ASSEMBLY, SERVICE & OPERATION MANUAL

GEARMORE INC.

VENTURI AIR SPRAYERS

TRAILER MODELS

April 2013

Form: VenturiTrailerSprayers.pdf

Dear Customer:

Congratulations for choosing a Gearmore Venturi Air Sprayer. This equipment has been designed and manufactured to meet the needs of a discriminating buyer for the efficient spraying operations you may require.

Through our research and development department, we are continuously testing our sprayers which allows us to offer the best performance, highest reliability and ease of use of any sprayer on the market today. We are constantly striving to stay ahead of competition in developing the latest technology and utilizing it on our sprayers.

Our primary goal is customer satisfaction.

Venturi Air Sprayers

trailer-mounted models

Model: .....

Serial Number: .....

Please fill out for future reference

OPERATION AND MAINTENANCE INSTRUCTIONS

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1.1 INTRODUCTION

We welcome you as an owner of the Gearmore Venturi Air Sprayer. This sprayer has the latest technical features and benefits that today's market demands. Yet, the sprayer is quite simple to use and maintain. Before you read on to the operation and maintenance of the sprayer, please read the following general information.

POWER SOURCE: The sprayer is designed to mount to any 540 RPM tractor with the correct PTO horsepower.

PUMP: The pump on the sprayer is a low pressure centrifugal type. There is one very important point to remember with centrifugal pumps; the pump uses the liquid to cool itself. Thus, if you run the pump dry, it will be damaged quickly.

TANK: The tank is thick walled polyethylene, which is corrosion resistant to most chemicals.

BLOWER: Air is supplied by a centrifugal fan. The fan is made of steel and is precision balanced for smooth operation. A special overrunning clutch is mounted on the blower assembly to prevent damage.

CLUTCH: A special overrunning clutch is standard equipment. This clutch will prevent damage to the sprayer and tractor when the PTO is disengaged.

AGITATION:

1. The 200 gallon sprayers are equipped with a dual agitation system, a liquid system that uses by-pass liquid from the pump and an air system that uses air from the fan housing.

2. The 300 gallon sprayers are equipped with a dual agitation system, a liquid sparging tube using a 37 GPM centrifugal pump, and an air tube system that uses air bypass from the fan housing.

3. The 500 gallon sprayers are equipped with a dual agitation system, a mechanical liquid sparging tube system using a 37 GPM centrifugal pump, and an air tube system that uses air bypass from the fan housing.

1.2 - USING THE MANUAL

Read every part of this manual, paying attention to the **WARNING** and **DANGER** indications both on the text and on the machine or on components.

All operations suggested by the manual will have to be followed with the utmost care and only after having understood the negative consequences of improper usage.

The following "**symbols** " are used within the text in order to highlight and visually identify the importance of the various types of information:

Indicates important additional information.

Non observance can result in permanent damage to the sprayer.

Highlights possibly dangerous situations to people.

- The manual must always be kept for the sprayer's whole operational life.
- Any modification received must be permanently inserted in this publication.
- **The manual must accompany the sprayer should this unit be sold**

2.1 - TERMINOLOGY

The terms FRONT, REAR, RIGHT and LEFT utilised in this publication refer to the sprayer as seen by an operator from behind the operative unit along the drive line and facing it: **the rear part** of the machine is that farthest from the operator, and is where the distribution device (Head) is mounted and **the front part** is the one that gets attached to the tractor.

2.2 - DECALS

The safety and use/maintenance decals are applied to the machine are described in the following paragraph.

Every decal is marked with its part number, in case it needs to be replaced.

Safety decals

- **STOP THE ENGINE AND REMOVE THE KEY FROM THE TRACTOR'S CONTROL PANEL BEFORE CARRYING OUT ALL MAINTENANCE OR REPAIR OPERATIONS**
- **CONSULT THE USER AND MAINTENANCE MANUAL BEFORE USING OR INTERVENING ON THE MACHINE**

95001

- **CONSULT THE USER AND MAINTENANCE MANUAL BEFORE USING THE MACHINE**
- **DANGER OF CONTAMINATION BY CONTACT OR POISONOUS PRODUCTS INHALATION**
- **IT IS FORBIDDEN TO ENTER INTO THE TANK!**

95098

- **DANGER, PARTS IN MOTION. BEFORE REMOVING PROTECTION GUARDS, STOP THE TRACTOR, REMOVE THE KEY FROM THE TRACTOR'S CONTROL PANEL AND ENSURE THAT ALL MOVING PARTS HAVE STOPPED**

95005

- **DANGER OF SPRAYS: KEEP AT A SAFE DISTANCE**

95007

- **NO HAND-WASHING TANK**

95008

Safety decals

95010

- MAXIMUM OPERATING SPEED OF THE DRIVE OUTLET (PTO): 540 RPM

95009

- DANGER: GLOVES MUST BE USED TO EMPTY THE TANK

95015

- BEFORE UTILISING THE RELEASE DEVICE, STOP THE TRACTOR, REMOVE THE KEY FROM THE TRACTOR'S CONTROL PANEL AND ENSURE THAT THE FAN HAS STOPPED

Use and maintenance decals

95079

- CHECK THE OIL LEVEL EVERY 8 HOURS: FAN SHAFT BEARINGS

95054

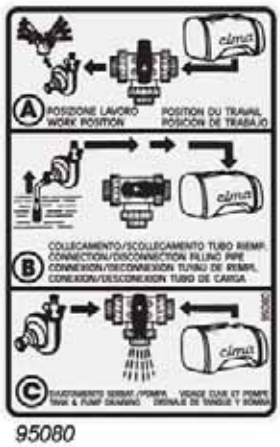
- GREASE EVERY 200 HOURS: FAN BELT-TENSIONER SUPPORT, FREE WHEEL, WHEEL HUBS, STANDARD TRAIL EYE AND STEERING DRAWBAR (for version in which this is envisaged)

95024

- LUBRICATE EVERY 200 HOURS: SUPPORT FOOT with crank regulation

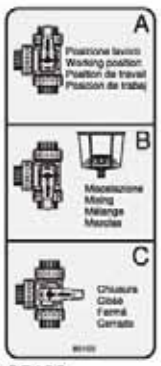
95065

- WARNING: NEVER OPERATE THE SPRAYER WITHOUT LIQUID IN THE TANK



95080

- INDICATION ON THE OPERATION OF THE 3-WAY TAP (P2)



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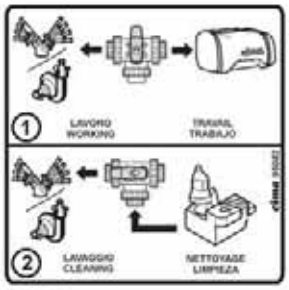
- INDICATION ON THE OPERATION OF THE POWDER MIXER TAP (P12)

95059

- HOOKING POINT FOR THE LIFTING OF THE MACHINE



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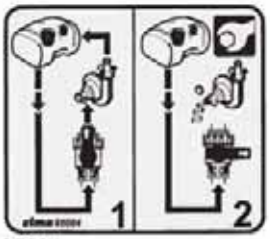
- INDICATIONS ON THE OPERATION OF THE PLANT-WASHING TAP (P15)

Use and maintenance decals



95094

- **INDICATIONS ON THE OPERATION OF THE ADDITIONAL PUMP MAINTENANCE TAP (for version in which this is envisaged)**

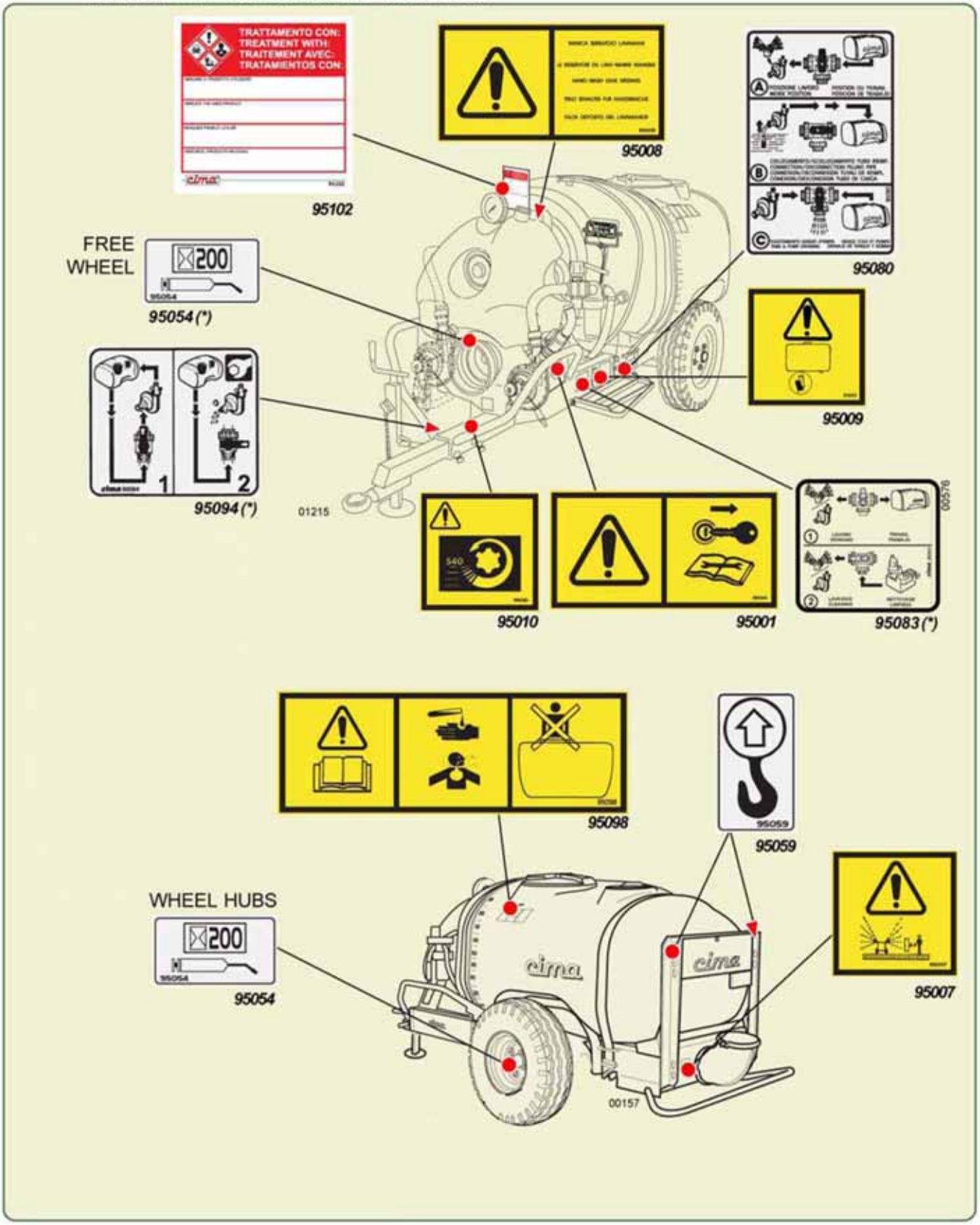
- **HAND WASHING TANK TAP**
  Imprint next to the tap

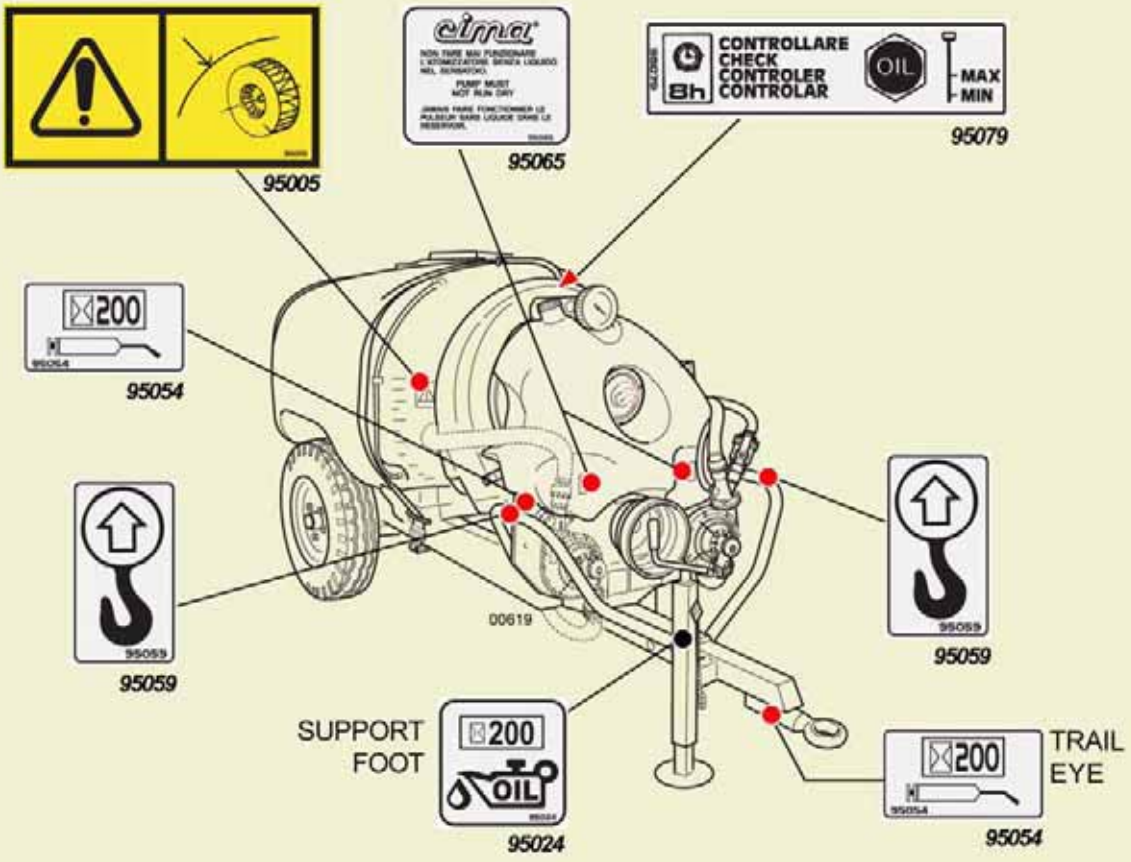
95058

- **INDICATION OF THE CHEMICAL EMPLOYED FOR THE TREATMENT**

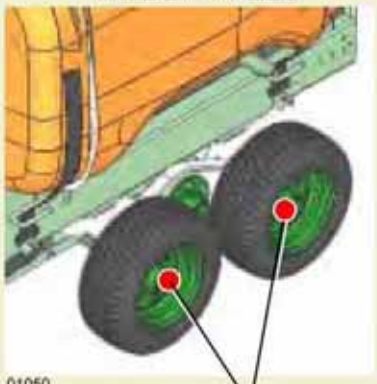
2.2.1
Positioning of the safety, use and maintenance decals

NOTE: The numbers with the asterisk (*) indicate the adhesives relevant either to optional components or to accessories to be applied ONLY on the models and versions on which this is foreseen.





"TANDEM" AXLES

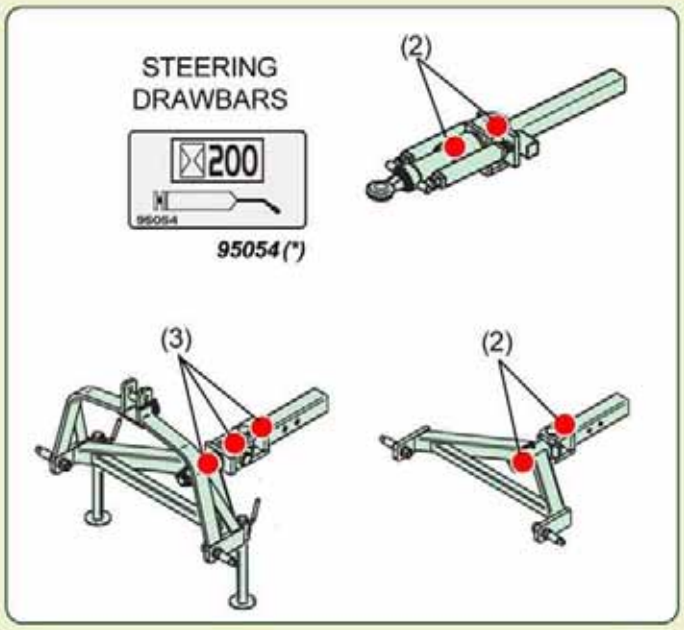


01050

WHEEL
HUBS

200
95054

95054 (*)



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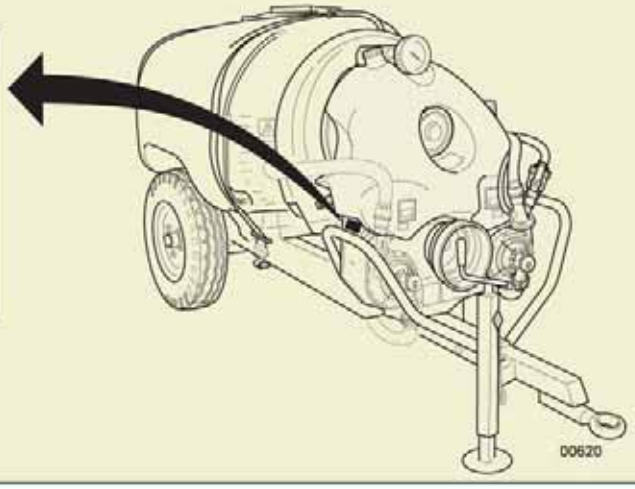
3.1 - MACHINE IDENTIFICATION

Identification nameplate



3.2 - TECHNICAL ASSISTANCE

See your local dealer or contact Gearmore, Inc.

3.3 - SAFETY NOTICES

3.3.1 - General

The personnel appointed to the use of the machine must have acquired an exhaustive knowledge of the same one and of the dispositions contained inside this publication, be able to properly interpret the symbols of the adhesives applied on the machine, and, in addition, perfectly know the safety and the work hygienic rules in force in the country where the machine itself is to be used.

All the preparation, use, maintenance, moving and transporting operations must be carried out of the regulations contained in this publication.

IT IS FORBIDDEN TO UTILIZE THE SPRAYER FOR PURPOSES OTHER THAN FOR ITS INTENDED USE, SINCE IT WAS MANUFACTURED ONLY FOR SPRAYING AGRICULTURAL CROPS WITH ANTI-PARASITIC PRODUCTS.

On the identification plate, the full-load weight of the machine is indicated, measured WITHOUT the distribution device, and WITHOUT the accessories possibly installed.

In order to calculate the towed weight in operative conditions (at full load), add to the weight indicated on the identification plate, the weight of the distribution device which is used (see "Distribution devices – Use instructions" manual) and the weight of the installed accessories (- Weight of the accessories).

— before utilization, check the correct tightening and securing of the machine's various components, paying particular attention to the safety protections and to the moving parts;
— only utilize protected shafts provided with CE conformity certification.
Carry out the assembly only if the drive outlets of both tractor and sprayer are equipped with the protection counter-guard;
— check that the shaft is blocked by the appropriate anti-rotation chains;
— keep people and animals away from the machine before starting it up;
— don't wear articles of clothing that might get caught in moving parts;
— keep to a low speed while negotiating bumps or crossing ditches.
— during the use of the machine, the operator must have a sufficiently good visibility on the working areas, consequently it is recommended to keep both clean and efficient the cab windows and the rear-view mirrors;
— actuate the parking brake when the tractor is stopped on a slope;
— always stop the tractor's engine and actuate the parking brake before carrying out any operation on the sprayer;
— never leave the machine unguarded, when the key is inserted inside the tractor control panel.

- **All maintenance and repair operations must be carried out only after having rinsed the tank and flushed the system.**
- **Before operating within the tank it is necessary to wash it thoroughly with clean water.**
- **The application of paints and/or solvents, the washing of closed environments and machinery as well as the utilisation of the air flow for purposes other than those expressly concerning the spraying of agro-chemicals is not permitted.**
- **It is forbidden to enter the tank.**

3.3.2 - Precautions against fires

Don't approach either flames or heat sources to the machines. The materials used for manufacturing the machine itself are made by widely using oil derivatives: tanks, pipes, wheels, plastic components; besides, the presence of lubricants and of chemical product residuals make them potentially flammable.

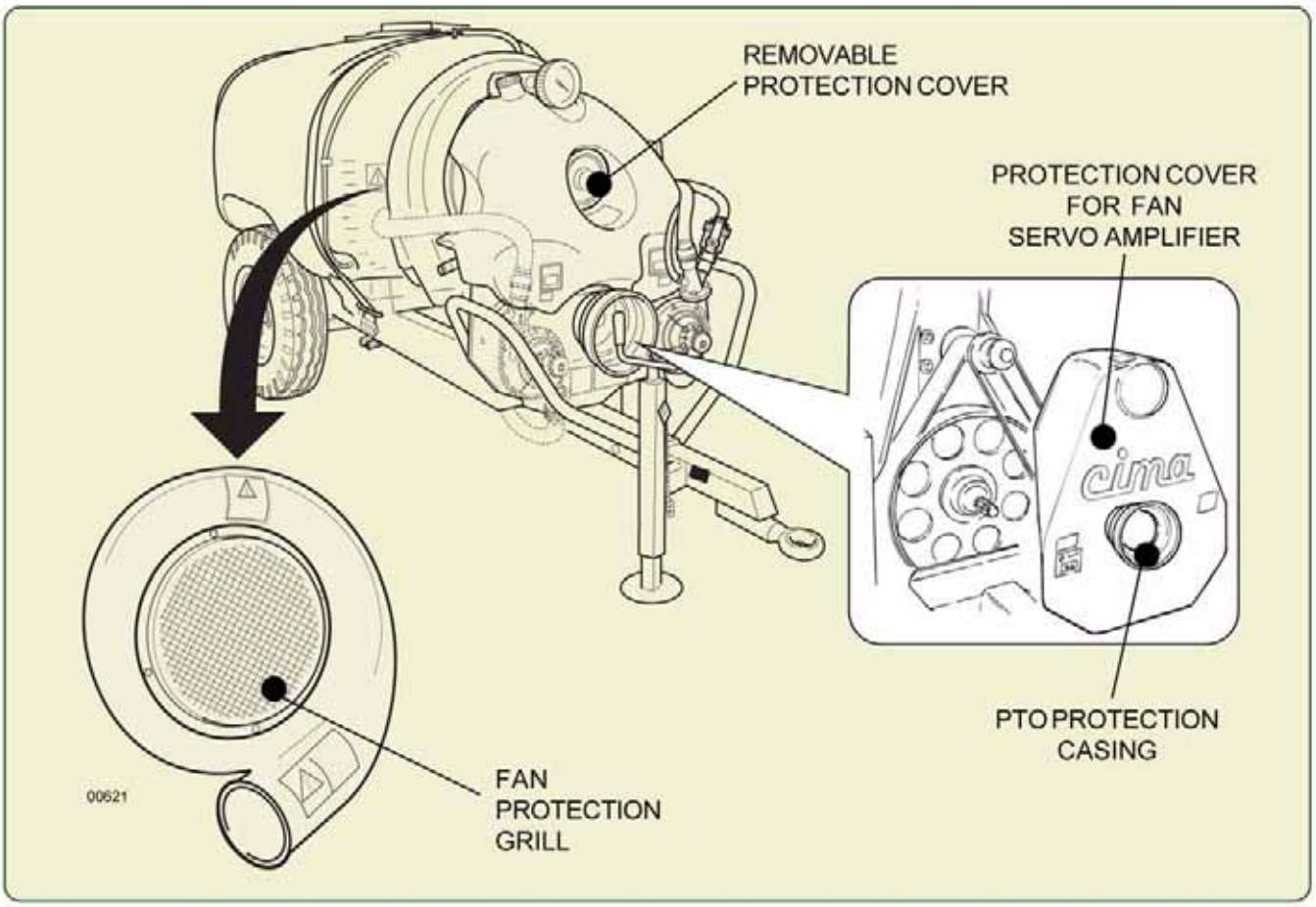
- **It is forbidden to perform welding operations if ammonium salts were previously used.**
- **It is forbidden to use the machine within a potentially explosive environment.**

3.4 - SAFETY SYSTEMS

All machine moving parts are suitably protected by guards and highlighted through the use of warning decals.

- **It is forbidden to use the machine with these guards removed.**
- **Before removing the protection, stop the tractor's engine and remove the key from the control panel.**

The pictures illustrate the machine's guarded parts:



3.5 - HANDLING OF AGRO-CHEMICALS

The **operator** could become contaminated due to accidental spray, contact or inhalation of products or crop-spraying mixtures.
The **environment** could become polluted by mixture over-spills, puncturing of containers, uncontrolled storage of used and unwashed containers or spillage into waterworks.

In order to avoid these risks the preparation and filling operations must be carried out in suitably appointed and adequately equipped sites.

To use pesticides (purchase, transport, loading, treatment planning, mixture preparation, field transfer, treatment performance, ending treatment liquid waste management, equipement rinsing and waste disposal) you must follow the country rules.

Absolutely respect the rules on the label of the product used referring to the application per acre and to the compatibility of other products.

3.5.1 - Storage

Fixed / stationary: the site used must be well ventilated and secured by lockable doors in order to prevent even accidental access by children or unauthorised persons.
Mobile: the carrier equipment must be properly locked and kept under conditions whereby access by children or unauthorised persons can be prevented during the absence of the operator. All full or partially utilised containers must be secured against tipping, falling or breakage during transportation.
Both types of storage must:

— have a suitable container for the storing of empty packaging materials should a specific storage area not be available;
— have a clean water supply readily available for washing, by means of a specific container or through connection to the waterworks system;
— have the use of fire extinguishers, should flammable products and substances be stored.

- **All packages, whether whole or partially utilised, must be stored in their original packing and with the warning instructions clearly displayed and legible.**
- **The storage indications must always be scrupulously adhered to, as well as their utilisation and possible disposal as suggested on the product's original packaging.**

3.5.2 - Specific equipment

The site at which the preparation and filling out will take place must provide for:

— all the equipment necessary to the precise measuring of both the water quantity and the dose of product to be mixed in the tank at every filling;
— all the equipment and means useful to the preparation of the mixture and for the cleaning of the operator in case of contamination;
— all tools necessary to facilitate the direct introduction of the agro-chemicals in the tank;
— the allocation of clothing and specific equipment in order to avoid contamination by contact or inhalation during the whole operative phase of the intervention;
— the availability of proper equipment able to stop the uncontrolled spilling and flowing of the mixture;
— a retaining valve on the feed pipe when the filling of the tank takes place directly from the waterworks system.

3.5.3 - Disposal of empty containers and agro-chemicals residues

Agro-chemicals are classified as "special" waste and their disposal must take place separately from "urban" wastes.

Empty packaging and contaminated containers to be done away with cannot be dispersed, burned or buried.
The washing water for the cisterns and the tools utilised for the preparation of mixtures cannot be emptied on the ground, spilled into the sewage system or in waterways and rivers.

The disposal of special wastes is regulated by specific norms. In order to perform this operation it is necessary to obtain the relevant information from the Local Offices specifically appointed to rule on this subject. The non compliance with these regulations can cause considerable damage to persons and animals as well as polluting the environment.

3.5.4 - Personal means of protection

The toxicity of agro-chemicals forces persons working with them to wear adequate protective clothing and accessories in order to avoid risks of contamination by contact or inhalation.

In each of the following work stages:
— filling of tanks and adding of the agro-chemical,
— dusting and spraying,
— adjusting of the sprayer,
— emptying and cleaning of the tank,
— replacement of the agro-chemical,
— maintenance interventions,
it is necessary to wear personal protection clothing and accessories.

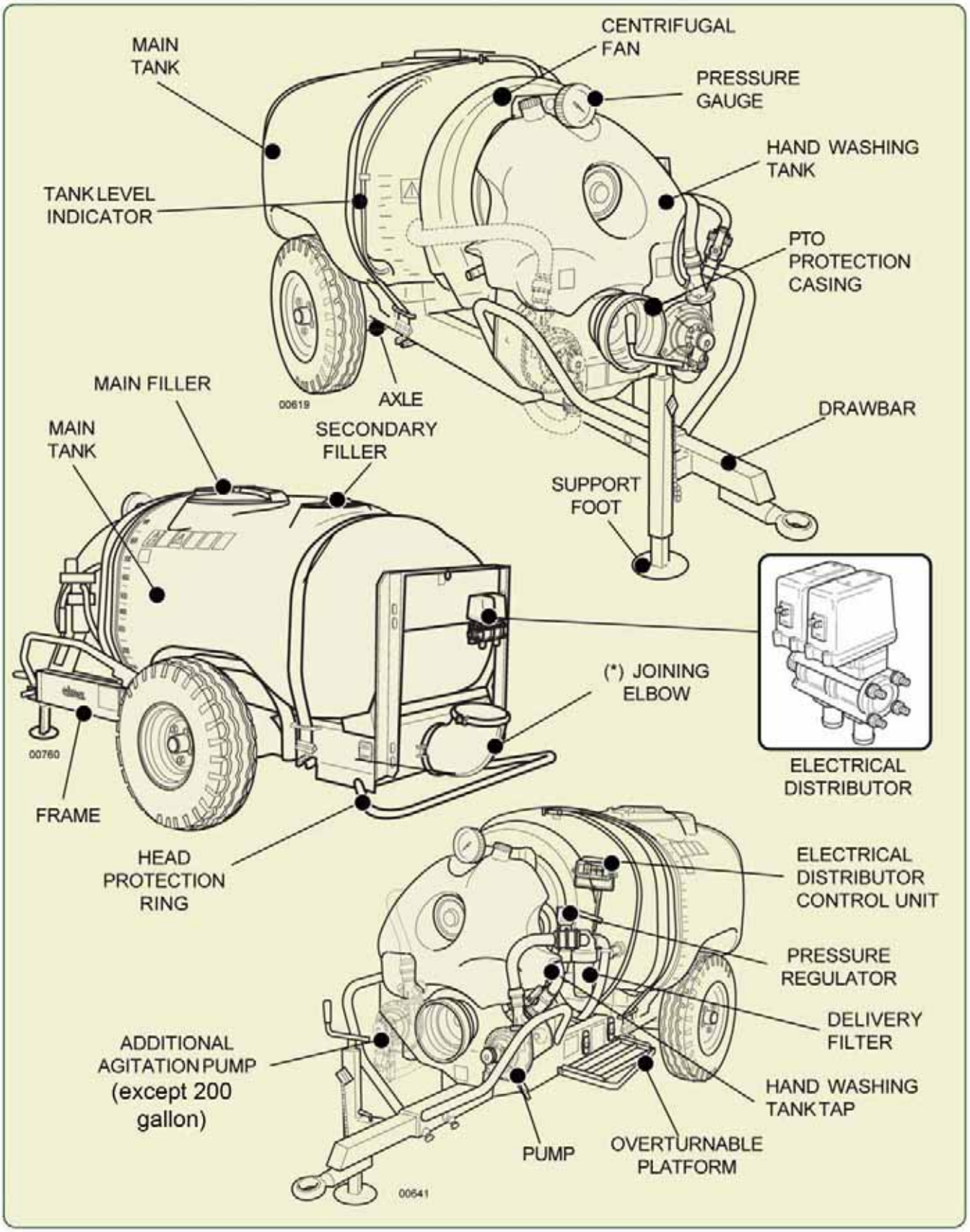
The following must be worn:

— Polyethylene or polyvinyl gloves.
— Full, waterproof cotton overalls, in order to guarantee transpiration, fitted with polypropylene side flaps.
In commerce, one-time 'tyvek' overalls are available which, after use (see picture), must be disposed of according to the modalities applicable to toxic waste.
— A protective half-mask in polychloroprene rubber with 1 or 2 filters. Filters for gases and organic fumes, of European A1-class vapours, are envisaged and these can be combined with anti-dust models of P1 European class, for harmful mists and powders, or P2, for harmful and toxic mists and powders.

The filters must be replaced:
- when the smell/taste of agro-chemicals can be detected, and that of active A1-class carbons;
- when difficulty in breathing is experienced for the anti-dust filters of class P1 and P2.
In any case it is necessary to make use of all personal means of protection as suggested by the manufacturers.

4 MACHINE'S STRUCTURAL ANALYSIS 4

The pictures indicate the position of the main components of the sprayer.

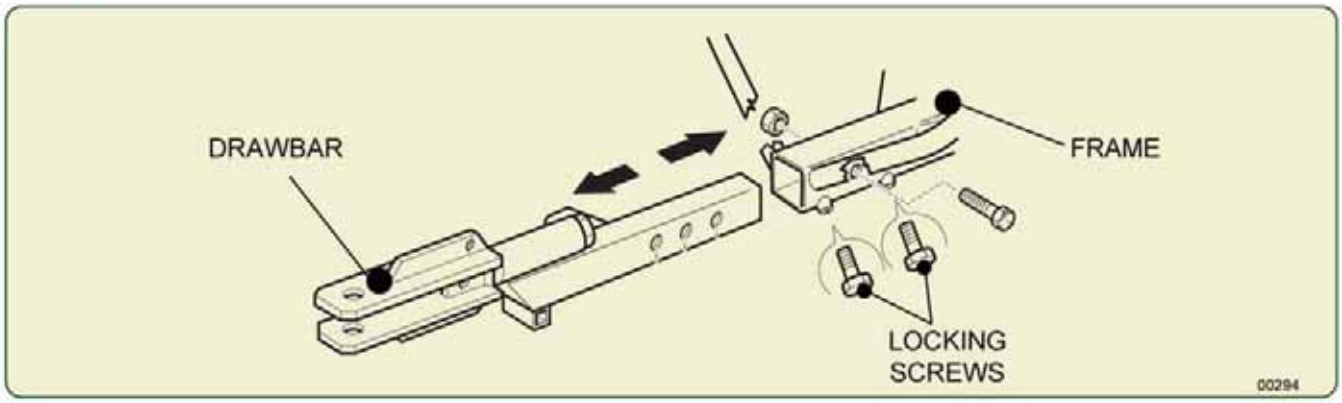


4.1 FRAME WITH DRAWBAR

BRACKET DRAWBAR It's inserted in the frame front section; its position is regulated by means of the insertion of a through screw, provided with a self- locking screw nut.
The drawbar is locked by means of the two lateral screws.

— Adjustable in **height** of **5" (6" on 500 gallon)**.
— Adjustable in **length**

After every use, carefully tighten the two fastening screws.



SUPPORT FOOT with crank regulation.

ALWAYS use the adjustable support foot, in order to stabilize the sprayer when it isn't hitched to the tractor.

The adjustable support foot can be fastened to the sprayer in three different positions, according with the different operative requirements:

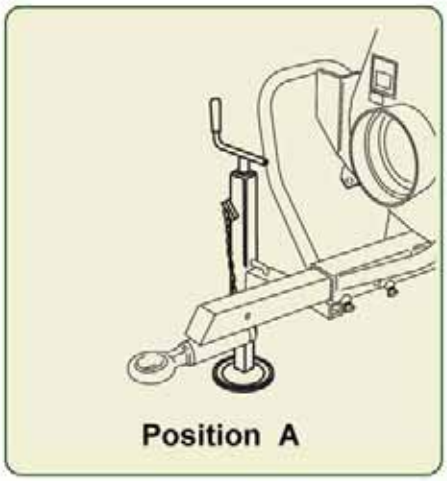
Position A - applied to the drawbar, it assures the necessary stability to the sprayer, when it isn't hitched to the tractor.

Position B - vertically applied to the frame, it allows to regulate the length and to modify the drawbar height, after the sprayers has been **hitched** to the tractor.

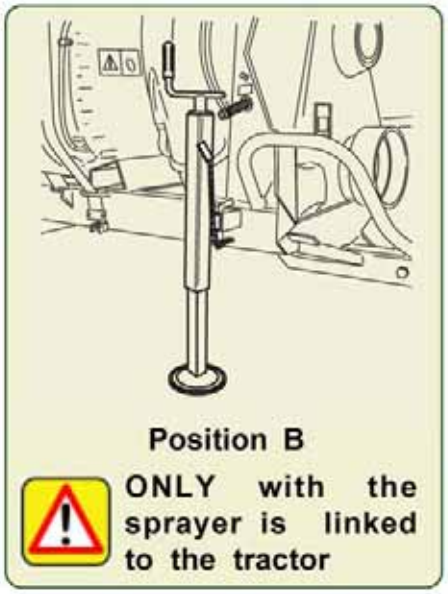
Work ONLY when the sprayer is linked to the tractor: otherwise the sprayer stability is not guaranteed.

Position C - horizontally applied to the frame, after that the sprayer was hitched to the tractor, it allows to use the sprayer itself (**treatment position**).

The figure shows the adjustable support foot three possible positions.

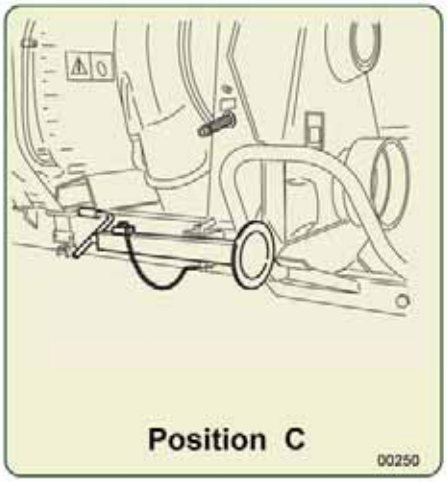


Position A



Position B

ONLY with the sprayer is linked to the tractor



Position C

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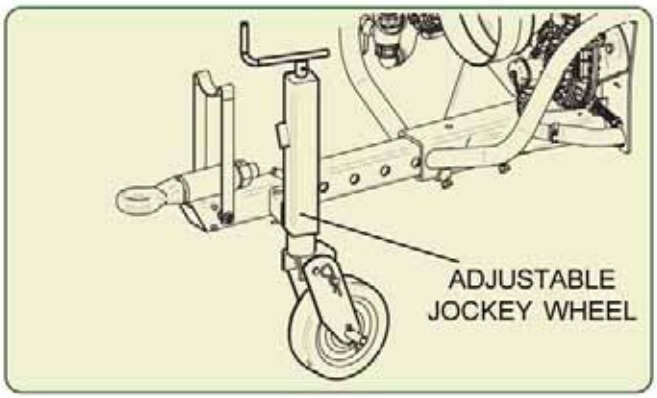
During the sprayer operation, the support foot has ALWAYS to be positioned on "C".

The 500 gallon sprayers are equipped with a jockey wheel with crank regulation; use is the same as for the adjustable support foot.



SUPPORT FOOT for sprayers equipped with bracket drawbar or steering drawbar for the 3-point connection, stabilizes the sprayer when it is not linked to the tractor.

ALWAYS USE the support foot to stabilize the sprayer when not linked to the tractor.

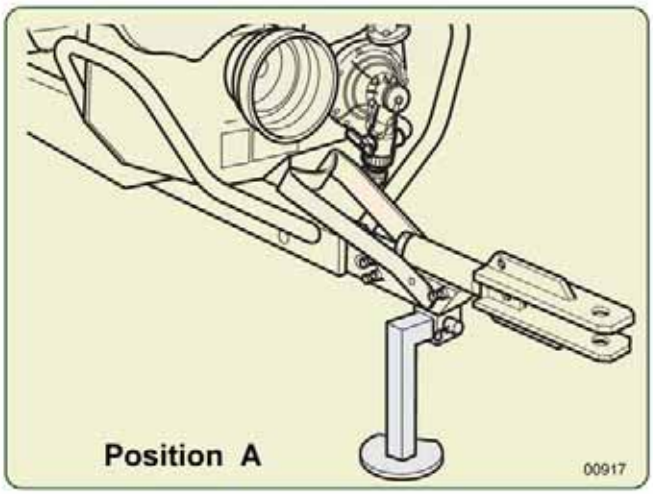
The support foot can be set at the sprayer in two different positions as needed:

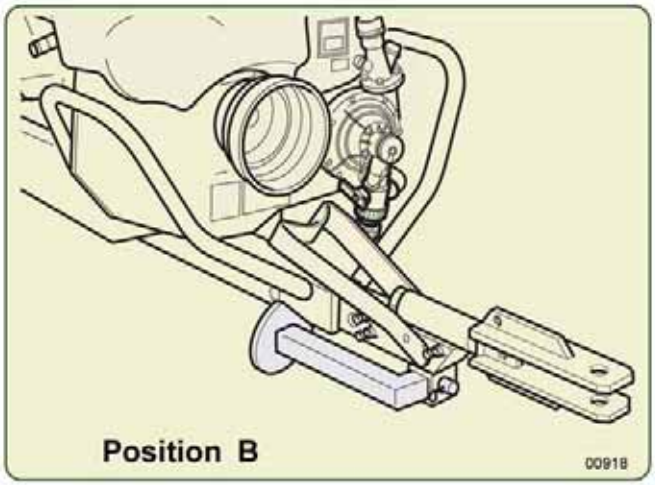
:

Pos. A - vertically applied to the bracket drawbar, it allows the support and stabilizes the sprayer when it is not linked to the tractor stabilizes the sprayer when it is not linked to the tractor.

Pos. B - horizontally applied to the bracket drawbar, after that the sprayer was hitched to the tractor, it allows to use the sprayer itself (**treatment position**).

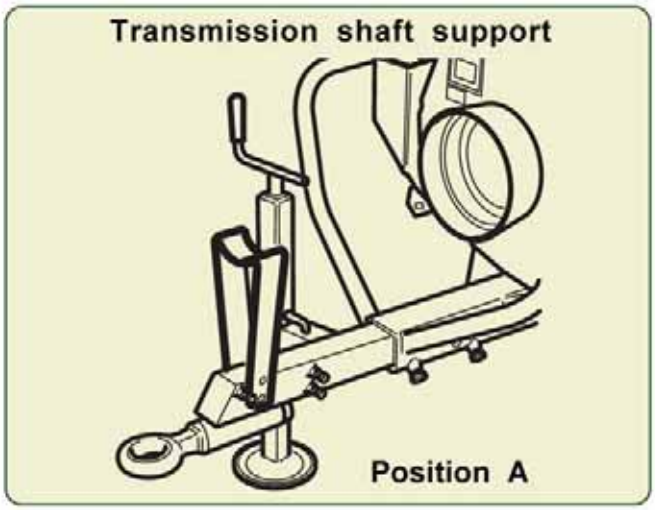
During the sprayer operation, the support foot has ALWAYS to be positioned on "B".

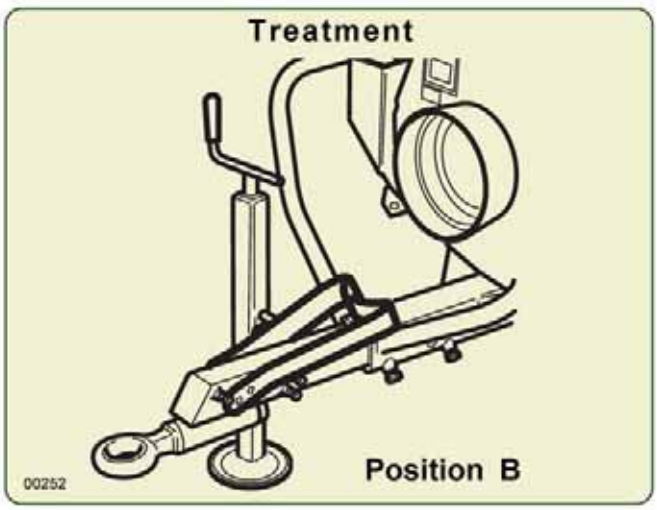




SUPPORT BRACKET mounted on the drawbar, in order to house the transmission shaft when the machine isn't hitched to the tractor.

When the transmission shaft is mounted on the PTO, the bracket has always to be lowered.





4.2 - STEERING DRAWBAR (on demand)

The steering drawbar has to be mounted instead of the standard drawbar.
It has to be fixed to the frame by a through screw provided with a a self-locking nut and locked by means of the two lateral screws.

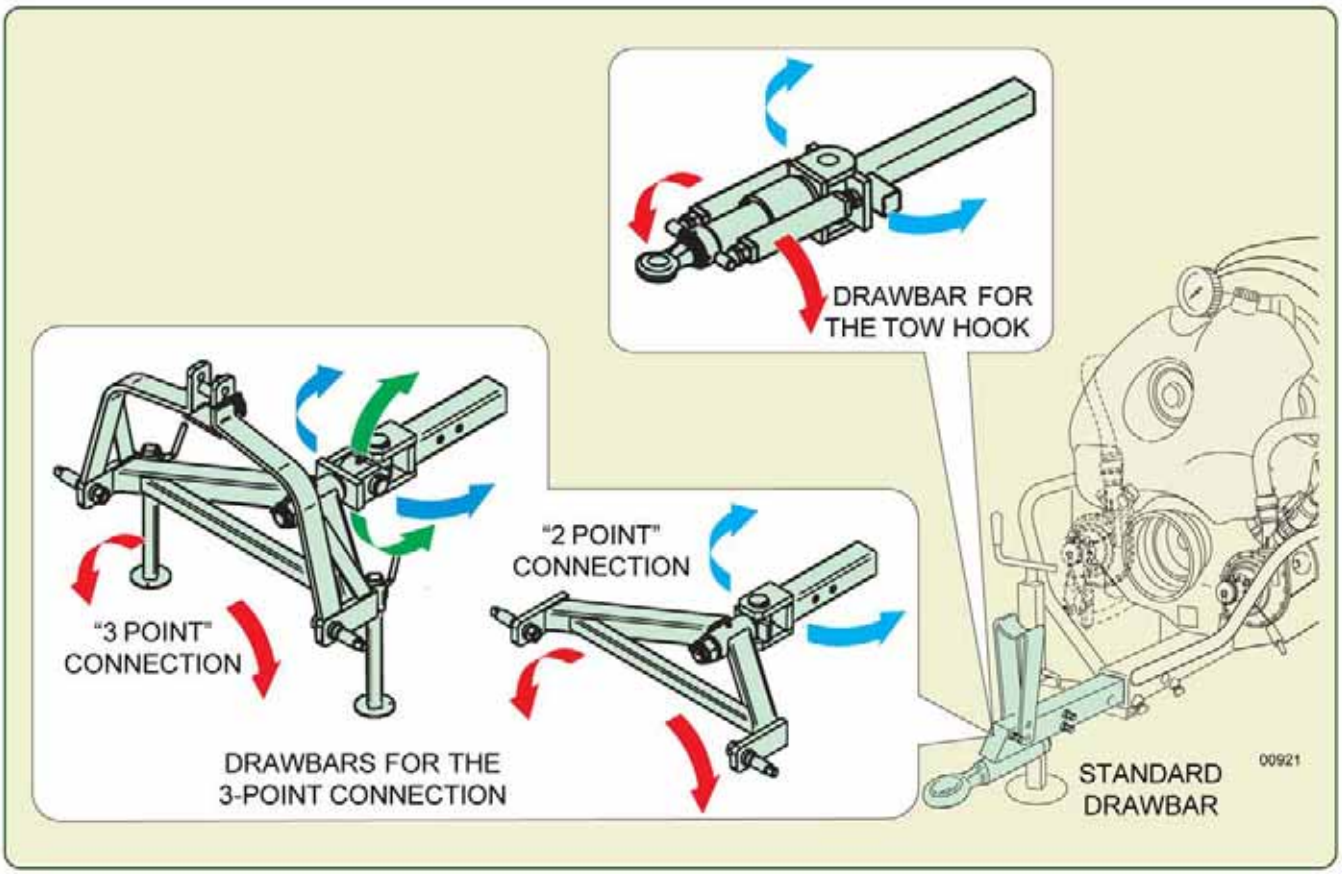
4.2.1. - Drawbar for the tow hook

It has a coupling plate to the tractor rear hook. On the drawbar a support bracket is mounted for housing the shaft when the sprayer is not hitched to the tractor. The frame is the same as the one of the standard drawbar. (see point (4.1).

4.2.2. - Drawbar for the 3-point connection

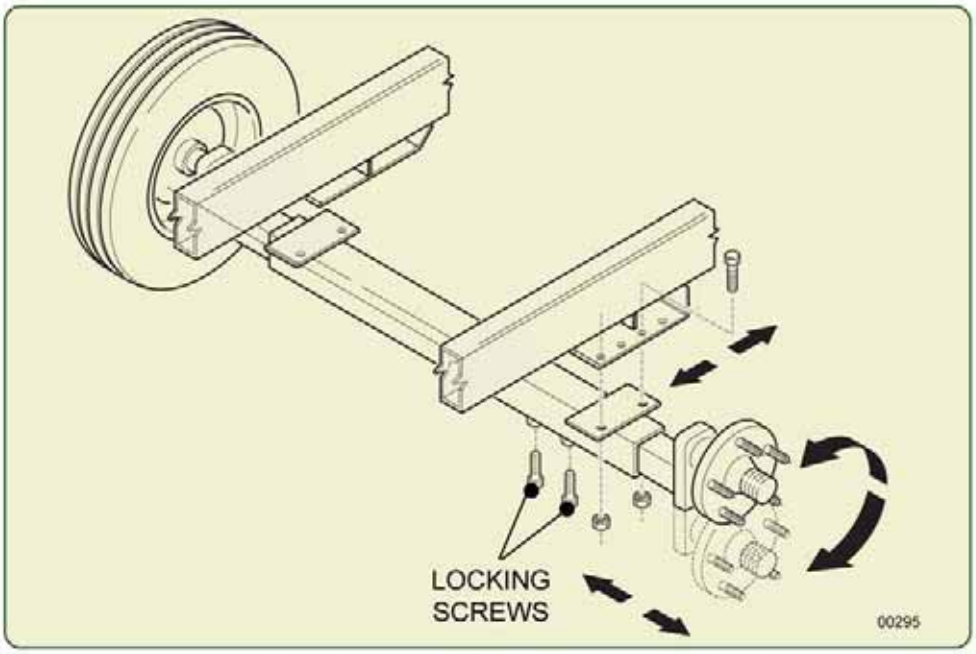
It has a coupling triangle with two pins and the 3-point pin arranged for the hydraulic power-lift - "1" and "2" category, or only a coupling bar for the connection with the two lower pins.

The frame features are the same ones of the standard drawbar. (see point (4.1).



AXLE. **The axle can be set at two different heights, by turning the axle 180 degrees. This will give a height difference of 4 3/4".**

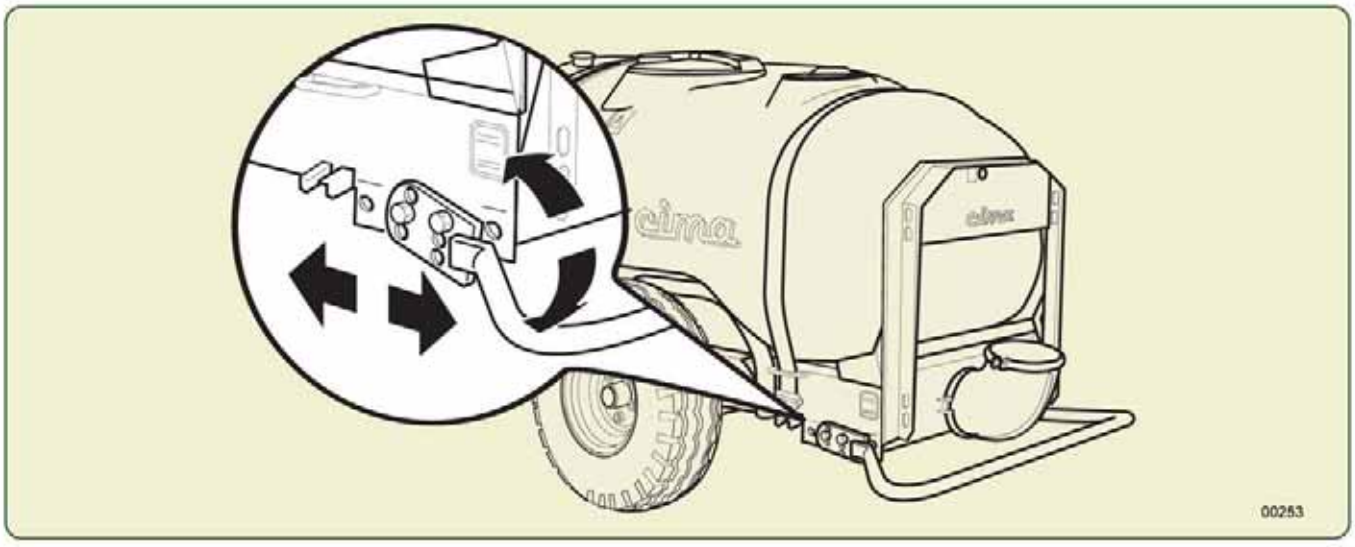
The tire track width can be changed by sliding the axles in and out.



After every use, carefully tighten all the screws and the bolts

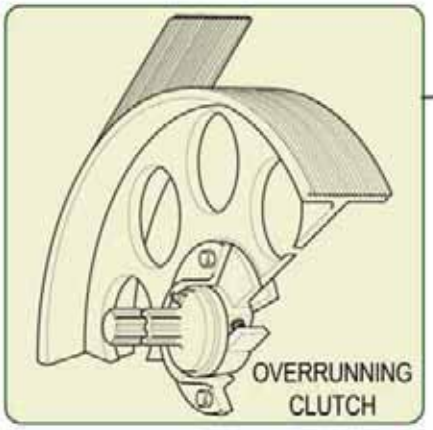
WHEELS. The wheels' hubs are equipped with grease nipples for the bearings lubrication (see 14.1). The tire size and the operating pressure are indicated at step 4.5.2.

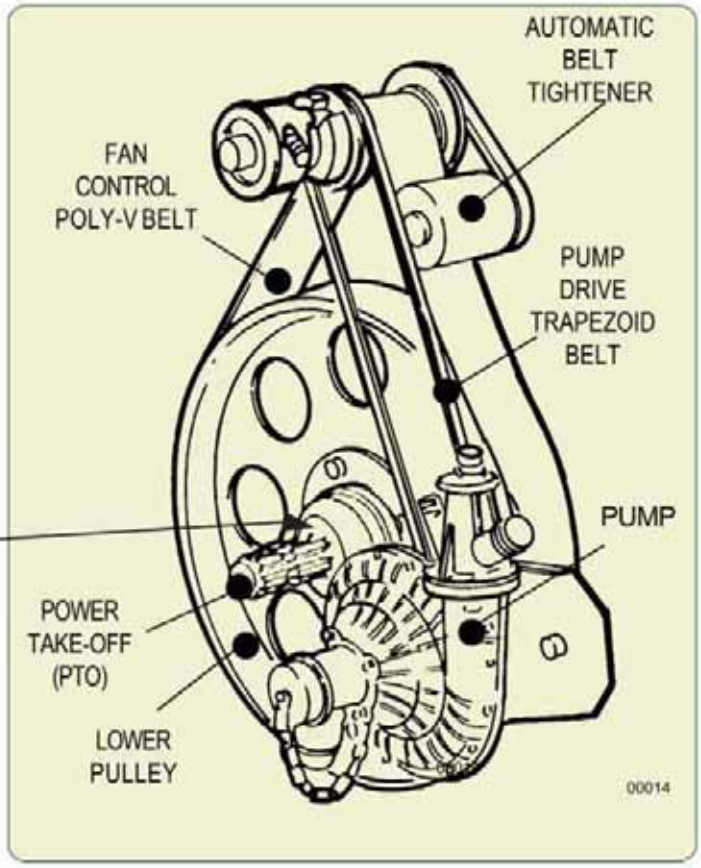
HEAD PROTECTION RING. It is applied behind the machine, in order to protect the distribution devices (heads). It has to be mounted in the most efficacious position, according with the working conditions and with the kind of head.



4.3 - OVERRUNNING CLUTCH

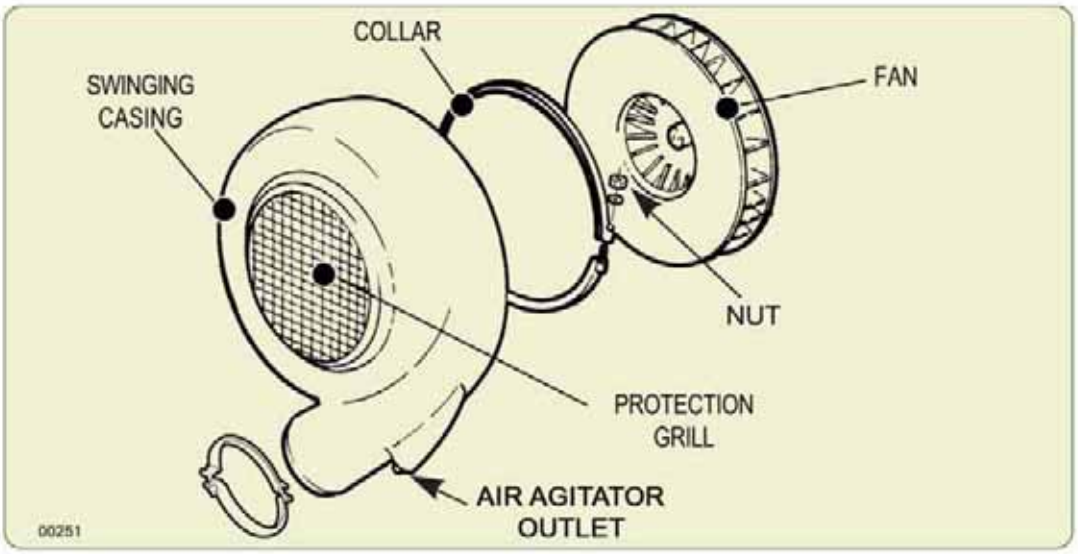
A overrunning clutch is included between the Power Take-off and the fan control pulley. In case of sudden decelerations or unexpected engine stoppage, this allows the fan to continue its free rotation, thus avoiding extreme mechanical stresses to be transmitted to the drive members.



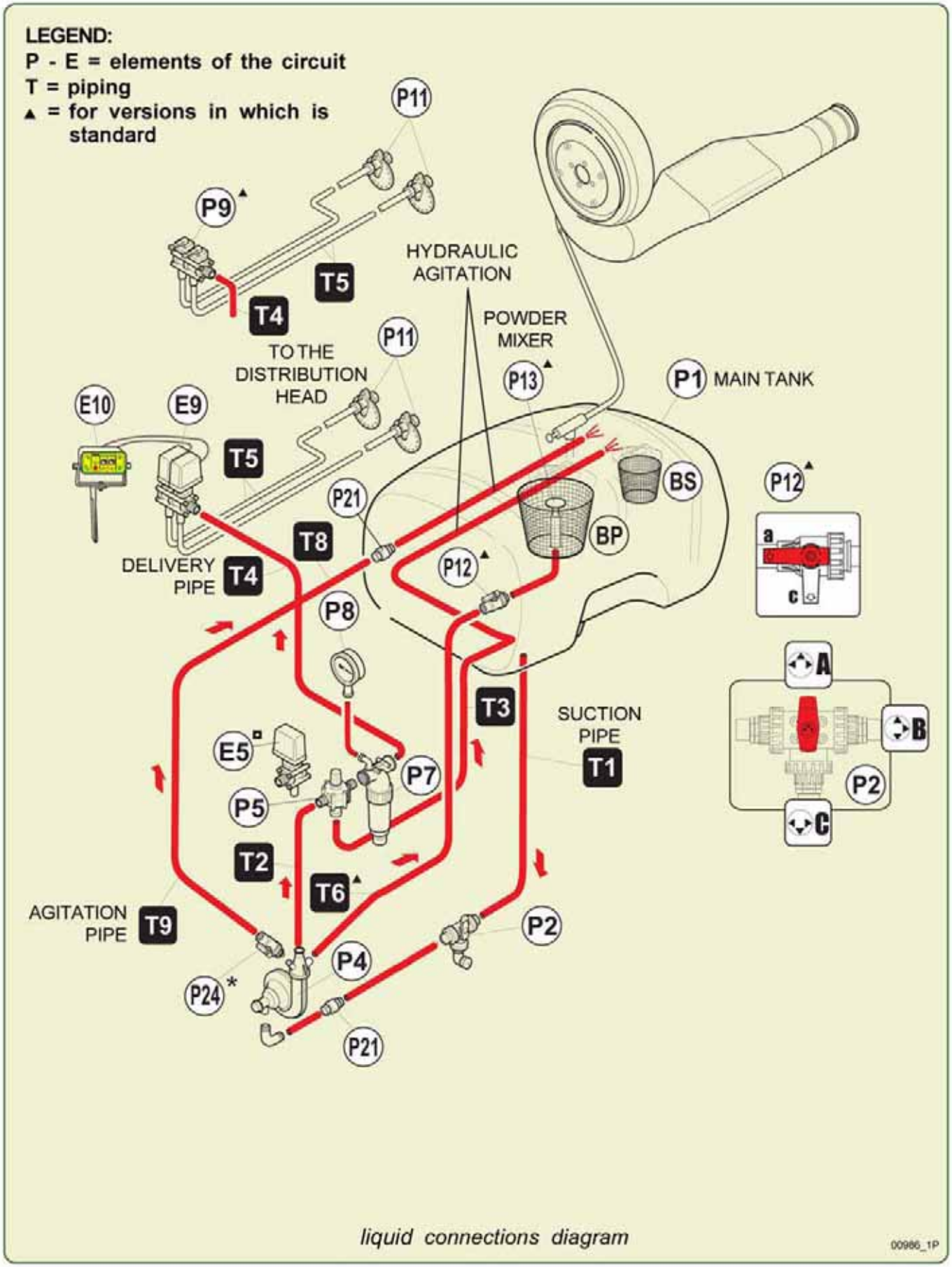


Centrifugal fan

The fan casing can rotate 360 degrees. This permits the positioning of the outlet spout at the point necessary for the assembling of the different distribution devices.

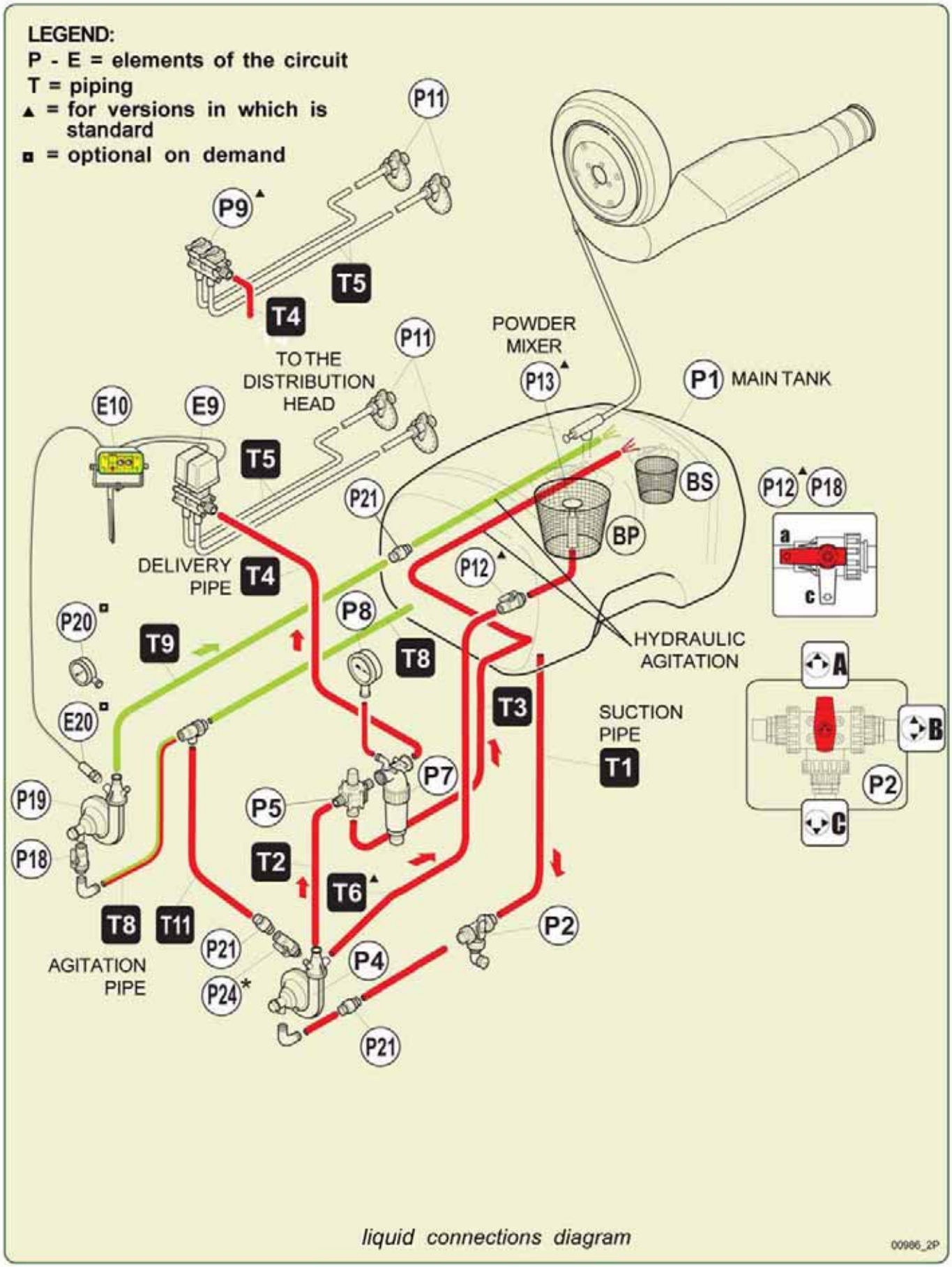


4.4 - HYDRAULIC CIRCUIT COMPONENTS - *200 Gallon Only*



liquid connections diagram

Versions with additional agitation pump - 300 Gallon



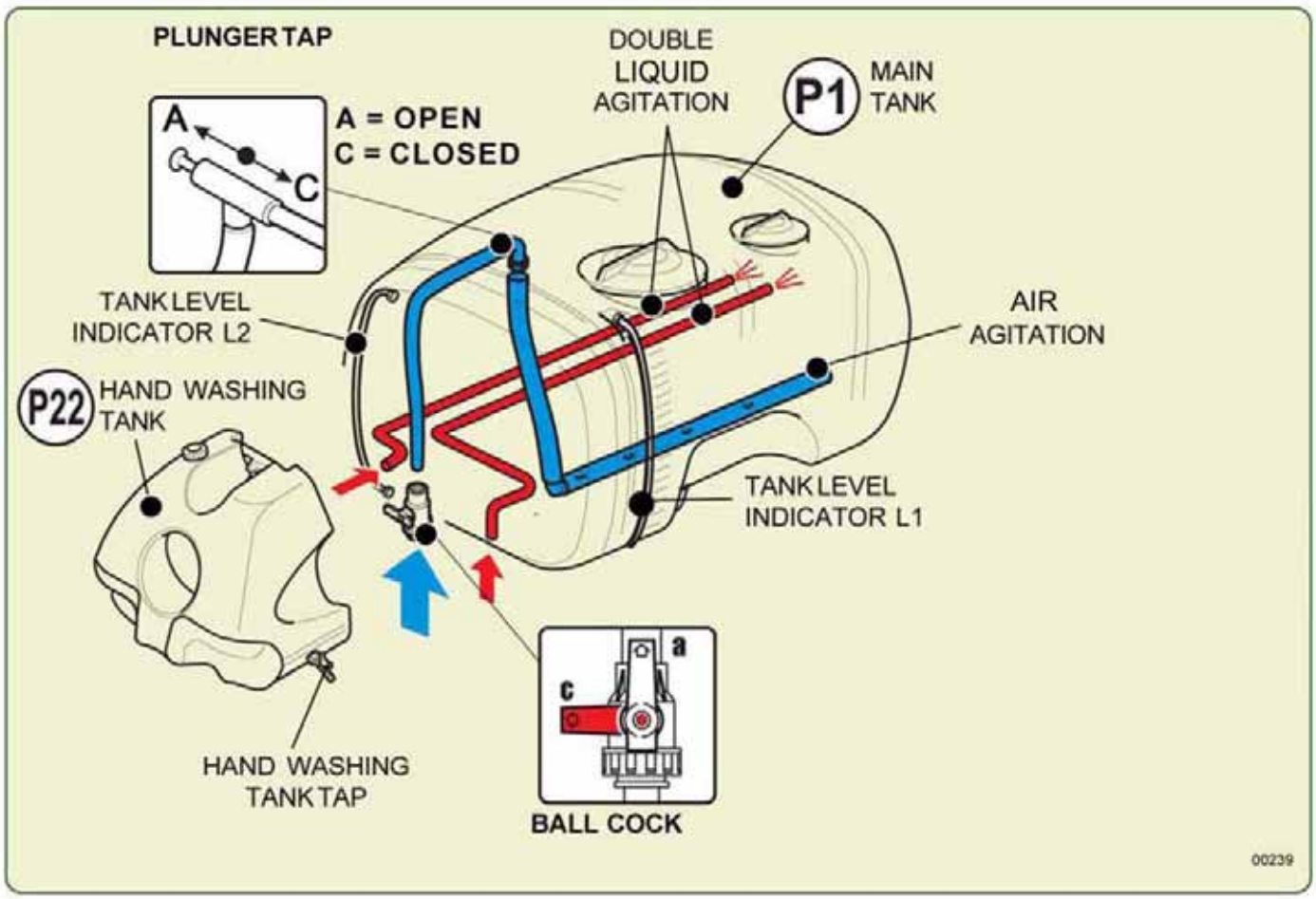
P1. MAIN TANK

Polyethylene tanks **are available in 200, 300, & 500 gallon**
Each tank is made up of:

— tank main filler, with a hinged cover with breather pipe
— supplementary tank filler with screw-type lid, for filling with clear water and plastic filter
— transparent level indicator external pipe with graduated scale, (One on the left-hand side of the tank L1 and one on the front side L2);
— double liquid agitation; (400 and 500 gallon only)
— **air agitation**
— piston cock, positioned over the tank and connected through a pipe to the air inlet, which is placed on the fan casing, for opening/closing the **air** agitation (only for sprayers with **200 & 300 gallon** tanks)
— ball cock, placed on the pipe connecting the air intake, which is positioned on the fan casing, with the coupling in the tank upper section, for opening/closing the air agitation (only for **500 gallon sprayer**

P22. ADDITIONAL HAND-WASHING TANK

8 gallon polyethylene tank, with external tap.



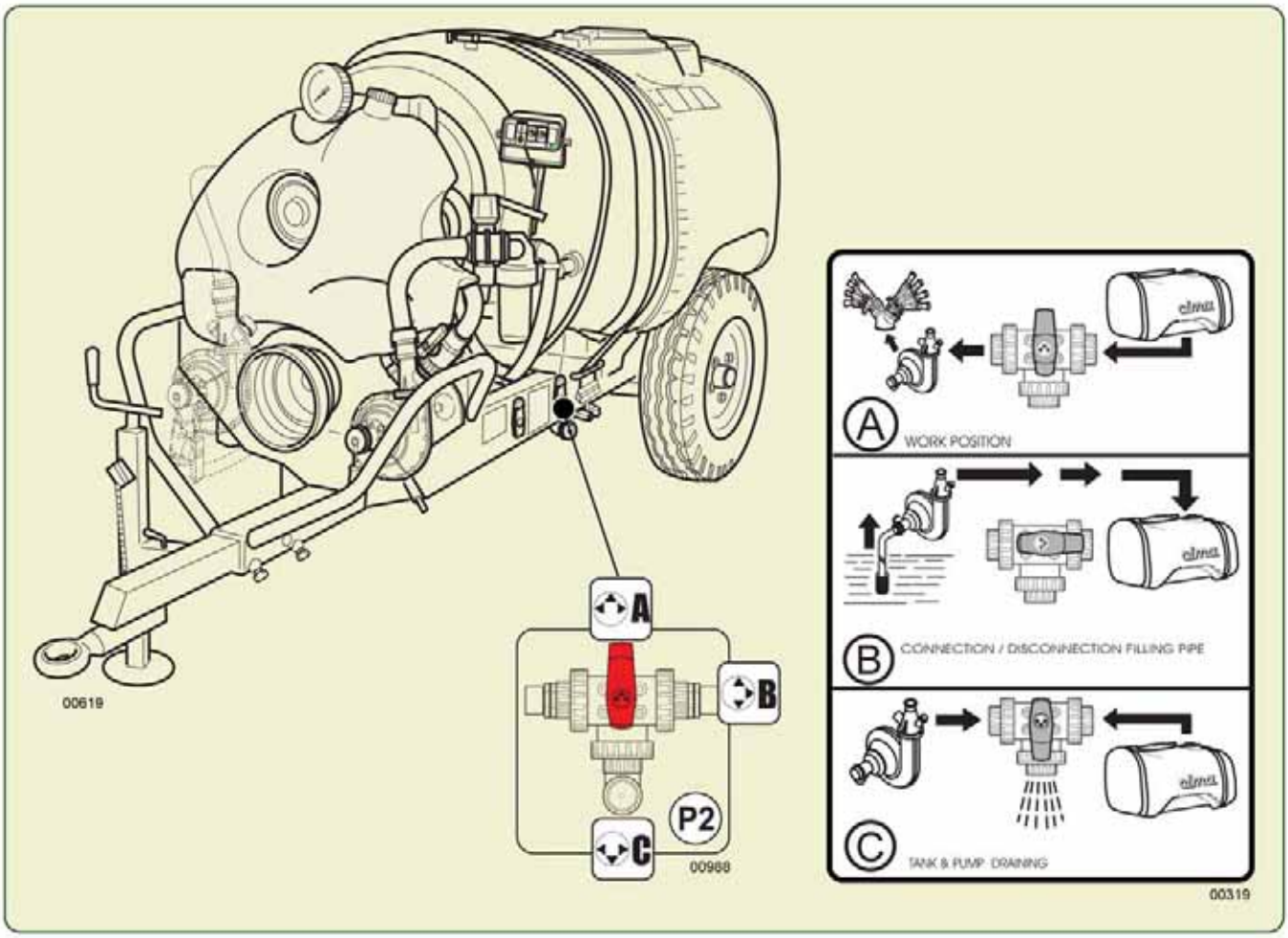
P2. 3-WAY LEVER VALVE A WITH DISCHARGE FITTING

Positioned on the pipe (T1), between the tank (P1) and the pump (P4), it is equipped with a closing plug of the discharge fitting, with the relevant safety chain.
The 3-way lever (P2) can be positioned as here following specified:

A - Treatment
This is the **NORMAL** operating position

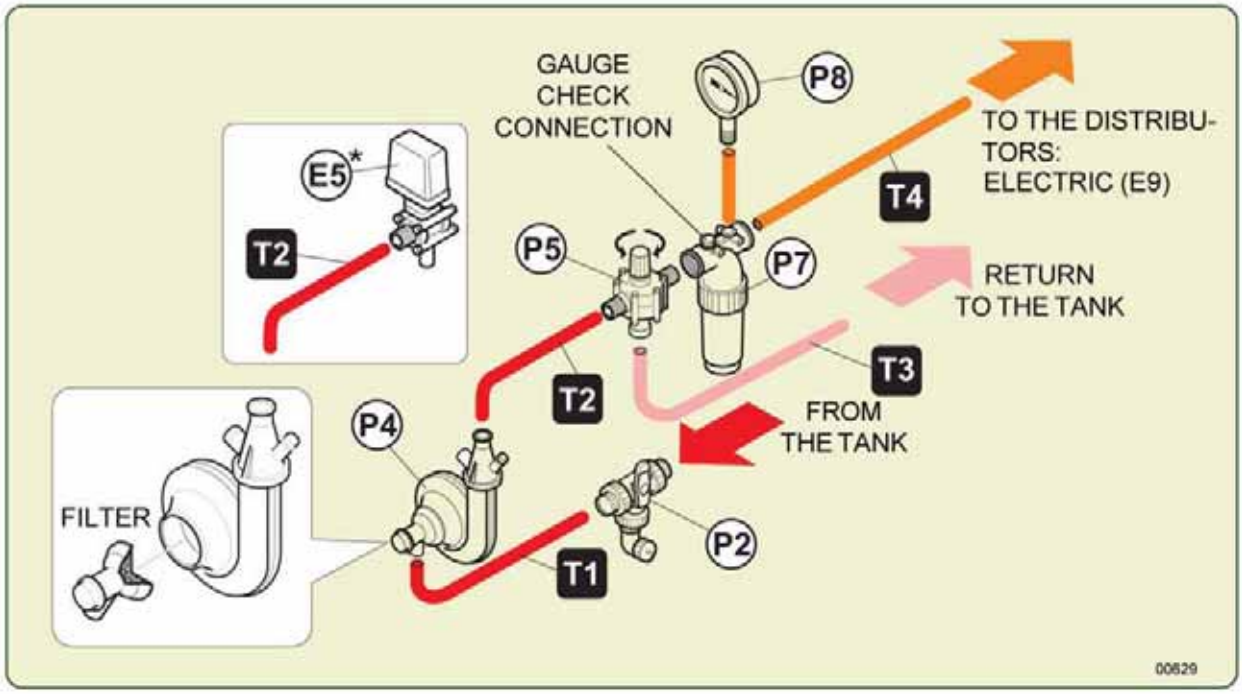
B - Filling
We do not recommend nursing the tank by this method

C - Drainage
In this position, it is possible to empty: the tank (P1), the pump (P4) and all the pipes



P4. CENTRIFUGAL PUMP

On the unit left front section, is connected with the 3-way cock (P2) and with the pressure regulator (P5). The pump is **mounted** by the suction side of a filter to prevent the accidental entry of foreign bodies.



THE PUMP MUST NEVER RUN DRY
The water must be always in the pump : ALWAYS check this point carefully at the start up and during use.

To avoid any damage to the pump :

- At the first filling and at every next filling, fill the tank with an appropriate quantity of water to fill the pump completely;

- In order to control that the pump is not running dry, **AFTER** engaging the PTO, check that the pressure gauge (P8) shows an operating pressure value above 0 (zero).

P5. MANUAL PRESSURE REGULATOR

It is connected to the delivery filter (P7) and, through pipe (T3), to the tank (P1). It regulates the operating pressure, by controlling the return flow to the tank.

— **By closing it: it REDUCES the return flow** to the tank and therefore, the agitation of the mixture, and increases the operating pressure and the capacity flow to the head (rotate the handle clockwise).

— **By opening it: it INCREASES the return flow** to the tank and therefore, the agitation of the mixture, while reducing the operating pressure and capacity flow to the head (rotate the handle **counter-clockwise**).

P7. FILTER

The filter has a filtering capacity of **65 gallons per minute** with a 50 mesh cartridge. The dirty cartridge causes the operating pressure **drop**. This is signalled by the pressure gauge.

P8. GAUGE

Glycerine-**filled**, with dial from 0 to **80 PSI (6 bars)**

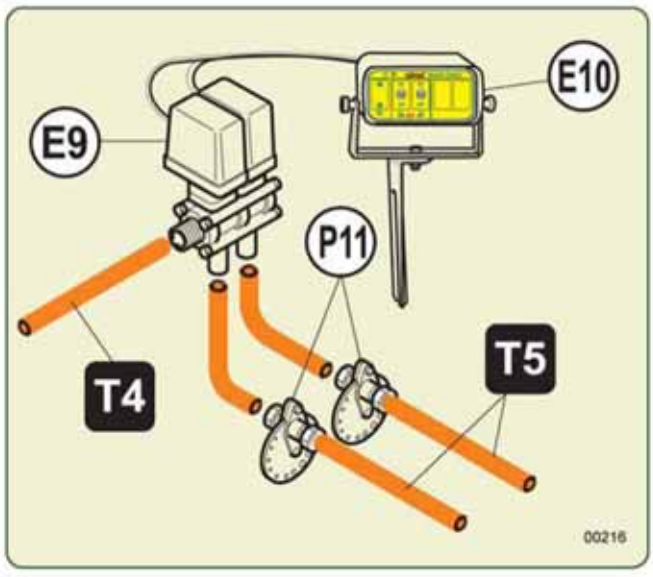
Set the working pressure keeping the E9 (or P9) distributors opened.

E10. CONTROL UNIT

It is electrically connected to the distributor with 2 motorised solenoid valves (E9) and to the main socket of the tractor (Lighter tap).
The 2 lever switches, controlling the solenoid valves (E9), have to be set to "ON" for opening and to "OFF" for closing. The control unit is equipped with a bayonet support to be inserted in the bracket provided. This must be mounted on the tractor, within the driver's reach. When the machine isn't hitched to the tractor, it must be placed in the position on the forward part of the machine frame.

E9. ELECTRICAL DISTRIBUTOR WITH TWO SOLENOID VALVES

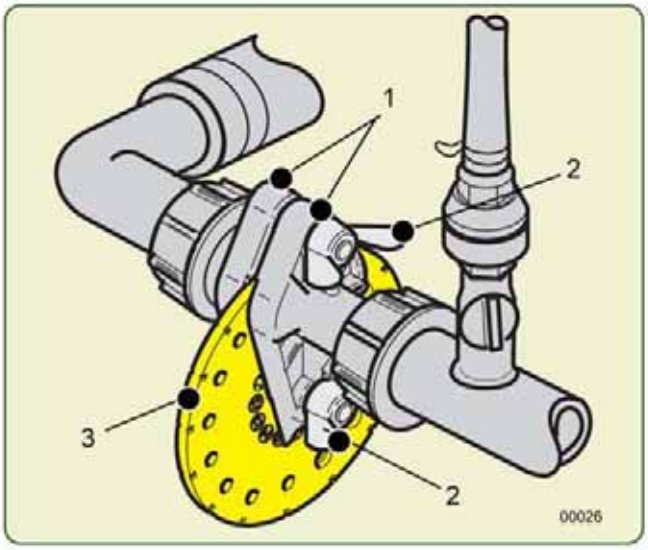
It is connected with the feeding pipe (T4), the distribution pipes (T5) and the electrical unit (E10), which is fastened on the tractor. The solenoid valves open and close themselves, according with the action carried out on the electrical control unit switches.



P11. CALIBRATION DISC (Patent N° 23238)

It selects the flow rates necessary to the treatment and is mounted on the distribution devices. It is made up of 2 flanges, held in position by two butterfly nuts, locking a disc with calibrated holes numbered from 1 to 15. A groove on the edge of the disc allows the exact positioning of the hole to be utilised. Its number must appear in the flange's semi-circular seat. The rotation of the disc is obtained by loosening the butterfly nuts by a few turns. After the operation is done, screw back carefully.

Any faulty sealing condition of the liquid circuit causes an intermittent issuing of the sprayed material. It is necessary to carefully check the efficiency of the seals and clamps, the tightening of the ring nuts and fittings and the good working condition of the piping.



LEGEND

1 - UNION FLANGES
2 - LOCKING NUT
3 - ROTATING DISC WITH CALIBRATED HOLES

P19. ADDITIONAL AGITATION PUMP (except 200 gallon)

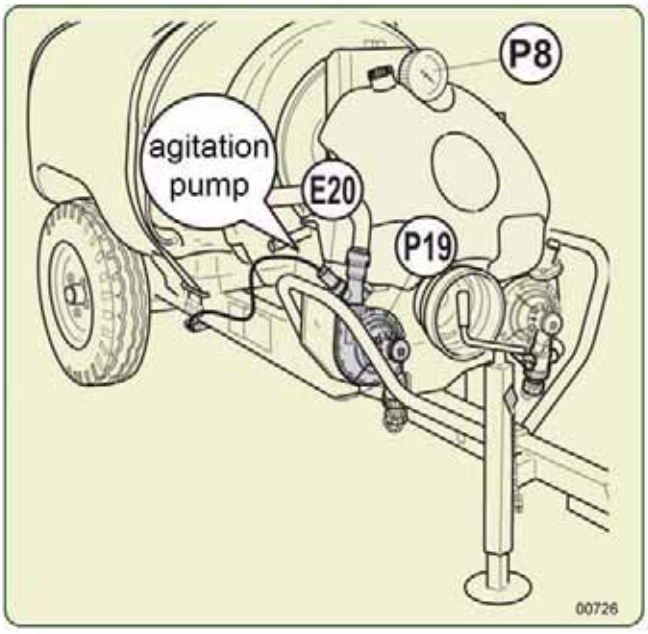
Fastened on the machine right front side, it is connected to the tank (P1) through the pipes (T8 - suction) and (T11 - delivery).

THE PUMP MUST NEVER RUN DRY : ALWAYS check this point carefully at the start up and during the functioning.

To avoid any damage to the pump:

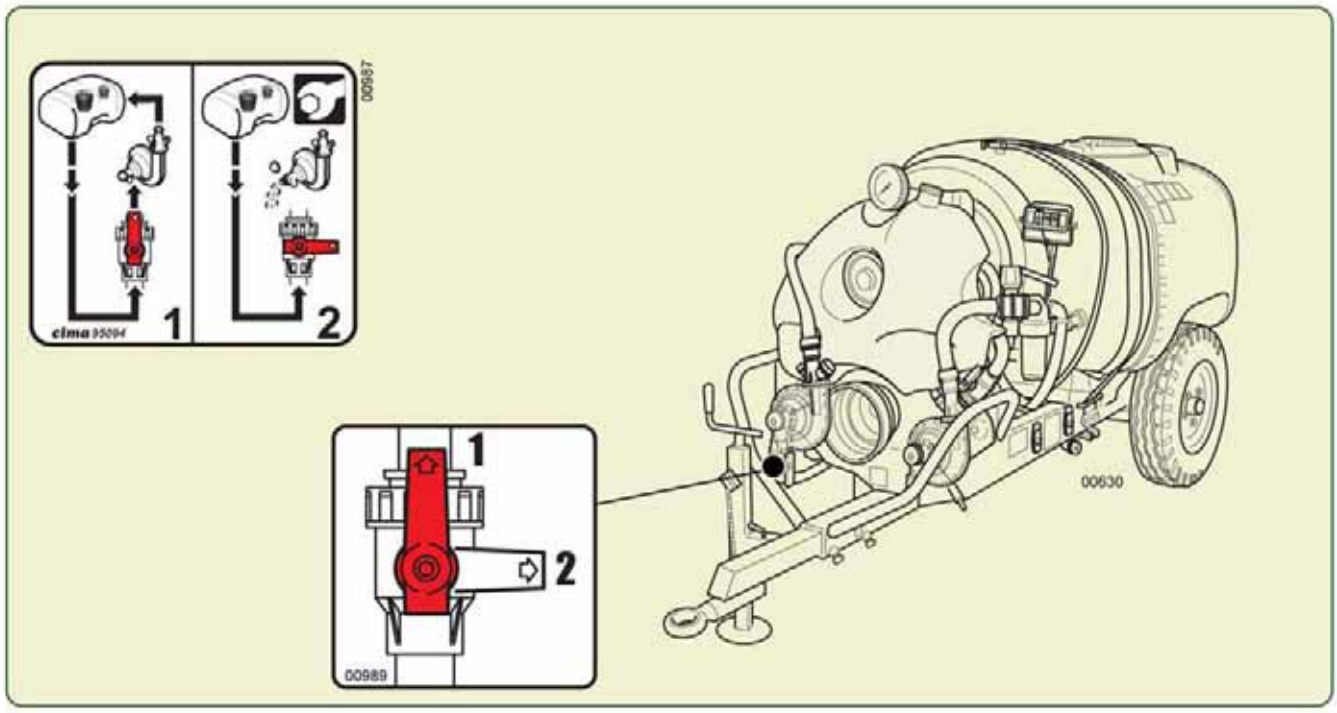
- At the first filling and at every next filling after the liquid circuit draining, fill the tank with an appropriate quantity of water to fill the pump completely.

- The feeding of the 2nd pump is "forced" in any use condition, even when the sprayer is working on sloping grounds and/or with the tank almost empty : in this way the pump does not run dry.



P18. ADDITIONAL PUMP VALVE - 300 & 500 GALLON ONLY

1 - Agitation- Position 1 is on, Position 2 is off.



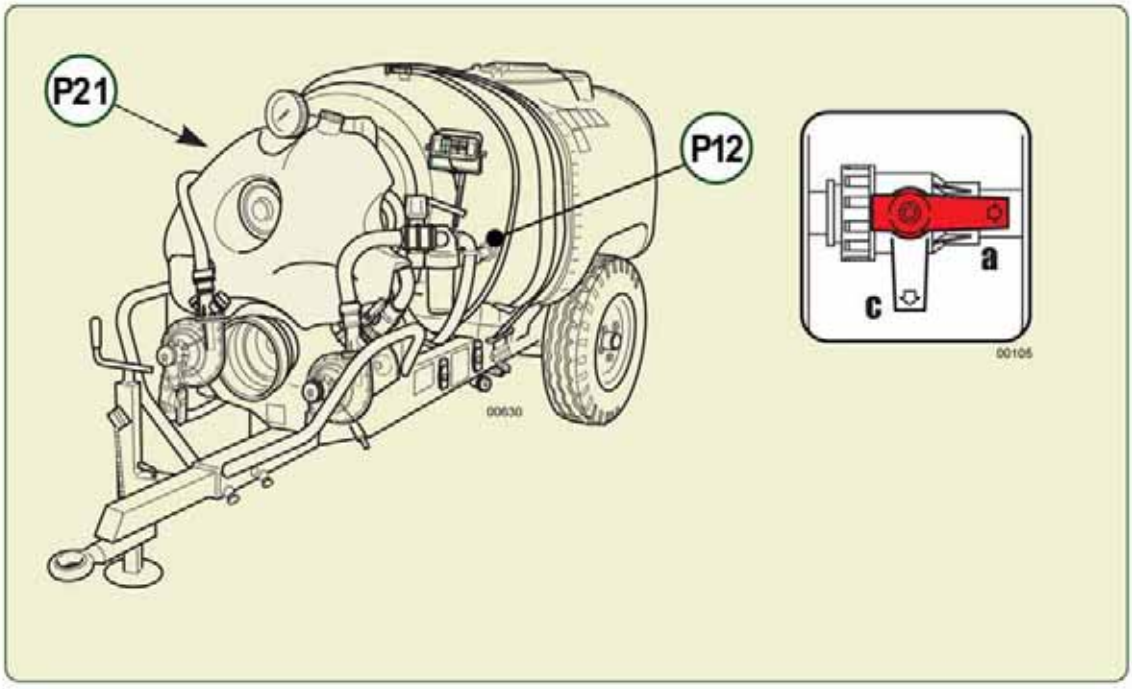
P12. POWDER MIXER VALVE

Positioned on the pipe (T6), between the main tank (P1) and the centrifugal pump (P4), it can assume the following positions:

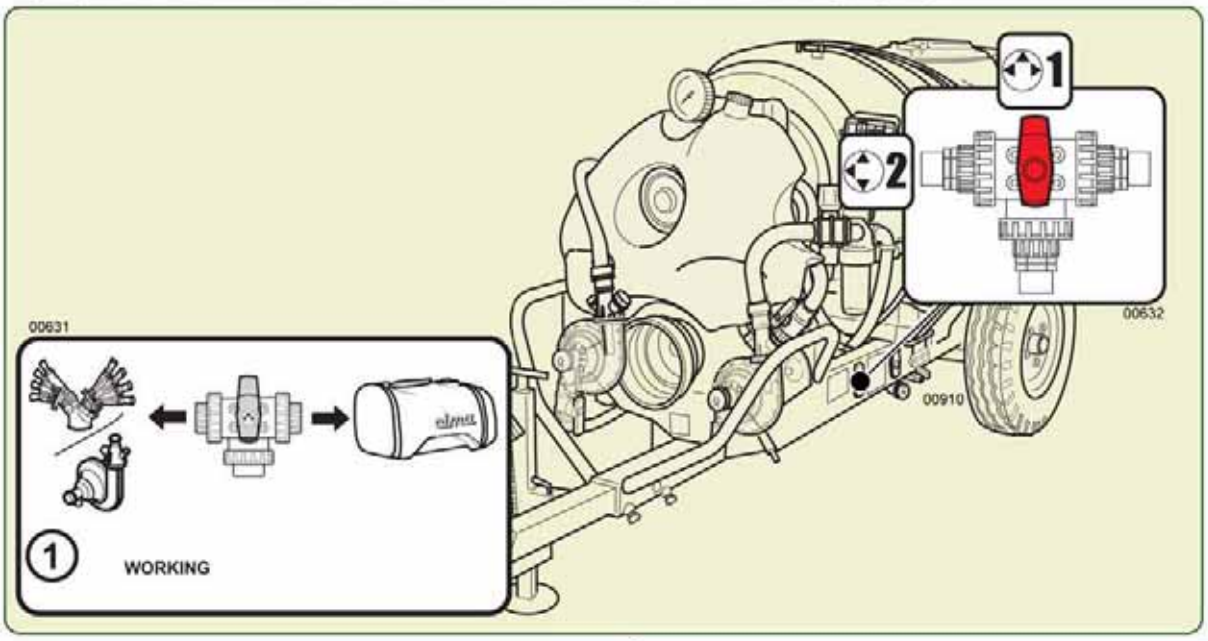
a - Open

The liquid is sent to the shower head in the strainer basket

c - Closed

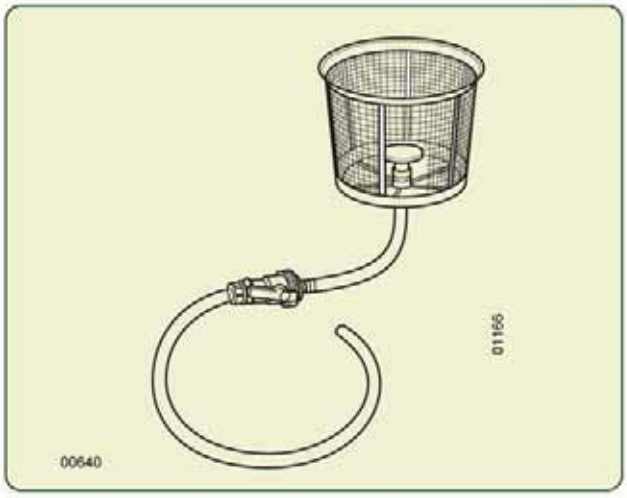


1 - Spraying - The level on the valve should be in this position when spraying.



P13. POWDER MIXER (SHOWER HEAD)

It makes the mixing of the powdery products during the filling of the tank. It is mounted on the basket filter of the main filler. That device consists of a fine mesh-nylon basket, which is placed inside the tank main filler. The basket is equipped with a mushroom outlet, through which the filling water streams out. Thanks to that system, the powder products contained inside the basket get more gradually dissolved.



5.1 ASSEMBLY

Assemble the sprayer in the following manner:

1. Install the adjustable tongue assembly. Mount in the high or low position, depending on your tractor hitch height. Adjust in and out position of tongue, making sure that the PTO shafts are engaged as much as possible.

2. Mount wheels and tires to the stub axles.

3. Mount tire and axle to main frame. Note: Due to the offset in the axle, you can choose from 3 different height settings.

4. Install the distribution head on the sprayer using the clamps that are provided. Connect the hoses and the Dial-A-Rate metering system.

5. Mount the rear bumper.

5.2 OPERATION

1. Connect the sprayer to the tractor drawbar.

2. Connect the PTO driveshaft with the constant velocity end onto the tractor side, make sure the driveshaft is not too long. Be sure to attach the PTO safety shield chains.

3. Check the main filter strainer to make sure it is clean. Before cleaning the main filter, make sure the liquid level in the tank is below the filter. When reassembling the filter strainer, make sure the large o-ring is seated properly.

4. Refer to the calibration chart to set the correct rate for your application. Then set the "Dial-A-Rate" to correspond to the gallons per acre you require. On your Gearmore Venturi Air Sprayer you will have a pressure control valve which regulates the amount of pressure from 15 to 40 PSI.

5. Put water in tank.

6. Engage tractor PTO at idle speed and run for a couple of minutes to make sure the chemicals are mixed thoroughly. Engage transmission and bring engine speed up to PTO speed of at least 540 R.P.M. when spraying.

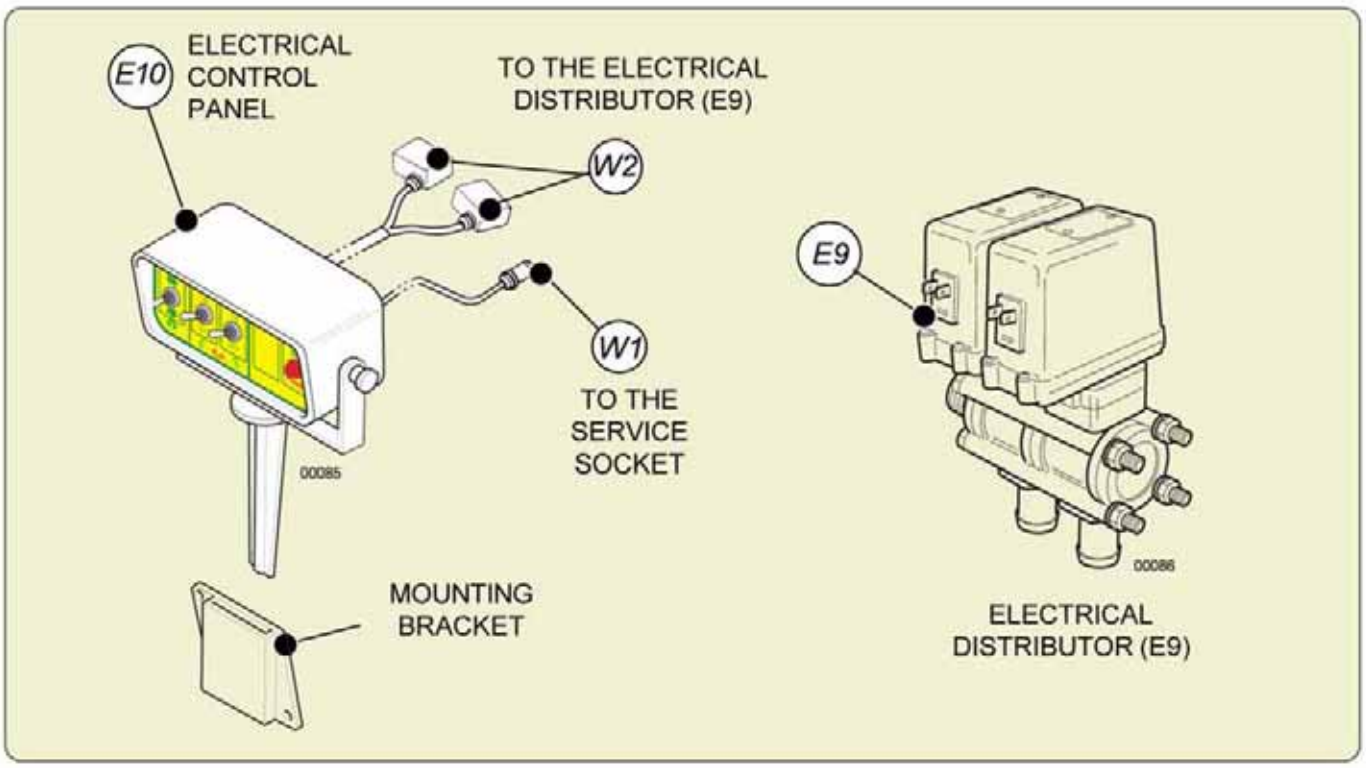
7. Turn on the electric liquid control valves. These valves can control right, left or both sides spraying, depending on what style of spray head you have mounted.

Remember, it is always best to make a practice run with just water to be sure you have correct rates and coverage.

5.3 - INSTALLATION OF REMOTE CONTROLS

5.3.1 - Electrical control panel - E10

1 - Fix the fastening bracket near to the driver.
2 - Insert the bayonet support of the control panel in the securing clamp and position it so that the controls are fully visible and accessible during use.
3. Connect the distribution piping (T5 - pg. 25) to the hydraulic circuit of the distribution device (head) mounted on the machine (follow the instructions of the specific "use and maintenance" booklet which is supplied with it).
4. Connect the feeding pipe with the electrical distributor (E9).
5 - Connect the power supply cable "W1" plugging it in the socket of the tractor.



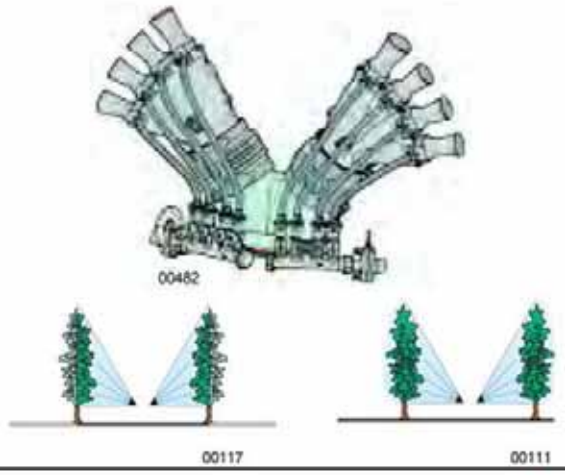
6 DISTRIBUTION DEVICES 6

Every distribution device is supplied with its own parts manual.

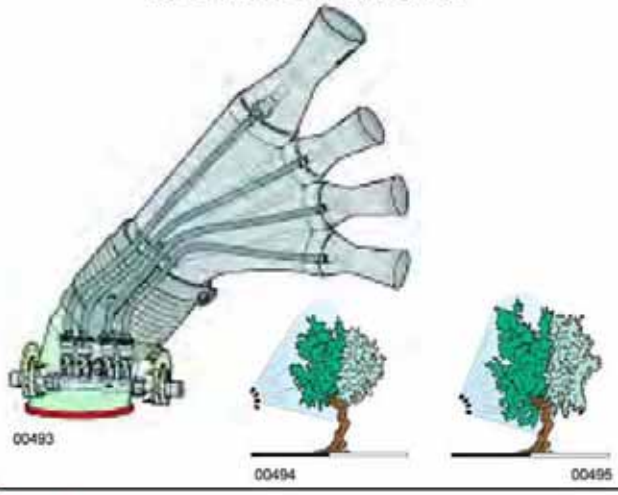
The "Distribution devices –Operation and maintenance instructions" manual both shows and describes the wide range of the distribution devices (heads), to be employed on each sprayer in order to assure a perfect covering, always answering to the real requirements of the culture to be treated. All the heads can be very easily oriented and regulated, so to optimise the necessary covering.

Simple heads

DELIVERY ON THE TWO SIDES

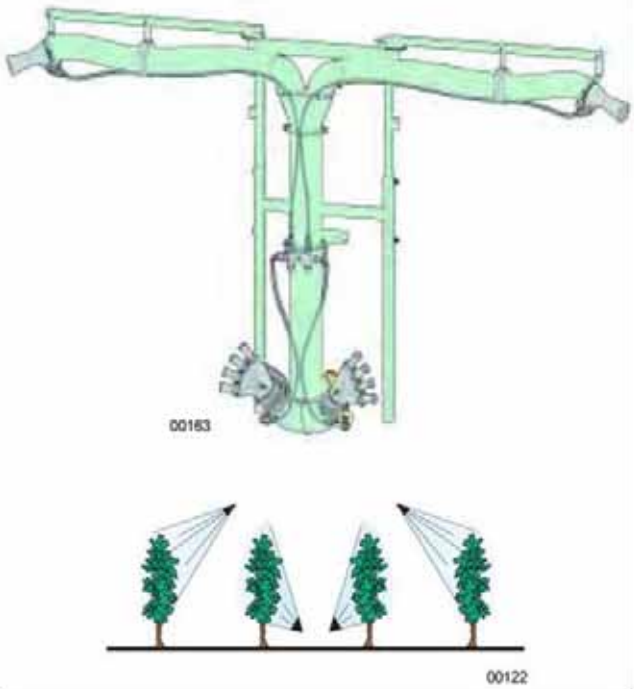


DELIVERY ON ONE SIDE

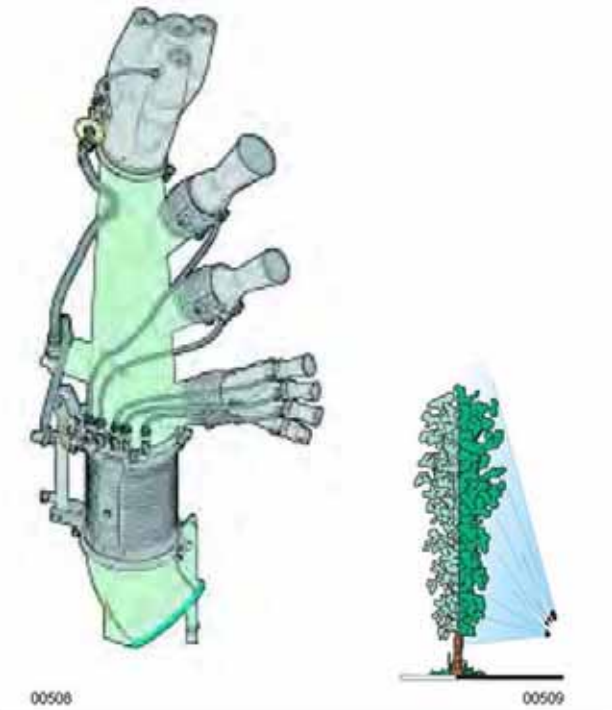


Combined heads

DELIVERY ON THE TWO SIDES



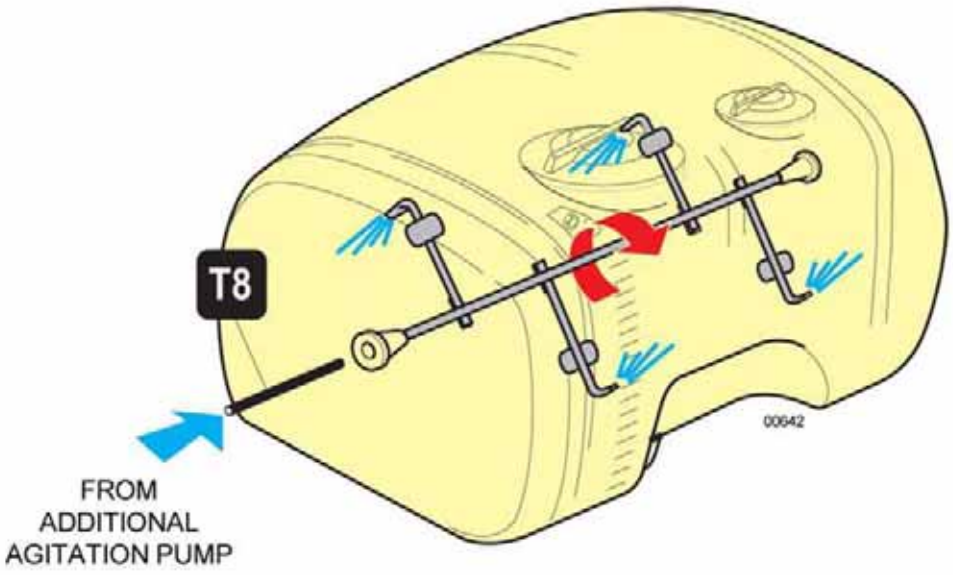
DELIVERY ON ONE SIDE



7.1 - ROTARY BLADES' HYDRAULIC MIXER (Patent n° 1295858)

(For 500 Gallon Only)

A separate 37 G.P.M. centrifugal pump powers rotating liquid agitation system to insure product mix.



8 AGITATION 8

The **liquid** and the **air** circuits mounted inside the tank, allow to realize **a double agitation system**: with the pump water and with the fan air, **at the same time**. The **air** circuit can be excluded, when the products used have a quite strong foaming effect, by closing the **air** agitator valve. When that valve is opened again, check that some air outlet holes aren't obstructed.

It is advised however to also use always the pneumatic agitator, adding to the mixture, if necessary, a antifoam product.

This operation is of main importance, in order to get a uniform distribution of the active principle on the whole vegetative surface to be treated. Should the activity need to be interrupted during a treatment with the sprayer, **keep the agitator activated until the treatment is resumed.**

Before starting the treatment, or return to work after a break, it is essential to agitate the mixture in the tank, re-circulating it completely for as long as it takes to make it homogeneous.

The agitation can be carried out with the electric (E5), in any position.
The valve of the air regulator has to be open.

THE MIXTURE AGITATION HAS TO BE CARRIED OUT WITH THE POWER TAKEOFF RUNNING AT A RATE OF AT LEAST 500 RPM..

9.1 Cleaning & Storage

- **The operator must:**

1. Wash and flush out sprayer after completion of each phase of your spraying program.

2. Flush out sprayer when changing chemicals if there is a possibility of incompatibility.

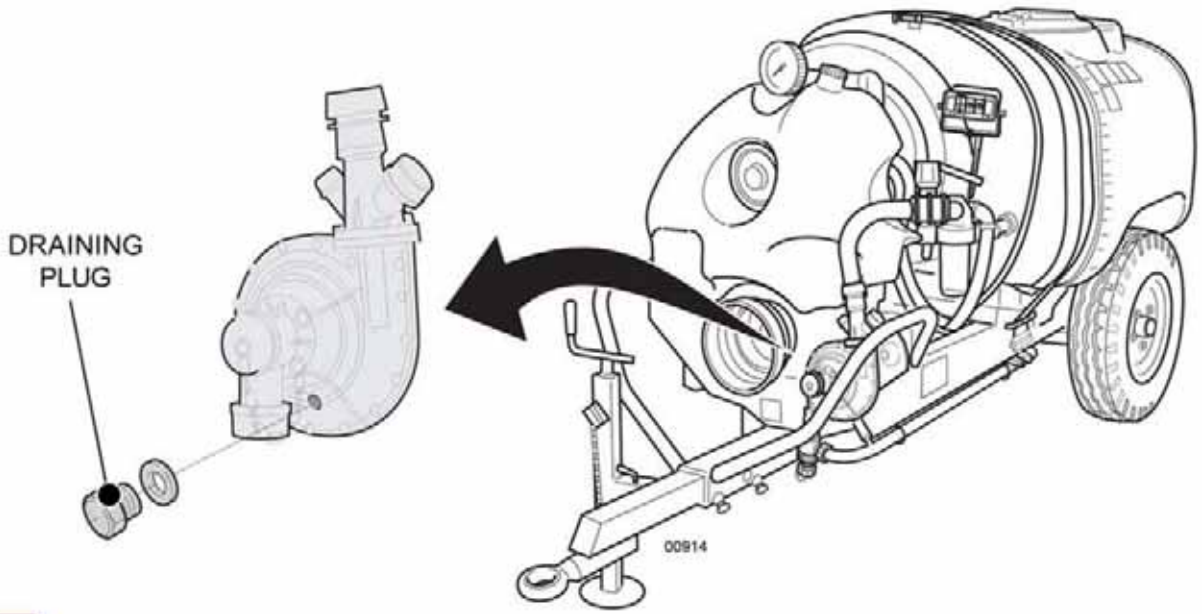
3. Clean sprayer very thoroughly before storing at the end of the spraying season. If you are in a cold climate, final rinse should be with a sufficiently concentrated anti-freeze to prevent freeze-up in areas that were not thoroughly drained.

4. Check sprayer over for needed repairs before time to spray again.

5. Preparing the sprayer for use in the Spring means completion of all needed repairs, installation of all drain plugs and checking spraying for leaks with a tank of water.

THE PUMP MUST NEVER RUN DRY

Completely drain the **liquid** circuit, paying a special attention to the centrifugal pump; in order to completely drain the pump, remove the draining plug, which is mounted on the pump itself.



Avoid using anti-freeze solutions.

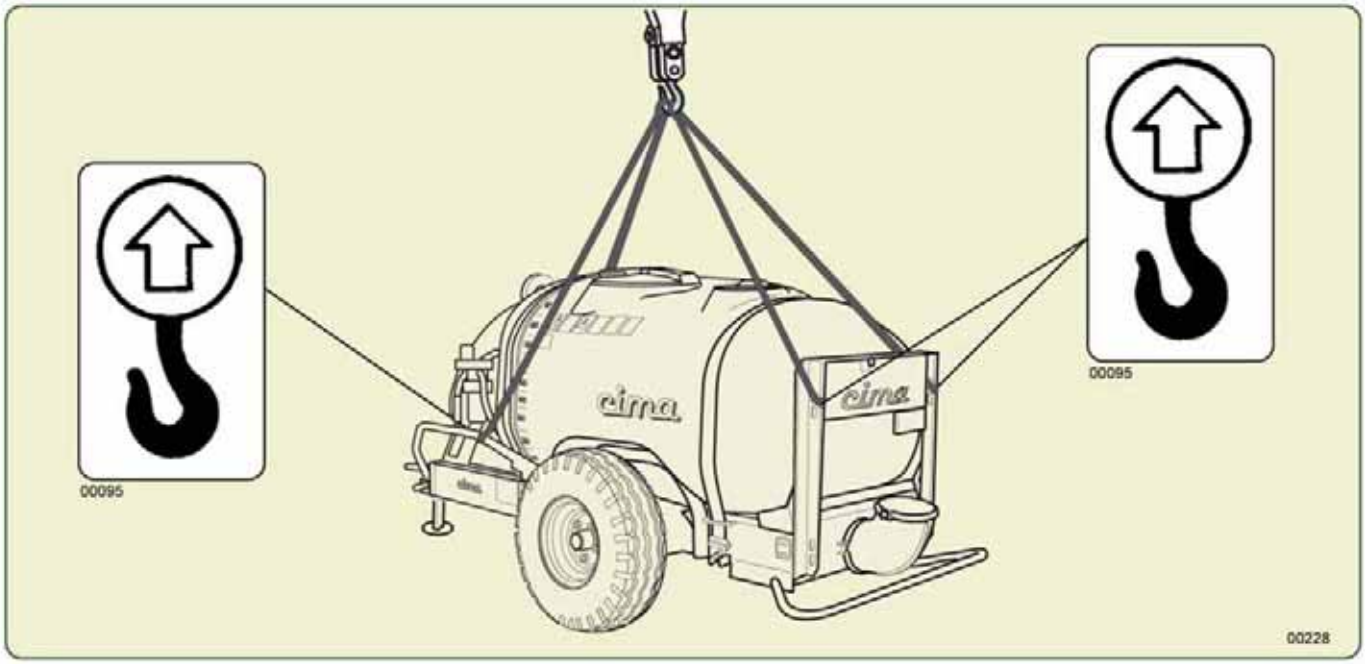
The machine must be stored in a secure or closed place, so as to prevent access to unauthorized personnel.

Road transport must take place in the complete observance of road regulations in force in the Country where the machine is used. The operator is responsible for possible defaults due to the non observance of said regulations.

• Lifting and transport of the sprayer

Before carrying out any operation it is essential to verify that no mixture residues are left in the tank.

1. Check that the lifting devices (bands, ropes, etc.) are adequate for the weight to be lifted (machine – distribution devices - accessories).
2. Hook the machine through the specific support point indicated by the specific decal on the frame, checking all the parts involved in the operation.
3. Lift the machine, verifying that it is properly balanced.



4. Position the sprayer on the transporting vehicle in perfectly stable conditions.
5. Lock the sprayer with the wedges locking wheel.
6. During transport the machine must be fastened to the carrier by way of suitable strapping.

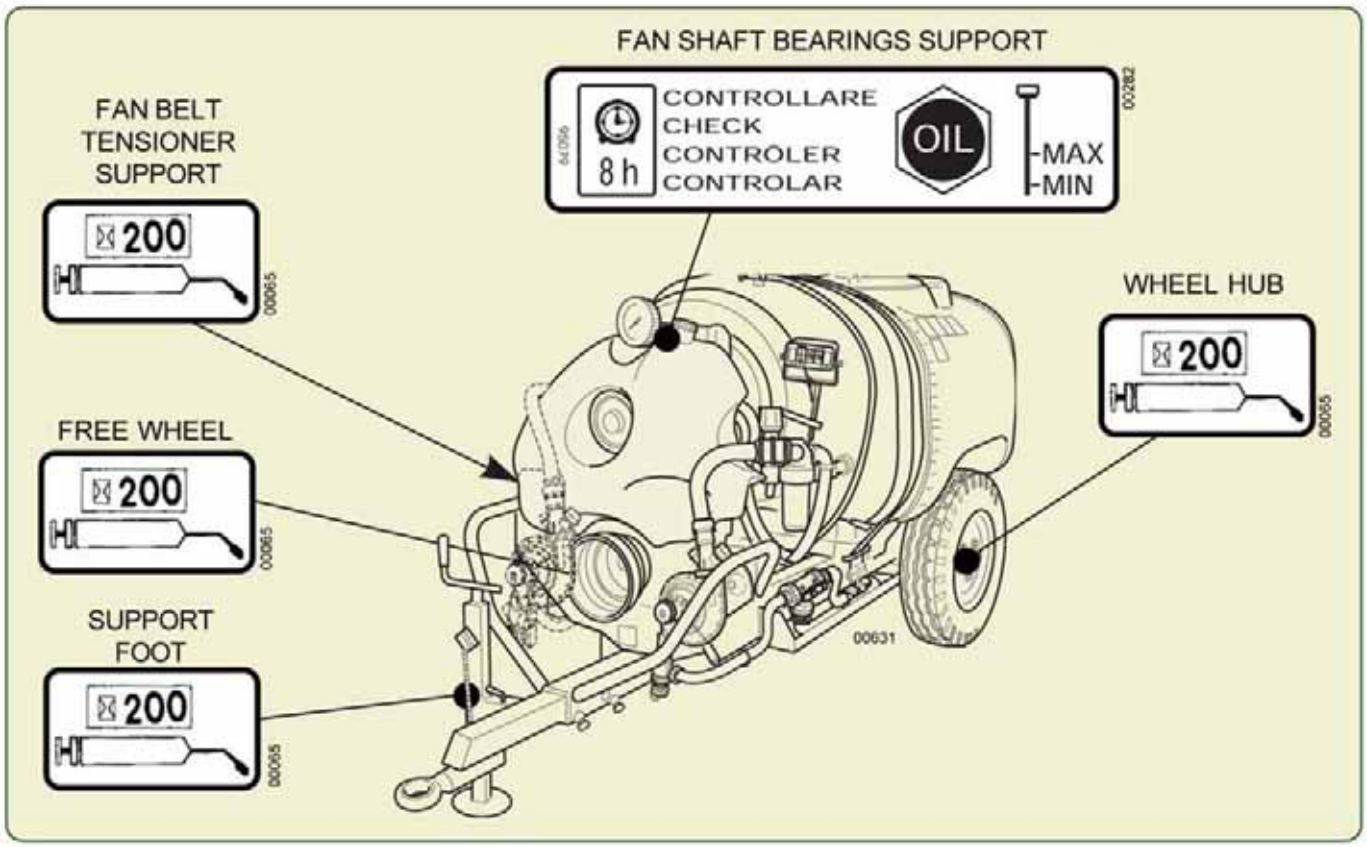
ALL OPERATIONS MUST BE CARRIED OUT WITH THE ENGINE SWITCHED OFF AND WITH THE IGNITION KEY REMOVED FROM THE CONTROL PANEL.

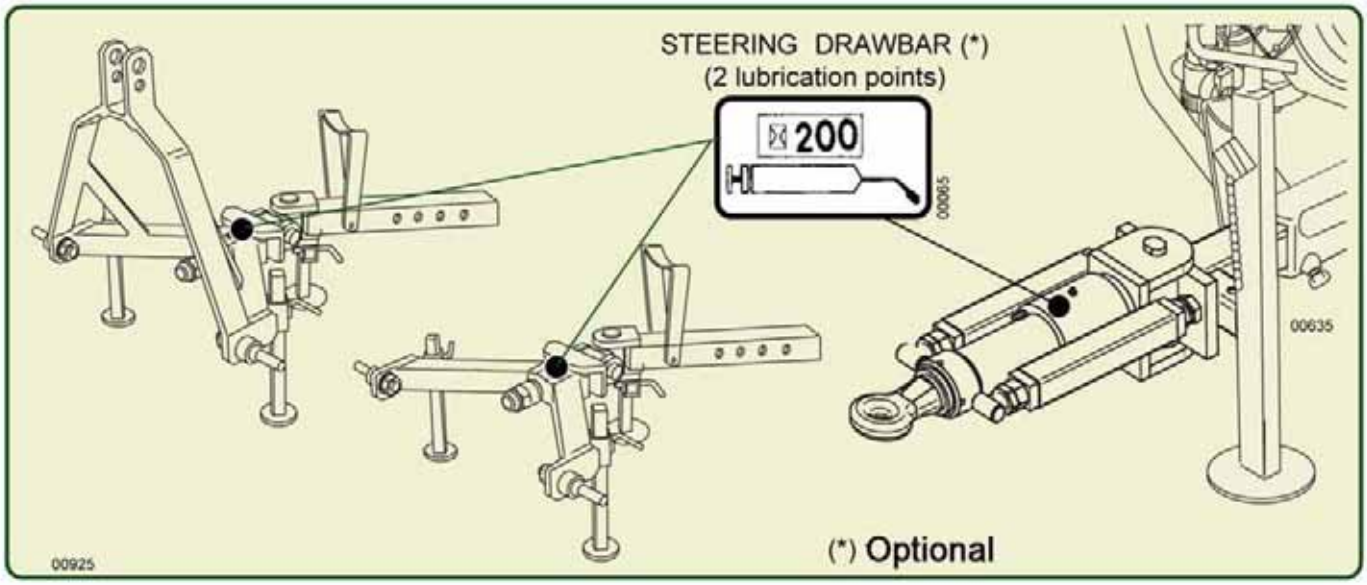
11.1 - LUBRICATION

Maintenance Point	Action	Consumption material	Periodicity
Fan shaft belt support	Check Oil	Oil SAE 90	8 hours
Fan belt-tensioner support	Greasing	Grease Tipo EP Class NLGI 2	200 hours
Free wheel	Greasing	Grease Tipo EP Class NLGI 2	200 hours
Wheel hubs	Greasing	Grease Tipo EP Class NLGI 2	200 hours
Support foot	Greasing	Grease Tipo EP Class NLGI 2	200 hours
Steering drawbar	Greasing	Grease Tipo EP Class NLGI 2	200 hours
Fan shaft bearings support	Change oil	Oil SAE 90	1 year

BLIT2007

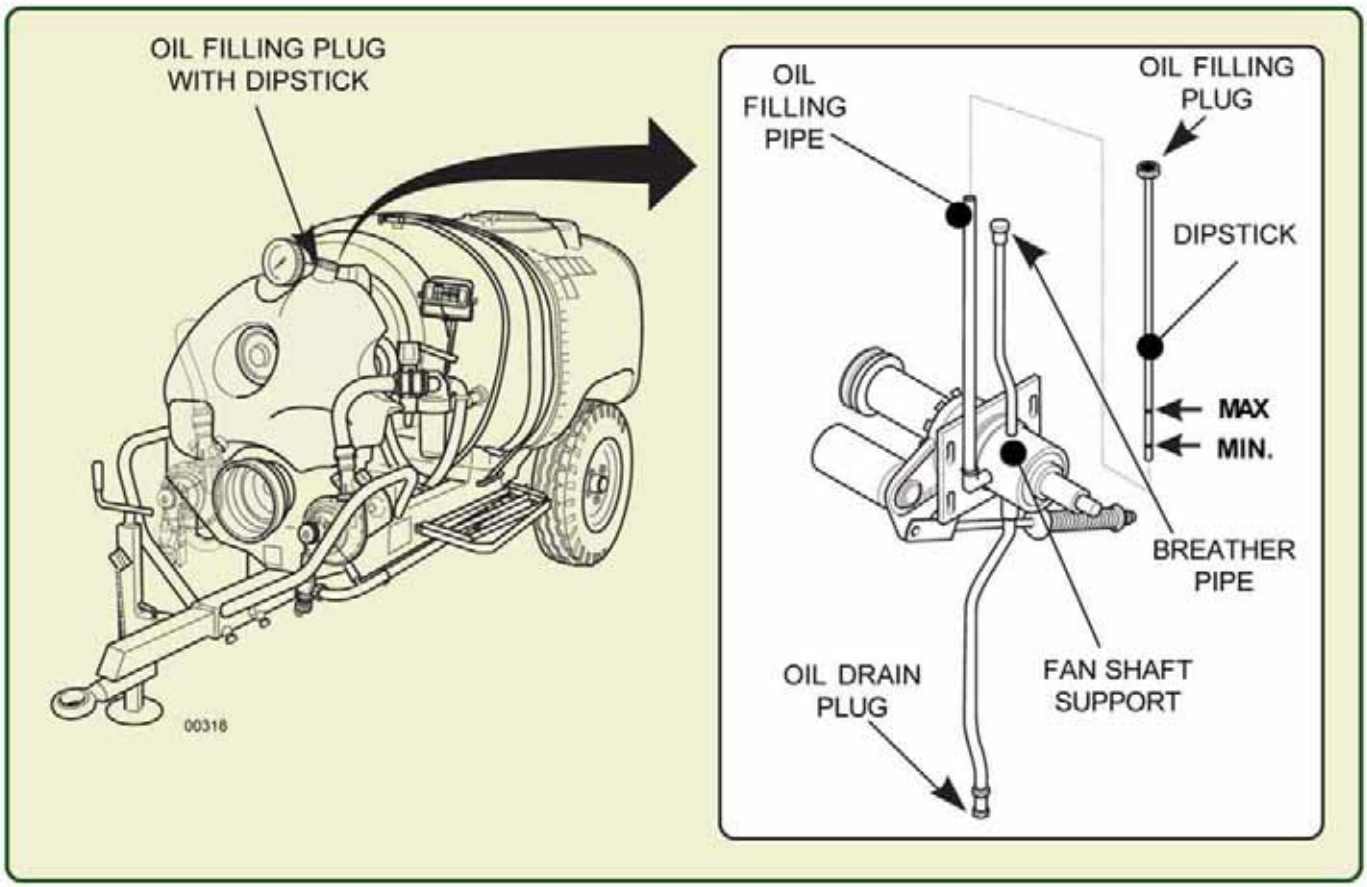
Carefully clean the greasing nipples and the oil filler in order to avoid that, during lubrication, dirt might be introduced. In the case of intensive use of the machine, reduce the lubrication intervals.





11.2 - FAN SHAFT SUPPORT OIL LEVEL CHECK

1. Unscrew and remove the oil filling plug with the dipstick.
2. Clean the dipstick and introduce it again.
3. Extract the dipstick and check the oil level, which has to be between the two minimum and maximum level notches of the dipstick itself.
   Should it be necessary to top up the level, add some SAE 90 oil, up to reach the dipstick upper notch (MAX).
4. Introduce and screw the oil filling plug with the dipstick.

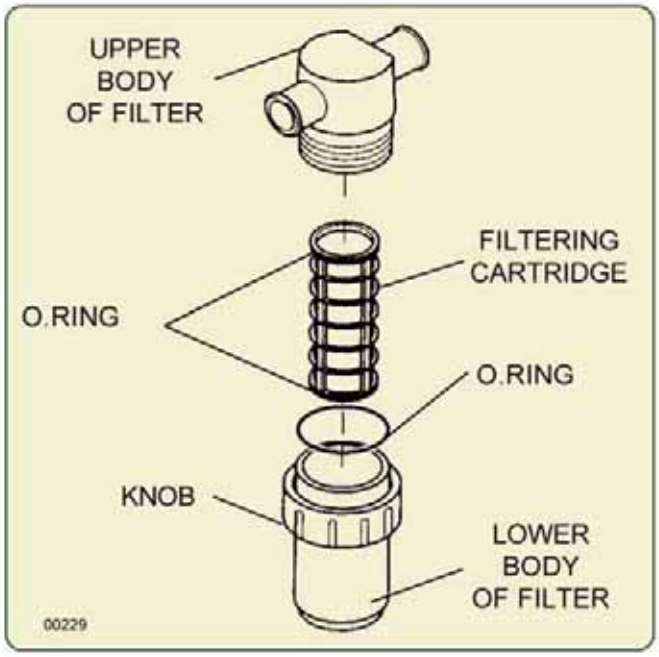


11.3 - FAN SHAFT SUPPORT OIL REPLACEMENT

1. Unscrew and remove the oil filling plug with the dipstick.
2. Remove the oil drain plug and let the oil completely flow out from the fan shaft support.
3. Check the oil drain plug and the relevant seal for integrity, replace them, if necessary, and close again the oil drain plug.
4. Through the filling pipe, pour a SAE 90 oil proper quantity, up to reach the MAX notch on the dipstick:
5. Position again the plug with the dipstick and close the oil filling pipe.

11.4 - CLEANING OF FILTER'S CARTRIDGE

1. Set the lever of 3-way tap (P2) to the "**B**" position.
2. Completely close the pressure regulator, by turning clockwise the handle of the manual regulator (P5) or by turning the pressure up (keep the joystick on "+" for about 15 seconds) if the atomizer is provided with electric regulator (E5).
3. Position the switches of the control electric switchboard (E10)on "OFF" or close the manual distributor's taps (P9).
4. Undo the thumb screw and remove the body of the filter.
5. Extract the cartridge: clean the grill and the retaining O.Ring.
6. Reassemble the cartridge and secure the lid with the thumb screw. **Pay attention to the O-Ring of the lower body during the assembly**: the incorrect sealing of the filter will jeopardise the proper operation of the sprayer and cause loss of the mixture.



11.5 - CLEANING OF THE FAN

It is advisable for the cleaning of the fan to be carried out at your dealership. Dirt accumulation or incrustations can unbalance the fan, inducing vibrations that could cause breakage

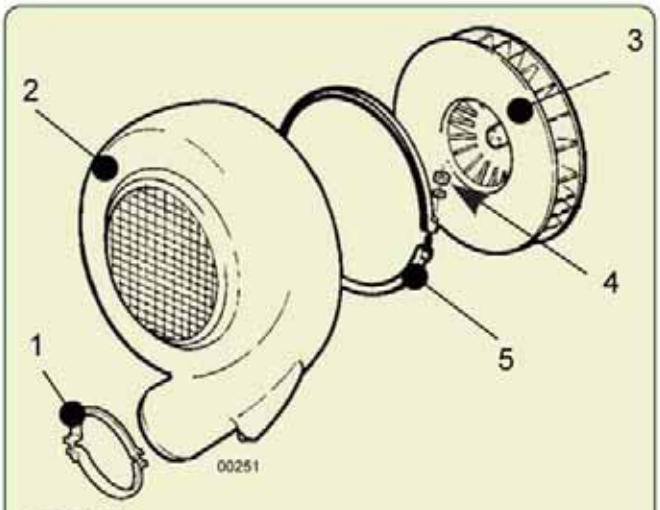
1. Remove the distribution device (head).
2. Remove the fastening collar (1), fixing the fan casing outlet orifice to the connection tunnel of the spray-head.
3. Remove the two collar (5) fastening bolts, fixing the fan casing to the rear cover.

4. Remove the two collar (5) fastening bolts, fixing the fan casing to the rear cover.
5. Extract the fan casing (2).

The impeller should not be disassembled.

7. Clean the impeller, by avoiding to use high pressure water jets: they can cause infiltrations into the fan shaft support and consequently damage the bearings.
8. Mount back the casing (2), by paying a particular attention to get it perfectly coupled with the rear cover.
9. Fasten the fan casing, with the collar (5), to the rear cover and with the collar (1) to the connection tunnel of the spray-head.

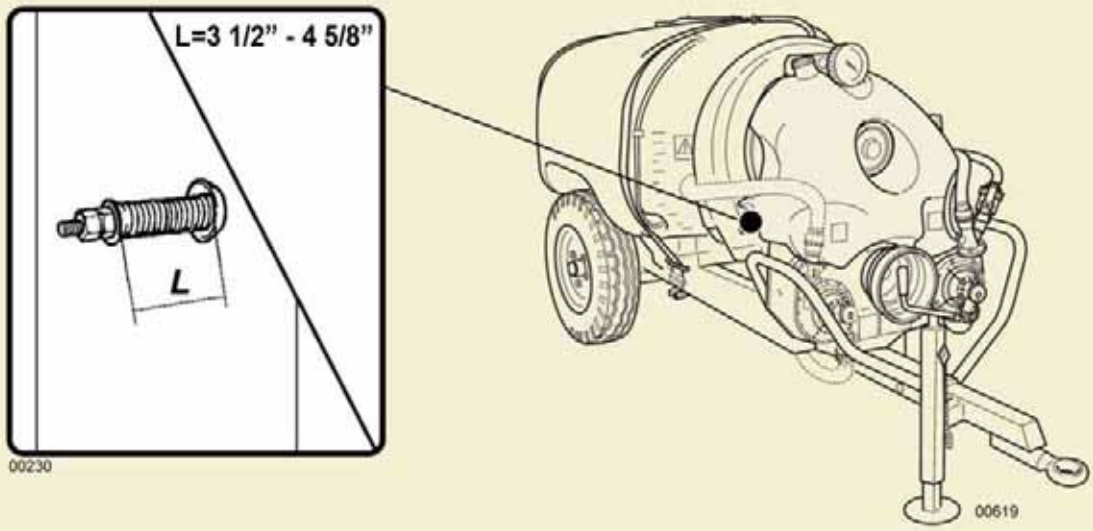
Carefully tighten all the fastening collars' bolts.



LEGEND
1. UNION FASTENING COLLAR
2. FAN CASING
3. IMPELLER
4. SCREW NUT
5. FAN CASING FASTENING COLLAR

11.6 - FAN BELT TENSIONER

Check length "L" of the spring (refer to Picture): it should be in tension between **3 1/2" to 4 5/8".**

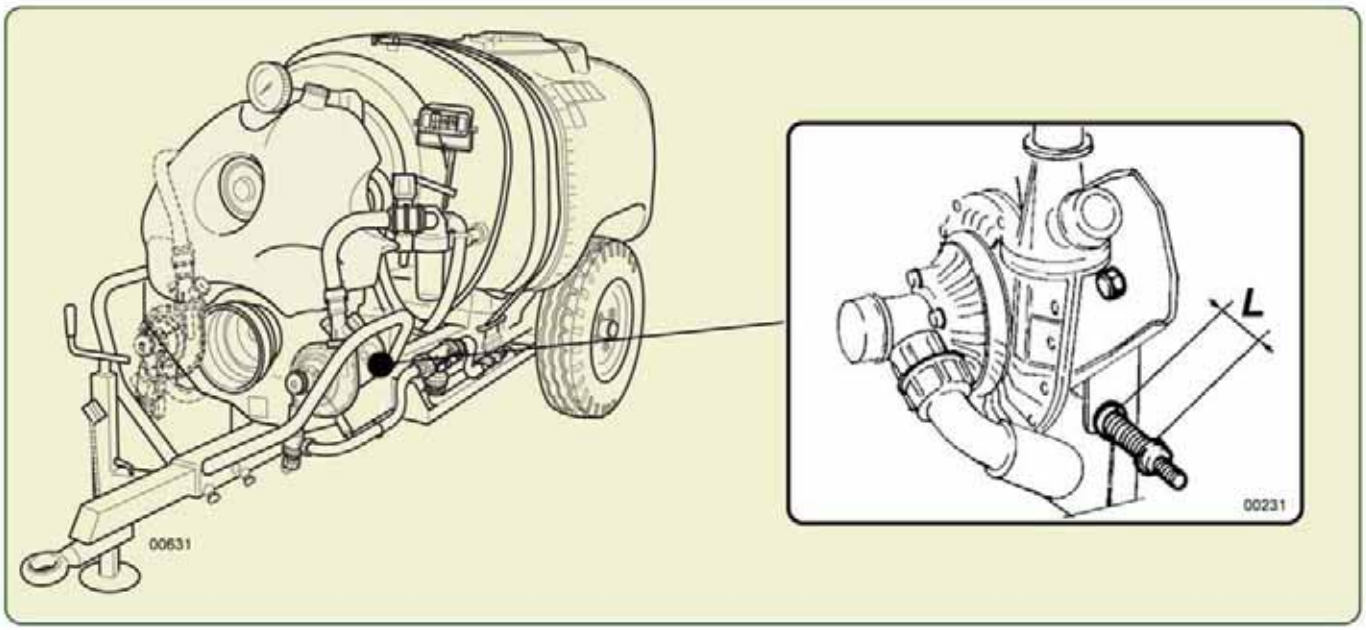


If the fan control belt has to be replaced, the correct tensioning of the same one (spring length) should be checked after the first and after the second operation hour.
If the value measured exceeds 4 5/8", tighten the belt tightener screw, up to get the minimum length (3 1/2").

From time to time check the belt tension. (See Maintenance Operations Table)

11.7 - PUMP BELT TENSIONER

Check length "L" of the spring (refer to picture): it should be in tension between **1 1/2" to 2".**

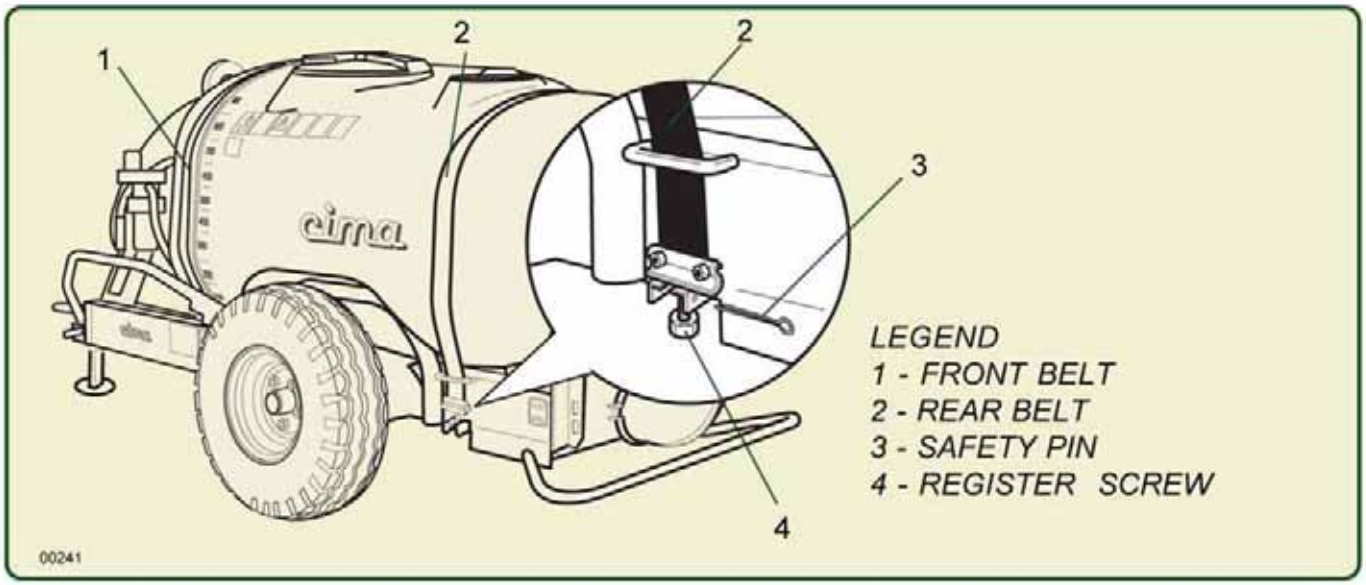


If the value measured exceeds **2"**, tighten the belt tightener screw, to get the minimum length **(1 1/2").**

11.8 - MAIN TANK FASTENING BELT

The adjustment of the belts takes place during the first 3÷4 hours of use of the sprayer; after this period check and restore the correct tension of the belts to prevent damage to the tank.

Check the tension of the fixing belts of the main tank to the frame. To restore the correct tension of the belts screw in the register screw (4) on both sides of the tank.



11.9 - TABLE OF MAINTENANCE OPERATIONS

CHECK	SEASON START TREATMENTS	BEFORE EVERY TREATMENTS	END OF EVERY TREATMENTS	SEASON-END TREATMENT	RECOMMENDED FREQUENCY
Fan belt-tensioner spring: CHECK LENGTH 3 1/2" to 4 5/8"	YES	YES	**	**	**
Pump belt-tensioner spring: CHECK LENGTH 1 1/2" to 2"	YES	YES	**	**	**
Fan shaft support: CHECK OIL LEVEL	YES	YES	**	**	8
Fan shaft support: CHANGE OIL	**	**	**	YES	1 year
Tank: CHECK BELT CONDITION AND PROPER TIGHTENING	YES	YES	**	**	**
Fan belt-tensioner support: GREASING	**	**	**	YES	200 hours
Overrunning clutch: GREASING	**	**	**	YES	200 hours
Wheels bearings: GREASING	**	**	**	YES	200 hours
Support foot : LUBRICATING	**	**	**	YES	200 hours
Filter: CHECK CLEANING	YES	YES	YES	YES	**
Tank level gauge: CHECK CLEANING AND GOOD CONDITIONS	YES	YES	YES	YES	**
Fittings and piping: CHECK GOOD CONDITIONS	YES	YES	**	YES	**
Clamps and fittings: CHECK FOR INTEGRITY, PERFECT SEALING AND TIGHTENING	YES	YES	**	**	**
Pressure gauge drain plug: UNSCREW AND CLEAN	**	**	YES	YES	**
Drawbar: CHECK THE SCREWS AND FIXING BOLT TIGHTENING	YES	YES	**	YES	**
Steering drawbar (optional): GREASING	**	**	**	YES	200 hours
Wheels: CHECK THE SCREW NUTS TIGHTENING AND TIRES PRESSURE	YES	YES	**	YES	**
Axle and Wheel hubs: CHECK THE NUT TIGHTENING AND CHECK THE BOLT TIGHTENING	YES	YES	**	YES	**
Liquid hoses: COMPLETELY DRAIN AND WASH	**	**	YES	YES	**
Sprayer: EXTERIOR WASHING	**	**	YES	YES	**
Sprayer: STORAGE	**	**	**	YES	**

	It is necessary to disengage the drive outlet (PTO) and wait for it to stop rotating before repeating the filling operation.	
PROBLEM:	**CAUSE:**	**REMEDY:**
Leakage and dripping from pump.	Non-sealing of the fittings and clamps connecting the piping to the pump.	Check for proper tightening of ring nuts and clamps. Check the efficiency of the seals. Replace parts that are possibly found to be defective.
	Mechanical sealing defective.	You may have to replace the pump.
Pressure drop of the liquid signalled by the pressure pump gauge.	Dirty main filter.	Clean the cartridge.
	The pump grill/filter is clogged.	Clean the grill/filter.
	Faulty sealing of the liquid.	Check the operation of the pump and tension of its belt. Check the proper tightening of ring nuts, fittings and clamps. Check the efficiency of the sealers and the integrity of the piping. Replace the parts that are possibly found to be defective.
	Gauge defective.	Replace the pressure gauge.
	Suction or gauge connection pipe clogged.	Clean.
Variations in the pressure of the liquid circuit (noted by the gauge)	Lack of seal of the pipes and/or valves.	Check the clamping of the ring nuts, the connections and the clamps. Verify the efficiency of the gaskets and the integrity of the pipes. Replace the possibly defective parts.
	Residue of product at the entrance of the gauge.	Clean.
	Lack of seal of the o-ring gasket of the pump suction connection (cone).	Check the correct assembling and the efficiency of the o-ring gasket, if necessary replace the gasket.
Fan unit vibrating.	Dirty fan.	Wash, (wire brush if necessary).
Continuous noise together with vibrations of the fan group.	Fan shaft bearings breaking.	Replace bearings.
	Interference fan - case.	Contact your dealer service department.
Intermittent spray from distribution head.	Lack of seal of the circuit that goes from the tank (T1) suction pipes to the electro valves (E7) or liquid distributor (P8).	Carefully inspect all the points at which suction of air can take place, including as well those at which no liquid dripping is detected. Check the proper tightening of ring nuts, fittings and clamps. Check the efficiency of the sealers and the integrity of the piping. Reinstate the efficiency and replace parts that might have been found to be defective.
Intermittent spraying only on the one side of the distribution head.	Faulty sealing of the liquid circuit going from the manual (P8) or electrical (E7) distributor to the distribution point involved.	Same as above.

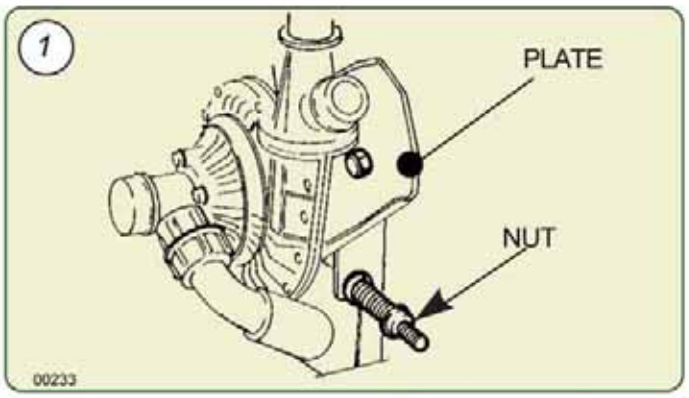
12 TROUBLESHOOTING CHART 12

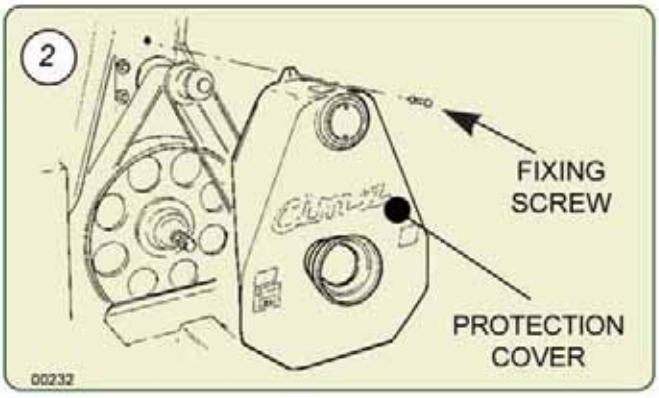
PROBLEM:	CAUSE:	REMEDY:
No spraying action delivered; totally.	Clogging up of the grill/filter on the pump, of the pump suction inside the tank or suction pipes of pump clogged up with deposits of hardened spray material.	Clean by removing the drain cap.
No spraying action delivered; totally or only on one side of the distribution head.	Electrical valve (E9) blocked by build-up in the closed position.	Remove the cover, act on the opening/closing control rod. Clean the distributor.
	Fuses of the electrical control panel (E10).	Replace the fuses.
	Power cable (W1) of the electrical panel interrupted or oxidized connectors of the electric distributor (E9).	Connect and possibly replace the defective components.
	Defective electrical connections.	Clean or replace.
	Pump defective (only in case of total delivery missing).	Order new pump and replace.
	Broken pump belt.	Replace the belt.
Large consumption of oil of the fan support.	Oil drain plug not adequately closed.	Check and adequately close then handle the filling up of the oil level.
	Damaged flexible oil waste pipe or damaged pipe fixing clamp.	Check adequately then handle the filling up of the oil leve. Replace the damaged parts.
	Damaged seals.	Replace seals.
Noise (ticking) coming from the lower part of the mechanical drive at low R.P.M. when slowing down.	Lack of grease in the overrunning clutch.	Grease the clutch.
DISTRIBUTION HEADS:		
No spray coming from only one sprayhead.	Hole in Dial-A-Rate is plugged.	Clean out the hole. Take care to not damage the size of the hole.
	Valve to nozzle is closed.	Open valve.
	The head is clogged with chemical residue.	Clean the distribution head.
	The sprayer liquid system is defective.	Refer to the maintenance manual.
No spraying is coming out on one nozzle in the head.	The manifold valve is closed.	Open the valve.
	The manifold valve is clogged.	Clean the valve.
	The rubber hose connected to the nozzle is clogged.	Remove the hose and clean.
	The liquid outlet in the nozzle is clogged.	Remove the Venturi nozzle and clean outlet.
Intermittent spraying coming out on the one sprayhead only.	Not sealing of the liquid system at the Dial-A-Rate.	Check the tightness of the disc wing nuts. Check the o-ring in the Dial-A-Rate body and replace if necessary.
	Not sealing in the sprayer liquid system.	Check all fittings in the liquid system for tightness.

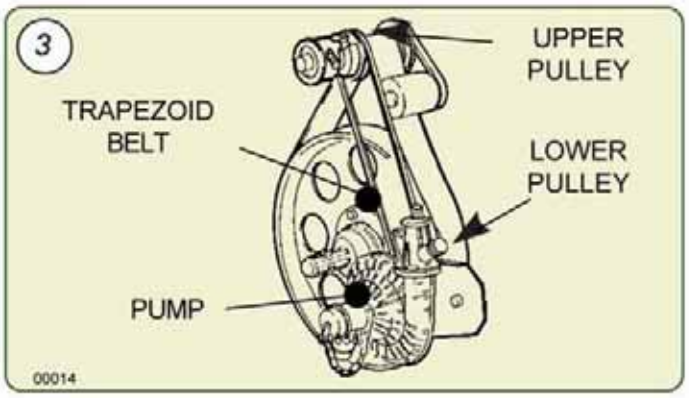
Stop the engine and remove the key from the tractor's control panel before any operation on the sprayer.

13.1 - REPLACEMENT OF PUMP CONTROL BELT

1. Remove hands-washing tank.
2. Remove the fan assembly protection, by unscrewing the screw fastening it to the frame.
3. Completely unscrew the tightener spring adjusting screw: the pump support plate will freely turn.
4. Remove the worn out belt, by getting it first loose from the pump pulley and then from the upper control pulley.
5. Insert the belt first into the race of the upper pulley and then into the race of the pump pulley.
6. Reinstate the spring of the belt-tensioner according to the suggested tensioning conditions.
7. Mount back the fan assembly protection casing.
8. Install hands-washing tank.







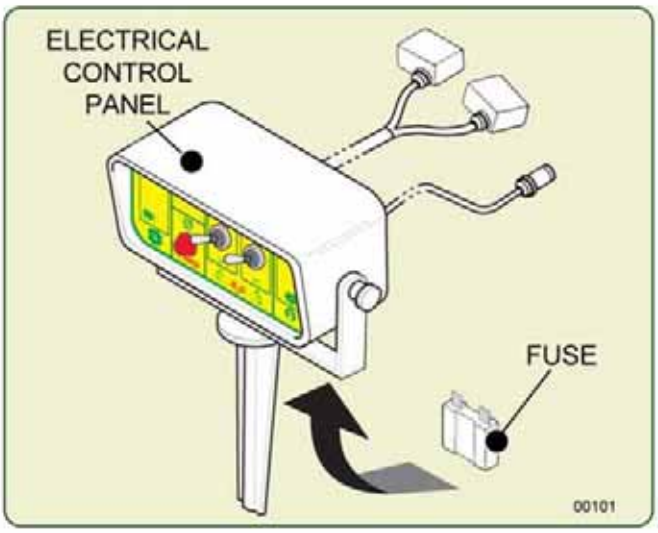
Carefully tighten the screws that were undone during the belt replacement.

13.2 - REPLACEMENT OF ELECTRICAL PANEL'S FUSES

1. Replace the faulty fuse and screw back the cover.

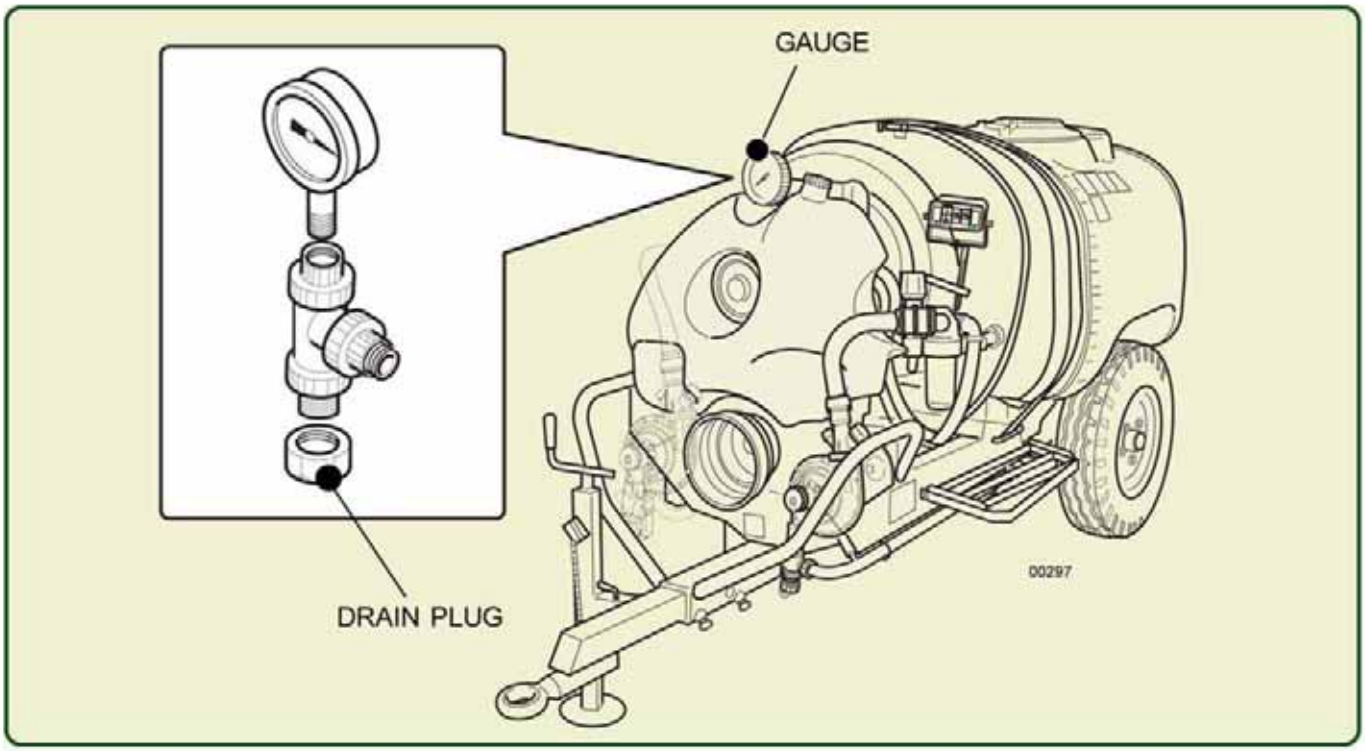
* **Fuse: 10 A, delayed.**

If this does not correct the problem, contact your local dealer.



13.3 - PRESSURE GAUGE REPLACEMENT

1. Unscrew and remove the defective pressure gauge ;
2. Replace the pressure gauge.

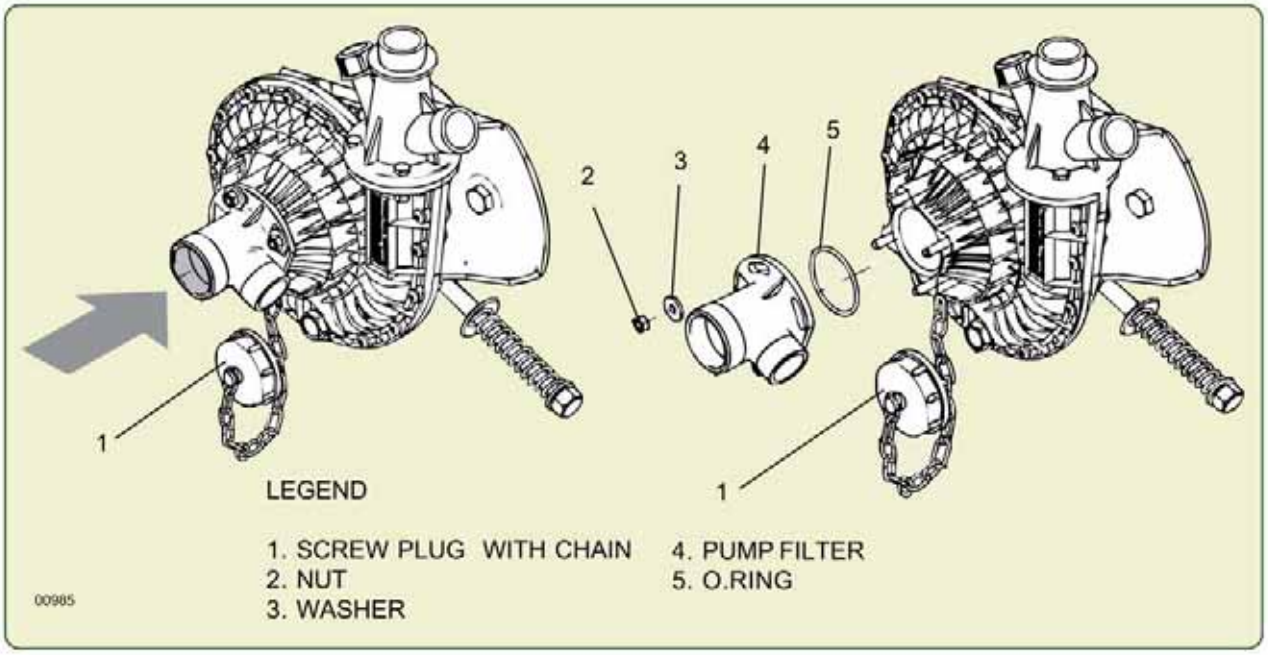


13.4 - INSPECTION AND CLEANING PUMP GRILL/FILTER

The pump is provided by the suction side of a filter to prevent the accidental entry of foreign bodies in the pump body, such a possibility does not constitute a hazard and can only cause damage to the impeller shown by a drop in pressure reported by gauge..

The clogging of the filter pump causing an immediate lowering of pressure delivery.
If necessary check the cleanliness of the filter: (#4)

1. Position the lever of the three-way cock (P2) in position **"B"**.
2. Unscrew the plug (1) and eventually remove the foreign body present in to the filter.
3. If necessary, unscrew the nuts (2) and remove the filter (4), to clean completely.
4. Replace the filter by paying attention to the conditions and the proper placement of the O.Ring (5).
5. Close the screw plug (1).
6. Position the lever of the three-way cock (P2) in position **"A"** - WORKINGNSPECTION AND CLEANINGPUMPFILTER

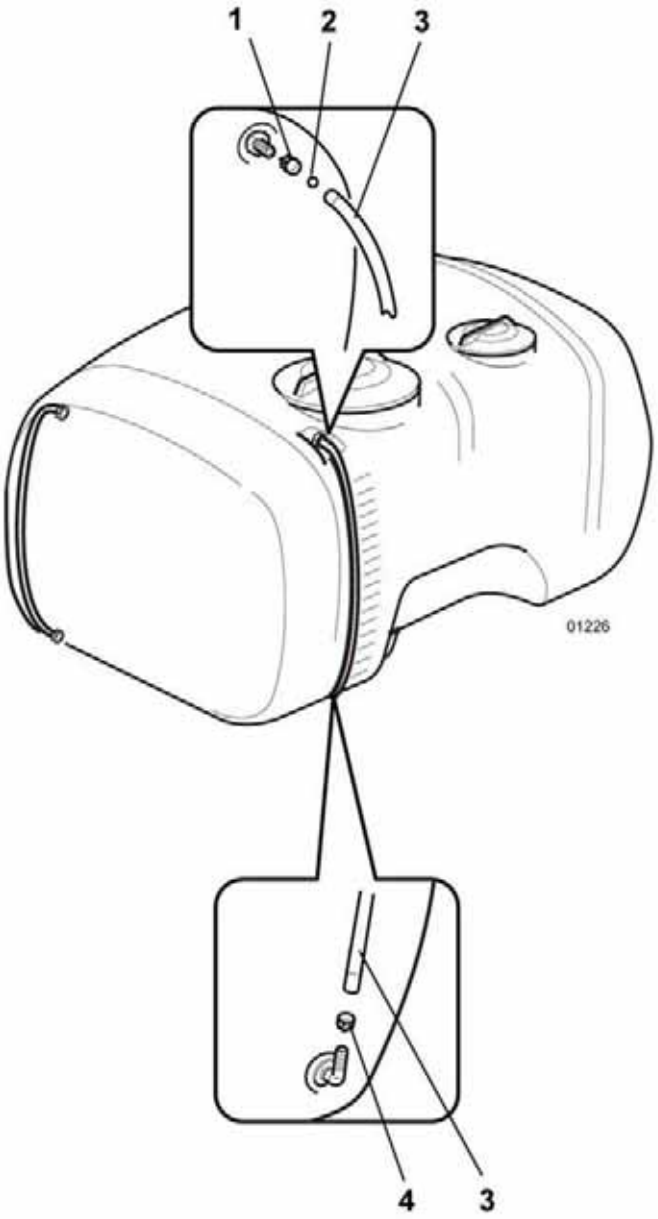


Additional agitation pump

1. Close the cock (P18): position "**c**".
2. Unscrew the plug (1) and eventually remove the foreign body present in to the filter.
3. If necessary, unscrew the nuts (2) and remove the filter (4), to clean completely.
4. Replace the filter by paying attention to the conditions and the proper placement of the O.Ring (5).
5. Close the screw plug (1).
6. Open the cock (P18): position "**a**".

13.5 - TANK LEVEL GAUGE CLEANING

1. With a suitable pliers release the clamp (1 and 2) fixing transparent tube of the level gauge.
2. Take off and remove the transparent tube (3).
3. Remove the red plastic ball (4) .
4. Clean, with clean water, the transparent tube both in and ouside.



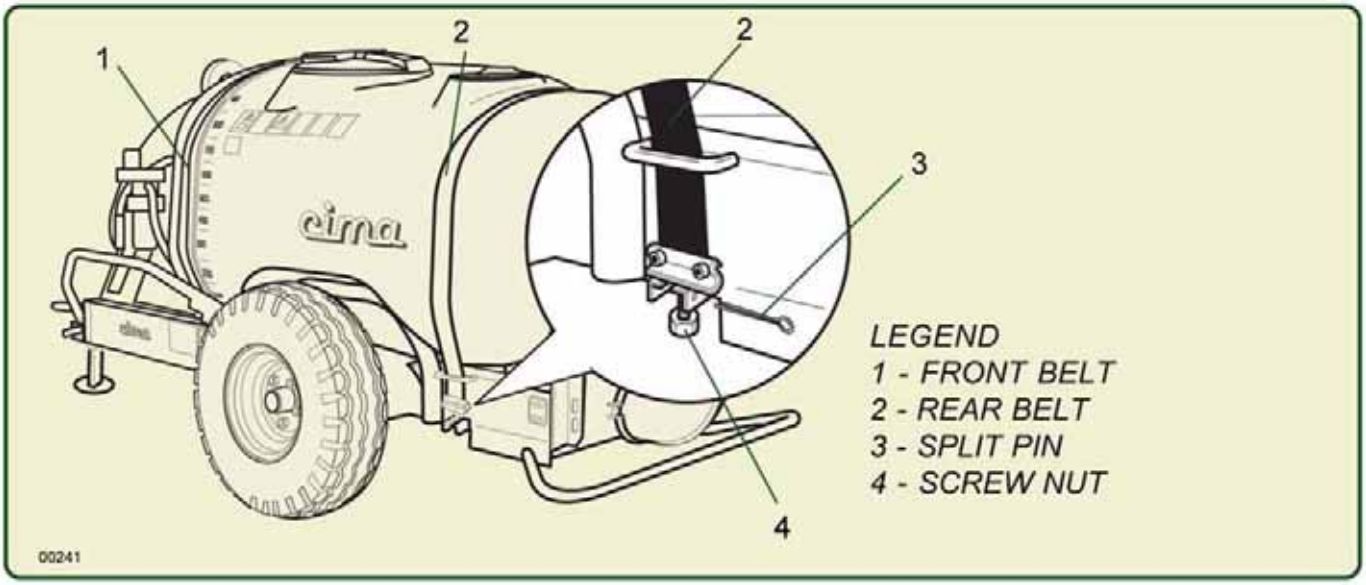
5. If the cleaning is not satisfactory, replace the transparent tube (3).

6. Put the red plastic ball (4) into the transparent tube (3).
7. Install the transparent tube (3) making slip it on the rubber fittings.
8. Place the clamps (1 and 2) fixing the transparent tube (3) of the level gauge and close them with a suitable pliers.

13.6 - TANK REMOVAL OR REPLACEMENT

The operation has to be carried out by complete absence of liquid residuals both inside the tank and in the liquid circuit.

1. Make the tank free from all the **liquid** connections.
2. Loosen the screw nut (4), for tensioning the tank fastening belt.
3. Remove the split pin (3).
4. Unscrew the belt end (2), in order to make the tank free; carry out the same operation for the second belt (1).
5. Lift the tank and remove it from the frame.



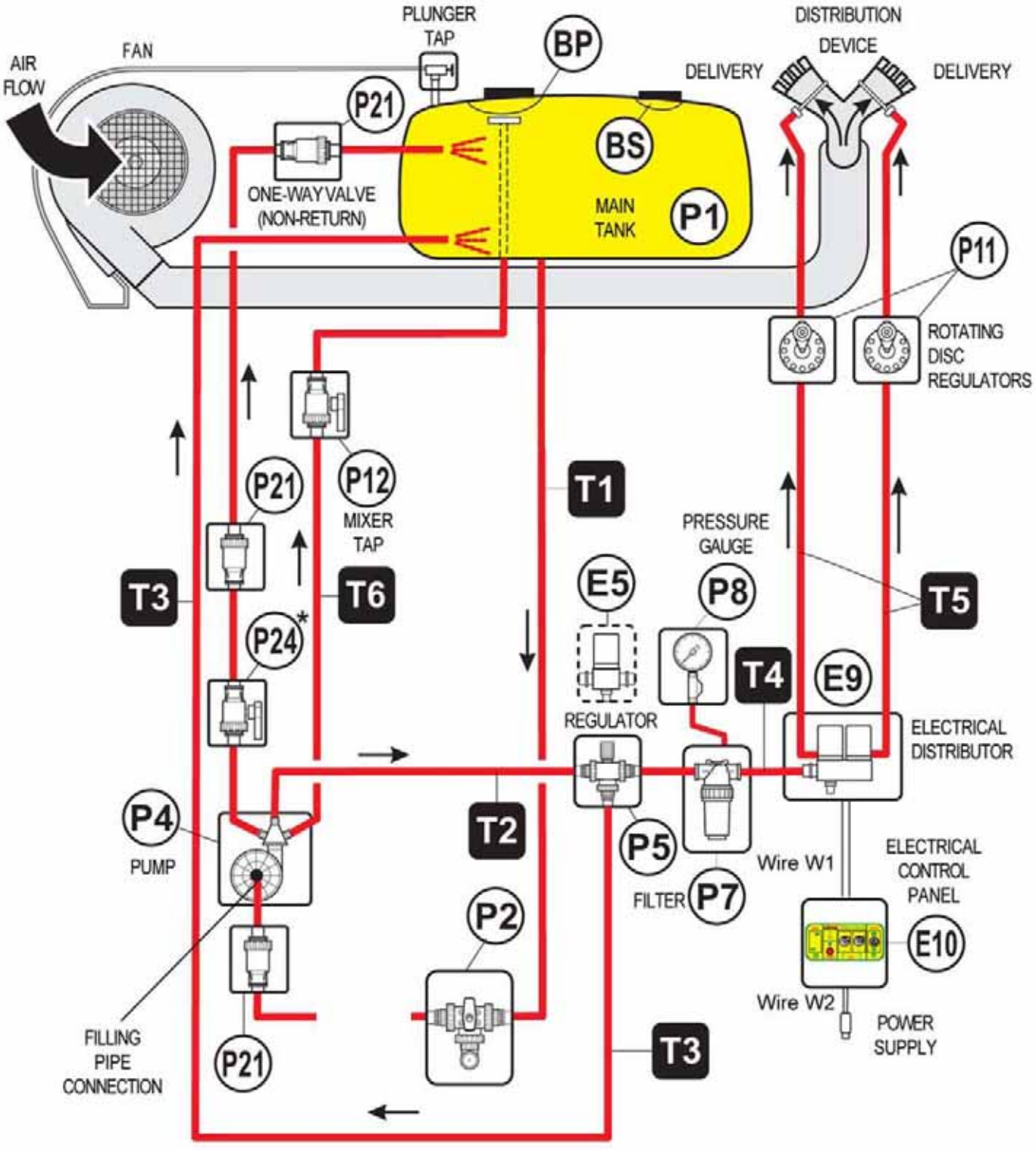
Before reassembling the main tank check the integrity of the rubber supports glued on the frame; if damaged or particularly worn replace them.

6. Position the tank on the frame.
7. Reposition the anchorage belts in their own seats.
8. Screw the regulation nut on each belt so that they are tight enough to firmly secure the tank to the frame.
9. Replace both the safety pins.

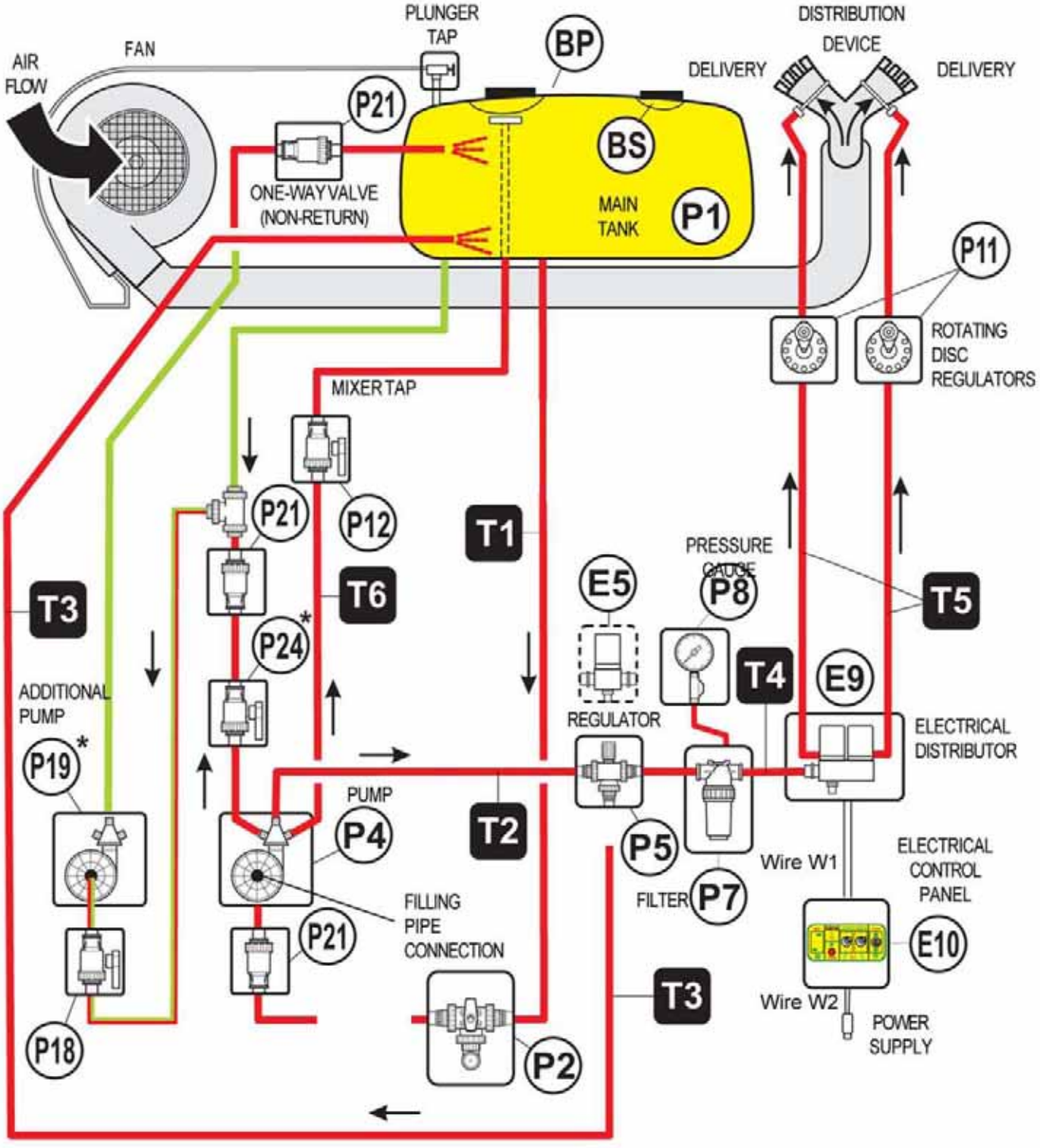
The adjustment of the belts takes place during the first 3÷4 hours of use of the sprayer; after this period check and re-tighten to the correct tension of the belts.

Before every treatment, check the tension of the tank anchorage belts.

14.1 - LIQUID - AIR DIAGRAM



Versions with additional agitation pump



GEARMORE INC.

GEARMORE, INC., warrants each new Gearmore product to be free from defects in material and workmanship for a period of twelve (12) months from date of purchase to the original purchaser. This warranty shall not apply to implements or parts that have been subject to misuse, negligence, accident, or that have been altered in any way.

Our obligation shall be limited to repairing or replacement of any part, provided that such part is returned within thirty (30) days from date of failure to Gearmore through the dealer from whom the purchase was made, transportation charges prepaid.

This warranty shall not be interpreted to render us liable for injury or damages of any kind or nature, direct, consequential or contingent, to person or property. This warranty does not extend to loss of crops, loss because of delay in harvesting or any other expenses, for any other reasons.

Gearmore in no way warranties engines, tires, or other trade accessories, since these items are warranted separately by these respective manufacturers.

Gearmore reserves the right to make improvements in design or changes in specification at any time, without incurring any obligations to owners or units previously sold.

Please be advised that all warranty work done by your dealer must be approved by Gearmore before work begins.

GEARMORE, INC.
13477 Benson Ave.
Chino, CA 91710

Always refer to and heed machine operating warning decals on machine.

To validate the warranty on this product, please log-in to our website - www.gearmore.com. You will find "warranty registration" listed at the top of our homepage.