



VENTURI AIR SPRAYERS SHORT TURNING HITCH MODELS

**Assembly, Operation &
General Information
Manual**

Revised September 2009

TABLE OF CONTENTS

Introduction	1
Assembly	2
Hose Connection Assembly	3-4
How To Operate The sprayer	5
Operation Of Ball Valves	6-8
Trailer Support Stand	9
Important Information	10
Mounting To The 3-Point Hitch	11
General Maintenance/Cleaning & Storage	12
Safety Decals	13-15
Important Notices	16
General Safety Information	17
Lubrication & Maintenance	18
Fan Support Oil Level Check	19
Belt Tension	20
Modular System	21
Limited Warranty	22

Date of Purchase:_____

Model Number:_____

Serial Number:_____

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.

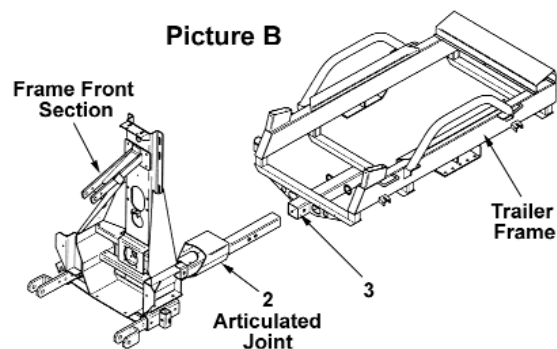
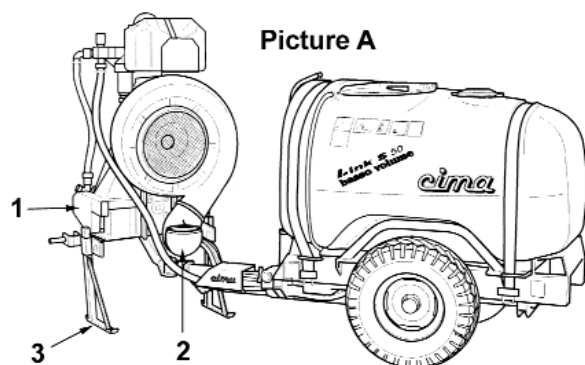
BLOWER: Air is supplied by a centrifugal fan. The fan is made of steel and is precision balanced for smooth operation. The fan housing is made of high strength polyethylene. A special overrunning clutch is mounted on the blower assembly to prevent damage.

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

AGITATION:

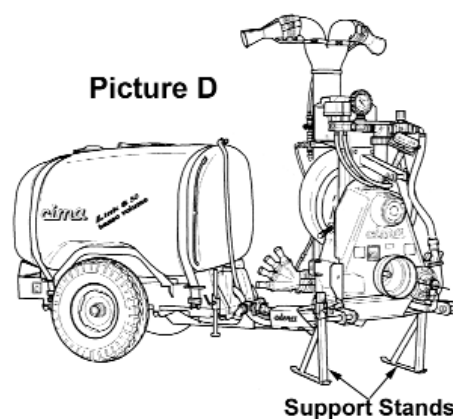
1. The 200 gallon sprayer is equipped with a dual agitation system, a liquid system that uses by-pass liquid from the pump and an air system that uses air from the fan housing.
2. The 300 gallon sprayer uses a dual agitation system. A liquid sparging tube with a 37 GPM centrifugal pump, and an air tube system that uses by-pass air from the fan housing.

ASSEMBLY

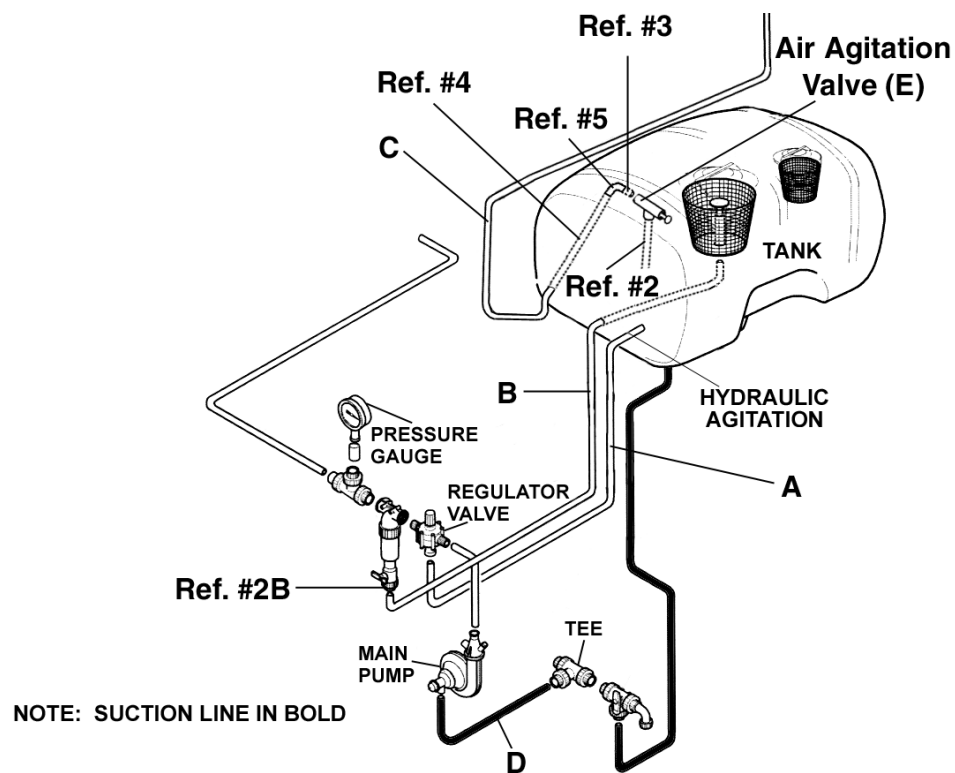


1. Mount 3-point fan assembly (Pict. A, Ref. #1) to tractor 3-point hitch.
2. Mount distributor head to lower elbow (Pict. A, Ref #2) on 3-point fan assembly.
3. Install articulated joint (Pict. B, Ref. #2) into tongue receiver on trailer (Pict. B, Ref. #3) secure with supplied bolt and nut.
4. Mount axles and tires to trailer assembly.
5. Connect all hoses to corresponding fittings (L50N1-800 see page 3, L50S2-1200 see page 4).
6. Connect the two hoses from control valve to the distributor head mounted in step 2.
7. Electric liquid control wiring information on page 21.

Note: Make sure support stands (Pict. D) are mounted correctly.

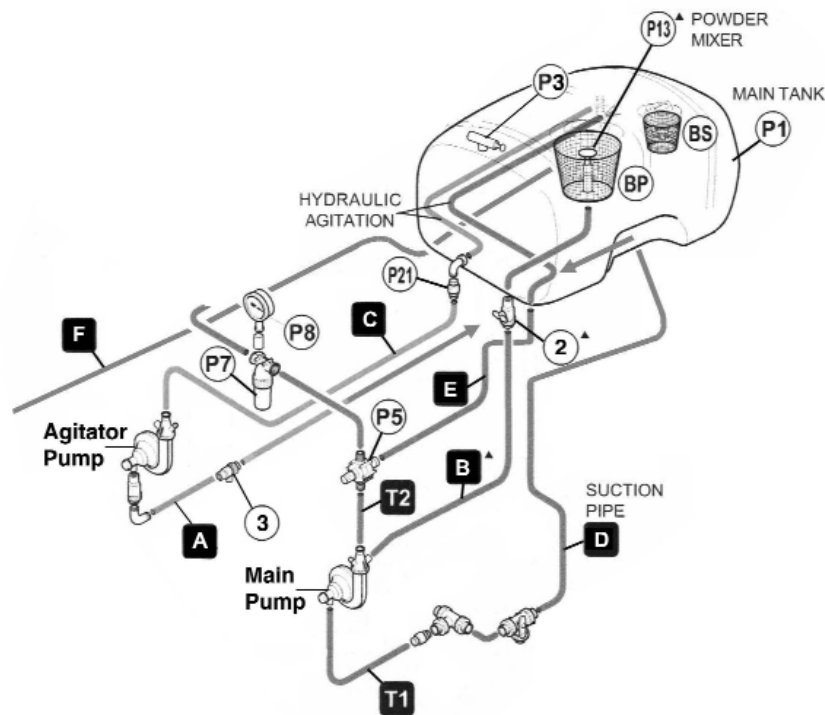


HOSE CONNECTION ASSY. L50N1-800



- A. BYPASS** - this is the line that runs from the bottom of the regulator valve to the far right hand nipple located on the front lower portion of the tank.
- B. SHOWER HEAD** - This is the line that runs from the ball valve (Ref. #2B) to the middle nipple located on the front lower portion of the tank.
- C. AIR AGITATION** - This is the line that runs from the fan housing to the far left hand nipple located on the front lower portion of the tank.
- D. MAIN PUMP** - This is the main suction line that connects from the pump to the three-way tee.
- E. AIR AGITATION VALVE** - Connect air agitation control valve (Ref. E) to the hole located on the top front of the sprayer tank by installing nut on the inside of tank. Connect hose (Ref. #2) to the bottom of air agitation valve. Connect hose assembly (Ref. #3) to tank and air agitation valve. Connect hose (Ref. #4) inside tank to nipple (Ref. #5).

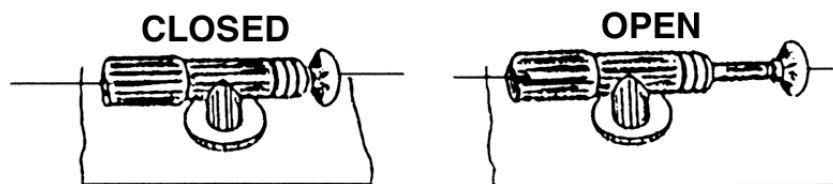
HOSE CONNECTION ASSY. L50S2-1200



- A. AGITATION PUMP** - This is the main suction line that comes from the middle of the tank and connects to bottom of pump.
- B. SHOWER HEAD** - This is the line that runs from the main pump to the ball valve (Ref. 2) located on the front lower portion of the tank.
- C. SPARGING TUBE** - This is the line that runs from the top of the agitation pump to the check valve (Ref. #21) that is mounted on the left side of the front lower portion of the tank.
- D. MAIN PUMP** - This is the main suction line that connects from the main pump to the three-way tee.
- E. BYPASS** - This is the line that runs from the regulator valve to the far right hand nipple located on the front lower portion of the tank.
- F. AIR AGITATION** - This is the line that runs from the fan housing to the far left nipple, located on front lower portion of the tank. Pull handle on (Ref. #P3) to introduce air agitation to tank.

HOW TO OPERATE THE SPRAYER

1. Connect the sprayer to the tractor 3-point hitch.
2. Connect the PTO driveshaft after you have checked to make sure the driveshaft is not too long. Be sure to attach the PTO safety shield chains to the bottom crossbar on the sprayer and to the lower 3-point link arm on the tractor. After attaching, check the PTO shaft for correct length. There should be at least 1" - 2" clearance on the shaft when the sprayer is completely raised and lowered. Make sure there is less than a 15° angle on PTO shaft (see page 8).
3. Check the main filter strainer to make sure it is clean. Before cleaning the main filter, make sure the main ball valve (Ref. #1, page 4) is in the right position. 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. Remember when setting your pressure, the higher the pressure setting, the less by-pass agitation your tank will have. Also take into consideration that high pressure is not necessary when using the Gearmore Venturi Heads.
5. Open the air agitation valve on the top of the tank to introduce air for added agitation.

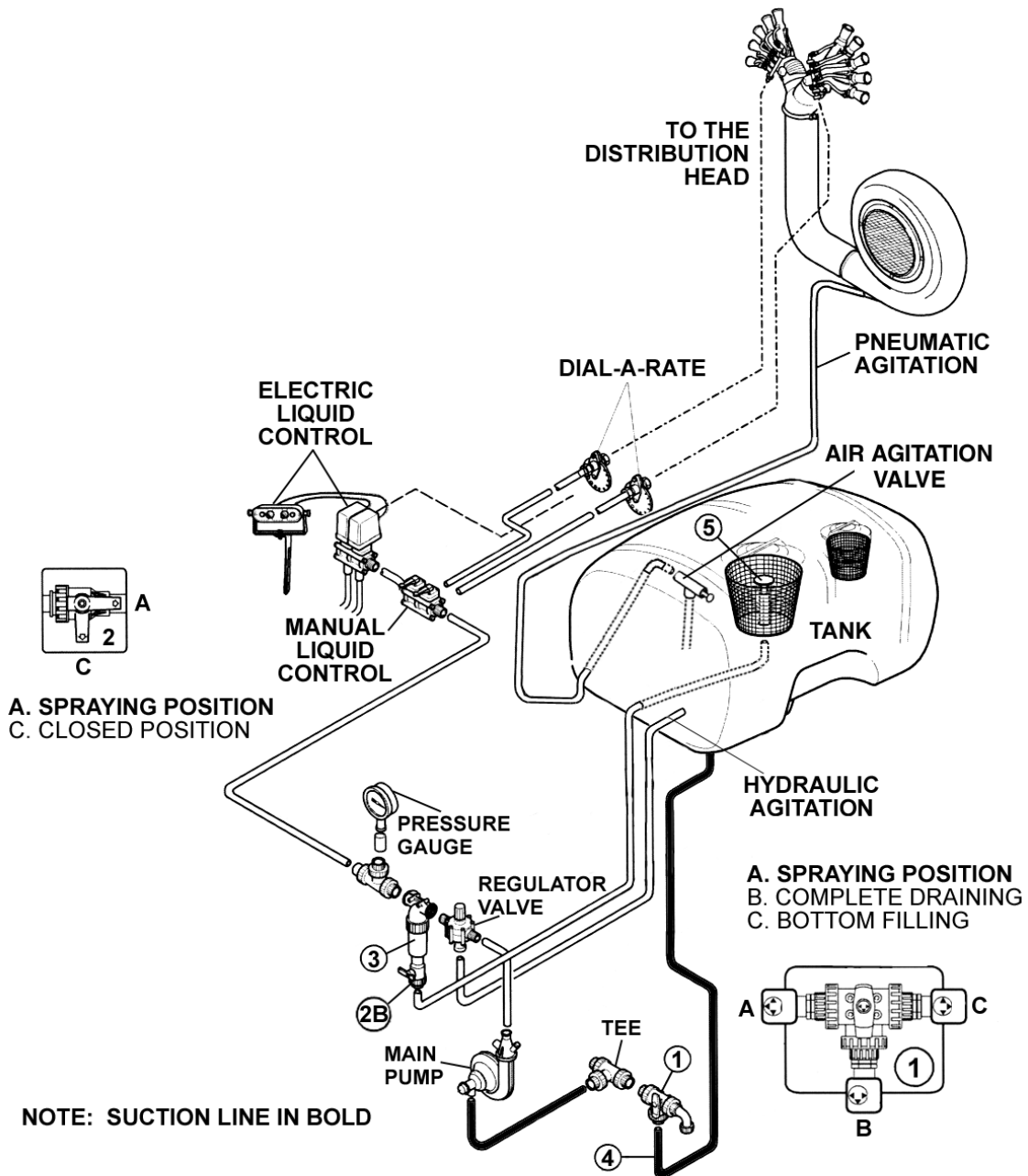


6. Engage tractor PTO at idle speed and run for a couple of minutes to make sure the chemicals are mixed thoroughly. Engage transmission and bring engine speed up to PTO speed of 540 RPM when spraying.
7. Turn on the electro-valve switches. These valves can control right, left or both sides spraying, 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.

OPERATION OF BALL VALVES

For Model L50N1-800

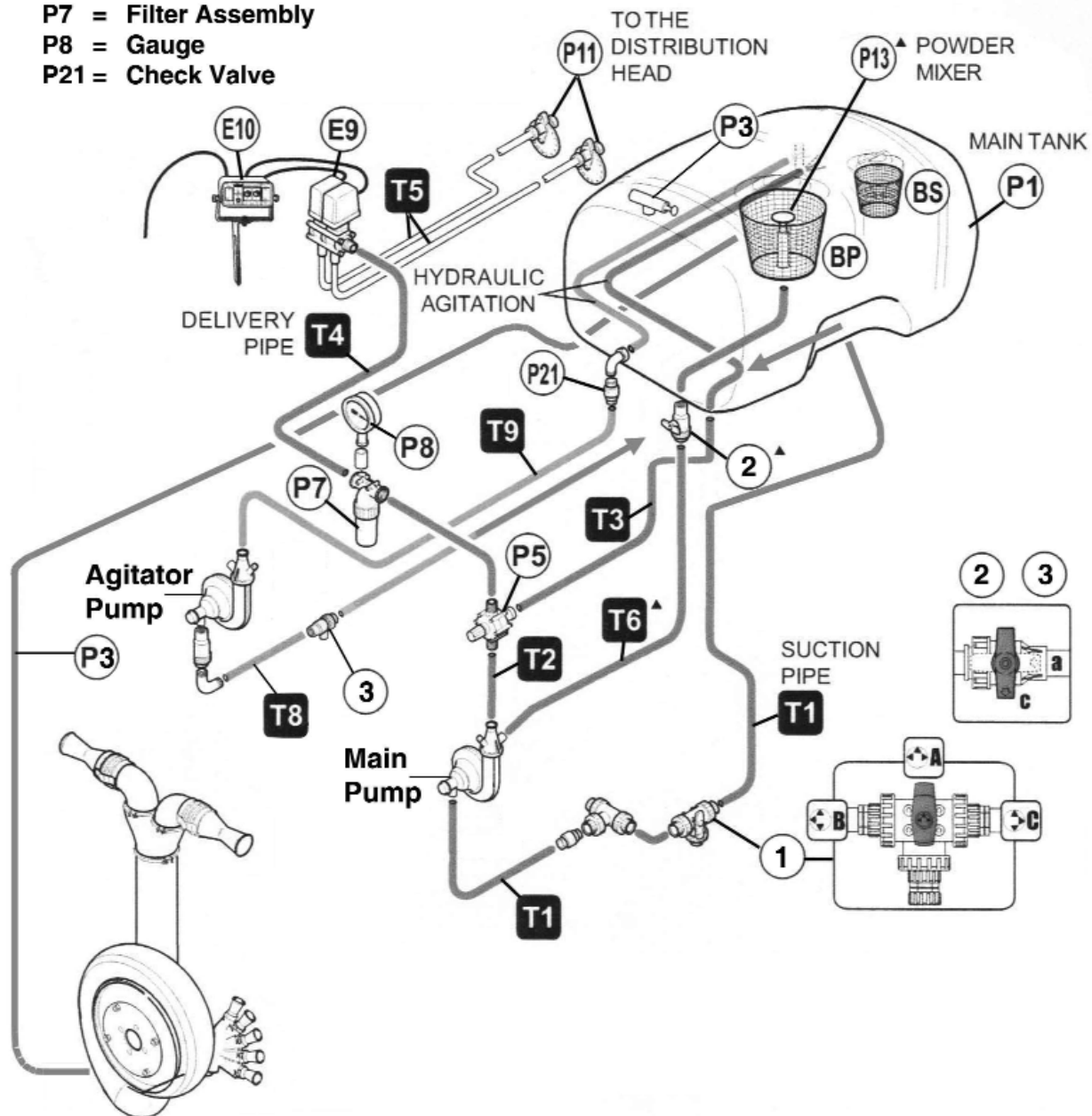


OPERATION OF BALL VALVES

For Model L50S2-1200

LEGEND:

- T = Piping
- E9 = Electric Liquid Control
- E10 = Control Box
- P3 = Air Valve (See Page 8)
- P5 = Regulator Valve
- P7 = Filter Assembly
- P8 = Gauge
- P21 = Check Valve



OPERATION OF BALL VALVES

For Model L50S2-1200 - S/N 090000 & up

1. THREE WAY BALL VALVE - Mounted on left inside frame

Position A - Spraying

The handle must be pointed up. (**GEARMORE RECOMMENDS LEAVING IN POSITION "A" AT ALL TIMES**)

Position B - For Servicing Pump/Filter Assembly

The handle must point towards the left port of valve. In this position liquid flow path is shut off to pump allowing pump to be serviced. **DO NOT RUN SPRAYER IN THIS POSITION.**

Position C - Draining

The handle must point towards the right port of the valve. In this position, liquid flow path is open to pump for draining out bottom of ball valve.

2. TWO WAY VALVE - Mounted to the front of tank

Position A - Shower Head Open

In this position, liquid is sent to the shower head.

NOTE: NEVER SPRAY WITH THIS VALVE OPEN

Position C - Spraying

The handle must point sideways at all times when not using shower head.

3. TWO WAY VALVE - Located under front side of tank

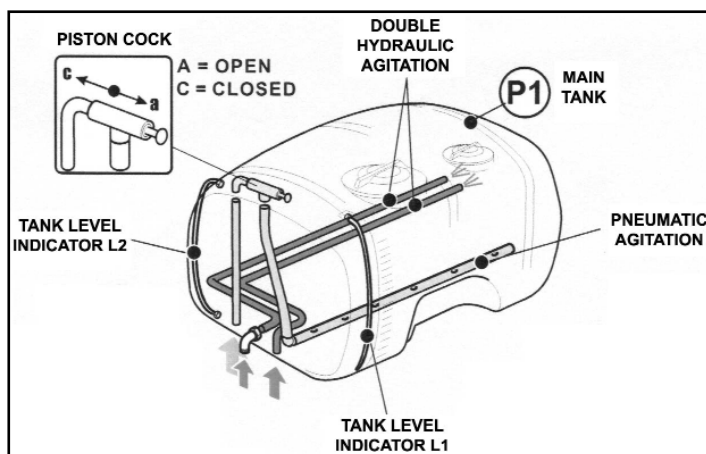
Position A - Liquid Flow Open

This position allows liquid to flow to agitation pump.

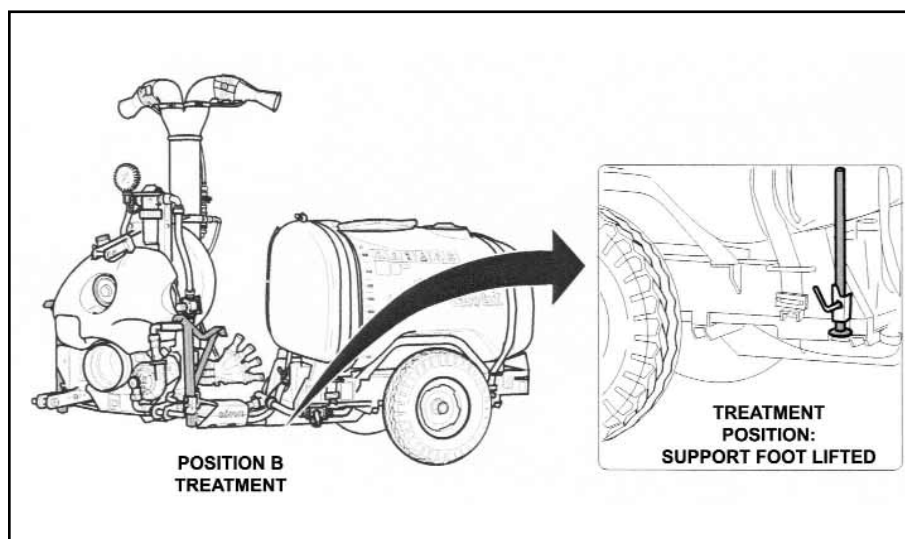
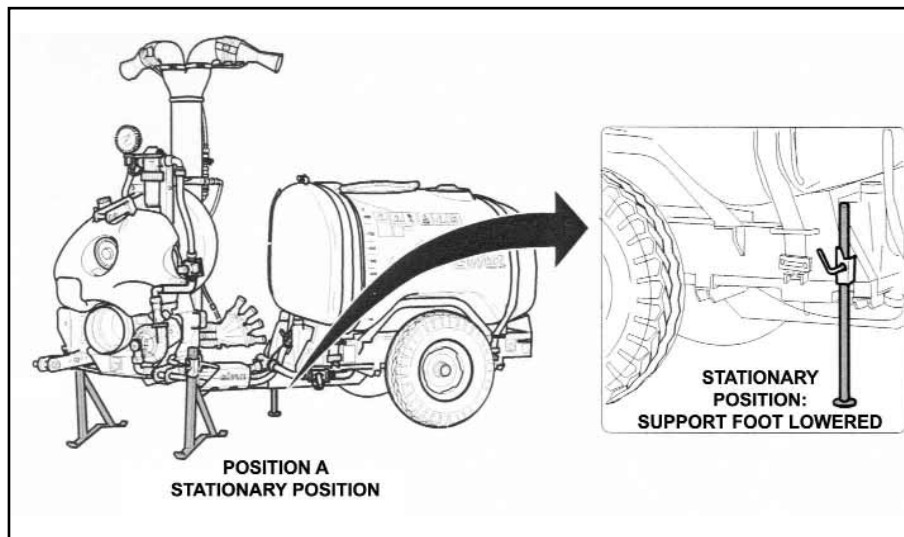
Position C - Liquid Flow Closed

This position allows no liquid to agitation pump. **NOTE: NEVER SPRAY WITH THIS VALVE CLOSED**

AIR / LIQUID AGITATION



TRAILER SUPPORT STAND

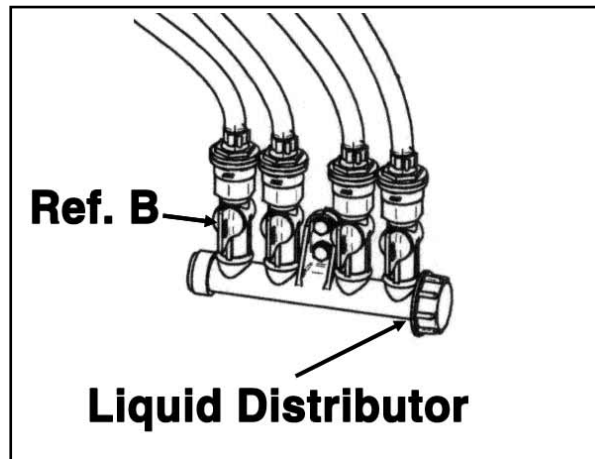


WARNING!!! - The responsibility of the regulation, assembly and disassembly operations of the hoisting device coupling forks, of the axle, and of the wheels is charged to the operator, who has both to realize and to insure the necessary safety conditions, in order to prevent any possible accident.

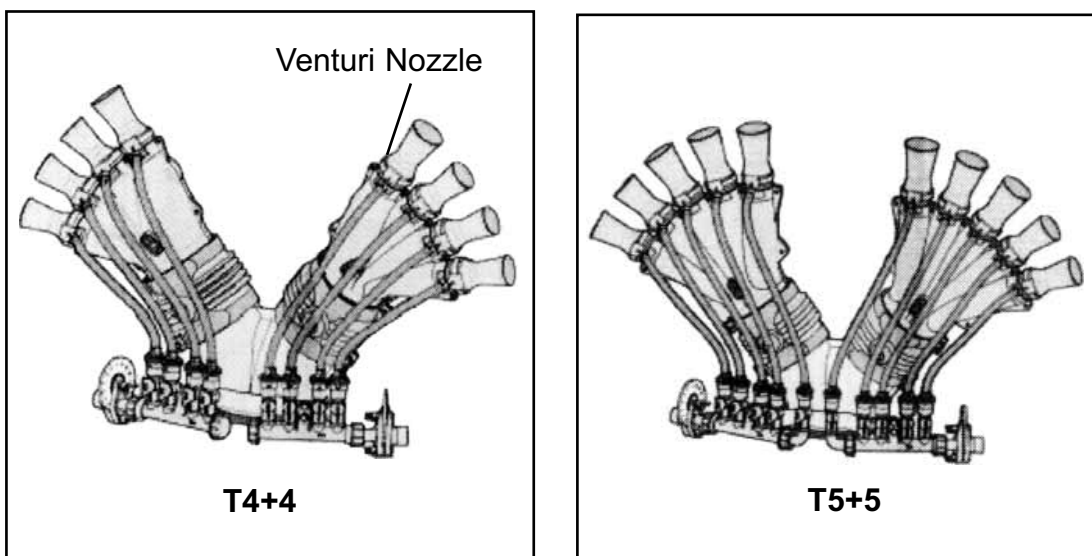
IMPORTANT INFORMATION

Most Venturi heads have a liquid distributor on them (picture 1). All the tap assemblies (ref. B) have manual shut-offs. If these shut-offs are turned, it will cut off liquid flow to the hose coming off that tap. Generally the factory leaves these taps all in the open position.

In certain applications, such as with a T4+4 or T5+5 head (picture 2), you might not need all the nozzles putting out liquid. In this application what you should do is turn the shut-off to the horizontal position to cut liquid off to the corresponding nozzles and then replace the Venturi nozzle with a cap (part #02.127.000).



Picture 1



Picture 2

MOUNTING TO THE 3-POINT HITCH

It is absolutely essential that the connection be made so that when in use, the 2 power take-off points are running in line as close as possible (fig. 1). If not, the axes must be PARALLEL from side to side (fig. 2) and the misalignment must be limited to prevent the universal joint working at an angle of more than 15° (fig. 3).

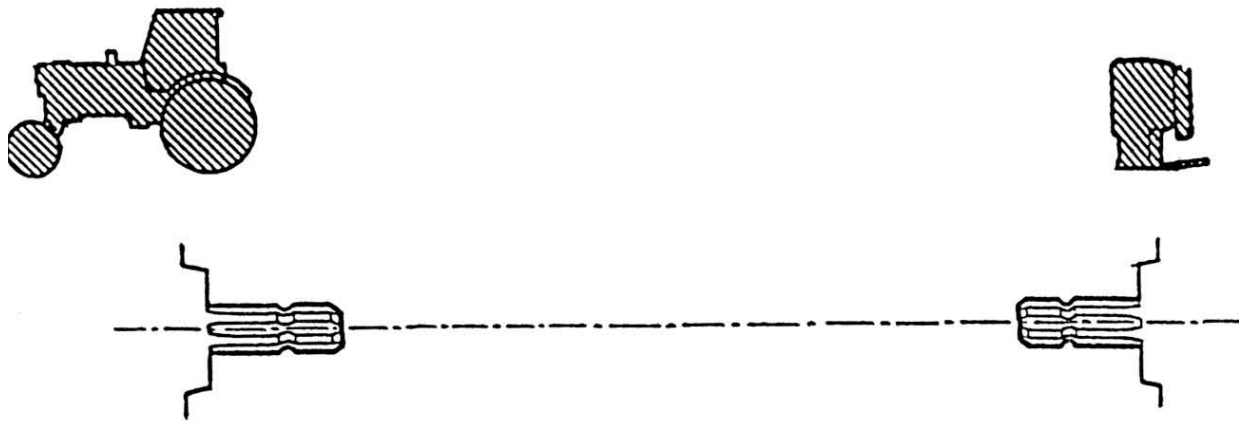


Fig. 1



Fig. 2

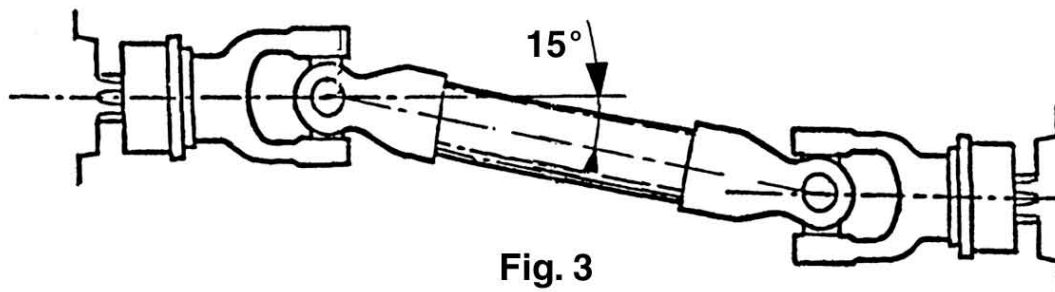


Fig. 3

GENERAL MAINTENANCE

Carefully follow all instructions as stated in this operator's manual, this includes lubrication, maintenance and operation of the sprayer. The sprayer was designed and built for years of reliable service if properly cared for. However, this sprayer is a high RPM machine, thus attention is required.

- ✓ Check all bolts for tightness
- ✓ Check sprayer for leaks
- ✓ Check main fan power belt
- ✓ Check pump drive belt
- ✓ Check to make sure no foreign objects are in or near the power system

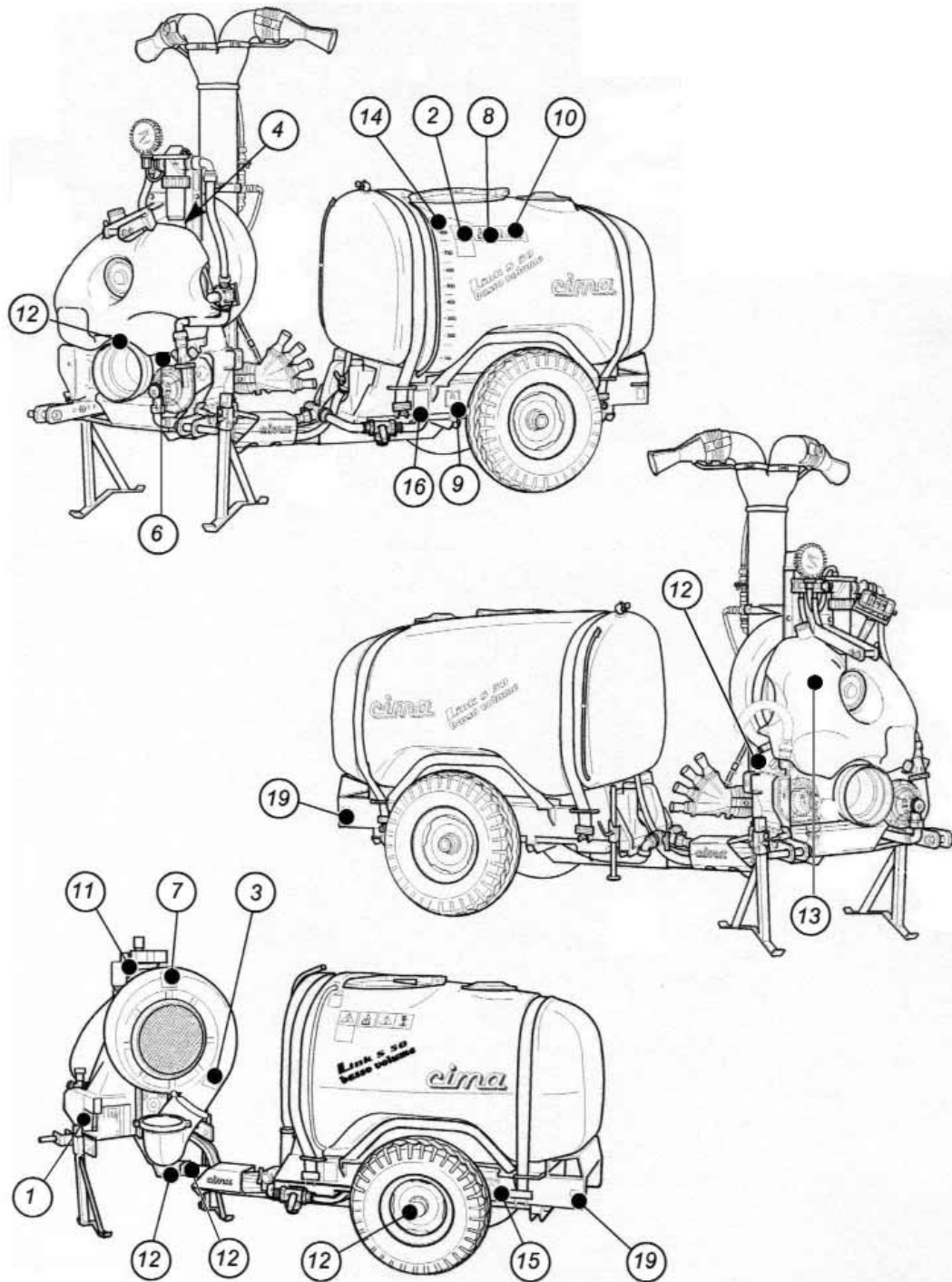
CLEANING AND STORAGE

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 sprayer for leaks with a tank of water.

SAFETY TIPS

- ☛ Sprayer should be operated only by qualified persons.
- ☛ Always fill sprayer slowly to avoid spillage.
- ☛ When starting sprayer, maintain a safe distance from all moving parts.
- ☛ Never run PTO at speeds in excess of 540 RPM.
- ☛ Do not make adjustments when sprayer is running, unless specifically recommended.
- ☛ Never leave sprayer unattended while it is running.
- ☛ Keep hands, feet and clothing away from all moving parts.
- ☛ Handle chemicals carefully; follow the manufacturer's directions for mixing and applying chemicals.

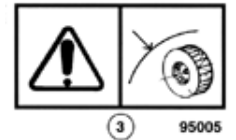
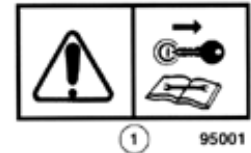
SAFETY DECALS



SAFETY DECALS

SAFETY DECALS

1. 95001 - **STOP THE ENGINE AND REMOVE THE KEY FROM THE TRACTOR'S CONTROL PANEL BEFORE CARRYING OUT ALL MAINTENANCE OR REPAIR OPERATIONS**
 - Positioned over the servo amplifier unit protection plastic casing.
2. 95004 - **DANGER OF CONTAMINATION BY CONTACT OR POISONOUS PRODUCTS INHALATION**
 - Positioned above the tank, in the forward part, next to the filler spout.
3. 95005 - **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**
 - Positioned on the fan casing next to the outflow vent.
4. 95008 - **THE SPRAYER ISN'T EQUIPPED WITH THE PERSONAL CLEANING ADDITIONAL TANK**
 - Visible on the hands-washing tank housing, when this isn't mounted.
5. 95076 - **LUBRICATE EVERY 6 MONTHS: PUMP BEARINGS**
 - Positioned on the left side of the servo amplifier unit protection plastic casing, near the pump.
 - Positioned on the right side of the servo amplifier unit protection plastic casing, near the additional agitation pump (where the models where it is foreseen).
6. 95010 - **MAXIMUM OPERATING SPEED OF THE DRIVE OUTLET (PTO): 540 RPM**
 - Positioned near the drive outlet.
7. 95007 - **DANGER OF SPRAYS: KEEP AT A SAFE DISTANCE**
 - Positioned on the upper part of the fan casing.
8. 95006 - **WARNING: CONSULT THE USER AND MAINTENANCE MANUAL BEFORE USING OR INTERVENING ON THE MACHINE**
 - Positioned on the left-hand side of the tank, in the forward part of the machine.
9. 95009 - **DANGER: GLOVES MUST BE USED TO EMPTY THE TANK**
 - Positioned on the units left side, near the draining cock.
10. 95077 - **IT IS FORBIDDEN TO ENTER INTO THE TANK!**
 - Positioned on the tank left side, near the main filler.



SAFETY DECALS

USE & MAINTENANCE DECALS

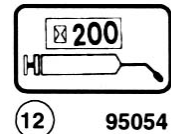
**11. 95079 - CHECK THE OIL LEVEL EVERY 8 HOURS:
FAN SHAFT BEARINGS**

- Positioned forward of the chassis, on the left hand side.



**12. 95054 - GREASE EVERY 200 HOURS: FAN TIGHTENER
SUPPORT, FREEWHEEL AND WHEEL HUBS**

- Positioned on the right front side frame.
- Positioned in the front section, near the PTO.
- Positioned on the wheel.
- Positioned on the drawbar, near the articulated joint.



13. 95057 - HAND WASHING TANK TAP

- Positioned on the left hand side of the tank, next to the tap.



**14. 95065 - WARNING: NEVER OPERATE THE SPRAYER
WITHOUT LIQUID IN THE TANK**

- Positioned on the tank, in the left section



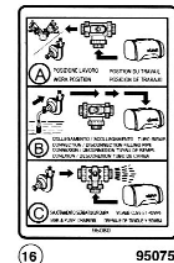
**15. 95060 - INDICATION OF THE WHEELS OPERATING
PRESSURE**

- Positioned on the frame left and right rear sections.



**16. 95075 - INDICATION ON THE OPERATION OF THE 3-WAY
TAP**

- Positioned on the articulated joint casing, near the cock.



**17. 95069 - INDICATIONS FOR THE USE AND MAINTENANCE OF
THE SOLENOID VALVES**

- Positioned on the right side of the servo amplifier unit protection plastic casing.



18. 95059 - LIFTING POINT

- Positioned on rear of main trailer frame.



IMPORTANT NOTICE

To obtain effective spray atomization and chemical agitation, you must operate your tractor at recommended maximum engine RPM to obtain correct PTO speed of 540 RPM.

DO NOT ALLOW POWDER CHEMICALS TO STAY IN THE TANK WITHOUT AGITATION

Powder chemicals that do not dissolve will settle to the bottom of the tank when the agitation is stopped and may damage the pump when it is restarted.

AFTER EACH USE BEFORE STORING THE SPRAYER

1. Be sure to drain and clean out the tank.
2. Run clean water through the entire system.
3. Remove the cap on the front of the pump.
4. Remove and clean the main filter.

GENERAL SAFETY INFORMATION

DO NOT OPERATE PUMP WITHOUT LIQUID IN TANK



WARNING:

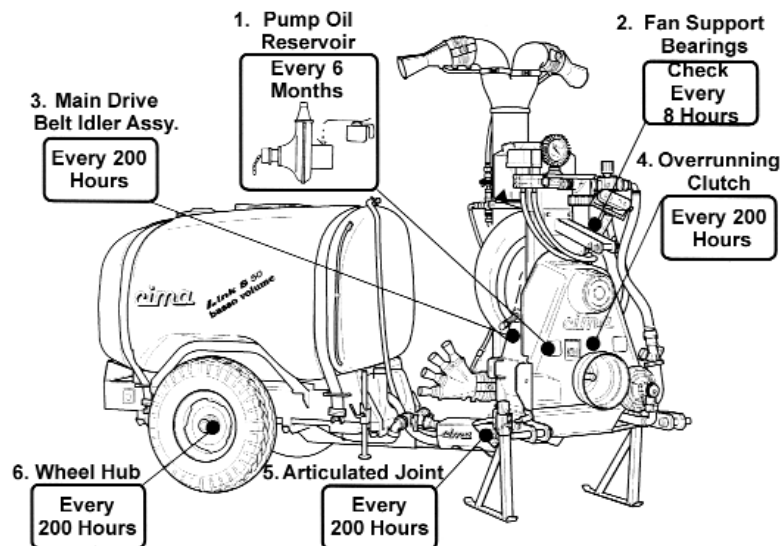


Do not pump flammable or explosive fluids such as gasoline, fuel oil, kerosene, etc. Do not use in explosive atmospheres. The pump should be used only with liquids compatible with the pump component materials. Failure to follow this warning may result in personal injury and/or property damage and will void the product warranty.

- ⇒ Do not operate pump above recommended RPM.
- ⇒ Operate pump between 45° F and 145° F liquid temperatures.
- ⇒ Make certain that the power source conforms to the requirements of your equipment.
- ⇒ Provide adequate protection in guarding around the moving parts such as the shaft and pulleys.
- ⇒ Disconnect power before servicing.
- ⇒ Release all pressure within the system before servicing any component.
- ⇒ Drain all liquids from the system before servicing.
- ⇒ Secure the discharge lines before starting the pump. An unsecured discharge line may whip, causing personal injury and/or property damage.
- ⇒ Check hoses for weak or worn conditions before each use. Make certain that all connections are tight and secure.
- ⇒ Periodically inspect the pump and the system components. Perform routine maintenance as required (see Maintenance section).
- ⇒ Do not use these pumps for pumping water or other liquids for human or animal consumption.

LUBRICATION & MAINTENANCE

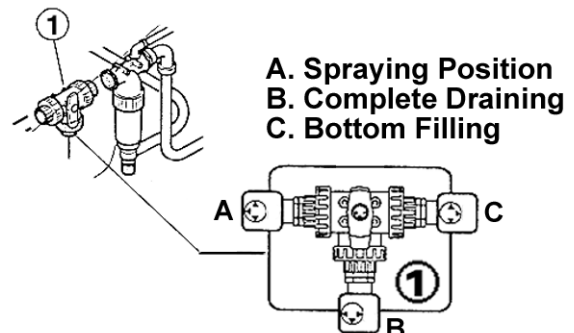
1. Located on the back side of the pump is an oil reservoir. Using an oil can, add approximately 10 drops of SAE 15W40 engine oil **every 6 months** of use.
2. The oil fill for the fan support bearings is located behind the fan housing and in front of the main frame by the fan housing. Check the oil **every 8 hours** of use. The oil needs to be changed **yearly**.
3. The main drive belt idler assembly has sealed bearings, but the idler needs to be greased **every 200 hours** to allow it to pivot freely. This grease zerk is located on the right main frame by the fan housing.
4. The overrunning clutch is designed to allow the fan assembly to rotate freely when the tractor PTO is shut down. This grease zerk is located behind the PTO driveline and requires you to remove the PTO to lubricate. Grease this zerk **every 200 hours** of use.
5. Located between the 3-Pt. assembly and the tank is the articulating joint. The articulating joint should be greased **every 200 hours** to allow it to pivot freely.
6. The wheel hubs should be greased **every 200 hours** of use.
7. The PTO driveshaft u-joints should be greased **every 8 hours** and the shafts **every 20 hours**. The PTO safety shields have a plastic zerk for the shield bearings that should also be greased **every 20 hours**.



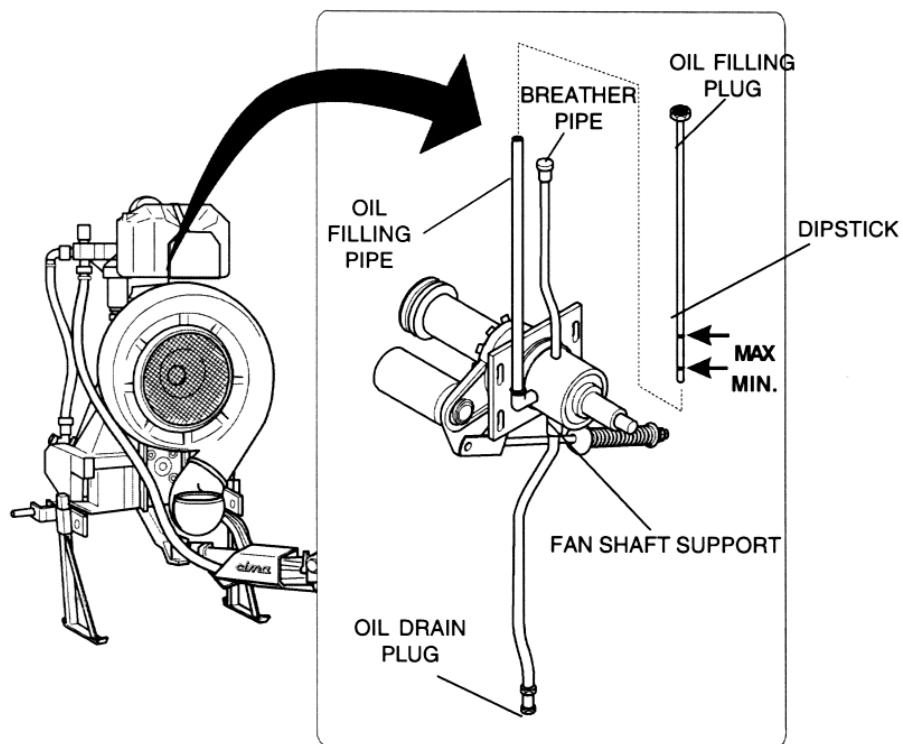
MAIN STRAINER:

Clean strainer screen before each treatment and when required.

To clean screen, it is necessary to make sure the ball valve (Ref. 1) is in Position D. Return to Position A when finished.



FAN SUPPORT OIL LEVEL CHECK

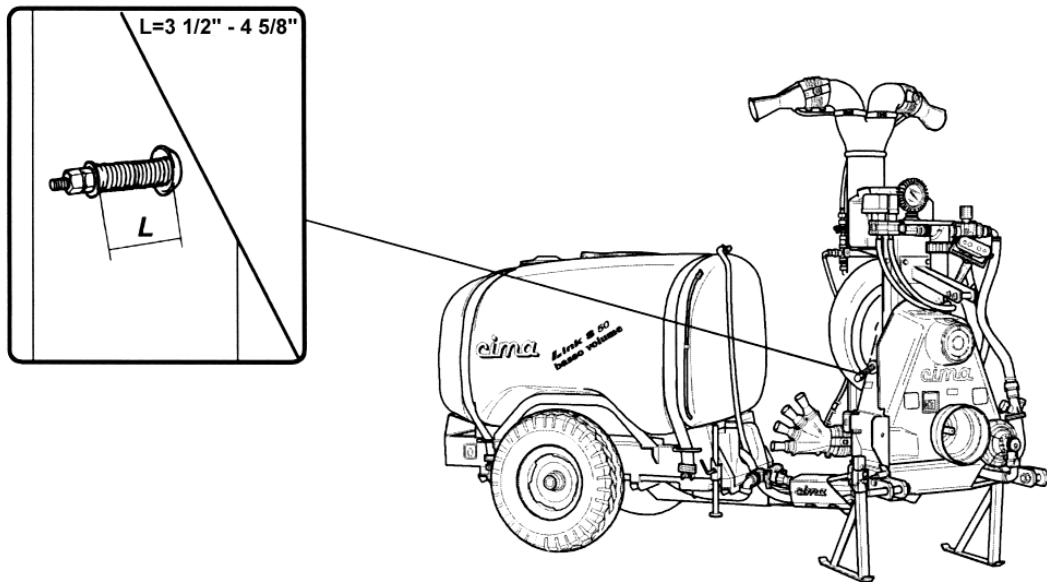


1. Unscrew and remove the oil filling plug with dipstick.
2. Clean the dipstick and reinsert in oil tube.
3. Remove dipstick and check oil level. Oil should be between the min. and max. marking on dipstick. If oil is low add SAE 90 wt. oil.
4. Reinstall dipstick and re-tighten.

CHANGING FAN SUPPORT OIL

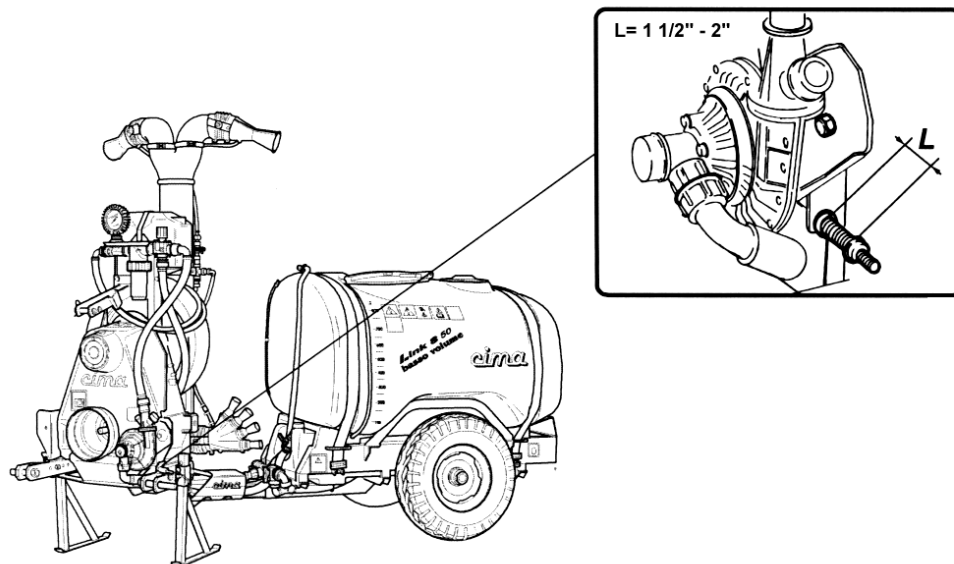
1. Unscrew and remove the oil filling plug with dipstick.
2. Remove the oil drain plug and drain oil completely.
3. Replace oil drain plug.
4. Through the filling pipe, pour SAE 90 wt. oil to proper level on dipstick.
5. Reinstall dipstick and re-tighten.

BELT TENSION



MAIN POWER DRIVE BELT:

Minimum Length = 3 1/2"
Maximum Length = 4 5/8"



CENTRIFUGAL PUMP V-BELT:

Minimum Length = 1 1/2"
Maximum Length - 2"

MODULAR SYSTEM

SWITCH BOX PART # 21.030.300



Connect the red cable to a 12V positive supply, with a minimum capacity of 8 amps, possibly from the ignition switch. Connect the black cable to ground, making sure of a clean connection point and that this point connects with the battery - minus.

Always use screw connections and proper terminal ends for wiring, making sure to insulate any bare connections. Protect connections with junction boxes and cable holders. Ensure wiring will not be trapped or rubbed with vibration. Check fuse rating and location according to diagram.

LIMITED WARRANTY



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 warrants 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.

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

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

The serial number of this product is stored in our computer database, thus submitting a warranty registration card is not required.