

PENDULAR SPREADER
PDC 400 - PDV 500 - PDV 600
PDHV 800 - PDHV 1000 - PDHV 1250

OWNER'S MANUAL

 Read the Operator's manual entirely before using the machine 



ABONADORA PENDULAR
PDC 400 - PDV 500 - PDV 600
PDHV 800 - PDHV 1000 - PDHV 1250

MANUAL DE USO Y MANTENIMIENTO

 Leer atentamente este Manual antes del empleo de la máquina 

CLAIM OF CONFORMITY

CLAIMS UNDER ITS OWN LIABILITY THAT THE MACHINE

TYPE	PENDULAR SPREADER
MODEL	PDV - PDHV
SERIAL NUMBER	
YEAR OF MANUFACTURING	

is in conformity with the European Directive:

98/37/CE
(abrogating and including the Directives 89/392/CEE, 91/368/CEE, 93/44/CEE and 93/68/CEE)

For the adjustment of the machine, the following Harmonized Regulations have been adopted:

UNI EN 1553
UNI EN ISO 4254-1
ISO 4254-8
UNI EN 14017

as well as the technical specification:

ISO 11684

Place and Date of issue (Day/Month/Year)

The owner

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1. INTRODUCTION

The pendular spreaders are machines used for the distribution of solid, granular fertilizers and seeds in the field. They can be used whether with tractors of small/medium power.

It is recommended to carefully read this operator's manual of use and maintenance and follow the recommendations to help ensure safe and efficient operation with and on the machine.

This manual has been written, in order to give the customer all the information and safety rules on the machine, as well as use and maintenance instructions that let to make good use of the potentialities of the machine.

The manual must always be handy, so as to consult it, in order to check the operational cycle. If it gets lost or damaged, it will be necessary to ask for a substitutive copy.

In case of some difficulties of interpretation on texts or tables, or if the drawings/sketches are not clear enough, please get immediately in touch with the manufacturer or dealer of the machine for having all the clarifications through the experts in the working/maintenance or through the person who wrote the manual.

We are completely available for a real collaboration, in order to improve the understanding of the whole manual.

2. GENERAL INFORMATION

2.1. USING THIS MANUAL

This manual gives all the information for the use and maintenance of the machine. The good working and its life depends on the good maintenance and to the attention during the use.

Some pictures in this manual show details or accessories that could be different from those of your machine, some components could be removed, in order to assure the clearness of the pictures.

Some signal words are put on the machine and the operator shall see to keep them in a perfect visual condition, replacing them when they are not readable anymore.



SAFETY SIGNALS

This symbol is used in this manual to draw your attention on the safety and good work of the machine. Therefore, it is necessary to observe all the written rules in order to prevent any accident or damages.

We recommended to use the original spare parts and accessories.

The not original parts, besides to decline the guarantee, could be dangerous reducing the length and the performances of the machine.

2.2. INFORMATION ON THE MACHINE

The models introduced in this manual have been designed and made exclusively allowing the distribution of solid, granular fertilizers and of seeds in the field. The machine is not indicated for being used in different sectors from the agricultural one.

These machines are usually used during the day. If it is required the nocturnal use or with poor visibility, it must use the lighting system of the tractor or of the equipment to which the machine is connected.

A different use, like the above mentioned one is considered improper.

Any arbitrary modification made to this machine relieve the manufacturer from any responsibility for damages or lesions, also serious, that can be caused to the operators, to third parties or to things.

2.2.1. NAME PLATE

On the hopper of every machine, a name plate is fixed showing the model, the number of series and the year of construction of the machine.

When some spare parts are required, it is always necessary to refer to the type of machine, to the serial number and to the manufacturing year.



Location of the name plate on the machine

2.2.2. CHARACTERISTICS OF THE MACHINE

The great spreading precision of these kind of fertilizer spreaders lets them to be used in different applications, both for specific cultivations and in golf courses.

The series of pendular spreaders can rely on a huge range of models adaptable with tractors of any power.

The upper parts of the gear box are made in stainless steel in order to increase its long life to the corrosion.

The gear box allows a spreading width adjustment from 9 meters (20 ft) to 15 meters that can be modified according to the needs and the kind of fertilizer used.

It is possible to settle the gear box on two different orders of spreading widths: from 9 to 12 meters or from 12 to 15 meters, by using a special key. (see paragraph 5.1.1.)

Beside the standard pendulum, several pendulum items are available for different applications, such as for the salt spreading in which the spreading width is limited from a minimum of 2 meters to a maximum of 4 meters, or for its use on the vineyards, the orchards or in the parks.



Pendulum



Spreading width adjustment key

The hopper in fiberglass reinforced plastic cannot rust nor be damaged.

The painting of the frame, as for all products, is made by a water base varnish with successive backing at 150° with the application of the primer bath, assuring a great protection and long life of the machine.

The feeding of the disc is by gravity through the exits, located on the bottom of the hopper, that can be opened or closed by a mechanical or hydraulic system (optional). The dosage of the fertilizer is made by operating on the opening section by a dosing rod that slides on a threaded pin with a graduate scale.



Standard agitator



Agitator crown

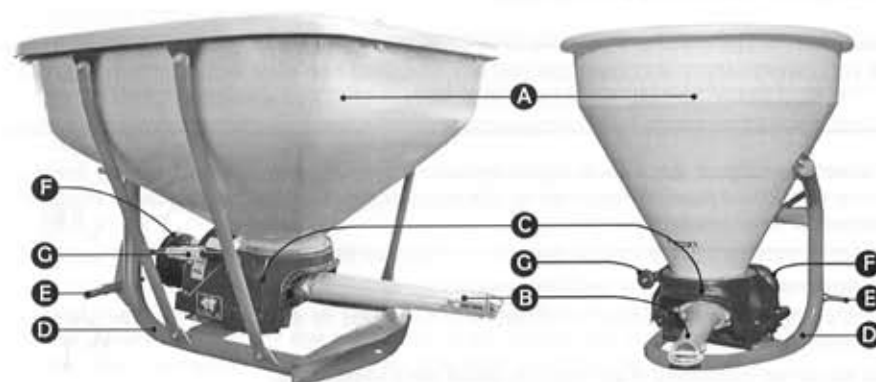


Opening lever

For the more powdered fertilizers it is possible to settle an agitator/mixer on the bottom of the hopper to avoid the formation of lumps in the fertilizer.

For the PDV 500 and 600 models the 3-point hitch is only of category I, whereas for the other models (PDHV 800, 1000, 1250) the hitch is of category I and II.

2.2.3. TERMINOLOGY



SPREADER PDV 500

SPREADER PDC 400

- | | | | |
|----|----------|----|----------------------------|
| A. | Hopper | E. | Lower link pin |
| B. | Pendulum | F. | Protection cover Pto shaft |
| C. | Gear box | G. | Dosing rod |
| D. | Frame | | |

2.2.4. TECHNICAL DATA

TECHNICAL CHARACTERISTICS						
	PDC 400	PDV 500	PDV 600	PDHV 800	PDHV 1000	PDHV 1250
Hopper capacity (litres / gallons) (Kg/lbs)	386/102 420/925	480/127 523/1153	580/153 632/1393	850/224 926/2042	1050/277 1144/2522	1250/330 1360/2998
Weight of the machine (kg/lbs)	100/221	130/287	142/313	170/375	180/397	195/430
Loading height (cm/inches)	117/46	90/35.5	100/39	97/38	107/42	120/47
Working height (cm/inches)	75/29.5	75/29.5	75/29.5	75/29.5	75/29.5	75/29.5
Spreading width min-max (mt/ft)	8-15/ 27-50	8-15/ 27-50	8-15/ 27-50	8-15/ 27-50	8-15/ 27-50	8-15/ 27-50
Transmission	1:1	1:1	1:1	1:1	1:1	1:1
Power required at 540 rpm/min (HP/kW)	6/4.4	6/4.4	6/4.4	6/4.4	6/4.4	6/4.4
Hydraulic opening system	optional	optional	optional	optional	optional	optional

3. IMPORTANT SAFETY INFORMATION

THE FOLLOWING SAFETY RECCOMENDATIONS ARE TO SAFEGUARD YOUR INCOLUMITY: THEREFORE IT IS NECESSARY TO READ THEM CAREFULLY, MEMORIZING AND ALWAYS APPLYING THEM.

The present warnings in this manual regard exclusively the allowed uses and reasonably foreseeable. All below instructions must be integrated by the common sense and by the experience of who works, indispensable measures to prevent accidents.

The machine must be used by a single operator. It is forbidden the use of the machine to under-ages.

All the listed instructions must be carefully respected.

Possible changes on the machine, not preventively authorized by the manufacturer (by written copy), exclude his responsibility.

Check the correct functioning of the machine, before every employment.

General advices

- Read carefully this manual before proceeding to start, operate, employ or maintenance on the machine.
- Watch, in addition to the warnings of this manual, all the safety, accident prevention rules and of general nature.
- The manual must always be handy, so as to consult it, in order to check working cycle and safety information. In case of loss or damage, it will be necessary to ask for a substitutive copy.



ATTENTION!

Any work of maintenance, regulation and cleaning must be done with the machine on the ground (in stable conditions), turning off the tractor engine and removing the key.

- Read carefully the safety signal words applied on the machine and follow the instructions. In case of wear and tear or insufficient readability of the safety signal words, clean them up or replace them, placing the signal words in the right position, as shown in paragraph 3.1..



ATTENTION! - WARNING!

The operator, during the period of use, maintenance, repair, handling or storing of the machine, must wear accident-prevention shoes and safety gloves. Moreover, if it is necessary he must wear suitable hearing protections such as earmuffs or earplugs, dust masks and protective glasses.

- During loading phase, there is the danger of powders inhalation produced by fertilizer mixing. It is suggested to use tractors with filters on the ventilation system of the cabin, to use suitable safety systems of breathing, like powder masks or masks with filter.

- The machine is designed for being used by a single operator who, during the use, must always stay in the stationing control on the tractor.
- Never work with this machine if you are tired, sick or after having took drinks, drugs or medicines.



DANGER!

It is forbidden to climb or to transport somebody when the machine is in motion. Do not get in the hopper for any reason.

- Keep the machine cleaned up from foreign bodies (debris, tools, miscellaneous), as they could damage the operations or the operator. **Generally the fertilizers are rather corrosive. For this reason, it is important that any particle of the fertilizer stay in the machine for a long period of time. Clean the hopper and the distributor after each use of the machine.**
- If during cleaning operations it is used air or water with pressure, it is necessary to wear glasses and safety masks keeping away possible persons or animals from the machine.
- Before connecting the machine to the tractor or to other self-moving means check that this is in good conditions and that brakes work correctly, especially if you work on sloping grounds.
- Switch off the machine from tractor only on a compact and level ground (with empty hopper), checking that the machine is stable.



WARNING!

During transport operations, stocking and employment of the fertilizers, the operators must follow all the label indications and particularly to the content of the written risks and the precaution suggestions.



ATTENTION!

The Manufacturer does not answer to possible damages caused by an improper and unforeseen use of the machine.

The Manufacturer is not responsible in case of:

- improper use of the machine, use by not trained staff;
- serious deficiencies in the foreseen maintenance;
- changes or not allowed interventions;
- use of not original or specific spare parts;
- total or partial inobservance of the instructions;
- inobservance of the common safety rules during work;
- unusual cases.

Connection of the machine to the tractor

- The third hitch point of the tractor and the fertilizer spreader must coincide or must be adapted.
- Make sure that the pto shaft is engaged in right way after every linkage operation of the machine and that it does not come uncoupled when the machine is lowered in order to fill the hopped up.



ATTENTION! WARNING!

Check that the protections of the pto shaft are complete and in good conditions.

- In case of breaking or deterioration of the pto shaft protections, please replace them immediately.
- When the machine is not linked to the power unit, the pto shaft must be placed on the appropriate support.
- The presence of the machine can influence the manoeuvrability of the tractor, in particular during transport.



ATTENTION!

Do not come, for any reason, between the tractor and the fertilizer spreader when the engine is running and the power take-off is on.

Operation of the machine

- Make a check of the machine before switching it on. Start to work only if the machine is in perfect conditions.
- Before using the machine, please be sure that all the safety devices are correctly placed and in good state; in case of breakdowns or damages to the protections, please replace them immediately.



ATTENTION!

During work, please be sure that for a radius of 30 meters there are not any person or animals. When you work in proximity of roads or public places, it is **ABSOLUTELY OBLIGATORY** to keep away persons and to increase the precautions.



ATTENTION!

Anybody who comes up to the machine is in a danger area, therefore he becomes "AN EXPOSED PERSON". The operator must prevent anybody to come into the danger area and to work with the maximum caution. If somebody comes up, please stop immediately the tractor engine.

- Before every use of the spreader, please check the condition of the pendulum. Check that all the fixing components (screws, bolts etc.) are in and fixed.
- The machine must never be unattended when it is moving.
- Keep always the machine in good operating conditions and make regularly the maintenance.

Transfer on the road



ATTENTION!

Please follow scrupulously the Highway code in force in the country of use. During moves on public roads, it is obligatory to empty the hopper.

- Remember that during moving on public roads, special attention must be done, besides to possible and special regulations noted on the registration book of the tractor, choosing an appropriate speed especially when the street is crowded, winding or sloping.
- If the spreader hides with its shape the back signalling lights of the tractor, it is necessary to put a lights bar and/or some back signalling signs.
- During the moving on the road, please clean tyres or the working mechanism, in order to avoid to dirty the road-bed with earth or other material.



ATTENTION!

During the moving on the road, the warning flasher, yellow or orange, assembled on the tractor must always be in function also during the day.



ATTENTION!

During transport with raised machine, please always check that the control lever of the rear lifter is locked, in order to avoid the accidental lowering of the machine.

3.1. SAFETY DECALS



ATTENTION!

Be sure that the safety labels are readable. Clean them up using a cloth, water and soap. Replace the damaged labels placing them in the right position, as subsequently described.

The safety signs on the machine supply the most important indications: their observance helps your safeness.



1. ATTENTION! Before making any operation on the machine, stop the engine of the tractor or of the self-moving means, remove the key, put on the parking brake and read carefully the operator's manual.



3. ATTENTION! Check the sense of rotation and the number of revolutions (540 rpm) of the tractor power before placing the PTO shaft.



5. ATTENTION! - DANGER! Possible throwing of material and/or objects, please do not stop or come up to the machine. Keep a safety distance of 30 meters, at least, from the machine.



2. ATTENTION! - DANGER of entangling and dragging. Do not put hands near the running gear box.



4. ATTENTION! - DANGER of crushing. Do not stop between the machine and tractor when the tractor engine is running.

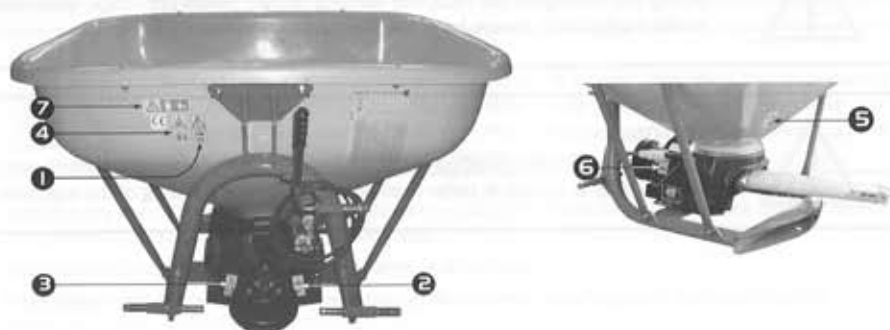


6. ATTENTION! - DANGER of shearing. Do not approach limbs to the pendulum when the machine is running.



7. ATTENTION! Use the individual Protection Devices, as required.

Where placing the safety signals on the machine



4. CONNECTIONS

The machine can be delivered all assembled or not (in this case follow the assembling instructions enclosed). In both cases, before using the spreader it is necessary to control that all the fixing elements (screws, nuts, washers) are well locked and make sure that all the safety devices are located at their right position.

Verify that the gear box is fixed to the machine frame by 4 screws: two longer (Hexagonal head 12x50) in the front part, at the Pto shaft connection side, and two shorter (hexagonal head 12x40) back, at the pendulum side.

Before coupling the machine to the 3-point hitch, positioning the safety devices to the tractor, so that it is not possible the involuntary and/or accidental raising and lowering of the arms.

The 3-point hitch of the tractor and of the machine must coincide or must be adapted.

In proximity of arms rods of the back lifter of the tractor, there is the danger of wounding, because of crushing and cutting points.

Do not use the external controls for the lifting of the machine. During transport position block the lateral stop of the rods.

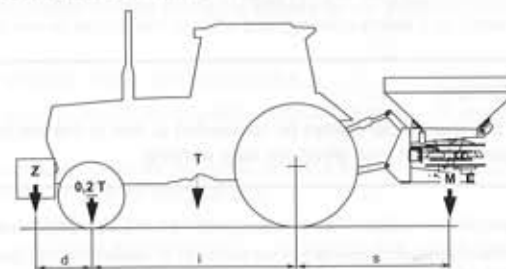
4.1. CHECK THE RAISING ABILITY OF THE TRACTOR



DANGER!

It is obligatory to check the raising ability and the stability of the tractor (before carrying out the connection with the machine) in order to avoid the overturning and/or the loss of wheels grip.

Check the raising ability and the stability of the tractor through the following formula and if it is necessary please apply some ballasts on the back.



$$M s \leq 0,2 T l + Z (d + l)$$

$$M \leq 0,3 T$$

l	=	Wheels base of the tractor
d	=	Distance of load ballast back axle
s	=	Bounce of the machine rear axle
T	=	Tractor load + 75 kg (operator)
Z	=	Load ballast
M	=	Machine load

4.2. CONNECTION TO THE 3-POINT HITCH OF THE TRACTOR



ATTENTION!

Every time that somebody comes down from the tractor, it is necessary to disconnect the pto shaft, stopping the engine and to put on the parking brake.

For the connection of the machine to the tractor, please operate in the following way:

- Step backwards with the tractor until arriving in proximity of the lower connections of the fertilizer spreader.
- Fix the lower connections of the tractor to the pins of the machine and lock them with the safety plugs.
- Connect the upper linkage of the machine to the 3-point hitch of the tractor putting the appropriate pin and block the anti-unscrewing device of the 3-point hitch.
- Raise the machine of some centimetres by the ground and operate on the lateral ties of the lifter bars and on the two turnbuckles, in order to block the lateral movement, so as to prevent excessive oscillations during the working phase.



The machine must be positioned, through the raising of the lower connections of the tractor, so that the land distance from the lower extremity of the pendulum is approximately of 75 cm.

To obtain a regular distribution, it is important that the pendulum is in horizontal position compared to the land.

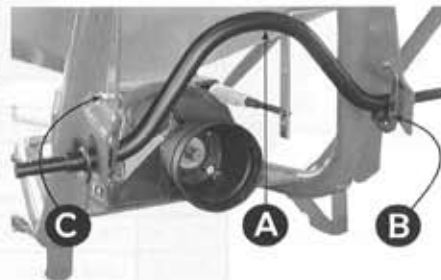
- After having made these operations, the pto shaft must be linked to the smooth shaft of the gearbox of the machine (covered by a safety cowling) and after to the tractor power take-off.



ATTENTION!

The pto shaft must always be connected at last to the tractor power take off and disconnected at first, when you stop working.

- On demand, the pendular spreaders can be equipped with a quick attachment (A).
- In order to simplify the connection operation we suggest to assemble the bar (A) on the lower arms of the tractor's lifter. Afterwards, in order to connect the machine, open the connection hooks (B) by unloosing the fixing nuts (C), bring the tractor nearer till to put the bar connected to the lifter in the connection hooks' slots, lock them tight and fix them by the bolts.
- The bar (A) must be kept raised (as shown in the picture) in order to avoid the Pto shaft could hit with it during the working.



4.3. DRIVELINE INSTALLATION

Before using the pto shaft, please consult the use and maintenance manual attached to the pto shaft.

In case that the pto shaft, supplied with the machine, is not used, please check that the cowlings of the machines and of tractors are overlapped to the pto shaft's shield of 5 cm., at least.

For a correct and safe operation of the machine, please use exclusively pto shafts with CE mark.

Please use pto shafts with integral shields.

- Grease periodically, the pto shaft following the instruction supplied by the pto shaft manufacturer (see the use and maintenance manual of the pto shaft).
- Observe the sense of assembly of the pto shaft, as indicated by the manufacturer and shown on the outer cover of the shield (tractor drawing on the external tube of the pto shaft towards the power take-off of the same tractor).
- Fasten the safety ant-rotation chains after making sure that the connection between the pto shaft and the gear box is well locked. Use for this connection an hexagonal head screw 8.8 10x70 UNI 5737 with the relative nut.



ATTENTION!

Check the rotation sense and the speed regulation of the power take-off of the tractor to be at 540 rpm, as the machine is projected for this kind of speed.

The length of the pto shaft must be adapted to the type of used tractor.

When the pto shaft is released from the power take-off of the tractor must ALWAYS be laid on the appropriate support.

Company is not responsible for the damages caused by an incorrect assembly and use of the pto shaft.

4.4. HYDRAULIC SYSTEM INSTALLATION (OPTIONAL)

In order to recognize the element used, please refer to the tables 08 and 09 of the chapter 8 (Parts breakdown).

1. Assemble the connection plate for hydraulic opening system (ref. 8) on the gear box by using the screw and the nut (C) already on the gear box.
2. Fixing the hydraulic cylinder (ref. 1) to the connection plate (ref. 8) by using the screw (ref. 4) hexagonal head 8x30 (mod. PDV500/600) or hexagonal head 8x25 (mod. PDV800/1000/1250), the self-locking nut M8 (ref. 6), the two washers 8x17 (ref. 7) and the bushing 13x8x7 (ref. 9).
3. The hydraulic cylinder stem must be connected to the lever plate in the hole B. Insert the screw hexagonal head 12x60 (ref. 3) in the hole B, screw up the nut M12 (ref. 10) insert the screw in one of the two cylinder holes and fix it by the self-locking nut M12 (ref. 5).

