O.M.B.
OFFICINE MECCANICHE BOVESANE s.r.l.

CENTRIFUGAL FERTILIZER SPREADER
DAVID/ DAVID FRUIT and COMPACT/ COMPACT FRUIT SERIES

OPERATING INSTRUCTIONS

Please read these operating instructions carefully before using the machine.
This manual is part and parcel of the product and must be kept in a safe place for consultation during the entire life span of the machine.

INDEX

FOREWORD

This manual gives the instructions for the correct use and maintenance of the **DAVID/DAVID FRUIT e COMPACT/COMPACT FRUIT** centrifugal fertilizer spreaders.

This manual is part and parcel of the product and must be kept in a safe place for consultation during the entire life span of the machine. The customer shall instruct all personnel on accident risks, safety devices, noise exposure risks and general accident prevention rules provided by the international directives and by the law in force in the country where the machines are used.

In any case, the machine shall be used only by skilled operators who shall strictly follow all technical and accident-prevention instructions contained in this manual.

It is the user's responsibility to check that the machine is operated only in conditions of complete safety for people, animals and property.

1. DETAILS OF THE MACHINE

1.1 General Terms and Warranty Conditions

The warranty shall cover defective parts upon O.M.B.'s prior technical approval.
All O.M.B. products have a standard twelve month warranty from date of delivery to the Purchaser, which is validated by invoice or receipt.
The warranty will not cover defects due to:

- normal wear and tear of the components;
- improper use of the machine and non-compliance with the instructions given in the operating manual;
- negligence of cleaning and maintenance work;
- deterioration due to improper handling of the machine;
- use of non-original spare parts;
- repairs or service by unauthorized personnel;
- modifications made without written approval of O.M.B.;
- damages due to the carrier's improper handling;
- if the limits set out in the Technical Features table have been overshot.

Take notice: All goods (machines, accessories and spare parts) travel at the Purchaser's risk.

O.M.B. has no obligation to compensate unsuccessful or insufficient harvest due to defects of spreading.
In order to verify warranty eligibility, the Purchaser must bear the cost of shipping the parts back to O.M.B. Any unauthorized returns will be denied.
O.M.B. reserves the right to accept or refuse warranty, its decision is definitive and irrevocable, and the Purchaser shall accept it without conditions.
O.M.B. also reserves the right to modify its machines at any time and without advance notification; it is not bound to modify machines previously sold or already in use.

These Terms and Conditions shall be governed by the laws of Italy and any disputes shall be subject to the exclusive jurisdiction of the Court of Cuneo.

Purchaser should verify upon delivery that the machine has not been damaged during transportation and that all accessories are undamaged and complete.

CLAIMS SUBMITTED FIVE DAYS AFTER RECEIPT OF GOODS WILL NOT BE ACCEPTED. CLAIMS SHALL BE IN WRITTEN FORM ENTITLED "PROOF OF CLAIM".

1.2 Designated Use and Conformity

The **DAVID/DAVID FRUIT e COMPACT/COMPACT FRUIT** fertilizer spreaders have been designed and built with the sole aim of distributing dried mineral fertilizers, granular, pelletized, crystallized and powdered fertilizers.

Any other use shall be considered as improper and O.M.B. disclaims all responsibility for any consequential injuries to persons or damage to the machine. Any improper use of the machine is at operator's complete risk and responsibility.

A correct use of the machine includes the observance of all the indications and rules contained in this instruction manual and the use of O.M.B. genuine spare parts only. Unoriginal spare parts and attachments are uncontrolled and unapproved. Their use relieves O.M.B. of any responsibility and invalidates the warranty.
The machine has been built in conformity with the state-of-the art knowledge and the accident prevention regulations in force. However its use may be dangerous for the operator or third parties. Never ignore any functional flaw that may compromise safety. In such a case, immediately contact OMB authorized and specialized personnel in order to make a check and solve the problem.

It is essential that the operator is in good heath conditions and respects all the accident prevention regulations, industrial medicine specifications, and road traffic laws.

1.3 Manufacturer

O.M.B. OFFICINE MECCANICHE BOVESANE s.r.l.
Via Cuneo 153-155
12012 Boves (CN) ITALY

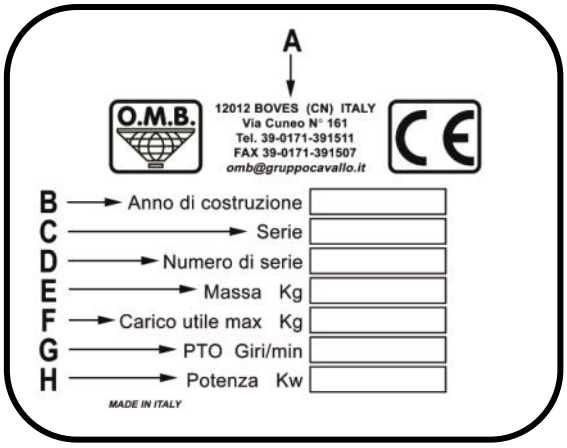
1.4 Declaration of Conformity

The **DAVID and COMPACT** centrifugal fertilizer spreaders comply with the European Machinery Directive 2006/42/EC. The following harmonized standards have been used for adapting the machine: UNI EN 4254-1:2006, EN 14017:2005, as well as the technical specifications ISO 11684:1995.

1.5 Information Requests and Orders

For any information and spare part orders it is necessary to contact the dealer or O.M.B. directly at:
Phone - 0039 0171 391511
Fax - 0039 0171 391507
E-mail omb@gruppocavallo.it
Please always indicate the PIN of the machine.

1.6 Identification Plate



A) Manufacturer Data
B) Year of Manufacture
C) Model
D) Product Identification Number (PIN)
E) Weight in Kilograms
F) Maximum Loading Capacity in Kilograms
G) PTO Revolutions Per Minute
H) Power Absorption

The Identification Plate has legal value. It cannot be changed, removed or falsified.

1.7 Technical Features

	U.M	David/ Compact	David Fruit/ Compact Fruit
Hopper Capacity (versione base/con rialzo)	l.	600 -1000	600 -1000
Loading Height (versione base/con rialzo)	m.	1,08 - 1,35	1,08 - 1,35
Length	m.	1,1	1,1
Width (versione base/con rialzo)	m.	1,2 - 1,5	1,2 - 1,5
Weight (with cardan)	kg.	211	226
Number of Discs	nr.	2	2
PTO	giri/min.	540	540
3-Point Linkage	cat.	1ª/ 2ª	1ª/ 2ª
Disc Revolutions Per Minute	giri/min.	685	685
Spreading width*	m.	15	12
Inter-Row Spreading			2 - 5
Max Loading Capacity	kg.	1200	1200

***** depending on fertilizer

1.7.1 How to Interpret the Safety Decals

1) Before engaging the cardan shaft, check the prescribed number of revolutions per minute. Never switch the standard rotation of 540 r/min to 1000 r/min.
2) Cardan shaft, danger of becoming entangled. Do not approach the rotating cardan shaft. Pay close attention to clothing, which must not be loose or fluttering.
3) Read the instruction manual before operating the machine. Lack of knowledge is dangerous.
4) Before carrying out any adjustment or maintenance work, turn off the tractor engine, remove the ignition key and read the instruction manual.
5) Danger of fall. Never get on the machine.
6) High pressure hydraulic tubes. Read the operating instructions.
7) Danger of hand shearing. Wait until the machine has come to a complete stop.
8) You could be hit by sharp stones. Keep well away from the machine while it is operating.
9) The machine can be charged only if attached to the tractor and lifted from ground. The machine must not be laid on ground when charged.
10) Refer to the instruction manual to cut the cardan shaft and to start the machine.

1.7.2 Service Data

The PTO speed is **540 rpm.**

1.7.3 Noise

The sound level of the machine, as measured at the operator's position, reaches 76 dB.

2. SAFETY RULES

Pay close attention to this danger sign anytime it appears in this manual.

There are three levels of danger:

DANGER: This sign warns that the operations described **cause** serious lesions, death or long term health risks, if they are not carried out correctly.
ATTENTION: This sign warns that the operations described **could cause** serious lesions, death or long term health risks, if they are not carried out correctly.
CAUTION: This sign warns that the operations described **could cause** serious damage to the machine, if they are not carried out correctly.
Carefully read all the instructions before operating the machine; if in doubt, contact the dealer's technicians. O.M.B. declines all responsibility for the in-observance of the safety and accident prevention rules described below.

2.1 General Safety Rules

- The operator must be in good health.
- The operator must pay close attention to the danger signs in this manual and applied on the machine.
- The decals with the instructions applied on the machine give shortened advice to avoid accidents. Pay special attention to all the safety decals and replace them if damaged or missing.
- It is mandatory to read and comply with the instructions contained in this manual before operating or moving the machine. Improper use may seriously harm people and damage property.
- Maintenance and adjustment work must be carried out by authorized personnel only. Both the operator and maintenance fitter must know the machine well, especially regarding dangers resulting from improper use or incorrect repairs. Any intervention must be done with the engine switched off and the tractor blocked.
- **Never touch the moving parts.**
- It is strictly forbidden to drive the tractor, or allow it to be driven, with the equipment attached by persons without experience or who do not possess a drivers license or who are in poor health.
- Before starting, check the tractor and the machine in regards to functionality, road safety and accident prevention rules.
- Before starting, the operator must become familiar with the control devices and their functions.

- Check the tightness of all the distribution parts, particularly discs and vanes.
- Carry out maintenance work only if the machine is positioned on even and solid ground. Avoid abrupt movements that may cause the machine to overturn.
- Never use parts of the machine as a means to get on it.
- Pay special attention to the eventual presence of people (children!) and/or animals in the surrounding area, mostly if working near roads or buildings. Nobody should be standing within the working area of the machine. High visibility is essential.
- Use cabin tractors.
- All guards must be checked before daily work. They must be replaced if damaged or missing.
- The loading operation must be carried out only with the engine off, ignition key removed, machine hitched to the tractor, lifted from ground and shutters closed.
- During checks, maintenance work or repairs, make sure nobody starts the tractor by mistake.
- Before any intervention, all rotating parts must have come to a complete stop and the ignition key removed.
- Use suitable clothing. Never wear loose or fluttering clothes that may get entangled in the moving parts of the machine.
- Keep your hands and feet away from the rotating parts of the machine, cardan shaft included. Do not touch anything in motion even by means of another object.
- Never carry passengers on the tractor.
- Never carry passengers on the equipment.
- Never approach the machine until the rotating parts have completely stopped.
- Before getting off the tractor, turn the engine off, activate the brake and remove the ignition key from panel. Check that nobody approaches the chemical substances.
- Never leave the tractor seat when engine is running.
- It is strictly forbidden to overlap any object above the hopper, exceed the hopper maximum capacity and overall dimensions.

2.2 Safety Rules Concerning the Attachment to the Tractor

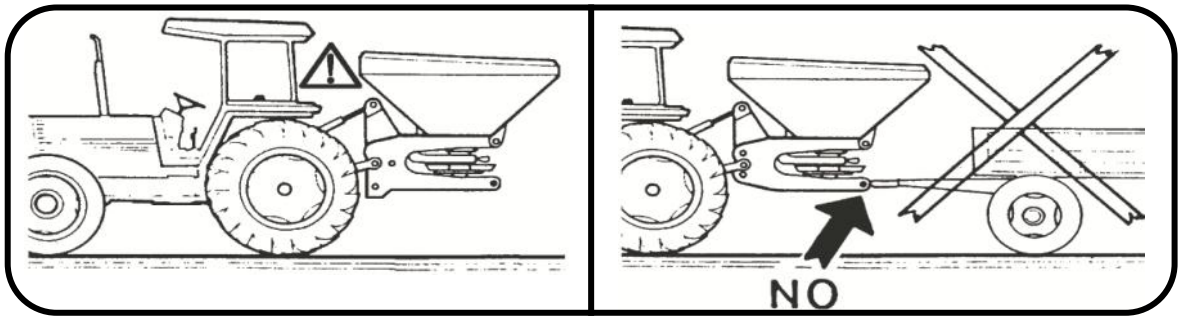
- Before hitching the machine to the tractor the operator shall verify the tractor-equipment stability as specified in the chapter “RULES of USE”, paragraph 3.3
- Hitch the machine to a sufficiently powered tractor by means of an appropriate device (lifter), in conformity with the regulations in force.
- The category of the machine hitches must match with those of the lifter.

ATTENTION

- Pay close attention when working within the range of the lifting arms as this is a very dangerous area.
- Be very careful when hitching and unhitching the machine.
- It is strictly forbidden to stand between the tractor and the linkage to manoeuvre the lifting controls from the outside.

ATTENTION

- If it is necessary to stand between the tractor and the machine, turn the tractor engine off. Activate the brake and insert suitable blocks under the wheels.
- **Do not hook anything to the carried machine.**



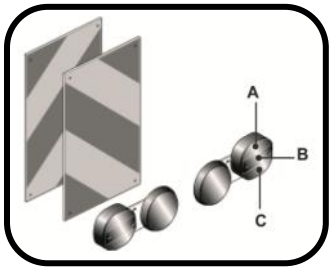
2.3 Safety Rules Concerning Road Transportation

- When driving on public roads, respect all road rules in force.
- It is very important to remember that road holding, direction and braking performance can be affected, sometimes considerably, by a carried or towed machine.
- The operator shall take into account the centrifugal force when turning. The centre of gravity shifts depending on the position of the machine, carried or trailed.
- During transportation the hopper shall be empty.
- The operator shall reduce speed during transportation, especially when driving on bumpy roads. The weight of the lifted machine may render driving difficult and damage the machine itself.
- When the dimensions of the machine hide the tractor's signalling and lighting devices, these must be installed on the equipment as well, in conformity with the road rules in force.
- The operator shall verify the perfect working order of the lighting system. It is also important to remember that the correct signalling sequence is the following:

A - Direction Indicator

B - Red Position Light

C - Stop Light



2.4 Cardan Shaft Safety

- Only use the cardan shaft supplied by O.M.B.
- Check the good functioning of the PTO shaft and its guard. **It is necessary to read and follow the instructions of the cardan shaft manufacturer from their use and maintenance manual.**

DANGER

- The cardan shaft must be connected and disconnected only with the engine turned off and the ignition key removed.
- Block the rotation of the cardan shaft guard by means of the supplied chain.

DANGER

- Frequently check the cardan shaft guard that must be kept in good working order.
- Before engaging the PTO, check that the revolutions per minute are those indicated on the decal applied to the machine.
- Clean and lubricate the cardan shaft only when it is disconnected from tractor

CAUTION

- Before engaging the cardan shaft, check the surrounding area for the eventual presence of persons and animals. Check again the PTO speed that shall not exceed the prescribed one.
- It is mandatory to disconnect the PTO any time the cardan shaft exceeds an angle of 25 degrees (Fig. 1).
- **In case of using the machine with different tractors, always check the correct length of the cardan shaft.**

CAUTION:
1) Check efficiency and lubricate all parts indicated in the figure before using the cardan shaft.
2) Periodically lubricate the cardan joints as indicated in the cardan shaft instruction manual (see Fig. 2).

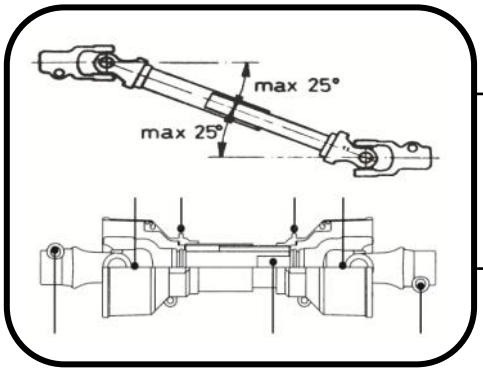
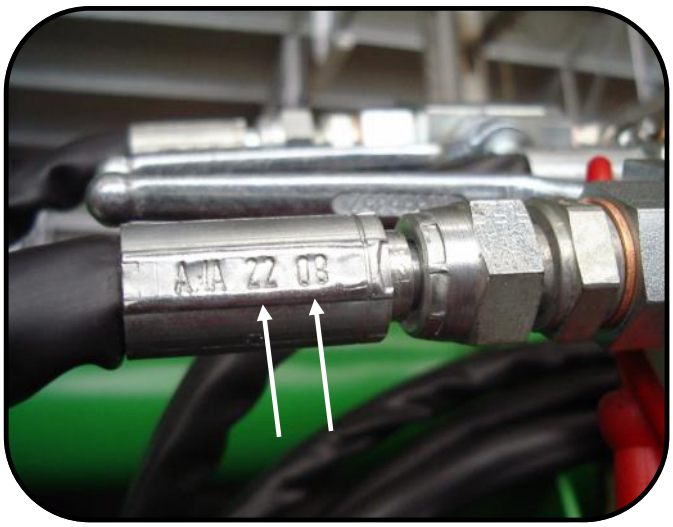


Fig. 1

Fig. 2

2.5 Safety Measures Concerning the Hydraulic System

- The hydraulic system is under high pressure.
- When connecting the hydraulic hoses to the tractor's hydraulic system, pay close attention that the hydraulic systems of the operating machine and the tractor are not under pressure.
- The maximum allowed operating pressure (tractor's hydraulic system) shall not exceed 200 bars.
- The functioning of the hydraulic system must be periodically checked. All flexible hydraulic hoses must be checked on a regular basis in every part, paying special attention to their connection points.



- They shall be replaced in case of damage or wear, and in any case every 6 years comprehensive of 2 years of stocking (please refer to the date indicated on the metal bushing).
- In case of search for oil leaks, take all the necessary precautions to prevent and avoid accidents.

  N.B. The first two numbers identify the week of production, while the following ones indicate the year of production.

ATTENTION

- In case of contact with high pressure liquids, immediately contact a doctor because the hydraulic oil is dangerous and may penetrate under the skin and cause serious injuries.
- Never search for leaks with fingers and hands. The leaking liquids may be nearly invisible.
- During road transportation the hydraulic connections between tractor and machine shall be disconnected and secured to the provided support.
- All hydraulic components shall be accurately positioned in order to avoid damages when using the machine.
- Before any operation with the hydraulic system the operator shall always wear appropriate protection. It is very important to wear gloves. Then the operator shall lower the machine, depressurize the hydraulic system, turn the engine off and remove the ignition key.

2.6 Maintenance and Safety Regulations

- During work and maintenance, the operator shall use the appropriate protection, such as:

- Never proceed with any maintenance, repair and/or cleaning if the PTO has not been disengaged first, the engine turned off, the hand brake pulled and the tractor blocked by means of a wooden block or a stone of the right size under the wheels.
- Periodically check tightness of bolts and nuts. If necessary tighten them again.
- During assembling, maintenance, repair and cleaning, with machine lifted from ground, shore it up with appropriate supports for safety reasons.
- All spare parts shall match O.M.B. requirements. **Use only genuine spare parts.**

3. RULES OF USE

In order to get the best performance out of the machine, accurately respect the following instructions.

ATTENTION

All operations concerning maintenance, adjustment and work preparation shall be carried out with engine turned off, key removed from panel and tractor in a very stable position.

3.1 Attachment to the Tractor

The machine can be attached to any tractor with three point hitch.

DANGER

The attachment to the tractor is a very dangerous operation. Pay close attention to all instructions.

3.1.1 Hitching

The correct positioning of the tractor/machine is determined by placing the unit on a horizontal surface. The distance between spreading disc and ground shall vary from 80 to 90 cm.

1) Connect the machine to the tractor's three point hitch (Fig. 6). The **DAVID/ DAVID FRUIT and COMPACT/COMPACT FRUIT** spreaders are equipped with a double hitching position. The first position (particular 1 Fig. 5) is meant for standard fertilization. The second position (particular 2 Fig. 5), lifted by 150mm, is meant for top dressing. The lifting pins (particular 3 Fig. 5) are equipped with an already installed bushing (particular 4 Fig. 5) that is meant for tractors' second category hitching. In case of hitching to a first cat. tractor, it is necessary to remove this bushing (particular 4 Fig. 5). The pivots shall be secured with the appropriate pins (particular 5 Fig. 5); use the adjustment rod 2 (Fig. 6) to have the spreading disc perfectly parallel to the ground.
2) Block any movement of the tractor's lifting arms on the horizontal plane by means of the tractor's stabilizers (Fig. 4); in this way the machine's side swings will be avoided. Check that the tractor's lifting arms are positioned at the same height from ground.
3) By means of the tractor's hydraulic lifting arms, position the input shaft of the machine and the tractor's PTO shaft on the same horizontal axis. In this position insert and connect the cardan to both shafts (Fig. 3).

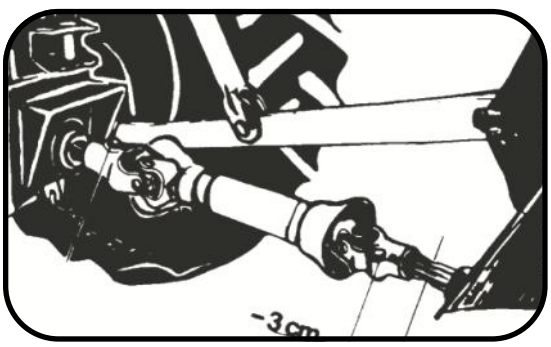


Fig. 3

Fig. 4

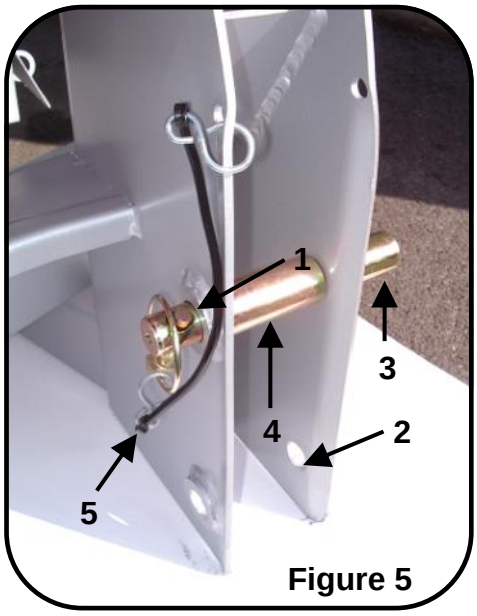


Figure 5

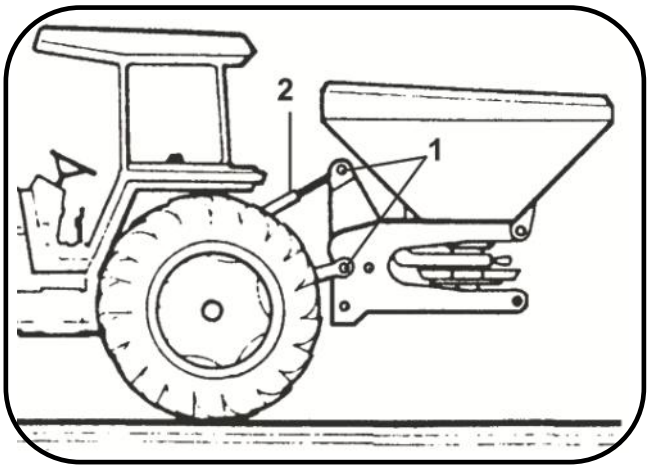


Figure 6

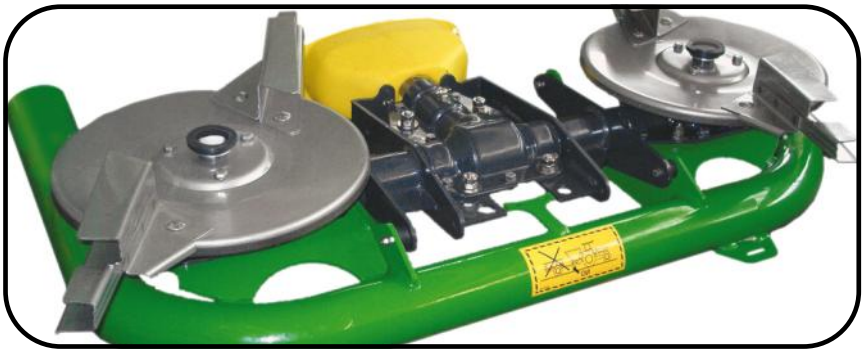
If this operation is not possible because of the excessive length of the cardan, please follow the instructions given in the next paragraph **(3.1.2)** titled **"Adapting the Cardan Shaft".**

The DAVID and COMPACT fertilizer spreaders are supplied with a transmission system mounted on a flexible structure. This flexible system has been designed to enable the end-user to check the correct length of the cardan shaft in a very simple and effective way. In case of use of a cardan shaft wrong length, the usual flexion supported by the spreader input shaft, is absorbed by the rubber mountings only. These latter parts will be deformed up to their break point in case of extreme stress, but they will preserve the integrity of the transmission.

CAUTION

Therefore if, when lifting the spreader, the end-user detects a deformation of the rubber mountings (particular 1 Fig.7) and a lack of alignment between the pointers of the chassis (particular 2 Fig. 7) and those of the gearbox (particular 3 Fig. 7), he shall immediately stop the lifting operation and proceed to the cardan shaft length adjustment again.

After correcting the cardan shaft length, repeat the spreader hitching and lifting operations, always checking the possible flexion of the rubber mountings. If the correction is right, no deformation or misalignment will occur.



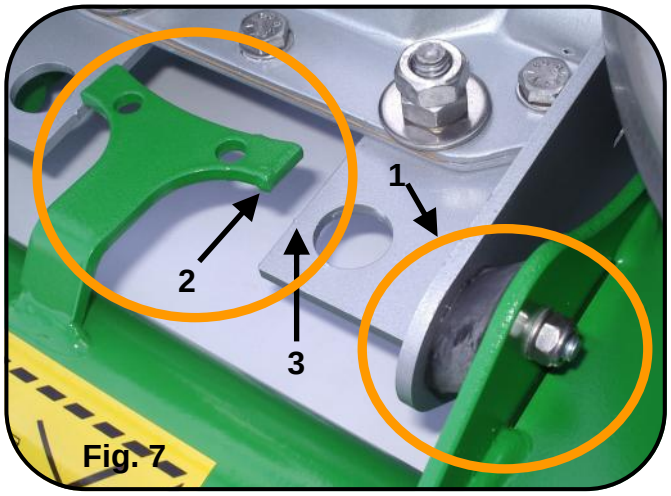


Fig. 7

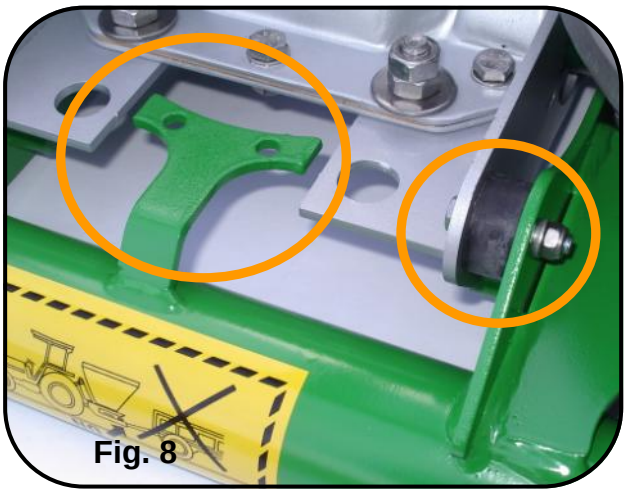


Fig. 8


Figura 9

Check that the guard turns freely and secure it with the provided chain (see Fig. 9)

CAUTION: in order to avoid the breaking or fracture of forks and braces, the cardan shaft shall never exceed an angle of 25° when in use.

ATTENTION

It is necessary to connect the clutch 1 (particular 1 Fig.10) to the tractor's hydraulic system.

Please refer to what indicated in the paragraph 2.5 (Safety Measures Concerning the Hydraulic System) on page 10.

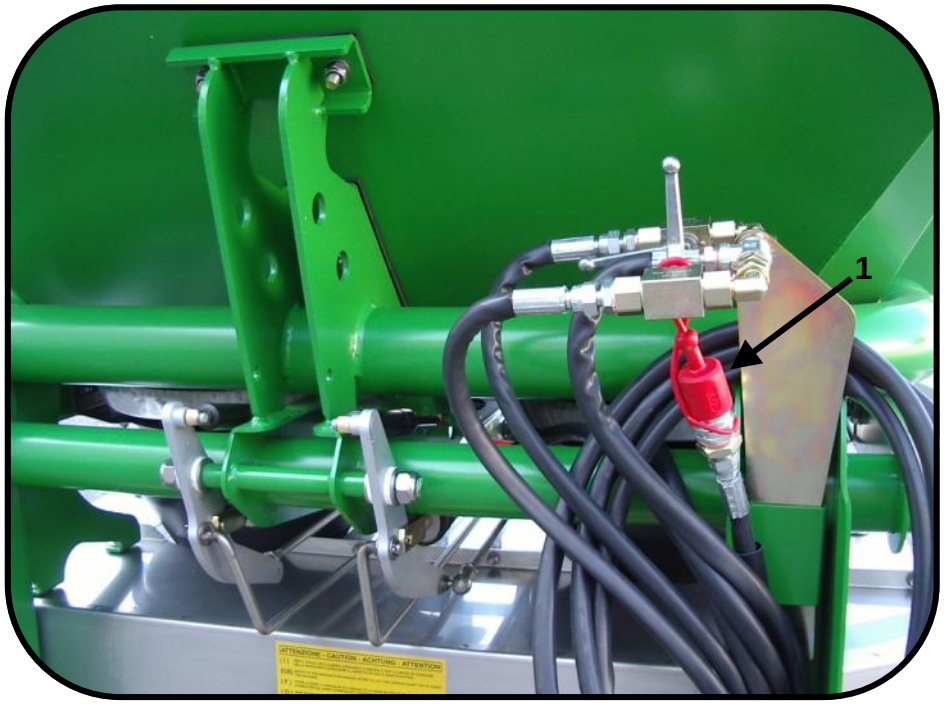


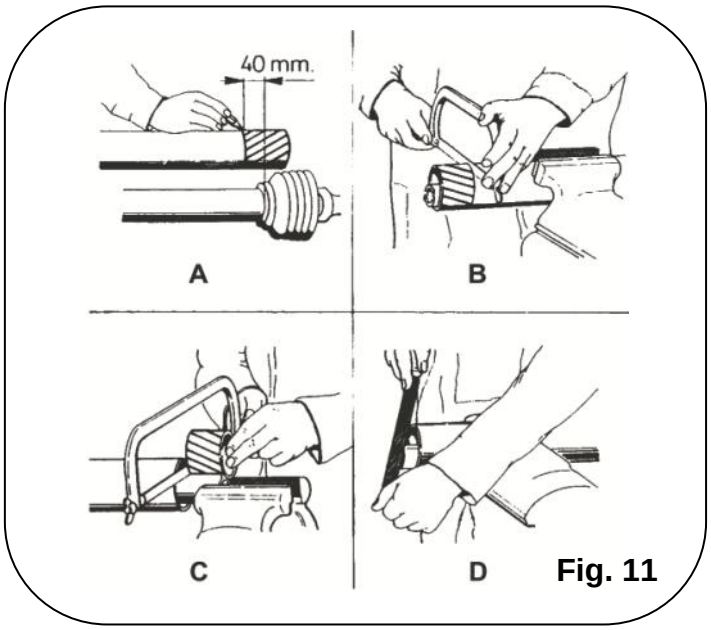
Fig. 10

3.1.2 Adapting the Cardan Shaft

The cardan shaft that is supplied with the machine has a standard length. Therefore it might be necessary to adapt it.

- To modify the length, adjust the two half shafts to the shortest possible position, then mark the part to cut off (A Fig. 11).
- Shorten the inside and outside protection hose by the same measure (B Fig. 11).
- Shorten the inside/outside sliding profile by the same measure of the protective cover (C Fig. 11).
- Accurately remove burrs, bevel off, clean and lubricate the profiles (D Fig. 11).

A further modification of the cardan shaft and its protective cover is not permitted.



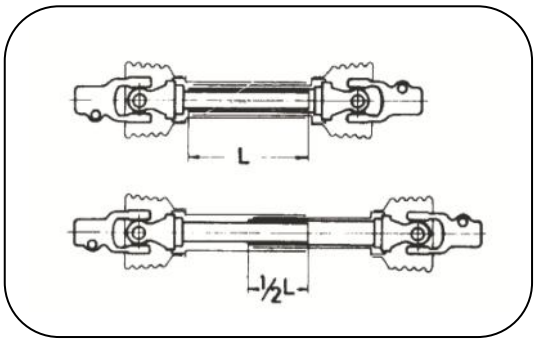


Fig. 11

3.2 Unhitching the Machine from the Tractor

DANGER

Unhitching the machine from the tractor is a very dangerous operation. Great caution must be exercised and the entire operation must be carried out following the instructions strictly.

The machine can be parked on solid, even ground with empty hopper only.

1) Slowly lower the machine until it rests completely on the ground.
2) Unhitch the cardan shaft from the tractor and secure it to the provided hook.
3) Disconnect the hydraulic hoses from the tractor's distributors and protect the quick couplings with their caps.
4) Loosen and unhitch the third point , then the first and the second.

3.3 Stability of Tractor-Machine Unit During Transportation

When a machine is matched with a tractor, for the road rules it is considered part of the tractor itself. The stability of the tractor-machine unit may vary and render driving and working difficult. Balance can be achieved by means of ballasts positioned at the front of the tractor. In this way the weight of the unit will be equally divided between the tractor's rear and front axles. In order to operate safely, it is necessary to follow all the specifications of the road rules where it is indicated that at least the 20% of the weight of the tractor alone shall be borne by the front axle and the weight borne by the tractor's lifting arms shall not exceed the weight of the tractor itself by a 30%.
In order to verify the unit stability, please apply the following mathematical formula:

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

Key (please refer to Fig. 12):

Ir (kg) = total weight of the carried machine + carried product ② ③
Tf (kg) = load on the front axle of the unloaded tractor ①
Tr (kg) = load on the rear axle of the unloaded tractor ①
Te (kg) = tare weight of the tractor ①
If (kg) = minimum front ballast
a (m) = distance in metres between the centre of gravity of the front ballast and the centre of the front axle ① ③

b (m) = tractor's wheel base in metres ① ③
c (m) = distance in metres between the centre of the rear axle and the centre of the lower joints ① ③
d (m)= distance in metres between the centre of the lower joints and the centre of gravity of the machine ② ③

① Read the tractor's instruction manual

② Read the machine's instruction manual

③ It has to be measured

The amount of ballast that should be applied according to this formula is the minimum required for road circulation. If, for reasons of tractor's performance or to improve the set-up of the machine during operation, it is necessary to raise these values, please refer to the registration document of the tractor to check its limits.
When this formula for calculating the ballast gives a negative result, it will not be necessary to add any weight. In any case, as long as the tractor's limits are respected, a certain amount of weight may be applied in order to ensure greater stability during travel. Check that the tractor's tyres are appropriate for the load.

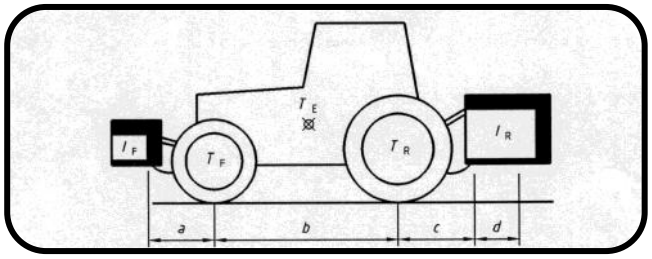


Fig. 12

3.4 Road Transportation

DANGER

During road transportation and work never carry passengers.

Always disengage the tractor's power take-off when driving on roads. Before road transportation it is necessary to apply the prescribed "heavy load" reflective warning plate to the machine. When driving on public roads, respect all road rules in force. Respect all technical specifications and accident prevention regulations as well.

ATTENTION

Drive on public roads with empty hopper. However if this could not be possible, make sure the feeding shutters are completely closed in order to avoid pouring the product on the road. In case the machine has a hydraulic system with lever cock, it is essential to close the shutters and the cocks so that an eventual hydraulic leak of the tractor's distributor will not cause an unwilled opening of the shutters.

3.5 Loading Procedure

ATTENTION

The machine shall be loaded only when solidly connected to the three points of the tractor and lifted from ground.
Serious damage to the machine can be caused by lack of compliance during this procedure.
All hopper loading and unloading operations must be carried out with the machine at a standstill. Activate the brake, turn the engine off and remove the key from the control panel.
Make sure no one can approach the chemicals.
All operations must be carried out by trained staff wearing suitable protection (overalls, gloves, boots, masks etc) in a clean, dust-free environment.
When filling the hopper, make sure that no foreign object, such as strings, paper, etc…, enters it.

It is necessary to use accessory equipment to load the fertilizer in case the height of manual load exceeds 1250 mm; the height of load is defined as the vertical distance from the upper edge of the hopper or extension and the ground.
After filling the machine twice or three times, check nuts and bolts and tighten them again if necessary.

3.6 Spreading Charts

Interpretation Notes

All the spreading chart data, and especially the quantity of delivered material, are the result of special practical tests.
These tests have been carried out at 540 rpm. with horizontal spreading discs at 80-90 cm. from ground.
The spreading charts give the quantity of fertilizer per unit of surface, in this case Kg/ha, considering certain parameters such as the working width, power take-off speed, tractor's speed and also some of the machine's regulations such as the height from ground and the orientation of the vanes.

The most important datum is the quantity of material distributed per unit of time (this figure is given by the 2nd left hand column, next to the opening number and it is expressed in kilograms per minute).

However all data are indicative since many factors can affect the delivered quantity. An example is given by the different physical features of a fertilizer that may vary depending on the season of purchase, the supplier, or on the weather conditions and affect distribution.

O.M.B. shall not be held responsible for lack of production or insufficient harvest due to spreading defects

3.6.1 Checking the Delivered Quantity (only for the David and Compact versions)

By using an apposite device (ACCESSORY ON REQUEST) that shall be applied to one of the spreading discs, it is always possible to determine the exact quantity of delivered product, even if the fertilizer is not listed in the spreading charts supplied with the machine.

HOW TO PROCEED: Remove the vanes from the two spreading discs (Fig. 13).
N.B. Apply the two bolts with swelled heads again, using washers and nuts (particular 1 Fig. 13) on the disc of the test. While passing under the red plastic casing, these bolts shift the fertilizer and favour the product decent. Move the feed cone (the left one clockwise, the right one anti-clockwise) in order to position the fertilizer release orifice onto the disc towards the rear part of the machine (Fig. 13). Insert the device (particular 1 Fig.14) into the feeder (particular 2 Fig. 13, 15 and 16), fix the clamp (particular 3) by hitching together the anti-turbulence and the quantity device with a bolt and a nut as indicated in Fig. 17 and 18, thus obtaining the assembly of 19.
Before starting the test, incline the spreader in order to favour the fertilizer flow (see Fig. 20).

The test consists of:

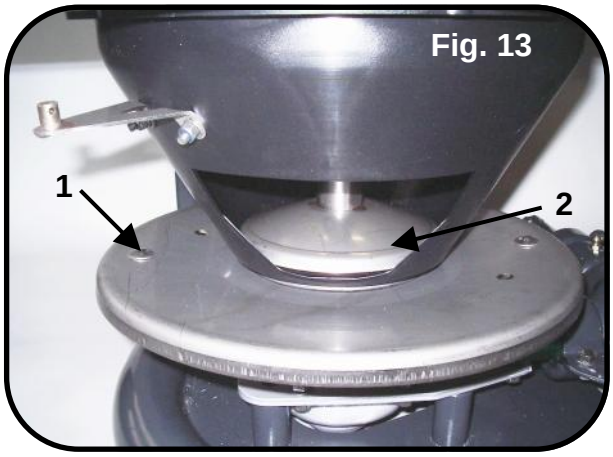
- Selecting the opening indicated in the spreading charts that responds to the end user's fertilization needs.

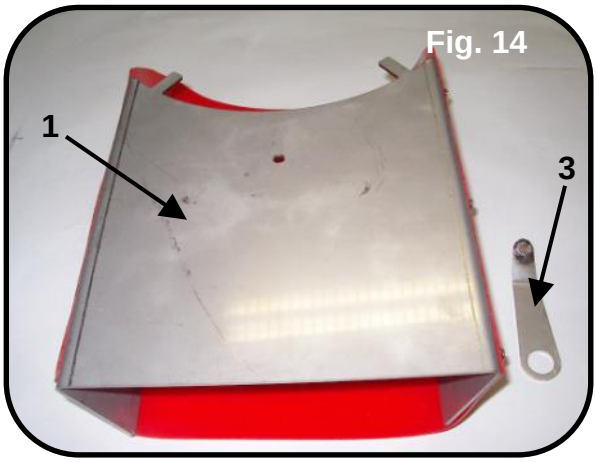
After checking that no people, animal or other are in proximity of the spreader, activate the PTO shaft and open the shutters at the preset opening.

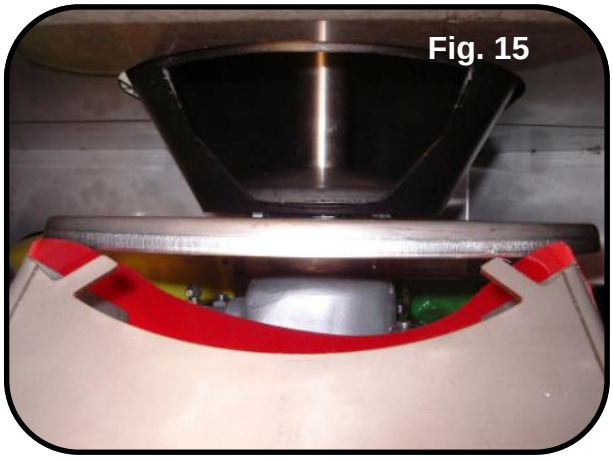
- Weighing the quantity (in kg.) of fertilizer that comes out of the feeder per minute (**A**)**.**
- Choosing the tractor speed (**V**) that will be used during work.
- Choosing the working width that will be set during work **(L)**.
- Applying the below-mentioned formula

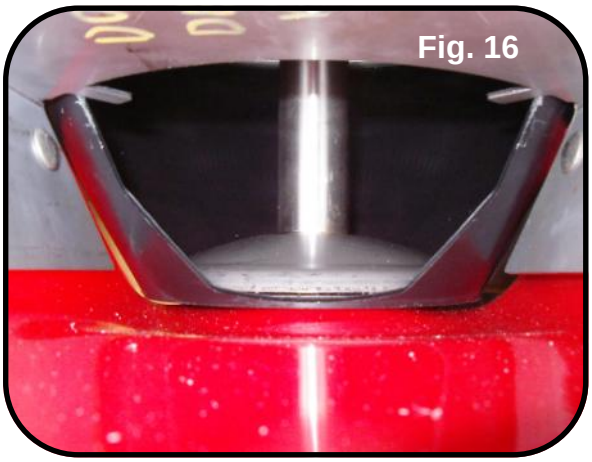
$$Q = \frac{600 \text{ x } A}{L \text{ x } V} x2 \text{ D}$$

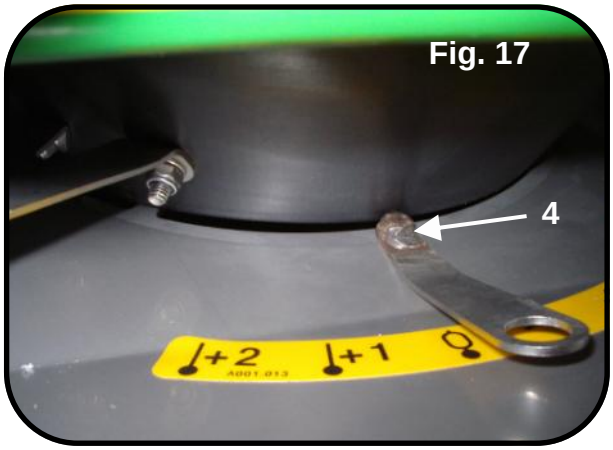
where **D** represents one spreading disc and in order to obtain the **Q** datum, which represents the dose of fertilizer in Kg/ha.











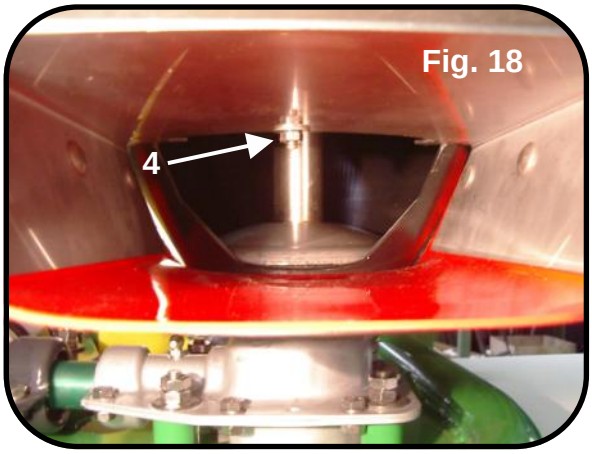



Fig. 19

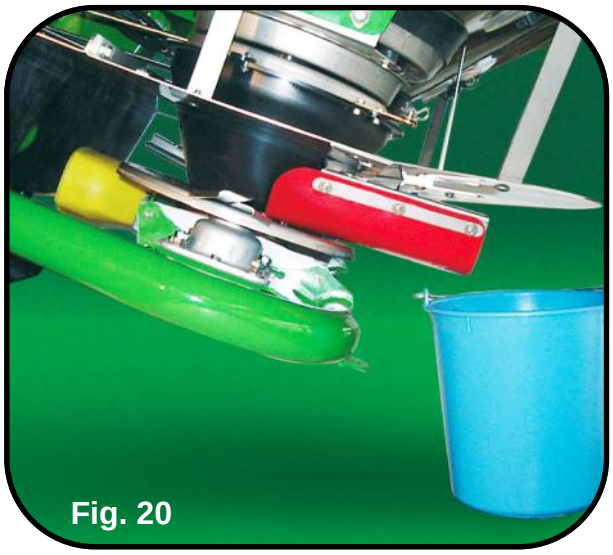


Fig. 20

3.7 Spreading Operation

Take notice: Pay close attention to the fertilizer producer's instructions. Improper use of fertilizers can cause serious damage to people, animals, crops, soil and can cause water pollution.
After choosing the spreading width, working speed, type of fertilizer and quantity to spread, the operator can set the desired opening given in the spreading charts.

After choosing the spreading width (passage), tractor speed, type of fertilizer, quantity to spread, it is possible to set the required opening. This latter determined by:

- Either the Spreading Charts directly
- Or the Delivered Quantity Test

Pressurize the hydraulic system again in order to enable the adjustment of the spreader.

Unscrew the fastening knob (particular 1), move the pointer (particular 2) up to the desired opening position, and finally screw the fastening knob again (particolar 1). See figure 21.

At this point by de-pressuring the hydraulic system, the machine's control opens the gates according to the pre-set opening.
To close the gates, it is sufficient to put the system under pressure again.

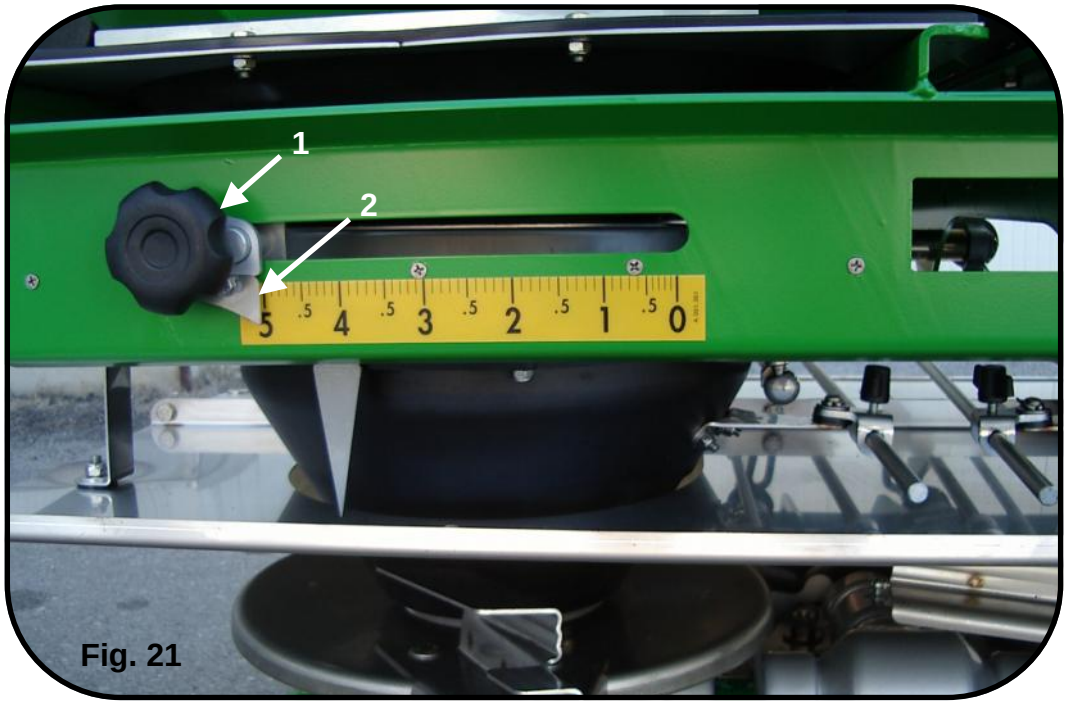


Fig. 21

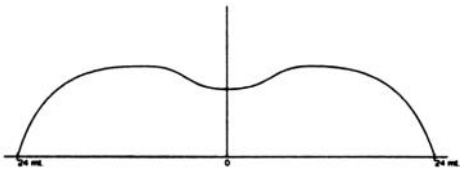
3.7.1. Feed Chamber Adjustment

For all centrifugal fertilizer spreaders it is of great importance to know the exact physical characteristics of the fertilizer to use.
The fertilizer making process gives the product a special specific weight and granulometry that determine the fertilizer performance during distribution.
In order to get a very good spreading uniformity, it is of great importance to preserve the fertilizer as it is when purchased.
Humidity and temperature usually interfere with the speed of the fertilizer granules inside the cylinder and along the vanes on the disc.
The vanes will determine the product direction and exit-speed.
Flowing out of the feed cylinder, the fertilizer is collected by the vanes and, for the centrifugal force generated by their rotation, spread towards the open field. This occurs after a certain time that corresponds to a special rotation angle.

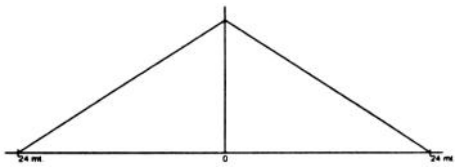
David/Compact has a special automatic positioning system that optimises the fertilizer arrival onto the spreading disc according to the increase of the quantity.
It is also possible to intervene manually on the advance or late arrival of the fertilizer onto the disc. This operation enables the operator to adjust spreading if the distribution is too concentrated at the centre or, on the contrary, at the sides: a variation due to the different physical features of the fertilizer in use and/or special weather conditions.

For example, if a fertilizer is distributed more to the centre and less to the sides, it is necessary to delay its arrival onto the disc (Fig 23), by loosening the knob (Fig. 1) and moving the feed chambers towards +1/+2. On the other hand, if a fertilizer is distributed more to the sides and less to the centre, it is necessary to advance its arrival onto the disc by adjusting towards -1/-2. These adjustments always enable the spreading optimisation of the treated surface.

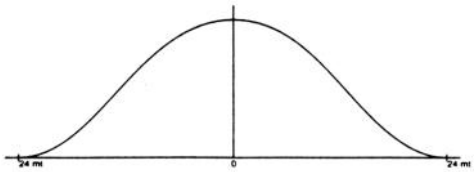
Example of field distribution of a slow sliding fertilizer with more concentration at sides than at the centre.



Example of optimal distribution of the previous product by adjusting delivery onto spreading disc towards **-1 / -2.**



Example of field distribution of a fast sliding fertilizer with more concentration at the centre than at sides.



Example of optimal distribution of the previous product by adjusting delivery onto spreading disc towards **+1 / +2**.

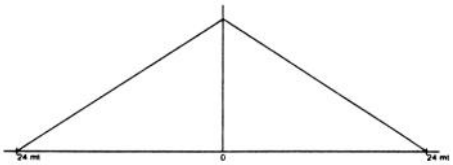


Fig. 22

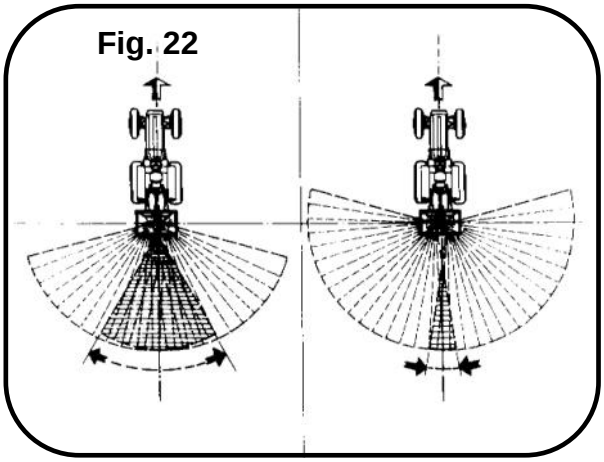
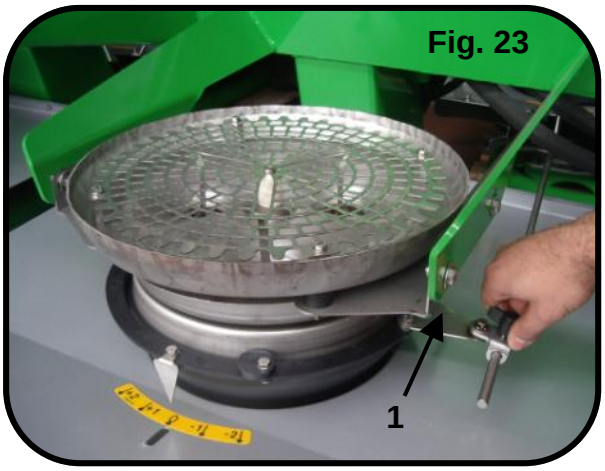


Fig. 23

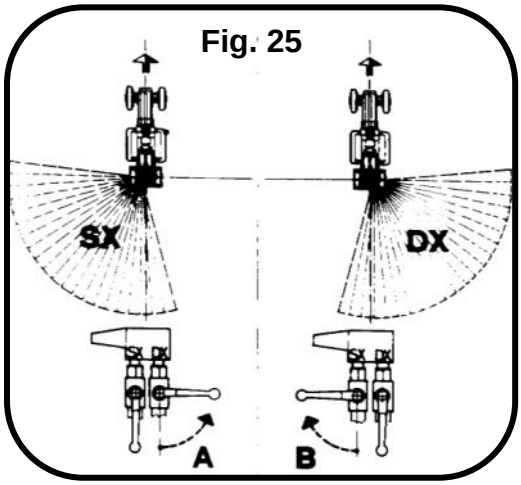


3.7.2 Border Spreading

Border spreading can be carried out by closing the left or the right opening according to the interested side, and by moving the distribution chamber located on the opposite side of the border to treat towards the position **+2** (see Fig. 23, 24 and 25).

Fig. 24

Fig. 25



3.7.3 Spreading on Residual Land

The dimension of a field to fertilize is not always multiple of the chosen working width. The residual part of land can have a smaller width than that chosen before.

How to Proceed:

Verify the residual width of the field; refer to the spreading chart again for the fertilizer in use; look for the new spreading width, the batching Kg/ha and the forwarding speed.
At this point find the new opening, set it up into your machine and proceed to spreading.
With this system, it is possible to obtain the best fertilization of the part to treat.

3.7.4 Switching Vanes to Modify Spreading Width

It is possible to switch the standard vanes of your spreader with OPTIONAL ones that permit the modification of the spreading width.

David/Compact with standard spreading up to 15 metres.
N. 4 standard vanes (2 per each disc) — length = 180mm.
By purchasing the kit of vanes (code: K001.146 — optional attachment), which consists of n. 4 vanes — Length = 230 mm., it is possible to increase spreading up to 18m., by removing the 4 standard vanes and applying the optional ones with length = 230 mm.

3.8 During Work

Always work at a constant speed. Sudden changes of speed will cause uneven distribution.

CAUTION

Keep the working speed compatible with the type of soil and cultivation in order to avoid breakages and damage.
Take notice: After filling the machine twice or three times, check all bolts and nuts; tighten them again if necessary.

3.8.1 Important Advice for Optimum Spreading

- Avoid, whenever possible, to work with rain, wind or high humidity.
- Use dry granular fertilizers, without lumps.
- Position the machine in a perfect horizontal position.
- Verify the good condition of discs and vanes.
- Verify and respect the pre selected advancing speed.
- Check the rotation speed of the power take-off as indicated.
- Accurately wash and lubricate the machine after each use.
- Constantly verify the good condition of all the machine's components.

Take notice: Even if the machine is being used correctly, still some anomalies may arise. These are not due to a malfunctioning or a defect of the machine itself but to external factors, such as the bad weather conditions that may alter the physical features of the fertilizer and make distribution impossible; or the wrong storage of the product that may result too humid, sticky and scarcely smooth. It is necessary to read and follow the instructions of the fertilizer manufacturer with regards to use and storage.
Also the wear and tear of the machine and/or of some of its distribution parts may affect performance in a negative way, just like the wrong or unadvised rpm of the PTO or the wrong interpretation and use of the spreading tables.
O.M.B. has no obligation to compensate unsuccessful or insufficient harvest due to defects of spreading.

4. MAINTENANCE

Here follows a list of various maintenance operations to be carried out periodically. A reduction of the operating costs and a longer lasting machine depend, among others, on the methodical and constant observation of these rules.

CAUTION

- The maintenance periods listed in this manual are only indicative. They are meant for a standard use, therefore should be varied depending on the kind of service, the more or less dusty surroundings, seasonal factors, etc. In case of the machine's heavy use, maintenance shall be increased.
- Before injecting grease, the nipples must be cleaned to avoid grease mixing with mud, dust and/or foreign objects that will otherwise reduce or even annul the effect of lubrication.

- Before each use and/or maintenance operation disconnect the power take-off, turn off the tractor engine and the hydraulic control, if installed. Then wait until all moving gears have come to a complete stop.

ATTENTION

- Always keep oils and grease out of the reach of children.
- Always and carefully read warnings and precautions indicated on the oil and grease containers.
- Avoid skin-contact.
- After use the operator shall wash his/her hands thoroughly.
- Used oils and polluting liquids shall be treated in conformity with the laws in force.

4.1 When the Machine is New

After the first eight hours of work check that all the bolts are still tightened.

4.2 Lubrication

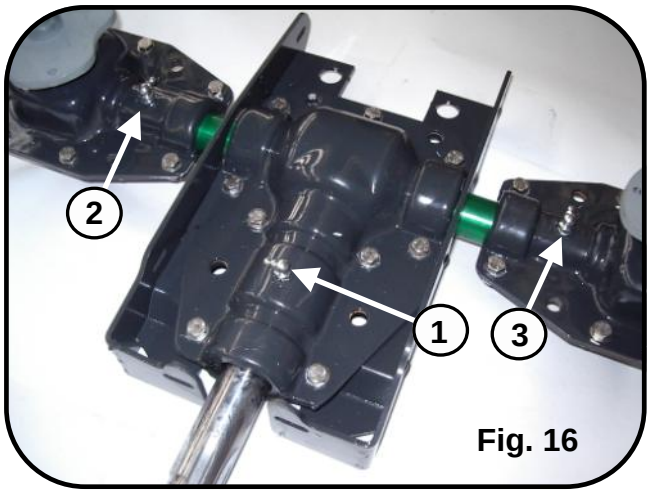


Fig. 16

The transmission gearbox of the new machine is accurately lubricated.
O.M.B. recommends further greasing of the transmission unit after 100 working hours. Add approximately 100 grams and inject them in the indicated 3 points (Fig.16).
Suggested grease:
MOBILUX EP 0 or ESSO BEACON EP 0 or TOTAL MULTIS EP 0

4.3 Cleaning the Machine after Work

To maintain the machine in good condition, after each use we suggest a complete wash with a strong jet of water to remove the fertilizer residues.

4.4 Parking the Machine

The machine shall be parked on solid and even ground exclusively with empty hopper.

5. DEMOLITION AND DISPOSAL

This operation is to be carried out by the customer.
Operate in compliance with the environment protection laws in force in the country involved.

The machine demolition operations shall be carried out by skilled personnel only, equipped with suitable protective clothing (safety footwear and gloves) and auxiliary tools and equipment. All the disassembly operations for demolition shall be carried out with the machine stopped and detached from the tractor.

ATTENTION

Before demolishing the machine, the operator shall render harmless all the parts that may be a source of danger and therefore:

- dump the structure using specialized firms,
- remove any electrical apparatus (if present) according to the laws in force,
- collect oils and greases separately. These shall be disposed of through specialized firms, in accordance with the regulations of the country in which the machine was used.

When demolishing the machine, the CE mark shall be destroyed together with this manual.

Take Notice: Do not abandon the machine on the field.

6. SETTING THE FEED CHAMBERS

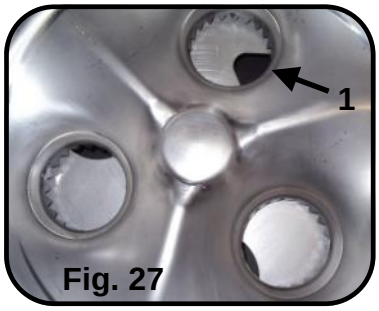


Fig. 27

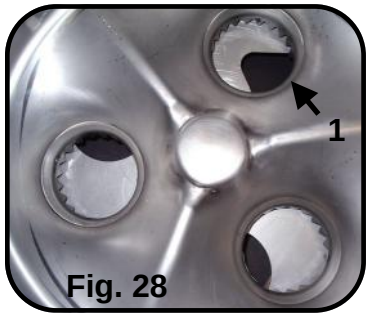


Fig. 28

If in any position, the left and right feeder openings do not match, see Fig. 27 and 28, it is necessary to proceed to their setting in order to obtain an optimum spreading. How to operate:
1) Turn the knob (particular 3, Fig. 32) up to obtaining the opening that equals the position 1.8 (Fig. 32).
2) With the spreader connected to the tractor, discharge the hydraulic system; the gas shock absorbers open the shutters up to the pre-set position. Take the gauge (Fig. 29) supplied with the machine and insert it into the opening of the feed chamber that starts working first (it is the one located outwards) (particular 1 Fig. 27-28-30-31).

For the correct adjustment of this machine at the pre-set opening (1,8), the gauge must enter smoothly and without too much clearance.

3) Lacking this condition (if for example the gauge cannot enter the opening), it will be necessary to:
Pressurizing the spreader hydraulic system in order to close the shutters, moving the knob and the pointer (see for example Fig. 33 up to position 2), and repeating what described at point 2 till the opening can contain the gauge with perfection.

If this condition has been obtained, it is necessary to unscrew the screws (particular 1, Fig. 33), move the pointer (particular 2) up to the position 1.8 (Fig. 34) , and finally screw again (particular 1 Fig. 33).
If on the contrary this condition has not been obtained, follow the instructions given above at point 3 again.

DANGER

IMPORTANT NOTE

Pressurize and depressurize the tractor's hydraulic system only after removing the gauges from the chambers.


Fig. 29


Fig. 30


Fig. 31

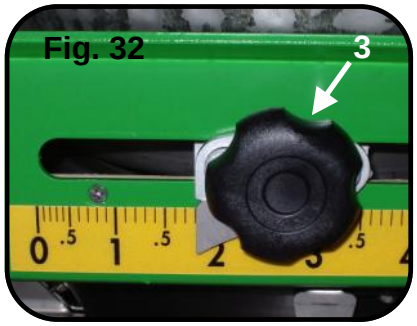


Fig. 32

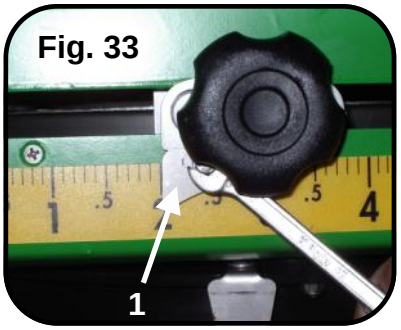


Fig. 33

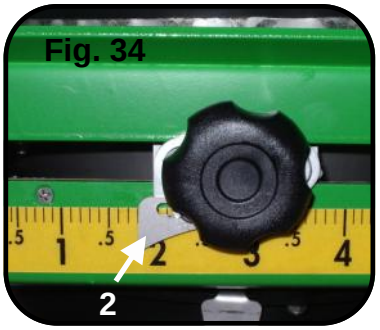


Fig. 34

7. ASSEMBLING THE SIDE PROTECTIONS

DANGER

It is possible that for the transport from the factory to the dealer or to the end-user, the side protections in compliance with the law (see particular 1 and 2 fig. 35) may not be applied to the spreaders but may be supplied apart (disassembled).

Fig. 35

In this case, before using the spreader, it is extremely important to assemble the protections in the position indicated on the spare parts catalog (supplied alongside with the spreader).

8. SPECIAL GRIDS FOR POWDERED FERTILIZERS OR PELLETIZED ORGANIC AMENDERS

In the case of distribution of pelletized organic amenders or powdered fertilizers, problems of feed continuity may occur.
The above mentioned products may have variable physical shape and humidity; as a consequence with these types of fertilizers the standard stainless steel grids applied above the vibro-system may interfere with the normal flow of the product from the hopper to the spreading discs.
In order to avoid this possible anomaly and to improve the product flow continuity, it is advisable to operate as follows:
Unscrew the four M6x10 screws (particular 1 Fig. 36) (four screws per each grid), and remove the standard filtering grids positioned above the vibro-system.
Attention: after removing the grids, insert the four M6x10 screws in their location again (four screws per each grid), in order to prevent the powder from obstructing the holes.
If the above-described operation is not sufficient to enable a continuous flow, it is advisable to apply a couple of special grids (accessory on request) with larger holes more suitable for these kinds of products (Fig. 37).

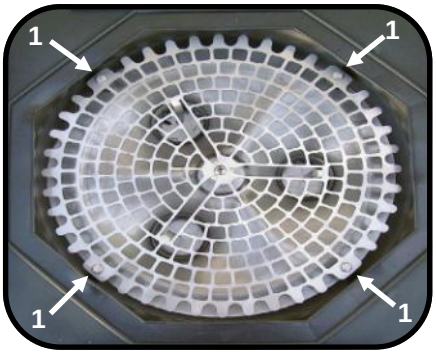
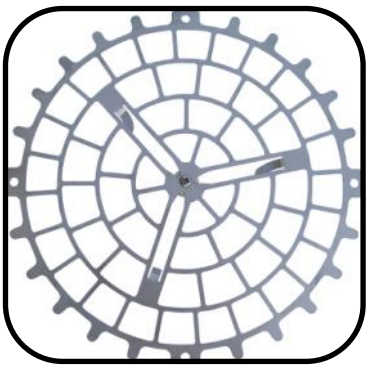


Fig. 36

Fig. 37



9. HOW TO USE THE DAVID FRUIT AND THE COMPACT FRUIT

The FRUIT version enables two-sided spreading on rows with distance from 2 to 5 m.
Distribution varies depending on the type of fertilizer; however the spreader can be adjusted for rows at different distances.
Specifically the taller the spreader from ground the farther the distribution; vice-versa the shorter the height from ground the closer the spreading.

ATTENTION

In modifying the spreader height from ground never exceed the 25° degree working angle of the drive shaft as described on page 15 of this booklet.

Furthermore the adjustment of the maximum throw and the minimum width of the fertilizer band distributed on the ground near the plant row can be modified with the inclination of the side flaps (particular 1 Fig. 29) at the conveyor's exit.

N.B. To modify the inclination of these flaps, unscrew the knob (particular 1 Fig. 30), manually choose the correct inclination and screw the knob again (part. 1)
Before starting work, we highly recommend your carrying out a practical test with the fertilizer to use and along the first row to treat, to determine the best working solutions.

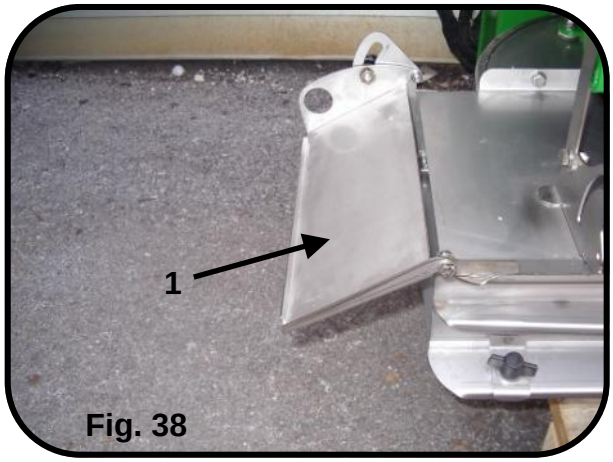


Fig. 38

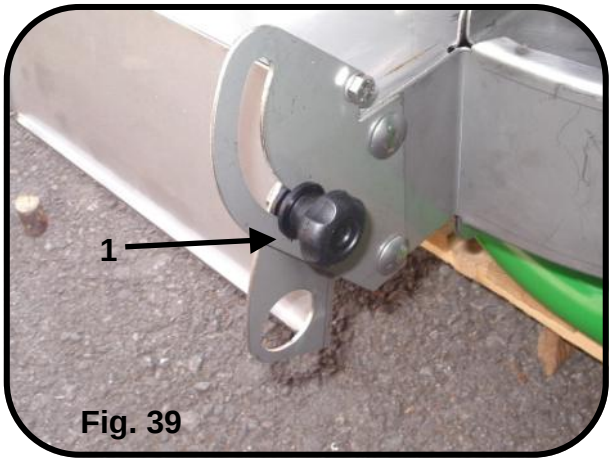


Fig. 39

THE **FRUIT** MODEL CAN ALSO DISTRIBUTE FERTILIZERS OVER THE ENTIRE FIELD SURFACE, ALSO CALLED OPEN PIELD DISTRIBUTION.

How to Proceed:
Completely unscrew the two knobs (part. 1 Fig. 40), put out the central casing (part. 1 Fig. 41), and completely lift the two side flaps (part. 1 e 2 Fig. 42).
N.B. In this position you can make the entire field fertilization with a maximum working width of 12 metres.
For all the other spreading procedures, please carefully read the previous chapters.

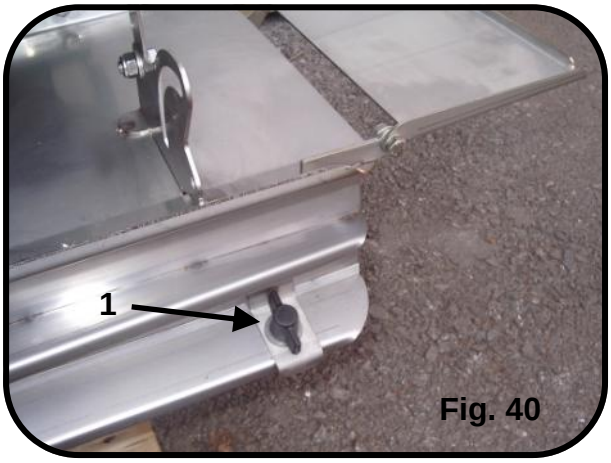


Fig. 40

Fig. 41

Fig. 42

10. HOW TO USE THE L/R INDEPENDENT SHUTTERS (On Request)

In case your spreader **DAVID FRUIT** or **COMPACT FRUIT** is equipped with left and right independent shutters (Fig. 43 and Fig. 44), you will be able to carry out:

- The precise spreading along borders
  or
- The distribution inside greenhouses.

10.1 Along Borders

Besides following the instructions described on page 8, in order to improve the distribution along borders, it is necessary to lower the right rear shutter of 45° (see picture 43) to make the right edge.
For the left side, it is necessary to lower the left side flap and the left rear shutter of 45° (see picture 44).


Fig. 43


Fig. 44

10.2 Inside Greenhouses

In case of distribution inside greenhouses all flaps and shutters shall be lowered (see figure 45)

N.B. In this case their inclination shall depend on the width of the green house.
As previously described, the taller the spreader from ground the farther the distribution; vice-versa the shorter the height from ground the closer the spreading.
However we recommend never exceeding an inclination of flaps and shutters of 45° degrees.

Fig. 45

NOTES

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