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GENERAL SAFETY INSTRUCTIONS

- * Read and understand this manual completely before operating equipment.
- * Read and follow all label directions for all products used in the sprayer.
- * Read and follow all safety decals located on this equipment.
- * Keep all shields and guards in place.
- * Keep bystanders clear of sprayer during operation.
- * Stop machine and remove from power source to perform any service or maintenance.
- * Check belt tension and bolt tightness regularly.
- * Keep hands, feet and clothing away from power-driven parts.

INTRODUCTION

We, at LMC Ag, appreciate the opportunity to serve you and the orchard industry. The grower is the important part of why we are here, and we look forward to working with you for years to come.

This booklet outlines the operational procedures, safety guidelines, and parts breakdown to give you an understanding of the function of each working unit. It is important that anyone using this equipment read this manual and have a complete understanding of all safety guidelines and important procedures that will help extend the working life of the product.

If any problems occur, please let us know as soon as possible, as the issue may be covered by the Manufacturer's Warranty.

There is a space on the back cover to record your Model Number and Serial Number for future reference if needed.

We hope you are satisfied with your purchase, and if we may help in any way, please feel free to contact us at 1-229-639-1775.

WARRANTY PROCEDURES

For parts picked up at the plant or shipped directly to the customer, which are to replace defective parts covered by warranty, the procedure below should be followed.

- At the time the order is placed, by phone, or in writing, please specify that the part in question may be covered by warranty.
- Parts orders will be recorded on a memo invoice.
- A notation at the bottom of invoice states that defective part(s) must be returned to an authorized LMC Ag dealer within 30 days or warranty will not be honored and the parts will be invoiced at current prices.
- Any returned defective parts must be tagged, noting customer's name and machine serial number.
- Returned parts will be checked by engineering to verify that they are defective and covered by warranty.
- If parts are approved for warranty by engineering, customer will not be billed.
- If parts are not returned within 30 days, or if engineering determines that they were not defective and not covered by warranty, an invoice will be issued at current prices.

All parts returned for warranty should be addressed to the authorized LMC Ag dealer where the piece of equipment was purchased.

WARRANTY

LMC Ag warrants to each initial purchaser of new LMC Ag equipment, from an authorized LMC Ag dealer, that such equipment is, at time of delivery to such purchaser, free from defects in material and workmanship under normal use, and if serviced in accordance with the operational procedures outlined in the parts catalog.

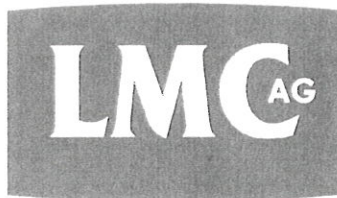
LMC Ag's obligation under this warranty is limited to repairing, or at option, replacing any part that is returned, transportation prepaid to an authorized LMC Ag dealer, that in LMC Ag's judgment proved defective within one year after shipment from LMC Ag's factory.

This warranty shall not apply: (1) to normal maintenance services or adjustments, (2) to any LMC Ag machinery or equipment which shall have been repaired or altered by other than an authorized LMC Ag factory representative in any way so as, in LMC Ag's judgment to adversely affect its stability or reliability, nor which has been subject to misuses, negligence or accident or (3) to engines, batteries, engine clutches, tires or other trade accessories, as they are subject to warranties of their respective manufacturers.

For this warranty to become effective, the Warranty Registration card furnished with each unit must be on file at LMC Ag within 30 days after purchase and at the time warranty claim is made.

This warranty is expressly in lieu of any other warranties, expressed or implied, including any implied warranty of merchantability of fitness for a particular purpose, and any other obligation of liability for incidental or consequential damages on the part of LMC Ag or the dealer. No person is authorized to give any warranties or to assume any other liability.

LMC Ag reserves the right to redesign or change its equipment or component parts thereof without incurring the obligation to install or furnish such changes or equipment previously delivered.

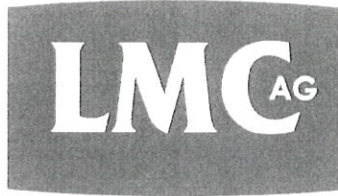


Albany, Ga 31707

IMPORTANT

THIS IS YOUR GUARANTEE

MAIL TODAY TO:



1715 S. Slappey Blvd.

Albany, GA 31701

(229) 639-1775

WARRANTY REGISTRATION

Customer Name: _____

Customer Address: _____

City and State: _____

Dealer's Name: _____

Dealer's Address: _____

Date of Purchase: _____

Signature _____



SAFETY INSTRUCTIONS



To ensure safe operations, please read the following statements and understand their meaning. This manual contains safety precautions which are explained below. Read entire manual carefully before operating this piece of equipment.



DANGER indicates a hazardous situation that, if not avoided, will result in death or serious injury.



WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.



CAUTION indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.



NOTICE is used to address practices that could result in equipment or property damage and are not related to personal injury.

Follow Safety Instructions

Carefully read all safety messages in this manual and on your machine safety decals.

Keep safety signs in good condition. Replace missing or damaged safety signs. Be sure new equipment components and repair parts include the current safety signs. Replacement safety signs are available from LMC Ag.

Learn how to operate the machine and how to use controls properly. Do not let anyone operate this machine without instructions.

Keep your machine in proper working condition. Unauthorized modifications to the machine may impair the function and/or safety and affect machine life.

If you do not understand any part of this manual and need assistance, contact LMC Ag at (229) 639-1775.



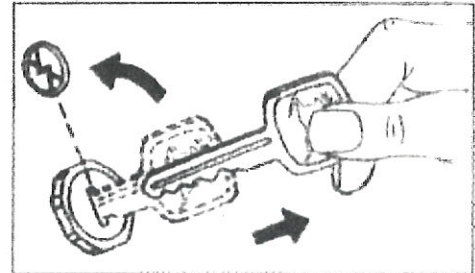
SAFETY INSTRUCTIONS (continued)



Leaving Sprayer Unattended

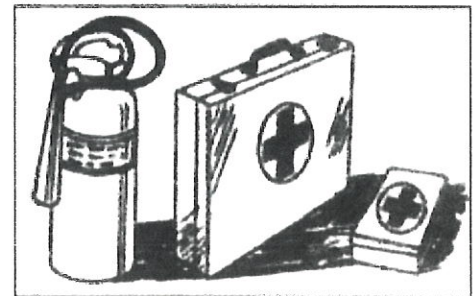
Before leaving sprayer unattended:

1. Ensure the parking brake on the tractor is engaged, engine shut off and key removed.
2. Turn off sprayer nozzles with foot switch.
3. If leaving for an extended period, shut off the flow control with the levers on the side of the sprayer and disconnect battery clamps.



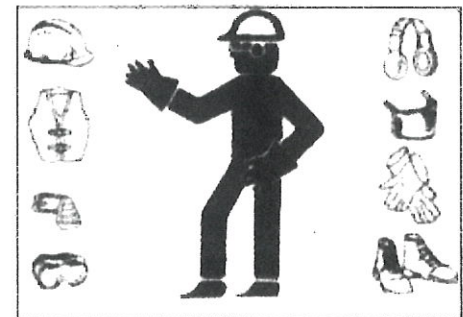
Prepare for Emergencies

1. Be prepared if a fire starts.
2. Keep first aid kit and fire extinguisher handy.
3. Use proper antiseptics on scratches and cuts without delay.
4. Keep emergency numbers for doctors, ambulance service, hospital and fire department near your telephone.



Wear Protective Clothing

1. Wear close fitting or belted clothing and safety equipment appropriate to the job.
2. Follow any protective gear requirements for products used in the sprayer.
3. Operating equipment safely requires the full attention of the operator.
4. Do not wear radio or music headphones while operating machine.



Stay Clear of Fan Belts

1. **DANGER** Entanglement in sprayer fan belt or gearing can cause serious injury or death.
2. Keep drive safety shields in place when sprayer is running.
3. Wear close fitting clothing. Before making adjustments, performing any maintenance, or cleaning out the drive chains, shut off sprayer completely and disengage PTO.



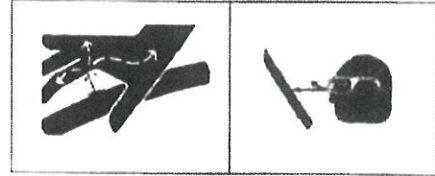


SAFETY INSTRUCTIONS (continued)



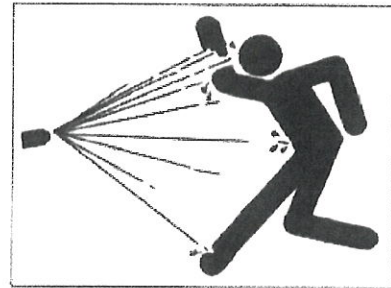
Avoid High-Pressure Fluids

1. **WARNING** Escaping fluid under pressure can penetrate the skin causing serious injury.
2. Avoid the hazard by relieving pressure before disconnecting hydraulic or other lines. Tighten all connections before applying pressure.
3. Fluid escaping from a very small hole can be visible. Search for leaks with a piece of cardboard or wood.
4. Protect hands, eyes and body from high-pressure fluids.
5. If an accident occurs, see a doctor immediately. Any fluid injected into the skin must be surgically removed within a few hours or gangrene may result. Doctors unfamiliar with this type of injury should reference a knowledgeable medical source.



Protect Yourself and Bystanders

1. **DANGER** Never operate sprayer near bystanders.
2. High velocity spray and contact with some sprayed chemicals can cause serious injury or death.
3. Never open any cover or safety shield while sprayer is in operation.
4. Follow all label directions on containers of sprayed substances.





SAFETY INSTRUCTIONS (continued)



Stay Clear of Driveline

1. **DANGER** Entanglement in sprayer driveline can cause serious injury or death.
2. Keep tractor master shield and driveline shields in place at all times. Make sure rotating shields turn freely.
3. Wear close fitting clothing
4. Before making adjustments, corrections, or cleaning out PTO-driven equipment, disengage the PTO, shut off the engine, set the parking brake or put the transmission in park and remove the key.



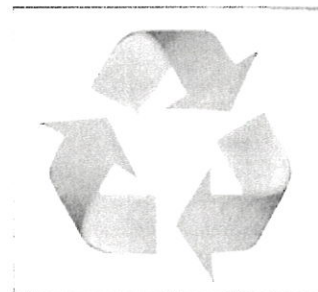
Avoid Electrical Shock

1. **DANGER** This machine requires 12 volt DC electricity. Before doing any kind of maintenance *work* or removing safety shields, the metal clips should be disconnected from the battery.
2. Always have a certified electrician resolve any electrical problems.



Dispose of Waste Properly

1. Improperly disposing of waste can threaten the environment and ecology. Potentially harmful waste used with LMC Ag's equipment include such items as oil, fuel, filters and batteries.
2. Use leak proof containers when draining fluids. Do not use food or beverage containers that may mislead someone into drinking from them.
3. Do not pour waste onto ground, down a drain, or into any water source.
4. Inquire on the proper way to recycle or dispose of waste from your local environmental or recycling center.





SAFETY INSTRUCTIONS (continued)



The safety of the operator was one of the prime considerations in the design of this sprayer. Shielding, simple adjustments, and other safety features were built into the sprayer wherever possible.

You can make your farm a safer place to work if you follow and observe the safety instructions given. Study these instructions carefully and insist that they be followed by those working with and around this machine.

1. All machinery should be operated only by responsible persons who have been delegated and trained to do so.
2. Before starting, make sure bystanders are clear so they cannot be caught in the spray, struck by moving parts, or caught in a fan belt or driveline.
3. Never operate 540 rpm Sprayer with 1000 rpm tractor.
4. Keep people completely clear of the sprayer when machine is running.
5. Never clean, lubricate, adjust or clear obstructions from the sprayer while it is operating.
6. Operators should avoid wearing loose clothing. Loose jackets, skirts, shirts, or sleeves should never be worn due to the danger of their getting into moving parts.
7. Replace badly frayed or worn belts before they break.
8. Never allow children to play on or around the sprayer at any time.
9. Read and fully understand the chemical labels and the proper method in the mixing and use of each product.

SAFETY INSTRUCTIONS (continued)

Federal Laws and Regulations

This section is intended to explain in broad terms the concept and effect of federal laws and regulations concerning employer and employee equipment operators. This section is not intended as a legal interpretation of the law and should not be considered as such.

Employer-Employee Operator Regulations

U.S. Public Law 91-596 (The Williams-Steiger Occupational and Health Act of 1970) OSHA

This Act Seeks:

"...to assure so far as possible every working man and woman in the nation safe and healthful working conditions and to preserve our human resources..."

DUTIES

Sec. 5 (a) Each employer-

(1) shall furnish to each of his employees employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious physical harm to his employees;

(2) shall comply with occupational safety and health standards promulgated under this Act.

(b) Each employee shall comply with occupational safety and health standards and all rules, regulations and orders issued pursuant to this Act which are applicable to his own actions and conduct

OSHA Training Requirements

Title 29, Code of Federal Regulations Part 1928.57(a)(6). www.osha.gov

Operator instructions. At the time of initial assignment and at least annually thereafter, the employer shall instruct every employee who operates an agricultural tractor and implements in the safe operating practices and servicing of equipment with which they are or will be involved, and of any other practices dictated by the work environment.

Keep all guards in place when the machine is in operation;

Permit no riders on equipment

Stop engine, disconnect the power source, and wait for all machine movement to stop before servicing, adjusting, cleaning or unclogging the equipment, except where the machine must be running to be properly serviced or maintained, in which case the employer shall instruct employees as to all steps and procedures which are necessary to safely service or maintain the equipment.

Make sure everyone is clear of machinery before starting the engine, engaging power, or operating the machine.

Employer Responsibilities:

To ensure employee safety during Tractor and Implement operation, it is the employer's responsibility to:

1. Train the employee in the proper and safe operation of the Tractor and Implement.
2. Require that the employee read and fully understand the Tractor and implement Operator's manual.
3. Permit only qualified and properly trained employees to operate the Tractor and Implement.
4. Maintain the Tractor and Implement in a safe operational condition and maintain all shields and guards on the equipment.
5. Ensure the Tractor is equipped with a functional ROPS and seat belt and require that the employee operator securely fasten the safety belt and operate with the ROPS in the raised position at all times.
6. Forbid the employee operator to carry additional riders on the Tractor or Implement.
7. Provide the required tools to maintain the Tractor and Implement in a good safe working condition and provide the necessary support devices to secure the equipment safely while performing repairs and service.
8. Require that the employee operator stop operation if bystanders or passersby come within 300 feet.

Child Labor Under 16 Years of Age

Some regulations specify that no one under the age of 16 may operate power machinery. It is your responsibility to know what these regulations are in your own area or situation. (Refer to U.S. Dept. of Labor, Employment Standard Administration, Wage & Home Division, Child Labor Bulletin #102.)

TRANSPORTATION

CAUTION When transporting the Sprayer on a roadway, day or night, use accessory lights and devices for an adequate warning to operators of other vehicles. In this regard, check local governmental regulations. Various safety lights and devices are available from tractor dealers. Among these is the SMV (slow moving vehicle) emblem. Drive responsibly and obey all federal and state transportation regulations. **Tires are not recommended for highway use and carry a 30 MPH top speed warning.**



Slow Moving Vehicle

Some tractors are capable of operating at speeds that exceed the maximum transport speed of this implement. Regardless of the maximum speed capability of the tractor being used to employ this implement, the operator needs to judge the maximum transport speed and tractor capacity of carrying the extra weight.

CAUTION In off-road conditions, manufacturer does not advise over 10 MPH.

Exceeding the implement's maximum transport speed can result in:

1. Loss of control of the tractor/implement combination
2. Reduced or no ability to stop during braking
3. Damage to the implement structure or its components



Use additional caution and reduce speed when towing under adverse surface conditions, when turning, and when on inclines.

SPECIFICATIONS

MODEL NUMBER	TANK SIZE	FAN/VOLUTE SIZE	LENGTH. WIDTH/HEIGHT	PTO/HP REQUIRES
PS 500	500 GALLON	40" / 56"	180"/76"/83"	540 / 70 HP 1000 / 120 HP
PS 1000	1,000 GALLON	40" / 72"	205"/115"/95"	540 / 70 HP 1000 / 120 HP



Operating Procedures

WARNING Do not operate this machine without being thoroughly familiar with this manual and the operating procedures for the tractor.

This machine is a multipurpose, low volume sprayer for use in spraying of agricultural trees, crops, and other needs that can be fitted to its design. In using this Sprayer, care should be taken when mixing and spraying the various chemicals. All instructions for using the chemicals should be followed to ensure safe operations.

Prior to initial start-up:

These steps should also be taken at the beginning of each season of operation, or when maintenance has been performed.

1. After ensuring NO power is applied to the sprayer, take off safety shield/access panel.

- Remove two bolts at each side of the safety shield and the lynchpin on top.
- Lift and remove safety shield.
- **WARNING** Shield is heavy. For reasons of safety, use two people to remove shield.

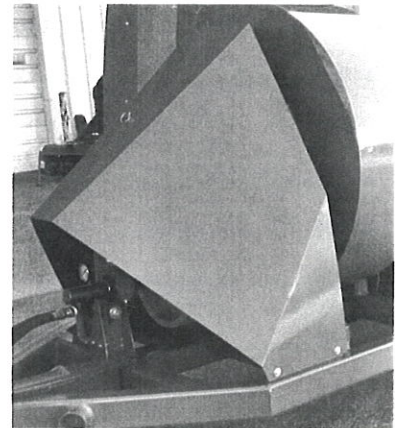
2. Check belt tension and condition.

- Belts should have no slack in them. Replace belts when they appear cracked or frayed (before they break).
- All pulleys should be aligned precisely parallel with each other and with the belt.

3. Check tire pressure and lug nuts or bolts.

- 20 PSI is recommended. Do not over pressurize.
- Lugs should be torqued to 55 ft lbs. (75NM)

4. Check for loose nuts, bolts and set screws.



Operating Procedures

Preparing for Operation:

1. Attach sprayer tongue to the drawbar on the tractor with a safety hitch pin.

- The distance between the drawbar hitch and the back end of PTO shaft conning out of the tractor must be between 14 and 18 inches.

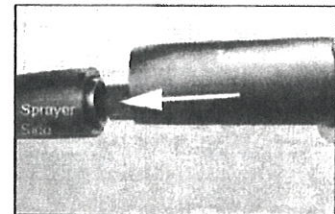
2. Connect the PTO drive line from Sprayer to tractor.

- The quick coupler on the PTO drive line will fasten to the PTO shaft on the tractor and not be able to come off when running. **Never operate a 540 rpm**

Sprayer with 1000 rpm tractor.

3. Mount the valve control where it is easily accessible from the tractor seat.

- Arrange and secure hydraulic hoses and wire such that they will not touch the PTO shaft or rub other moving parts during operation.
- Wire the control switch to the battery power source.



Operating Procedures

4. Fasten quick coupler fittings to hydraulic hose ends on sprayer and connect to hydraulic outlets on tractor.

5. Engage hydraulic valve on tractor and move spray volute fully left and right until all air is out of the hydraulic lines. (Motion will become smooth and even.)

6. Add water to sprayer tank and open valves at the front of the tank to allow water to run toward the pump.

7. With all shields and guards in place, start your hydraulic chemical pump and let the tractor run at idle speed. Look into tank and make sure the water is running back into tank through the agitator. In some cases, it may take more than idle speed to get air out of all the lines (prime the pump).

8. After good circulation and water turbulence have been obtained, engage the control valve switch, allowing the water go to the nozzles.

- Raise PTO speed to 540 or 1000 RPM (as appropriate to your PTO).
- Starting with the valves fully open, rotate the agitation control valve toward the closed position to raise pressure in nozzle lines until you get the desired flow rate, (see chart next page)

9. Add water and chemicals to the tank. Run pump and agitate to desired mixture. You are now ready to spray your trees or crops.

***NOTICE* When operating in rough terrain and during turns, use caution. The PTO drive-line will wear faster when operating at sharp angles.**

Operating Procedures

GALLONS PER MINUTE (Per Nozzle)

Nozzle Size	10psi	20psi	30psi	40psi
TK .5		.07	.08	.10
TK .75	.075	.11	.13	.15
TK 1	.10	.14	.17	.20
TK 1.5	.15	.21	.26	.30
TK 2	.20	.28	.35	.40
TK 2.5	.25	.35	.43	.50
TK 3	.30	.42	.52	.60
TK 4	.40	.57	.69	.80
TK 5	.50	.71	.87	1.0
TK 7.5	.75	1.1	1.3	1.5
TK 10	1.0	1.4	1.7	2.0
TK 15*	1.5	2.1	2.6	3.0
TK 20	2.0	2.8	3.5	4.0
TK 30	3.0	4.2	5.2	6.0

Multiply this number by the number of nozzles on your sprayer.

* Unless nozzles are custom ordered, all LMC Ag Sprayers come equipped with TK 15 nozzles.

Below is a list of formulas that are useful in calibrating spray applications.

$$\text{Number of Trees Per Acre} = \frac{43,560 \text{ (Square Feet Per Acre)}}{\text{Row Spacing} \times \text{Tree Spacing}}$$

$$\text{Gallons Per Minute} = \frac{\text{Gallons Per Acre} \times \text{Miles Per Hour} \times \text{Row Spacing (in feet)}}{1000}$$

$$\text{Gallons Per Acre} = \frac{\text{Gallons Per Minute} \times 1000}{\text{Row Spacing (in feet)} \times \text{Miles Per Hour}}$$

Operating Procedures

Below is a list of formulas that are useful in calibrating spray applications.

$$\begin{array}{l} \text{Miles} \\ \text{Per Hour} = \end{array} \quad \frac{\text{Gallons Per Minute} \times 1000}{\text{Desired Gallons Per Acre} \times \text{Row Spacing (Ft.)}}$$

$$\begin{array}{l} \text{Acres} \\ \text{Per Hour} = \end{array} \quad \frac{12 \times \text{Miles Per Hour} \times \text{Row Spacing (in feet)}}{100}$$

AIR BLAST ROW CROP FORMULA

$$\begin{array}{l} \text{Gallons} \\ \text{Per Minute} = \end{array} \quad \frac{\text{Gallons Per Acre} \times \text{Miles Per Hour} \times \text{Spray Swath (in feet)}}{500}$$

MAINTENANCE

V-belt drives:

1. The main drive (fan) V-belt can be tightened by moving the bottom shaft down. Be sure to move both ends of the shaft the same amount to keep shaft, pulleys, and belts properly aligned.

- Loosen the two bolts holding both of the lower shaft bearings at the front and rear of the shaft.
- Move the shaft down to increase tension.
- Ideal tension is the lowest tension at which the belt will not slip under peak load conditions.
- Check tension frequently during the first 24-48 hours of run-in operation and make V-drive inspection on a periodic basis. *NOTICE* Only increase tension when belt is slipping, as over-tensioning shortens belt and bearing life.
- Keep belts free from foreign material that may cause slippage.
- Pulleys (sheaves) will get hot if belts are slipping.

2. To replace the belts, first support the weight of the shaft with a hoist or other device.

- Remove the two bolts holding the front bearing of the lower shaft and loosen the two bolts that hold the bearing at the rear of the shaft.
- Move the front bearing assembly away from its support enough to slide the belts by.
- It is best to replace all belts at the same time.
- When belts are installed on the sheaves, lower the shaft to apply adequate tension and tighten the four bearing bolts. Use a straight edge to ensure the upper and lower sheaves are perfectly aligned to each other.

MAINTENANCE

Other maintenance:

- 1. Wash all chemicals from lines, tank and external components after using. Some agricultural chemicals are highly corrosive.**
- 2. Drain ALL fluid from the tank, lines, and pump when storing, to prevent parts from freezing and bursting.**
- 3. The sprayer has several sealed bearings. Although these bearings are equipped with grease zerks, they may never require added grease.**

NOTICE LMC Ag recommends applying one stroke of grease very slowly not more than once per year. Be careful not to over grease sealed bearings or apply with excessive force, as this will break the bearing seal and shorten the life of the bearings.

- 4. The sprayer has two bearings that are not sealed and should be greased daily (along with the driveline U-joints). The forward bearing on the main drive shaft (where the PTO connects to the sprayer) and the forward bearing of the fan shaft are the two unsealed bearings that require regular greasing.**
- 5. Grease the drive-line U-joints daily.**
- 6. The area where the two halves of the driveline connect can be lubricated with a dry type lubricant. If oil-based lubricant is used, it may accumulate dirt/sand. Clean and lubricate as needed to maintain free telescoping movement between the two halves of the driveline.**

STORAGE

End of Season Service:

1. It is a good practice to shelter the sprayer in a dry place.
2. Clean the sprayer thoroughly inside and out. Dirt and debris will draw moisture and cause rust. Certain chemicals left in or on the sprayer will accelerate corrosion of metal parts.
3. Ensure all lines, pumps and tank are **COMPLETELY** drained to prevent damage from freezing.
4. Paint all parts from which paint has been worn.
5. Lubricate bearings as necessary (see pgs. 23-24).
6. List any replacement parts that will be needed and order them early. The dealer at this time can expedite delivery of parts, and they can be installed during slack periods, thereby avoiding delays during the growing season.

Beginning of Season Service:

1. Tighten any loose bolts, nuts, and set screws.
2. If any major moving parts have been replaced, check them for proper alignment and operation.
3. Review this operator manual, and follow steps on pages 18-20.
4. Ensure all safety signs are still in place on the machine and clearly legible. Replacement safety signs are available from LMC Ag.

**If you are unclear of any aspect of this operator manual or
if you have any questions about this equipment, contact
LMC Ag or an authorized
LMC Ag Dealer nearest you.**

NOTES

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