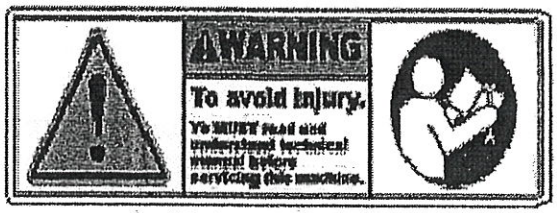
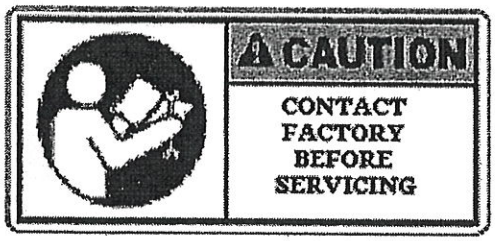
CROSS
APPLICATION EQUIPMENT CO.,LLC
dba - LMC - ALBANY
1715 S. Slappey blvd.
Albany Georgia 31701
PH# 1-800-673-6369
FAX# 1-229-446-8333

READ AND UNDERSTAND ALL WARNINGS AND CAUTION'S

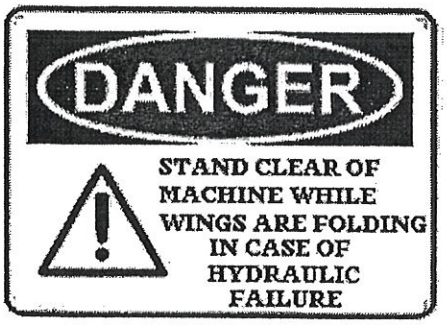
WATCH FINGER'S AND HANDS

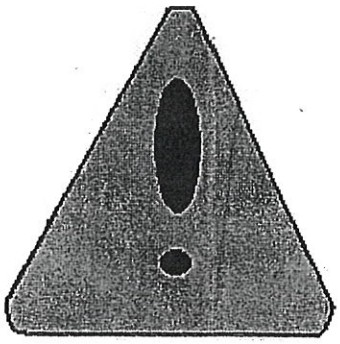


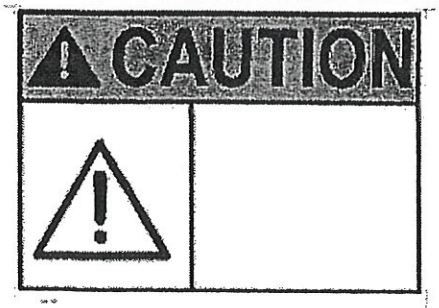
TO AVOID INJURY
YOU "MUST" READ AND UNDERSTAND
TECHNICAL MANUAL BEFOR SERVICING
THIS MACHINE



CAUTION







AGRICULTURAL CHEMICALS CAN BE DANGEROUS.
IMPROPER SELECTION OR USE CAN INJURE PERSONS,
ANIMALS, PLANTS, SOILS OR OTHER PROPERTY

TO AVOID INJURY
1. SELECT THE RIGHT CHEMICAL FOR THE JOB
2. HANDLE AND APPLY IT WITH CARE, FOLLOW THE INSTRUCTIONS
ISSUED BE THE CHEMICAL MANUFACTURER

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INTRODUCTION

Congratulations on your choice of a high quality Cross sprayer.
Your sprayer is constructed of the finest materials available and with proper maintenance will give you years of trouble free service.
To ensure it's best possible use, establish a good maintenance and safety program. Know your spraying requirements and how this machine can meet them. Please read the following instructions carefully.
We strongly recommend that you contact your local government department or other competent authority with regard to the spray program that will best suit your requirements.
To the extent that the law permits, Cross application equipment co. llc. disclaims any responsibility for loss of time or use of the product, or any other indirect, incidental or consequential damage, inconvenience or any damage due to faulty application of chemicals.
The advanced design of the Cross spray unit facilitates ease of use and convenient maintenance procedures. The pumps direct drive configuration eliminates the need for many troublesome belts and pulleys.
The tanks are made of two different corrosion-free materials, fiberglass or polyethylene. Brass, nylon, and stainless steel used extensively throughout the spraying system in order to practically eliminate clogging due to corrosion.

MAINTENANCE

PLASTIC TANK

a) Clean out after use. Do not leave chemicals in tank.
b) Ensure air vent in lid is kept clear and operational. Damage to the tank can occur if this is not done.
c) Repairs to poly tanks can be made for small cracks with a poly patch kit.
d) Store in covered area out of sunshine or cover tank when not in use with opaque material such as a canvas tarpaulin.

SUCTION LINE AND STRAINER

a) Ensure suction hoses and fittings between the tank and the pump is airtight.
b) The suction filter is removed by unscrewing the nylon bowl. Running clean water over it may clean the stainless steel screen. While the filter bowl is removed, check seal on bowl to ensure it is in good condition. Replace seal on bowl if it appears worn, cracked or misshapen. When reinstalling filter bowl, take care not to cross the threads on the bowl and only tighten by hand.
c) If the tank has liquid in it when the filter needs to be inspected, shut off the valve leading to the strainer from the tank. **THIS VALVE MUST ALWAYS BE OPEN WHEN THE PUMP IS IN OPERATION OR DAMAGE TO THE PUMP COULD OCCUR.**

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AGITATOR CARE & MAINTENANCE

1. If agitator does not work, check that valve leading to agitator is in open position, also check agitator orifice in tank for plugging. Clean orifice if necessary.
2. If air injection is fitted and excess foaming occurs in the tank, place tape over air inlet ports on top of tank.
3. Ensure that agitator is not introducing air into suction line.

DIAPHRAGM PUMP CARE AND MAINTENANCE

1. Check oil level regularly, checking every tankful would not hurt. Use SAE #30, not 10W30 oil. Maintain oil level halfway up on sight gauge.
2. Clean suction filter of all dirt, undissolved chemical, or other foreign debris when filling tank or more often if using dirty water supply or chemical that tends to clog suction filter. Clean if needed. If the tank has liquid in it when the filter needs to be inspected, shut off the valve leading to the strainer from the tank. This valve must always be open when the machine is operating or damage to the pump could occur.
3. There is an air valve on the pulsation damper chamber on the pump. Fill with air at 10% of your working pressure. Minimum charge should be 10 psi. To fill, set regulated air pressure to pressure desired in the damper. Checking with a tire gauge will let out too much air for accuracy.
4. When starting up, run machine for one or two minutes at zero pressure to evacuate air from the pump.
5. Adjust pressure relief valve to desired pressure. Turn the handle or knob in or out to increase or decrease pressure.
6. Check hydraulic agitation in tank (if fitted) for effective operation when filling the tank. Clean agitator orifice if necessary.
7. If oil is milky and white, shut machine down immediately. Since diaphragms are probably damaged.
8. If there will be possibility of freezing temperatures, perform winterizing procedure as described below.
9. Before operating in freezing weather, turn pump over by hand to make sure it will run free. If pump cannot be turned by hand, do NOT attempt to turn with engine or PTO as serious damage to the pump could result.

WINTERIZATION OF DIAPHRAGM PUMP

1. Open all valves and remove drain plug from tank.
2. Run pump until it is completely dry. (Run it for a couple of minutes after you think it is dry) Do NOT run pump with suction valve closed.
3. Close valves but do not close suction valve. Replace drain plug in tank. Put automotive type radiator antifreeze in tank mixed 50/50. Run machine until antifreeze begins to come out of the nozzles. (Do NOT use diesel fuel.)
4. In spring, open valves, run pump and drain all hoses of antifreeze. Flush system with
clean water.

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ROLLER PUMP CARE AND MAINTENANCE

1. Never run pump dry of liquid. If this is allowed to happen, the rollers and seals in the pump will wear out quickly.
2. When starting pump up, back off pressure regulator in order to evacuate air from pump and line.
3. Clean suction filter of all dirt, undissolved chemical or other foreign debris when filling tank or more often when using dirty water supply or chemical that tends to clog suction filter.
4. Never run pump with suction valve closed.
5. Never use abrasive powders such as sulphur in a roller pump otherwise rollers in pump will be worn out in a very short period of time.
6. After each use, flush out pump with clean water and fill pump with oil in order to lubricate rollers, prevent rust an prevent frost damage.

If casting of pump is left with water in it and allowed to rust, the rough surface caused by the rust will wear out rollers within a couple of uses necessitating replacement of the pump.

PRECAUTIONS

1. Check all fluid levels regularly.
2. Keep suction line clear and suction filter clean.
3. DO **NOT** RUN UNIT WITH SUCTION VALVE CLOSED.
4. If oil is milky and white in sight glass on diaphragm pump, shut machine down immediately.
5. Keep air vent in tank lid operational.
6. Ensure no liquids other than anti-freeze are in machine if there is possibility of freezing temperatures. Perform winterizing steps.

SHUT DOWN

1. After each spray or when changing chemicals, flush out the pump, lines and gun by running the sprayer with clean water in the tank.
2. Open the drain valve and remove screen from the suction filter. Allow water to drain, then hose out the inside of the tank until clean. Clean strainer in suction filter and replace. Do not leave chemical mixture in tank.
3. If there is possibility of freezing temperatures, be sure to winterize machine.

TROUBLESHOOTING A SPRAYING SYSTEM FOR LACK OF PRESSURE

The following are the steps that should be taken to troubleshoot a sprayer system if inadequate pressure is being obtained.

Make sure there is adequate liquid in the spray tank.

□If the spray tank is empty, put some liquid in it before proceeding.

□If the liquid in the spray tank is near the bottom, swirling at the bottom of the tank may allow air into the suction line, which will cause the pressure to go up and down. Look inside the tank while running to see if this is happening.

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Ensure the capacity of the pump is not being exceeded.
To check this it is necessary to determine the flow that is expected out of a single nozzle in your spray system by using method "A" or "B" below.
□Method A – if flow specifications are available for the nozzles that you are using, check the specifications for the flow from one nozzle at the pressure that you want to spray at.
□Method B – if nozzle flow specifications are not available, the flow from a nozzle may be determined manually by collecting the spray from one nozzle in a container for one minute and measuring how much liquid was collected in the container. This gives the flow per minute for a single nozzle.
□Then multiply the flow for each nozzle by the number of nozzle that you are using. This gives the total required flow per minute.
□Compare the total required flow to the maximum flow that the pumps is capable of. The total flow should be at least 20% less than the maximum pump flow. If not, then use fewer nozzles or use smaller nozzles or use a bigger pump.
Shut off all jet agitation (if fitted)
□If a jet agitator hose has blown off inside the spray tank, then all the pressure will be lost through the agitator line. If the spray works well only when the agitator is shut off, then this is the problem.

Look for overflow running back into the tank
□There is a hose running from the pressure regulator (the valve where you adjust your pressure) back to the spray tank. Look inside the tank when the pump is running and see if there is a substantial amount of liquid flowing back into the tank. If there is a lot of overflow and there is little or no pressure then the problem is that the seats in the pressure regulator are worn out or something is caught in the regulator causing it to stick open.
□If there is no overflow then there is a problem with something other than the pressure regulator.
Check the suction line for blockage
□The suction line is the hose that supplies the pump with liquid. Usually there is also a suction strainer in this line to protect the pump from foreign debris.
□Check for kinked or collapsed suction line. Note that the hose liner on an older suction hose may separate from the outer casing and could collapse without any visual indication from the outside of the hose. If in doubt, replace the hose being sure to use a hose with an embedded wire or plastic coil to prevent collapsing.
□Check that the suction strainer is clean and not clogged with dirt, debris or undissolved chemical.
□Check that the suction strainer shut-off valve is open (if fitted)
NOTE: If there is any restriction in the suction line, this will starve the pump. Pump starvation will rupture diaphragms in a diaphragm pump.

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Check the suction line for air leaks

□Make sure that the gasket on the suction strainer is in place and that it is not cracked or worn out.

□Make sure all the fittings between the spray tank and the pump are tight. If a fitting is dripping while the unit is not in use it is a sure sign that there is a suction leak. Keep in mind that there may be a suction leak that shows no sign of dripping while the unit is not in use.

□Make sure that the hose clamps on the hoses between the spray tank and the pump are in good shape and are tight.

□Make sure that there are not cracks or holes in the hoses between the spray tank and the pump. If the hoses are getting old or if in doubt, replace hose being sure to use a hose with an embedded wire or plastic coil to prevent collapsing.

Note: If air gets into the suction line anywhere it will cause the spray system to work very badly. This is what causes most pump problems. There may be air getting into the suction line even if liquid is not leaking out of the suction line so this must be inspected very carefully.

Diaphragm, piston and plunger pumps

□Check that the valves are in good condition. To check them, remove them from the pump and hold them up to the light. If you can see light peeking through the seating surfaces it would be a good idea to change them.

Note: Contact Cross Application Equipment co. llc. Service department before adjusting any hydraulic feature of this Unit.

Hydraulic centrifugal pumps

Stopping the Sprayer Pump (Hydraulic Model)

The standard spool valves of tractor hydraulic systems can cause potentially damaging high peak pressures when being closed because of the abrupt shut-off of oil flow in both the supply and return lines. When shutting the sprayer down, move the tractor hydraulic selector to the "Float" position to allow the motor and pump to come to a gradual stop. should be switched off to avoid inadvertent operation of the boom nozzles

Pump Operating Speed Under most spraying conditions the sprayer can be operated at less than the maximum pump speed of 540 rpm.

The tractor engine speed can be reduced under most conditions to save fuel and unnecessary wear. The speed chosen should ensure that the pressure set at the relief valve can be maintained when all boom sections are operating, so that fluidis by-passed to the tank to maintain agitation.

The hydraulic flow available from most tractors at rated engine speed exceeds the requirements of the hydraulic drive model. If the tractor is fitted with a load sensing hydraulic system with a variable flow control this can be used to reduce the rate.

Relieve all hydraulic pressure before connecting or disconnecting hoses. Oil escaping under pressure can penetrate skin, causing serious injury. Seek immediate medical treatment if injured by escaping oil.

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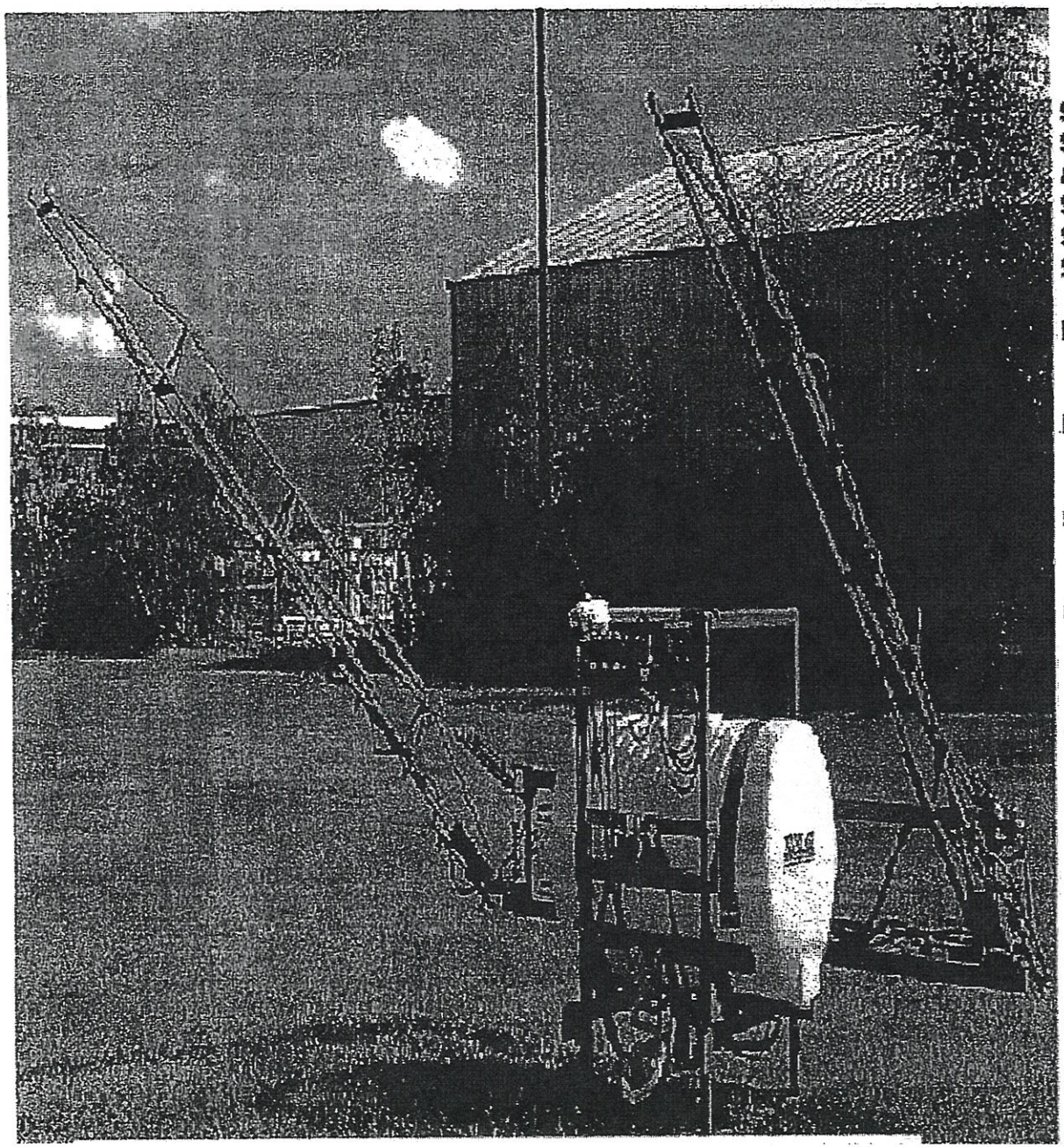
Matching the Hydraulic Motor to the Tractor
Hydraulic Drive Model Only

The sprayer pump motor is suitable for either an open centre or closed centre hydraulic system. Before operating the sprayer consult the tractor Operator's Manual to determine the type of hydraulic system and its flow rate. Depending upon the type of tractor system it may be necessary to regulate the hydraulic oil flow to the sprayer motor by installing a metering orifice in the pressure port or by opening the by-pass screw. If the motor requires either of these changes it will be necessary to check the performance by test running the sprayer with water. Motor Flow Metering Orifice No orifice is fitted to the motor as shipped from the factory.

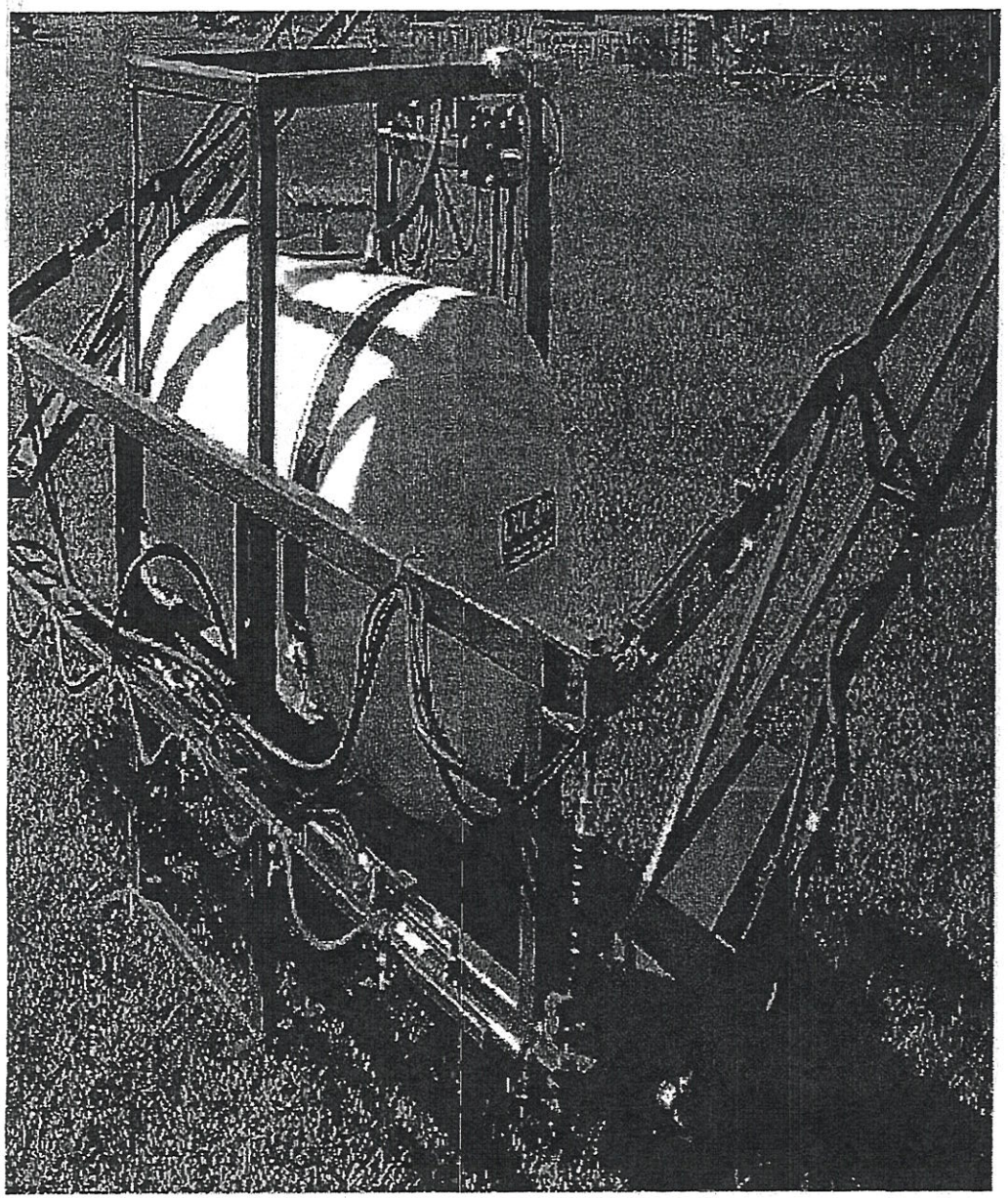
Open Centre Systems

In an open centre system the tractor delivers a constant oil flow at any given engine speed. If the pump delivers more oil than the sprayer motor can use a portion of the oil must be by-passed within the motor. The by-pass volume should be kept to a minimum to avoid unnecessary heat build up.
If the flow rate is up to 38 l/min (8.3 GPM) no orifice is required in the pressure port (motor as delivered). Systems with a higher flow rate should be run at reduced engine speed to limit the flow or alternatively they may need an orifice installed. To adjust the by-pass flow, open the screw 2 1 /2turns and tighten the lock nut. Run the tractor with hydraulic control in neutral for 10 to 15 minutes until the oil reaches operating temperature then engage the hydraulic control to start the sprayer.



PARTS LISTINGS:

STRAPPING 4"	79-2700-40	
STRAP ANCHOR	79-2702-40	
ANCHOR BOLTS	79-6982-40	
SUCTION STRAINER	79-1538-40	1" POLY
SUCTION CUTOFF VALVE	79-259-40	1" POLY
SUCTION HOSE	78-0138	1" CLEAR RIBBED
ROLLER PUMP 12 ROW	79-650-40	7560C (NON-ROUNDUP)
	79-655-40	7560-XL(FOR ROUNDUP)
ROLLER PUMP 16 ROW	79-610-40	1700C (NON-ROUNDUP)
	79-615-40	1700XL(FOR ROUNDUP)
540 PUMP ADAPTER	79-427-40	SP11-15/16
CONTROLS-MANUAL	79-327-40	17-L 8-WAY CONTROL
	79-603-40	8460 REGULATOR
	79-756-40	OIL FILLED GAUGE
CONTROLS-ELECTRIC	79-322-40	144A-1-VI SHUTOFF VALVES (3)
	79-603-40	8460 REGULATOR
	79-756-40	OIL FILLED GAUGE
TANK LID FOR 200 & 300	79-1210-40	10" SCREW IN STYLE
JET AGITATOR (NOT SHOWN)	79-135-23	3/4" SINGLE
SPRAYHOSE/PRESSURE 3/4"	78-0173	3/4" 200 PSI
3/4" HOSE CLAMPS	79-1091-40	WORM SCREW STYLE
LOWER HITCH PINS	06-046-36	UNIVERSAL STYLE



PARTS LISTING:

	200 GAL	300 GAL
RACK	85-5018-35	85-0050-35
TANK	79-1381-40	79-1398-40
CENTER SECTION	85-5019-35	85-5019-35
HINGE PLATE R.H.	85-0045-35	85-0045-35
HINGE PLATE L.H.	85-0044-35	85-0044-35
HINGE YOKE	85-2003-35	85-2003-35
HINGE SPRING	79-452-33	79-452-33
HINGE BOLT	84-024-35	84-024-35
FOLD CYLINDER	79-158-88	79-158-88
TILT CYLINDER (OPT)	79-158-88	79-158-88
CYLINDER PIN	79-051-36	79-051-36
CENTER PIPE	94-2045-35	94-2045-35
HYDRAULIC HOSE KIT	83-2004-35	83-2004-35

BOOM ARMS	12 ROW	16 ROW
RIGHT HAND	85-5021-35	85-2016-35
LEFT HAND	85-5020-35	85-2011-35

BOOM CLAMPS	79-1148-40	
TEE'S 1/2"	79-274-22	(NO DIAPHRAGM)
ELL'S 1/2"	79-273-22	(" " " ")
CAPS	79-362-40	(YELLOW FLAT FAN)
WASHERS	77-022-21	
STRAINER	79-325-22	(50 MESH RED POLY)
TIP	79-463-40	(8003-B) BRASS
HOSE	78-0168	1/2" 200PSI
HOSE CLAMPS	79-1089-40	NARROW 1/2"

--- GALLON MEDIUM DUTY SPRAYER --- OR --- ROW

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CALL (800-673-6369) FOR WARRANTY

REQUEST NUMBER

1. The Purpose of Warranty

Warranty assures the purchaser that should a defect in material or workmanship occur during the warranty period, Cross application equipment co. llc (Cross) will assume specific repair responsibilities, as listed in the warranty statement. The warranty statement is to be provided to each purchaser of each piece of new equipment. Warranty begins on the date the product is delivered to the original purchaser of the product. Once the warranty period has begun, it cannot be stopped or interrupted.

2. Dealer Responsibilities

The following responsibilities are to be performed when the dealer delivers a product to the purchaser or otherwise places it into warranty service:

1. Complete the Warranty Registration Form and forward to (Cross) within 30 days of the sale of the product. Warranty reimbursement is contingent upon product registration.

2. Review warranty statement, operator's manual and complete delivery report with purchaser to assure understanding of purchaser's responsibilities as related to warranty, service and the proper and safe operation of the product. Purchasers should be advised to have failed parts repaired or replaced immediately upon failure and that continued use will result in additional damage and excessive wear.

3. Contact manufacturer prior to beginning repair or replacement of failed parts to make certain that the cost of repairs are consistent with the value of the product when sold. Warranty requests for units in dealer's inventory may be submitted to (Cross) when defects are noted in products prior to the retail sale of that unit.

4. Provide warranty and service repairs as directed by (Cross) Service Repair Bulletins

5. All warranty work must be completed within 30 days of failure. Notify (Cross) Warranty Department if repairs will require more than 30 days after failure for an extension. No claim will be accepted for warranties that exceed this 30 day period

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7 If diagnostic time is required, contact (Company) prior to beginning the warranty repair

7a. Travel time reimbursement must be approved by (Company) prior to repair

3. (Cross Application equipment co. llc.) Responsibilities

1. Reimbursement for parts used in warranty repair will be credited only when the parts are purchased from (Cross). Parts will be credited at dealer's net cost,. No warranty will be allowed on parts that are past due.

2. Dealer should use parts from their parts inventory first. In the event that parts must be shipped from (Cross), freight will be paid by (Cross) (Dealer) and will be shipped by the most economical means to arrive in the shortest possible time. Air, Next Day Air, Priority and other special shipment methods requested by the dealer will be at customer's expense.

3. Warranty Labor Reimbursement for labor expense to the dealer is made by payment of the (retail labor rate) (up to $50.00 per shop hour), or as regulated by state statutes. Repair times will be reviewed by (Cross) and may be adjusted to average repair time required by other dealers to make similar repairs. Labor is not paid on the warranty associated with repair parts purchased by the retail customer that are used on a product that is not currently in warranty time frame.

4. Reimbursements for repairs made by outside sources (not dealer personnel) will be made for those services deemed necessary for the resolution of the warranty by (Cross) Warranty Department. Outside repair invoices must have prior approval from Cross Service Department and must be attached to the warranty claim after approval.

4. Other Warranty Provisions

The following guidelines are to be followed when performing warranty repairs:

1. In all cases, the most economical repair should be performed unless otherwise directed. Credit will not be allowed for assemblies, or groups, if it is practical to make the repair with individual parts. In some cases, the assembly, or group price may be less than the total of the parts and labor required to complete the repair. In those cases, an assembly, or group, may be used.

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2. Only those parts provided by (Cross) are covered under Warranty. The use of parts from other sources will not be eligible for warranty consideration.

3. All parts removed during warranty repair should be held for a period of 60 days after the warranty claim has been submitted to (Cross). These parts can be discarded if disposition or return request hasn't been made during this period. Parts that are returned to (Cross) for which credit has not been issued can be returned upon dealer request within 30 days of claim disposition. These parts will be discarded after the 30 day period.

4. (Cross) reserves the right to deny or reverse any and all warranty claims for parts, labor, or miscellaneous charges when errors are found or warranty provisions are abused or fraudulent claims are submitted.

5. Warranty reimbursement is not possible:

a. If parts returned are not cleaned and properly identified, or if they are damaged in return shipment due to poor packaging.

b. When failure falls under the "limitations" as identified in the Warranty Statement.

c. When (Cross) has requested the return of certain parts, assemblies or information and has not received material within 30 days of date posted on return request.

d. On claims due to damage or shortage that are obviously the responsibility of dealer or the delivering carrier.

e. On the entire claim when warranty policy and provisions are not followed.

All dealers will warranty their technician's work to the purchaser and will indemnify (Company) from such claims.

6. Procedures For Completion Of Warranty Form

1. Dealer number, name and address - *record number, name and address of dealership who has performed warranty repairs and requests reimbursement.*

2. Customer name and address and telephone number - *record name, address and telephone number of original purchaser of the warranted product.*

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3. Purchase Date - *date when product was delivered to customer.*

4. Serial Number - *record the serial number of the machine on which repairs were performed.*

5. Failure Date - *record date when failure occurred.*

6. Model - *record model name or number.*

7. Hours/Acres used - *record number of acres or hours the product was used prior to failure.*

8. Dealer Signature - *Signature of dealer, or dealer's representative, verifying repairs are complete.*

9. Parts Required - *record all service parts used to make necessary repairs. Include quantity, part number, description and list price.*

10. Labor Hours - *record time taken to perform repairs. (Repair time ONLY - Travel time is not allowed)*

11. Labor Rate - *record your normal retail shop rate or the rate specified in Warranty Policy, whichever is less.*

12. Total Labor Amount - *multiply hours X rate to get total labor expense.*

13. Total Parts - *total list price of parts used.*

14. Dealer Comments - *please record a brief description of failure and probable cause.*

7. Use of Photos

Pictures should be attached to the dealer's claim when their inclusion will help identify the condition of the part being repaired or replaced, and thus assisting in approval of the claim. In may cases, the use of photos may eliminate the need to return parts for evaluation. Photos will not be returned unless specifically requested.

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8. Delayed Warranty Repairs

Warranty repairs should be scheduled and performed as soon as possible after notification of dealer and (Cross). There may be circumstances that require the use of the product for a short period of time by the retail customer or the availability of repair parts necessary to complete the repairs will require the work to extend past the 30 day period. In those cases, the dealer must notify (Cross) in writing of the extenuating circumstance and advise that the continued use of the product will not enlarge the warranty claim. These claims will then be processed as if the product is still within the warranty period.

9. Denied Claims

Dealers will be notified of a denied claim in writing that will state the reason for the denial. The dealer has the right to appeal this claim and must do so within 30 days of notification of denial. If there has been no appeal within the 30 days period the claim will be considered closed.

Limited Warranty Statement

(Cross) warrants each new (Cross) product to be free from defects in material and workmanship. This warranty is applicable only for the normal service life expectancy of the product or components, not to exceed ____12_____ consecutive months from the date of delivery of the new (Cross) product to the original purchaser.

Genuine (Cross) replacement parts and components will be warranted for __360___ days from date of purchase, or the remainder of the original equipment warranty period, whichever is longer.

Under no circumstances will it cover any merchandise or components thereof, which, in the opinion of the company, has been subjected to misuse, unauthorized modifications, alteration, an accident or if repairs have been made with parts other than those obtainable through (Cross).

The Company in no way warrants engines, batteries, tires or other trade accessories since these items are warranted separately by their respective manufacturer.

Our obligation under this warranty shall be limited to repairing or replacing, free of charge to the original purchaser, any part that, in our judgment, shall show evidence of such defect, provided further that such part shall be returned within thirty (30) days from date of failure to (Company), routed through the dealer and distributor from whom the purchase was made, transportation charges prepaid.

This warranty shall not be interpreted to render (Cross) liable for injury or damages of any kind or nature to person or property. This warranty does not extend to the loss of crops, loss because of delay in harvesting, or any expense or loss incurred for labor, substitute machinery, rental or for any other reason.

CROSS
APPLICATION EQUIPMENT CO.,LLC
dba - LMC - ALBANY
1715 S. Slappey blvd.
Albany Georgia 31701
PH# 1-800-673-6369
FAX# 1-229-446-8333

Except as set forth above, (Cross) shall have no obligation or liability of any kind on account of any of its equipment and shall not be liable for special or consequential damages. (Cross) makes no other warranty, expressed or implied, and, specifically, (Cross) disclaims any implied warranty or merchantability or fitness for a particular purpose. Some states or provinces do not permit limitations or exclusions of implied warranties or incidental or consequential damages, so the limitations or exclusion in this warranty may not apply.

This warranty is subject to any existing conditions of supply which may directly affect our ability to obtain materials or manufacture replacement parts.

(Cross) reserves the right to make improvements in design or changes in specifications at any time, without incurring any obligation to owners of units previously sold.

No one is authorized to alter, modify or enlarge this warranty nor the exclusion, limitations and reservations.

Important points of contact:

Outside sales : Michael Gassett

Sales : Johnny Driskell

Sales : Allen Brackin

Sales/warranty: Jon Free

Shop manager: Clint Grace

Cross Application Equipment Co. llc.
p.o. drawer 3608
1715 south slappey blvd.
Albany Ga. 31701-3608
Ph# 1-229-639-1775
Toll free# 1-800-673-6369
Fax# 1-229-446-8333

Cross Application equipment co. llc. (WARRANTY FORM)

DATE _____

LMC-ALBANY PH# 1-800-673-6369 FAX# 1-229-446-8333

WARRANTY CONSIDERATIONS APPLIED FOR BY CUSTOMER

WRN# _____

CUSTOMER

PHONE#
CONTACT:

PROBLEM:

PART# _____

SERIAL# _____

INVOICE # _____

NOTE: ALL TIME SHEETS MUST BE ATTACHED FOR LABOR
ALL INVOICES MUST BE ATTACHED FOR PARTS
ALL MISC AND OTHER MUST BE DESCRIBED AND
ASSOCIATED PAPERWORK ATTCHED

LABOR RATE NOT TO EXCEED $50.00 PER HOUR

REQUESTED WARRANTY

LABOR HRS	LABOR RATE	TOTAL LABOR	PARTS	MISC	OTHER

TOTAL REQUESTED

DESCRIBE MISC
DESCRIBE OTHER

ADJUSTED WARRANTY

LABOR HRS	LABOR RATE	TOTAL LABOR	PARTS	MISC	OTHER

TOTAL ADJUSTED

CUSTOMER CONTACT
SALESMAN

WARRANTY REQUEST ACCEPTED _____ DENIED _____

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RETURN GOODS AND CREDITS POLICY
EFFECTIVE 10-12-05

RETURNS: CROSS APPLICATION EQUIPMENT CO. LLC.(CROSS)**WILL NOT** ACCEPT ANY RETURNS WITHOUT A RETURN GOODS AUTHORIZATION NUMBER (RGA). THESE NUMBER'S MAY BE OBTAINED BY CALLING OUR OFFICE AT 1-800-673-6369.

THE FOLLOWING CONDITIONS WILL APPLY:

1. THE ITEM MUST HAVE A (RGA) NUMBER
2. THE ITEM MUST HAVE BEEN PURCHASED FROM (CROSS) WITHIN THE PREVIOUS 12 MONTH'S.
3. THE ITEM MUST BE NEW AND UN-USED
4. THE ITEMS **MUST BE** ACCOMPANIED WITH AN **INVOICE.**
5. NO SPECIAL ORDER ITEMS ARE RETURNABLE
6. NO HOSE, SEAL KITS OR RUBBER PRODUCTS ARE RETURNABLE
7. ANY ITEMS OVER ONE YEAR OLD ARE NOT RETURNABLE
8. NO ONE EXCEPT AN INSIDE (CROSS) REPRESENTITIVE CAN ISSUE A (RGA) NUMBER OR ACCEPT ANY RETURN PART FOR CREDIT.
9. WARRANTY WILL BE CONSIDERED A SEPARATE ISSUE THAN A RETURN, AND MUST BE HANDLED AS SUCH.
10. RETURNS UNLESS ITEMS WERE SHIPPED WRONG ARE SUBJECT TO A RESTOCK CHARGE OF UP TO 25%
11. NO FREIGHT WILL BE CREDITED ON RETURNS
12. CROSS APPLICATION EQUIPMENT CO. LLC. DOES NOT ACCEPT ANY RESPONSIBILITY FOR ITEMS RETURNED WITHOUT A PROPER (RGA) NUMBER.

CREDITS: CROSS APPLICATION EQUIPMENT CO. LLC.(CROSS)**WILL NOT** PROCESS ANY CREDITS WITHOUT AN INVOICE FOR THE ITEM IN QUESTION.

ITEMS COVERED UNDER CREDITS:

MIS-SHIPMENTS : (CROSS) WILL SEND THE CORRECT ITEMS TO THE CUSTOMER WITH NO CHARGE ON FREIGHT IF DETERMINED (CROSS) FAULT.

DAMAGED GOODS : (CROSS) WILL SEND THE REPLACEMENT ITEM TO THE CUSTOMER ON CHARGE ACCOUNT UNTIL ITEMS HAS BEEN RETURNED AND DETERMINED DAMAGED.

DEFECTIVE GOODS : SEE DAMAGED GOODS

SHIPMENT SHORTAGE : IF (CROSS) DETERMINE'S ITEMS SHORTAGE, IT WILL BE FILLED AT NO CHARGE FOR PART AND FREIGHT.

PRICE DISCREPANCIES : WILL BE HANDLED ON A AS NEEDED BASIS.

*** ALL CREDITS WILL BE APPLIED TO CUSTOMER'S ACCOUNT**

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SPRAYING HELPFUL HINTS:

Formulas and Conversion Factors

Useful Formulas

$$\text{GPM (Per Nozzle)} = \frac{\text{GPA} \times \text{MPH} \times \text{W}}{5{,}940}$$

$$\text{GPM (Per Nozzle)} = \frac{\text{GAL/1000FT}^2 \times \text{MPH} \times \text{W}}{136}$$

$$\text{GPA} = \frac{5{,}940 \times \text{GPM (Per Nozzle)}}{\text{MPH} \times \text{W}}$$

$$\text{GAL/1000FT}^2 = \frac{136 \times \text{GPM (Per Nozzle)}}{\text{MPH} \times \text{W}}$$

GPM — Gallons Per Minute

GPA — Gallons Per Acre

GAL/1000FT² — Gallons Per 1000 Square Feet

MPH — Miles Per Hour

W — Nozzle spacing (in inches) for broadcast spraying

— Spray width (in inches) for single nozzle, band spraying or boomless spraying

— Row spacing (in inches) divided by the number of nozzles per row for directed spraying

Spraying Solutions Other Than Water -- New Method

Since most of the tabulations in manufacturers' catalogs are based on spraying water, which weighs 8.34 lbs. per USA gallon, conversion factors must be used when spraying solutions which are heavier or lighter than water. To determine the proper size nozzle for the solution to be sprayed, first multiply the desired GPM or GPA of solution by the water rate conversion factor. Then use the new converted GPM or GPA rate to select the proper size nozzle.

Example: Desired application rate is 20 GPA of 28%N. Determine the correct nozzle size as follows:

GPA (solution) x Conversion factor = GPA (from table)

20 GPA (28%) x 1.13 = 22.6 GPA (water)

The applicator should choose a nozzle size that will supply 22.6 GPA of water at the desired pressure

Weight of Solution	Specific Gravity	Conversion Factor
7.0 lbs. per gallon	0.84	0.92
8.0 lbs. per gallon	0.96	0.98
8.34 lbs per gallon - WATER	1.00	1.00
9.0 lbs. per gallon	1.08	1.04
10.0 lbs. per gallon	1.20	1.10
10.65 lbs. per gallon - 28% nitrogen	1.28	1.13
11.0 lbs per gallon	1.32	1.15
12.0 lbs. per gallon	1.44	1.20
14.0 lbs. per gallon	1.68	1.30

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Measuring Travel Speed

Measure a test course in the area to be sprayed or in an area with similar surface conditions. Minimum lengths of 100 and 200 feet are recommended for measuring speeds up to 5 and 10 mph, respectively. Determine the time required to travel the test course. To help insure accuracy, conduct the speed check with a partially loaded (about half full) sprayer and select the engine throttle setting and gear that will be used when spraying. Repeat the above process and average the times that were measured. Use the following equation or the table below to determine ground speed.

Speed (MPH) = Distance (ft) x 60/Time (seconds) x 88

Speeds

Speed in MPH	Time Required in SECONDS to Travel a Distance of:		
	100 Feet	200 Feet	300 Feet
0.5	136	273	409
1.0	68	136	205
1.5	45	91	136
2.0	34	68	102
2.5	27	55	82
3.0	23	45	68
3.5	19	39	58
4.0	17	34	51
4.5	15	30	45
5.0	14	27	41
5.5	—	25	37
6.0	—	23	34
6.5	—	21	31
7.0	—	19	29
7.5	—	18	27
8.0	—	17	26
8.5	—	16	24
9.0	—	15	23

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Nozzle Spacing

Nozzle Spacing If the nozzle spacing on your boom is different than those tabulated, multiply the tabulated GPA coverages by one of the following factors.

Other Spacing (inches)	Conversion Factor
8	2.5
10	2
12	1.67
14	1.43
16	1.25
18	1.11
22	.91
24	.83
30	.66

Other Spacing (inches)	Conversion Factor
26	1.15
28	1.07
30	.99
32	.93
34	.88
36	.83
38	.79
40	.75
42	.71
44	.68

Other Spacing (inches)	Conversion Factor
28	1.43
30	1.33
32	1.25
34	1.18
36	1.11
38	1.05
42	.95
44	.91
46	.85

		(inches)		
		20"	30"	40"
TeeJet® Standard, TJ	65°	22-24"	33-35"	NR*
TeeJet, XR, TX, DG, TJ	80°	17-19"	26-28"	NR*
TeeJet, XR, DG, TT, TJ, AI	110°	16-18"	20-22"	NR*
FullJet®	120°	10-18"**	14-18"**	14-18"**
FloodJet® TK, TF	120°	14-16"***	15-17"***	18-20"***

* Not recommended.

** Nozzle height based on 30° to 45° angle of orientation (see page 60 of catalog).

*** Wide angle spray tip height is influenced by nozzle orientation. The critical factor is to achieve a double spray pattern overlap for TK FloodJet® nozzles.

Suggested Minimum Spray Heights

The nozzle height suggestions in the table below are based on the minimum overlap required to obtain uniform distribution. However, in many cases, typical height adjustments are based on a 1 to 1 nozzle spacing to height ratio. For example, 110° flat spray tips spaced 20 inches apart, are commonly set 20 inches above the target.

Conversion Factor = Nozzle Spacing in table (inches)/Your Nozzle Spacing (inches)

To calculate a conversion factor for spacings not listed in tables below, use the following formula: