



# **TEYME**

## **Trailed Sprayer with Cannon**

Notice of instructions

06.2020

ENG – 1.0 Version  
FOR USA and Canada

[www.teyme.es](http://www.teyme.es)

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# I. Basics

## I.1. Responsibility

They are of application the “General Conditions of Contract and of Delivery” of Teyme Tecnología Agrícola, S.L. According to these conditions, it is excluded any responsibility on behalf of Teyme Tecnología Agrícola for personal and material damages caused by one or several reasons:

- Unadequate use of the machine.
- Not having read the instructions of use as well as the safety indications included on these.
- Constructive modifications of the machine made on one’s own.
- Defficient control of the pieces submitted to wear.
- Repair works which have not been correctly done or not done in the expected delays.
- Use of other spare parts which are not original from the company Teyme tecnología agrícola.
- Accidents or damages caused by external reasons or overwhelming forces.

## I.2. Legal Warranty

They will be of application the “Conditions of contract and delivery” of the company Teyme Tecnología Agrícola, S.L..

The period of duration of the legal warranty includes a year since the machine has been received. We will solve the possible failures in the machine following the guidelines given by TEYME’s legal warranty.

## I.3. Optional Accessories

The machines of TEYME can be supplied with optional accessories. The notice of use will describe the standard components as well as the optional ones.

We remind that these will differ depending on each variable of supplied machine.

## I.4. Conformity Declaration

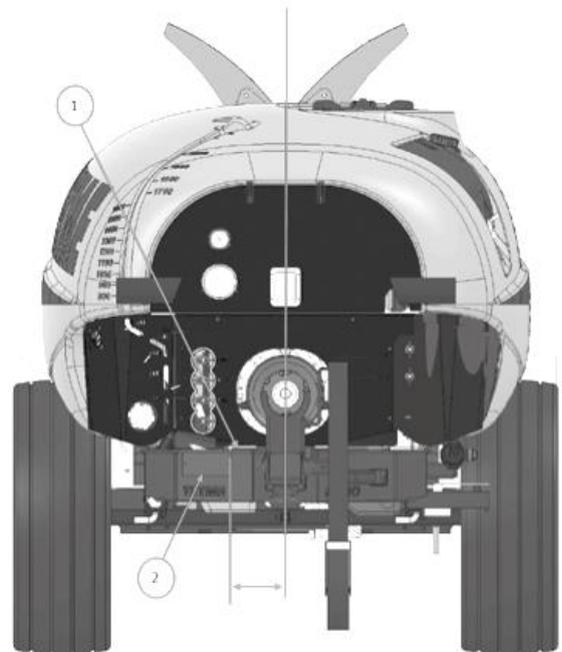
Fill in with the serial number and manufacture year for any enquiry.

See attached form >>

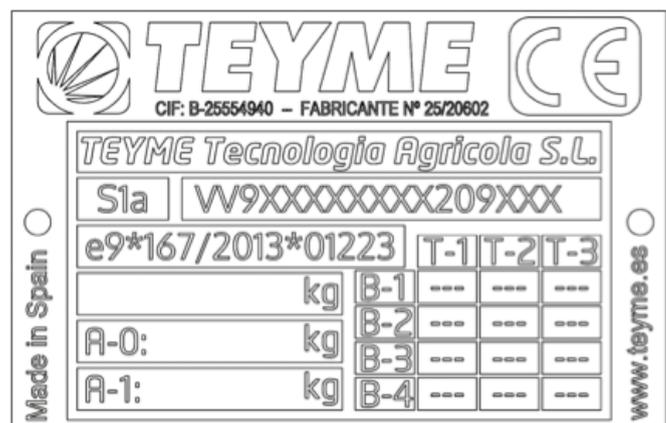
## I.5. Identification Plate

The identification plate, located in the right from part of the machine and riveted to the frame structure, indicates the mark, the classification of the vehicle, the Vehicle Identification number (VIN), the number of homologation (for EU only), the outstanding Highest Allowed Mass in bar and in axle.

The Vehicle Identification Number is always found die-cast over the frame of the machine on the upper front part which there is next to the identification plate.



1	Position of the Chassis Number
2	Position of the Identification Plate



# I. Basics



## Declaración "CE" de conformidad "EC" declaration of conformity for machinery Declaration "CE" de conformité Dichiarazione "CE" di conformità

NOMBRE / BUSINESS NAME / NOM / NOME **TEYME TECNOLOGÍA AGRÍCOLA, S.L.**

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C.I.F. **B-25554940**

FABRICANTE Nº / MANUFACTURER Nº / FABRICANT Nº / FABRICANTE Nº **25/20602**

INSCRITO EN / REGISTERED IN / INSCRIT SUR / ISCRITO IN **REGISTRE INDUSTRIAL  
CONSELLERIA D'INDÚSTRIA DE LA  
GENERALITAT DE CATALUNYA**

Declaramos que el producto / Herewith declares that / Nous déclarons que le produit / Dichiaro che la macchina **TEYME**  
MARCA / MAKE / MARQUE / MARCA

TIPO / TYPE / TYPE / TIPO

Nº SERIE / SERIAL NUMBER / Nº SÉRIE / MATRICOLA N.

AÑO FABRICACIÓN / YEAR OF CONSTRUCTION / ANNÉE FABRICATION / ANNO FABBRICAZIONE

Corresponde a las exigencias básicas de la directiva de la CE sobre máquinas (Directiva 2006/42/CE), incluidas las modificaciones de la misma y la correspondiente transposición a la ley nacional. Is in conformity with the provisions of the Machinery Directive (Directive 2006/42/CE), as amended, and with national implementing legislation. Correspond aux exigences basiques de la directive de la CE sur machinerie (Directive 2006/42/CE), inclues les modifications et la correspondante transposition à la loi nationale. Corrisponde alle esigenze basiche delta direttiva delta CE sulle macchine (Direttiva 2006/42/CE), inclusi le modificazioni delta stessa e la corrispondente trasposizione alta legge nazionale.

Lleida, a \_\_\_\_\_ de \_\_\_\_\_ de \_\_\_\_\_

FIRMA / SIGNATURE / SIGNATURE / FERRAN ITURBE RECASENS  
FIRMA NIF. 40892839-N



**TEYME**  
TECNOLOGÍA AGRÍCOLA, S.L.

## 2. Safety and protection

### 2.1. Classification of symbols by dangerousness

	This symbol means DANGER. Be careful as your safety is in danger!
	This symbol means CAUTION Be aware as your safety is at stake!
	This symbol means ATTENTION. It will help you to an easy and safe use.

### 2.2. Group of addressees

This notice of use limits exclusively the use of the machine to qualified staff or workers, as well as to well-instructed personnel.

### 2.3. Proper Use

The machine has been built up according to the latest technical advances and the reputed safety technical rules. However, it is probable that, during its use, dangers may appear for the life and for the physical integrity of the operator or of third parties, as well as damages in the machine or other material impairments. Work only with the machine if you find it in a correct technical condition and use it properly, accordingly with the notice of use and being conscious about the safety and the dangers.

The proper use also includes

- the understanding and observance of the instructions of use and the application of the work steps indicated in these.
- The observance of the safety and caution signals in the machine.
- The observance of the limits of power of the tractor and machine.
- The observance of the indications of maintenance, as well as of the further verifications.
- The use of original spare parts.
- The use of indicated oil and accessory substances, as well as their suppression respectful with the Environment.

The safe working is only guaranteed if all indications, adjustments and valid power limits for the machine are respected. The machine is only suitable for its use in agricultural works.

### 2.4. Recommendations for Caution

Please consider the following recommendations for caution.

- Read thoroughly this manual before using the machine. It is equally important that other users that will operate with the machine, read and understand this manual.
- Some local laws can require that the operator has a certificate to be able to use the machine. Please be ware of the law.
- Use suitable protection garment (gloves, helmet, waterproof clothes, etc).
- Clean and rince the machine after its use and before its revision.
- Do not ever check or repair the machine while this is working.
- Replace always the safety devices and protect them immediately after work.
- Do not eat, drink or smoke while you are spraying or working with the machine dirty.
- Clean and change your clothes after the spraying. Clean the used tools.
- In case of poisoning call the medical services.
- Do not forget to identify the chemicals.

## 2. Safety and protection

- Keep children far from the machine.
- If some part of this notice instructions is not completely clear to you, do not hesitate to contact your TEYME's dealer for a more extensive explanation before using the machine.
- Be careful not to hit people or surroundings while maneuvering with the sprayer, specially while this one is turning.
- Diminish the speed while circulating on rough plots as there is danger of rollover.
- Check the pressure with clean water before carrying out the filling of chemicals.
- Disconnect the electric current and depressurize the machine after its use and before its checking.
- Do not try to enter the tank. Do not stay under the sprayer when this is not well secured to avoid some falling down or running over.
- If you use a welding arch on the machine, turn off all electrical devices before starting with the welding.
- Keep yourself away from any explosive or inflammable material.
- Do not unplug any hose while the machine is working.
- Unplug the cleaner and the water supply before disassembling the high-pressure hose.
- The device of external cleaning should not be used when any important part of the machine is damaged, including safety devices, high pressure, etc.
- ON NO ACCOUNT the PTO shaft of the tractor must surpass the 540 r.p.m. due to the big danger of explosion of the air unit.
- Stop the PTO shaft when very closed turnings must be done, even though you have homokinetic PTO shaft available.

- If you do not do like this, the turns of reduced radius with the PTO shaft turning may cause the breakage of the PTO shaft or the pump shaft and cause great vibrations in the gear box, even being able to cause the breakage of the fan or of the air unit.

### 2.5. Rules and Applicable Prescriptions

Herewith they are specified the valid applicable rules for each country, which must be taken into account during the machine's working life:

- Road Traffic code.
- The rules and regulations on labour safety
- The rules and regulations on road traffic safety.
- The rules and regulations on the user's protection.
- The rules and regulations on protection of the environment.
- The rules and regulations on proper handling of pesticide products.
- The rules and regulations on plants' protection technology.

### 2.6. Allowed weights of the machine

The weight of the machine is transmitted through the wheels and the tractor to the road.

For this reason, the following points must be considered for a safe working of the machine:

- The allowed supporting load of the bar for the tractor's hitching must not be exceeded.
- The allowed load of the axle must not be exceeded.
- The wheels being used (tyres and rim) must have the same or more loading capacity than the axle. If the tyres loading capacity is lower than the allowed axle loading one, the machine will be able to be loaded until the loading capacity which is allowed for the tyres
- The highest allowed speed arises from the applicable regulations specified in each country according to the wheels being used.

### 2.7. Requirements for the tractor

- The tractor must have a hitching tow bar appropriate for the machine.
- On basis of the established applicable regulations and of those concerning the brakes' devices of the machine, there must be an appropriate

## 2. Safety and protection

brakes' device available in the tractor. The allowed axle loads, the supporting load of the tow bar for the hitching, the total weight and the transport size must be respected.

- The tractor must have a protection for the PTO shaft which proves to be appropriate for the machine.
- The tractor's hydraulic system must be compatible with the machine.
- There must be available in the machine appropriate electrical connections.
- The allowed limit of power of the tractor must be respected.

### 2.8. Obligations of the User

Before starting up, read the handling instructions.

- Respect the indications of safety.
- To carry out all works, use the corresponding protection clothes. This one must fit the body.
- Respect and complete the handling instructions with the general legal regulation and other bonding regulations about accidents prevention and environmental protection.
- The handling instructions are an important component of the machine.
- Beware that the handling instructions are always available where the machine is working and that they are preserved during its full lifetime.
- In case of sale or owner's change, hand in the handling instructions with the machine.
- Keep all the safety and danger warnings in a readable and complete status. The warning and safety symbols give valuable information to work without danger. The observance is for your own safety.
- Modifications attached assemblies or any machine reconstruction which could damage safety can not be done without the authorization of the manufacturer. Modifications done on one's behalf in the machine exclude any responsibility by the manufacturer for any ensuing damage.
- Operate the machine with full respect for all connection and adjustment values determined by the manufacturer.

- Use only original spare parts.

### 2.9. Safe working of the machine

#### 2.9.1. Basics

Before starting the work, get to know all devices and starting elements, as well as their functions.

- Turn on and start up the machine just if all the protection devices are mounted and whenever they are in protection mode.
- Assemble always the machine according to the current regulations and only in the couplings contemplated in these.
- Proceed most carefully to carry out the assembly and disassembly of the machine in or out of the tractor.

It is forbidden to remain in the dangerous area of the machine and step over this one while this is working.

In the parts triggered by external forces there may exist danger of squashing and cuts.

- Activate the hydraulic devices only when there is no person in the danger area.
- Do not stay in the area between the tractor and the machine. This is only allowed if the tractor and the machine are secured against rolling by means of the parking brake and stopping chocks.
- Keep the machine always clean to avoid danger of fire.

#### 2.9.2. Staff qualification

- The driver of the tractor must have the corresponding driving license available.
- All the works in the machine must be exclusively done by instructed and trained staff. The personnel must not be under the effect of drugs, alcohol or medicines.
- The works of maintenance and care will only have to be carried out by instructed specialized staff or by people suitably trained.
- The works in the electrical parts must only be carried out by electricians according to the applicable electrotechnical regulation.

### 3. Effects of certain agrochemicals on the machine

Some admitted pesticides and mixtures can have harmful effects on materials of the sprinkler. Basically, they are sprinkling means and mixtures with solvent.

	<p>CAUTION! When using mixtures with sprinkling methods with acknowledged harmful effects, it is recommended to test the mentioned materials before starting the works, by means of inversion tests during several hours. The pesticides or other products which use to become solid or sticky can not be used in the machine.</p>
	<p>CAUTION! Follow necessarily the indications of the manufacturer of the pesticide before starting to work.</p>

The following components of the machines can suffer from damages: hoses, sprinkling pipes, joints, tanks, pump's diaphragms and nozzle-valves diaphragms.

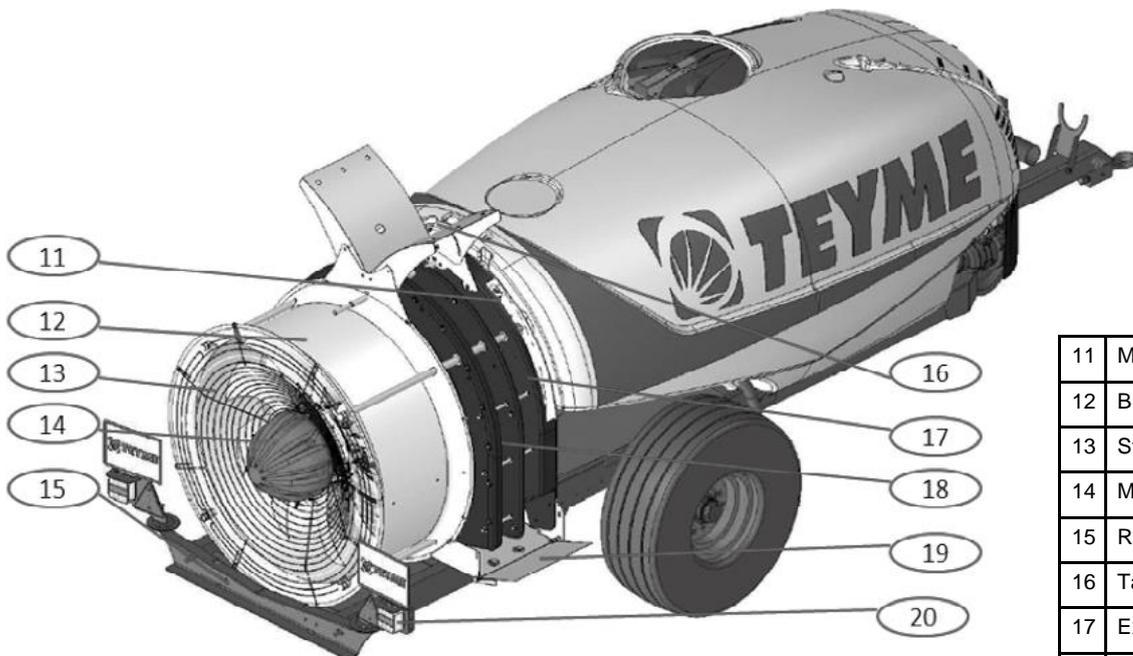
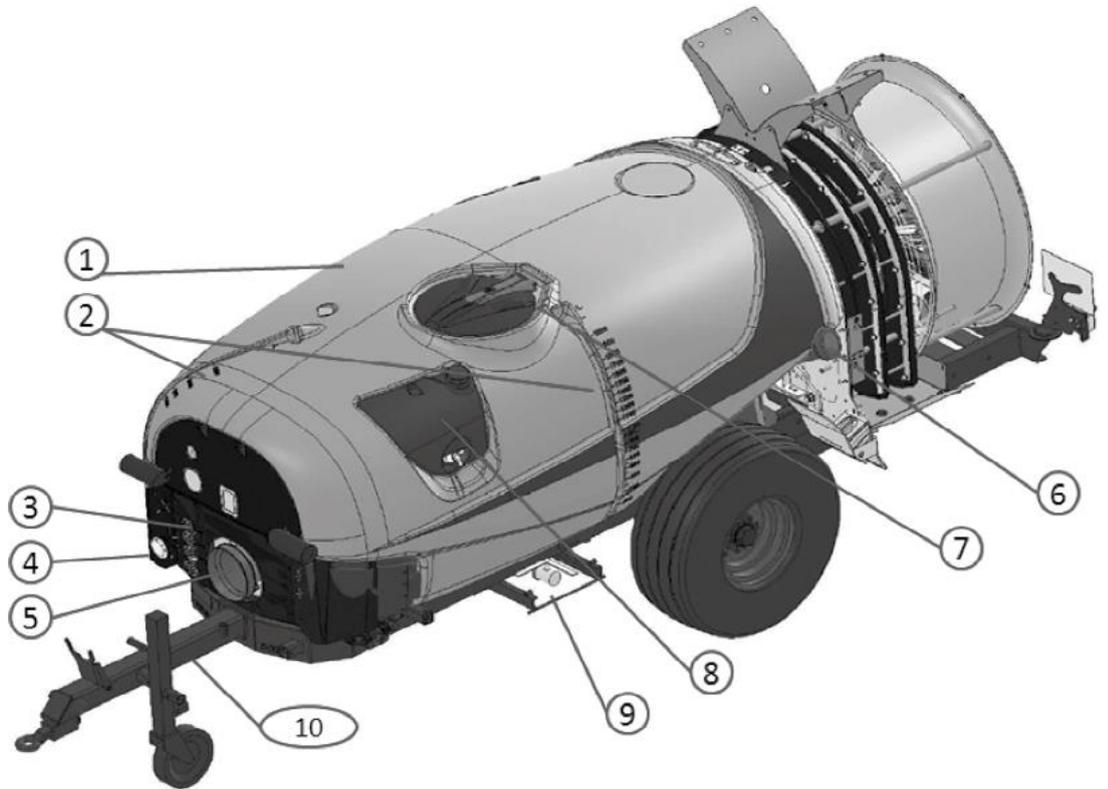
Too soft hoses or swollen joints or diaphragms are symptoms of these harmful effects. The damaged pieces must be immediately replaced. These pernicious effects can be avoided if, immediately after its use, an intensive cleaning is done (for example, some rinsing and suppression of the technical remains in the crop).

# 4. Description

## 4.1. General Information

### 4.1.1. General View

1	Main tank
2	Front and side gauge
3	Distributor
4	Suction Filter
5	Pump
6	Rinsing Can
7	Lid of the main tank
8	Sanitary Water Tank
9	Foot step
10	Tow bar



11	Main holder of the cone
12	Blower Housing
13	Straightening Deflectors
14	Main hub
15	Rear bumper
16	Tap for gear box oil
17	Exit of air
18	Pipes and nozzles
19	Inferior Deflector
20	Position Lights Kit

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## 4. Description

### 4.1.2. Use of the sprayer

TEYME's sprayer is designed for the application of chemical products for crops' protection. The machine can be only used with this purpose. It is not allowed the use of this equipment for other purposes. If the local laws do not compel the operator to be certified, it is recommendable to be instructed in order to carry out a correct protection of crops and a safe handling of the chemicals to avoid an unnecessary risk for people and the environment while the spraying is done.

### 4.1.3. Road traffic

You should furnish your machine with and follow the next regulations when driving by public roads and other places where it is applicable the traffic code, or places where there are special laws and regulations about signs and lights on agricultural tools



**ATTENTION!** The highest speed is 40 km/h for all models. This could change according to the current local legislation. Contact the local authorities to know the real highest traffic speed.

### 4.1.4. Frame

The frame consisting in spars of highly solid and resistant UPN profile accomplishes the usual normal as well as extreme-condition tasks. To protect it from corrosion a primer of epoxy is applied and covered by highly adhesive monolayer polyurethane painting.

### 4.1.5. Tanks

The main tank is made of polyethylene and resistant to impacts, to the UV rays and to chemical products. It has a round design without corners for a better cleaning and emptying. Nominal capacity 264,20; 396,30; 528,40; 792,60 or 1056,80 gal. It has a transparent gauge located in the right front part and another in its left or right-side part depending on the tank. The front one can be seen from the tractor. The filling hole/s is/are in the upper part depending on the tank to the left or to the right. One can get access to it from a footrest step. That enables the filling of the tank and introduction of chemicals.

Next to the main tank it can be found a clean water tank or rinsing out of a capacity of the 10 % of the main tank. And a sanitary water tank of about 3,96 gallons of capacity.

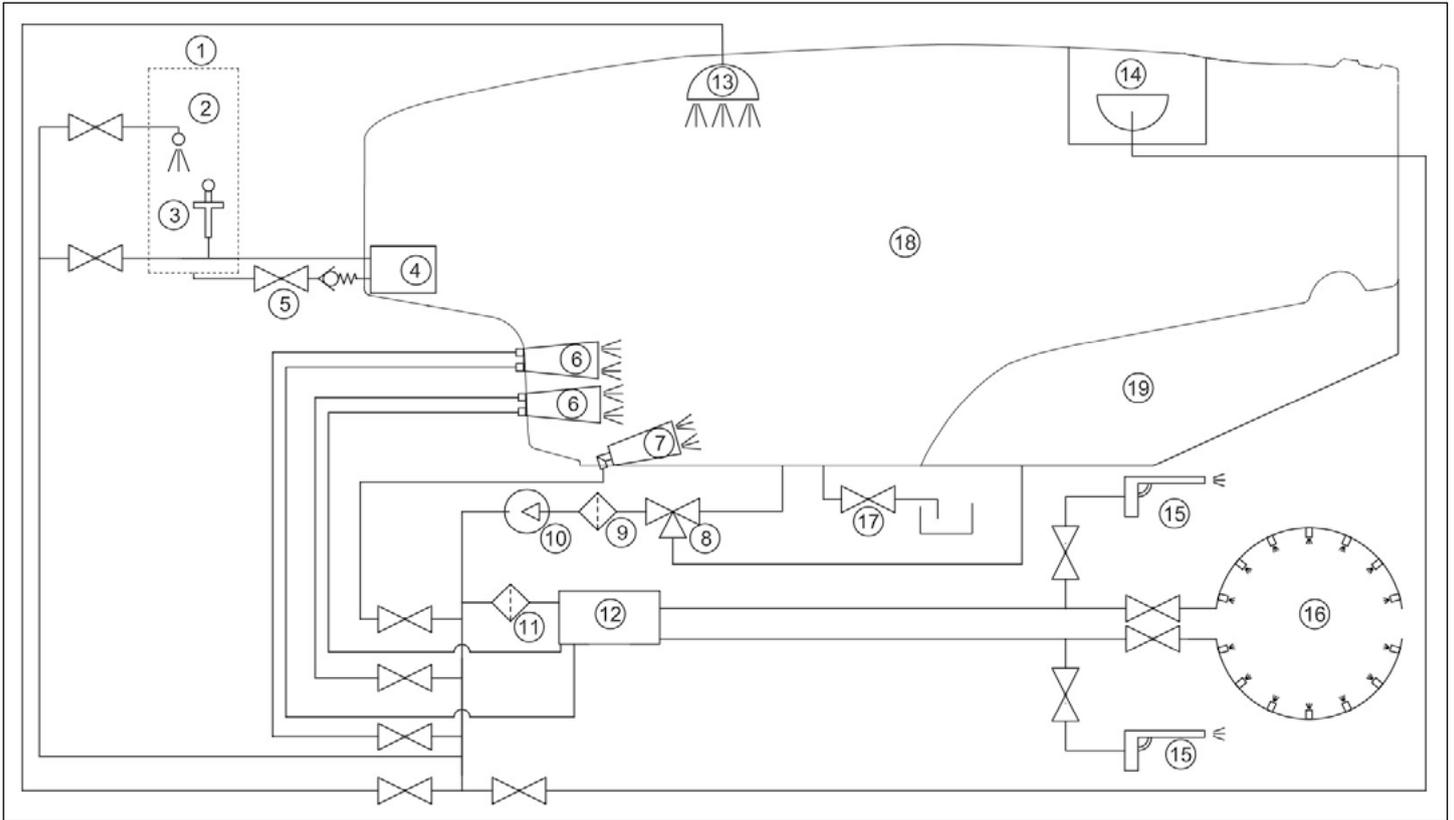
# 4. Description

## 4.2. Water Circuit

### 4.2.1. General information

All sprayers include a high-pressure water circuit to carry out an efficient treatment and to obtain a homogeneous mixture of the product.

### 4.2.2. Water Circuit Diagram



1	Mixer
2	Product stirrer - mixer
3	Can rinsing
4	Ventouri suction mixer
5	Draining valve mixer
6	Intermix (stirrer)
7	Bootmix (bottom stirrer)
8	Three ways valve
9	Suction filter
10	Water Pump

11	Pressure Filter
12	Water Distributor
13	Rinsing can Robot
14	Powder mixer
15	Spraying guns
16	Jets or nozzle-holders
17	Main tank draining valve
18	Main tank
19	Rinsing tank

### 4.2.3. Suction valve

The suction valve is placed to the right of the pump and allows to choose the tank from which the pump will suck, which can be the main tank to carry out the spraying tasks or the rinsing tank to clean the inside of the liquid circuit. The tank can be selected turning the lever of the valve towards the desired function.



## 4. Description

### 4.2.4. Suction Filter

Next to the suction valve there is the suction filter with an inox grid of 50 mesh. They have an automatic closing valve for filter cleaning, auxiliary suction entry to fill in the tank and cap for valve's activation.



### 4.2.5. Pumps

#### 4.2.5.1. High Pressure Piston Pumps

High pressure toughly-built-up pumps. Immersed pistons with ceramic cases. Parts with contact with fluid are manufactured in anodized aluminium.

Model of pump	Flow rate (gpm)	Highest pressure (psi)	Nº pistons
GAMMA 125 PUMP	32,36	870,23	4
YA 130 PUMP	24,17	725,19	6
YA 150 PUMP	29,85	725,19	6

#### 4.2.5.2. High Pressure Diaphragm Pumps

High pressure toughly-built-up pumps. They include pressure accumulator and safety valve. NBR diaphragms, parts with contact with the liquid manufactured in anodized aluminium and AISI 303/304.

Model of pump	Flow rate (gpm)	Highest pressure (bar)	Nº diaphragms
APS 121S PUMP	30,38	725,19	3
APS 166 PUMP	43,06	725,19	5
APS-96 PUMP	23,25	725,19	4
BHA-200 PUMP	51,18	725,19	4
IDS 2001 PUMP	48,08	725,19	4
IDS 2200 PUMP	54,95	725,19	6
TEYME AR 150 PUMP	37,68	725,19	4
IDS-1701 PUMP	42,54	725,19	4

### 4.2.6. Pressure Collector

Manufactured in brass it is placed in the front part of the machine next to the pump. From this collector it is possible to activate the agitation (two euromix and one botmix), the powder mixer and the inside rinsing of the tank. In some models the pump has enough exits available so that the collector is not needed.

### 4.2.7. Pressure Filter

It is placed on the exit of the pump or placed in the middle of the distributor, with an inox grid VITON watertight o'ring sealed in the cap. Highest working pressure 50 bar. All the filters must be on perfect conditions and regularly cleaned. Beware for a proper combination of filter and grid mesh size. The grid mesh size must be always lower to the average total flow rate of the nozzles.



### 4.2.8. Stirrers

In the front part and at every side of the inside of the tank two trumpet-sized stirrers of 2 ways (Euromix) and 3 ways (Intermix) can be found depending on the capacity of the tank. These two stirrers are activated by means of two of the valves of the pressure collector and each include one or two return channels. In the left low side of the tank a one-way stirrer (botmix) is included, which stirs the bottom of the tank. It is activated by means of a pressure collector valve. In the inner lodge they include a restrictor.



## 4. Description

### 4.2.9. Distributor

The sprayer can be provided with different sorts of distributors to control the spraying.

#### 4.2.9.1. GRH Hand-operated Distributor

Distributor with a single-control lever for the spraying selection. A grip is included to raise or lower pressure and a manometer.



**DANGER!**

It is forbidden to use this sort of control in tractors with closed cab.

#### 4.2.9.2. System 1 Electrical Distributor

Electrical distributor with control box which allows to open and close right and left sides independently. It includes pilot light warning about the opening of sector. This distributor includes pressure compensation valves and pressure hand-operated regulation.

#### 4.2.9.3. System 2 Electrical Distributor

It has the same functions that system 1. Additionally, it achieves pressure regulation by an electrical valve and an added selector on the control board.

#### 4.2.9.4. System 3 Electrical Distributor

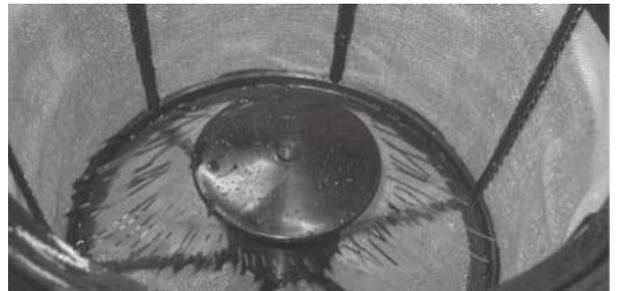
With the same functions than system 2 with an added electrovalve which allows the opening and closing of the general circuit by means of an added selector to the control board. Warning pilot light is included. Possibility of replacing control board by a wireless control with identical functions.

#### 4.2.9.5. Bravo 180S Electrical Distributor

It has the same functions than System 3's, it includes a flowmeter in the distributor and a controlling computer in control board. For more automatized and informative processes, a tyre sensor or GPS aerial will have to be assembled for speed control, and a pressure sensor in the distributor to inform about working pressure and a level sensor in the tank to obtain information at every moment about the remaining liquid volume in the tank. For a better automatization and information a wheel sensor or GPS can be assembled.

### 4.2.10. Powder Stirrer

It helps to rinse the sieve of the filling mouth of the main tank when we introduce powder products which do not end up dissolving in this or which cause lumps on their first contact with water. It is triggered by a valve of the pressure collector. After having used the powder stirrer, remember to disconnect it as a big amount of flow rate is used and would affect the rest of the liquid circuit.



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## 4. Description

### 4.2.11. *Can Rinsing*

It is used to rinse the used can once it has been emptied, sparing mostly all the product and avoiding damages in the environment. It is placed in the filling mouth of the tank. It is triggered by a valve of the pressure collector.



### 4.2.12. *Mixer/chemicals inductor*

It is placed in one of the lids of the tank or in the left front area of the machine. The one in the upper part has not draining valve. It only helps to transfer product in liquid or powder to the tank mixing it with water. It has set up as standard a can rinsing device, a flow stirring system which causes the mixture of phytosanitary product with the water of main tank and a ventouri system in the tank to empty the mixer.



### 4.2.13. *Tank Rinsing Robot*

Optimal rinsing of tanks of spraying machines by means a turning rinsing robot strategically placed inside the tank.

## 4.3. Centrifugal Air Unit

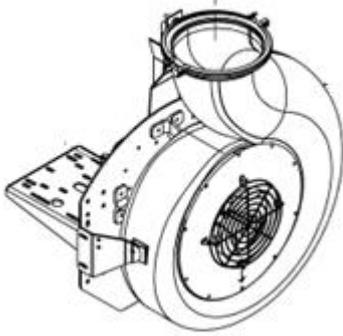
The centrifugal air unit is a unit which suctions the air through the centre of the fan, impelling it out in perpendicular position to the housing, towards a radium and expelling it through a guided exit, to distribute it through different air kits, obtaining different application ranges.

### 4.3.1. *General Information*

Depending on the capacity of the machine we will be able to set up different centrifugal air units, all of them with polypropylene or painted steel plate blower housing and polyamide or stainless-steel fans. Its reckoned aerodynamics ensures a big air pressure with an optimal distribution and an adjusted consumption. For a more focused application the centrifugal air units can be coupled to different sorts of kits.

The difference of the centrifugal air unit from the axial one (with propeller) lays in the lodgement in its inside of a centrifugal fan, which can be single-sided ( it suctions only by one side of this) or double-sided (it suctions by both sides of the fan). The centrifugal air units usually have available double suction. This one is always perpendicular in the sense of the air exit mouth. Different sorts of fans are available ready to be assembled on their respective blower housings, in different sizes 10,83", 12,80", 15,75" ,17,72", 18,70", 19,69" y 21,26". Every model of fan can be assembled inside its corresponding housing model. There are different sorts of blower housings depending on the sort of exit mouth (vertical exit, with 8-outlets distributor, side outlet, etc.) Presently, the centrifugal units are classified into 15,75" air units, 17,72"/18,70" in polyethylene and 23,62" in sheet plate.

## 4. Description



### 4.3.2. Sorts of Air Units

The following board identifies the main features of the centrifugal air units: sort of gearbox with the speed ratios, if has or has not clutch, kind of fan and the air exit with the definition of diameter, the width and the sort of material with its finish.

Centrifugal Air Unit	Gear Box			Clutch	Diameter	Blower Housing
	Sort	1st Ratio	2nd Ration	Si/ No	Ø	Finish
OPEN EXIT D 15,75"	DV-3600	6.5	7.5	SI	15,75"	Polyethylene
OPEN EXIT D 19,69"	DV-3600	6.5	7.5	SI	19,69"	Polyethylene
OPEN EXIT D 21,26"	BTV-1	7.5	----	SI	21,26"	Glass Fiber
MURCIA OPEN EXIT	DV-3600	6.5	7.5	SI	19,69"	Polyethylene

- ⚠ UNDER NO CIRCUMSTANCE 540 r.p.m. must be overcome concerning the tractor's PTO shaft because of the risk of explosion in the air unit.
- ⚠ DO NOT APPROACH the air entry or exit while the impeller is working. Some objects could be thrown away through the air exit or some textile garment could be sucked through the air entry.
- ⚠ The air units are the most dangerous part of the machine. Do not try to modify any of their parts without following the advice of your local dealer. The manipulation of the air units to modify its features must be done by qualified staff expressly authorized by TEYME Tecnología Agrícola.

### 4.3.3. Air Flow of the Units

The following boards show the performances of the different air units, depending on the chosen turning speed of the PTO.

## 4. Description

### 15,75" AIR UNIT

Gear Box Speed		1:6,5		1:7,5	
		I		II	
r.p.m					
450	cfm	<b>6474,36</b>		<b>7886,95</b>	
	mph	<b>129,74</b>		<b>152,11</b>	
	inch H <sub>2</sub> O	<b>9,45</b>		<b>11,42</b>	
	hp   kW	<b>21</b>	<b>15</b>	<b>29</b>	<b>21</b>
500	cfm	<b>6768,65</b>		<b>8887,53</b>	
	mph	<b>149,87</b>		<b>170,01</b>	
	inch H <sub>2</sub> O	<b>11,81</b>		<b>13,78</b>	
	hp   kW	<b>29</b>	<b>21</b>	<b>39</b>	<b>29</b>
450	cfm	<b>8122,38</b>		<b>9593,82</b>	
	mph	<b>156,59</b>		<b>183,43</b>	
	inch H <sub>2</sub> O	<b>13,78</b>		<b>18,90</b>	
	hp   kW	<b>35</b>	<b>26</b>	<b>49</b>	<b>36</b>

### 19,69" AIR UNIT

Gear Box Speed		1:6,5		1:7,5	
		I		II	
r.p.m					
450	cfm	<b>4296,62</b>		<b>5179,49</b>	
	mph	<b>109,61</b>		<b>118,56</b>	
	inch H <sub>2</sub> O	<b>9,45</b>		<b>11,42</b>	
	hp   kW	<b>12</b>	<b>9</b>	<b>14</b>	<b>10</b>
500	cfm	<b>4649,77</b>		<b>5532,63</b>	
	mph	<b>123,03</b>		<b>134,22</b>	
	inch H <sub>2</sub> O	<b>11,81</b>		<b>13,78</b>	
	hp   kW	<b>15</b>	<b>11</b>	<b>18</b>	<b>13</b>
450	cfm	<b>5120,63</b>		<b>5944,64</b>	
	mph	<b>134,22</b>		<b>145,40</b>	
	inch H <sub>2</sub> O	<b>13,30</b>		<b>15,75</b>	
	hp   kW	<b>20</b>	<b>15</b>	<b>23</b>	<b>17</b>

## 4. Description

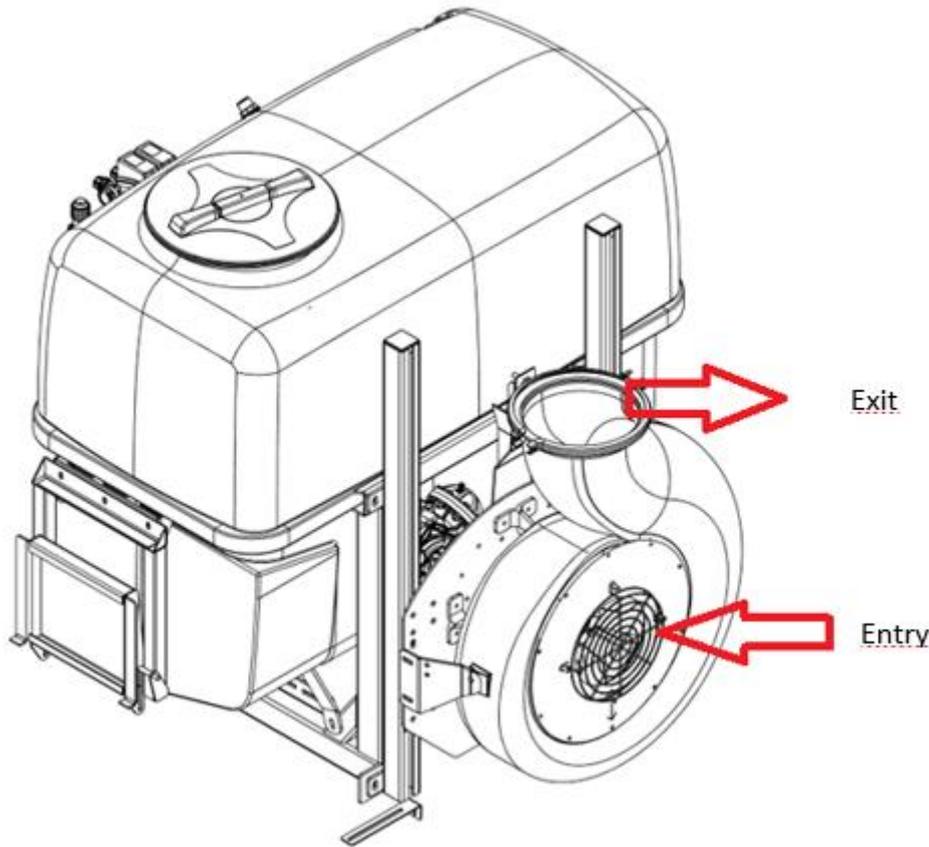
### 21,26" AIR UNIT

Gear Box Speed		<b>1:7,5</b>	
		<b>I</b>	
<u>r.p.m</u>			
450	cfm	<b>11771,56</b>	
	mph	<b>154,36</b>	
	inch H <sub>2</sub> O	<b>13,78</b>	
	hp   kW	<b>42</b>	<b>31</b>
500	cfm	<b>12948,72</b>	
	mph	<b>170,01</b>	
	inch H <sub>2</sub> O	<b>16,14</b>	
	hp   kW	<b>58</b>	<b>43</b>
450	cfm	<b>14125,87</b>	
	mph	<b>183,43</b>	
	inch H <sub>2</sub> O	<b>18,90</b>	
	hp   kW	<b>75</b>	<b>55</b>

### MURCIA EXIT AIR UNIT

Gear Box Speed		<b>1:6,5</b>		<b>1:7,5</b>	
		<b>I</b>		<b>II</b>	
<u>r.p.m</u>					
450	cfm	<b>6474,36</b>		<b>7886,95</b>	
	mph	<b>129,74</b>		<b>152,11</b>	
	inch H <sub>2</sub> O	<b>9,45</b>		<b>12,99</b>	
	hp   kW	<b>12</b>	<b>9</b>	<b>14</b>	<b>10</b>
500	cfm	<b>7357,23</b>		<b>8887,53</b>	
	mph	<b>149,87</b>		<b>170,01</b>	
	inch H <sub>2</sub> O	<b>11,81</b>		<b>16,14</b>	
	hp   kW	<b>15</b>	<b>11</b>	<b>18</b>	<b>13</b>
450	cfm	<b>8122,38</b>		<b>9593,82</b>	
	mph	<b>156,59</b>		<b>183,43</b>	
	inch H <sub>2</sub> O	<b>13,78</b>		<b>18,90</b>	
	hp   kW	<b>20</b>	<b>15</b>	<b>23</b>	<b>17</b>

## 4. Description



### 4.3.4. Gear Box

In the board of the chapter 4.3.2. several models of assembled gear box are shown, classified according to the air unit and the number of speeds and ratios of long and short gear change. The gear boxes will go attached by the front part by means of bolts and nuts to the frame and depending on the model, they will be attached too in the low part by means of 4 screws. All are provided with a system of speeds selector which prevents the gear from jumping off during the progress or during the journey by road.



DV-3600 MODEL



BTV-1 MODEL

### 4.3.5. Fan

Different sorts of fans are assembled with different diameters depending on the air unit. In the board of chapter 4.3.2. different kind of centrifugal fans are shown with the diameter.

## 4. Description



A Fan



B Fan

### 4.3.6. Air Kits

Depending on the sort of air unit different air kit can be mounted. These can be hand-operated or with hydraulic regulation. Check with TEYME the options to insert them in your air unit. They direct the air flow, making the task easy and adapting it to the crop to be treated.

#### 4.3.6.1 Sorts of Hydraulic Kits



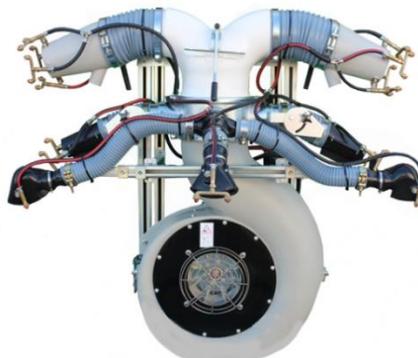
Almeria Cannon



Long Range and Height Cannon



Murcia Cannon



Row Crops Cannon

## 4. Description

### 4.3.8. Protection Grid

All air units are provided with protection grids following ISO rules. They are fundamental to avoid accidents or the introduction of external objects in the inside of air unit.



#### DANGER!

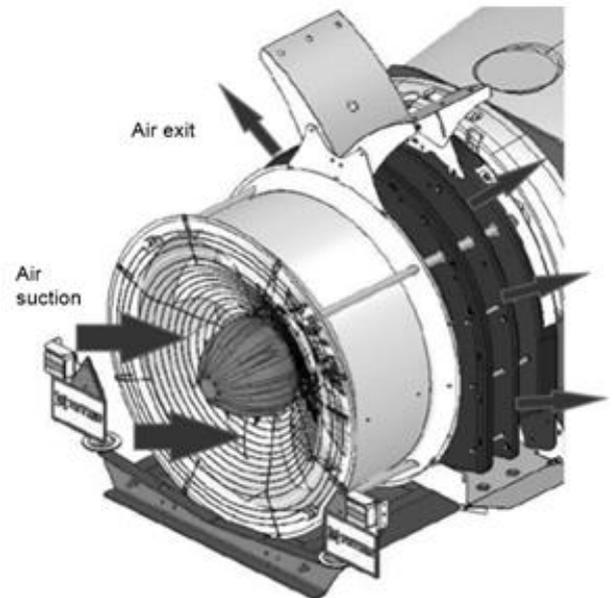
It is completely forbidden the use of the air unit without the protection grid.

In any way do come close to the impeller when this is working.

Do not introduce external objects through the grid when the impeller either is working or not.

Protect your ears from noise during your working hours with EN 352-1:1992 homologated helmets or similar ones.

In case of vibrations or blows, stop immediately the impeller.



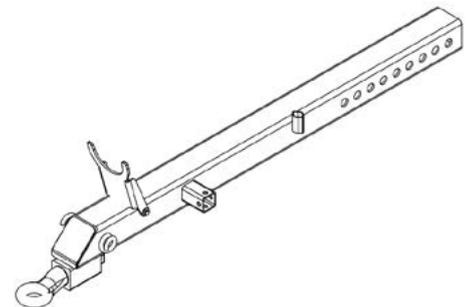
### 4.4. Hitching Tow Bars

#### 4.4.1. Eye Tow Bar

It consists of a large steel tube which is inserted into the frame of the sprayer and it includes a homologated eye mouth which is directly fastened to the tow bar of the tractor. The tube can be long or short depending on the use that wants to be given.

Both tubes include an anchoring system of chains for safety purposes in the event of the breakage of the hitching. The long-tube tow bar includes additionally a holder for the PTO and a fastening to place the jackwheel whether in working mode or in standby mode.

It is needed to assemble a homokinetic PTO shaft on the tractor's side.



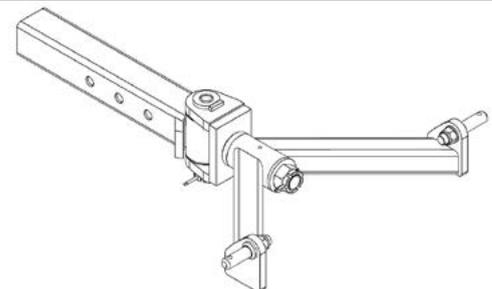
DANGER! Stop always the PTO when making very closed turns even if you have a homokinetic PTO shaft available. If you do not do like this, the turns of reduced radius made with the PTO spinning may provoke the breakage of the PTO or of the pump's shaft and produce big vibrations on the gear box, to the extent of causing the fan's or the air unit's breaking.

#### 4.4.2. Y-shaped Ball-and-Socket Turning Tow Bar

It consists of a long and large steel tube which is inserted into the frame of the sprayer and includes a turning ball-and-socket bar which is fastened to both arms of the hydraulic of the tractor.

It is the model of hitching bar which enables turnings with the most reduced angle.

It is needed to assemble a homokinetic shaft in the side of the



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## 4. Description

sprayer.

### 4.5. Axles

It exists a big variety of axles depending on the capacity of the machine and the distance from wheel to wheel that is going to be set. All of them are fastened to the frame by means of screws. They are straight axles without shock-absorbing system.

### 4.6. Park chocks

They are built in galvanized sheet metal. Depending on the machine they can be found under the access footstep to the mouth of the main tank or in the mud scraper. They must be carried always in their support for a quick manipulation whenever the machine must be parked in a little sloped area.

### 4.7. Light Kit

It comes assembled in a turning support in the bumper of the machine where we can turn it so that it does not disturb when working. The connection to the tractor is done by a ISO-1724 7 poles plug. The lights kit includes a complete set of retroreflectors (front, side and rear ones).



**ATTENTION!** Lights are compulsory if the machine moves by public roads, whether urban or interurban. In case of breakage of some components, these must be immediately replaced. To get the device working, plug the pin to the base of the tractor adapted for this purpose.

## 5. Adjustments and How to Start Up

### 5.1. Machine's Load or Unload.

During the loading and unloading tasks of the machine in an out of the lorry, be sure of using straps or belts in good condition and resistant enough and of using suspension points as the ones indicated next.



### 5.2. Tow Bar Adjustment

Before hitching the machine to the tractor, that one must be levelled using the jackwheel leaving it as much as horizontal as possible. Later it will be approached to the tractor revising the coupling heights. If needed, the tube will be reversed increasing in this way the distance with the floor as all the hitchings are uncentered from the center of the tube.



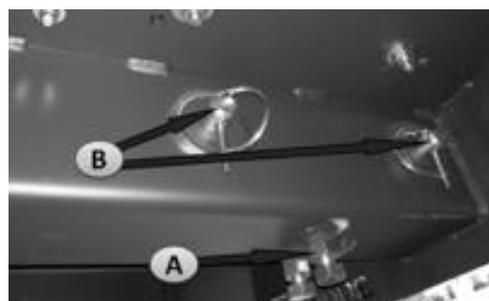
**DANGER!** Carry out the tasks of hitching with the tractor and the contact key switched off.

#### 5.2.1. Tow Drawbar Length Adjustment

All the hitching drawbars can modify their total length until 250 mm in bits of 50 mm. The length will have to be changed so that the tractor's wheels do not touch the machine when this one turns.

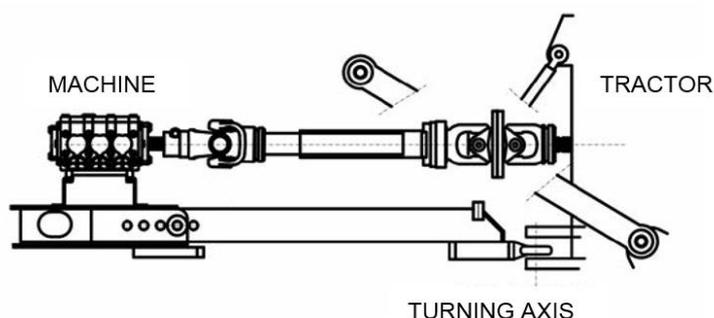
To modify the length of the hitching bar the next steps must be followed:

1. To set the jackwheel in working position.
2. Loose the locknut/s and the tightening screw/s in the low part of the frame (A).
3. Dissassemble the knuckle pin and the fixation bolt (B).
4. Place the hitching tow bar to the desired length.
5. Re-assemble the pin and the knuckle pin (B).
6. Tighten again the screw/s of the lower part and the locknut/s (A).



#### 5.2.2. Eye Tow Bar Hitching

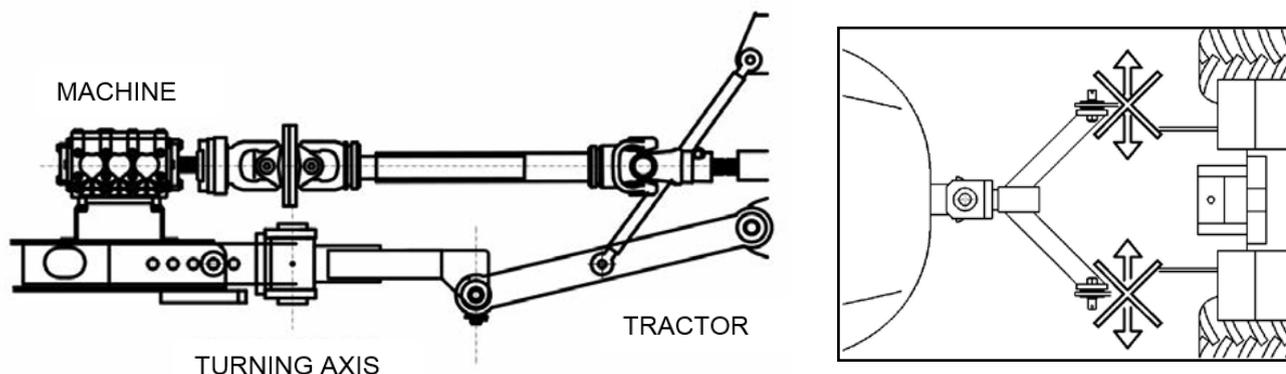
It has got the hitching point in the frame of the tractor. Before connecting the PTO, be sure of having tightened correctly the shaft of the tow bar and that the wheels of the tractor do not touch the sprayer when turning. A homokinetic PTO shaft is needed beside the tractor.



## 5. Adjustments and How to Start Up

### 5.2.3. Y-shaped Tow Bar Hitching

It is hitched in the lower arms of the three-point hydraulic of the tractor. Before connecting the PTO be sure that the diameter of the tow bar coincides with the diameter of the balls of the arms of the hydraulic and that the locking pins are assembled, apart from checking that the wheels of the tractor do not touch the sprayer when spinning. It is fundamental that the arms of the hydraulic are tightened, avoiding moves sideward. This is the kind of hitching which allows the turns with the highest angle, but it also needs an homokinetic PTO shaft in the side of the machine.

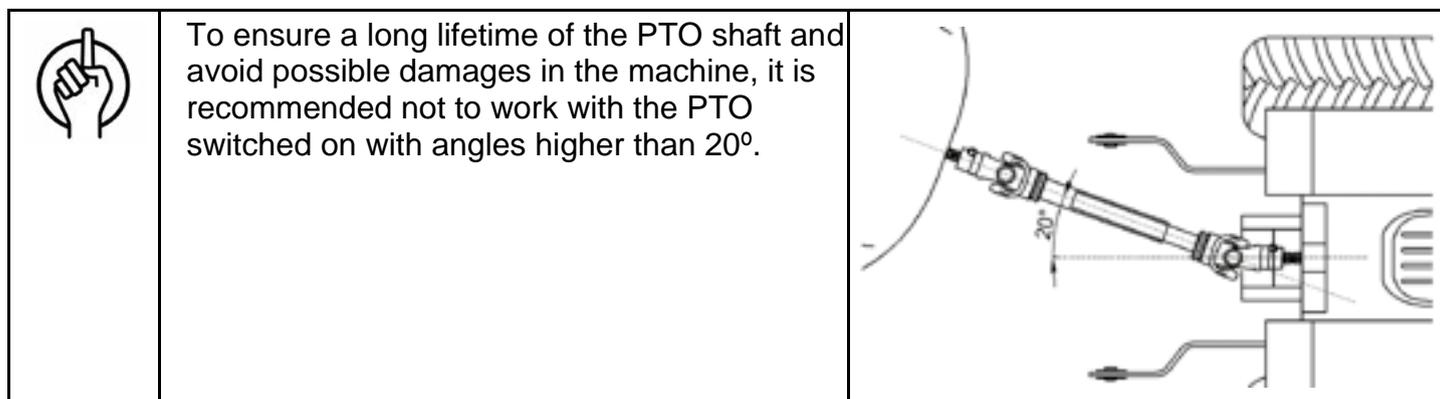


The turning axis will always have to stay much forwards in relationship with the homokinetic knot to avoid that this one makes too closed turns. If needed, an adjustment of the hitching bar will have to be made as it is explained in the chapter of drawbar adjustment.

### 5.3. PTO shaft

To avoid accidents and personal damages, take into account the following recommendations of prevention and practices for a safe handling:

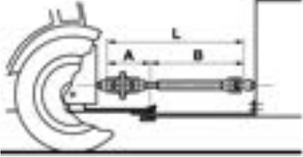
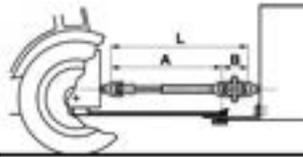
- Stop the engine before hitching the PTO shaft to the PTO of the tractor.
- Make sure that the locking pin is completely closed. Push and pull the shaft until it gets blocked.
- Make sure that the PTO shafts include the protection shields and the chains are intact, covering all turning parts.
- Do not touch or come close to the PTO shaft when it is spinning. Safety distance: 1,5 m.
- Tighten the chains of the protection shields to prevent these from spinning with the move of the shaft.
- Stop the engine and take out the contact key before carrying out the upkeep or the preparation of the PTO shaft or of some of its parts.



## 5. Adjustments and How to Start Up

### 5.3.1. Settings

The model of PTO shaft to use depends directly on the sort of used hitching and the distance to the machine and to the tractor.

	Homokinetic Knot		Constant Angle		Provisory Angle	
	Tractor	Machine	Tractor	Machine	Tractor	Machine
 <p>Eye long Hitching</p>	Yes	No	25°	25°	65°	40°
 <p>Ball and socket turning hitching</p>	No	Yes	25°	25°	40°	65°

### 5.3.2. PTO Shaft Coupling

The initial assembly of the PTO shaft could imply having to cut the shaft to adapt it to the tractor to which this one is going to be hitched. To carry out the first hitching the next steps must be followed:

1. Stop the engine and take out the contact key.
2. Hitch the sprayer to the tractor keeping the lesser distance as possible between the PTO and the pump and following the instructions concerning the adjustment of drawbar.
3. If the PTO shaft must be cut, disassemble the two parts of the shaft. Introduce both sides of the shaft one to the tractor and the other to the shaft of the sprayer's pump and measure the length that must be cut. Mark the protection shields.
4. Measure the distance between the PTO and the pump. From this measure mark again the shield, cutting this one according to the next board (in inches):

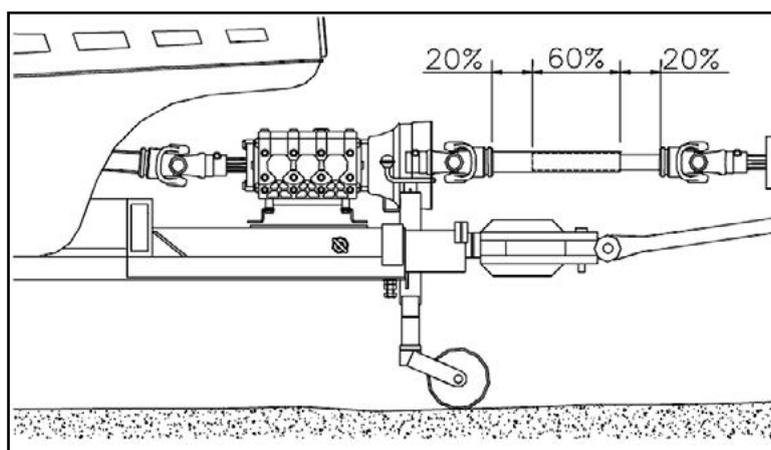
A	B
23,62	1,57 *
31,50	2,36 *
39,37	3,15 *
47,24	3,94 **
55,12	5,51 **

\* increase 0,39 inches when the machine has a homokinetic knot

\*\* increase 0,79 inches when the machine has a homokinetic knot

## 5. Adjustments and How to Start Up

5. Cut with a saw both parts of the shaft on the marked area leaving the same size of tube in both sides. Afterwards, polish all tubes to leave out all the burrs.
6. Check out that the ends of the tubes do not bump into the knots when the tractor turns in the narrowest angle.
7. Check that the tubes of the PTO shaft remain attached in at least a 60% of their working length with the machine and the tractor levelled and lined up as it is described in the picture:



8. Grease the tubes and assemble again the PTO shaft to the tractor and to the machine.



**DANGER!** Remember that all knots in the tractor and in the machine, as well as the PTO shaft, must be perfectly protected; in case of accident the user is the only responsible if the machine has not the adequate protections in perfect conditions of maintenance.

### 5.4. Tyres

There is a range of exchangeable wheels to work in plots with different conditions. Check with TEYME the conditions of the land plot to get recommendations about the wheels to be used. The wheels of the machines must always have the correct pressure, since these act as a suspension method with the full tank. It must be controlled the pressure of these in cold and through the valve.

Tyres	Recommended inflating pressure (psi)
260/80-12"	58,02
260/75-15,3"	52,21
260/70-15,3"	52,21
300/80-15,3"	40,61
340/55-16"	58,02

Tyre	Recommended inflating pressure (psi)
340/65-18"	58,02
400/60 15,5"	52,21
400/55-17"	52,21
500/50-17"	40,61

Keep always the recommended pressure for a durability and normal wear of the tyres of the machine, thus avoiding the punctures and unnecessary efforts.

## 5. Adjustments and How to Start Up

### 5.5. Hydraulic Plugs

Make sure that the couplings are clean before mounting them.

The hydraulic couplings come marked with colors depending on the activation position and with a sign which indicates upwards or downwards direction.



Color	Symbol	Activation	Move
Green	+	Left activator	Upwards
	-		Downwards
Blue	+	Right activator	Upwards
	-		Downwards
Red	+	Central or electrovalves block activator	Upwards
	-		Downwards

After activating the hydraulic systems and having filled up the system with oil, check the hydraulic oil level of the tractor and fill it up if necessary.

### 5.6. Electrical Plugs

#### 5.6.1. Basics

If the machine includes some electrical components, some details will have to be born in mind to carry out correctly the connection and avoid problems during the work.

The voltage which the electrical components require is 12 V. Before connecting any of them, make sure that the polarity is the correct one.

Red Wire = 12V (+ positive)

Cable Black = (- negative)

The connectors assembled in the electrical components follow the standards of the big majority of the most modern tractors. If you have a tractor with another sort of power connector it will be necessary to disassemble the current connector and adapt it to the tractor's one.

All the electrical machines which are to be assembled will have protection fuses set up.

#### 5.6.2. Lighting and Signs

Connect correctly the plug of 7 poles of the trailer to the pin of the tractor. The electrical circuit is protected against overintensities with a fuse included in the plug.

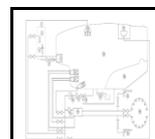
Check that the fuse is in good condition.

The supports of the rear lights will have to remain perpendicular to the marching sense when the machine moves through the public roads, whether urban or interurban.



#### 5.6.3. Water Distributor

Search a place in the tractor's cab where it could be possible to adapt the control box to handle it in the most comfortable way. The most suitable place is at the right of the seat of the driver.



The control box must be well attached to avoid any blow or excessive vibrations. The box includes self-rechargeable fuses.

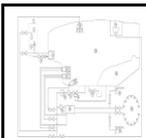
## 5. Adjustments and How to Start Up

### 5.7. Water Circuit

#### 5.7.1. Suction Filter

Check that the suction as well as the pressure filters are closed, contain the filtering cartridges and these are clean and complete.

The filter will be able to be replaced or cleaned, depending on necessity, unthreading directly the lid. The filters-bearer has a system which closes in the circuit the water which comes from the tank preventing this from overflowing in case the tank would have liquid. Check the o'ring joint before assembling again the lid and replacing it if this is damaged.



**ATTENTION!** For a better watertightness of the lid and the o'ring joint, moist with grease all the area which fits the lid. Any small leakage or suction of air will be repaired.

#### 5.7.2. Piston Pump

On no account this sort of pump should work in dry for more than 30 seconds. If that was the case, the pistons will finish burned and would have to be replaced.

Before starting check the oil level of the pump. It must be between the highest and lowest level of the rod which is placed in the upper part of the pump.



#### 5.7.3. Diaphragm Pump

Before starting, check the oil level. It must be between the highest and lowest level of the vase placed in the upper part of the pump.



**ATTENTION!** For further instructions or more specific information, check the notice of instructions of the pump handed in with the machine.

#### 5.7.4. Air Tank

The air tank included in the pumps it is adjusted according to default factory conditions to a pressure of 72,52-101,53 psi to cover spraying pressure from 145,04 to 290,08 psi.

Depending on the pressure with which we are going to work, the pressure of the air tank will have to change accordingly to what it is indicated in the following board:

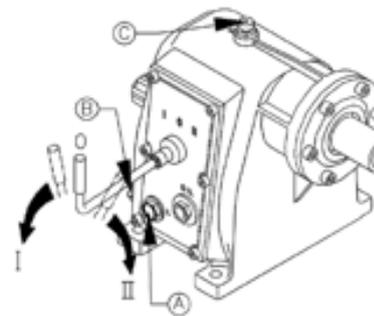
Pump's working pressure	Accumulator's inflating pressure
29,01-72,52	29,01
72,52-145,04	29,01-72,52
145,04-290,08	72,52-101,53
290,08-725,19	101,53

## 5. Adjustments and How to Start-up

### 5.8. Gear Box

It allows to choose the long, short gear or neutral point of the gear box through a lever adapted for this purpose.

In the left rear part of the machine we can find the lever for gear selection. To change speed, make sure that the PTO is disconnected, turn the lever left or right depending on the required gear. The neutral point is in the middle part.



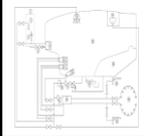
**DANGER!** Verify the oil level by means of the A viewer.

## 6. Working

### 6.1. Water Circuit

#### 6.1.1. Filling of the Main Tank.

The tank is possible to be filled in through the upper lid by gravity or by means of the pump's suction.



**ATTENTION!** It is not advisable to leave the sprayer with liquid inside. Otherwise, all valves should be closed for safety reasons.

##### 6.1.1.1. Filling through the Upper Lid of the Tank

The water is introduced into the tank leaving out the lid placed on the upper part of the tank and to which one gets access by the step. It is advisable to use water as clean as possible for a good spraying. Fill in always through the basket filter to avoid the particles to get inside the tank.



**CAUTION!** Do not place the filling hose inside the tank. Keep it always out of the tank directed towards the inside. If the pressure hose is inside the tank and there is a pressure drop in the supply of water, the chemical product could siphon itself and pollute the supply line.

##### 6.1.1.2. Filling by pump suction

All pumps are self-filling. The maximum height of suction by means of this system is 3 meters. The next steps to use this system are:

1. Introduce the pine in the pool.
2. Unthread and leave out the yellow cap placed in the suction filter.
3. Thread the fitting directly on the suction filter of the machine.
4. Set the PTO on spinning, opening the euomix and botmix taps, closing the sectors.

#### 6.1.2. Filling of the rinsing tank.

Next to the main tank in the lower rear part we can find the rinsing tank. Take out the lid of this tank and fill in it with clean water. Afterwards, place the lid again.

The nominal capacity of these tanks is a 10% of the capacity of the main tank.

Fill in only with clean water. To avoid the formation of algae, rinse the liquid circuit with clean water if the machine is not going to be used during a long time.

#### 6.1.3. Filling of the sanitary water tank

The sanitary water tank is placed in the right upper part of the main tank or in the left side of the air unit. It is used to clean hands, gloves, nozzles, etc. after having been in contact with the chemical product.

**CAUTION!** Even though this tank can only be filled in with clean water, this one cannot be drunk.

## 6. Working

### 6.2. Emptying Valve

The valve for a safe emptying can be found below the step of access to the tank's lid. To have access to it you will have to fold out the step.

To empty the tank, the handle of the ball valve will have to be turned in parallel position to the exit of flow. To fill in anew the tank, close the valve.



**CAUTION!** When opening the valve be careful that the liquid does not spill your hands or your feet.

### 6.3. Introduction of phytosanitary product.

There are different systems to introduce the product in the tank. The next steps must be followed:

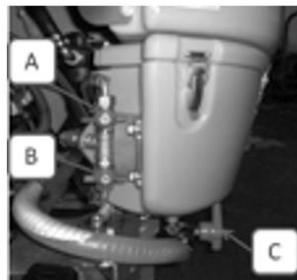
- a) The tank must be filled in at 1/3 of its capacity with clean water before including the chemical product.
- b) Activate the pump, automatically the stirring system will start. Check visually from the access mount to the tank that the system works correctly.
- c) If your machine has no chemical inductor available, empty directly the liquid products inside the tank.
- d) If your machine has no powder mixer available, it is convenient to dissolve previously the solid products in a can exclusively for this usage before introducing it to the tank.



**DANGER!**  
Follow always the instructions which appear in the label of the product.

#### 6.3.1. Chemical Inductor/ Mixer

- 1) Open the lid of the tank and include the product in liquid or powder with all the circuit valves closed.
- 2) Close the lid and open the mixing valve (A) caring that the mixer tank is not full.
- 3) Open the discharge-can-rinsing valve (B) and the draining valve (C) located in the lower part of the tank.
- 4) Valves will be opening and closing until the mixer tank remains empty and without traces of product.
- 5) The can will be cleaned introducing this one upside down and getting the opening of the can inside the T-shaped system of can rinsing inside the mixer tank and pushing the legs of the T with the can, with valves (B) and (C) open.



Can rinsing

#### 6.3.2. Powder mixer

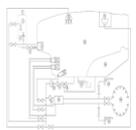
- 1) Introduce the powder directly in the basket with grid located in one of the lids of the main tank.
- 2) Open the valve of the powder mixer located in one of the pump's exits or in the distributor.
- 3) Once all the powder is dissolved, close the valve.

## 6. Working

### 6.4. Cleaning of the water system

Every time that the working time is finished or whenever the phytosanitary product is changed, a cleaning of all water system will have to be carried out. With the main tank empty and the clean water tank full of water without phytosanitary product, follow the next steps:

- 1) With the PTO disconnected, turn the 3-positions valve connecting the suction to the clean water tank.
- 2) Close all valves, the distributors' and the sectors' valves and open the valve of the rinsing nozzle/s (rinsing robot).
- 3) Connect the PTO, with the pump working and cleaning all the walls of the tank.
- 4) Stop the PTO when more than 1/3 of the clean water tank has been absorbed.
- 5) Change the position of the 3-ways valve to the main tank, close the valve of the rinsing nozzle (rinsing robot) and open the other valves.
- 6) Connect the PTO and open the sectors, throwing this water to the plantation we have been treating.
- 7) Repeat again all steps twice until emptying the clean water tank.



**ATTENTION!** With these steps a correct cleaning of the whole circuit and the main tank is guaranteed. A good cleaning of the machine extends the lifetime of the components.

#### 6.4.1. Cleaning of Filters

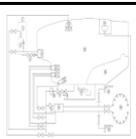
The cleaning of the filters assures that:

- The sprayer's components like the valves, the diaphragms and the distributor do not get obstructed or damaged while they are working.
- The nozzles do not get obstructed during the spraying work.
- The pump has a long lifetime. The obstruction of the suction filter will give as a result a cavitation of the pump. The suction filter is the element which protects all the main components of the sprayer. Revise this one regularly.

### 6.5. Controls

The sprayer can be supplied with different sort of controls to regulate spraying. Before starting the treatment, you must choose a model of nozzle to use and know at which pressure you are going to work (it is recommended working in a scope between 116,03-174,05 psi).

See the book "Spraying techniques".

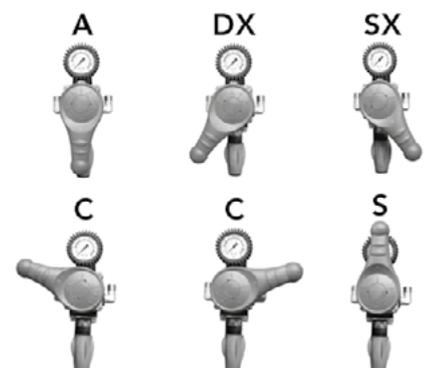


**ATTENTION!** All the distributors must be regulated with clean water before spraying with chemical products.

#### 6.5.1. GRH hand-operated control

##### 6.5.1.1. Pressure adjustment:

- 1) Turn the selection lever into by-pass devices position (S)
- 2) Plug the PTO to the working planned revolutions.
- 3) Turn the selection lever towards position of opening both sections (A)
- 4) Turn the lever of pressure to the desired pressure. Clockwise turn stands for raising pressure. Counterclockwise one for lowering pressure. If you spray only in one side of the machine place the lever in right position (DX) or left one (SX) and start again regulating the pressure by turning the lever towards the desired



## 6. Working

working pressure.

### 6.5.1.2. Working

Graved on the lever several indications with the following meanings can be read:

- A position: both sectors are open.
- DX position: the right sector is open.
- SX position: the left sector is open.
- C position: the system is at pressure, and all the product goes to return.
- S position: the system is not at pressure, and all the product goes to return.



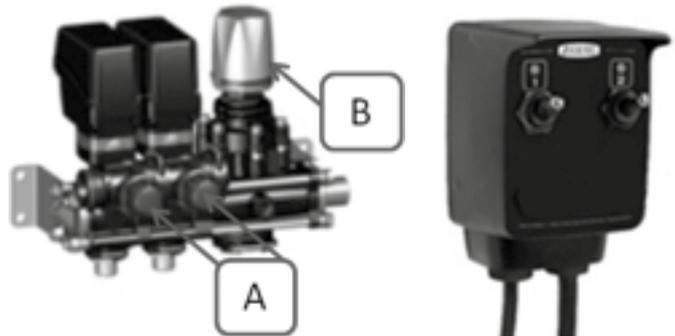
**DANGER!**

Follow all the instructions which appear on the product's label.

### 6.5.2. System 1 Electrical Distributor

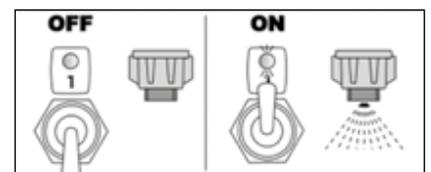
#### 6.5.2.1. Pressure and Self-compensating System Adjustment

1. With the PTO disconnected, place the switches 1 and 2 of the control in OFF (lower position- turned off leds).
2. Turn the knobs of the regulators of the self-compensated system (A) in open position (0 position).
3. Connect the PTO to the working planned revolutions.
4. Place the switches 1 and 2 in ON (high position – turned on leds).
5. Turn the pressure knob (B) to the desired pressure, clockwise turn stands for raising pressure, counterclockwise turn for lowering pressure.
6. Close the sector 1 (left).
7. Turn the knob of the regulator of the self-compensated system of the closed sector (left) until the pressure achieved is the same as the one previously achieved with both sectors open.
8. Open again the sector and repeat the operation closing and compensating the right side.



#### 6.5.2.2. Working

The electrical control consists of 2 switches 1 (left sector) and 2 (right sector). By moving each one of the switches upwards, spraying of the corresponding sector will be activated. The lit light signs indicate the activation of each sector.

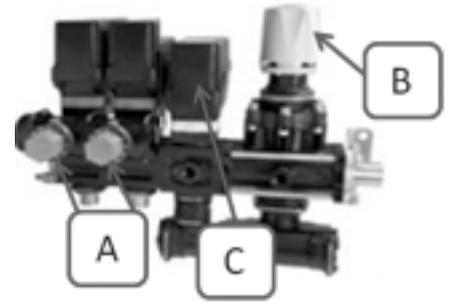


## 6. Working

### 6.5.3. System 2 electrical distributor

#### 6.5.3.1. Pressure and Self-compensating System Adjustment

1. With the PTO disconnected set the control switches 1 and 2 in OFF (lower position – turned off leds)
2. Keep the switch of pressure activated downwards for 5 seconds until leaving the electrical regulator without pressure (see manometer).
3. Turn the knobs of the regulators of the self-compensated system (A) in open mode (0 position).
4. Connect the PTO to the planned working revolutions.
5. Place the switches 1 and 2 in ON mode (upper position – turned on leds)
6. Turn the pressure knob (B) to the highest desired pressure. Clockwise turn stands for increasing pressure, counterclockwise for diminishing pressure.
7. Close the sector 1 (left).
8. Turn the knob of the regulator of the self-compensated system (A) of the closed sector (left) until achieving the marked pressure with both sectors open.
9. Open again the sector and repeat the operation closing and compensating the right sector.
10. Open both sectors and adjust the desired pressure with the pressure switch.



#### 6.5.3.2. Working

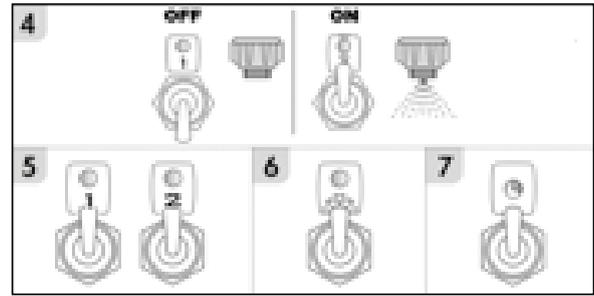
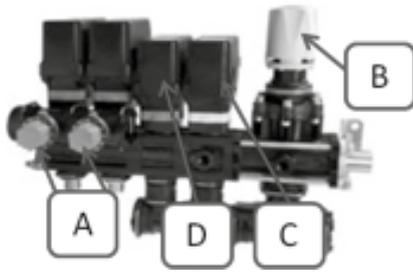
It has the same functions as system 1, besides pressure regulation by means of an electrical valve (C) and an added selector in the control box.

### 6.5.4. System 3 Electrical Distributor

#### 6.5.4.1. Pressure and Self-compensating System Adjustment

1. With the PTO disconnected set the switches 1 and 2 (5) or the general (6) of the control in OFF (lower position – turned off leds).
2. Keep the pressure switch (7) activated downwards for 5 seconds in order to suppress the pressure of the electrical regulator.
3. Turn the knobs of the regulators of self-compensated system (A) in open mode (0 position).
4. Connect the PTO to the planned working revolutions.
5. Set the switches 1, 2 and the general in ON (upper position – turned on leds).
6. Turn the knob of pressure (B) to the highest desired pressure, Clockwise turn stands for increasing pressure, counterclockwise for diminishing pressure.
7. Close sector 1 (left).
8. Turn the knob of the regulator of self-compensating system (A) of the closed sector (left) until reaching the attained pressure with both sectors open.
9. Open again the sector and repeat the operation closing and compensating sector 2.
10. Open the two sectors or/and the general and adjust the desired pressure with the pressure switch.

## 6. Working



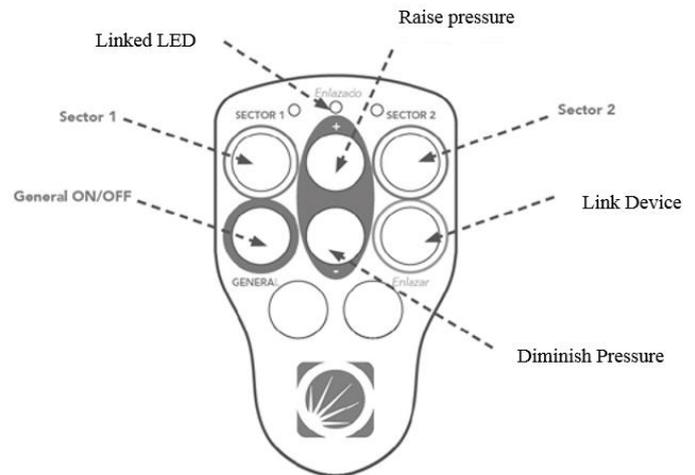
### 6.5.4.2. Working

With the same functions than system 2, with an added electro-valve which allows the opening or the closing of general circuit by means of a selector added to the control box. Light indicator is included. There is the possibility of replacing the control box by a wireless control with identical functions . See “Quick guide of working of wireless control” in the following page.

### 6.5.5. Wireless Control

#### 6.5.5.1. Start Up

Set the control on working tapping the button “Link device”. The “Linked LED” will blink in green colour at regular periods, indicating that the control is on and that the receiver can be contacted correctly. If the device does not get previously linked, the usage of the expected monitoring functions in the control will not be possible.



#### 6.5.5.2. General On/OFF Switches

Tap the button “General ON/OFF” to activate the general electrovalve and allow the usage of the rest of functions. A second tap will disconnect the electrovalve and the sectors which are working. If the general electrovalve is not activated, the use of any of the control functions will not be possible, either the pressure regulation.

#### 6.5.5.3. Main Functions

From this moment on, the sectors and the regulation of pressure can be activated individually, tapping the buttons indicated in the scheme.

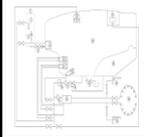
#### 6.5.5.4. Memory Function

At any moment, the button “General ON/OFF” allows to “memorize” the last status of sectors opening; in a way that it is possible to control the partial closure functions when tractor is turning.

#### 6.5.5.5. Closing of Daily work

When finished the daily work, the connection with the receiver must be cut off, tapping the button “Link Device”, the “Linked LED” turning briefly on in red colour. Since that point, the LED will give up blinking.

## 6. Working



**ATTENTION!** If the system loses the connectivity because of any circumstance, the receiver forces the closing of all electrovalves, as a safety measure.

### 6.5.6. Bravo 180S Electrical Distributor

#### 6.5.6.1. Pressure and Self-compensating System Adjustment

The adjustment is done in the same way than system 3.

#### 6.5.6.2. Working

It has the same functions than the system 3, it includes a flowmeter in the distributor and a computer which controls the processes with the control box. For more automatization and information, a wheel sensor or a GPS can be mounted for speed control, a pressure sensor in the distributor to inform about working pressure and a tank level sensor to obtain information at every moment about the remaining liquid volume.

To see the functions of the control, check the “Quick instructions guide of Bravo 180 for sprayers” in the next pages.



# 6. Working

## 6.5.6.3. Quick Guide for Bravo 180

**bravo180s**

**Quick reference guide  
ORCHARD SPRAYER**

USA



### PREPARING THE TREATMENT

#### 1 Job selection

From the Spraying Menu, press key and hold to select spraying job.



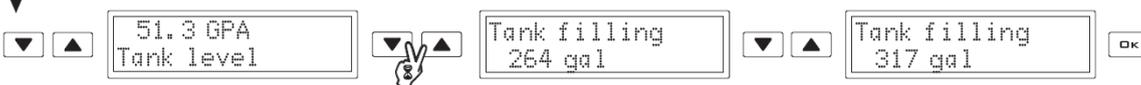
#### 2 Reset total counters

From the Spraying Menu, press key and hold to select spraying job.



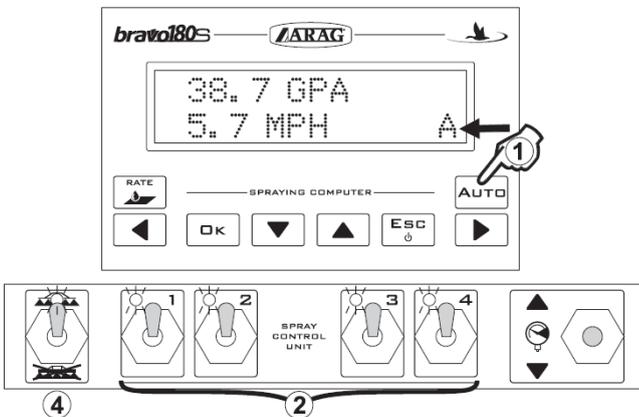
#### 3 Tank Filling

From the Spraying Menu, press to select the value to be set.



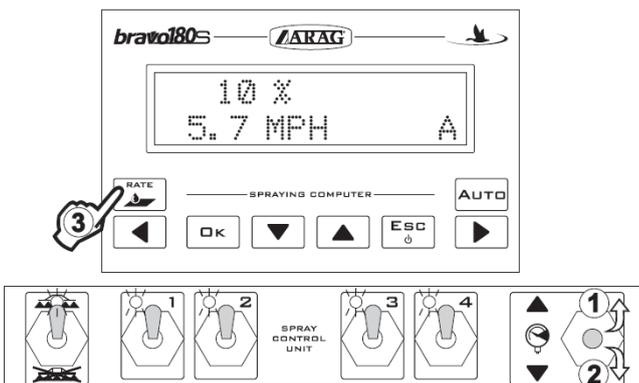
### USE

#### 1 Automatic treatment control



- ① Press to enable automatic mode.
- ② Turn on the section valves required.
- ③ Drive to the start of the field.
- ④ Set the main control switch up.
- ⑤ Run the treatment.

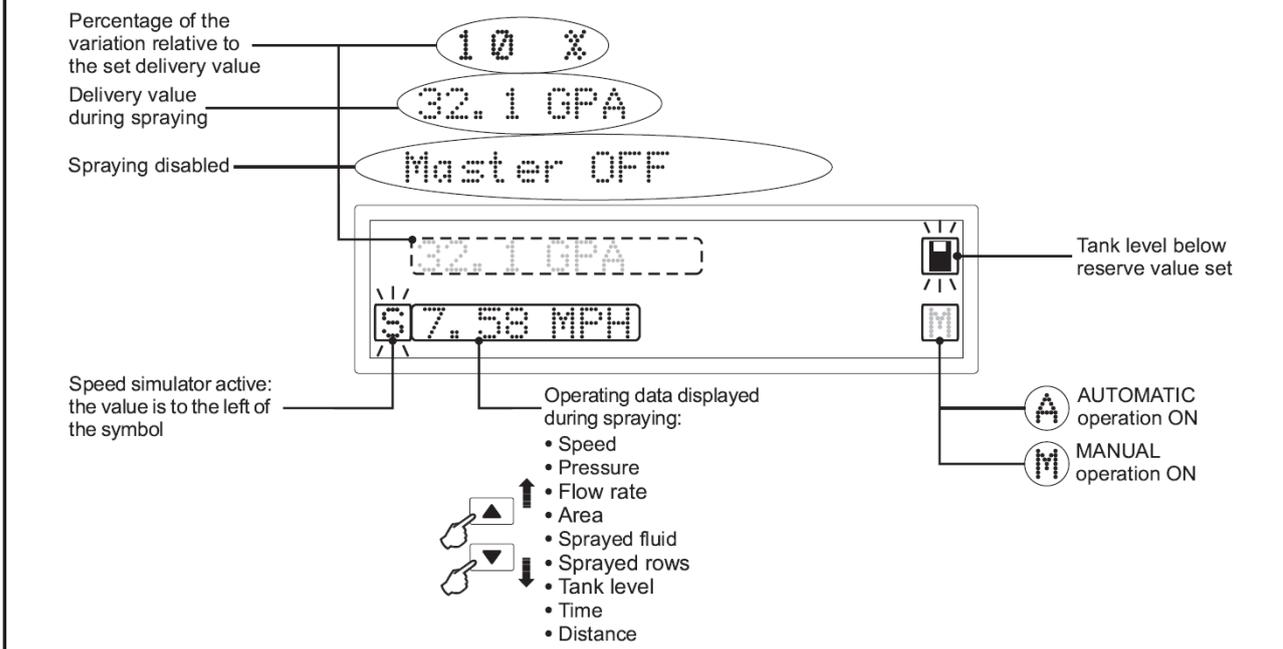
#### 2 Temporary variation in rate



- ① Press the switch up to increase the delivery value.
- ② Press the switch down to decrease the delivery value.
- ③ Press to reset the rate variation percentage.

# 6. Working

## KEY TO ITEMS ON DISPLAY



## OPERATING ALARMS

• The computer is not receiving the speed of the tractor and spraying is enabled (main control switch "ON"). The messages shown flash alternating.



• The computer detects zero flowrate and spraying is active (main switch valve "ON"). The messages shown flash alternating.



• Speed to high or low for the set dosage.



• For 4-section Bravo 180S only

One section out of four or three sections out of four are closed, or the two upper or lower sections are closed: spray rate is changed to keep pressure constant.



## SELECTING THE WHEEL TYPE (CONSTANT)

From the Spraying Menu, hold down to access the User Menu.



via Palladio, 5/A - 42048 RUBIERA (RE) - Italy - tel. +39 0522 622011 - Fax +39 0522 628944 - www.aragnet.com Cod. D20291\_USA-m00

# 7. Maintenance

## 7.1. General information

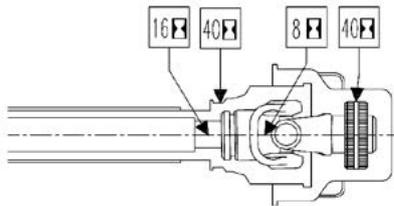
Keep all the lubricants clean and stored in a fresh and dry place to avoid pollution by dirt or condensed water. Clean the oil cans, funnels and grease pistols before storing them and the points of lubrication once they have been greased. Avoid contact for prolonged periods of time of the oil products with the skin.

Follow always the advice about recommended amounts. If the recommended amount is not shown, place grease until this is made visible. The pictogrammes about lubrication refer to the working hours before the next lubrication.

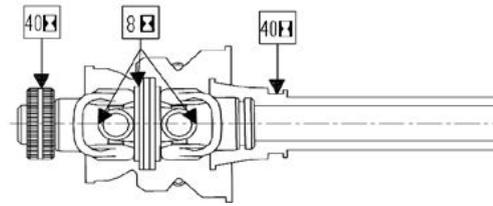
	<p><b>DANGER!</b> If the sprayer is cleaned with a pressure water gun, lubrication on all the machine is recommended.</p>
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## 7.2. PTO Axle and PTO Shaft

Grease the knots of the PTO shafts (internal/external) every 8 working hours; the points of turning of the protector and the fixation of the PTO shaft will have to be greased every 40 hours. For a better gliding, it is necessary to grease the PTO shaft tubes every 16 hours.



In PTO shafts supplied with homokinetic shafts there are 5 greasing points.



Replace the protections if they are damaged or broken.

## 7.3. Water Pumps

### 7.3.1. Ordinary Maintenance

MAINTENANCE PERIOD	INTERVENTION
Every time it is used	<ul style="list-style-type: none"> <li>• Level and oil estatus control</li> <li>• Suction Filter's Control and eventual Cleaning</li> </ul>
Every 50 hours	<ul style="list-style-type: none"> <li>• Control of inflating pressure of the accumulator</li> <li>• Control of the fixation of the pump to the structure that holds it</li> </ul>

# 7. Maintenance

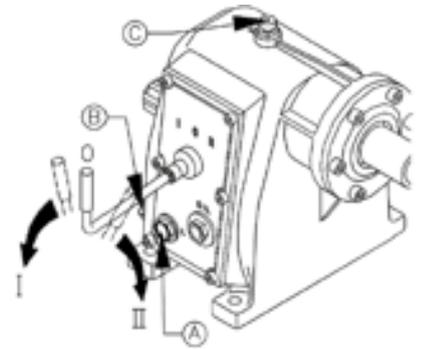
## 7.3.2. Extraordinary Maintenance

MAINTENANCE PERIOD	INTERVENTION
The first 50 hours (piston pumps) The first 300 hours (diaphragm pumps)	Carry out the change of oil
Every 300 hours	<ul style="list-style-type: none"> <li>• Check that the pumps' screws are tight.</li> <li>• Check that the pressure limiting valve and the safety valve works.</li> <li>• Check that the valves of suction and delivery work.</li> <li>• Check status of o'rings joints in piston pumps and replace them if needed</li> </ul>
Every end of the season or once a year	<ul style="list-style-type: none"> <li>• Change of oil</li> <li>• Check and eventually replace diaphragms</li> <li>• Check and eventually replace joints in piston pumps.</li> </ul>

### 7.4. Gear Box Unit

Check the oil level by means of the A viewer; the first oil change must be done after 100/150 hours and successive ones every 250/300 working hours.

Use for this purpose SAE-90EP oil emptying the oil with the B cap and filling with the C cap.



### 7.5. Fans

Check visually possible defects or notches, replacing the blade in case of severe defects which could cause excessive vibrations or even breakage of all the air unit. Counterweight the fan every time a change of this one is done or whenever an excessive vibration of the air unit is observed.

### 7.6. Filters and Fittings

Check the filters every 50 working hours. Apart from being clean, check that the mesh is in perfect conditions. If not, the effectiveness of the filter will be non-existent.

Whenever you disassemble some filter or hose you will have to be careful not to pinch the o'rings assembled on these. When the fitting is put again in its place, spread oil and grease on the o'ring so that this fits easily its slot.



#### ATTENTION!

- To have the filters in bad conditions, may imply plenty of non-wanted stops during the working day and lengthen thus unnecessarily the working time.
- Every time that a fitting is disassembled to check the condition of the joint or for any other need, remember to lubricate the closure joint with oil or grease to prevent this one from pinching itself and breaking when the fitting is placed again in its lodging
- The lack of grease of the pump would cause that this would overheat, and all internal mobile parts could become broken.

# 7. Maintenance

## 7.7. Nozzles

To clean or replace them you will have to help yourself with a key to unthread the bolt (D). Take out the nozzle and clean it with air, water or with a suitable brush.



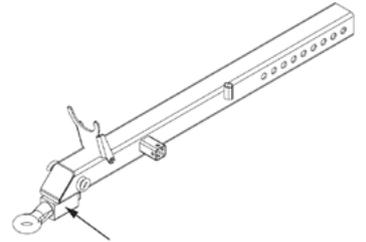
**ATTENTION!** Do not use ever a wire or needle because it would damage inevitably the nozzle.

If some nozzle drips when the sectors are being closed, you will have to replace the antidrip diaphragm (E).

## 7.8. Hitching

### 7.8.1. Eye Tow Bar Hitching

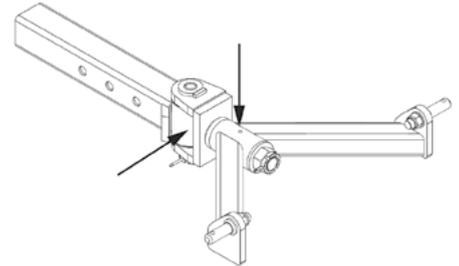
It includes a grease nipple in the right side of the turn, which holds the mouth of the eye. To avoid the wear and stiffness of the turning parts it will be necessary to maintain them always greased.



### 7.8.2. Y-shaped Tow Bar Hitching

It includes a grease nipple in the lower part. To avoid wear and stiffness of the turning parts it will be needed to keep them always greased.

In the axe of turning of the ball-and-socket there is a second nipple grease to ease the turns.



**ATTENTION!** The turning stopper welded over the ball-and-socket helps not to make turns in which the machine can be exposed to a certain breakage. In this case this stopper does not warrant that the machine remains completely protected against any breakage if the operator forces the machine to make abrupt turns forcing the safety stopper.

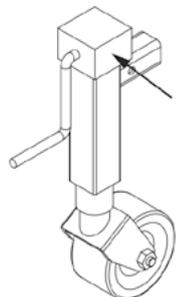


**DANGER!** Stop always the PTO at the moment of making very closed turns even if homokinetic PTO shaft is used. The turns of reduced radius with the PTO spinning can come to cause the breakage of the pump's shaft and create big vibrations in the gear box, until causing the breakage of the impeller or of the air unit.

## 7.9. Jackwheel

It includes a grease nipple in the upper part near the handle. It has to be kept greased to avoid excessive wear and gears' stiffness.

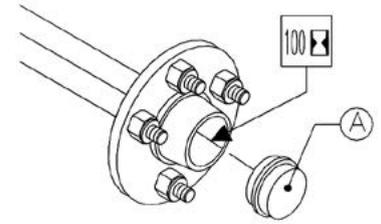
It is recommended to grease at least once a year.



## 7. Maintenance

### 7.10. Wheel's Axle

Grease every 250 hours the wheel's axles with consistent grease. To this purpose, take out the A cap and fill with grease the internal cavity, replacing again the protective cap.



### 7.11. Tyres

The trailed sprayers are provided with tyres with measures indicated in the board of the descriptions' chapter.

The following rules of maintenance must be respected:

- Verify the inflated pressure of the tyres before any season start up and with certain frequency.
- Check that the bolts that hold the wheels rim are well tightened.
- Check the condition of the wheels, in order to detect possible fissures or deformation of this one which could cause a puncture or explosion of the wheel, with the ensuing danger that this implies.
- Avoid the excessive accumulation of mud in wheels as well as in axles.

### 7.12. Winter Storage

Before storing your machine for the winter pause, it is advisable to give it a special care:

- Make sure that the tank is empty and free of wastes.
- Replace the joints and repair the possible losses.
- In areas where the temperature is prone to descending below 0°C, fill the tank with 50 liters of water mixed with antifreeze and set the pump on working with the jets closed, until being sure that the pump and all the circuit is full of antifreeze.
- Leave the tank with the charging mouth uncovered to avoid possible accumulation of gases.
- After a full cleaning of the machine, check the paint of the frame; repair the rusted places, as the phytosanitary products accelerate corrosion in damaged areas.
- Start a general greasing process and change the oil in the pump and in the gear box.
- Disassemble the manometer of pressure and keep it away of frosts and in vertical position.
- Keep the machine in a safe, aired and closed place.
- Make sure that the pressure regulation valve is in "zero" position.
- Check that all protections of the machine are in perfect condition.
- All the electrical connectors should be kept in plastic bags to protect them from humidity, dirt and corrosion.
- Disassemble the control box if the tractor has one and keep it in a dry and clean place.

### 7.13. Preparation of the machine to use it after its storage

After the storage period, the machine should be arranged to start the job of the new season with guarantees. For a correct start, follow the next steps:

- Assemble again the manometer of pressure. Replace the old teflon.
- Connect the machine to the tractor including electrical wires and hydraulic adapters.
- Check the brake.
- Empty the tank until no waste of freeze remains.
- Rinse completely the liquid circuit with clean water.
- Fill in the tank with clean water and check all functions.

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## 7. Maintenance

### 7.14. Periods of maintenance

#### 7.14.1. Every 10 working hours.

Fill in the tank with clean water, activate all functions and check losses using a bigger pressure than the usual one.

Check visually the cone of the nozzles to detect imperfections.

Clean the suction and pressure filters.

Control of level and condition of oil of the water pump.

#### 7.14.2. Every 50 working hours.

Revise the condition of the PTO shaft protection. Replace damaged parts if there are any. Tighten again the screws of the wheels and of the areas which carry out bigger efforts or twisting.

Make sure that the pressure of the wheels and the air tank of the pump are correct.

Check the PTO shaft.

Check the fixation of the water pump.

#### 7.14.3. Every 100 working hours.

Check and grease the PTO shaft tow bar or ball-and-socket tow bar.

Check that the turning axles are not obstructed or deformed.

#### 7.14.4. Every 250 working hours.

Check the hubs of the wheels and the braking system and grease.

Check the hydraulic brake.

Check all hoses of the circuit.

Replace the gear box oil. Check the gear box holder and tighten again the attachment screws.

#### 7.14.5. Every 1000 working hours

Make a full revision of all elements previously described.

## 8. Troubleshooting

### 8.1. General Information

On practically all the failures, the same factors use to have some influence:

1. Small pores or air intakes in suction will reduce the capacity of the pump or will completely stop the suction.
2. An obstructed suction filter makes the pump not to suck correctly.
3. The obstructed pressure filters will make the pressure increase in the manometer but descend in the nozzles' exit.
4. External objects in the valves can cause that the valve does not close completely. This will reduce the efficacy of the pump.
5. Bad assembly of the pump, specially the cases of the diaphragms, will cause air suction and therefore reduction or poor suction of the pump.

For this reason, check ALWAYS that:

1. The filters of section, pressure and nozzles ones are clean.
2. The hoses have not leakages or pores, particularly those of suction.
3. Joints and o'rings are in good condition.
4. The manometer marks perfectly. The correct dosage depends on it.
5. The distributor works correctly. Use clean water to test it.

### 8.2. Liquid Circuit

FAILURE	PROBABLE CAUSE	POSSIBLE SOLUTION
When activating the system there is no spraying	Air in the suction	Check the o'ring of the suction filter. Check the suction pipe and hose fittings.
		Check the assembly of the lids of the head of the pump and the diaphragms.
	Air in the system	Prepare the pump filling in the hose with water.
		Suction/pression filters are obstructed.
Loss of pressure	Incorrect Assembly	The spring of the safety valve is damaged
		The suction fitting is obstructed
		The suction filter is obstructed
	Clogged or worn out pump valves	Check obstructions and wear
	Defective manometer	Check if there is dirt in the entry
Pressure leaps	Clogged filters	Clean the filters. Clean with clean water. If you use powder, make sure that the stirring is activated.
	Worn-out nozzles	Check that the flow of the nozzles do not exceed the 10%
	Clogged tank's air vent	Check the air vent

## 8. Troubleshooting

FAILURE	PROBABLE CAUSE	POSIBLE SOLUCIÓN
Pressure blows	Air Suction	Reduce revolutions in the PTO or pressure of the circuit
Pressure increase	Obstructed pressure filters	Clean the circuits
Foam creation	Air in the circuit	Check o'rings, joints, hoses and suction fittings
	Excessive stirring	Reduce revolutions in the PTO or circuit pressure
		Check the tension of the safety valve of the self-cleaning filter.
		Make sure that there is return to tank.
Loss of liquid of the pump	Damaged diaphragms	Replace
	Damaged pistons	Replace
The distributor does not work	Interrupted connection	Check cable rupture
		Check that the wires are well-connected
	The valves do not close correctly	Check obstructions in the valves
		Check the endings of paths
	There is not electrical current	Wrong polarity. Brown is pos. (+), Blue is neg. (-).
		Check the electrical plate
Check that the fuse makes good contact with your electrical support.		



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