ASSEMBLY, SERVICE & OPERATION MANUAL

GEARMORE INC.

VENTURI AIR SPRAYERS

3-POINT / TRAILER MODELS

"L" SERIES

AUGUST 2013

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 sprayers 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

3-Point/Trailer Models "L" Series

Model: .....

Serial Number: .....

Please fill out for future reference

OPERATION AND MAINTENANCE INSTRUCTIONS

GEARMORE INC.

13477 Benson Ave. Chino, CA 91710
Ph: 909.548-4848 Fax: 909.548-4747
www.gearmore.com

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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.

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 closest to 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: MOUNT THE WHEELS AFTER HAVING HITCHED THE MACHINE TO THE HOISTER AND DISMANTLE THEM BEFORE UNHITCHING THE MACHINE FROM THE HOISTER**

95012

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

95010

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

95015

Use and maintenance decals

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

95079

- **DANGER: GLOVES MUST BE USED TO EMPTY THE TANK**

95009

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

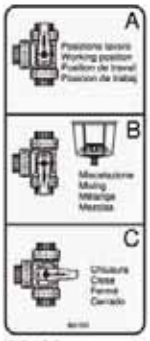
95057

- **GREASE EVERY 200 HOURS:** FAN TIGHTENER SUPPORT AND FREEWHEEL

95054

95080

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



95100

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

95059

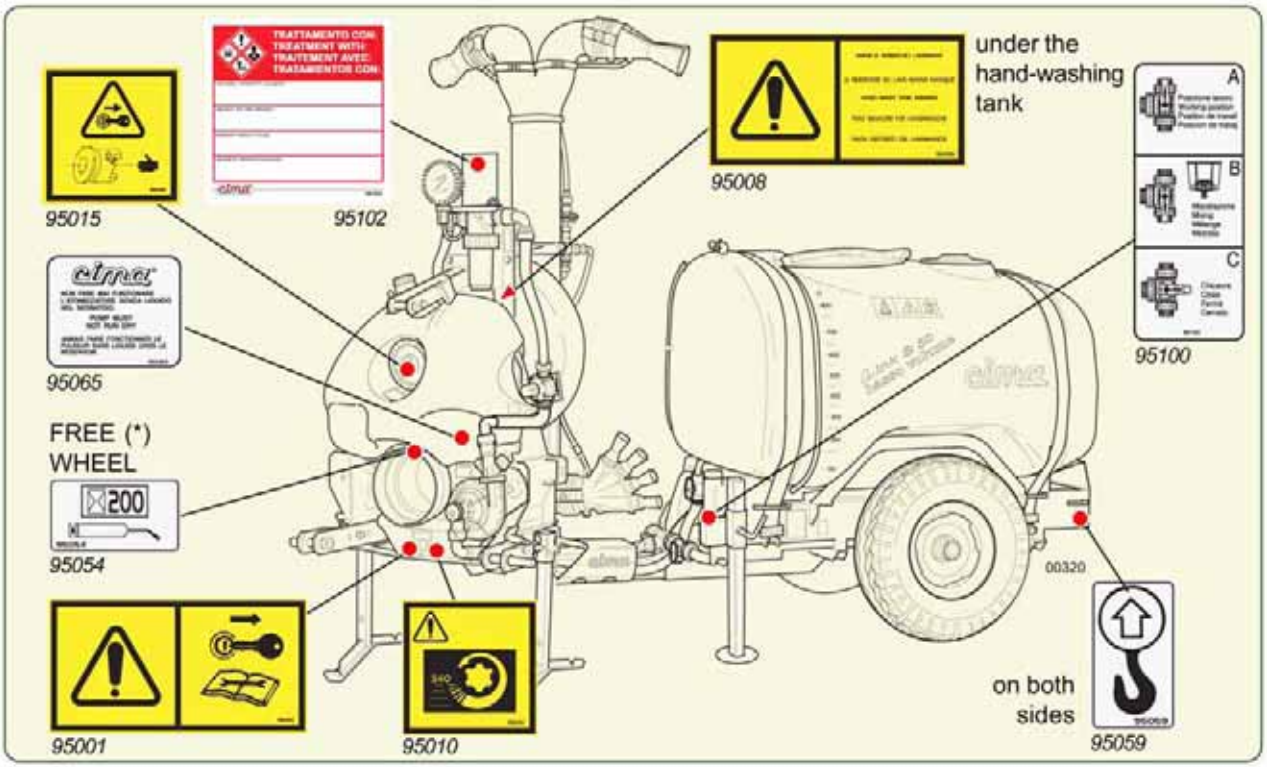
- **HOOKING POINT FOR THE LIFTING OF THE MACHINE**

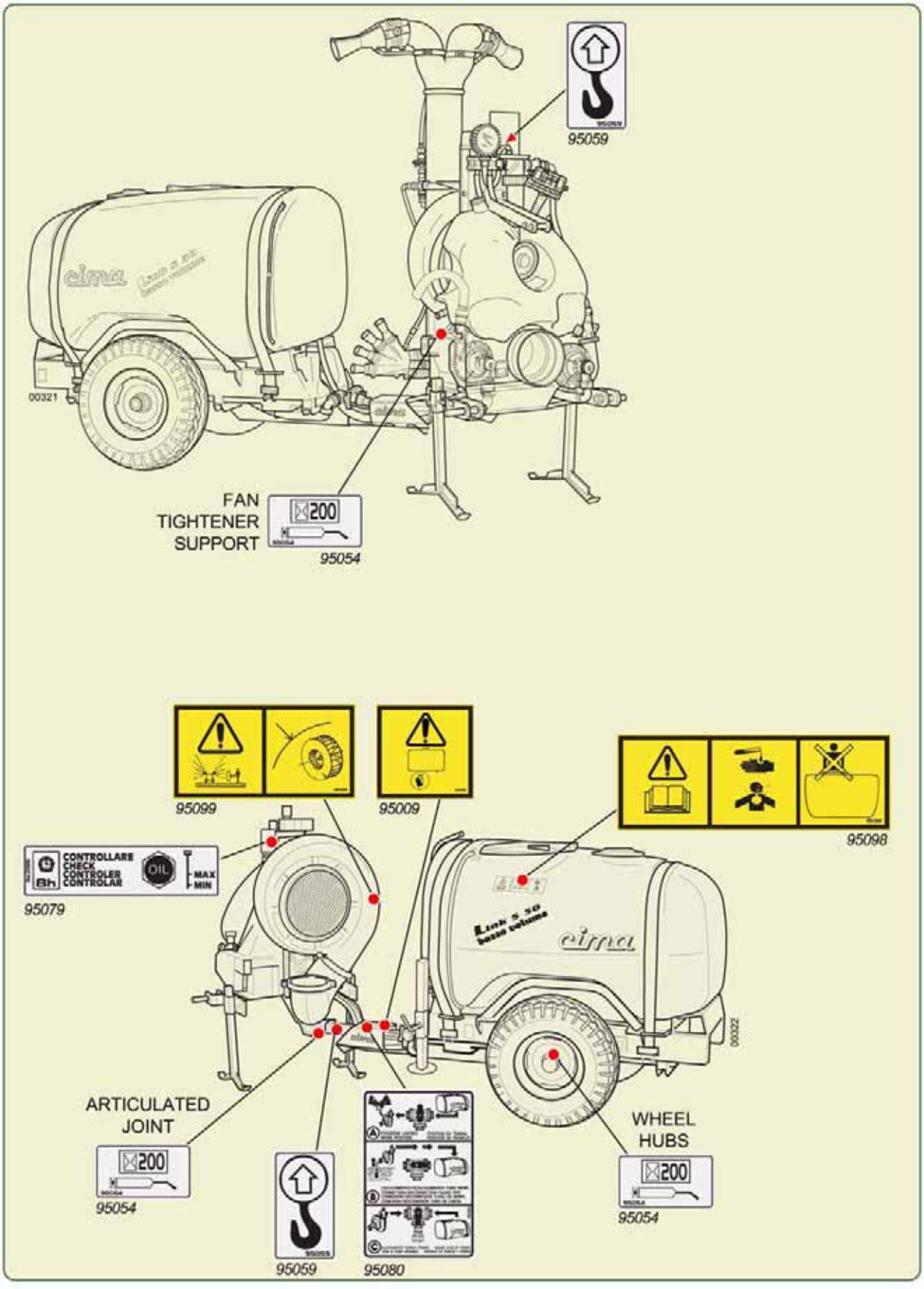
95102

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

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.

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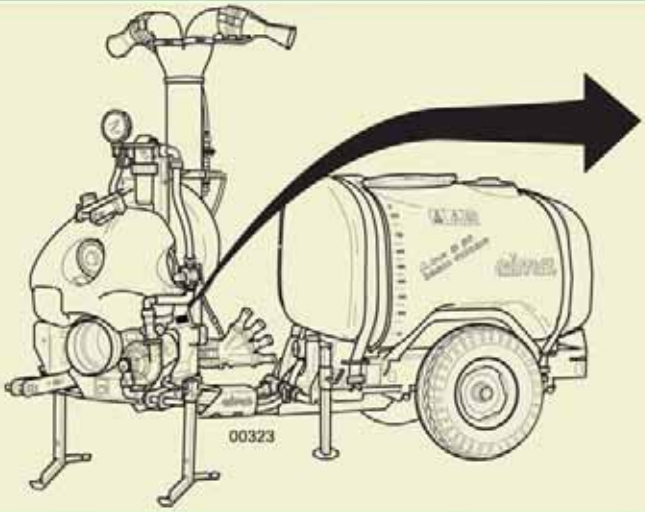
WHEEL
HUBS
95054

3.1 - MACHINE IDENTIFICATION



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Identification nameplate

3.2 - TECHNICAL ASSISTANCE

Please see your local dealer or contact Gearmore.

13477 Benson Ave. - Chino, CA 91710
Ph: 909-548-4848

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

It is necessary to scrupulously abide by the following general norms:
— check that the power of the tractor is compatible with the sprayer to be used;
— verify that the maximum weight admitted on the three-point hoister of the tractor is compatible with the weights of the sprayer to be used;

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

— before utilisation, 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 utilise protected PTO shafts.
Carry out the assembly only if the drive outlets of both tractor and sprayer are equipped with the protection counter-guard;
— check that the PTO 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;
— 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 THE FIRES

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

- **It is forbidden to carry out weldings, if ammonium salts have been used.**
- **It is forbidden to use the machine within a potentially explosive environment.**

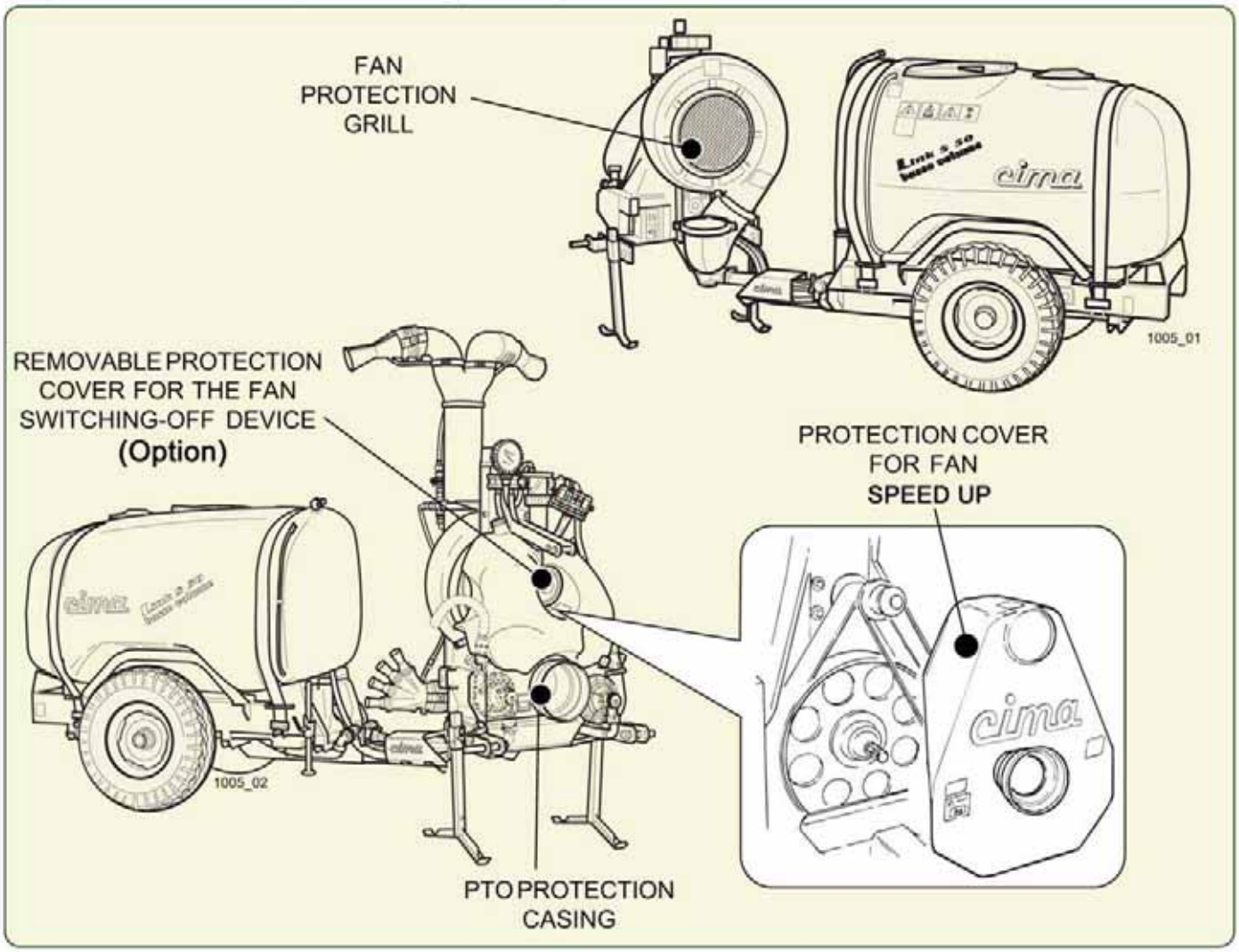
- **It is forbidden to carry out weldings, if ammonium salts have been used.**

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.**

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 transfert, 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.

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 Protective Equipment (PPE)

The use of phytosanitary products might imply a more or less high chemical risk for the workers on the basis of the toxicity and the dangerous properties of the phytosanitary product, of the level and duration of the exposure, of the absorption level through the respiratory tract, the skin, the mucosa and the ingestive tract, as well as the way and frequency of the use.
The "personal protective equipment" (PPE) are equipment that all the users of the machine need to wear and hold in order to be protected by one or more risks that are capable to treath the security or healthy during the job.
Regarding the basic requirements, PPE have to:
- be suitable to the risks that have to be prevented, without causing major risks themselves;
- be suitable to the existing conditions on the workplace;
- consider the ergonomic (easily adaptable, easy to wear and safe) or health needs for any users;
- be adaptable to the user according to his/her needs.

The PPE for the protection against dangerous chemical agents used for the operations that concern the exposition to phytosanitary products , pertains to the third class (3rd class – 0000).

Use solely PPE equipped with the needed CE mark, in the scrupulous rispect of the regulations in force in the country where the machine is in use and adequate to the phytosanitary product used.

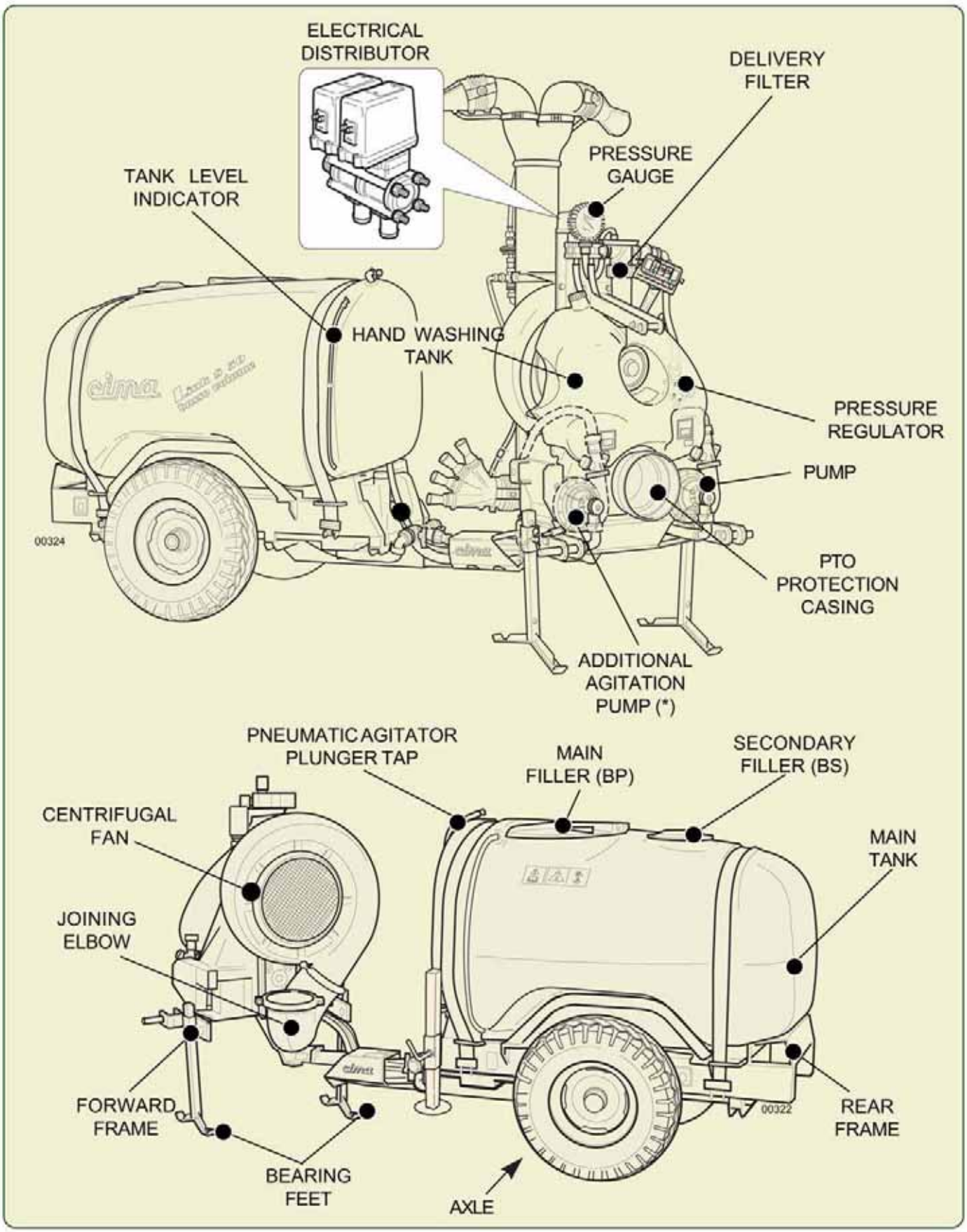
It's needed to use the PPE in each of the following working stage:
- tank filling and addition of the phytosanitary product;
- spraying,
- calibration of the sprayer,
- draining and cleaning of the tank,
- phytosanitary product replacement,
- servicing.

The following must be worn:
- for the protection of the body (gloves, suits, boots),
- for the protection of the respiratory tract, of the head and of the eyes (helmet, masks, filters, glasses, hoods and headdresses).

Filters must be replaced following the producers' instructions, and in any case:
- in case a bad smell is noticed;
- in case a resistance to the respiratory function is noticed;
- at least once a year in case of occasional use.
For ALL PPE in use, follow the use instruction declared by the PPE producers.

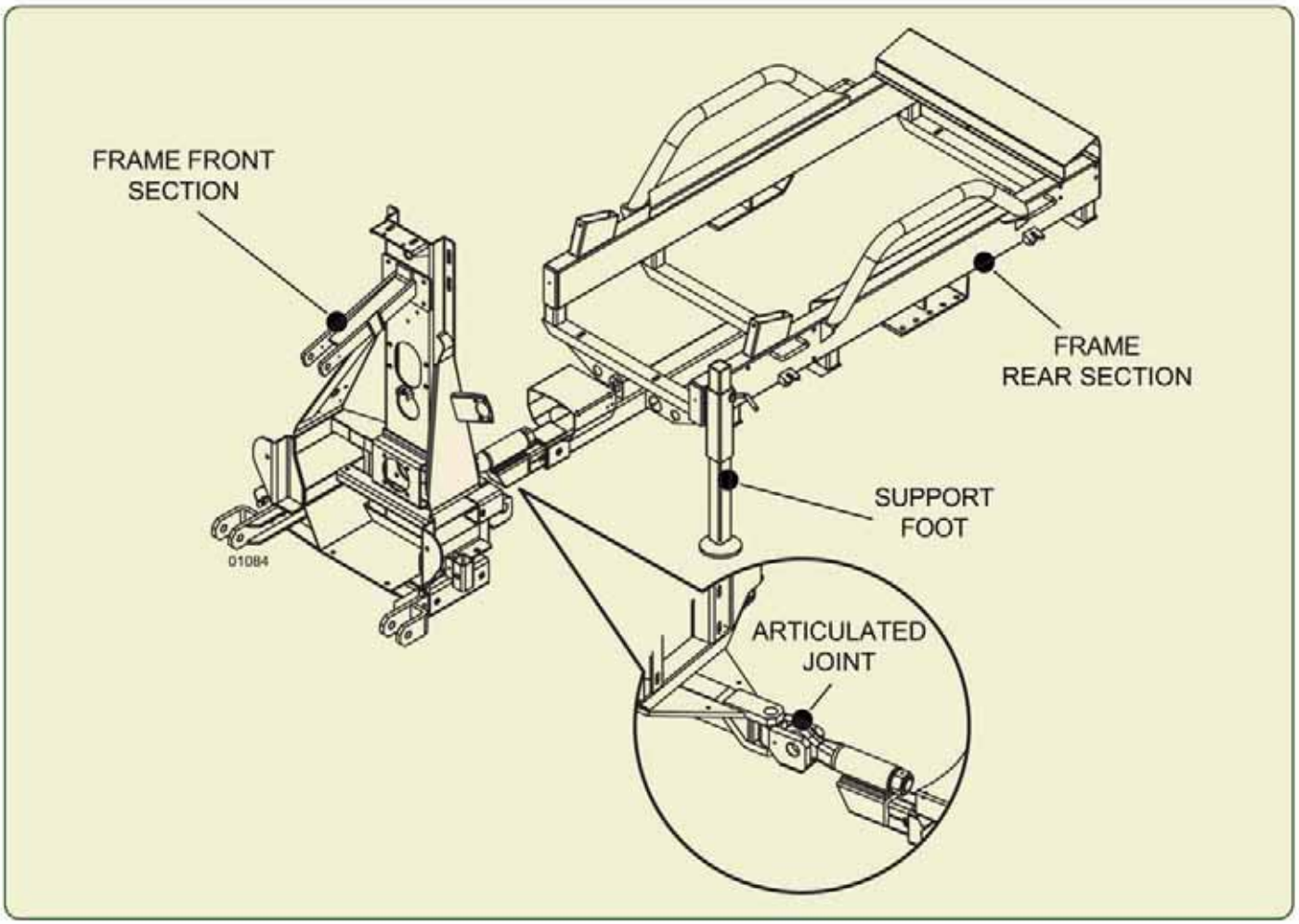
4 MACHINE'S STRUCTURAL ANALYSIS 4

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

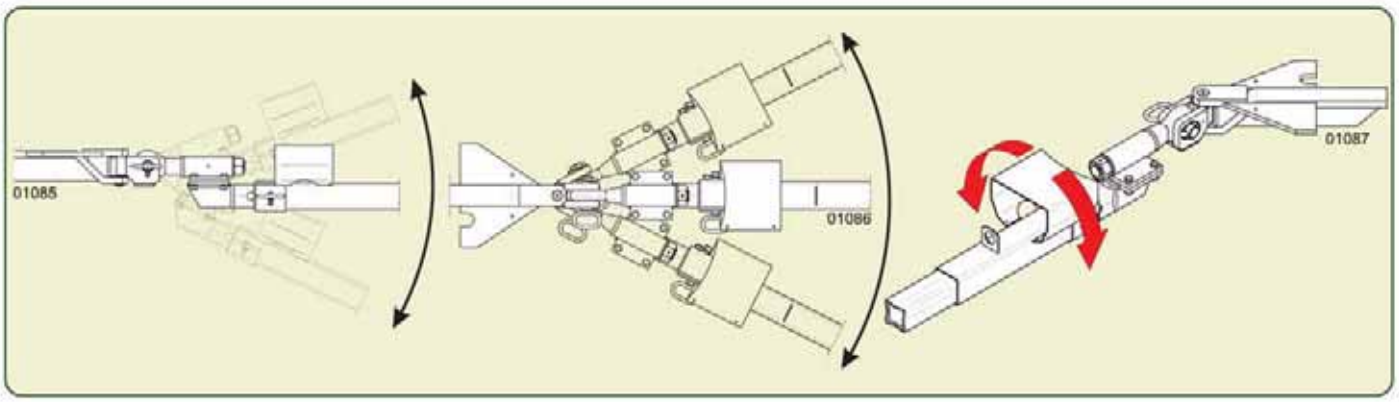


4.1 - FRAME

The LINK trailer-mounted sprayer frame consists of two sections: the front section, supporting the fan/speed-up unit, and the rear one, supporting the main tank.

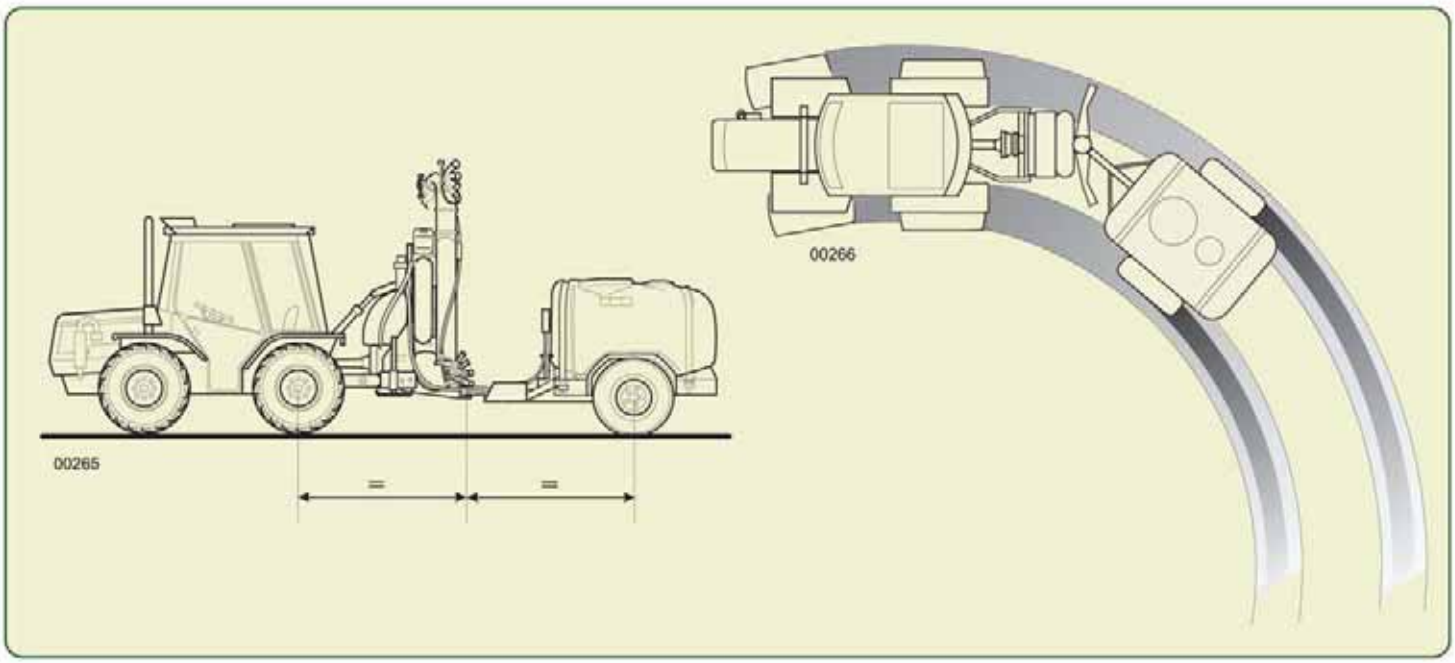


The connection between the frame two sections is realized by means of a special articulated joint, which is integral with the frame front section and assures a completely free movement to both the frame sections.
The front section is directly coupled with the three points-hydraulic **system** of the tractor.

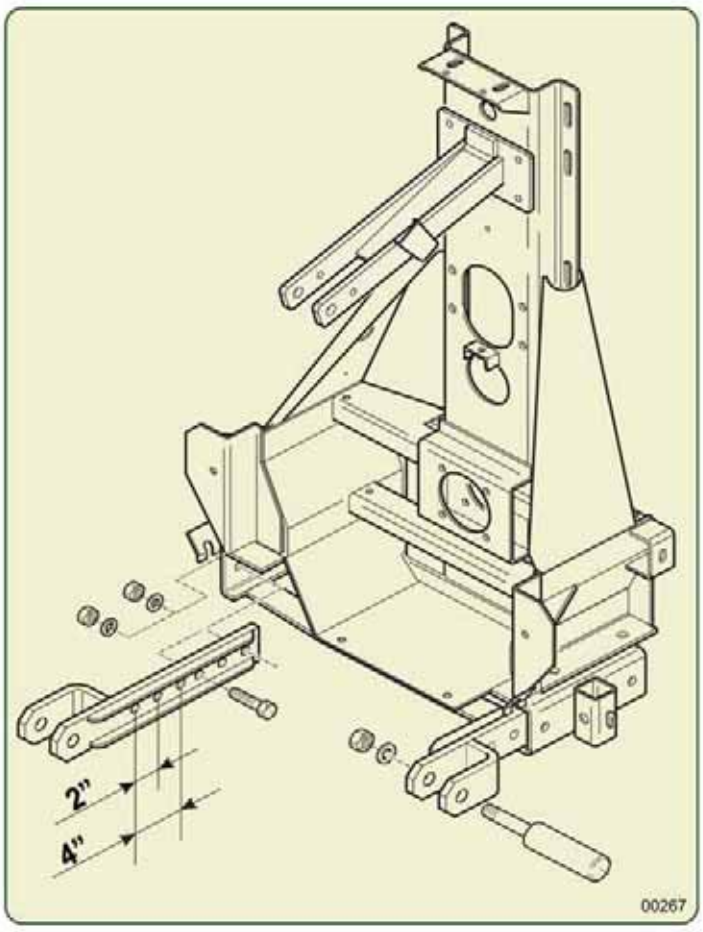


The L50 frames can be coupled with the hydraulic 3-point hitch, cat. 2.

By adjusting the 3-point hitch arms, the sprayer articulated joint can be exactly positioned on half a way between the tractor rear axle and the trailer one. On that condition, the trailer wheels exactly cover the same trajectory as the tractor wheels.



The sprayer lower link arms can be adjusted up to 4 inches.



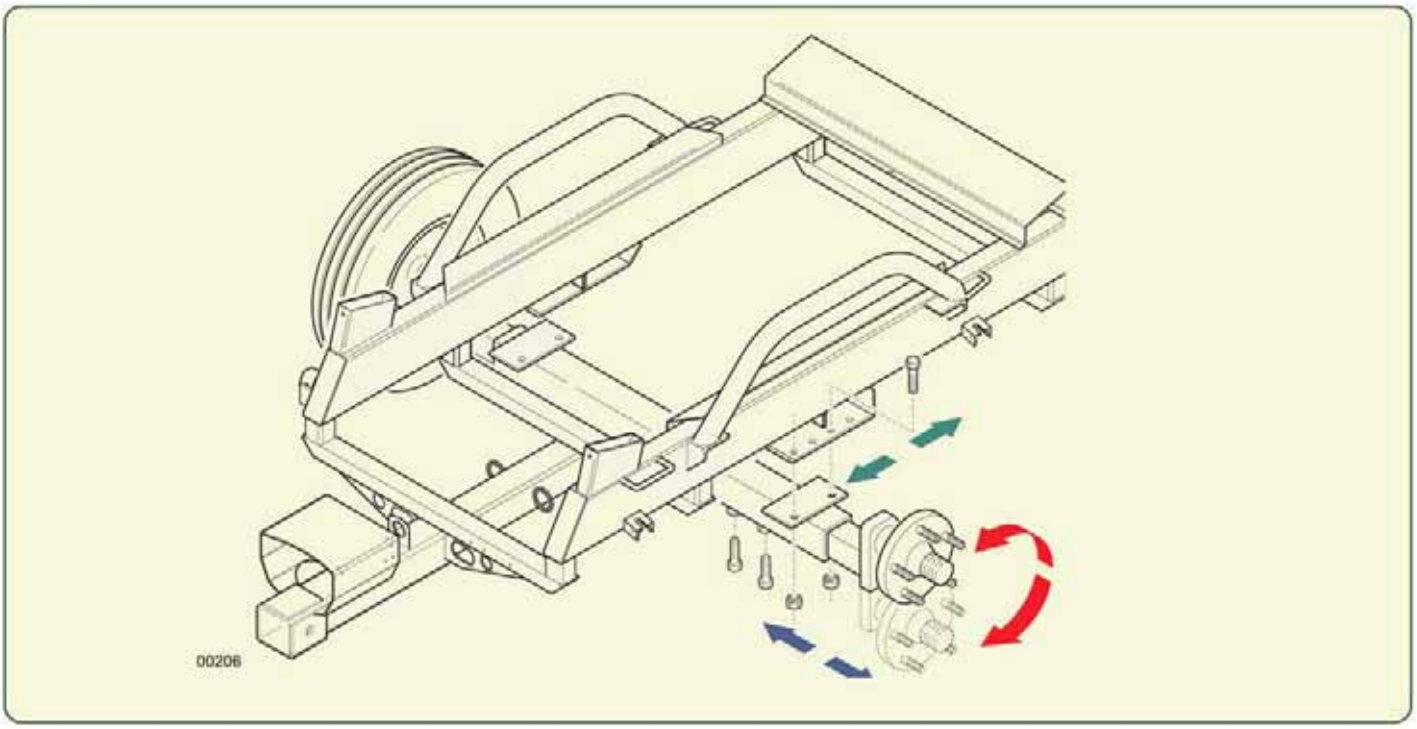
After every use, carefully tighten all the screws and the bolts.

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 tires' size and the operating pressure are indicated at step 4.5.2.

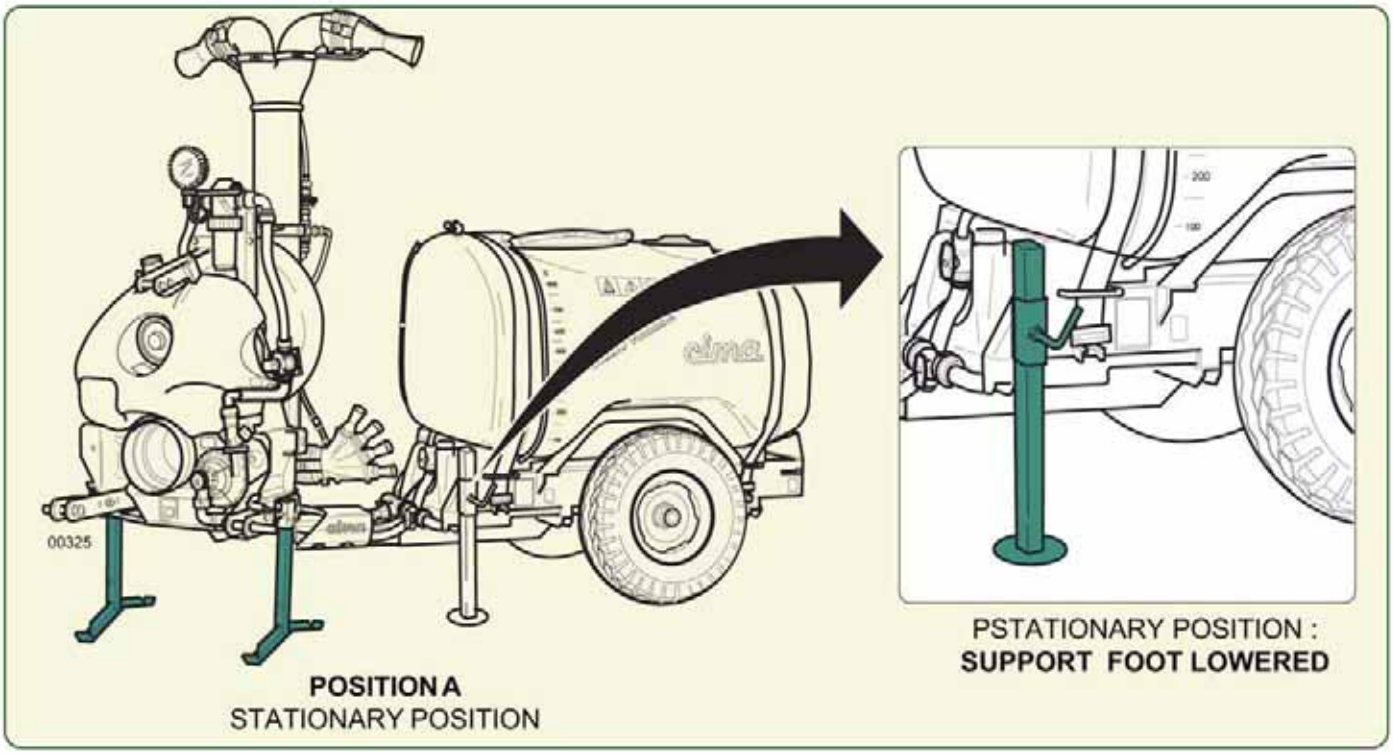
The sprayer HAS NEVER to be uncoupled from the tractor before having correctly positioned the bearing feet.

The BEARING FEET have always to be locked on "treatment position" during the unit operation.

The bearing feet can be fastened to the sprayer in 2 different positions, according with the different operational requirements:

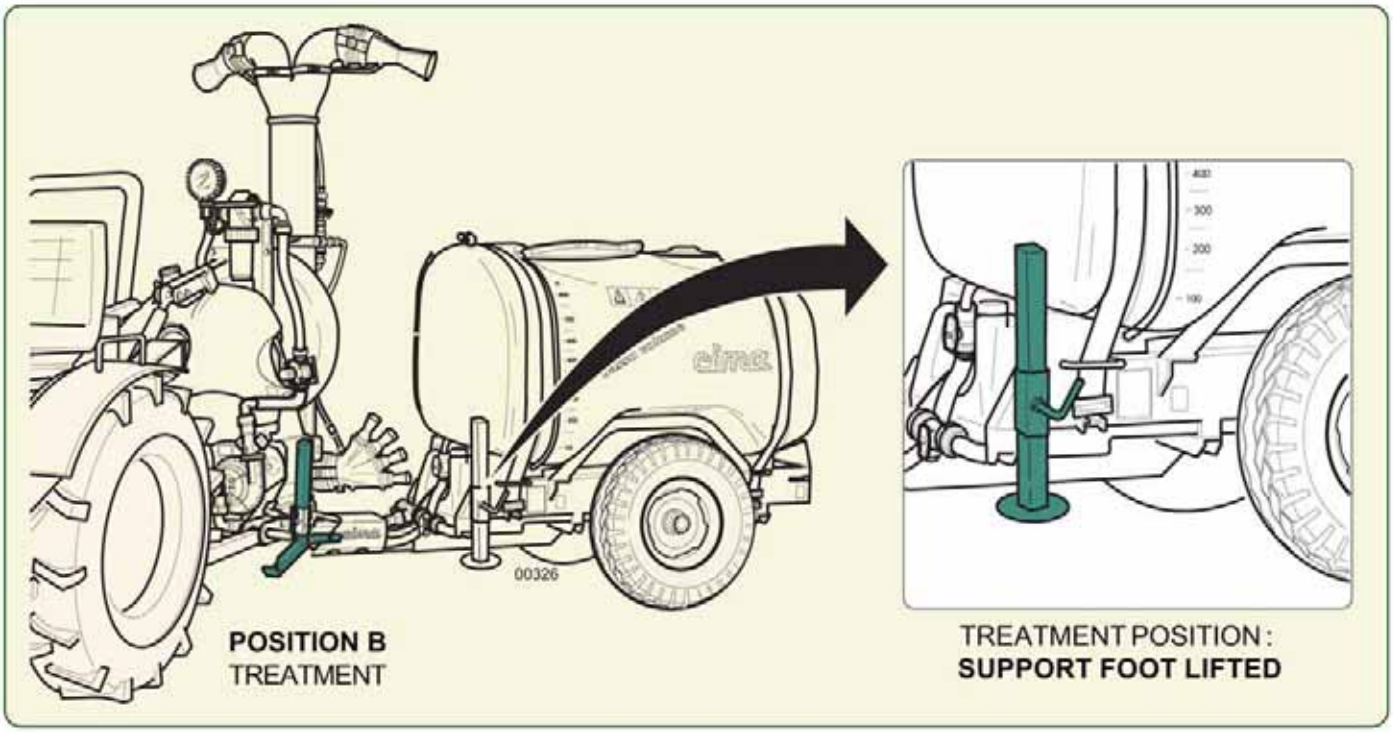
Position A - front feet downwards and rear foot lowered: **THIS ALLOWS TO UNCOUPLE the tractor** and assures the sprayer stability.

Position B - front feet raised applied to the 3-point and rear foot raised it allows to use the sprayer.



POSITION A
STATIONARY POSITION

PSTATIONARY POSITION :
SUPPORT FOOT LOWERED



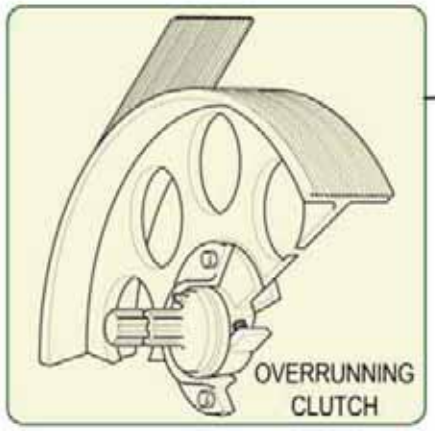
POSITION B
TREATMENT

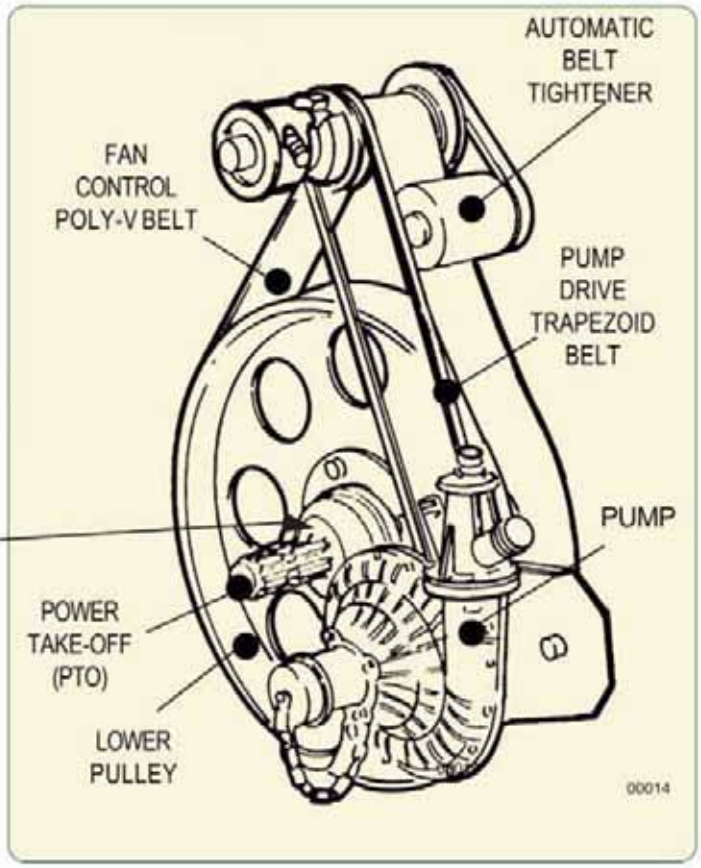
TREATMENT POSITION :
SUPPORT FOOT LIFTED

IT IS THE RESPONSIBILITY OF THE OPERATOR TO RAISE AND LOWER THE 3-POINT HITCH AND TRAILER LANDING LEGS WHEN REQUIRED.

4.2 - OVERRUNNING CLUTCH

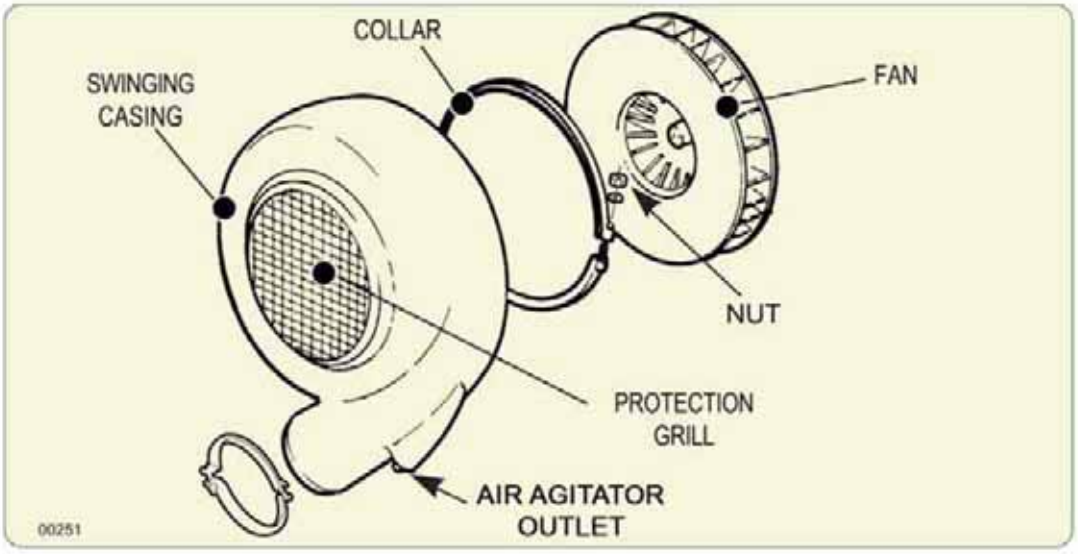
A overrunning clutch is included between the Power Take-off and the fan control pulley. In case of sudden decelerations or unexpected engine stoppage, this allows the fan to continue its free rotation, thus avoiding extreme mechanical stresses to be transmitted to the drive members.



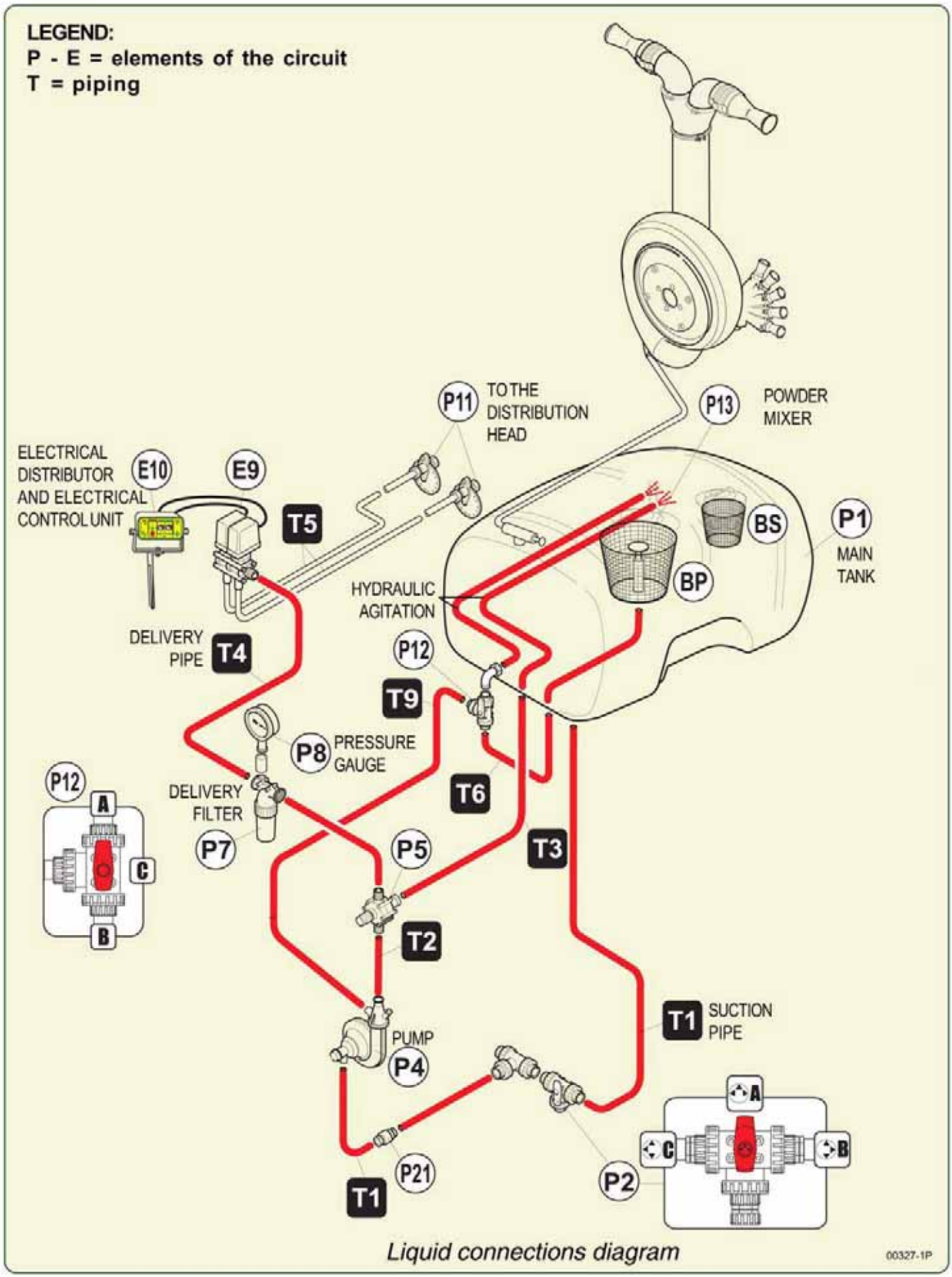


Centrifugal fan

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.

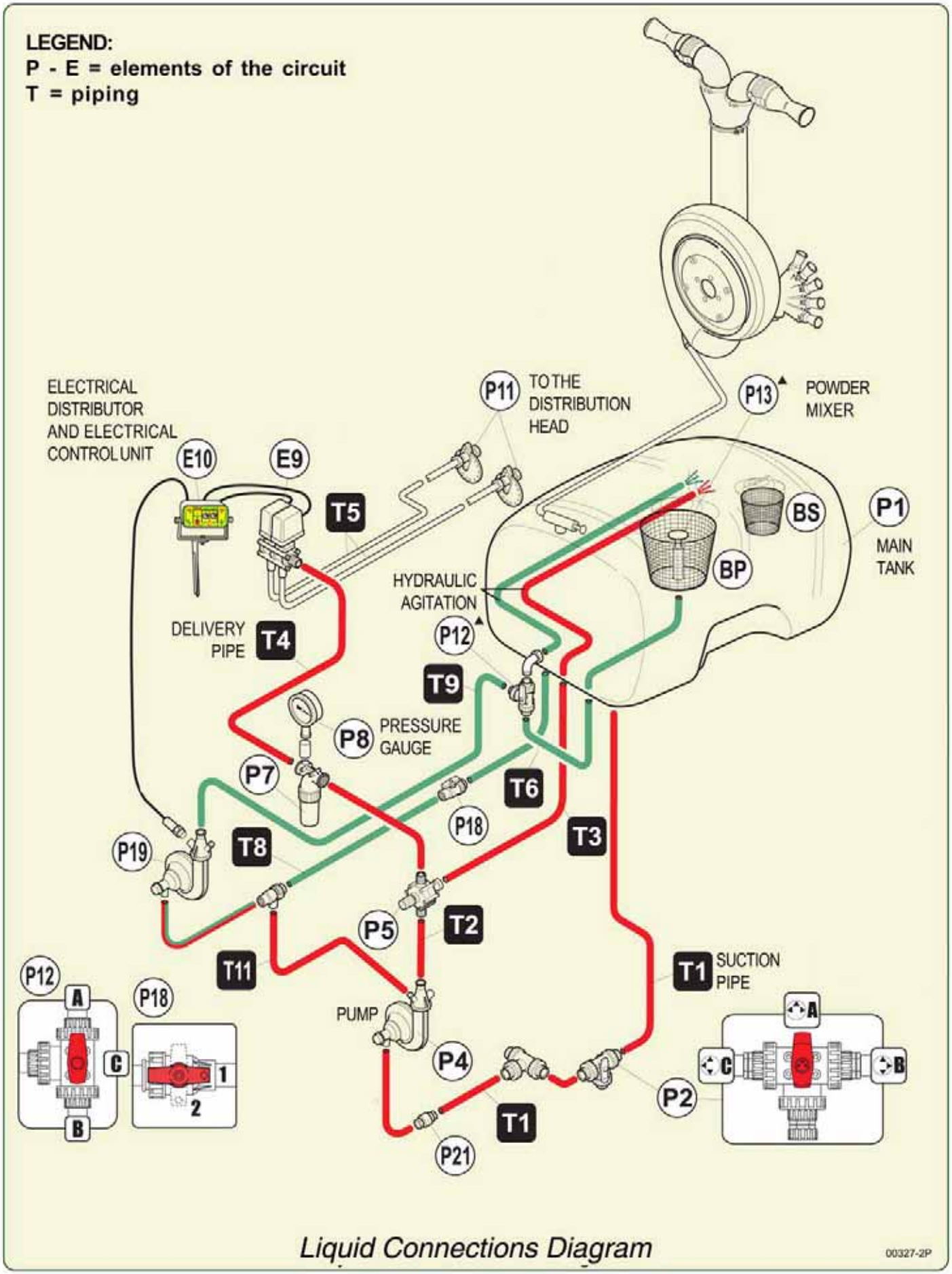


4.3 - LIQUID CIRCUIT COMPONENTS - 200 GALLON ONLY



Liquid connections diagram

Liquid Circuit With Additional Agitation Pump - 300 Gallon Only



Liquid Connections Diagram

00327-2P

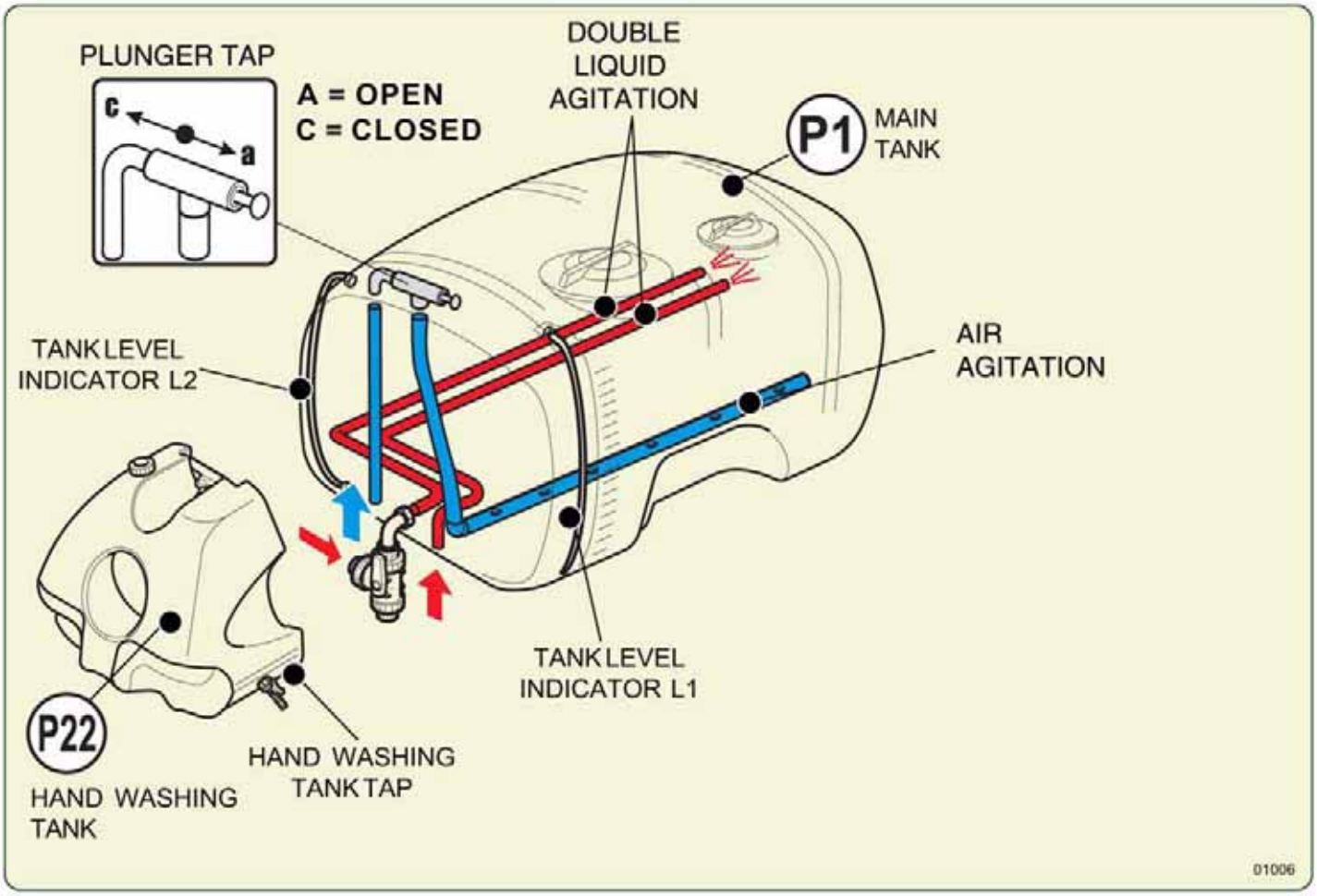
P1. MAIN TANK

Tanks utilized:
polyethylene tanks of 200 & 300 gallon capacity.
Each tank is made up of:

- tank main filler with hinged cover, with breather pipe.
- 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.
- air agitation.
- piston cock, positioned over the tank and connected through a pipe to the air inlet, which is placed on teh fan casing, for opening/closing the air agitation.

P22. ADDITIONAL HAND-WASHING TANK

8 Gallon polyethylene tank, with external tap.



P2. 3-WAY LEVER TAP 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 the following specified:

A - Treatment

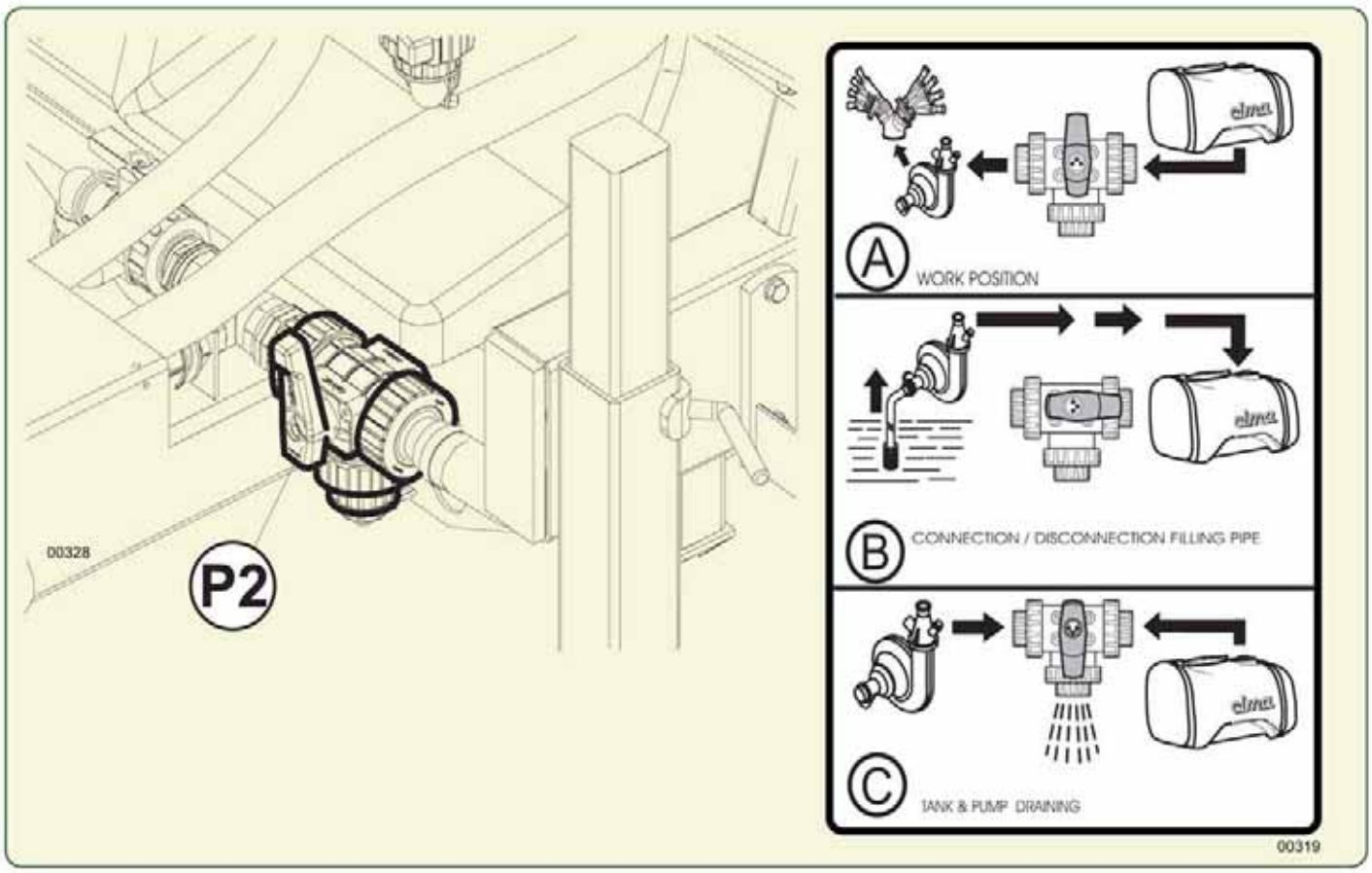
This is the normal operating position.

B - Filling

We do not recommend using the tank by this method.

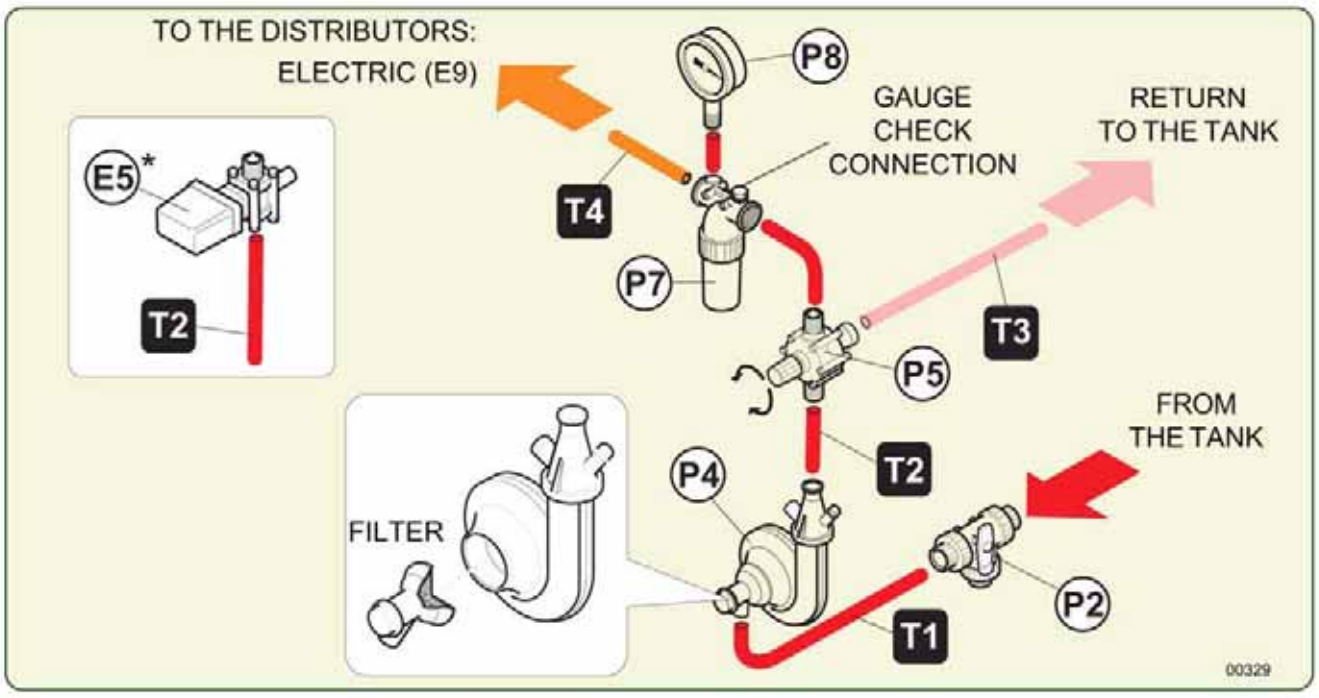
C - Drainage

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



P4. CENTRIFUGAL PUMP

Fastened on the unit left front section, it is connected with the 3-way cock (P2) and with the pressure regulator (P5). The pump is provided by the suction side of a filter to prevent the accidental entry of foreign bodies in the pump body.



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 the functioning.

To avoid any damage to the pump :

- At the first filling and at every next filling after the hydraulic circuit draining, 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 anti-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)

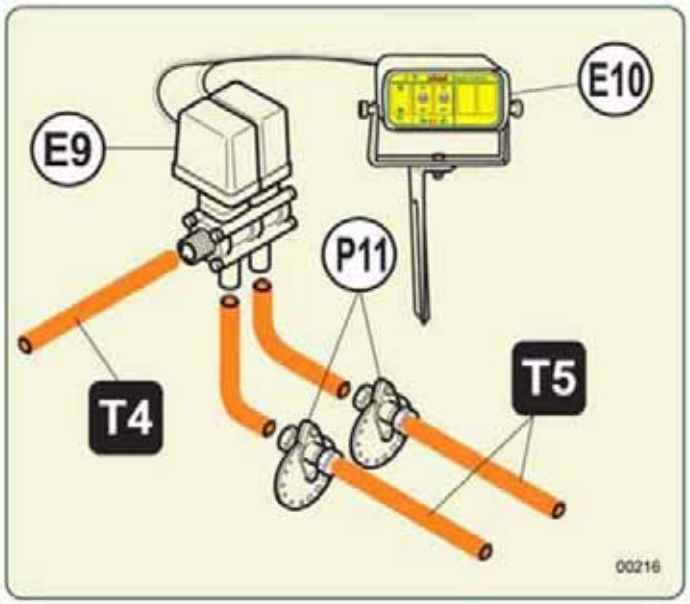
Set the working pressure keeping the E9 (or P9) distributors opened.

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.



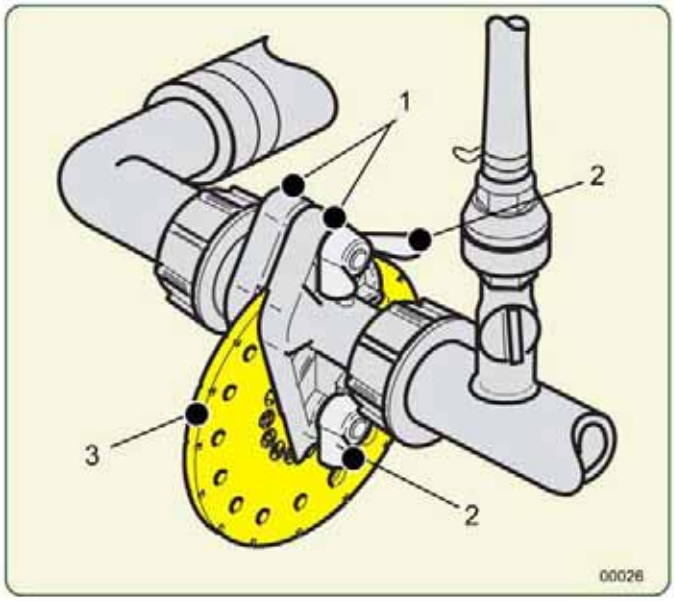
P11. CALIBRATION DISC (Patented Nr. 23238)

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 hydraulic circuit causes an intermittent issuing of the sprayed material. It is necessary to carefully check the efficiency of the sealers 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 (300 Gallon only)

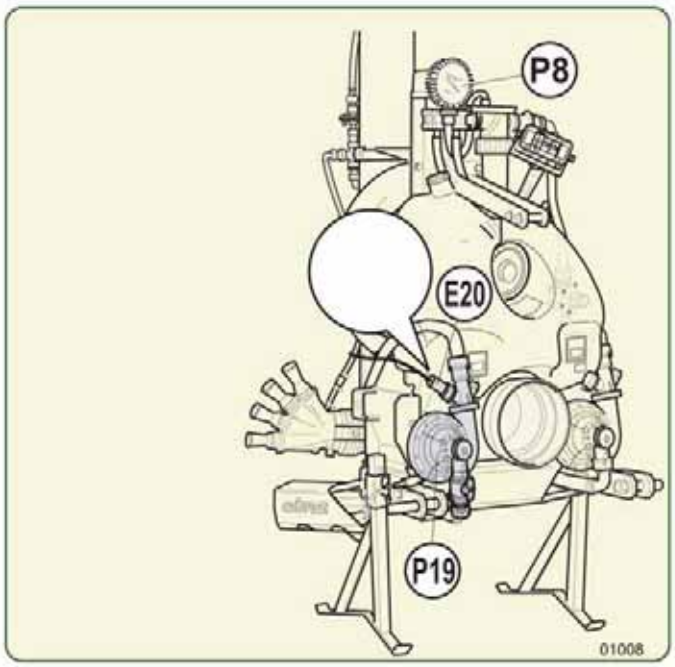
Fastened on the machine right side, it is connected to the tank (P1) through the pipes (T8 - suction) and (T9 - delivery).

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 filling after the liquid circuit draining, fill the tank with an appropriate quantity of water to fill the pumps completely.

On sprayers equipped with the secondary pump (P19) the main pump (P4) delivery is sent to the suction of secondary pump.
In this way, the supply to the secondary pump is powered in any condition of employment, even extreme, for example with the sprayer on steep slopes and with the tank almost empty; this avoids that the pump runs dry.



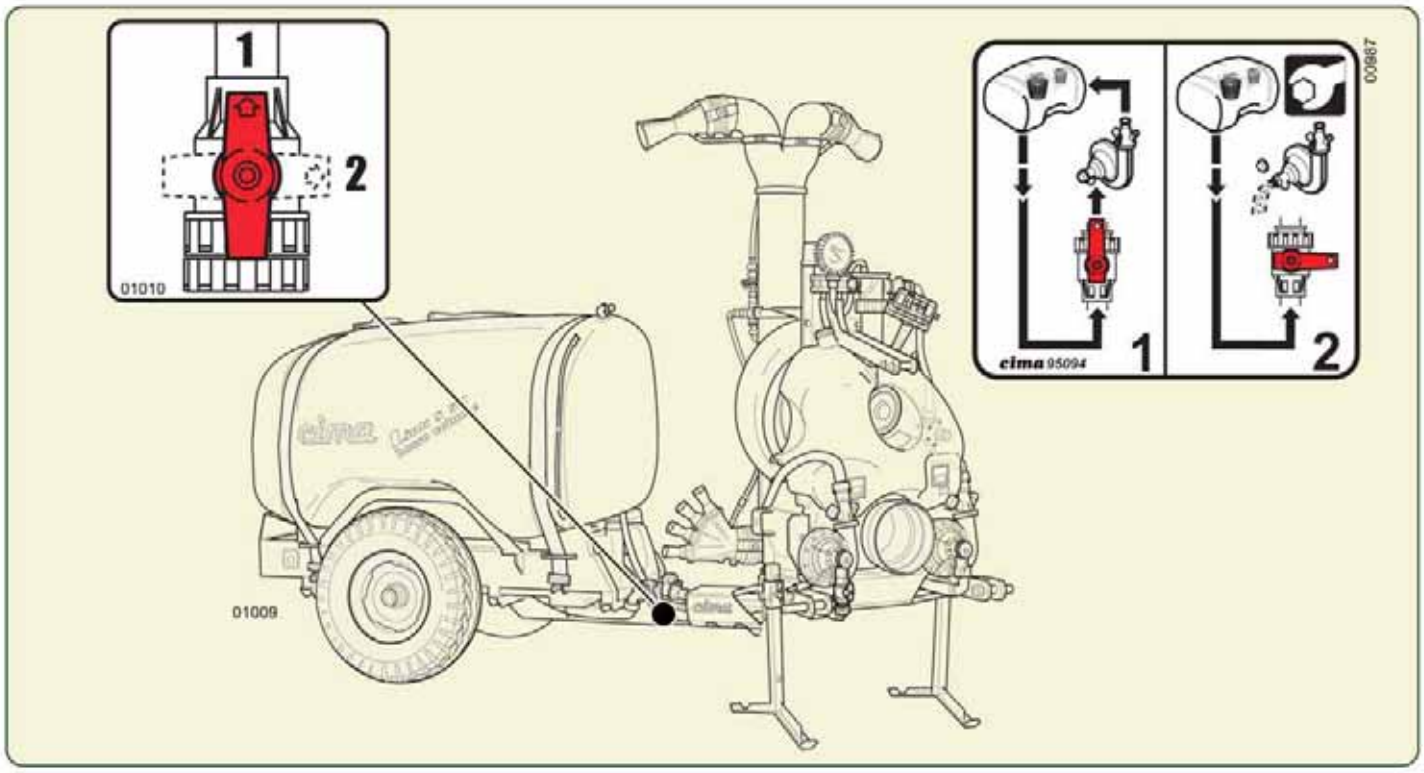
P18. ADDITIONAL PUMP VALVE - 300 GALLON ONLY

Positioned on the pipe (T8), between the centrifugal pump (P19) and the main tank (P1). The control lever can be set to the following positions:

1 - Agitation - Position 1

2 - Close - Position 2

On that position, the suction of the additional pump (P19) is closed to perform maintenance on the pump.



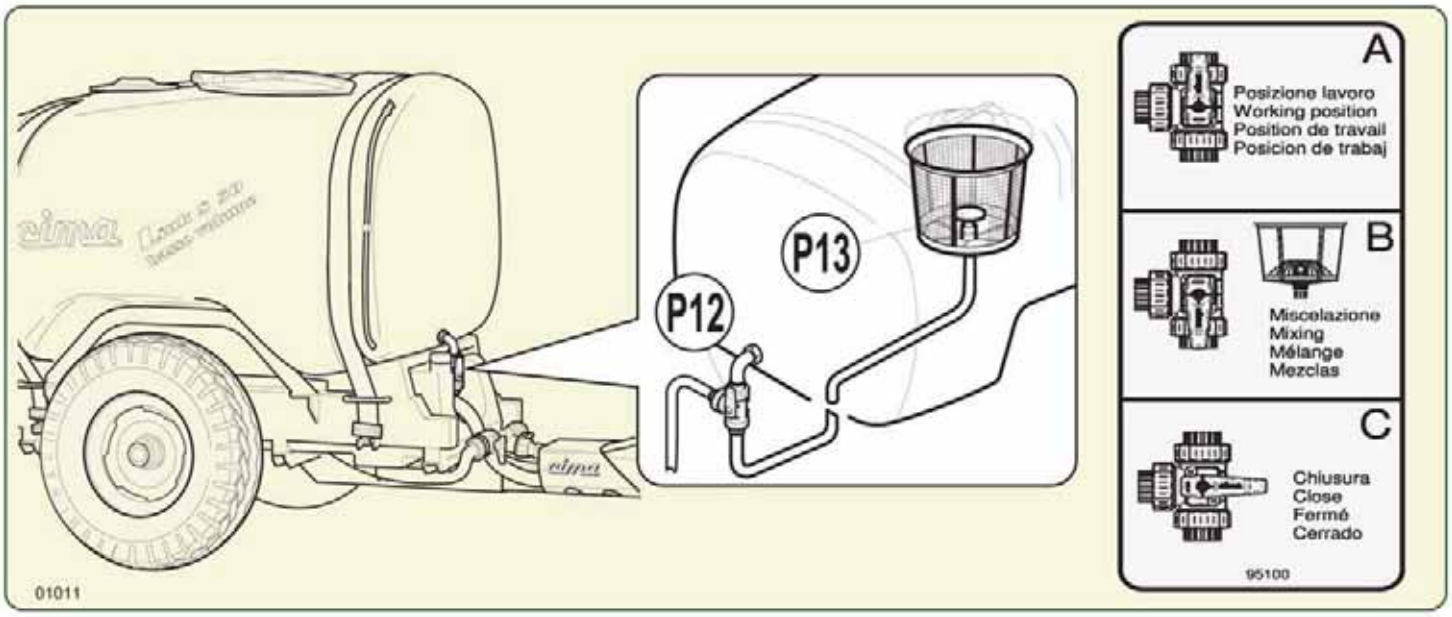
P12. POWDER MIXER VALVE

Positioned on the pipe (T9), between the main tank (P1) and the main centrifugal pump (P4) (or secondary pump P12 for versions with two pumps), it can assume the following positions:

A - Agitation Position

B - Mixing Position

C - Closed Position



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 (BP) and it is connected to the pump (P4) by the pipe (T6).
That device consists of a fine mesh-nylon basket, which is placed inside the tank main filler (BP). The basket is equipped with a mushroom outlet, through which the filling water coming from the pump (P4) streams out. Thanks to that system, the powder products contained inside the basket get more gradually dissolved, and the building of crumbs and thickenings can be avoided.

5.2 - THE TREATMENT

IT IS ADVISABLE TO BEGIN TREATMENT AT THE HEADLANDS.

WHEN THE TREATMENT IS OVER, OR IF THE SAME HAS TO BE TEMPORARILY INTERRUPTED, ALWAYS LET THE FAN STILL OPERATE FOR APPROXIMATELY 30 SECONDS AFTER CUTTING-OUT THE POWER SUPPLY (EITHER MANUAL DISTRIBUTOR P10 OR ELECTRICAL DISTRIBUTOR E11), IN ORDER TO FULLY ELIMINATE THE PRODUCT MIXTURE FROM THE DISTRIBUTING DEVICES, SO PREVENTING ANY POSSIBLE ANOMALOUS DRIPPING FROM TAKING PLACE.

- **The operator must:**

a. Shake the mixture in the tank before starting the treatment, re-circulating it completely for as long as it takes to make it homogeneous.

b. Check **the orientation of the distributors (hands, guns and/or fishtails) of the distribution device (sprayhead) in relation to the dimensions, the shape and the thickness of the vegetation to be treated.**

c. Continue to shake the mixture until the treatment is resumed should the intervention momentarily be interrupted. If the utilisation is to be deferred, check that the filter cartridge is clean before resuming and **agitate the mixture** that has remained in the tank.

d. Ensure that the hand wash supplementary tank is filled with clean water after each filling operation.

e. Make use of individual protections identical to those envisaged for the preparation of mixtures if the tractor is not equipped with a pressurised cabin with aeration filters.

f. wash immediately all the elements that might have become contaminated during the treatment, promptly remove the polluted garments and **interrupt the work if these cannot be immediately replaced.**

g. Keep to the preliminary operations already indicated (10.1.c), in case of wind conditions prevailing.

h. Stop the engine, remove the key from the tractor's control panel and lower the hoist during stoppages.

i. Pay particular attention to the treatment when close to boundaries and in proximity of dwellings, waterways, roads or public-usage paths.

5.3 - END OF TREATMENT - STORAGE

<u>if the machine HAS NOT a spray-line rinsing tank</u>:

a. Put about 5 gal. of clean water in the tank and spraying it in the already treated area.

b. Wash the tank:

1. Wash the main tank internally with a water jet employing a quantity of clean water equal to almost 10% of tank capacity, with the agitator while running

2a. Discharge the rinsing water in a proper area provided with a drain basin for the collection and take care of waste according to the country rules.

Or

2b. Spraying the rinsing water in the already treated area. Then, discharge the remainig water of the tank and pipes (about 5,6lt) gathering it in a proper container to waste it following the rules or use it again, putting it again in the tank, for a next treatment, if this will be suitable with the product to use.

If necessary repeat the washing procedure.

c. Wash the machine externally:

To wash it externally DO NOT USE high pressure washer (MAX 5 bar).

When each treatment has finished, it must wash the sprayer outside, in a proper area provided with a drain basin for collection and subsequently treatment of rinsing water.
These area are forbidden to unauthorized personnel, children and pets.
To outside sprayer rinsing, it is possible to use proper cleaning products and biodegradable to make the operation easier.
When the rinsing is finished, switch on the fan for few second (about 10) to remove residual water on carter and pipes which lead the flow to the sprayhead.

The use of detergent products for the cleaning operations is allowed only in the observance of the regulations in force. For these, the operator must gather the relevant information from the specifically appointed bodies ruling on this subject.

d. Check the efficiency of the distribution device (head) and the cleaning of the pulverising points (diffusers), possibly replacing them if found to be damaged.

e. Clean out the filter cartridge.

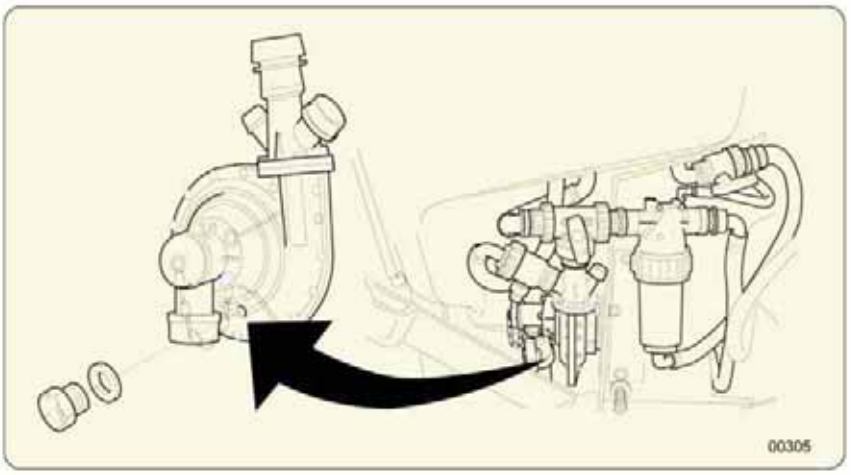
f. Keep the machine on a plane surface with a suitable consistency, in a ventilated place, sheltered from rain or sun: sunrays are the worst enemies of plastic and rubber parts.

6.1 - 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 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.

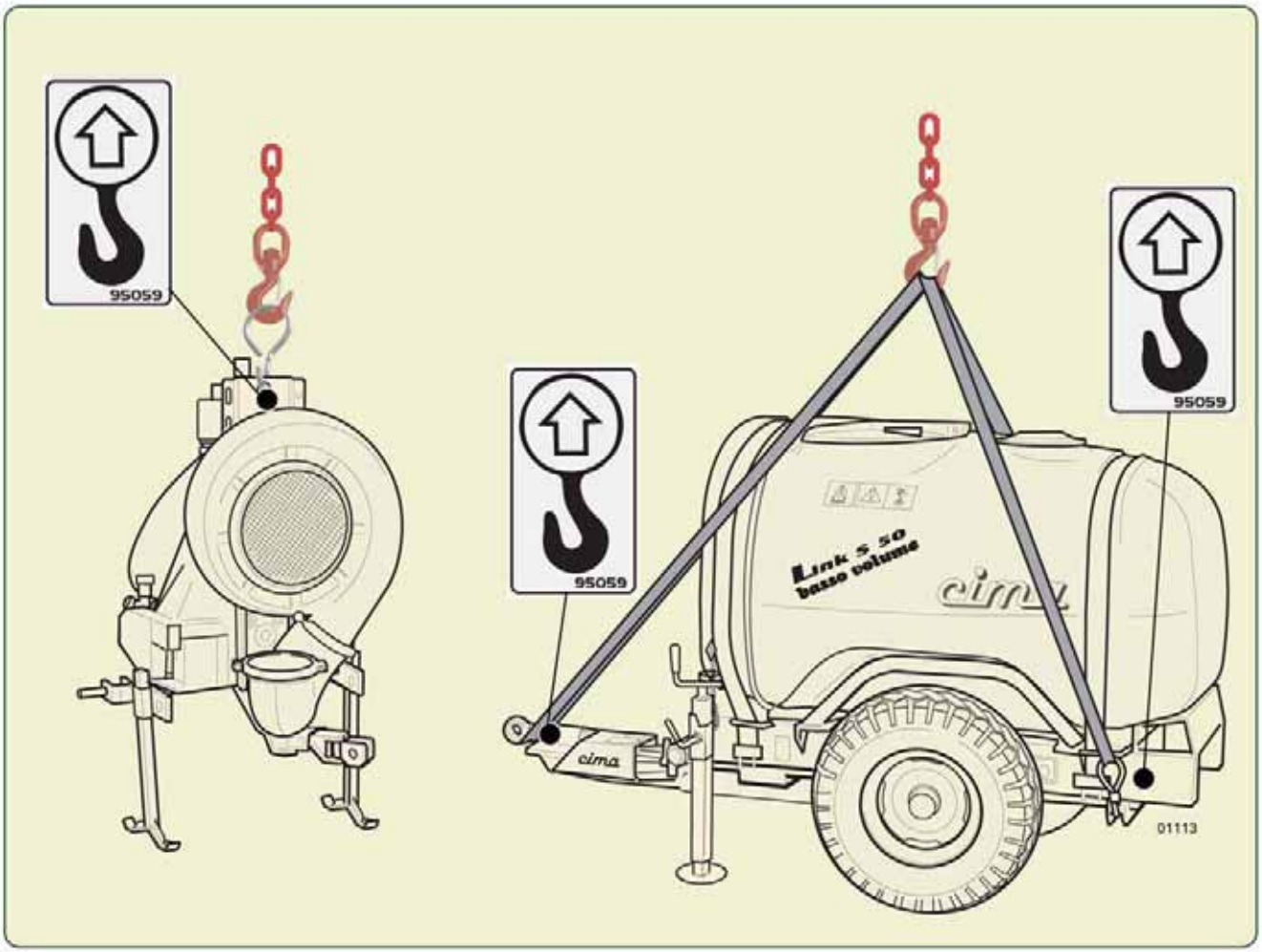
Check that the lifting devices (bands, ropes, etc.) are adequate for the weight to be lifted (machine, distribution devices, accessories).

7.1 - Lifting of the 3-point hitch

1. Hook the fan 3-point assembly through the specific support point indicated by the specific decal on the frame, checking all the parts involved in the operation.
2. Lift the 3-point assembly, verifying that it is properly balanced.
3. Position the 3-point assembly on the transporting vehicle in perfectly stable conditions.

7.2 - Lifting of the Trailer half

1. Hook the trailer through the specific support point indicated by the specific decal on the frame, checking all the parts involved in the operation.
2. Lift the trailer, verifying that it is properly balanced.
3. Position the trailer on the transporting vehicle in perfectly stable conditions.

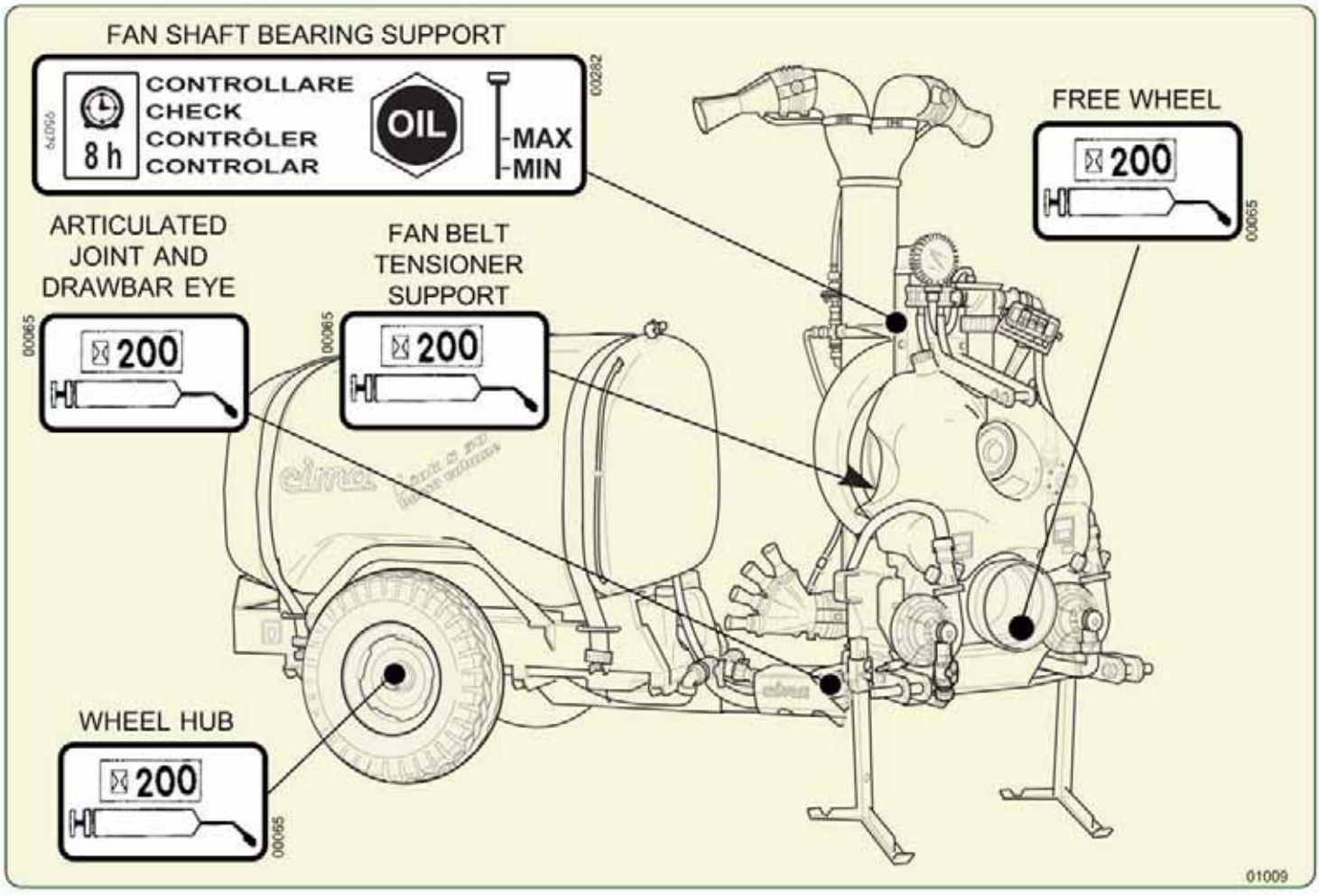


ALL OPERATIONS MUST BE CARRIED OUT WITH THE ENGINE SWITCHED OFF AND WITH THE IGNITION KEY REMOVED FROM THE CONTROL PANEL.

8.1 - LUBRICATION

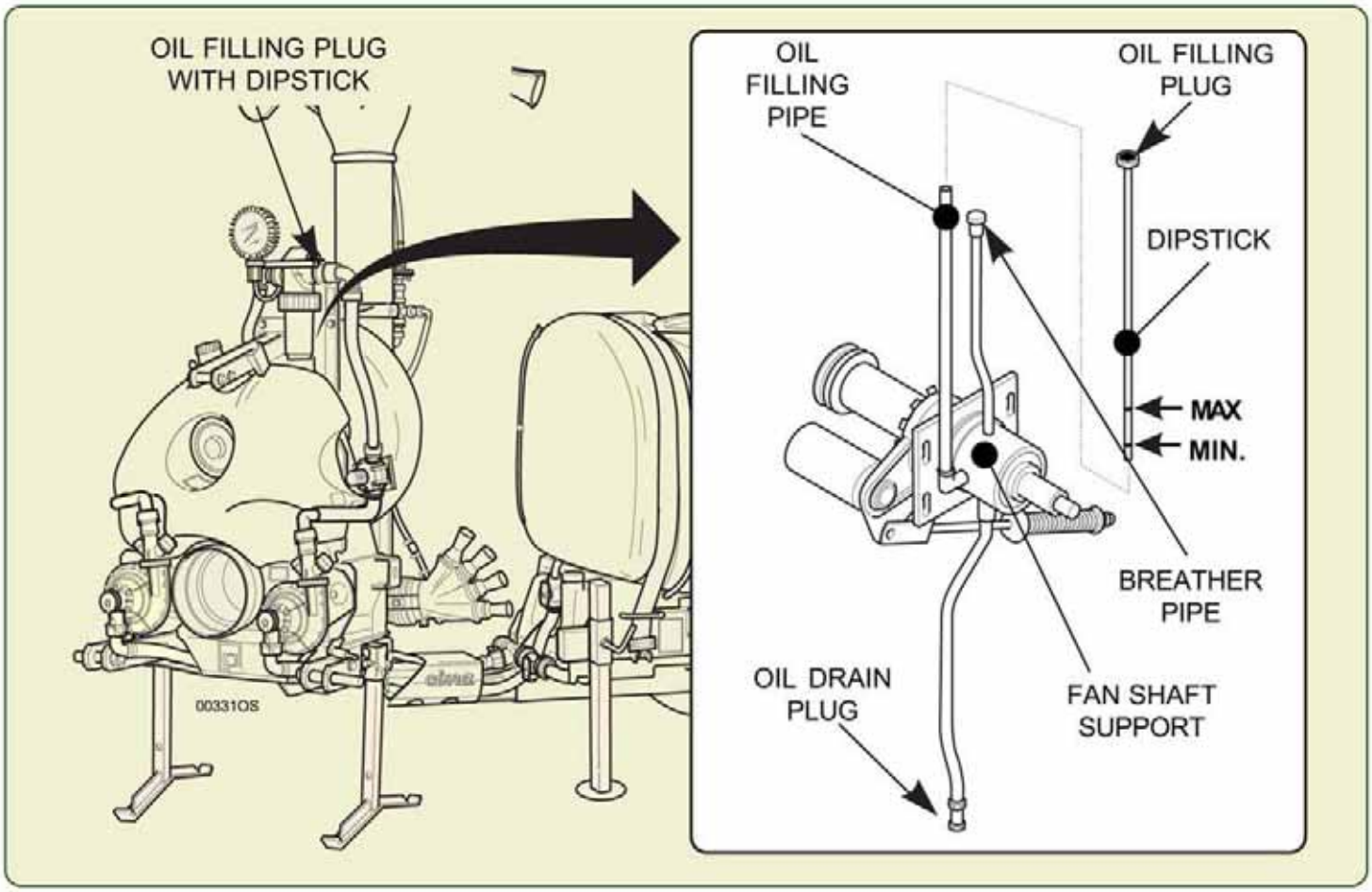
Maintenance Point	Action	Consumption Material	Periodicity
Fan shaft bearing support	Oil level check	Oil SAE 90	8 hours
Fan belt-tensioner support	Greasing	Grease Type EP Classe NLGI 2	200 hours
Free wheel	Greasing	Grease Type EP Classe NLGI 2	200 hours
Frame articulated joint	Greasing	Grease Type EP Classe NLGI 2	200 hours
Drawbar eye	Greasing	Grease Type EP Classe NLGI 2	200 hours
Wheel hubs	Greasing	Grease Type EP Classe NLGI 2	200 hours
Fan shaft bearing support	Oil change	Oil SAE 90	Yearly

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.



8.2 - 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.

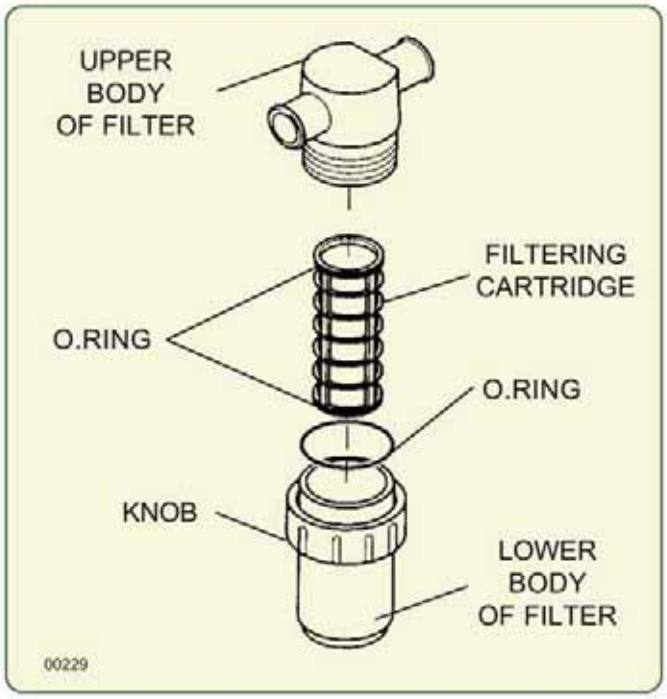


8.3 - FAN SHAFT SUPPORT OIL REPLACEMENT

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:
   - takes very little oil to fill, fill slowly and check level often.
5. Position again the plug with the dipstick and close the oil filling pipe.

8.4 - 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.



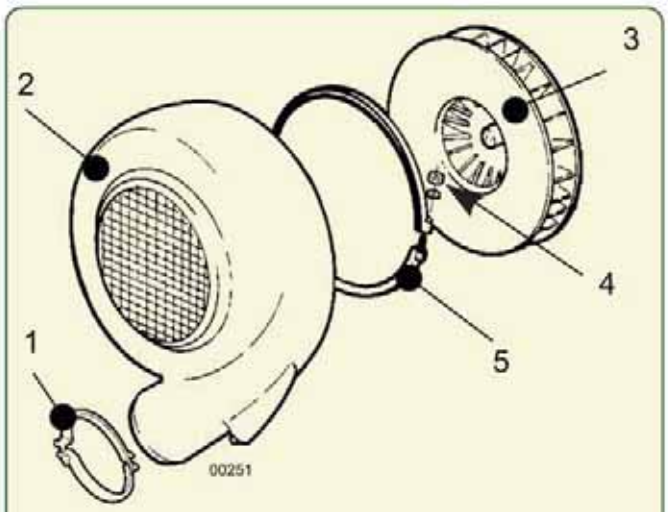
8.5 - CLEANING OF THE FAN

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 hasn't to be disassembled.

6. 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.
7. Mount back the casing (2), by paying a particular attention to get it perfectly coupled with the rear cover.
8. 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.

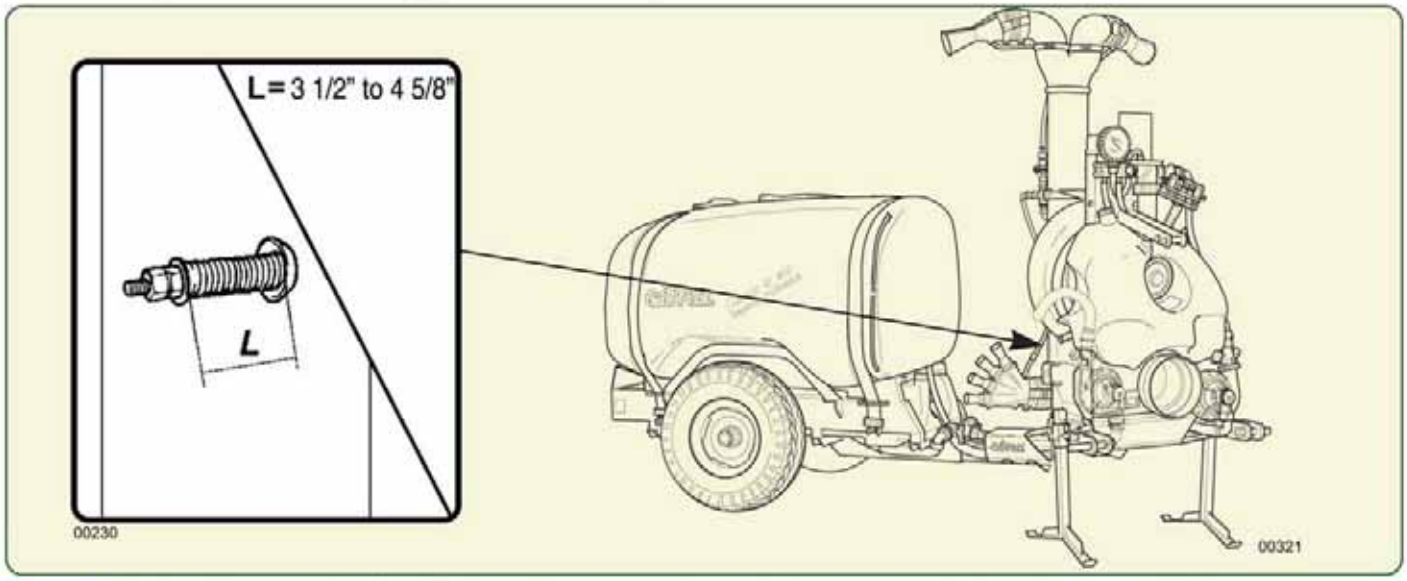


LEGEND
1. UNION FASTENING COLLAR
2. FAN CASING
3. IMPELLER
4. SCREW NUT
5. FAN CASING FASTENING COLLAR

Carefully tighten all the fastening collars' bolts.

8.6 - 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"

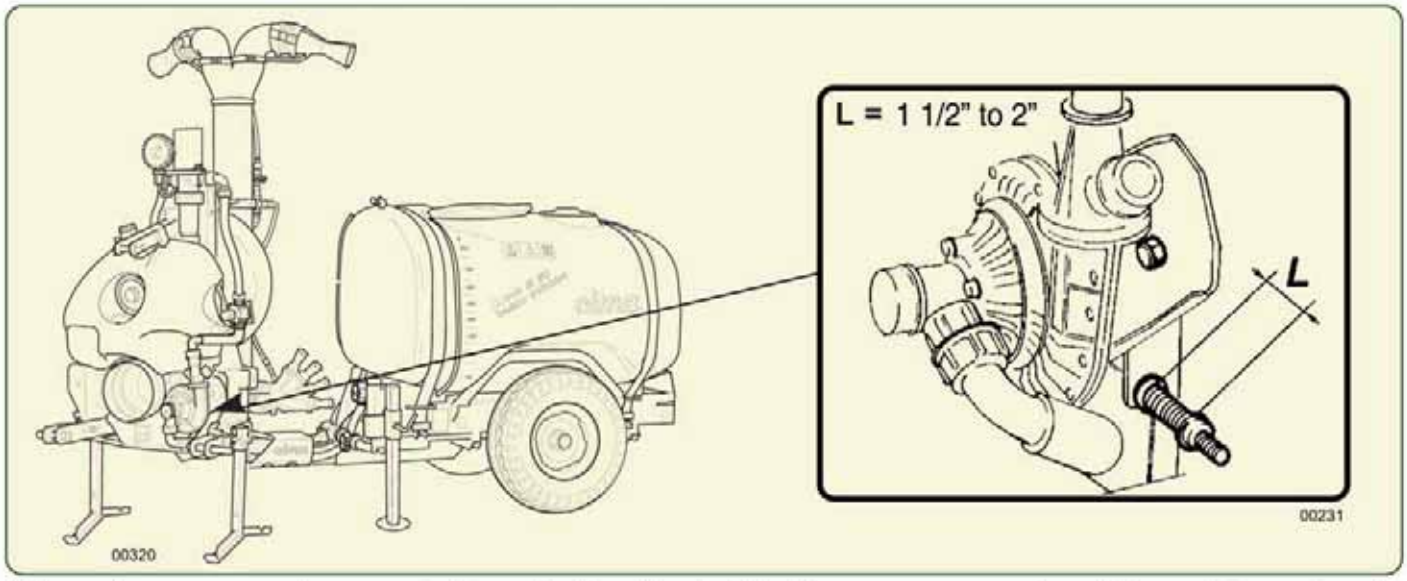


If the fan control belt has to be replaced, the correct tensioning of the same one (spring length) must be checked after the first and after the second operation hour.

If the value measured exceeds 4 5/8", tighten the belt tightener screw, up to get the minimum length (3 1/2").

8.7 - PUMP BELT TENSIONER

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

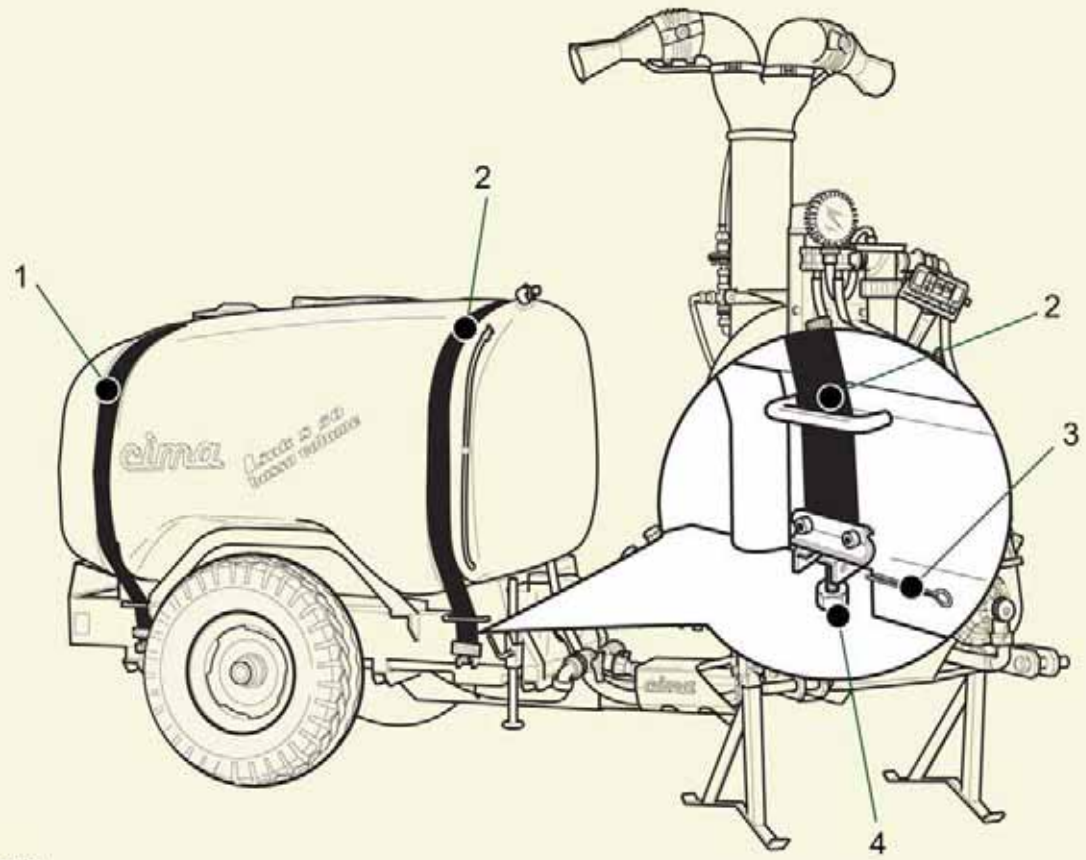


If the value measured exceeds 5 cm, tighten the belt tightener screw, up to get the minimum length (4 cm).

8.8 - MAIN TANK FASTENING BELT

The adjustment of the belts takes place during the first 3÷4 hours of use of he 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.



LEGEND
1 - FRONT BELT
2 - REAR BELT
3 - SAFETY PIN
4 - REGISTER SCREW

00332

	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.

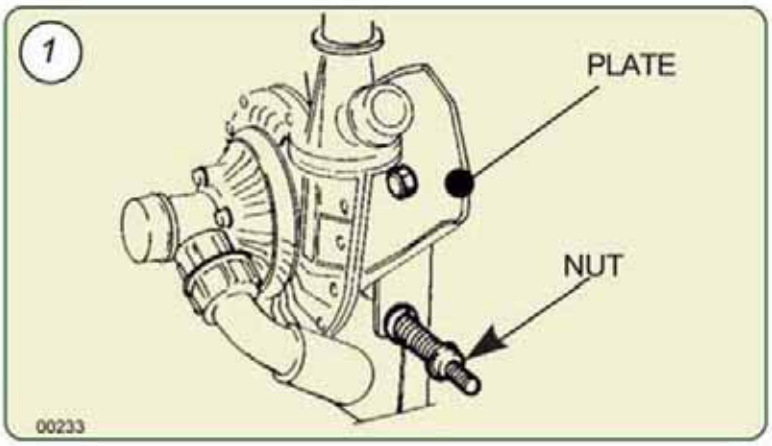
9 TROUBLESHOOTING CHART 9

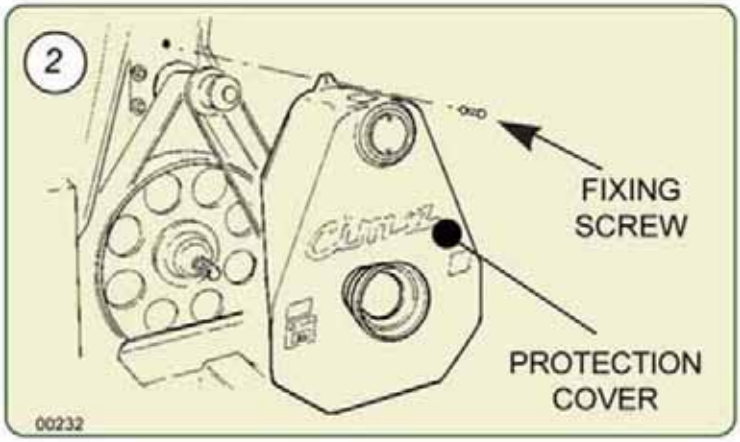
PROBLEM:	CAUSE:	REMEDY:
No spraying action delivered; totally.	Clogging up of the grill/filter on the pump, of the pump suction inside the tank or suction pipes of pump clogged up with deposits of hardened spray material.	Clean by removing the drain cap.
No spraying action delivered; totally or only 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 <u>one</u> 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.

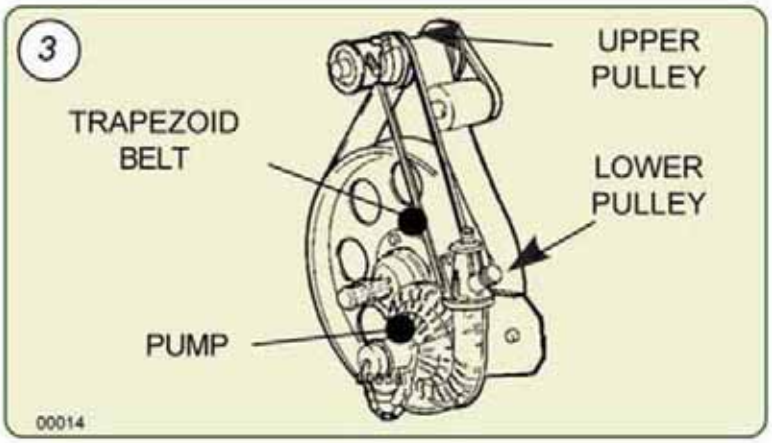
Stop the engine and remove the key from the tractor's control panel before any operation on the sprayer.

10.1 - 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.







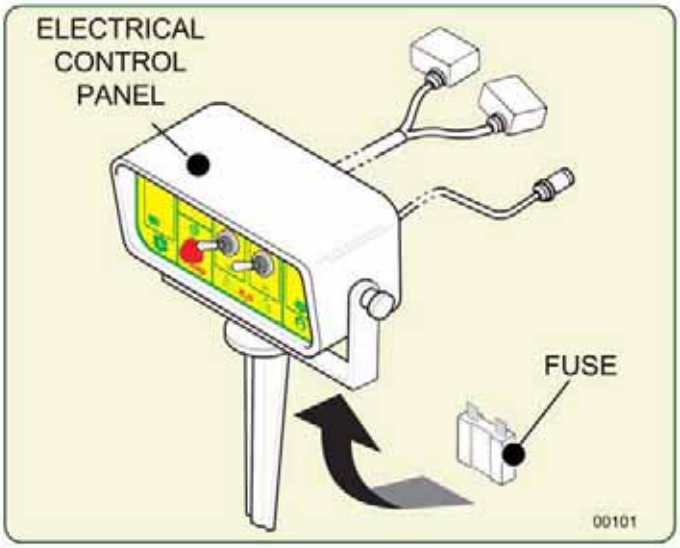
Carefully tighten the screws that were undone during the belt replacement.

10.2 - REPLACEMENT OF ELECTRICAL PANEL'S FUSES

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

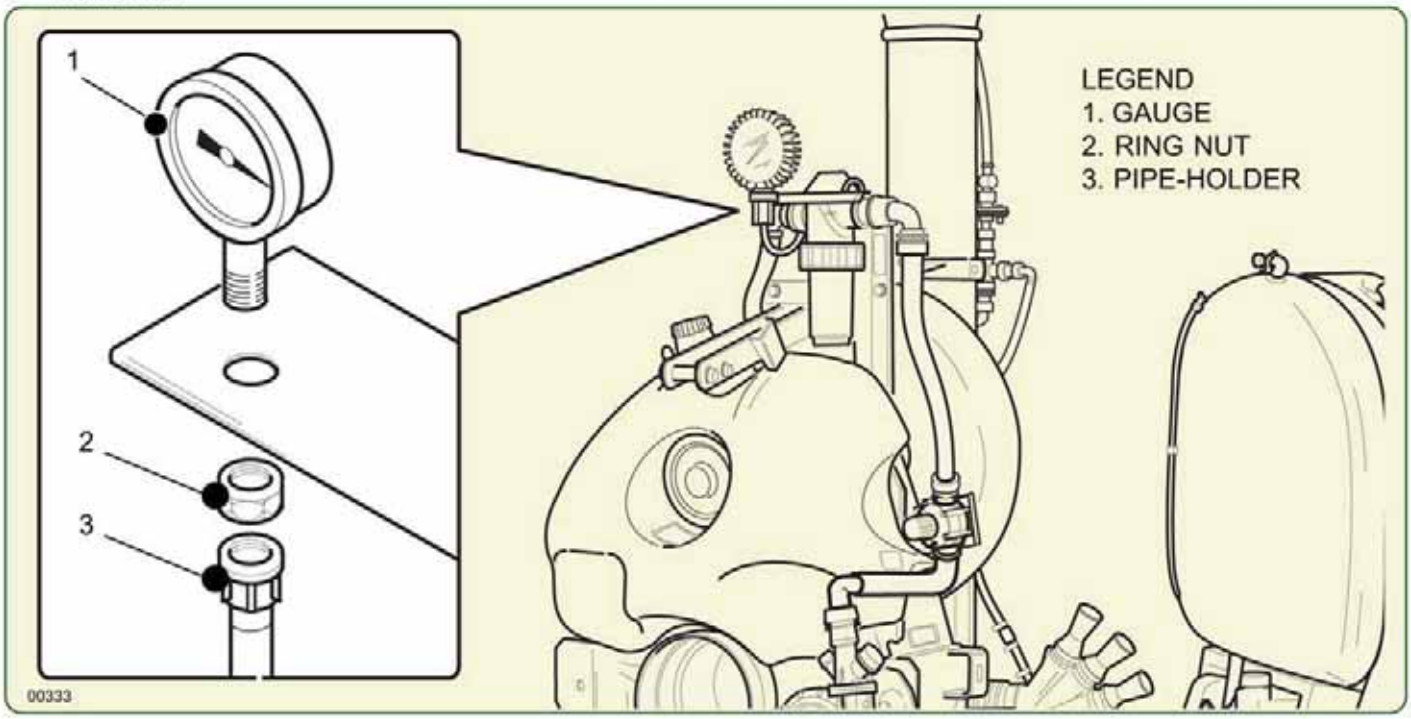
* **Fuse: 10 A, delayed.**

If this does not correct the problem - contact your dealer



10.3 - PRESSURE GAUGE REPLACEMENT

1. Unscrew and decouple the pipe-holder (3) from the connection of the pressure gauge (1).
2. Unscrew the ring nut (2) and remove the pressure gauge (1).
3. Replace the faulty pressure gauge (1).
4. Mount the new pressure gauge, by carrying out in reverse order the steps mentioned for its removal.

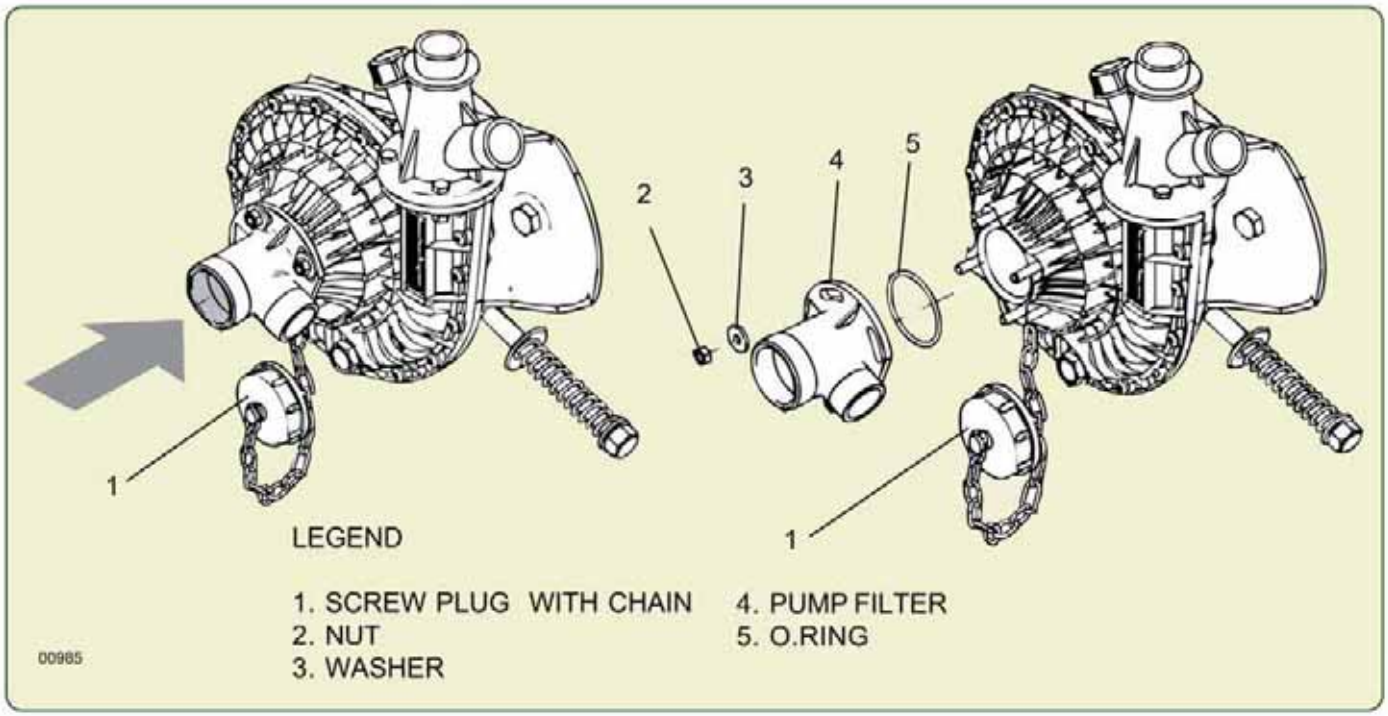


10.4 - INSPECTION AND CLEANING PUMP FILTER

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:

1. Position the lever of the three-way cock (P2) in position **"B"**.
2. For the versions fitted with spray-line rinsing tank position the lever of cock (P24) in position "**c**".
3. Unscrew the plug (1) and eventually remove the foreign body present in to the filter.
4. If necessary, unscrew the nuts (2) and remove the filter (4), to clean completely.
5. Replace the filter by paying attention to the conditions and the proper placement of the O.Ring (5).
6. Close the screw plug (1).
7. For the versions fitted with spray-line rinsing tank position the lever of the cock (P24) in position "**a**".
8. Position the lever of the three-way cock (P2) in position **"A"** - WORKING".



LEGEND

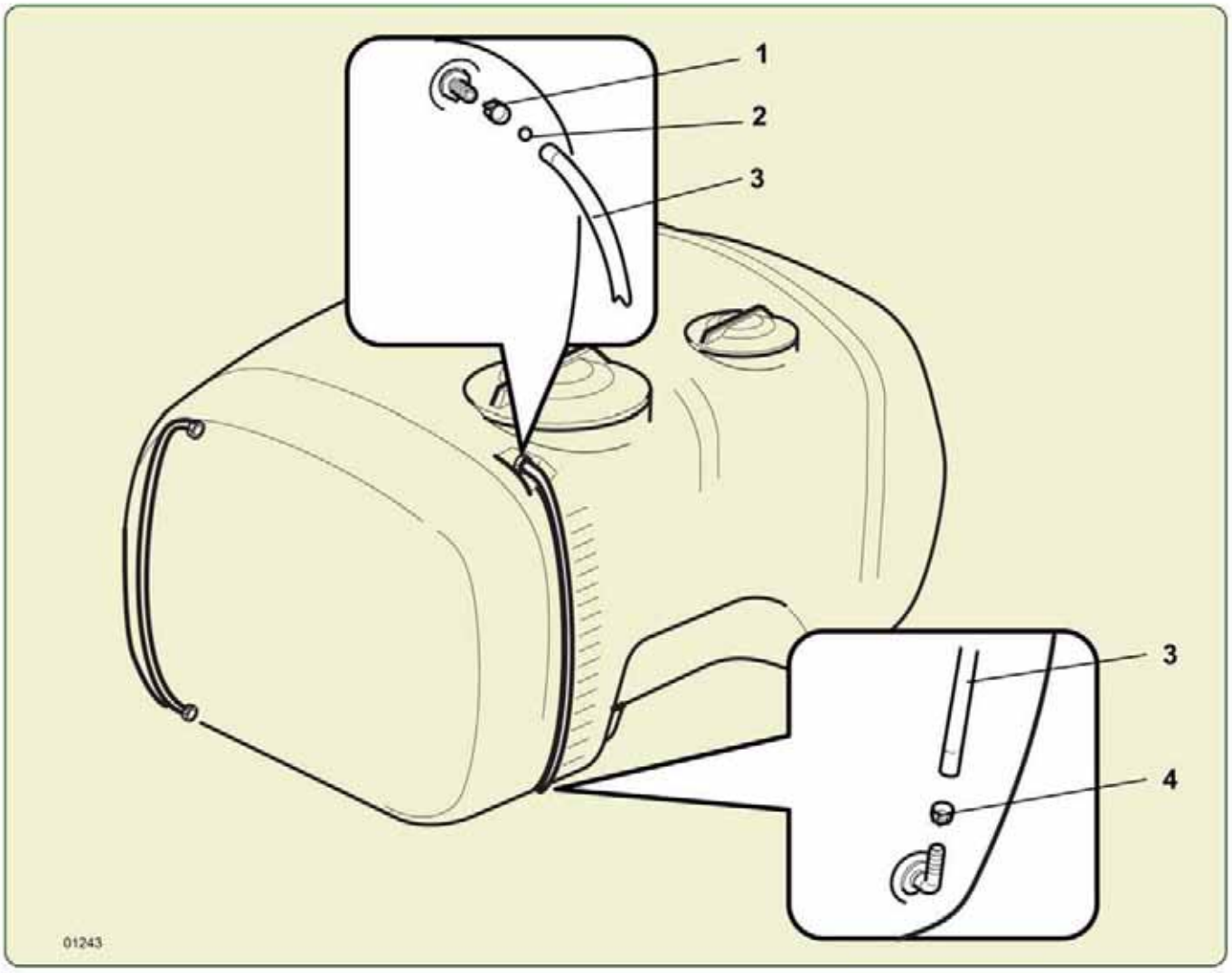
1. SCREW PLUG WITH CHAIN
2. NUT
3. WASHER
4. PUMP FILTER
5. O.RING

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**".

10.5 - Level gauge cleaning

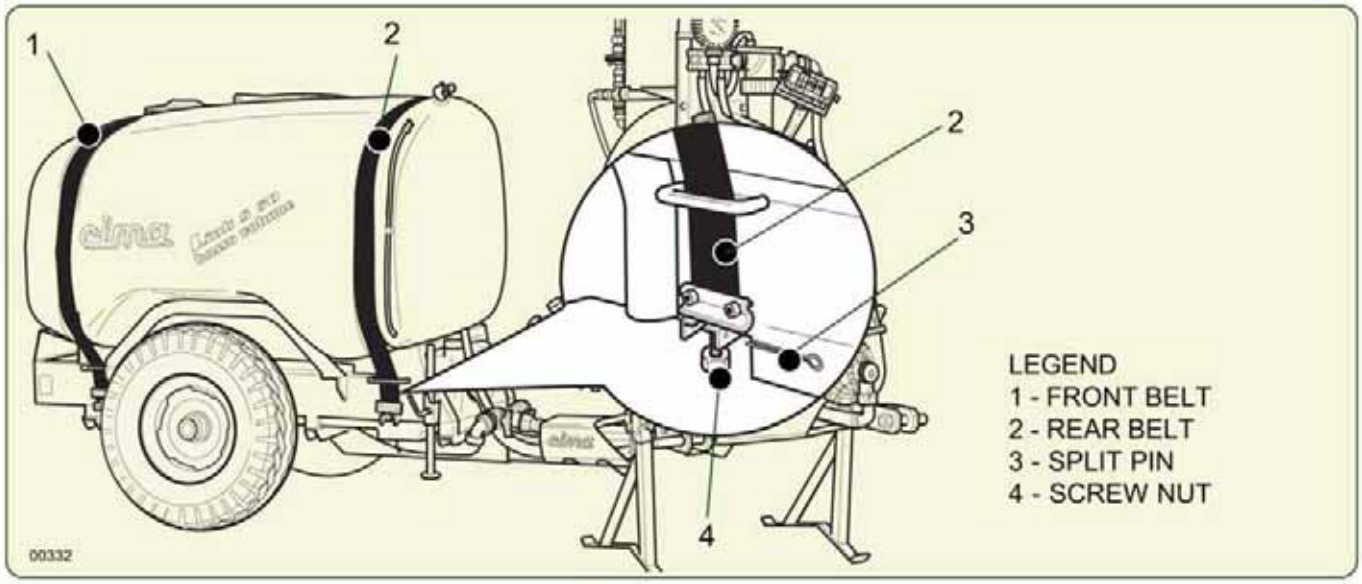
1. With a suitable pliers release the clamp (1 and 2) fixing transparent tube of the level gauge.
2. Take off and remove the transparent tube (3).
3. Remove the red plastic ball (4) .
4. Clean, with clean water, the transparent tube both in and outside.
5. If the cleaning is not satisfactory, replace 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.



10.6 - 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 and air 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.



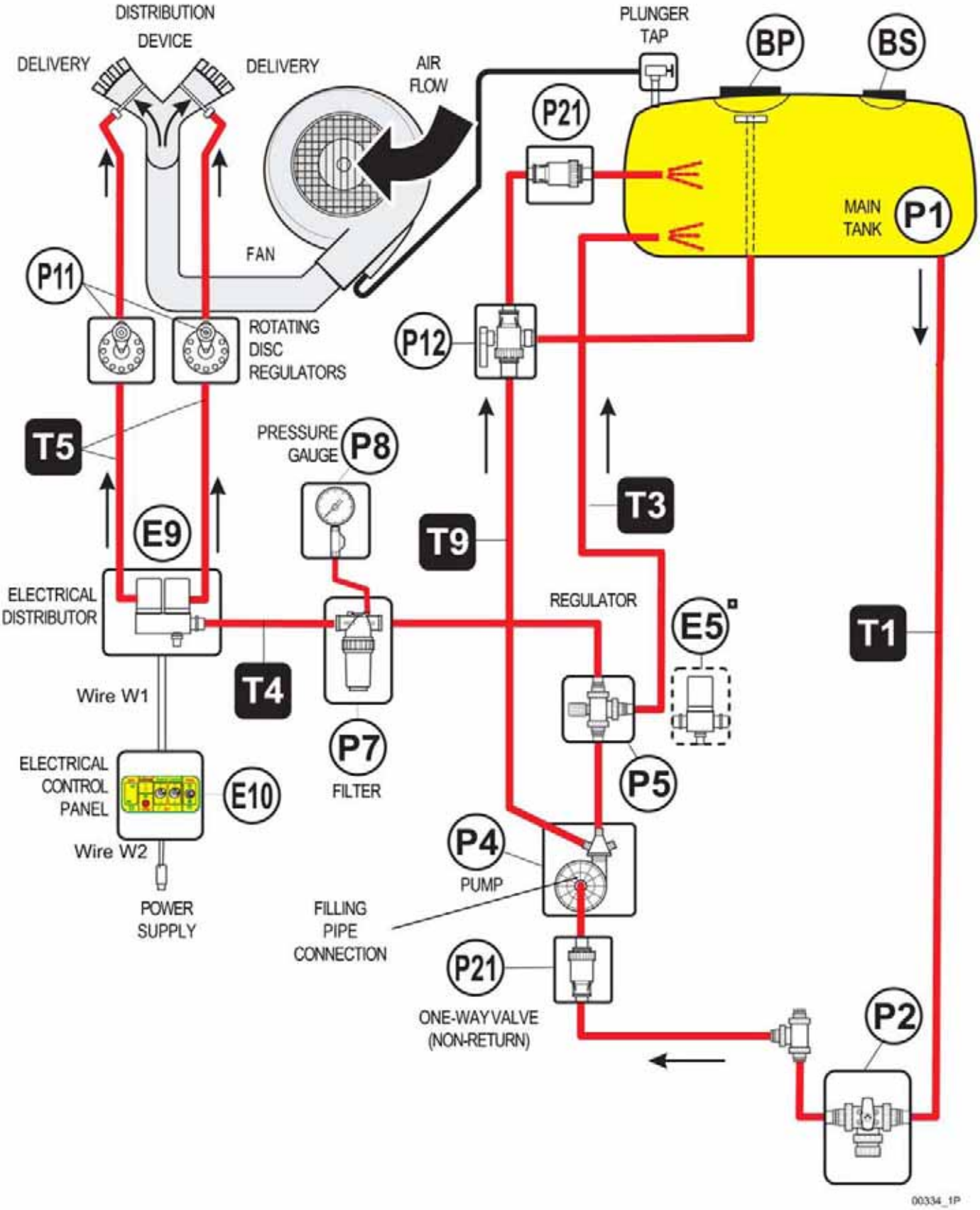
Before reassembling the main tank check the integrity of the rubber supports glued on the frame; if damaged or particularly worn replace them.

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.

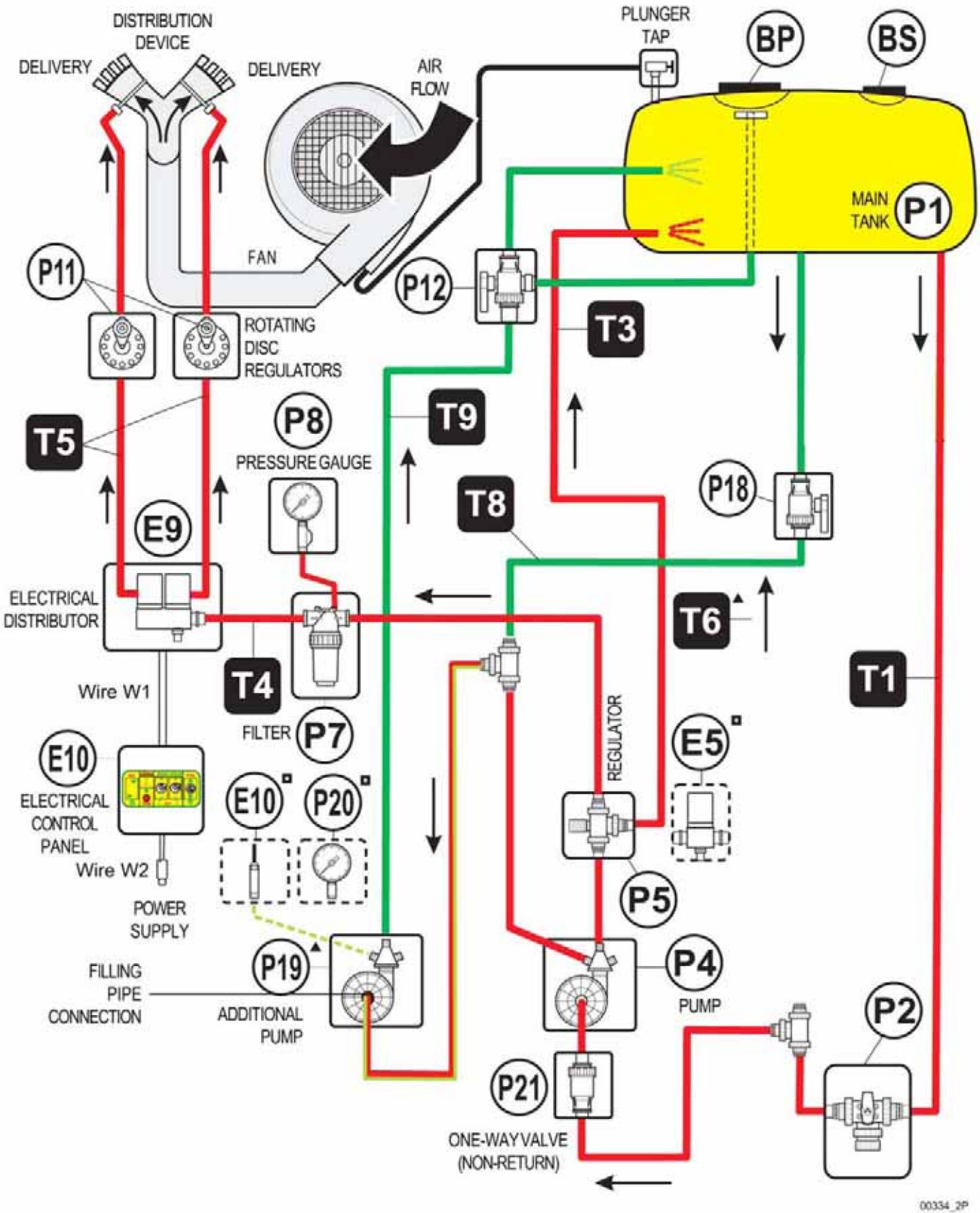
The adjustment of the belts takes place during the first 3÷4 hours of use of the atomizer; after this period check and restore the correct tension of the belts

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

11.1 - LIQUID AIR DIAGRAM - 200 GALLON



11.2 - Version with additional agitation pump - 300 gallon



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.