

# CROPCARE<sup>TM</sup>

Equipment Built For You

## 5 GALLON FOAM MARKER SYSTEM

Model F1500

Owner's Manual



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A Paul B Zimmerman Inc. Company

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PaulB LLC thanks you for choosing to purchase our model F1500 CropCare™ foam marker system. We appreciate your business and want to personally fill all of your equipment and sprayer needs. We also desire to provide you with the technical support and needed parts that will allow you to continue using your foamer without disruption. See the Contact Us section on page 15.

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## Before You Begin

- ◆ **Please read and understand this manual and its instructions and warnings completely before operating the foam marker.**
- ◆ **Be aware of all safety guidelines, warnings, and cautions including those of the sprayer, no-till drill, or any other piece of equipment that the foam marker may be mounted on.**
- ◆ **Read and understand the warnings and instructions of the foam concentrate that you are using. Always use an approved foam concentrate.**
- ◆ **Ensure that you have a power source that meets the requirements of 12 volt DC and 15 amps.**

# ! Safety Precautions !

Every year many unnecessary accidents occur due to improper equipment handling and a disregard for safety precautions. You, the operator, can avoid accidents by observing the precautions in this section.

- ◆ The operator should be a responsible adult. **Do not allow persons to operate this foam marker until they have displayed a thorough understanding of foam marker safety precautions and operational use!**
- ◆ Never attempt to operate this foam marker when under the influence of alcohol or drugs.
- ◆ **Always use an approved foam concentrate.** Do not use on any occasion dish soap, hand soap, or any other cleaning product. Use of unapproved foaming solutions could result in lowered performance or machine damage. **To order an approved foam concentrate, see the Accessories page on page 14.**
- ◆ **Do Not** eliminate the fuse on the wiring harness under any circumstances. Removal of the fuse could result in damage to the machine.
- ◆ **Always disconnect the power before performing maintenance or repairs** on the foam marker. Failure to adhere to this warning could result in injury.
- ◆ When performing maintenance on the foam marker, pay close attention to any moving parts. Be especially aware of the metal fan blade on the compressor.
- ◆ **Do Not** touch the surface of the compressor since it may cause burns during and after operation. See the warning label on the compressor.
- ◆ Be aware of the location of the owner's manual warning decal on the foam marker's frame. Always replace any warning decals that aren't legible or are missing. See Figure 1 on page 2.
- ◆ **Do Not** attempt to adjust the foam discharge rate. This rate is preset and should never need to be adjusted. Any such adjustment will void the manufacturer's warranty.
- ◆ If there is any portion of this manual that you do not fully understand, please contact PaulB LLC.



Figure 1: Owner's Manual Decal(# DE39)

# Mounting the Foam Marker

It is important to follow these mounting instructions to insure that your CropCare foam marker system operates at its fullest potential. Please note that these instructions are only general instructions for proper mounting and may not be relevant to all applications. In certain applications, you may need be creative in order to achieve the best mounting technique. If you are having trouble mounting your foamer, do not hesitate to call one of our trained sprayer technicians (see the Contact Us section on page 15).

## Foamer Unit

1. Begin by choosing a convenient location that is easily accessible for mounting and filling the solution tank. The foam marker should be mounted where it will receive a minimal amount of dust or dirt. The mounting location must be able to support the weight of the foam marker unit with a full solution tank.
2. Secure the foamer unit by attaching the foam marker frame to your equipment with bolts. Six pre-drilled holes are located inside the foam marker frame on the bottom. It is recommended to use 3/8" bolts to provide optimal stability.

## Wiring Harness

The wiring setup is quite simple when broken up into steps. Refer to the wiring schematic on page 13 for a visual representation of the wiring setup.

1. The wiring harness (brown, yellow, green) coming from the foamer unit has a 3-pronged plug. Route this foamer wiring harness under the foamer cover. This wiring harness needs to be plugged into the second wiring harness which attaches to the power source and the control box.

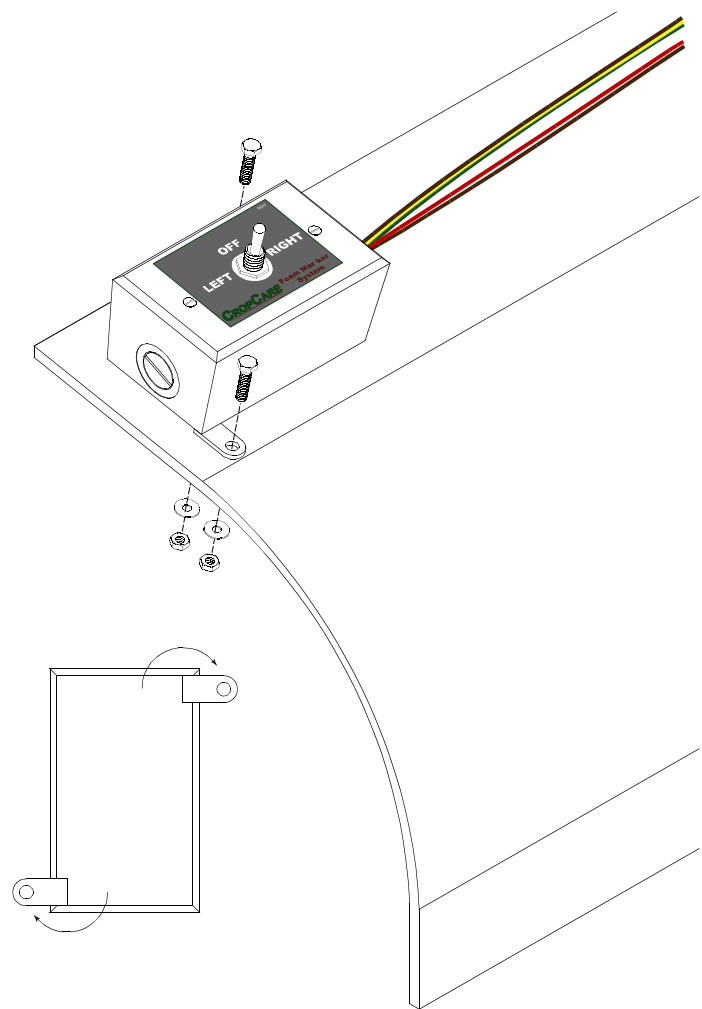


Figure 2: Control box mounting

2. The power wiring harness(brown & red) needs to be connected to a 12 volt DC power source. Connect the red wire to a positive power source either at the tractor's battery terminal or at a power access point with at least 15 amp capability. The brown wire needs to be connected to a good ground source or to the negative terminal of the battery.
3. Ensure that the power source is adequate, since an inadequate power source could cause numerous problems with the foamer unit. If you are using a power access point, ensure that it has at least 15 amp capability.
4. You now need to mount the control box in a location where it is easily accessible for operation. There are two metal tabs with pre-drilled holes on the back of the control box that can be turned out for mounting. It is recommended to mount the control box using bolts through these metal tabs. See Figure 2 on page 3.

## Discharge Tubes

1. The discharge tubes dispense the foam and should be mounted in the desired foaming position. Generally, they are mounted at the end of a sprayer boom or at the ends of a no-till drill.
2. The discharge tubes should be mounted using the 1/2" bolt on the top of the stainless steel elbow.
  1. **If you are mounting the tubes on a sprayer**, a standard nozzle body clamp can be used. Simply mount the clamp on the sprayer's boom and insert the 1/2" bolt through the hole where the nozzle body would normally go with a flat washer on either side of the clamp. See Figure 3 on page 4. See the Accessories section on page 14 for ordering boom clamps.
  2. **On other applications** it is also feasible to simply drill a hole through the equipment frame and thread the 1/2" bolt into the top of the discharge tube.
3. Ensure that the discharge tube does not interfere with the operation of the equipment it is mounted on. For example, make sure that the discharge tubes do not interfere with the spray pattern if you are mounting the foam marker on a sprayer.

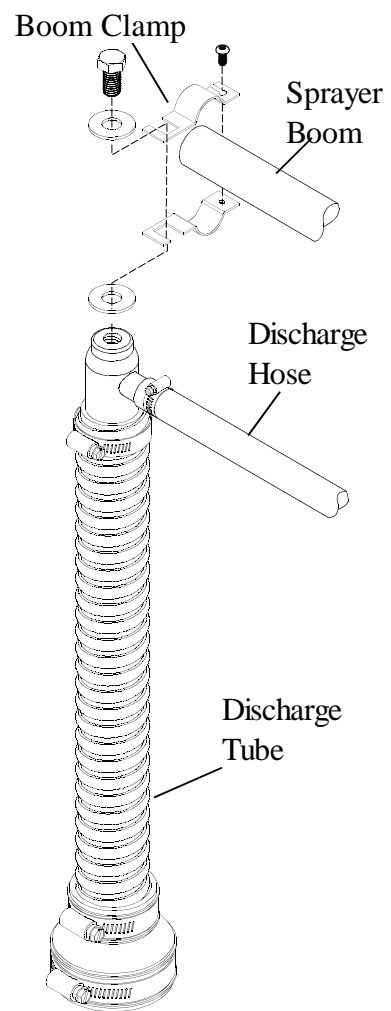


Figure 3:  
Discharge tube mounting

## Discharge Hose

1. One 80 foot length of 5/8" discharge hose is included and may be cut as needed. Begin by attaching the discharge hose to the hose bars on the solenoid valve on the foamer unit. It is important that you determine which hose barb is for the left and for the right side. See Figure 4 on page 5. Clamp the hose onto the hose bars with the included hose clamps.

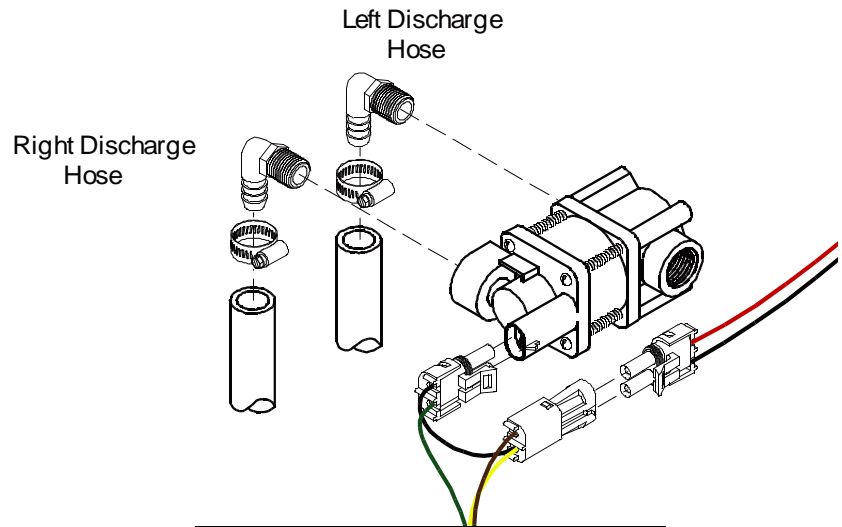


Figure 4: Discharge hose mounting

2. Route the discharge hoses to the discharge tubes. If you are attaching the discharge hose to a sprayer boom, pay close attention to the positioning of the discharge hose. The hose should be positioned in a manner such that it won't be kinked or pinched when the boom is in the folded or unfolded position. Remember to also account for boom height adjustment or other movements that the hose will be subject to.
3. With the discharge hoses in the correct position, fasten them with the the included cable ties.

## Operating Instructions

Before operating the foam marker, it is important that you read this entire manual and know all safety precautions. Before operation it is also recommended that you do a thorough inspection of the foam marker. Prior to use, ensure that all hoses are attached and undamaged and that the wiring harnesses are properly plugged together and connected to an adequate power source.

1. Fill the foam solution tank with the proper mixture of water and an approved foam concentrate, according to the foam concentrate's manufacturer. **For optimal performance use CropCare™ Premium Foam Concentrate. See the Accessories section on page 14 for more information on this premium Foam Concentrate.**
2. Do not use dish soap, hand soap, or any other unapproved cleaning solution. Please note: The five-gallon capacity tank has an average foaming time of two to three hours.

3. Flip the control switch on the control box to the left or the right to turn on the foaming unit. Please note that only one discharge tube can dispense foam at a time.
4. Allow approximately one minute for the foam to reach the discharge tube. Do not attempt to adjust the foam discharge rate. This rate is preset and should never need to be adjusted.
5. To turn off the foamer, simply flip the control switch to the center-off position.

**Note:** If you are operating the foamer in temperatures below 32 degrees, it is recommended that you add 20% RV non-toxic antifreeze to the foaming solution. This will guard against freezing and breakdowns.

## Maintenance Instructions

It is very important to perform maintenance on your foam marker before and after each use and at the end of each season of use. Proper maintenance practices will help to guard against any breakdowns and allow for maximum performance.

### Routine Maintenance

It is highly recommended that you perform routine maintenance on your foam marker before and after each use. Regular maintenance practices should include a thorough inspection. Ensure that all hoses are attached and undamaged and that the wiring harnesses are properly plugged together and connected to an adequate power source. The following are important components of the foam marker and their respective maintenance requirements.

1. **Liquid Strainer(ref# 7):** The liquid strainer is located in the foam solution tank on the end of the suction hose. It should be rinsed after each use or on a daily basis.
2. **Orifice Disk(ref# 8):** The orifice disk is located behind the strainer on the end of the suction hose. Inspect the orifice disk occasionally to ensure that there are no debris or dirt plugging the disk's circular hole. **WARNING: DO NOT operate the foamer without this orifice disk. Such incomplete operation will result in damage to the compressor and will void the warranty.**
3. **Compressor Motor Bearings:** The motor bearings are permanently lubricated ball bearings and do not require additional oil.
4. **Solenoid Valve(ref# 26):** No maintenance required.



## Winterizing your Foam Marker

It is essential that you winterize your foam marker to avoid damage and to allow for optimal performance. The winterization process should be undertaken before freezing conditions and/or after each season of use. Failure to winterize your foam marker will void the manufacturer's warranty.

1. Verify that the solution tank is empty and rinsed out. Add ½ gallon of RV Nontoxic Antifreeze to the empty solution tank. **It is not recommended to use standard Antifreeze. Standard Antifreeze can be harmful to humans, animals, crops, and the environment.**
2. Engage the foamer marker until both the left and right side of the system are flushed.
3. Store the foam marker or the equipment that it is mounted on in a dry location away from the elements.

## Trouble Shooting

During your many years of using the foam marker, it is possible that you will encounter minor problems that can be easily fixed. The following problems and respective causes and solutions should cover most of the potential problems that you may face. If you encounter problems, please attempt to use this troubleshooting section to solve the problem. If you are unable to fix the problem, please contact our trained sprayer technicians for technical advice at no charge or to have one of our technicians repair your foam marker. See the Contact Us section on page 15 for ordering parts and contact information.

### Common Troubleshooting

<i>Problems/Symptoms</i>	<i>Possible Causes</i>	<i>Solutions</i>
<b>Motor Won't Run</b>	Loose wire connections	Inspect wires and connections.
	Blown fuse	Replace fuse on wiring harness (ref# 41).
	Malfunctioning switch	See PaulB LLC for repair.

### Common Troubleshooting Cont.

<i>Problems/Symptoms</i>	<i>Possible Causes</i>	<i>Solutions</i>
<b>No Foam Output</b>	Broken or bent leaf valve inside the compressor	Replace leaf valve(ref# 6). See compressor breakdown on page 12.
	Discharge hose is pinched or kinked	Locate problem area and fix or replace the hose.
	Plugged orifice disk on the end of the suction hose	Clean or replace the orifice disk (ref# 8).
<b>Foam On Only One Side</b>	Low voltage to solenoid valve	Switch to an adequate power source.
	Faulty wiring or switch	Replace wiring and/or switch.
	Solenoid valve burned out	Replace the solenoid valve (ref# 26).
<b>Low Foam Rate</b>	Partially plugged orifice disk on the end of suction hose	Rinse the orifice disk or replace it (ref# 8).
	Incorrect mixture of foam concentrate.	Use an approved foam concentrate and follow manufacturer's mixing instructions.
	Water being used is hard	Use softened or rain water.
<b>Discharge Tube Leaks</b>	Bolt on the top of discharge tube is no longer sealed	Wrap Teflon tape around the bolt threads and replace the bolt.

# **PaulB LLC Limited Warranty**

## **Foam Marker: Model F1500**

### **Warranty Coverage**

PaulB LLC hereby provides a **Limited One (1) Year Warranty** on the foam marker system, model F1500, manufactured by PaulB LLC from the date of original purchase. Foam markers built by PaulB LLC are warranted against any manufacturer's defects that may occur to any of the foam marker's components in the 12 months following the original date of purchase. This warranty covers the purchaser of this foam marker and any other owners who own it during the one year warranty period. To retain the warranty, the foam marker must be operated and maintained as ascribed by its owner's manual.

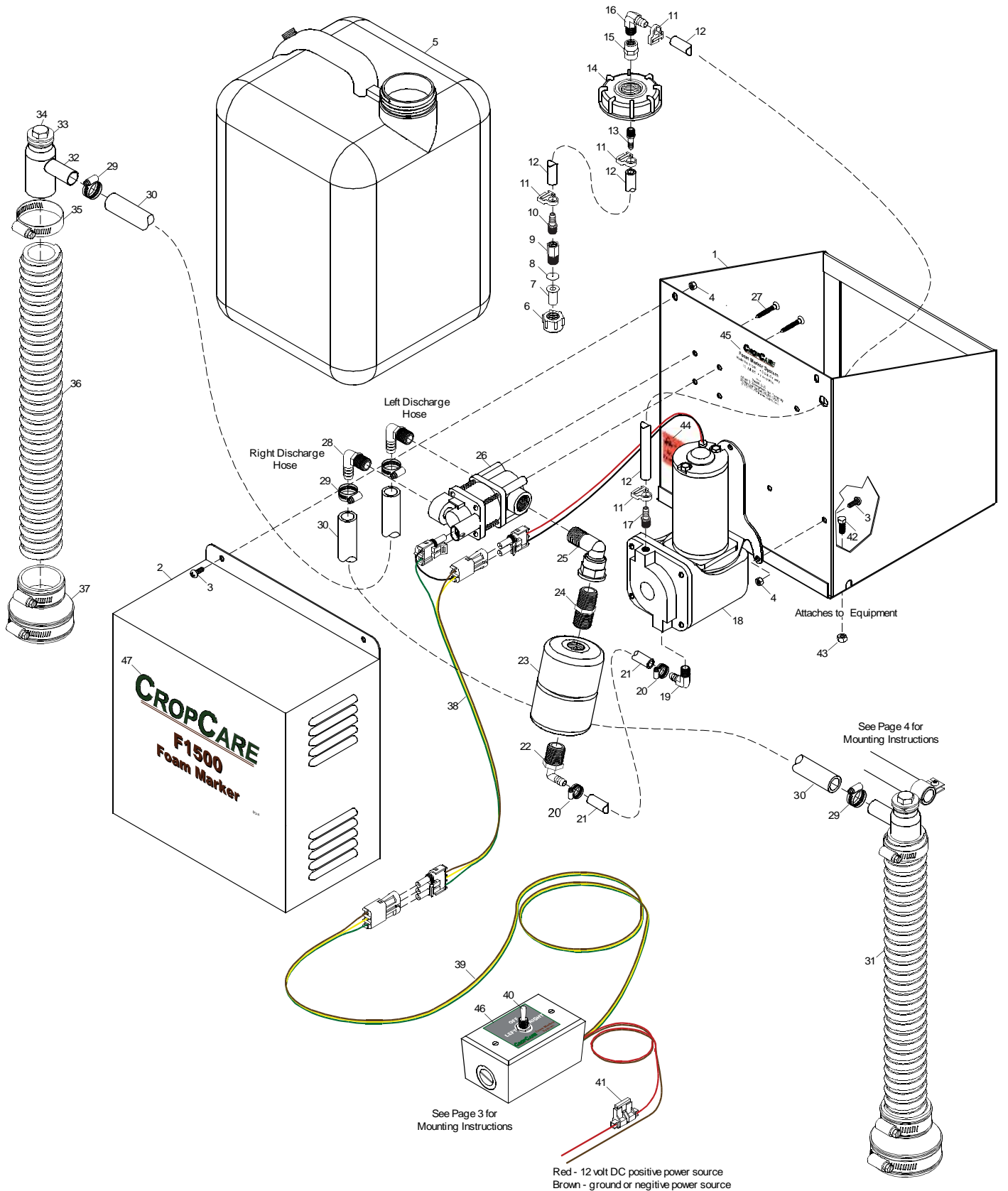
### **Warranty is void if:**

1. The foam marker has been subjected to, in the opinion of PaulB LLC, negligent handling, misuse, an accident or if instructions in the owner's manual were not followed.
2. The foam marker's components have been altered in any manner or repairs have taken place with unapproved parts. Alterations include adjusting the foam rate by any means.
3. The foam marker and its components were subject to freezing or were allowed to get wet repeatedly.
4. A non-approved foam concentrate was used such as dish soap, hand soap, or any other unapproved cleaning solution.
5. The foam marker was powered by a power source other than a 12 volt, 15 amp DC power source.

### **Getting Service**

All foam marker warranty claims must be made through PaulB LLC. All warranty claims must be submitted with an invoice or a proof of purchase that denotes the purchase date and place of purchase. If you have any questions or comments concerning this warranty, please contact PaulB LLC.

# Foam Marker Breakdown



## Foam Marker Parts List

<i>Ref #</i>	<i>Qty.</i>	<i>Part Number</i>	<i>Description</i>
1	1	F1501	Main foam marker frame
2	1	F1502	Foam marker frame cover
3	5	MR1024*12S	Machine screw, 10-24 x 1/2", stainless steel
4	5	NNC1024S	Nylon lock nut, 10-24, stainless steel
5	1	F1503	Foam solution tank, 5 gallon, white <b>(includes ref# 14)</b>
6	1	38027	Poly nozzle cap, female nozzle body thread
7	1	8079PP100	Poly liquid strainer, 100 mesh, stainless steel, green
8	1	CP491645	Orifice plate, stainless steel
9	1	CP12094NYB	Nylon adapter, 1/4" fpt x male nozzle body thread
10	1	A1414BR	Brass adapter, 1/4" mpt x 1/4" barb
11	4	9579K64	Nylon hose clamp 3/8" - 15/32"
12	3'	1954	Vinyl tubing, 1/4" x 3/8", 55 psi
13	1	F1506	Adapter w/ breather hole, 1/8" mpt x 1/4" barb, brass
14	1	F1505*	Foamer tank lid, 63 mm
15	1	C18BR	Coupling, 1/8 fpt, brass
16	1	EL1814BR	Adapter elbow, 1/8" mpt x 1/4" barb, brass
17	1	A1814BR	Adapter, 1/8" mpt x 1/4" barb
18	1	22D1180-206-1002**	Gast <sup>®</sup> compressor, 12 volt
19	1	EL1838BR	Adapter elbow, 1/8" mpt x 3/8" barb, brass
20	2	62602	Hose clamp, 15/32" - 9/16", stainless steel
21	6"	6106	Reinforced vinyl tubing, 3/8", 300 psi
22	1	3EL1238*	Poly adapter elbow, 1/2" mpt x 3/8" barb
23	1	F1504	Foam mixing chamber <b>(includes ref# 22, 24)</b>
24	1	3M12*	Poly pipe nipple, 1/2" mpt x 1/2" mpt
25	1	3SE12	Poly street elbow, 1/2" mpt x 1/2" fpt
26	1	2504B**	Solenoid valve, 3 way, 12 volt, 1/2" fpt
27	4	PT8*12S	Tapping screw, #8 x 1/2", stainless steel
28	2	3EL1258	Poly adapter elbow, 1/2" mpt x 5/8" barb
29	4	6810	Hose clamp, 1/2"- 1 1/8", stainless steel
30	80'	1959	Vinyl tubing, 5/8" x 7/8", 40 psi
31	2	F510	Complete discharge tube assembly <b>(includes ref# 32-37)</b>
32	1	F503*	Discharge tube elbow, 5/8" x 1 1/4", stainless <b>(includes ref# 33,34)</b>
33	2	FW12S*	Flat washer, 1/2", stainless steel
34	1	H12*34S*	Cap screw, 1/2" x 3/4", stainless steel
35	1	6820*	Hose clamp, 3/4"- 1 3/4", stainless steel
36	1.30'	3511*	Enforcer suction hose, 1 1/4", 100 psi
37	1	F505***	Complete foamer boot, 2" OD
38	1	F1509	Complete wiring harness (connected to compressor)
39	1	F1507	Complete wiring harness w/ control box <b>(includes ref# 40, 41)</b>
40	1	DC7300131*	Toggle switch, on-off-on
41	1	ATC-20*	Buss fuse, 20 amp
42	4	H5C38*size	3/8" cap screw—length will vary <b>(not included)</b>
43	4	NNC38	Nylon lock nut <b>(not included)</b>

\* Part is included in a complete assembly.

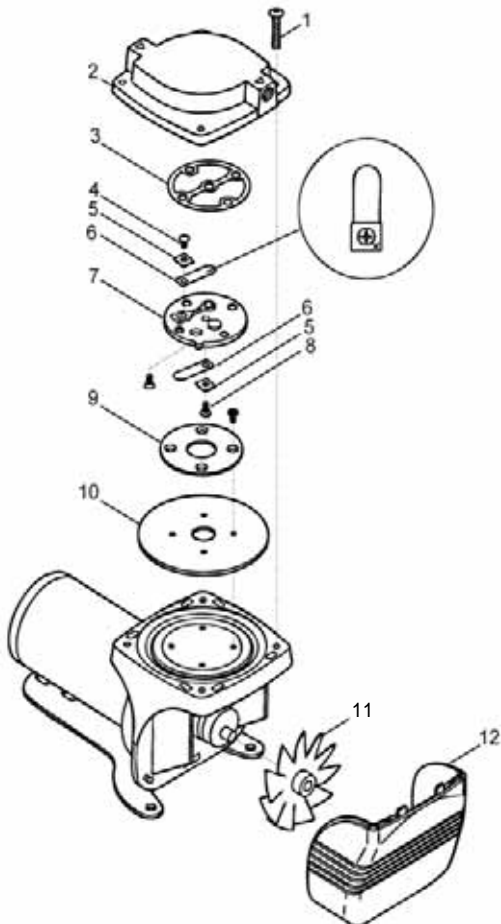
\*\* Compressor and solenoid valve breakdowns are listed on page 12 and 13 respectively.

\*\*\* See Accessories section on page 14 for information on a larger foam boot.

## Foam Marker Decals

<i>Ref #</i>	<i>Qty.</i>	<i>Part Number</i>	<i>Description</i>
44	1	DE39	Read owner's manual warning decal
45	1	N/A	Specifications and manufacturer decal
46	1	DE41	Foam marker control box decal
47	1	DE40	Foam marker front cover decal

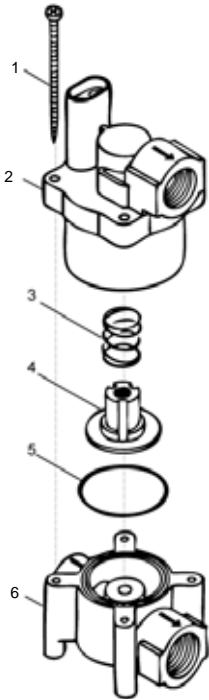
## Compressor Breakdown Part # 22D1180-206-1002



<i>Ref #</i>	<i>Qty</i>	<i>Part Number</i>	<i>Description</i>
1	4	SCR1001	Head screws
2	1	HDC1003	Compressor head
3	1	ACC1018	Head gasket
4	1	SCR1017	Intake valve screw
5	2	AF819A	Retainer valve
6	2	AF795	Leaf valve
7	1	VPL1003	Valve plate
8	1	SCR1015	Exhaust valve screw
9	1	RPL1001	Retainer plate
10	1	DPH1001	Neoprene diaphragm
11	1	N/A	Fan
12	1	N/A	Grill

# Solenoid Valve Breakdown

## Part # 2504B



<i>Ref #</i>	<i>Qty</i>	<i>Part Number</i>	<i>Description</i>
1	4	PT8*212S	#8 x 2 1/2" screw
2	1	2479	Coil
3	1	2486	Spring
4	1	2485	Plunger
5	1	2314	O-ring
6	1	2487	Valve body

## Wiring Schematic

Figure 5 is a complete wiring schematic for the Crop Care foam marker's electrical system. Use this wiring schematic as a reference for any wiring questions, problems, or repairs. Please note that the foam marker must be powered by a 12 volt power source with at least 15 amps. All electrical work should be done by PaulB LLC or a certified electrician.

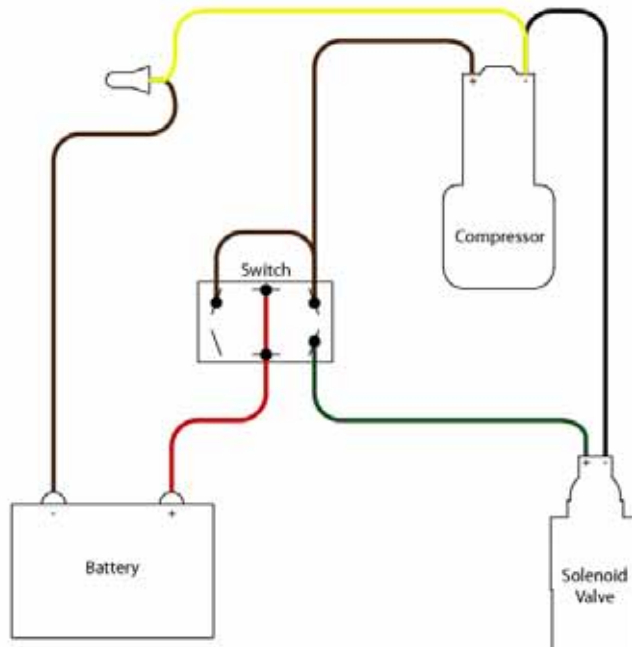


Figure 5: Wiring Schematic

# Accessories

There are many beneficial accessories that can complement your foam marker system and help you to optimize your operation. If you need parts or accessories that aren't listed in this owner's manual, please contact us and we will attempt to fill all of your needs. See the Contact Us section on page 15 for information on ordering and shipping.

## Crop Care Premium Foam Concentrate(1 Gallon)

Part Number: F1515



For optimal performance with your foam marker use Crop Care Premium Foam Concentrate. This foam concentrate is long lasting and works well in all weather conditions.

## Red Foam Dye(1 Pint)

Part Number: F1514



Increase the visibility of your foam with highly concentrated red foam dye. This foam dye works well in many weather and field conditions.

## 3" Foam Boot

Part Number: F1508



This large hybrid foam boot produces large foam drops at a slower rate of output. Larger foam drops help to increase visibility and are longer lasting.

## 5/8" x 7/8" Vinyl Tubing

Part Number: 1959



Keep additional vinyl tubing on hand for those untimely leaks in your tubing. This clear discharge hose is long lasting and can be cut to length.

## Round Boom Clamps

Part Number: AA111-size



Are you mounting your foam drop tubes on a round sprayer boom or tubing? Try our durable boom clamps which are available in various sizes.

## Square Boom Clamps

Part Number: AA111SQ-size



Our boom clamps make mounting your foam drop tubes an easy activity. These square boom clamps are durable and are available in various sizes.



# Contact Us

We desire to give you continuing service in the best manner possible. This includes listening to your comments, suggestions, and problems. We will do our best to answer all questions thoroughly and in a timely manner. We have trained sprayer technicians who are more than willing to listen to any questions or problems and help you to find a feasible solution.

## Ordering Parts

We have a fully-stocked parts department that will be able to meet all of your parts needs. Our trained salespersons will ensure that all purchases are processed smoothly and shipped in a timely manner. Our hardware store also has a plumbing, electrical, automotive, paint, lawn & garden, and a power tool department. We are set up to ship our products via UPS and would be glad to work with you on the best shipping solution. If you desperately need a part, we are able ship UPS Next Day Air for many locations.

**Note:** When ordering parts, please provide our sales staff with the correct part number and description listed on the parts list. **To directly reach our parts department, please call (717) 738-7355 ext 2000.**

# **CROPCARE**<sup>TM</sup>

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