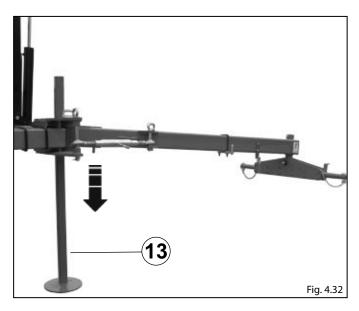
Bring the lever 10 of both transportation wheels to position A (Fig.4.30).



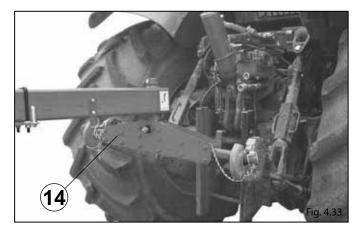
• By acting on the tractor hoist, lift the machine until the hook **11** engages with the pin **12** (Fig.4.31).

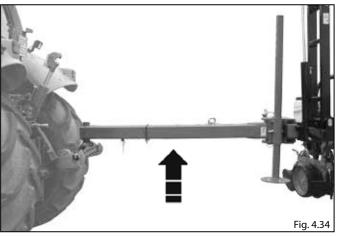


• Lower the support foot **13** (Fig.4.32).



- Disconnect the tractor from the three point connection of the sowing machine.
- Hook the towbar **14** al to the tractor hoist (Fig.4.32).
- Lift the tractor hoist so as to bring the sowing machine into a horizontal position (Fig.4.34).



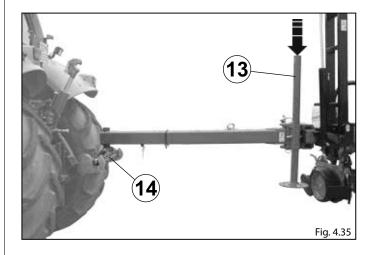


## 4.7.3. PREPARING THE SOWING MACHINE FOR SOWING

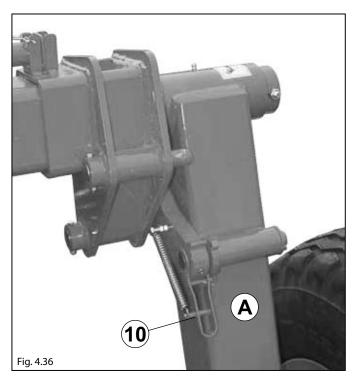
Once the soil to be sown has been reached, look for level ground where the sowing preparation can be carried out more easily.

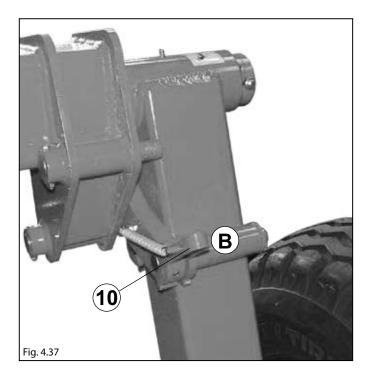
The steps to be followed are:

- Lift the sowing machine so that the support foot can be lowered 13.
- Release the towbar **14** from the tractor hoist.

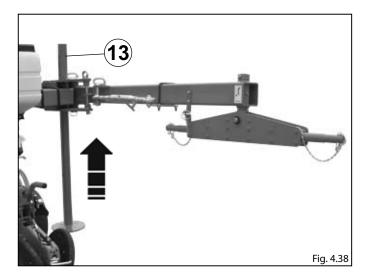


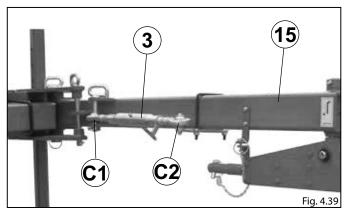
- Connect the tractor with the three point connector of the sowing machine
- Bring the lever **10** to position **B** (Fig.4.37).



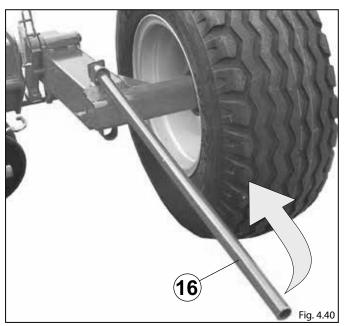


- Lift the support foot **13** (Fig.4.38).
- Close the towbar **15** blocking it with the tie rod **3** in position **C1 C2** (Fig.4.39).

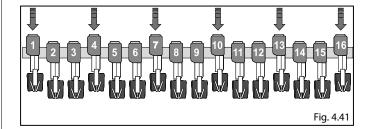




- Lower the sowing machine.
- With the appropriate lever which is provided **16** lift the wheels so as to block them.



• Unblock the sowing elements 1 - 4 - 7 - 10 - 13 - 16 from the blocked position.



#### 4.8. MAIN FRAME

#### **FIXED FRAMES (MS 8100 SUPER / SUPER-L))**

The sowing components are assembled on the load-bearing frame for inter-row sowing. Specific frame requirements are noted at the time of purchase. If, for whatever reason, the sowing components require modifying, then request authorisation for such changes from the ARBOS GROUP S.p.A. technical office.

#### **TELAIO EASY-SET (MS 8200 SUPER / SUPER-L)**

It has been made to make the adjustment of the sowing row spacing easier and faster thanks to the easy set system mounted on the main frame.

This system allows to let the sowing elements slide lengthwise on a guide mounted in parallel to the frame.

The distance between sowing elements can be adjusted quickly by the relevant positioning lever supplied standard with the sowing machine.

In view of the length of the supporting frame and all the EASY-SET guides different working widths can be obtained.

The seeder is delivered as per the initial order description; with sowing components positioned for an inter-row distance as described in the purchase order.

#### HOW TO MODIFY THE ROW SPACING



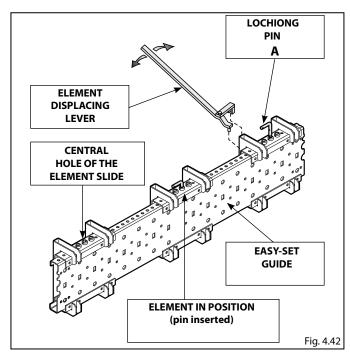
The sowing machine is delivered with a number of sowing elements positioned at a row spacing corresponding to the one specified upon order.



The sowing elements shall be displaced with the machine lifted from the ground. It is strictly forbidden to insert any part of your body under the machine or under the sowing element!

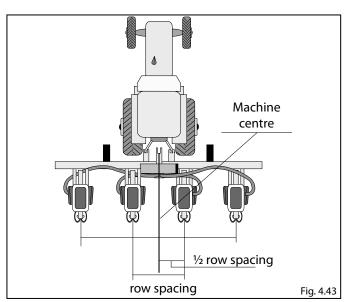
#### To modify row spacing proceed as follows:

- Lift the sowing machine from the ground.
- Remove locking pin (**A**) that locks the elements in position (Fig.4.42).
- By means of the lever displace the element to the required distance.
- Lock the elements by inserting pin (A) again.



#### HOW TO DETERMINE THE ROW SPACING

To position the sowing elements refer to the machine centre.



#### ROW SPACING ADJUSTMENT

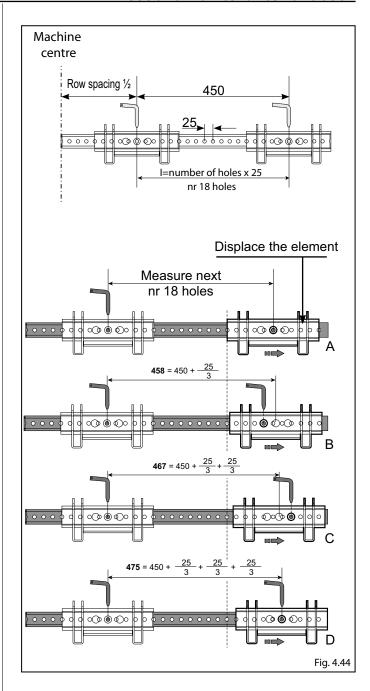
- The supporting guide of the EASY-SET system is equipped with positioning holes at a distance of 25 mm from one another.
- The element slide has 3 holes at a distance of 33 mm from one another.

The two devices can be combined to adjust the row spacing at a pitch of **25/3 cm**.

This means that for row spacing multiple of 25 mm (therefore the most common ones such as 450, 500, 600, 750, 800) the number of holes between two elements will be a whole number as to the central hole of the element slide.

For example, if the distance between two elements should be 450 mm, the central hole of the reference element shall be 18 holes away from the central hole of the element to be positioned. (in fact 18x25 = 450) (Fig.4.44).

- Then insert the locking pin of the element to be positioned in the hole corresponding to the one of the reference to that of a reference element.
- For row spacings multiple of 25 mm the locking pin should always be inserted in the central hole of the element slide.
- If distance where the sowing element should be positioned is **NOT** an exact multiple of **25 mm**, you can get very close to the row spacing required.
- For example, if the required distance is 460 mm proceed as follows:
- Displace the element in order to position its central hole as close as possible to the required size. (in this case 450 mm) (Fig.4.44-A);
- Then make one of the side holes of the element slide coincide with one of the holes of a slide to displace the element of approximately **10 mm**.
- The element locking pin should be inserted in either lateral holes. (Fig.4.44-B).
- Make the other lateral hole coincide by displacing the element of approximately another centimeter (Fig.4.44-C).
- Let the central hole of the tool bar slide with a hole of a guide coincide again. We have moved a hole pitch therefore 25 mm (Fig.4.44D).





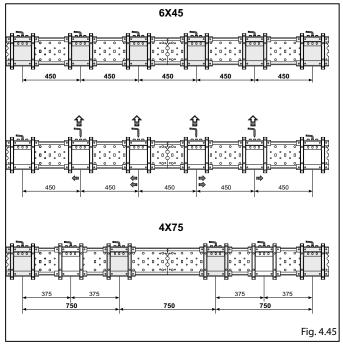
After positioning all the elements at the required row spacing make sure that the elements are all set at the same distance.

#### QUICK CHANGE OF SOWING CONFIGURATION

Model EASY-SET of ARBOS GROUP S.p.A. sowing machines permits to change row spacing very quickly.

For example you can transform a machine configured with **6** rows **450** into a **4** row machine **750**.

The user shall then decide how to cut off the two sowing elements from work.



#### 4.9. MACHINE START-UP

Before using the machine, it is necessary to familiarize with the controls and their operation capacity.

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

Before starting the job, verify perfectly that ALL the protections of the machine are integral and working.

#### 4.10. TANK SUPPLYNG

The supply of the tanks can be made by hand. Remember that the lifting of weights exceeding 30 kg requires the intervention of more operators.



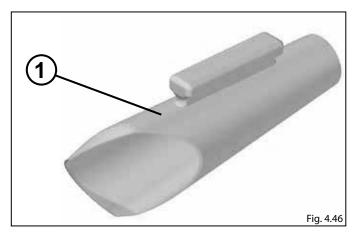
During the loading and unloading phases of the tanks, the operator must use adequate Individual Protection Devices (gloves, coveralls, masks, etc).

- The tanks must be filled once the land to be sowed is reached.
- Lower completely the lifter and activate the tractor's parking brake.
- Check that the stoppers of every tank are closed, then proceed to the filling of the tanks.
- All the tank's loading and unloading operations are carried out on the land to be sowed, with the sowing machine stopped on the land, the chassis open, parking brake set in action, engine stopped 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
- Pay attention so that no foreign objects enter the tank during the filling operations.
- To control that stoppers of every tank are closed, therefore to proceed to the filling of the tanks.

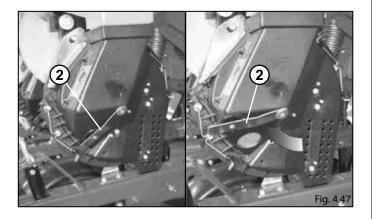
#### 4.11. FILLING THE TANKS

#### Seed tank discharge

• Use the seed funnel, **1**, provided in order to empty the seed tank.



Open the distributor cap, 2, in (Fig.5.47) in order to discharge the residual seed from the Magicsem seed metering device.



#### **4.12. SOWING**

Once the sowing machine is correctly towed and connected with a tractor, you can prepare it for sowing.

#### **PRELIMINARY OPERATIONS**

- Check that all transmission drive lines are connected correctly.
- Load the seed tanks, ensuring that no foreign bodies enter the tanks.
- Free the row tracer arms.
- Open the machine and set the elements for sowing (Mod. EASY-SET).

#### **CONFIGURATION**

- The kit including the row tracer arms must be suitable to the type of row spacing and of row tracer (at the wheel or at the center) you intend to use.
- The set of seeding discs mounted must be suitable for the type of seed used.
- The gate must be suitable for the type of the seed and of ground
- The two gears for sowing interval adjustment you have chosen must be mounted on the gearbox and the chain tightener handle must be hooked correctly.
- All outlets must be closed before filling them.

#### **ADJUSTMENT**

- Adjust the row tracers.
- Adjust the opening of the distributors of the fertilizer spreader and/ or microgranulator.
- Adjust the height of the clod pusher.
- Adjust the height of the fertilizing unit.
- Adjust the sowing depth.
- Adjust the furrow closing and compacting wheels.
- Adjust the overflow gate.

Then you can start the PTO of the machine (with the machine lifted from ground) and proceed with the following operations:

#### **SETTING-UP**

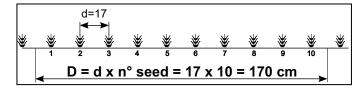
- Progressively take your PTO.
- Make sure the vacuum meter indicates a vacuum value higher than or equal to 35 mB.
- Position the selector in an intermediate position (approximately around 6).
- Turn with your hands the wheel transmitting movement to the seed distributor in the direction of forward movement.
- Controllare che tutti i dischi carichino i semi.
- Make sure the seeding disc has a seed in each hole. If downstream the selector you should notice any double seeds, take the selector towards lower numbers and vice versa if you notice any voids take the selector towards higher numbers.
- Adjust all the selectors at the same value.

 The selector shall be adjusted whenever the variety of seed changes.

#### **HECKS WHILE SOWING**

Once all the previously mentioned operations have been carried out, the sowing machine is ready for working. However we recommend you to run a few meters in both directions to make sure that you are sowing as required. In particular:

Make sure that the number of seeds per linear meter corresponds to the required one. For example. If the set distance is d=17cm it means that there should be 10 seeds in 170 cm, counted as shown in the figure below.



- Make sure that the various products are distributed evenly.
- At the end of each run, while changing direction or when stopping to check, do not stop the PTO, but keep it at RPM sufficient to keep the seeds attached to the disc.
- Avoid turning and driving in the reverse, when the machine is under ground. ALWAYS LIFT the machine to change direction and reverse gear.
- Make sure the row tracer has been correctly adjusted by measuring the row spacing between the two outer rows.
- Do not work with the PTO synchronized with the wheels.
- In the event of machine pin plug breakage, etc., shut down the machine immediately, remove the plug and replace.
- The use of non original plugs, or plugs with higher resistance may seriously damage the seeder.
- Check the seed metering device frequently during sowing operations. Regulate the selector if seed distribution is irregular.
- In the event suction pull diminishes or fails, check the pipes are not perforated or blocked. If so, replace or clean. If necessary, also check the suction fan transmission belt.
- Ensure that sowing speed is aligned with the type of ground being worked in order to avoid any machine breakage or damage.
- Do not lower the seeder whilst the tractor is in movement in order to avoid blockage or damage to the plough furrow openers.

#### 4.13. MOVING AWAY FROM THE MACHINE

When the machine is parked, it is necessary:

- · To set the tractor's parking brake into action;
- Disconnect the power plug of 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;
- Detach the cardan shaft, acting on the anti-thread triggers.
- · Place the cardan shaft on the appropriate support;
- Remove the plug and hinge and detach the tie-rod (third point);
- Fix the third point to the appropriate support on the tractor;
- Remove the anti-thread plugs and connection hinges and then the back hydraulic lifting arms of the tractor form the connection points on the machine;
  - return on the tractor;
  - -start the tractor and move away carefully.



It is necessary that the land on which the machine is parked is flat and within a protected area in order that unauthorized staff can approach it.

## 5. **REGULATION**

#### 5.1. SUCTION ADJUSTMENT

The adjustment and control of the suction and of the belt stretch are important operations for the good results of your sowing.

To adjust the suction proceed as follows:

start the PTO and increase the number of engine revolutions slowly by checking the suction value shown by the vacuum meter;

in view of the seed size, the following values can indicatively be taken as correct:

# $30 \div 40$ mBar for small and light seeds; $35 \div 45$ mBar for large and heavy seeds.

For a good success of your seeding, we recommend a vacuum of approx. 40 mBar corresponding to approx. 400 rev/min. of the PTO.

The machine has been preset for a 540 rpm PTO (STANDARD VERSION).

Should you need to increase the PTO rpm, two supplementary pulleys are available (UPON request), as specified in.

| RPM     | STANDARD | OPTIONAL |      |  |  |
|---------|----------|----------|------|--|--|
| KPIVI   | 540      | 700      | 1000 |  |  |
| VERSION |          |          |      |  |  |

#### **5.1.1. CHECK OF WEAR AND TENSION**

The vacuum pump performance is mostly connected with the level of wear and with the stretch of the belt

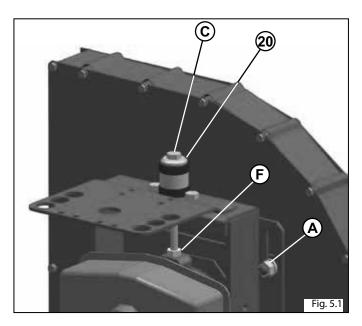
Therefore at the beginning of each sawing season it will be necessary to check the belt conditions.

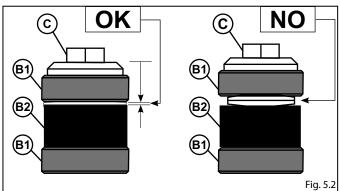
The operations to be carried out are the following:

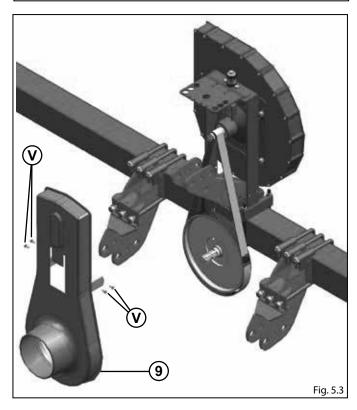
Note: The operations shall be carried out the machine at rest (detached from tractor).

- Remove crankcase 9 by loosening the four screws V (Fig.5.3);
- Check the state of the belt, if it is worn or damaged, replace it with a new one; to do so proceed as follows:
- Loosen nuts A (Fig.5.1).
- Loosen nut **F** (Fig.5.1).
- Loosen screw **C** of belt tensioning device **20** (Fig.5.1).
- Replace belt.
- Stretch the belt by tightening screw C of Belt straightener 20 until sleeve B2 is approx. 0.5 mm far from B1 (Fig.5.2).
- A correctly stretched belt shall not give way when pressed manually.
- To shut nut A.

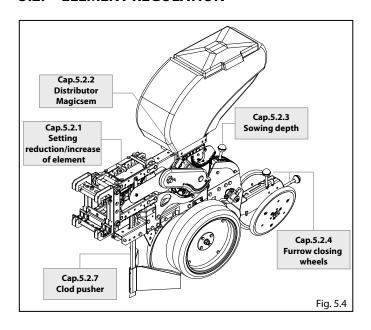
To shut nut F.







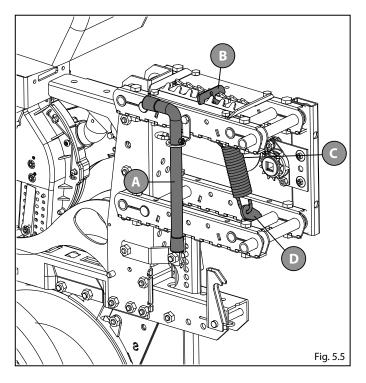
## **5.2. ELEMENT REGULATION**



# 5.2.1. MACHINE SETTING REDUCTION/INCREASE OF ELEMENT

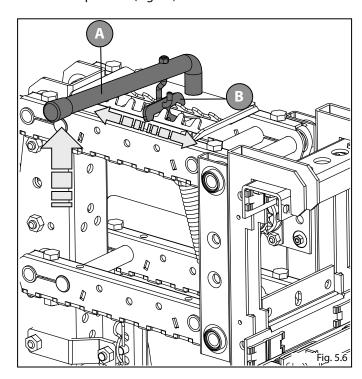
This disposal, to be used only where the ground requires it, must be used to increase or reduce the element in order to assure a correct and homogenic depth of sowing.

- The system is made of (Fig.5.5):
  A spring A.
- A handle **B**.
- A ring to hook the handle **C**.
- Two connections spring locators D.

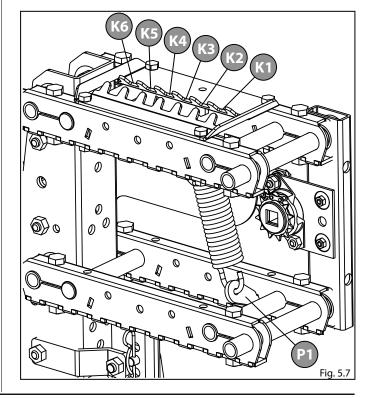


## Disposal's setting

- Insert handle **A** inside the **B** ring as shown.
- By levering with the handle **A**, move the spring **B** on the desired position (Fig.5.6).

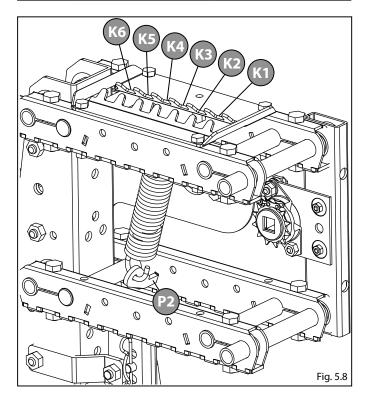


| Spring | Position B |        |                    |
|--------|------------|--------|--------------------|
|        | K1         | 0 kg   | For soft arounds   |
|        | К2         | +4 kg  | For soft grounds   |
| P1     | К3         | +8 kg  | Fau madium avaunda |
| PI     | K4         | +13 kg | For medium grounds |
|        | K5         | +20 kg | Faultand anamada   |
|        | K6         | +27 kg | For hard grounds   |



To further reduce the load of the element, move the spring **B** from position **P1** to position **P2**.

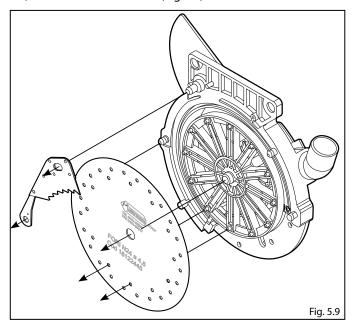
| Spring Position B |    |        |  |  |  |  |  |
|-------------------|----|--------|--|--|--|--|--|
|                   | K1 | -27 kg |  |  |  |  |  |
|                   | K2 | -20 kg |  |  |  |  |  |
|                   | К3 | -13 kg |  |  |  |  |  |
| P2                | K4 | -8 kg  |  |  |  |  |  |
|                   | K5 | -4 kg  |  |  |  |  |  |
|                   | K6 | 0 kg   |  |  |  |  |  |



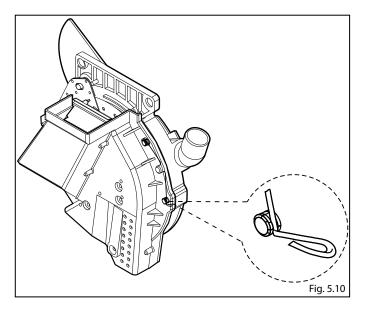
#### **5.2.2. DISTRIBUTOR MAGICSEM**

#### MOUNTING THE DISC

The disc shall be mounted on the disc wheel of the distributor with the face with ARBOS GROUP S.p.A. trademark and the specific data of the disc (code, number of holes, diameter) turned towards the lid. (Fig.5.9).



- The assembly does not require any specific equipment.
  However it is important for the disc to be well inserted in
  the fixing bolts. Therefore the disc shall be rotated until
  all the bolts and reference pins are fully inserted. The disc
  will then rest on the disc wheel and on the seals completely.
- The selector shall be mounted after the disc in the bolts (Fig.5.8) and shall look as if it were attached to the disk.
- The lid shall be mounted in the bolts making sure the cylinder presses against the selector and not against the disc.
- Close the distributor by inserting the springs on the lid in the relevant slots of the bolts. (Fig. 5.10).



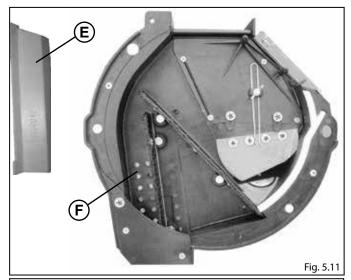
- Move the selector adjusting lever to make sure that it can be free to move.
- Move the selector adjusting lever to make sure that it can be free to move.
- This lever that acts on the selector permit to adjust the distribution of the seeds on each hole of the disc.
- Turn the pulling wheel manually to make sure that the disc turns freely.
- Before filling the tank make sure the drain plug is closed.
- If possible carry out all these operations in a clean, dry and not so dusty place.
- Dust and humidity can damage the disc and the gaskets.
- Make sure the sowing machine is positioned on solid ground.

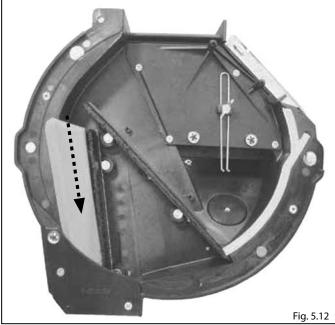
If it is hooked to tractor make sure you are on even horizontal ground, the PTO disconnected and the parking brake pulled.

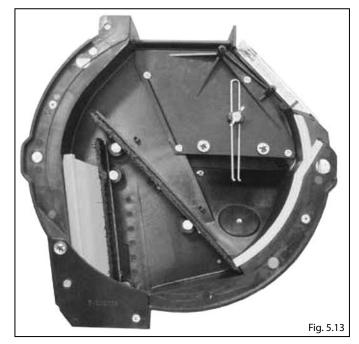
#### MINUTE-SEED EXPELLER ASSEMBLYNG

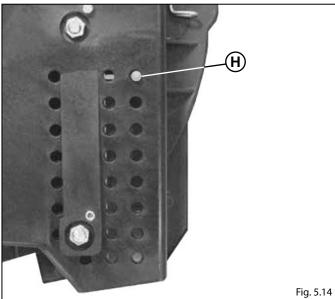
Use minute-seed expeller **E** when using seeding discs with holes having a diameter equal to or less than 2.5 mm.

- Mount expeller **E** in point **F** of the coverplate, paying attention NOT to damage the brush (Fig. 5.11).
- Insert the pin into point **H** of the coverplate to lock the expeller (Fig. 5.14).









#### ADJUSTMENT OF THE SEED SELECTOR

The seed selector shall be adjusted after carrying out many other operations and adjustments concerning other parts of the machine among which:

- Mounting and closing the distributors;
- Loading the tanks;
- Starting the PTO.
- Adjusting the suction.

It is then possible to adjust the selector.

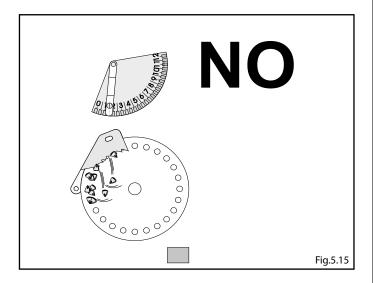
- Adjust the levers of ALL the selectors in the intermediate position;
- Rotate one or two full turns the distributor discs by means of the pulling wheel;
- Check through the inspection window on the lid that the seeds are distributed on the disc.
- Watch the moving parts after carrying out the adjustments and relevant checks carefully.

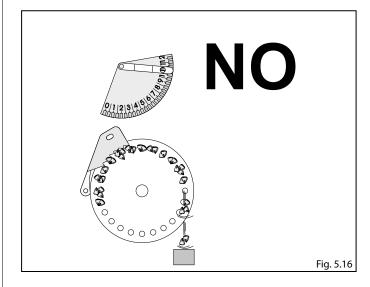
The check can point out three different situations:

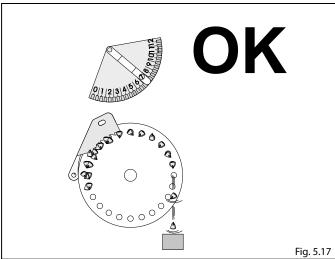
- **A**) The holes in the seeding disc downstream the selector have no seeds or very few (Fig.5.15).
- The selector is adjusted at too low a value, shift the lever towards higher values and start again from position 2).
- **B**) The holes on the distributor disc downstream the selector have more than one seed per hole (generally two or three) (Fig.5.16).
- The selector is adjusted at too high a value, shift the lever towards lower values and start again from position
   2).

**C)** After acting on the selector each hole of the distributor disc only carries one seed (Fig.5.17).

- The selector is correctly adjusted.
- However we recommend you displace the lever some notches in both.







A perfect regulation of the selector would demand to repeat such a procedure on each distributor. Normally it is just enough to find the adjustment value on a single distributor and adjust the other ones in a similar way. However check that the seeds are found on all the distributors particularly after a short time working.



It might happen, that independently from the position of the selector switch, no seeds can be found on the sowing disc holes. The cause might be lack of vacuum. Therefore adjust the suction before proceeding with the selector adjustment.



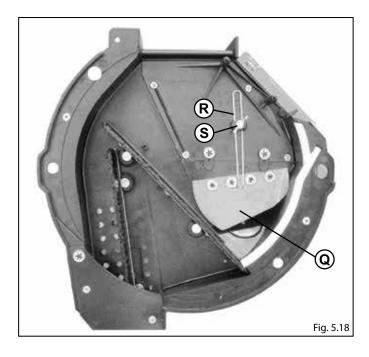
The selector shall be adjusted whenever the seeding disc or the seed type is changed (type and average size).

However we recommend to carry out the adjustment whenever the sowing conditions change considerably.

#### **SEED BULKHEAD ADJUSTMENT**

Bulkhead **Q** (Fig. 5.18) is used to adjust the **LEVEL** of the seed loading chamber, so as to prevent the disk from loading the seeds or the seeds from overflowing.

Slacken screw  ${\bf S}$  and move rod  ${\bf R}$  up or down to adjust the bulkhead.



Shown below are some indicative values for the adjustment of the bulkhead according to the type of seed.

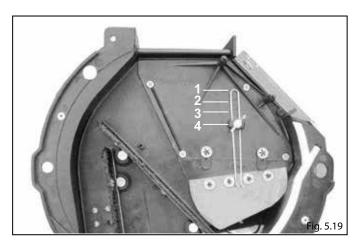
MAIZE = 1

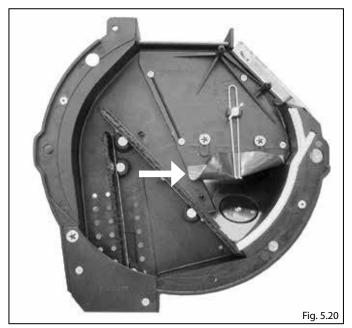
MAIZE small-size seed = 2

SOYA = 2

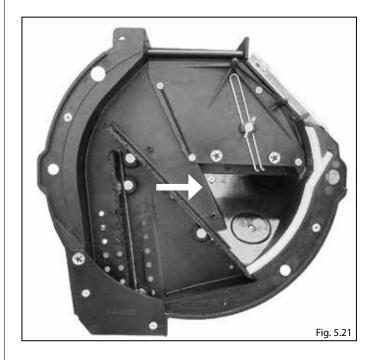
CHARD = 3

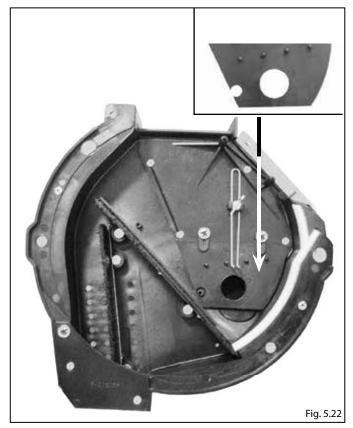
Should the seeds have big dimensions and be little fluid, take the film out (Fig. 5.20) and, if necessary, remove the bulkhead (Fig. 5.21).



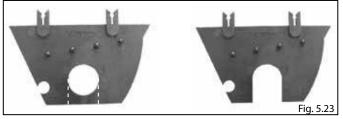


In the case of minute seeds or rape seeds, mount the fixed bulkhead supplied together with the equipment in lieu of the adjustable one (Fig. 5.22).





If the seed chamber level is found to be INSUFFICIENT upon inserting the fixed bulkhead (Fig. 5.24), make an opening as shown in (Fig. 5.23).

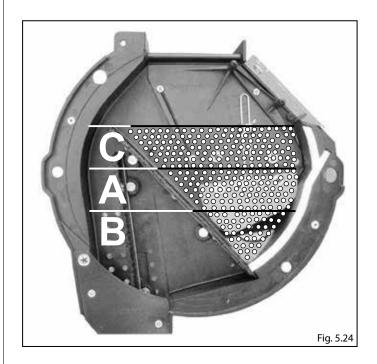


**SEED LOADING CHAMBER LEVEL:** 

### A = OPTIMUM LEVEL

B = INSUFFICIENT LEVEL (the disk might NOT load the seeds).

C = EXCESSIVE LEVEL (seeds might overflow).





For a correct operation of the distributor we recommend to keep all gaskets, seals, diaphragms, brushes, piston, bored disc and selector clean and in good working conditions.

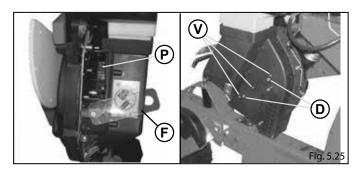
#### **BRUSH REGULATION**

In cases of small seed such as tomato seed or Swede rape, check that the brush inside the metering device fits closely to the seed scattering disk across all surfaces.

- Carry out the following operations, to check and adjust the brush:
- Activate the seeder in such a way that the disk is enabled to seed.
- Open inspection window **F** to check the brush.

If brush **P** does not fit closely to all surfaces then adjust as follows:

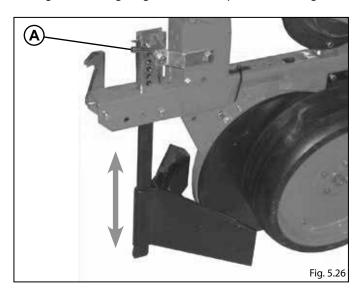
- · Loosen bolts D.
- Adjust the brush by either tightening or loosening Allen wrench screws **V** in sequence.
- Tighten screws **D**.

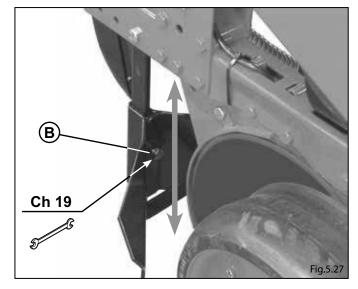


#### 5.2.3. CLOD PUSHER

To adjust the clod pusher position the sowing machine on a horizontal ground. Then remove fixing pin **A**, position the clod pusher at approximately 2-3 cm from the ground then reinsert the pin (Fig.5.26).

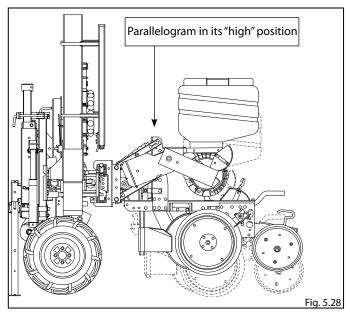
Screw **B** (Fig.5.27) permits to adjust the knife depth by maintaining the working height of the clod pusher unchanged.





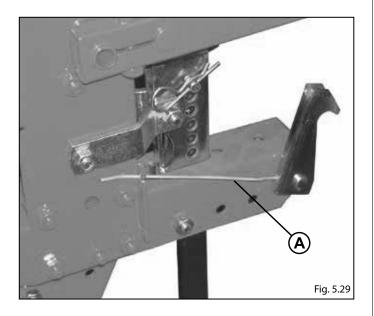
## 5.2.4. DEVICE FOR CUTTING OFF THE ELE-MENT

Each element is equipped with a hooking system by which the parallelogram can be locked in the "high" position (Fig. 5.28). This permits to cut off the element from sowing quickly. (for example at the field edge) or anyway whenever it is necessary to disengage the sowing elements from the ground.



#### To hook the element:

- Position spring **A** in its "high" position (Fig.5.29);
- Lift the element until the hook is heard or seen click on
- the locking pin;
- Release the element slowly until it is totally supported by
- the hook.



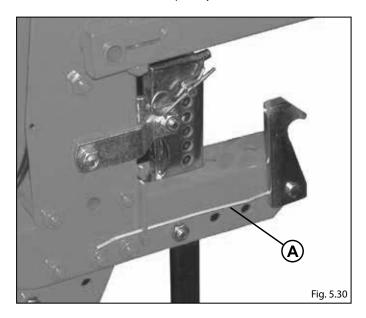


The strength needed for lifting the element is higher than 80 Kg, therefore please be extremely careful!

Never dwell under the lifted element or while it is going up, a wrong hooking might make the element fall back down.

#### To unhook the element

- Position spring A in its "low" position (Fig.5.30);
- Lift the element until the hook is heard or seen click on the locking pin;
- Release the element slowly until it rests on the ground or at the end of stroke completely.



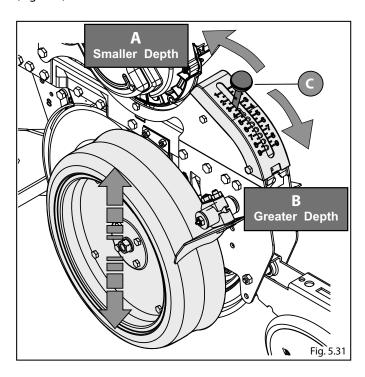


Make sure that the hook spring is in its" low" position on all active elements.

While at work an element the hooking spring of which has been left in the high position, might hook up, thus remaining cut off from sowing.

#### 5.2.5. ADJUSTMENT OF THE SOWING DEPTH

The side wheels of the sowing machine permit to obtain a homogeneous sowing depths by their vertical movement This depth can be adjusted by handle **C** next to the wheel (Fig.5.31).



To adjust the sowing depth act on handle **C** as follows:

- Lift the handle **C** until the locking teeth are completely out of the holes;
- Take the handle towards position A if you want to reduce the seeding depth or B to increase it;
- Release the handle so that the teeth enter the most suitable holes.
- Adjust all the elements at the same sowing depth.
- Periodically check that the seed is planted at the required depth.

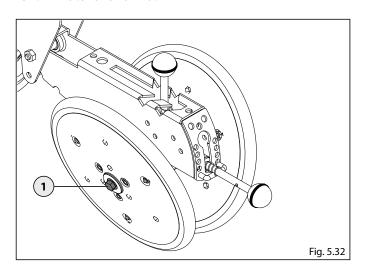
#### 5.2.6. FURROW CLOSING WHEELS

The furrow covering wheels (Fig.5.32) must close the furrow and compress it after the seeds have been buried.

These wheels can be adjusted as to distance **d** (Fig.5.33) of the wheels from the furrow axle, as to the pressure (Fig.5.34) they apply on the ground or as to toe-out (Fig.5.35).

Each section is equipped with a pair of furrow closing wheels that are called **V** wheels because of their typical position.

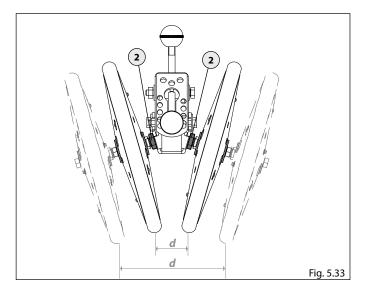
According to the requirements the wheels can be different in material and width.



#### ADJUSTING THE DISTANCE BETWEEN "V"-WHEELS

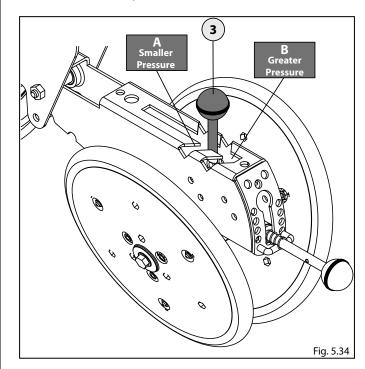
The "V"-wheels are mounted at a standard distance (d). To modify this distance proceed as follows

- Loosen nuts 2 (Fig.5.33).
- Screw nuts 1 to reduce the distance between wheels
- (Fig.5.32)
- Loosen nuts 1 to increase the distance between wheels
- (Fig.5.32).
- Screw nuts **2** (Fig.5.33).



#### **COMPRESSION ADJUSTMENT SEED**

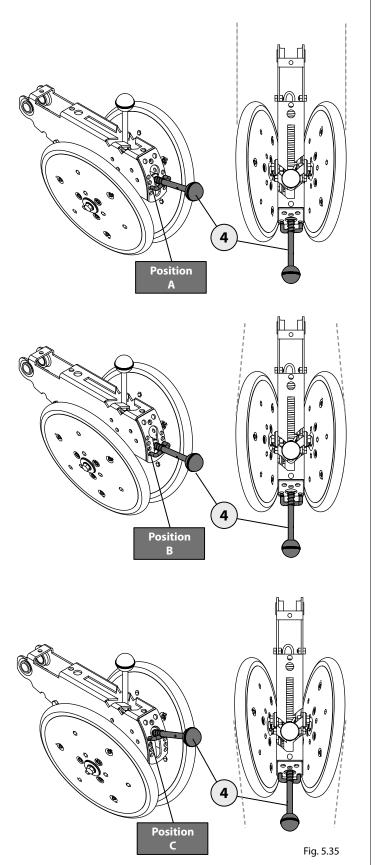
- To adjust the pressure of the two "V" wheels on the ground shift handle 3, the one between the wheels (Fig.5.34).
- By shifting this handle towards position A the pressure on the ground therefore on the seed is reduced, vice versa by shifting it towards position B the pressure increases.
- Periodically make sure that all the parts described above are always clean.



## WHEEL DIVERGENCE ADJUSTMENT

The packing trolley is used to adjust the ground compression and the wheel toe-out according to the kind of ground and to your needs.

To adjust wheel toe-out, turn handle **4** as specified in (Fig.5.35.a-b-c).



#### **5.2.7. ACCESSORIES FOR ELEMENT 8000**

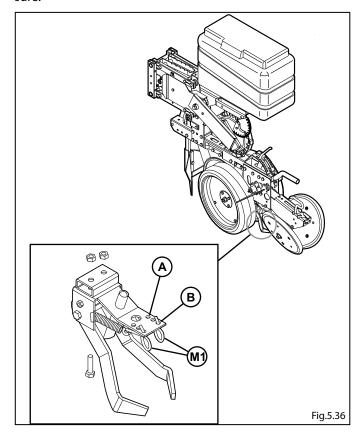
For different types of land the sowing element 8000 may be fitted with various accessories.

Accessories available are:

- Intermediary coverer (Fig.5.36).
- Coverer with seed-presser wheel (Fig.5.37).

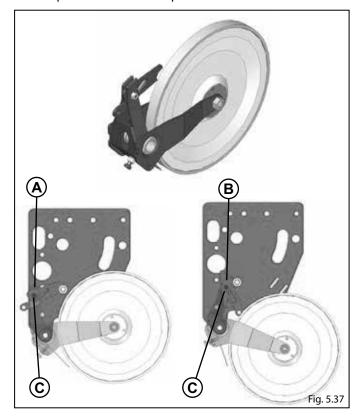
#### INTERMEDIARY COVERER ADJUSTMENT

To adjust coverer pressure (Fig.5.36) move the spring **M1** to position **A** to reduce pressure, to position **B** to increase pressure.



#### **SEED-PRESSER WHEEL ADJUSTMENT**

Turn pin **C** from position **A** to position **B** to increase or decrease the pressure of the seed presser wheel.



#### **5.3. SETTING THE SOWING INTERVAL**

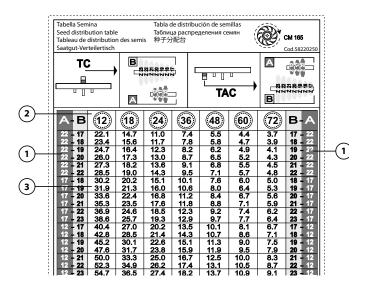
The main gearbox permits to change the sowing parameters (sowing interval) to all sowing devices by changing a single gear.

#### **5.3.1. SETTING THE SOWING INTERVAL**

The gearbox contains a table similar to the one found below.

The table is divided as follows:

- Part 1 shows the various combinations that can be obtained from gears A and B.
- Part 2 shows different types of disks that can be employed.
- Part 3 shows the sowing distances that can be achieved based on the gears and type of disk used.



**Example:** you wish to sow some corn at a distance of **25 cm** with a **24 hole** disc.

To find the gear pair to be used you should:

- Find the size closest to the required one in the column of the **24 hole** disc (in this case = **25 cm**).
- Obtain the pair of gears to be used on the same line in the two columns marked (A) and (B) (in this case A = 12 teeth and B = 21 teeth).

| Tabella Sem<br>Seed distrib<br>Tableau de<br>Saatgut-Ver | ution table<br>distributio |              | Табли   | ца распред | ción de sen<br>целения се |            |            | <b>CM 165</b><br>Cod.5822025 |
|--|----------------------------|--------------|---|------------|---------------------------|------------|------------|------------------------------|
| T(   | -                          | B            | \$25 \$1<br>27 27<br>27 27<br>27 27<br>27 27<br>27 27<br>27 27<br>27 27<br>27 27 27<br>27 27 27 27 27 27 27 27 27 27 27 27 27 2 | ,          | TA                        | <u>c</u>   |            | 2222<br>2222<br>277          |
| A-B  | (12)                       | (18)         | 24)   | (36)       | (48)                      | 60)        | (72)       | B-A                          |
| 22 - 17<br>22 - 18                                       | 22.1<br>23.4               | 14.7<br>15.6 | 11 0  | 7.4<br>7.8 | 5.5<br>5.8                | 4.4<br>4.7 | 3.7<br>3.9 | 17 - 22<br>18 - 22           |
| 22 - 19  | 24.7                       | 16.4         | 12.3  | 8.2        | 6.2                       | 4.9        | 4.1        | 19 - 22                      |
| 22 - 20  | 26.0                       | 17.3         | 13.0  | 8.7        | 6.5                       | 5.2        | 4.3        | 20 - 22                      |
| 22 - 21  | 27.3                       | 18.2         | 13.6  | 9.1        | 6.8                       | 5.5        | 4.5        | 21 - 22                      |
| 22 - 22  | 28.5                       | 19.0         | 14.3  | 9.5        | 7.1                       | 5.7        | 4.8        | <b>22</b> - 22               |
| 17 - 18  | 30.2                       | 20.2         | 15.1  | 10.1       | 7.6                       | 6.0        | 5.0        | 18 - 17                      |
| 17 - 19  | 31.9                       | 21.3         | 16.0  | 10.6       | 8.0                       | 6.4        | 5.3        | 19 - 17                      |
| 17 - 20  | 33.6                       | 22.4         | 16.8  | 11.2       | 8.4                       | 6.7        | 5.6        | 20 - 17                      |
| 17 - 21  | 35.3                       | 23.5         | 17.6  | 11.8       | 8.8                       | 7.1        | 5.9        | 21 - 17                      |
| 17 - 22  | 36.9                       | 24.6         | 18.5  | 12.3       | 9.2                       | 7.4        | 6.2        | <b>22</b> - 17               |
| 17 - 23  | 38.6                       | 25.7         | 19.3  | 12.9       | 9.7                       | 7.7        | 6.4        | 23 - 17<br>17 - 12           |
| 12 - 17<br>12 - 18                                       | 40.4<br>42.8               | 27.0         | 21.4  | 13.5       | 10.1                      | 8.1<br>8.6 | 6.7        | 17 - 12<br>18 - 12           |
| 12 - 18  | 45.2                       | 28.5         | 22.6  | 15.1       | 11.3                      | 9.0        | 7.5        | 18 - 12<br>19 - 12           |
| 12 - 19  | 45.2                       | 31.7         | 23.8  | 15.1       | 11.3                      | 9.0        | 7.5        | 20 - 12                      |
| 12 - 21  | 50.0                       | 22.2         | -25.0   | 16.7       | 12.5                      | 10.0       | 8.3        | 21 - 12                      |
| 12 22  | 52.3                       | 34.9         | 26.2  | 17.7       | 13.1                      | 10.5       | 8.7        | 22 12                        |

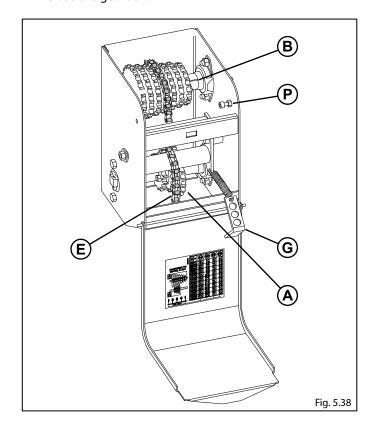
The data specified in the table are purely theoretical. They can change based on the conditions of the ground and of the wheels.

#### **5.3.2. SETTING THE SELECTION RATIO**

Table permits to obtain the pair of gears to be used to find the required sowing interval.

To set the transmission ratio on the gearbox proceed as follows: (Fig.5.38):

- Open the gearbox and unhook the spring lever of chain tightener **G** from bolt **P**.
- Loosen chain **E** unhooking it from the toothed gear of driven axle unit **C** and hook it to the required gear (in the example it is the second one from the left).
- Keep the chain in position, unhook it from the toothed gear of driving unit **B**, then displace the unit until the selected gear is aligned with the previous gear.
- Hook the chain tightener spring to bolt **P** again.
- Turn the drive wheel by hand to verify the correct operation of the transmission.
- Turn the capstan manually to make sure the transmission works correctly.
- Close the gearbox.





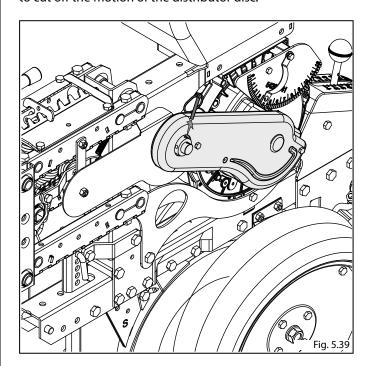
The three gears of driving axle (A) can slide axially.

When working on gearboxes and anyway on any transmission gears, make sure the tractor engine is off and the parking brake is pulled. Furthermore make sure nobody can let the transmission gear turn, even accidentally, while you are setting the transmission ratio.

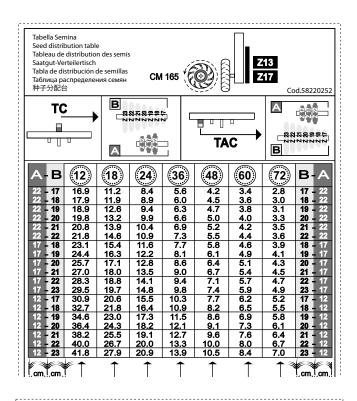
#### 5.3.3. HOW TO CUT OFF A SOWING ELEMENT

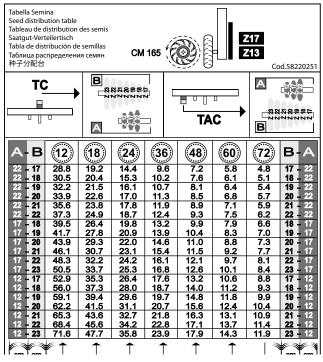
This type of gearbox permits to cut off one or more elements from sowing; in fact the transmission includes a system to cut off each element from transmission (Fig 5.39).

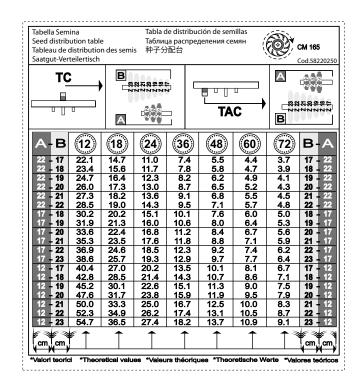
Just remove the pin and insert it in the outer hole of the hub to cut off the motion of the distributor disc.

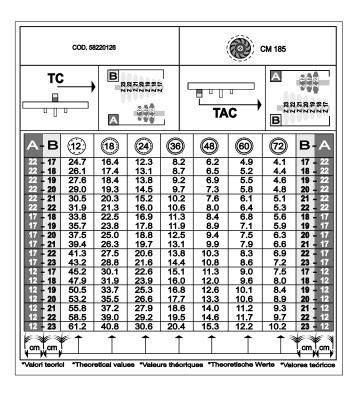


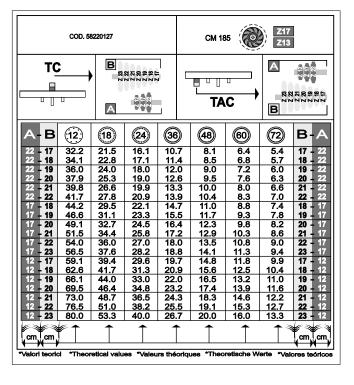
#### 5.3.4. SOWING TABLE

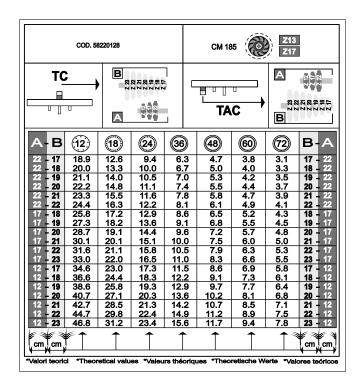












## **5.3.5. SEED DENSITY TABLE**

|           | Numero di piante X 1000 per Ha in base alla distanza interfilare. Number of plants X 1000 pro Ha. according to row spacing. Nombre de plantes X 1000 par Ha selon l'écartement entre rangs.  Nombre de plantes X 1000 par Ha selon l'écartement entre rangs. |       |       |         |                | ıra entre fila | ıs.   |      |                                   |       |      |      |         |              |          |          |          |
|-----------|--|-------|-------|---------|----------------|----------------|-------|------|-----------------------------------|-------|------|------|---------|--------------|----------|----------|----------|
| •-        | E  | cm 40 | cm 45 | cm   50 | cm #           | cm 70          | cm 75 | cm * |                                   |       | cm ¥ | cm # | cm \$   | cm   60      | cm<br>70 | cm<br>75 | cm<br>80 |
|           | 2,78   | 900   | 800   | 720     | 600            | 514            | 480   | 450  |                                   | 7,58  | 330  | 293  | 264     | 220          | 189      | 176      | 165      |
| graines   | 2,84   | 880   | 782   | 704     | 587            | 503            | 469   | 440  | graines                           | 7,81  | 320  | 284  | 256     | 213          | 183      | 171      | 160      |
| Ē         | 2,91   | 860   | 764   | 688     | 573            | 491            | 459   | 430  | 힐                                 | 8,06  | 310  | 276  | 248     | 207          | 177      | 165      | 155      |
| 5         | 2,98   | 840   | 747   | 672     | 560            | 480            | 448   | 420  | 5                                 | 8,33  | 300  | 267  | 240     | 200          | 171      | 160      | 150      |
|           | 3,05   | 820   | 729   | 656     | 547            | 469            | 437   | 410  | entre                             | 8,62  | 290  | 258  | 232     | 193          | 166      | 155      | 145      |
|           | 3,13   | 800   | 711   | 640     | 533            | 457            | 427   | 400  |                                   | 8,93  | 280  | 249  | 224     | 187          | 160      | 149      | 140      |
| 2         | 3,21   | 780   | 693   | 624     | 520            | 446            | 416   | 390  | Distance                          | 9,26  | 270  | 240  | 216     | 180          | 154      | 144      | 135      |
| Distance  | 3,29   | 760   | 676   | 608     | 507            | 434            | 405   | 380  | št                                | 9,62  | 260  | 231  | 208     | 173          | 149      | 139      | 130      |
|           | 3,38   | 740   | 658   | 592     | 493            | 423            | 395   | 370  |                                   | 10    | 250  | 222  | 200     | 167          | 143      | 133      | 125      |
| è         | 3,47   | 720   | 640   | 576     | 480            | 411            | 384   | 360  | entre semillas / Körner Abstand / | 10,42 | 240  | 213  | 192     | 160          | 137      | 128      | 120      |
| Abstand / | 3,57   | 700   | 622   | 560     | 467            | 400            | 373   | 350  | ള                                 | 10,87 | 230  | 204  | 184     | 153          | 131      | 123      | 115      |
|           | 3,68   | 680   | 604   | 544     | 453            | 389            | 363   | 340  | g                                 | 11,36 | 220  | 196  | 176     | 147          | 126      | 117      | 110      |
| ٢         | 3,79   | 660   | 587   | 528     | 440            | 377            | 352   | 330  | اکّا                              | 11,9  | 210  | 187  | 168     | 140          | 120      | 112      | 105      |
| Хото      | 3,91   | 640   | 569   | 512     | 427            | 366            | 341   | 320  | Ĕ                                 | 12,5  | 200  | 178  | 160     | 133          | 114      | 107      | 100      |
| <u> </u>  | 4,03   | 620   | 551   | 496     | 413            | 354            | 331   | 310  | 8                                 | 12,82 | 195  | 173  | 156     | 130          | 111      | 104      | 98       |
|           | 4,17   | 600   | 533   | 480     | 400            | 343            | 320   | 300  |                                   | 13,16 | 190  | 169  | 152     | 127          | 109      | 101      | 95       |
| Ĭ         | 4,31   | 580   | 516   | 464     | 387            | 331            | 309   | 290  | ≝                                 | 13,51 | 185  | 164  | 148     | 123          | 106      | 99       | 93       |
|           | 4,46   | 560   | 498   | 448     | 373            | 320            | 299   | 280  | Ē                                 | 13,89 | 180  | 160  | 144     | 120          | 103      | 96       | 90       |
| Ď         | 4,63   | 540   | 480   | 432     | 360            | 309            | 288   | 270  | 8                                 | 14,29 | 175  | 156  | 140     | 117          | 100      | 93       | 88       |
|           | 4,81   | 520   | 462   | 416     | 347            | 297            | 277   | 260  | إإ                                | 14,71 | 170  | 151  | 136     | 113          | 97       | 91       | 85       |
|           | 5  | 500   | 444   | 400     | 333            | 286            | 267   | 250  |                                   | 15,15 | 165  | 147  | 132     | 110          | 94       | 88       | 83       |
| 2         | 5,1  | 490   | 436   | 392     | 327            | 280            | 261   | 245  | Distancia                         | 15,63 | 160  | 142  | 128     | 107          | 91       | 85       | 80       |
| Distancia | 5,21   | 480   | 427   | 384     | 320            | 274            | 256   | 240  | اقِ                               | 16,13 | 155  | 138  | 124     | 103          | 89       | 83       | 78       |
| 2         | 5,32   | 470   | 418   | 376     | 313            | 269            | 251   | 235  | 8                                 | 16,67 | 150  | 133  | 120     | 100          | 86       | 80       | 75       |
| <b>.</b>  | 5,43   | 460   | 409   | 368     | 307            | 263            | 245   | 230  |                                   | 17,24 | 145  | 129  | 116     | 97           | 83       | 77       | 73       |
| Balla     | 5,56   | 450   | 400   | 360     | 300            | 257            | 240   | 225  | ğ                                 | 17,86 | 140  | 124  | 112     | 93           | 80       | 75       | 70       |
|           | 5,68   | 440   | 391   | 352     | 293            | 251            | 235   | 220  | Distance /                        | 18,52 | 135  | 120  | 108     | 90           | 77       | 72       | 68       |
|           | 5,81   | 430   | 382   | 344     | 287            | 246            | 229   | 215  |                                   | 19,23 | 130  | 116  | 104     | 87           | 74       | 69       | 65       |
|           | 5,95   | 420   | 373   | 336     | 280            | 240            | 224   | 210  | Seed                              | 20    | 125  | 111  | 100     | 83           | 71       | 67       | 63       |
| 8         | 6,1  | 410   | 364   | 328     | 273            | 234            | 219   | 205  | ő                                 | 20,83 | 120  | 107  | 96      | 80           | 69       | 64       | 60       |
| ì         | 6,25   | 400   | 356   | 320     | 267            | 229            | 213   | 200  | -                                 | 21,37 | 117  | 104  | 94      | 78           | 67       | 62       | 59       |
| E         | 6,41   | 390   | 347   | 312     | 260            | 223            | 208   | 195  | Semi /                            | 21,93 | 114  | 101  | 91      | 76           | 65       | 61       | 57       |
|           | 6,58   | 380   | 338   | 304     | 253            | 217            | 203   | 190  |                                   | 22,52 | 111  | 99   | 89      | 74           | 63       | 59       | 56       |
| Ì         | 6,76   | 370   | 329   | 296     | 247            | 211            | 197   | 185  | Ž                                 | 23,15 | 108  | 96   | 86      | 72           | 62       | 58       | 54       |
| RZIBISIO  | 6,94   | 360   | 320   | 288     | 240            | 206            | 192   | 180  | Distanza                          | 23,81 | 105  | 93   | 84      | 70           | 60       | 56       | 53       |
| 2         | 7,14   | 350   | 311   | 280     | 233            | 200            | 187   | 175  | 🖺                                 | 24,51 | 102  | 91   | 82      | 68           | 58       | 54       | 51       |
|           | 7,35   | 340   | 302   | 272     | 227            | 194            | 181   | 170  |                                   | 25,25 | 99   | 88   | 79      | 66           | 57       | 53       | 50       |
|           |  |       |       | Inte    | rfila / Row Sp | acing          |       |      |                                   |       |      |      | Interfi | la / Row Spa | cing     | •        |          |

### 5.4. FOAM MARKER REGULATION

Every sowing machine is equipped with two hydraulic row tracings, arms inversion can be accessed through the controls of the hydraulic distributor of the tractor.

# 5.4.1. DISTANCE DETERMINATION OF THE ROW TRACINGS

It is possible to determine the distance of the row tracings both using the tractor as reference point or the tractor's wheel, please follow these equation instructions.

# Equations for the distance determination with reference to the centre of the tractor.

**DC**= distance from the centre of the machine to the trace.

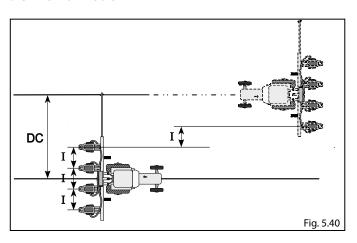
**I** = inter-row

**N** = number of the active elements

Formula:  $DC = I \times N$ 

#### Example: machine set for 6 rows 75

 $DC = 75 \times 6 = 450 \text{ cm}$ 



# Equations for the distance determination with reference to the tractor's wheel

**DR**= distance from the centre of the machine to the trace.

I = inter-row

**N** = number of the active elements

**C** = front lane of the tractor

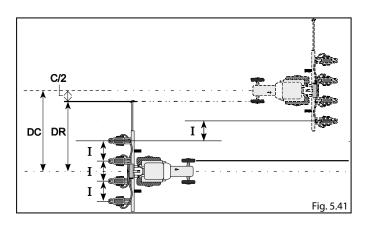
Formula:  $DR = I \times N - (C/2)$ 

Example 1 : machine set for 6 rows 75 lane 170 cm

DR = 6 X 75 - (170/2) = 365 cm

Example 2 : machine set for 6 rows 80 with 7 elements lane 170 cm

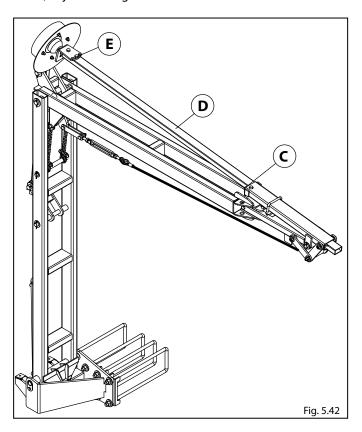
DR = 6 X 80 - (170/2) = 395 cm



#### **5.4.2. ROW TRACING PREPARATION**



- Park the tractor on level ground, apply the handbrake, ensure the sowing machine is raised above the ground and then turn off the engine.
- Free the arms of the row markers removing the pins for transport on road.
- Open the arms of the row markers using the hydraulic control in the tractor.
- Loosen screw **C** as much as needed to slide the hoe extension (Fig.5.42).
- Move extension D to the length calculated previously.
- Secure extension **D** by tightening screw **C**.
- To adjust the angle of the row marker disc, remove screw E, adjust the angle of the disc and then reinsert screw E.

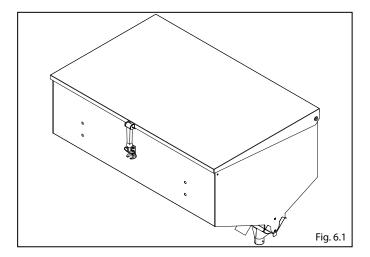


## 6. ACCESSORIES

#### 6.1. VARIOVOLUMEX



Please remember to scrupulously follow all directions given by the manufacturers regarding the use, handling and transportation of fertilizers.



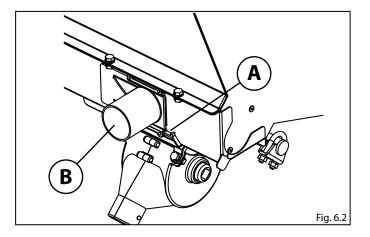
#### **FILLING THE TANKS**

I The tanks should be filled once you have reached the field. We recommend you to carry out this operation on flat ground and with no hindrances. Lower the hoist completely and pull the emergency brake of the tractor. Make sure the plug of the discharge hose and the bottom of every distributor is closed, then fill the tanks.

#### **TANK UNLOADING**

Once the work has been completed, it is good practice to empty the tanks by moving the mouth of an empty bag to below the tank discharge.

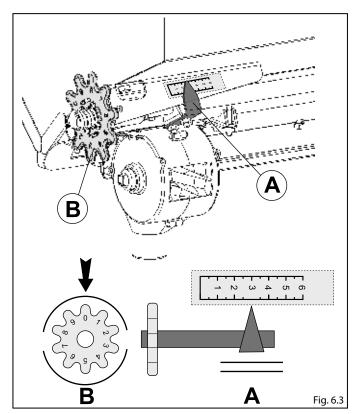
- Press the stop cap A.
- Move the discharge cap **B** (Fig. 6.2).



#### VARIOIVOLUMEX ADJUSTMENT DISTRIBUTOR

The distribution of the fertilizer is made by means of a conveyor belt that is fed by means of two slits with a millimetrically adjustable through the **B** ferrule (Fig.6.3).

Acting on the **B** ferrule the opening/closing of the slit is adjusted therefore it is possible to dose the quantity of fertilizer distributed without having to act on the transmission service. For example the indications are provided in the Adjustment Table that is placed on all the tanks, with two-figure numbers, where the first figure indicates the value to which the VarioVolumex **A** indicator system must be adjusted, the second indicates instead the value to which the **B** nut must be adjusted.

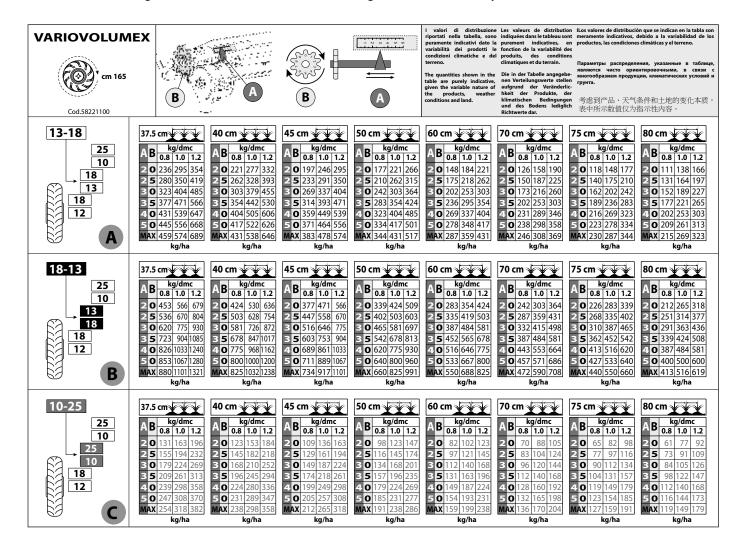


#### 6.1.1. SETTING THE AMOUNT TO BE DISTRIBUTED - VARIOVOLUMEX

On the tank near the adjuster there is a table the same as, or similar to, the one shown below.

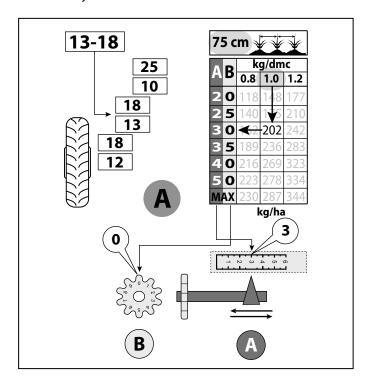
The VARIOVOLUMEX adjustment table is divided into three parts.

- Part (A) relates to STANDARD transmission with the penultimate phase of the transmission set with the gearwheels (Z13 Z18).
- Part (B) shows the penultimate phase of transmission in REVERSE (Z18 Z13); this is to increase the amount distributed.
- Part (C) shows the penultimate phase of transmission with gears (Z10 Z25); this replaces the gears (Z13 Z18) to decrease the amount distributed.
- In each part of the tables, the distribution tables are shown according to the row spacing.
- Each table has 3 columns for the different fertilizer weights (0.8 1 to 1.2 kg/dm3) that show the weight of the fertilizer to be distributed in kg/ha, and two coloured columns showing the VarioVolumex adjustments.



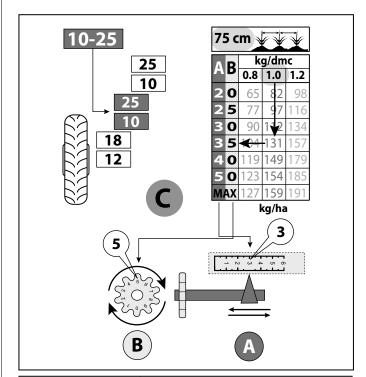
#### How to read the table, example 1:

- Machine prepared to sow on rows which are **75 cm** apart.
- Specific weight of the fertilizer: 1 kg/dmc.
- 200 kg/ha to be distributed.
  - In this example, choose part A of the table (STAN-DARD) gear transmission (Z13 - Z18).
  - Once you have identified the table with 75 cm row spacing, choose the column which corresponds to 1 kg/dmc of specific weight (middle column).
  - Look for the value closest to 200 kg/ha in the chosen column (middle column), which, in this example, is 202 kg/ha; this value identifies the row corresponding to the VarioVolumex adjustment value (coloured columns). In the example, this is 30.
  - Set the adjuster with indicator **A** to number **3** and ring nut **B** to number **0**.
  - In the same conditions, to distribute **230 kg/ha**, adjust the variovolumex to between **32** and **34**.



#### How to read the table, example 2:

- Machine prepared to sow on rows which are 75 cm apart.
- Specific weight of the fertilizer: 1 kg/dmc.
- 130 kg/ha to be distributed.
  - Replace the third phase of the transmission (Z13 Z18) with (Z10 Z25).
  - Choose the column corresponding to 1 kg/dmc of specific weight (middle column).
  - Look for the value closest to 130 kg/ha in the chosen column (middle column), which, in this case, is 131 kg/ha; this value identifies the row corresponding to the VarioVolumex adjustment value (coloured columns). In the example, this is 35.
  - Set the adjuster with indicator A to number 3 and ring nut B to number 5.



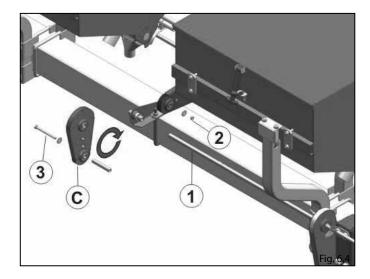


In view of the variability of the physical state of the various fertilizers, the quantity of fertilizer actually distributed can be different from the one specified in the table. It is therefore absolutely necessary to check the quantity being distributed and if necessary correct the adjustment.

#### HOW TO BE REVERSE THE TRANSMISSION COUNTER

To reverse the transmission counter carry out the following instructions:

- Pull off L framework 1 from making the reference axis C.
- Remove nuts 2 and the screws 3.
- Invert or replace the reference **C**.
- Screw the nuts 2 and the screws 3.



#### 6.1.2. ORGANS FOR THE PLANTING OF FERTILIZER

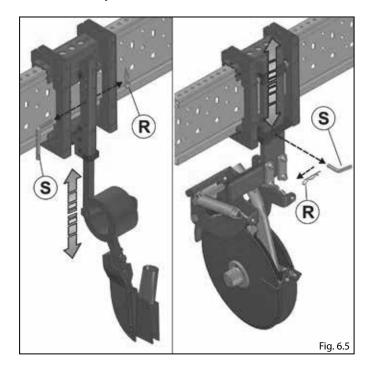
The fertilizer product is planted by means of a fertilization element that may be to a cutter (STANDARD) or disks (OPTIONAL) (Fig.6.5).

These elements are mounted in parallel with to the sowing crop and at a standard distance.

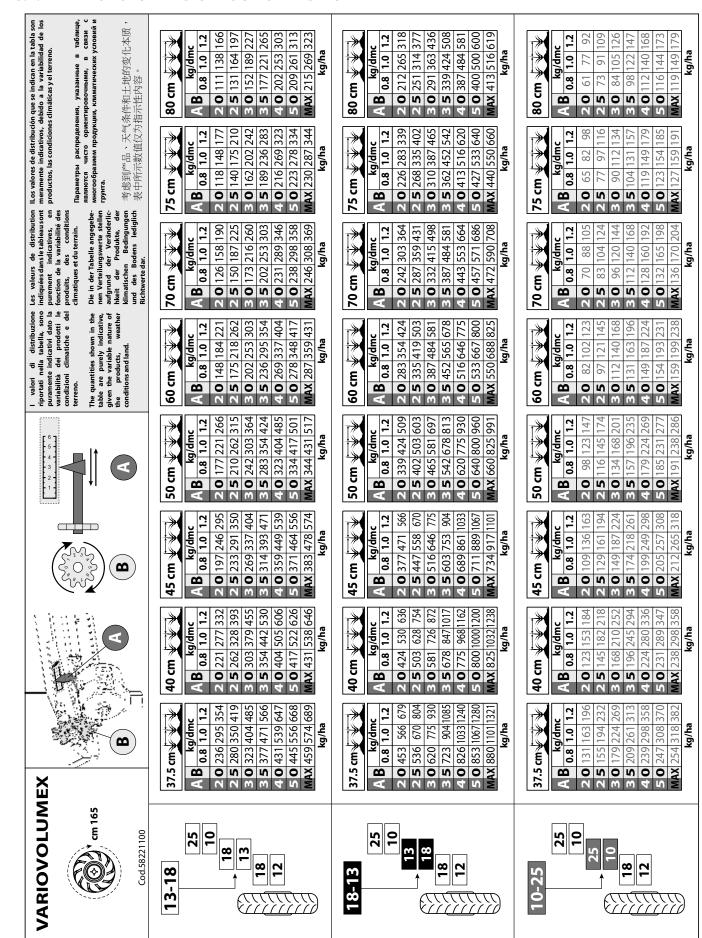
Verify that this distance is appropriate to the amount per hectare and the type of fertilizer in order not to damage the crop. It is possible to regulate the fertilizer's planting depth varying the height of the fertilization elements.

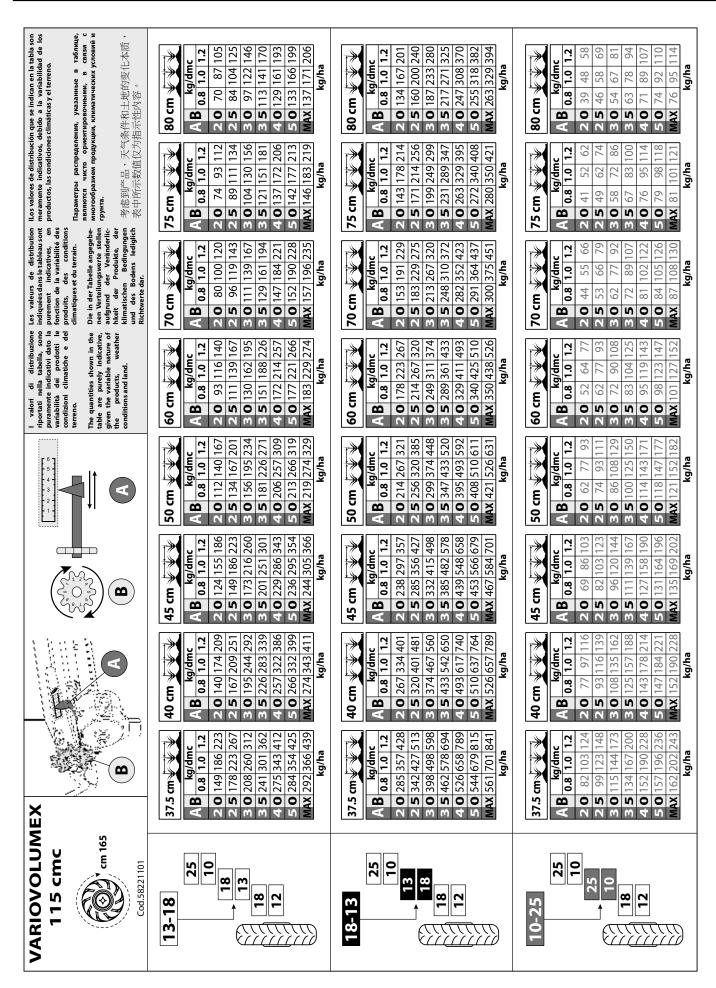
To vary the height of the fertilization cutter or disks elements proceed as follows:

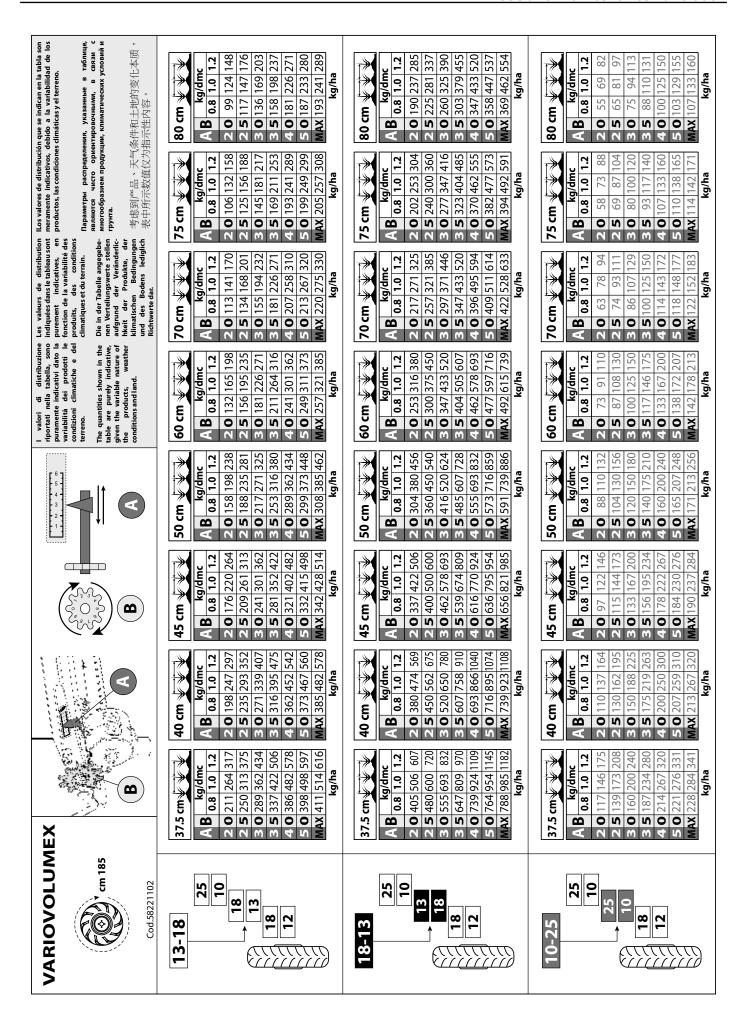
- Remove the plugs **S-R**.
- Lift or lower the element according to the needs.
- It is recommended to perform this operation with the machine open.

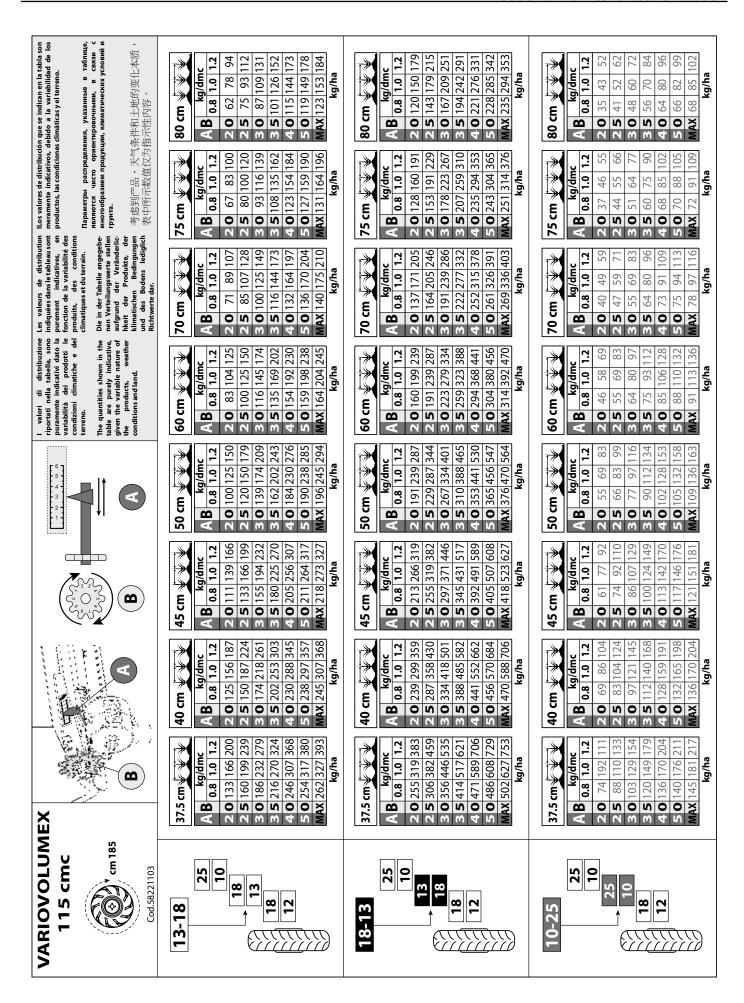


#### 6.2. VARIOVOLUMEX DISTRIBUTION TABLES

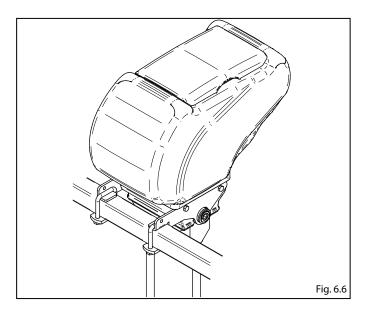








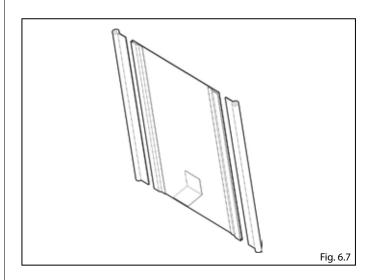
#### 6.3. MICROVOLUMEX



The microgranutar allows to distribute geo-disinfectants or microgranular products locally along the rows.

The device consists of:

- All the MICROVOLUMEX distributors must be adjusted at the same value.
- There should be no clogging or narrowing along the fertilizer path on order to allow a regular distribution.
- The table values are purely indicative, therefore check the actual quantity of fertilizer being distributed.
- If your field check finds out that the quantity being actually distributed is very different from the required one, check the sequence of the transmission stages (this sequence indicates what table should be used to find the sections needed for adjustment) and/or increase/reduce the adjustment by remembering that higher adjustment values correspond to larger quantities of fertilizer being distributed.
- The number of tank outlets may be higher than the number of rows you wish to fertilize.
- In this case, close the distributor outlets (maximum one per distributor) with gate (Fig.6.7).
- You are recommended to adjust all the Microvolumex devices mounted on your sowing machines at the same value.

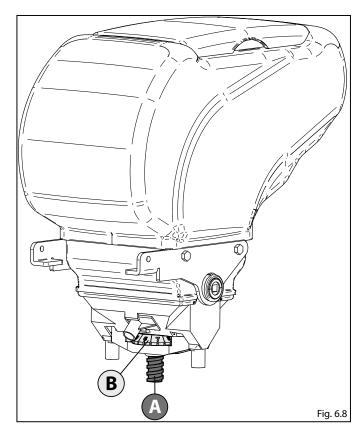


#### **MICROVOLUMEX ADJUSTMENT**

The adjustment can be made by rotating the numbered ring nut **A** (Fig. 6.8). Each full turn corresponds to a displacement of the central screw **B** by one unit.

The adjustment instructions are supplied in the adjustment table to be found on all tanks, with two numbers, where the first figure indicates the value of adjustment for the central screw and the second one indicates the value of adjustment of the ring nut.

Example if the operator decides to use adjustment **45**, the central screw should be adjusted to **(4)**, while the ring nut will have the value **(5)** in its centre.



#### 6.3.1. SETTING THE AMOUNT TO BE DISTRIBUTED - MICROVOLUMEX

Inside the MICROVOLUMEX tank covers, there is a table the same as, or similar to, the one shown below.

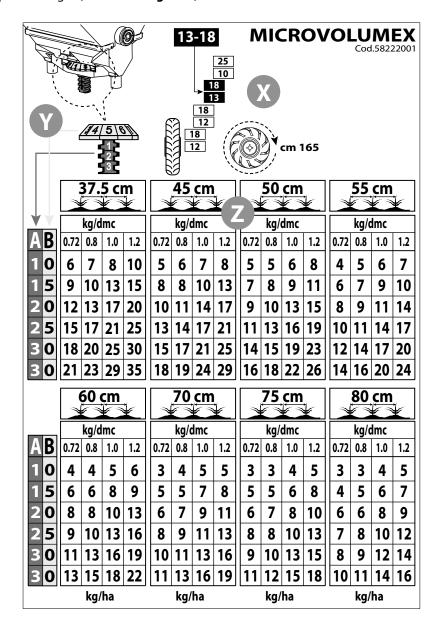
The adjustment table inside the cover relates to **STANDARD** transmission with the penultimate phase of the transmission (**Z13** - **Z18**).

The table for the REVERSE gear (Z18 - Z13) is provided in the documentation folder.

Both tables consist of:

- Diagram X, showing the sequence of mounted gears.
- Column Y showing the values to be set on the distributor of the microgranular fertilizer.

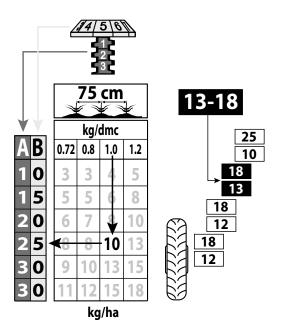
Columns **Z** showing the quantity of fertilizer to be distributed in kg/ha, on the basis of two parameters: Row spacing and specific weight **(0.8 - 1 - 1.2 kg/dmc)**.



#### HOW TO READ THE TABLE

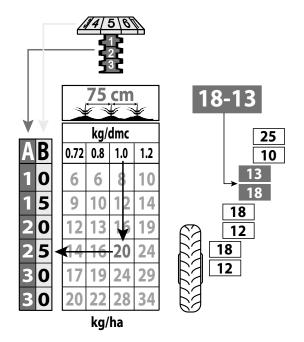
#### **Example 1**

- Machine prepared to sow on rows which are **75 cm** apart.
- 10 kg/ha to be distributed.
- Standard transmission.
- Refer to the table for **75 cm** row spacing and **1 kg/dmc** of specific product weight .
- Choose the column corresponding to 1 kg/dmc of specific weight (middle column).
- Look for the value closest to 10 kg/ha in the chosen column (middle column), which, in this case, is 10 kg/ha; this value identifies the row corresponding to the Microvolumex adjustment value (coloured columns). In the example, this is 25.
- For good distribution, the adjustment should be no less than **10**.



#### Example 2

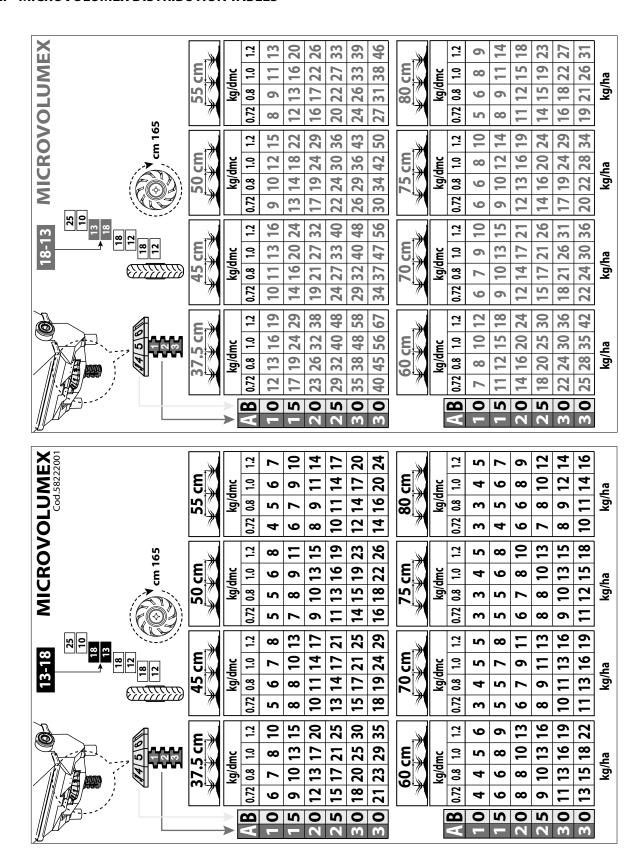
- In the same conditions as in the previous example, to distribute 20 kg/Ha, invert the gear transmission from (Z13 - Z18) to (Z18 - Z13).
- In this case, see the **reverse gear transmission** table provided in the documentation folder.
- See the table **for 75 cm** row spacing.
- Choose the column corresponding to **1 kg/dmc** of specific weight (middle column).
- Look for the value closest to 20 kg/ha in the chosen column (middle column), which, in this case, is 20 kg/ha; this value identifies the row corresponding to the Microvolumex adjustment value (coloured columns). In the example, this is 25.

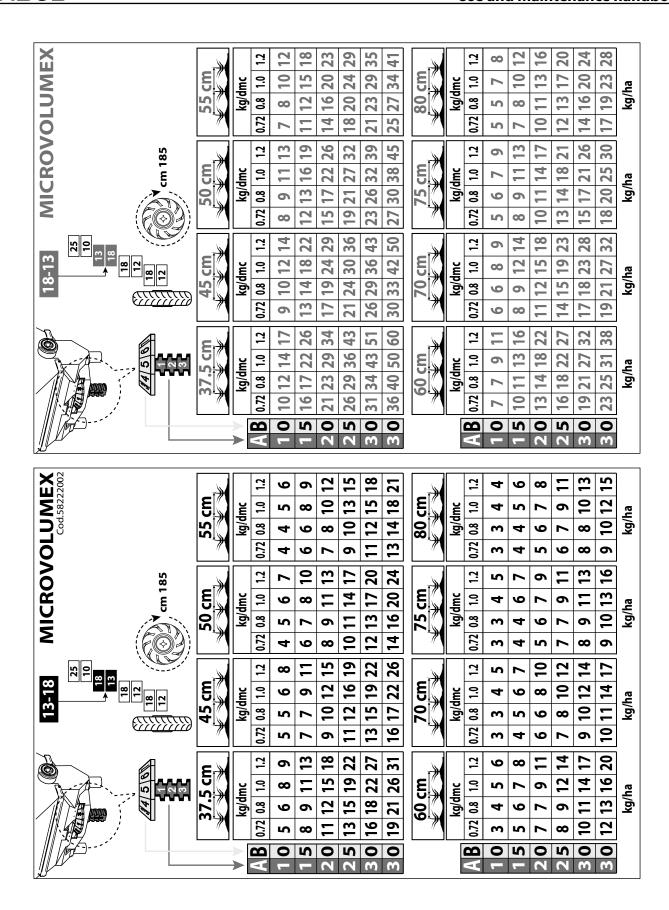


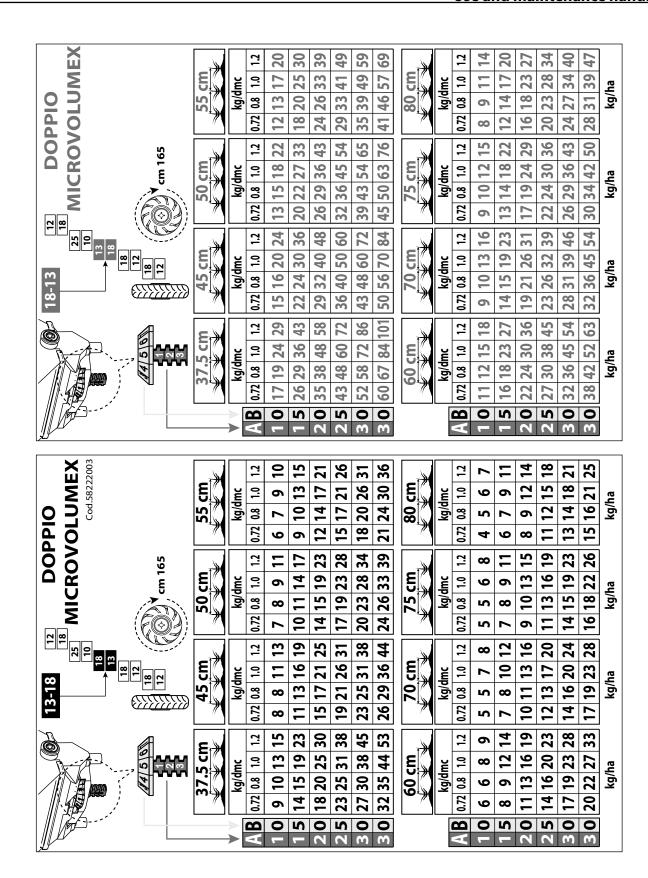


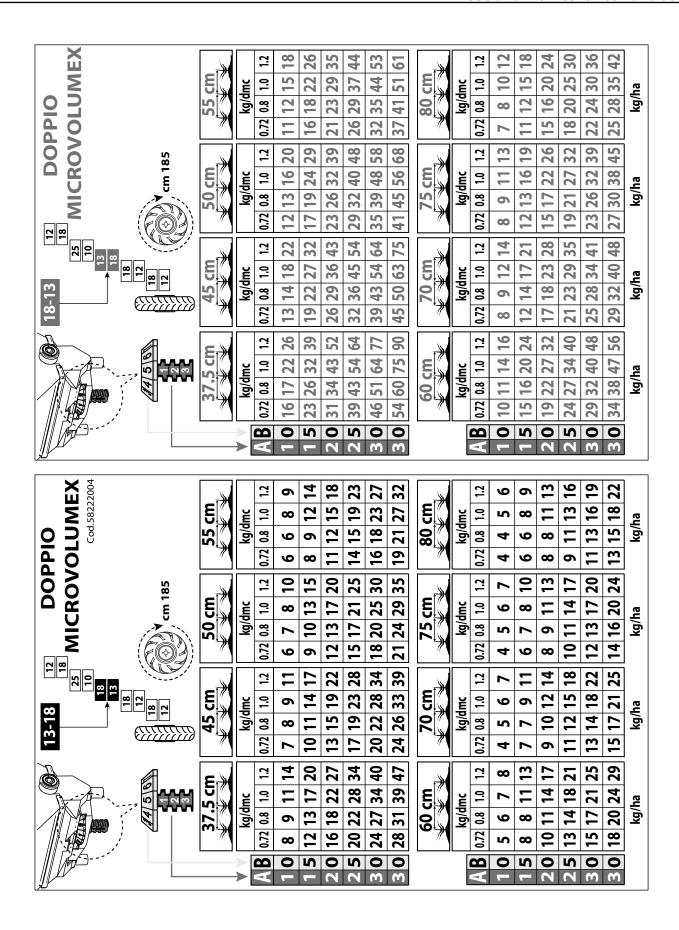
In view of the variability of the physical state of the various fertilizes, the quantity of fertilizer actually distributed can vary from the one specified in the table. It is therefore absolutely necessary to check the quantity being distributed and if necessary correct the adjustment.

#### 6.3.2. MICROVOLUMEX DISTRIBUTION TABLES





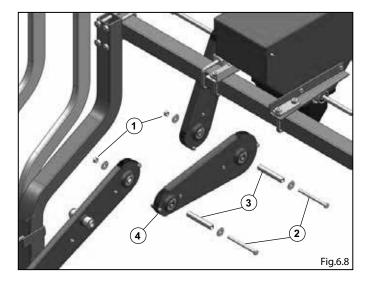


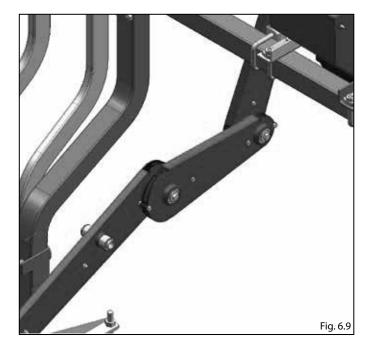


## HOW TO INVERT THE TRANSMISSION GEAR

To invert the transmission gear, do as follows:

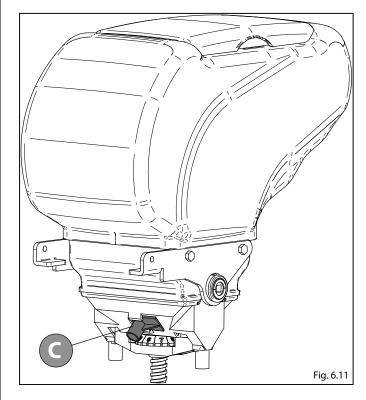
- Remove the nuts 1 and the screws 2.
- Pull the axes out **3**.
- Invert the gear 4.
- Tighten the nuts 1 and the screws 2.





#### **TANK DISCHARCING**

When your work is over, the tanks should be emptied. To do so, approach the mouth of an empty sack of the tank discharge outlet and open it by pulling the plug downwards and sideways (Fig.6.11).



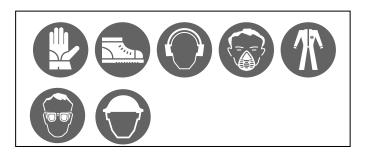
## 7. MAINTENANCE



In case of damage, the operator must stop the machine, take off the ignition key, jump off the tractor and determine the entity of the damage and then proceed to intervene on the machine.

Please note that all maintenance operations must be carried out by qualified and trained workers, when the machine is off.

It is also very important that all maintenance or repair interventions are not carried outside but in a specific equipped garage.





During the operations of use, regulation, maintenance, repair or movement, the operator must make use of the adequate Personal Protective Equipment.

Before starting all maintenance operation, the following instructions must be followed:

- During the maintenance the machine must be placed on an even surface;
- Turn off the engine of the tractor, pull the drum brake and take out the ignition key from the panel;
- Always make correct use of the Personal Protection Equipment (protective shoes, overall and gloves, mask);
- Use all the accident prevention means relative to the operation under way.
- Where using compressed air to clean the machine, you must use protective eye wear;
- When the maintenance of the machine requires to access parts that cannot be reached from standing on the ground, or points higher than 1,50 m, use a stairs or platforms in compliance with the in rule regulations;
- Do not carry out unfamiliar reparations. Always follow instructions and where they are missing, contact the manufacturer or expert personnel.
- Warning: replace the hydraulic pipes when these are damaged.
- Do not employ lifting means other than those specified;
- Make sure that the lifting mean chosen is suitable for the operations to be carried out and is in compliance with the safety regulations;

- Do not keep the engine of the machine on in closed areas with no ventilation system able to eliminate the exhausting gases concentrating in the air;
- Avoid long and repeated skin contacts with fuels/lubricants/fluids, since these could generate inflammations or other skin pathologies;
- Do not ingest fuels/lubricants/fluids. In case of accidental contact with the eyes, carefully wash the area with water:
- Do not weld in closed areas or with an inappropriate ventilation:
- Do not weld on or besides painted surfaces to avoid the propagation of toxic fumes. Remove the paint with specific products, then wash the surface and let dry;
- When using compressed air, always wear goggles with side-protections, and mask in order to avoid the danger of personal lesions due to dust particles. It is preferred to clean the machine in ventilated areas.

## 7.1. MAINTENANCE INTERVENTIONS THAT-MAY BE CARRIED OUT BY THE OPERATOR

The interventions described in the following paragraphs do not require a technical specialization. The operator must know and accurately perform the indications and must have turned off the machine.

Periodical check-ups and maintenance operations must be carried out in the periods and modalities described and are at charge of the operator.

Not observing the periods and modalities of maintenance will endanger the correct functioning of the machine, thus breaking the warranty validity.

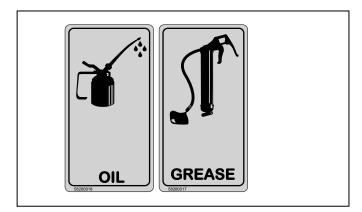
Intensify the frequency of maintenance interventions in case of hard use (frequent arrests and start-ups, very hard soils, etc..).

- Regularly check that the signs and safety disposals on the machine are in good state and that nothing endangers their correct functioning.
- Regularly check the condition of painted and galvanized parts of the seeder. Avoid leaving residues from chemical products on the machine.
- Regularly paint all of the parts for joining and fixing (rods, screws, nuts, etc...) also inspect that these are well tight and correctly positioned. Do not use the machine in the instance where fixtures are not in order or correctly attached.
- The sowing machine was mounted with most of the movements built on auto-lubricant bushings, only the transmission chains and some pins need to be periodically greased (distribute a thin layer of grease on the rollers and on the gear units). In case there is a fertilizer spreader mounted on the machine, periodically grease the roller chains and the gear units of the mechanical operation.

- It is good practice to keep the machine clean, we recommend washing it with water, including all the individual parts, after using it each time.
- This operation is particularly necessary if a fertilizer spreader is being used (the chemical components are particularly aggressive) and in this case the clearing must be carried out at the end of every working day, with a special care in the washing of the tanks, of the VarioVolumex (see accessories) and of all of those areas in contact with the fertilizer.
- Immediately clean all fertilizer or other chemical/biological product fell on the frame or on the fixing U-bolts in the respect of all the safety regulations supplied at the purchase of this product.

#### 7.2. GREASING

Using a designated greasing pump, grease the points indicated by the symbols:



Only use a manual greasing pump so as to avoid breaking the bearing seals and the grease pipes.

#### 7.3. HYDRAULIC SYSTEM

Visually inspect the machine to check that there are no loose fittings, pipes with scratches, cuts or other signs of wear

Tighten the loose fittings and replace the worn or damaged pipes

#### 7.4. REPLACING A HYDRAULIC PIPE

Before preparing to replace a hydraulic pipe, make sure that all safety measures are carried out as indicated for maintenance operations, stop the machine and close the system valves.

Carefully identify the damaged pipe and using a designated wrench loosen the two corresponding connecting points paying attention to any hydraulic fluid which may leak out.

# Only replace the damaged pipe using original spare parts.

Ensure that the coupling points are in a good condition (threads, gaskets etc....) before fitting the new pipe.

Using the designated wrenches, tighten the hydraulic pipe fittings which show signs of internal leakage in a clockwise direction.

Do not over-tighten as this would damage the thread of the fittings.

### 7.5. FINTERVENTIONS FREQUENCY

This paragraph contains information on the periods of interventions for some of the operations to be performer to maintain the perfect functioning of the soling machine. The frequency listed is purely informative and may be different on the base of the use, environment, seasonal matters, etc...

#### **NEW MACHINE**

• Control the tightening of all the screws and nuts, control that all the transmissions are free to operate.

#### START OF THE SOWING SEASON

• Check the state of use of the equipment by starting the machine on unloaded.

#### **DAILY**

 Wash with water the soling machine, especially those parts in contact with the chemical products like tanks, distributors, distribution pipes. Control that there is no residuals of chemical products inside the distribution parts since these may cause blocks and/or malfunctioning.

#### **WEEKLY**

- Verify the state of the sowing disks;
- Verify the state of the anti-plough disk or cutter with relative tool;
- Verify the state of the gaskets of the seeds distributors;
- Verify the state of the suction pipes and of the suction pump's transmission belt;
- Verify the state of the transmissions;
- Grease the pin of the frame arms.

#### **RESTING PERIOD**

- At the end of the season, or in case of a long period of unused, it is suggested to:
- Wash the equipment abundantly with water and in particular the tanks of chemical products and then let dry.
- Control all of the parts carefully and replace when damaged or old.
- Tighten up all screws and nuts.
- Oil the Easy-set guide, all of the transmission chains, lubricate all the non-painted parts.
- Protect the equipment with a cloth and put in a dry and stable area, outside of the reach of unauthorized personnel.
- Maintain clean from materials that may obstacle the sowing parts like dirt, rocks or roots, grass, etc... and that may cause the obstruction of the sowing tool, the malfunctioning of the anti-plough disk or the blocking of the compression wheels.
- Performing these simple operations will be very advantageous since at the start of a new season the equipment will be in perfect conditions.

#### 7.6. SPARE PARTS

Repair work and part replacement should be carried out using original spare parts requested from an authorised dealer. It is important to remember that any request for spare parts should be accompanied by the following information:

- machine type;
- machine serial number;
- spare part item code available from the Spare parts catalogue.

The use of spare parts not approved by the Manufacturer invalidates every guarantee and releases the Manufacturer or Dealer from every liability due to malfunctioning or incidents.

The removal or modification of the guards and protections releases the Manufacturer from every liability due to damage to things and/or people.

releases the Manufacturer from every liability due to damage to things and/or people.

| ARBOS | Use and maintenance handbook |  |  |  |  |
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#### IT Dichiarazione di Conformità CE Seminatrici e Macchine Combinate.

La Ditta ARBOS S.p.A. dichiara sotto la propria responsabilità che la macchina:

E' conforme ai requisiti di sicurezza e salute previsti dalla Direttiva Europea: **2006/42/CE - 2014/30/UE** (Compatibilità elettromagnetica) - Per modelli di macchine equipaggiate con dispositivi elettrici/elettronici.

Per l'adeguamento della macchina sono state utilizzate le seguenti Norme Armonizzate: **UNI EN ISO 4254-1:2015, UNI EN 14018:2010** nonché le specifiche tecniche: **ISO 11684 1995**.

# **EN EC Declaration of Conformity Seeders and combined machinery**

The company ARBOS S.p.A. declares under its sole responsibility that the machine: complies with the health and safety requirements of European Directives: 2006/42/EC - 2014/30/EU (Electromagnetic compatibility) - For models of machines with electrical/electronic apparatus. For machinery compliance, the following harmonised standards have been used: UNI EN ISO 4254-1:2015, UNI EN 14018:2010 as well as the technical specification: ISO 11684 1995.

## FR Déclaration de conformité CE Semoirs et machines combinées

L'entreprise ARBOS S.p.A. déclare sous sa propre responsabilité que la machine :

Est conforme aux critères de sécurité et de santé prévus par la Directive Européenne: 2006/42/CE - 2014/30/UE (Compatibilité électromagnétique) - Pour les modèles de machine équipés de dispositifs électriques/électroniques.

Pour l'ajustement de la machine, les normes harmonisées suivantes ont été utilisées : **UNI EN ISO 4254-1:2015, UNI EN 14018:2010** ainsi que les caractéristiques techniques : **ISO 11684 1995**.

# DE EG-Konformitätserklärung Sämaschinen und kombinierte Maschinen

erklärt auf eigene Die Firma ARBOS S.p.A. Verantwortung, dass die Maschine: mit den grundlegenden Sicherheitsund Gesundheitsschutzanforderungen der folgenden Richtlinien konform ist: 2006/42/EG - 2014/30/UE Verträglichkeit) ((Elektromagnetische fiir Maschinenmodelle, die mit elektrischen/elektronischen Geräten ausgestattet sind. Für die Anpassung der Maschine wurden die folgenden harmonisierten Normen verwendet: UNI EN ISO 4254-1:2015, UNI EN 14018:2010 sowie die folgende technische Spezifikation zugrunde gelegt: ISO 11684 1995.

# ES Declaración de Conformidad CE Sembradoras y máquinas combinadas

La empresa ARBOS S.p.A. declara bajo su propia responsabilidad que la máquina:

Es conforme a los requisitos de seguridad y salud exigidos por la Directiva Europea: 2006/42/CE - 2014/30/UE (Compatibilidad electromagnética) - Para modelos de máquinas equipadas con dispositivos eléctricos/electrónicos.

Para la adaptación de la máquina se han utilizado las siguientes normas armonizadas: UNI EN ISO 4254-1:2015. UNI EN 14018:2010 así como las

especificaciones técnicas: ISO 11684 1995.

# PT Declaração de Conformidade CE Semeadores e Máquinas Combinadas.

A Empresa ARBOS S.p.A. declara sob a sua responsabilidade que a máquina:

Está em conformidade com os requisitos de segurança e saúde previstos pela Diretiva Europeia: 2006/42/CE - 2014/30/UE (Compatibilidade eletromagnética) - Para modelos de máquinas equipadas com dispositivos elétricos/eletrónicos. Para a adequação da máquina foram utilizadas as seguintes Normas harmonizadas: EN ISO 4254-1:2015, EN 14018:2010 bem como as especificações técnicas: ISO 11684 1995.

# RU Декларация о соответствии EC сеялок и комбинированных машин

Компания ARBOS S.p.A. заявляет под собственной ответственностью, что машина: Соответствует требованиям техники безопасности и охраны труда, предусмотренным Европейской Директивой: 2006/42/CE - 2014/30/UE (Электромагнитная совместимость) - Для моделей машин, оснащенных элек-трическими/электронными устройствами. Для обеспечения соответствия машины были использованы следующие соответствующие нормы: UNI EN ISO 4254-1:2015, UNI EN 14018:2010 а также технические условия: ISO 11684 1995.

#### PL Deklaracja Zgodności CE Siewników i Maszyn Kombinowanych.

Firma ARBOS S.p.A. oświadcza na własną odpowiedzialność, że maszyna:

Spełnia wymagania w zakresie zdrowia i bezpieczeństwa Dyrektywy Europejskiej: **2006/42/WE - 2014/30/UE** (Kompatybilność elektromagnetyczna) - Dla modeli maszyn wyposażonych w urządzenia elektryczne/elektroniczne.

W celu dostosowania maszyny zastosowano następujące Normy Zharmonizowane: **UNI EN ISO 4254-1:2015, UNI EN 14018:2010** oraz specyfikacje techniczne: **ISO 11684 1995**.

#### CZ Prohlášení o shodě ES pro secí stroje a kombinované stroje.

Společnost ARBOS S.p.A. prohlašuje na vlastní odpovědnost, že strojní zařízení:
Je v souladu s požadavky na bezpečnost a ochranu zdraví stanovenými evropskou směrnicí: 2006/42/CE - 2014/30/EU (elektromagnetická kompatibilita) – Pro modely strojních zařízení vybavené elektrickými/elektronickými zařízeními.

Pro úpravu strojního zařízení byly použity následující harmonizované normy: ČSN EN ISO 4254-1:2015, ČSN EN 14018:2010, jakož i technické specifikace: ISO 11684 1995.

#### SK Vyhlásenie o zhode ES pre sejacie stroje a kombinované stroje.

Spoločnosť ARBOS S.p.A. prehlasuje na vlastnú zodpovednosť, že strojové zariadenie:

Je v súlade s požiadavkami na bezpečnosť a ochranu zdravia stanovenými Európskou smernicou:

2006/42/CE - 2014/30/EÚ (elektromagnetická kompatibilita) – Pre modely strojových zariadení vybavené elektrickými/elektronickými zariadeniami.

Pre úpravu strojového zariadenia boli použité nasledujúce harmonizované normy: STN EN ISO

4254-1: 2015, STN EN 14018:2010, ako aj

technické špecifikácie: ISO 11684 1995.

# HU Vetőgépek és kombinált gépek EK megfelelőségi nyilatkozata.

A ARBOS S.p.A. cég saját felelőssége tudatában kijelenti, hogy a gép:

megfelel az Európai Irányelvek által előírt biztonsági és egészségügyi előírásoknak: 2006/42/EK - 2014/30/EU (Elektromágneses összeférhetőség) - Elektromos/elektronikus készülékekkel felszerelt modellek.

A gép beállításához az alábbi harmonizált szabványokat használták: **UNI EN ISO 4254-1:2015, UNI EN 14018:2010** valamint a műszaki specifikációkat: **ISO 11684 1995**.

# LT EC Declaration of Conformity Seeders and combined machinery

The company ARBOS S.p.A. declares under its sole responsibility that the machine: complies with the health and safety requirements of European Directives: 2006/42/EC - 2014/30/EU (Electromagnetic compatibility) - For models of machines with electrical/electronic apparatus. For machinery compliance, the following harmonised standards have been used: UNI EN ISO 4254-1:2015, UNI EN 14018:2010 as well as the technical specification: ISO 11684 1995.

#### ВG Декларация за съответствие СЕ Посевни и Комбинирани Машини.

Фирмата ARBOS S.p.A. декларира на своя собствена отговорност, че машината: Съответства на изискванията за безопасност и здраве, предвидени от Европейската Директива: 2006/42/CE - 2014/30/UE (Електромагнитна съвместимост) - За модели на машини, оборудвани с електрически/електронни устройства. За приспособяване на машината са прилагани

следните Хармонизирани Стандарти: UNI EN ISO 4254-1:2015, UNI EN 14018:2010 както и техническите спецификации: ISO 11684 1995.

#### RO Declarație de Conformitate CE Semănători și Combine

Firma ARBOS S.p.A. declară pe propria răspundere că utilajul:

Respectă cerințele de siguranță și sănătate prevăzute de Directiva Europeană: 2006/42/CE - 2014/30/UE (Compatibilitate electromagnetică) - Pentru modele de utilaje echipate cu dispozitive electrice/electronice.

Pentru asigurarea conformității utilajului s-au folosit următoarele Standarde Armonizate: **UNI EN ISO 4254-1:2015, UNI EN 14018:2010** cât și specificațiile tehnice: **ISO 11684 1995**.

#### EL Δήλωση Συμμόρφωσης ΕΚ Σπαρτικών μηχανών και Θεριζοαλωνιστικών Μηχανών (Κομπίνες).

Η Εταιρεία ARBOS S.p.A. δηλώνει υπό αποκλειστικής της ευθύνη ότι η μηχανή: Συμμορφώνεται με τα προαπαιτούμενα ασφαλείας και υγείας της Ευρωπαϊκής Οδηγίας: 2006/42/CE - 2014/30/UE (Ηλεκτρομαγνητική Συμβατότητα) - Για τα μοντέλα μηχανών που είναι εξοπλισμένα με ηλεκτρικές/ηλεκτρονικές συσκευές. Για την προσαρμογή της μηχανής χρησιμοποιήθηκαν οι ακόλουθες εναρμονισμένες ρυθμίσεις: UNI EN ISO 4254-1:2015, UNI EN

**14018:2010** καθώς και τις ακόλουθες προδιαγραφές: **ISO 11684 1995**.

Tipo/Type Modello/Model Serie/Series

Matricola/ Identification number Anno/Year Data/Date rappresentante
The representative
Andrea Bellosti



Matermacc S.p.A. Via Gemona, 18 - 33078 San Vito al Tagliamento (PN) ITALIA Tel. 0434/85267 - Fax 0434/85517